Your Global Automation Partner

TURCK

Sensors Catalog
Proximity

A Global Leader in Industrial Automation

Turck's sensors, connectivity, and fieldbus technology products are built to be the best. As one of the most **prominent** sensor manufacturers **in the world**, we even back our sensors with a **lifetime warranty**. Turck works by bringing **rugged engineering** solutions to your industrial automation applications.

85,000+ SOLUTIONS

50+ YEARS OF INNOVATION

2,000+ EXPERIENCED SALES REPRESENTATIVES

Pioneer in non-contact **sensing** technology

Developed innovative **connectivity** solutions in response to our customers' needs

Recognized the need for advanced **I/O solutions** in harsh duty environments

SUPPORT & DEDICATED SERVICE

EXTENSIVE WARRANTY

4,000+ APPLICATION EXPERTS

RESPOND and SOLVE over **1,200** inquiries per day

Strategically placed manufacturing facilities in the **USA** with **28** GLOBAL SUBSIDIARIES

GLOBAL BUT LOCAL...

60 representations worldwide

Innovative Sensing Solutions

At Turck, we understand that every application is unique, which is why we dedicate ourselves to finding the optimal engineered solution for all applications. Whether you need a sensor, cordset, or network I/O, Turck's range of innovative manufacturing capabilities and engineering expertise allows us to work beyond the scope of our competitors. We utilize the most up-to-date manufacturing processes, including EDM, molding, and laser trimming, ensuring that our products not only survive, but thrive in the harshest of conditions.

Complimentary Sensor Audits

We consider it our job to help our customers decrease failures and reduce operation downtime, which is why we offer a complimentary audit program. The audit helps to identify, evaluate, and solve problem areas where sensors and cordsets are continually damaged or destroyed. This reduction in downtime will reduce your costs and ensure you get the most value out of your production processes.

Lifetime Warranty

We have the utmost confidence in our products, and you should, too! Solutions from Turck are not only built to work, but built to last. All of our products come with extensive warranties, and many of our sensors have an optional lifetime warranty against sensor failure, so you can rest easy knowing that you have invested in a dependable solution.

GLOBAL LEADERS

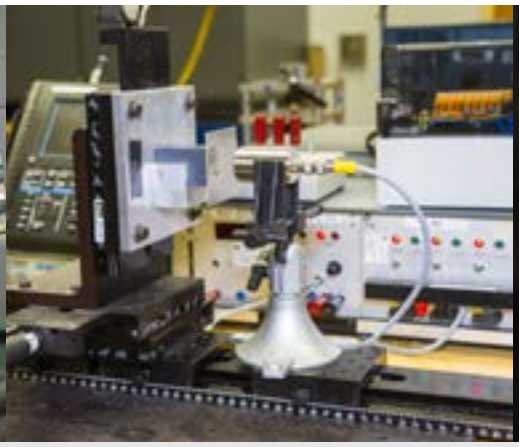
PROVIDING CUSTOMERS WITH SENSING SOLUTIONS

- Sensing ranges from .08 – 100 mm
- Overmolds
- Custom designed sensor housings
- Pigtails / Mold-ons
- Mating cordsets
- Free software and support
- Wide range of accessories
- Kitting

MATERIALS

BUILT TO LAST IN THE HARSHEST ENVIRONMENTS

- Stainless steel
- Overmolds
- Viton
- PUR/TPU/TPE
- Armored Cable
- PTFE and Weldguard coating
- FDA Approved Washdown



SHIPPING

SHIP ONE-TO-ONE MILLION, WITH NO LIMIT

We understand that some applications require less parts, which is why we offer flexible minimum orders to ensure you only receive the number of parts you need.

TESTING

OUR PRODUCTS UNDERGO EXTENSIVE TESTING

To continuously deliver solutions of only the highest quality, Turck products undergo a rigorous set of tests. These tests are in accordance to national and international standards, such as IEC and UL. Our products meet and exceed industry standards, ensuring their survivability and dependability in all applications.

INVENTORY

USE TURCKS VAST NETWORK OF DISTRIBUTORS, OR...

Get immediate access to your Turck products with your own on-site Turck vending machine. Convenient access to your most used products can help save money and reduce downtime.

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Inductive Barrels Sensors B1

Specialty Sensors C1

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Rectangular Inductive Sensor Selection Guide

Rectangular Style Sensors					
Housing	4.7 mm	5.5 mm	6 mm	8 mm	10 mm
Sensing Range	2 mm	2 - 3.5 mm	3 mm	5 - 8 mm	2 - 5 mm
Pages	A11	A11	A11	A13 - 16	A17
Features				Uprox+	Uprox+

Rectangular Style Sensors					
Housing	Variable, with pigtail	10 mm	12 mm	14 mm	20 mm
Sensing Range	2 - 7 mm	2 - 4 mm	2 - 5 mm	10 - 20 mm	15 - 25 mm
Pages	A19	A21	A23	A25	A27 - 30
Features			Uprox+		

Rectangular Style Sensors					
Housing	18 mm	25 mm	30 mm	40 mm	40 mm
Sensing Range	5 - 10 mm	10 mm	15 mm	20 mm	15 - 50 mm
Pages	A31	A31	A31	A33	A35 - 40
Features				Uprox+	Uprox+

Rectangular Style Sensors					
					IS
Housing	40 mm	80 mm	80 mm	90 mm	Variable
Sensing Range	15 - 50 mm	40 - 75 mm	50 - 75 mm	60 - 100 mm	2 - 50 mm
Pages	A41 - 46	A47 - 50	A51	A53	A55 - 58
Features	Uprox+	Uprox+	Uprox+		Intrinsically Safe

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensor Part Number Key

B	i	15		-	Q	20		-	A	P	6	X2	Wiring Option*	Special Option Code**

Mounting
B = embeddable
N = nonembeddable

Principle of Operation
i = inductive

Rated Operating Distance (mm)

Sensing Characteristics
S = side sensing on Q10S sensor
U = Uprox® Sensor

Housing Style
Rectangular
K = smooth
Q = metal or plastic, various rectangular styles
Limit Switch
CA = Stubby®, short aluminum housing, connector
CK = Stubby, short plastic housing, connector
CP = Combiprox®, plastic housing, terminal chamber base with removable sensor

Housing Height (mm)

Number of LEDs
(blank) = no LEDs
X = 1 LED
X2 = 2 LEDs

Voltage Range
AC/DC: (No SCP)**
3 = 20-250 VAC, 10-300 VDC
31 = 20-250 VAC, 10-300 VDC, plastic barrel
AC/DC: (Latched SCP)
30 = 20-250 VAC, 10-300 VDC 400 mA
32 = 20-250 VAC, 10-300 VDC 400 mA
DC:
4 = 10-65 VDC, polarity protected, pulsed SCP**
6 = 10-30 VDC, polarity protected, pulsed SCP
**SCP = short-circuit and overload protection

Output
D = 2-wire DC (transistor output)
DZ = 2-wire AC/DC, (power MOSFET output)
N = NPN transistor (current sinking)
P = PNP transistor (current sourcing)
Z = 2-wire AC or 2-wire AC/DC

Output Function
A = normally open (N.O.)
F = connection programmable (N.O. or N.C.)
V = complementary outputs: one N.O., one N.C.
Y0 = NAMUR output, requires switching amplifier
Y1 = NAMUR output, requires switching amplifier/ATEX approved

Secondary Housing Modifier
SR = straight terminal chamber

NOTE:
Part number keys are to assist in identification only.
Verify new part numbers with factory; some configurations are not possible.

Wiring Options*

A. Connectorized Sensor

Bi15 - Q20 - AN6X2 - H1 1 4 1

Connector Family
B1 = Minifast®, Metal, Male
B2 = Minifast, Plastic, Male
B3 = Microfast®, Metal, Male
H1 = Eurofast®, Metal or Plastic, Male
V1 = Picofast®, Metal, Male
V2 = Picofast, Snap and M8x1, Male (Q08 Only)

Connector/Sensor Transition
1 = straight

Wiring Configuration
Example:
1 = Standard
3 = N.C. DC Output on Pin 4 (for US)

Number of Pins

B. Potted Cable

Bi15 - Q20 - AN6X2 - 7M

Cable Length
Blank = 2 meter cable
7M = 7 meter cable

Special Option Codes**

Bi - 5 - Q08 - AN6XS /S34

Option Code
Example:
/S34 = Weld Field Immune
/S97 = -40 °C (-40 °F) Operating Temperature
/S100 = +100 °C (+212 °F) Operating Temperature
/S1590 = CK/CA40 sensors with Weldguard laminate
/S1591 = CA40 sensors with Weldguard and Armorguard

We reserve the right to make technical alterations without prior notice.

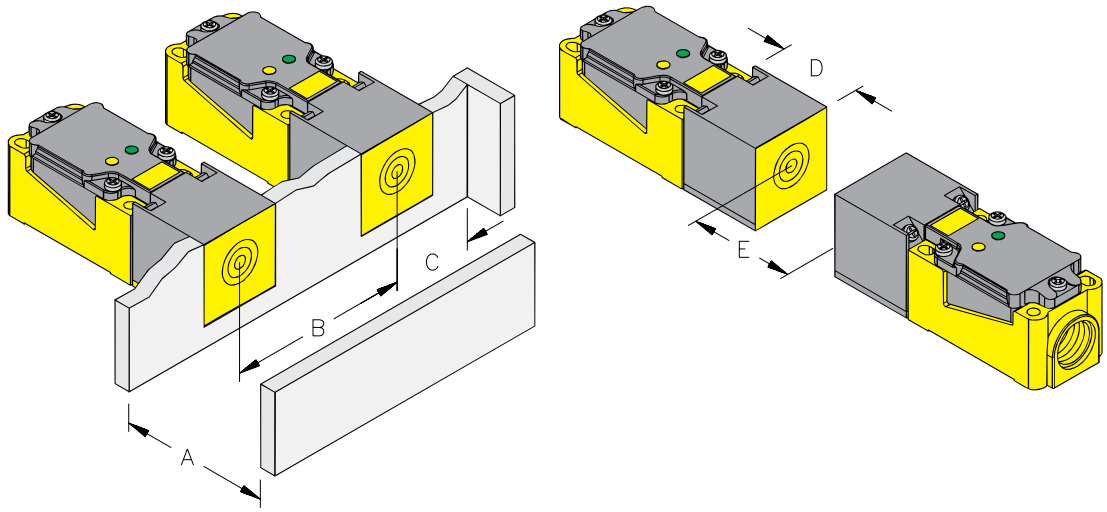
Rectangular Inductive Sensors

Mounting

Turck inductive proximity sensors are manufactured with a shielded coil, designated by "Bi" in the part number, and a nonshielded coil, designated by "Ni" in the part number (see page A2). Embeddable (shielded) units may be safely flush-mounted in metal. Nonembeddable (nonshielded) units require a metal free area around the sensing face. Because of possible interference of the electromagnetic fields generated by the oscillators, minimum spacing is required between adjacent or opposing sensors.

It is good engineering practice to mount sensors horizontally or with the sensing face looking down. Avoid sensors that look up wherever possible, especially if metal filings and chips are present.

Embeddable Mounting Characteristics - Rectangular Housings



Flush Mountable - CK40 and CP40

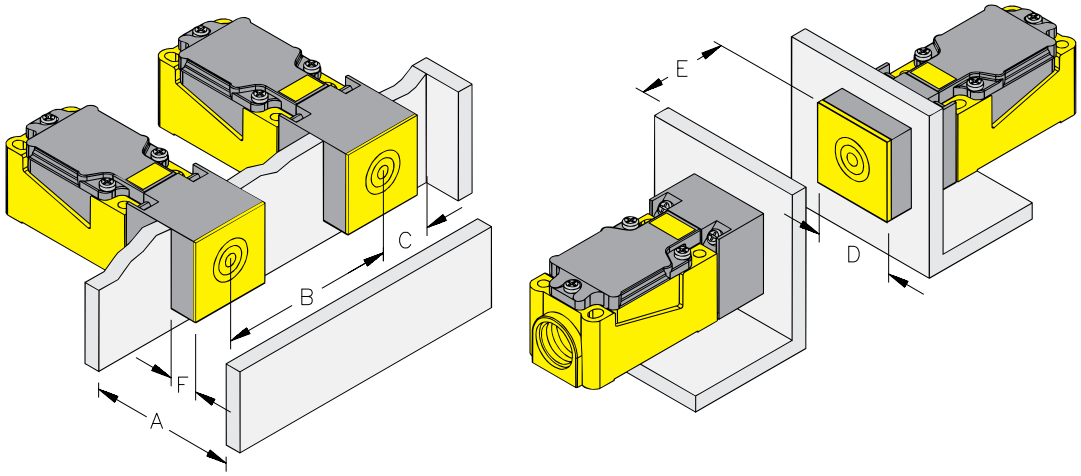
Housing Type	Sensor Type	A	B	C	D	E
CP40/CK40	Bi15U	45.00	80.00	40.00	40.00	90.00
CP40/CK40	Bi15	45.00	80.00	40.00	40.00	90.00
CP40/CK40/CA40	Bi20U	60.00	80.00	40.00	40.00	120.00
CP40	Bi20	60.00	80.00	40.00	40.00	120.00
CP40/CK40	Bi30U	90.00	80.00	40.00	40.00	180.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors

Nonembeddable Mounting Characteristics - Rectangular Housings

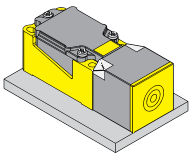


Non - Flush Mountable - CA25, CK40, and CP40

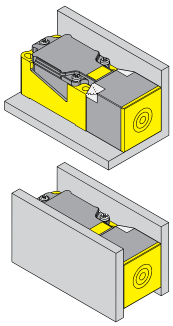
Housing Type	Sensor Type	A	B	C	D	E	F	1-Side	2-Side	3-Side	4-Side
CP/CK40	Ni20	60.00	120.00	60.00	40.00	120.00	20.00				
CP/CK40	Ni25U	75.00	240.00	60.00	40.00	150.00	30.00	Sr=22 mm*	Sr=20 mm*	Sr=17 mm*	Sr=13 mm*
CP/CK40	Ni25	75.00	120.00	60.00	40.00	150.00	40.00				
CP/CK40	Ni35U	105.00	240.00	60.00	40.00	210.00	30.00	Sr=28 mm*	Sr=24 mm*	Sr=19 mm*	
CP/CK40	Ni35	105.00	180.00	60.00	40.00	210.00	40.00				
CP/CK40	Ni40U	120.00	240.00	60.00	40.00	240.00	30.00				
CP/CK40	Ni40	120.00	180.00	60.00	40.00	240.00	40.00				
CP/CK40	Ni50U	105.00	240.00	60.00	40.00	240.00	30.00	Sr=35 mm*	Sr=25 mm*	Sr=20 mm*	Sr=15 mm*

Dimensions are in mm.
*Uprox Non-embeddable flush mounting guidelines. The above Uprox Ni sensors with DC ouptuts can be flush mounted because the sensor automatically compensates for metal alongside its sensing face by decreasing the sensing range, preventing the output from locking on.

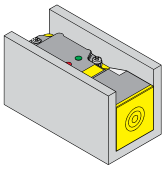
1-Side



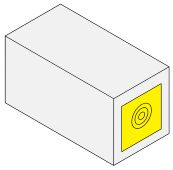
2-Side



3-Side

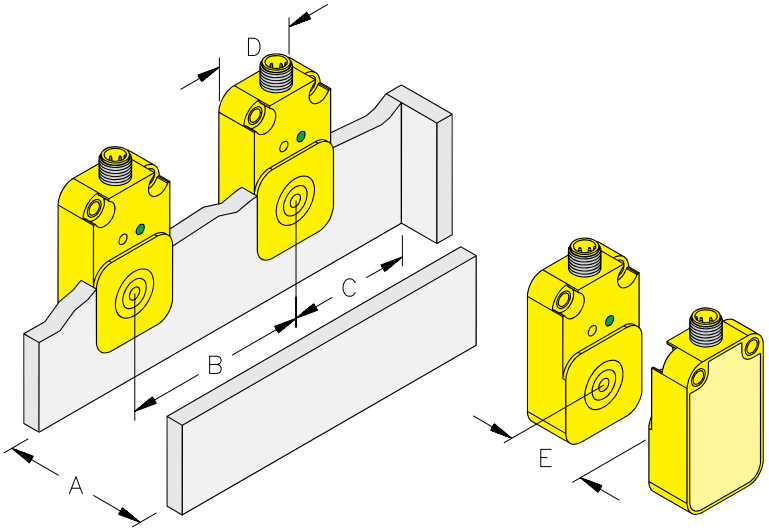


4-Side



We reserve the right to make technical alterations without prior notice.

Embeddable Mounting Characteristics - Rectangular Housings



Flush Mountable

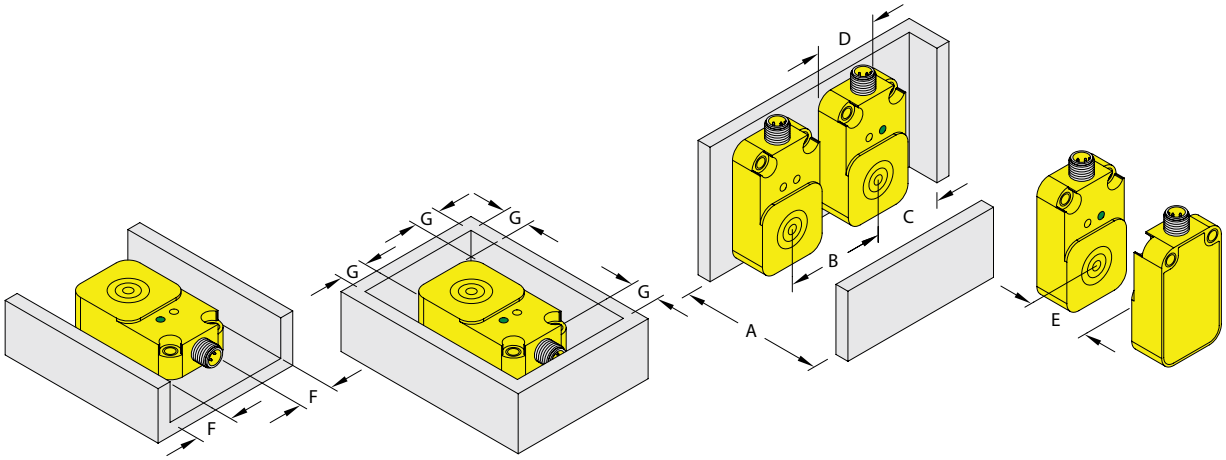
Housing Type	Sensor Type	A	B	C	D	E
Q4.7	**Bi2**	6.00	16.00	12.00	8.00	12.00
Q5.5	**Bi2**	6.00	16.00	8.00	8.00	12.00
Q06	**Bi3**	9.00	35.00	17.00	17.30	18.00
Q08	**Bi5**	15.00	40.00	20.00	20.00	30.00
Q08	**Bi5U**	15.00	40.00	20.00	20.00	30.00
Q08	**Bi7**	21.00	40.00	20.00	20.00	42.00
Q10	**Bi8**	24.00	50.00	25.00	25.00	48.00
Q10	**Bi8U**	24.00	50.00	25.00	25.00	48.00
Q14	**Bi10**	30.00	45.00	30.00	30.00	60.00
Q14	**Bi10U**	30.00	45.00	30.00	30.00	60.00
Q20	**Bi15**	45.00	60.00	40.00	40.00	90.00
Q20	**Bi15U**	45.00	60.00	40.00	40.00	90.00
CP80	**Bi40**	120.00	160.00	80.00	80.00	240.00
Q80	**Bi50U**	150.00	240.00	80.00	80.00	300.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors

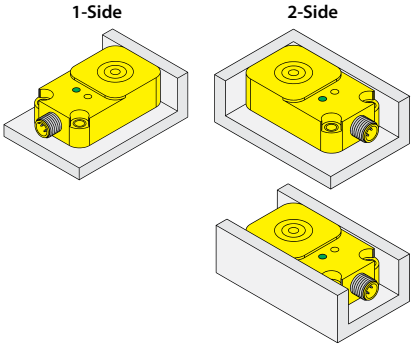
Embeddable Mounting Characteristics - Rectangular Housings



Non-flush Mountable - Minimum Distances - Q5.5, Q14, Q20, CP80, Q80 and K90

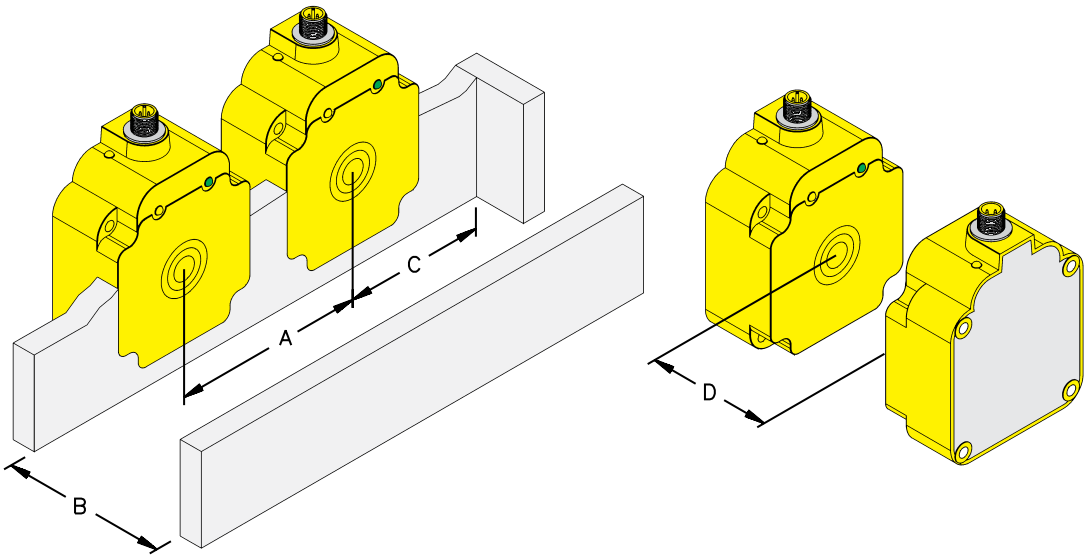
Housing Type	Sensor Type	A	B	C	D	E	F	G	1-Side	2-Side	3 & 4-Side
Q5.5	Ni3.5	11.00	24.00	12.00	8.00	21.00	4.00	8.00			
Q14	Ni20	60.00	90.00	45.00	30.00	120.00	20.00	40.00			
Q20	Ni25	75.00	120.00	60.00	40.00	150.00	25.00	50.00			
CP80	Ni40	120.00	240.00	120.00	80.00	240.00	80.00	80.00			
Q80	Ni75U	225.00	240.00	60.00	80.00	450.00	80.00	80.00	Sr=50 mm*	Sr=45 mm*	Sr=40 mm*
CP80	Ni75U	225.00	240.00	120.00	80.00	450.00	80.00	80.00			
K90	Ni60	180.00	270.00	135.00	90.00	360.00	60.00	90.00			
K90SR	Ni100U	300.00	270.00	90.00	90.00	600.00	100.00	200.00	Sr=70 mm*		

Dimensions are in mm.
*Uprox Non-embeddable flush mounting guidelines. The above Uprox Ni sensors with DC ouputs can be flush mounted because the sensor automatically compensates for metal alongside its sensing face by decreasing the sensing range, preventing the output from locking on.



We reserve the right to make technical alterations without prior notice.

Embeddable Mounting Characteristics

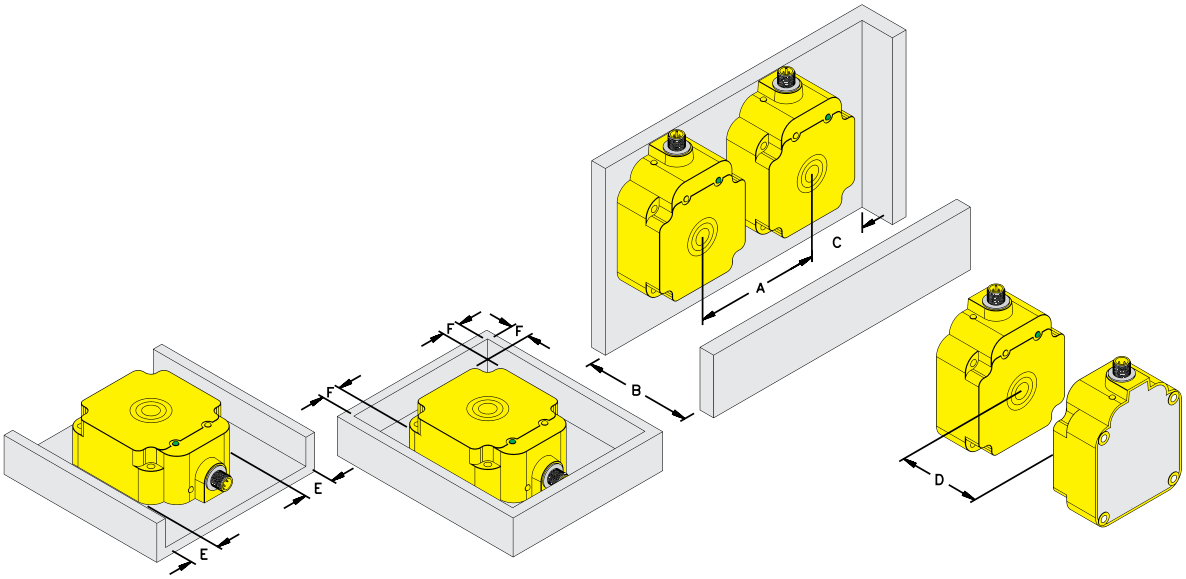


Embeddable, Square Sensors

Part Number	A	B	C	D
Bi50U-Q80	240.00	150.00	80.00	300.00

Dimensions are in mm.

Nonembeddable Mounting Characteristics



Nonembeddable, Square Sensors

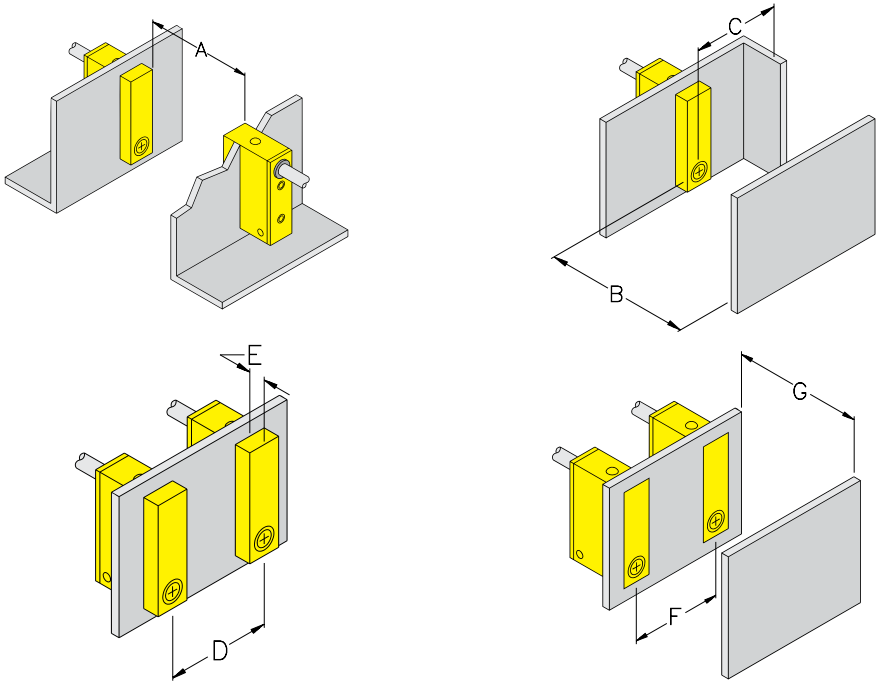
Part Number	A	B	C	D	E	F
Ni75U-Q80	240.00	225.00	60.00	450.00	80.00	80.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors

Embeddable Mounting Characteristics - Rectangular Housings



Flush Mountable

Housing Type	Sensor Type	Housing	A	C	F	G
Q6.5	Bi1	6.50	6.00	7.00	13.00	3.00
Q10S	Bi2	10.00	12.00	10.00	20.00	6.00
Q12	Bi2	12.00	12.00	12.00	24.00	6.00

Dimensions are in mm.

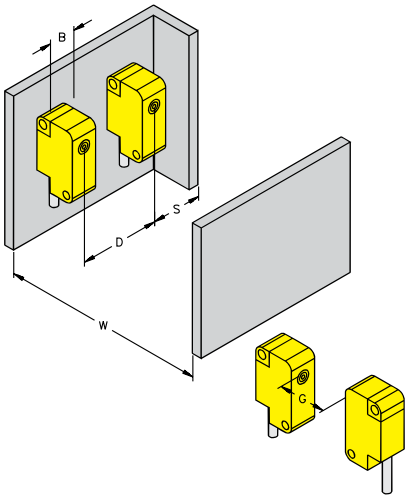
Non-Flush Mountable

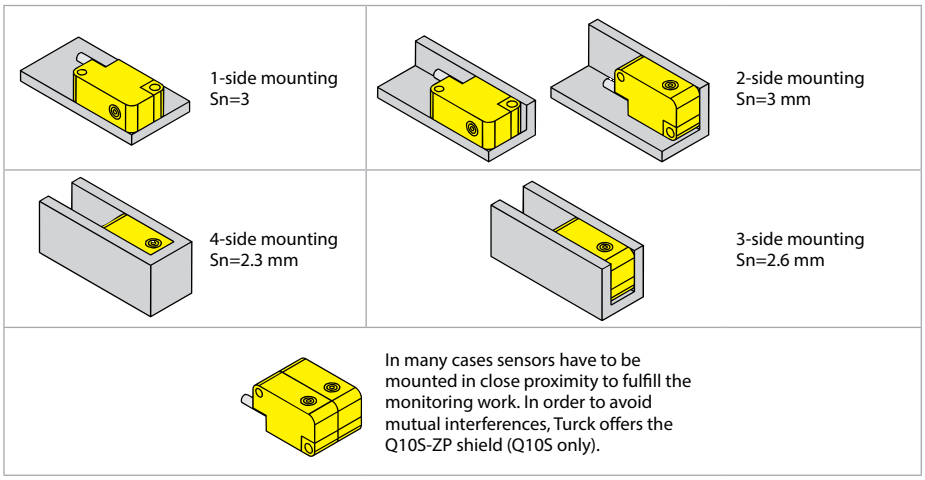
Housing Type	Sensor Type	Housing	A	B	C	D	E
Q6.5	Ni2	6.50	12.00	6.00	10.00	20.00	4.00
Q9.5	Ni2	9.50	12.00	6.00	14.00	19.00	4.00
Q12	Ni4	12.00	24.00	12.00	18.00	24.00	8.00
Q25	Ni10	25.00	60.00	30.00	38.00	75.00	20.00
Q30	Ni15	30.00	90.00	45.00	45.00	90.00	30.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

Embeddable Mounting Characteristics

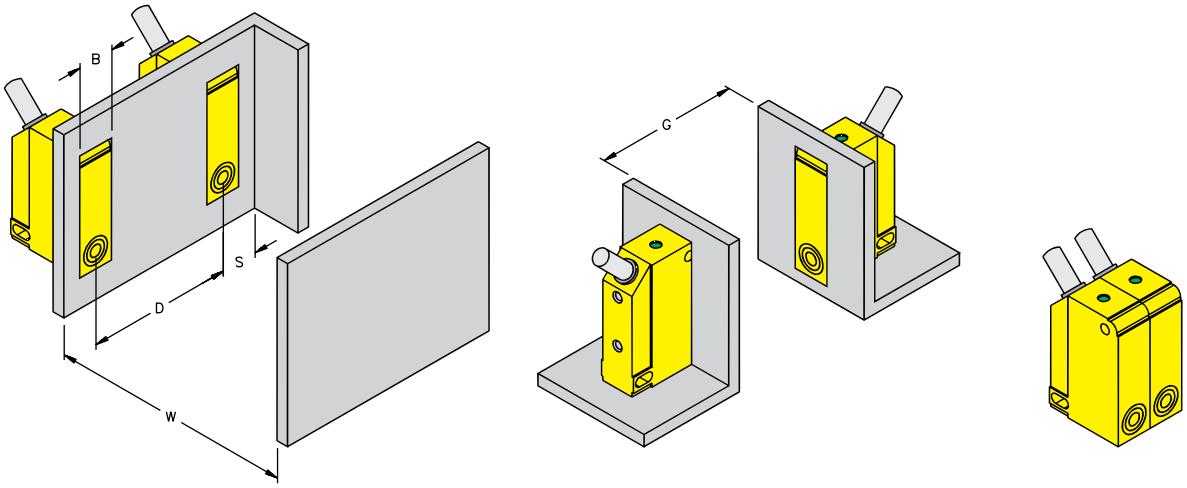




Nonembeddable, Square Sensors

Part Number	D	W	S	G	B Width of Active Face
Ni5U-Q10S	31.00	15.00	15.30	30.00	10.20

Dimensions are in mm.



Embeddable, Square Sensors

Part Number	D	W	S	G	B Width of Active Face
Bi5U-Q12	48.00	25.00	12.00	50.00	12.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

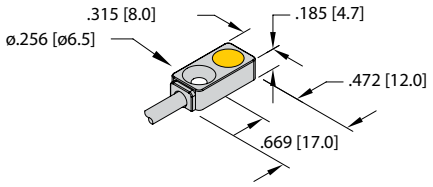
Notes

Rectangular Inductive Sensors | Q4.7, Q5.5, & Q06

Top Sensing Subminiature Qpak Housing

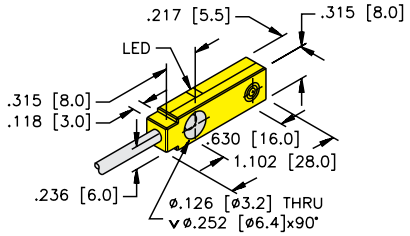
Housing Style	Dimension Drawings

A



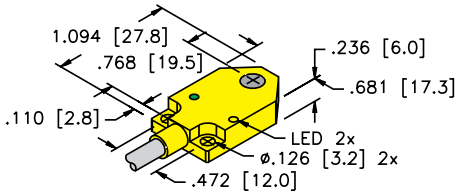
4.7 mm - Embeddable, Potted-In Cable

B



5.5 mm - Embeddable/Nonembeddable, Potted-In Cable

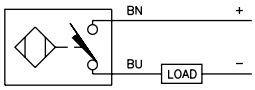
C



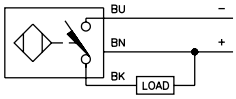
6.0 mm - Embeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

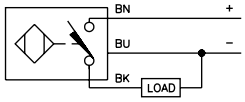
1



2



3



A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q4.7, Q5.5, & Q06

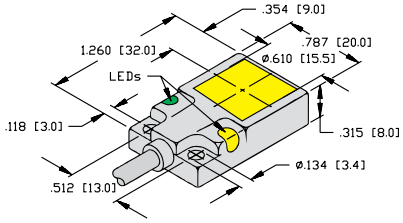
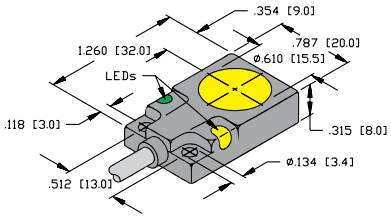
Top Sensing Subminiature Qpak Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-Q4.7-AN6X 1614001		•	2	3-wire DC NPN	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	2M/TPU	A	2	A4
Bi2-Q4.7-AP6X 1614000		•	2	3-wire DC NPN	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	2M/TPU	A	3	A4
Bi2-Q5.5-AG6X 1613108		•	2	2-wire DC	10-30 VDC	1000	≤50	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	1	A2
Bi2-Q5.5-AN6X 1613100		•	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	2M/TPU	B	2	A4
Bi2-Q5.5-AN6X/S34 1613101	WFI	•	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	2	A4
Ni3.5-Q5.5-AN6X 4613610			3.5	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	2	A4
Bi2-Q5.5-AP6X 1613000		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	2M/TPU	B	3	A4
Bi2-Q5.5-AP6X/S34 1613001	WFI	•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	3	A4
Ni3.5-Q5.5-AP6X 4613601			3.5	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	3	A4
Bi3-Q06-AN6X2 1620150		•	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PBT	PA	GN	YE	2M/TPU	C	2	A4
Bi3-Q06-AP6X2 1620100		•	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PBT	PA	GN	YE	2M/TPU	C	3	A4

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q08

Top Sensing Qpak Housing with Potted-in Cable

Housing Style	Dimension Drawings
	A  8.0 mm - Embeddable, Potted-In Cable
B  8.0 mm - Embeddable, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

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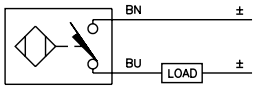

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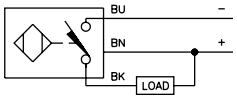

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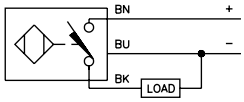

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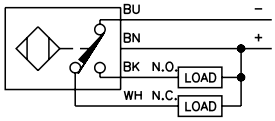

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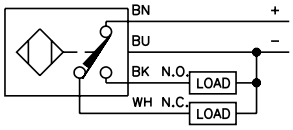


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q08

Top Sensing Qpak Housing with Potted-in Cable

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-Q08-AN6X2 1608911	Uprox	•	5	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	2	A4
Bi5U-Q08-AP6X2 1608901	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	3	A4
Bi5-Q08-AD4X/S34 4414550	WFI	•	5	2-wire DC	10-65 VDC	50	≤100	-25 to +70	IP67	Zinc	PA 12	N/A	YE	2M/TPU	B	1	A2
Bi5-Q08-VN6X2 1600200	Comp. Outputs	•	5	4-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	4	A4
Bi5-Q08-VP6X2 1600100	Comp. Outputs	•	5	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	5	A4
Bi7-Q08-AN6X2 1601620	Ext. Range	•	7	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	2	A4
Bi7-Q08-AP6X2 1601600	Ext. Range	•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	3	A4
Bi7-Q08-VN6X2 1600920	Ext. Range	•	7	4-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	4	A4
Bi7-Q08-VP6X2 1600900	Ext. Range	•	7	4-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	5	A4
Bi8U-Q08-AN6X2 1662007	Uprox+	•	8	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA12	GN	YE	2M/TPU	A	2	A4
Bi8U-Q08-AP6X2 1662006	Uprox+	•	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA12	GN	YE	2M/TPU	A	3	A4

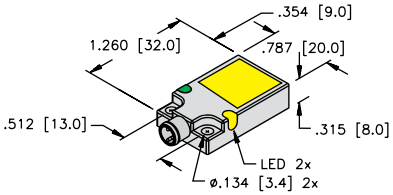
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q08

Top Sensing Qpak Housing with Integral Connector

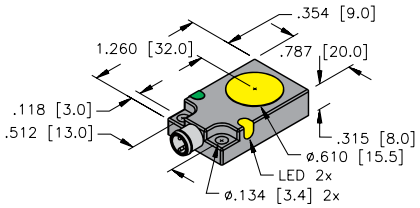
Housing Style	Dimension Drawings

A



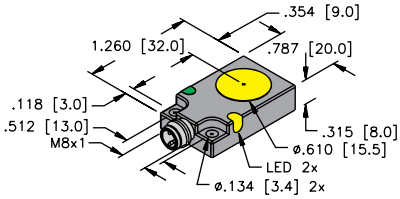
8.0 mm - Embeddable, Picofast Connector

B



8.0 mm - Embeddable, M8 snap-on Picofast Connector

C



8.0 mm - Embeddable, M8 thread-on Picofast Connector

Wiring Diagrams/Mating Cordsets

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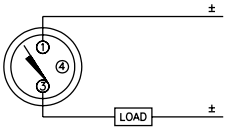
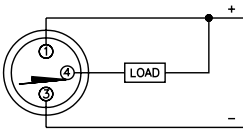


Mating Cordset: PKG 3Z-*; PKG 3M-*

2



Mating Cordset: PKG 3Z-*; PKG 3M-*

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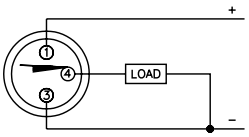
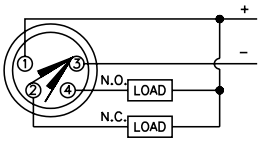


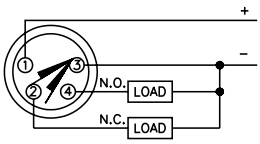
Mating Cordset: PKG 3Z-*; PKG 3M-*

4



Mating Cordset: PKG 4Z-*

5



Mating Cordset: PKG 4Z-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q08

Top Sensing Qpak Housing with Integral Connector

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Mating Cord	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-Q08-AN6X2-V1131 1608910	Uprox	•	5	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	2	A4
Bi5U-Q08-AP6X2-V1131 1608900	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	3	A4
Bi5U-Q08-AN6X2-V2131 1608904	Uprox	•	5	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	2	A4
Bi5U-Q08-AP6X2-V2131 1608905	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	3	A4
Bi5-Q08-AD4X-V1130 4414551		•	5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	Zinc	PA 12	N/A	YE	PKG 3Z-*	B	1	A2
Bi5-Q08-AN6X2-V1131 1600600		•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	2	A4
Bi5-Q08-AP6X2-V1131 1600500		•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	3	A4
Bi5-Q08-VN6X2-V1141 1600400	Comp. Outputs	•	5	4-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 4Z-*	B	4	A4
Bi5-Q08-VP6X2-V1141 1600300	Comp. Outputs	•	5	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 4Z-*	B	5	A4
Bi5-Q08-AD4X-V2130 4414553		•	5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	Zinc	PA 12	N/A	YE	PKG 3M-*	C	1	A2
Bi5-Q08-AN6X2-V2131 1600602		•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	2	A4
Bi5-Q08-AP6X2-V2131 1600502		•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	3	A4
Bi7-Q08-AN6X2-V1131 1601622	Ext. Range	•	7	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	2	A4
Bi7-Q08-AP6X2-V1131 1601602	Ext. Range	•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	3	A4
Bi7-Q08-AN6X2-V2131 1601623	Ext. Range	•	7	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	2	A4
Bi7-Q08-AP6X2-V2131 1601603	Ext. Range	•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	3	A4
Bi7-Q08-VN6X2-V1141 1600922	Ext. Range	•	7	4-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 4Z-*	B	4	A4
Bi7-Q08-VP6X2-V1141 1600902	Ext. Range	•	7	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 4Z-*	B	5	A4
Bi8U-Q08-AN6X2-V1131 1662008	Uprox+	•	8	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA 12	GN	YE	PKG 3Z-*	A	2	A4
Bi8U-Q08-AP6X2-V1131 1662005	Uprox+	•	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA 12	GN	YE	PKG 3Z-*	A	3	A4

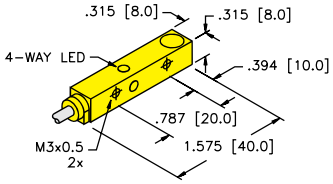
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q8SE & Q10S

Side Sensing Qpak Housing

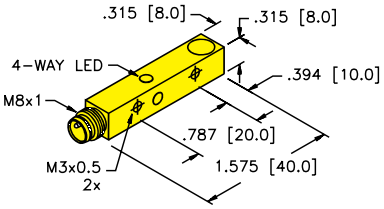
Housing Style	Dimension Drawings

A



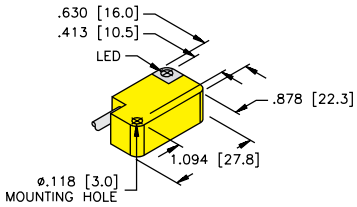
8.0 mm - Nonembeddable, Potted-In Cable

B



8.0 mm - Nonembeddable, M8 Picofast Connector

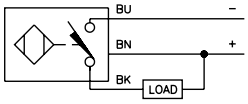
C



10 mm - Embeddable/Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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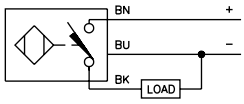

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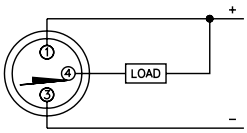
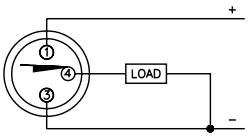


Mating Cordset: PKG 3Z-*

4



Mating Cordset: PKG 3Z-*

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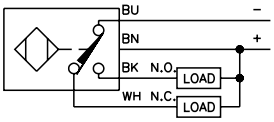

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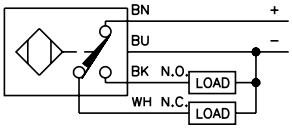

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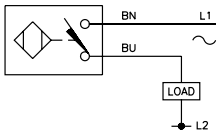


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q8SE & Q10S

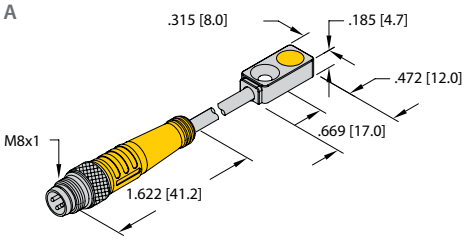
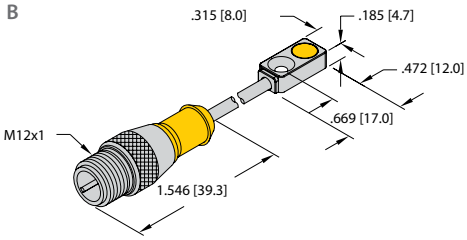
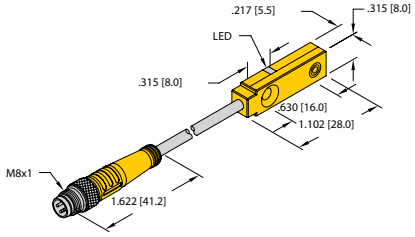
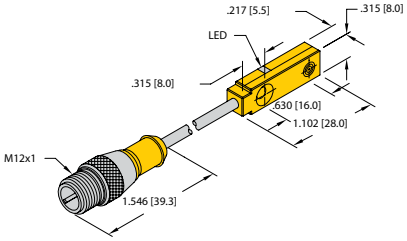
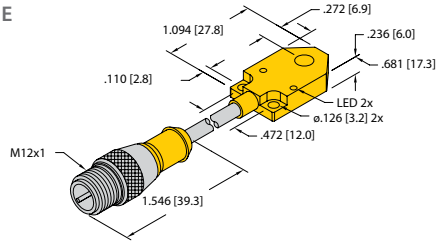
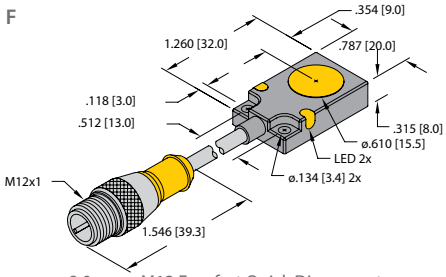
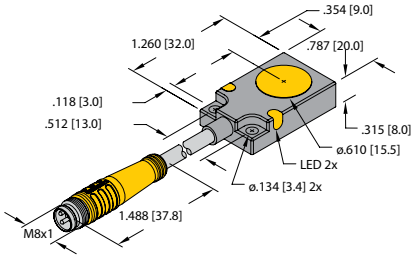
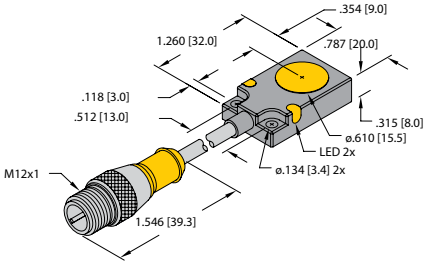
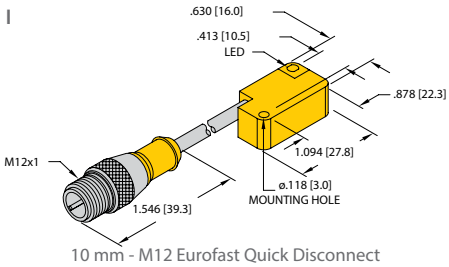
Side Sensing Qpak Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni4U-Q8SE-AN6X 4635809	Uprox+		4	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	2M/TPU	A	1	A4
Ni4U-Q8SE-AP6X 4635807	Uprox+		4	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	2M/TPU	A	2	A4
Ni4U-Q8SE-AN6X-V1131 4635810	Uprox+		4	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	- -	B	3	A4
Ni4U-Q8SE-AP6X-V1131 4635808	Uprox+		4	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	- -	B	4	A4
Bi2-Q10S-AN6X 1619310		•	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	2M/TPU	C	1	A4
Bi2-Q10S-AP6X 1609360		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	2M/TPU	C	2	A4
Bi2-Q10S-VN6X 1609341	Comp. Outputs	•	2	4-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	2M/TPU	C	5	A4
Bi2-Q10S-VP6X 1609340	Comp. Outputs	•	2	4-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP-GF20	N/A	YE	2M/TPU	C	6	A4
Bi2-Q10S-AZ31X 1309100		•	2	2-wire AC	20-250 VAC/10-300 VDC	60	≤100	-25 to +70	IP67	PP-GF20	PP-GF20	N/A	RD	2M/TPU	C	7	A6
Ni5U-Q10S-AN6X 1609365	Uprox+		5	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	PP-GF20	PP-GF20	N/A	YE	2M/TPU	C	1	A4
Ni5U-Q10S-AP6X 1609364	Uprox+		5	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	PP-GF20	PP-GF20	N/A	YE	2M/TPU	C	2	A4

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Small Rectangular

Sensor with Molded Connector

Housing Style	Dimension Drawings	
	A  4.7 mm - M8 Picofast Quick Disconnect	B  4.7 mm - M12 Eurofast Quick Disconnect
C  5.5 mm - M8 Picofast Quick Disconnect	D  5.5 mm - M12 Eurofast Quick Disconnect	E  6.0 mm - M12 Eurofast Quick Disconnect
F  8.0 mm - M12 Eurofast Quick Disconnect	G  8.0 mm - M8 Picofast Quick Disconnect	H  8.0 mm - M12 Eurofast Quick Disconnect
I  10 mm - M12 Eurofast Quick Disconnect		

Wiring Diagrams/Mating Cordsets

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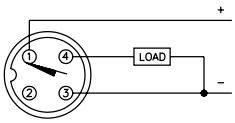
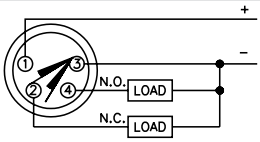


Mating Cordset: RK 4T-*

2



Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Small Rectangular

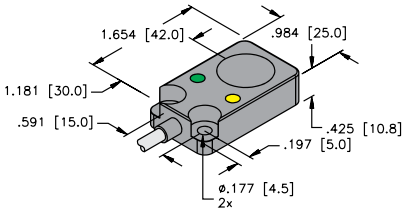
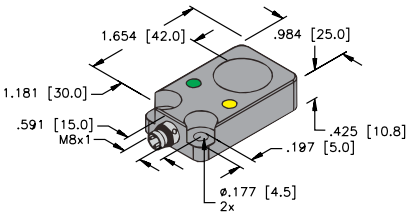
Sensor with Molded Connector

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-Q4.7-AP6X-0.3-PSG3M 1614000		•	2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	0.3M/TPU	A	2	A4
Bi2-Q4.7-AP6X-0.3-RS4T 16140024		•	2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	0.3M/TPU	B	1	A4
Bi2-Q5.5-AP6X-0.2-PSG3M 1613099		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	0.2M/TPU	C	2	A4
Bi2-Q5.5-AP6X-0.2-RS4T 1613094		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	0.2M/TPU	D	1	A4
Bi3-Q06-AP6X2-0.2-RS4T 1620193		•	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PBT	PA	GN	YE	0.2M/TPU	E	1	A4
Bi5U-Q08-AP6X2-0.2-RS4T 1608990	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	0.2M/TPU	F	1	A4
Bi5-Q08-AP6X2-0.2-PSG3F 1600592		•	5	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	0.2M/TPU	G	2	A4
Bi7-Q08-AP6X2-0.2-RS4T 1601683		•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	0.2M/TPU	H	1	A4
Bi2-Q10S-AP6X-0.2-RS4T 1609390		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	0.2M/TPU	I	1	A4

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q10

Top Sensing Qpak Housing

Housing Style	Dimension Drawings
	A  10 mm - Embeddable, Potted-In Cable
B  10 mm - Embeddable, M8 Picofast Connector	

Wiring Diagrams/Mating Cordsets

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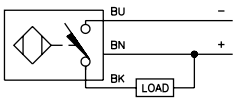

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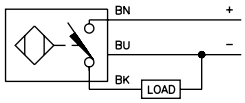

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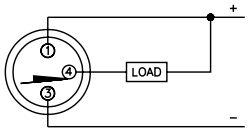
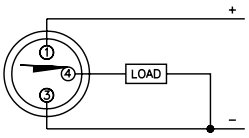


Mating Cordset: PKG 3Z-*

4



Mating Cordset: PKG 3Z-*

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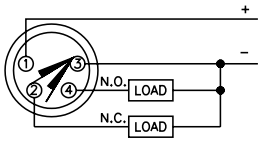

Mating Cordset: PKG 4Z-*

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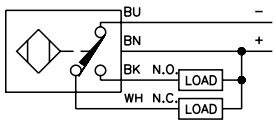

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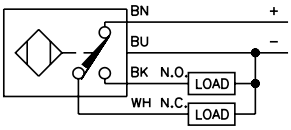


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q10

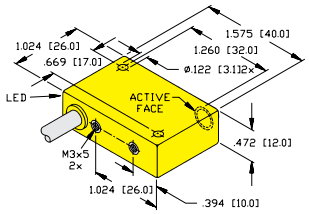
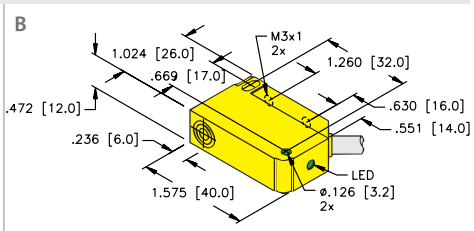
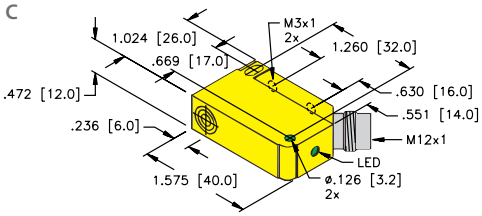
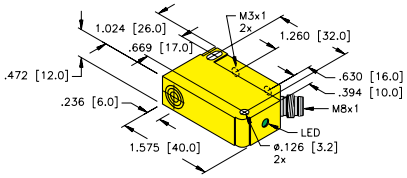
Top Sensing Qpak Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-Q10-AN6X2 1662003	Uprox	•	8	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/TPU	A	1	A4
Bi8U-Q10-AP6X2 1662001	Uprox	•	8	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/TPU	A	2	A4
Bi8U-Q10-AN6X2-V1131 1662004	Uprox	•	8	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	- -	B	3	A4
Bi8U-Q10-AP6X2-V1131 1662002	Uprox	•	8	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	- -	B	4	A4
Bi8-Q10-VN6X2 4616410	Comp. Outputs	•	8	4-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	6	A4
Bi8-Q10-VP6X2 4616401	Comp. Outputs	•	8	4-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	7	A4
Bi8-Q10-VP6X2-V1141 4616402	Comp. Outputs	•	8	4-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	- -	B	5	A4

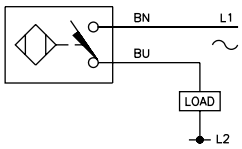
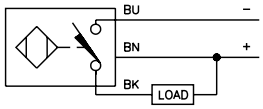
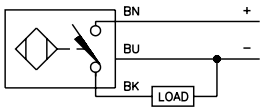
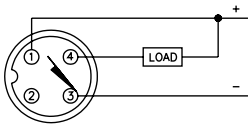
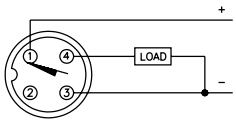
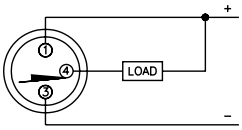
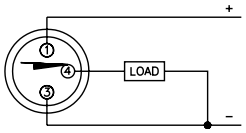
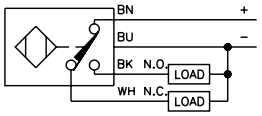
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q12

Side Sensing Qpak Housing

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable/Nonembeddable, Potted-In Cable	B  12 mm - Embeddable, Potted-In Cable
C  12 mm - Embeddable, M12 Eurofast Connection	D  12 mm - Embeddable, M8 Picofast Connection	

Wiring Diagrams/Mating Cordsets

1 	2 	3 
4  Mating Cordset: RK 4T-*	5  Mating Cordset: RK 4T-*	6  Mating Cordset: PKG 3Z-*
7  Mating Cordset: PKG 3Z-*	8 	

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q12

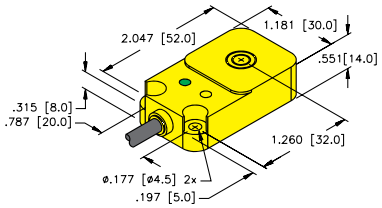
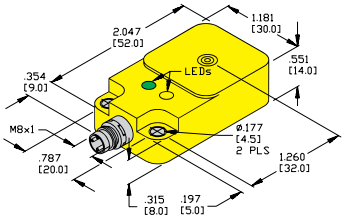
Side Sensing Qpak Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-Q12-AZ31X 13100		•	2	2-wire AC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/ PVC	A	1	A6
Ni4-Q12-AZ31X 13102			4	2-wire AC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/ PVC	A	1	A6
Bi5U-Q12-AN6X2 1635523	Uprox+	•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	2M/ TPU	B	2	A4
Bi5U-Q12-AP6X2 1635522	Uprox+	•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	2M/ TPU	B	3	A4
Bi5U-Q12-VP6X2 1635533	Uprox+	•	5	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	PA 12-GF30	GN	YE	2M/ TPU	B	8	A4
Bi5U-Q12-AN6X2-H1141 1635527	Uprox+	•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	- -	C	4	A4
Bi5U-Q12-AP6X2-H1141 1635526	Uprox+	•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	- -	C	5	A4
Bi5U-Q12-AN6X2-V1131 1635525	Uprox+	•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	- -	D	6	A4
Bi5U-Q12-AP6X2-V1131 1635524	Uprox+	•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	- -	D	7	A4

We reserve the right to make technical alterations without prior notice.

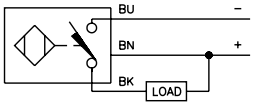
Rectangular Inductive Sensors | Q14

Top Sensing Qpak Housing

Housing Style	Dimension Drawings
	A  14 mm - Potted-In Cable
B  14 mm - Embeddable/Nonembeddable, M8 Picofast Connector	

Wiring Diagrams/Mating Cordsets

1



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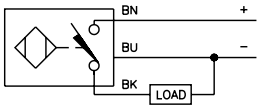

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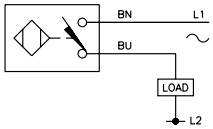

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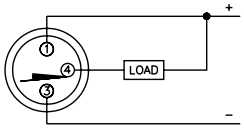
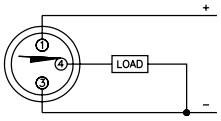


Mating Cordset: PKG 3M-*

5



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q14

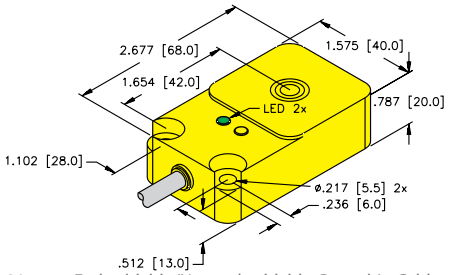
Top Sensing Qpak Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-Q14-AN6X2 1608710	Uprox	•	10	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/ TPU	A	1	A4
Bi10U-Q14-AP6X2 1608700	Uprox	•	10	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/ TPU	A	2	A4
Bi10U-Q14-AN6X2-V1131 1608510	Uprox	•	10	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	- -	B	4	A4
Bi10U-Q14-AP6X2-V1131 1608500	Uprox	•	10	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	- -	B	5	A4
Bi10-Q14-AN6X2 1608320		•	10	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/ TPU	A	1	A4
Bi10-Q14-AP6X2 1608720		•	10	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/ TPU	A	2	A4
Bi10-Q14-ADZ32X2 4256220		•	10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	GN	RD	2M/ TPU	A	3	A5
Bi10-Q14-ADZ32X2/S34 4256225	WFI	•	10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	GN	RD	2M/ TPU	A	3	A5
Bi10-Q14-AP6X2-V1131 1608530		•	10	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	- -	B	5	A4
Ni20-Q14-AP6X2-V1131 4690210			20	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	- -	B	5	A4
Ni20-Q14-AN6X2 4690220			20	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/ TPU	A	1	A4
Ni20-Q14-AP6X2 4690205		•	20	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/ TPU	A	2	A4
Ni20-Q14-ADZ32X2 4205410		•	20	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	GN	RD	2M/ TPU	A	3	A5

We reserve the right to make technical alterations without prior notice.

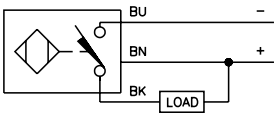
Rectangular Inductive Sensors | Q20

Top Sensing Qpak Housing with Potted-in Cable

Housing Style	Dimension Drawings
	A  20 mm - Embeddable/Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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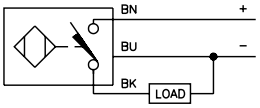

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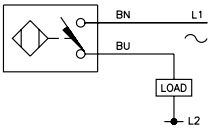


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q20

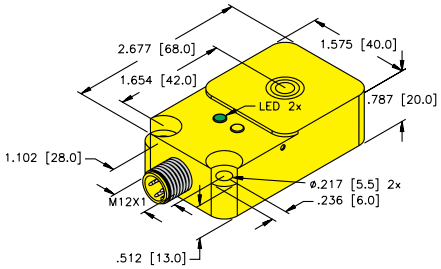
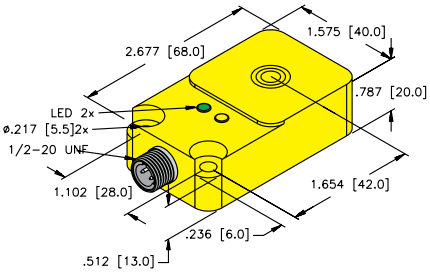
Top Sensing Qpak Housing with Potted-in Cable

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-Q20-AN6X2 1608810	Uprox	•	15	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/TPU	A	1	A4
Bi15U-Q20-AP6X2 1608800	Uprox	•	15	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/TPU	A	2	A4
Bi15-Q20-AP6X2 1608300		•	15	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	2	A4
Bi15-Q20-ADZ32X2 4256250		•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	3	A5
Ni25-Q20-AN6X2 1602800			25	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	1	A4
Ni25-Q20-AP6X2 1602700			25	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	2	A4

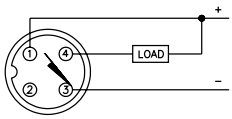
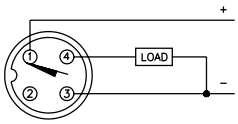
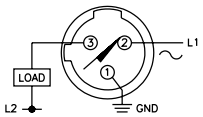
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q20

Top Sensing Qpak Housing with Integral Connector

Housing Style	Dimension Drawings
	A  20 mm - Embeddable/Nonembeddable, M12 Eurofast Connector
B  20 mm - Embeddable, 1/2-20UNF Microfast Connector	

Wiring Diagrams/Mating Cordsets

1	2	3
		
Mating Cordset: RK 4T-*	Mating Cordset:RK 4T-*	Mating Cordset: KB 3T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q20

Top Sensing Qpak Housing with Integral Connector

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-Q20-AN6X2-H1141 1608610	Uprox	•	15	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15U-Q20-AP6X2-H1141 1608600	Uprox	•	15	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-Q20-AN6X2-H1141 1608315		•	15	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15-Q20-AP6X2-H1141 1608305		•	15	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-Q20-ADZ32X2-B3131 4256251		•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	GN	YE	B	3	A5
Ni25-Q20-AN6X2-H1141 1602802			25	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Ni25-Q20-AP6X2-H1141 1602702			25	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4

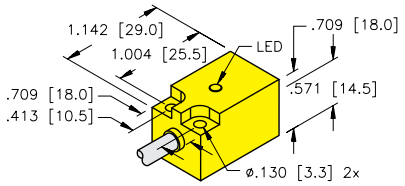
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q18, Q25, & Q30

Side Sensing Qpak Housing

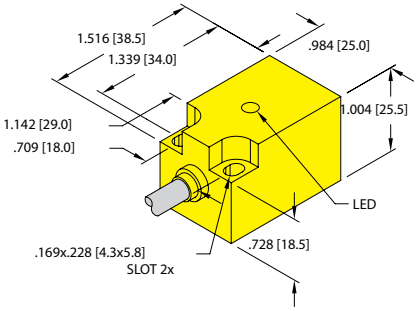
Housing Style	Dimension Drawings

A



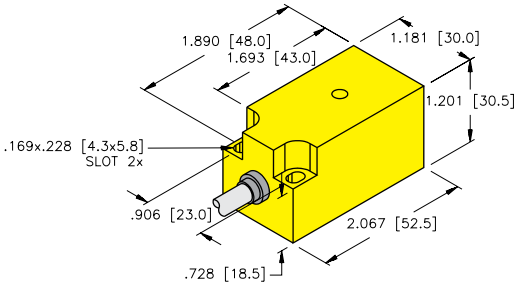
18 mm - Nonembeddable, Potted-In Cable

B



25 mm - Nonembeddable, Potted-In Cable

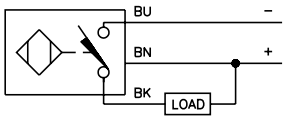
C



30 mm - Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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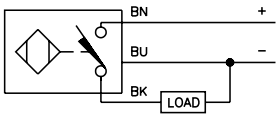


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q18, Q25, & Q30

Side Sensing Qpak Housing

Part Number/ ID Number	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni5-Q18-AN6X 4614607	5	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	A	1	A4
Ni5-Q18-AP6X 4614606	5	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	A	2	A4
Ni10-Q25-AN6X 4652330	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	B	1	A4
Ni10-Q25-AP6X 4652225	10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	B	2	A4
Ni15-Q30-AN6X 4659330	15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	C	1	A4
Ni15-Q30-AP6X 4659325	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	C	2	A4

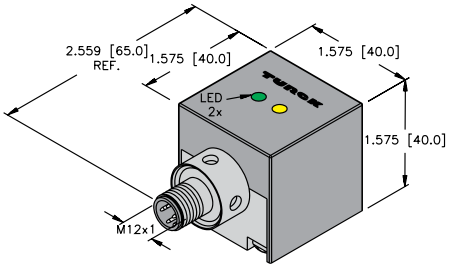
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CA40

Rotatable Sensing Head with Metal Housing

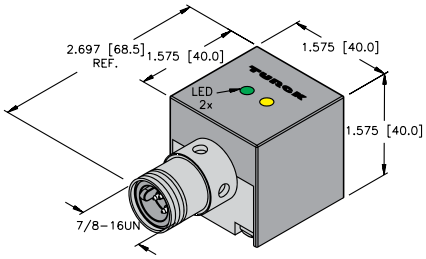
Housing Style	Dimension Drawings

A



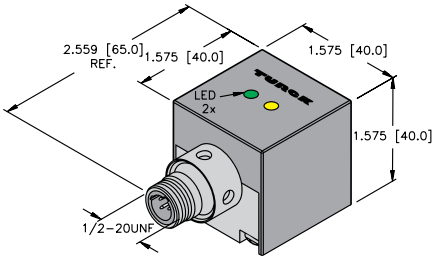
CA40 - Embeddable, Eurofast Connector

B



CA40 - Embeddable, Minifast Connector

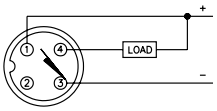
C



CA40 - Embeddable, Microfast Connector

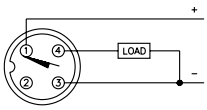
Wiring Diagrams/Mating Cordsets

1



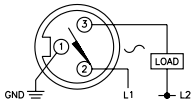
Mating Cordset: RK 4T-*

2



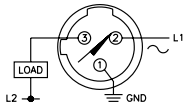
Mating Cordset: RK 4T-*

3



Mating Cordset: RKM 30-*M

4



Mating Cordset: KB 3T-*

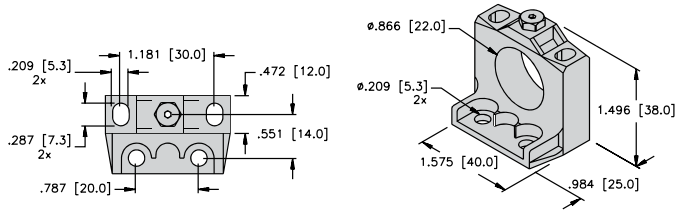
A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

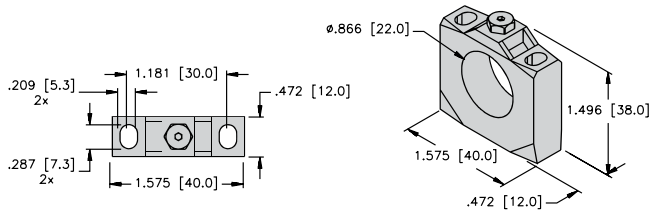
A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

BS 2.1 Mounting Bracket



BS 2.0 Mounting Bracket



We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CA40

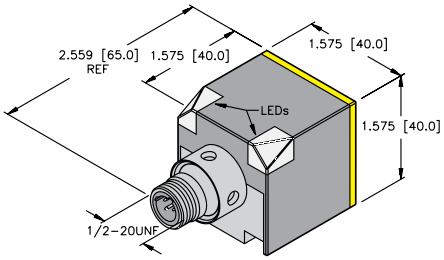
Rotatable Sensing Head with Metal Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20U-CA40-AN6X2-H1141 W/BS2.1 1627390	Uprox	•	20	3-wire DC NPN	10-30 VDC	250	≤200	0 to +70	IP67	AL	TP	GN	YE	A	1	A4
Bi20U-CA40-AP6X2-H1141 W/BS2.1 1627290	Uprox	•	20	3-wire DC PNP	10-30 VDC	250	≤200	0 to +70	IP67	AL	TP	GN	YE	A	2	A4
Bi20U-CA40-AP6X2-H1141/S1590 W/BS2.0 1627297	Weldguard®	•	20	3-wire DC PNP	10-30 VDC	250	≤200	0 to +70	IP67	AL	WG	GN	YE	A	2	A4
Bi20U-CA40-ADZ30X2-B1131 W/BS2.1 4283290	Uprox	•	20	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	AL	TP	GN	YE	B	3	A5
Bi20U-CA40-ADZ30X2-B3131 W/BS2.1 4283292	Uprox	•	20	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	AL	TP	GN	YE	C	4	A5

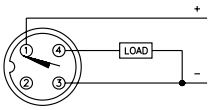
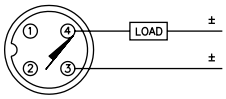
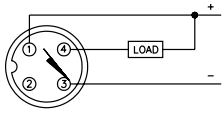
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with 2 and 3-wire DC Outputs

Housing Style	Dimension Drawings
	A  CK40 - Embeddable/Nonembeddable, Eurofast Connector

Wiring Diagrams/Mating Cordsets

1	2	3
		
Mating Cordset: RK 4T-*	Mating Cordset: RK 4.2T-*	Mating Cordset: RK 4T-*

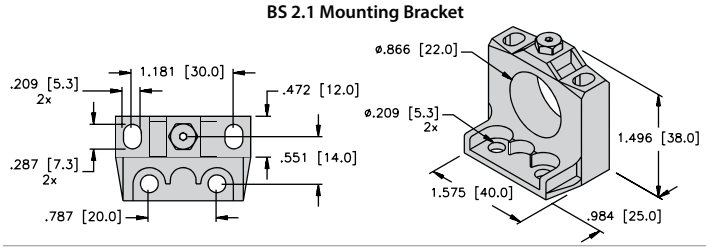
A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

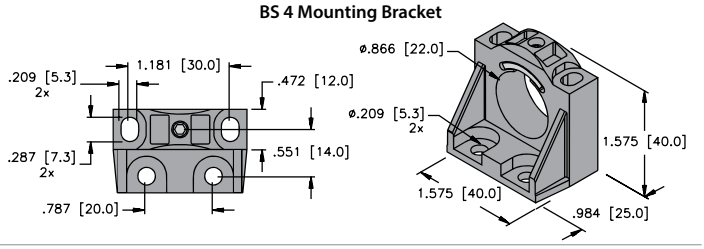
A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

BS 2.1 Mounting Bracket



BS 4 Mounting Bracket



We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with 2 and 3-wire DC Outputs

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-CK40-AN6X2-H1141 W/BS2.1 1625690	Uprox	•	15	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4
Bi15U-CK40-AP6X2-H1141 W/BS2.1 1625689	Uprox	•	15	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Bi15-CK40-AN6X2-H1141 W/BS2.1 1625190		•	15	3-wire DC NPN	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Bi15-CK40-AP6X2-H1141 W/BS2.1 1625090		•	15	3-wire DC PNP	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15-CK40-AD4X-H1141 W/BS2.1 4465090		•	15	2-wire DC	10-65 VDC	150	≤100	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A2
Bi20U-CK40-AN6X2-H1141 1627231	Uprox+	•	20	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4
Bi20U-CK40-AP6X2-H1141 W/BS2.1 1627288	Uprox+	•	20	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Bi30U-CK40-AN6X2-H1141 1625820	Uprox+	•	30	3-wire DC NPN	10-30 VDC	250	≤200	-10 to +60	IP68	PBT	PBT	GN	YE	A	3	A4
Bi30U-CK40-AP6X2-H1141 1625829	Uprox+	•	30	3-wire DC PNP	10-30 VDC	250	≤200	-10 to +60	IP68	PBT	PBT	GN	YE	A	1	A4
Ni20-CK40-AN6X2-H1141 W/BS2.1 1625390			20	3-wire DC NPN	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Ni20-CK40-AP6X2-H1141 W/BS2.1 1625290			20	3-wire DC PNP	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Ni20-CK40-AD4X-H1141 W/BS2.1 4465290			20	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A2
Ni25U-CK40-AN6X2-H1141 W/BS2.1 1625789	Uprox		25	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4
Ni25U-CK40-AP6X2-H1141 W/BS2.1 1625790	Uprox		25	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Ni35U-CK40-AP6X2-H1141 1625800	Uprox		35	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A4
Ni35U-CK40-AN6X2-H1141 1625810	Uprox		35	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	3	A4
Ni50U-CK40-AN6X2-H1141 1625823	Uprox+		50	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	3	A4
Ni50U-CK40-AP6X2-H1141 1625868	Uprox+		50	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	1	A4

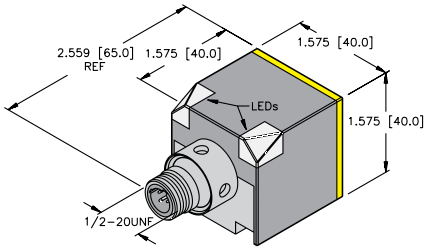
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with Complementary Outputs

Housing Style	Dimension Drawings

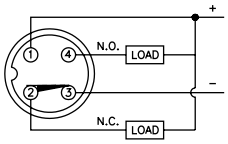
A



CK40 - Embeddable/Nonembeddable, Eurofast Connector

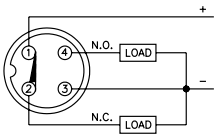
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

2



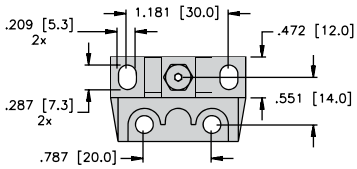
Mating Cordset: RK 4.4T-*

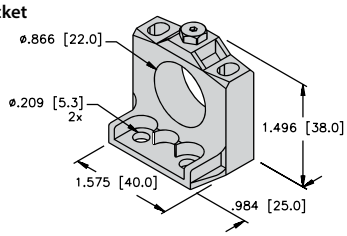
A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms

Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

BS 2.1 Mounting Bracket





We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with Complementary Outputs

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-CK40-VN4X2-H1141 W/BS2.1 1550190	Comp. Outputs	•	15	4-wire DC NPN	10-65 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15-CK40-VP4X2-H1141 W/BS2.1 1550091	Comp. Outputs	•	15	4-wire DC PNP	10-65 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni20-CK40-VN4X2-H1141 W/BS2.1 1550390	Comp. Outputs		20	4-wire DC NPN	10-65 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Ni20-CK40-VP4X2-H1141 W/BS2.1 1550290	Comp. Outputs		20	4-wire DC PNP	10-65 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni35U-CK40-VP6X2-H1141 1625815	Uprox, Comp. Outputs		35	4-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni50U-CK40-VN4X2-H1141 1625806	Uprox+, Comp. Outputs		50	4-wire DC NPN	10-65 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	1	A4
Ni50U-CK40-VP4X2-H1141 1538302	Uprox+, Comp. Outputs		50	4-wire DC PNP	10-65 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	2	A4

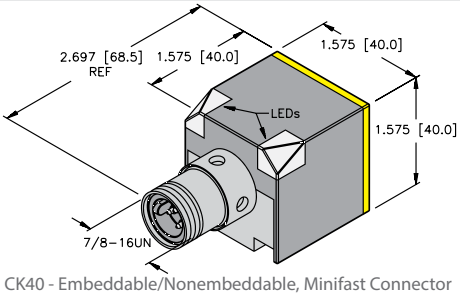
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with AC/DC Outputs

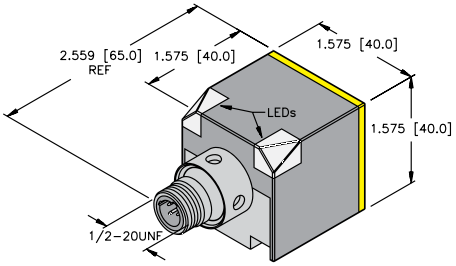
Housing Style	Dimension Drawings

A



CK40 - Embeddable/Nonembeddable, Minifast Connector

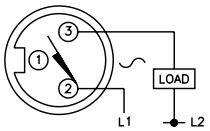
B



CK40 - Embeddable/Nonembeddable, Microfast Connector

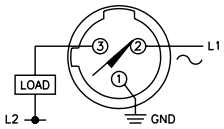
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M

2



Mating Cordset: KB 3T-*

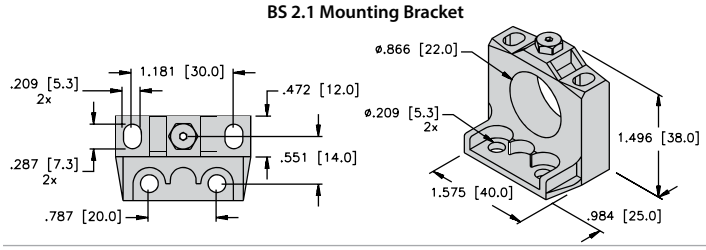
A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

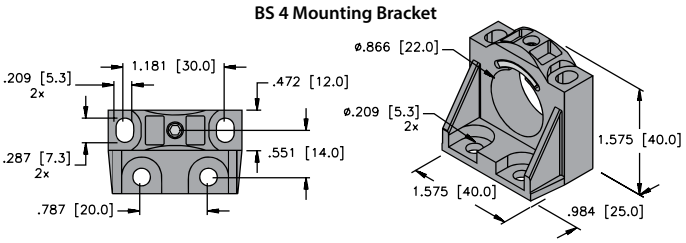
A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

BS 2.1 Mounting Bracket



BS 4 Mounting Bracket



We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with AC/DC Outputs

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-CK40-ADZ30X2-B1131 W/BS2.1 4280090	Uprox	•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A5
Bi15U-CK40-ADZ30X2-B3131 W/B 2.1 4280091	Uprox	•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP68	PBT	PBT	GN	YE	B	2	A5
Bi15-CK40-AZ3X2-B1131 W/BS2.1 1335091		•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Bi15-CK40-AZ3X2-B3131 W/BS2.1 1335095		•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	2	A6
Ni20-CK40-AZ3X2-B1131 W/BS2.1 1335291			20	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni20-CK40-AZ3X2-B3131 W/BS2.1 1335290			20	2-Wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	2	A6
Ni25U-CK40-ADZ30X2-B1131 W/BS2.1 4280290	Uprox		25	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A5
Ni25U-CK40-ADZ30X2-B3131 W/BS2.1 4280291	Uprox		25	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	PBT	PBT	GN	YE	B	2	A5
Ni35U-CK40-ADZ30X2-B1131 4280410	Uprox		35	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A5

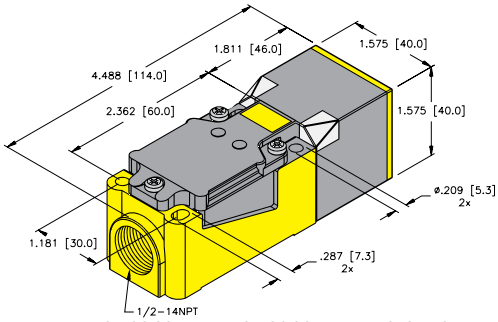
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP40

Rotatable Sensing Head with 2 and 3-wire DC Outputs and Terminal Chamber

Housing Style	Dimension Drawings

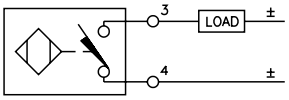
A



CP40 - Embeddable/Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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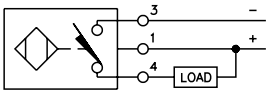

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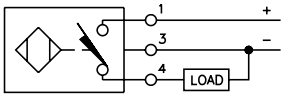


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP40

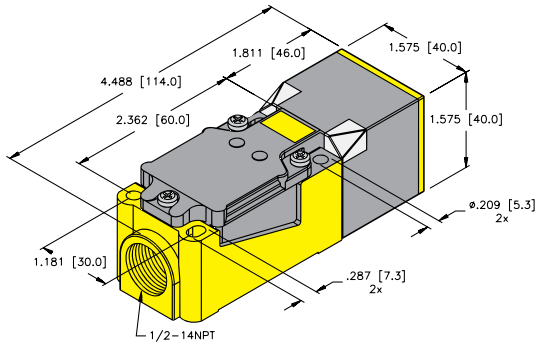
Rotatable Sensing Head with 2 and 3-wire DC Outputs and Terminal Chamber

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-CP40-AP6X2 1623502	Uprox	•	15	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4
Bi15-CP40-AN6X2 1623000		•	15	3-wire DC NPN	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-CP40-AN6X2/S10-S97 1623001	Low Temp. -40 °C	•	15	3-wire DC NPN	10-30 VDC	250	≤200	-40 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-CP40-AP6X2/S10 16030		•	15	3-Wire DC PNP	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Bi15-CP40-AD4X/S10 44770		•	15	2-wire DC	10-65 VDC	150	≤100	-25 to +70	IP67	PBT	PBT	N/A	YE	A	1	A2
Bi20U-CP40-AP6X2/S10 1625826	Uprox+	•	20	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	3	A4
Bi30U-CP40-AP6X2/S10 1625825	Uprox+	•	30	3-wire DC PNP	10-30 VDC	250	≤200	-10 to +60	IP68	PBT	PBT	GN	YE	A	3	A4
Ni20-CP40-AP6X2/S10 16031			20	3-wire DC PNP	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Ni20-CP40-AD4X/S10 44771			20	2-wire DC	10-65 VDC	150	≤100	-25 to +70	IP67	PBT	PBT	N/A	YE	A	1	A2
Ni25U-CP40-AP6X2/S10 1623701	Uprox		25	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	3	A4
Ni40U-CP40-AP6X2/S10 1623602	Uprox		40	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4
Ni50U-CP40-AN6X2/S10 1625824	Uprox+		50	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	2	A4
Ni50U-CP40-AP6X2/S10 1625842	Uprox+		50	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4

We reserve the right to make technical alterations without prior notice.

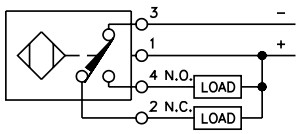
Rectangular Inductive Sensors | CP40

Rotatable Sensing Head with Complementary Outputs and Terminal Chamber

Housing Style	Dimension Drawings
	A  CP40 - Embeddable/Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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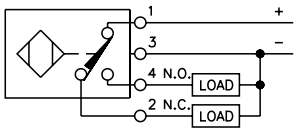


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP40

Rotatable Sensing Head with Complementary Outputs and Terminal Chamber

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-CP40-VN4X2/S10 1540511	Uprox	•	15	4-wire DC NPN	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Bi15U-CP40-VP4X2/S10 1540501	Uprox	•	15	4-wire DC PNP	10-65 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-CP40-VN4X2/S100 15250	Comp. Outputs	•	15	4-wire DC NPN	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15-CP40-VN4X2/S100-S10 15144	High Temp. 100 °C	•	15	4-wire DC NPN	10-65 VDC	150	≤200	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15-CP40-VP4X2/S10 15010	Comp. Outputs	•	15	4-wire DC PNP	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-CP40-VP4X2/S100-S10 15019	High Temp. 100 °C	•	15	4-wire DC PNP	10-65 VDC	150	≤200	-25 to +100	IP67	PBT	PBT	GN	YE	A	2	A4
Bi20-CP40-VN4X2/S10 1579221	Ext. Range	•	20	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Bi20-CP40-VP4X2/S10 15012	Ext. Range	•	20	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni20-CP40-VN4X2/S10 15251	Comp. Outputs		20	4-wire DC NPN	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Ni20-CP40-VP4X2/S10 15011	Comp. Outputs		20	4-wire DC PNP	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni20-CP40-VP4X2/S100-S10 15020	High Temp. 100 °C		20	4-wire DC PNP	10-65 VDC	150	≤200	-25 to +100	IP67	PBT	PBT	GN	YE	A	2	A4
Ni35-CP40-VN4X2/S10 15254	Comp. Outputs		35	4-wire DC NPN	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Ni35-CP40-VP4X2/S10 15014	Comp. Outputs		35	4-wire DC PNP	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni40U-CP40-VN4X2/S10 1540611	Uprox, Ext. Range		40	4-wire DC NPN	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Ni40U-CP40-VP4X2/S10 1540601	Uprox, Ext. Range		40	4-wire DC PNP	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	2	A4
Ni50U-CP40-VN4X2/S10 1625807	Uprox+		50	4-wire DC NPN	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Ni50U-CP40-VP4X2 1538303	Uprox+		50	4-wire DC PNP	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	2	A4

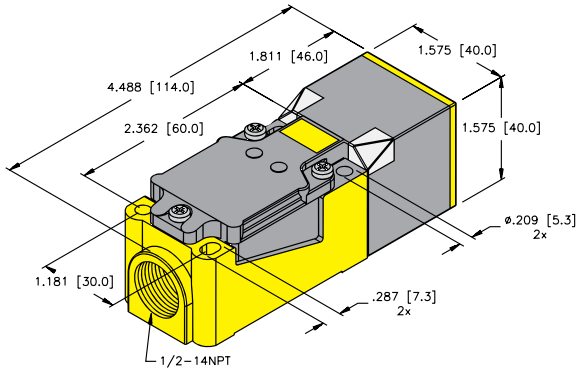
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP40

Rotatable Sensing Head with AC/DC Outputs and Terminal Chamber

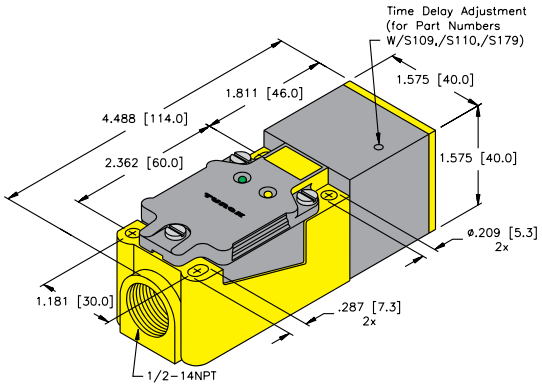
Housing Style	Dimension Drawings

A



CP40 - Embeddable/Nonembeddable, Terminal Chamber

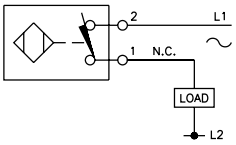
B



CP40 - Embeddable/Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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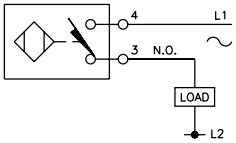


A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP40

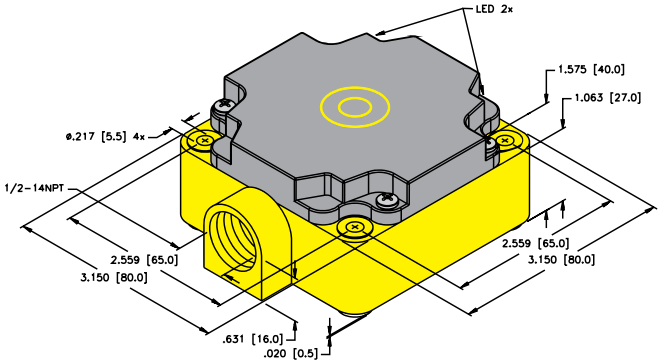
Rotatable Sensing Head with AC/DC Outputs and Terminal Chamber

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-CP40-FDZ30X2 4280601	Uprox	•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A5
Bi15-CP40-FDZ30X2/S10 42241	Prog. Outputs	•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	60	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Bi15-CP40-FDZ30X2/S10-S97 42266	Low Temp. -40 °C	•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	60	≤400/300	-40 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Bi15-CP40-FZ3X2/S109-S10 13737	Time Delay	•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	1	A6
Bi15-CP40-FZ3X2/S110-S10 13735	Time Delay	•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	1	A6
Bi15-CP40-FZ3X2/S10 13410	Prog. Outputs	•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Bi15-CP40-FZ3X2/S10-S97 1341010	Low Temp. -40 °C	•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-40 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Bi15-CP40-FZ3X2/S100-S10 13776	High Temp. 100 °C	•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A6
Ni20-CP40-FDZ30X2/S10 42242	Prog. Outputs		20	2-wire AC/DC	20-250 VAC/10-300 VDC	60	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Ni20-CP40-FZ3X2/S100 13411	Prog. Outputs		20	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni20-CP40-FZ3X2/S100-S10 13775	High Temp. 100 °C		20	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A6
Ni20-CP40-FZ3X2/S110-S10 13746	Time Delay		20	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	1	A6
Ni30-CP40-FZ3X2/S109-S10 13747	Time Delay		30	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	1	A6
Ni30-CP40-FZ3X2/S110-S10 13744	Time Delay		30	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	1	A6
Ni35-CP40-FDZ30X2/S10 42245	Prog. Outputs		35	2-wire AC/DC	20-250 VAC/10-300 VDC	60	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Ni35-CP40-FZ3X2/S10 13413	Prog. Outputs		35	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni40U-CP40-FDZ30X2/S10 4280801	Uprox		40	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A5
Ni40-CP40-FZ3X2/S100-S10 1374802	High Temp. 100 °C		40	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A6

We reserve the right to make technical alterations without prior notice.

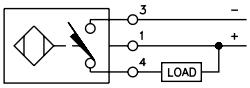
Rectangular Inductive Sensors | CP80

Top Sensing with 3 and 4-Wire DC Outputs and Terminal Chamber

Housing Style	Dimension Drawings
	A  CP80 - Embeddable/Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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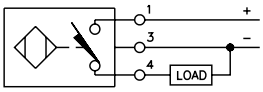

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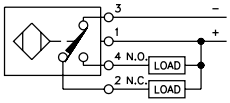

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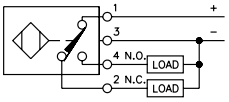


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP80

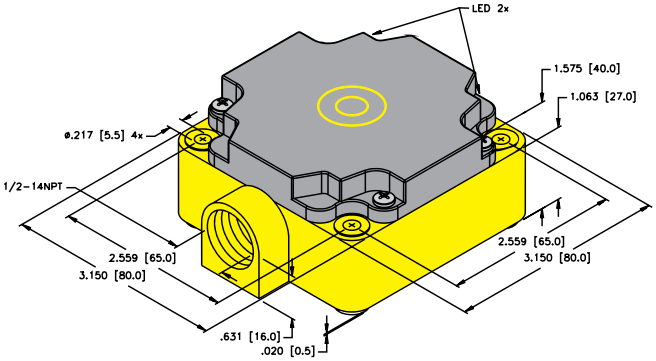
Top Sensing with 3 and 4-Wire DC Outputs and Terminal Chamber

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi40-CP80-VN4X2/S10 1579800	Comp. Outputs	•	40	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Bi40-CP80-VP4X2/S10 15698	Comp. Outputs	•	40	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	4	A4
Ni40-CP80-VP4X2/S10 15015	Comp. Outputs		40	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	4	A4
Ni50-CP80-VN4X2/S10 15256	Comp. Outputs		50	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Ni50-CP80-VP4X2/S10 15016	Comp. Outputs		50	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	4	A4
Ni75U-CP80-AN6X2/S10 1623811	Uprox		75	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A4
Ni75U-CP80-AP6X2/S10 1623801	Uprox		75	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	2	A4
Ni75U-CP80-VN4X2/S10 1540811	Uprox		75	4-wire DC NPN	10-65 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	3	A4
Ni75U-CP80-VP4X2/S10 1540801	Uprox		75	4-wire DC PNP	10-65 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	4	A4

We reserve the right to make technical alterations without prior notice.

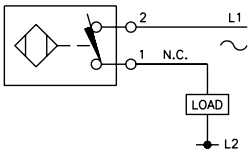
Rectangular Inductive Sensors | CP80

Top Sensing with AC/DC Outputs and Terminal Chamber

Housing Style	Dimension Drawings
	A  CP80 - Embeddable/Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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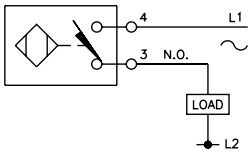


A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP80

Top Sensing with AC/DC Outputs and Terminal Chamber

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi40-CP80-FDZ30X2/S10 4230901	Prog. Outputs	•	40	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Bi40-CP80-FZ3X2/S10 1340401	Prog. Outputs	•	40	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni40-CP80-FZ3X2/S100 13415	Prog. Outputs		40	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni40-CP80-FZ3X2/S100-S10 13453	High Temp. 100 °C		40	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A6
Ni50-CP80-FZ3X2/S10 13410	Prog. Outputs		50	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni50-CP80-FDZ30X2/S100 42321	Prog. Outputs		50	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Ni50-CP80-FDZ30X2/S100-S10 42290	High Temp. 100 °C		50	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A5
Ni75U-CP80-FDZ30X2/S10 4280901	Uprox		75	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A5

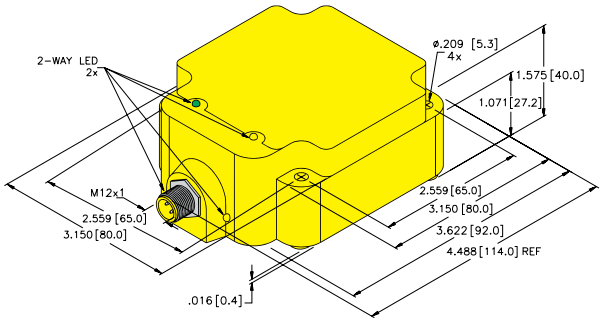
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q80

Top Sensing with 3 and 4-Wire DC or AC/DC Outputs

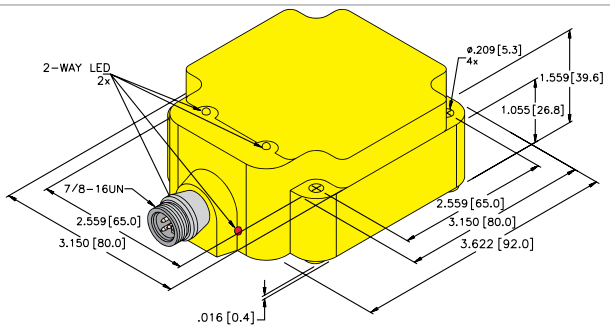
Housing Style	Dimension Drawings

A



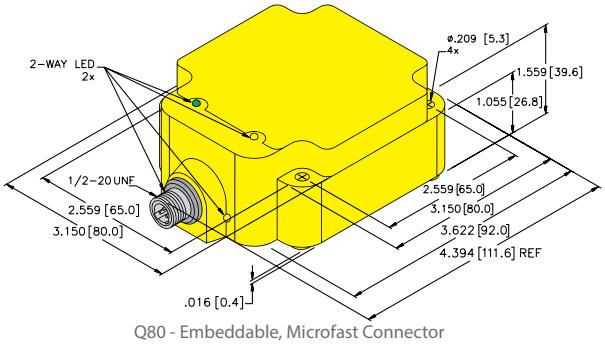
Q80 - Embeddable/Nonembeddable, Eurofast Connector

B



Q80 - Embeddable, Minifast Connector

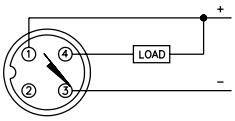
C



Q80 - Embeddable, Microfast Connector

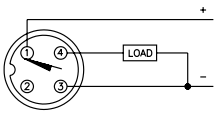
Wiring Diagrams/Mating Cordsets

1



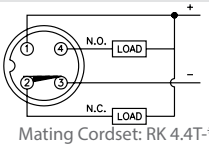
Mating Cordset: RK 4T-*

2



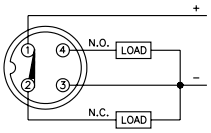
Mating Cordset: RK 4T-*

3



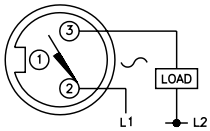
Mating Cordset: RK 4.4T-*

4



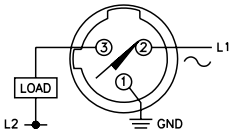
Mating Cordset: RK 4.4T-*

5



Mating Cordset: RKM 30-*M

6



Mating Cordset: KB 3T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q80

Top Sensing with 3 and 4-Wire DC or AC/DC Outputs

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi50U-Q80-AP6X2-H1141 1608940	Uprox+	•	50	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	2	A4
Bi50U-Q80-VN4X2-H1141 1562001	Uprox+, Comp. Outputs	•	50	4-wire DC NPN	10-65 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	3	A4
Bi50U-Q80-VP4X2-H1141 15620	Uprox+, Comp. Outputs	•	50	4-wire DC PNP	10-65 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	4	A4
Bi50-Q80-ADZ30X2-B1131 4200310		•	50	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	5	A5
Bi50-Q80-ADZ30X2-B3131 4200311		•	50	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	C	6	A5
Ni75U-Q80-AN6X2-H1141 1625856	Uprox+		75	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	1	A4
Ni75U-Q80-AP6X2-H1141 1625855	Uprox+		75	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	2	A4
Ni75U-Q80-VP4X2-H1141 1625857	Uprox+, Comp. Outputs		75	4-wire DC PNP	10-65 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	4	A4

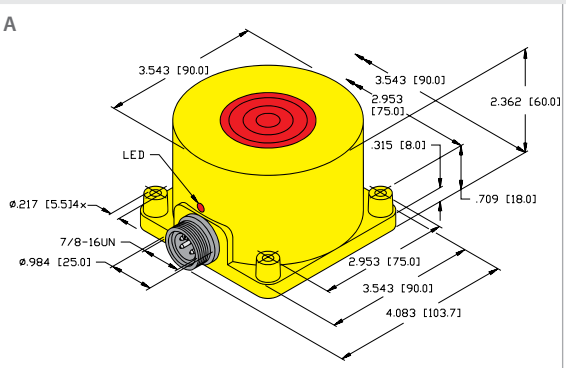
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | K90 & K90SR

Top Sensing with 4-Wire DC or AC/DC Outputs

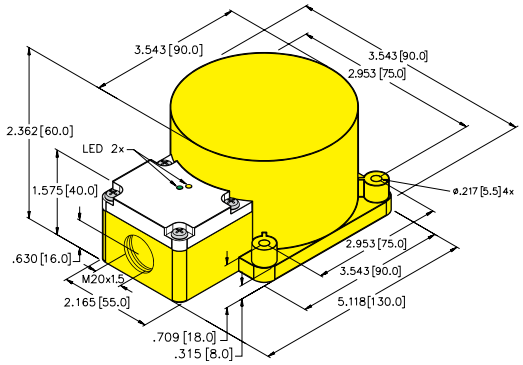
Housing Style	Dimension Drawings

A



K90 - Nonembeddable, Minifast Connector

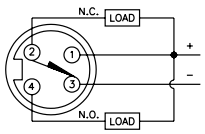
B



K90SR - Nonembeddable, Terminal Chamber

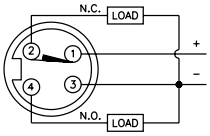
Wiring Diagrams/Mating Cordsets

1



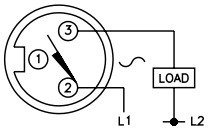
Mating Cordset: RK 40-*M

2



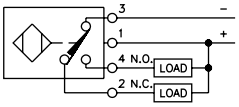
Mating Cordset: RK 40-*M

3



Mating Cordset: RK 30-*M

4



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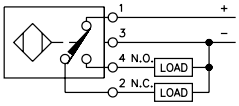

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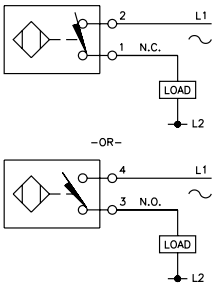


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | K90 & K90SR

Top Sensing with 4-Wire DC or AC/DC Outputs

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni60-K90-VN4X-B2141 15203	Comp. Outputs		60	4-wire DC NPN	10-65 VDC	60	≤200	-25 to +70	IP67	PUR	PUR	N/A	YE	A	1	A4
Ni60-K90-VP4X-B2141 15103	Comp. Outputs		60	4-wire DC PNP	10-65 VDC	60	≤200	-25 to +70	IP67	PUR	PUR	N/A	YE	A	2	A4
Ni60-K90-AZ3X-B2131 13542			60	2-wire AC	20-250 VAC/10-300 VDC	20	≤500	-25 to +70	IP67	PBT	PBT	N/A	YE	A	3	A6
Ni60-K90SR-VN4X2 15740	Comp. Outputs		60	4-wire DC NPN	10-65 VDC	60	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	B	4	A4
Ni60-K90SR-VP4X2 15640	Comp. Outputs		60	4-wire DC PNP	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	B	5	A4
Ni60-K90SR-FZ3X2 13429	Prog. Outputs		60	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	6	A6
Ni100U-K90SR-VP4X2 1625834	Uprox+, Comp. Outputs		100	4-wire DC PNP	10-65 VDC	60	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	B	5	A4

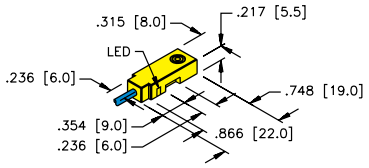
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Namur

Intrinsically Safe

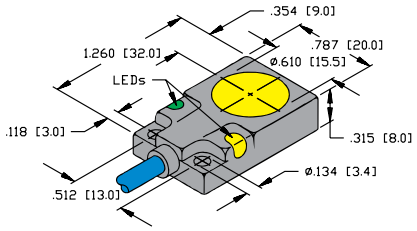
Dimension Drawings

A



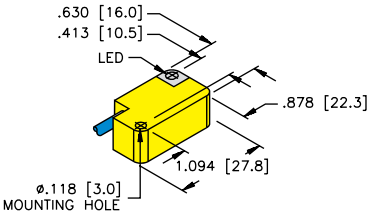
5.5 mm - Embeddable/Nonembeddable, Potted-In Cable

B



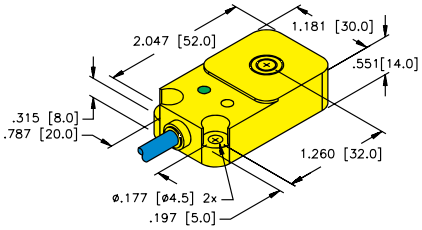
8.0 mm - Embeddable, Potted-In Cable

C



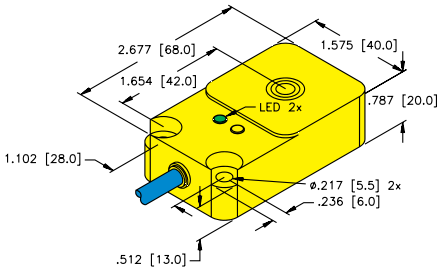
10 mm - Embeddable/Nonembeddable, Potted-In Cable

D



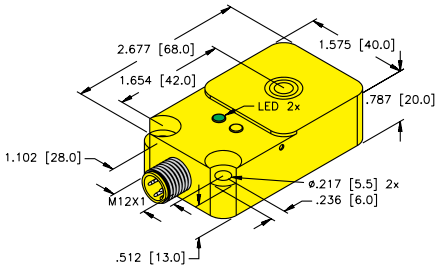
14 mm - Potted-In Cable

E



20 mm - Embeddable/Nonembeddable, Potted-In Cable

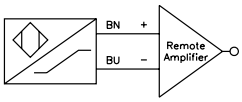
F



20 mm - Embeddable/Nonembeddable, Eurofast Connector

Wiring Diagrams/Mating Cordsets

1



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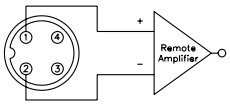


Mating Cordset: RK 4.21T-*

A1 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-Q5.5K-Y1X 4055300		•	2	2-wire DC NAMUR	8.2 VDC nominal	2000	Remote	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	A	1	A1
Bi5-Q08-Y1X 4054000		•	5	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	Zinc	PA 12	N/A	YE	2M/TPU	B	1	A1
Bi2-Q10S-Y1X 4012130		•	2	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PP-GF20	PP-GF20	N/A	YE	2M/PVC	C	1	A1
Bi10-Q14-Y1X 1608730		•	10	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/TPU	D	1	A1
Bi15-Q20-Y1X 1080020		•	15	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/TPU	E	1	A1
Bi15-Q20-Y1X-H1141 1080025		•	15	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	F	2	A1

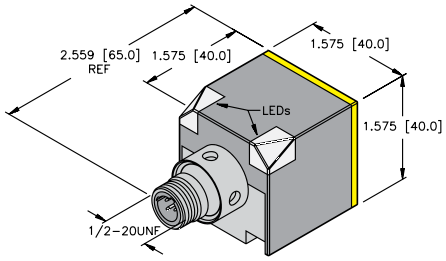
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Namur

Intrinsically Safe

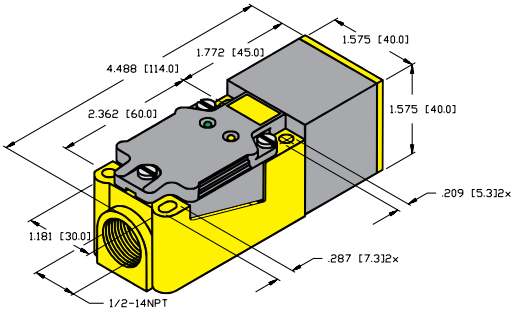
Dimension Drawings

A



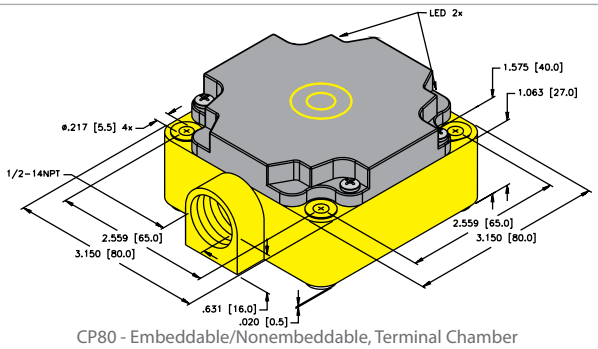
CK40 - Embeddable/Nonembeddable, Eurofast Connector

B



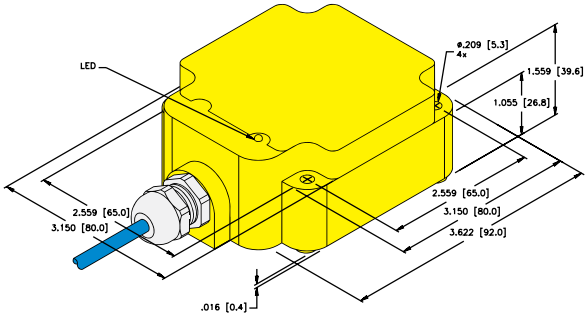
CP40 - Embeddable/Nonembeddable, Terminal Chamber

C



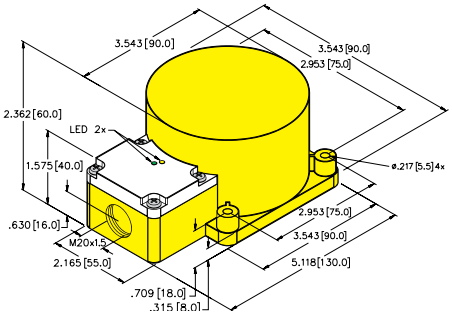
CP80 - Embeddable/Nonembeddable, Terminal Chamber

D



Q80 - Nonembeddable, Potted-In Cable

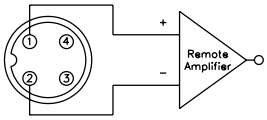
E



K90SR - Nonembeddable, Terminal Chamber

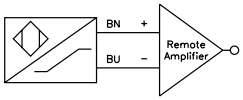
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.21T-*

2



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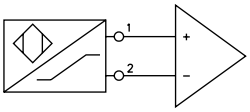

A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-activated current consumption:	≥2.1 mA
Activated current consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

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Rectangular Inductive Sensors | Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-CK40-Y1X-H1141 4065000		•	15	2-wire DC NAMUR	8.2 VDC nominal	150	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	A	1	A1
Bi15-CP40-Y1X/S10 10120		•	15	2-wire DC NAMUR	8.2 VDC nominal	150	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	B	3	A1
Ni20-CP40-Y1X/S10 10121			20	2-wire DC NAMUR	8.2 VDC nominal	150	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	B	3	A1
Ni35-CP40-Y1X/S100-S10 1011126	High Temp. 100 °C		35	2-wire DC NAMUR	8.2 VDC nominal	80	Remote	-25 to +100	IP67	PBT	PBT	N/A	YE	- -	B	3	A1
Ni50-CP80-Y1/S10 10401			50	2-wire DC NAMUR	8.2 VDC nominal	100	Remote	-25 to +70	IP67	PBT	PBT	N/A	N/A	- -	C	3	A1
Ni60-Q80-Y1X 1008700			60	2-wire DC NAMUR	8.2 VDC nominal	100	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/ PVC	D	2	A1
Ni50-K90SR-Y1 10074			50	2-wire DC NAMUR	8.2 VDC nominal	100	Remote	-25 to +70	IP67	PBT	PBT	N/A	N/A	- -	E	3	A1

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Notes

Notes

Inductive Barrel Sensor Selection Guide

Embeddable/Nonembeddable Barrels					
Housing	3 mm	4 mm	4 mm	4 mm	5 mm
Sensing Range	1 mm	1 mm	1 mm	1 mm	1 mm
Pages	B9	B9	B9	B11	B11
Features					
2-wire					
3/4-wire	•	•	•	•	•
2-wire AC/DC					

Embeddable/Nonembeddable Barrels				
Housing	5 mm	6.5 mm	6.5 mm	8 mm
Sensing Range	1 mm	1.5 - 6 mm	1.5 - 6 mm	1.5 - 2 mm
Pages	B11	B13 - 16	B13 - 16	B17
Features		Uprox	Uprox	
2-wire				
3/4-wire	•	•	•	•
2-wire AC/DC				

Embeddable/Nonembeddable Barrels				
Housing	8 mm	Side Sensing	Side Sensing	8 mm
Sensing Range	1.5 - 2 mm	1 - 1.5 mm	1.5 mm	1.5 - 6 mm
Pages	B17	B19	B19	B23 - 34
Features	Uprox			Uprox
2-wire				•
3/4-wire	•	•	•	•
2-wire AC/DC				

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Inductive Barrel Sensor Selection Guide

Embeddable/Nonembeddable Barrels				
Housing	8 mm	12 mm	12 mm	12 mm
Sensing Range	1.5 - 6 mm	2 - 10 mm	2 - 8 mm	2 - 10 mm
Pages	B35 - 42	B43 - 64	B59	B65 - 72
Features		Uprox	Uprox	
2-wire	•	•		•
3/4-wire	•	•	•	•
2-wire AC/DC		•		•

Embeddable/Nonembeddable Barrels					
Housing	12 mm	12 mm	18 mm	18 mm	
Sensing Range	2 - 8 mm	2 - 8 mm	5 - 15 mm	2 - 10 mm	
Pages	B73	B75	B77 - 104	B95	B103
Features	Uprox	Uprox	Uprox	Uprox	
2-wire		•	•		
3/4-wire	•	•	•	•	
2-wire AC/DC	•		•		

Embeddable/Nonembeddable Barrels				
Housing	18 mm	18 mm	18 mm	18 mm
Sensing Range	5 - 15 mm	5 - 12 mm	5 - 10 mm	5 - 12 mm
Pages	B105 - 110	B99 - 112	B113	B115
Features	Uprox	Uprox	Uprox	Uprox
2-wire	•	•		
3/4-wire	•	•	•	•
2-wire AC/DC	•	•	•	•

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Inductive Barrel Sensor Selection Guide

Embeddable/Nonembeddable Barrels				
Housing	30 mm	30 mm	30 mm	30 mm
Sensing Range	10 - 30 mm	10 - 20 mm	10 - 30 mm	10 - 20 mm
Pages	B117 - 132	B127 / B143	B133 - 140	B141
Features	Uprox	Uprox	Uprox	Uprox
2-wire	•	•	•	•
3/4-wire	•	•	•	•
2-wire AC/DC	•	•	•	•

Embeddable/Nonembeddable Barrels				
Housing	30 mm	30 mm	40 mm	47 mm
Sensing Range	10 - 20 mm	10 - 20 mm	30 mm	20 - 25 mm
Pages	B145	B145	B147	B147
Features	Uprox			
2-wire				
3/4-wire	•	•	•	•
2-wire AC/DC	•	•	•	•

Embeddable/Nonembeddable Barrels				
				IS
Housing	47 mm	40 mm	47 mm	Variable
Sensing Range	20 - 25 mm	15 - 30 mm	25 - 40 mm	1 - 15 mm
Pages	B147	B149	B149	B151 - 162
Features				
2-wire				•
3/4-wire	•	•	•	
2-wire AC/DC	•	•	•	

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensor Part Number Key

B	I	10	U	-		G	T	30		-	A	DZ	30	X2	Wiring Option*	Special Option Code**

Mounting
B = embeddable
N = nonembeddable

Principle of Operation
I = inductive

Rated Operating Distance (mm)

Sensing Characteristics
U = Uprox® sensor

Housing Material Modifier
E = stainless steel

Housing Style
Barrel - Metal
G = full threading, generally chrome plated brass
GS = threaded side sensor
H = smooth, chrome plated brass or stainless steel
HS = smooth side sensor
M = partial threading, chrome plated brass
Barrel - Plastic
K = smooth
P = full threading
S = partial threading
SK = side sensing/slot sensor, plastic housing

Primary Barrel Modifier
T = PTFE coated

Housing Diameter or Height (mm)

Secondary Barrel Modifier
CA = conduit adaptor
E = extended barrel length
EE = extra long barrel length
F = stainless steel face
FE = stainless steel face, extended barrel length
H = Stoneface®
K = short barrel length
M = medium barrel length
S = side sensing
SE = extended length
SK = right-angle terminal chamber
SR = straight terminal chamber
T = barb fitting at cable entry
TC = terminal chamber
WD = washdown IP68/IP69K

Number of LEDs
(blank) = no LEDs
X = 1 LED
X2 = 2 LEDs

Voltage Range
AC/DC: (No SCP)**
3 = 20-250 VAC, 10-300 VDC
14 = 20-132 VAC, 10-140 VDC
31 = 20-250 VAC, 10-300 VDC, plastic barrel
33 = 35-250 VAC, grounded metal barrel
AC/DC: (Latched SCP)
30 = 20-250 VAC, 10-300 VDC
32 = 20-250 VAC, 10-300 VDC
40 = 20-140 VAC/DC, high off-state current
DC:
4 = 10-65 VDC, polarity protected, pulsed SCP**
6 = 10-30 VDC, polarity protected, pulsed SCP
7 = 10-30 VDC, TTL compatible
8 = 20-30 VDC, polarity protected, pulsed SCP
41 = 10-55 VDC, polarity protected, pulsed SCP
44 = 10-55 VDC
45 = 8.4-64 Volts
**SCP = short-circuit and overload protection

Output
D = 2-wire DC (transistor output)
DZ = 2-wire AC/DC, (power MOSFET output)
G = 2-wire DC, low voltage drop
N = NPN transistor (current sinking)
P = PNP transistor (current sourcing)
Z = 2-wire AC or 2-wire AC/DC

Output Function
A = normally open (N.O.)
DA = dynamic output (ring sensor), normally open
F = connection programmable (N.O or N.C.)
R = normally closed (N.C.)
V = complementary outputs: one N.O., one N.C.
Y0 = NAMUR output, requires switching amplifier
Y1 = NAMUR output, requires switching amplifier, ATEX Approved

NOTE:
Part number keys are to assist in identification only.
Verify new part numbers with factory; some configurations are not possible.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensor Part Number Key

Wiring Options*

A. Connectorized Sensor

Bi2-M12-AN6X - H1 1 4 1

Connector Family

B1 = Minifast®, 7/8"-16UN, metal, male
B2 = Minifast®, 7/8"-16UN, plastic, male
B3 = Microfast®, 1/2"-20UNF, metal, male
H1 = Eurofast®, M12x1, metal or plastic, male
V1 = Picofast®, snap and M8x1, metal, male (Q08 snap only)
V2 = Picofast®, snap and M8x1, male (Q08 only)

Connector/Sensor Transition

1 = straight
3 = straight with adapter
4 = right-angle with adapter

Factory Code

Example:
0 = non-standard wiring
1 = standard wiring
3 = N.C. DC output on pin 4
4 = N.O. 2-wire DC output on pin 4

Number of Pins

B. Potted Cable

Bi2-G12-AN6X 7M

Cable Length

(blank) = 2 meter cable
7M = 7 meter cable
*M = custom cable lengths available

C. Potted Cable with Molded Connector

Bi2-G12-Y0X - 0.2M - RS 4.21T

Cable Length

examples:
0.2M = 0.2 meters (minimum)
2M = 2 meter cable
7M = 7 meter cable

Standard Cordset Connector

AC: RSM 30 = Minifast, 7/8"-16UN, metal, male, 3-conductor
SB 3T = Microfast, 1/2"-20UNF, metal , male, 30 conductor
DC: RS 4T = Eurofast, M12x1, metal or plastic, male, 3-conductor
RS 4.2T = Eurofast, M12x1, metal or plastic, male, 2-conductor
RS 4.21T = Eurofast, M12x1, metal or plastic, male, NAMUR, 2-conductor
RS 4.4T = Eurofast, M12x1, metal or plastic, male, 4-conductor
RSM 40 = Minifast, 7/8"-16UN, metal, male, 4-conductor
PSG 3 = Picofast, snap, plastic, male, 3-conductor
PSG 3M = Picofast, M8x1, male, 3-conductor

Option Codes for Special or Custom-Built Sensors**

Bi 2-S12-AN7X /S100 or Bi10-M30-AN6X-H1141 /F2

examples:
/S34 = weld field immune
/S90 = TPU cable
/S97 = -40 °C (-40 °F) operating temperature
/S100 = +100 °C (+212 °F) operating temperature
/S1589 = barrel sensors with Weldguard® laminate
/S1610 = barrel sensors with tool steel sleeve and Weldguard® laminate

example:
/F2 = alternate oscillator frequency

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Inductive Barrel Sensors

Mounting

Turck inductive proximity sensors are manufactured with a shielded coil, designated by "Bi" in the part number, and a nonshielded coil, designated by "Ni" in the part number. Embeddable (shielded) units may be safely flush-mounted in metal. Nonembeddable (nonshielded) units require a metal free area around the sensing face. Because of possible interference of the electromagnetic fields generated by the oscillators, minimum spacing is required between adjacent or opposing sensors.

It is good engineering practice to mount sensors horizontally or with the sensing face looking down. Avoid sensors that look up wherever considered, especially if metal filings and chips are present.

Maximum Locknut Torque Specifications

The locknut torque should be considered for all threaded sensors to prevent the housing from being over stressed. The values below pertain to the locknut provided with each sensor. Liquid thread sealants of an anaerobic base, such as Loctite, are recommended if strong vibrations are likely.

Caution: Sensor barrels are typically brass. Consider break torque when selecting grade of thread sealant.

Barrel Size	Metal Barrel	Plastic Barrel
5 mm	5 Nm (3.7 ft-lb)	- - - -
8 mm	5 Nm (3.7 ft-lb)	- - - -
8 mm (M08 Ferrite)	7 Nm (5.2 ft-lb)	- - - -
12 mm	10 Nm (7.4 ft-lb)	1 Nm (0.7 ft-lb)
18 mm	25 Nm (18 ft-lb)	2 Nm (1.4 ft-lb)
30 mm	75 Nm (55 ft-lb)	5 Nm (3.7 ft-lb)
47 mm	90 Nm (66 ft-lb)	- - - -

Drill Hole Sizes for Metric Threads

Thread Size	Pitch	Thru Hole (mm)	Tap Hole Dia. (mm)	Thru Hole (in)	Tap Hole Dia. (in)
M5 x 0.5	0.5	5.0	4.5	13/64	5/32
M8 x 1	1.0	8.0	7	21/64	1/4
M12 x 1	1.0	12.0	11	31/64	13/32
M18 x 1	1.0	18.0	17	23/32	41/64
M30 x 1.5	1.5	30.0	28	1-3/16	1-5/64
PG 9	1.41	15.2	14	5/8	1/2
PG 13.5	1.41	20.4	19	13/16	23/32
PG 36	1.59	47.0	45.5	1-7/8	1-47/64

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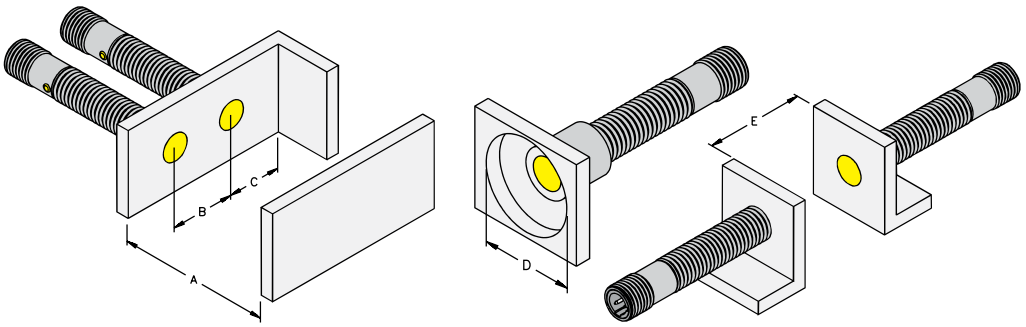
Inductive Barrel Sensors

Embeddable Mounting Considerations



Flush Mountable

Sensor Type	Barrel Diameter	A	B	C	D	E
Bi1	3.00	3.00	6.00	4.50	9.00	9.00
Bi1U	4.00	3.00	8.00	6.00	12.00	6.00
Bi1	4.00	3.00	8.00	6.00	12.00	6.00
Bi1	5.00	3.00	10.00	8.00	15.00	6.00
Bi1U	5.00	3.00	10.00	7.50	15.00	6.00
Bi1.5U	6.50	5.00	13.00	10.00	20.00	9.00
Bi1.5	6.50	5.00	13.00	10.00	20.00	9.00
Bi2	6.50	6.00	13.00	10.00	20.00	12.00
Bi1.5U	8.00	5.00	16.00	12.00	24.00	9.00
Bi1.5	8.00	5.00	16.00	12.00	24.00	9.00
Bi2	8.00	6.00	16.00	12.00	24.00	12.00
Bi2U	8.00	6.00	16.00	12.00	24.00	12.00
Bi3U	8.00	9.00	16.00	12.00	24.00	18.00
Bi2	11.00	6.00	22.00	17.00	33.00	12.00
Bi2	12.00	6.00	24.00	18.00	36.00	12.00
Bi3U	12.00	9.00	24.00	18.00	36.00	18.00
Bi3	12.00	9.00	24.00	18.00	36.00	18.00
Bi4	12.00	12.00	24.00	18.00	36.00	24.00
Bi4U	12.00	12.00	24.00	18.00	36.00	24.00
Bi6U	12.00	18.00	24.00	18.00	36.00	36.00
Bi5U	18.00	15.00	36.00	27.00	54.00	30.00
Bi5	18.00	15.00	36.00	27.00	54.00	30.00
Bi7	18.00	21.00	36.00	27.00	54.00	42.00
Bi8U	18.00	24.00	36.00	27.00	54.00	48.00
Bi8	18.00	24.00	36.00	27.00	54.00	48.00
Bi10U	18.00	30.00	36.00	27.00	54.00	60.00
Bi10U	30.00	27.00	60.00	45.00	90.00	54.00
Bi10	30.00	30.00	60.00	45.00	90.00	60.00
Bi12	30.00	36.00	60.00	45.00	90.00	72.00
Bi15	30.00	45.00	60.00	45.00	90.00	90.00
Bi15U	30.00	45.00	60.00	45.00	90.00	90.00
Bi 20U	30.00	60.00	60.00	45.00	90.00	120.00
Bi 20	47.00	60.00	94.00	71.00	141.00	120.00
Bi 25	47.00	75.00	94.00	71.00	141.00	150.00

Dimensions are in mm.

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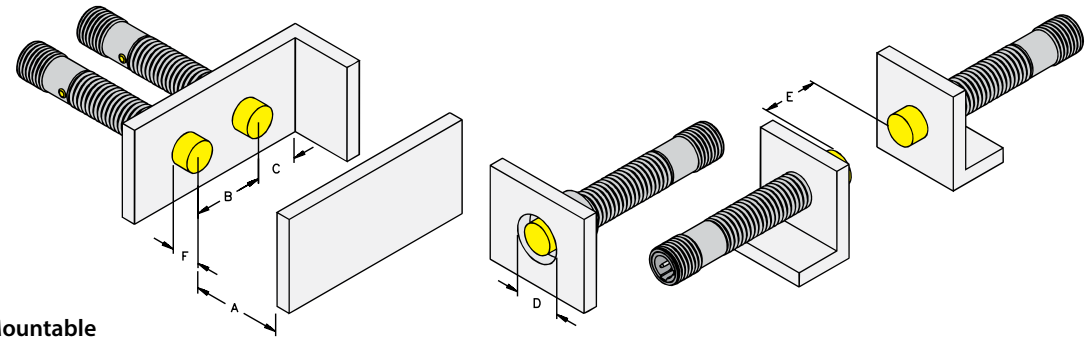
Inductive Barrel Sensors

Nonembeddable Mounting Characteristics

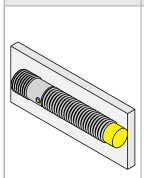
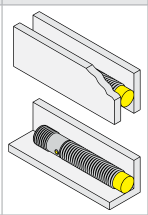
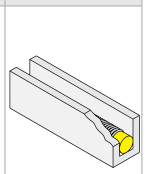


Non-Flush Mountable

Sensor Type	Barrel Diameter	A	B	C	D	E	F	1 Side	2 Side	3 Side
Ni3	6.50	9.00	20.00	10.00	20.00	18.00	6.00			
Ni3	8.00	9.00	24.00	12.00	24.00	18.00	6.00			
Ni4U	8.00	12.00	32.00	12.00	32.00	24.00	8.00			
Ni4	8.00	12.00	24.00	12.00	24.00	24.00	8.00			
Ni6U	8.00	18.00	32.00	12.00	36.00	36.00	12.00			
Ni5	11.00	15.00	33.00	17.00	33.00	30.00	10.00			
Ni4	12.00	12.00	36.00	18.00	36.00	24.00	8.00			
Ni5	12.00	15.00	36.00	18.00	36.00	30.00	10.00			
Ni8U	12.00	24.00	48.00	18.00	45.00	48.00	16.00	Sr=6 mm*		
Ni8	12.00	24.00	36.00	18.00	36.00	48.00	16.00			
Ni10U	12.00	30.00	48.00	18.00	36.00	60.00	20.00			
Ni8	18.00	24.00	54.00	27.00	54.00	48.00	16.00			
Ni10	18.00	30.00	54.00	27.00	54.00	60.00	20.00			
Ni12U	18.00	36.00	70.00	27.00	54.00	72.00	24.00			
Ni14	18.00	42.00	54.00	27.00	54.00	84.00	20.00			
Ni15U	18.00	45.00	70.00	27.00	54.00	90.00	30.00			
Ni10	20.00	30.00	60.00	30.00	60.00	60.00	20.00			
Ni15	30.00	45.00	90.00	45.00	90.00	90.00	20.00			
Ni20U	30.00	60.00	90.00	45.00	90.00	120.00	40.00	Sr=15 mm*	Sr=12 mm*	Sr=11 mm*
Ni20	30.00	60.00	90.00	45.00	90.00	120.00	20.00			
Ni30U	30.00	135.00	90.00	45.00	90.00	180.00	60.00			
Ni20	40.00	60.00	120.00	60.00	120.00	120.00	40.00			
Ni30	40.00	90.00	120.00	60.00	120.00	180.00	40.00			
Ni25	47.00	75.00	141.00	71.00	141.00	150.00	40.00			
Ni40	47.00	120.00	141.00	71.00	141.00	240.00	40.00			

Dimensions are in mm.

* The above Uprox Ni sensors with DC outputs and Stainless barrels can be flush mounted because the sensor automatically compensates for metal alongside its sensing face by decreasing the sensing range, preventing the output from locking on.

1 Side	2 Side	3 Side
		

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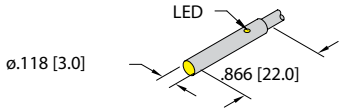
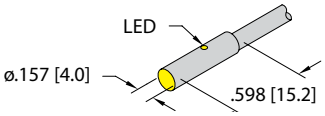
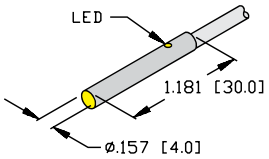
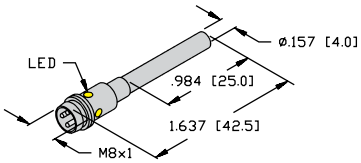
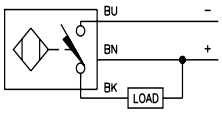
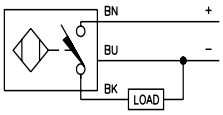
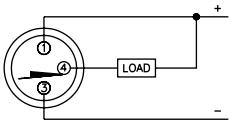
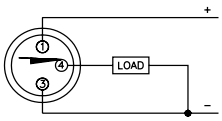
Inductive Barrel Sensors | 3 mm, 4 mm

Embeddable Smooth Metal Barrels with DC Outputs

Housing Style	Dimension Drawings	
	A  3 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable	B  4 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable
C  4 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable	D  4 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect	

Wiring Diagrams/Mating Cordsets

1	2	3	4
		 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 3 mm, 4 mm

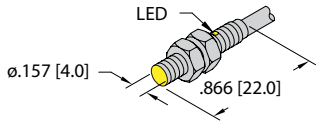
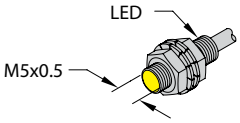
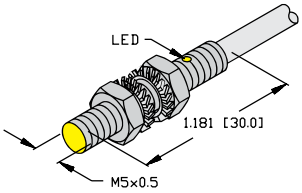
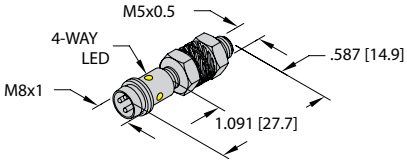
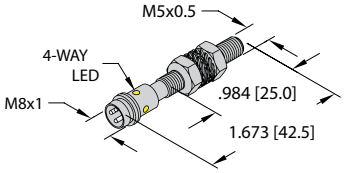
Embeddable Smooth Metal Barrels with DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1U-EH04-AN6X 4602114	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1U-EH04-AP6X 4602112	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EH04-AN6X 4609640		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1-EH04-AP6X 4609540		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EH04K-AN6X 4609768	Short Barrel	1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1-EH04K-AP6X 4609767	Short Barrel	1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1-EH03-AN6X 1619326		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1-EH03-AP6X 1619325		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1U-EH04-AN6X-V1331 4602115	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Bi1U-EH04-AP6X-V1331 4602113	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Bi1-EH04-AN6X-V1331 4608540		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Bi1-EH04-AP6X-V1331 4608440		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 4 mm, 5 mm

Embeddable Threaded Metal Barrels with DC Outputs

Housing Style	Dimension Drawings	
	A  4 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	B  5 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable
C  5 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	D  5 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect	E  5 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

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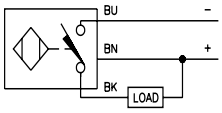
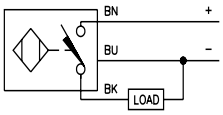
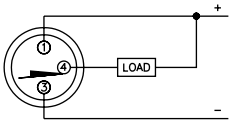
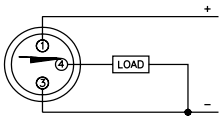
		 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 4 mm, 5 mm

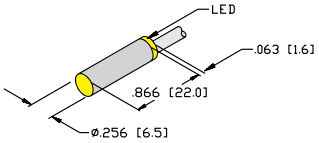
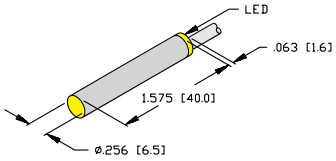
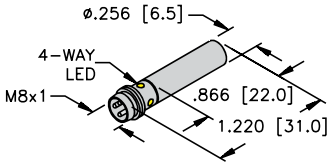
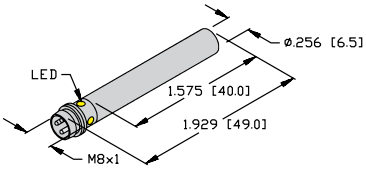
Embeddable Threaded Metal Barrels with DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1U-EG05-AN6X 4602118	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1U-EG05-AP6X 4602116	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EG05-AN6X 4609840		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1-EG05-AP6X 4609740		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EG05K-AN6X 4609764	Short Barrel	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1-EG05K-AP6X 4609765	Short Barrel	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1-EG04-AN6X 1619328		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1-EG04-AP6X 1619327		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1U-EG05-AN6X-V1331 4602119	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	3	A4
Bi1U-EG05-AP6X-V1331 4602117	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	4	A4
Bi1-EG05-AN6X-V1331 4608740		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	3	A4
Bi1-EG05-AP6X-V1331 4608640		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	4	A4
Bi1-EG05K-AP6X-V1331 4609766	Short Barrel	1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 6.5 mm

Embeddable Smooth Metal Barrels with DC Outputs

Housing Style	Dimension Drawings	
	A  6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable	B  6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable
C  6.5 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect	D  6.5 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect	

Wiring Diagrams/Mating Cordsets

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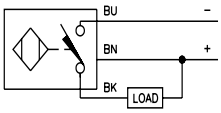
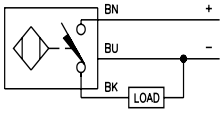
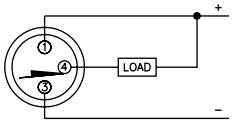
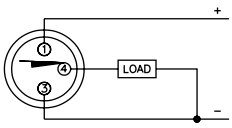
		 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 6.5 mm

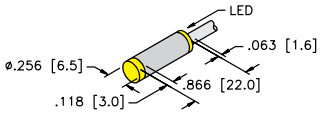
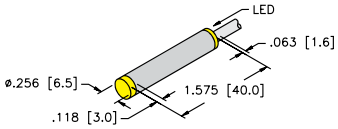
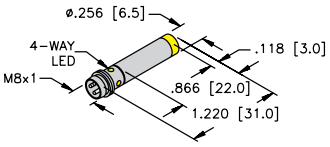
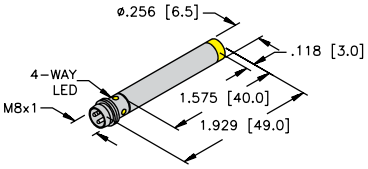
Embeddable Smooth Metal Barrels with DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2U-EH6.5-AN6X 4281170	Uprox	2	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/ TPU	B	1	A4
Bi2U-EH6.5-AP6X 4281150	Uprox	2	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi2-EH6.5-AN6X 4612300		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	1	A4
Bi2-EH6.5-AP6X 4612200		2	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi2-EH6.5K-AN6X 4610100	Short Barrel	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	1	A4
Bi2-EH6.5K-AP6X 4610000	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	2	A4
Bi1.5-EH6.5-AN6X 4612100		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	1	A4
Bi1.5-EH6.5-AP6X 4612000		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi1.5-EH6.5-AP6X/S100 4612001	High Temp. 100 °C	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi1.5-EH6.5K-AN6X 4610640	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	1	A4
Bi1.5-EH6.5K-AP6X 4610540	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	2	A4
Bi2U-EH6.5-AN6X-V1131 4281180	Uprox	2	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP68	SS	PA 12	N/A	YE	--	D	3	A4
Bi2U-EH6.5-AP6X-V1131 4281160	Uprox	2	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP68	SS	PA 12	N/A	YE	--	D	4	A4
Bi2-EH6.5-AN6X-V1131 4612320		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Bi2-EH6.5-AP6X-V1131 4612220		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Bi2-EH6.5K-AN6X-V1131 4610120	Short Barrel	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	3	A4
Bi2-EH6.5K-AP6X-V1131 4610020	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	4	A4
Bi1.5-EH6.5-AN6X-V1131 4612120		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Bi1.5-EH6.5-AP6X-V1131 4612020		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Bi1.5-EH6.5K-AN6X-V1131 4610840	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	3	A4
Bi1.5-EH6.5K-AP6X-V1131 4610740	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	4	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 6.5 mm

Nonembeddable Smooth Metal Barrels with DC Outputs

Housing Style	Dimension Drawings	
	A  6.5 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable	B  6.5 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable
C  6.5 mm - Nonembeddable, Miniature Smooth, M8 Picofast Quick Disconnect	D  6.5 mm - Nonembeddable, Miniature Smooth, M8 Picofast Quick Disconnect	

Wiring Diagrams/Mating Cordsets

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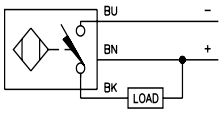
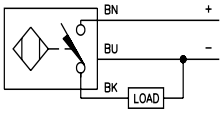
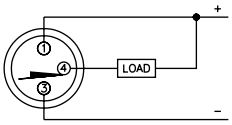
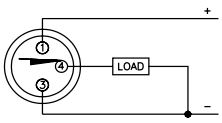
		 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 6.5 mm

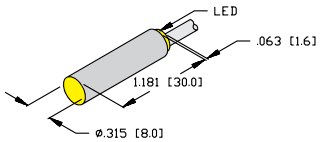
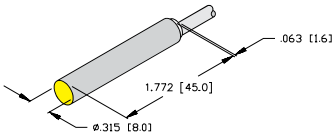
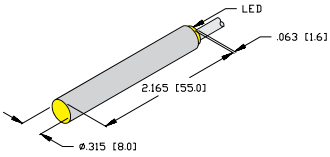
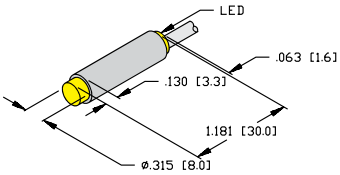
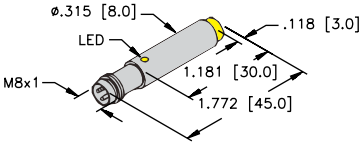
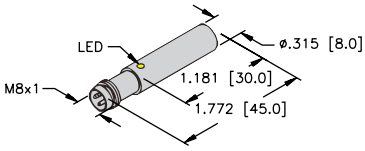
Nonembeddable Smooth Metal Barrels with DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni4U-EH6.5-AP6X 4600680	Uprox	4	3-wire DC PNP	10-30 VDC	3000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Ni3-EH6.5-AN6X 4612500		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Ni3-EH6.5-AP6X 4612400		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Ni3-EH6.5K-AN6X 4610300	Short Barrel	3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Ni3-EH6.5K-AP6X 4610200	Short Barrel	3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Ni6U-EH6.5-AP6X-V1131 4631510	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	PA 12	N/A	YE	--	D	4	A4
Ni4U-EH6.5-AN6X-V1131 4600683	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	D	3	A4
Ni4U-EH6.5-AP6X-V1131 4600681	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	D	4	A4
Ni3-EH6.5-AN6X-V1131 4612520		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Ni3-EH6.5-AP6X-V1131 4612420		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Ni3-EH6.5K-AN6X-V1131 4610320	Short Barrel	3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	3	A4
Ni3-EH6.5K-AP6X-V1131 4610220	Short Barrel	3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	4	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable and Nonembeddable Smooth Metal Barrels with DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable	B  8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable
C  8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable	D  8 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable	E  8 mm - Nonembeddable, Miniature Smooth, M8 Picofast Quick Disconnect
F  8 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect		

Wiring Diagrams/Mating Cordsets

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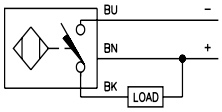
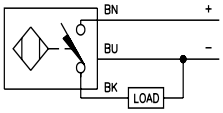
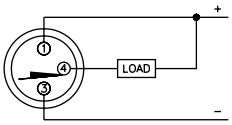
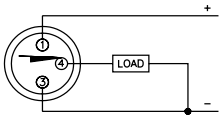
		 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable and Nonembeddable Smooth Metal Barrels with DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-H08K-AN6X 1604341	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1.5-H08K-AP6X 1604331	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1.5-H08M-AP6X 1604301		1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1.5-H08-AN6X 16143		1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1.5-H08-AP6X 16043		1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Ni2-H08K-AN6X 16147	Short Barrel	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	D	1	A4
Ni2-H08K-AP6X 16047	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	D	2	A4
Bi1.5-H08K-AN6X-V1131 1604340	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PBT	N/A	YE	--	F	3	A4
Bi1.5-H08K-AP6X-V1131 1604330	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PBT	N/A	YE	--	F	4	A4
Ni2-H08K-AN6X-V1131 16148	Short Barrel	2	3-wire DC NPN	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	3	A4
Ni2-H08K-AP6X-V1131 16048	Short Barrel	2	3-wire DC PNP	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	4	A4

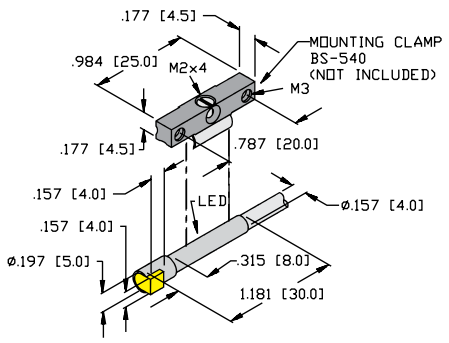
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 5 mm, 8 mm

Embeddable Side Sensing Metal Barrels with Cable and DC Outputs

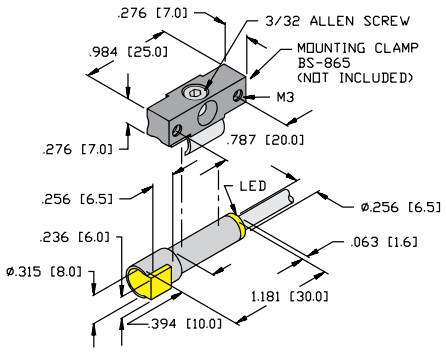
Housing Style	Dimension Drawings

A



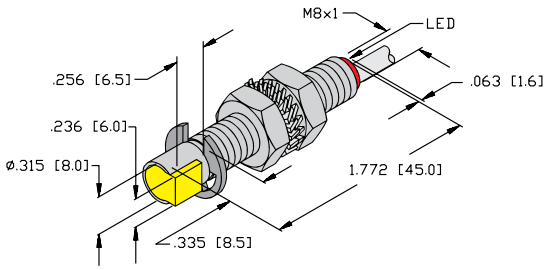
5 mm - Embeddable, Side Sensing, Miniature Smooth Barrel, Potted-In Cable

B



8 mm - Embeddable, Side Sensing, Miniature Smooth Barrel, Potted-In Cable

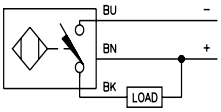
C



8 mm - Embeddable, Miniature Threaded Barrel, Side Sensing, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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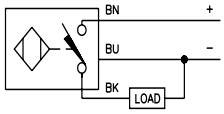


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 5 mm, 8 mm

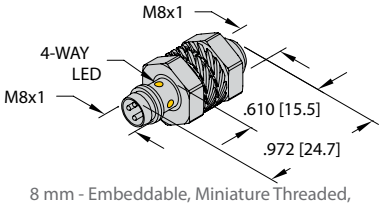
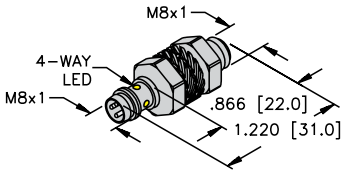
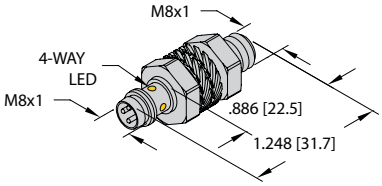
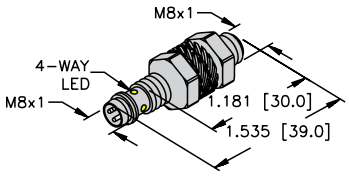
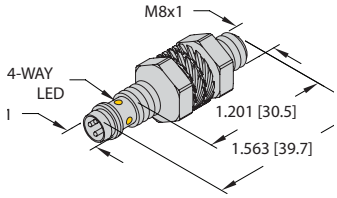
Embeddable Side Sensing Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-HS865-AN6X 4604301	Side Sensing	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1.5-HS865-AP6X 4604201	Side Sensing	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1.5-GS880-AN6X 4604501	Side Sensing	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1.5-GS880-AP6X 4604401	Side Sensing	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-HS540-AN6X 4604101	Side Sensing	1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1-HS540-AP6X 4604001	Side Sensing	1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4

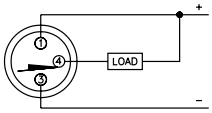
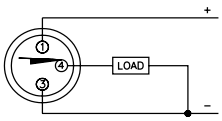
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect	B  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect
C  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect	D  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect	E  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1	2
 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

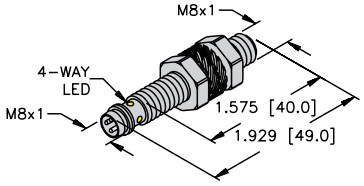
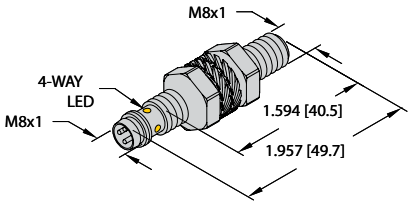
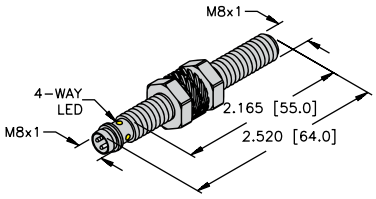
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EM08-AN6X-V1131 4602423	Uprox3	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	D	1	A4
Bi3U-EMT08-AN6X-V1131 4602157	Uprox3, PTFE	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	TC	N/A	YE	D	1	A4
Bi3U-EM08-AP6X-V1131 4602413	Uprox3	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	D	2	A4
Bi3U-EMT08-AP6X-V1131 4602156	Uprox3, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	TC	N/A	YE	D	2	A4
Bi3-M08-AN6X-V1131 4602914		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	E	1	A4
Bi3-M08-AP6X-V1131 4602911		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	E	2	A4
Bi3-M08KK-AN6X-V1131 4602942	Short Barrel	3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	1	A4
Bi3-M08KK-AP6X-V1131 4602939	Short Barrel	3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	2	A4
Bi2-EG08K-AN6X-V1131 4669550		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	D	1	A4
Bi2-EG08K-AP6X-V1131 4669450		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	D	2	A4
Bi2-G08K-AP6X-V1131 4672803		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PBT	N/A	YE	D	2	A4
Bi2-M08K-AN6X-V1131 4602965		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	1	A4
Bi2-M08K-AP6X-V1131 4602968		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	2	A4
Bi1.5-EG08K-AN6X-V1131 4672540		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	1	A4
Bi1.5-EG08K-AP6X-V1131 4672440		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	2	A4

Note: Reference sensor data sheet for considerations if mounting a BI3-M08 sensor flush in steel.

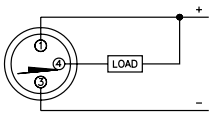
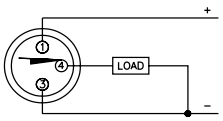
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect
B  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect	C  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: PKG 3M-*	2  Mating Cordset: PKG 3M-*; PKG 3M-*/S1587

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

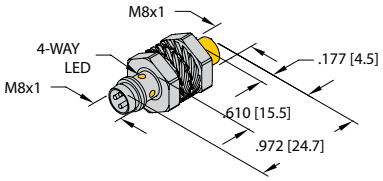
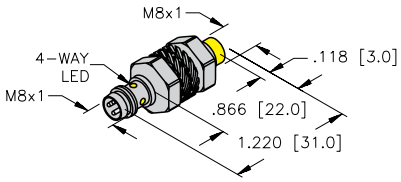
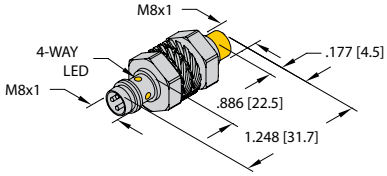
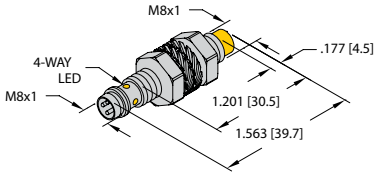
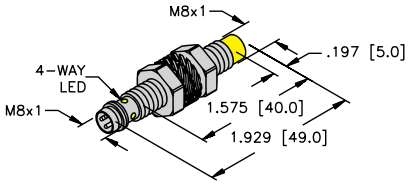
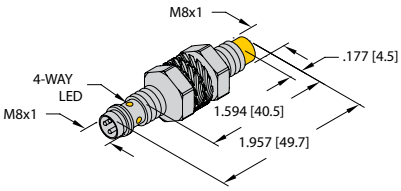
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi2U-EG08-AN6X-V1131 4602036	Uprox	2	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	C	1	A4
Bi2U-EG08-AP6X-V1131 4602033	Uprox	2	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	C	2	A4
Bi2-EG08-AN6X-V1131 4602150		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	1	A4
Bi2-EG08-AP6X-V1131 4602050		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	2	A4
Bi2-EG08-AP6X-V1131/S1589 46020501	Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	C	2	A4
Bi2-EGT08-AP6X-V1131/S100 4602263	PTFE, High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	TC	N/A	YE	C	2	A4
Bi2-EGT08-AP6X-V1131/S100/S1589 4602072	PTFE, High Temp. 100 °C, Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	WG	N/A	YE	C	2	A4
Bi2-G08-AP6X-V1131 4602002		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	2	A4
Bi2-M08E-AN6X-V1131 4602953		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	B	1	A4
Bi2-M08E-AP6X-V1131 4602956		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	B	2	A4
Bi1.5U-EG08-AN6X-V1131 4600530	Uprox	1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	A	1	A4
Bi1.5U-EG08-AP6X-V1131 4600520	Uprox	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	A	2	A4
Bi1.5-EG08-AN6X-V1131 4602350		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	1	A4
Bi1.5-EG08-AP6X-V1131 4602220		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4

We reserve the right to make technical alterations without prior notice.

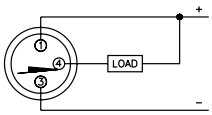
Inductive Barrel Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect	B  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect
C  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect	D  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect	E  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect
F  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect		

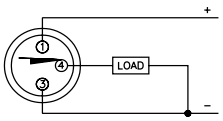
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: PKG 3M-*

2



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

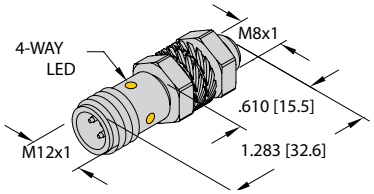
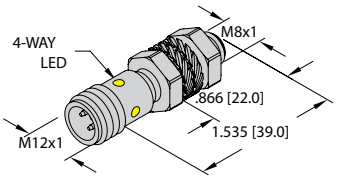
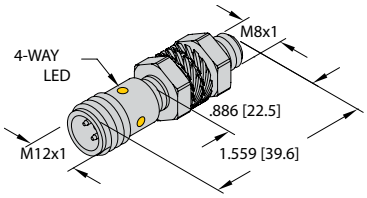
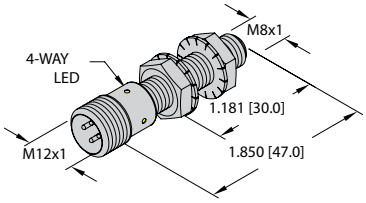
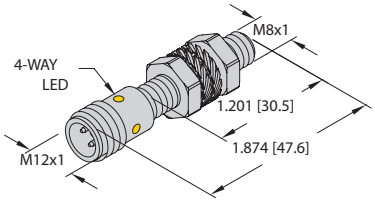
Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni6U-EG08-AN6X-V1131 4635804	Uprox+	6	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	E	1	A4
Ni6U-EG08-AP6X-V1131 4635801	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	E	2	A4
Ni5-M08-AN6X-V1131 4602924		5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	D	1	A4
Ni5-M08-AP6X-V1131 4602921		5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	D	2	A4
Ni5-M08KK-AN6X-V1131 4602949	Short Barrel	5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	A	1	A4
Ni5-M08KK-AP6X-V1131 4602946	Short Barrel	5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	A	2	A4
Ni4U-EG08-AN6X-V1131 4600630	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	E	1	A4
Ni4U-EG08-AP6X-V1131 4600620	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	E	2	A4
Ni3-M08E-AN6X-V1131 4602833		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	F	1	A4
Ni3-M08E-AP6X-V1131 4602836		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	F	2	A4
Ni3-M08K-AN6X-V1131 4602849		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	C	1	A4
Ni3-M08K-AP6X-V1131 4602853		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	C	2	A4
Ni3-EG08-AN6X-V1131 4602850		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	E	1	A4
Ni3-EG08-AP6X-V1131 4602750		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	E	2	A4
Ni3-EG08K-AN6X-V1131 4669750		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	1	A4
Ni3-EG08K-AP6X-V1131 4669650		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	2	A4

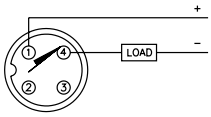
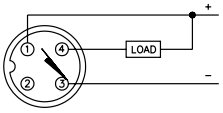
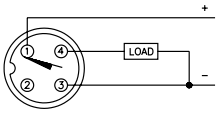
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect	B  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect
C  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect	D  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect	E  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1	2	3
		
Mating Cordset: RK 4.23T-*	Mating Cordset: RK 4T-*	Mating Cordset: RK 4T-*; RK 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EM08-AN6X-H1341 4602422	Uprox3	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	D	2	A4
Bi3U-EMT08-AN6X-H1341 4602158	Uprox3, PTFE	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	TC	N/A	YE	D	2	A4
Bi3U-EM08-AP6X-H1341 4602412	Uprox3	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	D	3	A4
Bi3U-EMT08-AP6X-H1341 4602156	Uprox3, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	TC	N/A	YE	D	3	A4
Bi3-M08-AN6X-H1341 4602915		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	E	2	A4
Bi3-M08-AP6X-H1341 4602912		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	E	3	A4
Bi3-M08KK-AN6X-H1341 4602943	Short Barrel	3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	2	A4
Bi3-M08KK-AP6X-H1341 4602940	Short Barrel	3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	3	A4
Bi2-EG08K-AG41X-H1341 4562011		2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	B	1	A2
Bi2-EG08K-AG41X-H1341/S1589 4562090	Weldguard	2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	B	1	A2
Bi2-EGT08K-AG41X-H1341/S1589 4602599	PTFE, Short barrel, Weldguard	2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	B	1	A2
Bi2-EG08K-AN6X-H1341 4669560		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	2	A4
Bi2-EG08K-AP6X-H1341 4669460		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	3	A4
Bi2-EG08K-AP6X-H1341/S1589 4669486	Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	B	3	A4
Bi2-M08K-AN6X-H1341 4602964		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	2	A4
Bi2-M08K-AP6X-H1341 4602967		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	3	A4
Bi1.5-EG08K-AN6X-H1341 4669150		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	2	A4
Bi1.5-EG08K-AP6X-H1341 4669050		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	3	A4

Note: Reference sensor data sheet for considerations if mounting a BI3-M08 sensor flush in steel.

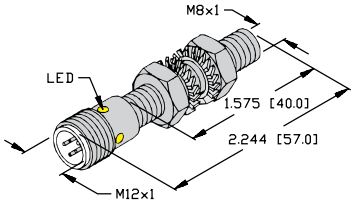
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

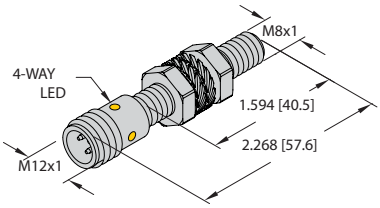
Housing Style	Dimension Drawings

A



8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

B



8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

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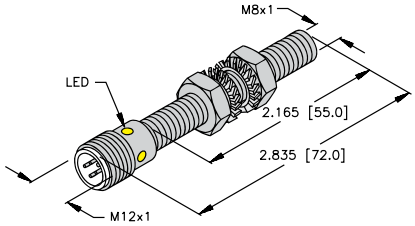
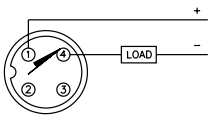


8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.23T-*

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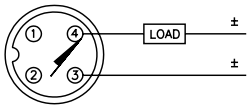

Mating Cordset: RK 4.23T-*

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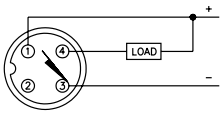

Mating Cordset: RK 4T-*; RK 4T-*/S1587

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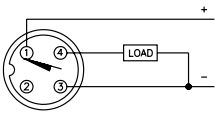


Mating Cordset: RK 4T-*; RK 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi2U-EG08-AN6X-H1341 4602037	Uprox	2	3-wire DC NPN	10-30 VDC	1000	≤150	-35 to +85	IP68	SS	PA 12	N/A	YE	A	3	A4
Bi2U-EG08-AP6X-H1341 4602034	Uprox	2	3-wire DC PNP	10-30 VDC	1000	≤150	-35 to +85	IP68	SS	PA 12	N/A	YE	A	4	A4
Bi2-EG08-AG41X-H1341 4562001		2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	A	1	A2
Bi2-EG08-AG41X-H1341/S1589 4562095	Weldguard	2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	A	1	A2
Bi2-EG08-AN6X-H1341 4602160		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi2-EG08-AN6X-H1341/S1589 4602182	Weldguard	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A4
Bi2-EG08-AP6X-H1341 4602060		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	4	A4
Bi2-EG08-AP6X-H1341/S1589 4602086	Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	4	A4
Bi2-EGT08-AP6X-H1341/S100 4602257	PTFE, High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	TC	TC	N/A	YE	A	4	A4
Bi2-EG08-VN6X-H1341 4602521	Comp. Outputs	2	4-wire DC NPN	10-30 VDC	3000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	5	A4
Bi2-EG08-VP6X-H1341 S4602522	Comp. Outputs	2	4-wire DC PNP	10-30 VDC	3000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	6	A4
Bi2-G08-AN6X-H1341 46026		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	3	A4
Bi2-G08-AP6X-H1341 46025		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	4	A4
Bi2-M08E-AN6X-H1341 4602952		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	B	3	A4
Bi2-M08E-AP6X-H1341 4602955		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	B	4	A4
Bi1.5U-EG08-AN6X-H1341 4600550	Uprox	1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi1.5U-EG08-AP6X-H1341 4600540	Uprox	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	A	4	A4
Bi1.5U-EG08-AP6X-H1341/S1589 46005401	Uprox, Weldguard	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP67	SS	WG	N/A	YE	A	4	A4
Bi1.5U-EGT08-AP6X-H1341 4600555	Uprox, PTFE	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP67	TC	TC	N/A	YE	A	4	A4
Bi1.5-EG08-AD6X-H1341 4600203		1.5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A2
Bi1.5-EG08-AN6X-H1341 4602360		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi1.5-EG08-AP6X-H1341 4602260		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	4	A4
Bi1.5-G08-AN6X-H1341 4603700		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	3	A4
Bi1.5-G08-AN7X-H1341 4701126	TTL Compatible	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	3	A4
Bi1.5-G08-AP6X-H1341 4603600		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	4	A4

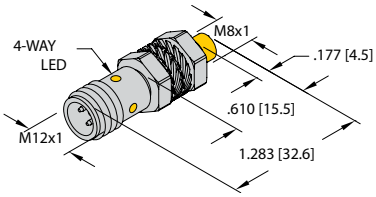
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

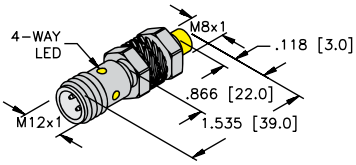
Housing Style	Dimension Drawings

A



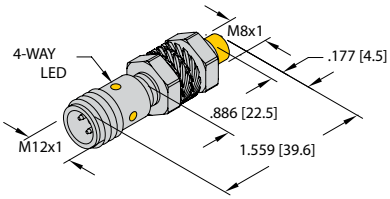
8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

B



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

C



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

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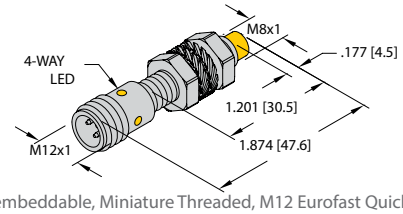
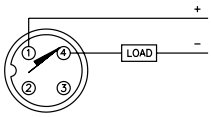


8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

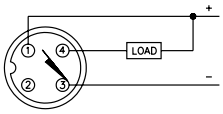
Wiring Diagrams/Mating Cordsets

1



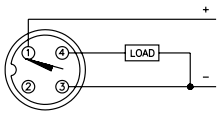
Mating Cordset: RK 4.23T-*

2



Mating Cordset: RK 4T-*

3



Mating Cordset: RK 4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni5-M08-AN6X-H1341 4602925		5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	D	2	A4
Ni5-M08-AP6X-H1341 4602922		5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	D	3	A4
Ni5-M08KK-AN6X-H1341 4602950	Short Barrel	5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	2	A4
Ni5-M08KK-AP6X-H1341 4602947	Short Barrel	5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	3	A4
Ni4-EG08K-AG41X-H1341 4561011		4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	B	1	A2
Ni4-EG08K-AG41X-H1341/S1589 4561090	Weldguard	4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	B	1	A2
Ni3-EG08K-AN6X-H1341 4669760		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	2	A4
Ni3-EG08K-AP6X-H1341 4669660		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	3	A4
Ni3-M08K-AN6X-H1341 4602848		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	2	A4
Ni3-M08K-AP6X-H1341 4602852		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	3	A4

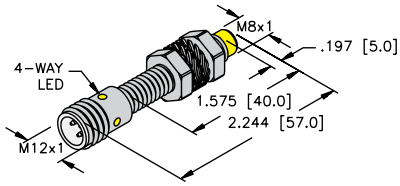
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

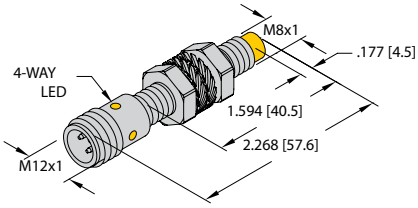
Housing Style	Dimension Drawings

A



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

B



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

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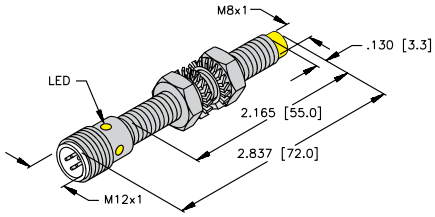
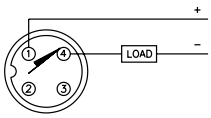


8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.23T-*; RK 4.23T-*/S1587

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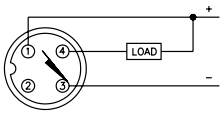

Mating Cordset: RK 4T-*;

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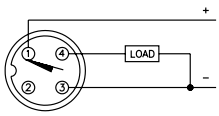


Mating Cordset: RK 4T-*; RK 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

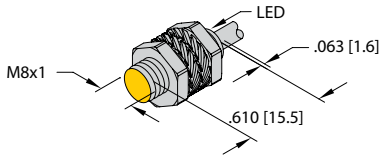
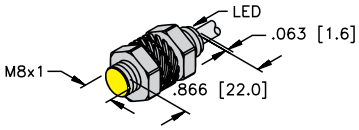
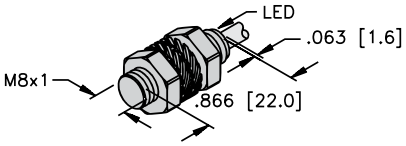
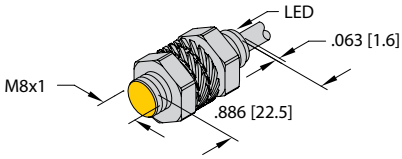
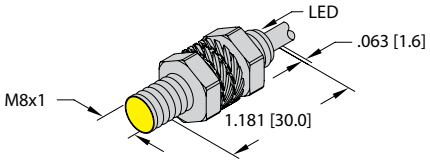
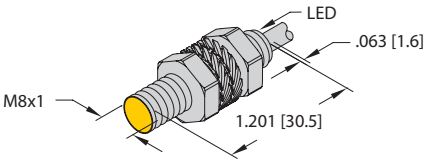
Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni6U-EG08-AN6X-H1341 4635805	Uprox+	6	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	A	2	A4
Ni6U-EG08-AP6X-H1341 4635802	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	A	3	A4
Ni4U-EG08-AN6X-H1341 4600650	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	A	2	A4
Ni4U-EG08-AP6X-H1341 4600640	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	A	3	A4
Ni4U-EG08-AP6X-H1341/S1589 4600641	Uprox, Weldguard	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP67	SS	WG	N/A	YE	A	3	A4
Ni4-EG08-AG41X-H1341 4561001		4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	A	1	A2
Ni4-EG08-AG41X-H1341/S1589 4561091	Weldguard	4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	A	1	A2
Ni3-EG08-AN6X-H1341 4602860		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4
Ni3-EG08-AN7X-H1341 4669761	TTL Compatible	3	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4
Ni3-EG08-AP6X-H1341 4602760		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Ni3-EG08-AP6X-H1341/S1589 4602799	Weldguard	3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A4
Ni3-M08E-AN6X-H1341 4602832		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	B	2	A4
Ni3-M08E-AP6X-H1341 4602835		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	B	3	A4
Ni3-G08-AN6X-H1341 4602704		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	2	A4
Ni3-G08-AP6X-H1341 4602705		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	3	A4
Ni2-G08-AN6X-H1341 46033		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	2	A4
Ni2-G08-AP6X-H1341 46032		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	3	A4

We reserve the right to make technical alterations without prior notice.

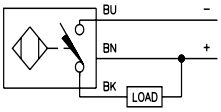
Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	B  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable
C  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable, PTFE Coated	D  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	E  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable
F  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable		

Wiring Diagrams/Mating Cordsets

1



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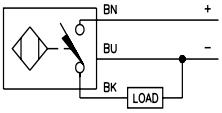


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

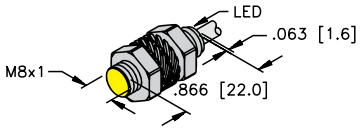
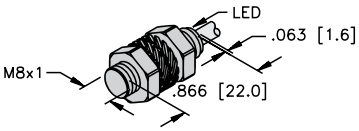
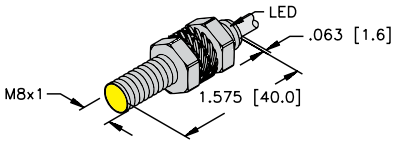
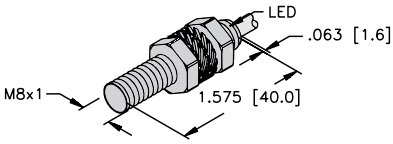
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EM08-AN6X 4602421	Uprox3	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	2M/TPU	E	1	A4
Bi3U-EM08-AP6X 4602411	Uprox3	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	2M/TPU	E	2	A4
Bi3-M08-AN6X 4602913		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	F	1	A4
Bi3-M08-AP6X 4602910		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	F	2	A4
Bi3-M08KK-AN6X 4602941	Short Barrel	3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	A	1	A4
Bi3-M08KK-AP6X 4602938	Short Barrel	3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	A	2	A4
Bi2-EG08K-AN6X 4669500		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi2-EG08K-AN6X/S1589 4669587	Weldguard	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	B	1	A4
Bi2-EG08K-AP6X 4669400		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi2-EG08K-AP6X/S97 4669413	Low Temp. -40 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-40 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi2-EGT08K-AP6X 4602541	PTFE	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	TC	TC	N/A	YE	2M/TPU	C	2	A4
Bi2-EGT08K-AP6X/S100 4602544	PTFE, High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	TC	TC	N/A	YE	2M/TPU	C	2	A4
Bi2-EGT08K-AP6X/S1589 46025413	PTFE, Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	TC	WG	N/A	YE	2M/TPU	C	2	A4
Bi2-M08K-AN6X 4602963		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	D	1	A4
Bi2-M08K-AP6X 4602966		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	D	2	A4
Bi1.5-EG08K-AN6X 4669140		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1.5-EG08K-AP6X 4669040		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1.5-EG08K-AP6/S100 4669016	High Temp. 100 °C	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4

Note: Reference sensor data sheet for considerations if mounting a BI3-M08 sensor flush in steel.

We reserve the right to make technical alterations without prior notice.

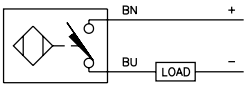
Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable and 2-Wire Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	B  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable, PTFE Coated
C  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	D  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable, PTFE Coated	

Wiring Diagrams/Mating Cordsets

1



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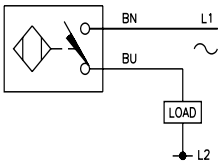


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10 ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable and 2-Wire Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-EG08-AG41X 4562000		2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A2
Bi2-EG08-AG41X/S1589 4562088	Weldguard	2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	C	1	A2
Bi2-EG08-AZ14X 4100001		2	2-wire AC/DC	20-132 VAC/10-140 VDC	20	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A6
Bi2-EGT08-AG41X 4602540	PTFE	2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	TC	PA 12	N/A	YE	2M/TPU	D	1	A2
Bi2-EGT08-AG41X/S1589 46020003	PTFE, Weldguard	2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	2M/TPU	D	1	A2
Bi2-EG08K-AG41X 4562010		2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A2
Bi2-EG08K-AG41X/S1589 4562091	Weldguard	2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	A	1	A2
Bi2-EGT08K-AG41X 4602545	PTFE	2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	TC	PA 12	N/A	YE	2M/TPU	B	1	A2

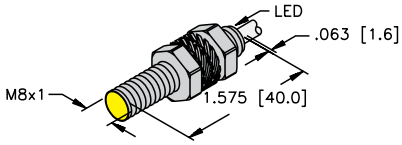
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings

A



8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

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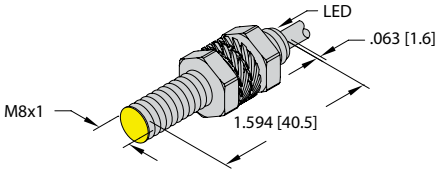

8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

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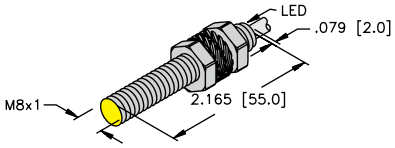
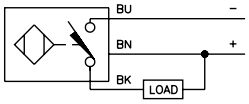


8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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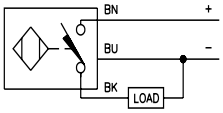

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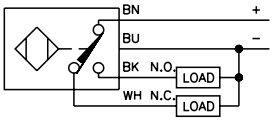


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

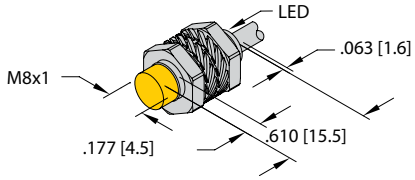
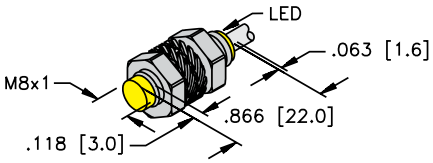
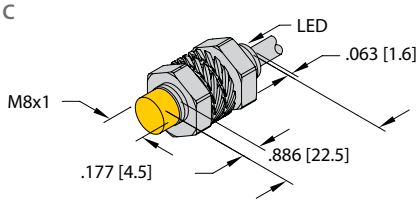
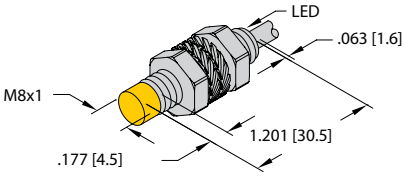
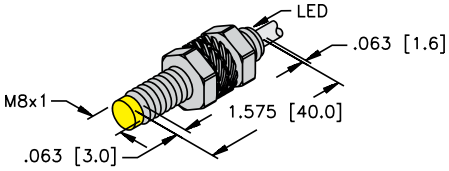
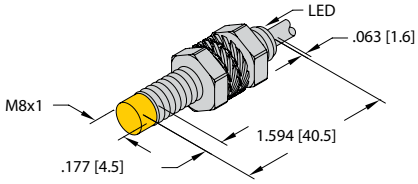
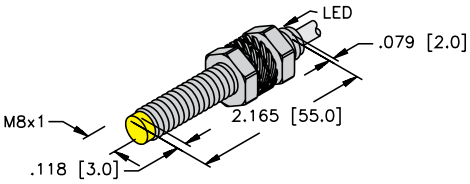
Embeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2U-EG08-AN6X 4602035	Uprox	2	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi2U-EG08-AP6X 4602032	Uprox	2	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi2-EG08-AN6X 4602140	Extended Range	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi2-EG08-AP6X 4602040	Extended Range	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi2-EG08-AP6X/S100 4602047	High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi2-EG08-AP6X/S1589 4602085	Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	A	2	A4
Bi2-EG08-VP6X 1604610	Comp. Outputs	2	4-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	3	A4
Bi2-G08-AN6X 46021	Extended Range	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi2-G08-AP6X 46020	Extended Range	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi2-M08E-AN6X 4602951		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	B	1	A4
Bi2-M08E-AP6X 4602954		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	B	2	A4
Bi1.5U-EG08-AN6X 4600510	Uprox	1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1.5U-EG08-AP6X 4600500	Uprox	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1.5-EG08-AN6X 4602340		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1.5-EG08-AN7X 1766110	TTL Compatible	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1.5-EG08-AP6X 4602240		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1.5-G08-AN6X 46023		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1.5-G08-AP6X 46022		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4

We reserve the right to make technical alterations without prior notice.

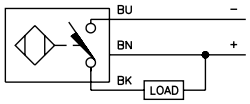
Inductive Barrel Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable	B  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable
C  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable	D  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable	E  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable
F  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable	G  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1



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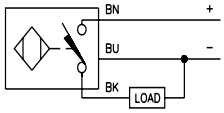


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

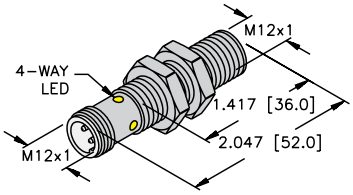
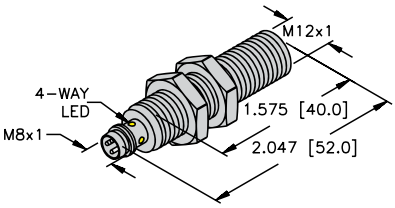
Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni6U-EG08-AN6X 4635803	Uprox+	6	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	2M/TPU	E	1	A4
Ni6U-EG08-AP6X 4635800	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	2M/TPU	E	2	A4
Ni5-M08-AN6X 4602923		5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	D	1	A4
Ni5-M08-AP6X 4602920		5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	D	2	A4
Ni5-M08KK-AN6X 4602948	Short Barrel	5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	A	1	A4
Ni5-M08KK-AP6X 4602944	Short Barrel	5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	A	2	A4
Ni4U-EG08-AN6X 4600610	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	E	1	A4
Ni4U-EG08-AP6X 4600600	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	E	2	A4
Ni3-EG08-AN6X 4602840		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	E	1	A4
Ni3-EG08-AN6X/S1589 4602888	Weldguard	3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	E	1	A4
Ni3-EG08-AN7X 4669759	TTL Compatible	3	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	E	1	A4
Ni3-EG08-AP6X 4602740		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	E	2	A4
Ni3-EG08-AP6X/S1589 4602789	Weldguard	3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	E	2	A4
Ni3-EG08K-AN6X 4669700		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Ni3-EG08K-AP6X 4669600		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Ni3-G08-AN6X 46028		3	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	G	1	A4
Ni3-G08-AP6X 46027		3	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	G	2	A4
Ni3-M08E-AN6X 4602831		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	F	1	A4
Ni3-M08E-AP6X 4602834		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	F	2	A4
Ni3-M08K-AN6X 4602847		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	C	1	A4
Ni3-M08K-AP6X 4602851		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	C	2	A4
Ni2-G08-AN6X 4601300		2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	G	1	A4
Ni2-G08-AP6X 46012		2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	G	2	A4

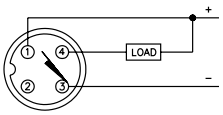
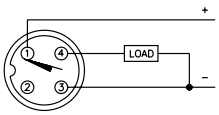
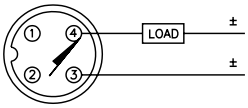
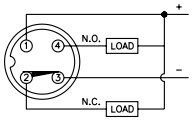
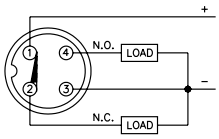
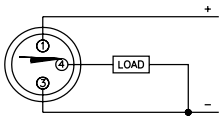
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable, M12 Eurofast Connection	B  12 mm - Embeddable, M8 Picofast Connection

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: RK 4T-*; RKV 4T-*	2  Mating Cordset: RK 4T-*; RKV 4T-*	3  Mating Cordset: RK 4.2T-*
4  Mating Cordset: RK 4.4T-*	5  Mating Cordset: RK 4.4T-*; RKV 4.4T-*	6  Mating Cordset: PKG 3M-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

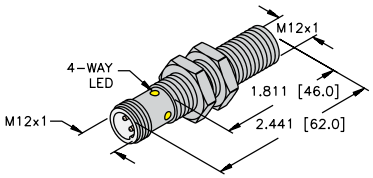
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi6U-M12-AN6X-H1141 1644808	Uprox3	6	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	1	A4
Bi6U-M12-AP6X-H1141 1644810	Uprox3	6	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	2	A4
Bi6U-M12-VP6X-H1141 1644805	Uprox3, Comp. Outputs	6	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	5	A4
Bi4U-EM12-AN6X-H1141 1634827	Uprox+	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	1	A4
Bi4U-M12-AN6X-H1141 1634824	Uprox+	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	1	A4
Bi4U-EM12-AP6X-H1141 1634807	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	2	A4
Bi4U-M12-AP6X-H1141 1634804	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	2	A4
Bi4U-M12-AP6X-V1131 1634780	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	B	6	A4
Bi4-M12-AN6X-H1141 4607100	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi4-M12-AP6X-H1141 46070	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi4-M12-VN6X-H1141 1643200	Ext. Range, Comp. Outputs	4	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi4-M12-VP6X-H1141 1633200	Ext. Range, Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Bi4-EM12-VP6X-H1141 1633201	Ext. Range, Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	5	A4
Bi3U-EM12-AN6X-H1141 1634350	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	1	A4
Bi3U-M12-AN6X-H1141 1634150	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi3U-EM12-AP6X-H1141 1634340	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	2	A4
Bi3U-M12-AP6X-H1141 1634140	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi3-M12-AD4X-H1141 4405041		3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A2
Bi2-M12-AD4X-H1141 44065		2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A2
Bi2-EM12-AN6X-H1141 4606601		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	1	A4
Bi2-M12-AN6X-H1141 46066		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi2-EM12-AP6X-H1141 4606501		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4
Bi2-M12-AP6X-H1141 46065		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi2-M12-VN6X-H1141 16430	Comp. Outputs	2	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi2-M12-VP6X-H1141 16330	Comp. Outputs	2	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length

Wiring Diagrams/Mating Cordsets

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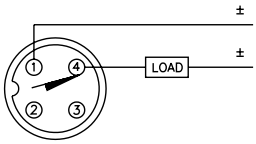
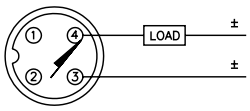


Mating Cordset: RK 4.23T-*

2



Mating Cordset: RK 4.2T-*

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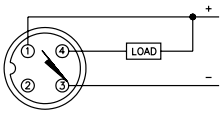

Mating Cordset: RK 4T-*; RKC 4T-*/S1587

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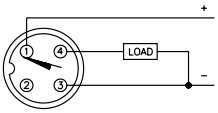

Mating Cordset: RK 4T-*; RKC 4T-*/S1587

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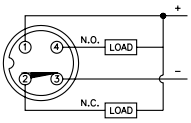
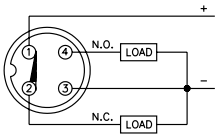


Mating Cordset: RK 4.4T-*

6



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

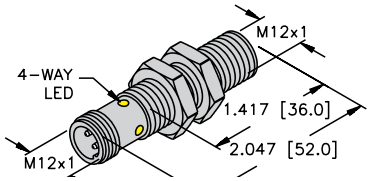
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-M12E-AN6X-H1141 4607193	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Bi4-EM12E-AN6X-H1141/S1589 4607185	Ext. Range, Weldguard	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A4
Bi4-M12E-AP6X-H1141 4608030	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi4-EM12E-AP6X-H1141/S1589 4607184	Ext. Range, Weldguard	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	4	A4
Bi4-M12E-VN6X-H1141 1643201	Extended Range	4	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Bi4-M12E-VP6X-H1141 4608092	Extended Range	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Bi3U-EM12E-AN6X-H1141 1634351	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	3	A4
Bi3U-EM12HE-AN6X2-H1141 1634311	Uprox, Stoneface	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PA 12	GN	YE	A	3	A4
Bi3U-EM12E-AN6X2-H1141/S1589 1634397	Uprox, Weldguard	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	3	A4
Bi3U-M12E-AP6X-H1141 1634148	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi3U-EM12HE-AP6X2-H1141 1634310	Uprox, Stoneface	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	SF	GN	YE	A	4	A4
Bi3U-EM12E-AP6X2-H1141/S1589 1634398	Uprox, Weldguard	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	4	A4
Bi3U-M12E-AN6X-H1141 1634151	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	3	A4
Bi3U-EM12E-AP6X-H1141 1634343	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	4	A4
Bi3U-M12E-VN4X-H1141 1580354	Uprox	3	4-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	5	A4
Bi3U-M12E-VP4X-H1141 1580252	Uprox	3	4-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	6	A4
Bi3-M12E-AD4X-H1141 4405080		3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A2
Bi2U-M12E-AD4X-H1144 4405060	Uprox	2	2-wire DC	10-65 VDC	1000	≤100	-30 to +85	IP68	CPB	LCP	N/A	YE	A	1	A2
Bi2-M12E-AN6X-H1141 4606602		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4

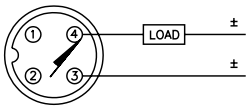
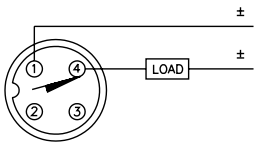
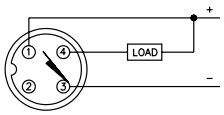
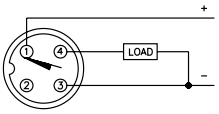
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, M12 Eurofast Connection, PTFE Coated Sensors

Wiring Diagrams s/Mating Cordset

1  Mating Cordset: RK 4.2T-*	2  Mating Cordset: RK 4.23T-*
3  Mating Cordset: RK 4T-*; RKC 4T-*/S1587	4  Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

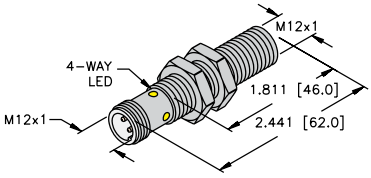
Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi6U-MT12-AN6X-H1141 1644858	Uprox3, PTFE	6	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	3	A4
Bi6U-MT12-AP6X-H1141 1644831	Uprox3, PTFE	6	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	4	A4
Bi6U-MT12-AP6X2-H1141 1644904	Uprox3, PTFE	6	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	TC	TC	GN	YE	A	4	A4
Bi4U-MT12-AN6X-H1141 1634829	Uprox+, PTFE	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	3	A4
Bi4U-MT12-AN6X-H1141/S1589 16348290	Uprox+, PTFE, Weldguard	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	3	A4
Bi4U-MT12-AP6X-H1141 1634809	Uprox+, PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	4	A4
Bi4-MT12H-AN6X-H1141 4607194	Ext. Range, PTFE, Stoneface	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	SF	N/A	YE	A	3	A4
Bi4-MT12-AN6X-H1141/S1589 4607188	Ext. Range, PTFE, Weldguard	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	A	3	A4
Bi4-MT12H-AP6X-H1141 4607093	Ext. Range, PTFE, Stoneface	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	SF	N/A	YE	A	4	A4
Bi4-MT12-AP6X-H1141/S1589 4607099	Ext. Range, PTFE, Weldguard	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	A	4	A4
Bi3U-MT12-AN6X-H1141 1634250	Uprox, PTFE	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	3	A4
Bi3U-MT12-AP6X-H1141 1634240	Uprox, PTFE	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	4	A4
Bi3U-MT12-AP6X2-H1141 1634245	Uprox, PTFE	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	4	A4
Bi3U-MT12H-AP6X-H1141 1634212	Uprox, PTFE, Stoneface	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	4	A4
Bi3U-MT12-AP6X2-H1141/S1589 1634293	Uprox, PTFE, Weldguard	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	4	A4
Bi3-MT12-AD4X-H1141/S1589 4405082	PTFE, Weldguard	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	1	A2
Bi3-MT12-AD4X-H1144/S1589 4405084	PTFE, Weldguard	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	2	A2

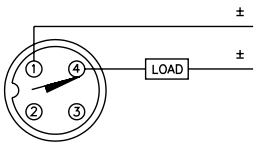
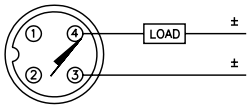
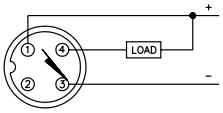
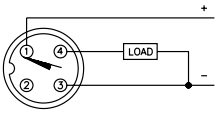
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length, PTFE Coated Sensors

Wiring Diagrams/Mating Cordset

1  Mating Cordset: RK 4.23T-*	2  Mating Cordset: RK 4.2T-*
3  Mating Cordset: RK 4T-*; RKC 4T-*/S1587	4  Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

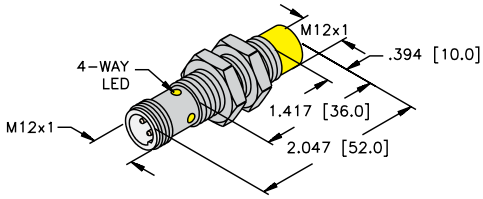
Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi4U-MT12E-AP6X2-H1141 1644742	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	TC	GN	YE	A	4	A4
Bi4U-MT12E-AP6X2-H1141/S1589 1644797	Uprox+, PTFE, Weldguard	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	4	A4
Bi4-MT12E-AP6X-H1141 46080932	Ext. Range, PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	TC	N/A	YE	A	4	A4
Bi4-MT12HE-AN6X-H1141 4607197	Ext. Range, PTFE	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	TC	N/A	YE	A	3	A4
Bi4-MT12HE-AP6X-H1141 4608093	Ext. Range, Stoneface	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	TC	N/A	YE	A	4	A4
Bi4-MT12E-AN6X-H1141/S1589 4607187	Ext. Range, Weldguard	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	A	3	A4
Bi4-MT12E-AP6X-H1141/S1589 4608094	Ext. Range, Weldguard	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	A	4	A4
Bi3U-MT12HE-AN6X2-H1141 1634230	Uprox, PTFE, Stoneface	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	3	A4
Bi3U-MT12E-AN6X2-H1141/S1589 1634290	Uprox, Weldguard	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	3	A4
Bi3U-MT12HE-AP6X2-H1141 1634220	Uprox, PTFE, Stoneface	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	4	A4
Bi3U-MT12E-AP6X2-H1141/S1589 1634291	Uprox, Weldguard	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	4	A4
Bi3-MT12E-AD4X-H1141 44050882	PTFE	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	TC	N/A	YE	A	2	A2
Bi3-MT12HE-AD4X-H1141 4405088	Stoneface	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	TC	N/A	YE	A	2	A2
Bi3-MT12E-AD4X-H1141/S1589 4405086	PTFE, Weldguard	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	2	A2
Bi3-MT12E-AD4X-H1144/S1589 4405087	PTFE, Weldguard	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	2	A2
Bi2U-MT12E-AD4X-H1144 4405061	Uprox+, PTFE	2	2-wire DC	10-65 VDC	1000	≤100	-30 to +85	IP68	TC	TC	N/A	YE	A	1	A2

We reserve the right to make technical alterations without prior notice.

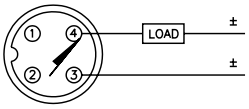
Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Nonembeddable, M12 Eurofast Connection

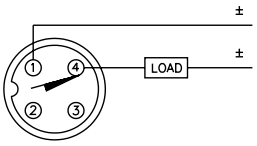
Wiring Diagrams/Mating Cordsets

1



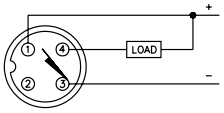
Mating Cordset: RK 4.2T-*

2



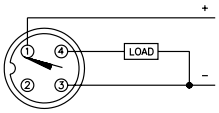
Mating Cordset: RK 4.23T-*

3



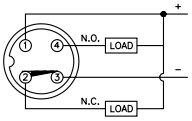
Mating Cordset: RK 4T-*; RKV 4T-*

4



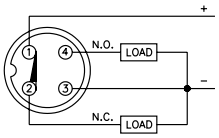
Mating Cordset: RK 4T-*; RKV 4T-*

5



Mating Cordset: RK 4.4T-*

6



Mating Cordset: RK 4.4T-*RKV 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

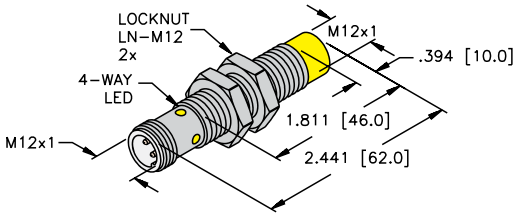
Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni10U-M12-AN6X-H1141 1634826	Uprox+	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	3	A4
Ni10U-M12-AP6X-H1141 1634806	Uprox+	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	4	A4
Ni10U-EM12-AN6X-H1141 1634828	Uprox+	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Ni10U-EM12-AP6X-H1141 1634808	Uprox+	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	4	A4
Ni8U-M12-AN6X-H1141 1644150	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	A	3	A4
Ni8U-M12-AN6X2-H1141 1644155	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	GN	YE	A	3	A4
Ni8U-M12-AP6X-H1141 1644140	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	A	4	A4
Ni8U-M12-AP6X2-H1141 1644145	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	GN	YE	A	4	A4
Ni8U-EM12-AN6X-H1141 1644350	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Ni8U-EM12-AP6X-H1141 1644340	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	4	A4
Ni8-M12-AD4X-H1141 4411241	Extended Range	8	2-wire DC	10-65 VDC	2000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni8-M12-AD4X-H1144 4411289	Extended Range	8	2-wire DC	10-65 VDC	2000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A2
Ni8-M12-AN6X-H1141 4611315	Extended Range	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni8-M12-AP6X-H1141 4611310	Extended Range	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni8-M12-VN6X-H1141 4611323	Ext. Range, Comp. Outputs	8	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni8-M12-VP6X-H1141 4611324	Ext. Range, Comp. Outputs	8	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Ni5-M12-AN6X-H1141 4671390		5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni5-M12-AP6X-H1141 4653400		5	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni4-M12-AD4X-H1141 44067		4	2-wire DC	10-65 VDC	2000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni4-M12-AN6X-H1141 46068		4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni4-M12-AP6X-H1141 46067		4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni4-EM12-AN7X-H1141 4606893	TTL Compatible	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni4-M12-VN6X-H1141 16431	Comp. Outputs	4	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni4-M12-VP6X-H1141 16331	Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Ni4-EM12-VP6X-H1141 1633101	Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	6	A4

We reserve the right to make technical alterations without prior notice.

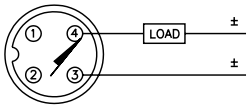
Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Nonembeddable, Extended Barrel Length, M12 Eurofast Connection

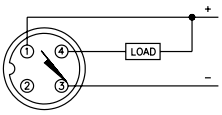
Wiring Diagrams/Mating Cordsets

1



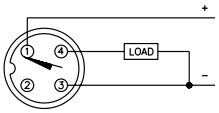
Mating Cordset: RK 4.23T-*

2



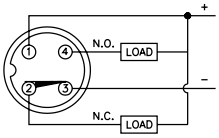
Mating Cordset: RK 4T-*; RKC 4T-*/S1587

3



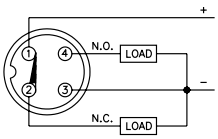
Mating Cordset: RK 4T-*; RKC 4T-*/S1587

4



Mating Cordset: RK 4.4T-*

5



Mating Cordset: RK 4.4T-*; RKV 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

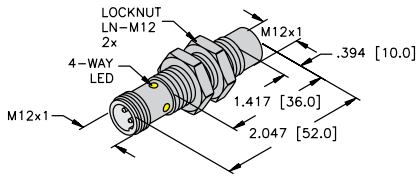
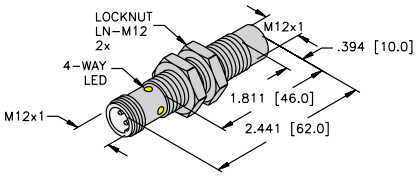
Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni8U-M12E-AN6X-H1141 1644151	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	2	A4
Ni8U-EM12E-AN6X2-H1141 1644315	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PA 12	GN	YE	A	2	A4
Ni8U-EM12E-AN6X2-H1141/S1589 1644391	Uprox, Weldguard	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	WG	WG	GN	YE	A	2	A4
Ni8U-M12E-AP6X-H1141 1644144	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni8U-EM12E-AP6X-H1141 1644342	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	3	A4
Ni8U-EM12E-AP6X2-H1141 1644314	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	GN	YE	A	3	A4
Ni8U-EM12E-AP6X2-H1141/S1589 1644392	Uprox, Weldguard	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	WG	WG	GN	YE	A	3	A4
Ni8U-M12E-VN4X-H1141 1580552	Uprox, Comp. Outputs	8	4-wire DC NPN	10-65 VDC	2000	≤200	-30 to +85	IP67	SS	PA 12	N/A	YE	A	4	A4
Ni8U-M12E-VP4X-H1141 1580454	Uprox	8	4-wire DC PNP	10-65 VDC	2000	≤200	-30 to +85	IP67	SS	PA 12	N/A	YE	A	5	A4
Ni8U-EM12E-VP4X-H1141 1580463	Uprox	8	4-wire DC PNP	10-65 VDC	2000	≤200	-30 to +85	IP67	SS	PA 12	N/A	YE	A	5	A4
Ni8-M12E-AN6X-H1141 4611325	Extended Range	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Ni8-EM12E-AN6X-H1141/S1589 4611395	Ext. Range, Weldguard	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	WG	WG	N/A	YE	A	2	A4
Ni8-M12E-AP6X-H1141 46113981	Extended Range	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni8-EM12E-AP6X-H1141/S1589 4611396	Weldguard	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	WG	WG	N/A	YE	A	3	A4
Ni8-M12E-VP6X-H1141 4611389	Ext. Range, Comp. Outputs	8	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni4-M12E-AD4X-H1144 4406792		4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni4-EM12E-VP6X-H1141 1633191	Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	5	A4

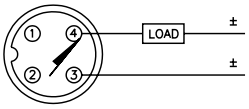
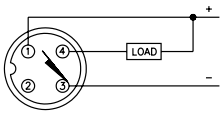
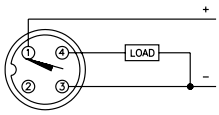
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Nonembeddable, M12 Eurofast Connection, PTFE Coated	B  12 mm - Nonembeddable, Extended Barrel Length, M12 Eurofast Connection, PTFE Coated

Wiring Diagrams/Mating Cordsets

1	2	3
		
Mating Cordset: RKC 4.2T-*	Mating Cordset: RK 4T-*; RKC 4T-*/S1587	Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni10U-MT12-AN6X-H1141 1634830	Uprox+, PTFE	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	LCP	N/A	YE	A	2	A4
Ni10U-MT12-AP6X-H1141 1634810	Uprox+, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	LCP	N/A	YE	A	3	A4
Ni10U-MT12-AP6X-H1141/S1589 16348101	Uprox+, PTFE, Weldguard	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	3	A4
Ni10U-MT12E-AP6X2-H1141 1634844	Uprox+, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	LCP	GN	YE	B	3	A4
Ni10U-MT12E-AP6X2-H1141/S1589 1634994	Uprox+, PTFE, Weldguard	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	B	3	A4
Ni8U-MT12-AP6X-H1141 1644240	Uprox, PTFE	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	3	A4
Ni8U-MT12-AP6X2-H1141 1644245	Uprox, PTFE	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	3	A4
Ni8U-MT12-AP6X2-H1141/S1589 1644292	Uprox, PTFE, Weldguard	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	3	A4
Ni8U-MT12E-AN6X2-H1141 1644248	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	B	2	A4
Ni8U-MT12E-AP6X2-H1141 1644247	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	B	3	A4
Ni8-MT12-AD4X-H1141/S1589 4411291	PTFE, Weldguard	8	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	1	A2
Ni8-MT12E-AN6X-H1141/S1589 4611397	Ext. Range, Weldguard	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	WG	WG	N/A	YE	B	2	A4
Ni8-MT12E-AP6X-H1141/S1589 4611398	Ext. Range, Weldguard	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	WG	WG	N/A	YE	B	3	A4

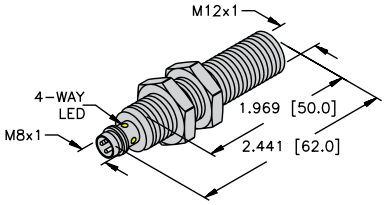
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Fully Threaded Metal Barrels with Connector and DC Outputs

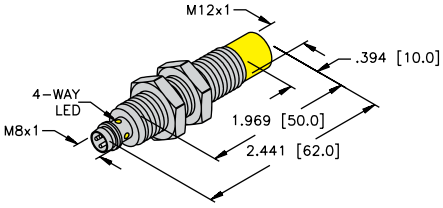
Housing Style	Dimension Drawings

A



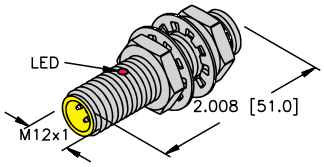
12 mm - Embeddable, M8 Picofast Connection

B



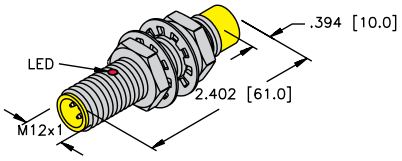
12 mm - Embeddable, M8 Picofast Connection

C



12 mm - Embeddable, M12 Eurofast Connection

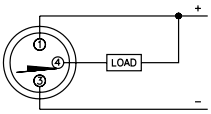
D



12 mm - Nonembeddable, M12 Eurofast Connection

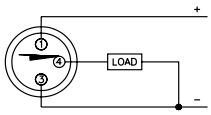
Wiring Diagrams/Mating Cordsets

1



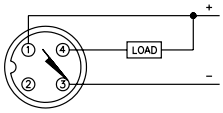
Mating Cordset: PKG 3M-*

2



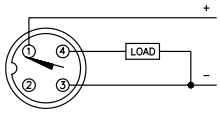
Mating Cordset: PKG 3M-*

3



Mating Cordset: RK 4T-*

4



Mating Cordset: RK 4T-*; RKV 4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

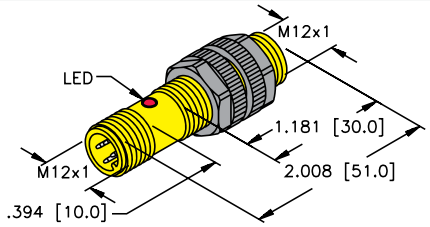
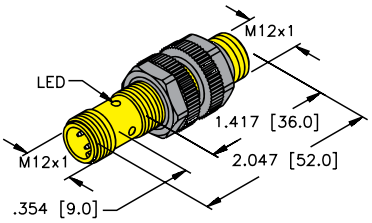
Fully Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-G12-AN6X-V1131 1690707	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi4-G12-AP6X-V1131 1690703	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi4-EG12-AP6X-H1141 4607091	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	RD	C	4	A4
Bi2-G12-AN6X-V1131 4635583		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi2-G12-AN6X-H1141 4606693		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	C	3	A4
Bi2-G12-AP6X-H1141 4606595		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	C	4	A4
Bi2-G12-AP6X-V1131 4606597		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni8-G12-AN6X-H1141 4611383	Extended Range	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	D	3	A4
Ni5-G12-AN6X-V1131 4635721		5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	1	A4
Ni5-G12-AN6X-H1141 4635793		5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	D	3	A4
Ni5-G12-AN7X-H1141 1714593	TTL Compatible	5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	D	3	A4
Ni5-G12-AP6X-V1131 4635690		5	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni5-G12-AP6X-H1141 4635692		5	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	D	4	A4

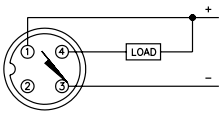
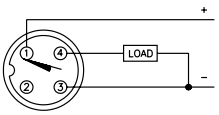
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Threaded Plastic Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable/Nonembeddable, Plastic, M12 Eurofast Connection
B  12 mm - Embeddable/Nonembeddable, Plastic, M12 Eurofast Connection	

Wiring Diagrams/Mating Cordsets

1	2
 Mating Cordset: RKK 4T-*	 Mating Cordset: RKK 4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

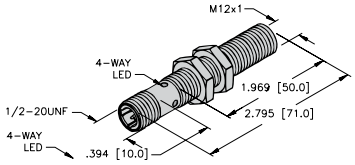
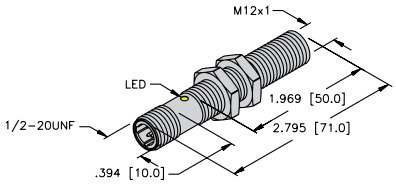
Threaded Plastic Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-S12-AN6X-H1141 1634620	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	B	1	A4
Bi3U-S12-AP6X-H1141 16346	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	B	2	A4
Bi2-S12-AN6X-H1141 46521		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	RD	A	1	A4
Bi2-S12-AP6X-H1141 46520		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	RD	A	2	A4
Ni8U-S12-AN6X-H1141 1644620	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	B	1	A4
Ni8U-S12-AP6X-H1141 1644600	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	B	2	A4
Ni4-S12-AN6X-H1141 46523		4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	RD	A	1	A4
Ni4-S12-AP6X-H1141 46522		4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	RD	A	2	A4

We reserve the right to make technical alterations without prior notice.

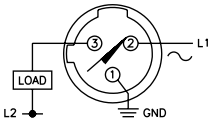
Inductive Barrel Sensors | 12 mm

Embeddable Threaded Metal Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, 1/2" Microfast Connection
B  12 mm - Embeddable, 1/2" Microfast Connection, PTFE Coated	

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC) ≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz) ≤1 A (≤10 ms max. 5 Hz) 12 mm ≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

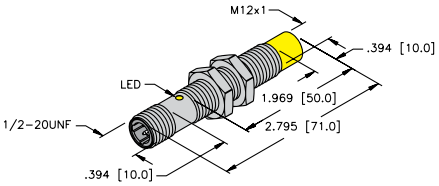
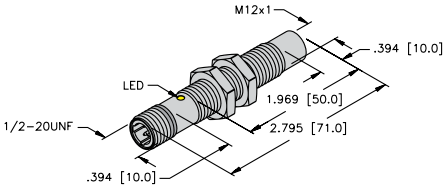
Embeddable Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-G12-ADZ32X-B3131 4205031	Extended Range	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A5
Bi4-GT12H-ADZ32X-B3131 4205097	Stoneface	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	B	1	A5
Bi4-GT12-ADZ32X-B3131/S1589 4205087	PTFE, Weldguard	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	WG	N/A	YE	B	1	A5
Bi2U-G12-ADZ32X-B3131 4281005	Uprox	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤100	-30 to +85	IP67	CPB	PBT	N/A	YE	A	1	A5
Bi2U-GT12-ADZ32X-B3131 4281015	Uprox	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤100	-30 to +85	IP67	TC	TC	N/A	YE	B	1	A5
Bi2-G12-AZ33X-B3131 1304032		2	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A6
Bi2-G12-ADZ32X-B3131 4205001		2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A5
Bi2-GT12H-ADZ32X-B3131/S34 4205093	PTFE, WFI, Stoneface	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	B	1	A5
Bi2-GT12-ADZ32X-B3131/S34 4205005	PTFE, WFI	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	B	1	A5
Bi2-GT12-AZ33X-B3131/S34 1304082	PTFE, WFI	2	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	B	1	A6

We reserve the right to make technical alterations without prior notice.

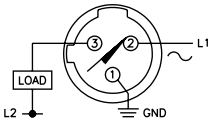
Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded Metal Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Nonembeddable, 1/2" Microfast Connection
B  12 mm - Nonembeddable, 1/2" Microfast Connection, PTFE Coated	

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

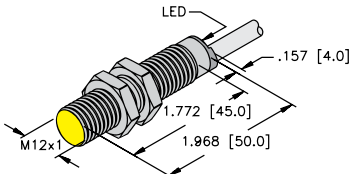
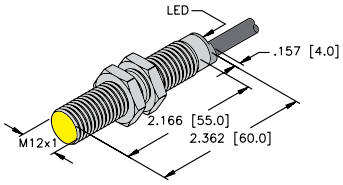
Nonembeddable Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni8U-G12-ADZ32X-B3131 4281105	Uprox	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤100	-30 to +85	IP67	CPB	PBT	N/A	YE	A	1	A5
Ni8U-GT12-ADZ32X-B3131 4281115	Uprox	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤100	-30 to +85	IP67	TC	PA 12	N/A	YE	B	1	A5
Ni4-G12-ADZ32X-B3131 4205201		4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A5
Ni4-G12-AZ33X-B3131 1304232		4	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A6
Ni4-GT12-ADZ32X-B3131/S34 4205205	PTFE, WFI	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	PA 12	N/A	YE	B	1	A5
Ni4-GT12-AZ33X-B3131/S34 1304292	PTFE, WFI	4	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	PA 12	N/A	YE	B	1	A6
Ni4-GT12-ADZ32X-B3131/S34/S1589 4205293	PTFE, Weldguard	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	WG	N/A	YE	B	1	A5

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, Potted-in Cable
B  12 mm - Embeddable, Extended Length Barrel, Potted-in Cable	

Wiring Diagrams/Mating Cordsets

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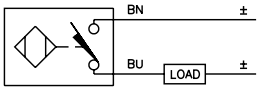

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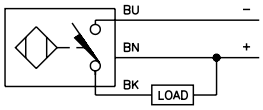

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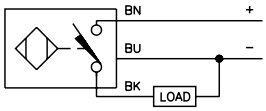

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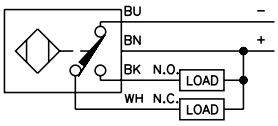

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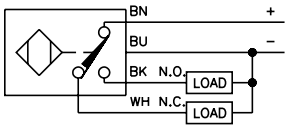


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi6U-M12-AN6X 1644806	Uprox3	6	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Bi6U-M12-AP6X 1644801	Uprox3	6	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Bi6U-M12-VP6X 1644803	Uprox3, Comp. Outputs	6	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	5	A4
Bi4U-M12-AN6X 1634823	Uprox+	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Bi4U-M12-AP6X 1634803	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Bi4-M12-AN6X 4607130	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi4-M12-AP6X 4607006	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi4-M12-VN6X 1643300	Ext. Range, Comp. Outputs	4	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Bi4-M12-VP6X 1633300	Ext. Range, Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4
Bi4-M12E-VN6X 1643290	Ext. Range, Comp. Outputs	4	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	4	A4
Bi4-M12E-VP6X 1633391	Ext. Range, Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	5	A4
Bi3U-M12-AN6X 1634120	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	2	A4
Bi3U-M12-AP6X 1634100	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	3	A4
Bi3U-M12E-AP6X 1634108	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	B	3	A4
Bi3U-EM12-AN6X 1634320	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	2M/PVC	A	2	A4
Bi3U-EM12-AP6X 1634300	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	2M/PVC	A	3	A4
Bi3-M12-AD4X 4405035	Extended Range	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi2U-M12E-AD4X 4405062	Uprox	2	2-wire DC	10-65 VDC	1000	≤100	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	B	1	A2
Bi2-M12-AD4X 44050		2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi2-M12-AP6X 46050		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi2-M12-VN6X 16402	Comp. Outputs	2	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Bi2-M12-VP6X 16302	Comp. Outputs	2	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4

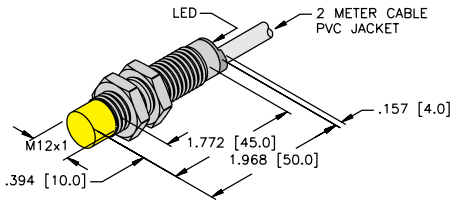
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

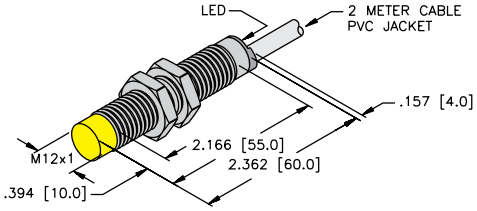
Housing Style	Dimension Drawings

A



12 mm - Nonembeddable, Potted-in Cable

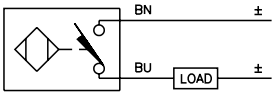
B



12 mm - Nonembeddable, Potted-In Cable, Extended Barrel Length

Wiring Diagrams/Mating Cordsets

1



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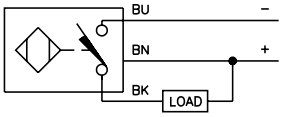

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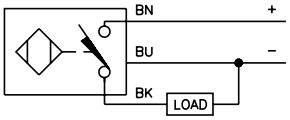

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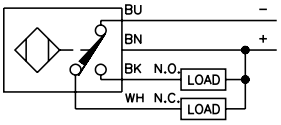

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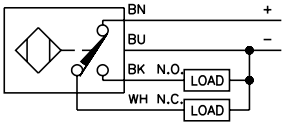


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

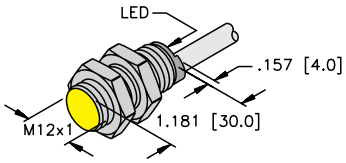
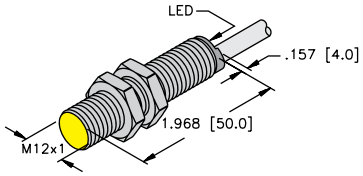
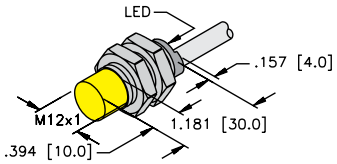
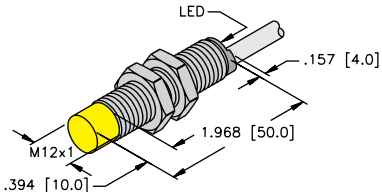
Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni10U-M12-AN6X 1634825	Uprox	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Ni10U-M12-AP6X 1634805	Uprox	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Ni8U-M12-AN6X 1644120	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Ni8U-M12-AP6X 1644100	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Ni8U-M12E-AP6X 1644102	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	2M/PVC	B	3	A4
Ni8U-EM12-AP6X 1644300	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	2M/PVC	A	3	A4
Ni8-M12-AD4X 4411235	Extended Range	8	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Ni8-M12-AN6X 4611318	Extended Range	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni8-M12E-AN6X 4611326		8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	2	A4
Ni8-M12-AP6X 4611319	Extended Range	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Ni8-M12-VN6X 4611321	Ext. Range, Comp. Outputs	8	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Ni8-M12-VP6X 4611322	Ext. Range, Comp. Outputs	8	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4
Ni4-M12-AD4X 44052		4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Ni4-M12E-AD4X 4405298		4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	1	A2
Ni4-M12-AP6X 46052		4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Fully Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable, Potted-In Cable	B  12 mm - Embeddable, Potted-In Cable
C  12 mm - Nonembeddable, Potted-In Cable	D  12 mm - Nonembeddable, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

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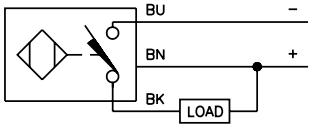

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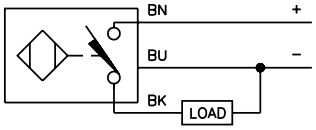

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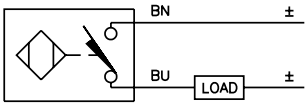


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

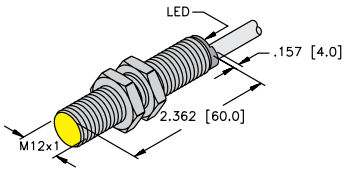
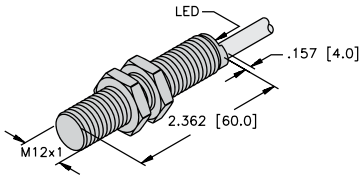
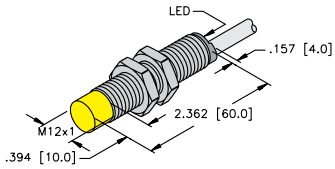
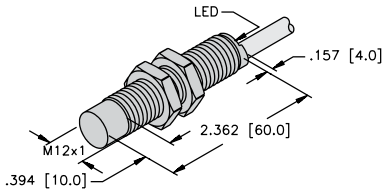
Fully Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-G12-AN6X 1690706	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	1	A4
Bi4-G12K-AN6X 4670251	Ext. Range, Short Barrel	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A4
Bi4-G12K-AP6X 4670250	Ext. Range, Short Barrel	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi2-G12-AN6X 4635500		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	1	A4
Bi2-G12-AN7X 4730500	TTL Compatible	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	1	A4
Bi2-EG12-AP6X 4605001		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi2-G12-AP6X 4635400		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi2-G12K-AN6X 46712	Short Barrel	2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A4
Bi2-G12K-AP6X 46702	Short Barrel	2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni8-G12-AN6X 4611327	Extended Range	8	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	1	A4
Ni8-G12K-AD4X 4411230	Short Barrel	8	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	3	A2
Ni5-G12K-AN6X 46713	Short Barrel	5	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	2	A4
Ni5-G12K-AP6X 46703	Short Barrel	5	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	2	A4
Ni5-G12-AN6X 4635700		5	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	1	A4
Ni5-G12-AN7X 1714500	TTL Compatible	5	3-wire DC NPN	10-30 VDC	1500	≤150	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	1	A4
Ni5-G12-AP6X 46356		5	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	2	A4

We reserve the right to make technical alterations without prior notice.

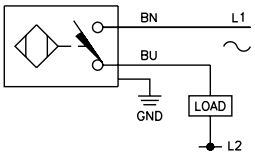
Inductive Barrel Sensors | 12 mm

Fully Threaded Metal Barrels with Cable and AC/DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable, Potted-In Cable	B  12 mm - Embeddable, Potted-In Cable, PTFE Coated
C  12 mm - Nonembeddable, Potted-In Cable	D  12 mm - Nonembeddable, Potted-In Cable, PTFE Coated	

Wiring Diagrams/Mating Cordsets

1



A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

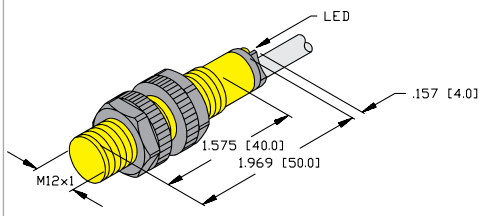
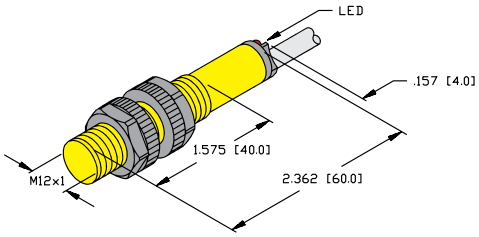
Fully Threaded Metal Barrels with Cable and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-G12-ADZ32X 4205030	Extended Range	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A5
Bi2-G12-ADZ32X 4205000		2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A5
Bi2-G12-AZ33X 1304002		2	2-wire AC/DC	35-250 VAC	20	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A6
Bi2-GT12-ADZ32X/S34 4205210	PTFE, WFI	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	2M/PVC	B	1	A5
Bi2-GT12-AZ33X/S34 1304052	PTFE, WFI	2	2-wire AC/DC	35-250 VAC	20	≤200	-25 to +70	IP67	TC	TC	N/A	YE	2M/PVC	B	1	A6
Ni8-G12-ADZ32X 4205400	Extended Range	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A5
Ni4-G12-AZ33X 1304202		4	2-wire AC/DC	35-250 VAC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A6
Ni4-G12-ADZ32X 4205200		4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A5
Ni4-GT12-ADZ32X/S34 4205210	PTFE, WFI	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	2M/PVC	D	1	A5
Ni4-GT12-AZ33X/S34 1304294	PTFE, WFI	4	2-wire AC/DC	35-250 VAC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	2M/PVC	D	1	A6

We reserve the right to make technical alterations without prior notice.

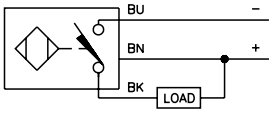
Inductive Barrel Sensors | 12 mm

Threaded Plastic Barrels with Cable and AC/DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable/Nonembeddable, Plastic, Potted-In Cable	B  12 mm - Embeddable/Nonembeddable, Plastic, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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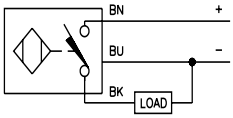

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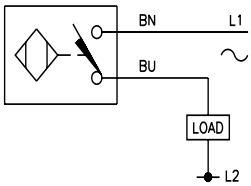


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Threaded Plastic Barrels with Cable and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-S12-AN6X 1634520	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	2M/PVC	A	1	A4
Bi3U-S12-AP6X 1634500	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	2M/PVC	A	2	A4
Bi2-S12-AN6X 46531		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	1	A4
Bi2-S12-AN7X 1713800	TTL Compatible	2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	1	A4
Bi2-S12-AP6X 46530		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi2-S12-AP7X/S100 17555	TTL Compatible, High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +100	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi2-S12-AZ31X 13020		2	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	3	A6
Bi2-S12-AZ31X/S100 1302001	High Temp. 100 °C	2	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +100	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	3	A6
Ni8U-S12-AN6X 1644520	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	2M/PVC	A	1	A4
Ni8U-S12-AP6X 1644500	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	2M/PVC	A	2	A4
Ni4-S12-AN6X 46533		4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	1	A4
Ni4-S12-AN7X 1713900	TTL Compatible	4	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	1	A4
Ni4-S12-AP6X 46532		4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	2	A4
Ni4-S12-AZ31X 13022		4	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	3	A6
Ni4-S12-AZ31X/S100 1302201	High Temp. 100 °C	4	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +100	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	3	A6

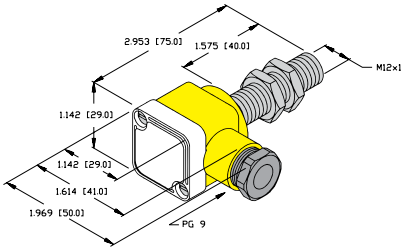
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Threaded Barrels with Terminal Chamber and DC Outputs

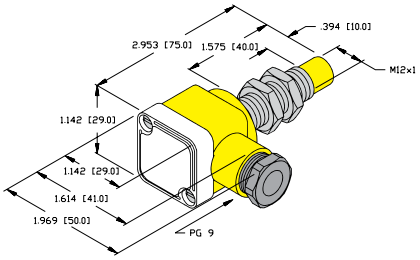
Housing Style	Dimension Drawings

A



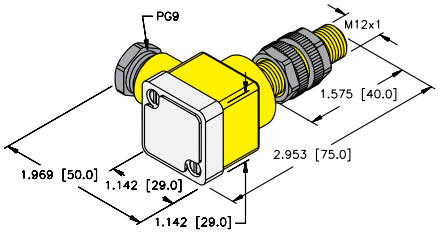
12 mm - Embeddable, Terminal Chamber

B



12 mm - Nonembeddable, Terminal Chamber

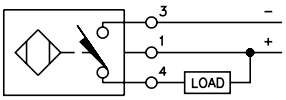
C



12 mm - Embeddable/Nonembeddable, Plastic, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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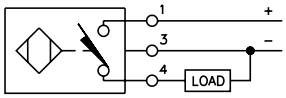

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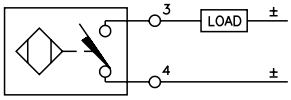


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

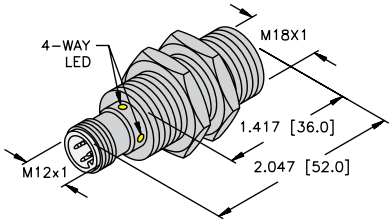
Threaded Barrels with Terminal Chamber and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EG12SK-AP6X 1634400	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	2	A4
Bi3U-P12SK-AP6X 1634700	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	2	A4
Bi2-G12SK-AN6X2 4636500		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	1	A4
Bi2-G12SK-AP6X2 4636400		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	2	A4
Bi2-P12SK-AD4X 4453050		2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	C	3	A2
Bi2-P12SK-AN6X2 4654000		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	1	A4
Bi2-P12SK-AP6X2 4653900		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	2	A4
Ni8U-EG12SK-AP6X 1644400	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	B	2	A4
Ni5-G12SK-AP6X2 46366		5	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	B	2	A4
Ni5-P12SK-AP6X2 4654100		5	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	2	A4

We reserve the right to make technical alterations without prior notice.

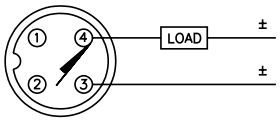
Inductive Barrel Sensors | 18 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable M12 Eurofast Connection

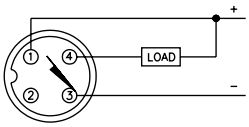
Wiring Diagrams/Mating Cordsets

1



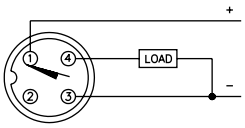
Mating Cordset: RK 4.2T-*

2



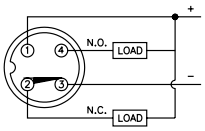
Mating Cordset: RK 4T-*; RKV 4T-*

3



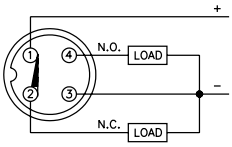
Mating Cordset: RK 4T-*; RKV 4T-*

4



Mating Cordset: RK 4.4T-*; RKV 4.4T-*

5



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

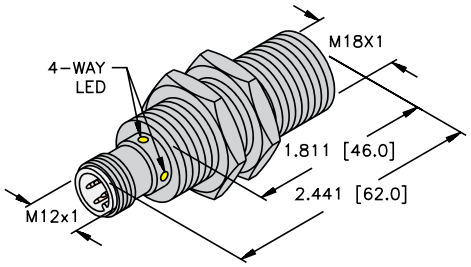
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-M18-AN6X-H1141 1644847	Uprox3	10	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	2	A4
Bi10U-M18-AP6X-H1141 1644830	Uprox3	10	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	3	A4
Bi10U-M18-VP6X-H1141 1644844	Uprox3, Comp. Outputs	10	4-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	5	A4
Bi8U-M18-AN6X-H1141 1644737	Uprox+	8	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	2	A4
Bi8U-EM18-AN6X-H1141 1644738	Uprox+	8	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	2	A4
Bi8U-M18-AP6X-H1141 1644731	Uprox+	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	3	A4
Bi8U-EM18-AP6X-H1141 1644734	Uprox+	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Bi8-M18-AN6X-H1141 4615100	Extended Range	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4
Bi8-M18-AP6X-H1141 46150	Extended Range	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi8-EM18H-AP6X-H1141 4615094	Ext. Range, Stoneface	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	3	A4
Bi8-EM18-AP6X-H1141/S1589 4615099	Weldguard	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A4
Bi8-M18-VN4X-H1141 4590702	Ext. Range, Comp. Outputs	8	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	4	A4
Bi8-M18-VP4X-H1141 4590701	Ext. Range, Comp. Outputs	8	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	5	A4
Bi7-M18-AD4X-H1141 4414541	Extended Range	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi5U-M18-AN6X-H1141 1635150	Uprox	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	2	A4
Bi5U-EM18-AN6X-H1141 1635350	Uprox	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	2	A4
Bi5U-M18-AP6X-H1141 1635140	Uprox	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	3	A4
Bi5U-EM18-AP6X-H1141 1635340	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	3	A4
Bi5-M18-AD4X-H1141 44145		5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi5-M18-AN6X-H1141 46146		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi5-M18-AP6X-H1141 46145		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Bi5-EM18-AP6X-H1141 4614501		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi5-M18-VN4X-H1141 15718	Comp. Outputs	5	4-wire DC NPN	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi5-EM18-VN4X-H1141 4614699	Comp. Outputs	5	4-wire DC NPN	10-65 VDC	1000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	4	A4
Bi5-M18-VP4X-H1141 15618	Comp. Outputs	5	4-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4

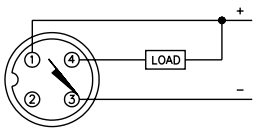
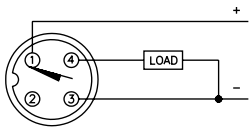
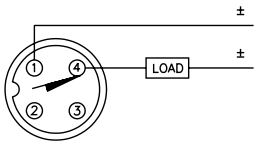
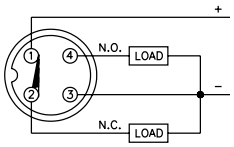
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, M12 Eurofast Connection

Wiring Diagrams/Mating Cordsets

1	2	3	4
			
Mating Cordset: RK 4T-*; RKC 4T-*/S1587	Mating Cordset: RK 4T-*; RKC 4T-*/S1587	Mating Cordset: RK 4.23T-*	Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

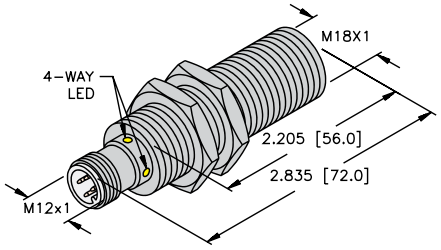
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-EM18M-AP6X2-H1141/S1589 1644771	Uprox+, Weldguard	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	2	A4
Bi8U-M18M-VP44X-H1141 1634877	Uprox+, Comp. Outputs	8	4-wire DC PNP	10-55 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	4	A4
Bi8-M18M-AP6X-H1141 4615083	Extended Range	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +75	IP67	CPB	PBT	N/A	YE	A	2	A4
Bi5U-M18M-AD4X-H1144 4405066	Uprox+	5	2-wire DC	10-65 VDC	10	≤100	-30 to +85	IP68	TC	LCP	N/A	YE	A	3	A2
Bi5U-M18-AN6X-H1141/S395 1635154	Uprox	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi5U-M18-AP6X-H1141/S395 1635141	Uprox	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	2	A4
Bi5U-EM18-AP6X-H1141/S395 1635342	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	2	A4
Bi5U-EM18H-AN6X2-H1141/S395 1635146	Uprox, Stoneface	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	SF	GN	YE	A	1	A4
Bi5U-EM18H-AN6X2-H1141/S395/S1589 1635196	Uprox, Weldguard	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	1	A4
Bi5U-EM18H-AP6X2-H1141/S395 1635158	Uprox, Stoneface	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	SF	GN	YE	A	2	A4
Bi5U-EM18-AP6X2-H1141/S395/S1589 1635197	Uprox, Weldguard	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	2	A4
Bi5U-EM18M-AP6X2-H1141 1635349	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PBT	GN	YE	A	2	A4

We reserve the right to make technical alterations without prior notice.

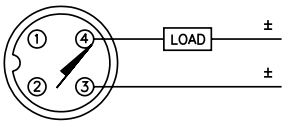
Inductive Barrel Sensors | 18 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, Ext. Barrel Length, M12 Eurofast Connection

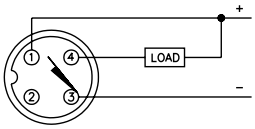
Wiring Diagrams/Mating Cordsets

1



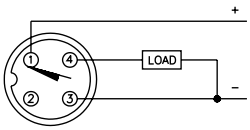
Mating Cordset: RK 4.2T-*

2



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

3



Mating Cordset: RK 4T-*; RKV 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

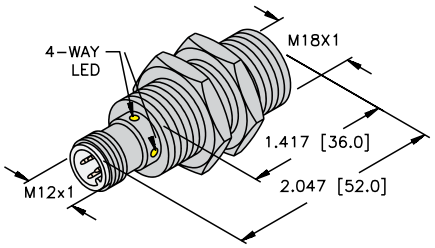
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-EM18E-AP6X-H1141 1634865	Uprox+	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Bi8-M18E-AN6X-H1141 4615190	Extended Range	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4
Bi8-EM18HE-AN6X-H1141 4615194	Ext. Range, Stoneface	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	2	A4
Bi8-EM18E-AN6X-H1141/S1589 4615193	Ext. Range, Weldguard	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	2	A4
Bi8-EM18E-AP6X-H1141 46150952	Extended Range	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi8-EM18HE-AP6X-H1141 4615095	Ext. Range, Stoneface	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	3	A4
Bi8-EM18E-AP6X-H1141/S1589 4615096	Ext. Range, Weldguard	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A4
Bi7-M18E-AD4X-H1141 4414580	Extended Range	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi5U-M18E-AN6X-H1141 1635122	Uprox	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	2	A4
Bi5U-M18E-AP6X-H1141 1635103	Uprox	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	3	A4
Bi5-M18E-AD4X-H1141 4414591		5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi5-M18E-AN6X-H1141 4614697		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4

We reserve the right to make technical alterations without prior notice.

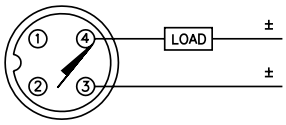
Inductive Barrel Sensors | 18 mm

Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, M12 Eurofast Connection, PTFE Coated

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.2T-*

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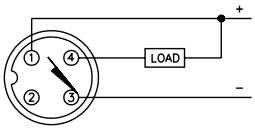
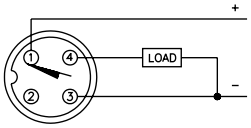


Mating Cordset: RK 4T-*; RKC 4T-*/S1587

3



Mating Cordset: RK 4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BI10U-MT18-AN6X-H1141 1644858	Uprox3, PTFE	10	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	2	A4
Bi10U-MT18-AP6X-H1141 1644831	Uprox3, PTFE	10	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	3	A4
Bi10U-MT18-AP6X2-H1141 1644905	Uprox3, PTFE	10	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	TC	TC	GN	YE	A	3	A4
Bi8U-MT18-AN6X-H1141 1644739	Uprox+, PTFE	8	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	2	A4
Bi8U-MT18-AP6X-H1141 1644730	Uprox+, PTFE	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	3	A4
Bi8U-MT18-AN6X-H1141/S1589 1644791	Uprox+, PTFE, Weldguard	8	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	2	A4
Bi7-MT18H-AD4X-H1141 44145801	Ext. Range, PTFE	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	A	1	A2
Bi5U-MT18-AN6X-H1141 1635250	Uprox, PTFE	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	2	A4
Bi5U-MT18-AP6X-H1141 1635240	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	3	A4
Bi5U-MT18-AP6X2-H1141 1635245	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	3	A4

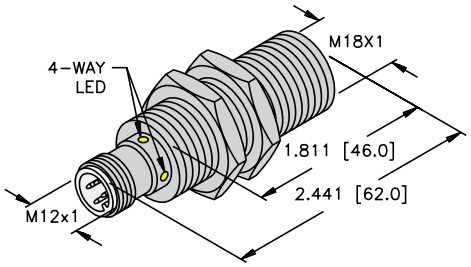
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

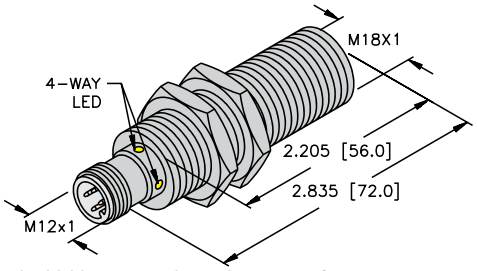
Housing Style	Dimension Drawings

A



18 mm - Embeddable, M12 Eurofast Connection, PTFE Coated

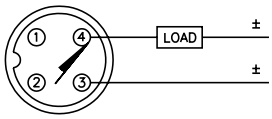
B



18 mm - Embeddable, Ext. Barrel Length, M12 Eurofast Connection, PTFE Coated

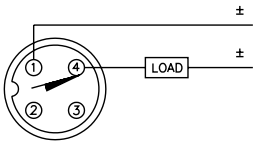
Wiring Diagrams/Mating Cordsets

1



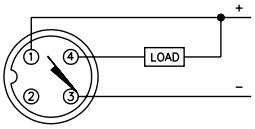
Mating Cordset: RK 4.2T-*

2



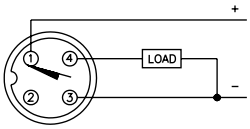
Mating Cordset: RK 4.23T-*

3



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

4



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

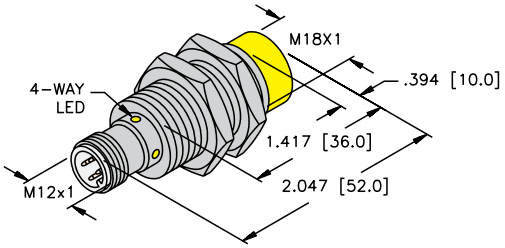
Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-MT18M-AP6X2-H1141 1644740	Uprox+, PTFE	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	LCP	GN	YE	A	4	A4
Bi8U-MT18M-AP6X2-H1141/S1589 16447411	Uprox+, PTFE, Weldguard	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	GN	YE	A	4	A4
Bi7-MT18HE-AD4X-H1141 4414597	PTFE, Stoneface	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	B	1	A2
Bi7-MT18HE-AD4X-H1144 4414598	PTFE, Stoneface	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	B	2	A2
Bi7-MT18HE-AD4X-H1141/S1589 4414588	PTFE, Weldguard	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	B	1	A2
Bi7-MT18HE-AD4X-H1144/S1589 4414599	PTFE, Weldguard	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	B	2	A2
Bi5U-MT18E-AP6X2-H1141 1635247	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	TC	TC	GN	YE	B	4	A4
Bi5U-MT18M-AP6X2-H1141 1635252	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	4	A4
Bi5U-MT18H-AN6X2-H1141/S395 1635225	Uprox, PTFE, Stoneface	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	SF	GN	YE	A	3	A4
Bi5U-MT18-AN6X2-H1141/S395/S1589 1635290	Uprox, PTFE, Weldguard	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	3	A4
Bi5U-MT18-AP6X-H1141/S395 1635231	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	4	A4
Bi5U-MT18H-AP6X2-H1141/S395 1635220	Uprox, PTFE, Stoneface	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	SF	GN	YE	A	4	A4
Bi5U-MT18-AP6X2-H1141/S395/S1589 1635291	Uprox, PTFE, Weldguard	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	4	A4

We reserve the right to make technical alterations without prior notice.

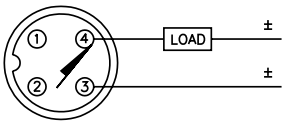
Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Nonembeddable, M12 Eurofast Connection

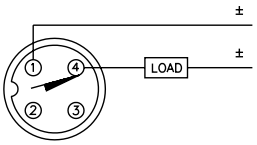
Wiring Diagrams/Mating Cordsets

1



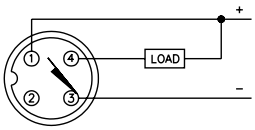
Mating Cordset: RK 4.2T-*

2



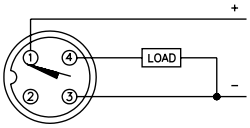
Mating Cordset: RK 4.23T-*

3



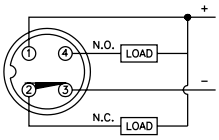
Mating Cordset: RK 4T-*; RKV 4T-*

4



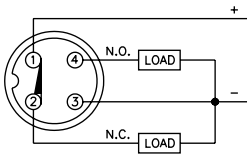
Mating Cordset: RK 4T-*; RKV 4T-*

5



Mating Cordset: RK 4.4T-*

6



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni15U-M18-AN6X-H1141 1635335	Uprox+	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	3	A4
Ni15U-EM18-AN6X-H1141 1635336	Uprox+	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Ni15U-M18-AP6X-H1141 1635331	Uprox+	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	4	A4
Ni15U-EM18-AP6X-H1141 1635332	Uprox+	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	4	A4
Ni14-M18-AD4X-H1141 4417241	Extended Range	14	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni14-M18-AD4X-H1144 4417290	Extended Range	14	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A2
Ni14-M18-AN6X-H1141 4611410	Extended Range	14	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni14-M18-AP6X-H1141 4611400	Extended Range	14	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni14-M18-VN4X-H1141 4590603	Ext. Range, Comp. Outputs	14	4-wire DC NPN	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni14-M18-VP4X-H1141 4590602	Ext. Range, Comp. Outputs	14	4-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Ni12U-M18-AN6X-H1141 1645150	Uprox	12	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	A	3	A4
Ni12U-EM18-AN6X-H1141 1645350	Uprox	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	3	A4
Ni12U-M18-AP6X-H1141 1645140	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	A	4	A4
Ni12U-M18-AP6X2-H1141 1645145	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	LCP	GN	YE	A	4	A4
Ni12U-EM18-AP6X-H1141 1645340	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	4	A4
Ni12U-EM18-AP6X2-H1141 1645345	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	GN	YE	A	4	A4
Ni10-M18-AN6X-H1141 4614892		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni10-M18-AP6X-H1141 4641291		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni8-M18-AD4X-H1141 44147		8	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni8-M18-AD4X-H1144 4411288		8	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A2
Ni8-M18-AN6X-H1141 46148		8	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni8-M18-AP6X-H1141 46147		8	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni8-M18-VN4X-H1141 15719	Comp. Outputs	8	4-wire DC NPN	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni8-M18-VP4X-H1141 15619	Comp. Outputs	8	4-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4

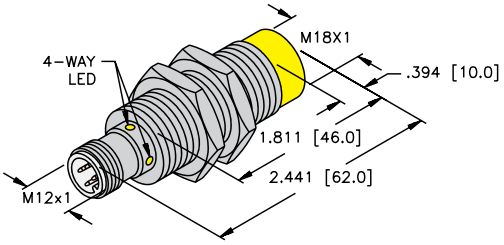
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

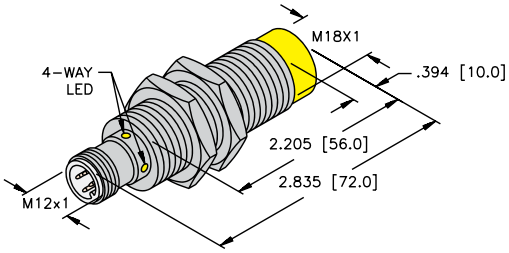
Housing Style	Dimension Drawings

A



18 mm - Nonembeddable, M12 Eurofast Connection

B



18 mm - Nonembeddable, Ext. Barrel Length M12 Eurofast Connection

Wiring Diagrams/Mating Cordsets

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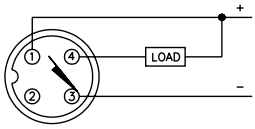

Mating Cordset: RK 4T-*; RKC 4T-*/S1587

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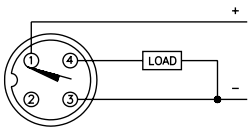

Mating Cordset: RK 4T-*; RKC 4T-*/S1587

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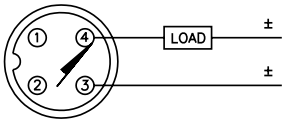
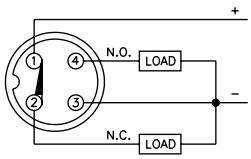


Mating Cordset: RK 4.2T-*

4



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni14-M18E-AD4X-H1141 4417292	Extended Range	14	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	3	A2
Ni14-M18E-AN6X-H1141 4611483	Extended Range	14	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	1	A4
Ni14-EM18E-AN6X-H1141/S1589 4611494	Ext. Range, Weldguard	14	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	B	1	A4
Ni14-M18E-AP6X-H1141 4611489	Extended Range	14	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni14-EM18E-AP6X-H1141/S1589 4611495	Ext. Range, Weldguard	14	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	B	2	A4
Ni12U-M18-AN6X-H1141/S395 1645151	Uprox	12	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	1	A4
Ni12U-EM18-AP6X2-H1141/S395 1645304	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	GN	YE	A	2	A4
Ni12U-EM18-AN6X2-H1141/S395/S1589 1645490	Uprox, Weldguard	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	1	A4
Ni12U-EM18-AP6X2-H1141/S395/S1589 1645491	Uprox, Weldguard	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	2	A4
Ni12U-M18E-AP6X-H1141 1645143	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	B	2	A4
Ni12U-M18-AP6X-H1141/S395 1645142	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	2	A4
Ni12U-M18M-VP4X-H1141 1581458	Uprox, Comp. Outputs	12	4-wire DC PNP	10-65 VDC	1500	≤200	-30 to +85	IP68	CPB	PBT	N/A	YE	A	4	A4
Ni10-M18E-AN6X-H1141 4614894		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	1	A4
Ni10-M18E-AP6X-H1141 4641294		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni8-M18E-AD4X-H1141 4411210		8	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	3	A2
Ni8-M18E-VP4X-H1141 1561990	Comp. Outputs	8	4-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	4	A4

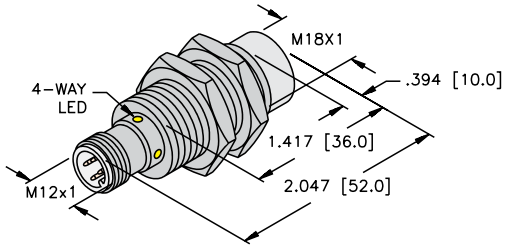
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

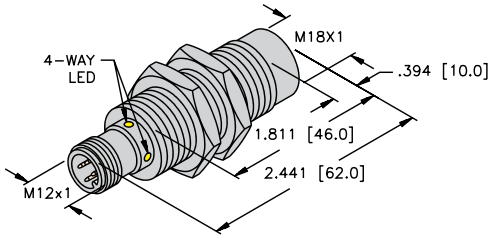
Housing Style	Dimension Drawings

A



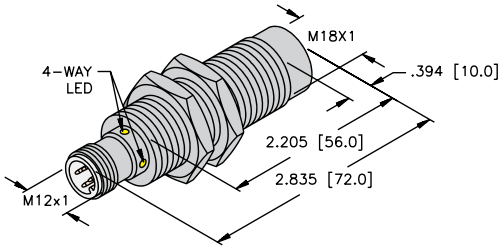
18 mm - Nonembeddable, M12 Eurofast Connection, PTFE Coated

B



18 mm - Nonembeddable, M12 Eurofast Connection, PTFE Coated

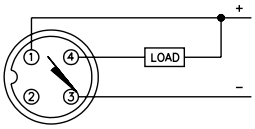
C



18 mm - Nonembeddable, Ext. Barrel Length M12 Eurofast Connection, PTFE Coated

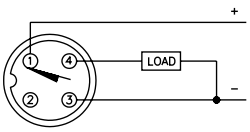
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

2



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni15U-MT18-AN6X-H1141 1635337	Uprox+, PTFE	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	1	A4
Ni15U-MT18-AN6X-H1141/S1589 16353370	Uprox+, PTFE, Weldguard	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	1	A4
Ni15U-MT18-AP6X-H1141 1635333	Uprox+, PTFE	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	2	A4
Ni15U-MT18-AP6X-H1141/S1589 1635333-1	Uprox+, PTFE, Weldguard	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	2	A4
Ni15U-MT18M-AP6X2-H1141 1635338	Uprox+, PTFE	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	TC	GN	YE	B	2	A4
Ni15U-MT18M-AP6X2-H1141/S1589 16352920	Uprox+, PTFE, Weldguard	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	GN	YE	B	2	A4
Ni14-MT18E-AP6X-H1141/S1589 4611497	Ext. Range, PTFE, Weldguard	14	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	TC	WG	N/A	YE	C	2	A4
Ni12U-MT18-AN6X-H1141 1645250	Uprox, PTFE	12	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	1	A4
Ni12U-MT18-AP6X-H1141 1645240	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	2	A4
Ni12U-MT18-AP6X-H1141/S1589 1645292	Uprox, Weldguard	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	N/A	YE	A	2	A4
Ni12U-MT18-AP6X2-H1141 1645245	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	2	A4
Ni12U-MT18-AP6X2-H1141/S1589 1645293	Uprox, Weldguard	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	2	A4
Ni12U-MT18-AP6X-H1141/S395 1645242	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	B	2	A4
Ni12U-MT18-AP6X2-H1141/S395 1645246	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	GN	YE	B	2	A4
Ni12U-MT18-AP6X2-H1141/S395/ S1589 1645291	Uprox, PTFE, Weldguard	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	B	2	A4

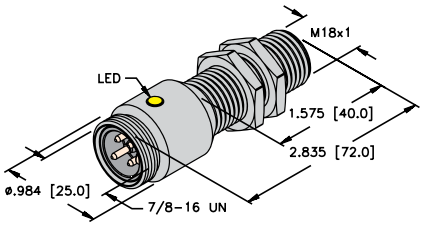
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Fully Threaded Metal Barrels with Connector and AC/DC Outputs

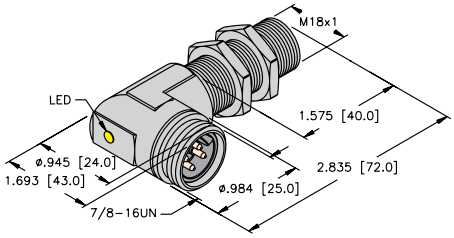
Housing Style	Dimension Drawings

A



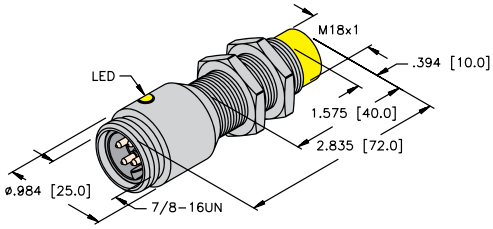
18 mm - Embeddable, 7/8" Minifast Connection

B



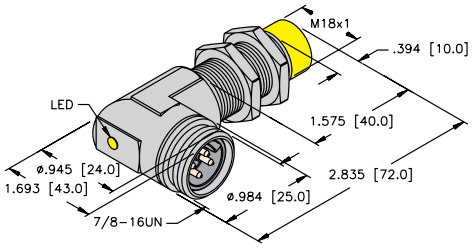
18 mm - Embeddable, Right Angle, 7/8" Minifast Connection

C



18 mm - Nonembeddable, 7/8" Minifast Connection

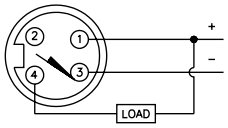
D



18 mm - Nonembeddable, 7/8" Minifast Right Angle Connection

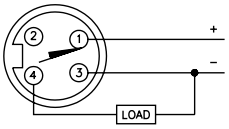
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 40-*M

2



Mating Cordset: RKM 40-*M

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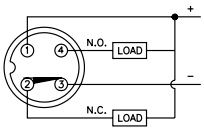
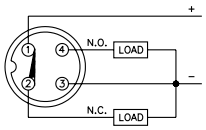


Mating Cordset: RKM 40-*M

4



Mating Cordset: RKM 40-*M

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Fully Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-G18-AN6X-B1341 46952		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi5-G18-AP6X-B1341 46963		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi5-G18-AN6X-B1441 46956		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	1	A4
Bi5-G18-AP6X-B1441 46967		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni10-G18-AN6X-B1341 46953		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	C	1	A4
Ni10-G18-AP6X-B1341 46964		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	C	2	A4
Ni10-G18-AN6X-B1441 46957		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	1	A4
Ni10-G18-AP6X-B1441 46968		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	2	A4
Ni10-G18-VN6X-B1441 46991	Comp. Outputs	10	4-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	3	A4
Ni10-G18-VP6X-B1441 4699190	Comp. Outputs	10	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	4	A4

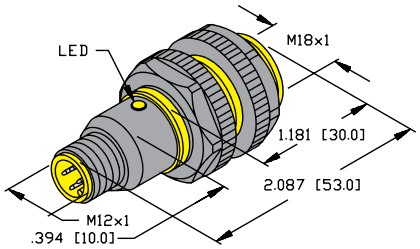
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Threaded Plastic Barrels with Connector and DC Outputs

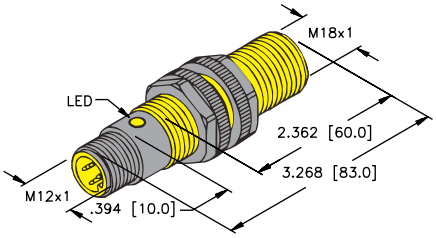
Housing Style	Dimension Drawings

A



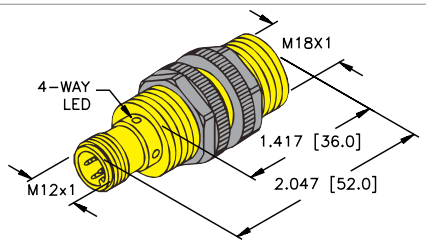
18 mm - Embeddable and Nonembeddable, Partial Threading, M12 Eurofast Connection

B



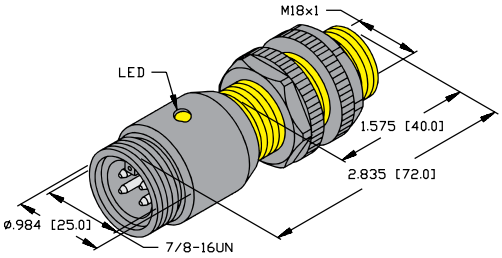
18 mm - Embeddable and Nonembeddable, Partial Threading, M12 Eurofast Connection

C



18 mm - Embeddable and Nonembeddable, Partial Threading, M12 Eurofast Connection

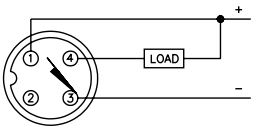
D



18 mm - Embeddable and Nonembeddable, Full Threading, 7/8" Minifast Connection

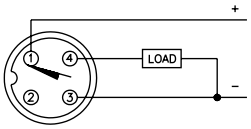
Wiring Diagrams/Mating Cordsets

1



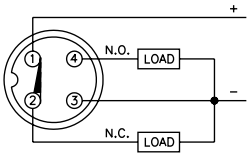
Mating Cordset: RKK 4T-*

2



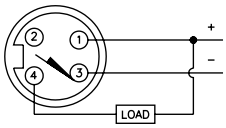
Mating Cordset: RKK 4T-*

3



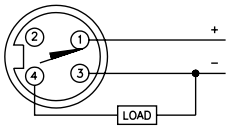
Mating Cordset: RKK 4.4T-*

4



Mating Cordset: RK 40-*M

5



Mating Cordset: RK 40-*M

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Threaded Plastic Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-S18-AN6X-H1141 1635620	Uprox	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	1	A4
Bi5U-S18-AP6X-H1141 1635600	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	2	A4
Bi5-S18-AN6X-H1141 46525		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Bi5-S18-AP6X-H1141 46524		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4
Bi5-S18-VP4X-H1141 1513401	Comp. Outputs	5	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	B	3	A4
Bi5-P18-AN6X-B2341 46972		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	D	4	A4
Bi5-P18-AP6X-B2341 46973		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	D	5	A4
Ni12U-S18-AN6X-H1141 1645620	Uprox	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	1	A4
Ni12U-S18-AP6X-H1141 1645600	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	2	A4
Ni10-P18-AN6X-B2341 4697800		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	D	4	A4
Ni10-P18-AP6X-B2341 4697900		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	D	5	A4
Ni8-S18-AN6X-H1141 46527		8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Ni8-S18-AP6X-H1141 46526		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4

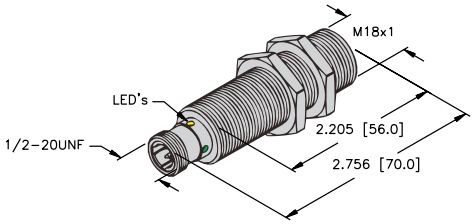
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Fully Threaded Metal Barrels with Connector and AC/DC Outputs

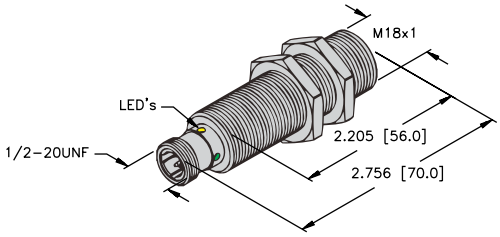
Housing Style	Dimension Drawings

A



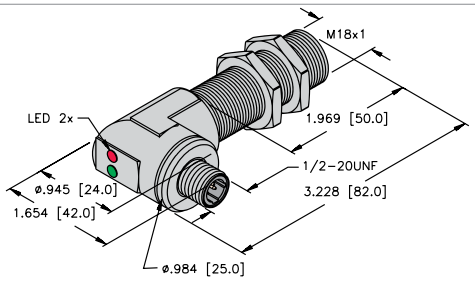
18 mm - Embeddable, 1/2" Microfast Connection

B



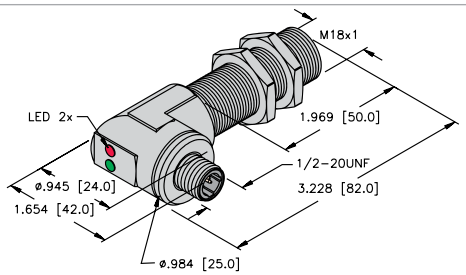
18 mm - Embeddable, 1/2" Microfast Connection, PTFE Coated

C



18 mm - Embeddable, 1/2" Microfast Connection

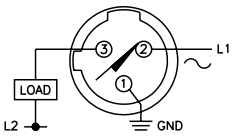
D



18 mm - Embeddable, 1/2" Microfast Right Angle Connection, PTFE Coated

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*; KBE 3T-*/S600

A5 — **2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)**

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Fully Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi8-G18-ADZ30X2-B3331 4209301	Extended Range	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	PA 12	GN	RD	A	1	A5
Bi5U-G18-ADZ30X2-B3331 4281213	Uprox	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Bi5U-GT18-ADZ30X2-B3331 4281223	Uprox, PTFE	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	B	1	A5
Bi5-G18-ADZ30X2-B3331 4208092		5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi5-GT18-ADZ30X2-B3331 4255491	PTFE	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Bi5-GT18-ADZ30X2-B3331/S34 4255400	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Bi5-GT18H-ADZ30X2-B3331/S34 4255289	PTFE, WFI, Stoneface	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	SF	GN	RD	B	1	A5
Bi5-GT18H-ADZ30X2-B3331/S34/S1589 4255283	PTFE, Weldguard	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	B	1	A5
Bi5-GT18-ADZ30X2-B3431/S34 4255605	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	D	1	A5
Bi5-G18-AZ3X-B3331 4372098		5	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Bi5-G18-AZ3X-B3431 4372090		5	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	C	1	A6

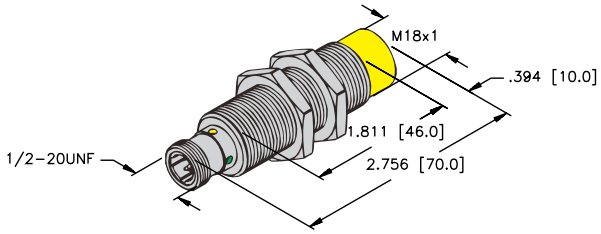
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Fully Threaded Metal Barrels with Connector and AC/DC Outputs

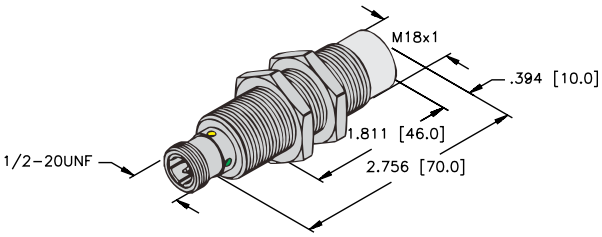
Housing Style	Dimension Drawings

A



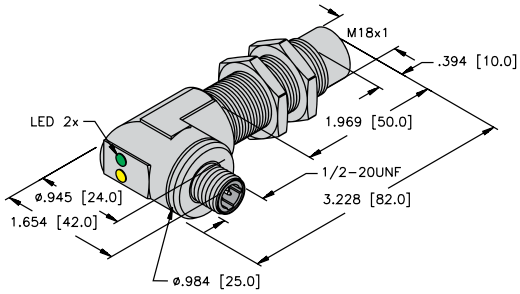
18 mm - Nonembeddable, 1/2" Microfast connection

B



18 mm - Nonembeddable, 1/2" Microfast connection, PTFE Coated

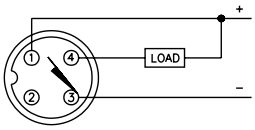
C



18 mm - Nonembeddable, PTFE Coated, 1/2" Microfast Right Angle Connection

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

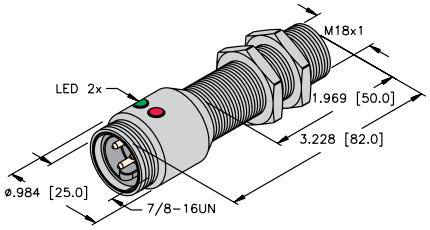
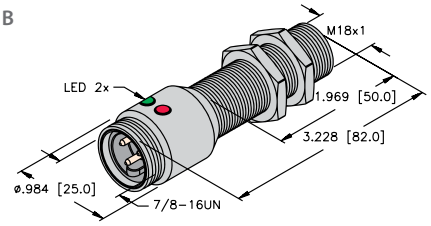
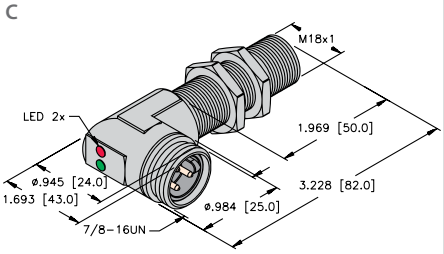
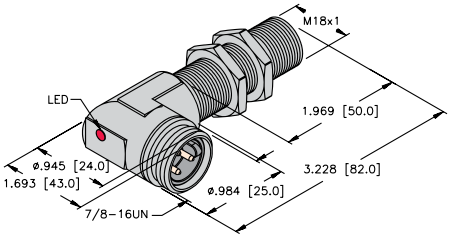
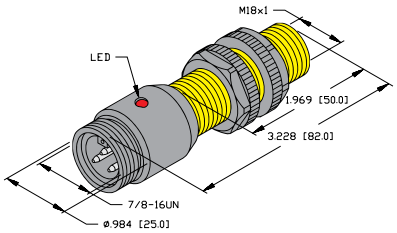
Nonembeddable Fully Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni14-G18-ADZ30X2-B3331 4205403	Extended Range	14	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Ni12U-G18-ADZ30X2-B3331 4281413	Uprox	12	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Ni12U-GT18-ADZ30X2-B3331 4281423	Uprox, PTFE	12	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	B	1	A5
Ni10-G18-AZ3X-B3331 4372192		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Ni8-G18-ADZ30X2-B3331/S34 4209100	WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Ni8-GT18-ADZ30X2-B3331/S34 4209101	PTFE, WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Ni8-GT18-ADZ30X2-B3431/S34 4209201	PTFE, WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	C	1	A5
Ni8-G18-AZ3X-B3331 4350588		8	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6

We reserve the right to make technical alterations without prior notice.

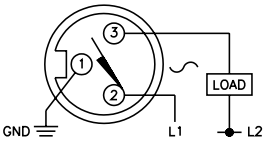
Inductive Barrel Sensors | 18 mm

Embeddable Fully Threaded Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings	
	A  18 mm - Embeddable, 7/8" Minifast Connection	B  18 mm - Embeddable, 7/8" Minifast Connection, PTFE Coated
C  18 mm - Embeddable, 7/8" Minifast Right Angle Connection	D  18 mm - Embeddable, 7/8" Minifast Right Angle Connection, PTFE Coated	E  18 mm - Embeddable and Nonembeddable, Full Threading, 7/8" Minifast Connection

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M; RKM 311-*M/S600

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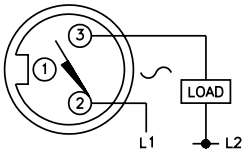


Mating Cordset: RK 30-*M

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Fully Threaded Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-G18-ADZ30X2-B1331 4281212	Uprox	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Bi5U-GT18-ADZ30X2-B1331 4281222	Uprox, PTFE	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	B	1	A5
Bi5-G18-ADZ30X2-B1331 42080		5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi5-GT18-ADZ30X2-B1331 4255290	PTFE	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Bi5-GT18-ADZ30X2-B1331/S34 4255200	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Bi5-GT18H-ADZ30X2-B1331/S34/S1589 4255284	PTFE, WFI, Weldguard	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	B	1	A5
Bi5-GT18-ADZ30X2-B1431 4255690	PTFE	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	D	1	A5
Bi5-GT18-ADZ30X2-B1431/S34 4255600	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	D	1	A5
Bi5-GT18H-ADZ30X2-B1431/S34/S1589 4255285	PTFE, Weldguard	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	D	1	A5
Bi5-G18-AZ3X-B1331 43720		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Bi5-G18-AZ3X-B1431 43724		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	C	1	A6
Bi5-P18-AZ3X-B2331 43748		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	E	2	A6

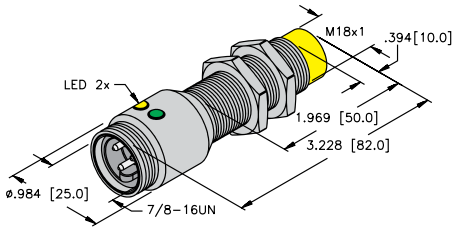
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Fully Threaded Barrels with Connector and AC/DC Outputs

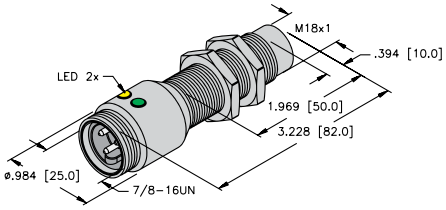
Housing Style	Dimension Drawings

A



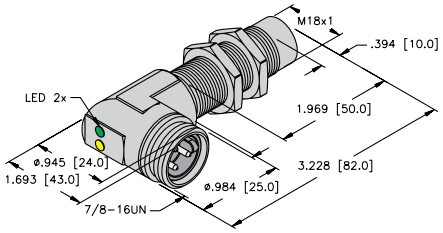
18 mm - Nonembeddable 7/8" Minifast Connection

B



18 mm - Nonembeddable 7/8" Minifast Connection, PTFE Coated

C



18 mm - Nonembeddable, PTFE Coated 7/8" Minifast Right Angle Connection

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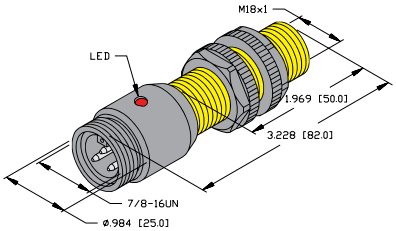
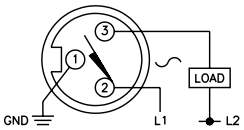


18 mm - Embeddable and Nonembeddable, Full Threading, 7/8" Minifast Connection

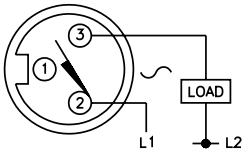
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M; RKM 311-*M/S600

2



Mating Cordset: RK 30-*M

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Fully Threaded Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni14-G18-ADZ30X2-B1331 4205407	Extended Range	14	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Ni14-GT18H-ADZ30X2-B1331/S1589 4205484	PTFE, Weldguard	14	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	B	1	A5
Ni12U-G18-ADZ30X2-B1331 4281412	Uprox	12	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Ni12U-GT18-ADZ30X2-B1331 4281422	Uprox	12	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	B	1	A5
Ni10-G18-AZ3X-B1331 43721		10	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Ni10-P18-AZ3X-B2331 43752		10	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	D	2	A6
Ni8-GT18-ADZ30X2-B1331/S34 4208801	PTFE, WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Ni8-GT18H-ADZ30X2-B1331/S34/S1589 4208890	PTFE, Weldguard	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	B	1	A5
Ni8-GT18-ADZ30X2-B1431/S34 4208901	PTFE, WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	C	1	A5
Ni8-GT18H-ADZ30X2-B1431/S34/S1589 4208990	Weldguard	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	C	1	A5

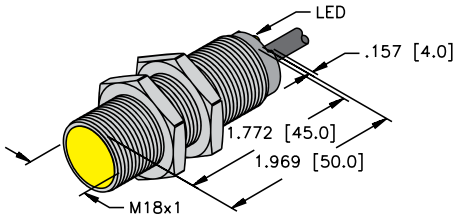
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

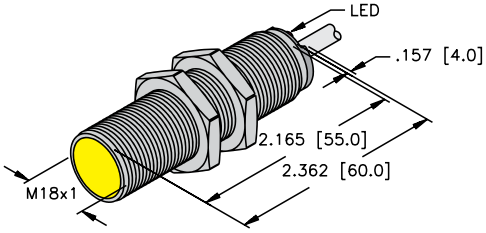
Housing Style	Dimension Drawings

A



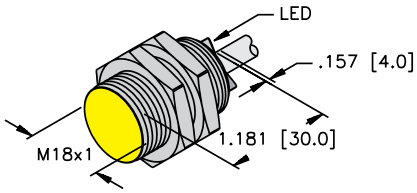
18 mm - Embeddable, Potted-in Cable

B



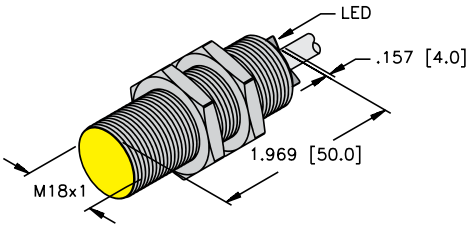
18 mm - Embeddable, Potted-In Cable, Extended Length Barrel, Partial Threading

C



18 mm - Embeddable, Full Threading, Potted-In Cable

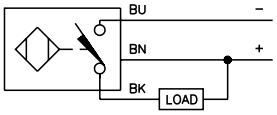
D



18 mm - Embeddable, Full Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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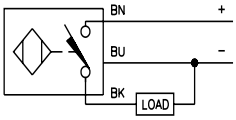

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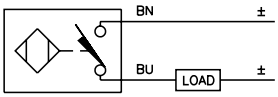

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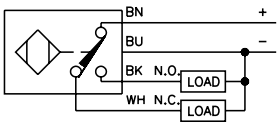


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-M18-AN6X 1644845	Uprox3	10	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	1	A4
BI10U-M18-AP6X 1644840	Uprox3	10	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
BI10U-M18-VP6X 1644842	Uprox3, Comp. Outputs	10	4-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	4	A4
Bi8U-M18-AN6X 1644736	Uprox+	8	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	1	A4
Bi8U-M18-AP6X 1644733	Uprox+	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Bi8-M18-AN6X 4615130	Extended Range	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	A	1	A4
Bi8-M18-AP6X 4615030	Extended Range	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi8-M18-VN4X 4590703	Comp. Outputs	8	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi8-M18-VP4X 4590704	Comp. Outputs	8	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	A	4	A4
Bi8-G18-AN6X 4616101	Extended Range	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	D	1	A4
Bi8-G18-AP6X 4615088		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	D	2	A4
Bi5U-M18-AN6X 1635120	Uprox	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	1	A4
Bi5U-EM18-AP6X 1635300	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	2M/PVC	A	2	A4
Bi5U-M18-AP6X 1635100	Uprox	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	2	A4
Bi5U-M18E-AP6X 1635101	Uprox	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	B	1	A4
Bi5-G18-AN6X 4641500		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	1	A4
Bi5-G18-AN7X 4740500	TTL Compatible	5	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	1	A4
Bi5-G18-AP6X 4641400		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	2	A4
Bi5-EG18-AN6X 4611101		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	D	1	A4
Bi5-EG18-AP6X 4611001		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	D	2	A4
Bi5-M18E-VP4X 1561190	Comp. Outputs	5	4-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	4	A4
Bi5-G18K-AN6X 46714	Short Barrel	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A4
Bi5-G18K-AP6X 46704	Short Barrel	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	2	A4

We reserve the right to make technical alterations without prior notice.

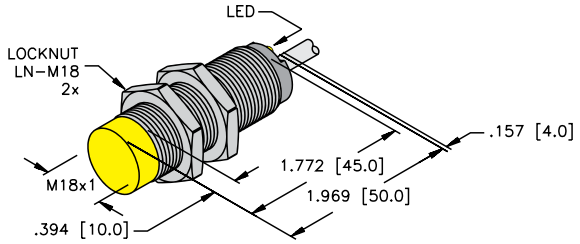
Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style

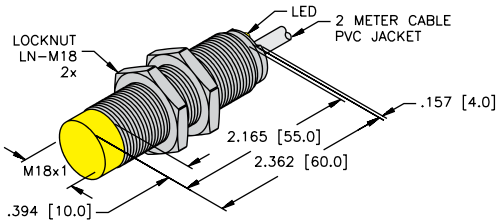
Dimension Drawings

A



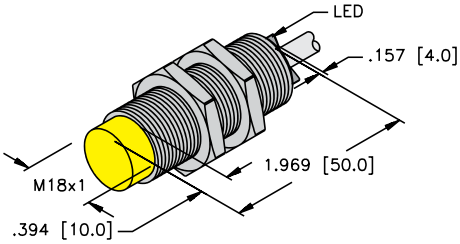
18 mm - Nonembeddable, Potted-in Cable

B



18 mm - Nonembeddable, Extended Barrel Length, Partial Threading, Potted-In Cable

C



18 mm - Nonembeddable, Full Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

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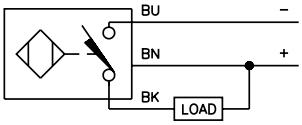

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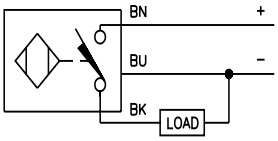

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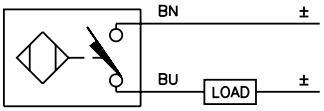


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni15U-M18-AN6X 1635334	Uprox+	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	1	A4
Ni15U-M18-AP6X 1635330	Uprox+	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Ni14-M18-AD4X 4417235	Extended Range	14	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A2
Ni14-M18-AN6X 4611411	Extended Range	14	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A4
Ni14-M18-AP6X 4611401	Extended Range	14	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni12U-M18-AN6X 1645120	Uprox	12	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	1	A4
Ni12U-M18-AP6X 1645100	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	2	A4
Ni12U-M18E-AN6X 1645110	Uprox	12	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	B	1	A4
Ni12U-M18E-AP6X 1645106	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	B	2	A4
Ni12U-EM18-AN6X 1645320	Uprox	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	SS	PBT	N/A	YE	2M/PVC	A	1	A4
Ni12U-EM18-AP6X 1645300	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	SS	PBT	N/A	YE	2M/PVC	A	2	A4
Ni10-G18-AN6X 4641700		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A4
Ni10-G18-AN7X 4740700	TTL Compatible	10	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A4
Ni10-G18-AP6X 4641600		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	2	A4
Ni8-M18-AD4X 44112		8	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A2

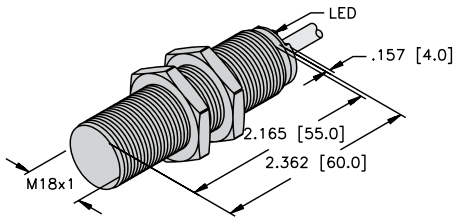
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Threaded Barrels with Cable and AC/DC Outputs

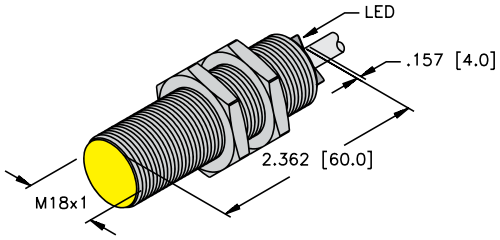
Housing Style	Dimension Drawings

A



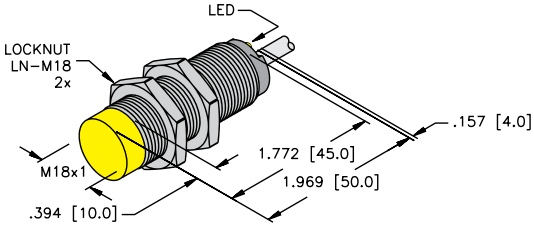
18 mm - Embeddable, Potted-In Cable, Partial Threading, PTFE Coated

B



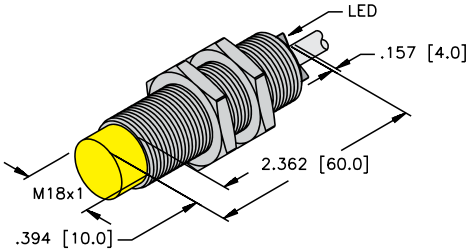
18 mm - Embeddable, Full Threading, Potted-In Cable

C



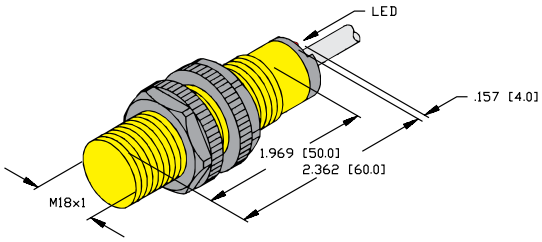
18 mm - Nonembeddable, Partial Threading, Potted-In Cable

D



18 mm - Nonembeddable, Full Threading, Potted-In Cable

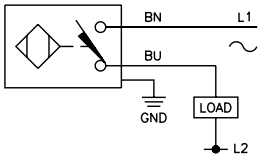
E



18 mm - Embeddable and Nonembeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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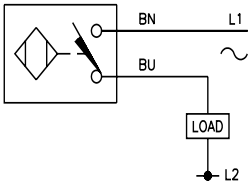


A5 — **2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)**

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

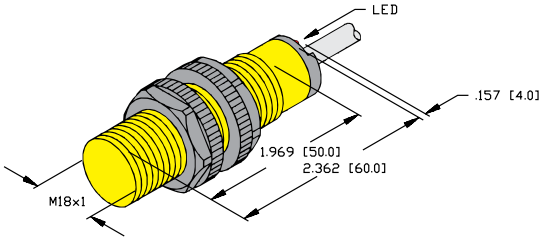
Threaded Barrels with Cable and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-MT18-ADZ30X2 4209410	Uprox	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	2M/PVC	A	1	A5
Bi5-G18-ADZ30X2 4212000		5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	2M/PVC	B	1	A5
Bi5-G18-AZ3X 4330400		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	B	1	A6
Bi5-G18-AZ3X2 1374195		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	YE	2M/PVC	B	1	A6
Bi5-EG18-AZ3X 4611190		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	PA 12	N/A	RD	2M/PVC	B	1	A6
Bi5-S18-AZ3X 4350400		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	E	2	A6
Ni14-G18-ADZ30X2 4205402	Extended Range	14	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	2M/PVC	D	1	A5
Ni12U-M18-ADZ30X2 4282410	Uprox	12	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	2M/PVC	C	1	A5
Ni8-S18-AZ3X 4350500		8	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	E	2	A6

We reserve the right to make technical alterations without prior notice.

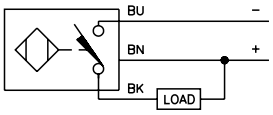
Inductive Barrel Sensors | 18 mm

Threaded Plastic Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable and Nonembeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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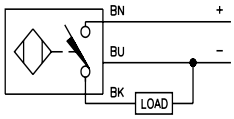

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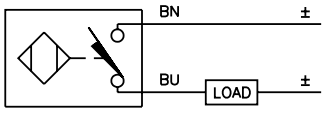


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

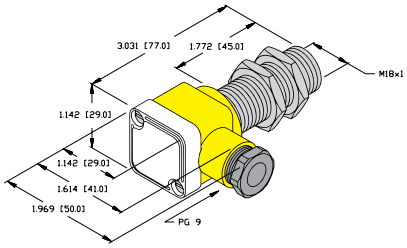
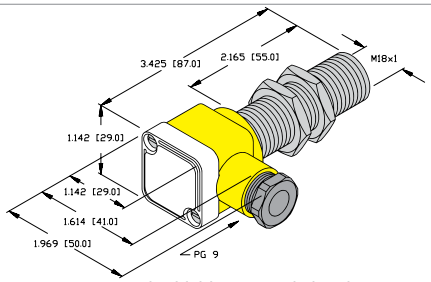
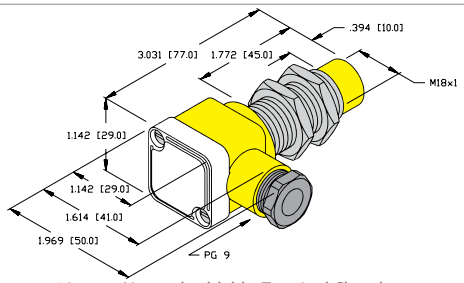
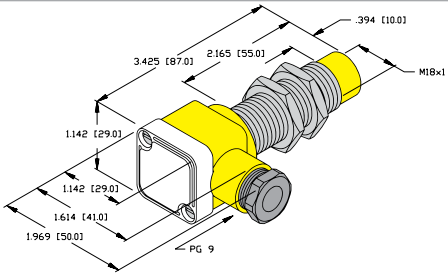
Threaded Plastic Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-S18-AP6X 1635500	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Bi5-S18-AD4X 44560		5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	3	A2
Bi5-S18-AN6X 46561		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Bi5-S18-AN7X 1714000	TTL Compatible	5	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Bi5-S18-AN7X/S100 17734	High Temp. 100 °C	5	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +100	IP67	PA 12	IRPA	N/A	YE	A	1	A4
Bi5-S18-AP6X 46560		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4
Bi5-S18-AP7X/S100 1754200	TTL Compatible, High Temp. 100 °C	5	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +100	IP67	PA 12	IRPA	N/A	YE	A	2	A4
Ni12U-S18-AN6X 1645520	Uprox	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	1	A4
Ni12U-S18-AP6X 1645500	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Ni8-S18-AD4X 44562		8	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	3	A2
Ni8-S18-AN6X 46563		8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Ni8-S18-AN7X 1714100	TTL Compatible	8	3-wire DC NPN	10-30 VDC	500	≤150	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Ni8-S18-AP6X 46562		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4
Ni8-S18-AN7X/S100 1773250	TTL Compatible, High Temp. 100 °C	8	3-wire DC NPN	10-30 VDC	500	≤150	-25 to +100	IP67	PA 12	IRPA	N/A	YE	A	1	A4
Ni8-S18-AP7X/S100 1749850	TTL Compatible, High Temp. 100 °C	8	3-wire DC PNP	10-30 VDC	500	≤150	-25 to +100	IP67	PA 12	IRPA	N/A	YE	A	2	A4

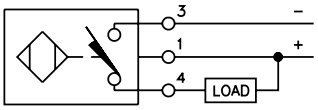
We reserve the right to make technical alterations without prior notice.

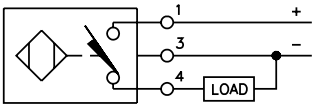
Inductive Barrel Sensors | 18 mm

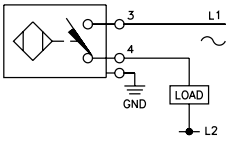
Threaded Metal Barrels with Terminal Chamber and AC/DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, Terminal Chamber
B  18 mm - Embeddable, Terminal Chamber	C  18 mm - Nonembeddable, Terminal Chamber
D  18 mm - Nonembeddable, Terminal Chamber	

Wiring Diagrams/Mating Cordsets

1 

2 

3 

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Threaded Metal Barrels with Terminal Chamber and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-EG18SK-AP6X 1635400	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	2	A4
Bi5-G18SK-AN6X2 4642500		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	1	A4
Bi5-G18SK-AP6X2 4642400		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	2	A4
Bi5-G18SK-AZ3X2 4331400		5	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤500	-25 to +70	IP67	CPB	PA 12	GN	RD	B	3	A6
Ni10-G18SK-AN6X2 4642700		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	C	1	A4
Ni10-G18SK-AP6X2 4642600		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	C	2	A4
Ni10-G18SK-AZ3X2 4331500		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	D	3	A6

We reserve the right to make technical alterations without prior notice.

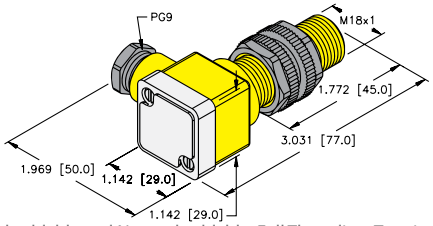
Inductive Barrel Sensors | 18 mm

Threaded Metal Barrels with Terminal Chamber and AC/DC Outputs

Housing Style

Dimension Drawings

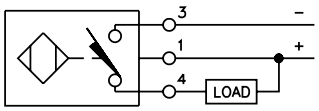
A



18 mm - Embeddable and Nonembeddable, Full Threading, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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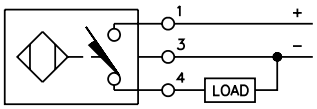

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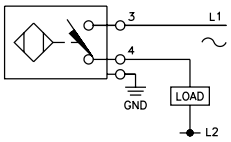


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

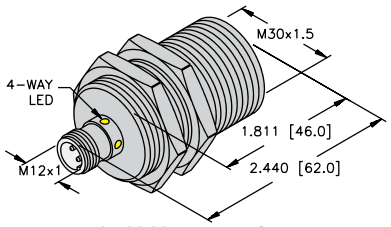
Threaded Metal Barrels with Terminal Chamber and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-P18SK-AP6X 1635700	Uprox	5	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Bi5-P18SK-AP6X2 4656900		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	A	2	A4
Bi5-P18SK-AZ3X2 4351400		5	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	GN	RD	A	3	A6
Ni12U-P18SK-AP6X 1645700	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Ni10-P18SK-AZ3X2 4351500		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	GN	RD	A	3	A6
Ni10-P18SK-AN6X2 4657200		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	A	1	A4
Ni10-P18SK-AP6X2 4657100		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	A	2	A4

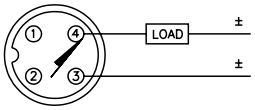
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

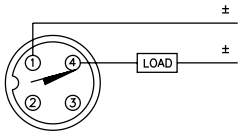
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, M12 Eurofast Connection

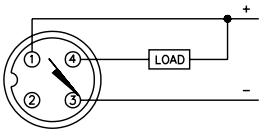
Wiring Diagrams/Mating Cordsets

1


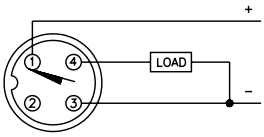
Mating Cordset: RK 4.2T-*

2


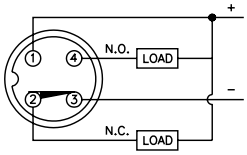
Mating Cordset: RK 4.23T-*

3


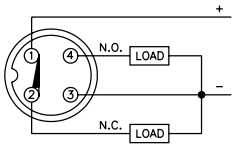
Mating Cordset: RK 4T-*; RKC 4T-*/S1587

4


Mating Cordset: RK 4T-*; RKC 4T-*/S1587

5


Mating Cordset: RK 4.4T-*

6


Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

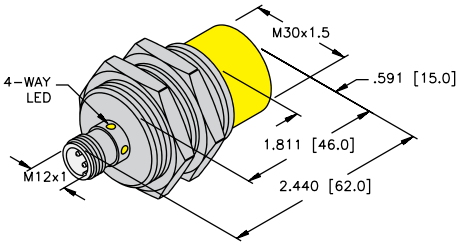
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20U-M30-AN6X-H1141 1644888	Uprox3	20	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	3	A4
Bi20U-M30-AP6X-H1141 1644880	Uprox3	20	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	4	A4
Bi15U-M30-AN6X-H1141 1636736	Uprox+	15	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	3	A4
Bi15U-M30-AP6X-H1141 1636732	Uprox+	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	4	A4
Bi15U-EM30-AP6X-H1141 1636733	Uprox+	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	4	A4
Bi15-M30-AN6X-H1141 4618600	Extended Range	15	3-wire DC NPN	10-30 VDC	300	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Bi15-EM30H-AN6X-H1141 4618692	Ext. Range, Stoneface	15	3-wire DC NPN	10-30 VDC	300	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	3	A4
Bi15-M30-AP6X-H1141 46185	Extended Range	15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi15-EM30H-AP6X-H1141 4618592	Ext. Range, Stoneface	15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	4	A4
Bi15-EM30-AP6X-H1141/S1589 4618593	Weldguard	15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	4	A4
Bi15-M30-VN4X-H1141 4570711	Ext. Range, Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Bi15-M30-VP4X-H1141 4570710	Ext. Range, Comp. Outputs	15	4-wire DC PNP	10-65 VDC	300	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Bi12-M30-AD4X-H1141 4417041	Extended Range	12	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi10U-M30-AD4X-H1144 4405072	Uprox	10	2-wire DC	10-65 VDC	10	≤100	-25 to +70	IP68	CPB	LCP	N/A	YE	A	2	A2
Bi10U-M30-AN6X-H1141 1636150	Uprox	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	3	A4
Bi10U-EM30-AN6X-H1141 1636350	Uprox	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	3	A4
Bi10U-M30-AP6X-H1141 1636140	Uprox	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	4	A4
Bi10U-M30-AP6X2-H1141 1636145	Uprox	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	GN	YE	A	4	A4
Bi10U-EM30-AP6X-H1141 1636340	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	4	A4
Bi10U-M30-VP4X-H1141 1582253	Uprox, Comp. Outputs	10	4-wire DC PNP	10-65 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	6	A4
Bi10-M30-AD4X-H1141 44175		10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi10-M30-AN6X-H1141 46176		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Bi10-M30-AP6X-H1141 46175		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi10-M30-VN4X-H1141 15716	Comp. Outputs	10	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Bi10-M30-VP4X-H1141 15616	Comp. Outputs	10	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4

We reserve the right to make technical alterations without prior notice.

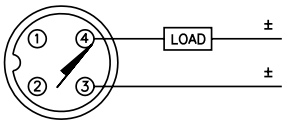
Inductive Barrel Sensors | 30 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Nonembeddable, M12 Eurofast Connection

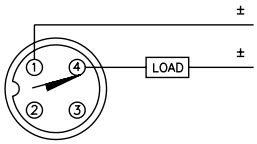
Wiring Diagrams/Mating Cordsets

1



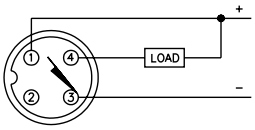
Mating Cordset: RK 4.2T-*

2



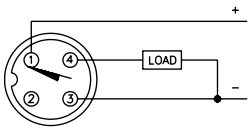
Mating Cordset: RK 4.23T-*

3



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

4



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

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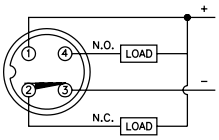
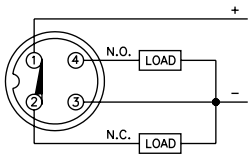


Mating Cordset: RK 4.4T-*

6



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

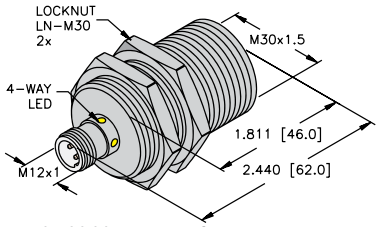
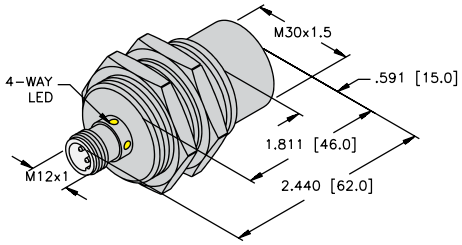
Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni30U-M30-AN6X-H1141 1644635	Uprox+	30	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	3	A4
Ni30U-EM30-AN6X-H1141 1644636	Uprox+	30	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Ni30U-M30-AP6X-H1141 1646631	Uprox+	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	4	A4
Ni30U-EM30-AP6X-H1141 1646632	Uprox+	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	4	A4
Ni20U-M30-AN6X-H1141 1646150	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	3	A4
Ni20U-M30-AN6X2-H1141 1646155	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	GN	YE	A	3	A4
Ni20U-EM30-AN6X-H1141 1646350	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	3	A4
Ni20U-EM30-AN6X2-H1141/S1589 1646191	Uprox, Weldguard	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	3	A4
Ni20U-M30-AP6X-H1141 1646140	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	4	A4
Ni20U-EM30-AP6X-H1141 1646340	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	4	A4
Ni20U-EM30-AP6X2-H1141 1646345	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	PBT	GN	YE	A	4	A4
Ni20U-EM30-AP6X2-H1141/S1589 1646490	Uprox, Weldguard	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	4	A4
Ni20U-M30-VP4X-H1141 1582457	Uprox	20	4-wire DC PNP	10-65 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	6	A4
Ni20-M30-AD4X-H1141 4466141	Extended Range	20	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni20-M30-AD4X-H1144 4466192	Extended Range	20	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A2
Ni20-M30-AN6X-H1141 4670515	Extended Range	20	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni20-M30-AP6X-H1141 4670510	Extended Range	20	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni20-M30-VN4X-H1141 4590606	Ext. Range, Comp. Outputs	20	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni20-M30-VP4X-H1141 4590607	Ext. Range, Comp. Outputs	20	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Ni15-M30-AD4X-H1141 44177		15	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni15-M30-AN6X-H1141 46178		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni15-M30-AP6X-H1141 46177		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni15-M30-VN4X-H1141 1571510	Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni15-M30-VP4X-H1141 15617	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4

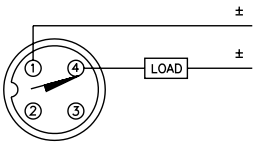
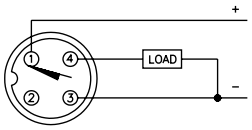
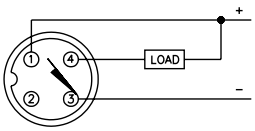
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, M12 Eurofast Connection, PTFE Coated
B  30 mm - Nonembeddable, M12 Eurofast Connection, PTFE Coated	

Wiring Diagrams/Mating Cordsets

1	2	3
		
Mating Cordset: RK 4.23T-*	Mating Cordset: RK 4T-*; RKC 4T-*/S1587	Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20U-MT30-AN6X-H1141 1644889	Uprox3, PTFE	20	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	3	A4
Bi20U-MT30-AP6X-H1141 1644881	Uprox3, PTFE	20	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	2	A4
Bi15U-MT30-AP6X-H1141 1636734	Uprox+, PTFE	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	2	A4
Bi15U-MT30-AP6X2-H1141 1644741	Uprox+	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	TC	GN	YE	A	2	A4
Bi12-MT30H-AD4X-H1144 4417095	PTFE, Stoneface	12	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	TC	SF	N/A	YE	A	1	A2
Bi10U-MT30-AN6X-H1141 1636250	Uprox	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	3	A4
Bi10U-MT30-AP6X-H1141 1636240	Uprox, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	2	A4
Bi10U-MT30-AP6X2-H1141 1636245	Uprox, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	2	A4
Bi10U-MT30H-AP6X2-H1141 1636220	Uprox, PTFE, Stoneface	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	SF	GN	YE	A	2	A4
Bi10U-MT30-AP6X2-H1141/S1589 1636291	Uprox, PTFE, Weldguard	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	2	A4
Ni30U-MT30-AN6X-H1141 1644637	Uprox+, PTFE	30	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	TC	N/A	YE	B	3	A4
Ni30U-MT30-AP6X-H1141 1646633	Uprox+, PTFE	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	TC	N/A	YE	B	2	A4
Ni30U-MT30-AP6X2-H1141 1646635	Uprox+, PTFE	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	TC	GN	YE	B	2	A4
Ni30U-MT30-AP6X-H1141/S1589 16466331	Uprox+, PTFE, Weldguard	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	B	2	A4
Ni30U-MT30-AP6X2-H1141/S1589 16466351	Uprox+, PTFE, Weldguard	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	GN	YE	B	2	A4
Ni20U-MT30-AP6X-H1141 1646240	Uprox, PTFE	20	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	B	2	A4
Ni20U-MT30-AP6X2-H1141 1646245	Uprox, PTFE	20	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	TC	GN	YE	B	2	A4
Ni20U-MT30-AP6X2-H1141/S1589 1646291	Uprox, Weldguard	20	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	WG	GN	YE	B	2	A4
Ni20-MT30-AN6X-H1141/S1589 4670589	PTFE, Weldguard	20	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	TC	WG	N/A	YE	B	3	A4
Ni15U-MT30-AD4X-H1144 4405077	Uprox, PTFE	15	2-wire DC	10-65 VDC	10	≤100	-25 to +70	IP68	TC	TC	GN	YE	B	1	A2

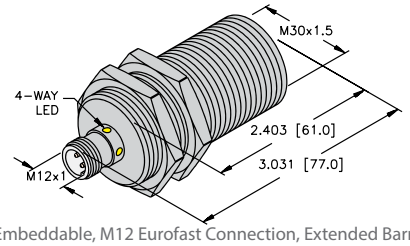
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Connector and DC Outputs

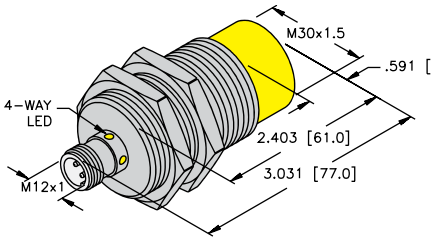
Housing Style	Dimension Drawings

A



30 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length

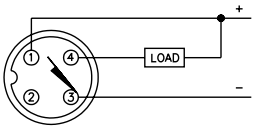
B



30 mm - Nonembeddable, M12 Eurofast Connection, Extended Barrel Length

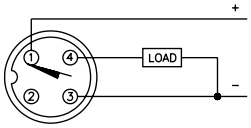
Wiring Diagrams/Mating Cordsets

1



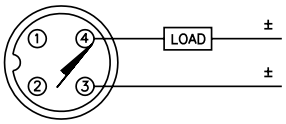
Mating Cordset: RK 4T-*

2



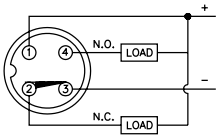
Mating Cordset: RK 4.23T-*

3



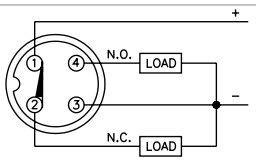
Mating Cordset: RK 4.2T-*

4



Mating Cordset: RK 4.4T-*

5



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-M30E-AN6X-H1141 4618690	Extended Range	15	3-wire DC NPN	10-30 VDC	300	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi15-M30E-AP6X-H1141 4618590	Extended Range	15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi10U-EM30E-AP6X-H1141 1636322	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	2	A4
Bi10U-EM30HE-AP6X2-H1141 1636415	Uprox, Stoneface	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	SF	GN	YE	A	2	A4
Bi10-M30E-AD4X-H1141 4417501		10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A2
Ni15-M30E-AD4X-H1141 4417790		15	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	3	A2
Ni15-M30E-VN4X-H1141 1571590	Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	4	A4
Ni15-M30E-VP4X-H1141 1561790	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	5	A4

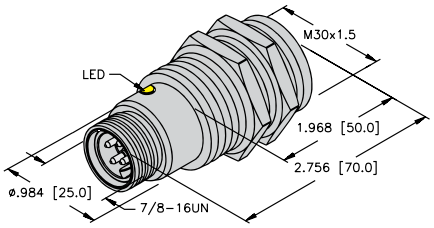
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Connector and DC Outputs

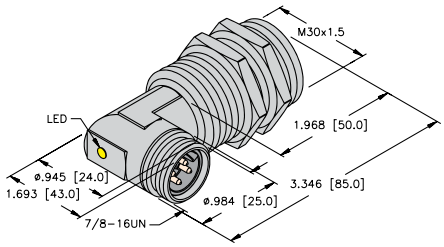
Housing Style	Dimension Drawings

A



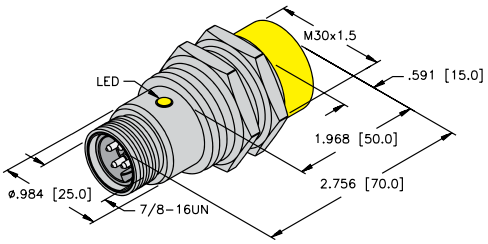
30 mm - Embeddable, 7/8" Minifast Connection

B



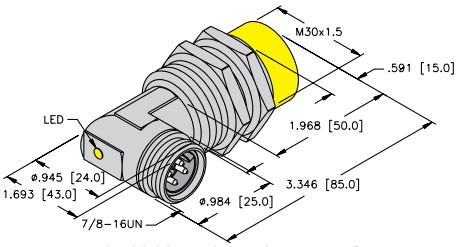
30 mm - Embeddable, 7/8" Minifast Right Angle Connection

C



30 mm - Nonembeddable, 7/8" Minifast Connection

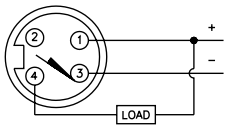
D



30 mm - Nonembeddable, Right Angle 7/8" Minifast Connection

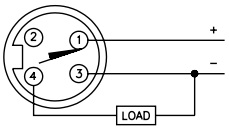
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 40-*M

2



Mating Cordset: RKM 40-*M

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

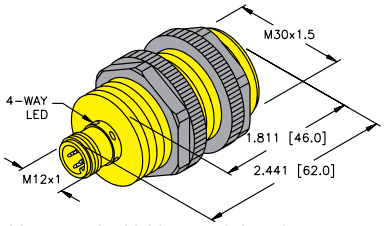
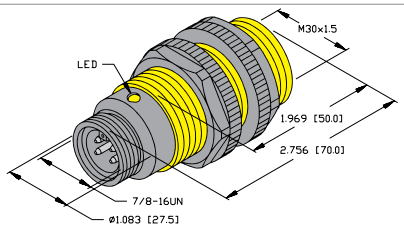
Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-G30-AN6X-B1141 46954	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi10-G30-AP6X-B1141 46965	10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi10-G30-AN6X-B1441 46958	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	1	A4
Bi10-G30-AP6X-B1441 46969	10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni15-G30-AN6X-B1141 46955	15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	C	1	A4
Ni15-G30-AP6X-B1141 46966	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	C	2	A4
Ni15-G30-AN6X-B1441 4695590	15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	1	A4
Ni15-G30-AP6X-B1441 46970	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	2	A4

We reserve the right to make technical alterations without prior notice.

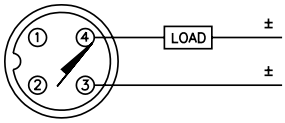
Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable/Nonembeddable, Partial Threading, M12 Eurofast Connection
B  30 mm - Embeddable/Nonembeddable, Full Threading, 7/8" Minifast Connection	

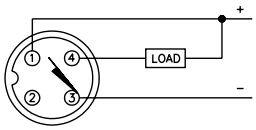
Wiring Diagrams/Mating Cordsets

1



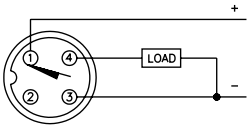
Mating Cordset: RKK 4.2T-*

2



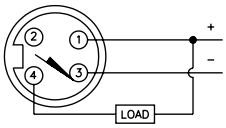
Mating Cordset: RKK 4T-*

3



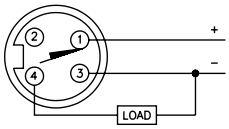
Mating Cordset: RKK 4T-*

4



Mating Cordset: RK 40-*M

5



Mating Cordset: RK 40-*M

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-S30-AN6X-H1141 1636620	Uprox	10	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Bi10U-S30-AP6X-H1141 1636600	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	3	A4
Bi10-S30-AD4X-H1141 4458000		10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A2
Bi10-S30-AN6X-H1141 46581		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4
Bi10-S30-AP6X-H1141 46580		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	3	A4
Bi10-P30-AN6X-B2141 46974		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	B	4	A4
Bi10-P30-AP6X-B2141 46975		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	B	5	A4
Ni20U-S30-AN6X-H1141 1646620	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Ni20U-S30-AP6X-H1141 1646600	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	3	A4
Ni15-S30-AD4X-H1141 44582		15	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A2
Ni15-S30-AN6X-H1141 46583		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4
Ni15-P30-AN6X-B2141 46976		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	B	4	A4
Ni15-S30-AP6X-H1141 46582		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	3	A4
Ni15-P30-AP6X-B2141 46977		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	B	5	A4

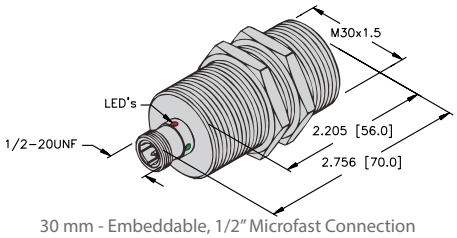
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Connector and AC/DC Outputs

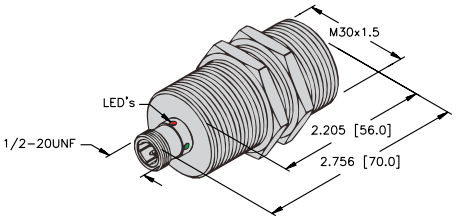
Housing Style	Dimension Drawings

A



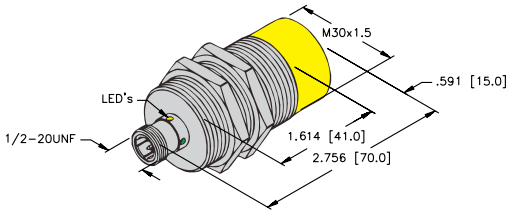
30 mm - Embeddable, 1/2" Microfast Connection

B



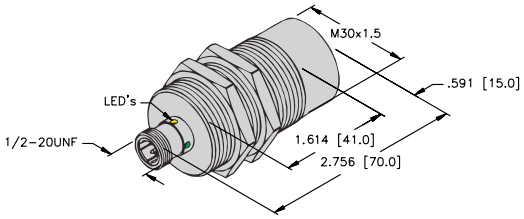
30 mm - Embeddable, 1/2" Microfast Connection, PTFE Coated

C



30 mm - Nonembeddable, 1/2" Microfast Connection

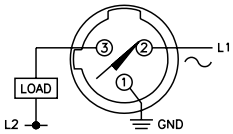
D



30 mm - Nonembeddable, 1/2" Microfast Connection, PTFE Coated

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*; KBE 3T-*/S600

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

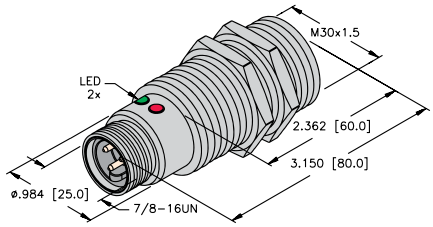
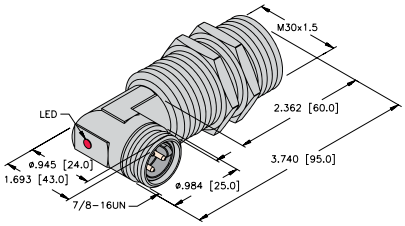
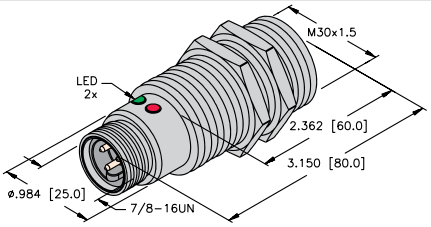
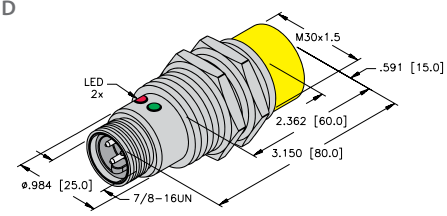
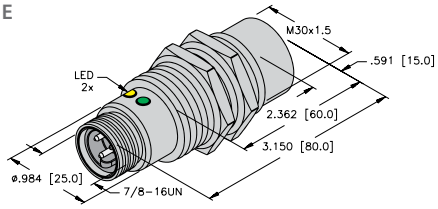
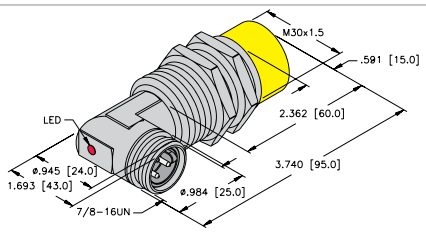
Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-G30-ADZ30X2-B3131 4207201	Extended Range	15	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi15-EG30H-ADZ30X2-B3131 4207284	Ext. Range, Stoneface	15	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	SF	GN	RD	A	1	A5
Bi10U-G30-ADZ30X2-B3131 4281613	Uprox	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Bi10U-GT30-ADZ30X2-B3131 4281623	Uprox, PTFE	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	B	1	A5
Bi10-G30-ADZ30X2-B3131 T207591		10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi10-GT30-ADZ30X2-B3131/S34 4256203	PTFE, WFI	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Bi10-GT30H-ADZ30X2-B3131/S34 4256094	WFI, Stoneface	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	SF	GN	RD	B	1	A5
Bi10-G30-AZ3X-B3131 4372298		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Ni20U-G30-ADZ30X2-B3131 4281813	Uprox	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	C	1	A5
Ni20U-GT30-ADZ30X2-B3131 4281823	Uprox, PTFE	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	D	1	A5
Ni20-G30-ADZ30X2-B3131 4205406	Extended Range	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	C	1	A5
Ni15-G30-AZ3X-B3131 1306090		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	C	1	A6

We reserve the right to make technical alterations without prior notice.

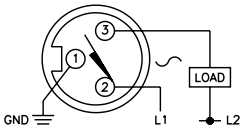
Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings	
	A  30 mm - Embeddable, 7/8" Minifast Connection	B  30 mm - Embeddable, 7/8" Minifast Right Angle Connection
C  30 mm - Embeddable, 7/8" Minifast Connection, PTFE Coated	D  30 mm - Nonembeddable, 7/8" Minifast Connection	E  30 mm - Nonembeddable, 7/8" Minifast Connection, PTFE Coated
F  30 mm - Nonembeddable, 7/8" Minifast Right Angle Connection		

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M; RKM 311-*M/S600

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

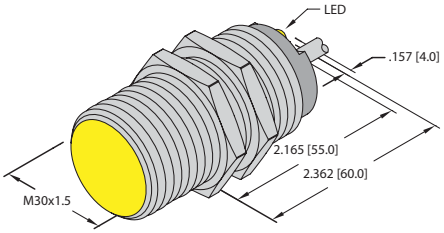
Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-G30-ADZ30X2-B1131 4207202	Extended Range	15	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi15-EG30H-ADZ30X2-B1131 4207292	Ext. Range, Stoneface	15	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	SF	GN	RD	A	1	A5
Bi10U-G30-ADZ30X2-B1131 4281612	Uprox	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Bi10-GT30-ADZ30X2-B1131/S34/S1589 4255280	PTFE, WFI, Weldguard	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	C	1	A5
Bi10-G30-ADZ30X2-B1131 42075		10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi10-GT30-ADZ30X2-B1131/S34 4256200	PTFE, WFI	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	C	1	A5
Bi10-GT30-ADZ30X2-B1131 4256290	PTFE	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	C	1	A5
Bi10-G30-AZ3X-B1131 43722		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Bi10-G30-AZ3X-B1431 43726		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	B	1	A6
Bi10U-GT30-ADZ30X2-B1131 4281622	Uprox, PTFE	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	C	1	A5
Ni20U-G30-ADZ30X2-B1131 4281812	Uprox	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	D	1	A5
Ni20U-GT30-ADZ30X2-B1131 4281822	Uprox	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	E	1	A5
Ni20-G30-ADZ30X2-B1131 4205405	Extended Range	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	D	1	A5
Ni15-G30-AZ3X-B1131 43723		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	D	1	A6
Ni15-G30-AZ3X-B1431 4372700		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	F	1	A6

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, Potted-in Cable

Wiring Diagrams/Mating Cordsets

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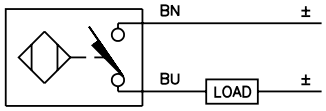

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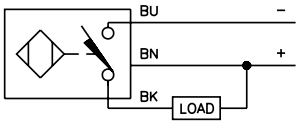

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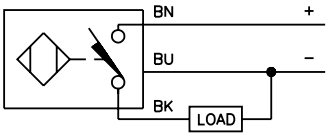

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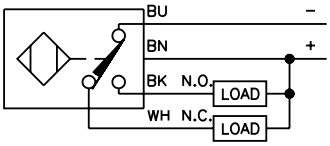

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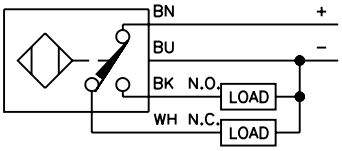


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

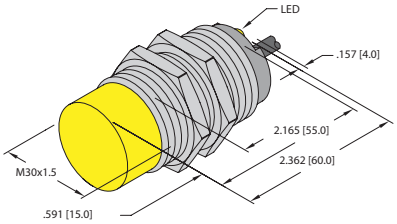
Embeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi20U-M30-AN6X 1644890	Uprox3	20	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Bi20U-M30-AP6X 1644886	Uprox3	20	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Bi15U-M30-AN6X 1636735	Uprox+	15	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Bi15U-M30-AP6X 1636731	Uprox+	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Bi15U-EM30-AP6X 1636741	Uprox+	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	2M/PVC	A	3	A4
Bi15-M30-AN6X 4618620	Extended Range	15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi15-M30-AP6X 4618530	Extended Range	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi15-M30-VN4X 4570712	Ext. Range, Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Bi15-M30-VP4X 4570713	Ext. Range, Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4
Bi12-M30-AD4X 4417035	Extended Range	12	2-wire DC	10-65 VDC	400	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi10U-M30-AD4X 4405073	Uprox	10	2-wire DC	10-65 VDC	10	≤100	-30 to +85	IP68	TC	LCP	N/A	YE	2M/PVC	A	1	A2
Bi10U-M30-AN6X 1636120	Uprox	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	2	A4
Bi10U-EM30-AN6X 1636320	Uprox	10	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	2M/PVC	A	2	A4
Bi10U-M30-AP6X 1636100	Uprox	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	3	A4
Bi10U-EM30-AP6X 1636300	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	2M/PVC	A	3	A4
Bi10-M30-AD4X 44170		10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi10-M30-VN4X 15714	Comp. Outputs	10	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Bi10-M30-VP4X 15614	Comp. Outputs	10	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4

We reserve the right to make technical alterations without prior notice.

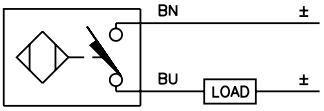
Inductive Barrel Sensors | 30 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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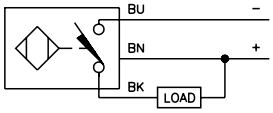

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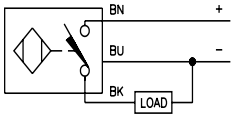

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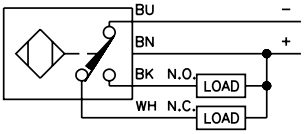

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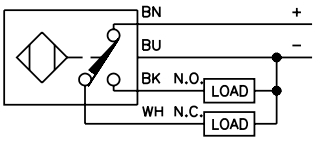


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni30U-M30-AN6X 1644634	Uprox+	30	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Ni30U-M30-AP6X 1646630	Uprox+	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Ni20U-M30-AN6X 1646120	Uprox	20	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	2	A4
Ni20U-EM30-AN6X 1646320	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	2M/PVC	A	2	A4
Ni20U-M30-AP6X 1646100	Uprox	20	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	3	A4
Ni20U-EM30-AP6X 1646300	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	2M/PVC	A	3	A4
Ni20-M30-AD4X 4466135	Extended Range	20	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Ni20-M30-AN6X 4670516	Extended Range	20	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni20-M30-AP6X 4670511	Extended Range	20	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Ni20-M30-VN4X 4590604	Extended Range	20	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Ni20-M30-VP4X 4590605	Extended Range	20	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4
Ni15-M30-AD4X 44172		15	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Ni15-M30-VN4X 15715	Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Ni15-M30-VP4X 15615	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4

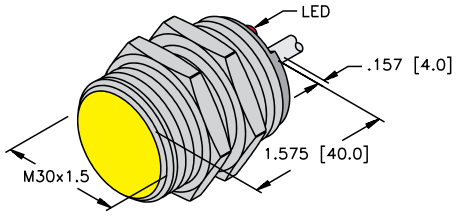
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Cable and DC Outputs

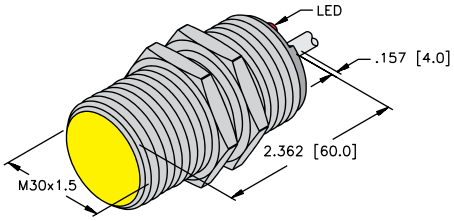
Housing Style	Dimension Drawings

A



30 mm - Embeddable, Potted-In Cable

B



30 mm - Embeddable, Potted-In Cable

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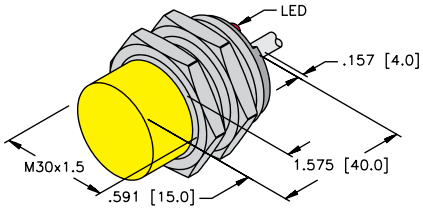

30 mm - Nonembeddable, Potted-In Cable

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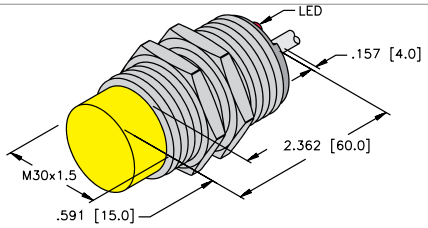

30 mm - Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

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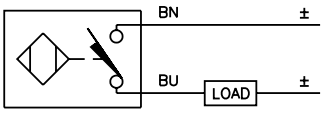

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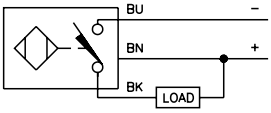

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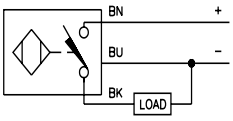


A2 — **2-wire DC - (AD, RD, AG)**

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

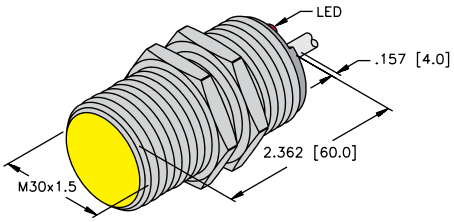
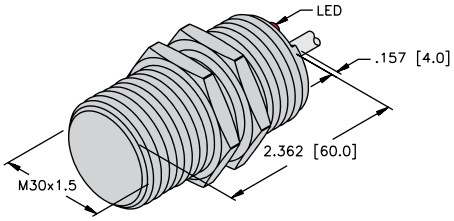
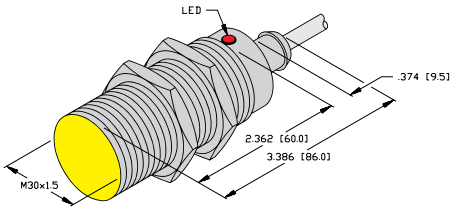
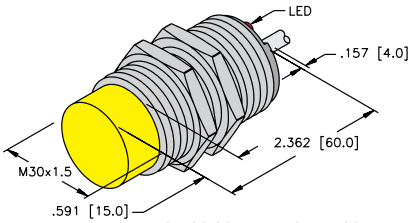
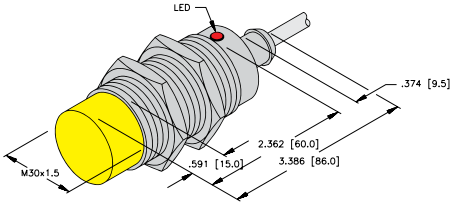
Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-G30K-AD4X 4670695	Short Barrel	10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi10-G30K-AN6X 46716	Short Barrel	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi10-G30K-AP6X 46706	Short Barrel	10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi15-G30K-AP6X 4207300	Short Barrel	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi10-G30-AN6X 4647500		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi10-G30-AN7X 1714800	TTL Compatible	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi10-G30-AP6X 4647400		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	3	A4
Ni30-G30K-AP6X 4670711	Short Barrel	30	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	3	A4
Ni15-G30-AN6X 46477		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	2	A4
Ni15-G30-AN7X 1714900		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	2	A4
Ni15-G30-AP6X 4647600		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	3	A4
Ni15-G30K-AN6X 46717	Short Barrel	15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	2	A4
Ni15-G30K-AP6X 46707	Short Barrel	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	3	A4

We reserve the right to make technical alterations without prior notice.

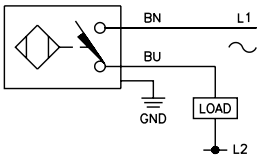
Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Cable and AC/DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, Potted-In Cable
B  30 mm - Embeddable, Potted-In Cable, PTFE Coated	C  30 mm - Embeddable, Potted-In Cable
D  30 mm - Nonembeddable, Potted-In Cable	E  30 mm - Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

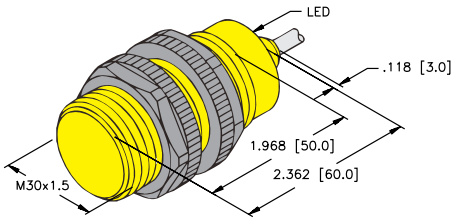
Threaded Metal Barrels with Cable and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-EG30-ADZ30X2 4256095		10	2-wire AC/DC Short-circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	PA 12	GN	RD	2M/PVC	A	1	A5
Bi10-G30-ADZ30X2 42070		10	2-wire AC/DC Short-circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	2M/PVC	A	1	A5
Bi15-G30-ADZ30X2 4207200		15	2-wire AC/DC Short-circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	2M/PVC	A	1	A5
Bi10-EG30-AZ3X 4345699		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	PA 12	N/A	RD	2M/PVC	A	1	A6
Bi10-G30-AZ3X 4345400		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	A	1	A6
Bi10-GT30-ADZ30X2/S34 4256000	PTFE, WFI	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	2M/PVC	B	1	A5
Bi10-M30T-AZ3X 43170		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	C	1	A6
Ni20-G30-ADZ30X2 4205404		20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	2M/PVC	D	1	A5
Ni15-M30T-AZ3X 43171		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	E	1	A6

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable/Nonembeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

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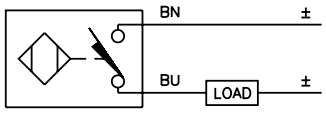

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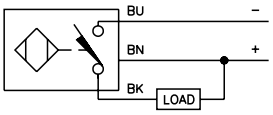

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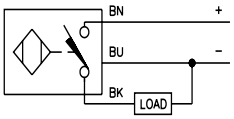

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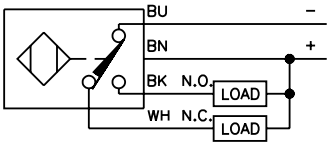

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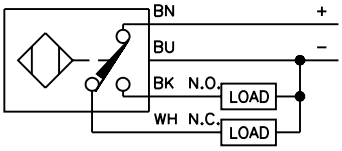


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-S30-AN6X 1636520	Uprox	10	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi10U-S30-AP6X 1636500	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi10-S30-AD4X 44590		10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi10-S30-AN6X 46591		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi10-S30-AN7X/S100 17777	TTL Compatible, High Temp. 100 °C	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +100	IP67	PA 12	IRPA	N/A	YE	2M/PVC	A	2	A4
Bi10-S30-AP6X 46590		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi10-S30-VP4X 15122	Comp. Outputs	10	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	5	A4
Ni20U-S30-AN6X 1646520	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni20U-S30-AP6X 1646500	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	2M/PVC	A	3	A4
Ni15-S30-AD4X 44592		15	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	1	A2
Ni15-S30-AN6X 46593		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni15-S30-AP6X 46592		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	3	A4
Ni15-S30-VN4X 15224	Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	4	A4
Ni15-S30-VP4X 15630	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	5	A4

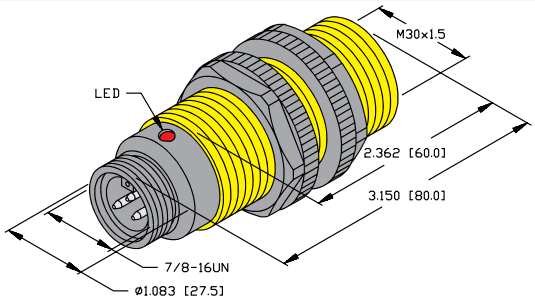
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with AC Outputs

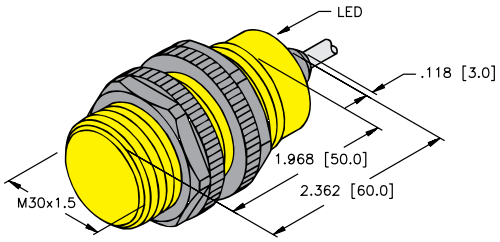
Housing Style	Dimension Drawings

A



30 mm - Embeddable/Nonembeddable, Full Threading, 7/8" Minifast Connection

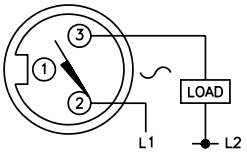
B



30 mm - Embeddable/Nonembeddable, Partial Threading, Potted-In Cable

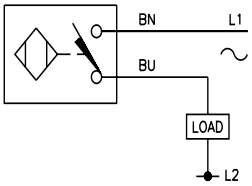
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 30-*M

2



A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with AC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-S30-AZ3X 43554		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	2	A6
Ni15-S30-AZ3X 43555		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	2	A6
Bi10-P30-AZ3X-B2131 43749		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	--	A	1	A6
Ni15-S30-AZ3X/S100 13758	High Temp. 100 °C	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	2	A6
Ni15-P30-AZ3X-B2131 43754		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	--	A	1	A6

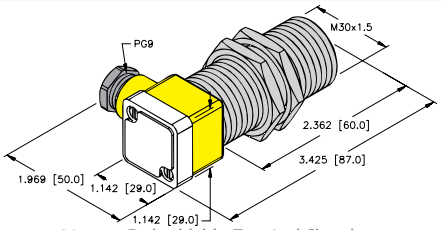
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Barrels with Terminal Chamber and AC/DC Outputs

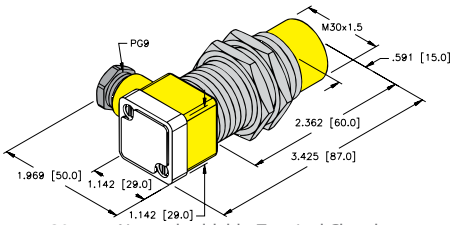
Housing Style	Dimension Drawings

A



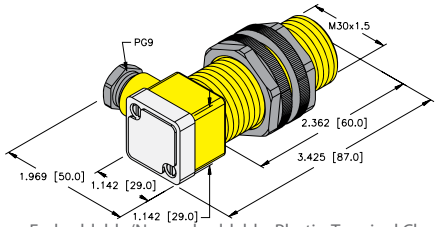
30 mm - Embeddable, Terminal Chamber

B



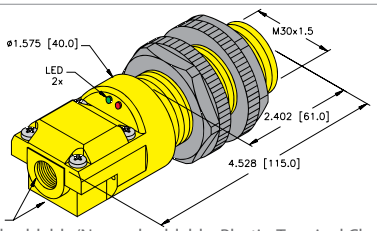
30 mm - Nonembeddable, Terminal Chamber

C



30 mm - Embeddable/Nonembeddable, Plastic, Terminal Chamber

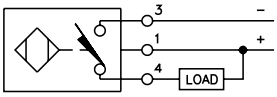
D



30 mm - Embeddable/Nonembeddable, Plastic, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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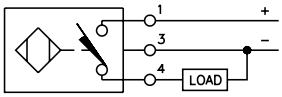

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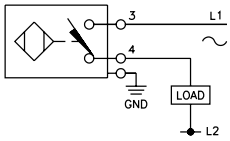

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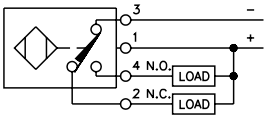

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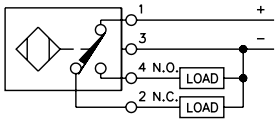


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

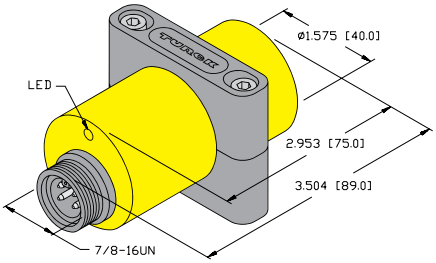
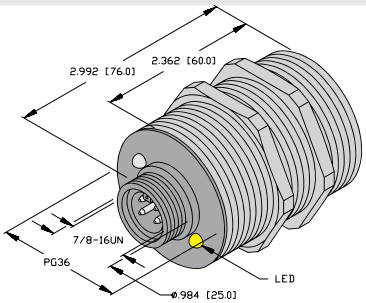
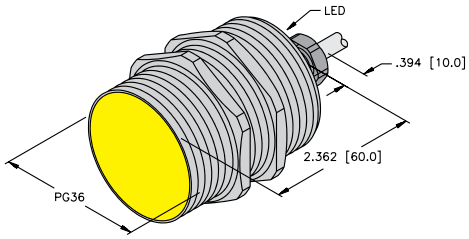
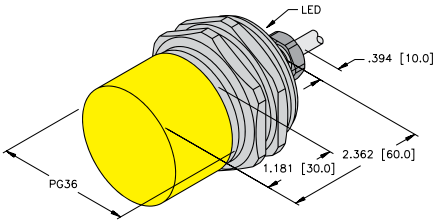
Threaded Barrels with Terminal Chamber and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-EG30SK-AN6X 1636420	Uprox	10	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	1	A4
Bi10-G30SK-AN6X2 4648500		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	1	A4
Bi10-P30SK-AN6X2 4660000		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	1	A4
Bi10-G30SK-AP6X2 4648400		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	2	A4
Bi10-P30SK-AP6X2 4659900		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	2	A4
Bi10-P30SR-VN4X2 15752	Comp. Outputs	10	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	D	4	A4
Bi10-P30SR-VP4X2 15652	Comp. Outputs	10	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	D	5	A4
Bi10-G30SK-AZ3X2 4346400		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	3	A6
Bi10-P30SK-AZ3X2 4356400		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	GN	RD	C	3	A6
Bi10-P30SR-FZ3X2 13420	Programmable Outputs	10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤500	-25 to +70	IP67	PA 12	PA 12	GN	RD	D	3	A6
Ni20U-P30SK-AP6X 1646700	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	2	A4
Ni15-P30SK-AN6X2 4660200		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	1	A4
Ni15-G30SK-AP6X2 4648600		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	B	2	A4
Ni15-P30SK-AP6X2 4660100		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	2	A4
Ni15-P30SR-VN4X2 15753	Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	D	4	A4
Ni15-P30SR-VP4X2 15653	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	D	5	A4
Ni15-G30SK-AZ3X2 4346500		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	B	3	A6
Ni15-P30SK-AZ3X2 4356500		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	GN	RD	C	3	A6
Ni15-P30SR-FZ3X2 13421	Programmable Outputs	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤500	-25 to +70	IP67	PA 12	PA 12	GN	RD	D	3	A6

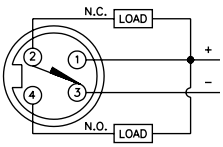
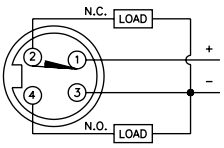
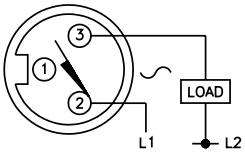
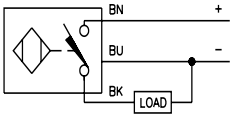
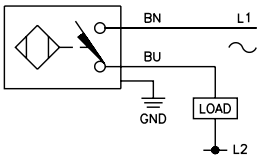
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 40 mm, 47 mm

Large Diameter Barrels with AC/DC Outputs

Housing Style	Dimension Drawings	
	A  40 mm - Nonembeddable, Smooth Plastic Barrel, 7/8" Minifast Connection	B  47 mm - Embeddable, 7/8" Minifast Connection
C  47 mm - Embeddable, Potted-In Cable	D  47 mm - Nonembeddable, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: RKM 40-*M	2  Mating Cordset: RKM 40-*M	3  Mating Cordset: RKM 30-*M
4 	5 	

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 40 mm, 47 mm

Large Diameter Barrels with AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi20-G47-AP4X 15645		20	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	4	A4
Bi20-G47-AZ3X 13088		20	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	C	5	A6
Ni25-G47-AP4X 15646		25	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	4	A4
Ni25-G47-AZ3X 13089		25	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	D	5	A6
Bi25-G47-VN4X-B2141 45903	Comp. Outputs	25	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	--	B	1	A4
Bi25-G47-VP4X-B2141 45902	Comp. Outputs	25	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	--	B	2	A4
Bi20-G47-AZ3X-B2131 43759		20	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	--	B	3	A6
Ni30-K40-VN4X-B2141 45904	Comp. Outputs	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	--	A	1	A4
Ni30-K40-VP4X-B2141 45905	Comp. Outputs	30	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	--	A	2	A4
Ni30-K40-AZ3X-B2131 43758		30	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	ABS	ABS	N/A	RD	--	A	3	A6

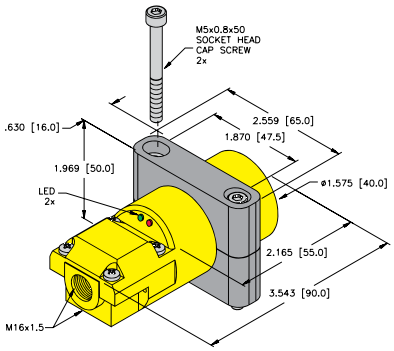
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 40 mm, 47 mm

Large Diameter Barrels with Terminal Chambers and AC/DC Outputs

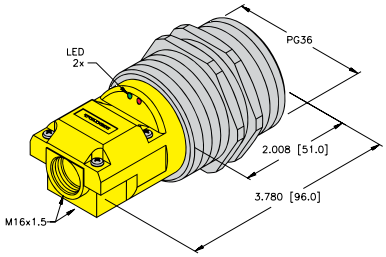
Housing Style	Dimension Drawings

A



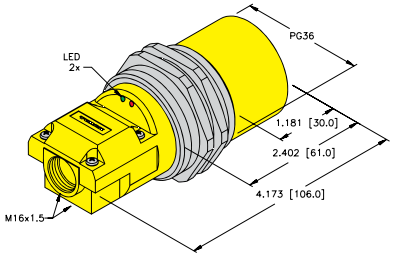
40 mm - Smooth Plastic, Terminal Chamber

B



47 mm - Embeddable, Terminal Chamber

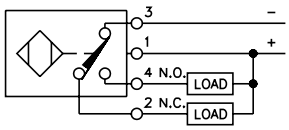
C



47 mm - Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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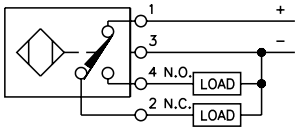
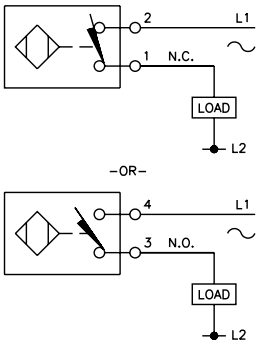


3



A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 40 mm, 47 mm

Large Diameter Barrels with Terminal Chambers and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi25-G47SR-FZ3X2 13427	Programmable Outputs	25	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	B	3	A6
Bi25-G47SR-VN4X2 15748	Comp. Outputs	25	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	B	1	A4
Bi25-G47SR-VP4X2 15648	Comp. Outputs	25	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	B	2	A4
Bi15-K40SR-FZ3X2 13423	Programmable Outputs	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	ABS	ABS	GN	RD	A	3	A6
Bi15-K40SR-VP4X2 15655	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	2	A4
Ni40-G47SR-FZ3X2 13428	Programmable Outputs	40	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	C	3	A6
Ni40-G47SR-VP4X2 15650	Comp. Outputs	40	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	C	2	A4
Ni30-K40SR-FZ3X2 13425	Programmable Outputs	30	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	ABS	ABS	GN	RD	A	3	A6
Ni30-K40SR-VN4X2 15758	Comp. Outputs	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	1	A4
Ni30-K40SR-VP4X2 15658	Comp. Outputs	30	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	2	A4
Ni20-K40SR-FZ3X2 13424	Programmable Outputs	20	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	ABS	ABS	GN	RD	A	3	A6
Ni20-K40SR-VN4X2 15756	Comp. Outputs	20	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	1	A4
Ni20-K40SR-VP4X2 15656	Comp. Outputs	20	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	2	A4

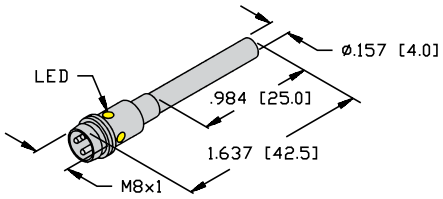
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 4 mm, 5 mm, & 6.5 mm Namur

Intrinsically Safe

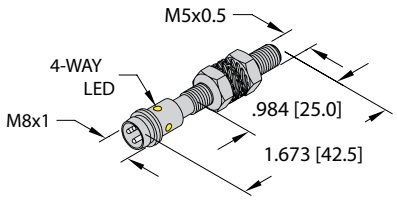
Dimension Drawings

A



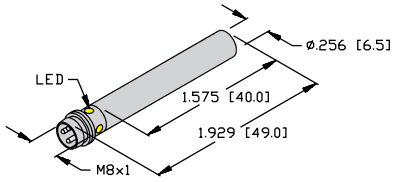
4 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect

B



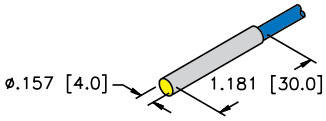
5 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

C



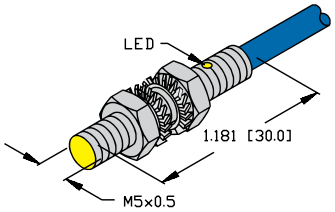
6.5 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect

D



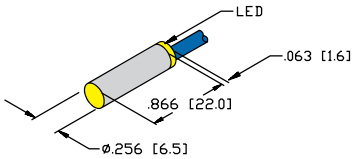
4 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

E



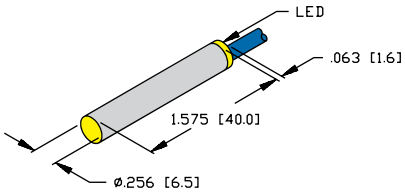
5 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

F



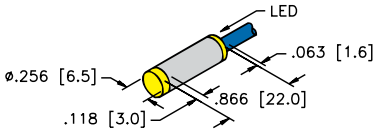
6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

G



6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

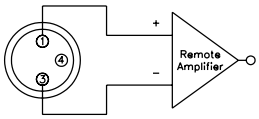
H



6.5 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable

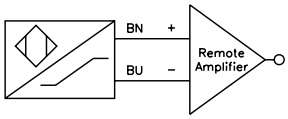
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: PKG 3M-*

2



A1 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)	Power-On Effect:	Realized in Amplifier
Nominal Voltage:	8.2 VDC (EN60947-5-6)	Reverse Polarity Protection:	Incorporated
Load Resistance:	1000 Ω	Wire-Break Protection:	Realized in Amplifier
Non-Activated Current Consumption:	≥2.1 mA	Transient Protection:	Realized in Amplifier
Activated Current Consumption:	≤1.2 mA	Shock:	30 g, 11 ms
Recommended Switching Point for	>1.2 to <2.1 mA,	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Remote Amplifier:	typ. 1.55 mA ON/1.75 mA OFF	Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 4 mm, 5 mm, & 6.5 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Cable Length/Jacket	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi1-EH04-Y1-V1330 1003044		1	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	--	N/A	A	1	A1
Bi1-EG05-Y1-V1331 1003241		1	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	--	N/A	B	1	A1
Bi1.5-EH6.5-Y1-V1130 1004621		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	--	N/A	C	1	A1
Bi1-EH04-Y1 1003040		1	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	2M/PVC	N/A	D	2	A1
Bi1-EG05-Y1 1003240		1	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	2M/PVC	N/A	E	2	A1
Bi1.5-EH6.5K-Y1 1004600	Short Barrel	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	2M/PVC	N/A	F	2	A1
Bi1.5-H6.5-Y1X 4004810		1.5	2-wire DC NAMUR	5-30 VDC	3000	Remote	-25 to +70	IP67	SS	PA 12	2M/PVC	YE	G	2	A1
Ni3-EH6.5K-Y1 1004700	Short Barrel	3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	2M/PVC	N/A	H	2	A1

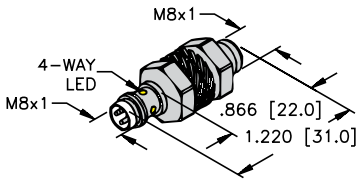
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm Namur

Intrinsically Safe

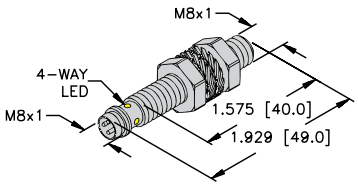
Dimension Drawings

A



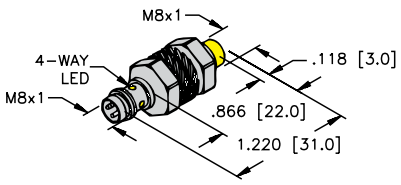
8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

B



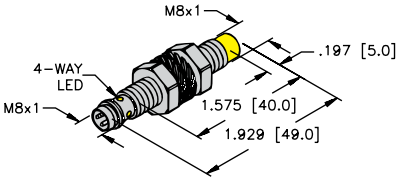
8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

C



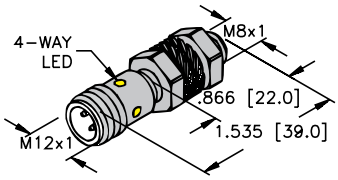
8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect

D



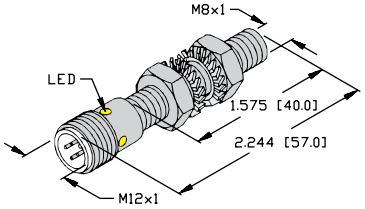
8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect

E



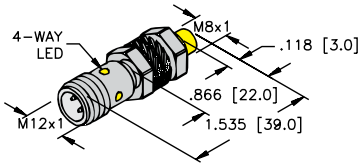
8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

F



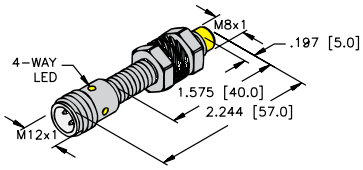
8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

G



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

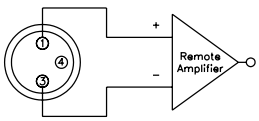
H



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

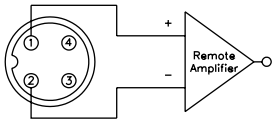
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: PKG 3M-*

2



Mating Cordset: RK 4.21T-*

A1 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-EG08K-Y1-V1131 1003630	Short Barrel	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	A	1	A1
Bi1.5-EG08-Y1-V1131 1003530		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	B	1	A1
Ni3-EG08K-Y1-V1130 1003721	Short Barrel	3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	C	1	A1
Ni3-EG08-Y1-V1130 1003732		3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	D	1	A1
Bi1.5-EG08K-Y1-H1341 1003620	Short Barrel	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	E	2	A1
Bi1.5-EG08K-Y1X-H1341 1003640	Short Barrel	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	YE	E	2	A1
Bi1.5-EG08-Y1-H1341 1003502		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	F	2	A1
Ni3-EG08K-Y1-H1341 1003720	Short Barrel	3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	G	2	A1
Ni3-EG08K-Y1X-H1341 1003704	Short Barrel	3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	G	2	A1
Ni3-EG08-Y1-H1341 1003730		3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	H	2	A1

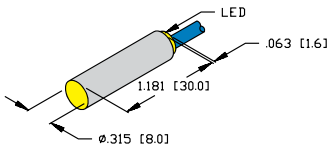
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm Namur

Intrinsically Safe

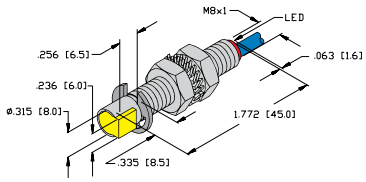
Dimension Drawings

A



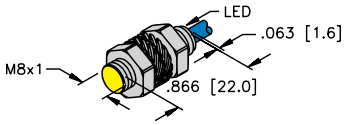
8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

B



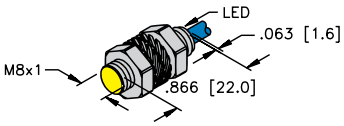
8 mm - Embeddable, Miniature Threaded Barrel, Side Sensing, Potted-In Cable

C



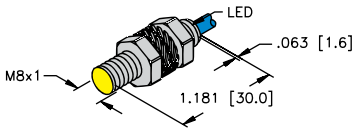
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

D



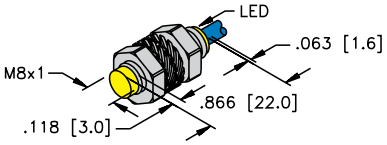
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

E



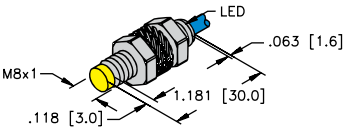
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

F



8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable

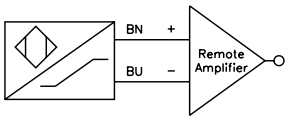
G



8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-H08-Y1 1021800		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	A	1	A1
Bi1.5-GS880-Y0 1004401	Side Sensing	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	B	1	A1
Bi1.5-EG08K-Y1 1003600	Short Barrel	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	C	1	A1
Bi1.5-EG08-Y1 1003500		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	D	1	A1
Bi1.5-G08-Y1 1005224		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	E	1	A1
Ni3-EG08K-Y1 1003700	Short Barrel	3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	F	1	A1
Ni2-G08-Y1 10053		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	G	1	A1

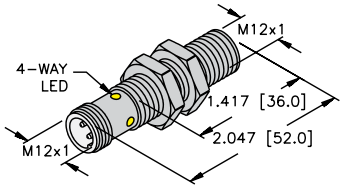
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm Namur

Intrinsically Safe

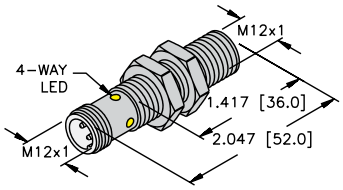
Dimension Drawings

A



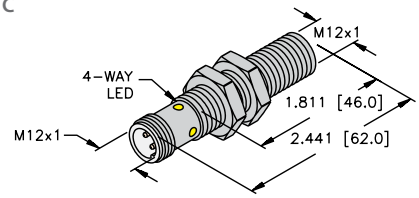
12 mm - Embeddable, M12 Eurofast Connection

B



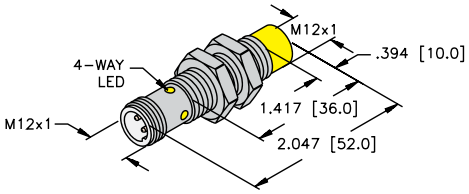
12 mm - Embeddable, M12 Eurofast Connection, PTFE Coated Sensors

C



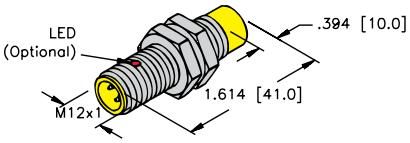
12 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length

D



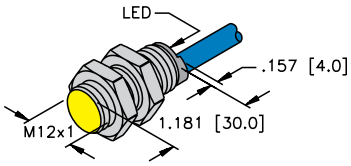
12 mm - Nonembeddable, M12 Eurofast Connection

E



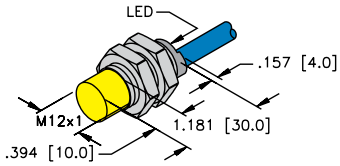
12 mm - Nonembeddable, M12 Eurofast Connection

F



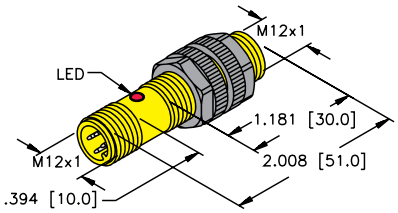
12 mm - Embeddable, Potted-In Cable

G



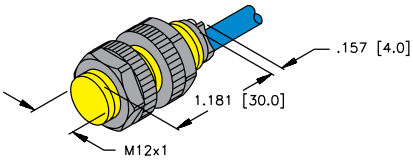
12 mm - Nonembeddable, Potted-In Cable

H



12 mm - Embeddable/Nonembeddable, Plastic, M12 Eurofast Quick Disconnect

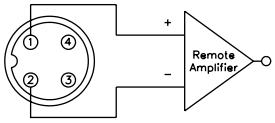
I



12 mm - Embeddable/Nonembeddable, Plastic Potted-In Cable

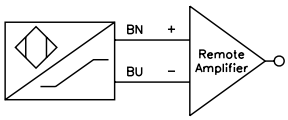
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.21T-*; RKK 4.21T-*

2



A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-M12-Y1X-H1141 40102		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	A	1	A1
Bi2-MT12-Y0X-H1141 4010093	PTFE	2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	TC	TC	YE	--	B	1	A1
Bi2-M12E-Y0X-H1141 4606490		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	C	1	A1
Bi2-S12-Y0X-H1141 4030090		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	PA	PA	RD	--	H	1	A1
Ni5-M12-Y1X-H1141 40103		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	D	1	A1
Ni5-G12-Y0-H1141 1005594		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	--	E	1	A1
Ni5-S12-Y0X-H1141 4030300		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	PA	PA	RD	--	H	1	A1
Bi2-EG12-Y0X 4012097		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	YE	2M/PVC	F	2	A1
Bi2-G12-Y0 1005450		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	F	2	A1
Bi2-G12-Y0X 4010000		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	F	2	A1
Bi2-P12-Y0 1005456		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	I	2	A1
Bi2-P12-Y0X 403000		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	I	2	A1
Bi2-P12-Y1X/S97 4030021	Low Temp. -40 °C	2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-40 to +70	IP67	PA 12	PA 12	YE	2M/Silicon	I	2	A1
Ni5-G12-Y0 1005451		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	G	2	A1
Ni5-G12-Y0X 1005458		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	G	2	A1
Ni5-P12-Y0X 1005460		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	I	2	A1
Ni5-P12-Y1 10094		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	I	2	A1

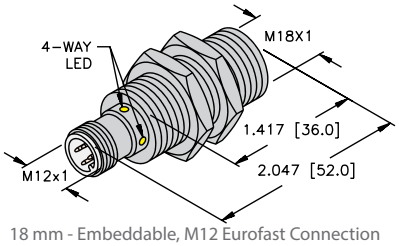
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm Namur

Intrinsically Safe

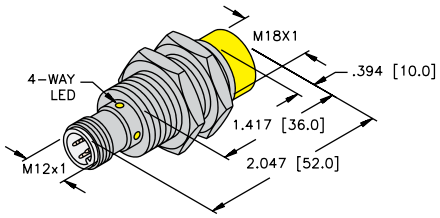
Dimension Drawings

A



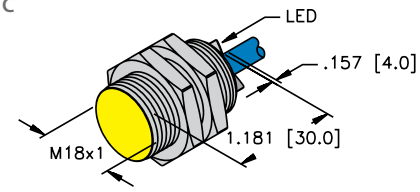
18 mm - Embeddable, M12 Eurofast Connection

B



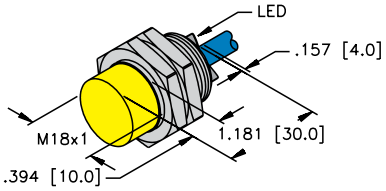
18 mm - Nonembeddable, M12 Eurofast Connection

C



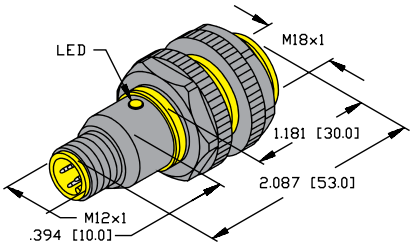
18 mm - Embeddable, Full Threading, Potted-In Cable

D



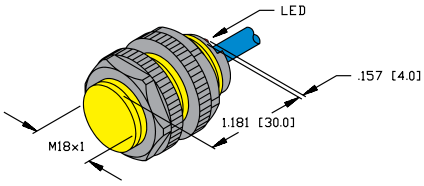
18 mm - Nonembeddable, Full Threading, Potted-In Cable

E



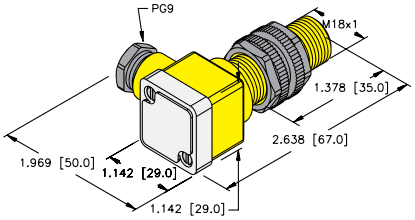
18 mm - Embeddable and Nonembeddable, Partial Threading, M12 Eurofast Connection

F



18 mm - Embeddable and Nonembeddable, Full Threading, Potted-In Cable

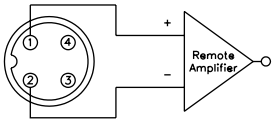
G



18 mm - Embeddable and Nonembeddable, Full Threading, Terminal Chamber

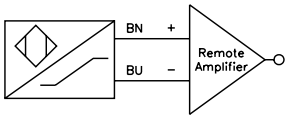
Wiring Diagrams/Mating Cordsets

1

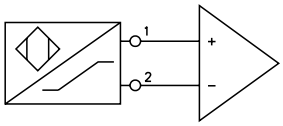


Mating Cordset: RK 4.21T-*; RKK 4.21T-*

2



3



A1 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

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Inductive Barrel Sensors | 18 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-M18-Y1X-H1141 40152		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	A	1	A1
Ni10-M18-Y1X-H1141 40153		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	B	1	A1
Bi5-EG18-Y0 100600		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	C	2	A1
Bi5-G18-Y0 1005452		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	C	2	A1
Bi5-G18-Y0X 4015000		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	C	2	A1
Ni10-G18-Y0 1006100		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	D	2	A1
Ni10-G18-Y0X 4015100		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	D	2	A1
Bi5-S18-Y0X-H1141 4036095		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	PA 12	PA 12	YE	--	E	1	A1
Bi5-P18-Y0 1005457		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	F	2	A1
Bi5-P18-Y0X 1005462		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	F	2	A1
Bi5-P18-Y0/S100 1024500	High Temp. 100 °C	5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +100	IP67	PA 12	IRPA	N/A	2M/PVC	F	2	A1
Ni10-P18-Y0X 1005463		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	F	2	A1
Ni10-P18-Y1 10096		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	F	2	A1
Ni10-P18-Y0/S100 103170	High Temp. 100 °C	10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +100	IP67	PA 12	IRPA	N/A	2M/PVC	F	2	A1
Bi5-P18SK-Y1X 40360		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	PA 12	PA 12	YE	--	G	3	A1
Ni10-P18SK-Y1X 40361		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	PA 12	PA 12	YE	--	G	3	A1

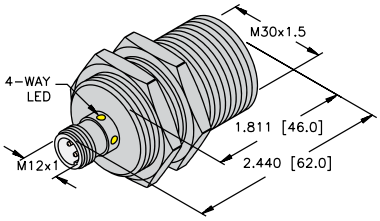
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm Namur

Intrinsically Safe

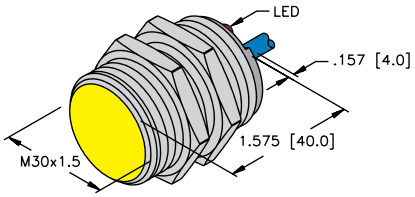
Dimension Drawings

A



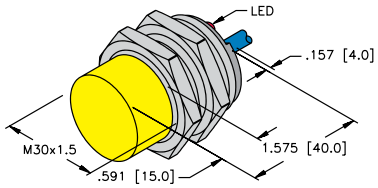
30 mm - Embeddable, M12 Eurofast Connection

B



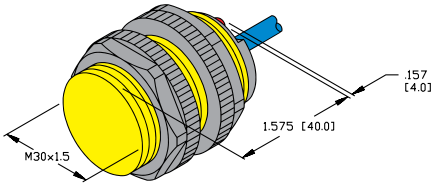
30 mm - Embeddable, Potted-In Cable

C



30 mm - Nonembeddable, Potted-In Cable

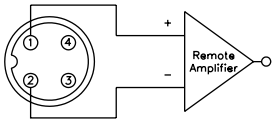
D



30 mm - Embeddable/Nonembeddable, Full Threading, Potted-In Cable

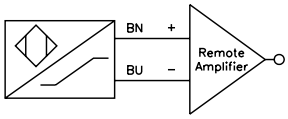
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.21T-*

2



A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-M30-Y1X-H1141 40202		10	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	A	1	A1
Bi10-G30-Y0 1005453	Short Barrel	10	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	B	2	A1
Bi10-G30-Y0X 1005459	Short Barrel	10	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	B	2	A1
Ni15-G30-Y0 1005454		15	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	C	2	A1
Ni15-G30-Y0X 4020100		15	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	C	2	A1
Bi10-P30-Y0X 404000		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	D	2	A1
Bi10-P30-Y1 10097		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	D	2	A1
Ni15-P30-Y0X 1005465		15	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	D	2	A1
Ni15-P30-Y1 10098		15	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	D	2	A1

We reserve the right to make technical alterations without prior notice.

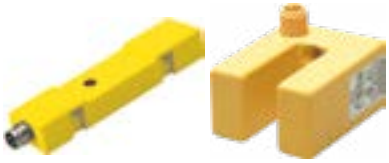
Notes

Notes

Specialty Sensor Section

Specialty Sensors			
Housing	**Barrel and Rectangular**	**12, 18, and 30 mm**	**40, 80, and 160 mm**
Features	**Washdown Uprox+**	**High Temperature Sensors**	**High Temperature Sensors**
Pages	**C9 - 14**	**C15 - 20**	**C21**

Specialty Sensors			
Housing	**8, 12, 18, and 30 mm**	**Barrel and Rectangular**	**30 mm**
Features	**Stainless Steel Face Sensors**	**Mobile Equipment Sensors**	**High Current Solid State Sensors**
Pages	**C23 - 32**	**C33 - 36**	**C37**

Specialty Sensors			
			
Housing	**12,18, and 30 mm**	**Variable**	**Variable**
Features	**FM, Class I Div 2 Approved Sensors**	**Ring Sensing**	**Tube and Slot Sensing**
Pages	**C39**	**C41 - 44**	**C45 - 48**

We reserve the right to make technical alterations without prior notice.

Specialty Sensor Selection Guide

Specialty Sensors			
Housing	**12 mm**	**80 and 130 mm**	**130 mm**
Features	**Weld Nut Detection Sensor**	**Edge Detection Sensing**	**Can Line Sensing**
Pages	**C49**	**C51 - 54**	**C55**

Specialty Sensors			
Housing	**8, 12, and 18 mm**	**18 mm**	**Barrel and Rectangular**
Features	**Magnetic Inductive Sensing**	**Submersible**	**Selective Metal Sensing**
Pages	**C57 - 60**	**C61**	**C63 - 66**

Specialty Sensors		
Housing	**12 and 18 mm**	**18 and 30 mm**
Features	**In Cylinder Sensor**	**Rotational Speed Monitoring**
Pages	**C67**	**C69**

We reserve the right to make technical alterations without prior notice.

Specialty Sensor Part Number Key

B	I	10	U	-		G	T	30		-	A	DZ	30	X2		Wiring Option*	Special Option Code**

Mounting
- B = embeddable
- BID = high pressure sensor
- N = nonembeddable
- S = slot

Principle of Operation
- I = inductive
- IM = inductive magnet operated

Rated Operating Distance (mm)

Sensing Characteristics
- FE = ferrous only
- R = ring sensor
- U =Uprox® Sensor

Housing Material Modifier
- E = stainless steel

Housing Style

Barrel - Metal
- G = full threading, generally chrome plated brass
- H = smooth, chrome plated brass or stainless steel
- M = partial threading, chrome plated brass

Barrel - Plastic
- K = smooth
- P = full threading
- S = partial threading

Rectangular
- Q = metal or plastic, various rectangular styles

Limit Switch
- CA = stubby ®, short aluminum housing, connector
- CK = stubby ®, short plastic housing, connector

Slot
- K = slot sensor, plastic housing

Ring
- 32SR = large plastic housing, static or dynamic output
- Q = small rectangular plastic housing, static output
- W = small plastic housing, dynamic output

Primary Barrel Modifier
- T = PTFE® coated

Housing Diameter or Height (mm)

Number of LEDs
- (blank) = no LEDs
- X = 1 LED
- X2 = 2 LEDs

Voltage Range

AC/DC: (No SCP)**
- 3 = 20-250 VAC, 10-300 VDC

AC/DC: (Latched SCP)
- 30 = 20-250 VAC, 10-300 VDC 400 mA

DC:
- 4 = 10-65 VDC, polarity protected, pulsed SCP**
- 6 = 10-30 VDC, polarity protected, pulsed SCP
- 44 = 10-55 VDC
- 45 = 8.4-65 Volts

Output
- D = 2-wire DC (transistor output)
- DZ = 2-wire AC/DC, (power MOSFET output)
- N = NPN transistor (current sinking)
- P = PNP transistor (current sourcing)
- Z = 2-wire AC or 2-wire AC/DC
- M = high current solid state relay

Output Function
- A = normally open (N.O.)
- DA = dynamic output (ring sensor), normally open
- R = normally closed (N.C.)
- U = jumper programmable (N.O. or N.C.)
- V = complementary outputs: one N.O., one N.C.
- Y0 = NAMUR output, requires switching amplifier
- Y1 = NAMUR output, requires switching amplifier, ATEX approved

Secondary Barrel Modifier
- E = extended barrel length
- EE = extra long barrel length
- FE = stainless steel face, extended barrel length
- FM = stainless steel face, medium barrel length
- M = medium barrel length
- TC = terminal chamber
- WD = washdown IP67/IP68/IP69K
- F = stainless steel face, standard length

NOTE:
Part number keys are to assist in identification only.
Verify new part numbers with factory; some configurations are not possible.
* See next page Wiring Options and Special Option Codes.

We reserve the right to make technical alterations without prior notice.

Specialty Sensor Part Number Key

Wiring Options*

A. Connectorized Sensor

Bi2 - M12 - AN6X2 - H1 1 4 1

Connector Family

B1 = Minifast®, 7/8"-16UN, metal, male
B2 = Minifast , 7/8"-16UN, plastic, male
B3 = Microfast®, 1/2"-20UNF, metal, male
H1 = Eurofast®, M12x1, metal or plastic, male
V1 = Picofast®, snap and M8x1, metal, male (Q08 snap only)
V2 = Picofast , snap and M8x1, male (Q08 only)

Connector/Sensor Transition

1 = straight
3 = straight with adapter
4 = right-angle with adapter

Wiring Configuration

Example:

0 = non-standard wiring
1 = standard wiring
3 = N.C. DC output on pin 4 (for US)
4 = N.O. 2-wire DC output on pin 4

Number of Pins

3 = **3**
4 = **4**
5 = **5**

B. Potted Cable

Bi2 - G12 - AN6X 7M

Cable Length

(blank) = 2 meter cable
7M = 7 meter cable
*M = custom cable lengths available

Special Option Codes**

Bi 2-S12-AN7X /S100 or Bi10R-W30-DAN6X-H1141 /F2

Example:

/S90 = TPU cable
/S97 = -40 °C (-40 °F) operating temperature
/S100 = +100 °C (+212 °F) operating temperature
/S120 = +120 °C (+248 °F) operating temperature
/S139 = submersible
/S907 = +160 °C (+320 °F) operating temperature
/S1009 = 250 ms internal off delay
/S1102 =+250 °C (+482 °F) operating temperature
/S1751 = approved for FM Class I, Div 2, groups A, B, C, and D

Example:

/F2 = alternate oscillator frequency

We reserve the right to make technical alterations without prior notice.

Specialty Sensors

Uprox+ Washdown Sensors

The Uprox+ Washdown product family is with a full line of inductive sensors that senses all metals at the same range (no correction factor), extended temperature rating from -40 to +100 °C, robust construction with IP68 and IP69k sealing ratings, and housing materials compatible with common acidic and alkaline chemicals used in Food and Beverage applications.

Sensors with Extended Temperature Range

Turck offers sensors for applications that withstand extreme temperatures of -40 to +250 °C. Typically, these sensors are used in applications like cold storage facilities, metal foundries, glass making, outdoor applications, and in painting shops in the automotive industry.

Stainless Steel Face Sensors

Inductive sensors with one piece stainless steel faced barrels are ideal for applications where physical impact is common or where ingress through the sensing face is a concern. The sensors are available in barrel diameters from 8 mm to 30 mm, standard and extended sensing ranges, rated IP68/IP69K, with optional coatings for welding environments, and 2 and 3-wire designs.

Mobile Equipment Sensors

Position sensing applications in mobile equipment have different electrical requirements than what is common for industrial sensors. Turck designs and manufactures a diverse line of inductive sensors that meet or exceed the industry requirements for sealing (IP68/IP69K), load dump protection, resistance to shock, vibration, EMC immunity, extended temperature range, wide operating voltage, and extended sensing range.

Inductive Sensor with 6 A Rated Output

This 30 mm mobile equipment sensor uses a MOSFET component to switch up to 6 amps of current with either a normally open output or a complementary normally open and closed output in a stainless steel housing. The sensor can be configured as an embeddable or nonembeddable sensor.

We reserve the right to make technical alterations without prior notice.

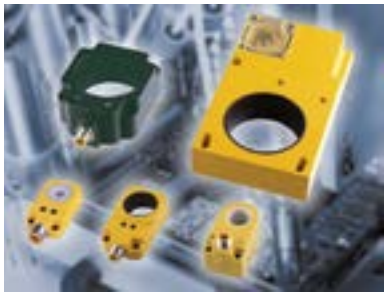
Specialty Sensors

FM Class I Div 2

The new FM approval standard permits the use of quick disconnect with a lock fast accessory equipped sensor being used in Class I Div 2, Groups A, B, C, D. The ability to use quick disconnect will enable users to install sensors faster and at a lower cost than traditional conduit methods. We also offer approved cordsets with Eurofast or Minifast connectors (when used with a Lokfast guard). All cables have the ITC-ER rating. For applications where conduit is preferred, we offer sensors with potted-in ITC rated cables.

Inductive Ring Sensor

Turck offers a variety of ring sensor designs that detect a wide variety of target sizes, with sensor outputs to solve either static or dynamic part feeding applications. In addition to our six different ring sensor housings, Turck offers the TS12 Uprox®+ sensor, which senses all metals at the same range while functioning like a ring sensor but can be strapped onto a tube to simplify installation.



Inductive Slot Sensors

Turck's slot sensors incorporate a U-shaped design with the active sensing face between the two arms. If the object being detected moves into the U-shaped area, the sensor is actuated. Slot sensors are capable of securely detecting targets whose distance from the active face is not clearly defined upon side approach.

Weld Nut Sensors

Turck's magnetic weld nut sensors provide efficient and economical detection of weld nuts in automotive applications. The sensors detect ferromagnetic components, such as nuts, bushings and spacer sleeves, to ensure these components are present before robotic welding occurs. These sensors are less complex than existing devices that require additional software or electronics to detect the target.

Can and Edge Detection Sensor

Turck's Q130 sensor is designed for easy mounting on metal can conveying systems to help detect jam ups or lack of metal cans in the conveyor, while the CK4080 and CK40130 sensors are optimized to detect the edges of metal sheets commonly used in transfer presses found in automotive or white goods stamping applications.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors

Inductive-Magnetic Proximity Sensors

Turck's line of BIM barrel sensors are designed to work with external magnets and can be used to solve a wide variety of sensing applications, especially where the user would like long sensing ranges (up to 90 mm with DMR31-15-5 magnet) in small housings, such as 8 or 12 mm.

Submersible Inductive Sensors

These sensors are rated for submersion in water depths up to 500 meters. The materials used to construct this 18 mm diameter sensor are seawater resistant. Available in a variety of sensing ranges and outputs.

Selective Metal Sensors

Standard inductive sensors sense all metals. Turck's family of selective metal inductive sensors offer a reliable solution for applications where the user wants to detect ferrous metals or non-ferrous metals only.

In-Cylinder Inductive Sensors

These inductive sensors are designed for use in a hydraulic cylinder to detect extended or retracted positions. Available in M12 or M18 barrels, these senors can withstand static pressures up to 7,250 psi.

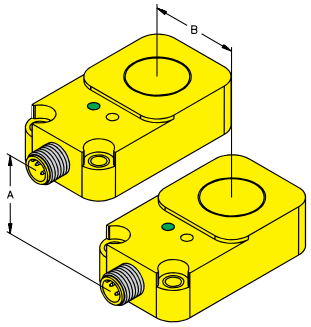
Rotational Speed Sensors

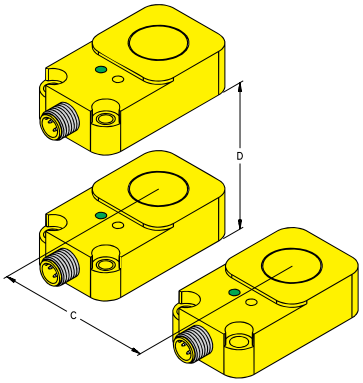
Rotational speed sensors are designed to work with a rotating metal target like a keyway or sprocket. These sensors feature a simple potentiometer for adjusting the set point and are ideal for monitoring applications where the user wants to monitor under speed or over speed conditions. If the speed is below the set point the output is off, and if the speed is above the set point the output turns on.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors

Ring and Tube Sensor Mounting Characteristics

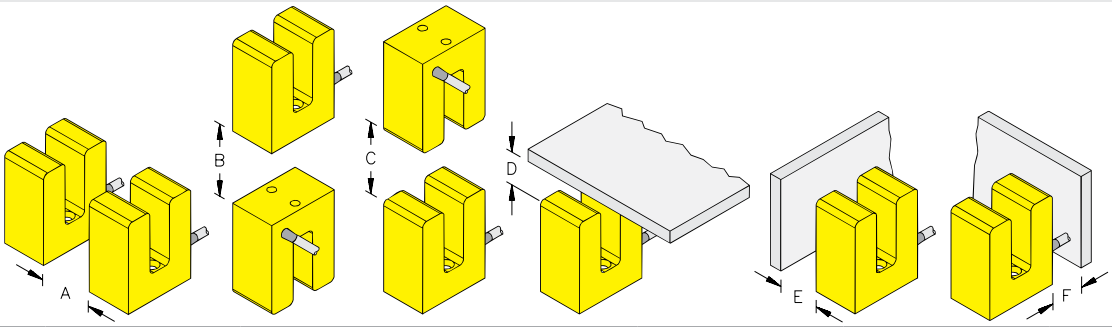




Sensor Type	A	B	C	D
Bi6R-Q14	0	14	45	45
Bi6R-W30	120	6	120	120
Bi10R-Q14	30	14	45	45
Bi10R-W30	120	10	120	120
Bi15R-Q14	30	14	45	45
Bi15R-W30	120	15	120	120
Bi20R-Q14	30	14	45	45
Bi20R-W30	120	20	120	120
Ni20R-S32SR	150	150	150	150
Bi30R-Q20	40	20	55	55
Bi30R-W30	120	30	120	120
Ni40R-S32SR	150	150	150	150
Bi50R-Q80*	90	50	140	120
Ni65R-Q80*	90	65	140	150
Ni65R-S32SR	150	150	150	150
Ni100R-S32XL**	Consult data sheet	Consult data sheet	290	240
Ni20U-TS12*** (tube)	Consult data sheet	Consult data sheet	42	50

Dimensions are in mm.
* Do not use a metal mounting bracket.
** Sensitivity adjustment does affect the recommended mounting spacing. Please consult factory for assistance when using multiple sensors.
*** Spacing of multiple sensors depends on the actual number and orientation. Please contact factory for assistance.

Slot Sensor Mounting Characteristics



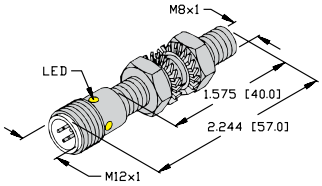
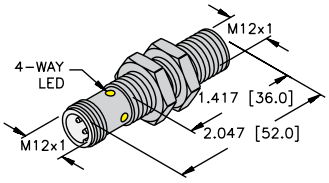
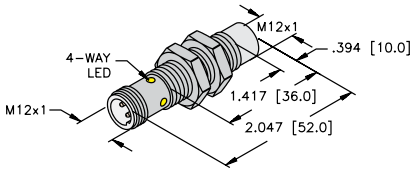
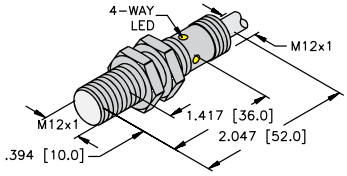
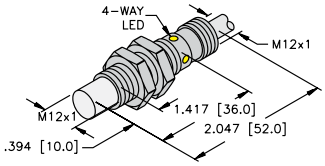
Sensor Type	A	B	C	D	E	F
Si3.5	15.00	5.00	15.00	0	0	0
Si5	10.00	0	5.00	0	0	0
Si15	30.00	10.00	30.00	5.00	5.00	5.00

Dimensions are in mm.

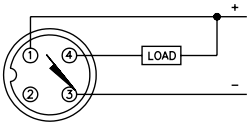
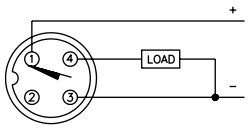
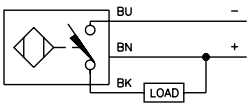
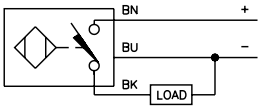
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, M12 Eurofast Connection	B  12 mm - Embeddable, M12 Eurofast Connection
C  12 mm - Nonembeddable, M12 Eurofast Connection	D  12 mm - Embeddable, Potted-in Cable	E  12 mm - Nonembeddable, Potted-in Cable

Wiring Diagrams/Mating Cordsets

1	2	3	4
 Mating Cordset: RKV 4T-*; RKV 4T-*/S90	 Mating Cordset: RKV 4T-*; RKV 4T-*/S90		

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-EG08WD-AN6X-H1341 4602211	Washdown	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +85	IP68/69K	SS	PVDF	N/A	YE	- -	A	1	A4
Bi1.5-EG08WD-AP6X-H1341 4602210	Washdown	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +85	IP68/69K	SS	PVDF	N/A	YE	- -	A	2	A4
Bi4U-EM12WD-AN6X-H1141 1634841	Uprox+, Washdown	4	3-wire DC NPN	10-30 VDC	2000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	- -	B	1	A4
Bi4U-EM12WD-AP6X-H1141 1634812	Uprox+, Washdown	4	3-wire DC PNP	10-30 VDC	2000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	- -	B	2	A4
Ni10U-EM12WD-AN6X-H1141 1634837	Uprox+, Washdown	10	3-wire DC NPN	10-30 VDC	1000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	- -	C	1	A4
Ni10U-EM12WD-AP6X-H1141 1634814	Uprox+, Washdown	10	3-wire DC PNP	10-30 VDC	1000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	- -	C	2	A4
Bi4U-EM12WD-AN6X 1634842	Uprox+, Washdown	4	3-wire DC NPN	10-30 VDC	2000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	2M/PP	D	3	A4
Bi4U-EM12WD-AP6X 1634811	Uprox+, Washdown	4	3-wire DC PNP	10-30 VDC	2000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	2M/PP	D	4	A4
Ni10U-EM12WD-AP6X 1634813	Uprox+, Washdown	10	3-wire DC PNP	10-30 VDC	1000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	2M/PP	E	4	A4

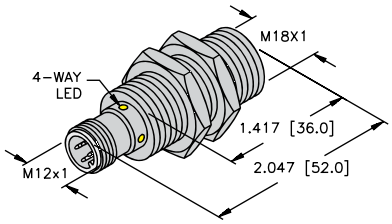
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

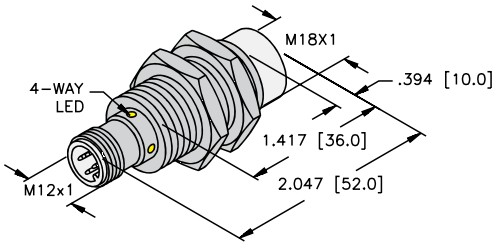
Housing Style	Dimension Drawings

A



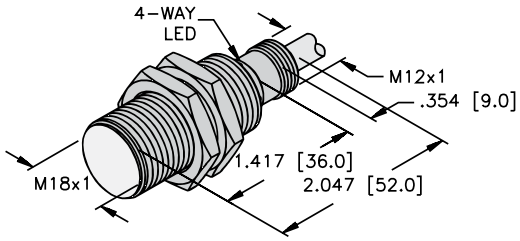
18 mm - Embeddable, M12 Eurofast Connection

B



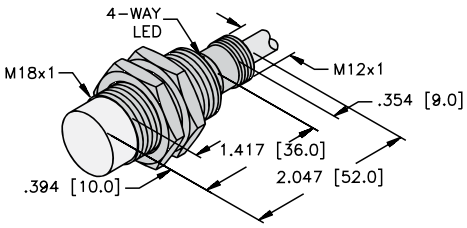
18 mm - Nonembeddable, M12 Eurofast Connection

C



18 mm - Embeddable, Potted-in Cable

D



18 mm - Nonembeddable, Potted-in Cable

Wiring Diagrams/Mating Cordsets

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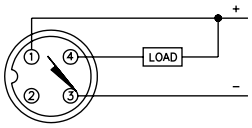

Mating Cordset: RKV 4T-*/S90

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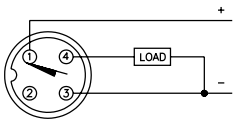

Mating Cordset: RKV 4T-*/S90

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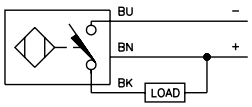

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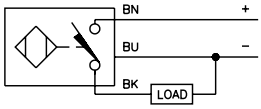


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

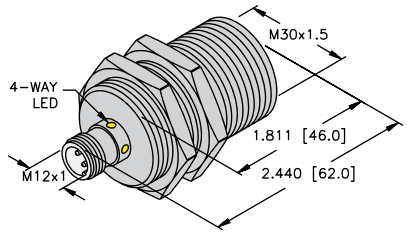
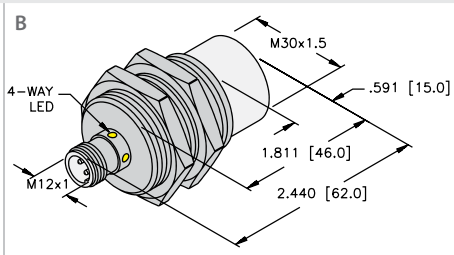
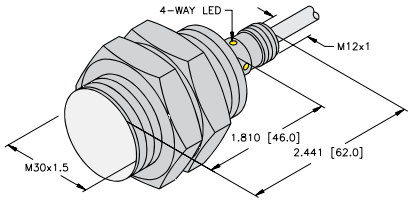
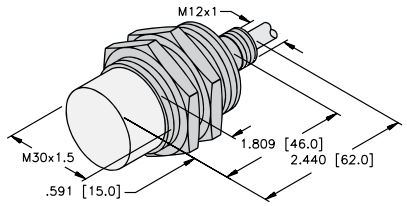
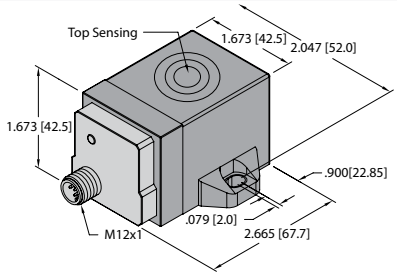
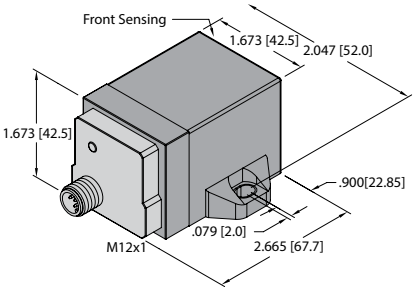
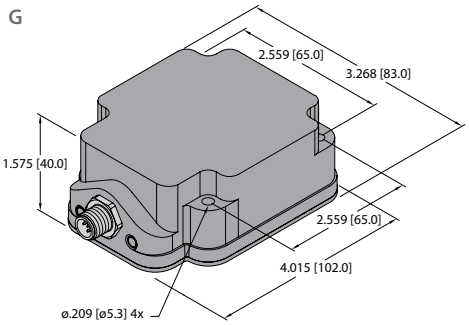
Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-EM18WD-AN6X-H1141 1634839	Uprox+, Washdown	8	3-wire DC NPN	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	A	1	A4
Bi8U-EM18WD-AP6X-H1141 1634816	Uprox+, Washdown	8	3-wire DC PNP	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	A	2	A4
Ni15U-EM18WD-AN6X-H1141 1634835	Uprox+, Washdown	15	3-wire DC NPN	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	B	1	A4
Ni15U-EM18WD-AP6X-H1141 1634818	Uprox+, Washdown	15	3-wire DC PNP	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	B	2	A4
Bi8U-EM18WD-AN6X 1634840	Uprox+, Washdown	8	3-wire DC NPN	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	C	3	A4
Bi8U-EM18WD-AP6X 1634815	Uprox+, Washdown	8	3-wire DC PNP	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	C	4	A4
Ni15U-EM18WD-AN6X 1634836	Uprox+, Washdown	15	3-wire DC NPN	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	D	3	A4
Ni15U-EM18WD-AP6X 1634817	Uprox+, Washdown	15	3-wire DC PNP	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	D	4	A4

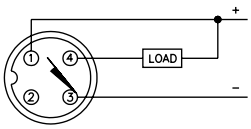
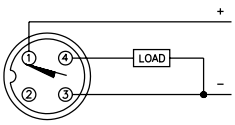
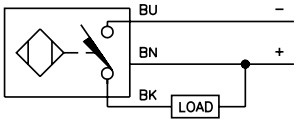
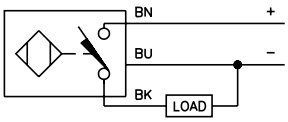
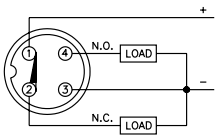
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

Rectangular and Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

Housing Style	Dimension Drawings	
	A  30 mm - Embeddable, M12 Eurofast Connection	B  30 mm - Nonembeddable, M12 Eurofast Connection
C  30 mm - Embeddable, Potted-in Cable	D  30 mm - Nonembeddable, Potted-in Cable	E  Q42T - Nonembeddable, M12 Eurofast Connector
F  Q42F - Nonembeddable, M12 Eurofast Connector	G  Q80 - Nonembeddable, M12 Eurofast Connector	

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: RKV 4T-*/S90	2  Mating Cordset: RKV 4T-*/S90	3 
4 	5  Mating Cordset: RKV 4.4T-*	

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox, Q42)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3, Q80)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

Rectangular and Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-EM30WD-AN6X-H1141 1634834	Uprox+, Washdown	15	3-wire DC NPN	10-30 VDC	750	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	A	1	A4
Bi15U-EM30WD-AP6X-H1141 1634820	Uprox+, Washdown	15	3-wire DC PNP	10-30 VDC	750	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	A	2	A4
Ni30U-EM30WD-AN6X-H1141 1634832	Uprox+, Washdown	30	3-wire DC NPN	10-30 VDC	500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	B	1	A4
Ni30U-EM30WD-AP6X-H1141 1634822	Uprox+, Washdown	30	3-wire DC PNP	10-30 VDC	500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	B	2	A4
Bi15U-EM30WD-AN6X 1634843	Uprox+, Washdown	15	3-wire DC NPN	10-30 VDC	750	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	C	3	A4
Bi15U-EM30WD-AP6X 1634819	Uprox+, Washdown	15	3-wire DC PNP	10-30 VDC	750	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	C	4	A4
Ni30U-EM30WD-AN6X 1634833	Uprox+, Washdown	30	3-wire DC NPN	10-30 VDC	500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	D	3	A4
Ni30U-EM30WD-AP6X 1634821	Uprox+, Washdown	30	3-wire DC PNP	10-30 VDC	500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	D	4	A4
NI50U-Q42TWD-VP6X-H1141 1538306	Uprox+, Washdown	50	4-wire DC PNP	10-30 VDC	250	≤200	-40 to +100	IP68/69K	PA 12	PA 12	N/A	YE	- -	E	5	A4
NI50U-Q42FWD-VP6X-H1141 1538305	Uprox+, Washdown	50	4-wire DC PNP	10-30 VDC	250	≤200	-40 to +100	IP68/69K	PA 12	PA 12	N/A	YE	- -	F	5	A4
NI75U-Q80WD-VP6X2-H1141 1625920	Uprox+, Washdown	75	4-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP68/69K	PPS	PPS	GN	YE	- -	G	5	A4

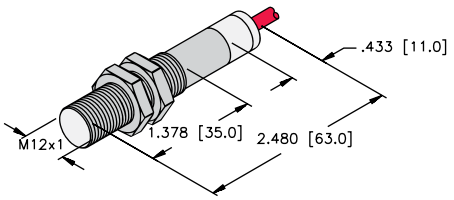
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

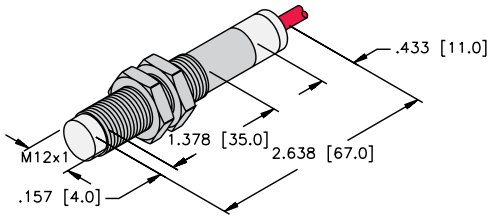
Housing Style	Dimension Drawings

A



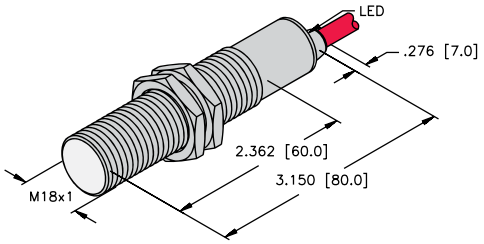
12 mm - Embeddable, Potted-In Cable

B



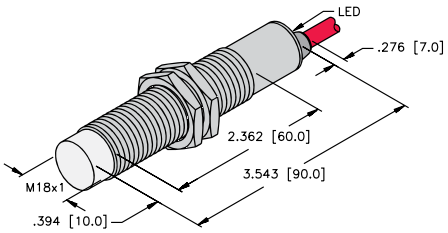
12 mm - Nonembeddable, Potted-In Cable

C



18 mm - Embeddable, Partial Threading, Potted-In Cable

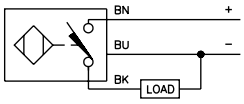
D



18 mm - Nonembeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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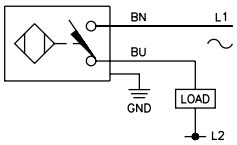


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ,RZ,FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	End Cap	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-EM12D-AP6/S120 4614512	High Temp. 120 °C	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP67	SS	PTFE	PTFE	N/A	N/A	2M/PTFE	A	1	A4
Ni4-EM12D-AP6/S120 1633110	High Temp. 120 °C	4	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP67	SS	PTFE	PTFE	N/A	N/A	2M/PTFE	B	1	A4
Bi5-M18-AP6X/S120 4611030	High Temp. 120 °C	5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP67	CPB	PA 12	EPTR	N/A	YE	2M/Silicone	C	1	A4
Bi5-M18-AZ3X/S120 4310410	High Temp. 120 °C	5	2-wire AC	20-250 VAC	20	≤100	-25 to +120	IP67	CPB	PA 12	EPTR	N/A	YE	2M/Silicone	C	2	A6
Ni8-M18-AZ3X/S120 4310530	High Temp. 120 °C	8	2-wire AC	20-250 VAC	20	≤400	-25 to +120	IP67	CPB	PA 12	EPTR	N/A	YE	2M/Silicone	D	2	A6
Ni8-M18-AP6X/S120 4611230	High Temp. 120 °C	8	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP67	CPB	PA 12	EPTR	N/A	YE	2M/Silicone	D	1	A4

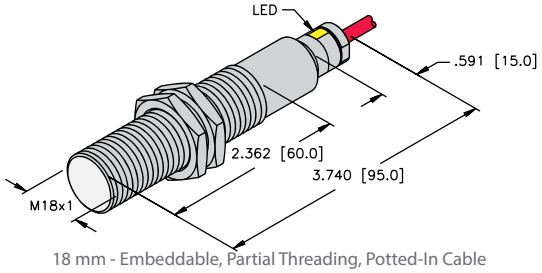
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

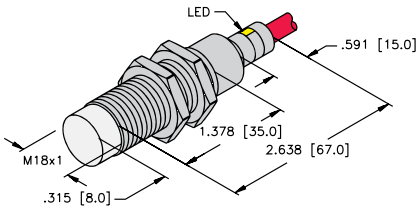
Housing Style	Dimension Drawings

A



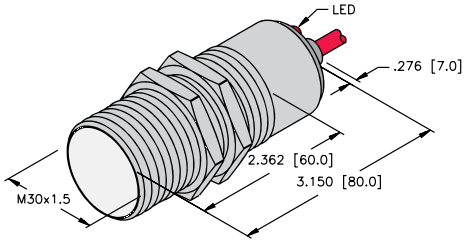
18 mm - Embeddable, Partial Threading, Potted-In Cable

B



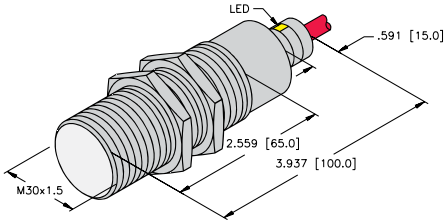
18 mm - Nonembeddable, Partial Threading, Potted-In Cable

C



30 mm - Embeddable, Partial Threading, Potted-In Cable

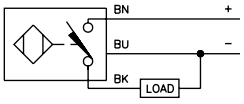
D



30 mm - Embeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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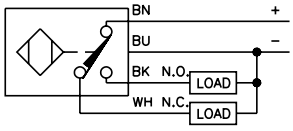

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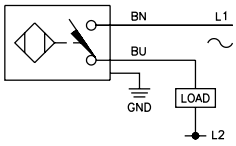


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	End Cap	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-EM18D-VP6X/S120 4614900	High Temp. 120 °C	5	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP68/69K	SS	PTFE	PTFE	N/A	YE	2M/PTFE	A	2	A4
Ni7-EM18D-VP6X/S120 4632100	High Temp. 120 °C	7	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP68/69K	SS	PTFE	PTFE	N/A	YE	2M/PTFE	B	2	A4
Bi10-M30-AP6X/S120 4617010	High Temp. 120 °C	10	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP67	CPB	PA 12	PA 12	N/A	YE	2M/Silicone	C	1	A4
Bi10-M30-AZ3X/S120 4316410	High Temp. 120 °C	10	2-wire AC	20-250 VAC	20	≤400	-25 to +120	IP67	CPB	PA 12	PA 12	N/A	YE	2M/Silicone	C	3	A6
Bi10-EM30D-VP6X/S120 4617035	High Temp. 120 °C	10	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP68/69K	SS	PTFE	PTFE	N/A	YE	2M/PTFE	D	2	A4

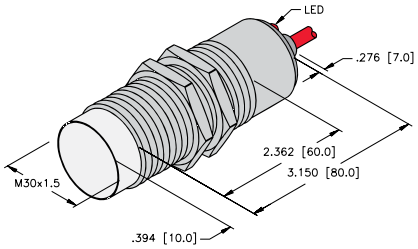
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

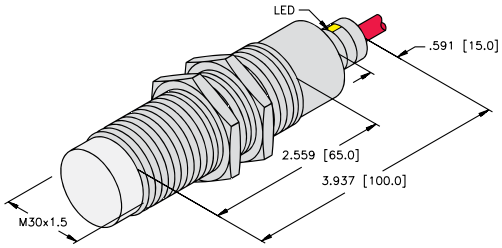
Housing Style	Dimension Drawings

A



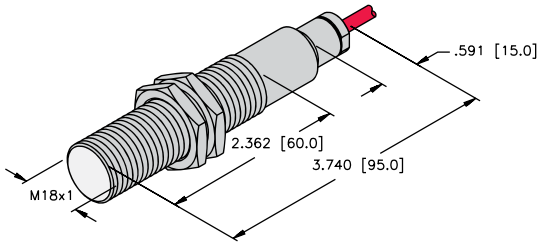
30 mm - Nonembeddable, Potted-In Cable

B



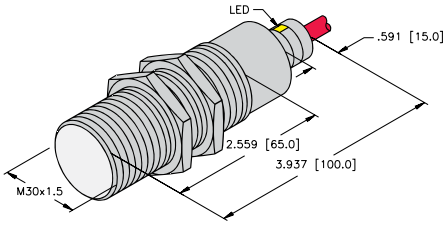
30 mm - Nonembeddable, Potted-In Cable

C



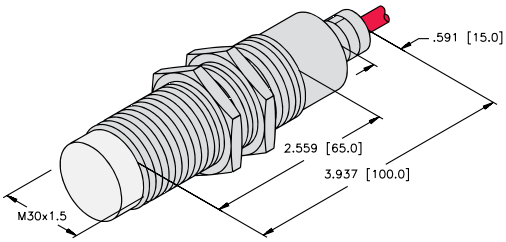
18 mm - Embeddable, Partial Threading, Potted-In Cable

D



30 mm - Embeddable, Partial Threading, Potted-In Cable

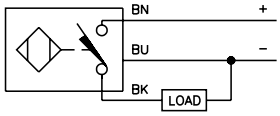
E



30 mm - Non-embeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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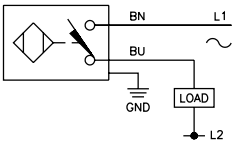

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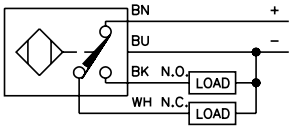


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	End Cap	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni15-M30-AP6X/S120 4617210	High Temp. 120 °C	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +120	IP67	CPB	PA 12	PA 12	N/A	YE	2M/Silicone	A	1	A4
Ni15-M30-AZ3X/S120 4316506	High Temp. 120 °C	15	2-wire AC	20-250 VAC	20	≤400	-25 to +120	IP67	CPB	PA 12	PA 12	N/A	YE	2M/Silicone	A	2	A6
Ni15-EM30D-VP6X/S120 4617410	High Temp. 120 °C	15	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP68/69K	SS	PTFE	PTFE	N/A	YE	2M/PTFE	B	3	A4
Bi5-EM18-AP6/S907 4617425	High Temp. 160 °C	5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +160	IP67	SS	PEEK	PTFE	N/A	N/A	2M/PTFE	C	1	A4
Bi10-EM30-AP6/S907 4614513	High Temp. 160 °C	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +160	IP67	SS	PEEK	PTFE	N/A	N/A	2M/PTFE	D	1	A4
Ni15-EM30-AP6/S907 4617412	High Temp. 160 °C	15	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +160	IP67	SS	PEEK	PTFE	N/A	N/A	2M/PTFE	E	1	A4

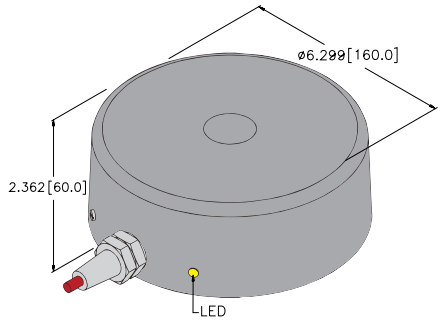
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Rectangular and Round Housings

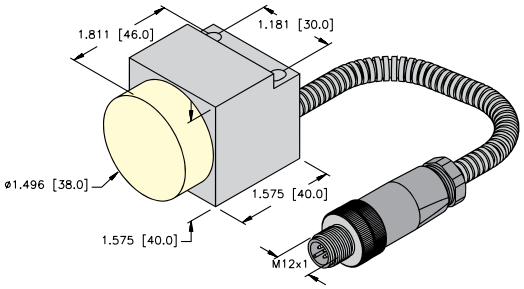
Housing Style	Dimension Drawings

A



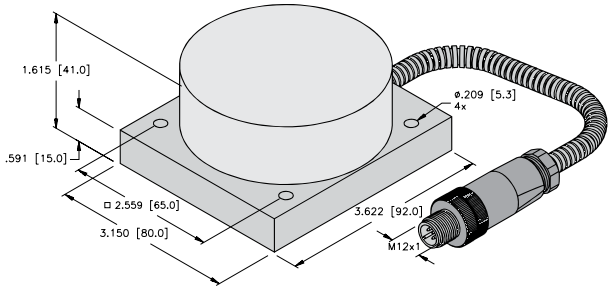
160 mm -Nonembeddable

B



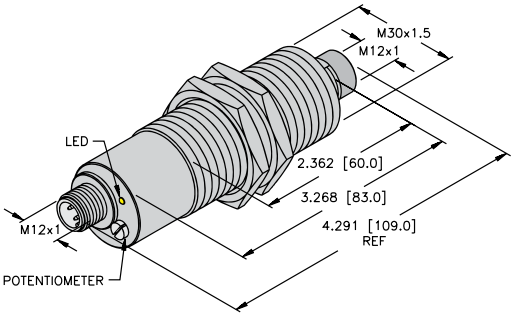
CQ40 - Nonembeddable

C



CQ80 - Nonembeddable

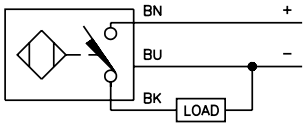
D



30 mm - Signal Processor

Wiring Diagrams/Mating Cordsets

1



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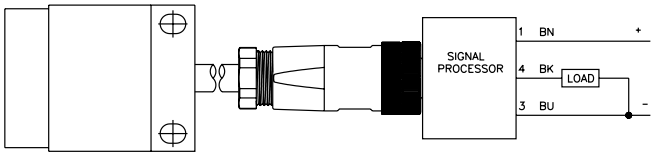


A20 — 3-wire DC -High Temp (AP)

Ripple:	≤10%	Temperature Drift:	≤±20%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V (120 °C)	Wire-Break Protection:	Incorporated
	≤1.8 V (250 °C)	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥420 mA on 400 mA Load Current	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	≥220 mA on 200 mA Load Current	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤0.1 mA		

Note:
CQ40 and CQ80 sensors require signal processor for operation.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

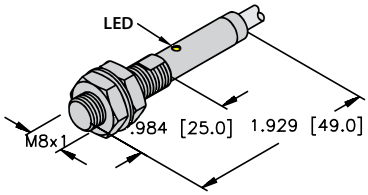
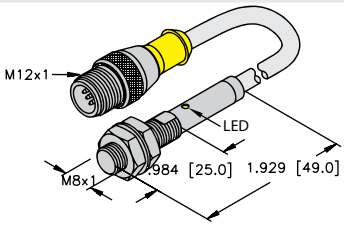
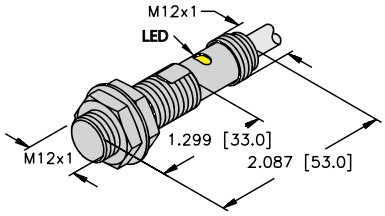
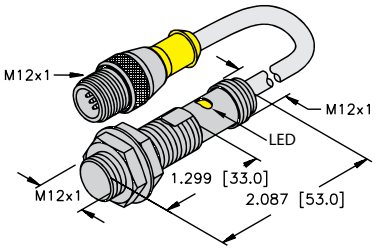
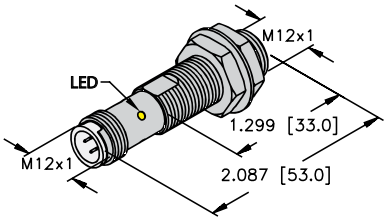
Rectangular and Round Housings

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	End Cap	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni100-Q160-AP44X/S120 1440012	High Temp. 120 °C	100	3-wire DC PNP	10-55 VDC	50	≤400	-25 to +120	IP67	PPO	PPO	- -	N/A	YE	2M/Silicone	A	1	A20
Ni25-CQ40/S1102 5M 1602410	High Temp. 250 °C	25	Remote	- -	40	Remote	0 to +250	IP60	AL	PEEK	PEEK	N/A	N/A	5M/PTFE	B	2	- -
Ni25-CQ40/S1102 10M 1602403	High Temp. 250 °C	25	Remote	- -	40	Remote	0 to +250	IP60	AL	PEEK	PEEK	N/A	N/A	10M/PTFE	B	2	- -
Ni40-CQ80/S1102 5M 1602404	High Temp. 250 °C	40	Remote	- -	40	Remote	0 to +250	IP60	AL	PEEK	PEEK	N/A	N/A	5M/PTFE	C	2	- -
EM30-AP6X2-H1141/S1102 1602411	Signal Processor	N/A	3-wire DC PNP	10-30 VDC	40	≤200	-20 to +70	IP67	SS	SS	- -	GN	YE	- -	D	2	A20

We reserve the right to make technical alterations without prior notice.

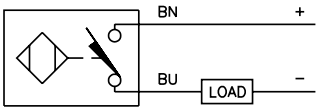
Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	B  8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect
C  8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	D  12 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	E  12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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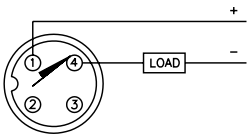


Mating Cordset: RKV 4.23T-*

A21 — **2-wire DC Stainless Front Face (AG)**

Ripple:	≤10%	Temperature Drift:	≤±20%
Differential Travel (Hysteresis):	1-15% (5% typical)	Off-State (Leakage) Current:	≤0.8 mA
Voltage Drop Across Conducting Sensor:	≤3.5 V Polarized	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA on 100 mA Load Current	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-EG08F-AG6X 4614628	Full Stainless Steel	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	2M/ PVC	A	1	A21
Bi1.5-EGT08F-AG6X 4614677	Full Stainless Steel, PTFE	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	2M/ PVC	A	1	A21
Bi1.5-EG08F-AG6X-0.3-RS4.23T 4614684	Full Stainless Steel	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	0.3M/ PVC	B	2	A21
Bi1.5-EGT08F-AG6X-0.2-RS4.23T 4614686	Full Stainless Steel, PTFE	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	0.2M/ PVC	B	2	A21
Bi2-EG08F-AG6X 4614664	Full Stainless Steel	2	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/ PVC	A	1	A21
Bi2-EG12F-AG6X 4614634	Full Stainless Steel	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	2M/ PVC	C	1	A21
Bi2-EGT12F-AG6X 46146651	Full Stainless Steel, PTFE	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	2M/ PVC	C	1	A21
Bi2-EG12F-AG6X-0.3-RS4.23T 4614693	Full Stainless Steel	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	0.3M/ PVC	D	2	A21
Bi3-EG12F-AG6X 4614665	Full Stainless Steel	3	2-wire DC	10-30 VDC	80	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/ PVC	C	1	A21
Bi2-EG12F-AG6X-H1141 4614637	Full Stainless Steel	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	- -	E	2	A21
Bi2-EGT12F-AG6X-H1141 4614698	Full Stainless Steel, PTFE	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	- -	E	2	A21

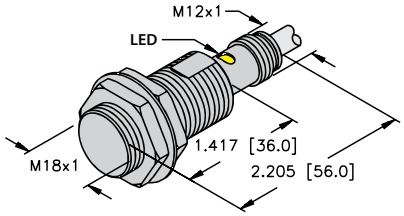
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

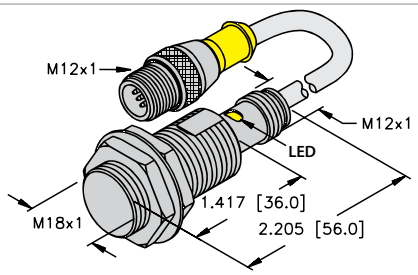
Housing Style	Dimension Drawings

A



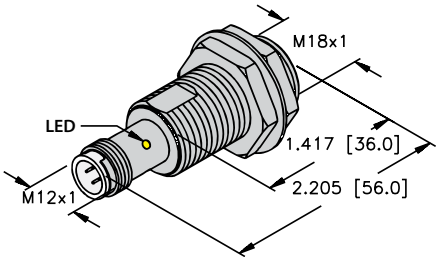
18 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

B



18 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

C



18 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

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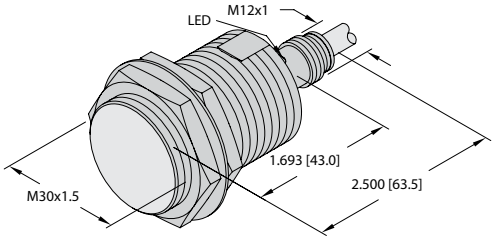

30 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

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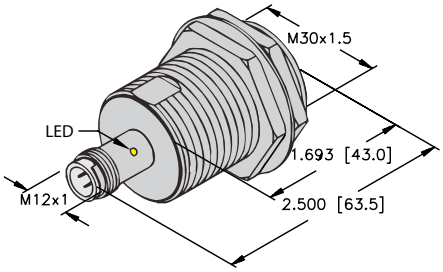
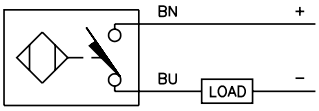


30 mm - Embeddable, M12 Eurofast Connection, Stainless Steel

Wiring Diagrams/Mating Cordsets

1



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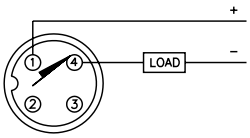


Mating Cordset: RKV 4T-*; RKV 4.23T-*

A21 — **2-wire DC Stainless Front Face (AG)**

Ripple:	≤10%	Temperature Drift:	≤±20%
Differential Travel (Hysteresis):	1-15% (5% typical)	Off-State (Leakage) Current:	≤0.8 mA
Voltage Drop Across Conducting Sensor:	≤3.5 V Polarized	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Pro-	≥120 mA on 100 mA Load Current	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
tection:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:			

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

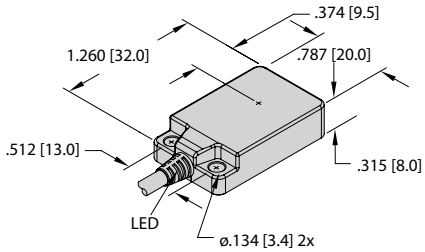
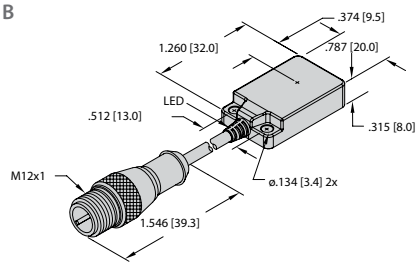
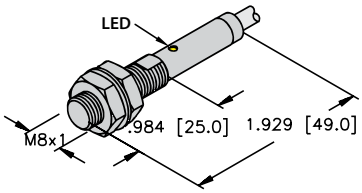
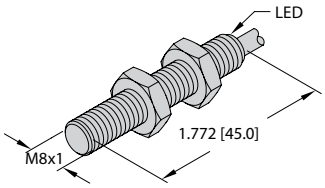
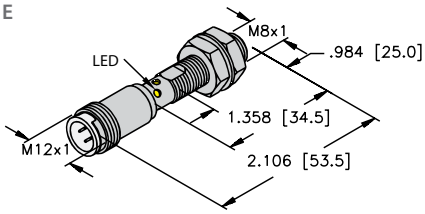
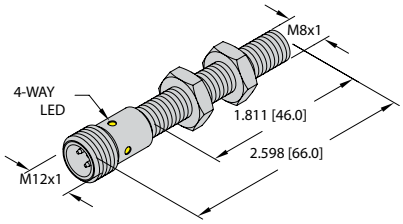
Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-EG18F-AG6X 4614640	Full Stainless Steel	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	2M/PVC	A	1	A21
Bi5-EGT18F-AG6X 46146400	Full Stainless Steel, PTFE	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	2M/PVC	A	1	A21
Bi5-EG18F-AG6X-0.3-RS4.23T 4614694	Full Stainless Steel	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	0.3M/ PVC	B	2	A21
Bi7-EG18F-AG6X 4614666	Full Stainless Steel	7	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/PVC	A	1	A21
Bi5-EG18F-AG6X-H1141 4614643	Full Stainless Steel	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	- -	C	2	A21
Bi12-EG30F-AG6X 4614667	Full Stainless Steel	12	2-wire DC	10-30 VDC	50	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/PVC	D	1	A21
Bi10-EG30F-AG6X-H1141 4614649	Full Stainless Steel	10	2-wire DC	10-30 VDC	50	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	- -	E	2	A21
Bi10-EGT30F-AG6X-H1141/ S1589 46146490	Full Stainless Steel, PTFE, Weldguard	10	2-wire DC	10-30 VDC	50	≤100	-25 to +70	IP68/69K	TC	WG	GN	RD	- -	E	2	A21

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Rectangular and Threaded Metal Barrels with 3-Wire DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Stainless Steel, Potted-In Cable	B  8 mm - Embeddable, Stainless Steel, M12 Eurofast Quick Disconnect
C  8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	D  8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	E  8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect
F  8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect		

Wiring Diagrams/Mating Cordsets

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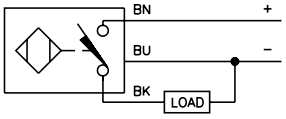

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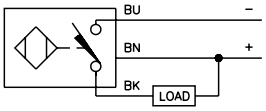

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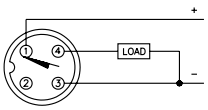
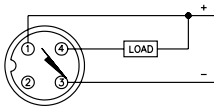


Mating Cordset: RKV 4T-*

4


Mating Cordset: RKV 4T-*

A22 — **3-wire DC Stainless Front Face (AP, AN, RP, RN)**

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤2% of Rated Operating Distance

A23 — **3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)**

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	20%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤10 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤5% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Rectangular and Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi7-Q08F-AN6X 1608914	Full Stainless Steel	7	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPE	A	2	A23
Bi7-Q08F-AP6X 1608916	Full Stainless Steel	7	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPE	A	1	A23
Bi7-Q08F-AP6X-0.2-RS4T 16089160	Full Stainless Steel	7	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	0.2M/ TPE	B	3	A23
Bi1.5-EG08F-AN6X 4614627	Full Stainless Steel	1.5	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	C	2	A22
Bi3-EG08FE-AN6X 4614712	Full Stainless Steel	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/PVC	D	2	A23
Bi1.5-EG08F-AP6X 4614626	Full Stainless Steel	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	C	1	A22
Bi1.5-EGT08F-AP6X 4614678	Full Stainless Steel, PTFE	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	2M/PVC	C	1	A22
Bi3-EG08FE-AP6X 4614704	Full Stainless Steel	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/PVC	D	1	A23
Bi3-EGT08FE-AP6X 46147043	Full Stainless Steel, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	SS	N/A	YE	2M/PVC	D	1	A23
Bi1.5-EG08F-AN6X-H1341 4614630	Full Stainless Steel	1.5	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	E	4	A22
Bi3-EG08FE-AN6X-H1341 4614711	Full Stainless Steel	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	- -	F	4	A23
Bi1.5-EG08F-AP6X-H1341 4614629	Full Stainless Steel	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	E	3	A22
Bi3-EG08FE-AP6X-H1341 4614703	Full Stainless Steel	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	- -	F	3	A23
Bi3-EGT08FE-AP6X-H1341 46147030	Full Stainless Steel, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	SS	N/A	YE	- -	F	3	A23
Bi3-EGT08FE-AP6X-H1341/S1589 46147032	Full Stainless Steel, PTFE, Weldguard	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	- -	F	3	A23

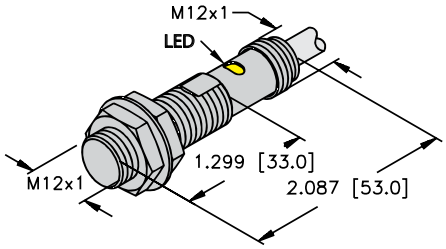
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

Housing Style	Dimension Drawings

A



12 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

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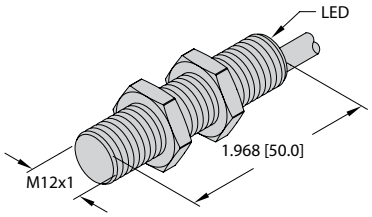
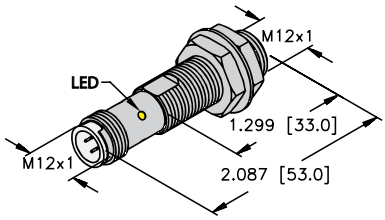


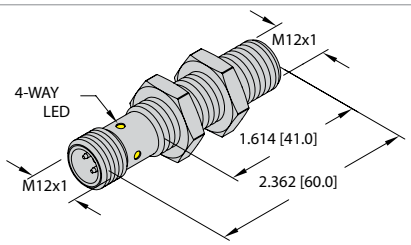
12 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

C



12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

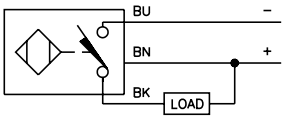
D



12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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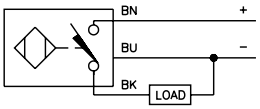

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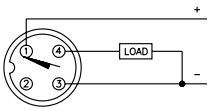
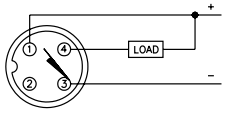


Mating Cordset: RKV 4T-*

4



Mating Cordset: RKV 4T-*

A22	3-wire DC Stainless Front Face (AP, AN, RP, RN)		
Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤2% of Rated Operating Distance

A23	3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)		
Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	20%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤10 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤5% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-EG12F-AN6X 4614633	Full Stainless Steel	2	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	2	A22
Bi6-EG12FE-AN6X 4614721	Full Stainless Steel	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	2	A23
Bi2-EG12F-AP6X 4614632	Full Stainless Steel	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	1	A22
Bi6-EG12FE-AP6X 4614720	Full Stainless Steel	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	1	A23
Bi2-EG12F-AN6X-H1141 4614636	Full Stainless Steel	2	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	4	A22
Bi6-EG12FE-AN6X-H1141 4614714	Full Stainless Steel	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	D	4	A23
Bi6-EGT12FE-AN6X-H1141 46147140	Full Stainless Steel, PTFE	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	D	4	A23
Bi2-EG12F-AP6X-H1141 4614635	Full Stainless Steel	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	3	A22
Bi2-EGT12F-AP6X-H1141 46146971	Full Stainless Steel, PTFE	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	C	3	A22
Bi6-EG12FE-AP6X-H1141 4614706	Full Stainless Steel	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	D	3	A23
Bi6-EGT12FE-AP6X-H1141 46147060	Full Stainless Steel, PTFE	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	D	3	A23
Bi6-EGT12FE-AP6X-H1141/S1589 46147061	Full Stainless Steel, PTFE, Weldguard	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	TC	WG	N/A	YE	- -	D	3	A23

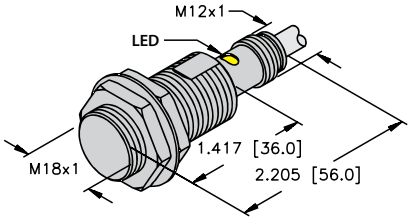
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

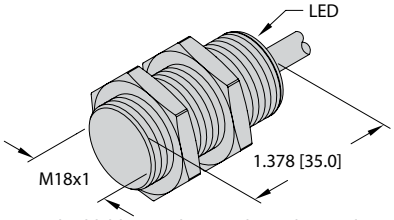
Housing Style	Dimension Drawings

A



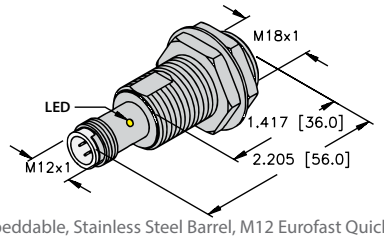
18 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

B



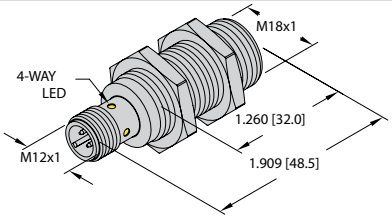
18 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

C



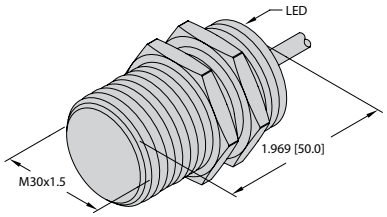
18 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

D



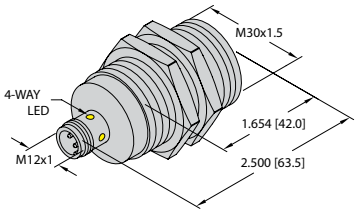
18 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

E



30 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

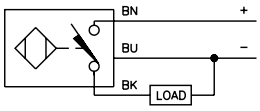
F



30 mm - Embeddable, M12 Eurofast Connection, Stainless Steel

Wiring Diagrams/Mating Cordsets

1



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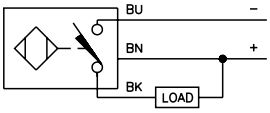

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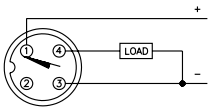
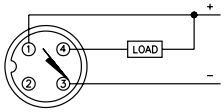


Mating Cordset: RKV 4T-*

4



Mating Cordset: RKV 4T-*

A22 — 3-wire DC Stainless Front Face (AP, AN, RP, RN)

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤2% of Rated Operating Distance

A23 — 3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	20%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤10 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤5% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-EG18F-AN6X 4614639	Full Stainless Steel	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	2	A22
Bi10-EG18F-AN6X 4614723	Full Stainless Steel	10	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	2	A23
Bi10-EG18F-AP6X 4614722	Full Stainless Steel	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	1	A23
Bi5-EG18F-AN6X-H1141 4614642	Full Stainless Steel	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	4	A22
Bi5-EGT18F-AN6X-H1141 4614672	Full Stainless Steel, PTFE	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	C	4	A22
Bi10-EG18F-AN6X-H1141 4614716	Full Stainless Steel	10	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	D	4	A23
Bi5-EG18F-AP6X-H1141 4614641	Full Stainless Steel	5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	3	A22
Bi5-EGT18F-AP6X-H1141 4614675	Full Stainless Steel, PTFE	5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	C	3	A22
Bi10-EG18F-AP6X-H1141 4614708	Full Stainless Steel	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	D	3	A23
Bi10-EGT18F-AP6X-H1141 46147080	Full Stainless Steel, PTFE	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	D	3	A23
Bi10-EGT18F-AP6X-H1141/S1589 46147081	Full Stainless Steel, PTFE, Weldguard	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	TC	WG	N/A	YE	- -	D	3	A23
Bi20-EG30F-AP6X 4614724	Full Stainless Steel	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	E	1	A23
Bi20-EG30F-AP6X-H1141 4614710	Full Stainless Steel	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	F	3	A23
Bi20-EGT30F-AP6X-H1141 46147100	Full Stainless Steel, PTFE	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	F	3	A23
Bi20-EGT30F-AP6X-H1141/S1589 46147101	Full Stainless Steel, PTFE, Weldguard	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	WG	N/A	YE	- -	F	3	A23

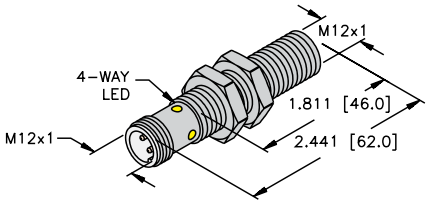
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Mobile Equipment

Barrel Sensors Designed for use on Vehicles and Equipment

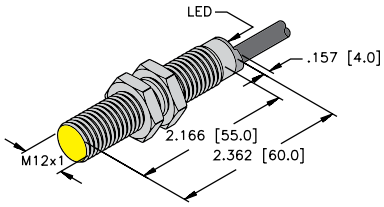
Housing Style	Dimension Drawings

A



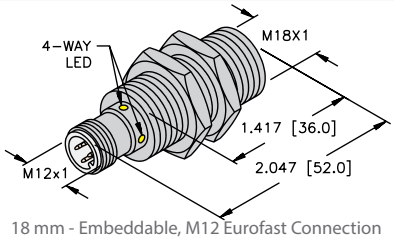
12 mm - Embeddable, M12 Eurofast Connection

B



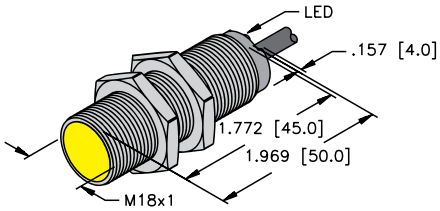
12 mm - Embeddable, Partial Threading, Potted-In Cable

C



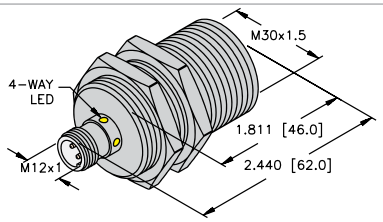
18 mm - Embeddable, M12 Eurofast Connection

D



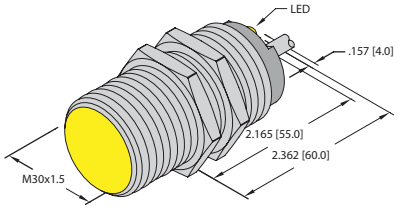
18 mm - Embeddable, Partial Threading, Potted-In Cable

E



30 mm - Embeddable, M12 Eurofast Connection

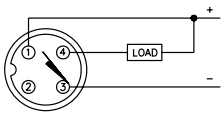
F



30 mm - Embeddable, Partial Threading, Potted-In Cable

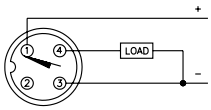
Wiring Diagrams/Mating Cordsets

1



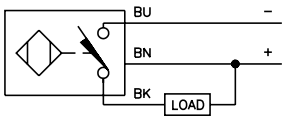
Mating Cordset: RK 4T-*/S90

2



Mating Cordset: RK 4T-*/S90

3



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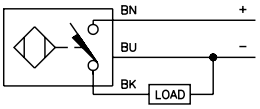


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

Features

- Load Dump Protection
- Shock Resistant
- EMC Immunity
- Extended Temperature Range
- Broader Operating Voltage
- Improved Sealing and Environmental Protection
- Longer Sensing Range

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Mobile Equipment

Barrel Sensors Designed for use on Vehicles and Equipment

Part Number/ ID Number	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-EM12E-AN45XLD-H1141 1584003	4	3-wire DC NPN	8.4-65 VDC	2000	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	A	1	A4
Bi4-EM12E-AP45XLD-H1141 1584000	4	3-wire DC PNP	8.4-65 VDC	2000	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	A	2	A4
Bi4-EM12E-AN45XLD 1584004	4	3-wire DC NPN	8.4-65 VDC	2000	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	B	3	A4
Bi4-EM12E-AP45XLD 1584001	4	3-wire DC PNP	8.4-65 VDC	2000	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	B	4	A4
Bi8-EM18-AN45XLD-H1141 1584017	8	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	C	1	A4
Bi8-EM18-AP45XLD-H1141 1584010	8	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	C	2	A4
Bi8-EM18-AN45XLD 1584014	8	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	D	3	A4
Bi8-EM18-AP45XLD 1584011	8	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	D	4	A4
Bi15-EM30-AN45XLD-H1141 1584024	15	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	E	1	A4
Bi15-EM30-AP45XLD-H1141 1584020	15	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	E	2	A4
Bi15-EM30-AN45XLD 1584022	15	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	F	1	A4
Bi15-EM30-AP45XLD 1584021	15	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	F	2	A4

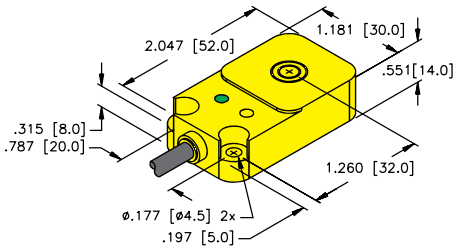
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Mobile Equipment

Rectangular Sensors Designed for use on Vehicles and Equipment

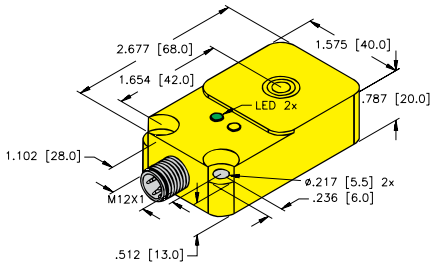
Housing Style	Dimension Drawings

A



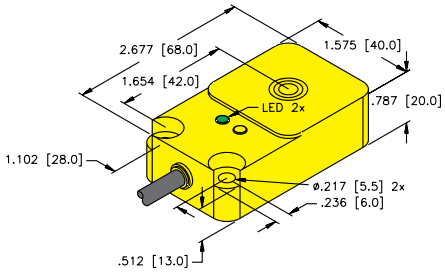
14 mm - Embeddable, Potted-In Cable

B



20 mm - Embeddable, M12 Eurofast Connection

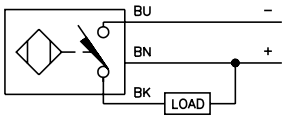
C



20 mm - Embeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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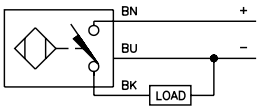

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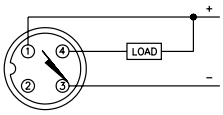
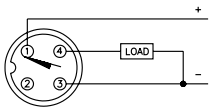


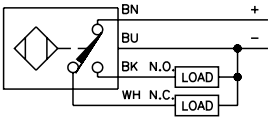
Mating Cordset: RK 4T-*/S90

4



Mating Cordset: RK 4T-*/S90

5



A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Features

- Load Dump Protection
- Shock Resistant
- EMC Immunity
- Extended Temperature Range
- Broader Operating Voltage
- Improved Sealing and Environmental Protection
- Longer Sensing Range

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Mobile Equipment

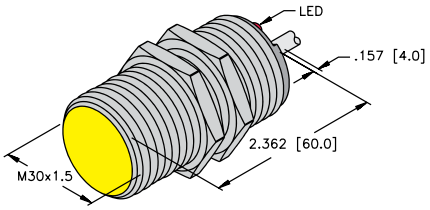
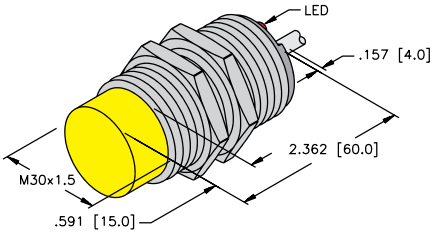
Rectangular Sensors Designed for use on Vehicles and Equipment

Part Number/ ID Number	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-Q14-AN45X2LD 1584032	10	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	2M/TPE	A	1	A4
Bi10-Q14-AP45X2LD 1584031	10	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	2M/TPE	A	2	A4
Bi20-Q20-AN45X2LD-H1141 1584042	20	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	- -	B	3	A4
Bi20-Q20-AP45X2LD-H1141 1584040	20	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	- -	B	4	A4
Bi20-Q20-AN45X2LD 1584043	20	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	2M/TPE	C	1	A4
Bi20-Q20-AP45X2LD 1584041	20	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	2M/TPE	C	2	A4
Bi20-Q20-VP45X2LD 1584047	20	4-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	2M/TPE	C	5	A4

We reserve the right to make technical alterations without prior notice.

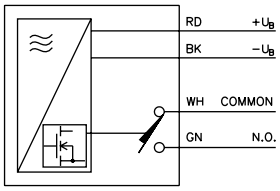
Specialty Sensors | 6A Solid State

Threaded Metal Barrel Sensors with Cable

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, Potted-In Cable
B  30 mm - Nonembeddable, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1



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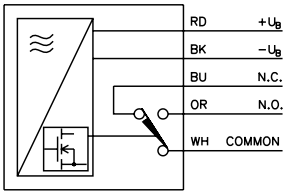


A10 — Solid State Relay (AM6, VM6)

Ripple:	≤10%
Output Voltage:	≤35 V AC, ≤50 V DC
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤0.4 V
Continuous Load Current:	≤6 Amp
Off-State (Leakage) Current:	≤0.1 mA
Inrush Current:	≤8.0 A (≤10.0 ms max 5 Hz)
No-Load Current:	≤25 mA
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Short Circuit Protected:	No
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | 6A Solid State

Threaded Metal Barrel Sensors with Cable

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi12-G30-AM6/37X/S97 1711200	High current rated	12	4-wire DC	10-30 VDC	20	≤6000	-40 to 70	IP67	CPB	PA12	N/A	YE	2M/PVC	A	1	A10
Bi12-G30-VM6/37X/S97 1711290	High current rated	12	5-wire DC	10-30 VDC	20	≤6000	-40 to 70	IP67	CPB	PA12	N/A	YE	2M/PVC	A	2	A10
Ni20-G30-VM6/37X/S97 4205472	High current rated	20	5-wire DC	10-30 VDC	20	≤6000	-40 to 70	IP67	CPB	PA12	N/A	YE	2M/PVC	B	2	A10

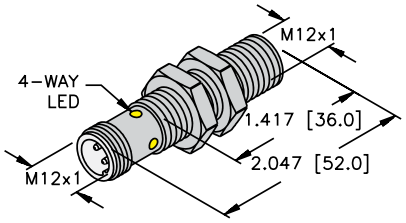
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | FM Approved Class I Div 2

Threaded Metal Barrels with 3-Wire DC Outputs

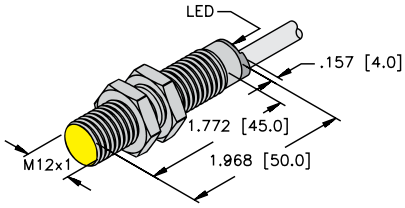
Housing Style	Dimension Drawings

A



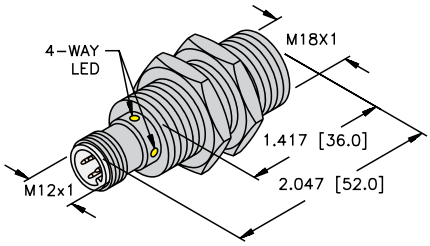
12 mm - Embeddable, M12 Eurofast Connector

B



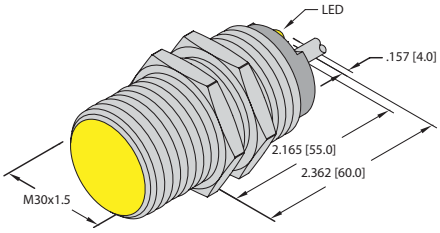
12 mm - Embeddable, Potted-In Cable

C



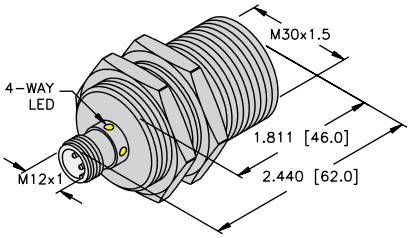
18 mm - Embeddable, M12 Eurofast Connector

D



30 mm - Embeddable, Potted-In Cable

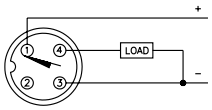
E



30 mm - Embeddable, M12 Eurofast Connector

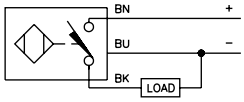
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: P-RKGV 4.43T-1699XL-*

2



A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | FM Approved Class I Div 2

Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-M12-AP6X-H1141/S1751 4607075	FM Approved	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	- -	A	1	A4
Bi4-M12-AP6X/S1751 4607073	FM Approved	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/ PVC	B	2	A4
Bi8-M18-AP6X-H1141/S1751 4615078	FM Approved	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	- -	C	1	A4
Bi15-M30-AP6X-H1141/S97/S1751 4618574	FM Approved	15	3-wire DC PNP	10-30 VDC	500	≤200	-40 to +70	IP67	CPB	PA 12	N/A	YE	- -	E	1	A4
Bi15-M30-AP6X/S1751 46185302	FM Approved	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/ PVC	D	2	A4

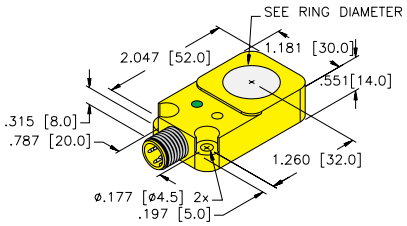
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Ring Sensors

Plastic Housing Sensors with Cable or Connector and 3-Wire DC Output

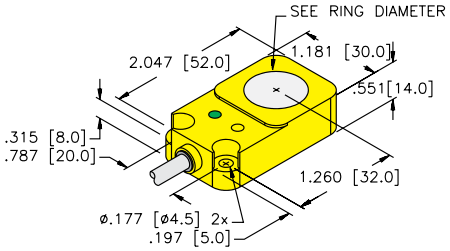
Housing Style	Dimension Drawings

A



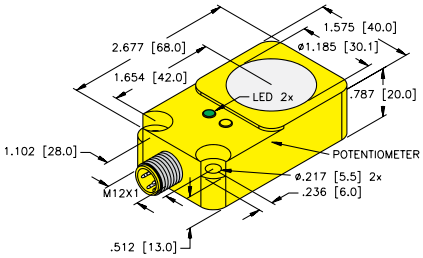
14 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

B



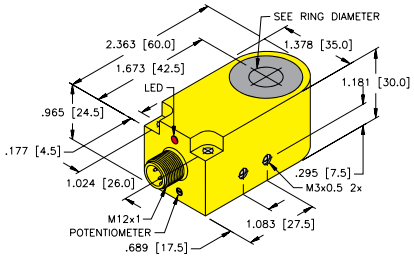
14 mm - Rectangular, Ring Sensor, Potted-In Cable

C



20 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

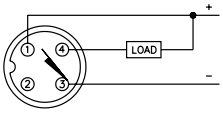
D



30 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

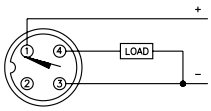
Wiring Diagrams/Mating Cordsets

1



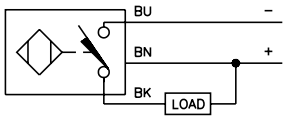
Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

3



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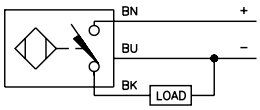


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Ring Sensors

Plastic Housing Sensors with Cable or Connector and 3-Wire DC Output

Part Number/ ID Number	Features	Minimum Target Diameter	Ring Diameter (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10R-Q14-AN6X2-H1141 1407120	Static Output	≥ 2 mm	10	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	1	A4
Bi15R-Q14-AN6X2-H1141 1407220	Static Output	≥ 3 mm	15	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	1	A4
Bi20R-Q14-AN6X2-H1141 1407320	Static Output	≥ 4 mm	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	1	A4
Bi6R-Q14-AP6X2-H1141 14070	Static Output	≥ 2 mm	6	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi10R-Q14-AP6X2-H1141 14071	Static Output	≥ 2 mm	10	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi15R-Q14-AP6X2-H1141 14072	Static Output	≥ 3 mm	15	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi20R-Q14-AP6X2-H1141 14073	Static Output	≥ 4 mm	20	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi10R-Q14-AN6X2 1406120	Static Output	≥ 2 mm	10	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	3	A4
Bi15R-Q14-AN6X2 1406220	Static Output	≥ 3 mm	15	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	3	A4
Bi20R-Q14-AN6X2 1406320	Static Output	≥ 4 mm	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	3	A4
Bi10R-Q14-AP6X2 14061	Static Output	≥ 2 mm	10	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	4	A4
Bi15R-Q14-AP6X2 14062	Static Output	≥ 3 mm	15	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	4	A4
Bi20R-Q14-AP6X2 14063	Static Output	≥ 4 mm	20	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	4	A4
Bi30R-Q20-AN6X2-H1141 1407520	Static Output	≥ 6 mm	30	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	C	1	A4
Bi30R-Q20-AP6X2-H1141 14075	Static Output	≥ 6 mm	30	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	C	2	A4
Bi6R-W30-DAN6X-H1141 14037	Dynamic Output	≥ 0.6 mm	6	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi10R-W30-DAN6X-H1141 14039	Dynamic Output	≥ 1 mm	10	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi15R-W30-DAN6X-H1141 14041	Dynamic Output	≥ 1.5 mm	15	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi20R-W30-DAN6X-H1141 14043	Dynamic Output	≥ 2 mm	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi30R-W30-DAN6X-H1141 1404501	Dynamic Output	≥ 3 mm	30	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi6R-W30-DAP6X-H1141 14036	Dynamic Output	≥ 0.6 mm	6	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi10R-W30-DAP6X-H1141 14038	Dynamic Output	≥ 1 mm	10	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi15R-W30-DAP6X-H1141 14040	Dynamic Output	≥ 1.5 mm	15	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi20R-W30-DAP6X-H1141 14042	Dynamic Output	≥ 2 mm	20	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi30R-W30-DAP6X-H1141 14045	Dynamic Output	≥ 3 mm	30	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4

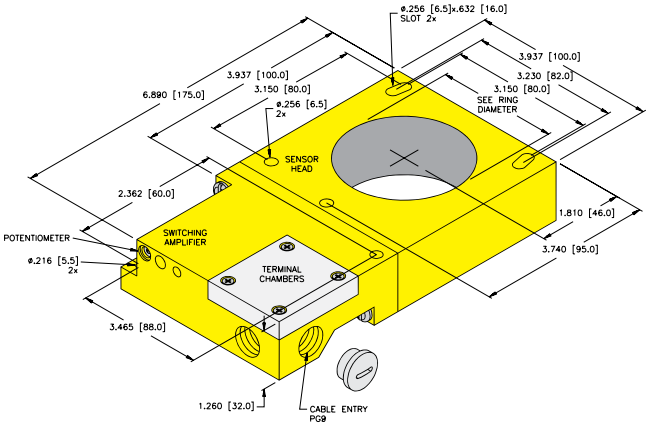
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Ring Sensors

Plastic Housing Sensors with a Large Diameter Ring and 3 or 4-Wire DC Output

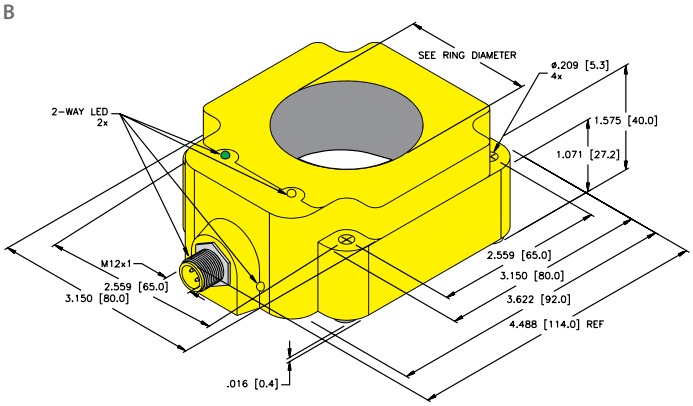
Housing Style	Dimension Drawings

A



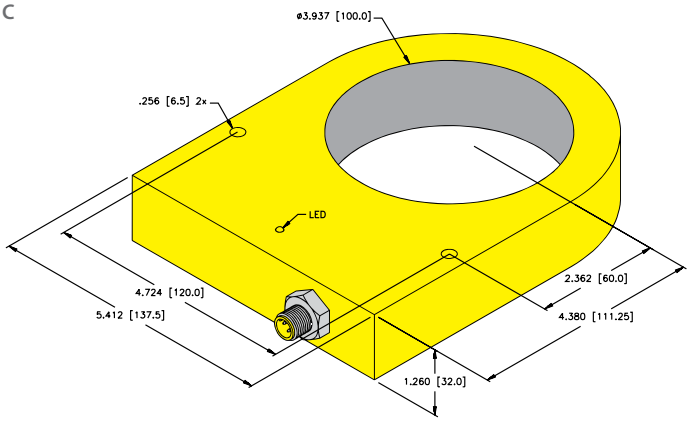
32 mm - Rectangular, Ring Sensor, Terminal Chamber

B



80 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

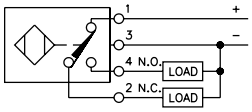
C



100 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

Wiring Diagrams/Mating Cordsets

1



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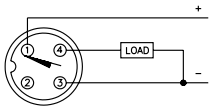
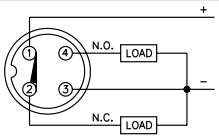


Mating Cordset: RK 4T-*

3



Mating Cordset: RK 4.4T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Ring Sensors

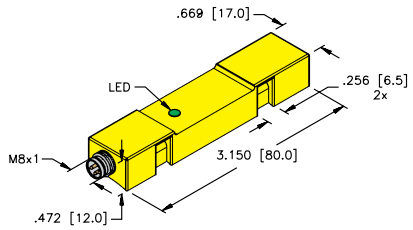
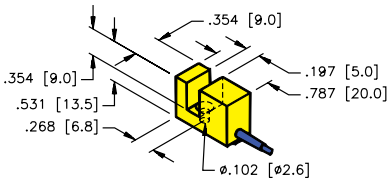
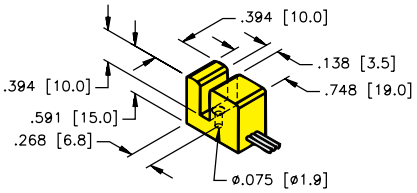
Plastic Housing Sensors with a Large Diameter Ring and 3 or 4-Wire DC Output

Part Number/ ID Number	Features	Minimum Target Diameter	Ring Diameter (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni20R-S32SR-VP44X 1440001	Static Output	≥ 0.4 mm	20	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	A	1	A4
Ni40R-S32SR-VP44X 1440005	Static Output	≥ 1 mm	40	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	A	1	A4
Ni65R-S32SR-VP44X 1440008	Static Output	≥ 12 mm	65	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	A	1	A4
Bi50R-Q80-AP6X2-H1141 1407530	Static Output	≥ 8 mm	50	3-wire DC PNP	10-30 VDC	10	≤200	-25 to +70	IP67	PBT	PA 66	GN	YE	B	2	A4
Bi65R-Q80-AP6X2-H1141 1407531	Static Output	≥ 10 mm	65	3-wire DC PNP	10-30 VDC	10	≤200	-25 to +70	IP67	PBT	PA 66	GN	YE	B	2	A4
Ni100R-S32XL-VP44X-H1141 1510301	Static Output	≥ 10mm	100	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	POM	POM	N/A	YE	C	3	A4

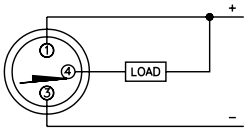
We reserve the right to make technical alterations without prior notice.

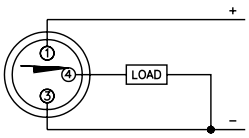
Specialty Sensors | Tube and Slot Sensors

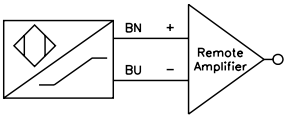
Plastic Housing Sensors with Cable or Connector

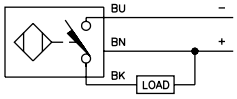
Housing Style	Dimension Drawings
	A  Tube Sensing Nonembeddable, M8 Picofast Connector
B  9 mm - Slot Sensor, Potted-In Cable	C  10 mm - Slot Sensor, Potted-In Cable

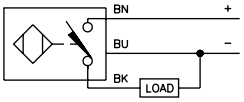
Wiring Diagrams/Mating Cordsets

1 
Mating Cordset: PKG 3M-*

2 
Mating Cordset: PKG 3M-*

3 

4 

5 

A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current ≥170 mA on 150 mA Load Current ≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox) ≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Tube and Slot Sensors

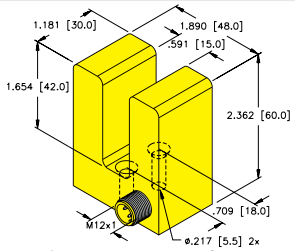
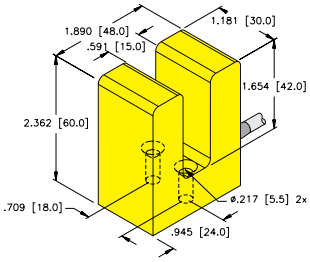
Plastic Housing Sensors with Cable or Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni20U-TS12-AN6X2-V1131 1625822	Uprox+	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	- -	A	1	A4
Ni20U-TS12-AP6X2-V1131 1646640	Uprox+	20	4-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	- -	A	2	A4
Si5-K09-Y1 0.5M 10240		5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	PBT	PBT	N/A	N/A	0.5M/PVC	B	3	A1
Si3.5-K10-AN7 17190		3.5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PBT	PBT	N/A	N/A	2M/PVC	C	4	A4
Si3.5-K10-AP6X 1650001		3.5	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	C	5	A4
Si3.5-K10-Y1 10365		3.5	2-wire DC NAMUR	5-30 VDC	3000	Remote	-25 to +70	IP67	PBT	PBT	N/A	N/A	2M/PVC	C	3	A1

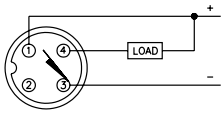
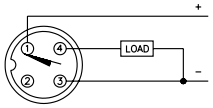
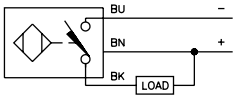
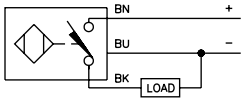
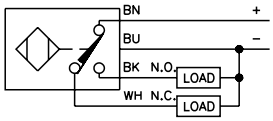
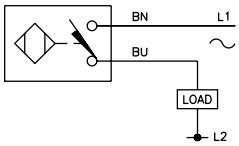
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Slot Sensors

Plastic Housing Sensors with Cable or Connector

Housing Style	Dimension Drawings
	A  30 mm - Slot Sensor, M12 Eurofast Connector
B  30 mm - Slot Sensor, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1	2	3
 Mating Cordset: RK 4T-*	 Mating Cordset: RK 4T-*	
4	**5**	**6**
		

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Slot Sensors

Plastic Housing Sensors with Cable or Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Si15-K30-AN6X-H1141 1605107		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	A	1	A4
Si15-K30-AP6X-H1141 1605007		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	A	2	A4
Si15-K30-AN6X 1605003		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	B	3	A4
Si15-K30-AP6X 1605001		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	B	4	A4
Si15-K30-VP6 1605030	Comp. Outputs	15	4-wire DC PNP	10-30 VDC	350	≤200	-25 to +70	IP67	PBT	PBT	N/A	N/A	2M/PVC	B	5	A4
Si15-K30-AZ3 13069		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	N/A	N/A	2M/PVC	B	6	A6

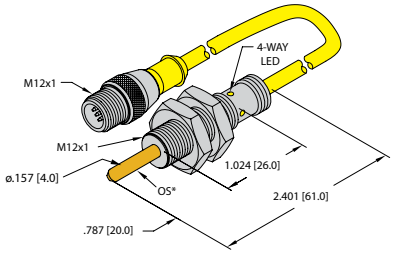
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Weld Nut Sensors

Threaded Metal Barrel with Smooth Sensing Probe and 3-Wire DC Output

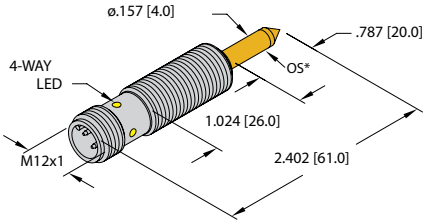
Housing Style	Dimension Drawings

A



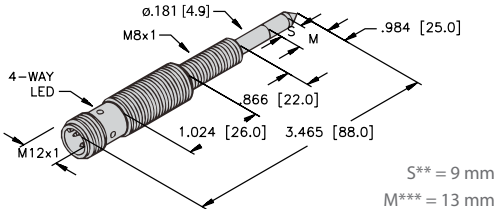
Nut Sensor, 5-12 mm Diameter Nut, Potted-In Cable

B



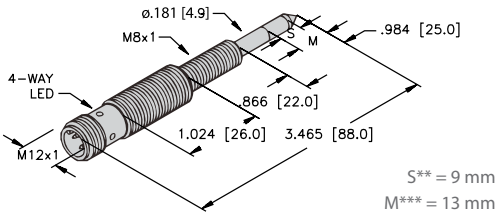
Nut Sensor, 5-12 mm Diameter Nut, M12 Eurofast Connector

C



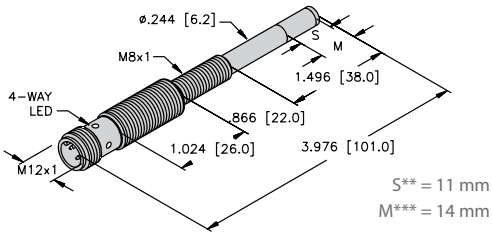
Nut Sensor, 6-12 mm Diameter Nut, M12 Eurofast Connector

D



Nut Sensor, 6-12 mm Diameter Nut, M12 Eurofast Connector

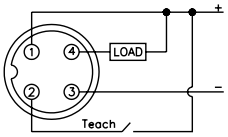
E



Nut Sensor, 10-20 mm Diameter Nut, M12 Eurofast Connector

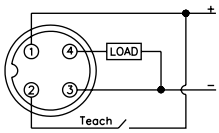
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

2



Mating Cordset: RK 4.4T-*

A24 — **3-wire DC Nut Detection Sensor (AP, AN)**

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA		

Note:
OS* The optimal sensitive area for the 4.0 mm diameter probes has a width of 0.5 mm and is laser-engraved on the tip of the probe, 11.9 mm above the M12 thread.
S** Sensitive area: Within this area the sensor signal changes when assembly parts are changed.
M*** Maximum area: The maximum signal intensity is reached if the sensitive area is completely covered.

Optional teach adapter available, part number VB2-SP1.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Weld Nut Sensors

Threaded Metal Barrel with Smooth Sensing Probe and 3-Wire DC Output

Part Number/ ID Number	Features	Nut Diameter	Output	Voltage	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
NIMFE-EM12/4.0L61-UP6X-0.3XYE-RS4/S1182 1600623	Titanium Nitride	5-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	0.3M/ TPE	A	2	A24
NIMFE-EM12/4.0L61-UN6X-0.3XYE-RS4/S1182 1600624	Titanium Nitride	5-12 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	0.3M/ TPE	A	1	A24
NIMFE-EM12/4.0L61-UP6X-H1141/S1182 1600621	Titanium Nitride	5-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	B	2	A24
NIMFE-EM12/4.0L61-UN6X-H1141/S1182 1600622	Titanium Nitride	5-12 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	B	1	A24
NIMFE-M12/4.6L88-UN6X-H1141 1600610		6-12 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	- -	C	1	A24
NIMFE-EMT12/4.6L88-UN6X-H1141 1600618	PTFE Coated	6-12 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	C	1	A24
NIMFE-EM12/4.6L88-UN6X-H1141/S1182 1600617	Titanium Nitride	6-12 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	C	1	A24
NIMFE-M12/4.6L88-UP6X-H1141 1600608		6-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	- -	C	2	A24
NIMFE-EMT12/4.6L88-UP6X-H1141 1600619	PTFE Coated	6-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	C	2	A24
NIMFE-EM12/4.6L88-UP6X-H1141/S1182 1600620	Titanium Nitride	6-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	C	2	A24
NIMFE-EM12/4.9L88-UP6X-H1141/S1182 1600616	Titanium Nitride	6-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	D	2	A24
NIMFE-M12/6.2L101-UN6X-H1141 1600611		10-20 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	- -	E	1	A24
NIMFE-EMT12/6.2L101-UN6X-H1141 1600615	PTFE Coated	10-20 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	E	1	A24
NIMFE-M12/6.2L101-UP6X-H1141 1600609		10-20 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	- -	E	2	A24
NIMFE-EMT12/6.2L101-UP6X-H1141 1600613	PTFE Coated	10-20 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	E	2	A24
NIMFE-EM12/6.2L101-UP6X-H1141/S1182 1600612	Titanium Nitride	10-20 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	E	2	A24

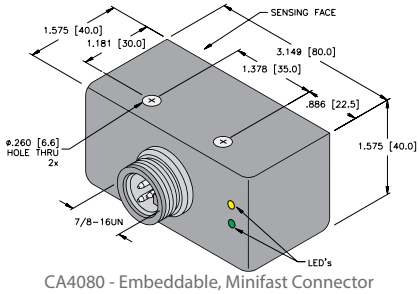
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Edge Detection Sensors

Rectangular Metal Housing with AC or DC Outputs and Integral Connector

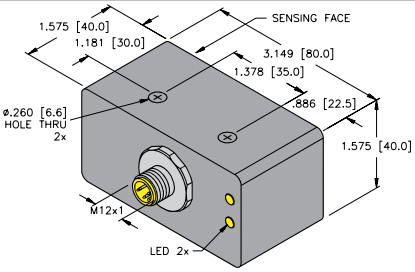
Housing Style	Dimension Drawings

A



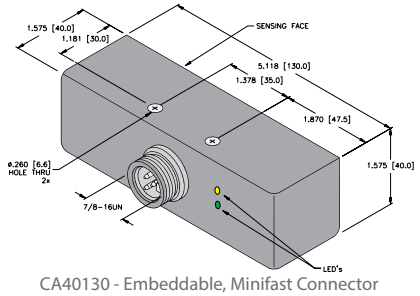
CA4080 - Embeddable, Minifast Connector

B



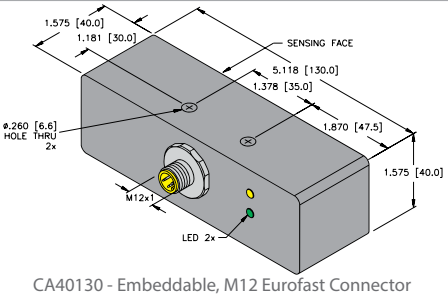
CA4080 - Embeddable, M12 Eurofast Connector

C



CA40130 - Embeddable, Minifast Connector

D



CA40130 - Embeddable, M12 Eurofast Connector

Wiring Diagrams/Mating Cordsets

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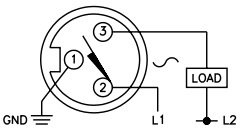
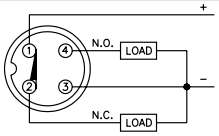


Mating Cordset: RKM 30-*M

2



Mating Cordset: RK 4.4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Edge Detection Sensors

Rectangular Metal Housing with AC or DC Outputs and Integral Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20-CA4080-ADZ30X2-B1131 4283400		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	TS	SF	GN	YE	A	1	A5
Bi20-CA4080-VP4X2-H1141 1625591		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	TS	SF	GN	YE	B	2	A4
BI20-CA4080-VP4X2-H1141/S1009 1625590	250 ms Off Delay	20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	TS	SF	GN	YE	B	2	A4
Bi20-CA40130-ADZ30X2-B1131 4283503		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	TS	SF	GN	YE	C	1	A5
BI20-CA40130-ADZ30X2-B1131/S1009 4283597	250 ms Off Delay	20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	TS	SF	GN	YE	C	1	A5
Bi20-CA40130-VP4X2-H1141 4283599		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	TS	SF	GN	YE	D	2	A4

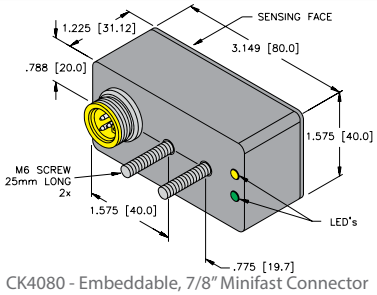
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Edge Detection Sensors

Rectangular Plastic Housing with AC or DC Outputs and Integral Connector

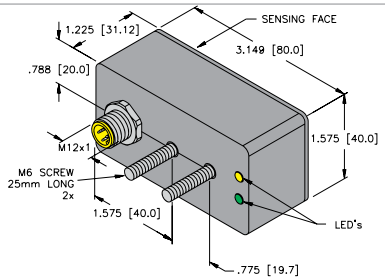
Housing Style	Dimension Drawings

A



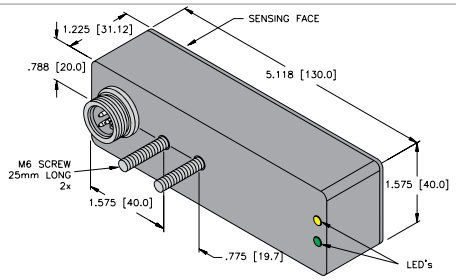
CK4080 - Embeddable, 7/8" Minifast Connector

B



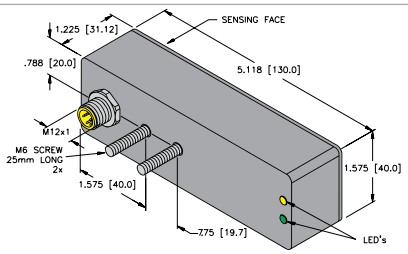
CK4080 - Embeddable, M12 Eurofast Connector

C



CK40130 - Embeddable, 7/8" Minifast Connector

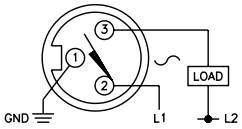
D



CK40130 - Embeddable, M12 Eurofast Connector

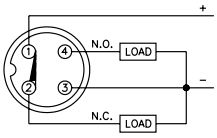
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M

2



Mating Cordset: RK 4.4T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A5 — **2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)**

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Edge Detection Sensors

Rectangular Plastic Housing with AC or DC Outputs and Integral Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20-CK4080-ADZ30X2-B1131 4283493		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	RD	A	1	A5
BI20-CK4080-ADZ30X2-B1131/S1009 4283495	250 ms Off Delay	20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	RD	A	1	A5
Bi20-CK4080-VP4X2-H1141 4283491		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	B	2	A4
BI20-CK4080-VP4X2-H1141/S1009 4283496	250 ms Off Delay	20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	B	2	A4
Bi20-CK40130-ADZ30X2-B1131 4283589		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	C	1	A5
BI20-CK40130-ADZ30X2-B1131/S1009 42835953	250 ms Off Delay	20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	C	1	A5
Bi20-CK40130-VP4X2-H1141 42835911		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	D	2	A4
BI20-CK40130-VP4X2-H1141/S1009 42835963	250 ms Off Delay	20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	D	2	A4

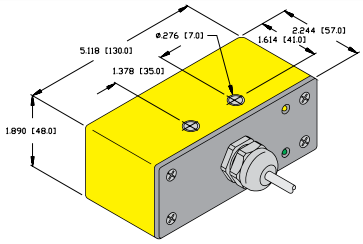
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Can Sensors

Rectangular Plastic Housing with AC or DC Outputs and Integral Connector

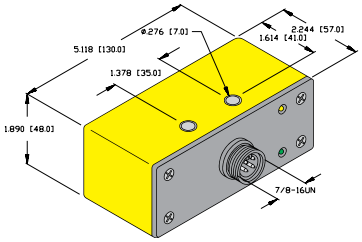
Housing Style	Dimension Drawings

A



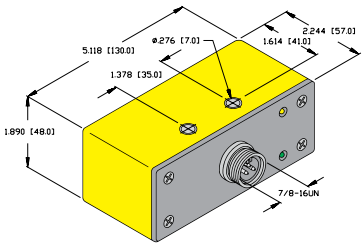
Q130 - Nonembeddable, Potted-In Cable

B



Q130 - Nonembeddable, 7/8" Minifast Connector

C



Q130 - Nonembeddable, 7/8" Minifast Connector

Wiring Diagrams/Mating Cordsets

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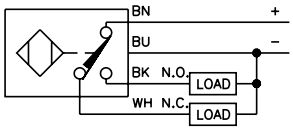

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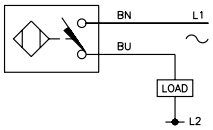

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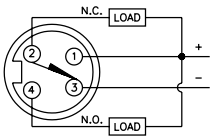
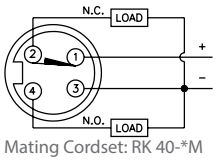


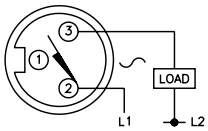
Mating Cordset: RK 40-*M

4



Mating Cordset: RK 40-*M

5



Mating Cordset: RK 30-*M

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Can Sensors

Rectangular Plastic Housing with AC or DC Outputs and Integral Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni30-Q130-VP4X2 15179	Comp. Output	30	4-wire DC PNP	10-65 VDC	60	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/ PVC	A	1	A4
Ni30-Q130-ADZ30X2 42095		30	2-wire AC/DC	20-250 VAC/10-300 VDC	30	≤400/300	-25 to +70	IP67	PBT	PBT	GN	RD	2M/ PVC	A	2	A5
Ni30-Q130-VN4X2-B2141 15180	Comp. Output	30	4-wire DC NPN	10-65 VDC	60	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	- -	B	3	A4
Ni30-Q130-VP4X2-B2141 1518001	Comp. Output	30	4-wire DC PNP	10-65 VDC	60	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	- -	B	4	A4
Ni30-Q130-ADZ30X2-B1131 42100		30	2-wire AC/DC	20-250 VAC/10-300 VDC	30	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	- -	C	5	A5

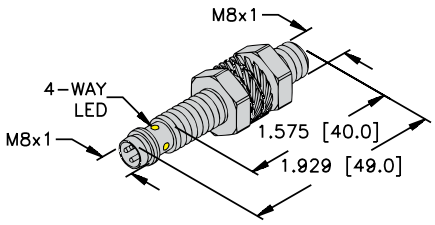
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Inductive Magnetic Sensors

Threaded Metal Barrels Designed to Sense a Magnetic Field

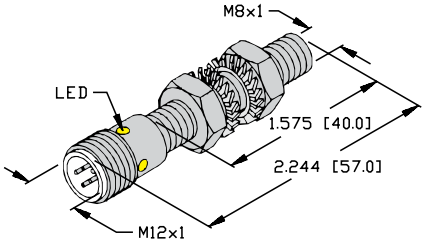
Housing Style	Dimension Drawings

A



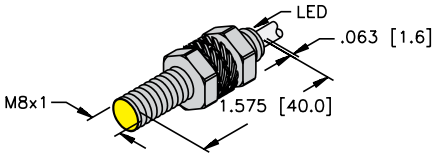
8 mm - Barrel, M8 Picofast Connector

B



8 mm - Barrel, M12 Eurofast Connector

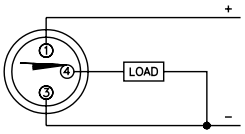
C



8 mm - Barrel, Potted-In Cable

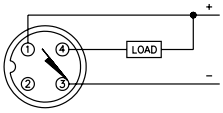
Wiring Diagrams/Mating Cordsets

1



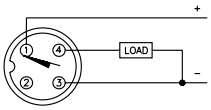
Mating Cordset: PKG 3M-*

2



Mating Cordset: RK 4T-*

3



Mating Cordset: RK 4T-*

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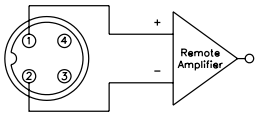
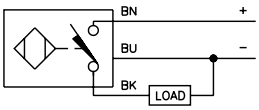


Mating Cordset: RK 4.21T-*

5



A25 — **3-wire DC Magnetic Barrel (AP, AN)**

Ripple:	≤10%	Temperature Drift:	≤±15%
Differential Travel (Hysteresis):	1-10%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
	≥170 mA on 150 mA Load Current	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤0.3% of Full Scale
Off-State (Leakage) Current:	≤0.1 mA		

A27 — **2-wire DC Namur Magnetic Barrel (Y1)**

Differential Travel (Hysteresis):	1-10%	Temperature Drift:	≤±10%
Nominal Voltage:	8.2 VDC (EN60947-5-6)	Reverse Polarity Protection:	Incorporated
Load Resistance:	1000 Ω	Wire-Break Protection:	Realized in Amplifier
Non-activated Current Consumption:	≤1.2 mA	Transient Protection:	Realized in Amplifier
Activated Current Consumption:	≥2.1 mA	Shock:	30 g, 11 ms
Recommended Switching Point for Remote	>1.2 to <2.1 mA,	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Amplifier:	typ. 1.55 mA ON/1.75 mA OFF	Repeatability:	≤0.3% of Full Scale

Note:
Use with Turck actuation magnet to achieve longest switching distance.
See page I18 for part numbers and details.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Inductive Magnetic Sensors

Threaded Metal Barrels Designed to Sense a Magnetic Field

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-EG08-AP6X-V1131 4621314	Up to 78 mm Range	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	- -	A	1	A25
BIM-EG08-AN6X-H1341 4621301	Up to 78 mm Range	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	- -	B	2	A25
BIM-EG08-AP6X-H1341 4621311	Up to 78 mm Range	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	- -	B	3	A25
BIM-EG08-Y1X-H1341 1074001	Up to 78 mm Range	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	SS	PA 12	N/A	YE	- -	B	4	A27
BIM-EG08-AP6X 4621310	Up to 78 mm Range	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	5	A25

We reserve the right to make technical alterations without prior notice.

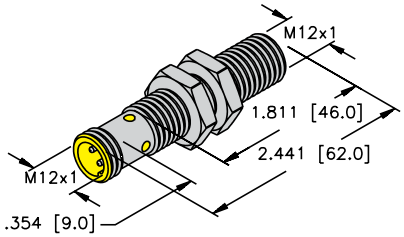
Specialty Sensors | Inductive Magnetic Sensors

Threaded Metal Barrels Designed to Sense a Magnetic Field

Housing Style

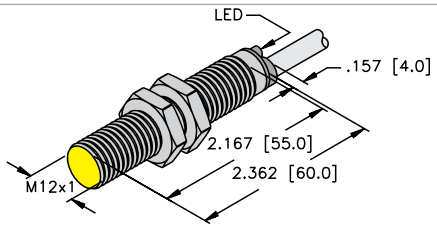
Dimension Drawings

A



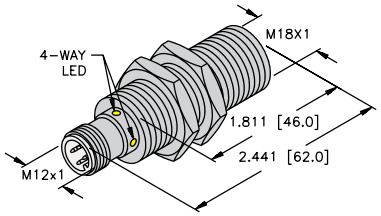
12 mm - M12 Eurofast Connector

B



12 mm - Potted-In Cable

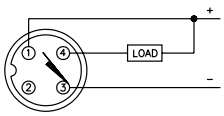
C



18 mm - M12 Eurofast Connector

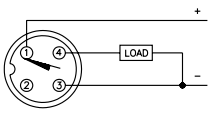
Wiring Diagrams/Mating Cordsets

1



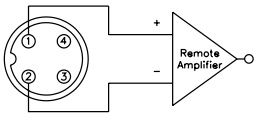
Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*; P-RKGV 4.43T-1699XL-*

3



Mating Cordset: RK 4.21T-*

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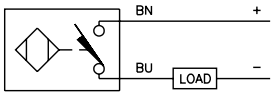

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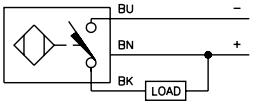

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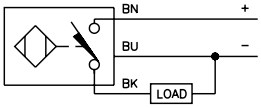

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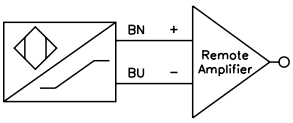


A25 — **3-wire DC Magnetic Barrel (AP, AN)**

Ripple:	≤10%
Differential Travel (Hysteresis):	1-10%
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current ≥170 mA on 150 mA Load Current
No-Load Current:	≤15 mA
Off-State (Leakage) Current:	≤0.1 mA
Temperature Drift:	≤±15%
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤0.3% of Full Scale

A26 — **2-wire DC Magnetic Barrel (AG)**

Ripple:	≤10%
Differential Travel (Hysteresis):	1-10%
Voltage Drop Across Conducting Sensor:	≤4.2 V Polarized
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
Minimum Load Current:	≥3.0 mA
Temperature Drift:	≤±15%
Off-State (Leakage) Current:	≤0.8 mA
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤0.3% of Full Scale

A27 — **2-wire DC Namur Magnetic Barrel (Y1)**

Differential Travel (Hysteresis):	1-10%
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-activated Current Consumption:	≤1.2 mA
Activated Current Consumption:	≥2.1 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Temperature Drift:	≤±10%
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤0.3% of Full Scale

Note:
Use with Turck actuation magnet to achieve longest switching distance.
See page I18 for part numbers and details.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Inductive Magnetic Sensors

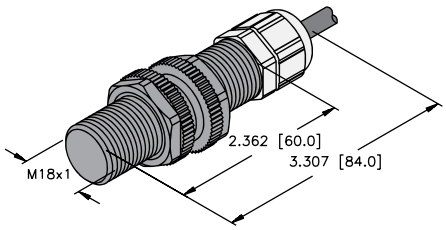
Threaded Metal Barrels Designed to Sense a Magnetic Field

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BIM-M12E-AN4X-H1141 1579914	Up to 90 mm Range	3-wire DC NPN	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A25
BIM-EM12E-AP4X-H1141 1579915	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	SS	POM	N/A	YE	A	2	A25
BIM-M12E-AP4X-H1141 1579913	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A25
BIM-M12E-AP6X-H1141/S1751 4681289	FM Approved	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A25
BIM-M12E-Y1X-H1141 1074003	Up to 90 mm Range	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A27
BIM-M12E-AG4X 44302	Up to 90 mm Range	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	4	A26
BIM-M12E-AN4X 1579912	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	5	A25
BIM-EM12E-AP4X 1579918	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	SS	POM	N/A	YE	B	6	A25
BIM-M12E-AP4X/S90 1579911	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	6	A25
BIM-EM12E-Y1X 1070036	Up to 90 mm Range	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	SS	POM	N/A	YE	B	7	A27
BIM-M12E-Y1X 1074002	Up to 90 mm Range	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	7	A27
BIM-EM18M-AP4X-H1141 1579933	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	SS	POM	N/A	YE	C	2	A25

We reserve the right to make technical alterations without prior notice.

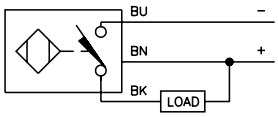
Specialty Sensors | Submersible Sensors

Threaded Plastic Barrel Sensors with Cable for Underwater Applications

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, Full Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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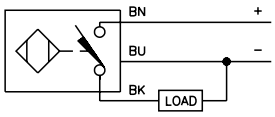

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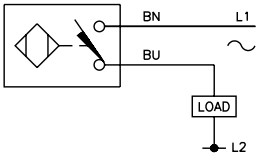


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Submersible Sensors

Threaded Plastic Barrel Sensors with Cable for Underwater Applications

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-P18-AN6/S139-S1261 1650239	Submersible	5	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP68	POM	PA 12	N/A	N/A	2M/TPE	A	1	A4
Bi5-P18-AP6/S139-S1261 1650234	Submersible	5	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP68	POM	PA 12	N/A	N/A	2M/TPE	A	2	A4
Bi8U-P18-AP6/S139-S1261 1650230	Submersible, Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	POM	PA 12	N/A	N/A	2M/TPE	A	2	A4
Bi5-P18-AZ3/S139-S1261 1384307	Submersible	5	2-wire AC	20-250 VAC	20	≤400	-25 to +70	IP68	POM	PA 12	N/A	N/A	2M/TPE	A	3	A6

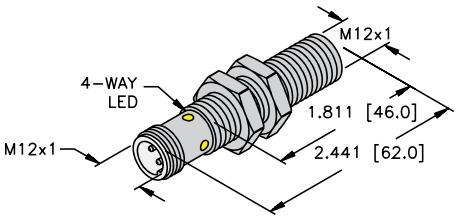
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Selective Metal Sensors

Threaded Barrel Sensors Designed to Sense Nonferrous Metals Only

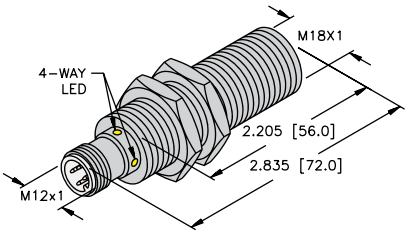
Housing Style	Dimension Drawings

A



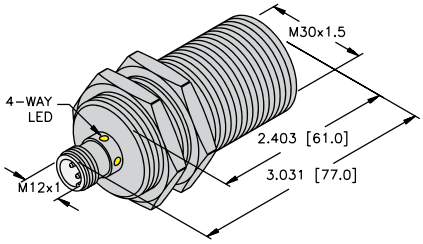
12 mm - Embeddable, M12 Eurofast Quick Disconnect

B



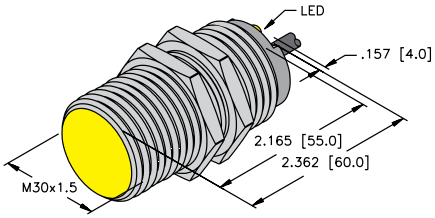
18 mm - Embeddable, M12 Eurofast Quick Disconnect

C



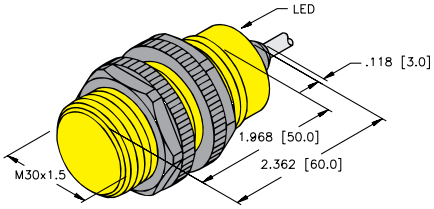
30 mm - Embeddable, M12 Eurofast Quick Disconnect

D



30 mm - Embeddable, Potted-In Cable

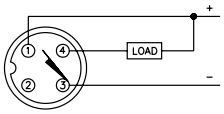
E



30 mm - Embeddable, Potted-In Cable, Partial Threading

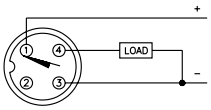
Wiring Diagrams/Mating Cordsets

1



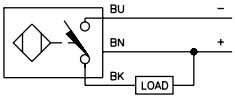
Mating Cordset: RKV 4T-*

2



Mating Cordset: RKV 4T-*

3



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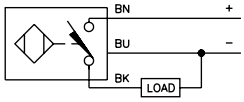


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Selective Metal Sensors

Threaded Barrel Sensors Designed to Sense Nonferrous Metals Only

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi3NF-EM12HE-AP6X2-H1141 1615001	Senses nonferrous metals only	3	3-wire DC PNP	10-30 VDC	3000	≤200	0 to +60	IP67	SS	SF	GN	YE	- -	A	2	A4
Bi5NF-EM18HE-AN6X2-H1141 1615004	Senses nonferrous metals only	5	3-wire DC NPN	10-30 VDC	2500	≤200	0 to +60	IP67	SS	SF	GN	YE	- -	B	1	A4
Bi5NF-EM18HE-AP6X2-H1141 1615000	Senses nonferrous metals only	5	3-wire DC PNP	10-30 VDC	2500	≤200	0 to +60	IP67	SS	SF	GN	YE	- -	B	2	A4
Bi10NF-EM30HE-AN6X2-H1141 1615005	Senses nonferrous metals only	10	3-wire DC NPN	10-30 VDC	2000	≤200	0 to +60	IP67	SS	SF	GN	YE	- -	C	1	A4
Bi10NF-EM30HE-AP6X2-H1141 1615002	Senses nonferrous metals only	10	3-wire DC PNP	10-30 VDC	2000	≤200	0 to +60	IP67	SS	SF	GN	YE	- -	C	2	A4
Bi10NF-M30-AN6X 16161	Senses nonferrous metals only	10	3-wire DC NPN	10-30 VDC	500	≤200	0 to +60	IP67	CPB	PA 12	N/A	YE	2M/ PVC	D	3	A4
Bi10NF-M30-AP6X 16061	Senses nonferrous metals only	10	3-wire DC PNP	10-30 VDC	500	≤200	0 to +60	IP67	CPB	PA 12	N/A	YE	2M/ PVC	D	4	A4
Bi10NF-S30-AN6X 16215	Senses nonferrous metals only	10	3-wire DC NPN	10-30 VDC	2000	≤200	0 to +60	IP67	PA 12	PA 12	N/A	YE	2M/ PVC	E	3	A4
Bi10NF-S30-AP6X 16115	Senses nonferrous metals only	10	3-wire DC PNP	10-30 VDC	2000	≤200	0 to +60	IP67	PA 12	PA 12	N/A	YE	2M/ PVC	E	4	A4

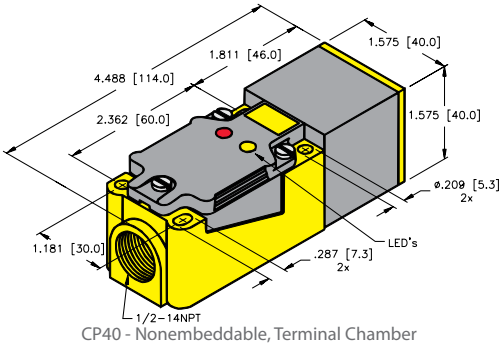
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Selective Metal Sensors

Rectangular and Barrel Sensors Designed to Sense Nonferrous or Ferrous Metals Only

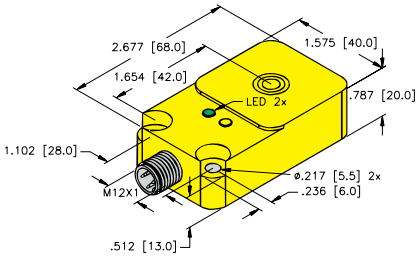
Housing Style	Dimension Drawings

A



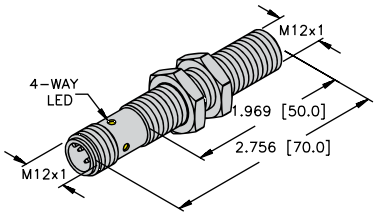
CP40 - Nonembeddable, Terminal Chamber

B



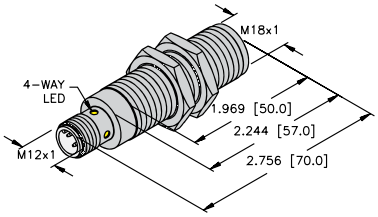
Q20 - Nomembeddable, M12 Eurofast Quick Disconnect

C



12 mm - Embeddable, M12 Eurofast Quick Disconnect

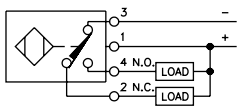
D



18 mm - Embeddable, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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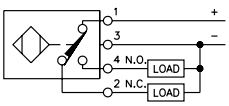

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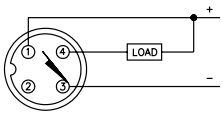
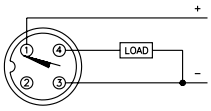


Mating Cordset: RK 4T-*

4



Mating Cordset: RK 4T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A28 — **3-wire DC Ferrous Only Sensing (AP)**

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2.5 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤20 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Selective Metal Sensors

Rectangular and Barrel Sensors Designed to Sense Nonferrous or Ferrous Metals Only

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni20NF-CP40-VN4X2 15282	Senses nonferrous metals only	20	4-wire DC NPN	10-65 VDC	100	≤200	0 to +60	IP67	PBT	PBT	GN	YE	A	1	A4
Ni20NF-CP40-VP4X2 15082	Senses nonferrous metals only	20	4-wire DC PNP	10-65 VDC	100	≤200	0 to +60	IP67	PBT	PBT	GN	YE	A	2	A4
Ni25NF-Q20-AN6X2-H1141 1602710	Senses nonferrous metals only	25	3-wire DC NPN	10-30 VDC	25	≤200	0 to +60	IP67	PBT	PBT	GN	YE	B	3	A4
Bi2.5FE-EM12FE-AP6X-H1141 1615011	Senses ferrous metals only	2.5	3-wire DC PNP	10-30 VDC	1000	≤100	-25 to +70	IP67	SS	SS	N/A	YE	C	4	A28
Bi4.5FE-EM18FE-AP6X-H1141 1615012	Senses ferrous metals only	4.5	3-wire DC PNP	10-30 VDC	1000	≤100	-25 to +70	IP67	SS	SS	N/A	YE	D	4	A28

We reserve the right to make technical alterations without prior notice.

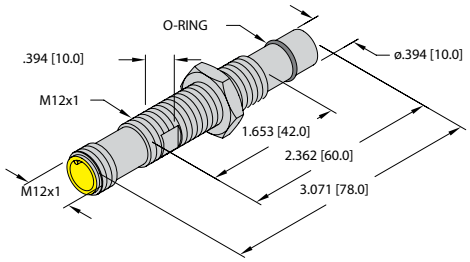
Specialty Sensors | High Pressure

Partially Threaded Metal Barrel Pressure Resistant Sensors

Housing Style

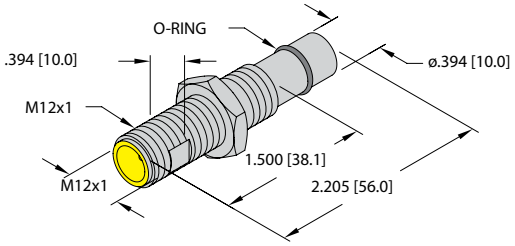
Dimension Drawings

A



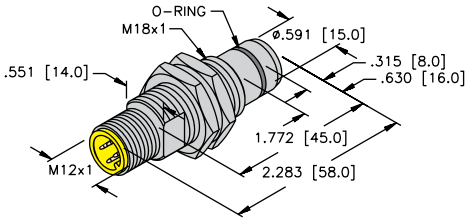
12 mm - Embeddable, M12 Eurofast Connection, Pressure Resistant Barrel Sensor

B



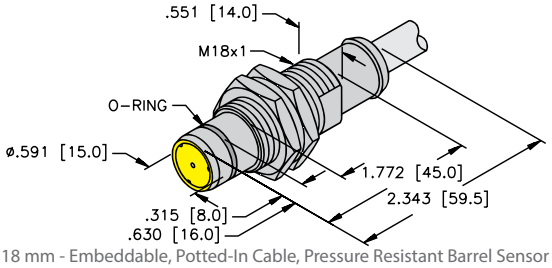
12 mm - Embeddable, M12 Eurofast Connection, Pressure Resistant Barrel Sensor

C



18 mm - Embeddable, M12 Eurofast Connection, Pressure Resistant Barrel Sensor

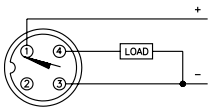
D



18 mm - Embeddable, Potted-In Cable, Pressure Resistant Barrel Sensor

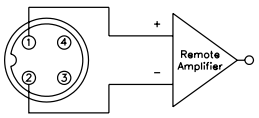
Wiring Diagrams/Mating Cordsets

1



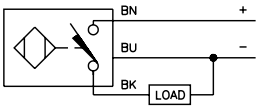
Mating Cordset: RKV 4T-*

2



Mating Cordset: RKV 4.21T-*

3



A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A29 — 3-wire DC High Pressure (AP)

Ripple:	≤20%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤2 V, ≤1.8 V (Ext. Range)
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
No-Load Current:	≤10 mA, ≤15 mA (Ext. Range)
Off-State (Leakage) Current:	≤0.1 mA
Temperature Drift:	≤15%, ≤±10% (Ext. Range)
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Pressure

Partially Threaded Metal Barrel Pressure Resistant Sensors

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BID1.5-G120KK-AP6-H1141 1682001	500 bar	1.5	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +80	IP68	SS	CER	N/A	N/A	- -	A	1	A29
BID1.5-G120-AP6-H1141 1682000	500 bar	1.5	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +80	IP68	SS	CER	N/A	N/A	- -	B	1	A29
BID2-G180-AP6-H1141/S212 16885	500 bar static/350 bar dynamic	2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +85	IP67	SS	PA 12	N/A	N/A	- -	C	1	A29
BID2-G180-Y0-H1141/S212 1088500	500 bar static/350 bar dynamic	2	2-wire Namur	5-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	N/A	- -	C	2	A1
BID2-G180-AP6/S212 1688003	500 bar static/350 bar dynamic	2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +85	IP67	SS	PA 12	N/A	N/A	2M/TPU	D	3	A29

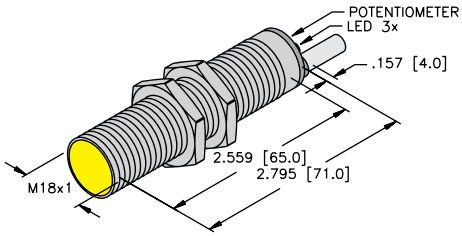
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Rotational Speed Monitor

Threaded Metal Barrel for Target Detection on a Spinning Shaft

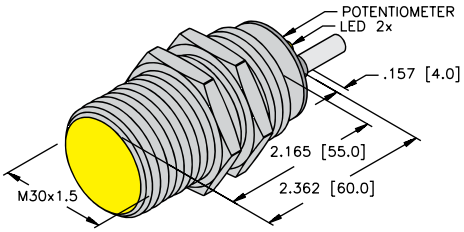
Housing Style	Dimension Drawings

A



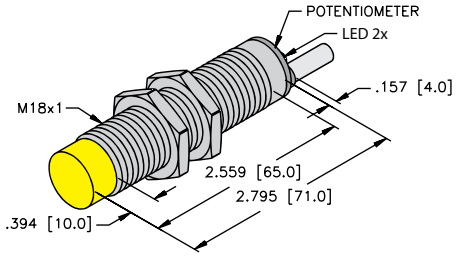
18 mm - Embeddable Rotational Speed Monitor, Potted-In Cable

B



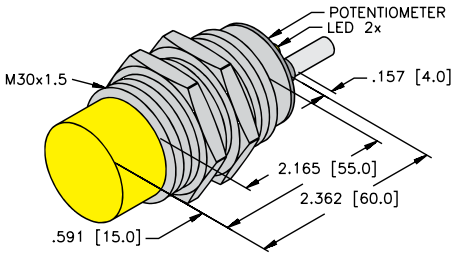
30 mm - Embeddable Rotational Speed Monitor, Potted-In Cable

C



18 mm - Nonembeddable Rotational Speed Monitor, Potted-In Cable

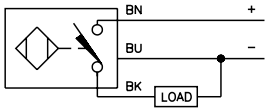
D



30 mm - Nonembeddable Rotational Speed Monitor, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Rotational Speed Monitor

Threaded Metal Barrel for Target Detection on a Spinning Shaft

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	End Cap	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
DBi5U-M18E-AP4X3 1582236	Rotational Speed Monitor	5	3-wire DC PNP	10-65 VDC	0.05-50	≤200	-30 to +85	IP67	CPB	PBT	EPTR	GN	YE/BU	2M/PVC	A	1	A4
DBi10U-M30-AP4X2 1582231	Rotational Speed Monitor	10	3-wire DC PNP	10-65 VDC	0.05-50	≤200	-30 to +85	IP67	CPB	PBT	EPTR	GN	YE/BU	2M/PVC	B	1	A4
DNI12U-M18E-AP4X3 1582235	Rotational Speed Monitor	12	3-wire DC PNP	10-65 VDC	0.05-50	≤200	-30 to +85	IP67	CPB	PBT	EPTR	GN	YE/BU	2M/PVC	C	1	A4
DNI20U-M30-AP4X3 1582233	Rotational Speed Monitor	20	3-wire DC PNP	10-65 VDC	0.05-50	≤200	-30 to +85	IP67	CPB	PBT	EPTR	GN	YE/BU	2M/PVC	D	1	A4

We reserve the right to make technical alterations without prior notice.

Notes

Notes

Analog Sensors Selection Guide

Embeddable/Nonembeddable Rectangular			
Housing	**8 mm**	**14 mm**	**20 mm**
Sensing Range	**7 mm**	**10 mm**	**15 mm**
Pages	**D5**	**D5**	**D5**

Embeddable/Nonembeddable Rectangular			
Housing	**40 mm**	**40 mm**	**80 mm**
Sensing Range	**15 - 25 mm**	**15 - 25 mm**	**50 mm**
Pages	**D7**	**D7**	**D7**

Embeddable/Nonembeddable Barrels				
Housing	**4 mm**	**5 mm**	**6.5 mm**	**8 mm**
Sensing Range	**1.5 mm**	**1.5 mm**	**1.5 mm**	**1.5 mm**
Pages	**D9**	**D9**	**D9**	**D9**

We reserve the right to make technical alterations without prior notice.

Analog Sensors Selection Guide

Embeddable/Nonembeddable Barrels			
Housing	**12 mm**	**12 mm**	**18 mm**
Sensing Range	**2 - 5 mm**	**2 - 5 mm**	**5 - 10 mm**
Pages	**D11**	**D11**	**D11**

Embeddable/Nonembeddable Barrels			
Housing	**18 mm**	**30 mm**	**30 mm**
Sensing Range	**5 - 10 mm**	**10 - 15 mm**	**10 -15 mm**
Pages	**D13**	**D13**	**D13**

Rings and Probe Style			
Housing	**14 mm**	**80 mm**	**18 mm**
Sensing Range	**20 mm**	**50 mm**	**40 - 70 mm**
Pages	**D15**	**D15**	**D15**

We reserve the right to make technical alterations without prior notice.

Analog Sensor Part Number Key

B	I	15		-		M	30		-	LIU			Wiring Option*

Mounting
B = embeddable
N = nonembeddable
W = position

Principle of Operation
I = inductive
IM = inductive magnet operated

Rated Operating Distance (mm)

Sensing Characteristics
R = ring sensor

Housing Material Modifier
E = stainless steel

Housing Style

Barrel - Metal
G = full threading, generally chrome plated brass
M = partial threading, chrome plated brass

Rectangular
Q = metal or plastic, various rectangular styles

Limit Switch
CK = Stubby®, short plastic, various rectangular styles
CP = Combiprox®, plastic housing, terminal chamber base with removable sensor

Ring
Q = small rectangular plastic housing, static output

Housing Diameter or Height (mm)

Secondary Barrel Modifier
E = extended barrel length

Output
LF = frequency output
LI(LU) = linear analog output current (LI, 15-30 VDC) or voltage (LU, 15-30 VDC)
LIU = linear analog output (current and voltage, 15-30 VDC)
SIU = analog output (non-linear)

Modifier

Number of LEDs
(blank) = no LEDs
X = 1 LED

NOTE:
Part number keys are to assist in identification only.
Verify new part numbers with factory; some configurations are not possible.

*See below for Wiring Options

We reserve the right to make technical alterations without prior notice.

Wiring Options*

A. Connectorized Sensor

BI15 - M30 - LIU -	H1	1	4	1

Connector Family
H1 = Eurofast®, M12x1, metal or plastic, male
V1 = Picofast®, snap and M8x1, metal, male (Q08 snap only)

Connector/Sensor Transition
1 = straight

Number of Pins

Factory Code
Example:
1 = standard wiring

B. Potted Cable

Bi 5 - M18 - LIU -	7M

Cable Length
Blank = 2 Meter cable
7M = 7 Meter cable

Analog Sensors

Common Applications for Linear Analog Sensors

Position Feeding Over an Angled Target

- Actuation over an angled surface
- Provide a 4-20 mA and/or 0-10 V output based upon target position

Eccentricity Sensing or Absolute Angle Positioning

- Sense pieces of different shapes and sizes (of ferritic or nonferritic materials)
- Provide analog feedback on rotary cam position applications

Direct Actuation

- The highest accuracy is achieved if the sensor is directly actuated by the target. In order to utilize the full measuring range, it is important to work with an appropriately sized target. This may also be a moving part of the machine.

Part Deflection

- Tensile stress control applications
- Measure the deflection of a metal target by using a guide mechanism and an analog sensor.

Probe Style Analog+ Proximity Sensor

- These sensors can be used to detect the depth of a blind hole or be used with a ring attached to a control arm that moves the ring over the probe

Identification and Sorting of Small Parts

- When screws, rivets, or other small objects fall through a ring style sensor, each part generates a characteristic output signal which can be easily identified

Position Control

- Position control can be easily accomplished by means of a cone shaped target. Measuring ranges can be adapted to specific sensing needs by using targets with an appropriate conical shape. These sensors enable precise and simple position detection, even if the targets feature a slight offset.

Thickness Measurement

- Detection and measurement of tools (drill bits, taps, etc.) can be accomplished to ensure proper size

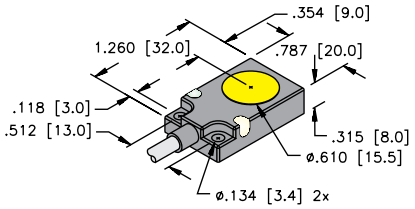
We reserve the right to make technical alterations without prior notice.

Analog Sensors | Q08, Q14, & Q20

Top Sensing Qpak Housing

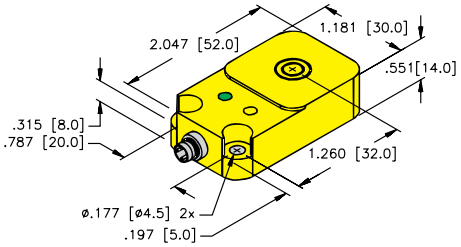
Housing Style	Dimension Drawings

A



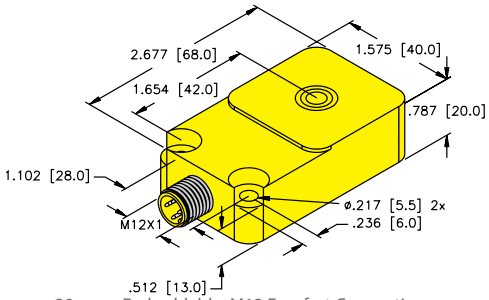
8 mm - Embeddable, Potted-In Cable

B



14 mm - Embeddable, M8 Picofast Connection

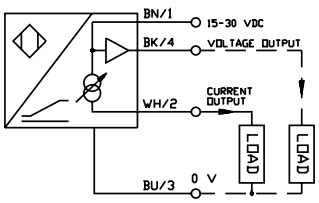
C



20 mm - Embeddable, M12 Eurofast Connection

Wiring Diagrams/Mating Cordsets

1



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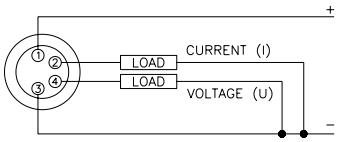
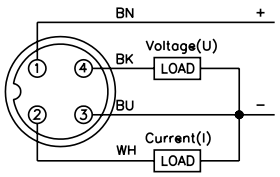


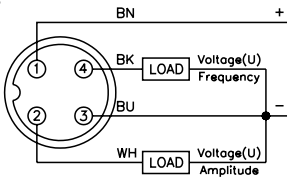
Mating Cordset: PKG 4M-*

3



Mating Cordset: RK 4.4T-*

4



Mating Cordset: RK 4.4T

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A8 — 3 and 4-wire DC Analog - (LU)

Ripple:	≤10%	Short-Circuit Protection:	Yes
No-Load Current:	≤8.0 mA	Wire-Break Protection:	Yes
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Shock:	30 g, 11 ms
Temperature Drift:	±0.06% / °C	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Reverse Polarity Protection:	Incorporated	Repeatability:	≤1% of measuring range |A-B|
Transient Protection:	Per EN 60947-5-2		(0.5% after 30 min. warm up)

We reserve the right to make technical alterations without prior notice.

Analog Sensors | Q08, Q14, & Q20

Top Sensing Qpak Housing

Part Number/ ID Number	Features	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi7-Q08-LIU 1534605		1-4	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	Zinc	PA 12	2M/ TPU	A	1	A7
Bi10-Q14-LIU-V1141 1534603		3-8	140	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	PBT	PBT	- -	B	2	A7
Bi15-Q20-LIU-H1141 1534601		4-11	110	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.2, 4.4	PBT	PBT	- -	C	3	A7
Bi15-Q20-2LU-H1141/S950 1534611	All Metal Detection	N/A	110	N/A	4-wire DC Voltage	15-30 VDC	0-10 VDC Amplitude, 0-10 VDC Phase	-25 to +70	IP67	2.2	PBT	PBT	- -	C	4	A8

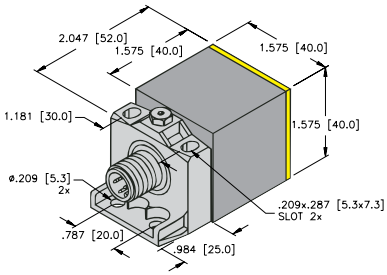
We reserve the right to make technical alterations without prior notice.

Analog Sensors | CK40, CP40, & Q80

Rectangular Housings with Long Range

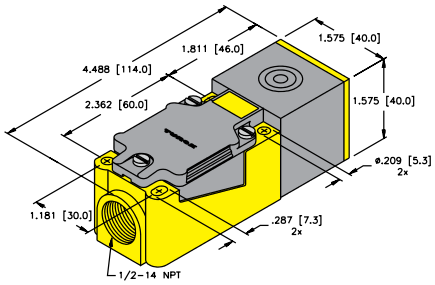
Housing Style	Dimension Drawings

A



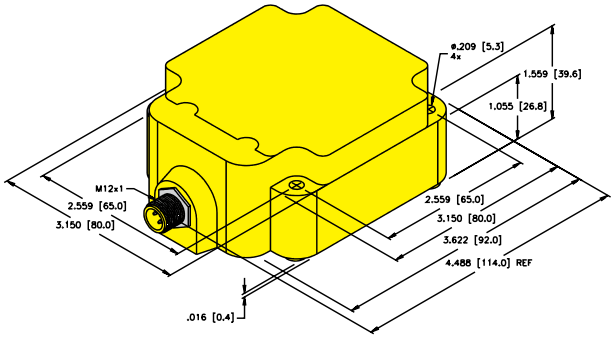
40 mm - Embeddable and Non-embeddable, M12 Eurofast Connection

B



40 mm - Embeddable and Nonembeddable, Terminal Chamber

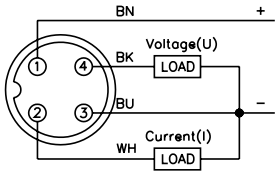
C



80 mm - Nonembeddable, M12 Eurofast Connector

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

We reserve the right to make technical alterations without prior notice.

Analog Sensors | CK40, CP40, & Q80

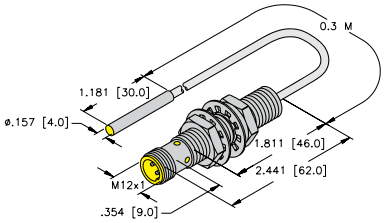
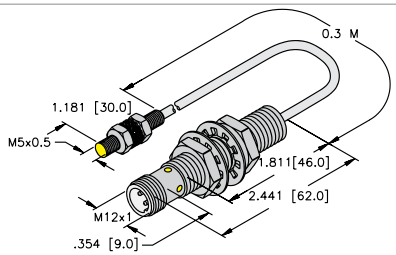
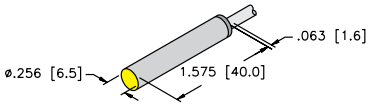
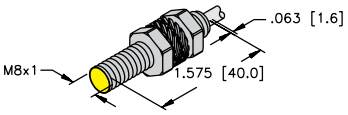
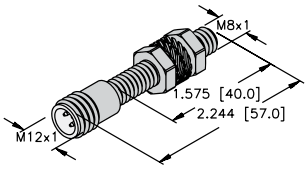
Rectangular Housings with Long Range

Part Number/ ID Number	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-CK40-LIU-H1141 1537890	4-11	110	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.2, 4.4	PBT	PBT	A	1	A7
Ni25-CK40-LIU-H1141 1537891	5-25	30	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	0.6, 1.2	PBT	PBT	A	1	A7
Ni25-CK40-LIU2-H1141 1537892	5-25	30	0.05	4-wire DC Current or Voltage	15-30 VDC	2-10 V/4-20 mA	-10 to +70	IP67	0.6, 0.96	PBT	PBT	A	1	A7
Bi15-CP40-LIU 1535700	4-11	110	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.2, 4.4	PBT	PBT	B	1	A7
Ni25-CP40-LIU 1535547	5-25	30	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	0.6, 1.2	PBT	PBT	B	1	A7
Ni50-Q80-LIU-H1141 1535545	10-50	30	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	0.6, 1.2	PBT	PBT	C	1	A7

We reserve the right to make technical alterations without prior notice.

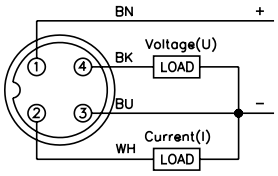
Analog Sensors | EH04, EG05, EH6.5, & EG08

Picoprox Barrel Styles

Housing Style	Dimension Drawings
	A  4 mm - Embeddable M12 Eurofast Connection
B  5 mm - Embeddable M12 Eurofast Connection	C  6.5 mm - Embeddable, Potted-In Cable
D  8 mm - Embeddable, Potted-In Cable	E  8 mm - Embeddable, M12 Eurofast Connection

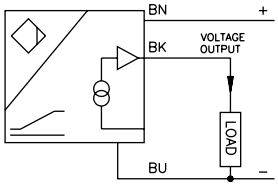
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

2



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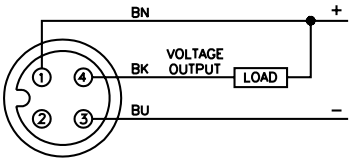


Mating Cordset: RK 4T-*

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A8 — 3 and 4-wire DC Analog - (LU)

Ripple:	≤10%	Short-Circuit Protection:	Yes
No-Load Current:	≤8.0 mA	Wire-Break Protection:	Yes
Load Resistance Voltage Output:	0-10 V/R_L≥4.7 kΩ	Shock:	30 g, 11 ms
Temperature Drift:	±0.06% / °C	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Reverse Polarity Protection:	Incorporated	Repeatability:	≤1% of measuring range |A-B|
Transient Protection:	Per EN 60947-5-2		(0.5% after 30 min. warm up)

We reserve the right to make technical alterations without prior notice.

Analog Sensors | EH04, EG05, EH6.5, & EG08

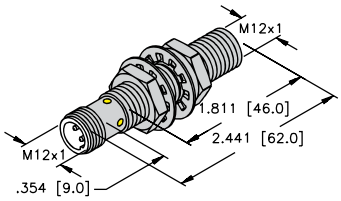
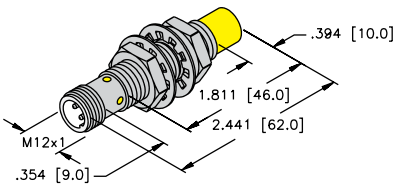
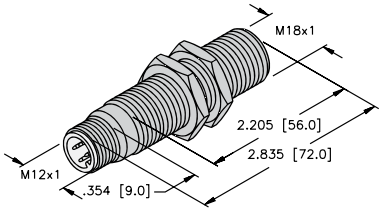
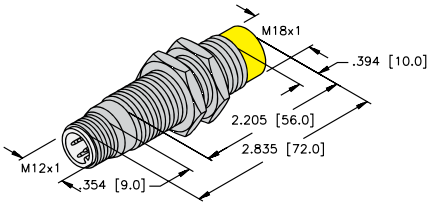
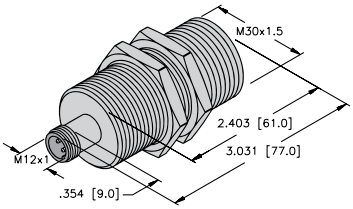
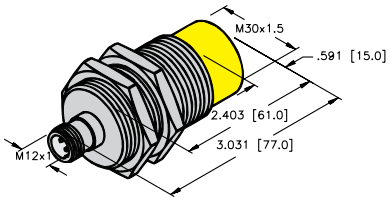
Picoprox Barrel Styles

Part Number/ ID Number	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-EH04-0.3-M12-SIU-H1141 1533001	0.1-1.5	200	N/A	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	SS	PA 12	A	1	A7
Bi1.5-EG05-0.3-M12-SIU-H1141 1533005	0.1-1.5	200	N/A	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	SS	PA 12	B	1	A7
Bi1.5-EH6.5-LU 1533002	0.25-1.25	200	0.03	3-wire DC Voltage	15-30 VDC	0-10 V	-10 to +70	IP67	4, N/A	SS	PA 12	C	2	A8
Bi1.5-EG08-LU 1533003	0.25-1.25	200	0.03	3-wire DC Voltage	15-30 VDC	0-10 V	-10 to +70	IP67	4, N/A	SS	PA 12	D	2	A8
Bi1.5-EG08-LU-H1341 1533004	0.25-1.25	200	0.03	3-wire DC Voltage	15-30 VDC	0-10 V	-10 to +70	IP67	4, N/A	SS	PA 12	E	3	A8

We reserve the right to make technical alterations without prior notice.

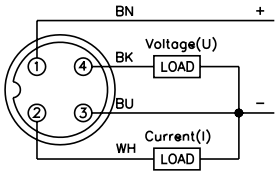
Analog Sensors | M12, M18, & M30

Threaded Barrel Styles with Connector

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable M12 Eurofast Connection	B  12 mm - Nonembeddable M12 Eurofast Connection
C  18 mm - Embeddable M12 Eurofast Connection	D  18 mm - Nonembeddable M12 Eurofast Connection	E  30 mm - Embeddable, M12 Eurofast Connection
F  30 mm - Nonembeddable, M12 Eurofast Connection		

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B| (0.5% after 30 min. warm up)
Temperature Drift:	±0.06% / °C		
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

We reserve the right to make technical alterations without prior notice.

Analog Sensors | M12, M18, & M30

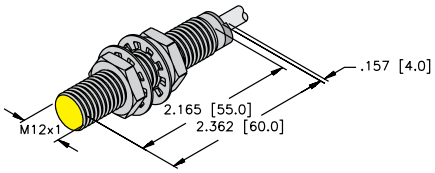
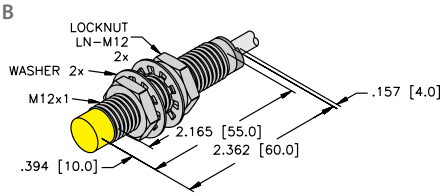
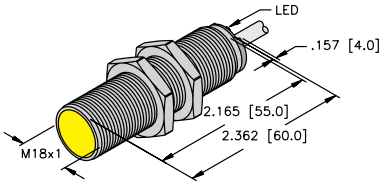
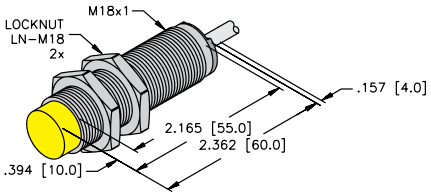
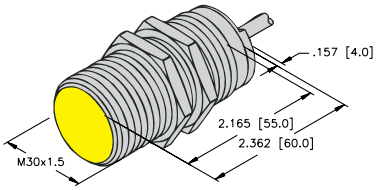
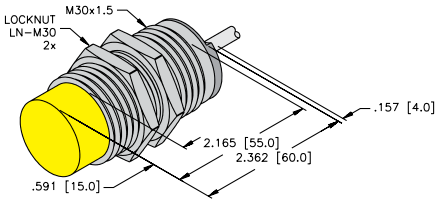
Threaded Barrel Styles with Connector

Part Number/ ID Number	Features	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-M12-LIU-H1141 1535533		1-2.5	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	A	1	A7
Bi4-M12-LIU-H1141 1535531	Ext. Range	0.5-3	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	A	1	A7
Ni5-M12-LIU-H1141 1535535		0.5-4	100	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	B	1	A7
Bi5-M18E-LIU-H1141 1536205		2-4	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	C	1	A7
Bi8-M18E-LIU-H1141 1535561	Ext. Range	1-5	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	C	1	A7
Ni8-M18E-LIU-H1141 1536302		1-5	100	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	D	1	A7
Ni10-M18E-LIU-H1141 1535562	Ext. Range	1-7	100	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	D	1	A7
Bi10-M30E-LIU-H1141 1537003		3-8	140	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	CPB	PA 12	E	1	A7
Bi15-M30E-LIU-H1141 1535563	Ext. Range	2-10	140	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	CPB	PA 12	E	1	A7
Ni15-M30E-LIU-H1141 1535564		2-12	60	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	1.2, 2.4	CPB	PA 12	F	1	A7

We reserve the right to make technical alterations without prior notice.

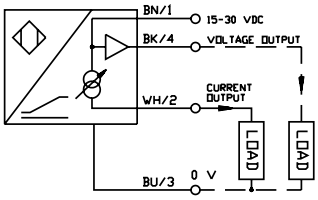
Analog Sensors | M12, M18, & M30

Threaded Barrel Styles with Cable

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable, Potted-In Cable	B  12 mm - Nonembeddable, Potted-In Cable
C  18 mm - Embeddable, Potted-In Cable	D  18 mm - Nonembeddable, Potted-In Cable	E  30 mm - Embeddable, Potted-In Cable
F  30 mm - Nonembeddable, Potted-In Cable		

Wiring Diagrams/Mating Cordsets

1



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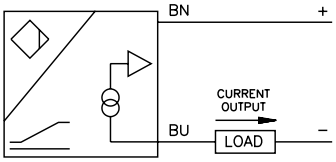


A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B| (0.5% after 30 min. warm up)
Temperature Drift:	±0.06% / °C		
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A9 — 2-wire DC Analog NAMUR - (LI-EXI)

Ripple:	≤10%	Temperature Drift:	≤±0.06% °C
Current Output:	4-20 mA	Shock:	30 g, 11 ms
Nominal Voltage:	8.2 VDC (EN60947-5-6)	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Power-On Effect:	Realized in Amplifier	Repeatability:	≤1% of measuring range |A-B| (0.5% after 30 min. warm up)
Reverse Polarity Protection:	Incorporated		
Wire-Break Protection:	No		
Transient Protection:	Realized in Amplifier		

We reserve the right to make technical alterations without prior notice.

Analog Sensors | M12, M18, & M30

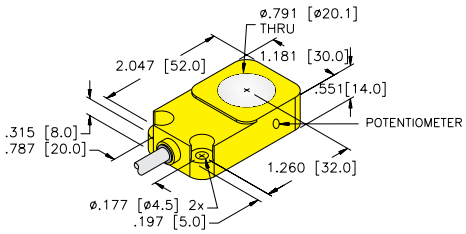
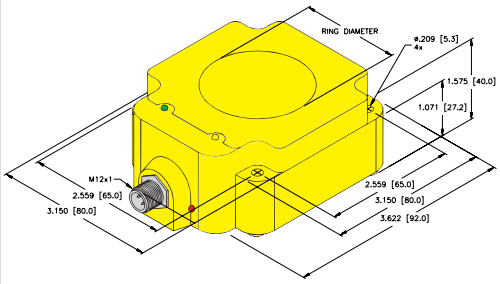
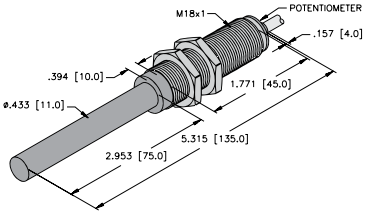
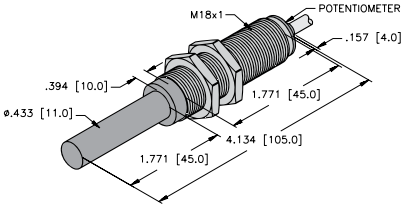
Threaded Barrel Styles with Cable

Part Number/ ID Number	Features	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-M12-LIU 1535532	Ext. Range	0.5-3	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	2M/ PVC	A	1	A7
Ni5-M12-LIU 1535536		0.5-4	100	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	2M/ PVC	B	1	A7
Bi5-M18-LIU 1536000		2-4	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	2M/ PVC	C	1	A7
Bi8-M18-LIU 1535538	Ext. Range	1-5	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	2M/ PVC	C	1	A7
Bi8-M18-LI-EXI 1535528	Ext. Range, Use Barriers IM33-11EX-HI or IM43-13-SR	1-5	200	0.05	2-wire DC Current	14-30 VDC	4-20 mA	-10 to +70	IP67	N/A, 8	CPB	PA 12	2M/ PVC	C	2	A9
Ni8-M18-LIU 1536100	Ext. Range	1-5	100	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	2M/ PVC	D	1	A7
Ni10-M18-LIU 1535540	Ext. Range	1-7	100	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	2M/ PVC	D	1	A7
Bi10-M30-LIU 1535500		3-8	140	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	CPB	PA 12	2M/ PVC	E	1	A7
Bi15-M30-LIU 1535543	Ext. Range	2-10	140	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	CPB	PA 12	2M/ PVC	E	1	A7
Bi15-M30-LI-EXI 1535554	Ext. Range, Use Barriers IM33-11EX-HI or IM43-13-SR	2-10	140	0.05	2-wire DC Current	14-30 VDC	4-20 mA	-10 to +70	IP67	N/A, 4.48	CPB	PA 12	2M/ PVC	E	2	A9
Ni15-M30-LIU 1535300	Ext. Range	2-12	60	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	1.2, 2.4	CPB	PA 12	2M/ PVC	F	1	A7

We reserve the right to make technical alterations without prior notice.

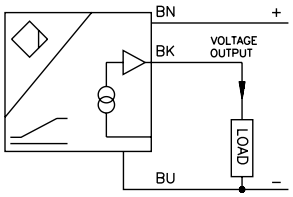
Analog Sensors | Q14, Q80, & M18

Probe and Ring Style Housings

Housing Style	Dimension Drawings	
	A  14 mm - Embeddable, Ring Sensor, Potted-In Cable	B  80 mm - Embeddable, M12 Eurofast Connection
C  18 mm - Embeddable, Probe Style, Potted-In Cable	D  18 mm - Embeddable, Probe Style, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1



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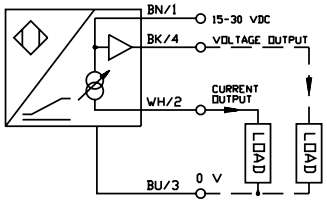

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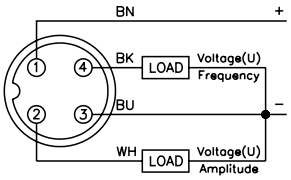


Mating Cordset: RK 4.4T

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A8 — 3 and 4-wire DC Analog - (LU)

Ripple:	≤10%	Short-Circuit Protection:	Yes
No-Load Current:	≤8.0 mA	Wire-Break Protection:	Yes
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Shock:	30 g, 11 ms
Temperature Drift:	±0.06% / °C	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Reverse Polarity Protection:	Incorporated	Repeatability:	≤1% of measuring range |A-B|
Transient Protection:	Per EN 60947-5-2		(0.5% after 30 min. warm up)

We reserve the right to make technical alterations without prior notice.

Analog Sensors | Q14, Q80, & M18

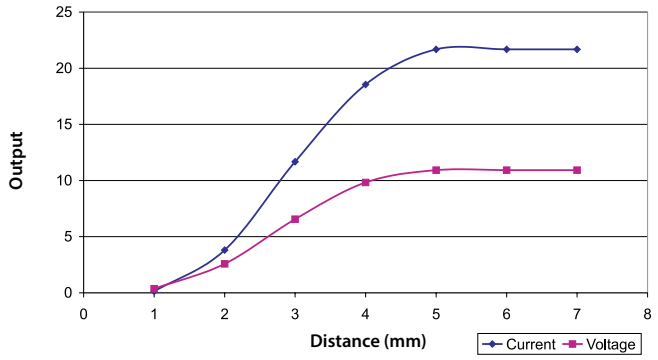
Probe and Ring Style Housings

Part Number/ ID Number	Features	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi20R-Q14-LU 1535546		1-19	80	N/A	3-wire DC Voltage	15-30 VDC	0-10 V	-25 to +70	IP67	2.8, N/A	PBT	PBT	2M/ PVC	A	1	A8
Bi50R-Q80-2LU-H1141/S950 1534609	All Metal Detection	N/A	80	N/A	4-wire DC Voltage	15-30 VDC	0-10 VDC Ampli-tude, 1-10 VDC Phase	-25 to +70	IP67	1.6	PBT	PBT	- -	B	3	A8
Wi70-M18-LIU5 1536600		0-70	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/4-20 mA	-10 to +70	IP67	4, 6.4	CPB	PA 12	2M/ PVC	C	2	A7
Wi40-M18-LIU5 1536603		0-40	40	0.02	4-wire DC Current or Voltage	15-30 VDC	0-10 V/4-20 mA	-10 to +70	IP67	0.8, 1.2	CPB	PA 12	2M/ PVC	D	2	A7

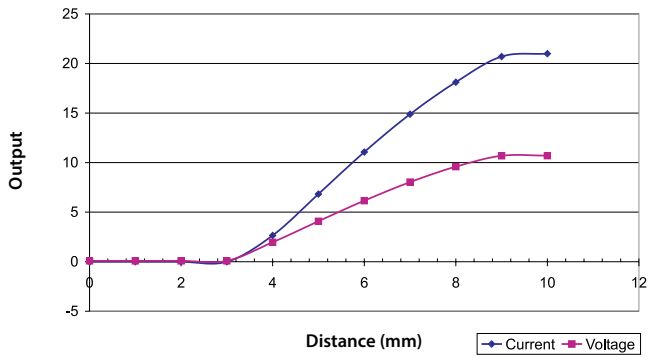
We reserve the right to make technical alterations without prior notice.

Analog Sensors

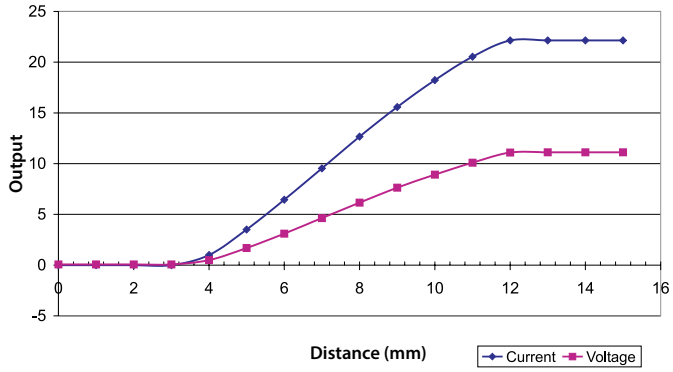
Bi7-Q08-LIU



Bi10-Q14-LIU-H1141



Bi15-Q20-LIU-H1141



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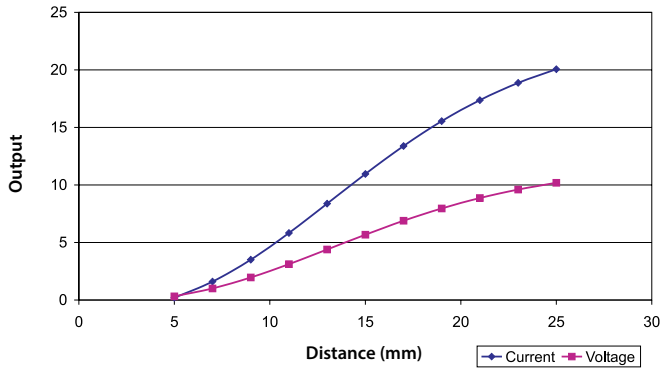

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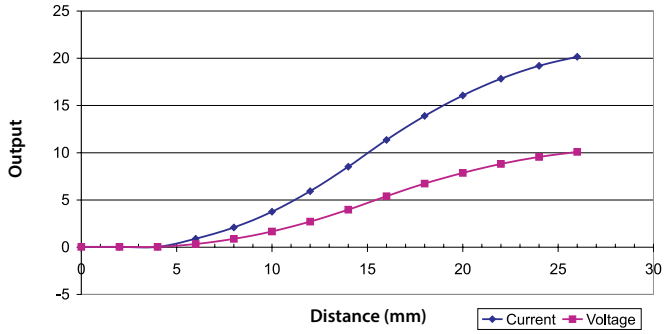

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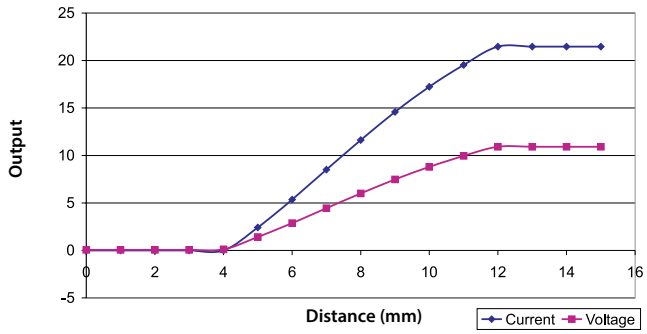

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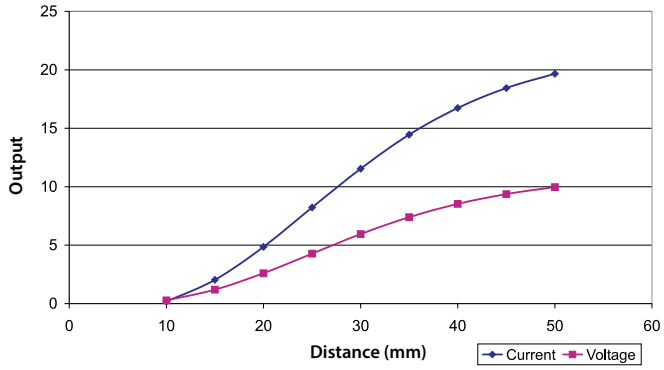

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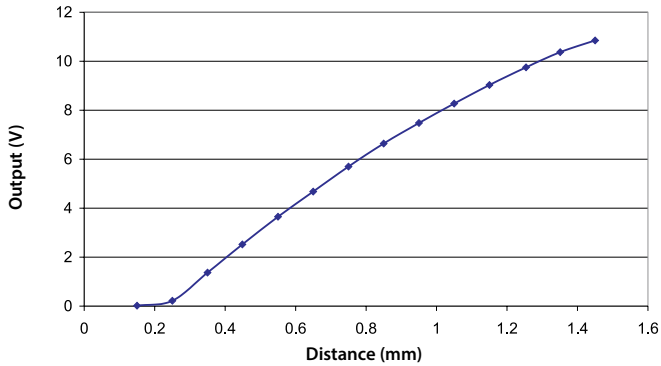

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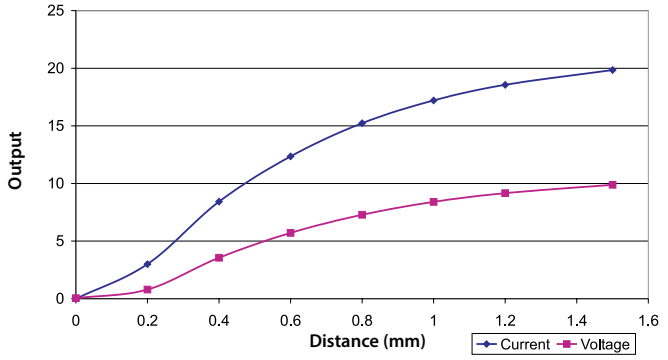
Analog Sensors

Bi1.5-EH04-0.3-M12-SIU-H1141



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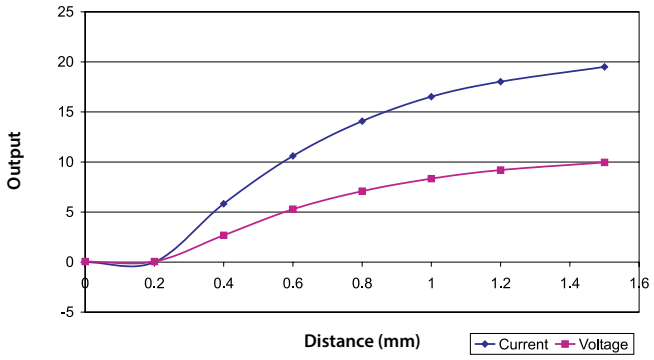

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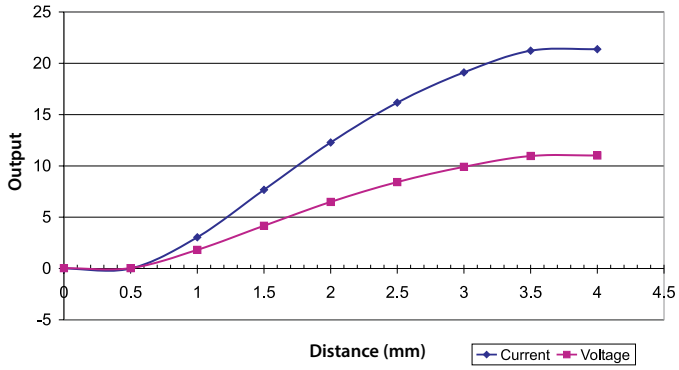

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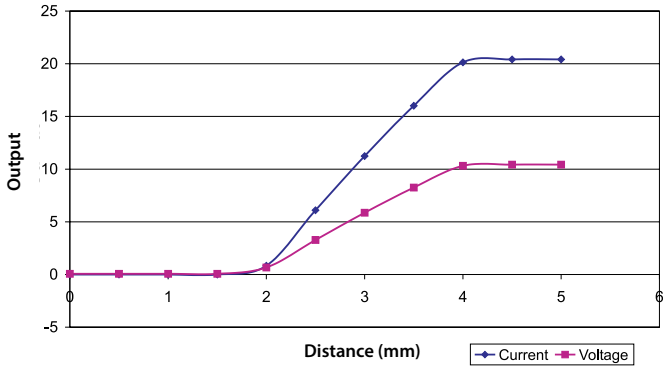

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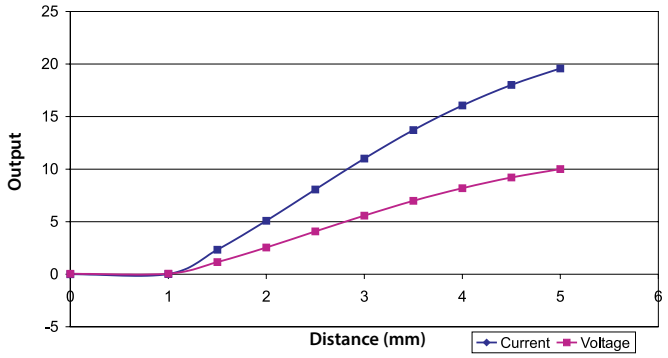

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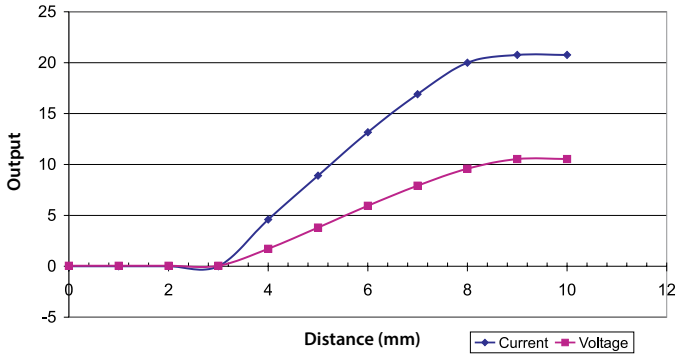

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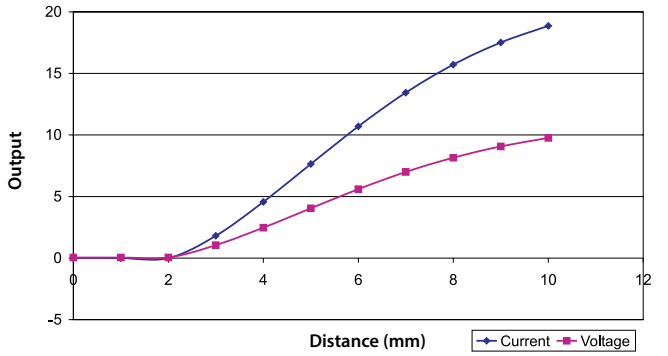

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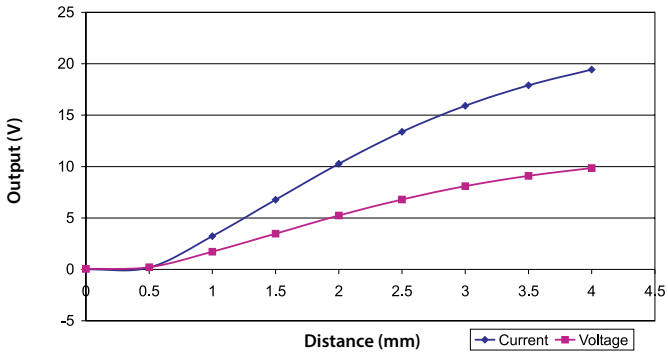
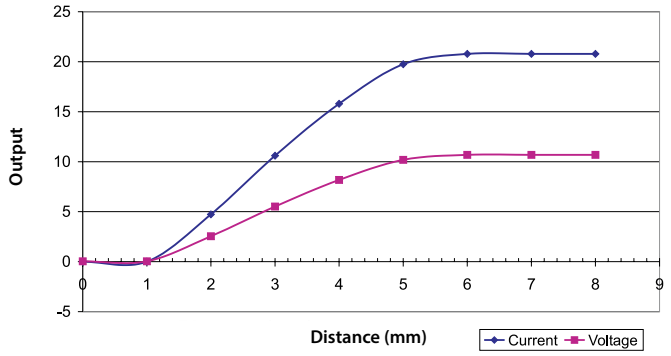
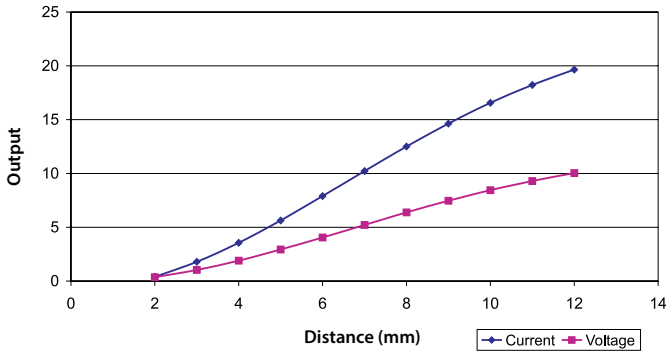


We reserve the right to make technical alterations without prior notice.

Ni8-M18-LIU...



Ni15-M30-LIU...



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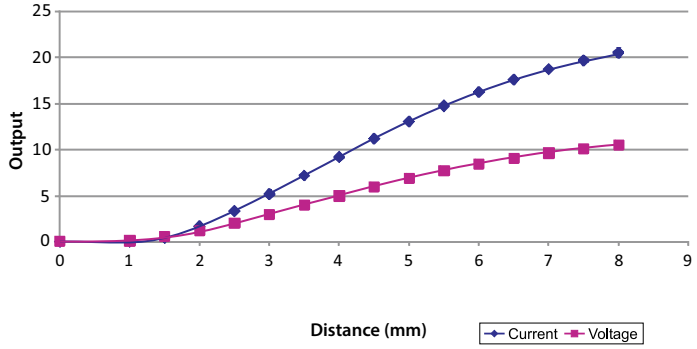
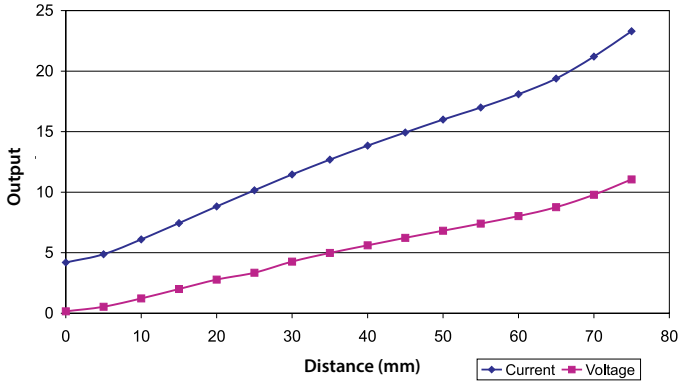
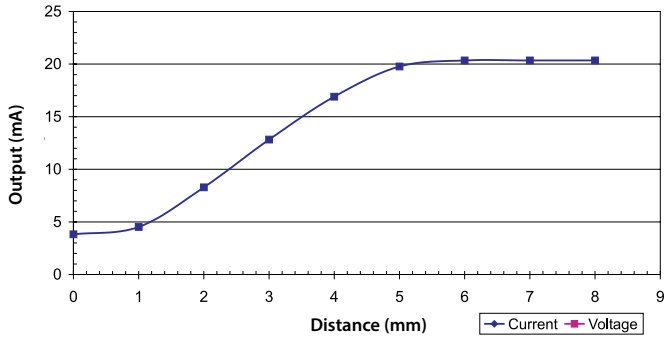


Wi70-M18-LIU5



Bi 8-M18-Li Exi



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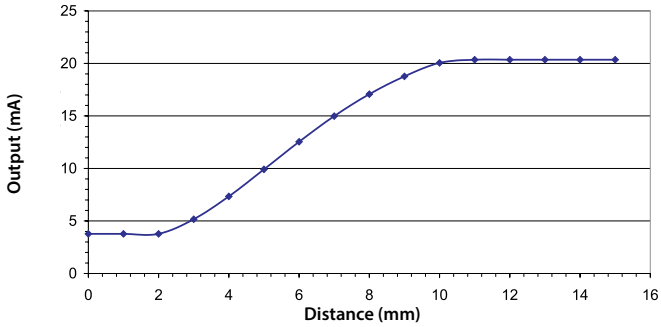
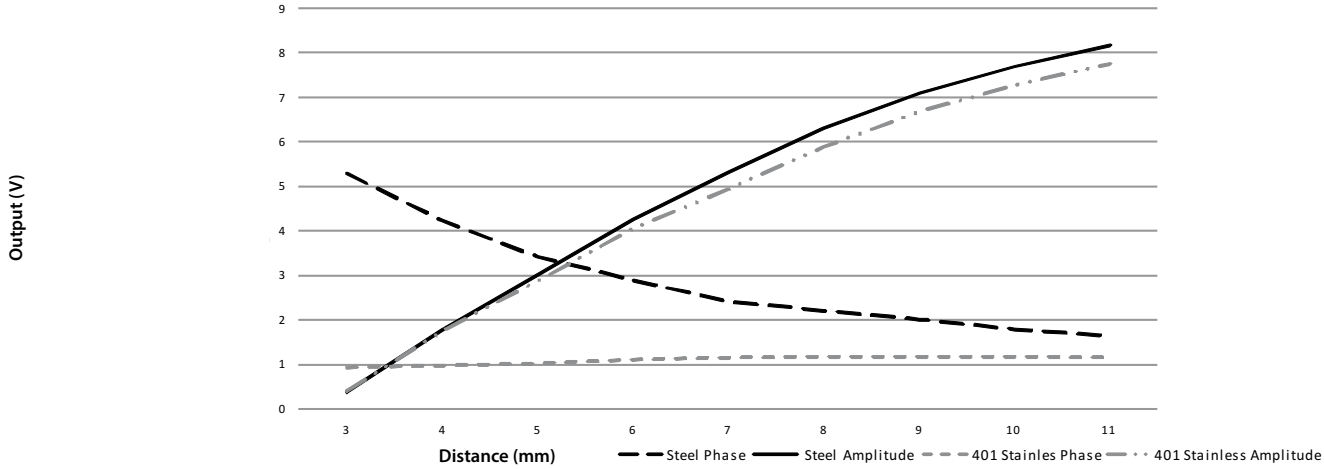


Bi15-Q20-2LU-H1141/S950



We reserve the right to make technical alterations without prior notice.

Notes

Capacitive Sensor Selection Guide

Embeddable/Nonembeddable Rectangular					
Housing	5.5 mm	8 mm	10 mm	14 mm	20 mm
Sensing Range	5 - 10 mm	5 mm	8 mm	10 - 15 mm	10 - 20 mm
Pages	E3	E5	E5	E7	E9

Embeddable/Nonembeddable Rectangular and Barrels					
Housing	40 mm	80 mm	12 mm	12 mm	18 mm
Sensing Range	20 - 30 mm	50 mm	3 mm	3 - 4.5 mm	5 mm
Pages	E11	E11	E13	E13	E15

Embeddable/Nonembeddable Barrels					
Housing	18 mm	18 mm BCT	30 mm BCT	30 mm	30 mm
Sensing Range	5 - 7.5 mm	5 - 7.5 mm	10 - 15 mm	10 mm	10 - 15 mm
Pages	E17	E19	E19	E21 - 24	E25 - 28

Embeddable/Nonembeddable Plastic Barrels			
			IS
Housing	34 mm	40 mm	Variable
Sensing Range	15 - 23 mm	20 - 30 mm	5 - 10 mm
Pages	E29 - 34	E29 - 32	E35

We reserve the right to make technical alterations without prior notice.

Capacitive Sensor Part Number Key

B	C	10	-	K	40	SR	-	F	Z	3	X2	T	Wiring Options*	Special Option Codes**

Mounting
B = embeddable
N = nonembeddable

Principle of Operation
C = capacitive
CC = capacitive (low dielectric targets)
CF = capacitive (noise immune)
CT = capacitive teach

Rated Operating Distance (mm)

Housing Style
Barrel - Metal
M = partial threading, chrome plated brass
Barrel - Plastic
K = smooth
KT = PVDF, smooth
P = full threading
PT = PVDF, full threading
S = partial threading
Rectangular
Q = metal or plastic, various rectangular styles
QF = plastic, Polypropylene rectangular style

Housing Diameter or Height (mm)

Teach Button

Number of LEDs
(blank) = no LEDs
X = 1 LED
X2 = 2 LEDs

Voltage Range
AC/DC: (No SCP)**
3 = 20-250 VAC
DC:
4 = 10-65 VAC, polarity protected, pulsed SCP**
6 = 10-30 VAC, polarity protected, pulsed SCP
DC:
4 = 10-65 VDC, polarity protected, pulsed SCP**
6 = 10-30 VDC, polarity protected, pulsed SCP
**SCP = short-circuit and overload protection

Output
N = NPN transistor (current sinking)
P = PNP transistor (current sourcing)
Z = 2-wire AC or 2-wire AC/DC

Output Function
A = normally open (N.O.)
F = connection programmable (N.O. or N.C.)
R = normally closed (N.C.)
V = complementary outputs: one N.O., one N.C.
Y0 = NAMUR output, requires switching amplifier
Y1 = NAMUR output, requires switching amplifier/ATEX approved

Secondary Housing Modifier
SR = straight terminal chamber

NOTE:
Part Number Keys are to assist in identification only.
Verify new part numbers with factory;
Some configurations are not possible.

We reserve the right to make technical alterations without prior notice.

Wiring Options*

A. Connectorized Sensor

BC10 - M30 - AP4X - H1 1 4 1

Connector Family
B1 = Minifast®, Metal, Male
B2 = Minifast, Plastic, Male
B3 = Microfast®, Metal, Male
H1 = Eurofast®, Metal or Plastic, Male
V1 = Picofast®, Metal, Male

Connector/Sensor Transition
1 = straight

Number of Pins

Wiring Configuration
Example:
1 = Standard
3 = N.C. DC Output on Pin 4 (for US)

B. Potted Cable

BC5 - S18 - AP4X - 7M

Cable Length
Blank = 2 Meter cable
7M = 7 Meter cable

Special Option Codes**

BC10 - Q14 - AN4X - /S250

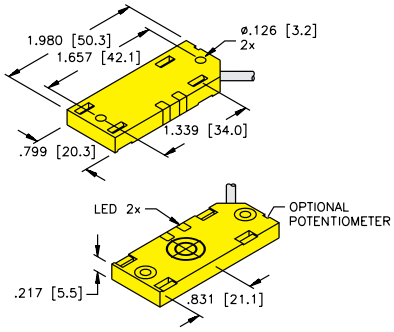
Option Code
Example:
/S250 = No Potentiometer
/S400 = Rear LEDs (for Q14 and Q20 only)

Capacitive Sensors | QF5.5

Top Sensing Thin Qpak Housing with DC Outputs

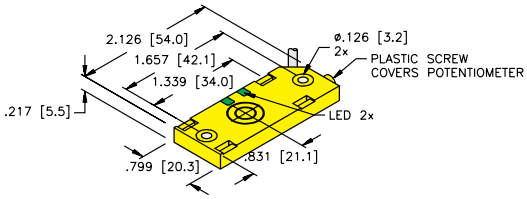
Housing Style	Dimension Drawings

A



5.5 mm - Potted-In Cable

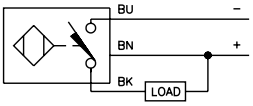
B



5.5 mm - Potted-In Cable, w/Potentiometer Cover

Wiring Diagrams/Mating Cordsets

1



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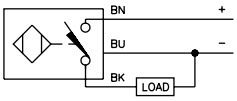

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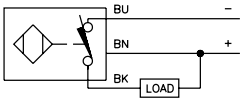

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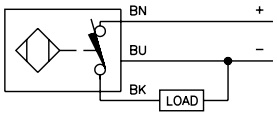


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | QF5.5

Top Sensing Thin Qpak Housing with DC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC5-QF5.5-AN6X2/S250 2620120		5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	1	A11
BC10-QF5.5-AN6X2 2620121		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	1	A11
BC10-QF5.5-AN6X2/S250 2620119		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	1	A11
BC10-QF5.5-RN6X2 2620128	Normally Closed	10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	3	A11
BC5-QF5.5-AP6X2/S250 2620116		5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	2	A11
BC5-QF5.5-RP6X2/S250 2620127	Normally Closed	5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	4	A11
BC10-QF5.5-AP6X2 2620117		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	2	A11
BC10-QF5.5-AP6X2/S250 2620115		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	2	A11
BC10-QF5.5-RP6X2 2620126	Normally Closed	10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	4	A11
BC10-QF5.5-RP6X2/S250 2620124	Normally Closed	10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	4	A11
BC10-QF5.5-AN6X2/S932 2620137		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	B	1	A11
BC10-QF5.5-RN6X2/S932 2620140	Normally Closed	10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	B	3	A11
BC10-QF5.5-AP6X2/S932 2620109		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	B	2	A11
BC10-QF5.5-RP6X2/S932 2620141	Normally Closed	10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	B	4	A11

Notes:

/S250: Without switch point adjustment potentiometer

/S932: Adjustment potentiometer with protective cover, and non-metallic mounting bushing

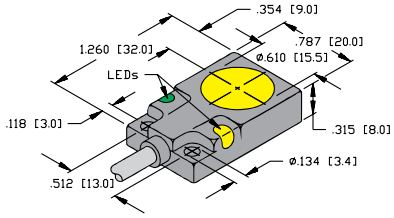
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q08 & Q10

Top Sensing Qpak Housing with DC Outputs

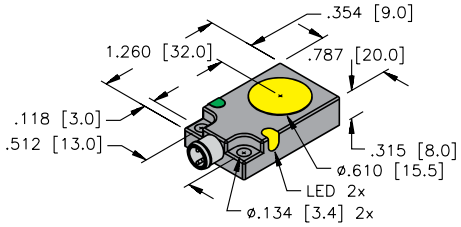
Housing Style	Dimension Drawings

A



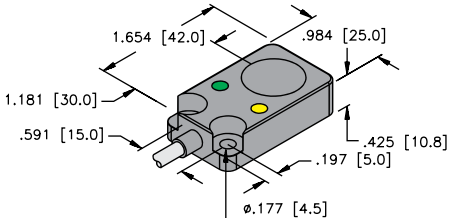
8 mm - Potted-In Cable

B



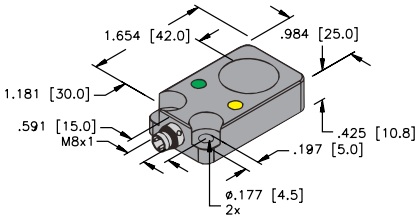
8 mm - Picofast Connector

C



10 mm - Potted-In Cable

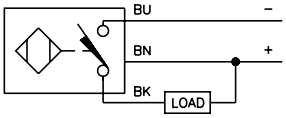
D



10 mm - Picofast Connector

Wiring Diagrams/Mating Cordsets

1



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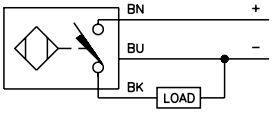

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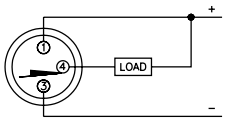
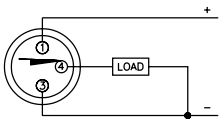


Mating Cordset: PKG 3Z-*

4



Mating Cordset: PKG 3Z-*; PKG 3M-*

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q08 & Q10

Top Sensing Qpak Housing with DC Outputs

Part Number/ ID Number	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC5-Q08-AN6X2/S250 26201	5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	A	1	A11
BC5-Q08-AP6X2/S250 26200	5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	A	2	A11
BC5-Q08-AN6X2-V1131/S250 26211	5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	--	B	3	A11
BC5-Q08-AP6X2-V1131/S250 26210	5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	--	B	4	A11
BC8-Q10-AN6X2/S250 2621203	8	8	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	--	GN	YE	2M/PVC	C	1	A11
BC8-Q10-AP6X2/S250 2621200	8	8	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	--	GN	YE	2M/PVC	C	2	A11
BC8-Q10-AP6X2-V1131/S250 2621201	8	8	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	--	GN	YE	--	D	4	A11

Notes:

/S250: Without switch point adjustment potentiometer

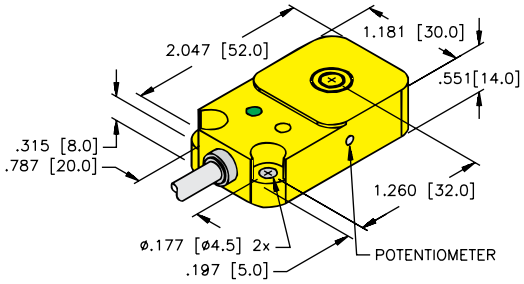
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q14

Top Sensing Qpak Housing with DC Outputs

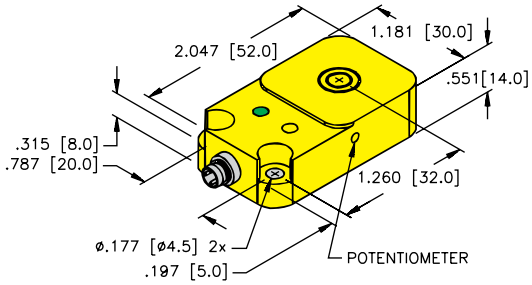
Housing Style	Dimension Drawings

A



14 mm - Potted-In Cable

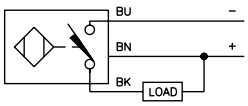
B



14 mm - Picofast Connector

Wiring Diagrams/Mating Cordsets

1



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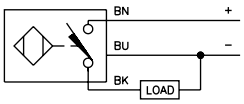

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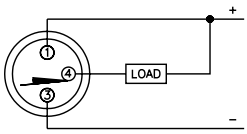
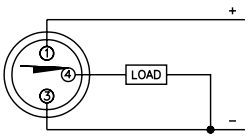


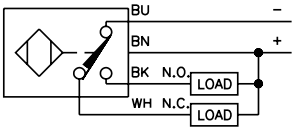
Mating Cordset: PKG 3M-*

4



Mating Cordset: PKG 3M-*

5



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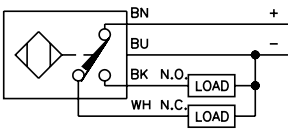


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q14

Top Sensing Qpak Housing with DC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC10-Q14-AN4X2 2530010		10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	1	A11
BC10-Q14-AP4X2 2530001		10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	2	A11
BC10-Q14-VN4X2 2530030	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	5	A11
BC10-Q14-VP4X2 2530020	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	6	A11
BC10-Q14-AN4X2-V1131 2530011		10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	3	A11
BC10-Q14-AN4X2-V1131/S400 2530006	Rear LED	10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	3	A11
BC10-Q14-AP4X2-V1131 2530002		10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	4	A11
BC10-Q14-AP4X2-V1131/S400 2530004	Rear LED	10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	4	A11

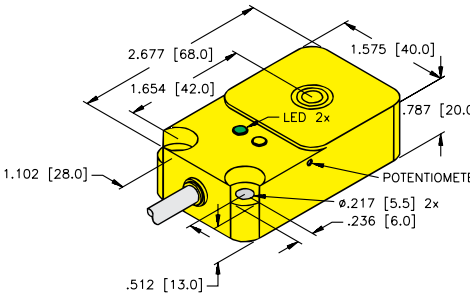
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q20

Top Sensing Qpak Housing with DC or AC Outputs

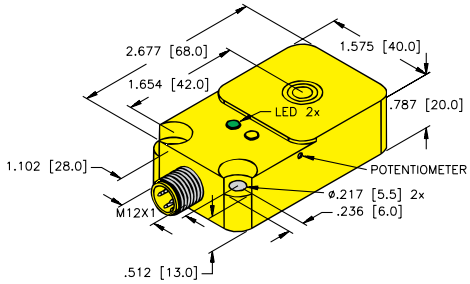
Housing Style	Dimension Drawings

A



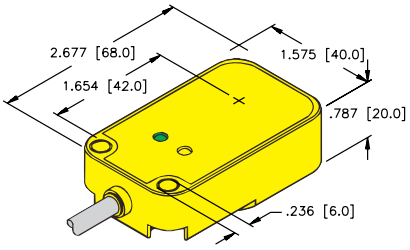
20 mm - Potted-In Cable

B



20 mm - Eurofast Connector

C



20 mm - Potted-In Cable

Wiring Diagrams/Mating Cordsets

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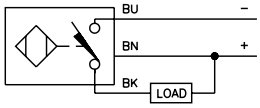

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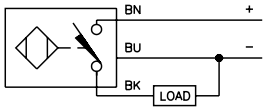

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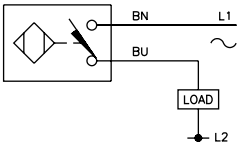

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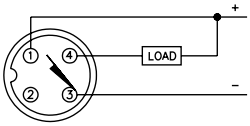
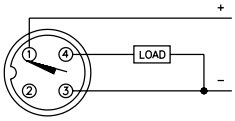


Mating Cordset: RK 4T-*

5



Mating Cordset: RK 4T-*

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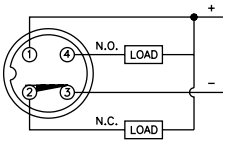
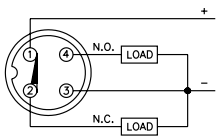


Mating Cordset: RK 4.4T-*

7



Mating Cordset: RK 4.4T-*

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q20

Top Sensing Qpak Housing with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC20-Q20-AN4X2 2530110		20	30	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	1	A11
BC20-Q20-AN4X2/S400 2530104	Rear LED	20	30	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	C	1	A11
BC20-Q20-AP4X2 2530100		20	30	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	2	A11
BC20-Q20-AZ3X2 4352000		20	30	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	3	A12
BC20-Q20-AZ3X2/S400 2310005	Rear LED	20	30	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	C	3	A12
BC20-Q20-AN4X2-H1141 2530111		20	30	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	4	A11
BC20-Q20-AP4X2-H1141 2530101		20	30	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	5	A11
BC20-Q20-AP4X2-H1141/S400 2530103	Rear LED	20	30	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	5	A11
BC20-Q20-VN4X2-H1141 2530131	Comp. Outputs	20	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	6	A11
BC20-Q20-VN4X2-H1141/S400 2530124	Rear LED, Comp. Outputs	20	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	6	A11
BC20-Q20-VP4X2-H1141 2530121	Comp. Outputs	20	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	7	A11

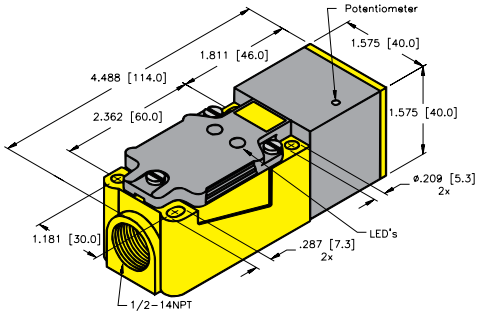
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | CP40 & CP80

Large Rectangular Housing with DC or AC Outputs

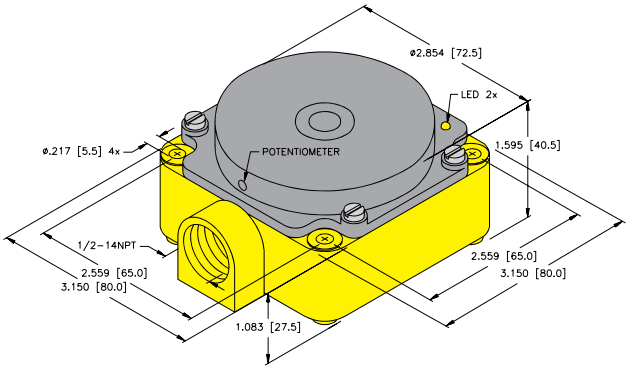
Housing Style	Dimension Drawings

A



40 mm - Terminal Chamber

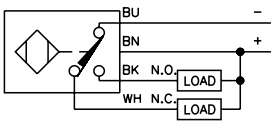
B



80 mm - Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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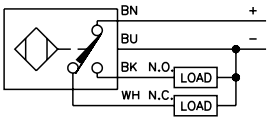

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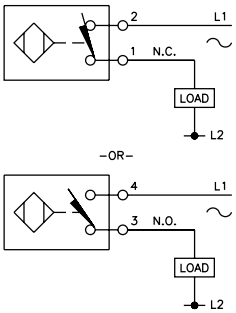


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, FZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | CP40 & CP80

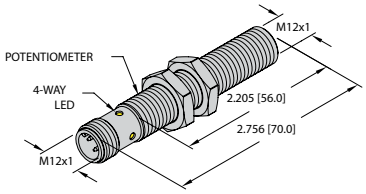
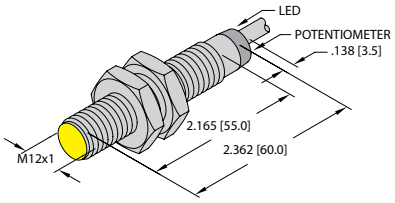
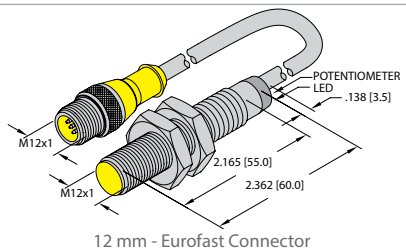
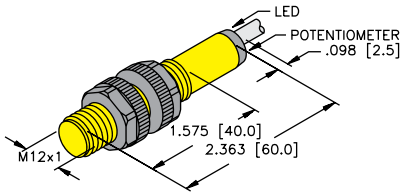
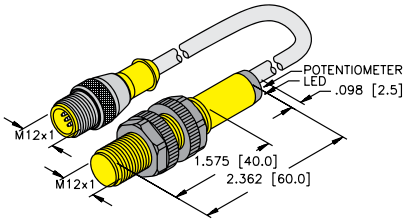
Large Rectangular Housing with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BC20-CP40-VN4X2/S10 25157	Comp. Outputs	20	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	A	1	A11
BC20-CP40-VP4X2/S10 25156	Comp. Outputs	20	30	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	A	2	A11
BC20-CP40-FZ3X2/S10 23115	Prog. Outputs	20	30	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	GN	YE	A	3	A12
NC50-CP80-VN4X2/S10 2580112	Comp. Outputs	NA	50	4-wire DC NPN	10-65 VDC	200	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	B	1	A11
NC50-CP80-VP4X2/S10 2580212	Comp. Outputs	NA	50	4-wire DC PNP	10-65 VDC	200	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	B	2	A11
NC50-CP80-FZ3X2/S10 2310610	Prog. Outputs	NA	50	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	GN	YE	B	3	A12

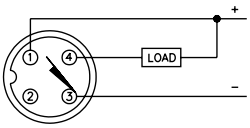
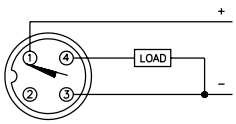
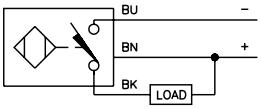
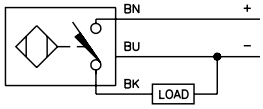
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 12 mm

Threaded Barrel with DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Eurofast Connector	B  12 mm - Potted-In Cable
C  12 mm - Eurofast Connector	D  12 mm - Potted-In Cable	E  12 mm - Eurofast Connector

Wiring Diagrams/Mating Cordsets

1	2	3	4
 Mating Cordset: RK 4T-*	 Mating Cordset: RK 4T-*		

A11 — **3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)**

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 12 mm

Threaded Barrel with DC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC3-M12-AP6X-H1141 2601011		3	3	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	CPB	ABS	--	N/A	YE	--	A	2	A11
BC3-M12-AN6X 2601100		3	3	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	CPB	ABS	PA	N/A	YE	2M/ PVC	B	3	A11
BC3-M12-AP6X 2601000		3	3	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	CPB	ABS	PA	N/A	YE	2M/ PVC	B	4	A11
BC3-M12-AN6X-0.2-RS4T 2601190		3	3	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	CPB	ABS	PA	N/A	YE	0.2M/ PVC	C	1	A11
BC3-M12-AP6X-0.2-RS4T 2601091		3	3	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	CPB	ABS	PA	N/A	YE	0.2M/ PVC	C	2	A11
BC3-S12-AN6X 2601300		3	4.5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 12-GF30	PA	N/A	YE	2M/ PVC	D	3	A11
BC3-S12-AP6X 2601200		3	4.5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 12-GF30	PA	N/A	YE	2M/ PVC	D	4	A11
BC3-S12-AP6X/S100 2601201	High Temp. 100 °C	3	4.5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +100	IP67	PA 12-GF30	PA 12-GF30	PA	N/A	YE	2M/ PVC	D	4	A11
BC3-S12-AN6X-0.2-RS4T 2601390		3	4.5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 12-GF30	PA	N/A	YE	0.2M/ PVC	E	1	A11
BC3-S12-AP6X-0.2-RS4T 2601291		3	4.5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 12-GF30	PA	N/A	YE	0.2M/ PVC	E	2	A11

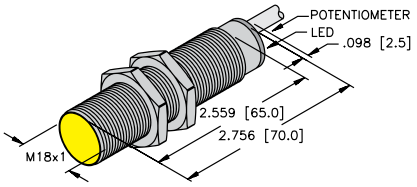
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 mm

Metal Threaded Barrel with DC or AC Outputs

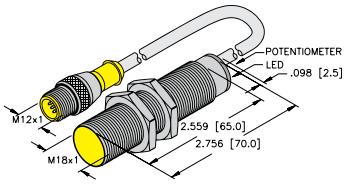
Housing Style	Dimension Drawings

A



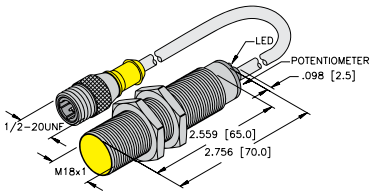
18 mm - Potted-In Cable

B



18 mm - Eurofast Connector

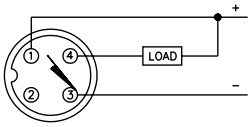
C



18 mm - Microfast Connector

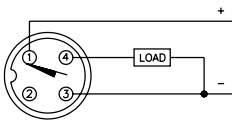
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

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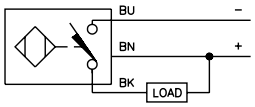

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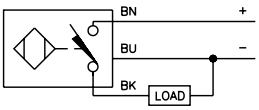
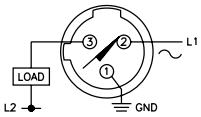
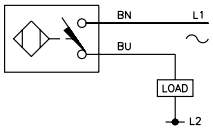


5



Mating Cordset: KB 3T-*

6



A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, FZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 mm

Metal Threaded Barrel with DC or AC Outputs

Part Number/ ID Number	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC5-M18-AN4X 2504002	5	5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	2M/PVC	A	3	A11
BC5-M18-AP4X 2504001	5	5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	2M/PVC	A	4	A11
BC5-M18-AZ3X 2305000	5	5	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	2M/PVC	A	6	A12
BC5-M18-AN4X-0.2-RS4T 2504091	5	5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	0.2M/ PVC	B	1	A11
BC5-M18-AP4X-0.2-RS4T 2504090	5	5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	0.2M/ PVC	B	2	A11
BC5-M18-AZ3X-0.2-SB3T 2305090	5	5	2-wire AC	20-250 AC	20	≤500	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	0.2M/ PVC	C	5	A12

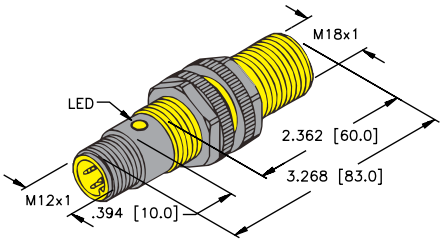
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 mm

Metal Threaded Barrel with DC or AC Outputs

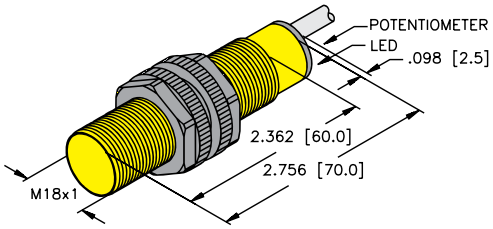
Housing Style	Dimension Drawings

A



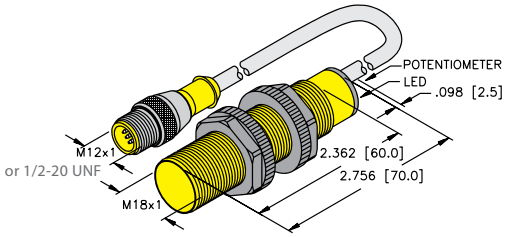
18 mm - Eurofast Connector

B



18 mm - Potted-In Cable

C



18 mm - Molded Connector

Wiring Diagrams/Mating Cordsets

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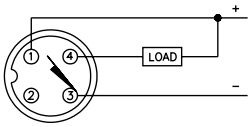
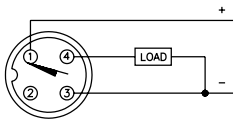


Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

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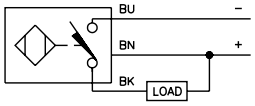

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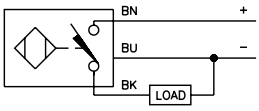

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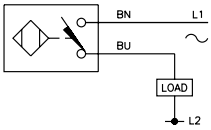

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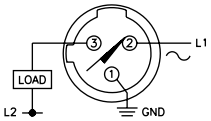


Mating Cordset: KB 3T-*

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, FZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 mm

Metal Threaded Barrel with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC5-S18-AN4X-H1141/S250 2503108		5	7.5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	--	A	1	A11
BC5-S18-AP4X-H1141/S250 2503602		5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	--	A	2	A11
BC5-S18-AN4X 25031		5	7.5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	3	A11
BCF5-S18-AN4X 2503012	Noise Immune	5	7.5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	3	A11
BC5-S18-AP4X 25030		5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	4	A11
BCF5-S18-AP4X 2503011	Noise Immune	5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	4	A11
BCF5-S18-AP4X/S90 2503014	Noise Immune	5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PUR	B	4	A11
BC5-S18-AN4X-0.2-RS4T 2503192		5	7.5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	0.2M/PVC	C	1	A11
BCF5-S18-AN4X-0.2-RS4T 2503089	Noise Immune	5	7.5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	0.2M/PVC	C	1	A11
BC5-S18-AP4X-0.2-RS4T 2503492		5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	0.2M/PVC	C	2	A11
BCF5-S18-AP4X-0.2-RS4T 2503099	Noise Immune	5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	0.2M/PVC	C	2	A11
BC5-S18-AZ3X 2305500		5	7.5	2-wire AC	20-250 VAC	20	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	5	A12
BC5-S18-AZ3X-0.2-SB3T 2305590		5	7.5	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PA12-GF30	PUR	N/A	YE	0.2M/PVC	C	6	A12

Notes:

/S250: Without switch point adjustment potentiometer

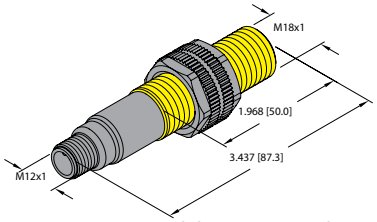
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 & 30 mm

Plastic Threaded Barrels Configurable via IO-Link/Teach

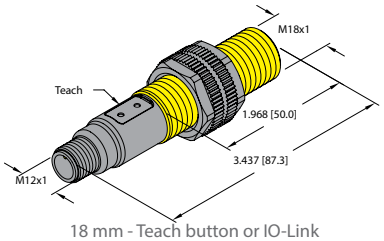
Housing Style	Dimension Drawings

A



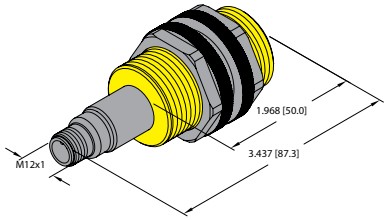
18 mm - Teach-by-wire or IO-Link

B



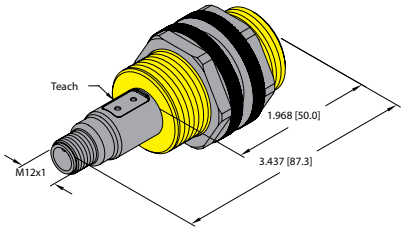
18 mm - Teach button or IO-Link

C



30 mm - Teach-by-wire or IO-Link

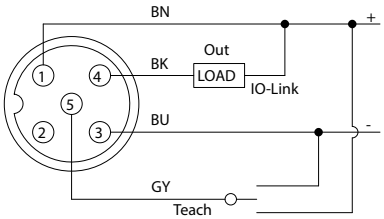
D



30 mm - Teach button or IO-Link

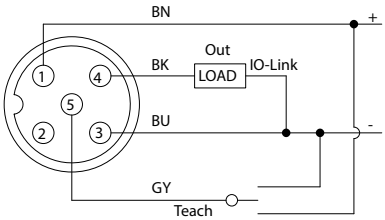
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.5T-*

2



Mating Cordset: RK 4.5T-*

A18 — 5-wire DC Teach Capacitive - (UP, UN)

Ripple:	≤10%
Differential Travel (Hysteresis):	2-20% (5% typical)
Voltage Drop Across Conducting Sensor:	≤2.4 V
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance
Temperature Drift:	<±20% of Rated Operating Distance
IO-Link:	V1.1

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 & 30 mm

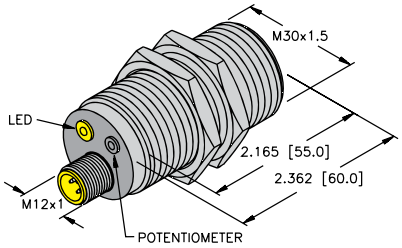
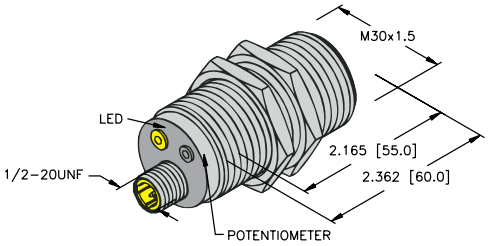
Plastic Threaded Barrels Configurable via IO-Link/Teach

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BCT5-S18-UP6X2-H1151 2101300	Teach-by-wire or IO-Link	5	7.5	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	A	1	A18
BCT5-S18-UN6X2-H1151 2101400	Teach-by-wire or IO-Link	5	7.5	4-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	A	2	A18
BCT5-S18-UP6X2T-H1151 2101100	Teach buttons or IO-Link	5	7.5	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	B	1	A18
BCT5-S18-UN6X2T-H1151 2101200	Teach buttons or IO-Link	5	7.5	4-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	B	2	A18
BCT10-S30-UP6X2-H1151 2101700	Teach-by-wire or IO-Link	10	15	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	C	1	A18
BCT10-S30-UN6X2-H1151 2101800	Teach-by-wire or IO-Link	10	15	4-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	C	2	A18
BCT10-S30-UP6X2T-H1151 2101500	Teach buttons or IO-Link	10	15	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	D	1	A18
BCT10-S30-UN6X2T-H1151 2101600	Teach buttons or IO-Link	10	15	4-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	D	2	A18

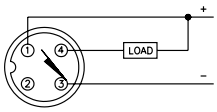
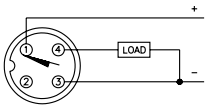
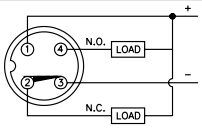
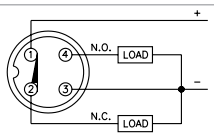
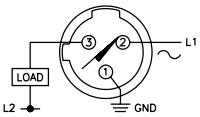
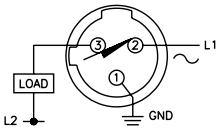
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Metal Threaded Barrel with DC or AC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Eurofast Connector
B  30 mm - Microfast Connector	

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: RK 4T-*	2  Mating Cordset: RK 4T-*	3  Mating Cordset: RK 4.4T-*
4  Mating Cordset: RK 4.4T-*	5  Mating Cordset: KB 3T-*	6  Mating Cordset: KB 3T-*

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

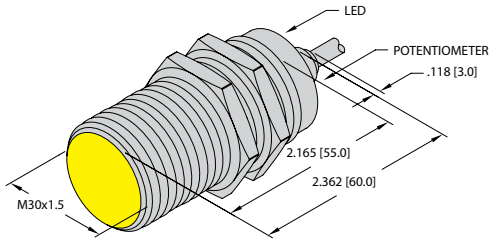
Metal Threaded Barrel with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BC10-M30K-AN4X-H1141 2503030		10	10	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	1	A11
BC10-M30K-AP4X-H1141 2503026		10	10	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BC10-M30K-VN4X-H1141 2503033	Comp. Outputs	10	10	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	3	A11
BC10-M30K-VP4X-H1141 2503035	Comp. Outputs	10	10	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	4	A11
BC10-M30K-AZ3X-B3131 2503034		10	10	2-wire AC N.O.	20-250 AC	20	≤500	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	B	5	A12
BC10-M30K-RZ3X-B3131 2503023		10	10	2-wire AC N.C.	20-250 AC	20	≤500	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	B	6	A12

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Metal Threaded Barrel with DC or AC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Potted-In Cable

Wiring Diagrams/Mating Cordsets

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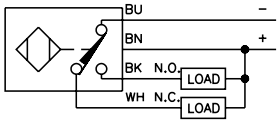

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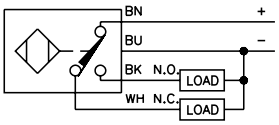

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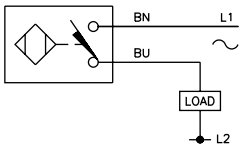

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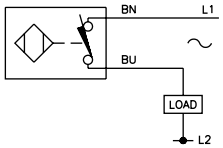


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

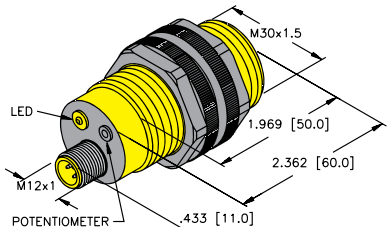
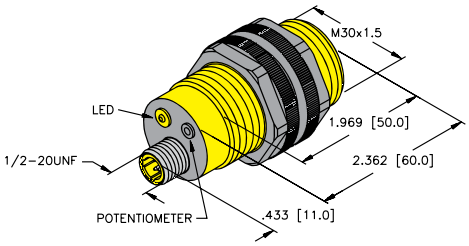
Metal Threaded Barrel with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC10-M30K-VN4X 2503024	Comp. Outputs	10	10	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	2M/PVC	A	1	A11
BC10-M30K-VP4X 2503022	Comp. Outputs	10	10	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	2M/PVC	A	2	A11
BC10-M30K-AZ3X 2503031		10	10	2-wire AC N.O.	20-250 VAC	20	≤500	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	2M/PVC	A	3	A12
BC10-M30K-RZ3X 2503025		10	10	2-wire AC N.C.	20-250 VAC	20	≤500	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	2M/PVC	A	4	A12

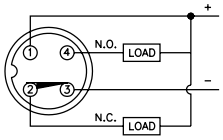
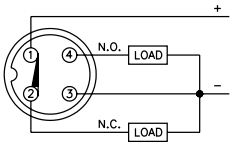
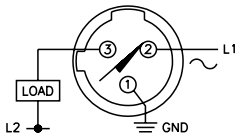
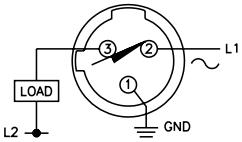
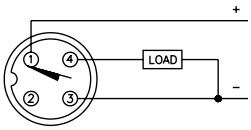
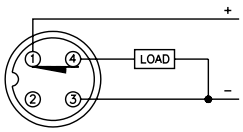
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Plastic Threaded Barrels with Connectors and AC/DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Eurofast Connector
B  30 mm - Microfast Connector	

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: RK 4.4T-*	2  Mating Cordset: RK 4.4T-*	3  Mating Cordset: KB 3T-*
4  Mating Cordset: KB 3T-*	5  Mating Cordset: RK 4T-*	6  Mating Cordset: RK 4T-*

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Plastic Threaded Barrels with Connectors and AC/DC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BCC10-S30-AP4X-H1141 2503038	Low Dielec-tric Targets	10	10	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	5	A11
BCC10-S30-RP4X-H1143 1542562	Low Dielec-tric Targets	10	10	3-wire DC PNP N.C.	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	6	A11
BC10-S30-VN4X-H1141 2506010	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	1	A11
BCF10-S30-VN4X-H1141 2506016	Noise Immune	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	1	A11
BC10-S30-VP4X-H1141 2506100	Comp. Outputs	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BCC10-S30-VP4X-H1141 2503043	Low Dielec-tric Targets	10	10	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BCF10-S30-VP4X-H1141 2506117	Noise Immune	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BC10-S30-AZ3X-B3131 2310710		10	15	2-wire AC N.O.	20-250 VAC	20	≤500	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	B	3	A12
BCF10-S30-AZ3X-B3131 2506012	Noise Immune	10	15	2-wire AC N.O.	20-250 VAC	20	≤500	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	B	3	A12
BC10-S30-RZ3X-B3131 2310810		10	15	2-wire AC N.C.	20-250 VAC	20	≤500	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	B	4	A12
BCF10-S30-RZ3X-B3131 2506014	Noise Immune	10	15	2-wire AC N.C.	20-250 VAC	20	≤500	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	B	4	A12

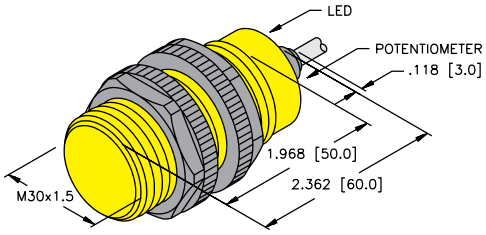
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Plastic Threaded Barrel with DC or AC Outputs

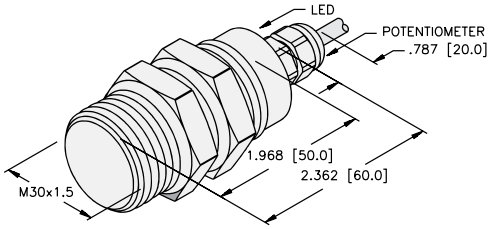
Housing Style	Dimension Drawings

A



30 mm - Potted-In Cable

B



30 mm - Potted-In Cable

Wiring Diagrams/Mating Cordsets

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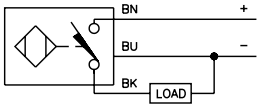

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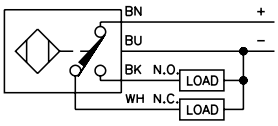

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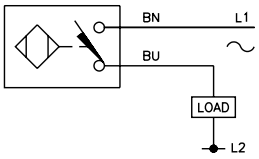

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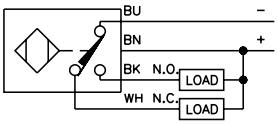


A11 — **3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)**

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — **2-wire AC Capacitive - (AZ, RZ)**

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Plastic Threaded Barrel with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BCC10-S30-AP4X 2503038	Low Dielec-tric Targets	10	10	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	1	A11
BC10-S30-VN4X 2506000	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BCF10-S30-VN4X 2506011	Noise Immune	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	3	A11
BC10-S30-VP4X 2506110	Comp. Outputs	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BCF10-S30-VP4X 2506111	Noise Immune	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BC10-S30-AZ3X 2310700		10	15	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	4	A12
BCF10-S30-AZ3X 2506015	Noise Immune	10	15	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	4	A12
BC10-PT30-VN4X2 2507020	Chemical Resistant	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PVDF	PVDF	GN	YE	B	2	A11
BC10-PT30-VP4X2 2507010	Chemical Resistant	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PVDF	PVDF	GN	YE	B	3	A11
BC10-PT30-AZ3X 2350001	Chemical Resistant	10	15	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PVDF	PVDF	N/A	YE	B	4	A12

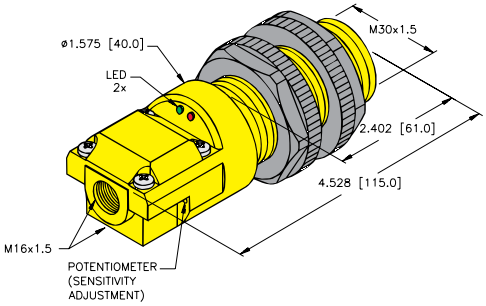
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30, 34, & 40 mm

Large Diameter Plastic Barrels with Terminal Chamber and 4-Wire DC Outputs

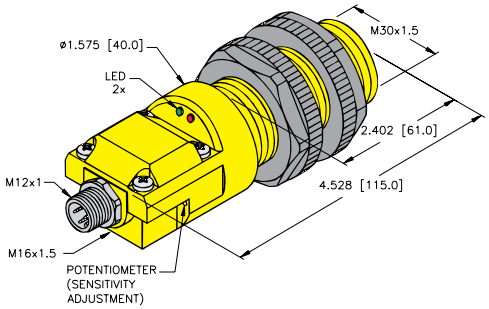
Housing Style	Dimension Drawings

A



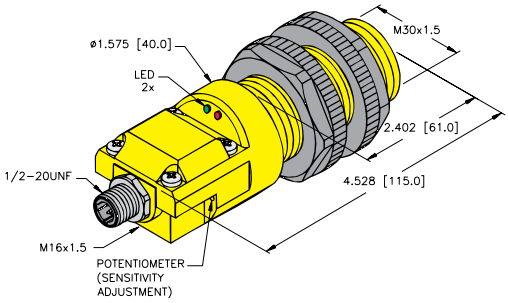
30 mm - Terminal Chamber

B



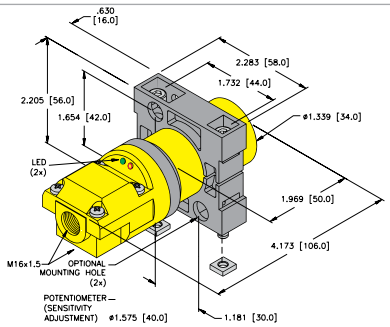
30 mm - Eurofast Connector

C



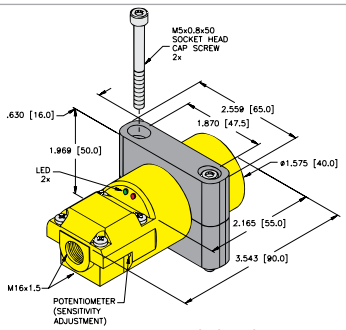
30 mm - Minifast Connector

D



34 mm - Terminal Chamber

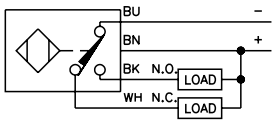
E



40 mm - Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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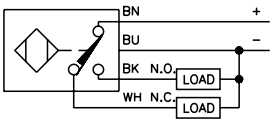

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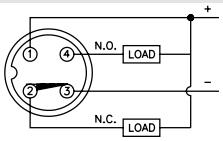
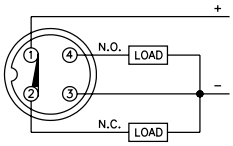


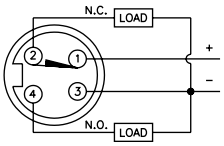
Mating Cordset: RK 4.4T-*

4



Mating Cordset: RK 4.4T-*

5



Mating Cordset: RKM 40-*M

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30, 34, & 40 mm

Large Diameter Plastic Barrels with Terminal Chamber and 4-Wire DC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BC10-P30SR-VN4X2 25051	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	1	A11
BC10-P30SR-VN4X2-H1141 2505192	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	B	3	A11
BC10-P30SR-VP4X2 25050	Comp. Outputs	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	2	A11
BC10-P30SR-VP4X2-H1141 2505094	Comp. Outputs	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	B	4	A11
BC10-P30SR-VP4X2-B1141 2505092	Comp. Outputs	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	C	5	A11
BC15-K34SR-VN4X2 2502128	Comp. Outputs	15	23	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	ABS	GN	YE	D	1	A11
BC20-K40SR-VN4X2 25101	Comp. Outputs	20	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	E	1	A11
BC20-K40SR-VP4X2 25100	Comp. Outputs	20	30	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	E	2	A11

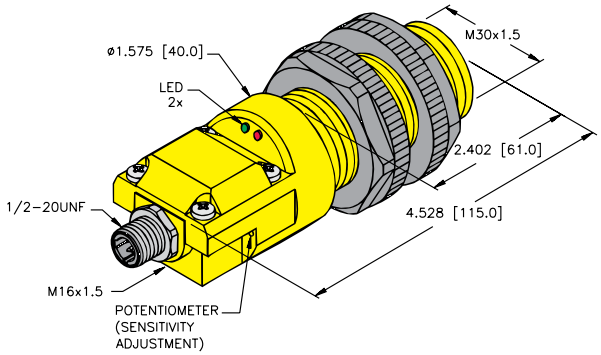
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 & 40 mm

Large Diameter Plastic Barrels with Terminal Chamber and AC Outputs

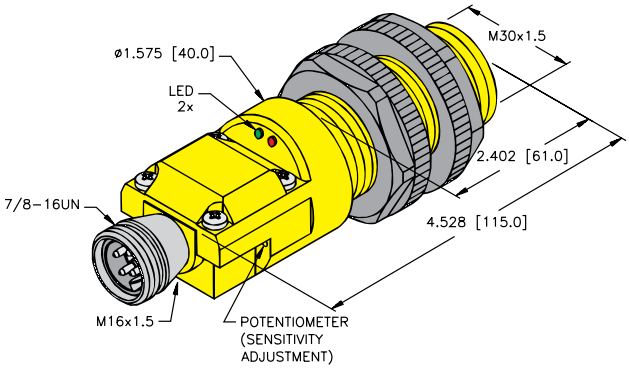
Housing Style	Dimension Drawings

A



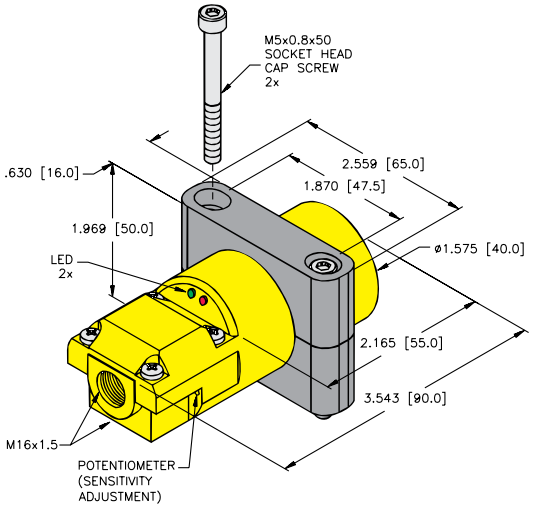
30 mm - Microfast Connector

B



30 mm - Minifast Connector

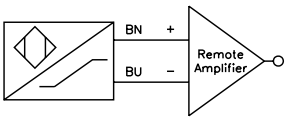
C



40 mm - Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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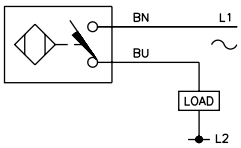
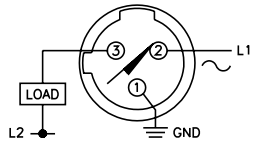


Mating Cordset: KB 3T-*

3



Mating Cordset: RK 30-*M; RKM 30-*M

A12 — **2-wire AC Capacitive - (AZ, RZ)**

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 & 40 mm

Large Diameter Plastic Barrels with Terminal Chamber and AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BC10-P30SR-FZ3X2-B3131 2310491	Comp. Outputs	10	15	2-wire AC	20-250 AC	200	≤500	-25 to +70	IP67	ABS	ABS	GN	YE	A	2	A12
BC10-P30SR-FZ3X2-B1131 2310490	Comp. Outputs	10	15	2-wire AC	20-250 AC	20	≤500	-25 to +70	IP67	ABS	ABS	GN	YE	B	3	A12
BC10-P30SR-FZ3X2-B2131 2310493	Comp. Outputs	10	15	2-wire AC	20-250 AC	20	≤500	-25 to +70	IP67	ABS	ABS	GN	YE	B	3	A12
BC20-K40SR-FZ3X2 23103	Prog. Outputs	20	30	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	ABS	ABS	GN	YE	C	1	A12

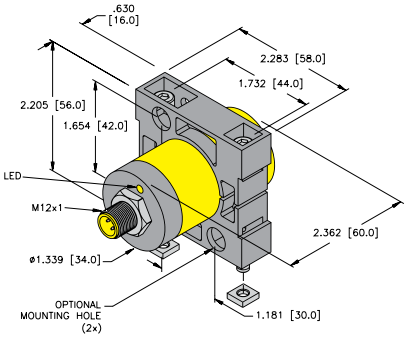
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | K34

Smooth Plastic Barrel with DC or AC Outputs

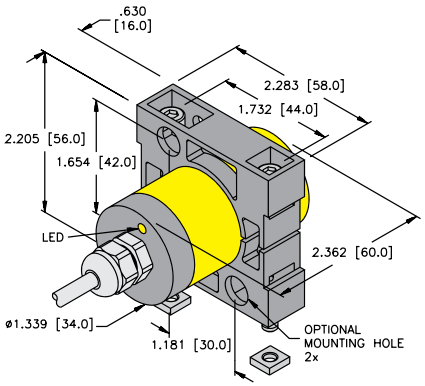
Housing Style	Dimension Drawings

A



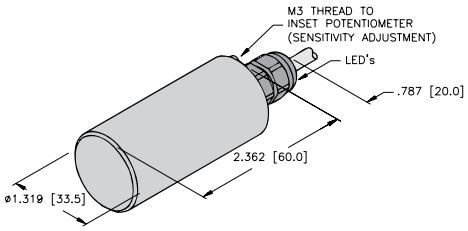
34 mm - Eurofast Connector

B



34 mm - Potted-In Cable

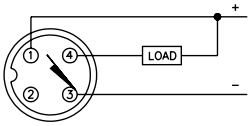
C



34 mm - Potted-In Cable

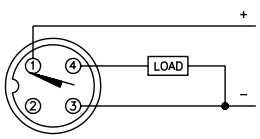
Wiring Diagrams/Mating Cordsets

1



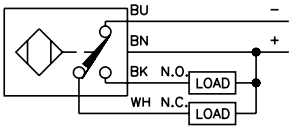
Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

3



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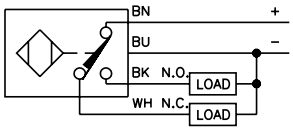

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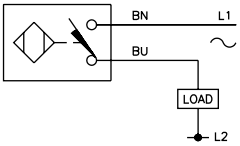


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | K34

Smooth Plastic Barrel with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC15-K34-AN4X-H1141 2502125		15	23	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	--	A	1	A11
BC15-K34-AP4X-H1141 2502126		15	23	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	--	A	2	A11
BC15-K34-VN4X 2502127	Comp. Outputs	15	23	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	2M/PVC	B	3	A11
BC15-K34-VP4X 2502124	Comp. Outputs	15	23	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	2M/PVC	B	4	A11
BC15-K34-AZ3X 2310008		15	23	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	2M/PVC	B	5	A12
BCF15-K34-AZ3X 2502136	Noise Immune	15	23	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	2M/PVC	B	5	A12
NC20-KT34-VP4X2 2550300	Chemical Resistant Comp. Output	N/A	20	4-wire DC PNP	10-65 VDC	200	≤200	-25 to +70	IP67	PVDF	PVDF	GN	YE	2M/ PVDF	C	4	A11

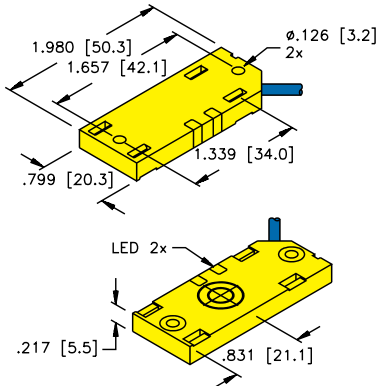
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Namur

Intrinsically Safe

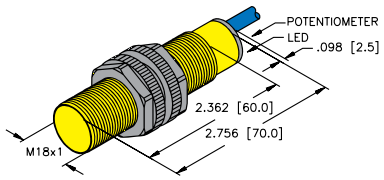
Housing Style	Dimension Drawings

A



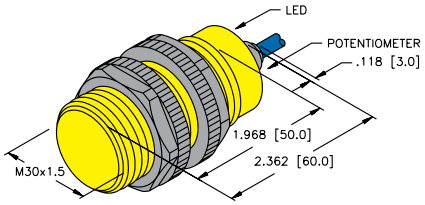
5.5 mm - Potted-In Cable

B



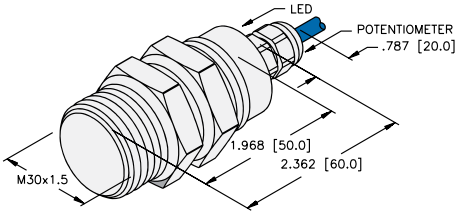
18 mm - Potted-In Cable

C



30 mm - Potted-In Cable

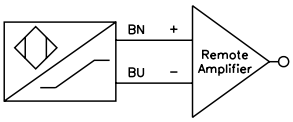
D



30 mm - Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



A19 — **2-wire DC NAMUR Capacitive- (Y0 and Y1)**

Differential Travel (Hysteresis):	1-20%	Power-On Effect:	Realized in Amplifier
Nominal Voltage:	8.2 VDC (EN60947-5-6)	Reverse Polarity Protection:	Incorporated
Non-activated Current Consumption:	≤1.2 mA	Wire-Break Protection:	Realized in Amplifier
Activated Current Consumption:	≥2.1 mA	Transient Protection:	Realized in Amplifier
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF	Shock:	30 g, 11 ms
		Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Namur

Intrinsically Safe

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC5-QF5.5-Y1X/S250 2030000		5	5	2-wire DC NAMUR	5-30 VDC	100	Remote	-25 to +70	IP67	PP	--	N/A	YE	2M/TPU	A	1	A19
BC5-S18-Y1X 20060		5	7.5	2-wire DC NAMUR	5-30 VDC	100	Remote	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	1	A19
BC10-S30-Y1X 20100		10	15	2-wire DC NAMUR	5-30 VDC	100	Remote	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	2M/PVC	C	1	A19
BC10-PT30-Y0X 2020000	Chemical Resistant	10	15	2-wire DC NAMUR	5-30 VDC	100	Remote	-25 to +70	IP67	PVDF	PVDF	N/A	YE	2M/ PVDF	D	1	A19

Notes:

/S250: Without switch point adjustment potentiometer

We reserve the right to make technical alterations without prior notice.

Notes

Notes

Ultrasonics Sensor Selection Guide

Threaded Metal Barrel			
Housing	**18 mm**	**18 mm**	**30 mm**
Rated Operating Distance	**40 -130 cm**	**40 - 130 cm**	**40 - 600 cm**
Pages	**F3 - 6**	**F7 - 10**	**F11**

	Hazardous ATEx and IECEx Approval	Rectangular	
Housing	**18 and 30 mm**	**40 mm**	**40 mm**
Rated Operating Distance	**40 - 600 cm**	**200 cm**	**200 cm**
Pages	**F13**	**F15**	**F15**

We reserve the right to make technical alterations without prior notice.

Ultrasonic Sensors

The M18 and M30 ultrasonic sensors feature smooth transducer faces, short blind zones, adjustable sensing fields, and robust chrome plated brass barrels, along with multiple options for outputs and configurations that enable users to select the best design for their application.

Output configurations range from a single output with an adjustable set point to versions with configurable outputs either as dual set point, analog, window, retroreflective, or IO-Link. Sensors can be taught via wire, integral buttons, or IO-Link.

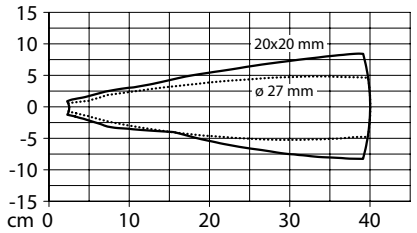
Certain M18 and M30 versions are available with ATEX and IECEx approvals for environments that have dust or gases which could be ignited and cause a fire or explosion.

The CK40 and CP40 rectangular ultrasonic sensor family uses separate transducers for the transmitter and receiver, giving these sensors a 60° sonic cone angle for detecting targets, which is much larger than what is possible with the M18 or M30 barrels.

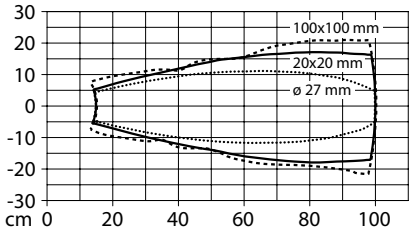
Performance Curves

The diagrams show the detection ranges of the individual ultrasonic sensors, covering ranges of 40 to 600 cm. Different targets are used in sizes 20 x 20 mm, and 100 x 100 mm according to the EN standard 60947-5-2, as well as a round rod with a diameter of 27 mm in order to compare the detection ranges of different ultrasonic sensors. When using other targets than the standard ones, the detection ranges may vary due to different reflection properties and geometries.

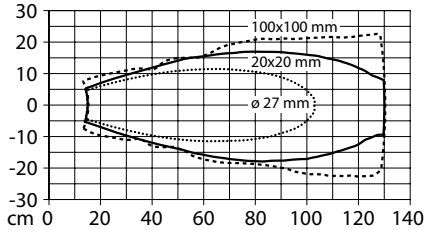
RU40



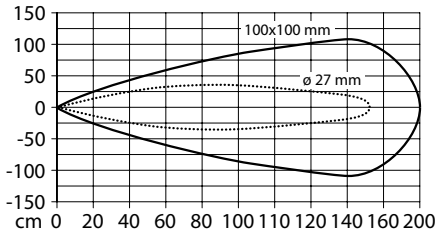
RU100



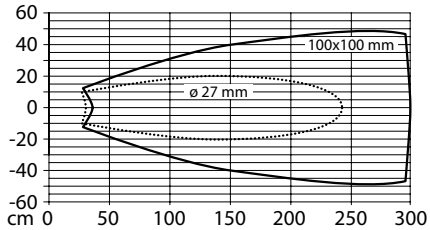
RU130



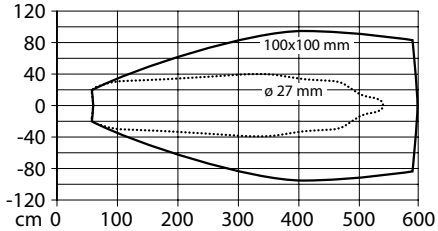
RU200



RU300



RU600



We reserve the right to make technical alterations without prior notice.

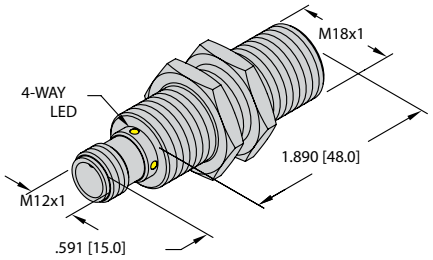
Ultrasonics Sensors | 18 mm

Front Sensing Transducer

Housing Style

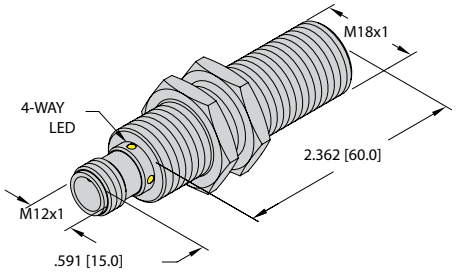
Dimension Drawings

A



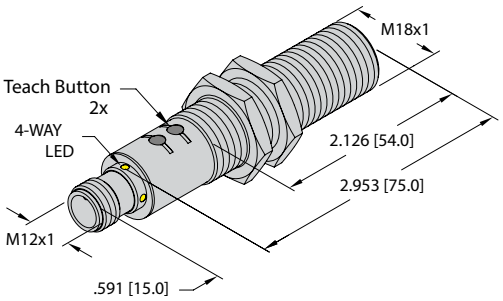
18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

B



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

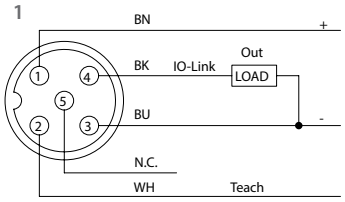
C



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

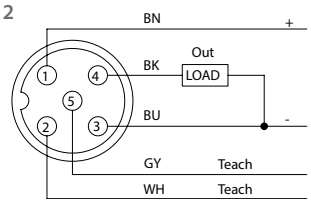
Wiring Diagrams/Mating Cordsets

1



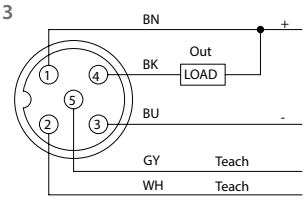
Mating Cordset: RK 4.4T-*

2



Mating Cordset: RK 4.5T-*

3



Mating Cordset: RK 4.5T-*

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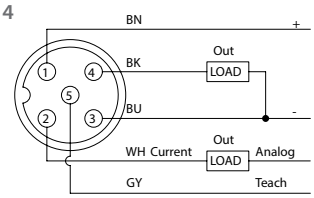

Mating Cordset: RK 4.5T-*

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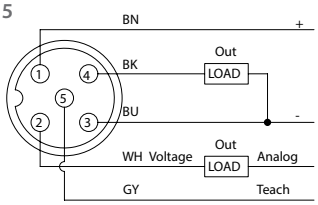
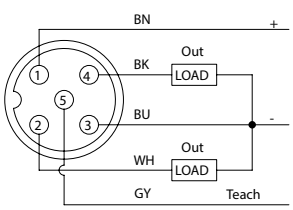


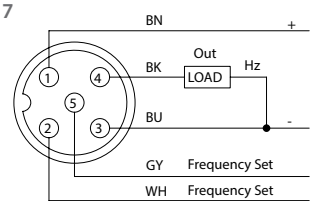
Mating Cordset: RK 4.5T-*

6



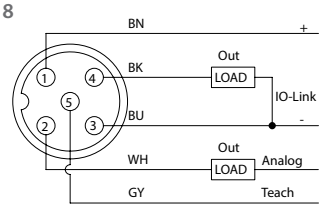
Mating Cordset: RK 4.5T-*

7



Mating Cordset: RK 4.5T-*

8



Mating Cordset: RK 4.5T-*

A30 — Ultrasonic Barrels

Operating Voltage:	15-30 VDC	Frequency Output (where applicable):	240-1600 Hz or 0-400 Hz Selectable
Voltage Drop Across Conducting Sensor:	≤2.5 V	Short-Circuit Protection:	Yes
Continuous Switching Current:	≤150 mA	Reverse Polarity Protection:	Yes
No-Load Current:	≤50 mA	Operating Temp:	-25 to +70 °C
Residual Current:	≤0.1 mA	Temperature Drift:	1.5% of full scale
Load Resistance:	≤1000 Ω	Internal Protection Rating:	IP67
Readiness Delay:	≤300 ms	Housing Material:	CPB
Repeatability:	0.15% of full scale	Transducer Material:	PET/PU/Epoxy
Switching Output:	Programmable NO or NC	LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | 18 mm

Front Sensing Transducer

Part Number/ ID Number	Rated Operating Distance (cm)	1 X PNP Output	1 X NPN Output	2 X PNP Output	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Analog 0-10v	Analog 4-20mA	Frequency Output	Retroreflective Programmable	Retroreflective Only	Window Mode Programmable	IO-Link V1.1	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU40U-M18M-AP8X2-H1151 1610094	40	●										●	2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	1	A30
RU40U-M18M-UP8X2-H1151 1610008	40	●											2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	2	A30
RU40U-M18M-UN8X2-H1151 1610080	40		●										2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	3	A30
RU40U-M18E-LI8X2-H1151 1610069	40	●[1]					●						2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	B	4	A30
RU40U-M18E-LU8X2-H1151 1610109	40	●[1]				●							2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	B	5	A30
RU40U-M18E-2UP8X2-H1151 1610012	40			●					●		●		2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	B	6	A30
RU40U-M18E-2UP8X2T-H1151 1610016	40			●					●		●		2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	C	6	A30
RU40U-M18M-LFX-H1151 1610021	40							●					2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	7	A30
RU40L-M18M-UP8X2-H1151 1610076	40	●								●			2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	2	A30
RU40L-M18M-UN8X2-H1151 1610084	40		●							●			2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	3	A30
RU40U-M18E-LIU2PN8X2T-H1151 1610024	40				●				●		●	●[2]	2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	C	8	A30

[1] Switching output is not adjustable
[2] Multiplexing and synchronization modes supported

We reserve the right to make technical alterations without prior notice.

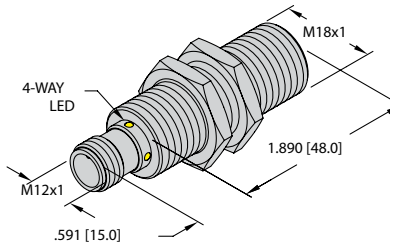
Ultrasonics Sensors | 18 mm

Front Sensing Transducer

Housing Style

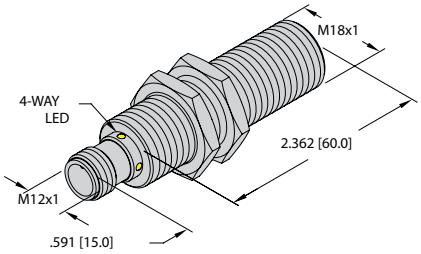
Dimension Drawings

A



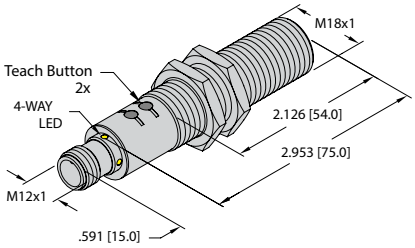
18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

B



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

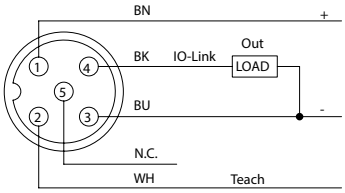
C



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

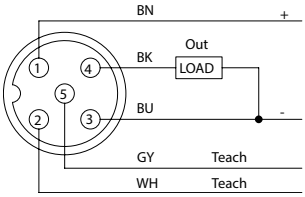
Wiring Diagrams/Mating Cordsets

1



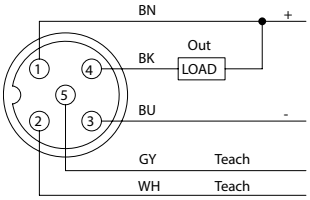
Mating Cordset: RK 4.4T-*

2



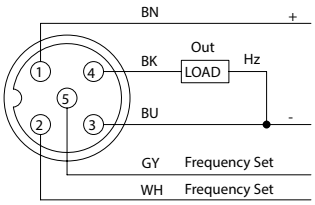
Mating Cordset: RK 4.5T-*

3



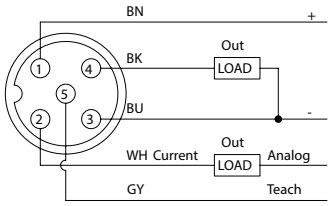
Mating Cordset: RK 4.5T-*

4



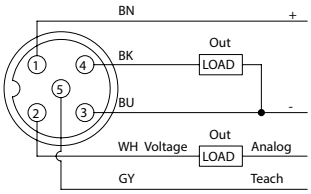
Mating Cordset: RK 4.5T-*

5



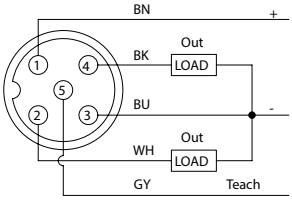
Mating Cordset: RK 4.5T-*

6



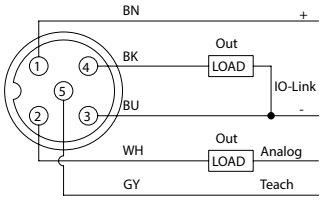
Mating Cordset: RK 4.5T-*

7



Mating Cordset: RK 4.5T-*

8



Mating Cordset: RK 4.5T-*

A30 — Ultrasonic Barrels

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.15% of full scale
Switching Output:	Programmable NO or NC
Frequency Output (where applicable):	240-1600 Hz or 0-400 Hz Selectable
Short-Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	-25 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP67
Housing Material:	CPB
Transducer Material:	PET/PU/Epoxy
LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | 18 mm

Front Sensing Transducer

Part Number/ ID Number	Rated Operating Distance (cm)	1 X PNP Output	1 X NPN Output	2 X PNP Output	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Analog 0-10v	Analog 4-20mA	Frequency Output	Retroreflective Programmable	Retroreflective Only	Window Mode Programmable	IO-Link V1.1	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU100U-M18M-AP8X2-H1151 1610095	100	●										●	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	1	A30
RU100U-M18M-UP8X2-H1151 1610010	100	●											15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	2	A30
RU100U-M18M-UN8X2-H1151 1610081	100		●										15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	3	A30
RU100U-M18M-LFX-H1151 1610022	100							●					15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	4	A30
RU100L-M18M-UP8X2-H1151 1610077	100	●								●			15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	2	A30
RU100L-M18M-UN8X2-H1151 1610085	100		●							●			15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	3	A30
RU130U-M18E-LI8X2-H1151 1610089	130	●[1]					●						15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	5	A30
RU130U-M18E-LU8X2-H1151 1610110	130	●[1]				●							15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	6	A30
RU130U-M18E-2UP8X2-H1151 1610014	130			●					●		●		15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	7	A30
RU130U-M18E-2UP8X2T-H1151 1610018	130			●					●		●		15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	C	7	A30
RU130U-M18E-LIU2PN8X2T-H1151 1610026	130				●				●		●	●[2]	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	C	8	A30

[1] Switching output is not adjustable
[2] Multiplexing and synchronization modes supported

We reserve the right to make technical alterations without prior notice.

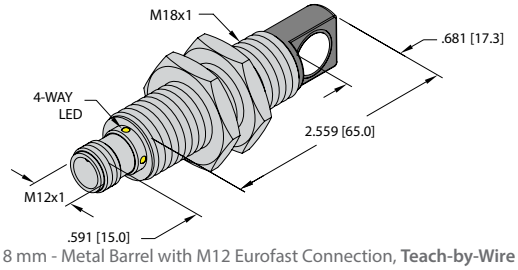
Ultrasonics Sensors | 18 mm

Side Sensing Transducer

Housing Style

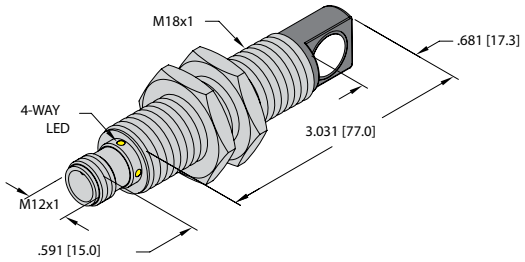
Dimension Drawings

A



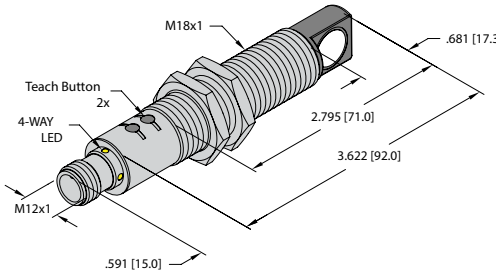
18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

B



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

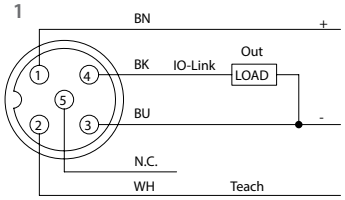
C



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

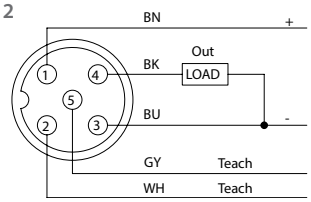
Wiring Diagrams/Mating Cordsets

1



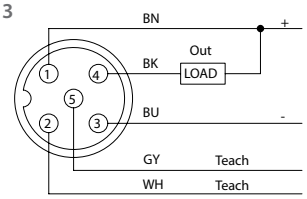
Mating Cordset: RK 4.4T-*

2



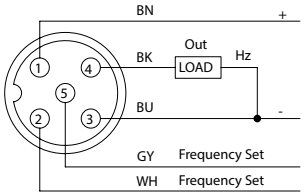
Mating Cordset: RK 4.5T-*

3



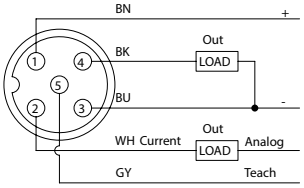
Mating Cordset: RK 4.5T-*

4



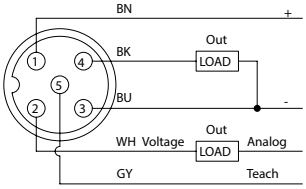
Mating Cordset: RK 4.5T-*

5



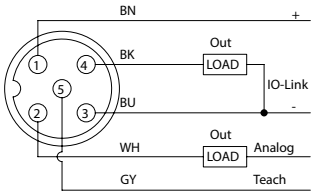
Mating Cordset: RK 4.5T-*

6



Mating Cordset: RK 4.5T-*

7



Mating Cordset: RK 4.5T-*

A30 — Ultrasonic Barrels

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.15% of full scale
Switching Output:	Programmable NO or NC
Frequency Output (where applicable):	240-1600 Hz or 0-400 Hz Selectable
Short-Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	-25 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP67
Housing Material:	CPB
Transducer Material:	PET/PU/Epoxy
LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | 18 mm

Side Sensing Transducer

Part Number/ ID Number	Rated Operating Distance (cm)	1 X PNP Output	1 X NPN Output	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Analog 0-10v	Analog 4-20mA	Frequency Output	Retroreflective Programmable	Retroreflective Only	Window Mode Programmable	IO-Link V1.1	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU40U-M18MS-AP8X2-H1151 1610105	40	●									●	2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	1	A30
RU40U-M18MS-UP8X2-H1151 1610009	40	●										2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	2	A30
RU40U-M18MS-UN8X2-H1151 1610082	40		●									2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	3	A30
RU40U-M18MS-LFX-H1151 1610019	40						●					2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	4	A30
RU40U-M18ES-LI8X2-H1151 1610097	40	●[1]				●						2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	B	5	A30
RU40U-M18ES-LU8X2-H1151 1610111	40	●[1]			●							2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	B	6	A30
RU40L-M18MS-UP8X2-H1151 1610078	40	●							●			2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	2	A30
RU40L-M18MS-UN8X2-H1151 1610086	40		●						●			2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	3	A30
RU40U-M18ES-LIU2PN8X2T-H1151 1610025	40			●				●		●	●[2]	2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	C	7	A30

[1] Switching output is not adjustable
[2] Multiplexing and synchronization modes supported

We reserve the right to make technical alterations without prior notice.

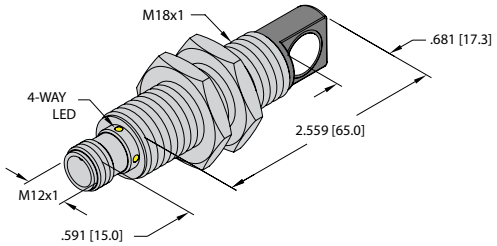
Ultrasonics Sensors | 18 mm

Side Sensing Transducer

Housing Style

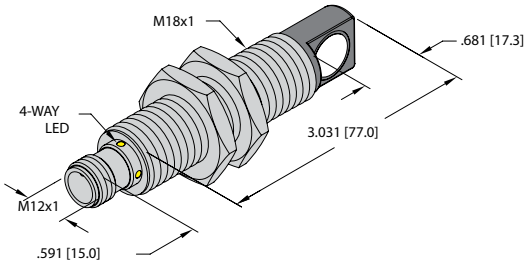
Dimension Drawings

A



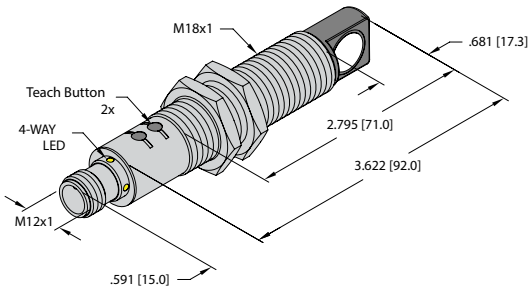
18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

B



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

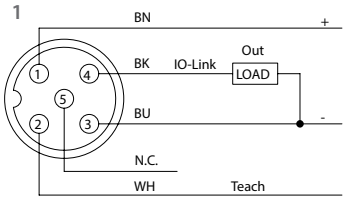
C



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

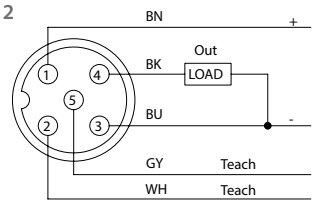
Wiring Diagrams/Mating Cordsets

1



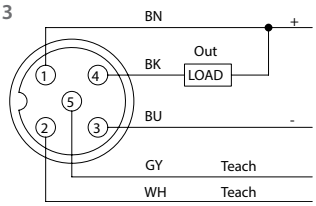
Mating Cordset: RK 4.4T-*

2



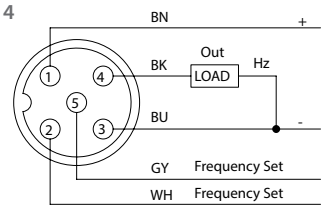
Mating Cordset: RK 4.5T-*

3



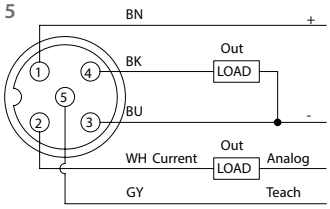
Mating Cordset: RK 4.5T-*

4



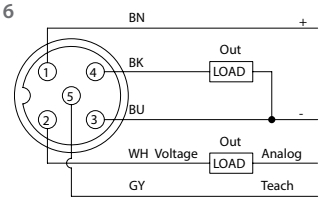
Mating Cordset: RK 4.5T-*

5



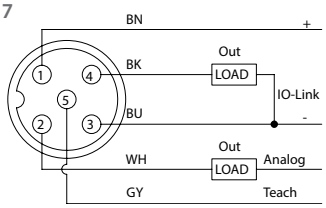
Mating Cordset: RK 4.5T-*

6



Mating Cordset: RK 4.5T-*

7



Mating Cordset: RK 4.5T-*

A30 — Ultrasonic Barrels

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.15% of full scale
Switching Output:	Programmable NO or NC
Frequency Output (where applicable):	240-1600 Hz or 0-400 Hz Selectable
Short-Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	-25 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP67
Housing Material:	CPB
Transducer Material:	PET/PU/Epoxy
LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | 18 mm

Side Sensing Transducer

Part Number/ ID Number	Rated Operating Distance (cm)	1 X PNP Output	1 X NPN Output	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Analog 0-10v	Analog 4-20mA	Frequency Output	Retroreflective Programmable	Retroreflective Only	Window Mode Programmable	IO-Link V1.1	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU100U-M18MS-AP8X2-H1151 1610106	100	●									●	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	1	A30
RU100U-M18MS-UP8X2-H1151 1610011	100	●										15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	2	A30
RU100U-M18MS-UN8X2-H1151 1610083	100		●									15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	3	A30
RU100U-M18MS-LFX-H1151 1610020	100						●					15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	4	A30
RU100L-M18MS-UP8X2-H1151 1610079	100	●							●			15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	2	A30
RU100L-M18MS-UN8X2-H1151 1610087	100		●						●			15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	3	A30
RU130U-M18ES-LI8X2-H1151 1610098	130	●[1]				●						15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	5	A30
RU130U-M18ES-LU8X2-H1151 1610112	130	●[1]			●							15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	6	A30
RU130U-M18ES-LIU2PN8X2T-H1151 1610027	130			●				●		●	●[2]	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	C	7	A30

[1] Switching output is not adjustable
[2] Multiplexing and synchronization modes supported

We reserve the right to make technical alterations without prior notice.

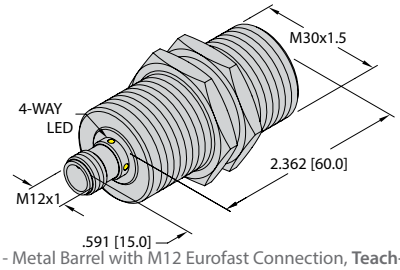
Ultrasonics Sensors | 30 mm

Front Sensing Transducer

Housing Style

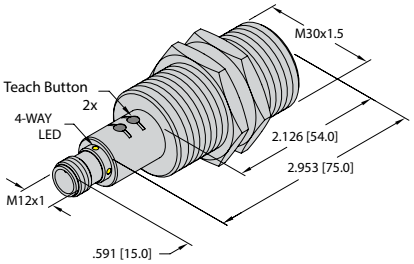
Dimension Drawings

A



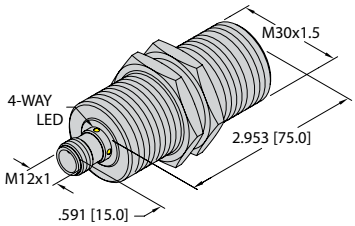
30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

B



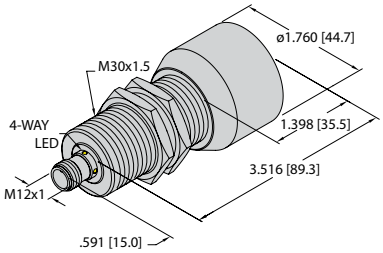
30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

C



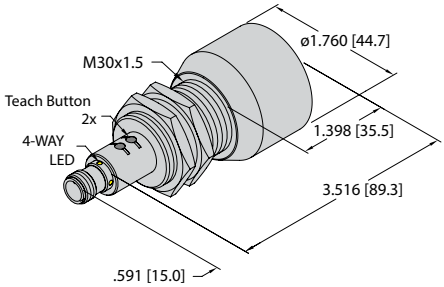
30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

D



30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

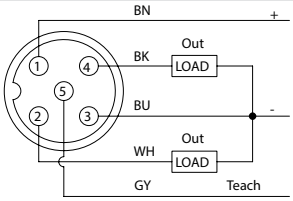
E



30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

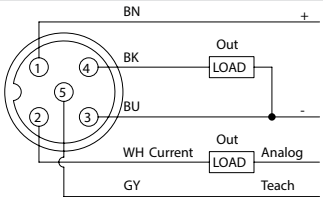
Wiring Diagrams/Mating Cordsets

1



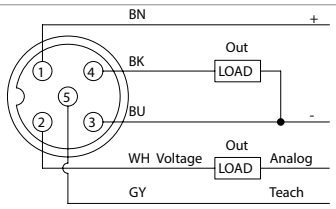
Mating Cordset: RK 4.5T-*

2



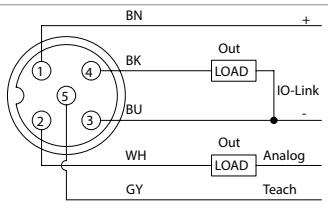
Mating Cordset: RK 4.5T-*

3



Mating Cordset: RK 4.5T-*

4



Mating Cordset: RK 4.5T-*

A30 — Ultrasonic Barrels

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.15% of full scale
Switching Output:	Programmable NO or NC
Frequency Output (where applicable):	240-1600 Hz or 0-400 Hz Selectable
Short-Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	-25 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP67
Housing Material:	CPB
Transducer Material:	PET/PU/Epoxy
LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | 30 mm

Front Sensing Transducer

Part Number/ ID Number	Rated Operating Distance (cm)	1 X PNP Output	2 X PNP Output	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Analog 0-10v	Analog 4-20mA	Retroreflective Programmable	Window Mode Programmable	IO-Link V1.1	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU40U-M30M-2UP8X2-H1151 1610032	40		●				●	●		2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	1	A30
RU130U-M30M-2UP8X2-H1151 1610034	130		●				●	●		15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	1	A30
RU130U-M30E-2UP8X2T-H1151 1610038	130		●				●	●		15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	1	A30
RU130U-M30E-LIU2PN8X2T-H1151 1610046	130			●			●	●	●[2]	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	4	A30
RU300U-M30M-2UP8X2-H1151 1610036	300		●				●	●		30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	C	1	A30
RU300U-M30E-LI8X2-H1151 1610099	300	●[1]				●				30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	A	2	A30
RU300U-M30E-LU8X2-H1151 1610113	300	●[1]			●					30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	A	3	A30
RU300U-M30E-2UP8X2T-H1151 1610040	300		●				●	●		30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	B	1	A30
RU300U-M30E-LIU2PN8X2T-H1151 1610048	300			●			●	●	●[2]	30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	B	4	A30
RU600U-M30M-2UP8X2-H1151 1610037	600		●				●	●		60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	D	1	A30
RU600U-M30E-LI8X2-H1151 1610100	600	●[1]				●				60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	D	2	A30
RU600U-M30E-LU8X2-H1151 1610114	600	●[1]			●					60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	D	3	A30
RU600U-M30E-2UP8X2T-H1151 1610041	600		●				●	●		60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	E	1	A30
RU600U-M30E-LIU2PN8X2T-H1151 1610049	600			●			●	●	●[2]	60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	E	4	A30

[1] Switching output is not adjustable
[2] Multiplexing and synchronization modes supported

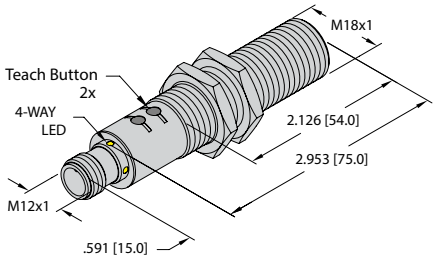
We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | Hazardous Area

ATEX and IECEx Approval

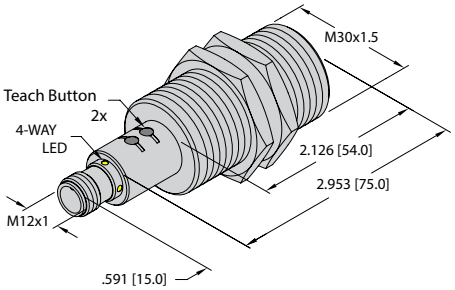
Housing Style	Dimension Drawings

A



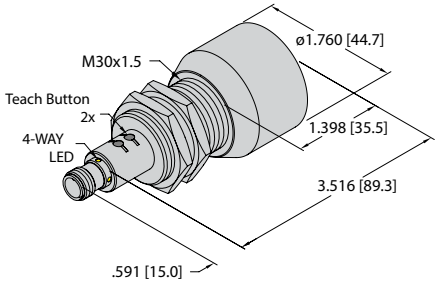
18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

B



30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

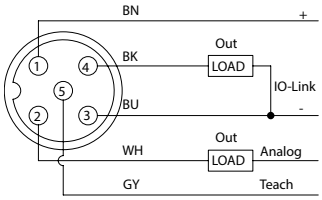
C



30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.5T-*

A31 — Ultrasonic Barrel w/ ATEX Approval

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.15% of full scale
Switching Output:	Programmable NO or NC
Short-Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	-25 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP67
Housing Material:	SS
Transducer Material:	PET/PU/Epoxy
LED:	Yellow/Green
Approval with Teach Button:	II 3G Ex nA nC IIC T6 Gc II 3D Ex tc IIIC T70°C Dc
Approval without Teach Button:	II 3G Ex nA IIC T6 Gc II 3D Ex tc IIIC T70°C Dc

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | Hazardous Area

ATEX and IECEx Approval

Part Number/ ID Number	Rated Operating Distance (cm)	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Retroreflective Programmable	Window Mode Programmable	IO-Link V1.1 IO-Link	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU40U-EM18E-LIU2PN8X2T-H1151/3GD 1610071	40	●	●	●	●[1]	2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	1	A31
RU130U-EM18E-LIU2PN8X2T-H1151/3GD 1610072	130	●	●	●	●[1]	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	1	A31
RU130U-EM30E-LIU2PN8X2T-H1151/3GD 1610073	130	●	●	●	●[1]	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	1	A31
RU300U-EM30E-LIU2PN8X2T-H1151/3GD 1610074	300	●	●	●	●[1]	30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	B	1	A31
RU600U-EM30E-LIU2PN8X2T-H1151/3GD 1610075	600	●	●	●	●[1]	60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	C	1	A31

[1] Multiplexing and synchronization modes supported.

We reserve the right to make technical alterations without prior notice.

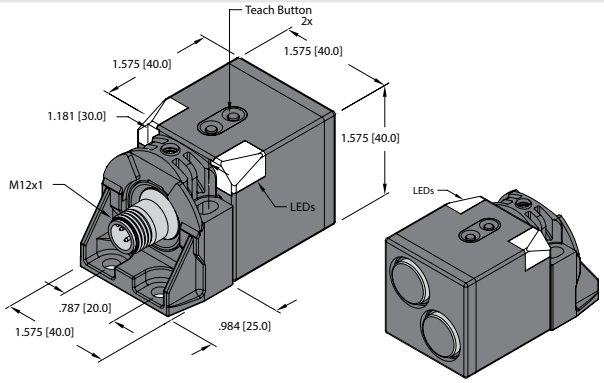
Ultrasonics Sensors | CK40 & CP40

5 Way Rotatable Sensing Head

Housing Style

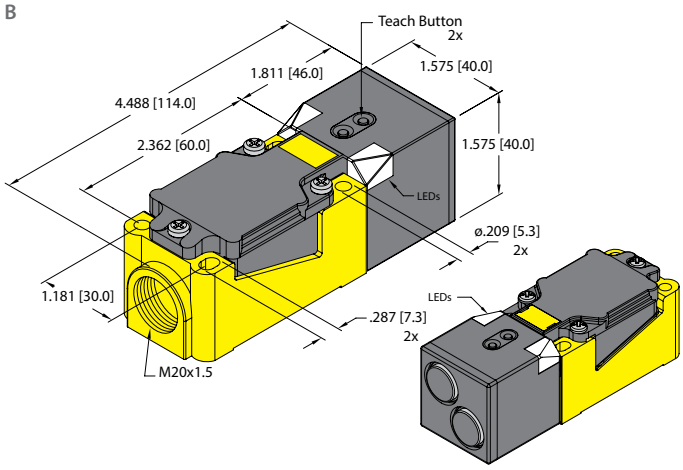
Dimension Drawings

A



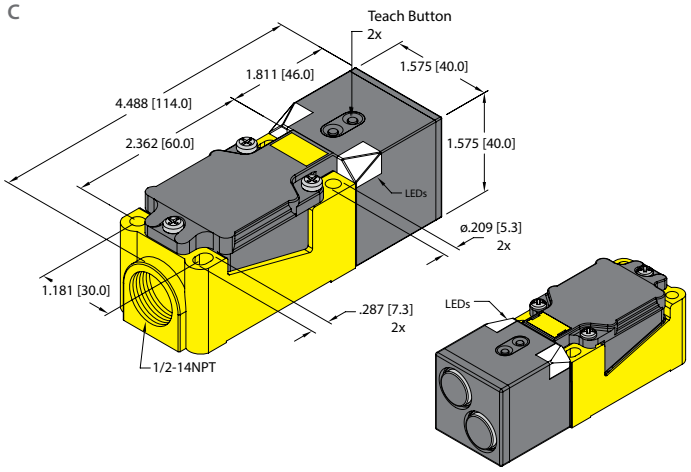
CK40 - M12 Eurofast Connection, **Teach-by-Wire or Button**

B



CP40 - Terminal Chamber with M20x1.5 Conduit Connection, **Teach-by-Button**

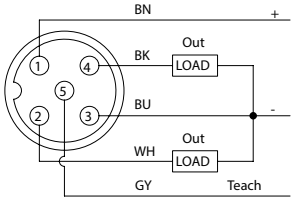
C



CP40 - Terminal Chamber with 1/2 NPT Conduit Connection, **Teach-by-Button**

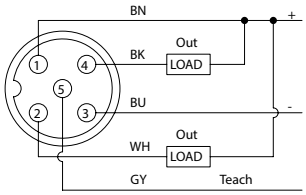
Wiring Diagrams/Mating Cordsets

1



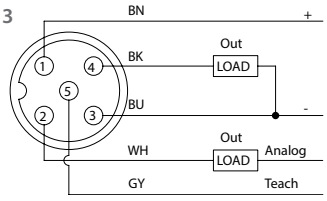
Mating Cordset: RK 4.4T-*

2



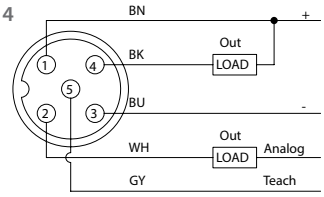
Mating Cordset: RK 4.5T-*

3



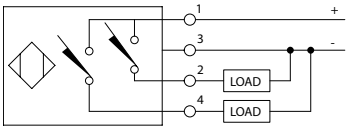
Mating Cordset: RK 4.5T-*

4

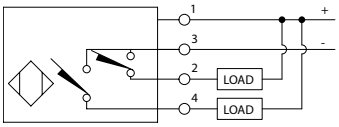


Mating Cordset: RK 4.5T-*

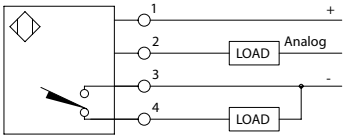
5



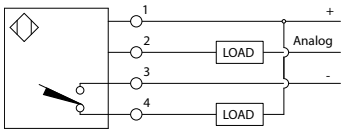
6



7



8



A32 — Ultrasonic Rectangular

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.25% of full scale
Switching Output:	Programmable NO or NC

Analog Output:	4-20 mA or 0-10 V Programmable
Short Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	0 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP40
Housing Material:	PBT-GF30
Transducer Material:	AL/Ceramic
LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | CK40 & CP40

5 Way Rotatable Sensing Head

Part Number/ ID Number	Rated Operating Distance (cm)	2 X PNP Output	2 X NPN Output	Programmable 4-20 mA/0-10 v Analog & 1 X PNP output	Programmable 4-20 mA/0-10 v Analog & 1 X NPN output	Retroreflective Programmable	Window Mode Programmable	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU200-CK40-2UP8X2T-H1151 1610051	200	●				●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	A	1	A32
RU200-CK40-2UN8X2T-H1151 1610057	200		●			●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	A	2	A32
RU200-CK40-LIU2P8X2T-H1151 1610053	200			●		●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	A	3	A32
RU200-CK40-LIU2N8X2T-H1151 1610058	200				●	●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	A	4	A32
RU200-CP40-2UP8X2T 1610052	200	●				●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	B	5	A32
RU200-CP40-2UN8X2T 1610055	200		●			●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	B	6	A32
RU200-CP40-2UP8X2T/S10 1610092	200	●				●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	C	5	A32
RU200-CP40-2UN8X2T/S10 1610090	200		●			●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	C	6	A32
RU200-CP40-LIU2P8X2T 1610054	200			●		●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	B	7	A32
RU200-CP40-LIU2N8X2T 1610056	200				●	●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	B	8	A32
RU200-CP40-LIU2P8X2T/S10 1610093	200			●		●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	C	7	A32
RU200-CP40-LIU2NP8X2T/S10 1610091	200				●	●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	C	8	A32

We reserve the right to make technical alterations without prior notice.

Notes

Notes

Cylinder Position Sensor Selection Guide

Cylinder Position Sensors				
Housing	**UNT**	**UNTK**	**INT**	**UNR**
Pages	**G13**	**G15**	**G17**	**G19**
Style of Cylinder				

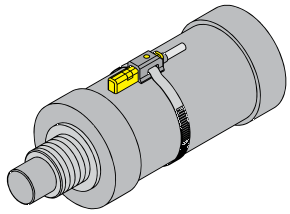
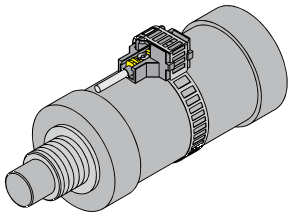
Cylinder Position Sensors				
Housing	**PST**	**KST**	**AKT**	**IKE/IKT**
Pages	**G21**	**G23**	**G25**	**G27**
Style of Cylinder				

Cylinder Position Sensors			Inductive	World Clamp Sensors
Housing	**IKM**	**NST**	**CRS**	**Variable**
Pages	**G29**	**G31**	**G33 - 36**	**G37 - 42**
Style of Cylinder				

	Magnetic Analog		
Housing	**UNTL**	**25 mm**	**Variable**
Pages	**G43**	**G45**	**G47**
Style of Cylinder			

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

Drawing	Manufacturer	Cylinder Series	Turck Sensor	Turck Bracket	
	Parker	P, SRM, SRDM, XLT, XLR, XKB, (S, SRD)[3]	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	
	Festo	CRDG, CRDSNU, CRDSW, DSNU, SDNUL, DSEU, ESEU, ESNU, ESW, (DSN)[3]	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	
	Bimba	Original Line II (0L2), Original Line (M, MH, MNR, MC, MRS), Doublle Wall (DW, DWD, DWN, DWM), PC, Z Series (M04, M09, M17, M31), Linear Thrusters (T, TE)	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	
	SMC	NCM, NCJ2, NCG, NCA1, CJ2, CM2, CG1, MGG	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	
	Norgren	Round Line (RL)	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	
	Fabco-Air	Pancake (X, XK, O, OP, XDR, XDRK, ODR), Linear Slide (L, S, E,)	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	

1. This Mounting is to be used only when "Switch Rail" is present on the cylinder.
2. ASB size is determined by the cylinder diameter. See Table 1. KLDT is required when the UNT sensor has integral quick disconnect.
3. These styles are not usually available with magnets.
4. Bracket size determined by the cylinder diameter. See Table 2.

UNT Housing with KLDT-UNT and ASB Style Strap		
Cylinder Diameter		Clamp
Inches	Millimeters	(Stainless Steel)
.276 - .433	7 - 11	ASB-1
.433 - .748	11 - 19	ASB-2
.709 - 1.142	18 - 29	ASB-3
1.102 - 1.535	28 - 39	ASB-4
1.496 - 1.929	38 - 49	ASB-5
1.890 - 2.323	48 - 59	ASB-6
2.283 - 2.717	58 - 69	ASB-7
2.677 - 3.110	68 - 79	ASB-8

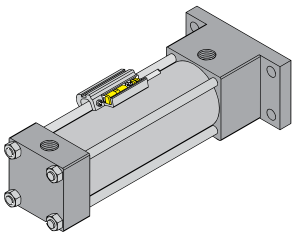
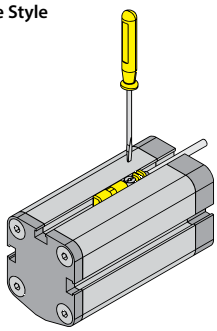
Table 1

UNT Housing with KLRC-UNT*		
Part Number	Cylinder Diameter	
	Inches	Millimeters
KLRC-UNT1	.315 - .984	8 - 25
KLRC-UNT2	.984 - 2.480	25 - 63
KLRC-UNT3	2.480 - 5.118	63 - 130
KLRC-UNT4	5.118 - 9.843	130 - 250

Table 2

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

Drawing	Manufacturer	Cylinder Series	Turck Sensor	Turck Bracket
Tie Rod Style  **KLZ* (Table 3)**	Numatics	A, E, S, L, B Square, VDMA-Z	UNT Style	KLZ Series Clamp[1]
	Parker	P5E, HBT, LPM, (S, C, LP)[2]	UNT Style	KLZ Series Clamp[1]
	PHD	A2, A3, AS, AV, AV2, A3V, AVS, HV, HV2, H3V, HVS, DAV, DHV, EA, EL, EH, ES, NPG, NHG, NEAG, NEHG, TD, (A)[2]	UNT Style	KLZ Series Clamp[1]
	Festo	DNGU, DNGUL, DNGUT, DNU, DNUL, CRDNG, CRDNGS, DNG, DNGL, DNGZK, DNGZL, DNGZS, DKE	UNT Style	KLZ Series Clamp[1]
	Bimba	Flat-I (FO, FOD, FOP, FOR, FOS, FS, FSD, FSR, FSS, F02, F03, F04), Flat-II (FT, FST)	UNT Style	KLZ Series Clamp[1]
	SMC	ECQ2, MB, C95	UNT Style	KLZ Series Clamp[1]
	Norgren	A, EA, SS, N, J, EJ, 8000/M	UNT Style	KLZ Series Clamp[1]
	Turn-Act	NFPA Series	UNT Style	KLZ Series Clamp[1]
	Fabco-Air	Long Stroke (321, 521, 721, 1221, S321, S521, S721, S1221), Hi-Power (HP, THP, UHP), Multi-Power (MP, BA, BP), Linear Slide [3] (SE, EZ, TS)	UNT Style	KLZ Series Clamp[1]
T-Groove Style 	Parker	P1M, P5T, SST	UNT Style	No Additional Bracket Required
	Festo	DNC, DNCT, DFM, DPZ, DPZJ, DZF, EZH, ADVU, ADVULQ, ADVUL	UNT Style	No Additional Bracket Required
	SMC	CUJ, CXS, MGQ, MY1B, MHC, MHL2	UNT Style	No Additional Bracket Required

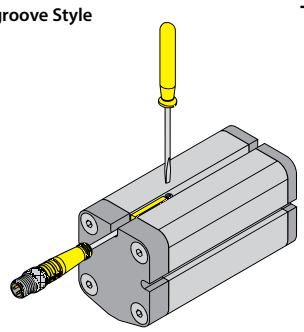
1. When using KLZ Series Clamps, user must determine clamp size best suited for application.
2. These styles are usually not available with magnets.
3. Some of these may be equipped to handle 5, 8, or 12 mm inductive proximity sensors.

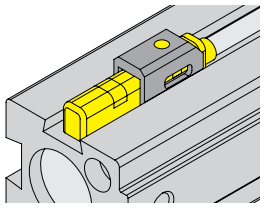
UNT Sensor with KLZ* Mounting		
Part Number	**Tie Rod Diameter Maximum**	
	Inches	**Millimeters**
KLZ1A-INT CLAMP	.236	6.0
KLZ1M-UNT CLAMP	.290	7.37
KLZ2M-UNT CLAMP	.351	8.93
KLZ3M-UNT CLAMP	.482	12.25

Table 3

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

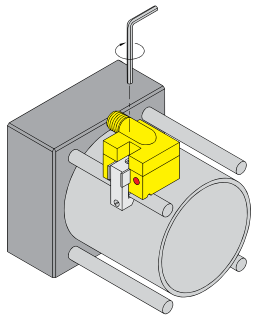
Drawing	Manufacturer	Cylinder Series	Turck Sensor	Turck Bracket
C-groove Style 	Numatics	K	UNR Style	No Additional Bracket Required
	Festo	ADVC	UNR Style	No Additional Bracket Required
	Bimba	Twin Bore (TB, TBA, TBD), EF1 Series (EF, EFD, EFS, EFR), EF2 Series (EFT), PneuMoment Series (PM)	UNR Style	No Additional Bracket Required
	SMC	(CQ2, CQs, NCDQ2, NCQ2)[1], (CDQ2)[1], CU, CUK, CUW, MU, MHF2, Air Slides (MXQ)	UNR Style	No Additional Bracket Required
	Compact Air	B, C	UNR Style	No Additional Bracket Required
	PHD	CRH O-groove	UNR Style	No Additional Bracket Required

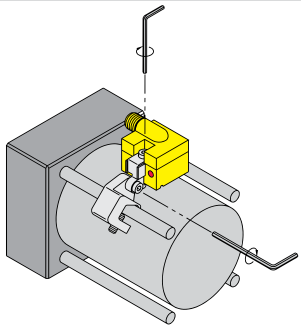
Drawing	Manufacturer	Cylinder Series	Turck Sensor	Turck Bracket
Dovetail Style 	Numatics	B,F, Compact C, Short Stroke, Rotary Actuator, Pee Wee (O, P, Q), VDMA-V, Ring Series	UNT Style	KLDT-UNT3
	Norgren	90000, 91000, 92000, 93000, Lite (A44000)	UNT Style	KLDT-UNT3
	Fabco-Air	Square 1 (SQ, SQF, SQL) Pancake (X,XK, O, OP, XDR, XDRK, ODR) Linear Slide1 (GB, L, S, E, SE, EZ, TS)[2]	UNR Style	KLFA-2UNR
	Compact Air	Inch Series (AB, AS, AR, AT) Inch Series (B, R, S, T)[3] Ball Slide (BSC) GC, CD, ACLA, ACLAD, (CLA, CLAD)[3] Metric Series (AWS, AWB, AWT) Metric Series (WS, WB, WT)[3] B/Base Mount, S/End Mount R/ End Mount, (CSC, PSC, TCL)[4]	UNT Style	KLDT-UNT4
	SMC	CP95	UNT Style	KLDT-UNT6

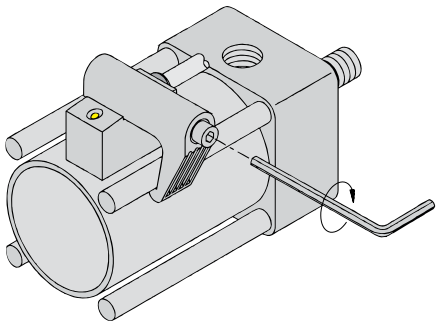
1. CQ2, NC(D) Q2, CQS, NCQ2 cylinders may have multiple grooves and may not be suited for the UNR style sensor.
2. This mounting is to be used only when dovetail style mounting rail is present on the cylinder.
3. These styles are usually not available with magnets.
4. This mounting is to be used only when sensor mounting rail is present on collet.

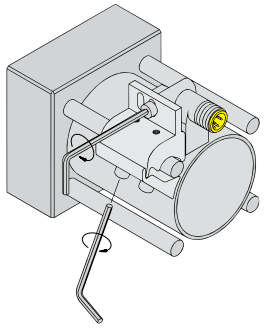
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

Drawing	AKT Housing with KLA-1 Clamp	
	**Cylinder Diameter**	1.26 - 1.97 inches 32 - 50 mm
	Rod Diameter	0.16 - 0.31 inches 4 - 8 mm
	Clamp	KLA-1 (Aluminum)

Drawing	AKT Housing with KLA-2 Clamp	
	**Cylinder Diameter**	1.57 - 4.92 inches 40 - 125 mm
	Rod Diameter	0.28 - 0.51 inches 7 - 13 mm
	Clamp	KLA-2 (Die-cast Zinc)

Drawing	IKE, IKT, and IKM Housing with KLI-1 or KLI-3 Clamp		
	**Cylinder Diameter**	1.26 - 3.94 inches 32 - 100 mm	2.48 - 6.30 inches 63 - 160 mm
	Rod Diameter	0.16 - 0.51 inches 4 - 13 mm	0.24 - 0.63 inches 6 - 16 mm
	Clamp	KLI-1 (Die-cast Zinc)	KLI-3 (Die-cast Zinc)

Drawing	IKE, IKT, and IKM Housing with KLI-5Z or KLI-6Z Clamp		
	**Cylinder Diameter**	1.26 - 2.48 inches 32 - 63 mm	1.97 - 4.92 inches 50 - 125 mm
	Rod Diameter	0.16 - 0.31 inches 4 - 8 mm	0.24 - 0.51 inches 6 - 13 mm
	Clamp	KLI-5Z (Aluminum)	KLI-6Z (Aluminum)

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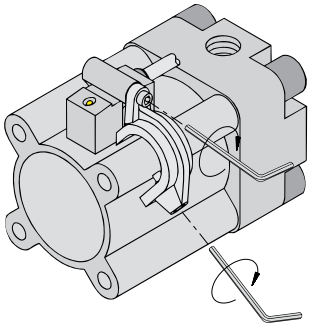
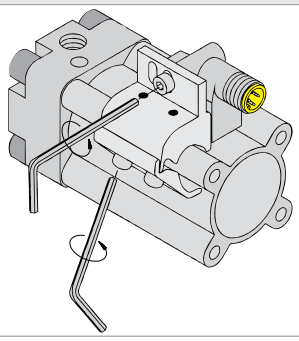
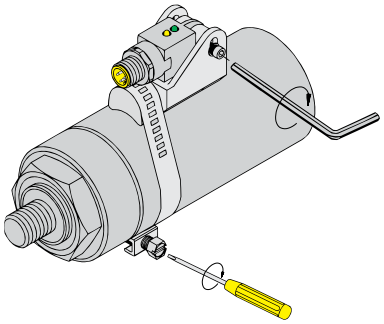
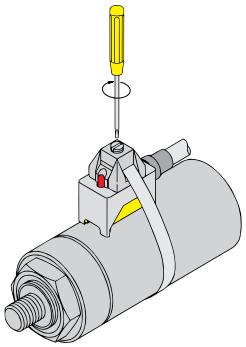
Cylinder Position Sensors

Drawing	IKE, IKT, and IKM Housing with KLI-2 Clamp	
	**Cylinder Diameter**	1.26 - 3.94 inches 32 - 100 mm
	Rod Diameter	0.35 - 0.79 inches 9 - 20 mm
	Clamp	KLI-2 (Die-cast Zinc)

Drawing	IKE, IKT, and IKM Housing with KLI-5 or KLI-6 Clamp		
	**Cylinder Diameter**	1.26 - 1.97 inches 32 - 50 mm	1.97 - 3.94 inches 50 - 100 mm
	Rod Diameter	0.31 - 0.55 inches 8 - 14 mm	0.43 - 0.75 inches 11 - 19 mm
	Clamp	KLI-5 (Aluminum)	KLI-6 (Aluminum)

Drawing	IKE, IKT, and IKM Housing with KLI-CB64 or KLI-CB124 Clamp		
	**Cylinder Diameter**	0.79 - 2.52 inches 20 - 64 mm	0.79 - 4.88 inches 20 - 124 mm
	Rod Diameter	0.31 - 0.55 inches 8 - 14 mm	0.43 - 0.75 inches 11 - 19 mm
	Clamp	KLI-CB64 (Stainless Steel/Steel)	KLI-CB124 (Stainless Steel/Steel)

Drawing	KST Housing with KST-SB170 and KST-SB335 Clamps	
	**Cylinder Diameter**	0.31 - 0.99 inches 8 - 25 mm	0.31 - 3.15 inches 8 - 80 mm
	Strap	KST-SB170 (Stainless Steel)	KST-SB335 (Stainless Steel)
	Mount	KST-MG (Die-cast Zinc)	
	Screw Plate	KST-SE (Die-cast Zinc)	

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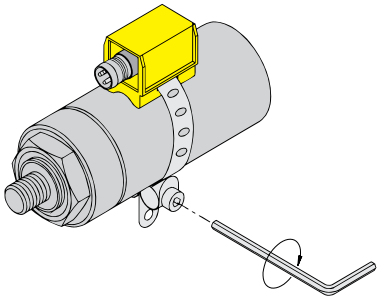
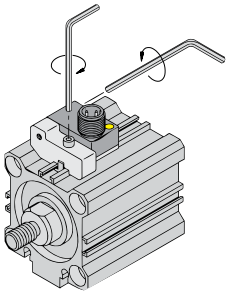
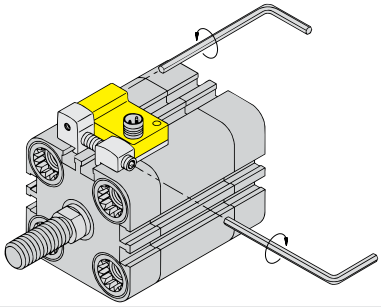
Cylinder Position Sensors

Drawing	PST Housing with KLP80-VA and KLP200-VA Clamps		
	**Cylinder Diameter**	0.31 - 3.15 inches 8 - 80 mm	3.15 - 7.87 inches 0 - 200 mm
	Clamp	KLP80-VA (Stainless steel band, brass nuts)	KLP200-VA (Stainless steel band, brass nuts)

Drawing	NST Housing with KLQ-1 or KLQ-2 Clamps	
	**Cylinder Diameter**	0.47 - 3.94 inches 12 - 100 mm
	Cylinder Manufacturer	SMC
	Cylinder Family	NCDQ2
	Clamp	SMC-325 (Anodized Aluminum)

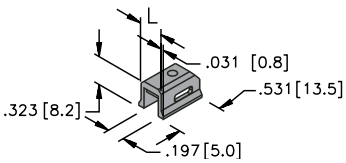
Drawing	NST Housing with KLN-3 Clamp	
	**Cylinder Diameter**	0.47 - 3.94 inches 12 - 100 mm
	Groove Diameter	0.20 - 0.53 (0.83) inches 5.2 - 13.5 (21)* mm
	Clamp	KLN-3 (Anodized Aluminum)
	***Accessory**	Longer M5 x 35 set screw (A0050)

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

UNT Mounting Clamps

KLDT-UNT2

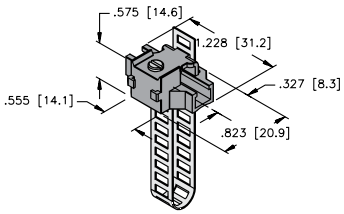


Part Number	"L" inches	"L" mm
KLDT-UNT2	.276	7
KLDT-UNT3	.370	9.4
KLDT-UNT4	.453	11.5
KLDT-UNT5	.496	12.6
KLDT-UNT6	.413	10.5
KLDT-UNT7	.260	6.6

Note: For outside dimension of beveled ears add 1.6 mm to bracket width listed.

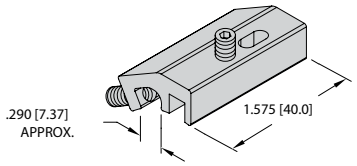
UNT Housing with KLDT-UNT and ASB Style Strap		
Cylinder Diameter		Clamp (Stainless Steel)
Inches	Millimeters	
.276 - .433	7 - 11	ASB-1
.433 - .748	11 - 19	ASB-2
.709 - 1.142	18 - 29	ASB-3
1.102 - 1.535	28 - 39	ASB-4
1.496 - 1.929	38 - 49	ASB-5
1.890 - 2.323	48 - 59	ASB-6

KLRC-UNT2

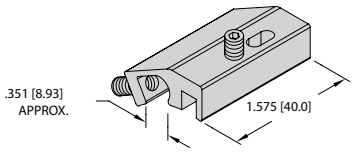


Part Number	Inches	Millimeters
KLRC-UNT1	.315 - .984	8 - 25
KLRC-UNT2	.984 - 2.480	25 - 63
KLRC-UNT3	2.480 - 5.118	63 - 130
KLRC-UNT4	5.118 - 9.843	130 - 250

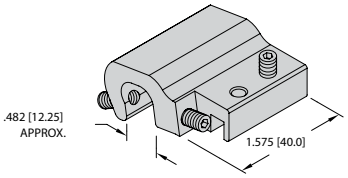
KLZ1M-UNT CLAMP



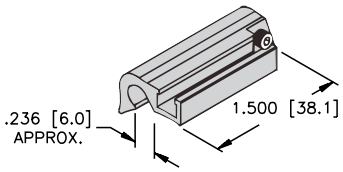
KLZ2M-UNT CLAMP



KLZ3M-UNT CLAMP

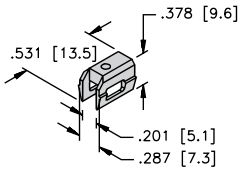
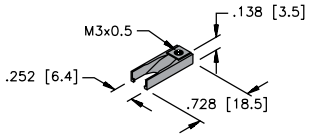
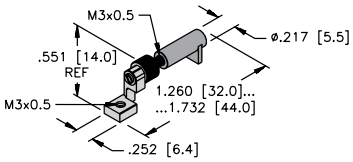
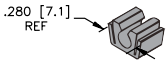
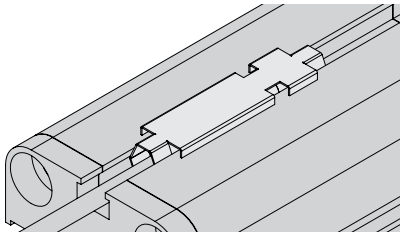
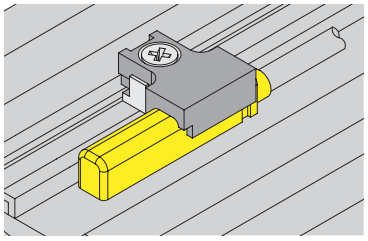


KLZ1A-INT CLAMP



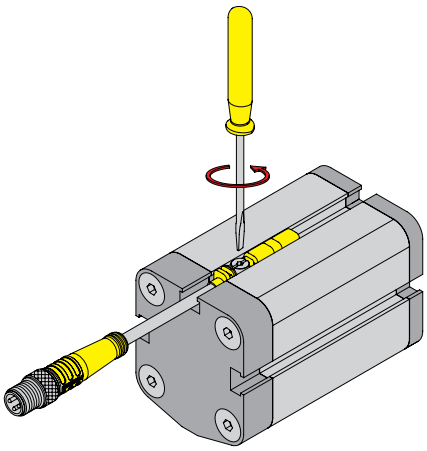
We reserve the right to make technical alterations without prior notice.

UNT Mounting Accessories

KLDT-UNT6 (6913355)	UNT-Stopper (4685751)	UNT-Adjusting Bracket (4685750)
		
UNT Mounting Screw, 2.5 mm (6901056)	**M2-BIM-UNT MTG SCRW. 1.5 mm (6901050)**	**UNT-Cable Clip (6900456)**
		
SG-UNT (A9800)	**KLT-UNT1 (6913377)**	
	 For use with SMC 325 Rail	

UNT Sensor Mounting

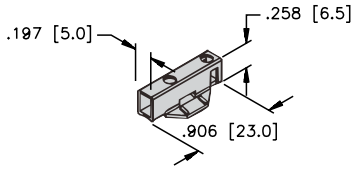
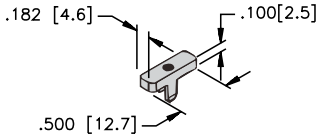
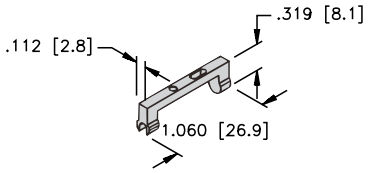
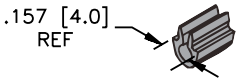
Note: Turn screw counter-clockwise to tighten.



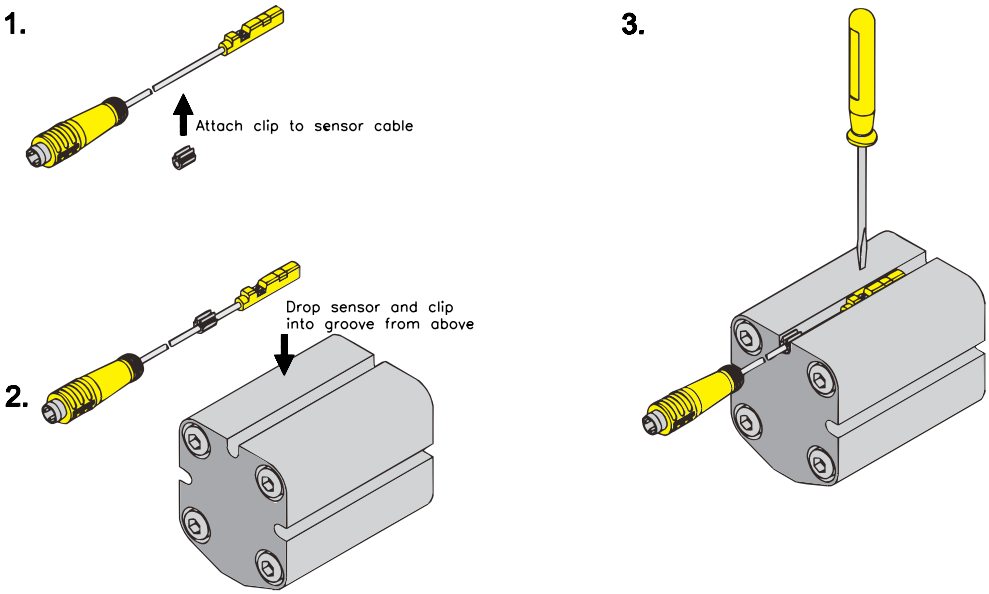
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

UNR Mounting Accessories

KLR-2 UNR	KLFA-UNR	KLTR-2 UNR
		
UNR Cable Clip (6900428)	**M1.6 BIM-UNR-MTG SCR. 1.3 mm (6901055)**	
		

UNR Sensor Mounting



Note: Turn screw counter-clockwise to tighten. Use of mounting clip is optional.

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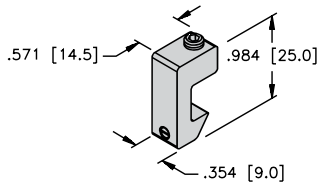
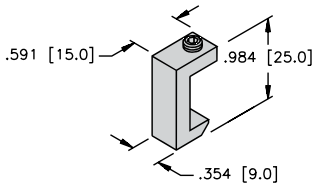
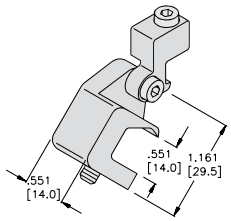
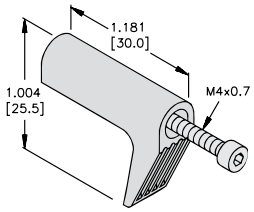
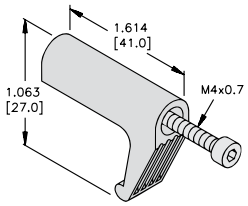
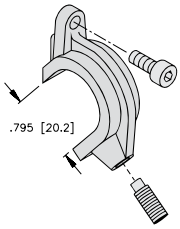
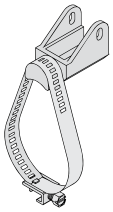
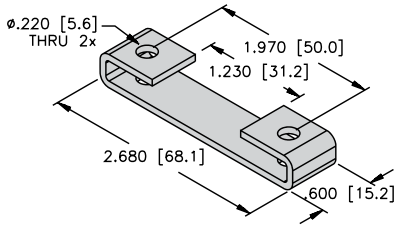
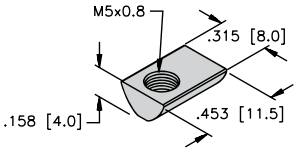
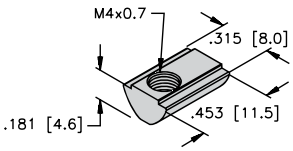
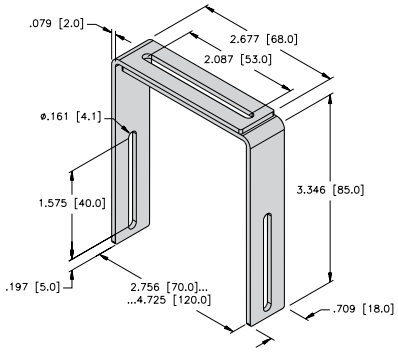
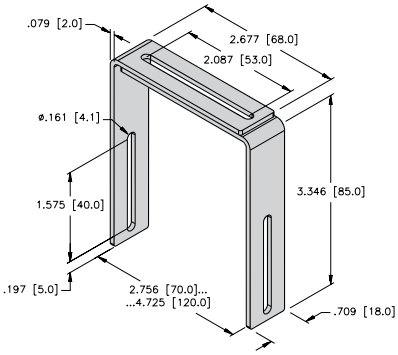
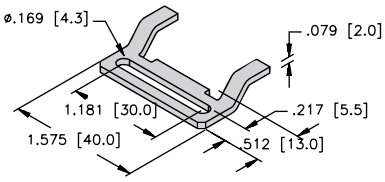
Mounting Clamps

KLA-1	KLA-3M	KLA-2	KLI-1
			

KLI-3	KLI-2	KLI-CB64 and KLI-CB124
		

Mounting Brackets for Q25L Sensor

MB-Q21	MN-M5-Q25	MN-M4-Q25
 Mounting Bracket	 Sliding block with M5 thread for the backside profile	 Sliding block with M4 thread for the backside profile

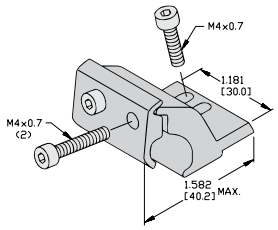
MB2.1-Q25	MB2.2-Q25	MB1-Q25
 Mounting bracket for cylinders 40-60 mm	 Mounting bracket for cylinders 70-120 mm	 Mounting Clip

We reserve the right to make technical alterations without prior notice.

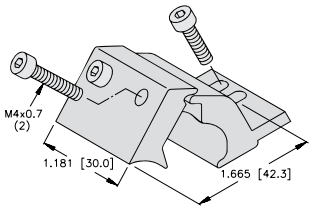
Cylinder Position Sensors

Mounting Clamps

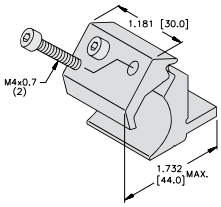
KLI-5



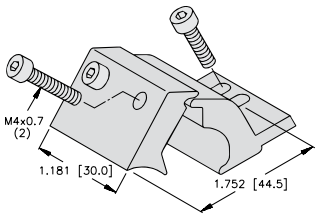
KLI-5Z



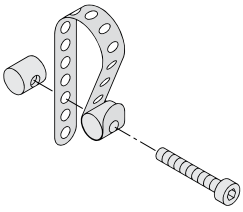
KLI-6



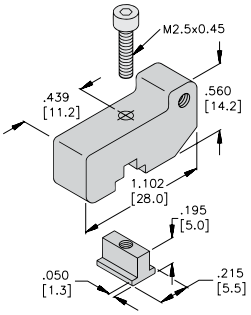
KLI-6Z



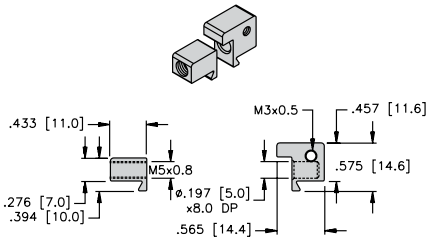
KLP 80-VA and KLP 200-VA



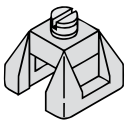
SMC-325



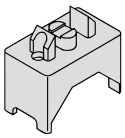
KLN-3



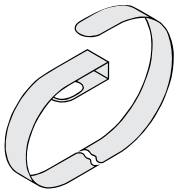
KST-SE (46736)



KST-MG (46735)



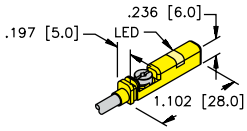
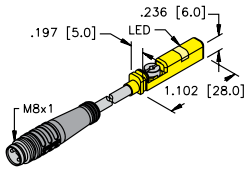
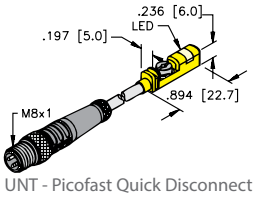
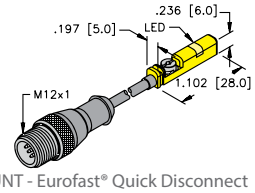
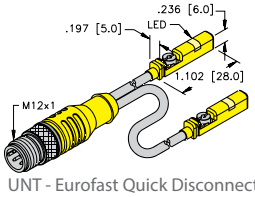
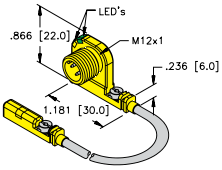
KST-SB170 and KST-SB335



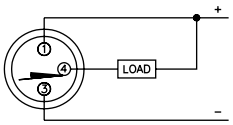
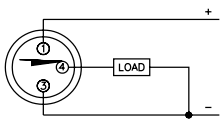
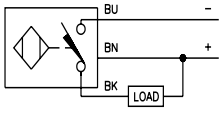
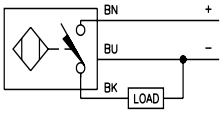
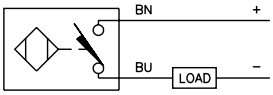
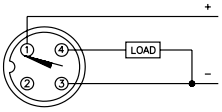
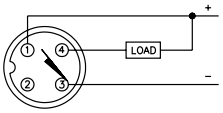
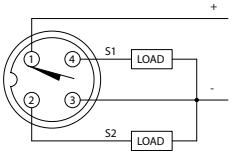
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNT

T-groove, C-groove, Tie-rod, and Round Cylinder Style

Housing Style	Dimension Drawings	
	A  UNT - Potted-In Cable	B  UNT - Picofast® Quick Disconnect
C  UNT - Picofast Quick Disconnect	D  UNT - Eurofast® Quick Disconnect	E  UNT - Eurofast Quick Disconnect
F  UNT - Eurofast Quick Disconnect		

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: PKG 3Z-*	2  Mating Cordset: PKG 3Z-*; PKG 3M-*	3 	4 
5 	6  Mating Cordset: RK 4T-*	7  Mating Cordset: RK 4T-*	8  Mating Cordset: RK 4.4T-*; RKC 4.4T-*

A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

A14 — **2-wire DC - Magnetic (AD, AG)**

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	≤1 mm	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-Polarized (AD) ≤4 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤3.5 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Pass Speed:	≤3 ms, ≤10 ms (UNT)	Repeatability:	≥± 0.1 mm

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNT

T-groove, C-groove, Tie-rod, and Round Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-UNT-AN6X 4685702		3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/TPU	A	3	A13
BIM-UNT-AP6X 4685741		3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/TPU	A	4	A13
BIM-UNT-AG41X/S1139/S1160 4685766	Irradiated TPU Cable, Wider Range	2-wire DC	10-55 VDC	300	≤ 100	-25 to +70	IP67	PA 12	2M/TPU	A	5	A14
BIM-UNT-AN6X-0.3-PSG3S 4685705	Fixed Coupling Nut	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	0.3M/TPU	B	1	A13
BIM-UNT-AP6X-0.3-PSG3S 4685722	Fixed Coupling Nut	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	0.3M/TPU	B	2	A13
BIM-UNT-AP6X-0.3-PSG3M 4685723	Rotating Coupling Nut	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	0.3M/TPU	C	2	A13
BIM-UNT-AP6X-0.3-RS4T 46857260		3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	0.3M/TPU	D	6	A13
BIM-UNT-AN6X-0.3-RS4T 4685792		3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	0.3M/TPU	D	7	A13
BIM-UNT-0.3-UNT-2AP6X3-H1141 4685730	Dual Switch	4-wire DC, PNP	10-30 VDC	1000	≤ 150	-25 to +70	IP67	PP	0.3M/TPU	F	8	A13
BIM-UNT-AP6X/S991 4685728	Radial Magnetic Fields	3-wire DC, PNP	10-30 VDC	1000	≤ 150	-25 to +70	IP67	PP	2M/TPU	B	4	A13
BIM-UNT-2AP6X-0.2-RSC4.4T 4685891	Dual Switch	4-wire DC, PNP	10-30 VDC	1000	≤ 150	-25 to +70	IP67	PP	0.2M/TPU	E	8	A13

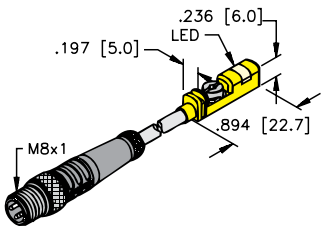
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNTK

T-groove Short Cylinder Style

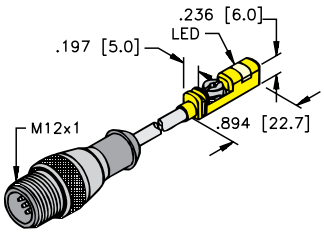
Housing Style	Dimension Drawings

A



UNTK - Picofast Quick Disconnect

B



UNTK - Eurofast Quick Disconnect

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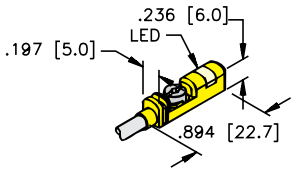
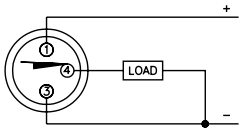


UNTK - Potted-In Cable

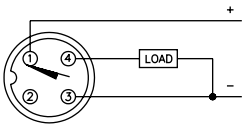
Wiring Diagrams/Mating Cordsets

1



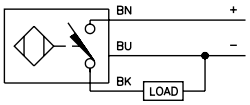
Mating Cordset: PKG 3Z-*

2



Mating Cordset: RK 4T-*

3



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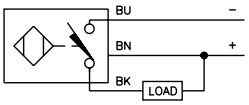


A13 — 3-wire DC - Magnetic (AN, RN, AP, RP)

Ripple:	≤10%
Differential Travel (Hysteresis):	≤1 mm
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current ≥170 mA on 150 mA Load Current ≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA;
Pass Speed:	≤10 ms; ≤3 ms (UNR)
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)

A17 — 3-wire DC - Magnetic w/o Short Circuit Protection (AP7)

Ripple:	≤10%
Differential Travel (Hysteresis):	≤1 mm
Voltage Drop Across Conducting Sensor:	≤1.4 V
Short Circuit Protection:	No
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤10 mA;
Pass Speed:	≤3 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤0.3 mm
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≥± 0.3 mm

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNTK

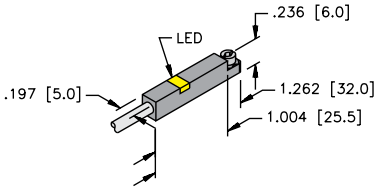
T-groove Short Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-UNTK-AP7X-0.3-PSG3M 4686011	Short Body	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	A	1	A17
BIM-UNTK-AP7X-0.3-RS4T 4686021	Short Body	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	B	2	A17
BIM-UNTK-AP7X 4686001	Short Body	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	2M TPU	C	3	A17
BIM-UNTK-AP6X 4686005	short Body	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP68	PP	2M TPU	C	3	A13
BIM-UNTK-AN6X 4686006	Short Body	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP69	PP	2M TPU	C	4	A13

We reserve the right to make technical alterations without prior notice.

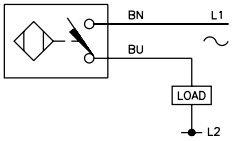
Cylinder Position Sensors | BR-INT

T-groove Cylinder Style or Universal Mount with Brackets

Housing Style	Dimension Drawings
	A  INT - Picofast Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



A3 — **2-wire Reed AC and DC (ADZ71)**

Ripple:	≤10%	Reverse Polarity Protection:	Yes
Differential Travel (Hysteresis):	≤1 mm (Depends on magnet)	Shock:	30 g, 11 ms
Maximum Switching Capacity:	≤10 W	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Off-State (Leakage) Current:	0 mA	Repeatability:	≥±0.1 mm
Pass Speed:	≤10 m/s		(constant temperature & voltage)
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	≤0.1 mm
Transient Protection:	Per EN 60947-5-2	Voltage Drop:	≤0.5 V

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BR-INT

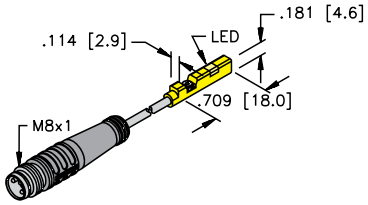
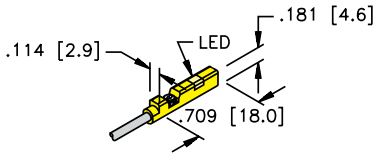
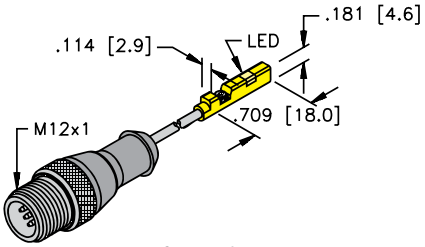
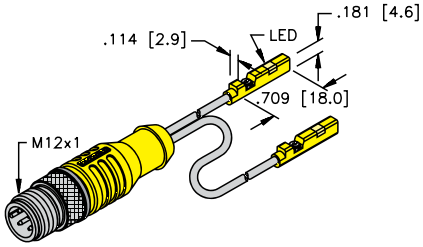
T-groove Cylinder Style or Universal Mount with Brackets

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BR-INT-ADZ71X 4700510	Reed Contact	2-wire AC/DC, Reed Contact	3-140 VAC/4-200 VDC	500	≤ 500	-25 to +70	IP67	PA 12	2M/PVC	A	1	A3

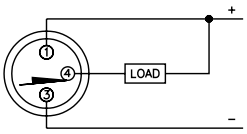
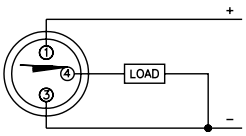
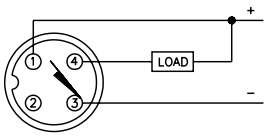
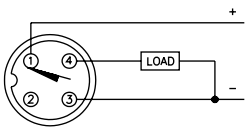
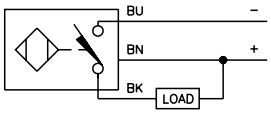
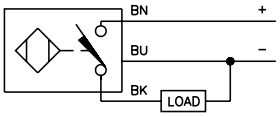
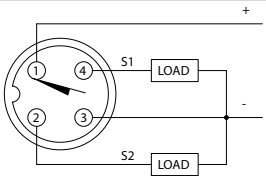
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNR

C-groove Cylinder Style

Housing Style	Dimension Drawings	
	A  UNR - Picofast Quick Disconnect	B  UNR - Potted-In Cable
C  UNR - Eurofast Quick Disconnect	D  UNR - Eurofast Quick Disconnect	

Wiring Diagrams/Mating Cordsets

1	2	3	4
 Mating Cordset: PKG 3Z-*	 Mating Cordset: PKG 3Z-*	 Mating Cordset: RK 4T-*	 Mating Cordset: RK 4T-*
5	6	7	
		 Mating Cordset: RKC 4.4T-*	

A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNR

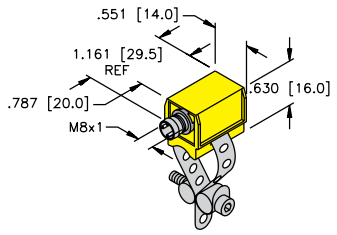
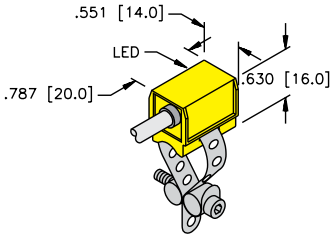
C-groove Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-UNR-AN6X-0.3-PSG3S W/M 4685848	Fixed Coupling Nut	3-wire DC, NPN	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	A	1	A13
BIM-UNR-AP6X-0.3-PSG3S W/M 4685843	Fixed Coupling Nut	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	A	2	A13
BIM-UNR-AN6X-0.3-RS4 W/M 4685850		3-wire DC, NPN	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	C	3	A13
BIM-UNR-AP6X-0.3-RS4 W/M 4685845		3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	C	4	A13
BIM-UNR-AN6X W/M 4685847		3-wire DC, NPN	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	2M/TPU	B	5	A13
BIM-UNR-AP6X W/M 4685842		3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	2M/TPU	B	6	A13
BIM-UNR-2AP6X-0.2-RSC4.4T 4685899	Dual Switch	4-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.2M/TPU	D	7	A13

We reserve the right to make technical alterations without prior notice.

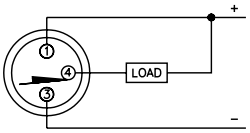
Cylinder Position Sensors | BIM-PST

Round Cylinder Style

Housing Style	Dimension Drawings	
	A  PST - Picofast Quick Disconnect	B  PST - Potted-In Cable

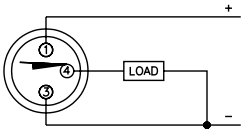
Wiring Diagrams/Mating Cordsets

1



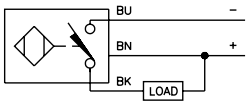
Mating Cordset: PKG 3Z-*

2



Mating Cordset: PKG 3Z-*

3



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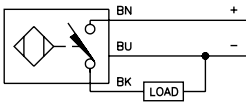


A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-PST

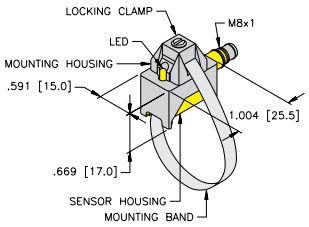
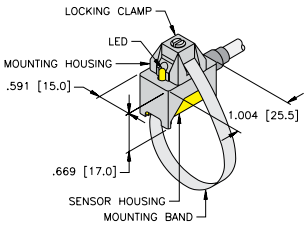
Round Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-PST-AN6X-V1131 W/KLP-80 4625190	KLP-80 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	A	1	A13
BIM-PST-AP6X-V1131 W/KLP-80 4625090	KLP-80 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	A	2	A13
BIM-PST-AN6X W/KLP-80 4624191	KLP-80 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/PVC	B	3	A13
BIM-PST-AP6X W/KLP-80 4624090	KLP-80 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/PVC	B	4	A13

We reserve the right to make technical alterations without prior notice.

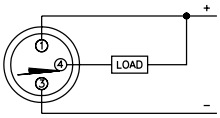
Cylinder Position Sensors | BIM-KST

Round Cylinder Style

Housing Style	Dimension Drawings	
	A  KST - Picofast Quick Disconnect	B  KST - Potted-In Cable

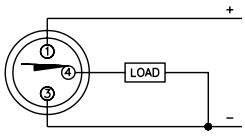
Wiring Diagrams/Mating Cordsets

1



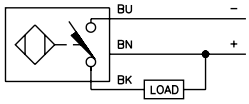
Mating Cordset: PKG 3Z-*

2



Mating Cordset: PKG 3Z-*

3



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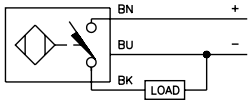


A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-KST

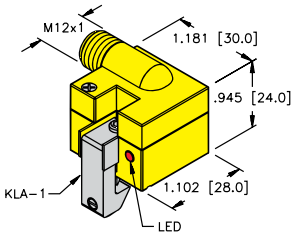
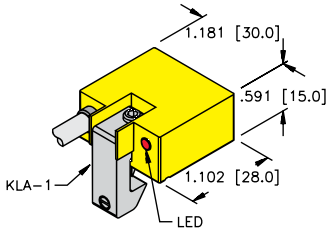
Round Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-KST-AN6X-V1131 46743	KST SB170 and KST SB335 Straps Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	A	1	A13
BIM-KST-AP6X-V1131 46742	KST SB170 and KST SB335 Straps Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	A	2	A13
BIM-KST-AN6X 46741	KST SB170 and KST SB335 Straps Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/ PVC	B	3	A13
BIM-KST-AP6X 46740	KST SB170 and KST SB335 Straps Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/ PVC	B	4	A13

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-AKT

Tie-rod Cylinder Style

Housing Style	Dimension Drawings	
	A  AKT - Eurofast Connector	B  AKT - Potted-In Cable

Wiring Diagrams/Mating Cordsets

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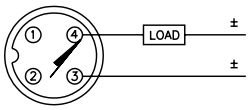
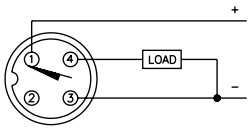


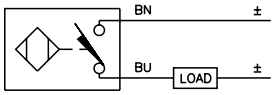
Mating Cordset: RK 4.2T-*

2



Mating Cordset: RK 4T-*

3



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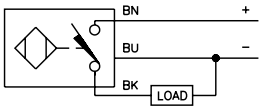


A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

A14 — **2-wire DC - Magnetic (AD, AG)**

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	≤1 mm	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-Polarized (AD) ≤4 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤3.5 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Pass Speed:	≤3 ms, ≤10 ms (UNT)	Repeatability:	≥± 0.1 mm

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-AKT

Tie-rod Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-AKT-AD4X-H1141 W/KLA-1 4480290	KLA-1 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	PA 12	--	A	1	A14
BIM-AKT-AP6X-H1141 W/KLA-1 4675290	KLA-1 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	A	2	A13
BIM-AKT-AD4X W/KLA-1 4480090	KLA-1 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	PA 12	2M/PVC	B	3	A14
BIM-AKT-AP6X W/KLA-1 4675090	KLA-1 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/PVC	B	4	A13

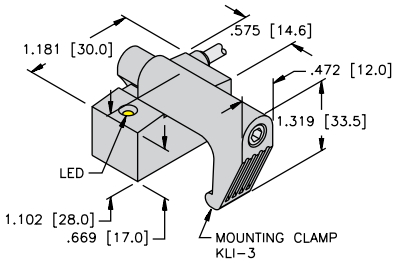
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-IKE/IKT

Tie-rod Cylinder Style

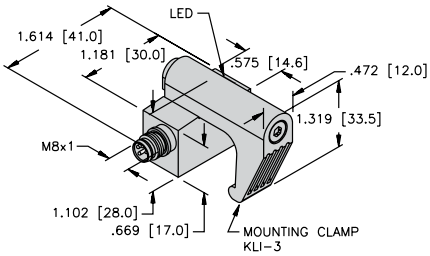
Housing Style	Dimension Drawings

A



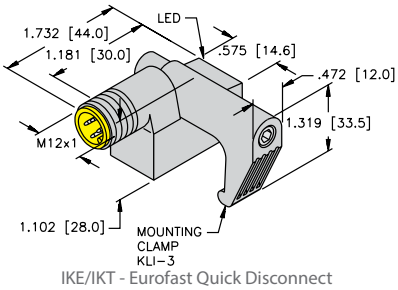
IKE/IKT - Potted-In Cable

B



IKE/IKT - Picofast Quick Disconnect

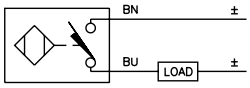
C



IKE/IKT - Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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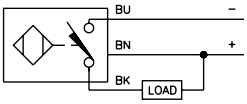

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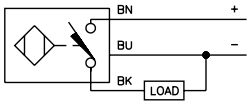

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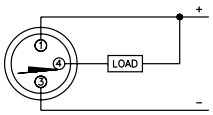
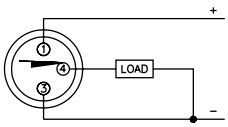


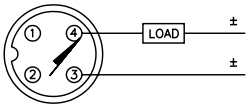
Mating Cordset: PKG 3Z-*

5



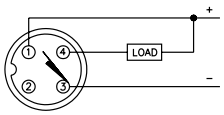
Mating Cordset: PKG 3Z-*

6



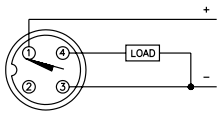
Mating Cordset: RK 4.2T-*

7



Mating Cordset: RK 4T-*

8



Mating Cordset: RK 4T-*

A13 — 3-wire DC - Magnetic (AN, RN, AP, RP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

A14 — 2-wire DC - Magnetic (AD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	≤1 mm	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-Polarized (AD) ≤4 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤3.5 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Pass Speed:	≤3 ms, ≤10 ms (UNT)	Repeatability:	≥± 0.1 mm

Additional Specifications

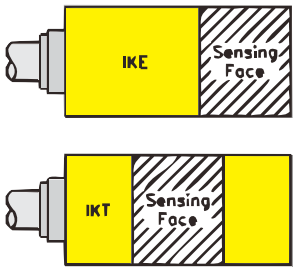
Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-IKE/IKT

Tie-rod Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-IKE-AD4X W/KLI-3 4421490	KLI-3 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	Zinc	2M/PVC	A	1	A14
BIM-IKT-AD4X W/KLI-3 4482090	KLI-3 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	Zinc	2M/PVC	A	1	A14
BIM-IKE-AN6X W/KLI-3 4621590	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/PVC	A	2	A13
BIM-IKT-AN6X W/KLI-3 4620190	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/PVC	A	2	A13
BIM-IKE-AP6X W/KLI-3 4621490	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/PVC	A	3	A13
BIM-IKT-AP6X W/KLI-3 4620090	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/PVC	A	3	A13
BIM-IKE-AN6X-V1131 W/KLI-3 4621795	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	B	4	A13
BIM-IKT-AN6X-V1131 W/KLI-3 4622195	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	B	4	A13
BIM-IKE-AP6X-V1131 W/KLI-3 4621695	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	B	5	A13
BIM-IKT-AP6X-V1131 W/KLI-3 4622095	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	B	5	A13
BIM-IKE-AD4X-H1141 W/KLI-3 4421690	KLI-3 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	Zinc	--	C	6	A14
BIM-IKT-AD4X-H1141 W/KLI-3 4482290	KLI-3 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	Zinc	--	C	6	A14
BIM-IKE-AN6X-H1141 W/KLI-3 4621790	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	C	7	A13
BIM-IKT-AN6X-H1141 W/KLI-3 4621190	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	C	7	A13
BIM-IKE-AP6X-H1141 W/KLI-3 4621690	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	C	8	A13
BIM-IKT-AP6X-H1141 W/KLI-3 4621090	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	C	8	A13



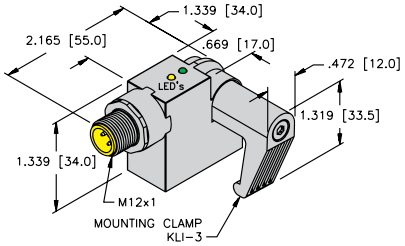
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-IKM

Tie-rod Cylinder Style

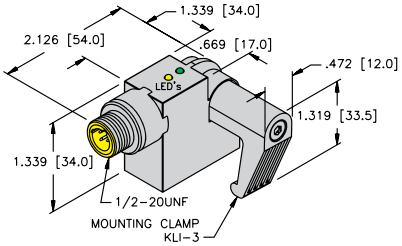
Housing Style	Dimension Drawings

A



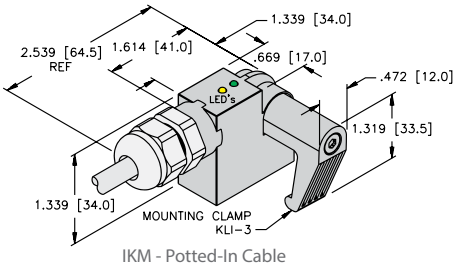
IKM - Eurofast Connector

B



IKM - Microfast® Connector

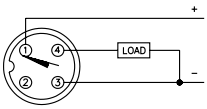
C



IKM - Potted-In Cable

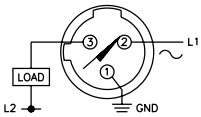
Wiring Diagrams/Mating Cordsets

1



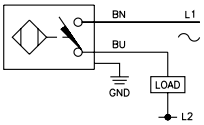
Mating Cordset: RK 4T-*

2



Mating Cordset: KB 3T-*

3



A13 — 3-wire DC - Magnetic (AN, RN, AP, RP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

A15 — 2-wire AC w/o Short-Circuit Protection - Magnetic (AZ)

Line Frequency:	≥50... ≤60 Hz	Pass Speed:	≤1 ms
Differential Travel (Hysteresis):	≤1 mm	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤6.0 V	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	AC: ≤500 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤1.7 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Minimum Load Current:	≥5.0 mA	Repeatability:	≥± 0.1 mm

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

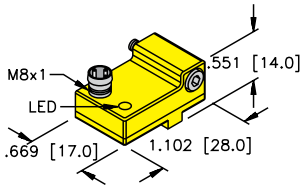
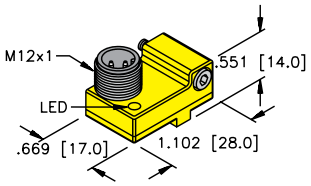
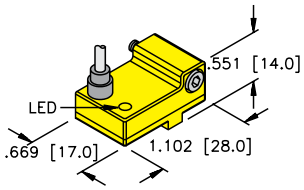
Cylinder Position Sensors | BIM-IKM

Tie-rod Cylinder Style

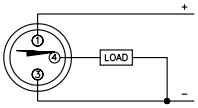
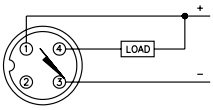
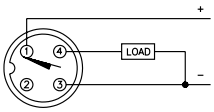
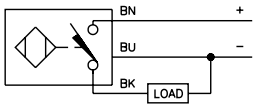
Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-IKM-AP6X2-H1141/S34W/KLI-3 4627290	KLI-3 Included, WFI	3-wire DC, PNP	10-30 VDC	20	≤ 200	-25 to +70	IP67	Zinc	--	A	1	A13
BIM-IKM-AZ3X2-B3131 W/KLI-3 1347190	KLI-3 Included	2-wire AC	20-250 VAC	20	≤ 500	-25 to +70	IP67	Zinc	--	B	2	A15
BIM-IKM-AZ3X2 W/KLI-3 1347290	KLI-3 Included	2-wire AC	20-250 VAC	20	≤ 500	-25 to +70	IP67	Zinc	2M/PVC	C	3	A15

We reserve the right to make technical alterations without prior notice.

T-groove or Slot Style

Housing Style	Dimension Drawings
	A  NST - Picofast Connector
B  NST - Picofast Connector	C  NST - Potted-In Cable

Wiring Diagrams/Mating Cordsets

1	2	3	4
			
Mating Cordset: PKG 3Z-*	Mating Cordset: RK 4T-*	Mating Cordset: RK 4T-*	

A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-NST

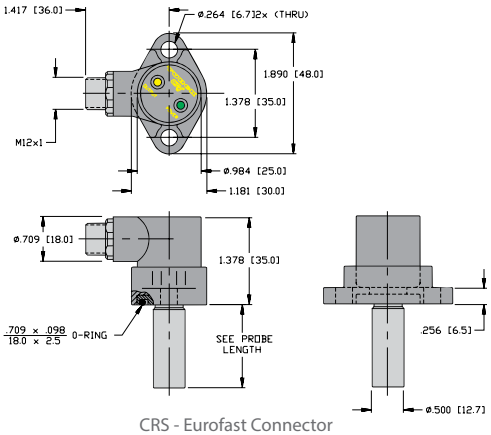
T-groove or Slot Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-NST-AP6X-V1131 4685800	w/o Bracket	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	A	1	A13
BIM-NST-AN6X-H1141 4685500	w/o Bracket	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	B	2	A13
BIM-NST-AP6X-H1141/S34 4685401	w/o Bracket, WFI	3-wire DC, PNP	10-30 VDC	20	≤ 200	-25 to +70	IP67	PA 12	--	B	3	A13
BIM-NST-AP6X-H1141 4685400	w/o Bracket	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	B	3	A13
BIM-NST-AP6X 4685600	w/o Bracket	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/PVC	C	4	A13

We reserve the right to make technical alterations without prior notice.

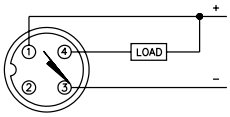
Cylinder Position Sensors | CRS

In-Cylinder Position Sensors

Housing Style	Dimension Drawings
	A  CRS - Eurofast Connector

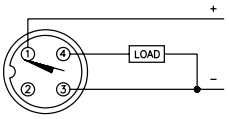
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | CRS

In-Cylinder Position Sensors

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-CRS260-AN4X2-H1141/S34 4580004	WFI; 1,500 PSI Operating	3-wire DC, NPN	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	1	A4
Bi2-CRS317-AN4X2-H1141/S34 4580093	WFI; 1,500 PSI Operating	3-wire DC, NPN	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	1	A4
Bi2-CRS343-AN4X2-H1141/S34 4571890	WFI; 1,500 PSI Operating	3-wire DC, NPN	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	1	A4
Bi2-CRS524-AN4X2-H1141/S34 4568096	WFI; 1,500 PSI Operating	3-wire DC, NPN	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	1	A4
Bi2-CRS232-AP4X2-H1141/S34 4570492	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS260-AP4X2-H1141/S34 4570890	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS287-AP4X2-H1141/S34 4571290	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS317-AP4X2-H1141/S34 4571690	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS343-AP4X2-H1141/S34 4571800	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS476-AP4X2-H1141/S34 4580091	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS524-AP4X2-H1141/S34 4580090	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS603-AP4X2-H1141/S34 4580096	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS705-AP4X2-H1141/S34 4580089	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS730-AP4X2-H1141/S34 4580003	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS959-AP4X2-H1141/S34 4571891	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS1159-AP4X2-H1141/S34 4570899	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi1.5-CRS524C-AP6X2-H1141 4279091	High Pressure; 3,000 PSI Operating	3-wire DC, PNP	10-30 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi1.5-CRS260C-AP6X2-H1141 4279092	High Pressure; 3,000 PSI Operating	3-wire DC, PNP	10-30 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4

Bi *-CRS-XXXX-.. = Length of probe in mm. Example: CRS260 = 26.0 mm

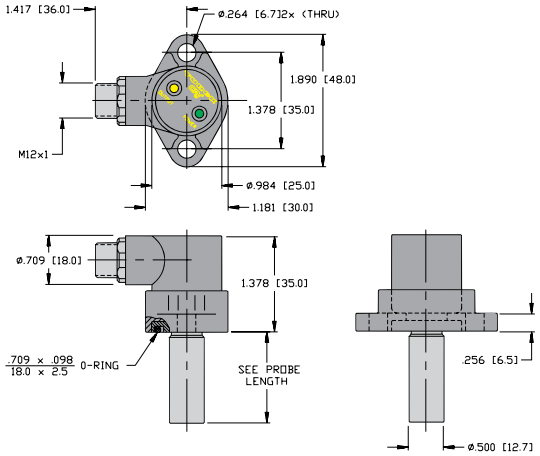
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | CRS

In-Cylinder Position Sensors

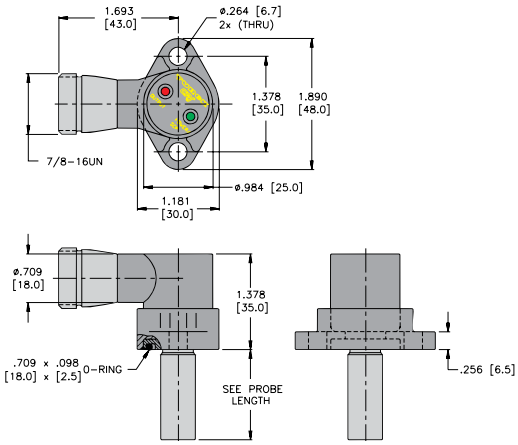
Housing Style	Dimension Drawings

A



CRS - Microfast Connector

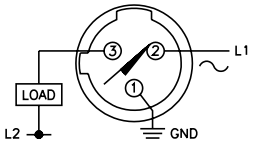
B



CRS - Minifast® Connector

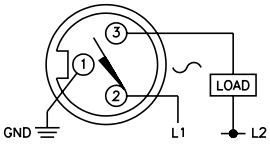
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*

2



Mating Cordset: RKM 311-*M

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | CRS

In-Cylinder Position Sensors

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-CRS232-ADZ30X2-B3131/S34 4275093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS260-ADZ30X2-B3131/S34 4275493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS317-ADZ30X2-B3131/S34 4276293	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS476-ADZ30X2-B3131/S34 4276693	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS524-ADZ30X2-B3131/S34 4277093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS730-ADZ30X2-B3131/S34 4278293	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS959-ADZ30X2-B3131/S34 4279093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS1159-ADZ30X2-B3131/S34 4279493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS232-ADZ30X2-B1131/S34 4270093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS260-ADZ30X2-B1131/S34 4270493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS317-ADZ30X2-B1131/S34 4271293	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS343-ADZ30X2-B1131/S34 4271493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS476-ADZ30X2-B1131/S34 4271693	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS524-ADZ30X2-B1131/S34 4272093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS603-ADZ30X2-B1131/S34 4272493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS705-ADZ30X2-B1131/S34 4272893	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS730-ADZ30X2-B1131/S34 4273293	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS959-ADZ30X2-B1131/S34 4274093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS1159-ADZ30X2-B1131/S34 4274493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS959C-ADZ30X2-B1131 4279094	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS730C-ADZ30X2-B1131 4279095	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS260C-ADZ30X2-B1131 4279096	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS232C-ADZ30X2-B1131 4279097	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS524C-ADZ30X2-B1131 4279098	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS317C-ADZ30X2-B1131 4279099	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5

Bi *-CRS-XXXX-.. = Length of probe in mm. Example: CRS260 = 26.0 mm

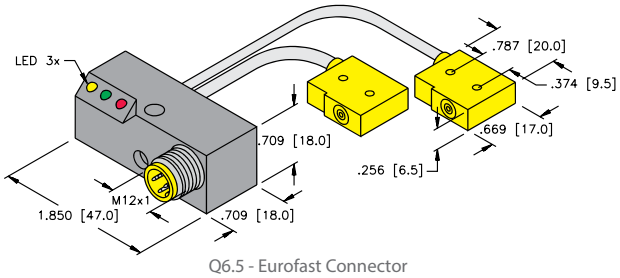
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Q6.5

Power Clamp Position Sensors

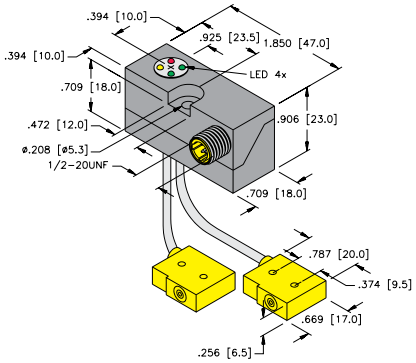
Housing Style	Dimension Drawings

A



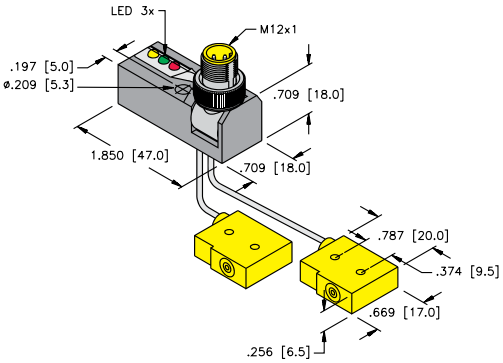
Q6.5 - Eurofast Connector

B



Q6.5 - Microfast Connector

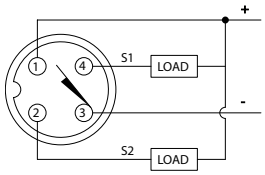
C



Q6.5 - Eurofast Connector

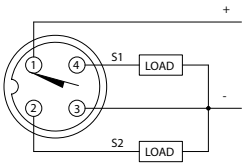
Wiring Diagrams/Mating Cordsets

1



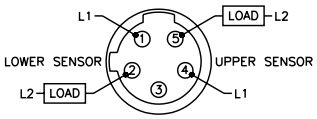
Mating Cordset: RK 4.4T-*

2



Mating Cordset: RK 4.4T-*

3



Mating Cordset: KB 5T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Q6.5

Power Clamp Position Sensors

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni2-Q6.5-AN6-0.1-FS4.4X3/S304 1650079		4-wire DC, NPN	10-30 VDC	30	≤ 500	-25 to +70	IP67	PBT	0.1M/TPU	A	1	A4
Ni2-Q6.5-AN6-0.16-FS4.4X3/S304 1650085		4-wire DC, NPN	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.16M/TPU	A	1	A4
Ni2-Q6.5-AP6-0.1-FS4.4X3/S304 1650048		4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.1M/TPU	A	2	A4
Ni2-Q6.5-AP6-0.16-FS4.4X3/S304 1650086		4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.16M/TPU	A	2	A4
Ni2-Q6.5-AP6-0.2-FS4.4X3/S304 1650047		4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.2M/TPU	A	2	A4
Ni2-Q6.5-0.1-BDS-2AP6X3-H1141/S34 1650098	WFI	4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.1M/TPU	C	2	A4
Ni2-Q6.5-0.16-BDS-2AP6X3-H1141/S34 1650110	WFI	4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.16M/TPU	C	2	A4
Ni2-Q6.5-ADZ32-0.1-FSB5.4X4/S304 4200204		4-wire, VAC/DC	20-250 VAC/10-300 VDC	30	≤ 100	-25 to +70	IP67	PBT	0.1M/TPU	B	3	A5
Ni2-Q6.5-ADZ32-0.16-FS 5.4X4/S304 4200203		4-wire, VAC/DC	20-250 VAC/10-300 VDC	30	≤ 100	-25 to +70	IP67	PBT	0.16M/TPU	B	3	A5

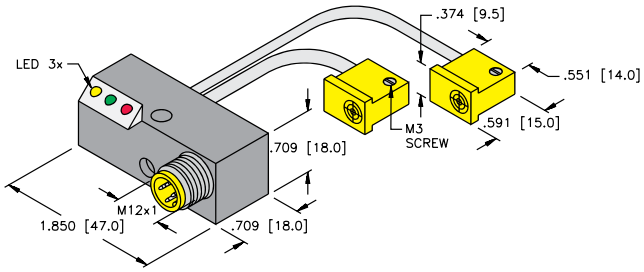
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Q9.5

Power Clamp Position Sensors

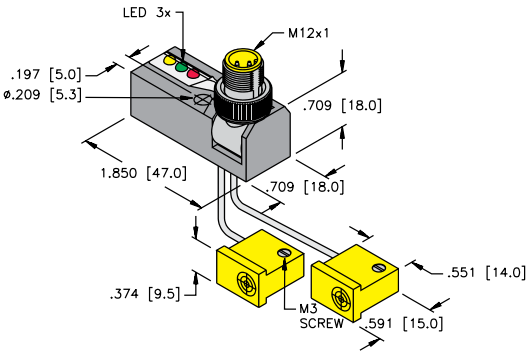
Housing Style	Dimension Drawings

A



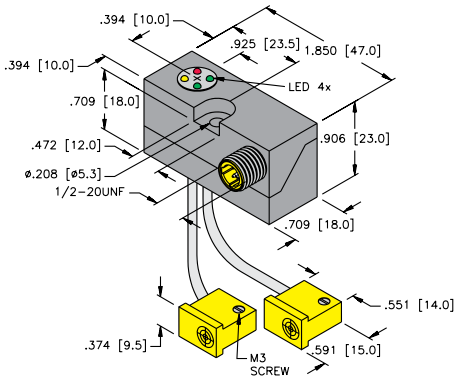
Q9.5 - Eurofast Connector

B



Q9.5 - Eurofast Connector

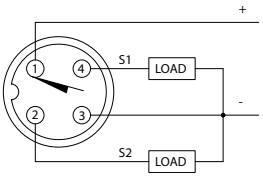
C



Q9.5 - Microfast Connector

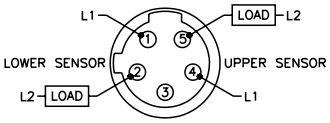
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

2



Mating Cordset: KB 5T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A5 — **2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)**

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Q9.5

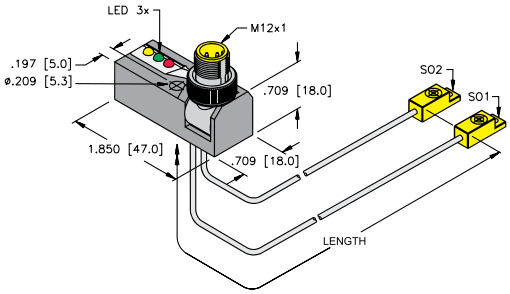
Power Clamp Position Sensors

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni2-Q9.5-AP6-0.1-FS4.4X3/S304 1650060		4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.1M/TPU	A	1	A4
Ni2-Q9.5-0.1-BDS-2AP6X3-H1141/S34 1650099	WFI	4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.1M/TPU	B	1	A4
Ni2-Q9.5-ADZ32-0.1-FSB5.4X4/S304 4200210		4-wire, VAC/DC	20-250 VAC/10-300 VDC	20	≤ 100	-25 to +70	IP67	PBT	0.1M/TPU	C	2	A5

We reserve the right to make technical alterations without prior notice.

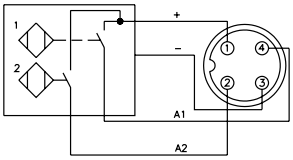
Cylinder Position Sensors | ISI

Power Clamp Position Sensors

Housing Style	Dimension Drawings
	A  ISI - Eurofast Connector

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | ISI

Power Clamp Position Sensors

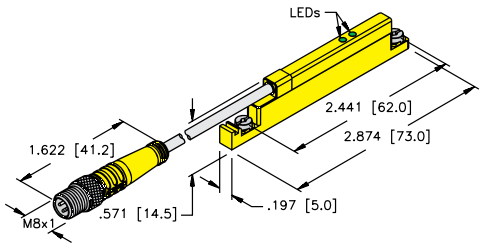
Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni2-ISI-0.1-BDS-2AP6X3-H1141/S34 1650133	WFI	4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.1M/TPU	A	1	A4

We reserve the right to make technical alterations without prior notice.

Power Clamp Position Sensors

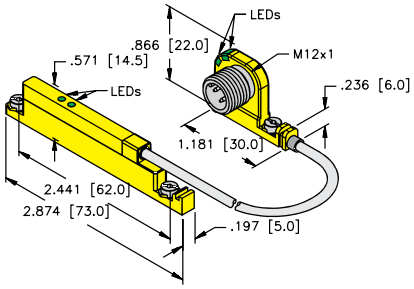
Housing Style	Dimension Drawings

A



23 mm - Embeddable, T-groove Pneumatic Cylinders Picofast Quick Disconnect

B



23 mm - Embeddable, T-groove Pneumatic Cylinders Eurofast Quick Disconnect

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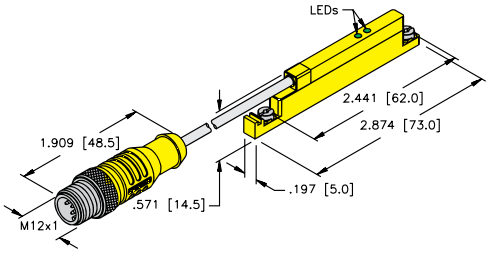
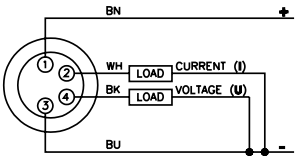


23 mm - Embeddable, T-groove Pneumatic Cylinders Eurofast Quick Disconnect

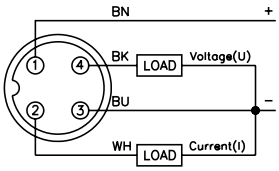
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*; PKG 4M-*

2



Mating Cordset: RK 4.4T-*

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A8 — 3 and 4-wire DC Analog - (LU)

Ripple:	≤10%	Short-Circuit Protection:	Yes
No-Load Current:	≤8.0 mA	Wire-Break Protection:	Yes
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Shock:	30 g, 11 ms
Temperature Drift:	±0.06% / °C	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Reverse Polarity Protection:	Incorporated	Repeatability:	≤1% of measuring range |A-B|
Transient Protection:	Per EN 60947-5-2		(0.5% after 30 min. warm up)

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | WIM

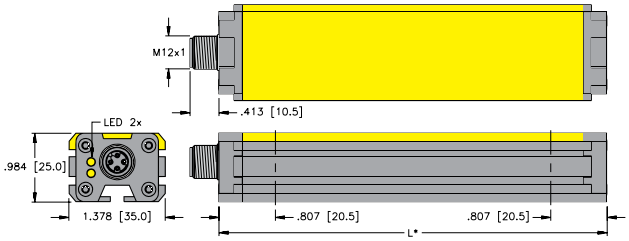
Power Clamp Position Sensors

Part Number/ ID Number	Linear Operating Distance (mm)	Resolution	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
WIM45-UNTL-LIU5X2-0.3-PSG4M 1536620	45	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	PA 12	0.3M/TPU	A	1	A7
WIM45-UNTL-0.3-BIM-UNT-LUAP6X4-H1141 1536623	45	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	PA 12	0.3M/TPU	B	2	A8
WIM45-UNTL-LIU5X2-0.3-RS4 1536621	45	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	PA 12	0.3M/TPU	C	1	A7

We reserve the right to make technical alterations without prior notice.

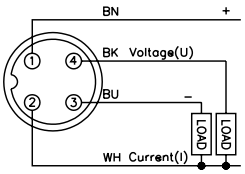
Cylinder Position Sensors | WIM

Magnetic Linear Position Sensors

Housing Style	Dimension Drawings
	A  25 mm - Embeddable, Eurofast Quick Disconnect

Wiring Diagrams/ Mating Cordset

1



Mating Cordset: RK 4.4T-*

A7 — **3 and 4-wire DC Analog - (LIU, SIU)**

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

Additional Specifications

Magnetic Actuation Strength (Gauss): 50-100

For mounting accessories see page G9

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | WIM

Magnetic Linear Position Sensors

Part Number/ ID Number	Linear Operating Distance (mm)	Resolution	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Housing	Face	Dimension Drawings	Wiring Diagrams	Spec List
WIM100-Q25L141-LIU5X2-H1141 1536630	100	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	AL	PC-GF20	A	1	A7
WIM125-Q25L166-LIU5X2-H1141 1536631	125	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	AL	PC-GF20	A	1	A7
WIM160-Q25L201-LIU5X2-H1141 1536632	160	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	AL	PC-GF20	A	1	A7
WIM200-Q25L241-LIU5X2-H1141 1536633	200	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	AL	PC-GF20	A	1	A7

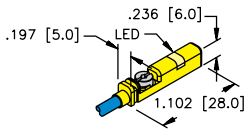
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Namur

Intrinsically Safe

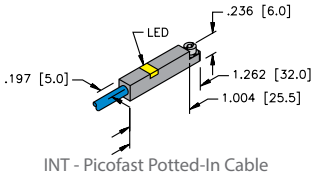
Dimension Drawings

A



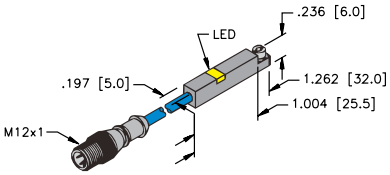
UNT - Potted-In Cable

B



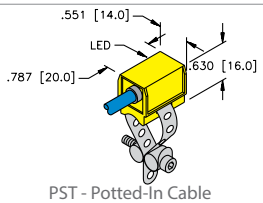
INT - Picofast Potted-In Cable

C



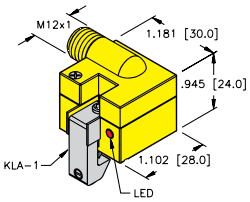
INT - Eurofast Quick Disconnect

D



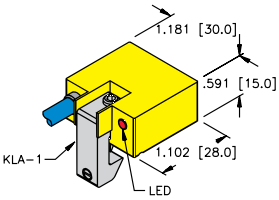
PST - Potted-In Cable

E



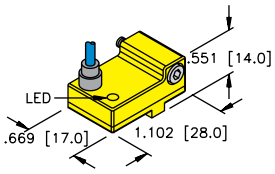
AKT - Eurofast Connector

F



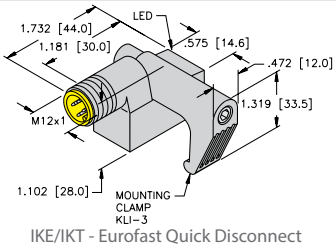
AKT - Potted-In Cable

G



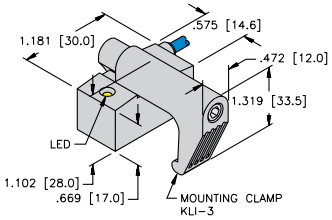
NST - Potted-In Cable

H



IKE/IKT - Eurofast Quick Disconnect

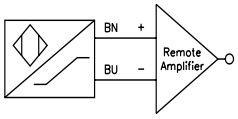
I



IKE/IKT - Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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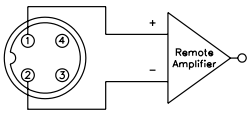


Mating Cordset: RK 4.21T-*

A16 — 2-wire DC NAMUR - Magnetic (Y0 and Y1)

Differential Travel (Hysteresis):	≤1 mm
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-activated Current Consumption:	≤1.2 mA
Activated Current Consumption:	≥2.1 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≥± 0.1 mm
Pass Speed:	≤10 ms

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA) VAC/VDC	Operating Temp. (°C)	Protection	Housing	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-UNT-AY1X/S1139 4685763	Wider Range	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	2M/ PVC	A	1	A16
BIM-INT-Y1X 1056800		2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	2M/ PVC	B	1	A16
BIM-INT-Y1X-0.2-RS4.21T 1056892		2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	0.2M/ PVC	C	2	A16
BIM-PST-Y1X W/KLP-80 1057090	KLP-80 Included	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	2M/ PVC	D	1	A16
BIM-AKT-Y1X-H1141 W/KLA-1 1055290	KLA-1 Included	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	--	E	2	A16
BIM-AKT-Y1X W/KLA-1 1055090	KLA-1 Included	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	2M/ PVC	F	1	A16
BIM-IKE-Y1X W/KLI-3 1056490	KLI-3 Included	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	Zinc	N/A	YE	2M/ PVC	I	1	A16
BIM-IKE-Y1X-H1141 W/KLI-3 1056690	KLI-3 Included	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	Zinc	N/A	YE	--	H	2	A16
BIM-NST-Y1X 1058400	w/o Bracket	2-Wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	2M/ PVC	G	1	A16

We reserve the right to make technical alterations without prior notice.

Notes

Notes

Mating Cordset Selection Guide

	Picofast	
Housing	**M8 Cordsets**	**M8 Field Wireables**
Pages	**H7**	**H11**

	Eurofast	
Housing	**M12 Cordsets**	**M12 Field Wireables**
Pages	**H13**	**H17**

	Microfast	
Housing	**1/2" Cordsets**	**1/2" Field Wireables**
Pages	**H18**	**H20**

	Minifast	
Housing	**7/8" Cordsets**	**7/8" Field Wireables**
Pages	**H21**	**H25**

We reserve the right to make technical alterations without prior notice.

Mating Cordset Selection Guide

Connectivity

Rugged, durable, and reliable, Turck connectivity products consolidate wiring, connect sensing devices, and distribute power and signals.

Cordsets

- Environmentally sealed for harsh environments
- Pin count 2-28 pole
- Power range up to 35 A
- LED visibility
- Industry specific jacketed cable

Rugged, Sealed Junction Boxes

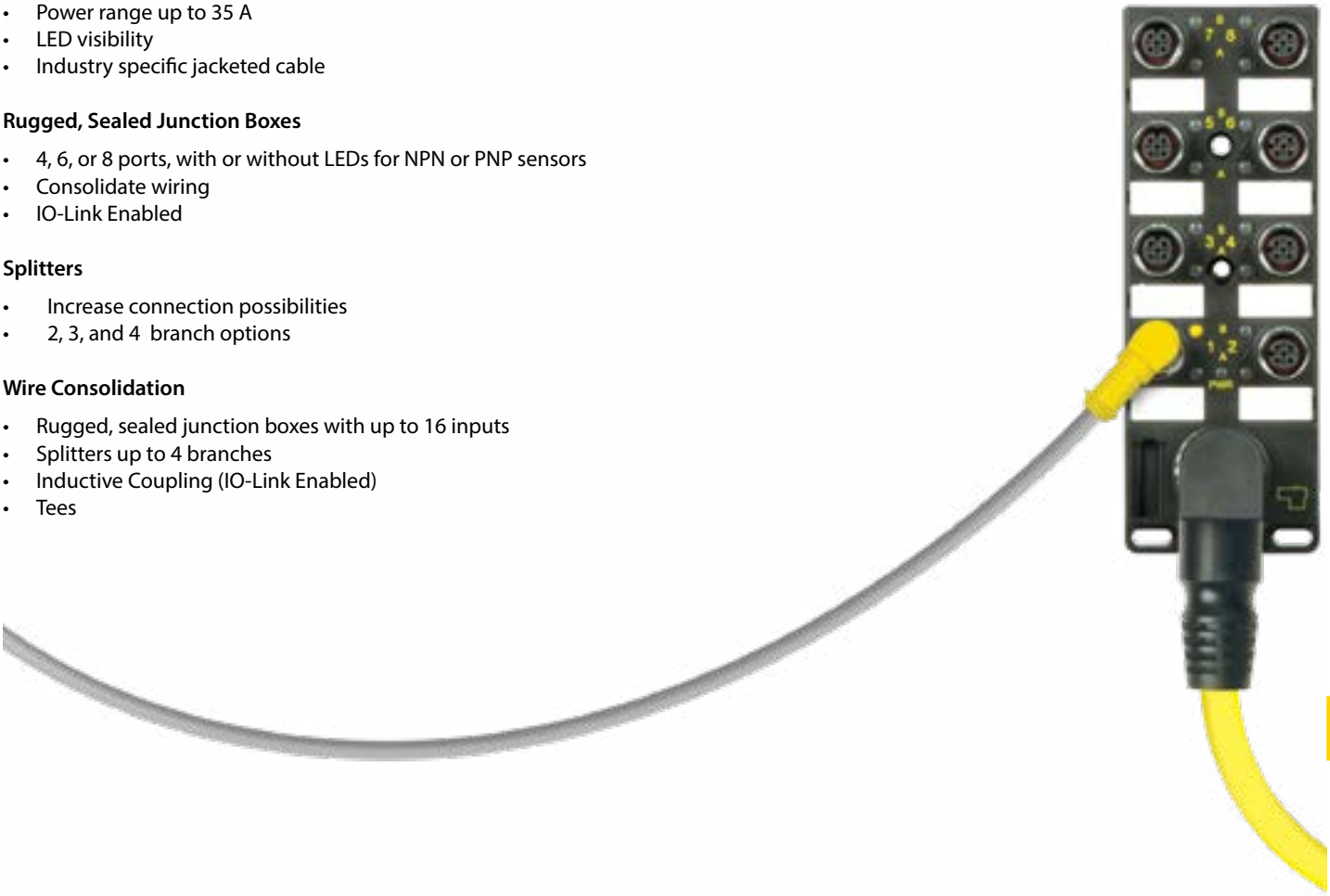
- 4, 6, or 8 ports, with or without LEDs for NPN or PNP sensors
- Consolidate wiring
- IO-Link Enabled

Splitters

- Increase connection possibilities
- 2, 3, and 4 branch options

Wire Consolidation

- Rugged, sealed junction boxes with up to 16 inputs
- Splitters up to 4 branches
- Inductive Coupling (IO-Link Enabled)
- Tees



We reserve the right to make technical alterations without prior notice.

Mating Cordset Selection Guide

Attributes	Instrumentation Tray Cable		General Purpose Cable		Instrumentation Tray/Exposed Run/Direct Burial Cable	
Material:	PVC	TPE	PVC	TPU	PVC	TPE
Temp Range:	-40 to 105 °C	-40 to 105 °C	-40 to 105 °C	-40 to 90 °C	-40 to 105 °C	-40 to 105 °C
Cold Bend:	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C
Cold Impact:	---	---	---	---	---	---
Crush and Impact:	---	---	---	---	Excellent	Excellent
Cut and Abrasion:	Fair	Fair/Good	Fair	Excellent	Good	Fair/Good
UV/Sunlight Resistant:	Excellent	Excellent	Excellent	Poor/Fair	Excellent	Excellent
Flame Retardant:	UL 1685/CSA FT4	UL 1685/CSA FT4	UL 1061/CSA FT1	UL 1061/ CSA FT1	UL 1685/CSA FT4	UL 1685/CSA FT4
Weld Slag/Spatter:	Poor	Very Good	Poor	Poor	Poor	Very Good
Water:	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Flexibility:	Very Good	Very Good	Very Good	Good	Fair	Good
Flexlife:	Good	Good	Good	Good	Fair	Fair/Good
Oils:	Excellent	Excellent	Very Good	Good	Very Good	Excellent
Greases:	Excellent	Excellent	Very Good	Good	Very Good	Excellent
Gasoline:	Fair	Good	Fair	Fair	Poor	Good
Alcohols:	Good	Very Good	Good	Poor/Fair	Very Good	Very Good
Acids <20%:	Good	Poor	Good	Fair	Good	Poor
General Approvals:	UL ITC, PLTC, AWM CSA AWM CMX OUT-DOOR-CMG, MSHA 300 V, 600 V	UL ITC, PLTC, AWM CSA AWM CMX OUT-DOOR-CMG, MSHA 300 V, 600 V	UL/CSA, AWM, MSHA 300 V or 600 V	UL/CSA, AWM, MSHA 300 V or 600 V	UL ITC, PLTC, ERDB, AWM, CSA CIC or CMX OUTDOOR-CM AWM, Marine Shipboard UL 1309, IEEE 1580-2010, CSA 245, ABS, 300 V, 600 V	UL ITC, PLTC, ERDB, AWM CSA CMX OUTDOOR-CMG 150 V, 300 V, 600 V

- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
- Temperature, the percentage of chemical present, type of chemical exposure, and installation practices will all affect performance. For specific recommendations, please contact Turck.

We reserve the right to make technical alterations without prior notice.

Mating Cordset Selection Guide

Attributes	Power Tray/Exposed Run/Direct Burial Cable		Industrial Ethernet Cable	Fieldbus Technology Cable		
Material:	PVC	TPE	TPE	PVC	TPE	TPU
Temp Range:	-40 to 90 °C	-40 to 105 °C	-40 to 80 °C	-40 to 105 °C	-40 to 80 °C	-40 to 80 °C
Cold Bend:	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C
Cold Impact:	---	---	---	---	---	---
Crush and Impact:	Excellent	Excellent	---	Excellent	---	---
Cut and Abrasion:	Good	Fair/Good	Fair/Good	Good	Fair/Good	Excellent
UV/Sunlight Resistant:	Excellent	Excellent	Excellent	Excellent	Excellent	Poor/Fair
Flame Retardant:	UL 1685/CSA FT4	UL 1685/CSA FT4	UL 1061/CSA FT1	UL 1685/CSA FT4 IEC 60332-3-22	UL 1061/ CSA FT1	UL 1061/ CSA FT1
Weld Slag/Spatter:	Poor	Very Good	Very Good	Poor	Very Good	Poor
Water:	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Flexibility:	Fair	Good	Good/Excellent	Fair	Good	Good
Flexlife:	Fair	Good	Very Good	Poor	Fair	Good
Oils:	Very Good	Excellent	Excellent	Fair	Excellent	Good
Greases:	Very Good	Excellent	Excellent	Fair	Excellent	Good
Gasoline:	Poor	Good	Good	Poor	Good	Fair
Alcohols:	Very Good	Very Good	Very Good	Good	Very Good	Poor/Fair
Acids <20%:	Good	Poor	Poor	Good	Poor	Fair
General Approvals:	UL WTTC, TC-ERDB ITC, PLTC, ERDB CSA CIC/TC 600 V, 1000 V	UL WTTC, TC-ERDB ITC, PLTC, ERDB CSA CIC/TC 600 V, 1000 V	UL AWM, CSA CMX OUTDOOR-CM 300 V or 600 V	UL ITC, PLTC, ERDB, AWM, CSA CIC or CMX OUT-DOOR-CM AWM, Marine Shipboard UL 1309, IEEE 1580-2010, CSA 245, ABS, 300 V, 600 V	UL/CSA, AWM 300 V or 600 V	UL/CSA, AWM 300 V or 600 V

- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
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Mating Cordset Selection Guide

Attributes	Extremelife Cable	Flexlife Cable		Weldlife Cable
Material:	EX60	TPE	TPU	TPE
Temp Range:	-60 to 105 °C	-40 to 105 °C	-40 to 90 °C	-40 to 105 °C
Cold Bend:	-60 °C	-40 °C	-40 °C	-40 °C
Cold Impact:	-40 °C	---	---	---
Crush and Impact:	Excellent	---	---	---
Cut and Abrasion:	Very Good	Fair/Good	Excellent	Fair/Good
UV/Sunlight Resistant:	Excellent	Excellent	Poor/Fair	Excellent
Flame Retardant:	UL 1685/CSA FT4 IEC 60332-3-22	UL 1061/CSA FT1	UL 1061/CSA FT1	UL 1061/CSA FT1
Weld Slag/Spatter:	Good	Very Good	Poor	Very Good
Water:	Very Good	Very Good	Very Good	Very Good
Flexibility:	Good	Excellent	Good	Very Good
Flexlife:	Very Good	Excellent	Good	Good
Oils:	Excellent	Excellent	Good	Excellent
Greases:	Excellent	Excellent	Good	Excellent
Gasoline:	Good	Good	Fair	Good
Alcohols:	Excellent	Very Good	Poor/Fair	Very Good
Acids <20%:	Good	Poor	Fair	Poor
General Approvals:	UL TC-ERDB, ITC, PLTC, ERDB, CSA CIC/TC Marine Shipboard UL 1309, IEEE 1580-2010, ABS, 300 V, 600 V	UL/CSA, AWM 300 V or 600 V	UL/CSA, AWM 300 V or 600 V	UL/CSA, AWM 300 V or 600 V

- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
- Temperature, the percentage of chemical present, type of chemical exposure, and installation practices will all affect performance. For specific recommendations, please contact Turck.

We reserve the right to make technical alterations without prior notice.

Mating Cordset Selection Guide

Attributes	Armorfast Instrumentation Cable	Flexible Service Cable	Washdown Cable	Halogen Free Cable/Low Smoke Cable
Material:	PVC	PVC	TPV	TPU
Temp Range:	-40 to 105 °C	-40 to 105 °C	-60 to 105 °C	-40 to 80 °C
Cold Bend:	-40 °C	-40 °C	-60 °C	-40 °C
Cold Impact:	---	---	---	---
Crush and Impact:	Excellent	---	---	---
Cut and Abrasion:	Good	Good	Poor/Fair	Excellent
UV/Sunlight Resistant:	Excellent	Excellent	Poor	Poor/Fair
Flame Retardant:	UL 1685/CSA FT4	UL Horizontal Flame/CSA FT2	Poor	UL 1061/CSA FT1
Weld Slag/Spatter:	Poor	Poor	---	Poor
Water:	Very Good	Very Good	Excellent	Very Good
Flexibility:	Fair	Good	Excellent	Good
Flexlife:	Poor	Good	---	Good
Oils:	Very Good	Very Good	Poor	Good
Greases:	Very Good	Very Good	Poor	Good
Gasoline:	Poor	Poor	Poor	Fair
Alcohols:	Very Good	Very Good	Good	Poor/Fair
Acids <20%:	Good	Good	Good	Fair
General Approvals:	UL MC, ITC, PLTC, ERDB, CSA ACIC, 300 V, 600 V, HL ABCD	UL/CSA, STOOW MSHA, 600 V	None	UL/CSA, AWM 300 V

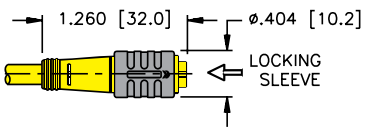
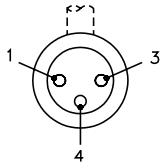
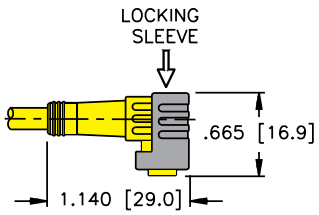
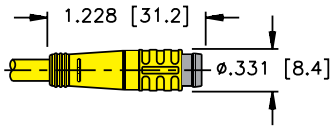
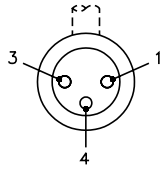
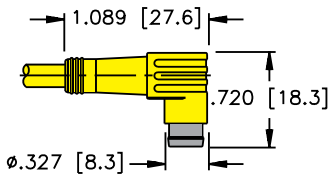
- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
- Temperature, the percentage of chemical present, type of chemical exposure, and installation practices will all affect performance. For specific recommendations, please contact Turck.

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

3-Wire Cordsets, Snap Lock (Locking Sleeve)

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..Z** 	**PKG 3Z-*** **PKW 3Z-***	**PSG 3-*** **PSW 3-***	AWM, PVC Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF50642-*M, Flexlife®	1. BN 3. BU 4. BK	**Female** 
PKW ..Z** 	**PKG 3Z-*/S90** **PKW 3Z-*/S90**	**PSG 3-*/S90** **PSW 3-*/S90**	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50587-*M, Cut/Abrasion Immune		
PSG .. 	**PKG 3Z-*/S90/S101** **PKW 3Z-*/S90/S101**	**PSG 3-*/S90/S101** **PSW 3-*/S90/S101**	AWM, TPU Black, 3x24 AWG, 90 °C, 4.4 mm OD, Cable #RF51166-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles		
	PKG 3Z-*/S90/S618 **PKW 3Z-*/S90/S618**	**PSG 3-*/S90/S618** **PSW 3-*/S90/S618**	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection		**Male** 
PSW .. 	**PKG 3Z-*/S760** **PKW 3Z-*/S760**	**PSG 3-*/S760** **PSW 3-*/S760**	AWM, PVC Black, 3x24 AWG, 105 °C, 4.2 mm OD, Cable #RF50585-M, Flexlife		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

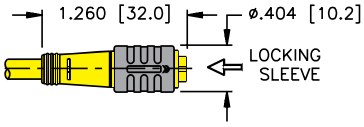
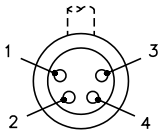
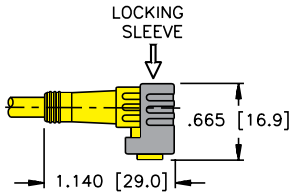
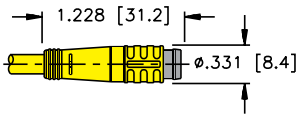
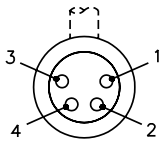
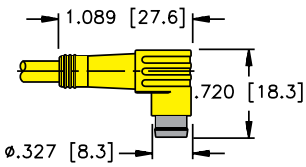
** Locking sleeve material is POM.."PKG..Z".

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

4-Wire Cordsets, Snap Lock (Locking Sleeve)

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 2 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..Z**  	PKG 4Z-* PKW 4Z-*	PSG 4-* PSW 4-*	AWM, PVC Yellow, 4x26 AWG, 105 °C, 4.4 mm OD, Cable #RF50697-*M, Flexlife®	1. BN 2. WH 3. BU 4. BK	Female 
	PKG 4Z-*/S90 PKW 4Z-*/S90	PSG 4-*/S90 PSW 4-*/S90	AWM, TPU Black, 4x26 AWG, 90 °C, 4.2 mm OD, Cable #RF50586-*M, Cut/Abrasion Immune		
PKW ..Z**  	PKG 4Z-*/S90/S101 PKW 4Z-*/S90/S101	PSG 4-*/S90/S101 PSW 4-*/S90/S101	AWM, TPU Black, 4x26 AWG, 90 °C, 4.4 mm OD, Cable #RF50935-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles		
PSG ..  	PKG 4Z-*/S90/S618 PKW 4Z-*/S90/S618	PSG 4-*/S90/S101 PSW 4-*/S90/S101	AWM, TPU Black, 4x26 AWG, 90 °C, 4.2 mm OD, Cable #RF50602-*M, Cut/Abrasion Immune, EMI/RFI Protection		Male 
	PKG 4Z-*/S760 PKW 4Z-*/S760	PSG 4-*/S760 PSW 4-*/S760	AWM, PVC Black, 4x26 AWG, 105 °C, 4.4 mm OD, Cable #RF50870-*M, Flexlife		
PSW ..  	PKG 4Z-*/S90/S653 PKW 4Z-*/S90/S653	PSG 4-*/S90/S653 PSW 4-*/S90/S653	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection	1. BN 2. Drain 3. BU 4. BK	

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

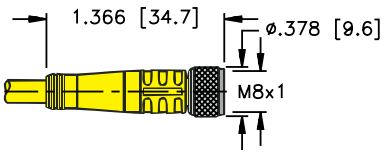
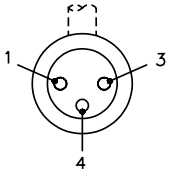
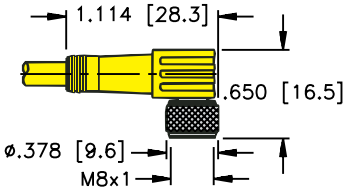
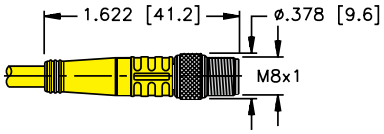
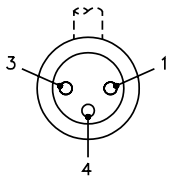
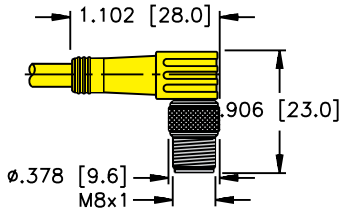
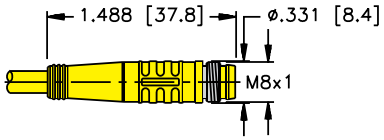
** Locking sleeve material is POM.."PKG..Z".

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

3-Wire Cordsets, Threaded Coupling Nut

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..Z** 	PKG 3M-* PKW 3M-*	PSG 3M-* PSW 3M-*	AWM, PVC Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF50642-*M, Flexlife®	1. BN 3. BU 4. BK	Female 
	PKG 3M-*/S90 PKW 3M-*/S90	PSG 3M-*/S90 PSW 3M-*/S90	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50587-*M, Cut/Abrasion Immune		
PKW ..M** 	PKG 3M-*/S90/S101 PKW 3M-*/S90/S101	PSG 3M-*/S90/S101 PSW 3M-*/S90/S101	AWM, TPU Black, 3x24 AWG, 90 °C, 4.4 mm OD, Cable #RF51166-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles		
PSG .. M** 	PKG 3M-*/S90/S618 PKW 3M-*/S90/S618	PSG 3M-*/S90/S618 PSW 3M-*/S90/S618	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection		
	PKG 3M-*/S1587 PKW 3M-*/S1587	PSG 3M-*/S1587 PSW 3M-*/S1587	AWM, TPE Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF51271-*M, Weldlife®, Weld Flash Immune		Male 
PSW .. M** 	PKG 3M-*/S760 PKW 3M-*/S760	PSG 3M-*/S760 PSW 3M-*/S760	AWM, PVC Black, 3x24 AWG, 4.2 mm OD, Cable #RF50585-M, Flexlife	1. BN 3. BU 4. Drain	
	PKG 3M-*/S90/S1084 PKW 3M-*/S90/S1084	PSG 3M-*/S90/S1084 PSW 3M-*/S90/S1084	AWM, TPU Black, 2x24 AWG, 90 °C, 4.2 mm OD, Cable #RF51197-*M, Cut/Abrasion Immune, Shielded	1. BN 3. BU 4. BK	
PSG 3F .. ** 		PSG 3F-*	AWM, PVC Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF50642-*M, Fixed coupling nut		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

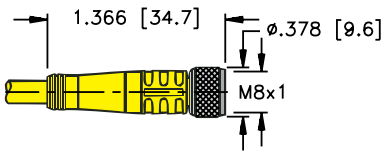
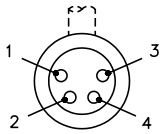
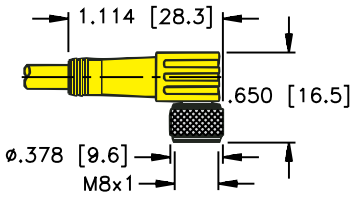
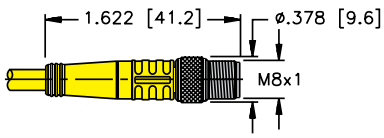
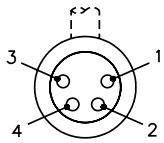
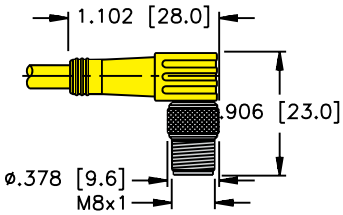
** Standard coupling material is nickel plated brass.."PKG..M"; "PKGV..M" indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

4-Wire Cordsets, Threaded Coupling Nut

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..M** 	PKG 4M-* PKW 4M-*	PSG 4M-* PSW 4M-*	AWM PVC Yellow, 4x26 AWG, 105 °C, 4.4 mm OD, Cable #RF50697-*M, Flexlife®	1. BN 2. WH 3. BU 4. BK	Female 
	PKG 4M-*/S90 PKW 4M-*/S90	PSG 4M-*/S90 PSW 4M-*/S90	AWM TPU Black, 4x26 AWG, 90 °C, 4.2 mm OD, Cable #RF50586-*M, Cut/Abrasion Immune		
PKW ..M** 	PKG 4M-*/S90/S101 PKW 4M-*/S90/S101	PSG 4M-*/S90/S101 PSW 4M-*/S90/S101	AWM TPU Black, 4x26 AWG, 90 °C, 4.4 mm OD, Cable #RF50935-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles		
PSG .. M** 	PKG 4M-*/S90/S618 PKW 4M-*/S90/S618	PSG 4M-*/S90/S618 PSW 4M-*/S90/S618	AWM TPU Black, 4x26 AWG, 90 °C, 4.2 mm OD, Cable #RF50602-*M, Cut/Abrasion Immune, EMI/RFI Protection		Male 
	PKG 4M-*/S760 PKW 4M-*/S760	PSG 4M-*/S760 PSW 4M-*/S760	AWM PVC Black, 4x26 AWG, 105 °C, 4.4 mm OD, Cable #RF50870-*M, Flexlife		
PSW .. M** 	PKG 4M-*/S90/S653 PKW 4M-*/S90/S653	PSG 4M-*/S90/S653 PSW 4M-*/S90/S653	AWM TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection	1. BN 2. Drain 3. BU 4. BK	

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

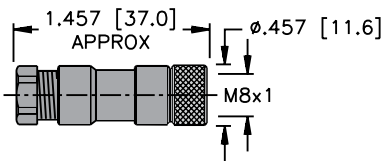
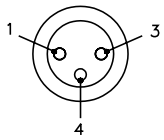
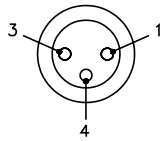
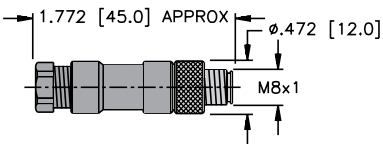
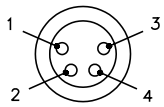
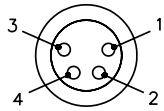
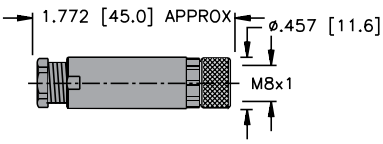
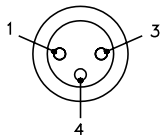
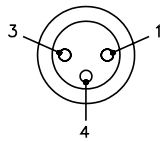
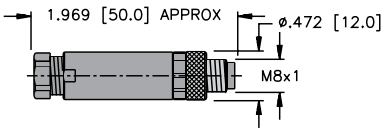
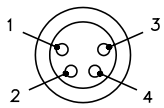
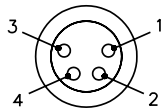
** Standard coupling material is nickel plated brass..”PKG..M”; “PKGV..M” indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

3 and 4-Pin Field Wireable Connectors, Standard

- IEC IP67 Protection

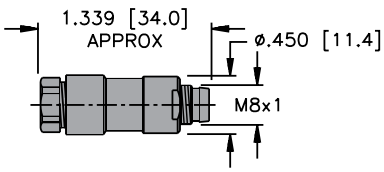
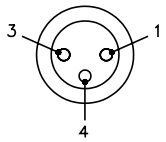
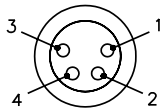
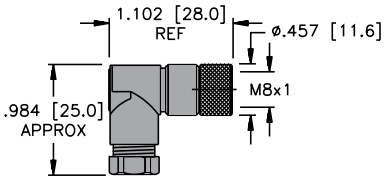
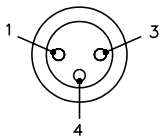
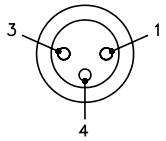
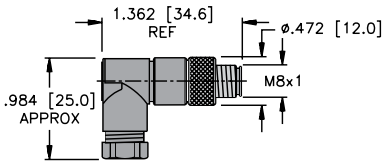
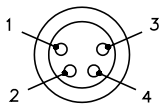
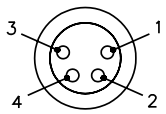
Housing Style	Female Part Number	Male Part Number	Features	Pinout
B 513(4)1-0 	**B 5131-0**	**BS 5131-0**	PBT, Black, accepts 3-5 mm cable diameter, solder terminals, accepts up to 24 AWG conductors, 85 °C, 60 VAC/75 VDC, 4 A, mates with 4-pin threaded cordsets and receptacles	Female  Male 
BS 513(4)1-0 	**B 5141-0**	**BS 5141-0**	PBT, Black, accepts 3-5 mm cable diameter, solder terminals, accepts up to 24 AWG conductors, 85 °C, 30 VAC/36 VDC, 4 A, mates with 4-pin threaded cordsets and receptacles	Female  Male 
B 513(4)3-0 	**B 5133-0**	**BS 5133-0**	PBT, Black, accepts 3-5 mm cable diameter, screw terminals, accepts up to 22 AWG conductors, 85 °C, 60 VAC/75 VDC, 4 A, mates with 3-pin threaded cordsets and receptacles	Female  Male 
BS 513(4)3-0 	**B 5143-0**	**BS 5143-0**	PBT, Black, accepts 3-5 mm cable diameter, screw terminals, accepts up to 22 AWG conductors, 85 °C, 60 VAC/75 VDC, 4 A, mates with 4-pin threaded cordsets and receptacles	Female  Male 

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

3 and 4-Pin Field Wireable Connectors, Standard

- IEC IP67 Protection

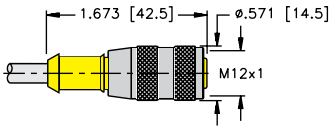
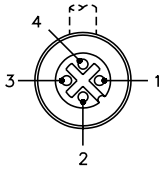
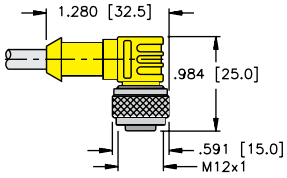
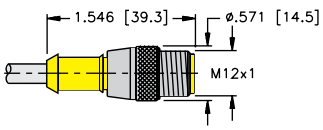
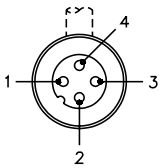
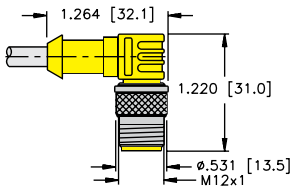
Housing Style	Female Part Number	Male Part Number	Features	Pinout
BS 513(4)2-0  		BS 5132-0	PBT, Black, accepts 3-5 mm cable diameter, solder terminals, accepts up to 26 AWG conductors, 85 °C, 60 VAC/75 VDC, 4 A, mates with 3-pin female snap-lock cordsets, receptacles and junction boxes and threaded cordsets	Male 
		BS 5142-0	PBT, Black, accepts 3-5 mm cable diameter, solder terminals, accepts up to 26 AWG conductors, 85 °C, 60 VAC/75 VDC, 2 A, mates with 3-pin female snap-lock cordsets, receptacles and junction boxes and threaded cordsets	Male 
B 523(4)1-0  	B 5231-0	BS 5231-0	PBT, Black, Accepts 3-5 mm cable diameter, solder terminals, accepts up to 24 AWG conductors, 85 °C, 60 VAC/75 VDC, 4 A, mates with 3-pin threaded cordsets and receptacles	Female  Male 
BS 523(4)1-0  	B 5241-0	BS 5241-0	PBT, Black, accepts 3-5 mm cable diameter, solder terminals, accepts up to 24 AWG conductors, 85 °C, 30 VAC/36 VDC, 4 A, mates with 4-pin threaded cordsets and receptacles	Female  Male 

We reserve the right to make technical alterations without prior notice.

M12 Eurofast Connectivity

2-Wire Cordsets, Standard Plug Body

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RK ..**  	**RK 4.2T-*** **WK 4.2T-***	**RS 4.2T-*** **WS 4.2T-***	ITC/PLTC PVC Grey, 2x20 AWG, 105 °C, 5.1 mm OD, Cable #RF50529-*M, Flexlife®	1. N/C 2. N/C 3. BN 4. BU	Female 
	RK 4.2T-*/S90 **WK 4.2T-*/S90**	**RS 4.2T-*/S90** **WS 4.2T-*/S90**	AWM TPU Grey, 2x20 AWG, 90 °C, 4.8 mm OD, Cable #RF50772-*M, Cut/Abrasion Immune		
WK ..**  	**RK 4.2T-*/S748** **WK 4.2T-*/S748**	**RS 4.2T-*/S748** **WS 4.2T-*/S748**	ITC/PLTC PVC Yellow, 2x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50650-*M, Flexlife	1. WH 2. N/C 3. N/C 4. BK	
	RK 4.21T-*/S1511 **WK 4.21T-*/S1511**	**RS 4.21T-*/S1511** **WS 4.21T-*/S1511**	ITC/PLTC PVC Grey, 2x20 AWM PVC, 105 °C, 5.1 mm OD, Cable #RF50529-*M, Flexlife		
RS ..**  	**RK 4.21T-*** **WK 4.21T-***	**RS 4.21T-*** **WS 4.21T-***	ITC/PLTC PVC NAMUR Blue, 2x20 AWG, 105 °C, 5.1 mm OD, Cable #RF51923-*M	1. BN 2. BU 3. N/C 4. N/C	Male 
	RK 4.21T-*/S90 **WK 4.21T-*/S90**	**RS 4.21T-*/S90** **WS 4.21T-*/S90**	AWM TPU NAMUR Blue, 2x20 AWG, 90 °C, 5.1 mm OD, Cable #RF50657-*M, Cut/Abrasion Immune		
WS ..**  	**RK 4.22T-*** **WK 4.22T-***	**RS 4.22T-*** **WS 4.22T-***	ITC/PLTC PVC Grey, 2x20 AWG, 105 °C, 5.1 mm OD, Cable #RF50529-*M, Flexlife	1. BN 2. N/C 3. BU 4. N/C	
	RK 4.23T-* **WK 4.23T-***	**RS 4.23T-*** **WS 4.23T-***		1. BN 2. N/C 3. N/C 4. BU	

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

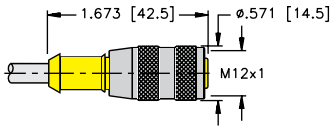
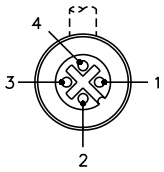
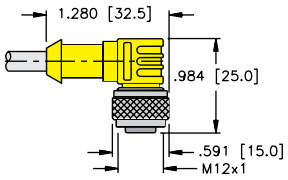
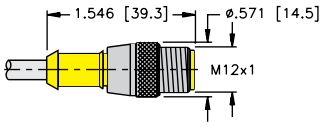
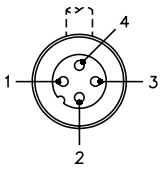
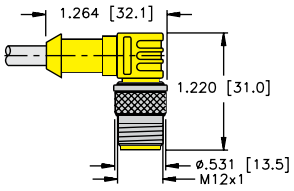
** Standard coupling nut material is nickel plated brass "RK .."; "RKK .." indicates nylon and "RKV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M12 Eurofast Connectivity

3-Wire Cordsets, Standard Plug Body

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RK ..**  	**RK 4T-*** **WK 4T-***	**RS 4T-*** **WS 4T-***	ITC/PLTC PVC Grey, 3x20 AWG, 105 °C, 5.1 mm OD, Cable #RF52081-*M, Flexlife®	1. BN 2. N/C 3. BU 4. BK	Female 
	RK 4T-*/S90 **WK 4T-*/S90**	**RS 4T-*/S90** **WS 4T-*/S90**	AWM TPU Grey, 3x22 AWG, 90 °C, 4.8 mm OD, Cable #RF52080-*M, Cut/Abrasion Immune		
WK ..**  	**RK 4T-*/S101** **WK 4T-*/S101**	**RS 4T-*/S101** **WS 4T-*/S101**	AWM TPE Grey, 3x22 AWG, 105 °C, 4.8 mm OD, Cable #RF52085-*M, Flexlife-20, High Flex Over 20 Million Cycles		
	RK 4T-*/S529 **WK 4T-*/S529**	**RS 4T-*/S529** **WS 4T-*/S529**	TPU/Heavy Braid Double Jacket Yellow, 3x22 AWG, 90 °C, 4.8 mm OD, Cable #RF52084-*M, Cut/Abrasion Immune Braided Mechanical Shield		
RS ..**  	**RK 4T-*/S824** **WK 4T-*/S824**	**RS 4T-*/S824** **WS 4T-*/S824**	ITC/PLTC AWM PVC Grey, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF52081-*M, Tray Rated, Flexlife		Male 
	RK 4T-*/S715 **WK 4T-*/S715**	**RS 4T-*/S715** **WS 4T-*/S715**	ITC/PLTC PVC Yellow, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF52087-*M, Flexlife		
WS ..**  	**RK 4T-*/S760** **WK 4T-*/S760**	**RS 4T-*/S760** **WS 4T-*/S760**	ITC/PLTC PVC Black, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF52083-*M, Flexlife		
	RK 4T-*/S618 **WK 4T-*/S618**	**RS 4T-*/S618** **WS 4T-*/S618**	ITC/PLTC PVC Grey, 3x22 AWG, Foil/Drain, 105 °C, 5.1 mm OD, Cable #RF52082-*M, RFI/EMI Shielding, Tray Rated		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

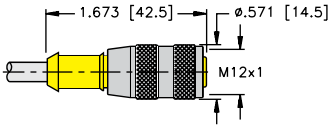
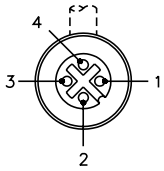
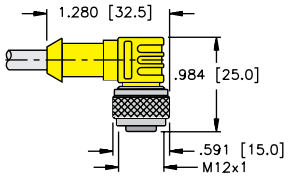
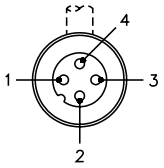
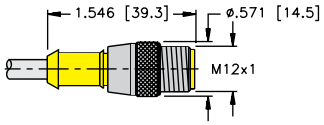
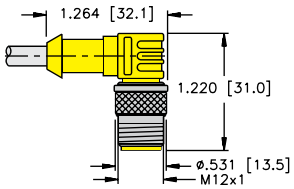
** Standard coupling nut material is nickel plated brass "RK .."; "RKK .." indicates nylon and "RKV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M12 Eurofast Connectivity

4-Wire Cordsets, Standard Plug Body

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RK ..**  	**RK 4.41T-*** **WK 4.41T-***	**RS 4.41T-*** **WS 4.41T-***	ITC/PLTC PVC NAMUR Blue, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50598-*M, Flexlife®	1. BN 2. WH 3. BU 4. BK	Female 
	RK 4.41T-*/S529 **WK 4.41T-*/S529**	**RS 4.41T-*/S529** **WS 4.41T-*/S529**	TPU/Heavy Braid Double Jacket Yellow, 4x20 AWG, 90 °C, 5.7 mm OD, Cable #RF50526-*M, Cut/Abrasion Immune Braided Mechanical Shield		
	RK 4.43T-* **WK 4.43T-***	**RS 4.43T-*** **WS 4.43T-***	ITC/PLTC PVC Yellow, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50530-*M, Flexlife		
WK ..**  	**RK 4.43T-*/S90** **WK 4.43T-*/S90**	**RS 4.43T-*/S90** **WS 4.43T-*/S90**	AWM TPU Yellow, 4x22 AWG, 90 °C, 5.1 mm OD, Cable #RF50613-*M, Cut/Abrasion Immune		
	RK 4.4T-* **WK 4.4T-***	**RS 4.4T-*** **WS 4.4T-***	ITC/PLTC PVC Grey, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50516-*M, Flexlife		
	RK 4.4T-*/S90 **WK 4.4T-*/S90**	**RS 4.4T-*/S90** **WS 4.4T-*/S90**	AWM TPU Grey, 4x22 AWG, 90 °C, 5.1 mm OD, Cable #RF50532-*M, Cut/Abrasion Immune		Male 
RS ..**  	**RK 4.4T-*/S101** **WK 4.4T-*/S101**	**RS 4.4T-*/S101** **WS 4.4T-*/S101**	AWM TPE Grey, 4x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50941-*M, Flexlife-20, High Flex Over 20 Million Cycles		
	RK 4.4T-*/S824 **WK 4.4T-*/S824**	**RS 4.4T-*/S824** **WS 4.4T-*/S824**	ITC/PLTC PVC Grey, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50698-*M, Tray Rated		
WS ..**  	**RK 4.4T-*/S618** **WK 4.4T-*/S618**	**RS 4.4T-*/S618** **WS 4.4T-*/S618**	ITC/PLTC PVC Grey, 4x22 AWG Foil/Drain, 105 °C, 5.3 mm OD, Cable #RF50577-*M, RFI/EMI Shielding		
	RK 4.4T-*/S618/S824 **WK 4.4T-*/S618/S824**	**RS 4.4T-*/S618/S824** **WS 4.4T-*/S618/S824**	ITC/PLTC PVC Grey, 4x22 AWG Foil/Drain, 105 °C, 5.3 mm OD, Cable #RF50777-*M, RFI/EMI Shielding, Tray Rated		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

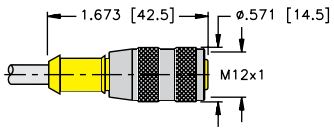
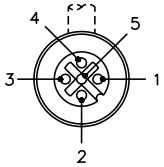
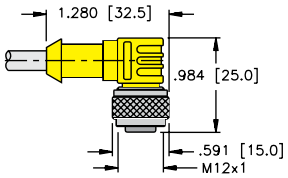
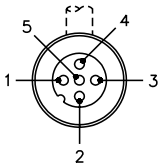
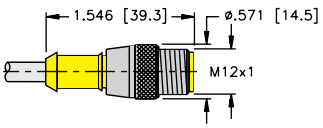
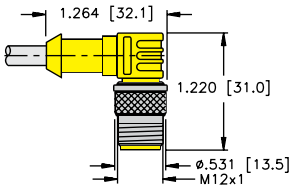
** Standard coupling nut material is nickel plated brass "RK .."; "RKK .." indicates nylon and "RKV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M12 Eurofast Connectivity

5-Wire Cordsets, Standard Plug Body

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RK ..**  	**RK 4.5T-*** **WK 4.5T-***	**RS 4.5T-*** **WS 4.5T-***	ITC/PLTC PVC Grey, 5x22 AWG, 105 °C, 5.7 mm OD, Cable #RF50543-*M, Flexlife®	1. BN 2. WH 3. BU 4. BK 5. GY	**Female** 
	RK 4.5T-*/S90 **WK 4.5T-*/S90**	**RS 4.5T-*/S90** **WS 4.5T-*/S90**	AWM TPU Grey, 5x22 AWG, 90 °C, 5.3 mm OD, Cable #RF50649-*M, Cut/Abrasion Immune		
WK ..**  	**RK 4.5T-*/S101** **WK 4.5T-*/S101**	**RS 4.5T-*/S101** **WS 4.5T-*/S101**	AWM TPE Grey, 5x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50909-*M, Flexlife-20, High Flex Over 20 Million Cycles		
	RK 4.5T-*/S618 **WK 4.5T-*/S618**	**RS 4.5T-*/S618** **WS 4.5T-*/S618**	ITC/PLTC PVC Grey, 5x22 AWG Foil/Drain, 105 °C, 5.7 mm OD, Cable #RF50609-*M, RFI/EMI Protection		**Male** 
RS ..**  	**RS 4.5T-*/S715** **WS 4.5T-*/S715**	**RS 4.5T-*/S715** **WS 4.5T-*/S715**	ITC/PLTC PVC Yellow, 5x22 AWG, 105 °C, 5.7 mm OD, Cable #RF50684-*M, Flexlife		
	RK 4.5T-*/S653 **WK 4.5T-*/S653**	**RS 4.5T-*/S653** **WS 4.5T-*/S653**	ITC/PLTC PVC Grey, 4x22 AWG Foil/Drain, 105 °C, 5.3 mm OD, Cable #RF50577-*M, RFI/EMI Shielding	1. BN 2. WH 3. BU 4. BK 5. Drain	
WS ..**  	**RK 4.5T-*/S1554** **WK 4.5T-*/S1554**	**RS 4.5T-*/S1554** **WS 4.5T-*/S1554**	ITC/PLTC PVC Black, 5x22 AWG Foil/Drain, 105 °C, 5.7 mm OD, Cable #RF50794-*M, RFI/EMI Shielding	1. BN 2. WH 3. BU 4. BK 5. GY	

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

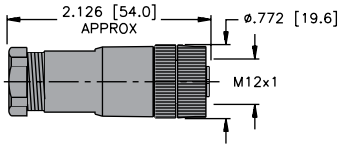
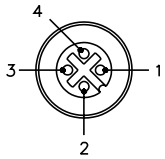
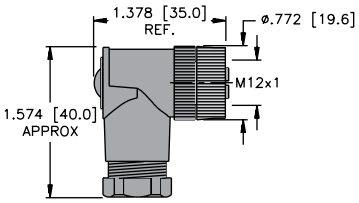
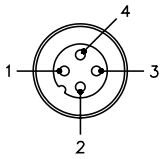
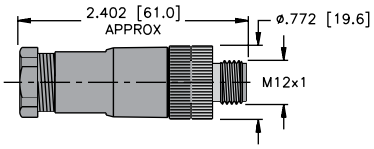
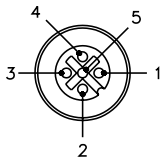
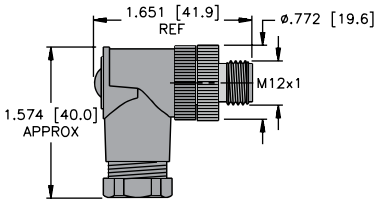
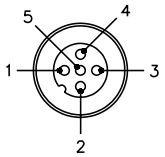
** Standard coupling nut material is nickel plated brass "RK .."; "RKK .." indicates nylon and "RKV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M12 Eurofast Connectivity

4 and 5-Pin Field Wireable Connectors, Standard Key

- IEC IP67 Protection

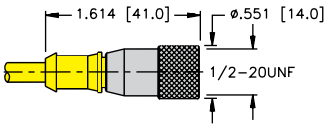
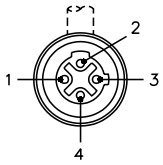
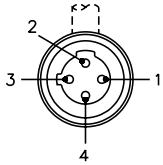
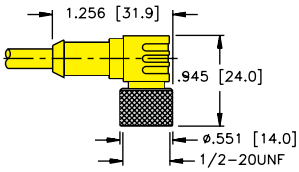
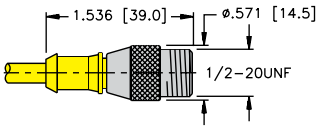
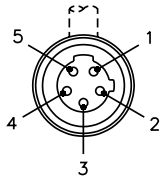
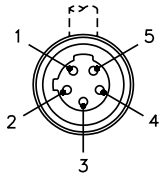
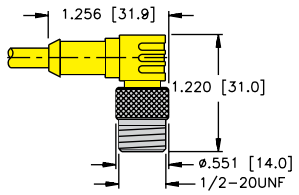
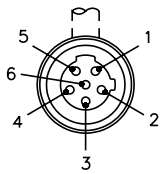
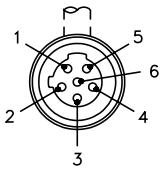
Housing Style	Female Part Number	Male Part Number	Features	Pinout
B 81..  	**B 8141-0** **B 8241-0**	**BS 8141-0** **BS 8241-0**	PBT, Black, PG 7 cable gland, accepts 4-6 mm cable diameter, screw terminals, accepts up to 18 AWG conductors, 85 °C, 250 V, 4 A, mates with standard key 4-pin cordsets and receptacles	**Female** 
B 82..  	**B 8141-0/PG 9** **B 8241-0/PG 9**	**BS 8141-0/PG 9** **BS 8241-0/PG 9**	PBT, Black, PG 9 cable gland, accepts 6-8 mm cable diameter, screw terminals, accepts up to 18 AWG conductors, 85 °C, 250 V, 4 A, mates with standard key 4-pin cordsets and receptacles	**Male** 
BS 81..  	**B 8151-0/PG 9** **B 8251-0/PG 9**	**BS 8151-0/PG 9** **BS 8251-0/PG 9**	PBT, Black, PG 9 cable gland, accepts 4-8 mm cable diameter, screw terminals, accepts up to 18 AWG conductors, 85 °C, 60 V, 4 A, mates with standard key 5-pin cordsets and receptacles	**Female** 
BS 82..  	**BM 8151-0/PG 9**		PBT, Black, PG 9 cable gland, accepts 6-8 mm cable diameter, screw terminals, accepts up to 18 AWG conductors, metal coupling nut, 85 °C, 60 V, 4 A, mates with standard key 5-pin cordsets and receptacles	**Male** 

We reserve the right to make technical alterations without prior notice.

1/2" Microfast Connectivity

Reverse Key (B-Code) Cordset Part Number Key

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
KB ..** 	**KB 4T-*** **WKB 4T-***	**SB 4T-*** **WSB 4T-***	ITC/PLTC PVC Yellow, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50555-*M, Flexlife®	1. RD/BK 2. RD/WH 3. RD 4. GN	Female 
	KB 4T-*/S90 **WKB 4T-*/S90**	**SB 4T-*/S90** **WSB 4T-*/S90**	AWM TPU Yellow, 4x22 AWG, 90 °C, 4.7 mm OD, Cable #RF50614-*M, Cut/Abrasion Immune		
	KB 4T-*/S105 **WKB 4T-*/S105**	**SB 4T-*/S105** **WSB 4T-*/S105**	ITC/PLTC PVC Yellow, 4x22 AWG, 105 °C, 6.2 mm OD, Cable #RF50656-*M, Braided Copper Shield		Male 
WKB ..** 	**KB 4T-*/S727** **WKB 4T-*/S727**	**SB 4T-*/S727** **WSB 4T-*/S727**	AWM TPU Grey, 4x22 AWG, 90 °C, 5.1 mm OD, Cable #RF50532-*M, Special Conductor Color Code	1. BN 2. BU 3. BK 4. WH	
SB ..** 	**KB 5T-*** **WKB 5T-***	**SB 5T-*** **WSB 5T-***	ITC/PLTC PVC Yellow, 5x22 AWG, 105 °C, 5.7 mm OD, Cable #RF50556-*M, Flexlife	1. RD/WH 2. RD 3. GN 4. RD/YE 5. RD/BK	Female 
					Male 
WSB ..** 	**KB 6T-*** **WKB 6T-***	**SB 6T-*** **WSB 6T-***	ITC/PLTC PVC Yellow, 6x22 AWG, 105 °C, 6.2 mm OD, Cable #RF51003-*M, Flexlife	1. RD/WH 2. RD 3. GN 4. RD/YE 5. RD/BK 6. RD/BU	Female 
					Male 

* Length in meters. Standard cable lengths are 2, 4, 6, 8 and 10 meters. Consult factory for other lengths.

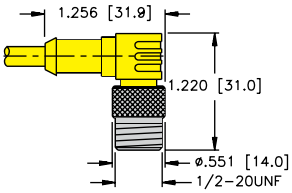
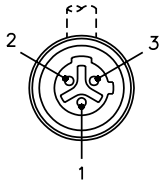
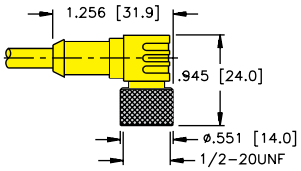
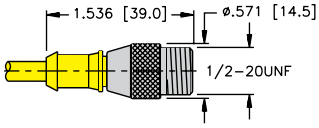
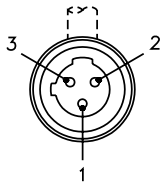
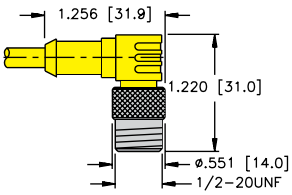
** Standard coupling nut material is nickel plated brass "KB .."; "KBK .." indicates nylon and "KBV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

1/2" Microfast Connectivity

3-Wire Cordsets, Standard Duty

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
WSB ..** 	**KB 3T-*** **WKB 3T-***	**SB 3T-*** **WSB 3T-***	ITC/PLTC PVC Yellow, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50531-*M	1. GN 2. RD/BK 3. RD/WH	**Female** 
WKB ..** 	**KB 3T-*/S90** **WKB 3T-*/S90**	**SB 3T-*/S90** **WSB 3T-*/S90**	AWM TPU Yellow, 3x18 AWG, 90 °C, 5.3 mm OD, Cable #RF50547-*M, Cut/Abrasion Immune		
	KB 3T-*/S105 **WKB 3T-*/S105**	**SB 3T-*/S105** **WSB 3T-*/S105**	ITC/PLTC PVC Yellow, 3x22 AWG,105 °C, 6.2 mm OD, Cable #RF50535-*M, Braided Shield		
SB ..** 	**KB 3T-*/S749** **WKB 3T-*/S749**	**SB 3T-*/S749** **WSB 3T-*/S749**	ITC/PLTC PVC Yellow, 2x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50650-*M, 3-pin with 2 conductors	1. N/C 2. BK 3. WH	**Male** 
WSB ..** 	**KB 3T-*/S1507** **WKB 3T-*/S1507**	**SB 3T-*/S1507** **WSB 3T-*/S1507**	AWM TPE Grey, 3x22 AWG 105 °C, 4.8 mm OD, Cable #RF52085-*M, Flexlife-20, High Flex - Over 20 million cycles	1. BK 2. BN 3. BU	

* Length in meters. Standard cable lengths are 2, 4, 6, 8 and 10 meters. Consult factory for other lengths.

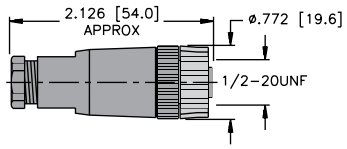
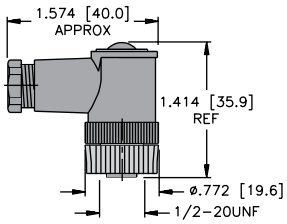
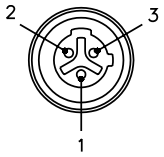
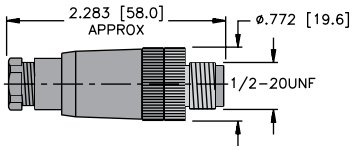
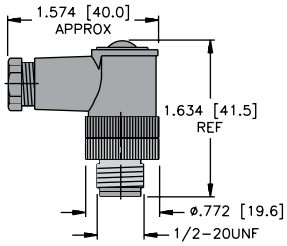
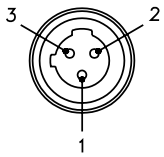
** Standard coupling nut material is nickel plated brass "KB .."; "KBK .." indicates nylon and "KBV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

1/2" Microfast Connectivity

3-Pin Field Wireable Connectors

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection

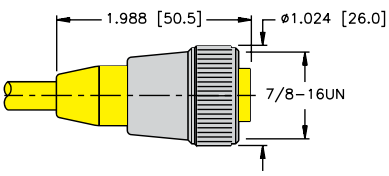
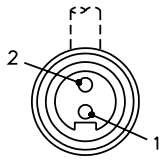
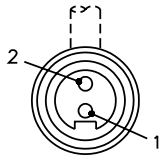
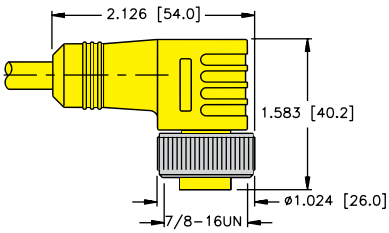
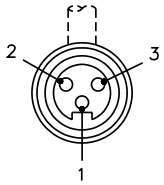
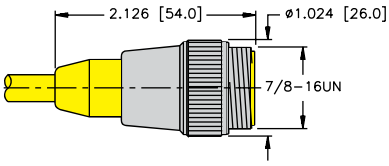
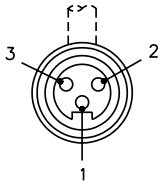
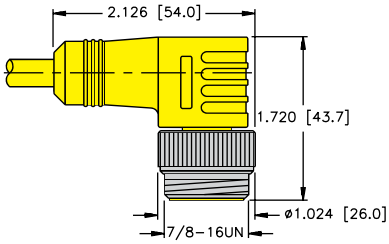
Housing Style	Female Part Number	Male Part Number	Features	Pinout
MF 3131-0  **MF 3231-0**  	**MF 3131-0**	**MFS 3131-0**	PBT, black, PG 7 cable diameter gland, accepts 4-6 mm cable diameter, screw terminals, accepts up to 18 AWG conductor, 85 °C, 250 V, 4 A, mates with 3-wire cordsets and receptacles	**Female** 
MFS 3131-0  **MFS 3231-0**  	**MF 3231-0**	**MFS 3231-0**	PBT, black, PG 7 cable diameter gland, accepts 4-6 mm cable diameter, screw terminals, accepts up to 18 AWG conductor, 85 °C, 250 V, 4 A, mates with 3-wire cordsets and receptacles	**Male** 

We reserve the right to make technical alterations without prior notice.

7/8" Minifast Connectivity Products

2 and 3-Wire Cordsets, Standard

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 9 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RKM ..**  	**RKM 20- *M** **WKM 20- *M**	**RSM 20- *M** **WSM 20- *M**	ITC/PLTC PVC Yellow 2x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50511-*M, Flexlife®, 600 V	1. BN 2. BU	Female  Male 
WKM ..**  	**RKM 30-*M** **WKM 30-*M**	**RSM 30-*M** **WSM 30-*M**	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50880-*M, Flexlife, 600 V	1. GN/YE 2. BN 3. BU	Female 
	RKM 30-*M/S90 **WKM 30-*M/S90**	**RSM 30-*M/S90** **WSM 30-*M/S90**	AWM TPU Yellow, 3x18 AWG , 90 °C, 6.0 mm OD, Cable #RF50545-*M, Cut Abrasion Immune, 600 V		
RSM ..**  	**RKM 30-*M/S101** **WKM 30-*M/S101**	**RSM 30-*M/S101** **WSM 30-*M/S101**	AWM TPE Yellow, 3x18 AWG , 105 °C, 5.7 mm OD, Cable #RF51173-*M, Flexlife-20, high flex over 20 million cycles, 600 V C-track		
	RKM 311-*M **WKM 311-*M**	**RSM 311-*M** **WSM 311-*M**	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50520-*M, Flexlife, 600 V	1. GN 2. RD/BK 3. RD/WH	Male 
WSM ..**  	**RKM 311-*M/S600** **WKM 311-*M/S600**	**RSM 311-*M/S600** **WSM 311-*M/S600**	SJOOW CPE, Yellow, 3x18 AWG , 105 °C, 8.0 mm OD, Cable #RF50658-*M, Weld Flash Immune, Flame Immune, 300 V		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

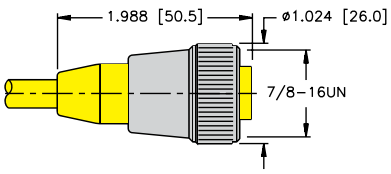
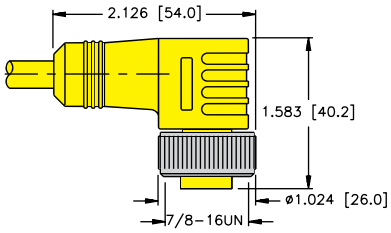
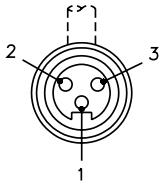
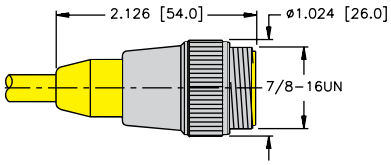
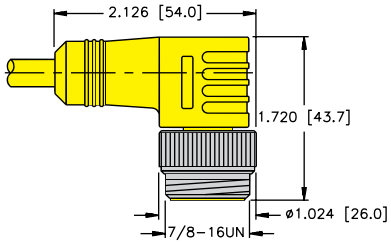
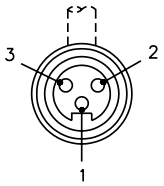
** Standard coupling nut material is nickel plated brass "RKM .."; "RK .." indicates nylon, "RKV .." indicates stainless steel, and "RKVH .." indicates stainless steel hex.

We reserve the right to make technical alterations without prior notice.

7/8" Minifast Connectivity Products

3-Wire Cordsets, Standard

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 9 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RKM ..**  WKM ..**  	RKM 31-*M WKM 31-*M	RSM 31-*M WSM 31-*M	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50513-*M, Flexlife®, 600 V	1. BK 2. BN 3. BU	Female 
RSM ..**  WSM ..**  	RKM 31-*M/S600 WKM 31-*M/S600	RSM 31-*M/S600 WSM 31-*M/S600	SJOOW CPE Yellow, 3x18 AWG, 105 °C, 8.0 mm OD, Cable #RF50654-*M, Weld Flash Immune, Flame Immune, 300 V		Male 

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

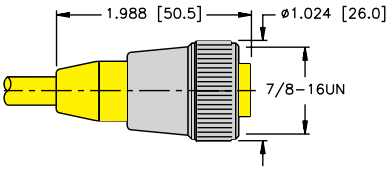
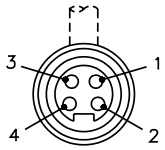
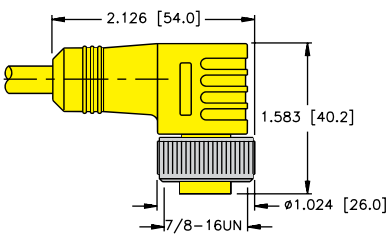
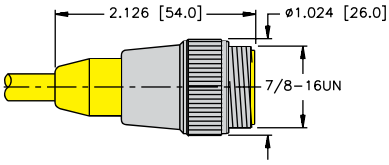
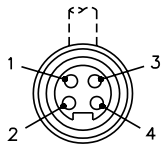
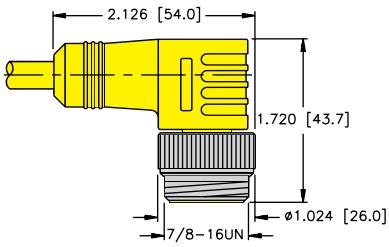
** Standard coupling nut material is nickel plated brass "RKM .."; "RK .." indicates nylon, "RKV .." indicates stainless steel, and "RKVH .." indicates stainless steel hex.

We reserve the right to make technical alterations without prior notice.

7/8" Minifast Connectivity Products

3 and 4-Wire Cordsets, Standard

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 9 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RKM ..** 	**RKM 40-*M** **WKM 40-*M**	**RSM 40-*M** **WSM 40-*M**	ITC/PLTC PVC Yellow, 4x18 AWG, 105 °C, 6.7 mm OD, Cable #RF50548-*M, Flexlife®, 600 V	1. BN 2. WH 3. BU 4. BK	**Female** 
WKM ..** 	**RKM 40-*M/S90** **WKM 40-*M/S90**	**RSM 40-*M/S90** **WSM 40-*M/S90**	AWM TPU Yellow, 4x18 AWG, 90 °C, 7.2 mm OD, Cable #RF50544-*M, Cut/Abrasion Immune, 600 V		
RSM ..** 	**RKM 40-*M/S101** **WKM 40-*M/S101**	**RSM 40-*M/S101** **WSM 40-*M/S101**	AWM TPE Yellow, 4x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50968-*M, Flexlife-20, High Flex - Over 20 million cycles, 600 V, C-track		
	RKM 40-*M/S529 **WKM 40-*M/S529**	**RSM 40-*M/S529** **WSM 40-*M/S529**	TPU Yellow, 4x20 AWG, 90 °C, 5.7 mm OD, Cable #RF50526-*M, Cut/Abrasion Immune, Braided Mechanical Shield, 300 V		**Male** 
WSM ..** 	**RKM 40-*M/S600** **WKM 40-*M/S600**	**RSM 40-*M/S600** **WSM 40-*M/S600**	SJOOW CPE Yellow, 4x18 AWG, 105 °C, 8.5 mm OD, Cable #RF50644-*M, Weld Flash Immune, Flame Immune, 300 V		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

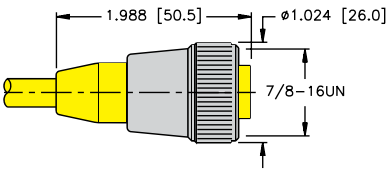
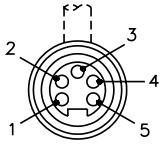
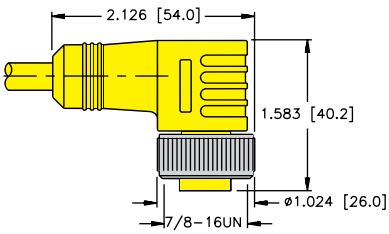
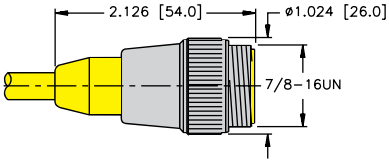
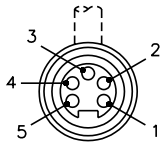
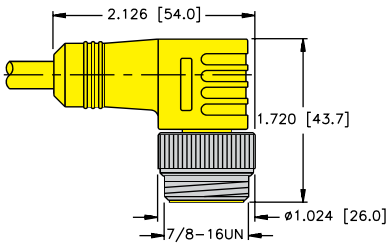
** Standard coupling nut material is nickel plated brass "RKM .."; "RK .." indicates nylon, "RKV .." indicates stainless steel, and "RKVH .." indicates stainless steel hex.

We reserve the right to make technical alterations without prior notice.

7/8" Minifast Connectivity Products

5-Wire Cordsets, Standard

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 9 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RKM ..** 	**RKM 50-*M** **WKM 50-*M**	**RSM 50-*M** **WSM 50-*M**	ITC/PLTC PVC Yellow, 5x18 AWG, 105 °C, 7.6 mm OD, Cable #RF50549-*M, Flexlife®, 600 V	1. BK 2. BU 3. GN/YE 4. BN 5. WH	**Female** 
	RKM 50-*M/S90 **WKM 50-*M/S90**	**RSM 50-*M/S90** **WSM 50-*M/S90**	AWM TPU Yellow, 5x18 AWG, 90 °C, 7.2 mm OD, Cable #RF50751-*M, Cut/Abrasion Immune, 600 V		
WKM ..** 	**RKM 50-*M/S101** **WKM 50-*M/S101**	**RSM 50-*M/S101** **WSM 50-*M/S101**	AWM TPE Yellow, 5x18 AWG, 105 °C, 6.7 mm OD, Cable #RF51174-*M, Flexlife-20, high flex over 20 million cycles, 600 V, C-track		
RSM ..** 	**RKM 50-*M/S1551** **WKM 50-*M/S1551**	**RSM 50-*M/S1551** **WSM 50-*M/S1551**	ITC/PLTC PVC Yellow, 5x18 AWG, 105 °C, 7.6 mm OD, Cable #RF50578-*M, Yellow conductor instead of Green/Yellow, 600 V	1. BK 2. BU 3. YE 4. BN 5. WH	**Male** 
	RKM 511-*M **WKM 511-*M**	**RSM 511-*M** **WSM 511-*M**	ITC/PLTC PVC Yellow, 5x18 AWG, 105 °C, 7.6 mm OD, Cable #RF50521-*M, Flexlife, 600 V	1. RD/WH 2. RD/BU 3. GN 4. RD/OG 5. RD/BK	
WSM ..** 	**RKM 511-*M/S600** **WKM 511-*M/S600**	**RSM 511-*M/S600** **WSM 511-*M/S600**	SJOOW CPE Yellow, 5x18 AWG, 105 °C, 9.4 mm OD, Cable #RF50659-*M, Weld Flash Immune, Flame Immune, 300 V		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

** Standard coupling nut material is nickel plated brass "RKM .."; "RK .." indicates nylon, "RKV .." indicates stainless steel, and "RKVH .." indicates stainless steel hex.

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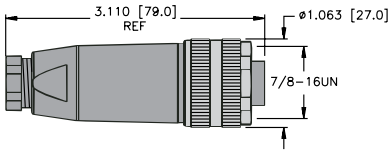
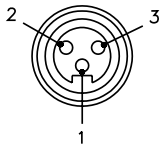
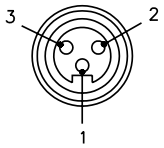
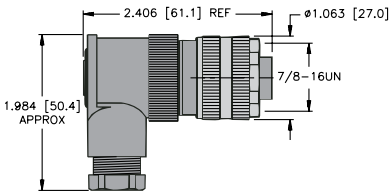
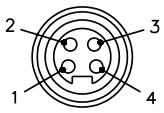
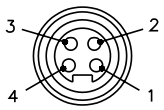
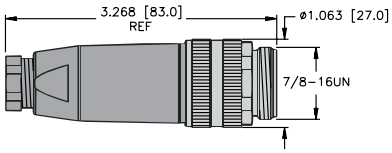
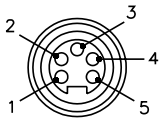
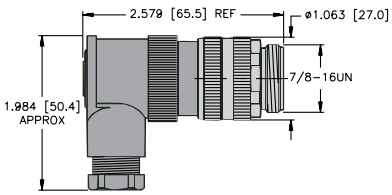
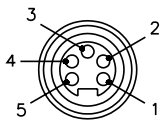
7/8" Minifast Connectivity Products

3, 4 and 5-Pin Field Wireable Connectors

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection

Housing Style	Female Part Number	Male Part Number	Features	Pinout
B 41 ..  	**B 4131-0/9** **B 4231-0/9**	**BS 4131-0/9** **BS 4231-0/9**	Glass filled nylon, PG 9 cable gland, accepts 6-8 mm cable diameter screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 12 A, Mates with all 3-pin cordsets and receptacles	**Female** 
	B 4131-0/13.5	**BS 4131-0/13.5**	Glass filled nylon, PG 13.5 cable gland, accepts 10-12 mm cable diameter screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 12 A, Mates with all 3-pin cordsets and receptacles	**Male** 
B 42 ..  	**B 4141-0/9** **B 4241-0/9**	**BS 4141-0/9** **BS 4241-0/9**	Glass filled nylon, PG 9 cable gland, accepts 6-8 mm cable diameter screw terminals, accepts up to 16 AWG conductors 85 °C, 250 V, 9 A, Mates with all 4-pin cordsets and receptacles	**Female** 
	B 4141-0/13.5	**BS 4141-0/13.5**	Glass filled nylon, PG 13.5 cable gland, accepts 10-12 mm cable diameter screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 9 A, Mates with all 4-pin cordsets and receptacles	**Male** 
BS 41 ..  	**B 4151-0/9** **B 4251-0/9**	**BS 4151-0/9** **BS 4251-0/9**	Glass filled nylon, PG 9 cable gland, accepts 6-8 mm cable diameter, screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 9 A, Mates with all 5-pin cordsets and receptacles	**Female** 
BS 42 ..  	**B 4151-0/13.5**	**BS 4151-0/13.5**	Glass filled nylon, PG 13.5 cable gland, accepts 10-12 mm cable diameter screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 9 A	**Male** 
	B 4151-0/16	**BS 4151-0/16**	Glass filled nylon, PG 16 cable gland, accepts 12-14 mm cable diameter screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 9 A	

We reserve the right to make technical alterations without prior notice.

Notes

Accessories Selection Guide

	Die Protector	Whisker Probe	Quick Mount
Pages	**I3**	**I3**	**I4**

	Cushion Mount	Mounting Clamps	Mounting Brackets
Pages	**I4**	**I5**	**I6**

	Mounting Clamps	Mounting Brackets	Protective Housing - "Wet Suit"
Pages	**I7 - 8**	**I9 - 11**	**I11**

	PTFE/Ceramic Caps	Protective Covers	Lockwashers and Locknuts
Pages	**I12**	**I13**	**I14**

We reserve the right to make technical alterations without prior notice.

Accessories Selection Guide

	Smart Plugs	Cable Glands
Pages	I15	I16

	Conduit Adapters	Actuation Magnets
Pages	I17	I18

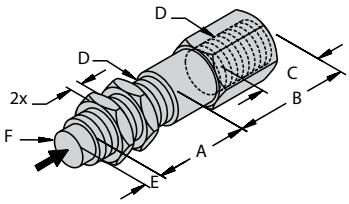
	Spacer Plates	Threaded and Bolt-on Tank Wells
Pages	I18	I21 - 22

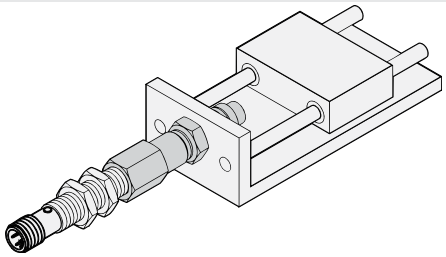
	Test Box	Limit Value Monitor
Pages	I23	I23

We reserve the right to make technical alterations without prior notice.

Accessories

Die Protector





Part Number	ID Number	A	B	C	D	E	F
DP-08-25-08	**A2521**	0.98 [25.0]	1.25 [31.8]	0.66 [16.7]	M8x1	0.17 [4.3]	0.44 [11.1]
DP-08-50-08	**A9473**	1.97 [50.0]	1.25 [31.8]	0.66 [16.7]	M8x1	0.17 [4.3]	0.44 [11.1]
DP-12-25-12	**A2519**	0.98 [25.0]	1.25 [31.8]	0.66 [16.7]	M12x1	0.17 [4.3]	0.62 [15.7]
DP-12-50-12	**A9169**	1.97 [50.0]	1.25 [31.8]	0.66 [16.7]	M12x1	0.17 [4.3]	0.62 [15.7]
DP-18-25-18	**A2520**	0.98 [25.0]	1.25 [31.8]	0.66 [16.7]	M18x1	0.17 [4.3]	0.87 [22.1]
DP-18-75-18	**A9527**	2.95 [75.0]	1.25 [31.8]	0.66 [16.7]	M18x1	0.17 [4.3]	0.87 [22.1]

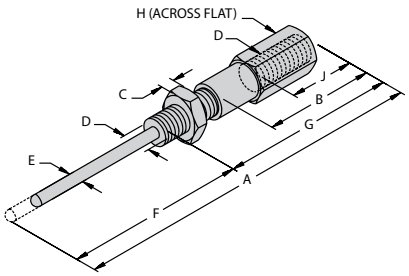
Inches [mm]
Spring rate for plunger actuation: 9 oz

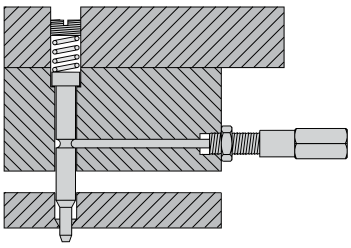
Recommended Sensors for Die Protector

Die Protector	DP-08-25-08	DP-12-25-12	DP-18-25-18
Sensors	Bi1.5U-EG08-AP6X Bi2-EG08-AP6X	Bi2-G12-AP6X-H1141	Bi5-G18-AP6X (When not fully engaged)

Note: Works with all shielded NPN, PNP, quick disconnect or potted-in-cable versions of the listed part numbers.

Whisker Probe





Part Number	ID Number	A	B	C	D	E	F	G	H	J
WP-08-50-03	**A2527**	3.92 [99.6]	1.25 [31.8]	0.15 [3.8]	M8x1	0.13 [3.2]	2.00 [50.8]	1.95 [49.5]	0.44 [11.1]	0.86 [21.8]
WP-12-50-03	**A2528**	3.92 [99.6]	1.25 [31.8]	0.15 [3.8]	M12x1	0.13 [3.2]	2.00 [50.8]	1.95 [49.5]	0.44 [11.1]	0.86 [21.8]
WP-12-50-06	**A2529**	3.92 [99.6]	1.25 [31.8]	0.15 [3.8]	M12x1	0.25 [6.4]	2.00 [50.8]	1.95 [49.5]	0.62 [15.8]	0.71 [18.0]
WP-12-100-06	**A9195**	5.91 [150]	1.25 [31.8]	0.15 [3.8]	M12x1	0.25 [6.4]	4.00 [102]	1.95 [49.5]	0.62 [15.8]	0.71 [18.0]

Inches [mm]

Recommended Sensors for Whisker Probe

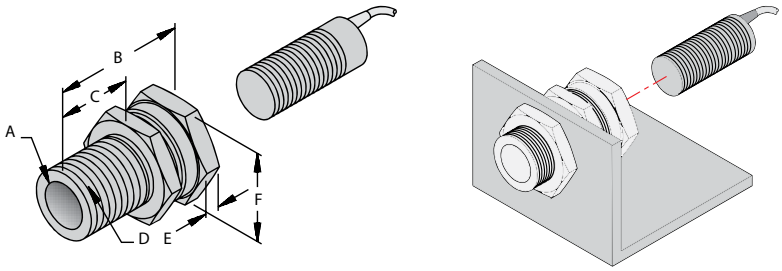
Whisker Probe	WP-08-50-03		WP-12-50-03	WP-12-50-06
Sensors	Bi1-G08-AN6 Bi1.5-G08-AP6X	Bi1.5U-EG08-AP6X Bi2-EG08-AP6X	Bi2-G12-AP6X-H1141 Bi3U-M12-AP6X-H1141	Bi2-G12-AP6X-H1141 Bi3U-M12-AP6X-H1141

Note: Works with all shielded NPN, PNP, quick disconnect or potted-in-cable versions of the listed part numbers. Not for use with Uprox3.

We reserve the right to make technical alterations without prior notice.

Accessories

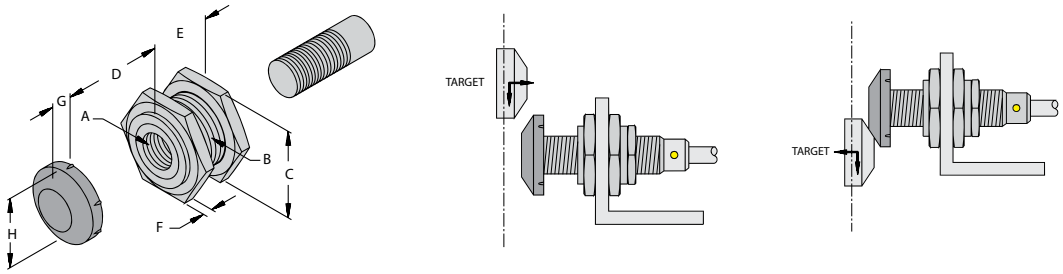
Quick Mount



Part Number	ID Number	Features	A	B	C	D	E	F
QM-08	A2511	—	0.32 [8.18]	1.28 [32.4]	0.69 [17.5]	M12x1	0.15 [3.85]	0.67 [16.9]
QM-08L	A2512	Ext. Length	0.32 [8.18]	1.90 [48.0]	1.34 [34.0]	M12x1	0.15 [3.85]	0.67 [16.9]
QM-12	A2513	—	0.48 [12.1]	1.34 [33.7]	0.77 [19.5]	M16x1	0.16 [4.01]	0.86 [21.8]
QM-12L	A2514	Ext. Length	0.48 [12.1]	1.76 [44.8]	1.18 [30.0]	M16x1	0.16 [4.01]	0.86 [21.8]
QM-12L-T	A2542	Ext. Length, PTFE	0.48 [12.1]	1.76 [44.8]	1.18 [30.0]	M16x1	0.16 [4.01]	0.86 [21.8]
QM-18	A2515	—	0.71 [18.1]	1.52 [38.5]	0.79 [20.0]	M24x1.5	0.19 [4.95]	1.18 [30.0]
QM-18L	A2516	Ext. Length	0.71 [18.1]	2.28 [58.0]	1.57 [40.0]	M24x1.5	0.19 [4.95]	1.18 [30.0]
QM-18L-T	A2543	Ext. Length, PTFE	0.71 [18.1]	2.28 [58.0]	1.57 [40.0]	M24x1.5	0.19 [4.95]	1.18 [30.0]
QM-30	A2517	—	1.19 [30.1]	1.50 [35.0]	0.79 [20.0]	M36x1.5	0.24 [6.13]	1.61 [41.0]
QM-30L	A2518	Ext. Length	1.19 [30.1]	2.28 [58.0]	1.57 [40.0]	M36x1.5	0.24 [6.13]	1.61 [41.0]

Inches [mm]
Material: Nickel plated brass

Cushion Mount



Part Number	ID Number	A	B	C	D	E	F	G	H	Cap Part Number	Cap ID Number
		Inside Thread	Outside Thread	Across Flats	Max Allowable Overtravel						
CM-08	A2503	M8x1	M16x1.5	0.88 [22.2]	0.35 [8.89]	0.87 [22.1]	0.16 [3.94]	0.21 [5.33]	0 .60 [15.2]	CAP-EN08	A6100
CM-08N	A2504									CAP-EN08N	A6200
CM-12	A2505	M12x1	M22x1.5	1.12 [28.6]	0.40 [10.0]	0.87 [22.1]	0.16 [4.06]	0.245 [6.22]	0 .90 [22.9]	CAP-EN12	A6300
CM-12N	A2506									CAP-EN12N	A6300-1
CM-18	A2507	M18x1	M30x1.5	1.41 [35.8]	0.49 [12.4]	1.17 [29.7]	0.20 [5.10]	0.33 [8.38]	1.18 [30.0]	CAP-EN18	A6400
CM-18N	A2508									CAP-EN18N	A6400-1
CM-30	A2509	M30x1.5	M47x1.5	2.01 [51.0]	0.57 [14.5]	1.47 [37.3]	0.20 [5.10]	0 .30 [7.62]	1.72 [43.7]	CAP-EN30	A 9567
CM-30N	A2510									—	—

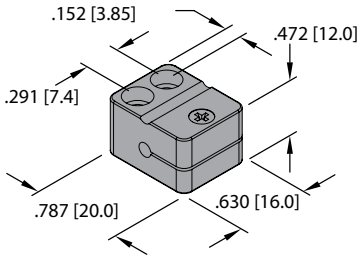
Inches [mm]
Material: Anodized aluminum
Cap: Plastic
Stainless Versions available (CM-*NSS)

We reserve the right to make technical alterations without prior notice.

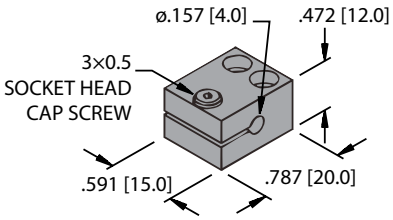
Accessories

Mounting Clamps

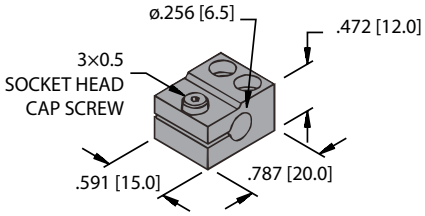
MBS 30



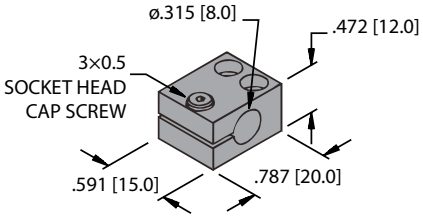
MBS 40



MBS 65



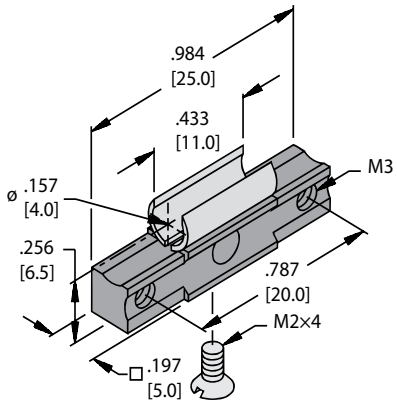
MBS 80



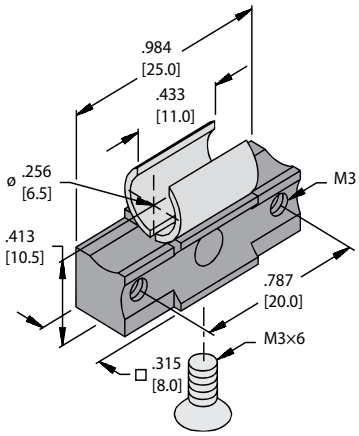
Part Number	ID Number	Barrel Diameter
MBS30	**6948000**	3.0 mm
MBS40	**69477**	4.0 mm
MBS65	**69478**	6.5 mm
MBS80	**69479**	8.0 mm

Inches [mm]
Material: Aluminum
Finish: Black anodized
*For use with smooth barrel Picoprox® sensors

BS 540



BS 865



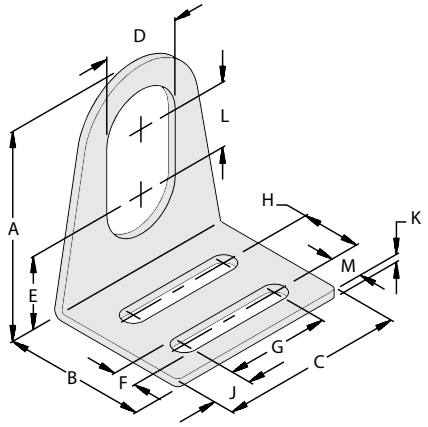
Part Number	ID Number	Barrel Diameter
BS540	**69475**	4.0 mm
BS865	**69476**	6.5 mm

Inches [mm]
Block Material: Aluminum
Sleeve Material: Steel
*For use with smooth barrel Picoprox sensors

We reserve the right to make technical alterations without prior notice.

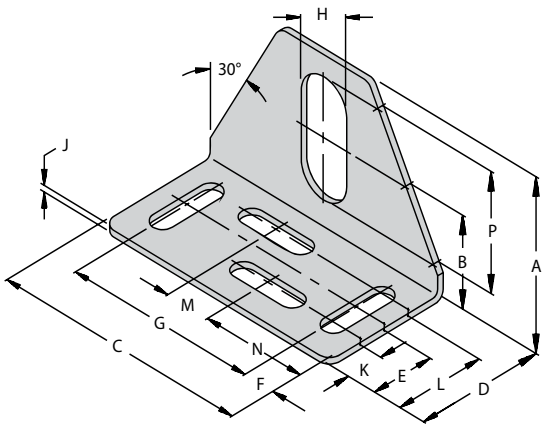
Accessories

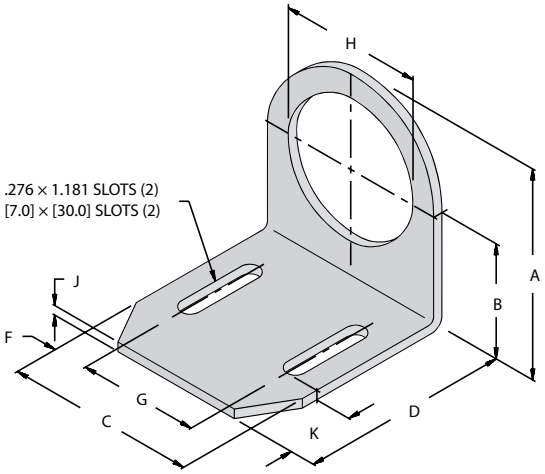
Mounting Brackets



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H	J	K	L	M
MBSS-08	**A2522**	8 mm	1.00 [25.4]	1.13 [28.7]	1.25 [31.8]	0.34 [8.74]	0.31 [7.92]	0.22 [5.54]	0.63 [15.9]	0.47 [11.9]	0.31 [7.92]	0.070 [1.78]	0.37 [9.53]	0.28 [7.14]
MBSS-12	**A2523**	12 mm	1.50 [38.1]	1.37 [34.8]	1.50 [38.1]	0.50 [12.7]	0.55 [13.9]	0.22 [5.54]	0.75 [19.1]	0.56 [14.3]	0.37 [9.53]	0.070 [1.78]	0.50 [12.7]	0.31 [7.92]
MBSS-18	**A2524**	18 mm	2.00 [50.8]	1.37 [34.8]	1.75 [44.5]	0.75 [19.1]	0.22 [19.1]	0.22 [5.54]	1.00 [25.4]	0.56 [14.3]	0.37 [9.53]	0.070 [1.78]	0.62 [15.9]	0.31 [7.92]
MBSS-30	**A2525**	30 mm	2.50 [63.5]	1.75 [44.5]	2.25 [57.2]	1.18 [30.5]	0.91 [23.0]	0.22 [5.54]	1.37 [34.8]	0.81 [20.6]	0.44 [11.2]	0.085 [2.16]	0.75 [19.1]	0.41 [10.3]
MBSS-47	**A2526**	47 mm	3.50 [88.9]	2.00 [50.8]	2.50 [63.5]	1.87 [47.5]	1.50 [38.1]	0.22 [5.54]	1.50 [38.1]	1.00 [25.4]	0.50 [12.7]	0.120 [3.05]	0.75 [19.1]	0.50 [12.7]

Inches [mm]
Material: 304 stainless steel





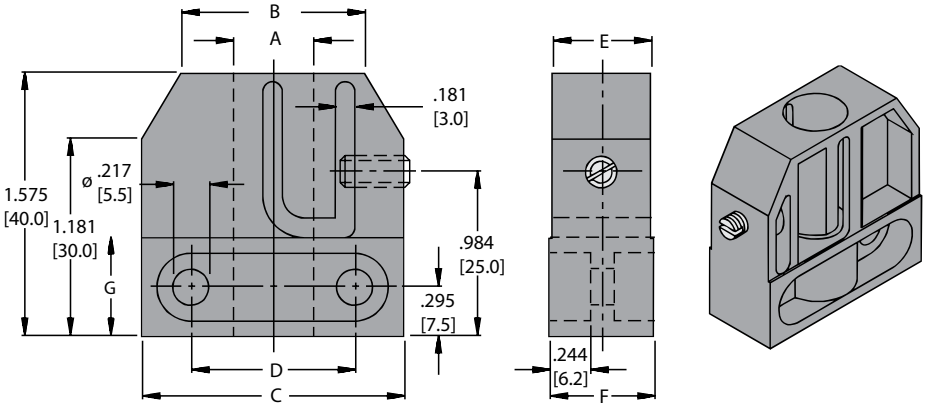
Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MB-8	**A3130-1**	8 mm	1.26 [32.0]	0.66 [16.7]	2.00 [50.8]	1.00 [25.4]	0.45 [11.5]	0.30 [7.5]	1.41 [35.8]	0.33 [8.4]	0.06 [1.5]	0.24 [6.0]	0.67 [17.0]	0.35 [8.8]	0.83 [21.0]	.84 [21.4]
MB-12	**A3130**	12 mm	1.63 [41.5]	0.87 [22.15]	2.50 [63.5]	1.25 [31.8]	0.61 [15.5]	0.31 [7.9]	1.88 [47.8]	0.50 [12.7]	0.06 [1.5]	0.35 [9.0]	0.87 [22.0]	0.45 [11.5]	1.02 [26.0]	1.13 [28.7]
MB-18	**A3135**	18 mm	1.63 [41.5]	0.79 [20.0]	2.50 [63.5]	1.25 [31.8]	0.61 [15.5]	0.31 [7.9]	1.88 [47.8]	0.75 [19.1]	0.06 [1.5]	0.35 [9.0]	0.87 [22.0]	0.45 [11.5]	1.04 [26.3]	1.15 [29.1]
MB-30	**A3140**	30 mm	2.62 [66.5]	1.32 [33.5]	4.25 [108.0]	1.75 [44.5]	0.88 [22.4]	0.37 [9.5]	3.50 [88.9]	1.19 [30.2]	0.07 [1.8]	0.63 [16.0]	1.14 [29.0]	1.18 [30.0]	1.54 [39.0]	2.06 [52.2]
MB-47	**69452**	47 mm	2.74 [69.5]	1.48 [37.5]	2.52 [64.0]	252 [64.0]	—	0.47 [12.0]	1.58 [40.0]	1.87 [47.5]	0.12 [3.00]	0.63 [16.0]	—	—	—	—

Inches [mm]
Material: Cold roll steel
Finish: Galvanized

We reserve the right to make technical alterations without prior notice.

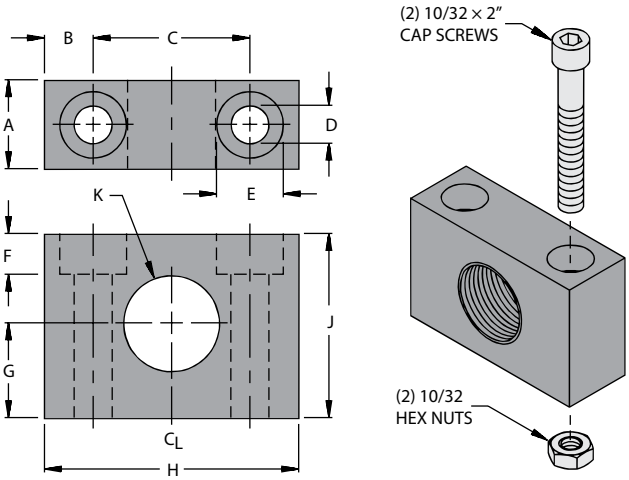
Accessories

Mounting Clamps



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G
BS-12	**M6947000**	12 mm	0.48 [12.2]	1.10 [28.0]	1.57 [40.0]	0.98 [25.0]	0.59 [15.0]	0.63 [16.0]	0.59 [15.0]
BS-18	**M6947100**	18 mm	0.72 [18.2]	1.30 [33.0]	1.77 [45.0]	1.18 [30.0]	0.83 [21.0]	0.87 [22.0]	0.59 [15.0]

Inches [mm]
Material: PA 66-GF
*For use with 12 and 18 mm threaded barrel sensors



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H	J	K
MB-S12	**A3150**	12 mm	0.44 [11.2]	0.24 [6.2]	0.77 [19.6]	0.20 [5.0]	0.34 [8.7]	0.20 [5.0]	0.45 [11.4]	1.26 [32.0]	0.91 [23.0]	M12x1
MB-S18	**A3155**	18 mm	0.63 [16.0]	0.30 [7.6]	1.20 [30.5]	0.22 [5.5]	0.38 [9.6]	0.25 [6.4]	0.57 [14.5]	1.80 [45.8]	1.15 [29.3]	M18x1

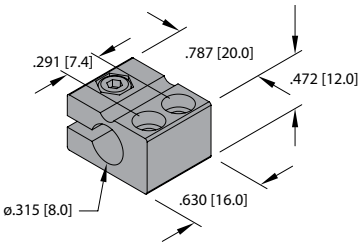
Inches [mm]
Material: Delrin
*For use with 12 and 18 mm threaded barrel sensors. Mounting hardware included.

We reserve the right to make technical alterations without prior notice.

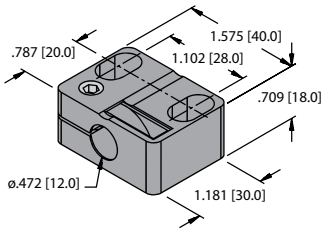
Accessories

Mounting Clamps

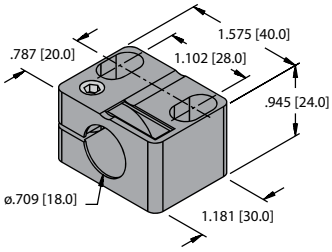
BST-08B



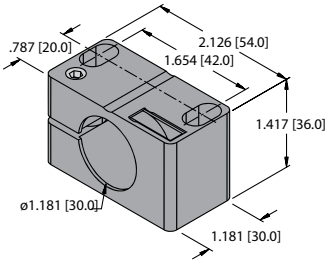
BST-12B/12N



BST-18B/18N

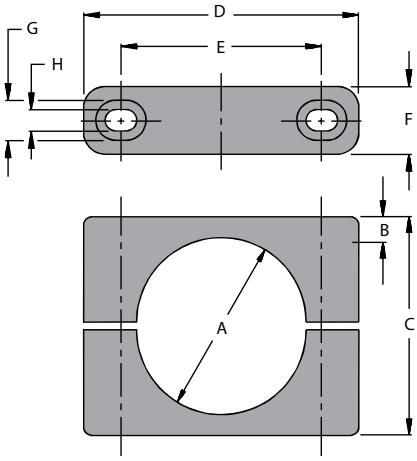


BST-30B/30N

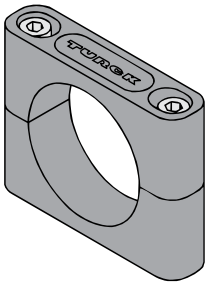


Part Number	ID Number	Barrel Diameter
BST-08B	**6947210**	8 mm
BST-12B	**6947212**	12 mm
BST-12N	**6945200**	12 mm
BS-18B	**6947214**	18 mm
BST-18N	**6947215**	18 mm
BST-30B	**6947216**	30 mm
BST-30N	**6947217**	30 mm

Inches [mm]
B Version comes with dead stop for flush mounted sensors
Material: PA 66-6F



SCREWS INCLUDED:
BS-11: (2) M4 × 22 —SLOTTED HEAD
BS-20: (2) M5 × 30 —CAP SCREWS
BS-40: (2) M5 × 50 —CAP SCREWS



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H
BS-11	**A3075**	11 mm	0.43 [11.0]	0.20 [5.0]	0.79 [20.0]	1.26 [32.0]	0.79 [0.0]	0.47 [12.0]	0.32 [8.2]	0.17 [4.3]
BS-20	**69464**	20 mm	0.79 [20.0]	0.24 [6.0]	1.18 [30.0]	1.81 [46.0]	1.22 [31.0]	0.59 [15.0]	0.37 [9.5]	0.21 [5.3]
BS-40	**69466**	40 mm	1.57 [40.0]	0.24 [6.0]	1.97 [50.0]	2.56 [65.0]	1.87 [47.5]	0.63 [16.0]	0.37 [9.5]	0.21 [5.3]

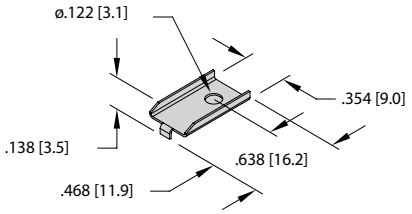
Inches [mm]
Bracket Material: PBT
Screw Bracket: Galvanized zinc
*For use with 11, 20, and 40 mm smooth plastic barrel sensors

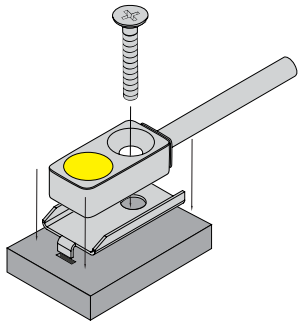
We reserve the right to make technical alterations without prior notice.

Accessories

Mounting Brackets

MW-Q4.7/5.5

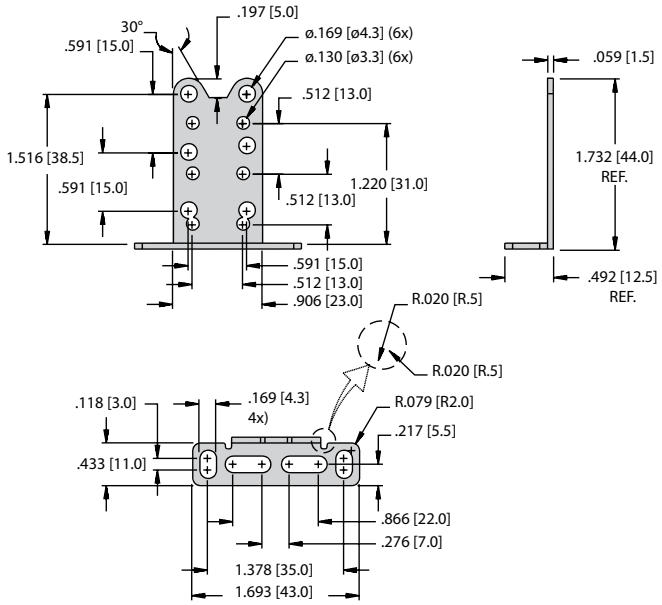


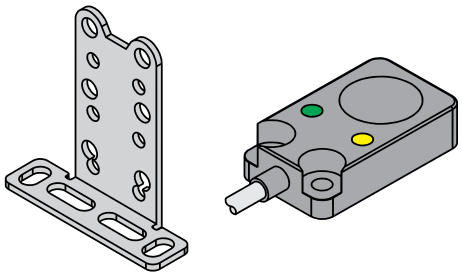


Part Number	ID Number
MW-Q4.7/5.5	6945013

Inches [mm]
Material: Stainless steel
*For surface mounting of Q4.7 or Q5.5 sensors

MB-Q08/Q10

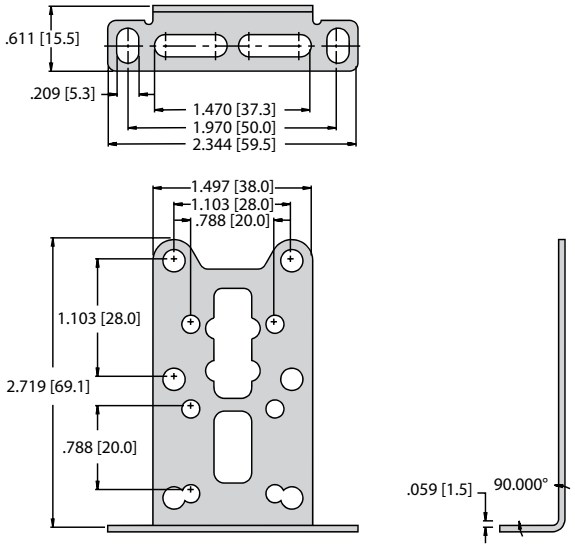


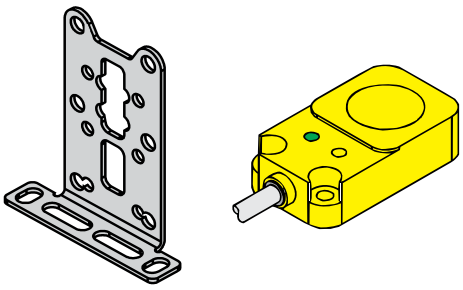


Part Number	ID Number
MB-Q08/Q10	A3563

Inches [mm]
Material: Stainless steel
*For use with Q08 or Q10 sensors

MB-Q14/20





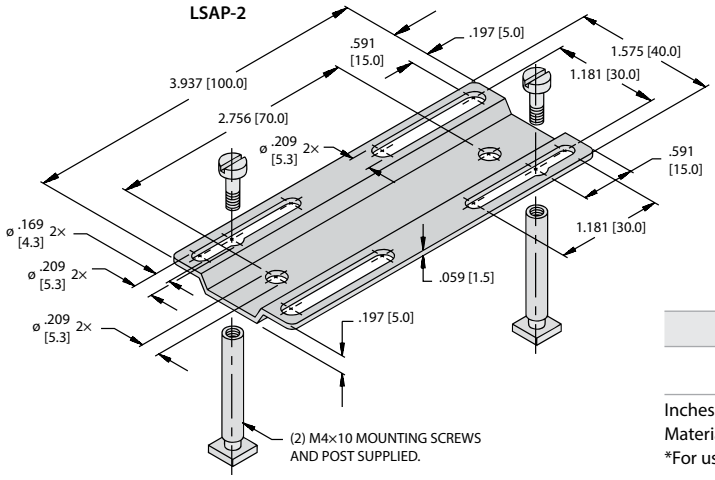
Part Number	ID Number
MB-Q14/20	A3147

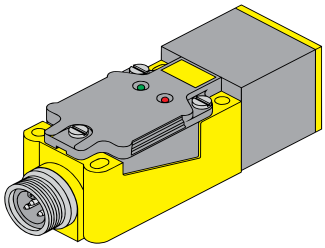
Inches [mm]
Material: Stainless steel
*For use with Q14 or Q20 sensors

We reserve the right to make technical alterations without prior notice.

Accessories

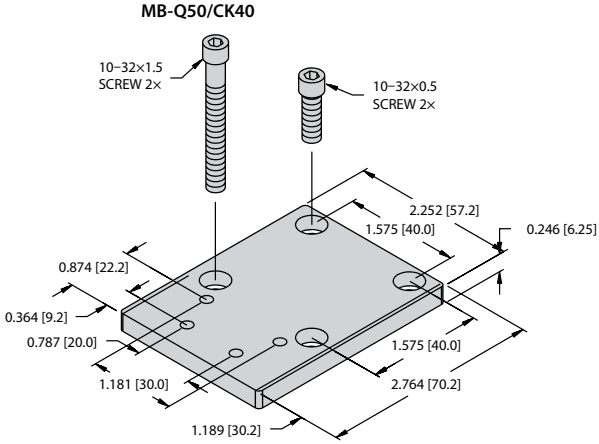
Mounting Brackets

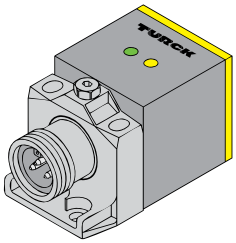




Part Number	ID Number
LSAP-2	M6942900

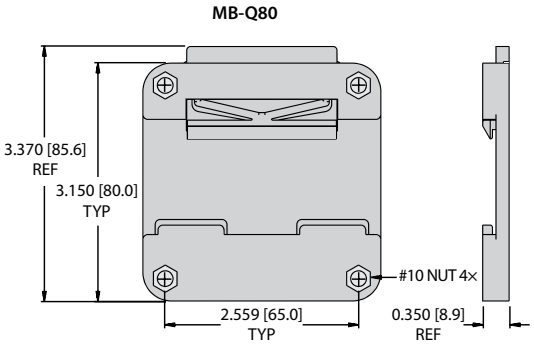
Inches [mm]
Material: Stainless steel
*For use with CP40

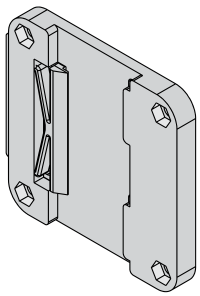


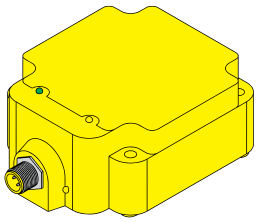


Part Number	ID Number
MB-Q50/CK40	A3148

Inches [mm]
Material: Stainless steel
*For use with Q50 or CK40 sensors







Part Number	ID Number
MB-Q80	A3144

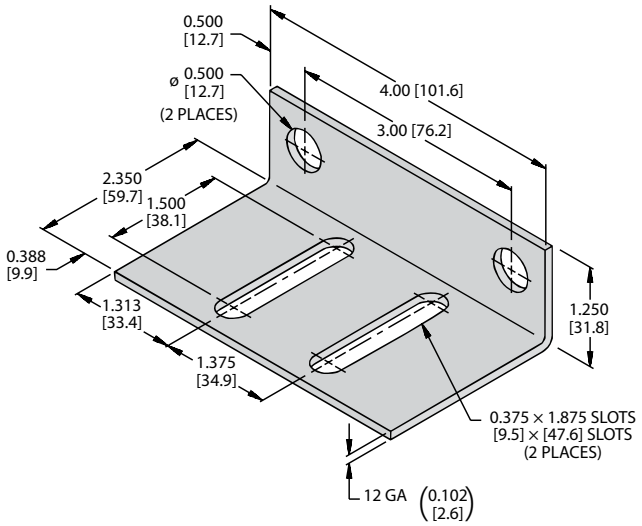
Inches [mm]
Bracket Material: Plastic
Insert Material: Stainless steel
*For use with Q80 sensors

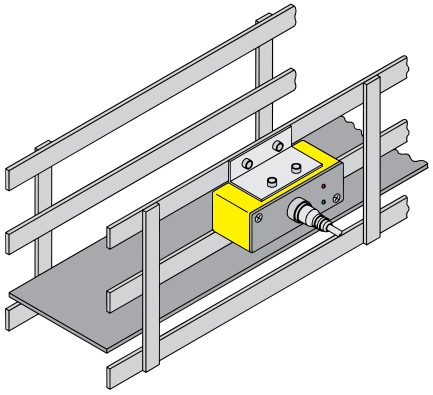
We reserve the right to make technical alterations without prior notice.

Accessories

Mounting Brackets

MB-Q130



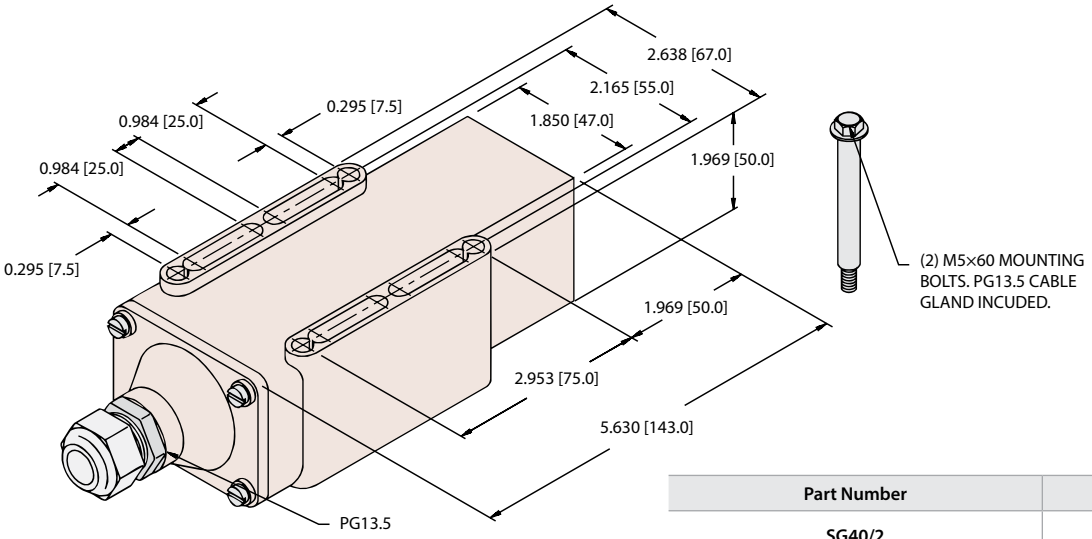


Part Number	ID Number
MB-Q130	**A3145**

Inches [mm]
Material: Stainless steel
*For use with Q130 sensors

Protective Housing "Wet Suit"

SG40/2



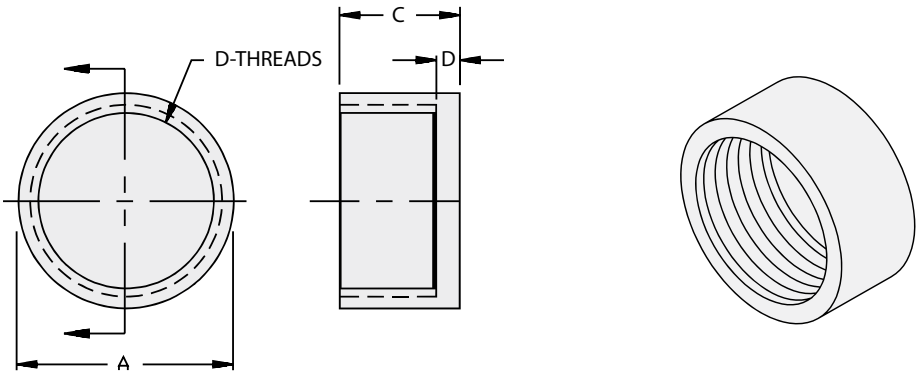
Part Number	ID Number
SG40/2	**69497**

Inches [mm]
Material: Plastic, Ultem
*Recommended cable diameters: 5 - 12 mm.
For use with CP40 sensors. For extreme protection class IP68 temperatures from –30 to 170 °C (338°F), and long term submersion up to 5 meters. Especially resistant to UV-radiation and ozone.

We reserve the right to make technical alterations without prior notice.

Accessories

PTFE / Ceramic Caps



Part Number	ID Number	Barrel Diameter	Material	A	B	C	D
CAP 08-PTFE	A3055-1	8 mm Embeddable	PTFE	0.375 [9.5]	0.03 [0.7]	0.437 [11.1]	M8x1
CAP 08-DER	A9326	8 mm Embeddable	Delrin	0.375 [9.53]	0.03 [0.76]	0.437 [11.1]	M8x1
CAP 12-PTFE	M6966200	12 mm Embeddable	PTFE	0.63 [16.0]	0.03 [0.7]	0.63 [16.0]	M12x1
CAP 12-CER	A2530	12 mm Embeddable	Ceramic	0.58 [14.7]	0.035 [.89]	0.35 [8.90]]	M12x1
CAP 12-DER	A9321	12 mm Embeddable	Delrin	0.58 [14.7]	0.035 [.89]	0.35 [8.90]	M12x1
CAP 12N-CER	A9129	12 mm Non-embeddable	Ceramic	0.58 [14.7]	0.035 [.89]	0.60 [15.2]	M12x1
CAP 12N-DER	A9322	12 mm Non-embeddable	Delrin	0.58 [14.7]	0.035 [.89]	0.60 [15.2]	M12x1
CAP 18-PTFE	A3055	18 mm Embeddable	PTFE	0.87 [22.0]	0.04 [1.0]	0.35 [9.0]	M18x1
CAP 18N-PTFE	A3056	18 mm Non-embeddable	PTFE	0.87 [22.0]	0.04 [1.0]	0.79 [20.0]	M18x1
CAP 18-CER	A2531	18 mm Embeddable	Ceramic	0.95 [24.1]	0.045 [1.14]	0.35 [8.90]	M18x1
CAP 18-DER	A9323	18 mm Embeddable	Delrin	0.95 [24.1]	0.045 [1.14]	0.35 [8.90]	M18x1
CAP 18N-CER	A3056-4	18 mm Non-embeddable	Ceramic	0.95 [24.1]	0.045 [1.14]	0 .70 17.8	M18x1
CAP 18N-DER	A9324	18 mm Non-embeddable	Delrin	0.95 [24.1]	0.045 [1.14]	0 .70 17.8	M18x1
CAP 30-PTFE	A3057	30 mm Embeddable	PTFE	1.34 [34.0]	0.05 [1.2]	0.35 [9.0]	M30x1.5
CAP 30N-PTFE	A3058	30 mm Non-embeddable	PTFE	1.34 [34.0]	0.05 [1.2]	1.14 [29.0]	M30x1.5
CAP 30-CER	A2532	30 mm Embeddable	Ceramic	1.50 [38.1]	0.08 [2.03]	0 .39 [9.90]	M30x1.5
CAP 30-DER	A9325	30 mm Embeddable	Delrin	1.50 [38.1]	0.08 [2.03]	0.39 [9.90]	M30x1.5
CAP 30N-DER	A9320	30 mm Non-embeddable	Delrin	1.50 [38.1]	0.08 [2.03]	1.00 [25.4]	M30x1.5
CAP 47-PTFE	A3060	47 mm Embeddable	PTFE	2.20 [55.8]	0.06 [1.6]	0.38 [9.7]	PG 36

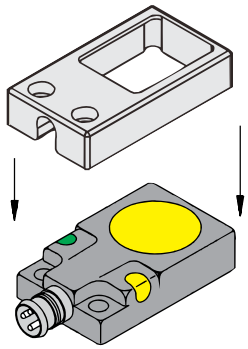
Inches [mm]

We reserve the right to make technical alterations without prior notice.

Accessories

Protective Covers

1



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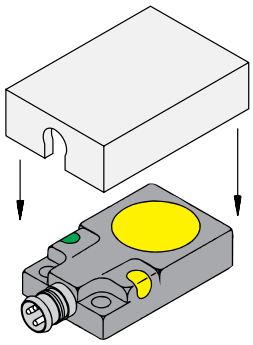

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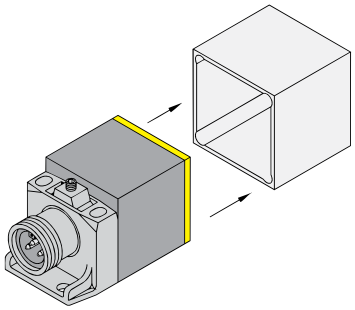

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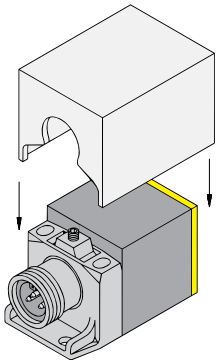

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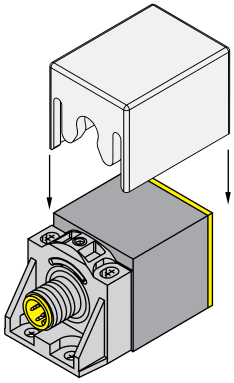

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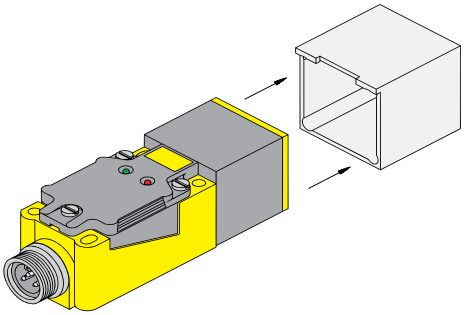

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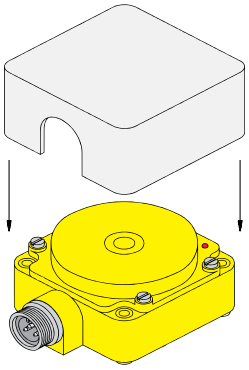
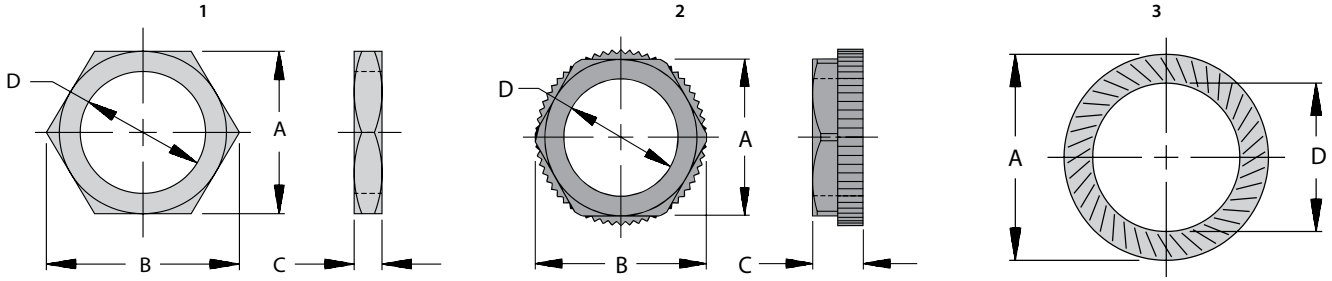


Part Number	ID Number	Material	For Use With Sensor Housing	Drawing Image
MBS-Q08TS	**A9492**	Nickel Plated Steel	Q08	1
T-Q08-T-MCC	**A5155**	PTFE	Q08	2
T-Q14-T-MCC	**A5154**	PTFE	Q14	2
T-Q20-T-MCC	**A5156**	PTFE	Q20	2
T-CK40-T-FC	**A5202**	PTFE	CK40	3
T-CK40-D-FC	**A5160**	Delrin	CK40	**3**
T-CK40-T-MCC	**A5201**	PTFE	CK40	**4**
T-CK40-T-MCB	**A9126**	PTFE	CK40	**5**
T-CP40-T-C	**A5204**	PTFE	CP40	**6**
T-CP80-T	**A5207**	PTFE	CP80	**7**

We reserve the right to make technical alterations without prior notice.

Accessories

Locknuts and Washers

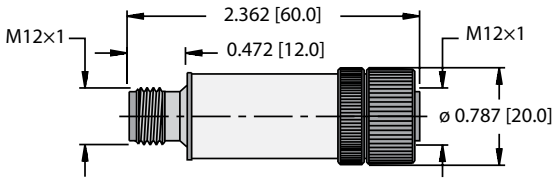


Part Number	ID Number	Barrel Diameter	Materials	A	B	C	D	Dimension Drawing
Locknut-M05	**A3119**	5 mm	SS	0.28 [7.0]	0.32 [8.0]	0.10 [2.5]	M5x0.5	1
Locknut-SS08	**A3123-08**	8 mm	SS	0.51 [13.0]	0.58 [14.7]	0.16 [4.0]	M8x1	1
Locknut-M8X1PTFE	**A9696**	8 mm	PTFE	0.51 [13.0]	0.58 [14.7]	0.16 [4.0]	M8x1	1
Locknut-M12	**A3122**	12 mm	CPB	0.67 [17.0]	0.76 [19.4]	0.16 [4.0]	M12x1	1
Locknut-MT12	**A3109**	12 mm	PTFE	0.67 [17.0]	0.76 [19.4]	0.16 [4.0]	M12x1	1
Locknut-SS12	**A3123**	12 mm	SS	0.67 [17.0]	0.76 [19.4]	0.16 [4.0]	M12x1	1
Locknut-P12	**A3446**	12 mm	PA	0.67 [17.0]	0.75 [19.0]	0.32 [8.0]	M12x1	2
Locknut-M18	**A3125**	18 mm	CPB	0.94 [24.0]	1.08 [27.4]	0.16 [4.0]	M18x1	1
Locknut-MT18	**A3108**	18 mm	PTFE	0.94 [24.0]	1.08 [27.4]	0.16 [4.0]	M18x1	1
Locknut-SS18	**A3123-0**	18 mm	SS	0.94 [24.0]	1.08 [27.4]	0.16 [4.0]	M18x1	1
Locknut-P18	**A3448**	18 mm	PA	0.94 [24.0]	1.06 [27.0]	0.32 [8.0]	M18x1	2
Locknut-M30	**A3126**	30 mm	CPB	1.42 [36.0]	1.63 [41.4]	0.20 [5.0]	M30x1.5	1
Locknut-MT30	**A3107**	30 mm	PTFE	1.42 [36.0]	1.63 [41.4]	0.20 [5.0]	M30x1.5	1
Locknut-SS30	**A3123-1**	30 mm	SS	1.42 [36.0]	1.63 [41.4]	0.20 [5.0]	M30x1.5	1
Locknut-P30	**A3450**	30 mm	PA	1.42 [36.0]	1.58 [40.1]	0.39 [10.0]	M30x1.5	2
Locknut-PG36	**A3440**	47 mm	CPB	2.01 [51.1]	2.20 [56.0]	0.20 [5.0]	PG36	1
LW-05	**A100066**	5 mm	SS	0.39 [10]	N/A	N/A	0.21 [5.3]	3
LW-08	**A3124**	8 mm	SS	0.55 [14]	N/A	N/A	0.32 [8.2]	3
LW-12	**A3127**	12 mm	SS	0.70 [17.8]	N/A	N/A	0.52 [13.2]	3
LW-18	**A3128**	18 mm	SS	1.06 [26.8]	N/A	N/A	0.76 [19.3]	3
LW-30	**A3129**	30 mm	SS	1.76 [44.8]	N/A	N/A	1.26 [32.0]	3

Inches [mm]
*For use with threaded barrel sensors

We reserve the right to make technical alterations without prior notice.

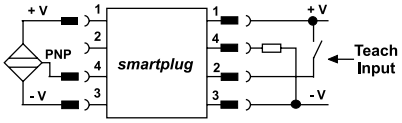
Smart Plugs

Housing Style	Dimension Drawing
	A 

Add function to existing installations. Solve control problems quickly in the field. Simple plug-in installation - uses industry standard M12×1 4-pin connectors (Eurofast). Programmed through "teach" input - Pin 2. LED aids programming.

Wiring Diagrams

1



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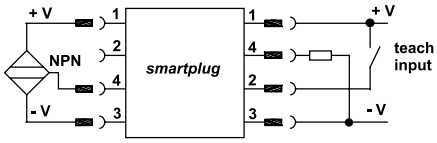


Technical Data

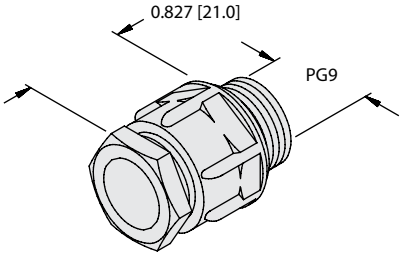
Operating Voltage:	10 - 30 VDC	Ambient Temperature Range:	0 to 60 °C (32 to 140 °F)
Own Current Consumption:	< 10 mA	Display:	Red LED
Input Resistance:	> 10 kΩ	Housing Material:	Plastic PBTP/PA
Max. Input Frequency:	10 kHz	Protection Standard:	IP 67
Min. Response Time:	0.1 ms	Connection Input:	4-pin socket M12×1
Max. Output Current:	400 mA, Short-circuit proof	Connection Output:	4-pin connector M12×1

Part Number	ID Number	Teachable Function	Dimension Drawing	Wiring Diagram
SPC1-AP6X	**A0620**	Programmable pulse or interval counter. Adjustable N.O./N.C. Inverter	A	1
SPC1-AN6X	**A0600**	Programmable pulse or interval counter. Adjustable N.O./N.C. Inverter	A	2
SPF1-AP6X	**A0622**	Programmable over or under speed monitor.	A	1
SPF1-AN6X	**A0602**	Programmable over or under speed monitor.	A	2
SPN1-AP6-ARN6X	**A0624**	Converts a PNP input signal to an NPN output. Adjustable N.O./N.C. Inverter.	A	1
SPN1-AN6-ARP6X	**A0604**	Converts a NPN input signal to an PNP output. Adjustable N.O./N.C. Inverter.	A	2
SPT1-AP6X	**A0626**	Programmable timer for on-delay or off-delay between 1 and 65000 ms.	A	1
SPT1-AN6X	**A0606**	Programmable timer for on-delay or off-delay between 1 and 65000 ms.	A	2

We reserve the right to make technical alterations without prior notice.

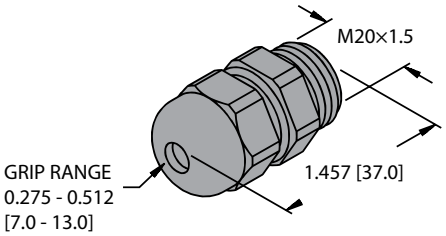
Accessories

Cable Glands



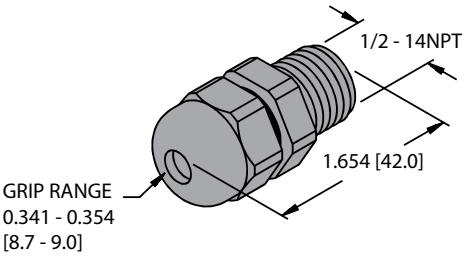
Part Number	ID Number
Cable Gland PG 9	**A3054**

Inches [mm]
Material: Polyamide plastic
Recommended Cable Style: 18 and 20 AWG
*For use with integral terminal chamber style sensors



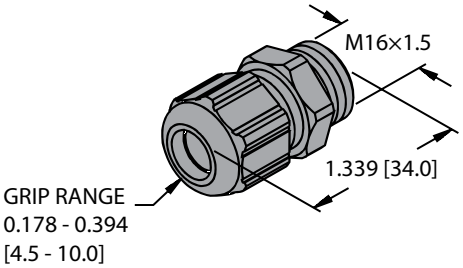
Part Number	ID Number
Cable Gland M20	**A0936**

Inches [mm]
Material: Polyamide plastic
*For use with integral terminal chamber style sensors



Part Number	ID Number
Cable Gland 1/2 - 14NPT	**A3480**

Inches [mm]
Material: Polyamide plastic
Recommended Cable Style: 18 and 20 AWG
*For use with integral terminal chamber style sensors



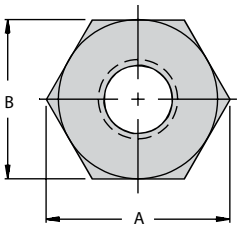
Part Number	ID Number
Cable Gland M16X1.5	**A9348**

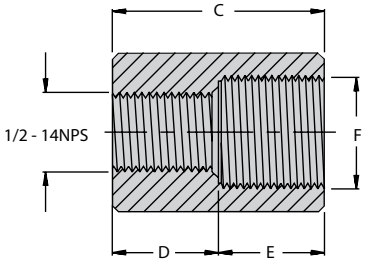
Inches [mm]
Material: Polyamide plastic
Recommended Cable Style: 18-24 AWG
*For use with integral terminal chamber style sensors

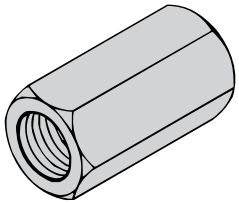
We reserve the right to make technical alterations without prior notice.

Accessories

Conduit Adapters

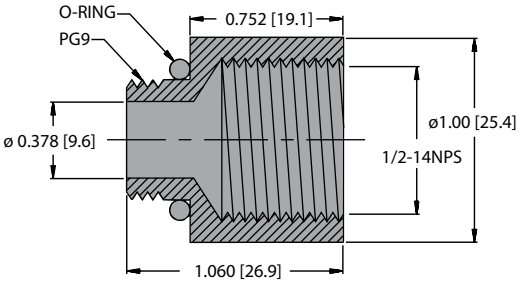


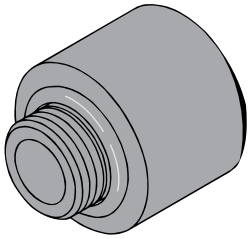




Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F
TMF 12-G	**A3310**	**12 mm**	1.15 [29.2]	1.00 [25.4]	1.97 [50.0]	0.50 [12.7]	0.56 [14.2]	M12x1
TMF 18-G	**A3320**	**18 mm**	1.15 [29.2]	1.00 [25.4]	1.00 [25.4]	0.50 [12.7]	0.50 [12.7]	M18x1
TMF 30-G	**A3345**	**30 mm**	1.73 [44.0]	1.50 [38.1]	1.00 [25.4]	0.60 [15.2]	0.40 [10.2]	M30x1.5
TMF 47-G	**A3360**	**47 mm**	2.30 [58.4]	2.00 [50.8]	1.75 [44.5]	1.05 [26.7]	0.70 [17.8]	PG36
*For use with G and P threaded barrel sensors								
TMF 18-MS	**A3330**	**18 mm**	1.15 [29.2]	1.00 [25.4]	2.00 [50.8]	1.50 [38.1]	0.50 [12.7]	M18x1
TMF 30-MS	**A3355**	**30 mm**	1.73 [44.0]	1.50 [38.1]	2.00 [50.8]	0.60 [15.2]	1.40 [35.6]	M30x1.5

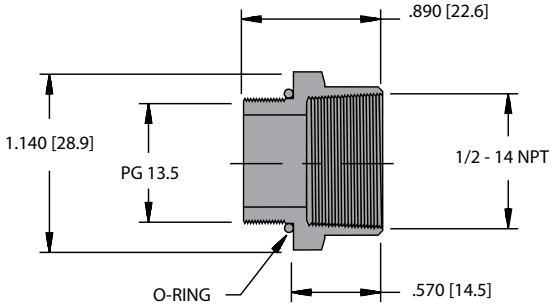
Inches [mm]
*For use with M and S threaded barrel sensors
Material: Aluminum

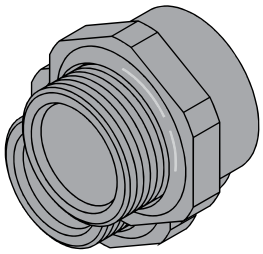




Part Number	ID Number
TMF 09-14	**A3290**

Inches [mm]
Material: Derlin
*For use with terminal chamber style sensors





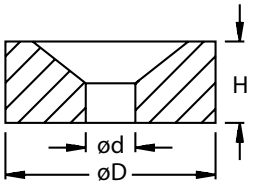
Part Number	ID Number
TMF 13.5-14	**A4500**
TMF 13.5-14/SS	**A9639**

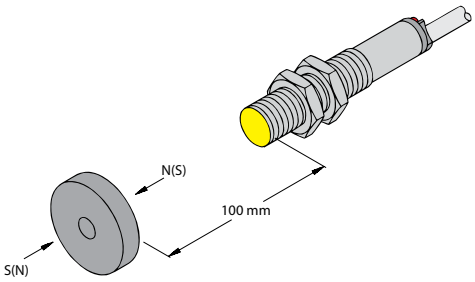
Inches [mm]
Material: Nickel plated brass
SS =Stainless steel
*For use with integral terminal chamber style sensors

We reserve the right to make technical alterations without prior notice.

Accessories

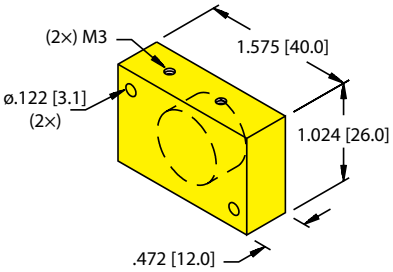
Actuation Magnets





Part Number	ID Number	Diameter-D	Height-H	Drilling for mounting-d	Sensing Range To BIM-M12	Sensing Range To BIM-EG08
DMR15-6-3	**6900216**	15	6	3	36	32
DMR20-10-4	**6900214**	20	10	4	59	50
DMR31-15-5	**6900215**	31	15	5	90	78

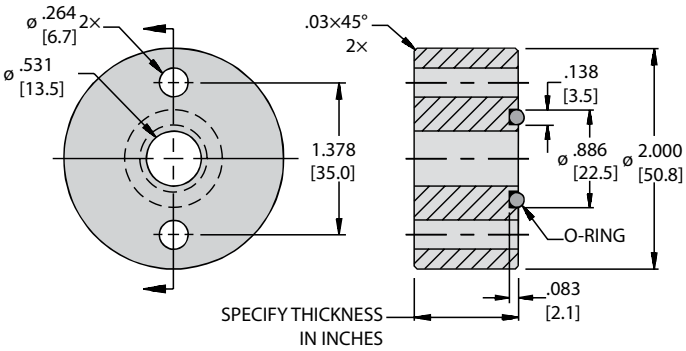
Inches [mm]
Material: Barium ferrite (Oxyd 300)



Part Number	ID Number
DM-Q12	**6900367**

Inches [mm]
Material: Plastic

Spacer Plates

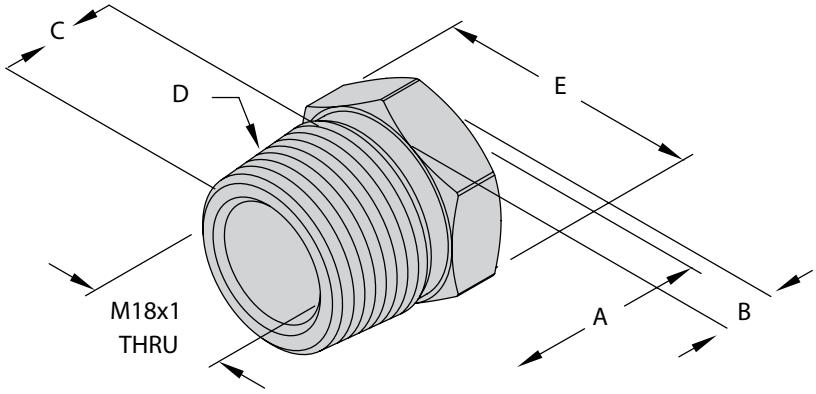


Part Number
SP–_.___ [1] –C

Inches [mm]
Material: Aluminum
*[1] Add desired thickness in inches.
Minimum thickness: 0.125", in .005 increments.
For use with cylinder position sensors, CRS Series.

We reserve the right to make technical alterations without prior notice.

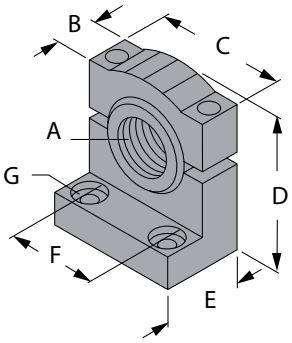
Tank Adapter



Part Number	ID Number	Barrel Diameter	A	B	C	D	E
FSU-SS-M18-N3/4	**A9983**	18 mm	1.0625 [27.05]	0.32 [8.00]	0.750 [19.05]	3/4 - 14 NPT	1-1/16" HEX

Inches [mm]
Material: Stainless steel

Gimble Bracket For Ultrasonic Sensors



Part Number	ID Number	A	B	C	D	E	F	G
TMB18SF	**7700396**	M18×1	0.46 [11.71]	2.31 [50.8]	1.70 [43.2]	1.00 [25.4]	1.42 [36.1]	ø5
TMB30SC	**7700400**	M30×1.5	0.50 [12.7]	2.62 [66.5]	2.31 [58.7]	1.14 [29.0]	2.00 [50.8]	ø7

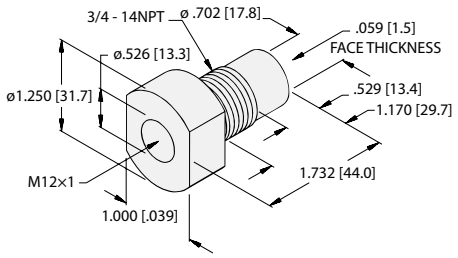
Inches [mm]
Material: Polyester

We reserve the right to make technical alterations without prior notice.

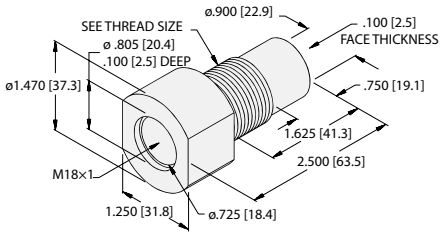
Accessories

Threaded Tank Wells

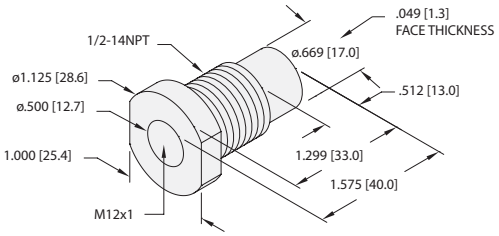
TWD-12S



TWT-18
TWD-18



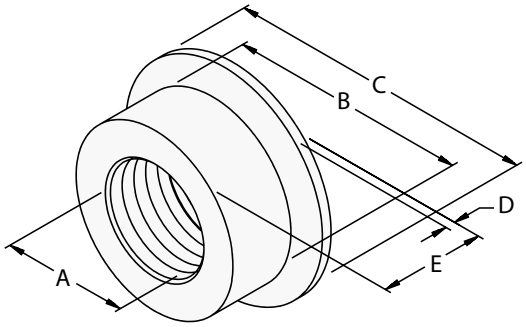
TWN-12S-1/2NPT



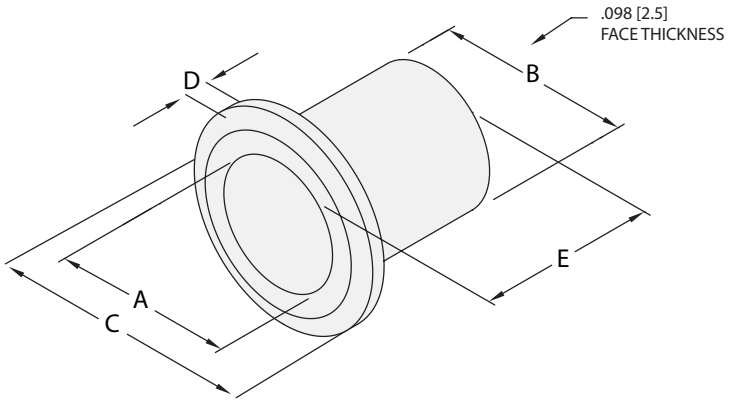
Part Number	ID Number	Material	Thread Size	Drill Size	C
TWD-12S	**A5051**	Delrin	3/4 - 14 NPT	59/64	12 mm threaded capacitive sensors for liquid level sensing
TWN-12S-1/2 NPT	**A900028**	Nylon	1/2 - 14NPT	23/32	12 mm threaded capacitive sensors for liquid level sensing
TWD-18S	**A5055**	Delrin	3/4 - 14 NPT	59/64	18 mm threaded capacitive sensors for liquid level sensing
TWT-18S	**A5050**	PTFE	3/4 - 14 NPT	59/64	18 mm threaded capacitive sensors for liquid level sensing
TWD-18S-1	**A5057**	Delrin	1 - 11 1/2NPT	1 - 5/32	18 mm threaded capacitive sensors for liquid level sensing
TWT-18S-1	**A5056**	PTFE	1 - 11 1/2NPT	1 - 5/32	18 mm threaded capacitive sensors for liquid level sensing

Inches [mm]

TWTS-30



TWT-30TRi



Part Number	ID Number	A	B	C	D	E
TWTS-1.5-30	**A5077**	M30×1.5	1.500 [38.1]	1.984 [50.4]	0.11 [2.80]	1.000 [25.4]
TWTS-2-30	**A5076**	M30×2.0	2.008 [51.0]	2.520 [64.0]	0.11 [2.80]	1.000 [25.4]
TWT-30TRI	**A5061**	M30×1.5	1.339 [34.0]	1.984 [50.4]	0.187 [4.7]	1.722 [43.7]

Inches [mm]

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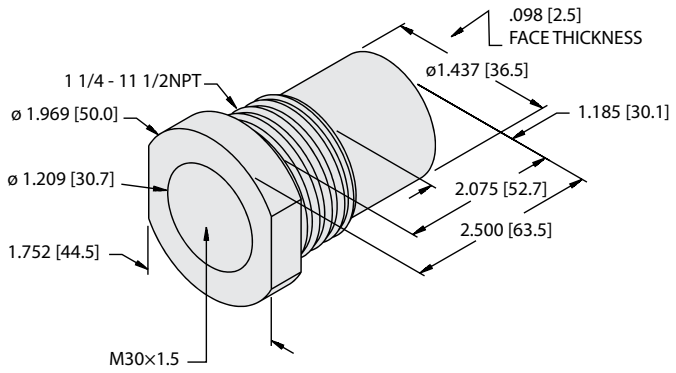
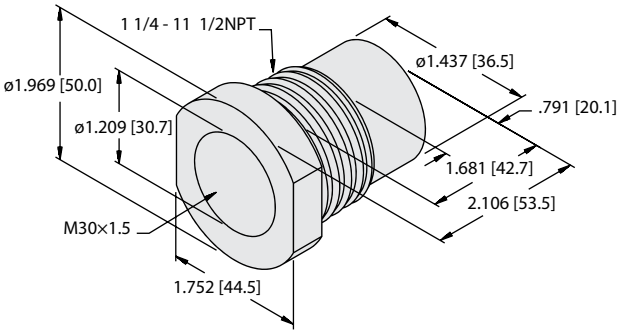
Threaded Tank Wells

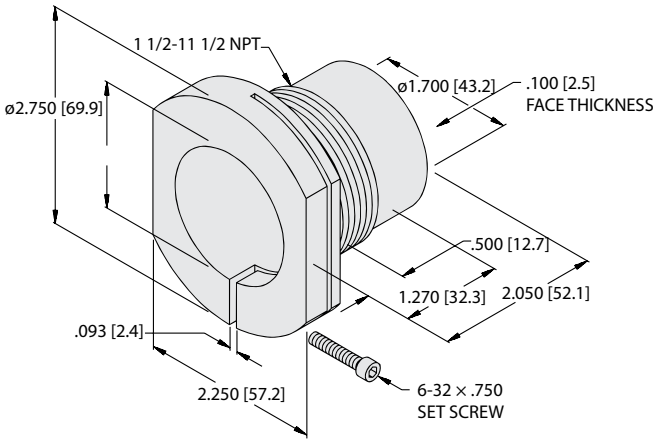
TWD-30S
TWT-30S



TWD-30S-SHORT
TWT-30S-SHORT



TWD-40S
TWT-40S



Part Number	ID Number	Barrel Diameter	Thread Size	Drill Size	Application
TWD-30S	**A5065**	Delrin	1 1/4 - 11 1/2NPT	1 - 1/2	30 mm threaded capacitive sensors for liquid level sensing
TWT-30S	**A5060**	PTFE	1 1/4- 11 1/2NPT	1 - 1/2	30 mm threaded capacitive sensors for liquid level sensing
TWD-30S-SHORT	**A5063**	Delrin	1 1/4 - 11 1/2NPT	1 - 1/2	30 mm threaded capacitive sensors for liquid level sensing
TWT-30S-SHORT	**A5062**	PTFE	1 1/4 - 11 1/2NPT	1 - 1/2	30 mm threaded capacitive sensors for liquid level sensing
TWD-40S	**A5075**	Delrin	1 1/4 - 11 1/2NPT	1 - 47/64	40 mm smooth capacitive sensors for liquid level sensing
TWT-40S	**A5070**	PTFE	1 1/4 - 11 1/2NPT	1 - 47/64	40 mm smooth capacitive sensors for liquid level sensing

Inches [mm]

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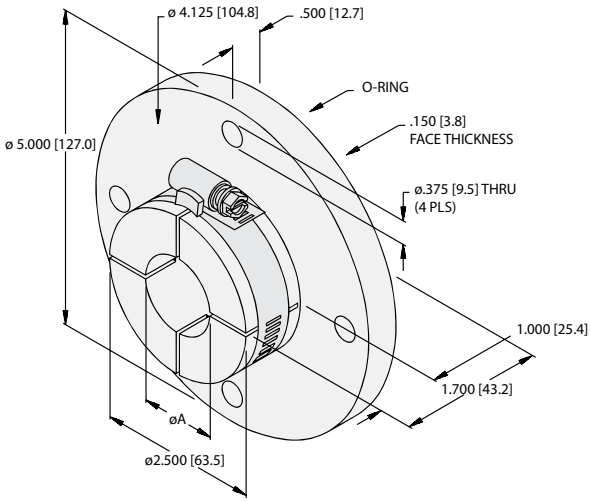
Accessories

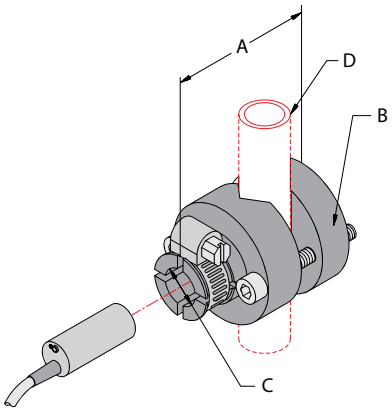
Bolt-on Tank Wells

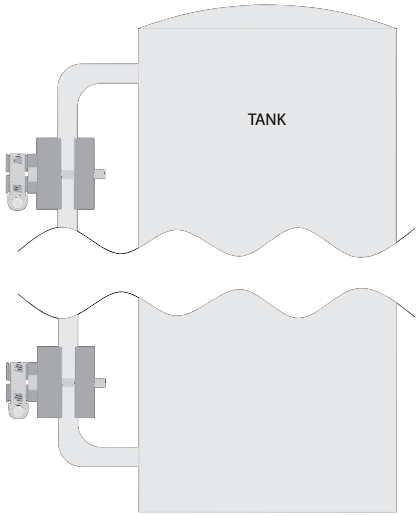


Part Number	ID Number	A
TWU-30B	A5005	1.181 [30.0]
TWU-40B	A5000	1.575 [40.0]

Inches [mm]
Material: UHMW/PE
Pressure Rating: 80 PSI
*For use with 30 and 40 mm barrel sensors

Bolt-on Site Bracket





Part Number	ID Number	A	B	C	D
				(Non/or Threaded)	Across Flats
TSG-12	A2500	1.75 [44.5]	1.25 [31.8]	12 mm	0.37-0.81 [9.40-20.6]
TSG-18	A2501	1.90 [48.3]	1.48 [37.5]	18 mm	0.63-1.12 [16.0-28.4]
TSG-30	A2502	3.45 [87.6]	2.00 [50.8]	30 mm	1.00-1.75 [25.4-44.5]

Inches [mm]

We reserve the right to make technical alterations without prior notice.

Accessories

Test Box

TB3-CP80

TB4 V.2

TX1-Q20L60

USB-2-IOL-0002

Part Number	ID Number	Description
TB3-CP80	6967112	DC powered test box allows you to quickly test 2, 3, 4 wire DC sensors or Namur output sensors, includes batteries.
TB4 V.2	6967113	Analog test box for sensors with analog or switching outputs, includes batteries.
TX1-Q20L60	6967114	Teach adapter for inductive encoders, linear position, angle, ultrasonic and capacitive sensors.
USB-2-IOL-0002	6825482	IO Link master with integrated USB interface for parameterization of IO Link compliant linear position sensors via PC.

Limit Value Monitor

Functional Description:
The limit value monitors IM43-13-SR and IM43-14-SRi are single-channel devices and alternately monitor measuring current of 0/4-20 mA or measuring voltages of 0/2-10 V. The three limit values are set via the front panel teach button. In addition, a voltage of approx. 18 V (at 35 mA max.) is provided, which can be used to power transmitters or sensors. The output mode is jumper programmable at terminals 5-8.

PIN	Terminal Function
1	(+) 18 VDC Sensor Supply
2	(+) Current Input
3	(+) Voltage Input
4	(-) 0 V Sensor Common
5	(-) Common for 0/4 mA Minimum Selection
9	Input for 0/4 mA Minimum Selection
12	Relay Output 1
13	Relay Output 1
14	Relay Output 2
15	Relay Output 2
11	SRi - 0/4-20 mA Output
16	SRi - 0/4-20 mA Output
17	Relay Output 3
18	Relay Output 2
19	20-250 VUC Supply Power
20	20-250 VUC Supply Power

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Notes

Notes

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- IO-Link

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Important Safety Warning

Turck sensors and peripheral devices DO NOT include the self-checking redundant circuitry required to permit their use in personnel safety applications. A device failure or malfunction can result in either an energized or a de-energized output condition.

Never use these products as sensing devices for personnel protection. Their use as safety devices may create unsafe conditions that could lead to serious bodily injury or death.

Proximity Sensing Compared to Conventional Methods

Turck proximity sensors are designed using solid state technology and contain no moving parts to wear out, as is common in mechanical switches. They require no physical contact for actuation, no cams or linkages, have no contacts to bounce or arc and are completely encapsulated, making them impervious to most liquids, chemicals and corrosive agents. In addition, Turck has a line of sensors that can be used in hazardous explosive environments without any special enclosures.
See Hazardous Area Locations in Section A.

If any of the following conditions exists, a Proximity Sensor should be used:

- The object being detected is too small, too lightweight, or too soft to operate a mechanical switch.
- Rapid response and high switching rates are required, as in counting or ejection control applications.
- Object has to be sensed through non-metallic barriers such as glass, plastic, or paper carton.
- Harsh environments demand improved sealing properties, preventing proper operation of mechanical switches.
- Long life and reliable service are required.
- Fast electronic control system requires bounce-free input signal.

Common Industries for Proximity Sensors

- Mining and Metallurgy
- Foundries
- Automatic Assembly and Robotics
- Conveyor Systems in Airports and Factories
- Chemical Plants and Oil Refineries
- Semiconductor Equipment
- Sheet Metal Fabrication
- Automotive and Appliance Plants
- Electroplating Installations
- Can Plants, Food Processing and Breweries
- Shipyards, Docks, and Off-shore Drilling Rigs
- PC-board Handling Machinery

Typical Applications

- Parts Detection
- Parts Counting
- Positioning
- Motion and Speed Control
- Bottle Cap or Can Lid Detection
- Punch Press Feed and Ejection Control
- Broken or Damaged Tool Detection
- Void or Jam Control
- Feed Control
- Indexing
- Inter-lock Control
- Liquid Level Control
- Leak Detection
- Machine Programming
- Valve Position Indication
- Missing Parts Control
- Parts Diverting
- Coin Counting and Sorting
- Edge Guide Control
- Robotics and Conveyors

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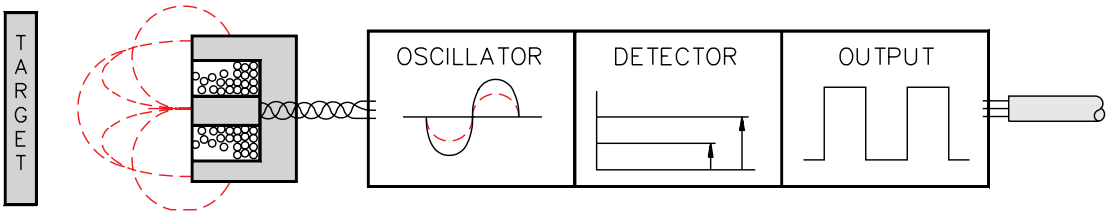
Operating Principle Ferrite Core

Figure 1



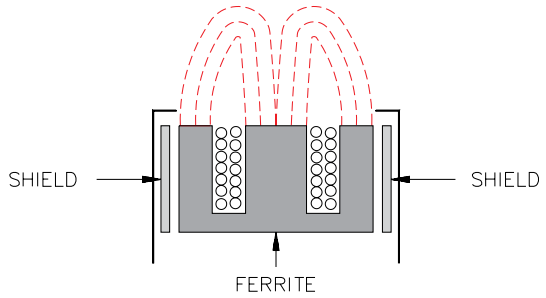
An inductive proximity sensor consists of a coil and ferrite core arrangement, an oscillator and detector circuit, and a solid-state output (**Figure 1**). The oscillator creates a high frequency field radiating from the coil in front of the sensor, centered around the axis of the coil. The ferrite core bundles and directs the electro-magnetic field to the front.

When a metal object enters the high-frequency field, eddy currents are induced on the surface of the target. This results in a loss of energy in the oscillator circuit and, consequently, a smaller amplitude of oscillation. The detector circuit recognizes a specific change in amplitude and generates a signal which will turn the solid-state output "ON" or "OFF". When the metal object leaves the sensing area, the oscillator regenerates, allowing the sensor to return to its normal state.

Mounting

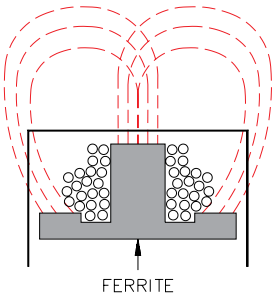
Turck inductive proximity sensors are available with either a shielded coil, designated by "Bi" in the part number, or a unshielded coil, designated by "Ni" in the part number. Embeddable (shielded) sensors may be safely flush-mounted in ferrous metal. Nonembeddable (unshielded) sensors require a metal free area around the sensing face. Due to the possible interference of the electromagnetic fields generated by the oscillators, minimum spacing is required between adjacent or opposing sensors. See mounting characteristics at the front of each section.

It is good engineering practice to mount sensors horizontally or with the sensing face looking down. Avoid mounting sensors with the sensing face looking up wherever possible, especially if metal filings or chips are present.



Embeddable (Shielded Sensor)

Embeddable construction includes a metal band that surrounds the ferrite core and coil arrangement. This helps to "bundle" or direct the electromagnetic field to the front of the sensor, allowing the sensor to be mounted fully surrounded by metal (flush mounting).



Nonembeddable (Nonshielded Sensor)

Nonembeddable sensors do not have this metal band; therefore, they have a longer operating distance and are side sensitive.

We reserve the right to make technical alterations without prior notice.

Operating Distance (Sensing Range) Considerations

The operating distance (S) of inductive proximity sensors is basically a function of the diameter of the sensing coil. The maximum operating distance is achieved with the use of a standard or larger target. The rated operating distance (Sn) for each model is given in the manual. When using a proximity sensor the target should be within the assured range (Sa).

Standard Target

A square piece of mild steel having a thickness of 1 mm (0.04 in) is used as a standard target to determine the following operating tolerances. The length and width of the square is equal to either the diameter of the circle inscribed on the active surface of the sensing face or three times the rated operating distance Sn, whichever is greater.

Operating Distance = S

The operating distance is the distance at which the target approaching the sensing face along the reference axis causes the output signal to change.

Rated Operating Distance = Sn

The rated operating distance is a conventional quantity used to designate the nominal operating distance. It does not take into account either manufacturing tolerances or variations due to external conditions such as voltage and temperature.

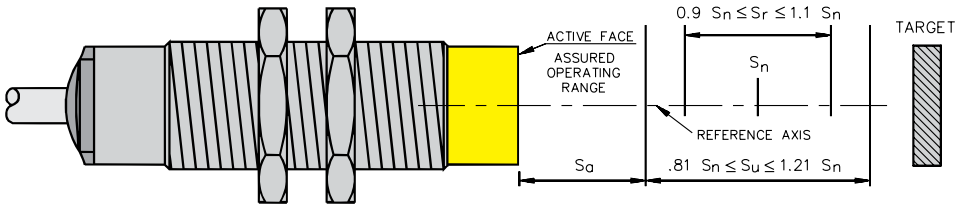
Effective Operating Distance = Sr 0.9 Sn ≤ Sr ≤ 1.1 Sn

The effective operating distance is the operating distance of an individual proximity sensor at constant rated voltage and 23°C (73°F). It allows for manufacturing tolerances.

Usable Operating Distance = Su 0.81 Sn ≤ Su ≤ 1.21 Sn

The usable operating distance is the operating distance of an individual proximity sensor measured over the operating temperature range at 85% to 110% of its rated voltage. It allows for external conditions and for manufacturing tolerances.

Assured Operating Range = Sa 0 ≤ Sa ≤ 0.81 Sn



The assured operating range is between 0 and 81% of the rated operating distance. It is the range within which the correct operation of the proximity sensor under specified voltage and temperature ranges is guaranteed.

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Technical Reference | Inductive

Operating Distance (Sensing Range) Considerations

Turck standard inductive sensors use a single coil wound around a ferrite core. This coil induces eddy currents on the metal target, which results in energy loss in the oscillator circuit, enabling the detection of metal objects. The energy loss is greatly depended on the magnetic properties of the metal target. Ferrous and nonferrous metals affect the sensor differently, resulting in a different operating distance to different metals.

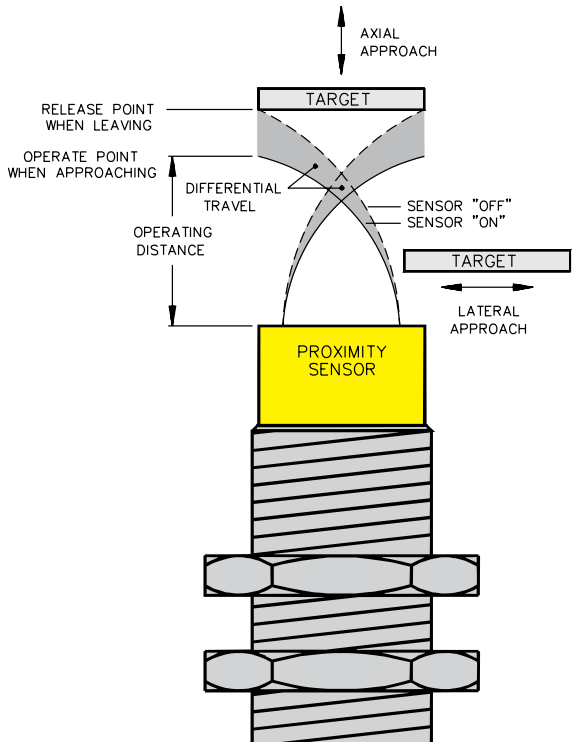
These correction factors apply to standard inductive sensors when a nonferrous target is being detected. The correction factors are nominal values. Deviations may be due to variations in oscillator frequency, alloy composition, purity and target geometry.

Aluminum foil	1.00
Stainless steel	0.60 to 1.00
Mercury	0.65 to 0.85
Lead	0.50 to 0.75
Brass	0.35 to 0.50
Aluminum (massive)	0.35 to 0.50
Copper	0.25 to 0.45

- Correction factors do not apply to Turck Uprox ® sensors. These sensors detect all metals at the same range.
- Turck also manufactures "nonferrous only" sensors. These sensors will selectively detect nonferrous targets at the rated operating distance. They will not detect ferrous targets; however, ferrous targets positioned between them and a nonferrous target may mask the nonferrous target. The rated operating distance of these sensors is not subject to the correction factors that apply to standard inductive sensors.

Differential Travel (Hysteresis)

Figure 2



Actuation Mode

Inductive sensors can be actuated in an axial or lateral approach (**Figure 2**). It is important to maintain an air gap between the target and the sensing face to prevent physically damaging the sensors.

The difference between the "operate" and "release" points is called differential travel (See shaded area in Figure 7). It is factory set at less than 15% of the effective operating distance.

Differential travel is needed to keep proximity sensors from "chattering" when subjected to shock and vibration, slow moving targets, or minor disturbances such as electrical noise and temperature drift.

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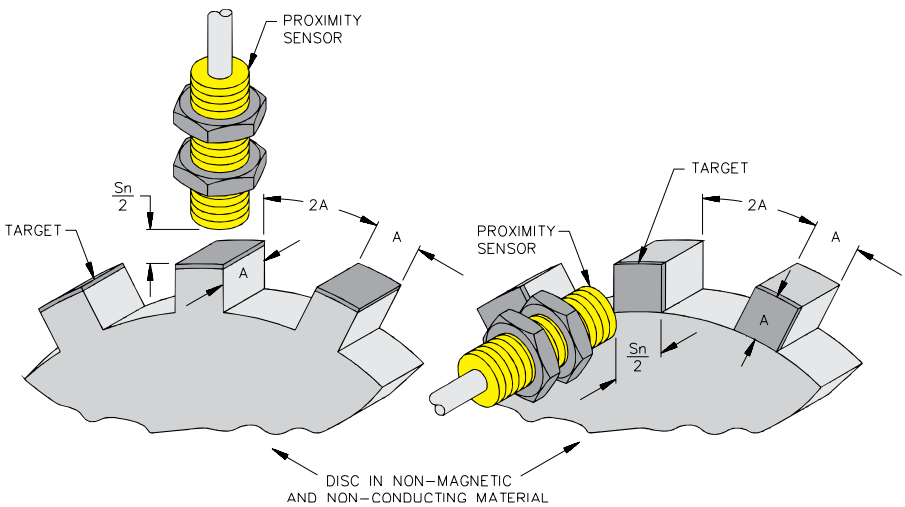
Maximum Switching Frequency

Figure 3



When using inductive sensors in high speed application, the maximum rated switching frequency is only guaranteed when using optimal target dimensions and sensor spacing. The minimum recommended parameters to use are shown in **Figure 3**. Using smaller targets, target spacing or increasing the sensor to target air gap may result in a reduction of the actual achievable maximum switching frequency. See page J4 for determining dimension "A" of a standard target.

Weld Field Immunity

Many critical applications for proximity sensors involve their use in welding environments. AC and DC resistance welders used in assembly equipment and other construction machines often require in excess of 20 kA to perform their weld function. Magnetic fields generated by these currents can cause false outputs in standard sensors.

Turck has pioneered the design and development of inductive proximity sensors that not only survive such environments, but remain fully operative in them.

The limit of the weld field immunity depends on the kind of field (AC or DC), the housing size of the sensor and its location in the field. For example, in an AC or DC weld field, the "/S34" inductive sensors can be positioned one inch from a 20 kA current carrying bus.

Reference Values for Magnetic Induction:

I [kA]	12.5 mm	25 mm	50 mm	100 mm
5	80 mT	40 mT	20 mT	10 mT
10	160 mT	80 mT	40 mT	20 mT
20	320 mT	160 mT	80 mT	40 mT
50	800 mT	400 mT	200 mT	100 mT
100	1600 mT	800 mT	400 mT	200 mT

Gauss = 10 x mT

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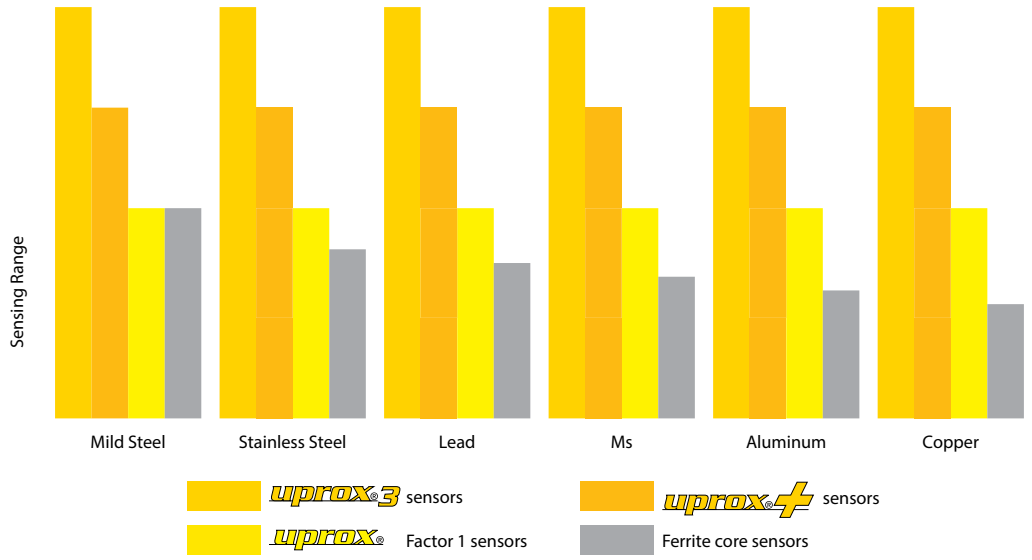
Operating Principle Uprox®

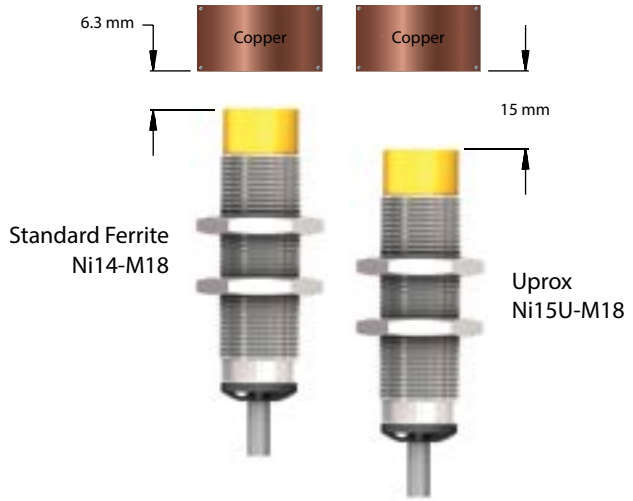


Operating distances comparison of Uprox sensors and standard inductive sensors.

Turck Uprox is a patented next generation development of inductive sensors that uses a multi-coil system. Active coil(s) induces eddy currents on the metal target and passive coil(s) are affected by these eddy currents. Ferrous and nonferrous metals have the same effect on the two coils. Therefore, all metals, including galvanized metals, have the same rated operating distance.

Uprox Advantage

Figure 4



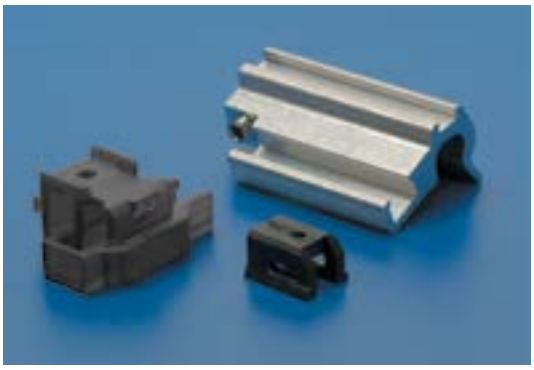
- No Correction Factor - Same rated operating distance for all metals.
- Extended Operating Distance - Up to 400% greater than standard inductive sensors when using non-ferrous targets (**Figure 4**).
- Weld Field Immunity - Uprox is unaffected by strong electromagnetic AC or DC fields because of its unique patented design.
- High Switching Frequencies - Up to 10 times faster than standard inductive sensors.
- Extended Temperature Range - Uprox+ can withstand temperatures up to 85 °C (+185 °F) with a ±15% temperature drift.
- Select Uprox3 sensors are IO-Link compatible.

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors – Magneto-Resistive

Turck Magneto-resistive cylinder position sensors are used for the detection of magnet equipped pistons on pneumatic and other types of cylinders. These non-contact sensors are able to determine the position of the cylinder piston without diminishing the integrity of the cylinder itself. This allows the sensors to operate without intruding upon the cylinder, keeping the system completely intact.

Turck has taken the approach of using only two sensor styles along with various adapter brackets to fit each individual cylinder's requirements. The "**UNT**" and "**UNR**" housings were designed to fit into specific grooves found in extruded profile type cylinders as stand alone devices without the need for any additional brackets. The UNT style was made to fit into a 5.2 mm "T" groove and the UNR was made for use in a 4.0 mm round groove, neither requiring additional hardware for mounting. Both of these designs allow the sensor to be dropped in from above anywhere along the span of the cylinder.



Cylinder brackets allow Turck sensors to mount on most cylinder styles including round, tie-rod, extruded profile groove, and dovetail versions.

Where Can I Use a Magneto-Resistive Sensor?

- Material handling
- Automated assembly
- Stamping
- Conveying
- Sorting
- Product positioning
- Industrial robots

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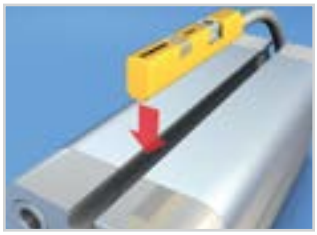
Technical Reference | Magnetic

Cylinder Position Sensors – Magneto-Resistive (continue)

Turck translated this "drop in from the top" approach when designing the adapter brackets as well. By eliminating the need to slide the sensor in from the end of the cylinder it reduces installation time, alleviates the need for the cylinder to be disassembled, and allows for installation right on the floor without interrupting the operation of the cylinder. These sensors are manufactured using a plastic overmolding technology, which allows us to completely seal sensors into smaller packages without compromising on durability. Smaller sensors that are compact with very low profiles also reduce the chance of damage when mounted to the outside of the cylinder.

Turck Magneto-Resistive Sensor Advantage

Reliable Mounting
The sensor is mounted in the cylinder's groove and tightened with a screw. Located near the cable outlet, the screw helps make sure the sensor doesn't move during vibration or if the cable is pulled.



Visible LED
A bright LED indicates the current switching status, and is visible from any position.

Compact Housing Style
UNT models measure only 28 mm, while UNR models measure only 18 mm, making them the most compact sensors available on the market. Since the active sensing face is located at the end of the sensor, the piston can be detected up to the end, even on compact short stroke cylinders.

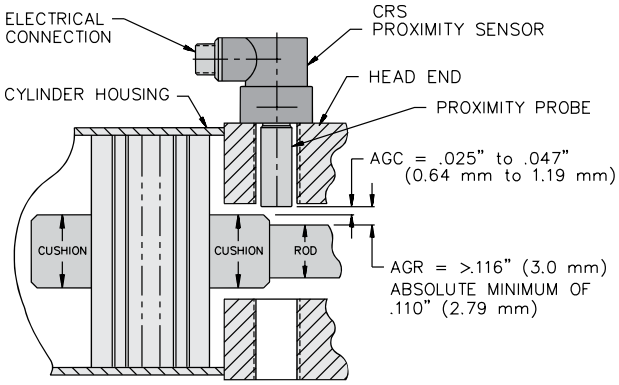
Standards
Magneto-resistive technology enables the sensor to detect the exact position of the magnet, while avoiding multiple switching points. It also exceeds IEC standards EN60947-5-2 and EN61000-4-6, making it immune to high levels of EMC.

Cylinder Position Sensors – CRS Inductive

Turck's CRS sensors are designed to be mounted into the head end or cap end of hydraulic and pneumatic cylinders. They operate at 1,500 psi and mechanically withstand 3,000 psi of continuous pressure.

AGC - Air Gap Cushion
This dimension is recommended to allow for mechanical tolerances and wear.

AGR - Air Gap Rod
The rod-to-cushion step must be large enough to allow the sensor to turn off when the piston leaves. If the step is too small, the sensor will lock-on due to the hysteresis of the sensor.



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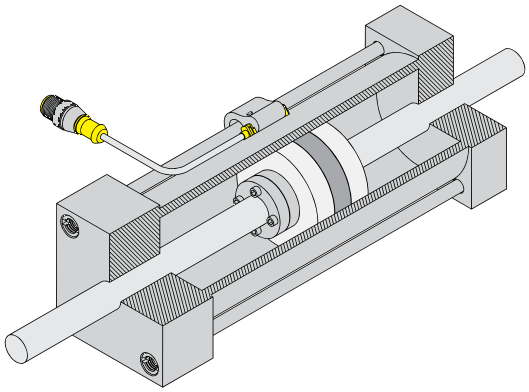
Permaprox Inductive Magnet Operated Sensors

Turck's Permaprox cylinder sensors are used for detection of magnet equipped pistons on pneumatic cylinders through a non-magnetic cylinder wall. A patented electronic magnetic circuit involving new state-of-the-art materials forms the basis of operation for these sensors.

The characteristics of this innovative technology have distinct advantages over Hall effect switches and reed devices. Specific sensors no longer have to be matched to specific magnet strengths. Other features include extremely high repeatability and the elimination of multiple actuation points.



Actuation Area/Differential Travel

Figure 5

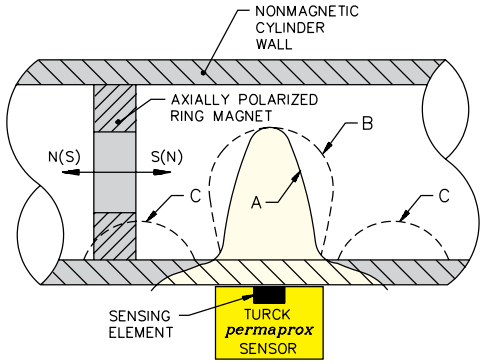


Figure 6

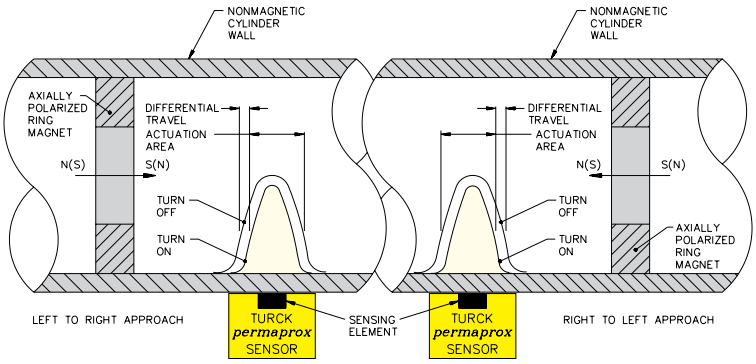


Figure 5 curve definitions:
A) Typical actuation area of Permaprox sensors
B) Typical primary actuation area for reed switches
C) Typical secondary actuation area for reed switches

The Permaprox sensors, unlike most magnet operated sensors, respond to only one component of magnetic induction, namely the component parallel to the cylinder. **Figure 5** shows the typical actuation area of a Permaprox sensor compared to that of reed switches. It is a common problem for reed switches to have more than one actuation area. Since these switches operate on a narrow range of magnetic field strengths, mismatching often causes multiple switching points. The Permaprox sensors, however, reliably operate over a range of 20-350 gauss (2-35 mT).

The actuation area will depend on the width and field strength of the magnet. As shown in **Figure 6**, the actuation point will differ depending on the direction of piston travel. These points are not the same, but are very repeatable.

Permaprox Weld Field Immunity

All Turck Permaprox sensors with the "S34" suffix in the part number are resistant to AC weld fields. If the field is pulsing, as with AC resistance welders, the sensor locks the output in its last known stable state. When the pulsing field subsides, the sensor updates its output accordingly. The sensors are not immune to constant magnetic fields, such as permanent magnets or DC resistance welders, and will change state.

We reserve the right to make technical alterations without prior notice.

Technical Reference | Capacitive

Capacitive sensors utilize a non-contact sensing technology that detects a wide variety of materials. When equipped with a sensitivity adjustment users can tune out certain materials such as glass or plastic, making this type of sensor a common choice for point level applications. Typical applications include but are not limited to:

- Liquid Level Control for both flammable and non-flammable materials.
- Package Inspection for product content and/or fill level.
- Wire-Break Detection for wire sizes down to .003".
- Plastic Pellet Detection in a hopper for injection molding processes.
- Grain or Food Products Level Detection; intrinsically safe models available.
- Small Metal Parts Detection; greater sensing range than comparable Inductive Sensors.

Operating Principle

Figure 7

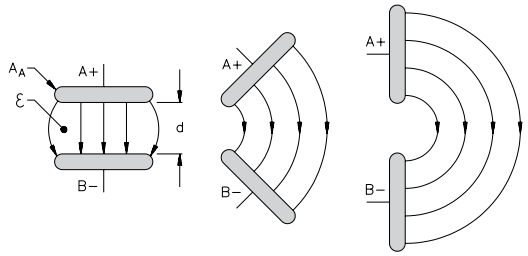
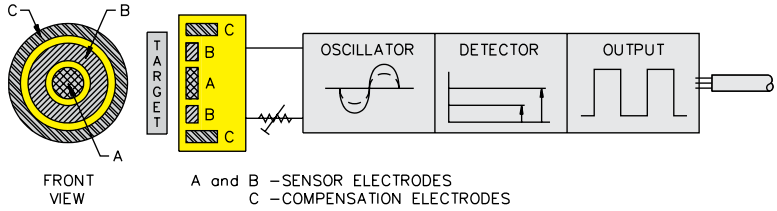


Figure 8



The active element is formed by two metallic electrodes positioned much like an "opened" capacitor (**Figure 7**).

Electrodes A and B are placed in a feedback loop of a high frequency oscillator. When no target is present, the sensor's capacitance is low, therefore the oscillation amplitude is small. When a target approaches the face of the sensor, it increases the capacitance. This increase in capacitance results in an increased amplitude of oscillation.

The amplitude of oscillation is measured by an evaluating circuit that generates a signal to turn on or off the output (**Figure 8**).

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Operating Principle

Capacitance is a function of the surface area of either electrodes (A or B), the distance between the electrodes (d), and the dielectric constant of the material (ε) between the electrodes.

$$C = \frac{\varepsilon \times A}{d}$$

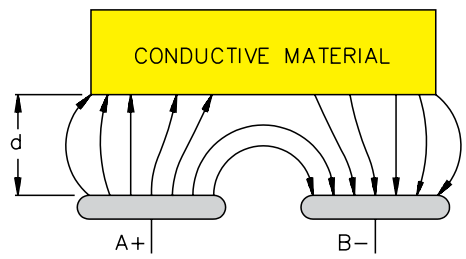
C = capacitance of sensor

A = surface area of either electrode

d = distance between two electrodes

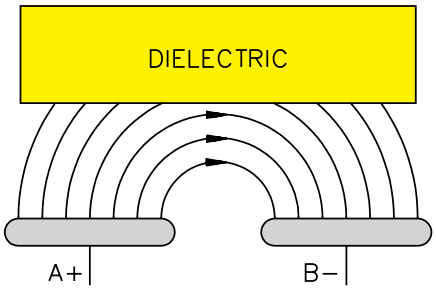
ε = dielectric constant of material between the electrodes

Figure 9



When a Conductive Target enters the sensor's field, it forms a counter electrode to the active face of the sensor, thus decreasing the distance between the electrodes (d) and increasing their average surface area (**Figure 9**). The capacitance with a metal target present is always greater than the capacitance of the circuit in the absence of the target. Reduction factors for different metals are not a consideration when using capacitive sensors.

Figure 10



When a Non-Conductive Target enters the sensor's field, it acts as an electrical insulator between electrodes A and B (**Figure 10**). The dielectric constant of the material (ε) is a measure of its insulation properties. All liquids and solids have a greater dielectric constant than air (εair = 1). Therefore, the capacitance with a non-metallic target present is always greater than the capacitance of the circuit in the absence of the target.

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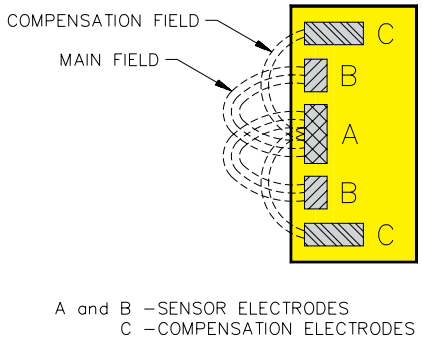
Temperature and Environmental Conditions

Figure 11



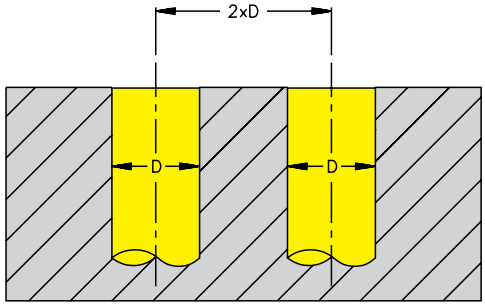
Compensation Electrode
In practice, sensors can be affected by water droplets, humidity, dust, etc., causing false outputs. To combat this effect each Turck sensor incorporates a compensating electrode (C) which forms part of a negative feedback circuit (**Figure 11**).

When contaminants are on the sensor face, they affect the sensor's main field, as well as its compensation field. The negative feedback circuit detects the increase in both fields, and can filter out the effects of the contaminants.

When a large target comes into the sensor's main field, the compensation field is not affected, thus the negative feedback circuit can distinguish a difference between the two fields, and the sensor generates an output.

Mounting

Figure 12



Compensation Electrode
Most capacitive sensors manufactured by Turck are embeddable, which ensures that the electric field is only effective in front of the active face. They are suitable for flush mounting at the factory setting in any material (conductive and nonconductive).

When sensors are flush mounted, the effect on the operating distance is minimal and can be overcome by adjustment of the potentiometer. Minimum separation distances must be observed to avoid the possibility of interference between the two sensors' fields (**Figure 12**).

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BCF Series – Noise Immunity

Capacitive sensors were originally designed for use in level detection applications in areas that were generally far away from other electrical equipment. As factory automation has become more prevalent throughout industrial markets, these capacitive sensors have gravitated into new environments where electrical noise levels are greatly increased. Electrical noise can be produced by various sources including variable frequency drives, electromechanical motors and standard walkie-talkie devices. These "noisy" environments can have adverse effects on sensing devices causing them to operate improperly and unreliably.

Turck recognizes this and has developed a new circuit for its capacitive sensors. These new "BCF" sensors incorporate a unique filter principle, making them immune to most industrial noise. This principle involves a fixed oscillator frequency combined with a rectifier filter providing superior noise immunity over the competition.

Turck's fixed oscillator allows the sensor to maintain a constant frequency regardless of sensitivity adjustment. This fixed frequency is high enough to ignore most of the "standard" noise levels seen on plant floors. Electrical noise is mostly symmetrical which makes it easier to identify and separate from the sensor's input signal. The Turck rectifier filter is able to block this noise allowing only the "useful" input signal, which is in phase with the oscillator frequency, to pass.

These two innovative electrical techniques give Turck the best defense against industrial noise. The list of specifications and test results below demonstrates how Turck meets or exceeds all of the rigid standards established by CE. In fact, the criteria set forth by CE is so stringent that most capacitive sensors offered on the market today cannot pass any or all of these testing requirements. If you have a capacitive sensor application located in a "noisy" environment choose the new "BCF" sensors from Turck to ensure your process operates smoothly.

We reserve the right to make technical alterations without prior notice.

Test Type		CE "Product" Standard	CE "Generic" Standard	Turck "BCF" Noise Immune Capacitive Sensors
Immunity to Electrostatic Discharge (ESD)	IEC 1000-4-2 EN 61000-4-2	4 kV Direct Contact 8 kV Airborne	4 kV Direct Contact 8 kV Airborne	8 kV Direct Contact 30 kV Airborne
Immunity to Radiated Electromagnetic Fields. Radio Frequency Interference (RFI)	IEC 1000-4-3 EN 61000-4-3	3 V/M 80-1000 MHz	10 V/M 80-1000 MHz	15 V/M 80-1000 MHz
Immunity to Electrical Fast Transients (Burst-High Voltage)	IEC 1000-4-4 EN 61000-4-4	2000 V	2000 V	3000 V
Immunity to Conducted R.F. Voltage (Line Coupled Noise)	IEC 1000-4-6 EN 61000-4-6	Undefined	10 V 150 kHZ-80 MHz	>10 V 150 kHZ-230 MHz
Immunity to Surges (Lightning Strike)	IEC 255-5	1 kV, 500Ω DC	Undefined	1 kV, 500Ω DC 5 kV, 500Ω AC

BCC Series-Plastic Pellets, ESD, and Metal Containers

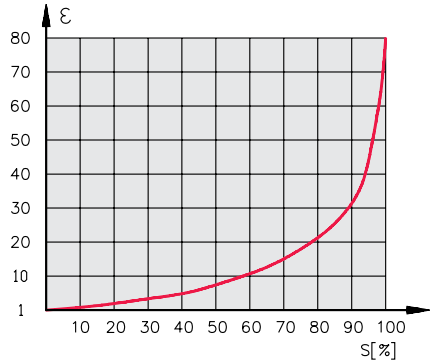
The BCC series capacitive sensor is specifically designed to provide accurate level detection in the plastic industry. Applications involving plastic pellets often generate high levels of static electricity which can discharge and lead to sensor failure. The BCC series of sensors feature excellent EMC and ESD immunity, allowing them to reliably detect the level of plastic pellets in a hopper while withstanding environmental interference.

These sensors can also be mounted directly into a metal tank without a reduction in range, a common side-effect for standard capacitive sensors. The BCC incorporates a unique laterally mounted shield that protects the sensors from being influenced by the metal tank. This allows the sensor to detect even low-dielectric materials when the sensor is flush mounted in metal.

Sensing Range vs. Dielectric Constant

When sensing non-conductive targets, the larger the dielectric constant of a material, the greater the achievable operating distance (**Figure 13**). Adjusting the potentiometer affects the total curve; for example, if the potentiometer is adjusted for less sensitivity, it will have less operating distance to all materials. In general terms, the larger the dielectric constant of a material, the greater the achievable operating distance. When detecting organic materials the sensing distance will depend largely on the water content (**ε**water = 88).
It should be noted that a large increase in sensitivity will cause the sensor to become nonembeddable, and may result in an unstable switching point that can be influenced by environmental changes such as temperature, humidity, dust, etc. At adjustments of S > Sn, the differential travel (hysteresis) can also increase.

Figure 13



RELATION OF OPERATING DISTANCE TO DIELECTRIC CONSTANT

Sensitivity Adjustment

Capacitive sensors can be adjusted in order to sense a target consistently.

- Physical adjustment - moving the sensor towards or away from the target is the preferred method of adjusting sensitivity when the sensor is not in direct contact with the target. This allows materials to be moved into or out of range while leaving the sensor at the factory setting or after re-calibration to the nominal operating distance Sn.
- Adjustment of the potentiometer - turning the potentiometer in a clockwise direction increases the sensitivity of the sensor. The potentiometer is factory-set for an operating distance of 0.7 to 0.8 Sn to a grounded standard target (Figure 14). It should be adjusted in increments of no greater than a quarter-turn (**Figure 15**). Increasing the sensitivity results in a greater operating distance to both conductive and non-conductive targets.
- Teachable sensors allow users to teach tank-full and tank-empty conditions using the built in buttons or a teach adapter. The programming process and built in logic ensure the sensor is optimized to reliably detect the desired object.
- IO-Link- sensors equipped with IO-Link feature advanced options including the ability to program the sensors with an IO-Link master. The flexibility provided by IO-Link allows users to adjust sensor settings as their processes change.

Figure 14

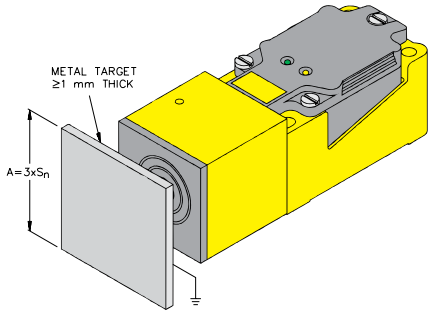
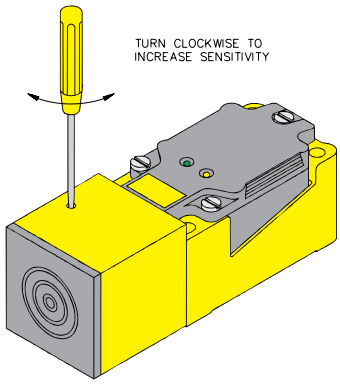


Figure 15



We reserve the right to make technical alterations without prior notice.

Example Application 1 - Adjustment

Problem:
Can a BC20-K40SR-FZ3X2 be used to sense the presence of ammonia from behind a .125" glass panel?

Solution:
The dielectric constants for these materials can be found on pages 17 and 18.

Dielectric (εr) of ammonia: 20
Dielectric (εr) of glass: 10

From Figure 7, εr = 20 corresponds to 80% Sn; εr = 10 corresponds to 60% Sn.

Since Sn =	20 mm for a BC20:	S for ammonia =	16 mm
		S for glass =	12 mm

The difference is 4 mm. The glass thickness = .125", or 3.1 mm. This application will work with a 0.9 mm margin. This means that by adjusting the potentiometer there should be a reasonable distinction between the glass and the ammonia as seen by the sensor.

To set up the sensor for this application, the sensing face of the sensor should be flush against the sight glass.

- With no ammonia present (if possible) turn the potentiometer clockwise until the sensor turns on. If the sensor is already on, skip step one.
- Next, turn the potentiometer counter clockwise until the sensor turns off.
- Now add the ammonia so that it covers the glass panel.
- Once again, turn the potentiometer counter clockwise, counting the number of turns until the sensor turns off.*
- Divide the number of turns by two and turn the potentiometer back clockwise that amount. Using this process will allow for a margin of error in either direction. If this application had called for something other than ammonia, like molasses, that tends to leave buildup behind, step 1 above should be performed with the buildup present (if possible).

*If sensor does not turn off after 10 full turns, turn back the potentiometer clockwise between three to five turns. Minor adjustments may need to be made to achieve desired setting.

Example Application 2 - Mounting

Problem:
A metal tank containing a water-based solution has a 1" outside diameter sight glass. What sensor and bracket could be used for monitoring the liquid level?

Solution:
The QF 5.5 flat style can used on non-conductive tubing up to 1.0 inch in diameter with the standard mounting straps provided with the sensor (**Figure 16**). Other mounting straps for larger diameters are available upon request (consult factory).

Figure 16

We reserve the right to make technical alterations without prior notice.

Technical Reference | Capacitive

Dielectric Constants of Industrial Products

Material Dielectric	Constant
ABS resin, pellet	1.5 - 2.5
Acetic acid	4.1
Acetone	19.5
Acetyl bromide	16.5
Acrylic resin	2.7 - 4.5
Air	1.0
Alcohol, industrial	16 - 31
Alcohol, isopropyl	18.3
Ammonia	15 - 25
Aniline	5.5 - 7.8
Aqueous solutions	50 - 80
Asbestos	3.0
Ash (fly)	1.7
Bakelite	3.6
Barley powder	3.0 - 4.0
Benzene	2.3
Benzyl acetate	5
Butane	1.4
Cable sealing compound	2.5
Calcium carbonate	9.1
Carbon dioxide	1.6
Carbon tetrachloride	2.2
Celluloid	3.0
Cellulose	3.2 - 7.5
Cement	1.5 - 2.1
Cement powder	5 - 10
Cereal	3 - 5
Charcoal	1.2 - 1.8
Chlorine, liquid	2.0
Coke	1.1 - 2.2
Corn	5 - 10
Ebonite	2.7 - 2.9

Material Dielectric	Constant
Epoxy resin	2.5 - 6
Ethanol	24
Ethyl bromide	4.9
Ethylene chloride	10.5
Ethylene dichloride	11.0
Ethylene glycol	38.7
Ethylene oxide	14.0
Ferrous oxide	14.2
Fired ash	1.5
Flour	2.5 - 3.0
Formic acid	59.0
Freon® R22 & 502, liquid	6.1
Gasoline	2.2
Glass	3.1 - 10
Glass, raw material	2.0 - 2.5
Glycerine	47
Hexane	1.9
Hydrochloric acid	4.6
Hydrogen cyanide	95.4
Hydrogen peroxide	84.2
Ice, -5C	2.85
Ice, -18C	3.16
Isobutylamine	4.5
Lime, shell	1.2
Marble	8.0 - 8.5
Melamine resin	4.7 - 10.2
Methane, liquid	1.7
Methanol	33.6
Mica, white	4.5 - 9.6
Milk, powdered	3.5 - 4
Nitrobenzene	36
Neoprene	6 - 9

We reserve the right to make technical alterations without prior notice.

Dielectric Constants of Industrial Products

Material	Dielectric Constant
Nylon	4 - 5
Oil, for transformer	2.2 - 2.4
Oil, paraffin	2.2 - 4.8
Oil, peanut	3.0
Oil, petroleum	2.1
Oil, soybean	2.9 - 3.5
Oil, turpentine	2.2
Paint	5 - 8
Paraffin	1.9 - 2.5
Paper	1.6 - 2.6
Paper, hard	4.5
Paper, oil saturated	4.0
Perspex	3.2 - 3.5
Petroleum	2.0 - 2.2
Phenol	9.9 - 15
Phenol resin	4.9
Polyacetal (Delrin®)	3.6
Polyamide (nylon)	2.5
Polycarbonate	2.9
Polyester resin	2.8 - 8.1
Polyethylene	2.3
Polypropylene	2.0 - 2.3
Polystyrene	3.0
Polyvinyl chloride resin	2.8 - 3.1
Porcelain	4.4 - 7
Press board	2 - 5
Propane, liquid	1.6
Propylene, liquid	11.9
Quartz glass	3.7
Rice, dry	3.5

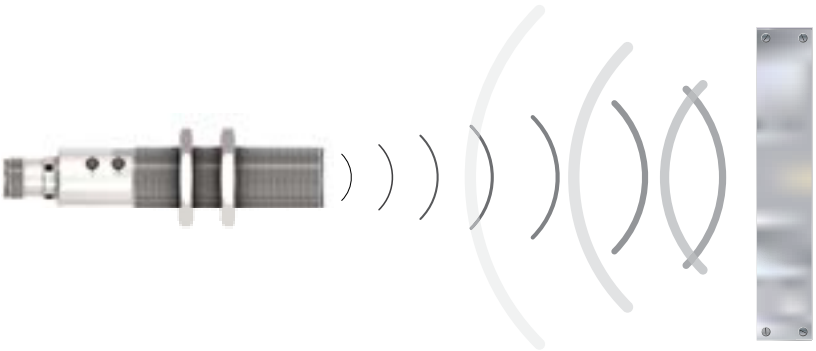
Material	Dielectric Constant
Rubber	2.5 - 35
Salt	6.0
Sand	3 - 5
Shellac	2.0 - 3.8
Silicon dioxide	4.5
Silicone rubber	3.2 - 9.8
Silicone varnish	2.8 - 3.3
Soybean	2.8
Styrene resin	2.3 - 3.4
Sugar	3.0
Sugar, granulated	1.5 - 2.2
Sulfur	3.4
Sulfuric acid	84
PTFE®, PCTFE	2.3 - 2.8
PTFE	2.0
Toluene	2.3
Trichloroethylene	3.4
Urea resin	6.2 - 9.5
Urethane	3.2
Vaseline	2.2 - 2.9
Vinyl chloride	2.8
Water	48 - 88
Wax	2.4 - 6.5
Wood, dry	2 - 7
Wood, pressed board	2.0 - 2.6
Wood, wet	10 - 30
Xylene	2.4
Zinc oxide	1.7
Zirconium oxide	12.5
Zirconium silicate	5.0

We reserve the right to make technical alterations without prior notice.

Technical Reference | Ultrasonic

Ultrasonic sensors use reflected sound waves as a means to detect objects at a greater distance than traditional inductive and capacitive sensors. With ranges of several meters and wide sensing cones, these sensors provide a unique solution to challenging applications.

Operating Principle



Ultrasonic sensors emit one or several ultrasonic pulses that are broadcasted in the air at the speed of sound. A part of the ultrasonic wave is reflected back to the sensor by the target. The sensor measures the total time of flight from the sensor to the object and back to the sensor. The distance to the object is then calculated with the following formula:

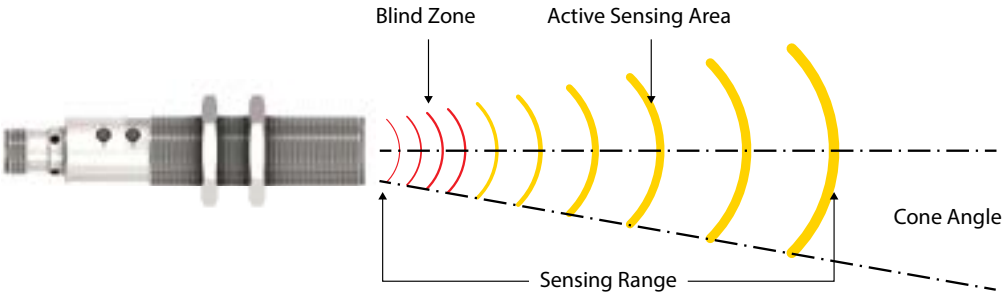
$$D = c \times t / 2$$

D = Distance from the sensor to the object
c = Speed of sound in air
t = Time of flight for the ultrasonic pulse

To improve accuracy and reliability, the ultrasonic sensor averages the measurement of several sound pulses before the output is updated.

We reserve the right to make technical alterations without prior notice.

Ultrasonic Terminology



Some key terms to understand when looking for an ultrasonic sensor.

- Blind zone: the blind zone is the area in front of the sensor where targets cannot be detected.
- Sensing range: the coverage of the device is the sensing range, or the maximum distance the sensor can read the sonic wave.
- Active sensing area: is the area where the set points or analog values can be established.
- Cone angle: the cone angle defines the coverage area of the sensor. This will have to be taken into account when placing the sensor in the application. If the cone is disrupted errors or miscommunication can occur.

Changes in Temperature

The ultrasonic velocity depends on the composition and the temperature in which the sound is transmitted. In most ultrasonic-applications, the composition of the atmosphere is stable whereas the temperature may often fluctuate. Fluctuations in air temperature affect the speed of sound, which in turn has an effect on the total time for the echo measured by the sensors. Our sensor are temperature compensated and will adjust the range automatically to minimize errors.

The speed of sound in air varies with the temperature according to the following approximation formula:
$Cm/s = 20 \times \sqrt{273 + TC}$

Cm/s = Speed of sound in meters per second
TC = Temperature in °C

Atmosphere Conditions

It is always recommended to set up the ultrasonic sensors desired switch points and/or analog range in the environment that it will be used. Ultrasonic sensors will work in dust, rain and snow but if the conditions are too substantial it may reduce the sensors range or inhibit the sensor to read the target.

Turck ultrasonic sensors feature a flush face that allows dirt and water to be wicked away with the vibrating motion of the sensing element.

We reserve the right to make technical alterations without prior notice.

Modes of Operation

- Diffused mode: standard operation mode were the sensor is emitting sound waves and listening for the reflection and sensing if it is within the selected output zone. This mode can also have an analog output to give a linear measurement.
- Retro: reflective mode-sensor is set up with a reflector and sensing anything that crosses between the sensor and reflector. This is also known as break-beam, which is good for objects with an irregular shape or poor sound-reflecting qualities.
- Opposed mode: enlarges the range of an ultrasonic application. This mode utilizes two sensors of the same type. One sensor sends the signal and the other receives the signal allowing for the sensing range to double.
- Enable mode: allows the sensor to be powered but the piezo element does not fire unless a voltage is applied to pin 5. This allows for the sensor to reduce startup time and only be sensing for a target during a known condition. Enable mode also allows the sensor to be active during predetermined times or under a known condition.

Diffused Mode

Retro-Reflective Mode

Opposed Mode

Synchronization and Multiplexing Mode

- Synchronization mode: any number of ultrasonic sensors of the same type can be operated simultaneously without mutual feedback. The sensors will act as one.
- Multiplexing mode: enables up to nine ultrasonic sensors of the same type to be operated at fixed intervals one after the other without mutual feedback. In order to ensure proper functioning of the multiplexing mode, all connected sensors must have the same type code. In multiplexing mode the addresses must be assigned via PACTware.

We reserve the right to make technical alterations without prior notice.

Teaching the Ultrasonic Sensor

Ultrasonic sensors can be taught via a teach wire, programming button, or IO-Link, depending on the model.

Programming changes that can be done through the teach wires/buttons are below

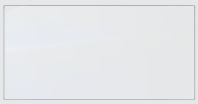
- Discrete output condition, normally open/ normally closed
- Window or hysteresis mode
- Sensing range
- Analog output type, current or voltage
- Retro-reflective mode

Programming changes that can be done through IO-Link

- Changing mode of operation
- Discrete output type and condition, NPN/PNP, normally open/ normally closed
- Analog output type, current or voltage
- Teach button/wire lock
- Window or hysteresis mode
- Sensing range
- Analog output type, current or voltage

Targets

Good ultrasonic targets have a hard smooth surface such as metals, glass, stone, or wood, as well as liquids that are aligned appropriately to the sensor. These targets reliably reflect sonic waves regardless of color or transparency. Cloth, sand, foam or grains absorb some of the sonic energy resulting in limited range or unstable operation. It should be noted that some materials can be detected using retro-reflective mode.

Material	✓
Cardboard	
Glass	
Smooth Wood	
Metal	

Material	✗
Carpet	
Foam	
Textiles	

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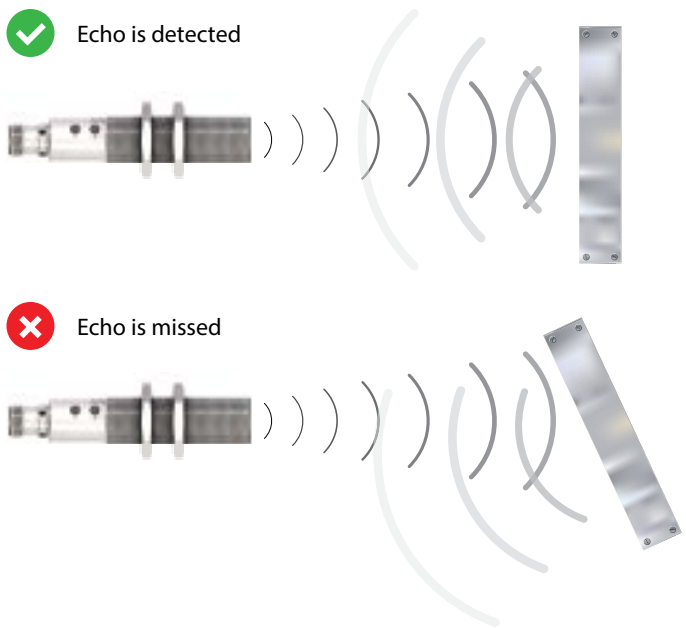
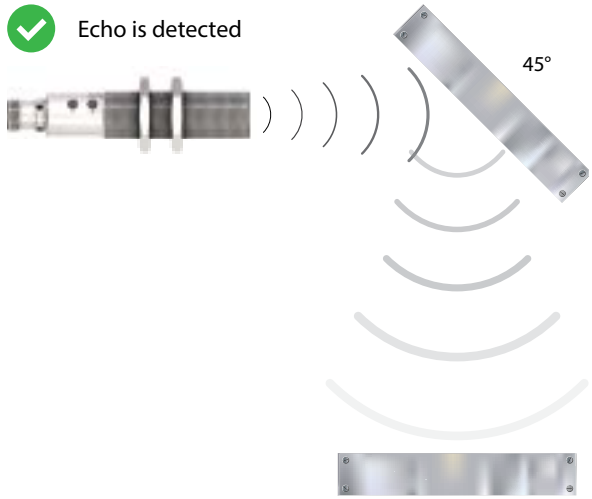
Application Considerations

Target Orientation



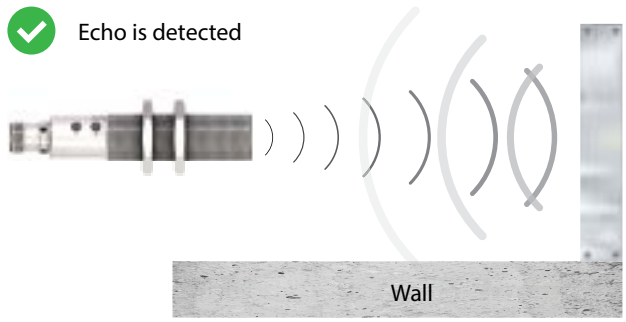
The orientation of a target is important. If the flat surface is at an angle the senor will not receive the reflected sound.

Reflector



A reflector at a 45° angle can be used to redirect the signal or allow flexible mounting of the sensor.

Obstructions



When mounting an ultrasonic sensor the cone angle has to be taken into consideration. Physical obstructions within the cone angle can cause unstable sensor operation. This is common when mounting the sensor too close to the side of a tank, inside of a tube/stilling well, or mounting close to a wall.

Level Applications

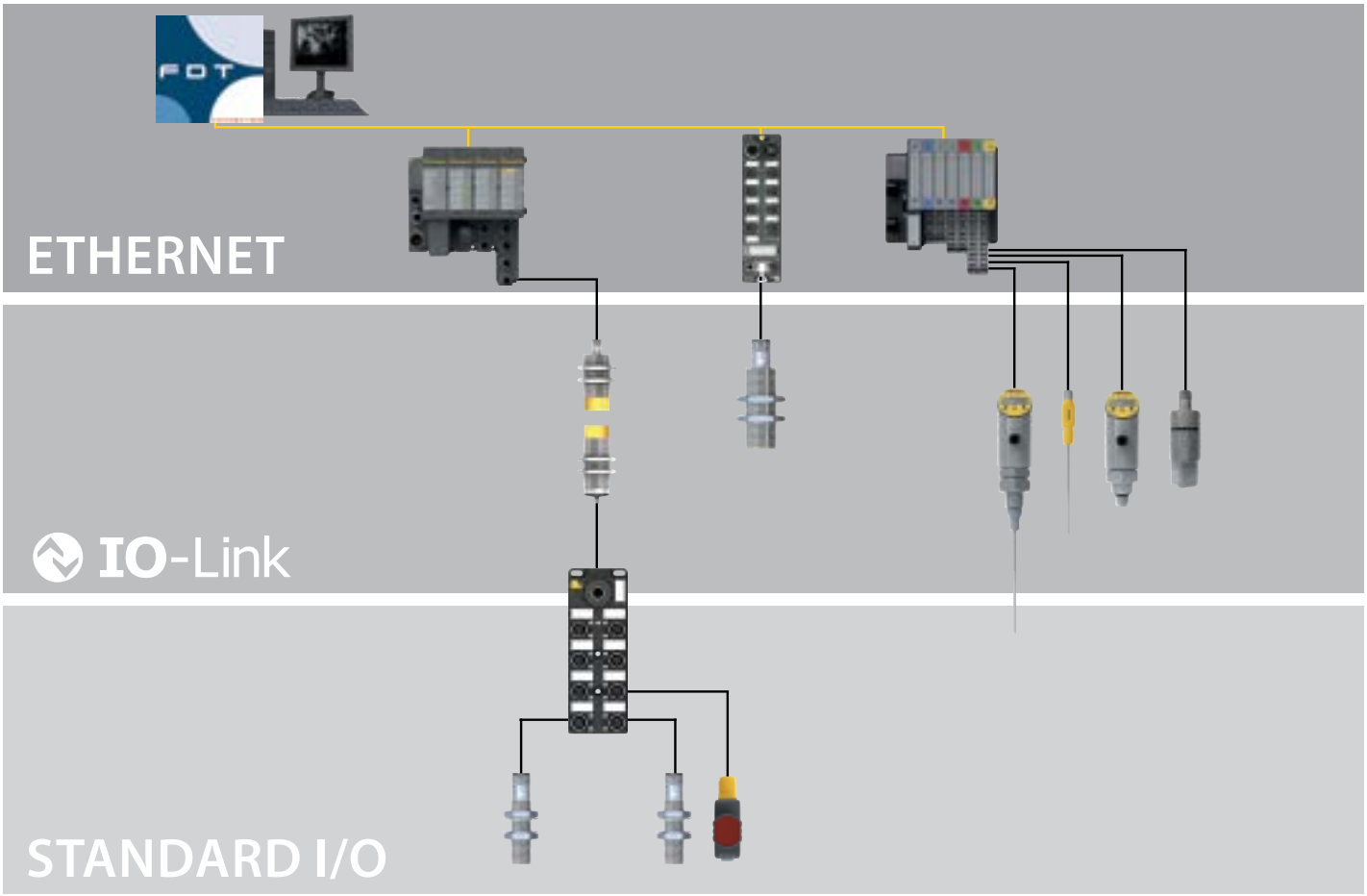
Ultrasonic sensors can be used to monitor the level of both dry materials and liquids. By positioning the sensor above the materials, users can then program switch points or an analog output that corresponds to the actual level.

Variables that negatively affect sensor performance

- Foam: foaming media tends to absorb the acoustic signal
- Surface Turbulence: agitation, mixing, and other processes that cause excessive liquid turbulence can cause intermittent signal return problems
- Pressure: pressurized containers should be avoided as they change the sensor characteristics

We reserve the right to make technical alterations without prior notice.

IO-Link: Simple, Seamless, Efficient



Today, most sensors and actuators are already equipped with microprocessors that are used to control indication, parameterization, and store configuration data. The next step is to overcome the bottleneck of the binary standard interface and make additional functions centrally accessible for the automation system.

For this reason, many well known manufacturers from the field of automation have come together and developed a fieldbus-independent communication interface for sensors and actuators known as IO-Link. Compatibility with existing technologies was the primary objective during development in order to guarantee investment protection.

What is IO-Link?
IO-Link is based on a point-to-point connection between the sensor/actuator and an interface module. Previously, the binary connection was only designed for transferring switching information, but IO-Link now allows two bytes to be transferred normally in a 2 ms cycle via a combined switching status and data channel. Other information can be exchanged in addition to the process values, such as parameters or diagnostics messages. This enables communication with sensors and actuators down to the "last meter" to be established for universal communication.

Standard Wiring
IO-Link does not require any special wiring. The sensors and actuators can continue to be connected using the proven, unshielded and attractively priced industrial three core cables. The operating modes available for selection are the standard switch mode and the communication mode.

Benefits
IO-Link users benefit from reduced machine costs, efficient processes and improved machine availability. Turck provides one of the most comprehensive IO-Link portfolios worldwide, from a variety of sensors, cables and active IO-Link junction boxes to interfaces for various industrial fieldbus protocols, including Turck Multiprotocol Ethernet products.

We reserve the right to make technical alterations without prior notice.

Technical Reference | IO-Link

Engineering Tool Integration
Standardized interfaces (DTM/IODD) implement seamless integration into engineering tools. Furthermore, integration into standalone tools such as Asset management or configuration tools is also made available. Connection into enterprise level tools is accomplished using standard Ethernet mechanisms.

Device Identification
Integrated device identification ensures that the correct device has been installed in the case of component replacements. As each device contains detailed information regarding the manufacturer, component replacement can be safely handled automatically.

Wiring
IO-Link uses the same standard unshielded 3-core cables with standardized pinning as conventional I/O. This eliminates problems with complex devices which have no pinning standards and often multipole connectors.

Ethernet/Fieldbus Connection
IO-Link allows connection to most major fieldbuses, as well as Industrial Ethernet. Turck offers solutions for the full range, including master modules for its modular and block I/O systems featuring Multiprotocol Ethernet, which work seamlessly with PROFINET, EtherNet/IP and Modbus TCP in a single device.

Sensor Mounting
All IO-Link devices allow parameter changes and diagnostic evaluation within the engineering system or separate tools. Devices can now be mounted in the machine where they make sense for the application, not in inconvenient areas that disrupt work flow in order to allow access to display or switches.

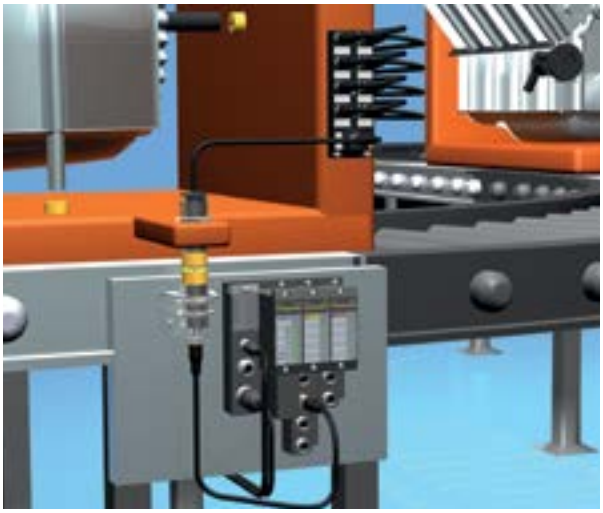
I/O Hubs
Allow the integration of standard 24 VDC devices into automation systems via IO-Link with Turck I/O hubs. Variants for inputs, outputs and a version with configurable digital I/O are currently available.

We reserve the right to make technical alterations without prior notice.

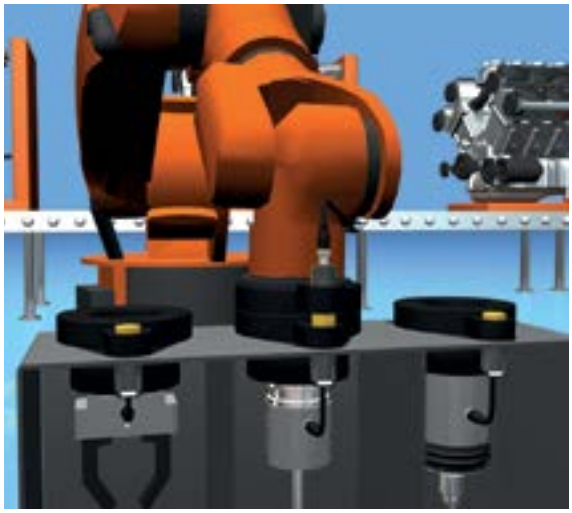
Efficient Processes
- Extensive parameterization options for just in time parameter changes to devices
- Efficient processes requiring different parameter sets for switching thresholds, gain, sensitivity and so forth due to differing production conditions
- Faster tool change operations

Improved Machine Availability
- Comprehensive status information and diagnostic capabilities in the plant lead to drastically reduced machine downtime
- Enhanced information enables cost saving mechanisms such as predictive maintenance or asset management to be easily implemented
- Device replacement without manual intervention to parameterize the new unit alleviates the need for qualified personnel

Turck: Your Value Added IO-Link Solution Partner



Skid application in an automotive plant



Robotic tool changer application

Many manufacturers offer IO-Link products, which can make it difficult to find the most suitable partner for your needs. Turck offers a wide variety of IO-Link solutions – from sensors through programmable fieldbus and Ethernet gateways – but also provides a deep application knowledge, as the following example shows.

Tool Changer
Many applications require that parts of a machine are changed to accommodate different phases in the production cycle. This necessitates providing manifold connections between the main (fixed) part of a machine and the exchangeable part. The two elements of the machine must then be linked mechanically and electrically to provide power, pneumatics and I/O signals to enable data exchange within the machine.

The electrical connections require large multi-pin connectors and multicore cables to achieve this end. This complexity has a price: the connections regularly cause problems and are expensive to buy and maintain. The fact that the connections also require a high degree of accuracy regarding the mechanical alignment between machine components further increases machine costs. Another difficulty with this arrangement involves distinguishing between several variants of an exchangeable part. If this is necessary, further I/Os are required, both in the I/O system and on the machine. This not only increases costs, but also the complexity and sizing of the connectors between machine parts.

Value Added IO-Link Solution
Turck inductive couplers are capable of transferring both data and power over an air gap to resolve the previously mentioned problems. The contactless couplers eliminate the need for other mechanical connectors or costly slip rings, which are liable to wear. Additionally, all Turck IO-Link devices are capable of allocating a so-called "Application Specific Tag" (part of the IO-Link specification), which fulfills the requirement of identifying changeable parts without incurring additional costs. Furthermore, this built-in mechanism allows the use of alphanumeric information, making it likely that existing identification codes can be reused.

Reduced Machine Costs
- Reduced inventory due to intelligent multi-purpose devices
- Only one I/O module and one inexpensive standard cable required
- Reduced I/O footprint possible
- Displays and switches no longer required on devices
- Reduced engineering and assembly costs and automatic documentation of device parameters during the engineering phase

We reserve the right to make technical alterations without prior notice.

Technical Reference | DC Wiring

DC Outputs

Two-, three-, or four-wire proximity sensors contain a transistor oscillator and a snap-action amplifier. This provides exceedingly high accuracy to a set switching point, even with very slowly approaching targets. Switching characteristics are unaffected by supply voltage fluctuations within the specified limits.

The sensors can drive electromechanical relays, counters, solenoids, or electronic modules, and interface directly with logic systems or programmable controllers without additional interface circuitry. They are available with either NPN output transistors (current sinking) or PNP output transistors (current sourcing).

Load current ratings vary from 100 to 200 mA depending on physical size. Standard voltage range is 10-30 VDC with certain types available for 10-65 VDC. All models incorporate wire-break, transient and reverse polarity protection. Power-On false pulse suppression is also standard.

Wire-Break Protection

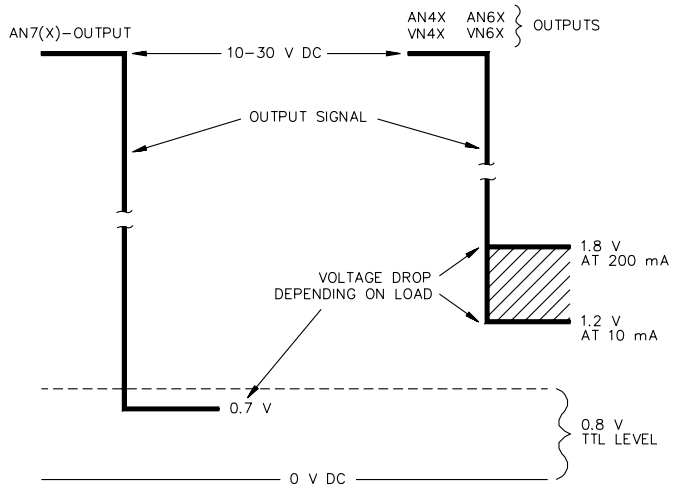
If the supply wire for a Turck DC sensor was damaged or broken the output will stay in the off state.

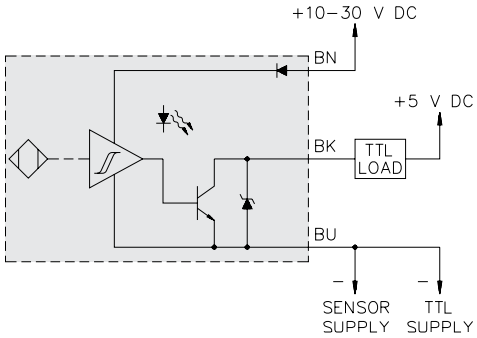
Short-Circuit and Overload Protection

Turck DC sensors with a Voltage Range designation of "4", "6" or "8" in the part number are short-circuit and overload protected (automatic reset). These sensors incorporate a specially designed circuit which continuously monitors the ON state output current for a short-circuit or overload condition. If either of these fault conditions occurs, the output is turned OFF and pulse tested until the fault is removed. This added protection causes a ≤1.8 V drop across the output in the normal ON state. This may be a problem when interfacing with some logic low inputs (see TTL compatibility).

TTL Compatibility

Certain inputs require a 5 VDC signal level to operate correctly. Typically, these types of inputs are described as TTL Level inputs and will only work correctly with a TTL compatible sensor. In order to meet TTL Signal requirements, the output of these sensors will have a voltage drop of ≤0.7 V (0.3 V typical). Do not use voltage ranges "4" and "6" when TTL compatibility is required. Contact the factory for a list of part numbers with this specification.





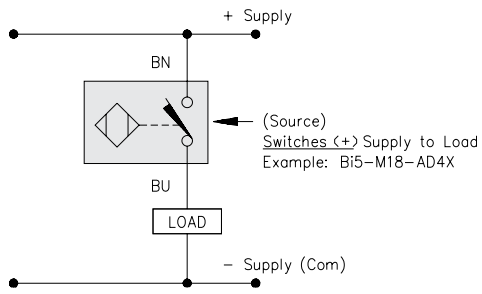
Wiring Diagram

Voltage drop is measured from output wire black (BK) to ground wire blue (BU).

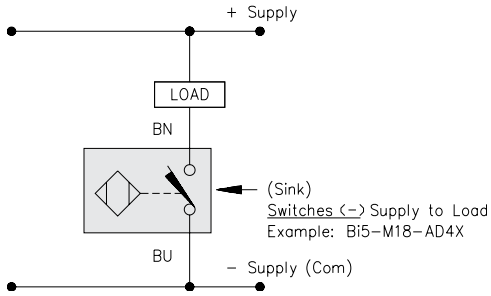
We reserve the right to make technical alterations without prior notice.

DC Sourcing and Sinking

2-Wire DC



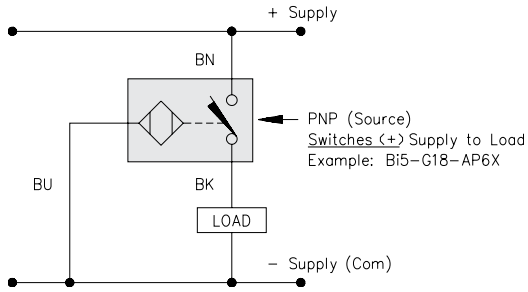
Source (PNP)



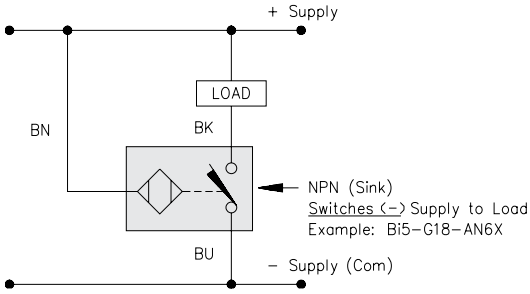
Sink (NPN)

Note:
Turck 2-wire DC sensors with an "AD" designation are not polarity sensitive and can be used to sink or source a load.

3-Wire DC



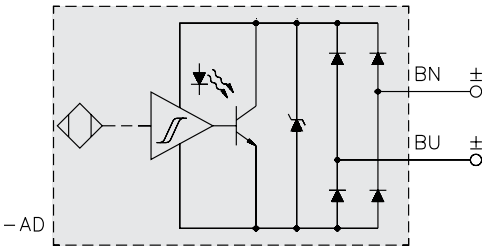
Source (PNP)

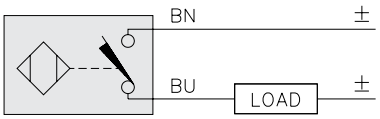


Sink (NPN)

DC Outputs

"AD" 2-Wire DC Output

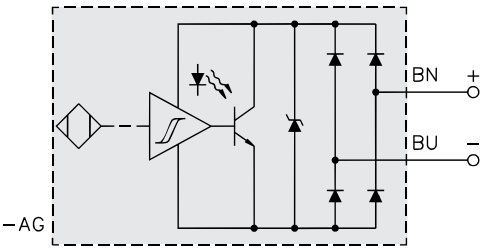


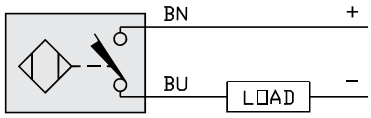


Wiring Diagram

Note:
Turck 2-wire DC sensors with an "AD" designation are not polarity sensitive and can be used to sink or source a load.

"AG" 2-Wire DC Output





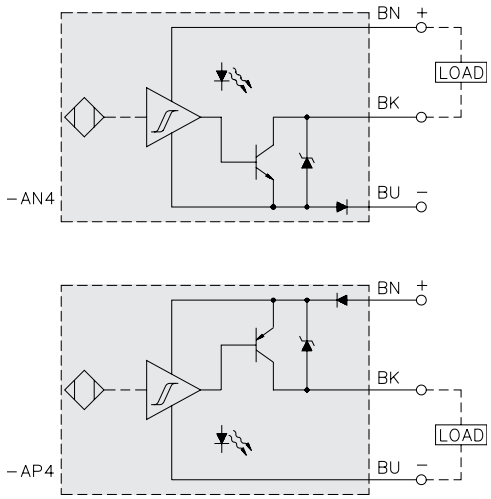
Wiring Diagram

We reserve the right to make technical alterations without prior notice.

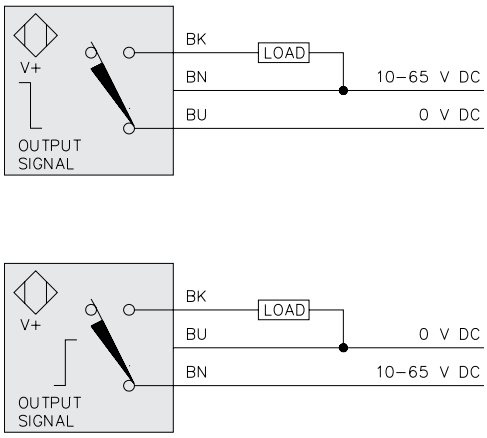
Technical Reference | DC Wiring

DC Outputs

"AN4" and "AP4" 3-Wire DC Outputs



Electronic Output Circuit

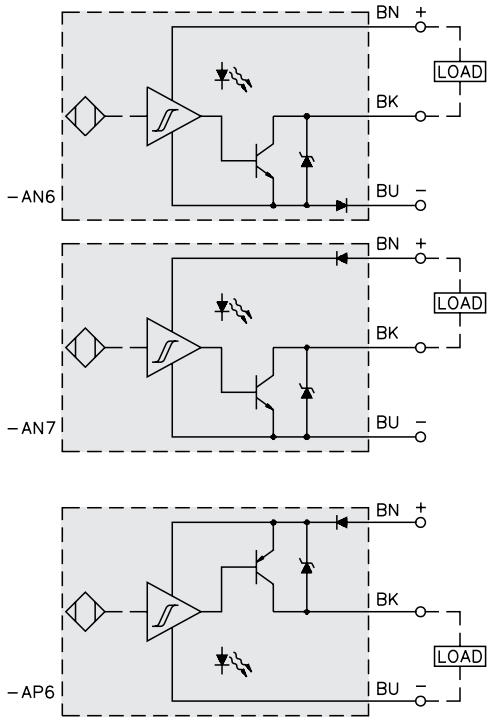


Wiring Diagram

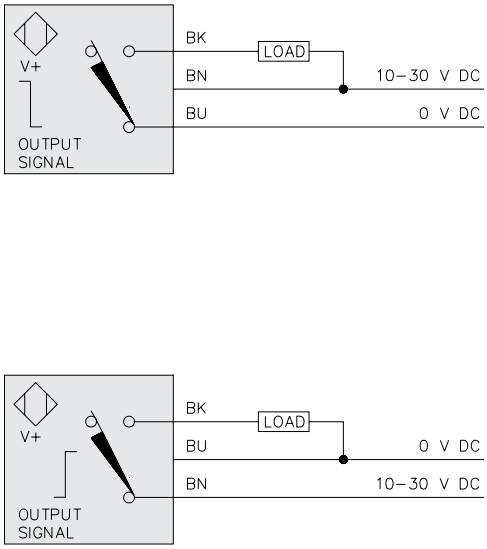
NPN transistor
(i.e. current sinking
negative switching)
N.O. output

PNP transistor
(i.e. current sourcing
positive switching)
N.O. output

"AN6(7)" and "AP6" 3-Wire DC Outputs



Electronic Output Circuit



Wiring Diagram

NPN transistor
(i.e. current sinking
negative switching)
N.O. output

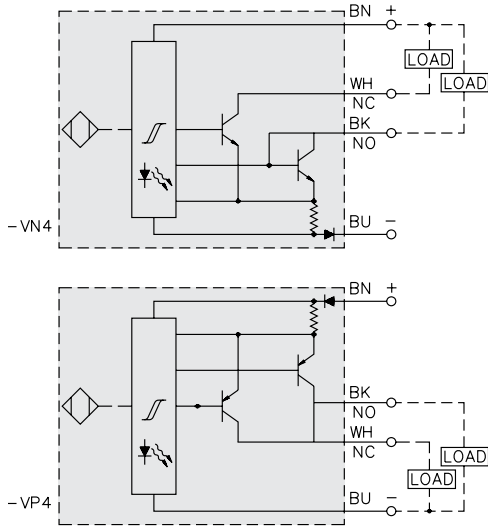
PNP transistor
(i.e. current sourcing
positive switching)
N.O. output

Note:
Order current sinking (NPN) sensors with the voltage range "7" only when low voltage drop for TTL gates is required. In all other cases, order sensors with voltage ranges "4" or "6".

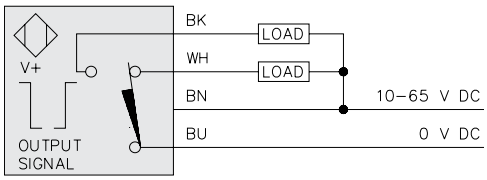
We reserve the right to make technical alterations without prior notice.

DC Outputs

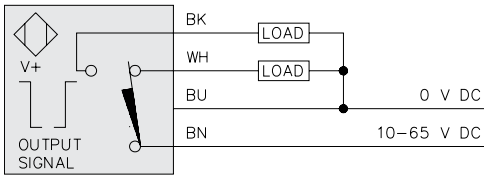
"VN4" and "VP4" 4-Wire DC Outputs



Electronic Output Circuit



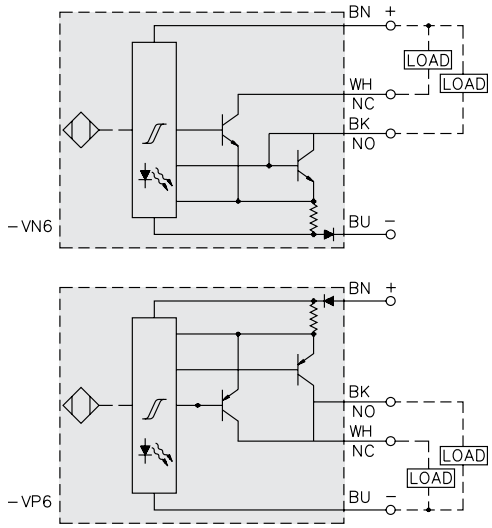
NPN transistor (i.e. current sinking negative switching) complementary output (SPDT)



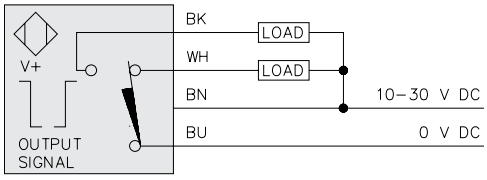
PNP transistor (i.e. current sourcing positive switching) complementary output (SPDT)

Wiring Diagram

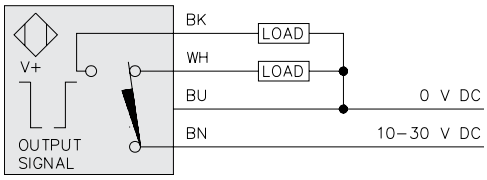
"VN6" and "VP6" 4-Wire DC Outputs



Electronic Output Circuit



NPN transistor (i.e. current sinking negative switching) complementary output (SPDT)



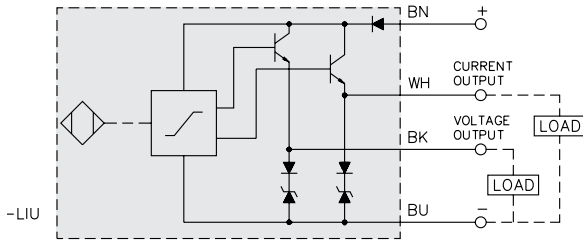
PNP transistor (i.e. current sourcing positive switching) complementary output (SPDT)

Wiring Diagram

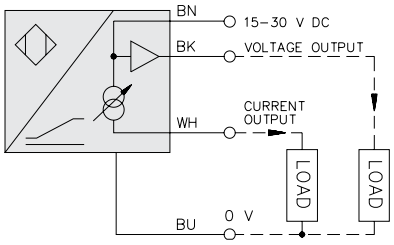
We reserve the right to make technical alterations without prior notice.

DC Outputs

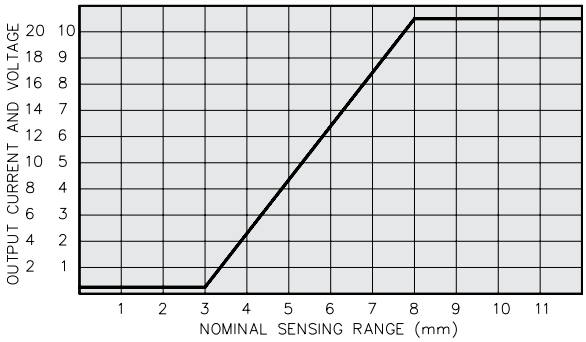
"LIU" 4-Wire Linear Analog DC Output



Electronic Output Circuit



Wiring Diagram



Typical Response Curve

Linear Analog Output; Current and Voltage

Series/Parallel Connection

Logic functions with DC proximity sensors:
Self-contained proximity sensors can be wired in series or parallel to perform such logic functions as AND, OR, NAND, NOR. The wiring diagrams show the hook-up of four sensors with NPN and PNP outputs. Take into account the accumulated no-load current and voltage drop per sensor added in the series string.

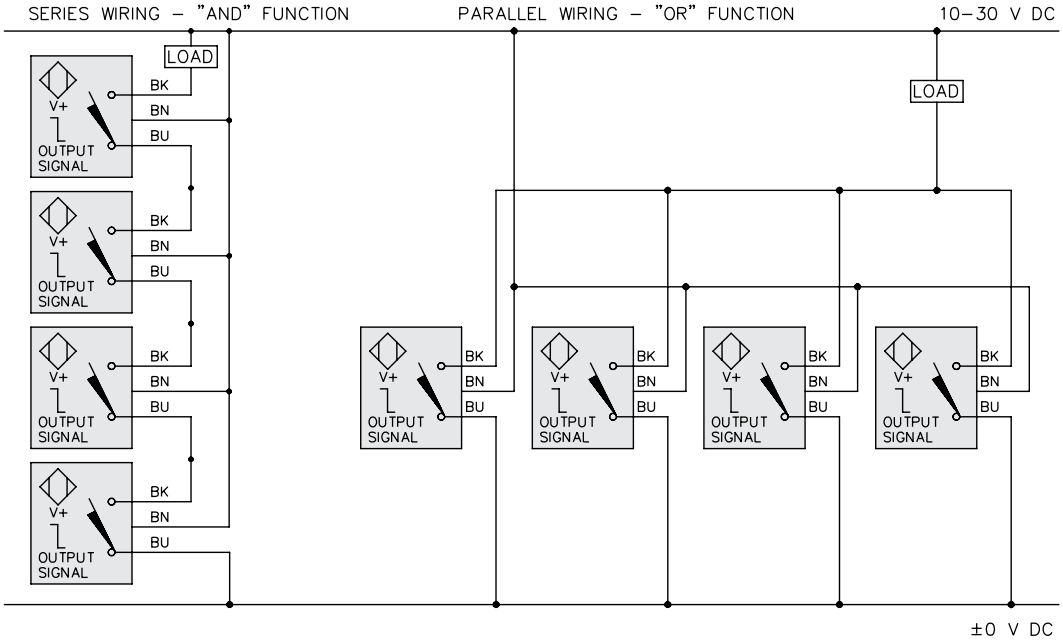
Series-connection:
N.O. sensors: AND Function
(target present, all sensors: load "on")
N.C. sensors: NOR Function
(target present, any sensor: load "off")

Parallel-connection:
N.O. sensors: OR Function
(target present, any sensor: load "on")
N.C. sensors: NAND Function
(target present, all sensors: load "off")

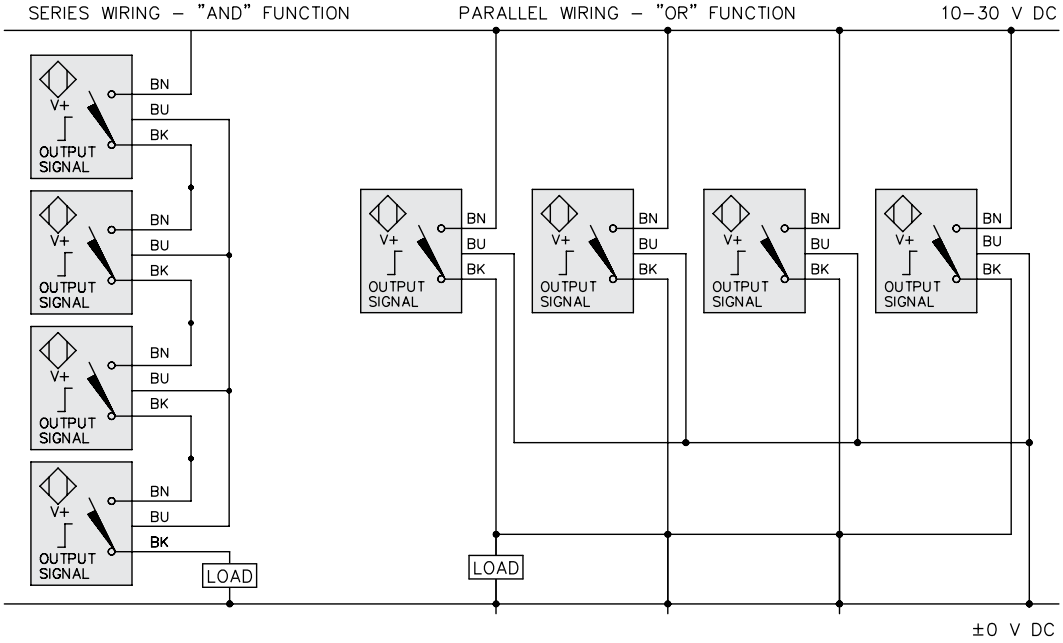
Turck Tip
To prevent the load from seeing the cumulative voltage drop of multiple 3-wire sensors in series, alternating polarity sensors can be used provided that the desired polarity is at the load. Wiring 3-wire sensors in series delays the load by the accumulated "time delay before availability" of all sensors in the string.

We reserve the right to make technical alterations without prior notice.

Series/Parallel Connection



NPN Connection



PNP Connection

We reserve the right to make technical alterations without prior notice.

Technical Reference | AC Wiring

Short-Circuit and Overload Protection

Turck AC sensors with the Voltage Range designation "30" or "32" are short-circuit and overload protected (manual reset). These sensors incorporate a specially designed circuit which continuously monitors the ON state output current for a short-circuit or overload condition. If either of these fault conditions occurs, the output is latched OFF until the power has been cycled OFF and ON again.

Always select short-circuit and overload protected sensors whenever possible.

CAUTION!

DO NOT
operate an incandescent light bulb as a load. The extremely high cold current will cause an overload condition.

DO NOT
directly operate a motor with a proximity sensor. The inrush current can cause an overload condition. Always use a motor starter, relay or other appropriate device.

DO NOT
operate a proximity sensor from a wall outlet without a load. This is considered a "dead" short and can cause catastrophic damage to nonshort-circuit protected sensors.

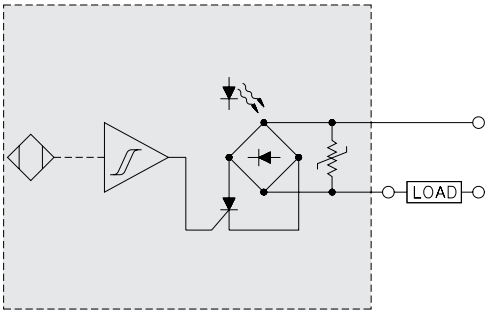
DO NOT
forget to ground. AC and AC/DC sensors must be grounded or there exists a potential of electrical shock.

AC and AC/DC Outputs

These sensors are used as pilot devices for AC-operated loads such as relays, contactors, solenoids, etc. The solid-state output permits use of the sensors directly on the line in series with an appropriate load. They, therefore, replace mechanical limit switches without alteration of circuitry, where operating speed or environmental conditions require the application of solid-state sensors.

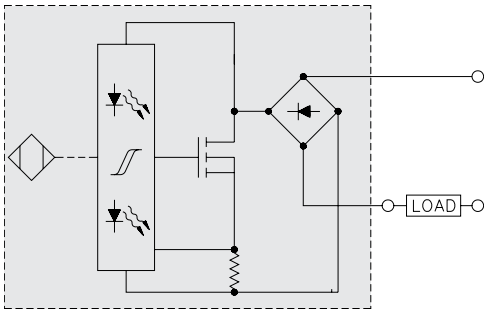
These sensors are typically available in a voltage range of 20-250 VAC. All models are available with either normally open (N.O.), normally closed (N.C.) or programmable outputs (from N.O. to N.C.). Careful consideration must be given to the voltage drop across AC/DC sensors when used at 24 VDC.

AC/DC Outputs - "3", "31", "33", non-SCP



Electronic Output Circuit

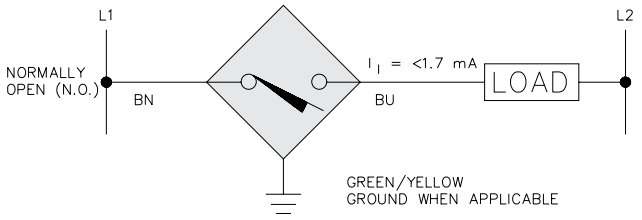
AC/DC Outputs - "30", "32", SCP

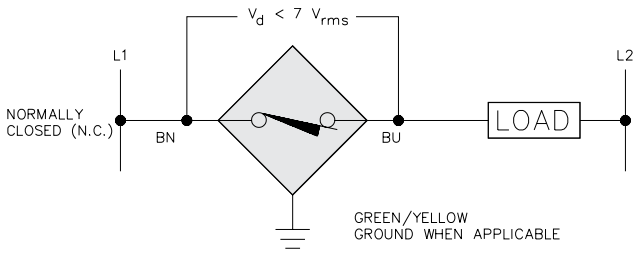


Electronic Output Circuit

We reserve the right to make technical alterations without prior notice.

AC and AC/DC Outputs





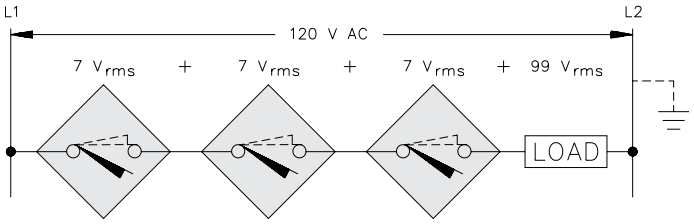
Electro-Mechanical Equivalents

Since the sensors are connected in series with the load by means of only two leads, an off-state current flows through the load in the magnitude of approximately 1.7 mA.

This, however, does not affect the proper and reliable performance of most AC loads. Another characteristic of solid state sensors is a 5 to 7 volt drop developed across the sensor in the ON state.

All models contain a snubber network to protect against transients from inductive loads, which can cause false triggering.

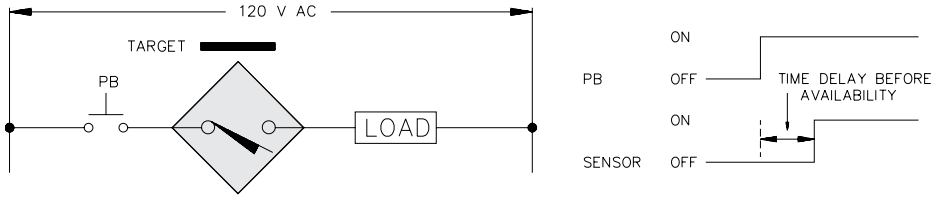
Series Connection



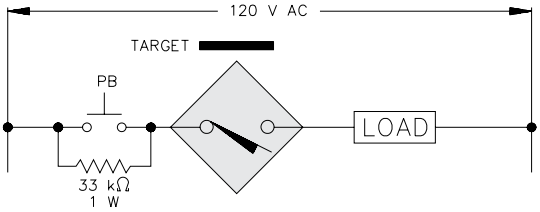
Series-connection:
N.O. sensors: AND Function
(target present, all sensors: load "ON")
N.C. sensors: NOR Function
(target present, any sensor: load "OFF")

The maximum number of sensors to be operated in series depends on the stability of the line voltage and the operating characteristics of the load in question. The supply voltage minus the accumulative on state voltage drop across the series connection (approximately 7 Vrms per sensor) must be ≥ the minimum required load voltage.

Mechanical Switches in Series



Problem:
Mechanical switches in series with proximity sensors should always be avoided because they can create an open circuit, leaving the proximity sensor without power. In order to operate properly, a proximity sensor should be powered continuously. A typical problem encountered when the mechanical contact closes while the target is present is a short time delay that is experienced before the load energizes (time delay before availability).

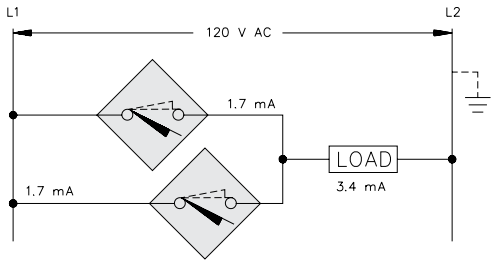


Solution:
A 33 kΩ, 1W by-pass resistor can be added across the mechanical contact to eliminate the time delay before availability. This will allow enough leakage current to keep the sensor ready for instantaneous operation.

We reserve the right to make technical alterations without prior notice.

Technical Reference | AC Wiring

Parallel Connection



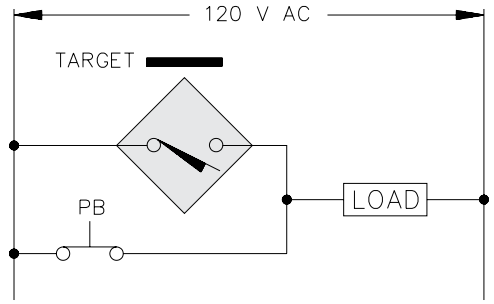
Parallel Connection:
N.O. sensors: OR Function
(target present, any sensor: load "ON")
N.C. sensors: NAND Function
(target present, all sensors: load "OFF")

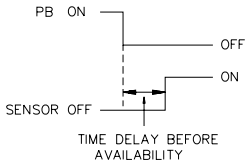
Wiring AC proximity sensors in parallel can result in inconsistent operation and should generally be avoided.

On-state voltage drop: With any sensor ON, the voltage across all other sensors is typically 7 Vrms. Since the minimum rated voltage for AC sensors is 20 Vrms, no other sensor with a target present can turn ON until the first sensor turns OFF. This transition is not instantaneous due to the time delay before availability, during which the load may drop out.

Leakage current through the load: This is equal to the total leakage of all sensors wired in parallel. Too much leakage into a solid state load can cause the input to turn ON and not turn OFF. Small relays may not drop out if the leakage current exceeds the relay's holding current.

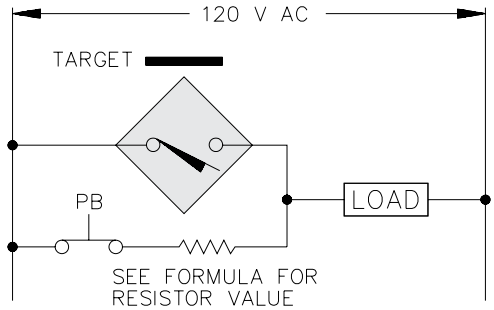
Mechanical Switches in Parallel





Problem:
As previously discussed, proximity sensors should be powered continuously to avoid the time delay before availability during power-up.

With mechanical switches in parallel, the sensor is shorted out every time the contact is closed, leaving it without power. If the target is present when the mechanical contact is opened, a small delay will be experienced during which the load may drop out.



Solution:
This delay can be avoided by adding a resistor in series with the mechanical contact. The voltage drop developed across the resistor with the contact closed will be enough to keep the sensor active. Use the formula below to determine the value and wattage.

Formula:

$$R = \frac{\text{minimum operating voltage of proximity sensor}}{\text{load current at operating voltage}}$$

Example:

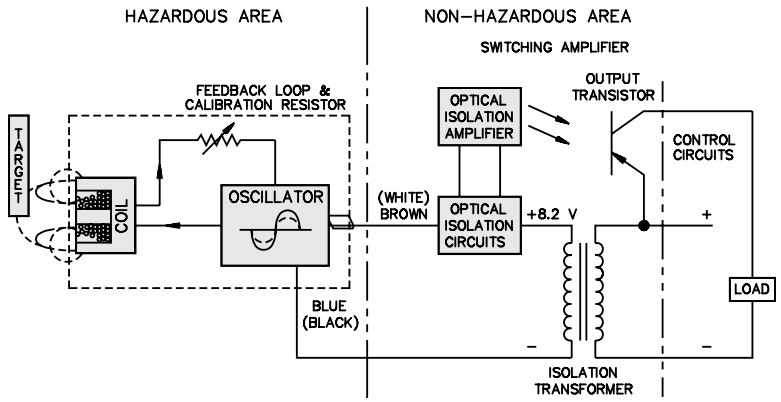
$$R = \frac{20\ \text{V}}{180\ \text{mA}}$$

$$R = 110\ \Omega$$

Minimum resistor wattage rating: E x I
Example: 20 V x 180 mA = 3.6 W≈ 5 watts recommended

We reserve the right to make technical alterations without prior notice.

NAMUR (Y0 and Y1) Output



The NAMUR (Y0 and Y1) sensor behaves like a variable resistor when a target approaches. The impedance increases or decreases between 1 kΩ and 8 kΩ.

NAMUR sensors are 2-wire sensing devices used with switching amplifiers. Because of the small amount of energy needed to operate NAMUR sensors, they can be used in intrinsically safe applications.

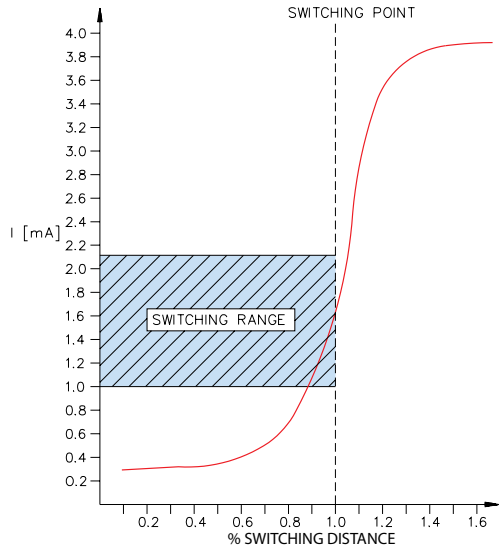
The operation of this sensor is similar to that of a variable resistor with a change in impedance as a target approaches the sensor. When no metal is being sensed, the inductive sensor is in a low impedance state and draws a current of more than 2.2 mA. When a metal target enters the high-frequency field radiated from the sensor head, the impedance increases as the target approaches. When fully damped, the sensor draws less than 1.0 mA.

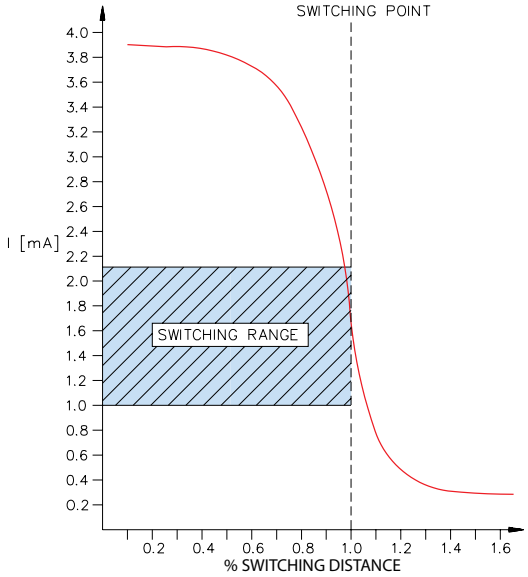
Note: For capacitive and inductive magnet operated sensors, the current change characteristics are opposite.

The current differential from the undamped to the damped (metal present) state is used to trigger an amplifier at a defined switching point. These sensors contain a relatively small number of components, which allows the construction of small devices and also assures a high degree of reliability.

In the undamped and damped state, the devices have fairly low impedance and are therefore, unaffected by most transients. NAMUR sensor circuits operate on direct current. Therefore, cable runs of several sensors may be run parallel to one another without mutual interference.

Typical Output Curves



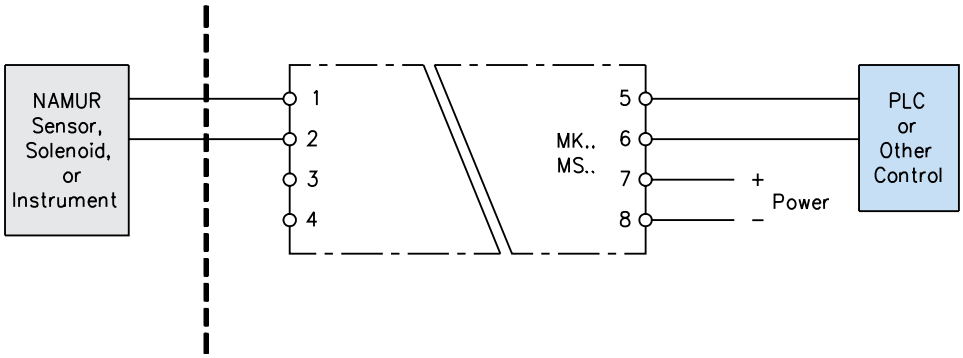


Note:
The typical curve of current versus sensing distance with 8.2 V DC supply and 1 kΩ source impedance. All NAMUR (Y0 and Y1) sensors are calibrated to pass through 1.55 mA at nominal sensing range ±10%.

We reserve the right to make technical alterations without prior notice.

Technical Reference | Namur Wiring

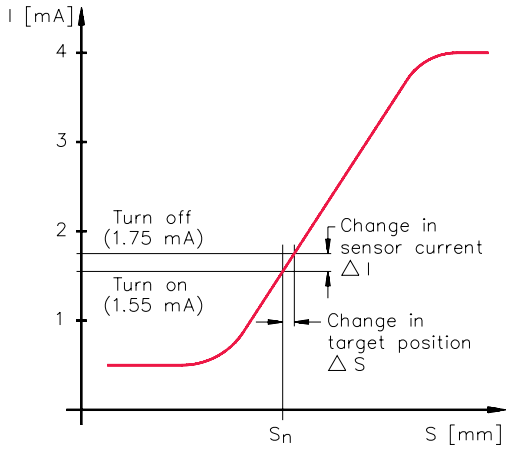
Typical Intrinsically Safe Installation

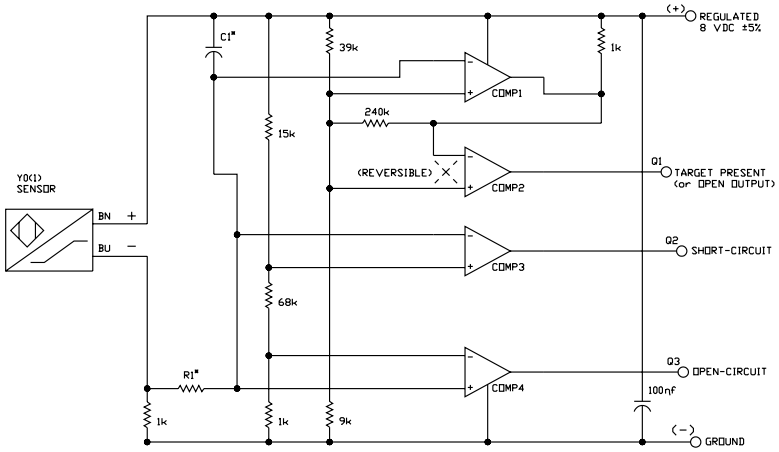


For guidance on installation of Turck intrinsically safe systems, refer to the Instrument Society of America publication ISA-RP12.6-1995, "Wiring Practices for Hazardous (Classified) Locations Instrumentation".

The complete line of Intrinsically Safe and Associated Apparatus can be found on Turck's website.

Custom Interface Circuits





NAMUR sensors can operate outside the nominal operating values when the sensor is used in a nonhazardous area. The supply voltage limits are: V_{min} = 5 VDC; V_{max} = 30 VDC

Within this voltage range the load resistance R_i must be adjusted for the supply voltage. The following table gives typical values:

V_{supply} (DC)	R_i (kΩ)	I_{sn} (mA)	ΔI (mA)
5	0.39	≈0.7	≈0.1
12	1.8	≈2.3	≈0.3
15	2.2	≈2.9	≈0.4
24	3.9	≈3.8	≈0.5

If these values are used, the current I_{sn} corresponds to the rated operating distance (Sn) of the sensor. NAMUR sensors are short-circuit protected up to 15 VDC and reverse polarity protected up to 10 VDC.

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Third Party Approval and Certification Bodies		
Canadian Standards Association (CSA)	CSA is a Canadian provider of product testing and certification services. CSA certifies products for use in hazardous (classified) locations as well as non-hazardous locations. CSA is accredited by the Standards Council of Canada and is also a US NRTL (Nationally Recognized Test Laboratory), an ATEX Notified Body, and an IECEx ExCB (IECEx Certification Body).	
FM Approvals (FM)	FM approves devices for use in hazardous (classified) locations as well as products in other loss prevention categories. FM is a US NRTL (Nationally Recognized Test Laboratory), an ATEX Notified Body, and an IECEx ExCB (IECEx Certification Body), and is SCC accredited for Canada.	
Underwriters Laboratories (UL)	UL is a US-based provider of product safety testing and certification services for a broad range of both industrial and consumer products. UL lists stand-alone devices, such as sensors, and recognizes system components, such as relays, PWAs, etc. UL is a US NRTL (Nationally Recognized Test Laboratory), an ATEX Notified Body, and an IECEx ExCB (IECEx Certification Body), and is SCC accredited for Canada.	
ATEX	ATEX is the name of the European Union Directive 2014/34/EU covering hazardous location equipment and environments. Product testing and certification is carried out by ATEX Notified Bodies, which are organizations that have been accredited by an EU member state to conduct such testing according to EN Standards.	
IECEx	The IECEx System is the International Electrotechnical Commission's (IEC) system for providing assurance that products meet specified IEC standards. The system aims to provide internationally accepted and standardized certifications. Product testing and certification are carried out by IECEx ExCBs (IECEx Certification Bodies).	
CE	CE marking is a certification mark that indicates conformity with health, safety, and environmental protection standards for products sold within the European Economic Area (EEA).[1] The CE marking is also found on products sold outside the EEA that are manufactured in, or designed to be sold in, the EEA. This makes the CE marking recognizable worldwide even to people who are not familiar with the European Economic Area. It is in that sense similar to the FCC Declaration of Conformity used on certain electronic devices sold in the United States.	
CCC	CCC stands for China Compulsory Certificate Mark and is required for products imported into China as well as products built in China. The CCC Mark was created in 2002 when China joined the World Trade Organization. The CCC applies to a wide range of products. As part of the approval process, product samples are subjected to conformity testing and once approved the manufacture will be subject to regular audits. The approval is required for sensors with operating voltages in excess of 36 volts.	
RoHS	RoHS stands for Restriction of Hazardous Substances. RoHS, also known as Directive 2002/95/EC, originated in the European Union and restricts the use of specific hazardous materials found in electrical and electronic products. All applicable products in the EU market after July 1, 2006 must pass RoHS compliance.	

Note:
Turck products comply with many International standards. Consult factory for more information.

We reserve the right to make technical alterations without prior notice.

Technical Reference | Compliances

Hazardous Location Approvals

The NAMUR sensors shown in this catalog are Intrinsically Safe per the following:	
USA	Class I, Division, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1 Class I, Zone 0, AEx ia Group IIC T5 Intrinsically Safe when connected to an appropriately certified associated apparatus. See Turck Control Drawing IS-1.118 for US installations.
Canada	Class I, Division, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1 Ex ia Group IIC T4-T6 Intrinsically Safe when connected to an appropriately certified associated apparatus. See Turck Control Drawing IS-1.203 for Canada installations.
European Union	II 1 G Exia IIC T4-T6 Ga II 2 G Ex ia IIC T4-T6 Gb II 1 D Ex ia T95°C or T115°C Da Intrinsically Safe when connected to an appropriately ATEX-certified associated apparatus. See ATEX certificate at Turck.com or contact factory for information on certified devices.
IEC member countries per IECEx	Zone 0 Ex ia IIC T4-T6 Ex ia IIC T4-T6 Ex ia D 20 T95°C or T115°C Intrinsically Safe when connected to an appropriately IECEx-certified associated apparatus. See IECEx certificate at Turck.com or contact factory for information on certified devices.

Many 3-wire DC sensors are approved for Class I, Division 2 hazardous locations:	
USA and Canada	Class I, Division 2, Groups A, B, C, D Selected Sensors with –AN6X, -AP6X, -RN6X or -RP6X outputs. Part numbers include /S1751 option code Integral cables have ITC rating See Control Drawing Ni-2.409 for US and Canada installations.

Standards for Intrinsically Safe systems may be found in the following publications:	
USA	National Electrical Code, ANSI/NFPA 70, Articles 504 and 505 Underwriters Laboratories Standard UL 913 Underwriters Laboratories Standard UL 60079-11 FM Approvals Standard Class 3610
Canada	Canadian Electrical Code, C22.1 Section 18 and Appendix F CSA C22.2 No. 157 CSA C22.2 No. 60079-11
Europe (EU)	EN 60079-11
IECEx	IEC 60079-11

We reserve the right to make technical alterations without prior notice.

Hazardous Location Definitions

Class/Division Classifications:	
Class I	Locations in which flammable gases or vapors exist or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.
Class II	Locations that are hazardous because of the presence of combustible dust.
Class III	Locations that are hazardous because of the presence of easily ignitable fibers or flyings, but in which such fibers or flyings are not likely to be suspended in the air in quantities sufficient to produce ignitable mixtures.
Division 1	Locations in which hazardous concentrations in the air exist continuously, intermittently, or periodically under normal operating conditions.
Division 2	Locations in which hazardous materials are handled, processed or used, but in which they are normally confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown.
Group A	Atmospheres containing acetylene.
Group B	Atmospheres containing hydrogen, fuel and combustible process gases containing more than 30% hydrogen by volume, or gases or vapors of equivalent hazard such as butadiene, ethylene oxide, propylene oxide and acrolein.
Group C	Atmospheres such as ethyl ether, ethylene, acetaldehyde, cyclopropane, or gases or vapors of equivalent hazard.
Group D	Atmospheres such as acetone, alcohol, ammonia, benzene, butane, cyclopropane, ethylene dichloride, gasoline, hexane, lacquer solvent vapors, methane, natural gas, naphtha, propane, xylene, or gases or vapors of equivalent hazard.
Group E	Atmospheres containing combustible metal dusts, including aluminum, magnesium, and their commercial alloys, and other combustible dusts with similarly hazardous characteristics.
Group F	Atmospheres containing combustible carbonaceous dusts, including carbon black, charcoal and coal.
Group G	Atmospheres containing other combustible dusts, such as chemical, agricultural or plastic dusts.

Class I Zone Classifications:	
Zone 0	Locations in which ignitable mixtures exist continuously or for long periods of time.
Zone 1	Locations in which ignitable mixtures are likely to occur during normal operation.
Zone 2	Locations in which ignitable mixtures are not likely to occur during normal operation.
Gas Group IIC	Atmospheres containing acetylene or hydrogen, or gases and vapors of equivalent hazard.
Gas Group IIB	Atmospheres containing ethylene, or gases and vapors of equivalent hazard.
Gas Group IIA	Atmospheres containing propane, or gases and vapors of equivalent hazard.

We reserve the right to make technical alterations without prior notice.

Technical Reference | Protection

Enclosure Ratings

NEMA 250-1991	
NEMA 1	Enclosures are intended for indoor use primarily to provide a degree of protection against limited amounts of falling dirt.
NEMA 3	Enclosures are intended for outdoor use primarily to provide a degree of protection against rain, sleet, windblown dust, and damage from external ice formation.
NEMA 4	Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water, and damage from external ice formation.
NEMA 4X	Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water and damage from external ice formation.
NEMA 6	Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against hose-directed water, the entry of water during occasional temporary submersion at a limited depth, and damage from external ice formation.

IEC 529	
IP 40	Protection against solid bodies larger than 1 mm. No protection against liquids.
IP 65	Dust tight. Protection against water spray from all directions at 14.2 PSI through a 12.5 mm nozzle.
IP 67	Dust tight. Protection against the effects of immersion in water for 30 minutes at 1 meter.
IP 68	Dust tight. Protection against the effects of indefinite immersion in water at a pressure specified by the manufacturer. Ex. Turck's IP 68 definitions is IP 67 plus. ■ 24 hours at 70 °C ■ 24 hours at -25 °C ■ 7 days at 1 meter under water at a constant temperature ■ 10 cycles +70 °C and -25 °C, minimum of 1 hour at each temperature
IP 69K	Hot steam jet cleaning per EN 60529 (IP enclosure ratings) and DIN 40050-9.

Turck Tip

For oily environments

Use plastic sensors with quick disconnects and Turck TPU "/S90" cordsets.

For washdown environments

Use Turck's Uprox+ Washdown Sensors and appropriate mating cordsets.

We reserve the right to make technical alterations without prior notice.

Material Descriptions

Plastics	
ABS - Acrylonitrile-Butadiene-Styrene	Impact resistant, rigid. Resistant to aqueous acids, alkalis, salts, alcohols, oils, concentrated hydrochloric acid; disintegrated by concentrated sulfuric or nitric acids, esters, ketones
CPE, Thermoset (rubber cables)	Excellent resistance to oils, acids, chemicals, ozone, extreme temperatures, cuts, abrasions; flame retardant in welding applications
PA - Polyamide (nylon)	Good mechanical strength, temperature resistant
PA, Amorphous (Trogamid T)	Similar properties to nylon, but transparent. Hard, rigid, good chemical resistance
PA 12-GF30	Nylon 12, 30% glass filled
PA 66-GF25-V0	Nylon 66, 25% glass filled, self-extinguishing
PBT - Polybutylene Terephthalate (when glass reinforced, Crastin®)	Good mechanical strength; resistant to abrasion; resistant to alcohols, oils, some acids, trichloroethylene
PBT-GF30-V0	PBT, 30% glass filled, self-extinguishing
PEI - Polyetherimide (Ultem®)	Excellent resistance to most commercial automotive fluids, fully hydrogenated hydrocarbons, alcohols, weak aqueous solutions. Withstands higher temperatures.
POM - Polyoxymethylene / Polyacetal (Delrin®)	High impact resistance; good mechanical strength; good resistance to oils, alcohols, alkalis, gasoline, xylene, toluene. Dielectric constant 3.7
PP - Polypropylene	Excellent resistance against chemicals including acids, solvents and solutions. High temperature resistance and good mechanical strength
PTFE - Polytetrafluoroethylene	Optimum resistance against high temperature and chemicals; low dielectric constant (2.0)
TPU, Thermoplastic Polyurethane	Elastic, resistant to abrasion, impact-resistant, oil- and grease-tolerant
PVC - Polyvinylchloride	Good mechanical strength, viscosity to impact; resistant to acids, alkalis
PVC, irradiated	Heat and chemical resistant, withstands short-term temperatures to 482° F
PVDF - Polyvinylideneflouride (Kynar®)	Resistant to high and low temperatures, good resistance to chemicals (similar to PTFE), high mechanical strength
Silicon	For use at high or low ambient temperatures (-50 to +180 °C), moderate mechanical strength, average resistance against alkalis, acids, oils, and solvents
IRPA12 - Irradiated Polyamide (nylon)	Good mechanical strength, temp. resistant
EPTR - Elastomer, Polymer Thermal Plastic	Good fluid resistance
TROG - Trogamid T	Hard, rigid, good chemical resistance

Metals	
AG	Armorguard®
SS	Stainless Steel
CPB	Chrome Plated Brass
CuZn - Brass	Generally good resistance to industrial atmospheres
GD - AlSi12 - Aluminum, die-cast	Low specific weight, long-life characteristics
GD - ZnAl4Cu1 (Z410) - Zinc, die-cast	Long-life characteristics
TC	PTFE Coated
WG	Weldguard®
AL	Anodized Aluminum
SF - Stoneface®	High abrasion resistance, excellent for MIG welding applications, high heat and weld flow immunity
TS - Tool Steel	Excellent durability

We reserve the right to make technical alterations without prior notice.

Technical Reference | General Specifications

Chemical Compatibility

The information in this chart is derived from reputable industry sources and is to be used only as a guide in selecting materials suitable for your application. Turck does not warrant in any fashion that the information in this chart is accurate or complete, or that any material is suitable for any purpose.

Most ratings listed here apply to a 48-hour exposure period.

Ratings: A - No effect
B - Minor effect
C - Moderate effect
D - Severe effect
φ - No specific data, but probable rating.

Housing Style	ABS	Trog. T	PA 12	PBT	PEI	POM	PP	PTFE	PUR	PVC	PVDF	306 SS	Al	Brass	Zinc
Ammonia, liquid	B	B	A	B	D	C/D	A	A	C	A	A	B	A	D	A
Chlorine anhydrous liquid	nd	nd	D	D	nd	C	D	A	C	D	A	C	D	D	nd
De-ionized water	nd	nd	A	nd	A	nd	A	A	nd	A	A	A	A	A	nd
Formic acid	D	D	D	A	nd	C	A	A	C	A	A	A/B	A	D	D
Gasoline	D	A	A	A	A	A	C	A	A	C	A	A	A	A	nd
Hydrochloric acid <40%	A	A/B	D	A	A	C	C	A	D	B	A	D	D	D	D
Hydrofluoric acid <50%	C	D	D	B	A	D	A	A	C	B	A	D	D	D	nd
Methanol	D	D	B	A	A	A	A	A	B	A	A	A	A	A	A
Phosphoric acid <40%	B(C)	D	B	A	A	D	A	A	Dφ	B	B	D	C	D	D
Potassium hydroxide <15%	A	A	C	B	A	B	A	A	C	A	A	B	D	D	nd
Sodium hydroxide <55%	A	A	C	B	A	B	A	A	B	A	D	B	D	D	D
Sodium hypochlorite ≤13%	B	nd	B	A	nd	C	A	A	B	A	A	C	D	D	A
Sulfuric acid <75%	B	A	D	A	A	D	A	A	C	A	A	D	D	D	D
Toluene	D	A	A	A	A	A	C	A	C	D	A	A	A	A	nd
Trichloroethylene	D	A	C	A	nd	B		A	D	D	B	A/B	D	A	A

We reserve the right to make technical alterations without prior notice.

Maximum Tightening Torque Specifications

The tightening torque should be considered for all threaded sensors to prevent premature failures of sensors due to stresses on the barrel and/or internal electronics. The values below are the absolute maximum ratings and apply only to the mounting hardware provided with each sensor. It is recommended to always allow for tolerances when specifying a tightening torque to prevent accidental over-tightening of the sensor. Liquid thread sealants of an anaerobic base, such as Loctite, are recommended if strong vibrations are likely.

Caution: Sensor barrels are typically brass. Consider break torque when selecting grade of thread sealant.

Barrel Size	Metal Barrel	Plastic Barrel
5 mm	5 Nm (3.7 ft-lb)	- - - -
8 mm	5 Nm (3.7 ft-lb)	- - - -
8 mm (M08 Ferrite)	7 Nm (5.2 ft-lb)	- - - -
12 mm	10 Nm (7.4 ft-lb)	1 Nm (0.7 ft-lb)
18 mm	25 Nm (18 ft-lb)	2 Nm (1.4 ft-lb)
30 mm	75 Nm (55 ft-lb)	5 Nm (3.7 ft-lb)
47 mm	90 Nm (66 ft-lb)	- - - -

Fahrenheit to Celsius Temperature

* Water Freezing Point
** Water Boiling Point
For temperature conversions not given use the following formulas:
°Celsius = (°Fahrenheit - 32) x .556
°Fahrenheit = (°Celsius x 1.8) + 32

Degrees Fahrenheit	Degrees Celsius
-70	-56.7
-65	-53.9
-60	-51.2
-55	-48.4
-50	-45.6
-45	-42.8
-40	-40.0
-35	-37.3
-30	-34.5
-25	-31.7
-20	-28.9
-15	-26.1
-10	-23.4
0	-17.8
5	-15.0
10	-12.2
15	-9.5
20	-6.7
25	-3.9
30	-1.1
*32	*0.0
35	1.7
40	4.4
45	7.2
50	10.0
55	12.8
60	15.6
65	18.3
70	21.1

Degrees Fahrenheit	Degrees Celsius
75	23.9
80	26.7
85	29.2
90	32.2
95	35.0
100	37.8
105	40.6
110	43.4
115	46.1
120	48.9
125	51.7
130	54.5
135	57.3
140	60.0
145	62.8
150	65.6
155	68.4
160	71.2
165	73.9
170	76.7
175	79.5
180	82.3
185	85.1
190	87.8
195	90.6
200	93.4
205	96.2
210	99.0
**212	**100.0

Drill Hole Sizes for Metric Threads

Thread Size	Pitch	Thru Hole (mm)	Tap Hole Dia. (mm)	Thru Hole (in)	Tap Hole Dia. (in)
M5 x 0.5	0.5	5.0	4.5	13/64	5/32
M8 x 1	1.0	8.0	7	21/64	1/4
M12 x 1	1.0	12.0	11	31/64	13/32
M18 x 1	1.0	18.0	17	23/32	41/64
M30 x 1.5	1.5	30.0	28	1-3/16	1-5/64
PG 13.5	1.41	20.4	19	13/16	23/32
PG 36	1.59	47.0	45.5	1-7/8	1-47/64

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Technical Reference | Conversions

Millimeters Equivalents of Decimals and Fractions

Notes:
1M = 100 cm = 1000 mm

For conversions not given use the following formulas:
Millimeters = Inches x 25.4
Inches = Millimeters ÷ 25.4

Millimeters	Inches	Fraction
0.10	0.0039	
0.20	0.0079	
0.30	0.0118	
0.40	0.0157	
0.50	0.0197	
0.60	0.0236	
0.70	0.0276	
0.80	0.0315	
0.90	0.0354	
1.00	0.0394	
1.59	0.0625	1/16
2.00	0.0787	
3.00	0.1181	
3.18	0.1250	1/8
4.00	0.1575	
4.76	0.1875	3/16
5.00	0.1969	
6.00	0.2362	
6.35	0.2500	1/4
7.00	0.2756	
7.94	0.3125	5/16
8.00	0.3150	
9.00	0.3543	
9.53	0.3750	3/8
10.00	0.3937	
11.00	0.4331	
11.11	0.4375	7/16
12.00	0.4724	
12.70	0.5000	1/2
13.00	0.5512	
14.00	0.5512	
14.29	0.5625	9/16
15.00	0.5906	
15.88	0.6250	5/8
16.00	0.6299	
17.00	0.6693	
17.46	0.6875	11/16
18.00	0.7087	
19.00	0.7480	
19.05	0.7500	3/4
20.00	0.7874	

Millimeters	Inches	Fraction
20.64	0.8125	13/16
21.00	0.8268	
22.00	0.8661	
22.23	0.8750	7/8
23.00	0.9055	
23.81	0.9375	15/16
24.00	0.9449	
25.40	1.000	1
26.00	1.024	
27.00	1.063	
28.00	1.102	
29.00	1.142	
30.00	1.181	
31.00	1.220	
32.00	1.260	
33.00	1.299	
34.00	1.339	
35.00	1.378	
36.00	1.417	
37.00	1.457	
38.00	1.496	
39.00	1.535	
40.00	1.575	
41.00	1.614	
42.00	1.654	
43.00	1.693	
44.00	1.732	
45.00	1.772	
46.00	1.811	
47.00	1.850	
48.00	1.890	
49.00	1.929	
50.00	1.969	
51.00	2.008	
52.00	2.047	
53.00	2.087	
54.00	2.126	
55.00	2.165	
56.00	2.205	
57.00	2.244	
58.00	2.283	

Millimeters	Inches	Fraction
59.00	2.323	
60.00	2.362	
61.00	2.402	
62.00	2.441	
63.00	2.480	
64.00	2.520	
65.00	2.559	
66.00	2.598	
67.00	2.638	
68.00	2.677	
69.00	2.717	
70.00	2.756	
71.00	2.795	
72.00	2.835	
73.00	2.874	
74.00	2.913	
75.00	2.953	
76.00	2.992	
77.00	3.031	
78.00	3.071	
79.00	3.110	
80.00	3.150	
81.00	3.189	
82.00	3.228	
83.00	3.268	
84.00	3.307	
85.00	3.346	
86.00	3.386	
87.00	3.425	
88.00	3.465	
89.00	3.504	
90.00	3.543	
91.00	3.583	
92.00	3.622	
93.00	3.661	
94.00	3.701	
95.00	3.740	
96.00	3.780	
97.00	3.819	
98.00	3.858	
99.00	3.898	
100.00	3.937	

We reserve the right to make technical alterations without prior notice.

Axial Approach
The approach of the target with its center maintained on the sensor reference axis.

Axially Polarized Ring Magnet
A ring magnet whose poles are the two flat sides of the disk. Mounted on pistons for permaprox® cylinder position sensing through nonmagnetic cylinder walls.

Capacitive Proximity Sensor
A proximity sensor producing an electrostatic field that senses conductive targets and nonconductive materials having a dielectric constant of >1 within its sensing zone.

Complementary Output
Two outputs, one normally open and one normally closed, that can be used simultaneously.

Continuous Load Current
The maximum current allowed to continuously flow through the sensor output in the ON state.

Correction Factors
Percentage of the rated operating distance (Sn) that represents the operating distance for targets constructed from materials other than mild steel (mild steel's correction factor is 1.0).

Differential Travel (Hysteresis)
The difference between the operating point as the target approaches the sensor face, and the release point as the target moves away. Given as a percentage of the operating distance (Sn).

Dynamic Output
A sensor output that stays energized for a set duration of time, independent of the time the target is present (one-shot).

Embeddable (Shielded) Proximity Sensor
A sensor that can be flush-mounted in any material without that material influencing the sensing characteristics.

Free Zone
The space around a proximity sensor that must be kept free of any material capable of affecting the sensing characteristics.

Inductive Proximity Sensor
A proximity sensor producing an electromagnetic field that senses only metal targets within its sensing zone.

Inductive Magnet Operated Sensor (Permaprox®)
A solid-state proximity sensor using inductive technology to detect magnetic fields, giving a switch point output similar to that of a inductive proximity sensor.

Inrush Current
The maximum instantaneous load current that a sensor can tolerate when switching the output. Commonly seen with capacitive loads.

IP Rating
Ingress Protection rating per IEC 529.

Lateral Approach
The approach of a target perpendicular to the sensor reference axis.

Load
A device or circuit that is operated by the energy output of another device such as a proximity sensor.

M Threading
ISO 68 Metric straight threading, designated as "Nominal Size" X "Pitch", in mm. (Ex. M5X0.5)

Minimum Load Current
For 2-Wire sensors, the minimum load current defines the smallest specified current that a sensor requires for reliable operation.

NAMUR
The acronym for a European standards organization.

NAMUR Sensor
A 2-wire variable-resistance DC sensor whose operating characteristics conform to DIN 19 234. Requires a remote amplifier for operation. Typically used for intrinsically safe applications.

NEMA Rating
An enclosure rating per NEMA Standard 250.

No-Load Current
The current drawn by a DC proximity sensor from the power supply when the outputs are not connected to a load.

Nonembeddable (Nonshielded) Proximity Sensor
A sensor is nonembeddable when a specified free zone must be maintained around its sensing face in order not to influence the sensing characteristics.

Normally Closed (N.C.)
The output is OFF when the target is detected by the sensor.

Normally Open (N.O.)
The output is ON when the target is detected by the sensor.

NPN Output (Current Sinking)
A transistor output that switches the common or negative voltage to the load. Load is between sensor and positive supply voltage.

NPSM Threading
American National Standard Straight Pipe Thread for Free-Fitting Mechanical Parts.

NPT Threading
American National Standard Taper Pipe Thread.

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Technical Reference | Glossary

Off-State (Leakage) Current
The current that flows through the load circuit when the sensor is in the OFF-state. Also known as leakage or residual current.

Operating Distance
A distance at which the target approaching the sensing face along the reference axis causes the output signal to change.

PG Threading
Steel conduit threading per German standard DIN 40 430.

PNP Output (Current Sourcing)
Transistor output that switches the positive voltage to the load. Load is between sensor and common.

Programmable Output
Sensor output whose N.O. or N.C. function can be selected by means of a jumper or specific terminal connection.

Radially Polarized Ring Magnet
A ring magnet whose poles are the inner and outer diameter rings.

Rated Operating Distance (Sn)
A conventional quantity used to designate the operating distance. It does not take into account either manufacturing tolerances or variations due to external conditions such as operating voltage and temperature.

Reference Axis
An axis perpendicular to the sensing face and passing through its center.

Repeatability
The deviation in the actual operating distance measured at a constant temperature and voltage over an 8-hour period. It is expressed as a percentage (%) of the rated operating distance (Sn).

Response frequency
The maximum rate that the output can change in response to the input and still maintain linearity.

Response Time
The time required for the device switching element to respond after the target enters or exits the sensing zone.

Reverse Polarity Protection
Internal components that prevent damage to the sensor due to the incorrect connection of the power supply.

Ripple
The alternating component remaining on a DC signal after rectifying, expressed in percentage of rated voltage.

Sensing Face
The surface of the proximity sensor through which the electromagnetic (or electrostatic) field emerges.

Short-Circuit Protection
The ability of a sensor to withstand a shorted condition (no current-limiting load connected) without damage.

Slew Rate
The rate of change of the output voltage with respect to a step change in input. A change in output of 0 to 10 volts at a slew rate of 1.25 V/ms would take 8 ms to slew to the new value.

Solid State
Pertains to devices using semiconductors instead of mechanical parts.

Static Output
A sensor output that stays energized as long as the target is present.

Switching Frequency
The maximum number of times per second that the sensor can change state (ON and OFF) under ideal conditions, usually expressed in Hertz (Hz).

Time-Delay Before Availability
The length of time after power is applied to the sensor before it is ready to operate correctly, expressed in milliseconds (ms).

Uprox Sensor®
An inductive proximity sensor that detects all metals at the same range. Uprox sensors are inherently weld-field immune, operate over a wider temperature range and have a higher switching frequency than standard inductive sensors.

Uprox+ Sensor®
Same basic characteristics as the Uprox Sensor, but with a redesigned multi coil system which provides increased sensing capabilities. Uprox+ also carries an IP68 environmental rating

Weld-Field Immunity (WFI)
The ability of a sensor not to false-trigger in the presence of strong magnetic fields typically produced by resistance welders.

Wire-Break Protection
Results in the output being OFF on a DC sensor if either supply wire is broken.

We reserve the right to make technical alterations without prior notice.

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Warranty Terms and Conditions

RISK OF LOSS

Delivery of the equipment to a common carrier shall constitute delivery to the Purchaser and the risk of loss shall transfer at that time to Purchaser. Should delivery be delayed due to an act or omission on the part of the Purchaser, risk of loss shall transfer to the Purchaser upon notification by Turck Inc. that the order is complete and ready for shipment.

WARRANTIES

Turck Inc. (hereinafter "Turck") offers five (5) WARRANTIES to cover all products sold. They are as follows:

1) The **12-MONTH WARRANTY** is available for the products listed - generally those not covered by **LIFETIME**, **5-YEAR**, **24-MONTH** or **18-MONTH** warranty. No registration required.
2) The **18-MONTH WARRANTY** is available for the products listed - generally those not covered by **LIFETIME** or **5-YEAR WARRANTY**. No registration is required.
3) The **24-MONTH WARRANTY** is available for the products listed - generally those not covered by **LIFETIME**, **5-YEAR** or **18-MONTH**. No registration is required.
4) The **5-YEAR WARRANTY** is available generally for the products listed. No registration is required.
5) A **LIFETIME WARRANTY** is available for the products listed. It becomes effective when the accompanying TURCK **LIFETIME WARRANTY REGISTRATION** is completed and returned to Turck.

GENERAL TERMS AND CONDITIONS FOR ALL WARRANTIES

- **12-MONTH STANDARD WARRANTY**
- **18-MONTH STANDARD WARRANTY**
- **24-MONTH STANDARD WARRANTY**
- **5-YEAR WARRANTY**
- **LIFETIME WARRANTY**

Turck warrants the Products covered by the respective WARRANTY AGREEMENTS to be free from defects in material and workmanship under normal and proper usage for the respective time periods listed above from the date of shipment from Turck. In addition, certain specific terms apply to the various WARRANTIES.

THESE EXPRESS WARRANTIES ARE IN LIEU OF AND EXCLUDE ALL OTHER REPRESENTATIONS MADE - BOTH EXPRESSED AND IMPLIED. THERE ARE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE FOR PRODUCTS COVERED BY THESE TERMS AND CONDITIONS.

Turck warrants that the goods sold are as described, but no promise, description, affirmation of fact, sample model or representation, oral or written shall be part of an order, unless set forth in these terms and conditions, or are in writing and signed by an authorized representative of Turck. These WARRANTIES do not apply to any Product which has been subject to misuse, negligence, or accident - or to any Product which has been modified or repaired, improperly installed, altered, or disassembled - except according to Turck's written instructions.

These WARRANTIES are subject to the following conditions:

1) These WARRANTIES are limited to the electronic and mechanical performance only, as expressly detailed in the Product specifications and NOT to cosmetic performance.
2) These WARRANTIES shall not apply to any cables attached to, or integrated with the Product. However, the **18-MONTH WARRANTY** shall apply to cables sold separately by Turck.
3) These WARRANTIES shall not apply to any Products which are stored, or utilized, in harsh environmental or electrical conditions outside Turck's written specifications.
4) The WARRANTIES are applicable only to Products shipped from Turck subsequent to January 1, 1988.

ADDITIONAL SPECIFIC TERMS FOR:

(12-MONTH STANDARD WARRANTY) for Linear Displacement Transducers, EZ Track, RFID Products, Draw Wire Assemblies and Slip Rings.

(18-MONTH STANDARD WARRANTY) FOR Q-TRACK INDUCTIVE SENSORS, ULTRASONIC SENSORS, FLOW SENSORS, PRESSURE SENSORS, TEMPERATURE SENSORS, INCLINOMETERS, CABLES AND ALL NON-SENSING PRODUCTS SOLD BY TURCK INC. INCLUDING MULTI-SAFE, MULTI-MODUL, MULTI-CART AND RELATED AMPLIFIER PRODUCTS, RELAYS AND TIMERS.

(24-MONTH STANDARD WARRANTY) FOR ENCODERS excluding Draw Wire Assemblies.

5-YEAR WARRANTY FOR INDUCTIVE AND CAPACITIVE PROXIMITY SENSORS: The periods covered for the above WARRANTIES and Products shall be 12 MONTHS, 18-MONTHS, 24-MONTHS and 5-YEARS, respectively, from the date of shipment from Turck.

LIFETIME WARRANTY (OPTIONAL - REGISTRATION REQUIRED) FOR INDUCTIVE, INDUCTIVE MAGNET OPERATED AND CAPACITIVE PROXIMITY SENSORS SOLD TO THE ORIGINAL PURCHASER FOR THE LIFETIME OF THE ORIGINAL APPLICATION.

Warranty Terms and Conditions

THE FOLLOWING TERMS APPLY TO THE LIFETIME WARRANTY IN ADDITION TO THE GENERAL TERMS:

1) This WARRANTY shall be effective only when the LIFETIME WARRANTY REGISTRATION has been completed, signed by the End User and an authorized Turck Representative or Distributor and has been received by Turck no later than six (6) months after installation in the End User's Plant, or two (2) years from the date product was shipped from Turck, whichever is sooner.
2) This warranty is available only to Turck's authorized Representatives, Distributors and to the Original User. (The term "Original User" means that person, firm, or corporation which first uses the Product on a continuous basis in connection with the operation of a production line, piece of machinery, equipment, or similar device.) In the event the ownership of the product is transferred to a person, firm or corporation other than the Original User, this WARRANTY shall terminate.
3) This WARRANTY is applicable only to the Original Application. In the event the machinery, equipment, or production line to which the Product is connected, or on which it is installed, is substituted, changed, moved or replaced, the WARRANTY shall terminate.
4) This WARRANTY shall be valid only if the Product was purchased by the Original User from Turck, or from an authorized Turck Distributor, or was an integral part of a piece of machinery and equipment obtained by the Original user from an Original Equipment Manufacturer, which itself, was purchased directly from Turck or from an authorized Distributor.

PURCHASER'S REMEDIES

This Remedy shall apply to all WARRANTIES. If a Turck Distributor desires to make a WARRANTY Claim, the Distributor shall, if requested by Turck, ship the Product to Turck's factory in Minneapolis, Minnesota, postage or freight prepaid. If the User desires to make a WARRANTY Claim, they shall notify the authorized Turck Distributor from whom it was purchased or, if such Distributor is unknown, shall notify Turck. Turck shall, at its option, take any of the following two courses of action for any products which Turck determines are defective in materials or workmanship.

1) Repair or replace the Product and ship the Product to the Original Purchaser or to the authorized Turck Distributor, postage or freight prepaid; or
2) Repay to the Original Purchaser that price paid by the Original Purchaser; provided that if the claim is made under the LIFETIME WARRANTY, and such Product is not then being manufactured by Turck, then the amount to be repaid by Turck to the Original Purchaser shall be reduced according to the following schedule:

Number of Years Since Date of Purchase by Original Purchaser	Percent of Original Purchase Price To Be Paid by Turck
10	50%
15	25%
20	10%
More than 20	5%

PURCHASER'S REMEDIES SHALL BE LIMITED EXCLUSIVELY TO THE RIGHT OF REPLACEMENT, REPAIR OR REPAYMENT AS PROVIDED AND DOES NOT INCLUDE ANY LABOR COST OR REPLACEMENT AT ORIGINAL PURCHASER'S SITE. TURCK SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF ANY WARRANTY, EXPRESSED OR IMPLIED, APPLICABLE TO THE PRODUCT, INCLUDING WITHOUT LIMITATION, ANY DAMAGES RESULTING FROM PROPERTY DAMAGE, PERSONAL INJURY OR BUSINESS INTERRUPTION.

CONSIDER SAFETY AND PROTECTION PRECAUTIONS

Turck takes great care to design and build reliable and dependable products, however, some products can fail eventually. You must take precautions to design your equipment to prevent property damage and personal injury in the unlikely event of failure. As a matter of policy, Turck does NOT recommend the installation of electronic controls as the sole device FOR THE PROTECTION OF PERSONNEL in connection with power driven presses, brakes, shears and similar equipment and, therefore, the customer should build in redundancy or dual control using approved safety devices for these applications.

Your Global Automation Partner

TURCK

Sensors Catalog
Proximity

A Global Leader in Industrial Automation

Turck's sensors, connectivity, and fieldbus technology products are built to be the best. As one of the most **prominent** sensor manufacturers **in the world**, we even back our sensors with a **lifetime warranty**. Turck works by bringing **rugged engineering** solutions to your industrial automation applications.

85,000+ SOLUTIONS

50+ YEARS OF INNOVATION

2,000+ EXPERIENCED SALES REPRESENTATIVES

Pioneer in non-contact **sensing** technology

Developed innovative **connectivity** solutions in response to our customers' needs

Recognized the need for advanced **I/O solutions** in harsh duty environments

SUPPORT & DEDICATED SERVICE

EXTENSIVE WARRANTY

4,000+ APPLICATION EXPERTS

RESPOND and SOLVE over **1,200** inquiries per day

Strategically placed manufacturing facilities in the **USA** with **28** GLOBAL SUBSIDIARIES

GLOBAL BUT LOCAL...

60 representations worldwide

Innovative Sensing Solutions

At Turck, we understand that every application is unique, which is why we dedicate ourselves to finding the optimal engineered solution for all applications. Whether you need a sensor, cordset, or network I/O, Turck's range of innovative manufacturing capabilities and engineering expertise allows us to work beyond the scope of our competitors. We utilize the most up-to-date manufacturing processes, including EDM, molding, and laser trimming, ensuring that our products not only survive, but thrive in the harshest of conditions.

Complimentary Sensor Audits

We consider it our job to help our customers decrease failures and reduce operation downtime, which is why we offer a complimentary audit program. The audit helps to identify, evaluate, and solve problem areas where sensors and cordsets are continually damaged or destroyed. This reduction in downtime will reduce your costs and ensure you get the most value out of your production processes.

Lifetime Warranty

We have the utmost confidence in our products, and you should, too! Solutions from Turck are not only built to work, but built to last. All of our products come with extensive warranties, and many of our sensors have an optional lifetime warranty against sensor failure, so you can rest easy knowing that you have invested in a dependable solution.

GLOBAL LEADERS

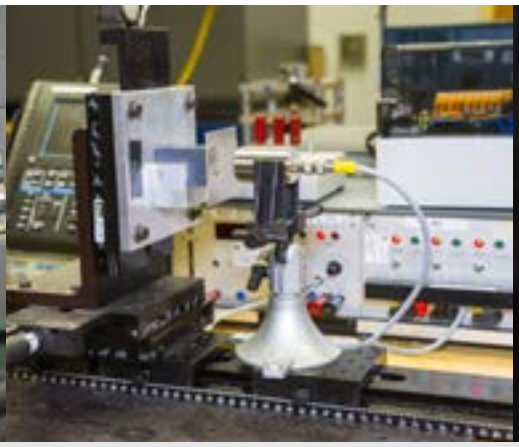
PROVIDING CUSTOMERS WITH SENSING SOLUTIONS

- Sensing ranges from .08 – 100 mm
- Overmolds
- Custom designed sensor housings
- Pigtails / Mold-ons
- Mating cordsets
- Free software and support
- Wide range of accessories
- Kitting

MATERIALS

BUILT TO LAST IN THE HARSHEST ENVIRONMENTS

- Stainless steel
- Overmolds
- Viton
- PUR/TPU/TPE
- Armored Cable
- PTFE and Weldguard coating
- FDA Approved Washdown



SHIPPING

SHIP ONE-TO-ONE MILLION, WITH NO LIMIT

We understand that some applications require less parts, which is why we offer flexible minimum orders to ensure you only receive the number of parts you need.

TESTING

OUR PRODUCTS UNDERGO EXTENSIVE TESTING

To continuously deliver solutions of only the highest quality, Turck products undergo a rigorous set of tests. These tests are in accordance to national and international standards, such as IEC and UL. Our products meet and exceed industry standards, ensuring their survivability and dependability in all applications.

INVENTORY

USE TURCKS VAST NETWORK OF DISTRIBUTORS, OR...

Get immediate access to your Turck products with your own on-site Turck vending machine. Convenient access to your most used products can help save money and reduce downtime.

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Rectangular Inductive Sensor Selection Guide

Rectangular Style Sensors					
Housing	4.7 mm	5.5 mm	6 mm	8 mm	10 mm
Sensing Range	2 mm	2 - 3.5 mm	3 mm	5 - 8 mm	2 - 5 mm
Pages	A11	A11	A11	A13 - 16	A17
Features				Uprox+	Uprox+

Rectangular Style Sensors					
Housing	Variable, with pigtail	10 mm	12 mm	14 mm	20 mm
Sensing Range	2 - 7 mm	2 - 4 mm	2 - 5 mm	10 - 20 mm	15 - 25 mm
Pages	A19	A21	A23	A25	A27 - 30
Features			Uprox+		

Rectangular Style Sensors					
Housing	18 mm	25 mm	30 mm	40 mm	40 mm
Sensing Range	5 - 10 mm	10 mm	15 mm	20 mm	15 - 50 mm
Pages	A31	A31	A31	A33	A35 - 40
Features				Uprox+	Uprox+

Rectangular Style Sensors					
					IS
Housing	40 mm	80 mm	80 mm	90 mm	Variable
Sensing Range	15 - 50 mm	40 - 75 mm	50 - 75 mm	60 - 100 mm	2 - 50 mm
Pages	A41 - 46	A47 - 50	A51	A53	A55 - 58
Features	Uprox+	Uprox+	Uprox+		Intrinsically Safe

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensor Part Number Key

B	i	15		-	Q	20		-	A	P	6	X2	Wiring Option*	Special Option Code**

Mounting
B = embeddable
N = nonembeddable

Principle of Operation
i = inductive

Rated Operating Distance (mm)

Sensing Characteristics
S = side sensing on Q10S sensor
U = Uprox® Sensor

Housing Style
Rectangular
K = smooth
Q = metal or plastic, various rectangular styles
Limit Switch
CA = Stubby®, short aluminum housing, connector
CK = Stubby, short plastic housing, connector
CP = Combiprox®, plastic housing, terminal chamber base with removable sensor

Housing Height (mm)

Number of LEDs
(blank) = no LEDs
X = 1 LED
X2 = 2 LEDs

Voltage Range
AC/DC: (No SCP)**
3 = 20-250 VAC, 10-300 VDC
31 = 20-250 VAC, 10-300 VDC, plastic barrel
AC/DC: (Latched SCP)
30 = 20-250 VAC, 10-300 VDC 400 mA
32 = 20-250 VAC, 10-300 VDC 400 mA
DC:
4 = 10-65 VDC, polarity protected, pulsed SCP**
6 = 10-30 VDC, polarity protected, pulsed SCP
**SCP = short-circuit and overload protection

Output
D = 2-wire DC (transistor output)
DZ = 2-wire AC/DC, (power MOSFET output)
N = NPN transistor (current sinking)
P = PNP transistor (current sourcing)
Z = 2-wire AC or 2-wire AC/DC

Output Function
A = normally open (N.O.)
F = connection programmable (N.O. or N.C.)
V = complementary outputs: one N.O., one N.C.
Y0 = NAMUR output, requires switching amplifier
Y1 = NAMUR output, requires switching amplifier/ATEX approved

Secondary Housing Modifier
SR = straight terminal chamber

NOTE:
Part number keys are to assist in identification only.
Verify new part numbers with factory; some configurations are not possible.

Wiring Options*

A. Connectorized Sensor

Bi15 - Q20 - AN6X2 - H1 1 4 1

Connector Family
B1 = Minifast®, Metal, Male
B2 = Minifast, Plastic, Male
B3 = Microfast®, Metal, Male
H1 = Eurofast®, Metal or Plastic, Male
V1 = Picofast®, Metal, Male
V2 = Picofast, Snap and M8x1, Male (Q08 Only)

Connector/Sensor Transition
1 = straight

Wiring Configuration
Example:
1 = Standard
3 = N.C. DC Output on Pin 4 (for US)

Number of Pins

B. Potted Cable

Bi15 - Q20 - AN6X2 - 7M

Cable Length
Blank = 2 meter cable
7M = 7 meter cable

Special Option Codes**

Bi - 5 - Q08 - AN6XS /S34

Option Code
Example:
/S34 = Weld Field Immune
/S97 = -40 °C (-40 °F) Operating Temperature
/S100 = +100 °C (+212 °F) Operating Temperature
/S1590 = CK/CA40 sensors with Weldguard laminate
/S1591 = CA40 sensors with Weldguard and Armorguard

We reserve the right to make technical alterations without prior notice.

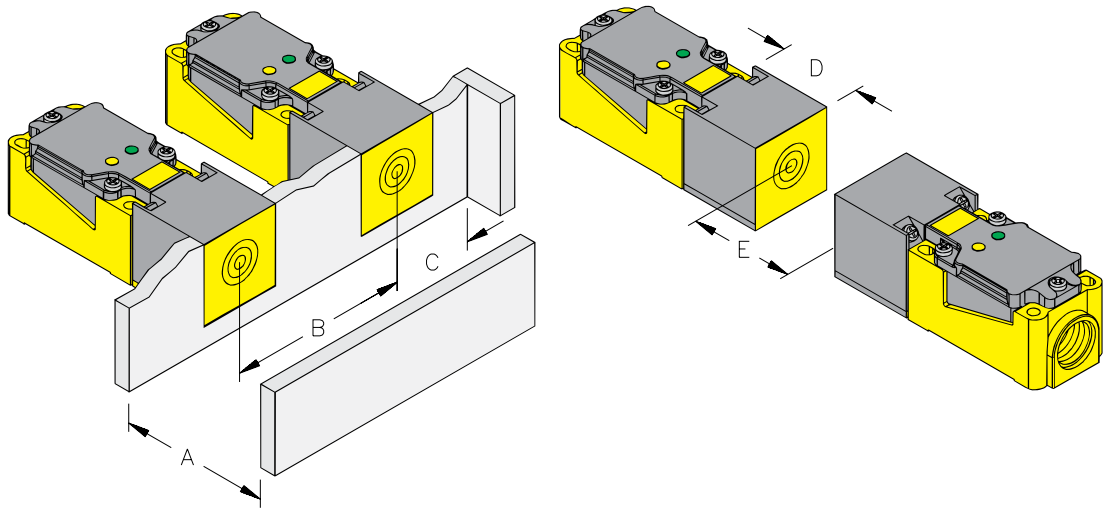
Rectangular Inductive Sensors

Mounting

Turck inductive proximity sensors are manufactured with a shielded coil, designated by "Bi" in the part number, and a nonshielded coil, designated by "Ni" in the part number (see page A2). Embeddable (shielded) units may be safely flush-mounted in metal. Nonembeddable (nonshielded) units require a metal free area around the sensing face. Because of possible interference of the electromagnetic fields generated by the oscillators, minimum spacing is required between adjacent or opposing sensors.

It is good engineering practice to mount sensors horizontally or with the sensing face looking down. Avoid sensors that look up wherever possible, especially if metal filings and chips are present.

Embeddable Mounting Characteristics - Rectangular Housings



Flush Mountable - CK40 and CP40

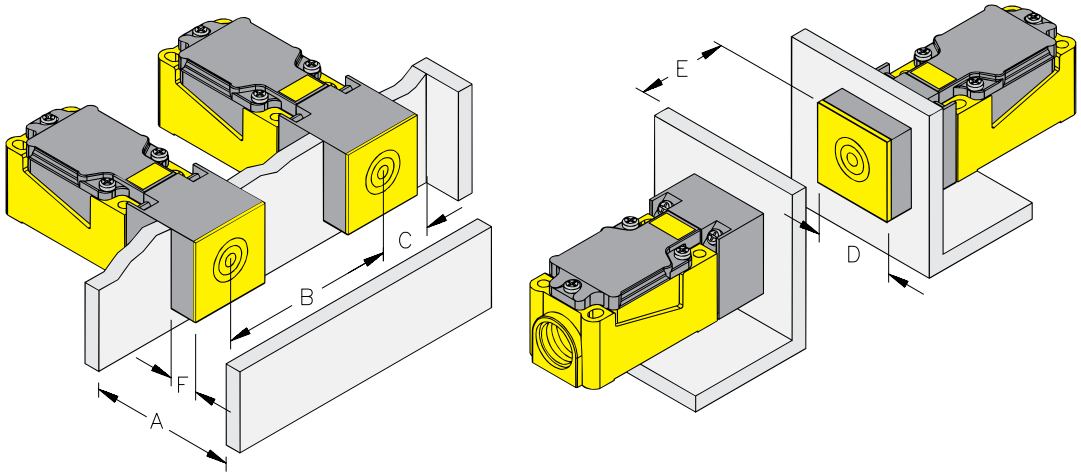
Housing Type	Sensor Type	A	B	C	D	E
CP40/CK40	Bi15U	45.00	80.00	40.00	40.00	90.00
CP40/CK40	Bi15	45.00	80.00	40.00	40.00	90.00
CP40/CK40/CA40	Bi20U	60.00	80.00	40.00	40.00	120.00
CP40	Bi20	60.00	80.00	40.00	40.00	120.00
CP40/CK40	Bi30U	90.00	80.00	40.00	40.00	180.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors

Nonembeddable Mounting Characteristics - Rectangular Housings

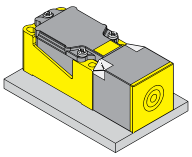


Non - Flush Mountable - CA25, CK40, and CP40

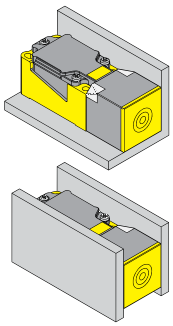
Housing Type	Sensor Type	A	B	C	D	E	F	1-Side	2-Side	3-Side	4-Side
CP/CK40	Ni20	60.00	120.00	60.00	40.00	120.00	20.00				
CP/CK40	Ni25U	75.00	240.00	60.00	40.00	150.00	30.00	Sr=22 mm*	Sr=20 mm*	Sr=17 mm*	Sr=13 mm*
CP/CK40	Ni25	75.00	120.00	60.00	40.00	150.00	40.00				
CP/CK40	Ni35U	105.00	240.00	60.00	40.00	210.00	30.00	Sr=28 mm*	Sr=24 mm*	Sr=19 mm*	
CP/CK40	Ni35	105.00	180.00	60.00	40.00	210.00	40.00				
CP/CK40	Ni40U	120.00	240.00	60.00	40.00	240.00	30.00				
CP/CK40	Ni40	120.00	180.00	60.00	40.00	240.00	40.00				
CP/CK40	Ni50U	105.00	240.00	60.00	40.00	240.00	30.00	Sr=35 mm*	Sr=25 mm*	Sr=20 mm*	Sr=15 mm*

Dimensions are in mm.
*Uprox Non-embeddable flush mounting guidelines. The above Uprox Ni sensors with DC ouptuts can be flush mounted because the sensor automatically compensates for metal alongside its sensing face by decreasing the sensing range, preventing the output from locking on.

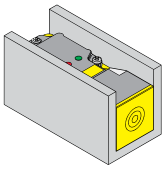
1-Side



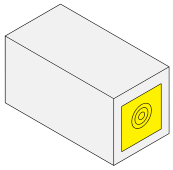
2-Side



3-Side

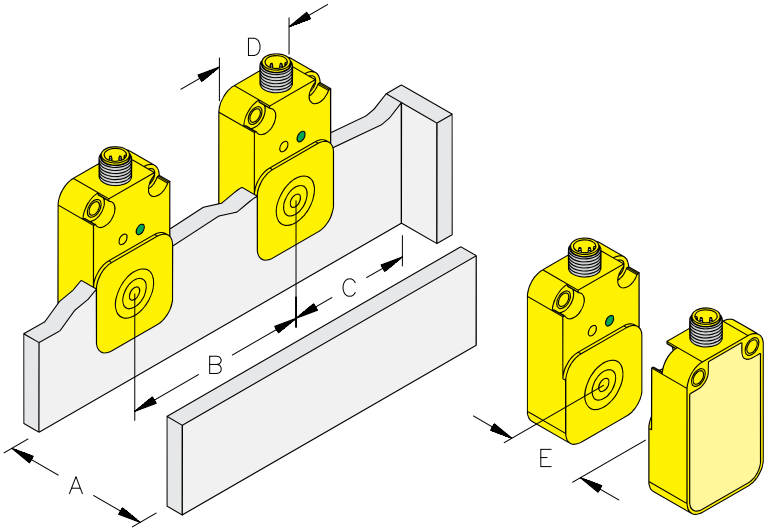


4-Side



We reserve the right to make technical alterations without prior notice.

Embeddable Mounting Characteristics - Rectangular Housings



Flush Mountable

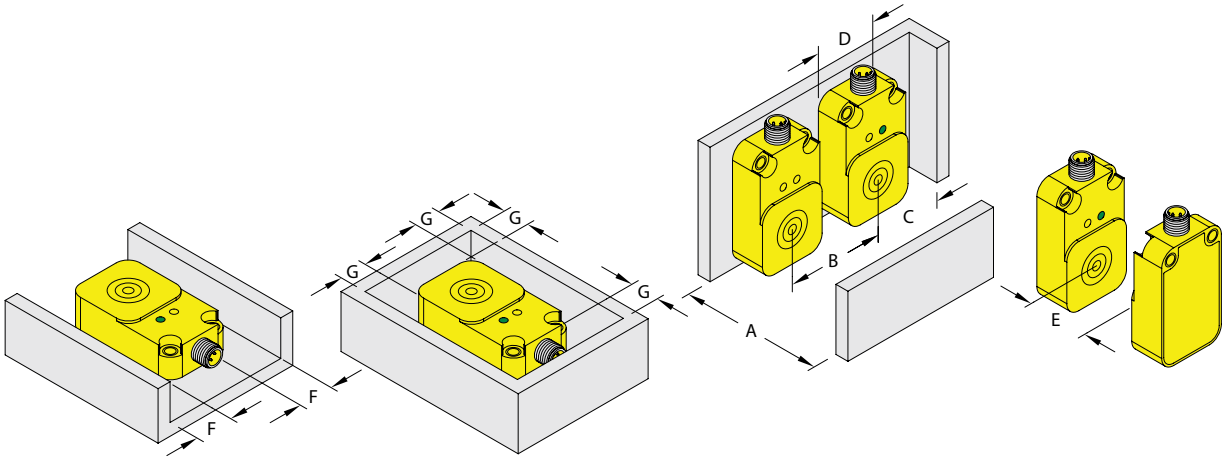
Housing Type	Sensor Type	A	B	C	D	E
Q4.7	**Bi2**	6.00	16.00	12.00	8.00	12.00
Q5.5	**Bi2**	6.00	16.00	8.00	8.00	12.00
Q06	**Bi3**	9.00	35.00	17.00	17.30	18.00
Q08	**Bi5**	15.00	40.00	20.00	20.00	30.00
Q08	**Bi5U**	15.00	40.00	20.00	20.00	30.00
Q08	**Bi7**	21.00	40.00	20.00	20.00	42.00
Q10	**Bi8**	24.00	50.00	25.00	25.00	48.00
Q10	**Bi8U**	24.00	50.00	25.00	25.00	48.00
Q14	**Bi10**	30.00	45.00	30.00	30.00	60.00
Q14	**Bi10U**	30.00	45.00	30.00	30.00	60.00
Q20	**Bi15**	45.00	60.00	40.00	40.00	90.00
Q20	**Bi15U**	45.00	60.00	40.00	40.00	90.00
CP80	**Bi40**	120.00	160.00	80.00	80.00	240.00
Q80	**Bi50U**	150.00	240.00	80.00	80.00	300.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors

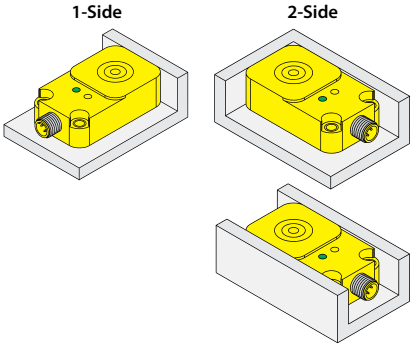
Embeddable Mounting Characteristics - Rectangular Housings



Non-flush Mountable - Minimum Distances - Q5.5, Q14, Q20, CP80, Q80 and K90

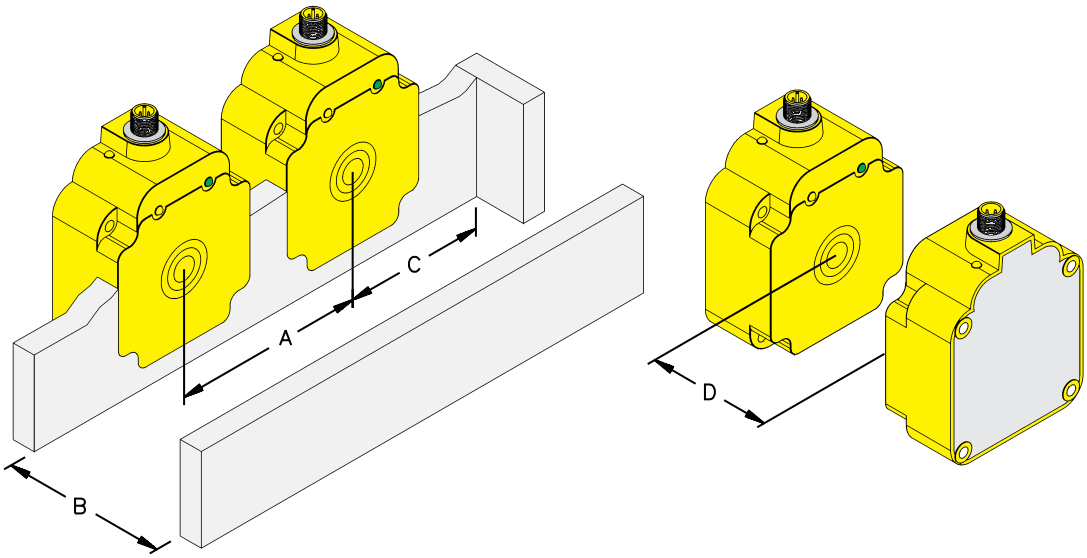
Housing Type	Sensor Type	A	B	C	D	E	F	G	1-Side	2-Side	3 & 4-Side
Q5.5	Ni3.5	11.00	24.00	12.00	8.00	21.00	4.00	8.00			
Q14	Ni20	60.00	90.00	45.00	30.00	120.00	20.00	40.00			
Q20	Ni25	75.00	120.00	60.00	40.00	150.00	25.00	50.00			
CP80	Ni40	120.00	240.00	120.00	80.00	240.00	80.00	80.00			
Q80	Ni75U	225.00	240.00	60.00	80.00	450.00	80.00	80.00	Sr=50 mm*	Sr=45 mm*	Sr=40 mm*
CP80	Ni75U	225.00	240.00	120.00	80.00	450.00	80.00	80.00			
K90	Ni60	180.00	270.00	135.00	90.00	360.00	60.00	90.00			
K90SR	Ni100U	300.00	270.00	90.00	90.00	600.00	100.00	200.00	Sr=70 mm*		

Dimensions are in mm.
*Uprox Non-embeddable flush mounting guidelines. The above Uprox Ni sensors with DC ouputs can be flush mounted because the sensor automatically compensates for metal alongside its sensing face by decreasing the sensing range, preventing the output from locking on.



We reserve the right to make technical alterations without prior notice.

Embeddable Mounting Characteristics

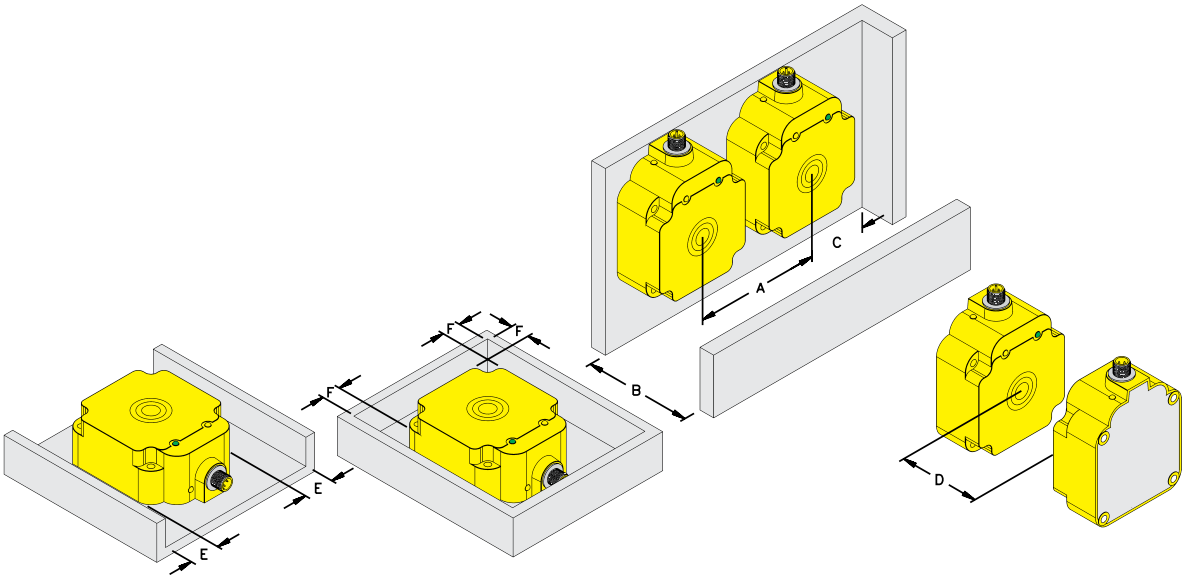


Embeddable, Square Sensors

Part Number	A	B	C	D
Bi50U-Q80	240.00	150.00	80.00	300.00

Dimensions are in mm.

Nonembeddable Mounting Characteristics



Nonembeddable, Square Sensors

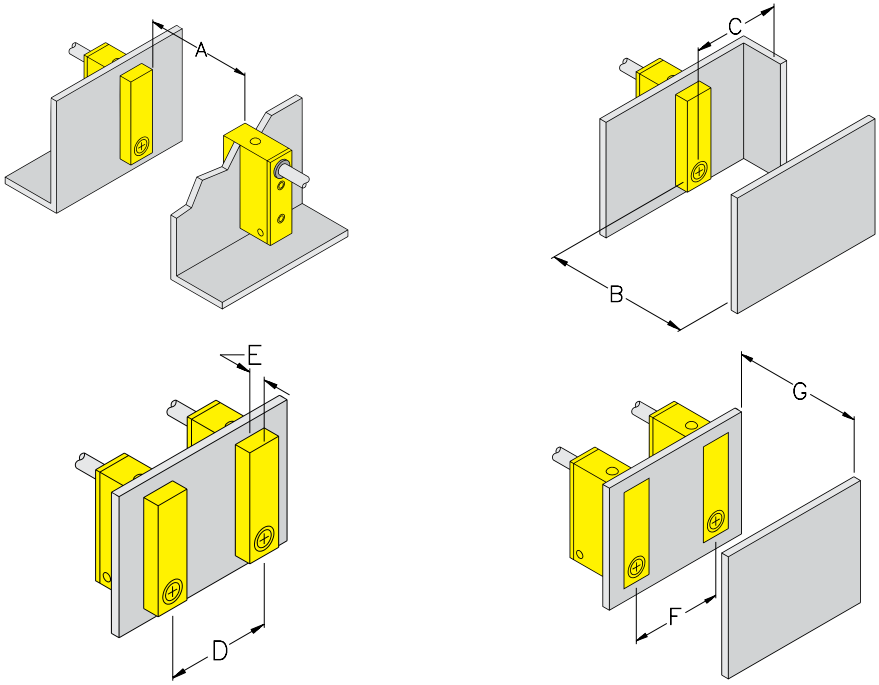
Part Number	A	B	C	D	E	F
Ni75U-Q80	240.00	225.00	60.00	450.00	80.00	80.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors

Embeddable Mounting Characteristics - Rectangular Housings



Flush Mountable

Housing Type	Sensor Type	Housing	A	C	F	G
Q6.5	Bi1	6.50	6.00	7.00	13.00	3.00
Q10S	Bi2	10.00	12.00	10.00	20.00	6.00
Q12	Bi2	12.00	12.00	12.00	24.00	6.00

Dimensions are in mm.

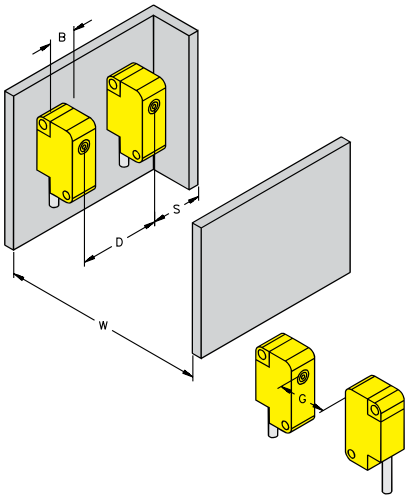
Non-Flush Mountable

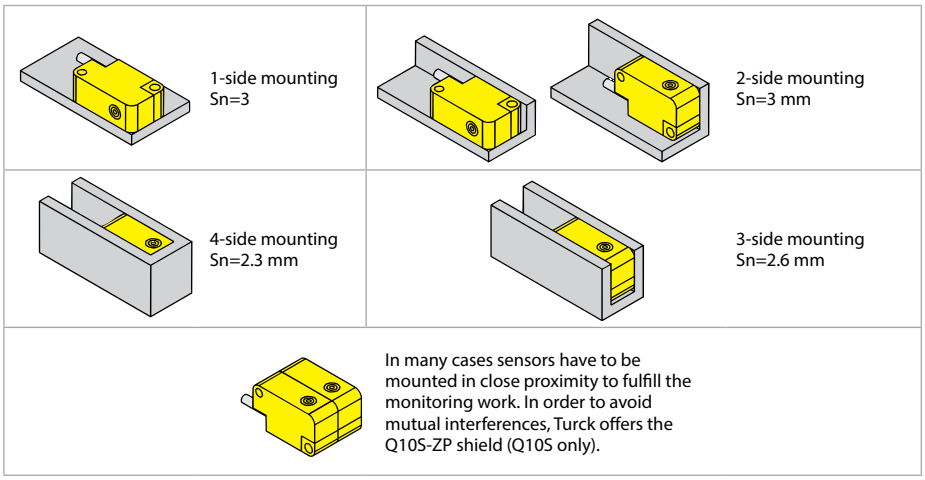
Housing Type	Sensor Type	Housing	A	B	C	D	E
Q6.5	Ni2	6.50	12.00	6.00	10.00	20.00	4.00
Q9.5	Ni2	9.50	12.00	6.00	14.00	19.00	4.00
Q12	Ni4	12.00	24.00	12.00	18.00	24.00	8.00
Q25	Ni10	25.00	60.00	30.00	38.00	75.00	20.00
Q30	Ni15	30.00	90.00	45.00	45.00	90.00	30.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

Embeddable Mounting Characteristics

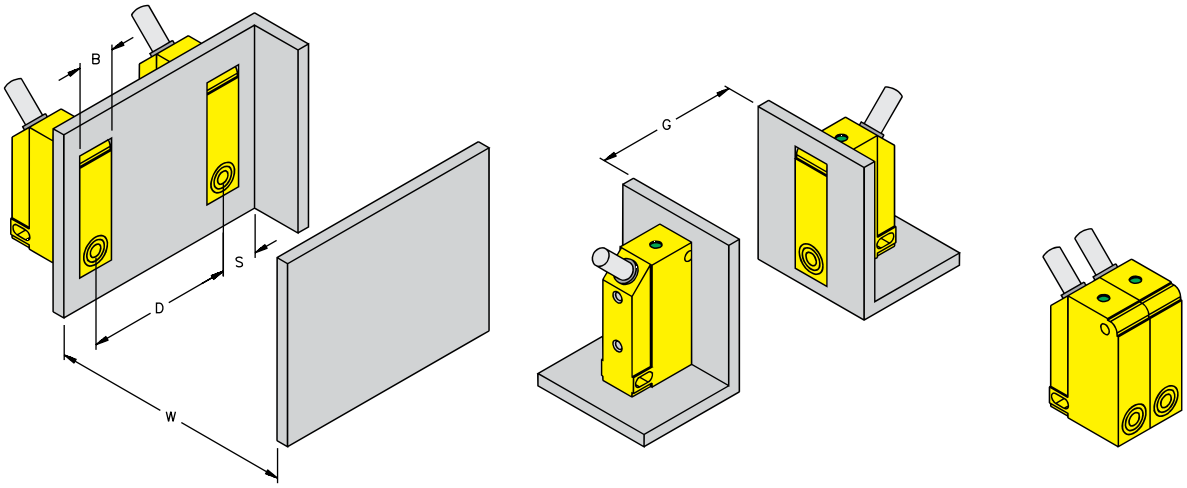




Nonembeddable, Square Sensors

Part Number	D	W	S	G	B Width of Active Face
Ni5U-Q10S	31.00	15.00	15.30	30.00	10.20

Dimensions are in mm.



Embeddable, Square Sensors

Part Number	D	W	S	G	B Width of Active Face
Bi5U-Q12	48.00	25.00	12.00	50.00	12.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

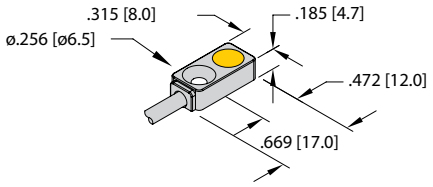
Notes

Rectangular Inductive Sensors | Q4.7, Q5.5, & Q06

Top Sensing Subminiature Qpak Housing

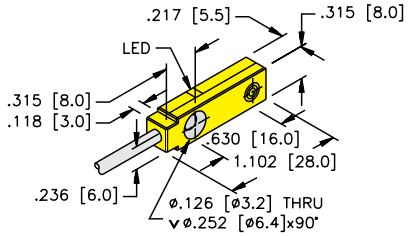
Housing Style	Dimension Drawings

A



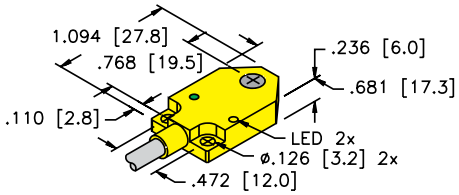
4.7 mm - Embeddable, Potted-In Cable

B



5.5 mm - Embeddable/Nonembeddable, Potted-In Cable

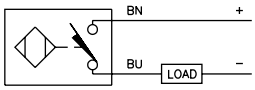
C



6.0 mm - Embeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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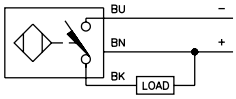

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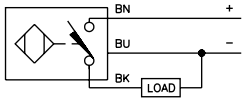


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q4.7, Q5.5, & Q06

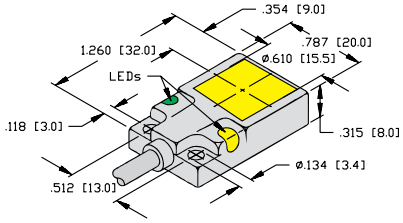
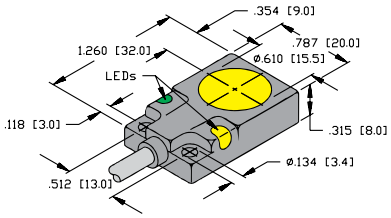
Top Sensing Subminiature Qpak Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-Q4.7-AN6X 1614001		•	2	3-wire DC NPN	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	2M/TPU	A	2	A4
Bi2-Q4.7-AP6X 1614000		•	2	3-wire DC NPN	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	2M/TPU	A	3	A4
Bi2-Q5.5-AG6X 1613108		•	2	2-wire DC	10-30 VDC	1000	≤50	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	1	A2
Bi2-Q5.5-AN6X 1613100		•	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	2M/TPU	B	2	A4
Bi2-Q5.5-AN6X/S34 1613101	WFI	•	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	2	A4
Ni3.5-Q5.5-AN6X 4613610			3.5	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	2	A4
Bi2-Q5.5-AP6X 1613000		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	2M/TPU	B	3	A4
Bi2-Q5.5-AP6X/S34 1613001	WFI	•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	3	A4
Ni3.5-Q5.5-AP6X 4613601			3.5	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	B	3	A4
Bi3-Q06-AN6X2 1620150		•	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PBT	PA	GN	YE	2M/TPU	C	2	A4
Bi3-Q06-AP6X2 1620100		•	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PBT	PA	GN	YE	2M/TPU	C	3	A4

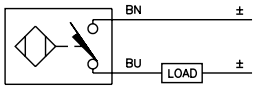
We reserve the right to make technical alterations without prior notice.

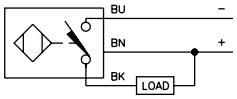
Rectangular Inductive Sensors | Q08

Top Sensing Qpak Housing with Potted-in Cable

Housing Style	Dimension Drawings
	A  8.0 mm - Embeddable, Potted-In Cable
B  8.0 mm - Embeddable, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1


2


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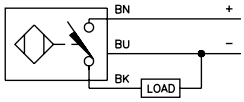

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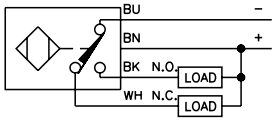

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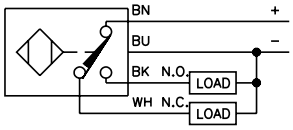


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q08

Top Sensing Qpak Housing with Potted-in Cable

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-Q08-AN6X2 1608911	Uprox	•	5	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	2	A4
Bi5U-Q08-AP6X2 1608901	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	3	A4
Bi5-Q08-AD4X/S34 4414550	WFI	•	5	2-wire DC	10-65 VDC	50	≤100	-25 to +70	IP67	Zinc	PA 12	N/A	YE	2M/TPU	B	1	A2
Bi5-Q08-VN6X2 1600200	Comp. Outputs	•	5	4-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	4	A4
Bi5-Q08-VP6X2 1600100	Comp. Outputs	•	5	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	5	A4
Bi7-Q08-AN6X2 1601620	Ext. Range	•	7	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	2	A4
Bi7-Q08-AP6X2 1601600	Ext. Range	•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	3	A4
Bi7-Q08-VN6X2 1600920	Ext. Range	•	7	4-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	4	A4
Bi7-Q08-VP6X2 1600900	Ext. Range	•	7	4-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	B	5	A4
Bi8U-Q08-AN6X2 1662007	Uprox+	•	8	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA12	GN	YE	2M/TPU	A	2	A4
Bi8U-Q08-AP6X2 1662006	Uprox+	•	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA12	GN	YE	2M/TPU	A	3	A4

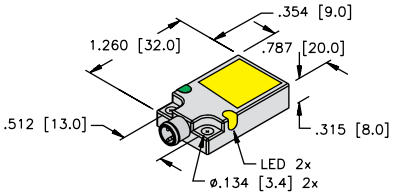
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q08

Top Sensing Qpak Housing with Integral Connector

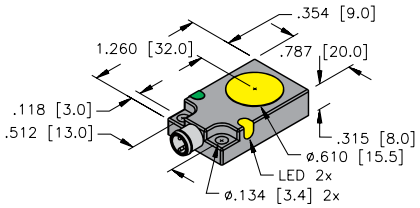
Housing Style	Dimension Drawings

A



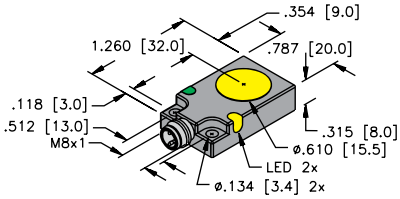
8.0 mm - Embeddable, Picofast Connector

B



8.0 mm - Embeddable, M8 snap-on Picofast Connector

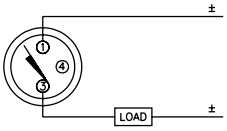
C



8.0 mm - Embeddable, M8 thread-on Picofast Connector

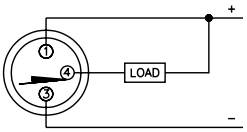
Wiring Diagrams/Mating Cordsets

1



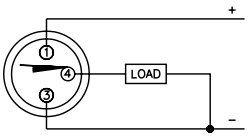
Mating Cordset: PKG 3Z-*; PKG 3M-*

2



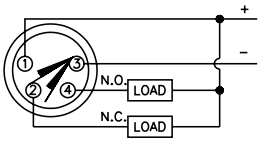
Mating Cordset: PKG 3Z-*; PKG 3M-*

3



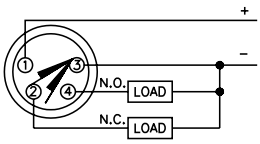
Mating Cordset: PKG 3Z-*; PKG 3M-*

4



Mating Cordset: PKG 4Z-*

5



Mating Cordset: PKG 4Z-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q08

Top Sensing Qpak Housing with Integral Connector

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Mating Cord	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-Q08-AN6X2-V1131 1608910	Uprox	•	5	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	2	A4
Bi5U-Q08-AP6X2-V1131 1608900	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	3	A4
Bi5U-Q08-AN6X2-V2131 1608904	Uprox	•	5	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	2	A4
Bi5U-Q08-AP6X2-V2131 1608905	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	3	A4
Bi5-Q08-AD4X-V1130 4414551		•	5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	Zinc	PA 12	N/A	YE	PKG 3Z-*	B	1	A2
Bi5-Q08-AN6X2-V1131 1600600		•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	2	A4
Bi5-Q08-AP6X2-V1131 1600500		•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	3	A4
Bi5-Q08-VN6X2-V1141 1600400	Comp. Outputs	•	5	4-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 4Z-*	B	4	A4
Bi5-Q08-VP6X2-V1141 1600300	Comp. Outputs	•	5	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 4Z-*	B	5	A4
Bi5-Q08-AD4X-V2130 4414553		•	5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	Zinc	PA 12	N/A	YE	PKG 3M-*	C	1	A2
Bi5-Q08-AN6X2-V2131 1600602		•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	2	A4
Bi5-Q08-AP6X2-V2131 1600502		•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	3	A4
Bi7-Q08-AN6X2-V1131 1601622	Ext. Range	•	7	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	2	A4
Bi7-Q08-AP6X2-V1131 1601602	Ext. Range	•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3Z-*	B	3	A4
Bi7-Q08-AN6X2-V2131 1601623	Ext. Range	•	7	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	2	A4
Bi7-Q08-AP6X2-V2131 1601603	Ext. Range	•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 3M-*	C	3	A4
Bi7-Q08-VN6X2-V1141 1600922	Ext. Range	•	7	4-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 4Z-*	B	4	A4
Bi7-Q08-VP6X2-V1141 1600902	Ext. Range	•	7	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	PKG 4Z-*	B	5	A4
Bi8U-Q08-AN6X2-V1131 1662008	Uprox+	•	8	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA 12	GN	YE	PKG 3Z-*	A	2	A4
Bi8U-Q08-AP6X2-V1131 1662005	Uprox+	•	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	Zinc	PA 12	GN	YE	PKG 3Z-*	A	3	A4

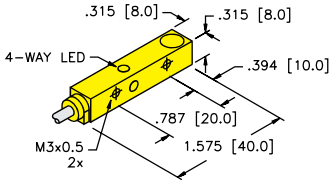
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q8SE & Q10S

Side Sensing Qpak Housing

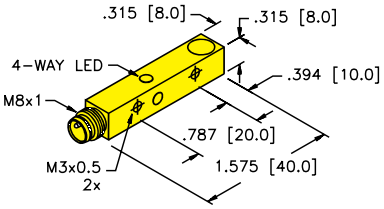
Housing Style	Dimension Drawings

A



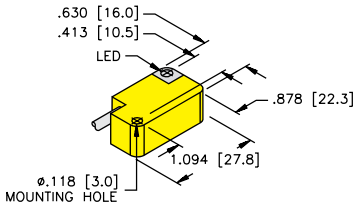
8.0 mm - Nonembeddable, Potted-In Cable

B



8.0 mm - Nonembeddable, M8 Picofast Connector

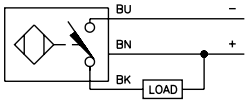
C



10 mm - Embeddable/Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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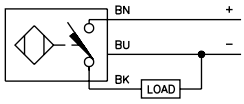

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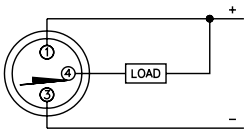
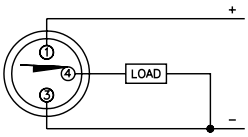


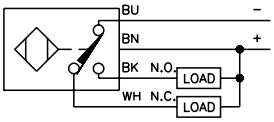
Mating Cordset: PKG 3Z-*

4



Mating Cordset: PKG 3Z-*

5



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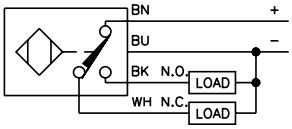

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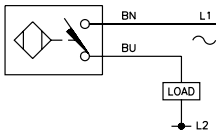


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q8SE & Q10S

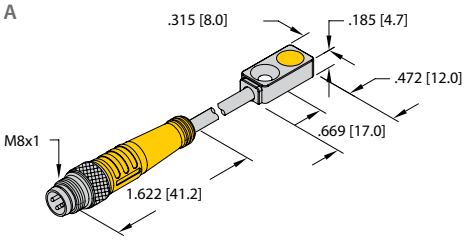
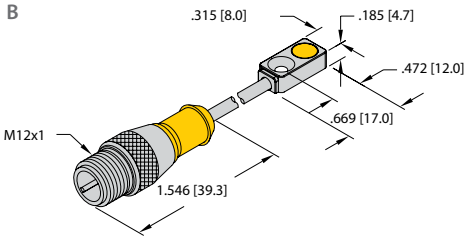
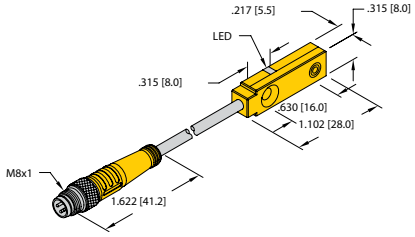
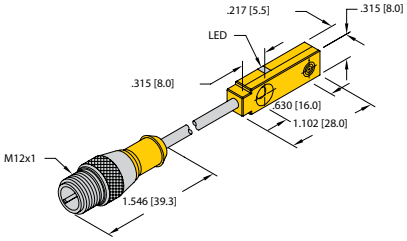
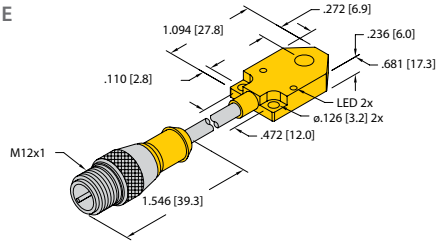
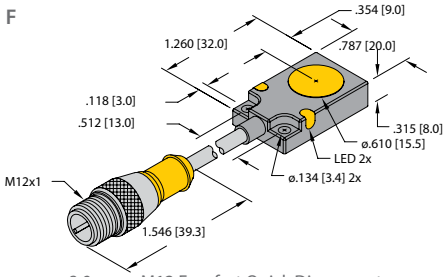
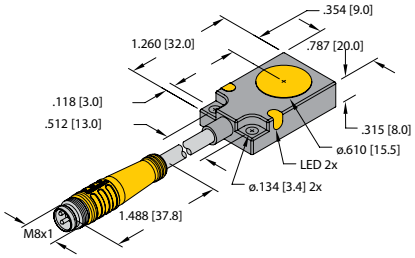
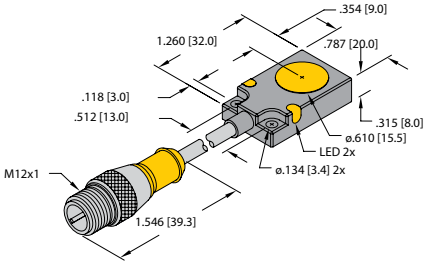
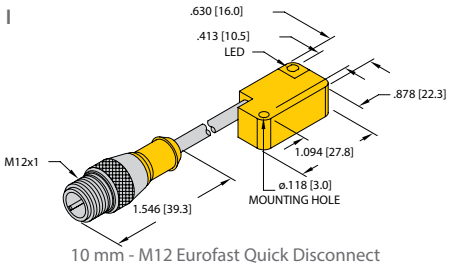
Side Sensing Qpak Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni4U-Q8SE-AN6X 4635809	Uprox+		4	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	2M/TPU	A	1	A4
Ni4U-Q8SE-AP6X 4635807	Uprox+		4	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	2M/TPU	A	2	A4
Ni4U-Q8SE-AN6X-V1131 4635810	Uprox+		4	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	- -	B	3	A4
Ni4U-Q8SE-AP6X-V1131 4635808	Uprox+		4	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	PP	PP	N/A	YE	- -	B	4	A4
Bi2-Q10S-AN6X 1619310		•	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	2M/TPU	C	1	A4
Bi2-Q10S-AP6X 1609360		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	2M/TPU	C	2	A4
Bi2-Q10S-VN6X 1609341	Comp. Outputs	•	2	4-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	2M/TPU	C	5	A4
Bi2-Q10S-VP6X 1609340	Comp. Outputs	•	2	4-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP-GF20	N/A	YE	2M/TPU	C	6	A4
Bi2-Q10S-AZ31X 1309100		•	2	2-wire AC	20-250 VAC/10-300 VDC	60	≤100	-25 to +70	IP67	PP-GF20	PP-GF20	N/A	RD	2M/TPU	C	7	A6
Ni5U-Q10S-AN6X 1609365	Uprox+		5	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	PP-GF20	PP-GF20	N/A	YE	2M/TPU	C	1	A4
Ni5U-Q10S-AP6X 1609364	Uprox+		5	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	PP-GF20	PP-GF20	N/A	YE	2M/TPU	C	2	A4

We reserve the right to make technical alterations without prior notice.

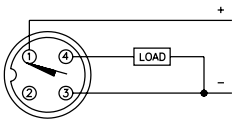
Rectangular Inductive Sensors | Small Rectangular

Sensor with Molded Connector

Housing Style	Dimension Drawings	
	A  4.7 mm - M8 Picofast Quick Disconnect	B  4.7 mm - M12 Eurofast Quick Disconnect
C  5.5 mm - M8 Picofast Quick Disconnect	D  5.5 mm - M12 Eurofast Quick Disconnect	E  6.0 mm - M12 Eurofast Quick Disconnect
F  8.0 mm - M12 Eurofast Quick Disconnect	G  8.0 mm - M8 Picofast Quick Disconnect	H  8.0 mm - M12 Eurofast Quick Disconnect
I  10 mm - M12 Eurofast Quick Disconnect		

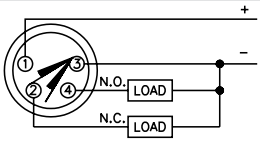
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*

2



Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Small Rectangular

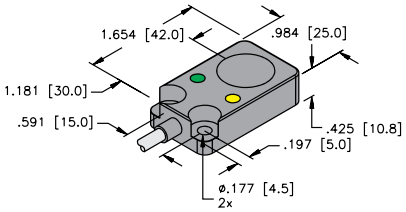
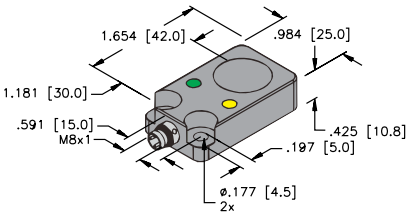
Sensor with Molded Connector

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-Q4.7-AP6X-0.3-PSG3M 1614000		•	2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	0.3M/TPU	A	2	A4
Bi2-Q4.7-AP6X-0.3-RS4T 16140024		•	2	3-wire DC PNP	10-30 VDC	1000	≤100	0 to +85	IP67	Zinc	PA	N/A	YE	0.3M/TPU	B	1	A4
Bi2-Q5.5-AP6X-0.2-PSG3M 1613099		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	0.2M/TPU	C	2	A4
Bi2-Q5.5-AP6X-0.2-RS4T 1613094		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +85	IP67	PP	PP	N/A	YE	0.2M/TPU	D	1	A4
Bi3-Q06-AP6X2-0.2-RS4T 1620193		•	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PBT	PA	GN	YE	0.2M/TPU	E	1	A4
Bi5U-Q08-AP6X2-0.2-RS4T 1608990	Uprox	•	5	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	Zinc	PA 12	GN	YE	0.2M/TPU	F	1	A4
Bi5-Q08-AP6X2-0.2-PSG3F 1600592		•	5	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	0.2M/TPU	G	2	A4
Bi7-Q08-AP6X2-0.2-RS4T 1601683		•	7	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	0.2M/TPU	H	1	A4
Bi2-Q10S-AP6X-0.2-RS4T 1609390		•	2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	PP-GF20	PP	N/A	YE	0.2M/TPU	I	1	A4

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q10

Top Sensing Qpak Housing

Housing Style	Dimension Drawings
	A  10 mm - Embeddable, Potted-In Cable
B  10 mm - Embeddable, M8 Picofast Connector	

Wiring Diagrams/Mating Cordsets

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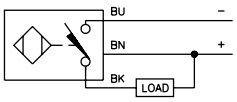

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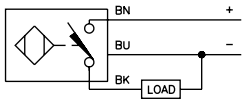

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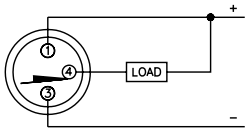
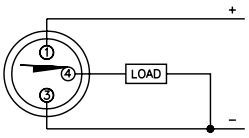


Mating Cordset: PKG 3Z-*

4



Mating Cordset: PKG 3Z-*

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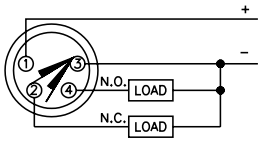
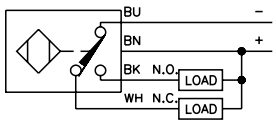


Mating Cordset: PKG 4Z-*

6



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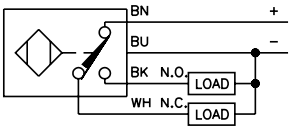


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q10

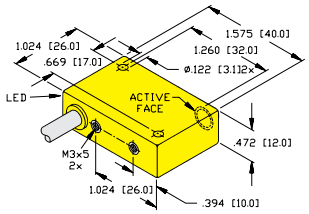
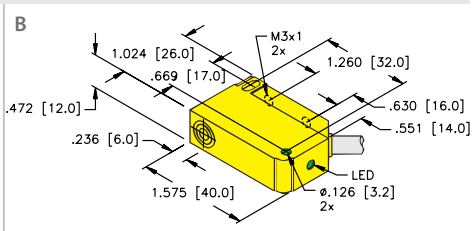
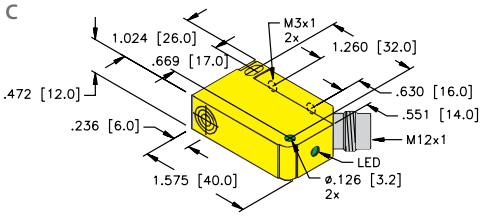
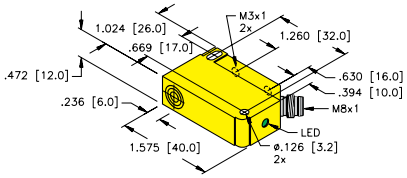
Top Sensing Qpak Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-Q10-AN6X2 1662003	Uprox	•	8	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/TPU	A	1	A4
Bi8U-Q10-AP6X2 1662001	Uprox	•	8	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/TPU	A	2	A4
Bi8U-Q10-AN6X2-V1131 1662004	Uprox	•	8	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	- -	B	3	A4
Bi8U-Q10-AP6X2-V1131 1662002	Uprox	•	8	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	- -	B	4	A4
Bi8-Q10-VN6X2 4616410	Comp. Outputs	•	8	4-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	6	A4
Bi8-Q10-VP6X2 4616401	Comp. Outputs	•	8	4-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	7	A4
Bi8-Q10-VP6X2-V1141 4616402	Comp. Outputs	•	8	4-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	- -	B	5	A4

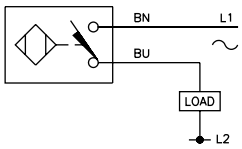
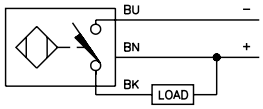
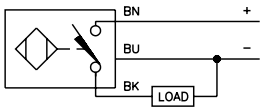
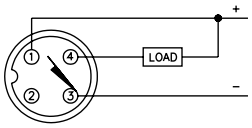
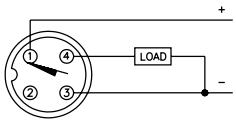
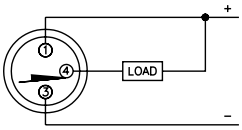
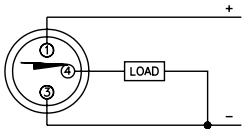
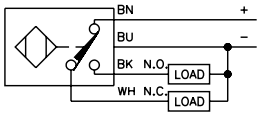
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q12

Side Sensing Qpak Housing

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable/Nonembeddable, Potted-In Cable	B  12 mm - Embeddable, Potted-In Cable
C  12 mm - Embeddable, M12 Eurofast Connection	D  12 mm - Embeddable, M8 Picofast Connection	

Wiring Diagrams/Mating Cordsets

1 	2 	3 
4  Mating Cordset: RK 4T-*	5  Mating Cordset: RK 4T-*	6  Mating Cordset: PKG 3Z-*
7  Mating Cordset: PKG 3Z-*	8 	

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q12

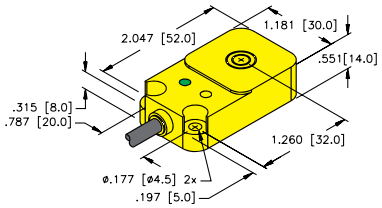
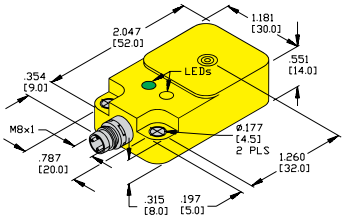
Side Sensing Qpak Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-Q12-AZ31X 13100		•	2	2-wire AC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/ PVC	A	1	A6
Ni4-Q12-AZ31X 13102			4	2-wire AC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/ PVC	A	1	A6
Bi5U-Q12-AN6X2 1635523	Uprox+	•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	2M/ TPU	B	2	A4
Bi5U-Q12-AP6X2 1635522	Uprox+	•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	2M/ TPU	B	3	A4
Bi5U-Q12-VP6X2 1635533	Uprox+	•	5	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	PA 12-GF30	GN	YE	2M/ TPU	B	8	A4
Bi5U-Q12-AN6X2-H1141 1635527	Uprox+	•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	- -	C	4	A4
Bi5U-Q12-AP6X2-H1141 1635526	Uprox+	•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	- -	C	5	A4
Bi5U-Q12-AN6X2-V1131 1635525	Uprox+	•	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	- -	D	6	A4
Bi5U-Q12-AP6X2-V1131 1635524	Uprox+	•	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	PA 12-GF30	LCP	GN	YE	- -	D	7	A4

We reserve the right to make technical alterations without prior notice.

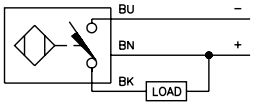
Rectangular Inductive Sensors | Q14

Top Sensing Qpak Housing

Housing Style	Dimension Drawings
	A  14 mm - Potted-In Cable
B  14 mm - Embeddable/Nonembeddable, M8 Picofast Connector	

Wiring Diagrams/Mating Cordsets

1



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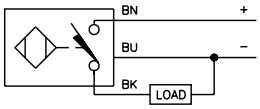

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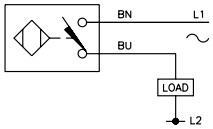

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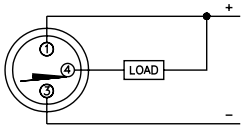
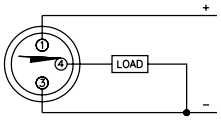


Mating Cordset: PKG 3M-*

5



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q14

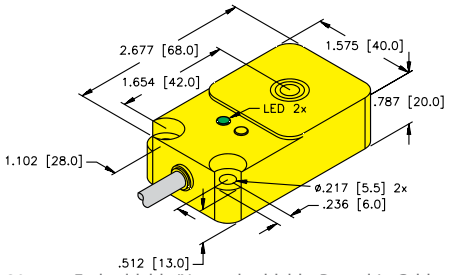
Top Sensing Qpak Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-Q14-AN6X2 1608710	Uprox	•	10	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/ TPU	A	1	A4
Bi10U-Q14-AP6X2 1608700	Uprox	•	10	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/ TPU	A	2	A4
Bi10U-Q14-AN6X2-V1131 1608510	Uprox	•	10	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	- -	B	4	A4
Bi10U-Q14-AP6X2-V1131 1608500	Uprox	•	10	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	- -	B	5	A4
Bi10-Q14-AN6X2 1608320		•	10	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/ TPU	A	1	A4
Bi10-Q14-AP6X2 1608720		•	10	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/ TPU	A	2	A4
Bi10-Q14-ADZ32X2 4256220		•	10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	GN	RD	2M/ TPU	A	3	A5
Bi10-Q14-ADZ32X2/S34 4256225	WFI	•	10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	GN	RD	2M/ TPU	A	3	A5
Bi10-Q14-AP6X2-V1131 1608530		•	10	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	- -	B	5	A4
Ni20-Q14-AP6X2-V1131 4690210			20	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	- -	B	5	A4
Ni20-Q14-AN6X2 4690220			20	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/ TPU	A	1	A4
Ni20-Q14-AP6X2 4690205		•	20	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/ TPU	A	2	A4
Ni20-Q14-ADZ32X2 4205410		•	20	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	GN	RD	2M/ TPU	A	3	A5

We reserve the right to make technical alterations without prior notice.

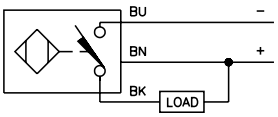
Rectangular Inductive Sensors | Q20

Top Sensing Qpak Housing with Potted-in Cable

Housing Style	Dimension Drawings
	A  20 mm - Embeddable/Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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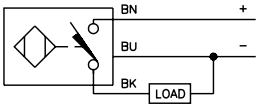

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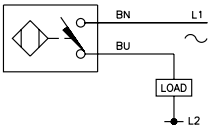


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q20

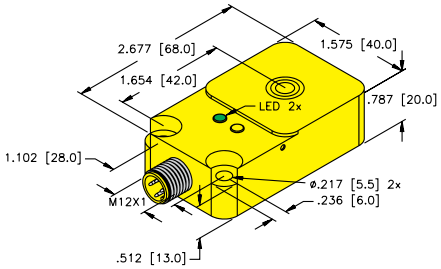
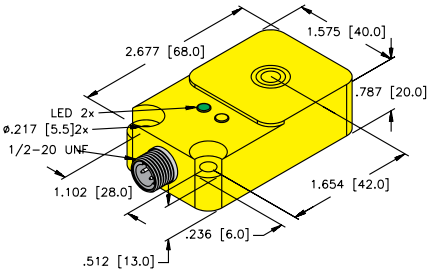
Top Sensing Qpak Housing with Potted-in Cable

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-Q20-AN6X2 1608810	Uprox	•	15	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/TPU	A	1	A4
Bi15U-Q20-AP6X2 1608800	Uprox	•	15	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	2M/TPU	A	2	A4
Bi15-Q20-AP6X2 1608300		•	15	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	2	A4
Bi15-Q20-ADZ32X2 4256250		•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	3	A5
Ni25-Q20-AN6X2 1602800			25	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	1	A4
Ni25-Q20-AP6X2 1602700			25	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/TPU	A	2	A4

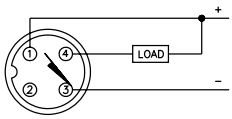
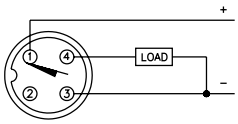
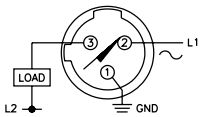
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q20

Top Sensing Qpak Housing with Integral Connector

Housing Style	Dimension Drawings
	A  20 mm - Embeddable/Nonembeddable, M12 Eurofast Connector
B  20 mm - Embeddable, 1/2-20UNF Microfast Connector	

Wiring Diagrams/Mating Cordsets

1	2	3
		
Mating Cordset: RK 4T-*	Mating Cordset:RK 4T-*	Mating Cordset: KB 3T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q20

Top Sensing Qpak Housing with Integral Connector

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-Q20-AN6X2-H1141 1608610	Uprox	•	15	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15U-Q20-AP6X2-H1141 1608600	Uprox	•	15	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-Q20-AN6X2-H1141 1608315		•	15	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15-Q20-AP6X2-H1141 1608305		•	15	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-Q20-ADZ32X2-B3131 4256251		•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PBT	PBT	GN	YE	B	3	A5
Ni25-Q20-AN6X2-H1141 1602802			25	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Ni25-Q20-AP6X2-H1141 1602702			25	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4

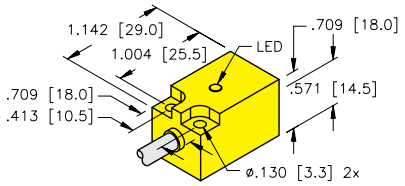
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q18, Q25, & Q30

Side Sensing Qpak Housing

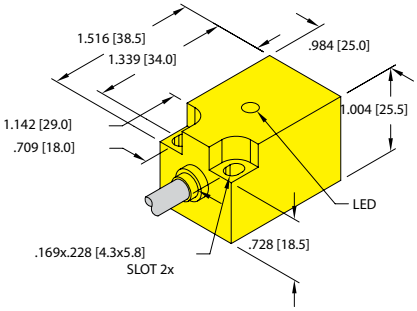
Housing Style	Dimension Drawings

A



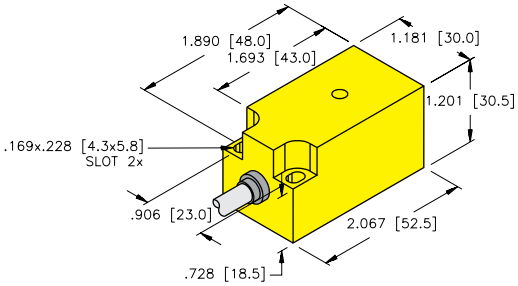
18 mm - Nonembeddable, Potted-In Cable

B



25 mm - Nonembeddable, Potted-In Cable

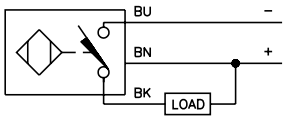
C



30 mm - Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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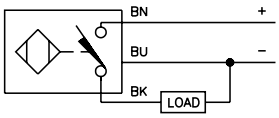


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q18, Q25, & Q30

Side Sensing Qpak Housing

Part Number/ ID Number	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni5-Q18-AN6X 4614607	5	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	A	1	A4
Ni5-Q18-AP6X 4614606	5	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	A	2	A4
Ni10-Q25-AN6X 4652330	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	B	1	A4
Ni10-Q25-AP6X 4652225	10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	B	2	A4
Ni15-Q30-AN6X 4659330	15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	C	1	A4
Ni15-Q30-AP6X 4659325	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	C	2	A4

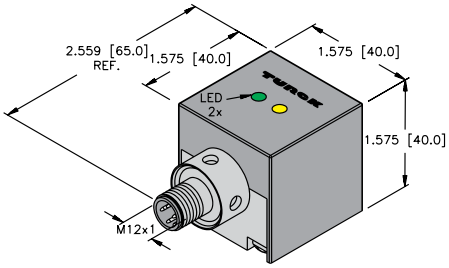
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CA40

Rotatable Sensing Head with Metal Housing

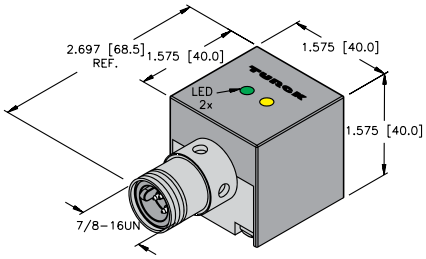
Housing Style	Dimension Drawings

A



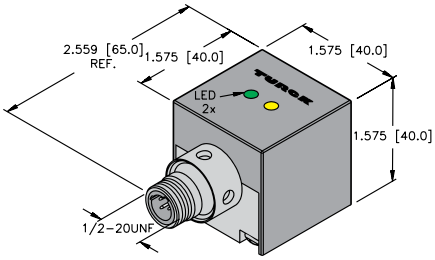
CA40 - Embeddable, Eurofast Connector

B



CA40 - Embeddable, Minifast Connector

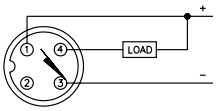
C



CA40 - Embeddable, Microfast Connector

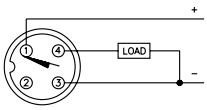
Wiring Diagrams/Mating Cordsets

1



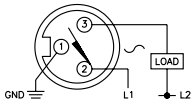
Mating Cordset: RK 4T-*

2



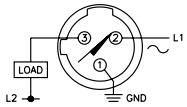
Mating Cordset: RK 4T-*

3



Mating Cordset: RKM 30-*M

4



Mating Cordset: KB 3T-*

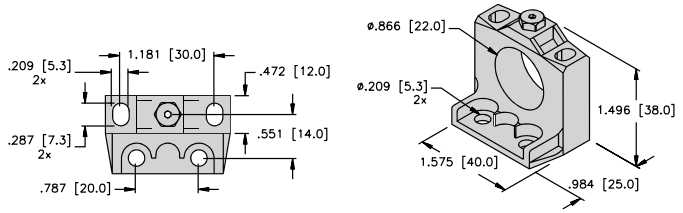
A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

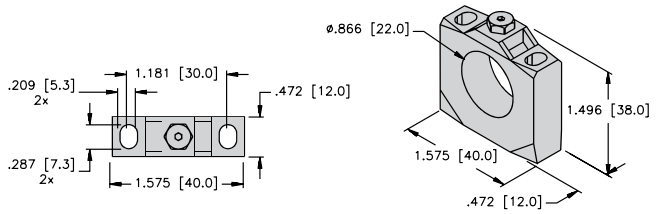
A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

BS 2.1 Mounting Bracket



BS 2.0 Mounting Bracket



We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CA40

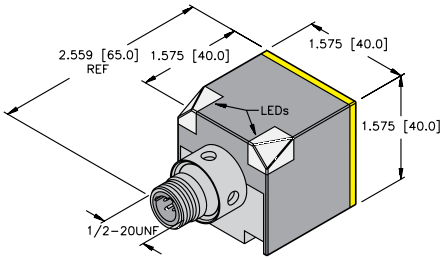
Rotatable Sensing Head with Metal Housing

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20U-CA40-AN6X2-H1141 W/BS2.1 1627390	Uprox	•	20	3-wire DC NPN	10-30 VDC	250	≤200	0 to +70	IP67	AL	TP	GN	YE	A	1	A4
Bi20U-CA40-AP6X2-H1141 W/BS2.1 1627290	Uprox	•	20	3-wire DC PNP	10-30 VDC	250	≤200	0 to +70	IP67	AL	TP	GN	YE	A	2	A4
Bi20U-CA40-AP6X2-H1141/S1590 W/BS2.0 1627297	Weldguard®	•	20	3-wire DC PNP	10-30 VDC	250	≤200	0 to +70	IP67	AL	WG	GN	YE	A	2	A4
Bi20U-CA40-ADZ30X2-B1131 W/BS2.1 4283290	Uprox	•	20	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	AL	TP	GN	YE	B	3	A5
Bi20U-CA40-ADZ30X2-B3131 W/BS2.1 4283292	Uprox	•	20	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	AL	TP	GN	YE	C	4	A5

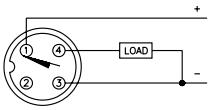
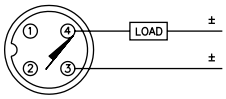
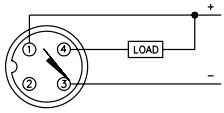
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with 2 and 3-wire DC Outputs

Housing Style	Dimension Drawings
	A  CK40 - Embeddable/Nonembeddable, Eurofast Connector

Wiring Diagrams/Mating Cordsets

1	2	3
		
Mating Cordset: RK 4T-*	Mating Cordset: RK 4.2T-*	Mating Cordset: RK 4T-*

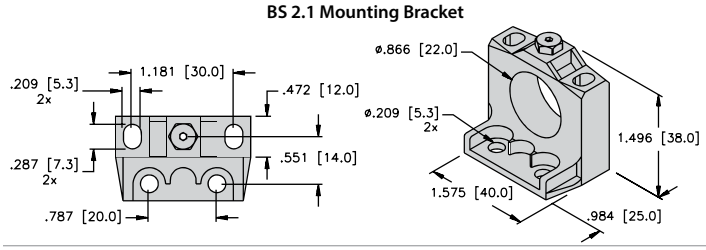
A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

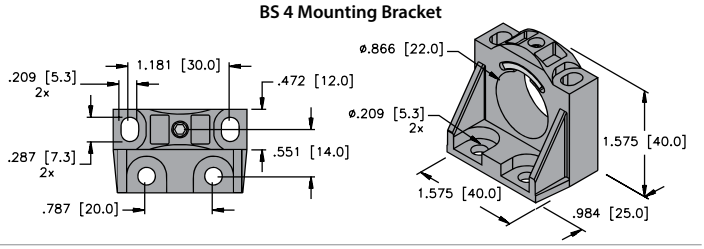
A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

BS 2.1 Mounting Bracket



BS 4 Mounting Bracket



We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with 2 and 3-wire DC Outputs

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-CK40-AN6X2-H1141 W/BS2.1 1625690	Uprox	•	15	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4
Bi15U-CK40-AP6X2-H1141 W/BS2.1 1625689	Uprox	•	15	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Bi15-CK40-AN6X2-H1141 W/BS2.1 1625190		•	15	3-wire DC NPN	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Bi15-CK40-AP6X2-H1141 W/BS2.1 1625090		•	15	3-wire DC PNP	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15-CK40-AD4X-H1141 W/BS2.1 4465090		•	15	2-wire DC	10-65 VDC	150	≤100	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A2
Bi20U-CK40-AN6X2-H1141 1627231	Uprox+	•	20	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4
Bi20U-CK40-AP6X2-H1141 W/BS2.1 1627288	Uprox+	•	20	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Bi30U-CK40-AN6X2-H1141 1625820	Uprox+	•	30	3-wire DC NPN	10-30 VDC	250	≤200	-10 to +60	IP68	PBT	PBT	GN	YE	A	3	A4
Bi30U-CK40-AP6X2-H1141 1625829	Uprox+	•	30	3-wire DC PNP	10-30 VDC	250	≤200	-10 to +60	IP68	PBT	PBT	GN	YE	A	1	A4
Ni20-CK40-AN6X2-H1141 W/BS2.1 1625390			20	3-wire DC NPN	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Ni20-CK40-AP6X2-H1141 W/BS2.1 1625290			20	3-wire DC PNP	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Ni20-CK40-AD4X-H1141 W/BS2.1 4465290			20	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A2
Ni25U-CK40-AN6X2-H1141 W/BS2.1 1625789	Uprox		25	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4
Ni25U-CK40-AP6X2-H1141 W/BS2.1 1625790	Uprox		25	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Ni35U-CK40-AP6X2-H1141 1625800	Uprox		35	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A4
Ni35U-CK40-AN6X2-H1141 1625810	Uprox		35	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	3	A4
Ni50U-CK40-AN6X2-H1141 1625823	Uprox+		50	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	3	A4
Ni50U-CK40-AP6X2-H1141 1625868	Uprox+		50	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	1	A4

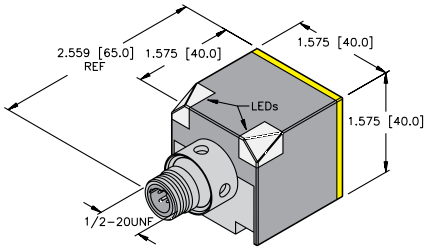
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with Complementary Outputs

Housing Style	Dimension Drawings

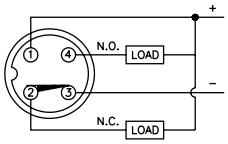
A



CK40 - Embeddable/Nonembeddable, Eurofast Connector

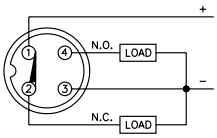
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

2



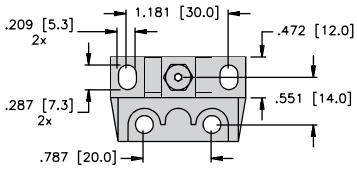
Mating Cordset: RK 4.4T-*

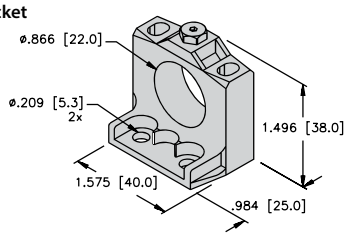
A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms

Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

BS 2.1 Mounting Bracket





We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with Complementary Outputs

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-CK40-VN4X2-H1141 W/BS2.1 1550190	Comp. Outputs	•	15	4-wire DC NPN	10-65 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15-CK40-VP4X2-H1141 W/BS2.1 1550091	Comp. Outputs	•	15	4-wire DC PNP	10-65 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni20-CK40-VN4X2-H1141 W/BS2.1 1550390	Comp. Outputs		20	4-wire DC NPN	10-65 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Ni20-CK40-VP4X2-H1141 W/BS2.1 1550290	Comp. Outputs		20	4-wire DC PNP	10-65 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni35U-CK40-VP6X2-H1141 1625815	Uprox, Comp. Outputs		35	4-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni50U-CK40-VN4X2-H1141 1625806	Uprox+, Comp. Outputs		50	4-wire DC NPN	10-65 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	1	A4
Ni50U-CK40-VP4X2-H1141 1538302	Uprox+, Comp. Outputs		50	4-wire DC PNP	10-65 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	2	A4

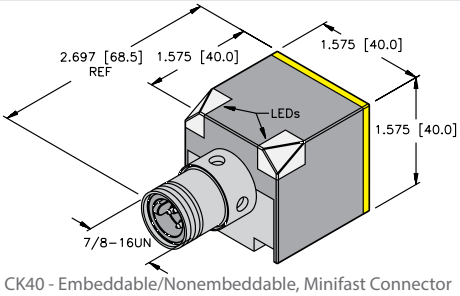
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with AC/DC Outputs

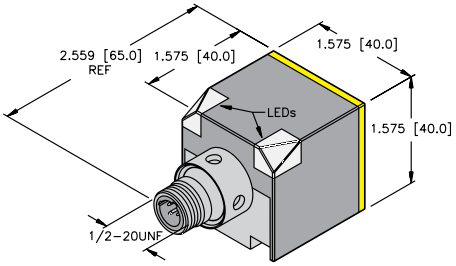
Housing Style	Dimension Drawings

A



CK40 - Embeddable/Nonembeddable, Minifast Connector

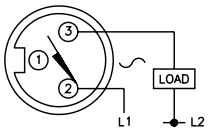
B



CK40 - Embeddable/Nonembeddable, Microfast Connector

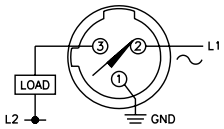
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M

2



Mating Cordset: KB 3T-*

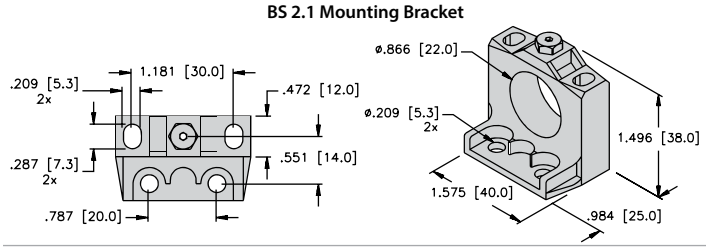
A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

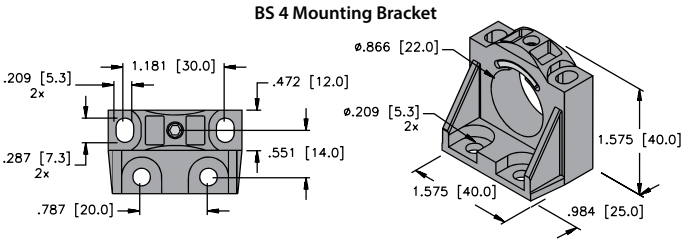
A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

BS 2.1 Mounting Bracket



BS 4 Mounting Bracket



We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CK40

Rotatable Sensing Head with AC/DC Outputs

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-CK40-ADZ30X2-B1131 W/BS2.1 4280090	Uprox	•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A5
Bi15U-CK40-ADZ30X2-B3131 W/B 2.1 4280091	Uprox	•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP68	PBT	PBT	GN	YE	B	2	A5
Bi15-CK40-AZ3X2-B1131 W/BS2.1 1335091		•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Bi15-CK40-AZ3X2-B3131 W/BS2.1 1335095		•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	2	A6
Ni20-CK40-AZ3X2-B1131 W/BS2.1 1335291			20	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni20-CK40-AZ3X2-B3131 W/BS2.1 1335290			20	2-Wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	2	A6
Ni25U-CK40-ADZ30X2-B1131 W/BS2.1 4280290	Uprox		25	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A5
Ni25U-CK40-ADZ30X2-B3131 W/BS2.1 4280291	Uprox		25	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	PBT	PBT	GN	YE	B	2	A5
Ni35U-CK40-ADZ30X2-B1131 4280410	Uprox		35	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A5

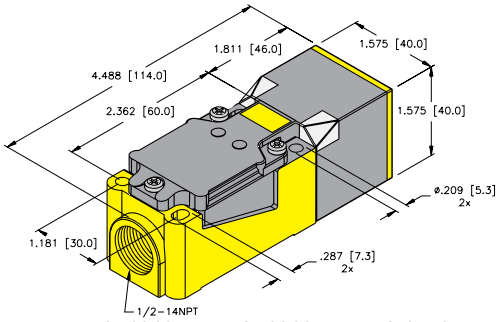
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP40

Rotatable Sensing Head with 2 and 3-wire DC Outputs and Terminal Chamber

Housing Style	Dimension Drawings

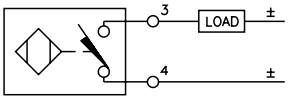
A



CP40 - Embeddable/Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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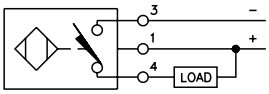

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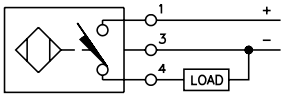


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP40

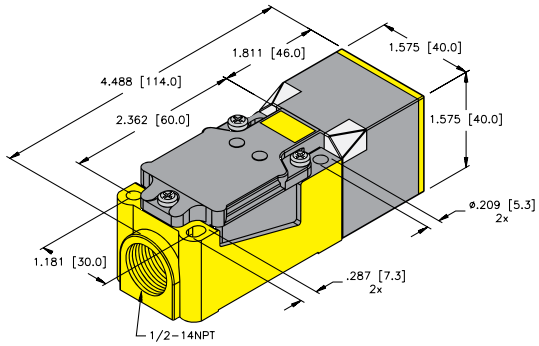
Rotatable Sensing Head with 2 and 3-wire DC Outputs and Terminal Chamber

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-CP40-AP6X2 1623502	Uprox	•	15	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4
Bi15-CP40-AN6X2 1623000		•	15	3-wire DC NPN	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-CP40-AN6X2/S10-S97 1623001	Low Temp. -40 °C	•	15	3-wire DC NPN	10-30 VDC	250	≤200	-40 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-CP40-AP6X2/S10 16030		•	15	3-Wire DC PNP	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Bi15-CP40-AD4X/S10 44770		•	15	2-wire DC	10-65 VDC	150	≤100	-25 to +70	IP67	PBT	PBT	N/A	YE	A	1	A2
Bi20U-CP40-AP6X2/S10 1625826	Uprox+	•	20	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	3	A4
Bi30U-CP40-AP6X2/S10 1625825	Uprox+	•	30	3-wire DC PNP	10-30 VDC	250	≤200	-10 to +60	IP68	PBT	PBT	GN	YE	A	3	A4
Ni20-CP40-AP6X2/S10 16031			20	3-wire DC PNP	10-30 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Ni20-CP40-AD4X/S10 44771			20	2-wire DC	10-65 VDC	150	≤100	-25 to +70	IP67	PBT	PBT	N/A	YE	A	1	A2
Ni25U-CP40-AP6X2/S10 1623701	Uprox		25	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	3	A4
Ni40U-CP40-AP6X2/S10 1623602	Uprox		40	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4
Ni50U-CP40-AN6X2/S10 1625824	Uprox+		50	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	2	A4
Ni50U-CP40-AP6X2/S10 1625842	Uprox+		50	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	3	A4

We reserve the right to make technical alterations without prior notice.

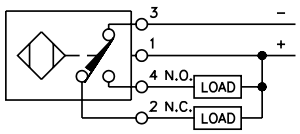
Rectangular Inductive Sensors | CP40

Rotatable Sensing Head with Complementary Outputs and Terminal Chamber

Housing Style	Dimension Drawings
	A  CP40 - Embeddable/Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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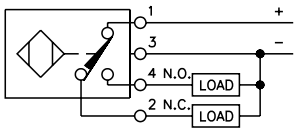


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤±10%
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)	Repeatability:	≤2% of Rated Operating Distance
	≤20 mA (Uprox+, Uprox 3)		
Time Delay Before Availability:	≤8 ms		

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP40

Rotatable Sensing Head with Complementary Outputs and Terminal Chamber

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-CP40-VN4X2/S10 1540511	Uprox	•	15	4-wire DC NPN	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Bi15U-CP40-VP4X2/S10 1540501	Uprox	•	15	4-wire DC PNP	10-65 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-CP40-VN4X2/S100 15250	Comp. Outputs	•	15	4-wire DC NPN	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15-CP40-VN4X2/S100-S10 15144	High Temp. 100 °C	•	15	4-wire DC NPN	10-65 VDC	150	≤200	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A4
Bi15-CP40-VP4X2/S10 15010	Comp. Outputs	•	15	4-wire DC PNP	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Bi15-CP40-VP4X2/S100-S10 15019	High Temp. 100 °C	•	15	4-wire DC PNP	10-65 VDC	150	≤200	-25 to +100	IP67	PBT	PBT	GN	YE	A	2	A4
Bi20-CP40-VN4X2/S10 1579221	Ext. Range	•	20	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Bi20-CP40-VP4X2/S10 15012	Ext. Range	•	20	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni20-CP40-VN4X2/S10 15251	Comp. Outputs		20	4-wire DC NPN	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Ni20-CP40-VP4X2/S10 15011	Comp. Outputs		20	4-wire DC PNP	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni20-CP40-VP4X2/S100-S10 15020	High Temp. 100 °C		20	4-wire DC PNP	10-65 VDC	150	≤200	-25 to +100	IP67	PBT	PBT	GN	YE	A	2	A4
Ni35-CP40-VN4X2/S10 15254	Comp. Outputs		35	4-wire DC NPN	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A4
Ni35-CP40-VP4X2/S10 15014	Comp. Outputs		35	4-wire DC PNP	10-65 VDC	150	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	2	A4
Ni40U-CP40-VN4X2/S10 1540611	Uprox, Ext. Range		40	4-wire DC NPN	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Ni40U-CP40-VP4X2/S10 1540601	Uprox, Ext. Range		40	4-wire DC PNP	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	2	A4
Ni50U-CP40-VN4X2/S10 1625807	Uprox+		50	4-wire DC NPN	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A4
Ni50U-CP40-VP4X2 1538303	Uprox+		50	4-wire DC PNP	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	A	2	A4

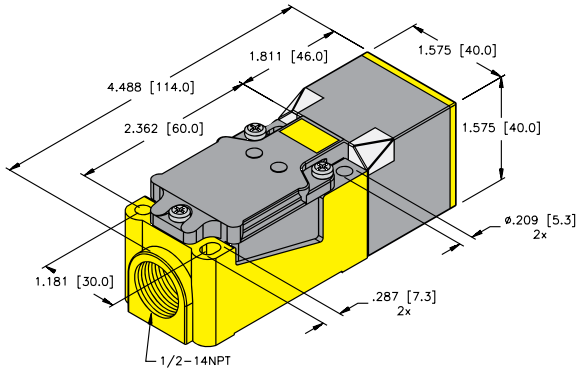
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP40

Rotatable Sensing Head with AC/DC Outputs and Terminal Chamber

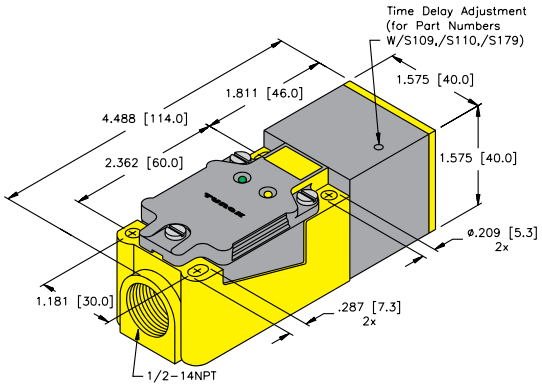
Housing Style	Dimension Drawings

A



CP40 - Embeddable/Nonembeddable, Terminal Chamber

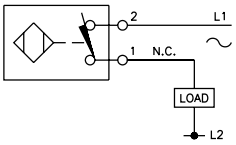
B



CP40 - Embeddable/Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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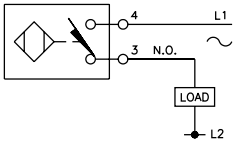


A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP40

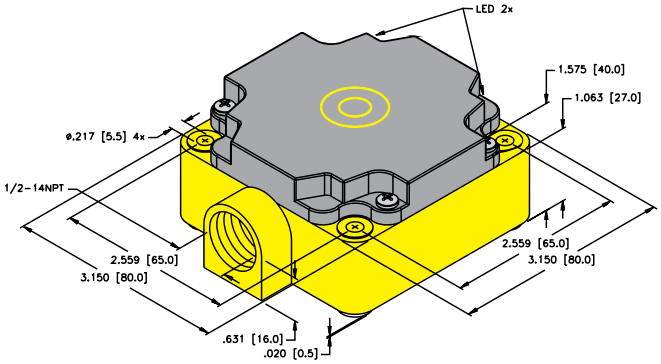
Rotatable Sensing Head with AC/DC Outputs and Terminal Chamber

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-CP40-FDZ30X2 4280601	Uprox	•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A5
Bi15-CP40-FDZ30X2/S10 42241	Prog. Outputs	•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	60	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Bi15-CP40-FDZ30X2/S10-S97 42266	Low Temp. -40 °C	•	15	2-wire AC/DC	20-250 VAC/10-300 VDC	60	≤400/300	-40 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Bi15-CP40-FZ3X2/S109-S10 13737	Time Delay	•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	1	A6
Bi15-CP40-FZ3X2/S110-S10 13735	Time Delay	•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	1	A6
Bi15-CP40-FZ3X2/S10 13410	Prog. Outputs	•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Bi15-CP40-FZ3X2/S10-S97 1341010	Low Temp. -40 °C	•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-40 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Bi15-CP40-FZ3X2/S100-S10 13776	High Temp. 100 °C	•	15	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A6
Ni20-CP40-FDZ30X2/S10 42242	Prog. Outputs		20	2-wire AC/DC	20-250 VAC/10-300 VDC	60	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Ni20-CP40-FZ3X2/S100 13411	Prog. Outputs		20	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni20-CP40-FZ3X2/S100-S10 13775	High Temp. 100 °C		20	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A6
Ni20-CP40-FZ3X2/S110-S10 13746	Time Delay		20	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	1	A6
Ni30-CP40-FZ3X2/S109-S10 13747	Time Delay		30	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	1	A6
Ni30-CP40-FZ3X2/S110-S10 13744	Time Delay		30	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	1	A6
Ni35-CP40-FDZ30X2/S10 42245	Prog. Outputs		35	2-wire AC/DC	20-250 VAC/10-300 VDC	60	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Ni35-CP40-FZ3X2/S10 13413	Prog. Outputs		35	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni40U-CP40-FDZ30X2/S10 4280801	Uprox		40	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP68	PBT	PBT	GN	YE	A	1	A5
Ni40-CP40-FZ3X2/S100-S10 1374802	High Temp. 100 °C		40	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A6

We reserve the right to make technical alterations without prior notice.

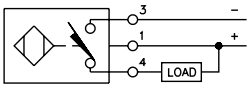
Rectangular Inductive Sensors | CP80

Top Sensing with 3 and 4-Wire DC Outputs and Terminal Chamber

Housing Style	Dimension Drawings
	A  CP80 - Embeddable/Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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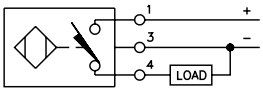

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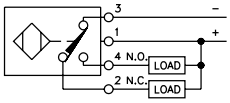

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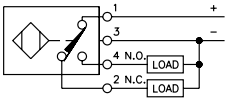


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP80

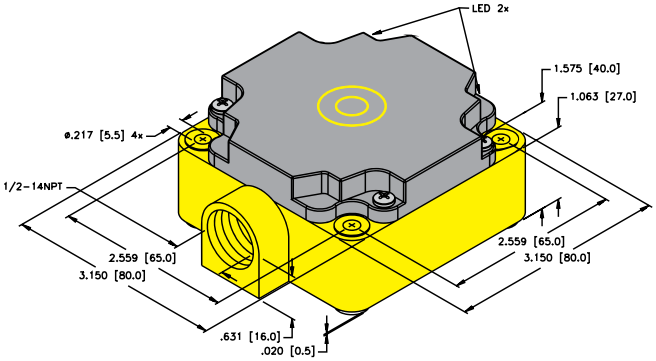
Top Sensing with 3 and 4-Wire DC Outputs and Terminal Chamber

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi40-CP80-VN4X2/S10 1579800	Comp. Outputs	•	40	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Bi40-CP80-VP4X2/S10 15698	Comp. Outputs	•	40	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	4	A4
Ni40-CP80-VP4X2/S10 15015	Comp. Outputs		40	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	4	A4
Ni50-CP80-VN4X2/S10 15256	Comp. Outputs		50	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	3	A4
Ni50-CP80-VP4X2/S10 15016	Comp. Outputs		50	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	A	4	A4
Ni75U-CP80-AN6X2/S10 1623811	Uprox		75	3-wire DC NPN	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A4
Ni75U-CP80-AP6X2/S10 1623801	Uprox		75	3-wire DC PNP	10-30 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	2	A4
Ni75U-CP80-VN4X2/S10 1540811	Uprox		75	4-wire DC NPN	10-65 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	3	A4
Ni75U-CP80-VP4X2/S10 1540801	Uprox		75	4-wire DC PNP	10-65 VDC	250	≤200	-30 to +85	IP67	PBT	PBT	GN	YE	A	4	A4

We reserve the right to make technical alterations without prior notice.

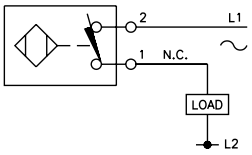
Rectangular Inductive Sensors | CP80

Top Sensing with AC/DC Outputs and Terminal Chamber

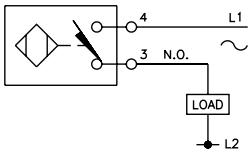
Housing Style	Dimension Drawings
	A  CP80 - Embeddable/Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



–OR–



A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | CP80

Top Sensing with AC/DC Outputs and Terminal Chamber

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi40-CP80-FDZ30X2/S10 4230901	Prog. Outputs	•	40	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Bi40-CP80-FZ3X2/S10 1340401	Prog. Outputs	•	40	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni40-CP80-FZ3X2/S100 13415	Prog. Outputs		40	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni40-CP80-FZ3X2/S100-S10 13453	High Temp. 100 °C		40	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A6
Ni50-CP80-FZ3X2/S10 13410	Prog. Outputs		50	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A6
Ni50-CP80-FDZ30X2/S100 42321	Prog. Outputs		50	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	A	1	A5
Ni50-CP80-FDZ30X2/S100-S10 42290	High Temp. 100 °C		50	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PBT	PBT	GN	YE	A	1	A5
Ni75U-CP80-FDZ30X2/S10 4280901	Uprox		75	2-wire AC/DC	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	PBT	PBT	GN	YE	A	1	A5

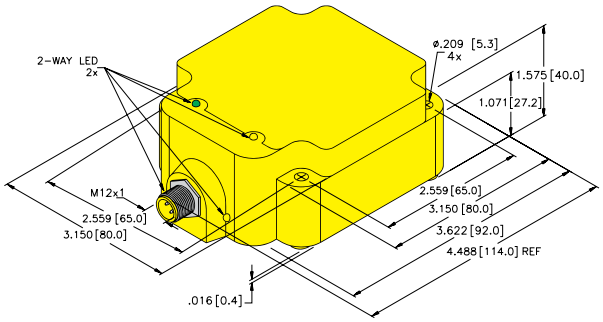
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q80

Top Sensing with 3 and 4-Wire DC or AC/DC Outputs

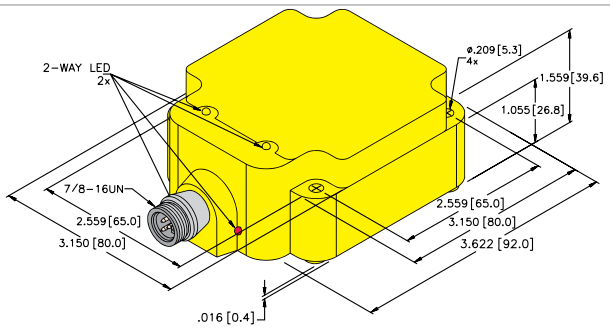
Housing Style	Dimension Drawings

A



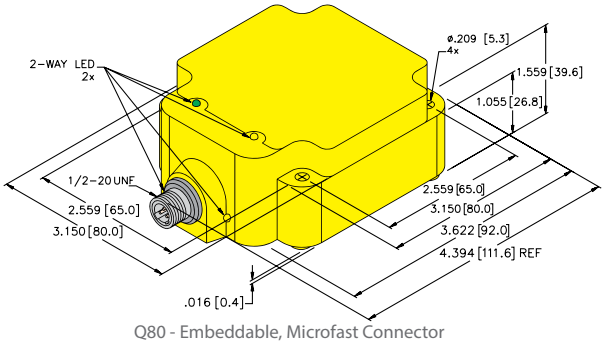
Q80 - Embeddable/Nonembeddable, Eurofast Connector

B



Q80 - Embeddable, Minifast Connector

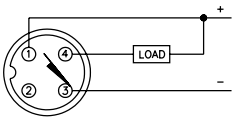
C



Q80 - Embeddable, Microfast Connector

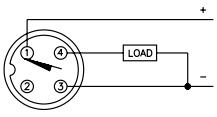
Wiring Diagrams/Mating Cordsets

1



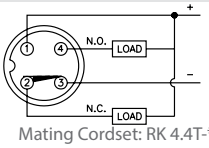
Mating Cordset: RK 4T-*

2



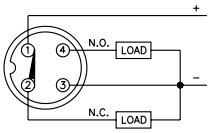
Mating Cordset: RK 4T-*

3



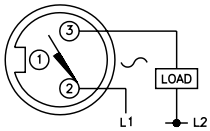
Mating Cordset: RK 4.4T-*

4



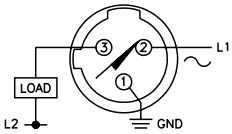
Mating Cordset: RK 4.4T-*

5



Mating Cordset: RKM 30-*M

6



Mating Cordset: KB 3T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3.0 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Q80

Top Sensing with 3 and 4-Wire DC or AC/DC Outputs

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi50U-Q80-AP6X2-H1141 1608940	Uprox+	•	50	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	2	A4
Bi50U-Q80-VN4X2-H1141 1562001	Uprox+, Comp. Outputs	•	50	4-wire DC NPN	10-65 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	3	A4
Bi50U-Q80-VP4X2-H1141 15620	Uprox+, Comp. Outputs	•	50	4-wire DC PNP	10-65 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	4	A4
Bi50-Q80-ADZ30X2-B1131 4200310		•	50	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	5	A5
Bi50-Q80-ADZ30X2-B3131 4200311		•	50	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	C	6	A5
Ni75U-Q80-AN6X2-H1141 1625856	Uprox+		75	3-wire DC NPN	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	1	A4
Ni75U-Q80-AP6X2-H1141 1625855	Uprox+		75	3-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	2	A4
Ni75U-Q80-VP4X2-H1141 1625857	Uprox+, Comp. Outputs		75	4-wire DC PNP	10-65 VDC	250	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	A	4	A4

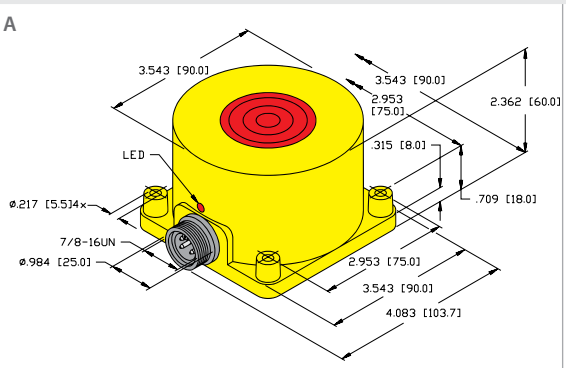
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | K90 & K90SR

Top Sensing with 4-Wire DC or AC/DC Outputs

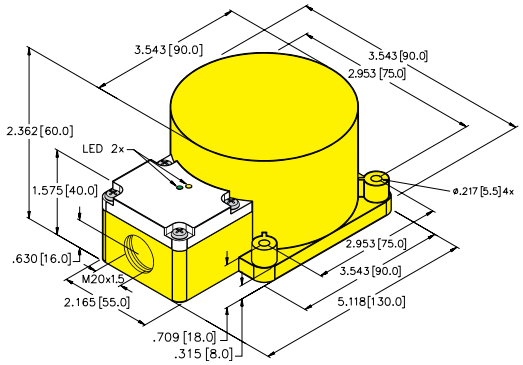
Housing Style	Dimension Drawings

A



K90 - Nonembeddable, Minifast Connector

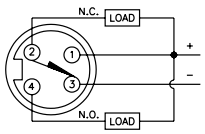
B



K90SR - Nonembeddable, Terminal Chamber

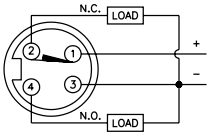
Wiring Diagrams/Mating Cordsets

1



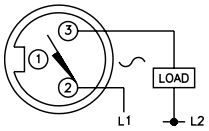
Mating Cordset: RK 40-*M

2



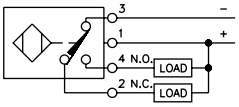
Mating Cordset: RK 40-*M

3



Mating Cordset: RK 30-*M

4



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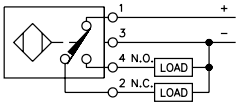

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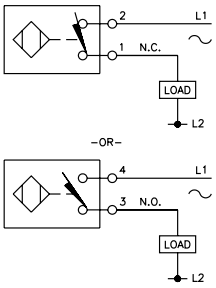


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox, Rectangular)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | K90 & K90SR

Top Sensing with 4-Wire DC or AC/DC Outputs

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni60-K90-VN4X-B2141 15203	Comp. Outputs		60	4-wire DC NPN	10-65 VDC	60	≤200	-25 to +70	IP67	PUR	PUR	N/A	YE	A	1	A4
Ni60-K90-VP4X-B2141 15103	Comp. Outputs		60	4-wire DC PNP	10-65 VDC	60	≤200	-25 to +70	IP67	PUR	PUR	N/A	YE	A	2	A4
Ni60-K90-AZ3X-B2131 13542			60	2-wire AC	20-250 VAC/10-300 VDC	20	≤500	-25 to +70	IP67	PBT	PBT	N/A	YE	A	3	A6
Ni60-K90SR-VN4X2 15740	Comp. Outputs		60	4-wire DC NPN	10-65 VDC	60	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	B	4	A4
Ni60-K90SR-VP4X2 15640	Comp. Outputs		60	4-wire DC PNP	10-65 VDC	250	≤200	-30 to +85	IP68	PBT	PBT	GN	YE	B	5	A4
Ni60-K90SR-FZ3X2 13429	Prog. Outputs		60	2-wire AC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	B	6	A6
Ni100U-K90SR-VP4X2 1625834	Uprox+, Comp. Outputs		100	4-wire DC PNP	10-65 VDC	60	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	B	5	A4

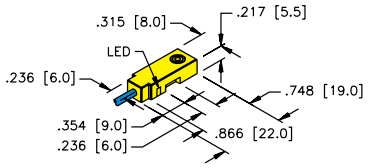
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Namur

Intrinsically Safe

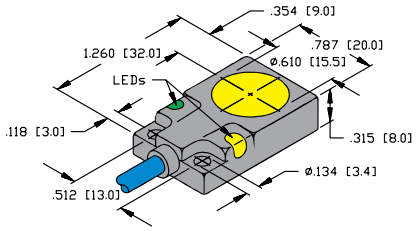
Dimension Drawings

A



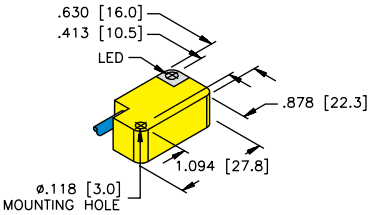
5.5 mm - Embeddable/Nonembeddable, Potted-In Cable

B



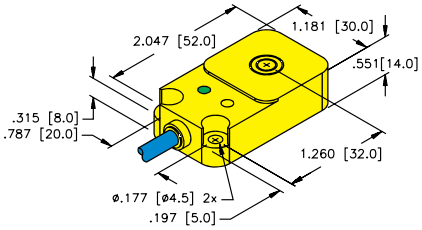
8.0 mm - Embeddable, Potted-In Cable

C



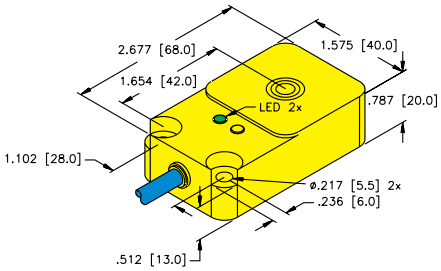
10 mm - Embeddable/Nonembeddable, Potted-In Cable

D



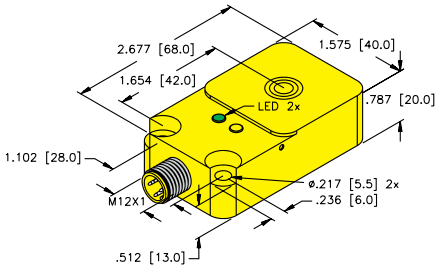
14 mm - Potted-In Cable

E



20 mm - Embeddable/Nonembeddable, Potted-In Cable

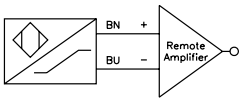
F



20 mm - Embeddable/Nonembeddable, Eurofast Connector

Wiring Diagrams/Mating Cordsets

1



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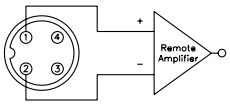


Mating Cordset: RK 4.21T-*

A1 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-Q5.5K-Y1X 4055300		•	2	2-wire DC NAMUR	8.2 VDC nominal	2000	Remote	-25 to +70	IP67	PP	PP	N/A	YE	2M/TPU	A	1	A1
Bi5-Q08-Y1X 4054000		•	5	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	Zinc	PA 12	N/A	YE	2M/TPU	B	1	A1
Bi2-Q10S-Y1X 4012130		•	2	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PP-GF20	PP-GF20	N/A	YE	2M/PVC	C	1	A1
Bi10-Q14-Y1X 1608730		•	10	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/TPU	D	1	A1
Bi15-Q20-Y1X 1080020		•	15	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/TPU	E	1	A1
Bi15-Q20-Y1X-H1141 1080025		•	15	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	F	2	A1

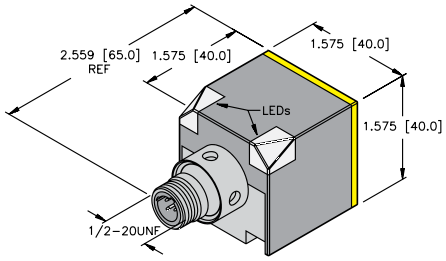
We reserve the right to make technical alterations without prior notice.

Rectangular Inductive Sensors | Namur

Intrinsically Safe

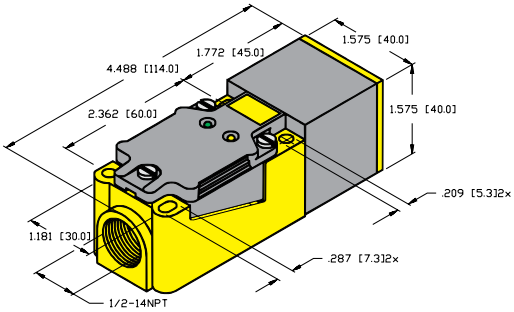
Dimension Drawings

A



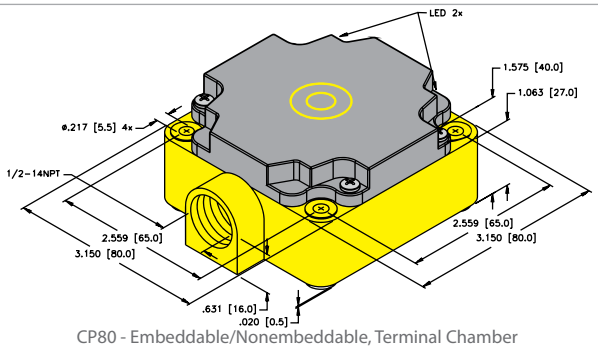
CK40 - Embeddable/Nonembeddable, Eurofast Connector

B



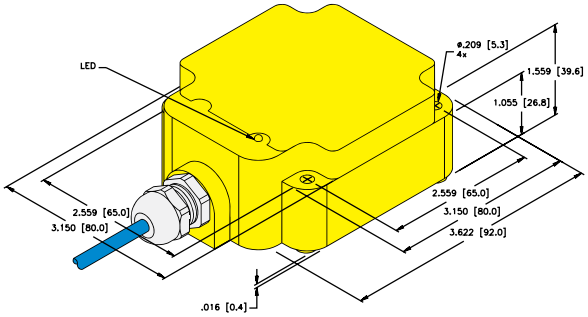
CP40 - Embeddable/Nonembeddable, Terminal Chamber

C



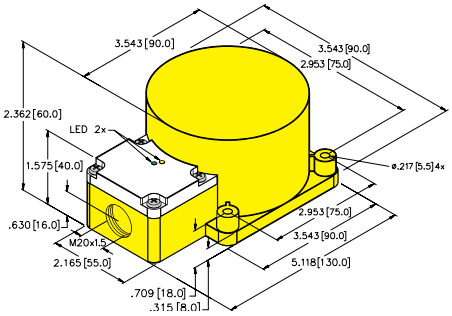
CP80 - Embeddable/Nonembeddable, Terminal Chamber

D



Q80 - Nonembeddable, Potted-In Cable

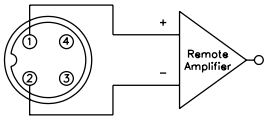
E



K90SR - Nonembeddable, Terminal Chamber

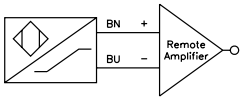
Wiring Diagrams/Mating Cordsets

1

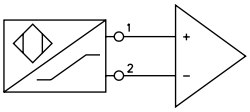


Mating Cordset: RK 4.21T-*

2



3



A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-activated current consumption:	≥2.1 mA
Activated current consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

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Rectangular Inductive Sensors | Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Embeddable	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-CK40-Y1X-H1141 4065000		•	15	2-wire DC NAMUR	8.2 VDC nominal	150	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	A	1	A1
Bi15-CP40-Y1X/S10 10120		•	15	2-wire DC NAMUR	8.2 VDC nominal	150	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	B	3	A1
Ni20-CP40-Y1X/S10 10121			20	2-wire DC NAMUR	8.2 VDC nominal	150	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	B	3	A1
Ni35-CP40-Y1X/S100-S10 1011126	High Temp. 100 °C		35	2-wire DC NAMUR	8.2 VDC nominal	80	Remote	-25 to +100	IP67	PBT	PBT	N/A	YE	- -	B	3	A1
Ni50-CP80-Y1/S10 10401			50	2-wire DC NAMUR	8.2 VDC nominal	100	Remote	-25 to +70	IP67	PBT	PBT	N/A	N/A	- -	C	3	A1
Ni60-Q80-Y1X 1008700			60	2-wire DC NAMUR	8.2 VDC nominal	100	Remote	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/ PVC	D	2	A1
Ni50-K90SR-Y1 10074			50	2-wire DC NAMUR	8.2 VDC nominal	100	Remote	-25 to +70	IP67	PBT	PBT	N/A	N/A	- -	E	3	A1

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Notes

Notes

Inductive Barrel Sensor Selection Guide

Embeddable/Nonembeddable Barrels					
Housing	3 mm	4 mm	4 mm	4 mm	5 mm
Sensing Range	1 mm	1 mm	1 mm	1 mm	1 mm
Pages	B9	B9	B9	B11	B11
Features					
2-wire					
3/4-wire	•	•	•	•	•
2-wire AC/DC					

Embeddable/Nonembeddable Barrels				
Housing	5 mm	6.5 mm	6.5 mm	8 mm
Sensing Range	1 mm	1.5 - 6 mm	1.5 - 6 mm	1.5 - 2 mm
Pages	B11	B13 - 16	B13 - 16	B17
Features		Uprox	Uprox	
2-wire				
3/4-wire	•	•	•	•
2-wire AC/DC				

Embeddable/Nonembeddable Barrels				
Housing	8 mm	Side Sensing	Side Sensing	8 mm
Sensing Range	1.5 - 2 mm	1 - 1.5 mm	1.5 mm	1.5 - 6 mm
Pages	B17	B19	B19	B23 - 34
Features	Uprox			Uprox
2-wire				•
3/4-wire	•	•	•	•
2-wire AC/DC				

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Inductive Barrel Sensor Selection Guide

Embeddable/Nonembeddable Barrels				
Housing	8 mm	12 mm	12 mm	12 mm
Sensing Range	1.5 - 6 mm	2 - 10 mm	2 - 8 mm	2 - 10 mm
Pages	B35 - 42	B43 - 64	B59	B65 - 72
Features		Uprox	Uprox	
2-wire	•	•		•
3/4-wire	•	•	•	•
2-wire AC/DC		•		•

Embeddable/Nonembeddable Barrels					
Housing	12 mm	12 mm	18 mm	18 mm	
Sensing Range	2 - 8 mm	2 - 8 mm	5 - 15 mm	2 - 10 mm	
Pages	B73	B75	B77 - 104	B95	B103
Features	Uprox	Uprox	Uprox	Uprox	
2-wire		•	•		
3/4-wire	•	•	•	•	
2-wire AC/DC	•		•		

Embeddable/Nonembeddable Barrels				
Housing	18 mm	18 mm	18 mm	18 mm
Sensing Range	5 - 15 mm	5 - 12 mm	5 - 10 mm	5 - 12 mm
Pages	B105 - 110	B99 - 112	B113	B115
Features	Uprox	Uprox	Uprox	Uprox
2-wire	•	•		
3/4-wire	•	•	•	•
2-wire AC/DC	•	•	•	•

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Inductive Barrel Sensor Selection Guide

Embeddable/Nonembeddable Barrels				
Housing	30 mm	30 mm	30 mm	30 mm
Sensing Range	10 - 30 mm	10 - 20 mm	10 - 30 mm	10 - 20 mm
Pages	B117 - 132	B127 / B143	B133 - 140	B141
Features	Uprox	Uprox	Uprox	Uprox
2-wire	•	•	•	•
3/4-wire	•	•	•	•
2-wire AC/DC	•	•	•	•

Embeddable/Nonembeddable Barrels				
Housing	30 mm	30 mm	40 mm	47 mm
Sensing Range	10 - 20 mm	10 - 20 mm	30 mm	20 - 25 mm
Pages	B145	B145	B147	B147
Features	Uprox			
2-wire				
3/4-wire	•	•	•	•
2-wire AC/DC	•	•	•	•

Embeddable/Nonembeddable Barrels				
				IS
Housing	47 mm	40 mm	47 mm	Variable
Sensing Range	20 - 25 mm	15 - 30 mm	25 - 40 mm	1 - 15 mm
Pages	B147	B149	B149	B151 - 162
Features				
2-wire				•
3/4-wire	•	•	•	
2-wire AC/DC	•	•	•	

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensor Part Number Key

B	I	10	U	-		G	T	30		-	A	DZ	30	X2	Wiring Option*	Special Option Code**

Mounting
B = embeddable
N = nonembeddable

Principle of Operation
I = inductive

Rated Operating Distance (mm)

Sensing Characteristics
U = Uprox® sensor

Housing Material Modifier
E = stainless steel

Housing Style
Barrel - Metal
G = full threading, generally chrome plated brass
GS = threaded side sensor
H = smooth, chrome plated brass or stainless steel
HS = smooth side sensor
M = partial threading, chrome plated brass
Barrel - Plastic
K = smooth
P = full threading
S = partial threading
SK = side sensing/slot sensor, plastic housing

Primary Barrel Modifier
T = PTFE coated

Housing Diameter or Height (mm)

Secondary Barrel Modifier
CA = conduit adaptor
E = extended barrel length
EE = extra long barrel length
F = stainless steel face
FE = stainless steel face, extended barrel length
H = Stoneface®
K = short barrel length
M = medium barrel length
S = side sensing
SE = extended length
SK = right-angle terminal chamber
SR = straight terminal chamber
T = barb fitting at cable entry
TC = terminal chamber
WD = washdown IP68/IP69K

Number of LEDs
(blank) = no LEDs
X = 1 LED
X2 = 2 LEDs

Voltage Range
AC/DC: (No SCP)**
3 = 20-250 VAC, 10-300 VDC
14 = 20-132 VAC, 10-140 VDC
31 = 20-250 VAC, 10-300 VDC, plastic barrel
33 = 35-250 VAC, grounded metal barrel
AC/DC: (Latched SCP)
30 = 20-250 VAC, 10-300 VDC
32 = 20-250 VAC, 10-300 VDC
40 = 20-140 VAC/DC, high off-state current
DC:
4 = 10-65 VDC, polarity protected, pulsed SCP**
6 = 10-30 VDC, polarity protected, pulsed SCP
7 = 10-30 VDC, TTL compatible
8 = 20-30 VDC, polarity protected, pulsed SCP
41 = 10-55 VDC, polarity protected, pulsed SCP
44 = 10-55 VDC
45 = 8.4-64 Volts
**SCP = short-circuit and overload protection

Output
D = 2-wire DC (transistor output)
DZ = 2-wire AC/DC, (power MOSFET output)
G = 2-wire DC, low voltage drop
N = NPN transistor (current sinking)
P = PNP transistor (current sourcing)
Z = 2-wire AC or 2-wire AC/DC

Output Function
A = normally open (N.O.)
DA = dynamic output (ring sensor), normally open
F = connection programmable (N.O or N.C.)
R = normally closed (N.C.)
V = complementary outputs: one N.O., one N.C.
Y0 = NAMUR output, requires switching amplifier
Y1 = NAMUR output, requires switching amplifier, ATEX Approved

NOTE:
Part number keys are to assist in identification only.
Verify new part numbers with factory; some configurations are not possible.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensor Part Number Key

Wiring Options*

A. Connectorized Sensor

Bi2-M12-AN6X - H1 1 4 1

Connector Family

B1 = Minifast®, 7/8"-16UN, metal, male
B2 = Minifast®, 7/8"-16UN, plastic, male
B3 = Microfast®, 1/2"-20UNF, metal, male
H1 = Eurofast®, M12x1, metal or plastic, male
V1 = Picofast®, snap and M8x1, metal, male (Q08 snap only)
V2 = Picofast®, snap and M8x1, male (Q08 only)

Connector/Sensor Transition

1 = straight
3 = straight with adapter
4 = right-angle with adapter

Factory Code

Example:
0 = non-standard wiring
1 = standard wiring
3 = N.C. DC output on pin 4
4 = N.O. 2-wire DC output on pin 4

Number of Pins

B. Potted Cable

Bi2-G12-AN6X 7M

Cable Length

(blank) = 2 meter cable
7M = 7 meter cable
*M = custom cable lengths available

C. Potted Cable with Molded Connector

Bi2-G12-Y0X - 0.2M - RS 4.21T

Cable Length

examples:
0.2M = 0.2 meters (minimum)
2M = 2 meter cable
7M = 7 meter cable

Standard Cordset Connector

AC: RSM 30 = Minifast, 7/8"-16UN, metal, male, 3-conductor
SB 3T = Microfast, 1/2"-20UNF, metal , male, 30 conductor
DC: RS 4T = Eurofast, M12x1, metal or plastic, male, 3-conductor
RS 4.2T = Eurofast, M12x1, metal or plastic, male, 2-conductor
RS 4.21T = Eurofast, M12x1, metal or plastic, male, NAMUR, 2-conductor
RS 4.4T = Eurofast, M12x1, metal or plastic, male, 4-conductor
RSM 40 = Minifast, 7/8"-16UN, metal, male, 4-conductor
PSG 3 = Picofast, snap, plastic, male, 3-conductor
PSG 3M = Picofast, M8x1, male, 3-conductor

Option Codes for Special or Custom-Built Sensors**

Bi 2-S12-AN7X /S100 or Bi10-M30-AN6X-H1141 /F2

examples:
/S34 = weld field immune
/S90 = TPU cable
/S97 = -40 °C (-40 °F) operating temperature
/S100 = +100 °C (+212 °F) operating temperature
/S1589 = barrel sensors with Weldguard® laminate
/S1610 = barrel sensors with tool steel sleeve and Weldguard® laminate

example:
/F2 = alternate oscillator frequency

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Inductive Barrel Sensors

Mounting

Turck inductive proximity sensors are manufactured with a shielded coil, designated by "Bi" in the part number, and a nonshielded coil, designated by "Ni" in the part number. Embeddable (shielded) units may be safely flush-mounted in metal. Nonembeddable (nonshielded) units require a metal free area around the sensing face. Because of possible interference of the electromagnetic fields generated by the oscillators, minimum spacing is required between adjacent or opposing sensors.

It is good engineering practice to mount sensors horizontally or with the sensing face looking down. Avoid sensors that look up wherever considered, especially if metal filings and chips are present.

Maximum Locknut Torque Specifications

The locknut torque should be considered for all threaded sensors to prevent the housing from being over stressed. The values below pertain to the locknut provided with each sensor. Liquid thread sealants of an anaerobic base, such as Loctite, are recommended if strong vibrations are likely.

Caution: Sensor barrels are typically brass. Consider break torque when selecting grade of thread sealant.

Barrel Size	Metal Barrel	Plastic Barrel
5 mm	5 Nm (3.7 ft-lb)	- - - -
8 mm	5 Nm (3.7 ft-lb)	- - - -
8 mm (M08 Ferrite)	7 Nm (5.2 ft-lb)	- - - -
12 mm	10 Nm (7.4 ft-lb)	1 Nm (0.7 ft-lb)
18 mm	25 Nm (18 ft-lb)	2 Nm (1.4 ft-lb)
30 mm	75 Nm (55 ft-lb)	5 Nm (3.7 ft-lb)
47 mm	90 Nm (66 ft-lb)	- - - -

Drill Hole Sizes for Metric Threads

Thread Size	Pitch	Thru Hole (mm)	Tap Hole Dia. (mm)	Thru Hole (in)	Tap Hole Dia. (in)
M5 x 0.5	0.5	5.0	4.5	13/64	5/32
M8 x 1	1.0	8.0	7	21/64	1/4
M12 x 1	1.0	12.0	11	31/64	13/32
M18 x 1	1.0	18.0	17	23/32	41/64
M30 x 1.5	1.5	30.0	28	1-3/16	1-5/64
PG 9	1.41	15.2	14	5/8	1/2
PG 13.5	1.41	20.4	19	13/16	23/32
PG 36	1.59	47.0	45.5	1-7/8	1-47/64

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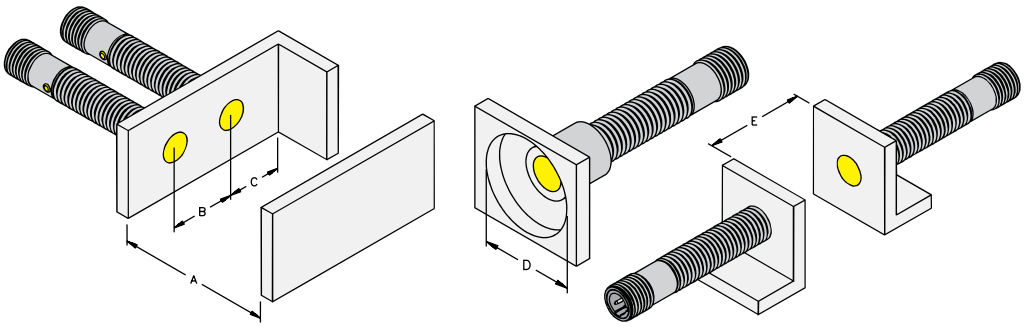
Inductive Barrel Sensors

Embeddable Mounting Considerations



Flush Mountable

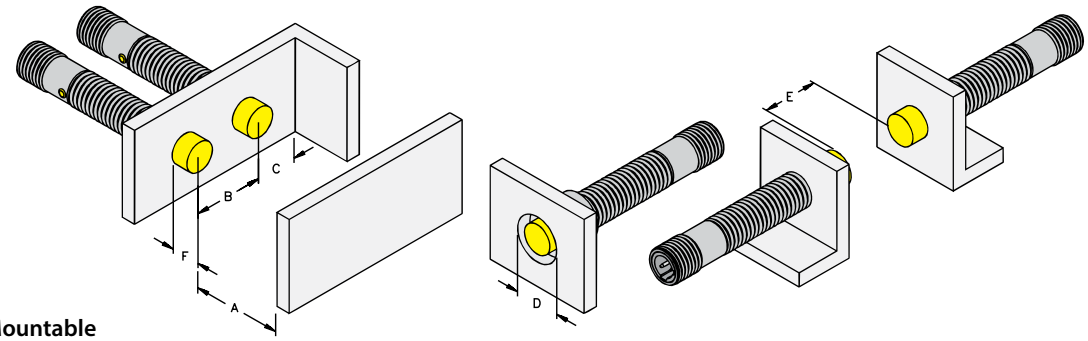
Sensor Type	Barrel Diameter	A	B	C	D	E
Bi1	3.00	3.00	6.00	4.50	9.00	9.00
Bi1U	4.00	3.00	8.00	6.00	12.00	6.00
Bi1	4.00	3.00	8.00	6.00	12.00	6.00
Bi1	5.00	3.00	10.00	8.00	15.00	6.00
Bi1U	5.00	3.00	10.00	7.50	15.00	6.00
Bi1.5U	6.50	5.00	13.00	10.00	20.00	9.00
Bi1.5	6.50	5.00	13.00	10.00	20.00	9.00
Bi2	6.50	6.00	13.00	10.00	20.00	12.00
Bi1.5U	8.00	5.00	16.00	12.00	24.00	9.00
Bi1.5	8.00	5.00	16.00	12.00	24.00	9.00
Bi2	8.00	6.00	16.00	12.00	24.00	12.00
Bi2U	8.00	6.00	16.00	12.00	24.00	12.00
Bi3U	8.00	9.00	16.00	12.00	24.00	18.00
Bi2	11.00	6.00	22.00	17.00	33.00	12.00
Bi2	12.00	6.00	24.00	18.00	36.00	12.00
Bi3U	12.00	9.00	24.00	18.00	36.00	18.00
Bi3	12.00	9.00	24.00	18.00	36.00	18.00
Bi4	12.00	12.00	24.00	18.00	36.00	24.00
Bi4U	12.00	12.00	24.00	18.00	36.00	24.00
Bi6U	12.00	18.00	24.00	18.00	36.00	36.00
Bi5U	18.00	15.00	36.00	27.00	54.00	30.00
Bi5	18.00	15.00	36.00	27.00	54.00	30.00
Bi7	18.00	21.00	36.00	27.00	54.00	42.00
Bi8U	18.00	24.00	36.00	27.00	54.00	48.00
Bi8	18.00	24.00	36.00	27.00	54.00	48.00
Bi10U	18.00	30.00	36.00	27.00	54.00	60.00
Bi10U	30.00	27.00	60.00	45.00	90.00	54.00
Bi10	30.00	30.00	60.00	45.00	90.00	60.00
Bi12	30.00	36.00	60.00	45.00	90.00	72.00
Bi15	30.00	45.00	60.00	45.00	90.00	90.00
Bi15U	30.00	45.00	60.00	45.00	90.00	90.00
Bi 20U	30.00	60.00	60.00	45.00	90.00	120.00
Bi 20	47.00	60.00	94.00	71.00	141.00	120.00
Bi 25	47.00	75.00	94.00	71.00	141.00	150.00

Dimensions are in mm.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors

Nonembeddable Mounting Characteristics

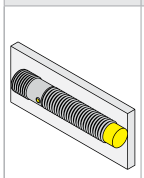
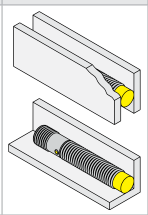
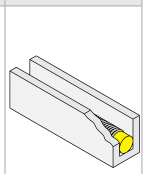


Non-Flush Mountable

Sensor Type	Barrel Diameter	A	B	C	D	E	F	1 Side	2 Side	3 Side
Ni3	6.50	9.00	20.00	10.00	20.00	18.00	6.00			
Ni3	8.00	9.00	24.00	12.00	24.00	18.00	6.00			
Ni4U	8.00	12.00	32.00	12.00	32.00	24.00	8.00			
Ni4	8.00	12.00	24.00	12.00	24.00	24.00	8.00			
Ni6U	8.00	18.00	32.00	12.00	36.00	36.00	12.00			
Ni5	11.00	15.00	33.00	17.00	33.00	30.00	10.00			
Ni4	12.00	12.00	36.00	18.00	36.00	24.00	8.00			
Ni5	12.00	15.00	36.00	18.00	36.00	30.00	10.00			
Ni8U	12.00	24.00	48.00	18.00	45.00	48.00	16.00	Sr=6 mm*		
Ni8	12.00	24.00	36.00	18.00	36.00	48.00	16.00			
Ni10U	12.00	30.00	48.00	18.00	36.00	60.00	20.00			
Ni8	18.00	24.00	54.00	27.00	54.00	48.00	16.00			
Ni10	18.00	30.00	54.00	27.00	54.00	60.00	20.00			
Ni12U	18.00	36.00	70.00	27.00	54.00	72.00	24.00			
Ni14	18.00	42.00	54.00	27.00	54.00	84.00	20.00			
Ni15U	18.00	45.00	70.00	27.00	54.00	90.00	30.00			
Ni10	20.00	30.00	60.00	30.00	60.00	60.00	20.00			
Ni15	30.00	45.00	90.00	45.00	90.00	90.00	20.00			
Ni20U	30.00	60.00	90.00	45.00	90.00	120.00	40.00	Sr=15 mm*	Sr=12 mm*	Sr=11 mm*
Ni20	30.00	60.00	90.00	45.00	90.00	120.00	20.00			
Ni30U	30.00	135.00	90.00	45.00	90.00	180.00	60.00			
Ni20	40.00	60.00	120.00	60.00	120.00	120.00	40.00			
Ni30	40.00	90.00	120.00	60.00	120.00	180.00	40.00			
Ni25	47.00	75.00	141.00	71.00	141.00	150.00	40.00			
Ni40	47.00	120.00	141.00	71.00	141.00	240.00	40.00			

Dimensions are in mm.

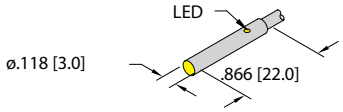
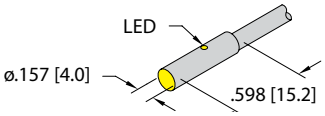
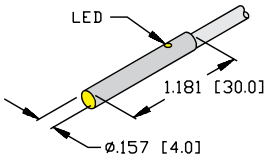
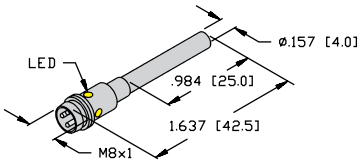
* The above Uprox Ni sensors with DC outputs and Stainless barrels can be flush mounted because the sensor automatically compensates for metal alongside its sensing face by decreasing the sensing range, preventing the output from locking on.

1 Side	2 Side	3 Side
		

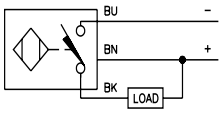
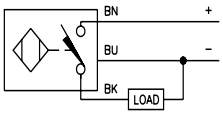
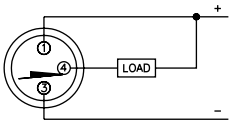
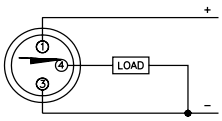
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 3 mm, 4 mm

Embeddable Smooth Metal Barrels with DC Outputs

Housing Style	Dimension Drawings	
	A  3 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable	B  4 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable
C  4 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable	D  4 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect	

Wiring Diagrams/Mating Cordsets

1	2	3	4
		 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 3 mm, 4 mm

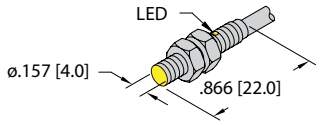
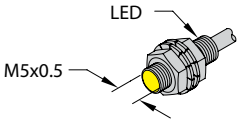
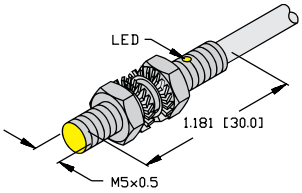
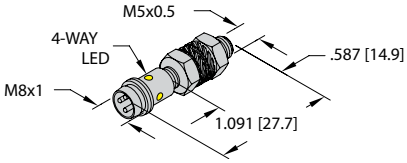
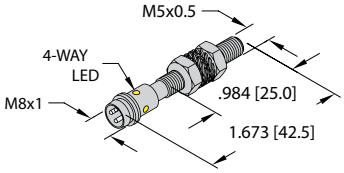
Embeddable Smooth Metal Barrels with DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1U-EH04-AN6X 4602114	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1U-EH04-AP6X 4602112	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EH04-AN6X 4609640		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1-EH04-AP6X 4609540		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EH04K-AN6X 4609768	Short Barrel	1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1-EH04K-AP6X 4609767	Short Barrel	1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1-EH03-AN6X 1619326		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1-EH03-AP6X 1619325		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1U-EH04-AN6X-V1331 4602115	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Bi1U-EH04-AP6X-V1331 4602113	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Bi1-EH04-AN6X-V1331 4608540		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Bi1-EH04-AP6X-V1331 4608440		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4

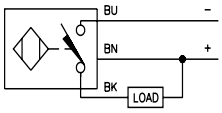
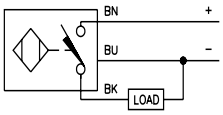
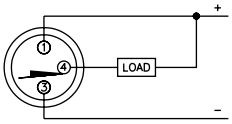
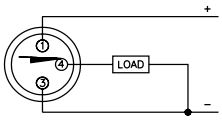
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 4 mm, 5 mm

Embeddable Threaded Metal Barrels with DC Outputs

Housing Style	Dimension Drawings	
	A  4 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	B  5 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable
C  5 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	D  5 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect	E  5 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1	2	3	4
		 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 4 mm, 5 mm

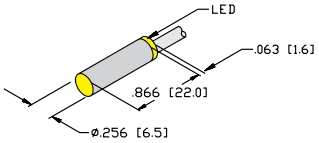
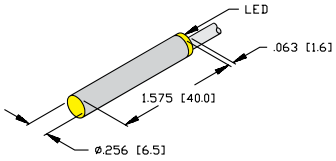
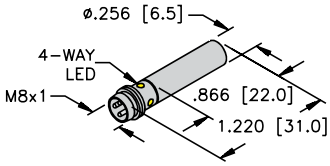
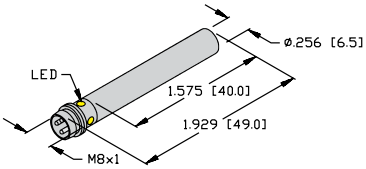
Embeddable Threaded Metal Barrels with DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1U-EG05-AN6X 4602118	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1U-EG05-AP6X 4602116	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EG05-AN6X 4609840		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1-EG05-AP6X 4609740		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-EG05K-AN6X 4609764	Short Barrel	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1-EG05K-AP6X 4609765	Short Barrel	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1-EG04-AN6X 1619328		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1-EG04-AP6X 1619327		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1U-EG05-AN6X-V1331 4602119	Uprox3	1	3-wire DC NPN	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	3	A4
Bi1U-EG05-AP6X-V1331 4602117	Uprox3	1	3-wire DC PNP	10-30 VDC	2000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	4	A4
Bi1-EG05-AN6X-V1331 4608740		1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	3	A4
Bi1-EG05-AP6X-V1331 4608640		1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	4	A4
Bi1-EG05K-AP6X-V1331 4609766	Short Barrel	1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4

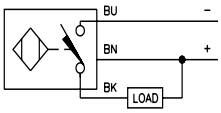
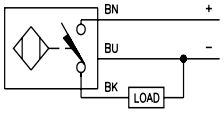
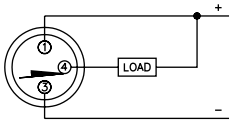
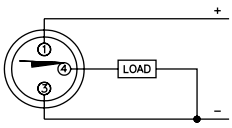
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 6.5 mm

Embeddable Smooth Metal Barrels with DC Outputs

Housing Style	Dimension Drawings	
	A  6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable	B  6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable
C  6.5 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect	D  6.5 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect	

Wiring Diagrams/Mating Cordsets

1	2	3	4
		 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 6.5 mm

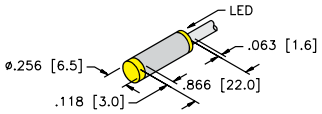
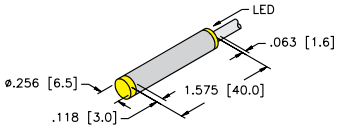
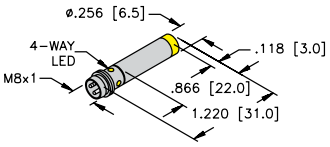
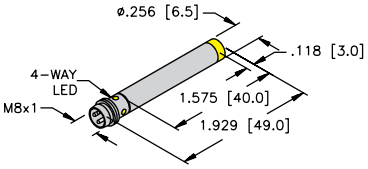
Embeddable Smooth Metal Barrels with DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2U-EH6.5-AN6X 4281170	Uprox	2	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/ TPU	B	1	A4
Bi2U-EH6.5-AP6X 4281150	Uprox	2	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi2-EH6.5-AN6X 4612300		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	1	A4
Bi2-EH6.5-AP6X 4612200		2	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi2-EH6.5K-AN6X 4610100	Short Barrel	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	1	A4
Bi2-EH6.5K-AP6X 4610000	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	2	A4
Bi1.5-EH6.5-AN6X 4612100		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	1	A4
Bi1.5-EH6.5-AP6X 4612000		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi1.5-EH6.5-AP6X/S100 4612001	High Temp. 100 °C	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	PA 12	N/A	YE	2M/ TPU	B	2	A4
Bi1.5-EH6.5K-AN6X 4610640	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	1	A4
Bi1.5-EH6.5K-AP6X 4610540	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/ TPU	A	2	A4
Bi2U-EH6.5-AN6X-V1131 4281180	Uprox	2	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP68	SS	PA 12	N/A	YE	--	D	3	A4
Bi2U-EH6.5-AP6X-V1131 4281160	Uprox	2	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP68	SS	PA 12	N/A	YE	--	D	4	A4
Bi2-EH6.5-AN6X-V1131 4612320		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Bi2-EH6.5-AP6X-V1131 4612220		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Bi2-EH6.5K-AN6X-V1131 4610120	Short Barrel	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	3	A4
Bi2-EH6.5K-AP6X-V1131 4610020	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	4	A4
Bi1.5-EH6.5-AN6X-V1131 4612120		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Bi1.5-EH6.5-AP6X-V1131 4612020		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Bi1.5-EH6.5K-AN6X-V1131 4610840	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	3	A4
Bi1.5-EH6.5K-AP6X-V1131 4610740	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	4	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 6.5 mm

Nonembeddable Smooth Metal Barrels with DC Outputs

Housing Style	Dimension Drawings	
	A  6.5 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable	B  6.5 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable
C  6.5 mm - Nonembeddable, Miniature Smooth, M8 Picofast Quick Disconnect	D  6.5 mm - Nonembeddable, Miniature Smooth, M8 Picofast Quick Disconnect	

Wiring Diagrams/Mating Cordsets

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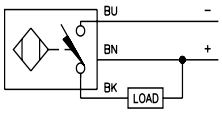
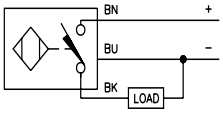
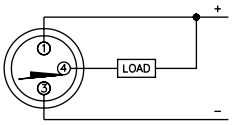
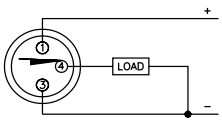
		 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 6.5 mm

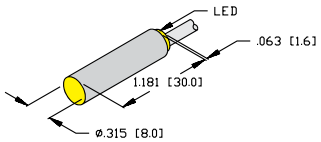
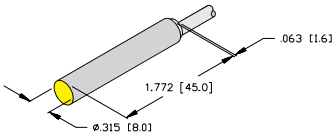
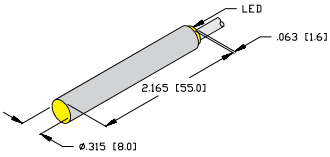
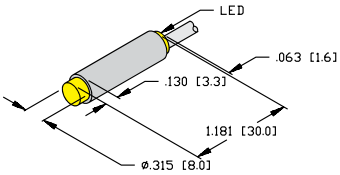
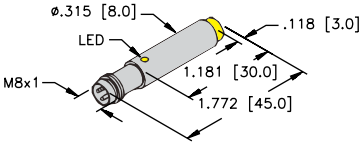
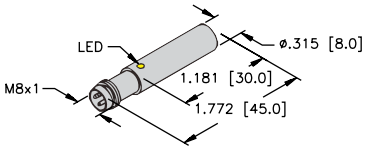
Nonembeddable Smooth Metal Barrels with DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni4U-EH6.5-AP6X 4600680	Uprox	4	3-wire DC PNP	10-30 VDC	3000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Ni3-EH6.5-AN6X 4612500		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Ni3-EH6.5-AP6X 4612400		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Ni3-EH6.5K-AN6X 4610300	Short Barrel	3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Ni3-EH6.5K-AP6X 4610200	Short Barrel	3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Ni6U-EH6.5-AP6X-V1131 4631510	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	PA 12	N/A	YE	--	D	4	A4
Ni4U-EH6.5-AN6X-V1131 4600683	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	D	3	A4
Ni4U-EH6.5-AP6X-V1131 4600681	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	--	D	4	A4
Ni3-EH6.5-AN6X-V1131 4612520		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	3	A4
Ni3-EH6.5-AP6X-V1131 4612420		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	D	4	A4
Ni3-EH6.5K-AN6X-V1131 4610320	Short Barrel	3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	3	A4
Ni3-EH6.5K-AP6X-V1131 4610220	Short Barrel	3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	C	4	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable and Nonembeddable Smooth Metal Barrels with DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable	B  8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable
C  8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable	D  8 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable	E  8 mm - Nonembeddable, Miniature Smooth, M8 Picofast Quick Disconnect
F  8 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect		

Wiring Diagrams/Mating Cordsets

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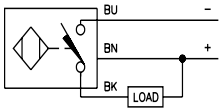
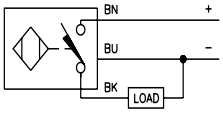
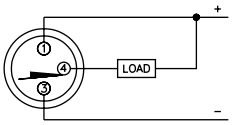
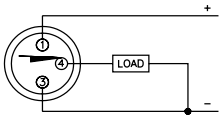
		 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable and Nonembeddable Smooth Metal Barrels with DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-H08K-AN6X 1604341	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1.5-H08K-AP6X 1604331	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1.5-H08M-AP6X 1604301		1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1.5-H08-AN6X 16143		1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1.5-H08-AP6X 16043		1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Ni2-H08K-AN6X 16147	Short Barrel	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	D	1	A4
Ni2-H08K-AP6X 16047	Short Barrel	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	D	2	A4
Bi1.5-H08K-AN6X-V1131 1604340	Short Barrel	1.5	3-wire DC NPN	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PBT	N/A	YE	--	F	3	A4
Bi1.5-H08K-AP6X-V1131 1604330	Short Barrel	1.5	3-wire DC PNP	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PBT	N/A	YE	--	F	4	A4
Ni2-H08K-AN6X-V1131 16148	Short Barrel	2	3-wire DC NPN	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	3	A4
Ni2-H08K-AP6X-V1131 16048	Short Barrel	2	3-wire DC PNP	10-30 VDC	5000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	--	E	4	A4

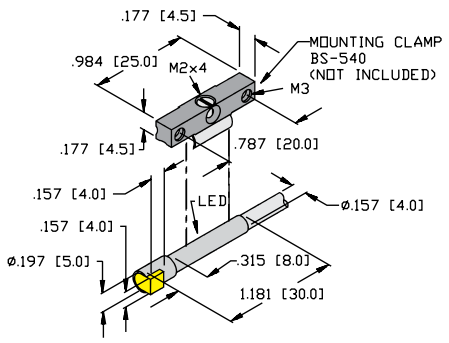
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 5 mm, 8 mm

Embeddable Side Sensing Metal Barrels with Cable and DC Outputs

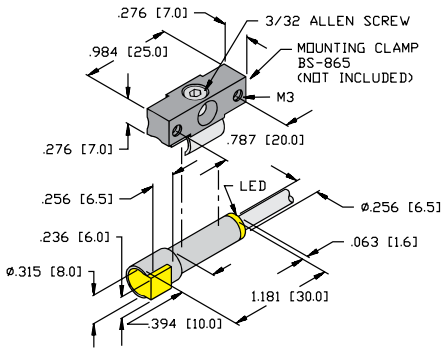
Housing Style	Dimension Drawings

A



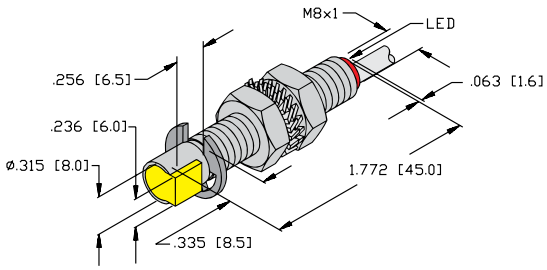
5 mm - Embeddable, Side Sensing, Miniature Smooth Barrel, Potted-In Cable

B



8 mm - Embeddable, Side Sensing, Miniature Smooth Barrel, Potted-In Cable

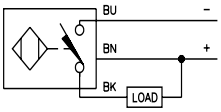
C



8 mm - Embeddable, Miniature Threaded Barrel, Side Sensing, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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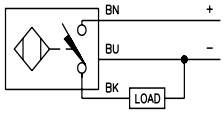


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 5 mm, 8 mm

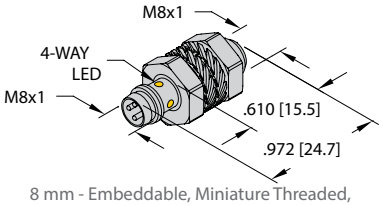
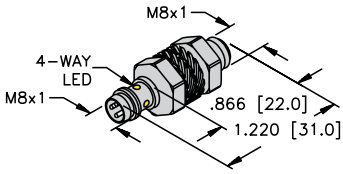
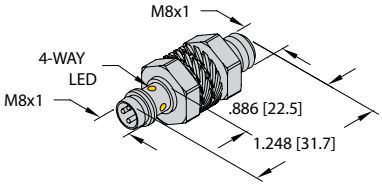
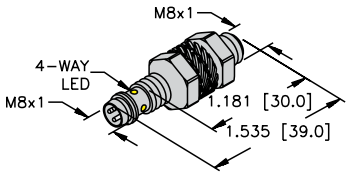
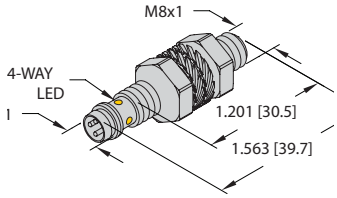
Embeddable Side Sensing Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-HS865-AN6X 4604301	Side Sensing	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1.5-HS865-AP6X 4604201	Side Sensing	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1.5-GS880-AN6X 4604501	Side Sensing	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1.5-GS880-AP6X 4604401	Side Sensing	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi1-HS540-AN6X 4604101	Side Sensing	1	3-wire DC NPN	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1-HS540-AP6X 4604001	Side Sensing	1	3-wire DC PNP	10-30 VDC	3000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4

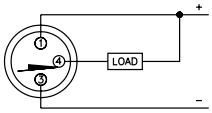
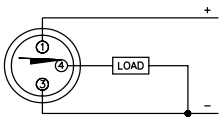
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect	B  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect
C  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect	D  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect	E  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1	2
 Mating Cordset: PKG 3M-*	 Mating Cordset: PKG 3M-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

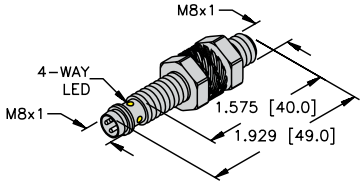
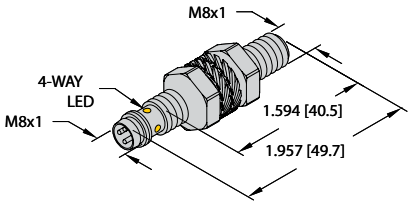
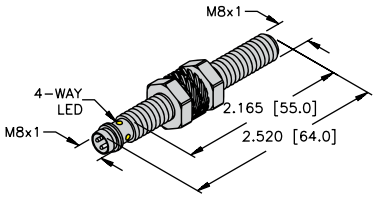
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EM08-AN6X-V1131 4602423	Uprox3	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	D	1	A4
Bi3U-EMT08-AN6X-V1131 4602157	Uprox3, PTFE	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	TC	N/A	YE	D	1	A4
Bi3U-EM08-AP6X-V1131 4602413	Uprox3	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	D	2	A4
Bi3U-EMT08-AP6X-V1131 4602156	Uprox3, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	TC	N/A	YE	D	2	A4
Bi3-M08-AN6X-V1131 4602914		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	E	1	A4
Bi3-M08-AP6X-V1131 4602911		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	E	2	A4
Bi3-M08KK-AN6X-V1131 4602942	Short Barrel	3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	1	A4
Bi3-M08KK-AP6X-V1131 4602939	Short Barrel	3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	2	A4
Bi2-EG08K-AN6X-V1131 4669550		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	D	1	A4
Bi2-EG08K-AP6X-V1131 4669450		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	D	2	A4
Bi2-G08K-AP6X-V1131 4672803		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PBT	N/A	YE	D	2	A4
Bi2-M08K-AN6X-V1131 4602965		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	1	A4
Bi2-M08K-AP6X-V1131 4602968		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	2	A4
Bi1.5-EG08K-AN6X-V1131 4672540		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	1	A4
Bi1.5-EG08K-AP6X-V1131 4672440		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	2	A4

Note: Reference sensor data sheet for considerations if mounting a BI3-M08 sensor flush in steel.

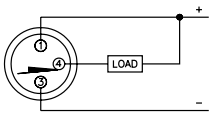
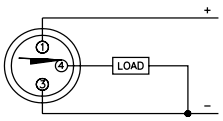
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect
B  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect	C  8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: PKG 3M-*	2  Mating Cordset: PKG 3M-*; PKG 3M-*/S1587

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

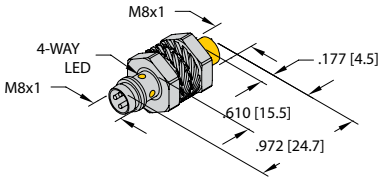
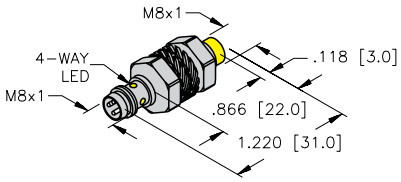
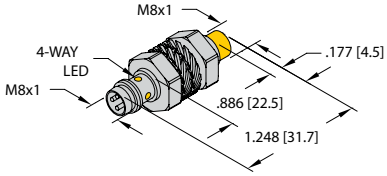
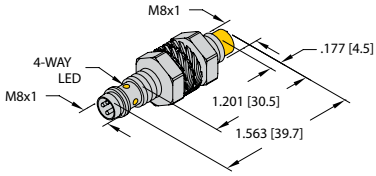
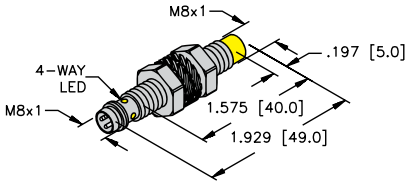
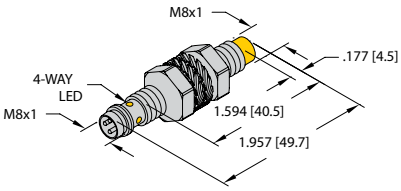
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi2U-EG08-AN6X-V1131 4602036	Uprox	2	3-wire DC NPN	10-30 VDC	1000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	C	1	A4
Bi2U-EG08-AP6X-V1131 4602033	Uprox	2	3-wire DC PNP	10-30 VDC	1000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	C	2	A4
Bi2-EG08-AN6X-V1131 4602150		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	1	A4
Bi2-EG08-AP6X-V1131 4602050		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	2	A4
Bi2-EG08-AP6X-V1131/S1589 46020501	Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	C	2	A4
Bi2-EGT08-AP6X-V1131/S100 4602263	PTFE, High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	TC	N/A	YE	C	2	A4
Bi2-EGT08-AP6X-V1131/S100/S1589 4602072	PTFE, High Temp. 100 °C, Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	WG	N/A	YE	C	2	A4
Bi2-G08-AP6X-V1131 4602002		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	2	A4
Bi2-M08E-AN6X-V1131 4602953		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	B	1	A4
Bi2-M08E-AP6X-V1131 4602956		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	B	2	A4
Bi1.5U-EG08-AN6X-V1131 4600530	Uprox	1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	A	1	A4
Bi1.5U-EG08-AP6X-V1131 4600520	Uprox	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	A	2	A4
Bi1.5-EG08-AN6X-V1131 4602350		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	1	A4
Bi1.5-EG08-AP6X-V1131 4602220		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4

We reserve the right to make technical alterations without prior notice.

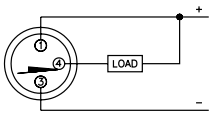
Inductive Barrel Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect	B  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect
C  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect	D  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect	E  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect
F  8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect		

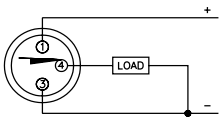
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: PKG 3M-*

2



Mating Cordset: PKG 3M-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

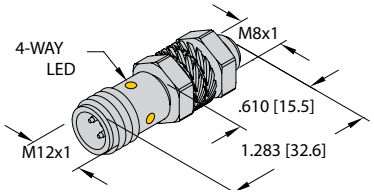
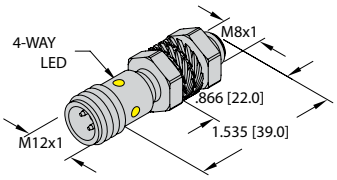
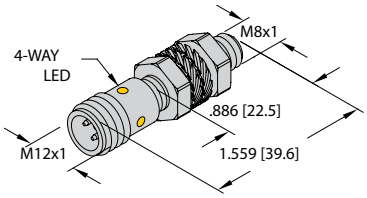
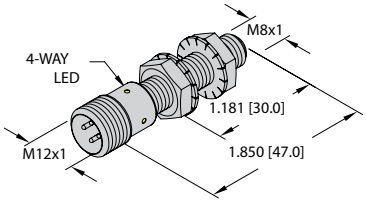
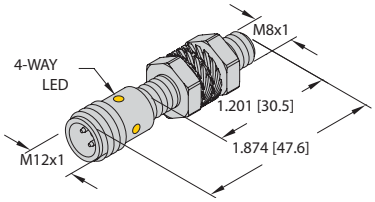
Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni6U-EG08-AN6X-V1131 4635804	Uprox+	6	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	E	1	A4
Ni6U-EG08-AP6X-V1131 4635801	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	E	2	A4
Ni5-M08-AN6X-V1131 4602924		5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	D	1	A4
Ni5-M08-AP6X-V1131 4602921		5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	D	2	A4
Ni5-M08KK-AN6X-V1131 4602949	Short Barrel	5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	A	1	A4
Ni5-M08KK-AP6X-V1131 4602946	Short Barrel	5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	A	2	A4
Ni4U-EG08-AN6X-V1131 4600630	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	E	1	A4
Ni4U-EG08-AP6X-V1131 4600620	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	E	2	A4
Ni3-M08E-AN6X-V1131 4602833		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	F	1	A4
Ni3-M08E-AP6X-V1131 4602836		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	F	2	A4
Ni3-M08K-AN6X-V1131 4602849		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	C	1	A4
Ni3-M08K-AP6X-V1131 4602853		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	C	2	A4
Ni3-EG08-AN6X-V1131 4602850		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	E	1	A4
Ni3-EG08-AP6X-V1131 4602750		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	E	2	A4
Ni3-EG08K-AN6X-V1131 4669750		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	1	A4
Ni3-EG08K-AP6X-V1131 4669650		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	2	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect	B  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect
C  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect	D  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect	E  8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

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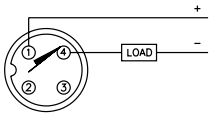
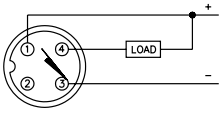
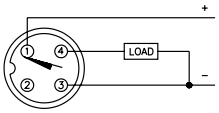
		
Mating Cordset: RK 4.23T-*	Mating Cordset: RK 4T-*	Mating Cordset: RK 4T-*; RK 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EM08-AN6X-H1341 4602422	Uprox3	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	D	2	A4
Bi3U-EMT08-AN6X-H1341 4602158	Uprox3, PTFE	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	TC	N/A	YE	D	2	A4
Bi3U-EM08-AP6X-H1341 4602412	Uprox3	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	D	3	A4
Bi3U-EMT08-AP6X-H1341 4602156	Uprox3, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	TC	N/A	YE	D	3	A4
Bi3-M08-AN6X-H1341 4602915		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	E	2	A4
Bi3-M08-AP6X-H1341 4602912		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	E	3	A4
Bi3-M08KK-AN6X-H1341 4602943	Short Barrel	3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	2	A4
Bi3-M08KK-AP6X-H1341 4602940	Short Barrel	3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	3	A4
Bi2-EG08K-AG41X-H1341 4562011		2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	B	1	A2
Bi2-EG08K-AG41X-H1341/S1589 4562090	Weldguard	2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	B	1	A2
Bi2-EGT08K-AG41X-H1341/S1589 4602599	PTFE, Short barrel, Weldguard	2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	B	1	A2
Bi2-EG08K-AN6X-H1341 4669560		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	2	A4
Bi2-EG08K-AP6X-H1341 4669460		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	3	A4
Bi2-EG08K-AP6X-H1341/S1589 4669486	Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	B	3	A4
Bi2-M08K-AN6X-H1341 4602964		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	2	A4
Bi2-M08K-AP6X-H1341 4602967		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	3	A4
Bi1.5-EG08K-AN6X-H1341 4669150		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	2	A4
Bi1.5-EG08K-AP6X-H1341 4669050		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	3	A4

Note: Reference sensor data sheet for considerations if mounting a BI3-M08 sensor flush in steel.

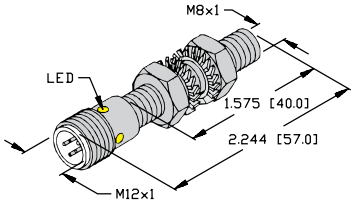
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings

A



8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

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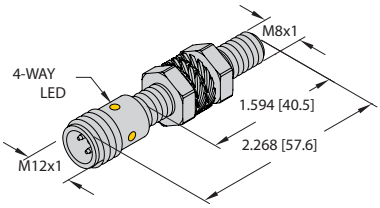

8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

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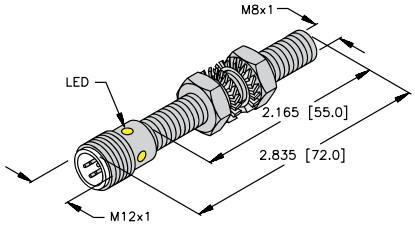

8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

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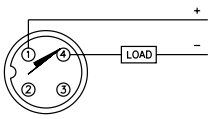

Mating Cordset: RK 4.23T-*

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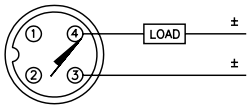

Mating Cordset: RK 4.23T-*

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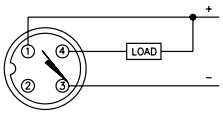
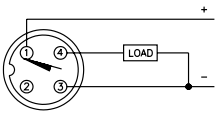


Mating Cordset: RK 4T-*; RK 4T-*/S1587

4



Mating Cordset: RK 4T-*; RK 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi2U-EG08-AN6X-H1341 4602037	Uprox	2	3-wire DC NPN	10-30 VDC	1000	≤150	-35 to +85	IP68	SS	PA 12	N/A	YE	A	3	A4
Bi2U-EG08-AP6X-H1341 4602034	Uprox	2	3-wire DC PNP	10-30 VDC	1000	≤150	-35 to +85	IP68	SS	PA 12	N/A	YE	A	4	A4
Bi2-EG08-AG41X-H1341 4562001		2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	A	1	A2
Bi2-EG08-AG41X-H1341/S1589 4562095	Weldguard	2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	A	1	A2
Bi2-EG08-AN6X-H1341 4602160		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi2-EG08-AN6X-H1341/S1589 4602182	Weldguard	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A4
Bi2-EG08-AP6X-H1341 4602060		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	4	A4
Bi2-EG08-AP6X-H1341/S1589 4602086	Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	4	A4
Bi2-EGT08-AP6X-H1341/S100 4602257	PTFE, High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	TC	TC	N/A	YE	A	4	A4
Bi2-EG08-VN6X-H1341 4602521	Comp. Outputs	2	4-wire DC NPN	10-30 VDC	3000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	5	A4
Bi2-EG08-VP6X-H1341 S4602522	Comp. Outputs	2	4-wire DC PNP	10-30 VDC	3000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	6	A4
Bi2-G08-AN6X-H1341 46026		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	3	A4
Bi2-G08-AP6X-H1341 46025		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	4	A4
Bi2-M08E-AN6X-H1341 4602952		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	B	3	A4
Bi2-M08E-AP6X-H1341 4602955		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	B	4	A4
Bi1.5U-EG08-AN6X-H1341 4600550	Uprox	1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi1.5U-EG08-AP6X-H1341 4600540	Uprox	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	A	4	A4
Bi1.5U-EG08-AP6X-H1341/S1589 46005401	Uprox, Weldguard	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP67	SS	WG	N/A	YE	A	4	A4
Bi1.5U-EGT08-AP6X-H1341 4600555	Uprox, PTFE	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP67	TC	TC	N/A	YE	A	4	A4
Bi1.5-EG08-AD6X-H1341 4600203		1.5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A2
Bi1.5-EG08-AN6X-H1341 4602360		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi1.5-EG08-AP6X-H1341 4602260		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	4	A4
Bi1.5-G08-AN6X-H1341 4603700		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	3	A4
Bi1.5-G08-AN7X-H1341 4701126	TTL Compatible	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	3	A4
Bi1.5-G08-AP6X-H1341 4603600		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	4	A4

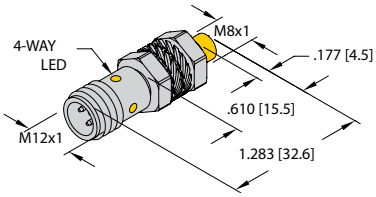
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

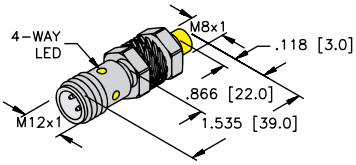
Housing Style	Dimension Drawings

A



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

B



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

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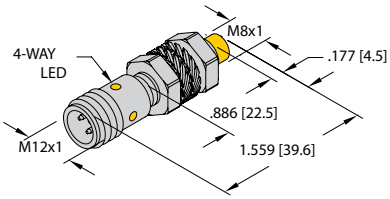

8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

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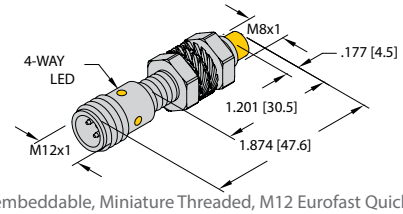
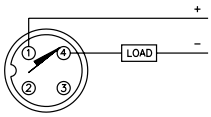


8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

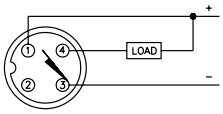
Wiring Diagrams/Mating Cordsets

1



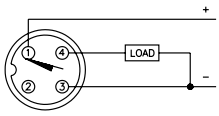
Mating Cordset: RK 4.23T-*

2



Mating Cordset: RK 4T-*

3



Mating Cordset: RK 4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni5-M08-AN6X-H1341 4602925		5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	D	2	A4
Ni5-M08-AP6X-H1341 4602922		5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	D	3	A4
Ni5-M08KK-AN6X-H1341 4602950	Short Barrel	5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	2	A4
Ni5-M08KK-AP6X-H1341 4602947	Short Barrel	5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	A	3	A4
Ni4-EG08K-AG41X-H1341 4561011		4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	B	1	A2
Ni4-EG08K-AG41X-H1341/S1589 4561090	Weldguard	4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	B	1	A2
Ni3-EG08K-AN6X-H1341 4669760		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	2	A4
Ni3-EG08K-AP6X-H1341 4669660		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	B	3	A4
Ni3-M08K-AN6X-H1341 4602848		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	2	A4
Ni3-M08K-AP6X-H1341 4602852		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	C	3	A4

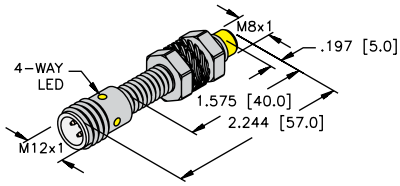
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

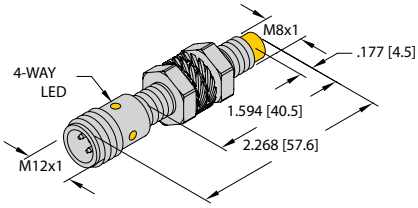
Housing Style	Dimension Drawings

A



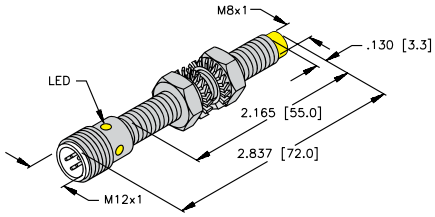
8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

B



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

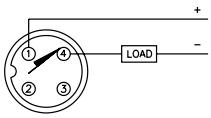
C



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

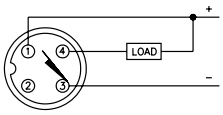
Wiring Diagrams/Mating Cordsets

1



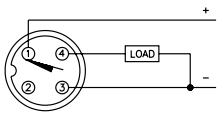
Mating Cordset: RK 4.23T-*; RK 4.23T-*/S1587

2



Mating Cordset: RK 4T-*;

3



Mating Cordset: RK 4T-*; RK 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

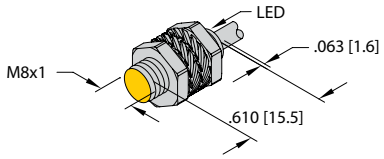
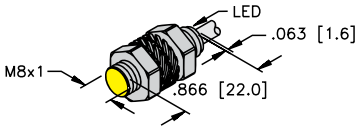
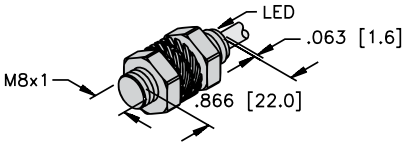
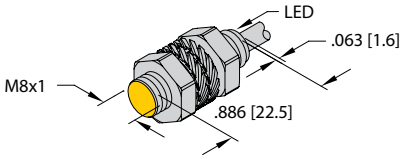
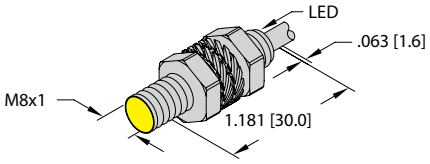
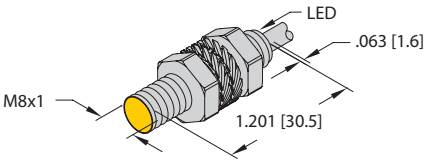
Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni6U-EG08-AN6X-H1341 4635805	Uprox+	6	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	A	2	A4
Ni6U-EG08-AP6X-H1341 4635802	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	A	3	A4
Ni4U-EG08-AN6X-H1341 4600650	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	A	2	A4
Ni4U-EG08-AP6X-H1341 4600640	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	A	3	A4
Ni4U-EG08-AP6X-H1341/S1589 4600641	Uprox, Weldguard	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP67	SS	WG	N/A	YE	A	3	A4
Ni4-EG08-AG41X-H1341 4561001		4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	A	1	A2
Ni4-EG08-AG41X-H1341/S1589 4561091	Weldguard	4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	A	1	A2
Ni3-EG08-AN6X-H1341 4602860		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4
Ni3-EG08-AN7X-H1341 4669761	TTL Compatible	3	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4
Ni3-EG08-AP6X-H1341 4602760		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Ni3-EG08-AP6X-H1341/S1589 4602799	Weldguard	3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A4
Ni3-M08E-AN6X-H1341 4602832		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	B	2	A4
Ni3-M08E-AP6X-H1341 4602835		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	B	3	A4
Ni3-G08-AN6X-H1341 4602704		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	2	A4
Ni3-G08-AP6X-H1341 4602705		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	3	A4
Ni2-G08-AN6X-H1341 46033		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	2	A4
Ni2-G08-AP6X-H1341 46032		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	C	3	A4

We reserve the right to make technical alterations without prior notice.

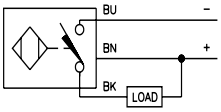
Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	B  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable
C  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable, PTFE Coated	D  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	E  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable
F  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable		

Wiring Diagrams/Mating Cordsets

1



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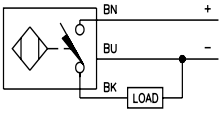


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

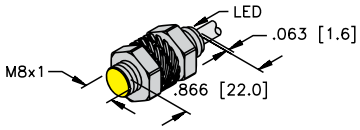
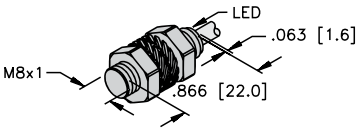
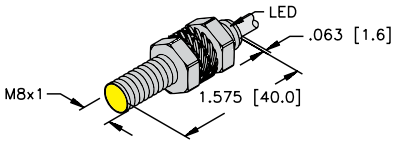
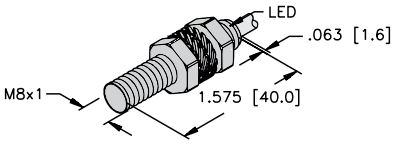
Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EM08-AN6X 4602421	Uprox3	3	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	2M/TPU	E	1	A4
Bi3U-EM08-AP6X 4602411	Uprox3	3	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +60	IP68	SS	PA 12	N/A	YE	2M/TPU	E	2	A4
Bi3-M08-AN6X 4602913		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	F	1	A4
Bi3-M08-AP6X 4602910		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	F	2	A4
Bi3-M08KK-AN6X 4602941	Short Barrel	3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	A	1	A4
Bi3-M08KK-AP6X 4602938	Short Barrel	3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	A	2	A4
Bi2-EG08K-AN6X 4669500		2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi2-EG08K-AN6X/S1589 4669587	Weldguard	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	B	1	A4
Bi2-EG08K-AP6X 4669400		2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi2-EG08K-AP6X/S97 4669413	Low Temp. -40 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-40 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi2-EGT08K-AP6X 4602541	PTFE	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	TC	TC	N/A	YE	2M/TPU	C	2	A4
Bi2-EGT08K-AP6X/S100 4602544	PTFE, High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	TC	TC	N/A	YE	2M/TPU	C	2	A4
Bi2-EGT08K-AP6X/S1589 46025413	PTFE, Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	TC	WG	N/A	YE	2M/TPU	C	2	A4
Bi2-M08K-AN6X 4602963		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	D	1	A4
Bi2-M08K-AP6X 4602966		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	D	2	A4
Bi1.5-EG08K-AN6X 4669140		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Bi1.5-EG08K-AP6X 4669040		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Bi1.5-EG08K-AP6/S100 4669016	High Temp. 100 °C	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4

Note: Reference sensor data sheet for considerations if mounting a BI3-M08 sensor flush in steel.

We reserve the right to make technical alterations without prior notice.

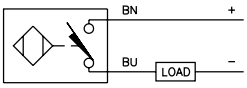
Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable and 2-Wire Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	B  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable, PTFE Coated
C  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable	D  8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable, PTFE Coated	

Wiring Diagrams/Mating Cordsets

1



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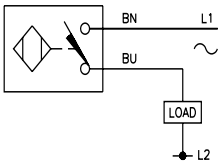


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10 ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable and 2-Wire Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-EG08-AG41X 4562000		2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A2
Bi2-EG08-AG41X/S1589 4562088	Weldguard	2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	C	1	A2
Bi2-EG08-AZ14X 4100001		2	2-wire AC/DC	20-132 VAC/10-140 VDC	20	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A6
Bi2-EGT08-AG41X 4602540	PTFE	2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	TC	PA 12	N/A	YE	2M/TPU	D	1	A2
Bi2-EGT08-AG41X/S1589 46020003	PTFE, Weldguard	2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	2M/TPU	D	1	A2
Bi2-EG08K-AG41X 4562010		2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A2
Bi2-EG08K-AG41X/S1589 4562091	Weldguard	2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	A	1	A2
Bi2-EGT08K-AG41X 4602545	PTFE	2	2-wire DC	10-55 VDC	1000	≤100	-25 to +70	IP67	TC	PA 12	N/A	YE	2M/TPU	B	1	A2

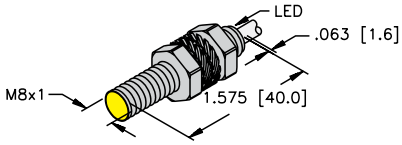
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

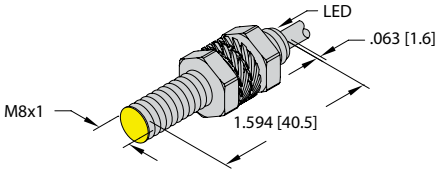
Housing Style	Dimension Drawings

A



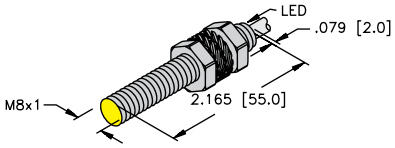
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

B



8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

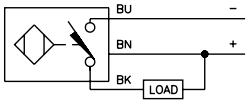
C



8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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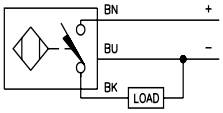

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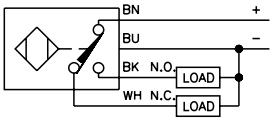


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

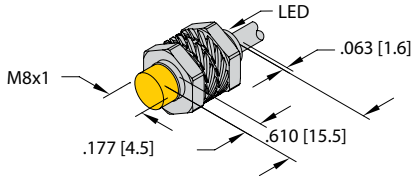
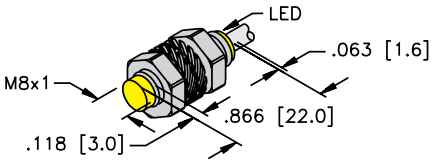
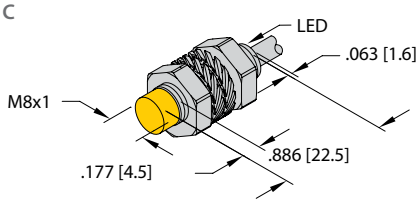
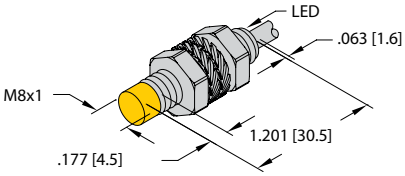
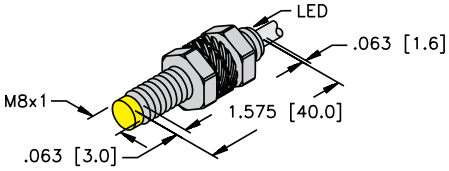
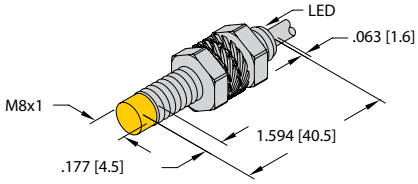
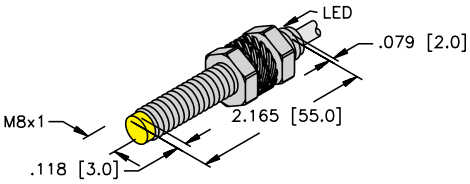
Embeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2U-EG08-AN6X 4602035	Uprox	2	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi2U-EG08-AP6X 4602032	Uprox	2	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi2-EG08-AN6X 4602140	Extended Range	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi2-EG08-AP6X 4602040	Extended Range	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi2-EG08-AP6X/S100 4602047	High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +100	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi2-EG08-AP6X/S1589 4602085	Weldguard	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	A	2	A4
Bi2-EG08-VP6X 1604610	Comp. Outputs	2	4-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	3	A4
Bi2-G08-AN6X 46021	Extended Range	2	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi2-G08-AP6X 46020	Extended Range	2	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4
Bi2-M08E-AN6X 4602951		2	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	B	1	A4
Bi2-M08E-AP6X 4602954		2	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CBP	PP-GF20	N/A	YE	2M/TPU	B	2	A4
Bi1.5U-EG08-AN6X 4600510	Uprox	1.5	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1.5U-EG08-AP6X 4600500	Uprox	1.5	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1.5-EG08-AN6X 4602340		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1.5-EG08-AN7X 1766110	TTL Compatible	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	1	A4
Bi1.5-EG08-AP6X 4602240		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	A	2	A4
Bi1.5-G08-AN6X 46023		1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	1	A4
Bi1.5-G08-AP6X 46022		1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	2	A4

We reserve the right to make technical alterations without prior notice.

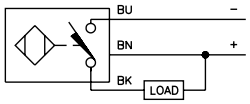
Inductive Barrel Sensors | 8 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable	B  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable
C  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable	D  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable	E  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable
F  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable	G  8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1



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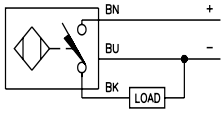


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm

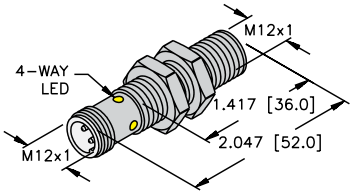
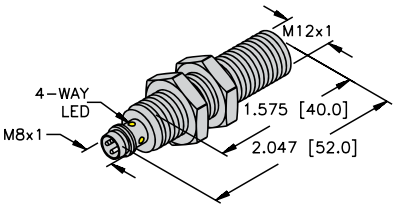
Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni6U-EG08-AN6X 4635803	Uprox+	6	3-wire DC NPN	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	2M/TPU	E	1	A4
Ni6U-EG08-AP6X 4635800	Uprox+	6	3-wire DC PNP	10-30 VDC	1000	≤150	0 to +70	IP68	SS	LCP	N/A	YE	2M/TPU	E	2	A4
Ni5-M08-AN6X 4602923		5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	D	1	A4
Ni5-M08-AP6X 4602920		5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	D	2	A4
Ni5-M08KK-AN6X 4602948	Short Barrel	5	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	A	1	A4
Ni5-M08KK-AP6X 4602944	Short Barrel	5	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	A	2	A4
Ni4U-EG08-AN6X 4600610	Uprox	4	3-wire DC NPN	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	E	1	A4
Ni4U-EG08-AP6X 4600600	Uprox	4	3-wire DC PNP	10-30 VDC	2000	≤150	-30 to +85	IP68	SS	PA 12	N/A	YE	2M/TPU	E	2	A4
Ni3-EG08-AN6X 4602840		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	E	1	A4
Ni3-EG08-AN6X/S1589 4602888	Weldguard	3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	E	1	A4
Ni3-EG08-AN7X 4669759	TTL Compatible	3	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	E	1	A4
Ni3-EG08-AP6X 4602740		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	E	2	A4
Ni3-EG08-AP6X/S1589 4602789	Weldguard	3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	WG	N/A	YE	2M/TPU	E	2	A4
Ni3-EG08K-AN6X 4669700		3	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	1	A4
Ni3-EG08K-AP6X 4669600		3	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	B	2	A4
Ni3-G08-AN6X 46028		3	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	G	1	A4
Ni3-G08-AP6X 46027		3	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	G	2	A4
Ni3-M08E-AN6X 4602831		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	F	1	A4
Ni3-M08E-AP6X 4602834		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	F	2	A4
Ni3-M08K-AN6X 4602847		3	3-wire DC NPN	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	C	1	A4
Ni3-M08K-AP6X 4602851		3	3-wire DC PNP	10-30 VDC	2800	≤150	-25 to +70	IP67	CPB	PP-GF20	N/A	YE	2M/TPU	C	2	A4
Ni2-G08-AN6X 4601300		2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	G	1	A4
Ni2-G08-AP6X 46012		2	3-wire DC PNP	10-30 VDC	2000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	G	2	A4

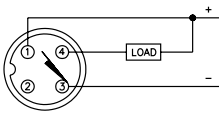
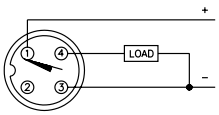
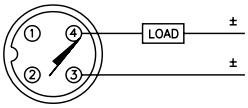
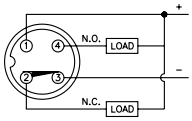
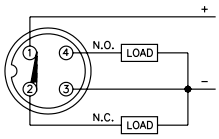
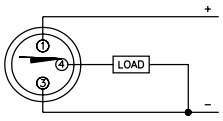
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable, M12 Eurofast Connection	B  12 mm - Embeddable, M8 Picofast Connection

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: RK 4T-*; RKV 4T-*	2  Mating Cordset: RK 4T-*; RKV 4T-*	3  Mating Cordset: RK 4.2T-*
4  Mating Cordset: RK 4.4T-*	5  Mating Cordset: RK 4.4T-*; RKV 4.4T-*	6  Mating Cordset: PKG 3M-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

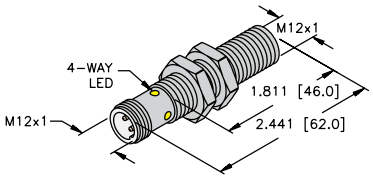
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi6U-M12-AN6X-H1141 1644808	Uprox3	6	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	1	A4
Bi6U-M12-AP6X-H1141 1644810	Uprox3	6	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	2	A4
Bi6U-M12-VP6X-H1141 1644805	Uprox3, Comp. Outputs	6	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	5	A4
Bi4U-EM12-AN6X-H1141 1634827	Uprox+	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	1	A4
Bi4U-M12-AN6X-H1141 1634824	Uprox+	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	1	A4
Bi4U-EM12-AP6X-H1141 1634807	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	2	A4
Bi4U-M12-AP6X-H1141 1634804	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	2	A4
Bi4U-M12-AP6X-V1131 1634780	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	B	6	A4
Bi4-M12-AN6X-H1141 4607100	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi4-M12-AP6X-H1141 46070	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi4-M12-VN6X-H1141 1643200	Ext. Range, Comp. Outputs	4	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi4-M12-VP6X-H1141 1633200	Ext. Range, Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Bi4-EM12-VP6X-H1141 1633201	Ext. Range, Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	5	A4
Bi3U-EM12-AN6X-H1141 1634350	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	1	A4
Bi3U-M12-AN6X-H1141 1634150	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi3U-EM12-AP6X-H1141 1634340	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	2	A4
Bi3U-M12-AP6X-H1141 1634140	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi3-M12-AD4X-H1141 4405041		3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A2
Bi2-M12-AD4X-H1141 44065		2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A2
Bi2-EM12-AN6X-H1141 4606601		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	1	A4
Bi2-M12-AN6X-H1141 46066		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi2-EM12-AP6X-H1141 4606501		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4
Bi2-M12-AP6X-H1141 46065		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi2-M12-VN6X-H1141 16430	Comp. Outputs	2	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi2-M12-VP6X-H1141 16330	Comp. Outputs	2	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4

We reserve the right to make technical alterations without prior notice.

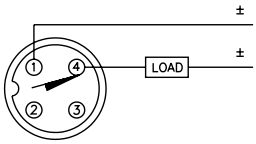
Inductive Barrel Sensors | 12 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length

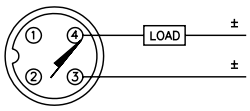
Wiring Diagrams/Mating Cordsets

1



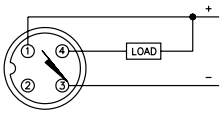
Mating Cordset: RK 4.23T-*

2



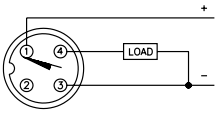
Mating Cordset: RK 4.2T-*

3



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

4



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

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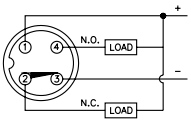
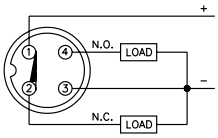


Mating Cordset: RK 4.4T-*

6



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

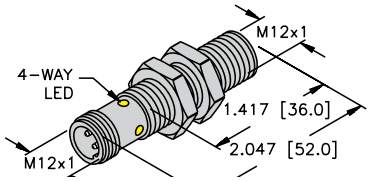
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-M12E-AN6X-H1141 4607193	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Bi4-EM12E-AN6X-H1141/S1589 4607185	Ext. Range, Weldguard	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A4
Bi4-M12E-AP6X-H1141 4608030	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi4-EM12E-AP6X-H1141/S1589 4607184	Ext. Range, Weldguard	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	4	A4
Bi4-M12E-VN6X-H1141 1643201	Extended Range	4	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Bi4-M12E-VP6X-H1141 4608092	Extended Range	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Bi3U-EM12E-AN6X-H1141 1634351	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	3	A4
Bi3U-EM12HE-AN6X2-H1141 1634311	Uprox, Stoneface	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PA 12	GN	YE	A	3	A4
Bi3U-EM12E-AN6X2-H1141/S1589 1634397	Uprox, Weldguard	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	3	A4
Bi3U-M12E-AP6X-H1141 1634148	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi3U-EM12HE-AP6X2-H1141 1634310	Uprox, Stoneface	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	SF	GN	YE	A	4	A4
Bi3U-EM12E-AP6X2-H1141/S1589 1634398	Uprox, Weldguard	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	4	A4
Bi3U-M12E-AN6X-H1141 1634151	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	3	A4
Bi3U-EM12E-AP6X-H1141 1634343	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	4	A4
Bi3U-M12E-VN4X-H1141 1580354	Uprox	3	4-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	5	A4
Bi3U-M12E-VP4X-H1141 1580252	Uprox	3	4-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	6	A4
Bi3-M12E-AD4X-H1141 4405080		3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A2
Bi2U-M12E-AD4X-H1144 4405060	Uprox	2	2-wire DC	10-65 VDC	1000	≤100	-30 to +85	IP68	CPB	LCP	N/A	YE	A	1	A2
Bi2-M12E-AN6X-H1141 4606602		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4

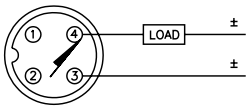
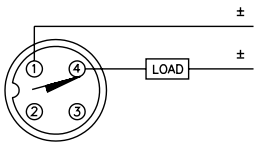
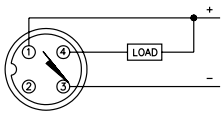
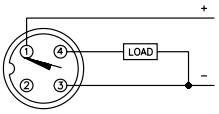
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, M12 Eurofast Connection, PTFE Coated Sensors

Wiring Diagrams s/Mating Cordset

1  Mating Cordset: RK 4.2T-*	2  Mating Cordset: RK 4.23T-*
3  Mating Cordset: RK 4T-*; RKC 4T-*/S1587	4  Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

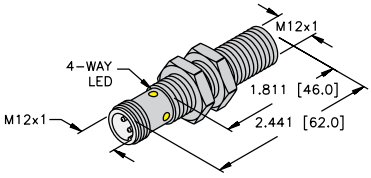
Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi6U-MT12-AN6X-H1141 1644858	Uprox3, PTFE	6	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	3	A4
Bi6U-MT12-AP6X-H1141 1644831	Uprox3, PTFE	6	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	4	A4
Bi6U-MT12-AP6X2-H1141 1644904	Uprox3, PTFE	6	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	TC	TC	GN	YE	A	4	A4
Bi4U-MT12-AN6X-H1141 1634829	Uprox+, PTFE	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	3	A4
Bi4U-MT12-AN6X-H1141/S1589 16348290	Uprox+, PTFE, Weldguard	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	3	A4
Bi4U-MT12-AP6X-H1141 1634809	Uprox+, PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	4	A4
Bi4-MT12H-AN6X-H1141 4607194	Ext. Range, PTFE, Stoneface	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	SF	N/A	YE	A	3	A4
Bi4-MT12-AN6X-H1141/S1589 4607188	Ext. Range, PTFE, Weldguard	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	A	3	A4
Bi4-MT12H-AP6X-H1141 4607093	Ext. Range, PTFE, Stoneface	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	SF	N/A	YE	A	4	A4
Bi4-MT12-AP6X-H1141/S1589 4607099	Ext. Range, PTFE, Weldguard	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	A	4	A4
Bi3U-MT12-AN6X-H1141 1634250	Uprox, PTFE	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	3	A4
Bi3U-MT12-AP6X-H1141 1634240	Uprox, PTFE	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	4	A4
Bi3U-MT12-AP6X2-H1141 1634245	Uprox, PTFE	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	4	A4
Bi3U-MT12H-AP6X-H1141 1634212	Uprox, PTFE, Stoneface	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	4	A4
Bi3U-MT12-AP6X2-H1141/S1589 1634293	Uprox, PTFE, Weldguard	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	4	A4
Bi3-MT12-AD4X-H1141/S1589 4405082	PTFE, Weldguard	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	1	A2
Bi3-MT12-AD4X-H1144/S1589 4405084	PTFE, Weldguard	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	2	A2

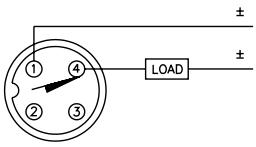
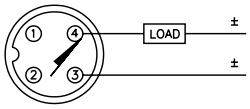
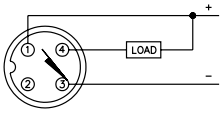
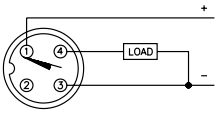
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length, PTFE Coated Sensors

Wiring Diagrams/Mating Cordset

1  Mating Cordset: RK 4.23T-*	2  Mating Cordset: RK 4.2T-*
3  Mating Cordset: RK 4T-*; RKC 4T-*/S1587	4  Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

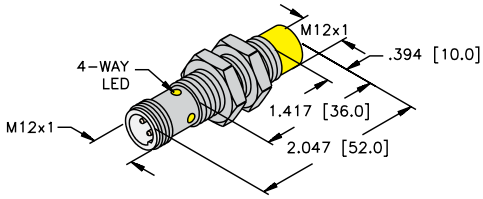
Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi4U-MT12E-AP6X2-H1141 1644742	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	TC	GN	YE	A	4	A4
Bi4U-MT12E-AP6X2-H1141/S1589 1644797	Uprox+, PTFE, Weldguard	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	4	A4
Bi4-MT12E-AP6X-H1141 46080932	Ext. Range, PTFE	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	TC	N/A	YE	A	4	A4
Bi4-MT12HE-AN6X-H1141 4607197	Ext. Range, PTFE	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	TC	N/A	YE	A	3	A4
Bi4-MT12HE-AP6X-H1141 4608093	Ext. Range, Stoneface	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	TC	N/A	YE	A	4	A4
Bi4-MT12E-AN6X-H1141/S1589 4607187	Ext. Range, Weldguard	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	A	3	A4
Bi4-MT12E-AP6X-H1141/S1589 4608094	Ext. Range, Weldguard	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	A	4	A4
Bi3U-MT12HE-AN6X2-H1141 1634230	Uprox, PTFE, Stoneface	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	3	A4
Bi3U-MT12E-AN6X2-H1141/S1589 1634290	Uprox, Weldguard	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	3	A4
Bi3U-MT12HE-AP6X2-H1141 1634220	Uprox, PTFE, Stoneface	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	4	A4
Bi3U-MT12E-AP6X2-H1141/S1589 1634291	Uprox, Weldguard	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	4	A4
Bi3-MT12E-AD4X-H1141 44050882	PTFE	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	TC	N/A	YE	A	2	A2
Bi3-MT12HE-AD4X-H1141 4405088	Stoneface	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	TC	N/A	YE	A	2	A2
Bi3-MT12E-AD4X-H1141/S1589 4405086	PTFE, Weldguard	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	2	A2
Bi3-MT12E-AD4X-H1144/S1589 4405087	PTFE, Weldguard	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	2	A2
Bi2U-MT12E-AD4X-H1144 4405061	Uprox+, PTFE	2	2-wire DC	10-65 VDC	1000	≤100	-30 to +85	IP68	TC	TC	N/A	YE	A	1	A2

We reserve the right to make technical alterations without prior notice.

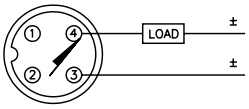
Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Nonembeddable, M12 Eurofast Connection

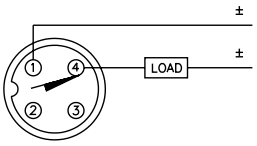
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.2T-*

2



Mating Cordset: RK 4.23T-*

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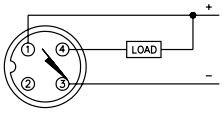
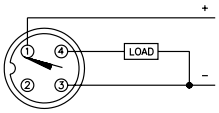


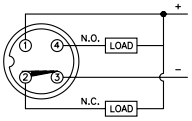
Mating Cordset: RK 4T-*; RKV 4T-*

4



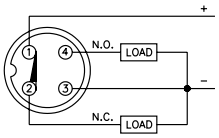
Mating Cordset: RK 4T-*; RKV 4T-*

5



Mating Cordset: RK 4.4T-*

6



Mating Cordset: RK 4.4T-*RKV 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

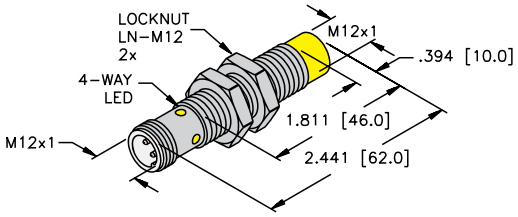
Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni10U-M12-AN6X-H1141 1634826	Uprox+	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	3	A4
Ni10U-M12-AP6X-H1141 1634806	Uprox+	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	4	A4
Ni10U-EM12-AN6X-H1141 1634828	Uprox+	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Ni10U-EM12-AP6X-H1141 1634808	Uprox+	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	4	A4
Ni8U-M12-AN6X-H1141 1644150	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	A	3	A4
Ni8U-M12-AN6X2-H1141 1644155	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	GN	YE	A	3	A4
Ni8U-M12-AP6X-H1141 1644140	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	A	4	A4
Ni8U-M12-AP6X2-H1141 1644145	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	GN	YE	A	4	A4
Ni8U-EM12-AN6X-H1141 1644350	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Ni8U-EM12-AP6X-H1141 1644340	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	4	A4
Ni8-M12-AD4X-H1141 4411241	Extended Range	8	2-wire DC	10-65 VDC	2000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni8-M12-AD4X-H1144 4411289	Extended Range	8	2-wire DC	10-65 VDC	2000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A2
Ni8-M12-AN6X-H1141 4611315	Extended Range	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni8-M12-AP6X-H1141 4611310	Extended Range	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni8-M12-VN6X-H1141 4611323	Ext. Range, Comp. Outputs	8	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni8-M12-VP6X-H1141 4611324	Ext. Range, Comp. Outputs	8	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Ni5-M12-AN6X-H1141 4671390		5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni5-M12-AP6X-H1141 4653400		5	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni4-M12-AD4X-H1141 44067		4	2-wire DC	10-65 VDC	2000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni4-M12-AN6X-H1141 46068		4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni4-M12-AP6X-H1141 46067		4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni4-EM12-AN7X-H1141 4606893	TTL Compatible	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni4-M12-VN6X-H1141 16431	Comp. Outputs	4	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni4-M12-VP6X-H1141 16331	Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Ni4-EM12-VP6X-H1141 1633101	Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	6	A4

We reserve the right to make technical alterations without prior notice.

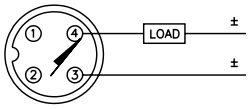
Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Nonembeddable, Extended Barrel Length, M12 Eurofast Connection

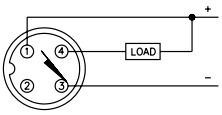
Wiring Diagrams/Mating Cordsets

1



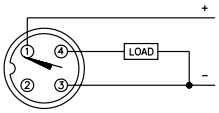
Mating Cordset: RK 4.23T-*

2



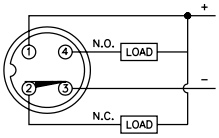
Mating Cordset: RK 4T-*; RKC 4T-*/S1587

3



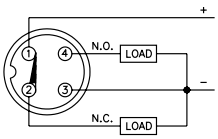
Mating Cordset: RK 4T-*; RKC 4T-*/S1587

4



Mating Cordset: RK 4.4T-*

5



Mating Cordset: RK 4.4T-*; RKV 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

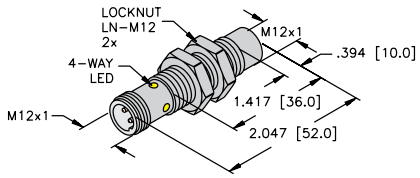
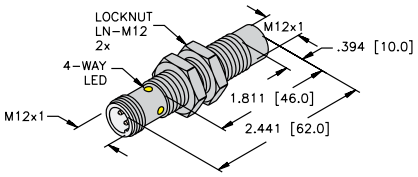
Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni8U-M12E-AN6X-H1141 1644151	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	2	A4
Ni8U-EM12E-AN6X2-H1141 1644315	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PA 12	GN	YE	A	2	A4
Ni8U-EM12E-AN6X2-H1141/S1589 1644391	Uprox, Weldguard	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	WG	WG	GN	YE	A	2	A4
Ni8U-M12E-AP6X-H1141 1644144	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni8U-EM12E-AP6X-H1141 1644342	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	3	A4
Ni8U-EM12E-AP6X2-H1141 1644314	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	GN	YE	A	3	A4
Ni8U-EM12E-AP6X2-H1141/S1589 1644392	Uprox, Weldguard	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	WG	WG	GN	YE	A	3	A4
Ni8U-M12E-VN4X-H1141 1580552	Uprox, Comp. Outputs	8	4-wire DC NPN	10-65 VDC	2000	≤200	-30 to +85	IP67	SS	PA 12	N/A	YE	A	4	A4
Ni8U-M12E-VP4X-H1141 1580454	Uprox	8	4-wire DC PNP	10-65 VDC	2000	≤200	-30 to +85	IP67	SS	PA 12	N/A	YE	A	5	A4
Ni8U-EM12E-VP4X-H1141 1580463	Uprox	8	4-wire DC PNP	10-65 VDC	2000	≤200	-30 to +85	IP67	SS	PA 12	N/A	YE	A	5	A4
Ni8-M12E-AN6X-H1141 4611325	Extended Range	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Ni8-EM12E-AN6X-H1141/S1589 4611395	Ext. Range, Weldguard	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	WG	WG	N/A	YE	A	2	A4
Ni8-M12E-AP6X-H1141 46113981	Extended Range	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni8-EM12E-AP6X-H1141/S1589 4611396	Weldguard	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	WG	WG	N/A	YE	A	3	A4
Ni8-M12E-VP6X-H1141 4611389	Ext. Range, Comp. Outputs	8	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni4-M12E-AD4X-H1144 4406792		4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni4-EM12E-VP6X-H1141 1633191	Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	5	A4

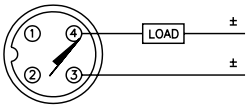
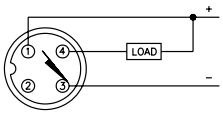
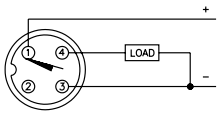
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Nonembeddable, M12 Eurofast Connection, PTFE Coated	B  12 mm - Nonembeddable, Extended Barrel Length, M12 Eurofast Connection, PTFE Coated

Wiring Diagrams/Mating Cordsets

1	2	3
		
Mating Cordset: RKC 4.2T-*	Mating Cordset: RK 4T-*; RKC 4T-*/S1587	Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni10U-MT12-AN6X-H1141 1634830	Uprox+, PTFE	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	LCP	N/A	YE	A	2	A4
Ni10U-MT12-AP6X-H1141 1634810	Uprox+, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	LCP	N/A	YE	A	3	A4
Ni10U-MT12-AP6X-H1141/S1589 16348101	Uprox+, PTFE, Weldguard	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	3	A4
Ni10U-MT12E-AP6X2-H1141 1634844	Uprox+, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	LCP	GN	YE	B	3	A4
Ni10U-MT12E-AP6X2-H1141/S1589 1634994	Uprox+, PTFE, Weldguard	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	B	3	A4
Ni8U-MT12-AP6X-H1141 1644240	Uprox, PTFE	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	3	A4
Ni8U-MT12-AP6X2-H1141 1644245	Uprox, PTFE	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	3	A4
Ni8U-MT12-AP6X2-H1141/S1589 1644292	Uprox, PTFE, Weldguard	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	3	A4
Ni8U-MT12E-AN6X2-H1141 1644248	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	B	2	A4
Ni8U-MT12E-AP6X2-H1141 1644247	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	B	3	A4
Ni8-MT12-AD4X-H1141/S1589 4411291	PTFE, Weldguard	8	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	A	1	A2
Ni8-MT12E-AN6X-H1141/S1589 4611397	Ext. Range, Weldguard	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	WG	WG	N/A	YE	B	2	A4
Ni8-MT12E-AP6X-H1141/S1589 4611398	Ext. Range, Weldguard	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	WG	WG	N/A	YE	B	3	A4

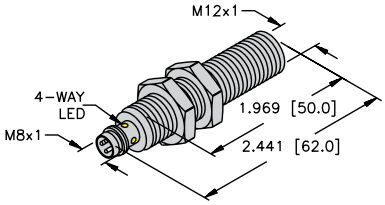
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Fully Threaded Metal Barrels with Connector and DC Outputs

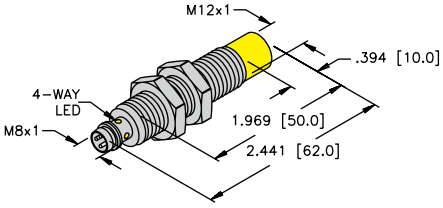
Housing Style	Dimension Drawings

A



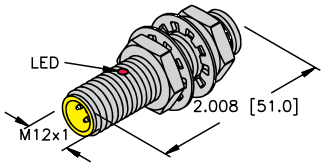
12 mm - Embeddable, M8 Picofast Connection

B



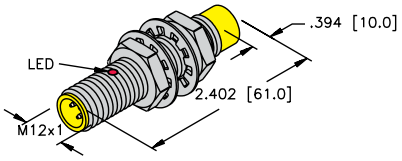
12 mm - Embeddable, M8 Picofast Connection

C



12 mm - Embeddable, M12 Eurofast Connection

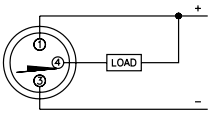
D



12 mm - Nonembeddable, M12 Eurofast Connection

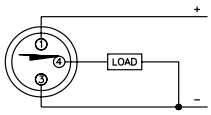
Wiring Diagrams/Mating Cordsets

1



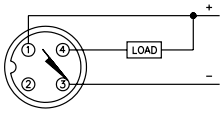
Mating Cordset: PKG 3M-*

2



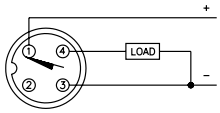
Mating Cordset: PKG 3M-*

3



Mating Cordset: RK 4T-*

4



Mating Cordset: RK 4T-*; RKV 4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

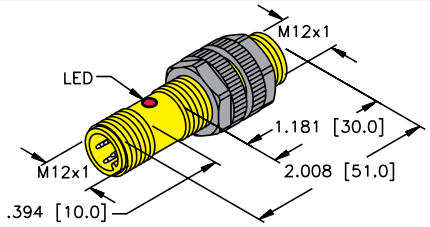
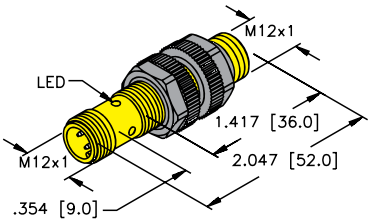
Fully Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-G12-AN6X-V1131 1690707	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi4-G12-AP6X-V1131 1690703	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi4-EG12-AP6X-H1141 4607091	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	RD	C	4	A4
Bi2-G12-AN6X-V1131 4635583		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi2-G12-AN6X-H1141 4606693		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	C	3	A4
Bi2-G12-AP6X-H1141 4606595		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	C	4	A4
Bi2-G12-AP6X-V1131 4606597		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni8-G12-AN6X-H1141 4611383	Extended Range	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	D	3	A4
Ni5-G12-AN6X-V1131 4635721		5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	1	A4
Ni5-G12-AN6X-H1141 4635793		5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	D	3	A4
Ni5-G12-AN7X-H1141 1714593	TTL Compatible	5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	D	3	A4
Ni5-G12-AP6X-V1131 4635690		5	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni5-G12-AP6X-H1141 4635692		5	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	RD	D	4	A4

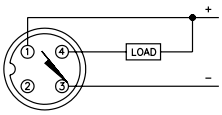
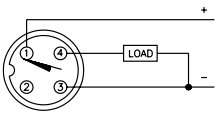
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Threaded Plastic Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable/Nonembeddable, Plastic, M12 Eurofast Connection
B  12 mm - Embeddable/Nonembeddable, Plastic, M12 Eurofast Connection	

Wiring Diagrams/Mating Cordsets

1	2
 Mating Cordset: RKK 4T-*	 Mating Cordset: RKK 4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

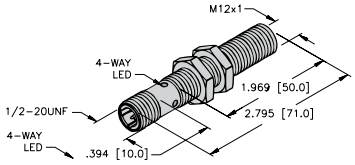
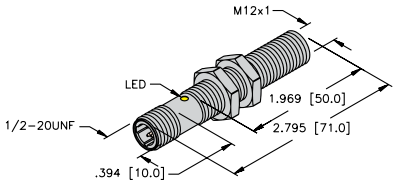
Threaded Plastic Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-S12-AN6X-H1141 1634620	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	B	1	A4
Bi3U-S12-AP6X-H1141 16346	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	B	2	A4
Bi2-S12-AN6X-H1141 46521		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	RD	A	1	A4
Bi2-S12-AP6X-H1141 46520		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	RD	A	2	A4
Ni8U-S12-AN6X-H1141 1644620	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	B	1	A4
Ni8U-S12-AP6X-H1141 1644600	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	B	2	A4
Ni4-S12-AN6X-H1141 46523		4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	RD	A	1	A4
Ni4-S12-AP6X-H1141 46522		4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	RD	A	2	A4

We reserve the right to make technical alterations without prior notice.

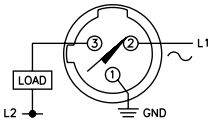
Inductive Barrel Sensors | 12 mm

Embeddable Threaded Metal Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, 1/2" Microfast Connection
B  12 mm - Embeddable, 1/2" Microfast Connection, PTFE Coated	

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC) ≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz) ≤1 A (≤10 ms max. 5 Hz) 12 mm ≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

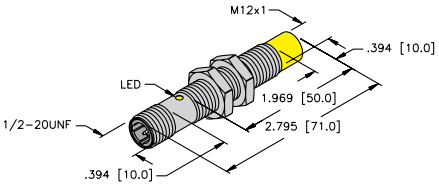
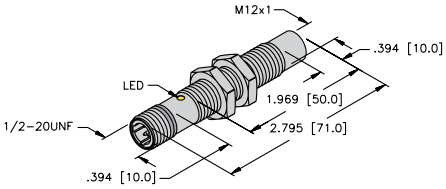
Embeddable Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-G12-ADZ32X-B3131 4205031	Extended Range	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A5
Bi4-GT12H-ADZ32X-B3131 4205097	Stoneface	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	B	1	A5
Bi4-GT12-ADZ32X-B3131/S1589 4205087	PTFE, Weldguard	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	WG	N/A	YE	B	1	A5
Bi2U-G12-ADZ32X-B3131 4281005	Uprox	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤100	-30 to +85	IP67	CPB	PBT	N/A	YE	A	1	A5
Bi2U-GT12-ADZ32X-B3131 4281015	Uprox	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤100	-30 to +85	IP67	TC	TC	N/A	YE	B	1	A5
Bi2-G12-AZ33X-B3131 1304032		2	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A6
Bi2-G12-ADZ32X-B3131 4205001		2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A5
Bi2-GT12H-ADZ32X-B3131/S34 4205093	PTFE, WFI, Stoneface	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	B	1	A5
Bi2-GT12-ADZ32X-B3131/S34 4205005	PTFE, WFI	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	B	1	A5
Bi2-GT12-AZ33X-B3131/S34 1304082	PTFE, WFI	2	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	B	1	A6

We reserve the right to make technical alterations without prior notice.

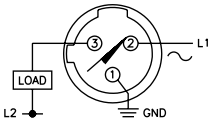
Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded Metal Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Nonembeddable, 1/2" Microfast Connection
B  12 mm - Nonembeddable, 1/2" Microfast Connection, PTFE Coated	

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

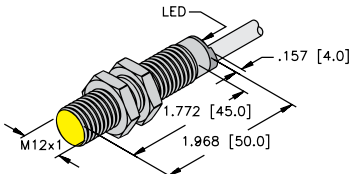
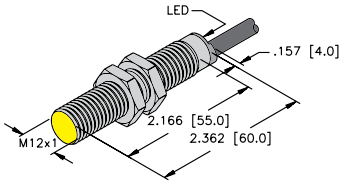
Nonembeddable Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni8U-G12-ADZ32X-B3131 4281105	Uprox	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤100	-30 to +85	IP67	CPB	PBT	N/A	YE	A	1	A5
Ni8U-GT12-ADZ32X-B3131 4281115	Uprox	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤100	-30 to +85	IP67	TC	PA 12	N/A	YE	B	1	A5
Ni4-G12-ADZ32X-B3131 4205201		4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A5
Ni4-G12-AZ33X-B3131 1304232		4	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A6
Ni4-GT12-ADZ32X-B3131/S34 4205205	PTFE, WFI	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	PA 12	N/A	YE	B	1	A5
Ni4-GT12-AZ33X-B3131/S34 1304292	PTFE, WFI	4	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	PA 12	N/A	YE	B	1	A6
Ni4-GT12-ADZ32X-B3131/S34/S1589 4205293	PTFE, Weldguard	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	WG	N/A	YE	B	1	A5

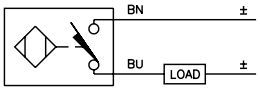
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  12 mm - Embeddable, Potted-in Cable
B  12 mm - Embeddable, Extended Length Barrel, Potted-in Cable	

Wiring Diagrams/Mating Cordsets

1


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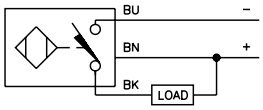

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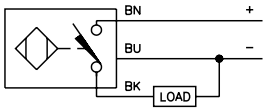

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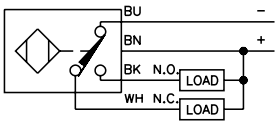

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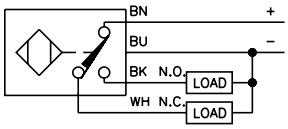


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi6U-M12-AN6X 1644806	Uprox3	6	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Bi6U-M12-AP6X 1644801	Uprox3	6	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Bi6U-M12-VP6X 1644803	Uprox3, Comp. Outputs	6	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	5	A4
Bi4U-M12-AN6X 1634823	Uprox+	4	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Bi4U-M12-AP6X 1634803	Uprox+	4	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Bi4-M12-AN6X 4607130	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi4-M12-AP6X 4607006	Extended Range	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi4-M12-VN6X 1643300	Ext. Range, Comp. Outputs	4	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Bi4-M12-VP6X 1633300	Ext. Range, Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4
Bi4-M12E-VN6X 1643290	Ext. Range, Comp. Outputs	4	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	4	A4
Bi4-M12E-VP6X 1633391	Ext. Range, Comp. Outputs	4	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	5	A4
Bi3U-M12-AN6X 1634120	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	2	A4
Bi3U-M12-AP6X 1634100	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	3	A4
Bi3U-M12E-AP6X 1634108	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	B	3	A4
Bi3U-EM12-AN6X 1634320	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	2M/PVC	A	2	A4
Bi3U-EM12-AP6X 1634300	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	2M/PVC	A	3	A4
Bi3-M12-AD4X 4405035	Extended Range	3	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi2U-M12E-AD4X 4405062	Uprox	2	2-wire DC	10-65 VDC	1000	≤100	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	B	1	A2
Bi2-M12-AD4X 44050		2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi2-M12-AP6X 46050		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi2-M12-VN6X 16402	Comp. Outputs	2	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Bi2-M12-VP6X 16302	Comp. Outputs	2	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4

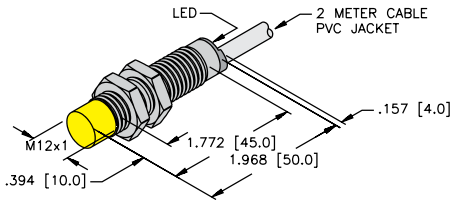
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

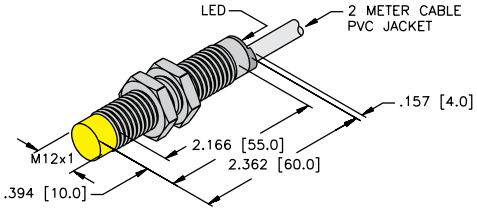
Housing Style	Dimension Drawings

A



12 mm - Nonembeddable, Potted-in Cable

B



12 mm - Nonembeddable, Potted-In Cable, Extended Barrel Length

Wiring Diagrams/Mating Cordsets

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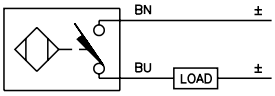

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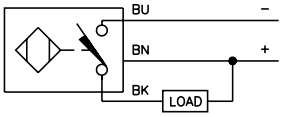

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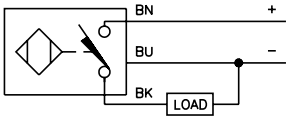

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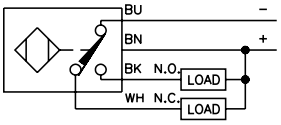

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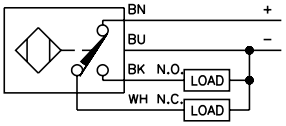


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

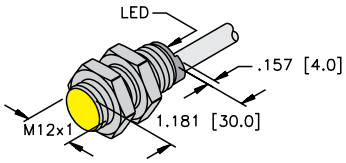
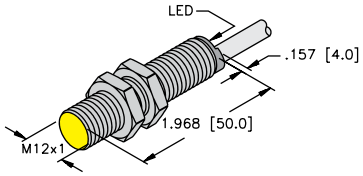
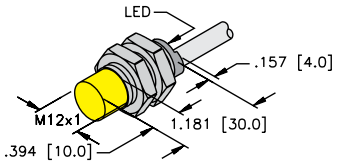
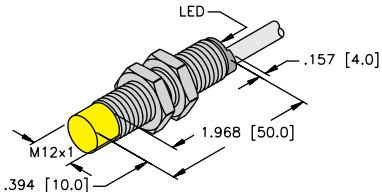
Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni10U-M12-AN6X 1634825	Uprox	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Ni10U-M12-AP6X 1634805	Uprox	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Ni8U-M12-AN6X 1644120	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Ni8U-M12-AP6X 1644100	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Ni8U-M12E-AP6X 1644102	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	2M/PVC	B	3	A4
Ni8U-EM12-AP6X 1644300	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	2M/PVC	A	3	A4
Ni8-M12-AD4X 4411235	Extended Range	8	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Ni8-M12-AN6X 4611318	Extended Range	8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni8-M12E-AN6X 4611326		8	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	2	A4
Ni8-M12-AP6X 4611319	Extended Range	8	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Ni8-M12-VN6X 4611321	Ext. Range, Comp. Outputs	8	4-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Ni8-M12-VP6X 4611322	Ext. Range, Comp. Outputs	8	4-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4
Ni4-M12-AD4X 44052		4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Ni4-M12E-AD4X 4405298		4	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	1	A2
Ni4-M12-AP6X 46052		4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Fully Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable, Potted-In Cable	B  12 mm - Embeddable, Potted-In Cable
C  12 mm - Nonembeddable, Potted-In Cable	D  12 mm - Nonembeddable, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

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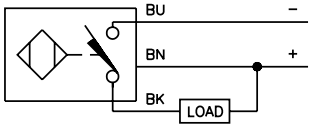

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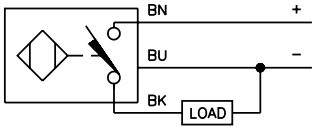

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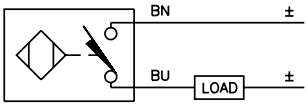


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

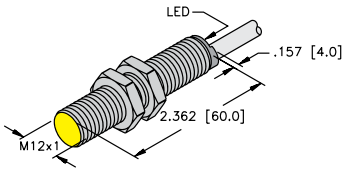
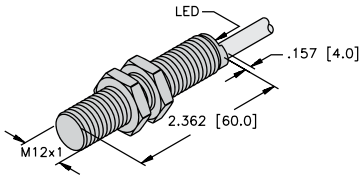
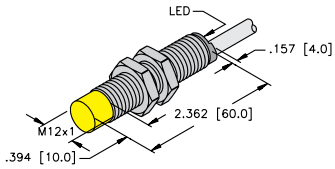
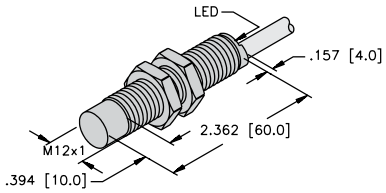
Fully Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-G12-AN6X 1690706	Extended Range	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	1	A4
Bi4-G12K-AN6X 4670251	Ext. Range, Short Barrel	4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A4
Bi4-G12K-AP6X 4670250	Ext. Range, Short Barrel	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi2-G12-AN6X 4635500		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	1	A4
Bi2-G12-AN7X 4730500	TTL Compatible	2	3-wire DC NPN	10-30 VDC	2000	≤150	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	1	A4
Bi2-EG12-AP6X 4605001		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi2-G12-AP6X 4635400		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi2-G12K-AN6X 46712	Short Barrel	2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A4
Bi2-G12K-AP6X 46702	Short Barrel	2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni8-G12-AN6X 4611327	Extended Range	8	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	1	A4
Ni8-G12K-AD4X 4411230	Short Barrel	8	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	3	A2
Ni5-G12K-AN6X 46713	Short Barrel	5	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	2	A4
Ni5-G12K-AP6X 46703	Short Barrel	5	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	2	A4
Ni5-G12-AN6X 4635700		5	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	1	A4
Ni5-G12-AN7X 1714500	TTL Compatible	5	3-wire DC NPN	10-30 VDC	1500	≤150	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	1	A4
Ni5-G12-AP6X 46356		5	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	2	A4

We reserve the right to make technical alterations without prior notice.

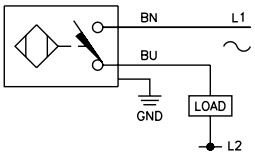
Inductive Barrel Sensors | 12 mm

Fully Threaded Metal Barrels with Cable and AC/DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable, Potted-In Cable	B  12 mm - Embeddable, Potted-In Cable, PTFE Coated
C  12 mm - Nonembeddable, Potted-In Cable	D  12 mm - Nonembeddable, Potted-In Cable, PTFE Coated	

Wiring Diagrams/Mating Cordsets

1



A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

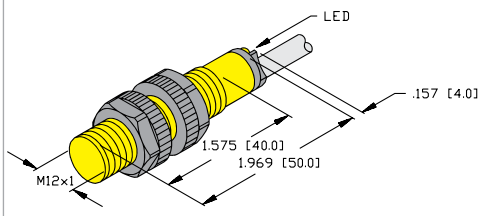
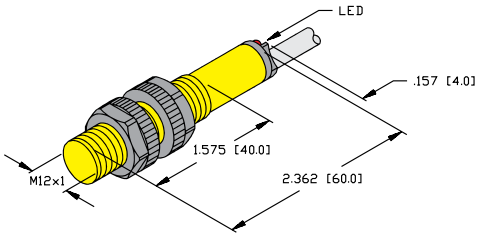
Fully Threaded Metal Barrels with Cable and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-G12-ADZ32X 4205030	Extended Range	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A5
Bi2-G12-ADZ32X 4205000		2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A5
Bi2-G12-AZ33X 1304002		2	2-wire AC/DC	35-250 VAC	20	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A6
Bi2-GT12-ADZ32X/S34 4205210	PTFE, WFI	2	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	2M/PVC	B	1	A5
Bi2-GT12-AZ33X/S34 1304052	PTFE, WFI	2	2-wire AC/DC	35-250 VAC	20	≤200	-25 to +70	IP67	TC	TC	N/A	YE	2M/PVC	B	1	A6
Ni8-G12-ADZ32X 4205400	Extended Range	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A5
Ni4-G12-AZ33X 1304202		4	2-wire AC/DC	35-250 VAC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A6
Ni4-G12-ADZ32X 4205200		4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A5
Ni4-GT12-ADZ32X/S34 4205210	PTFE, WFI	4	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	2M/PVC	D	1	A5
Ni4-GT12-AZ33X/S34 1304294	PTFE, WFI	4	2-wire AC/DC	35-250 VAC	20	≤100	-25 to +70	IP67	TC	TC	N/A	YE	2M/PVC	D	1	A6

We reserve the right to make technical alterations without prior notice.

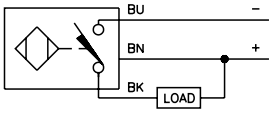
Inductive Barrel Sensors | 12 mm

Threaded Plastic Barrels with Cable and AC/DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable/Nonembeddable, Plastic, Potted-In Cable	B  12 mm - Embeddable/Nonembeddable, Plastic, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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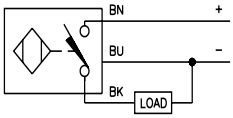

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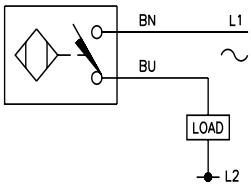


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Threaded Plastic Barrels with Cable and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-S12-AN6X 1634520	Uprox	3	3-wire DC NPN	10-30 VDC	3000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	2M/PVC	A	1	A4
Bi3U-S12-AP6X 1634500	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	2M/PVC	A	2	A4
Bi2-S12-AN6X 46531		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	1	A4
Bi2-S12-AN7X 1713800	TTL Compatible	2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	1	A4
Bi2-S12-AP6X 46530		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi2-S12-AP7X/S100 17555	TTL Compatible, High Temp. 100 °C	2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +100	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi2-S12-AZ31X 13020		2	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	3	A6
Bi2-S12-AZ31X/S100 1302001	High Temp. 100 °C	2	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +100	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	3	A6
Ni8U-S12-AN6X 1644520	Uprox	8	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	2M/PVC	A	1	A4
Ni8U-S12-AP6X 1644500	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PBT	PBT	N/A	YE	2M/PVC	A	2	A4
Ni4-S12-AN6X 46533		4	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	1	A4
Ni4-S12-AN7X 1713900	TTL Compatible	4	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	1	A4
Ni4-S12-AP6X 46532		4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	B	2	A4
Ni4-S12-AZ31X 13022		4	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	3	A6
Ni4-S12-AZ31X/S100 1302201	High Temp. 100 °C	4	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤100	-25 to +100	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	3	A6

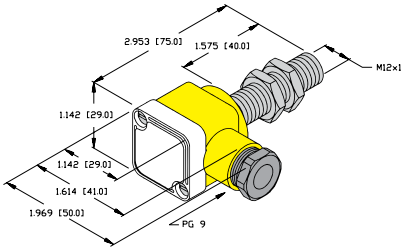
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

Threaded Barrels with Terminal Chamber and DC Outputs

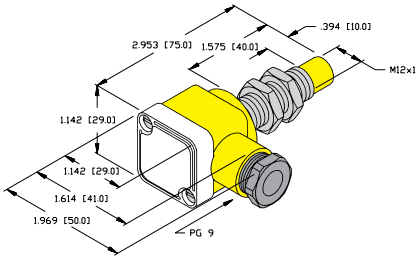
Housing Style	Dimension Drawings

A



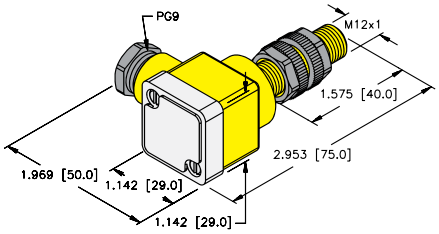
12 mm - Embeddable, Terminal Chamber

B



12 mm - Nonembeddable, Terminal Chamber

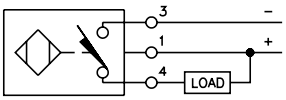
C



12 mm - Embeddable/Nonembeddable, Plastic, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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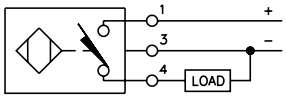

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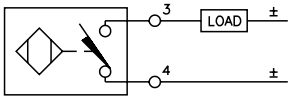


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm

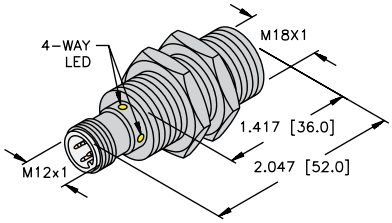
Threaded Barrels with Terminal Chamber and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi3U-EG12SK-AP6X 1634400	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	2	A4
Bi3U-P12SK-AP6X 1634700	Uprox	3	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	2	A4
Bi2-G12SK-AN6X2 4636500		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	1	A4
Bi2-G12SK-AP6X2 4636400		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	2	A4
Bi2-P12SK-AD4X 4453050		2	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	C	3	A2
Bi2-P12SK-AN6X2 4654000		2	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	1	A4
Bi2-P12SK-AP6X2 4653900		2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	2	A4
Ni8U-EG12SK-AP6X 1644400	Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	B	2	A4
Ni5-G12SK-AP6X2 46366		5	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	B	2	A4
Ni5-P12SK-AP6X2 4654100		5	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	2	A4

We reserve the right to make technical alterations without prior notice.

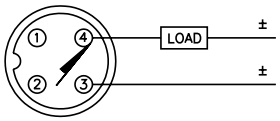
Inductive Barrel Sensors | 18 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable M12 Eurofast Connection

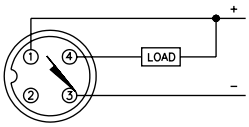
Wiring Diagrams/Mating Cordsets

1



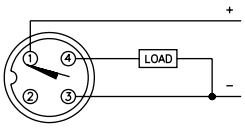
Mating Cordset: RK 4.2T-*

2



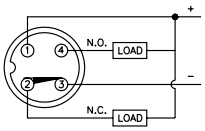
Mating Cordset: RK 4T-*; RKV 4T-*

3



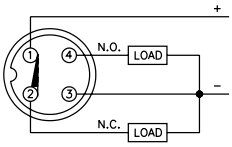
Mating Cordset: RK 4T-*; RKV 4T-*

4



Mating Cordset: RK 4.4T-*; RKV 4.4T-*

5



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

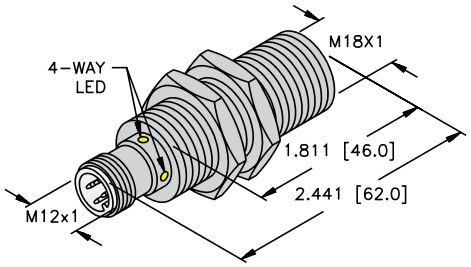
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-M18-AN6X-H1141 1644847	Uprox3	10	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	2	A4
Bi10U-M18-AP6X-H1141 1644830	Uprox3	10	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	3	A4
Bi10U-M18-VP6X-H1141 1644844	Uprox3, Comp. Outputs	10	4-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	5	A4
Bi8U-M18-AN6X-H1141 1644737	Uprox+	8	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	2	A4
Bi8U-EM18-AN6X-H1141 1644738	Uprox+	8	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	2	A4
Bi8U-M18-AP6X-H1141 1644731	Uprox+	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	3	A4
Bi8U-EM18-AP6X-H1141 1644734	Uprox+	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Bi8-M18-AN6X-H1141 4615100	Extended Range	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4
Bi8-M18-AP6X-H1141 46150	Extended Range	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi8-EM18H-AP6X-H1141 4615094	Ext. Range, Stoneface	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	3	A4
Bi8-EM18-AP6X-H1141/S1589 4615099	Weldguard	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A4
Bi8-M18-VN4X-H1141 4590702	Ext. Range, Comp. Outputs	8	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	4	A4
Bi8-M18-VP4X-H1141 4590701	Ext. Range, Comp. Outputs	8	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	5	A4
Bi7-M18-AD4X-H1141 4414541	Extended Range	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi5U-M18-AN6X-H1141 1635150	Uprox	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	2	A4
Bi5U-EM18-AN6X-H1141 1635350	Uprox	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	2	A4
Bi5U-M18-AP6X-H1141 1635140	Uprox	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	3	A4
Bi5U-EM18-AP6X-H1141 1635340	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	3	A4
Bi5-M18-AD4X-H1141 44145		5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi5-M18-AN6X-H1141 46146		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi5-M18-AP6X-H1141 46145		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Bi5-EM18-AP6X-H1141 4614501		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi5-M18-VN4X-H1141 15718	Comp. Outputs	5	4-wire DC NPN	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi5-EM18-VN4X-H1141 4614699	Comp. Outputs	5	4-wire DC NPN	10-65 VDC	1000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	4	A4
Bi5-M18-VP4X-H1141 15618	Comp. Outputs	5	4-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4

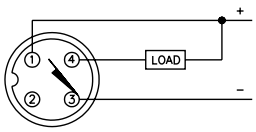
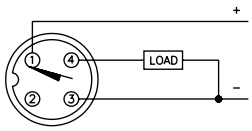
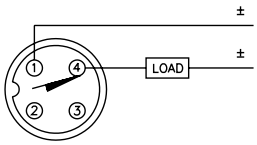
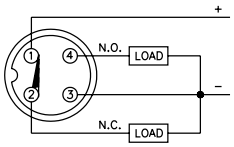
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, M12 Eurofast Connection

Wiring Diagrams/Mating Cordsets

1	2	3	4
			
Mating Cordset: RK 4T-*; RKC 4T-*/S1587	Mating Cordset: RK 4T-*; RKC 4T-*/S1587	Mating Cordset: RK 4.23T-*	Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

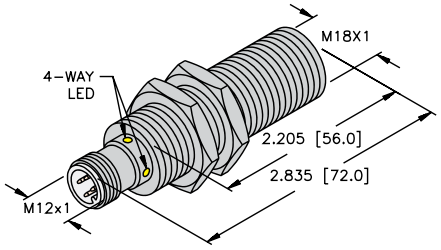
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-EM18M-AP6X2-H1141/S1589 1644771	Uprox+, Weldguard	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	2	A4
Bi8U-M18M-VP44X-H1141 1634877	Uprox+, Comp. Outputs	8	4-wire DC PNP	10-55 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	4	A4
Bi8-M18M-AP6X-H1141 4615083	Extended Range	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +75	IP67	CPB	PBT	N/A	YE	A	2	A4
Bi5U-M18M-AD4X-H1144 4405066	Uprox+	5	2-wire DC	10-65 VDC	10	≤100	-30 to +85	IP68	TC	LCP	N/A	YE	A	3	A2
Bi5U-M18-AN6X-H1141/S395 1635154	Uprox	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi5U-M18-AP6X-H1141/S395 1635141	Uprox	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	2	A4
Bi5U-EM18-AP6X-H1141/S395 1635342	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	2	A4
Bi5U-EM18H-AN6X2-H1141/S395 1635146	Uprox, Stoneface	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	SF	GN	YE	A	1	A4
Bi5U-EM18H-AN6X2-H1141/S395/S1589 1635196	Uprox, Weldguard	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	1	A4
Bi5U-EM18H-AP6X2-H1141/S395 1635158	Uprox, Stoneface	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	SF	GN	YE	A	2	A4
Bi5U-EM18-AP6X2-H1141/S395/S1589 1635197	Uprox, Weldguard	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	2	A4
Bi5U-EM18M-AP6X2-H1141 1635349	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PBT	GN	YE	A	2	A4

We reserve the right to make technical alterations without prior notice.

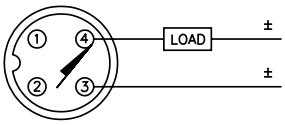
Inductive Barrel Sensors | 18 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, Ext. Barrel Length, M12 Eurofast Connection

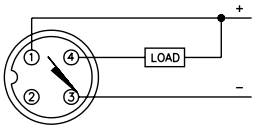
Wiring Diagrams/Mating Cordsets

1



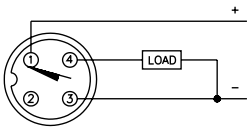
Mating Cordset: RK 4.2T-*

2



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

3



Mating Cordset: RK 4T-*; RKV 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

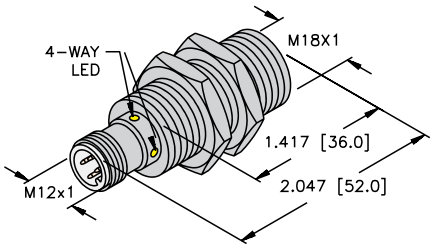
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-EM18E-AP6X-H1141 1634865	Uprox+	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Bi8-M18E-AN6X-H1141 4615190	Extended Range	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	2	A4
Bi8-EM18HE-AN6X-H1141 4615194	Ext. Range, Stoneface	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	2	A4
Bi8-EM18E-AN6X-H1141/S1589 4615193	Ext. Range, Weldguard	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	2	A4
Bi8-EM18E-AP6X-H1141 46150952	Extended Range	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	A	3	A4
Bi8-EM18HE-AP6X-H1141 4615095	Ext. Range, Stoneface	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	3	A4
Bi8-EM18E-AP6X-H1141/S1589 4615096	Ext. Range, Weldguard	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	3	A4
Bi7-M18E-AD4X-H1141 4414580	Extended Range	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi5U-M18E-AN6X-H1141 1635122	Uprox	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	2	A4
Bi5U-M18E-AP6X-H1141 1635103	Uprox	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	3	A4
Bi5-M18E-AD4X-H1141 4414591		5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi5-M18E-AN6X-H1141 4614697		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4

We reserve the right to make technical alterations without prior notice.

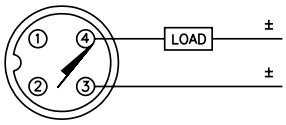
Inductive Barrel Sensors | 18 mm

Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, M12 Eurofast Connection, PTFE Coated

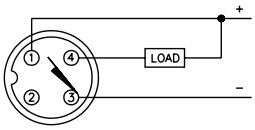
Wiring Diagrams/Mating Cordsets

1



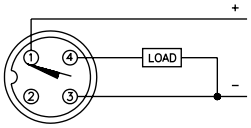
Mating Cordset: RK 4.2T-*

2



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

3



Mating Cordset: RK 4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BI10U-MT18-AN6X-H1141 1644858	Uprox3, PTFE	10	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	2	A4
Bi10U-MT18-AP6X-H1141 1644831	Uprox3, PTFE	10	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	3	A4
Bi10U-MT18-AP6X2-H1141 1644905	Uprox3, PTFE	10	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	TC	TC	GN	YE	A	3	A4
Bi8U-MT18-AN6X-H1141 1644739	Uprox+, PTFE	8	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	2	A4
Bi8U-MT18-AP6X-H1141 1644730	Uprox+, PTFE	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	3	A4
Bi8U-MT18-AN6X-H1141/S1589 1644791	Uprox+, PTFE, Weldguard	8	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	2	A4
Bi7-MT18H-AD4X-H1141 44145801	Ext. Range, PTFE	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	A	1	A2
Bi5U-MT18-AN6X-H1141 1635250	Uprox, PTFE	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	2	A4
Bi5U-MT18-AP6X-H1141 1635240	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	3	A4
Bi5U-MT18-AP6X2-H1141 1635245	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	3	A4

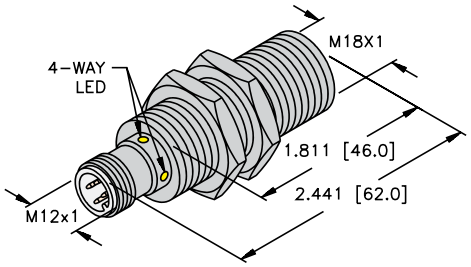
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

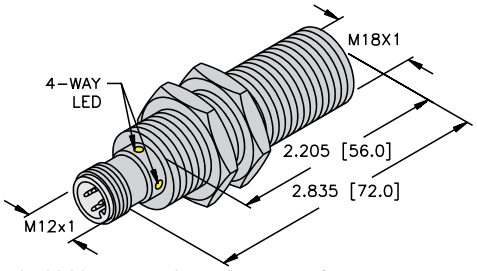
Housing Style	Dimension Drawings

A



18 mm - Embeddable, M12 Eurofast Connection, PTFE Coated

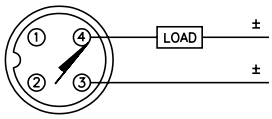
B



18 mm - Embeddable, Ext. Barrel Length, M12 Eurofast Connection, PTFE Coated

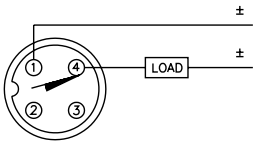
Wiring Diagrams/Mating Cordsets

1



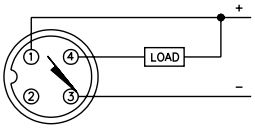
Mating Cordset: RK 4.2T-*

2



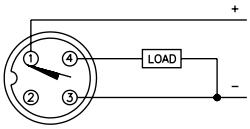
Mating Cordset: RK 4.23T-*

3



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

4



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

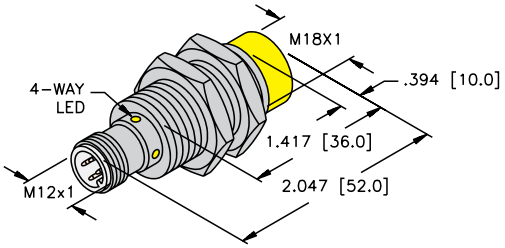
Embeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-MT18M-AP6X2-H1141 1644740	Uprox+, PTFE	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	LCP	GN	YE	A	4	A4
Bi8U-MT18M-AP6X2-H1141/S1589 16447411	Uprox+, PTFE, Weldguard	8	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	GN	YE	A	4	A4
Bi7-MT18HE-AD4X-H1141 4414597	PTFE, Stoneface	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	B	1	A2
Bi7-MT18HE-AD4X-H1144 4414598	PTFE, Stoneface	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	SF	N/A	YE	B	2	A2
Bi7-MT18HE-AD4X-H1141/S1589 4414588	PTFE, Weldguard	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	B	1	A2
Bi7-MT18HE-AD4X-H1144/S1589 4414599	PTFE, Weldguard	7	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	TC	WG	N/A	YE	B	2	A2
Bi5U-MT18E-AP6X2-H1141 1635247	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	TC	TC	GN	YE	B	4	A4
Bi5U-MT18M-AP6X2-H1141 1635252	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	4	A4
Bi5U-MT18H-AN6X2-H1141/S395 1635225	Uprox, PTFE, Stoneface	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	SF	GN	YE	A	3	A4
Bi5U-MT18-AN6X2-H1141/S395/S1589 1635290	Uprox, PTFE, Weldguard	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	3	A4
Bi5U-MT18-AP6X-H1141/S395 1635231	Uprox, PTFE	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	4	A4
Bi5U-MT18H-AP6X2-H1141/S395 1635220	Uprox, PTFE, Stoneface	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	SF	GN	YE	A	4	A4
Bi5U-MT18-AP6X2-H1141/S395/S1589 1635291	Uprox, PTFE, Weldguard	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	4	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Nonembeddable, M12 Eurofast Connection

Wiring Diagrams/Mating Cordsets

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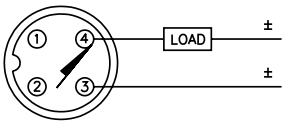
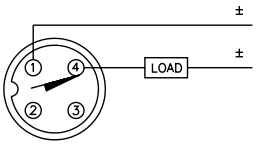


Mating Cordset: RK 4.2T-*

2



Mating Cordset: RK 4.23T-*

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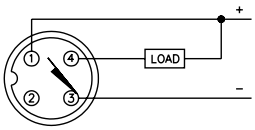
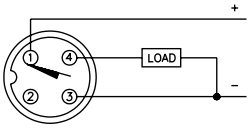


Mating Cordset: RK 4T-*; RKV 4T-*

4



Mating Cordset: RK 4T-*; RKV 4T-*

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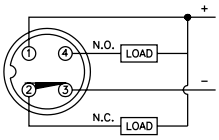
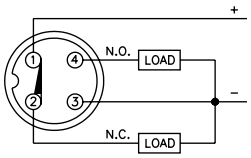


Mating Cordset: RK 4.4T-*

6



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni15U-M18-AN6X-H1141 1635335	Uprox+	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	3	A4
Ni15U-EM18-AN6X-H1141 1635336	Uprox+	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Ni15U-M18-AP6X-H1141 1635331	Uprox+	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	4	A4
Ni15U-EM18-AP6X-H1141 1635332	Uprox+	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	4	A4
Ni14-M18-AD4X-H1141 4417241	Extended Range	14	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni14-M18-AD4X-H1144 4417290	Extended Range	14	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A2
Ni14-M18-AN6X-H1141 4611410	Extended Range	14	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni14-M18-AP6X-H1141 4611400	Extended Range	14	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni14-M18-VN4X-H1141 4590603	Ext. Range, Comp. Outputs	14	4-wire DC NPN	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni14-M18-VP4X-H1141 4590602	Ext. Range, Comp. Outputs	14	4-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Ni12U-M18-AN6X-H1141 1645150	Uprox	12	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	A	3	A4
Ni12U-EM18-AN6X-H1141 1645350	Uprox	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	3	A4
Ni12U-M18-AP6X-H1141 1645140	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	A	4	A4
Ni12U-M18-AP6X2-H1141 1645145	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	LCP	GN	YE	A	4	A4
Ni12U-EM18-AP6X-H1141 1645340	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	4	A4
Ni12U-EM18-AP6X2-H1141 1645345	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	GN	YE	A	4	A4
Ni10-M18-AN6X-H1141 4614892		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni10-M18-AP6X-H1141 4641291		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni8-M18-AD4X-H1141 44147		8	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni8-M18-AD4X-H1144 4411288		8	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A2
Ni8-M18-AN6X-H1141 46148		8	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni8-M18-AP6X-H1141 46147		8	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni8-M18-VN4X-H1141 15719	Comp. Outputs	8	4-wire DC NPN	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni8-M18-VP4X-H1141 15619	Comp. Outputs	8	4-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4

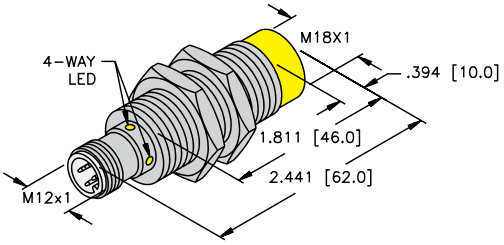
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

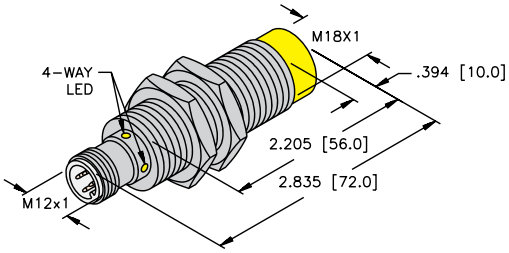
Housing Style	Dimension Drawings

A



18 mm - Nonembeddable, M12 Eurofast Connection

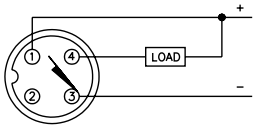
B



18 mm - Nonembeddable, Ext. Barrel Length M12 Eurofast Connection

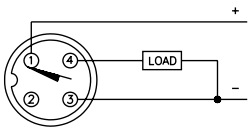
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

2



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

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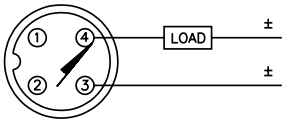
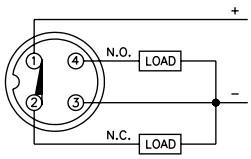


Mating Cordset: RK 4.2T-*

4



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni14-M18E-AD4X-H1141 4417292	Extended Range	14	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	3	A2
Ni14-M18E-AN6X-H1141 4611483	Extended Range	14	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	1	A4
Ni14-EM18E-AN6X-H1141/S1589 4611494	Ext. Range, Weldguard	14	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	B	1	A4
Ni14-M18E-AP6X-H1141 4611489	Extended Range	14	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni14-EM18E-AP6X-H1141/S1589 4611495	Ext. Range, Weldguard	14	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	WG	N/A	YE	B	2	A4
Ni12U-M18-AN6X-H1141/S395 1645151	Uprox	12	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	1	A4
Ni12U-EM18-AP6X2-H1141/S395 1645304	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	GN	YE	A	2	A4
Ni12U-EM18-AN6X2-H1141/S395/S1589 1645490	Uprox, Weldguard	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	1	A4
Ni12U-EM18-AP6X2-H1141/S395/S1589 1645491	Uprox, Weldguard	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	2	A4
Ni12U-M18E-AP6X-H1141 1645143	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	LCP	N/A	YE	B	2	A4
Ni12U-M18-AP6X-H1141/S395 1645142	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	2	A4
Ni12U-M18M-VP4X-H1141 1581458	Uprox, Comp. Outputs	12	4-wire DC PNP	10-65 VDC	1500	≤200	-30 to +85	IP68	CPB	PBT	N/A	YE	A	4	A4
Ni10-M18E-AN6X-H1141 4614894		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	1	A4
Ni10-M18E-AP6X-H1141 4641294		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni8-M18E-AD4X-H1141 4411210		8	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	3	A2
Ni8-M18E-VP4X-H1141 1561990	Comp. Outputs	8	4-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	4	A4

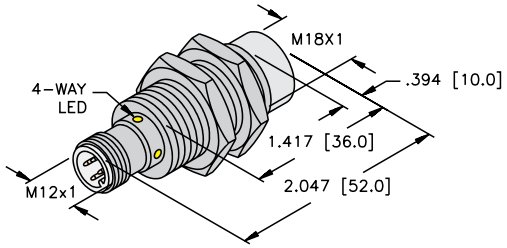
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

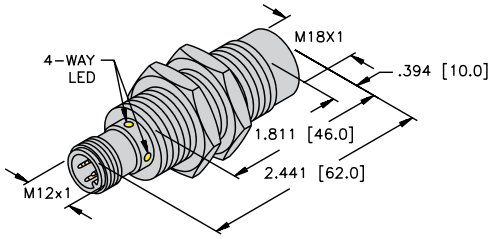
Housing Style	Dimension Drawings

A



18 mm - Nonembeddable, M12 Eurofast Connection, PTFE Coated

B



18 mm - Nonembeddable, M12 Eurofast Connection, PTFE Coated

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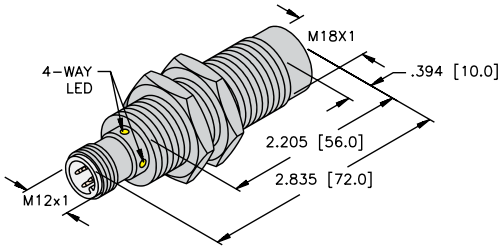
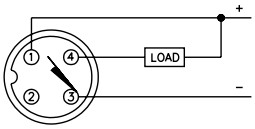


18 mm - Nonembeddable, Ext. Barrel Length M12 Eurofast Connection, PTFE Coated

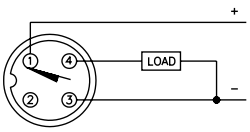
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

2



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni15U-MT18-AN6X-H1141 1635337	Uprox+, PTFE	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	1	A4
Ni15U-MT18-AN6X-H1141/S1589 16353370	Uprox+, PTFE, Weldguard	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	1	A4
Ni15U-MT18-AP6X-H1141 1635333	Uprox+, PTFE	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	2	A4
Ni15U-MT18-AP6X-H1141/S1589 1635333-1	Uprox+, PTFE, Weldguard	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	N/A	YE	A	2	A4
Ni15U-MT18M-AP6X2-H1141 1635338	Uprox+, PTFE	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	TC	GN	YE	B	2	A4
Ni15U-MT18M-AP6X2-H1141/S1589 16352920	Uprox+, PTFE, Weldguard	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	TC	WG	GN	YE	B	2	A4
Ni14-MT18E-AP6X-H1141/S1589 4611497	Ext. Range, PTFE, Weldguard	14	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	TC	WG	N/A	YE	C	2	A4
Ni12U-MT18-AN6X-H1141 1645250	Uprox, PTFE	12	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	1	A4
Ni12U-MT18-AP6X-H1141 1645240	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	2	A4
Ni12U-MT18-AP6X-H1141/S1589 1645292	Uprox, Weldguard	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	N/A	YE	A	2	A4
Ni12U-MT18-AP6X2-H1141 1645245	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	2	A4
Ni12U-MT18-AP6X2-H1141/S1589 1645293	Uprox, Weldguard	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	2	A4
Ni12U-MT18-AP6X-H1141/S395 1645242	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	N/A	YE	B	2	A4
Ni12U-MT18-AP6X2-H1141/S395 1645246	Uprox, PTFE	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	TC	GN	YE	B	2	A4
Ni12U-MT18-AP6X2-H1141/S395/ S1589 1645291	Uprox, PTFE, Weldguard	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	TC	WG	GN	YE	B	2	A4

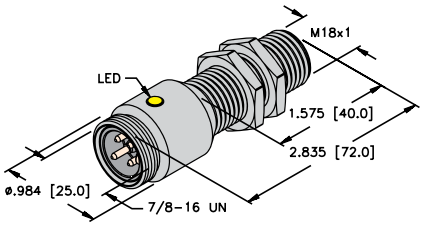
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Fully Threaded Metal Barrels with Connector and AC/DC Outputs

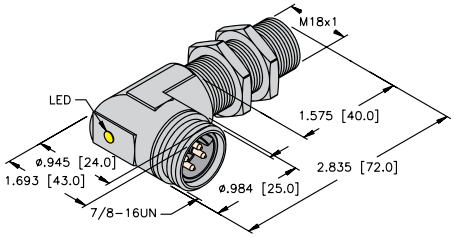
Housing Style	Dimension Drawings

A



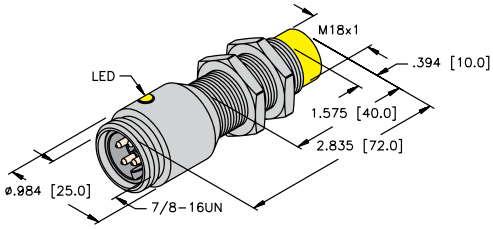
18 mm - Embeddable, 7/8" Minifast Connection

B



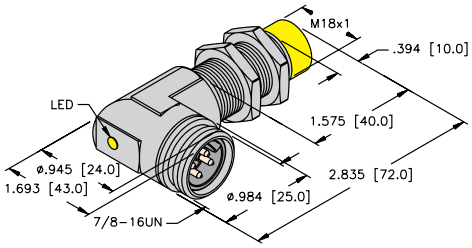
18 mm - Embeddable, Right Angle, 7/8" Minifast Connection

C



18 mm - Nonembeddable, 7/8" Minifast Connection

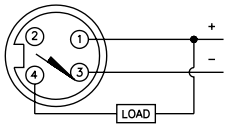
D



18 mm - Nonembeddable, 7/8" Minifast Right Angle Connection

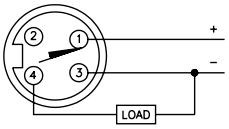
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 40-*M

2



Mating Cordset: RKM 40-*M

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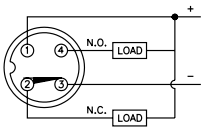
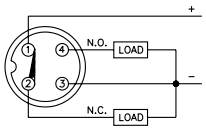


Mating Cordset: RKM 40-*M

4



Mating Cordset: RKM 40-*M

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Fully Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-G18-AN6X-B1341 46952		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi5-G18-AP6X-B1341 46963		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi5-G18-AN6X-B1441 46956		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	1	A4
Bi5-G18-AP6X-B1441 46967		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni10-G18-AN6X-B1341 46953		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	C	1	A4
Ni10-G18-AP6X-B1341 46964		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	C	2	A4
Ni10-G18-AN6X-B1441 46957		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	1	A4
Ni10-G18-AP6X-B1441 46968		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	2	A4
Ni10-G18-VN6X-B1441 46991	Comp. Outputs	10	4-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	3	A4
Ni10-G18-VP6X-B1441 4699190	Comp. Outputs	10	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	4	A4

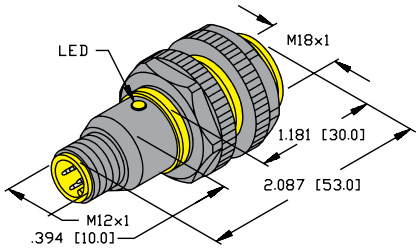
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Threaded Plastic Barrels with Connector and DC Outputs

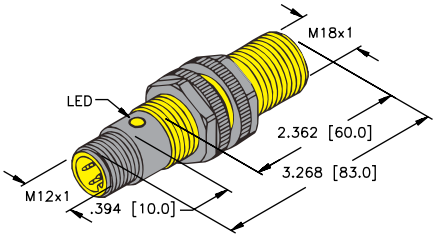
Housing Style	Dimension Drawings

A



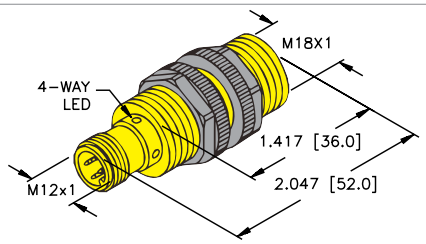
18 mm - Embeddable and Nonembeddable, Partial Threading, M12 Eurofast Connection

B



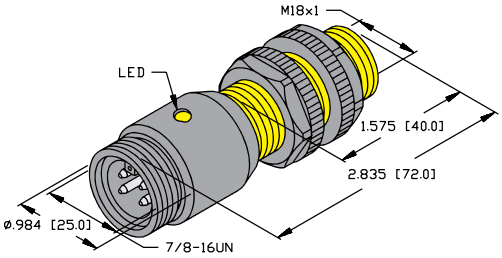
18 mm - Embeddable and Nonembeddable, Partial Threading, M12 Eurofast Connection

C



18 mm - Embeddable and Nonembeddable, Partial Threading, M12 Eurofast Connection

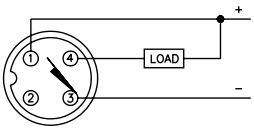
D



18 mm - Embeddable and Nonembeddable, Full Threading, 7/8" Minifast Connection

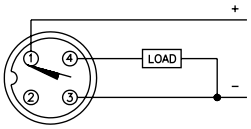
Wiring Diagrams/Mating Cordsets

1



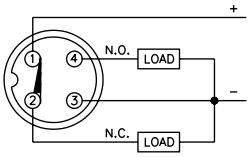
Mating Cordset: RKK 4T-*

2



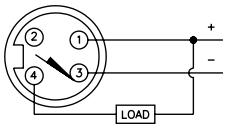
Mating Cordset: RKK 4T-*

3



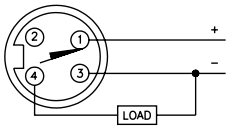
Mating Cordset: RKK 4.4T-*

4



Mating Cordset: RK 40-*M

5



Mating Cordset: RK 40-*M

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Threaded Plastic Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-S18-AN6X-H1141 1635620	Uprox	5	3-wire DC NPN	10-30 VDC	2500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	1	A4
Bi5U-S18-AP6X-H1141 1635600	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	2	A4
Bi5-S18-AN6X-H1141 46525		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Bi5-S18-AP6X-H1141 46524		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4
Bi5-S18-VP4X-H1141 1513401	Comp. Outputs	5	4-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	B	3	A4
Bi5-P18-AN6X-B2341 46972		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	D	4	A4
Bi5-P18-AP6X-B2341 46973		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	D	5	A4
Ni12U-S18-AN6X-H1141 1645620	Uprox	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	1	A4
Ni12U-S18-AP6X-H1141 1645600	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	2	A4
Ni10-P18-AN6X-B2341 4697800		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	D	4	A4
Ni10-P18-AP6X-B2341 4697900		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	D	5	A4
Ni8-S18-AN6X-H1141 46527		8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Ni8-S18-AP6X-H1141 46526		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4

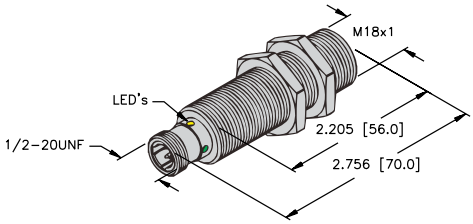
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Fully Threaded Metal Barrels with Connector and AC/DC Outputs

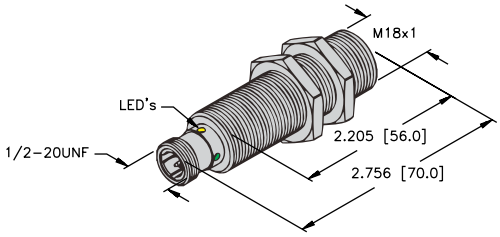
Housing Style	Dimension Drawings

A



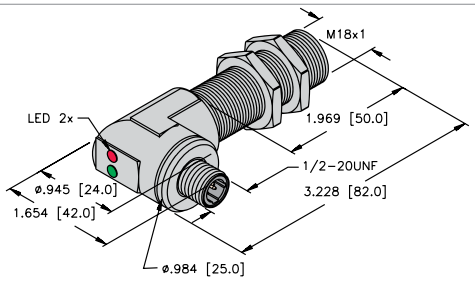
18 mm - Embeddable, 1/2" Microfast Connection

B



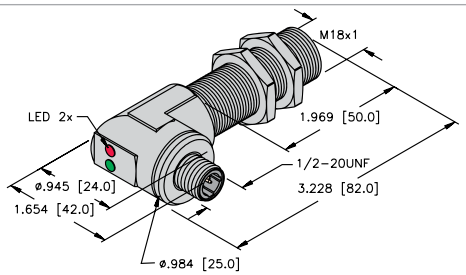
18 mm - Embeddable, 1/2" Microfast Connection, PTFE Coated

C



18 mm - Embeddable, 1/2" Microfast Connection

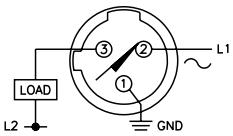
D



18 mm - Embeddable, 1/2" Microfast Right Angle Connection, PTFE Coated

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*; KBE 3T-*/S600

A5 — **2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)**

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Fully Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi8-G18-ADZ30X2-B3331 4209301	Extended Range	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	PA 12	GN	RD	A	1	A5
Bi5U-G18-ADZ30X2-B3331 4281213	Uprox	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Bi5U-GT18-ADZ30X2-B3331 4281223	Uprox, PTFE	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	B	1	A5
Bi5-G18-ADZ30X2-B3331 4208092		5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi5-GT18-ADZ30X2-B3331 4255491	PTFE	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Bi5-GT18-ADZ30X2-B3331/S34 4255400	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Bi5-GT18H-ADZ30X2-B3331/S34 4255289	PTFE, WFI, Stoneface	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	SF	GN	RD	B	1	A5
Bi5-GT18H-ADZ30X2-B3331/S34/S1589 4255283	PTFE, Weldguard	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	B	1	A5
Bi5-GT18-ADZ30X2-B3431/S34 4255605	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	D	1	A5
Bi5-G18-AZ3X-B3331 4372098		5	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Bi5-G18-AZ3X-B3431 4372090		5	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	C	1	A6

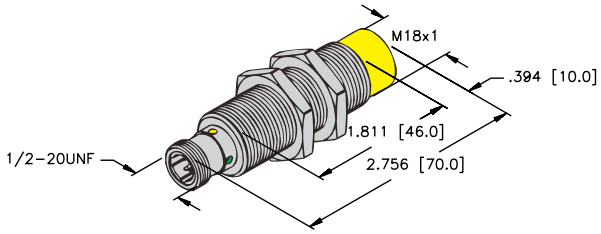
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Fully Threaded Metal Barrels with Connector and AC/DC Outputs

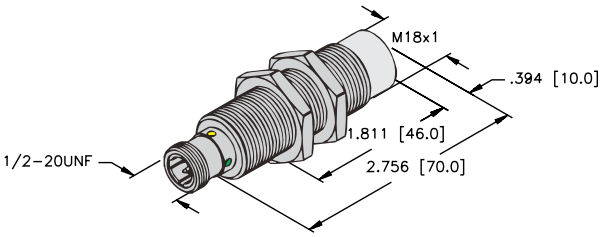
Housing Style	Dimension Drawings

A



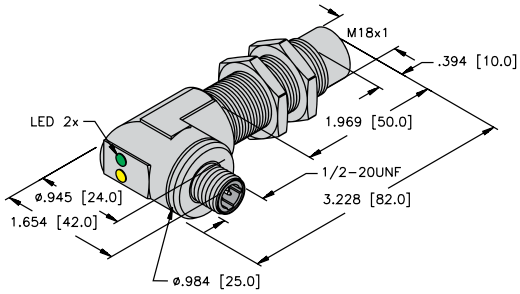
18 mm - Nonembeddable, 1/2" Microfast connection

B



18 mm - Nonembeddable, 1/2" Microfast connection, PTFE Coated

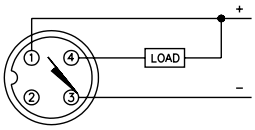
C



18 mm - Nonembeddable, PTFE Coated, 1/2" Microfast Right Angle Connection

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

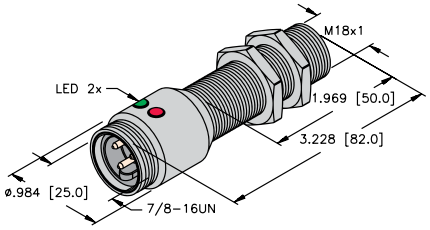
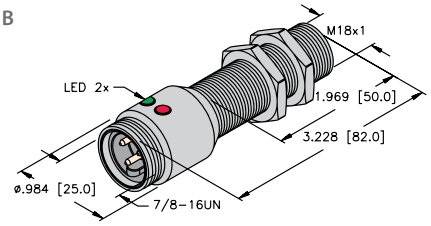
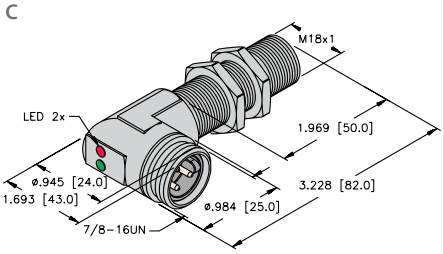
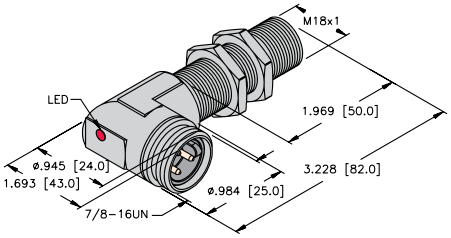
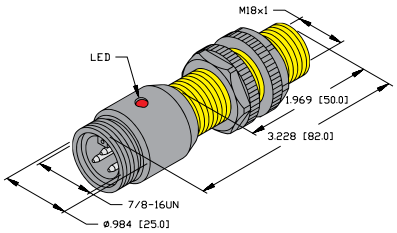
Nonembeddable Fully Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni14-G18-ADZ30X2-B3331 4205403	Extended Range	14	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Ni12U-G18-ADZ30X2-B3331 4281413	Uprox	12	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Ni12U-GT18-ADZ30X2-B3331 4281423	Uprox, PTFE	12	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	B	1	A5
Ni10-G18-AZ3X-B3331 4372192		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Ni8-G18-ADZ30X2-B3331/S34 4209100	WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Ni8-GT18-ADZ30X2-B3331/S34 4209101	PTFE, WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Ni8-GT18-ADZ30X2-B3431/S34 4209201	PTFE, WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	C	1	A5
Ni8-G18-AZ3X-B3331 4350588		8	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6

We reserve the right to make technical alterations without prior notice.

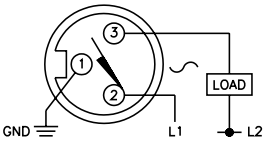
Inductive Barrel Sensors | 18 mm

Embeddable Fully Threaded Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings	
	A  18 mm - Embeddable, 7/8" Minifast Connection	B  18 mm - Embeddable, 7/8" Minifast Connection, PTFE Coated
C  18 mm - Embeddable, 7/8" Minifast Right Angle Connection	D  18 mm - Embeddable, 7/8" Minifast Right Angle Connection, PTFE Coated	E  18 mm - Embeddable and Nonembeddable, Full Threading, 7/8" Minifast Connection

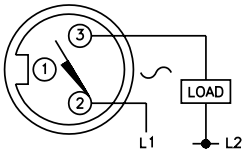
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M; RKM 311-*M/S600

2



Mating Cordset: RK 30-*M

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Fully Threaded Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-G18-ADZ30X2-B1331 4281212	Uprox	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Bi5U-GT18-ADZ30X2-B1331 4281222	Uprox, PTFE	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	B	1	A5
Bi5-G18-ADZ30X2-B1331 42080		5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi5-GT18-ADZ30X2-B1331 4255290	PTFE	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Bi5-GT18-ADZ30X2-B1331/S34 4255200	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Bi5-GT18H-ADZ30X2-B1331/S34/S1589 4255284	PTFE, WFI, Weldguard	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	B	1	A5
Bi5-GT18-ADZ30X2-B1431 4255690	PTFE	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	D	1	A5
Bi5-GT18-ADZ30X2-B1431/S34 4255600	PTFE, WFI	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	D	1	A5
Bi5-GT18H-ADZ30X2-B1431/S34/S1589 4255285	PTFE, Weldguard	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	D	1	A5
Bi5-G18-AZ3X-B1331 43720		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Bi5-G18-AZ3X-B1431 43724		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	C	1	A6
Bi5-P18-AZ3X-B2331 43748		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	E	2	A6

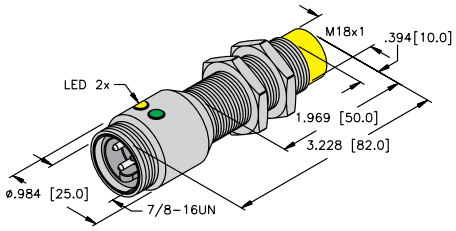
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Fully Threaded Barrels with Connector and AC/DC Outputs

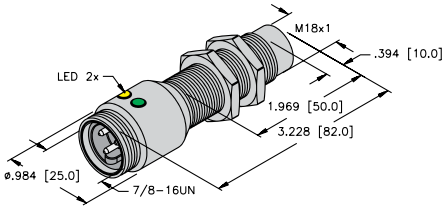
Housing Style	Dimension Drawings

A



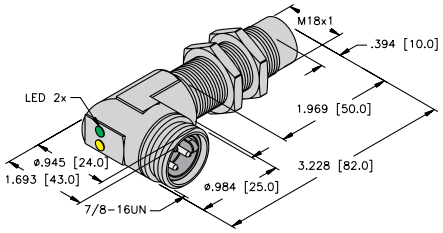
18 mm - Nonembeddable 7/8" Minifast Connection

B



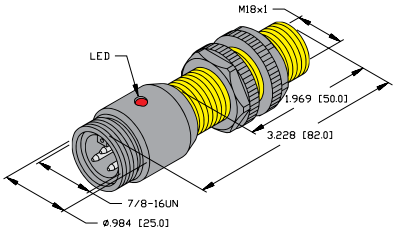
18 mm - Nonembeddable 7/8" Minifast Connection, PTFE Coated

C



18 mm - Nonembeddable, PTFE Coated 7/8" Minifast Right Angle Connection

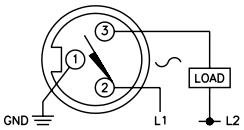
D



18 mm - Embeddable and Nonembeddable, Full Threading, 7/8" Minifast Connection

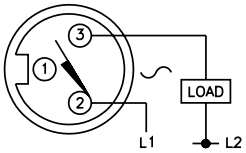
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M; RKM 311-*M/S600

2



Mating Cordset: RK 30-*M

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Fully Threaded Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni14-G18-ADZ30X2-B1331 4205407	Extended Range	14	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Ni14-GT18H-ADZ30X2-B1331/S1589 4205484	PTFE, Weldguard	14	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	B	1	A5
Ni12U-G18-ADZ30X2-B1331 4281412	Uprox	12	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Ni12U-GT18-ADZ30X2-B1331 4281422	Uprox	12	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	B	1	A5
Ni10-G18-AZ3X-B1331 43721		10	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Ni10-P18-AZ3X-B2331 43752		10	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	D	2	A6
Ni8-GT18-ADZ30X2-B1331/S34 4208801	PTFE, WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Ni8-GT18H-ADZ30X2-B1331/S34/S1589 4208890	PTFE, Weldguard	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	B	1	A5
Ni8-GT18-ADZ30X2-B1431/S34 4208901	PTFE, WFI	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	C	1	A5
Ni8-GT18H-ADZ30X2-B1431/S34/S1589 4208990	Weldguard	8	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	C	1	A5

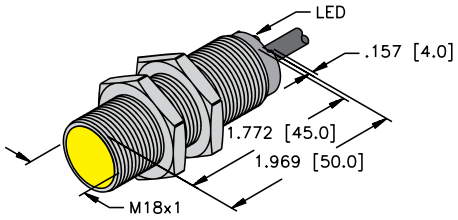
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

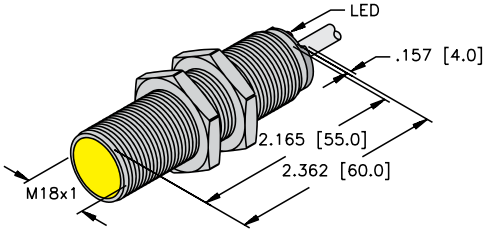
Housing Style	Dimension Drawings

A



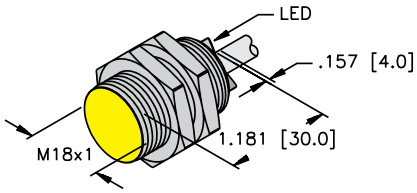
18 mm - Embeddable, Potted-in Cable

B



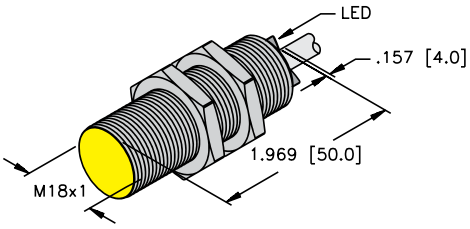
18 mm - Embeddable, Potted-In Cable, Extended Length Barrel, Partial Threading

C



18 mm - Embeddable, Full Threading, Potted-In Cable

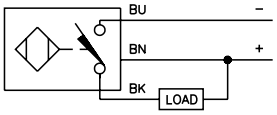
D



18 mm - Embeddable, Full Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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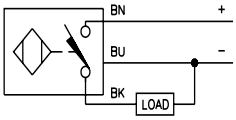

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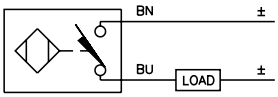

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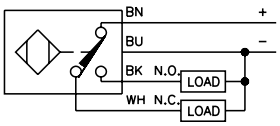


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-M18-AN6X 1644845	Uprox3	10	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	1	A4
BI10U-M18-AP6X 1644840	Uprox3	10	3-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
BI10U-M18-VP6X 1644842	Uprox3, Comp. Outputs	10	4-wire DC PNP	10-30 VDC	1500	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	4	A4
Bi8U-M18-AN6X 1644736	Uprox+	8	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	1	A4
Bi8U-M18-AP6X 1644733	Uprox+	8	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Bi8-M18-AN6X 4615130	Extended Range	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	A	1	A4
Bi8-M18-AP6X 4615030	Extended Range	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi8-M18-VN4X 4590703	Comp. Outputs	8	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi8-M18-VP4X 4590704	Comp. Outputs	8	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	A	4	A4
Bi8-G18-AN6X 4616101	Extended Range	8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	D	1	A4
Bi8-G18-AP6X 4615088		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	D	2	A4
Bi5U-M18-AN6X 1635120	Uprox	5	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	1	A4
Bi5U-EM18-AP6X 1635300	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	2M/PVC	A	2	A4
Bi5U-M18-AP6X 1635100	Uprox	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	2	A4
Bi5U-M18E-AP6X 1635101	Uprox	5	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	B	1	A4
Bi5-G18-AN6X 4641500		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	1	A4
Bi5-G18-AN7X 4740500	TTL Compatible	5	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	1	A4
Bi5-G18-AP6X 4641400		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	2	A4
Bi5-EG18-AN6X 4611101		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	D	1	A4
Bi5-EG18-AP6X 4611001		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/PVC	D	2	A4
Bi5-M18E-VP4X 1561190	Comp. Outputs	5	4-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	4	A4
Bi5-G18K-AN6X 46714	Short Barrel	5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A4
Bi5-G18K-AP6X 46704	Short Barrel	5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	2	A4

We reserve the right to make technical alterations without prior notice.

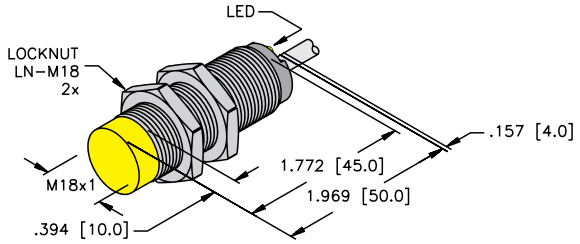
Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style

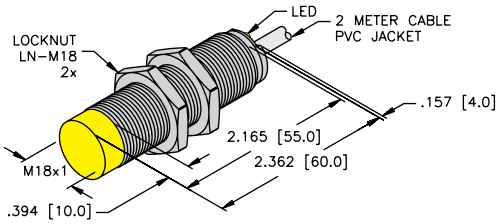
Dimension Drawings

A



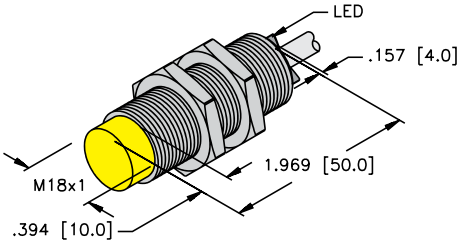
18 mm - Nonembeddable, Potted-in Cable

B



18 mm - Nonembeddable, Extended Barrel Length, Partial Threading, Potted-In Cable

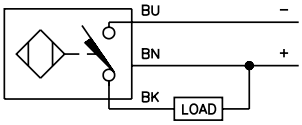
C



18 mm - Nonembeddable, Full Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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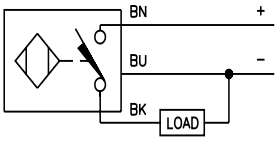

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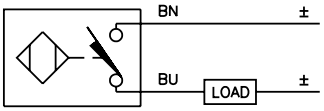


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni15U-M18-AN6X 1635334	Uprox+	15	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	1	A4
Ni15U-M18-AP6X 1635330	Uprox+	15	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Ni14-M18-AD4X 4417235	Extended Range	14	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A2
Ni14-M18-AN6X 4611411	Extended Range	14	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A4
Ni14-M18-AP6X 4611401	Extended Range	14	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni12U-M18-AN6X 1645120	Uprox	12	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	1	A4
Ni12U-M18-AP6X 1645100	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	2	A4
Ni12U-M18E-AN6X 1645110	Uprox	12	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	B	1	A4
Ni12U-M18E-AP6X 1645106	Uprox	12	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	B	2	A4
Ni12U-EM18-AN6X 1645320	Uprox	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP67	SS	PBT	N/A	YE	2M/PVC	A	1	A4
Ni12U-EM18-AP6X 1645300	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP67	SS	PBT	N/A	YE	2M/PVC	A	2	A4
Ni10-G18-AN6X 4641700		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A4
Ni10-G18-AN7X 4740700	TTL Compatible	10	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	1	A4
Ni10-G18-AP6X 4641600		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	2	A4
Ni8-M18-AD4X 44112		8	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A2

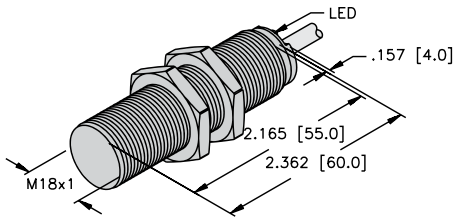
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Threaded Barrels with Cable and AC/DC Outputs

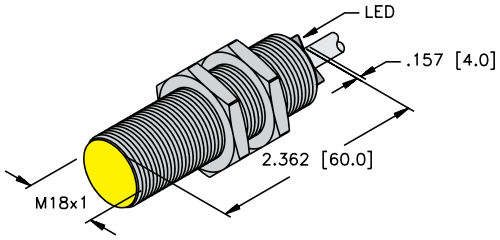
Housing Style	Dimension Drawings

A



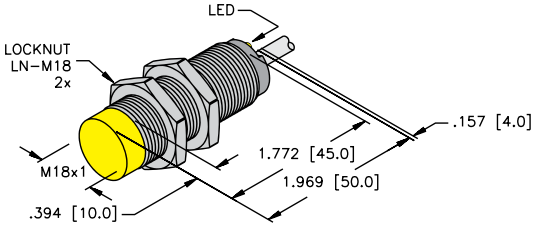
18 mm - Embeddable, Potted-In Cable, Partial Threading, PTFE Coated

B



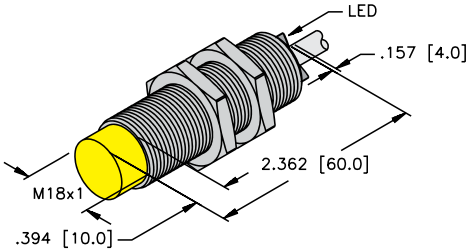
18 mm - Embeddable, Full Threading, Potted-In Cable

C



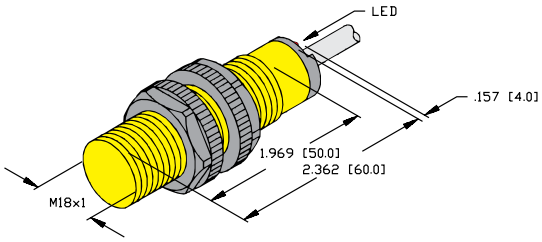
18 mm - Nonembeddable, Partial Threading, Potted-In Cable

D



18 mm - Nonembeddable, Full Threading, Potted-In Cable

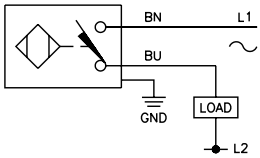
E



18 mm - Embeddable and Nonembeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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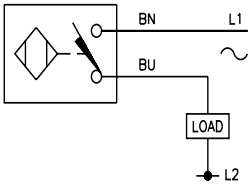


A5 — **2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)**

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

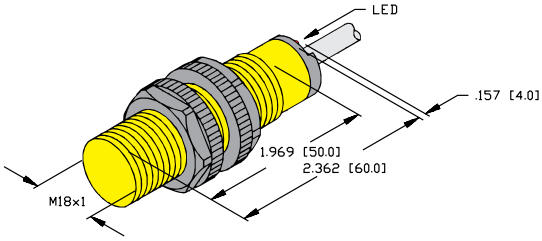
Threaded Barrels with Cable and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-MT18-ADZ30X2 4209410	Uprox	5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	2M/PVC	A	1	A5
Bi5-G18-ADZ30X2 4212000		5	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	2M/PVC	B	1	A5
Bi5-G18-AZ3X 4330400		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	B	1	A6
Bi5-G18-AZ3X2 1374195		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	YE	2M/PVC	B	1	A6
Bi5-EG18-AZ3X 4611190		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	PA 12	N/A	RD	2M/PVC	B	1	A6
Bi5-S18-AZ3X 4350400		5	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	E	2	A6
Ni14-G18-ADZ30X2 4205402	Extended Range	14	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	2M/PVC	D	1	A5
Ni12U-M18-ADZ30X2 4282410	Uprox	12	2-wire AC/DC Short-Circuit Protected	20-250 VAC/ 10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	2M/PVC	C	1	A5
Ni8-S18-AZ3X 4350500		8	2-wire AC/DC	20-250 VAC/ 10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	E	2	A6

We reserve the right to make technical alterations without prior notice.

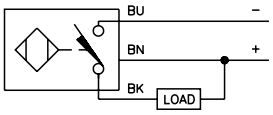
Inductive Barrel Sensors | 18 mm

Threaded Plastic Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable and Nonembeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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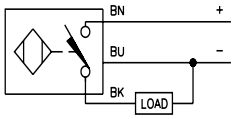

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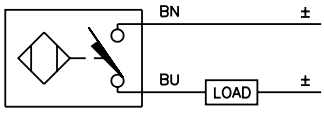


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

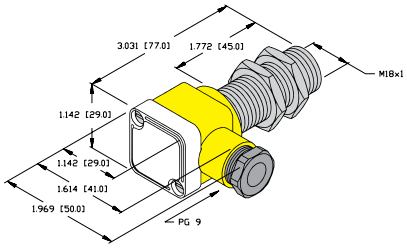
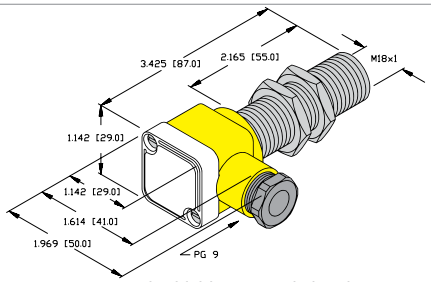
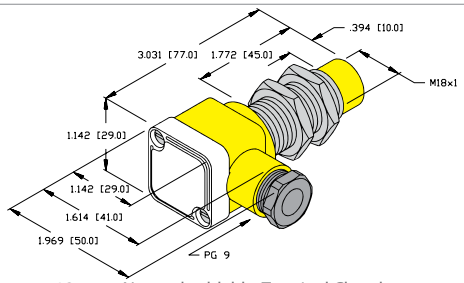
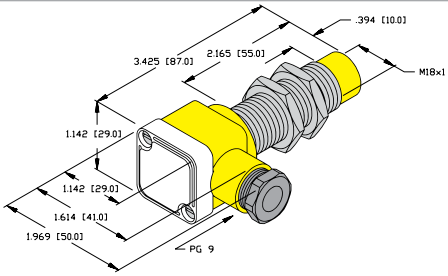
Threaded Plastic Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-S18-AP6X 1635500	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Bi5-S18-AD4X 44560		5	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	3	A2
Bi5-S18-AN6X 46561		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Bi5-S18-AN7X 1714000	TTL Compatible	5	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Bi5-S18-AN7X/S100 17734	High Temp. 100 °C	5	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +100	IP67	PA 12	IRPA	N/A	YE	A	1	A4
Bi5-S18-AP6X 46560		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4
Bi5-S18-AP7X/S100 1754200	TTL Compatible, High Temp. 100 °C	5	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +100	IP67	PA 12	IRPA	N/A	YE	A	2	A4
Ni12U-S18-AN6X 1645520	Uprox	12	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	1	A4
Ni12U-S18-AP6X 1645500	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Ni8-S18-AD4X 44562		8	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	3	A2
Ni8-S18-AN6X 46563		8	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Ni8-S18-AN7X 1714100	TTL Compatible	8	3-wire DC NPN	10-30 VDC	500	≤150	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A4
Ni8-S18-AP6X 46562		8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4
Ni8-S18-AN7X/S100 1773250	TTL Compatible, High Temp. 100 °C	8	3-wire DC NPN	10-30 VDC	500	≤150	-25 to +100	IP67	PA 12	IRPA	N/A	YE	A	1	A4
Ni8-S18-AP7X/S100 1749850	TTL Compatible, High Temp. 100 °C	8	3-wire DC PNP	10-30 VDC	500	≤150	-25 to +100	IP67	PA 12	IRPA	N/A	YE	A	2	A4

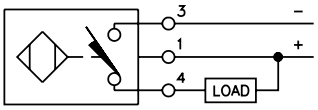
We reserve the right to make technical alterations without prior notice.

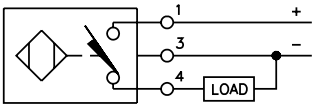
Inductive Barrel Sensors | 18 mm

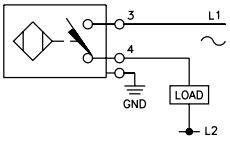
Threaded Metal Barrels with Terminal Chamber and AC/DC Outputs

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, Terminal Chamber
B  18 mm - Embeddable, Terminal Chamber	C  18 mm - Nonembeddable, Terminal Chamber
D  18 mm - Nonembeddable, Terminal Chamber	

Wiring Diagrams/Mating Cordsets

1 

2 

3 

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

Threaded Metal Barrels with Terminal Chamber and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-EG18SK-AP6X 1635400	Uprox	5	3-wire DC PNP	10-30 VDC	2500	≤200	-30 to +85	IP68	SS	PA 12	N/A	YE	A	2	A4
Bi5-G18SK-AN6X2 4642500		5	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	1	A4
Bi5-G18SK-AP6X2 4642400		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	2	A4
Bi5-G18SK-AZ3X2 4331400		5	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤500	-25 to +70	IP67	CPB	PA 12	GN	RD	B	3	A6
Ni10-G18SK-AN6X2 4642700		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	C	1	A4
Ni10-G18SK-AP6X2 4642600		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	C	2	A4
Ni10-G18SK-AZ3X2 4331500		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	D	3	A6

We reserve the right to make technical alterations without prior notice.

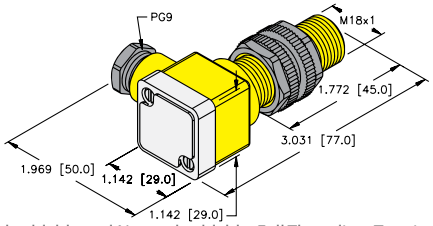
Inductive Barrel Sensors | 18 mm

Threaded Metal Barrels with Terminal Chamber and AC/DC Outputs

Housing Style

Dimension Drawings

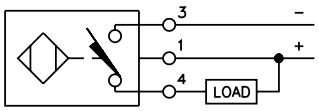
A



18 mm - Embeddable and Nonembeddable, Full Threading, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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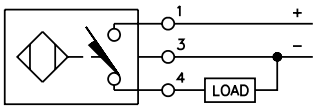

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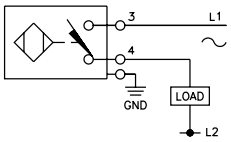


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm

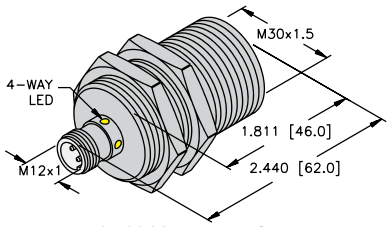
Threaded Metal Barrels with Terminal Chamber and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi5U-P18SK-AP6X 1635700	Uprox	5	3-wire DC PNP	10-30 VDC	3000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Bi5-P18SK-AP6X2 4656900		5	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	A	2	A4
Bi5-P18SK-AZ3X2 4351400		5	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	GN	RD	A	3	A6
Ni12U-P18SK-AP6X 1645700	Uprox	12	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Ni10-P18SK-AZ3X2 4351500		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	GN	RD	A	3	A6
Ni10-P18SK-AN6X2 4657200		10	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	A	1	A4
Ni10-P18SK-AP6X2 4657100		10	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	A	2	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Embeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, M12 Eurofast Connection

Wiring Diagrams/Mating Cordsets

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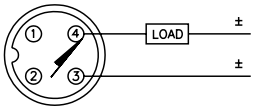

Mating Cordset: RK 4.2T-*

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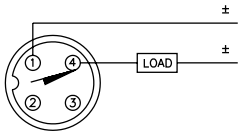

Mating Cordset: RK 4.23T-*

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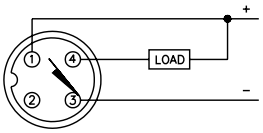
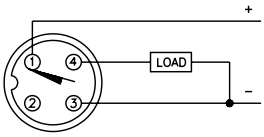


Mating Cordset: RK 4T-*; RKC 4T-*/S1587

4


Mating Cordset: RK 4T-*; RKC 4T-*/S1587

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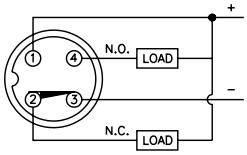
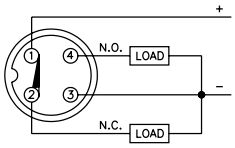


Mating Cordset: RK 4.4T-*

6


Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

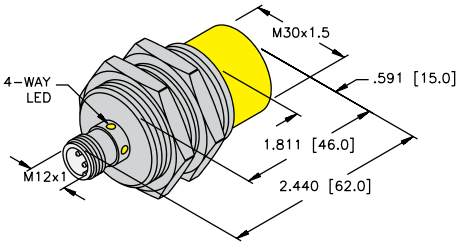
Embeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20U-M30-AN6X-H1141 1644888	Uprox3	20	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	3	A4
Bi20U-M30-AP6X-H1141 1644880	Uprox3	20	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	A	4	A4
Bi15U-M30-AN6X-H1141 1636736	Uprox+	15	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	3	A4
Bi15U-M30-AP6X-H1141 1636732	Uprox+	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	4	A4
Bi15U-EM30-AP6X-H1141 1636733	Uprox+	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	4	A4
Bi15-M30-AN6X-H1141 4618600	Extended Range	15	3-wire DC NPN	10-30 VDC	300	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Bi15-EM30H-AN6X-H1141 4618692	Ext. Range, Stoneface	15	3-wire DC NPN	10-30 VDC	300	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	3	A4
Bi15-M30-AP6X-H1141 46185	Extended Range	15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi15-EM30H-AP6X-H1141 4618592	Ext. Range, Stoneface	15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	SS	SF	N/A	YE	A	4	A4
Bi15-EM30-AP6X-H1141/S1589 4618593	Weldguard	15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	SS	WG	N/A	YE	A	4	A4
Bi15-M30-VN4X-H1141 4570711	Ext. Range, Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Bi15-M30-VP4X-H1141 4570710	Ext. Range, Comp. Outputs	15	4-wire DC PNP	10-65 VDC	300	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Bi12-M30-AD4X-H1141 4417041	Extended Range	12	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi10U-M30-AD4X-H1144 4405072	Uprox	10	2-wire DC	10-65 VDC	10	≤100	-25 to +70	IP68	CPB	LCP	N/A	YE	A	2	A2
Bi10U-M30-AN6X-H1141 1636150	Uprox	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	3	A4
Bi10U-EM30-AN6X-H1141 1636350	Uprox	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	3	A4
Bi10U-M30-AP6X-H1141 1636140	Uprox	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	4	A4
Bi10U-M30-AP6X2-H1141 1636145	Uprox	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	GN	YE	A	4	A4
Bi10U-EM30-AP6X-H1141 1636340	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	4	A4
Bi10U-M30-VP4X-H1141 1582253	Uprox, Comp. Outputs	10	4-wire DC PNP	10-65 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	6	A4
Bi10-M30-AD4X-H1141 44175		10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Bi10-M30-AN6X-H1141 46176		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Bi10-M30-AP6X-H1141 46175		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Bi10-M30-VN4X-H1141 15716	Comp. Outputs	10	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Bi10-M30-VP4X-H1141 15616	Comp. Outputs	10	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4

We reserve the right to make technical alterations without prior notice.

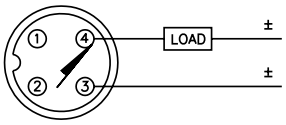
Inductive Barrel Sensors | 30 mm

Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Nonembeddable, M12 Eurofast Connection

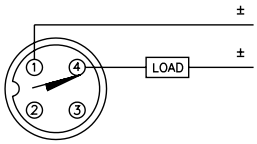
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.2T-*

2



Mating Cordset: RK 4.23T-*

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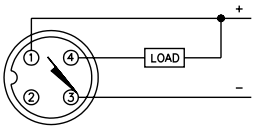
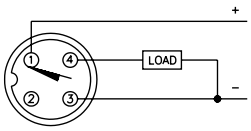


Mating Cordset: RK 4T-*; RKC 4T-*/S1587

4



Mating Cordset: RK 4T-*; RKC 4T-*/S1587

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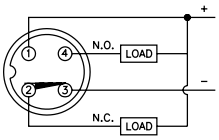
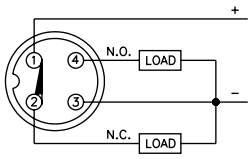


Mating Cordset: RK 4.4T-*

6



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

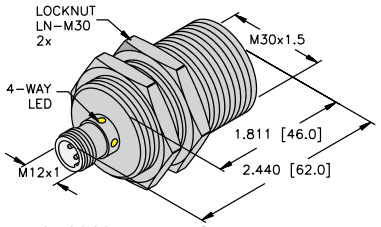
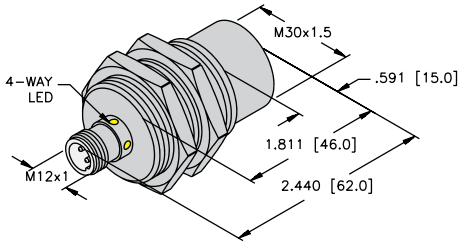
Nonembeddable Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni30U-M30-AN6X-H1141 1644635	Uprox+	30	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	3	A4
Ni30U-EM30-AN6X-H1141 1644636	Uprox+	30	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	3	A4
Ni30U-M30-AP6X-H1141 1646631	Uprox+	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	A	4	A4
Ni30U-EM30-AP6X-H1141 1646632	Uprox+	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	4	A4
Ni20U-M30-AN6X-H1141 1646150	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	3	A4
Ni20U-M30-AN6X2-H1141 1646155	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	GN	YE	A	3	A4
Ni20U-EM30-AN6X-H1141 1646350	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	3	A4
Ni20U-EM30-AN6X2-H1141/S1589 1646191	Uprox, Weldguard	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	3	A4
Ni20U-M30-AP6X-H1141 1646140	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	4	A4
Ni20U-EM30-AP6X-H1141 1646340	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	4	A4
Ni20U-EM30-AP6X2-H1141 1646345	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	PBT	GN	YE	A	4	A4
Ni20U-EM30-AP6X2-H1141/S1589 1646490	Uprox, Weldguard	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	WG	GN	YE	A	4	A4
Ni20U-M30-VP4X-H1141 1582457	Uprox	20	4-wire DC PNP	10-65 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	A	6	A4
Ni20-M30-AD4X-H1141 4466141	Extended Range	20	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni20-M30-AD4X-H1144 4466192	Extended Range	20	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A2
Ni20-M30-AN6X-H1141 4670515	Extended Range	20	3-wire DC NPN	10-30 VDC	1500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni20-M30-AP6X-H1141 4670510	Extended Range	20	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni20-M30-VN4X-H1141 4590606	Ext. Range, Comp. Outputs	20	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni20-M30-VP4X-H1141 4590607	Ext. Range, Comp. Outputs	20	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4
Ni15-M30-AD4X-H1141 44177		15	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A2
Ni15-M30-AN6X-H1141 46178		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A4
Ni15-M30-AP6X-H1141 46177		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	4	A4
Ni15-M30-VN4X-H1141 1571510	Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	5	A4
Ni15-M30-VP4X-H1141 15617	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	6	A4

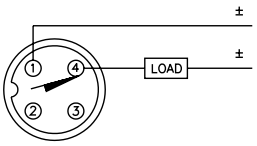
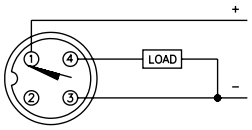
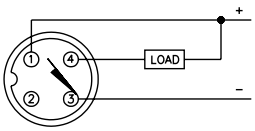
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, M12 Eurofast Connection, PTFE Coated
B  30 mm - Nonembeddable, M12 Eurofast Connection, PTFE Coated	

Wiring Diagrams/Mating Cordsets

1	2	3
		
Mating Cordset: RK 4.23T-*	Mating Cordset: RK 4T-*; RKC 4T-*/S1587	Mating Cordset: RK 4T-*; RKC 4T-*/S1587

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded PTFE Coated Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20U-MT30-AN6X-H1141 1644889	Uprox3, PTFE	20	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	3	A4
Bi20U-MT30-AP6X-H1141 1644881	Uprox3, PTFE	20	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	TC	TC	N/A	YE	A	2	A4
Bi15U-MT30-AP6X-H1141 1636734	Uprox+, PTFE	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	TC	N/A	YE	A	2	A4
Bi15U-MT30-AP6X2-H1141 1644741	Uprox+	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	TC	GN	YE	A	2	A4
Bi12-MT30H-AD4X-H1144 4417095	PTFE, Stoneface	12	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	TC	SF	N/A	YE	A	1	A2
Bi10U-MT30-AN6X-H1141 1636250	Uprox	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	3	A4
Bi10U-MT30-AP6X-H1141 1636240	Uprox, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	A	2	A4
Bi10U-MT30-AP6X2-H1141 1636245	Uprox, PTFE	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	TC	GN	YE	A	2	A4
Bi10U-MT30H-AP6X2-H1141 1636220	Uprox, PTFE, Stoneface	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	SF	GN	YE	A	2	A4
Bi10U-MT30-AP6X2-H1141/S1589 1636291	Uprox, PTFE, Weldguard	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	WG	GN	YE	A	2	A4
Ni30U-MT30-AN6X-H1141 1644637	Uprox+, PTFE	30	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	TC	N/A	YE	B	3	A4
Ni30U-MT30-AP6X-H1141 1646633	Uprox+, PTFE	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	TC	N/A	YE	B	2	A4
Ni30U-MT30-AP6X2-H1141 1646635	Uprox+, PTFE	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	TC	GN	YE	B	2	A4
Ni30U-MT30-AP6X-H1141/S1589 16466331	Uprox+, PTFE, Weldguard	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	N/A	YE	B	2	A4
Ni30U-MT30-AP6X2-H1141/S1589 16466351	Uprox+, PTFE, Weldguard	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	TC	WG	GN	YE	B	2	A4
Ni20U-MT30-AP6X-H1141 1646240	Uprox, PTFE	20	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	TC	N/A	YE	B	2	A4
Ni20U-MT30-AP6X2-H1141 1646245	Uprox, PTFE	20	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	TC	GN	YE	B	2	A4
Ni20U-MT30-AP6X2-H1141/S1589 1646291	Uprox, Weldguard	20	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	TC	WG	GN	YE	B	2	A4
Ni20-MT30-AN6X-H1141/S1589 4670589	PTFE, Weldguard	20	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	TC	WG	N/A	YE	B	3	A4
Ni15U-MT30-AD4X-H1144 4405077	Uprox, PTFE	15	2-wire DC	10-65 VDC	10	≤100	-25 to +70	IP68	TC	TC	GN	YE	B	1	A2

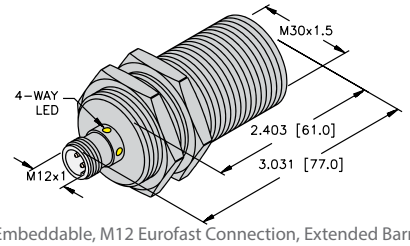
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Connector and DC Outputs

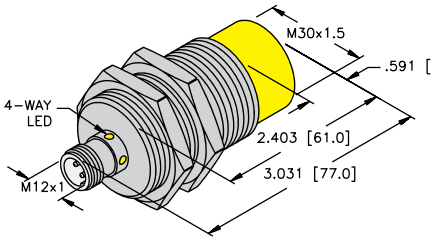
Housing Style	Dimension Drawings

A



30 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length

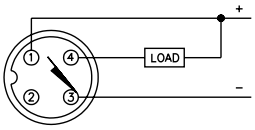
B



30 mm - Nonembeddable, M12 Eurofast Connection, Extended Barrel Length

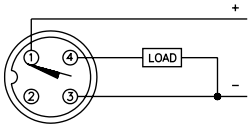
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4.23T-*

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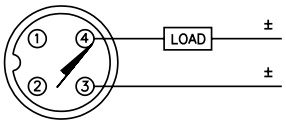
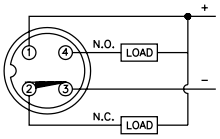


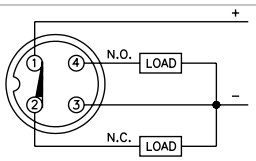
Mating Cordset: RK 4.2T-*

4



Mating Cordset: RK 4.4T-*

5



Mating Cordset: RK 4.4T-*

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-M30E-AN6X-H1141 4618690	Extended Range	15	3-wire DC NPN	10-30 VDC	300	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi15-M30E-AP6X-H1141 4618590	Extended Range	15	3-wire DC PNP	10-30 VDC	300	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi10U-EM30E-AP6X-H1141 1636322	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	A	2	A4
Bi10U-EM30HE-AP6X2-H1141 1636415	Uprox, Stoneface	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	SF	GN	YE	A	2	A4
Bi10-M30E-AD4X-H1141 4417501		10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A2
Ni15-M30E-AD4X-H1141 4417790		15	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	3	A2
Ni15-M30E-VN4X-H1141 1571590	Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	4	A4
Ni15-M30E-VP4X-H1141 1561790	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	5	A4

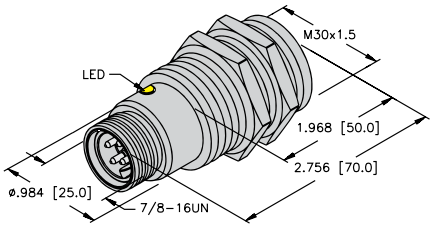
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Connector and DC Outputs

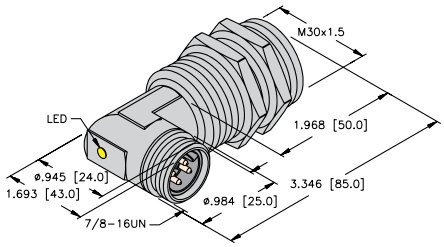
Housing Style	Dimension Drawings

A



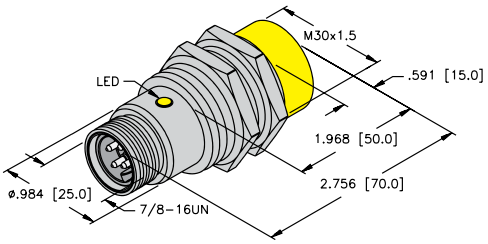
30 mm - Embeddable, 7/8" Minifast Connection

B



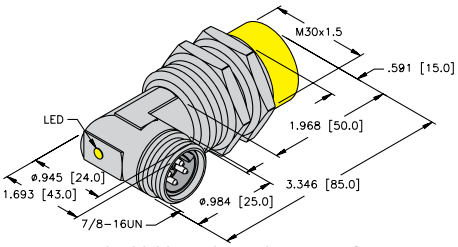
30 mm - Embeddable, 7/8" Minifast Right Angle Connection

C



30 mm - Nonembeddable, 7/8" Minifast Connection

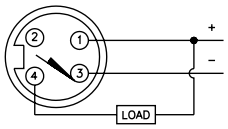
D



30 mm - Nonembeddable, Right Angle 7/8" Minifast Connection

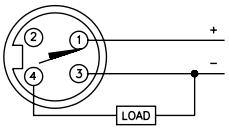
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 40-*M

2



Mating Cordset: RKM 40-*M

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

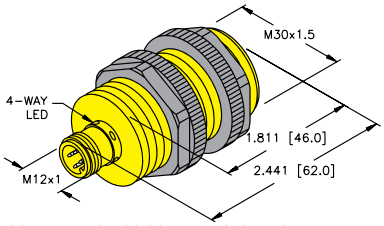
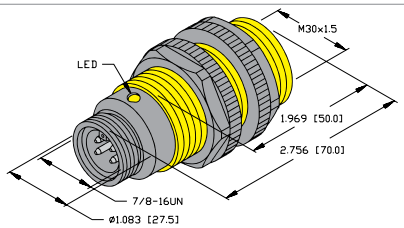
Threaded Metal Barrels with Connector and DC Outputs

Part Number/ ID Number	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-G30-AN6X-B1141 46954	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A4
Bi10-G30-AP6X-B1141 46965	10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A4
Bi10-G30-AN6X-B1441 46958	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	1	A4
Bi10-G30-AP6X-B1441 46969	10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	2	A4
Ni15-G30-AN6X-B1141 46955	15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	C	1	A4
Ni15-G30-AP6X-B1141 46966	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	C	2	A4
Ni15-G30-AN6X-B1441 4695590	15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	1	A4
Ni15-G30-AP6X-B1441 46970	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	D	2	A4

We reserve the right to make technical alterations without prior notice.

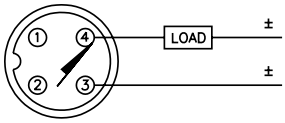
Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with Connector and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable/Nonembeddable, Partial Threading, M12 Eurofast Connection
B  30 mm - Embeddable/Nonembeddable, Full Threading, 7/8" Minifast Connection	

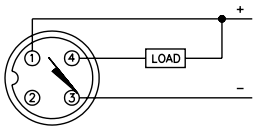
Wiring Diagrams/Mating Cordsets

1



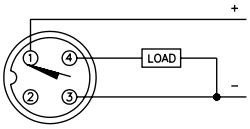
Mating Cordset: RKK 4.2T-*

2



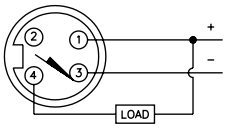
Mating Cordset: RKK 4T-*

3



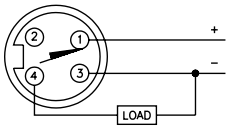
Mating Cordset: RKK 4T-*

4



Mating Cordset: RK 40-*M

5



Mating Cordset: RK 40-*M

A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with Connector and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-S30-AN6X-H1141 1636620	Uprox	10	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Bi10U-S30-AP6X-H1141 1636600	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	3	A4
Bi10-S30-AD4X-H1141 4458000		10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A2
Bi10-S30-AN6X-H1141 46581		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4
Bi10-S30-AP6X-H1141 46580		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	3	A4
Bi10-P30-AN6X-B2141 46974		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	B	4	A4
Bi10-P30-AP6X-B2141 46975		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	B	5	A4
Ni20U-S30-AN6X-H1141 1646620	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	2	A4
Ni20U-S30-AP6X-H1141 1646600	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	A	3	A4
Ni15-S30-AD4X-H1141 44582		15	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	1	A2
Ni15-S30-AN6X-H1141 46583		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	2	A4
Ni15-P30-AN6X-B2141 46976		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	B	4	A4
Ni15-S30-AP6X-H1141 46582		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	A	3	A4
Ni15-P30-AP6X-B2141 46977		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	B	5	A4

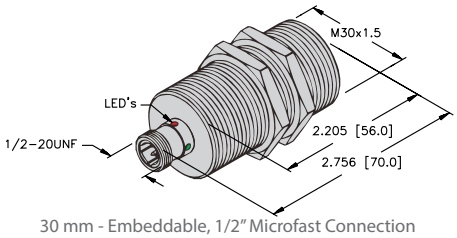
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Connector and AC/DC Outputs

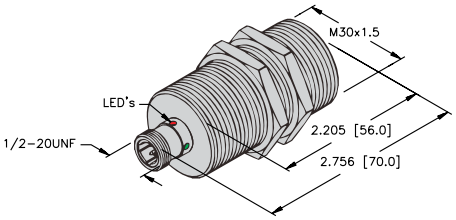
Housing Style	Dimension Drawings

A



30 mm - Embeddable, 1/2" Microfast Connection

B



30 mm - Embeddable, 1/2" Microfast Connection, PTFE Coated

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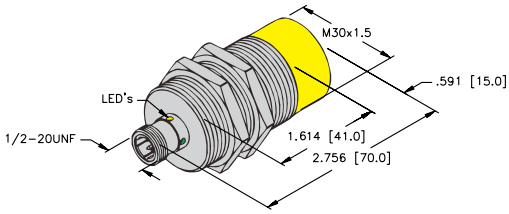
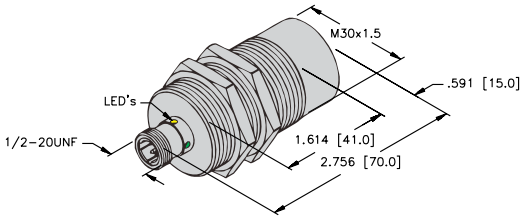


30 mm - Nonembeddable, 1/2" Microfast Connection

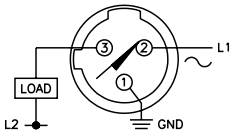
D



30 mm - Nonembeddable, 1/2" Microfast Connection, PTFE Coated

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*; KBE 3T-*/S600

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

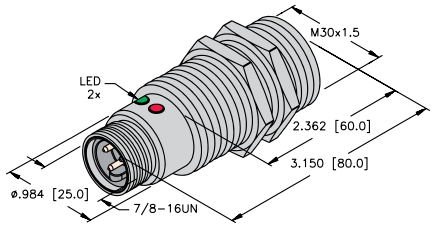
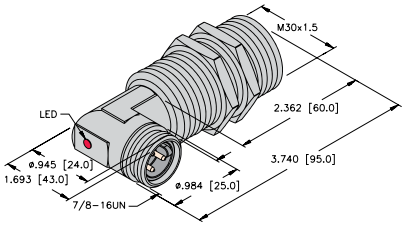
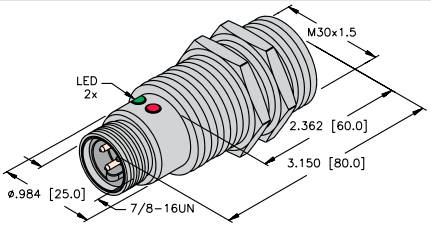
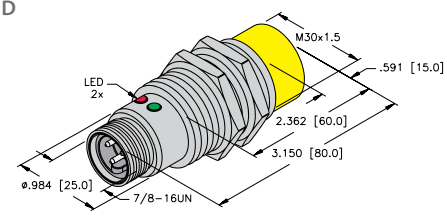
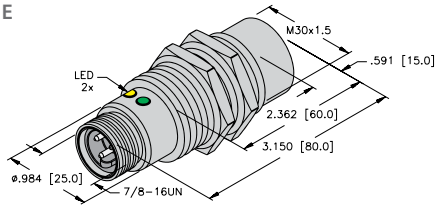
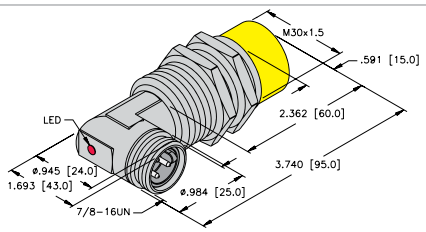
Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-G30-ADZ30X2-B3131 4207201	Extended Range	15	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi15-EG30H-ADZ30X2-B3131 4207284	Ext. Range, Stoneface	15	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	SF	GN	RD	A	1	A5
Bi10U-G30-ADZ30X2-B3131 4281613	Uprox	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Bi10U-GT30-ADZ30X2-B3131 4281623	Uprox, PTFE	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	B	1	A5
Bi10-G30-ADZ30X2-B3131 T207591		10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi10-GT30-ADZ30X2-B3131/S34 4256203	PTFE, WFI	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	B	1	A5
Bi10-GT30H-ADZ30X2-B3131/S34 4256094	WFI, Stoneface	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	SF	GN	RD	B	1	A5
Bi10-G30-AZ3X-B3131 4372298		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Ni20U-G30-ADZ30X2-B3131 4281813	Uprox	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	C	1	A5
Ni20U-GT30-ADZ30X2-B3131 4281823	Uprox, PTFE	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	D	1	A5
Ni20-G30-ADZ30X2-B3131 4205406	Extended Range	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	C	1	A5
Ni15-G30-AZ3X-B3131 1306090		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	C	1	A6

We reserve the right to make technical alterations without prior notice.

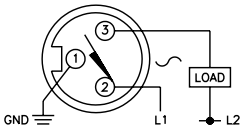
Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Connector and AC/DC Outputs

Housing Style	Dimension Drawings	
	A  30 mm - Embeddable, 7/8" Minifast Connection	B  30 mm - Embeddable, 7/8" Minifast Right Angle Connection
C  30 mm - Embeddable, 7/8" Minifast Connection, PTFE Coated	D  30 mm - Nonembeddable, 7/8" Minifast Connection	E  30 mm - Nonembeddable, 7/8" Minifast Connection, PTFE Coated
F  30 mm - Nonembeddable, 7/8" Minifast Right Angle Connection		

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M; RKM 311-*M/S600

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

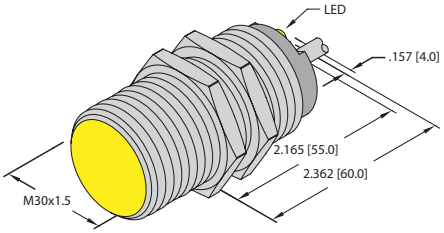
Threaded Metal Barrels with Connector and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-G30-ADZ30X2-B1131 4207202	Extended Range	15	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi15-EG30H-ADZ30X2-B1131 4207292	Ext. Range, Stoneface	15	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	SF	GN	RD	A	1	A5
Bi10U-G30-ADZ30X2-B1131 4281612	Uprox	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	A	1	A5
Bi10-GT30-ADZ30X2-B1131/S34/S1589 4255280	PTFE, WFI, Weldguard	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	WG	GN	RD	C	1	A5
Bi10-G30-ADZ30X2-B1131 42075		10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	1	A5
Bi10-GT30-ADZ30X2-B1131/S34 4256200	PTFE, WFI	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	C	1	A5
Bi10-GT30-ADZ30X2-B1131 4256290	PTFE	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	C	1	A5
Bi10-G30-AZ3X-B1131 43722		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	A	1	A6
Bi10-G30-AZ3X-B1431 43726		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	B	1	A6
Bi10U-GT30-ADZ30X2-B1131 4281622	Uprox, PTFE	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	C	1	A5
Ni20U-G30-ADZ30X2-B1131 4281812	Uprox	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	CPB	PBT	GN	YE	D	1	A5
Ni20U-GT30-ADZ30X2-B1131 4281822	Uprox	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	10	≤400/300	-30 to +85	IP67	TC	TC	GN	YE	E	1	A5
Ni20-G30-ADZ30X2-B1131 4205405	Extended Range	20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	D	1	A5
Ni15-G30-AZ3X-B1131 43723		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	D	1	A6
Ni15-G30-AZ3X-B1431 4372700		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	F	1	A6

We reserve the right to make technical alterations without prior notice.

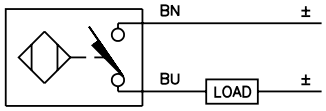
Inductive Barrel Sensors | 30 mm

Embeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, Potted-in Cable

Wiring Diagrams/Mating Cordsets

1



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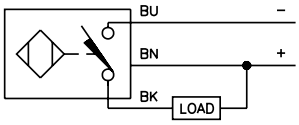

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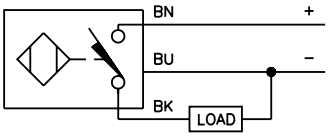

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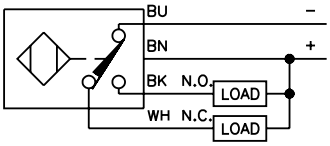

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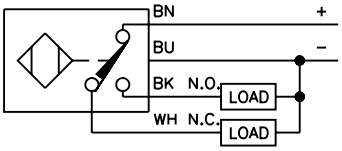


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

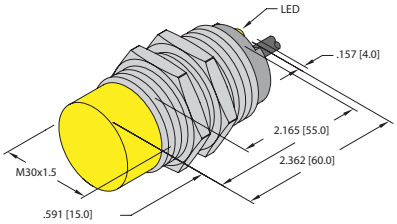
Embeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi20U-M30-AN6X 1644890	Uprox3	20	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Bi20U-M30-AP6X 1644886	Uprox3	20	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Bi15U-M30-AN6X 1636735	Uprox+	15	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Bi15U-M30-AP6X 1636731	Uprox+	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Bi15U-EM30-AP6X 1636741	Uprox+	15	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	2M/PVC	A	3	A4
Bi15-M30-AN6X 4618620	Extended Range	15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi15-M30-AP6X 4618530	Extended Range	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi15-M30-VN4X 4570712	Ext. Range, Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Bi15-M30-VP4X 4570713	Ext. Range, Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4
Bi12-M30-AD4X 4417035	Extended Range	12	2-wire DC	10-65 VDC	400	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi10U-M30-AD4X 4405073	Uprox	10	2-wire DC	10-65 VDC	10	≤100	-30 to +85	IP68	TC	LCP	N/A	YE	2M/PVC	A	1	A2
Bi10U-M30-AN6X 1636120	Uprox	10	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	2	A4
Bi10U-EM30-AN6X 1636320	Uprox	10	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	2M/PVC	A	2	A4
Bi10U-M30-AP6X 1636100	Uprox	10	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	3	A4
Bi10U-EM30-AP6X 1636300	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	2M/PVC	A	3	A4
Bi10-M30-AD4X 44170		10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi10-M30-VN4X 15714	Comp. Outputs	10	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Bi10-M30-VP4X 15614	Comp. Outputs	10	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

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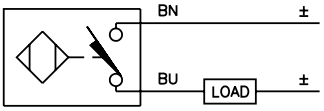

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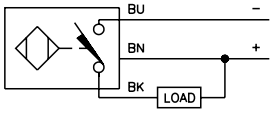

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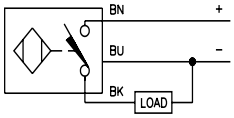

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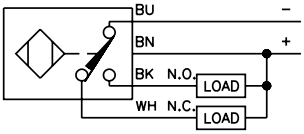

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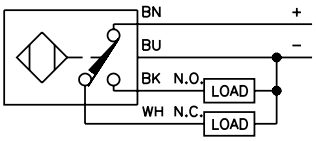


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Nonembeddable Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni30U-M30-AN6X 1644634	Uprox+	30	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	2	A4
Ni30U-M30-AP6X 1646630	Uprox+	30	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP68	CPB	LCP	N/A	YE	2M/PVC	A	3	A4
Ni20U-M30-AN6X 1646120	Uprox	20	3-wire DC NPN	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	2	A4
Ni20U-EM30-AN6X 1646320	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	2M/PVC	A	2	A4
Ni20U-M30-AP6X 1646100	Uprox	20	3-wire DC PNP	10-30 VDC	1000	≤200	-30 to +85	IP67	CPB	PBT	N/A	YE	2M/PVC	A	3	A4
Ni20U-EM30-AP6X 1646300	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	SS	PBT	N/A	YE	2M/PVC	A	3	A4
Ni20-M30-AD4X 4466135	Extended Range	20	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Ni20-M30-AN6X 4670516	Extended Range	20	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni20-M30-AP6X 4670511	Extended Range	20	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Ni20-M30-VN4X 4590604	Extended Range	20	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Ni20-M30-VP4X 4590605	Extended Range	20	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4
Ni15-M30-AD4X 44172		15	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Ni15-M30-VN4X 15715	Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	4	A4
Ni15-M30-VP4X 15615	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	5	A4

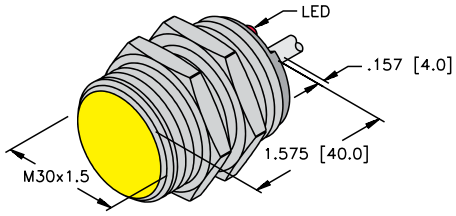
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Cable and DC Outputs

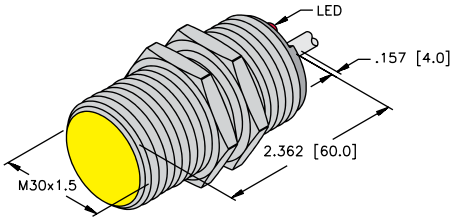
Housing Style	Dimension Drawings

A



30 mm - Embeddable, Potted-In Cable

B



30 mm - Embeddable, Potted-In Cable

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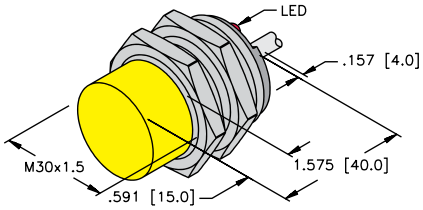

30 mm - Nonembeddable, Potted-In Cable

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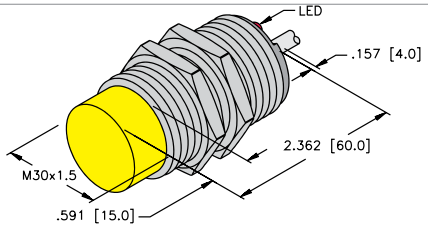
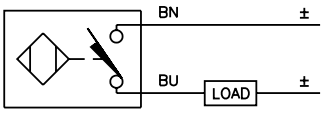


30 mm - Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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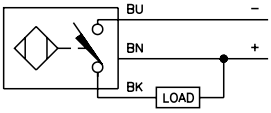

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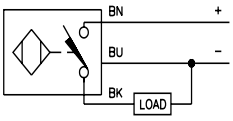


A2 — **2-wire DC - (AD, RD, AG)**

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

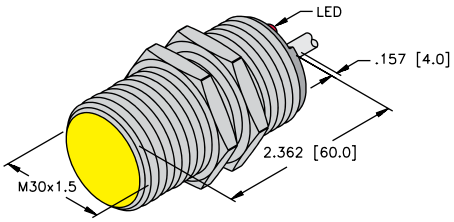
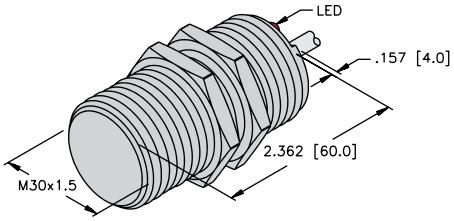
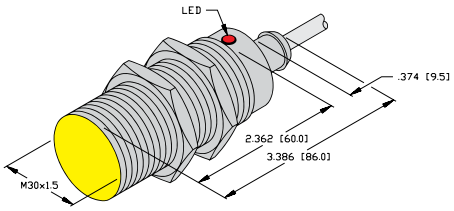
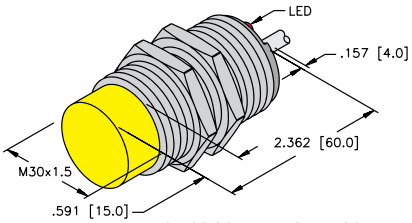
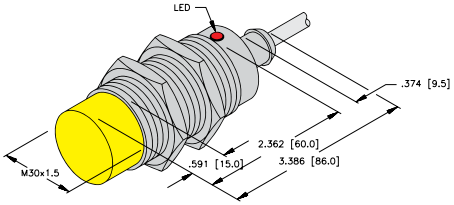
Threaded Metal Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-G30K-AD4X 4670695	Short Barrel	10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi10-G30K-AN6X 46716	Short Barrel	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi10-G30K-AP6X 46706	Short Barrel	10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi15-G30K-AP6X 4207300	Short Barrel	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi10-G30-AN6X 4647500		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi10-G30-AN7X 1714800	TTL Compatible	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	2	A4
Bi10-G30-AP6X 4647400		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	B	3	A4
Ni30-G30K-AP6X 4670711	Short Barrel	30	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	3	A4
Ni15-G30-AN6X 46477		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	2	A4
Ni15-G30-AN7X 1714900		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	2	A4
Ni15-G30-AP6X 4647600		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	3	A4
Ni15-G30K-AN6X 46717	Short Barrel	15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	2	A4
Ni15-G30K-AP6X 46707	Short Barrel	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	3	A4

We reserve the right to make technical alterations without prior notice.

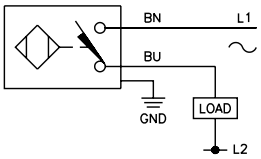
Inductive Barrel Sensors | 30 mm

Threaded Metal Barrels with Cable and AC/DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, Potted-In Cable
B  30 mm - Embeddable, Potted-In Cable, PTFE Coated	C  30 mm - Embeddable, Potted-In Cable
D  30 mm - Nonembeddable, Potted-In Cable	E  30 mm - Nonembeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤8 A (≤10ms max. 5 Hz)
	≤1 A (≤10 ms max. 5 Hz) 12 mm
	≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

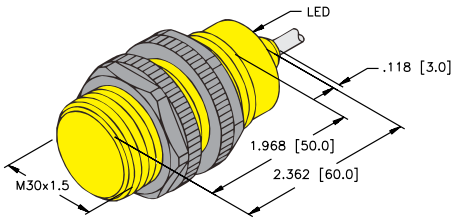
Threaded Metal Barrels with Cable and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-EG30-ADZ30X2 4256095		10	2-wire AC/DC Short-circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	PA 12	GN	RD	2M/PVC	A	1	A5
Bi10-G30-ADZ30X2 42070		10	2-wire AC/DC Short-circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	2M/PVC	A	1	A5
Bi15-G30-ADZ30X2 4207200		15	2-wire AC/DC Short-circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	2M/PVC	A	1	A5
Bi10-EG30-AZ3X 4345699		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	SS	PA 12	N/A	RD	2M/PVC	A	1	A6
Bi10-G30-AZ3X 4345400		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	A	1	A6
Bi10-GT30-ADZ30X2/S34 4256000	PTFE, WFI	10	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	TC	TC	GN	RD	2M/PVC	B	1	A5
Bi10-M30T-AZ3X 43170		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	C	1	A6
Ni20-G30-ADZ30X2 4205404		20	2-wire AC/DC Short-Circuit Protected	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	2M/PVC	D	1	A5
Ni15-M30T-AZ3X 43171		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	E	1	A6

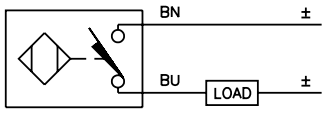
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with Cable and DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Embeddable/Nonembeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1


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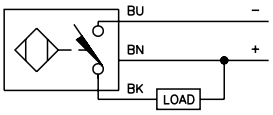

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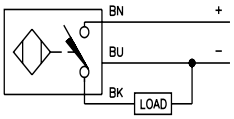

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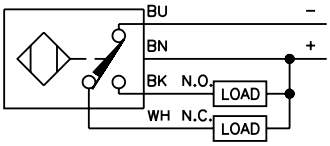

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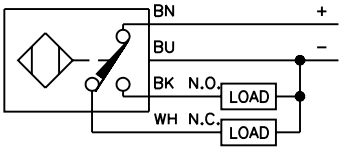


A2 — 2-wire DC - (AD, RD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-polarized (AD) <5.0 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤4.2 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with Cable and DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-S30-AN6X 1636520	Uprox	10	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi10U-S30-AP6X 1636500	Uprox	10	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi10-S30-AD4X 44590		10	2-wire DC	10-65 VDC	500	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	1	A2
Bi10-S30-AN6X 46591		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	2	A4
Bi10-S30-AN7X/S100 17777	TTL Compatible, High Temp. 100 °C	10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +100	IP67	PA 12	IRPA	N/A	YE	2M/PVC	A	2	A4
Bi10-S30-AP6X 46590		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	3	A4
Bi10-S30-VP4X 15122	Comp. Outputs	10	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	5	A4
Ni20U-S30-AN6X 1646520	Uprox	20	3-wire DC NPN	10-30 VDC	1500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni20U-S30-AP6X 1646500	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	2M/PVC	A	3	A4
Ni15-S30-AD4X 44592		15	2-wire DC	10-65 VDC	200	≤100	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	1	A2
Ni15-S30-AN6X 46593		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	2	A4
Ni15-S30-AP6X 46592		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	3	A4
Ni15-S30-VN4X 15224	Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	4	A4
Ni15-S30-VP4X 15630	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	N/A	YE	2M/PVC	A	5	A4

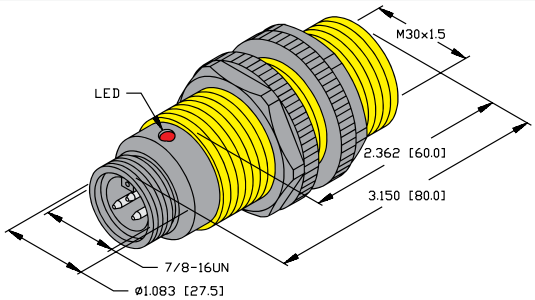
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with AC Outputs

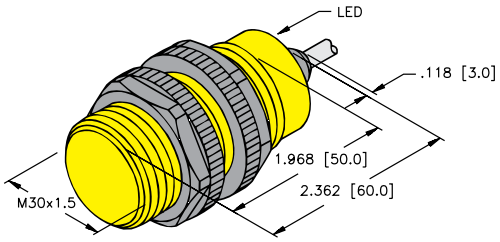
Housing Style	Dimension Drawings

A



30 mm - Embeddable/Nonembeddable, Full Threading, 7/8" Minifast Connection

B



30 mm - Embeddable/Nonembeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

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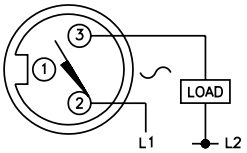

Mating Cordset: RK 30-*M

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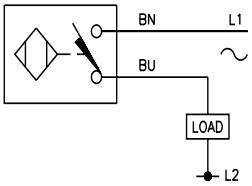


A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Plastic Barrels with AC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-S30-AZ3X 43554		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	2	A6
Ni15-S30-AZ3X 43555		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	2	A6
Bi10-P30-AZ3X-B2131 43749		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	--	A	1	A6
Ni15-S30-AZ3X/S100 13758	High Temp. 100 °C	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +100	IP67	PA 12	PA 12	N/A	RD	2M/PVC	B	2	A6
Ni15-P30-AZ3X-B2131 43754		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	N/A	RD	--	A	1	A6

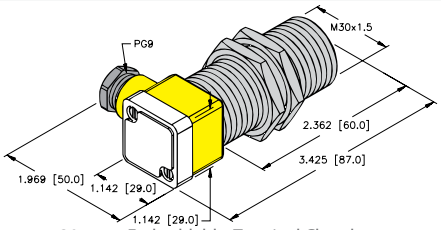
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

Threaded Barrels with Terminal Chamber and AC/DC Outputs

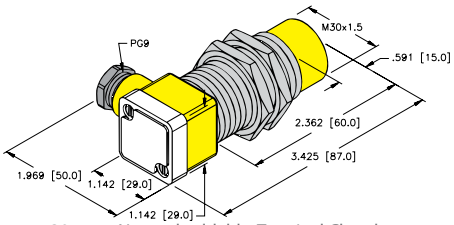
Housing Style	Dimension Drawings

A



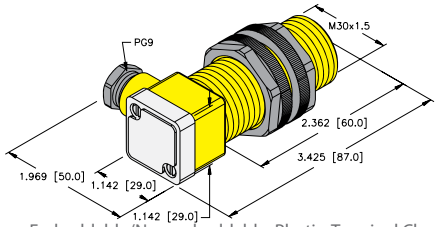
30 mm - Embeddable, Terminal Chamber

B



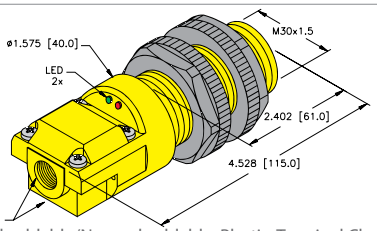
30 mm - Nonembeddable, Terminal Chamber

C



30 mm - Embeddable/Nonembeddable, Plastic, Terminal Chamber

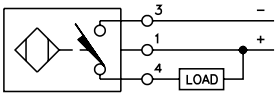
D



30 mm - Embeddable/Nonembeddable, Plastic, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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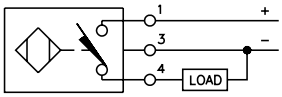

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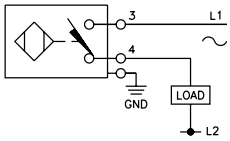

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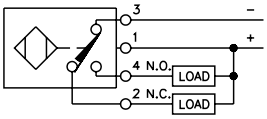

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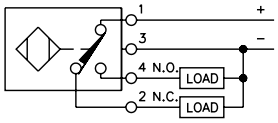


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm

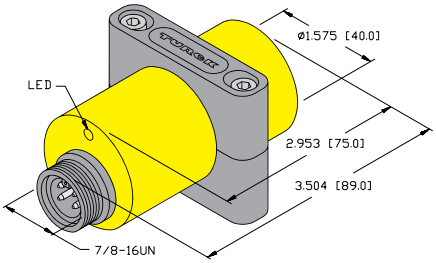
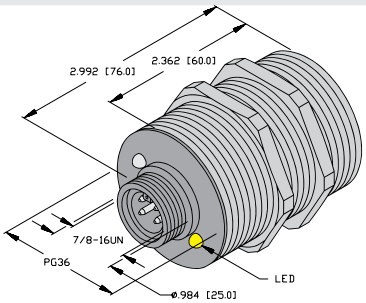
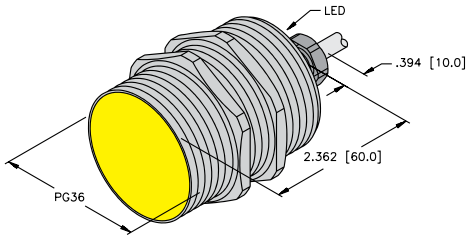
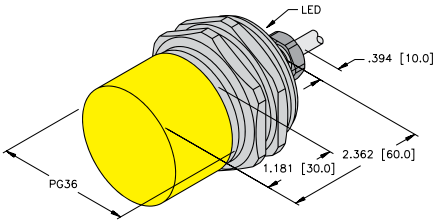
Threaded Barrels with Terminal Chamber and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi10U-EG30SK-AN6X 1636420	Uprox	10	3-wire DC NPN	10-30 VDC	2000	≤200	-30 to +85	IP68	SS	LCP	N/A	YE	A	1	A4
Bi10-G30SK-AN6X2 4648500		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	1	A4
Bi10-P30SK-AN6X2 4660000		10	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	1	A4
Bi10-G30SK-AP6X2 4648400		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	A	2	A4
Bi10-P30SK-AP6X2 4659900		10	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	2	A4
Bi10-P30SR-VN4X2 15752	Comp. Outputs	10	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	D	4	A4
Bi10-P30SR-VP4X2 15652	Comp. Outputs	10	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	D	5	A4
Bi10-G30SK-AZ3X2 4346400		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	A	3	A6
Bi10-P30SK-AZ3X2 4356400		10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	GN	RD	C	3	A6
Bi10-P30SR-FZ3X2 13420	Programmable Outputs	10	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤500	-25 to +70	IP67	PA 12	PA 12	GN	RD	D	3	A6
Ni20U-P30SK-AP6X 1646700	Uprox	20	3-wire DC PNP	10-30 VDC	1500	≤200	-30 to +85	IP68	PA 12	PA 12	N/A	YE	C	2	A4
Ni15-P30SK-AN6X2 4660200		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	1	A4
Ni15-G30SK-AP6X2 4648600		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	B	2	A4
Ni15-P30SK-AP6X2 4660100		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	C	2	A4
Ni15-P30SR-VN4X2 15753	Comp. Outputs	15	4-wire DC NPN	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	D	4	A4
Ni15-P30SR-VP4X2 15653	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	500	≤200	-25 to +70	IP67	PA 12	PA 12	GN	YE	D	5	A4
Ni15-G30SK-AZ3X2 4346500		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	B	3	A6
Ni15-P30SK-AZ3X2 4356500		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PA 12	PA 12	GN	RD	C	3	A6
Ni15-P30SR-FZ3X2 13421	Programmable Outputs	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤500	-25 to +70	IP67	PA 12	PA 12	GN	RD	D	3	A6

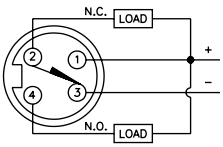
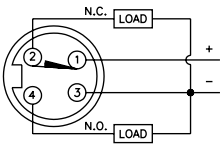
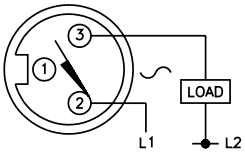
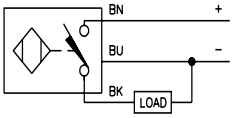
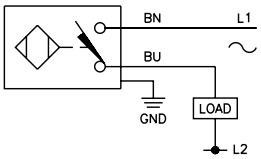
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 40 mm, 47 mm

Large Diameter Barrels with AC/DC Outputs

Housing Style	Dimension Drawings	
	A  40 mm - Nonembeddable, Smooth Plastic Barrel, 7/8" Minifast Connection	B  47 mm - Embeddable, 7/8" Minifast Connection
C  47 mm - Embeddable, Potted-In Cable	D  47 mm - Nonembeddable, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: RKM 40-*M	2  Mating Cordset: RKM 40-*M	3  Mating Cordset: RKM 30-*M
4 	5 	

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 40 mm, 47 mm

Large Diameter Barrels with AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi20-G47-AP4X 15645		20	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	C	4	A4
Bi20-G47-AZ3X 13088		20	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	C	5	A6
Ni25-G47-AP4X 15646		25	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/PVC	D	4	A4
Ni25-G47-AZ3X 13089		25	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	2M/PVC	D	5	A6
Bi25-G47-VN4X-B2141 45903	Comp. Outputs	25	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	--	B	1	A4
Bi25-G47-VP4X-B2141 45902	Comp. Outputs	25	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	--	B	2	A4
Bi20-G47-AZ3X-B2131 43759		20	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	N/A	RD	--	B	3	A6
Ni30-K40-VN4X-B2141 45904	Comp. Outputs	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	--	A	1	A4
Ni30-K40-VP4X-B2141 45905	Comp. Outputs	30	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	--	A	2	A4
Ni30-K40-AZ3X-B2131 43758		30	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	ABS	ABS	N/A	RD	--	A	3	A6

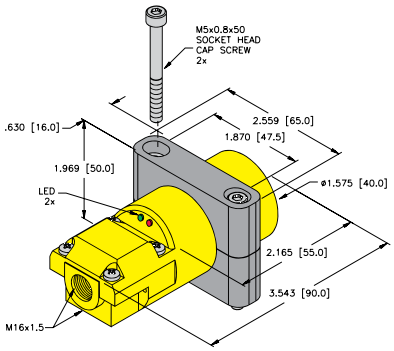
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 40 mm, 47 mm

Large Diameter Barrels with Terminal Chambers and AC/DC Outputs

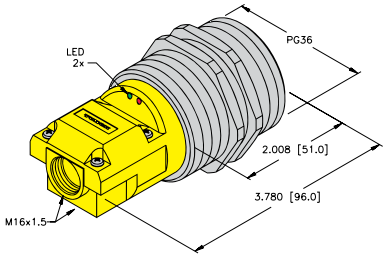
Housing Style	Dimension Drawings

A



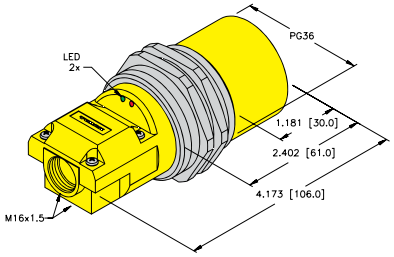
40 mm - Smooth Plastic, Terminal Chamber

B



47 mm - Embeddable, Terminal Chamber

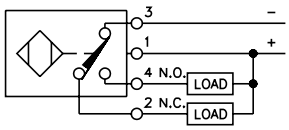
C



47 mm - Nonembeddable, Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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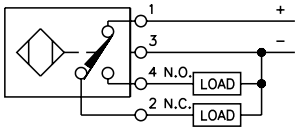

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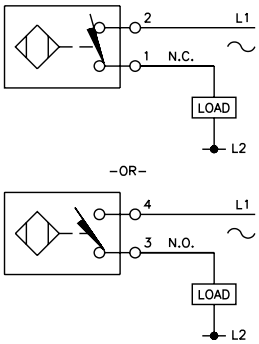


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 40 mm, 47 mm

Large Diameter Barrels with Terminal Chambers and AC/DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi25-G47SR-FZ3X2 13427	Programmable Outputs	25	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	B	3	A6
Bi25-G47SR-VN4X2 15748	Comp. Outputs	25	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	B	1	A4
Bi25-G47SR-VP4X2 15648	Comp. Outputs	25	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	B	2	A4
Bi15-K40SR-FZ3X2 13423	Programmable Outputs	15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	ABS	ABS	GN	RD	A	3	A6
Bi15-K40SR-VP4X2 15655	Comp. Outputs	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	2	A4
Ni40-G47SR-FZ3X2 13428	Programmable Outputs	40	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	CPB	PA 12	GN	RD	C	3	A6
Ni40-G47SR-VP4X2 15650	Comp. Outputs	40	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12	GN	YE	C	2	A4
Ni30-K40SR-FZ3X2 13425	Programmable Outputs	30	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	ABS	ABS	GN	RD	A	3	A6
Ni30-K40SR-VN4X2 15758	Comp. Outputs	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	1	A4
Ni30-K40SR-VP4X2 15658	Comp. Outputs	30	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	2	A4
Ni20-K40SR-FZ3X2 13424	Programmable Outputs	20	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	ABS	ABS	GN	RD	A	3	A6
Ni20-K40SR-VN4X2 15756	Comp. Outputs	20	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	1	A4
Ni20-K40SR-VP4X2 15656	Comp. Outputs	20	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	2	A4

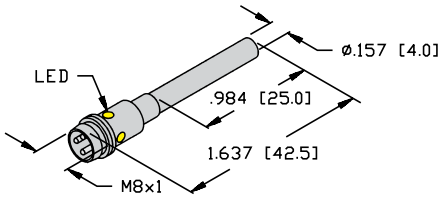
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 4 mm, 5 mm, & 6.5 mm Namur

Intrinsically Safe

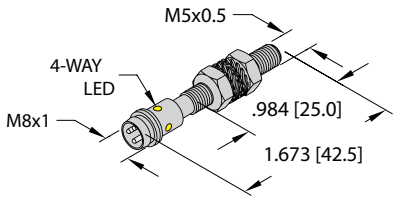
Dimension Drawings

A



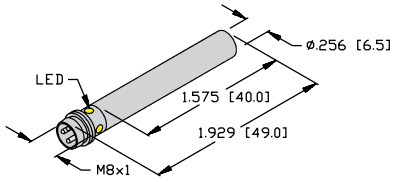
4 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect

B



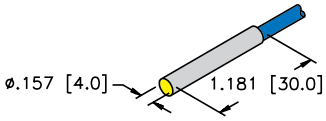
5 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

C



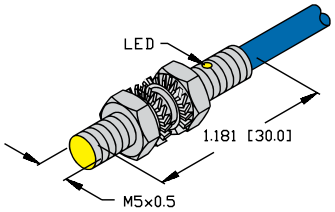
6.5 mm - Embeddable, Miniature Smooth, M8 Picofast Quick Disconnect

D



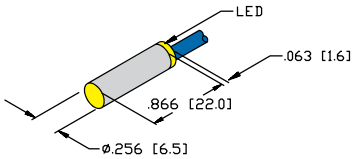
4 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

E



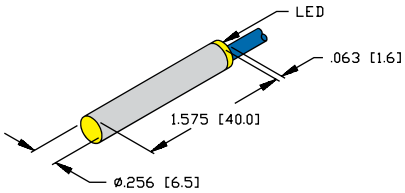
5 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

F



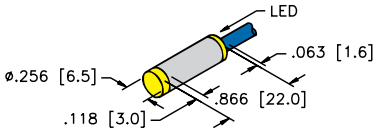
6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

G



6.5 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

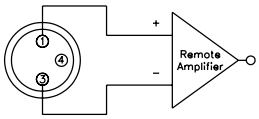
H



6.5 mm - Nonembeddable, Miniature Smooth Barrel, Potted-In Cable

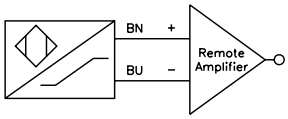
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: PKG 3M-*

2



A1 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)	Power-On Effect:	Realized in Amplifier
Nominal Voltage:	8.2 VDC (EN60947-5-6)	Reverse Polarity Protection:	Incorporated
Load Resistance:	1000 Ω	Wire-Break Protection:	Realized in Amplifier
Non-Activated Current Consumption:	≥2.1 mA	Transient Protection:	Realized in Amplifier
Activated Current Consumption:	≤1.2 mA	Shock:	30 g, 11 ms
Recommended Switching Point for	>1.2 to <2.1 mA,	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Remote Amplifier:	typ. 1.55 mA ON/1.75 mA OFF	Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 4 mm, 5 mm, & 6.5 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Cable Length/Jacket	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi1-EH04-Y1-V1330 1003044		1	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	--	N/A	A	1	A1
Bi1-EG05-Y1-V1331 1003241		1	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	--	N/A	B	1	A1
Bi1.5-EH6.5-Y1-V1130 1004621		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	--	N/A	C	1	A1
Bi1-EH04-Y1 1003040		1	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	2M/PVC	N/A	D	2	A1
Bi1-EG05-Y1 1003240		1	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	2M/PVC	N/A	E	2	A1
Bi1.5-EH6.5K-Y1 1004600	Short Barrel	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	2M/PVC	N/A	F	2	A1
Bi1.5-H6.5-Y1X 4004810		1.5	2-wire DC NAMUR	5-30 VDC	3000	Remote	-25 to +70	IP67	SS	PA 12	2M/PVC	YE	G	2	A1
Ni3-EH6.5K-Y1 1004700	Short Barrel	3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	2M/PVC	N/A	H	2	A1

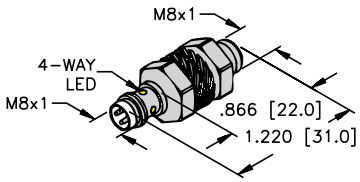
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm Namur

Intrinsically Safe

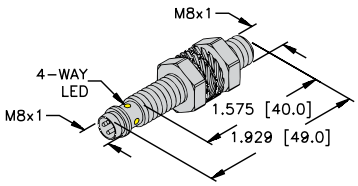
Dimension Drawings

A



8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

B



8 mm - Embeddable, Miniature Threaded, M8 Picofast Quick Disconnect

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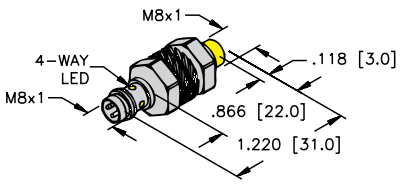
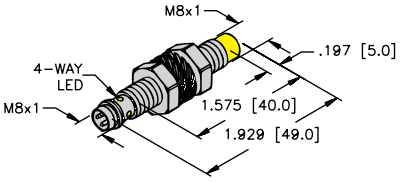


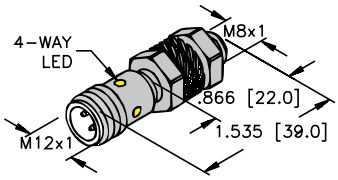
8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect

D



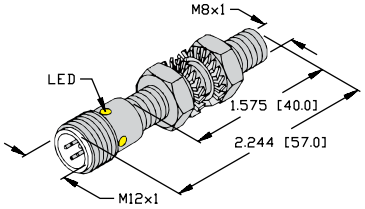
8 mm - Nonembeddable, Miniature Threaded, M8 Picofast Quick Disconnect

E



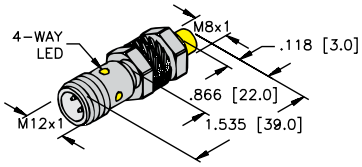
8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

F



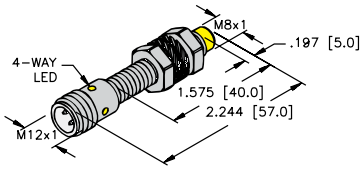
8 mm - Embeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

G



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

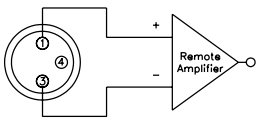
H



8 mm - Nonembeddable, Miniature Threaded, M12 Eurofast Quick Disconnect

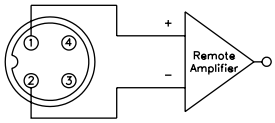
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: PKG 3M-*

2



Mating Cordset: RK 4.21T-*

A1 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-EG08K-Y1-V1131 1003630	Short Barrel	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	A	1	A1
Bi1.5-EG08-Y1-V1131 1003530		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	B	1	A1
Ni3-EG08K-Y1-V1130 1003721	Short Barrel	3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	C	1	A1
Ni3-EG08-Y1-V1130 1003732		3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	D	1	A1
Bi1.5-EG08K-Y1-H1341 1003620	Short Barrel	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	E	2	A1
Bi1.5-EG08K-Y1X-H1341 1003640	Short Barrel	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	YE	E	2	A1
Bi1.5-EG08-Y1-H1341 1003502		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	F	2	A1
Ni3-EG08K-Y1-H1341 1003720	Short Barrel	3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	G	2	A1
Ni3-EG08K-Y1X-H1341 1003704	Short Barrel	3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	G	2	A1
Ni3-EG08-Y1-H1341 1003730		3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	H	2	A1

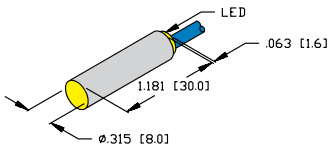
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm Namur

Intrinsically Safe

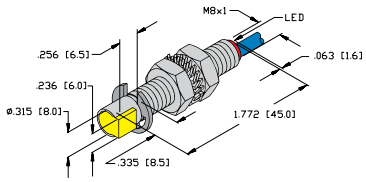
Dimension Drawings

A



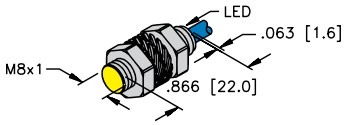
8 mm - Embeddable, Miniature Smooth Barrel, Potted-In Cable

B



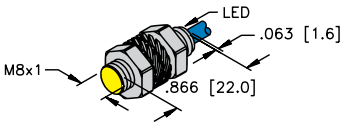
8 mm - Embeddable, Miniature Threaded Barrel, Side Sensing, Potted-In Cable

C



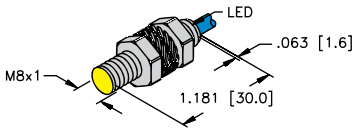
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

D



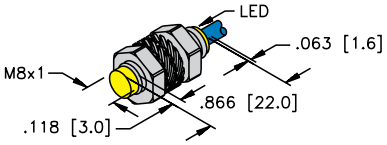
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

E



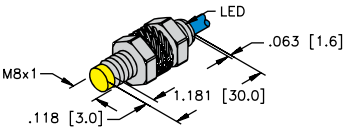
8 mm - Embeddable, Miniature Threaded Barrel, Potted-In Cable

F



8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable

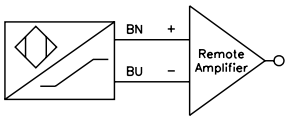
G



8 mm - Nonembeddable, Miniature Threaded Barrel, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 8 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-H08-Y1 1021800		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	A	1	A1
Bi1.5-GS880-Y0 1004401	Side Sensing	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	B	1	A1
Bi1.5-EG08K-Y1 1003600	Short Barrel	1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	C	1	A1
Bi1.5-EG08-Y1 1003500		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	D	1	A1
Bi1.5-G08-Y1 1005224		1.5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	E	1	A1
Ni3-EG08K-Y1 1003700	Short Barrel	3	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	F	1	A1
Ni2-G08-Y1 10053		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	G	1	A1

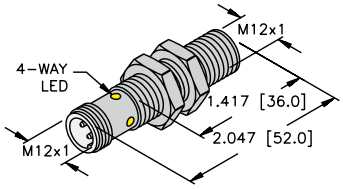
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm Namur

Intrinsically Safe

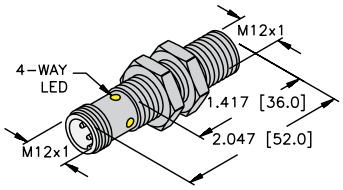
Dimension Drawings

A



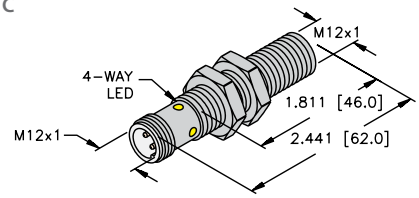
12 mm - Embeddable, M12 Eurofast Connection

B



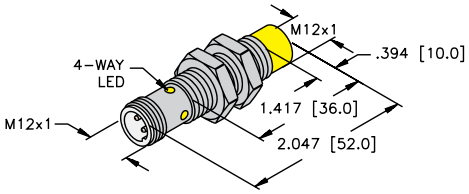
12 mm - Embeddable, M12 Eurofast Connection, PTFE Coated Sensors

C



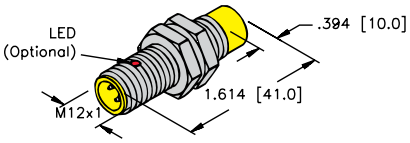
12 mm - Embeddable, M12 Eurofast Connection, Extended Barrel Length

D



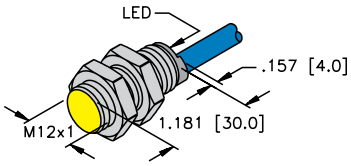
12 mm - Nonembeddable, M12 Eurofast Connection

E



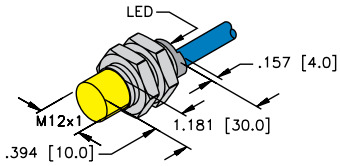
12 mm - Nonembeddable, M12 Eurofast Connection

F



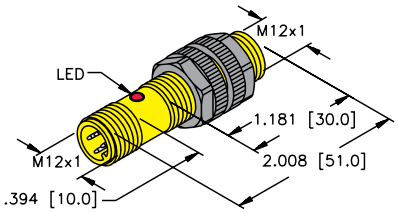
12 mm - Embeddable, Potted-In Cable

G



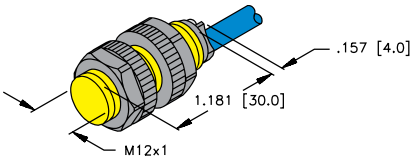
12 mm - Nonembeddable, Potted-In Cable

H



12 mm - Embeddable/Nonembeddable, Plastic, M12 Eurofast Quick Disconnect

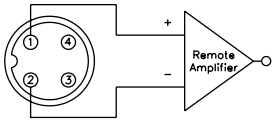
I



12 mm - Embeddable/Nonembeddable, Plastic Potted-In Cable

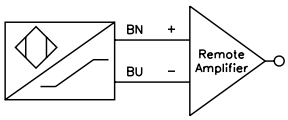
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.21T-*; RKK 4.21T-*

2



A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 12 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-M12-Y1X-H1141 40102		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	A	1	A1
Bi2-MT12-Y0X-H1141 4010093	PTFE	2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	TC	TC	YE	--	B	1	A1
Bi2-M12E-Y0X-H1141 4606490		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	C	1	A1
Bi2-S12-Y0X-H1141 4030090		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	PA	PA	RD	--	H	1	A1
Ni5-M12-Y1X-H1141 40103		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	D	1	A1
Ni5-G12-Y0-H1141 1005594		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	--	E	1	A1
Ni5-S12-Y0X-H1141 4030300		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	PA	PA	RD	--	H	1	A1
Bi2-EG12-Y0X 4012097		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	SS	PA 12	YE	2M/PVC	F	2	A1
Bi2-G12-Y0 1005450		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	F	2	A1
Bi2-G12-Y0X 4010000		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	F	2	A1
Bi2-P12-Y0 1005456		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	I	2	A1
Bi2-P12-Y0X 403000		2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	I	2	A1
Bi2-P12-Y1X/S97 4030021	Low Temp. -40 °C	2	2-wire DC NAMUR	5-30 VDC	5000	Remote	-40 to +70	IP67	PA 12	PA 12	YE	2M/Silicon	I	2	A1
Ni5-G12-Y0 1005451		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	G	2	A1
Ni5-G12-Y0X 1005458		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	G	2	A1
Ni5-P12-Y0X 1005460		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	I	2	A1
Ni5-P12-Y1 10094		5	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	I	2	A1

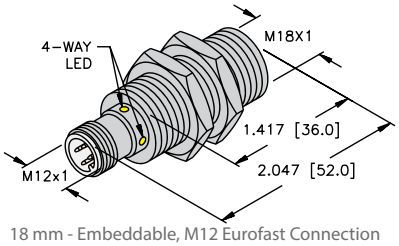
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm Namur

Intrinsically Safe

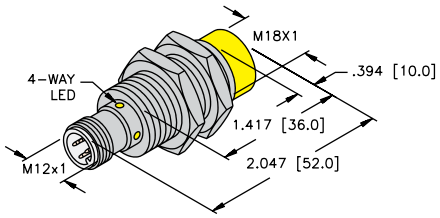
Dimension Drawings

A



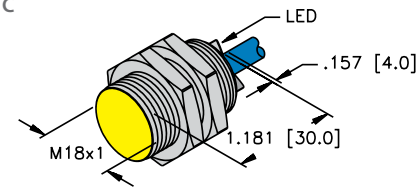
18 mm - Embeddable, M12 Eurofast Connection

B



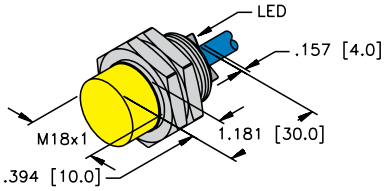
18 mm - Nonembeddable, M12 Eurofast Connection

C



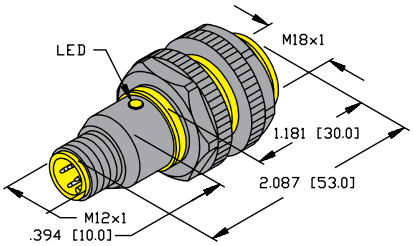
18 mm - Embeddable, Full Threading, Potted-In Cable

D



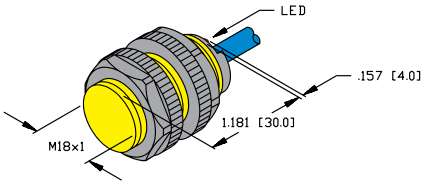
18 mm - Nonembeddable, Full Threading, Potted-In Cable

E



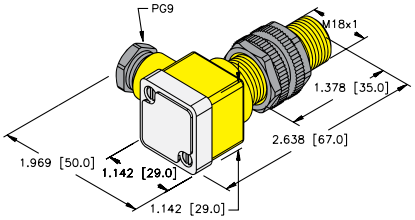
18 mm - Embeddable and Nonembeddable, Partial Threading, M12 Eurofast Connection

F



18 mm - Embeddable and Nonembeddable, Full Threading, Potted-In Cable

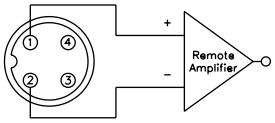
G



18 mm - Embeddable and Nonembeddable, Full Threading, Terminal Chamber

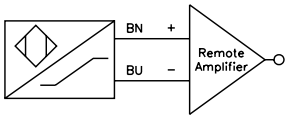
Wiring Diagrams/Mating Cordsets

1

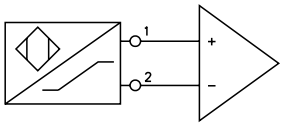


Mating Cordset: RK 4.21T-*; RKK 4.21T-*

2



3



A1 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 18 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-M18-Y1X-H1141 40152		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	A	1	A1
Ni10-M18-Y1X-H1141 40153		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	B	1	A1
Bi5-EG18-Y0 100600		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	SS	PA 12	N/A	2M/PVC	C	2	A1
Bi5-G18-Y0 1005452		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	C	2	A1
Bi5-G18-Y0X 4015000		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	C	2	A1
Ni10-G18-Y0 1006100		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	D	2	A1
Ni10-G18-Y0X 4015100		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	D	2	A1
Bi5-S18-Y0X-H1141 4036095		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	PA 12	PA 12	YE	--	E	1	A1
Bi5-P18-Y0 1005457		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	F	2	A1
Bi5-P18-Y0X 1005462		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	F	2	A1
Bi5-P18-Y0/S100 1024500	High Temp. 100 °C	5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +100	IP67	PA 12	IRPA	N/A	2M/PVC	F	2	A1
Ni10-P18-Y0X 1005463		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	F	2	A1
Ni10-P18-Y1 10096		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	F	2	A1
Ni10-P18-Y0/S100 103170	High Temp. 100 °C	10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +100	IP67	PA 12	IRPA	N/A	2M/PVC	F	2	A1
Bi5-P18SK-Y1X 40360		5	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	PA 12	PA 12	YE	--	G	3	A1
Ni10-P18SK-Y1X 40361		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	PA 12	PA 12	YE	--	G	3	A1

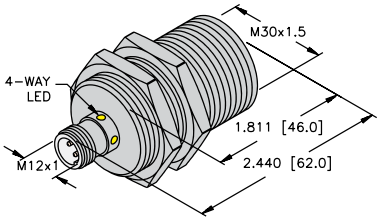
We reserve the right to make technical alterations without prior notice.

Inductive Barrel Sensors | 30 mm Namur

Intrinsically Safe

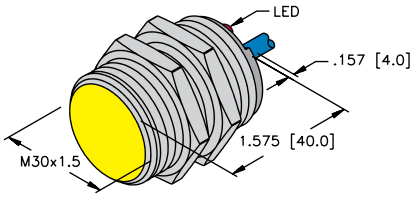
Dimension Drawings

A



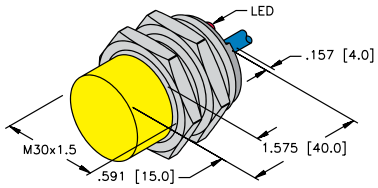
30 mm - Embeddable, M12 Eurofast Connection

B



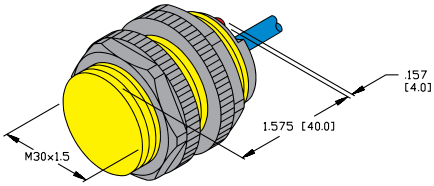
30 mm - Embeddable, Potted-In Cable

C



30 mm - Nonembeddable, Potted-In Cable

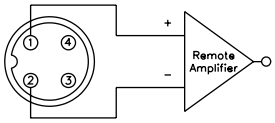
D



30 mm - Embeddable/Nonembeddable, Full Threading, Potted-In Cable

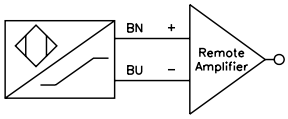
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.21T-*

2



A1 — 2-wire DC NAMUR - (Y0 and Y1)

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Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

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Inductive Barrel Sensors | 30 mm Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-M30-Y1X-H1141 40202		10	2-wire DC NAMUR	5-30 VDC	2000	Remote	-25 to +70	IP67	CPB	PA 12	YE	--	A	1	A1
Bi10-G30-Y0 1005453	Short Barrel	10	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	B	2	A1
Bi10-G30-Y0X 1005459	Short Barrel	10	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	B	2	A1
Ni15-G30-Y0 1005454		15	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	CPB	PA 12	N/A	2M/PVC	C	2	A1
Ni15-G30-Y0X 4020100		15	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	CPB	PA 12	YE	2M/PVC	C	2	A1
Bi10-P30-Y0X 404000		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	D	2	A1
Bi10-P30-Y1 10097		10	2-wire DC NAMUR	5-30 VDC	500	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	D	2	A1
Ni15-P30-Y0X 1005465		15	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	PA 12	PA 12	YE	2M/PVC	D	2	A1
Ni15-P30-Y1 10098		15	2-wire DC NAMUR	5-30 VDC	200	Remote	-25 to +70	IP67	PA 12	PA 12	N/A	2M/PVC	D	2	A1

We reserve the right to make technical alterations without prior notice.

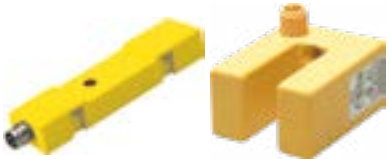
Notes

Notes

Specialty Sensor Section

Specialty Sensors			
Housing	**Barrel and Rectangular**	**12, 18, and 30 mm**	**40, 80, and 160 mm**
Features	**Washdown Uprox+**	**High Temperature Sensors**	**High Temperature Sensors**
Pages	**C9 - 14**	**C15 - 20**	**C21**

Specialty Sensors			
Housing	**8, 12, 18, and 30 mm**	**Barrel and Rectangular**	**30 mm**
Features	**Stainless Steel Face Sensors**	**Mobile Equipment Sensors**	**High Current Solid State Sensors**
Pages	**C23 - 32**	**C33 - 36**	**C37**

Specialty Sensors			
			
Housing	**12,18, and 30 mm**	**Variable**	**Variable**
Features	**FM, Class I Div 2 Approved Sensors**	**Ring Sensing**	**Tube and Slot Sensing**
Pages	**C39**	**C41 - 44**	**C45 - 48**

We reserve the right to make technical alterations without prior notice.

Specialty Sensor Selection Guide

Specialty Sensors			
Housing	**12 mm**	**80 and 130 mm**	**130 mm**
Features	**Weld Nut Detection Sensor**	**Edge Detection Sensing**	**Can Line Sensing**
Pages	**C49**	**C51 - 54**	**C55**

Specialty Sensors			
Housing	**8, 12, and 18 mm**	**18 mm**	**Barrel and Rectangular**
Features	**Magnetic Inductive Sensing**	**Submersible**	**Selective Metal Sensing**
Pages	**C57 - 60**	**C61**	**C63 - 66**

Specialty Sensors		
Housing	**12 and 18 mm**	**18 and 30 mm**
Features	**In Cylinder Sensor**	**Rotational Speed Monitoring**
Pages	**C67**	**C69**

We reserve the right to make technical alterations without prior notice.

Specialty Sensor Part Number Key

B	I	10	U	-		G	T	30		-	A	DZ	30	X2		Wiring Option*	Special Option Code**

Mounting
- B = embeddable
- BID = high pressure sensor
- N = nonembeddable
- S = slot

Principle of Operation
- I = inductive
- IM = inductive magnet operated

Rated Operating Distance (mm)

Sensing Characteristics
- FE = ferrous only
- R = ring sensor
- U =Uprox® Sensor

Housing Material Modifier
- E = stainless steel

Housing Style

Barrel - Metal
- G = full threading, generally chrome plated brass
- H = smooth, chrome plated brass or stainless steel
- M = partial threading, chrome plated brass

Barrel - Plastic
- K = smooth
- P = full threading
- S = partial threading

Rectangular
- Q = metal or plastic, various rectangular styles

Limit Switch
- CA = stubby ®, short aluminum housing, connector
- CK = stubby ®, short plastic housing, connector

Slot
- K = slot sensor, plastic housing

Ring
- 32SR = large plastic housing, static or dynamic output
- Q = small rectangular plastic housing, static output
- W = small plastic housing, dynamic output

Primary Barrel Modifier
- T = PTFE® coated

Housing Diameter or Height (mm)

Number of LEDs
- (blank) = no LEDs
- X = 1 LED
- X2 = 2 LEDs

Voltage Range

AC/DC: (No SCP)**
- 3 = 20-250 VAC, 10-300 VDC

AC/DC: (Latched SCP)
- 30 = 20-250 VAC, 10-300 VDC 400 mA

DC:
- 4 = 10-65 VDC, polarity protected, pulsed SCP**
- 6 = 10-30 VDC, polarity protected, pulsed SCP
- 44 = 10-55 VDC
- 45 = 8.4-65 Volts

Output
- D = 2-wire DC (transistor output)
- DZ = 2-wire AC/DC, (power MOSFET output)
- N = NPN transistor (current sinking)
- P = PNP transistor (current sourcing)
- Z = 2-wire AC or 2-wire AC/DC
- M = high current solid state relay

Output Function
- A = normally open (N.O.)
- DA = dynamic output (ring sensor), normally open
- R = normally closed (N.C.)
- U = jumper programmable (N.O. or N.C.)
- V = complementary outputs: one N.O., one N.C.
- Y0 = NAMUR output, requires switching amplifier
- Y1 = NAMUR output, requires switching amplifier, ATEX approved

Secondary Barrel Modifier
- E = extended barrel length
- EE = extra long barrel length
- FE = stainless steel face, extended barrel length
- FM = stainless steel face, medium barrel length
- M = medium barrel length
- TC = terminal chamber
- WD = washdown IP67/IP68/IP69K
- F = stainless steel face, standard length

NOTE:
Part number keys are to assist in identification only.
Verify new part numbers with factory; some configurations are not possible.
* See next page Wiring Options and Special Option Codes.

We reserve the right to make technical alterations without prior notice.

Specialty Sensor Part Number Key

Wiring Options*

A. Connectorized Sensor

Bi2 - M12 - AN6X2 - H1 1 4 1

Connector Family

B1 = Minifast®, 7/8"-16UN, metal, male
B2 = Minifast , 7/8"-16UN, plastic, male
B3 = Microfast®, 1/2"-20UNF, metal, male
H1 = Eurofast®, M12x1, metal or plastic, male
V1 = Picofast®, snap and M8x1, metal, male (Q08 snap only)
V2 = Picofast , snap and M8x1, male (Q08 only)

Connector/Sensor Transition

1 = straight
3 = straight with adapter
4 = right-angle with adapter

Wiring Configuration

Example:

0 = non-standard wiring
1 = standard wiring
3 = N.C. DC output on pin 4 (for US)
4 = N.O. 2-wire DC output on pin 4

Number of Pins

3 = **3**
4 = **4**
5 = **5**

B. Potted Cable

Bi2 - G12 - AN6X 7M

Cable Length

(blank) = 2 meter cable
7M = 7 meter cable
*M = custom cable lengths available

Special Option Codes**

Bi 2-S12-AN7X /S100 or Bi10R-W30-DAN6X-H1141 /F2

Example:

/S90 = TPU cable
/S97 = -40 °C (-40 °F) operating temperature
/S100 = +100 °C (+212 °F) operating temperature
/S120 = +120 °C (+248 °F) operating temperature
/S139 = submersible
/S907 = +160 °C (+320 °F) operating temperature
/S1009 = 250 ms internal off delay
/S1102 =+250 °C (+482 °F) operating temperature
/S1751 = approved for FM Class I, Div 2, groups A, B, C, and D

Example:

/F2 = alternate oscillator frequency

We reserve the right to make technical alterations without prior notice.

Specialty Sensors

Uprox+ Washdown Sensors

The Uprox+ Washdown product family is with a full line of inductive sensors that senses all metals at the same range (no correction factor), extended temperature rating from -40 to +100 °C, robust construction with IP68 and IP69k sealing ratings, and housing materials compatible with common acidic and alkaline chemicals used in Food and Beverage applications.

Sensors with Extended Temperature Range

Turck offers sensors for applications that withstand extreme temperatures of -40 to +250 °C. Typically, these sensors are used in applications like cold storage facilities, metal foundries, glass making, outdoor applications, and in painting shops in the automotive industry.

Stainless Steel Face Sensors

Inductive sensors with one piece stainless steel faced barrels are ideal for applications where physical impact is common or where ingress through the sensing face is a concern. The sensors are available in barrel diameters from 8 mm to 30 mm, standard and extended sensing ranges, rated IP68/IP69K, with optional coatings for welding environments, and 2 and 3-wire designs.

Mobile Equipment Sensors

Position sensing applications in mobile equipment have different electrical requirements than what is common for industrial sensors. Turck designs and manufactures a diverse line of inductive sensors that meet or exceed the industry requirements for sealing (IP68/IP69K), load dump protection, resistance to shock, vibration, EMC immunity, extended temperature range, wide operating voltage, and extended sensing range.

Inductive Sensor with 6 A Rated Output

This 30 mm mobile equipment sensor uses a MOSFET component to switch up to 6 amps of current with either a normally open output or a complementary normally open and closed output in a stainless steel housing. The sensor can be configured as an embeddable or nonembeddable sensor.

We reserve the right to make technical alterations without prior notice.

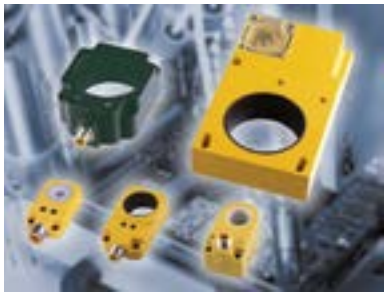
Specialty Sensors

FM Class I Div 2

The new FM approval standard permits the use of quick disconnect with a lock fast accessory equipped sensor being used in Class I Div 2, Groups A, B, C, D. The ability to use quick disconnect will enable users to install sensors faster and at a lower cost than traditional conduit methods. We also offer approved cordsets with Eurofast or Minifast connectors (when used with a Lokfast guard). All cables have the ITC-ER rating. For applications where conduit is preferred, we offer sensors with potted-in ITC rated cables.

Inductive Ring Sensor

Turck offers a variety of ring sensor designs that detect a wide variety of target sizes, with sensor outputs to solve either static or dynamic part feeding applications. In addition to our six different ring sensor housings, Turck offers the TS12 Uprox®+ sensor, which senses all metals at the same range while functioning like a ring sensor but can be strapped onto a tube to simplify installation.



Inductive Slot Sensors

Turck's slot sensors incorporate a U-shaped design with the active sensing face between the two arms. If the object being detected moves into the U-shaped area, the sensor is actuated. Slot sensors are capable of securely detecting targets whose distance from the active face is not clearly defined upon side approach.

Weld Nut Sensors

Turck's magnetic weld nut sensors provide efficient and economical detection of weld nuts in automotive applications. The sensors detect ferromagnetic components, such as nuts, bushings and spacer sleeves, to ensure these components are present before robotic welding occurs. These sensors are less complex than existing devices that require additional software or electronics to detect the target.

Can and Edge Detection Sensor

Turck's Q130 sensor is designed for easy mounting on metal can conveying systems to help detect jam ups or lack of metal cans in the conveyor, while the CK4080 and CK40130 sensors are optimized to detect the edges of metal sheets commonly used in transfer presses found in automotive or white goods stamping applications.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors

Inductive-Magnetic Proximity Sensors

Turck's line of BIM barrel sensors are designed to work with external magnets and can be used to solve a wide variety of sensing applications, especially where the user would like long sensing ranges (up to 90 mm with DMR31-15-5 magnet) in small housings, such as 8 or 12 mm.

Submersible Inductive Sensors

These sensors are rated for submersion in water depths up to 500 meters. The materials used to construct this 18 mm diameter sensor are seawater resistant. Available in a variety of sensing ranges and outputs.

Selective Metal Sensors

Standard inductive sensors sense all metals. Turck's family of selective metal inductive sensors offer a reliable solution for applications where the user wants to detect ferrous metals or non-ferrous metals only.

In-Cylinder Inductive Sensors

These inductive sensors are designed for use in a hydraulic cylinder to detect extended or retracted positions. Available in M12 or M18 barrels, these senors can withstand static pressures up to 7,250 psi.

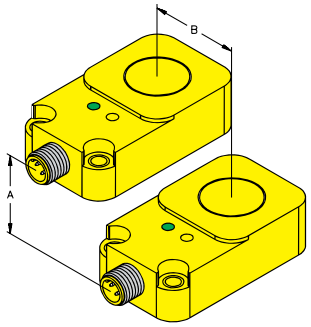
Rotational Speed Sensors

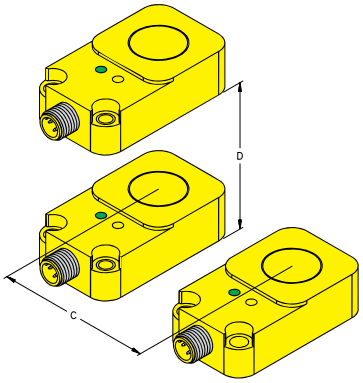
Rotational speed sensors are designed to work with a rotating metal target like a keyway or sprocket. These sensors feature a simple potentiometer for adjusting the set point and are ideal for monitoring applications where the user wants to monitor under speed or over speed conditions. If the speed is below the set point the output is off, and if the speed is above the set point the output turns on.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors

Ring and Tube Sensor Mounting Characteristics

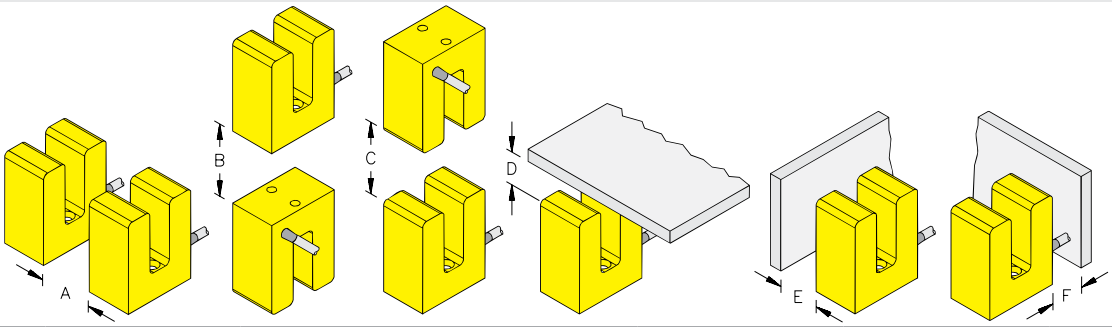




Sensor Type	A	B	C	D
Bi6R-Q14	0	14	45	45
Bi6R-W30	120	6	120	120
Bi10R-Q14	30	14	45	45
Bi10R-W30	120	10	120	120
Bi15R-Q14	30	14	45	45
Bi15R-W30	120	15	120	120
Bi20R-Q14	30	14	45	45
Bi20R-W30	120	20	120	120
Ni20R-S32SR	150	150	150	150
Bi30R-Q20	40	20	55	55
Bi30R-W30	120	30	120	120
Ni40R-S32SR	150	150	150	150
Bi50R-Q80*	90	50	140	120
Ni65R-Q80*	90	65	140	150
Ni65R-S32SR	150	150	150	150
Ni100R-S32XL**	Consult data sheet	Consult data sheet	290	240
Ni20U-TS12*** (tube)	Consult data sheet	Consult data sheet	42	50

Dimensions are in mm.
* Do not use a metal mounting bracket.
** Sensitivity adjustment does affect the recommended mounting spacing. Please consult factory for assistance when using multiple sensors.
*** Spacing of multiple sensors depends on the actual number and orientation. Please contact factory for assistance.

Slot Sensor Mounting Characteristics



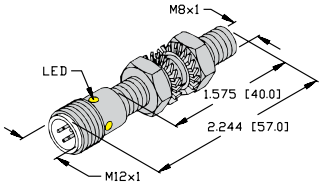
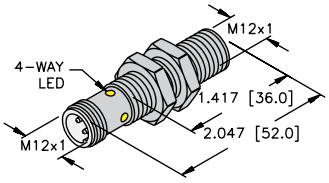
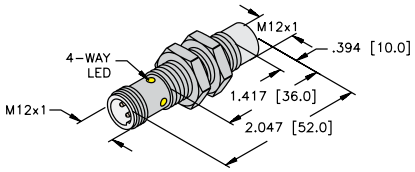
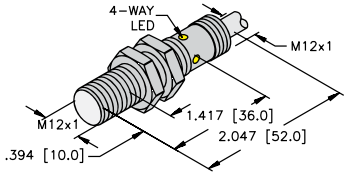
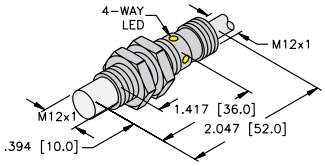
Sensor Type	A	B	C	D	E	F
Si3.5	15.00	5.00	15.00	0	0	0
Si5	10.00	0	5.00	0	0	0
Si15	30.00	10.00	30.00	5.00	5.00	5.00

Dimensions are in mm.

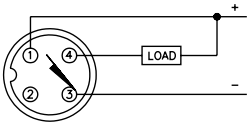
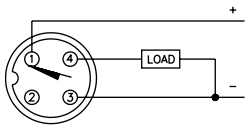
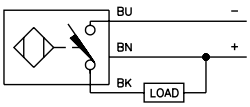
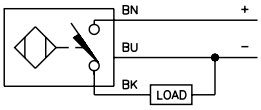
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, M12 Eurofast Connection	B  12 mm - Embeddable, M12 Eurofast Connection
C  12 mm - Nonembeddable, M12 Eurofast Connection	D  12 mm - Embeddable, Potted-in Cable	E  12 mm - Nonembeddable, Potted-in Cable

Wiring Diagrams/Mating Cordsets

1	2	3	4
 Mating Cordset: RKV 4T-*; RKV 4T-*/S90	 Mating Cordset: RKV 4T-*; RKV 4T-*/S90		

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-EG08WD-AN6X-H1341 4602211	Washdown	1.5	3-wire DC NPN	10-30 VDC	3000	≤150	-25 to +85	IP68/69K	SS	PVDF	N/A	YE	- -	A	1	A4
Bi1.5-EG08WD-AP6X-H1341 4602210	Washdown	1.5	3-wire DC PNP	10-30 VDC	3000	≤150	-25 to +85	IP68/69K	SS	PVDF	N/A	YE	- -	A	2	A4
Bi4U-EM12WD-AN6X-H1141 1634841	Uprox+, Washdown	4	3-wire DC NPN	10-30 VDC	2000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	- -	B	1	A4
Bi4U-EM12WD-AP6X-H1141 1634812	Uprox+, Washdown	4	3-wire DC PNP	10-30 VDC	2000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	- -	B	2	A4
Ni10U-EM12WD-AN6X-H1141 1634837	Uprox+, Washdown	10	3-wire DC NPN	10-30 VDC	1000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	- -	C	1	A4
Ni10U-EM12WD-AP6X-H1141 1634814	Uprox+, Washdown	10	3-wire DC PNP	10-30 VDC	1000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	- -	C	2	A4
Bi4U-EM12WD-AN6X 1634842	Uprox+, Washdown	4	3-wire DC NPN	10-30 VDC	2000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	2M/PP	D	3	A4
Bi4U-EM12WD-AP6X 1634811	Uprox+, Washdown	4	3-wire DC PNP	10-30 VDC	2000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	2M/PP	D	4	A4
Ni10U-EM12WD-AP6X 1634813	Uprox+, Washdown	10	3-wire DC PNP	10-30 VDC	1000	≤200	-40 to +100	IP68/69K	SS	PVDF	N/A	YE	2M/PP	E	4	A4

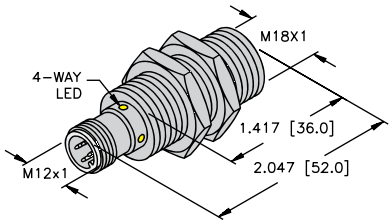
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

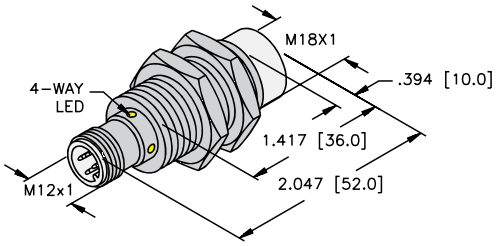
Housing Style	Dimension Drawings

A



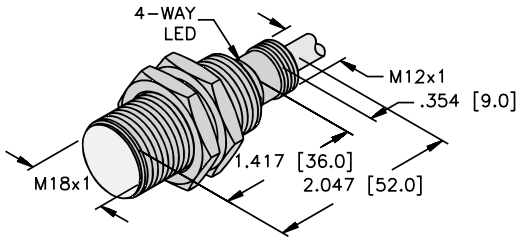
18 mm - Embeddable, M12 Eurofast Connection

B



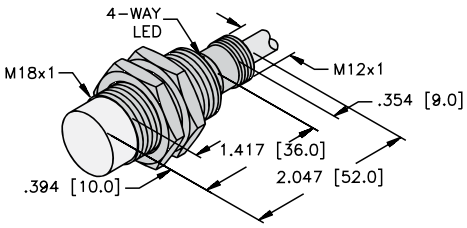
18 mm - Nonembeddable, M12 Eurofast Connection

C



18 mm - Embeddable, Potted-in Cable

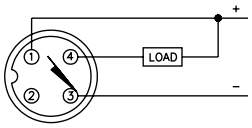
D



18 mm - Nonembeddable, Potted-in Cable

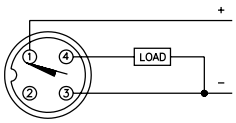
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKV 4T-*/S90

2



Mating Cordset: RKV 4T-*/S90

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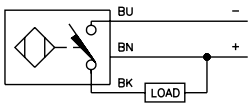

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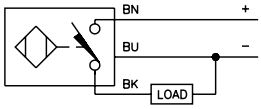


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

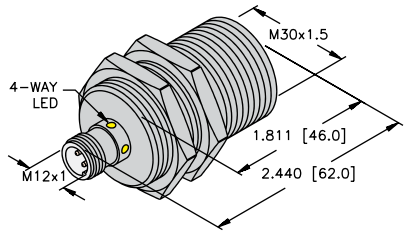
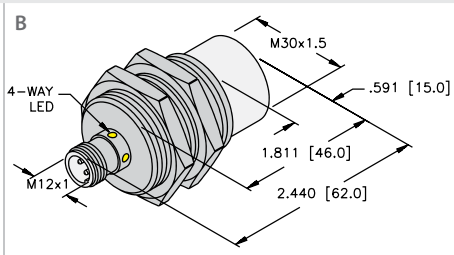
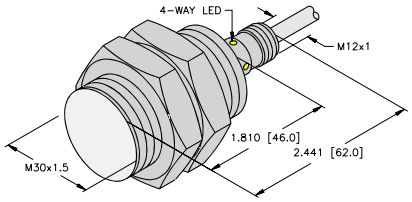
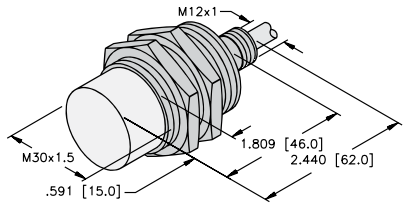
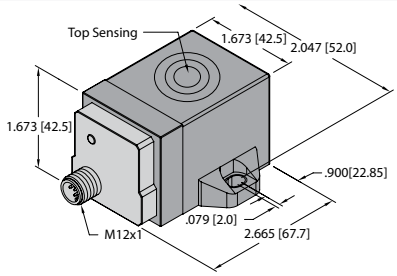
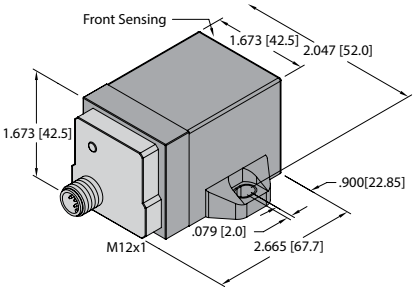
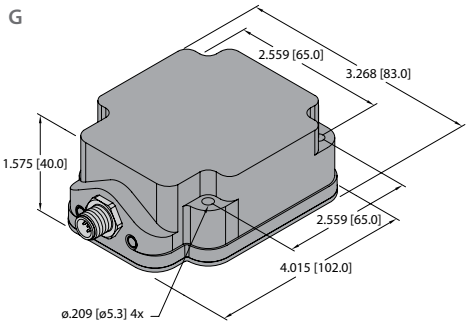
Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi8U-EM18WD-AN6X-H1141 1634839	Uprox+, Washdown	8	3-wire DC NPN	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	A	1	A4
Bi8U-EM18WD-AP6X-H1141 1634816	Uprox+, Washdown	8	3-wire DC PNP	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	A	2	A4
Ni15U-EM18WD-AN6X-H1141 1634835	Uprox+, Washdown	15	3-wire DC NPN	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	B	1	A4
Ni15U-EM18WD-AP6X-H1141 1634818	Uprox+, Washdown	15	3-wire DC PNP	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	B	2	A4
Bi8U-EM18WD-AN6X 1634840	Uprox+, Washdown	8	3-wire DC NPN	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	C	3	A4
Bi8U-EM18WD-AP6X 1634815	Uprox+, Washdown	8	3-wire DC PNP	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	C	4	A4
Ni15U-EM18WD-AN6X 1634836	Uprox+, Washdown	15	3-wire DC NPN	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	D	3	A4
Ni15U-EM18WD-AP6X 1634817	Uprox+, Washdown	15	3-wire DC PNP	10-30 VDC	1500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	D	4	A4

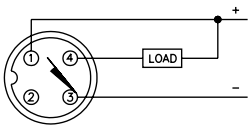
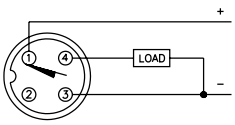
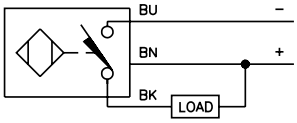
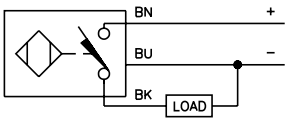
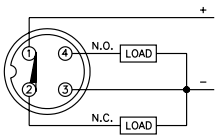
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

Rectangular and Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

Housing Style	Dimension Drawings	
	A  30 mm - Embeddable, M12 Eurofast Connection	B  30 mm - Nonembeddable, M12 Eurofast Connection
C  30 mm - Embeddable, Potted-in Cable	D  30 mm - Nonembeddable, Potted-in Cable	E  Q42T - Nonembeddable, M12 Eurofast Connector
F  Q42F - Nonembeddable, M12 Eurofast Connector	G  Q80 - Nonembeddable, M12 Eurofast Connector	

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: RKV 4T-*/S90	2  Mating Cordset: RKV 4T-*/S90	3 
4 	5  Mating Cordset: RKV 4.4T-*	

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox, Q42)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3, Q80)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Washdown

Rectangular and Threaded Metal Barrels with Cable or Connector and 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi15U-EM30WD-AN6X-H1141 1634834	Uprox+, Washdown	15	3-wire DC NPN	10-30 VDC	750	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	A	1	A4
Bi15U-EM30WD-AP6X-H1141 1634820	Uprox+, Washdown	15	3-wire DC PNP	10-30 VDC	750	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	A	2	A4
Ni30U-EM30WD-AN6X-H1141 1634832	Uprox+, Washdown	30	3-wire DC NPN	10-30 VDC	500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	B	1	A4
Ni30U-EM30WD-AP6X-H1141 1634822	Uprox+, Washdown	30	3-wire DC PNP	10-30 VDC	500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	- -	B	2	A4
Bi15U-EM30WD-AN6X 1634843	Uprox+, Washdown	15	3-wire DC NPN	10-30 VDC	750	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	C	3	A4
Bi15U-EM30WD-AP6X 1634819	Uprox+, Washdown	15	3-wire DC PNP	10-30 VDC	750	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	C	4	A4
Ni30U-EM30WD-AN6X 1634833	Uprox+, Washdown	30	3-wire DC NPN	10-30 VDC	500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	D	3	A4
Ni30U-EM30WD-AP6X 1634821	Uprox+, Washdown	30	3-wire DC PNP	10-30 VDC	500	≤200	-40 to +100	IP68/69K	SS	LCP	N/A	YE	2M/PP	D	4	A4
NI50U-Q42TWD-VP6X-H1141 1538306	Uprox+, Washdown	50	4-wire DC PNP	10-30 VDC	250	≤200	-40 to +100	IP68/69K	PA 12	PA 12	N/A	YE	- -	E	5	A4
NI50U-Q42FWD-VP6X-H1141 1538305	Uprox+, Washdown	50	4-wire DC PNP	10-30 VDC	250	≤200	-40 to +100	IP68/69K	PA 12	PA 12	N/A	YE	- -	F	5	A4
NI75U-Q80WD-VP6X2-H1141 1625920	Uprox+, Washdown	75	4-wire DC PNP	10-30 VDC	250	≤200	-25 to +70	IP68/69K	PPS	PPS	GN	YE	- -	G	5	A4

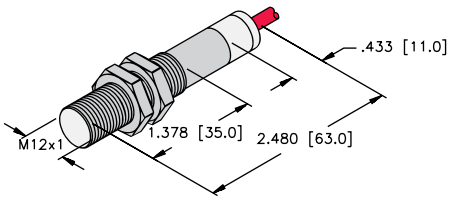
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

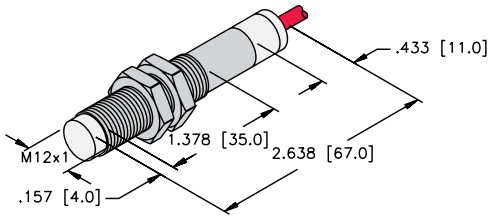
Housing Style	Dimension Drawings

A



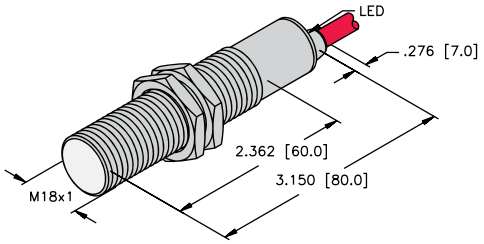
12 mm - Embeddable, Potted-In Cable

B



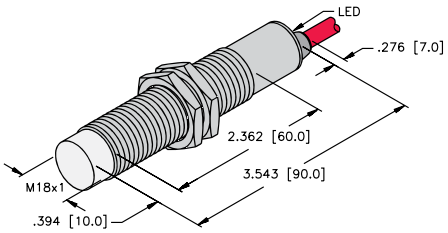
12 mm - Nonembeddable, Potted-In Cable

C



18 mm - Embeddable, Partial Threading, Potted-In Cable

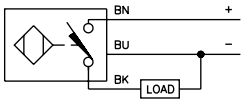
D



18 mm - Nonembeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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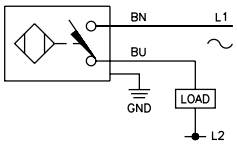


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ,RZ,FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	End Cap	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-EM12D-AP6/S120 4614512	High Temp. 120 °C	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP67	SS	PTFE	PTFE	N/A	N/A	2M/PTFE	A	1	A4
Ni4-EM12D-AP6/S120 1633110	High Temp. 120 °C	4	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP67	SS	PTFE	PTFE	N/A	N/A	2M/PTFE	B	1	A4
Bi5-M18-AP6X/S120 4611030	High Temp. 120 °C	5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP67	CPB	PA 12	EPTR	N/A	YE	2M/Silicone	C	1	A4
Bi5-M18-AZ3X/S120 4310410	High Temp. 120 °C	5	2-wire AC	20-250 VAC	20	≤100	-25 to +120	IP67	CPB	PA 12	EPTR	N/A	YE	2M/Silicone	C	2	A6
Ni8-M18-AZ3X/S120 4310530	High Temp. 120 °C	8	2-wire AC	20-250 VAC	20	≤400	-25 to +120	IP67	CPB	PA 12	EPTR	N/A	YE	2M/Silicone	D	2	A6
Ni8-M18-AP6X/S120 4611230	High Temp. 120 °C	8	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP67	CPB	PA 12	EPTR	N/A	YE	2M/Silicone	D	1	A4

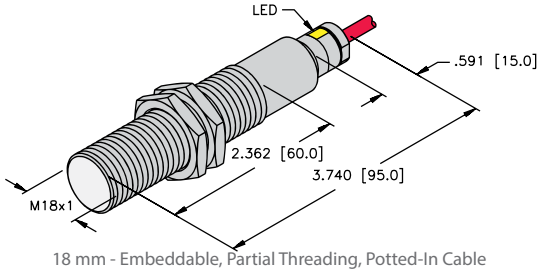
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

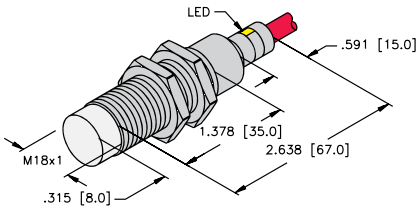
Housing Style	Dimension Drawings

A



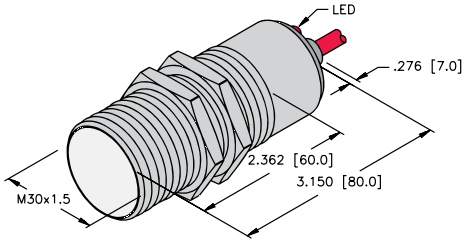
18 mm - Embeddable, Partial Threading, Potted-In Cable

B



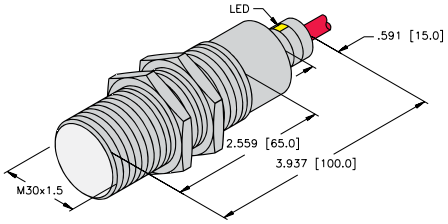
18 mm - Nonembeddable, Partial Threading, Potted-In Cable

C



30 mm - Embeddable, Partial Threading, Potted-In Cable

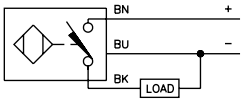
D



30 mm - Embeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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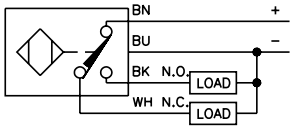

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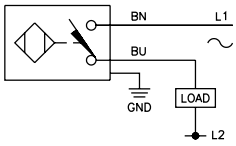


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	End Cap	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-EM18D-VP6X/S120 4614900	High Temp. 120 °C	5	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP68/69K	SS	PTFE	PTFE	N/A	YE	2M/PTFE	A	2	A4
Ni7-EM18D-VP6X/S120 4632100	High Temp. 120 °C	7	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP68/69K	SS	PTFE	PTFE	N/A	YE	2M/PTFE	B	2	A4
Bi10-M30-AP6X/S120 4617010	High Temp. 120 °C	10	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP67	CPB	PA 12	PA 12	N/A	YE	2M/Silicone	C	1	A4
Bi10-M30-AZ3X/S120 4316410	High Temp. 120 °C	10	2-wire AC	20-250 VAC	20	≤400	-25 to +120	IP67	CPB	PA 12	PA 12	N/A	YE	2M/Silicone	C	3	A6
Bi10-EM30D-VP6X/S120 4617035	High Temp. 120 °C	10	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP68/69K	SS	PTFE	PTFE	N/A	YE	2M/PTFE	D	2	A4

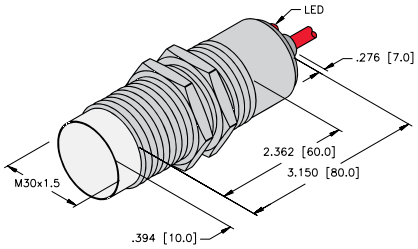
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

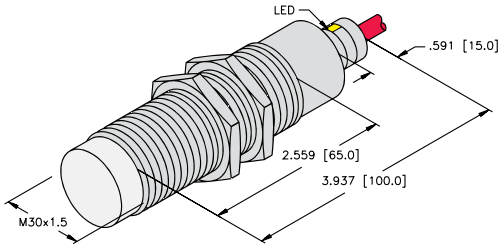
Housing Style	Dimension Drawings

A



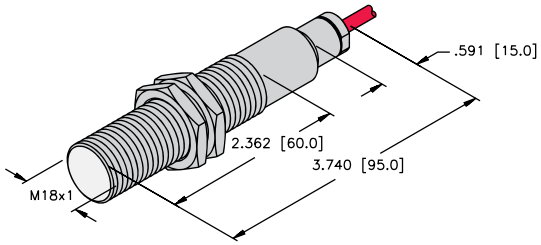
30 mm - Nonembeddable, Potted-In Cable

B



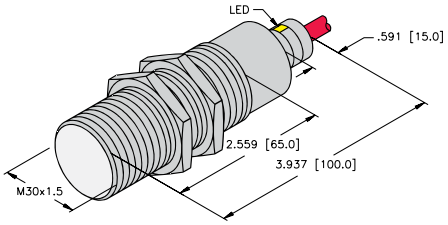
30 mm - Nonembeddable, Potted-In Cable

C



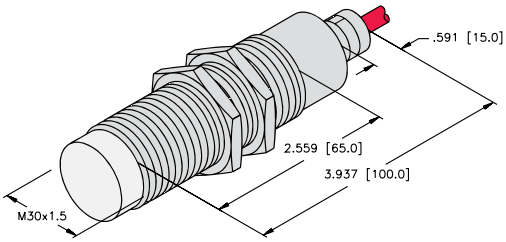
18 mm - Embeddable, Partial Threading, Potted-In Cable

D



30 mm - Embeddable, Partial Threading, Potted-In Cable

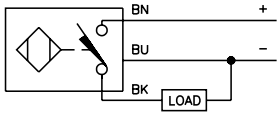
E



30 mm - Non-embeddable, Partial Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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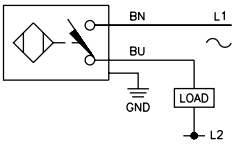

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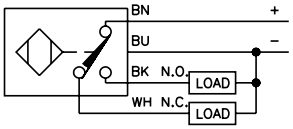


A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Threaded Metal Barrels with Cable and AC or DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	End Cap	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni15-M30-AP6X/S120 4617210	High Temp. 120 °C	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +120	IP67	CPB	PA 12	PA 12	N/A	YE	2M/Silicone	A	1	A4
Ni15-M30-AZ3X/S120 4316506	High Temp. 120 °C	15	2-wire AC	20-250 VAC	20	≤400	-25 to +120	IP67	CPB	PA 12	PA 12	N/A	YE	2M/Silicone	A	2	A6
Ni15-EM30D-VP6X/S120 4617410	High Temp. 120 °C	15	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +120	IP68/69K	SS	PTFE	PTFE	N/A	YE	2M/PTFE	B	3	A4
Bi5-EM18-AP6/S907 4617425	High Temp. 160 °C	5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +160	IP67	SS	PEEK	PTFE	N/A	N/A	2M/PTFE	C	1	A4
Bi10-EM30-AP6/S907 4614513	High Temp. 160 °C	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +160	IP67	SS	PEEK	PTFE	N/A	N/A	2M/PTFE	D	1	A4
Ni15-EM30-AP6/S907 4617412	High Temp. 160 °C	15	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +160	IP67	SS	PEEK	PTFE	N/A	N/A	2M/PTFE	E	1	A4

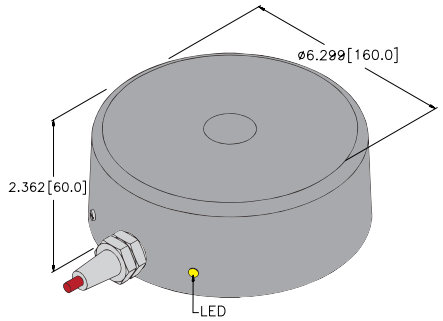
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

Rectangular and Round Housings

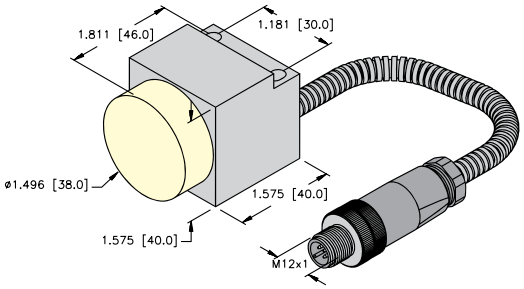
Housing Style	Dimension Drawings

A



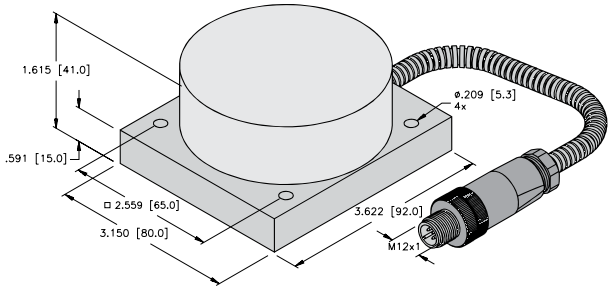
160 mm -Nonembeddable

B



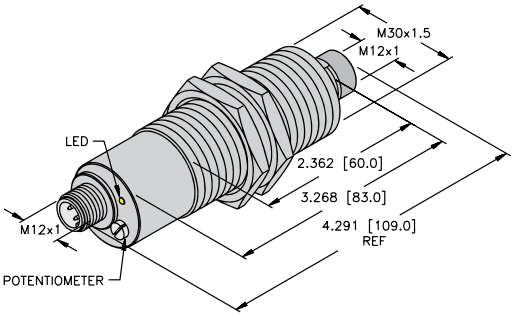
CQ40 - Nonembeddable

C



CQ80 - Nonembeddable

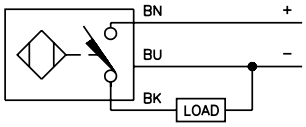
D



30 mm - Signal Processor

Wiring Diagrams/Mating Cordsets

1



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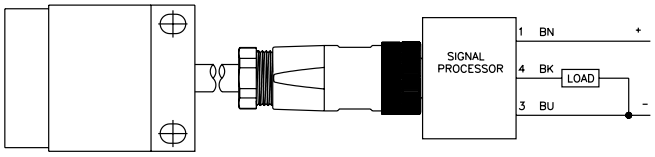


A20 — 3-wire DC -High Temp (AP)

Ripple:	≤10%	Temperature Drift:	≤±20%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V (120 °C)	Wire-Break Protection:	Incorporated
	≤1.8 V (250 °C)	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥420 mA on 400 mA Load Current	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	≥220 mA on 200 mA Load Current	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤0.1 mA		

Note:
CQ40 and CQ80 sensors require signal processor for operation.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Temperature

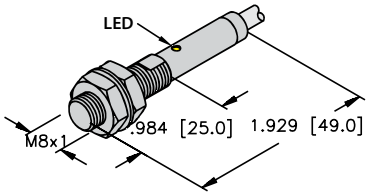
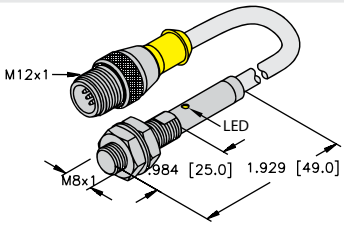
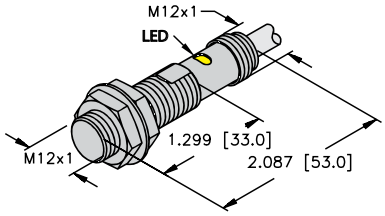
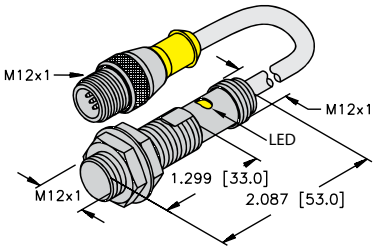
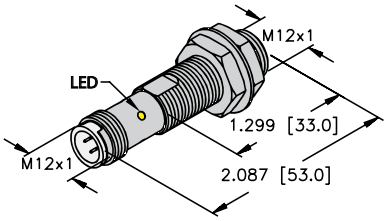
Rectangular and Round Housings

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	End Cap	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni100-Q160-AP44X/S120 1440012	High Temp. 120 °C	100	3-wire DC PNP	10-55 VDC	50	≤400	-25 to +120	IP67	PPO	PPO	- -	N/A	YE	2M/Silicone	A	1	A20
Ni25-CQ40/S1102 5M 1602410	High Temp. 250 °C	25	Remote	- -	40	Remote	0 to +250	IP60	AL	PEEK	PEEK	N/A	N/A	5M/PTFE	B	2	- -
Ni25-CQ40/S1102 10M 1602403	High Temp. 250 °C	25	Remote	- -	40	Remote	0 to +250	IP60	AL	PEEK	PEEK	N/A	N/A	10M/PTFE	B	2	- -
Ni40-CQ80/S1102 5M 1602404	High Temp. 250 °C	40	Remote	- -	40	Remote	0 to +250	IP60	AL	PEEK	PEEK	N/A	N/A	5M/PTFE	C	2	- -
EM30-AP6X2-H1141/S1102 1602411	Signal Processor	N/A	3-wire DC PNP	10-30 VDC	40	≤200	-20 to +70	IP67	SS	SS	- -	GN	YE	- -	D	2	A20

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	B  8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect
C  8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	D  12 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	E  12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

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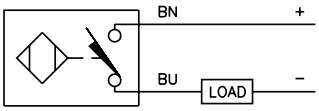

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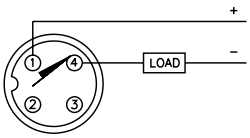


Mating Cordset: RKV 4.23T-*

A21 — **2-wire DC Stainless Front Face (AG)**

Ripple:	≤10%	Temperature Drift:	≤±20%
Differential Travel (Hysteresis):	1-15% (5% typical)	Off-State (Leakage) Current:	≤0.8 mA
Voltage Drop Across Conducting Sensor:	≤3.5 V Polarized	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA on 100 mA Load Current	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Minimum Load Current:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-EG08F-AG6X 4614628	Full Stainless Steel	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	2M/ PVC	A	1	A21
Bi1.5-EGT08F-AG6X 4614677	Full Stainless Steel, PTFE	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	2M/ PVC	A	1	A21
Bi1.5-EG08F-AG6X-0.3-RS4.23T 4614684	Full Stainless Steel	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	0.3M/ PVC	B	2	A21
Bi1.5-EGT08F-AG6X-0.2-RS4.23T 4614686	Full Stainless Steel, PTFE	1.5	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	0.2M/ PVC	B	2	A21
Bi2-EG08F-AG6X 4614664	Full Stainless Steel	2	2-wire DC	10-30 VDC	200	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/ PVC	A	1	A21
Bi2-EG12F-AG6X 4614634	Full Stainless Steel	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	2M/ PVC	C	1	A21
Bi2-EGT12F-AG6X 46146651	Full Stainless Steel, PTFE	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	2M/ PVC	C	1	A21
Bi2-EG12F-AG6X-0.3-RS4.23T 4614693	Full Stainless Steel	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	0.3M/ PVC	D	2	A21
Bi3-EG12F-AG6X 4614665	Full Stainless Steel	3	2-wire DC	10-30 VDC	80	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/ PVC	C	1	A21
Bi2-EG12F-AG6X-H1141 4614637	Full Stainless Steel	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	- -	E	2	A21
Bi2-EGT12F-AG6X-H1141 4614698	Full Stainless Steel, PTFE	2	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	- -	E	2	A21

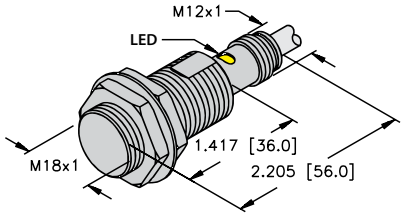
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

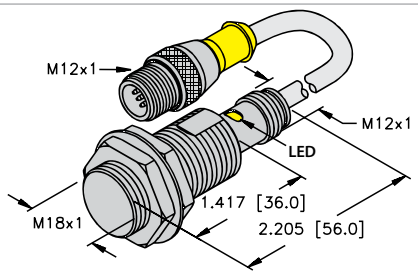
Housing Style	Dimension Drawings

A



18 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

B



18 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

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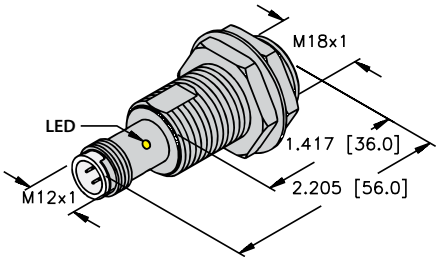

18 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

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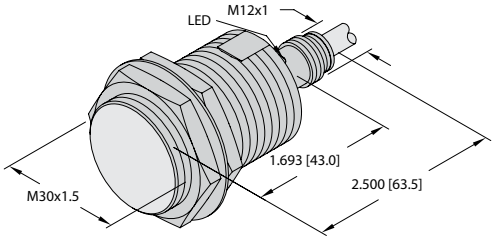
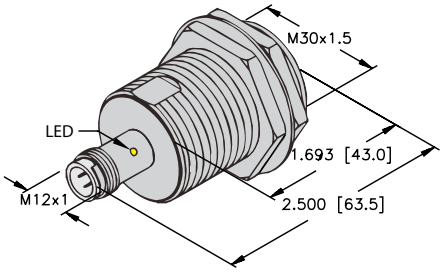


30 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

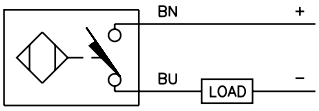
E



30 mm - Embeddable, M12 Eurofast Connection, Stainless Steel

Wiring Diagrams/Mating Cordsets

1



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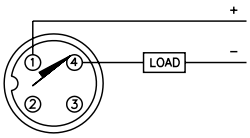


Mating Cordset: RKV 4T-*; RKV 4.23T-*

A21 — **2-wire DC Stainless Front Face (AG)**

Ripple:	≤10%	Temperature Drift:	≤±20%
Differential Travel (Hysteresis):	1-15% (5% typical)	Off-State (Leakage) Current:	≤0.8 mA
Voltage Drop Across Conducting Sensor:	≤3.5 V Polarized	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Pro-	≥120 mA on 100 mA Load Current	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
tection:	≥3.0 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:			

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

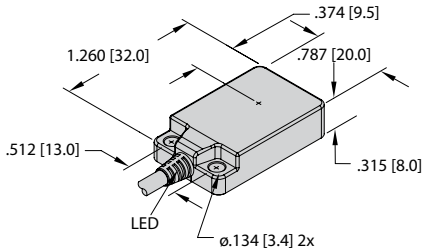
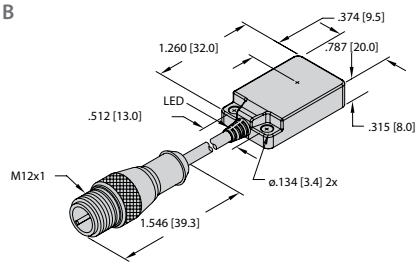
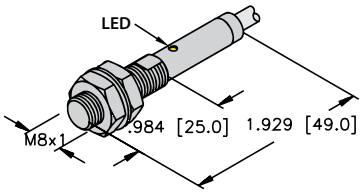
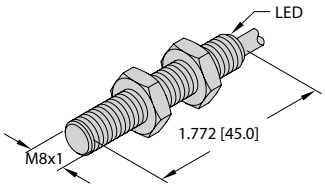
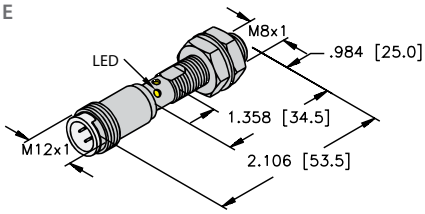
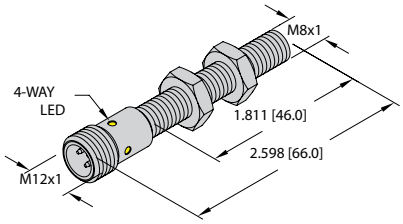
Embeddable Threaded Metal Barrels with 2-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-EG18F-AG6X 4614640	Full Stainless Steel	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	2M/PVC	A	1	A21
Bi5-EGT18F-AG6X 46146400	Full Stainless Steel, PTFE	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	TC	SS	GN	RD	2M/PVC	A	1	A21
Bi5-EG18F-AG6X-0.3-RS4.23T 4614694	Full Stainless Steel	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	0.3M/ PVC	B	2	A21
Bi7-EG18F-AG6X 4614666	Full Stainless Steel	7	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/PVC	A	1	A21
Bi5-EG18F-AG6X-H1141 4614643	Full Stainless Steel	5	2-wire DC	10-30 VDC	100	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	- -	C	2	A21
Bi12-EG30F-AG6X 4614667	Full Stainless Steel	12	2-wire DC	10-30 VDC	50	≤100	-25 to +70	IP67	SS	SS	N/A	RD	2M/PVC	D	1	A21
Bi10-EG30F-AG6X-H1141 4614649	Full Stainless Steel	10	2-wire DC	10-30 VDC	50	≤100	-25 to +70	IP68/69K	SS	SS	GN	RD	- -	E	2	A21
Bi10-EGT30F-AG6X-H1141/ S1589 46146490	Full Stainless Steel, PTFE, Weldguard	10	2-wire DC	10-30 VDC	50	≤100	-25 to +70	IP68/69K	TC	WG	GN	RD	- -	E	2	A21

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Rectangular and Threaded Metal Barrels with 3-Wire DC Outputs

Housing Style	Dimension Drawings	
	A  8 mm - Embeddable, Stainless Steel, Potted-In Cable	B  8 mm - Embeddable, Stainless Steel, M12 Eurofast Quick Disconnect
C  8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	D  8 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable	E  8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect
F  8 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect		

Wiring Diagrams/Mating Cordsets

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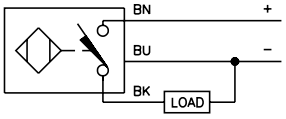

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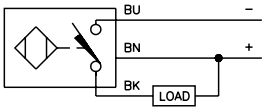

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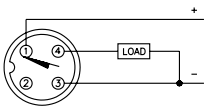
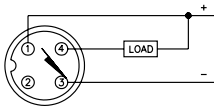


Mating Cordset: RKV 4T-*

4


Mating Cordset: RKV 4T-*

A22 — **3-wire DC Stainless Front Face (AP, AN, RP, RN)**

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤2% of Rated Operating Distance

A23 — **3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)**

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	20%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤10 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤5% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Rectangular and Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi7-Q08F-AN6X 1608914	Full Stainless Steel	7	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPE	A	2	A23
Bi7-Q08F-AP6X 1608916	Full Stainless Steel	7	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/TPE	A	1	A23
Bi7-Q08F-AP6X-0.2-RS4T 16089160	Full Stainless Steel	7	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	0.2M/ TPE	B	3	A23
Bi1.5-EG08F-AN6X 4614627	Full Stainless Steel	1.5	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	C	2	A22
Bi3-EG08FE-AN6X 4614712	Full Stainless Steel	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/PVC	D	2	A23
Bi1.5-EG08F-AP6X 4614626	Full Stainless Steel	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	C	1	A22
Bi1.5-EGT08F-AP6X 4614678	Full Stainless Steel, PTFE	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	2M/PVC	C	1	A22
Bi3-EG08FE-AP6X 4614704	Full Stainless Steel	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	2M/PVC	D	1	A23
Bi3-EGT08FE-AP6X 46147043	Full Stainless Steel, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	SS	N/A	YE	2M/PVC	D	1	A23
Bi1.5-EG08F-AN6X-H1341 4614630	Full Stainless Steel	1.5	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	E	4	A22
Bi3-EG08FE-AN6X-H1341 4614711	Full Stainless Steel	3	3-wire DC NPN	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	- -	F	4	A23
Bi1.5-EG08F-AP6X-H1341 4614629	Full Stainless Steel	1.5	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	E	3	A22
Bi3-EG08FE-AP6X-H1341 4614703	Full Stainless Steel	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	SS	SS	N/A	YE	- -	F	3	A23
Bi3-EGT08FE-AP6X-H1341 46147030	Full Stainless Steel, PTFE	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	SS	N/A	YE	- -	F	3	A23
Bi3-EGT08FE-AP6X-H1341/S1589 46147032	Full Stainless Steel, PTFE, Weldguard	3	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	TC	WG	N/A	YE	- -	F	3	A23

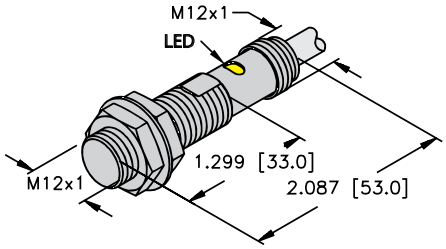
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

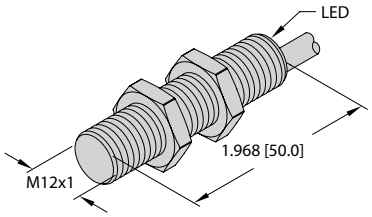
Housing Style	Dimension Drawings

A



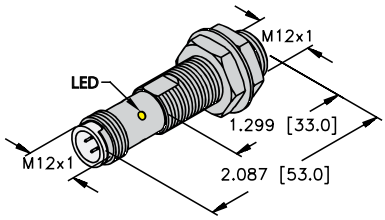
12 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

B



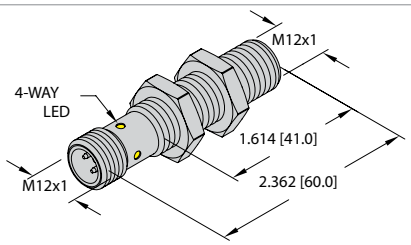
12 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

C



12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

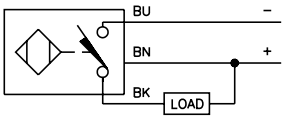
D



12 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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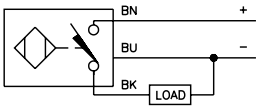

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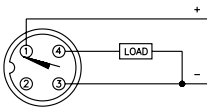
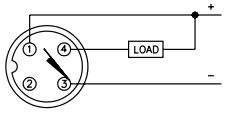


Mating Cordset: RKV 4T-*

4



Mating Cordset: RKV 4T-*

A22	3-wire DC Stainless Front Face (AP, AN, RP, RN)		
Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤2% of Rated Operating Distance

A23	3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)		
Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	20%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤10 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤5% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-EG12F-AN6X 4614633	Full Stainless Steel	2	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	2	A22
Bi6-EG12FE-AN6X 4614721	Full Stainless Steel	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	2	A23
Bi2-EG12F-AP6X 4614632	Full Stainless Steel	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	1	A22
Bi6-EG12FE-AP6X 4614720	Full Stainless Steel	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	1	A23
Bi2-EG12F-AN6X-H1141 4614636	Full Stainless Steel	2	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	4	A22
Bi6-EG12FE-AN6X-H1141 4614714	Full Stainless Steel	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	D	4	A23
Bi6-EGT12FE-AN6X-H1141 46147140	Full Stainless Steel, PTFE	6	3-wire DC NPN	10-30 VDC	600	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	D	4	A23
Bi2-EG12F-AP6X-H1141 4614635	Full Stainless Steel	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	3	A22
Bi2-EGT12F-AP6X-H1141 46146971	Full Stainless Steel, PTFE	2	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	C	3	A22
Bi6-EG12FE-AP6X-H1141 4614706	Full Stainless Steel	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	D	3	A23
Bi6-EGT12FE-AP6X-H1141 46147060	Full Stainless Steel, PTFE	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	D	3	A23
Bi6-EGT12FE-AP6X-H1141/S1589 46147061	Full Stainless Steel, PTFE, Weldguard	6	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +70	IP68/69K	TC	WG	N/A	YE	- -	D	3	A23

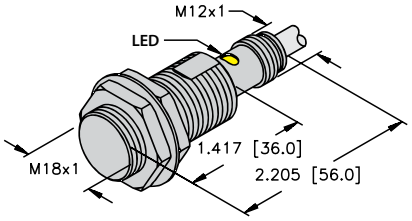
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

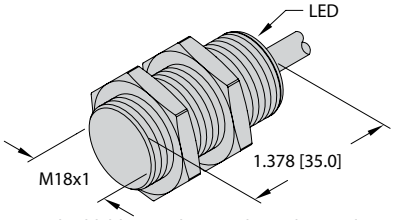
Housing Style	Dimension Drawings

A



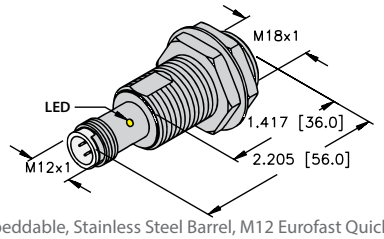
18 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

B



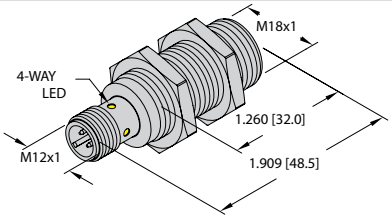
18 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

C



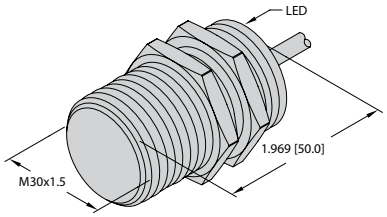
18 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

D



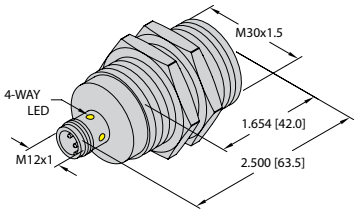
18 mm - Embeddable, Stainless Steel Barrel, M12 Eurofast Quick Disconnect

E



30 mm - Embeddable, Stainless Steel Barrel, Potted-In Cable

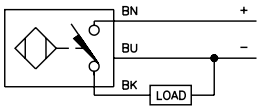
F



30 mm - Embeddable, M12 Eurofast Connection, Stainless Steel

Wiring Diagrams/Mating Cordsets

1



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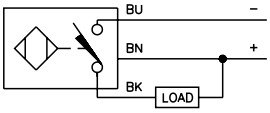

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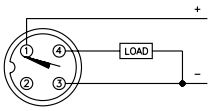
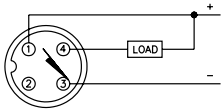


Mating Cordset: RKV 4T-*

4



Mating Cordset: RKV 4T-*

A22 — 3-wire DC Stainless Front Face (AP, AN, RP, RN)

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤2% of Rated Operating Distance

A23 — 3-wire DC Stainless Front Face Ext Range (AP, AN, RP, RN)

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	20%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤10 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤5% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Stainless Front Face

Embeddable Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-EG18F-AN6X 4614639	Full Stainless Steel	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	A	2	A22
Bi10-EG18F-AN6X 4614723	Full Stainless Steel	10	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	2	A23
Bi10-EG18F-AP6X 4614722	Full Stainless Steel	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	B	1	A23
Bi5-EG18F-AN6X-H1141 4614642	Full Stainless Steel	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	4	A22
Bi5-EGT18F-AN6X-H1141 4614672	Full Stainless Steel, PTFE	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	C	4	A22
Bi10-EG18F-AN6X-H1141 4614716	Full Stainless Steel	10	3-wire DC NPN	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	D	4	A23
Bi5-EG18F-AP6X-H1141 4614641	Full Stainless Steel	5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	C	3	A22
Bi5-EGT18F-AP6X-H1141 4614675	Full Stainless Steel, PTFE	5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	C	3	A22
Bi10-EG18F-AP6X-H1141 4614708	Full Stainless Steel	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	D	3	A23
Bi10-EGT18F-AP6X-H1141 46147080	Full Stainless Steel, PTFE	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	D	3	A23
Bi10-EGT18F-AP6X-H1141/S1589 46147081	Full Stainless Steel, PTFE, Weldguard	10	3-wire DC PNP	10-30 VDC	200	≤200	-25 to +70	IP68/69K	TC	WG	N/A	YE	- -	D	3	A23
Bi20-EG30F-AP6X 4614724	Full Stainless Steel	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	2M/PVC	E	1	A23
Bi20-EG30F-AP6X-H1141 4614710	Full Stainless Steel	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	SS	SS	N/A	YE	- -	F	3	A23
Bi20-EGT30F-AP6X-H1141 46147100	Full Stainless Steel, PTFE	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	SS	N/A	YE	- -	F	3	A23
Bi20-EGT30F-AP6X-H1141/S1589 46147101	Full Stainless Steel, PTFE, Weldguard	20	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP68/69K	TC	WG	N/A	YE	- -	F	3	A23

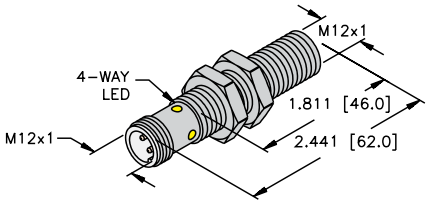
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Mobile Equipment

Barrel Sensors Designed for use on Vehicles and Equipment

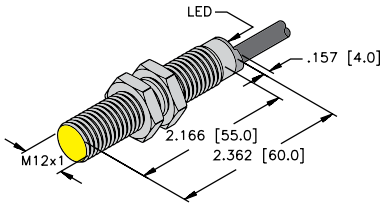
Housing Style	Dimension Drawings

A



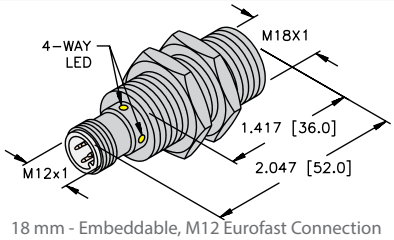
12 mm - Embeddable, M12 Eurofast Connection

B



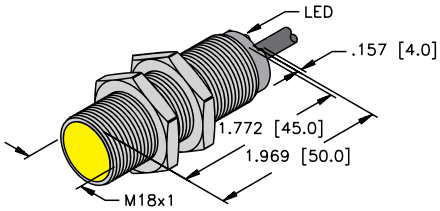
12 mm - Embeddable, Partial Threading, Potted-In Cable

C



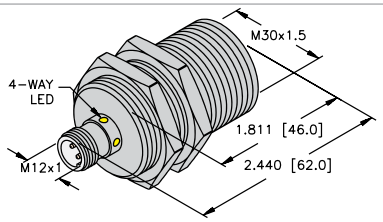
18 mm - Embeddable, M12 Eurofast Connection

D



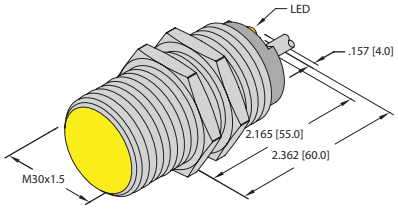
18 mm - Embeddable, Partial Threading, Potted-In Cable

E



30 mm - Embeddable, M12 Eurofast Connection

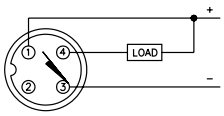
F



30 mm - Embeddable, Partial Threading, Potted-In Cable

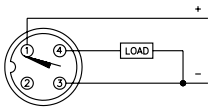
Wiring Diagrams/Mating Cordsets

1



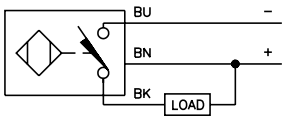
Mating Cordset: RK 4T-*/S90

2



Mating Cordset: RK 4T-*/S90

3



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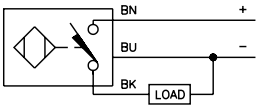


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

Features

- Load Dump Protection
- Shock Resistant
- EMC Immunity
- Extended Temperature Range
- Broader Operating Voltage
- Improved Sealing and Environmental Protection
- Longer Sensing Range

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Mobile Equipment

Barrel Sensors Designed for use on Vehicles and Equipment

Part Number/ ID Number	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-EM12E-AN45XLD-H1141 1584003	4	3-wire DC NPN	8.4-65 VDC	2000	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	A	1	A4
Bi4-EM12E-AP45XLD-H1141 1584000	4	3-wire DC PNP	8.4-65 VDC	2000	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	A	2	A4
Bi4-EM12E-AN45XLD 1584004	4	3-wire DC NPN	8.4-65 VDC	2000	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	B	3	A4
Bi4-EM12E-AP45XLD 1584001	4	3-wire DC PNP	8.4-65 VDC	2000	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	B	4	A4
Bi8-EM18-AN45XLD-H1141 1584017	8	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	C	1	A4
Bi8-EM18-AP45XLD-H1141 1584010	8	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	C	2	A4
Bi8-EM18-AN45XLD 1584014	8	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	D	3	A4
Bi8-EM18-AP45XLD 1584011	8	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	D	4	A4
Bi15-EM30-AN45XLD-H1141 1584024	15	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	E	1	A4
Bi15-EM30-AP45XLD-H1141 1584020	15	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	- -	E	2	A4
Bi15-EM30-AN45XLD 1584022	15	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	F	1	A4
Bi15-EM30-AP45XLD 1584021	15	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	SS	PA12	N/A	YE	2M/TPE	F	2	A4

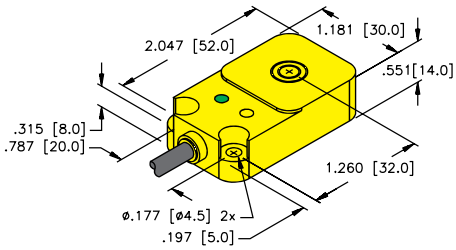
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Mobile Equipment

Rectangular Sensors Designed for use on Vehicles and Equipment

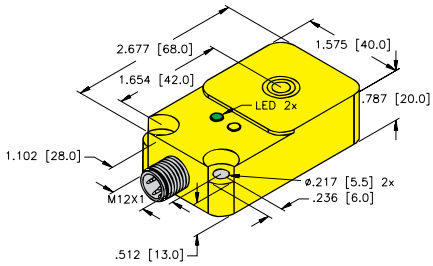
Housing Style	Dimension Drawings

A



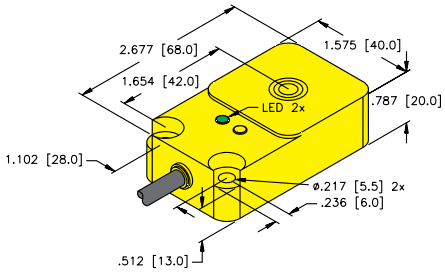
14 mm - Embeddable, Potted-In Cable

B



20 mm - Embeddable, M12 Eurofast Connection

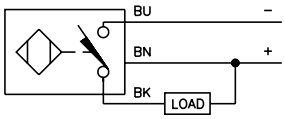
C



20 mm - Embeddable, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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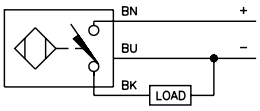

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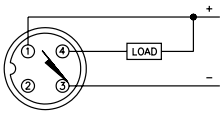
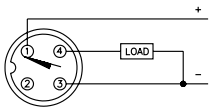


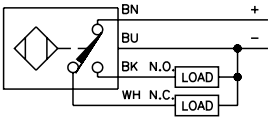
Mating Cordset: RK 4T-*/S90

4



Mating Cordset: RK 4T-*/S90

5



A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

Features

- Load Dump Protection
- Shock Resistant
- EMC Immunity
- Extended Temperature Range
- Broader Operating Voltage
- Improved Sealing and Environmental Protection
- Longer Sensing Range

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Mobile Equipment

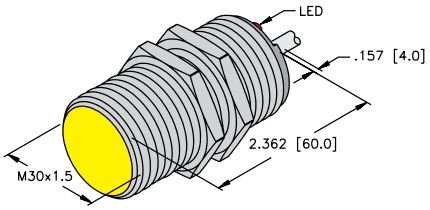
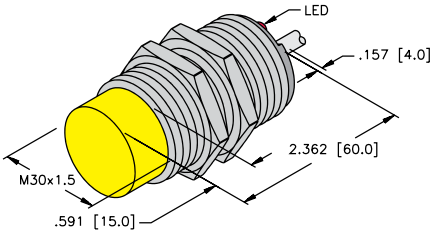
Rectangular Sensors Designed for use on Vehicles and Equipment

Part Number/ ID Number	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10-Q14-AN45X2LD 1584032	10	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	2M/TPE	A	1	A4
Bi10-Q14-AP45X2LD 1584031	10	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	2M/TPE	A	2	A4
Bi20-Q20-AN45X2LD-H1141 1584042	20	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	- -	B	3	A4
Bi20-Q20-AP45X2LD-H1141 1584040	20	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	- -	B	4	A4
Bi20-Q20-AN45X2LD 1584043	20	3-wire DC NPN	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	2M/TPE	C	1	A4
Bi20-Q20-AP45X2LD 1584041	20	3-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	2M/TPE	C	2	A4
Bi20-Q20-VP45X2LD 1584047	20	4-wire DC PNP	8.4-65 VDC	500	≤200	-40 to +85	IP68/69K	PBT	PBT	GN	YE	2M/TPE	C	5	A4

We reserve the right to make technical alterations without prior notice.

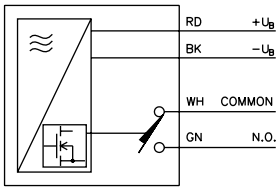
Specialty Sensors | 6A Solid State

Threaded Metal Barrel Sensors with Cable

Housing Style	Dimension Drawings
	A  30 mm - Embeddable, Potted-In Cable
B  30 mm - Nonembeddable, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1



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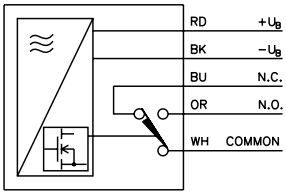


A10 — Solid State Relay (AM6, VM6)

Ripple:	≤10%
Output Voltage:	≤35 V AC, ≤50 V DC
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤0.4 V
Continuous Load Current:	≤6 Amp
Off-State (Leakage) Current:	≤0.1 mA
Inrush Current:	≤8.0 A (≤10.0 ms max 5 Hz)
No-Load Current:	≤25 mA
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Short Circuit Protected:	No
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | 6A Solid State

Threaded Metal Barrel Sensors with Cable

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi12-G30-AM6/37X/S97 1711200	High current rated	12	4-wire DC	10-30 VDC	20	≤6000	-40 to 70	IP67	CPB	PA12	N/A	YE	2M/PVC	A	1	A10
Bi12-G30-VM6/37X/S97 1711290	High current rated	12	5-wire DC	10-30 VDC	20	≤6000	-40 to 70	IP67	CPB	PA12	N/A	YE	2M/PVC	A	2	A10
Ni20-G30-VM6/37X/S97 4205472	High current rated	20	5-wire DC	10-30 VDC	20	≤6000	-40 to 70	IP67	CPB	PA12	N/A	YE	2M/PVC	B	2	A10

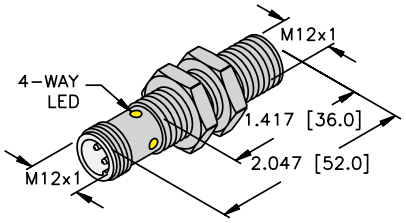
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | FM Approved Class I Div 2

Threaded Metal Barrels with 3-Wire DC Outputs

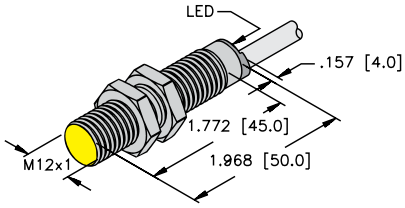
Housing Style	Dimension Drawings

A



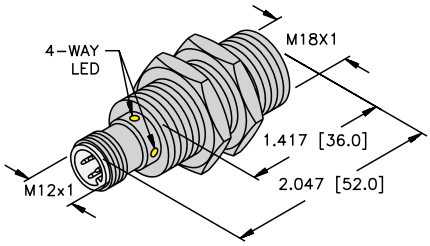
12 mm - Embeddable, M12 Eurofast Connector

B



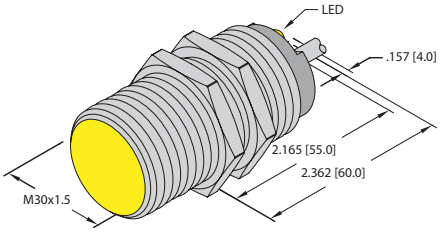
12 mm - Embeddable, Potted-In Cable

C



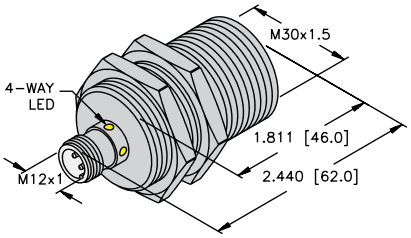
18 mm - Embeddable, M12 Eurofast Connector

D



30 mm - Embeddable, Potted-In Cable

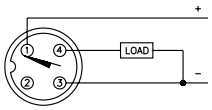
E



30 mm - Embeddable, M12 Eurofast Connector

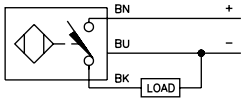
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: P-RKGV 4.43T-1699XL-*

2



A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | FM Approved Class I Div 2

Threaded Metal Barrels with 3-Wire DC Outputs

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-M12-AP6X-H1141/S1751 4607075	FM Approved	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	- -	A	1	A4
Bi4-M12-AP6X/S1751 4607073	FM Approved	4	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/ PVC	B	2	A4
Bi8-M18-AP6X-H1141/S1751 4615078	FM Approved	8	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	- -	C	1	A4
Bi15-M30-AP6X-H1141/S97/S1751 4618574	FM Approved	15	3-wire DC PNP	10-30 VDC	500	≤200	-40 to +70	IP67	CPB	PA 12	N/A	YE	- -	E	1	A4
Bi15-M30-AP6X/S1751 46185302	FM Approved	15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	2M/ PVC	D	2	A4

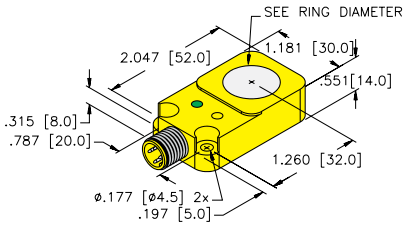
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Ring Sensors

Plastic Housing Sensors with Cable or Connector and 3-Wire DC Output

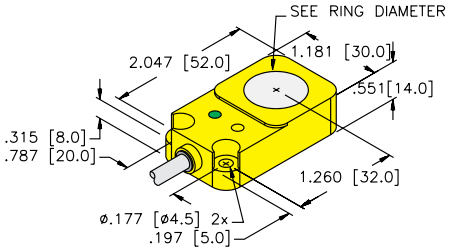
Housing Style	Dimension Drawings

A



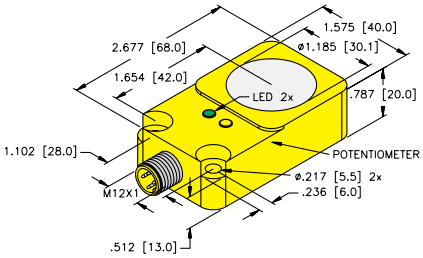
14 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

B



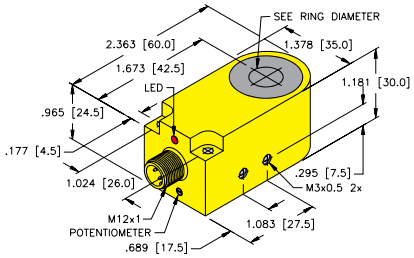
14 mm - Rectangular, Ring Sensor, Potted-In Cable

C



20 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

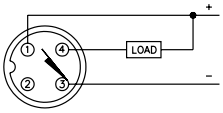
D



30 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

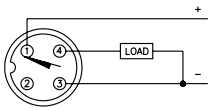
Wiring Diagrams/Mating Cordsets

1



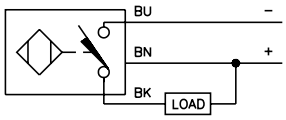
Mating Cordset: RK 4T-*

2

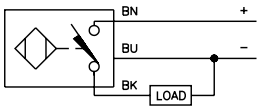


Mating Cordset: RK 4T-*

3



4



A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Ring Sensors

Plastic Housing Sensors with Cable or Connector and 3-Wire DC Output

Part Number/ ID Number	Features	Minimum Target Diameter	Ring Diameter (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi10R-Q14-AN6X2-H1141 1407120	Static Output	≥ 2 mm	10	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	1	A4
Bi15R-Q14-AN6X2-H1141 1407220	Static Output	≥ 3 mm	15	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	1	A4
Bi20R-Q14-AN6X2-H1141 1407320	Static Output	≥ 4 mm	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	1	A4
Bi6R-Q14-AP6X2-H1141 14070	Static Output	≥ 2 mm	6	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi10R-Q14-AP6X2-H1141 14071	Static Output	≥ 2 mm	10	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi15R-Q14-AP6X2-H1141 14072	Static Output	≥ 3 mm	15	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi20R-Q14-AP6X2-H1141 14073	Static Output	≥ 4 mm	20	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	A	2	A4
Bi10R-Q14-AN6X2 1406120	Static Output	≥ 2 mm	10	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	3	A4
Bi15R-Q14-AN6X2 1406220	Static Output	≥ 3 mm	15	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	3	A4
Bi20R-Q14-AN6X2 1406320	Static Output	≥ 4 mm	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	3	A4
Bi10R-Q14-AP6X2 14061	Static Output	≥ 2 mm	10	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	4	A4
Bi15R-Q14-AP6X2 14062	Static Output	≥ 3 mm	15	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	4	A4
Bi20R-Q14-AP6X2 14063	Static Output	≥ 4 mm	20	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	2M/PVC	B	4	A4
Bi30R-Q20-AN6X2-H1141 1407520	Static Output	≥ 6 mm	30	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	C	1	A4
Bi30R-Q20-AP6X2-H1141 14075	Static Output	≥ 6 mm	30	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PBT	POM	GN	YE	- -	C	2	A4
Bi6R-W30-DAN6X-H1141 14037	Dynamic Output	≥ 0.6 mm	6	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi10R-W30-DAN6X-H1141 14039	Dynamic Output	≥ 1 mm	10	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi15R-W30-DAN6X-H1141 14041	Dynamic Output	≥ 1.5 mm	15	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi20R-W30-DAN6X-H1141 14043	Dynamic Output	≥ 2 mm	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi30R-W30-DAN6X-H1141 1404501	Dynamic Output	≥ 3 mm	30	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	1	A4
Bi6R-W30-DAP6X-H1141 14036	Dynamic Output	≥ 0.6 mm	6	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi10R-W30-DAP6X-H1141 14038	Dynamic Output	≥ 1 mm	10	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi15R-W30-DAP6X-H1141 14040	Dynamic Output	≥ 1.5 mm	15	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi20R-W30-DAP6X-H1141 14042	Dynamic Output	≥ 2 mm	20	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4
Bi30R-W30-DAP6X-H1141 14045	Dynamic Output	≥ 3 mm	30	3-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP67	PA 12	POM	N/A	YE	- -	D	2	A4

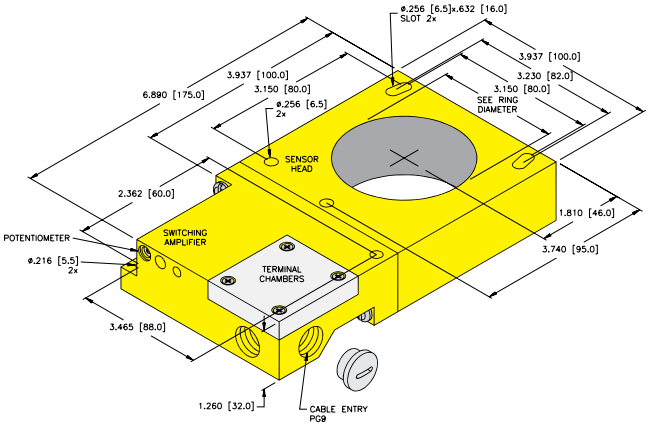
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Ring Sensors

Plastic Housing Sensors with a Large Diameter Ring and 3 or 4-Wire DC Output

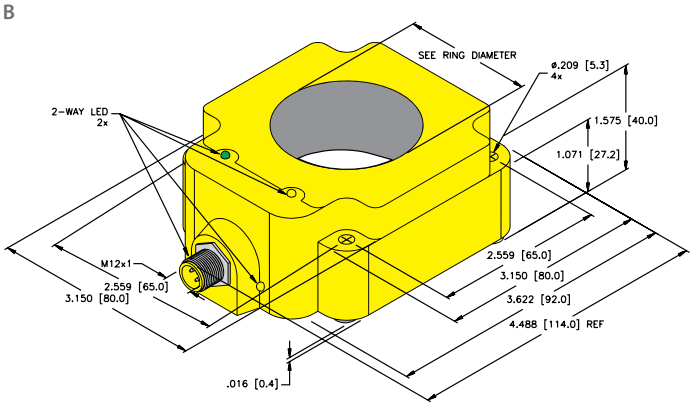
Housing Style	Dimension Drawings

A



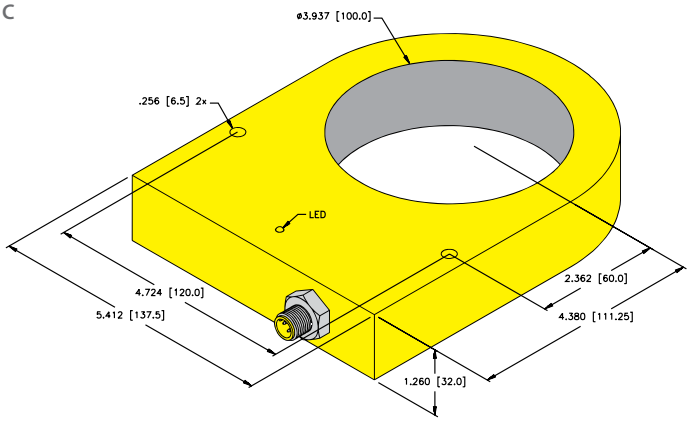
32 mm - Rectangular, Ring Sensor, Terminal Chamber

B



80 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

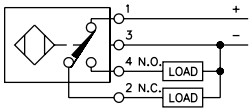
C



100 mm - Rectangular, Ring Sensor, M12 Eurofast Connector

Wiring Diagrams/Mating Cordsets

1



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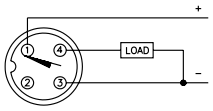
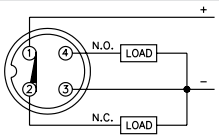


Mating Cordset: RK 4T-*

3



Mating Cordset: RK 4.4T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Ring Sensors

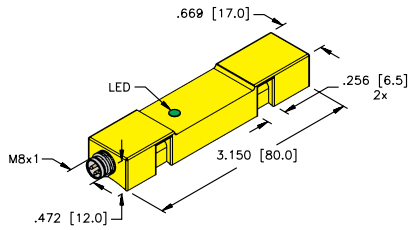
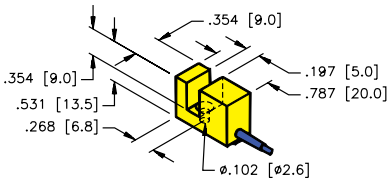
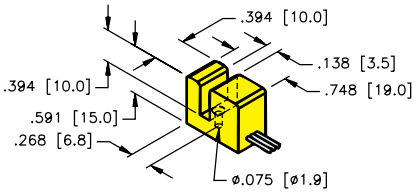
Plastic Housing Sensors with a Large Diameter Ring and 3 or 4-Wire DC Output

Part Number/ ID Number	Features	Minimum Target Diameter	Ring Diameter (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni20R-S32SR-VP44X 1440001	Static Output	≥ 0.4 mm	20	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	A	1	A4
Ni40R-S32SR-VP44X 1440005	Static Output	≥ 1 mm	40	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	A	1	A4
Ni65R-S32SR-VP44X 1440008	Static Output	≥ 12 mm	65	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	ABS	ABS	N/A	YE	A	1	A4
Bi50R-Q80-AP6X2-H1141 1407530	Static Output	≥ 8 mm	50	3-wire DC PNP	10-30 VDC	10	≤200	-25 to +70	IP67	PBT	PA 66	GN	YE	B	2	A4
Bi65R-Q80-AP6X2-H1141 1407531	Static Output	≥ 10 mm	65	3-wire DC PNP	10-30 VDC	10	≤200	-25 to +70	IP67	PBT	PA 66	GN	YE	B	2	A4
Ni100R-S32XL-VP44X-H1141 1510301	Static Output	≥ 10mm	100	4-wire DC PNP	10-55 VDC	8	≤200	-25 to +70	IP67	POM	POM	N/A	YE	C	3	A4

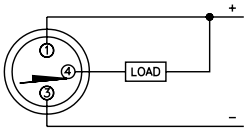
We reserve the right to make technical alterations without prior notice.

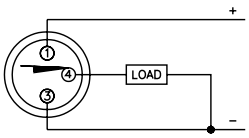
Specialty Sensors | Tube and Slot Sensors

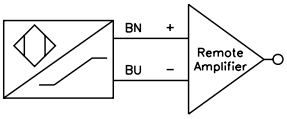
Plastic Housing Sensors with Cable or Connector

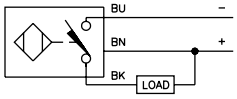
Housing Style	Dimension Drawings
	A  Tube Sensing Nonembeddable, M8 Picofast Connector
B  9 mm - Slot Sensor, Potted-In Cable	C  10 mm - Slot Sensor, Potted-In Cable

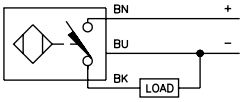
Wiring Diagrams/Mating Cordsets

1 
Mating Cordset: PKG 3M-*

2 
Mating Cordset: PKG 3M-*

3 

4 

5 

A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current ≥170 mA on 150 mA Load Current ≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox) ≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Tube and Slot Sensors

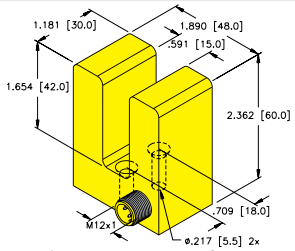
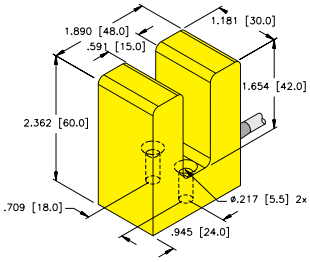
Plastic Housing Sensors with Cable or Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni20U-TS12-AN6X2-V1131 1625822	Uprox+	20	3-wire DC NPN	10-30 VDC	8	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	- -	A	1	A4
Ni20U-TS12-AP6X2-V1131 1646640	Uprox+	20	4-wire DC PNP	10-30 VDC	8	≤200	-25 to +70	IP68	PBT	PBT	GN	YE	- -	A	2	A4
Si5-K09-Y1 0.5M 10240		5	2-wire DC NAMUR	5-30 VDC	5000	Remote	-25 to +70	IP67	PBT	PBT	N/A	N/A	0.5M/PVC	B	3	A1
Si3.5-K10-AN7 17190		3.5	3-wire DC NPN	10-30 VDC	2000	≤200	-25 to +70	IP67	PBT	PBT	N/A	N/A	2M/PVC	C	4	A4
Si3.5-K10-AP6X 1650001		3.5	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	C	5	A4
Si3.5-K10-Y1 10365		3.5	2-wire DC NAMUR	5-30 VDC	3000	Remote	-25 to +70	IP67	PBT	PBT	N/A	N/A	2M/PVC	C	3	A1

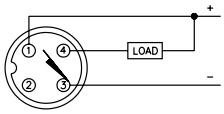
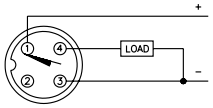
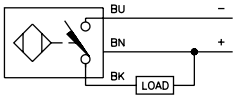
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Slot Sensors

Plastic Housing Sensors with Cable or Connector

Housing Style	Dimension Drawings
	A  30 mm - Slot Sensor, M12 Eurofast Connector
B  30 mm - Slot Sensor, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1	2	3
 Mating Cordset: RK 4T-*	 Mating Cordset: RK 4T-*	
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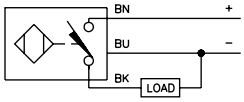
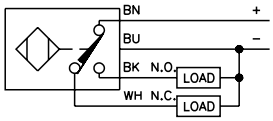
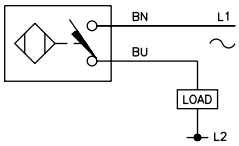
		

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A6 — 2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Slot Sensors

Plastic Housing Sensors with Cable or Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Si15-K30-AN6X-H1141 1605107		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	A	1	A4
Si15-K30-AP6X-H1141 1605007		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	- -	A	2	A4
Si15-K30-AN6X 1605003		15	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	B	3	A4
Si15-K30-AP6X 1605001		15	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP67	PBT	PBT	N/A	YE	2M/PVC	B	4	A4
Si15-K30-VP6 1605030	Comp. Outputs	15	4-wire DC PNP	10-30 VDC	350	≤200	-25 to +70	IP67	PBT	PBT	N/A	N/A	2M/PVC	B	5	A4
Si15-K30-AZ3 13069		15	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤400/300	-25 to +70	IP67	PBT	PBT	N/A	N/A	2M/PVC	B	6	A6

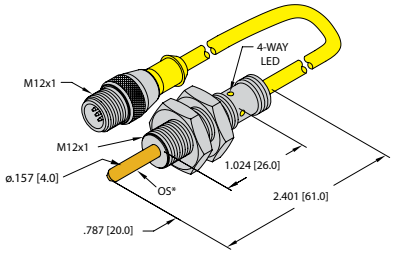
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Weld Nut Sensors

Threaded Metal Barrel with Smooth Sensing Probe and 3-Wire DC Output

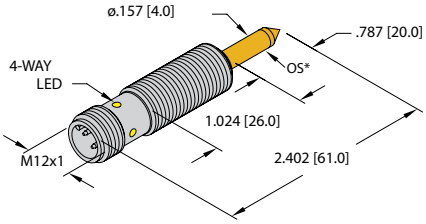
Housing Style	Dimension Drawings

A



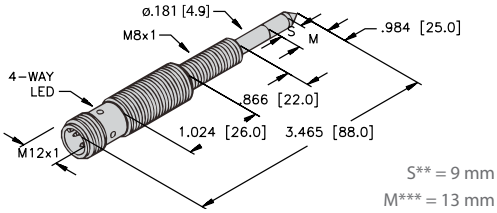
Nut Sensor, 5-12 mm Diameter Nut, Potted-In Cable

B



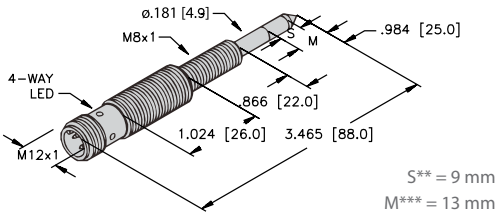
Nut Sensor, 5-12 mm Diameter Nut, M12 Eurofast Connector

C



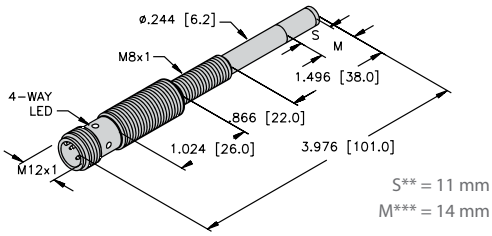
Nut Sensor, 6-12 mm Diameter Nut, M12 Eurofast Connector

D



Nut Sensor, 6-12 mm Diameter Nut, M12 Eurofast Connector

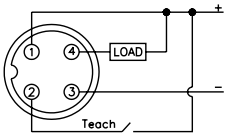
E



Nut Sensor, 10-20 mm Diameter Nut, M12 Eurofast Connector

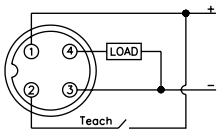
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

2



Mating Cordset: RK 4.4T-*

A24 — **3-wire DC Nut Detection Sensor (AP, AN)**

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA		

Note:
OS* The optimal sensitive area for the 4.0 mm diameter probes has a width of 0.5 mm and is laser-engraved on the tip of the probe, 11.9 mm above the M12 thread.
S** Sensitive area: Within this area the sensor signal changes when assembly parts are changed.
M*** Maximum area: The maximum signal intensity is reached if the sensitive area is completely covered.

Optional teach adapter available, part number VB2-SP1.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Weld Nut Sensors

Threaded Metal Barrel with Smooth Sensing Probe and 3-Wire DC Output

Part Number/ ID Number	Features	Nut Diameter	Output	Voltage	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
NIMFE-EM12/4.0L61-UP6X-0.3XYE-RS4/S1182 1600623	Titanium Nitride	5-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	0.3M/ TPE	A	2	A24
NIMFE-EM12/4.0L61-UN6X-0.3XYE-RS4/S1182 1600624	Titanium Nitride	5-12 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	0.3M/ TPE	A	1	A24
NIMFE-EM12/4.0L61-UP6X-H1141/S1182 1600621	Titanium Nitride	5-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	B	2	A24
NIMFE-EM12/4.0L61-UN6X-H1141/S1182 1600622	Titanium Nitride	5-12 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	B	1	A24
NIMFE-M12/4.6L88-UN6X-H1141 1600610		6-12 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	- -	C	1	A24
NIMFE-EMT12/4.6L88-UN6X-H1141 1600618	PTFE Coated	6-12 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	C	1	A24
NIMFE-EM12/4.6L88-UN6X-H1141/S1182 1600617	Titanium Nitride	6-12 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	C	1	A24
NIMFE-M12/4.6L88-UP6X-H1141 1600608		6-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	- -	C	2	A24
NIMFE-EMT12/4.6L88-UP6X-H1141 1600619	PTFE Coated	6-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	C	2	A24
NIMFE-EM12/4.6L88-UP6X-H1141/S1182 1600620	Titanium Nitride	6-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	C	2	A24
NIMFE-EM12/4.9L88-UP6X-H1141/S1182 1600616	Titanium Nitride	6-12 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	D	2	A24
NIMFE-M12/6.2L101-UN6X-H1141 1600611		10-20 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	- -	E	1	A24
NIMFE-EMT12/6.2L101-UN6X-H1141 1600615	PTFE Coated	10-20 mm	3-wire DC NPN	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	E	1	A24
NIMFE-M12/6.2L101-UP6X-H1141 1600609		10-20 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	CPB	GN	YE	- -	E	2	A24
NIMFE-EMT12/6.2L101-UP6X-H1141 1600613	PTFE Coated	10-20 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	E	2	A24
NIMFE-EM12/6.2L101-UP6X-H1141/S1182 1600612	Titanium Nitride	10-20 mm	3-wire DC PNP	10-30 VDC	≤200	-25 to +70	IP67	SS	GN	YE	- -	E	2	A24

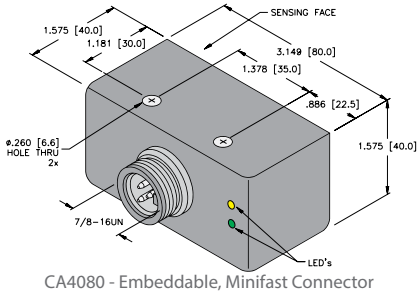
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Edge Detection Sensors

Rectangular Metal Housing with AC or DC Outputs and Integral Connector

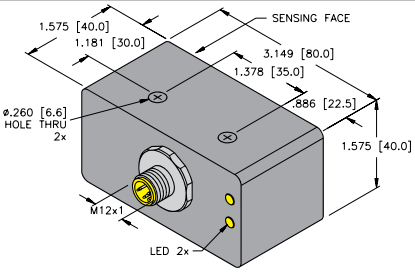
Housing Style	Dimension Drawings

A



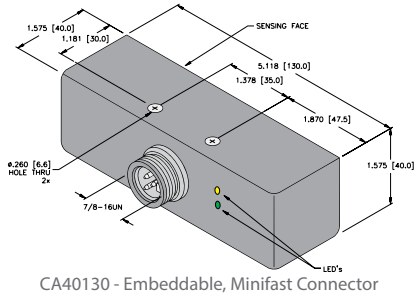
CA4080 - Embeddable, Minifast Connector

B



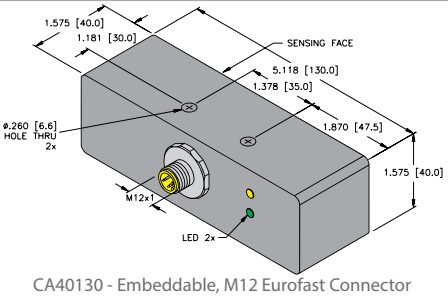
CA4080 - Embeddable, M12 Eurofast Connector

C



CA40130 - Embeddable, Minifast Connector

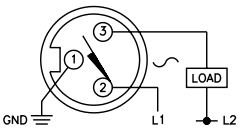
D



CA40130 - Embeddable, M12 Eurofast Connector

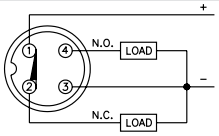
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M

2



Mating Cordset: RK 4.4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Edge Detection Sensors

Rectangular Metal Housing with AC or DC Outputs and Integral Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20-CA4080-ADZ30X2-B1131 4283400		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	TS	SF	GN	YE	A	1	A5
Bi20-CA4080-VP4X2-H1141 1625591		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	TS	SF	GN	YE	B	2	A4
BI20-CA4080-VP4X2-H1141/S1009 1625590	250 ms Off Delay	20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	TS	SF	GN	YE	B	2	A4
Bi20-CA40130-ADZ30X2-B1131 4283503		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	TS	SF	GN	YE	C	1	A5
BI20-CA40130-ADZ30X2-B1131/S1009 4283597	250 ms Off Delay	20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	TS	SF	GN	YE	C	1	A5
Bi20-CA40130-VP4X2-H1141 4283599		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	TS	SF	GN	YE	D	2	A4

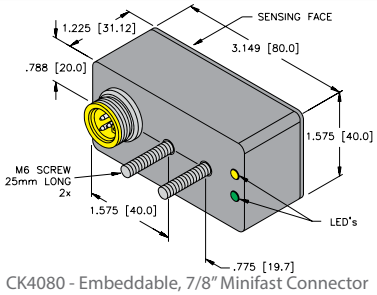
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Edge Detection Sensors

Rectangular Plastic Housing with AC or DC Outputs and Integral Connector

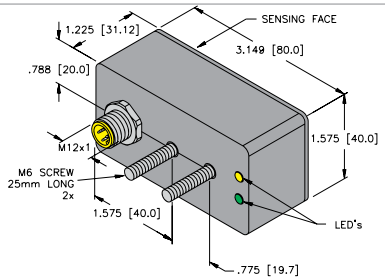
Housing Style	Dimension Drawings

A



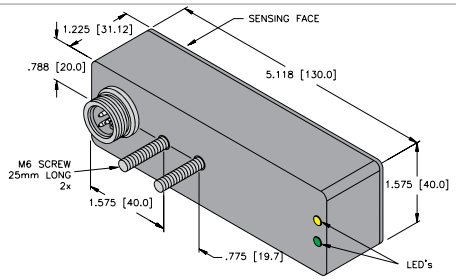
CK4080 - Embeddable, 7/8" Minifast Connector

B



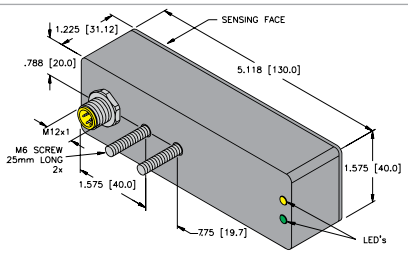
CK4080 - Embeddable, M12 Eurofast Connector

C



CK40130 - Embeddable, 7/8" Minifast Connector

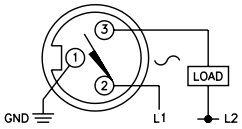
D



CK40130 - Embeddable, M12 Eurofast Connector

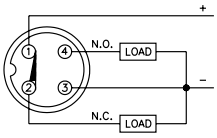
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RKM 30-*M

2



Mating Cordset: RK 4.4T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A5 — **2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)**

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Edge Detection Sensors

Rectangular Plastic Housing with AC or DC Outputs and Integral Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Bi20-CK4080-ADZ30X2-B1131 4283493		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	RD	A	1	A5
BI20-CK4080-ADZ30X2-B1131/S1009 4283495	250 ms Off Delay	20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	RD	A	1	A5
Bi20-CK4080-VP4X2-H1141 4283491		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	B	2	A4
BI20-CK4080-VP4X2-H1141/S1009 4283496	250 ms Off Delay	20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	B	2	A4
Bi20-CK40130-ADZ30X2-B1131 4283589		20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	C	1	A5
BI20-CK40130-ADZ30X2-B1131/S1009 42835953	250 ms Off Delay	20	2-wire AC/DC	20-250 VAC/10-300 VDC	30/100	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	C	1	A5
Bi20-CK40130-VP4X2-H1141 42835911		20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	D	2	A4
BI20-CK40130-VP4X2-H1141/S1009 42835963	250 ms Off Delay	20	4-wire DC PNP	10-65 VDC	100	≤400	-25 to +70	IP67	PBT	PBT	GN	YE	D	2	A4

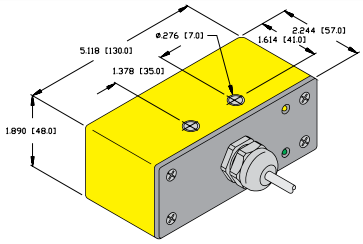
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Can Sensors

Rectangular Plastic Housing with AC or DC Outputs and Integral Connector

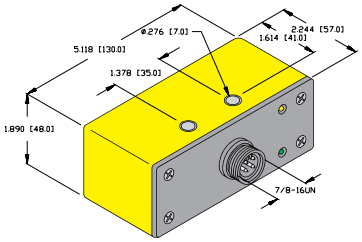
Housing Style	Dimension Drawings

A



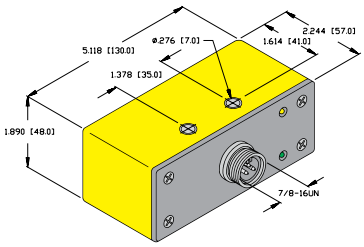
Q130 - Nonembeddable, Potted-In Cable

B



Q130 - Nonembeddable, 7/8" Minifast Connector

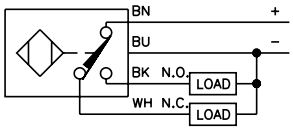
C



Q130 - Nonembeddable, 7/8" Minifast Connector

Wiring Diagrams/Mating Cordsets

1



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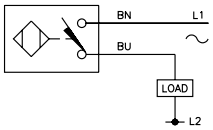

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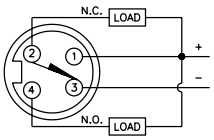
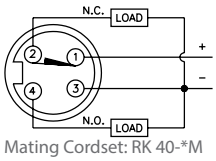


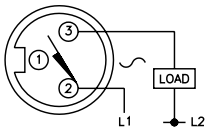
Mating Cordset: RK 40-*M

4



Mating Cordset: RK 40-*M

5



Mating Cordset: RK 30-*M

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Can Sensors

Rectangular Plastic Housing with AC or DC Outputs and Integral Connector

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni30-Q130-VP4X2 15179	Comp. Output	30	4-wire DC PNP	10-65 VDC	60	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	2M/ PVC	A	1	A4
Ni30-Q130-ADZ30X2 42095		30	2-wire AC/DC	20-250 VAC/10-300 VDC	30	≤400/300	-25 to +70	IP67	PBT	PBT	GN	RD	2M/ PVC	A	2	A5
Ni30-Q130-VN4X2-B2141 15180	Comp. Output	30	4-wire DC NPN	10-65 VDC	60	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	- -	B	3	A4
Ni30-Q130-VP4X2-B2141 1518001	Comp. Output	30	4-wire DC PNP	10-65 VDC	60	≤200	-25 to +70	IP67	PBT	PBT	GN	YE	- -	B	4	A4
Ni30-Q130-ADZ30X2-B1131 42100		30	2-wire AC/DC	20-250 VAC/10-300 VDC	30	≤400/300	-25 to +70	IP67	PBT	PBT	GN	YE	- -	C	5	A5

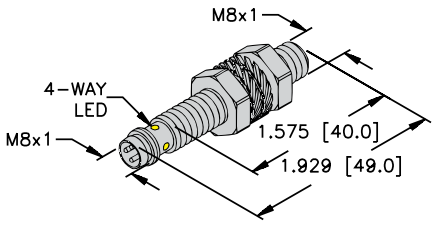
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Inductive Magnetic Sensors

Threaded Metal Barrels Designed to Sense a Magnetic Field

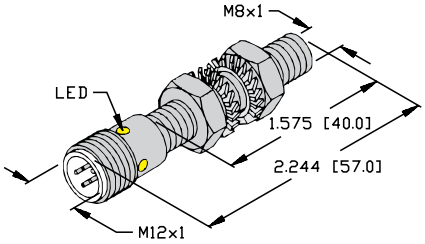
Housing Style	Dimension Drawings

A



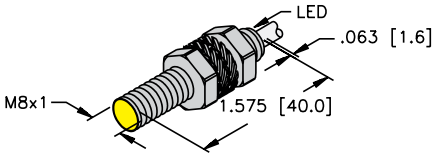
8 mm - Barrel, M8 Picofast Connector

B



8 mm - Barrel, M12 Eurofast Connector

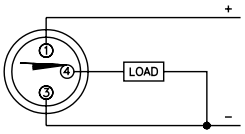
C



8 mm - Barrel, Potted-In Cable

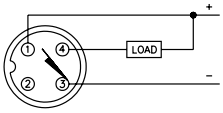
Wiring Diagrams/Mating Cordsets

1



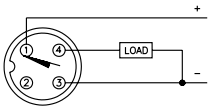
Mating Cordset: PKG 3M-*

2



Mating Cordset: RK 4T-*

3



Mating Cordset: RK 4T-*

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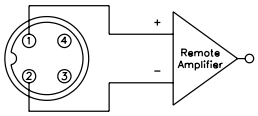
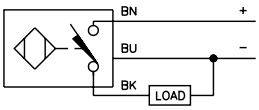


Mating Cordset: RK 4.21T-*

5



A25 — **3-wire DC Magnetic Barrel (AP, AN)**

Ripple:	≤10%	Temperature Drift:	≤±15%
Differential Travel (Hysteresis):	1-10%	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Shock:	30 g, 11 ms
	≥170 mA on 150 mA Load Current	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤0.3% of Full Scale
Off-State (Leakage) Current:	≤0.1 mA		

A27 — **2-wire DC Namur Magnetic Barrel (Y1)**

Differential Travel (Hysteresis):	1-10%	Temperature Drift:	≤±10%
Nominal Voltage:	8.2 VDC (EN60947-5-6)	Reverse Polarity Protection:	Incorporated
Load Resistance:	1000 Ω	Wire-Break Protection:	Realized in Amplifier
Non-activated Current Consumption:	≤1.2 mA	Transient Protection:	Realized in Amplifier
Activated Current Consumption:	≥2.1 mA	Shock:	30 g, 11 ms
Recommended Switching Point for Remote	>1.2 to <2.1 mA,	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Amplifier:	typ. 1.55 mA ON/1.75 mA OFF	Repeatability:	≤0.3% of Full Scale

Note:
Use with Turck actuation magnet to achieve longest switching distance.
See page I18 for part numbers and details.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Inductive Magnetic Sensors

Threaded Metal Barrels Designed to Sense a Magnetic Field

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-EG08-AP6X-V1131 4621314	Up to 78 mm Range	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	- -	A	1	A25
BIM-EG08-AN6X-H1341 4621301	Up to 78 mm Range	3-wire DC NPN	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	- -	B	2	A25
BIM-EG08-AP6X-H1341 4621311	Up to 78 mm Range	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	- -	B	3	A25
BIM-EG08-Y1X-H1341 1074001	Up to 78 mm Range	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	SS	PA 12	N/A	YE	- -	B	4	A27
BIM-EG08-AP6X 4621310	Up to 78 mm Range	3-wire DC PNP	10-30 VDC	1000	≤150	-25 to +70	IP67	SS	PA 12	N/A	YE	2M/TPU	C	5	A25

We reserve the right to make technical alterations without prior notice.

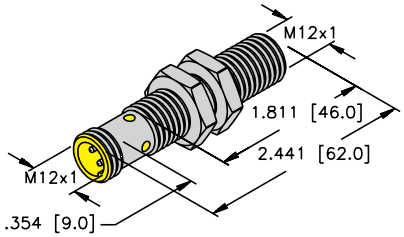
Specialty Sensors | Inductive Magnetic Sensors

Threaded Metal Barrels Designed to Sense a Magnetic Field

Housing Style

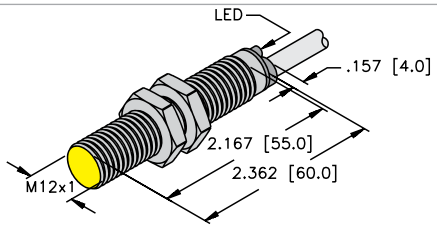
Dimension Drawings

A



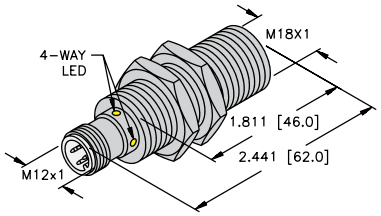
12 mm - M12 Eurofast Connector

B



12 mm - Potted-In Cable

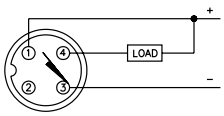
C



18 mm - M12 Eurofast Connector

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*

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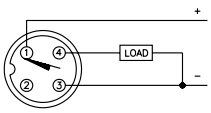
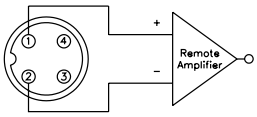


Mating Cordset: RK 4T-*; P-RKGV 4.43T-1699XL-*

3



Mating Cordset: RK 4.21T-*

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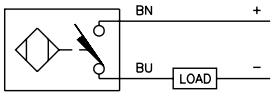

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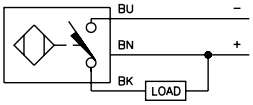

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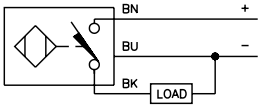

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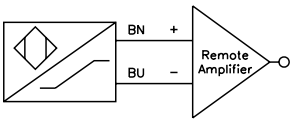


A25 — **3-wire DC Magnetic Barrel (AP, AN)**

Ripple:	≤10%
Differential Travel (Hysteresis):	1-10%
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current ≥170 mA on 150 mA Load Current
No-Load Current:	≤15 mA
Off-State (Leakage) Current:	≤0.1 mA
Temperature Drift:	≤±15%
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤0.3% of Full Scale

A26 — **2-wire DC Magnetic Barrel (AG)**

Ripple:	≤10%
Differential Travel (Hysteresis):	1-10%
Voltage Drop Across Conducting Sensor:	≤4.2 V Polarized
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
Minimum Load Current:	≥3.0 mA
Temperature Drift:	≤±15%
Off-State (Leakage) Current:	≤0.8 mA
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤0.3% of Full Scale

A27 — **2-wire DC Namur Magnetic Barrel (Y1)**

Differential Travel (Hysteresis):	1-10%
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-activated Current Consumption:	≤1.2 mA
Activated Current Consumption:	≥2.1 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Temperature Drift:	≤±10%
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤0.3% of Full Scale

Note:
Use with Turck actuation magnet to achieve longest switching distance.
See page I18 for part numbers and details.

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Inductive Magnetic Sensors

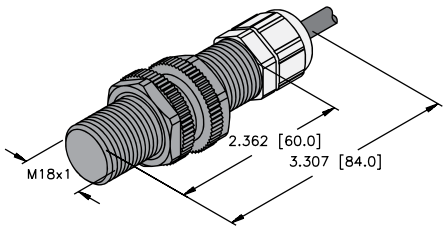
Threaded Metal Barrels Designed to Sense a Magnetic Field

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BIM-M12E-AN4X-H1141 1579914	Up to 90 mm Range	3-wire DC NPN	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	1	A25
BIM-EM12E-AP4X-H1141 1579915	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	SS	POM	N/A	YE	A	2	A25
BIM-M12E-AP4X-H1141 1579913	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A25
BIM-M12E-AP6X-H1141/S1751 4681289	FM Approved	3-wire DC PNP	10-30 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	2	A25
BIM-M12E-Y1X-H1141 1074003	Up to 90 mm Range	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	YE	A	3	A27
BIM-M12E-AG4X 44302	Up to 90 mm Range	2-wire DC	10-65 VDC	1000	≤100	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	4	A26
BIM-M12E-AN4X 1579912	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	5	A25
BIM-EM12E-AP4X 1579918	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	SS	POM	N/A	YE	B	6	A25
BIM-M12E-AP4X/S90 1579911	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	6	A25
BIM-EM12E-Y1X 1070036	Up to 90 mm Range	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	SS	POM	N/A	YE	B	7	A27
BIM-M12E-Y1X 1074002	Up to 90 mm Range	2-wire DC NAMUR	5-30 VDC	1000	Remote	-25 to +70	IP67	CPB	PA 12	N/A	YE	B	7	A27
BIM-EM18M-AP4X-H1141 1579933	Up to 90 mm Range	3-wire DC PNP	10-65 VDC	1000	≤200	-25 to +70	IP67	SS	POM	N/A	YE	C	2	A25

We reserve the right to make technical alterations without prior notice.

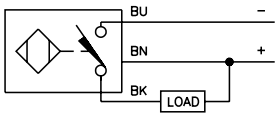
Specialty Sensors | Submersible Sensors

Threaded Plastic Barrel Sensors with Cable for Underwater Applications

Housing Style	Dimension Drawings
	A  18 mm - Embeddable, Full Threading, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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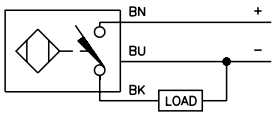
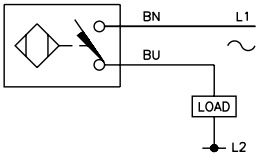


3



A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox3)	Repeatability:	≤2% of Rated Operating Distance

A6 — **2-wire AC/DC w/o Short-Circuit Protection - (AZ, RZ, FZ)**

Line Frequency:	≥50... ≤60 Hz	Inrush Current:	≤8 A (≤10ms max. 5 Hz)
Differential Travel (Hysteresis):	3-15% (5% typical)		≤1 A (≤10 ms max. 5 Hz) 12 mm
Voltage Drop Across Conducting Sensor:	≤6.0 V		≤0.2 A (≤10 ms max. 0.2 Hz) 8 mm
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Power-On Effect:	Per IEC 947-5-2
	AC: ≤100 mA; DC: ≤100 mA	Transient Protection:	Per EN 60947-5-2
Off-State (Leakage) Current:	≤1.7 mA	Shock:	30 g, 11 ms
Minimum Load Current:	≥3.0 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Submersible Sensors

Threaded Plastic Barrel Sensors with Cable for Underwater Applications

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi5-P18-AN6/S139-S1261 1650239	Submersible	5	3-wire DC NPN	10-30 VDC	500	≤200	-25 to +70	IP68	POM	PA 12	N/A	N/A	2M/TPE	A	1	A4
Bi5-P18-AP6/S139-S1261 1650234	Submersible	5	3-wire DC PNP	10-30 VDC	500	≤200	-25 to +70	IP68	POM	PA 12	N/A	N/A	2M/TPE	A	2	A4
Bi8U-P18-AP6/S139-S1261 1650230	Submersible, Uprox	8	3-wire DC PNP	10-30 VDC	2000	≤200	-30 to +85	IP68	POM	PA 12	N/A	N/A	2M/TPE	A	2	A4
Bi5-P18-AZ3/S139-S1261 1384307	Submersible	5	2-wire AC	20-250 VAC	20	≤400	-25 to +70	IP68	POM	PA 12	N/A	N/A	2M/TPE	A	3	A6

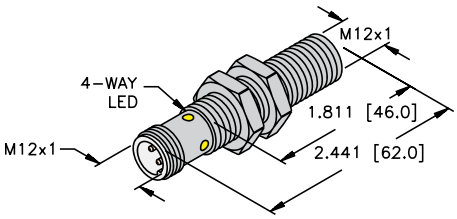
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Selective Metal Sensors

Threaded Barrel Sensors Designed to Sense Nonferrous Metals Only

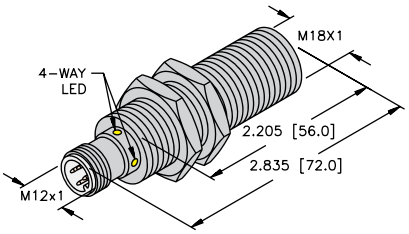
Housing Style	Dimension Drawings

A



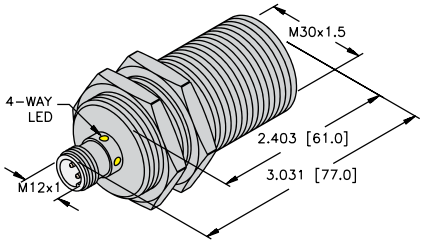
12 mm - Embeddable, M12 Eurofast Quick Disconnect

B



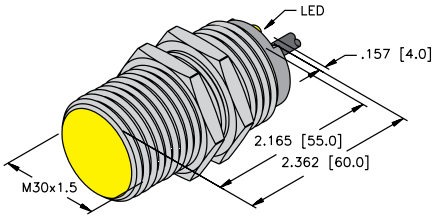
18 mm - Embeddable, M12 Eurofast Quick Disconnect

C



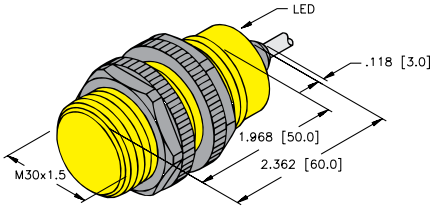
30 mm - Embeddable, M12 Eurofast Quick Disconnect

D



30 mm - Embeddable, Potted-In Cable

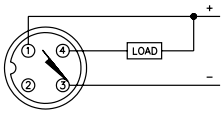
E



30 mm - Embeddable, Potted-In Cable, Partial Threading

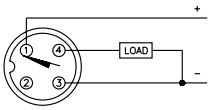
Wiring Diagrams/Mating Cordsets

1



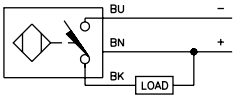
Mating Cordset: RKV 4T-*

2



Mating Cordset: RKV 4T-*

3



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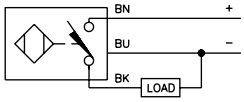


A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Selective Metal Sensors

Threaded Barrel Sensors Designed to Sense Nonferrous Metals Only

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi3NF-EM12HE-AP6X2-H1141 1615001	Senses nonferrous metals only	3	3-wire DC PNP	10-30 VDC	3000	≤200	0 to +60	IP67	SS	SF	GN	YE	- -	A	2	A4
Bi5NF-EM18HE-AN6X2-H1141 1615004	Senses nonferrous metals only	5	3-wire DC NPN	10-30 VDC	2500	≤200	0 to +60	IP67	SS	SF	GN	YE	- -	B	1	A4
Bi5NF-EM18HE-AP6X2-H1141 1615000	Senses nonferrous metals only	5	3-wire DC PNP	10-30 VDC	2500	≤200	0 to +60	IP67	SS	SF	GN	YE	- -	B	2	A4
Bi10NF-EM30HE-AN6X2-H1141 1615005	Senses nonferrous metals only	10	3-wire DC NPN	10-30 VDC	2000	≤200	0 to +60	IP67	SS	SF	GN	YE	- -	C	1	A4
Bi10NF-EM30HE-AP6X2-H1141 1615002	Senses nonferrous metals only	10	3-wire DC PNP	10-30 VDC	2000	≤200	0 to +60	IP67	SS	SF	GN	YE	- -	C	2	A4
Bi10NF-M30-AN6X 16161	Senses nonferrous metals only	10	3-wire DC NPN	10-30 VDC	500	≤200	0 to +60	IP67	CPB	PA 12	N/A	YE	2M/ PVC	D	3	A4
Bi10NF-M30-AP6X 16061	Senses nonferrous metals only	10	3-wire DC PNP	10-30 VDC	500	≤200	0 to +60	IP67	CPB	PA 12	N/A	YE	2M/ PVC	D	4	A4
Bi10NF-S30-AN6X 16215	Senses nonferrous metals only	10	3-wire DC NPN	10-30 VDC	2000	≤200	0 to +60	IP67	PA 12	PA 12	N/A	YE	2M/ PVC	E	3	A4
Bi10NF-S30-AP6X 16115	Senses nonferrous metals only	10	3-wire DC PNP	10-30 VDC	2000	≤200	0 to +60	IP67	PA 12	PA 12	N/A	YE	2M/ PVC	E	4	A4

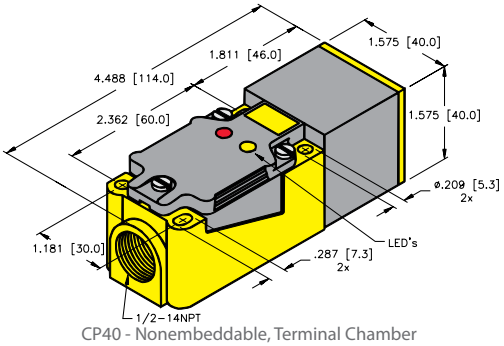
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Selective Metal Sensors

Rectangular and Barrel Sensors Designed to Sense Nonferrous or Ferrous Metals Only

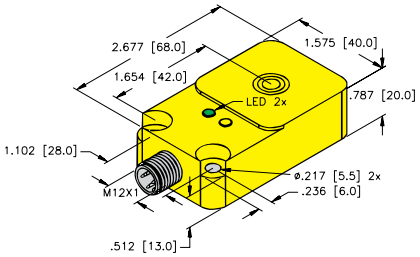
Housing Style	Dimension Drawings

A



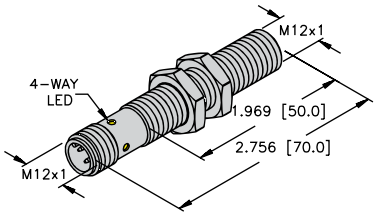
CP40 - Nonembeddable, Terminal Chamber

B



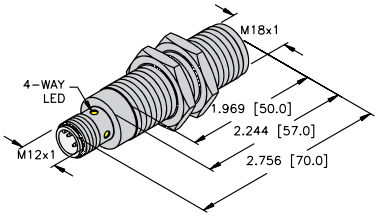
Q20 - Nomembeddable, M12 Eurofast Quick Disconnect

C



12 mm - Embeddable, M12 Eurofast Quick Disconnect

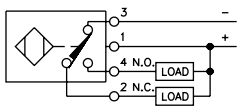
D



18 mm - Embeddable, M12 Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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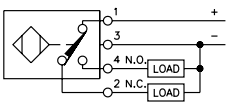

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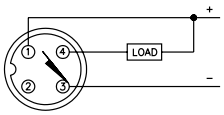
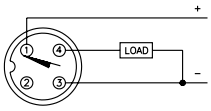


Mating Cordset: RK 4T-*

4



Mating Cordset: RK 4T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A28 — **3-wire DC Ferrous Only Sensing (AP)**

Ripple:	≤10%	Temperature Drift:	≤±10%
Differential Travel (Hysteresis):	3-15% (5% typical)	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤2.5 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
No-Load Current:	≤20 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤0.1 mA	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Selective Metal Sensors

Rectangular and Barrel Sensors Designed to Sense Nonferrous or Ferrous Metals Only

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
Ni20NF-CP40-VN4X2 15282	Senses nonferrous metals only	20	4-wire DC NPN	10-65 VDC	100	≤200	0 to +60	IP67	PBT	PBT	GN	YE	A	1	A4
Ni20NF-CP40-VP4X2 15082	Senses nonferrous metals only	20	4-wire DC PNP	10-65 VDC	100	≤200	0 to +60	IP67	PBT	PBT	GN	YE	A	2	A4
Ni25NF-Q20-AN6X2-H1141 1602710	Senses nonferrous metals only	25	3-wire DC NPN	10-30 VDC	25	≤200	0 to +60	IP67	PBT	PBT	GN	YE	B	3	A4
Bi2.5FE-EM12FE-AP6X-H1141 1615011	Senses ferrous metals only	2.5	3-wire DC PNP	10-30 VDC	1000	≤100	-25 to +70	IP67	SS	SS	N/A	YE	C	4	A28
Bi4.5FE-EM18FE-AP6X-H1141 1615012	Senses ferrous metals only	4.5	3-wire DC PNP	10-30 VDC	1000	≤100	-25 to +70	IP67	SS	SS	N/A	YE	D	4	A28

We reserve the right to make technical alterations without prior notice.

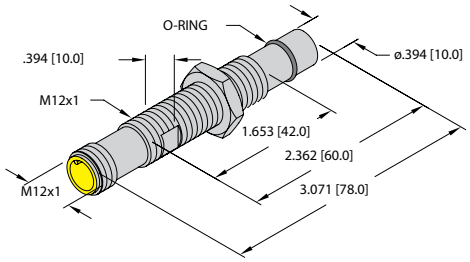
Specialty Sensors | High Pressure

Partially Threaded Metal Barrel Pressure Resistant Sensors

Housing Style

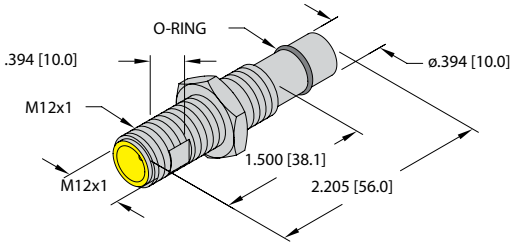
Dimension Drawings

A



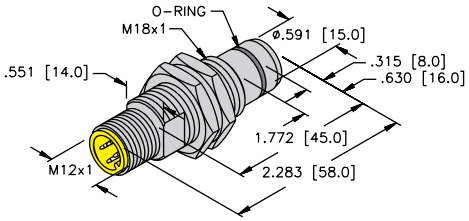
12 mm - Embeddable, M12 Eurofast Connection, Pressure Resistant Barrel Sensor

B



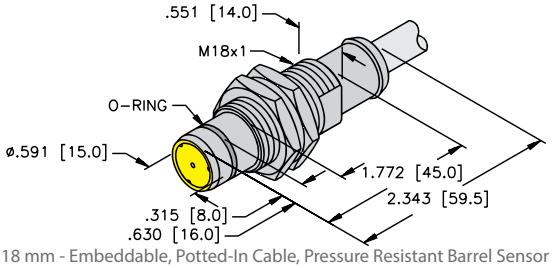
12 mm - Embeddable, M12 Eurofast Connection, Pressure Resistant Barrel Sensor

C



18 mm - Embeddable, M12 Eurofast Connection, Pressure Resistant Barrel Sensor

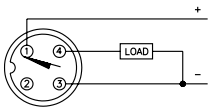
D



18 mm - Embeddable, Potted-In Cable, Pressure Resistant Barrel Sensor

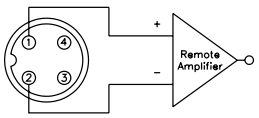
Wiring Diagrams/Mating Cordsets

1



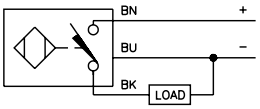
Mating Cordset: RKV 4T-*

2



Mating Cordset: RKV 4.21T-*

3



A1 — 2-wire DC NAMUR - (Y0 and Y1)

Differential Travel (Hysteresis):	1-10% (5% typical)
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-Activated Current Consumption:	≥2.1 mA
Activated Current Consumption:	≤1.2 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

A29 — 3-wire DC High Pressure (AP)

Ripple:	≤20%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤2 V, ≤1.8 V (Ext. Range)
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
No-Load Current:	≤10 mA, ≤15 mA (Ext. Range)
Off-State (Leakage) Current:	≤0.1 mA
Temperature Drift:	≤15%, ≤±10% (Ext. Range)
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | High Pressure

Partially Threaded Metal Barrel Pressure Resistant Sensors

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BID1.5-G120KK-AP6-H1141 1682001	500 bar	1.5	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +80	IP68	SS	CER	N/A	N/A	- -	A	1	A29
BID1.5-G120-AP6-H1141 1682000	500 bar	1.5	3-wire DC PNP	10-30 VDC	600	≤200	-25 to +80	IP68	SS	CER	N/A	N/A	- -	B	1	A29
BID2-G180-AP6-H1141/S212 16885	500 bar static/350 bar dynamic	2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +85	IP67	SS	PA 12	N/A	N/A	- -	C	1	A29
BID2-G180-Y0-H1141/S212 1088500	500 bar static/350 bar dynamic	2	2-wire Namur	5-30 VDC	2000	≤200	-25 to +70	IP67	SS	PA 12	N/A	N/A	- -	C	2	A1
BID2-G180-AP6/S212 1688003	500 bar static/350 bar dynamic	2	3-wire DC PNP	10-30 VDC	2000	≤200	-25 to +85	IP67	SS	PA 12	N/A	N/A	2M/TPU	D	3	A29

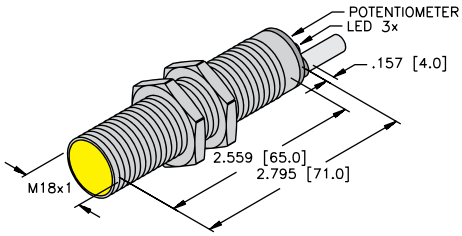
We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Rotational Speed Monitor

Threaded Metal Barrel for Target Detection on a Spinning Shaft

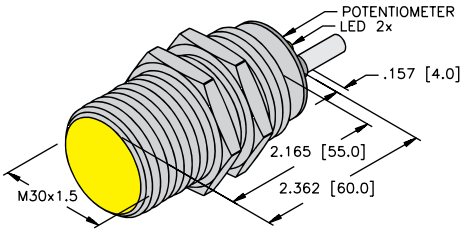
Housing Style	Dimension Drawings

A



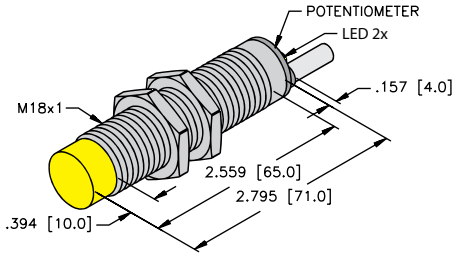
18 mm - Embeddable Rotational Speed Monitor, Potted-In Cable

B



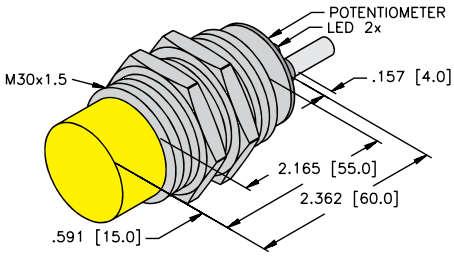
30 mm - Embeddable Rotational Speed Monitor, Potted-In Cable

C



18 mm - Nonembeddable Rotational Speed Monitor, Potted-In Cable

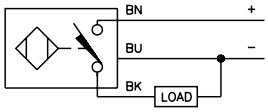
D



30 mm - Nonembeddable Rotational Speed Monitor, Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Specialty Sensors | Rotational Speed Monitor

Threaded Metal Barrel for Target Detection on a Spinning Shaft

Part Number/ ID Number	Features	Sensing Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Face	End Cap	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
DBi5U-M18E-AP4X3 1582236	Rotational Speed Monitor	5	3-wire DC PNP	10-65 VDC	0.05-50	≤200	-30 to +85	IP67	CPB	PBT	EPTR	GN	YE/BU	2M/PVC	A	1	A4
DBi10U-M30-AP4X2 1582231	Rotational Speed Monitor	10	3-wire DC PNP	10-65 VDC	0.05-50	≤200	-30 to +85	IP67	CPB	PBT	EPTR	GN	YE/BU	2M/PVC	B	1	A4
DNI12U-M18E-AP4X3 1582235	Rotational Speed Monitor	12	3-wire DC PNP	10-65 VDC	0.05-50	≤200	-30 to +85	IP67	CPB	PBT	EPTR	GN	YE/BU	2M/PVC	C	1	A4
DNI20U-M30-AP4X3 1582233	Rotational Speed Monitor	20	3-wire DC PNP	10-65 VDC	0.05-50	≤200	-30 to +85	IP67	CPB	PBT	EPTR	GN	YE/BU	2M/PVC	D	1	A4

We reserve the right to make technical alterations without prior notice.

Notes

Notes

Analog Sensors Selection Guide

Embeddable/Nonembeddable Rectangular			
Housing	**8 mm**	**14 mm**	**20 mm**
Sensing Range	**7 mm**	**10 mm**	**15 mm**
Pages	**D5**	**D5**	**D5**

Embeddable/Nonembeddable Rectangular			
Housing	**40 mm**	**40 mm**	**80 mm**
Sensing Range	**15 - 25 mm**	**15 - 25 mm**	**50 mm**
Pages	**D7**	**D7**	**D7**

Embeddable/Nonembeddable Barrels				
Housing	**4 mm**	**5 mm**	**6.5 mm**	**8 mm**
Sensing Range	**1.5 mm**	**1.5 mm**	**1.5 mm**	**1.5 mm**
Pages	**D9**	**D9**	**D9**	**D9**

We reserve the right to make technical alterations without prior notice.

Analog Sensors Selection Guide

Embeddable/Nonembeddable Barrels			
Housing	**12 mm**	**12 mm**	**18 mm**
Sensing Range	**2 - 5 mm**	**2 - 5 mm**	**5 - 10 mm**
Pages	**D11**	**D11**	**D11**

Embeddable/Nonembeddable Barrels			
Housing	**18 mm**	**30 mm**	**30 mm**
Sensing Range	**5 - 10 mm**	**10 - 15 mm**	**10 -15 mm**
Pages	**D13**	**D13**	**D13**

Rings and Probe Style			
Housing	**14 mm**	**80 mm**	**18 mm**
Sensing Range	**20 mm**	**50 mm**	**40 - 70 mm**
Pages	**D15**	**D15**	**D15**

We reserve the right to make technical alterations without prior notice.

Analog Sensor Part Number Key

B	I	15		-		M	30		-	LIU			Wiring Option*

Mounting
B = embeddable
N = nonembeddable
W = position

Principle of Operation
I = inductive
IM = inductive magnet operated

Rated Operating Distance (mm)

Sensing Characteristics
R = ring sensor

Housing Material Modifier
E = stainless steel

Housing Style

Barrel - Metal
G = full threading, generally chrome plated brass
M = partial threading, chrome plated brass

Rectangular
Q = metal or plastic, various rectangular styles

Limit Switch
CK = Stubby®, short plastic, various rectangular styles
CP = Combiprox®, plastic housing, terminal chamber base with removable sensor

Ring
Q = small rectangular plastic housing, static output

Housing Diameter or Height (mm)

Secondary Barrel Modifier
E = extended barrel length

Output
LF = frequency output
LI(LU) = linear analog output current (LI, 15-30 VDC) or voltage (LU, 15-30 VDC)
LIU = linear analog output (current and voltage, 15-30 VDC)
SIU = analog output (non-linear)

Modifier

Number of LEDs
(blank) = no LEDs
X = 1 LED

NOTE:
Part number keys are to assist in identification only.
Verify new part numbers with factory; some configurations are not possible.

*See below for Wiring Options

We reserve the right to make technical alterations without prior notice.

Wiring Options*

A. Connectorized Sensor

BI15 - M30 - LIU -	H1	1	4	1

Connector Family
H1 = Eurofast®, M12x1, metal or plastic, male
V1 = Picofast®, snap and M8x1, metal, male (Q08 snap only)

Connector/Sensor Transition
1 = straight

Number of Pins

Factory Code
Example:
1 = standard wiring

B. Potted Cable

Bi 5 - M18 - LIU -	7M

Cable Length
Blank = 2 Meter cable
7M = 7 Meter cable

Analog Sensors

Common Applications for Linear Analog Sensors

Position Feeding Over an Angled Target

- Actuation over an angled surface
- Provide a 4-20 mA and/or 0-10 V output based upon target position

Eccentricity Sensing or Absolute Angle Positioning

- Sense pieces of different shapes and sizes (of ferritic or nonferritic materials)
- Provide analog feedback on rotary cam position applications

Direct Actuation

- The highest accuracy is achieved if the sensor is directly actuated by the target. In order to utilize the full measuring range, it is important to work with an appropriately sized target. This may also be a moving part of the machine.

Part Deflection

- Tensile stress control applications
- Measure the deflection of a metal target by using a guide mechanism and an analog sensor.

Probe Style Analog+ Proximity Sensor

- These sensors can be used to detect the depth of a blind hole or be used with a ring attached to a control arm that moves the ring over the probe

Identification and Sorting of Small Parts

- When screws, rivets, or other small objects fall through a ring style sensor, each part generates a characteristic output signal which can be easily identified

Position Control

- Position control can be easily accomplished by means of a cone shaped target. Measuring ranges can be adapted to specific sensing needs by using targets with an appropriate conical shape. These sensors enable precise and simple position detection, even if the targets feature a slight offset.

Thickness Measurement

- Detection and measurement of tools (drill bits, taps, etc.) can be accomplished to ensure proper size

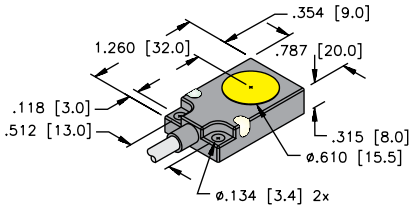
We reserve the right to make technical alterations without prior notice.

Analog Sensors | Q08, Q14, & Q20

Top Sensing Qpak Housing

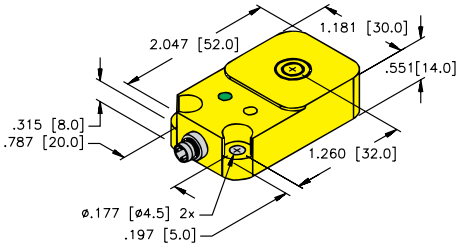
Housing Style	Dimension Drawings

A



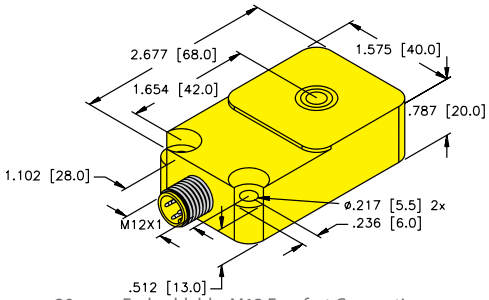
8 mm - Embeddable, Potted-In Cable

B



14 mm - Embeddable, M8 Picofast Connection

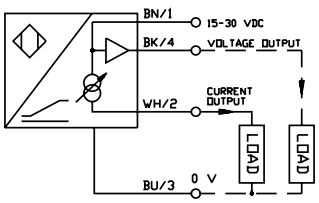
C



20 mm - Embeddable, M12 Eurofast Connection

Wiring Diagrams/Mating Cordsets

1



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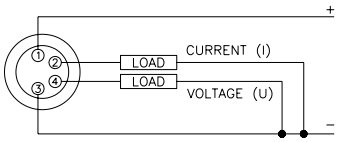
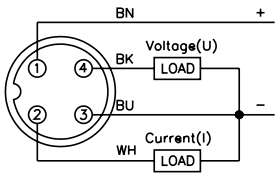


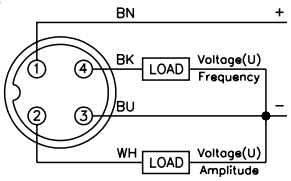
Mating Cordset: PKG 4M-*

3



Mating Cordset: RK 4.4T-*

4



Mating Cordset: RK 4.4T

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A8 — 3 and 4-wire DC Analog - (LU)

Ripple:	≤10%	Short-Circuit Protection:	Yes
No-Load Current:	≤8.0 mA	Wire-Break Protection:	Yes
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Shock:	30 g, 11 ms
Temperature Drift:	±0.06% / °C	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Reverse Polarity Protection:	Incorporated	Repeatability:	≤1% of measuring range |A-B|
Transient Protection:	Per EN 60947-5-2		(0.5% after 30 min. warm up)

We reserve the right to make technical alterations without prior notice.

Analog Sensors | Q08, Q14, & Q20

Top Sensing Qpak Housing

Part Number/ ID Number	Features	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi7-Q08-LIU 1534605		1-4	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	Zinc	PA 12	2M/ TPU	A	1	A7
Bi10-Q14-LIU-V1141 1534603		3-8	140	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	PBT	PBT	- -	B	2	A7
Bi15-Q20-LIU-H1141 1534601		4-11	110	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.2, 4.4	PBT	PBT	- -	C	3	A7
Bi15-Q20-2LU-H1141/S950 1534611	All Metal Detection	N/A	110	N/A	4-wire DC Voltage	15-30 VDC	0-10 VDC Amplitude, 0-10 VDC Phase	-25 to +70	IP67	2.2	PBT	PBT	- -	C	4	A8

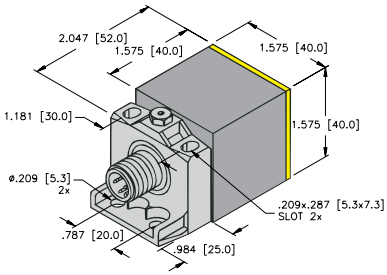
We reserve the right to make technical alterations without prior notice.

Analog Sensors | CK40, CP40, & Q80

Rectangular Housings with Long Range

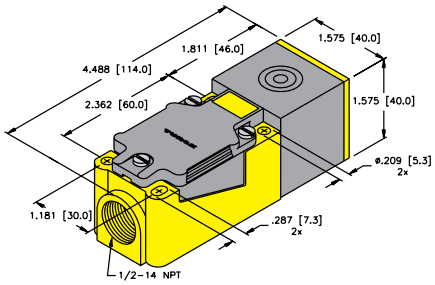
Housing Style	Dimension Drawings

A



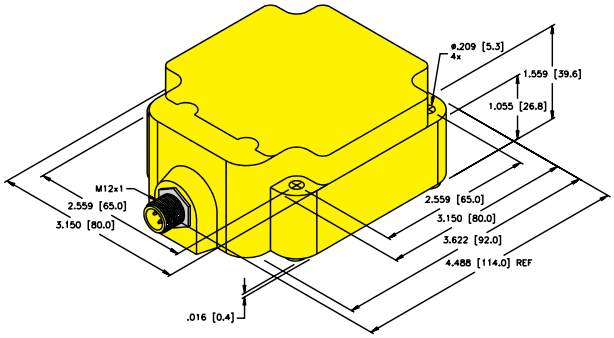
40 mm - Embeddable and Non-embeddable, M12 Eurofast Connection

B



40 mm - Embeddable and Nonembeddable, Terminal Chamber

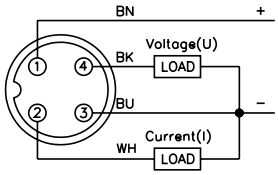
C



80 mm - Nonembeddable, M12 Eurofast Connector

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

We reserve the right to make technical alterations without prior notice.

Analog Sensors | CK40, CP40, & Q80

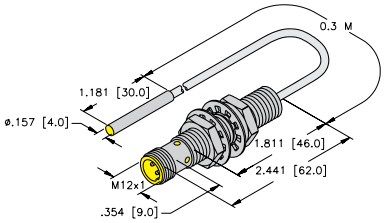
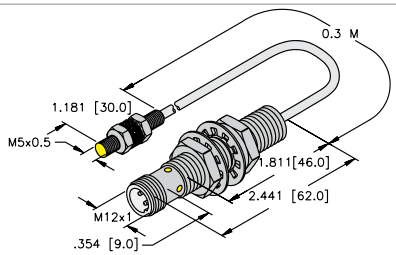
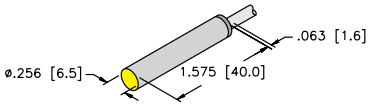
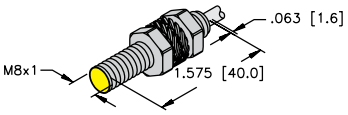
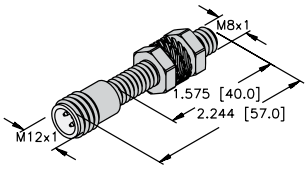
Rectangular Housings with Long Range

Part Number/ ID Number	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Dimension Drawings	Wiring Diagrams	Spec List
Bi15-CK40-LIU-H1141 1537890	4-11	110	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.2, 4.4	PBT	PBT	A	1	A7
Ni25-CK40-LIU-H1141 1537891	5-25	30	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	0.6, 1.2	PBT	PBT	A	1	A7
Ni25-CK40-LIU2-H1141 1537892	5-25	30	0.05	4-wire DC Current or Voltage	15-30 VDC	2-10 V/4-20 mA	-10 to +70	IP67	0.6, 0.96	PBT	PBT	A	1	A7
Bi15-CP40-LIU 1535700	4-11	110	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.2, 4.4	PBT	PBT	B	1	A7
Ni25-CP40-LIU 1535547	5-25	30	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	0.6, 1.2	PBT	PBT	B	1	A7
Ni50-Q80-LIU-H1141 1535545	10-50	30	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	0.6, 1.2	PBT	PBT	C	1	A7

We reserve the right to make technical alterations without prior notice.

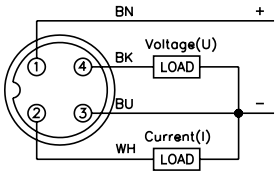
Analog Sensors | EH04, EG05, EH6.5, & EG08

Picoprox Barrel Styles

Housing Style	Dimension Drawings
	A  4 mm - Embeddable M12 Eurofast Connection
B  5 mm - Embeddable M12 Eurofast Connection	C  6.5 mm - Embeddable, Potted-In Cable
D  8 mm - Embeddable, Potted-In Cable	E  8 mm - Embeddable, M12 Eurofast Connection

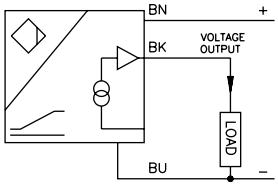
Wiring Diagrams/Mating Cordsets

1

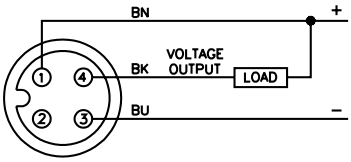


Mating Cordset: RK 4.4T-*

2



3



Mating Cordset: RK 4T-*

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A8 — 3 and 4-wire DC Analog - (LU)

Ripple:	≤10%	Short-Circuit Protection:	Yes
No-Load Current:	≤8.0 mA	Wire-Break Protection:	Yes
Load Resistance Voltage Output:	0-10 V/R_L≥4.7 kΩ	Shock:	30 g, 11 ms
Temperature Drift:	±0.06% / °C	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Reverse Polarity Protection:	Incorporated	Repeatability:	≤1% of measuring range |A-B|
Transient Protection:	Per EN 60947-5-2		(0.5% after 30 min. warm up)

We reserve the right to make technical alterations without prior notice.

Analog Sensors | EH04, EG05, EH6.5, & EG08

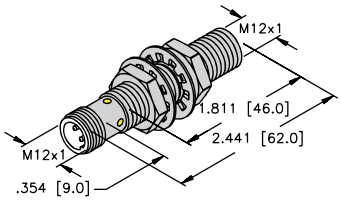
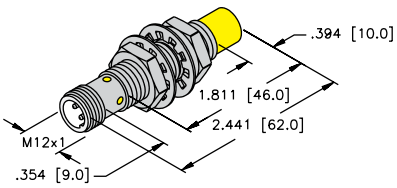
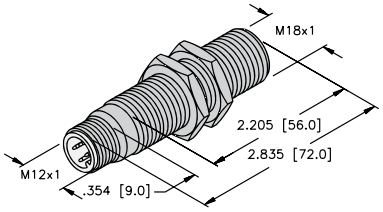
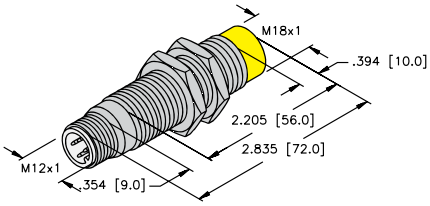
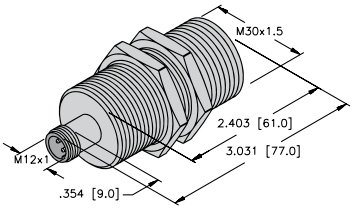
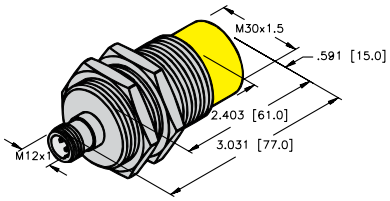
Picoprox Barrel Styles

Part Number/ ID Number	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Dimension Drawings	Wiring Diagrams	Spec List
Bi1.5-EH04-0.3-M12-SIU-H1141 1533001	0.1-1.5	200	N/A	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	SS	PA 12	A	1	A7
Bi1.5-EG05-0.3-M12-SIU-H1141 1533005	0.1-1.5	200	N/A	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	SS	PA 12	B	1	A7
Bi1.5-EH6.5-LU 1533002	0.25-1.25	200	0.03	3-wire DC Voltage	15-30 VDC	0-10 V	-10 to +70	IP67	4, N/A	SS	PA 12	C	2	A8
Bi1.5-EG08-LU 1533003	0.25-1.25	200	0.03	3-wire DC Voltage	15-30 VDC	0-10 V	-10 to +70	IP67	4, N/A	SS	PA 12	D	2	A8
Bi1.5-EG08-LU-H1341 1533004	0.25-1.25	200	0.03	3-wire DC Voltage	15-30 VDC	0-10 V	-10 to +70	IP67	4, N/A	SS	PA 12	E	3	A8

We reserve the right to make technical alterations without prior notice.

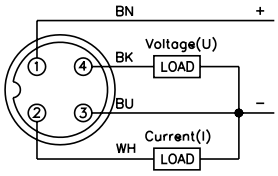
Analog Sensors | M12, M18, & M30

Threaded Barrel Styles with Connector

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable M12 Eurofast Connection	B  12 mm - Nonembeddable M12 Eurofast Connection
C  18 mm - Embeddable M12 Eurofast Connection	D  18 mm - Nonembeddable M12 Eurofast Connection	E  30 mm - Embeddable, M12 Eurofast Connection
F  30 mm - Nonembeddable, M12 Eurofast Connection		

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B| (0.5% after 30 min. warm up)
Temperature Drift:	±0.06% / °C		
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

We reserve the right to make technical alterations without prior notice.

Analog Sensors | M12, M18, & M30

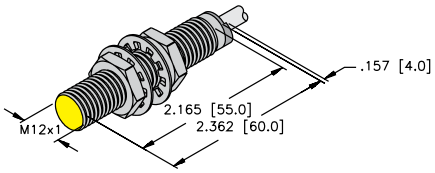
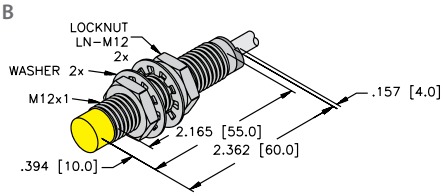
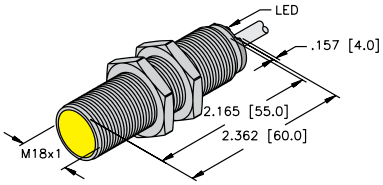
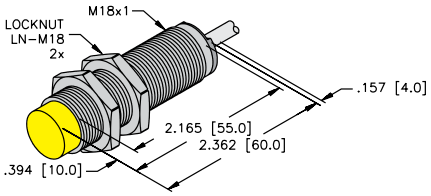
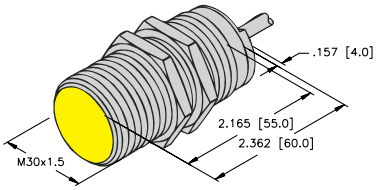
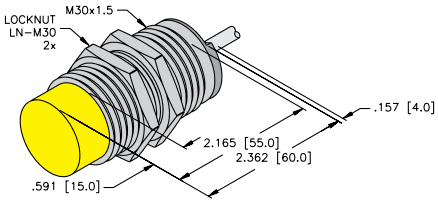
Threaded Barrel Styles with Connector

Part Number/ ID Number	Features	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-M12-LIU-H1141 1535533		1-2.5	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	A	1	A7
Bi4-M12-LIU-H1141 1535531	Ext. Range	0.5-3	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	A	1	A7
Ni5-M12-LIU-H1141 1535535		0.5-4	100	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	B	1	A7
Bi5-M18E-LIU-H1141 1536205		2-4	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	C	1	A7
Bi8-M18E-LIU-H1141 1535561	Ext. Range	1-5	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	C	1	A7
Ni8-M18E-LIU-H1141 1536302		1-5	100	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	D	1	A7
Ni10-M18E-LIU-H1141 1535562	Ext. Range	1-7	100	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	D	1	A7
Bi10-M30E-LIU-H1141 1537003		3-8	140	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	CPB	PA 12	E	1	A7
Bi15-M30E-LIU-H1141 1535563	Ext. Range	2-10	140	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	CPB	PA 12	E	1	A7
Ni15-M30E-LIU-H1141 1535564		2-12	60	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	1.2, 2.4	CPB	PA 12	F	1	A7

We reserve the right to make technical alterations without prior notice.

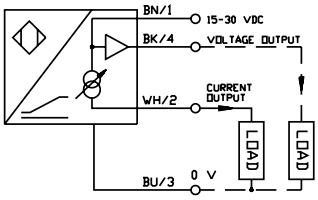
Analog Sensors | M12, M18, & M30

Threaded Barrel Styles with Cable

Housing Style	Dimension Drawings	
	A  12 mm - Embeddable, Potted-In Cable	B  12 mm - Nonembeddable, Potted-In Cable
C  18 mm - Embeddable, Potted-In Cable	D  18 mm - Nonembeddable, Potted-In Cable	E  30 mm - Embeddable, Potted-In Cable
F  30 mm - Nonembeddable, Potted-In Cable		

Wiring Diagrams/Mating Cordsets

1



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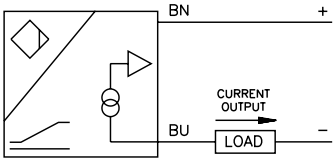


A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B| (0.5% after 30 min. warm up)
Temperature Drift:	±0.06% / °C		
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A9 — 2-wire DC Analog NAMUR - (LI-EXI)

Ripple:	≤10%	Temperature Drift:	≤±0.06% °C
Current Output:	4-20 mA	Shock:	30 g, 11 ms
Nominal Voltage:	8.2 VDC (EN60947-5-6)	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Power-On Effect:	Realized in Amplifier	Repeatability:	≤1% of measuring range |A-B| (0.5% after 30 min. warm up)
Reverse Polarity Protection:	Incorporated		
Wire-Break Protection:	No		
Transient Protection:	Realized in Amplifier		

We reserve the right to make technical alterations without prior notice.

Analog Sensors | M12, M18, & M30

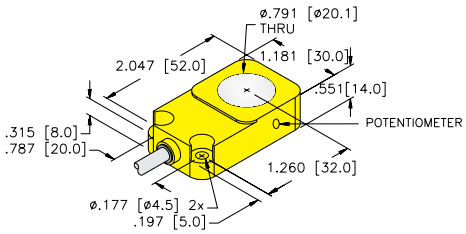
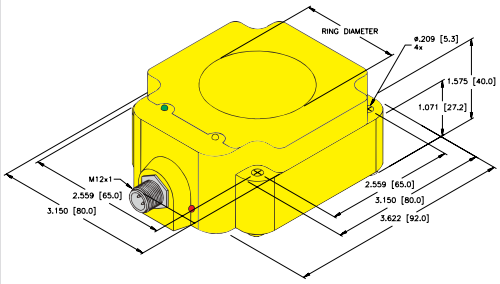
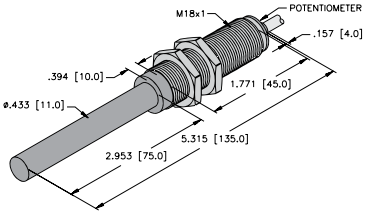
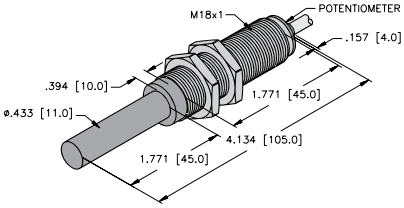
Threaded Barrel Styles with Cable

Part Number/ ID Number	Features	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi4-M12-LIU 1535532	Ext. Range	0.5-3	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	2M/ PVC	A	1	A7
Ni5-M12-LIU 1535536		0.5-4	100	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	2M/ PVC	B	1	A7
Bi5-M18-LIU 1536000		2-4	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	2M/ PVC	C	1	A7
Bi8-M18-LIU 1535538	Ext. Range	1-5	200	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	4, 8	CPB	PA 12	2M/ PVC	C	1	A7
Bi8-M18-LI-EXI 1535528	Ext. Range, Use Barriers IM33-11EX-HI or IM43-13-SR	1-5	200	0.05	2-wire DC Current	14-30 VDC	4-20 mA	-10 to +70	IP67	N/A, 8	CPB	PA 12	2M/ PVC	C	2	A9
Ni8-M18-LIU 1536100	Ext. Range	1-5	100	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	2M/ PVC	D	1	A7
Ni10-M18-LIU 1535540	Ext. Range	1-7	100	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2, 4	CPB	PA 12	2M/ PVC	D	1	A7
Bi10-M30-LIU 1535500		3-8	140	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	CPB	PA 12	2M/ PVC	E	1	A7
Bi15-M30-LIU 1535543	Ext. Range	2-10	140	0.05	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	2.8, 5.6	CPB	PA 12	2M/ PVC	E	1	A7
Bi15-M30-LI-EXI 1535554	Ext. Range, Use Barriers IM33-11EX-HI or IM43-13-SR	2-10	140	0.05	2-wire DC Current	14-30 VDC	4-20 mA	-10 to +70	IP67	N/A, 4.48	CPB	PA 12	2M/ PVC	E	2	A9
Ni15-M30-LIU 1535300	Ext. Range	2-12	60	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/0-20 mA	-10 to +70	IP67	1.2, 2.4	CPB	PA 12	2M/ PVC	F	1	A7

We reserve the right to make technical alterations without prior notice.

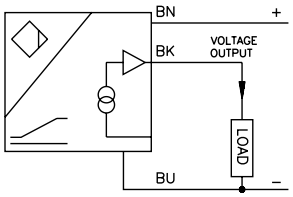
Analog Sensors | Q14, Q80, & M18

Probe and Ring Style Housings

Housing Style	Dimension Drawings	
	A  14 mm - Embeddable, Ring Sensor, Potted-In Cable	B  80 mm - Embeddable, M12 Eurofast Connection
C  18 mm - Embeddable, Probe Style, Potted-In Cable	D  18 mm - Embeddable, Probe Style, Potted-In Cable	

Wiring Diagrams/Mating Cordsets

1



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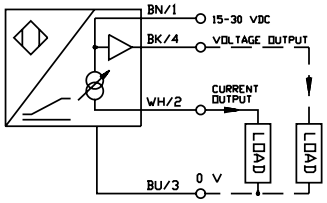

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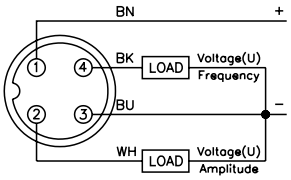


Mating Cordset: RK 4.4T

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A8 — 3 and 4-wire DC Analog - (LU)

Ripple:	≤10%	Short-Circuit Protection:	Yes
No-Load Current:	≤8.0 mA	Wire-Break Protection:	Yes
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Shock:	30 g, 11 ms
Temperature Drift:	±0.06% / °C	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Reverse Polarity Protection:	Incorporated	Repeatability:	≤1% of measuring range |A-B|
Transient Protection:	Per EN 60947-5-2		(0.5% after 30 min. warm up)

We reserve the right to make technical alterations without prior notice.

Analog Sensors | Q14, Q80, & M18

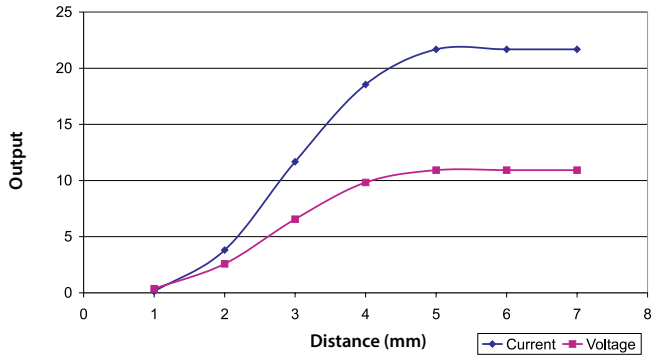
Probe and Ring Style Housings

Part Number/ ID Number	Features	Measuring Range (mm)	Response Freq. (Hz)	Linearity Deviation (% of full scale)	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Slew Rate V/ms, mA/ms	Housing	Face	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Bi20R-Q14-LU 1535546		1-19	80	N/A	3-wire DC Voltage	15-30 VDC	0-10 V	-25 to +70	IP67	2.8, N/A	PBT	PBT	2M/ PVC	A	1	A8
Bi50R-Q80-2LU-H1141/S950 1534609	All Metal Detection	N/A	80	N/A	4-wire DC Voltage	15-30 VDC	0-10 VDC Ampli-tude, 1-10 VDC Phase	-25 to +70	IP67	1.6	PBT	PBT	- -	B	3	A8
Wi70-M18-LIU5 1536600		0-70	200	0.03	4-wire DC Current or Voltage	15-30 VDC	0-10 V/4-20 mA	-10 to +70	IP67	4, 6.4	CPB	PA 12	2M/ PVC	C	2	A7
Wi40-M18-LIU5 1536603		0-40	40	0.02	4-wire DC Current or Voltage	15-30 VDC	0-10 V/4-20 mA	-10 to +70	IP67	0.8, 1.2	CPB	PA 12	2M/ PVC	D	2	A7

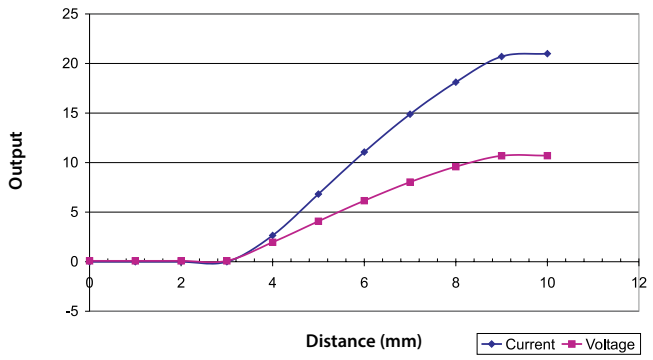
We reserve the right to make technical alterations without prior notice.

Analog Sensors

Bi7-Q08-LIU



Bi10-Q14-LIU-H1141



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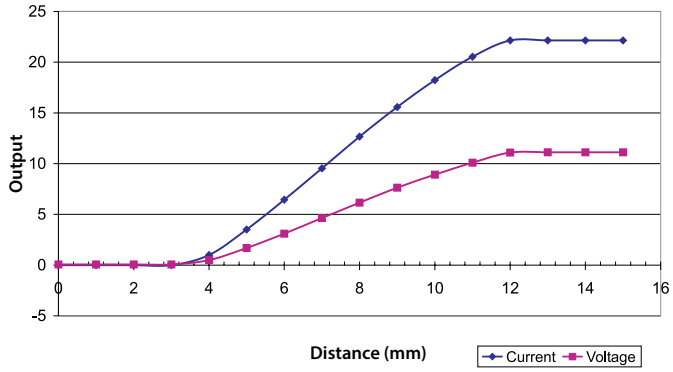
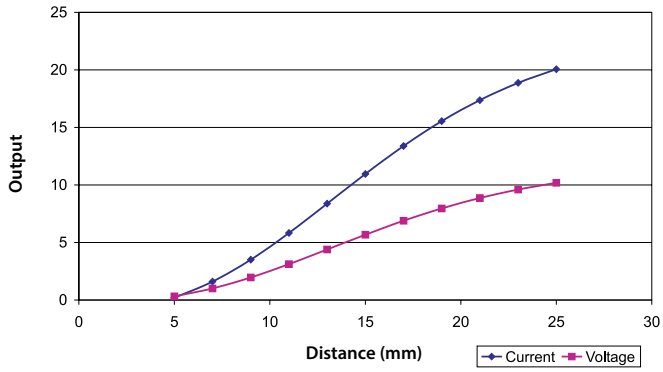
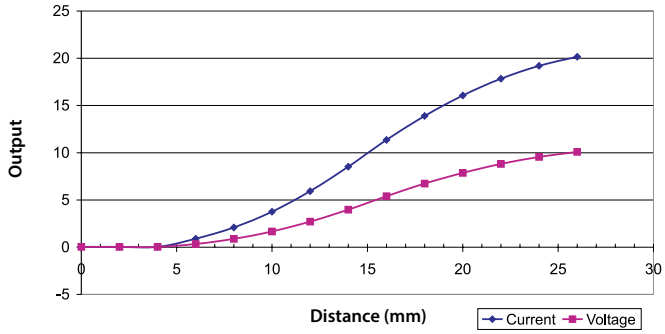


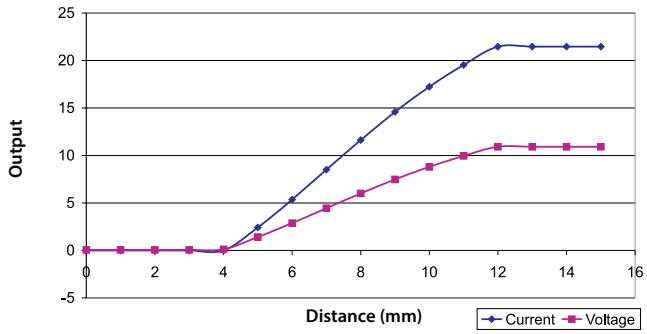
Ni25-CP40-LIU



Ni25-CK40-LIU-H1141



Bi15-CP40-LIU



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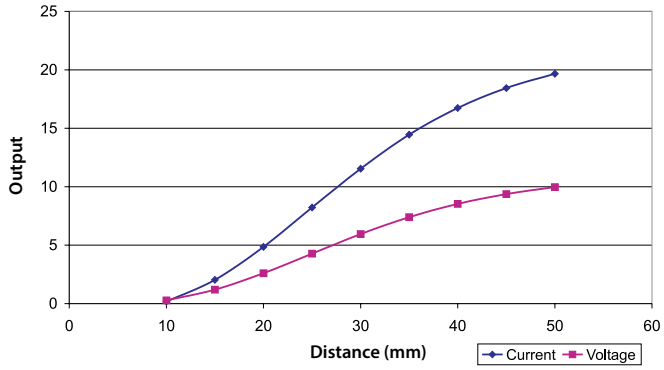
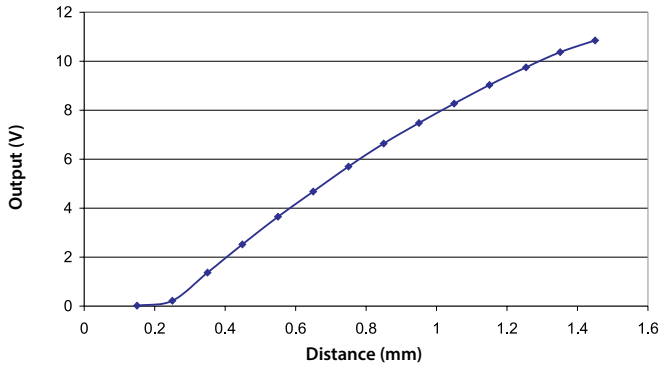


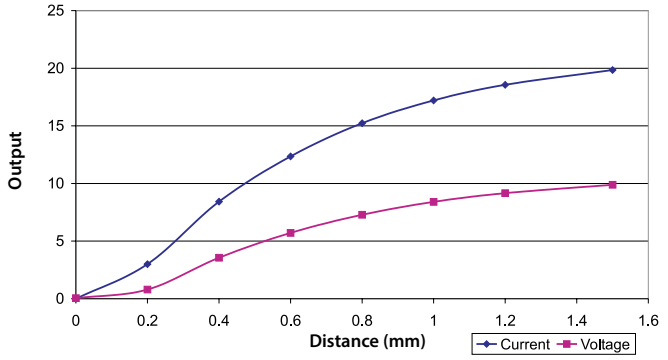
Bi1.5-EG08(EH6.5)-LU



We reserve the right to make technical alterations without prior notice.

Analog Sensors

Bi1.5-EH04-0.3-M12-SIU-H1141



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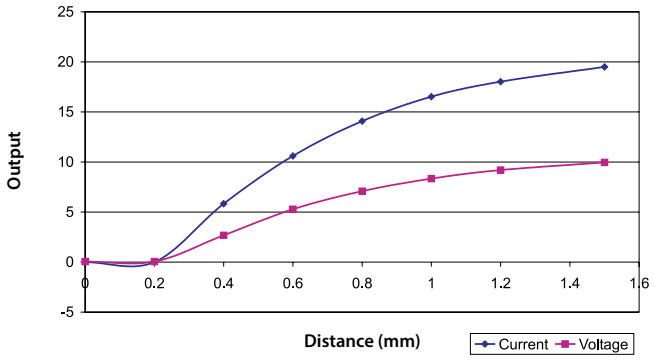
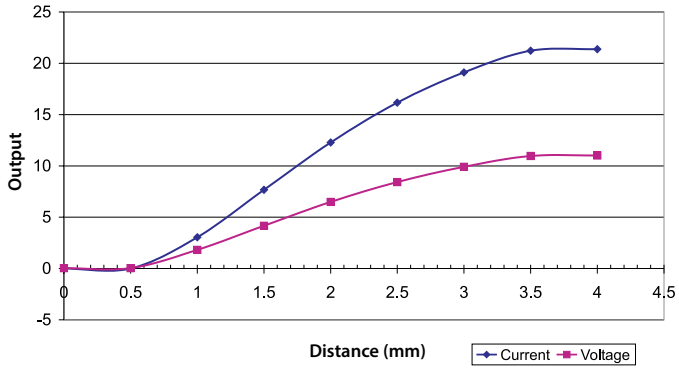


Bi4-M12-LIU...



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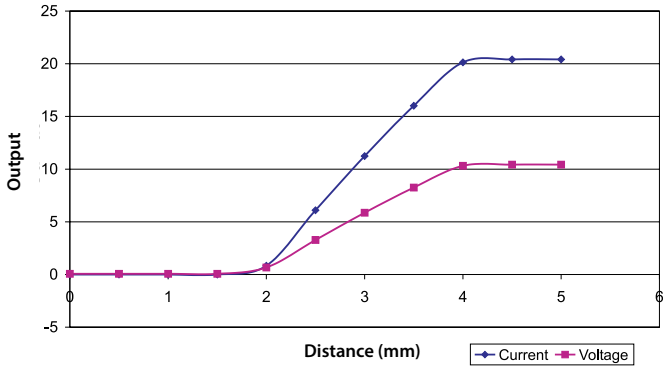

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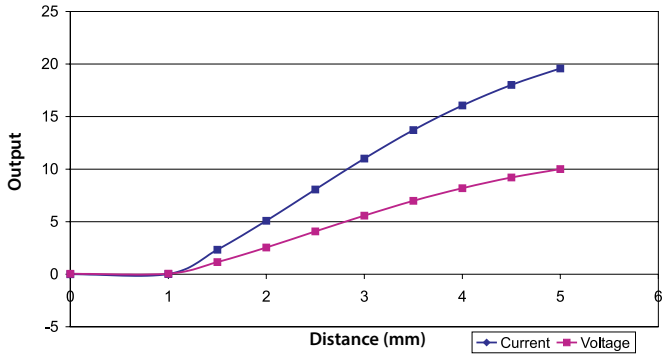

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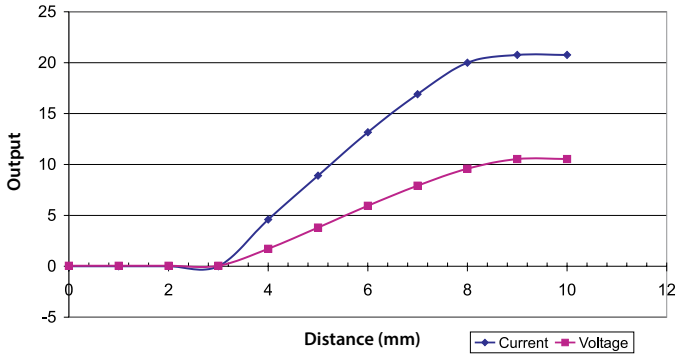

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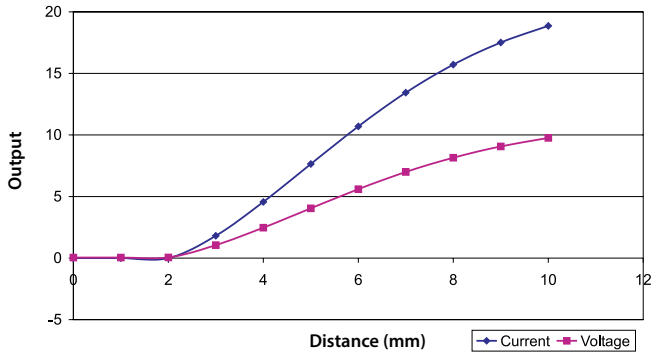

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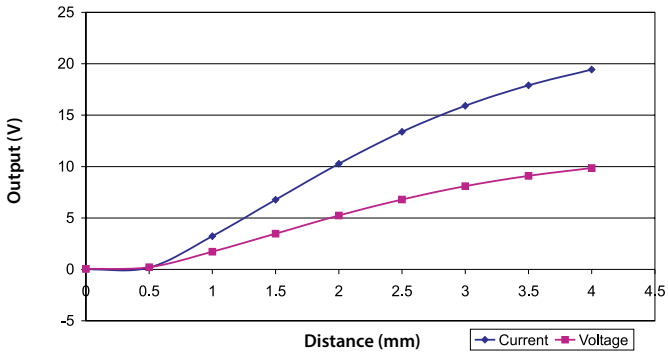
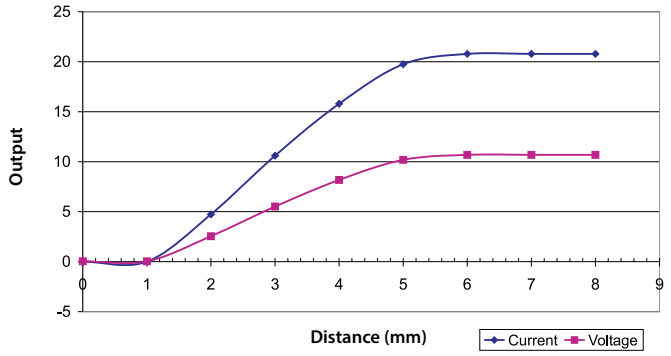
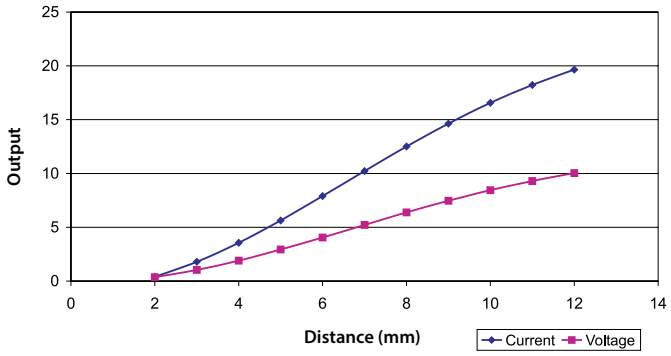


We reserve the right to make technical alterations without prior notice.

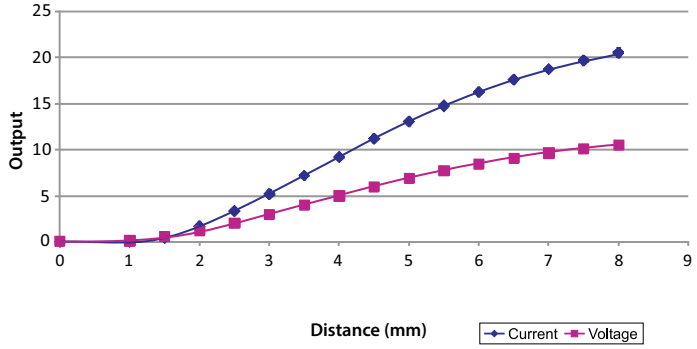
Ni8-M18-LIU...



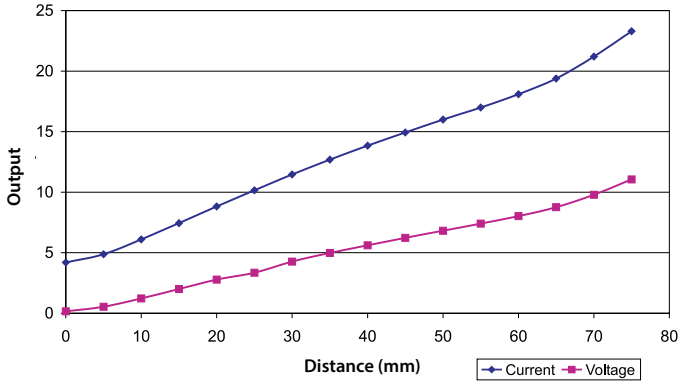
Ni15-M30-LIU...



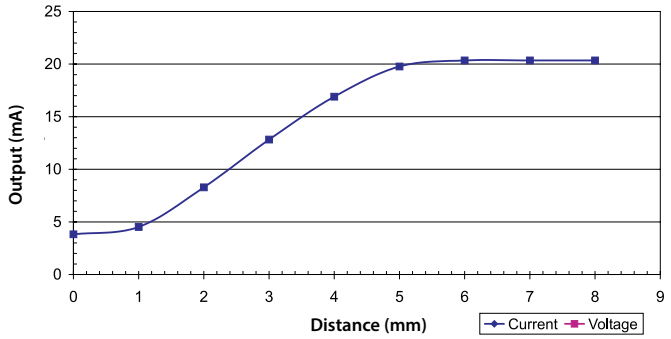
Ni10-M18-LIU...



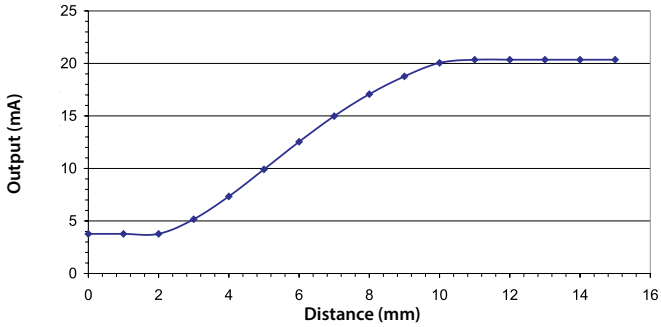
Wi70-M18-LIU5



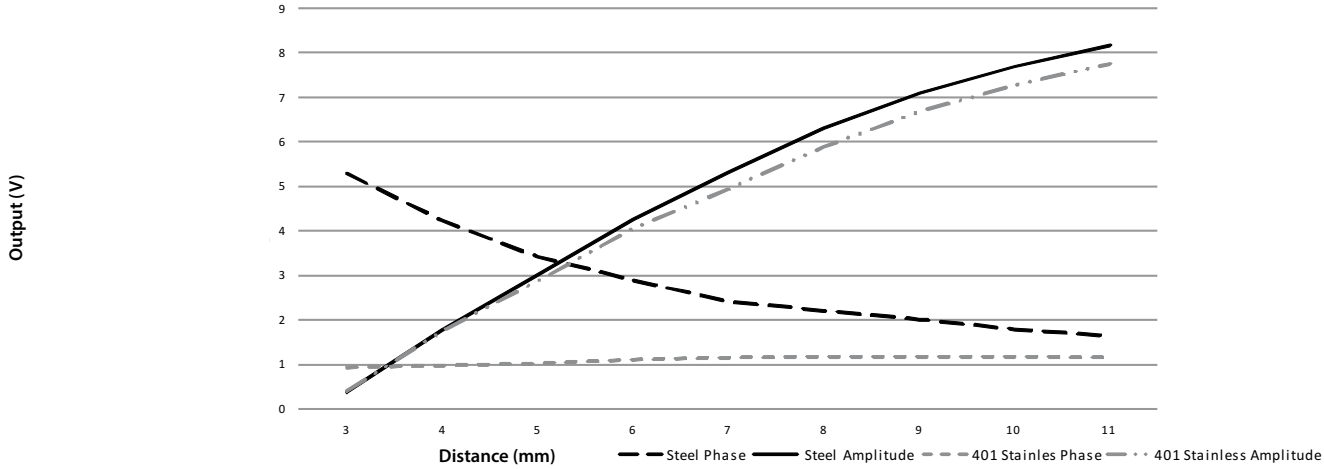
Bi 8-M18-Li Exi



Bi15-M30-LI-Exi



Bi15-Q20-2LU-H1141/S950



We reserve the right to make technical alterations without prior notice.

Notes

Capacitive Sensor Selection Guide

Embeddable/Nonembeddable Rectangular					
Housing	5.5 mm	8 mm	10 mm	14 mm	20 mm
Sensing Range	5 - 10 mm	5 mm	8 mm	10 - 15 mm	10 - 20 mm
Pages	E3	E5	E5	E7	E9

Embeddable/Nonembeddable Rectangular and Barrels					
Housing	40 mm	80 mm	12 mm	12 mm	18 mm
Sensing Range	20 - 30 mm	50 mm	3 mm	3 - 4.5 mm	5 mm
Pages	E11	E11	E13	E13	E15

Embeddable/Nonembeddable Barrels					
Housing	18 mm	18 mm BCT	30 mm BCT	30 mm	30 mm
Sensing Range	5 - 7.5 mm	5 - 7.5 mm	10 - 15 mm	10 mm	10 - 15 mm
Pages	E17	E19	E19	E21 - 24	E25 - 28

Embeddable/Nonembeddable Plastic Barrels			
			IS
Housing	34 mm	40 mm	Variable
Sensing Range	15 - 23 mm	20 - 30 mm	5 - 10 mm
Pages	E29 - 34	E29 - 32	E35

We reserve the right to make technical alterations without prior notice.

Capacitive Sensor Part Number Key

B	C	10	-	K	40	SR	-	F	Z	3	X2	T	Wiring Options*	Special Option Codes**

Mounting
B = embeddable
N = nonembeddable

Principle of Operation
C = capacitive
CC = capacitive (low dielectric targets)
CF = capacitive (noise immune)
CT = capacitive teach

Rated Operating Distance (mm)

Housing Style
Barrel - Metal
M = partial threading, chrome plated brass
Barrel - Plastic
K = smooth
KT = PVDF, smooth
P = full threading
PT = PVDF, full threading
S = partial threading
Rectangular
Q = metal or plastic, various rectangular styles
QF = plastic, Polypropylene rectangular style

Housing Diameter or Height (mm)

Teach Button

Number of LEDs
(blank) = no LEDs
X = 1 LED
X2 = 2 LEDs

Voltage Range
AC/DC: (No SCP)**
3 = 20-250 VAC
DC:
4 = 10-65 VAC, polarity protected, pulsed SCP**
6 = 10-30 VAC, polarity protected, pulsed SCP
DC:
4 = 10-65 VDC, polarity protected, pulsed SCP**
6 = 10-30 VDC, polarity protected, pulsed SCP
**SCP = short-circuit and overload protection

Output
N = NPN transistor (current sinking)
P = PNP transistor (current sourcing)
Z = 2-wire AC or 2-wire AC/DC

Output Function
A = normally open (N.O.)
F = connection programmable (N.O. or N.C.)
R = normally closed (N.C.)
V = complementary outputs: one N.O., one N.C.
Y0 = NAMUR output, requires switching amplifier
Y1 = NAMUR output, requires switching amplifier/ATEX approved

Secondary Housing Modifier
SR = straight terminal chamber

NOTE:
Part Number Keys are to assist in identification only.
Verify new part numbers with factory;
Some configurations are not possible.

We reserve the right to make technical alterations without prior notice.

Wiring Options*

A. Connectorized Sensor

BC10 - M30 - AP4X - H1 1 4 1

Connector Family
B1 = Minifast®, Metal, Male
B2 = Minifast, Plastic, Male
B3 = Microfast®, Metal, Male
H1 = Eurofast®, Metal or Plastic, Male
V1 = Picofast®, Metal, Male

Connector/Sensor Transition
1 = straight

Number of Pins

Wiring Configuration
Example:
1 = Standard
3 = N.C. DC Output on Pin 4 (for US)

B. Potted Cable

BC5 - S18 - AP4X - 7M

Cable Length
Blank = 2 Meter cable
7M = 7 Meter cable

Special Option Codes**

BC10 - Q14 - AN4X - /S250

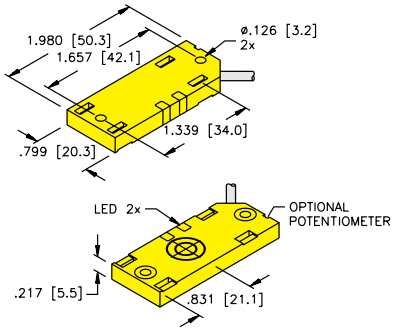
Option Code
Example:
/S250 = No Potentiometer
/S400 = Rear LEDs (for Q14 and Q20 only)

Capacitive Sensors | QF5.5

Top Sensing Thin Qpak Housing with DC Outputs

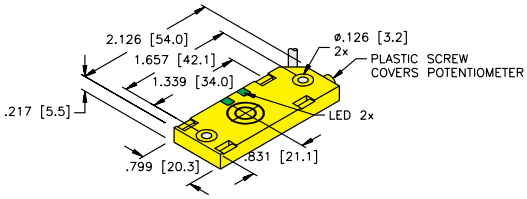
Housing Style	Dimension Drawings

A



5.5 mm - Potted-In Cable

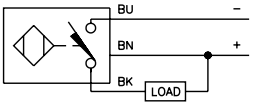
B



5.5 mm - Potted-In Cable, w/Potentiometer Cover

Wiring Diagrams/Mating Cordsets

1



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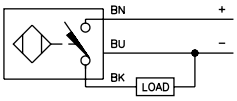

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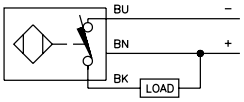

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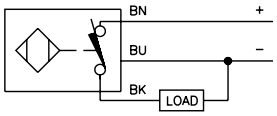


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | QF5.5

Top Sensing Thin Qpak Housing with DC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC5-QF5.5-AN6X2/S250 2620120		5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	1	A11
BC10-QF5.5-AN6X2 2620121		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	1	A11
BC10-QF5.5-AN6X2/S250 2620119		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	1	A11
BC10-QF5.5-RN6X2 2620128	Normally Closed	10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	3	A11
BC5-QF5.5-AP6X2/S250 2620116		5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	2	A11
BC5-QF5.5-RP6X2/S250 2620127	Normally Closed	5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	4	A11
BC10-QF5.5-AP6X2 2620117		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	2	A11
BC10-QF5.5-AP6X2/S250 2620115		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	2	A11
BC10-QF5.5-RP6X2 2620126	Normally Closed	10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	4	A11
BC10-QF5.5-RP6X2/S250 2620124	Normally Closed	10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	A	4	A11
BC10-QF5.5-AN6X2/S932 2620137		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	B	1	A11
BC10-QF5.5-RN6X2/S932 2620140	Normally Closed	10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	B	3	A11
BC10-QF5.5-AP6X2/S932 2620109		10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	B	2	A11
BC10-QF5.5-RP6X2/S932 2620141	Normally Closed	10	10	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PP	PP	GN	YE	2M/TPU	B	4	A11

Notes:

/S250: Without switch point adjustment potentiometer

/S932: Adjustment potentiometer with protective cover, and non-metallic mounting bushing

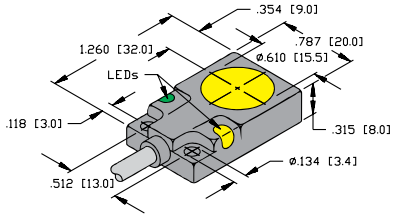
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q08 & Q10

Top Sensing Qpak Housing with DC Outputs

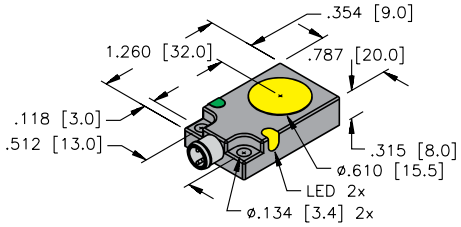
Housing Style	Dimension Drawings

A



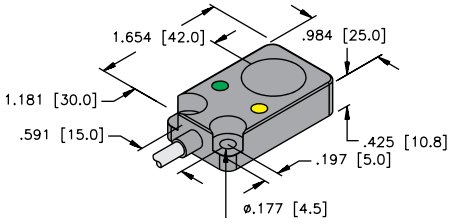
8 mm - Potted-In Cable

B



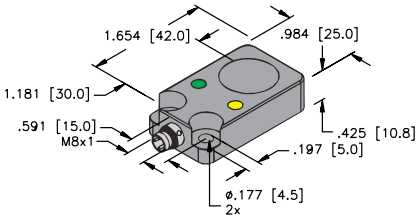
8 mm - Picofast Connector

C



10 mm - Potted-In Cable

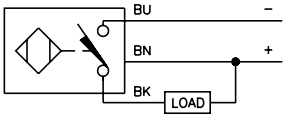
D



10 mm - Picofast Connector

Wiring Diagrams/Mating Cordsets

1



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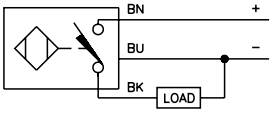

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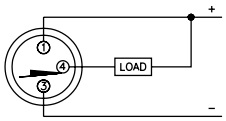
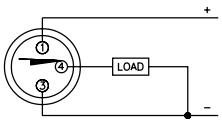


Mating Cordset: PKG 3Z-*

4



Mating Cordset: PKG 3Z-*; PKG 3M-*

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q08 & Q10

Top Sensing Qpak Housing with DC Outputs

Part Number/ ID Number	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC5-Q08-AN6X2/S250 26201	5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	A	1	A11
BC5-Q08-AP6X2/S250 26200	5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	2M/TPU	A	2	A11
BC5-Q08-AN6X2-V1131/S250 26211	5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	--	B	3	A11
BC5-Q08-AP6X2-V1131/S250 26210	5	5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	Zinc	PA 12	GN	YE	--	B	4	A11
BC8-Q10-AN6X2/S250 2621203	8	8	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	--	GN	YE	2M/PVC	C	1	A11
BC8-Q10-AP6X2/S250 2621200	8	8	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	--	GN	YE	2M/PVC	C	2	A11
BC8-Q10-AP6X2-V1131/S250 2621201	8	8	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	--	GN	YE	--	D	4	A11

Notes:

/S250: Without switch point adjustment potentiometer

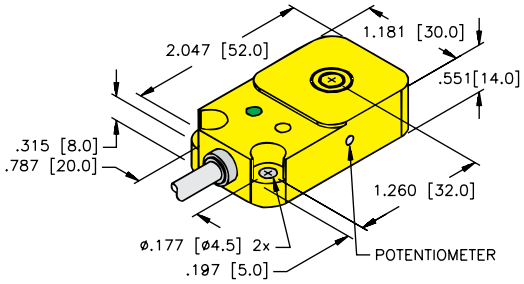
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q14

Top Sensing Qpak Housing with DC Outputs

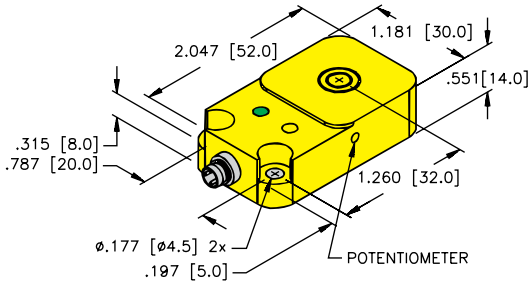
Housing Style	Dimension Drawings

A



14 mm - Potted-In Cable

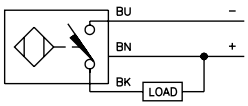
B



14 mm - Picofast Connector

Wiring Diagrams/Mating Cordsets

1



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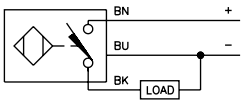

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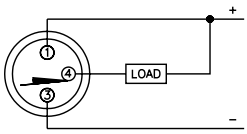
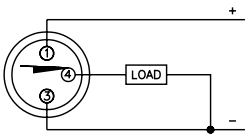


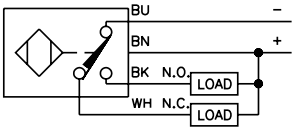
Mating Cordset: PKG 3M-*

4



Mating Cordset: PKG 3M-*

5



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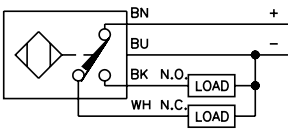


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q14

Top Sensing Qpak Housing with DC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC10-Q14-AN4X2 2530010		10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	1	A11
BC10-Q14-AP4X2 2530001		10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	2	A11
BC10-Q14-VN4X2 2530030	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	5	A11
BC10-Q14-VP4X2 2530020	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	6	A11
BC10-Q14-AN4X2-V1131 2530011		10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	3	A11
BC10-Q14-AN4X2-V1131/S400 2530006	Rear LED	10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	3	A11
BC10-Q14-AP4X2-V1131 2530002		10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	4	A11
BC10-Q14-AP4X2-V1131/S400 2530004	Rear LED	10	15	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	4	A11

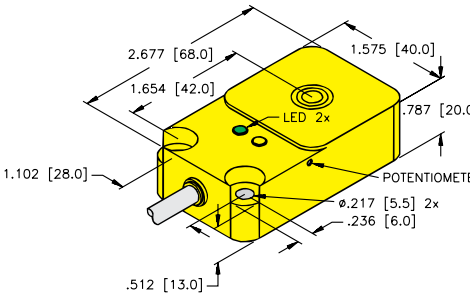
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q20

Top Sensing Qpak Housing with DC or AC Outputs

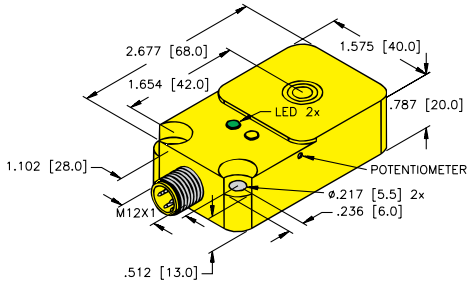
Housing Style	Dimension Drawings

A



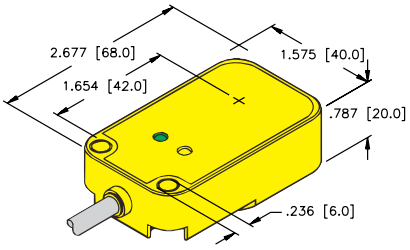
20 mm - Potted-In Cable

B



20 mm - Eurofast Connector

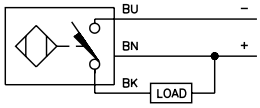
C



20 mm - Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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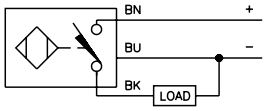

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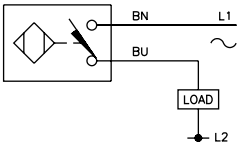

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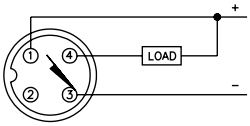
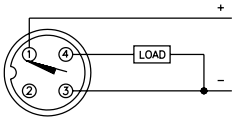


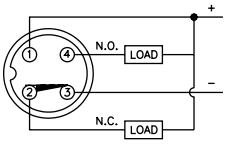
Mating Cordset: RK 4T-*

5



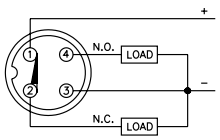
Mating Cordset: RK 4T-*

6



Mating Cordset: RK 4.4T-*

7



Mating Cordset: RK 4.4T-*

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Q20

Top Sensing Qpak Housing with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC20-Q20-AN4X2 2530110		20	30	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	1	A11
BC20-Q20-AN4X2/S400 2530104	Rear LED	20	30	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	C	1	A11
BC20-Q20-AP4X2 2530100		20	30	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	2	A11
BC20-Q20-AZ3X2 4352000		20	30	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	A	3	A12
BC20-Q20-AZ3X2/S400 2310005	Rear LED	20	30	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	GN	YE	2M/ PVC	C	3	A12
BC20-Q20-AN4X2-H1141 2530111		20	30	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	4	A11
BC20-Q20-AP4X2-H1141 2530101		20	30	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	5	A11
BC20-Q20-AP4X2-H1141/S400 2530103	Rear LED	20	30	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	5	A11
BC20-Q20-VN4X2-H1141 2530131	Comp. Outputs	20	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	6	A11
BC20-Q20-VN4X2-H1141/S400 2530124	Rear LED, Comp. Outputs	20	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	6	A11
BC20-Q20-VP4X2-H1141 2530121	Comp. Outputs	20	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	--	B	7	A11

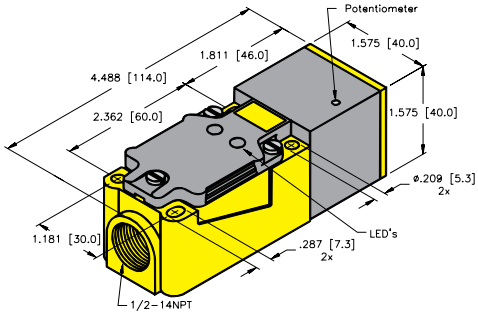
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | CP40 & CP80

Large Rectangular Housing with DC or AC Outputs

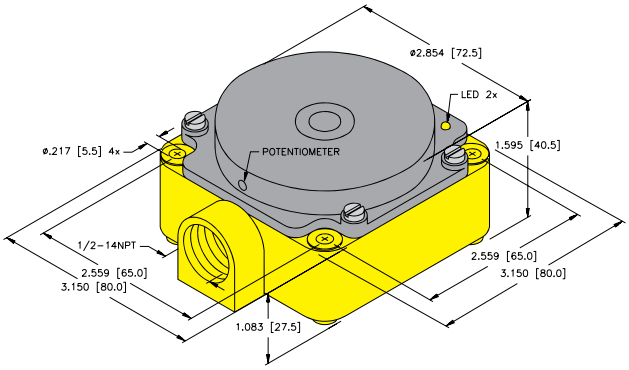
Housing Style	Dimension Drawings

A



40 mm - Terminal Chamber

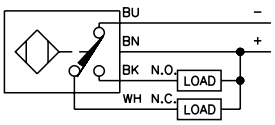
B



80 mm - Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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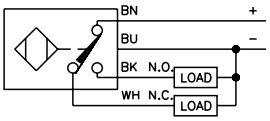

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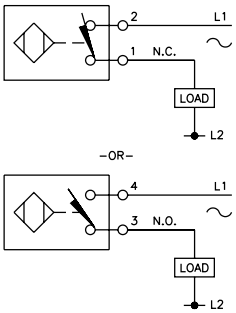


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, FZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | CP40 & CP80

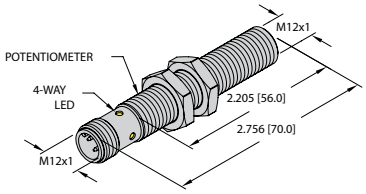
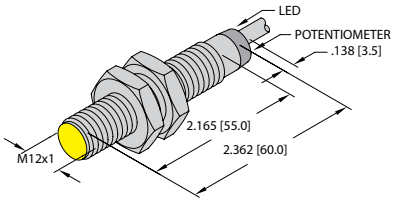
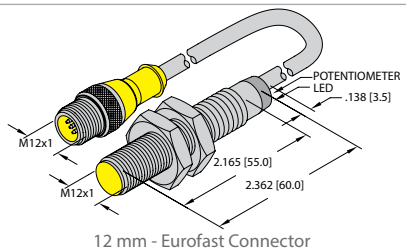
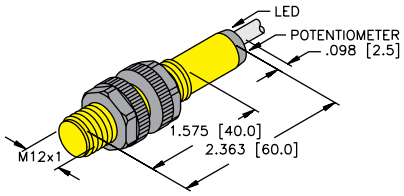
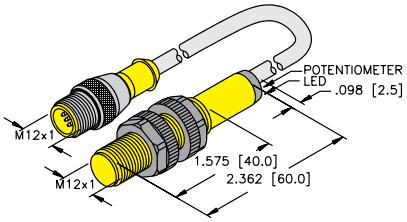
Large Rectangular Housing with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BC20-CP40-VN4X2/S10 25157	Comp. Outputs	20	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	A	1	A11
BC20-CP40-VP4X2/S10 25156	Comp. Outputs	20	30	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	A	2	A11
BC20-CP40-FZ3X2/S10 23115	Prog. Outputs	20	30	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	GN	YE	A	3	A12
NC50-CP80-VN4X2/S10 2580112	Comp. Outputs	NA	50	4-wire DC NPN	10-65 VDC	200	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	B	1	A11
NC50-CP80-VP4X2/S10 2580212	Comp. Outputs	NA	50	4-wire DC PNP	10-65 VDC	200	≤200	-25 to +70	IP67	PBT-GF30-V0	GN	YE	B	2	A11
NC50-CP80-FZ3X2/S10 2310610	Prog. Outputs	NA	50	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	GN	YE	B	3	A12

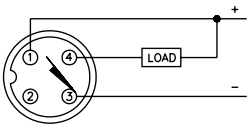
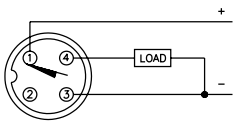
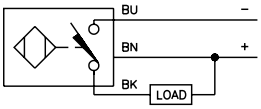
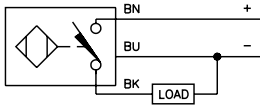
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 12 mm

Threaded Barrel with DC Outputs

Housing Style	Dimension Drawings	
	A  12 mm - Eurofast Connector	B  12 mm - Potted-In Cable
C  12 mm - Eurofast Connector	D  12 mm - Potted-In Cable	E  12 mm - Eurofast Connector

Wiring Diagrams/Mating Cordsets

1	2	3	4
 Mating Cordset: RK 4T-*	 Mating Cordset: RK 4T-*		

A11 — **3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)**

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 12 mm

Threaded Barrel with DC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC3-M12-AP6X-H1141 2601011		3	3	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	CPB	ABS	--	N/A	YE	--	A	2	A11
BC3-M12-AN6X 2601100		3	3	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	CPB	ABS	PA	N/A	YE	2M/ PVC	B	3	A11
BC3-M12-AP6X 2601000		3	3	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	CPB	ABS	PA	N/A	YE	2M/ PVC	B	4	A11
BC3-M12-AN6X-0.2-RS4T 2601190		3	3	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	CPB	ABS	PA	N/A	YE	0.2M/ PVC	C	1	A11
BC3-M12-AP6X-0.2-RS4T 2601091		3	3	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	CPB	ABS	PA	N/A	YE	0.2M/ PVC	C	2	A11
BC3-S12-AN6X 2601300		3	4.5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 12-GF30	PA	N/A	YE	2M/ PVC	D	3	A11
BC3-S12-AP6X 2601200		3	4.5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 12-GF30	PA	N/A	YE	2M/ PVC	D	4	A11
BC3-S12-AP6X/S100 2601201	High Temp. 100 °C	3	4.5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +100	IP67	PA 12-GF30	PA 12-GF30	PA	N/A	YE	2M/ PVC	D	4	A11
BC3-S12-AN6X-0.2-RS4T 2601390		3	4.5	3-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 12-GF30	PA	N/A	YE	0.2M/ PVC	E	1	A11
BC3-S12-AP6X-0.2-RS4T 2601291		3	4.5	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 12-GF30	PA	N/A	YE	0.2M/ PVC	E	2	A11

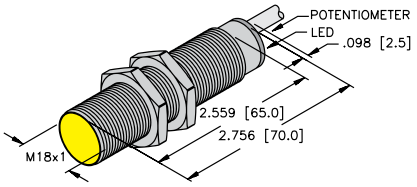
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 mm

Metal Threaded Barrel with DC or AC Outputs

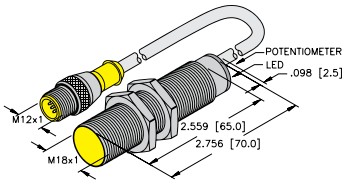
Housing Style	Dimension Drawings

A



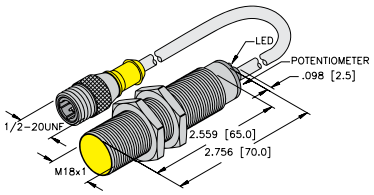
18 mm - Potted-In Cable

B



18 mm - Eurofast Connector

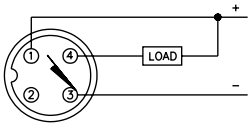
C



18 mm - Microfast Connector

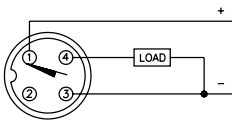
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

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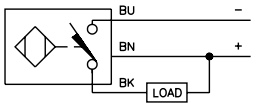

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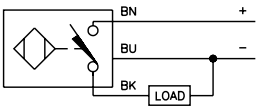

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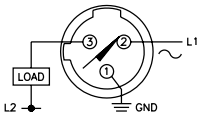

Mating Cordset: KB 3T-*

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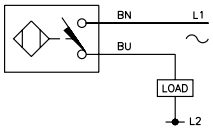


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, FZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 mm

Metal Threaded Barrel with DC or AC Outputs

Part Number/ ID Number	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC5-M18-AN4X 2504002	5	5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	2M/PVC	A	3	A11
BC5-M18-AP4X 2504001	5	5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	2M/PVC	A	4	A11
BC5-M18-AZ3X 2305000	5	5	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	2M/PVC	A	6	A12
BC5-M18-AN4X-0.2-RS4T 2504091	5	5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	0.2M/ PVC	B	1	A11
BC5-M18-AP4X-0.2-RS4T 2504090	5	5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	0.2M/ PVC	B	2	A11
BC5-M18-AZ3X-0.2-SB3T 2305090	5	5	2-wire AC	20-250 AC	20	≤500	-25 to +70	IP67	CPB	PBT-G30-V0	PUR	N/A	YE	0.2M/ PVC	C	5	A12

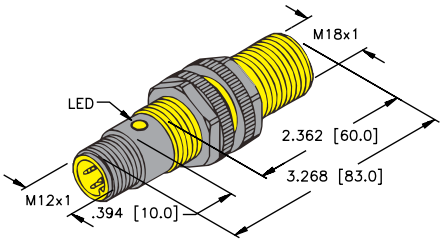
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 mm

Metal Threaded Barrel with DC or AC Outputs

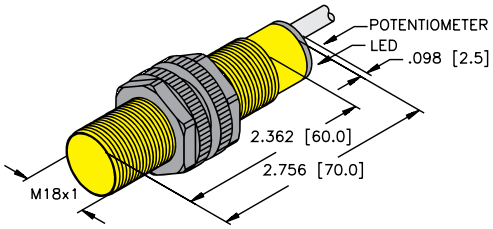
Housing Style	Dimension Drawings

A



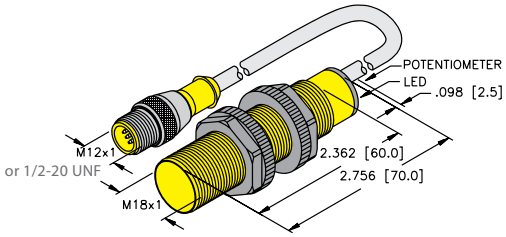
18 mm - Eurofast Connector

B



18 mm - Potted-In Cable

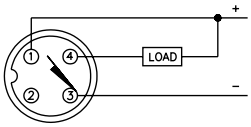
C



18 mm - Molded Connector

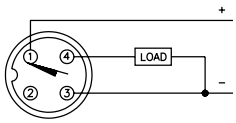
Wiring Diagrams/Mating Cordsets

1



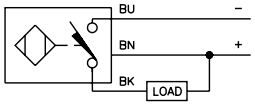
Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

3



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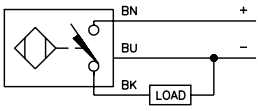

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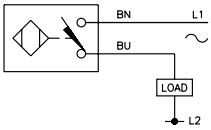

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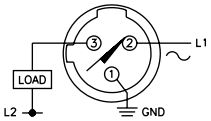


Mating Cordset: KB 3T-*

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, FZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 mm

Metal Threaded Barrel with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC5-S18-AN4X-H1141/S250 2503108		5	7.5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	--	A	1	A11
BC5-S18-AP4X-H1141/S250 2503602		5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	--	A	2	A11
BC5-S18-AN4X 25031		5	7.5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	3	A11
BCF5-S18-AN4X 2503012	Noise Immune	5	7.5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	3	A11
BC5-S18-AP4X 25030		5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	4	A11
BCF5-S18-AP4X 2503011	Noise Immune	5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	4	A11
BCF5-S18-AP4X/S90 2503014	Noise Immune	5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PUR	B	4	A11
BC5-S18-AN4X-0.2-RS4T 2503192		5	7.5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	0.2M/PVC	C	1	A11
BCF5-S18-AN4X-0.2-RS4T 2503089	Noise Immune	5	7.5	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	0.2M/PVC	C	1	A11
BC5-S18-AP4X-0.2-RS4T 2503492		5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	0.2M/PVC	C	2	A11
BCF5-S18-AP4X-0.2-RS4T 2503099	Noise Immune	5	7.5	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	0.2M/PVC	C	2	A11
BC5-S18-AZ3X 2305500		5	7.5	2-wire AC	20-250 VAC	20	≤200	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	5	A12
BC5-S18-AZ3X-0.2-SB3T 2305590		5	7.5	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PA12-GF30	PUR	N/A	YE	0.2M/PVC	C	6	A12

Notes:

/S250: Without switch point adjustment potentiometer

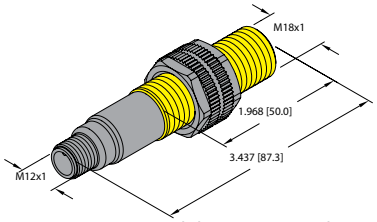
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 & 30 mm

Plastic Threaded Barrels Configurable via IO-Link/Teach

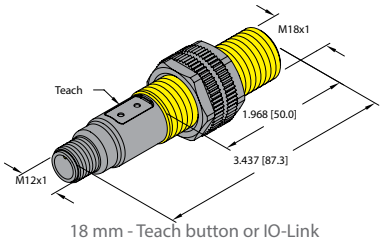
Housing Style	Dimension Drawings

A



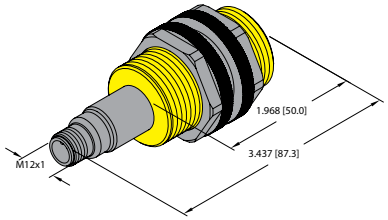
18 mm - Teach-by-wire or IO-Link

B



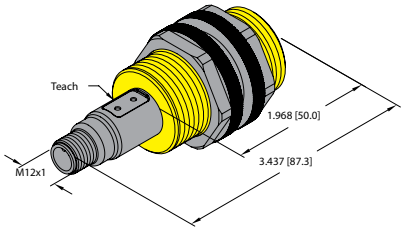
18 mm - Teach button or IO-Link

C



30 mm - Teach-by-wire or IO-Link

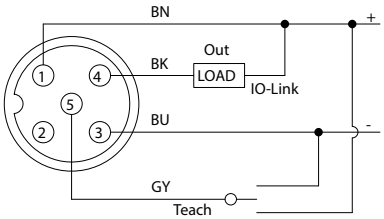
D



30 mm - Teach button or IO-Link

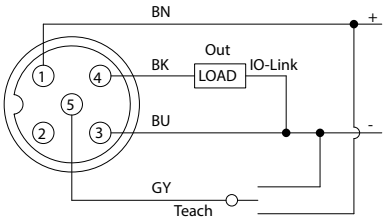
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.5T-*

2



Mating Cordset: RK 4.5T-*

A18 — 5-wire DC Teach Capacitive - (UP, UN)

Ripple:	≤10%
Differential Travel (Hysteresis):	2-20% (5% typical)
Voltage Drop Across Conducting Sensor:	≤2.4 V
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance
Temperature Drift:	<±20% of Rated Operating Distance
IO-Link:	V1.1

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 18 & 30 mm

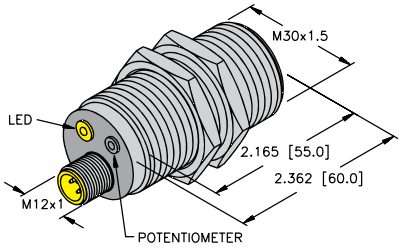
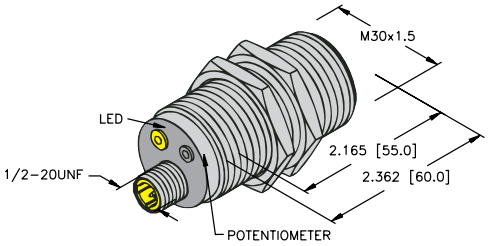
Plastic Threaded Barrels Configurable via IO-Link/Teach

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BCT5-S18-UP6X2-H1151 2101300	Teach-by-wire or IO-Link	5	7.5	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	A	1	A18
BCT5-S18-UN6X2-H1151 2101400	Teach-by-wire or IO-Link	5	7.5	4-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	A	2	A18
BCT5-S18-UP6X2T-H1151 2101100	Teach buttons or IO-Link	5	7.5	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	B	1	A18
BCT5-S18-UN6X2T-H1151 2101200	Teach buttons or IO-Link	5	7.5	4-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	B	2	A18
BCT10-S30-UP6X2-H1151 2101700	Teach-by-wire or IO-Link	10	15	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	C	1	A18
BCT10-S30-UN6X2-H1151 2101800	Teach-by-wire or IO-Link	10	15	4-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	C	2	A18
BCT10-S30-UP6X2T-H1151 2101500	Teach buttons or IO-Link	10	15	4-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	D	1	A18
BCT10-S30-UN6X2T-H1151 2101600	Teach buttons or IO-Link	10	15	4-wire DC NPN	10-30 VDC	100	≤200	-25 to +70	IP67	PA12-GF30, PEI	PA	GN	YE	D	2	A18

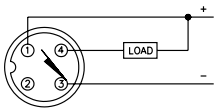
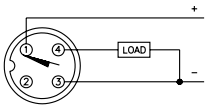
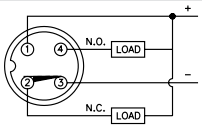
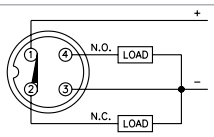
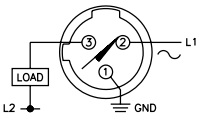
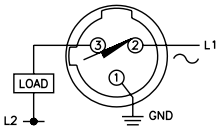
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Metal Threaded Barrel with DC or AC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Eurofast Connector
B  30 mm - Microfast Connector	

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: RK 4T-*	2  Mating Cordset: RK 4T-*	3  Mating Cordset: RK 4.4T-*
4  Mating Cordset: RK 4.4T-*	5  Mating Cordset: KB 3T-*	6  Mating Cordset: KB 3T-*

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

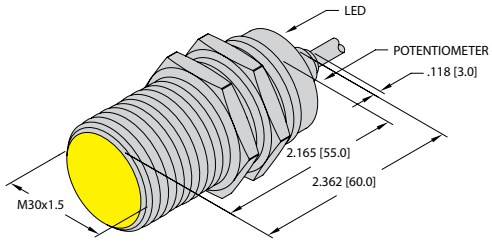
Metal Threaded Barrel with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BC10-M30K-AN4X-H1141 2503030		10	10	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	1	A11
BC10-M30K-AP4X-H1141 2503026		10	10	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BC10-M30K-VN4X-H1141 2503033	Comp. Outputs	10	10	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	3	A11
BC10-M30K-VP4X-H1141 2503035	Comp. Outputs	10	10	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	4	A11
BC10-M30K-AZ3X-B3131 2503034		10	10	2-wire AC N.O.	20-250 AC	20	≤500	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	B	5	A12
BC10-M30K-RZ3X-B3131 2503023		10	10	2-wire AC N.C.	20-250 AC	20	≤500	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	B	6	A12

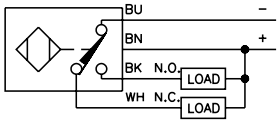
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Metal Threaded Barrel with DC or AC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Potted-In Cable

Wiring Diagrams/Mating Cordsets

1


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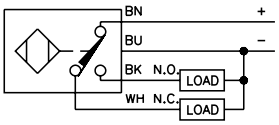

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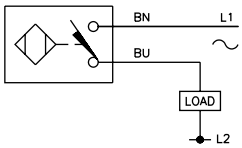

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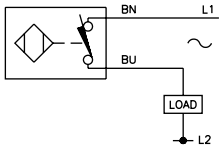


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

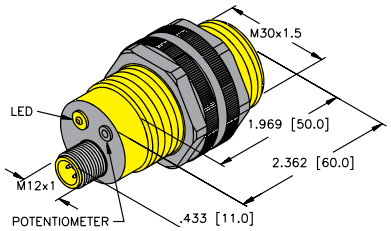
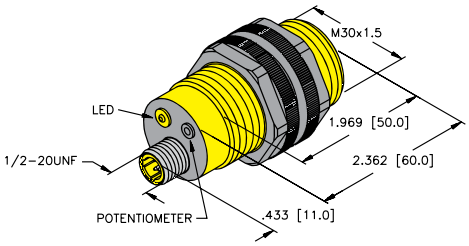
Metal Threaded Barrel with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	Front Cap/Face	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC10-M30K-VN4X 2503024	Comp. Outputs	10	10	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	2M/PVC	A	1	A11
BC10-M30K-VP4X 2503022	Comp. Outputs	10	10	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	2M/PVC	A	2	A11
BC10-M30K-AZ3X 2503031		10	10	2-wire AC N.O.	20-250 VAC	20	≤500	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	2M/PVC	A	3	A12
BC10-M30K-RZ3X 2503025		10	10	2-wire AC N.C.	20-250 VAC	20	≤500	-25 to +70	IP67	CPB	PA 12-GF30	PA 66-GF25-V0	N/A	YE	2M/PVC	A	4	A12

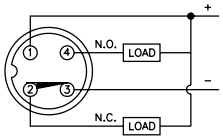
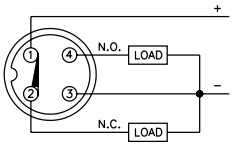
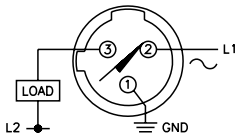
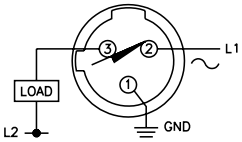
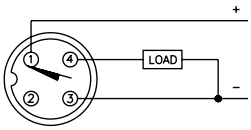
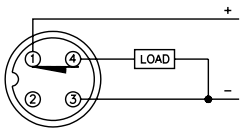
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Plastic Threaded Barrels with Connectors and AC/DC Outputs

Housing Style	Dimension Drawings
	A  30 mm - Eurofast Connector
B  30 mm - Microfast Connector	

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: RK 4.4T-*	2  Mating Cordset: RK 4.4T-*	3  Mating Cordset: KB 3T-*
4  Mating Cordset: KB 3T-*	5  Mating Cordset: RK 4T-*	6  Mating Cordset: RK 4T-*

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Plastic Threaded Barrels with Connectors and AC/DC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BCC10-S30-AP4X-H1141 2503038	Low Dielec-tric Targets	10	10	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	5	A11
BCC10-S30-RP4X-H1143 1542562	Low Dielec-tric Targets	10	10	3-wire DC PNP N.C.	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	6	A11
BC10-S30-VN4X-H1141 2506010	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	1	A11
BCF10-S30-VN4X-H1141 2506016	Noise Immune	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	1	A11
BC10-S30-VP4X-H1141 2506100	Comp. Outputs	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BCC10-S30-VP4X-H1141 2503043	Low Dielec-tric Targets	10	10	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BCF10-S30-VP4X-H1141 2506117	Noise Immune	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BC10-S30-AZ3X-B3131 2310710		10	15	2-wire AC N.O.	20-250 VAC	20	≤500	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	B	3	A12
BCF10-S30-AZ3X-B3131 2506012	Noise Immune	10	15	2-wire AC N.O.	20-250 VAC	20	≤500	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	B	3	A12
BC10-S30-RZ3X-B3131 2310810		10	15	2-wire AC N.C.	20-250 VAC	20	≤500	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	B	4	A12
BCF10-S30-RZ3X-B3131 2506014	Noise Immune	10	15	2-wire AC N.C.	20-250 VAC	20	≤500	-25 to +70	IP67	PA12-GF30	PA 66-GF25-V0	N/A	YE	B	4	A12

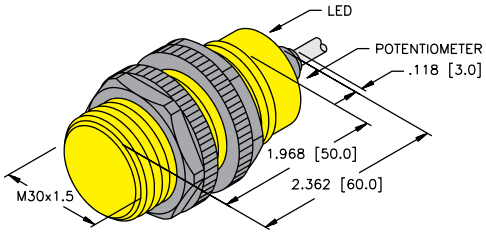
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Plastic Threaded Barrel with DC or AC Outputs

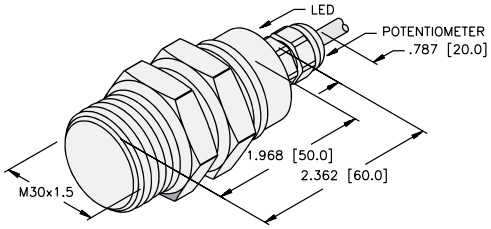
Housing Style	Dimension Drawings

A



30 mm - Potted-In Cable

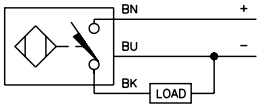
B



30 mm - Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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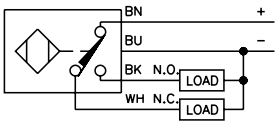

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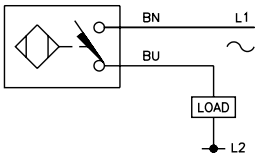

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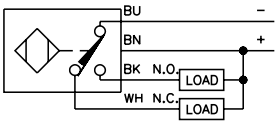


A11 — **3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)**

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — **2-wire AC Capacitive - (AZ, RZ)**

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 mm

Plastic Threaded Barrel with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BCC10-S30-AP4X 2503038	Low Dielec-tric Targets	10	10	3-wire DC PNP	10-30 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	1	A11
BC10-S30-VN4X 2506000	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BCF10-S30-VN4X 2506011	Noise Immune	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	3	A11
BC10-S30-VP4X 2506110	Comp. Outputs	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BCF10-S30-VP4X 2506111	Noise Immune	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	2	A11
BC10-S30-AZ3X 2310700		10	15	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	4	A12
BCF10-S30-AZ3X 2506015	Noise Immune	10	15	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	A	4	A12
BC10-PT30-VN4X2 2507020	Chemical Resistant	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PVDF	PVDF	GN	YE	B	2	A11
BC10-PT30-VP4X2 2507010	Chemical Resistant	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PVDF	PVDF	GN	YE	B	3	A11
BC10-PT30-AZ3X 2350001	Chemical Resistant	10	15	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PVDF	PVDF	N/A	YE	B	4	A12

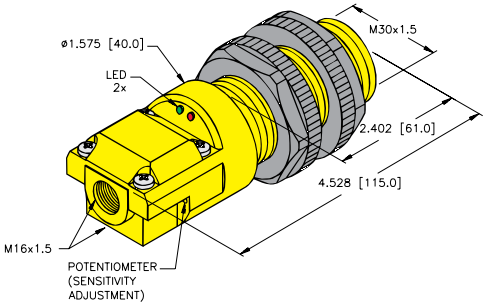
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30, 34, & 40 mm

Large Diameter Plastic Barrels with Terminal Chamber and 4-Wire DC Outputs

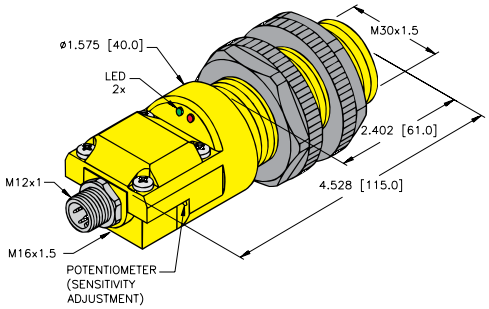
Housing Style	Dimension Drawings

A



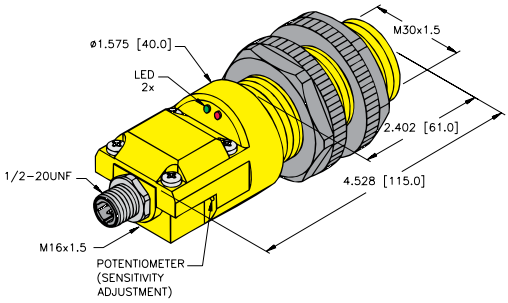
30 mm - Terminal Chamber

B



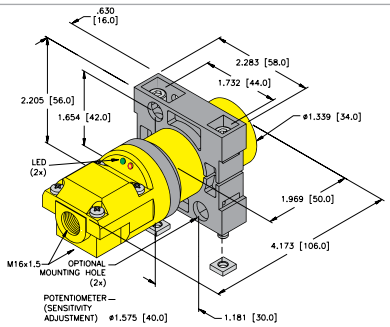
30 mm - Eurofast Connector

C



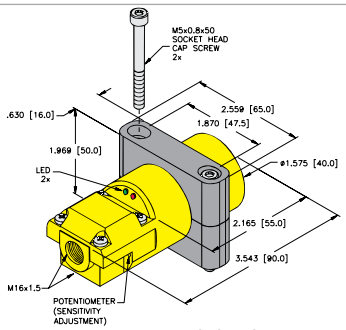
30 mm - Minifast Connector

D



34 mm - Terminal Chamber

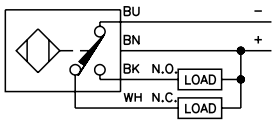
E



40 mm - Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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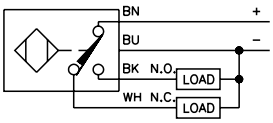

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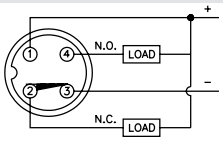
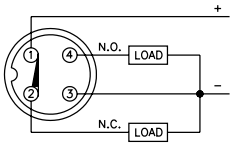


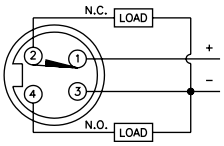
Mating Cordset: RK 4.4T-*

4



Mating Cordset: RK 4.4T-*

5



Mating Cordset: RKM 40-*M

A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30, 34, & 40 mm

Large Diameter Plastic Barrels with Terminal Chamber and 4-Wire DC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BC10-P30SR-VN4X2 25051	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	1	A11
BC10-P30SR-VN4X2-H1141 2505192	Comp. Outputs	10	15	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	B	3	A11
BC10-P30SR-VP4X2 25050	Comp. Outputs	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	A	2	A11
BC10-P30SR-VP4X2-H1141 2505094	Comp. Outputs	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	B	4	A11
BC10-P30SR-VP4X2-B1141 2505092	Comp. Outputs	10	15	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	C	5	A11
BC15-K34SR-VN4X2 2502128	Comp. Outputs	15	23	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	ABS	GN	YE	D	1	A11
BC20-K40SR-VN4X2 25101	Comp. Outputs	20	30	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	E	1	A11
BC20-K40SR-VP4X2 25100	Comp. Outputs	20	30	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	ABS	ABS	GN	YE	E	2	A11

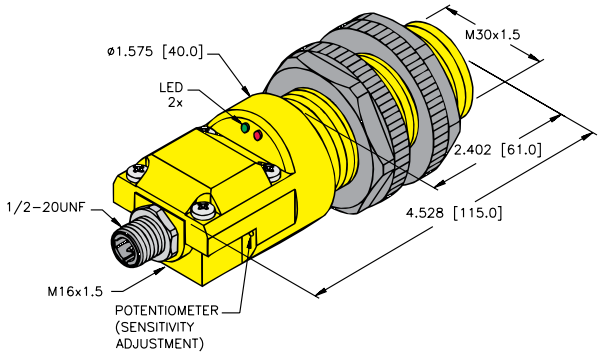
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 & 40 mm

Large Diameter Plastic Barrels with Terminal Chamber and AC Outputs

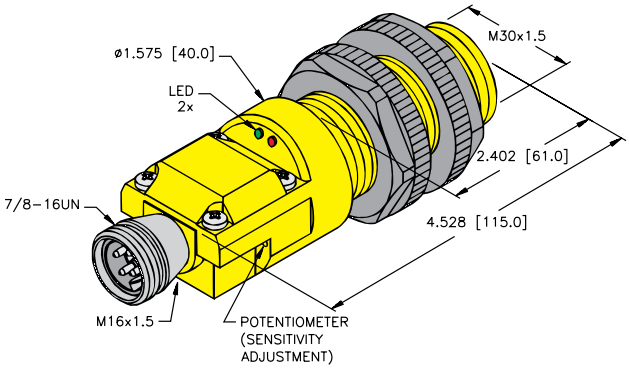
Housing Style	Dimension Drawings

A



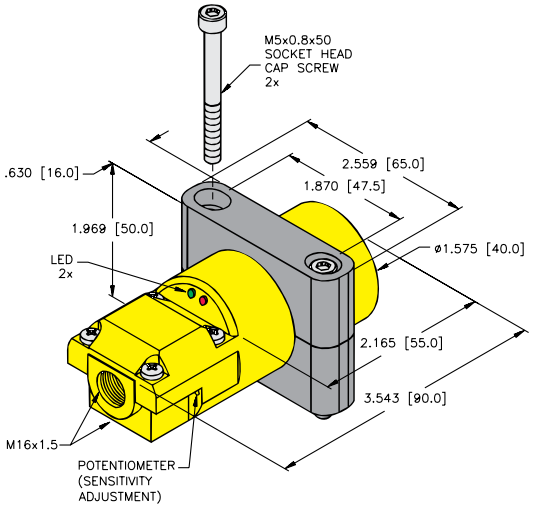
30 mm - Microfast Connector

B



30 mm - Minifast Connector

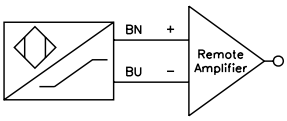
C



40 mm - Terminal Chamber

Wiring Diagrams/Mating Cordsets

1



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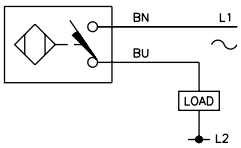
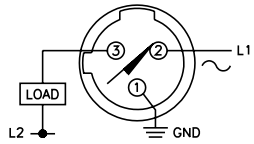


Mating Cordset: KB 3T-*

3



Mating Cordset: RK 30-*M; RKM 30-*M

A12 — **2-wire AC Capacitive - (AZ, RZ)**

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | 30 & 40 mm

Large Diameter Plastic Barrels with Terminal Chamber and AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Dimension Drawings	Wiring Diagrams	Spec List
BC10-P30SR-FZ3X2-B3131 2310491	Comp. Outputs	10	15	2-wire AC	20-250 AC	200	≤500	-25 to +70	IP67	ABS	ABS	GN	YE	A	2	A12
BC10-P30SR-FZ3X2-B1131 2310490	Comp. Outputs	10	15	2-wire AC	20-250 AC	20	≤500	-25 to +70	IP67	ABS	ABS	GN	YE	B	3	A12
BC10-P30SR-FZ3X2-B2131 2310493	Comp. Outputs	10	15	2-wire AC	20-250 AC	20	≤500	-25 to +70	IP67	ABS	ABS	GN	YE	B	3	A12
BC20-K40SR-FZ3X2 23103	Prog. Outputs	20	30	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	ABS	ABS	GN	YE	C	1	A12

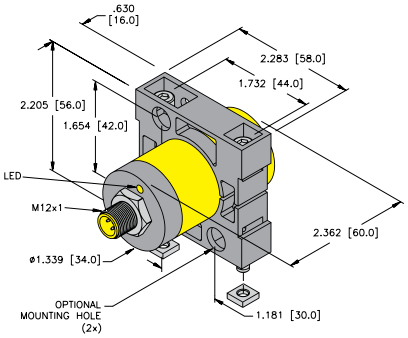
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | K34

Smooth Plastic Barrel with DC or AC Outputs

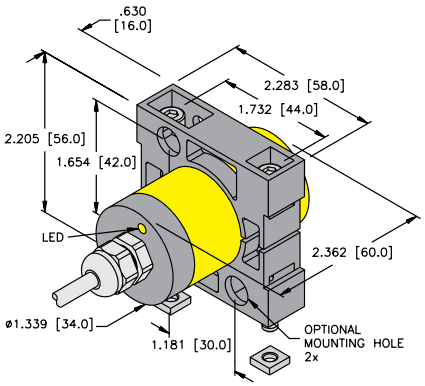
Housing Style	Dimension Drawings

A



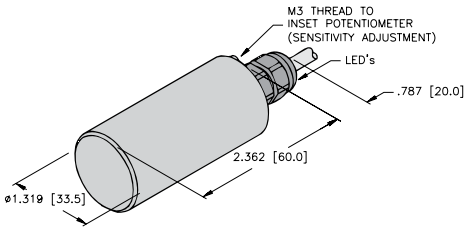
34 mm - Eurofast Connector

B



34 mm - Potted-In Cable

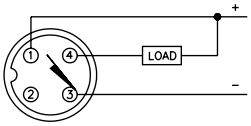
C



34 mm - Potted-In Cable

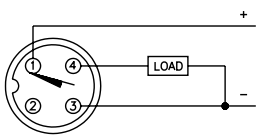
Wiring Diagrams/Mating Cordsets

1



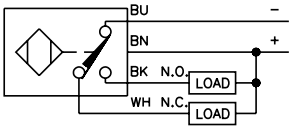
Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

3



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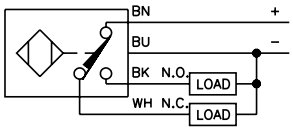

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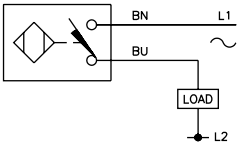


A11 — 3 and 4-wire DC Capacitive - (AP, RP, AN, RN, VN, VP)

Ripple:	≤10%	Reverse Polarity Protection:	Incorporated
Differential Travel (Hysteresis):	2-20% (5% typical)	Wire-Break Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Transient Protection:	Per EN 60947-5-2
Trigger Current for Short Circuit Protection:	≥220 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
No-Load Current:	≤15 mA	Repeatability:	≤2% of Rated Operating Distance
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	<±20% of Rated Operating Distance

A12 — 2-wire AC Capacitive - (AZ, RZ)

Line Frequency:	≥50... ≤60 Hz	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	2-20% (5% typical)	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	≤500 mA	Shock:	30 g, 11 ms
Voltage Drop Across Conducting Sensor:	≤7.0 V	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Off-State (Leakage) Current:	≤1.7 mA	Repeatability:	≤2% of Rated Operating Distance
Minimum Load Current:	≥5.0 mA	Temperature Drift:	<±20% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | K34

Smooth Plastic Barrel with DC or AC Outputs

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC15-K34-AN4X-H1141 2502125		15	23	3-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	--	A	1	A11
BC15-K34-AP4X-H1141 2502126		15	23	3-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	--	A	2	A11
BC15-K34-VN4X 2502127	Comp. Outputs	15	23	4-wire DC NPN	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	2M/PVC	B	3	A11
BC15-K34-VP4X 2502124	Comp. Outputs	15	23	4-wire DC PNP	10-65 VDC	100	≤200	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	2M/PVC	B	4	A11
BC15-K34-AZ3X 2310008		15	23	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	2M/PVC	B	5	A12
BCF15-K34-AZ3X 2502136	Noise Immune	15	23	2-wire AC	20-250 VAC	20	≤500	-25 to +70	IP67	PBT-GF30-V0	ABS	N/A	YE	2M/PVC	B	5	A12
NC20-KT34-VP4X2 2550300	Chemical Resistant Comp. Output	N/A	20	4-wire DC PNP	10-65 VDC	200	≤200	-25 to +70	IP67	PVDF	PVDF	GN	YE	2M/ PVDF	C	4	A11

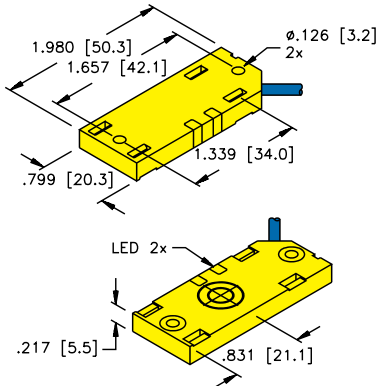
We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Namur

Intrinsically Safe

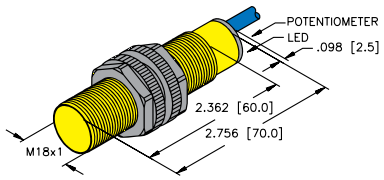
Housing Style	Dimension Drawings

A



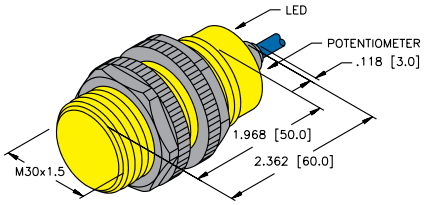
5.5 mm - Potted-In Cable

B



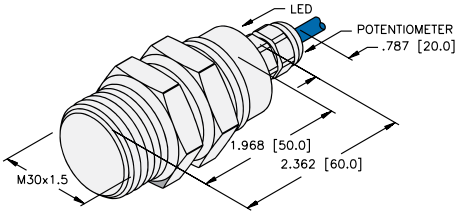
18 mm - Potted-In Cable

C



30 mm - Potted-In Cable

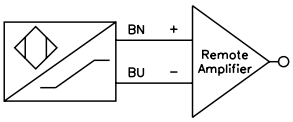
D



30 mm - Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



A19 — **2-wire DC NAMUR Capacitive- (Y0 and Y1)**

Differential Travel (Hysteresis):	1-20%	Power-On Effect:	Realized in Amplifier
Nominal Voltage:	8.2 VDC (EN60947-5-6)	Reverse Polarity Protection:	Incorporated
Non-activated Current Consumption:	≤1.2 mA	Wire-Break Protection:	Realized in Amplifier
Activated Current Consumption:	≥2.1 mA	Transient Protection:	Realized in Amplifier
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF	Shock:	30 g, 11 ms
		Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
		Repeatability:	≤2% of Rated Operating Distance

Amplifier Note:
Inductive sensors with Namur outputs are typically used in hazardous locations and the approval agencies require the use of an amplifier to regulate the signals in the hazardous area. Due to the wide variety of approvals, output options, and amplifier designs, it is not possible to incorporate all of the choices in this catalog. For the most up to date information, please either search for these products under our interface technology product category (www.turck.us) or contact us by phone.

We reserve the right to make technical alterations without prior notice.

Capacitive Sensors | Namur

Intrinsically Safe

Part Number/ ID Number	Features	Embeddable Range (mm)	Nonembeddable Range (mm)	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing Material	End Cap Material	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BC5-QF5.5-Y1X/S250 2030000		5	5	2-wire DC NAMUR	5-30 VDC	100	Remote	-25 to +70	IP67	PP	--	N/A	YE	2M/TPU	A	1	A19
BC5-S18-Y1X 20060		5	7.5	2-wire DC NAMUR	5-30 VDC	100	Remote	-25 to +70	IP67	PA 12-GF30	PUR	N/A	YE	2M/PVC	B	1	A19
BC10-S30-Y1X 20100		10	15	2-wire DC NAMUR	5-30 VDC	100	Remote	-25 to +70	IP67	PA 12-GF30	PA 66-GF25-V0	N/A	YE	2M/PVC	C	1	A19
BC10-PT30-Y0X 2020000	Chemical Resistant	10	15	2-wire DC NAMUR	5-30 VDC	100	Remote	-25 to +70	IP67	PVDF	PVDF	N/A	YE	2M/ PVDF	D	1	A19

Notes:

/S250: Without switch point adjustment potentiometer

We reserve the right to make technical alterations without prior notice.

Notes

Notes

Ultrasonics Sensor Selection Guide

Threaded Metal Barrel			
Housing	**18 mm**	**18 mm**	**30 mm**
Rated Operating Distance	**40 -130 cm**	**40 - 130 cm**	**40 - 600 cm**
Pages	**F3 - 6**	**F7 - 10**	**F11**

	Hazardous ATEx and IECEx Approval	Rectangular	
Housing	**18 and 30 mm**	**40 mm**	**40 mm**
Rated Operating Distance	**40 - 600 cm**	**200 cm**	**200 cm**
Pages	**F13**	**F15**	**F15**

We reserve the right to make technical alterations without prior notice.

Ultrasonic Sensors

The M18 and M30 ultrasonic sensors feature smooth transducer faces, short blind zones, adjustable sensing fields, and robust chrome plated brass barrels, along with multiple options for outputs and configurations that enable users to select the best design for their application.

Output configurations range from a single output with an adjustable set point to versions with configurable outputs either as dual set point, analog, window, retroreflective, or IO-Link. Sensors can be taught via wire, integral buttons, or IO-Link.

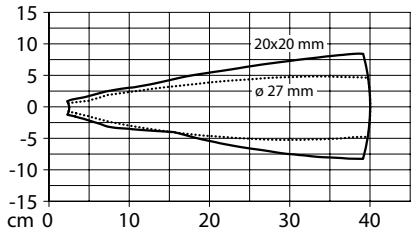
Certain M18 and M30 versions are available with ATEX and IECEx approvals for environments that have dust or gases which could be ignited and cause a fire or explosion.

The CK40 and CP40 rectangular ultrasonic sensor family uses separate transducers for the transmitter and receiver, giving these sensors a 60° sonic cone angle for detecting targets, which is much larger than what is possible with the M18 or M30 barrels.

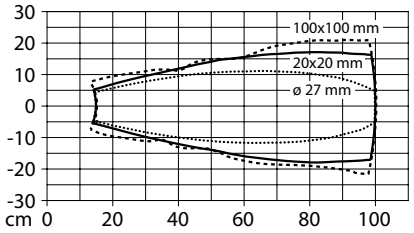
Performance Curves

The diagrams show the detection ranges of the individual ultrasonic sensors, covering ranges of 40 to 600 cm. Different targets are used in sizes 20 x 20 mm, and 100 x 100 mm according to the EN standard 60947-5-2, as well as a round rod with a diameter of 27 mm in order to compare the detection ranges of different ultrasonic sensors. When using other targets than the standard ones, the detection ranges may vary due to different reflection properties and geometries.

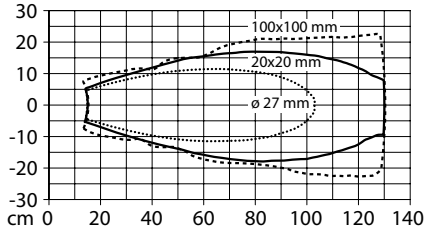
RU40



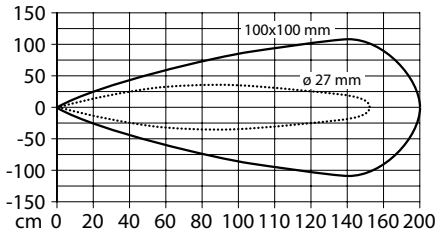
RU100



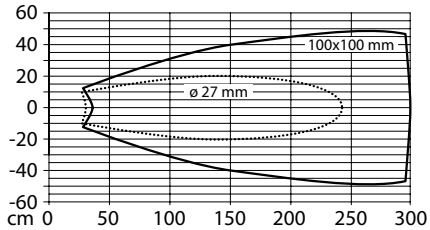
RU130



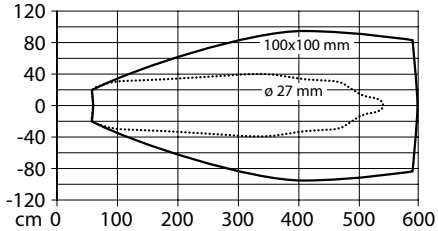
RU200



RU300



RU600



We reserve the right to make technical alterations without prior notice.

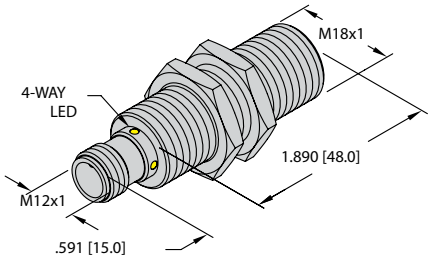
Ultrasonics Sensors | 18 mm

Front Sensing Transducer

Housing Style

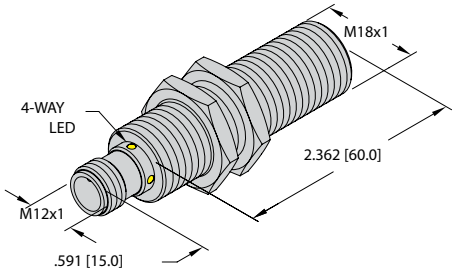
Dimension Drawings

A



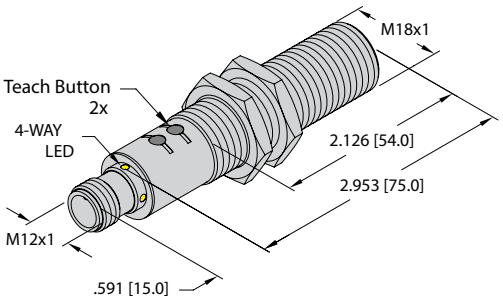
18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

B



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

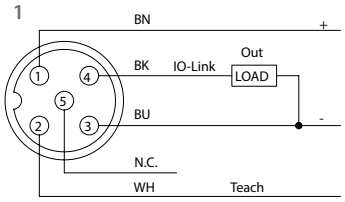
C



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

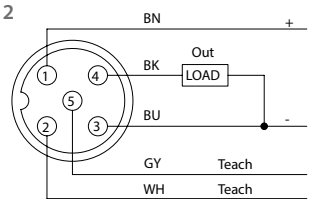
Wiring Diagrams/Mating Cordsets

1



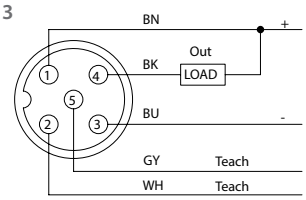
Mating Cordset: RK 4.4T-*

2



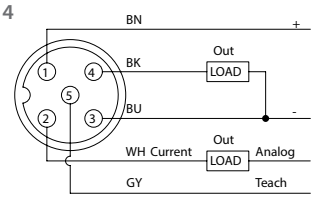
Mating Cordset: RK 4.5T-*

3



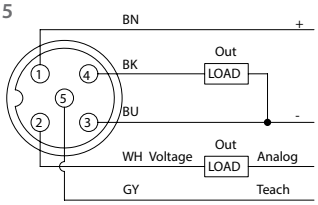
Mating Cordset: RK 4.5T-*

4



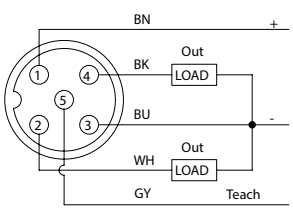
Mating Cordset: RK 4.5T-*

5



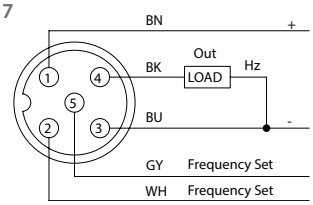
Mating Cordset: RK 4.5T-*

6



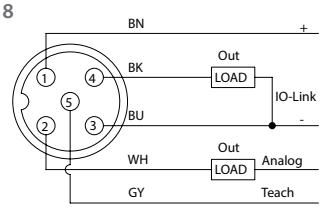
Mating Cordset: RK 4.5T-*

7



Mating Cordset: RK 4.5T-*

8



Mating Cordset: RK 4.5T-*

A30 — Ultrasonic Barrels

Operating Voltage:	15-30 VDC	Frequency Output (where applicable):	240-1600 Hz or 0-400 Hz Selectable
Voltage Drop Across Conducting Sensor:	≤2.5 V	Short-Circuit Protection:	Yes
Continuous Switching Current:	≤150 mA	Reverse Polarity Protection:	Yes
No-Load Current:	≤50 mA	Operating Temp:	-25 to +70 °C
Residual Current:	≤0.1 mA	Temperature Drift:	1.5% of full scale
Load Resistance:	≤1000 Ω	Internal Protection Rating:	IP67
Readiness Delay:	≤300 ms	Housing Material:	CPB
Repeatability:	0.15% of full scale	Transducer Material:	PET/PU/Epoxy
Switching Output:	Programmable NO or NC	LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | 18 mm

Front Sensing Transducer

Part Number/ ID Number	Rated Operating Distance (cm)	1 X PNP Output	1 X NPN Output	2 X PNP Output	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Analog 0-10v	Analog 4-20mA	Frequency Output	Retroreflective Programmable	Retroreflective Only	Window Mode Programmable	IO-Link V1.1	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU40U-M18M-AP8X2-H1151 1610094	40	●										●	2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	1	A30
RU40U-M18M-UP8X2-H1151 1610008	40	●											2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	2	A30
RU40U-M18M-UN8X2-H1151 1610080	40		●										2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	3	A30
RU40U-M18E-LI8X2-H1151 1610069	40	●[1]					●						2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	B	4	A30
RU40U-M18E-LU8X2-H1151 1610109	40	●[1]				●							2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	B	5	A30
RU40U-M18E-2UP8X2-H1151 1610012	40			●					●		●		2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	B	6	A30
RU40U-M18E-2UP8X2T-H1151 1610016	40			●					●		●		2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	C	6	A30
RU40U-M18M-LFX-H1151 1610021	40							●					2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	7	A30
RU40L-M18M-UP8X2-H1151 1610076	40	●								●			2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	2	A30
RU40L-M18M-UN8X2-H1151 1610084	40		●							●			2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	3	A30
RU40U-M18E-LIU2PN8X2T-H1151 1610024	40				●				●		●	●[2]	2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	C	8	A30

[1] Switching output is not adjustable
[2] Multiplexing and synchronization modes supported

We reserve the right to make technical alterations without prior notice.

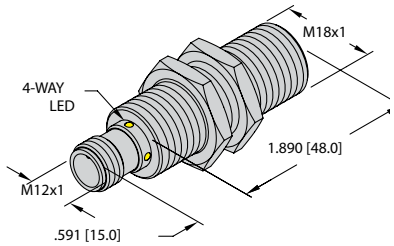
Ultrasonics Sensors | 18 mm

Front Sensing Transducer

Housing Style

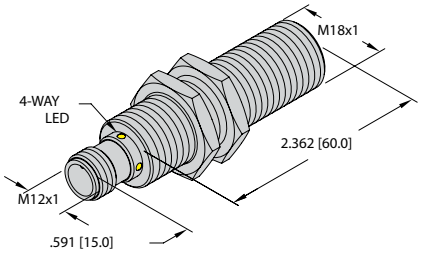
Dimension Drawings

A



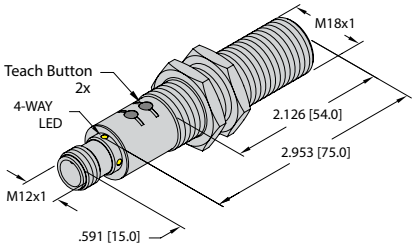
18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

B



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

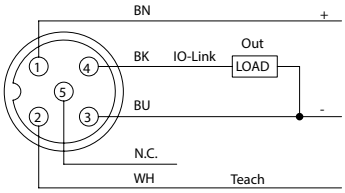
C



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

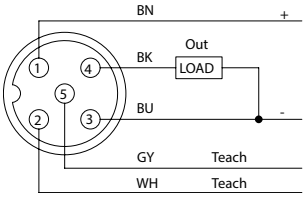
Wiring Diagrams/Mating Cordsets

1



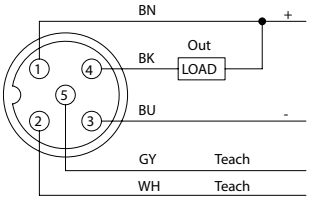
Mating Cordset: RK 4.4T-*

2



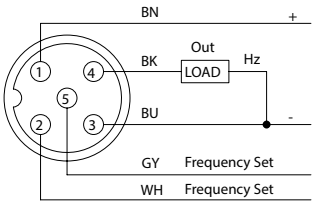
Mating Cordset: RK 4.5T-*

3



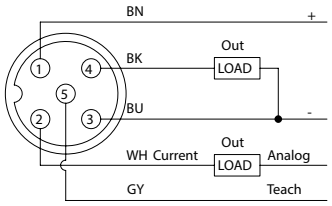
Mating Cordset: RK 4.5T-*

4



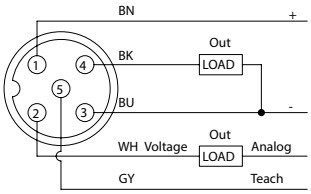
Mating Cordset: RK 4.5T-*

5



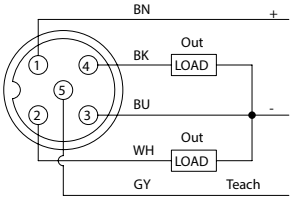
Mating Cordset: RK 4.5T-*

6



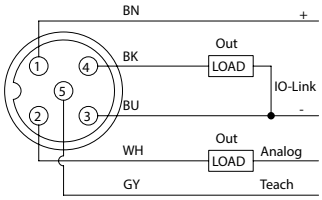
Mating Cordset: RK 4.5T-*

7



Mating Cordset: RK 4.5T-*

8



Mating Cordset: RK 4.5T-*

A30 — Ultrasonic Barrels

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.15% of full scale
Switching Output:	Programmable NO or NC
Frequency Output (where applicable):	240-1600 Hz or 0-400 Hz Selectable
Short-Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	-25 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP67
Housing Material:	CPB
Transducer Material:	PET/PU/Epoxy
LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | 18 mm

Front Sensing Transducer

Part Number/ ID Number	Rated Operating Distance (cm)	1 X PNP Output	1 X NPN Output	2 X PNP Output	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Analog 0-10v	Analog 4-20mA	Frequency Output	Retroreflective Programmable	Retroreflective Only	Window Mode Programmable	IO-Link V1.1	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU100U-M18M-AP8X2-H1151 1610095	100	●										●	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	1	A30
RU100U-M18M-UP8X2-H1151 1610010	100	●											15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	2	A30
RU100U-M18M-UN8X2-H1151 1610081	100		●										15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	3	A30
RU100U-M18M-LFX-H1151 1610022	100							●					15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	4	A30
RU100L-M18M-UP8X2-H1151 1610077	100	●								●			15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	2	A30
RU100L-M18M-UN8X2-H1151 1610085	100		●							●			15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	3	A30
RU130U-M18E-LI8X2-H1151 1610089	130	●[1]					●						15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	5	A30
RU130U-M18E-LU8X2-H1151 1610110	130	●[1]				●							15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	6	A30
RU130U-M18E-2UP8X2-H1151 1610014	130			●					●		●		15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	7	A30
RU130U-M18E-2UP8X2T-H1151 1610018	130			●					●		●		15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	C	7	A30
RU130U-M18E-LIU2PN8X2T-H1151 1610026	130				●				●		●	●[2]	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	C	8	A30

[1] Switching output is not adjustable
[2] Multiplexing and synchronization modes supported

We reserve the right to make technical alterations without prior notice.

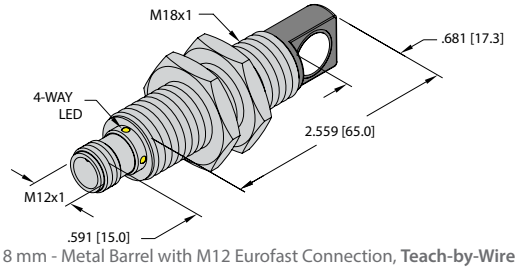
Ultrasonics Sensors | 18 mm

Side Sensing Transducer

Housing Style

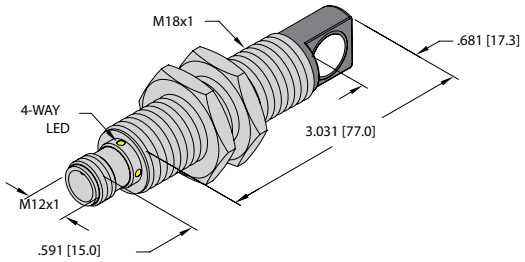
Dimension Drawings

A



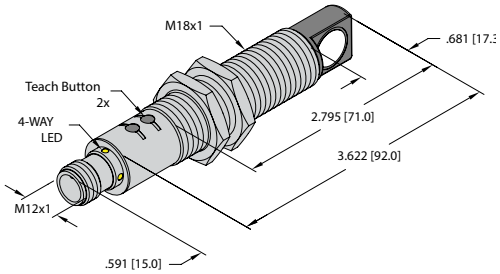
18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

B



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

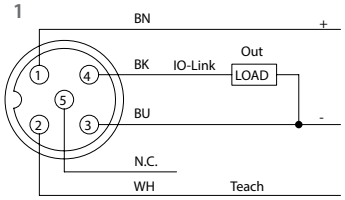
C



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

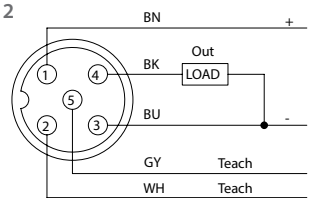
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

2



Mating Cordset: RK 4.5T-*

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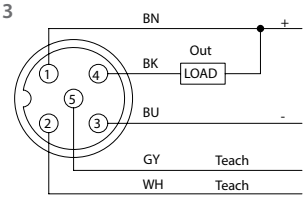
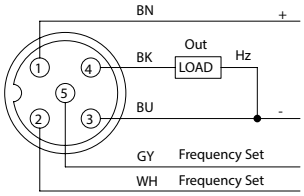


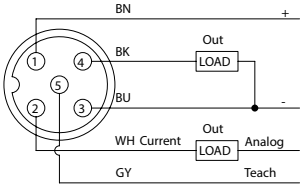
Mating Cordset: RK 4.5T-*

4



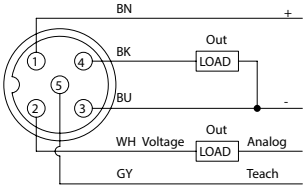
Mating Cordset: RK 4.5T-*

5



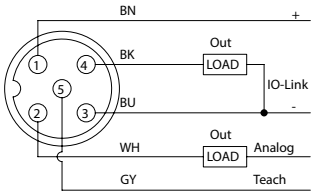
Mating Cordset: RK 4.5T-*

6



Mating Cordset: RK 4.5T-*

7



Mating Cordset: RK 4.5T-*

A30 — Ultrasonic Barrels

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.15% of full scale
Switching Output:	Programmable NO or NC
Frequency Output (where applicable):	240-1600 Hz or 0-400 Hz Selectable
Short-Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	-25 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP67
Housing Material:	CPB
Transducer Material:	PET/PU/Epoxy
LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | 18 mm

Side Sensing Transducer

Part Number/ ID Number	Rated Operating Distance (cm)	1 X PNP Output	1 X NPN Output	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Analog 0-10v	Analog 4-20mA	Frequency Output	Retroreflective Programmable	Retroreflective Only	Window Mode Programmable	IO-Link V1.1	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU40U-M18MS-AP8X2-H1151 1610105	40	●									●	2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	1	A30
RU40U-M18MS-UP8X2-H1151 1610009	40	●										2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	2	A30
RU40U-M18MS-UN8X2-H1151 1610082	40		●									2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	3	A30
RU40U-M18MS-LFX-H1151 1610019	40						●					2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	4	A30
RU40U-M18ES-LI8X2-H1151 1610097	40	●[1]				●						2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	B	5	A30
RU40U-M18ES-LU8X2-H1151 1610111	40	●[1]			●							2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	B	6	A30
RU40L-M18MS-UP8X2-H1151 1610078	40	●							●			2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	2	A30
RU40L-M18MS-UN8X2-H1151 1610086	40		●						●			2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	3	A30
RU40U-M18ES-LIU2PN8X2T-H1151 1610025	40			●				●		●	●[2]	2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	C	7	A30

[1] Switching output is not adjustable
[2] Multiplexing and synchronization modes supported

We reserve the right to make technical alterations without prior notice.

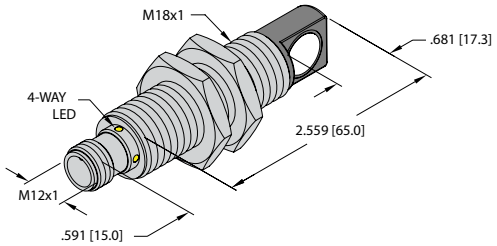
Ultrasonics Sensors | 18 mm

Side Sensing Transducer

Housing Style

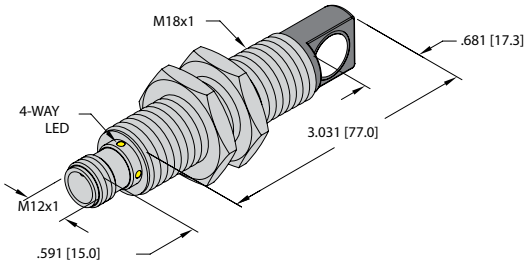
Dimension Drawings

A



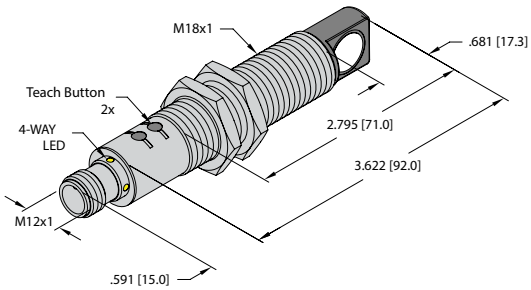
18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

B



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

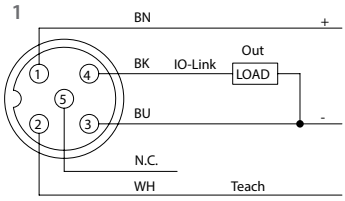
C



18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

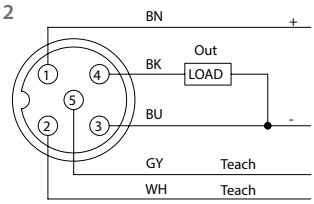
Wiring Diagrams/Mating Cordsets

1



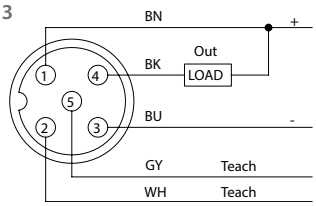
Mating Cordset: RK 4.4T-*

2



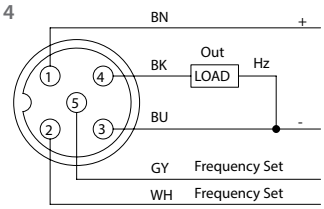
Mating Cordset: RK 4.5T-*

3



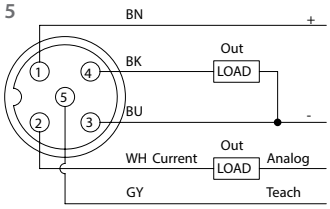
Mating Cordset: RK 4.5T-*

4



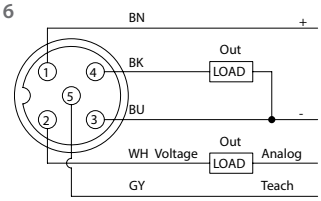
Mating Cordset: RK 4.5T-*

5



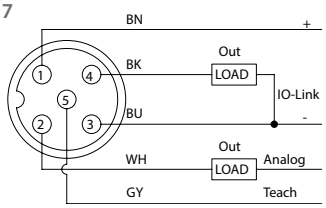
Mating Cordset: RK 4.5T-*

6



Mating Cordset: RK 4.5T-*

7



Mating Cordset: RK 4.5T-*

A30 — Ultrasonic Barrels

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.15% of full scale
Switching Output:	Programmable NO or NC
Frequency Output (where applicable):	240-1600 Hz or 0-400 Hz Selectable
Short-Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	-25 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP67
Housing Material:	CPB
Transducer Material:	PET/PU/Epoxy
LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | 18 mm

Side Sensing Transducer

Part Number/ ID Number	Rated Operating Distance (cm)	1 X PNP Output	1 X NPN Output	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Analog 0-10v	Analog 4-20mA	Frequency Output	Retroreflective Programmable	Retroreflective Only	Window Mode Programmable	IO-Link V1.1	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU100U-M18MS-AP8X2-H1151 1610106	100	●									●	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	1	A30
RU100U-M18MS-UP8X2-H1151 1610011	100	●										15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	2	A30
RU100U-M18MS-UN8X2-H1151 1610083	100		●									15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	3	A30
RU100U-M18MS-LFX-H1151 1610020	100						●					15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	4	A30
RU100L-M18MS-UP8X2-H1151 1610079	100	●							●			15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	2	A30
RU100L-M18MS-UN8X2-H1151 1610087	100		●						●			15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	3	A30
RU130U-M18ES-LI8X2-H1151 1610098	130	●[1]				●						15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	5	A30
RU130U-M18ES-LU8X2-H1151 1610112	130	●[1]			●							15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	6	A30
RU130U-M18ES-LIU2PN8X2T-H1151 1610027	130			●				●		●	●[2]	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	C	7	A30

[1] Switching output is not adjustable
[2] Multiplexing and synchronization modes supported

We reserve the right to make technical alterations without prior notice.

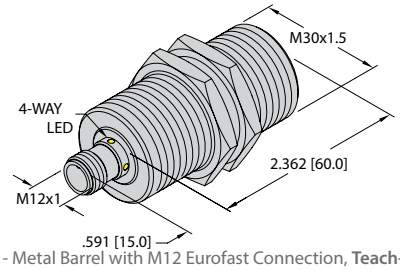
Ultrasonics Sensors | 30 mm

Front Sensing Transducer

Housing Style

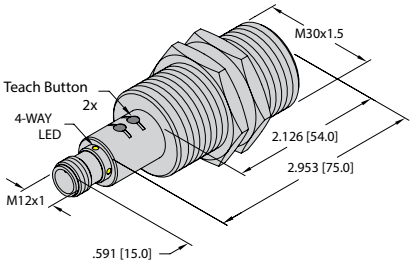
Dimension Drawings

A



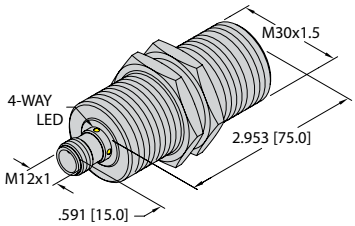
30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

B



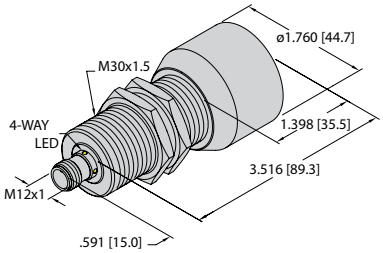
30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

C



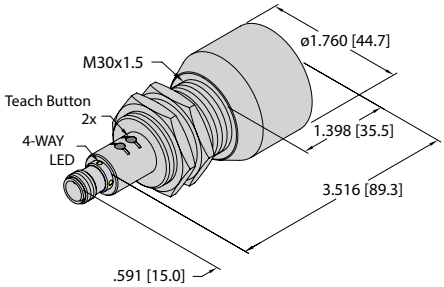
30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

D



30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire**

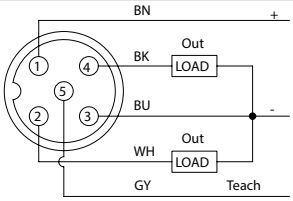
E



30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

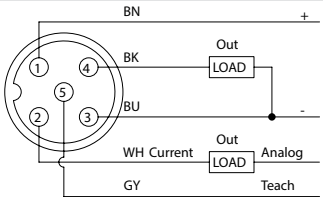
Wiring Diagrams/Mating Cordsets

1



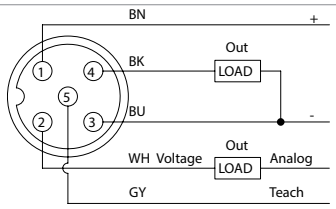
Mating Cordset: RK 4.5T-*

2



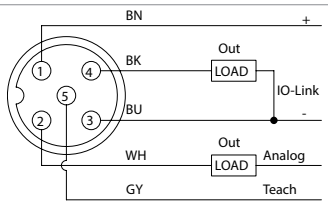
Mating Cordset: RK 4.5T-*

3



Mating Cordset: RK 4.5T-*

4



Mating Cordset: RK 4.5T-*

A30 — Ultrasonic Barrels

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.15% of full scale
Switching Output:	Programmable NO or NC
Frequency Output (where applicable):	240-1600 Hz or 0-400 Hz Selectable
Short-Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	-25 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP67
Housing Material:	CPB
Transducer Material:	PET/PU/Epoxy
LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | 30 mm

Front Sensing Transducer

Part Number/ ID Number	Rated Operating Distance (cm)	1 X PNP Output	2 X PNP Output	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Analog 0-10v	Analog 4-20mA	Retroreflective Programmable	Window Mode Programmable	IO-Link V1.1	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU40U-M30M-2UP8X2-H1151 1610032	40		●				●	●		2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	1	A30
RU130U-M30M-2UP8X2-H1151 1610034	130		●				●	●		15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	1	A30
RU130U-M30E-2UP8X2T-H1151 1610038	130		●				●	●		15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	1	A30
RU130U-M30E-LIU2PN8X2T-H1151 1610046	130			●			●	●	●[2]	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	4	A30
RU300U-M30M-2UP8X2-H1151 1610036	300		●				●	●		30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	C	1	A30
RU300U-M30E-LI8X2-H1151 1610099	300	●[1]				●				30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	A	2	A30
RU300U-M30E-LU8X2-H1151 1610113	300	●[1]			●					30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	A	3	A30
RU300U-M30E-2UP8X2T-H1151 1610040	300		●				●	●		30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	B	1	A30
RU300U-M30E-LIU2PN8X2T-H1151 1610048	300			●			●	●	●[2]	30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	B	4	A30
RU600U-M30M-2UP8X2-H1151 1610037	600		●				●	●		60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	D	1	A30
RU600U-M30E-LI8X2-H1151 1610100	600	●[1]				●				60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	D	2	A30
RU600U-M30E-LU8X2-H1151 1610114	600	●[1]			●					60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	D	3	A30
RU600U-M30E-2UP8X2T-H1151 1610041	600		●				●	●		60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	E	1	A30
RU600U-M30E-LIU2PN8X2T-H1151 1610049	600			●			●	●	●[2]	60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	E	4	A30

[1] Switching output is not adjustable
[2] Multiplexing and synchronization modes supported

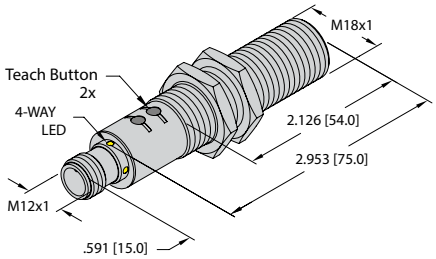
We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | Hazardous Area

ATEX and IECEx Approval

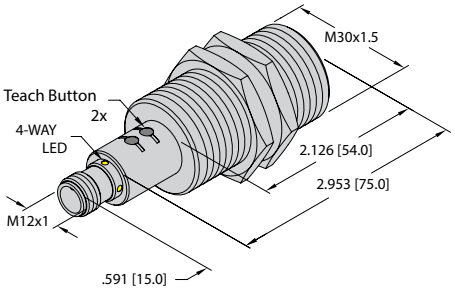
Housing Style	Dimension Drawings

A



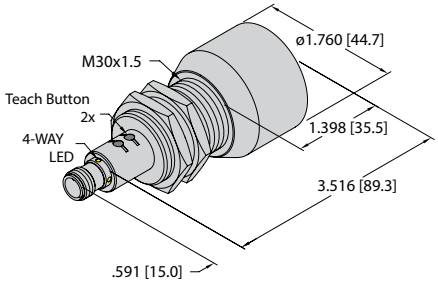
18 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

B



30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

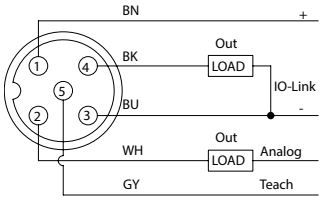
C



30 mm - Metal Barrel with M12 Eurofast Connection, **Teach-by-Wire or Button**

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.5T-*

A31 — Ultrasonic Barrel w/ ATEX Approval

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.15% of full scale
Switching Output:	Programmable NO or NC
Short-Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	-25 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP67
Housing Material:	SS
Transducer Material:	PET/PU/Epoxy
LED:	Yellow/Green
Approval with Teach Button:	II 3G Ex nA nC IIC T6 Gc II 3D Ex tc IIIC T70°C Dc
Approval without Teach Button:	II 3G Ex nA IIC T6 Gc II 3D Ex tc IIIC T70°C Dc

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | Hazardous Area

ATEX and IECEx Approval

Part Number/ ID Number	Rated Operating Distance (cm)	2X PNP/NPN or Programmable 4-20 mA/0-10 v Analog & 1 X PNP/NPN output	Retroreflective Programmable	Window Mode Programmable	IO-Link V1.1 IO-Link	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU40U-EM18E-LIU2PN8X2T-H1151/3GD 1610071	40	●	●	●	●[1]	2.5	9°	0.5	5	≤ 4 m/s	≤ 1.5 m/s	7	A	1	A31
RU130U-EM18E-LIU2PN8X2T-H1151/3GD 1610072	130	●	●	●	●[1]	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	A	1	A31
RU130U-EM30E-LIU2PN8X2T-H1151/3GD 1610073	130	●	●	●	●[1]	15	16°	1	10	≤ 8 m/s	≤ 1.5 m/s	8	B	1	A31
RU300U-EM30E-LIU2PN8X2T-H1151/3GD 1610074	300	●	●	●	●[1]	30	15°	1	25	≤ 8 m/s	≤ 1.5 m/s	4	B	1	A31
RU600U-EM30E-LIU2PN8X2T-H1151/3GD 1610075	600	●	●	●	●[1]	60	15°	1	50	≤ 9 m/s	≤ 3 m/s	1.6	C	1	A31

[1] Multiplexing and synchronization modes supported.

We reserve the right to make technical alterations without prior notice.

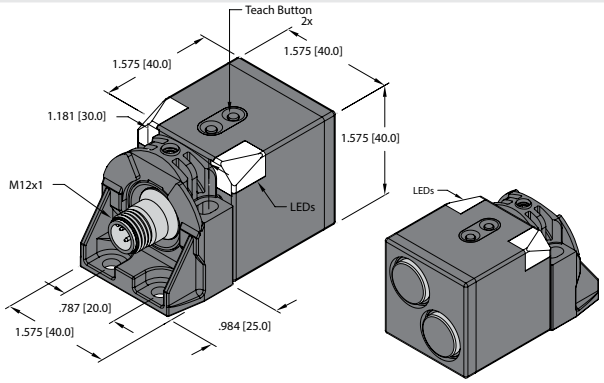
Ultrasonics Sensors | CK40 & CP40

5 Way Rotatable Sensing Head

Housing Style

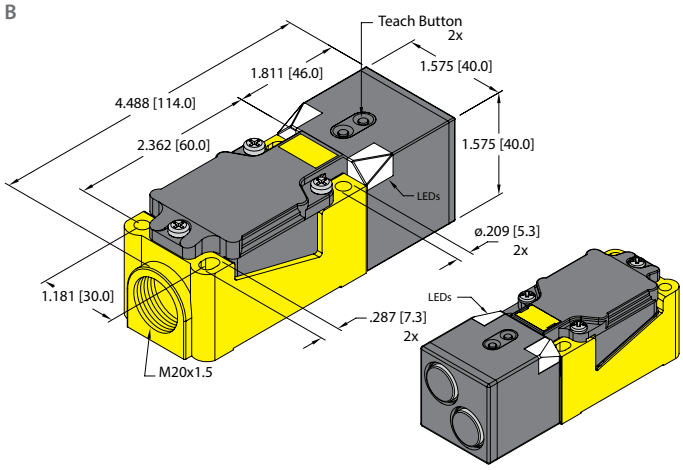
Dimension Drawings

A



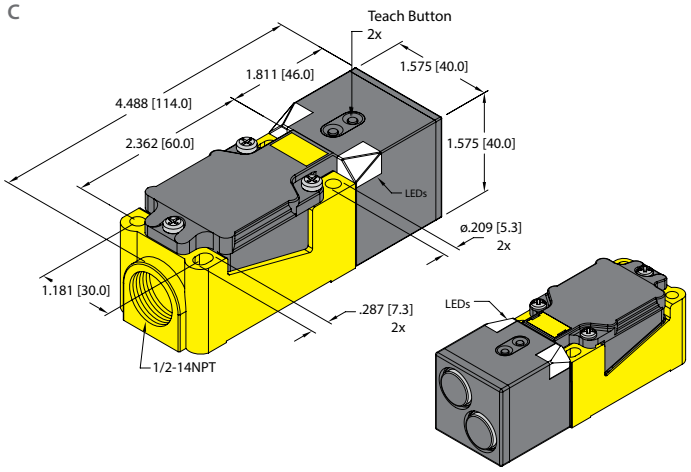
CK40 - M12 Eurofast Connection, **Teach-by-Wire or Button**

B



CP40 - Terminal Chamber with M20x1.5 Conduit Connection, **Teach-by-Button**

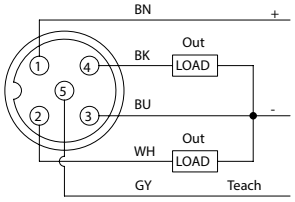
C



CP40 - Terminal Chamber with 1/2 NPT Conduit Connection, **Teach-by-Button**

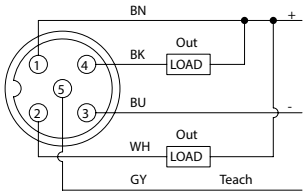
Wiring Diagrams/Mating Cordsets

1



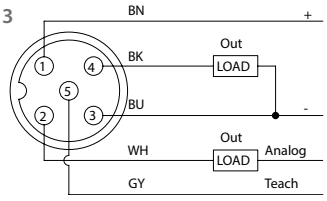
Mating Cordset: RK 4.4T-*

2



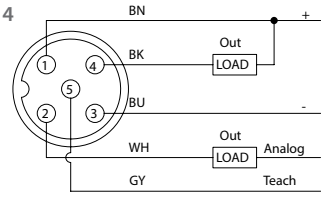
Mating Cordset: RK 4.5T-*

3



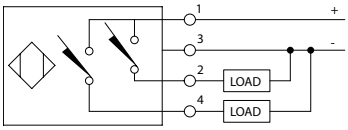
Mating Cordset: RK 4.5T-*

4

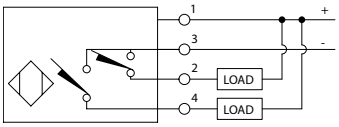


Mating Cordset: RK 4.5T-*

5



6



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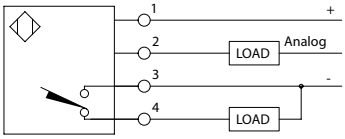
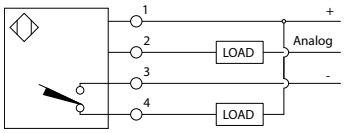


8



A32 — Ultrasonic Rectangular

Operating Voltage:	15-30 VDC
Voltage Drop Across Conducting Sensor:	≤2.5 V
Continuous Switching Current:	≤150 mA
No-Load Current:	≤50 mA
Residual Current:	≤0.1 mA
Load Resistance:	≤1000 Ω
Readiness Delay:	≤300 ms
Repeatability:	0.25% of full scale
Switching Output:	Programmable NO or NC

Analog Output:	4-20 mA or 0-10 V Programmable
Short Circuit Protection:	Yes
Reverse Polarity Protection:	Yes
Operating Temp:	0 to +70 °C
Temperature Drift:	1.5% of full scale
Internal Protection Rating:	IP40
Housing Material:	PBT-GF30
Transducer Material:	AL/Ceramic
LED:	Yellow/Green

We reserve the right to make technical alterations without prior notice.

Ultrasonics Sensors | CK40 & CP40

5 Way Rotatable Sensing Head

Part Number/ ID Number	Rated Operating Distance (cm)	2 X PNP Output	2 X NPN Output	Programmable 4-20 mA/0-10 v Analog & 1 X PNP output	Programmable 4-20 mA/0-10 v Analog & 1 X NPN output	Retroreflective Programmable	Window Mode Programmable	Blind Zone (cm)	Sonic Cone Angle	Resolution (mm)	Switching Hyst. (mm)	Max Approach Speed	Max Pass Speed	Switching Freq. (Hz)	Dimension Drawings	Wiring Diagrams	Spec List
RU200-CK40-2UP8X2T-H1151 1610051	200	●				●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	A	1	A32
RU200-CK40-2UN8X2T-H1151 1610057	200		●			●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	A	2	A32
RU200-CK40-LIU2P8X2T-H1151 1610053	200			●		●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	A	3	A32
RU200-CK40-LIU2N8X2T-H1151 1610058	200				●	●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	A	4	A32
RU200-CP40-2UP8X2T 1610052	200	●				●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	B	5	A32
RU200-CP40-2UN8X2T 1610055	200		●			●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	B	6	A32
RU200-CP40-2UP8X2T/S10 1610092	200	●				●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	C	5	A32
RU200-CP40-2UN8X2T/S10 1610090	200		●			●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	C	6	A32
RU200-CP40-LIU2P8X2T 1610054	200			●		●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	B	7	A32
RU200-CP40-LIU2N8X2T 1610056	200				●	●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	B	8	A32
RU200-CP40-LIU2P8X2T/S10 1610093	200			●		●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	C	7	A32
RU200-CP40-LIU2NP8X2T/S10 1610091	200				●	●	●	5	60°	1	20	≤ 1 m/s	≤ 2 m/s	3	C	8	A32

We reserve the right to make technical alterations without prior notice.

Notes

Notes

Cylinder Position Sensor Selection Guide

Cylinder Position Sensors				
Housing	**UNT**	**UNTK**	**INT**	**UNR**
Pages	**G13**	**G15**	**G17**	**G19**
Style of Cylinder				

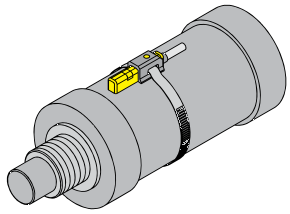
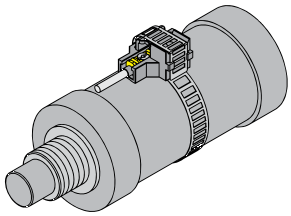
Cylinder Position Sensors				
Housing	**PST**	**KST**	**AKT**	**IKE/IKT**
Pages	**G21**	**G23**	**G25**	**G27**
Style of Cylinder				

Cylinder Position Sensors			Inductive	World Clamp Sensors
Housing	**IKM**	**NST**	**CRS**	**Variable**
Pages	**G29**	**G31**	**G33 - 36**	**G37 - 42**
Style of Cylinder				

	Magnetic Analog		
Housing	**UNTL**	**25 mm**	**Variable**
Pages	**G43**	**G45**	**G47**
Style of Cylinder			

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

Drawing	Manufacturer	Cylinder Series	Turck Sensor	Turck Bracket	
	Parker	P, SRM, SRDM, XLT, XLR, XKB, (S, SRD)[3]	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	
	Festo	CRDG, CRDSNU, CRDSW, DSNU, SDNUL, DSEU, ESEU, ESNU, ESW, (DSN)[3]	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	
	Bimba	Original Line II (0L2), Original Line (M, MH, MNR, MC, MRS), Doublle Wall (DW, DWD, DWN, DWM), PC, Z Series (M04, M09, M17, M31), Linear Thrusters (T, TE)	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	
	SMC	NCM, NCJ2, NCG, NCA1, CJ2, CM2, CG1, MGG	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	
	Norgren	Round Line (RL)	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	
	Fabco-Air	Pancake (X, XK, O, OP, XDR, XDRK, ODR), Linear Slide (L, S, E,)	UNT Style	KLRC-UNT*[4]	KLRC with ASB Clamp[2]
			UNR Style	KLRC-2 with ASB Clamp[2]	

1. This Mounting is to be used only when "Switch Rail" is present on the cylinder.
2. ASB size is determined by the cylinder diameter. See Table 1. KLDT is required when the UNT sensor has integral quick disconnect.
3. These styles are not usually available with magnets.
4. Bracket size determined by the cylinder diameter. See Table 2.

UNT Housing with KLDT-UNT and ASB Style Strap		
Cylinder Diameter		Clamp
Inches	Millimeters	(Stainless Steel)
.276 - .433	7 - 11	ASB-1
.433 - .748	11 - 19	ASB-2
.709 - 1.142	18 - 29	ASB-3
1.102 - 1.535	28 - 39	ASB-4
1.496 - 1.929	38 - 49	ASB-5
1.890 - 2.323	48 - 59	ASB-6
2.283 - 2.717	58 - 69	ASB-7
2.677 - 3.110	68 - 79	ASB-8

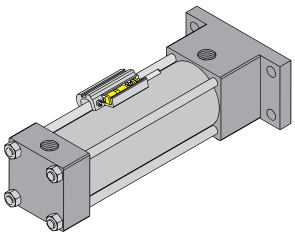
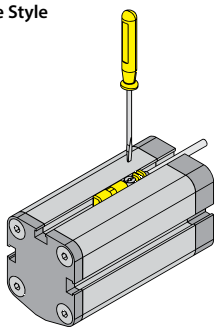
Table 1

UNT Housing with KLRC-UNT*		
Part Number	Cylinder Diameter	
	Inches	Millimeters
KLRC-UNT1	.315 - .984	8 - 25
KLRC-UNT2	.984 - 2.480	25 - 63
KLRC-UNT3	2.480 - 5.118	63 - 130
KLRC-UNT4	5.118 - 9.843	130 - 250

Table 2

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

Drawing	Manufacturer	Cylinder Series	Turck Sensor	Turck Bracket
Tie Rod Style  **KLZ* (Table 3)**	Numatics	A, E, S, L, B Square, VDMA-Z	UNT Style	KLZ Series Clamp[1]
	Parker	P5E, HBT, LPM, (S, C, LP)[2]	UNT Style	KLZ Series Clamp[1]
	PHD	A2, A3, AS, AV, AV2, A3V, AVS, HV, HV2, H3V, HVS, DAV, DHV, EA, EL, EH, ES, NPG, NHG, NEAG, NEHG, TD, (A)[2]	UNT Style	KLZ Series Clamp[1]
	Festo	DNGU, DNGUL, DNGUT, DNU, DNUL, CRDNG, CRDNGS, DNG, DNGL, DNGZK, DNGZL, DNGZS, DKE	UNT Style	KLZ Series Clamp[1]
	Bimba	Flat-I (FO, FOD, FOP, FOR, FOS, FS, FSD, FSR, FSS, F02, F03, F04), Flat-II (FT, FST)	UNT Style	KLZ Series Clamp[1]
	SMC	ECQ2, MB, C95	UNT Style	KLZ Series Clamp[1]
	Norgren	A, EA, SS, N, J, EJ, 8000/M	UNT Style	KLZ Series Clamp[1]
	Turn-Act	NFPA Series	UNT Style	KLZ Series Clamp[1]
	Fabco-Air	Long Stroke (321, 521, 721, 1221, S321, S521, S721, S1221), Hi-Power (HP, THP, UHP), Multi-Power (MP, BA, BP), Linear Slide [3] (SE, EZ, TS)	UNT Style	KLZ Series Clamp[1]
T-Groove Style 	Parker	P1M, P5T, SST	UNT Style	No Additional Bracket Required
	Festo	DNC, DNCT, DFM, DPZ, DPZJ, DZF, EZH, ADVU, ADVULQ, ADVUL	UNT Style	No Additional Bracket Required
	SMC	CUJ, CXS, MGQ, MY1B, MHC, MHL2	UNT Style	No Additional Bracket Required

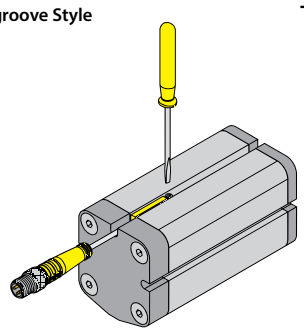
1. When using KLZ Series Clamps, user must determine clamp size best suited for application.
2. These styles are usually not available with magnets.
3. Some of these may be equipped to handle 5, 8, or 12 mm inductive proximity sensors.

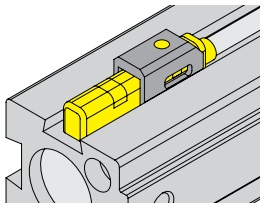
UNT Sensor with KLZ* Mounting		
Part Number	**Tie Rod Diameter Maximum**	
	Inches	**Millimeters**
KLZ1A-INT CLAMP	.236	6.0
KLZ1M-UNT CLAMP	.290	7.37
KLZ2M-UNT CLAMP	.351	8.93
KLZ3M-UNT CLAMP	.482	12.25

Table 3

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

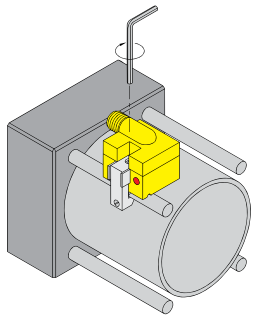
Drawing	Manufacturer	Cylinder Series	Turck Sensor	Turck Bracket
C-groove Style 	Numatics	K	UNR Style	No Additional Bracket Required
	Festo	ADVC	UNR Style	No Additional Bracket Required
	Bimba	Twin Bore (TB, TBA, TBD), EF1 Series (EF, EFD, EFS, EFR), EF2 Series (EFT), PneuMoment Series (PM)	UNR Style	No Additional Bracket Required
	SMC	(CQ2, CQs, NCDQ2, NCQ2)[1], (CDQ2)[1], CU, CUK, CUW, MU, MHF2, Air Slides (MXQ)	UNR Style	No Additional Bracket Required
	Compact Air	B, C	UNR Style	No Additional Bracket Required
	PHD	CRH O-groove	UNR Style	No Additional Bracket Required

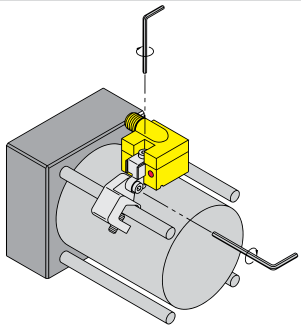
Drawing	Manufacturer	Cylinder Series	Turck Sensor	Turck Bracket
Dovetail Style 	Numatics	B,F, Compact C, Short Stroke, Rotary Actuator, Pee Wee (O, P, Q), VDMA-V, Ring Series	UNT Style	KLDT-UNT3
	Norgren	90000, 91000, 92000, 93000, Lite (A44000)	UNT Style	KLDT-UNT3
	Fabco-Air	Square 1 (SQ, SQF, SQL) Pancake (X,XK, O, OP, XDR, XDRK, ODR) Linear Slide1 (GB, L, S, E, SE, EZ, TS)[2]	UNR Style	KLFA-2UNR
	Compact Air	Inch Series (AB, AS, AR, AT) Inch Series (B, R, S, T)[3] Ball Slide (BSC) GC, CD, ACLA, ACLAD, (CLA, CLAD)[3] Metric Series (AWS, AWB, AWT) Metric Series (WS, WB, WT)[3] B/Base Mount, S/End Mount R/ End Mount, (CSC, PSC, TCL)[4]	UNT Style	KLDT-UNT4
	SMC	CP95	UNT Style	KLDT-UNT6

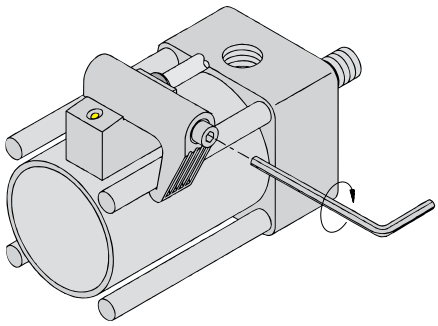
1. CQ2, NC(D) Q2, CQS, NCQ2 cylinders may have multiple grooves and may not be suited for the UNR style sensor.
2. This mounting is to be used only when dovetail style mounting rail is present on the cylinder.
3. These styles are usually not available with magnets.
4. This mounting is to be used only when sensor mounting rail is present on collet.

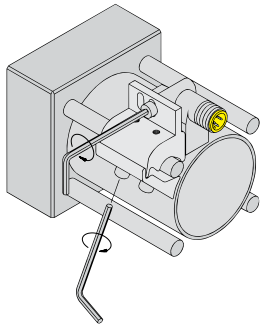
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

Drawing	AKT Housing with KLA-1 Clamp	
	**Cylinder Diameter**	1.26 - 1.97 inches 32 - 50 mm
	Rod Diameter	0.16 - 0.31 inches 4 - 8 mm
	Clamp	KLA-1 (Aluminum)

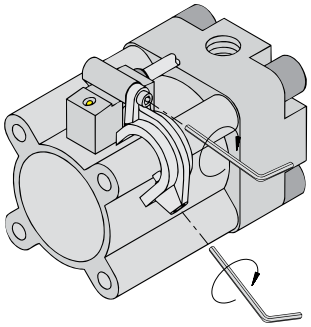
Drawing	AKT Housing with KLA-2 Clamp	
	**Cylinder Diameter**	1.57 - 4.92 inches 40 - 125 mm
	Rod Diameter	0.28 - 0.51 inches 7 - 13 mm
	Clamp	KLA-2 (Die-cast Zinc)

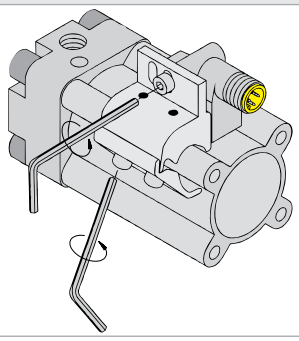
Drawing	IKE, IKT, and IKM Housing with KLI-1 or KLI-3 Clamp		
	**Cylinder Diameter**	1.26 - 3.94 inches 32 - 100 mm	2.48 - 6.30 inches 63 - 160 mm
	Rod Diameter	0.16 - 0.51 inches 4 - 13 mm	0.24 - 0.63 inches 6 - 16 mm
	Clamp	KLI-1 (Die-cast Zinc)	KLI-3 (Die-cast Zinc)

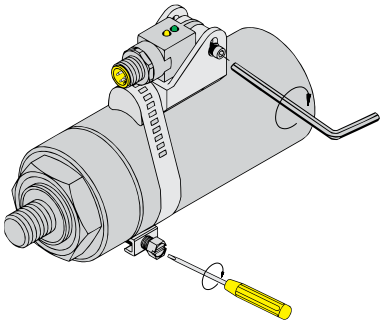
Drawing	IKE, IKT, and IKM Housing with KLI-5Z or KLI-6Z Clamp		
	**Cylinder Diameter**	1.26 - 2.48 inches 32 - 63 mm	1.97 - 4.92 inches 50 - 125 mm
	Rod Diameter	0.16 - 0.31 inches 4 - 8 mm	0.24 - 0.51 inches 6 - 13 mm
	Clamp	KLI-5Z (Aluminum)	KLI-6Z (Aluminum)

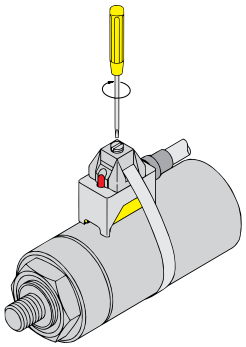
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

Drawing	IKE, IKT, and IKM Housing with KLI-2 Clamp	
	**Cylinder Diameter**	1.26 - 3.94 inches 32 - 100 mm
	Rod Diameter	0.35 - 0.79 inches 9 - 20 mm
	Clamp	KLI-2 (Die-cast Zinc)

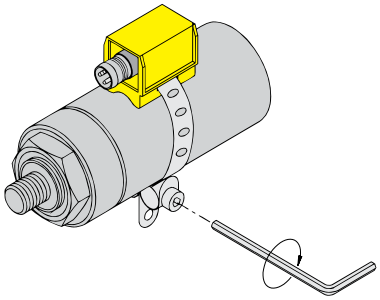
Drawing	IKE, IKT, and IKM Housing with KLI-5 or KLI-6 Clamp		
	**Cylinder Diameter**	1.26 - 1.97 inches 32 - 50 mm	1.97 - 3.94 inches 50 - 100 mm
	Rod Diameter	0.31 - 0.55 inches 8 - 14 mm	0.43 - 0.75 inches 11 - 19 mm
	Clamp	KLI-5 (Aluminum)	KLI-6 (Aluminum)

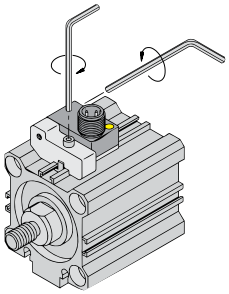
Drawing	IKE, IKT, and IKM Housing with KLI-CB64 or KLI-CB124 Clamp		
	**Cylinder Diameter**	0.79 - 2.52 inches 20 - 64 mm	0.79 - 4.88 inches 20 - 124 mm
	Rod Diameter	0.31 - 0.55 inches 8 - 14 mm	0.43 - 0.75 inches 11 - 19 mm
	Clamp	KLI-CB64 (Stainless Steel/Steel)	KLI-CB124 (Stainless Steel/Steel)

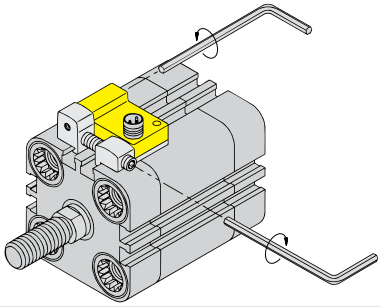
Drawing	KST Housing with KST-SB170 and KST-SB335 Clamps	
	**Cylinder Diameter**	0.31 - 0.99 inches 8 - 25 mm	0.31 - 3.15 inches 8 - 80 mm
	Strap	KST-SB170 (Stainless Steel)	KST-SB335 (Stainless Steel)
	Mount	KST-MG (Die-cast Zinc)	
	Screw Plate	KST-SE (Die-cast Zinc)	

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

Drawing	PST Housing with KLP80-VA and KLP200-VA Clamps		
	**Cylinder Diameter**	0.31 - 3.15 inches 8 - 80 mm	3.15 - 7.87 inches 0 - 200 mm
	Clamp	KLP80-VA (Stainless steel band, brass nuts)	KLP200-VA (Stainless steel band, brass nuts)

Drawing	NST Housing with KLQ-1 or KLQ-2 Clamps	
	**Cylinder Diameter**	0.47 - 3.94 inches 12 - 100 mm
	Cylinder Manufacturer	SMC
	Cylinder Family	NCDQ2
	Clamp	SMC-325 (Anodized Aluminum)

Drawing	NST Housing with KLN-3 Clamp	
	**Cylinder Diameter**	0.47 - 3.94 inches 12 - 100 mm
	Groove Diameter	0.20 - 0.53 (0.83) inches 5.2 - 13.5 (21)* mm
	Clamp	KLN-3 (Anodized Aluminum)
	***Accessory**	Longer M5 x 35 set screw (A0050)

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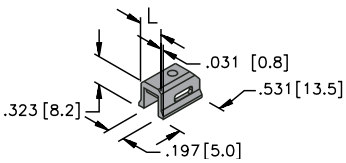
Cylinder Position Sensors

UNT Mounting Clamps

KLDT-UNT2

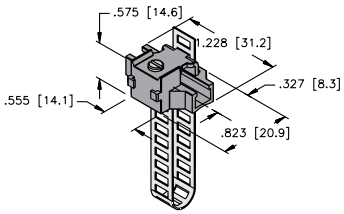


Part Number	"L" inches	"L" mm
KLDT-UNT2	.276	7
KLDT-UNT3	.370	9.4
KLDT-UNT4	.453	11.5
KLDT-UNT5	.496	12.6
KLDT-UNT6	.413	10.5
KLDT-UNT7	.260	6.6

Note: For outside dimension of beveled ears add 1.6 mm to bracket width listed.

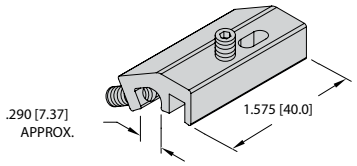
UNT Housing with KLDT-UNT and ASB Style Strap		
Cylinder Diameter		Clamp (Stainless Steel)
Inches	Millimeters	
.276 - .433	7 - 11	ASB-1
.433 - .748	11 - 19	ASB-2
.709 - 1.142	18 - 29	ASB-3
1.102 - 1.535	28 - 39	ASB-4
1.496 - 1.929	38 - 49	ASB-5
1.890 - 2.323	48 - 59	ASB-6

KLRC-UNT2

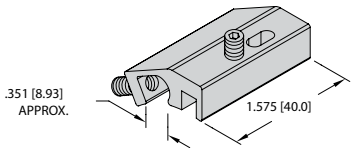


Part Number	Inches	Millimeters
KLRC-UNT1	.315 - .984	8 - 25
KLRC-UNT2	.984 - 2.480	25 - 63
KLRC-UNT3	2.480 - 5.118	63 - 130
KLRC-UNT4	5.118 - 9.843	130 - 250

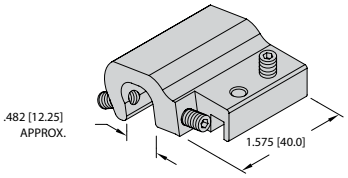
KLZ1M-UNT CLAMP



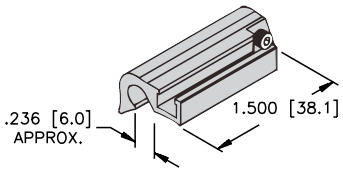
KLZ2M-UNT CLAMP



KLZ3M-UNT CLAMP



KLZ1A-INT CLAMP



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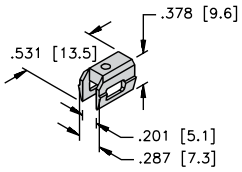
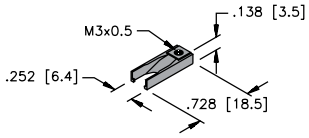
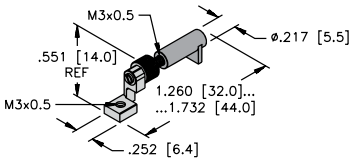
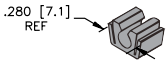
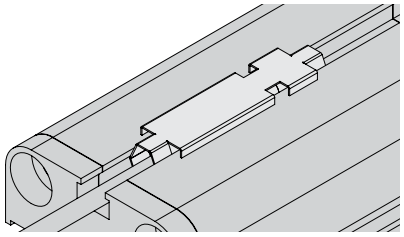
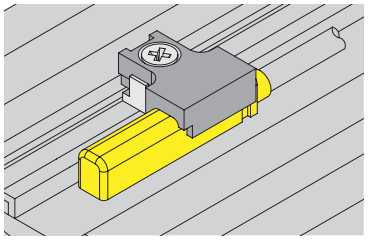
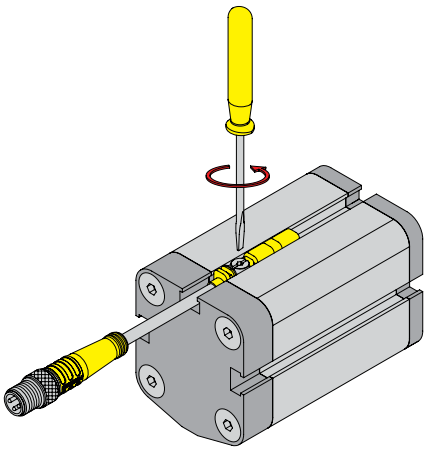
UNT Mounting Accessories

KLDT-UNT6 (6913355)	UNT-Stopper (4685751)	UNT-Adjusting Bracket (4685750)
		
UNT Mounting Screw, 2.5 mm (6901056)	**M2-BIM-UNT MTG SCRW. 1.5 mm (6901050)**	**UNT-Cable Clip (6900456)**
		
SG-UNT (A9800)	**KLT-UNT1 (6913377)**	
	 For use with SMC 325 Rail	

UNT Sensor Mounting

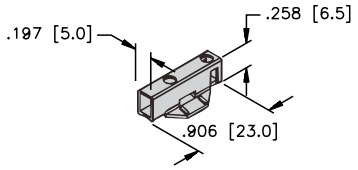
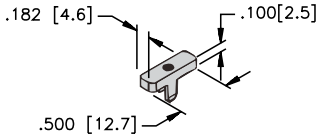
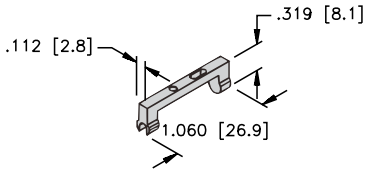
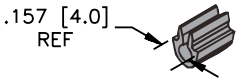
Note: Turn screw counter-clockwise to tighten.



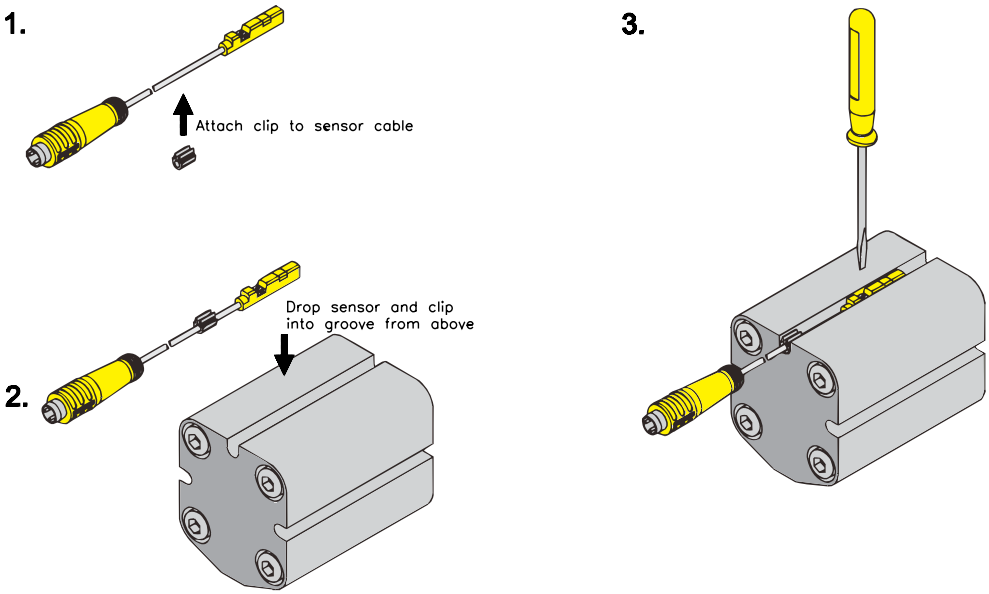
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors

UNR Mounting Accessories

KLR-2 UNR	KLFA-UNR	KLTR-2 UNR
		
UNR Cable Clip (6900428)	**M1.6 BIM-UNR-MTG SCR. 1.3 mm (6901055)**	
		

UNR Sensor Mounting



Note: Turn screw counter-clockwise to tighten. Use of mounting clip is optional.

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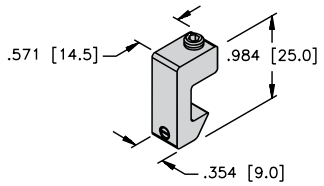
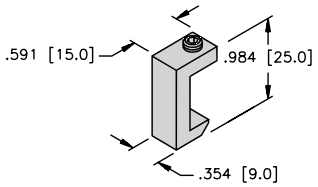
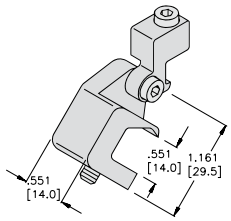
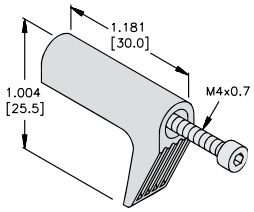
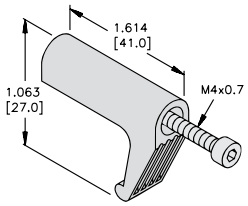
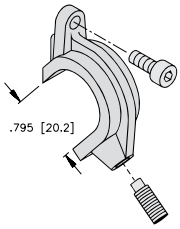
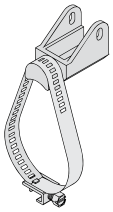
Mounting Clamps

KLA-1	KLA-3M	KLA-2	KLI-1
			

KLI-3	KLI-2	KLI-CB64 and KLI-CB124
		

Mounting Brackets for Q25L Sensor

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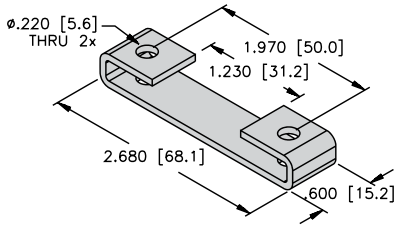
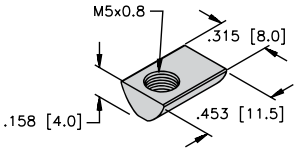
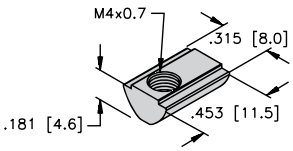
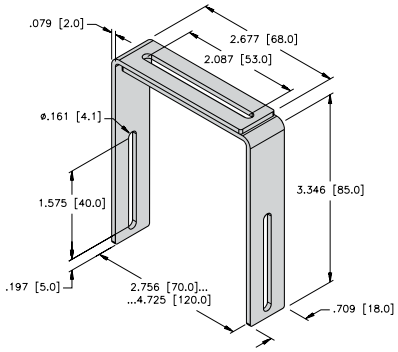
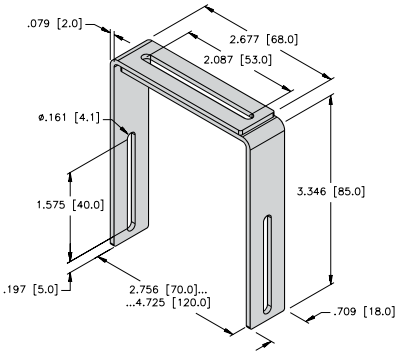
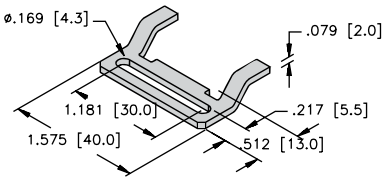
 Mounting Bracket	 Sliding block with M5 thread for the backside profile	 Sliding block with M4 thread for the backside profile

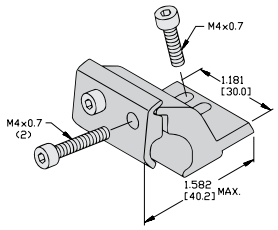
MB2.1-Q25	MB2.2-Q25	MB1-Q25
 Mounting bracket for cylinders 40-60 mm	 Mounting bracket for cylinders 70-120 mm	 Mounting Clip

We reserve the right to make technical alterations without prior notice.

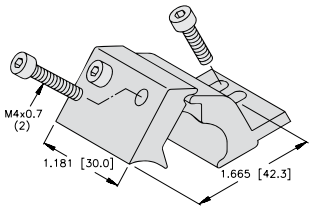
Cylinder Position Sensors

Mounting Clamps

KLI-5



KLI-5Z



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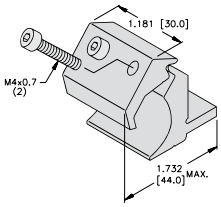
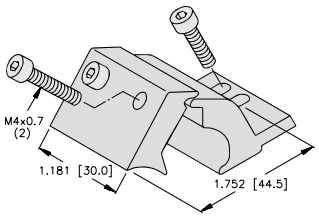
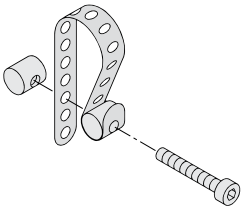


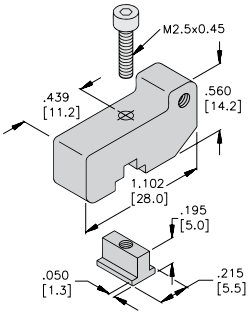
KLI-6Z



KLP 80-VA and KLP 200-VA



SMC-325



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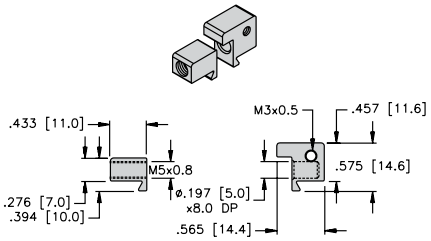

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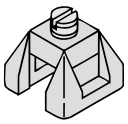
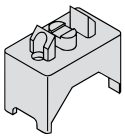
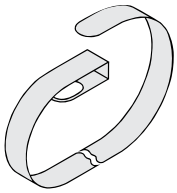


KST-MG (46735)



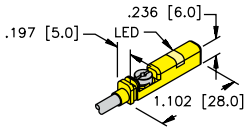
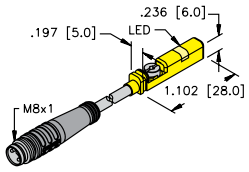
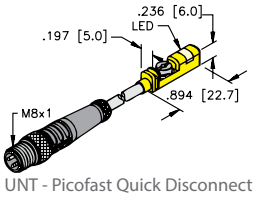
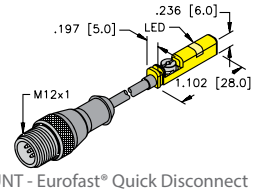
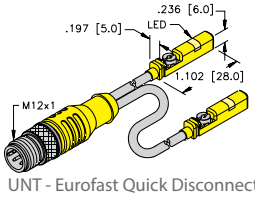
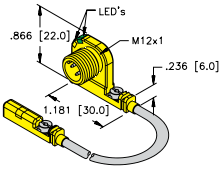
KST-SB170 and KST-SB335



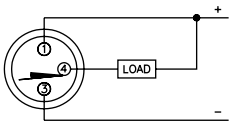
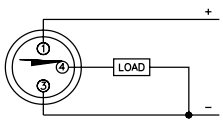
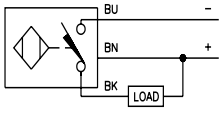
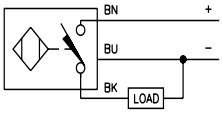
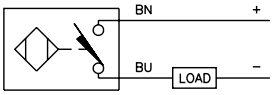
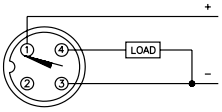
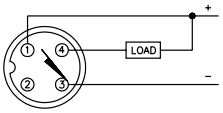
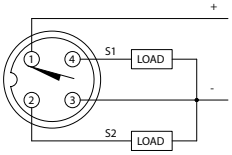
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNT

T-groove, C-groove, Tie-rod, and Round Cylinder Style

Housing Style	Dimension Drawings	
	A  UNT - Potted-In Cable	B  UNT - Picofast® Quick Disconnect
C  UNT - Picofast Quick Disconnect	D  UNT - Eurofast® Quick Disconnect	E  UNT - Eurofast Quick Disconnect
F  UNT - Eurofast Quick Disconnect		

Wiring Diagrams/Mating Cordsets

1  Mating Cordset: PKG 3Z-*	2  Mating Cordset: PKG 3Z-*; PKG 3M-*	3 	4 
5 	6  Mating Cordset: RK 4T-*	7  Mating Cordset: RK 4T-*	8  Mating Cordset: RK 4.4T-*; RKC 4.4T-*

A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

A14 — **2-wire DC - Magnetic (AD, AG)**

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	≤1 mm	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-Polarized (AD) ≤4 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤3.5 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Pass Speed:	≤3 ms, ≤10 ms (UNT)	Repeatability:	≥± 0.1 mm

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNT

T-groove, C-groove, Tie-rod, and Round Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-UNT-AN6X 4685702		3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/TPU	A	3	A13
BIM-UNT-AP6X 4685741		3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/TPU	A	4	A13
BIM-UNT-AG41X/S1139/S1160 4685766	Irradiated TPU Cable, Wider Range	2-wire DC	10-55 VDC	300	≤ 100	-25 to +70	IP67	PA 12	2M/TPU	A	5	A14
BIM-UNT-AN6X-0.3-PSG3S 4685705	Fixed Coupling Nut	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	0.3M/TPU	B	1	A13
BIM-UNT-AP6X-0.3-PSG3S 4685722	Fixed Coupling Nut	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	0.3M/TPU	B	2	A13
BIM-UNT-AP6X-0.3-PSG3M 4685723	Rotating Coupling Nut	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	0.3M/TPU	C	2	A13
BIM-UNT-AP6X-0.3-RS4T 46857260		3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	0.3M/TPU	D	6	A13
BIM-UNT-AN6X-0.3-RS4T 4685792		3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	0.3M/TPU	D	7	A13
BIM-UNT-0.3-UNT-2AP6X3-H1141 4685730	Dual Switch	4-wire DC, PNP	10-30 VDC	1000	≤ 150	-25 to +70	IP67	PP	0.3M/TPU	F	8	A13
BIM-UNT-AP6X/S991 4685728	Radial Magnetic Fields	3-wire DC, PNP	10-30 VDC	1000	≤ 150	-25 to +70	IP67	PP	2M/TPU	B	4	A13
BIM-UNT-2AP6X-0.2-RSC4.4T 4685891	Dual Switch	4-wire DC, PNP	10-30 VDC	1000	≤ 150	-25 to +70	IP67	PP	0.2M/TPU	E	8	A13

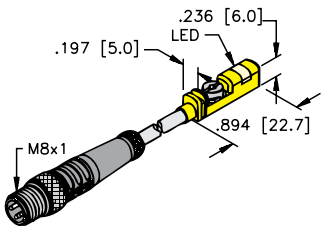
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNTK

T-groove Short Cylinder Style

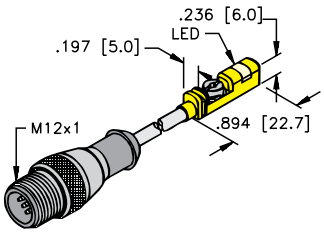
Housing Style	Dimension Drawings

A



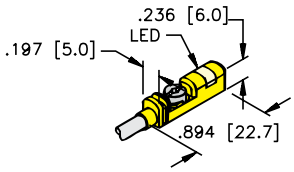
UNTK - Picofast Quick Disconnect

B



UNTK - Eurofast Quick Disconnect

C



UNTK - Potted-In Cable

Wiring Diagrams/Mating Cordsets

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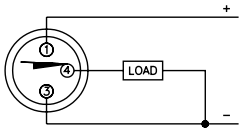

Mating Cordset: PKG 3Z-*

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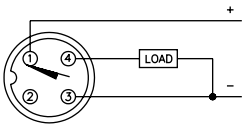
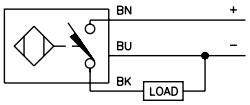


Mating Cordset: RK 4T-*

3



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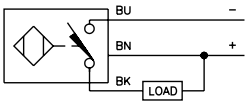


A13 — 3-wire DC - Magnetic (AN, RN, AP, RP)

Ripple:	≤10%
Differential Travel (Hysteresis):	≤1 mm
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current ≥170 mA on 150 mA Load Current ≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA;
Pass Speed:	≤10 ms; ≤3 ms (UNR)
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)

A17 — 3-wire DC - Magnetic w/o Short Circuit Protection (AP7)

Ripple:	≤10%
Differential Travel (Hysteresis):	≤1 mm
Voltage Drop Across Conducting Sensor:	≤1.4 V
Short Circuit Protection:	No
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤10 mA;
Pass Speed:	≤3 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤0.3 mm
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≥± 0.3 mm

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNTK

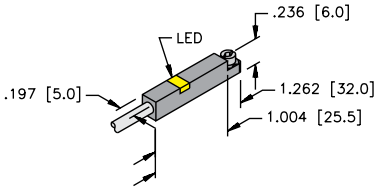
T-groove Short Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-UNTK-AP7X-0.3-PSG3M 4686011	Short Body	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	A	1	A17
BIM-UNTK-AP7X-0.3-RS4T 4686021	Short Body	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	B	2	A17
BIM-UNTK-AP7X 4686001	Short Body	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	2M TPU	C	3	A17
BIM-UNTK-AP6X 4686005	short Body	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP68	PP	2M TPU	C	3	A13
BIM-UNTK-AN6X 4686006	Short Body	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP69	PP	2M TPU	C	4	A13

We reserve the right to make technical alterations without prior notice.

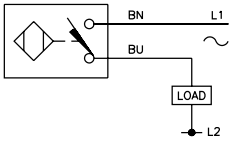
Cylinder Position Sensors | BR-INT

T-groove Cylinder Style or Universal Mount with Brackets

Housing Style	Dimension Drawings
	A  INT - Picofast Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



A3 — **2-wire Reed AC and DC (ADZ71)**

Ripple:	≤10%	Reverse Polarity Protection:	Yes
Differential Travel (Hysteresis):	≤1 mm (Depends on magnet)	Shock:	30 g, 11 ms
Maximum Switching Capacity:	≤10 W	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Off-State (Leakage) Current:	0 mA	Repeatability:	≥±0.1 mm
Pass Speed:	≤10 m/s		(constant temperature & voltage)
Power-On Effect:	Per IEC 947-5-2	Temperature Drift:	≤0.1 mm
Transient Protection:	Per EN 60947-5-2	Voltage Drop:	≤0.5 V

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BR-INT

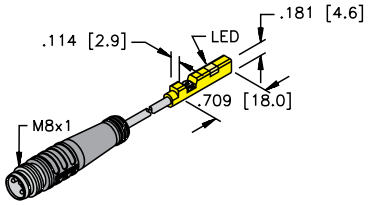
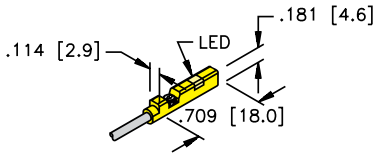
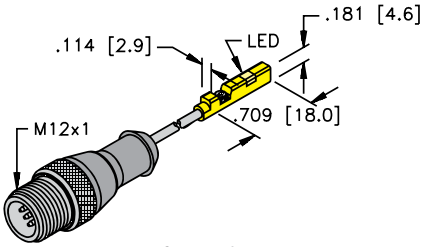
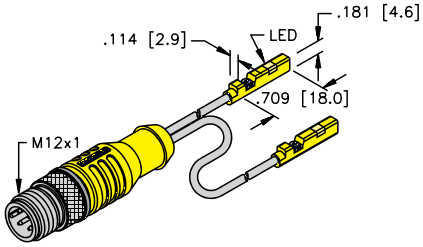
T-groove Cylinder Style or Universal Mount with Brackets

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BR-INT-ADZ71X 4700510	Reed Contact	2-wire AC/DC, Reed Contact	3-140 VAC/4-200 VDC	500	≤ 500	-25 to +70	IP67	PA 12	2M/PVC	A	1	A3

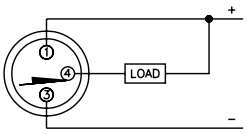
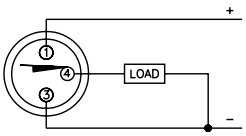
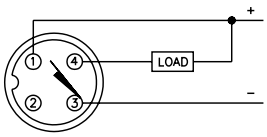
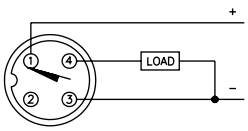
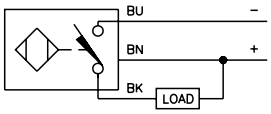
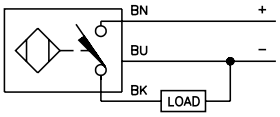
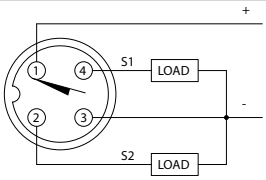
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNR

C-groove Cylinder Style

Housing Style	Dimension Drawings	
	A  UNR - Picofast Quick Disconnect	B  UNR - Potted-In Cable
C  UNR - Eurofast Quick Disconnect	D  UNR - Eurofast Quick Disconnect	

Wiring Diagrams/Mating Cordsets

1	2	3	4
 Mating Cordset: PKG 3Z-*	 Mating Cordset: PKG 3Z-*	 Mating Cordset: RK 4T-*	 Mating Cordset: RK 4T-*
5	6	7	
		 Mating Cordset: RKC 4.4T-*	

A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-UNR

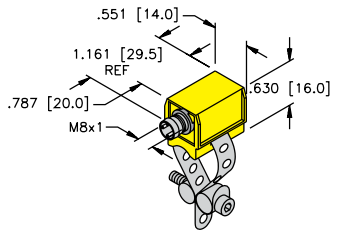
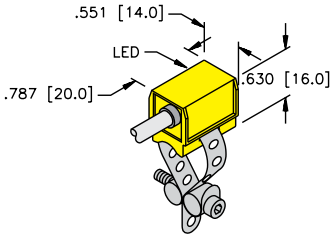
C-groove Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-UNR-AN6X-0.3-PSG3S W/M 4685848	Fixed Coupling Nut	3-wire DC, NPN	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	A	1	A13
BIM-UNR-AP6X-0.3-PSG3S W/M 4685843	Fixed Coupling Nut	3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	A	2	A13
BIM-UNR-AN6X-0.3-RS4 W/M 4685850		3-wire DC, NPN	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	C	3	A13
BIM-UNR-AP6X-0.3-RS4 W/M 4685845		3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.3M/TPU	C	4	A13
BIM-UNR-AN6X W/M 4685847		3-wire DC, NPN	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	2M/TPU	B	5	A13
BIM-UNR-AP6X W/M 4685842		3-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	2M/TPU	B	6	A13
BIM-UNR-2AP6X-0.2-RSC4.4T 4685899	Dual Switch	4-wire DC, PNP	10-30 VDC	300	≤ 100	-25 to +70	IP67	PP	0.2M/TPU	D	7	A13

We reserve the right to make technical alterations without prior notice.

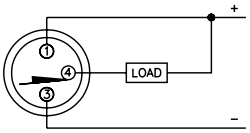
Cylinder Position Sensors | BIM-PST

Round Cylinder Style

Housing Style	Dimension Drawings	
	A  PST - Picofast Quick Disconnect	B  PST - Potted-In Cable

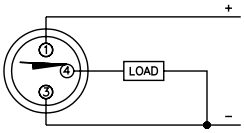
Wiring Diagrams/Mating Cordsets

1



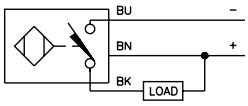
Mating Cordset: PKG 3Z-*

2



Mating Cordset: PKG 3Z-*

3



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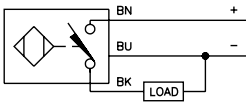


A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-PST

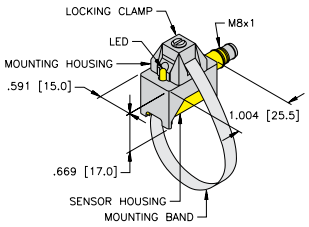
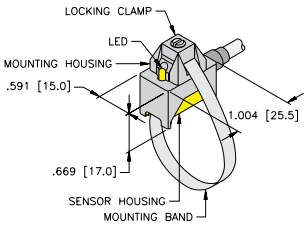
Round Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-PST-AN6X-V1131 W/KLP-80 4625190	KLP-80 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	A	1	A13
BIM-PST-AP6X-V1131 W/KLP-80 4625090	KLP-80 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	A	2	A13
BIM-PST-AN6X W/KLP-80 4624191	KLP-80 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/PVC	B	3	A13
BIM-PST-AP6X W/KLP-80 4624090	KLP-80 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/PVC	B	4	A13

We reserve the right to make technical alterations without prior notice.

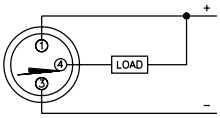
Cylinder Position Sensors | BIM-KST

Round Cylinder Style

Housing Style	Dimension Drawings	
	A  KST - Picofast Quick Disconnect	B  KST - Potted-In Cable

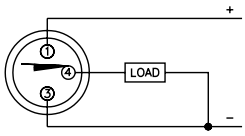
Wiring Diagrams/Mating Cordsets

1



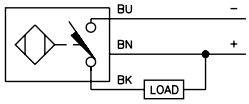
Mating Cordset: PKG 3Z-*

2



Mating Cordset: PKG 3Z-*

3



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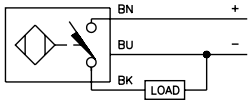


A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-KST

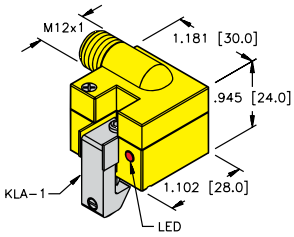
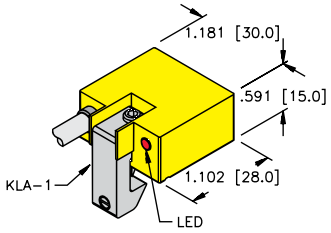
Round Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-KST-AN6X-V1131 46743	KST SB170 and KST SB335 Straps Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	A	1	A13
BIM-KST-AP6X-V1131 46742	KST SB170 and KST SB335 Straps Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	A	2	A13
BIM-KST-AN6X 46741	KST SB170 and KST SB335 Straps Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/ PVC	B	3	A13
BIM-KST-AP6X 46740	KST SB170 and KST SB335 Straps Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/ PVC	B	4	A13

We reserve the right to make technical alterations without prior notice.

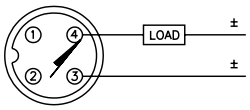
Cylinder Position Sensors | BIM-AKT

Tie-rod Cylinder Style

Housing Style	Dimension Drawings	
	A  AKT - Eurofast Connector	B  AKT - Potted-In Cable

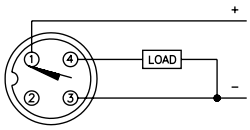
Wiring Diagrams/Mating Cordsets

1



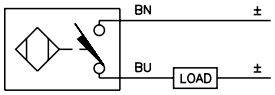
Mating Cordset: RK 4.2T-*

2



Mating Cordset: RK 4T-*

3



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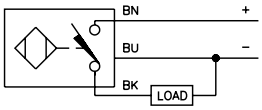


A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

A14 — **2-wire DC - Magnetic (AD, AG)**

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	≤1 mm	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-Polarized (AD) ≤4 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤3.5 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Pass Speed:	≤3 ms, ≤10 ms (UNT)	Repeatability:	≥± 0.1 mm

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-AKT

Tie-rod Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-AKT-AD4X-H1141 W/KLA-1 4480290	KLA-1 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	PA 12	--	A	1	A14
BIM-AKT-AP6X-H1141 W/KLA-1 4675290	KLA-1 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	A	2	A13
BIM-AKT-AD4X W/KLA-1 4480090	KLA-1 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	PA 12	2M/PVC	B	3	A14
BIM-AKT-AP6X W/KLA-1 4675090	KLA-1 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/PVC	B	4	A13

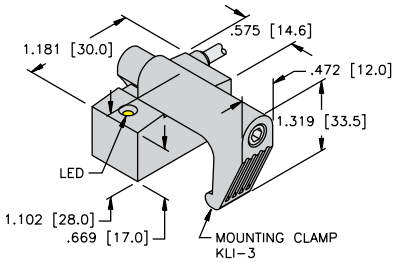
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-IKE/IKT

Tie-rod Cylinder Style

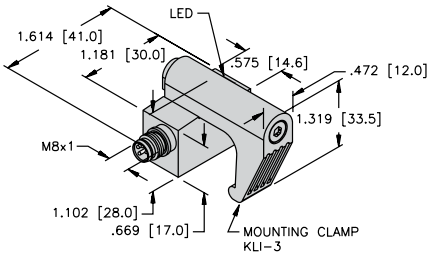
Housing Style	Dimension Drawings

A



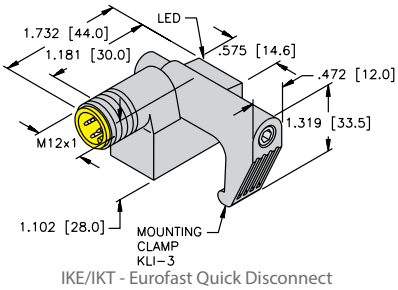
IKE/IKT - Potted-In Cable

B



IKE/IKT - Picofast Quick Disconnect

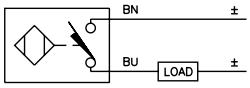
C



IKE/IKT - Eurofast Quick Disconnect

Wiring Diagrams/Mating Cordsets

1



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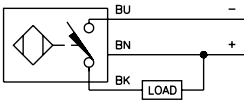

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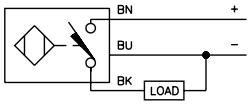

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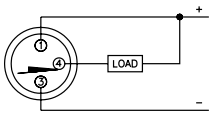
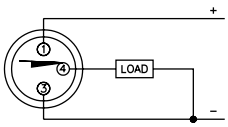


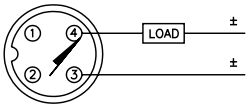
Mating Cordset: PKG 3Z-*

5



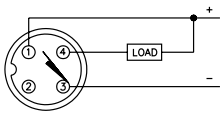
Mating Cordset: PKG 3Z-*

6



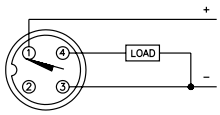
Mating Cordset: RK 4.2T-*

7



Mating Cordset: RK 4T-*

8



Mating Cordset: RK 4T-*

A13 — 3-wire DC - Magnetic (AN, RN, AP, RP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

A14 — 2-wire DC - Magnetic (AD, AG)

Ripple:	≤10%	Off-State (Leakage) Current:	≤0.8 mA
Differential Travel (Hysteresis):	≤1 mm	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	Non-Polarized (AD) ≤4 V	Transient Protection:	Per EN 60947-5-2
	Polarized (AG) ≤3.5 V	Shock:	30 g, 11 ms
Trigger Current for Short Circuit Protection:	≥120 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Pass Speed:	≤3 ms, ≤10 ms (UNT)	Repeatability:	≥± 0.1 mm

Additional Specifications

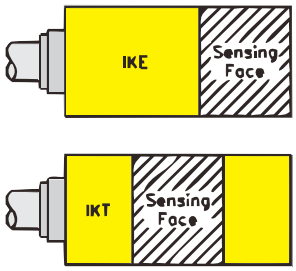
Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-IKE/IKT

Tie-rod Cylinder Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-IKE-AD4X W/KLI-3 4421490	KLI-3 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	Zinc	2M/PVC	A	1	A14
BIM-IKT-AD4X W/KLI-3 4482090	KLI-3 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	Zinc	2M/PVC	A	1	A14
BIM-IKE-AN6X W/KLI-3 4621590	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/PVC	A	2	A13
BIM-IKT-AN6X W/KLI-3 4620190	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/PVC	A	2	A13
BIM-IKE-AP6X W/KLI-3 4621490	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/PVC	A	3	A13
BIM-IKT-AP6X W/KLI-3 4620090	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	2M/PVC	A	3	A13
BIM-IKE-AN6X-V1131 W/KLI-3 4621795	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	B	4	A13
BIM-IKT-AN6X-V1131 W/KLI-3 4622195	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	B	4	A13
BIM-IKE-AP6X-V1131 W/KLI-3 4621695	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	B	5	A13
BIM-IKT-AP6X-V1131 W/KLI-3 4622095	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	B	5	A13
BIM-IKE-AD4X-H1141 W/KLI-3 4421690	KLI-3 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	Zinc	--	C	6	A14
BIM-IKT-AD4X-H1141 W/KLI-3 4482290	KLI-3 Included	2-wire DC	10-65 VDC	300	≤ 100	-25 to +70	IP67	Zinc	--	C	6	A14
BIM-IKE-AN6X-H1141 W/KLI-3 4621790	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	C	7	A13
BIM-IKT-AN6X-H1141 W/KLI-3 4621190	KLI-3 Included	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	C	7	A13
BIM-IKE-AP6X-H1141 W/KLI-3 4621690	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	C	8	A13
BIM-IKT-AP6X-H1141 W/KLI-3 4621090	KLI-3 Included	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	Zinc	--	C	8	A13



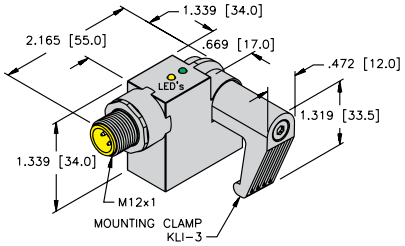
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-IKM

Tie-rod Cylinder Style

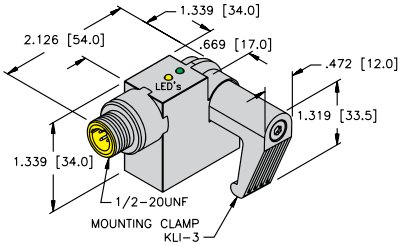
Housing Style	Dimension Drawings

A



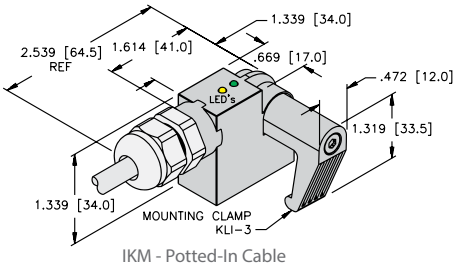
IKM - Eurofast Connector

B



IKM - Microfast® Connector

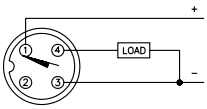
C



IKM - Potted-In Cable

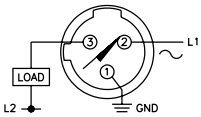
Wiring Diagrams/Mating Cordsets

1



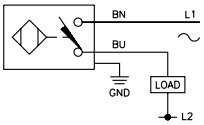
Mating Cordset: RK 4T-*

2



Mating Cordset: KB 3T-*

3



A13 — 3-wire DC - Magnetic (AN, RN, AP, RP)

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

A15 — 2-wire AC w/o Short-Circuit Protection - Magnetic (AZ)

Line Frequency:	≥50... ≤60 Hz	Pass Speed:	≤1 ms
Differential Travel (Hysteresis):	≤1 mm	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤6.0 V	Transient Protection:	Per EN 60947-5-2
Continuous Load Current:	AC: ≤500 mA	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤1.7 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Minimum Load Current:	≥5.0 mA	Repeatability:	≥± 0.1 mm

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

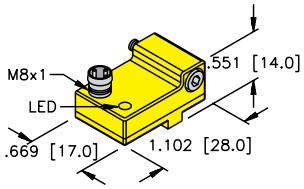
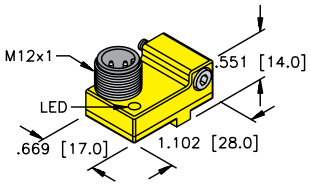
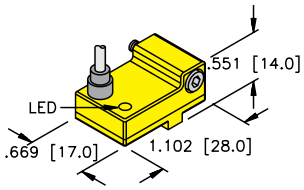
Cylinder Position Sensors | BIM-IKM

Tie-rod Cylinder Style

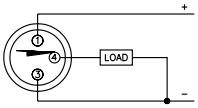
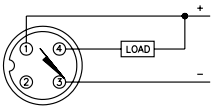
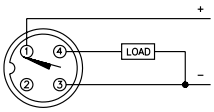
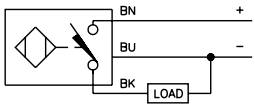
Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-IKM-AP6X2-H1141/S34W/KLI-3 4627290	KLI-3 Included, WFI	3-wire DC, PNP	10-30 VDC	20	≤ 200	-25 to +70	IP67	Zinc	--	A	1	A13
BIM-IKM-AZ3X2-B3131 W/KLI-3 1347190	KLI-3 Included	2-wire AC	20-250 VAC	20	≤ 500	-25 to +70	IP67	Zinc	--	B	2	A15
BIM-IKM-AZ3X2 W/KLI-3 1347290	KLI-3 Included	2-wire AC	20-250 VAC	20	≤ 500	-25 to +70	IP67	Zinc	2M/PVC	C	3	A15

We reserve the right to make technical alterations without prior notice.

T-groove or Slot Style

Housing Style	Dimension Drawings
	A  NST - Picofast Connector
B  NST - Picofast Connector	C  NST - Potted-In Cable

Wiring Diagrams/Mating Cordsets

1	2	3	4
			
Mating Cordset: PKG 3Z-*	Mating Cordset: RK 4T-*	Mating Cordset: RK 4T-*	

A13 — **3-wire DC - Magnetic (AN, RN, AP, RP)**

Ripple:	≤10%	Power-On Effect:	Per IEC 947-5-2
Differential Travel (Hysteresis):	≤1 mm	Reverse Polarity Protection:	Incorporated
Voltage Drop Across Conducting Sensor:	≤1.8 V	Wire-Break Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥170 mA on 150 mA Load Current	Temperature Drift:	≤0.1 mm, ≤0.3 mm (UNR)
	≥120 mA on 100 mA Load Current	Shock:	30 g, 11 ms
Off-State (Leakage) Current:	≤0.1 mA	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
No-Load Current:	≤15 mA;	Repeatability:	≥± 0.1 mm, ≥± 0.3 mm (UNR)
Pass Speed:	≤10 ms; ≤3 ms (UNR)		

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | BIM-NST

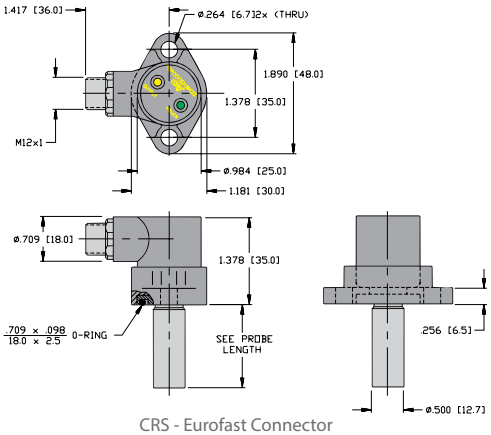
T-groove or Slot Style

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-NST-AP6X-V1131 4685800	w/o Bracket	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	A	1	A13
BIM-NST-AN6X-H1141 4685500	w/o Bracket	3-wire DC, NPN	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	B	2	A13
BIM-NST-AP6X-H1141/S34 4685401	w/o Bracket, WFI	3-wire DC, PNP	10-30 VDC	20	≤ 200	-25 to +70	IP67	PA 12	--	B	3	A13
BIM-NST-AP6X-H1141 4685400	w/o Bracket	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	--	B	3	A13
BIM-NST-AP6X 4685600	w/o Bracket	3-wire DC, PNP	10-30 VDC	1000	≤ 200	-25 to +70	IP67	PA 12	2M/PVC	C	4	A13

We reserve the right to make technical alterations without prior notice.

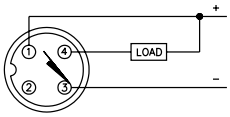
Cylinder Position Sensors | CRS

In-Cylinder Position Sensors

Housing Style	Dimension Drawings
	A  CRS - Eurofast Connector

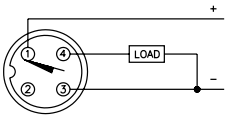
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4T-*

2



Mating Cordset: RK 4T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤1.8 V
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current:	≤0.1 mA
No-Load Current:	≤15 mA (Ferrite, Uprox)
	≤20 mA (Uprox+, Uprox 3)
Time Delay Before Availability:	≤8 ms
Power-On Effect:	Per IEC 947-5-2
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Incorporated
Transient Protection:	Per EN 60947-5-2
Temperature Drift:	≤±10%
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | CRS

In-Cylinder Position Sensors

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-CRS260-AN4X2-H1141/S34 4580004	WFI; 1,500 PSI Operating	3-wire DC, NPN	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	1	A4
Bi2-CRS317-AN4X2-H1141/S34 4580093	WFI; 1,500 PSI Operating	3-wire DC, NPN	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	1	A4
Bi2-CRS343-AN4X2-H1141/S34 4571890	WFI; 1,500 PSI Operating	3-wire DC, NPN	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	1	A4
Bi2-CRS524-AN4X2-H1141/S34 4568096	WFI; 1,500 PSI Operating	3-wire DC, NPN	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	1	A4
Bi2-CRS232-AP4X2-H1141/S34 4570492	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS260-AP4X2-H1141/S34 4570890	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS287-AP4X2-H1141/S34 4571290	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS317-AP4X2-H1141/S34 4571690	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS343-AP4X2-H1141/S34 4571800	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS476-AP4X2-H1141/S34 4580091	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS524-AP4X2-H1141/S34 4580090	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS603-AP4X2-H1141/S34 4580096	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS705-AP4X2-H1141/S34 4580089	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS730-AP4X2-H1141/S34 4580003	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS959-AP4X2-H1141/S34 4571891	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi2-CRS1159-AP4X2-H1141/S34 4570899	WFI; 1,500 PSI Operating	3-wire DC, PNP	10-65 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi1.5-CRS524C-AP6X2-H1141 4279091	High Pressure; 3,000 PSI Operating	3-wire DC, PNP	10-30 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4
Bi1.5-CRS260C-AP6X2-H1141 4279092	High Pressure; 3,000 PSI Operating	3-wire DC, PNP	10-30 VDC	30	≤ 200	-25 to +70	IP67	Zinc	A	2	A4

Bi *-CRS-XXXX-.. = Length of probe in mm. Example: CRS260 = 26.0 mm

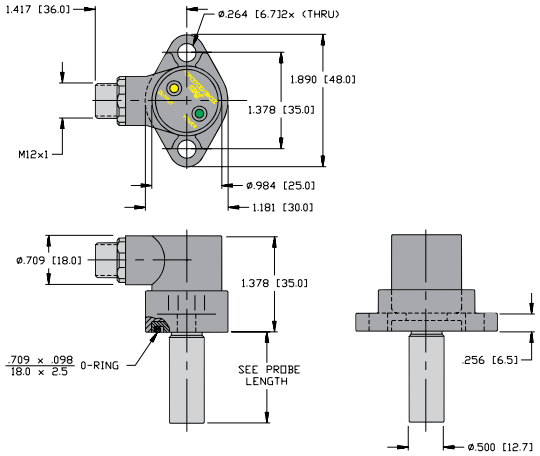
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | CRS

In-Cylinder Position Sensors

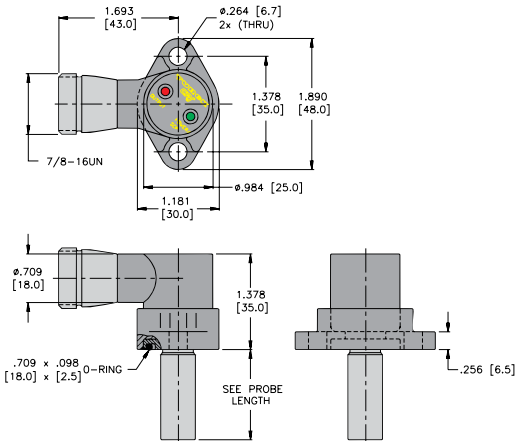
Housing Style	Dimension Drawings

A



CRS - Microfast Connector

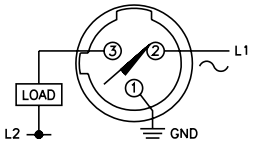
B



CRS - Minifast® Connector

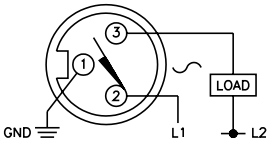
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: KB 3T-*

2



Mating Cordset: RKM 311-*M

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz
Differential Travel (Hysteresis):	3-15% (5% typical)
Voltage Drop Across Conducting Sensor:	≤6.0 V
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA
	AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA
	AC: ≤100 mA; DC: ≤100 mA
Off-State (Leakage) Current:	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current:	≥3.0 mA
Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Power-On Effect:	Per IEC 947-5-2
Transient Protection:	Per EN 60947-5-2
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | CRS

In-Cylinder Position Sensors

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Dimension Drawings	Wiring Diagrams	Spec List
Bi2-CRS232-ADZ30X2-B3131/S34 4275093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS260-ADZ30X2-B3131/S34 4275493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS317-ADZ30X2-B3131/S34 4276293	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS476-ADZ30X2-B3131/S34 4276693	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS524-ADZ30X2-B3131/S34 4277093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS730-ADZ30X2-B3131/S34 4278293	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS959-ADZ30X2-B3131/S34 4279093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS1159-ADZ30X2-B3131/S34 4279493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	A	1	A5
Bi2-CRS232-ADZ30X2-B1131/S34 4270093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS260-ADZ30X2-B1131/S34 4270493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS317-ADZ30X2-B1131/S34 4271293	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS343-ADZ30X2-B1131/S34 4271493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS476-ADZ30X2-B1131/S34 4271693	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS524-ADZ30X2-B1131/S34 4272093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS603-ADZ30X2-B1131/S34 4272493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS705-ADZ30X2-B1131/S34 4272893	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS730-ADZ30X2-B1131/S34 4273293	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS959-ADZ30X2-B1131/S34 4274093	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi2-CRS1159-ADZ30X2-B1131/S34 4274493	WFI; 1,500 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS959C-ADZ30X2-B1131 4279094	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS730C-ADZ30X2-B1131 4279095	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS260C-ADZ30X2-B1131 4279096	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS232C-ADZ30X2-B1131 4279097	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS524C-ADZ30X2-B1131 4279098	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5
Bi1.5-CRS317C-ADZ30X2-B1131 4279099	High Pressure; 3,000 PSI Operating	2-wire AC/DC	20-250 VAC/10-300 VDC	20	≤ 400/300	-25 to +70	IP67	Zinc	B	2	A5

Bi *-CRS-XXXX-.. = Length of probe in mm. Example: CRS260 = 26.0 mm

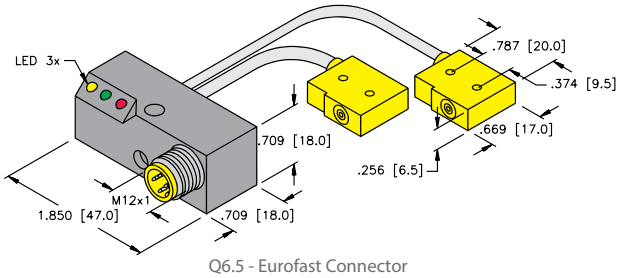
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Q6.5

Power Clamp Position Sensors

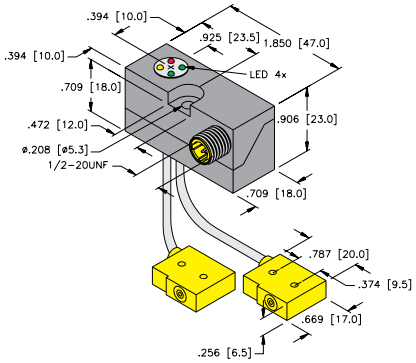
Housing Style	Dimension Drawings

A



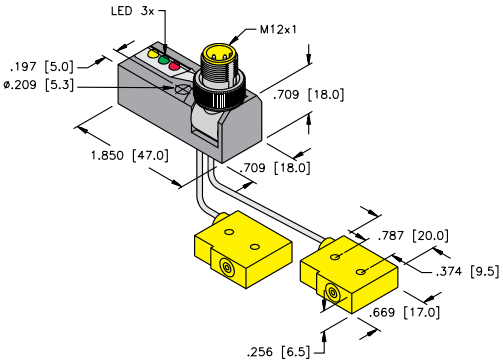
Q6.5 - Eurofast Connector

B



Q6.5 - Microfast Connector

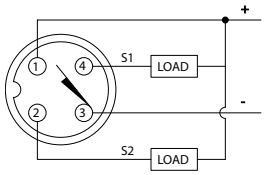
C



Q6.5 - Eurofast Connector

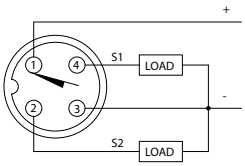
Wiring Diagrams/Mating Cordsets

1



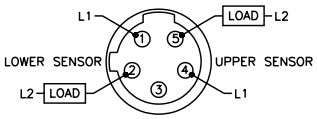
Mating Cordset: RK 4.4T-*

2



Mating Cordset: RK 4.4T-*

3



Mating Cordset: KB 5T-*

A4 — 3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A5 — 2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Q6.5

Power Clamp Position Sensors

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni2-Q6.5-AN6-0.1-FS4.4X3/S304 1650079		4-wire DC, NPN	10-30 VDC	30	≤ 500	-25 to +70	IP67	PBT	0.1M/TPU	A	1	A4
Ni2-Q6.5-AN6-0.16-FS4.4X3/S304 1650085		4-wire DC, NPN	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.16M/TPU	A	1	A4
Ni2-Q6.5-AP6-0.1-FS4.4X3/S304 1650048		4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.1M/TPU	A	2	A4
Ni2-Q6.5-AP6-0.16-FS4.4X3/S304 1650086		4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.16M/TPU	A	2	A4
Ni2-Q6.5-AP6-0.2-FS4.4X3/S304 1650047		4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.2M/TPU	A	2	A4
Ni2-Q6.5-0.1-BDS-2AP6X3-H1141/S34 1650098	WFI	4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.1M/TPU	C	2	A4
Ni2-Q6.5-0.16-BDS-2AP6X3-H1141/S34 1650110	WFI	4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.16M/TPU	C	2	A4
Ni2-Q6.5-ADZ32-0.1-FSB5.4X4/S304 4200204		4-wire, VAC/DC	20-250 VAC/10-300 VDC	30	≤ 100	-25 to +70	IP67	PBT	0.1M/TPU	B	3	A5
Ni2-Q6.5-ADZ32-0.16-FS 5.4X4/S304 4200203		4-wire, VAC/DC	20-250 VAC/10-300 VDC	30	≤ 100	-25 to +70	IP67	PBT	0.16M/TPU	B	3	A5

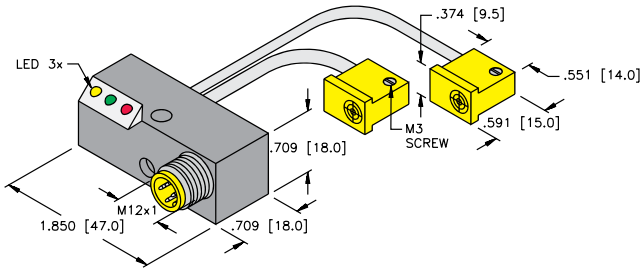
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Q9.5

Power Clamp Position Sensors

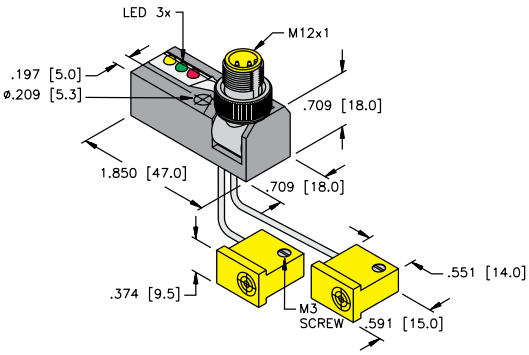
Housing Style	Dimension Drawings

A



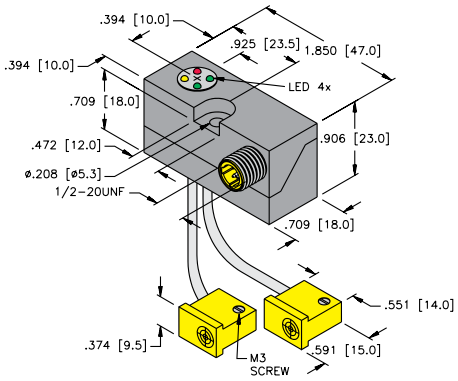
Q9.5 - Eurofast Connector

B



Q9.5 - Eurofast Connector

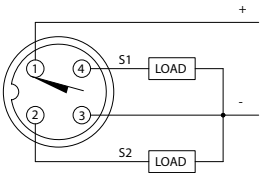
C



Q9.5 - Microfast Connector

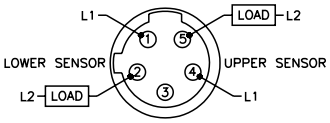
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

2



Mating Cordset: KB 5T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

A5 — **2-wire AC/DC w/ Short-Circuit Protection - (ADZ, RDZ, FDZ, VDZ)**

Line Frequency:	≥50... ≤60 Hz	Minimum Load Current:	≥3.0 mA
Differential Travel (Hysteresis):	3-15% (5% typical)	Inrush Current:	≤3 A (≤20 ms, max 5 Hz)
Voltage Drop Across Conducting Sensor:	≤6.0 V	Power-On Effect:	Per IEC 947-5-2
Trigger Current for Short Circuit Protection:	AC: ≥440 mA; DC: ≥330 mA	Transient Protection:	Per EN 60947-5-2
	AC: ≥120 mA; DC: ≥120 mA	Shock:	30 g, 11 ms
Continuous Load Current:	AC: ≤400 mA; DC: ≤300 mA	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
	AC: ≤100 mA; DC: ≤100 mA	Repeatability:	≤2% of Rated Operating Distance
Off-State (Leakage) Current:	≤1.7 mA (AC)		
	≤1.5 mA (DC)		

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Q9.5

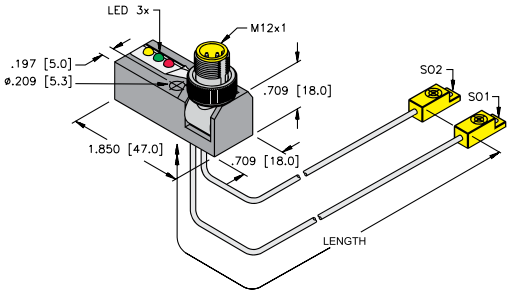
Power Clamp Position Sensors

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni2-Q9.5-AP6-0.1-FS4.4X3/S304 1650060		4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.1M/TPU	A	1	A4
Ni2-Q9.5-0.1-BDS-2AP6X3-H1141/S34 1650099	WFI	4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.1M/TPU	B	1	A4
Ni2-Q9.5-ADZ32-0.1-FSB5.4X4/S304 4200210		4-wire, VAC/DC	20-250 VAC/10-300 VDC	20	≤ 100	-25 to +70	IP67	PBT	0.1M/TPU	C	2	A5

We reserve the right to make technical alterations without prior notice.

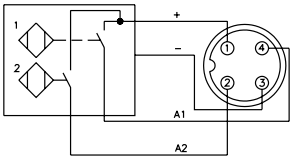
Cylinder Position Sensors | ISI

Power Clamp Position Sensors

Housing Style	Dimension Drawings
	A  ISI - Eurofast Connector

Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*

A4 — **3 and 4-wire DC - (AN, RN, AP, RP, VN, VP)**

Ripple:	≤10%	Time Delay Before Availability:	≤8 ms
Differential Travel (Hysteresis):	3-15% (5% typical)	Power-On Effect:	Per IEC 947-5-2
Voltage Drop Across Conducting Sensor:	≤1.8 V	Reverse Polarity Protection:	Incorporated
Trigger Current for Short Circuit Protection:	≥220 mA on 200 mA Load Current	Wire-Break Protection:	Incorporated
	≥170 mA on 150 mA Load Current	Transient Protection:	Per EN 60947-5-2
	≥120 mA on 100 mA Load Current	Temperature Drift:	≤±10%
Off-State (Leakage) Current:	≤0.1 mA	Shock:	30 g, 11 ms
No-Load Current:	≤15 mA (Ferrite, Uprox)	Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
	≤20 mA (Uprox+, Uprox 3)	Repeatability:	≤2% of Rated Operating Distance

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | ISI

Power Clamp Position Sensors

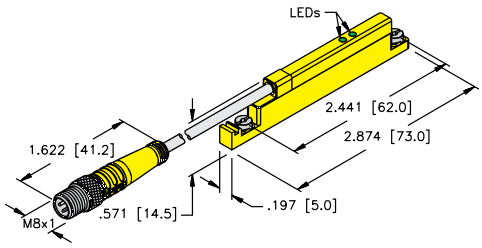
Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA)	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
Ni2-ISI-0.1-BDS-2AP6X3-H1141/S34 1650133	WFI	4-wire DC, PNP	10-30 VDC	30	≤ 150	-25 to +70	IP67	PBT	0.1M/TPU	A	1	A4

We reserve the right to make technical alterations without prior notice.

Power Clamp Position Sensors

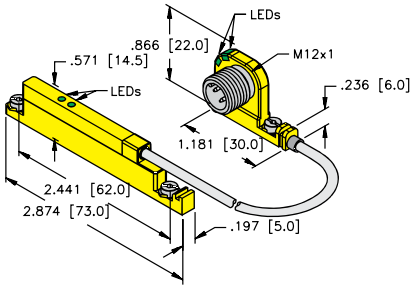
Housing Style	Dimension Drawings

A



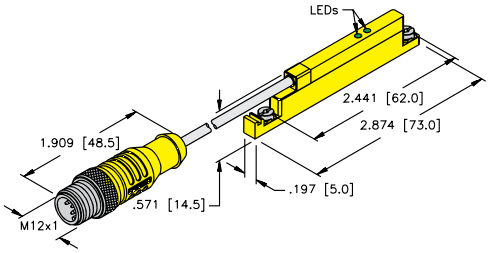
23 mm - Embeddable, T-groove Pneumatic Cylinders Picofast Quick Disconnect

B



23 mm - Embeddable, T-groove Pneumatic Cylinders Eurofast Quick Disconnect

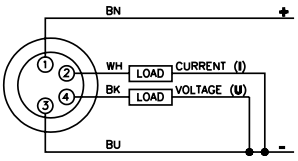
C



23 mm - Embeddable, T-groove Pneumatic Cylinders Eurofast Quick Disconnect

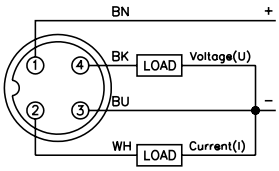
Wiring Diagrams/Mating Cordsets

1



Mating Cordset: RK 4.4T-*; PKG 4M-*

2



Mating Cordset: RK 4.4T-*

A7 — 3 and 4-wire DC Analog - (LIU, SIU)

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

A8 — 3 and 4-wire DC Analog - (LU)

Ripple:	≤10%	Short-Circuit Protection:	Yes
No-Load Current:	≤8.0 mA	Wire-Break Protection:	Yes
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Shock:	30 g, 11 ms
Temperature Drift:	±0.06% / °C	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Reverse Polarity Protection:	Incorporated	Repeatability:	≤1% of measuring range |A-B|
Transient Protection:	Per EN 60947-5-2		(0.5% after 30 min. warm up)

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | WIM

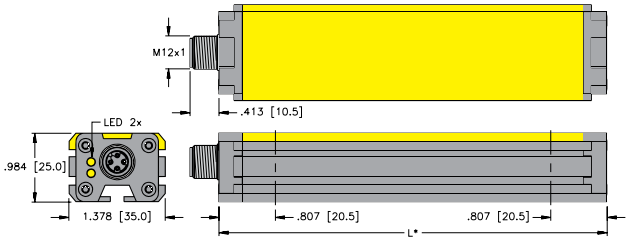
Power Clamp Position Sensors

Part Number/ ID Number	Linear Operating Distance (mm)	Resolution	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Housing	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
WIM45-UNTL-LIU5X2-0.3-PSG4M 1536620	45	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	PA 12	0.3M/TPU	A	1	A7
WIM45-UNTL-0.3-BIM-UNT-LUAP6X4-H1141 1536623	45	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	PA 12	0.3M/TPU	B	2	A8
WIM45-UNTL-LIU5X2-0.3-RS4 1536621	45	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	PA 12	0.3M/TPU	C	1	A7

We reserve the right to make technical alterations without prior notice.

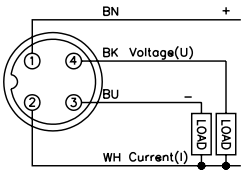
Cylinder Position Sensors | WIM

Magnetic Linear Position Sensors

Housing Style	Dimension Drawings
	A  25 mm - Embeddable, Eurofast Quick Disconnect

Wiring Diagrams/ Mating Cordset

1



Mating Cordset: RK 4.4T-*

A7 — **3 and 4-wire DC Analog - (LIU, SIU)**

Ripple:	≤10%	Transient Protection:	Per EN 60947-5-2
No-Load Current:	≤8.0 mA	Shock:	30 g, 11 ms
Load Resistance Voltage Output:	0-10 V/R_L ≥4.7 kΩ	Vibration:	55 Hz, 1 mm Amplitude, in all 3 Planes
Load Resistance Current Output:	0-20 mA/R_L ≤0.4 kΩ	Repeatability:	≤1% of measuring range |A-B|
Temperature Drift:	±0.06% / °C		(0.5% after 30 min. warm up)
LIU5:	4-20 mA, 0-10 V	Short-Circuit Protection:	Yes
LIU2:	4-20 mA, 2-10 V	Reverse Polarity Protection:	Incorporated

Additional Specifications

Magnetic Actuation Strength (Gauss): 50-100

For mounting accessories see page G9

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | WIM

Magnetic Linear Position Sensors

Part Number/ ID Number	Linear Operating Distance (mm)	Resolution	Output	Voltage	Output Voltage/ Current	Operating Temp. (°C)	Protection	Housing	Face	Dimension Drawings	Wiring Diagrams	Spec List
WIM100-Q25L141-LIU5X2-H1141 1536630	100	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	AL	PC-GF20	A	1	A7
WIM125-Q25L166-LIU5X2-H1141 1536631	125	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	AL	PC-GF20	A	1	A7
WIM160-Q25L201-LIU5X2-H1141 1536632	160	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	AL	PC-GF20	A	1	A7
WIM200-Q25L241-LIU5X2-H1141 1536633	200	10 bit	4-wire DC, Current and Voltage	15-30 VDC	0-10 V/4-20 mA	-25 to +70	IP67	AL	PC-GF20	A	1	A7

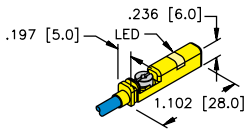
We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Namur

Intrinsically Safe

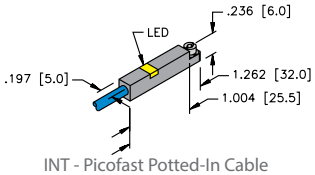
Dimension Drawings

A



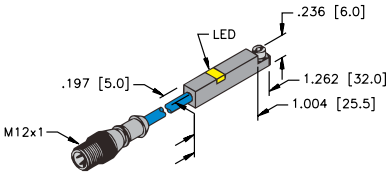
UNT - Potted-In Cable

B



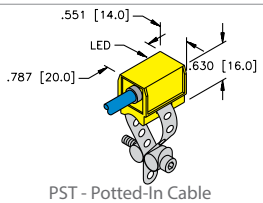
INT - Picofast Potted-In Cable

C



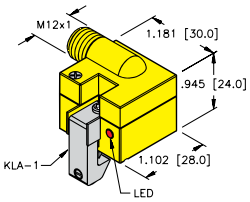
INT - Eurofast Quick Disconnect

D



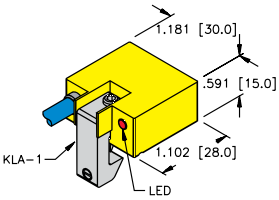
PST - Potted-In Cable

E



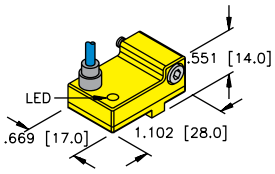
AKT - Eurofast Connector

F



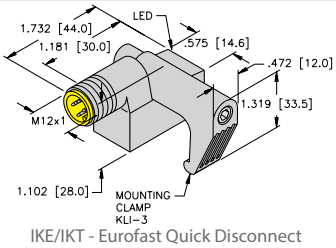
AKT - Potted-In Cable

G



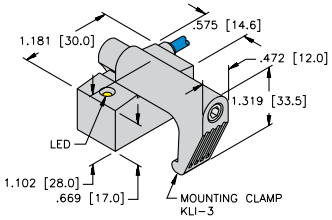
NST - Potted-In Cable

H



IKE/IKT - Eurofast Quick Disconnect

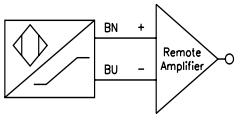
I



IKE/IKT - Potted-In Cable

Wiring Diagrams/Mating Cordsets

1



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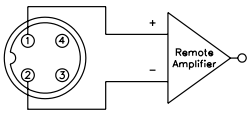


Mating Cordset: RK 4.21T-*

A16 — 2-wire DC NAMUR - Magnetic (Y0 and Y1)

Differential Travel (Hysteresis):	≤1 mm
Nominal Voltage:	8.2 VDC (EN60947-5-6)
Load Resistance:	1000 Ω
Non-activated Current Consumption:	≤1.2 mA
Activated Current Consumption:	≥2.1 mA
Recommended Switching Point for Remote Amplifier:	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect:	Realized in Amplifier
Reverse Polarity Protection:	Incorporated
Wire-Break Protection:	Realized in Amplifier
Transient Protection:	Realized in Amplifier
Shock:	30 g, 11 ms
Vibration:	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability:	≥± 0.1 mm
Pass Speed:	≤10 ms

Additional Specifications

Magnetic Actuation Strength (Gauss): 20-350

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors | Namur

Intrinsically Safe IS

Part Number/ ID Number	Features	Output	Voltage	Switching Freq. (Hz)	Operating Current (mA) VAC/VDC	Operating Temp. (°C)	Protection	Housing	Power LED	Output LED	Cable Length/Jacket	Dimension Drawings	Wiring Diagrams	Spec List
BIM-UNT-AY1X/S1139 4685763	Wider Range	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	2M/ PVC	A	1	A16
BIM-INT-Y1X 1056800		2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	2M/ PVC	B	1	A16
BIM-INT-Y1X-0.2-RS4.21T 1056892		2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	0.2M/ PVC	C	2	A16
BIM-PST-Y1X W/KLP-80 1057090	KLP-80 Included	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	2M/ PVC	D	1	A16
BIM-AKT-Y1X-H1141 W/KLA-1 1055290	KLA-1 Included	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	--	E	2	A16
BIM-AKT-Y1X W/KLA-1 1055090	KLA-1 Included	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	2M/ PVC	F	1	A16
BIM-IKE-Y1X W/KLI-3 1056490	KLI-3 Included	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	Zinc	N/A	YE	2M/ PVC	I	1	A16
BIM-IKE-Y1X-H1141 W/KLI-3 1056690	KLI-3 Included	2-wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	Zinc	N/A	YE	--	H	2	A16
BIM-NST-Y1X 1058400	w/o Bracket	2-Wire DC NAMUR	8.2 VDC nominal	1000	Remote	-25 to +70	IP67	PA 12	N/A	YE	2M/ PVC	G	1	A16

We reserve the right to make technical alterations without prior notice.

Notes

Notes

Mating Cordset Selection Guide

	Picofast	
Housing	**M8 Cordsets**	**M8 Field Wireables**
Pages	**H7**	**H11**

	Eurofast	
Housing	**M12 Cordsets**	**M12 Field Wireables**
Pages	**H13**	**H17**

	Microfast	
Housing	**1/2" Cordsets**	**1/2" Field Wireables**
Pages	**H18**	**H20**

	Minifast	
Housing	**7/8" Cordsets**	**7/8" Field Wireables**
Pages	**H21**	**H25**

We reserve the right to make technical alterations without prior notice.

Mating Cordset Selection Guide

Connectivity

Rugged, durable, and reliable, Turck connectivity products consolidate wiring, connect sensing devices, and distribute power and signals.

Cordsets

- Environmentally sealed for harsh environments
- Pin count 2-28 pole
- Power range up to 35 A
- LED visibility
- Industry specific jacketed cable

Rugged, Sealed Junction Boxes

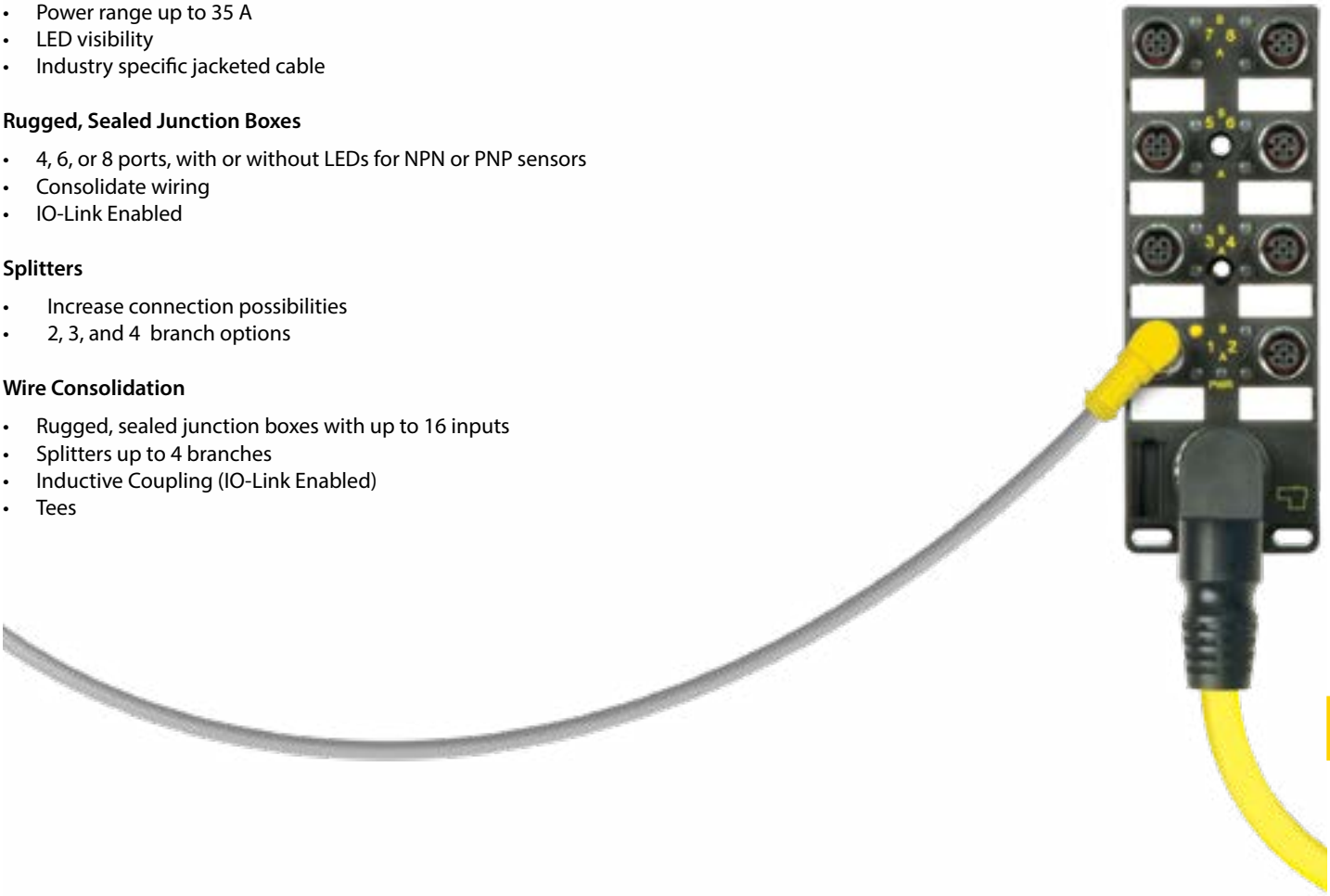
- 4, 6, or 8 ports, with or without LEDs for NPN or PNP sensors
- Consolidate wiring
- IO-Link Enabled

Splitters

- Increase connection possibilities
- 2, 3, and 4 branch options

Wire Consolidation

- Rugged, sealed junction boxes with up to 16 inputs
- Splitters up to 4 branches
- Inductive Coupling (IO-Link Enabled)
- Tees



We reserve the right to make technical alterations without prior notice.

Mating Cordset Selection Guide

Attributes	Instrumentation Tray Cable		General Purpose Cable		Instrumentation Tray/Exposed Run/Direct Burial Cable	
Material:	PVC	TPE	PVC	TPU	PVC	TPE
Temp Range:	-40 to 105 °C	-40 to 105 °C	-40 to 105 °C	-40 to 90 °C	-40 to 105 °C	-40 to 105 °C
Cold Bend:	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C
Cold Impact:	---	---	---	---	---	---
Crush and Impact:	---	---	---	---	Excellent	Excellent
Cut and Abrasion:	Fair	Fair/Good	Fair	Excellent	Good	Fair/Good
UV/Sunlight Resistant:	Excellent	Excellent	Excellent	Poor/Fair	Excellent	Excellent
Flame Retardant:	UL 1685/CSA FT4	UL 1685/CSA FT4	UL 1061/CSA FT1	UL 1061/ CSA FT1	UL 1685/CSA FT4	UL 1685/CSA FT4
Weld Slag/Spatter:	Poor	Very Good	Poor	Poor	Poor	Very Good
Water:	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Flexibility:	Very Good	Very Good	Very Good	Good	Fair	Good
Flexlife:	Good	Good	Good	Good	Fair	Fair/Good
Oils:	Excellent	Excellent	Very Good	Good	Very Good	Excellent
Greases:	Excellent	Excellent	Very Good	Good	Very Good	Excellent
Gasoline:	Fair	Good	Fair	Fair	Poor	Good
Alcohols:	Good	Very Good	Good	Poor/Fair	Very Good	Very Good
Acids <20%:	Good	Poor	Good	Fair	Good	Poor
General Approvals:	UL ITC, PLTC, AWM CSA AWM CMX OUT-DOOR-CMG, MSHA 300 V, 600 V	UL ITC, PLTC, AWM CSA AWM CMX OUT-DOOR-CMG, MSHA 300 V, 600 V	UL/CSA, AWM, MSHA 300 V or 600 V	UL/CSA, AWM, MSHA 300 V or 600 V	UL ITC, PLTC, ERDB, AWM, CSA CIC or CMX OUTDOOR-CM AWM, Marine Shipboard UL 1309, IEEE 1580-2010, CSA 245, ABS, 300 V, 600 V	UL ITC, PLTC, ERDB, AWM CSA CMX OUTDOOR-CMG 150 V, 300 V, 600 V

- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
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We reserve the right to make technical alterations without prior notice.

Mating Cordset Selection Guide

Attributes	Power Tray/Exposed Run/Direct Burial Cable		Industrial Ethernet Cable	Fieldbus Technology Cable		
Material:	PVC	TPE	TPE	PVC	TPE	TPU
Temp Range:	-40 to 90 °C	-40 to 105 °C	-40 to 80 °C	-40 to 105 °C	-40 to 80 °C	-40 to 80 °C
Cold Bend:	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C
Cold Impact:	---	---	---	---	---	---
Crush and Impact:	Excellent	Excellent	---	Excellent	---	---
Cut and Abrasion:	Good	Fair/Good	Fair/Good	Good	Fair/Good	Excellent
UV/Sunlight Resistant:	Excellent	Excellent	Excellent	Excellent	Excellent	Poor/Fair
Flame Retardant:	UL 1685/CSA FT4	UL 1685/CSA FT4	UL 1061/CSA FT1	UL 1685/CSA FT4 IEC 60332-3-22	UL 1061/ CSA FT1	UL 1061/ CSA FT1
Weld Slag/Spatter:	Poor	Very Good	Very Good	Poor	Very Good	Poor
Water:	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
Flexibility:	Fair	Good	Good/Excellent	Fair	Good	Good
Flexlife:	Fair	Good	Very Good	Poor	Fair	Good
Oils:	Very Good	Excellent	Excellent	Fair	Excellent	Good
Greases:	Very Good	Excellent	Excellent	Fair	Excellent	Good
Gasoline:	Poor	Good	Good	Poor	Good	Fair
Alcohols:	Very Good	Very Good	Very Good	Good	Very Good	Poor/Fair
Acids <20%:	Good	Poor	Poor	Good	Poor	Fair
General Approvals:	UL WTTC, TC-ERDB ITC, PLTC, ERDB CSA CIC/TC 600 V, 1000 V	UL WTTC, TC-ERDB ITC, PLTC, ERDB CSA CIC/TC 600 V, 1000 V	UL AWM, CSA CMX OUTDOOR-CM 300 V or 600 V	UL ITC, PLTC, ERDB, AWM, CSA CIC or CMX OUT-DOOR-CM AWM, Marine Shipboard UL 1309, IEEE 1580-2010, CSA 245, ABS, 300 V, 600 V	UL/CSA, AWM 300 V or 600 V	UL/CSA, AWM 300 V or 600 V

- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
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Mating Cordset Selection Guide

Attributes	Extremelife Cable	Flexlife Cable		Weldlife Cable
Material:	EX60	TPE	TPU	TPE
Temp Range:	-60 to 105 °C	-40 to 105 °C	-40 to 90 °C	-40 to 105 °C
Cold Bend:	-60 °C	-40 °C	-40 °C	-40 °C
Cold Impact:	-40 °C	---	---	---
Crush and Impact:	Excellent	---	---	---
Cut and Abrasion:	Very Good	Fair/Good	Excellent	Fair/Good
UV/Sunlight Resistant:	Excellent	Excellent	Poor/Fair	Excellent
Flame Retardant:	UL 1685/CSA FT4 IEC 60332-3-22	UL 1061/CSA FT1	UL 1061/CSA FT1	UL 1061/CSA FT1
Weld Slag/Spatter:	Good	Very Good	Poor	Very Good
Water:	Very Good	Very Good	Very Good	Very Good
Flexibility:	Good	Excellent	Good	Very Good
Flexlife:	Very Good	Excellent	Good	Good
Oils:	Excellent	Excellent	Good	Excellent
Greases:	Excellent	Excellent	Good	Excellent
Gasoline:	Good	Good	Fair	Good
Alcohols:	Excellent	Very Good	Poor/Fair	Very Good
Acids <20%:	Good	Poor	Fair	Poor
General Approvals:	UL TC-ERDB, ITC, PLTC, ERDB, CSA CIC/TC Marine Shipboard UL 1309, IEEE 1580-2010, ABS, 300 V, 600 V	UL/CSA, AWM 300 V or 600 V	UL/CSA, AWM 300 V or 600 V	UL/CSA, AWM 300 V or 600 V

- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
- Temperature, the percentage of chemical present, type of chemical exposure, and installation practices will all affect performance. For specific recommendations, please contact Turck.

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Mating Cordset Selection Guide

Attributes	Armorfast Instrumentation Cable	Flexible Service Cable	Washdown Cable	Halogen Free Cable/Low Smoke Cable
Material:	PVC	PVC	TPV	TPU
Temp Range:	-40 to 105 °C	-40 to 105 °C	-60 to 105 °C	-40 to 80 °C
Cold Bend:	-40 °C	-40 °C	-60 °C	-40 °C
Cold Impact:	---	---	---	---
Crush and Impact:	Excellent	---	---	---
Cut and Abrasion:	Good	Good	Poor/Fair	Excellent
UV/Sunlight Resistant:	Excellent	Excellent	Poor	Poor/Fair
Flame Retardant:	UL 1685/CSA FT4	UL Horizontal Flame/CSA FT2	Poor	UL 1061/CSA FT1
Weld Slag/Spatter:	Poor	Poor	---	Poor
Water:	Very Good	Very Good	Excellent	Very Good
Flexibility:	Fair	Good	Excellent	Good
Flexlife:	Poor	Good	---	Good
Oils:	Very Good	Very Good	Poor	Good
Greases:	Very Good	Very Good	Poor	Good
Gasoline:	Poor	Poor	Poor	Fair
Alcohols:	Very Good	Very Good	Good	Poor/Fair
Acids <20%:	Good	Good	Good	Fair
General Approvals:	UL MC, ITC, PLTC, ERDB, CSA ACIC, 300 V, 600 V, HL ABCD	UL/CSA, STOOW MSHA, 600 V	None	UL/CSA, AWM 300 V

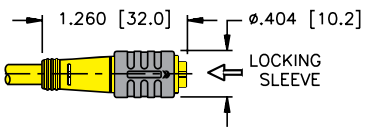
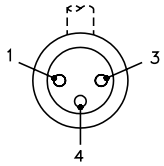
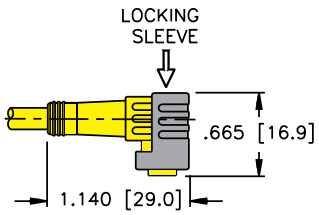
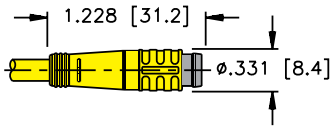
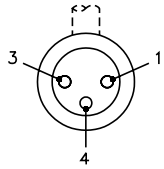
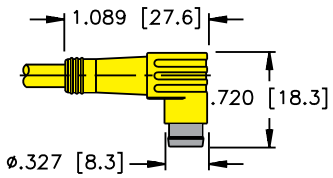
- Attributes are general statements for materials at room temperature. Each application should be evaluated individually.
- Temperature, the percentage of chemical present, type of chemical exposure, and installation practices will all affect performance. For specific recommendations, please contact Turck.

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

3-Wire Cordsets, Snap Lock (Locking Sleeve)

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..Z** 	**PKG 3Z-*** **PKW 3Z-***	**PSG 3-*** **PSW 3-***	AWM, PVC Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF50642-*M, Flexlife®	1. BN 3. BU 4. BK	**Female** 
PKW ..Z** 	**PKG 3Z-*/S90** **PKW 3Z-*/S90**	**PSG 3-*/S90** **PSW 3-*/S90**	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50587-*M, Cut/Abrasion Immune		
PSG .. 	**PKG 3Z-*/S90/S101** **PKW 3Z-*/S90/S101**	**PSG 3-*/S90/S101** **PSW 3-*/S90/S101**	AWM, TPU Black, 3x24 AWG, 90 °C, 4.4 mm OD, Cable #RF51166-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles		
	PKG 3Z-*/S90/S618 **PKW 3Z-*/S90/S618**	**PSG 3-*/S90/S618** **PSW 3-*/S90/S618**	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection		**Male** 
PSW .. 	**PKG 3Z-*/S760** **PKW 3Z-*/S760**	**PSG 3-*/S760** **PSW 3-*/S760**	AWM, PVC Black, 3x24 AWG, 105 °C, 4.2 mm OD, Cable #RF50585-M, Flexlife		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

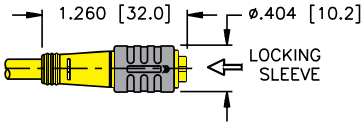
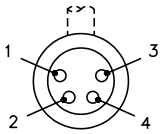
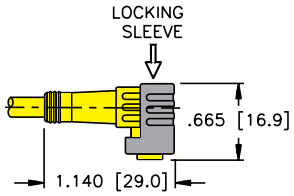
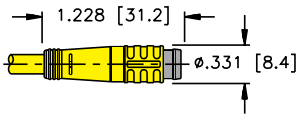
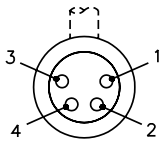
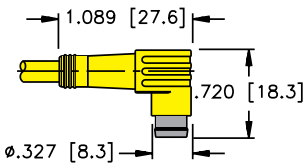
** Locking sleeve material is POM.."PKG..Z".

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

4-Wire Cordsets, Snap Lock (Locking Sleeve)

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 2 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..Z**  	PKG 4Z-* PKW 4Z-*	PSG 4-* PSW 4-*	AWM, PVC Yellow, 4x26 AWG, 105 °C, 4.4 mm OD, Cable #RF50697-*M, Flexlife®	1. BN 2. WH 3. BU 4. BK	Female 
	PKG 4Z-*/S90 PKW 4Z-*/S90	PSG 4-*/S90 PSW 4-*/S90	AWM, TPU Black, 4x26 AWG, 90 °C, 4.2 mm OD, Cable #RF50586-*M, Cut/Abrasion Immune		
PKW ..Z**  	PKG 4Z-*/S90/S101 PKW 4Z-*/S90/S101	PSG 4-*/S90/S101 PSW 4-*/S90/S101	AWM, TPU Black, 4x26 AWG, 90 °C, 4.4 mm OD, Cable #RF50935-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles		
PSG ..  	PKG 4Z-*/S90/S618 PKW 4Z-*/S90/S618	PSG 4-*/S90/S101 PSW 4-*/S90/S101	AWM, TPU Black, 4x26 AWG, 90 °C, 4.2 mm OD, Cable #RF50602-*M, Cut/Abrasion Immune, EMI/RFI Protection		Male 
	PKG 4Z-*/S760 PKW 4Z-*/S760	PSG 4-*/S760 PSW 4-*/S760	AWM, PVC Black, 4x26 AWG, 105 °C, 4.4 mm OD, Cable #RF50870-*M, Flexlife		
PSW ..  	PKG 4Z-*/S90/S653 PKW 4Z-*/S90/S653	PSG 4-*/S90/S653 PSW 4-*/S90/S653	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection	1. BN 2. Drain 3. BU 4. BK	

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

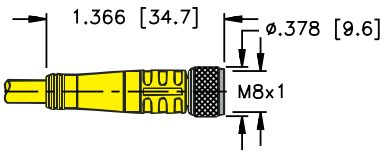
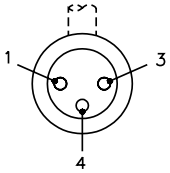
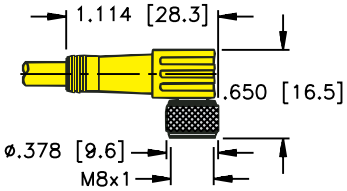
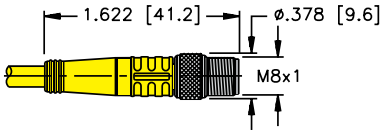
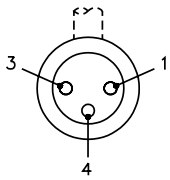
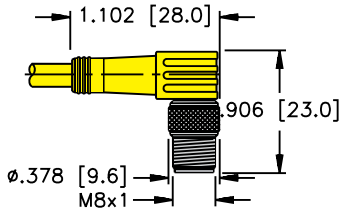
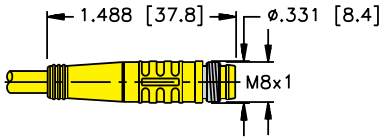
** Locking sleeve material is POM.."PKG..Z".

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

3-Wire Cordsets, Threaded Coupling Nut

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..Z** 	PKG 3M-* PKW 3M-*	PSG 3M-* PSW 3M-*	AWM, PVC Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF50642-*M, Flexlife®	1. BN 3. BU 4. BK	Female 
	PKG 3M-*/S90 PKW 3M-*/S90	PSG 3M-*/S90 PSW 3M-*/S90	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50587-*M, Cut/Abrasion Immune		
PKW ..M** 	PKG 3M-*/S90/S101 PKW 3M-*/S90/S101	PSG 3M-*/S90/S101 PSW 3M-*/S90/S101	AWM, TPU Black, 3x24 AWG, 90 °C, 4.4 mm OD, Cable #RF51166-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles		
PSG .. M** 	PKG 3M-*/S90/S618 PKW 3M-*/S90/S618	PSG 3M-*/S90/S618 PSW 3M-*/S90/S618	AWM, TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection		
	PKG 3M-*/S1587 PKW 3M-*/S1587	PSG 3M-*/S1587 PSW 3M-*/S1587	AWM, TPE Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF51271-*M, Weldlife®, Weld Flash Immune		Male 
PSW .. M** 	PKG 3M-*/S760 PKW 3M-*/S760	PSG 3M-*/S760 PSW 3M-*/S760	AWM, PVC Black, 3x24 AWG, 4.2 mm OD, Cable #RF50585-M, Flexlife	1. BN 3. BU 4. Drain	
	PKG 3M-*/S90/S1084 PKW 3M-*/S90/S1084	PSG 3M-*/S90/S1084 PSW 3M-*/S90/S1084	AWM, TPU Black, 2x24 AWG, 90 °C, 4.2 mm OD, Cable #RF51197-*M, Cut/Abrasion Immune, Shielded	1. BN 3. BU 4. BK	
PSG 3F .. ** 		PSG 3F-*	AWM, PVC Yellow, 3x24 AWG, 105 °C, 4.4 mm OD, Cable #RF50642-*M, Fixed coupling nut		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

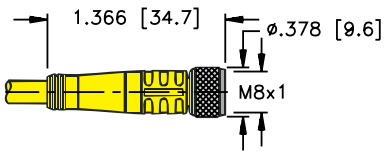
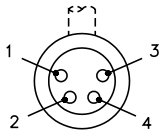
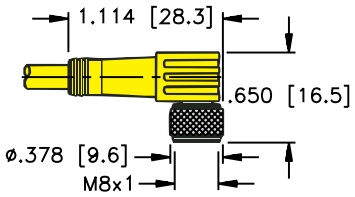
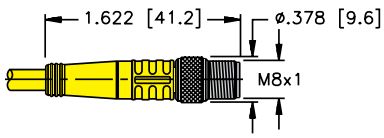
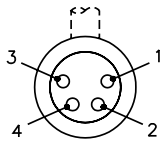
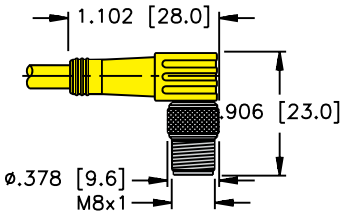
** Standard coupling material is nickel plated brass.."PKG..M"; "PKGV..M" indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

4-Wire Cordsets, Threaded Coupling Nut

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 125 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
PKG ..M** 	PKG 4M-* PKW 4M-*	PSG 4M-* PSW 4M-*	AWM PVC Yellow, 4x26 AWG, 105 °C, 4.4 mm OD, Cable #RF50697-*M, Flexlife®	1. BN 2. WH 3. BU 4. BK	Female 
	PKG 4M-*/S90 PKW 4M-*/S90	PSG 4M-*/S90 PSW 4M-*/S90	AWM TPU Black, 4x26 AWG, 90 °C, 4.2 mm OD, Cable #RF50586-*M, Cut/Abrasion Immune		
PKW ..M** 	PKG 4M-*/S90/S101 PKW 4M-*/S90/S101	PSG 4M-*/S90/S101 PSW 4M-*/S90/S101	AWM TPU Black, 4x26 AWG, 90 °C, 4.4 mm OD, Cable #RF50935-*M, Cut/Abrasion Immune, Flexlife-20, High Flex - Over 20 Million Cycles		
PSG .. M** 	PKG 4M-*/S90/S618 PKW 4M-*/S90/S618	PSG 4M-*/S90/S618 PSW 4M-*/S90/S618	AWM TPU Black, 4x26 AWG, 90 °C, 4.2 mm OD, Cable #RF50602-*M, Cut/Abrasion Immune, EMI/RFI Protection		Male 
	PKG 4M-*/S760 PKW 4M-*/S760	PSG 4M-*/S760 PSW 4M-*/S760	AWM PVC Black, 4x26 AWG, 105 °C, 4.4 mm OD, Cable #RF50870-*M, Flexlife		
PSW .. M** 	PKG 4M-*/S90/S653 PKW 4M-*/S90/S653	PSG 4M-*/S90/S653 PSW 4M-*/S90/S653	AWM TPU Black, 3x24 AWG, 90 °C, 4.2 mm OD, Cable #RF50601-*M, Cut/Abrasion Immune, EMI/RFI Protection	1. BN 2. Drain 3. BU 4. BK	

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters.

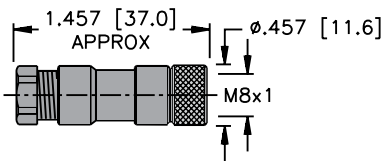
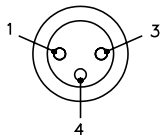
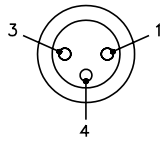
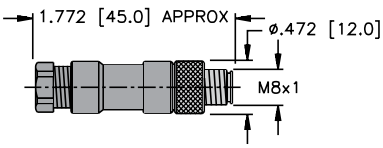
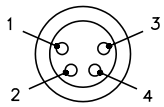
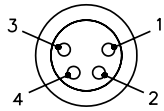
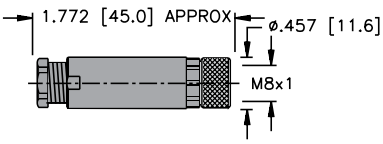
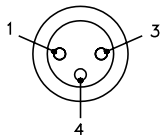
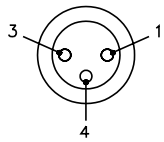
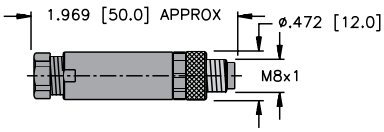
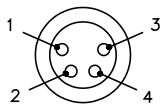
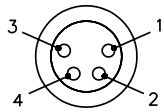
** Standard coupling material is nickel plated brass..”PKG..M”; “PKGV..M” indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

3 and 4-Pin Field Wireable Connectors, Standard

- IEC IP67 Protection

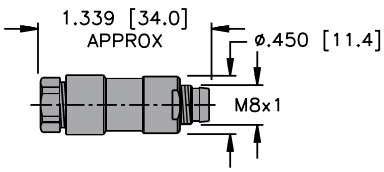
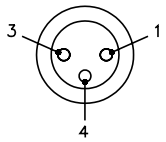
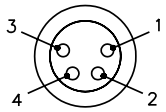
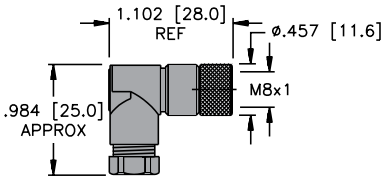
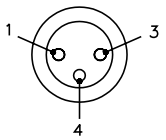
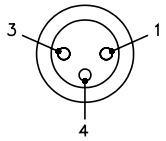
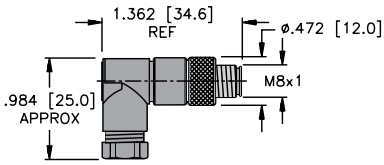
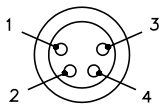
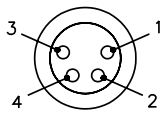
Housing Style	Female Part Number	Male Part Number	Features	Pinout
B 513(4)1-0 	**B 5131-0**	**BS 5131-0**	PBT, Black, accepts 3-5 mm cable diameter, solder terminals, accepts up to 24 AWG conductors, 85 °C, 60 VAC/75 VDC, 4 A, mates with 4-pin threaded cordsets and receptacles	Female  Male 
BS 513(4)1-0 	**B 5141-0**	**BS 5141-0**	PBT, Black, accepts 3-5 mm cable diameter, solder terminals, accepts up to 24 AWG conductors, 85 °C, 30 VAC/36 VDC, 4 A, mates with 4-pin threaded cordsets and receptacles	Female  Male 
B 513(4)3-0 	**B 5133-0**	**BS 5133-0**	PBT, Black, accepts 3-5 mm cable diameter, screw terminals, accepts up to 22 AWG conductors, 85 °C, 60 VAC/75 VDC, 4 A, mates with 3-pin threaded cordsets and receptacles	Female  Male 
BS 513(4)3-0 	**B 5143-0**	**BS 5143-0**	PBT, Black, accepts 3-5 mm cable diameter, screw terminals, accepts up to 22 AWG conductors, 85 °C, 60 VAC/75 VDC, 4 A, mates with 4-pin threaded cordsets and receptacles	Female  Male 

We reserve the right to make technical alterations without prior notice.

M8 Picofast Connectivity

3 and 4-Pin Field Wireable Connectors, Standard

- IEC IP67 Protection

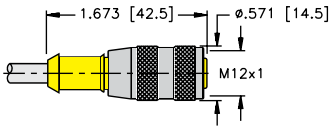
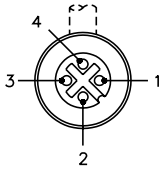
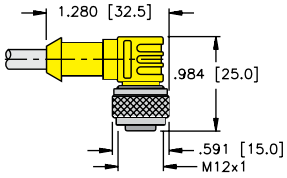
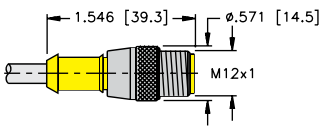
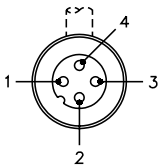
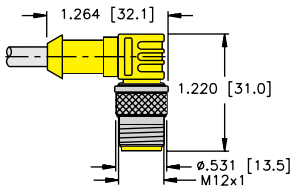
Housing Style	Female Part Number	Male Part Number	Features	Pinout
BS 513(4)2-0  		BS 5132-0	PBT, Black, accepts 3-5 mm cable diameter, solder terminals, accepts up to 26 AWG conductors, 85 °C, 60 VAC/75 VDC, 4 A, mates with 3-pin female snap-lock cordsets, receptacles and junction boxes and threaded cordsets	Male 
		BS 5142-0	PBT, Black, accepts 3-5 mm cable diameter, solder terminals, accepts up to 26 AWG conductors, 85 °C, 60 VAC/75 VDC, 2 A, mates with 3-pin female snap-lock cordsets, receptacles and junction boxes and threaded cordsets	Male 
B 523(4)1-0  	B 5231-0	BS 5231-0	PBT, Black, Accepts 3-5 mm cable diameter, solder terminals, accepts up to 24 AWG conductors, 85 °C, 60 VAC/75 VDC, 4 A, mates with 3-pin threaded cordsets and receptacles	Female  Male 
BS 523(4)1-0  	B 5241-0	BS 5241-0	PBT, Black, accepts 3-5 mm cable diameter, solder terminals, accepts up to 24 AWG conductors, 85 °C, 30 VAC/36 VDC, 4 A, mates with 4-pin threaded cordsets and receptacles	Female  Male 

We reserve the right to make technical alterations without prior notice.

M12 Eurofast Connectivity

2-Wire Cordsets, Standard Plug Body

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RK ..**  	**RK 4.2T-*** **WK 4.2T-***	**RS 4.2T-*** **WS 4.2T-***	ITC/PLTC PVC Grey, 2x20 AWG, 105 °C, 5.1 mm OD, Cable #RF50529-*M, Flexlife®	1. N/C 2. N/C 3. BN 4. BU	Female 
	RK 4.2T-*/S90 **WK 4.2T-*/S90**	**RS 4.2T-*/S90** **WS 4.2T-*/S90**	AWM TPU Grey, 2x20 AWG, 90 °C, 4.8 mm OD, Cable #RF50772-*M, Cut/Abrasion Immune		
WK ..**  	**RK 4.2T-*/S748** **WK 4.2T-*/S748**	**RS 4.2T-*/S748** **WS 4.2T-*/S748**	ITC/PLTC PVC Yellow, 2x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50650-*M, Flexlife	1. WH 2. N/C 3. N/C 4. BK	
	RK 4.21T-*/S1511 **WK 4.21T-*/S1511**	**RS 4.21T-*/S1511** **WS 4.21T-*/S1511**	ITC/PLTC PVC Grey, 2x20 AWM PVC, 105 °C, 5.1 mm OD, Cable #RF50529-*M, Flexlife		
RS ..**  	**RK 4.21T-*** **WK 4.21T-***	**RS 4.21T-*** **WS 4.21T-***	ITC/PLTC PVC NAMUR Blue, 2x20 AWG, 105 °C, 5.1 mm OD, Cable #RF51923-*M	1. BN 2. BU 3. N/C 4. N/C	Male 
	RK 4.21T-*/S90 **WK 4.21T-*/S90**	**RS 4.21T-*/S90** **WS 4.21T-*/S90**	AWM TPU NAMUR Blue, 2x20 AWG, 90 °C, 5.1 mm OD, Cable #RF50657-*M, Cut/Abrasion Immune		
WS ..**  	**RK 4.22T-*** **WK 4.22T-***	**RS 4.22T-*** **WS 4.22T-***	ITC/PLTC PVC Grey, 2x20 AWG, 105 °C, 5.1 mm OD, Cable #RF50529-*M, Flexlife	1. BN 2. N/C 3. BU 4. N/C	
	RK 4.23T-* **WK 4.23T-***	**RS 4.23T-*** **WS 4.23T-***		1. BN 2. N/C 3. N/C 4. BU	

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

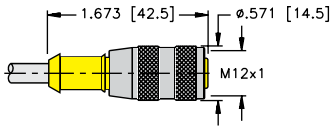
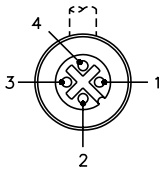
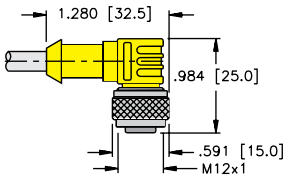
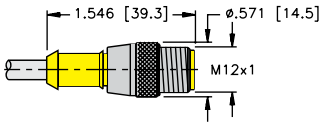
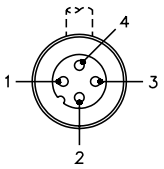
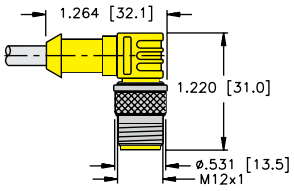
** Standard coupling nut material is nickel plated brass "RK .."; "RKK .." indicates nylon and "RKV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M12 Eurofast Connectivity

3-Wire Cordsets, Standard Plug Body

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RK ..**  	**RK 4T-*** **WK 4T-***	**RS 4T-*** **WS 4T-***	ITC/PLTC PVC Grey, 3x20 AWG, 105 °C, 5.1 mm OD, Cable #RF52081-*M, Flexlife®	1. BN 2. N/C 3. BU 4. BK	Female 
	RK 4T-*/S90 **WK 4T-*/S90**	**RS 4T-*/S90** **WS 4T-*/S90**	AWM TPU Grey, 3x22 AWG, 90 °C, 4.8 mm OD, Cable #RF52080-*M, Cut/Abrasion Immune		
WK ..**  	**RK 4T-*/S101** **WK 4T-*/S101**	**RS 4T-*/S101** **WS 4T-*/S101**	AWM TPE Grey, 3x22 AWG, 105 °C, 4.8 mm OD, Cable #RF52085-*M, Flexlife-20, High Flex Over 20 Million Cycles		
	RK 4T-*/S529 **WK 4T-*/S529**	**RS 4T-*/S529** **WS 4T-*/S529**	TPU/Heavy Braid Double Jacket Yellow, 3x22 AWG, 90 °C, 4.8 mm OD, Cable #RF52084-*M, Cut/Abrasion Immune Braided Mechanical Shield		
RS ..**  	**RK 4T-*/S824** **WK 4T-*/S824**	**RS 4T-*/S824** **WS 4T-*/S824**	ITC/PLTC AWM PVC Grey, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF52081-*M, Tray Rated, Flexlife		Male 
	RK 4T-*/S715 **WK 4T-*/S715**	**RS 4T-*/S715** **WS 4T-*/S715**	ITC/PLTC PVC Yellow, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF52087-*M, Flexlife		
WS ..**  	**RK 4T-*/S760** **WK 4T-*/S760**	**RS 4T-*/S760** **WS 4T-*/S760**	ITC/PLTC PVC Black, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF52083-*M, Flexlife		
	RK 4T-*/S618 **WK 4T-*/S618**	**RS 4T-*/S618** **WS 4T-*/S618**	ITC/PLTC PVC Grey, 3x22 AWG, Foil/Drain, 105 °C, 5.1 mm OD, Cable #RF52082-*M, RFI/EMI Shielding, Tray Rated		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

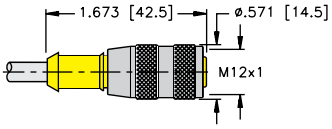
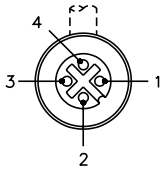
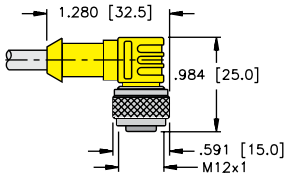
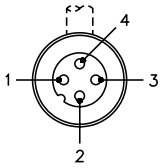
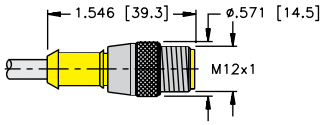
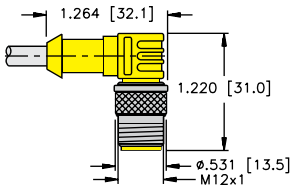
** Standard coupling nut material is nickel plated brass "RK .."; "RKK .." indicates nylon and "RKV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M12 Eurofast Connectivity

4-Wire Cordsets, Standard Plug Body

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RK ..**  	**RK 4.41T-*** **WK 4.41T-***	**RS 4.41T-*** **WS 4.41T-***	ITC/PLTC PVC NAMUR Blue, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50598-*M, Flexlife®	1. BN 2. WH 3. BU 4. BK	Female 
	RK 4.41T-*/S529 **WK 4.41T-*/S529**	**RS 4.41T-*/S529** **WS 4.41T-*/S529**	TPU/Heavy Braid Double Jacket Yellow, 4x20 AWG, 90 °C, 5.7 mm OD, Cable #RF50526-*M, Cut/Abrasion Immune Braided Mechanical Shield		
	RK 4.43T-* **WK 4.43T-***	**RS 4.43T-*** **WS 4.43T-***	ITC/PLTC PVC Yellow, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50530-*M, Flexlife		
WK ..**  	**RK 4.43T-*/S90** **WK 4.43T-*/S90**	**RS 4.43T-*/S90** **WS 4.43T-*/S90**	AWM TPU Yellow, 4x22 AWG, 90 °C, 5.1 mm OD, Cable #RF50613-*M, Cut/Abrasion Immune		
	RK 4.4T-* **WK 4.4T-***	**RS 4.4T-*** **WS 4.4T-***	ITC/PLTC PVC Grey, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50516-*M, Flexlife		
	RK 4.4T-*/S90 **WK 4.4T-*/S90**	**RS 4.4T-*/S90** **WS 4.4T-*/S90**	AWM TPU Grey, 4x22 AWG, 90 °C, 5.1 mm OD, Cable #RF50532-*M, Cut/Abrasion Immune		Male 
RS ..**  	**RK 4.4T-*/S101** **WK 4.4T-*/S101**	**RS 4.4T-*/S101** **WS 4.4T-*/S101**	AWM TPE Grey, 4x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50941-*M, Flexlife-20, High Flex Over 20 Million Cycles		
	RK 4.4T-*/S824 **WK 4.4T-*/S824**	**RS 4.4T-*/S824** **WS 4.4T-*/S824**	ITC/PLTC PVC Grey, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50698-*M, Tray Rated		
WS ..**  	**RK 4.4T-*/S618** **WK 4.4T-*/S618**	**RS 4.4T-*/S618** **WS 4.4T-*/S618**	ITC/PLTC PVC Grey, 4x22 AWG Foil/Drain, 105 °C, 5.3 mm OD, Cable #RF50577-*M, RFI/EMI Shielding		
	RK 4.4T-*/S618/S824 **WK 4.4T-*/S618/S824**	**RS 4.4T-*/S618/S824** **WS 4.4T-*/S618/S824**	ITC/PLTC PVC Grey, 4x22 AWG Foil/Drain, 105 °C, 5.3 mm OD, Cable #RF50777-*M, RFI/EMI Shielding, Tray Rated		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

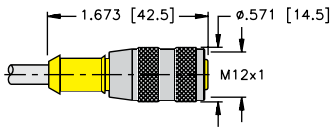
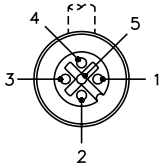
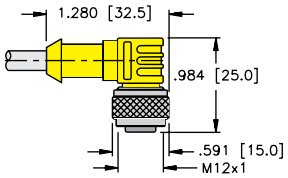
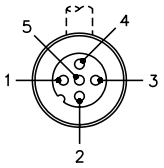
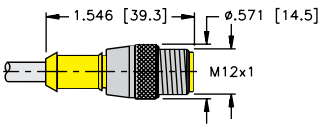
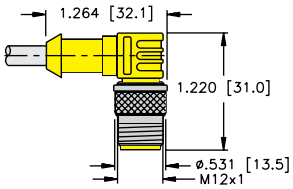
** Standard coupling nut material is nickel plated brass "RK .."; "RKK .." indicates nylon and "RKV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M12 Eurofast Connectivity

5-Wire Cordsets, Standard Plug Body

- NEMA 1, 3, 4, 6P
- IEC IP68 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RK ..**  	**RK 4.5T-*** **WK 4.5T-***	**RS 4.5T-*** **WS 4.5T-***	ITC/PLTC PVC Grey, 5x22 AWG, 105 °C, 5.7 mm OD, Cable #RF50543-*M, Flexlife®	1. BN 2. WH 3. BU 4. BK 5. GY	**Female** 
	RK 4.5T-*/S90 **WK 4.5T-*/S90**	**RS 4.5T-*/S90** **WS 4.5T-*/S90**	AWM TPU Grey, 5x22 AWG, 90 °C, 5.3 mm OD, Cable #RF50649-*M, Cut/Abrasion Immune		
WK ..**  	**RK 4.5T-*/S101** **WK 4.5T-*/S101**	**RS 4.5T-*/S101** **WS 4.5T-*/S101**	AWM TPE Grey, 5x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50909-*M, Flexlife-20, High Flex Over 20 Million Cycles		
	RK 4.5T-*/S618 **WK 4.5T-*/S618**	**RS 4.5T-*/S618** **WS 4.5T-*/S618**	ITC/PLTC PVC Grey, 5x22 AWG Foil/Drain, 105 °C, 5.7 mm OD, Cable #RF50609-*M, RFI/EMI Protection		**Male** 
RS ..**  	**RS 4.5T-*/S715** **WS 4.5T-*/S715**	**RS 4.5T-*/S715** **WS 4.5T-*/S715**	ITC/PLTC PVC Yellow, 5x22 AWG, 105 °C, 5.7 mm OD, Cable #RF50684-*M, Flexlife		
	RK 4.5T-*/S653 **WK 4.5T-*/S653**	**RS 4.5T-*/S653** **WS 4.5T-*/S653**	ITC/PLTC PVC Grey, 4x22 AWG Foil/Drain, 105 °C, 5.3 mm OD, Cable #RF50577-*M, RFI/EMI Shielding	1. BN 2. WH 3. BU 4. BK 5. Drain	
WS ..**  	**RK 4.5T-*/S1554** **WK 4.5T-*/S1554**	**RS 4.5T-*/S1554** **WS 4.5T-*/S1554**	ITC/PLTC PVC Black, 5x22 AWG Foil/Drain, 105 °C, 5.7 mm OD, Cable #RF50794-*M, RFI/EMI Shielding	1. BN 2. WH 3. BU 4. BK 5. GY	

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

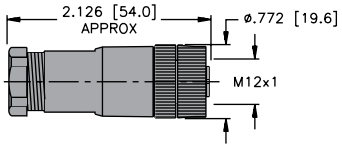
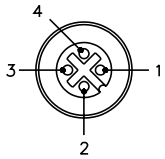
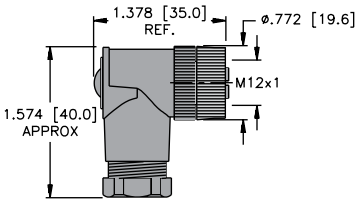
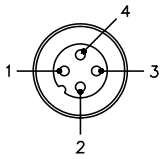
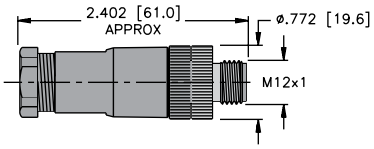
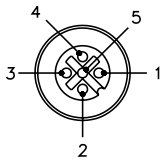
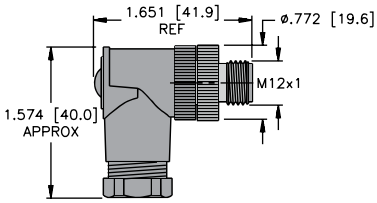
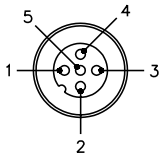
** Standard coupling nut material is nickel plated brass "RK .."; "RKK .." indicates nylon and "RKV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

M12 Eurofast Connectivity

4 and 5-Pin Field Wireable Connectors, Standard Key

- IEC IP67 Protection

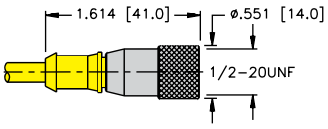
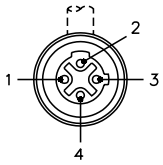
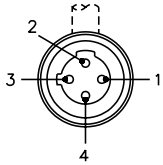
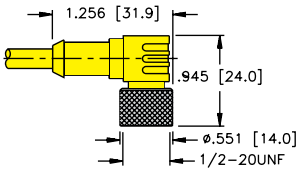
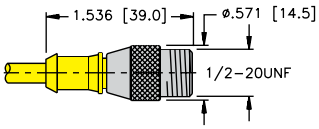
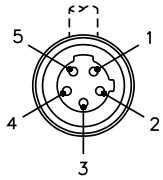
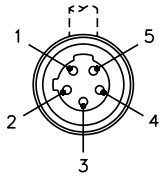
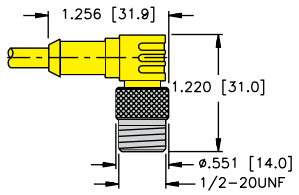
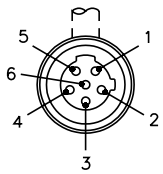
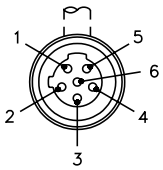
Housing Style	Female Part Number	Male Part Number	Features	Pinout
B 81..  	**B 8141-0** **B 8241-0**	**BS 8141-0** **BS 8241-0**	PBT, Black, PG 7 cable gland, accepts 4-6 mm cable diameter, screw terminals, accepts up to 18 AWG conductors, 85 °C, 250 V, 4 A, mates with standard key 4-pin cordsets and receptacles	**Female** 
B 82..  	**B 8141-0/PG 9** **B 8241-0/PG 9**	**BS 8141-0/PG 9** **BS 8241-0/PG 9**	PBT, Black, PG 9 cable gland, accepts 6-8 mm cable diameter, screw terminals, accepts up to 18 AWG conductors, 85 °C, 250 V, 4 A, mates with standard key 4-pin cordsets and receptacles	**Male** 
BS 81..  	**B 8151-0/PG 9** **B 8251-0/PG 9**	**BS 8151-0/PG 9** **BS 8251-0/PG 9**	PBT, Black, PG 9 cable gland, accepts 4-8 mm cable diameter, screw terminals, accepts up to 18 AWG conductors, 85 °C, 60 V, 4 A, mates with standard key 5-pin cordsets and receptacles	**Female** 
BS 82..  	**BM 8151-0/PG 9**		PBT, Black, PG 9 cable gland, accepts 6-8 mm cable diameter, screw terminals, accepts up to 18 AWG conductors, metal coupling nut, 85 °C, 60 V, 4 A, mates with standard key 5-pin cordsets and receptacles	**Male** 

We reserve the right to make technical alterations without prior notice.

1/2" Microfast Connectivity

Reverse Key (B-Code) Cordset Part Number Key

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
KB ..** 	**KB 4T-*** **WKB 4T-***	**SB 4T-*** **WSB 4T-***	ITC/PLTC PVC Yellow, 4x22 AWG, 105 °C, 5.3 mm OD, Cable #RF50555-*M, Flexlife®	1. RD/BK 2. RD/WH 3. RD 4. GN	Female 
	KB 4T-*/S90 **WKB 4T-*/S90**	**SB 4T-*/S90** **WSB 4T-*/S90**	AWM TPU Yellow, 4x22 AWG, 90 °C, 4.7 mm OD, Cable #RF50614-*M, Cut/Abrasion Immune		
	KB 4T-*/S105 **WKB 4T-*/S105**	**SB 4T-*/S105** **WSB 4T-*/S105**	ITC/PLTC PVC Yellow, 4x22 AWG, 105 °C, 6.2 mm OD, Cable #RF50656-*M, Braided Copper Shield		Male 
WKB ..** 	**KB 4T-*/S727** **WKB 4T-*/S727**	**SB 4T-*/S727** **WSB 4T-*/S727**	AWM TPU Grey, 4x22 AWG, 90 °C, 5.1 mm OD, Cable #RF50532-*M, Special Conductor Color Code	1. BN 2. BU 3. BK 4. WH	
SB ..** 	**KB 5T-*** **WKB 5T-***	**SB 5T-*** **WSB 5T-***	ITC/PLTC PVC Yellow, 5x22 AWG, 105 °C, 5.7 mm OD, Cable #RF50556-*M, Flexlife	1. RD/WH 2. RD 3. GN 4. RD/YE 5. RD/BK	Female 
					Male 
WSB ..** 	**KB 6T-*** **WKB 6T-***	**SB 6T-*** **WSB 6T-***	ITC/PLTC PVC Yellow, 6x22 AWG, 105 °C, 6.2 mm OD, Cable #RF51003-*M, Flexlife	1. RD/WH 2. RD 3. GN 4. RD/YE 5. RD/BK 6. RD/BU	Female 
					Male 

* Length in meters. Standard cable lengths are 2, 4, 6, 8 and 10 meters. Consult factory for other lengths.

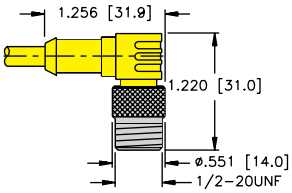
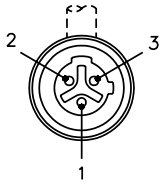
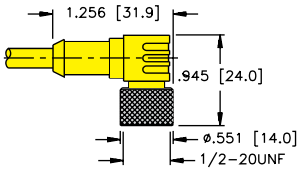
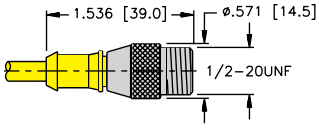
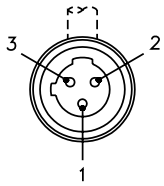
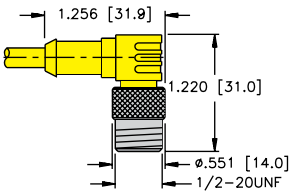
** Standard coupling nut material is nickel plated brass "KB .."; "KBK .." indicates nylon and "KBV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

1/2" Microfast Connectivity

3-Wire Cordsets, Standard Duty

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 250 V, 4 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
WSB ..** 	**KB 3T-*** **WKB 3T-***	**SB 3T-*** **WSB 3T-***	ITC/PLTC PVC Yellow, 3x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50531-*M	1. GN 2. RD/BK 3. RD/WH	**Female** 
WKB ..** 	**KB 3T-*/S90** **WKB 3T-*/S90**	**SB 3T-*/S90** **WSB 3T-*/S90**	AWM TPU Yellow, 3x18 AWG, 90 °C, 5.3 mm OD, Cable #RF50547-*M, Cut/Abrasion Immune		
	KB 3T-*/S105 **WKB 3T-*/S105**	**SB 3T-*/S105** **WSB 3T-*/S105**	ITC/PLTC PVC Yellow, 3x22 AWG,105 °C, 6.2 mm OD, Cable #RF50535-*M, Braided Shield		
SB ..** 	**KB 3T-*/S749** **WKB 3T-*/S749**	**SB 3T-*/S749** **WSB 3T-*/S749**	ITC/PLTC PVC Yellow, 2x22 AWG, 105 °C, 5.1 mm OD, Cable #RF50650-*M, 3-pin with 2 conductors	1. N/C 2. BK 3. WH	**Male** 
WSB ..** 	**KB 3T-*/S1507** **WKB 3T-*/S1507**	**SB 3T-*/S1507** **WSB 3T-*/S1507**	AWM TPE Grey, 3x22 AWG 105 °C, 4.8 mm OD, Cable #RF52085-*M, Flexlife-20, High Flex - Over 20 million cycles	1. BK 2. BN 3. BU	

* Length in meters. Standard cable lengths are 2, 4, 6, 8 and 10 meters. Consult factory for other lengths.

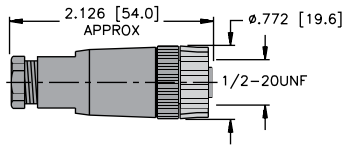
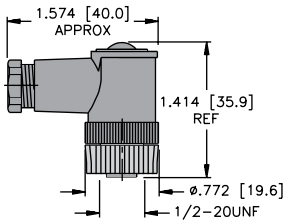
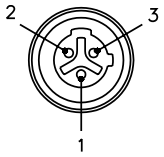
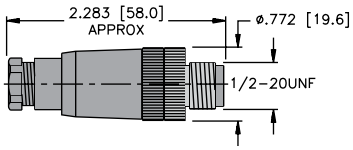
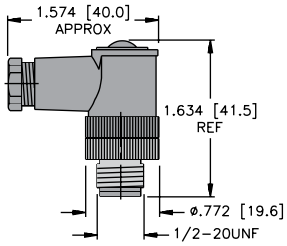
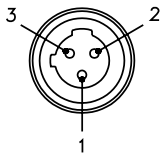
** Standard coupling nut material is nickel plated brass "KB .."; "KBK .." indicates nylon and "KBV .." indicates stainless steel.

We reserve the right to make technical alterations without prior notice.

1/2" Microfast Connectivity

3-Pin Field Wireable Connectors

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection

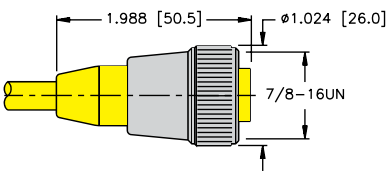
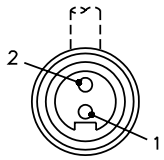
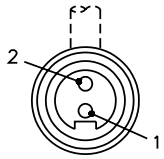
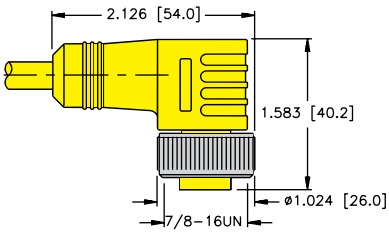
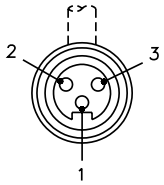
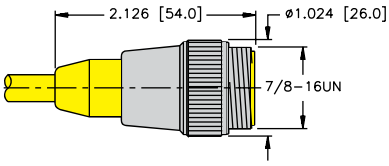
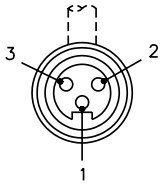
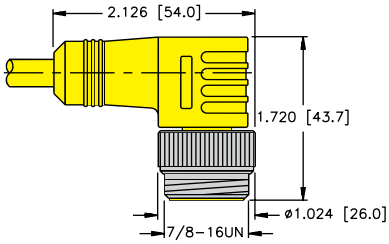
Housing Style	Female Part Number	Male Part Number	Features	Pinout
MF 3131-0  **MF 3231-0**  	**MF 3131-0**	**MFS 3131-0**	PBT, black, PG 7 cable diameter gland, accepts 4-6 mm cable diameter, screw terminals, accepts up to 18 AWG conductor, 85 °C, 250 V, 4 A, mates with 3-wire cordsets and receptacles	**Female** 
MFS 3131-0  **MFS 3231-0**  	**MF 3231-0**	**MFS 3231-0**	PBT, black, PG 7 cable diameter gland, accepts 4-6 mm cable diameter, screw terminals, accepts up to 18 AWG conductor, 85 °C, 250 V, 4 A, mates with 3-wire cordsets and receptacles	**Male** 

We reserve the right to make technical alterations without prior notice.

7/8" Minifast Connectivity Products

2 and 3-Wire Cordsets, Standard

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 9 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RKM ..**  	**RKM 20- *M** **WKM 20- *M**	**RSM 20- *M** **WSM 20- *M**	ITC/PLTC PVC Yellow 2x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50511-*M, Flexlife®, 600 V	1. BN 2. BU	Female  Male 
WKM ..**  	**RKM 30-*M** **WKM 30-*M**	**RSM 30-*M** **WSM 30-*M**	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50880-*M, Flexlife, 600 V	1. GN/YE 2. BN 3. BU	Female 
	RKM 30-*M/S90 **WKM 30-*M/S90**	**RSM 30-*M/S90** **WSM 30-*M/S90**	AWM TPU Yellow, 3x18 AWG , 90 °C, 6.0 mm OD, Cable #RF50545-*M, Cut Abrasion Immune, 600 V		
RSM ..**  	**RKM 30-*M/S101** **WKM 30-*M/S101**	**RSM 30-*M/S101** **WSM 30-*M/S101**	AWM TPE Yellow, 3x18 AWG , 105 °C, 5.7 mm OD, Cable #RF51173-*M, Flexlife-20, high flex over 20 million cycles, 600 V C-track		
	RKM 311-*M **WKM 311-*M**	**RSM 311-*M** **WSM 311-*M**	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50520-*M, Flexlife, 600 V	1. GN 2. RD/BK 3. RD/WH	Male 
WSM ..**  	**RKM 311-*M/S600** **WKM 311-*M/S600**	**RSM 311-*M/S600** **WSM 311-*M/S600**	SJOOW CPE, Yellow, 3x18 AWG , 105 °C, 8.0 mm OD, Cable #RF50658-*M, Weld Flash Immune, Flame Immune, 300 V		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

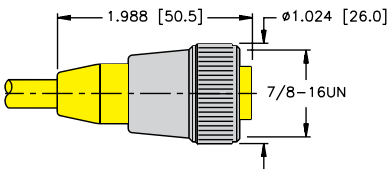
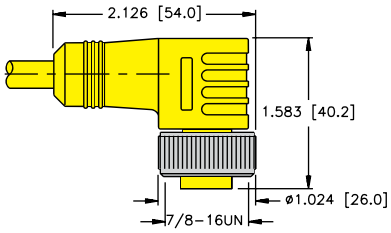
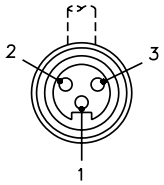
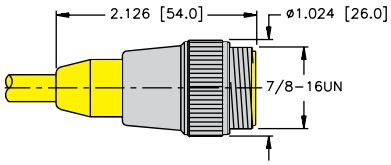
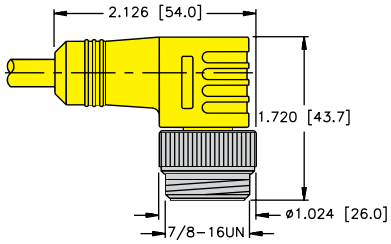
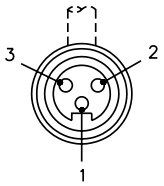
** Standard coupling nut material is nickel plated brass "RKM .."; "RK .." indicates nylon, "RKV .." indicates stainless steel, and "RKVH .." indicates stainless steel hex.

We reserve the right to make technical alterations without prior notice.

7/8" Minifast Connectivity Products

3-Wire Cordsets, Standard

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 9 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RKM ..**  WKM ..**  	RKM 31-*M WKM 31-*M	RSM 31-*M WSM 31-*M	ITC/PLTC PVC Yellow, 3x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50513-*M, Flexlife®, 600 V	1. BK 2. BN 3. BU	Female 
RSM ..**  WSM ..**  	RKM 31-*M/S600 WKM 31-*M/S600	RSM 31-*M/S600 WSM 31-*M/S600	SJOOW CPE Yellow, 3x18 AWG, 105 °C, 8.0 mm OD, Cable #RF50654-*M, Weld Flash Immune, Flame Immune, 300 V		Male 

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

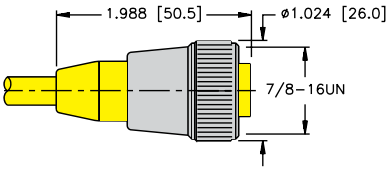
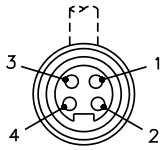
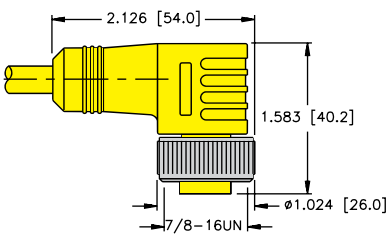
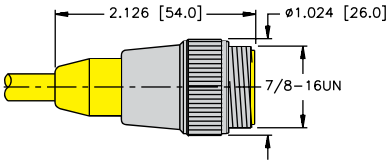
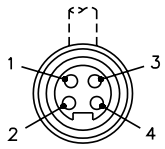
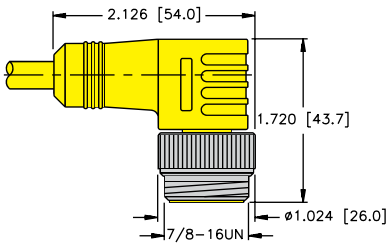
** Standard coupling nut material is nickel plated brass "RKM .."; "RK .." indicates nylon, "RKV .." indicates stainless steel, and "RKVH .." indicates stainless steel hex.

We reserve the right to make technical alterations without prior notice.

7/8" Minifast Connectivity Products

3 and 4-Wire Cordsets, Standard

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 9 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RKM ..** 	**RKM 40-*M** **WKM 40-*M**	**RSM 40-*M** **WSM 40-*M**	ITC/PLTC PVC Yellow, 4x18 AWG, 105 °C, 6.7 mm OD, Cable #RF50548-*M, Flexlife®, 600 V	1. BN 2. WH 3. BU 4. BK	**Female** 
WKM ..** 	**RKM 40-*M/S90** **WKM 40-*M/S90**	**RSM 40-*M/S90** **WSM 40-*M/S90**	AWM TPU Yellow, 4x18 AWG, 90 °C, 7.2 mm OD, Cable #RF50544-*M, Cut/Abrasion Immune, 600 V		
RSM ..** 	**RKM 40-*M/S101** **WKM 40-*M/S101**	**RSM 40-*M/S101** **WSM 40-*M/S101**	AWM TPE Yellow, 4x18 AWG, 105 °C, 6.2 mm OD, Cable #RF50968-*M, Flexlife-20, High Flex - Over 20 million cycles, 600 V, C-track		
	RKM 40-*M/S529 **WKM 40-*M/S529**	**RSM 40-*M/S529** **WSM 40-*M/S529**	TPU Yellow, 4x20 AWG, 90 °C, 5.7 mm OD, Cable #RF50526-*M, Cut/Abrasion Immune, Braided Mechanical Shield, 300 V		**Male** 
WSM ..** 	**RKM 40-*M/S600** **WKM 40-*M/S600**	**RSM 40-*M/S600** **WSM 40-*M/S600**	SJOOW CPE Yellow, 4x18 AWG, 105 °C, 8.5 mm OD, Cable #RF50644-*M, Weld Flash Immune, Flame Immune, 300 V		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

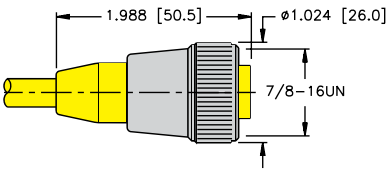
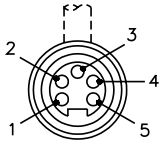
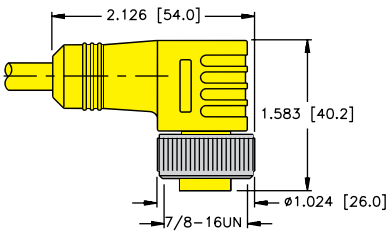
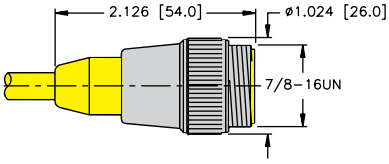
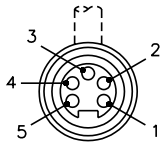
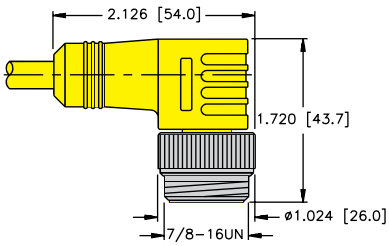
** Standard coupling nut material is nickel plated brass "RKM .."; "RK .." indicates nylon, "RKV .." indicates stainless steel, and "RKVH .." indicates stainless steel hex.

We reserve the right to make technical alterations without prior notice.

7/8" Minifast Connectivity Products

5-Wire Cordsets, Standard

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection
- 9 A

Connector Style	Female Part Number	Male Part Number	Features	Pinout	
RKM ..** 	**RKM 50-*M** **WKM 50-*M**	**RSM 50-*M** **WSM 50-*M**	ITC/PLTC PVC Yellow, 5x18 AWG, 105 °C, 7.6 mm OD, Cable #RF50549-*M, Flexlife®, 600 V	1. BK 2. BU 3. GN/YE 4. BN 5. WH	**Female** 
	RKM 50-*M/S90 **WKM 50-*M/S90**	**RSM 50-*M/S90** **WSM 50-*M/S90**	AWM TPU Yellow, 5x18 AWG, 90 °C, 7.2 mm OD, Cable #RF50751-*M, Cut/Abrasion Immune, 600 V		
WKM ..** 	**RKM 50-*M/S101** **WKM 50-*M/S101**	**RSM 50-*M/S101** **WSM 50-*M/S101**	AWM TPE Yellow, 5x18 AWG, 105 °C, 6.7 mm OD, Cable #RF51174-*M, Flexlife-20, high flex over 20 million cycles, 600 V, C-track		
RSM ..** 	**RKM 50-*M/S1551** **WKM 50-*M/S1551**	**RSM 50-*M/S1551** **WSM 50-*M/S1551**	ITC/PLTC PVC Yellow, 5x18 AWG, 105 °C, 7.6 mm OD, Cable #RF50578-*M, Yellow conductor instead of Green/Yellow, 600 V	1. BK 2. BU 3. YE 4. BN 5. WH	**Male** 
	RKM 511-*M **WKM 511-*M**	**RSM 511-*M** **WSM 511-*M**	ITC/PLTC PVC Yellow, 5x18 AWG, 105 °C, 7.6 mm OD, Cable #RF50521-*M, Flexlife, 600 V	1. RD/WH 2. RD/BU 3. GN 4. RD/OG 5. RD/BK	
WSM ..** 	**RKM 511-*M/S600** **WKM 511-*M/S600**	**RSM 511-*M/S600** **WSM 511-*M/S600**	SJOOW CPE Yellow, 5x18 AWG, 105 °C, 9.4 mm OD, Cable #RF50659-*M, Weld Flash Immune, Flame Immune, 300 V		

* Length in meters. Standard cable lengths are 2, 4, 5, 6, 8 and 10 meters. Consult factory for other lengths.

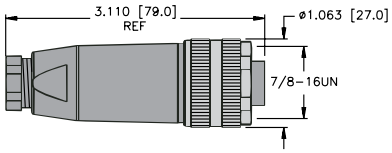
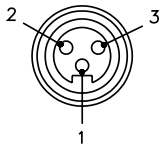
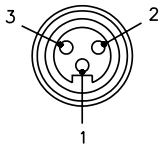
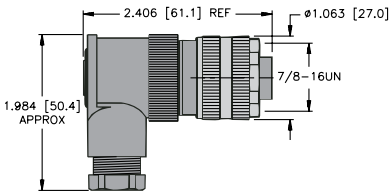
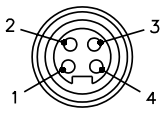
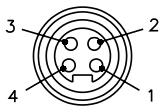
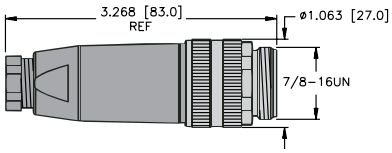
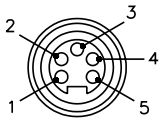
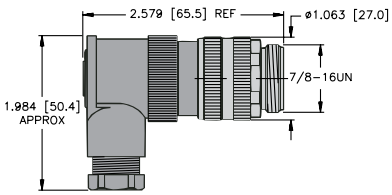
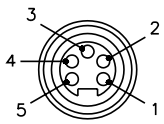
** Standard coupling nut material is nickel plated brass "RKM .."; "RK .." indicates nylon, "RKV .." indicates stainless steel, and "RKVH .." indicates stainless steel hex.

We reserve the right to make technical alterations without prior notice.

7/8" Minifast Connectivity Products

3, 4 and 5-Pin Field Wireable Connectors

- NEMA 1, 3, 4, 6P
- IEC IP67 Protection

Housing Style	Female Part Number	Male Part Number	Features	Pinout
B 41 ..  	**B 4131-0/9** **B 4231-0/9**	**BS 4131-0/9** **BS 4231-0/9**	Glass filled nylon, PG 9 cable gland, accepts 6-8 mm cable diameter screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 12 A, Mates with all 3-pin cordsets and receptacles	**Female** 
	B 4131-0/13.5	**BS 4131-0/13.5**	Glass filled nylon, PG 13.5 cable gland, accepts 10-12 mm cable diameter screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 12 A, Mates with all 3-pin cordsets and receptacles	**Male** 
B 42 ..  	**B 4141-0/9** **B 4241-0/9**	**BS 4141-0/9** **BS 4241-0/9**	Glass filled nylon, PG 9 cable gland, accepts 6-8 mm cable diameter screw terminals, accepts up to 16 AWG conductors 85 °C, 250 V, 9 A, Mates with all 4-pin cordsets and receptacles	**Female** 
	B 4141-0/13.5	**BS 4141-0/13.5**	Glass filled nylon, PG 13.5 cable gland, accepts 10-12 mm cable diameter screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 9 A, Mates with all 4-pin cordsets and receptacles	**Male** 
BS 41 ..  	**B 4151-0/9** **B 4251-0/9**	**BS 4151-0/9** **BS 4251-0/9**	Glass filled nylon, PG 9 cable gland, accepts 6-8 mm cable diameter, screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 9 A, Mates with all 5-pin cordsets and receptacles	**Female** 
BS 42 ..  	**B 4151-0/13.5**	**BS 4151-0/13.5**	Glass filled nylon, PG 13.5 cable gland, accepts 10-12 mm cable diameter screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 9 A	**Male** 
	B 4151-0/16	**BS 4151-0/16**	Glass filled nylon, PG 16 cable gland, accepts 12-14 mm cable diameter screw terminals, accepts up to 16 AWG conductors, 85 °C, 250 V, 9 A	

We reserve the right to make technical alterations without prior notice.

Notes

Accessories Selection Guide

	Die Protector	Whisker Probe	Quick Mount
Pages	**I3**	**I3**	**I4**

	Cushion Mount	Mounting Clamps	Mounting Brackets
Pages	**I4**	**I5**	**I6**

	Mounting Clamps	Mounting Brackets	Protective Housing - "Wet Suit"
Pages	**I7 - 8**	**I9 - 11**	**I11**

	PTFE/Ceramic Caps	Protective Covers	Lockwashers and Locknuts
Pages	**I12**	**I13**	**I14**

We reserve the right to make technical alterations without prior notice.

Accessories Selection Guide

	Smart Plugs	Cable Glands
Pages	I15	I16

	Conduit Adapters	Actuation Magnets
Pages	I17	I18

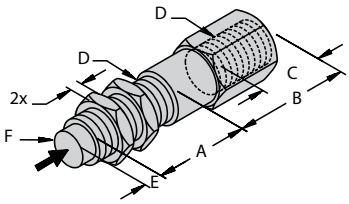
	Spacer Plates	Threaded and Bolt-on Tank Wells
Pages	I18	I21 - 22

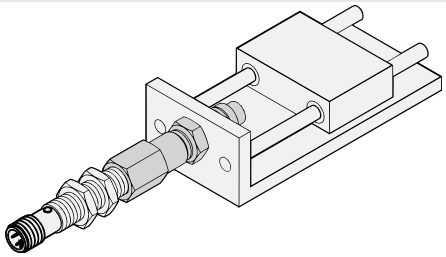
	Test Box	Limit Value Monitor
Pages	I23	I23

We reserve the right to make technical alterations without prior notice.

Accessories

Die Protector





Part Number	ID Number	A	B	C	D	E	F
DP-08-25-08	**A2521**	0.98 [25.0]	1.25 [31.8]	0.66 [16.7]	M8x1	0.17 [4.3]	0.44 [11.1]
DP-08-50-08	**A9473**	1.97 [50.0]	1.25 [31.8]	0.66 [16.7]	M8x1	0.17 [4.3]	0.44 [11.1]
DP-12-25-12	**A2519**	0.98 [25.0]	1.25 [31.8]	0.66 [16.7]	M12x1	0.17 [4.3]	0.62 [15.7]
DP-12-50-12	**A9169**	1.97 [50.0]	1.25 [31.8]	0.66 [16.7]	M12x1	0.17 [4.3]	0.62 [15.7]
DP-18-25-18	**A2520**	0.98 [25.0]	1.25 [31.8]	0.66 [16.7]	M18x1	0.17 [4.3]	0.87 [22.1]
DP-18-75-18	**A9527**	2.95 [75.0]	1.25 [31.8]	0.66 [16.7]	M18x1	0.17 [4.3]	0.87 [22.1]

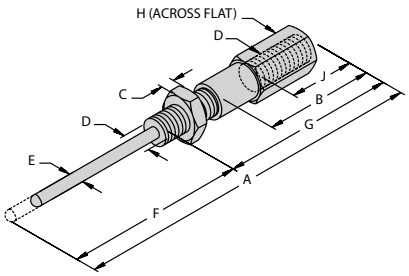
Inches [mm]
Spring rate for plunger actuation: 9 oz

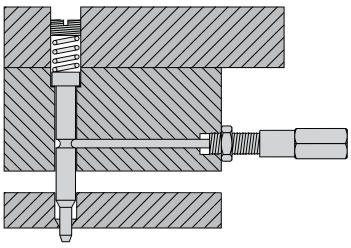
Recommended Sensors for Die Protector

Die Protector	DP-08-25-08	DP-12-25-12	DP-18-25-18
Sensors	Bi1.5U-EG08-AP6X Bi2-EG08-AP6X	Bi2-G12-AP6X-H1141	Bi5-G18-AP6X (When not fully engaged)

Note: Works with all shielded NPN, PNP, quick disconnect or potted-in-cable versions of the listed part numbers.

Whisker Probe





Part Number	ID Number	A	B	C	D	E	F	G	H	J
WP-08-50-03	**A2527**	3.92 [99.6]	1.25 [31.8]	0.15 [3.8]	M8x1	0.13 [3.2]	2.00 [50.8]	1.95 [49.5]	0.44 [11.1]	0.86 [21.8]
WP-12-50-03	**A2528**	3.92 [99.6]	1.25 [31.8]	0.15 [3.8]	M12x1	0.13 [3.2]	2.00 [50.8]	1.95 [49.5]	0.44 [11.1]	0.86 [21.8]
WP-12-50-06	**A2529**	3.92 [99.6]	1.25 [31.8]	0.15 [3.8]	M12x1	0.25 [6.4]	2.00 [50.8]	1.95 [49.5]	0.62 [15.8]	0.71 [18.0]
WP-12-100-06	**A9195**	5.91 [150]	1.25 [31.8]	0.15 [3.8]	M12x1	0.25 [6.4]	4.00 [102]	1.95 [49.5]	0.62 [15.8]	0.71 [18.0]

Inches [mm]

Recommended Sensors for Whisker Probe

Whisker Probe	WP-08-50-03		WP-12-50-03	WP-12-50-06
Sensors	Bi1-G08-AN6 Bi1.5-G08-AP6X	Bi1.5U-EG08-AP6X Bi2-EG08-AP6X	Bi2-G12-AP6X-H1141 Bi3U-M12-AP6X-H1141	Bi2-G12-AP6X-H1141 Bi3U-M12-AP6X-H1141

Note: Works with all shielded NPN, PNP, quick disconnect or potted-in-cable versions of the listed part numbers. Not for use with Uprox3.

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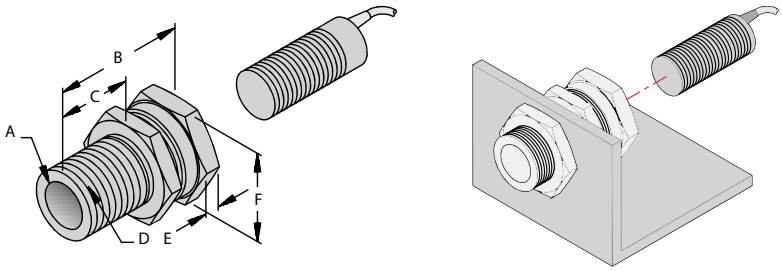
Accessories

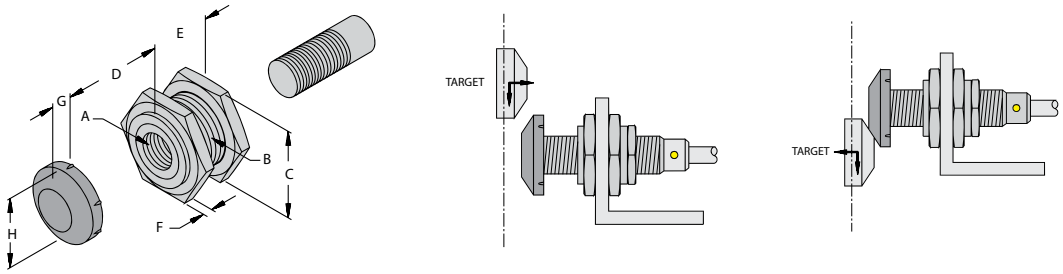
Quick Mount



Part Number	ID Number	Features	A	B	C	D	E	F
QM-08	A2511	—	0.32 [8.18]	1.28 [32.4]	0.69 [17.5]	M12x1	0.15 [3.85]	0.67 [16.9]
QM-08L	A2512	Ext. Length	0.32 [8.18]	1.90 [48.0]	1.34 [34.0]	M12x1	0.15 [3.85]	0.67 [16.9]
QM-12	A2513	—	0.48 [12.1]	1.34 [33.7]	0.77 [19.5]	M16x1	0.16 [4.01]	0.86 [21.8]
QM-12L	A2514	Ext. Length	0.48 [12.1]	1.76 [44.8]	1.18 [30.0]	M16x1	0.16 [4.01]	0.86 [21.8]
QM-12L-T	A2542	Ext. Length, PTFE	0.48 [12.1]	1.76 [44.8]	1.18 [30.0]	M16x1	0.16 [4.01]	0.86 [21.8]
QM-18	A2515	—	0.71 [18.1]	1.52 [38.5]	0.79 [20.0]	M24x1.5	0.19 [4.95]	1.18 [30.0]
QM-18L	A2516	Ext. Length	0.71 [18.1]	2.28 [58.0]	1.57 [40.0]	M24x1.5	0.19 [4.95]	1.18 [30.0]
QM-18L-T	A2543	Ext. Length, PTFE	0.71 [18.1]	2.28 [58.0]	1.57 [40.0]	M24x1.5	0.19 [4.95]	1.18 [30.0]
QM-30	A2517	—	1.19 [30.1]	1.50 [35.0]	0.79 [20.0]	M36x1.5	0.24 [6.13]	1.61 [41.0]
QM-30L	A2518	Ext. Length	1.19 [30.1]	2.28 [58.0]	1.57 [40.0]	M36x1.5	0.24 [6.13]	1.61 [41.0]

Inches [mm]
Material: Nickel plated brass

Cushion Mount



Part Number	ID Number	A	B	C	D	E	F	G	H	Cap Part Number	Cap ID Number
		Inside Thread	Outside Thread	Across Flats	Max Allowable Overtravel						
CM-08	A2503	M8x1	M16x1.5	0.88 [22.2]	0.35 [8.89]	0.87 [22.1]	0.16 [3.94]	0.21 [5.33]	0 .60 [15.2]	CAP-EN08	A6100
CM-08N	A2504									CAP-EN08N	A6200
CM-12	A2505	M12x1	M22x1.5	1.12 [28.6]	0.40 [10.0]	0.87 [22.1]	0.16 [4.06]	0.245 [6.22]	0 .90 [22.9]	CAP-EN12	A6300
CM-12N	A2506									CAP-EN12N	A6300-1
CM-18	A2507	M18x1	M30x1.5	1.41 [35.8]	0.49 [12.4]	1.17 [29.7]	0.20 [5.10]	0.33 [8.38]	1.18 [30.0]	CAP-EN18	A6400
CM-18N	A2508									CAP-EN18N	A6400-1
CM-30	A2509	M30x1.5	M47x1.5	2.01 [51.0]	0.57 [14.5]	1.47 [37.3]	0.20 [5.10]	0 .30 [7.62]	1.72 [43.7]	CAP-EN30	A 9567
CM-30N	A2510									—	—

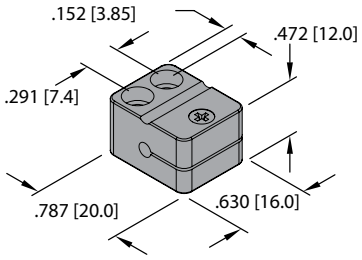
Inches [mm]
Material: Anodized aluminum
Cap: Plastic
Stainless Versions available (CM-*NSS)

We reserve the right to make technical alterations without prior notice.

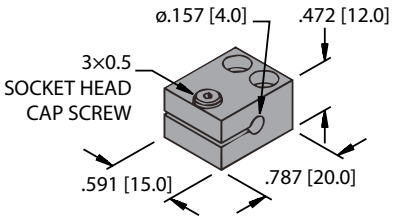
Accessories

Mounting Clamps

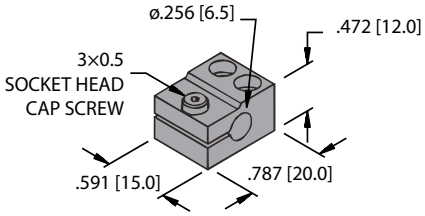
MBS 30



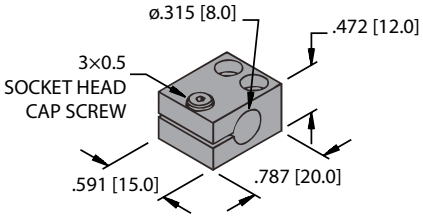
MBS 40



MBS 65



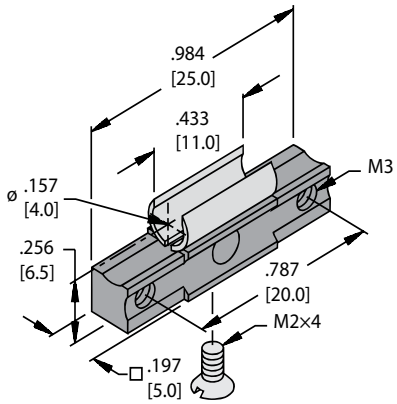
MBS 80



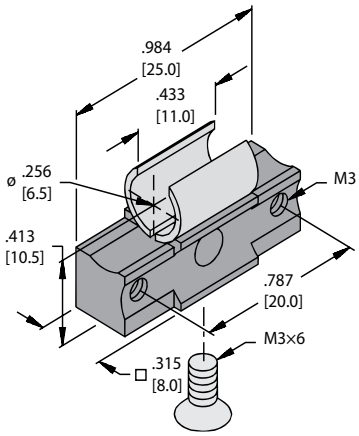
Part Number	ID Number	Barrel Diameter
MBS30	**6948000**	3.0 mm
MBS40	**69477**	4.0 mm
MBS65	**69478**	6.5 mm
MBS80	**69479**	8.0 mm

Inches [mm]
Material: Aluminum
Finish: Black anodized
*For use with smooth barrel Picoprox® sensors

BS 540



BS 865



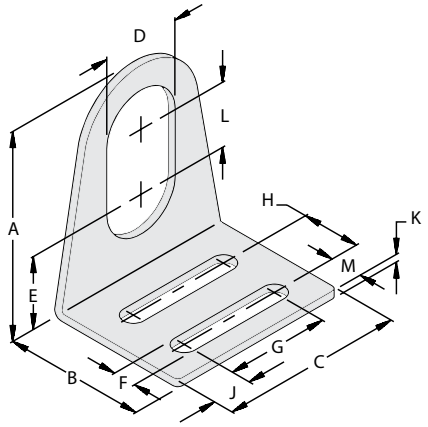
Part Number	ID Number	Barrel Diameter
BS540	**69475**	4.0 mm
BS865	**69476**	6.5 mm

Inches [mm]
Block Material: Aluminum
Sleeve Material: Steel
*For use with smooth barrel Picoprox sensors

We reserve the right to make technical alterations without prior notice.

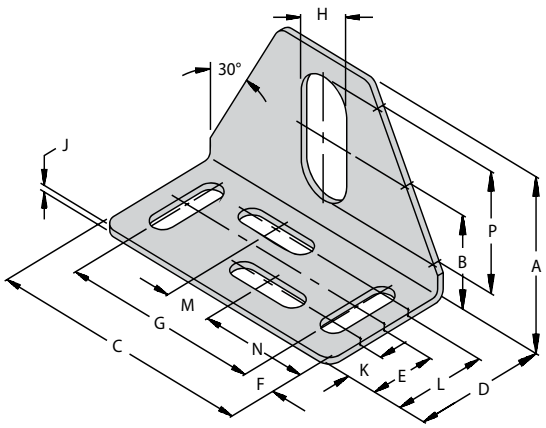
Accessories

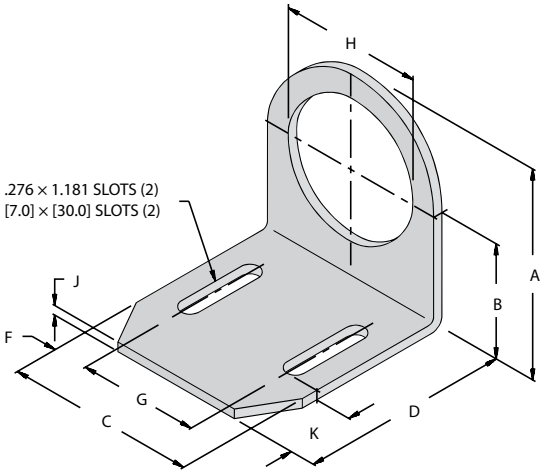
Mounting Brackets



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H	J	K	L	M
MBSS-08	**A2522**	8 mm	1.00 [25.4]	1.13 [28.7]	1.25 [31.8]	0.34 [8.74]	0.31 [7.92]	0.22 [5.54]	0.63 [15.9]	0.47 [11.9]	0.31 [7.92]	0.070 [1.78]	0.37 [9.53]	0.28 [7.14]
MBSS-12	**A2523**	12 mm	1.50 [38.1]	1.37 [34.8]	1.50 [38.1]	0.50 [12.7]	0.55 [13.9]	0.22 [5.54]	0.75 [19.1]	0.56 [14.3]	0.37 [9.53]	0.070 [1.78]	0.50 [12.7]	0.31 [7.92]
MBSS-18	**A2524**	18 mm	2.00 [50.8]	1.37 [34.8]	1.75 [44.5]	0.75 [19.1]	0.22 [19.1]	0.22 [5.54]	1.00 [25.4]	0.56 [14.3]	0.37 [9.53]	0.070 [1.78]	0.62 [15.9]	0.31 [7.92]
MBSS-30	**A2525**	30 mm	2.50 [63.5]	1.75 [44.5]	2.25 [57.2]	1.18 [30.5]	0.91 [23.0]	0.22 [5.54]	1.37 [34.8]	0.81 [20.6]	0.44 [11.2]	0.085 [2.16]	0.75 [19.1]	0.41 [10.3]
MBSS-47	**A2526**	47 mm	3.50 [88.9]	2.00 [50.8]	2.50 [63.5]	1.87 [47.5]	1.50 [38.1]	0.22 [5.54]	1.50 [38.1]	1.00 [25.4]	0.50 [12.7]	0.120 [3.05]	0.75 [19.1]	0.50 [12.7]

Inches [mm]
Material: 304 stainless steel





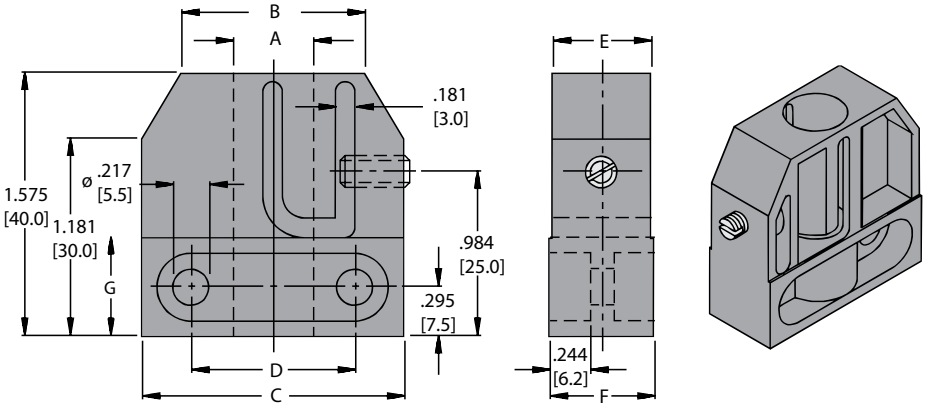
Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MB-8	**A3130-1**	8 mm	1.26 [32.0]	0.66 [16.7]	2.00 [50.8]	1.00 [25.4]	0.45 [11.5]	0.30 [7.5]	1.41 [35.8]	0.33 [8.4]	0.06 [1.5]	0.24 [6.0]	0.67 [17.0]	0.35 [8.8]	0.83 [21.0]	.84 [21.4]
MB-12	**A3130**	12 mm	1.63 [41.5]	0.87 [22.15]	2.50 [63.5]	1.25 [31.8]	0.61 [15.5]	0.31 [7.9]	1.88 [47.8]	0.50 [12.7]	0.06 [1.5]	0.35 [9.0]	0.87 [22.0]	0.45 [11.5]	1.02 [26.0]	1.13 [28.7]
MB-18	**A3135**	18 mm	1.63 [41.5]	0.79 [20.0]	2.50 [63.5]	1.25 [31.8]	0.61 [15.5]	0.31 [7.9]	1.88 [47.8]	0.75 [19.1]	0.06 [1.5]	0.35 [9.0]	0.87 [22.0]	0.45 [11.5]	1.04 [26.3]	1.15 [29.1]
MB-30	**A3140**	30 mm	2.62 [66.5]	1.32 [33.5]	4.25 [108.0]	1.75 [44.5]	0.88 [22.4]	0.37 [9.5]	3.50 [88.9]	1.19 [30.2]	0.07 [1.8]	0.63 [16.0]	1.14 [29.0]	1.18 [30.0]	1.54 [39.0]	2.06 [52.2]
MB-47	**69452**	47 mm	2.74 [69.5]	1.48 [37.5]	2.52 [64.0]	252 [64.0]	—	0.47 [12.0]	1.58 [40.0]	1.87 [47.5]	0.12 [3.00]	0.63 [16.0]	—	—	—	—

Inches [mm]
Material: Cold roll steel
Finish: Galvanized

We reserve the right to make technical alterations without prior notice.

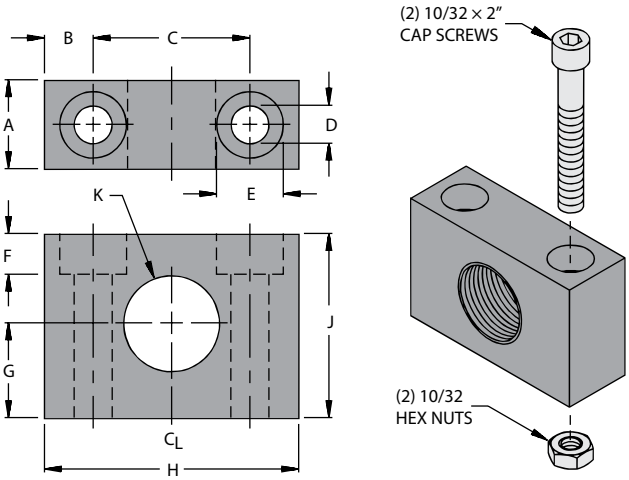
Accessories

Mounting Clamps



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G
BS-12	**M6947000**	12 mm	0.48 [12.2]	1.10 [28.0]	1.57 [40.0]	0.98 [25.0]	0.59 [15.0]	0.63 [16.0]	0.59 [15.0]
BS-18	**M6947100**	18 mm	0.72 [18.2]	1.30 [33.0]	1.77 [45.0]	1.18 [30.0]	0.83 [21.0]	0.87 [22.0]	0.59 [15.0]

Inches [mm]
Material: PA 66-GF
*For use with 12 and 18 mm threaded barrel sensors



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H	J	K
MB-S12	**A3150**	12 mm	0.44 [11.2]	0.24 [6.2]	0.77 [19.6]	0.20 [5.0]	0.34 [8.7]	0.20 [5.0]	0.45 [11.4]	1.26 [32.0]	0.91 [23.0]	M12x1
MB-S18	**A3155**	18 mm	0.63 [16.0]	0.30 [7.6]	1.20 [30.5]	0.22 [5.5]	0.38 [9.6]	0.25 [6.4]	0.57 [14.5]	1.80 [45.8]	1.15 [29.3]	M18x1

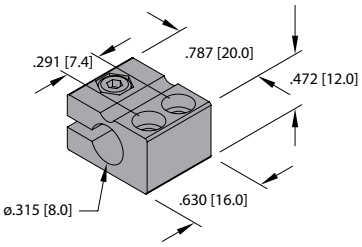
Inches [mm]
Material: Delrin
*For use with 12 and 18 mm threaded barrel sensors. Mounting hardware included.

We reserve the right to make technical alterations without prior notice.

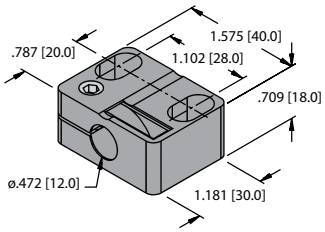
Accessories

Mounting Clamps

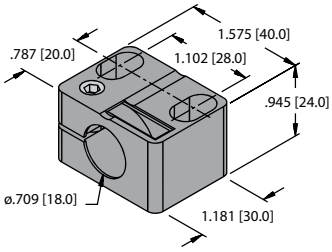
BST-08B



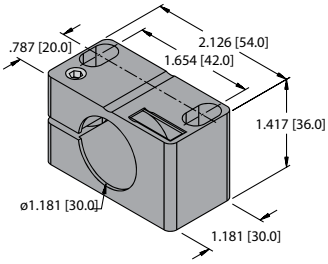
BST-12B/12N



BST-18B/18N

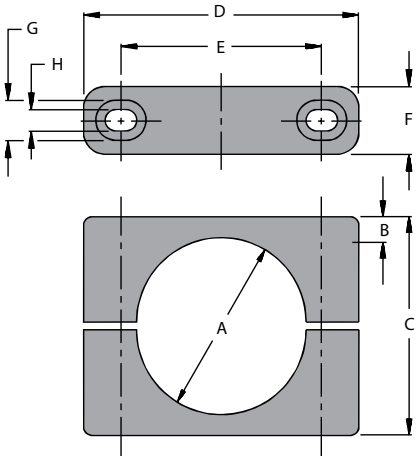


BST-30B/30N

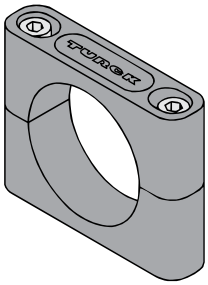


Part Number	ID Number	Barrel Diameter
BST-08B	**6947210**	8 mm
BST-12B	**6947212**	12 mm
BST-12N	**6945200**	12 mm
BS-18B	**6947214**	18 mm
BST-18N	**6947215**	18 mm
BST-30B	**6947216**	30 mm
BST-30N	**6947217**	30 mm

Inches [mm]
B Version comes with dead stop for flush mounted sensors
Material: PA 66-6F



SCREWS INCLUDED:
BS-11: (2) M4 × 22 —SLOTTED HEAD
BS-20: (2) M5 × 30 —CAP SCREWS
BS-40: (2) M5 × 50 —CAP SCREWS



Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F	G	H
BS-11	**A3075**	11 mm	0.43 [11.0]	0.20 [5.0]	0.79 [20.0]	1.26 [32.0]	0.79 [0.0]	0.47 [12.0]	0.32 [8.2]	0.17 [4.3]
BS-20	**69464**	20 mm	0.79 [20.0]	0.24 [6.0]	1.18 [30.0]	1.81 [46.0]	1.22 [31.0]	0.59 [15.0]	0.37 [9.5]	0.21 [5.3]
BS-40	**69466**	40 mm	1.57 [40.0]	0.24 [6.0]	1.97 [50.0]	2.56 [65.0]	1.87 [47.5]	0.63 [16.0]	0.37 [9.5]	0.21 [5.3]

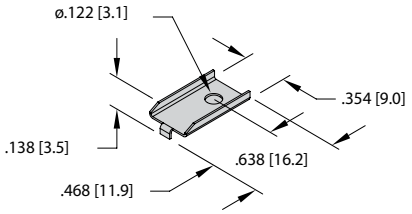
Inches [mm]
Bracket Material: PBT
Screw Bracket: Galvanized zinc
*For use with 11, 20, and 40 mm smooth plastic barrel sensors

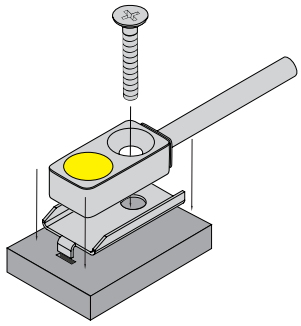
We reserve the right to make technical alterations without prior notice.

Accessories

Mounting Brackets

MW-Q4.7/5.5

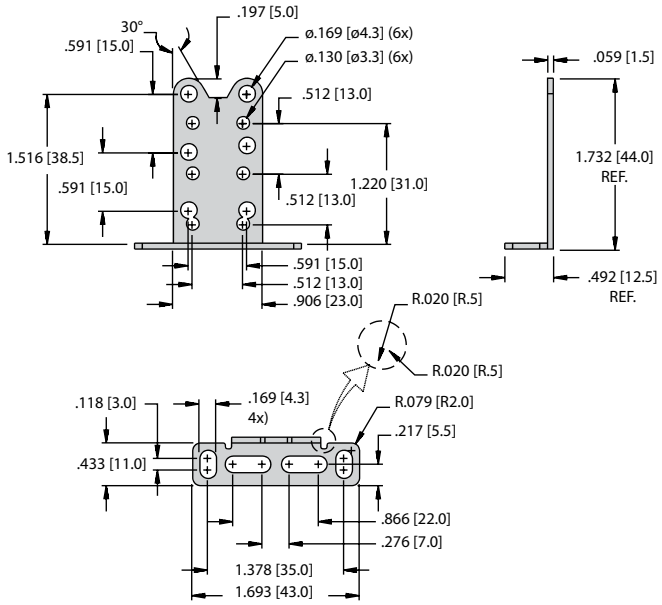


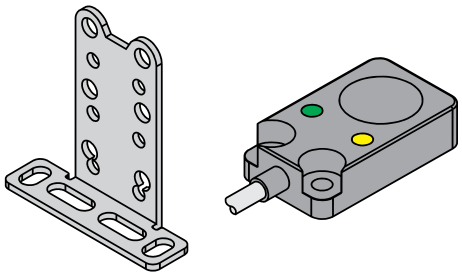


Part Number	ID Number
MW-Q4.7/5.5	6945013

Inches [mm]
Material: Stainless steel
*For surface mounting of Q4.7 or Q5.5 sensors

MB-Q08/Q10

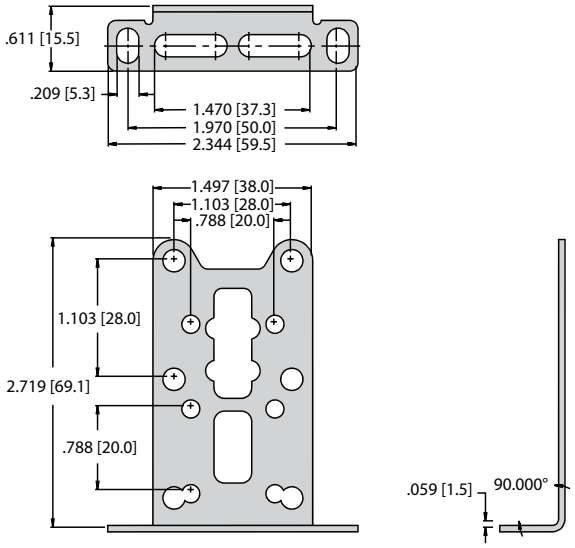


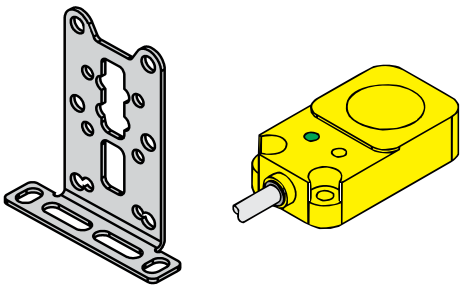


Part Number	ID Number
MB-Q08/Q10	A3563

Inches [mm]
Material: Stainless steel
*For use with Q08 or Q10 sensors

MB-Q14/20





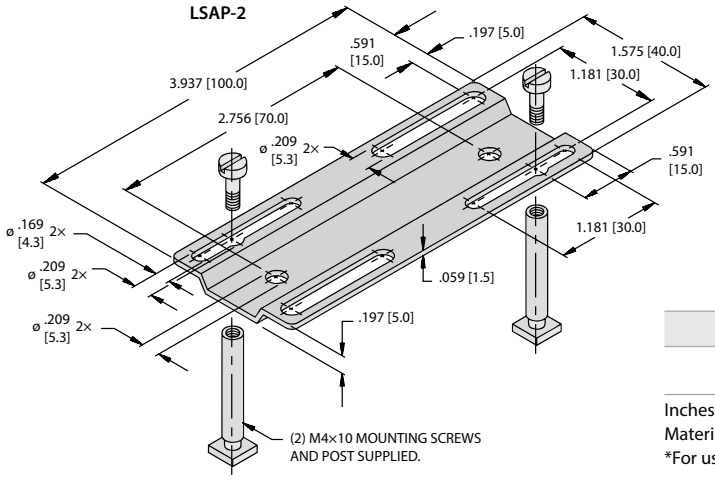
Part Number	ID Number
MB-Q14/20	A3147

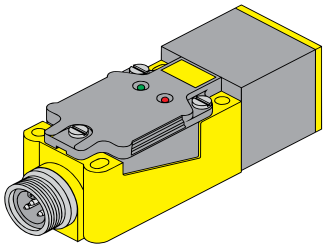
Inches [mm]
Material: Stainless steel
*For use with Q14 or Q20 sensors

We reserve the right to make technical alterations without prior notice.

Accessories

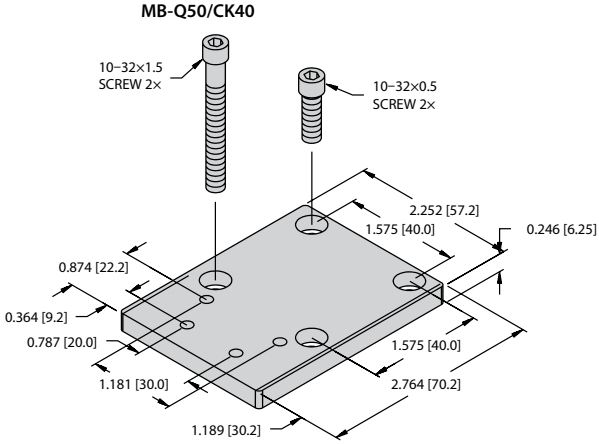
Mounting Brackets

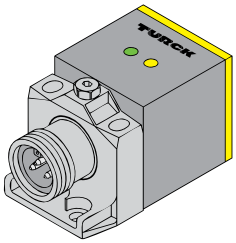




Part Number	ID Number
LSAP-2	M6942900

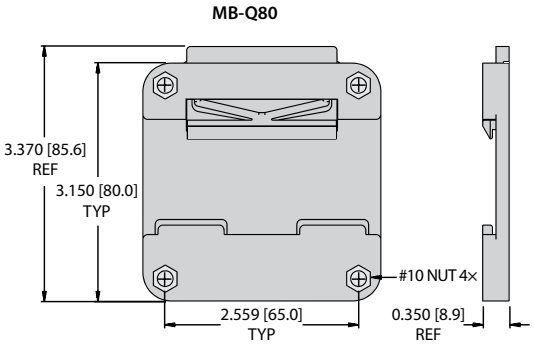
Inches [mm]
Material: Stainless steel
*For use with CP40

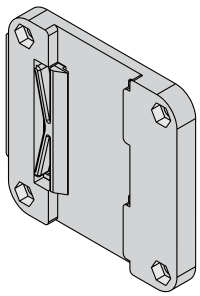


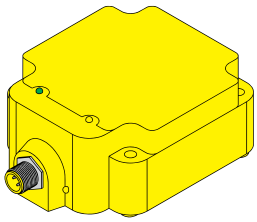


Part Number	ID Number
MB-Q50/CK40	A3148

Inches [mm]
Material: Stainless steel
*For use with Q50 or CK40 sensors







Part Number	ID Number
MB-Q80	A3144

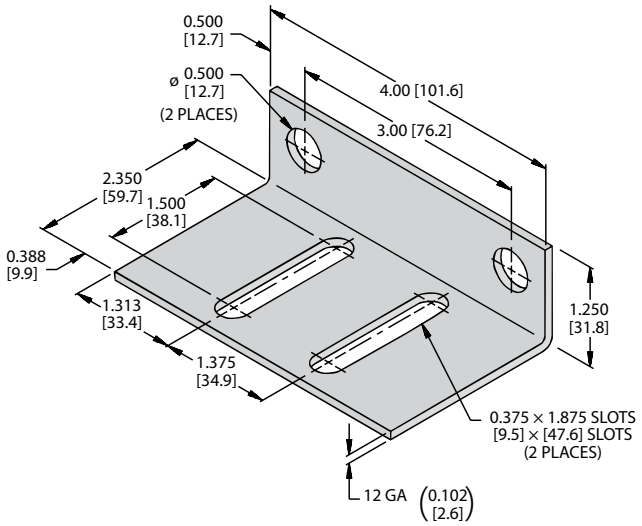
Inches [mm]
Bracket Material: Plastic
Insert Material: Stainless steel
*For use with Q80 sensors

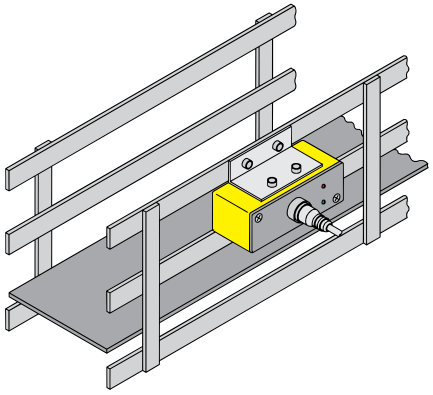
We reserve the right to make technical alterations without prior notice.

Accessories

Mounting Brackets

MB-Q130



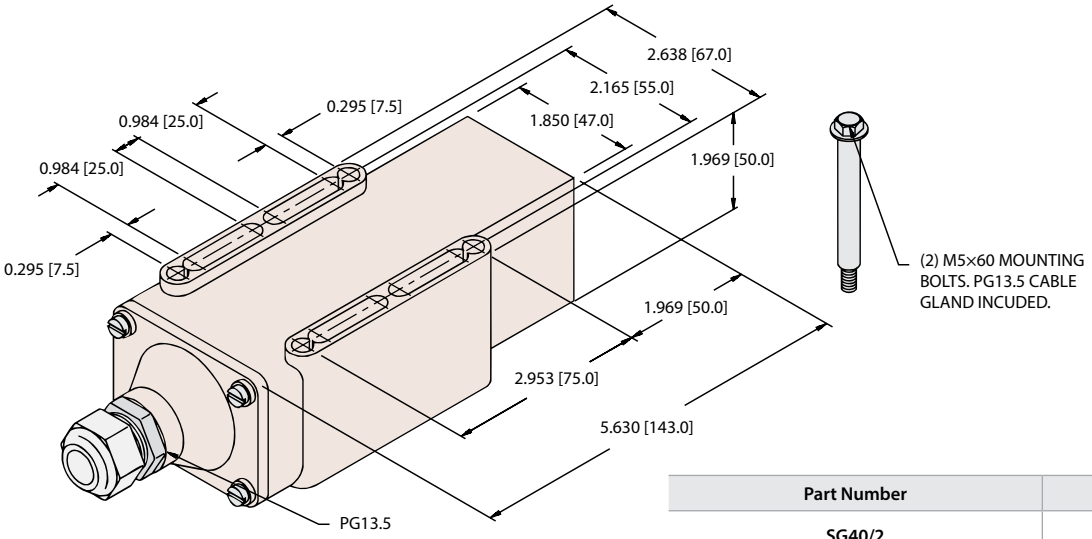


Part Number	ID Number
MB-Q130	**A3145**

Inches [mm]
Material: Stainless steel
*For use with Q130 sensors

Protective Housing "Wet Suit"

SG40/2



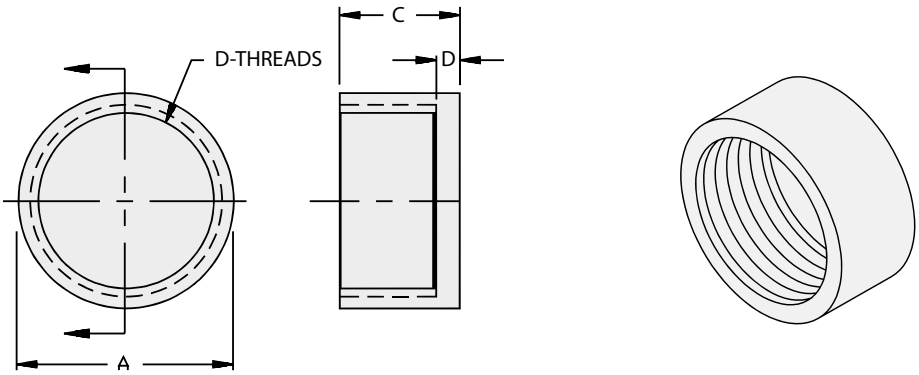
Part Number	ID Number
SG40/2	**69497**

Inches [mm]
Material: Plastic, Ultem
*Recommended cable diameters: 5 - 12 mm.
For use with CP40 sensors. For extreme protection class IP68 temperatures from –30 to 170 °C (338°F), and long term submersion up to 5 meters. Especially resistant to UV-radiation and ozone.

We reserve the right to make technical alterations without prior notice.

Accessories

PTFE / Ceramic Caps



Part Number	ID Number	Barrel Diameter	Material	A	B	C	D
CAP 08-PTFE	A3055-1	8 mm Embeddable	PTFE	0.375 [9.5]	0.03 [0.7]	0.437 [11.1]	M8x1
CAP 08-DER	A9326	8 mm Embeddable	Delrin	0.375 [9.53]	0.03 [0.76]	0.437 [11.1]	M8x1
CAP 12-PTFE	M6966200	12 mm Embeddable	PTFE	0.63 [16.0]	0.03 [0.7]	0.63 [16.0]	M12x1
CAP 12-CER	A2530	12 mm Embeddable	Ceramic	0.58 [14.7]	0.035 [.89]	0.35 [8.90]]	M12x1
CAP 12-DER	A9321	12 mm Embeddable	Delrin	0.58 [14.7]	0.035 [.89]	0.35 [8.90]	M12x1
CAP 12N-CER	A9129	12 mm Non-embeddable	Ceramic	0.58 [14.7]	0.035 [.89]	0.60 [15.2]	M12x1
CAP 12N-DER	A9322	12 mm Non-embeddable	Delrin	0.58 [14.7]	0.035 [.89]	0.60 [15.2]	M12x1
CAP 18-PTFE	A3055	18 mm Embeddable	PTFE	0.87 [22.0]	0.04 [1.0]	0.35 [9.0]	M18x1
CAP 18N-PTFE	A3056	18 mm Non-embeddable	PTFE	0.87 [22.0]	0.04 [1.0]	0.79 [20.0]	M18x1
CAP 18-CER	A2531	18 mm Embeddable	Ceramic	0.95 [24.1]	0.045 [1.14]	0.35 [8.90]	M18x1
CAP 18-DER	A9323	18 mm Embeddable	Delrin	0.95 [24.1]	0.045 [1.14]	0.35 [8.90]	M18x1
CAP 18N-CER	A3056-4	18 mm Non-embeddable	Ceramic	0.95 [24.1]	0.045 [1.14]	0 .70 17.8	M18x1
CAP 18N-DER	A9324	18 mm Non-embeddable	Delrin	0.95 [24.1]	0.045 [1.14]	0 .70 17.8	M18x1
CAP 30-PTFE	A3057	30 mm Embeddable	PTFE	1.34 [34.0]	0.05 [1.2]	0.35 [9.0]	M30x1.5
CAP 30N-PTFE	A3058	30 mm Non-embeddable	PTFE	1.34 [34.0]	0.05 [1.2]	1.14 [29.0]	M30x1.5
CAP 30-CER	A2532	30 mm Embeddable	Ceramic	1.50 [38.1]	0.08 [2.03]	0 .39 [9.90]	M30x1.5
CAP 30-DER	A9325	30 mm Embeddable	Delrin	1.50 [38.1]	0.08 [2.03]	0.39 [9.90]	M30x1.5
CAP 30N-DER	A9320	30 mm Non-embeddable	Delrin	1.50 [38.1]	0.08 [2.03]	1.00 [25.4]	M30x1.5
CAP 47-PTFE	A3060	47 mm Embeddable	PTFE	2.20 [55.8]	0.06 [1.6]	0.38 [9.7]	PG 36

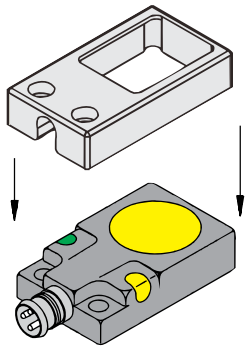
Inches [mm]

We reserve the right to make technical alterations without prior notice.

Accessories

Protective Covers

1



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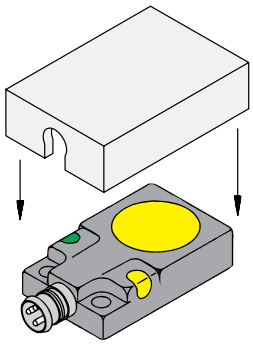

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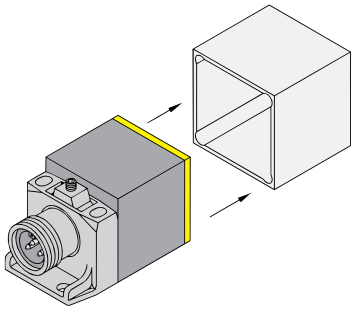

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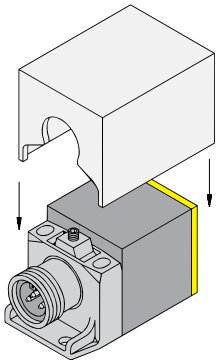

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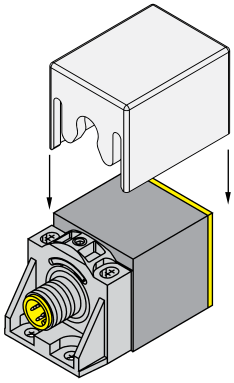

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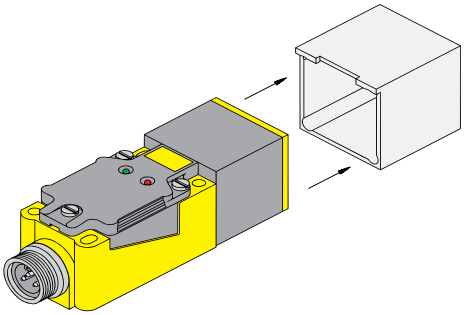

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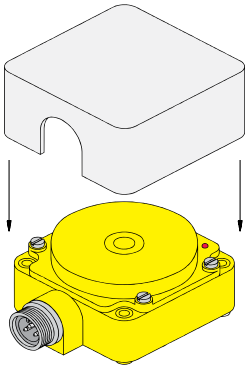
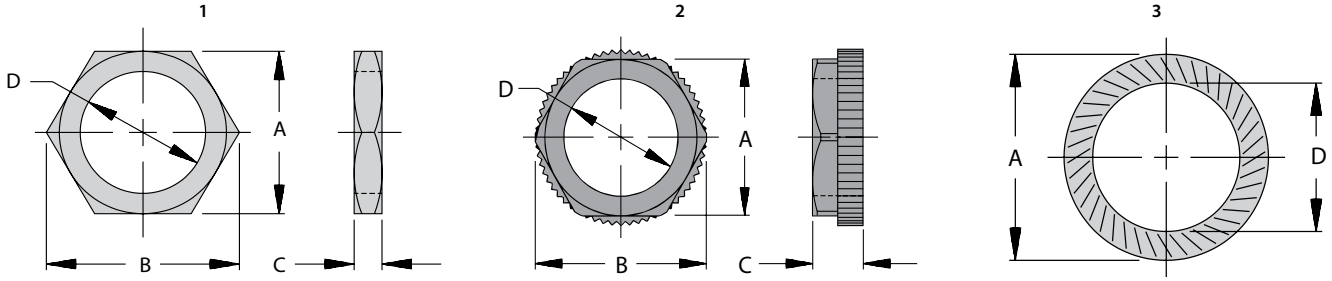


Part Number	ID Number	Material	For Use With Sensor Housing	Drawing Image
MBS-Q08TS	**A9492**	Nickel Plated Steel	Q08	1
T-Q08-T-MCC	**A5155**	PTFE	Q08	2
T-Q14-T-MCC	**A5154**	PTFE	Q14	2
T-Q20-T-MCC	**A5156**	PTFE	Q20	2
T-CK40-T-FC	**A5202**	PTFE	CK40	3
T-CK40-D-FC	**A5160**	Delrin	CK40	**3**
T-CK40-T-MCC	**A5201**	PTFE	CK40	**4**
T-CK40-T-MCB	**A9126**	PTFE	CK40	**5**
T-CP40-T-C	**A5204**	PTFE	CP40	**6**
T-CP80-T	**A5207**	PTFE	CP80	**7**

We reserve the right to make technical alterations without prior notice.

Accessories

Locknuts and Washers

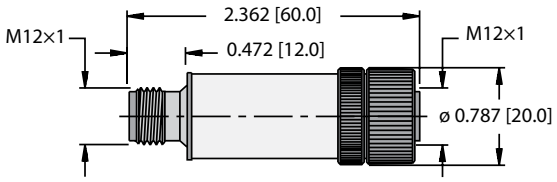


Part Number	ID Number	Barrel Diameter	Materials	A	B	C	D	Dimension Drawing
Locknut-M05	**A3119**	5 mm	SS	0.28 [7.0]	0.32 [8.0]	0.10 [2.5]	M5x0.5	1
Locknut-SS08	**A3123-08**	8 mm	SS	0.51 [13.0]	0.58 [14.7]	0.16 [4.0]	M8x1	1
Locknut-M8X1PTFE	**A9696**	8 mm	PTFE	0.51 [13.0]	0.58 [14.7]	0.16 [4.0]	M8x1	1
Locknut-M12	**A3122**	12 mm	CPB	0.67 [17.0]	0.76 [19.4]	0.16 [4.0]	M12x1	1
Locknut-MT12	**A3109**	12 mm	PTFE	0.67 [17.0]	0.76 [19.4]	0.16 [4.0]	M12x1	1
Locknut-SS12	**A3123**	12 mm	SS	0.67 [17.0]	0.76 [19.4]	0.16 [4.0]	M12x1	1
Locknut-P12	**A3446**	12 mm	PA	0.67 [17.0]	0.75 [19.0]	0.32 [8.0]	M12x1	2
Locknut-M18	**A3125**	18 mm	CPB	0.94 [24.0]	1.08 [27.4]	0.16 [4.0]	M18x1	1
Locknut-MT18	**A3108**	18 mm	PTFE	0.94 [24.0]	1.08 [27.4]	0.16 [4.0]	M18x1	1
Locknut-SS18	**A3123-0**	18 mm	SS	0.94 [24.0]	1.08 [27.4]	0.16 [4.0]	M18x1	1
Locknut-P18	**A3448**	18 mm	PA	0.94 [24.0]	1.06 [27.0]	0.32 [8.0]	M18x1	2
Locknut-M30	**A3126**	30 mm	CPB	1.42 [36.0]	1.63 [41.4]	0.20 [5.0]	M30x1.5	1
Locknut-MT30	**A3107**	30 mm	PTFE	1.42 [36.0]	1.63 [41.4]	0.20 [5.0]	M30x1.5	1
Locknut-SS30	**A3123-1**	30 mm	SS	1.42 [36.0]	1.63 [41.4]	0.20 [5.0]	M30x1.5	1
Locknut-P30	**A3450**	30 mm	PA	1.42 [36.0]	1.58 [40.1]	0.39 [10.0]	M30x1.5	2
Locknut-PG36	**A3440**	47 mm	CPB	2.01 [51.1]	2.20 [56.0]	0.20 [5.0]	PG36	1
LW-05	**A100066**	5 mm	SS	0.39 [10]	N/A	N/A	0.21 [5.3]	3
LW-08	**A3124**	8 mm	SS	0.55 [14]	N/A	N/A	0.32 [8.2]	3
LW-12	**A3127**	12 mm	SS	0.70 [17.8]	N/A	N/A	0.52 [13.2]	3
LW-18	**A3128**	18 mm	SS	1.06 [26.8]	N/A	N/A	0.76 [19.3]	3
LW-30	**A3129**	30 mm	SS	1.76 [44.8]	N/A	N/A	1.26 [32.0]	3

Inches [mm]
*For use with threaded barrel sensors

We reserve the right to make technical alterations without prior notice.

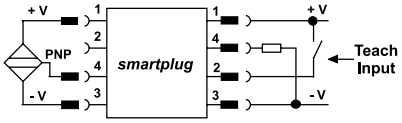
Smart Plugs

Housing Style	Dimension Drawing
	A 

Add function to existing installations. Solve control problems quickly in the field. Simple plug-in installation - uses industry standard M12×1 4-pin connectors (Eurofast). Programmed through "teach" input - Pin 2. LED aids programming.

Wiring Diagrams

1



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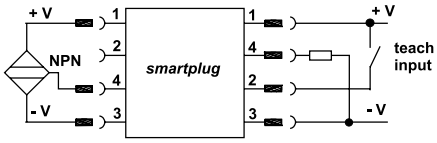


Technical Data

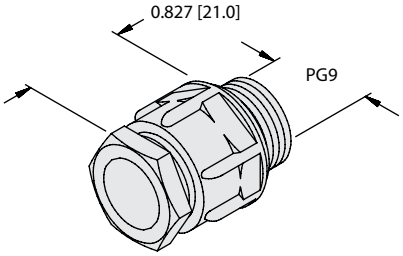
Operating Voltage:	10 - 30 VDC	Ambient Temperature Range:	0 to 60 °C (32 to 140 °F)
Own Current Consumption:	< 10 mA	Display:	Red LED
Input Resistance:	> 10 kΩ	Housing Material:	Plastic PBTP/PA
Max. Input Frequency:	10 kHz	Protection Standard:	IP 67
Min. Response Time:	0.1 ms	Connection Input:	4-pin socket M12×1
Max. Output Current:	400 mA, Short-circuit proof	Connection Output:	4-pin connector M12×1

Part Number	ID Number	Teachable Function	Dimension Drawing	Wiring Diagram
SPC1-AP6X	**A0620**	Programmable pulse or interval counter. Adjustable N.O./N.C. Inverter	A	1
SPC1-AN6X	**A0600**	Programmable pulse or interval counter. Adjustable N.O./N.C. Inverter	A	2
SPF1-AP6X	**A0622**	Programmable over or under speed monitor.	A	1
SPF1-AN6X	**A0602**	Programmable over or under speed monitor.	A	2
SPN1-AP6-ARN6X	**A0624**	Converts a PNP input signal to an NPN output. Adjustable N.O./N.C. Inverter.	A	1
SPN1-AN6-ARP6X	**A0604**	Converts a NPN input signal to an PNP output. Adjustable N.O./N.C. Inverter.	A	2
SPT1-AP6X	**A0626**	Programmable timer for on-delay or off-delay between 1 and 65000 ms.	A	1
SPT1-AN6X	**A0606**	Programmable timer for on-delay or off-delay between 1 and 65000 ms.	A	2

We reserve the right to make technical alterations without prior notice.

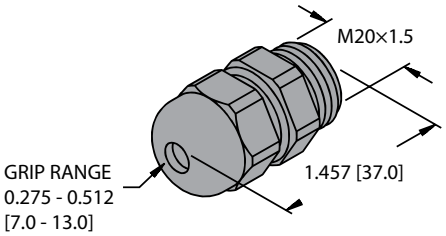
Accessories

Cable Glands



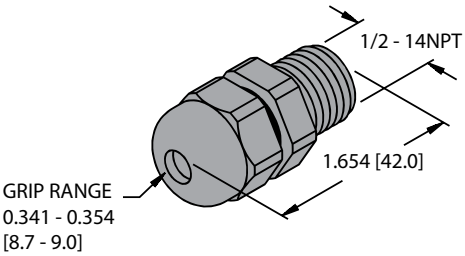
Part Number	ID Number
Cable Gland PG 9	**A3054**

Inches [mm]
Material: Polyamide plastic
Recommended Cable Style: 18 and 20 AWG
*For use with integral terminal chamber style sensors



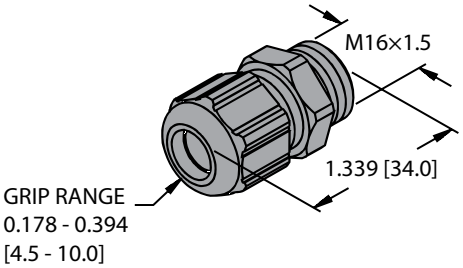
Part Number	ID Number
Cable Gland M20	**A0936**

Inches [mm]
Material: Polyamide plastic
*For use with integral terminal chamber style sensors



Part Number	ID Number
Cable Gland 1/2 - 14NPT	**A3480**

Inches [mm]
Material: Polyamide plastic
Recommended Cable Style: 18 and 20 AWG
*For use with integral terminal chamber style sensors



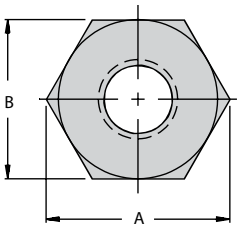
Part Number	ID Number
Cable Gland M16X1.5	**A9348**

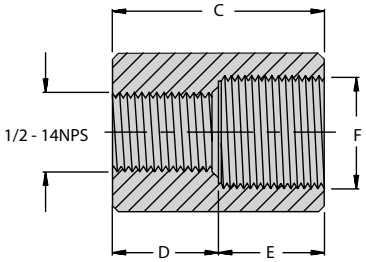
Inches [mm]
Material: Polyamide plastic
Recommended Cable Style: 18-24 AWG
*For use with integral terminal chamber style sensors

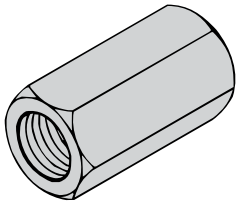
We reserve the right to make technical alterations without prior notice.

Accessories

Conduit Adapters

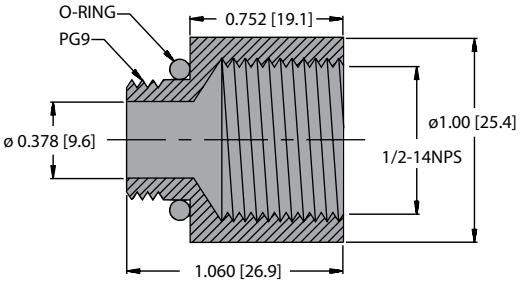


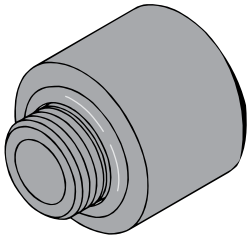




Part Number	ID Number	Barrel Diameter	A	B	C	D	E	F
TMF 12-G	**A3310**	**12 mm**	1.15 [29.2]	1.00 [25.4]	1.97 [50.0]	0.50 [12.7]	0.56 [14.2]	M12x1
TMF 18-G	**A3320**	**18 mm**	1.15 [29.2]	1.00 [25.4]	1.00 [25.4]	0.50 [12.7]	0.50 [12.7]	M18x1
TMF 30-G	**A3345**	**30 mm**	1.73 [44.0]	1.50 [38.1]	1.00 [25.4]	0.60 [15.2]	0.40 [10.2]	M30x1.5
TMF 47-G	**A3360**	**47 mm**	2.30 [58.4]	2.00 [50.8]	1.75 [44.5]	1.05 [26.7]	0.70 [17.8]	PG36
*For use with G and P threaded barrel sensors								
TMF 18-MS	**A3330**	**18 mm**	1.15 [29.2]	1.00 [25.4]	2.00 [50.8]	1.50 [38.1]	0.50 [12.7]	M18x1
TMF 30-MS	**A3355**	**30 mm**	1.73 [44.0]	1.50 [38.1]	2.00 [50.8]	0.60 [15.2]	1.40 [35.6]	M30x1.5

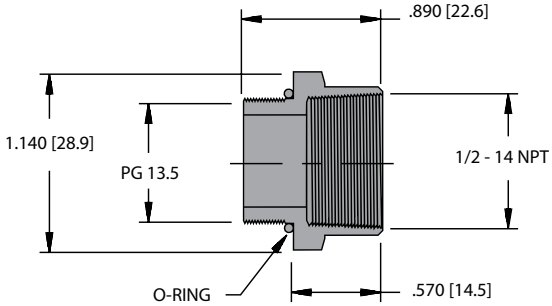
Inches [mm]
*For use with M and S threaded barrel sensors
Material: Aluminum

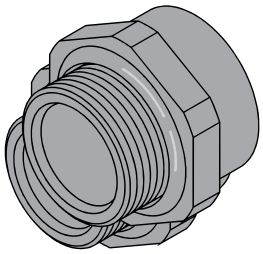




Part Number	ID Number
TMF 09-14	**A3290**

Inches [mm]
Material: Derlin
*For use with terminal chamber style sensors





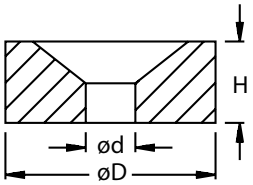
Part Number	ID Number
TMF 13.5-14	**A4500**
TMF 13.5-14/SS	**A9639**

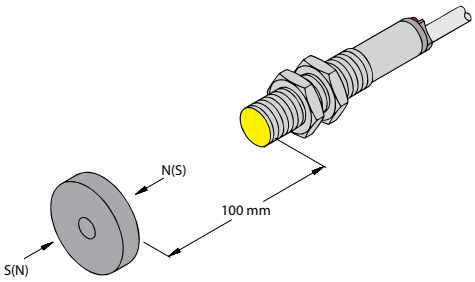
Inches [mm]
Material: Nickel plated brass
SS =Stainless steel
*For use with integral terminal chamber style sensors

We reserve the right to make technical alterations without prior notice.

Accessories

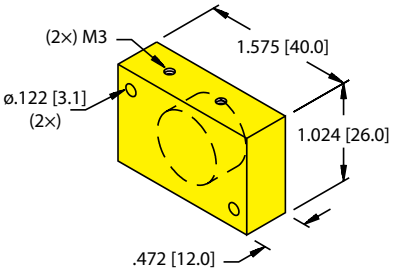
Actuation Magnets





Part Number	ID Number	Diameter-D	Height-H	Drilling for mounting-d	Sensing Range To BIM-M12	Sensing Range To BIM-EG08
DMR15-6-3	**6900216**	15	6	3	36	32
DMR20-10-4	**6900214**	20	10	4	59	50
DMR31-15-5	**6900215**	31	15	5	90	78

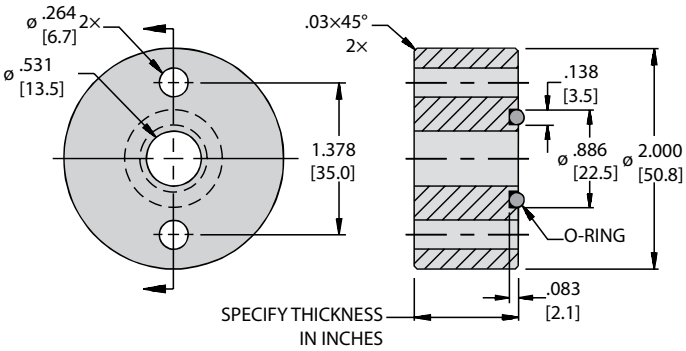
Inches [mm]
Material: Barium ferrite (Oxyd 300)



Part Number	ID Number
DM-Q12	**6900367**

Inches [mm]
Material: Plastic

Spacer Plates

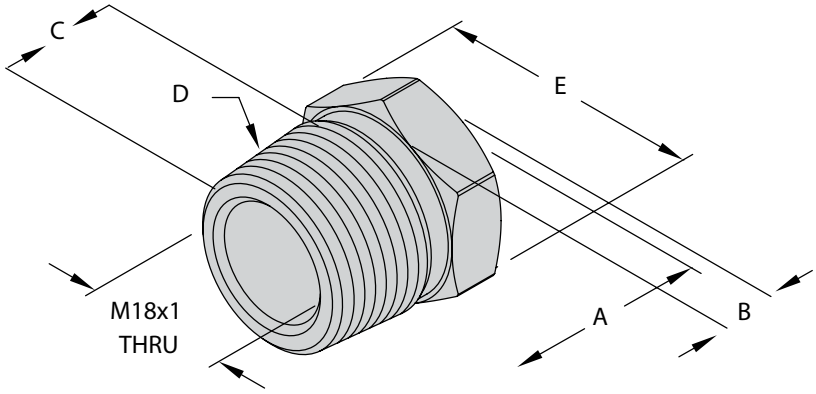


Part Number
SP–_.___ [1] –C

Inches [mm]
Material: Aluminum
*[1] Add desired thickness in inches.
Minimum thickness: 0.125", in .005 increments.
For use with cylinder position sensors, CRS Series.

We reserve the right to make technical alterations without prior notice.

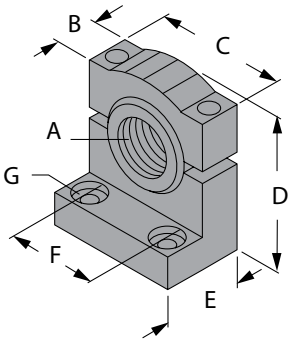
Tank Adapter



Part Number	ID Number	Barrel Diameter	A	B	C	D	E
FSU-SS-M18-N3/4	**A9983**	18 mm	1.0625 [27.05]	0.32 [8.00]	0.750 [19.05]	3/4 - 14 NPT	1-1/16" HEX

Inches [mm]
Material: Stainless steel

Gimble Bracket For Ultrasonic Sensors



Part Number	ID Number	A	B	C	D	E	F	G
TMB18SF	**7700396**	M18×1	0.46 [11.71]	2.31 [50.8]	1.70 [43.2]	1.00 [25.4]	1.42 [36.1]	ø5
TMB30SC	**7700400**	M30×1.5	0.50 [12.7]	2.62 [66.5]	2.31 [58.7]	1.14 [29.0]	2.00 [50.8]	ø7

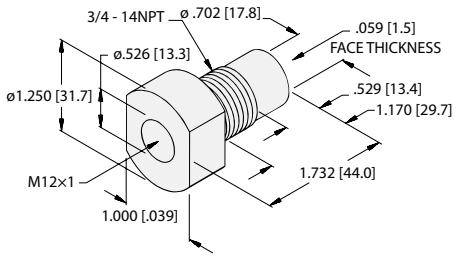
Inches [mm]
Material: Polyester

We reserve the right to make technical alterations without prior notice.

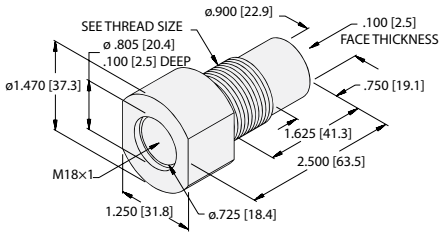
Accessories

Threaded Tank Wells

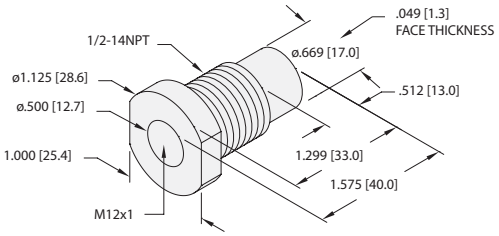
TWD-12S



TWT-18
TWD-18



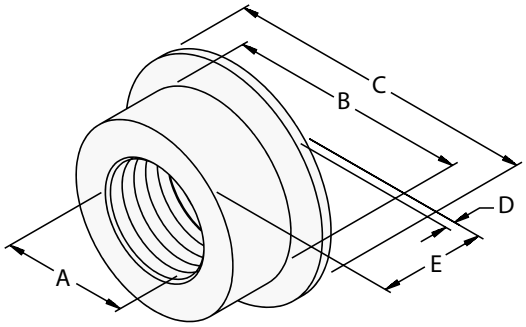
TWN-12S-1/2NPT



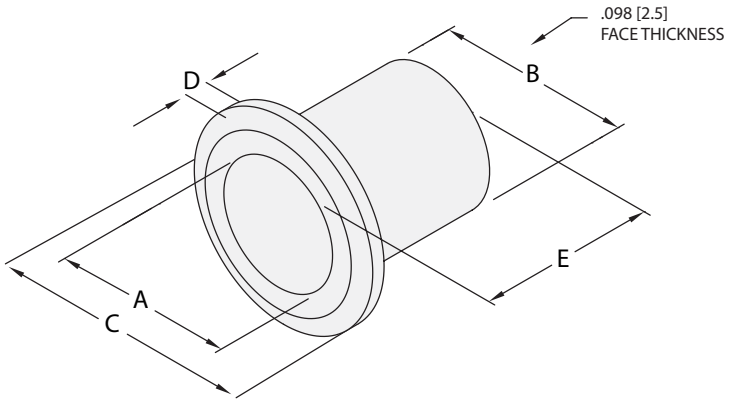
Part Number	ID Number	Material	Thread Size	Drill Size	C
TWD-12S	**A5051**	Delrin	3/4 - 14 NPT	59/64	12 mm threaded capacitive sensors for liquid level sensing
TWN-12S-1/2 NPT	**A900028**	Nylon	1/2 - 14NPT	23/32	12 mm threaded capacitive sensors for liquid level sensing
TWD-18S	**A5055**	Delrin	3/4 - 14 NPT	59/64	18 mm threaded capacitive sensors for liquid level sensing
TWT-18S	**A5050**	PTFE	3/4 - 14 NPT	59/64	18 mm threaded capacitive sensors for liquid level sensing
TWD-18S-1	**A5057**	Delrin	1 - 11 1/2NPT	1 - 5/32	18 mm threaded capacitive sensors for liquid level sensing
TWT-18S-1	**A5056**	PTFE	1 - 11 1/2NPT	1 - 5/32	18 mm threaded capacitive sensors for liquid level sensing

Inches [mm]

TWTS-30



TWT-30TRi



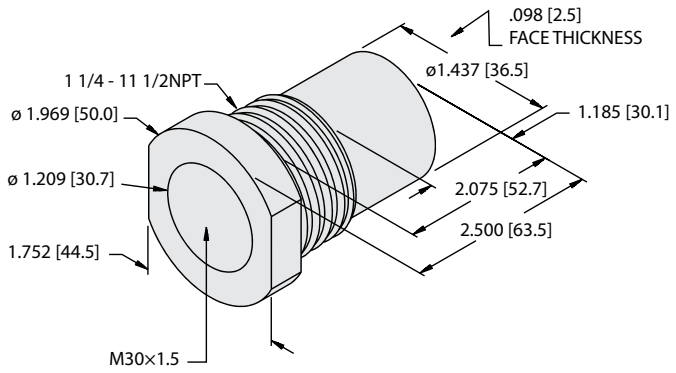
Part Number	ID Number	A	B	C	D	E
TWTS-1.5-30	**A5077**	M30×1.5	1.500 [38.1]	1.984 [50.4]	0.11 [2.80]	1.000 [25.4]
TWTS-2-30	**A5076**	M30×2.0	2.008 [51.0]	2.520 [64.0]	0.11 [2.80]	1.000 [25.4]
TWT-30TRI	**A5061**	M30×1.5	1.339 [34.0]	1.984 [50.4]	0.187 [4.7]	1.722 [43.7]

Inches [mm]

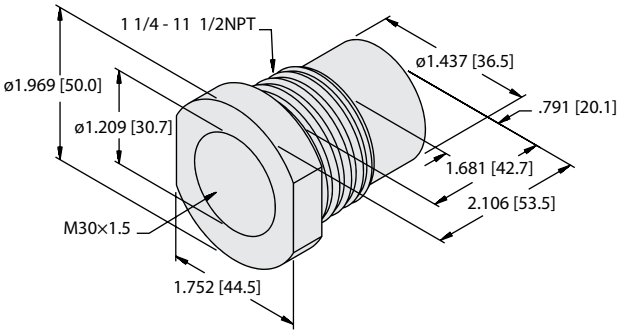
We reserve the right to make technical alterations without prior notice.

Threaded Tank Wells

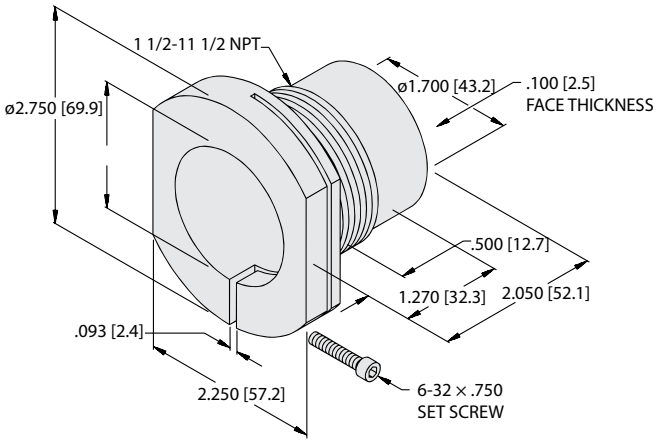
TWD-30S
TWT-30S



TWD-30S-SHORT
TWT-30S-SHORT



TWD-40S
TWT-40S



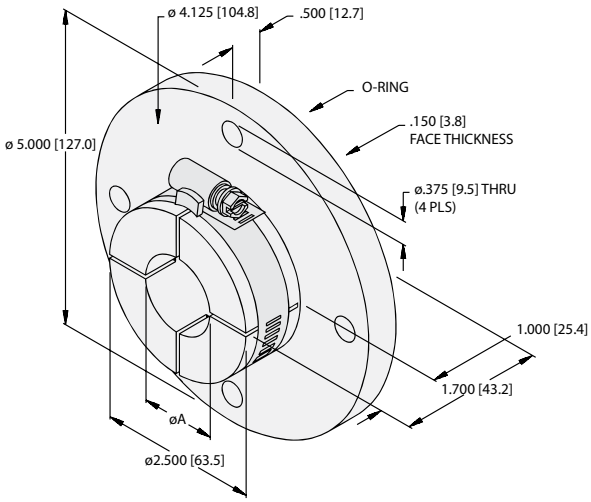
Part Number	ID Number	Barrel Diameter	Thread Size	Drill Size	Application
TWD-30S	**A5065**	Delrin	1 1/4 - 11 1/2NPT	1 - 1/2	30 mm threaded capacitive sensors for liquid level sensing
TWT-30S	**A5060**	PTFE	1 1/4- 11 1/2NPT	1 - 1/2	30 mm threaded capacitive sensors for liquid level sensing
TWD-30S-SHORT	**A5063**	Delrin	1 1/4 - 11 1/2NPT	1 - 1/2	30 mm threaded capacitive sensors for liquid level sensing
TWT-30S-SHORT	**A5062**	PTFE	1 1/4 - 11 1/2NPT	1 - 1/2	30 mm threaded capacitive sensors for liquid level sensing
TWD-40S	**A5075**	Delrin	1 1/4 - 11 1/2NPT	1 - 47/64	40 mm smooth capacitive sensors for liquid level sensing
TWT-40S	**A5070**	PTFE	1 1/4 - 11 1/2NPT	1 - 47/64	40 mm smooth capacitive sensors for liquid level sensing

Inches [mm]

We reserve the right to make technical alterations without prior notice.

Accessories

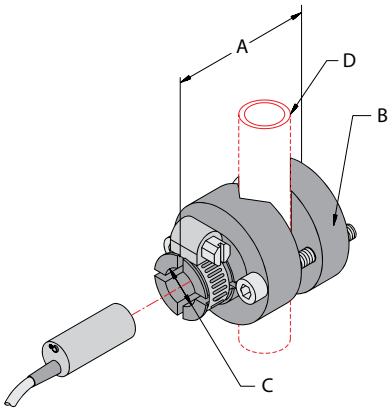
Bolt-on Tank Wells

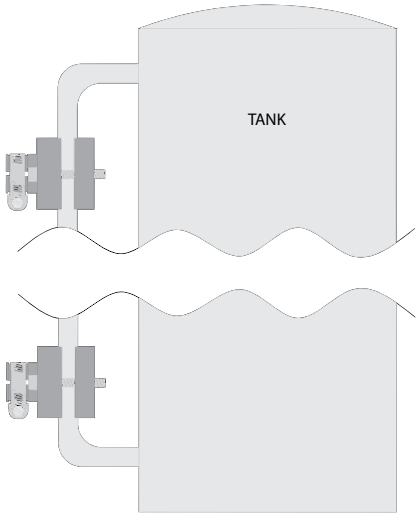


Part Number	ID Number	A
TWU-30B	A5005	1.181 [30.0]
TWU-40B	A5000	1.575 [40.0]

Inches [mm]
Material: UHMW/PE
Pressure Rating: 80 PSI
*For use with 30 and 40 mm barrel sensors

Bolt-on Site Bracket





Part Number	ID Number	A	B	C	D
				(Non/or Threaded)	Across Flats
TSG-12	A2500	1.75 [44.5]	1.25 [31.8]	12 mm	0.37-0.81 [9.40-20.6]
TSG-18	A2501	1.90 [48.3]	1.48 [37.5]	18 mm	0.63-1.12 [16.0-28.4]
TSG-30	A2502	3.45 [87.6]	2.00 [50.8]	30 mm	1.00-1.75 [25.4-44.5]

Inches [mm]

We reserve the right to make technical alterations without prior notice.

Accessories

Test Box

TB3-CP80

TB4 V.2

TX1-Q20L60

USB-2-IOL-0002

Part Number	ID Number	Description
TB3-CP80	6967112	DC powered test box allows you to quickly test 2, 3, 4 wire DC sensors or Namur output sensors, includes batteries.
TB4 V.2	6967113	Analog test box for sensors with analog or switching outputs, includes batteries.
TX1-Q20L60	6967114	Teach adapter for inductive encoders, linear position, angle, ultrasonic and capacitive sensors.
USB-2-IOL-0002	6825482	IO Link master with integrated USB interface for parameterization of IO Link compliant linear position sensors via PC.

Limit Value Monitor

Functional Description:
The limit value monitors IM43-13-SR and IM43-14-SRi are single-channel devices and alternately monitor measuring current of 0/4-20 mA or measuring voltages of 0/2-10 V. The three limit values are set via the front panel teach button. In addition, a voltage of approx. 18 V (at 35 mA max.) is provided, which can be used to power transmitters or sensors. The output mode is jumper programmable at terminals 5-8.

PIN	Terminal Function
1	(+) 18 VDC Sensor Supply
2	(+) Current Input
3	(+) Voltage Input
4	(-) 0 V Sensor Common
5	(-) Common for 0/4 mA Minimum Selection
9	Input for 0/4 mA Minimum Selection
12	Relay Output 1
13	Relay Output 1
14	Relay Output 2
15	Relay Output 2
11	SRi - 0/4-20 mA Output
16	SRi - 0/4-20 mA Output
17	Relay Output 3
18	Relay Output 2
19	20-250 VUC Supply Power
20	20-250 VUC Supply Power

We reserve the right to make technical alterations without prior notice.

Notes

Notes

Technical Reference | Table of Content

Selection Guide

Introduction to Sensor Products J2

General Operating Principles J3
- Inductive Sensors
- Magnetic Sensors
- Capacitive Sensors
- Ultrasonic Sensors
- IO-Link

Wiring Instructions - DC J27
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Important Safety Warning

Turck sensors and peripheral devices DO NOT include the self-checking redundant circuitry required to permit their use in personnel safety applications. A device failure or malfunction can result in either an energized or a de-energized output condition.

Never use these products as sensing devices for personnel protection. Their use as safety devices may create unsafe conditions that could lead to serious bodily injury or death.

Proximity Sensing Compared to Conventional Methods

Turck proximity sensors are designed using solid state technology and contain no moving parts to wear out, as is common in mechanical switches. They require no physical contact for actuation, no cams or linkages, have no contacts to bounce or arc and are completely encapsulated, making them impervious to most liquids, chemicals and corrosive agents. In addition, Turck has a line of sensors that can be used in hazardous explosive environments without any special enclosures.
See Hazardous Area Locations in Section A.

If any of the following conditions exists, a Proximity Sensor should be used:

- The object being detected is too small, too lightweight, or too soft to operate a mechanical switch.
- Rapid response and high switching rates are required, as in counting or ejection control applications.
- Object has to be sensed through non-metallic barriers such as glass, plastic, or paper carton.
- Harsh environments demand improved sealing properties, preventing proper operation of mechanical switches.
- Long life and reliable service are required.
- Fast electronic control system requires bounce-free input signal.

Common Industries for Proximity Sensors

- Mining and Metallurgy
- Foundries
- Automatic Assembly and Robotics
- Conveyor Systems in Airports and Factories
- Chemical Plants and Oil Refineries
- Semiconductor Equipment
- Sheet Metal Fabrication
- Automotive and Appliance Plants
- Electroplating Installations
- Can Plants, Food Processing and Breweries
- Shipyards, Docks, and Off-shore Drilling Rigs
- PC-board Handling Machinery

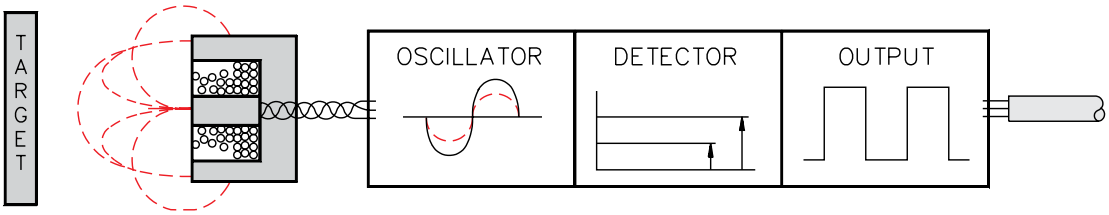
Typical Applications

- Parts Detection
- Parts Counting
- Positioning
- Motion and Speed Control
- Bottle Cap or Can Lid Detection
- Punch Press Feed and Ejection Control
- Broken or Damaged Tool Detection
- Void or Jam Control
- Feed Control
- Indexing
- Inter-lock Control
- Liquid Level Control
- Leak Detection
- Machine Programming
- Valve Position Indication
- Missing Parts Control
- Parts Diverting
- Coin Counting and Sorting
- Edge Guide Control
- Robotics and Conveyors

We reserve the right to make technical alterations without prior notice.

Operating Principle Ferrite Core

Figure 1



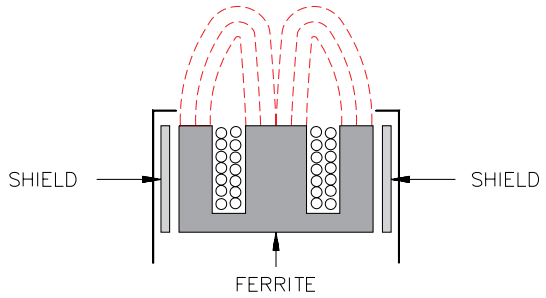
An inductive proximity sensor consists of a coil and ferrite core arrangement, an oscillator and detector circuit, and a solid-state output (**Figure 1**). The oscillator creates a high frequency field radiating from the coil in front of the sensor, centered around the axis of the coil. The ferrite core bundles and directs the electro-magnetic field to the front.

When a metal object enters the high-frequency field, eddy currents are induced on the surface of the target. This results in a loss of energy in the oscillator circuit and, consequently, a smaller amplitude of oscillation. The detector circuit recognizes a specific change in amplitude and generates a signal which will turn the solid-state output "ON" or "OFF". When the metal object leaves the sensing area, the oscillator regenerates, allowing the sensor to return to its normal state.

Mounting

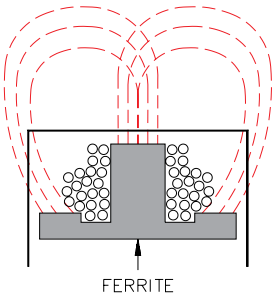
Turck inductive proximity sensors are available with either a shielded coil, designated by "Bi" in the part number, or a unshielded coil, designated by "Ni" in the part number. Embeddable (shielded) sensors may be safely flush-mounted in ferrous metal. Nonembeddable (unshielded) sensors require a metal free area around the sensing face. Due to the possible interference of the electromagnetic fields generated by the oscillators, minimum spacing is required between adjacent or opposing sensors. See mounting characteristics at the front of each section.

It is good engineering practice to mount sensors horizontally or with the sensing face looking down. Avoid mounting sensors with the sensing face looking up wherever possible, especially if metal filings or chips are present.



Embeddable (Shielded Sensor)

Embeddable construction includes a metal band that surrounds the ferrite core and coil arrangement. This helps to "bundle" or direct the electromagnetic field to the front of the sensor, allowing the sensor to be mounted fully surrounded by metal (flush mounting).



Nonembeddable (Nonshielded Sensor)

Nonembeddable sensors do not have this metal band; therefore, they have a longer operating distance and are side sensitive.

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Operating Distance (Sensing Range) Considerations

The operating distance (S) of inductive proximity sensors is basically a function of the diameter of the sensing coil. The maximum operating distance is achieved with the use of a standard or larger target. The rated operating distance (Sn) for each model is given in the manual. When using a proximity sensor the target should be within the assured range (Sa).

Standard Target

A square piece of mild steel having a thickness of 1 mm (0.04 in) is used as a standard target to determine the following operating tolerances. The length and width of the square is equal to either the diameter of the circle inscribed on the active surface of the sensing face or three times the rated operating distance Sn, whichever is greater.

Operating Distance = S

The operating distance is the distance at which the target approaching the sensing face along the reference axis causes the output signal to change.

Rated Operating Distance = Sn

The rated operating distance is a conventional quantity used to designate the nominal operating distance. It does not take into account either manufacturing tolerances or variations due to external conditions such as voltage and temperature.

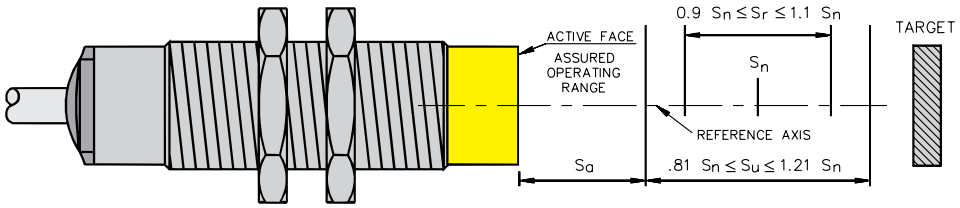
Effective Operating Distance = Sr 0.9 Sn ≤ Sr ≤ 1.1 Sn

The effective operating distance is the operating distance of an individual proximity sensor at constant rated voltage and 23°C (73°F). It allows for manufacturing tolerances.

Usable Operating Distance = Su 0.81 Sn ≤ Su ≤ 1.21 Sn

The usable operating distance is the operating distance of an individual proximity sensor measured over the operating temperature range at 85% to 110% of its rated voltage. It allows for external conditions and for manufacturing tolerances.

Assured Operating Range = Sa 0 ≤ Sa ≤ 0.81 Sn



The assured operating range is between 0 and 81% of the rated operating distance. It is the range within which the correct operation of the proximity sensor under specified voltage and temperature ranges is guaranteed.

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Technical Reference | Inductive

Operating Distance (Sensing Range) Considerations

Turck standard inductive sensors use a single coil wound around a ferrite core. This coil induces eddy currents on the metal target, which results in energy loss in the oscillator circuit, enabling the detection of metal objects. The energy loss is greatly depended on the magnetic properties of the metal target. Ferrous and nonferrous metals affect the sensor differently, resulting in a different operating distance to different metals.

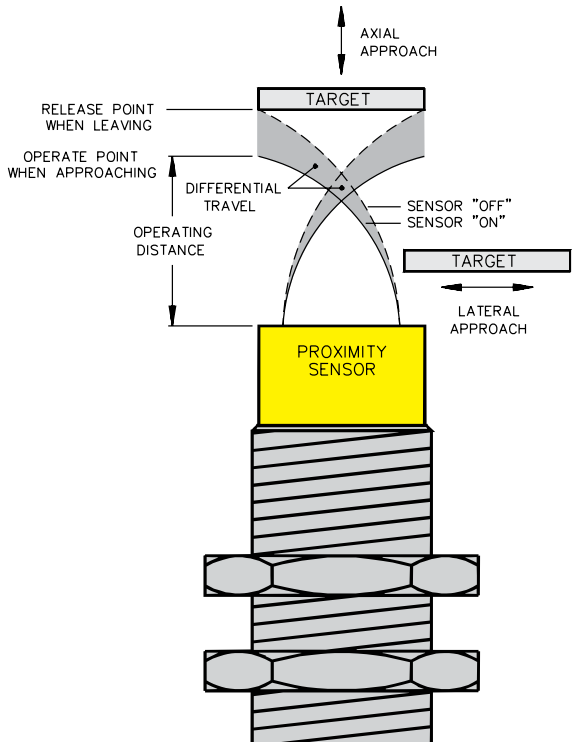
These correction factors apply to standard inductive sensors when a nonferrous target is being detected. The correction factors are nominal values. Deviations may be due to variations in oscillator frequency, alloy composition, purity and target geometry.

Aluminum foil	1.00
Stainless steel	0.60 to 1.00
Mercury	0.65 to 0.85
Lead	0.50 to 0.75
Brass	0.35 to 0.50
Aluminum (massive)	0.35 to 0.50
Copper	0.25 to 0.45

- Correction factors do not apply to Turck Uprox ® sensors. These sensors detect all metals at the same range.
- Turck also manufactures "nonferrous only" sensors. These sensors will selectively detect nonferrous targets at the rated operating distance. They will not detect ferrous targets; however, ferrous targets positioned between them and a nonferrous target may mask the nonferrous target. The rated operating distance of these sensors is not subject to the correction factors that apply to standard inductive sensors.

Differential Travel (Hysteresis)

Figure 2



Actuation Mode

Inductive sensors can be actuated in an axial or lateral approach (**Figure 2**). It is important to maintain an air gap between the target and the sensing face to prevent physically damaging the sensors.

The difference between the "operate" and "release" points is called differential travel (See shaded area in Figure 7). It is factory set at less than 15% of the effective operating distance.

Differential travel is needed to keep proximity sensors from "chattering" when subjected to shock and vibration, slow moving targets, or minor disturbances such as electrical noise and temperature drift.

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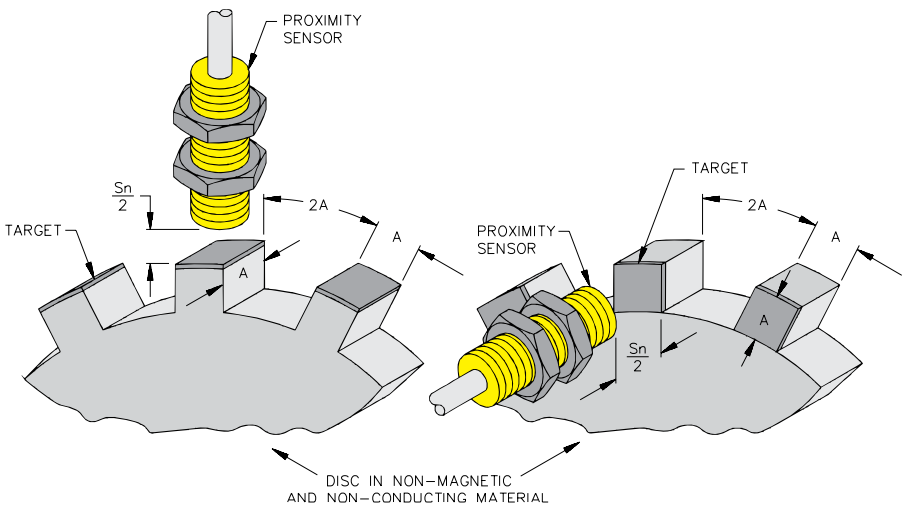
Maximum Switching Frequency

Figure 3



When using inductive sensors in high speed application, the maximum rated switching frequency is only guaranteed when using optimal target dimensions and sensor spacing. The minimum recommended parameters to use are shown in **Figure 3**. Using smaller targets, target spacing or increasing the sensor to target air gap may result in a reduction of the actual achievable maximum switching frequency. See page J4 for determining dimension "A" of a standard target.

Weld Field Immunity

Many critical applications for proximity sensors involve their use in welding environments. AC and DC resistance welders used in assembly equipment and other construction machines often require in excess of 20 kA to perform their weld function. Magnetic fields generated by these currents can cause false outputs in standard sensors.

Turck has pioneered the design and development of inductive proximity sensors that not only survive such environments, but remain fully operative in them.

The limit of the weld field immunity depends on the kind of field (AC or DC), the housing size of the sensor and its location in the field. For example, in an AC or DC weld field, the "/S34" inductive sensors can be positioned one inch from a 20 kA current carrying bus.

Reference Values for Magnetic Induction:

I [kA]	12.5 mm	25 mm	50 mm	100 mm
5	80 mT	40 mT	20 mT	10 mT
10	160 mT	80 mT	40 mT	20 mT
20	320 mT	160 mT	80 mT	40 mT
50	800 mT	400 mT	200 mT	100 mT
100	1600 mT	800 mT	400 mT	200 mT

Gauss = 10 x mT

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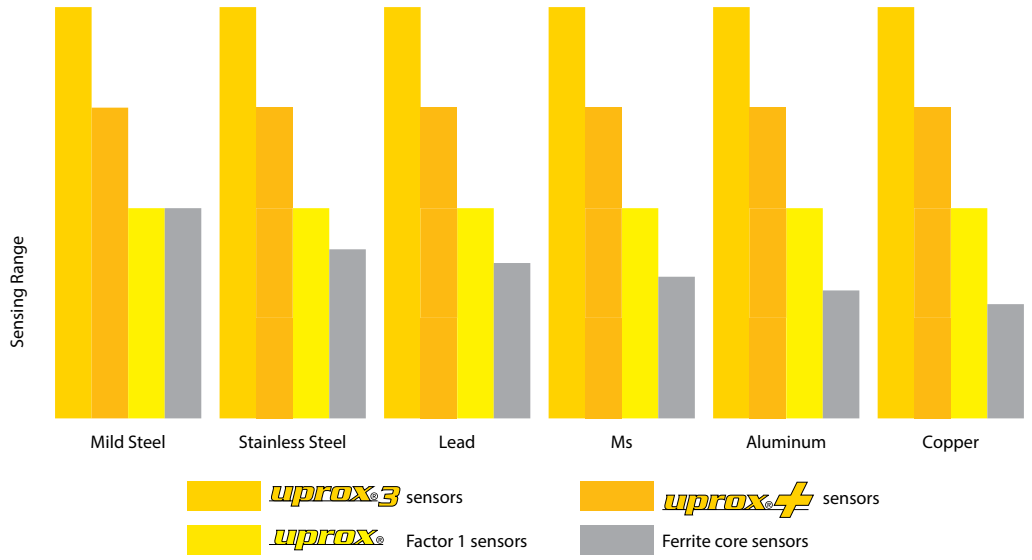
Operating Principle Uprox®

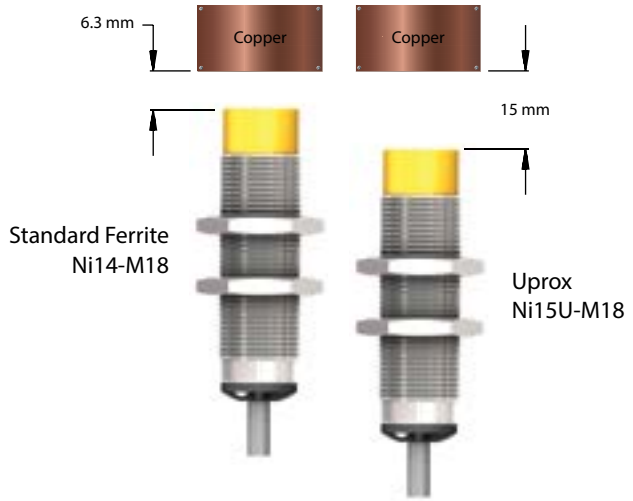


Operating distances comparison of Uprox sensors and standard inductive sensors.

Turck Uprox is a patented next generation development of inductive sensors that uses a multi-coil system. Active coil(s) induces eddy currents on the metal target and passive coil(s) are affected by these eddy currents. Ferrous and nonferrous metals have the same effect on the two coils. Therefore, all metals, including galvanized metals, have the same rated operating distance.

Uprox Advantage

Figure 4



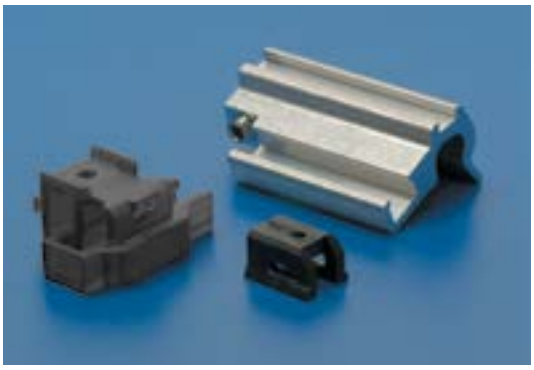
- No Correction Factor - Same rated operating distance for all metals.
- Extended Operating Distance - Up to 400% greater than standard inductive sensors when using non-ferrous targets (**Figure 4**).
- Weld Field Immunity - Uprox is unaffected by strong electromagnetic AC or DC fields because of its unique patented design.
- High Switching Frequencies - Up to 10 times faster than standard inductive sensors.
- Extended Temperature Range - Uprox+ can withstand temperatures up to 85 °C (+185 °F) with a ±15% temperature drift.
- Select Uprox3 sensors are IO-Link compatible.

We reserve the right to make technical alterations without prior notice.

Cylinder Position Sensors – Magneto-Resistive

Turck Magneto-resistive cylinder position sensors are used for the detection of magnet equipped pistons on pneumatic and other types of cylinders. These non-contact sensors are able to determine the position of the cylinder piston without diminishing the integrity of the cylinder itself. This allows the sensors to operate without intruding upon the cylinder, keeping the system completely intact.

Turck has taken the approach of using only two sensor styles along with various adapter brackets to fit each individual cylinder's requirements. The "**UNT**" and "**UNR**" housings were designed to fit into specific grooves found in extruded profile type cylinders as stand alone devices without the need for any additional brackets. The UNT style was made to fit into a 5.2 mm "T" groove and the UNR was made for use in a 4.0 mm round groove, neither requiring additional hardware for mounting. Both of these designs allow the sensor to be dropped in from above anywhere along the span of the cylinder.



Cylinder brackets allow Turck sensors to mount on most cylinder styles including round, tie-rod, extruded profile groove, and dovetail versions.

Where Can I Use a Magneto-Resistive Sensor?

- Material handling
- Automated assembly
- Stamping
- Conveying
- Sorting
- Product positioning
- Industrial robots

We reserve the right to make technical alterations without prior notice.

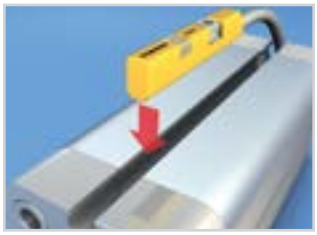
Technical Reference | Magnetic

Cylinder Position Sensors – Magneto-Resistive (continue)

Turck translated this "drop in from the top" approach when designing the adapter brackets as well. By eliminating the need to slide the sensor in from the end of the cylinder it reduces installation time, alleviates the need for the cylinder to be disassembled, and allows for installation right on the floor without interrupting the operation of the cylinder. These sensors are manufactured using a plastic overmolding technology, which allows us to completely seal sensors into smaller packages without compromising on durability. Smaller sensors that are compact with very low profiles also reduce the chance of damage when mounted to the outside of the cylinder.

Turck Magneto-Resistive Sensor Advantage

Reliable Mounting
The sensor is mounted in the cylinder's groove and tightened with a screw. Located near the cable outlet, the screw helps make sure the sensor doesn't move during vibration or if the cable is pulled.



Visible LED
A bright LED indicates the current switching status, and is visible from any position.

Compact Housing Style
UNT models measure only 28 mm, while UNR models measure only 18 mm, making them the most compact sensors available on the market. Since the active sensing face is located at the end of the sensor, the piston can be detected up to the end, even on compact short stroke cylinders.

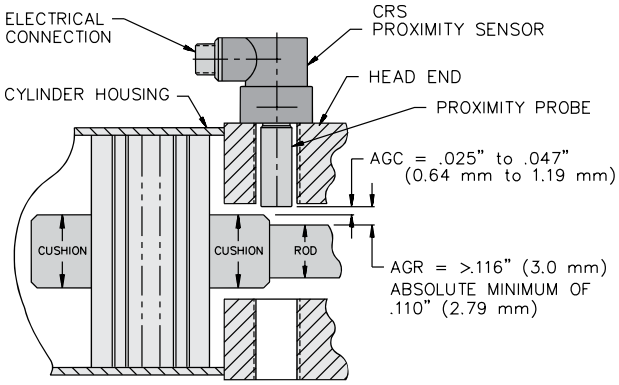
Standards
Magneto-resistive technology enables the sensor to detect the exact position of the magnet, while avoiding multiple switching points. It also exceeds IEC standards EN60947-5-2 and EN61000-4-6, making it immune to high levels of EMC.

Cylinder Position Sensors – CRS Inductive

Turck's CRS sensors are designed to be mounted into the head end or cap end of hydraulic and pneumatic cylinders. They operate at 1,500 psi and mechanically withstand 3,000 psi of continuous pressure.

AGC - Air Gap Cushion
This dimension is recommended to allow for mechanical tolerances and wear.

AGR - Air Gap Rod
The rod-to-cushion step must be large enough to allow the sensor to turn off when the piston leaves. If the step is too small, the sensor will lock-on due to the hysteresis of the sensor.



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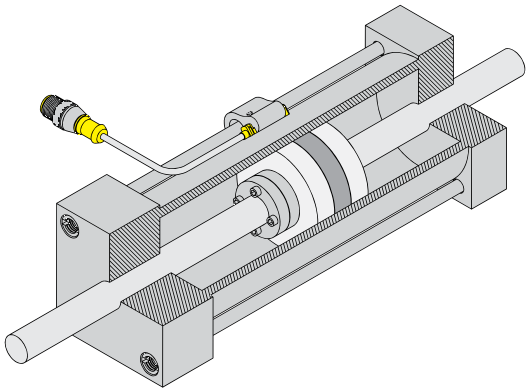
Permaprox Inductive Magnet Operated Sensors

Turck's Permaprox cylinder sensors are used for detection of magnet equipped pistons on pneumatic cylinders through a non-magnetic cylinder wall. A patented electronic magnetic circuit involving new state-of-the-art materials forms the basis of operation for these sensors.

The characteristics of this innovative technology have distinct advantages over Hall effect switches and reed devices. Specific sensors no longer have to be matched to specific magnet strengths. Other features include extremely high repeatability and the elimination of multiple actuation points.



Actuation Area/Differential Travel

Figure 5

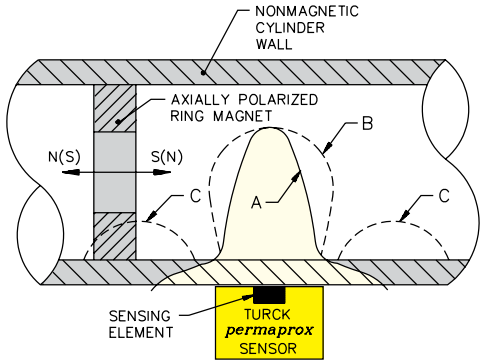


Figure 6

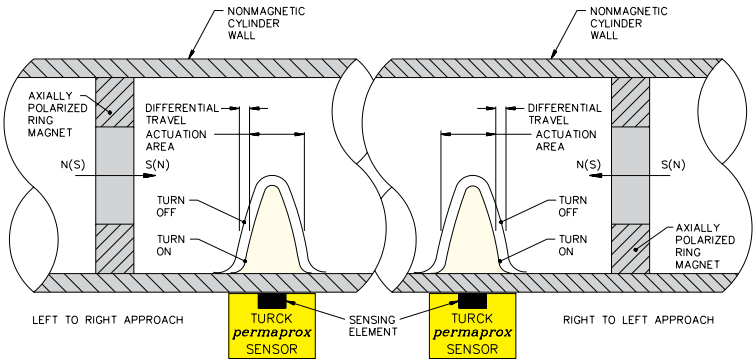


Figure 5 curve definitions:
A) Typical actuation area of Permaprox sensors
B) Typical primary actuation area for reed switches
C) Typical secondary actuation area for reed switches

The Permaprox sensors, unlike most magnet operated sensors, respond to only one component of magnetic induction, namely the component parallel to the cylinder. **Figure 5** shows the typical actuation area of a Permaprox sensor compared to that of reed switches. It is a common problem for reed switches to have more than one actuation area. Since these switches operate on a narrow range of magnetic field strengths, mismatching often causes multiple switching points. The Permaprox sensors, however, reliably operate over a range of 20-350 gauss (2-35 mT).

The actuation area will depend on the width and field strength of the magnet. As shown in **Figure 6**, the actuation point will differ depending on the direction of piston travel. These points are not the same, but are very repeatable.

Permaprox Weld Field Immunity

All Turck Permaprox sensors with the "S34" suffix in the part number are resistant to AC weld fields. If the field is pulsing, as with AC resistance welders, the sensor locks the output in its last known stable state. When the pulsing field subsides, the sensor updates its output accordingly. The sensors are not immune to constant magnetic fields, such as permanent magnets or DC resistance welders, and will change state.

We reserve the right to make technical alterations without prior notice.

Technical Reference | Capacitive

Capacitive sensors utilize a non-contact sensing technology that detects a wide variety of materials. When equipped with a sensitivity adjustment users can tune out certain materials such as glass or plastic, making this type of sensor a common choice for point level applications. Typical applications include but are not limited to:

- Liquid Level Control for both flammable and non-flammable materials.
- Package Inspection for product content and/or fill level.
- Wire-Break Detection for wire sizes down to .003".
- Plastic Pellet Detection in a hopper for injection molding processes.
- Grain or Food Products Level Detection; intrinsically safe models available.
- Small Metal Parts Detection; greater sensing range than comparable Inductive Sensors.

Operating Principle

Figure 7

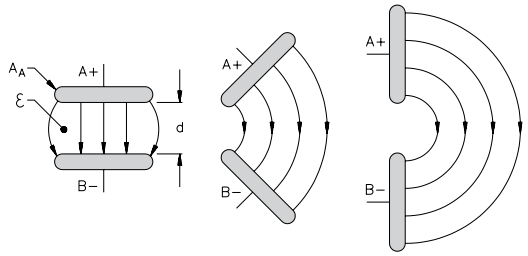
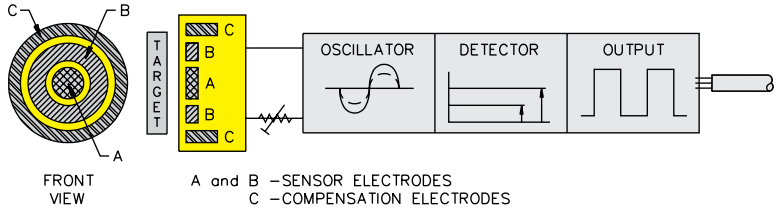


Figure 8



The active element is formed by two metallic electrodes positioned much like an "opened" capacitor (**Figure 7**).

Electrodes A and B are placed in a feedback loop of a high frequency oscillator. When no target is present, the sensor's capacitance is low, therefore the oscillation amplitude is small. When a target approaches the face of the sensor, it increases the capacitance. This increase in capacitance results in an increased amplitude of oscillation.

The amplitude of oscillation is measured by an evaluating circuit that generates a signal to turn on or off the output (**Figure 8**).

We reserve the right to make technical alterations without prior notice.

Operating Principle

Capacitance is a function of the surface area of either electrodes (A or B), the distance between the electrodes (d), and the dielectric constant of the material (ε) between the electrodes.

$$C = \frac{\varepsilon \times A}{d}$$

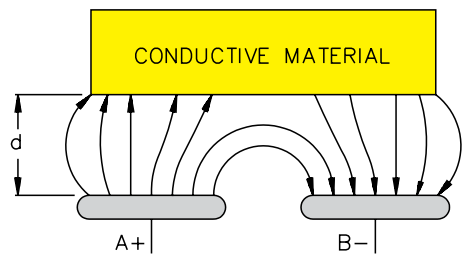
C = capacitance of sensor

A = surface area of either electrode

d = distance between two electrodes

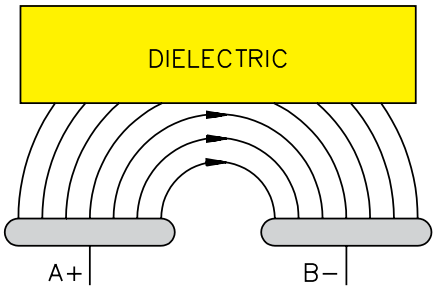
ε = dielectric constant of material between the electrodes

Figure 9



When a Conductive Target enters the sensor's field, it forms a counter electrode to the active face of the sensor, thus decreasing the distance between the electrodes (d) and increasing their average surface area (**Figure 9**). The capacitance with a metal target present is always greater than the capacitance of the circuit in the absence of the target. Reduction factors for different metals are not a consideration when using capacitive sensors.

Figure 10

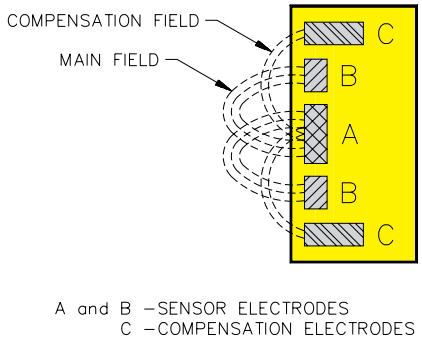


When a Non-Conductive Target enters the sensor's field, it acts as an electrical insulator between electrodes A and B (**Figure 10**). The dielectric constant of the material (ε) is a measure of its insulation properties. All liquids and solids have a greater dielectric constant than air (εair = 1). Therefore, the capacitance with a non-metallic target present is always greater than the capacitance of the circuit in the absence of the target.

We reserve the right to make technical alterations without prior notice.

Temperature and Environmental Conditions

Figure 11



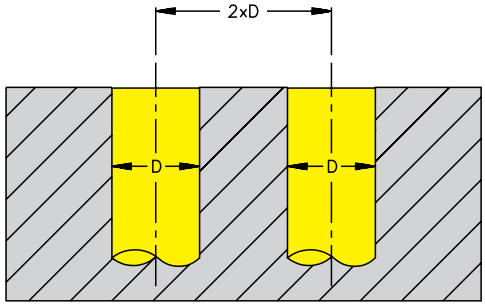
Compensation Electrode
In practice, sensors can be affected by water droplets, humidity, dust, etc., causing false outputs. To combat this effect each Turck sensor incorporates a compensating electrode (C) which forms part of a negative feedback circuit (**Figure 11**).

When contaminants are on the sensor face, they affect the sensor's main field, as well as its compensation field. The negative feedback circuit detects the increase in both fields, and can filter out the effects of the contaminants.

When a large target comes into the sensor's main field, the compensation field is not affected, thus the negative feedback circuit can distinguish a difference between the two fields, and the sensor generates an output.

Mounting

Figure 12



Compensation Electrode
Most capacitive sensors manufactured by Turck are embeddable, which ensures that the electric field is only effective in front of the active face. They are suitable for flush mounting at the factory setting in any material (conductive and nonconductive).

When sensors are flush mounted, the effect on the operating distance is minimal and can be overcome by adjustment of the potentiometer. Minimum separation distances must be observed to avoid the possibility of interference between the two sensors' fields (**Figure 12**).

We reserve the right to make technical alterations without prior notice.

BCF Series – Noise Immunity

Capacitive sensors were originally designed for use in level detection applications in areas that were generally far away from other electrical equipment. As factory automation has become more prevalent throughout industrial markets, these capacitive sensors have gravitated into new environments where electrical noise levels are greatly increased. Electrical noise can be produced by various sources including variable frequency drives, electromechanical motors and standard walkie-talkie devices. These "noisy" environments can have adverse effects on sensing devices causing them to operate improperly and unreliably.

Turck recognizes this and has developed a new circuit for its capacitive sensors. These new "BCF" sensors incorporate a unique filter principle, making them immune to most industrial noise. This principle involves a fixed oscillator frequency combined with a rectifier filter providing superior noise immunity over the competition.

Turck's fixed oscillator allows the sensor to maintain a constant frequency regardless of sensitivity adjustment. This fixed frequency is high enough to ignore most of the "standard" noise levels seen on plant floors. Electrical noise is mostly symmetrical which makes it easier to identify and separate from the sensor's input signal. The Turck rectifier filter is able to block this noise allowing only the "useful" input signal, which is in phase with the oscillator frequency, to pass.

These two innovative electrical techniques give Turck the best defense against industrial noise. The list of specifications and test results below demonstrates how Turck meets or exceeds all of the rigid standards established by CE. In fact, the criteria set forth by CE is so stringent that most capacitive sensors offered on the market today cannot pass any or all of these testing requirements. If you have a capacitive sensor application located in a "noisy" environment choose the new "BCF" sensors from Turck to ensure your process operates smoothly.

We reserve the right to make technical alterations without prior notice.

Test Type		CE "Product" Standard	CE "Generic" Standard	Turck "BCF" Noise Immune Capacitive Sensors
Immunity to Electrostatic Discharge (ESD)	IEC 1000-4-2 EN 61000-4-2	4 kV Direct Contact 8 kV Airborne	4 kV Direct Contact 8 kV Airborne	8 kV Direct Contact 30 kV Airborne
Immunity to Radiated Electromagnetic Fields. Radio Frequency Interference (RFI)	IEC 1000-4-3 EN 61000-4-3	3 V/M 80-1000 MHz	10 V/M 80-1000 MHz	15 V/M 80-1000 MHz
Immunity to Electrical Fast Transients (Burst-High Voltage)	IEC 1000-4-4 EN 61000-4-4	2000 V	2000 V	3000 V
Immunity to Conducted R.F. Voltage (Line Coupled Noise)	IEC 1000-4-6 EN 61000-4-6	Undefined	10 V 150 kHZ-80 MHz	>10 V 150 kHZ-230 MHz
Immunity to Surges (Lightning Strike)	IEC 255-5	1 kV, 500Ω DC	Undefined	1 kV, 500Ω DC 5 kV, 500Ω AC

BCC Series-Plastic Pellets, ESD, and Metal Containers

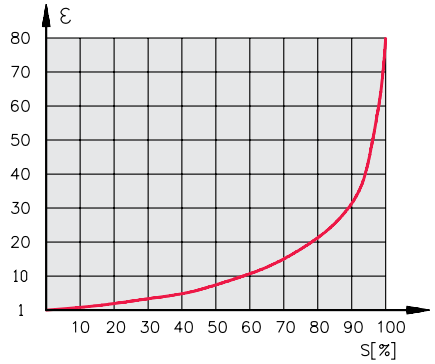
The BCC series capacitive sensor is specifically designed to provide accurate level detection in the plastic industry. Applications involving plastic pellets often generate high levels of static electricity which can discharge and lead to sensor failure. The BCC series of sensors feature excellent EMC and ESD immunity, allowing them to reliably detect the level of plastic pellets in a hopper while withstanding environmental interference.

These sensors can also be mounted directly into a metal tank without a reduction in range, a common side-effect for standard capacitive sensors. The BCC incorporates a unique laterally mounted shield that protects the sensors from being influenced by the metal tank. This allows the sensor to detect even low-dielectric materials when the sensor is flush mounted in metal.

Sensing Range vs. Dielectric Constant

When sensing non-conductive targets, the larger the dielectric constant of a material, the greater the achievable operating distance (**Figure 13**). Adjusting the potentiometer affects the total curve; for example, if the potentiometer is adjusted for less sensitivity, it will have less operating distance to all materials. In general terms, the larger the dielectric constant of a material, the greater the achievable operating distance. When detecting organic materials the sensing distance will depend largely on the water content (**ε**water = 88).
It should be noted that a large increase in sensitivity will cause the sensor to become nonembeddable, and may result in an unstable switching point that can be influenced by environmental changes such as temperature, humidity, dust, etc. At adjustments of S > Sn, the differential travel (hysteresis) can also increase.

Figure 13



RELATION OF OPERATING DISTANCE TO DIELECTRIC CONSTANT

Sensitivity Adjustment

Capacitive sensors can be adjusted in order to sense a target consistently.

- Physical adjustment - moving the sensor towards or away from the target is the preferred method of adjusting sensitivity when the sensor is not in direct contact with the target. This allows materials to be moved into or out of range while leaving the sensor at the factory setting or after re-calibration to the nominal operating distance Sn.
- Adjustment of the potentiometer - turning the potentiometer in a clockwise direction increases the sensitivity of the sensor. The potentiometer is factory-set for an operating distance of 0.7 to 0.8 Sn to a grounded standard target (Figure 14). It should be adjusted in increments of no greater than a quarter-turn (**Figure 15**). Increasing the sensitivity results in a greater operating distance to both conductive and non-conductive targets.
- Teachable sensors allow users to teach tank-full and tank-empty conditions using the built in buttons or a teach adapter. The programming process and built in logic ensure the sensor is optimized to reliably detect the desired object.
- IO-Link- sensors equipped with IO-Link feature advanced options including the ability to program the sensors with an IO-Link master. The flexibility provided by IO-Link allows users to adjust sensor settings as their processes change.

Figure 14

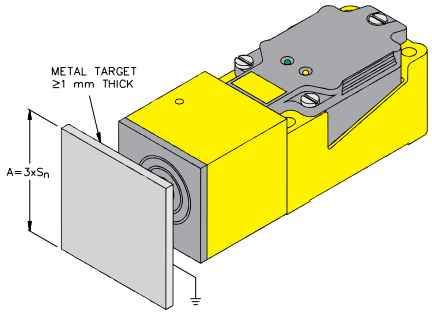
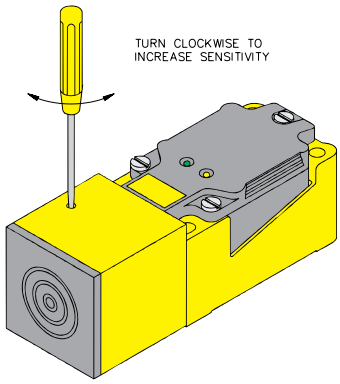


Figure 15



We reserve the right to make technical alterations without prior notice.

Example Application 1 - Adjustment

Problem:
Can a BC20-K40SR-FZ3X2 be used to sense the presence of ammonia from behind a .125" glass panel?

Solution:
The dielectric constants for these materials can be found on pages 17 and 18.

Dielectric (εr) of ammonia: 20
Dielectric (εr) of glass: 10

From Figure 7, εr = 20 corresponds to 80% Sn; εr = 10 corresponds to 60% Sn.

Since Sn =	20 mm for a BC20:	S for ammonia =	16 mm
		S for glass =	12 mm

The difference is 4 mm. The glass thickness = .125", or 3.1 mm. This application will work with a 0.9 mm margin. This means that by adjusting the potentiometer there should be a reasonable distinction between the glass and the ammonia as seen by the sensor.

To set up the sensor for this application, the sensing face of the sensor should be flush against the sight glass.

- With no ammonia present (if possible) turn the potentiometer clockwise until the sensor turns on. If the sensor is already on, skip step one.
- Next, turn the potentiometer counter clockwise until the sensor turns off.
- Now add the ammonia so that it covers the glass panel.
- Once again, turn the potentiometer counter clockwise, counting the number of turns until the sensor turns off.*
- Divide the number of turns by two and turn the potentiometer back clockwise that amount. Using this process will allow for a margin of error in either direction. If this application had called for something other than ammonia, like molasses, that tends to leave buildup behind, step 1 above should be performed with the buildup present (if possible).

*If sensor does not turn off after 10 full turns, turn back the potentiometer clockwise between three to five turns. Minor adjustments may need to be made to achieve desired setting.

Example Application 2 - Mounting

Problem:
A metal tank containing a water-based solution has a 1" outside diameter sight glass. What sensor and bracket could be used for monitoring the liquid level?

Solution:
The QF 5.5 flat style can used on non-conductive tubing up to 1.0 inch in diameter with the standard mounting straps provided with the sensor (**Figure 16**). Other mounting straps for larger diameters are available upon request (consult factory).

Figure 16

We reserve the right to make technical alterations without prior notice.

Technical Reference | Capacitive

Dielectric Constants of Industrial Products

Material Dielectric	Constant
ABS resin, pellet	1.5 - 2.5
Acetic acid	4.1
Acetone	19.5
Acetyl bromide	16.5
Acrylic resin	2.7 - 4.5
Air	1.0
Alcohol, industrial	16 - 31
Alcohol, isopropyl	18.3
Ammonia	15 - 25
Aniline	5.5 - 7.8
Aqueous solutions	50 - 80
Asbestos	3.0
Ash (fly)	1.7
Bakelite	3.6
Barley powder	3.0 - 4.0
Benzene	2.3
Benzyl acetate	5
Butane	1.4
Cable sealing compound	2.5
Calcium carbonate	9.1
Carbon dioxide	1.6
Carbon tetrachloride	2.2
Celluloid	3.0
Cellulose	3.2 - 7.5
Cement	1.5 - 2.1
Cement powder	5 - 10
Cereal	3 - 5
Charcoal	1.2 - 1.8
Chlorine, liquid	2.0
Coke	1.1 - 2.2
Corn	5 - 10
Ebonite	2.7 - 2.9

Material Dielectric	Constant
Epoxy resin	2.5 - 6
Ethanol	24
Ethyl bromide	4.9
Ethylene chloride	10.5
Ethylene dichloride	11.0
Ethylene glycol	38.7
Ethylene oxide	14.0
Ferrous oxide	14.2
Fired ash	1.5
Flour	2.5 - 3.0
Formic acid	59.0
Freon® R22 & 502, liquid	6.1
Gasoline	2.2
Glass	3.1 - 10
Glass, raw material	2.0 - 2.5
Glycerine	47
Hexane	1.9
Hydrochloric acid	4.6
Hydrogen cyanide	95.4
Hydrogen peroxide	84.2
Ice, -5C	2.85
Ice, -18C	3.16
Isobutylamine	4.5
Lime, shell	1.2
Marble	8.0 - 8.5
Melamine resin	4.7 - 10.2
Methane, liquid	1.7
Methanol	33.6
Mica, white	4.5 - 9.6
Milk, powdered	3.5 - 4
Nitrobenzene	36
Neoprene	6 - 9

We reserve the right to make technical alterations without prior notice.

Dielectric Constants of Industrial Products

Material	Dielectric Constant
Nylon	4 - 5
Oil, for transformer	2.2 - 2.4
Oil, paraffin	2.2 - 4.8
Oil, peanut	3.0
Oil, petroleum	2.1
Oil, soybean	2.9 - 3.5
Oil, turpentine	2.2
Paint	5 - 8
Paraffin	1.9 - 2.5
Paper	1.6 - 2.6
Paper, hard	4.5
Paper, oil saturated	4.0
Perspex	3.2 - 3.5
Petroleum	2.0 - 2.2
Phenol	9.9 - 15
Phenol resin	4.9
Polyacetal (Delrin®)	3.6
Polyamide (nylon)	2.5
Polycarbonate	2.9
Polyester resin	2.8 - 8.1
Polyethylene	2.3
Polypropylene	2.0 - 2.3
Polystyrene	3.0
Polyvinyl chloride resin	2.8 - 3.1
Porcelain	4.4 - 7
Press board	2 - 5
Propane, liquid	1.6
Propylene, liquid	11.9
Quartz glass	3.7
Rice, dry	3.5

Material	Dielectric Constant
Rubber	2.5 - 35
Salt	6.0
Sand	3 - 5
Shellac	2.0 - 3.8
Silicon dioxide	4.5
Silicone rubber	3.2 - 9.8
Silicone varnish	2.8 - 3.3
Soybean	2.8
Styrene resin	2.3 - 3.4
Sugar	3.0
Sugar, granulated	1.5 - 2.2
Sulfur	3.4
Sulfuric acid	84
PTFE®, PCTFE	2.3 - 2.8
PTFE	2.0
Toluene	2.3
Trichloroethylene	3.4
Urea resin	6.2 - 9.5
Urethane	3.2
Vaseline	2.2 - 2.9
Vinyl chloride	2.8
Water	48 - 88
Wax	2.4 - 6.5
Wood, dry	2 - 7
Wood, pressed board	2.0 - 2.6
Wood, wet	10 - 30
Xylene	2.4
Zinc oxide	1.7
Zirconium oxide	12.5
Zirconium silicate	5.0

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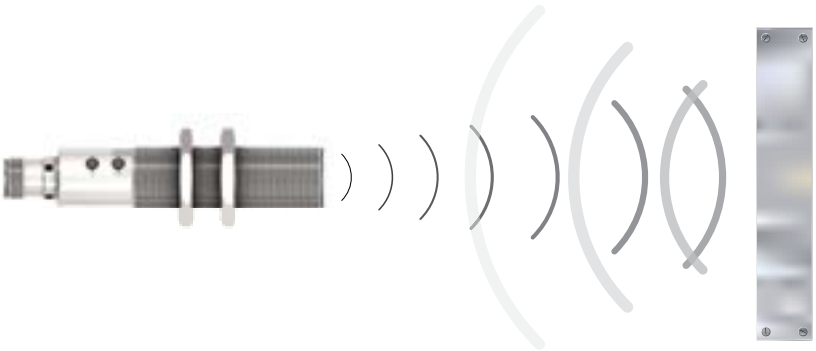
Technical Reference | Ultrasonic

Ultrasonic sensors use reflected sound waves as a means to detect objects at a greater distance than traditional inductive and capacitive sensors. With ranges of several meters and wide sensing cones, these sensors provide a unique solution to challenging applications.

Operating Principle



Ultrasonic sensors emit one or several ultrasonic pulses that are broadcasted in the air at the speed of sound. A part of the ultrasonic wave is reflected back to the sensor by the target. The sensor measures the total time of flight from the sensor to the object and back to the sensor. The distance to the object is then calculated with the following formula:

$$D = c \times t / 2$$

D = Distance from the sensor to the object
c = Speed of sound in air
t = Time of flight for the ultrasonic pulse

To improve accuracy and reliability, the ultrasonic sensor averages the measurement of several sound pulses before the output is updated.

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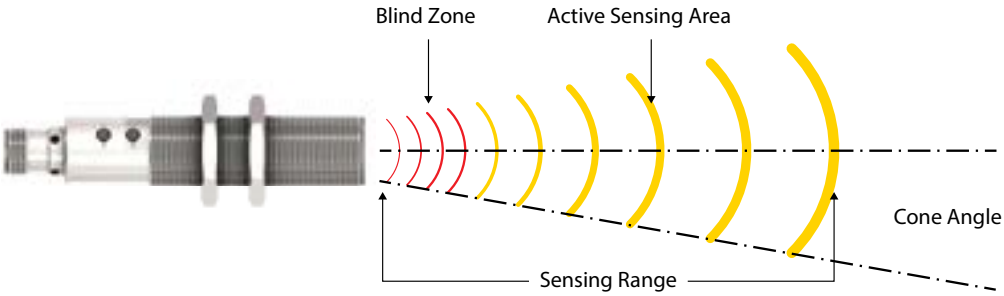
Ultrasonic Terminology



Some key terms to understand when looking for an ultrasonic sensor.

- Blind zone: the blind zone is the area in front of the sensor where targets cannot be detected.
- Sensing range: the coverage of the device is the sensing range, or the maximum distance the sensor can read the sonic wave.
- Active sensing area: is the area where the set points or analog values can be established.
- Cone angle: the cone angle defines the coverage area of the sensor. This will have to be taken into account when placing the sensor in the application. If the cone is disrupted errors or miscommunication can occur.

Changes in Temperature

The ultrasonic velocity depends on the composition and the temperature in which the sound is transmitted. In most ultrasonic-applications, the composition of the atmosphere is stable whereas the temperature may often fluctuate. Fluctuations in air temperature affect the speed of sound, which in turn has an effect on the total time for the echo measured by the sensors. Our sensor are temperature compensated and will adjust the range automatically to minimize errors.

The speed of sound in air varies with the temperature according to the following approximation formula:
$Cm/s = 20 \times \sqrt{273 + TC}$

Cm/s = Speed of sound in meters per second
TC = Temperature in °C

Atmosphere Conditions

It is always recommended to set up the ultrasonic sensors desired switch points and/or analog range in the environment that it will be used. Ultrasonic sensors will work in dust, rain and snow but if the conditions are too substantial it may reduce the sensors range or inhibit the sensor to read the target.

Turck ultrasonic sensors feature a flush face that allows dirt and water to be wicked away with the vibrating motion of the sensing element.

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Modes of Operation

- Diffused mode: standard operation mode were the sensor is emitting sound waves and listening for the reflection and sensing if it is within the selected output zone. This mode can also have an analog output to give a linear measurement.
- Retro: reflective mode-sensor is set up with a reflector and sensing anything that crosses between the sensor and reflector. This is also known as break-beam, which is good for objects with an irregular shape or poor sound-reflecting qualities.
- Opposed mode: enlarges the range of an ultrasonic application. This mode utilizes two sensors of the same type. One sensor sends the signal and the other receives the signal allowing for the sensing range to double.
- Enable mode: allows the sensor to be powered but the piezo element does not fire unless a voltage is applied to pin 5. This allows for the sensor to reduce startup time and only be sensing for a target during a known condition. Enable mode also allows the sensor to be active during predetermined times or under a known condition.

Diffused Mode

Retro-Reflective Mode

Opposed Mode

Synchronization and Multiplexing Mode

- Synchronization mode: any number of ultrasonic sensors of the same type can be operated simultaneously without mutual feedback. The sensors will act as one.
- Multiplexing mode: enables up to nine ultrasonic sensors of the same type to be operated at fixed intervals one after the other without mutual feedback. In order to ensure proper functioning of the multiplexing mode, all connected sensors must have the same type code. In multiplexing mode the addresses must be assigned via PACTware.

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Teaching the Ultrasonic Sensor

Ultrasonic sensors can be taught via a teach wire, programming button, or IO-Link, depending on the model.

Programming changes that can be done through the teach wires/buttons are below

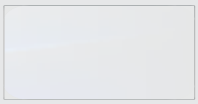
- Discrete output condition, normally open/ normally closed
- Window or hysteresis mode
- Sensing range
- Analog output type, current or voltage
- Retro-reflective mode

Programming changes that can be done through IO-Link

- Changing mode of operation
- Discrete output type and condition, NPN/PNP, normally open/ normally closed
- Analog output type, current or voltage
- Teach button/wire lock
- Window or hysteresis mode
- Sensing range
- Analog output type, current or voltage

Targets

Good ultrasonic targets have a hard smooth surface such as metals, glass, stone, or wood, as well as liquids that are aligned appropriately to the sensor. These targets reliably reflect sonic waves regardless of color or transparency. Cloth, sand, foam or grains absorb some of the sonic energy resulting in limited range or unstable operation. It should be noted that some materials can be detected using retro-reflective mode.

Material	✓
Cardboard	
Glass	
Smooth Wood	
Metal	

Material	✗
Carpet	
Foam	
Textiles	

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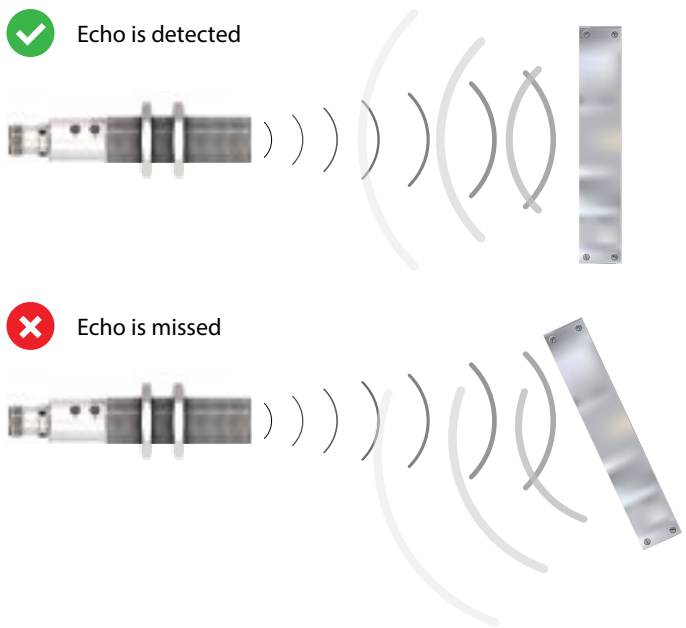
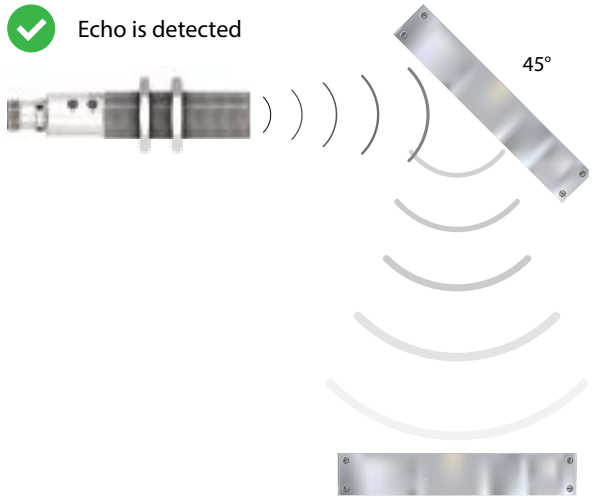
Application Considerations

Target Orientation



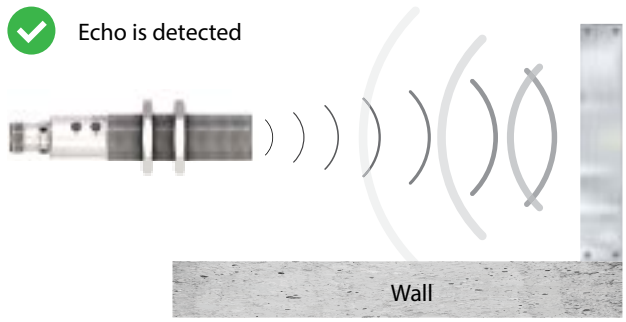
The orientation of a target is important. If the flat surface is at an angle the senor will not receive the reflected sound.

Reflector



A reflector at a 45° angle can be used to redirect the signal or allow flexible mounting of the sensor.

Obstructions



When mounting an ultrasonic sensor the cone angle has to be taken into consideration. Physical obstructions within the cone angle can cause unstable sensor operation. This is common when mounting the sensor too close to the side of a tank, inside of a tube/stilling well, or mounting close to a wall.

Level Applications

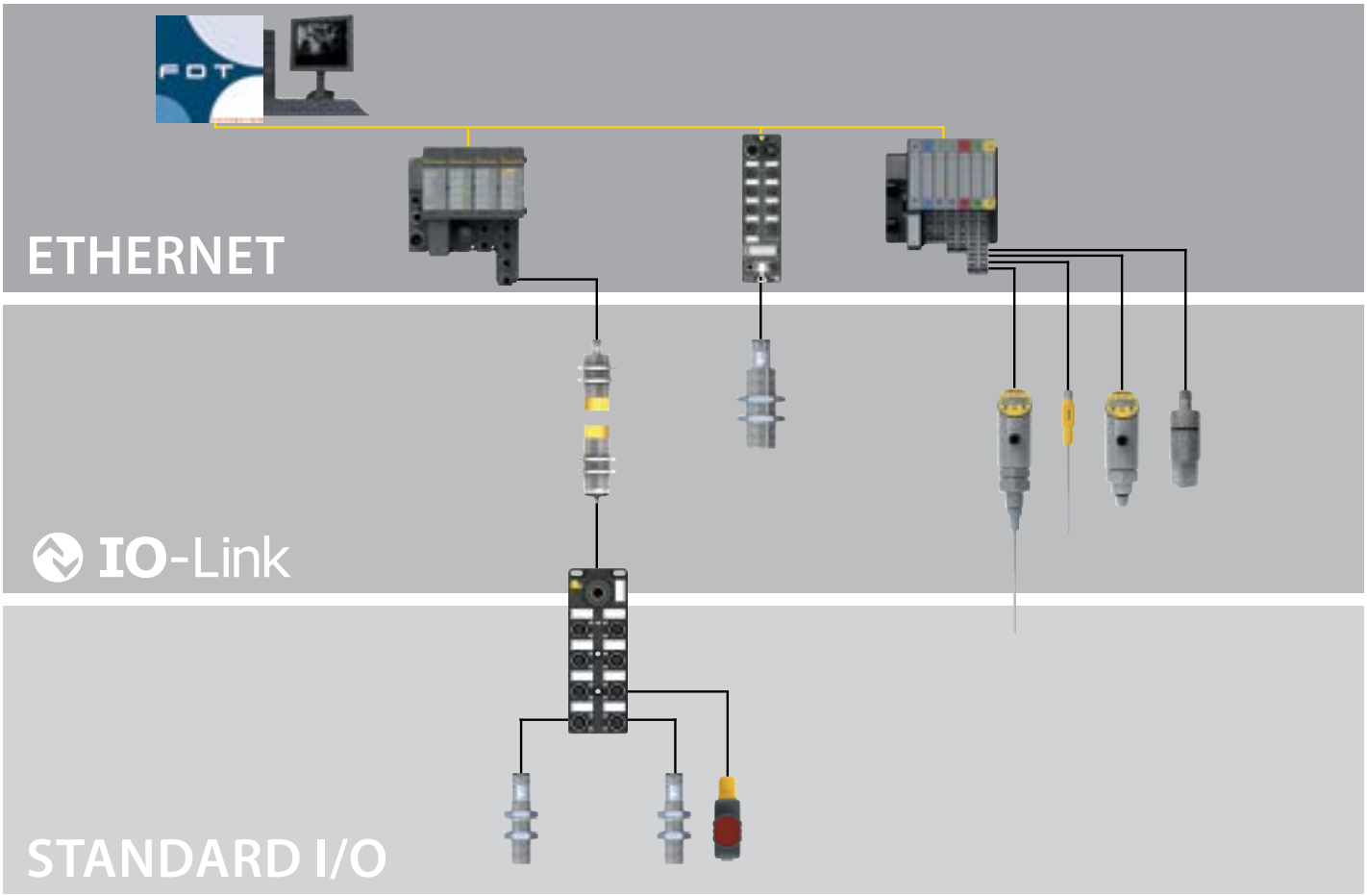
Ultrasonic sensors can be used to monitor the level of both dry materials and liquids. By positioning the sensor above the materials, users can then program switch points or an analog output that corresponds to the actual level.

Variables that negatively affect sensor performance

- Foam: foaming media tends to absorb the acoustic signal
- Surface Turbulence: agitation, mixing, and other processes that cause excessive liquid turbulence can cause intermittent signal return problems
- Pressure: pressurized containers should be avoided as they change the sensor characteristics

We reserve the right to make technical alterations without prior notice.

IO-Link: Simple, Seamless, Efficient



Today, most sensors and actuators are already equipped with microprocessors that are used to control indication, parameterization, and store configuration data. The next step is to overcome the bottleneck of the binary standard interface and make additional functions centrally accessible for the automation system.

For this reason, many well known manufacturers from the field of automation have come together and developed a fieldbus-independent communication interface for sensors and actuators known as IO-Link. Compatibility with existing technologies was the primary objective during development in order to guarantee investment protection.

What is IO-Link?
IO-Link is based on a point-to-point connection between the sensor/actuator and an interface module. Previously, the binary connection was only designed for transferring switching information, but IO-Link now allows two bytes to be transferred normally in a 2 ms cycle via a combined switching status and data channel. Other information can be exchanged in addition to the process values, such as parameters or diagnostics messages. This enables communication with sensors and actuators down to the "last meter" to be established for universal communication.

Standard Wiring
IO-Link does not require any special wiring. The sensors and actuators can continue to be connected using the proven, unshielded and attractively priced industrial three core cables. The operating modes available for selection are the standard switch mode and the communication mode.

Benefits
IO-Link users benefit from reduced machine costs, efficient processes and improved machine availability. Turck provides one of the most comprehensive IO-Link portfolios worldwide, from a variety of sensors, cables and active IO-Link junction boxes to interfaces for various industrial fieldbus protocols, including Turck Multiprotocol Ethernet products.

We reserve the right to make technical alterations without prior notice.

Technical Reference | IO-Link

Engineering Tool Integration
Standardized interfaces (DTM/IODD) implement seamless integration into engineering tools. Furthermore, integration into standalone tools such as Asset management or configuration tools is also made available. Connection into enterprise level tools is accomplished using standard Ethernet mechanisms.

Device Identification
Integrated device identification ensures that the correct device has been installed in the case of component replacements. As each device contains detailed information regarding the manufacturer, component replacement can be safely handled automatically.

Wiring
IO-Link uses the same standard unshielded 3-core cables with standardized pinning as conventional I/O. This eliminates problems with complex devices which have no pinning standards and often multipole connectors.

Ethernet/Fieldbus Connection
IO-Link allows connection to most major fieldbuses, as well as Industrial Ethernet. Turck offers solutions for the full range, including master modules for its modular and block I/O systems featuring Multiprotocol Ethernet, which work seamlessly with PROFINET, EtherNet/IP and Modbus TCP in a single device.

Sensor Mounting
All IO-Link devices allow parameter changes and diagnostic evaluation within the engineering system or separate tools. Devices can now be mounted in the machine where they make sense for the application, not in inconvenient areas that disrupt work flow in order to allow access to display or switches.

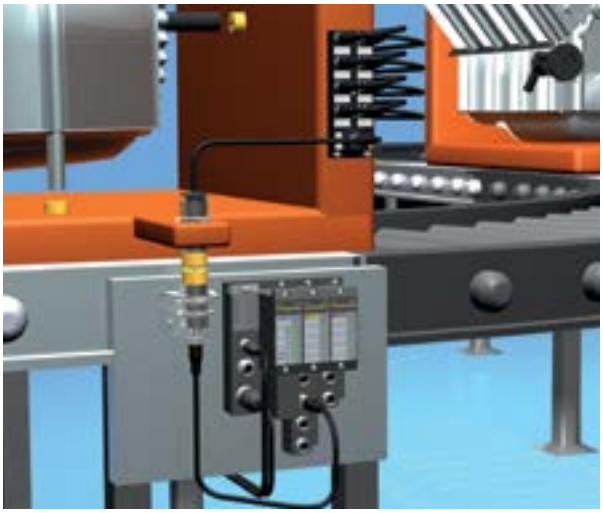
I/O Hubs
Allow the integration of standard 24 VDC devices into automation systems via IO-Link with Turck I/O hubs. Variants for inputs, outputs and a version with configurable digital I/O are currently available.

We reserve the right to make technical alterations without prior notice.

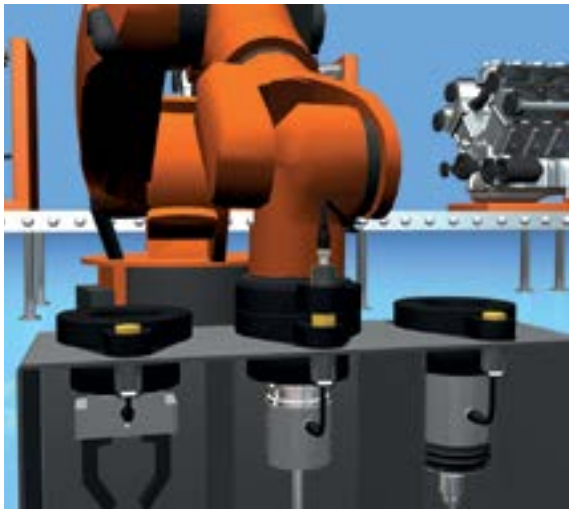
Efficient Processes
- Extensive parameterization options for just in time parameter changes to devices
- Efficient processes requiring different parameter sets for switching thresholds, gain, sensitivity and so forth due to differing production conditions
- Faster tool change operations

Improved Machine Availability
- Comprehensive status information and diagnostic capabilities in the plant lead to drastically reduced machine downtime
- Enhanced information enables cost saving mechanisms such as predictive maintenance or asset management to be easily implemented
- Device replacement without manual intervention to parameterize the new unit alleviates the need for qualified personnel

Turck: Your Value Added IO-Link Solution Partner



Skid application in an automotive plant



Robotic tool changer application

Many manufacturers offer IO-Link products, which can make it difficult to find the most suitable partner for your needs. Turck offers a wide variety of IO-Link solutions – from sensors through programmable fieldbus and Ethernet gateways – but also provides a deep application knowledge, as the following example shows.

Tool Changer
Many applications require that parts of a machine are changed to accommodate different phases in the production cycle. This necessitates providing manifold connections between the main (fixed) part of a machine and the exchangeable part. The two elements of the machine must then be linked mechanically and electrically to provide power, pneumatics and I/O signals to enable data exchange within the machine.

The electrical connections require large multi-pin connectors and multicore cables to achieve this end. This complexity has a price: the connections regularly cause problems and are expensive to buy and maintain. The fact that the connections also require a high degree of accuracy regarding the mechanical alignment between machine components further increases machine costs. Another difficulty with this arrangement involves distinguishing between several variants of an exchangeable part. If this is necessary, further I/Os are required, both in the I/O system and on the machine. This not only increases costs, but also the complexity and sizing of the connectors between machine parts.

Value Added IO-Link Solution
Turck inductive couplers are capable of transferring both data and power over an air gap to resolve the previously mentioned problems. The contactless couplers eliminate the need for other mechanical connectors or costly slip rings, which are liable to wear. Additionally, all Turck IO-Link devices are capable of allocating a so-called "Application Specific Tag" (part of the IO-Link specification), which fulfills the requirement of identifying changeable parts without incurring additional costs. Furthermore, this built-in mechanism allows the use of alphanumeric information, making it likely that existing identification codes can be reused.

Reduced Machine Costs
- Reduced inventory due to intelligent multi-purpose devices
- Only one I/O module and one inexpensive standard cable required
- Reduced I/O footprint possible
- Displays and switches no longer required on devices
- Reduced engineering and assembly costs and automatic documentation of device parameters during the engineering phase

We reserve the right to make technical alterations without prior notice.

Technical Reference | DC Wiring

DC Outputs

Two-, three-, or four-wire proximity sensors contain a transistor oscillator and a snap-action amplifier. This provides exceedingly high accuracy to a set switching point, even with very slowly approaching targets. Switching characteristics are unaffected by supply voltage fluctuations within the specified limits.

The sensors can drive electromechanical relays, counters, solenoids, or electronic modules, and interface directly with logic systems or programmable controllers without additional interface circuitry. They are available with either NPN output transistors (current sinking) or PNP output transistors (current sourcing).

Load current ratings vary from 100 to 200 mA depending on physical size. Standard voltage range is 10-30 VDC with certain types available for 10-65 VDC. All models incorporate wire-break, transient and reverse polarity protection. Power-On false pulse suppression is also standard.

Wire-Break Protection

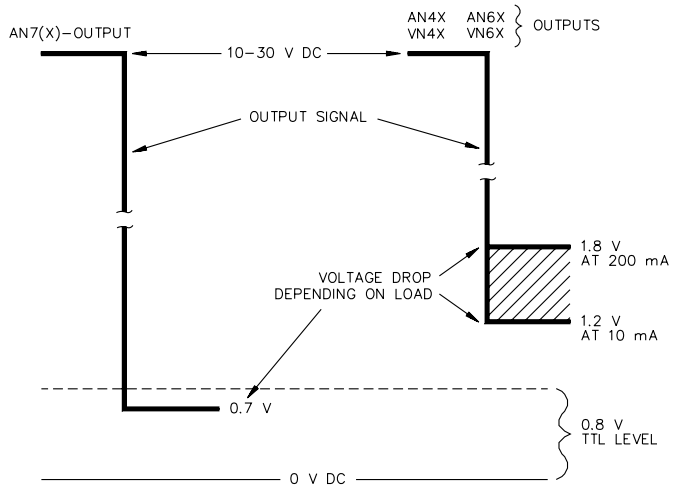
If the supply wire for a Turck DC sensor was damaged or broken the output will stay in the off state.

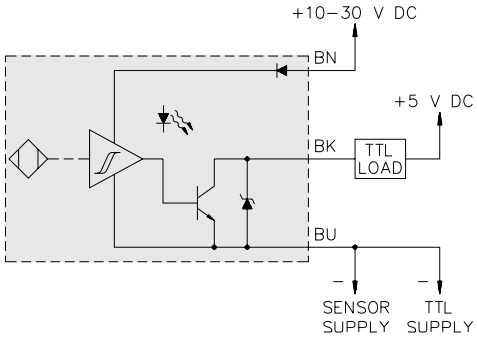
Short-Circuit and Overload Protection

Turck DC sensors with a Voltage Range designation of "4", "6" or "8" in the part number are short-circuit and overload protected (automatic reset). These sensors incorporate a specially designed circuit which continuously monitors the ON state output current for a short-circuit or overload condition. If either of these fault conditions occurs, the output is turned OFF and pulse tested until the fault is removed. This added protection causes a ≤1.8 V drop across the output in the normal ON state. This may be a problem when interfacing with some logic low inputs (see TTL compatibility).

TTL Compatibility

Certain inputs require a 5 VDC signal level to operate correctly. Typically, these types of inputs are described as TTL Level inputs and will only work correctly with a TTL compatible sensor. In order to meet TTL Signal requirements, the output of these sensors will have a voltage drop of ≤0.7 V (0.3 V typical). Do not use voltage ranges "4" and "6" when TTL compatibility is required. Contact the factory for a list of part numbers with this specification.





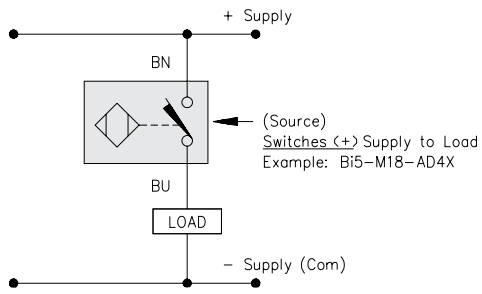
Wiring Diagram

Voltage drop is measured from output wire black (BK) to ground wire blue (BU).

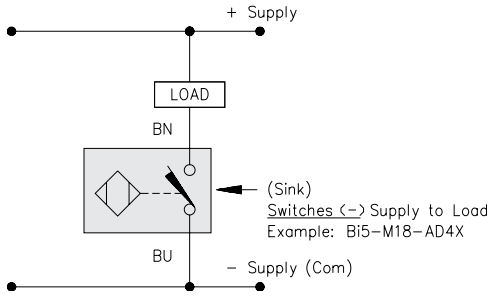
We reserve the right to make technical alterations without prior notice.

DC Sourcing and Sinking

2-Wire DC



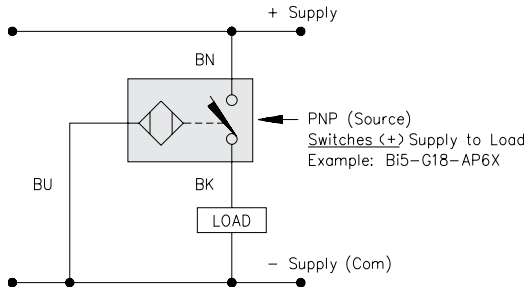
Source (PNP)



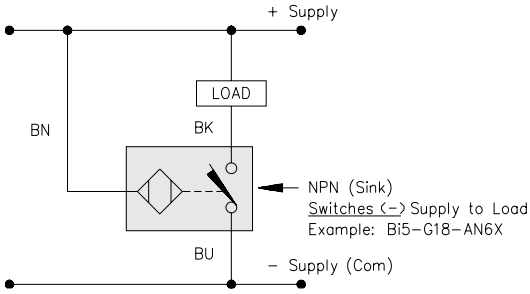
Sink (NPN)

Note:
Turck 2-wire DC sensors with an "AD" designation are not polarity sensitive and can be used to sink or source a load.

3-Wire DC



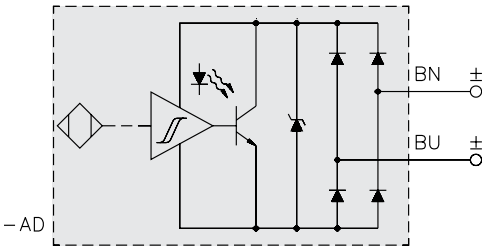
Source (PNP)

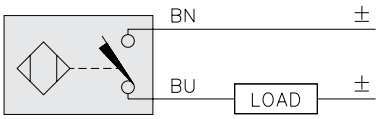


Sink (NPN)

DC Outputs

"AD" 2-Wire DC Output

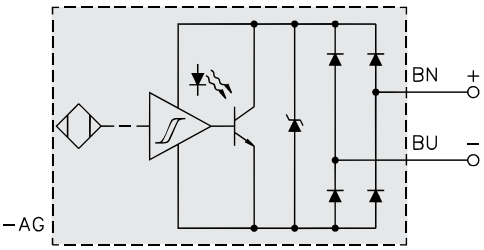


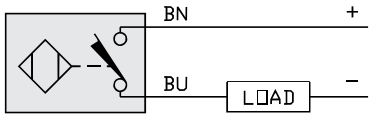


Wiring Diagram

Note:
Turck 2-wire DC sensors with an "AD" designation are not polarity sensitive and can be used to sink or source a load.

"AG" 2-Wire DC Output





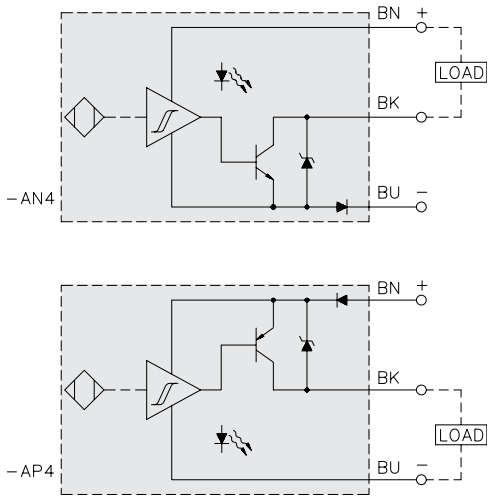
Wiring Diagram

We reserve the right to make technical alterations without prior notice.

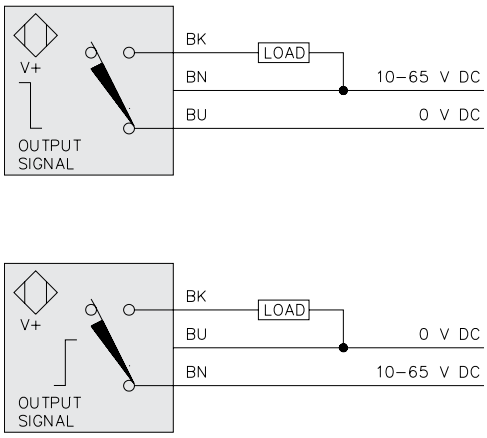
Technical Reference | DC Wiring

DC Outputs

"AN4" and "AP4" 3-Wire DC Outputs



Electronic Output Circuit

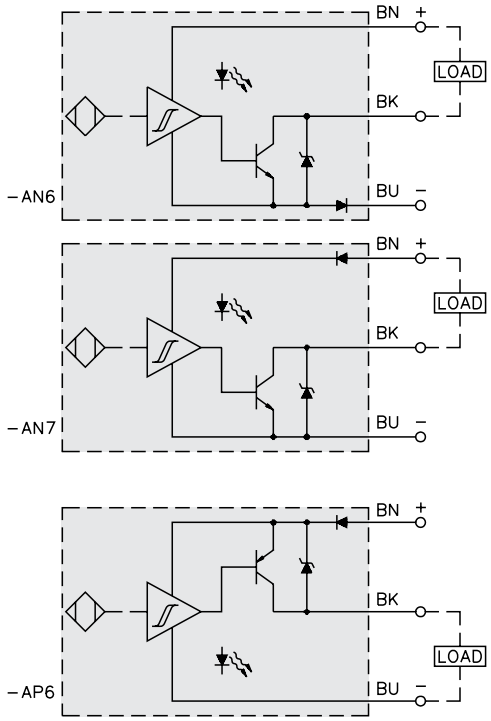


Wiring Diagram

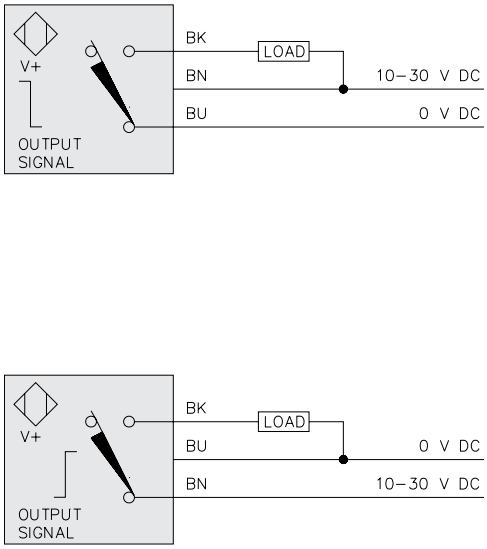
NPN transistor
(i.e. current sinking
negative switching)
N.O. output

PNP transistor
(i.e. current sourcing
positive switching)
N.O. output

"AN6(7)" and "AP6" 3-Wire DC Outputs



Electronic Output Circuit



Wiring Diagram

NPN transistor
(i.e. current sinking
negative switching)
N.O. output

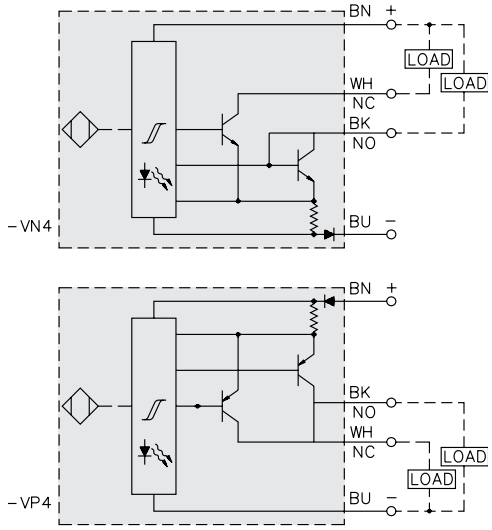
PNP transistor
(i.e. current sourcing
positive switching)
N.O. output

Note:
Order current sinking (NPN) sensors with the voltage range "7" only when low voltage drop for TTL gates is required. In all other cases, order sensors with voltage ranges "4" or "6".

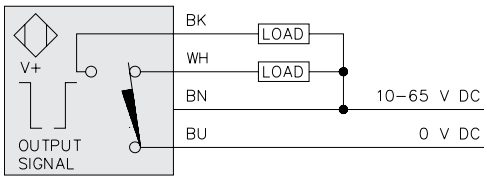
We reserve the right to make technical alterations without prior notice.

DC Outputs

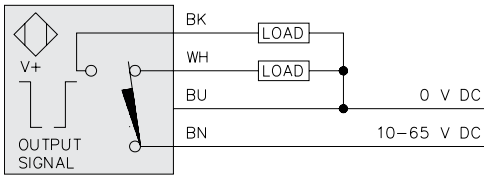
"VN4" and "VP4" 4-Wire DC Outputs



Electronic Output Circuit



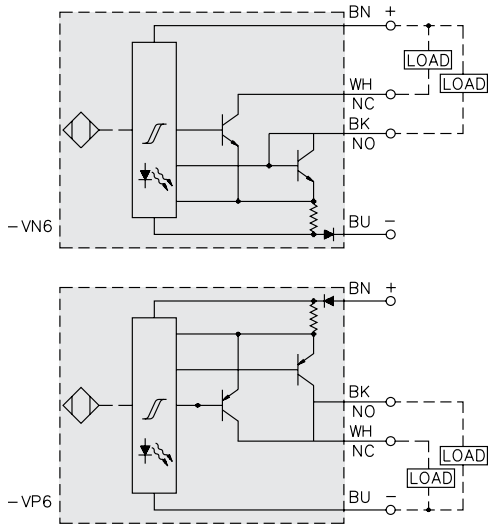
NPN transistor (i.e. current sinking negative switching) complementary output (SPDT)



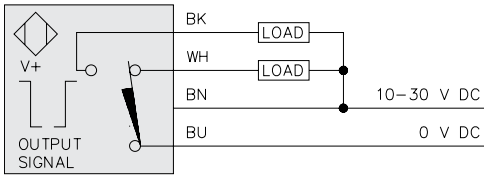
PNP transistor (i.e. current sourcing positive switching) complementary output (SPDT)

Wiring Diagram

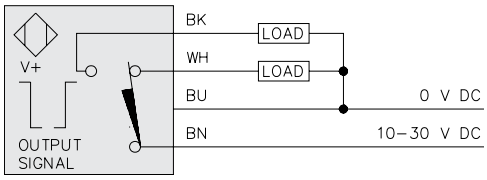
"VN6" and "VP6" 4-Wire DC Outputs



Electronic Output Circuit



NPN transistor (i.e. current sinking negative switching) complementary output (SPDT)



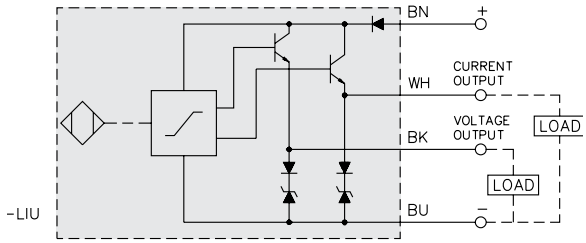
PNP transistor (i.e. current sourcing positive switching) complementary output (SPDT)

Wiring Diagram

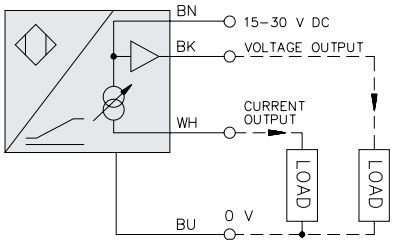
We reserve the right to make technical alterations without prior notice.

DC Outputs

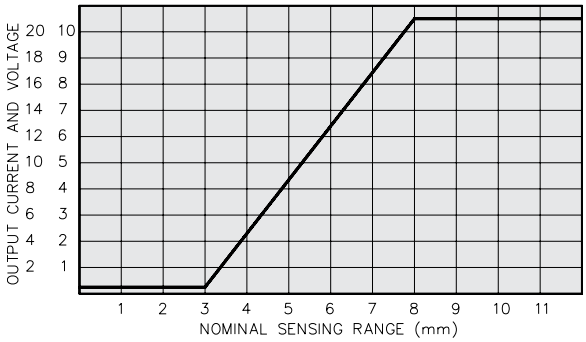
"LIU" 4-Wire Linear Analog DC Output



Electronic Output Circuit



Wiring Diagram



Typical Response Curve

Linear Analog Output; Current and Voltage

Series/Parallel Connection

Logic functions with DC proximity sensors:
Self-contained proximity sensors can be wired in series or parallel to perform such logic functions as AND, OR, NAND, NOR. The wiring diagrams show the hook-up of four sensors with NPN and PNP outputs. Take into account the accumulated no-load current and voltage drop per sensor added in the series string.

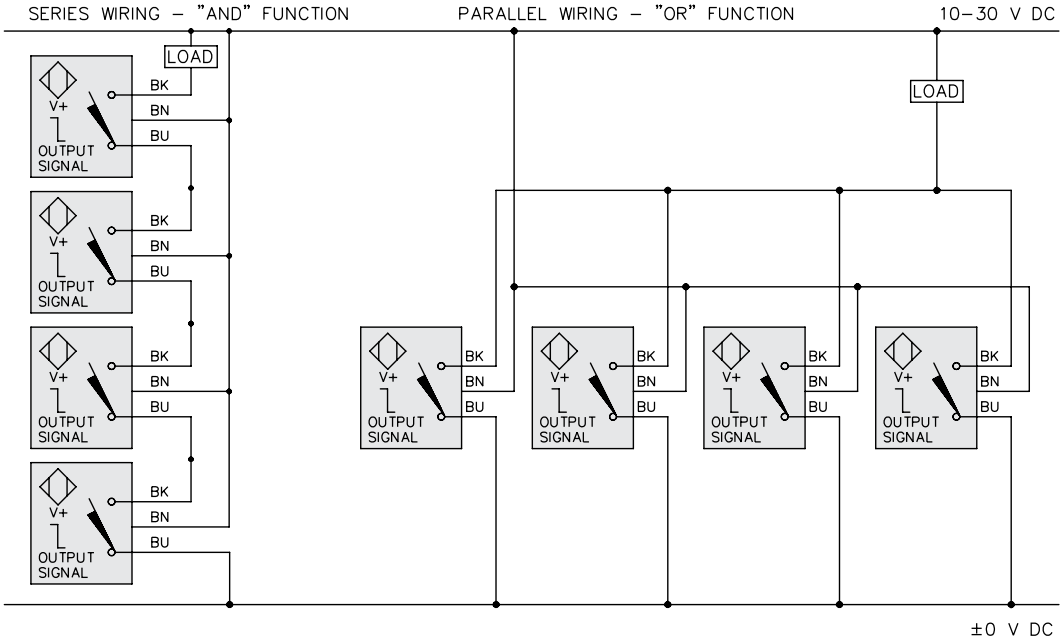
Series-connection:
N.O. sensors: AND Function
(target present, all sensors: load "on")
N.C. sensors: NOR Function
(target present, any sensor: load "off")

Parallel-connection:
N.O. sensors: OR Function
(target present, any sensor: load "on")
N.C. sensors: NAND Function
(target present, all sensors: load "off")

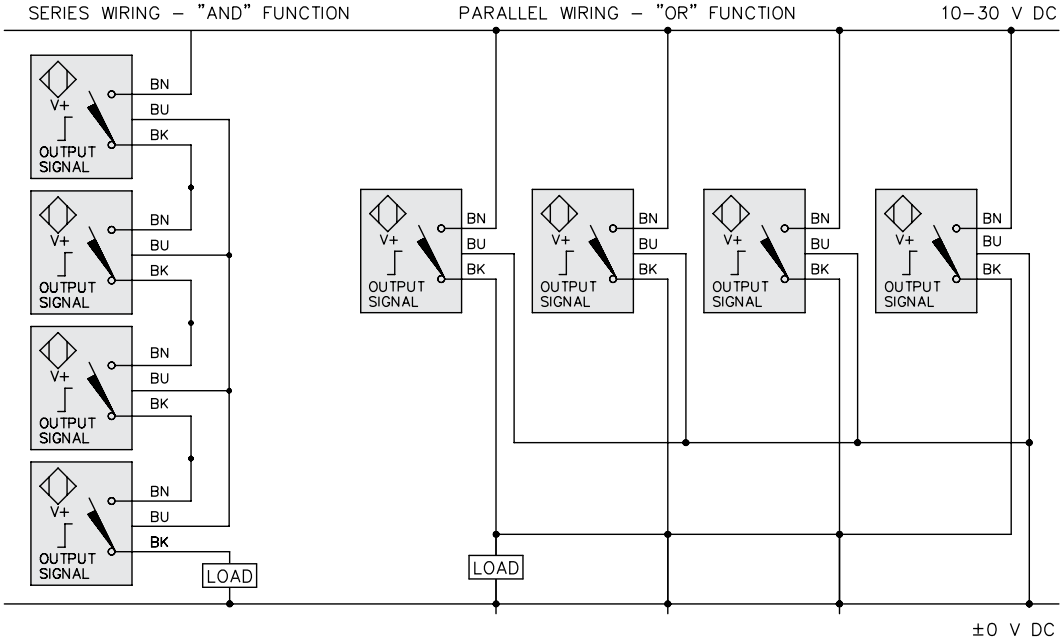
Turck Tip
To prevent the load from seeing the cumulative voltage drop of multiple 3-wire sensors in series, alternating polarity sensors can be used provided that the desired polarity is at the load. Wiring 3-wire sensors in series delays the load by the accumulated "time delay before availability" of all sensors in the string.

We reserve the right to make technical alterations without prior notice.

Series/Parallel Connection



NPN Connection



PNP Connection

We reserve the right to make technical alterations without prior notice.

Technical Reference | AC Wiring

Short-Circuit and Overload Protection

Turck AC sensors with the Voltage Range designation "30" or "32" are short-circuit and overload protected (manual reset). These sensors incorporate a specially designed circuit which continuously monitors the ON state output current for a short-circuit or overload condition. If either of these fault conditions occurs, the output is latched OFF until the power has been cycled OFF and ON again.

Always select short-circuit and overload protected sensors whenever possible.

CAUTION!

DO NOT
operate an incandescent light bulb as a load. The extremely high cold current will cause an overload condition.

DO NOT
directly operate a motor with a proximity sensor. The inrush current can cause an overload condition. Always use a motor starter, relay or other appropriate device.

DO NOT
operate a proximity sensor from a wall outlet without a load. This is considered a "dead" short and can cause catastrophic damage to nonshort-circuit protected sensors.

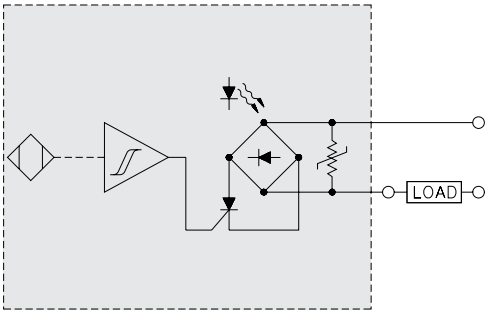
DO NOT
forget to ground. AC and AC/DC sensors must be grounded or there exists a potential of electrical shock.

AC and AC/DC Outputs

These sensors are used as pilot devices for AC-operated loads such as relays, contactors, solenoids, etc. The solid-state output permits use of the sensors directly on the line in series with an appropriate load. They, therefore, replace mechanical limit switches without alteration of circuitry, where operating speed or environmental conditions require the application of solid-state sensors.

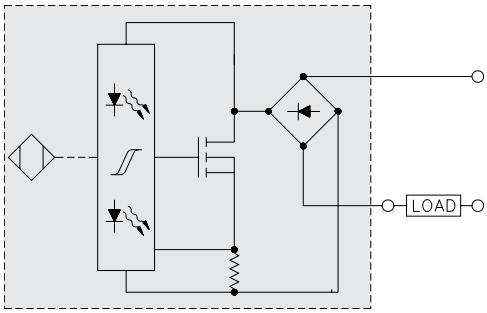
These sensors are typically available in a voltage range of 20-250 VAC. All models are available with either normally open (N.O.), normally closed (N.C.) or programmable outputs (from N.O. to N.C.). Careful consideration must be given to the voltage drop across AC/DC sensors when used at 24 VDC.

AC/DC Outputs - "3", "31", "33", non-SCP



Electronic Output Circuit

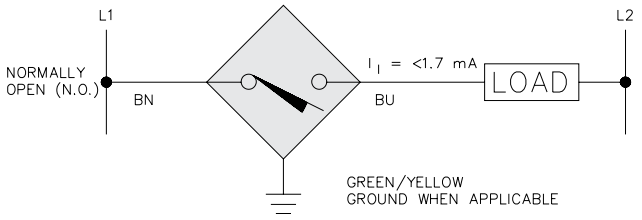
AC/DC Outputs - "30", "32", SCP

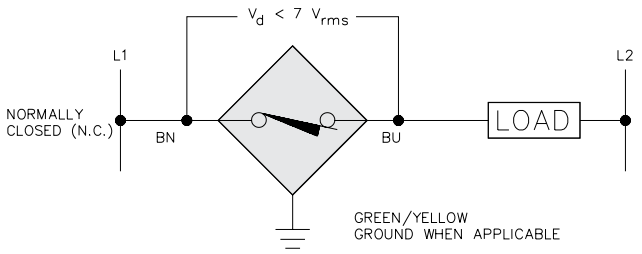


Electronic Output Circuit

We reserve the right to make technical alterations without prior notice.

AC and AC/DC Outputs





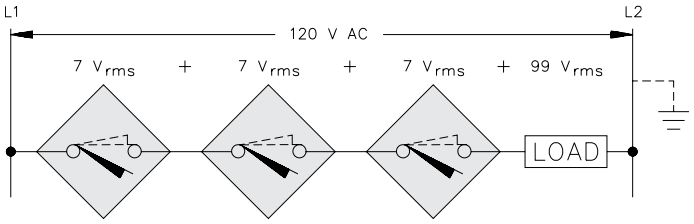
Electro-Mechanical Equivalents

Since the sensors are connected in series with the load by means of only two leads, an off-state current flows through the load in the magnitude of approximately 1.7 mA.

This, however, does not affect the proper and reliable performance of most AC loads. Another characteristic of solid state sensors is a 5 to 7 volt drop developed across the sensor in the ON state.

All models contain a snubber network to protect against transients from inductive loads, which can cause false triggering.

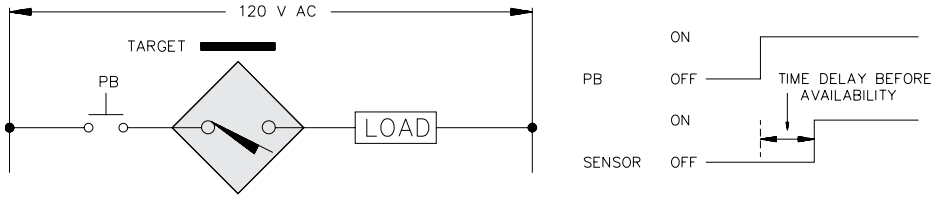
Series Connection



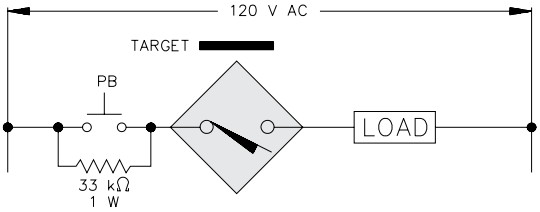
Series-connection:
N.O. sensors: AND Function
(target present, all sensors: load "ON")
N.C. sensors: NOR Function
(target present, any sensor: load "OFF")

The maximum number of sensors to be operated in series depends on the stability of the line voltage and the operating characteristics of the load in question. The supply voltage minus the accumulative on state voltage drop across the series connection (approximately 7 Vrms per sensor) must be ≥ the minimum required load voltage.

Mechanical Switches in Series



Problem:
Mechanical switches in series with proximity sensors should always be avoided because they can create an open circuit, leaving the proximity sensor without power. In order to operate properly, a proximity sensor should be powered continuously. A typical problem encountered when the mechanical contact closes while the target is present is a short time delay that is experienced before the load energizes (time delay before availability).

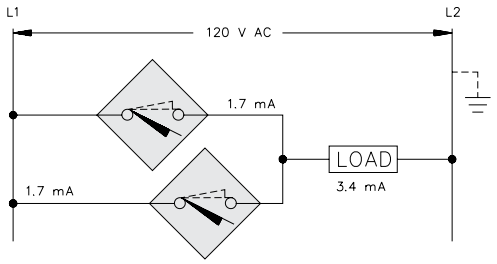


Solution:
A 33 kΩ, 1W by-pass resistor can be added across the mechanical contact to eliminate the time delay before availability. This will allow enough leakage current to keep the sensor ready for instantaneous operation.

We reserve the right to make technical alterations without prior notice.

Technical Reference | AC Wiring

Parallel Connection



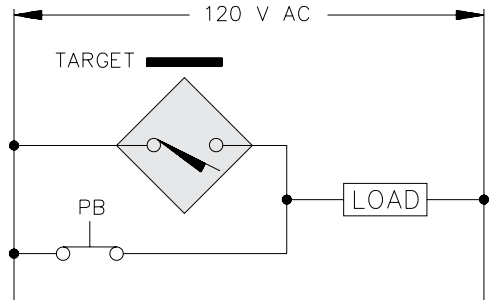
Parallel Connection:
N.O. sensors: OR Function
(target present, any sensor: load "ON")
N.C. sensors: NAND Function
(target present, all sensors: load "OFF")

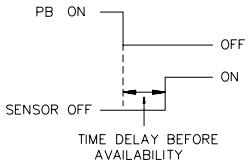
Wiring AC proximity sensors in parallel can result in inconsistent operation and should generally be avoided.

On-state voltage drop: With any sensor ON, the voltage across all other sensors is typically 7 Vrms. Since the minimum rated voltage for AC sensors is 20 Vrms, no other sensor with a target present can turn ON until the first sensor turns OFF. This transition is not instantaneous due to the time delay before availability, during which the load may drop out.

Leakage current through the load: This is equal to the total leakage of all sensors wired in parallel. Too much leakage into a solid state load can cause the input to turn ON and not turn OFF. Small relays may not drop out if the leakage current exceeds the relay's holding current.

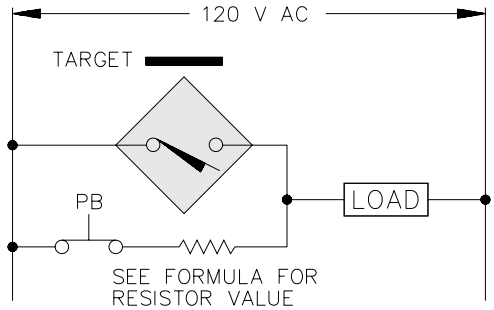
Mechanical Switches in Parallel





Problem:
As previously discussed, proximity sensors should be powered continuously to avoid the time delay before availability during power-up.

With mechanical switches in parallel, the sensor is shorted out every time the contact is closed, leaving it without power. If the target is present when the mechanical contact is opened, a small delay will be experienced during which the load may drop out.



Solution:
This delay can be avoided by adding a resistor in series with the mechanical contact. The voltage drop developed across the resistor with the contact closed will be enough to keep the sensor active. Use the formula below to determine the value and wattage.

Formula:

$$R = \frac{\text{minimum operating voltage of proximity sensor}}{\text{load current at operating voltage}}$$

Example:

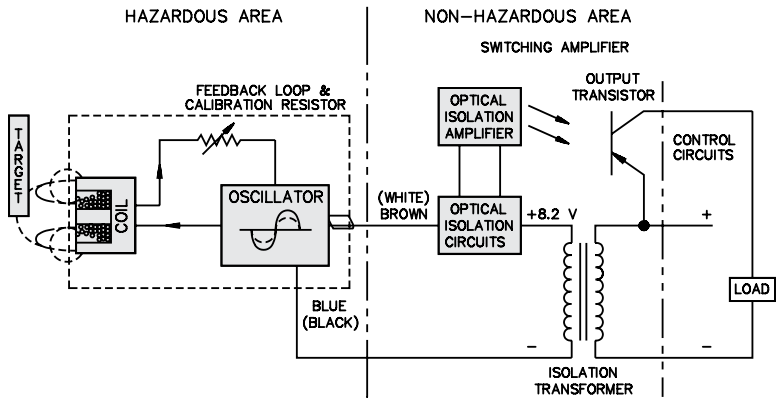
$$R = \frac{20\ \text{V}}{180\ \text{mA}}$$

$$R = 110\ \Omega$$

Minimum resistor wattage rating: E x I
Example: 20 V x 180 mA = 3.6 W≈ 5 watts recommended

We reserve the right to make technical alterations without prior notice.

NAMUR (Y0 and Y1) Output



The NAMUR (Y0 and Y1) sensor behaves like a variable resistor when a target approaches. The impedance increases or decreases between 1 kΩ and 8 kΩ.

NAMUR sensors are 2-wire sensing devices used with switching amplifiers. Because of the small amount of energy needed to operate NAMUR sensors, they can be used in intrinsically safe applications.

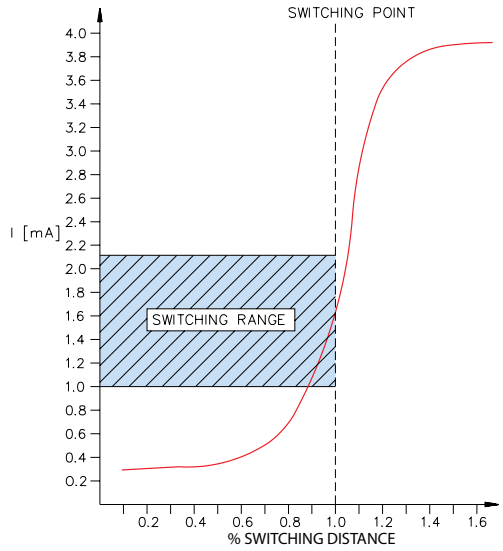
The operation of this sensor is similar to that of a variable resistor with a change in impedance as a target approaches the sensor. When no metal is being sensed, the inductive sensor is in a low impedance state and draws a current of more than 2.2 mA. When a metal target enters the high-frequency field radiated from the sensor head, the impedance increases as the target approaches. When fully damped, the sensor draws less than 1.0 mA.

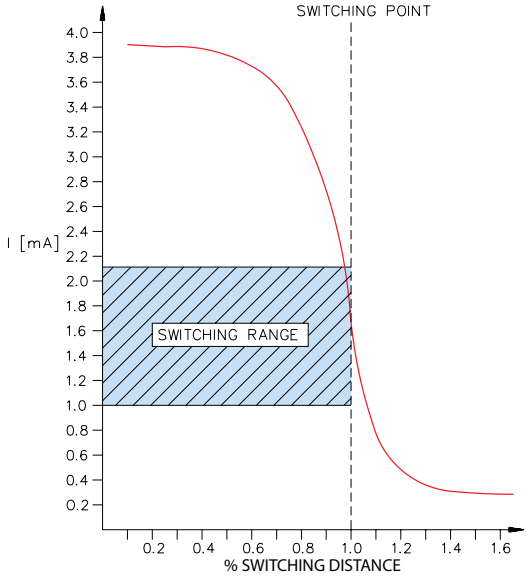
Note: For capacitive and inductive magnet operated sensors, the current change characteristics are opposite.

The current differential from the undamped to the damped (metal present) state is used to trigger an amplifier at a defined switching point. These sensors contain a relatively small number of components, which allows the construction of small devices and also assures a high degree of reliability.

In the undamped and damped state, the devices have fairly low impedance and are therefore, unaffected by most transients. NAMUR sensor circuits operate on direct current. Therefore, cable runs of several sensors may be run parallel to one another without mutual interference.

Typical Output Curves



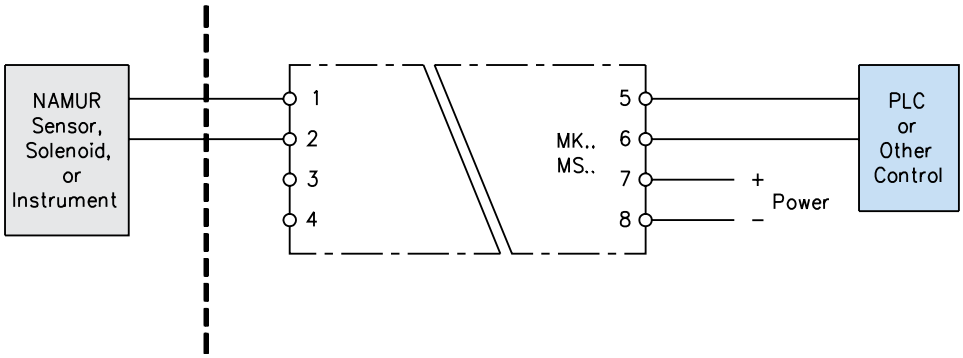


Note:
The typical curve of current versus sensing distance with 8.2 V DC supply and 1 kΩ source impedance. All NAMUR (Y0 and Y1) sensors are calibrated to pass through 1.55 mA at nominal sensing range ±10%.

We reserve the right to make technical alterations without prior notice.

Technical Reference | Namur Wiring

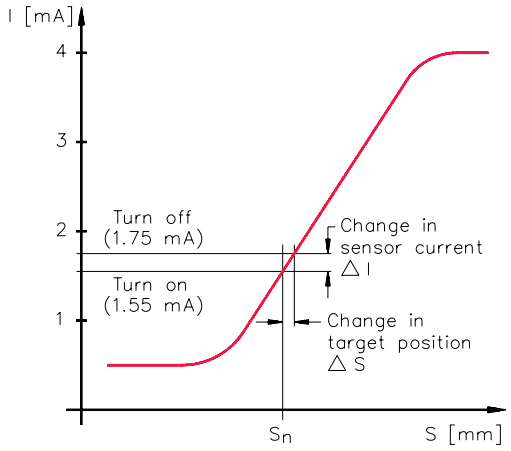
Typical Intrinsically Safe Installation

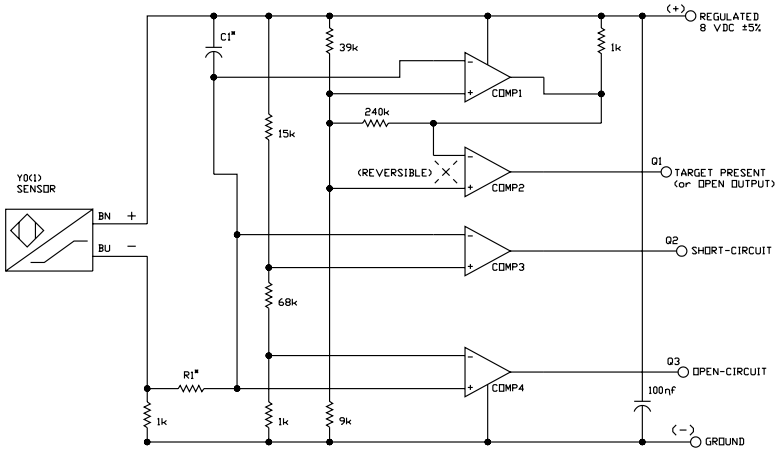


For guidance on installation of Turck intrinsically safe systems, refer to the Instrument Society of America publication ISA-RP12.6-1995, "Wiring Practices for Hazardous (Classified) Locations Instrumentation".

The complete line of Intrinsically Safe and Associated Apparatus can be found on Turck's website.

Custom Interface Circuits





NAMUR sensors can operate outside the nominal operating values when the sensor is used in a nonhazardous area. The supply voltage limits are: V_{min} = 5 VDC; V_{max} = 30 VDC

Within this voltage range the load resistance R_i must be adjusted for the supply voltage. The following table gives typical values:

V_{supply} (DC)	R_i (kΩ)	I_{sn} (mA)	ΔI (mA)
5	0.39	≈0.7	≈0.1
12	1.8	≈2.3	≈0.3
15	2.2	≈2.9	≈0.4
24	3.9	≈3.8	≈0.5

If these values are used, the current I_{sn} corresponds to the rated operating distance (Sn) of the sensor. NAMUR sensors are short-circuit protected up to 15 VDC and reverse polarity protected up to 10 VDC.

We reserve the right to make technical alterations without prior notice.

Third Party Approval and Certification Bodies		
Canadian Standards Association (CSA)	CSA is a Canadian provider of product testing and certification services. CSA certifies products for use in hazardous (classified) locations as well as non-hazardous locations. CSA is accredited by the Standards Council of Canada and is also a US NRTL (Nationally Recognized Test Laboratory), an ATEX Notified Body, and an IECEx ExCB (IECEx Certification Body).	
FM Approvals (FM)	FM approves devices for use in hazardous (classified) locations as well as products in other loss prevention categories. FM is a US NRTL (Nationally Recognized Test Laboratory), an ATEX Notified Body, and an IECEx ExCB (IECEx Certification Body), and is SCC accredited for Canada.	
Underwriters Laboratories (UL)	UL is a US-based provider of product safety testing and certification services for a broad range of both industrial and consumer products. UL lists stand-alone devices, such as sensors, and recognizes system components, such as relays, PWAs, etc. UL is a US NRTL (Nationally Recognized Test Laboratory), an ATEX Notified Body, and an IECEx ExCB (IECEx Certification Body), and is SCC accredited for Canada.	
ATEX	ATEX is the name of the European Union Directive 2014/34/EU covering hazardous location equipment and environments. Product testing and certification is carried out by ATEX Notified Bodies, which are organizations that have been accredited by an EU member state to conduct such testing according to EN Standards.	
IECEx	The IECEx System is the International Electrotechnical Commission's (IEC) system for providing assurance that products meet specified IEC standards. The system aims to provide internationally accepted and standardized certifications. Product testing and certification are carried out by IECEx ExCBs (IECEx Certification Bodies).	
CE	CE marking is a certification mark that indicates conformity with health, safety, and environmental protection standards for products sold within the European Economic Area (EEA).[1] The CE marking is also found on products sold outside the EEA that are manufactured in, or designed to be sold in, the EEA. This makes the CE marking recognizable worldwide even to people who are not familiar with the European Economic Area. It is in that sense similar to the FCC Declaration of Conformity used on certain electronic devices sold in the United States.	
CCC	CCC stands for China Compulsory Certificate Mark and is required for products imported into China as well as products built in China. The CCC Mark was created in 2002 when China joined the World Trade Organization. The CCC applies to a wide range of products. As part of the approval process, product samples are subjected to conformity testing and once approved the manufacture will be subject to regular audits. The approval is required for sensors with operating voltages in excess of 36 volts.	
RoHS	RoHS stands for Restriction of Hazardous Substances. RoHS, also known as Directive 2002/95/EC, originated in the European Union and restricts the use of specific hazardous materials found in electrical and electronic products. All applicable products in the EU market after July 1, 2006 must pass RoHS compliance.	

Note:
Turck products comply with many International standards. Consult factory for more information.

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Technical Reference | Compliances

Hazardous Location Approvals

The NAMUR sensors shown in this catalog are Intrinsically Safe per the following:	
USA	Class I, Division, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1 Class I, Zone 0, AEx ia Group IIC T5 Intrinsically Safe when connected to an appropriately certified associated apparatus. See Turck Control Drawing IS-1.118 for US installations.
Canada	Class I, Division, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1 Ex ia Group IIC T4-T6 Intrinsically Safe when connected to an appropriately certified associated apparatus. See Turck Control Drawing IS-1.203 for Canada installations.
European Union	II 1 G Exia IIC T4-T6 Ga II 2 G Ex ia IIC T4-T6 Gb II 1 D Ex ia T95°C or T115°C Da Intrinsically Safe when connected to an appropriately ATEX-certified associated apparatus. See ATEX certificate at Turck.com or contact factory for information on certified devices.
IEC member countries per IECEx	Zone 0 Ex ia IIC T4-T6 Ex ia IIC T4-T6 Ex ia D 20 T95°C or T115°C Intrinsically Safe when connected to an appropriately IECEx-certified associated apparatus. See IECEx certificate at Turck.com or contact factory for information on certified devices.

Many 3-wire DC sensors are approved for Class I, Division 2 hazardous locations:	
USA and Canada	Class I, Division 2, Groups A, B, C, D Selected Sensors with –AN6X, -AP6X, -RN6X or -RP6X outputs. Part numbers include /S1751 option code Integral cables have ITC rating See Control Drawing Ni-2.409 for US and Canada installations.

Standards for Intrinsically Safe systems may be found in the following publications:	
USA	National Electrical Code, ANSI/NFPA 70, Articles 504 and 505 Underwriters Laboratories Standard UL 913 Underwriters Laboratories Standard UL 60079-11 FM Approvals Standard Class 3610
Canada	Canadian Electrical Code, C22.1 Section 18 and Appendix F CSA C22.2 No. 157 CSA C22.2 No. 60079-11
Europe (EU)	EN 60079-11
IECEx	IEC 60079-11

We reserve the right to make technical alterations without prior notice.

Hazardous Location Definitions

Class/Division Classifications:	
Class I	Locations in which flammable gases or vapors exist or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.
Class II	Locations that are hazardous because of the presence of combustible dust.
Class III	Locations that are hazardous because of the presence of easily ignitable fibers or flyings, but in which such fibers or flyings are not likely to be suspended in the air in quantities sufficient to produce ignitable mixtures.
Division 1	Locations in which hazardous concentrations in the air exist continuously, intermittently, or periodically under normal operating conditions.
Division 2	Locations in which hazardous materials are handled, processed or used, but in which they are normally confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown.
Group A	Atmospheres containing acetylene.
Group B	Atmospheres containing hydrogen, fuel and combustible process gases containing more than 30% hydrogen by volume, or gases or vapors of equivalent hazard such as butadiene, ethylene oxide, propylene oxide and acrolein.
Group C	Atmospheres such as ethyl ether, ethylene, acetaldehyde, cyclopropane, or gases or vapors of equivalent hazard.
Group D	Atmospheres such as acetone, alcohol, ammonia, benzene, butane, cyclopropane, ethylene dichloride, gasoline, hexane, lacquer solvent vapors, methane, natural gas, naphtha, propane, xylene, or gases or vapors of equivalent hazard.
Group E	Atmospheres containing combustible metal dusts, including aluminum, magnesium, and their commercial alloys, and other combustible dusts with similarly hazardous characteristics.
Group F	Atmospheres containing combustible carbonaceous dusts, including carbon black, charcoal and coal.
Group G	Atmospheres containing other combustible dusts, such as chemical, agricultural or plastic dusts.

Class I Zone Classifications:	
Zone 0	Locations in which ignitable mixtures exist continuously or for long periods of time.
Zone 1	Locations in which ignitable mixtures are likely to occur during normal operation.
Zone 2	Locations in which ignitable mixtures are not likely to occur during normal operation.
Gas Group IIC	Atmospheres containing acetylene or hydrogen, or gases and vapors of equivalent hazard.
Gas Group IIB	Atmospheres containing ethylene, or gases and vapors of equivalent hazard.
Gas Group IIA	Atmospheres containing propane, or gases and vapors of equivalent hazard.

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Technical Reference | Protection

Enclosure Ratings

NEMA 250-1991	
NEMA 1	Enclosures are intended for indoor use primarily to provide a degree of protection against limited amounts of falling dirt.
NEMA 3	Enclosures are intended for outdoor use primarily to provide a degree of protection against rain, sleet, windblown dust, and damage from external ice formation.
NEMA 4	Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water, and damage from external ice formation.
NEMA 4X	Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water and damage from external ice formation.
NEMA 6	Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against hose-directed water, the entry of water during occasional temporary submersion at a limited depth, and damage from external ice formation.

IEC 529	
IP 40	Protection against solid bodies larger than 1 mm. No protection against liquids.
IP 65	Dust tight. Protection against water spray from all directions at 14.2 PSI through a 12.5 mm nozzle.
IP 67	Dust tight. Protection against the effects of immersion in water for 30 minutes at 1 meter.
IP 68	Dust tight. Protection against the effects of indefinite immersion in water at a pressure specified by the manufacturer. Ex. Turck's IP 68 definitions is IP 67 plus. ■ 24 hours at 70 °C ■ 24 hours at -25 °C ■ 7 days at 1 meter under water at a constant temperature ■ 10 cycles +70 °C and -25 °C, minimum of 1 hour at each temperature
IP 69K	Hot steam jet cleaning per EN 60529 (IP enclosure ratings) and DIN 40050-9.

Turck Tip

For oily environments

Use plastic sensors with quick disconnects and Turck TPU "/S90" cordsets.

For washdown environments

Use Turck's Uprox+ Washdown Sensors and appropriate mating cordsets.

We reserve the right to make technical alterations without prior notice.

Material Descriptions

Plastics	
ABS - Acrylonitrile-Butadiene-Styrene	Impact resistant, rigid. Resistant to aqueous acids, alkalis, salts, alcohols, oils, concentrated hydrochloric acid; disintegrated by concentrated sulfuric or nitric acids, esters, ketones
CPE, Thermoset (rubber cables)	Excellent resistance to oils, acids, chemicals, ozone, extreme temperatures, cuts, abrasions; flame retardant in welding applications
PA - Polyamide (nylon)	Good mechanical strength, temperature resistant
PA, Amorphous (Trogamid T)	Similar properties to nylon, but transparent. Hard, rigid, good chemical resistance
PA 12-GF30	Nylon 12, 30% glass filled
PA 66-GF25-V0	Nylon 66, 25% glass filled, self-extinguishing
PBT - Polybutylene Terephthalate (when glass reinforced, Crastin®)	Good mechanical strength; resistant to abrasion; resistant to alcohols, oils, some acids, trichloroethylene
PBT-GF30-V0	PBT, 30% glass filled, self-extinguishing
PEI - Polyetherimide (Ultem®)	Excellent resistance to most commercial automotive fluids, fully hydrogenated hydrocarbons, alcohols, weak aqueous solutions. Withstands higher temperatures.
POM - Polyoxymethylene / Polyacetal (Delrin®)	High impact resistance; good mechanical strength; good resistance to oils, alcohols, alkalis, gasoline, xylene, toluene. Dielectric constant 3.7
PP - Polypropylene	Excellent resistance against chemicals including acids, solvents and solutions. High temperature resistance and good mechanical strength
PTFE - Polytetrafluoroethylene	Optimum resistance against high temperature and chemicals; low dielectric constant (2.0)
TPU, Thermoplastic Polyurethane	Elastic, resistant to abrasion, impact-resistant, oil- and grease-tolerant
PVC - Polyvinylchloride	Good mechanical strength, viscosity to impact; resistant to acids, alkalis
PVC, irradiated	Heat and chemical resistant, withstands short-term temperatures to 482° F
PVDF - Polyvinylideneflouride (Kynar®)	Resistant to high and low temperatures, good resistance to chemicals (similar to PTFE), high mechanical strength
Silicon	For use at high or low ambient temperatures (-50 to +180 °C), moderate mechanical strength, average resistance against alkalis, acids, oils, and solvents
IRPA12 - Irradiated Polyamide (nylon)	Good mechanical strength, temp. resistant
EPTR - Elastomer, Polymer Thermal Plastic	Good fluid resistance
TROG - Trogamid T	Hard, rigid, good chemical resistance

Metals	
AG	Armorguard®
SS	Stainless Steel
CPB	Chrome Plated Brass
CuZn - Brass	Generally good resistance to industrial atmospheres
GD - AlSi12 - Aluminum, die-cast	Low specific weight, long-life characteristics
GD - ZnAl4Cu1 (Z410) - Zinc, die-cast	Long-life characteristics
TC	PTFE Coated
WG	Weldguard®
AL	Anodized Aluminum
SF - Stoneface®	High abrasion resistance, excellent for MIG welding applications, high heat and weld flow immunity
TS - Tool Steel	Excellent durability

We reserve the right to make technical alterations without prior notice.

Technical Reference | General Specifications

Chemical Compatibility

The information in this chart is derived from reputable industry sources and is to be used only as a guide in selecting materials suitable for your application. Turck does not warrant in any fashion that the information in this chart is accurate or complete, or that any material is suitable for any purpose.

Most ratings listed here apply to a 48-hour exposure period.

Ratings: A - No effect
B - Minor effect
C - Moderate effect
D - Severe effect
φ - No specific data, but probable rating.

Housing Style	ABS	Trog. T	PA 12	PBT	PEI	POM	PP	PTFE	PUR	PVC	PVDF	306 SS	Al	Brass	Zinc
Ammonia, liquid	B	B	A	B	D	C/D	A	A	C	A	A	B	A	D	A
Chlorine anhydrous liquid	nd	nd	D	D	nd	C	D	A	C	D	A	C	D	D	nd
De-ionized water	nd	nd	A	nd	A	nd	A	A	nd	A	A	A	A	A	nd
Formic acid	D	D	D	A	nd	C	A	A	C	A	A	A/B	A	D	D
Gasoline	D	A	A	A	A	A	C	A	A	C	A	A	A	A	nd
Hydrochloric acid <40%	A	A/B	D	A	A	C	C	A	D	B	A	D	D	D	D
Hydrofluoric acid <50%	C	D	D	B	A	D	A	A	C	B	A	D	D	D	nd
Methanol	D	D	B	A	A	A	A	A	B	A	A	A	A	A	A
Phosphoric acid <40%	B(C)	D	B	A	A	D	A	A	Dφ	B	B	D	C	D	D
Potassium hydroxide <15%	A	A	C	B	A	B	A	A	C	A	A	B	D	D	nd
Sodium hydroxide <55%	A	A	C	B	A	B	A	A	B	A	D	B	D	D	D
Sodium hypochlorite ≤13%	B	nd	B	A	nd	C	A	A	B	A	A	C	D	D	A
Sulfuric acid <75%	B	A	D	A	A	D	A	A	C	A	A	D	D	D	D
Toluene	D	A	A	A	A	A	C	A	C	D	A	A	A	A	nd
Trichloroethylene	D	A	C	A	nd	B		A	D	D	B	A/B	D	A	A

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Maximum Tightening Torque Specifications

The tightening torque should be considered for all threaded sensors to prevent premature failures of sensors due to stresses on the barrel and/or internal electronics. The values below are the absolute maximum ratings and apply only to the mounting hardware provided with each sensor. It is recommended to always allow for tolerances when specifying a tightening torque to prevent accidental over-tightening of the sensor. Liquid thread sealants of an anaerobic base, such as Loctite, are recommended if strong vibrations are likely.

Caution: Sensor barrels are typically brass. Consider break torque when selecting grade of thread sealant.

Barrel Size	Metal Barrel	Plastic Barrel
5 mm	5 Nm (3.7 ft-lb)	- - - -
8 mm	5 Nm (3.7 ft-lb)	- - - -
8 mm (M08 Ferrite)	7 Nm (5.2 ft-lb)	- - - -
12 mm	10 Nm (7.4 ft-lb)	1 Nm (0.7 ft-lb)
18 mm	25 Nm (18 ft-lb)	2 Nm (1.4 ft-lb)
30 mm	75 Nm (55 ft-lb)	5 Nm (3.7 ft-lb)
47 mm	90 Nm (66 ft-lb)	- - - -

Fahrenheit to Celsius Temperature

* Water Freezing Point
** Water Boiling Point
For temperature conversions not given use the following formulas:
°Celsius = (°Fahrenheit - 32) x .556
°Fahrenheit = (°Celsius x 1.8) + 32

Degrees Fahrenheit	Degrees Celsius
-70	-56.7
-65	-53.9
-60	-51.2
-55	-48.4
-50	-45.6
-45	-42.8
-40	-40.0
-35	-37.3
-30	-34.5
-25	-31.7
-20	-28.9
-15	-26.1
-10	-23.4
0	-17.8
5	-15.0
10	-12.2
15	-9.5
20	-6.7
25	-3.9
30	-1.1
*32	*0.0
35	1.7
40	4.4
45	7.2
50	10.0
55	12.8
60	15.6
65	18.3
70	21.1

Degrees Fahrenheit	Degrees Celsius
75	23.9
80	26.7
85	29.2
90	32.2
95	35.0
100	37.8
105	40.6
110	43.4
115	46.1
120	48.9
125	51.7
130	54.5
135	57.3
140	60.0
145	62.8
150	65.6
155	68.4
160	71.2
165	73.9
170	76.7
175	79.5
180	82.3
185	85.1
190	87.8
195	90.6
200	93.4
205	96.2
210	99.0
**212	**100.0

Drill Hole Sizes for Metric Threads

Thread Size	Pitch	Thru Hole (mm)	Tap Hole Dia. (mm)	Thru Hole (in)	Tap Hole Dia. (in)
M5 x 0.5	0.5	5.0	4.5	13/64	5/32
M8 x 1	1.0	8.0	7	21/64	1/4
M12 x 1	1.0	12.0	11	31/64	13/32
M18 x 1	1.0	18.0	17	23/32	41/64
M30 x 1.5	1.5	30.0	28	1-3/16	1-5/64
PG 13.5	1.41	20.4	19	13/16	23/32
PG 36	1.59	47.0	45.5	1-7/8	1-47/64

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Technical Reference | Conversions

Millimeters Equivalents of Decimals and Fractions

Notes:
1M = 100 cm = 1000 mm

For conversions not given use the following formulas:
Millimeters = Inches x 25.4
Inches = Millimeters ÷ 25.4

Millimeters	Inches	Fraction
0.10	0.0039	
0.20	0.0079	
0.30	0.0118	
0.40	0.0157	
0.50	0.0197	
0.60	0.0236	
0.70	0.0276	
0.80	0.0315	
0.90	0.0354	
1.00	0.0394	
1.59	0.0625	1/16
2.00	0.0787	
3.00	0.1181	
3.18	0.1250	1/8
4.00	0.1575	
4.76	0.1875	3/16
5.00	0.1969	
6.00	0.2362	
6.35	0.2500	1/4
7.00	0.2756	
7.94	0.3125	5/16
8.00	0.3150	
9.00	0.3543	
9.53	0.3750	3/8
10.00	0.3937	
11.00	0.4331	
11.11	0.4375	7/16
12.00	0.4724	
12.70	0.5000	1/2
13.00	0.5512	
14.00	0.5512	
14.29	0.5625	9/16
15.00	0.5906	
15.88	0.6250	5/8
16.00	0.6299	
17.00	0.6693	
17.46	0.6875	11/16
18.00	0.7087	
19.00	0.7480	
19.05	0.7500	3/4
20.00	0.7874	

Millimeters	Inches	Fraction
20.64	0.8125	13/16
21.00	0.8268	
22.00	0.8661	
22.23	0.8750	7/8
23.00	0.9055	
23.81	0.9375	15/16
24.00	0.9449	
25.40	1.000	1
26.00	1.024	
27.00	1.063	
28.00	1.102	
29.00	1.142	
30.00	1.181	
31.00	1.220	
32.00	1.260	
33.00	1.299	
34.00	1.339	
35.00	1.378	
36.00	1.417	
37.00	1.457	
38.00	1.496	
39.00	1.535	
40.00	1.575	
41.00	1.614	
42.00	1.654	
43.00	1.693	
44.00	1.732	
45.00	1.772	
46.00	1.811	
47.00	1.850	
48.00	1.890	
49.00	1.929	
50.00	1.969	
51.00	2.008	
52.00	2.047	
53.00	2.087	
54.00	2.126	
55.00	2.165	
56.00	2.205	
57.00	2.244	
58.00	2.283	

Millimeters	Inches	Fraction
59.00	2.323	
60.00	2.362	
61.00	2.402	
62.00	2.441	
63.00	2.480	
64.00	2.520	
65.00	2.559	
66.00	2.598	
67.00	2.638	
68.00	2.677	
69.00	2.717	
70.00	2.756	
71.00	2.795	
72.00	2.835	
73.00	2.874	
74.00	2.913	
75.00	2.953	
76.00	2.992	
77.00	3.031	
78.00	3.071	
79.00	3.110	
80.00	3.150	
81.00	3.189	
82.00	3.228	
83.00	3.268	
84.00	3.307	
85.00	3.346	
86.00	3.386	
87.00	3.425	
88.00	3.465	
89.00	3.504	
90.00	3.543	
91.00	3.583	
92.00	3.622	
93.00	3.661	
94.00	3.701	
95.00	3.740	
96.00	3.780	
97.00	3.819	
98.00	3.858	
99.00	3.898	
100.00	3.937	

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Axial Approach
The approach of the target with its center maintained on the sensor reference axis.

Axially Polarized Ring Magnet
A ring magnet whose poles are the two flat sides of the disk. Mounted on pistons for permaprox® cylinder position sensing through nonmagnetic cylinder walls.

Capacitive Proximity Sensor
A proximity sensor producing an electrostatic field that senses conductive targets and nonconductive materials having a dielectric constant of >1 within its sensing zone.

Complementary Output
Two outputs, one normally open and one normally closed, that can be used simultaneously.

Continuous Load Current
The maximum current allowed to continuously flow through the sensor output in the ON state.

Correction Factors
Percentage of the rated operating distance (Sn) that represents the operating distance for targets constructed from materials other than mild steel (mild steel's correction factor is 1.0).

Differential Travel (Hysteresis)
The difference between the operating point as the target approaches the sensor face, and the release point as the target moves away. Given as a percentage of the operating distance (Sn).

Dynamic Output
A sensor output that stays energized for a set duration of time, independent of the time the target is present (one-shot).

Embeddable (Shielded) Proximity Sensor
A sensor that can be flush-mounted in any material without that material influencing the sensing characteristics.

Free Zone
The space around a proximity sensor that must be kept free of any material capable of affecting the sensing characteristics.

Inductive Proximity Sensor
A proximity sensor producing an electromagnetic field that senses only metal targets within its sensing zone.

Inductive Magnet Operated Sensor (Permaprox®)
A solid-state proximity sensor using inductive technology to detect magnetic fields, giving a switch point output similar to that of a inductive proximity sensor.

Inrush Current
The maximum instantaneous load current that a sensor can tolerate when switching the output. Commonly seen with capacitive loads.

IP Rating
Ingress Protection rating per IEC 529.

Lateral Approach
The approach of a target perpendicular to the sensor reference axis.

Load
A device or circuit that is operated by the energy output of another device such as a proximity sensor.

M Threading
ISO 68 Metric straight threading, designated as "Nominal Size" X "Pitch", in mm. (Ex. M5X0.5)

Minimum Load Current
For 2-Wire sensors, the minimum load current defines the smallest specified current that a sensor requires for reliable operation.

NAMUR
The acronym for a European standards organization.

NAMUR Sensor
A 2-wire variable-resistance DC sensor whose operating characteristics conform to DIN 19 234. Requires a remote amplifier for operation. Typically used for intrinsically safe applications.

NEMA Rating
An enclosure rating per NEMA Standard 250.

No-Load Current
The current drawn by a DC proximity sensor from the power supply when the outputs are not connected to a load.

Nonembeddable (Nonshielded) Proximity Sensor
A sensor is nonembeddable when a specified free zone must be maintained around its sensing face in order not to influence the sensing characteristics.

Normally Closed (N.C.)
The output is OFF when the target is detected by the sensor.

Normally Open (N.O.)
The output is ON when the target is detected by the sensor.

NPN Output (Current Sinking)
A transistor output that switches the common or negative voltage to the load. Load is between sensor and positive supply voltage.

NPSM Threading
American National Standard Straight Pipe Thread for Free-Fitting Mechanical Parts.

NPT Threading
American National Standard Taper Pipe Thread.

We reserve the right to make technical alterations without prior notice.

Technical Reference | Glossary

Off-State (Leakage) Current
The current that flows through the load circuit when the sensor is in the OFF-state. Also known as leakage or residual current.

Operating Distance
A distance at which the target approaching the sensing face along the reference axis causes the output signal to change.

PG Threading
Steel conduit threading per German standard DIN 40 430.

PNP Output (Current Sourcing)
Transistor output that switches the positive voltage to the load. Load is between sensor and common.

Programmable Output
Sensor output whose N.O. or N.C. function can be selected by means of a jumper or specific terminal connection.

Radially Polarized Ring Magnet
A ring magnet whose poles are the inner and outer diameter rings.

Rated Operating Distance (Sn)
A conventional quantity used to designate the operating distance. It does not take into account either manufacturing tolerances or variations due to external conditions such as operating voltage and temperature.

Reference Axis
An axis perpendicular to the sensing face and passing through its center.

Repeatability
The deviation in the actual operating distance measured at a constant temperature and voltage over an 8-hour period. It is expressed as a percentage (%) of the rated operating distance (Sn).

Response frequency
The maximum rate that the output can change in response to the input and still maintain linearity.

Response Time
The time required for the device switching element to respond after the target enters or exits the sensing zone.

Reverse Polarity Protection
Internal components that prevent damage to the sensor due to the incorrect connection of the power supply.

Ripple
The alternating component remaining on a DC signal after rectifying, expressed in percentage of rated voltage.

Sensing Face
The surface of the proximity sensor through which the electromagnetic (or electrostatic) field emerges.

Short-Circuit Protection
The ability of a sensor to withstand a shorted condition (no current-limiting load connected) without damage.

Slew Rate
The rate of change of the output voltage with respect to a step change in input. A change in output of 0 to 10 volts at a slew rate of 1.25 V/ms would take 8 ms to slew to the new value.

Solid State
Pertains to devices using semiconductors instead of mechanical parts.

Static Output
A sensor output that stays energized as long as the target is present.

Switching Frequency
The maximum number of times per second that the sensor can change state (ON and OFF) under ideal conditions, usually expressed in Hertz (Hz).

Time-Delay Before Availability
The length of time after power is applied to the sensor before it is ready to operate correctly, expressed in milliseconds (ms).

Uprox Sensor®
An inductive proximity sensor that detects all metals at the same range. Uprox sensors are inherently weld-field immune, operate over a wider temperature range and have a higher switching frequency than standard inductive sensors.

Uprox+ Sensor®
Same basic characteristics as the Uprox Sensor, but with a redesigned multi coil system which provides increased sensing capabilities. Uprox+ also carries an IP68 environmental rating

Weld-Field Immunity (WFI)
The ability of a sensor not to false-trigger in the presence of strong magnetic fields typically produced by resistance welders.

Wire-Break Protection
Results in the output being OFF on a DC sensor if either supply wire is broken.

We reserve the right to make technical alterations without prior notice.

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Warranty Terms and Conditions

RISK OF LOSS

Delivery of the equipment to a common carrier shall constitute delivery to the Purchaser and the risk of loss shall transfer at that time to Purchaser. Should delivery be delayed due to an act or omission on the part of the Purchaser, risk of loss shall transfer to the Purchaser upon notification by Turck Inc. that the order is complete and ready for shipment.

WARRANTIES

Turck Inc. (hereinafter "Turck") offers five (5) WARRANTIES to cover all products sold. They are as follows:

1) The **12-MONTH WARRANTY** is available for the products listed - generally those not covered by **LIFETIME**, **5-YEAR**, **24-MONTH** or **18-MONTH** warranty. No registration required.
2) The **18-MONTH WARRANTY** is available for the products listed - generally those not covered by **LIFETIME** or **5-YEAR WARRANTY**. No registration is required.
3) The **24-MONTH WARRANTY** is available for the products listed - generally those not covered by **LIFETIME**, **5-YEAR** or **18-MONTH**. No registration is required.
4) The **5-YEAR WARRANTY** is available generally for the products listed. No registration is required.
5) A **LIFETIME WARRANTY** is available for the products listed. It becomes effective when the accompanying TURCK **LIFETIME WARRANTY REGISTRATION** is completed and returned to Turck.

GENERAL TERMS AND CONDITIONS FOR ALL WARRANTIES

- **12-MONTH STANDARD WARRANTY**
- **18-MONTH STANDARD WARRANTY**
- **24-MONTH STANDARD WARRANTY**
- **5-YEAR WARRANTY**
- **LIFETIME WARRANTY**

Turck warrants the Products covered by the respective WARRANTY AGREEMENTS to be free from defects in material and workmanship under normal and proper usage for the respective time periods listed above from the date of shipment from Turck. In addition, certain specific terms apply to the various WARRANTIES.

THESE EXPRESS WARRANTIES ARE IN LIEU OF AND EXCLUDE ALL OTHER REPRESENTATIONS MADE - BOTH EXPRESSED AND IMPLIED. THERE ARE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE FOR PRODUCTS COVERED BY THESE TERMS AND CONDITIONS.

Turck warrants that the goods sold are as described, but no promise, description, affirmation of fact, sample model or representation, oral or written shall be part of an order, unless set forth in these terms and conditions, or are in writing and signed by an authorized representative of Turck. These WARRANTIES do not apply to any Product which has been subject to misuse, negligence, or accident - or to any Product which has been modified or repaired, improperly installed, altered, or disassembled - except according to Turck's written instructions.

These WARRANTIES are subject to the following conditions:

1) These WARRANTIES are limited to the electronic and mechanical performance only, as expressly detailed in the Product specifications and NOT to cosmetic performance.
2) These WARRANTIES shall not apply to any cables attached to, or integrated with the Product. However, the **18-MONTH WARRANTY** shall apply to cables sold separately by Turck.
3) These WARRANTIES shall not apply to any Products which are stored, or utilized, in harsh environmental or electrical conditions outside Turck's written specifications.
4) The WARRANTIES are applicable only to Products shipped from Turck subsequent to January 1, 1988.

ADDITIONAL SPECIFIC TERMS FOR:

(12-MONTH STANDARD WARRANTY) for Linear Displacement Transducers, EZ Track, RFID Products, Draw Wire Assemblies and Slip Rings.

(18-MONTH STANDARD WARRANTY) FOR Q-TRACK INDUCTIVE SENSORS, ULTRASONIC SENSORS, FLOW SENSORS, PRESSURE SENSORS, TEMPERATURE SENSORS, INCLINOMETERS, CABLES AND ALL NON-SENSING PRODUCTS SOLD BY TURCK INC. INCLUDING MULTI-SAFE, MULTI-MODUL, MULTI-CART AND RELATED AMPLIFIER PRODUCTS, RELAYS AND TIMERS.

(24-MONTH STANDARD WARRANTY) FOR ENCODERS excluding Draw Wire Assemblies.

5-YEAR WARRANTY FOR INDUCTIVE AND CAPACITIVE PROXIMITY SENSORS: The periods covered for the above WARRANTIES and Products shall be 12 MONTHS, 18-MONTHS, 24-MONTHS and 5-YEARS, respectively, from the date of shipment from Turck.

LIFETIME WARRANTY (OPTIONAL - REGISTRATION REQUIRED) FOR INDUCTIVE, INDUCTIVE MAGNET OPERATED AND CAPACITIVE PROXIMITY SENSORS SOLD TO THE ORIGINAL PURCHASER FOR THE LIFETIME OF THE ORIGINAL APPLICATION.

Warranty Terms and Conditions

THE FOLLOWING TERMS APPLY TO THE LIFETIME WARRANTY IN ADDITION TO THE GENERAL TERMS:

1) This WARRANTY shall be effective only when the LIFETIME WARRANTY REGISTRATION has been completed, signed by the End User and an authorized Turck Representative or Distributor and has been received by Turck no later than six (6) months after installation in the End User's Plant, or two (2) years from the date product was shipped from Turck, whichever is sooner.
2) This warranty is available only to Turck's authorized Representatives, Distributors and to the Original User. (The term "Original User" means that person, firm, or corporation which first uses the Product on a continuous basis in connection with the operation of a production line, piece of machinery, equipment, or similar device.) In the event the ownership of the product is transferred to a person, firm or corporation other than the Original User, this WARRANTY shall terminate.
3) This WARRANTY is applicable only to the Original Application. In the event the machinery, equipment, or production line to which the Product is connected, or on which it is installed, is substituted, changed, moved or replaced, the WARRANTY shall terminate.
4) This WARRANTY shall be valid only if the Product was purchased by the Original User from Turck, or from an authorized Turck Distributor, or was an integral part of a piece of machinery and equipment obtained by the Original user from an Original Equipment Manufacturer, which itself, was purchased directly from Turck or from an authorized Distributor.

PURCHASER'S REMEDIES

This Remedy shall apply to all WARRANTIES. If a Turck Distributor desires to make a WARRANTY Claim, the Distributor shall, if requested by Turck, ship the Product to Turck's factory in Minneapolis, Minnesota, postage or freight prepaid. If the User desires to make a WARRANTY Claim, they shall notify the authorized Turck Distributor from whom it was purchased or, if such Distributor is unknown, shall notify Turck. Turck shall, at its option, take any of the following two courses of action for any products which Turck determines are defective in materials or workmanship.

1) Repair or replace the Product and ship the Product to the Original Purchaser or to the authorized Turck Distributor, postage or freight prepaid; or
2) Repay to the Original Purchaser that price paid by the Original Purchaser; provided that if the claim is made under the LIFETIME WARRANTY, and such Product is not then being manufactured by Turck, then the amount to be repaid by Turck to the Original Purchaser shall be reduced according to the following schedule:

Number of Years Since Date of Purchase by Original Purchaser	Percent of Original Purchase Price To Be Paid by Turck
10	50%
15	25%
20	10%
More than 20	5%

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CONSIDER SAFETY AND PROTECTION PRECAUTIONS

Turck takes great care to design and build reliable and dependable products, however, some products can fail eventually. You must take precautions to design your equipment to prevent property damage and personal injury in the unlikely event of failure. As a matter of policy, Turck does NOT recommend the installation of electronic controls as the sole device FOR THE PROTECTION OF PERSONNEL in connection with power driven presses, brakes, shears and similar equipment and, therefore, the customer should build in redundancy or dual control using approved safety devices for these applications.