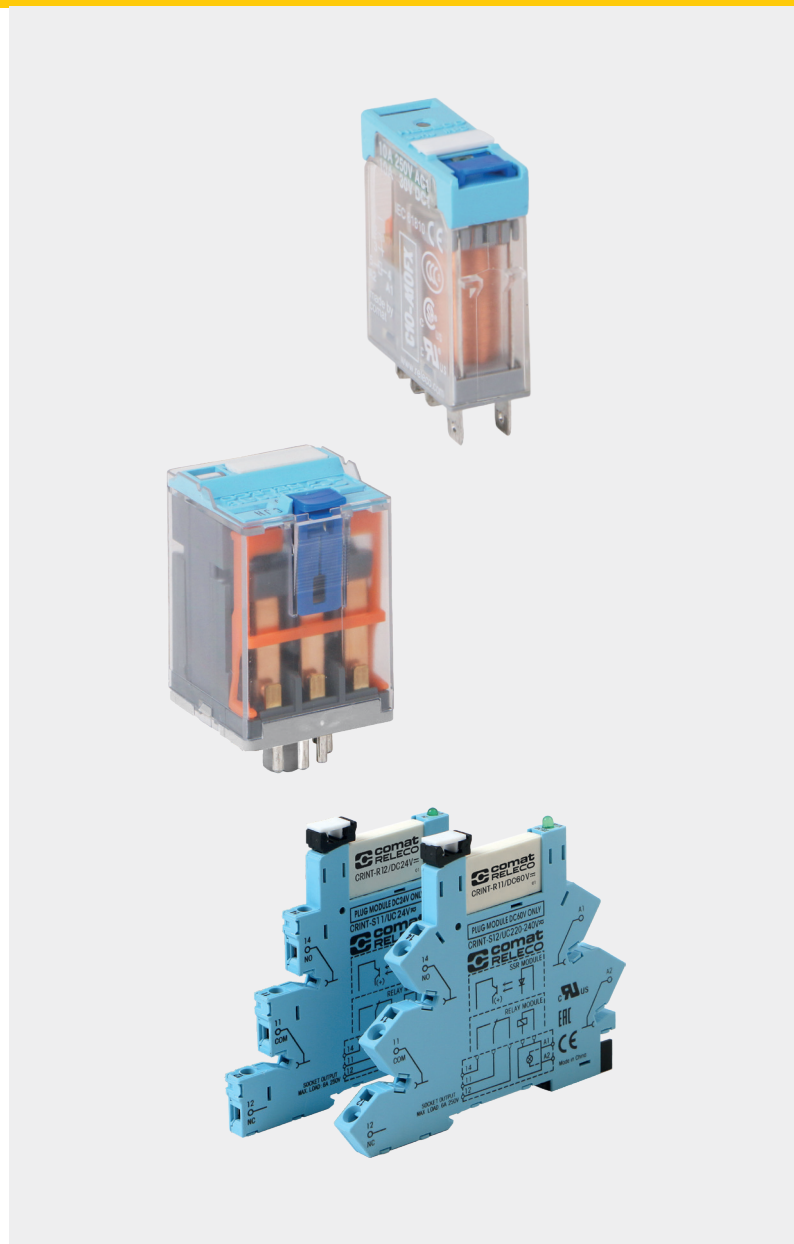
Your Global Automation Partner

TURCK

# ComatReleco
# World of Relays



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# 1.0 Relays & Contactors

# Industrial Relays
## General Information

**Product range**
ComatReleco offers a wide range of relay types and versions and associated sockets and accessories.

**Industrial Relays C2, C3, C4, C5**
35 x 35 mm round plug-in relay, 8- or 11-terminals multipole connector according to IEC 67 with 2 or 3 contacts up to 10 A and different contact types and contact materials. Standard relay 35 x 35 mm with flat blade connectors with up to 4 contacts and up to 16 A with 3 contacts.

**Industrial Relays C7, C9**
22.5 mm series with up to 4 contacts and up to 10 A with 1 or 2 contacts.

**Interface Relays, C10, C12, C16, C18**
Overall width 13 mm with up to 2 electromechanical contacts, or fully electronic switches.

**Special relays, remanence relays**
While "normal" relays are monostable, i.e. they return to the idle state when the excitation is switched off, remanence relays are bistable, i.e. the current switching state is retained irrespective of the excitation. Relays of this type are available in different versions.

**Solid State Relay CSS**
CSS Relays are suitabe to either switch AC or DC loads up to 3 A. For AC relays a distinction is made between synchronously (zero crossing) and asynchronously switching versions. For switching transformer loads we recommended using asynchronously switching semiconductor switches. For incandescent lamp loads etc. synchronously switching switches are ideal for avoiding high switch-on currents.

**Accessories**
Suitable sockets are available for the different relay series for DIN rail mounting or panel mounting. In addition, retaining clips are available for the relays, some of which are included in the scope of supply. Suitable bridges for cost-saving wiring in series are also available.

*** Special requirements**
H = Orange button. No lockable function
N = Black button. No function
P = PCB pins

E = Lap transparent cover
T = Close transparent cover (lamp)

PT = PCB pins, 3.5mm grid, transparent cover
PTL = PCB pins, 5mm grid, transparent cover

If other requeriments, please consult.

**Basic identification principle (type designation code electromechanical relays)**

**C n(n) - T X y z(∗)z /....V RF-nnnn**

**Ref. nnnn**
Relays with a reference number are versions with special (e.g. customised) features. These features may relate to special test criteria, tolerances or other properties.

Availability of such relays may be limited to certain customers or applications.

**Nominal coil voltage specification**

| | |
|---|---|
| AC ... V | AC 50/60 Hz, voltage 6 – 250 (400) V |
| AC ... V 60 Hz | AC 60 Hz, 120, 240 V |
| DC ... V | DC, voltage 5 – 220 V |
| UC ... V | AC/DC |

**X =** Electric position indicating device with LED

**Describes the options**
**D =** Integrated freewheeling diode
**F =** Integrated freewheeling diode and series diode e.g. for common alarm circuits
**R =** RC connection for the coil
**B =** Bridge rectifier

**Definition of contact material**
This code may differ depending on type.
Examples:
**0** in the standard range stands for AgNi
**1–9** see contact material for each type

**Number of contacts**

**Relay type**
**A =** Standard (general-purpose) contact
**E =** Sensitive drive with 500 mW coil power
**G =** Refers to a NO contact
**H =** Single-point contact + twin contact load to signal current circuit for switching state feed back. Mixed contact configuration
**M =** Relay with highly effective neodymium blow magnet for fast quenching of the arc. This relay is particularly suitable for high DC loads.
**N =** Sensitive drive 800 mW coil power
**R =** Code for remanence relays, drive-specific ID
**S =** Sensitive drive with 250 mW exciter input
**T =** Twin contact for signal and control circuit
**W =** With tungsten contact for maximum switch-on currents
**X =** Relay high power, double make contact.

**Basic type refers to the product line**
Numbers between 2 and 12 and 20, 30 are used.

**Normal industrial relay code**
Relays with code R are used for railway series.

# Coil accessories
## General Information



## Industrial Relays C2-C9

**Protection against transients**
When the coil is disconnected from an electromagnet, peaks of inverse voltage appear at the terminals which can reach very high values. These pulses can be transmitted down the line associated with the coil and could possibly affect other components.
In the case of a realy being operated by such devices as transistors, Triacs, etc; it may be necessary to protect against transients.

**Transients carried in the line**
High voltage surges can be carried in the supply line to the relay coil. These may appear in the form of peaks or bursts and are generated by the connection and disconnection of electric motors, transformers, capacitors etc. Normally a relay is unaffected by these pulses, but if a diode is connected in association with the coil, it must be capable of withstanding an inverse voltage higher than those of the incoming peaks.

**Protection circuits**
A protection circuit must efficiently cope with pulses generated by the coil as well as incoming line surges (surges $U_{1.2/50\mu s}$)
ComatReleco Relays are available with integrated protection circuits or with modules plugged into sockets S3-MP or S3-MS.

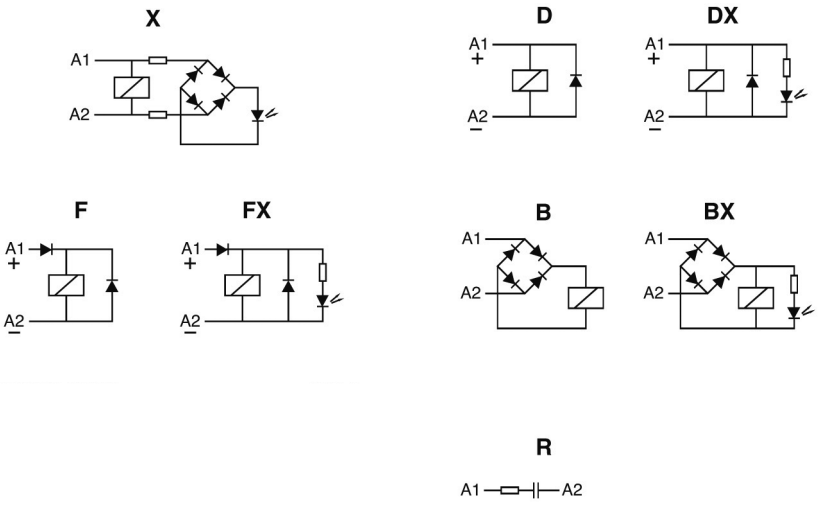
**X** LED indication with rectifier.
For DC and AC relays up to 250 V
Note: LED connected, in series with the coil @ 220 VDC in QRC types.

**D** Free-wheeling diode.
**DX** Free-wheeling diode + LED
Dampens transients caused by the relay coil on de-energisation.

**F** Polarity + free wheeling diode.
**FX** Polarity + free wheeling diode + LED
A diode in series with the coil protects the relay from reverse connection.

**B** Bridge rectifier incorporated
**BX** Bridge rectifier + LED indication
Allows the relay to operate in both AC or DC without any polarity inconvience. Available only in voltages up to 60 V.

**R** Resistor and capacitor.




## Industrial Relays C10-C18

**LED and protection circuit connected to coil.**

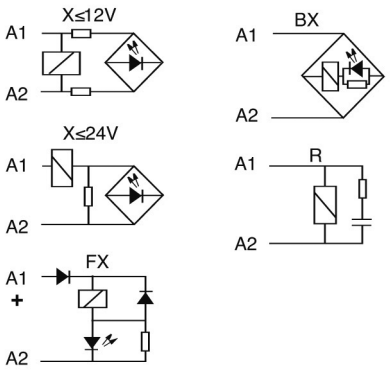
**X** LED with no polarity, (standard)
Coils ≤ 12 V CC y CA
LED rectifier bridge in parallel
**X** LED with no polarity, (standard)
Coils ≥ 24 V ... CC y CA
LED rectifier bridge in series
**FX** LED with polarity **A1+** (option)
Every DC coil voltage
Polarity and Free-wheeling diodes
**BX** LED with no polarity, (option)
Only 24 V and 48 V ADC coils
Rectifier bridge for AC/DC relays
**R** LED not available (option)
RC protection against pulses on AC

**Protection against pulses**
When a relay coil is disconnected, reverse voltage peaks may arise and reach very high values. Said peaks can transmit to the coil associated line and other relays or semiconductors can be affected.

If Triac, transistor, etc. controls a relay, appropiate steps must be taken to avoid or decrease peaks down to a non risky level.

Both Polarity and Free-wheeling diodes (**FX**), must protect coils, to avoid malfunctions provided DC relays in battery are installed.

Making or breaking engines, transformers or contactors in an industrial environmental, may generate high voltage pulses, either isolated or burst, through the main line.
The voltage level of those pulse may be high enough to affect the isolation of the coil.



## Contacts

There are different contact types. The main distinction is between single contacts and twin contacts. While single contacts are more suitable for higher loads, twin contacts are significantly more reliable at small loads, i.e. < 24 V, < 100 mA.

**Contact Material**
There is no all-purpose contact!
AgNi is used as standard material for a wide range of applications. AgNi contacts with hard gold plating (up to 5 µm) are offered for applications in aggressive atmosphere.
Relays with gold contacts are approved for relatively high currents (e.g. 6 A, 250 V), but in practice values of 200 mA, 30 V should not be exceeded for operation with intact gold plating.
Relays with a tungsten pre-contact are available for very high switch-on currents (up to 500 A, 2.5 ms). For some applications AgNi contacts with gold flashing (0.2 µm) are available. The purpose is corrosion protection during storage. There is no other purpose.
Tin oxide is specially appropiated for load with high-inrush current.

**Minimum load**
The minimum load value is a recommended value under normal conditions such as regular switching, no special ambient conditions, etc. Under these conditions reliable switching behaviour can be expected.

**Contact resistance**
Initial values of resistance of contact can vary with the use, load and others conditions.
Typical values when the relay is new is about 50 mΩ.

**Contact spacing**
Normally all contacts have an air gap between 0.5 ... 1.5 mm when they are open. They are referred to as µ contacts. According to the Low-Voltage Directive and the associated standards these contacts are not suitable for safe disconnection.
For switching of DC loads large contact clearances are beneficial for quenching the arc. See special relays: series connections with a gap of 3 mm.

**Switching capacity**
The contact switching capacity is the product of switching voltage and switching current. For AC the permitted switching capacity is generally high enough to handle the max. continuous AC1 current over the whole voltage range. For DC the load limit curve must never be exceeded, because this would lead to a remaining switch-off arc and immediate destruction of the relay. The order of magnitude of the DC switching capacity is a few 100 W (DC 1).

## Drive (coil)

The drive of a relay refers to the coil plus connections.
The coil has special characteristics, depending on the rated voltage and the type of current.

**Coil design**
The coil consists of a plastic former (resistant up to about 130 °C) and doubly insulated high-purity copper wire, temperature class F. The winding must withstand threshold voltages (EN 61000-4-5) of more than 2000 V. This is ensured through forced separation of the start and end of the winding.

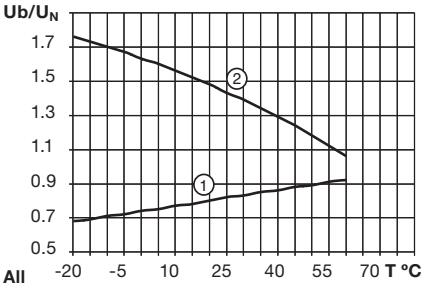
**Coil resistance and other properties**
Each coil has an ohmic coil resistance that can be verified with an ohmmeter. The specified coil resistance applies to a temperature of 20 °C. The tolerance is ± 10 %.
For AC operation the coil current will not match the ohmic value, because self-inductance plays a dominant role. At 230 V this may reach more than 90 H. When a relay is switched off, self-inductance results in a self-induced voltage that may affect the switching source (destruction of transistors, EMC problems).

**Drive voltages**
A distinction is made between the standardised voltages according to EN 60947 as guaranteed values, and typical values that can be expected with a high degree of probability.

**Pick-up voltage, Release voltage**
The pick-up voltage is the voltage at which the relay engages safely. For DC the typical trip voltage is approx. 65 % of Unom, for AC approx. 75 %. The release voltage, on the other hand, is approx. 25 % or 60 % respectively.
For DC these voltages are strongly temperature-dependent, according to the temperature coefficient of Cu. This is not the case for AC, where the inductive resistance is the controlling factor, which is practically constant over a wide temperature range.
With AC, in a certain undervoltage range the relay may hum, and the armature may flutter. This voltage range must be avoided.

**Operating voltage range**
Unless specified otherwise, the following characteristic curve applies for the operating voltage range. The upper limit of the coil voltage is determined by self-heating and the ambient temperature. Self-heating through contacts under high load must not be underestimated. It may be higher than the power dissipation in the drive.

During intermittent operation significantly higher overvoltages temporary may occur for short periods. If in doubt please consult our specialists.




## General design

ComatReleco Relays are made from high-quality, carefully selected materials.
They comply with the latest environmental regulations such as RohS. Their meticulous design makes them particularly suitable for industrial applications and installation engineering.
They are particularly service-friendly through robust terminals, mechanical position indicating device a standard, manual operation, dynamic, permanent characteristics.
Colour coding for manual operation as a function of the coil voltage is another useful feature. Further options such as different coil connections, freewheeling diode, LED display, bridge rectifier for AC/DC drives etc., and short-term availability of special versions for practically any drive voltage up to DC 220 V / AC 400 V leave nothing to be desired.
Apart from a few special versions, in general, ComatReleco industrial relays feature manual operation (push/pull) and a mechanical position indicating device.
For safety reasons, manual operation may be replaced with a black button, if required.

**Coil connections**
Different coil connections can be integrated in the relay as an option.
For DC a cost-effective freewheeling diode is available. Please note that the stated release times are generally specified without the coil connection.
While an additional LED status indicator has practically no effect, a freewheeling diode (D) will lead to an increase in release time by a factor 2 to 5, or 10 ms to 30 ms. For AC VDRs or RC elements may be used. In this case resonance effects may have to be considered. VDRs and common RC elements may increase release times by less than 5 ms.

# Industrial Relays
## General Information



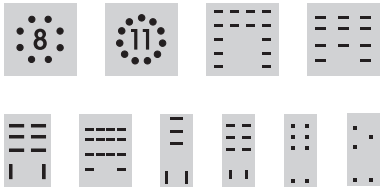
**Standards, conformities**
While CE marking of relays/sockets is controversial, since relays are sometimes regarded as components to which the marking requirement does not apply, all ComatReleco relays feature the CE mark to indicate that CE standards may also be applied to the relays, e.g. 2 kV surge resistance according to EN 61000-4-5.
A significant and not generally available characteristic is that the coils and in particular the connections are able to withstand the voltage spikes that may occur in practice.
In addition, the relays feature various technical approvals depending on the respective relay code, and they comply with further standards and guidelines. The main technical approvals include cURus, CSA, and CCC.
The associated information is provided in the respective data sheets.

**Switching classes**
EN 60947 defines different switching classes that specify the suitability of contacts for different load types.

**Examples:**
**AC-1 = Ohmic AC load**
**AC-3 = Motor loads**
**AC-15 = Power contactors, solenoid valves, solenoids**
**DC-1 = Ohmic DC load**
**DC-13 = DC contactors, solenoids**

UL60947 contains different technical approval criteria such as general purpose, control application etc. Switching classes are defined based on the electrical switching capacity, e.g. B600 etc.

**Choosing the right Socket**
For the plug-in industry, interface, time, and monitoring relays, we offer sockets with the corresponding pin configuration and various layouts for the terminal connectors. For easy identification, all plug-in relays and the sockets are labelled with a corresponding symbol.




**Main technical approvals and standards**

| Country | Technical approval |
|---|---|
| *China* | Authority: CQC<br>Specification<br>GB14048.5-2001 |
| *Russia* | Authority:<br>KORPORATSIA<br>STANDART<br>Specification<br>TP TC 004/2011 |
| *USA* | Authority: UL<br>Specification<br>C 22.2; UL 60947 |
| *United Kingdom* | Authority: GB<br>Lloyd´s Register of<br>Shipping |

**Utilisation categories according to**
EN 60947-4-1/-5-1

**Pollution category**
**Cat. 1**
Dry, non-conductive contamination without further effect

**Cat. 2**
Occasional conductive contamination, short duration due to moisture condensation

**Cat. 3**
Dry, non-conductive and conductive contamination with moisture condensation

**Cat. 4**
Contamination with persistent conductivity through conductive dust, rain

**Protection class IP** according to EN 60529 and other standards. Industrial relays and their sockets can be classified as follows:
Socket IP20: Contact safety
Relay IP40/IP50: not watertight, but protected against ingress of coarse contaminants.

**Railway Applications**
Solutions for the transport market need to guarantee safety, security and comfort. The applications are expected to last a long time under challenging conditions. Be it for high-speed trains, metros, subways or other rail vehicles
- in tunnels, on bridges, in train stations, airports, on the open track, or in harbor facilities, the Comat Releco Group has the right solution for different kind of applications.
We offer a wide range of relays, control and monitoring devices that are developed in compliance with the European Railway Standard EN 50155 (including also EN 61373, EN 45545 and NF F 16-101/102).

**Further information and tips**
The main operational criteria for relays such as number of cycles, switching frequency, ambient conditions, reliability requirements, load type, switch-on current, load switch-off energy must be clarified in order to ensure reliable operation and long service life.

**Example**
If the number of cycles is expected to exceed several 100.000 operations per year (e.g. clock generators, fast running machines), an electronic solution is no doubt more appropriate, although we also offer solutions for this type of application. In AC applications crosstalk caused by long control leads is often problem and can result in constant humming of the relay or even inadvertent triggering due to interference. Here, too, we offer solutions.

Various, apparently harmless loads may lead to very high switch-on currents or switch-off energy values, resulting in an unacceptable reduction in service life.
Particularly tricky are DC loads, particularly if they are inductive.
Circuits with relays and their connections often require a level of developer skill that is frequently no longer offered during standard education and training.
Your supplier will be very happy to provide expert advice

**Characteristics of various loads:**

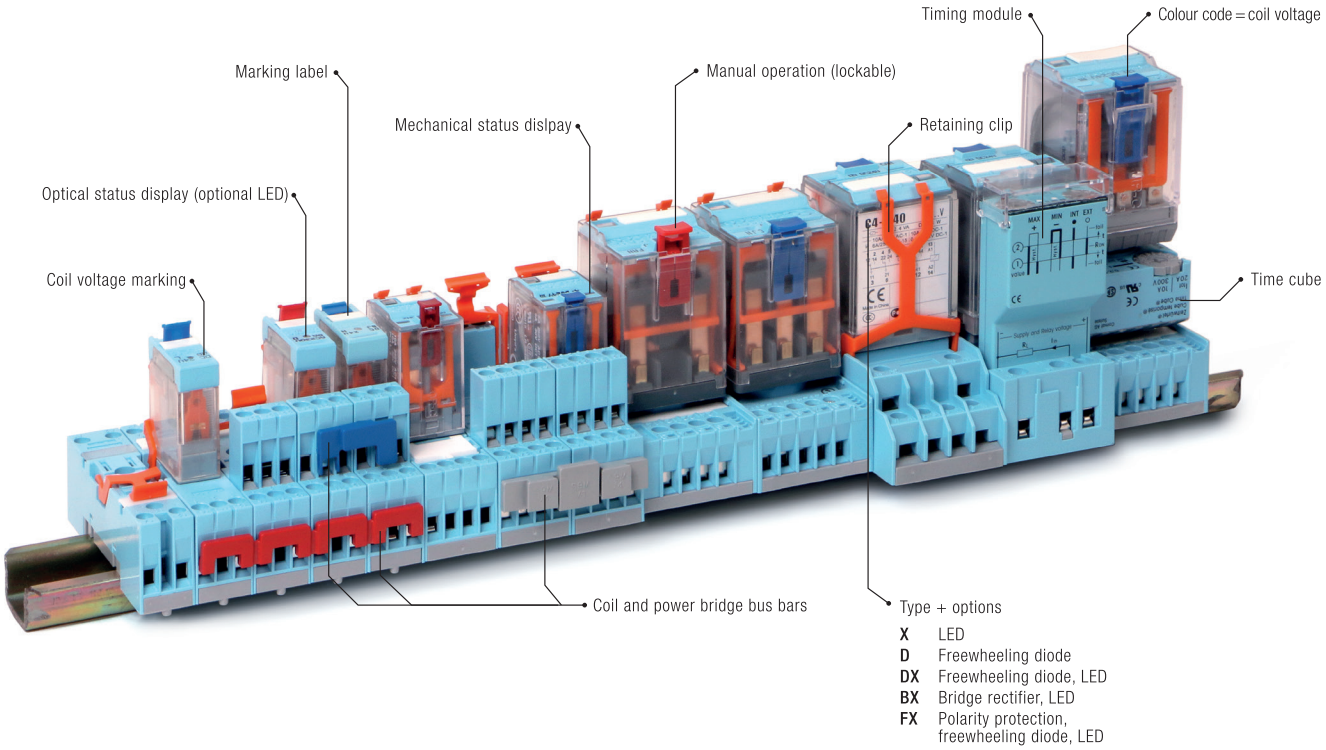
**Heating circuits**
No higher switch-on currents, no higher switch-off loads.

**Incandescent lamps, halogen lamps**
Switch-on currents during a few ms in the range 10 ... 18 x rated. Switch-off at rated load.

**Low-energy lamps**
Very high, but very short switch-on currents due to built-in decoupling capacitors.

Contacts have a tendency to fuse.

**Transformers, AC contactors**
Switching on during zero-transition may lead to switch-on currents of 8 ... 15 x rated.
High inductive switch-off energy is possible.
The load must be connected, not least due to EMC problems.




## Five colours for an easier identification of coil voltage

**AC** red: 230 V AC
(North America 120 V AC)

**AC** dark red:
others V AC

**UC** grey:
V AC/DC

**DC** blue:
24 VDC

**DC** dark blue:
others VDC

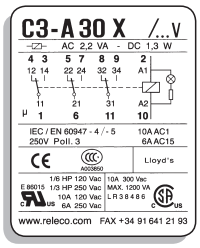
If you don´t want to have the lockable function, you can use the orange “orange - push button”. SO - OP for MRC - C and S9 - OP for QRC (BAG 5 PCS)

Orange - push button

A black blanking plug is available if you don´t want a test button.
S= - NP for MR - C and S9 - NP for QRC (BAG 5 PCS)

Blanking plug

## Comprehensive technical label




Part number
Coil details
Aditional circuit diagram for coil
Electric diagram showing all additions to the coil
Wiring diagram with sequential and DIN numbers
Maximum switching capacity
according to EN 60947 (IEC 947)
Approvals

# Industrial Relays

## Select the correct Relay



- Level of switching current and voltage of the application?
- DC or AC switching?
- Inductive or capacitive load?
- Expected number of switching cycles?

| Symbol | Voltage | Current | Use | Type | Material |
|---|---|---|---|---|---|
| Signal relays | 100 mV…5V | 10 uA…1 mA | Low-level signals, Standard signals (0…10V/ 4…20mA) | Gold-plated double contact | AgNi + Ag |
| Control relays | 5V…30V | 1 mA…100 mA | PLC inputs, Control circuits | double contact | AgNi |
| | | | | Gold-plated Single Contact | AgNi + Ag |
| | | | Frequent, rapid switching procedures | Semiconductor | Mosfet (DC) Triac (AC) |
| Power relays | 30V…400V | 100 mA…16A | Increased AC or DC loads | Single Contact | AgNi |
| | | | Electromagnets (utilisation cat. AC-15/DC-13) | Single Contact | $AgSnO_2$ |
| | | | Frequent, rapid switching procedures, high reliability, noiseless switching | Semiconductor | Mosfet (DC) Triac (AC) |
| High-power relays | 12V…400V | 100 mA…16A | Capacitive loads | Early make contact | AgNi + W $AgSnO_2$ + W |
| | | | High DC loads, inductive loads | Series contacts | AgNi $AgSnO_2$ |
| | | | Frequent, rapid switching procedures, high reliability, noiseless switching | Semiconductor | Mosfet (DC) Triac (AC) |

## Notes

# 1.1 Interface Relays - pluggable

| Application | Types | Pins | Contacts | AC ratings | DC ratings | Socket |
|---|---|---|---|---|---|---|
| **C10 Series** | | | | | | |
| Interface standard relay | C10-A1x | | | 10 A / 250 V | 10 A / 30 V | S10 |
| DC load switching | C10-G1x | | | 10 A / 250 V | 10 A / 30 V | S10 |
| Low switching load | C10-T1x | | | 6 A / 250 V | 6 A / 30 V | S10 |
| **C12 Series** | | | | | | |
| Interface relay | C12-A2x | | | 5 A / 250 V | 5 A / 30 V | S12 |
| Interface DC relay | C12-G2x | | | 5 A / 250 V | 5 A / 30 V | S12 |
| **C16 Series** | | | | | | |
| Interface DC relay | C16-A25PTL |  | | 7 A / 250 V | 7 A / 30 V | S18 |
| **C18 Series** | | | | | | |
| Interface DC relay | C18-A15PT |  | | 10 A / 250 V | 10 A / 30 V | S16 |
| Interface DC relay | C18-A15PTL |  | | 10 A / 250 V | 10 A / 30 V | S16 |
| Interface DC relay | C18-B15PTL |  | | 16 A / 250 V | 16 A / 30 V | S18 |

# C10-A1x

## 1 pole | changeover contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **10 A/250 V** | **AC-1** | **0.5 A/110 V DC-1** |
| | **10 A/30 V** | **DC-1** | **0.2 A/220 V DC-1** |
| | **13 A/250 V** | **AC-1** cULus | |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 0.5** | |
| | **5 mA/5 V** | **Code 8** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| | Optional | Code 5 | $AgSnO_2$ |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A (120 A for code 5) |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.1 VA (AC)/0.7 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 53 |
| 48 | 1200 | 23 | 24 | 742 | 32 |
| 115 | 7.300 | 9.5 | 48 | 3.500 | 13.7 |
| 230 | 28.800 | 4.7 | 110 | 19.900 | 5.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/coil | 5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ….70 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/ ≤ 1 ms |
| Release time/bounce time | 5 ms/ ≤ 3 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 21 g |

**Product References**

| | | | |
|---|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C10-A10/AC ...V** | **C10-A18/AC ...V** | **C10-A15/AC ... V** |
| **LED** | **C10-A10X/AC ...V** | **C10-A18X/AC ...V** | **C10-A15X/AC ...V** |
| **RC Suppressor** | **C10-A10R/AC ...V** | **C10-A18R/AC ...V** | **C10-A15R/AC ...V** |
| **VDC 12, 24, 48, 110** | **C10-A10/DC ...V** | **C10-A18/DC ...V** | **C10-A15/DC ...V** |
| **LED** | **C10-A10X/DC ...V** | **C10-A18X/DC ...V** | **C10-A15X/DC ...V** |
| **Polarity and free wheeling diode** | **C10-A10FX/DC ...V** | **C10-A18FX/DC ...V** | **C10-A15FX/DC ...V** |
| **V AC/DC bridge rectifier 24 V, 48 V** | **C10-A10BX/UC ...V** | **C10-A18BX/UC ...V** | **C10-A15BX/UC ...V** |

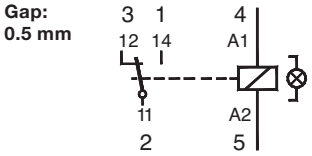
Other voltages on request

"..." List Coil Voltage to complete Product References

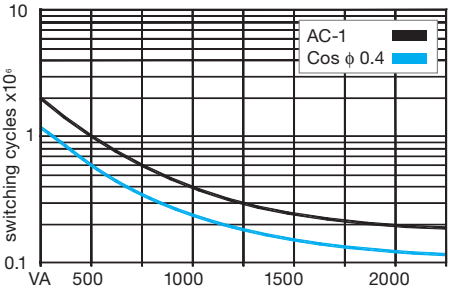
**Accessories**

Socket: **S10, S10-P**

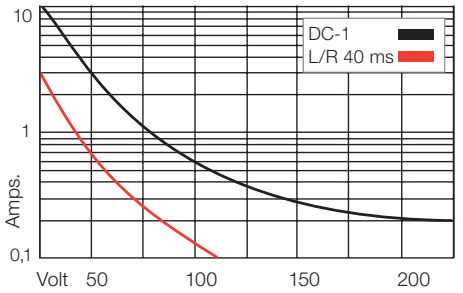
### Connection diagram



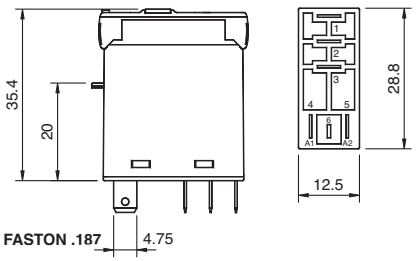

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

cULus

EAC CE RoHS 2002/95/EC

IEC/EN 61810; IEC/EN 60947

# C10-G1x

## 1 pole | normally open contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **10 A/250 V AC-1** | **0.8 A/110 V DC-1** | |
| | **10 A/30 V DC-1** | **0.4 A/220 V DC-1** | |
| **Recommended minimum contact load** | **10 mA/10 V Code 0.5** | | |
| | **5 mA/5 V Code 8** | | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| | Optional | Code 5 | $AgSnO_2$ |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A (120 A for code 5) |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.1 VA (AC)/0.7 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 53 |
| 48 | 1200 | 23 | 24 | 742 | 32 |
| 115 | 7.300 | 9.5 | 48 | 3.500 | 13.7 |
| 230 | 28.800 | 4.7 | 110 | 19.900 | 5.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 2000 V |
| Contact/coil | 5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ….70 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 1 ms |
| Release time/bounce time | 8 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 21 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C10-G10/AC ... V** | **C10-G15/AC ... V** |
| **LED** | **C10-G10X/AC ... V** | **C10-G15X/AC ... V** |
| **RC Suppressor** | **C10-G10R/AC...V** | **C10-G15R/AC...V** |
| **VDC 12, 24, 48, 110** | **C10-G10/DC ... V** | **C10-G15/DC ... V** |
| **LED** | **C10-G10X/DC ... V** | **C10-G15X/DC ... V** |
| **Polarity and free wheeling diode** | **C10-G10FX/DC ... V** | **C10-G15FX/DC... V** |
| **AC/DC bridge rectifier 24 V, 48 V** | **C10-G10BX/DC ... V** | **C10-G15BX/UC... V** |

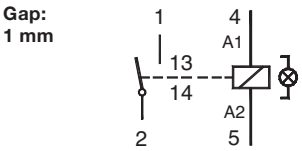
Other voltages on request

"..." List Coil Voltage to complete Product References

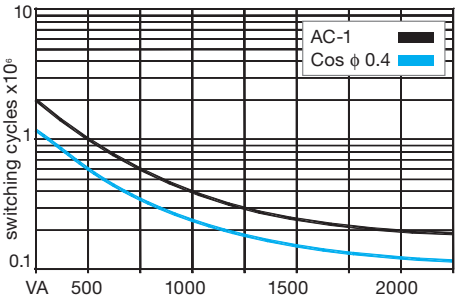
**Accessories**

| | |
|---|---|
| Socket: | **S10, S10-P** |

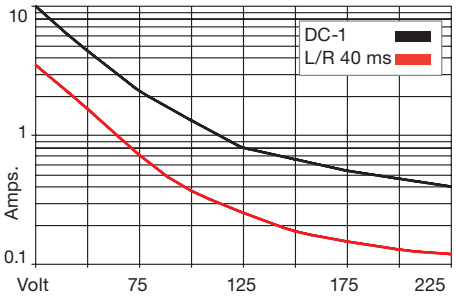
### Connection diagram



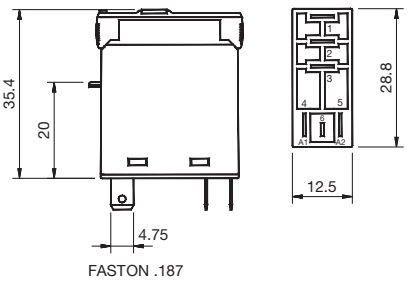

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C10-T1x

## 1 pole | changeover twin contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **6 A/250 V** | **AC-1** | **0.5 A/110 V** **DC-1** |
| | **6 A/30 V** | **DC-1** | **0.2 A/220 V** **DC-1** |
| **Recommended minimum contact load** | **5 mA/5 V** | **Code 1** | |
| | **1 mA/5 V** | **Code 3** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 3 | AgNi + 5 µ Au |
| Rated Load | | | 6 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max | | | 250 V |
| AC load (Fig 1) | | | 1.5 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.1 VA (AC)/0.7 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 53 |
| 48 | 1200 | 23 | 24 | 742 | 32 |
| 115 | 7.300 | 9.5 | 48 | 3.500 | 13.7 |
| 230 | 28.800 | 4.7 | 110 | 19.900 | 5.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/coil | 5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 …70 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 1 ms |
| Release time/bounce time | 5 ms/≤ 3 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | 1200/h |
| Weight | 21 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C10-T11/AC ... V** | **C10-T13/AC ... V** |
| **LED** | **C10-T11X/AC ... V** | **C10-T13X/AC ... V** |
| **RC Suppressor** | **C10-T11R/AC...V** | **C10-T13R/AC...V** |
| **VDC12, 24, 48, 110** | **C10-T11/DC ... V** | **C10-T13/DC ... V** |
| **LED** | **C10-T11X/DC ... V** | **C10-T13X/DC ... V** |
| **Polarity and free wheeling diode** | **C10-T11FX/DC ... V** | **C10-T13FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V** | **C10-T11BX/UC ... V** | **C10-T13BX/UC ... V** |

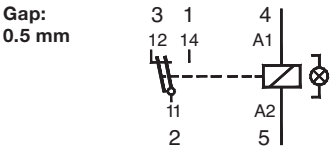
Other voltages on request

"..." List Coil Voltage to complete Product References

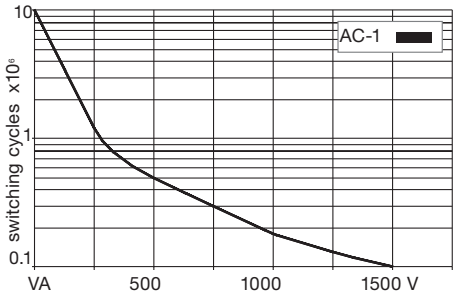
**Accessories**

Socket: **S10, S10-P**

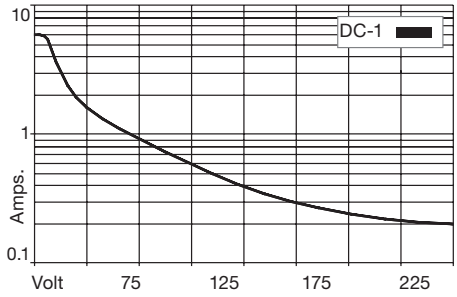
### Connection diagram



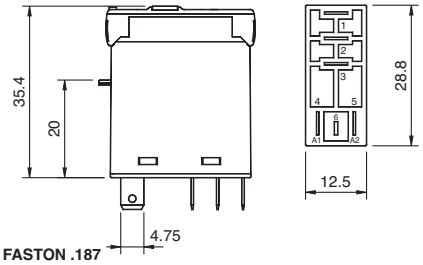

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C12-A2x

## 2 pole | changeover contact | plug-in Faston

| | | |
|---|---|---|
| **Maximum contact load** | **5 A/250 V AC-1** | **0.5 A/110 V DC-1** |
| | **5 A/30 V DC-1** | **0.2 A/220 V DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V Code 1** | |
| | **5 mA/5 V Code 2** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 2 | AgNi + 5 µ Au |
| Rated Load | | | 5 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 1.2 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.1 VA (AC)/0.7 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 53 |
| 48 | 1200 | 23 | 24 | 742 | 32 |
| 115 | 7.300 | 9.5 | 48 | 3.500 | 13.7 |
| 230 | 28.800 | 4.7 | 110 | 19.900 | 5.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 3000 V |
| Contact/coil | 5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 1 ms |
| Release time/bounce time | 5 ms/≤ 3 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 21 g |

**Product References**

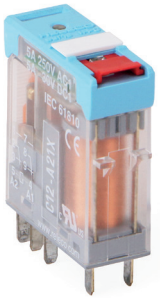
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C12-A21/AC ... V** | **C12-A22/AC ... V** |
| **LED** | **C12-A21X/AC ... V** | **C12-A22X/AC ... V** |
| **RC Suppressor** | **C12-A21R/AC ... V** | **C12-A22R/AC ... V** |
| **VDC 12, 24, 48, 110** | **C12-A21/DC ... V** | **C12-A22/DC ... V** |
| **LED** | **C12-A21X/DC ... V** | **C12-A22X/DC ... V** |
| **Polarity and free wheeling diode** | **C12-A21FX/DC ... V** | **C12-A22FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V** | **C12-A21BX/UC ... V** | **C12-A22BX/UC ... V** |

Other voltages on request

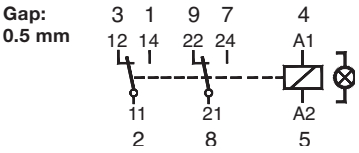
"..." List Coil Voltage to complete Product References

**Accessories**

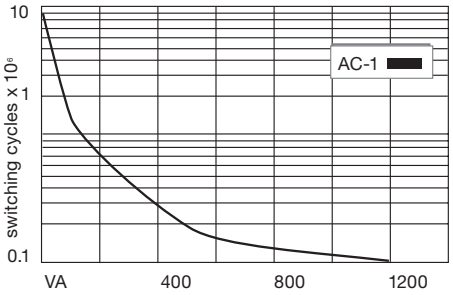
Socket: **S12, S12-P**



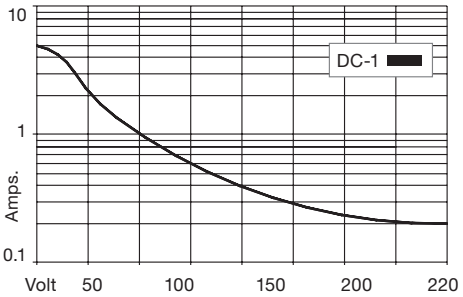
### Connection diagram



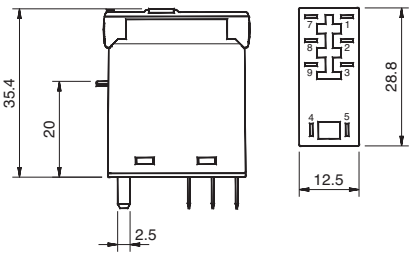

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions

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### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C12-G2x

## 2 pole | normally open contact | plug-in Faston

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **5 A/250 V** | **AC-1** | **0.8 A/110 V** | **DC-1** |
| | | | **5 A/30 V** | **DC-1** | **0.4 A/220 V** | **DC-1** |
| **Recommended minimum contact load** | | | **10 mA/10 V** | **Code 1** | | |
| | | | **5 mA/5 V** | **Code 2** | | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 2 | AgNi + 5 µ Au |
| Rated Load | | | 5 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Flg 1) | | | 1.2 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≥ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.1 VA (AC)/0.7 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 53 |
| 48 | 1200 | 23 | 24 | 742 | 32 |
| 115 | 7.300 | 9.5 | 48 | 3.500 | 13.7 |
| 230 | 28.800 | 4.7 | 110 | 19.900 | 5.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 2000 V |
| Contact/contact | 3000 V |
| Contact/coil | 5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 1 ms |
| Release time/bounce time | 5 ms/≤ 3 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 21 g |

**Product References**

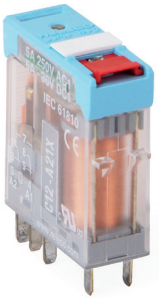
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)** | **C12-G21/AC ... V** | **C12-G22/AC ... V** |
| **LED** | **C12-G21X/AC ... V** | **C12-G22X/AC ... V** |
| **RC Suppressor** | **C12-G21R/AC ... V** | **C12-G22R/AC ... V** |
| **VDC 12, 24, 48, 110** | **C12-G21/DC ... V** | **C12-G22/DC ... V** |
| **LED** | **C12G21X/DC ... V** | **C12-G22X/DC ... V** |
| **Polarity and free wheeling diode** | **C12-G21FX/DC ... V** | **C12-G22FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V** | **C12-G21BX/UC ... V** | **C12-G22BX/UC ... V** |

Other voltages on request

"..." List Coil Voltage to complete Product References

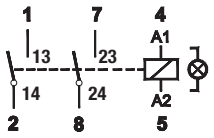
**Accessories**

Socket: **S12, S12-P**

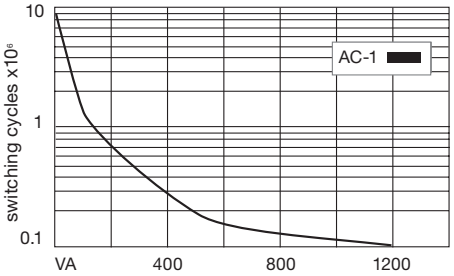


### Connection diagram

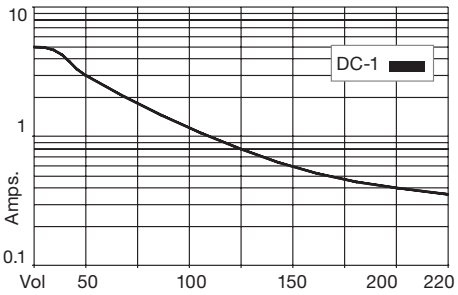
Gap: 1 mm



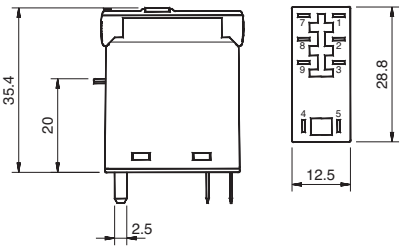

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




FASTON .098

### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C16-A25PTL

## 2 pole | 8-pin | changeover contact | Grid 5mm

| | |
|---|---|
| **Maximum contact load** | **7 A/250 V AC-1** |
| | **7 A/30V DC-1** |
| **Recommended minimum contact load** | **1 mA/1 V AC/DC** |

### Contacts

| | |
|---|---|
| Material | $AgSnO_2$ |
| Rated Load | 7 A |
| Switching voltage max. | 250 V |
| Switch-on current max. (500 ms) | 15 A |
| Bounce time | 2 ms |

### Coil

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | 75 % of $U_N$ (DC) / 80 % of $U_N$ (AC) |
| Release voltage | ≤ 0.1 $U_N$ (DC) / ≤ 0.3 $U_N$ (AC) |
| Nominal power | 1 VA (AC) / 0.53 W (DC) @ 23 °C |

### Coil Data (DC voltage)

| Coil Voltage Code | Nominal Voltage (VDC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VDC) | Must release voltage min (VDC) |
|---|---|---|---|---|
| 12 | 12 | 270 | 9.00 | 1.2 |
| 24 | 24 | 1080 | 18.00 | 2.4 |
| 36 | 36 | 1350 | 27.00 | 3.6 |
| 48 | 48 | 4340 | 36.00 | 4.8 |
| 110 | 110 | 22830 | 82.5 | 11 |

### Coil Data (AC voltage 50/60 Hz)

| Coil Voltage Code | Nominal Voltage (VAC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VAC) | Must release voltage min (VAC) | Max. allowable voltage (VAC) |
|---|---|---|---|---|---|
| 24 | 24 | 253 | 19.2 | 7.2 | 26.4 |
| 110 | 110 | 5819 | 88.0 | 33 | 121 |
| 230 | 230 | 23276 | 184 | 69 | 253 |

### Insulation

| | |
|---|---|
| Insulation resistance (coil to contact) | ≥ 100 MΩ @ 500 V DC, 50 % RH |
| Dielectric strength | 5 kV |
| Coil to contact | 5000 Vrms, 1 min |
| Contact to contact | 1000 Vrms, 1 min |

### Specifications

| | |
|---|---|
| Ambient temperature operation/storage | -55 …70 °C /-55…70 °C (no ice) |
| Pick-up time | 10 ms |
| Release time | 5 ms |
| Mechanical / electrical life ops | ≥ 1 × 10 000 000 / 1 × 100 000 |
| Weight | 17 g |
| Max. switching frequency | 20 Hz |
| Tightness | RT2 |
| Weight | 17 g |

### Product References

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)** | **C16-A25PTL/AC…V** |
| **VDC 12, 24, 48** | **C16-A25PTL/DC…V** |

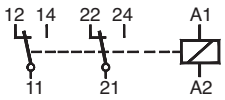
Other voltages on request

"..." List Coil Voltage to complete Product References

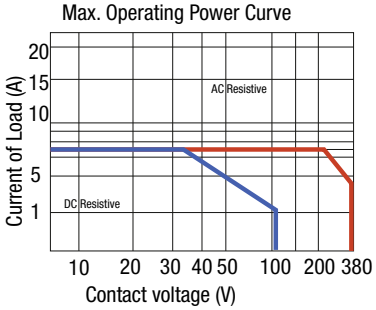
### Accessories

| | |
|---|---|
| Socket | **S16-M** |
| Retaining clip, plastic | **CP-16** |
| Label | **BS16-K (BAG 10 PCS)** |
| Modules | **See datasheet socket S16-M** |

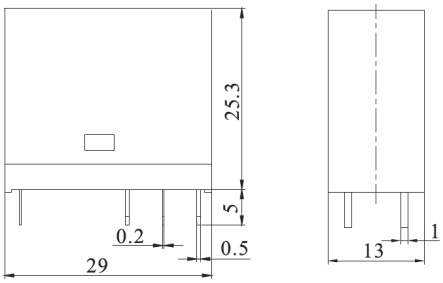
### Connection diagram

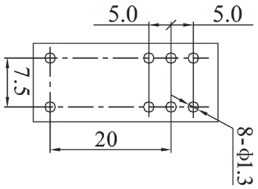



### Fig.1 Max. Operating Power Curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C18-A15PT

## 1 pole | 5-pin | changeover contact | Grid 3.5mm

| | |
|---|---|
| **Maximum contact load** | **10 A/250 V AC-1** |
| | **10 A/30 V DC-1** |
| **Recommended minimum contact load** | **1 mA/1 V AC/DC** |

**Contacts**

| | |
|---|---|
| Material | $AgSnO_2$ |
| Rated Load | 10 A |
| Switching voltage max. | 250 V |
| Switch-on current max. (500 ms) | 25 A |
| Bounce time | 2 ms |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | 75 % of $U_N$ (DC) / 80 % of $U_N$ (AC) |
| Release voltage | ≤ 0.1 $U_N$ (DC) / ≤ 0.3 $U_N$ (AC) |
| Nominal power | 1 VA (AC) / 0.53 W (DC) @ 23 °C |

**Coil Data (DC voltage)**

| Coil Voltage Code | Nominal Voltage (VDC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VDC) | Must release voltage min (VDC) |
|---|---|---|---|---|
| 12 | 12 | 270 | 9.00 | 1.2 |
| 24 | 24 | 1080 | 18.00 | 2.4 |
| 36 | 36 | 1350 | 27.00 | 3.6 |
| 48 | 48 | 4340 | 36.00 | 4.8 |
| 110 | 110 | 22830 | 82.5 | 11 |

**Coil Data (AC voltage 50/60 Hz)**

| Coil Voltage Code | Nominal Voltage (VAC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VAC) | Must release voltage min (VAC) | Max. allowable voltage (VAC) |
|---|---|---|---|---|---|
| 24 | 24 | 253 | 19.2 | 7.2 | 26.4 |
| 110 | 110 | 5819 | 88.0 | 33 | 121 |
| 230 | 230 | 23276 | 184 | 69 | 253 |

**Insulation**

| | |
|---|---|
| Insulation resistance (coil to contact) | ≥ 100 MΩ @ 500 V DC, 50 % RH |
| Dielectric strength | 5 kV |
| Coil to contact | 5000 Vrms, 1 min |
| Contact to contact | 1000 Vrms, 1 min |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -55 …70 °C /-55…70 °C (no ice) |
| Pick-up time | 10 ms |
| Release time | 5 ms |
| Mechanical / electrical life ops | ≥ 1 × 10 000 000 / 1 × 100 000 |
| Weight | 17 g |
| Max. switching frequency | 20 Hz |
| Tightness | RT2 |
| Weight | 17 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)** | **C18-A15PT/AC ... V** |
| **VDC 12, 24.36, 48, 110** | **C18-A15PT/DC ... V** |

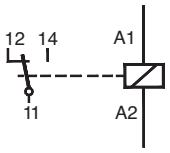
Other voltages on request

"..." List Coil Voltage to complete Product References

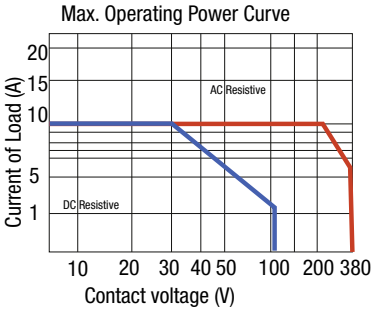
**Accessories**

| | |
|---|---|
| Socket | **S18-M** |
| Retaining clip, plastic | **CP-16** |
| Label | **BS16-K (BAG 10 PCS)** |
| Modules | **See datasheet socket S18-M** |

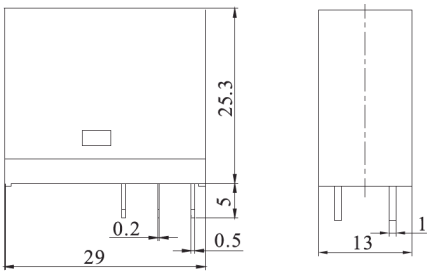
### Connection diagram

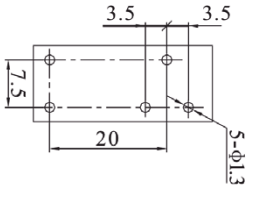



### Fig.1 Max. Operating Power Curve




### Dimension




Standard

### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C18-A15PTL

## 1 pole | 5-pin | changeover contact | plug-in | Grid 5mm

| | |
|---|---|
| **Maximum contact load** | **10 A/250 V AC-1**<br>**10 A/30 V DC-1** |
| **Recommended minimum contact load** | **1 mA/1 V AC/DC** |

### Contacts

| | |
|---|---|
| Material | $AgSnO_2$ |
| Rated Load | 10 A |
| Switching voltage max. | 250 V |
| Switch-on current max. (500 ms) | 25 A |
| Bounce time | 2 ms |

### Coil

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | 75 % of $U_N$ (DC) / 80 % of $U_N$ (AC) |
| Release voltage | ≤ 0.1 $U_N$ (DC) / ≤ 0.3 $U_N$ (AC) |
| Nominal power | 1 VA (AC) / 0.53 W (DC) @ 23 °C |

### Coil Data (DC voltage)

| Coil Voltage Code | Nominal Voltage (VDC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VDC) | Must release voltage min (VDC) |
|---|---|---|---|---|
| 12 | 12 | 270 | 9.00 | 1.2 |
| 24 | 24 | 1080 | 18.00 | 2.4 |
| 36 | 36 | 1350 | 27.00 | 3.6 |
| 48 | 48 | 4340 | 36.00 | 4.8 |
| 110 | 110 | 22830 | 82.5 | 11 |

### Coil Data (AC voltage 50/60 Hz)

| Coil Voltage Code | Nominal Voltage (VAC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VAC) | Must release voltage min (VAC) | Max. allowable voltage (VAC) |
|---|---|---|---|---|---|
| 24 | 24 | 253 | 19.2 | 7.2 | 26.4 |
| 110 | 110 | 5819 | 88.0 | 33 | 121 |
| 230 | 230 | 23276 | 184 | 69 | 253 |

### Insulation

| | |
|---|---|
| Insulation resistance (coil to contact) | ≥ 100 MΩ @ 500 V DC, 50 % RH |
| Dielectric strength | 5 kV |
| Coil to contact | 5000 Vrms, 1 min |
| Contact to contact | 1000 Vrms, 1 min |

### Specifications

| | |
|---|---|
| Ambient temperature operation/storage | -55 …70 ºC /-55…70 °C (no ice) |
| Pick-up time | 10 ms |
| Release time | 5 ms |
| Mechanical / electrical life ops | ≥ 1 × 10 000 000 / 1 × 100 000 |
| Weight | 17 g |
| Max. switching frequency | 20 Hz |
| Tightness | RT2 |
| Weight | 17 g |

### Product References

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)** | **C18-A15PTL/AC…V** |
| **VDC 12, 24, 36, 48, 110** | **C18-A15PTL/DC…V** |

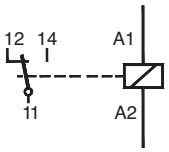
Other voltages on request

"..." List Coil Voltage to complete Product References

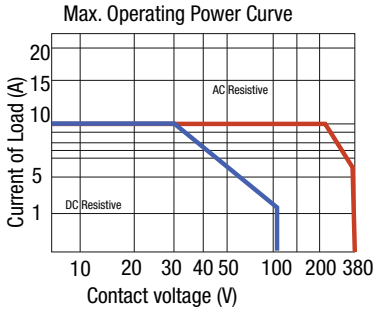
### Accessories

| | |
|---|---|
| Socket | **S16-M** |
| Retaining clip, plastic | **CP-16** |
| Label | **BS16-K (BAG 10 PCS)** |
| Modules | **See datasheet socket S16-M** |

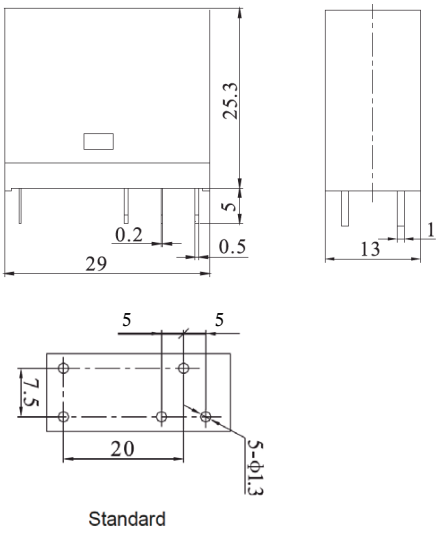
### Connection diagram




### Fig.1 Max. Operating Power Curve




### Dimensions




Standard

### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C18-B15PTL

## 1 pole | 8-pin | changeover contact | Grid 5mm

| | |
|---|---|
| **Maximum contact load** | **16 A/250 V AC-1**<br>**16 A/30 V DC-1** |
| **Recommended minimum contact load** | **1 mA/1 V AC/DC** |

### Contacts

| | |
|---|---|
| Material | $AgSnO_2$ |
| Rated Load | 16 A |
| Switching voltage max. | 250 V |
| Switch-on current max. (500 ms) | 25 A |
| Bounce time | 2 ms |

### Coil

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | 75 % of $U_N$ (DC) / 80 % of $U_N$ (AC) |
| Release voltage | ≤ 0.1 $U_N$ (DC) / ≤ 0.3 $U_N$ (AC) |
| Nominal power | 1 VA (AC) / 0.53 W (DC) @ 23 °C |

### Coil Data (DC voltage)

| Coil Voltage Code | Nominal Voltage (VDC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VDC) | Must release voltage min (VDC) |
|---|---|---|---|---|
| 12 | 12 | 270 | 9.00 | 1.2 |
| 24 | 24 | 1080 | 18.00 | 2.4 |
| 36 | 36 | 1350 | 27.00 | 3.6 |
| 48 | 48 | 4340 | 36.00 | 4.8 |
| 110 | 110 | 22830 | 82.5 | 11 |

### Coil Data (AC voltage 50/60 Hz)

| Coil Voltage Code | Nominal Voltage (VAC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VAC) | Must release voltage min (VAC) | Max. allowable voltage (VAC) |
|---|---|---|---|---|---|
| 24 | 24 | 253 | 19.2 | 7.2 | 26.4 |
| 110 | 110 | 5819 | 88.0 | 33 | 121 |
| 230 | 230 | 23276 | 184 | 69 | 253 |

### Insulation

| | |
|---|---|
| Insulation resistance (coil to contact) | ≥ 100 MΩ @ 500 V DC, 50 % RH |
| Dielectric strength | 5 kV |
| Coil to contact | 5000 Vrms, 1 min |
| Contact to contact | 1000 Vrms, 1 min |

### Specifications

| | |
|---|---|
| Ambient temperature operation/storage | -55 …70 °C /-55…70 °C (no ice) |
| Pick-up time | 10 ms |
| Release time | 5 ms |
| Mechanical / electrical life ops | ≥ 1 × 10 000 000 / 1 × 100 000 |
| Weight | 17 g |
| Max. switching frequency | 20 Hz |
| Tightness | RT2 |
| Weight | 17 g |

### Product References

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)** | **C18-B15PTL/AC…V** |
| **VDC 12, 24, 36, 48, 110** | **C18-B15PTL/DC…V** |

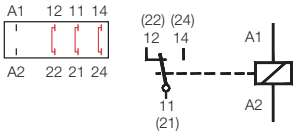
Other voltages on request

"..." List Coil Voltage to complete Product References

### Accessories

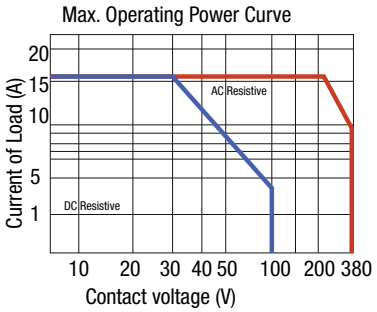
| | |
|---|---|
| Socket | **S16-M** |
| Retaining clip, plastic | **CP-16** |
| Label | **BS16-K (BAG 10 PCS)** |
| Modules | **See datasheet socket S16-M** |

### Connection diagram

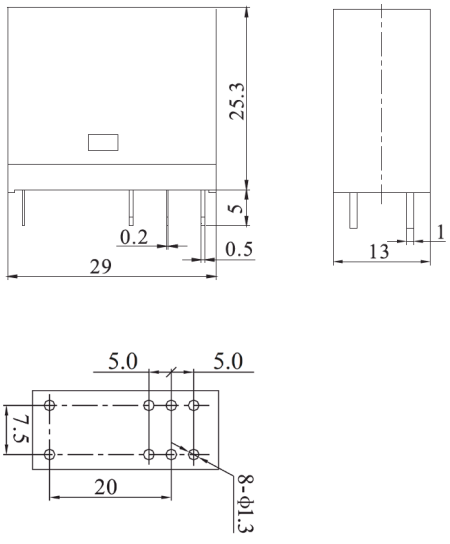



⚠ When switching over 10 A, it is necessary to add jumpers between the terminals on the relay socket S16-M. Jumper terminals; 22-12, 21-11 and 24-14. The resulting schematic is above.

### Fig.1 Max. Operating Power Curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

## Notes

## Notes

# 1.2 Interface Relays

| Application | Types | Contacts | AC ratings | DC ratings |
|---|---|---|---|---|
| **CRINT Series** | | | | |
| High power contact $AgSnO_2$ | CRINT-1x1 | | 6 A / 250 V | 6 A / 30 V |
| Low power contact $AgSnO_2$ + 3µ Au | CRINT-1x2 | | 6 A / 250 V | 6 A / 30 V |
| DC solid state switch | CRINT-1x5 (see page 82) | | - | 2 A / 24 V |
| AC solid state switch | CRINT-1x8 (see page 83) | | 1 A / 240 V | - |

## CRINT Product Key

| 1 | | 2 | 3 | 4 | 5 | 6 | | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| CRINT | - | C | 1 | 1 | 1 | R | / | UC | 24V |

**1. Product family**
CRINT

**2. Type**
C = Combined version (Socket and Relay)

**3. Contact**
1 = One change-over contact

**4. Connection type**
1 = Screw terminal
2 = Cage clamp terminal

**5. Output**
1 = $AgSnO_2$
2 = $AgSnO_2$ + 3µ Au
5 = NO / Solid-state DC
8 = NO / Solid-state AC

**6. Options**
– = Standard version
R = Railway version

**7. Supply voltage**
UC = AC/DC
DC = Only for C1x5 and C1x8

**8. Nominal voltage**
12V, 24V, 48V, 60V, 110-125V, 220-240V

## RELAY Only

| 1 | | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| CRINT | - | R | 11 | DC | 12V |

**1. Product family**
CRINT

**2. Type**
R = Relay

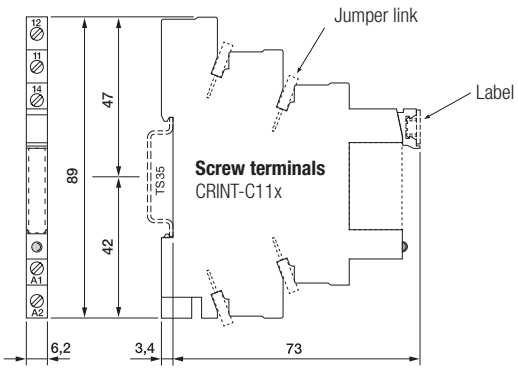
**3. Contact**
11 = $AgSnO_2$
12 = $AgSnO_2$ + 3µ Au
15 = NO / Solid-state DC
18 = NO / Solid-state AC

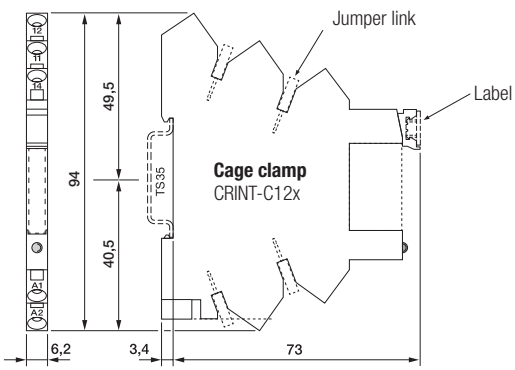
**4. Supply voltage**
DC

**5. Nominal voltage**
12 V, 24 V, 48 V, 60 V*

*60 V Relay used for all sockets with a nominal voltage higher or equal 60V

## Dimensions [mm]



# CRINT 1x1 series

## 1 pole | changeover contact

| Max. contact load | 6 A, 250 V AC-1 | 6 A, 30 V DC-1 |
|---|---|---|

**Contact**

| | |
|---|---|
| Type | 1 CO |
| Material | $AgSnO_2$ |
| Switching current \| $_{TH}$ | 6 A 250 V AC |
| Recommended minimal load | 100 mA / 12 V |
| Switching power DC-1 30 V | 180 W |
| Switching power AC-1 230 V | 1500 VA |
| Switching power AC-15 230 V | 300 VA |
| Peak inrush current | 15 A/2.5 ms |

**Coil**

| | |
|---|---|
| Operation voltage AC 50/60 Hz / DC | 0.8 ... 1.25 $U_N$ |
| Nominal power DC/AC | 408 / 900 mW |

**Insulation**

| | |
|---|---|
| Test voltage I / O | 6 kV rms / 1 min |
| Pollution degree | 3 |
| Over voltage category | III |
| Open contact | 1000 Vrms dielectric strength 1 min |
| Standard | EN61810-5 |

**Specifications**

| | |
|---|---|
| Ambient temperature: operation / storage | -40 … +70 °C / -40 … +85 °C (no ice) |
| Typical response time @ $V_n$ | 7 ms |
| Typical release time @ $V_n$ | 15 ms |
| Switching cycles: mech./elec. | 10 x 1 000 000 / 3 x 10 000 |
| Cond. cross section screw terminal | 2.5 $mm^2$ |
| Cond. cross section spring cage | 0.75 … 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting position | any, TS35 or Back Panel Mounting |
| Housing material | Polyamide PA6 |
| Weight | 30 g |

**Product References**

Screw terminal: **CRINT-C111/UC...V**

Cage clamp terminal: **CRINT-C121/UC...V**

"..." List Coil Voltage to complete Product References

**UC12V**
**UC24V**
**UC48V**
**UC60V**
**UC110-125V**
**UC220-240V**

**Accessories**

Jumper link:
blue: **CRINT-BR20-BU (BAG 5 PCS)**
red: **CRINT-BR20-RD (BAG 5 PCS)**
black: **CRINT-BR20-BK (BAG 5 PCS)**

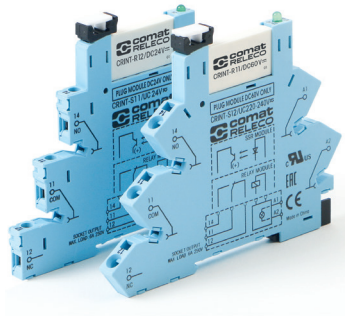
Label plate: **CRINT-LAB (BAG 4x16 PCS)**
Spacer: **CRINT-SEP (BAG 5 PCS)**

Replacement relays:
**CRINT-R11/DC...V**

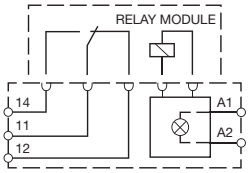
"..." List Coil Voltage to complete Product References

**DC12V**
**DC24V**
**DC48V**
**DC60V***

*60V Relay used for all sockets with a nominal voltage higher or equal 60V



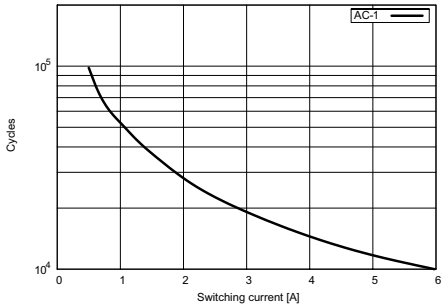
### Connection diagram



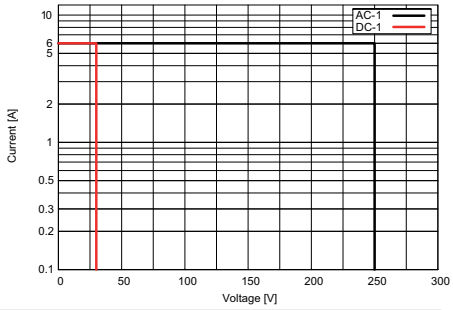

**Relay**
- AgSnO2
- AgSnO2 + 3µ Au

**Socket**
-Screw terminal
-Cage clamp terminal

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




Dimensions p. 30

### Technical approvals, conformities

IEC/EN 61810

# CRINT 1x2 series

## 1 pole | changeover contact



| Max. contact load | 6 A, 250 V AC-1 | 6 A, 30 V DC-1 |
|---|---|---|

**Contact**

| | |
|---|---|
| Type | 1 CO |
| Material | $AgSnO_2$ + 5µ Au |
| Switching current \| $_{TH}$ | 6 A 250 V AC |
| Recommended minimal load | 10 mA / 6 V |
| Switching power DC-1 30 V | 180 W |
| Switching power AC-1 230 V | 1500 VA |
| Switching power AC-15 230 V | 300 VA |
| Peak inrush current | 15 A/2.5 ms |

**Coil**

| | |
|---|---|
| Operation voltage AC 50/60 Hz / DC | 0.8 ... 1.25 $U_N$ |
| Nominal power DC/AC | 408 / 900 mW |

**Insulation**

| | |
|---|---|
| Test voltage I / O | 6 kV rms / 1 min |
| Pollution degree | 3 |
| Over voltage category | III |
| Open contact | 1000 Vrms dielectric strength 1 min |
| Standard | EN61810-5 |

**Specifications**

| | |
|---|---|
| Ambient temperature: operation / storage | -40 … +70 °C / -40 … +85 °C (no ice) |
| Typical response time @ $V_n$ | 7 ms |
| Typical release time @ $V_n$ | 15 ms |
| Switching cycles: mech./elec. | 10 x 1 000 000 / 3 x 10 000 |
| Cond. cross section screw terminal | 2.5 $mm^2$ |
| Cond. cross section spring cage | 0.75 … 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting position | any, TS35 or Back Panel Mounting |
| Housing material | Polyamide PA6 |
| Weight | 30 g |

**Product References**

Screw terminal: **CRINT-C112/UC...V**

Cage clamp terminal: **CRINT-C122/UC...V**

"..." List Coil Voltage to complete Product References

**UC12V**
**UC24V**
**UC48V**
**UC60V**
**UC110-125V**
**UC220-240V**

**Accessories**

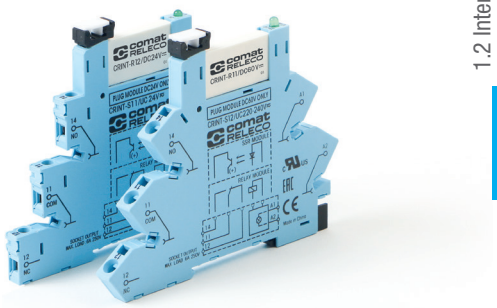
Jumper link:
blue: **CRINT-BR20-BU (BAG 5 PCS)**
red: **CRINT-BR20-RD (BAG 5 PCS)**
black: **CRINT-BR20-BK (BAG 5 PCS)**

Label plate: **CRINT-LAB (BAG 4x16 PCS)**
Spacer: **CRINT-SEP (BAG 5 PCS)**

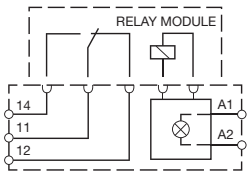
Replacement relays:
**CRINT-R12/DC...V**
"..." List Coil Voltage to complete Product References

*60V Relay used for all sockets with a nominal voltage higher or equal 60V

**DC12V**
**DC24V**
**DC48V**
**DC60V***



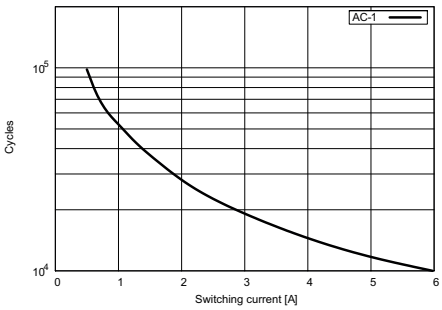
### Connection diagram



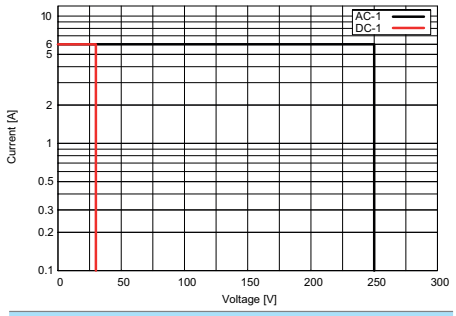

**Relay**
- AgSnO2
- AgSnO2 + 3µ Au

**Socket**
-Screw terminal
-Cage clamp terminal

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




**Dimensions p. 30**

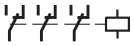
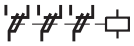
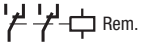
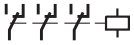
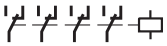
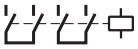
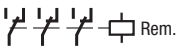
### Technical approvals, conformities

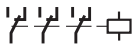
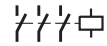
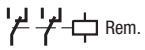
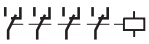
IEC/EN 61810

## Notes

## Notes

# 1.3 Industrial Relays - pluggable

| Application | Types | Pins | Contacts | AC ratings | DC ratings | Socket |
|---|---|---|---|---|---|---|
| **C2 Series** | | | | | | |
| General purpose | C2-A2x | 8 | | 10 A / 250 V | 0.5 A / 110 V | S2 |
| **C3 Series** | | | | | | |
| General purpose | C3-A3x | 11 |  | 10 A / 250 V | 0.5 A / 110 V | S3 |
| Low switching load | C3-T3x | 11 |  | 6 A / 250 V | 6 A / 30 V | S3 |
| DC load switching | C3-G3x | 11 | 1.7mm | 10 A / 250 V | 1.2 A / 110 V | S3 |
| DC load switching with magnetic blow out | C3-M1x | 11 | >3mm Ma. | 10 A / 250 V | 10 A / 220 V | S3 |
| DC load switching double make | C3-X1x | 11 | >3mm | 10 A / 250V | 7 A / 110 V | S3 |
| Latching relay | C3-R2x | 11 |  Rem. | 10 A /250 V | 0.5 A / 110 V | S3 |
| Sensitive coil 800 mW | C3-N3x | 11 |  | 10 A / 250 V | 0.5 A / 110 V | S3 |
| **C4 Series** | | | | | | |
| General purpose | C4-A4x | |  | 10 A / 250 V | 0.5 A / 110 V | S4 |
| DC load switching double make | C4-X2x | | 2x >3mm  | 10 A / 250 V | 7 A / 110 V | S4 |
| Latching relay | C4-R3x | |  Rem. | 10 A / 250 V | 0.5 A / 110 V | S4 |

| Application | Types | Pins | Contacts | AC ratings | DC ratings | Socket |
|---|---|---|---|---|---|---|
| **C5 Series** | | | | | | |
| Power relay | C5-A2x | | | 16 A / 400 V | 0.5 A / 110 V | S5 |
| Power relay | C5-A3x | |  | 16 A / 400 V | 0.5 A / 110 V | S5 |
| DC load switching | C5-G3x | | 1.7mm  | 16 A / 400 V | 1.2 A / 110 V | S5 |
| DC load switching double make | C5-X1x | | >3mm | 16 A / 400 V | 7 A / 110 V | S5 |
| DC load switching with magnetic blow out | C5-M1x | | >3mm | 16 A / 400 V | 10 A / 220 V | S5 |
| DC load switching with magnetic blow out | C5-M2x | | >3mm | 16 A / 250 V | 7 A / 110 V | S5 |
| Latching relay | C5-R2x | |  | 10 A / 400 V | 10 A / 30 V | S5 |
| **C7 Series** | | | | | | |
| Miniature power relay | C7-A1x | | | 16 A / 250 V | 0.5 A / 110 V | S7 |
| General purpose | C7-A2x | | | 10 A / 250 V | 0.5 A / 110 V | S7 |
| Low switching load | C7-T2x | | | 6 A / 250 V | 6 A / 30 V | S7 |
| DC load switching | C7-G2x | | | 10 A / 250 V | 0.8 A / 110 V | S7 |
| General purpose and low switching load | C7-H2x | | | 10 A / 250 V | 10 A / 30 V | S7 |
| DC load switching double make | C7-X1x | | >3mm | 10 A / 250 V | 6 A / 110 V | S7 |
| Power relay for high inrush current | C7-W1x | | | 10 A / 250 V | – | S7 |
| **C9 Series** | | | | | | |
| Miniature relay | C9-A4x | |  | 5 A / 250 V | 5 A / 30 V | S9 |
| Sensitive Coil 500mW … 800mW | C9-E2x | | | 5 A / 250 V | 5 mA / 30 V | S9 |
| Latching relay | C9-R2x | | | 5 A / 120 V | 5 A / 30 V | S9 |

# C2-A2x

## 2 pole | changeover contact | plug-in



| | | | |
|---|---|---|---|
| **Maximum contact load** | **10 A/250 V** | **AC-1** | **0.5 A/110 V** **DC-1** |
| | **10 A/30 V** | **DC-1** | **0.2 A/220 V** **DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 0** | |
| | **5 mA/5 V** | **Code 8** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| Max. switching current | | | 10 A |
| Max. peak inrush current (20 ms.) | | | 30 A |
| Max. switching voltage | | | 250 V |
| Max. AC load (Fig 1 1) | | | 2.5 kVA |
| Max. DC load | | | See Fig 2 |

**Coils**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick up voltage | ≤ 0.8 x $U_N$ |
| Pick up voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.2 VA (AC)/1.3 W (DC) |

**Table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 67 | 92 | 24 | 443 | 54 |
| 48 | 296 | 46 | 48 | 1K8 | 27 |
| 115 | 1K7 | 19 | 110 | 9K | 12 |
| 230 | 7K1 | 9.5 | 220 | 36K1 | 6 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Open contact | 1000 V |
| Between adjacent poles | 2.5 kV |
| Between contacts and coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time + bounce time | 16 ms/≤ 3 ms |
| Release time + bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 ops. switching cycles |
| Operating frequency at nominal load | ≤1200/ops/h |
| Weight | 79 g |

**Product References**

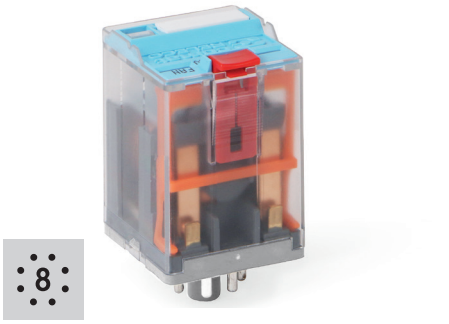
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C2-A20/AC ... V** | **C2-A28/AC ... V** |
| **LED** | **C2-A20X/AC ... V** | **C2-A28X/AC ... V** |
| **RC Suppressor** | **C2-A20R/AC ... V** | **C2-A28R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C2-A20/DC ... V** | **C2-A28/DC ... V** |
| **LED** | **C2-A20X/DC ... V** | **C2-A28X/DC ... V** |
| **Free wheeling diode** | **C2-A20DX/DC ... V** | **C2-A28DX/DC ... V** |
| **Polarity and free wheeling diode** | **C2-A20FX/DC ... V** | **C2-A28FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C2-A20BX/UC ... V** | **C2-A28BX/UC ... V** |

Other voltages on request

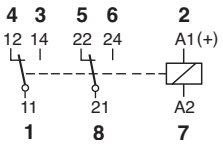
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

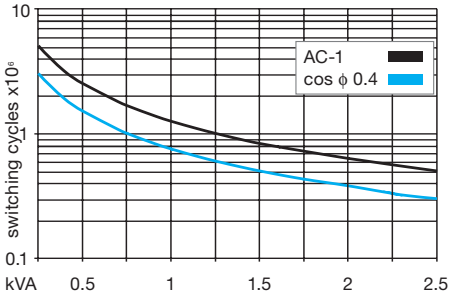
| | |
|---|---|
| Socket: | **S2-B, S2-PO** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



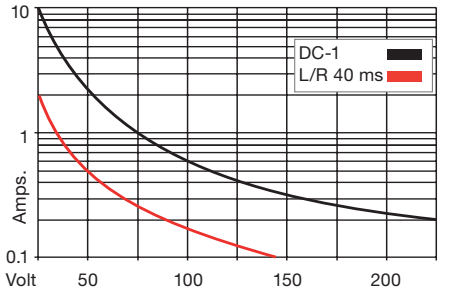
### Connection diagram



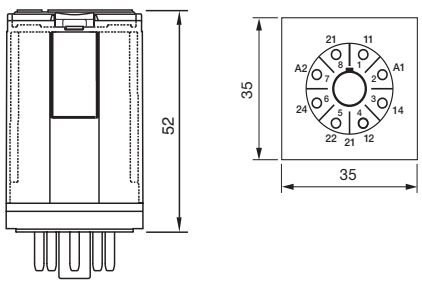

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-A3x

## 3 pole | changeover contact | plug-in

| | | | |
|---|---|---|---|
| **Maximum contact load** | **10 A/250** | **AC-1** | **0.5 A/110 V DC-1** |
| | **10 A/30** | **DC-1** | **0.2 A/220 V DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 0, 9** | |
| | **5 mA/5 V** | **Code 8** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| | Optional | Code 9 | AgNi + 0.2 µ Au |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.2 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 67 | 92 | 24 | 480 | 50 |
| 48 | 296 | 46 | 48 | 1K8 | 26 |
| 115 | 1K7 | 19 | 110 | 9K | 12 |
| 230 | 7K1 | 9.5 | 220 | 36K1 | 6 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 16 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥ 100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 81 g |

**Product References**

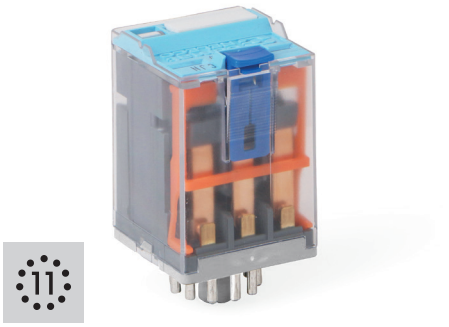
| | | | |
|---|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C3-A30/AC ... V** | **C3-A38/AC ... V** | **C3-A39/AC ... V** |
| **LED** | **C3-A30X/AC ... V** | **C3-A38X/AC ... V** | **C3-A39X/AC ... V** |
| **RC Suppressor** | **C3-A30R/AC ... V** | **C3-A38R/AC ... V** | **C3-A39R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C3-A30/DC ... V** | **C3-A38/DC ... V** | **C3-A39/DC ... V** |
| **LED** | **C3-A30X/DC ... V** | **C3-A38X/DC ... V** | **C3-A39X/DC ... V** |
| **Free wheeling diode** | **C3-A30DX/DC ... V** | **C3-A38DX/DC ... V** | **C3-A39DX/DC ... V** |
| **Polarity and free wheeling diode** | **C3-A30FX/DC ... V** | **C3-A38FX/DC ... V** | **C3-A39FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C3-A30BX/UC ... V** | **C3-A38BX/UC ... V** | **C3-A39BX/UC ... V** |

Other voltages on request

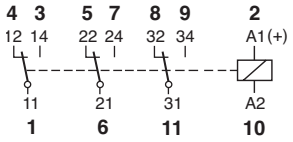
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

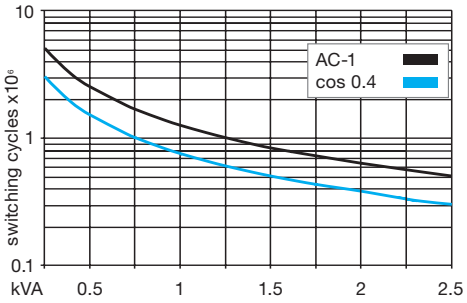
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



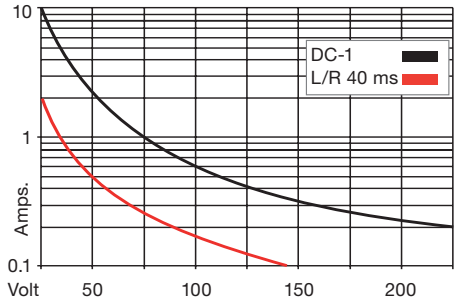
### Connection diagram



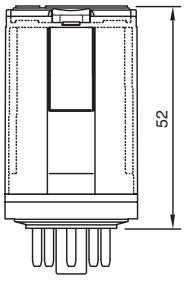

### Fig.1 AC voltage endurance

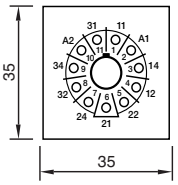



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-T3x

## 3 pole | changeover twin contact | plug-in



| | | | |
|---|---|---|---|
| **Maximum contact load** | **6 A/250 V** | **AC-1** | **6 A/30 V** **DC-1** |
| **Recommended minimum contact load** | **5 mA/5 V** | **Code 1** | |
| | **1 mA/5 V** | **Code 2** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 2 | AgNi + 5 µ Au |
| Rated Load | | | 6 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 1.2 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.2 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 67 | 92 | 24 | 480 | 50 |
| 48 | 296 | 46 | 48 | 1K8 | 26 |
| 115 | 1K7 | 19 | 110 | 9K | 12 |
| 230 | 7K1 | 9.5 | 220 | 36K1 | 6 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, EN 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 … 70 °C /-40 … 80 °C (no ice) |
| Pick-up time/bounce time | 8 ms/≤ 3 ms |
| Release time/bounce time | 18 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 81 g |

**Product References**

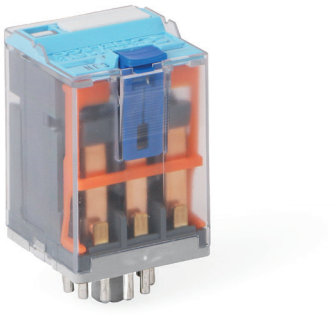
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C3-T31/AC ... V** | **C3-T32/AC ... V** |
| **LED** | **C3-T31X/AC ... V** | **C3-T32X/AC ... V** |
| **RC Suppressor** | **C3-T31R/AC ... V** | **C3-T32R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C3-T31/DC ... V** | **C3-T32/DC ... V** |
| **LED** | **C3-T31X/DC ... V** | **C3-T32X/DC ... V** |
| **Free wheeling diode** | **C3-T31DX/DC ... V** | **C3-T32DX/DC ... V** |
| **Polarity and free wheeling diode** | **C3-T31FX/DC ... V** | **C3-T32FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C3-T31BX/UC ... V** | **C3-T32BX/UC ... V** |

Other voltages on request

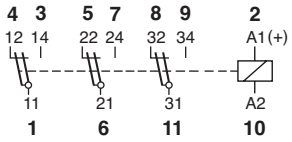
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

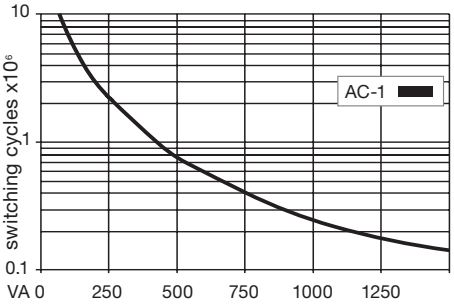
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



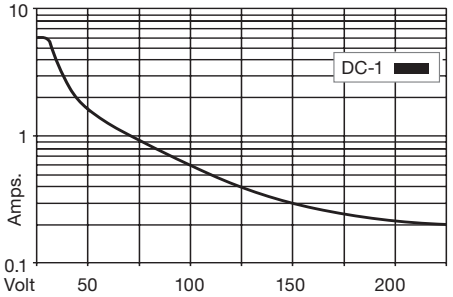
### Connection diagram



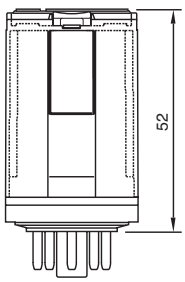

### Fig.1 AC voltage endurance

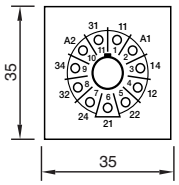



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-G3x

## 3 pole | normally open contact | plug-in

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A 250 V** | **AC-1** | **1.2 A/110 V** | **DC-1** |
| | | | **10 A 30 V** | **DC-1** | **0.4 A/220 V** | **DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.6 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 360 | 66 |
| 48 | 286 | 50 | 48 | 1K4 | 34 |
| 115 | 1K7 | 21 | 110 | 7K6 | 15 |
| 230 | 6K8 | 10 | 220 | 30K3 | 7.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 2000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/ h |
| Weight | 81 g |

**Product References**

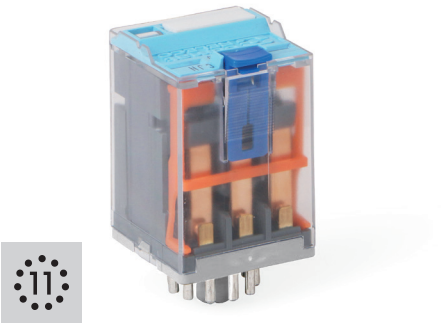
| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C3-G30/AC ... V** |
| **LED** | **C3-G30X/AC ... V** |
| **RC Suppressor** | **C3-G30R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C3-G30/DC ... V** |
| **LED** | **C3-G30X/DC ... V** |
| **Free wheeling diode** | **C3-G30DX/DC... V** |
| **Polarity and free wheeling diode** | **C3-G30FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C3-G30BX/UC ... V** |

Other voltages on request

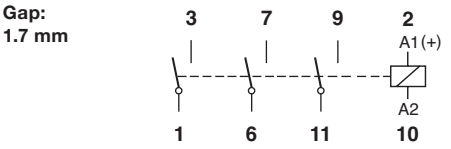
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

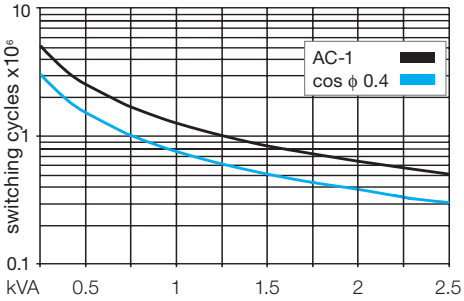
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



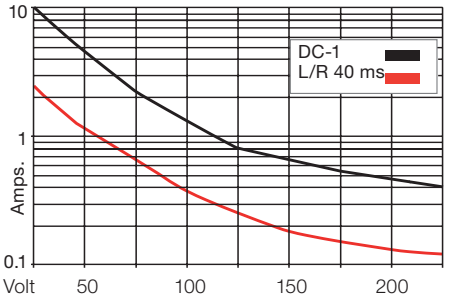
### Connection diagram



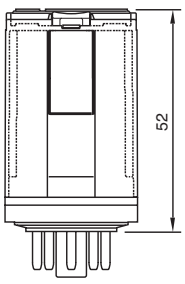

### Fig.1 AC voltage endurance

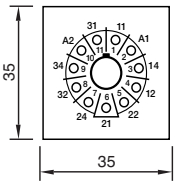



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-M1x

## 1 pole | normally open serial contact with blow magnet | plug-in



| | | | |
|---|---|---|---|
| **Maximum contact load** | | **10 A 250 V AC-1** | **10 A 220 V DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC) / 1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 480 | 50 |
| 48 | 286 | 50 | 48 | 1K8 | 26 |
| 115 | 1K7 | 21 | 110 | 9K | 12 |
| 230 | 6K8 | 10 | 220 | 29K | 7.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 2500 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1: | 2.5 KV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 … 70 °C (55° C AC) /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance | see fig. 2 |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 90 g |

**Product References**

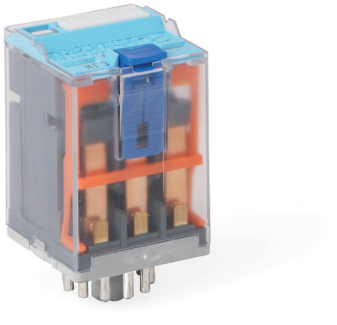
| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C3-M10/AC ... V** |
| **LED** | **C3-M10X/AC ... V** |
| **RC Suppressor** | **C3-M10R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C3-M10/DC ... V** |
| **LED** | **C3-M10X/DC ... V** |
| **Free wheeling diode** | **C3-M10DX/DC ... V** |
| **Polarity and free wheeling diode** | **C3-M10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C3-M10BX/UC ... V** |

Other voltages on request

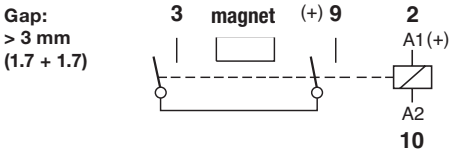
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

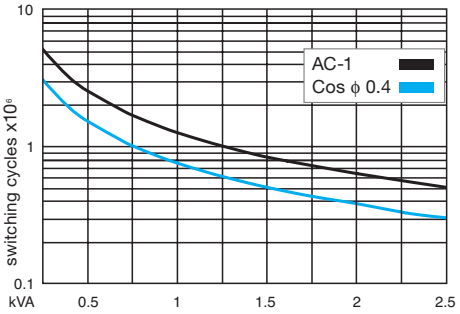
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



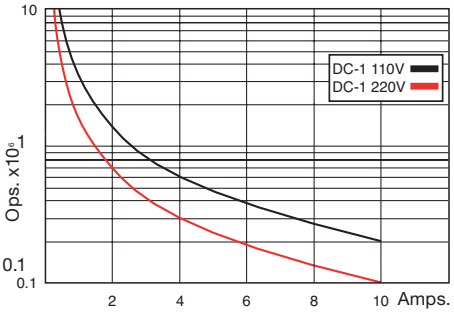
### Connection diagram



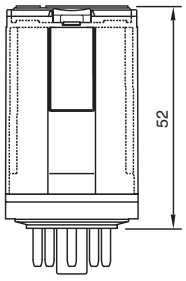

### Fig.1 AC voltage endurance

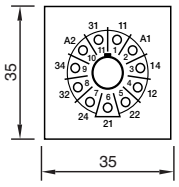



### Fig. 2 DC voltage endurance




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-X1x

## 1 pole | normally open serial contact | plug-in

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A/250 V** | **AC-1** | **7 A/110 V** | **DC-1** |
| | | | **10 A/30 V** | **DC-1** | **1.2 A/220 V** | **DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 480 | 54 |
| 48 | 286 | 50 | 48 | 1K8 | 26 |
| 115 | 1K7 | 21 | 110 | 9K | 12 |
| 230 | 6K8 | 10 | 220 | 29K | 7.5 |

**Insulation** — Volt rms / 1 min

| | |
|---|---|
| Contact open | 2500 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 18 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 83 g |

**Product References**

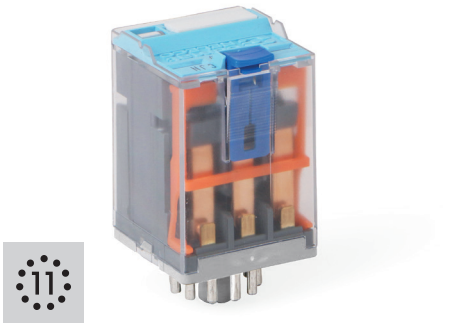
| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C3-X10/AC ... V** |
| **LED** | **C3-X10X/AC ... V** |
| **RC Suppressor** | **C3-X10R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C3-X10/DC ... V** |
| **LED** | **C3-X10X/DC ... V** |
| **Free wheeling diode** | **C3-X10DX/DC ... V** |
| **Polarity and free wheeling diode** | **C3-X10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C3-X10BX/UC ... V** |

Other voltages on request

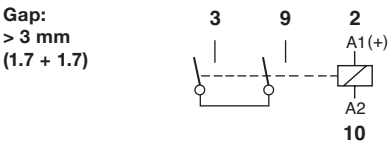
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

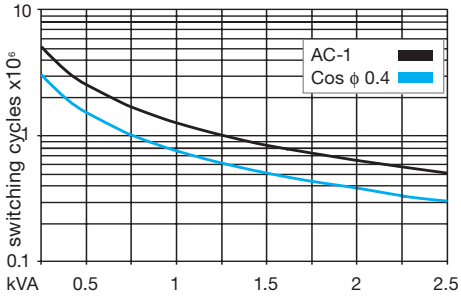
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



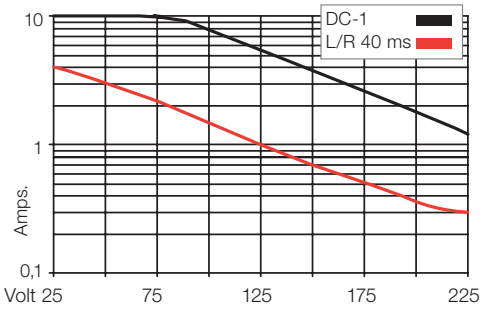
### Connection diagram



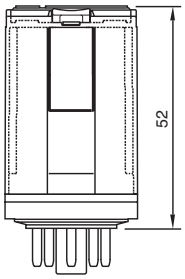

### Fig.1 AC voltage endurance

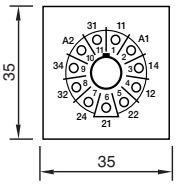



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-R2x

## 2 pole | changeover contact | retentive | plug-in



| | | | | | |
|---|---|---|---|---|---|
| **Maximum contact load** | **10 A/250 V** | **AC-1** | **0.5 A/110 V** | **DC-1** |
| | **10 A/30 V** | **DC-1** | **0.2 A/220 V** | **DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 0** | | |
| | **5 mA/5 V** | **Code 8** | | |

**Contacts**

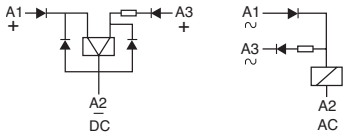
| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |

| | |
|---|---|
| Rated Load | 10 A |
| Switch-on current max. (20 ms) | 30 A |
| Switching voltage max. | 250 V |
| AC load (Fig 1) | 2.5 kVA |
| DC load | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| ON pulse power | 1.5 VA/W |
| OFF pulse power | 0.5 VA/W |
| Pull-in ON/OFF | ≤ 0.8 x $U_N$ |

**Internal Diagram:**




**Coil table**

| V AC | mA ON | mA OFF | VDC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 75 | 12 | 12 | 125 | 41 |
| 48 | 38 | 6 | 24 | 63 | 21 |
| 115 | 16 | 2.5 | 48 | 31 | 10 |
| 230 | 8 | 1.3 | 110 | 14 | 4.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Minimum pulse length for ON/OFF | 50 ms |
| Mechanical life ops | 10 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 81 g |

**Product References**

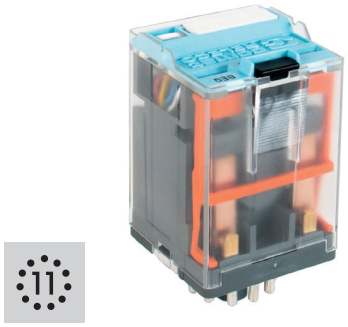
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, 230** | **C3-R20N/AC ... V** | **C3-R28N/AC ... V** |
| **VDC 12, 24, 48, 110** | **C3-R20N/DC ... V** | **C3-R28N/DC ... V** |

Other voltages on request

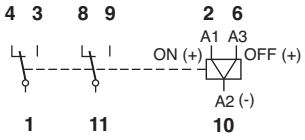
"..."List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

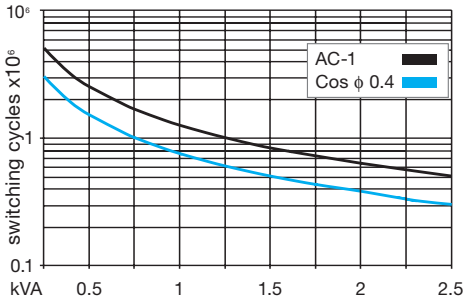
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



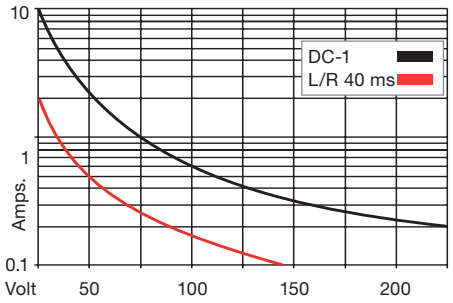
### Connection diagram



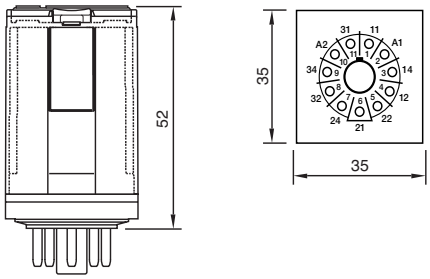

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-N3x

## 3 pole | changeover contact | sensitive coil | plug-in

| | | | |
|---|---|---|---|
| **Maximum contact load** | **6 A/250 V** | **AC-1** | **6 A/30 V** **DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 4** | |
| | **5 mA/5 V** | **Code 8** | |

### Contacts

| | | | |
|---|---|---|---|
| Material | Standard | Code 4 | AgNi + 0.2 µ Au |
| | Optional | Code 8 | AgNi + 10 µ Au |
| Rated Load | | | 6 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 1.5 kVA |
| DC load | | | see Fig. 2 |

### Coil

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 800 mW |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 67 | 92 | 24 | 480 | 50 |
| 48 | 296 | 46 | 48 | 1K8 | 26 |
| 115 | 1K7 | 19 | 110 | 9K | 12 |
| 230 | 7K1 | 9.5 | 220 | 36K1 | 6 |

### Insulation

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

### Specifications

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 18 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | DC: 20 Mill. |
| DC voltage endurance at rated load | ≥ 100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 90 g |

### Product References

| | | |
|---|---|---|
| **VDC 24, 48, 60, 110** | **C3-N34/DC ... V** | **C3-N38/DC ... V** |
| **Free wheeling diode** | **C3-N34D/DC ... V** | **C3-N38D/DC ... V** |
| **Polarity and free wheeling diode** | **C3-N34F/DC ... V** | **C3-N38F/DC ... V** |

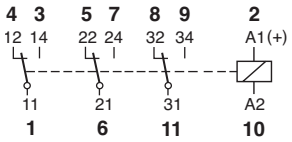
Other voltages on request

"..." List Coil Voltage to complete Product References

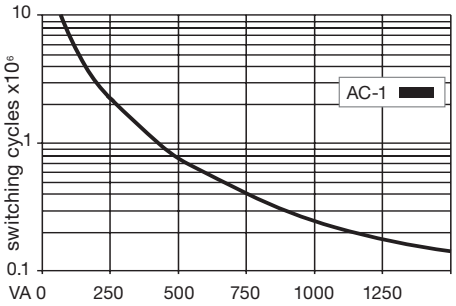
### Accessories (See also Section Sockets)

| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

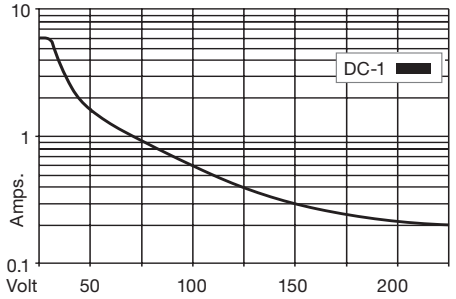
### Connection diagram



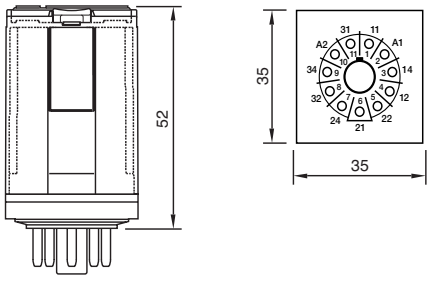

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C4-A4x

## 4 pole | changeover contact | plug-in Faston



| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A/250 V** | **AC-1** | **0.5 A/110 V** | **DC-1** |
| | | | **10 A/30 V** | **DC-1** | **0.2 A/220 V** | **DC-1** |
| **Recommended minimum contact load** | | | **5 mA/5 V** | **Code 8** | | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.4 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 414 | 58 |
| 48 | 286 | 50 | 48 | 1K6 | 30 |
| 115 | 1K7 | 21 | 110 | 8K1 | 13 |
| – | – | – | 120-125 | 10K | 12.3 |
| 230 | 6K8 | 10 | 220 | 35K7 | 6.2 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 90 g |

**Product References**

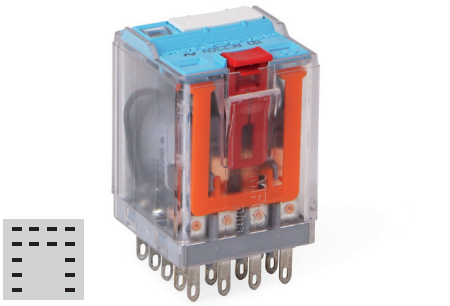
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)** | **C4-A40/AC ... V** | **C4-A48/AC ... V** |
| **LED** | **C4-A40X/AC ... V** | **C4-A48X/AC ... V** |
| **RC Suppressor** | **C4-A40R/AC ... V** | **C4-A48R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C4-A40/DC ... V** | **C4-A48/DC ... V** |
| **LED** | **C4-A40X/DC ... V** | **C4-A48X/DC ... V** |
| **Free wheeling diode** | **C4-A40DX/DC ... V** | **C4-A48DX/DC ... V** |
| **Polarity and free wheeling diode** | **C4-A40FX/DC ... V** | **C4-A48FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C4-A40BX/UC ... V** | **C4-A48BX/UC ... V** |

Other voltages on request

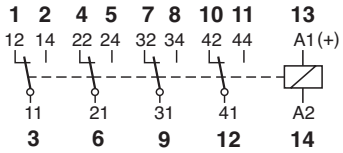
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

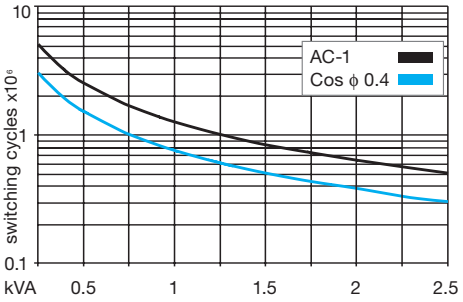
| | |
|---|---|
| Socket: | **S4-J, S4-L, S4-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



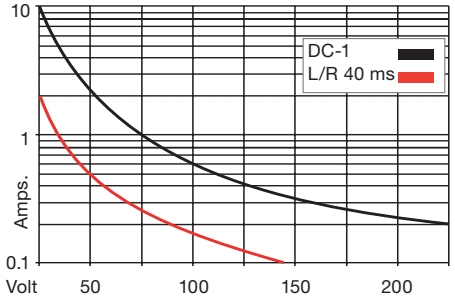
### Connection diagram



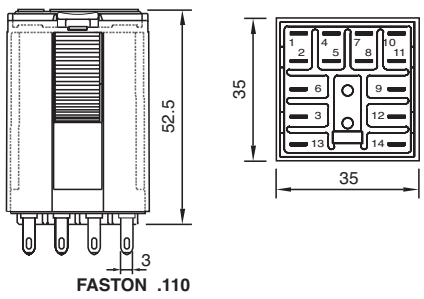

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C4-X2x

## 2 pole | normally open serial contact | plug-in Faston

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A/250 V** | **AC-1** | **7 A/110 V** | **DC-1** |
| | | | **10 A/30 V** | **DC-1** | **1.2 A/220 V** | **DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 443 | 54 |
| 48 | 286 | 50 | 48 | 1K8 | 27 |
| 115 | 1K7 | 21 | 110 | 9K2 | 12 |
| 230 | 6k8 | 10 | 220 | 30K3 | 6 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 2500 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 90 g |

**Product References**

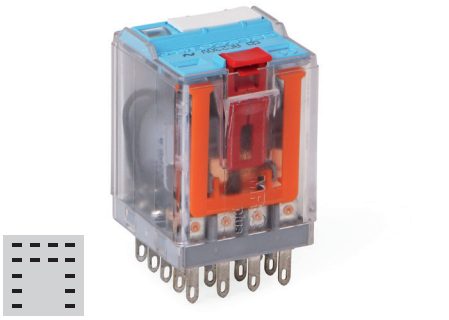
| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)** | **C4-X20/AC ... V** |
| **LED** | **C4-X20X/AC ... V** |
| **RC Suppressor** | **C4-X20R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C4-X20/DC ... V** |
| **LED** | **C4-X20X/DC ... V** |
| **Free wheeling diode** | **C4-X20DX/DC ... V** |
| **Polarity and free wheeling diode** | **C4-X20FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C4-X20BX/UC ... V** |

Other voltages on request

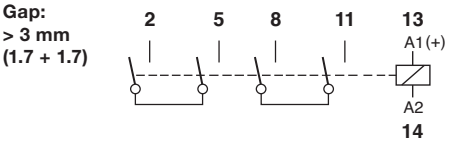
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

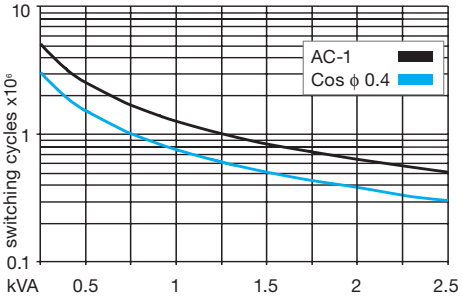
| | |
|---|---|
| Socket: | **S4-J, S4-L, S4-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



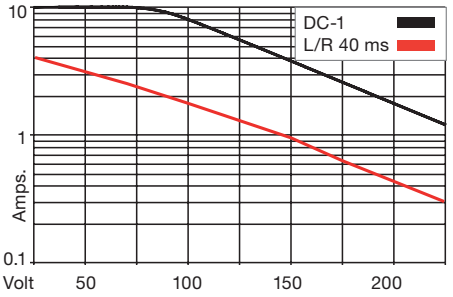
### Connection diagram



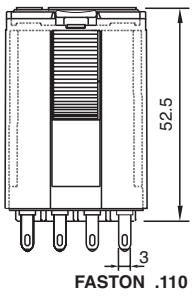

### Fig.1 AC voltage endurance

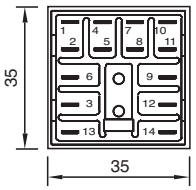



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C4-R3x

## 3 pole | changeover contact | retentive | plug-in

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A/250 V** | **AC-1** | **0.5 A/110 V** | **DC-1** |
| | | | **10 A/10 V** | **DC-1** | **0.2 A/220 V** | **DC-1** |
| **Recommended minimum contact load** | | | **5 mA/5 V** | **Code 8** | | |

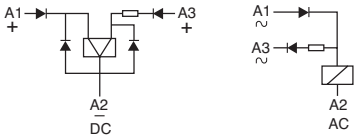
**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| ON pulse power | 1.5 VA/W |
| OFF pulse power | 0.5 VA/W |
| | 1 Winding for AC, 2 Windings for DC |
| Pull-in ON/OFF | ≤ 0.8 x $U_N$ |

**Internal Diagram:**




**Coil table**

| V AC | mA ON | mA OFF | VDC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 75 | 12 | 12 | 125 | 41 |
| 48 | 38 | 6 | 24 | 63 | 21 |
| 115 | 16 | 2.5 | 48 | 31 | 10 |
| 230 | 8 | 1.3 | 110 | 14 | 4.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Minimum pulse length for ON/OFF | 50 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. switching cycles |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 95 g |

**Product References**

**V AC 50 Hz/60 Hz: 24, 48, 115, 230**

**VDC 12, 24, 48, 110**

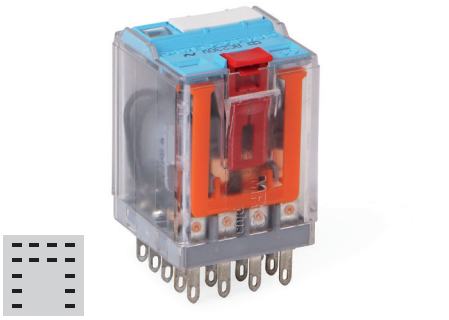
Other voltages on request

**C4-R30/AC ... V** **C4-R38/AC ... V**
**C4-R30/DC ... V** **C4-R38/DC ... V**

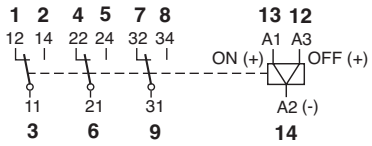
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

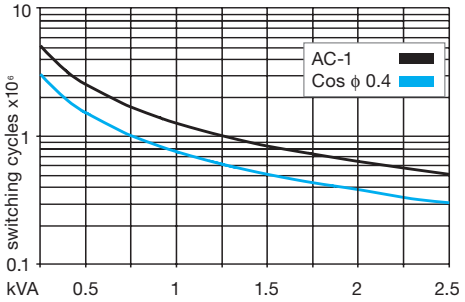
| | |
|---|---|
| Socket: | **S4-J, S4-L, S4-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



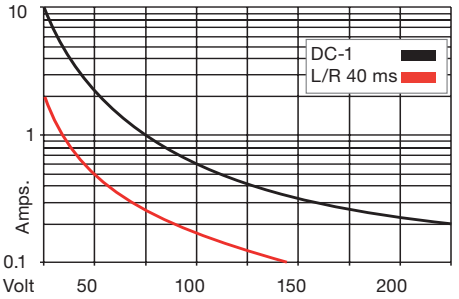
### Connection diagram



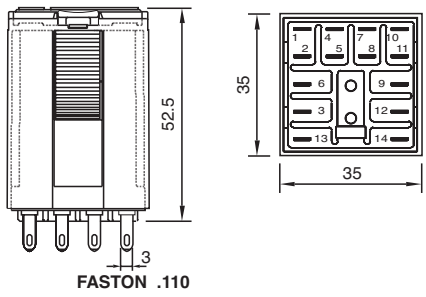

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-A2x

## 2 pole | changeover contact | plug-in Faston



| | | | |
|---|---|---|---|
| **Maximum contact load** | **16 A/400 V AC-1** | **0.5 A/110 V DC-1** | |
| | **16 A/30 V DC-1** | **0.2 A/220 V DC-1** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A |
| Switching voltage max. | | | 400 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.4 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 414 | 58 |
| 48 | 286 | 50 | 48 | 1K6 | 30 |
| 115 | 1K7 | 21 | 110 | 8K1 | 13 |
| 230 | 6K8 | 10 | 220 | 30K3 | 6 |
| 400 | 18K8 | 6 | | | |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 1000 V |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥3 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 90 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C5-A20/AC ... V** |
| **LED** | **C5-A20X/AC ... V** |
| **RC Suppressor (max 250 V)** | **C5-A20R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C5-A20/DC ... V** |
| **LED** | **C5-A20X/DC ... V** |
| **Free wheeling diode** | **C5-A20DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-A20FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-A20BX/UC ... V** |

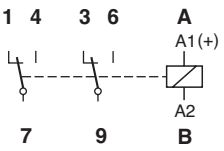
Other voltages on request

"..." List Coil Voltage to complete Product References

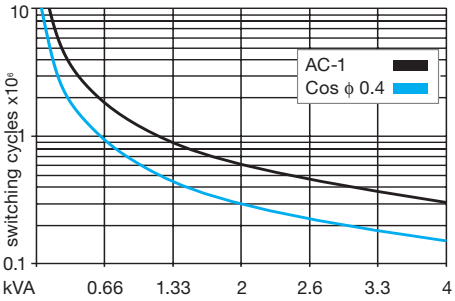
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

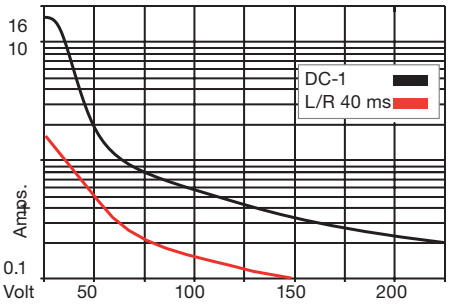
### Connection diagram



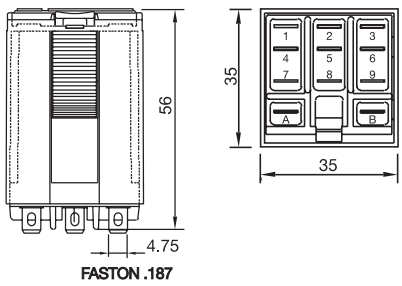

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-A3x

## 3 pole | changeover contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **16 A/400 V AC-1** | **0.5 A/110 V DC-1** | |
| | **16 A/30 V DC-1** | **0.2 A/220 V DC-1** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 5 | $AgSnO_2$ |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A |
| Switching voltage max. | | | 400 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.4 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 414 | 58 |
| 48 | 286 | 50 | 48 | 1K6 | 30 |
| 115 | 1K7 | 21 | 110 | 8K1 | 13 |
| 230 | 6K8 | 10 | 220 | 30K3 | 6.2 |
| 400 | 18K8 | 6 | | | |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥3 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40…60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 95 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)** | **C5-A30/AC ... V** | **C5-A35/AC ... V** |
| **LED** | **C5-A30X/AC ... V** | **C5-A35X/AC ... V** |
| **RC Suppressor (max 250 V)** | **C5-A30R/AC ... V** | **C5-A35R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C5-A30/DC ... V** | **C5-A35/DC ... V** |
| **LED** | **C5-A30X/DC ... V** | **C5-A35X/DC ... V** |
| **Free wheeling diode** | **C5-A30DX/DC ... V** | **C5-A35DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-A30FX/DC ... V** | **C5-A35FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-A30BX/UC ... V** | **C5-A35BX/UC ... V** |

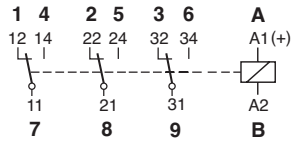
Other voltages on request

"..." List Coil Voltage to complete Product References

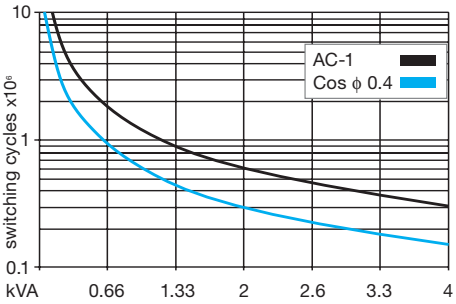
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

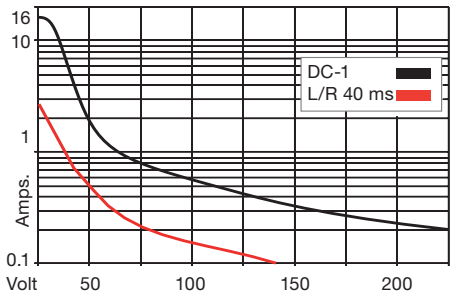
### Connection diagram



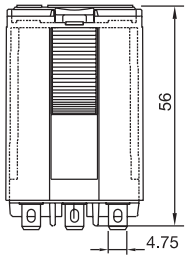

### Fig.1 AC voltage endurance

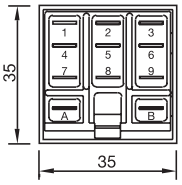



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-G3x

## 3 pole | normally open contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **16 A/400 V AC-1** | **1.2 A/110 V DC-1** | |
| | **16 A/30 V DC-1** | **0.4 A/220 V DC-1** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 5 | $AgSnO_2$ |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A |
| Switching voltage max. | | | 400 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.6 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 12 | 90 | 133 |
| 48 | 286 | 50 | 24 | 373 | 66 |
| 115 | 1K7 | 21 | 48 | 1K4 | 34 |
| 230 | 6K8 | 10 | 110 | 7K6 | 15 |
| 400 | 18K8 | 6 | 220 | 30K3 | 7.5 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 2000 V |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 95 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)** | **C5-G30/AC ... V** | **C5-G35/AC ... V** |
| **LED** | **C5-G30X/AC ... V** | **C5-G35X/AC ... V** |
| **RC Suppressor (max 250 V)** | **C5-G30R/AC ... V** | **C5-G35R/AC ... V** |
| **VDC 12, 24, 48, 110, 220** | **C5-G30/DC ... V** | **C5-G35/DC ... V** |
| **LED** | **C5-G30X/DC ... V** | **C5-G35X/DC ... V** |
| **Free wheeling diode** | **C5-G30DX/DC ... V** | **C5-G35DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-G30FX/DC ... V** | **C5-G35FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-G30BX/UC ... V** | **C5-G35BX/UC ... V** |

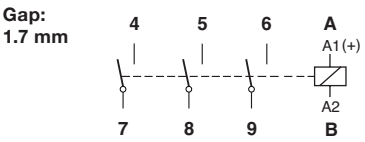
Other voltages on request

"..." List Coil Voltage to complete Product References

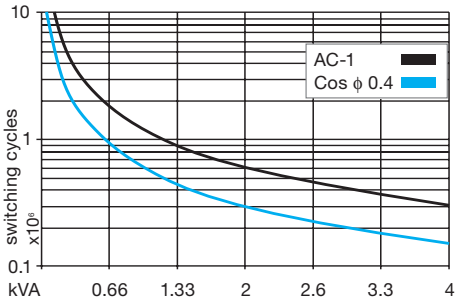
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

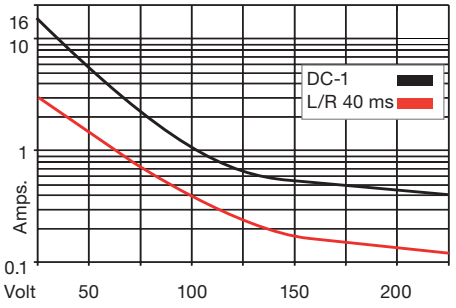
### Connection diagram



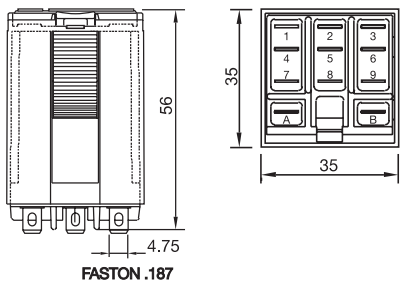

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-X1x

## 1 pole | normally open serial contact | plug-in Faston



| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **16 A/400 V** | **AC-1** | **7 A/110 V** | **DC-1** |
| | | | **16 A/30 V** | **DC-1** | **1.2 A/220V** | **DC-13** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A |
| Switching voltage max. | | | 400 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.3 W (DC)) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 12 | 110 | 108 |
| 48 | 286 | 50 | 24 | 443 | 54 |
| 115 | 1K7 | 21 | 48 | 1K7 | 27 |
| 230 | 6K8 | 10 | 110 | 9K2 | 12 |
| 400 | 18K8 | 6 | 220 | 30K3 | 6.2 |

**Insulation**

| | Volt rms / 1 min |
|---|---|
| Contact open | 4 kV |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 90 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C5-X10/AC ... V** |
| **LED** | **C5-X10X/AC ... V** |
| **RC Suppressor (max 250 V)** | **C5-X10R/AC ... V** |
| **VDC 12, 24, 48, 110, 220** | **C5-X10/DC ... V** |
| **LED** | **C5-X10X/DC ... V** |
| **Free wheeling diode** | **C5-X10DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-X10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-X10BX/UC ... V** |

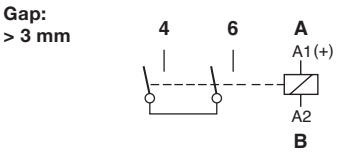
Other voltages on request

"..." List Coil Voltage to complete Product References

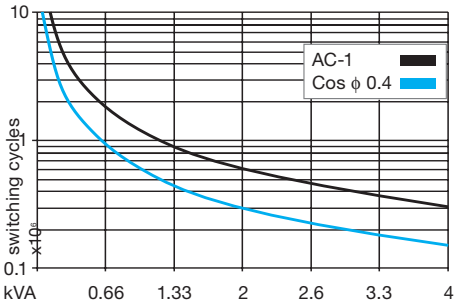
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

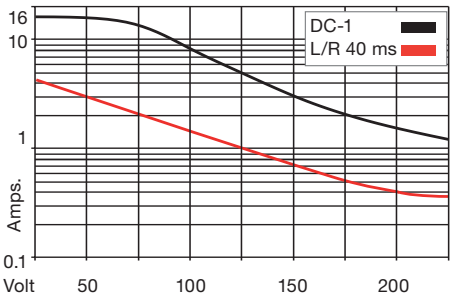
### Connection diagram



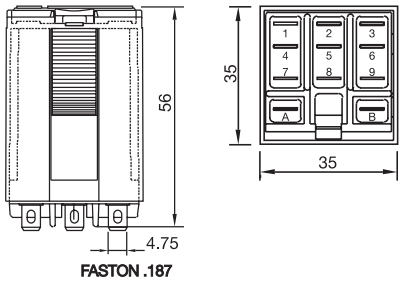

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-M1x

## 1 pole | normally open serial contact with blow magnet | plug-in Faston

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **16 A/400 V** | **AC-1** | **10 A/220 V** | **DC-1** |
| | | | **3.6 A/110 V** | **DC-13** | **2 A/220 V** | **DC-13** |
| **Contacts** | | | | | | |
| Material | Standard | Code 0 | AgNi | | | |
| Rated Load | | | 16 A | | | |
| Switch-on current max. (20 ms) | | | 40 A | | | |
| Switching voltage max. | | | 400 V | | | |
| AC load (Fig 1) | | | 4 kVA | | | |
| DC load | | | see Fig. 2 | | | |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 12 | 110 | 108 |
| 48 | 286 | 50 | 24 | 443 | 54 |
| 115 | 1K7 | 21 | 48 | 1K7 | 27 |
| 230 | 6K8 | 10 | 110 | 9K2 | 12 |
| 400 | 18K8 | 6 | 220 | 30K3 | 6.2 |

| | |
|---|---|
| **Insulation** | Volt rms / 1 min |
| Contact open | 4000 V |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥3 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance | see fig. 2 |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 90 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C5-M10/AC ... V** |
| **LED** | **C5-M10X/AC ... V** |
| **RC Suppressor (max 250 V)** | **C5-M10R/AC ... V** |
| **VDC 12, 24, 48, 110, 220** | **C5-M10/DC ... V** |
| **LED** | **C5-M10X/DC ... V** |
| **Free wheeling diode** | **C5-M10DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-M10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-M10BX/UC ... V** |

Other voltages on request

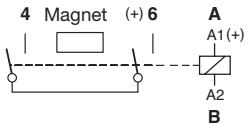
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

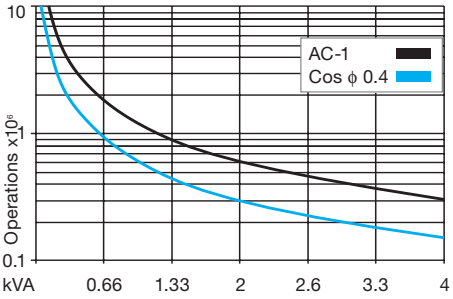
| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

### Connection diagram

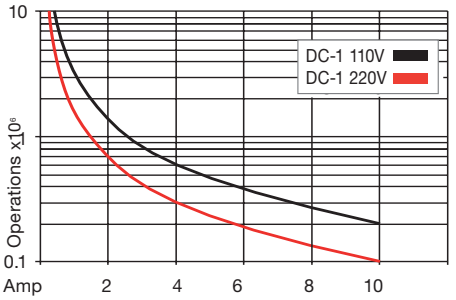
**Gap:**
**> 3 mm**
**(1.7 + 1.7)**



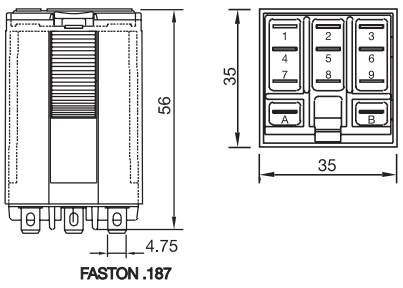

### Fig.1 AC voltage endurance




### Fig. 2 DC voltage endurance




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-M2x

## 2 pole | normally open contact with blow magnet | plug-in Faston



| | | | |
|---|---|---|---|
| **Maximum contact load** | | **16 A / 250 V AC-1** | **7 A / 110 V DC-1**<br>**3 A / 220 V DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≥ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC) / 1.6 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 12 | 90 | 133 |
| 48 | 286 | 50 | 24 | 373 | 66 |
| 115 | 1K7 | 21 | 48 | 1K4 | 33 |
| 230 | 6K8 | 10.4 | 110 | 7K6 | 15 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 2 kV |
| Contact/contact | 4 kV |
| Contact/coil | 3 kV |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Insulation, EN 60947/IEC 61810-1: | 4 KV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. switching cycles |
| DC Rated load | ≥ 75 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 90 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C5-M20/AC ... V** |
| **LED** | **C5-M20X/AC ... V** |
| **RC Suppressor** | **C5-M20R/AC ... V** |
| **VDC 12, 24, 48, 110, 220** | **C5-M20/DC ... V** |
| **LED** | **C5-M20X/DC ... V** |
| **Free wheeling diode** | **C5-M20DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-M20FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-M20BX/UC ... V** |

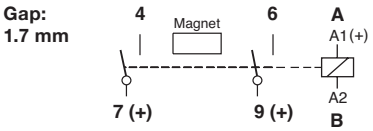
Other voltages on request

"..." List Coil Voltage to complete Product References

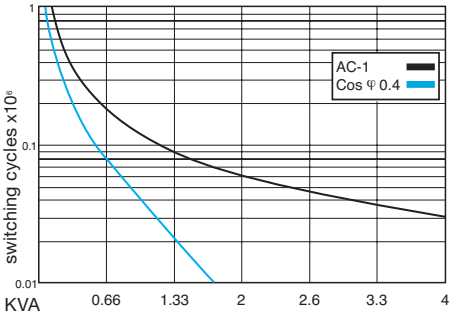
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

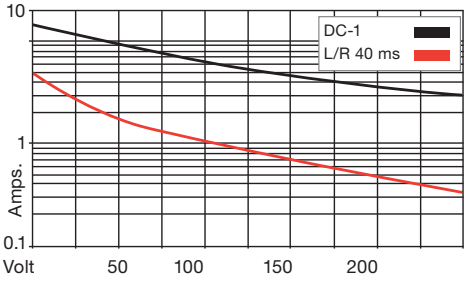
### Connection diagram



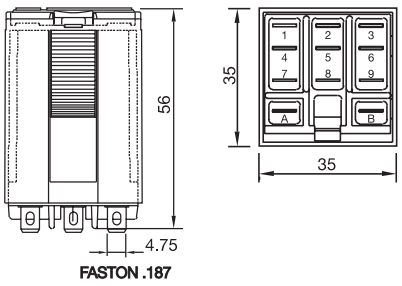

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-R2x

## 2 pole | changeover contact | retentive | plug-in

| | |
|---|---|
| **Maximum contact load** | **10 A/400 V AC-1 10 A/30 V DC-1**<br>**0.2 A/250 V DC-1 0.5 A/110 V DC-1** |

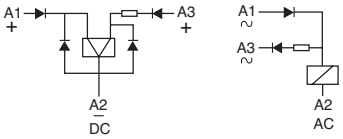
**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 400 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| ON pulse power | 1.5 VA/W |
| OFF pulse power | 0.5 VA/W |
| 1 winding for AC, 2 winding for DC | |
| Pull-in ON/OFF | < 0.8 x $U_N$ |

**Internal Diagram:**




**Coil table**

| V AC | mA ON | mA OFF | VDC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 75 | 12 | 12 | 125 | 41 |
| 48 | 38 | 6 | 24 | 63 | 21 |
| 115 | 16 | 2.5 | 48 | 31 | 10 |
| 230 | 8 | 1.3 | 110 | 14 | 4.5 |

| | |
|---|---|
| **Insulation** | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥3 GΩ |
| Insulation, EN 60947/IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Minimum pulse ON/OFF | 50 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 95 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, 230** | **C5-R20/AC ... V** |
| **VDC : 12, 24, 48, 110,** | **C5-R20/DC ... V** |

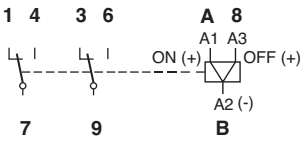
Other voltages on request

"..." List Coil Voltage to complete Product References

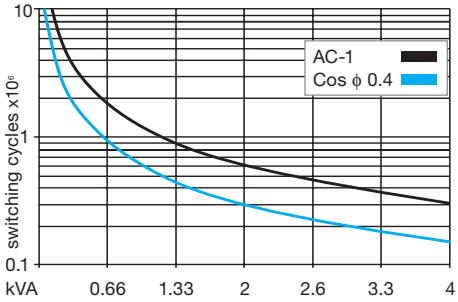
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

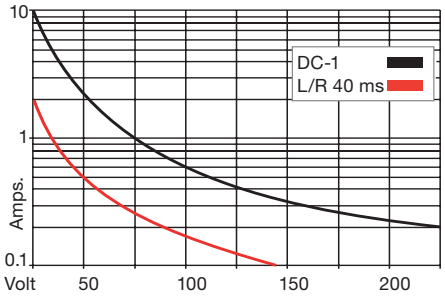
### Connection diagram



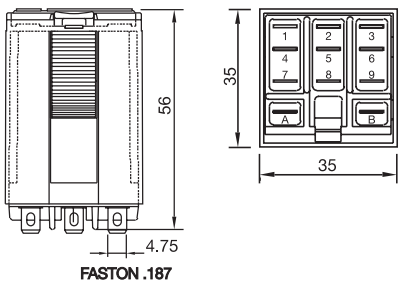

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-A1x

## 1 pole | changeover contact | plug-in Faston

| | | | | | |
|---|---|---|---|---|---|
| **Maximum contact load** | | | **16 A/250 V** | **AC-1** | **0.5 A/110 V DC-1** |
| | | | **16 A/24 V** | **DC-1** | **0.2 A/220 V DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A (120 A for code 5) |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |
| Relay compatible with socket S7-C | | | |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.2 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 174 | 50 | 12 | 111 | 108 |
| 48 | 686 | 25 | 24 | 432 | 55 |
| 115 | 4K3 | 10.4 | 48 | 1K7 | 28 |
| 230 | 18K6 | 5.2 | 110 | 9K2 | 12 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 16 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| AC/DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C7-A10/AC ... V** |
| **LED** | **C7-A10X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C7-A10/DC ... V** |
| **LED** | **C7-A10X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C7-A10DX/DC 24 V** |
| **Polarity and free wheeling diode** | **C7-A10FX/DC ... V** |

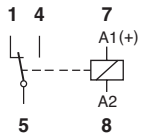
Other voltages on request

"..." List Coil Voltage to complete Product References

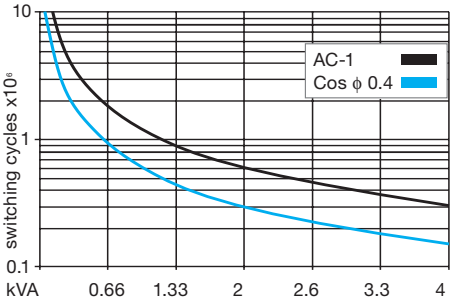
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

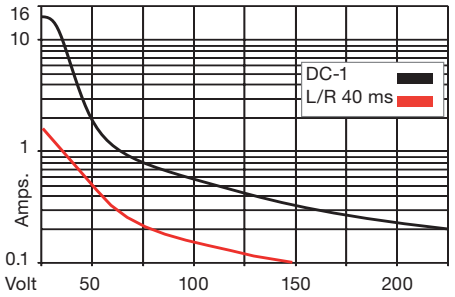
### Connection diagram



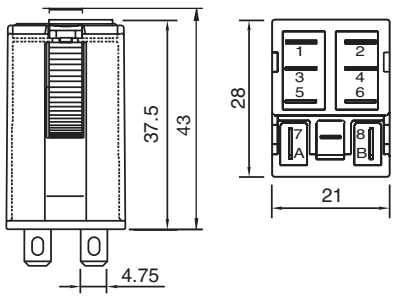

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-A2x

## 2 pole | changeover contact | plug-in Faston

| | | |
|---|---|---|
| **Maximum contact load** | **10 A/250 V AC-1** | **0.5 A/110 V DC-1** |
| | **10 A/30 V DC-1** | **0.2 A/220 V DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V Code 0** | |
| | **5 mA/5 V Code 8** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.2 VA (AC)/1 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 174 | 50 | 12 | 148 | 85 |
| 48 | 686 | 25 | 24 | 594 | 43 |
| 115 | 4K3 | 10.4 | 48 | 2K3 | 21 |
| 230 | 18K6 | 5.2 | 110 | 11K4 | 10 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 16 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C7-A20/AC ... V** | **C7-A28/AC ... V** |
| **LED** | **C7-A20X/AC ... V** | **C7-A28X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C7-A20/DC ... V** | **C7-A28/DC ... V** |
| **LED** | **C7-A20X/DC ... V** | **C7-A28X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C7-A20DX/DC 24 V** | **C7-A28DX/DC 24 V** |
| **Polarity and free wheeling diode** | **C7-A20FX/DC ... V** | **C7-A28FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C7-A20BX/UC ... V** | **C7-A28BX/UC ... V** |

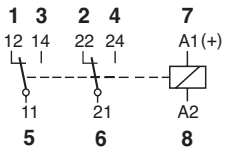
Other voltages on request

"..." List Coil Voltage to complete Product References

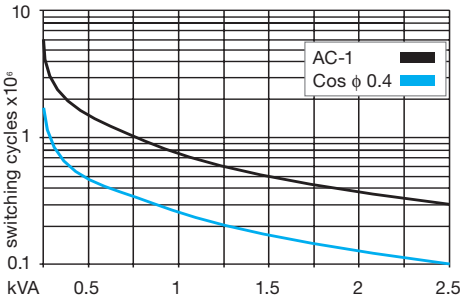
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

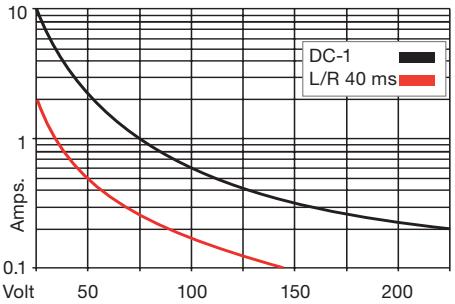
### Connection diagram



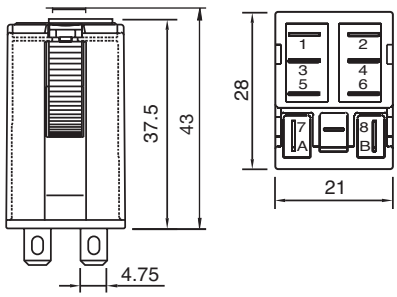

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-T2x

## 2 pole | changeover twin contact | plug-in



| | | | | | |
|---|---|---|---|---|---|
| **Maximum contact load** | | | **6 A/250 V** | **AC-1** | **6 A/30 V** **DC-1** |
| **Recommended minimum contact load** | | | **5 mA/5 V** | **Code 1** | |
| | | | **1 mA/5 V** | **Code 2** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 2 | AgNi + 5 µ Au |
| Rated Load | | | 6 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 1.2 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.2 VA (AC)/1 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 174 | 50 | 12 | 148 | 85 |
| 48 | 686 | 25 | 24 | 594 | 43 |
| 115 | 4K3 | 10.4 | 48 | 2K3 | 21 |
| 230 | 18K6 | 5.2 | 110 | 11K4 | 10 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 16 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 230 (240)** | **C7-T21/AC ... V** | |
| **LED** | **C7-T21X/AC ... V** | **C7-T22X/AC ... V** |
| **VDC 110** | **C7-T21/DC ... V** | **C7-T22/DC ... V** |
| **LED** | **C7-T21X/DC ... V** | **C7-T22X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C7-T21DX/DC 24 V** | **C7-T22X/DC 24 V** |
| **Polarity and free wheeling diode** | **C7-T21FX/DC ... V** | **C7-T22FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V** | **C7-T21BX/UC ... V** | **C7-T22BX/UC ... V** |

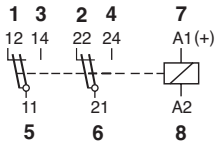
Other voltages on request

"..." List Coil Voltage to complete Product References

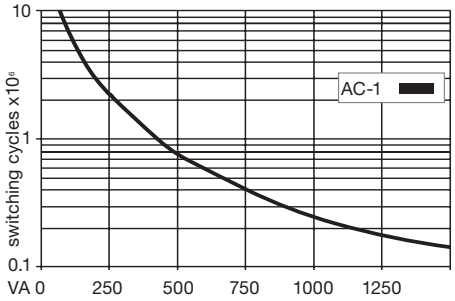
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

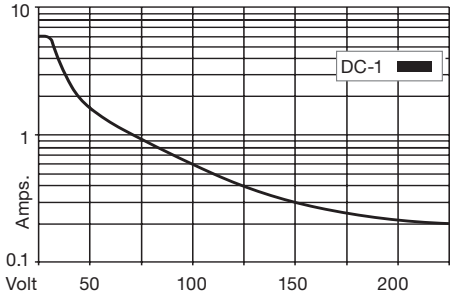
### Connection diagram



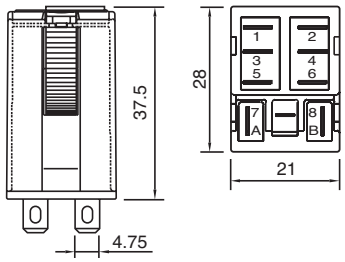

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-G2x

## 2 pole | normally open contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **10 A/250 V AC-1** | **0.8 A/110 V DC-1** | |
| | **10 A/30 V DC-1** | **0.4 A/220 V DC-1** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.5 VA (AC)/1.5 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 153 | 62 | 12 | 99 | 121 |
| 48 | 611 | 31 | 24 | 388 | 61 |
| 115 | 3K6 | 13 | 48 | 1K5 | 32 |
| 230 | 14K6 | 6.5 | 110 | 8K | 14 |

**Insulation** — Volt rms / 1 min

| | |
|---|---|
| Contact open | 2000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C7-G20/AC ... V** |
| **LED** | **C7-G20X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C7-G20/DC ... V** |
| **LED** | **C7-G20X/DC ... V** |
| **Polarity and free wheeling diode** | **C7-G20FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C7-G20BX/UC ... V** |

Other voltages on request

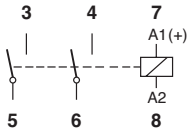
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

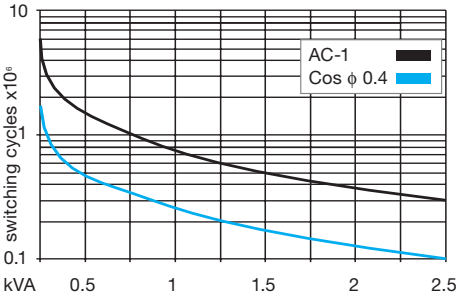
| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

### Connection diagram

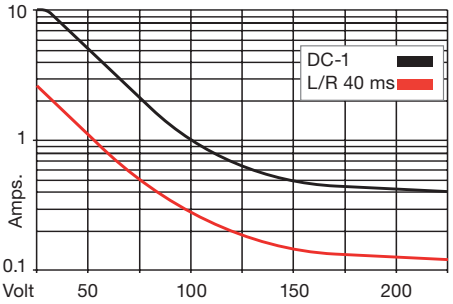
**Gap: 1.5 mm**



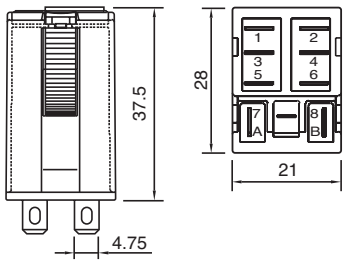

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-H2x

## 2 pole | changeover contact | plug-in Faston

| | | | | | |
|---|---|---|---|---|---|
| **Maximum contact load** | **10 A / 250 V** | **AC-1** | **6 A / 250 V** | **AC-1** |
| | **10 A / 30 V** | **DC-1** | **6 A / 30 V** | **DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V (Power contacts)** | | | |
| | **5 mA/5V (twin contacts)** | | | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 3 | AgNi + 3 µ Au |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 2,5 kV |
| AC load (Fig 1) | | | 2,5 VA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.2 VA (AC)/1 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 230 | 18K6 | 5.2 | 24 | 594 | 43 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 16 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | |
|---|---|
| **LED (only 230 V AC)** | **C7-H23X/AC 230 V** |
| **Free wheeling diode (only 24 DC)** | **C7-H23X/DC 24 V** |

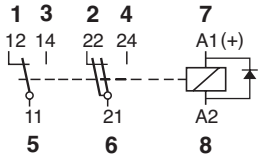
Other voltages on request

"..." List Coil Voltage to complete Product References

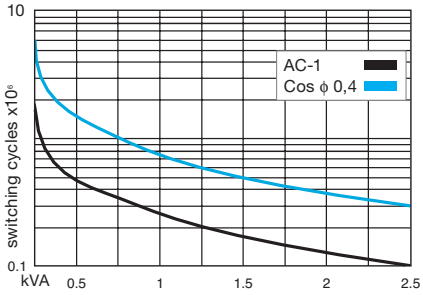
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

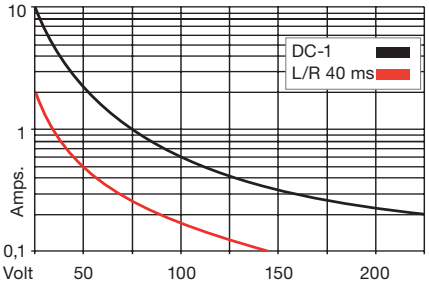
### Connection diagram



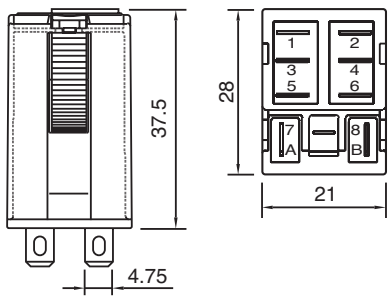

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC 61810; EN 60947

# C7-X1x

## 1 pole | normally open serial contact | plug-in Faston



| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A/250 V** | **AC-1** | **6 A/110 V** | **DC-1** |
| | | | **10 A/30 V** | **DC-1** | **1 A/220 V** | **DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.5 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 153 | 62 | 12 | 111 | 108 |
| 48 | 611 | 31 | 24 | 432 | 55 |
| 115 | 3K6 | 13 | 48 | 1K7 | 27 |
| 230 | 14K6 | 6.5 | 110 | 9K2 | 12 |

**Insulation** — Volt rms / 1 min

| | |
|---|---|
| Contact open | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C7-X10/AC ... V** |
| **LED** | **C7-X10X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C7-X10/DC ... V** |
| **LED** | **C7-X10X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C7-X10DX/DC 24 V** |
| **Polarity and free wheeling diode** | **C7-X10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C7-X10BX/UC ... V** |

Other voltages on request

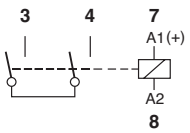
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

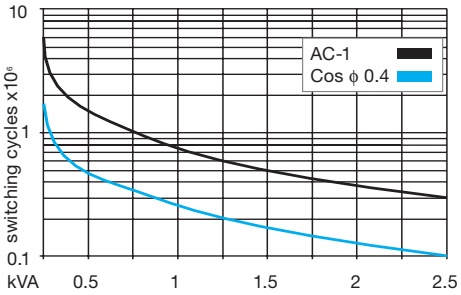
| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

### Connection diagram

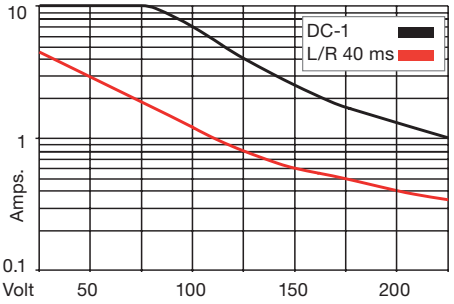
**Gap:**
**3 mm (1.5 + 1.5)**



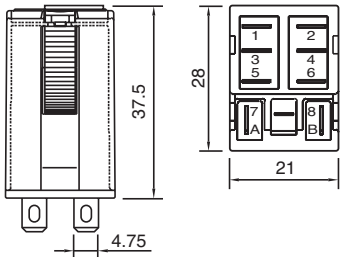

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-W1x

## 1 pole | normally open tungsten pre-contact | plug-in Faston

| | | |
|---|---|---|
| **Maximum contact load:** | **10 A/250 V AC-1** | **6 A / 250 V AC-5a/b** |
| **Recommended minimum contact load:** | **10 mA/10 V** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi/W |
| Rated Load | | | 10 A |
| Switch-on current max. (2.5 ms) | | | 500 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.5 VA (AC)/1.5 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 153 | 62 | 12 | 99 | 121 |
| 48 | 611 | 31 | 24 | 388 | 61 |
| 115 | 3K6 | 13 | 48 | 1K5 | 32 |
| 230 | 14K5 | 6.5 | 110 | 8K | 14 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C7-W10/AC ... V** |
| **LED** | **C7-W10X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C7-W10/DC ... V** |
| **LED** | **C7-W10X/DC ... V** |
| **Polarity and free wheeling diode** | **C7-W10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C7-W10BX/UC ... V** |

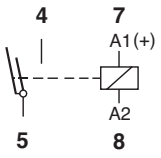
Other voltages on request

"..." List Coil Voltage to complete Product References

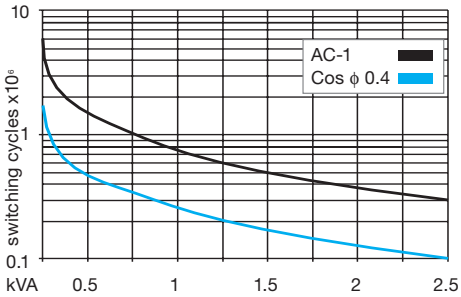
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

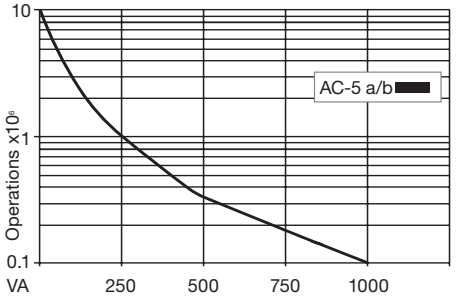
### Connection diagram



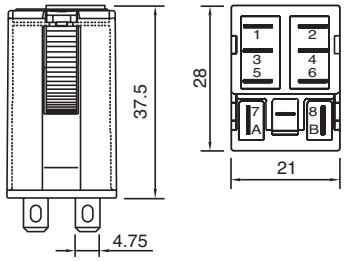

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C9-A4x

## 4 pole | changeover contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **5 A/250 V** | **AC-1** | **5 A/30 V** **DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 1** | |
| | **1 mA/5 V** | **Code 2** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 2 | AgNi + 5 µ Au |
| Rated Load | | | 5 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max (same polarity) | | | 250 V |
| AC load (Fig 1) | | | 1250 VA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.2 VA (AC)/1 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 174 | 50 | 12 | 148 | 81 |
| 48 | 686 | 25 | 24 | 594 | 40 |
| 115 | 4K3 | 10.4 | 48 | 2K3 | 21 |
| 230 | 18K6 | 5.2 | 110 | 11K4 | 11 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 1000 V |
| Contact/contact | 2 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 3 ms |
| Release time/bounce time | 6 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, 230 (240)** | **C9-A41/AC ... V** | **C9-A42/AC ... V** |
| **LED** | **C9-A41X/AC ... V** | **C9-A42X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C9-A41/DC ... V** | **C9-A42/DC ... V** |
| **LED** | **C9-A41X/DC ... V** | **C9-A42X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C9-A41DX/DC 24 V** | **C9-A42DX/DC 24 V** |
| **Polarity and free wheeling diode** | **C9-A41FX/DC ... V** | **C9-A42FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C9-A41BX/UC ... V** | **C9-A42BX/UC ... V** |

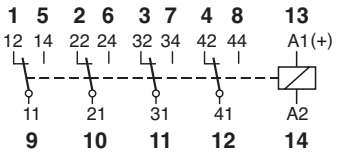
Other voltages on request

"..." List Coil Voltage to complete Product References

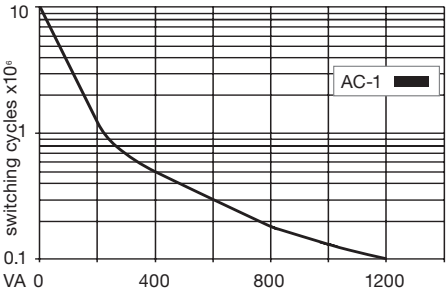
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S9-M, S9-P** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

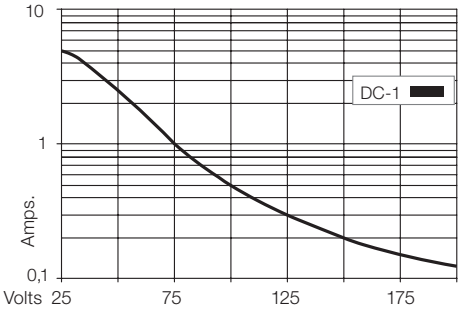
### Connection diagram



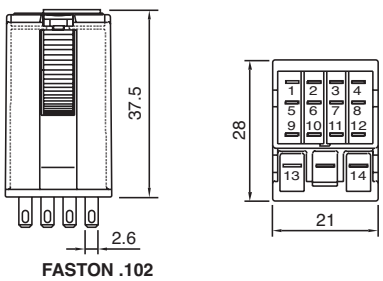

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions

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### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

Maximum voltage between two separate circuits on neighbouring contacts: 150 V
**Not permitted:** 24 V DC next to 230 V AC, 230 V AC next to neutral, 230 V AC next to 230 V AC of different phases
**Permitted:** 230 V AC next to 230 V AC same phase

# C9-E2x

## 2 pole | changeover contact | sensitive coil | plug-in Faston

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **5 A/250 V** | **AC-1** | **5 A/30 V** | **DC-1** |
| **Recommended minimum contact load** | | | **10 mA/10 V** | **Code 1** | | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| Rated Load | | | 5 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 1200 VA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 0.8 VA (AC)/0.5 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 238 | 33 | 12 | 288 | 42 |
| 48 | 1K | 17 | 24 | 1K1 | 21 |
| 115 | 5K9 | 7 | 48 | 4K6 | 10 |
| 230 | 23K9 | 3.5 | 110 | 24K2 | 4.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 3 ms |
| Release time/bounce time | 6 ms/≤ 1 ms |
| Mechanical life | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 40 g |

**Product References**

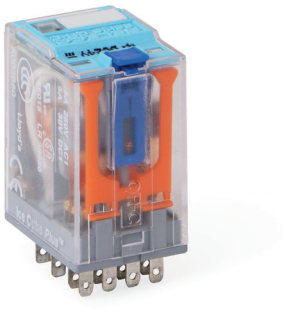
| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, 230 (240)** | **C9-E21/AC ... V** |
| **LED** | **C9-E21X/AC ... V** |
| **VDC 12, 24, 48, 110, 220** | **C9-E21/DC ... V** |
| **LED** | **C9-E21X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C9-E21DX/DC 24 V** |
| **Polarity and free wheeling diode** | **C9-E21FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C9-E21BX/UC ... V** |

Other voltages on request

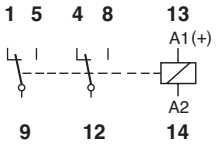
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

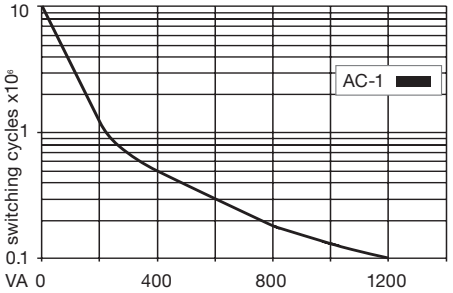
| | |
|---|---|
| Socket: | **S9-M, S9-P** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |



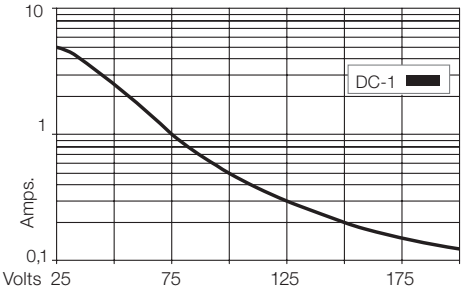
### Connection diagram



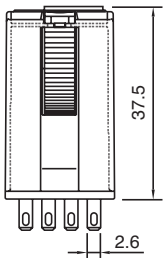

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions

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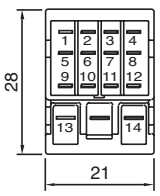



### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

Maximum voltage between two separate circuits on neighbouring contacts: 150 V
**Not permitted:** 24 V DC next to 230 V AC, 230 V AC next to neutral, 230 V AC next to 230 V AC of different phases
**Permitted:** 230 V AC next to 230 V AC same phase

# C9-R2x

## 2 pole | changeover contact | retentive | plug-in Faston

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **5 A/120V** | **AC-1** | **5 A/30 V** | **DC-1** |
| **Recommended minimum contact load** | | | **10 mA/10 V** | | | |

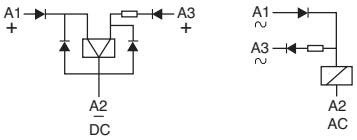
### Contacts

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| Rated Load | | | 5 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 120V |
| AC load | | | 600 VA |
| DC load | | | see Fig. 2 |

### Coil

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| ON pulse power | 1.2 VA/W |
| OFF pulse power | 0.3 VA/W |
| 1 winding for AC, 2 winding for DC | |

### Internal Diagram:




### Coil table

| V AC | mA ON | mA OFF | VDC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 50 | 8 | 12 | 100 | 25 |
| 48 | 25 | 4 | 24 | 50 | 12 |
| 115 | 10 | 2 | 48 | 25 | 6 |
| 230 | 5 | 1 | 60 | 20 | 5 |

### Insulation

| | |
|---|---|
| **Insulation** | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2 kV |
| Contact/coil | 2 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

### Specifications

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Minimum pulse ON/OFF | 50 ms |
| Mechanical life | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

### Product References

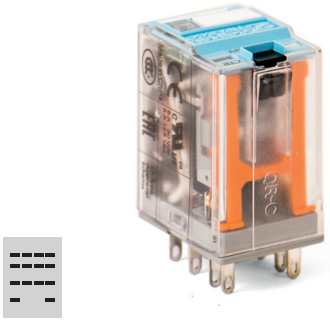
| | |
|---|---|
| **AC 50 Hz/60 Hz: 24, 48, 115, 230** | **C9-R21/AC ... V** |
| **DC 12, 24, 48, 60** | **C9-R21/DC ... V** |

Other voltages on request

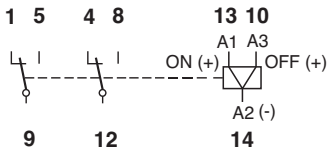
"..." List Coil Voltage to complete Product References

### Accessories (See also Section Sockets)

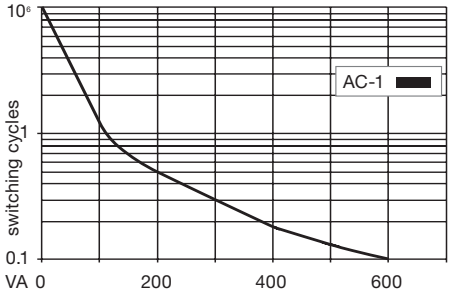
| | |
|---|---|
| Socket: | **S9-M, S9-P** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |



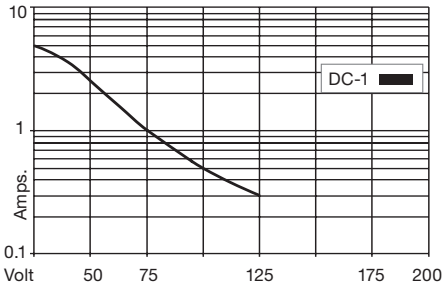
### Connection diagram



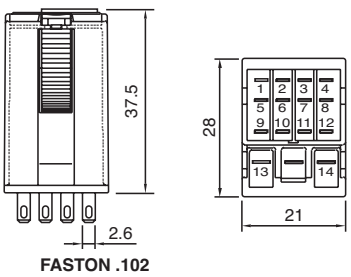

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions

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### Technical approvals, conformities

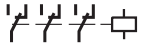
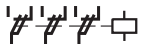
IEC/EN 61810; IEC/EN 60947

Maximum voltage between two separate circuits on neighbouring contacts: 150 V
**Not permitted:** 24 V DC next to 230 V AC, 230 V AC next to neutral, 230 V AC next to 230 V AC of different phases
**Permitted:** 230 V AC next to 230 V AC same phase

## Notes

## Notes

# 1.4 Extended Lifetime Relays

| Application | Types | Pins | Contacts | Contact ratings | Socket |
|---|---|---|---|---|---|
| **C3x Series** | | | | | |
| Long Life, Railway | C31 | |  | 10 A / 250 V | S3 |
| Long Life, reliable switching of lower loads, Railway | C32 | |  | 5 A / 250 V | S3 |

# C31

## 3 pole | changeover contact | plug-in

| | |
|---|---|
| **Maximum contact load** | **10 A / 250 V AC-1**<br>**10 A / 30 V DC-1** |
| **Recommended minimum contact load** | **50 mA / 10 V** |

**Contacts**

| | |
|---|---|
| Material | AgCuNi |
| Rated operational current | 10 A |
| Max. inrush current (20 ms) | 40 A |
| Rated switching voltage | 250 V |
| Max. AC load | 2500 VA AC-1 |
| Max. DC load 30V / 230V DC-1 (Fig. 2) | 300W / 90 W |

**Coils** (Values are valid at 20 °C)

| | |
|---|---|
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage AC / DC | > 0.15 x $U_N$ / > 0.05 x $U_N$ |
| Nominal power AC / DC | 2.5 VA / 1.2 W |

**Coil Table**

| $V_N$ AC | Ω | mA | $V_N$ DC | Ω | mA |
|---|---|---|---|---|---|
| **24** | 52 | 104 | **12** | 115 | 104 |
| **48** | 240 | 55 | **24** | 480 | 50 |
| **115** | 1350 | 23 | **48** | 1850 | 26 |
| **230** | 5600 | 11.5 | **110** | 9000 | 12 |
| | | | **220** | 29000 | 7.6 |

Types with LED indicator take additional 5 … 10 mA @ < 80 V

**Insulation**

| | |
|---|---|
| Contact Open | 1.5 kV rms / 1 min |
| Contact Contact | 1.5 kV rms / 1 min |
| Contact Coil | 2 kV rms / 1 min |

**Specifications**

| | |
|---|---|
| Ambient temperature operation, storage | -40 … +70 °C (no ice) |
| Pickup time AC / DC | 3 … 10 ms / ≤ 12 ms |
| Release time AC / DC | 2 … 15 ms / ≤ 3.5 ms |
| Bounce time NO contact AC / DC | 3 … 6 ms / approx. 3.5 ms |
| Mechanical life | ≥ 100 000 000 operations |
| Operating frequency at nominal load | ≤ 360 operations / h |
| Weight | 80 g |

**Product References**

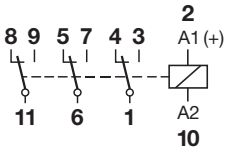
| | |
|---|---|
| **AC 50 Hz / 60 Hz: 24, 48, 115, 230 (240)** | **C31/AC…V** |
| **LED** | **C31L/AC…V** |
| **DC: 12, 24, 48, 110, 220** | **C31/DC…V** |
| **Free wheeling diode** | **C31D/DC…V** |
| **LED + Free wheeling diode** | **C31DL/DC…V** |
| **Railway EN 50155** | **C31D/R DC…V** |

"…" List Coil Voltage to complete Product References

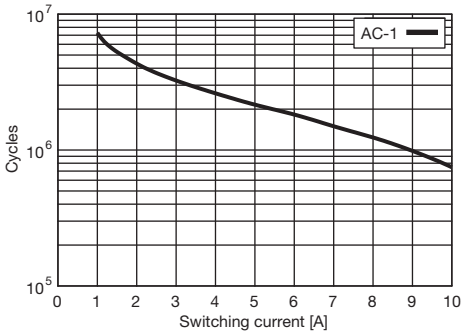
**Accessories**

| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

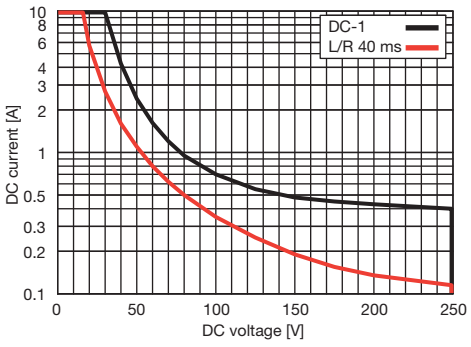
### Connection diagram



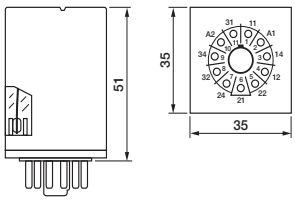

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947; IEC/EN 50155
IEC/EN 61373; IEC/EN 45545
NF F 16-101/102

# C32

## 3 pole | changeover twin contact | plug-in



| | |
|---|---|
| **Maximum contact load** | **6 A / 250 V AC-1** |
| | **6 A / 30 V DC-1** |
| **Recommended minimum contact load** | **1 mA / 5 V** |

### Contacts

| | |
|---|---|
| Material | AgCuNi |
| Rated operational current | 6 A |
| Max. inrush current (20 ms) | 15 A |
| Rated switching voltage AC-1 | 250 V |
| Max. AC load | 1500 VA AC-1 |
| Max. DC load 30V / 230V DC-1 (Fig. 2) | 200 W / 90 W |

### Coils (Values are valid at 20 °C)

| | |
|---|---|
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage AC / DC | > 0.15 x $U_N$ / > 0.05 x $U_N$ |
| Nominal power AC / DC | 2.5 VA / 1.2 W |

### Coil Table

| $V_N$ AC | Ω | mA | $V_N$ DC | Ω | mA |
|---|---|---|---|---|---|
| **24** | 52 | 104 | **12** | 115 | 104 |
| **48** | 240 | 55 | **24** | 480 | 50 |
| **115** | 1350 | 23 | **48** | 1850 | 26 |
| **230** | 5600 | 11.5 | **110** | 9000 | 12 |
| | | | **220** | 29000 | 7.6 |

Types with LED indicator take additional 5 … 10 mA @ < 80 V

### Insulation

| | |
|---|---|
| Contact Open | 1.5 kV rms / 1 min |
| Contact Contact | 1.5 kV rms / 1 min |
| Contact Coil | 2 kV rms / 1 min |

### Specifications

| | |
|---|---|
| Ambient temperature operation, storage | -40 … +70 °C (no ice) |
| Pickup time AC / DC | 3 … 10 ms / ≤ 12 ms |
| Release time AC / DC | 2 … 15 ms / ≤ 3.5 ms |
| Bounce time NO contact AC / DC | 3 … 6 ms / approx. 3.5 ms |
| Mechanical life | ≥ 100 000 000 operations |
| Operating frequency at nominal load | ≤ 360 operations / h |
| Weight | 80 g |

### Product References

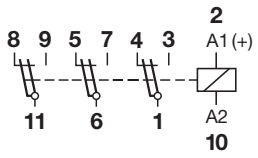
| | |
|---|---|
| **AC 50 Hz / 60 Hz: 24, 48, 115, 230 (240)** | **C32/AC…V** |
| **LED** | **C32L/AC…V** |
| **DC: 12, 24, 48, 110, 220** | **C32/DC…V** |
| **Free wheeling diode** | **C32D/DC…V** |
| **LED + Free wheeling diode** | **C32DL/DC…V** |
| **Railway EN 50155** | **C32D/R DC…V** |

" …" List Coil Voltage to complete Product References

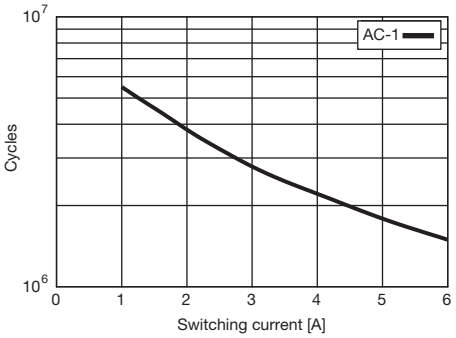
### Accessories

| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

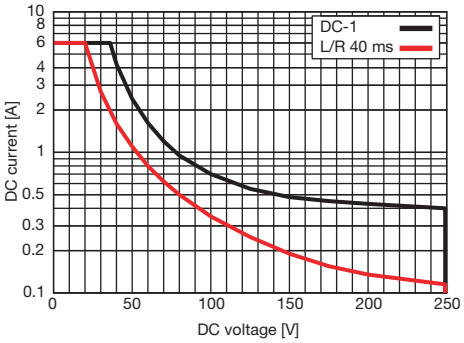
### Connection diagram



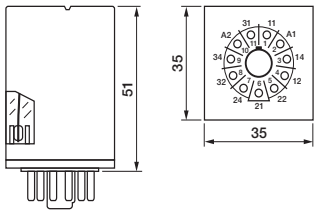

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947; IEC/EN 50155
IEC/EN 61373; IEC/EN 45545
NF F 16-101/102

## Notes

# 1.5 Solid State Relays

| Application | Types | Pins | Contacts | AC ratings | DC ratings | Socket |
|---|---|---|---|---|---|---|
| **CSS Series** | | | | | | |
| AC Solid state relay, Instantaneous switching | CSS-I | | | 3 A / 250 V | - | S10 |
| AC Solid state relay synch. to zero crossing | CSS-Z | | | 3 A / 250 V | - | S10 |
| NPN Solid state relay | CSS-N | | | - | 6 A / 48 V | S10 |
| PNP Solid state relay | CSS-P | | | - | 6 A / 48 V | S10 |
| **CRINT Series** | | | | | | |
| DC solid state switch | CRINT-1x5 | | | - | 2 A / 24 V | - |
| AC solid state switch | CRINT-1x8 | | | 1 A / 240 V | - | - |

# CSS-I

## 1 pole | normally open solid state AC | plug-in Faston

| | |
|---|---|
| **Output** | **1 N/O contact** |
| **Operating range** | **3 A, 24 ... 250 V AC, 50/60 Hz** |
| **Minimum contact load** | **35 mA** |

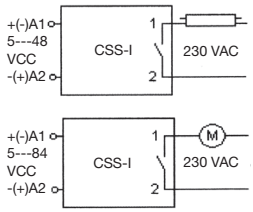
| | |
|---|---|
| **Control circuit** | |
| Input voltage range | 5 ... 48 VDC |
| Input current | 10 mA |

| | |
|---|---|
| **Output circuit** | Instantaneous |
| Max. output current | 3 A |
| Min. output current | 35 mA |
| Output voltage range | 24...250 V AC |
| Inrush current | 150 A/10 ms |
| Residual current | 1 mA |
| $I^2t$ value | 210 $A^2s$ |

| | |
|---|---|
| **Specifications** | |
| Ambient temperature operation/storage | -40 ... 70 °C /-40 ... 85 °C (no ice) |
| Pick-up time | 0.06 ms |
| Release time | 0.06 ms |
| Weight | 28 g |

**Applications**

It is specially suitable to switch inductive loads up to 3A/250 V AC.
For switching loads with a high inrush or overcurrent as transformers, motors or fluorescents, the maximum output current will limit to 2 A.



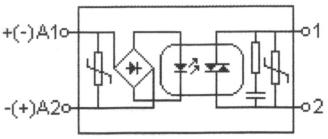

**Product References**

| | |
|---|---|
| **VDC 5–48** | **CSS-I12X/DC5–48V** |

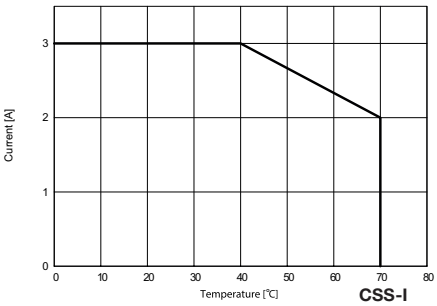
**Accessories**

| | |
|---|---|
| Socket: | **S10, S10-P** |

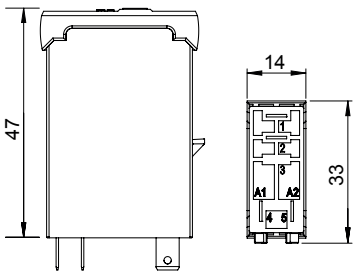
**Fig. 1 CSS-I diagram**




**Tab. 2 AC derating curve**




**Dimensions**




**Technical approvals, conformities**

IEC/EN 60947

# CSS-Z

## 1 pole | normally open solid state AC | plug-in Faston

| | |
|---|---|
| **Output** | **1 N/O contact** |
| **Operating range** | **3 A, 24 ... 250 V AC, 50/60 Hz** |
| **Minimum contact load** | **35 mA** |

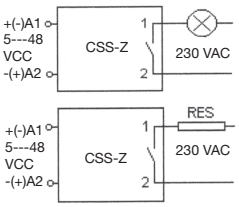
| | |
|---|---|
| **Control parameters** | |
| Input voltage range | 5 ... 48 VDC |
| Input current | 10 mA |

| | |
|---|---|
| **Output** | Synchronized zero |
| Max. output current | 3 A |
| Min. output current | 35 mA |
| Output voltage range | 24 ... 250 V AC |
| Inrush current | 150 A/10 ms |
| Residual current | 1 mA |
| $I^2t$ value | 210 $A^2s$ |

| | |
|---|---|
| **Specifications** | |
| Ambient temperature operation/storage | -40.…70 °C /-40 ... 85 °C (no ice) |
| Pick-up time | 10 ms |
| Release time | 10 ms |
| Weight | 28 g |

**Applications**

Switches ohmic AC loads up to 3 A/250 V AC in the zero-point of the tension and avoids any over-current peak in the connection.
Suitable for switching resistors, incandescent lamps, signalling equipment, etc.  Not suitable for inductive loads



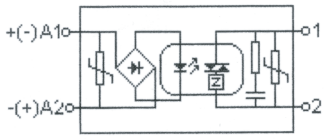

**Product References**

| | |
|---|---|
| **VDC 5–48** | **CSS-Z12X/DC5–48V** |

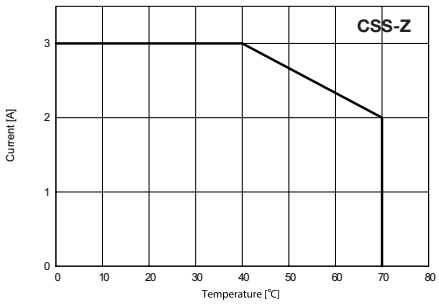
**Accessories**

| | |
|---|---|
| Socket: | **S10, S10-P** |

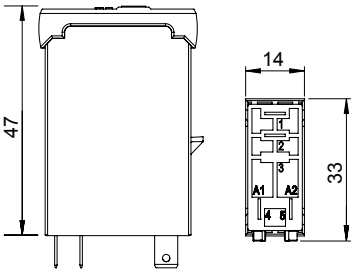
**Fig. 1 CSS-Z diagram**




**Tab. 2 AC derating curve**




**Dimensions**




**Technical approvals, conformities**

IEC/EN 60947

# CSS-N

## 1 pole | normally open solid state DC | plug-in Faston

| | |
|---|---|
| **Output** | 1 N/O contact |
| **Operating range** | **6 A, 5 ... 48 VDC** |
| **Minimum contact load** | **1 mA** |

**Control parameters**

| | |
|---|---|
| Input voltage range | 5 ... 48 VDC |
| Input current | 4 mA |

**Output**

| | |
|---|---|
| Type | NPN |
| Max. output current | 6 A |
| Output voltage range | 5 ... 48 VDC |
| Switch-on current max. | 40 A / 10 ms |
| Max. voltage drop | ≤ 0.14 VDC |
| Residual current | 0.1 mA |

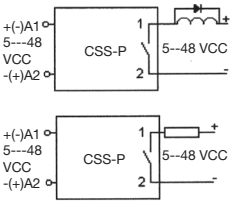
**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ... 70 °C/-40 ... 85 °C (no ice) |
| Test voltage between input/output | 4 kV rms/1 min. |
| Turn-on delay | 0.06 ms |
| Release delay | 0.06 ms |
| Weight | 28 g |

**Applications**

For switching heating elements, electro valves, motors, PLC input/output signals, solenoids, incandescent and fluorescent lamps, etc. (up to 48 VDC).

**Inductive loads must be shunted with an antiparallel diode.**



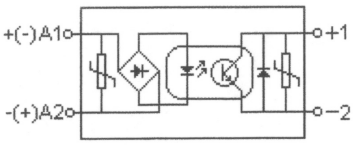

**Product References**

| | |
|---|---|
| **VDC 5–48** | **CSS-N13X/DC5–48V** |

**Accessories**

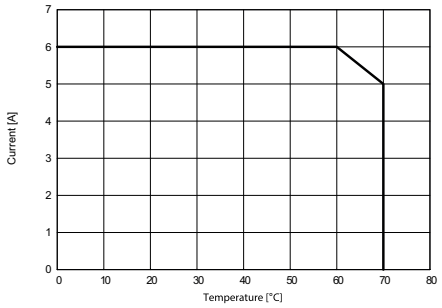
| | |
|---|---|
| Socket: | **S10, S10-P** |

**Fig. 1 CSS-N diagram**

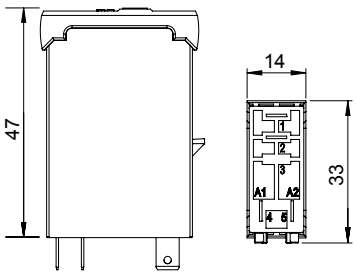



Negative common

**Tab. 2 AC derating curve**




**Dimensions**




**Technical approvals, conformities**

IEC/EN 60947

# CSS-P

## 1 pole | normally open solid state DC | plug-in Faston

| | |
|---|---|
| **Output** | 1 N/O contact |
| **Operating range** | **6 A, 5 ... 48 VDC** |
| **Minimum contact load** | **1 mA** |

**Control parameters**

| | |
|---|---|
| Input voltage range | 5 ... 48 VDC |
| Input current | 4 mA |

**Output**

| | |
|---|---|
| Type | PNP |
| Max. output current | 6 A |
| Output voltage range | 5 ... 48 VDC |
| Max. switch-on current | 40 A / 10 ms |
| Max. voltage drop | 0.14 VDC |
| Residual current | 0.1 mA |

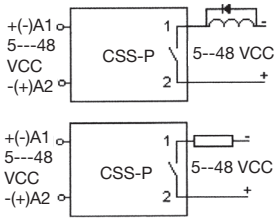
**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ... 70 °C / -40 ... 85 °C (no ice) |
| Turn-on delay | 0.06 ms |
| Release delay | 0.06 ms |
| Weight | 28 g |

**Applications**

For switching heating elements, electro valves, motors, PLC input/output signals, solenoids, incandescent and fluorescent lamps, etc. (up to 48 VDC).

**Inductive loads must be shunted with an antiparallel diode.**



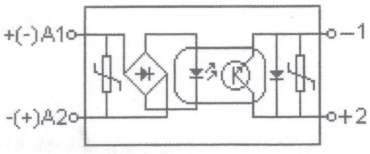

**Product References**

| | |
|---|---|
| **VDC 5–48** | **CSS-P13X/DC5–48V** |

**Accessories**

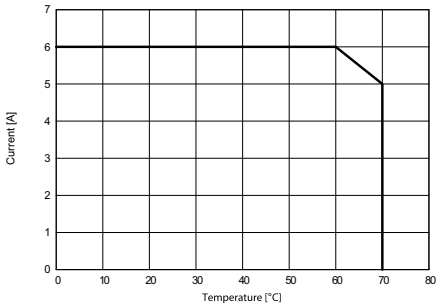
| | |
|---|---|
| Socket: | **S10, S10-P** |

### Fig. 1 CSS-P diagram

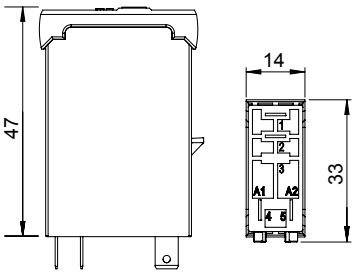



Positive common

### Tab. 2 AC derating curve




### Dimensions




### Technical approvals, conformities

IEC/EN 60947

# CRINT 1x5 series

## 1 pole | normally open solid state DC

| | |
|---|---|
| **Max. contact load** | **2 A, 24 V DC-1** |
| **Contact** | |
| Type | 1 NO (Solid state DC) |
| Material | Mosfet |
| Switching current $I_{TH}$ | 2 A 24 V DC |
| Recommended minimal load | 20 mA / 5 V |
| Peak inrush current | 48 A/10 ms |
| **Coil** | |
| Operation voltage AC 50/60 Hz / DC | 0.8 ... 1.25 $U_N$ |
| Nominal power DC / AC | 160 / — mW |
| **Insulation** | |
| Test voltage I / O | 2.5 kV rms / 1 min |
| Pollution degree | 3 |
| Over voltage category | III |
| Open contact | 1000 Vrms dielectric strength 1 min |
| Standard | EN61810-5 |
| **Specifications** | |
| Ambient temperature: operation / storage | -30 … +70 °C / -40 … +85 °C (no ice) |
| Typical response time @ $V_n$ | 1 ms |
| Typical release time @ $V_n$ | 1 ms |
| Cond. cross section screw terminal | 2.5 mm² |
| Cond. cross section spring cage | 0.75 … 2.5 mm² |
| Protection degree | IP 20 |
| Mounting position | any, TS-35 or Back Panel Mounting |
| Housing material | Polyamide PA6 |

### Product References

Screw terminal: **CRINT-C115/UC...V**

Cage clamp terminal: **CRINT-C125/UC...V**

"..." List Coil Voltage to complete Product References

**UC12V**
**UC24V**
**UC48V**
**UC60V**
**UC110-125V**
**UC220-240V**

### Accessories

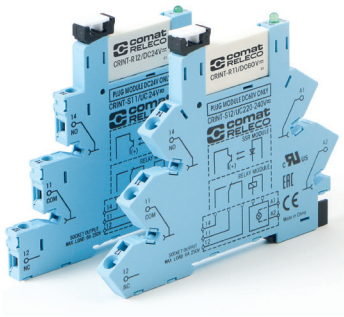
Jumper link:
blue: **CRINT-BR20-BU (BAG 5 PCS)**
red: **CRINT-BR20-RD (BAG 5 PCS)**
black: **CRINT-BR20-BK (BAG 5 PCS)**

Label plate: **CRINT-LAB (BAG 4x16 PCS)**
Spacer: **CRINT-SEP (BAG 5 PCS)**

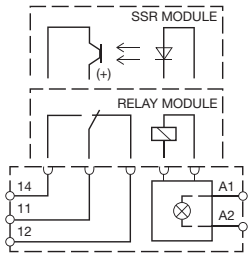
Replacement relays:
**CRINT-R15/DC...V**
"..." List Coil Voltage to complete Product References

*60V Relay used for all sockets with a nominal voltage higher or equal 60V

**DC12V**
**DC24V**
**DC48V**
**DC60V***



### Connection diagram

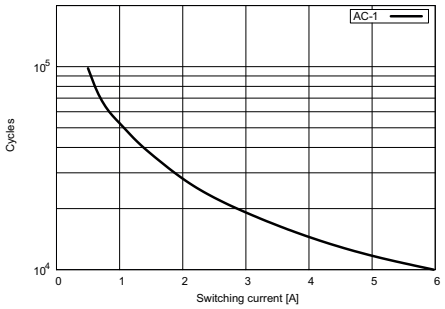



**Relay**
- NO / Solid-state DC
- NO / Solid-state AC

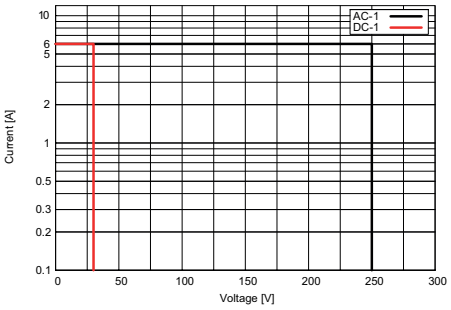
**Relay**
- AgSnO2
- AgSnO2 + 3µ Au

**Socket**
-Screw terminal
-Cage clamp terminal

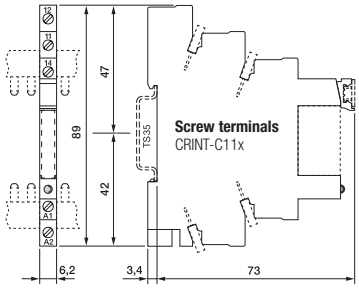
### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 60810

# CRINT 1x8 series

## 1 pole | normally open solid state AC

| | |
|---|---|
| **Contact** | |
| Type | 1 NO (Solid state AC) |
| Material | Triac |
| Switching current $I_{TH}$ | 1 A 240 V AC |
| Recommended minimal load | 22 mA / 12 V |
| Peak inrush current | 80 A/10 ms |
| **Coil** | |
| Operation voltage AC 50/60 Hz / DC | 0.8 ... 1.25 $U_N$ |
| Nominal power DC/AC | 150 / — mW |
| **Insulation** | |
| Test voltage I / O | 2.5 kV rms / 1 min |
| Pollution degree | 3 |
| Over voltage category | III |
| Open contact | 1000 Vrms dielectric strength 1 min |
| Standard | EN61810-5 |
| **Specifications** | |
| Ambient temperature: operation / storage | -30 … +70 °C / -40 … +85 °C (no ice) |
| Typical response time @ $V_n$ | 1 ms |
| Typical release time @ $V_n$ | 1 ms |
| Cond. cross section screw terminal | 2.5 mm² |
| Cond. cross section spring cage | 0.75 … 2.5 mm² |
| Protection degree | IP 20 |
| Mounting position | any, TS-35 or Back Panel Mounting |
| Housing material | Polyamide PA6 |

**Product References**

Screw terminal: **CRINT-C118/UC...V**

Cage clamp terminal: **CRINT-C128/UC...V**

"..." List Coil Voltage to complete Product References

**UC12V**
**UC24V**
**UC48V**
**UC60V**
**UC110-125V**
**UC220-240V**

**Accessories**

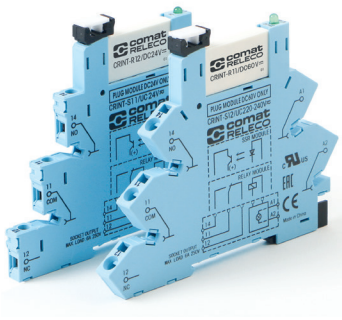
Jumper link:
blue: **CRINT-BR20-BU (BAG 5 PCS)**
red: **CRINT-BR20-RD (BAG 5 PCS)**
black: **CRINT-BR20-BK (BAG 5 PCS)**

Label plate: **CRINT-LAB (BAG 4x16 PCS)**
Spacer: **CRINT-SEP (BAG 5 PCS)**

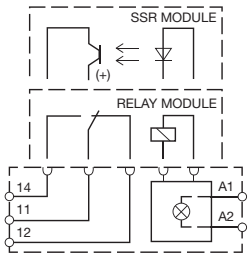
Replacement relays:
**CRINT-R18/DC...V**
"..." List Coil Voltage to complete Product References

*60V Relay used for all sockets with a nominal voltage higher or equal 60V

**DC12V**
**DC24V**
**DC60V***



### Connection diagram

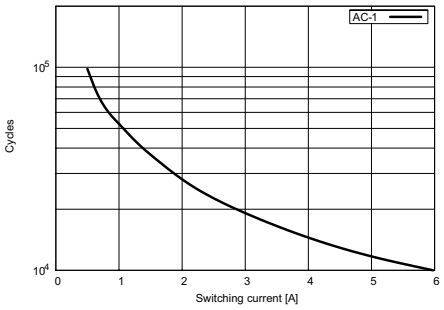



**Relay**
- NO / Solid-state DC
- NO / Solid-state AC

**Relay**
- AgSnO2
- AgSnO2 + 3µ Au

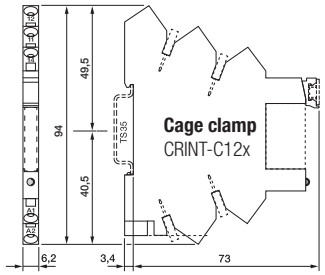
**Socket**
-Screw terminal
-Cage clamp terminal

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve

### Dimensions




### Technical approvals, conformities

IEC/EN 60810

## Notes

# 1.6 Installation Relays

| Application | Types | Contacts | AC ratings | DC ratings |
|---|---|---|---|---|
| **CHI Series** | | | | |
| 1-Pole High Inrush Relay | CHI14 | 1 | 16 A / 250 V | - |
| 3-Pole High Inrush Relay | CHI34 | 3+1 | 16 A / 250 V | - |

# CHI14

## 1-Pole High Inrush Relay

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** |

### Contacts

| | |
|---|---|
| Material | W / $AgSnO_2$ |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 165 A / 20 ms |
| | 800 A / 200 µs |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (A1, B1) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | 16.8 … 250 V |
| Power consumption | 1.2 VA / 0.43 W |
| Frequency range | 16 … 60 Hz |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |

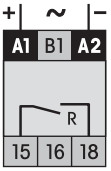
### General Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Mechanical life of contact | 5 x 1 000 000 operations |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan |
| Weight | 70 g |

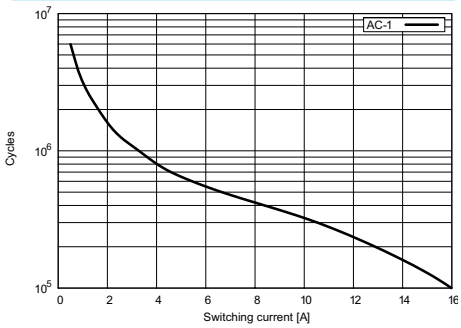
### Product References

| | |
|---|---|
| **UC (AC/DC) 15…60 Hz** | **CHI14/UC24-240V** |

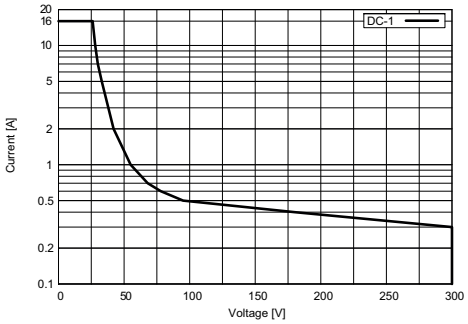
### Connection diagram



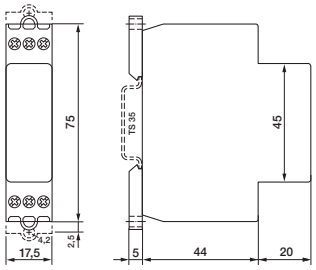

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

EN 50155, EN 60730

# CHI34

## 3-Pole High Inrush Relay

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** |

**Contacts**

| | |
|---|---|
| Number of contacts | 3 |
| Material | W / $AgSnO_2$ |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 165 A / 20 ms |
| | 800 A / 200 µs |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |

**Auxiliary Contacts**

| | |
|---|---|
| Number of contacts | 1 |
| Nominal current at 25° C / 60° C | 90 mA / 60 mA |
| Inrush current | 1 A / 100 µs |
| Nominal voltage AC / DC | 24 V |
| Contact Material | Semiconductor |

**Supply $U_B$ (1 – N)**

| | |
|---|---|
| Nominal operating voltage (AC / DC) | 110…240 V |
| Operating voltage (AC / DC) | 80…250 V |
| Frequency range | 47…63 Hz |
| Power consumption | 3.45 VA |

**Power supply- and control input**

| | |
|---|---|
| Nominal voltage (A1, A2) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | 16.8 … 250 V |
| Power consumption | 30 VA / 30 mW |
| Frequency range | 47…63 Hz |

**Insulation**

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |
| Test voltage between contacts | 2.5 kV rms / 1 min |

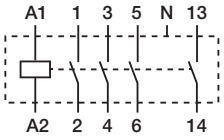
**General Specifications**

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -25 …60 °C (no ice) |
| Mechanical life of contact | 5 x 1 000 000 operations |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.6 Nm |
| Housing material | Lexan |
| Weight | 125 g |

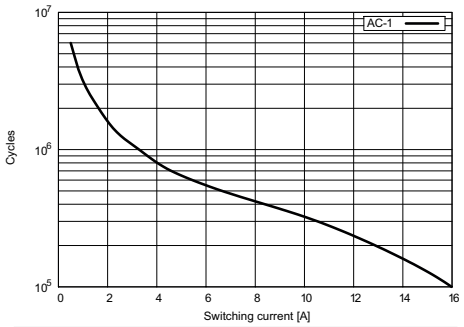
**Product References**

| | |
|---|---|
| **UC (AC/DC) 47…63 Hz** | **CHI34/UC24-240V** |

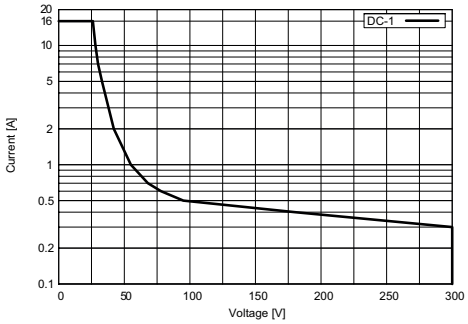
### Connection diagram



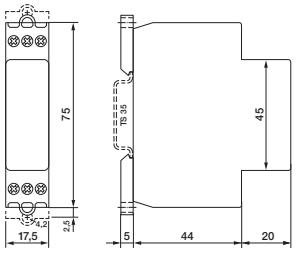

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

EN 61000-6-3; EN 61000-6-2

## Notes

# 1.8 Solid State Contactors

| Application | Types | AC ratings | DC ratings |
|---|---|---|---|
| **CC1 Series** | | | |
| 15 A \| Single phase 230 V AC | CC1H215 | 15 A / 230 V AC | - |
| 30 A \| Single phase 230 V AC | CC1H230 | 30 A / 230 V AC | - |
| 50 A \| Single phase 230 V AC | CC1H250 | 50 A / 230 V AC | - |
| 15 A \| Single phase 400 V AC | CC1H415 | 15 A / 400 V AC | - |
| 30 A \| Single phase 400 V AC | CC1H430 | 30 A / 400 V AC | - |
| 50 A \| Single phase 400 V AC | CC1H450 | 50 A / 400 V AC | - |
| **CC3 Series** | | | |
| 10 A \| Triple phase 400 V AC | CC3H410 | 10 A / 400 V AC | - |
| 20 A \| Triple phase 400 V AC | CC3H420 | 20 A / 400 V AC | - |
| **CCR Series** | | | |
| 10 A \| Three phase reversing contactor 400 V AC | CCR3H410 | 10 A / 400 V AC | - |
| **CPC Series** | | | |
| 30 A \| Single phase 400 V AC | CPC1230 | 30 A / 400 V AC | - |
| 50 A \| Single phase 230 V AC | CPC1250 | 50 A / 230 V AC | - |
| 30 A \| Single phase 400 V AC | CPC1430 | 30 A / 400 V AC | - |
| 50 A \| Single phase 400 V AC | CPC1450 | 50 A / 400 V AC | - |

# CC1H215

## 15 A | Single phase 230 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 230 V AC |
| Output voltage range | 12 – 240 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1000 Vrrm |
| Peak reverse voltage | 1100 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 15 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 15 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

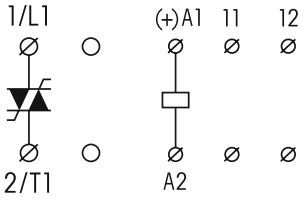
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 6 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 270 g |

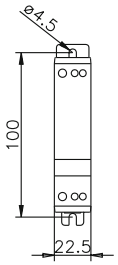
### Product References

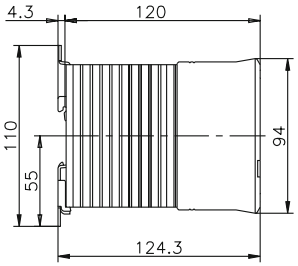
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H215** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC1H230

## 30 A | Single phase 230 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 230 V AC |
| Output voltage range | 12 – 240 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1000 Vrrm |
| Peak reverse voltage | 1100 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 30 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 20 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

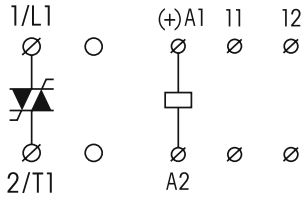
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 10 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

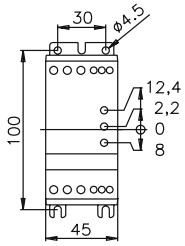
### Product References

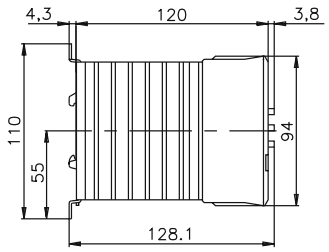
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H230** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC1H250

## 50 A | Single phase 230 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 230 V AC |
| Output voltage range | 12 – 240 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1000 Vrrm |
| Peak reverse voltage | 1100 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 50 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 20 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

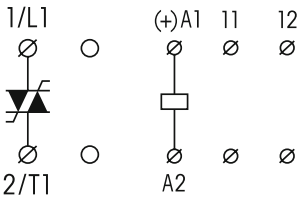
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 10 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 1050 g |

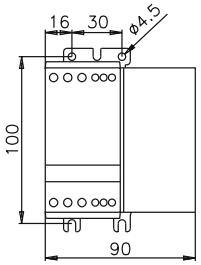
### Product References

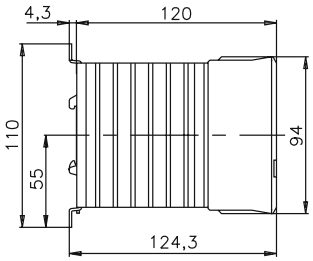
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H250** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC1H415

## 15 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 15 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 15 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

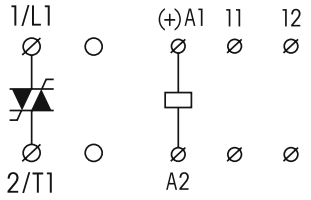
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 6 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 270 g |

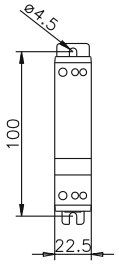
### Product References

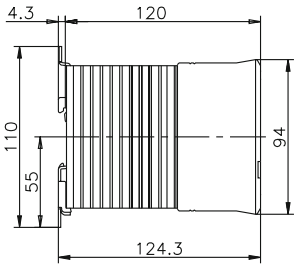
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H415** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC1H430

## 30 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 30 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 20 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

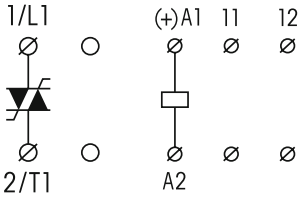
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 6 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

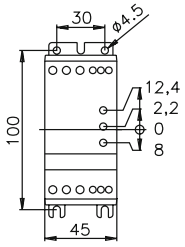
### Product References

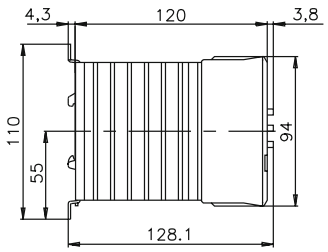
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H430** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC1H450

## 50 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 50 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 20 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

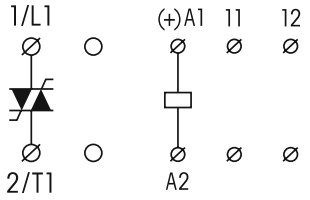
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 10 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 1050 g |

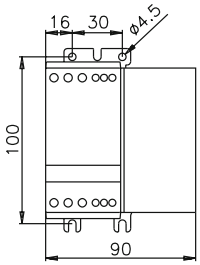
### Product References

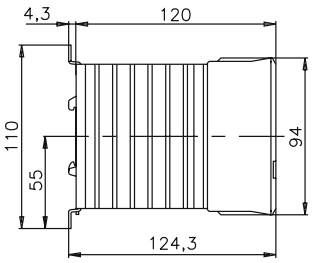
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H450** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC3H410

## 10 A | Triple phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 3 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 10 A |
| Operation current AC-3 @ $U_{nom}$ | 10 A |
| Operation current AC-55b @ $U_{nom}$ | 10 A |
| Operation current AC-56a @ $U_{nom}$ | 5 A |
| Response/Release time | 20 ms |
| Limit load | 610 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

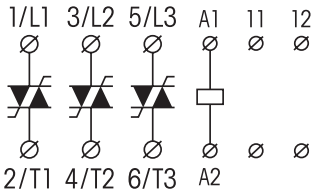
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 6 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

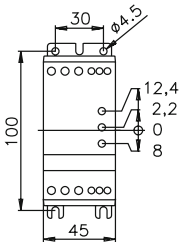
### Product References

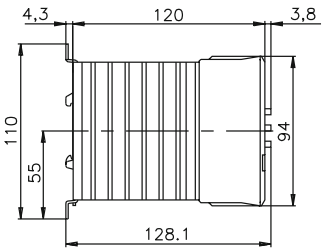
| | |
|---|---|
| Solid State Contactor 3ph. | **CC3H410** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC3H420

## 20 A | Triple phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 3 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 20 A |
| Operation current AC-3 @ $U_{nom}$ | 10 A |
| Operation current AC-55b @ $U_{nom}$ | 10 A |
| Operation current AC-56a @ $U_{nom}$ | 5 A |
| Response/Release time | 20 ms |
| Limit load | 610 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

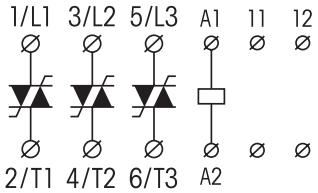
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 10 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 1050 g |

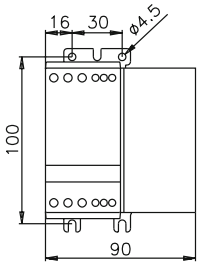
### Product References

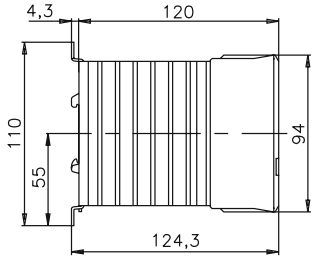
| | |
|---|---|
| Solid State Contactor 3ph. | **CC3H420** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CCR3H410

## 10 A | Three phase reversing contactor 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 3 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 50 mA |
| Max. leakage current | 5 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 10 A |
| Operation current AC-53 @ $U_{nom}$ | 10 A |
| Response/Release time | 20 ms |
| Limit load | 610 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

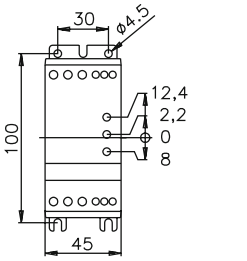
### Specifications

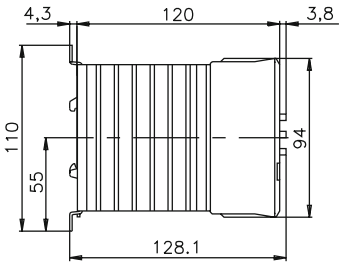
| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

### Product References

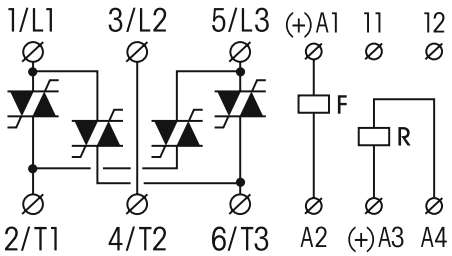
| | |
|---|---|
| Reversing contactor | **CCR3H410** |

## Dimensions




## Connection diagram




## Technical approvals, conformities

IEC/EN 60947-4-2

# CPC1230

## 30 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 230 V AC |
| Output voltage range | 208 – 240 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1000 Vrrm |
| Peak reverse voltage | 1100 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 30 A |
| Operation current AC-3 @ $U_{nom}$ | 15 (non uL) |
| Operation current AC-55b @ $U_{nom}$ | 30 A |
| Operation current AC-56a @ $U_{nom}$ | 30 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 V AC/DC |
| Control signal | 0 – 10 V, 10 – 0 V |
| | 0 – 20 mA, 20 – 0 mA |
| | 4 – 20 mA, 20 – 4 mA |
| Potentiometer | 0 – 10 kΩ, 10 – 0 kΩ |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

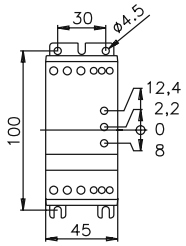
### Specifications

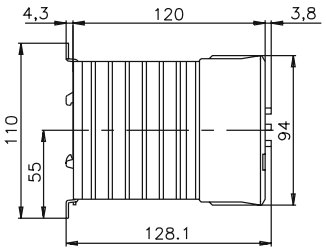
| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

### Product References

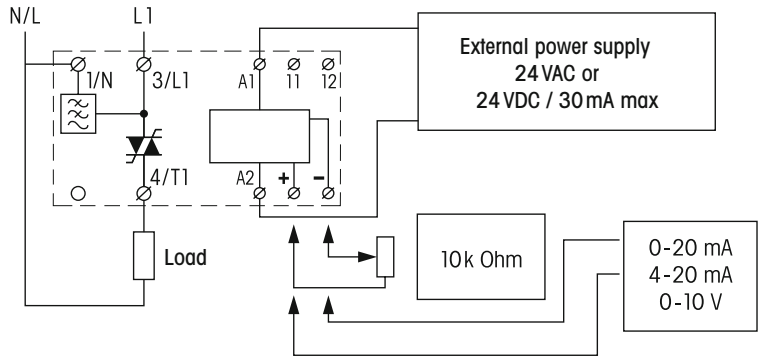
| | |
|---|---|
| Performance Regulator | **CPC1230** |

### Dimensions




### Connection diagram




### Technical approvals, conformities

IEC/EN 60947-4-3

# CPC1250

## 50 A | Single phase 230 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 230 V AC |
| Output voltage range | 208 – 240 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1000 Vrrm |
| Peak reverse voltage | 1100 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 50 A |
| Operation current AC-3 @ $U_{nom}$ | 15 (non uL) |
| Operation current AC-55b @ $U_{nom}$ | 30 A |
| Operation current AC-56a @ $U_{nom}$ | 30 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 V AC/DC |
| Control signal | 0 – 10 V, 10 – 0 V |
| | 0 – 20 mA, 20 – 0 mA |
| | 4 – 20 mA, 20 – 4 mA |
| Potentiometer | 0 – 10 kΩ, 10 – 0 kΩ |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

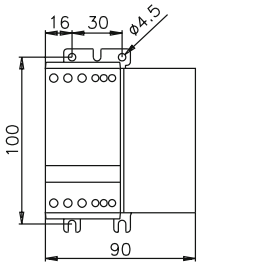
### Specifications

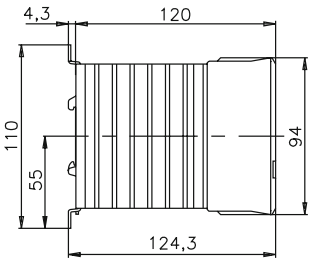
| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

### Product References

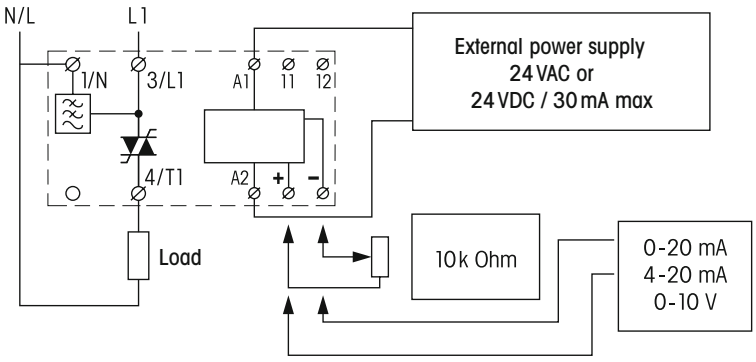
| | |
|---|---|
| Performance Regulator | **CPC1250** |

### Dimensions




### Connection diagram




### Technical approvals, conformities

IEC/EN 60947-4-3

# CPC1430

## 30 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 380 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 30 A |
| Operation current AC-3 @ $U_{nom}$ | 15 (non uL) |
| Operation current AC-55b @ $U_{nom}$ | 30 A |
| Operation current AC-56a @ $U_{nom}$ | 30 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 V AC/DC |
| Control signal | 0 – 10 V, 10 – 0 V |
| | 0 – 20 mA, 20 – 0 mA |
| | 4 – 20 mA, 20 – 4 mA |
| Potentiometer | 0 – 10 kΩ, 10 – 0 kΩ |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

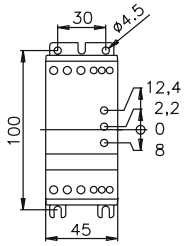
### Specifications

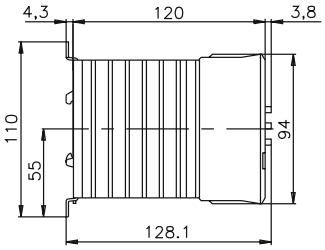
| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

### Product References

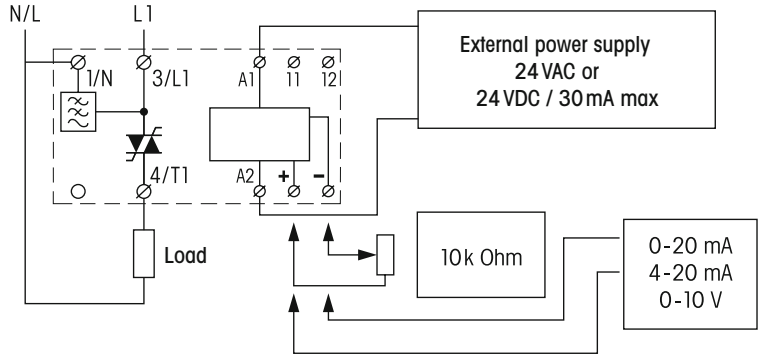
| | |
|---|---|
| Performance Regulator | **CPC1430** |

### Dimensions




### Connection diagram




### Technical approvals, conformities

IEC/EN 60947-4-3

# CPC1450

## 50 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 380 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 50 A |
| Operation current AC-3 @ $U_{nom}$ | 15 (non uL) |
| Operation current AC-55b @ $U_{nom}$ | 30 A |
| Operation current AC-56a @ $U_{nom}$ | 30 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 V AC/DC |
| Control signal | 0 – 10 V, 10 – 0 V |
| | 0 – 20 mA, 20 – 0 mA |
| | 4 – 20 mA, 20 – 4 mA |
| Potentiometer | 0 – 10 kΩ, 10 – 0 kΩ |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

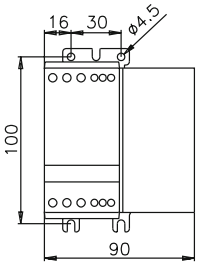
### Specifications

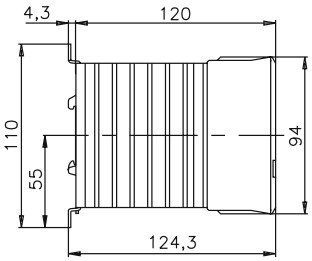
| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 1050 g |

### Product References

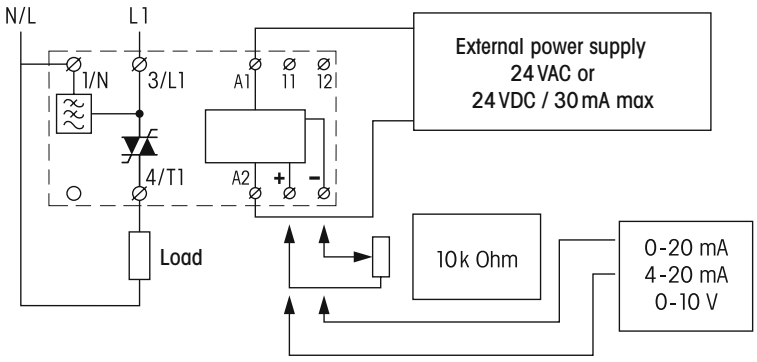
| | |
|---|---|
| Performance Regulator | **CPC1450** |

### Dimensions




### Connection diagram




### Technical approvals, conformities

IEC/EN 60947-4-3

## Notes

## Notes

# 2.0 Time Relays

# Time functions

## Delay functions

**E** **On delay**

S ⇒ R on with delay
SOFF ⇒ R off

**A** **Off delay**

S ⇒ R on
SOFF ⇒ R off with delay

**F** **On and off delay**

S ⇒ R on with delay (t1)
SOFF ⇒ R off with delay (t2)

## Puls shaping

**K** **Puls shaping**

S (pulse or continuous contact)
⇒ R on for t
S --- no influence on R and t

**L** **Pulse shaping,** retrigger (subsequ.time operation from 0)

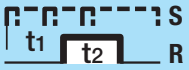
S (pulse or continuous contact)
⇒ R on for t
S on for t = tRESET

**M** **Puls shaping**

SOFF ⇒ R on for t
S --- no influence on R and t

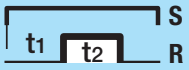
## Delayed pulse

**G** **On delay single shot**




S (pulse or continuous contact)
⇒ R after t1 on for t2
S --- no influence on R and t

**H** **On delay single shot**



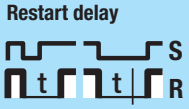

S ⇒ R after t1 on for t2
SOFF ⇒ R off

## Special functions

**Y** **Star-delta timer**

S ⇒ ⅄ on for t⅄
⅄OFF ⇒ Δ on with delay for t⅄-Δ
SOFF ⇒ Δ off

**X1** **Restart delay**




S ⇒ R on
SOFF ⇒ R off and starts t
S ⇒ R restart only after t

## Shot timing modes

**W** **One shot leading edge**

S ⇒ R on for t
SOFF ⇒ R off
(pulse clipping)

**N** **One shot trailing edge**

SOFF ⇒ R on for t
S on for t ⇒ R off

**Q** **One shot leading and trailing edge**

S ⇒ R on for t1
SOFF ⇒ R on for t2
SOFF off for t1 ⇒ R off

## Blinker functions

**B** **Blinker,** pulse start

S ⇒ R on/off periodically according to t
SOFF ⇒ R off

**B1** **Blinker,** pulse start, trailing pulse

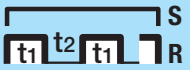
S ⇒ R on/off periodically according to t
SOFF: last pulse = t

**B2** **Blinker,** interval start

S ⇒ R after t on/off periodically according to t
SOFF ⇒ R off

## Repeat cycle timer

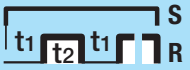
**I** **Repeat cycle timer,** pulse start




S ⇒ R on/off periodically according to t1 and t2
SOFF ⇒ R off

**P** **Repeat cycle timer,** interval start

C55, CT1: t2 t1



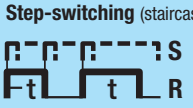

S ⇒ R after t1 (t2) on/off periodically according to t2 and t1
SOFF ⇒ R off

## Special functions

**S** **Step-on / Step-off switch**

S ⇒ R on/off

**LS** **Step-switching** (staircase lighting timer), with time lapse




S ⇒ R on and starts t
S on for t ⇒ R off

## Stop / Reset

**t STOP** SSTOP interrupts t (t-addition)

**t RESET** SRESET reset t
t restarts immediately

**T** t is stopped ⇒ R on/off

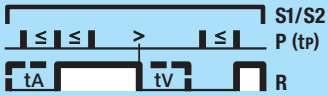
**T** Test

S = Triggering
R = Output circuit
⇒ = switches…

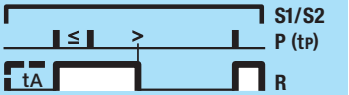
ON OFF

## Pulse sequence monitoring

**U**




**V**




S1/S2 = Monitoring start
P = Pulse sequence
tP = Pulse separation

≤: Pulse separation is **smaller** than the time tP
>: Pulse separation is **larger** than the time tP

Start with **S1** = **without** start-up short-out tA
Start with **S2** = start-up short-out tA

tV = settable alarm delay
delay (tA = tV)

## Time Cubes

| Type | Function | | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | $X_1$ | U | V | | | | sec | min | h | d | Page |
| CT..-E 30 | ● | | | | | | | | | | | | | | | | | | | | | | | | | 30 | | | 118 |
| CT..-A 30 | | ● | | | | | | | | | | | | | | | | | | | | | | | | 30 | | | |
| CT..-K 30 | | | | ● | | | ● | | | | | | | | | | | | | | | | | | | 30 | | | |
| CT..-B 30 | | | | | | | | | | ● | | | | | | | | | | | | | | | | 30 | | | |

## Modular plug-in Time Relays (CT-System)

| Type | Function | | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | $X_1$ | U | V | | | | sec | min | h | d | Page |
| CT32... | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | | | | | | | | | | 60* | | | 123 |
| CT33... | ● | ● | △ | ● | ● | △ | ● | ● | | ● | ● | | ▲ | ▲ | | | | | | | | | | | | | 60* | | |
| CT36... | | | | | | | | | | | | | | | ● | ● | | | | | | | | | | | 60* | | |

## DIN Time Relays

DIN

| Type | Function | | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | Y | U | V | | | | sec | min | h | d | Page |
| CMD11 A | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | 100 |
| CMD11 E | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | 100 |
| CIM1 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | 106 |
| CIM12 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | 107 |
| CIM13 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | 108 |
| CIM14 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | 109 |
| CIM2 | ● | ● | | | | | | ● | ● | | | ● | ● | ● | | | | | | | | | | | | | 60* | | 110 |
| CIM22 | ● | ● | | | | | | ● | ● | | | ● | ● | ● | | | | | | | | | | | | | 60* | | 111 |
| CIM23 | ● | ● | | | | | | ● | ● | | | ● | ● | ● | | | | | | | | | | | | | 60* | | 112 |
| CIM3 | | | ● | | | ● | | | | | | | ● | ● | ● | ● | | | | | | | | | | | 60* | | 113 |
| CIM32 | | | ● | | | ● | | | | | | | ● | ● | ● | ● | | | | | | | | | | | 60* | | 114 |
| CIM33 | | | ● | | | ● | | | | | | | ● | ● | ● | ● | | | | | | | | | | | 60* | | 115 |

*** TF-60 Setting of long times**

The TF60 time setting methode permits short examination of long delay time settings. Elapsing times of hours can be monitored in the sec. range.

**Example for a delay time of 38h:**

1. Set range switch to 60sec
2. Set 38sec on the potentiometer (e.g. check 38sec by chronometer)
3. Set range switch to 60h

The delay time now amounts to 38h.

[1] alternatively with instantaneous contact
■ without auxiliary voltage (relay bistable)
□ without auxiliary voltage (relay monostable)
△ t2 = t1
▲ t2 = 0.5s

## Notes

# 2.1 ON and OFF delay Relays

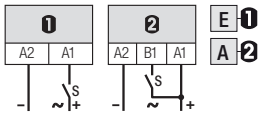
| Application | Types | Contacts | AC ratings | DC ratings |
|---|---|---|---|---|
| **CMD Series** | | | | |
| ON or OFF delay \| 12 V AC / DC supply | CMD11-A/UC12V, CMD11-E/UC12V | 1 CO | 8 A / 250 V | 8 A / 30 V |
| ON or OFF delay \| 24 V AC / DC supply | CMD11-A/UC24V, CMD11-E/UC24V | 1 CO | 8 A / 250 V | 8 A / 30 V |
| ON or OFF delay \| 115 V AC supply | CMD11-A/AC115V, CMD11-E/AC115V | 1 CO | 8 A / 250 V | 8 A / 30 V |
| ON or OFF delay \| 230 V AC supply | CMD11-A/AC230V, CMD11-E/AC230V | 1 CO | 8 A / 250 V | 8 A / 30 V |

# CMD11-A/UC12V, CMD11-E/UC12V

## 1 CO contact | ON or OFF delay | 12 V AC / DC supply

| | | |
|---|---|---|
| **Maximum contact load** | **8 A 250 V AC-1** | **8 A 30 V DC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** | |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)




### Time data

| | |
|---|---|
| 5 partial time ranges, $t_{max}$ (DIP switch) | 0.6 s / 6 s / 60 s / 6 min / 60 min |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -30 % … +0 % / $t_{max}$: -0 % … +30 % |
| Repetition accuracy | ± 0.2 % or 20 ms |
| Response time, power on, on A1 | ≤ 50 ms |
| Min. trigger pulse width on input B1 | 100 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 90 ms |
| Voltage failure buffering | ≥ 5 ms |

### Contacts

| | |
|---|---|
| Type | Single contact, CO |
| Material | AgNi |
| Rated operational current | 10 A |
| Max. inrush current (10ms) | 15 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig. 1) | 2500 VA AC-1 |
| Max. DC load DC-1 24 V / 220 V (Fig. 2) | 150 W / 70 W |

| **Power supply- and control input** | **CMD11-.../UC12V** |
|---|---|
| Nominal voltage (UC = AC / DC) | 12 V AC/DC |
| Operating voltage range | 9.6 ... 14.4 V AC/DC |
| Power consumption DC typ. | 32 mA |
| Power consumption AC typ. | 50 mA |
| Frequency range | 48 ... 62 Hz |
| Input current into B1 typ. AC / DC | 2.7 / 4.3 mA |
| Trigger threshold voltage on B1 typ AC / DC | 5.2 / 8.8 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2 kV rms / 1 min |

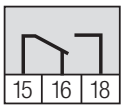
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Life time of contacts 8 A, 250 V AC-1 | 75 x $10^3$ |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.5 Nm |
| Housing material / Weight | Polyamide PA-66 (UL94-V0) / 48 g |
| Mounting | TS-35 or Back Panel Mounting |

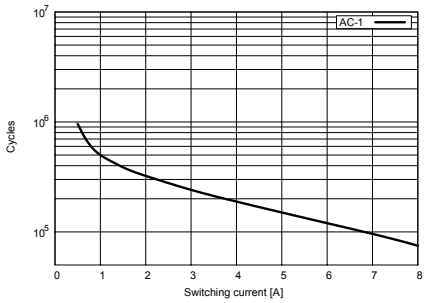
### Product References

| | |
|---|---|
| **Monofunction Time Relay (Off delay)** | **CMD11-A/UC12V** |
| **Monofunction Time Relay (On delay)** | **CMD11-E/UC12V** |

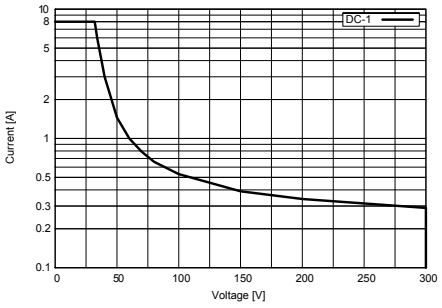
### Connection diagram



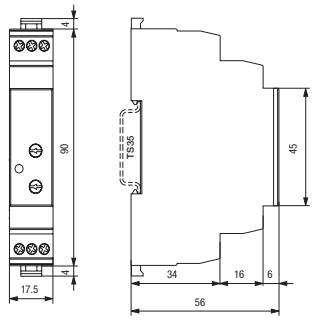

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

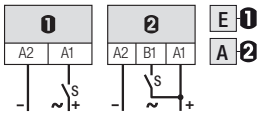
IEC/EN 60947

# CMD11-A/UC24V, CMD11-E/UC24V

## 1 CO contact | ON or OFF delay | 24 V AC / DC supply

| | | |
|---|---|---|
| **Maximum contact load** | **8 A 250 V AC-1** | **8 A 30 V DC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** | |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)




### Time data

| | |
|---|---|
| 5 partial time ranges, $t_{max}$ (DIP switch) | 0.6 s / 6 s / 60 s / 6 min / 60 min |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -30 % … +0 % / $t_{max}$: -0 % … +30 % |
| Repetition accuracy | ± 0.2 % or 20 ms |
| Response time, power on, on A1 | ≤ 50 ms |
| Min. trigger pulse width on input B1 | 100 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 90 ms |
| Voltage failure buffering | ≥ 5 ms |

### Contacts

| | |
|---|---|
| Type | Single contact, CO |
| Material | AgNi |
| Rated operational current | 10 A |
| Max. inrush current (10ms) | 15 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig. 1) | 2500 VA AC-1 |
| Max. DC load DC-1 24 V / 220 V (Fig. 2) | 150 W / 70 W |

| **Power supply- and control input** | **CMD11-.../UC24V** |
|---|---|
| Nominal voltage (UC = AC / DC) | 24 V AC/DC |
| Operating voltage range | 19.2 ... 28.8 V AC/DC |
| Power consumption DC typ. | 12 mA |
| Power consumption AC typ. | 21 mA |
| Frequency range | 48 ... 62 Hz |
| Input current into B1 typ. AC / DC | 11.6. / 9.5 mA |
| Trigger threshold voltage on B1 typ AC / DC | 9.5 / 14 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2 kV rms / 1 min |

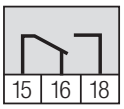
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Life time of contacts 8 A, 250 V AC-1 | 75 x $10^3$ |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.5 Nm |
| Housing material / Weight | Polyamide PA-66 (UL94-V0) / 48 g |
| Mounting | TS-35 or Back Panel Mounting |

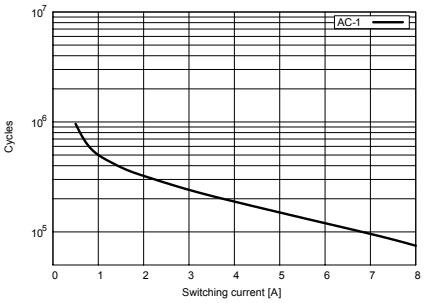
### Product References

| | |
|---|---|
| **Monofunction Time Relay (Off delay)** | **CMD11-A/UC24V** |
| **Monofunction Time Relay (On delay)** | **CMD11-E/UC24V** |

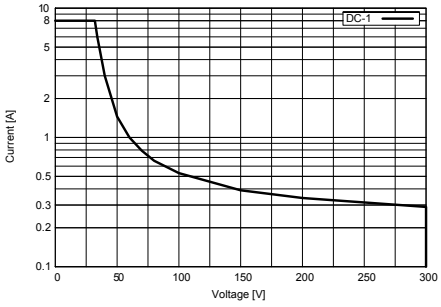
### Connection diagram



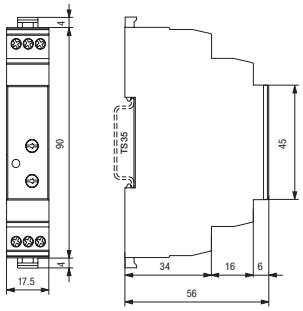

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

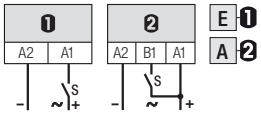
IEC/EN 60947

# CMD11-A/AC115V, CMD11-E/AC115V

## 1 CO contact | ON or OFF delay | 115 V AC / DC supply

| | |
|---|---|
| **Maximum contact load** | **8 A 250 V AC-1  8 A 30 V DC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)




### Time data

| | |
|---|---|
| 5 partial time ranges, $t_{max}$ (DIP switch) | 0.6 s / 6 s / 60 s / 6 min / 60 min |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -30 % … +0 % / $t_{max}$: -0 % … +30 % |
| Repetition accuracy | ± 0.2 % or 20 ms |
| Response time, power on, on A1 | ≤ 50 ms |
| Min. trigger pulse width on input B1 | 100 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 90 ms |
| Voltage failure buffering | ≥ 5 ms |

### Contacts

| | |
|---|---|
| Type | Single contact, CO |
| Material | AgNi |
| Rated operational current | 10 A |
| Max. inrush current (10ms) | 15 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig. 1) | 2500 VA AC-1 |
| Max. DC load DC-1 24 V / 220 V (Fig. 2) | 150 W / 70 W |

| **Power supply- and control input** | **CMD11-.../AC115V** |
|---|---|
| Nominal voltage | 115 V AC |
| Operating voltage range | 92 ... 138 V AC |
| Power consumption AC typ. | 47 mA |
| Frequency range | 48 ... 62 Hz |
| Input current into B1 typ. AC | 1.7 mA |
| Trigger threshold voltage on B1 typ AC | 42 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2 kV rms / 1 min |

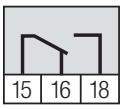
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Life time of contacts 8 A, 250 V AC-1 | 75 x $10^3$ |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.5 Nm |
| Housing material / Weight | Polyamide PA-66 (UL94-V0) / 48 g |
| Mounting | TS-35 or Back Panel Mounting |

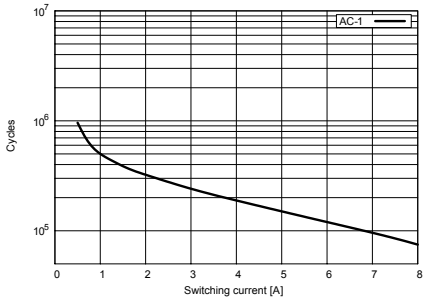
### Product References

| | |
|---|---|
| **Monofunction Time Relay (Off delay)** | **CMD11-A/AC115V** |
| **Monofunction Time Relay (On delay)** | **CMD11-E/AC115V** |

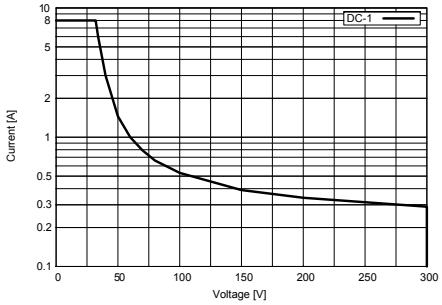
### Connection diagram



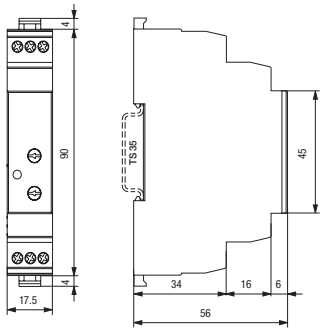

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

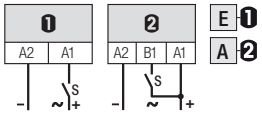
IEC/EN 60947

# CMD11-A/AC230V, CMD11-E/AC230V

## 1 CO contact | ON or OFF delay | 230 V AC / DC supply

| | |
|---|---|
| **Maximum contact load** | **8 A 250 V AC-1  8 A 30 V DC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)




### Time data

| | |
|---|---|
| 5 partial time ranges, $t_{max}$ (DIP switch) | 0.6 s / 6 s / 60 s / 6 min / 60 min |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -30 % … +0 % / $t_{max}$: -0 % … +30 % |
| Repetition accuracy | ± 0.2 % or 20 ms |
| Response time, power on, on A1 | ≤ 50 ms |
| Min. trigger pulse width on input B1 | 100 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 90 ms |
| Voltage failure buffering | ≥ 5 ms |

### Contacts

| | |
|---|---|
| Type | Single contact, CO |
| Material | AgNi |
| Rated operational current | 10 A |
| Max. inrush current (10ms) | 15 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig. 1) | 2500 VA AC-1 |
| Max. DC load DC-1 24 V / 220 V (Fig. 2) | 150 W / 70 W |

| **Power supply- and control input** | **CMD11-.../AC230V** |
|---|---|
| Nominal voltage | 230 V AC |
| Operating voltage range | 184 ... 255 V AC |
| Power consumption AC typ. | 60 mA |
| Frequency range | 48 ... 62 Hz |
| Input current into B1 typ. AC | 1.9 mA |
| Trigger threshold voltage on B1 typ AC | 80 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2 kV rms / 1 min |

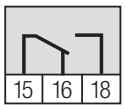
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Life time of contacts 8 A, 250 V AC-1 | 75 x $10^3$ |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.5 Nm |
| Housing material / Weight | Polyamide PA-66 (UL94-V0) / 48 g |
| Mounting | TS-35 or Back Panel Mounting |

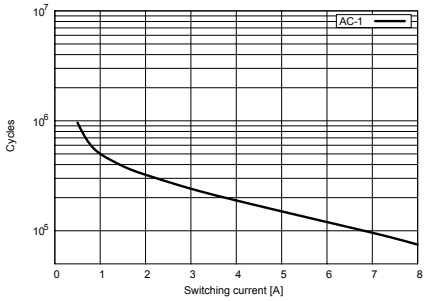
### Product References

| | |
|---|---|
| **Monofunction Time Relay (Off delay)** | **CMD11-A/AC230V** |
| **Monofunction Time Relay (On delay)** | **CMD11-E/AC230V** |

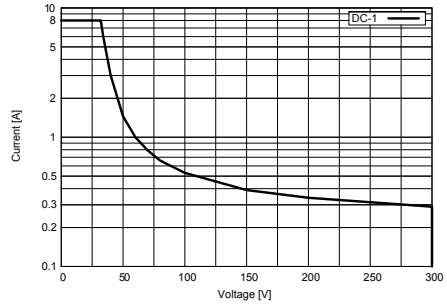
### Connection diagram



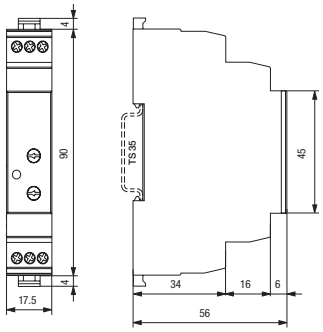

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 60947

## Notes

# 2.2 Multifunction Time Relays

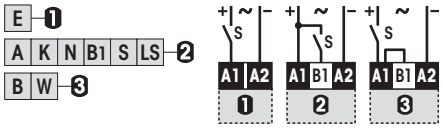
| Application | Types | Contacts | AC ratings | DC ratings |
|---|---|---|---|---|
| **CIM Series** | | | | |
| Multifunction \| 24-240 V AC / DC | CIM1, CIM1R | 1 CO | 16 A / 250 V | 16 A / 24 V |
| Multifunction \| 24-240 V AC / DC | CIM12, CIM12R | 1 Triac | 2 A / 250 V | - |
| Multifunction \| 24-240 V AC / DC | CIM13, CIM13R | 1 Mosfet | - | 4 A / 30 V |
| Multifunction \| 24-240 V AC / DC | CIM14 | 1 NO | 16 A / 250 V | 16 A / 24 V |
| Multifunction \| 24-240 V AC / DC | CIM2, CIM2R | 1 CO | 16 A / 250 V | 16 A / 24 V |
| Multifunction \| 24-240 V AC / DC | CIM22, CIM22R | 1 Triac | 2 A / 250 V | - |
| Multifunction \| 24-240 V AC / DC | CIM23, CIM23R | 1 Mosfet | - | 4 A / 30 V |
| Multifunction \| 24-240 V AC / DC | CIM3, CIM3R | 1 CO | 16 A / 250 V | 16 A / 24 V |
| Multifunction \| 24-240 V AC / DC | CIM32, CIM32R | 1 Triac | 2 A / 250 V | - |
| Multifunction \| 24-240 V AC / DC | CIM33, CIM33R | 1 Mosfet | - | 4 A / 30 V |

# CIM1, CIM1R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1 16 A / 24 V DC-1** |
| **Recommended minimum contact load** | **10 mA / 10 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Contacts

| | |
|---|---|
| Material CIM1 / CIM1R / Type | AgNi / 1 CO, micro disconnection, zero crossing |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 30 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |
| Max. DC load DC-1 30 V / 250 V (Fig.2) | 240 W / 85 W |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (A1, B1) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |

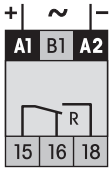
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -46 °C) (no ice) |
| Mechanical life of contact | 30 x 1‘000‘000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

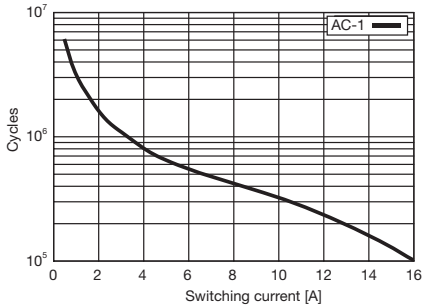
### Product References

| | |
|---|---|
| **Standard** | **CIM1/UC24-240V** |
| **Railway** | **CIM1R/UC24-240V** |

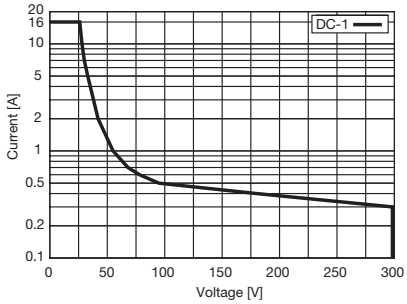
### Connection diagram



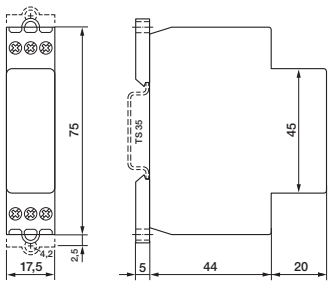

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

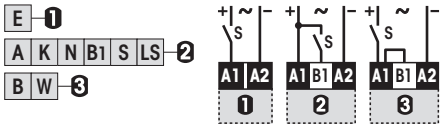
IEC/EN 50155, IEC/EN 60730

# CIM12, CIM12R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **2 A / 250 V AC-1** |
| **Minimum contact load** | **50 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | Triac, zero crossing |
| Rated operational current at 40 °C (Fig.1) | 2 A |
| Max. inrush current (10 ms) | 100 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 | 300 VA |
| $I^2t$ value | 78 $A^2s$ |
| Leakage current | < 1 mA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

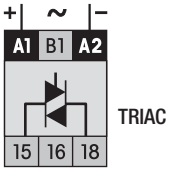
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -70 °C) (no ice) |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

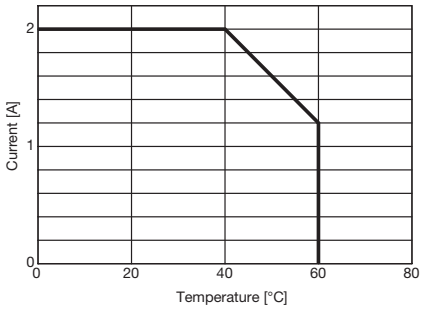
### Product References

| | |
|---|---|
| **Standard** | **CIM12/UC24-240V** |
| **Railway** | **CIM12R/UC24-240V** |

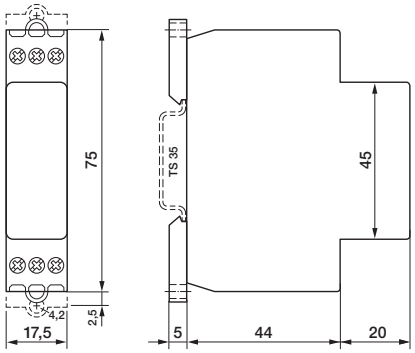
### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

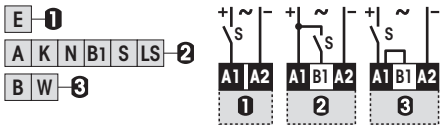
IEC/EN 50155, IEC/EN 60730

# CIM13, CIM13R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **4 A / 30 V DC-1** |
| **Recommended minimum contact load** | **1 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | MOS FET |
| Rated operational current (Fig. 1) | 4 A |
| Max. inrush current (10 µs) | 40 A |
| Max. switching voltage | 30 V |
| Leakage current | < 10 µA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (UC = AC / DC) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

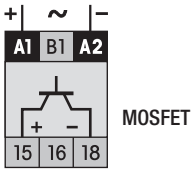
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -70 °C) (no ice) |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / Weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

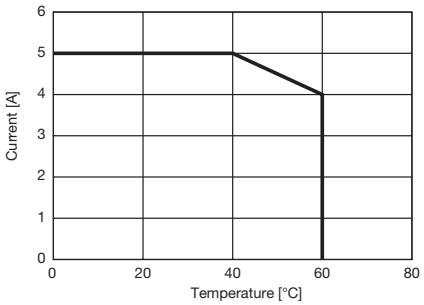
### Product References

| | |
|---|---|
| **Standard** | **CIM13/UC24-240V** |
| **Railway** | **CIM13R/UC24-240V** |

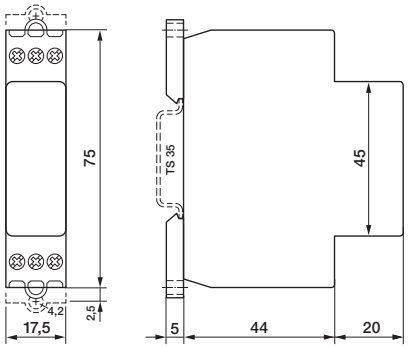
### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

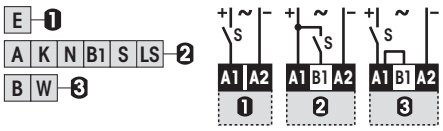
IEC/EN 50155, IEC/EN 60730

# CIM14

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1 16 A / 24 V DC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Contacts

| | |
|---|---|
| Material | W / $AgSnO_2$ |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 165 A / 20 ms |
| | 800 A / 200 µs |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |
| Max. DC load DC-1 24 V | 384 W |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (A1, B1) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | 16.8 … 250 V |
| Power consumption | 1.2 VA / 0.43 W |
| Frequency range | 16 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |

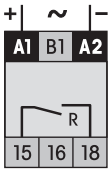
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Mechanical life of contact | 5 x 1'000'000 operations |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

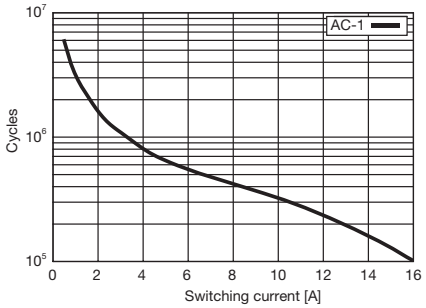
### Product References

| | |
|---|---|
| **Standard** | **CIM14/UC24-240V** |

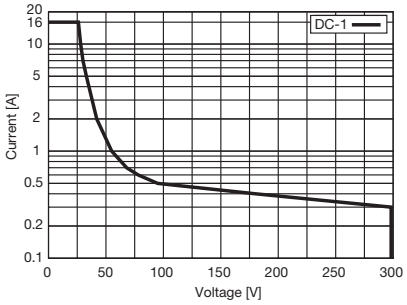
### Connection diagram



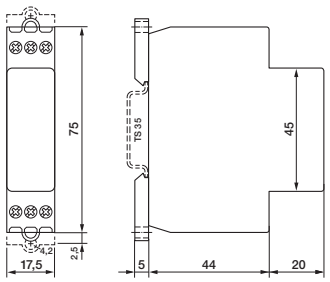

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 50155, IEC/EN 60730

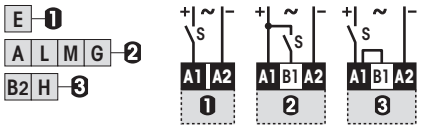
# CIM2, CIM2R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1 16 A / 24 V DC-1** |
| **Recommended minimum contact load** | **10 mA / 10 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)

The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Contacts

| | |
|---|---|
| Material CIM2 / CIM2R / Type | AgNi / 1 CO, micro disconnection |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 30 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |
| Max. DC load DC-1 30 V / 250 V (Fig.2) | 240 W / 85 W |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (A1, B1) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |

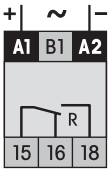
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (Railway: -46 °C) (no ice) |
| Mechanical life of contact | 30 x 1‘000‘000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

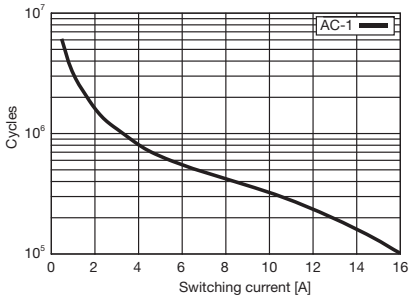
### Product References

| | |
|---|---|
| **Standard** | **CIM2/UC24-240V** |
| **Railway** | **CIM2R/UC24-240V** |

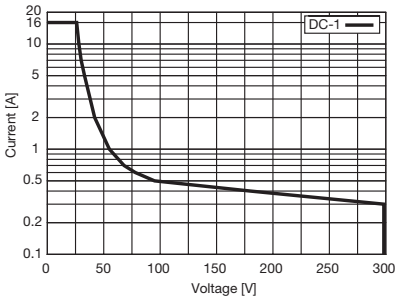
### Connection diagram



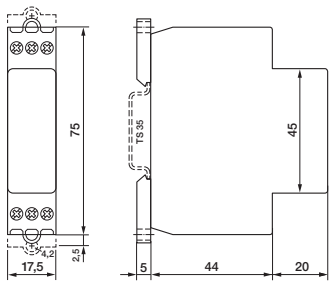

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

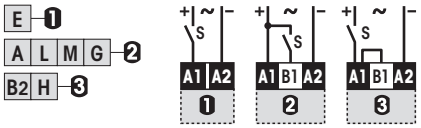
IEC/EN 50155, IEC/EN 60730

# CIM22, CIM22R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **2 A / 250 V AC-1** |
| **Minimum contact load** | **50 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | Triac, zero crossing |
| Rated operational current at 40 °C (Fig.1) | 2 A |
| Max. inrush current (10 ms) | 100 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 | 300 VA |
| $I^2t$ value | 78 $A^2s$ |
| Leakage current | < 1 mA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

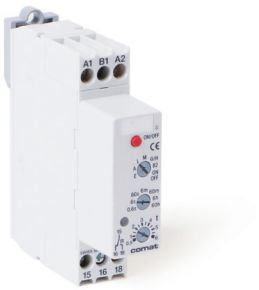
| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

### Specifications

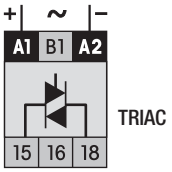
| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -70 °C) (no ice) |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

### Product References

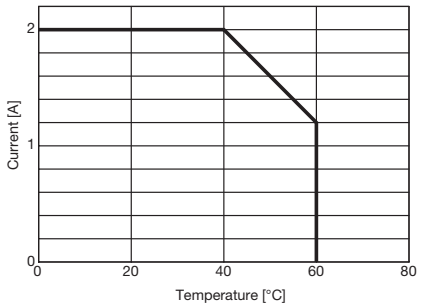
| | |
|---|---|
| **Standard** | **CIM22/UC24-240V** |
| **Railway** | **CIM22R/UC24-240V** |



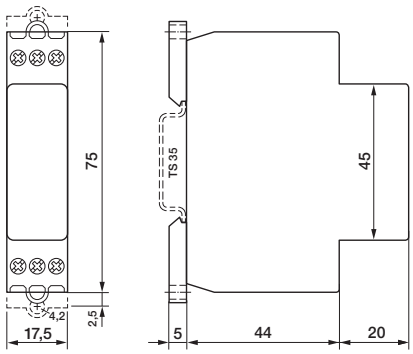
### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

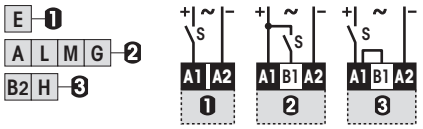
IEC/EN 50155, IEC/EN 60730

# CIM23, CIM23R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **4 A / 30 V DC-1** |
| **Recommended minimum contact load** | **1 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | MOS FET |
| Rated operational current (Fig. 1) | 4 A |
| Max. inrush current (10 µs) | 40 A |
| Max. switching voltage | 30 V |
| Leakage current | < 10 µA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (UC = AC / DC) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

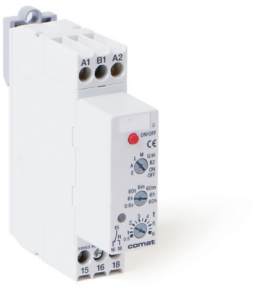
| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

### Specifications

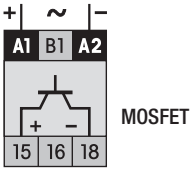
| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -70 °C) (no ice) |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / Weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

### Product References

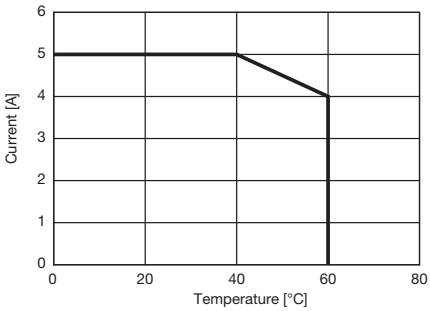
| | |
|---|---|
| **Standard** | **CIM23/UC24-240V** |
| **Railway** | **CIM23R/UC24-240V** |



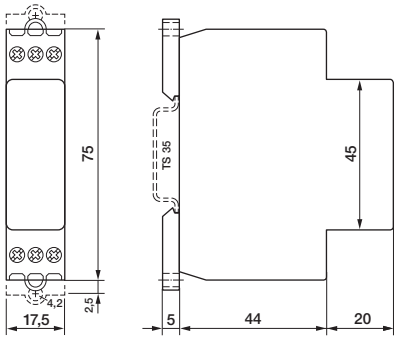
### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

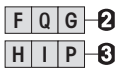
IEC/EN 50155, IEC/EN 60730

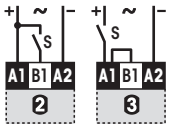
# CIM3, CIM3R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1 16 A / 24 V DC-1** |
| **Recommended minimum contact load** | **10 mA / 10 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Contacts

| | |
|---|---|
| Material CIM3 / CIM3R / Type | AgNi / 1 CO, micro disconnection |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 30 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |
| Max. DC load DC-1 30 V / 250 V (Fig.2) | 240 W / 85 W |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (A1, B1) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

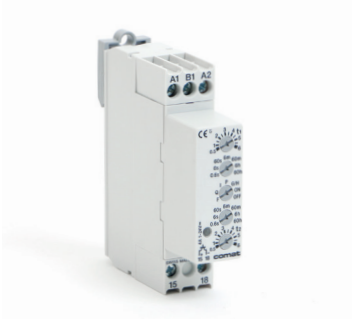
| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |

### Specifications

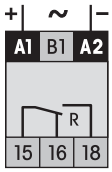
| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -46 °C) (no ice) |
| Mechanical life of contact | 30 x 1'000'000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

### Product References

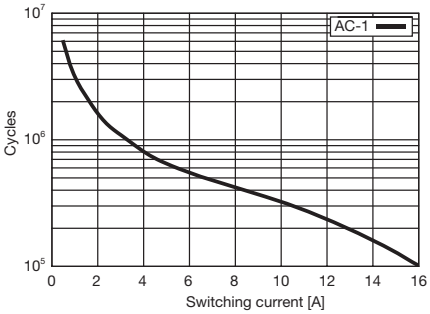
| | |
|---|---|
| **Standard** | **CIM3/UC24-240V** |
| **Railway** | **CIM3R/UC24-240V** |



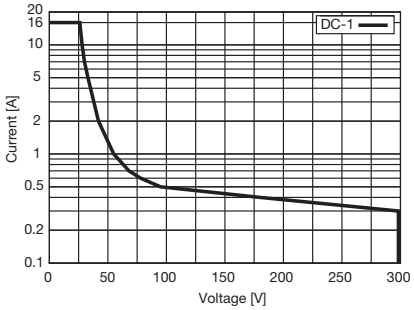
### Connection diagram



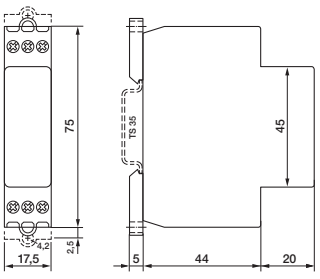

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

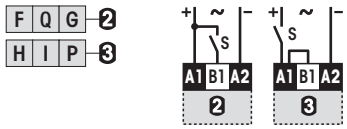
IEC/EN 50155, IEC/EN 60730

# CIM32, CIM32R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **2 A / 250 V AC-1** |
| **Minimum contact load** | **50 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | Triac, zero crossing |
| Rated operational current at 40 °C (Fig.1) | 2 A |
| Max. inrush current (10 ms) | 100 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 | 300 VA |
| $I^2t$ value | 78 $A^2s$ |
| Leakage current | < 1 mA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

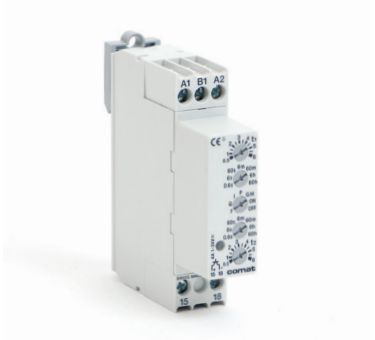
| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

### Specifications

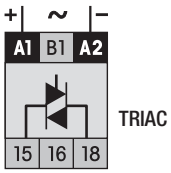
| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (No Ice)<br>(Railway: -70 °C) (No Ice) |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

### Product References

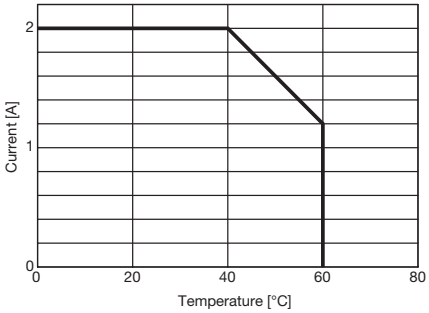
| | |
|---|---|
| **Standard** | **CIM3/UC24-240V** |
| **Railway** | **CIM3R/UC24-240V** |



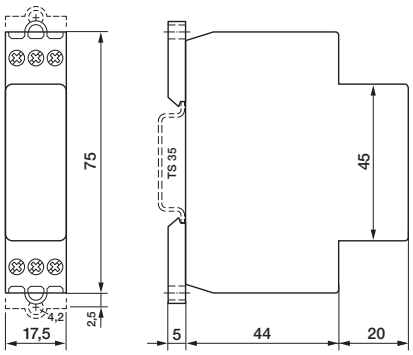

### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

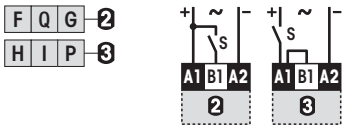
IEC/EN 50155, IEC/EN 60730

# CIM33, CIM33R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **4 A / 30 V DC-1** |
| **Recommended minimum contact load** | **1 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | MOS FET |
| Rated operational current (Fig. 1) | 4 A |
| Max. inrush current (10 µs) | 40 A |
| Max. switching voltage | 30 V |
| Leakage current | < 10 µA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (UC = AC / DC) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

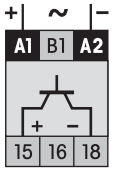
### Specifications

| | |
|---|---|
| Ambient temperature storage / operation | -40 … 85 °C / -40 …60 °C (No Ice)<br>(Railway: -70 °C) (No Ice) |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / Weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

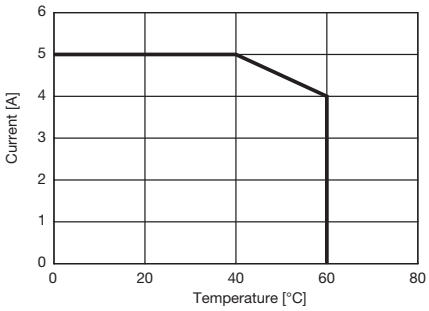
### Product References

| | |
|---|---|
| **Railway** | **CIM33R/UC24-240V** |

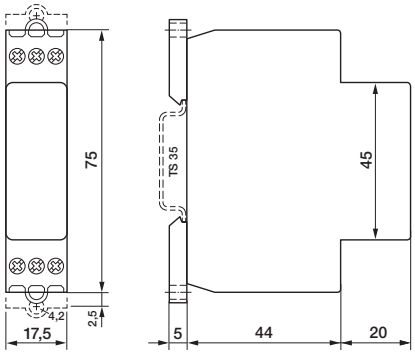
### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

IEC/EN 50155, IEC/EN 60730

## Notes

# 2.3 Time Cubes

| Application | Types |
|---|---|
| **CT Series** | |
| 8-pin and 11-pin Timecube | CT2, CT3 |

# CT2, CT3

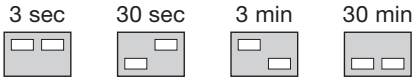
## 8-pin and 11-pin Timecube®

**Time functions** (Function diagrams: refer to page 148)

| *Operating voltage controlled types* | *Trigger input controlled types* |
|---|---|
| CT2- / CT3-E30: Function E, on delay | CT2- / CT3-A30, off delay |
| CT2- / CT3-W30: Function W, one shot | CT2- / CT3-K30, pulse shaping |
| CT2- / CT3-B30: Function B, blinker | |

**Time data**

4 partial time ranges (DIP switch)




| | |
|---|---|
| Fine adjustment time range (rotary knob) | $t_{min}$ … $t_{max}$, 2 … 30 |
| Time range tolerance | $t_{min}$: 0 … + 35 % |
| Repetition accuracy | ± 0.5 % or ± 20 ms |
| Reset time | ≤ 200 ms |
| Reset time B1 (trigg. inp.) A, K | ≤ 80 ms |
| Voltage failure buffering | 5 ms (except the relay) |

**Power supply- and control input** (UC = AC or DC)

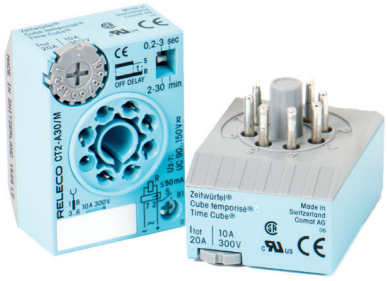
| | | |
|---|---|---|
| CT2- / CT3- … / S | DC 9.5 … 18 V | 12 mA |
| CT2- / CT3- … / L | UC 20 … 65 V | 6 mA |
| CT2- / CT3- … / M | UC 90 … 150 V | 2 mA |
| CT2- / CT3- … / U | UC 180 … 265 V | 2 mA |
| CT2- / CT3- … / H | UC 90 … 265 V | 2 mA |
| Residual current E, W, B | ≤ 0.3 mA | |
| Residual current B1 (trigg. inp.) A, K | ≤ 0.2 mA | |

**Specifications**

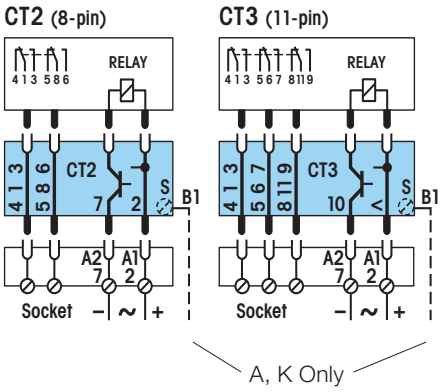
| | |
|---|---|
| Ambient temperature storage / operation | -40 … +70 °C / -25 … +60 °C (no ice) |
| Protection degree | IP40 |
| Housing material | Lexan |
| Weight | 35 g |
| Mounting | Socket |

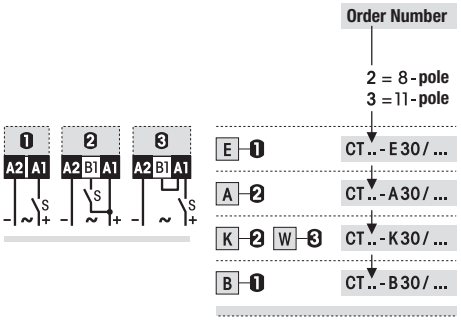
**Product References**

| 8 pole | 11 pole | Voltage |
|---|---|---|
| CT2-E30/S<br>CT2-B30/S<br>CT2-A30/S<br>CT2-K30/S | CT3-E30/S<br>CT3-B30/S<br>CT3-A30/S<br>CT3-K30/S | DC 9.5…18 V |
| CT2-E30/L<br>CT2-B30/L<br>CT2-A30/L<br>CT2-K30/L | CT3-E30/L<br>CT3-B30/L<br>CT3-A30/L<br>CT3-K30/L | UC 20…65 V |
| CT2-A30/M<br>CT2-K30/M | CT3-A30/M<br>CT3-K30/M | UC 90…150 V |
| CT2-A30/U<br>CT2-K30/U | CT3-A30/U<br>CT3-K30/U | UC 180…265 V |
| CT2-E30/H<br>CT2-B30/H | CT3-E30/H<br>CT3-B30/H | UC 90…265 V |

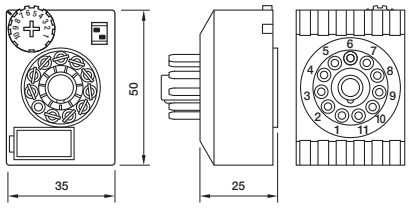


### Wiring diagram




### Dimensions




Only 11-pin version shown.
The dimension of the 8-pin version are identical

### Technical approvals, conformities

## Notes

## Notes

# 2.4 Time Modules



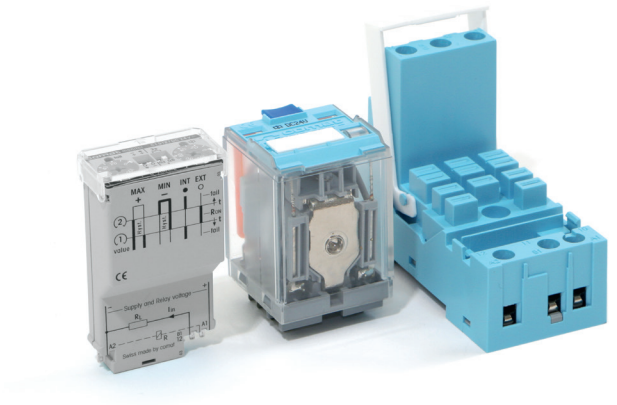
| Application | Types | Contacts | AC ratings | DC ratings | Socket |
|---|---|---|---|---|---|
| **CT Series** | | | | | |
| Multifunction Time Module | CT32R | - | - | - | S3-M / S5-M |
| Multifunction Time Module | CT33R | - | - | - | S3-M / S5-M |
| Multifunction Time Module | CT36R | - | - | - | S3-M / S5-M |

## The modular Comat timer CT System

The time delay relays and monitoring relays consist of plug-in CT electronic modules and 11-pole output relays. Both system components can be combined in a variety of combinations. This allows adapting the system for the specific application.

Subsequent modifications, for example a change from mechanical contacts to solid-state outputs, are possible at any time just by replacing the relay.

This system provides the user a complete universal system with worldwide unmatched flexibility.



**The system sockets** S3-MB0 or C-155 serve as a basis for the secure reception of the electronic modules. The sockets have a 4-pole module slot in which the CT modules lock firmly and vibration proof also without the output relay. Contact is made with reliable twin knife contacts.

With the A2 connector bridge "C-A2", the neutral conductor (N/-) can be connected from socket to socket. It reduces wiring work considerably.

Robust terminals for wires up to 4 mm² and spacious labeling are other advantages of this practical Comat modular system.

Clear markings close to the terminal connections on the sockets make it easy to identify the connections for wiring and servicing.

**The CT modules** are proof of the practical oriented experiences of Comat in the field of industrial electronics. All control and display elements are arranged easy accessible at all times on the front side of the modules. The functions and settings are self-explanatory schematically illustrated on the front and allow to review the set values also during operation.

A transparent cover over the module setting components provides protection from unintentional settings and additionally links the module to the output relay.

Triggering is performed with the operating voltage. (L1 or +). No potential-free contacts are therefore required. The triggering complies to machine standards. Parallel connection to B1 is admissible.

**The wide UC voltage range** (AC/DC) of the modules give a wide flexibility. It permits the connection to AC or DC supplies and provides a high level of reliability in triggering.

Note: In case of even wider voltage ranges, for example UC 24-240V, triggering currents on B1 are often in the range of 100µA with simultaneous low threshold voltages of less than 20V. Due to capacitive or inductive pickups this may lead to unintentional triggering or switching errors caused by insufficient load on the control contacts (It is not seldom that 50V or more can be measured in open lines).

**The output relays** show the connection diagram and the technical values on the front side, (exception C3 and C5 relays). A color code indicates an AC coil with red and a DC coil with blue color. Most of the relays have a lockable test button for manual operation.

**The standard contacts** have proven its reliability for high switching current applications over many years. The contact material AgNi permits a wide switching range and due to the large dimensioning they are designed for a high number of switching cycles. The high breaking capacity of up to 10A/400V and a low load switching capability of 12V/10mA makes the contact suitable for the use in main circuits as well as for low voltage applications.

**The twin contacts** are switching the load circuit with 2 independent contact tongues. The switching safety for low currents is therefore 100 times higher compared to a single contact relay. Despite the high switching capacity of up to 6A/250V, these contacts are very suitable to switch low currents and voltages up to 1mA/6V.

**The solid-state relays** are an alternative to mechanical relays. In the standard version, the relay has a potential-free universal semiconductor output for AC or DC loads. The advantage is a bouncing- and wear-free, overload resistant, short circuit protected output with a practical unlimited life cycle.

Solid-state relays are specially recommended for applications of high switching cycles, for example for repeat cycle timers, flushing lights, but also for high inductive switching loads of solenoid valves, couplings, motors, etc. The solid state relays are also suitable for capacitive loads, for example long power lines, or compensated lighting circuits.

Additional protection circuits of the output or of the load are not necessary in any application for this type of Comat relays.

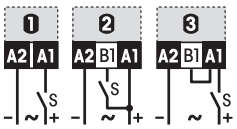
The solid-state relays are insensitive in any aggressive environment such as chemical plants, sewage plants etc. and are therefore an excellent choice for the employment in such environments.

The train symbol indicates products available in a special railway execution according EN 50155.
Please refer to our special railway brochure for details.

# CT32R, CT33R, CT36R

## Multifunction Time Module

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)




| | CT32R | CT33R | CT36R |
|---|---|---|---|
| | Universal | Universal | Repeat cycle timer |
| | E 2 3<br>A N K B1 2<br>W B 3 | E 2 3<br>A N L F K G B1 Q<br>W H B 3 2 | I P 1 |

### Time data

| Type | CT 32R | CT33R | CT36R |
|---|---|---|---|
| Partial time ranges, $t_{max}$ | 1.5, 6, 15, 60 /s /min | 150, 600 ms | 2 x 600 ms |
| | 1.5, 6, 15, 60 /s /min /h | 2 x 6, 60 /s /min /h | |
| Min. time $t_{min}$ | 0.15 s | 30 ms | 2 x 50 ms |
| Fine adj. range $t_{min}$ … $t_{max}$ | 1 … 1 0 | 0.2 … 1 | 2 x 5 … 60 |
| Time range tolerance $t_{min}$ | -25 … 0 % | -25 … 0 % | -25 … 0 % |
| $t_{max}$ | 0 … 25 % | 0 … 25 % | 0 … 25 % |
| Repetition accuracy | ± 0.2 % or 20 ms | ± 0.2 % or 20 ms | ± 0.2 % or 20 ms |
| Temperature drift of time | 0.1 % / K | 0.1 % / K | 0.1 % / K |
| Min. trigger pulse width B1 | ≥ 30 ms | ≥ 30 ms | - |
| Reset time pow. supply | ≤ 150 ms | ≤ 150 ms | ≤ 150 ms |
| Voltage failure buffering | ≥ 20 ms | ≥ 20 ms | ≥ 20 ms |

### Output data

| | |
|---|---|
| Nominal voltage | **110 – 240, 115, 230 V, UC 24-48V, UC 110-240V, DC 110V, UC 115V, UC 230V** |
| Type | Solid state |
| Rated operational current | 50 mA |
| On-state resistance | ≤ 100 Ω |
| Leakage current | ≤ 150 µA |

### Power supply and control input (UC = AC / DC)

| Type | CT36R | CT36R | CT32R |
|---|---|---|---|
| Nominal voltage | **UC 24 – 48 V** | **UC 110 – 240 V** | **DC 110 V** |
| Operating voltage range | 19…60 V | 82 … 265 V | 77…138 V |
| Supply current | 6 … 12 mA | 4 … 8 mA | 1…3 mA |

| Type | CT32R, CT33R | CT32R, CT33R | CT32R, CT33R |
|---|---|---|---|
| Nominal voltage | **UC 24 – 48 V** | **UC 115 V** | **UC 230 V** |
| Operating voltage range | 19 … 60 V | 90 … 150 V | 180 … 265 V |
| Input B1 inactive | ≤ 9 V | ≤ 60 V | ≤ 100 V |
| Supply current | 5 … 11 mA | 4 … 7 mA | 1 … 4 mA |

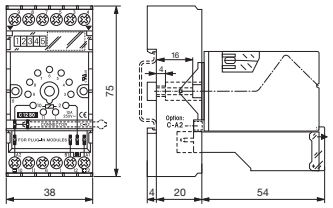
### Specification

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 … 60 °C (no ice) |
| Housing material | Lexan |
| Weight | 25 g |
| mounting | Socket |

### Product References

| | |
|---|---|
| **CT32R, CT33R, CT36R, UC24-48 V** | **CT3xR/UC24-48V R** |
| **CT36, UC110-240 V** | **CT3xR/UC110-240V R** |
| **CT32, CT33, UC115 V** | **CT3xR/UC115V R** |
| **CT32, CT33, UC230 V** | **CT3xR/UC230V R** |

### Dimensions




### Technical approvals, conformities

## Notes

# 3.0 Monitoring & Measuring Devices

## Notes

# 3.1 Multifunction Monitoring

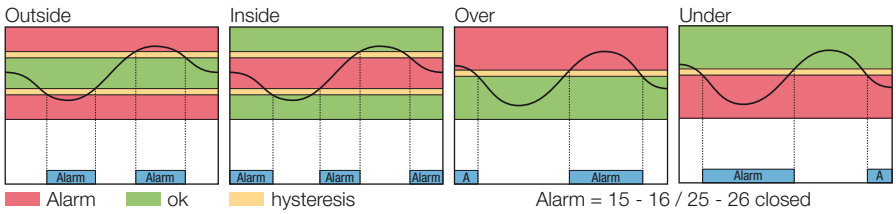


| Application | Types | Monitoring | Monitoring ratings | Output contacts | Design |
|---|---|---|---|---|---|
| **MRM Series** | | | | | |
| Multifunction monitoring I AC / DC single phase | MRM11 | | U, I, P, f, cosφ | 1 CO | 35 mm |
| Multifunction monitoring I AC / DC three phase | MRM32 | | U, I, P, f, cosφ | 2 CO | 35 mm |

# MRM11

## Multifunction Monitoring | AC / DC single phase

### Monitoring function




### Measuring circuit data

| | |
|---|---|
| Voltage setting ranges AC / DC | 0.1 … 480 V / ±0.1 … 690 V |
| Current setting ranges AC / DC | 0.1 … 5 A |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 1 MΩ / 5 MΩ |
| Measured variables | U, I, f, P, S, cosφ |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Alarm contacts

| | |
|---|---|
| Type / Material | 1 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

| **Power supply** | **UC12-48V** | **UC110-240V** |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

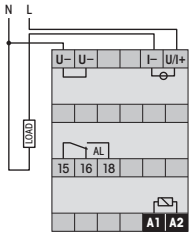
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C (no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 1 000 000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 107 g |

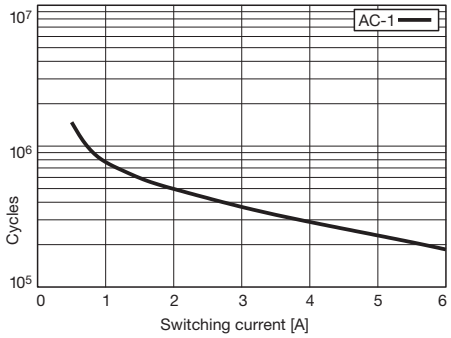
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRM11/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRM11/UC110-240V** |

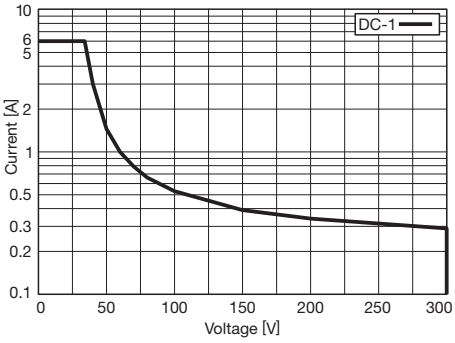
### Connection diagram



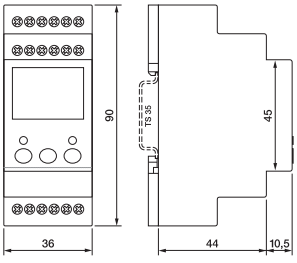

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]



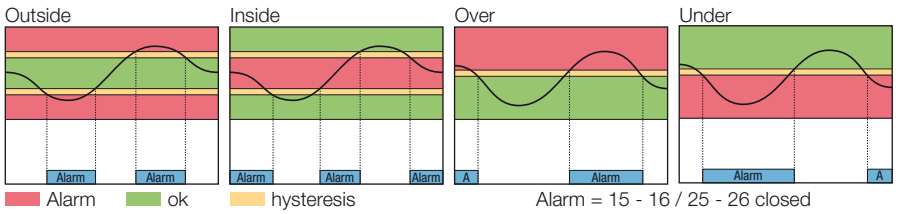

### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

# MRM32

## Multifunction Monitoring | AC / DC three phase

### Monitoring function




### Measuring circuit data

| | |
|---|---|
| Voltage setting ranges AC / DC | 0.1 … 480 V / ±0.1 … 690 V |
| Current setting ranges AC / DC | 0.1 … 5 A |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 1 MΩ / 5 MΩ |
| Measured variables | U, I, f, P, S, cosφ und Δφ (phase sequence) |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Contacts

| | |
|---|---|
| Type / Material | 2 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

| **Power supply** | **UC12-48V** | **UC110-240V** |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

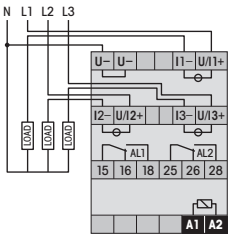
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C 8no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 1'000'000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 125 g |

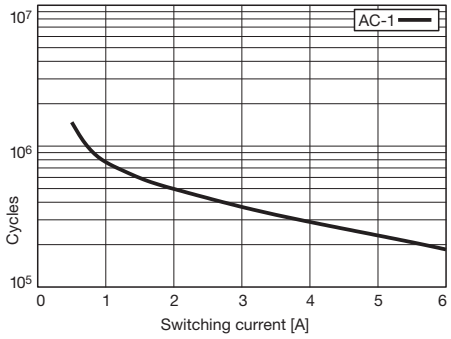
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRM32/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRM32/UC110-240V** |

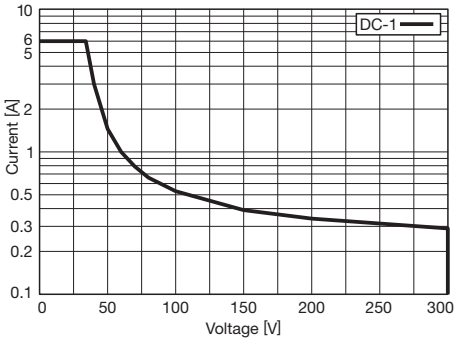
### Connection diagram



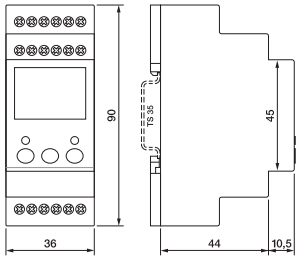

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]




### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

## Notes

# 3.2 Voltage Monitoring

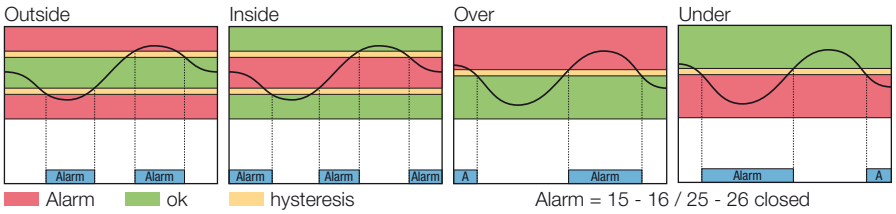


| Application | Types | Monitoring | Monitoring ratings | Output contacts | Design |
|---|---|---|---|---|---|
| **MRU Series** | | | | | |
| Voltage monitoring I AC / DC single phase | MRU11 | | 0.1 … 480 V AC / 690 V DC | 1 CO | 35 mm |
| Voltage monitoring I AC / DC three phase | MRU32 | | 0.1 … 480 V AC / 690 V DC | 2 CO | 35 mm |

# MRU11

## Voltage Monitoring | AC / DC single phase

### Monitoring function




### Measuring circuit data

| | |
|---|---|
| Voltage setting ranges AC / DC | 0.1 … 480 V / ±0.1 … 690 V |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 1 MΩ |
| Measured variables | U, f |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Alarm contacts

| | |
|---|---|
| Type / Material | 1 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

### Power supply

| | UC12-48V | UC110-240V |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

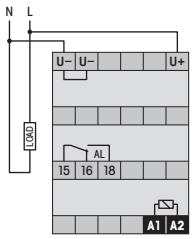
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C (no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 1 000 000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 107 g |

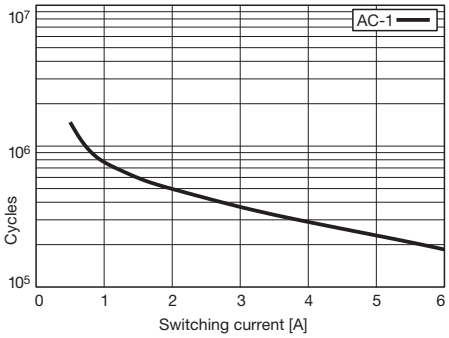
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRU11/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRU11/UC110-240V** |

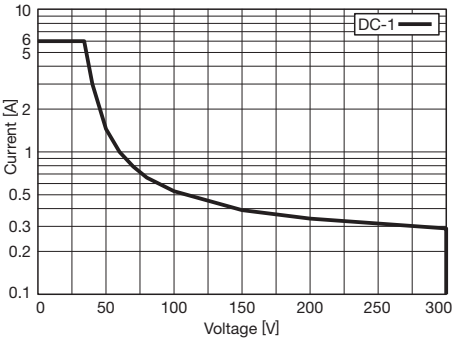
### Connection diagram



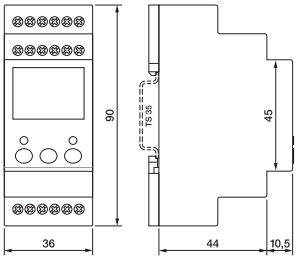

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]



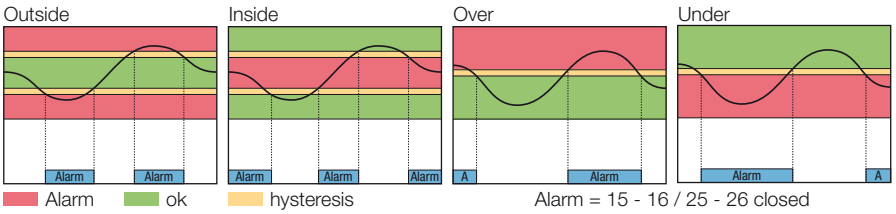

### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

# MRU32

## Voltage Monitoring | AC / DC three phase

### Monitoring function




### Measuring circuit data

| | |
|---|---|
| Voltage setting ranges AC / DC | 0.1 … 480 V / ±0.1 … 690 V |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 1 MΩ |
| Measured variables | U, f, Δφ (phase sequence) |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Alarm contacts

| | |
|---|---|
| Type / Material | 2 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

| **Power supply** | **UC12-48V** | **UC110-240V** |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

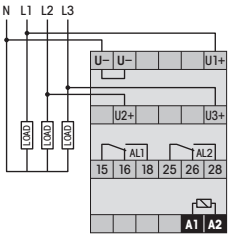
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C (no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 1 000 000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 125 g |

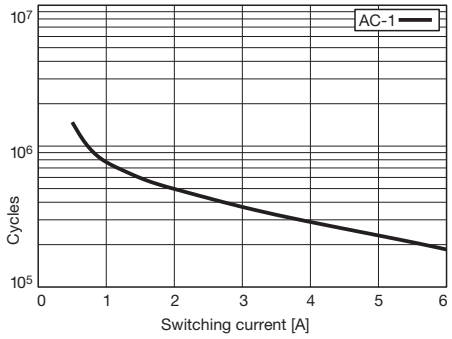
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRU32/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRU32/UC110-240V** |

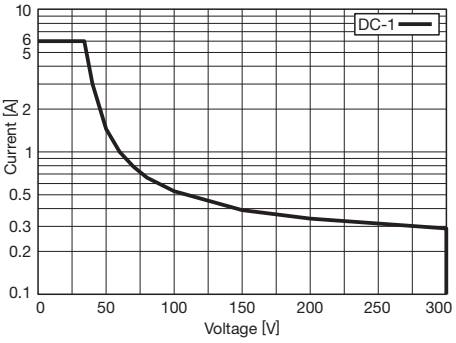
### Connection diagram



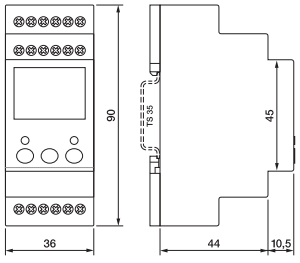

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]




### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

## Notes

# 3.3 Current Monitoring

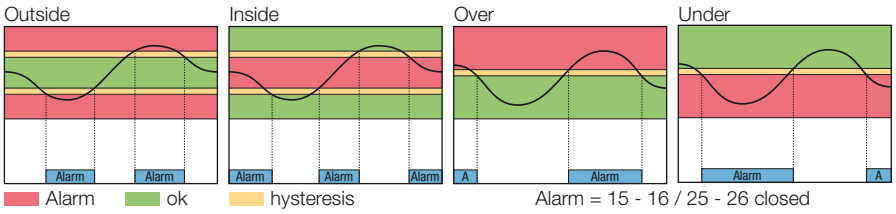


| Application | Types | Monitoring | Monitoring ratings | Output contacts | Design |
|---|---|---|---|---|---|
| **MRI Series** | | | | | |
| Current monitoring I AC / DC single phase | MRI11 | | 0.1 … 5 A | 1 CO | 35 mm |
| Current monitoring I AC / DC three phase | MRI32 | | 0.1 … 5 A | 2 CO | 35 mm |

# MRI11

## Current monitoring | AC / DC single phase

### Monitoring function



### Measuring circuit data

| | |
|---|---|
| Current setting ranges AC / DC | 0.1 … 5 A |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 5 MΩ |
| Measured variables | I, f |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Alarm contacts

| | |
|---|---|
| Type / Material | 1 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

| **Power supply** | **UC12-48V** | **UC110-240V** |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

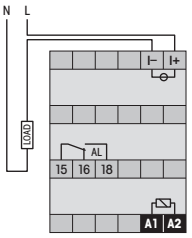
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C (no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 10 000 000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 107 g |

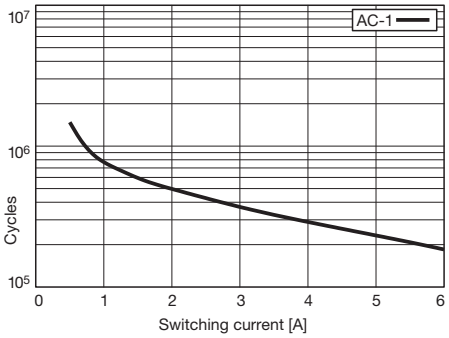
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRI11/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRI11/UC110-240V** |

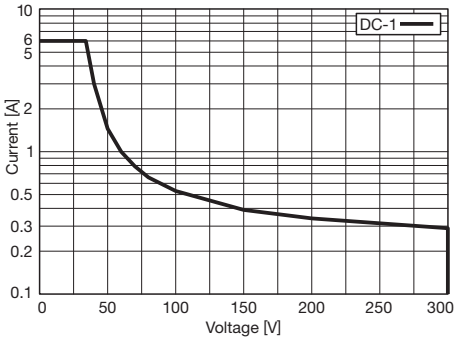
### Connection diagram



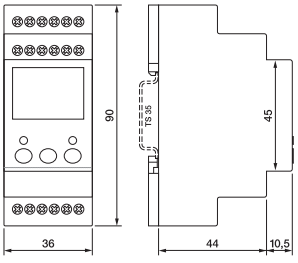

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]



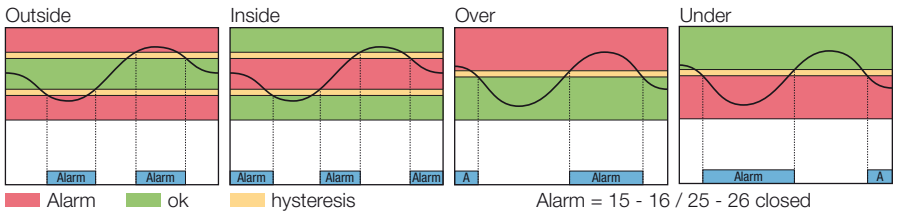

### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

# MRI32

## Current monitoring | AC / DC three phase

### Monitoring function



### Measuring circuit data

| | |
|---|---|
| Current setting ranges AC / DC | 0.1 … 5 A |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 5 MΩ |
| Measured variables | I, f |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Contacts

| | |
|---|---|
| Type / Material | 2 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

### Power supply

| | UC12-48V | UC110-240V |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

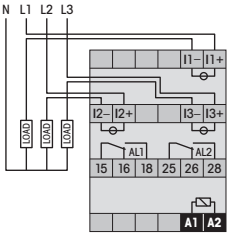
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C( no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 10 000 000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 125 g |

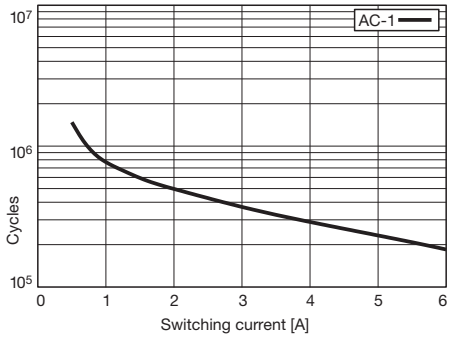
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRI32/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRI32/UC110-240V** |

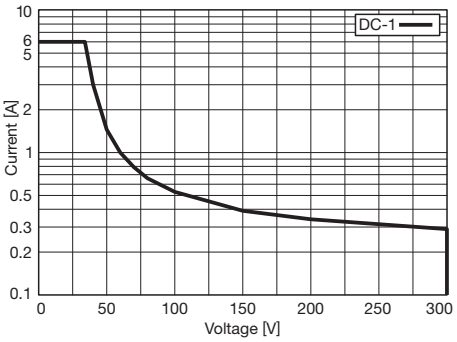
### Connection diagram



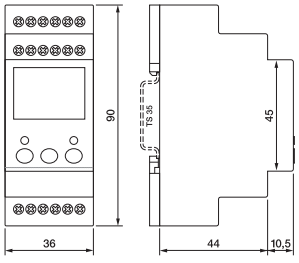

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]




### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

## Notes

# 4.0 Sockets

| Application | Types | Pins | Reted load |
|---|---|---|---|
| Socket for 8-pin Relays and Time Cubes | S2-B | | 10 A / 300 V |
| PCB Socket for 8-pin Relays and Time Cubes | S2-PO | | 10 A / 300 V |
| Socket for 11-pin Relays and Time Cubes | S3-B | | 10 A / 300 V |
| Socket for 11-pin standard Relays and Time Cubes | S3-S | | 10 A / 250 V |
| PCB Socket for 11-pin Relays and Time Cubes | S3-L / -PO | | 10 A / 250 V |
| System Socket for 11-pin Relays and Time / Monitoring Modules | S3-MB0 / S3-MB1 | | 10 A / 250 V |
| System Socket for 11-pin Relays and Time / Monitoring Modules | S3-M | | 10 A / 250 V |
| Socket for 14-pin C4 Relays | S4-J | | 10 A / 250 V |
| PCB Socket for 14-pin C4 Relays | S4-L / -P | | 10 A / 250 V |
| Socket for 11-pin Relays | S5-M | | 16 A / 400 V |
| Socket for 11-pin Relays | S5-SSY | | 16 A / 400 V |
| PCB Socket for 11-pin Relays | S5-L / -P | | 16 A / 400 V |
| Socket for 8-pin Relays | S7-C | | 10 A / 250 V |
| Socket for 8-pin Relays | S7-IO | | 10 A / 250 V |
| PCB Socket for 8-pin Relays | S7-P | | 10 A / 250 V |
| Socket for 14-pin Relays | S9-M | | 6 A / 250 V |
| PCB Socket for 14-pin Relays | S9-P | | 6 A / 150 V |
| Socket for 5-pin Relays | S10 | | 10 A / 250 V |
| PCB Socket for 8-pin Relays | S10-P | | 10 A / 250 V |
| Socket for 8-pin Relays | S12 | | 5 A / 250 V |
| PCB Socket for 8-pin Relays | S12-P | | 5 A / 250 V |
| Socket for 8-pin Relays | S16-M |  | 10 A / 300 V |
| Socket for 8-pin Relays | S18-M |  | 10 A / 300 V |

# Socket selection for industrial Relays

| Socket Selection for industrial Relays | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Socket Type** | **Description** | **C2** | **C3** | **C4** | **C5** | **C7** | **C9** | **C10** | **C12** | **C16PTL / C18PTL** | **C18-A15PT** | **C21** | **C22** | **C31** | **C32** | **R7** | **R-Module** |
| EC-11 | Socket for industrial Relay | | ● | | | | | | | | | | | ● | ● | | |
| S2-B | Socket for industrial Relay | ● | | | | | | | | | | | | | | | |
| S2-S | Socket for industrial Relay | | | | | | | | | | | ● | ● | | | | |
| S2-L | Socket for industrial Relay | ● | | | | | | | | | | | | | | | |
| S2-P | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S2-P0 | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S3-B | Socket for industrial Relay | | ● | | | | | | | | | | | ● | ● | | |
| S3-MP | Socket for industrial Relay | | ● | | | | | | | | | | | ● | ● | | |
| S3-S | Socket for industrial Relay | | ● | | | | | | | | | | | ● | ● | | |
| S3-L | Socket for industrial Relay | | ● | | | | | | | | | | | | | | |
| S3-P | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S3-P0 | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S3-MB0 | Socket for industrial Relay | | ● | | | | | | | | | | | ● | ● | | ● |
| S3-MB1 | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S3-N | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S4-J | Socket for industrial Relay | | | ● | | | | | | | | | | | | | |
| S4-L | Socket for industrial Relay | | | ● | | | | | | | | | | | | | |
| S4-P | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S5-M | Socket for industrial Relay | | | | ● | | | | | | | | | | | | ● |
| S5-L | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S5-P | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S7-C | Socket for industrial Relay | | | | | ● | | | | | | | | | | ● | ● |
| S7-I0 | Socket for industrial Relay | | | | | ● | | | | | | | | | | ● | ● |
| S7-16 | Socket for industrial Relay | | | | | ● | | | | | | | | | | ● | ● |
| S7-P | Socket for industrial Relay | | | | | ● | | | | | | | | | | ● | |
| S7-L, | Socket for industrial Relay | | | | | ● | | | | | | | | | | ● | |
| S7-P0 | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S9-M | Socket for industrial Relay | | | | | | ● | | | | | | | | | | |
| S9-P | Socket for industrial Relay | | | | | | ● | | | | | | | | | | |
| S9-L | Socket for industrial Relay | | | | | | ● | | | | | | | | | | |
| S9-P0 | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S10 | Socket for industrial Relay | | | | | | | ● | | | | | | | | | |
| S10-P | Socket for industrial Relay | | | | | | | ● | | | | | | | | | |
| S12 | Socket for industrial Relay | | | | | | | | ● | | | | | | | | |
| S12-P | Socket for industrial Relay | | | | | | | | ● | | | | | | | | |
| S16-M | Socket for industrial Relay | | | | | | | | | ● | | | | | | | ● |
| S18-M | Socket for industrial Relay | | | | | | | | | | ● | | | | | | ● |

# Socket Accessores

| Socket Accessoires | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type** | **Description** | **S3-M** | **S3-MB0** | **S3-MB1** | **S2-B** | **S3-B** | **S5-M** | **S7-C** | **S10** | **S7-IO** | **S12** | **S9-M** | **S4-J** | **S7-L** | **S7-P** | **S9-L** | **S9-P** |
| CA-11 | Code Ring (BAG 5 PCS) | | | | | ● | | | | | | | | | | | |
| CA-8 | Code Ring (BAG 5 PCS) | | | | ● | | | | | | | | | | | | |
| C-A2 | Neutral-Connector (BAG 5 PCS or 50 PCS) | ● | ● | ● | | | ● | | | | | | | | | | |
| SC-3 | A1-Connector (BAG 10 PCS) | | ● | ● | | | ● | | | | | | | | | | |
| LH-1 | Label carrier transparent (BAG 5 PCS) | ● | ● | ● | | | | | | | | | | | | | |
| SL-36 | Label holder transparent (BAG 5 PCS) | | | | ● | ● | | | | | | | | | | | |
| SP-36 | Labeling strips (BAG 5 PCS) | | | | ● | ● | | | | | | | | | | | |
| L-16 | Labeling strips (BAG 5 PCS) | ● | ● | ● | | | | | | | | | | | | | |
| SD-1T | Lock lid transparent (BAG 5 PCS) | ● | ● | ● | | | ● | | | | | | | | | | |
| SD-1W | Lock lid white (BAG 5 PCS) | ● | ● | ● | | | ● | | | | | | | | | | |
| B20-G | Bridge Bar grey (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| B20-R | Bridge Bar red (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| B20-A | Bridge Bar blue (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| CC-30 | Clip grey | | | | | | | | | | | | | | | | |
| CMX1 | LED-Module | | | | | | | | | | | | | | | | |
| CMR1 | R/C-Module | | | | | | | | | | | | | | | | |
| PS-W | Labeling strips | | | | | | | ● | | | | | | | | | |
| S7-BB | Bridge bar (BAG 5 PCS ( 5 x 4 )) | | | | | | | ● | | ● | | | | | | | |
| S9-CH | Labeling strib white (BAG 10 PCS) | | | | | | | | | ● | | ● | | | | | |
| S10-BB | Bridge bar (BAG 20 PCS ( 5 x 4 )) | | | | | | | | ● | | | | | | | | |
| S10-RH | Labeling strib white (BAG 10 PCS) | | | | | | | | ● | | ● | | | | | | |
| S10-RT | Transparent Cover (BAG 20 PCS) | | | | | | | | ● | | | | | | | | |
| SA-O | Wall Adapter | | | | | | | ● | ● | | ● | | | | | | |
| SS-T | Transparent Cover | | | | | | | ● | | | | | | | | | |
| SS-W | White Cover | | | | | | | ● | | | | | | | | | |
| V10-G | Bridge Bar grey (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| V10-R | Bridge Bar red (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| V10-A | Bridge Bar blue (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| V40-G | Bridge Bar grey (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| V40-R | Bridge Bar red (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| V40-A | Bridge Bar blue (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |

TURCK | comat RELECO WORLD OF RELAYS

## Clip Selection for industrial Relays

| Socket type | Made in | C2 ESP | C2 ESP + CT2 Timecube | C2 IND | CT 2 IND + CT2 Timecube | C3 ESP | C3 ESP + CT3 Timecube | C3 IND | C3 ESP + CT3 Timecube | C4 ESP | C4 CN | C5 ESP | C5 CN | C7 ESP | C7 CN | C9 ESP | C9 CN | C10 ESP | C10 CN | C10 IND | C12 ESP | C12 IND | C16PTL / C18PTL | C18-A15PT | C21 | C21 + CT2 Timecube | C22 | C22 + CT2 Timecube | C31 | C31 + CT3 Timecube | C32 | C32 + CT3 Timecube | R3 ESP | R3 IND | R7 ESP | R7 CN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EC-8 | ESP | | S3-C | | HF-32 | | S3-C | | HF-32 | | | | | | | | | | | | | | | | HF-32 | HF-33 | HF-32 | HF-33 | | | | | | | | |
| EC-11 | CN | | | | | | | | | | | | | | | | | | | | | | | | | | | | HF-32 | HF-33 | HF-32 | HF-33 | S3-C | HF-32 | | |
| S2-B. S2-S | CN | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | | HF-32 | HF-33 | HF-32 | HF-33 | | | | | | | | |
| S20-B | ESP | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S2-L, S2-P, S2-PO | ESP | | S3-C | | HF-32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S3-B | CN | | | | | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | S30-CM HF-32 | HF-33 | S30-CM HF-32 | HF-33 | S3-CM CP-15B S3-C | S30-CM HF-32 | | |
| S30-B | ESP | | | | | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | S30-CM HF-32 | HF-33 | S30-CM HF-32 | HF-33 | S3-CM CP-15B S3-C | S30-CM HF-32 | | |
| S3-MP | ESP | | | | | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | S30-CM HF-32 | HF-33 | S30-CM HF-32 | HF-33 | S3-CM CP-15B S3-C | S30-CM HF-32 | | |
| S3-S | CN | | | | | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | S30-CM HF-32 | HF-33 | S30-CM HF-32 | HF-33 | S3-CM CP-15B S3-C | S30-CM HF-32 | | |
| S3-L, S3-P, S3-PO | ESP | | | | | | S3-C | | HF-32 | | | | | | | | | | | | | | | | | | | | HF-32 | | HF-32 | | | | | |
| S3-MB0 | ESP | | | | | | S3-C | S3-CT | HF-32 | HF-33 | | | | | | | | | | | | | | | | | | | HF-32 | HF-33 | HF-32 | HF-33 | | | | | |
| S4-J | CN | | | | | | | | | | S3-CM CP-15B S3-C | S3-CM CP-15B S3-C | | | | | | | | | | | | | | | | | | | | | | | | | |
| S4-L, S4-P, S4-PO | ESP | | | | | | | | | | S4-CL | S4-CL | | | | | | | | | | | | | | | | | | | | | | | | |
| S5-S | ESP | | | | | | | | | | | | S3-CM CP-15B S4-C | S3-CM CP-15B S4-C | | | | | | | | | | | | | | | | | | | | | | |
| S5-M | CN | | | | | | | | | | | | S5MCP HF-32 | S5MCP HF-32 | | | | | | | | | | | | | | | | | | | | | | |
| S7-C | CN | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B | | | | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B |
| S7-I0 | ESP | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B | | | | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B |
| S7-I0 | CN | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B | | | | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B |
| S7-16 | ESP | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B | | | | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B |
| S7-P | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B | | | | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B |
| S7-L, S7-PO | ESP | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B | | | | | | | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B |
| S9-M | CN | | | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B | | | | | | | | | | | | | | | | | | | |
| S9-P | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B | | | | | | | | | | | | | | | | | | | |
| S9-L, S9-PO | ESP | | | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B | | | | | | | | | | | | | | | | | | | |
| S10 | CN | | | | | | | | | | | | | | | | | | S10-C CP-17B | S10-C CP-17B | S10-C CP-17B | | | | | | | | | | | | | | | | |
| S10-P | CN | | | | | | | | | | | | | | | | | | CP-24B | CP-24B | CP-24B | | | | | | | | | | | | | | | | |
| S12 | CN | | | | | | | | | | | | | | | | | | | | | S10-C CP-17B | S10-C CP-17B | | | | | | | | | | | | | | |
| S12-P | ESP | | | | | | | | | | | | | | | | | | | | | CP-24B | CP-24B | | | | | | | | | | | | | | |
| S16-M | CN | | | | | | | | | | | | | | | | | | | | | | | CP-16 | | | | | | | | | | | | |
| S18-M | CN | | | | | | | | | | | | | | | | | | | | | | | | CP-16 | | | | | | | | | | | | |

# S2-B

## Socket for 8-pin Relays and Time Cubes

| | |
|---|---|
| **Rated Load** | **10 A / 300 V** |

**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm² / AWG 12 or 2 x 2.5 mm² / AWG 14 |
| – Multi-wire | 0.34 mm² / AWG 22 - 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation / storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Weight | 48g |

**Included Accessories**

| | |
|---|---|
| Retaining Clip, plastic | S30-CM for C2 / C2x Relays |

**Optional Accessories**

| | |
|---|---|
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C2 / C2x Relays<br>HF-33 (BAG 10 PCS) for Time Cube CTx |

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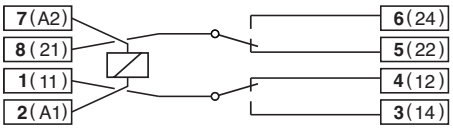
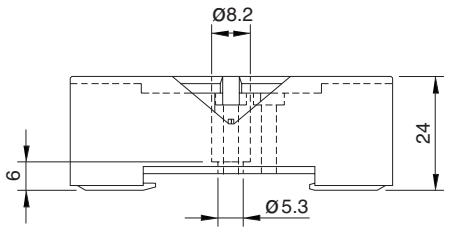
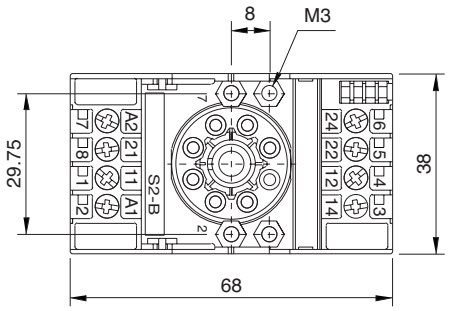
### Connection diagram




### Dimensions [mm]



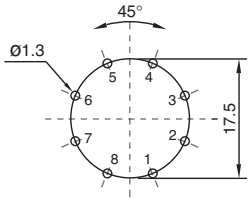

### Technical approvals, conformities

# S2-PO

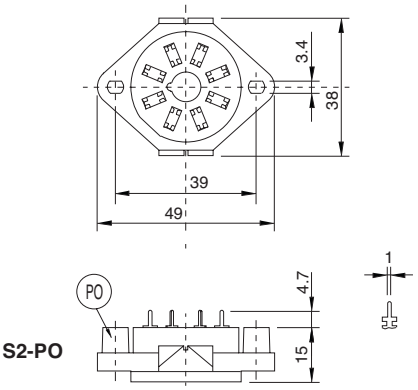
## PCB Socket for 8-pin Relays and Time Cubes

| | |
|---|---|
| **Rated Load** | **10 A / 300 V** |
| **Specifications** | |
| Rated impulse withstand voltage | |
| – Pin / Pin | 2.5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 ºC /-40 ... 80 °C (no ice) |
| Weight | 17g |
| **Optional Accessories** | |
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C2 / C2x Relays<br>HF-33 (BAG 10 PCS) for Time Cube CTx |

### Printed circuit lay-out [mm]




### Dimensions [mm]




S2-PO

### Technical approvals, conformities

# S3-B

## Socket for 11-pin Relays and Time Cubes

| | |
|---|---|
| **Rated Load** | **10 A / 300 V** |

**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm² / AWG 12 or 2 x 2.5 mm² / AWG 14 |
| – Multi-wire | 0.34 mm² / AWG 22 - 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 55g |

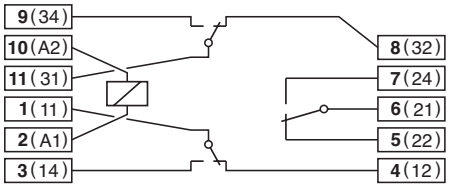
**Included Accessories**

| | |
|---|---|
| Retaining Clip, plastic | S30-CM for C3 / C3x Relays |

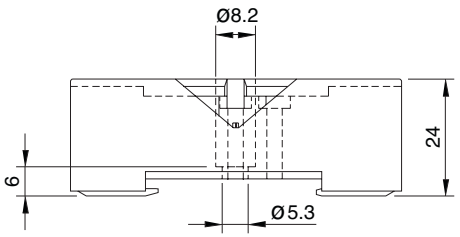
**Optional Accessories**

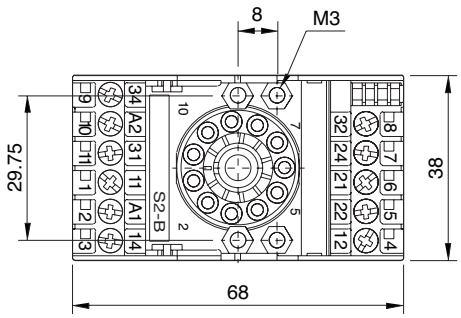
| | |
|---|---|
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C3 / C3x Relays |
| | HF-33 (BAG 10 PCS) for Time Cube CTx |
| Coding Ring | S3-BC (BAG 5 PCS) for C3 / C3x Relays |

### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S3-S

## Socket for 11-pin standard Relays and Time Cubes

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

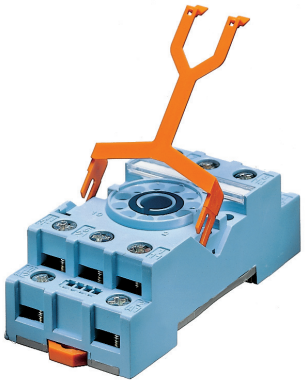
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm² / AWG 12 or 2 x 2.5 mm² / AWG 14 |
| – Multi-wire | 0.34 mm² / AWG 22 - 2.5 mm² / AWG 14 |
| Nominal screw torque | 1.2 Nm |
| Screw dimensions | M3.5 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Weight | 69g |

**Included Accessories**

| | |
|---|---|
| Retaining Clip, plastic | S30-CM for C3 / C3x Relays |

**Optional Accessories**

| | |
|---|---|
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C3 / C3x Relays |
| | HF-33 (BAG 10 PCS) for Time Cube CTx |
| Coding Ring | S3-BC (BAG 5 PCS) for C3 / C3x Relays |



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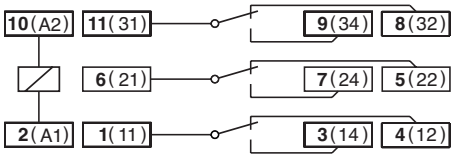
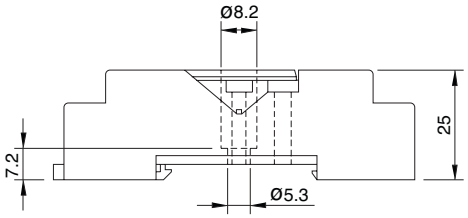
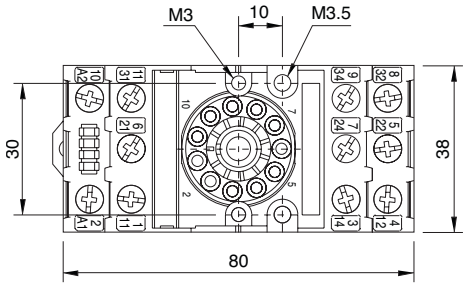
### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S3-L, S3-PO

## PCB Socket for 11-pin Relays and Time Cubes

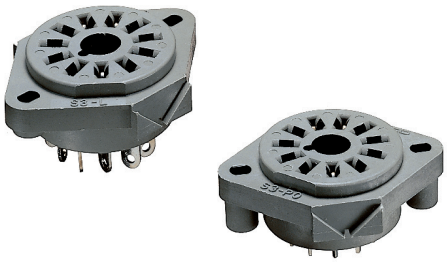
| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

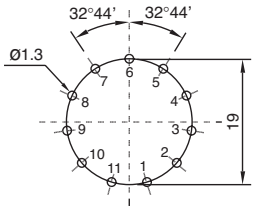
| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pin | 2.5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 17g |

**Optional Accessories**

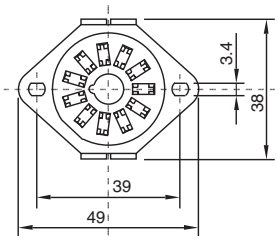
| | |
|---|---|
| Retaining spring, steel | HF-32 (BAG 10 PCS) for C3 / C3x Relays |



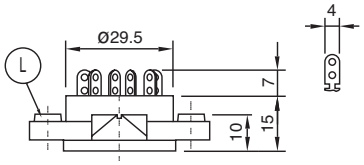
### Printed circuit lay-out [mm]



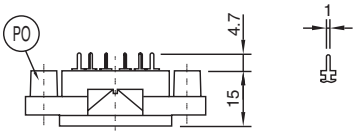

### Dimensions [mm]




S3-L




S3-PO




### Technical approvals, conformities

# S3-M

## Socket for 11-pin Relays and Time / Monitoring Module

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

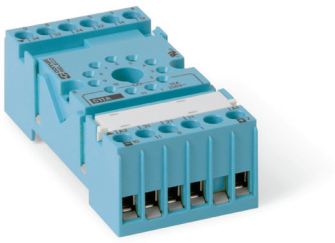
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 x 6 mm²/ AWG 10, 2 x 1.5 mm²/ AWG 16 |
| – Multi-wire | 1 x 4 mm²/AWG 12, 2 x 1.5 mm²/AWG 16 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -25 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 61g |

**Included Accessories**

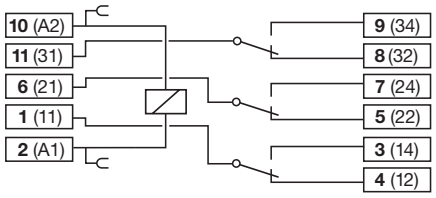
| | |
|---|---|
| A2-Connector | C-A2 |

**Optional Accessories**

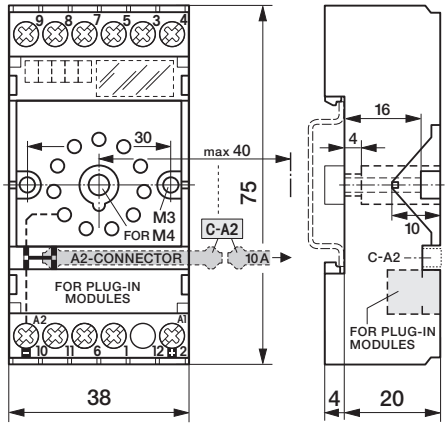
| | |
|---|---|
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C3 / C3x Relays |
| | HF-33 (BAG 10 PCS) for Time Cube CTx |
| Coding Ring | S3-BC (BAG 5 PCS) for C3 / C3x Relays |
| A2-Connector | C-A2 (BAG 5 PCS), C-A2 (BAG 50 PCS) |
| Freewheeling Diode Module | RD1/DC12-220V |
| RC-Suppressor Module | RC1/UC110-240V |



### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

IEC/EN 50155

# S3-MB0 / S3-MB1

## Socket for 11-pin Relays and Time / Monitoring Module

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

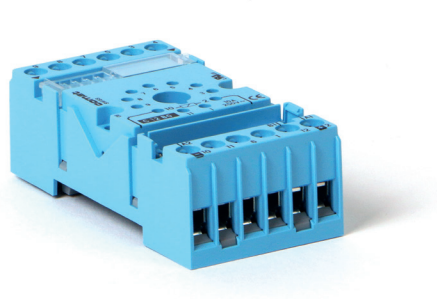
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 x 6 mm²/ AWG 10, 2 x 1.5 mm²/ AWG 16 |
| – Multi-wire | 1 x 4 mm²/AWG 12, 2 x 1.5 mm²/AWG 16 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -25 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 61g |

**Included Accessories**

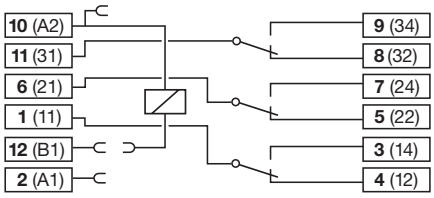
| | |
|---|---|
| A2-Connector | C-A2 |

**Optional Accessories**

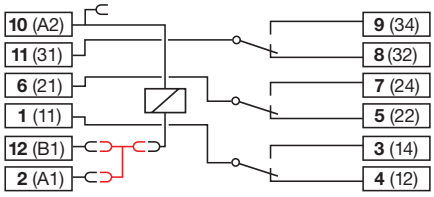
| | |
|---|---|
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C3 / C3x Relays |
| | HF-33 (BAG 10 PCS) for Time Cube CTx |
| Coding Ring | S3-BC (BAG 5 PCS) for C3 / C3x Relays |
| A2-Connector | C-A2 (BAG 5 PCS), C-A2 (BAG 50 PCS) |
| Freewheeling Diode Module | RD1/DC12-220V |
| RC-Suppressor Module | RC1/UC110-240V |



### Connection diagram S3-MB0

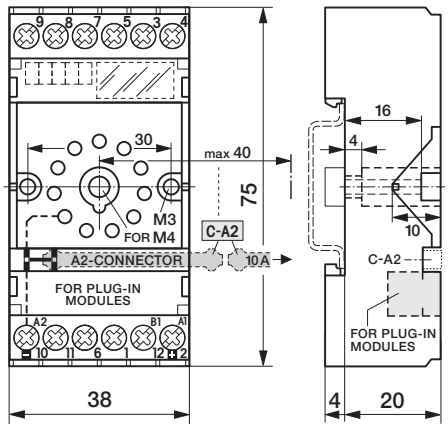



### Connection diagram S3-MB1




With Bridge Connector SC-3

### Dimensions [mm]




### Technical approvals, conformities

# S4-J

## Socket for 14-pin C4 Relays

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

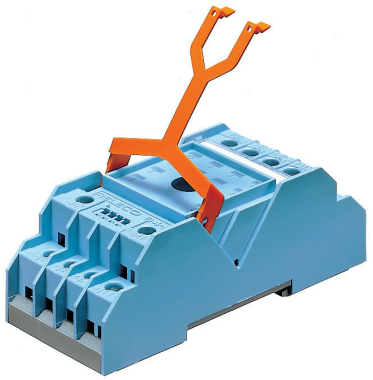
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm² / AWG 12 or 2 x 2.5 mm² / AWG 14 |
| – Multi-wire | 0.34 mm² / AWG 22 - 2.5 mm² / AWG 14 |
| Nominal screw torque | 1 Nm |
| Screw dimensions | M3.5 Philips-slot (combo) |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 80g |

**Included Accessories**

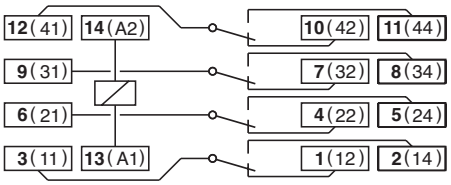
| | |
|---|---|
| Retaining Clip, plastic | S3-C for C4 / C4x Relays |

**Optional Accessories**

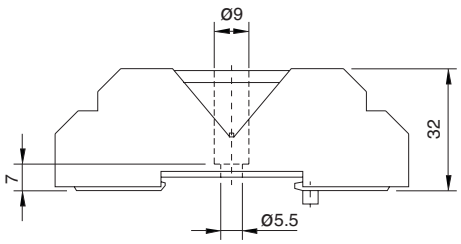
| | |
|---|---|
| Retaining Clip, plastic | S3-C (BAG 10 PCS) for C4 Relays |

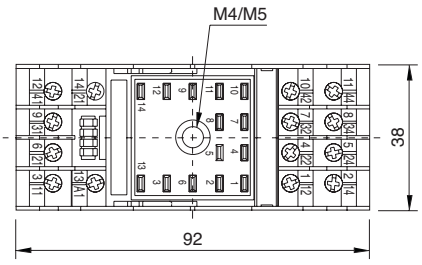


### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S4-L, S4-P

## PCB Socket for 14-pin C4 Relays

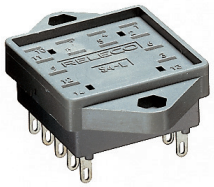
| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

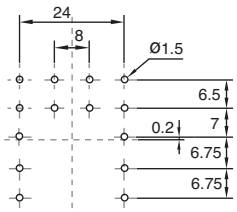
| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pin | 2.5 kV rms / 1 min |
| Ambient temperature | -30 °C ... +60 °C (no ice) |
| Weight | 21g |

**Optional Accessories**

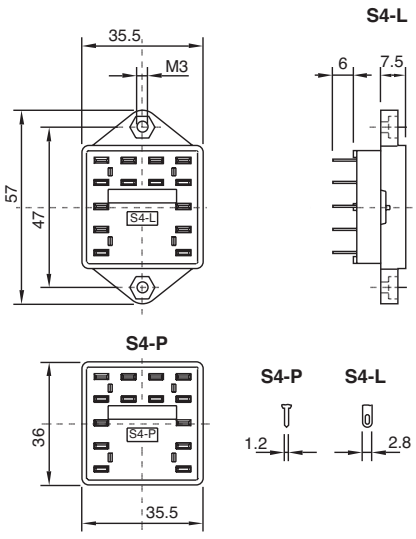
| | |
|---|---|
| Retaining spring, steel | S4-CL for C4 / C4x Relays |



### Printed circuit lay-out [mm]




### Dimensions [mm]




### Technical approvals, conformities

# S5-M

## Socket for 11-pin Relays

| | |
|---|---|
| **Rated Load** | **16 A / 400 V** |

**Specifications**

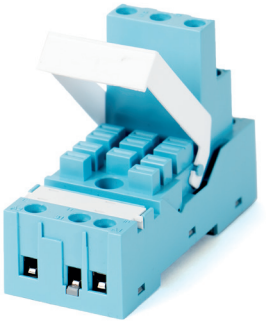
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 4 kV rms / 1 min |
| – Terminal / Terminal | 4 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 x 6 mm²/ AWG 10, 2 x 2.5 mm²/ AWG 14 |
| – Multi wire | 1 x 6 mm²/ AWG 10, 2 x 1.5 mm²/ AWG 16 |
| Nominal screw torque | 1 Nm |
| Screw dimensions | M3.5 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation / storage | -40 … 60° C/-40 … 80° C (no ice) |
| Weight | 92g |

**Integrated Accessories**

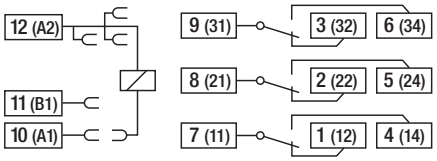
| | |
|---|---|
| A2-Connector | C-A2 |
| Retaining clip, plastic | S5M-CP for C5 / C5x Relays |
| A1-, B1-Connector | SC-3 |

**Optional Accessories**

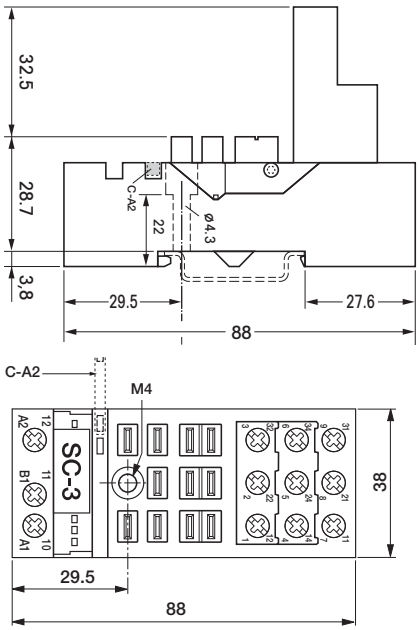
| | |
|---|---|
| Retaining Clip, steel | HF-32 (BAG 10 PCS) for C5 / C5x Relays |
| A2-Connector | C-A2 (BAG 5 PCS), C-A2 (BAG 50 PCS) |
| A1-, B1-Connector | SC-3 (BAG 10 PCS) |



### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S5-L, S5-P

## PCB Socket for 11-pin Relays

| | |
|---|---|
| **Rated Load** | **16 A / 400 V** |

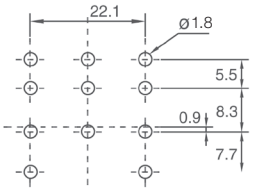
**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pin | 2.5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 °C / -40 ... 80 °C (no ice) |
| Weight | 20g |

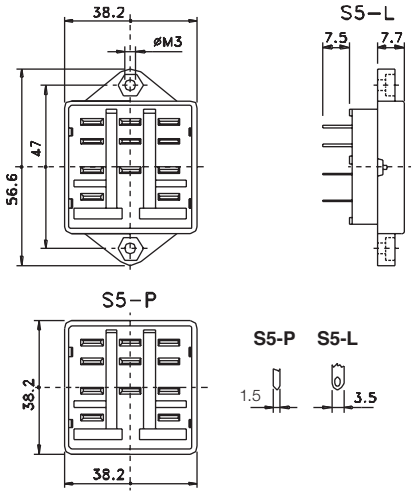
**Optional Accessories**

| | |
|---|---|
| Retaining spring, steel | S5-CL for C5 / C5x Relays |

### Printed circuit lay-out [mm]




### Dimensions [mm]




### Technical approvals, conformities

# S5-SSY

## Socket for 11-pin Relays

| | |
|---|---|
| **Rated Load** | **16 A / 400 V** |

**Specifications**

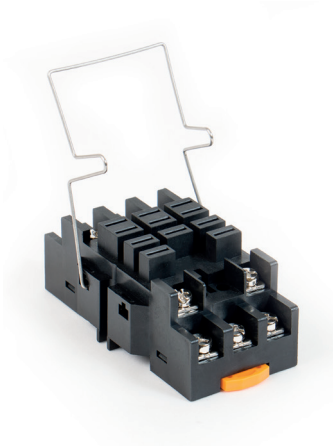
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 4 kV rms / 1 min |
| – Terminal / Terminal | 4 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 x 6 mm²/ AWG 10, 2 x 2.5 mm²/ AWG 14 |
| – Multi wire | 1 x 6 mm²/ AWG 10, 2 x 1.5 mm²/ AWG 16 |
| Nominal screw torque | 1 Nm |
| Screw dimensions | M3.5 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation / storage | -40 … 60° C/-40 … 80° C (no ice) |
| Weight | 92 g |

**Integrated Accessories**

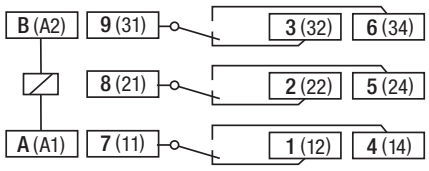
| | |
|---|---|
| A2-Connector | C-A2 |
| Retaining clip, plastic | S5M-CP for C5 / C5x Relays |
| A1-, B1-Connector | SC-3 |

**Optional Accessories**

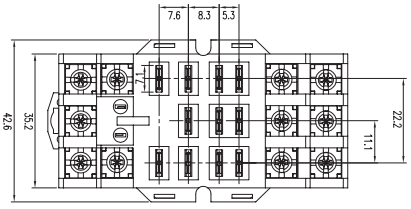
| | |
|---|---|
| Retaining Clip, steel | HF-32 (BAG 10 PCS) for C5 / C5x Relays |
| A2-Connector | C-A2 (BAG 5 PCS), C-A2 (BAG 50 PCS) |
| A1-, B1-Connector | SC-3 (BAG 10 PCS) |

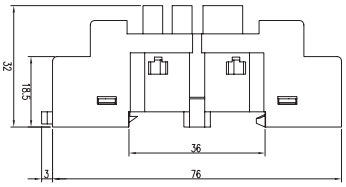


### Anschlussschema




### Abmessungen [mm]




### Technische Zulassungen, Konformitäten

# S7-C

## Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A, 16 A for 1-pole / 250 V** |

**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm²/ AWG 12, 2 x 1.5 mm²/ AWG 16 |
| – Multi wire | 2.5 mm²/ AWG 14, 2 x 1 mm²/ AWG 18 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40…60 °C (50 °C for 16 A) / -40…80 °C (no ice) |
| Weight | 37g |

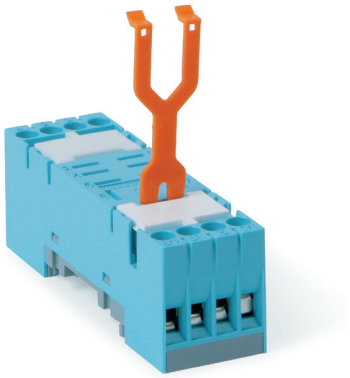
**Included Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B for C7 / C7x Relays |

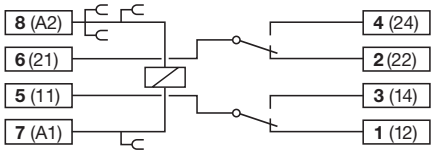
**Optional Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B (BAG 50 PCS) for C7 / C7x Relays |
| A2-Connector | S7-BB (BAG 20 PCS) |
| Panel Adapter | S9-G |

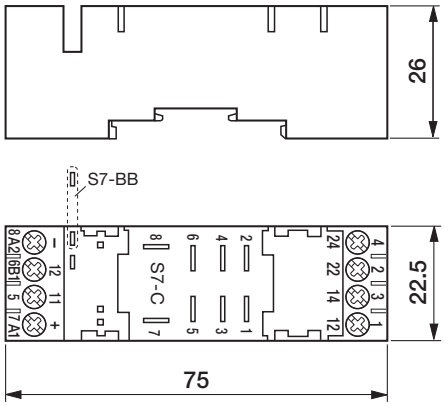
**Please Note:**
This socket replaces former socket S7-M and S7-16



### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S7-IO

## Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

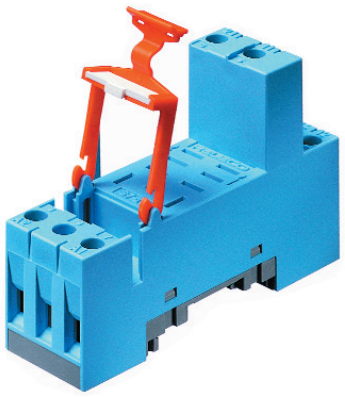
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm²/ AWG 12, 2 x 2.5 mm²/ AWG 14 |
| – Multi wire | 0.34 mm²/ AWG 22 - 2.5 mm²/ AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40…60 °C / -40 ... 80 °C (no ice) |
| Weight | 38g |

**Included Accessories**

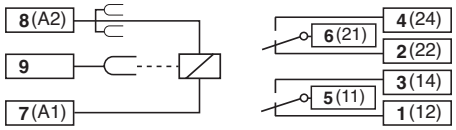
| | |
|---|---|
| Retaining clip, plastic | S9-C for C7 / C7x Relays |

**Optional Accessories**

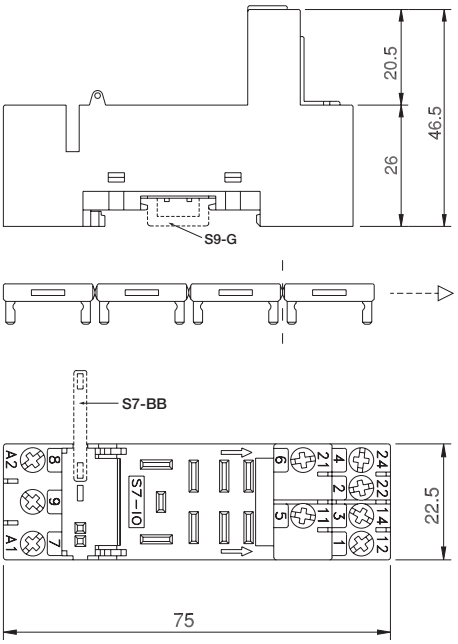
| | |
|---|---|
| Retaining clip, plastic | S9-C (BAG 10 PCS) for C7 / C7x Relays |
| A2-Connector | S7-BB (BAG 20 PCS) |
| Panel Adapter | S9-G (BAG 10 PCS) |



### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S7-P

## PCB Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

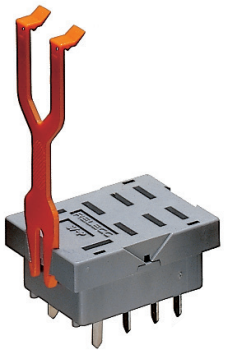
| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pin | 2.5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 10g |

**Included Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B for C7 / C7x Relays |

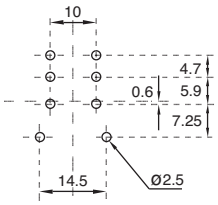
**Optional Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B (BAG 50 PCS) for C7 / C7x Relays |



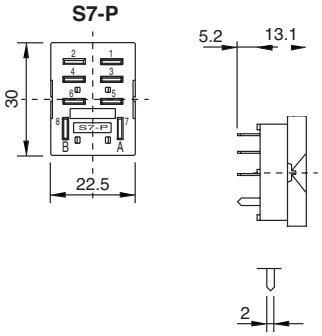
### Printed circuit lay-out [mm]

S7-P




### Dimensions [mm]

S7-P




### Technical approvals, conformities

# S9-M

## Socket for 14-pin Relays

| | |
|---|---|
| **Rated Load** | **6 A / 250 V** |

**Specifications**

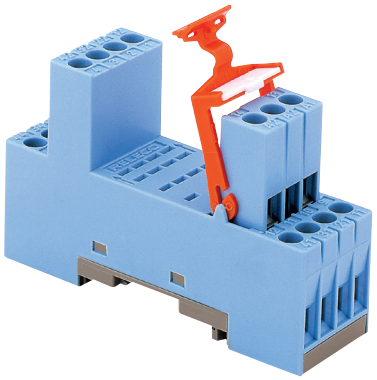
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm²/ AWG 12 or 2 x 2.5 mm²/ AWG 14 |
| – Multi-wire | 0.34mm²/ 22 - 2.5 mm²/ AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 54 g |

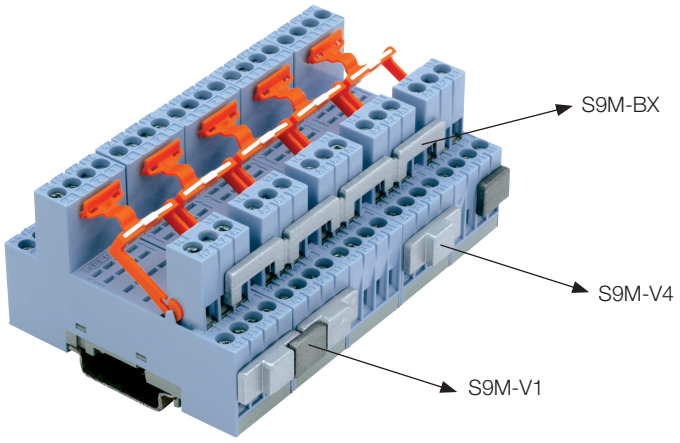
**Included Accessories**

| | |
|---|---|
| Retaining clip, plastic | S9-C for C9 / C9x Relays |

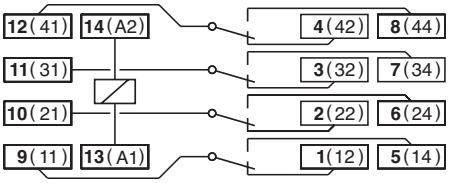
**Optional Accessories**

| | |
|---|---|
| Retaining clip, plastic | S9 (BAG 10 PCS) for C9 / C9x Relays |
| Panel Adapter | S9-G (BAG 10 PCS) |
| Bridge Bar | S9M-V1 (BAG 5 PCS) |
| Bridge Bar | S9M-V4 (BAG 5 PCS) |
| Bridge Bar | S9M-BX (BAG 5 PCS) |

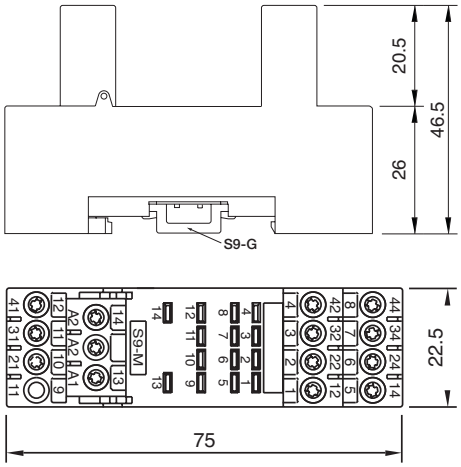





### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S9-P

## PCB Socket for 14-pin Relays

| | |
|---|---|
| **Rated Load** | **6 A / 150 V** |

**Specifications**

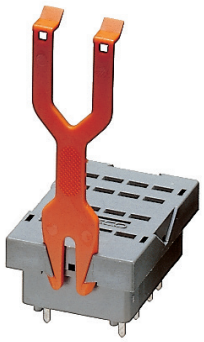
| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pin | 1.5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 12 g |

**Included Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B for C9 / C9x Relays |

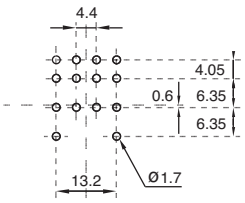
**Optional Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B (BAG 50 PCS) for C9 / C9x Relays |



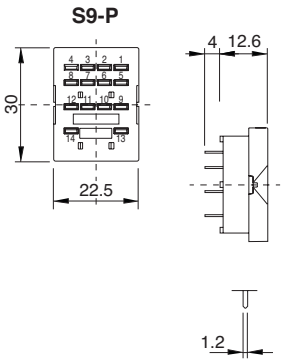
### Printed circuit lay-out [mm]

S9-P




### Dimensions [mm]

S9-P




This print socket must be used in pollution degree 2 environment only, hence office, laboratory, household or similar. It is not suitable for industry environment (pollution degree 3).

Maximum voltage between two separate circuits on neighbouring contacts: 150 V
**Not permitted:** 24 V DC next to 230 V AC, 230 V AC next to neutral, 230 V AC next to 230 V AC of different phases
**Permitted:** 230 V AC next to 230 V AC same phase

### Technical approvals, conformities

# S10

## Socket for 5-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

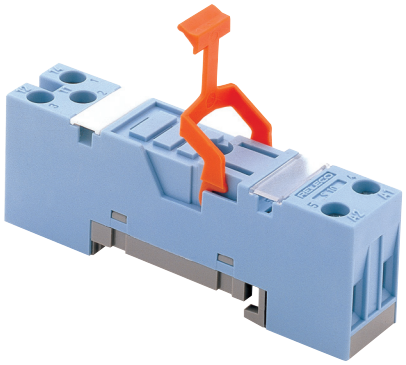
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 5 kV rms / 1 min |
| – Contact / Terminals | 2.5 kV rms / 1 min |
| – Contact / Coil terminals | 5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm² / AWG 12 or 2 x 2.5 mm² / AWG 14 |
| – Multi-wire | 0.34mm² / 22 - 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Weight | 23g |

**Included Accessories**

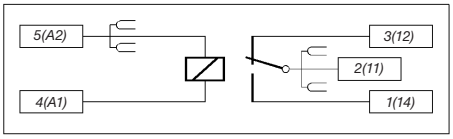
| | |
|---|---|
| Retaining Clip, plastic | S10-C for C10 / C10x Relays |

**Optional Accessories**

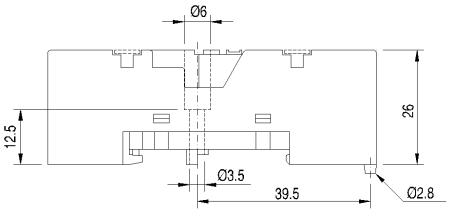
| | |
|---|---|
| Retaining clip, plastic | S10-C / CP-17B (BAG 10 PCS) for C10 / C10x |
| Bridge bar | S10-BB (BAG 20 PCS) |

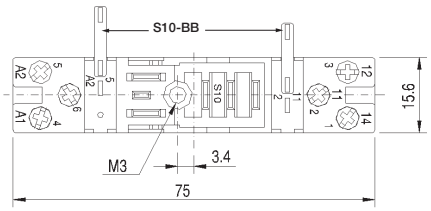


### Connection diagram




### Dimensions [mm]



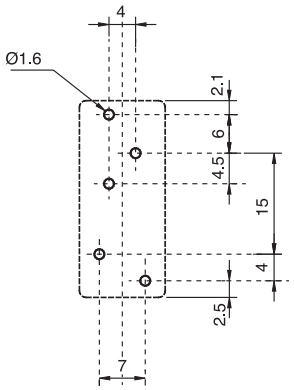

### Technical approvals, conformities

# S10-P

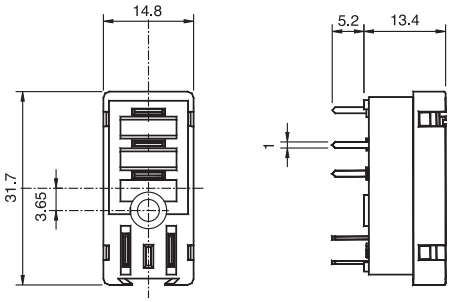
## PCB Socket for 5-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |
| **Specifications** | |
| Rated impulse withstand voltage | |
| – Pin / Pin | 5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 7g |
| **Included Accessories** | |
| Retaining clip, plastic | CP-24B for C10 / C10x Relays |

### Printed circuit lay-out [mm]




### Dimensions [mm]




### Technical approvals, conformities

# S12

## Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **5 A / 250 V** |

**Specifications**

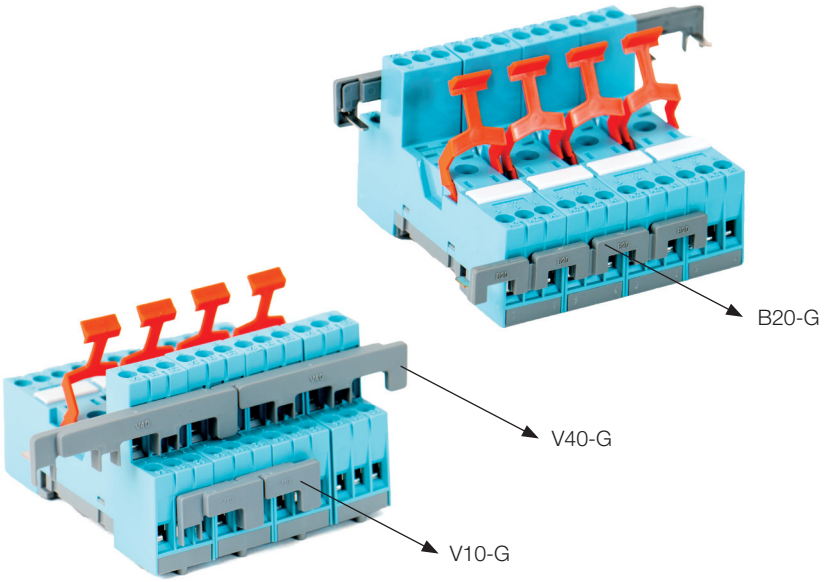
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 5 kV rms / 1 min |
| – Contact / Terminals | 2.5 kV rms / 1 min |
| – Contacts / Coil terminals | 5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm²/ AWG 12 or 2 x 2.5 mm²/ AWG 14 |
| – Multi-wire | 0.34mm²/ 22 - 2.5 mm²/ AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 31g |

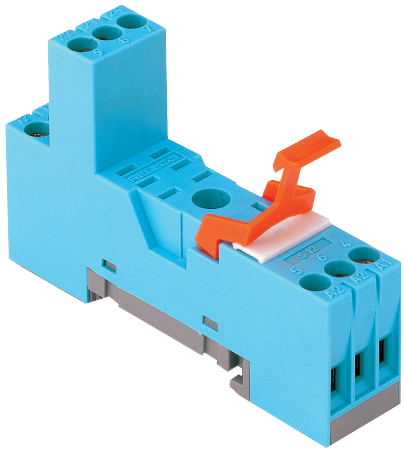
**Included Accessories**

| | |
|---|---|
| Retaining Clip, plastic | S10-C for C12 / C12x Relays |

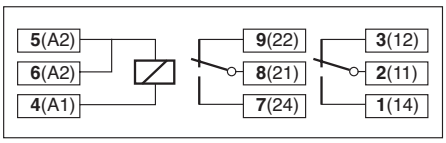
**Optional Accessories**

| | |
|---|---|
| Retaining Clip, plastic | S10-C / CP-17B (BAG 10 PCS) for C12 / C12x Relays |
| A2-Connector grey | B20-G (BAG 5 PCS) |
| A2-Connector red | B20-R (BAG 5 PCS) |
| A2-Connector blue | B20-A (BAG 5 PCS) |
| Bridge Bar twofold grey | V10-G (BAG 5 PCS) |
| Bridge Bar twofold red | V10-RC (BAG 5 PCS) |
| Bridge Bar twofold blue | V10-AC (BAG 5 PCS) |
| Bridge Bar fourfold grey | V40-G (BAG 5 PCS) |
| Bridge Bar fourfold red | V40-R (BAG 5 PCS) |
| Bridge Bar fourfold blue | V40-AC (BAG 5 PCS) |

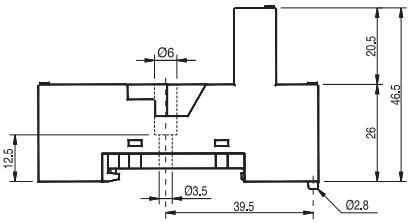


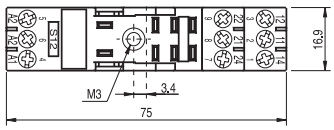



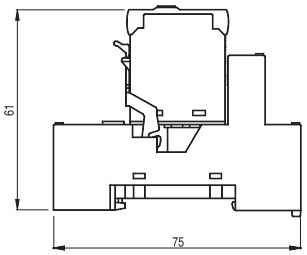
## Connection diagram




## Dimensions [mm]




## Technical approvals, conformities

# S12-P

## PCB Socket for 8-pin Relays

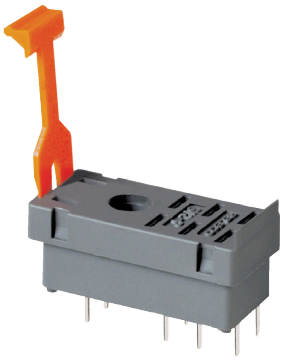
| | |
|---|---|
| **Rated Load** | **5 A / 250 V** |

**Specifications**

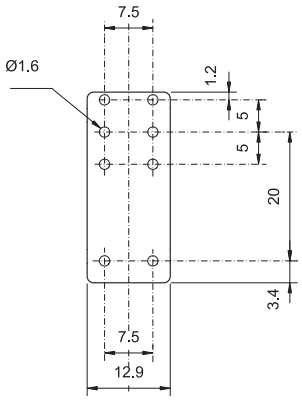
| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pole | 3 kV rms / 1 min |
| – Coil / contact terminals | 5 kV rms / 1 min |
| Weight | 7 g |

**Included Accessories**

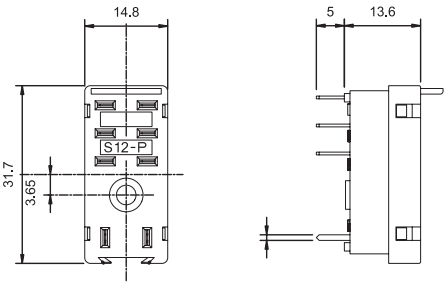
| | |
|---|---|
| Retaining clip, plastic | CP-24B for C12 / C12x Relays |



### Printed circuit lay-out [mm]




### Dimensions [mm]




### Technical approvals, conformities

# S16-M

## Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 300 V** |

**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 3 kV rms / 1 min |
| – Terminal / Terminal | 3 kV rms / 1 min |
| – Terminal / Coil | 3 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 × 0.5 mm² / AWG 20 |
| – Multi-wire | 1 × 2.5 mm² / AWG 14 or 2 × 1.0 mm² / AWG 18 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi 1 slot 2 |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature | -40….60 °C /-40 ... 80 °C (no ice) |
| Weight | 42 g |

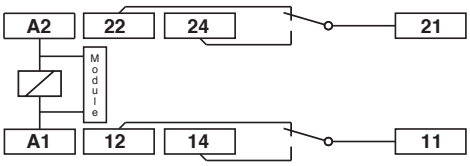
**Included Accessories**

| | |
|---|---|
| Retaining / Ejector clip, plastic | CP-16 |

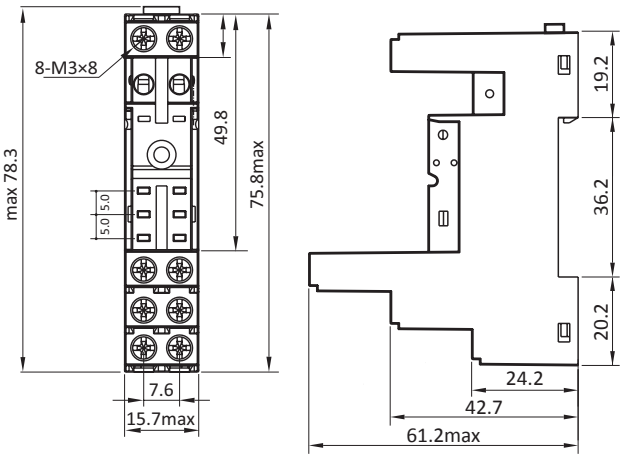
**Optional Accessories (modules)**

| | |
|---|---|
| Free wheeling diode | RD16/DC12-240V |
| Green LED & free wheeling diode, 6-24VDC | RDL16/DC6-24V |
| Green LED & free wheeling diode, 24-60VDC | RDL16/DC24-60V |
| Green LED & free wheeling diode, 110-240VDC | RDL16/DC110-240V |
| Green LED, 6-24V AC/DC | RL16/UC6-24V |
| Green LED, 24-60V AC/DC | RL16/UC24-60V |
| Green LED, 110-240V AC/DC | RL16/UC110-240V |
| RC-Network 6-24V | RC16/UC6-24V |
| RC-Network 24-60V | RC16/UC24-60V |
| RC-Network 110-240V | RC16/UC110-240V |

### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S18-M

## Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 300 V** |

**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 3 kV rms / 1 min |
| – Terminal / Terminal | 3 kV rms / 1 min |
| – Terminal / Coil | 3 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 × 0.5 mm² / AWG 20 |
| – Multi-wire | 1 × 2.5 mm² / AWG 14 or 2 × 1.0 mm² / AWG 18 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi 1 slot 2 |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 42 g |

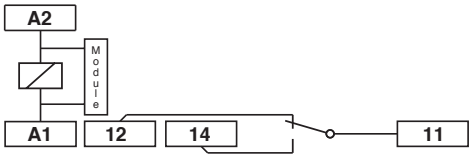
**Included Accessories**

| | |
|---|---|
| Retaining / Ejector clip, plastic | CP-16 |

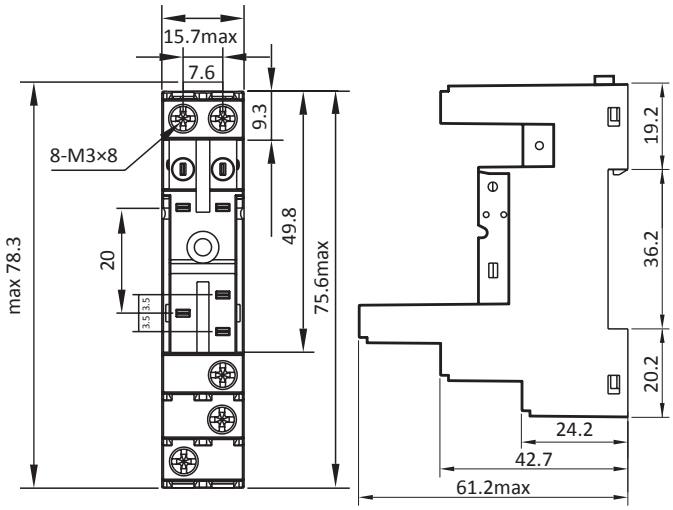
**Optional Accessories (modules)**

| | |
|---|---|
| Free wheeling diode | RD16/DC12-240V |
| Green LED & free wheeling diode, 6-24VDC | RDL16/DC6-24V |
| Green LED & free wheeling diode, 24-60VDC | RDL16/DC24-60V |
| Green LED & free wheeling diode, 110-240VDC | RDL16/DC110-240V |
| Green LED, 6-24V AC/DC | RL16/UC6-24V |
| Green LED, 24-60V AC/DC | RL16/UC24-60V |
| Green LED, 110-240V AC/DC | RL16/UC110-240V |
| RC-Network 6-24V | RC16/UC6-24V |
| RC-Network 24-60V | RC16/UC24-60V |
| RC-Network 110-240V | RC16/UC110-240V |

### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

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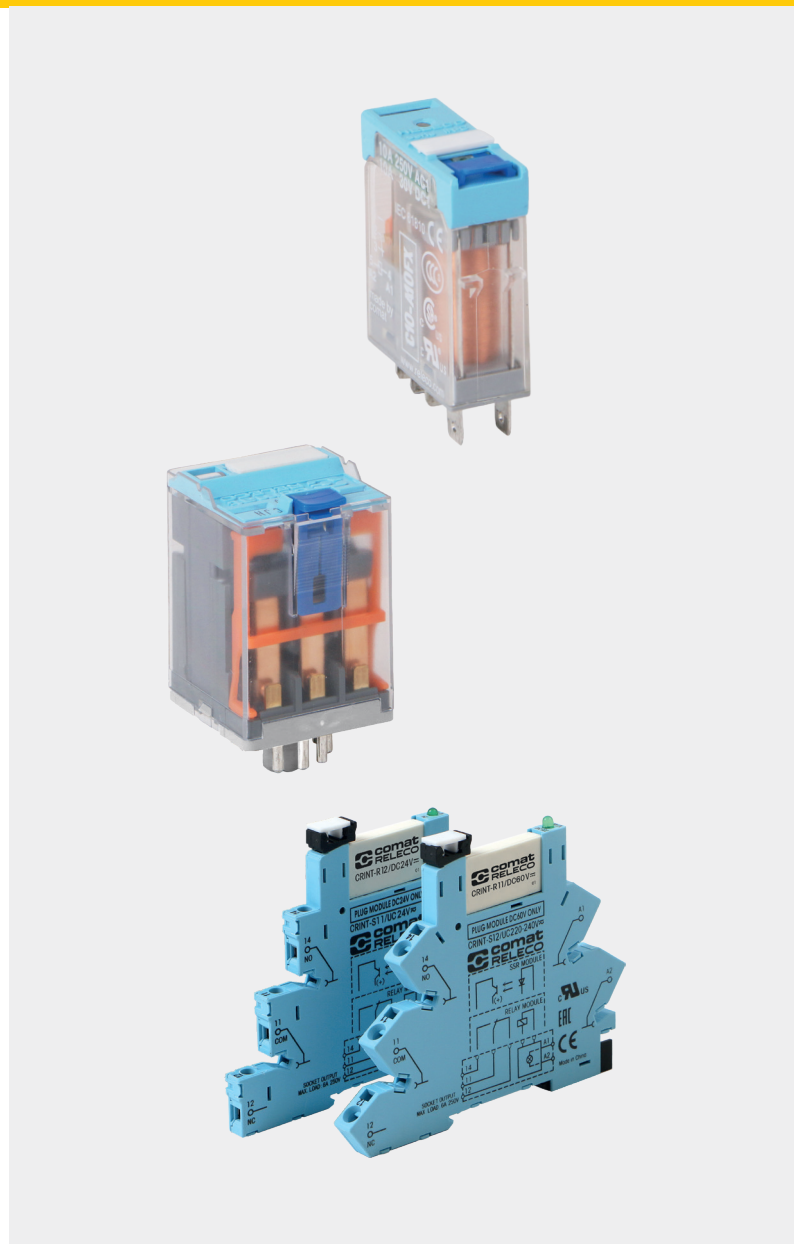

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# 1.0 Relays & Contactors

# Industrial Relays
## General Information

**Product range**
ComatReleco offers a wide range of relay types and versions and associated sockets and accessories.

**Industrial Relays C2, C3, C4, C5**
35 x 35 mm round plug-in relay, 8- or 11-terminals multipole connector according to IEC 67 with 2 or 3 contacts up to 10 A and different contact types and contact materials. Standard relay 35 x 35 mm with flat blade connectors with up to 4 contacts and up to 16 A with 3 contacts.

**Industrial Relays C7, C9**
22.5 mm series with up to 4 contacts and up to 10 A with 1 or 2 contacts.

**Interface Relays, C10, C12, C16, C18**
Overall width 13 mm with up to 2 electromechanical contacts, or fully electronic switches.

**Special relays, remanence relays**
While "normal" relays are monostable, i.e. they return to the idle state when the excitation is switched off, remanence relays are bistable, i.e. the current switching state is retained irrespective of the excitation. Relays of this type are available in different versions.

**Solid State Relay CSS**
CSS Relays are suitabe to either switch AC or DC loads up to 3 A. For AC relays a distinction is made between synchronously (zero crossing) and asynchronously switching versions. For switching transformer loads we recommended using asynchronously switching semiconductor switches. For incandescent lamp loads etc. synchronously switching switches are ideal for avoiding high switch-on currents.

**Accessories**
Suitable sockets are available for the different relay series for DIN rail mounting or panel mounting. In addition, retaining clips are available for the relays, some of which are included in the scope of supply. Suitable bridges for cost-saving wiring in series are also available.

*** Special requirements**
H = Orange button. No lockable function
N = Black button. No function
P = PCB pins

E = Lap transparent cover
T = Close transparent cover (lamp)

PT = PCB pins, 3.5mm grid, transparent cover
PTL = PCB pins, 5mm grid, transparent cover

If other requeriments, please consult.

**Basic identification principle (type designation code electromechanical relays)**

**C n(n) - T X y z(∗)z /....V RF-nnnn**

**Ref. nnnn**
Relays with a reference number are versions with special (e.g. customised) features. These features may relate to special test criteria, tolerances or other properties.

Availability of such relays may be limited to certain customers or applications.

**Nominal coil voltage specification**

| | |
|---|---|
| AC ... V | AC 50/60 Hz, voltage 6 – 250 (400) V |
| AC ... V 60 Hz | AC 60 Hz, 120, 240 V |
| DC ... V | DC, voltage 5 – 220 V |
| UC ... V | AC/DC |

**X =** Electric position indicating device with LED

**Describes the options**
**D =** Integrated freewheeling diode
**F =** Integrated freewheeling diode and series diode e.g. for common alarm circuits
**R =** RC connection for the coil
**B =** Bridge rectifier

**Definition of contact material**
This code may differ depending on type.
Examples:
**0** in the standard range stands for AgNi
**1–9** see contact material for each type

**Number of contacts**

**Relay type**
**A =** Standard (general-purpose) contact
**E =** Sensitive drive with 500 mW coil power
**G =** Refers to a NO contact
**H =** Single-point contact + twin contact load to signal current circuit for switching state feed back. Mixed contact configuration
**M =** Relay with highly effective neodymium blow magnet for fast quenching of the arc. This relay is particularly suitable for high DC loads.
**N =** Sensitive drive 800 mW coil power
**R =** Code for remanence relays, drive-specific ID
**S =** Sensitive drive with 250 mW exciter input
**T =** Twin contact for signal and control circuit
**W =** With tungsten contact for maximum switch-on currents
**X =** Relay high power, double make contact.

**Basic type refers to the product line**
Numbers between 2 and 12 and 20, 30 are used.

**Normal industrial relay code**
Relays with code R are used for railway series.

# Coil accessories
## General Information



## Industrial Relays C2-C9

**Protection against transients**
When the coil is disconnected from an electromagnet, peaks of inverse voltage appear at the terminals which can reach very high values. These pulses can be transmitted down the line associated with the coil and could possibly affect other components.
In the case of a realy being operated by such devices as transistors, Triacs, etc; it may be necessary to protect against transients.

**Transients carried in the line**
High voltage surges can be carried in the supply line to the relay coil. These may appear in the form of peaks or bursts and are generated by the connection and disconnection of electric motors, transformers, capacitors etc. Normally a relay is unaffected by these pulses, but if a diode is connected in association with the coil, it must be capable of withstanding an inverse voltage higher than those of the incoming peaks.

**Protection circuits**
A protection circuit must efficiently cope with pulses generated by the coil as well as incoming line surges (surges $U_{1.2/50\mu s}$)
ComatReleco Relays are available with integrated protection circuits or with modules plugged into sockets S3-MP or S3-MS.

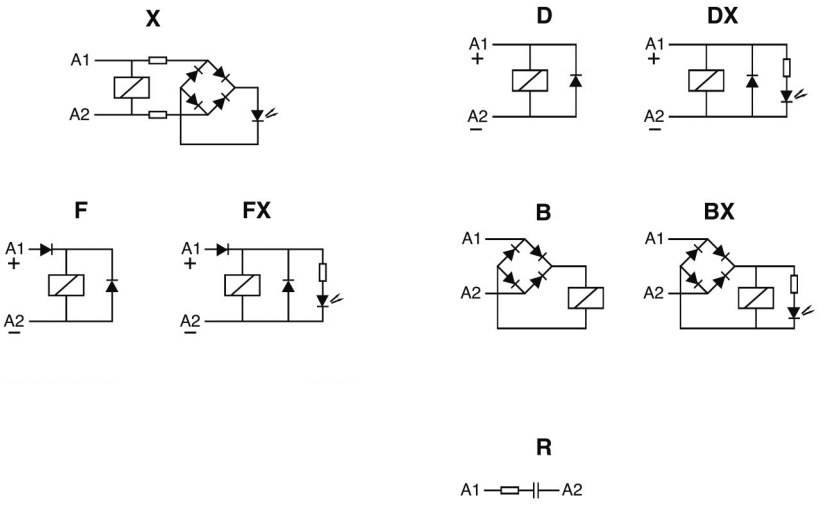
**X** LED indication with rectifier.
For DC and AC relays up to 250 V
Note: LED connected, in series with the coil @ 220 VDC in QRC types.

**D** Free-wheeling diode.
**DX** Free-wheeling diode + LED
Dampens transients caused by the relay coil on de-energisation.

**F** Polarity + free wheeling diode.
**FX** Polarity + free wheeling diode + LED
A diode in series with the coil protects the relay from reverse connection.

**B** Bridge rectifier incorporated
**BX** Bridge rectifier + LED indication
Allows the relay to operate in both AC or DC without any polarity inconvience. Available only in voltages up to 60 V.

**R** Resistor and capacitor.




## Industrial Relays C10-C18

**LED and protection circuit connected to coil.**

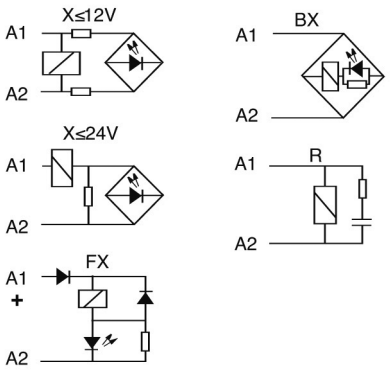
**X** LED with no polarity, (standard)
Coils ≤ 12 V CC y CA
LED rectifier bridge in parallel
**X** LED with no polarity, (standard)
Coils ≥ 24 V ... CC y CA
LED rectifier bridge in series
**FX** LED with polarity **A1+** (option)
Every DC coil voltage
Polarity and Free-wheeling diodes
**BX** LED with no polarity, (option)
Only 24 V and 48 V ADC coils
Rectifier bridge for AC/DC relays
**R** LED not available (option)
RC protection against pulses on AC

**Protection against pulses**
When a relay coil is disconnected, reverse voltage peaks may arise and reach very high values. Said peaks can transmit to the coil associated line and other relays or semiconductors can be affected.

If Triac, transistor, etc. controls a relay, appropiate steps must be taken to avoid or decrease peaks down to a non risky level.

Both Polarity and Free-wheeling diodes (**FX**), must protect coils, to avoid malfunctions provided DC relays in battery are installed.

Making or breaking engines, transformers or contactors in an industrial environmental, may generate high voltage pulses, either isolated or burst, through the main line.
The voltage level of those pulse may be high enough to affect the isolation of the coil.



## Contacts

There are different contact types. The main distinction is between single contacts and twin contacts. While single contacts are more suitable for higher loads, twin contacts are significantly more reliable at small loads, i.e. < 24 V, < 100 mA.

**Contact Material**
There is no all-purpose contact!
AgNi is used as standard material for a wide range of applications. AgNi contacts with hard gold plating (up to 5 µm) are offered for applications in aggressive atmosphere.
Relays with gold contacts are approved for relatively high currents (e.g. 6 A, 250 V), but in practice values of 200 mA, 30 V should not be exceeded for operation with intact gold plating.
Relays with a tungsten pre-contact are available for very high switch-on currents (up to 500 A, 2.5 ms). For some applications AgNi contacts with gold flashing (0.2 µm) are available. The purpose is corrosion protection during storage. There is no other purpose.
Tin oxide is specially appropiated for load with high-inrush current.

**Minimum load**
The minimum load value is a recommended value under normal conditions such as regular switching, no special ambient conditions, etc. Under these conditions reliable switching behaviour can be expected.

**Contact resistance**
Initial values of resistance of contact can vary with the use, load and others conditions.
Typical values when the relay is new is about 50 mΩ.

**Contact spacing**
Normally all contacts have an air gap between 0.5 ... 1.5 mm when they are open. They are referred to as µ contacts. According to the Low-Voltage Directive and the associated standards these contacts are not suitable for safe disconnection.
For switching of DC loads large contact clearances are beneficial for quenching the arc. See special relays: series connections with a gap of 3 mm.

**Switching capacity**
The contact switching capacity is the product of switching voltage and switching current. For AC the permitted switching capacity is generally high enough to handle the max. continuous AC1 current over the whole voltage range. For DC the load limit curve must never be exceeded, because this would lead to a remaining switch-off arc and immediate destruction of the relay. The order of magnitude of the DC switching capacity is a few 100 W (DC 1).

## Drive (coil)

The drive of a relay refers to the coil plus connections.
The coil has special characteristics, depending on the rated voltage and the type of current.

**Coil design**
The coil consists of a plastic former (resistant up to about 130 °C) and doubly insulated high-purity copper wire, temperature class F. The winding must withstand threshold voltages (EN 61000-4-5) of more than 2000 V. This is ensured through forced separation of the start and end of the winding.

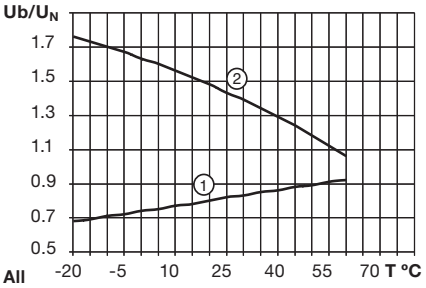
**Coil resistance and other properties**
Each coil has an ohmic coil resistance that can be verified with an ohmmeter. The specified coil resistance applies to a temperature of 20 °C. The tolerance is ± 10 %.
For AC operation the coil current will not match the ohmic value, because self-inductance plays a dominant role. At 230 V this may reach more than 90 H. When a relay is switched off, self-inductance results in a self-induced voltage that may affect the switching source (destruction of transistors, EMC problems).

**Drive voltages**
A distinction is made between the standardised voltages according to EN 60947 as guaranteed values, and typical values that can be expected with a high degree of probability.

**Pick-up voltage, Release voltage**
The pick-up voltage is the voltage at which the relay engages safely. For DC the typical trip voltage is approx. 65 % of Unom, for AC approx. 75 %. The release voltage, on the other hand, is approx. 25 % or 60 % respectively.
For DC these voltages are strongly temperature-dependent, according to the temperature coefficient of Cu. This is not the case for AC, where the inductive resistance is the controlling factor, which is practically constant over a wide temperature range.
With AC, in a certain undervoltage range the relay may hum, and the armature may flutter. This voltage range must be avoided.

**Operating voltage range**
Unless specified otherwise, the following characteristic curve applies for the operating voltage range. The upper limit of the coil voltage is determined by self-heating and the ambient temperature. Self-heating through contacts under high load must not be underestimated. It may be higher than the power dissipation in the drive.

During intermittent operation significantly higher overvoltages temporary may occur for short periods. If in doubt please consult our specialists.




## General design

ComatReleco Relays are made from high-quality, carefully selected materials.
They comply with the latest environmental regulations such as RohS. Their meticulous design makes them particularly suitable for industrial applications and installation engineering.
They are particularly service-friendly through robust terminals, mechanical position indicating device a standard, manual operation, dynamic, permanent characteristics.
Colour coding for manual operation as a function of the coil voltage is another useful feature. Further options such as different coil connections, freewheeling diode, LED display, bridge rectifier for AC/DC drives etc., and short-term availability of special versions for practically any drive voltage up to DC 220 V / AC 400 V leave nothing to be desired.
Apart from a few special versions, in general, ComatReleco industrial relays feature manual operation (push/pull) and a mechanical position indicating device.
For safety reasons, manual operation may be replaced with a black button, if required.

**Coil connections**
Different coil connections can be integrated in the relay as an option.
For DC a cost-effective freewheeling diode is available. Please note that the stated release times are generally specified without the coil connection.
While an additional LED status indicator has practically no effect, a freewheeling diode (D) will lead to an increase in release time by a factor 2 to 5, or 10 ms to 30 ms. For AC VDRs or RC elements may be used. In this case resonance effects may have to be considered. VDRs and common RC elements may increase release times by less than 5 ms.

# Industrial Relays
## General Information



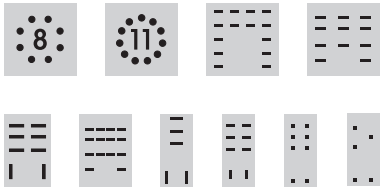
**Standards, conformities**
While CE marking of relays/sockets is controversial, since relays are sometimes regarded as components to which the marking requirement does not apply, all ComatReleco relays feature the CE mark to indicate that CE standards may also be applied to the relays, e.g. 2 kV surge resistance according to EN 61000-4-5.
A significant and not generally available characteristic is that the coils and in particular the connections are able to withstand the voltage spikes that may occur in practice.
In addition, the relays feature various technical approvals depending on the respective relay code, and they comply with further standards and guidelines. The main technical approvals include cURus, CSA, and CCC.
The associated information is provided in the respective data sheets.

**Switching classes**
EN 60947 defines different switching classes that specify the suitability of contacts for different load types.

**Examples:**
**AC-1 = Ohmic AC load**
**AC-3 = Motor loads**
**AC-15 = Power contactors, solenoid valves, solenoids**
**DC-1 = Ohmic DC load**
**DC-13 = DC contactors, solenoids**

UL60947 contains different technical approval criteria such as general purpose, control application etc. Switching classes are defined based on the electrical switching capacity, e.g. B600 etc.

**Choosing the right Socket**
For the plug-in industry, interface, time, and monitoring relays, we offer sockets with the corresponding pin configuration and various layouts for the terminal connectors. For easy identification, all plug-in relays and the sockets are labelled with a corresponding symbol.




**Main technical approvals and standards**

| Country | Technical approval |
|---|---|
| *China* | Authority: CQC<br>Specification<br>GB14048.5-2001 |
| *Russia* | Authority:<br>KORPORATSIA<br>STANDART<br>Specification<br>TP TC 004/2011 |
| *USA* | Authority: UL<br>Specification<br>C 22.2; UL 60947 |
| *United Kingdom* | Authority: GB<br>Lloyd´s Register of<br>Shipping |

**Utilisation categories according to**
EN 60947-4-1/-5-1

**Pollution category**
**Cat. 1**
Dry, non-conductive contamination without further effect

**Cat. 2**
Occasional conductive contamination, short duration due to moisture condensation

**Cat. 3**
Dry, non-conductive and conductive contamination with moisture condensation

**Cat. 4**
Contamination with persistent conductivity through conductive dust, rain

**Protection class IP** according to EN 60529 and other standards. Industrial relays and their sockets can be classified as follows:
Socket IP20: Contact safety
Relay IP40/IP50: not watertight, but protected against ingress of coarse contaminants.

**Railway Applications**
Solutions for the transport market need to guarantee safety, security and comfort. The applications are expected to last a long time under challenging conditions. Be it for high-speed trains, metros, subways or other rail vehicles
- in tunnels, on bridges, in train stations, airports, on the open track, or in harbor facilities, the Comat Releco Group has the right solution for different kind of applications.
We offer a wide range of relays, control and monitoring devices that are developed in compliance with the European Railway Standard EN 50155 (including also EN 61373, EN 45545 and NF F 16-101/102).

**Further information and tips**
The main operational criteria for relays such as number of cycles, switching frequency, ambient conditions, reliability requirements, load type, switch-on current, load switch-off energy must be clarified in order to ensure reliable operation and long service life.

**Example**
If the number of cycles is expected to exceed several 100.000 operations per year (e.g. clock generators, fast running machines), an electronic solution is no doubt more appropriate, although we also offer solutions for this type of application. In AC applications crosstalk caused by long control leads is often problem and can result in constant humming of the relay or even inadvertent triggering due to interference. Here, too, we offer solutions.

Various, apparently harmless loads may lead to very high switch-on currents or switch-off energy values, resulting in an unacceptable reduction in service life.
Particularly tricky are DC loads, particularly if they are inductive.
Circuits with relays and their connections often require a level of developer skill that is frequently no longer offered during standard education and training.
Your supplier will be very happy to provide expert advice

**Characteristics of various loads:**

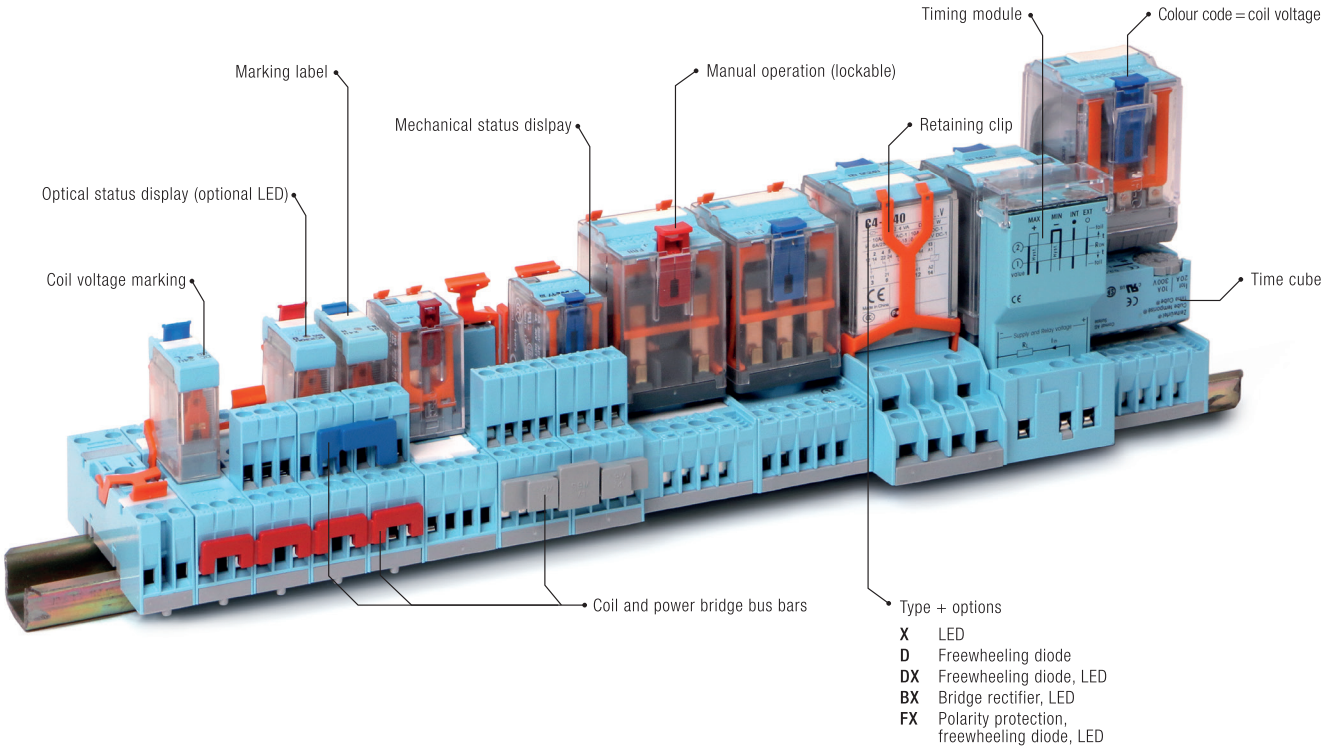
**Heating circuits**
No higher switch-on currents, no higher switch-off loads.

**Incandescent lamps, halogen lamps**
Switch-on currents during a few ms in the range 10 ... 18 x rated. Switch-off at rated load.

**Low-energy lamps**
Very high, but very short switch-on currents due to built-in decoupling capacitors.

Contacts have a tendency to fuse.

**Transformers, AC contactors**
Switching on during zero-transition may lead to switch-on currents of 8 ... 15 x rated.
High inductive switch-off energy is possible.
The load must be connected, not least due to EMC problems.




## Five colours for an easier identification of coil voltage

**AC** red: 230 V AC
(North America 120 V AC)

**AC** dark red:
others V AC

**UC** grey:
V AC/DC

**DC** blue:
24 VDC

**DC** dark blue:
others VDC

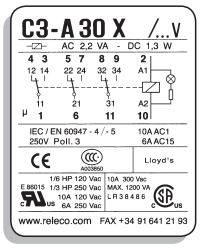
If you don´t want to have the lockable function, you can use the orange “orange - push button”. SO - OP for MRC - C and S9 - OP for QRC (BAG 5 PCS)

Orange - push button

A black blanking plug is available if you don´t want a test button.
S= - NP for MR - C and S9 - NP for QRC (BAG 5 PCS)

Blanking plug

## Comprehensive technical label




Part number
Coil details
Aditional circuit diagram for coil
Electric diagram showing all additions to the coil
Wiring diagram with sequential and DIN numbers
Maximum switching capacity
according to EN 60947 (IEC 947)
Approvals

# Industrial Relays

## Select the correct Relay



- Level of switching current and voltage of the application?
- DC or AC switching?
- Inductive or capacitive load?
- Expected number of switching cycles?

| Symbol | Voltage | Current | Use | Type | Material |
|---|---|---|---|---|---|
| Signal relays | 100 mV…5V | 10 uA…1 mA | Low-level signals, Standard signals (0…10V/ 4…20mA) | Gold-plated double contact | AgNi + Ag |
| Control relays | 5V…30V | 1 mA…100 mA | PLC inputs, Control circuits | double contact | AgNi |
| | | | | Gold-plated Single Contact | AgNi + Ag |
| | | | Frequent, rapid switching procedures | Semiconductor | Mosfet (DC) Triac (AC) |
| Power relays | 30V…400V | 100 mA…16A | Increased AC or DC loads | Single Contact | AgNi |
| | | | Electromagnets (utilisation cat. AC-15/DC-13) | Single Contact | $AgSnO_2$ |
| | | | Frequent, rapid switching procedures, high reliability, noiseless switching | Semiconductor | Mosfet (DC) Triac (AC) |
| High-power relays | 12V…400V | 100 mA…16A | Capacitive loads | Early make contact | AgNi + W $AgSnO_2$ + W |
| | | | High DC loads, inductive loads | Series contacts | AgNi $AgSnO_2$ |
| | | | Frequent, rapid switching procedures, high reliability, noiseless switching | Semiconductor | Mosfet (DC) Triac (AC) |

## Notes

# 1.1 Interface Relays - pluggable

| Application | Types | Pins | Contacts | AC ratings | DC ratings | Socket |
|---|---|---|---|---|---|---|
| **C10 Series** | | | | | | |
| Interface standard relay | C10-A1x | | | 10 A / 250 V | 10 A / 30 V | S10 |
| DC load switching | C10-G1x | | | 10 A / 250 V | 10 A / 30 V | S10 |
| Low switching load | C10-T1x | | | 6 A / 250 V | 6 A / 30 V | S10 |
| **C12 Series** | | | | | | |
| Interface relay | C12-A2x | | | 5 A / 250 V | 5 A / 30 V | S12 |
| Interface DC relay | C12-G2x | | | 5 A / 250 V | 5 A / 30 V | S12 |
| **C16 Series** | | | | | | |
| Interface DC relay | C16-A25PTL |  | | 7 A / 250 V | 7 A / 30 V | S18 |
| **C18 Series** | | | | | | |
| Interface DC relay | C18-A15PT |  | | 10 A / 250 V | 10 A / 30 V | S16 |
| Interface DC relay | C18-A15PTL |  | | 10 A / 250 V | 10 A / 30 V | S16 |
| Interface DC relay | C18-B15PTL |  | | 16 A / 250 V | 16 A / 30 V | S18 |

# C10-A1x

## 1 pole | changeover contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **10 A/250 V** | **AC-1** | **0.5 A/110 V DC-1** |
| | **10 A/30 V** | **DC-1** | **0.2 A/220 V DC-1** |
| | **13 A/250 V** | **AC-1** cULus | |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 0.5** | |
| | **5 mA/5 V** | **Code 8** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| | Optional | Code 5 | $AgSnO_2$ |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A (120 A for code 5) |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.1 VA (AC)/0.7 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 53 |
| 48 | 1200 | 23 | 24 | 742 | 32 |
| 115 | 7.300 | 9.5 | 48 | 3.500 | 13.7 |
| 230 | 28.800 | 4.7 | 110 | 19.900 | 5.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/coil | 5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ….70 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/ ≤ 1 ms |
| Release time/bounce time | 5 ms/ ≤ 3 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 21 g |

**Product References**

| | | | |
|---|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C10-A10/AC ...V** | **C10-A18/AC ...V** | **C10-A15/AC ... V** |
| **LED** | **C10-A10X/AC ...V** | **C10-A18X/AC ...V** | **C10-A15X/AC ...V** |
| **RC Suppressor** | **C10-A10R/AC ...V** | **C10-A18R/AC ...V** | **C10-A15R/AC ...V** |
| **VDC 12, 24, 48, 110** | **C10-A10/DC ...V** | **C10-A18/DC ...V** | **C10-A15/DC ...V** |
| **LED** | **C10-A10X/DC ...V** | **C10-A18X/DC ...V** | **C10-A15X/DC ...V** |
| **Polarity and free wheeling diode** | **C10-A10FX/DC ...V** | **C10-A18FX/DC ...V** | **C10-A15FX/DC ...V** |
| **V AC/DC bridge rectifier 24 V, 48 V** | **C10-A10BX/UC ...V** | **C10-A18BX/UC ...V** | **C10-A15BX/UC ...V** |

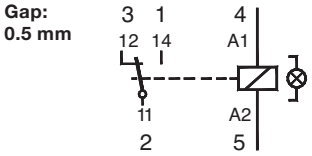
Other voltages on request

"..." List Coil Voltage to complete Product References

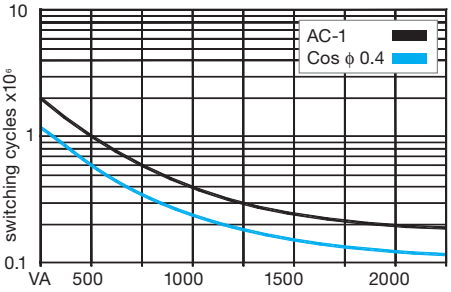
**Accessories**

Socket: **S10, S10-P**

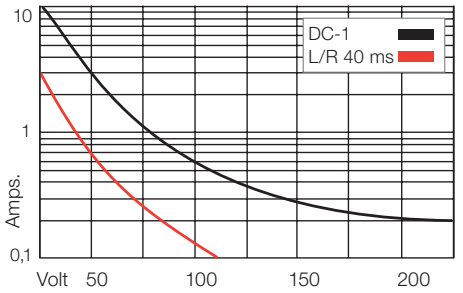
### Connection diagram



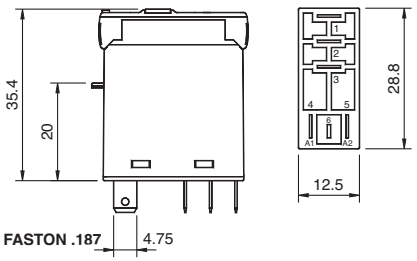

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

cULus

EAC CE RoHS 2002/95/EC

IEC/EN 61810; IEC/EN 60947

# C10-G1x

## 1 pole | normally open contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **10 A/250 V AC-1** | **0.8 A/110 V DC-1** | |
| | **10 A/30 V DC-1** | **0.4 A/220 V DC-1** | |
| **Recommended minimum contact load** | **10 mA/10 V Code 0.5** | | |
| | **5 mA/5 V Code 8** | | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| | Optional | Code 5 | $AgSnO_2$ |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A (120 A for code 5) |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.1 VA (AC)/0.7 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 53 |
| 48 | 1200 | 23 | 24 | 742 | 32 |
| 115 | 7.300 | 9.5 | 48 | 3.500 | 13.7 |
| 230 | 28.800 | 4.7 | 110 | 19.900 | 5.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 2000 V |
| Contact/coil | 5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ….70 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 1 ms |
| Release time/bounce time | 8 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 21 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C10-G10/AC ... V** | **C10-G15/AC ... V** |
| **LED** | **C10-G10X/AC ... V** | **C10-G15X/AC ... V** |
| **RC Suppressor** | **C10-G10R/AC...V** | **C10-G15R/AC...V** |
| **VDC 12, 24, 48, 110** | **C10-G10/DC ... V** | **C10-G15/DC ... V** |
| **LED** | **C10-G10X/DC ... V** | **C10-G15X/DC ... V** |
| **Polarity and free wheeling diode** | **C10-G10FX/DC ... V** | **C10-G15FX/DC... V** |
| **AC/DC bridge rectifier 24 V, 48 V** | **C10-G10BX/DC ... V** | **C10-G15BX/UC... V** |

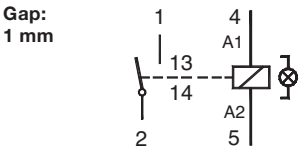
Other voltages on request

"..." List Coil Voltage to complete Product References

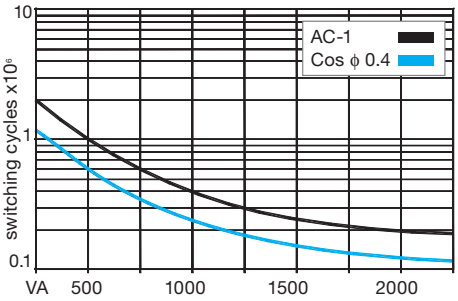
**Accessories**

| | |
|---|---|
| Socket: | **S10, S10-P** |

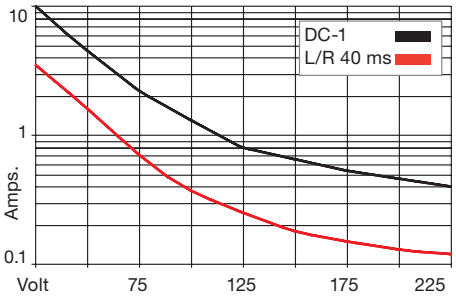
### Connection diagram



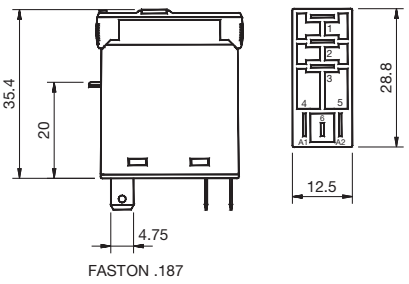

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C10-T1x

## 1 pole | changeover twin contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **6 A/250 V** | **AC-1** | **0.5 A/110 V** **DC-1** |
| | **6 A/30 V** | **DC-1** | **0.2 A/220 V** **DC-1** |
| **Recommended minimum contact load** | **5 mA/5 V** | **Code 1** | |
| | **1 mA/5 V** | **Code 3** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 3 | AgNi + 5 µ Au |
| Rated Load | | | 6 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max | | | 250 V |
| AC load (Fig 1) | | | 1.5 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.1 VA (AC)/0.7 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 53 |
| 48 | 1200 | 23 | 24 | 742 | 32 |
| 115 | 7.300 | 9.5 | 48 | 3.500 | 13.7 |
| 230 | 28.800 | 4.7 | 110 | 19.900 | 5.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/coil | 5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 …70 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 1 ms |
| Release time/bounce time | 5 ms/≤ 3 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | 1200/h |
| Weight | 21 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C10-T11/AC ... V** | **C10-T13/AC ... V** |
| **LED** | **C10-T11X/AC ... V** | **C10-T13X/AC ... V** |
| **RC Suppressor** | **C10-T11R/AC...V** | **C10-T13R/AC...V** |
| **VDC12, 24, 48, 110** | **C10-T11/DC ... V** | **C10-T13/DC ... V** |
| **LED** | **C10-T11X/DC ... V** | **C10-T13X/DC ... V** |
| **Polarity and free wheeling diode** | **C10-T11FX/DC ... V** | **C10-T13FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V** | **C10-T11BX/UC ... V** | **C10-T13BX/UC ... V** |

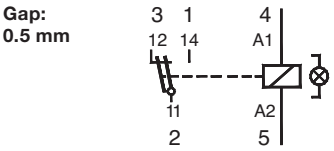
Other voltages on request

"..." List Coil Voltage to complete Product References

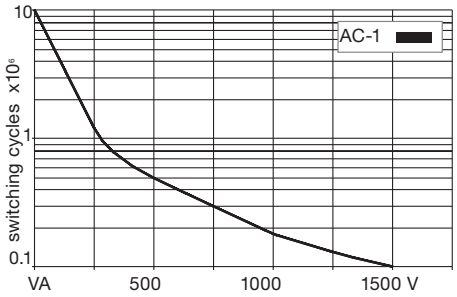
**Accessories**

Socket: **S10, S10-P**

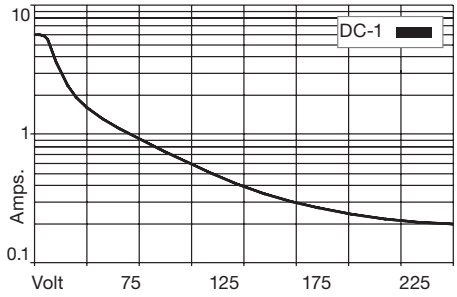
### Connection diagram



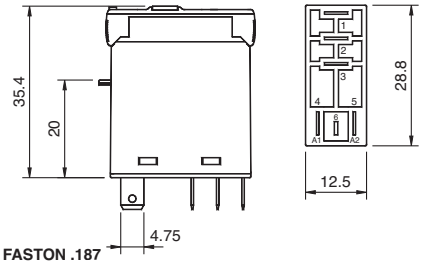

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C12-A2x

## 2 pole | changeover contact | plug-in Faston

| | | |
|---|---|---|
| **Maximum contact load** | **5 A/250 V AC-1** | **0.5 A/110 V DC-1** |
| | **5 A/30 V DC-1** | **0.2 A/220 V DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V Code 1** | |
| | **5 mA/5 V Code 2** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 2 | AgNi + 5 µ Au |
| Rated Load | | | 5 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 1.2 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.1 VA (AC)/0.7 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 53 |
| 48 | 1200 | 23 | 24 | 742 | 32 |
| 115 | 7.300 | 9.5 | 48 | 3.500 | 13.7 |
| 230 | 28.800 | 4.7 | 110 | 19.900 | 5.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 3000 V |
| Contact/coil | 5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 1 ms |
| Release time/bounce time | 5 ms/≤ 3 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 21 g |

**Product References**

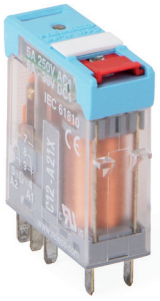
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C12-A21/AC ... V** | **C12-A22/AC ... V** |
| **LED** | **C12-A21X/AC ... V** | **C12-A22X/AC ... V** |
| **RC Suppressor** | **C12-A21R/AC ... V** | **C12-A22R/AC ... V** |
| **VDC 12, 24, 48, 110** | **C12-A21/DC ... V** | **C12-A22/DC ... V** |
| **LED** | **C12-A21X/DC ... V** | **C12-A22X/DC ... V** |
| **Polarity and free wheeling diode** | **C12-A21FX/DC ... V** | **C12-A22FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V** | **C12-A21BX/UC ... V** | **C12-A22BX/UC ... V** |

Other voltages on request

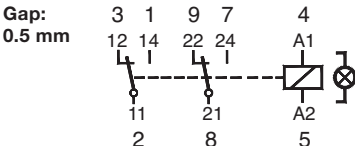
"..." List Coil Voltage to complete Product References

**Accessories**

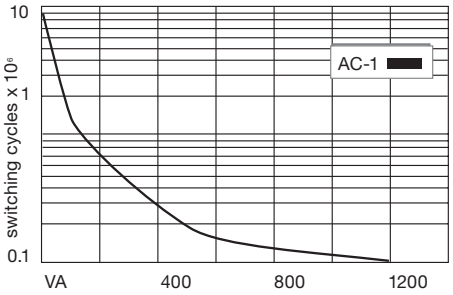
Socket: **S12, S12-P**



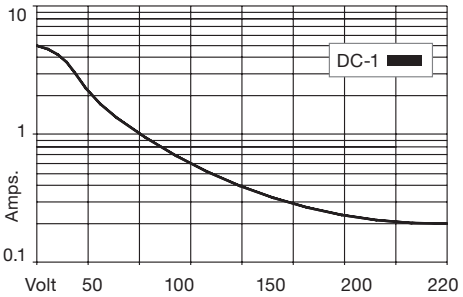
### Connection diagram



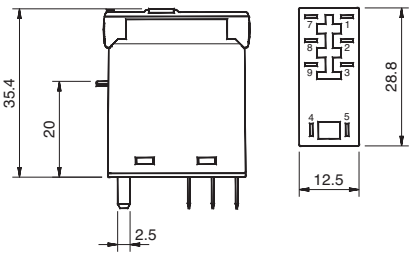

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions

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### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C12-G2x

## 2 pole | normally open contact | plug-in Faston

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **5 A/250 V** | **AC-1** | **0.8 A/110 V** | **DC-1** |
| | | | **5 A/30 V** | **DC-1** | **0.4 A/220 V** | **DC-1** |
| **Recommended minimum contact load** | | | **10 mA/10 V** | **Code 1** | | |
| | | | **5 mA/5 V** | **Code 2** | | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 2 | AgNi + 5 µ Au |
| Rated Load | | | 5 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Flg 1) | | | 1.2 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≥ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.1 VA (AC)/0.7 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 53 |
| 48 | 1200 | 23 | 24 | 742 | 32 |
| 115 | 7.300 | 9.5 | 48 | 3.500 | 13.7 |
| 230 | 28.800 | 4.7 | 110 | 19.900 | 5.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 2000 V |
| Contact/contact | 3000 V |
| Contact/coil | 5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 1 ms |
| Release time/bounce time | 5 ms/≤ 3 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 21 g |

**Product References**

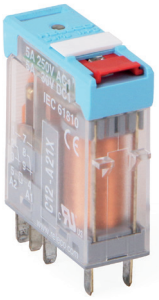
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)** | **C12-G21/AC ... V** | **C12-G22/AC ... V** |
| **LED** | **C12-G21X/AC ... V** | **C12-G22X/AC ... V** |
| **RC Suppressor** | **C12-G21R/AC ... V** | **C12-G22R/AC ... V** |
| **VDC 12, 24, 48, 110** | **C12-G21/DC ... V** | **C12-G22/DC ... V** |
| **LED** | **C12G21X/DC ... V** | **C12-G22X/DC ... V** |
| **Polarity and free wheeling diode** | **C12-G21FX/DC ... V** | **C12-G22FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V** | **C12-G21BX/UC ... V** | **C12-G22BX/UC ... V** |

Other voltages on request

"..." List Coil Voltage to complete Product References

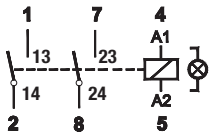
**Accessories**

Socket: **S12, S12-P**

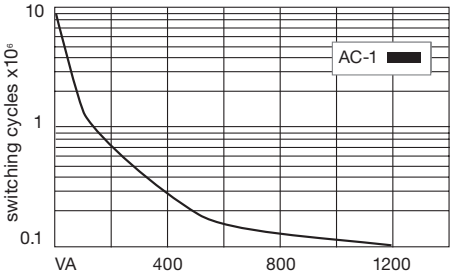


### Connection diagram

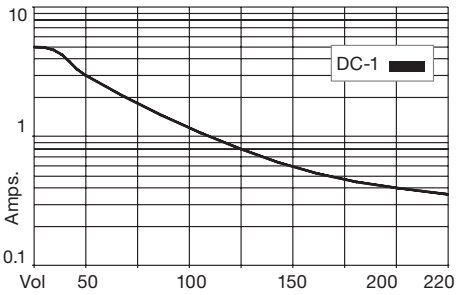
Gap: 1 mm



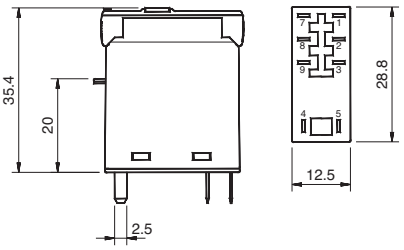

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions

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### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C16-A25PTL

## 2 pole | 8-pin | changeover contact | Grid 5mm

| | |
|---|---|
| **Maximum contact load** | **7 A/250 V AC-1** |
| | **7 A/30V DC-1** |
| **Recommended minimum contact load** | **1 mA/1 V AC/DC** |

### Contacts

| | |
|---|---|
| Material | $AgSnO_2$ |
| Rated Load | 7 A |
| Switching voltage max. | 250 V |
| Switch-on current max. (500 ms) | 15 A |
| Bounce time | 2 ms |

### Coil

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | 75 % of $U_N$ (DC) / 80 % of $U_N$ (AC) |
| Release voltage | ≤ 0.1 $U_N$ (DC) / ≤ 0.3 $U_N$ (AC) |
| Nominal power | 1 VA (AC) / 0.53 W (DC) @ 23 °C |

### Coil Data (DC voltage)

| Coil Voltage Code | Nominal Voltage (VDC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VDC) | Must release voltage min (VDC) |
|---|---|---|---|---|
| 12 | 12 | 270 | 9.00 | 1.2 |
| 24 | 24 | 1080 | 18.00 | 2.4 |
| 36 | 36 | 1350 | 27.00 | 3.6 |
| 48 | 48 | 4340 | 36.00 | 4.8 |
| 110 | 110 | 22830 | 82.5 | 11 |

### Coil Data (AC voltage 50/60 Hz)

| Coil Voltage Code | Nominal Voltage (VAC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VAC) | Must release voltage min (VAC) | Max. allowable voltage (VAC) |
|---|---|---|---|---|---|
| 24 | 24 | 253 | 19.2 | 7.2 | 26.4 |
| 110 | 110 | 5819 | 88.0 | 33 | 121 |
| 230 | 230 | 23276 | 184 | 69 | 253 |

### Insulation

| | |
|---|---|
| Insulation resistance (coil to contact) | ≥ 100 MΩ @ 500 V DC, 50 % RH |
| Dielectric strength | 5 kV |
| Coil to contact | 5000 Vrms, 1 min |
| Contact to contact | 1000 Vrms, 1 min |

### Specifications

| | |
|---|---|
| Ambient temperature operation/storage | -55 …70 °C /-55…70 °C (no ice) |
| Pick-up time | 10 ms |
| Release time | 5 ms |
| Mechanical / electrical life ops | ≥ 1 × 10 000 000 / 1 × 100 000 |
| Weight | 17 g |
| Max. switching frequency | 20 Hz |
| Tightness | RT2 |
| Weight | 17 g |

### Product References

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)** | **C16-A25PTL/AC…V** |
| **VDC 12, 24, 48** | **C16-A25PTL/DC…V** |

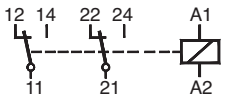
Other voltages on request

"..." List Coil Voltage to complete Product References

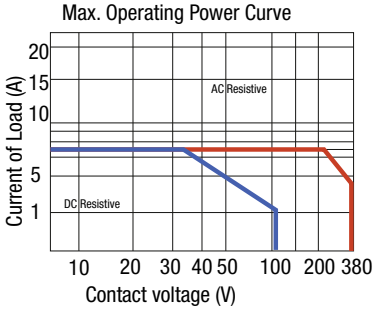
### Accessories

| | |
|---|---|
| Socket | **S16-M** |
| Retaining clip, plastic | **CP-16** |
| Label | **BS16-K (BAG 10 PCS)** |
| Modules | **See datasheet socket S16-M** |

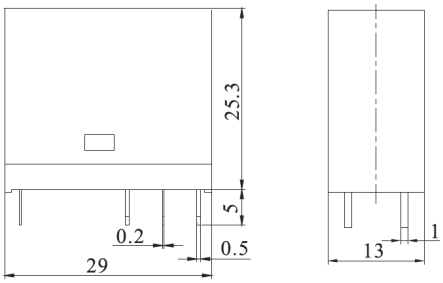
### Connection diagram

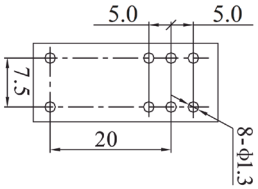



### Fig.1 Max. Operating Power Curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C18-A15PT

## 1 pole | 5-pin | changeover contact | Grid 3.5mm

| | |
|---|---|
| **Maximum contact load** | **10 A/250 V AC-1** |
| | **10 A/30 V DC-1** |
| **Recommended minimum contact load** | **1 mA/1 V AC/DC** |

**Contacts**

| | |
|---|---|
| Material | $AgSnO_2$ |
| Rated Load | 10 A |
| Switching voltage max. | 250 V |
| Switch-on current max. (500 ms) | 25 A |
| Bounce time | 2 ms |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | 75 % of $U_N$ (DC) / 80 % of $U_N$ (AC) |
| Release voltage | ≤ 0.1 $U_N$ (DC) / ≤ 0.3 $U_N$ (AC) |
| Nominal power | 1 VA (AC) / 0.53 W (DC) @ 23 °C |

**Coil Data (DC voltage)**

| Coil Voltage Code | Nominal Voltage (VDC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VDC) | Must release voltage min (VDC) |
|---|---|---|---|---|
| 12 | 12 | 270 | 9.00 | 1.2 |
| 24 | 24 | 1080 | 18.00 | 2.4 |
| 36 | 36 | 1350 | 27.00 | 3.6 |
| 48 | 48 | 4340 | 36.00 | 4.8 |
| 110 | 110 | 22830 | 82.5 | 11 |

**Coil Data (AC voltage 50/60 Hz)**

| Coil Voltage Code | Nominal Voltage (VAC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VAC) | Must release voltage min (VAC) | Max. allowable voltage (VAC) |
|---|---|---|---|---|---|
| 24 | 24 | 253 | 19.2 | 7.2 | 26.4 |
| 110 | 110 | 5819 | 88.0 | 33 | 121 |
| 230 | 230 | 23276 | 184 | 69 | 253 |

**Insulation**

| | |
|---|---|
| Insulation resistance (coil to contact) | ≥ 100 MΩ @ 500 V DC, 50 % RH |
| Dielectric strength | 5 kV |
| Coil to contact | 5000 Vrms, 1 min |
| Contact to contact | 1000 Vrms, 1 min |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -55 …70 °C /-55…70 °C (no ice) |
| Pick-up time | 10 ms |
| Release time | 5 ms |
| Mechanical / electrical life ops | ≥ 1 × 10 000 000 / 1 × 100 000 |
| Weight | 17 g |
| Max. switching frequency | 20 Hz |
| Tightness | RT2 |
| Weight | 17 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)** | **C18-A15PT/AC ... V** |
| **VDC 12, 24.36, 48, 110** | **C18-A15PT/DC ... V** |

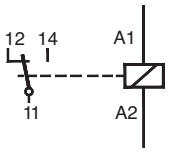
Other voltages on request

"..." List Coil Voltage to complete Product References

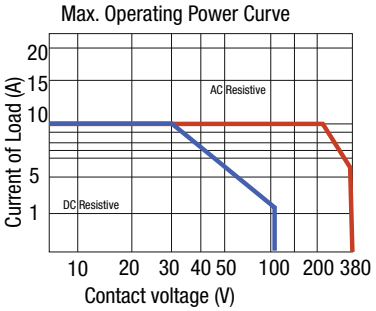
**Accessories**

| | |
|---|---|
| Socket | **S18-M** |
| Retaining clip, plastic | **CP-16** |
| Label | **BS16-K (BAG 10 PCS)** |
| Modules | **See datasheet socket S18-M** |

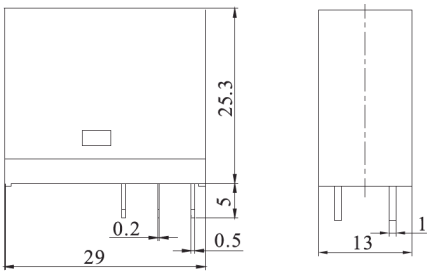
### Connection diagram

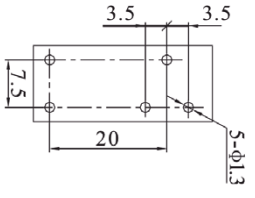



### Fig.1 Max. Operating Power Curve




### Dimension




Standard

### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C18-A15PTL

## 1 pole | 5-pin | changeover contact | plug-in | Grid 5mm

| | |
|---|---|
| **Maximum contact load** | **10 A/250 V AC-1**<br>**10 A/30 V DC-1** |
| **Recommended minimum contact load** | **1 mA/1 V AC/DC** |

### Contacts

| | |
|---|---|
| Material | $AgSnO_2$ |
| Rated Load | 10 A |
| Switching voltage max. | 250 V |
| Switch-on current max. (500 ms) | 25 A |
| Bounce time | 2 ms |

### Coil

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | 75 % of $U_N$ (DC) / 80 % of $U_N$ (AC) |
| Release voltage | ≤ 0.1 $U_N$ (DC) / ≤ 0.3 $U_N$ (AC) |
| Nominal power | 1 VA (AC) / 0.53 W (DC) @ 23 °C |

### Coil Data (DC voltage)

| Coil Voltage Code | Nominal Voltage (VDC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VDC) | Must release voltage min (VDC) |
|---|---|---|---|---|
| 12 | 12 | 270 | 9.00 | 1.2 |
| 24 | 24 | 1080 | 18.00 | 2.4 |
| 36 | 36 | 1350 | 27.00 | 3.6 |
| 48 | 48 | 4340 | 36.00 | 4.8 |
| 110 | 110 | 22830 | 82.5 | 11 |

### Coil Data (AC voltage 50/60 Hz)

| Coil Voltage Code | Nominal Voltage (VAC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VAC) | Must release voltage min (VAC) | Max. allowable voltage (VAC) |
|---|---|---|---|---|---|
| 24 | 24 | 253 | 19.2 | 7.2 | 26.4 |
| 110 | 110 | 5819 | 88.0 | 33 | 121 |
| 230 | 230 | 23276 | 184 | 69 | 253 |

### Insulation

| | |
|---|---|
| Insulation resistance (coil to contact) | ≥ 100 MΩ @ 500 V DC, 50 % RH |
| Dielectric strength | 5 kV |
| Coil to contact | 5000 Vrms, 1 min |
| Contact to contact | 1000 Vrms, 1 min |

### Specifications

| | |
|---|---|
| Ambient temperature operation/storage | -55 …70 ºC /-55…70 °C (no ice) |
| Pick-up time | 10 ms |
| Release time | 5 ms |
| Mechanical / electrical life ops | ≥ 1 × 10 000 000 / 1 × 100 000 |
| Weight | 17 g |
| Max. switching frequency | 20 Hz |
| Tightness | RT2 |
| Weight | 17 g |

### Product References

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)** | **C18-A15PTL/AC…V** |
| **VDC 12, 24, 36, 48, 110** | **C18-A15PTL/DC…V** |

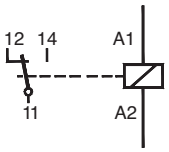
Other voltages on request

"..." List Coil Voltage to complete Product References

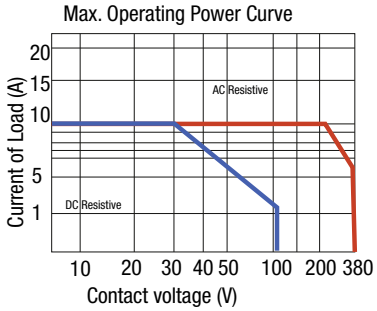
### Accessories

| | |
|---|---|
| Socket | **S16-M** |
| Retaining clip, plastic | **CP-16** |
| Label | **BS16-K (BAG 10 PCS)** |
| Modules | **See datasheet socket S16-M** |

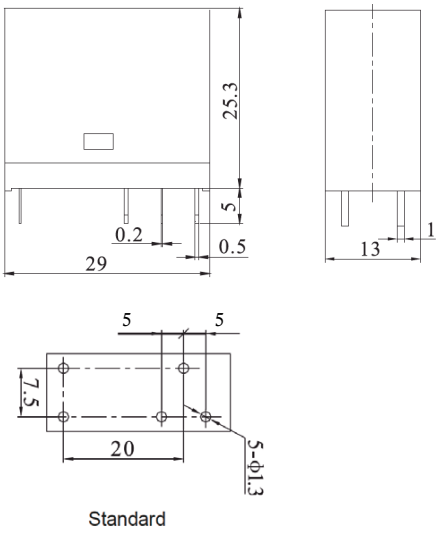
### Connection diagram




### Fig.1 Max. Operating Power Curve




### Dimensions




Standard

### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C18-B15PTL

## 1 pole | 8-pin | changeover contact | Grid 5mm

| | |
|---|---|
| **Maximum contact load** | **16 A/250 V AC-1**<br>**16 A/30 V DC-1** |
| **Recommended minimum contact load** | **1 mA/1 V AC/DC** |

### Contacts

| | |
|---|---|
| Material | $AgSnO_2$ |
| Rated Load | 16 A |
| Switching voltage max. | 250 V |
| Switch-on current max. (500 ms) | 25 A |
| Bounce time | 2 ms |

### Coil

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | 75 % of $U_N$ (DC) / 80 % of $U_N$ (AC) |
| Release voltage | ≤ 0.1 $U_N$ (DC) / ≤ 0.3 $U_N$ (AC) |
| Nominal power | 1 VA (AC) / 0.53 W (DC) @ 23 °C |

### Coil Data (DC voltage)

| Coil Voltage Code | Nominal Voltage (VDC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VDC) | Must release voltage min (VDC) |
|---|---|---|---|---|
| 12 | 12 | 270 | 9.00 | 1.2 |
| 24 | 24 | 1080 | 18.00 | 2.4 |
| 36 | 36 | 1350 | 27.00 | 3.6 |
| 48 | 48 | 4340 | 36.00 | 4.8 |
| 110 | 110 | 22830 | 82.5 | 11 |

### Coil Data (AC voltage 50/60 Hz)

| Coil Voltage Code | Nominal Voltage (VAC) | Coil Restistance (Ω) ±10 % | Must operate voltage max. (VAC) | Must release voltage min (VAC) | Max. allowable voltage (VAC) |
|---|---|---|---|---|---|
| 24 | 24 | 253 | 19.2 | 7.2 | 26.4 |
| 110 | 110 | 5819 | 88.0 | 33 | 121 |
| 230 | 230 | 23276 | 184 | 69 | 253 |

### Insulation

| | |
|---|---|
| Insulation resistance (coil to contact) | ≥ 100 MΩ @ 500 V DC, 50 % RH |
| Dielectric strength | 5 kV |
| Coil to contact | 5000 Vrms, 1 min |
| Contact to contact | 1000 Vrms, 1 min |

### Specifications

| | |
|---|---|
| Ambient temperature operation/storage | -55 …70 °C /-55…70 °C (no ice) |
| Pick-up time | 10 ms |
| Release time | 5 ms |
| Mechanical / electrical life ops | ≥ 1 × 10 000 000 / 1 × 100 000 |
| Weight | 17 g |
| Max. switching frequency | 20 Hz |
| Tightness | RT2 |
| Weight | 17 g |

### Product References

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 110 (120), 230 (240)** | **C18-B15PTL/AC…V** |
| **VDC 12, 24, 36, 48, 110** | **C18-B15PTL/DC…V** |

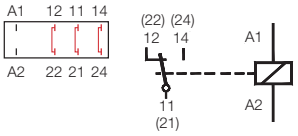
Other voltages on request

"..." List Coil Voltage to complete Product References

### Accessories

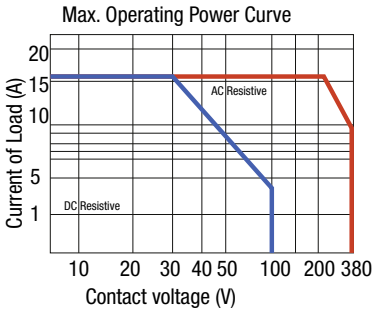
| | |
|---|---|
| Socket | **S16-M** |
| Retaining clip, plastic | **CP-16** |
| Label | **BS16-K (BAG 10 PCS)** |
| Modules | **See datasheet socket S16-M** |

### Connection diagram

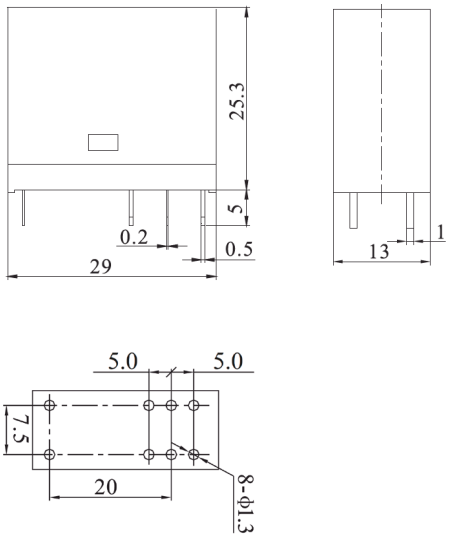



⚠ When switching over 10 A, it is necessary to add jumpers between the terminals on the relay socket S16-M. Jumper terminals; 22-12, 21-11 and 24-14. The resulting schematic is above.

### Fig.1 Max. Operating Power Curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

## Notes

## Notes

# 1.2 Interface Relays

| Application | Types | Contacts | AC ratings | DC ratings |
|---|---|---|---|---|
| **CRINT Series** | | | | |
| High power contact $AgSnO_2$ | CRINT-1x1 | | 6 A / 250 V | 6 A / 30 V |
| Low power contact $AgSnO_2$ + 3µ Au | CRINT-1x2 | | 6 A / 250 V | 6 A / 30 V |
| DC solid state switch | CRINT-1x5 (see page 82) | | - | 2 A / 24 V |
| AC solid state switch | CRINT-1x8 (see page 83) | | 1 A / 240 V | - |

## CRINT Product Key

| 1 | | 2 | 3 | 4 | 5 | 6 | | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| CRINT | - | C | 1 | 1 | 1 | R | / | UC | 24V |

**1. Product family**
CRINT

**2. Type**
C = Combined version (Socket and Relay)

**3. Contact**
1 = One change-over contact

**4. Connection type**
1 = Screw terminal
2 = Cage clamp terminal

**5. Output**
1 = $AgSnO_2$
2 = $AgSnO_2$ + 3µ Au
5 = NO / Solid-state DC
8 = NO / Solid-state AC

**6. Options**
– = Standard version
R = Railway version

**7. Supply voltage**
UC = AC/DC
DC = Only for C1x5 and C1x8

**8. Nominal voltage**
12V, 24V, 48V, 60V, 110-125V, 220-240V

## RELAY Only

| 1 | | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| CRINT | - | R | 11 | DC | 12V |

**1. Product family**
CRINT

**2. Type**
R = Relay

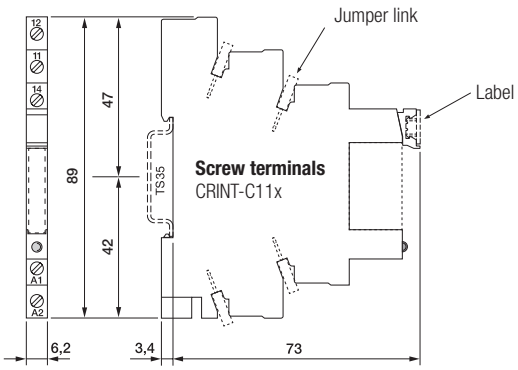
**3. Contact**
11 = $AgSnO_2$
12 = $AgSnO_2$ + 3µ Au
15 = NO / Solid-state DC
18 = NO / Solid-state AC

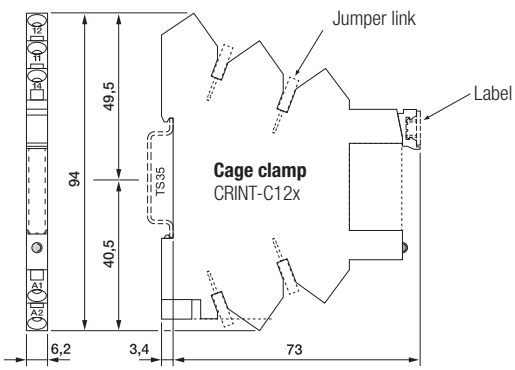
**4. Supply voltage**
DC

**5. Nominal voltage**
12 V, 24 V, 48 V, 60 V*

*60 V Relay used for all sockets with a nominal voltage higher or equal 60V

## Dimensions [mm]



# CRINT 1x1 series

## 1 pole | changeover contact

| Max. contact load | 6 A, 250 V AC-1 | 6 A, 30 V DC-1 |
|---|---|---|

**Contact**

| | |
|---|---|
| Type | 1 CO |
| Material | $AgSnO_2$ |
| Switching current \| $_{TH}$ | 6 A 250 V AC |
| Recommended minimal load | 100 mA / 12 V |
| Switching power DC-1 30 V | 180 W |
| Switching power AC-1 230 V | 1500 VA |
| Switching power AC-15 230 V | 300 VA |
| Peak inrush current | 15 A/2.5 ms |

**Coil**

| | |
|---|---|
| Operation voltage AC 50/60 Hz / DC | 0.8 ... 1.25 $U_N$ |
| Nominal power DC/AC | 408 / 900 mW |

**Insulation**

| | |
|---|---|
| Test voltage I / O | 6 kV rms / 1 min |
| Pollution degree | 3 |
| Over voltage category | III |
| Open contact | 1000 Vrms dielectric strength 1 min |
| Standard | EN61810-5 |

**Specifications**

| | |
|---|---|
| Ambient temperature: operation / storage | -40 … +70 °C / -40 … +85 °C (no ice) |
| Typical response time @ $V_n$ | 7 ms |
| Typical release time @ $V_n$ | 15 ms |
| Switching cycles: mech./elec. | 10 x 1 000 000 / 3 x 10 000 |
| Cond. cross section screw terminal | 2.5 $mm^2$ |
| Cond. cross section spring cage | 0.75 … 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting position | any, TS35 or Back Panel Mounting |
| Housing material | Polyamide PA6 |
| Weight | 30 g |

**Product References**

Screw terminal: **CRINT-C111/UC...V**

Cage clamp terminal: **CRINT-C121/UC...V**

"..." List Coil Voltage to complete Product References

**UC12V**
**UC24V**
**UC48V**
**UC60V**
**UC110-125V**
**UC220-240V**

**Accessories**

Jumper link:
blue: **CRINT-BR20-BU (BAG 5 PCS)**
red: **CRINT-BR20-RD (BAG 5 PCS)**
black: **CRINT-BR20-BK (BAG 5 PCS)**

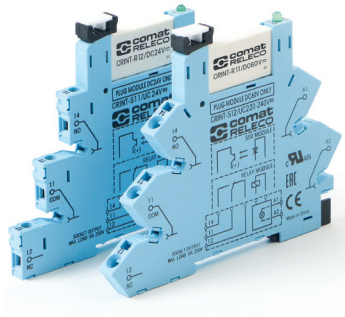
Label plate: **CRINT-LAB (BAG 4x16 PCS)**
Spacer: **CRINT-SEP (BAG 5 PCS)**

Replacement relays:
**CRINT-R11/DC...V**

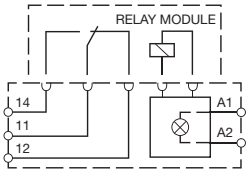
"..." List Coil Voltage to complete Product References

**DC12V**
**DC24V**
**DC48V**
**DC60V***

*60V Relay used for all sockets with a nominal voltage higher or equal 60V



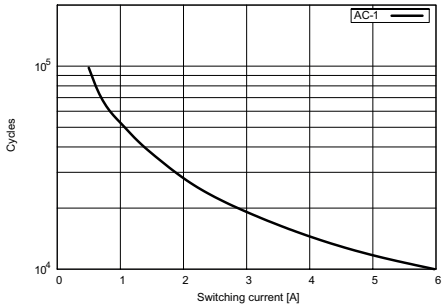
### Connection diagram



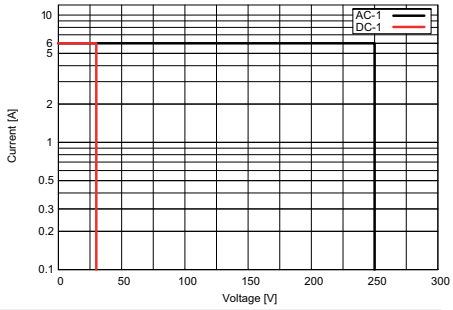

**Relay**
- AgSnO2
- AgSnO2 + 3µ Au

**Socket**
-Screw terminal
-Cage clamp terminal

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




Dimensions p. 30

### Technical approvals, conformities

IEC/EN 61810

# CRINT 1x2 series

## 1 pole | changeover contact



| Max. contact load | 6 A, 250 V AC-1 | 6 A, 30 V DC-1 |
|---|---|---|

**Contact**

| | |
|---|---|
| Type | 1 CO |
| Material | $AgSnO_2$ + 5µ Au |
| Switching current \| $_{TH}$ | 6 A 250 V AC |
| Recommended minimal load | 10 mA / 6 V |
| Switching power DC-1 30 V | 180 W |
| Switching power AC-1 230 V | 1500 VA |
| Switching power AC-15 230 V | 300 VA |
| Peak inrush current | 15 A/2.5 ms |

**Coil**

| | |
|---|---|
| Operation voltage AC 50/60 Hz / DC | 0.8 ... 1.25 $U_N$ |
| Nominal power DC/AC | 408 / 900 mW |

**Insulation**

| | |
|---|---|
| Test voltage I / O | 6 kV rms / 1 min |
| Pollution degree | 3 |
| Over voltage category | III |
| Open contact | 1000 Vrms dielectric strength 1 min |
| Standard | EN61810-5 |

**Specifications**

| | |
|---|---|
| Ambient temperature: operation / storage | -40 … +70 °C / -40 … +85 °C (no ice) |
| Typical response time @ $V_n$ | 7 ms |
| Typical release time @ $V_n$ | 15 ms |
| Switching cycles: mech./elec. | 10 x 1 000 000 / 3 x 10 000 |
| Cond. cross section screw terminal | 2.5 $mm^2$ |
| Cond. cross section spring cage | 0.75 … 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting position | any, TS35 or Back Panel Mounting |
| Housing material | Polyamide PA6 |
| Weight | 30 g |

**Product References**

Screw terminal: **CRINT-C112/UC...V**

Cage clamp terminal: **CRINT-C122/UC...V**

"..." List Coil Voltage to complete Product References

**UC12V**
**UC24V**
**UC48V**
**UC60V**
**UC110-125V**
**UC220-240V**

**Accessories**

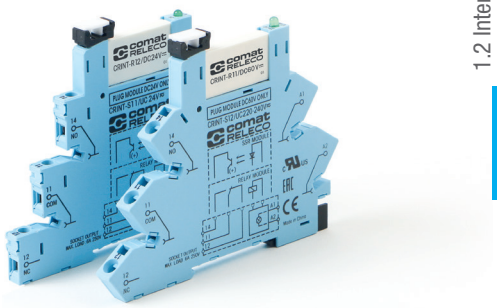
Jumper link:
blue: **CRINT-BR20-BU (BAG 5 PCS)**
red: **CRINT-BR20-RD (BAG 5 PCS)**
black: **CRINT-BR20-BK (BAG 5 PCS)**

Label plate: **CRINT-LAB (BAG 4x16 PCS)**
Spacer: **CRINT-SEP (BAG 5 PCS)**

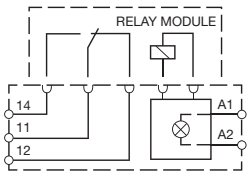
Replacement relays:
**CRINT-R12/DC...V**
"..." List Coil Voltage to complete Product References

*60V Relay used for all sockets with a nominal voltage higher or equal 60V

**DC12V**
**DC24V**
**DC48V**
**DC60V***



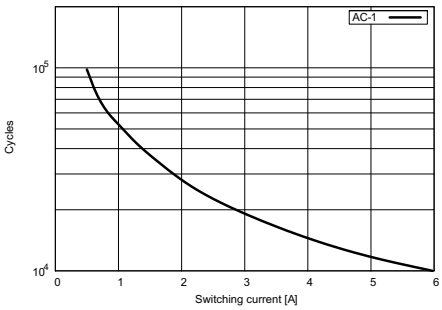
### Connection diagram



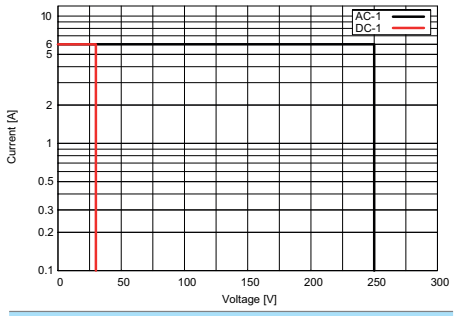

**Relay**
- AgSnO2
- AgSnO2 + 3µ Au

**Socket**
-Screw terminal
-Cage clamp terminal

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




**Dimensions p. 30**

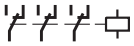
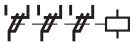
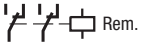
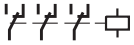
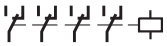
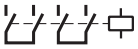
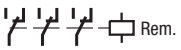
### Technical approvals, conformities

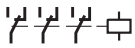
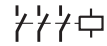
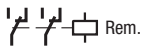
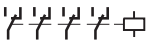
IEC/EN 61810

## Notes

## Notes

# 1.3 Industrial Relays - pluggable

| Application | Types | Pins | Contacts | AC ratings | DC ratings | Socket |
|---|---|---|---|---|---|---|
| **C2 Series** | | | | | | |
| General purpose | C2-A2x | 8 | | 10 A / 250 V | 0.5 A / 110 V | S2 |
| **C3 Series** | | | | | | |
| General purpose | C3-A3x | 11 |  | 10 A / 250 V | 0.5 A / 110 V | S3 |
| Low switching load | C3-T3x | 11 |  | 6 A / 250 V | 6 A / 30 V | S3 |
| DC load switching | C3-G3x | 11 | 1.7mm | 10 A / 250 V | 1.2 A / 110 V | S3 |
| DC load switching with magnetic blow out | C3-M1x | 11 | >3mm Ma. | 10 A / 250 V | 10 A / 220 V | S3 |
| DC load switching double make | C3-X1x | 11 | >3mm | 10 A / 250V | 7 A / 110 V | S3 |
| Latching relay | C3-R2x | 11 |  Rem. | 10 A /250 V | 0.5 A / 110 V | S3 |
| Sensitive coil 800 mW | C3-N3x | 11 |  | 10 A / 250 V | 0.5 A / 110 V | S3 |
| **C4 Series** | | | | | | |
| General purpose | C4-A4x | |  | 10 A / 250 V | 0.5 A / 110 V | S4 |
| DC load switching double make | C4-X2x | | 2x >3mm  | 10 A / 250 V | 7 A / 110 V | S4 |
| Latching relay | C4-R3x | |  Rem. | 10 A / 250 V | 0.5 A / 110 V | S4 |

| Application | Types | Pins | Contacts | AC ratings | DC ratings | Socket |
|---|---|---|---|---|---|---|
| **C5 Series** | | | | | | |
| Power relay | C5-A2x | | | 16 A / 400 V | 0.5 A / 110 V | S5 |
| Power relay | C5-A3x | |  | 16 A / 400 V | 0.5 A / 110 V | S5 |
| DC load switching | C5-G3x | | 1.7mm  | 16 A / 400 V | 1.2 A / 110 V | S5 |
| DC load switching double make | C5-X1x | | >3mm | 16 A / 400 V | 7 A / 110 V | S5 |
| DC load switching with magnetic blow out | C5-M1x | | >3mm | 16 A / 400 V | 10 A / 220 V | S5 |
| DC load switching with magnetic blow out | C5-M2x | | >3mm | 16 A / 250 V | 7 A / 110 V | S5 |
| Latching relay | C5-R2x | |  | 10 A / 400 V | 10 A / 30 V | S5 |
| **C7 Series** | | | | | | |
| Miniature power relay | C7-A1x | | | 16 A / 250 V | 0.5 A / 110 V | S7 |
| General purpose | C7-A2x | | | 10 A / 250 V | 0.5 A / 110 V | S7 |
| Low switching load | C7-T2x | | | 6 A / 250 V | 6 A / 30 V | S7 |
| DC load switching | C7-G2x | | | 10 A / 250 V | 0.8 A / 110 V | S7 |
| General purpose and low switching load | C7-H2x | | | 10 A / 250 V | 10 A / 30 V | S7 |
| DC load switching double make | C7-X1x | | >3mm | 10 A / 250 V | 6 A / 110 V | S7 |
| Power relay for high inrush current | C7-W1x | | | 10 A / 250 V | – | S7 |
| **C9 Series** | | | | | | |
| Miniature relay | C9-A4x | |  | 5 A / 250 V | 5 A / 30 V | S9 |
| Sensitive Coil 500mW … 800mW | C9-E2x | | | 5 A / 250 V | 5 mA / 30 V | S9 |
| Latching relay | C9-R2x | | | 5 A / 120 V | 5 A / 30 V | S9 |

# C2-A2x

## 2 pole | changeover contact | plug-in



| | | | |
|---|---|---|---|
| **Maximum contact load** | **10 A/250 V** | **AC-1** | **0.5 A/110 V** **DC-1** |
| | **10 A/30 V** | **DC-1** | **0.2 A/220 V** **DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 0** | |
| | **5 mA/5 V** | **Code 8** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| Max. switching current | | | 10 A |
| Max. peak inrush current (20 ms.) | | | 30 A |
| Max. switching voltage | | | 250 V |
| Max. AC load (Fig 1 1) | | | 2.5 kVA |
| Max. DC load | | | See Fig 2 |

**Coils**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick up voltage | ≤ 0.8 x $U_N$ |
| Pick up voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.2 VA (AC)/1.3 W (DC) |

**Table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 67 | 92 | 24 | 443 | 54 |
| 48 | 296 | 46 | 48 | 1K8 | 27 |
| 115 | 1K7 | 19 | 110 | 9K | 12 |
| 230 | 7K1 | 9.5 | 220 | 36K1 | 6 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Open contact | 1000 V |
| Between adjacent poles | 2.5 kV |
| Between contacts and coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time + bounce time | 16 ms/≤ 3 ms |
| Release time + bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 ops. switching cycles |
| Operating frequency at nominal load | ≤1200/ops/h |
| Weight | 79 g |

**Product References**

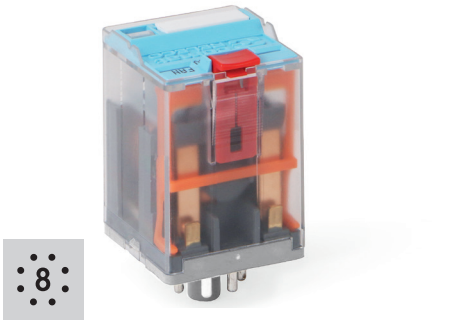
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C2-A20/AC ... V** | **C2-A28/AC ... V** |
| **LED** | **C2-A20X/AC ... V** | **C2-A28X/AC ... V** |
| **RC Suppressor** | **C2-A20R/AC ... V** | **C2-A28R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C2-A20/DC ... V** | **C2-A28/DC ... V** |
| **LED** | **C2-A20X/DC ... V** | **C2-A28X/DC ... V** |
| **Free wheeling diode** | **C2-A20DX/DC ... V** | **C2-A28DX/DC ... V** |
| **Polarity and free wheeling diode** | **C2-A20FX/DC ... V** | **C2-A28FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C2-A20BX/UC ... V** | **C2-A28BX/UC ... V** |

Other voltages on request

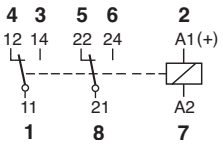
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

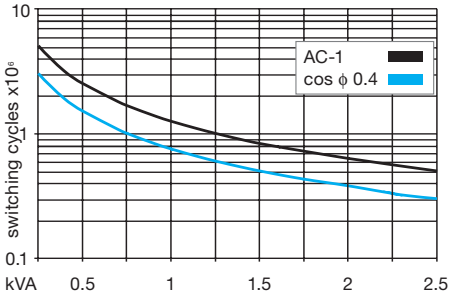
| | |
|---|---|
| Socket: | **S2-B, S2-PO** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



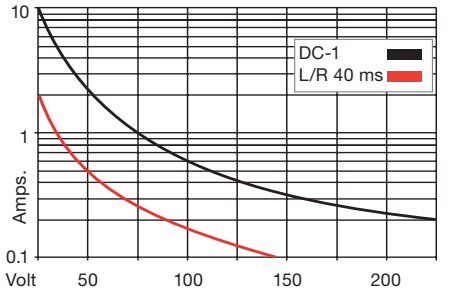
### Connection diagram



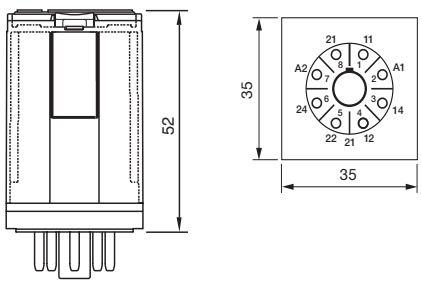

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-A3x

## 3 pole | changeover contact | plug-in

| | | | |
|---|---|---|---|
| **Maximum contact load** | **10 A/250** | **AC-1** | **0.5 A/110 V DC-1** |
| | **10 A/30** | **DC-1** | **0.2 A/220 V DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 0, 9** | |
| | **5 mA/5 V** | **Code 8** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| | Optional | Code 9 | AgNi + 0.2 µ Au |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.2 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 67 | 92 | 24 | 480 | 50 |
| 48 | 296 | 46 | 48 | 1K8 | 26 |
| 115 | 1K7 | 19 | 110 | 9K | 12 |
| 230 | 7K1 | 9.5 | 220 | 36K1 | 6 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 16 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥ 100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 81 g |

**Product References**

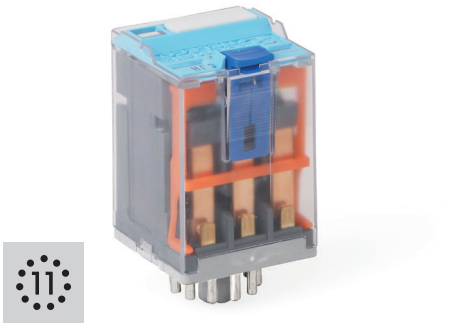
| | | | |
|---|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C3-A30/AC ... V** | **C3-A38/AC ... V** | **C3-A39/AC ... V** |
| **LED** | **C3-A30X/AC ... V** | **C3-A38X/AC ... V** | **C3-A39X/AC ... V** |
| **RC Suppressor** | **C3-A30R/AC ... V** | **C3-A38R/AC ... V** | **C3-A39R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C3-A30/DC ... V** | **C3-A38/DC ... V** | **C3-A39/DC ... V** |
| **LED** | **C3-A30X/DC ... V** | **C3-A38X/DC ... V** | **C3-A39X/DC ... V** |
| **Free wheeling diode** | **C3-A30DX/DC ... V** | **C3-A38DX/DC ... V** | **C3-A39DX/DC ... V** |
| **Polarity and free wheeling diode** | **C3-A30FX/DC ... V** | **C3-A38FX/DC ... V** | **C3-A39FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C3-A30BX/UC ... V** | **C3-A38BX/UC ... V** | **C3-A39BX/UC ... V** |

Other voltages on request

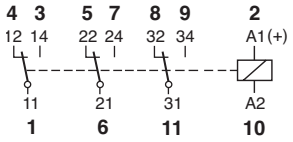
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

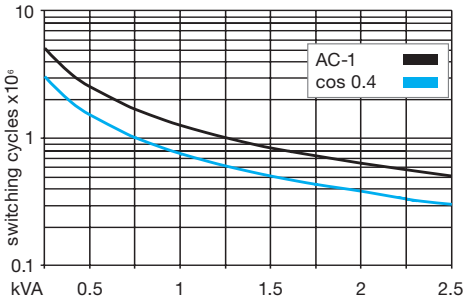
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



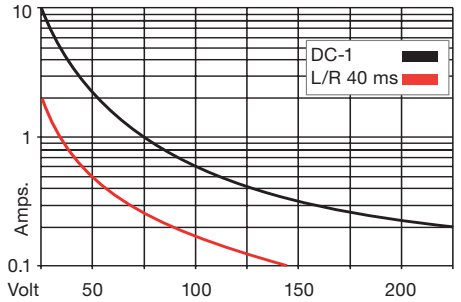
### Connection diagram



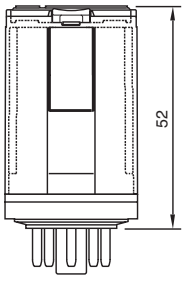

### Fig.1 AC voltage endurance

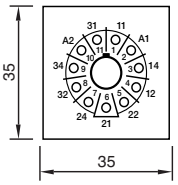



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-T3x

## 3 pole | changeover twin contact | plug-in



| | | | |
|---|---|---|---|
| **Maximum contact load** | **6 A/250 V** | **AC-1** | **6 A/30 V** **DC-1** |
| **Recommended minimum contact load** | **5 mA/5 V** | **Code 1** | |
| | **1 mA/5 V** | **Code 2** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 2 | AgNi + 5 µ Au |
| Rated Load | | | 6 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 1.2 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.2 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 67 | 92 | 24 | 480 | 50 |
| 48 | 296 | 46 | 48 | 1K8 | 26 |
| 115 | 1K7 | 19 | 110 | 9K | 12 |
| 230 | 7K1 | 9.5 | 220 | 36K1 | 6 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, EN 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 … 70 °C /-40 … 80 °C (no ice) |
| Pick-up time/bounce time | 8 ms/≤ 3 ms |
| Release time/bounce time | 18 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 81 g |

**Product References**

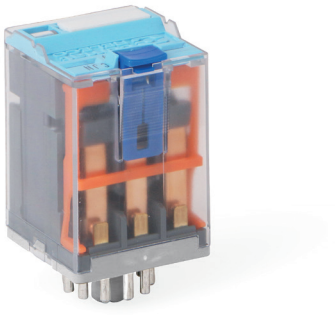
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C3-T31/AC ... V** | **C3-T32/AC ... V** |
| **LED** | **C3-T31X/AC ... V** | **C3-T32X/AC ... V** |
| **RC Suppressor** | **C3-T31R/AC ... V** | **C3-T32R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C3-T31/DC ... V** | **C3-T32/DC ... V** |
| **LED** | **C3-T31X/DC ... V** | **C3-T32X/DC ... V** |
| **Free wheeling diode** | **C3-T31DX/DC ... V** | **C3-T32DX/DC ... V** |
| **Polarity and free wheeling diode** | **C3-T31FX/DC ... V** | **C3-T32FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C3-T31BX/UC ... V** | **C3-T32BX/UC ... V** |

Other voltages on request

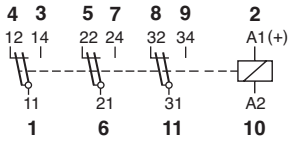
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

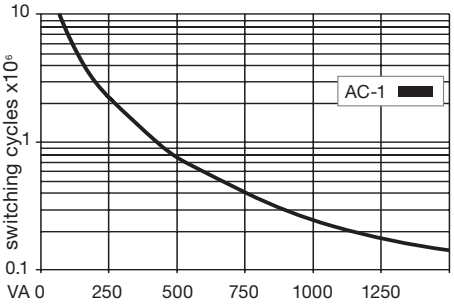
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



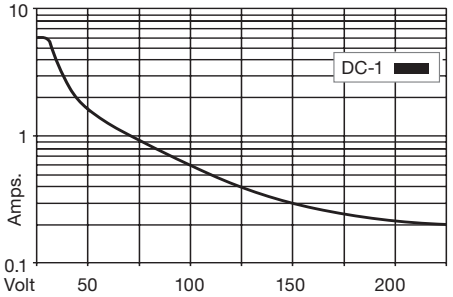
### Connection diagram



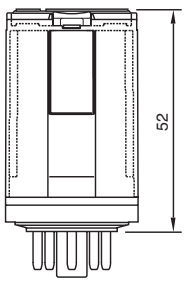

### Fig.1 AC voltage endurance

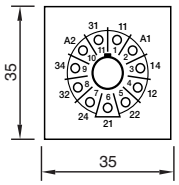



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-G3x

## 3 pole | normally open contact | plug-in

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A 250 V** | **AC-1** | **1.2 A/110 V** | **DC-1** |
| | | | **10 A 30 V** | **DC-1** | **0.4 A/220 V** | **DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.6 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 360 | 66 |
| 48 | 286 | 50 | 48 | 1K4 | 34 |
| 115 | 1K7 | 21 | 110 | 7K6 | 15 |
| 230 | 6K8 | 10 | 220 | 30K3 | 7.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 2000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/ h |
| Weight | 81 g |

**Product References**

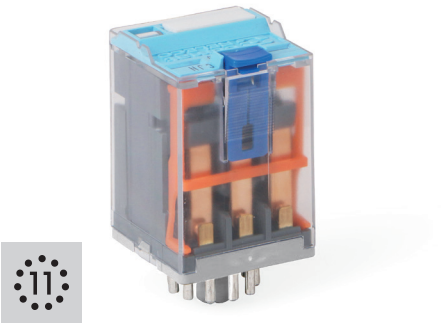
| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C3-G30/AC ... V** |
| **LED** | **C3-G30X/AC ... V** |
| **RC Suppressor** | **C3-G30R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C3-G30/DC ... V** |
| **LED** | **C3-G30X/DC ... V** |
| **Free wheeling diode** | **C3-G30DX/DC... V** |
| **Polarity and free wheeling diode** | **C3-G30FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C3-G30BX/UC ... V** |

Other voltages on request

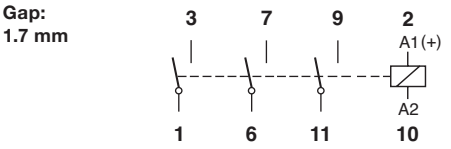
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

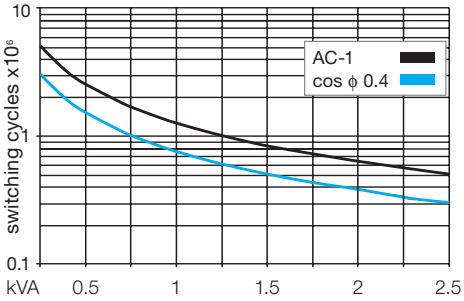
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



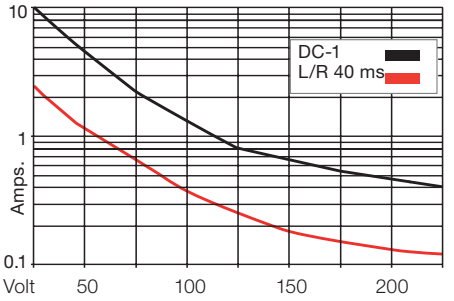
### Connection diagram



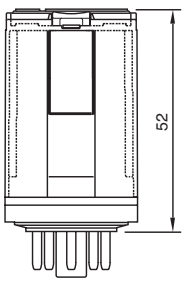

### Fig.1 AC voltage endurance

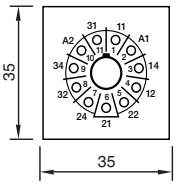



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-M1x

## 1 pole | normally open serial contact with blow magnet | plug-in



| | | | |
|---|---|---|---|
| **Maximum contact load** | | **10 A 250 V AC-1** | **10 A 220 V DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC) / 1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 480 | 50 |
| 48 | 286 | 50 | 48 | 1K8 | 26 |
| 115 | 1K7 | 21 | 110 | 9K | 12 |
| 230 | 6K8 | 10 | 220 | 29K | 7.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 2500 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1: | 2.5 KV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 … 70 °C (55° C AC) /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance | see fig. 2 |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 90 g |

**Product References**

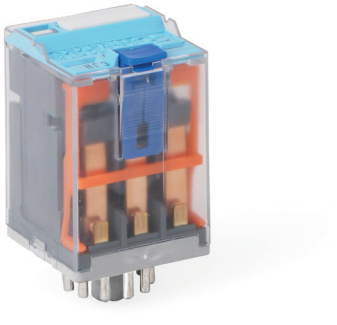
| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C3-M10/AC ... V** |
| **LED** | **C3-M10X/AC ... V** |
| **RC Suppressor** | **C3-M10R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C3-M10/DC ... V** |
| **LED** | **C3-M10X/DC ... V** |
| **Free wheeling diode** | **C3-M10DX/DC ... V** |
| **Polarity and free wheeling diode** | **C3-M10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C3-M10BX/UC ... V** |

Other voltages on request

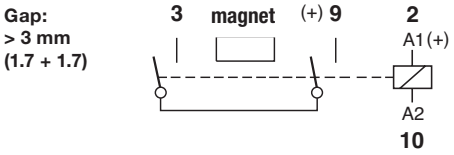
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

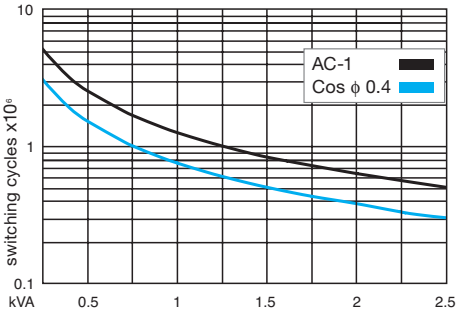
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



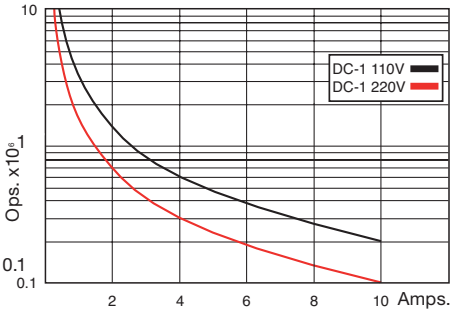
### Connection diagram



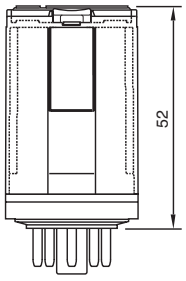

### Fig.1 AC voltage endurance

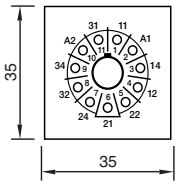



### Fig. 2 DC voltage endurance




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-X1x

## 1 pole | normally open serial contact | plug-in

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A/250 V** | **AC-1** | **7 A/110 V** | **DC-1** |
| | | | **10 A/30 V** | **DC-1** | **1.2 A/220 V** | **DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 480 | 54 |
| 48 | 286 | 50 | 48 | 1K8 | 26 |
| 115 | 1K7 | 21 | 110 | 9K | 12 |
| 230 | 6K8 | 10 | 220 | 29K | 7.5 |

**Insulation** — Volt rms / 1 min

| | |
|---|---|
| Contact open | 2500 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 18 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 83 g |

**Product References**

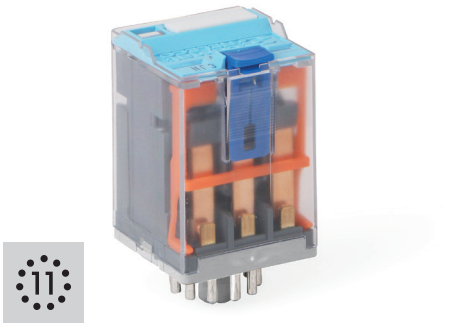
| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C3-X10/AC ... V** |
| **LED** | **C3-X10X/AC ... V** |
| **RC Suppressor** | **C3-X10R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C3-X10/DC ... V** |
| **LED** | **C3-X10X/DC ... V** |
| **Free wheeling diode** | **C3-X10DX/DC ... V** |
| **Polarity and free wheeling diode** | **C3-X10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C3-X10BX/UC ... V** |

Other voltages on request

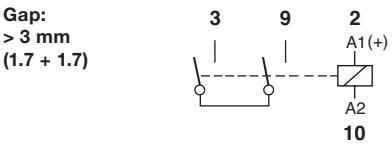
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

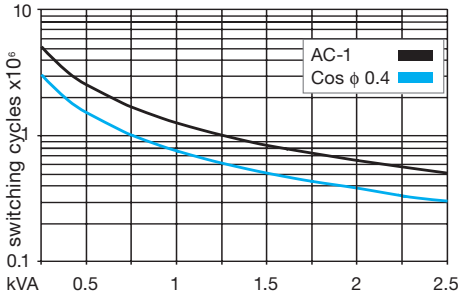
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



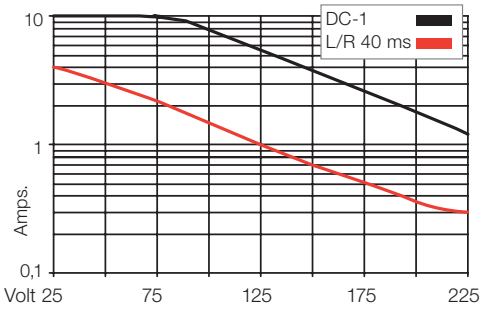
### Connection diagram



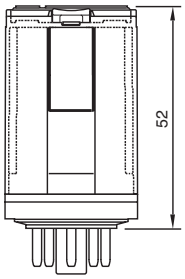

### Fig.1 AC voltage endurance

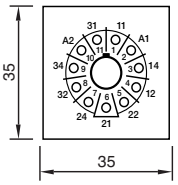



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-R2x

## 2 pole | changeover contact | retentive | plug-in



| | | | | | |
|---|---|---|---|---|---|
| **Maximum contact load** | **10 A/250 V** | **AC-1** | **0.5 A/110 V** | **DC-1** |
| | **10 A/30 V** | **DC-1** | **0.2 A/220 V** | **DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 0** | | |
| | **5 mA/5 V** | **Code 8** | | |

**Contacts**

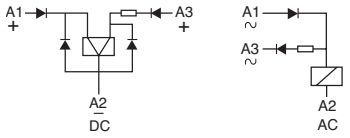
| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |

| | |
|---|---|
| Rated Load | 10 A |
| Switch-on current max. (20 ms) | 30 A |
| Switching voltage max. | 250 V |
| AC load (Fig 1) | 2.5 kVA |
| DC load | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| ON pulse power | 1.5 VA/W |
| OFF pulse power | 0.5 VA/W |
| Pull-in ON/OFF | ≤ 0.8 x $U_N$ |

**Internal Diagram:**




**Coil table**

| V AC | mA ON | mA OFF | VDC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 75 | 12 | 12 | 125 | 41 |
| 48 | 38 | 6 | 24 | 63 | 21 |
| 115 | 16 | 2.5 | 48 | 31 | 10 |
| 230 | 8 | 1.3 | 110 | 14 | 4.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Minimum pulse length for ON/OFF | 50 ms |
| Mechanical life ops | 10 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 81 g |

**Product References**

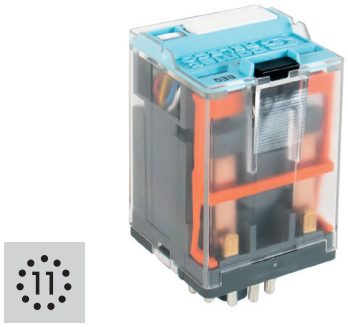
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, 230** | **C3-R20N/AC ... V** | **C3-R28N/AC ... V** |
| **VDC 12, 24, 48, 110** | **C3-R20N/DC ... V** | **C3-R28N/DC ... V** |

Other voltages on request

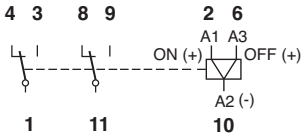
"..."List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

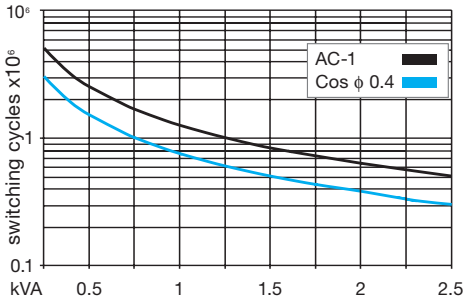
| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



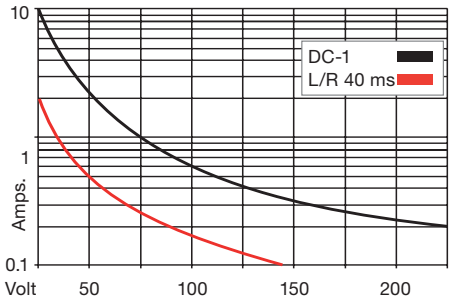
### Connection diagram



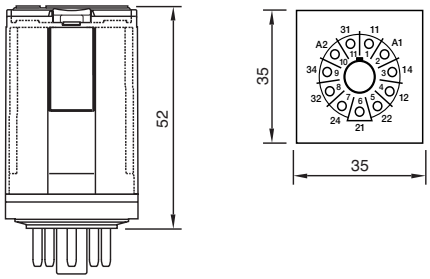

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C3-N3x

## 3 pole | changeover contact | sensitive coil | plug-in

| | | | |
|---|---|---|---|
| **Maximum contact load** | **6 A/250 V** | **AC-1** | **6 A/30 V** **DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 4** | |
| | **5 mA/5 V** | **Code 8** | |

### Contacts

| | | | |
|---|---|---|---|
| Material | Standard | Code 4 | AgNi + 0.2 µ Au |
| | Optional | Code 8 | AgNi + 10 µ Au |
| Rated Load | | | 6 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 1.5 kVA |
| DC load | | | see Fig. 2 |

### Coil

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 800 mW |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 67 | 92 | 24 | 480 | 50 |
| 48 | 296 | 46 | 48 | 1K8 | 26 |
| 115 | 1K7 | 19 | 110 | 9K | 12 |
| 230 | 7K1 | 9.5 | 220 | 36K1 | 6 |

### Insulation

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

### Specifications

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 18 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | DC: 20 Mill. |
| DC voltage endurance at rated load | ≥ 100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 90 g |

### Product References

| | | |
|---|---|---|
| **VDC 24, 48, 60, 110** | **C3-N34/DC ... V** | **C3-N38/DC ... V** |
| **Free wheeling diode** | **C3-N34D/DC ... V** | **C3-N38D/DC ... V** |
| **Polarity and free wheeling diode** | **C3-N34F/DC ... V** | **C3-N38F/DC ... V** |

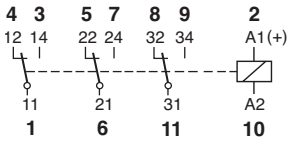
Other voltages on request

"..." List Coil Voltage to complete Product References

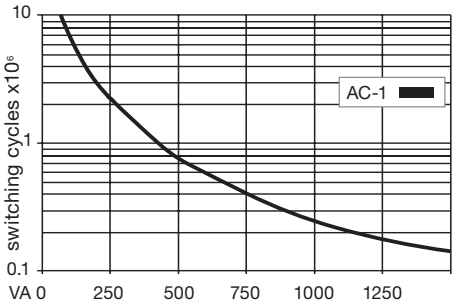
### Accessories (See also Section Sockets)

| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

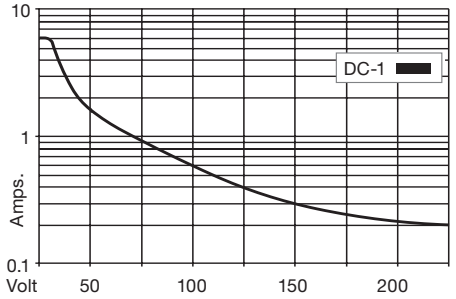
### Connection diagram



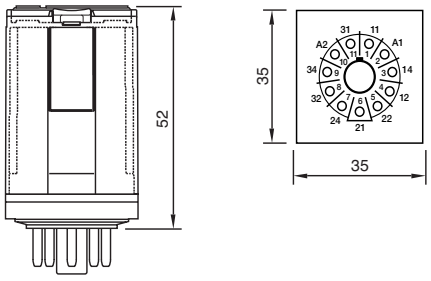

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C4-A4x

## 4 pole | changeover contact | plug-in Faston



| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A/250 V** | **AC-1** | **0.5 A/110 V** | **DC-1** |
| | | | **10 A/30 V** | **DC-1** | **0.2 A/220 V** | **DC-1** |
| **Recommended minimum contact load** | | | **5 mA/5 V** | **Code 8** | | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.4 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 414 | 58 |
| 48 | 286 | 50 | 48 | 1K6 | 30 |
| 115 | 1K7 | 21 | 110 | 8K1 | 13 |
| – | – | – | 120-125 | 10K | 12.3 |
| 230 | 6K8 | 10 | 220 | 35K7 | 6.2 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 90 g |

**Product References**

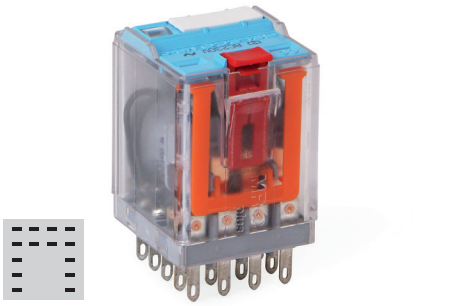
| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)** | **C4-A40/AC ... V** | **C4-A48/AC ... V** |
| **LED** | **C4-A40X/AC ... V** | **C4-A48X/AC ... V** |
| **RC Suppressor** | **C4-A40R/AC ... V** | **C4-A48R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C4-A40/DC ... V** | **C4-A48/DC ... V** |
| **LED** | **C4-A40X/DC ... V** | **C4-A48X/DC ... V** |
| **Free wheeling diode** | **C4-A40DX/DC ... V** | **C4-A48DX/DC ... V** |
| **Polarity and free wheeling diode** | **C4-A40FX/DC ... V** | **C4-A48FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C4-A40BX/UC ... V** | **C4-A48BX/UC ... V** |

Other voltages on request

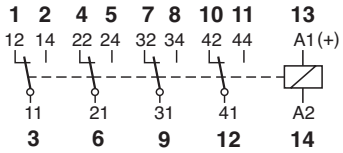
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

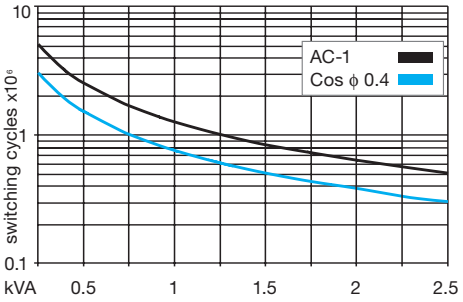
| | |
|---|---|
| Socket: | **S4-J, S4-L, S4-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



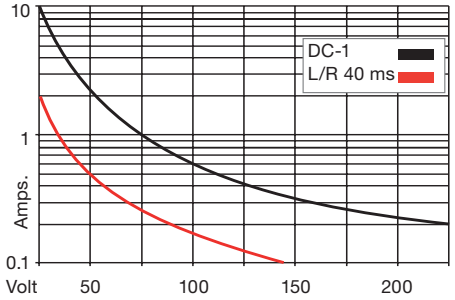
### Connection diagram



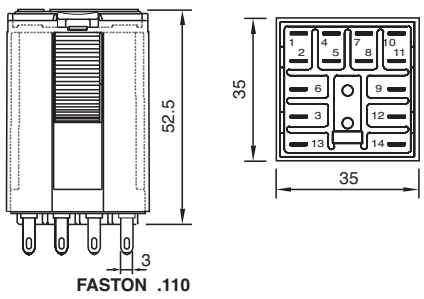

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C4-X2x

## 2 pole | normally open serial contact | plug-in Faston

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A/250 V** | **AC-1** | **7 A/110 V** | **DC-1** |
| | | | **10 A/30 V** | **DC-1** | **1.2 A/220 V** | **DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 443 | 54 |
| 48 | 286 | 50 | 48 | 1K8 | 27 |
| 115 | 1K7 | 21 | 110 | 9K2 | 12 |
| 230 | 6k8 | 10 | 220 | 30K3 | 6 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 2500 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 90 g |

**Product References**

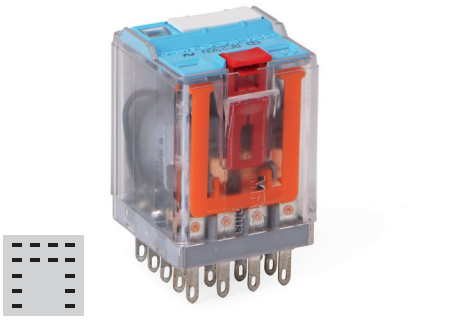
| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)** | **C4-X20/AC ... V** |
| **LED** | **C4-X20X/AC ... V** |
| **RC Suppressor** | **C4-X20R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C4-X20/DC ... V** |
| **LED** | **C4-X20X/DC ... V** |
| **Free wheeling diode** | **C4-X20DX/DC ... V** |
| **Polarity and free wheeling diode** | **C4-X20FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C4-X20BX/UC ... V** |

Other voltages on request

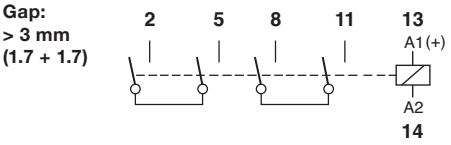
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

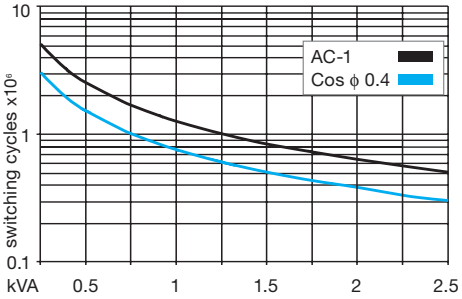
| | |
|---|---|
| Socket: | **S4-J, S4-L, S4-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



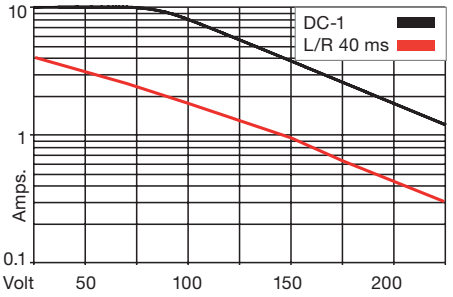
### Connection diagram



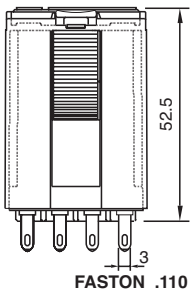

### Fig.1 AC voltage endurance

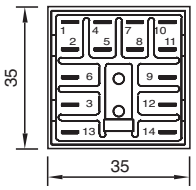



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C4-R3x

## 3 pole | changeover contact | retentive | plug-in

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A/250 V** | **AC-1** | **0.5 A/110 V** | **DC-1** |
| | | | **10 A/10 V** | **DC-1** | **0.2 A/220 V** | **DC-1** |
| **Recommended minimum contact load** | | | **5 mA/5 V** | **Code 8** | | |

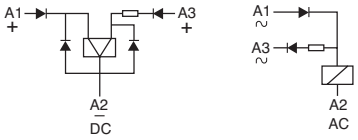
**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| ON pulse power | 1.5 VA/W |
| OFF pulse power | 0.5 VA/W |
| | 1 Winding for AC, 2 Windings for DC |
| Pull-in ON/OFF | ≤ 0.8 x $U_N$ |

**Internal Diagram:**




**Coil table**

| V AC | mA ON | mA OFF | VDC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 75 | 12 | 12 | 125 | 41 |
| 48 | 38 | 6 | 24 | 63 | 21 |
| 115 | 16 | 2.5 | 48 | 31 | 10 |
| 230 | 8 | 1.3 | 110 | 14 | 4.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Minimum pulse length for ON/OFF | 50 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. switching cycles |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 95 g |

**Product References**

**V AC 50 Hz/60 Hz: 24, 48, 115, 230**

**VDC 12, 24, 48, 110**

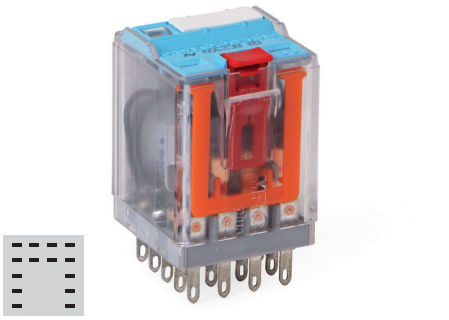
Other voltages on request

**C4-R30/AC ... V** **C4-R38/AC ... V**
**C4-R30/DC ... V** **C4-R38/DC ... V**

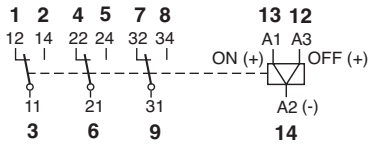
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

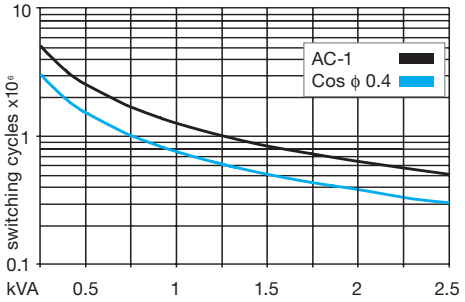
| | |
|---|---|
| Socket: | **S4-J, S4-L, S4-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |



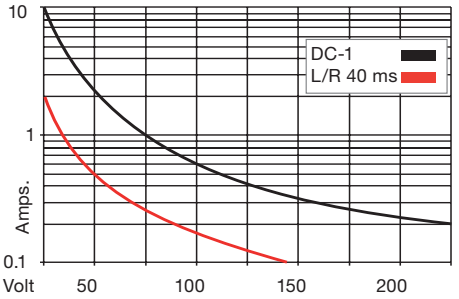
### Connection diagram



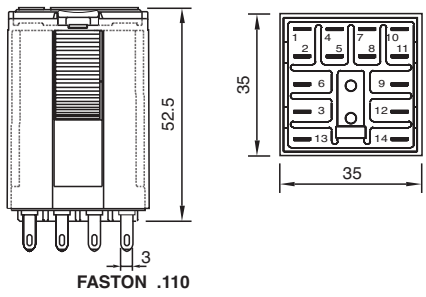

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-A2x

## 2 pole | changeover contact | plug-in Faston



| | | | |
|---|---|---|---|
| **Maximum contact load** | **16 A/400 V AC-1** | **0.5 A/110 V DC-1** | |
| | **16 A/30 V DC-1** | **0.2 A/220 V DC-1** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A |
| Switching voltage max. | | | 400 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.4 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 414 | 58 |
| 48 | 286 | 50 | 48 | 1K6 | 30 |
| 115 | 1K7 | 21 | 110 | 8K1 | 13 |
| 230 | 6K8 | 10 | 220 | 30K3 | 6 |
| 400 | 18K8 | 6 | | | |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 1000 V |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥3 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/ops/h |
| Weight | 90 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C5-A20/AC ... V** |
| **LED** | **C5-A20X/AC ... V** |
| **RC Suppressor (max 250 V)** | **C5-A20R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C5-A20/DC ... V** |
| **LED** | **C5-A20X/DC ... V** |
| **Free wheeling diode** | **C5-A20DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-A20FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-A20BX/UC ... V** |

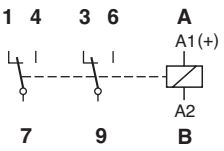
Other voltages on request

"..." List Coil Voltage to complete Product References

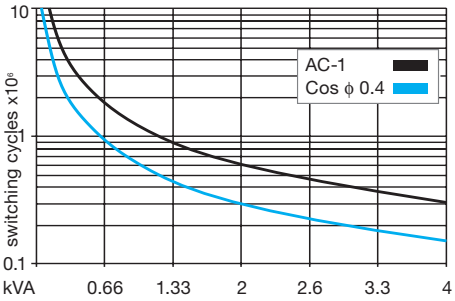
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

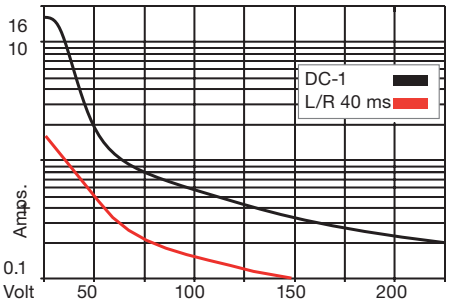
### Connection diagram



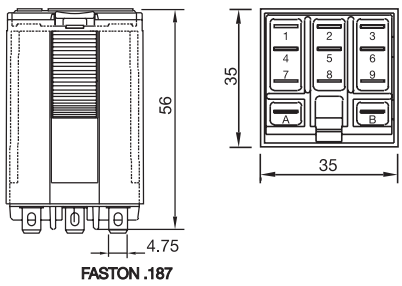

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-A3x

## 3 pole | changeover contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **16 A/400 V AC-1** | **0.5 A/110 V DC-1** | |
| | **16 A/30 V DC-1** | **0.2 A/220 V DC-1** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 5 | $AgSnO_2$ |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A |
| Switching voltage max. | | | 400 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.4 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 24 | 414 | 58 |
| 48 | 286 | 50 | 48 | 1K6 | 30 |
| 115 | 1K7 | 21 | 110 | 8K1 | 13 |
| 230 | 6K8 | 10 | 220 | 30K3 | 6.2 |
| 400 | 18K8 | 6 | | | |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥3 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40…60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 95 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)** | **C5-A30/AC ... V** | **C5-A35/AC ... V** |
| **LED** | **C5-A30X/AC ... V** | **C5-A35X/AC ... V** |
| **RC Suppressor (max 250 V)** | **C5-A30R/AC ... V** | **C5-A35R/AC ... V** |
| **VDC 24, 48, 110, 220** | **C5-A30/DC ... V** | **C5-A35/DC ... V** |
| **LED** | **C5-A30X/DC ... V** | **C5-A35X/DC ... V** |
| **Free wheeling diode** | **C5-A30DX/DC ... V** | **C5-A35DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-A30FX/DC ... V** | **C5-A35FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-A30BX/UC ... V** | **C5-A35BX/UC ... V** |

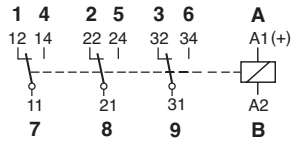
Other voltages on request

"..." List Coil Voltage to complete Product References

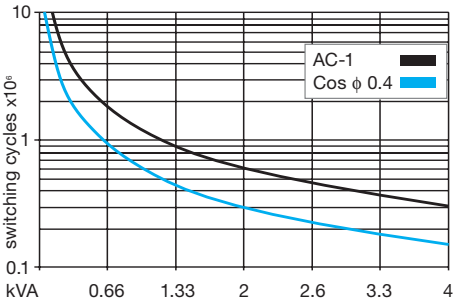
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

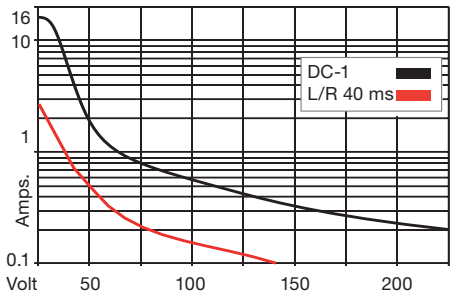
### Connection diagram



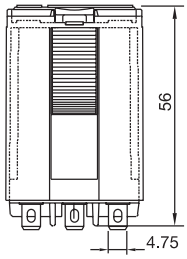

### Fig.1 AC voltage endurance

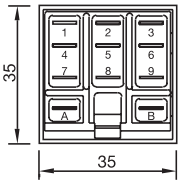



### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-G3x

## 3 pole | normally open contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **16 A/400 V AC-1** | **1.2 A/110 V DC-1** | |
| | **16 A/30 V DC-1** | **0.4 A/220 V DC-1** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 5 | $AgSnO_2$ |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A |
| Switching voltage max. | | | 400 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.6 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 12 | 90 | 133 |
| 48 | 286 | 50 | 24 | 373 | 66 |
| 115 | 1K7 | 21 | 48 | 1K4 | 34 |
| 230 | 6K8 | 10 | 110 | 7K6 | 15 |
| 400 | 18K8 | 6 | 220 | 30K3 | 7.5 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 2000 V |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 95 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, (120), 230, (240)** | **C5-G30/AC ... V** | **C5-G35/AC ... V** |
| **LED** | **C5-G30X/AC ... V** | **C5-G35X/AC ... V** |
| **RC Suppressor (max 250 V)** | **C5-G30R/AC ... V** | **C5-G35R/AC ... V** |
| **VDC 12, 24, 48, 110, 220** | **C5-G30/DC ... V** | **C5-G35/DC ... V** |
| **LED** | **C5-G30X/DC ... V** | **C5-G35X/DC ... V** |
| **Free wheeling diode** | **C5-G30DX/DC ... V** | **C5-G35DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-G30FX/DC ... V** | **C5-G35FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-G30BX/UC ... V** | **C5-G35BX/UC ... V** |

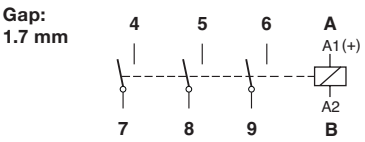
Other voltages on request

"..." List Coil Voltage to complete Product References

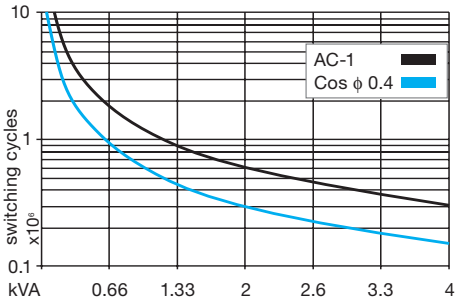
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

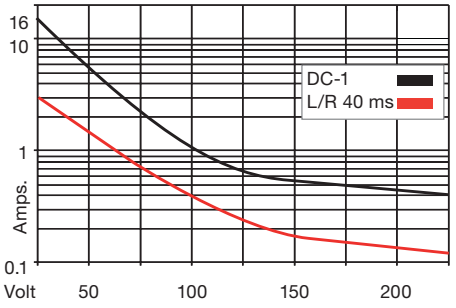
### Connection diagram



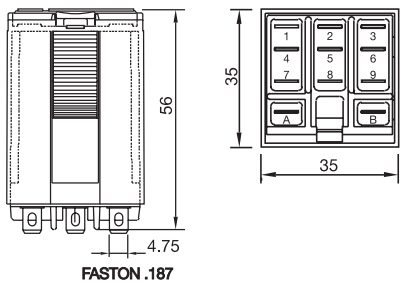

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-X1x

## 1 pole | normally open serial contact | plug-in Faston



| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **16 A/400 V** | **AC-1** | **7 A/110 V** | **DC-1** |
| | | | **16 A/30 V** | **DC-1** | **1.2 A/220V** | **DC-13** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A |
| Switching voltage max. | | | 400 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.3 W (DC)) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 12 | 110 | 108 |
| 48 | 286 | 50 | 24 | 443 | 54 |
| 115 | 1K7 | 21 | 48 | 1K7 | 27 |
| 230 | 6K8 | 10 | 110 | 9K2 | 12 |
| 400 | 18K8 | 6 | 220 | 30K3 | 6.2 |

**Insulation**

| | Volt rms / 1 min |
|---|---|
| Contact open | 4 kV |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 90 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C5-X10/AC ... V** |
| **LED** | **C5-X10X/AC ... V** |
| **RC Suppressor (max 250 V)** | **C5-X10R/AC ... V** |
| **VDC 12, 24, 48, 110, 220** | **C5-X10/DC ... V** |
| **LED** | **C5-X10X/DC ... V** |
| **Free wheeling diode** | **C5-X10DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-X10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-X10BX/UC ... V** |

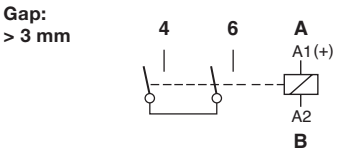
Other voltages on request

"..." List Coil Voltage to complete Product References

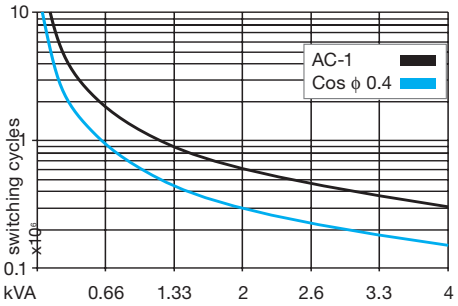
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

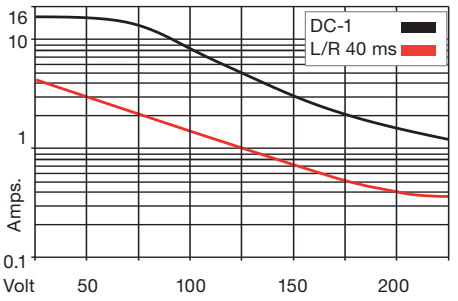
### Connection diagram



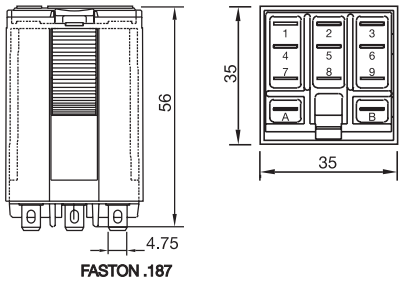

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-M1x

## 1 pole | normally open serial contact with blow magnet | plug-in Faston

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **16 A/400 V** | **AC-1** | **10 A/220 V** | **DC-1** |
| | | | **3.6 A/110 V** | **DC-13** | **2 A/220 V** | **DC-13** |
| **Contacts** | | | | | | |
| Material | Standard | Code 0 | AgNi | | | |
| Rated Load | | | 16 A | | | |
| Switch-on current max. (20 ms) | | | 40 A | | | |
| Switching voltage max. | | | 400 V | | | |
| AC load (Fig 1) | | | 4 kVA | | | |
| DC load | | | see Fig. 2 | | | |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 12 | 110 | 108 |
| 48 | 286 | 50 | 24 | 443 | 54 |
| 115 | 1K7 | 21 | 48 | 1K7 | 27 |
| 230 | 6K8 | 10 | 110 | 9K2 | 12 |
| 400 | 18K8 | 6 | 220 | 30K3 | 6.2 |

| | |
|---|---|
| **Insulation** | Volt rms / 1 min |
| Contact open | 4000 V |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥3 GΩ |
| Insulation, IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance | see fig. 2 |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 90 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C5-M10/AC ... V** |
| **LED** | **C5-M10X/AC ... V** |
| **RC Suppressor (max 250 V)** | **C5-M10R/AC ... V** |
| **VDC 12, 24, 48, 110, 220** | **C5-M10/DC ... V** |
| **LED** | **C5-M10X/DC ... V** |
| **Free wheeling diode** | **C5-M10DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-M10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-M10BX/UC ... V** |

Other voltages on request

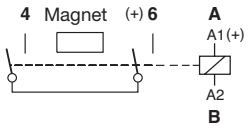
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

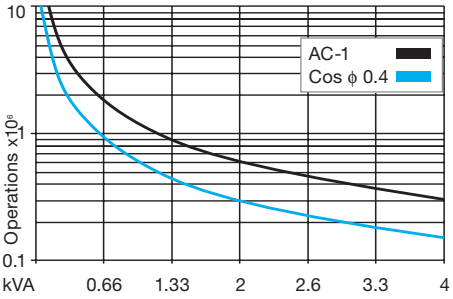
| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

### Connection diagram

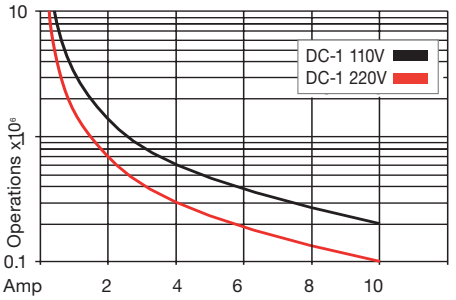
**Gap:**
**> 3 mm**
**(1.7 + 1.7)**



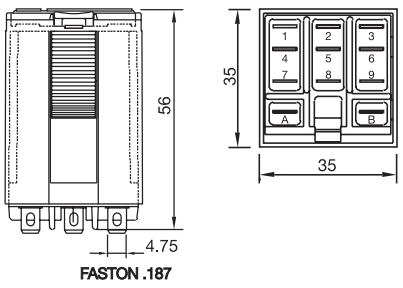

### Fig.1 AC voltage endurance




### Fig. 2 DC voltage endurance




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-M2x

## 2 pole | normally open contact with blow magnet | plug-in Faston



| | | | |
|---|---|---|---|
| **Maximum contact load** | | **16 A / 250 V AC-1** | **7 A / 110 V DC-1**<br>**3 A / 220 V DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≥ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 2.4 VA (AC) / 1.6 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 65 | 100 | 12 | 90 | 133 |
| 48 | 286 | 50 | 24 | 373 | 66 |
| 115 | 1K7 | 21 | 48 | 1K4 | 33 |
| 230 | 6K8 | 10.4 | 110 | 7K6 | 15 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 2 kV |
| Contact/contact | 4 kV |
| Contact/coil | 3 kV |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Insulation, EN 60947/IEC 61810-1: | 4 KV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. switching cycles |
| DC Rated load | ≥ 75 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 90 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C5-M20/AC ... V** |
| **LED** | **C5-M20X/AC ... V** |
| **RC Suppressor** | **C5-M20R/AC ... V** |
| **VDC 12, 24, 48, 110, 220** | **C5-M20/DC ... V** |
| **LED** | **C5-M20X/DC ... V** |
| **Free wheeling diode** | **C5-M20DX/DC ... V** |
| **Polarity and free wheeling diode** | **C5-M20FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C5-M20BX/UC ... V** |

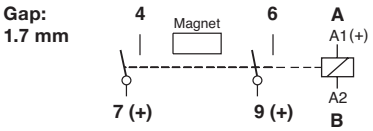
Other voltages on request

"..." List Coil Voltage to complete Product References

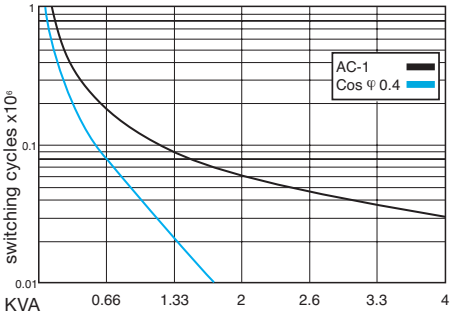
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

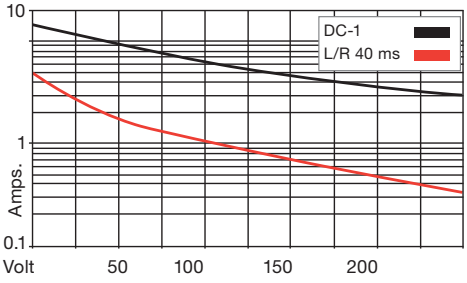
### Connection diagram



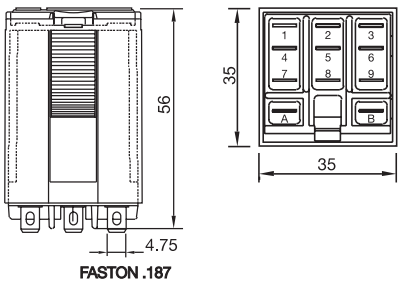

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C5-R2x

## 2 pole | changeover contact | retentive | plug-in

| | |
|---|---|
| **Maximum contact load** | **10 A/400 V AC-1 10 A/30 V DC-1**<br>**0.2 A/250 V DC-1 0.5 A/110 V DC-1** |

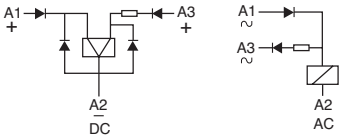
**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 400 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| ON pulse power | 1.5 VA/W |
| OFF pulse power | 0.5 VA/W |
| 1 winding for AC, 2 winding for DC | |
| Pull-in ON/OFF | < 0.8 x $U_N$ |

**Internal Diagram:**




**Coil table**

| V AC | mA ON | mA OFF | VDC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 75 | 12 | 12 | 125 | 41 |
| 48 | 38 | 6 | 24 | 63 | 21 |
| 115 | 16 | 2.5 | 48 | 31 | 10 |
| 230 | 8 | 1.3 | 110 | 14 | 4.5 |

| | |
|---|---|
| **Insulation** | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 4 kV |
| Contact/coil | 4 kV |
| Insulation resistance at 500 V | ≥3 GΩ |
| Insulation, EN 60947/IEC 61810-1 | 4 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Minimum pulse ON/OFF | 50 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 95 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, 230** | **C5-R20/AC ... V** |
| **VDC : 12, 24, 48, 110,** | **C5-R20/DC ... V** |

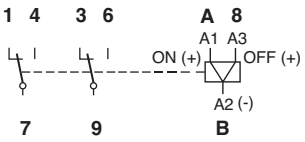
Other voltages on request

"..." List Coil Voltage to complete Product References

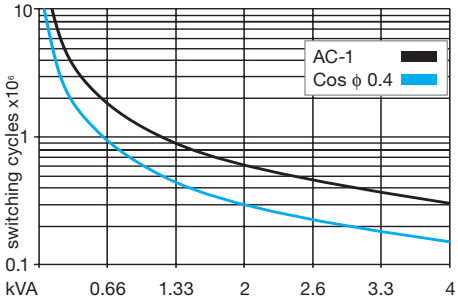
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S5-M, S5-P** |
| Wall Mounting Adapter: | **S5-R (BAG 5 PCS)** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

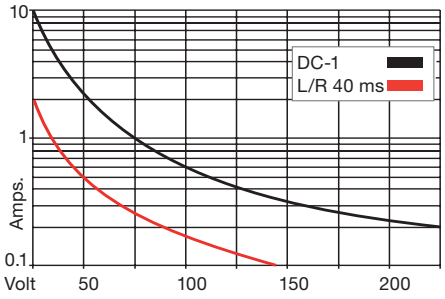
### Connection diagram



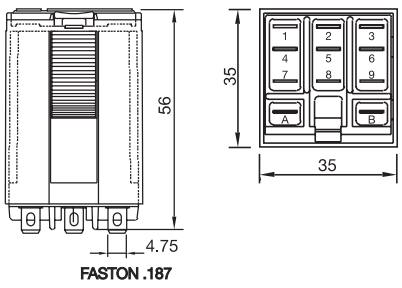

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-A1x

## 1 pole | changeover contact | plug-in Faston

| | | | | | |
|---|---|---|---|---|---|
| **Maximum contact load** | | | **16 A/250 V** | **AC-1** | **0.5 A/110 V DC-1** |
| | | | **16 A/24 V** | **DC-1** | **0.2 A/220 V DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 16 A |
| Switch-on current max. (20 ms) | | | 40 A (120 A for code 5) |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 4 kVA |
| DC load | | | see Fig. 2 |
| Relay compatible with socket S7-C | | | |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.2 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 174 | 50 | 12 | 111 | 108 |
| 48 | 686 | 25 | 24 | 432 | 55 |
| 115 | 4K3 | 10.4 | 48 | 1K7 | 28 |
| 230 | 18K6 | 5.2 | 110 | 9K2 | 12 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 16 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| AC/DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C7-A10/AC ... V** |
| **LED** | **C7-A10X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C7-A10/DC ... V** |
| **LED** | **C7-A10X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C7-A10DX/DC 24 V** |
| **Polarity and free wheeling diode** | **C7-A10FX/DC ... V** |

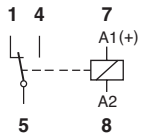
Other voltages on request

"..." List Coil Voltage to complete Product References

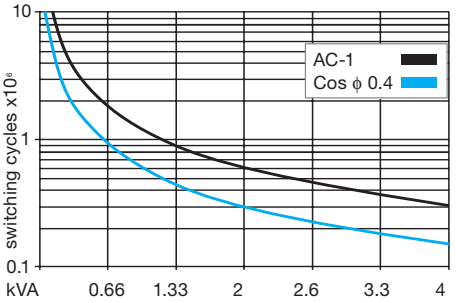
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

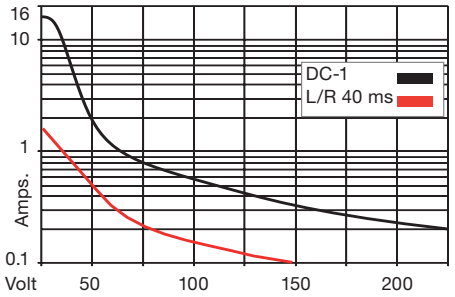
### Connection diagram



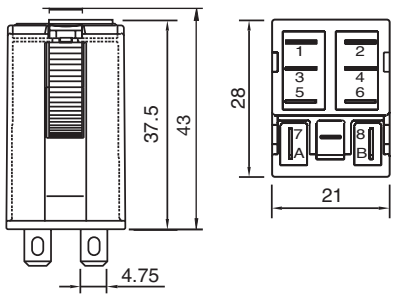

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-A2x

## 2 pole | changeover contact | plug-in Faston

| | | |
|---|---|---|
| **Maximum contact load** | **10 A/250 V AC-1** | **0.5 A/110 V DC-1** |
| | **10 A/30 V DC-1** | **0.2 A/220 V DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V Code 0** | |
| | **5 mA/5 V Code 8** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| | Optional | Code 8 | AgNi + 5 µ Au |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.2 VA (AC)/1 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 174 | 50 | 12 | 148 | 85 |
| 48 | 686 | 25 | 24 | 594 | 43 |
| 115 | 4K3 | 10.4 | 48 | 2K3 | 21 |
| 230 | 18K6 | 5.2 | 110 | 11K4 | 10 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 16 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C7-A20/AC ... V** | **C7-A28/AC ... V** |
| **LED** | **C7-A20X/AC ... V** | **C7-A28X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C7-A20/DC ... V** | **C7-A28/DC ... V** |
| **LED** | **C7-A20X/DC ... V** | **C7-A28X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C7-A20DX/DC 24 V** | **C7-A28DX/DC 24 V** |
| **Polarity and free wheeling diode** | **C7-A20FX/DC ... V** | **C7-A28FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C7-A20BX/UC ... V** | **C7-A28BX/UC ... V** |

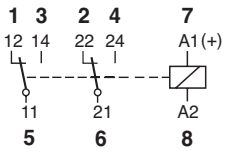
Other voltages on request

"..." List Coil Voltage to complete Product References

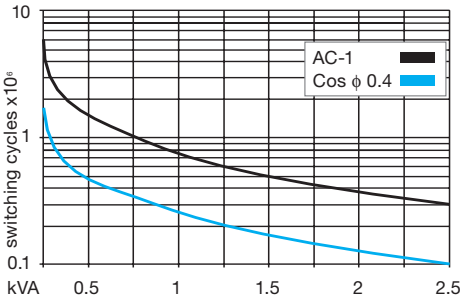
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

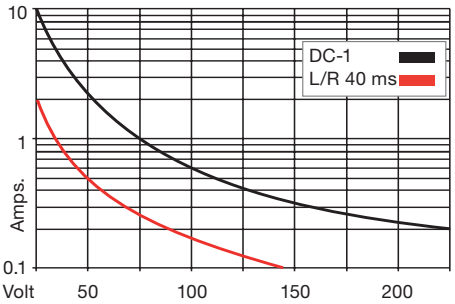
### Connection diagram



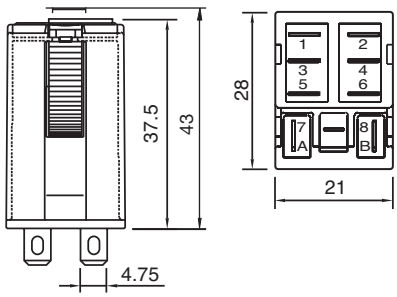

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-T2x

## 2 pole | changeover twin contact | plug-in



| | | | | | |
|---|---|---|---|---|---|
| **Maximum contact load** | | | **6 A/250 V** | **AC-1** | **6 A/30 V** **DC-1** |
| **Recommended minimum contact load** | | | **5 mA/5 V** | **Code 1** | |
| | | | **1 mA/5 V** | **Code 2** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 2 | AgNi + 5 µ Au |
| Rated Load | | | 6 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 1.2 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.2 VA (AC)/1 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 174 | 50 | 12 | 148 | 85 |
| 48 | 686 | 25 | 24 | 594 | 43 |
| 115 | 4K3 | 10.4 | 48 | 2K3 | 21 |
| 230 | 18K6 | 5.2 | 110 | 11K4 | 10 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 16 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 230 (240)** | **C7-T21/AC ... V** | |
| **LED** | **C7-T21X/AC ... V** | **C7-T22X/AC ... V** |
| **VDC 110** | **C7-T21/DC ... V** | **C7-T22/DC ... V** |
| **LED** | **C7-T21X/DC ... V** | **C7-T22X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C7-T21DX/DC 24 V** | **C7-T22X/DC 24 V** |
| **Polarity and free wheeling diode** | **C7-T21FX/DC ... V** | **C7-T22FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V** | **C7-T21BX/UC ... V** | **C7-T22BX/UC ... V** |

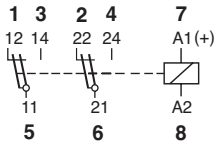
Other voltages on request

"..." List Coil Voltage to complete Product References

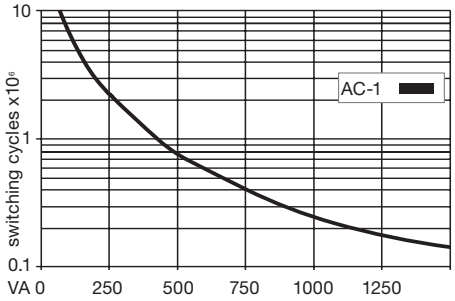
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

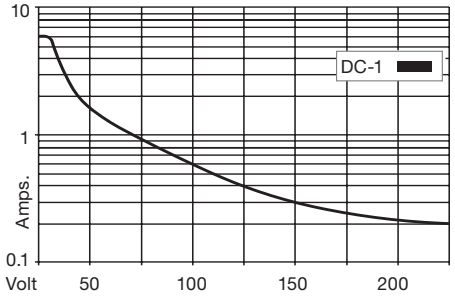
### Connection diagram



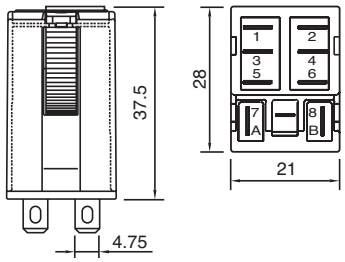

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-G2x

## 2 pole | normally open contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **10 A/250 V AC-1** | **0.8 A/110 V DC-1** | |
| | **10 A/30 V DC-1** | **0.4 A/220 V DC-1** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.5 VA (AC)/1.5 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 153 | 62 | 12 | 99 | 121 |
| 48 | 611 | 31 | 24 | 388 | 61 |
| 115 | 3K6 | 13 | 48 | 1K5 | 32 |
| 230 | 14K6 | 6.5 | 110 | 8K | 14 |

**Insulation** — Volt rms / 1 min

| | |
|---|---|
| Contact open | 2000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C7-G20/AC ... V** |
| **LED** | **C7-G20X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C7-G20/DC ... V** |
| **LED** | **C7-G20X/DC ... V** |
| **Polarity and free wheeling diode** | **C7-G20FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C7-G20BX/UC ... V** |

Other voltages on request

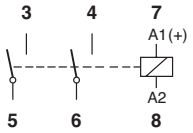
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

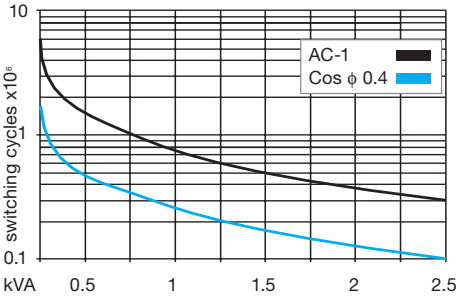
| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

### Connection diagram

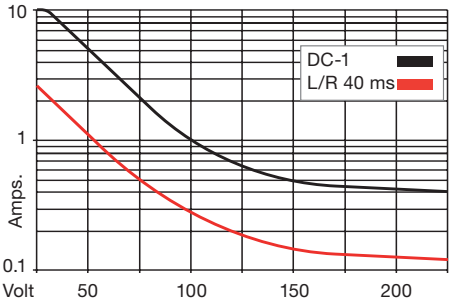
**Gap: 1.5 mm**



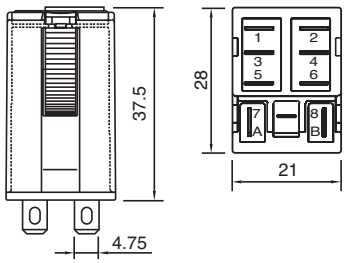

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-H2x

## 2 pole | changeover contact | plug-in Faston

| | | | | | |
|---|---|---|---|---|---|
| **Maximum contact load** | **10 A / 250 V** | **AC-1** | **6 A / 250 V** | **AC-1** |
| | **10 A / 30 V** | **DC-1** | **6 A / 30 V** | **DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V (Power contacts)** | | | |
| | **5 mA/5V (twin contacts)** | | | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 3 | AgNi + 3 µ Au |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 2,5 kV |
| AC load (Fig 1) | | | 2,5 VA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.2 VA (AC)/1 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 230 | 18K6 | 5.2 | 24 | 594 | 43 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 16 ms/≤ 3 ms |
| Release time/bounce time | 8 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | |
|---|---|
| **LED (only 230 V AC)** | **C7-H23X/AC 230 V** |
| **Free wheeling diode (only 24 DC)** | **C7-H23X/DC 24 V** |

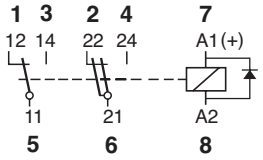
Other voltages on request

"..." List Coil Voltage to complete Product References

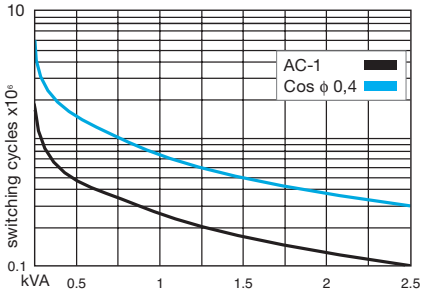
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

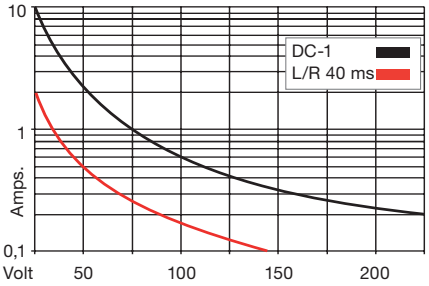
### Connection diagram



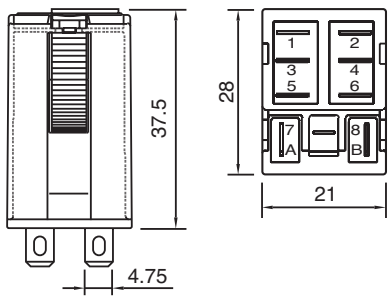

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC 61810; EN 60947

# C7-X1x

## 1 pole | normally open serial contact | plug-in Faston



| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **10 A/250 V** | **AC-1** | **6 A/110 V** | **DC-1** |
| | | | **10 A/30 V** | **DC-1** | **1 A/220 V** | **DC-1** |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi |
| Rated Load | | | 10 A |
| Switch-on current max. (20 ms) | | | 30 A |
| Switching voltage max. | | | 250 V |
| AC load | | | 2.5 kVA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.5 VA (AC)/1.3 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 153 | 62 | 12 | 111 | 108 |
| 48 | 611 | 31 | 24 | 432 | 55 |
| 115 | 3K6 | 13 | 48 | 1K7 | 27 |
| 230 | 14K6 | 6.5 | 110 | 9K2 | 12 |

**Insulation** — Volt rms / 1 min

| | |
|---|---|
| Contact open | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C7-X10/AC ... V** |
| **LED** | **C7-X10X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C7-X10/DC ... V** |
| **LED** | **C7-X10X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C7-X10DX/DC 24 V** |
| **Polarity and free wheeling diode** | **C7-X10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C7-X10BX/UC ... V** |

Other voltages on request

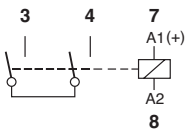
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

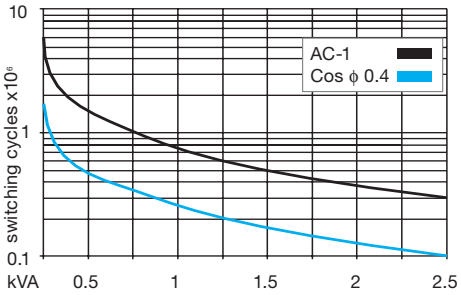
| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

### Connection diagram

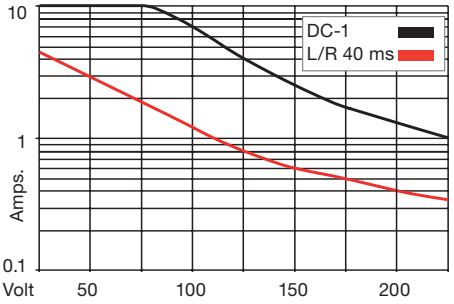
**Gap:**
**3 mm (1.5 + 1.5)**



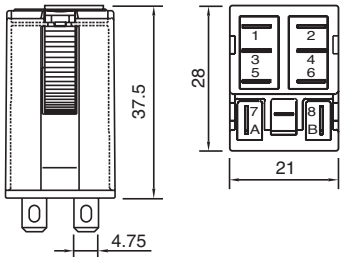

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C7-W1x

## 1 pole | normally open tungsten pre-contact | plug-in Faston

| | | |
|---|---|---|
| **Maximum contact load:** | **10 A/250 V AC-1** | **6 A / 250 V AC-5a/b** |
| **Recommended minimum contact load:** | **10 mA/10 V** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 0 | AgNi/W |
| Rated Load | | | 10 A |
| Switch-on current max. (2.5 ms) | | | 500 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 2.5 kVA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.5 VA (AC)/1.5 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 153 | 62 | 12 | 99 | 121 |
| 48 | 611 | 31 | 24 | 388 | 61 |
| 115 | 3K6 | 13 | 48 | 1K5 | 32 |
| 230 | 14K5 | 6.5 | 110 | 8K | 14 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 20 ms/≤ 3 ms |
| Release time/bounce time | 10 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115 (120), 230 (240)** | **C7-W10/AC ... V** |
| **LED** | **C7-W10X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C7-W10/DC ... V** |
| **LED** | **C7-W10X/DC ... V** |
| **Polarity and free wheeling diode** | **C7-W10FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C7-W10BX/UC ... V** |

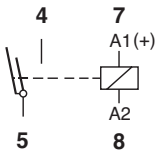
Other voltages on request

"..." List Coil Voltage to complete Product References

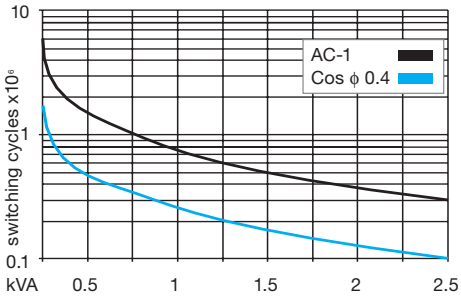
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S7-C, S7-IO, S7-P,** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

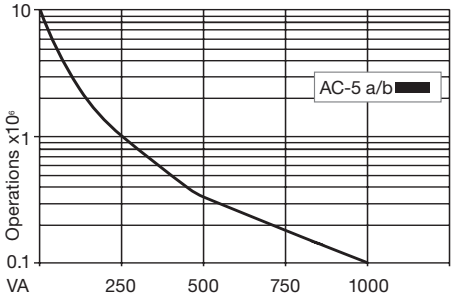
### Connection diagram



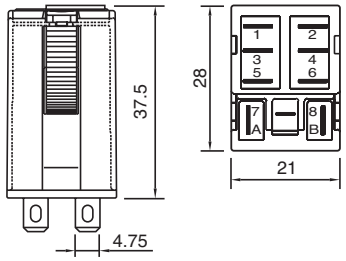

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

# C9-A4x

## 4 pole | changeover contact | plug-in Faston

| | | | |
|---|---|---|---|
| **Maximum contact load** | **5 A/250 V** | **AC-1** | **5 A/30 V** **DC-1** |
| **Recommended minimum contact load** | **10 mA/10 V** | **Code 1** | |
| | **1 mA/5 V** | **Code 2** | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| | Optional | Code 2 | AgNi + 5 µ Au |
| Rated Load | | | 5 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max (same polarity) | | | 250 V |
| AC load (Fig 1) | | | 1250 VA |
| DC load | | | see Fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 1.2 VA (AC)/1 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 174 | 50 | 12 | 148 | 81 |
| 48 | 686 | 25 | 24 | 594 | 40 |
| 115 | 4K3 | 10.4 | 48 | 2K3 | 21 |
| 230 | 18K6 | 5.2 | 110 | 11K4 | 11 |

**Insulation** Volt rms / 1 min

| | |
|---|---|
| Contact open | 1000 V |
| Contact/contact | 2 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 3 ms |
| Release time/bounce time | 6 ms/≤ 1 ms |
| Mechanical life ops | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

**Product References**

| | | |
|---|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, 230 (240)** | **C9-A41/AC ... V** | **C9-A42/AC ... V** |
| **LED** | **C9-A41X/AC ... V** | **C9-A42X/AC ... V** |
| **VDC 12, 24, 48, 110** | **C9-A41/DC ... V** | **C9-A42/DC ... V** |
| **LED** | **C9-A41X/DC ... V** | **C9-A42X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C9-A41DX/DC 24 V** | **C9-A42DX/DC 24 V** |
| **Polarity and free wheeling diode** | **C9-A41FX/DC ... V** | **C9-A42FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C9-A41BX/UC ... V** | **C9-A42BX/UC ... V** |

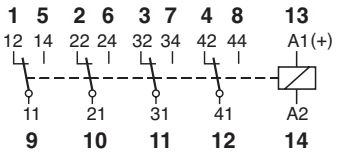
Other voltages on request

"..." List Coil Voltage to complete Product References

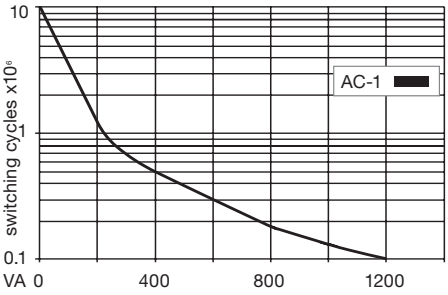
**Accessories** (See also Section Sockets)

| | |
|---|---|
| Socket: | **S9-M, S9-P** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |

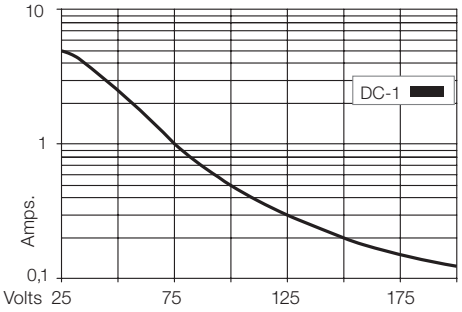
### Connection diagram



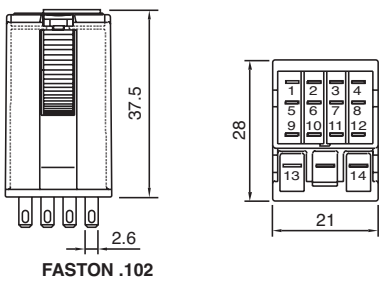

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




FASTON .102

### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

Maximum voltage between two separate circuits on neighbouring contacts: 150 V
**Not permitted:** 24 V DC next to 230 V AC, 230 V AC next to neutral, 230 V AC next to 230 V AC of different phases
**Permitted:** 230 V AC next to 230 V AC same phase

# C9-E2x

## 2 pole | changeover contact | sensitive coil | plug-in Faston

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **5 A/250 V** | **AC-1** | **5 A/30 V** | **DC-1** |
| **Recommended minimum contact load** | | | **10 mA/10 V** | **Code 1** | | |

**Contacts**

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| Rated Load | | | 5 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 250 V |
| AC load (Fig 1) | | | 1200 VA |
| DC load | | | see fig. 2 |

**Coil**

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage | ≥ 0.1 x $U_N$ |
| Nominal power | 0.8 VA (AC)/0.5 W (DC) |

**Coil table**

| V AC | Ω | mA | VDC | Ω | mA |
|---|---|---|---|---|---|
| 24 | 238 | 33 | 12 | 288 | 42 |
| 48 | 1K | 17 | 24 | 1K1 | 21 |
| 115 | 5K9 | 7 | 48 | 4K6 | 10 |
| 230 | 23K9 | 3.5 | 110 | 24K2 | 4.5 |

**Insulation**

| | |
|---|---|
| | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2.5 kV |
| Contact/coil | 2.5 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Pick-up time/bounce time | 10 ms/≤ 3 ms |
| Release time/bounce time | 6 ms/≤ 1 ms |
| Mechanical life | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 40 g |

**Product References**

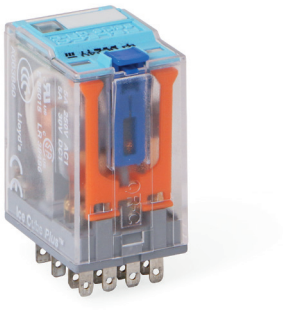
| | |
|---|---|
| **V AC 50 Hz/60 Hz: 24, 48, 115, 230 (240)** | **C9-E21/AC ... V** |
| **LED** | **C9-E21X/AC ... V** |
| **VDC 12, 24, 48, 110, 220** | **C9-E21/DC ... V** |
| **LED** | **C9-E21X/DC ... V** |
| **Free wheeling diode (only 24 DC)** | **C9-E21DX/DC 24 V** |
| **Polarity and free wheeling diode** | **C9-E21FX/DC ... V** |
| **AC/DC bridge rectifier 24 V, 48 V, 60 V** | **C9-E21BX/UC ... V** |

Other voltages on request

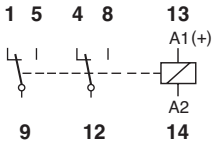
"..." List Coil Voltage to complete Product References

**Accessories** (See also Section Sockets)

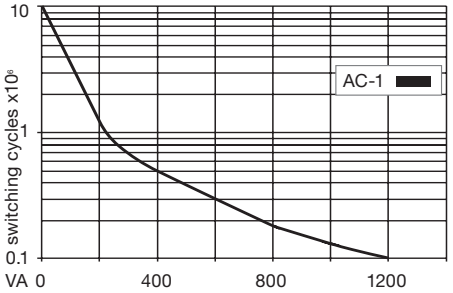
| | |
|---|---|
| Socket: | **S9-M, S9-P** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |



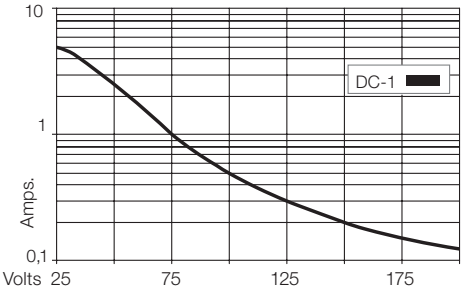
### Connection diagram



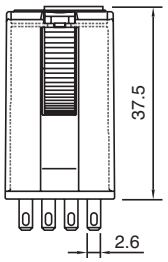

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions

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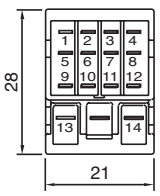



### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947

Maximum voltage between two separate circuits on neighbouring contacts: 150 V
**Not permitted:** 24 V DC next to 230 V AC, 230 V AC next to neutral, 230 V AC next to 230 V AC of different phases
**Permitted:** 230 V AC next to 230 V AC same phase

# C9-R2x

## 2 pole | changeover contact | retentive | plug-in Faston

| | | | | | | |
|---|---|---|---|---|---|---|
| **Maximum contact load** | | | **5 A/120V** | **AC-1** | **5 A/30 V** | **DC-1** |
| **Recommended minimum contact load** | | | **10 mA/10 V** | | | |

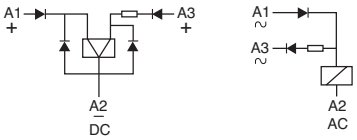
### Contacts

| | | | |
|---|---|---|---|
| Material | Standard | Code 1 | AgNi + 0.2 µ Au |
| Rated Load | | | 5 A |
| Switch-on current max. (20 ms) | | | 15 A |
| Switching voltage max. | | | 120V |
| AC load | | | 600 VA |
| DC load | | | see Fig. 2 |

### Coil

| | |
|---|---|
| Coil resistance | see table; tolerance ± 10 % |
| ON pulse power | 1.2 VA/W |
| OFF pulse power | 0.3 VA/W |
| 1 winding for AC, 2 winding for DC | |

### Internal Diagram:




### Coil table

| V AC | mA ON | mA OFF | VDC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 50 | 8 | 12 | 100 | 25 |
| 48 | 25 | 4 | 24 | 50 | 12 |
| 115 | 10 | 2 | 48 | 25 | 6 |
| 230 | 5 | 1 | 60 | 20 | 5 |

### Insulation

| | |
|---|---|
| **Insulation** | Volt rms / 1 min |
| Contact open | 1000 V |
| Contact/contact | 2 kV |
| Contact/coil | 2 kV |
| Insulation resistance at 500 V | ≥1 GΩ |
| Insulation, IEC 61810-1 | 2.5 kV |

### Specifications

| | |
|---|---|
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Minimum pulse ON/OFF | 50 ms |
| Mechanical life | AC: 10 Mill./DC: 20 Mill. |
| DC voltage endurance at rated load | ≥100 000 switching cycles |
| Switching frequency at rated load | ≤ 1200/h |
| Weight | 43 g |

### Product References

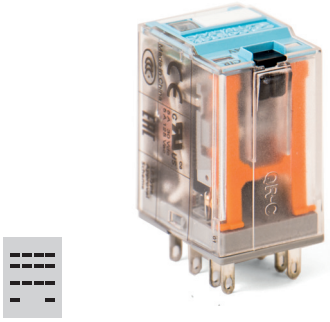
| | |
|---|---|
| **AC 50 Hz/60 Hz: 24, 48, 115, 230** | **C9-R21/AC ... V** |
| **DC 12, 24, 48, 60** | **C9-R21/DC ... V** |

Other voltages on request

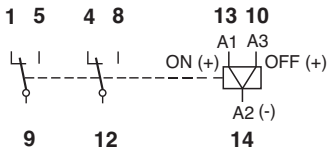
"..." List Coil Voltage to complete Product References

### Accessories (See also Section Sockets)

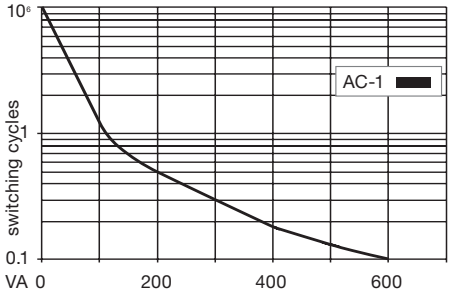
| | |
|---|---|
| Socket: | **S9-M, S9-P** |
| Push only: | **S9-OP (BAG 10 PCS)** |
| Blanking Plug: | **S9-NP (BAG 10 PCS)** |



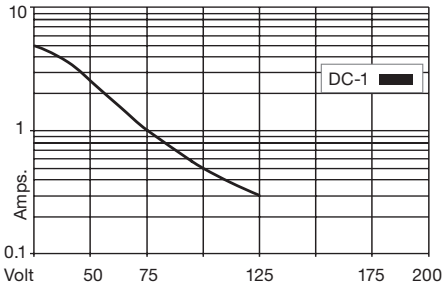
### Connection diagram



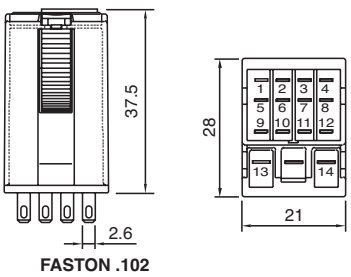

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions

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### Technical approvals, conformities

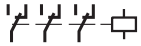
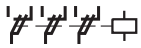
IEC/EN 61810; IEC/EN 60947

Maximum voltage between two separate circuits on neighbouring contacts: 150 V
**Not permitted:** 24 V DC next to 230 V AC, 230 V AC next to neutral, 230 V AC next to 230 V AC of different phases
**Permitted:** 230 V AC next to 230 V AC same phase

## Notes

## Notes

# 1.4 Extended Lifetime Relays

| Application | Types | Pins | Contacts | Contact ratings | Socket |
|---|---|---|---|---|---|
| **C3x Series** | | | | | |
| Long Life, Railway | C31 | |  | 10 A / 250 V | S3 |
| Long Life, reliable switching of lower loads, Railway | C32 | |  | 5 A / 250 V | S3 |

# C31

## 3 pole | changeover contact | plug-in

| | |
|---|---|
| **Maximum contact load** | **10 A / 250 V AC-1**<br>**10 A / 30 V DC-1** |
| **Recommended minimum contact load** | **50 mA / 10 V** |

**Contacts**

| | |
|---|---|
| Material | AgCuNi |
| Rated operational current | 10 A |
| Max. inrush current (20 ms) | 40 A |
| Rated switching voltage | 250 V |
| Max. AC load | 2500 VA AC-1 |
| Max. DC load 30V / 230V DC-1 (Fig. 2) | 300W / 90 W |

**Coils** (Values are valid at 20 °C)

| | |
|---|---|
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage AC / DC | > 0.15 x $U_N$ / > 0.05 x $U_N$ |
| Nominal power AC / DC | 2.5 VA / 1.2 W |

**Coil Table**

| $V_N$ AC | Ω | mA | $V_N$ DC | Ω | mA |
|---|---|---|---|---|---|
| **24** | 52 | 104 | **12** | 115 | 104 |
| **48** | 240 | 55 | **24** | 480 | 50 |
| **115** | 1350 | 23 | **48** | 1850 | 26 |
| **230** | 5600 | 11.5 | **110** | 9000 | 12 |
| | | | **220** | 29000 | 7.6 |

Types with LED indicator take additional 5 … 10 mA @ < 80 V

**Insulation**

| | |
|---|---|
| Contact Open | 1.5 kV rms / 1 min |
| Contact Contact | 1.5 kV rms / 1 min |
| Contact Coil | 2 kV rms / 1 min |

**Specifications**

| | |
|---|---|
| Ambient temperature operation, storage | -40 … +70 °C (no ice) |
| Pickup time AC / DC | 3 … 10 ms / ≤ 12 ms |
| Release time AC / DC | 2 … 15 ms / ≤ 3.5 ms |
| Bounce time NO contact AC / DC | 3 … 6 ms / approx. 3.5 ms |
| Mechanical life | ≥ 100 000 000 operations |
| Operating frequency at nominal load | ≤ 360 operations / h |
| Weight | 80 g |

**Product References**

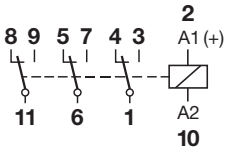
| | |
|---|---|
| **AC 50 Hz / 60 Hz: 24, 48, 115, 230 (240)** | **C31/AC…V** |
| **LED** | **C31L/AC…V** |
| **DC: 12, 24, 48, 110, 220** | **C31/DC…V** |
| **Free wheeling diode** | **C31D/DC…V** |
| **LED + Free wheeling diode** | **C31DL/DC…V** |
| **Railway EN 50155** | **C31D/R DC…V** |

"…" List Coil Voltage to complete Product References

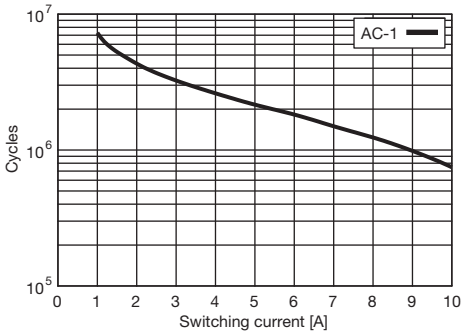
**Accessories**

| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

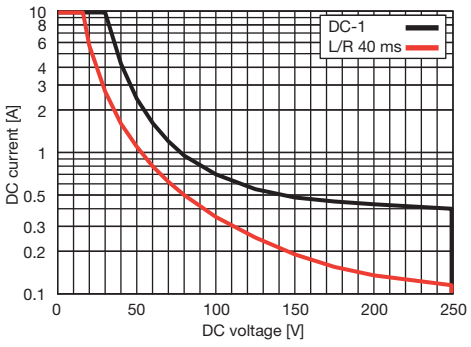
### Connection diagram



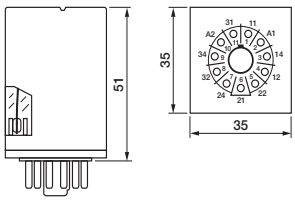

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947; IEC/EN 50155
IEC/EN 61373; IEC/EN 45545
NF F 16-101/102

# C32

## 3 pole | changeover twin contact | plug-in



| | |
|---|---|
| **Maximum contact load** | **6 A / 250 V AC-1** |
| | **6 A / 30 V DC-1** |
| **Recommended minimum contact load** | **1 mA / 5 V** |

### Contacts

| | |
|---|---|
| Material | AgCuNi |
| Rated operational current | 6 A |
| Max. inrush current (20 ms) | 15 A |
| Rated switching voltage AC-1 | 250 V |
| Max. AC load | 1500 VA AC-1 |
| Max. DC load 30V / 230V DC-1 (Fig. 2) | 200 W / 90 W |

### Coils (Values are valid at 20 °C)

| | |
|---|---|
| Pick-up voltage | ≤ 0.8 x $U_N$ |
| Release voltage AC / DC | > 0.15 x $U_N$ / > 0.05 x $U_N$ |
| Nominal power AC / DC | 2.5 VA / 1.2 W |

### Coil Table

| $V_N$ AC | Ω | mA | $V_N$ DC | Ω | mA |
|---|---|---|---|---|---|
| **24** | 52 | 104 | **12** | 115 | 104 |
| **48** | 240 | 55 | **24** | 480 | 50 |
| **115** | 1350 | 23 | **48** | 1850 | 26 |
| **230** | 5600 | 11.5 | **110** | 9000 | 12 |
| | | | **220** | 29000 | 7.6 |

Types with LED indicator take additional 5 … 10 mA @ < 80 V

### Insulation

| | |
|---|---|
| Contact Open | 1.5 kV rms / 1 min |
| Contact Contact | 1.5 kV rms / 1 min |
| Contact Coil | 2 kV rms / 1 min |

### Specifications

| | |
|---|---|
| Ambient temperature operation, storage | -40 … +70 °C (no ice) |
| Pickup time AC / DC | 3 … 10 ms / ≤ 12 ms |
| Release time AC / DC | 2 … 15 ms / ≤ 3.5 ms |
| Bounce time NO contact AC / DC | 3 … 6 ms / approx. 3.5 ms |
| Mechanical life | ≥ 100 000 000 operations |
| Operating frequency at nominal load | ≤ 360 operations / h |
| Weight | 80 g |

### Product References

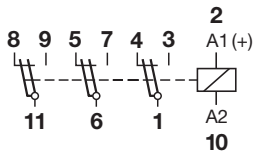
| | |
|---|---|
| **AC 50 Hz / 60 Hz: 24, 48, 115, 230 (240)** | **C32/AC…V** |
| **LED** | **C32L/AC…V** |
| **DC: 12, 24, 48, 110, 220** | **C32/DC…V** |
| **Free wheeling diode** | **C32D/DC…V** |
| **LED + Free wheeling diode** | **C32DL/DC…V** |
| **Railway EN 50155** | **C32D/R DC…V** |

" …" List Coil Voltage to complete Product References

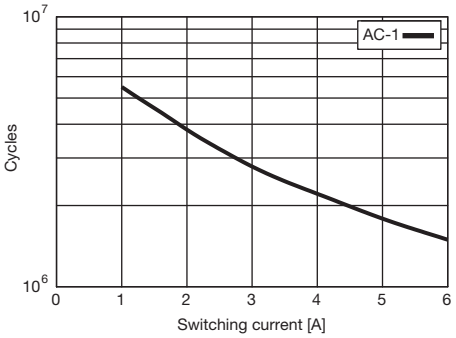
### Accessories

| | |
|---|---|
| Socket: | **S3-B, S3-S, S3-L, S3-PO, S3-MB0, S3-MB1** |
| Blanking Plug: | **SO-NP (BAG 10 PCS)** |

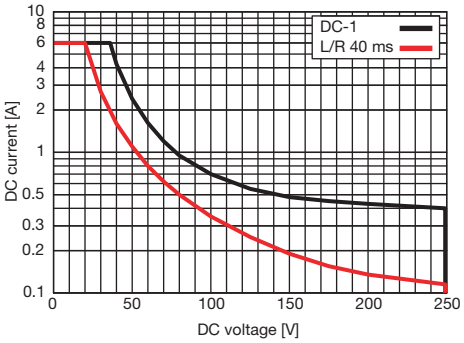
### Connection diagram



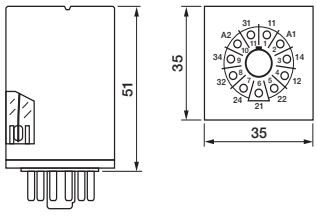

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 61810; IEC/EN 60947; IEC/EN 50155
IEC/EN 61373; IEC/EN 45545
NF F 16-101/102

## Notes

# 1.5 Solid State Relays

| Application | Types | Pins | Contacts | AC ratings | DC ratings | Socket |
|---|---|---|---|---|---|---|
| **CSS Series** | | | | | | |
| AC Solid state relay, Instantaneous switching | CSS-I | | | 3 A / 250 V | - | S10 |
| AC Solid state relay synch. to zero crossing | CSS-Z | | | 3 A / 250 V | - | S10 |
| NPN Solid state relay | CSS-N | | | - | 6 A / 48 V | S10 |
| PNP Solid state relay | CSS-P | | | - | 6 A / 48 V | S10 |
| **CRINT Series** | | | | | | |
| DC solid state switch | CRINT-1x5 | | | - | 2 A / 24 V | - |
| AC solid state switch | CRINT-1x8 | | | 1 A / 240 V | - | - |

# CSS-I

## 1 pole | normally open solid state AC | plug-in Faston

| | |
|---|---|
| **Output** | **1 N/O contact** |
| **Operating range** | **3 A, 24 ... 250 V AC, 50/60 Hz** |
| **Minimum contact load** | **35 mA** |

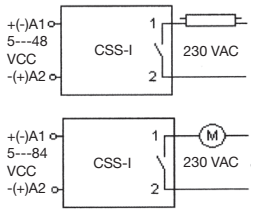
| | |
|---|---|
| **Control circuit** | |
| Input voltage range | 5 ... 48 VDC |
| Input current | 10 mA |

| | |
|---|---|
| **Output circuit** | Instantaneous |
| Max. output current | 3 A |
| Min. output current | 35 mA |
| Output voltage range | 24...250 V AC |
| Inrush current | 150 A/10 ms |
| Residual current | 1 mA |
| $I^2t$ value | 210 $A^2s$ |

| | |
|---|---|
| **Specifications** | |
| Ambient temperature operation/storage | -40 ... 70 °C /-40 ... 85 °C (no ice) |
| Pick-up time | 0.06 ms |
| Release time | 0.06 ms |
| Weight | 28 g |

**Applications**

It is specially suitable to switch inductive loads up to 3A/250 V AC.
For switching loads with a high inrush or overcurrent as transformers, motors or fluorescents, the maximum output current will limit to 2 A.



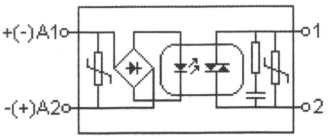

**Product References**

| | |
|---|---|
| **VDC 5–48** | **CSS-I12X/DC5–48V** |

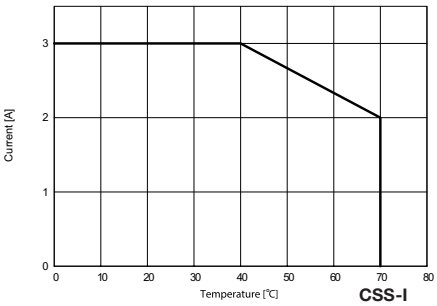
**Accessories**

| | |
|---|---|
| Socket: | **S10, S10-P** |

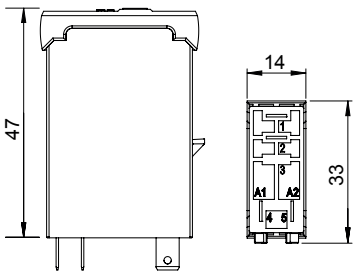
**Fig. 1 CSS-I diagram**




**Tab. 2 AC derating curve**




**Dimensions**




**Technical approvals, conformities**

IEC/EN 60947

# CSS-Z

## 1 pole | normally open solid state AC | plug-in Faston

| | |
|---|---|
| **Output** | **1 N/O contact** |
| **Operating range** | **3 A, 24 ... 250 V AC, 50/60 Hz** |
| **Minimum contact load** | **35 mA** |

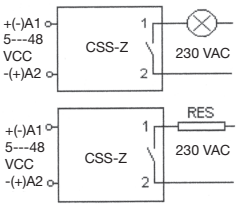
| | |
|---|---|
| **Control parameters** | |
| Input voltage range | 5 ... 48 VDC |
| Input current | 10 mA |

| | |
|---|---|
| **Output** | Synchronized zero |
| Max. output current | 3 A |
| Min. output current | 35 mA |
| Output voltage range | 24 ... 250 V AC |
| Inrush current | 150 A/10 ms |
| Residual current | 1 mA |
| $I^2t$ value | 210 $A^2s$ |

| | |
|---|---|
| **Specifications** | |
| Ambient temperature operation/storage | -40.…70 °C /-40 ... 85 °C (no ice) |
| Pick-up time | 10 ms |
| Release time | 10 ms |
| Weight | 28 g |

**Applications**

Switches ohmic AC loads up to 3 A/250 V AC in the zero-point of the tension and avoids any over-current peak in the connection.
Suitable for switching resistors, incandescent lamps, signalling equipment, etc.  Not suitable for inductive loads



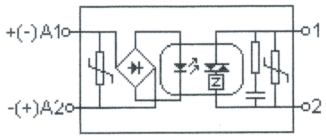

**Product References**

| | |
|---|---|
| **VDC 5–48** | **CSS-Z12X/DC5–48V** |

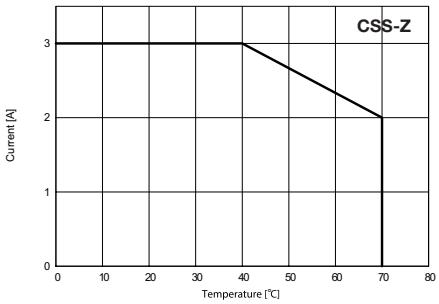
**Accessories**

| | |
|---|---|
| Socket: | **S10, S10-P** |

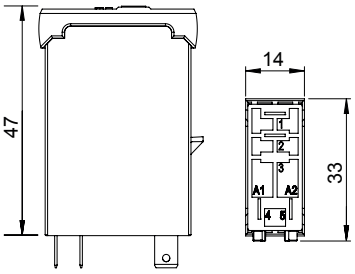
**Fig. 1 CSS-Z diagram**




**Tab. 2 AC derating curve**




**Dimensions**




**Technical approvals, conformities**

IEC/EN 60947

# CSS-N

## 1 pole | normally open solid state DC | plug-in Faston

| | |
|---|---|
| **Output** | 1 N/O contact |
| **Operating range** | **6 A, 5 ... 48 VDC** |
| **Minimum contact load** | **1 mA** |

**Control parameters**

| | |
|---|---|
| Input voltage range | 5 ... 48 VDC |
| Input current | 4 mA |

**Output**

| | |
|---|---|
| Type | NPN |
| Max. output current | 6 A |
| Output voltage range | 5 ... 48 VDC |
| Switch-on current max. | 40 A / 10 ms |
| Max. voltage drop | ≤ 0.14 VDC |
| Residual current | 0.1 mA |

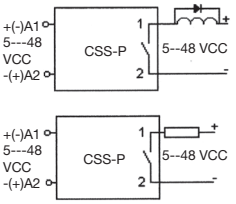
**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ... 70 °C/-40 ... 85 °C (no ice) |
| Test voltage between input/output | 4 kV rms/1 min. |
| Turn-on delay | 0.06 ms |
| Release delay | 0.06 ms |
| Weight | 28 g |

**Applications**

For switching heating elements, electro valves, motors, PLC input/output signals, solenoids, incandescent and fluorescent lamps, etc. (up to 48 VDC).

**Inductive loads must be shunted with an antiparallel diode.**



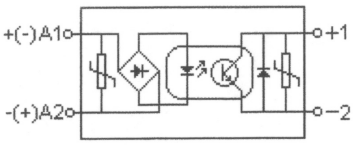

**Product References**

| | |
|---|---|
| **VDC 5–48** | **CSS-N13X/DC5–48V** |

**Accessories**

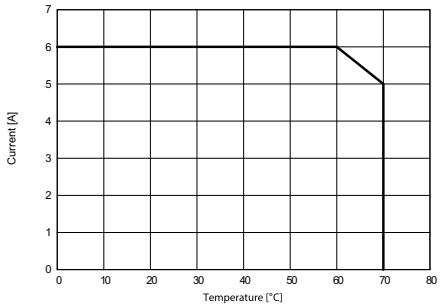
| | |
|---|---|
| Socket: | **S10, S10-P** |

**Fig. 1 CSS-N diagram**

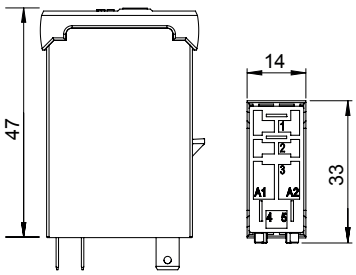



Negative common

**Tab. 2 AC derating curve**




**Dimensions**




**Technical approvals, conformities**

IEC/EN 60947

# CSS-P

## 1 pole | normally open solid state DC | plug-in Faston

| | |
|---|---|
| **Output** | 1 N/O contact |
| **Operating range** | **6 A, 5 ... 48 VDC** |
| **Minimum contact load** | **1 mA** |

**Control parameters**

| | |
|---|---|
| Input voltage range | 5 ... 48 VDC |
| Input current | 4 mA |

**Output**

| | |
|---|---|
| Type | PNP |
| Max. output current | 6 A |
| Output voltage range | 5 ... 48 VDC |
| Max. switch-on current | 40 A / 10 ms |
| Max. voltage drop | 0.14 VDC |
| Residual current | 0.1 mA |

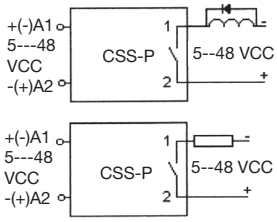
**Specifications**

| | |
|---|---|
| Ambient temperature operation/storage | -40 ... 70 °C / -40 ... 85 °C (no ice) |
| Turn-on delay | 0.06 ms |
| Release delay | 0.06 ms |
| Weight | 28 g |

**Applications**

For switching heating elements, electro valves, motors, PLC input/output signals, solenoids, incandescent and fluorescent lamps, etc. (up to 48 VDC).

**Inductive loads must be shunted with an antiparallel diode.**



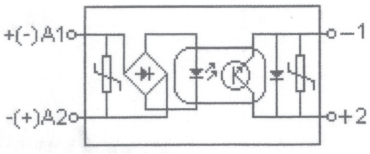

**Product References**

| | |
|---|---|
| **VDC 5–48** | **CSS-P13X/DC5–48V** |

**Accessories**

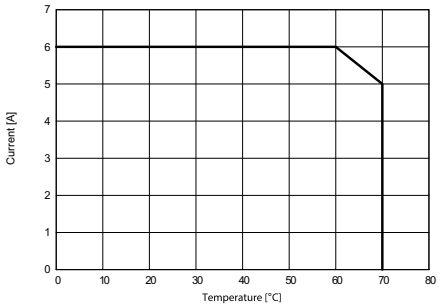
| | |
|---|---|
| Socket: | **S10, S10-P** |

### Fig. 1 CSS-P diagram

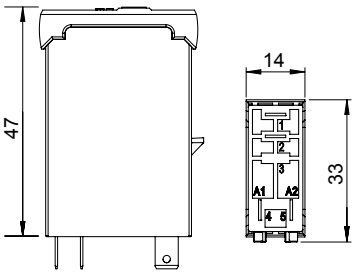



Positive common

### Tab. 2 AC derating curve




### Dimensions




### Technical approvals, conformities

IEC/EN 60947

# CRINT 1x5 series

## 1 pole | normally open solid state DC

| | |
|---|---|
| **Max. contact load** | **2 A, 24 V DC-1** |
| **Contact** | |
| Type | 1 NO (Solid state DC) |
| Material | Mosfet |
| Switching current $I_{TH}$ | 2 A 24 V DC |
| Recommended minimal load | 20 mA / 5 V |
| Peak inrush current | 48 A/10 ms |
| **Coil** | |
| Operation voltage AC 50/60 Hz / DC | 0.8 ... 1.25 $U_N$ |
| Nominal power DC / AC | 160 / — mW |
| **Insulation** | |
| Test voltage I / O | 2.5 kV rms / 1 min |
| Pollution degree | 3 |
| Over voltage category | III |
| Open contact | 1000 Vrms dielectric strength 1 min |
| Standard | EN61810-5 |
| **Specifications** | |
| Ambient temperature: operation / storage | -30 … +70 °C / -40 … +85 °C (no ice) |
| Typical response time @ $V_n$ | 1 ms |
| Typical release time @ $V_n$ | 1 ms |
| Cond. cross section screw terminal | 2.5 mm² |
| Cond. cross section spring cage | 0.75 … 2.5 mm² |
| Protection degree | IP 20 |
| Mounting position | any, TS-35 or Back Panel Mounting |
| Housing material | Polyamide PA6 |

### Product References

Screw terminal: **CRINT-C115/UC...V**

Cage clamp terminal: **CRINT-C125/UC...V**

"..." List Coil Voltage to complete Product References

**UC12V**
**UC24V**
**UC48V**
**UC60V**
**UC110-125V**
**UC220-240V**

### Accessories

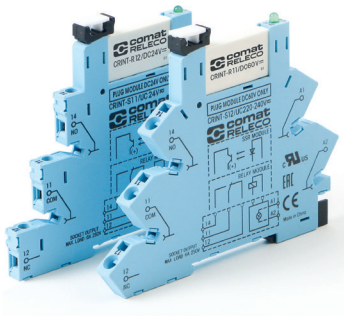
Jumper link:
blue: **CRINT-BR20-BU (BAG 5 PCS)**
red: **CRINT-BR20-RD (BAG 5 PCS)**
black: **CRINT-BR20-BK (BAG 5 PCS)**

Label plate: **CRINT-LAB (BAG 4x16 PCS)**
Spacer: **CRINT-SEP (BAG 5 PCS)**

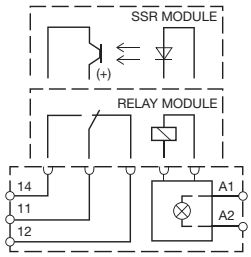
Replacement relays:
**CRINT-R15/DC...V**
"..." List Coil Voltage to complete Product References

*60V Relay used for all sockets with a nominal voltage higher or equal 60V

**DC12V**
**DC24V**
**DC48V**
**DC60V***



### Connection diagram

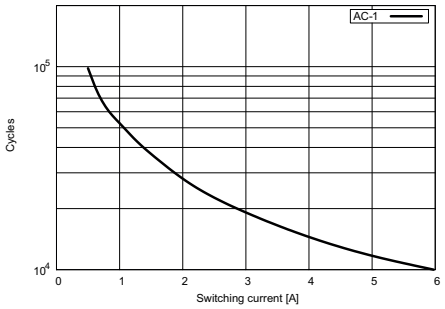



**Relay**
- NO / Solid-state DC
- NO / Solid-state AC

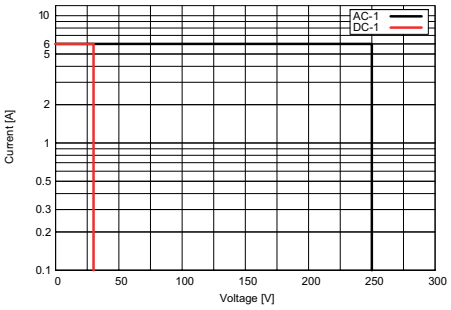
**Relay**
- AgSnO2
- AgSnO2 + 3µ Au

**Socket**
-Screw terminal
-Cage clamp terminal

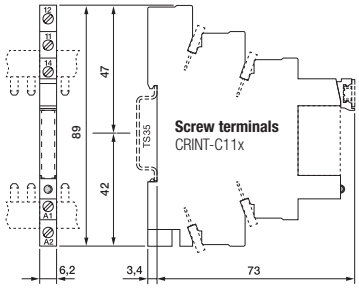
### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 60810

# CRINT 1x8 series

## 1 pole | normally open solid state AC

| | |
|---|---|
| **Contact** | |
| Type | 1 NO (Solid state AC) |
| Material | Triac |
| Switching current $I_{TH}$ | 1 A 240 V AC |
| Recommended minimal load | 22 mA / 12 V |
| Peak inrush current | 80 A/10 ms |
| **Coil** | |
| Operation voltage AC 50/60 Hz / DC | 0.8 ... 1.25 $U_N$ |
| Nominal power DC/AC | 150 / — mW |
| **Insulation** | |
| Test voltage I / O | 2.5 kV rms / 1 min |
| Pollution degree | 3 |
| Over voltage category | III |
| Open contact | 1000 Vrms dielectric strength 1 min |
| Standard | EN61810-5 |
| **Specifications** | |
| Ambient temperature: operation / storage | -30 … +70 °C / -40 … +85 °C (no ice) |
| Typical response time @ $V_n$ | 1 ms |
| Typical release time @ $V_n$ | 1 ms |
| Cond. cross section screw terminal | 2.5 mm² |
| Cond. cross section spring cage | 0.75 … 2.5 mm² |
| Protection degree | IP 20 |
| Mounting position | any, TS-35 or Back Panel Mounting |
| Housing material | Polyamide PA6 |

**Product References**

Screw terminal: **CRINT-C118/UC...V**

Cage clamp terminal: **CRINT-C128/UC...V**

"..." List Coil Voltage to complete Product References

**UC12V**
**UC24V**
**UC48V**
**UC60V**
**UC110-125V**
**UC220-240V**

**Accessories**

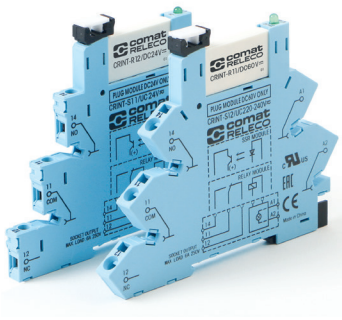
Jumper link:
blue: **CRINT-BR20-BU (BAG 5 PCS)**
red: **CRINT-BR20-RD (BAG 5 PCS)**
black: **CRINT-BR20-BK (BAG 5 PCS)**

Label plate: **CRINT-LAB (BAG 4x16 PCS)**
Spacer: **CRINT-SEP (BAG 5 PCS)**

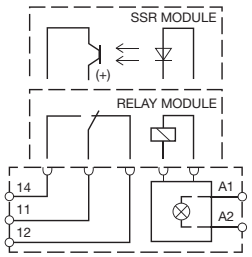
Replacement relays:
**CRINT-R18/DC...V**
"..." List Coil Voltage to complete Product References

*60V Relay used for all sockets with a nominal voltage higher or equal 60V

**DC12V**
**DC24V**
**DC60V***



### Connection diagram

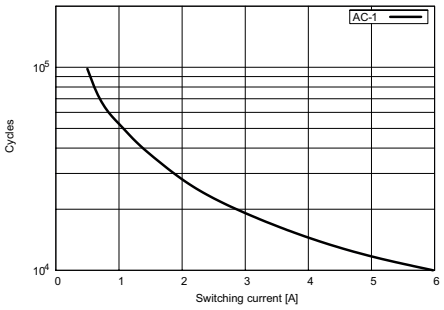



**Relay**
- NO / Solid-state DC
- NO / Solid-state AC

**Relay**
- AgSnO2
- AgSnO2 + 3µ Au

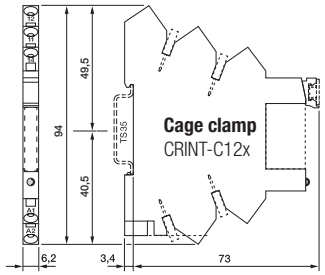
**Socket**
-Screw terminal
-Cage clamp terminal

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve

### Dimensions




### Technical approvals, conformities

IEC/EN 60810

## Notes

# 1.6 Installation Relays

| Application | Types | Contacts | AC ratings | DC ratings |
|---|---|---|---|---|
| **CHI Series** | | | | |
| 1-Pole High Inrush Relay | CHI14 | 1 | 16 A / 250 V | - |
| 3-Pole High Inrush Relay | CHI34 | 3+1 | 16 A / 250 V | - |

# CHI14

## 1-Pole High Inrush Relay

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** |

### Contacts

| | |
|---|---|
| Material | W / $AgSnO_2$ |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 165 A / 20 ms |
| | 800 A / 200 µs |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (A1, B1) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | 16.8 … 250 V |
| Power consumption | 1.2 VA / 0.43 W |
| Frequency range | 16 … 60 Hz |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |

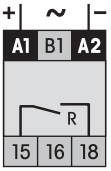
### General Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Mechanical life of contact | 5 x 1 000 000 operations |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan |
| Weight | 70 g |

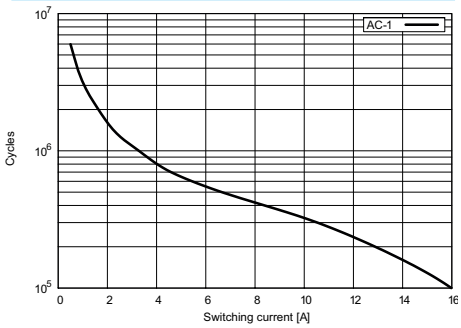
### Product References

| | |
|---|---|
| **UC (AC/DC) 15…60 Hz** | **CHI14/UC24-240V** |

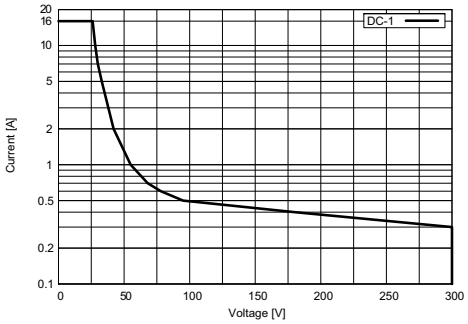
### Connection diagram



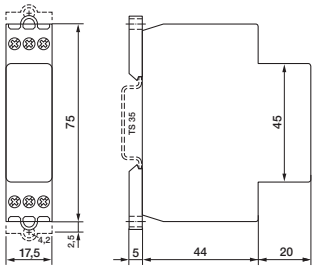

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

EN 50155, EN 60730

# CHI34

## 3-Pole High Inrush Relay

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** |

**Contacts**

| | |
|---|---|
| Number of contacts | 3 |
| Material | W / $AgSnO_2$ |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 165 A / 20 ms |
| | 800 A / 200 µs |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |

**Auxiliary Contacts**

| | |
|---|---|
| Number of contacts | 1 |
| Nominal current at 25° C / 60° C | 90 mA / 60 mA |
| Inrush current | 1 A / 100 µs |
| Nominal voltage AC / DC | 24 V |
| Contact Material | Semiconductor |

**Supply $U_B$ (1 – N)**

| | |
|---|---|
| Nominal operating voltage (AC / DC) | 110…240 V |
| Operating voltage (AC / DC) | 80…250 V |
| Frequency range | 47…63 Hz |
| Power consumption | 3.45 VA |

**Power supply- and control input**

| | |
|---|---|
| Nominal voltage (A1, A2) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | 16.8 … 250 V |
| Power consumption | 30 VA / 30 mW |
| Frequency range | 47…63 Hz |

**Insulation**

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |
| Test voltage between contacts | 2.5 kV rms / 1 min |

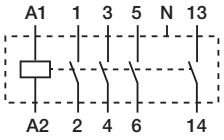
**General Specifications**

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -25 …60 °C (no ice) |
| Mechanical life of contact | 5 x 1 000 000 operations |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.6 Nm |
| Housing material | Lexan |
| Weight | 125 g |

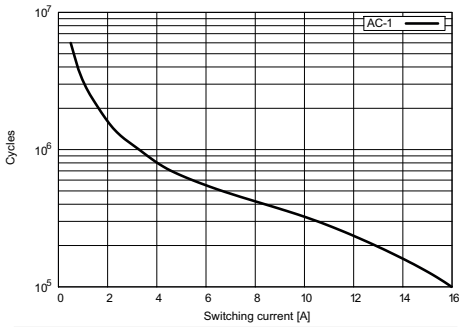
**Product References**

| | |
|---|---|
| **UC (AC/DC) 47…63 Hz** | **CHI34/UC24-240V** |

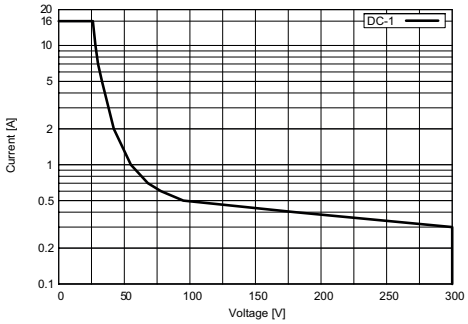
### Connection diagram



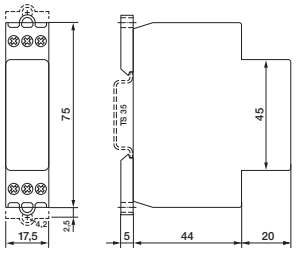

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

EN 61000-6-3; EN 61000-6-2

## Notes

# 1.8 Solid State Contactors

| Application | Types | AC ratings | DC ratings |
|---|---|---|---|
| **CC1 Series** | | | |
| 15 A \| Single phase 230 V AC | CC1H215 | 15 A / 230 V AC | - |
| 30 A \| Single phase 230 V AC | CC1H230 | 30 A / 230 V AC | - |
| 50 A \| Single phase 230 V AC | CC1H250 | 50 A / 230 V AC | - |
| 15 A \| Single phase 400 V AC | CC1H415 | 15 A / 400 V AC | - |
| 30 A \| Single phase 400 V AC | CC1H430 | 30 A / 400 V AC | - |
| 50 A \| Single phase 400 V AC | CC1H450 | 50 A / 400 V AC | - |
| **CC3 Series** | | | |
| 10 A \| Triple phase 400 V AC | CC3H410 | 10 A / 400 V AC | - |
| 20 A \| Triple phase 400 V AC | CC3H420 | 20 A / 400 V AC | - |
| **CCR Series** | | | |
| 10 A \| Three phase reversing contactor 400 V AC | CCR3H410 | 10 A / 400 V AC | - |
| **CPC Series** | | | |
| 30 A \| Single phase 400 V AC | CPC1230 | 30 A / 400 V AC | - |
| 50 A \| Single phase 230 V AC | CPC1250 | 50 A / 230 V AC | - |
| 30 A \| Single phase 400 V AC | CPC1430 | 30 A / 400 V AC | - |
| 50 A \| Single phase 400 V AC | CPC1450 | 50 A / 400 V AC | - |

# CC1H215

## 15 A | Single phase 230 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 230 V AC |
| Output voltage range | 12 – 240 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1000 Vrrm |
| Peak reverse voltage | 1100 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 15 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 15 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

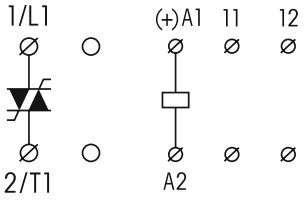
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 6 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 270 g |

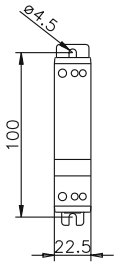
### Product References

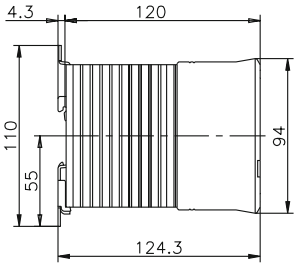
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H215** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC1H230

## 30 A | Single phase 230 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 230 V AC |
| Output voltage range | 12 – 240 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1000 Vrrm |
| Peak reverse voltage | 1100 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 30 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 20 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

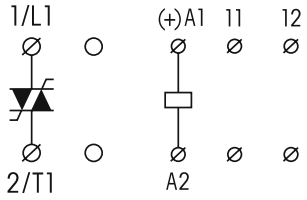
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 10 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

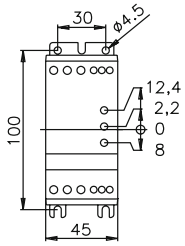
### Product References

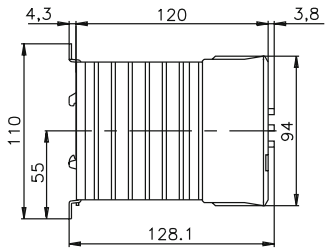
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H230** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC1H250

## 50 A | Single phase 230 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 230 V AC |
| Output voltage range | 12 – 240 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1000 Vrrm |
| Peak reverse voltage | 1100 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 50 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 20 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

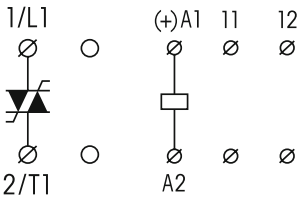
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 10 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 1050 g |

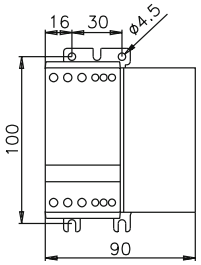
### Product References

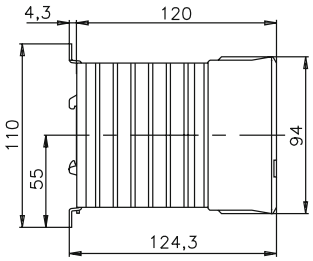
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H250** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC1H415

## 15 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 15 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 15 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

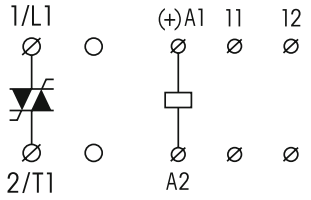
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 6 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 270 g |

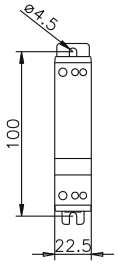
### Product References

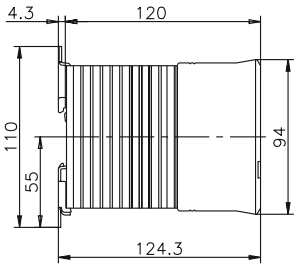
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H415** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC1H430

## 30 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 30 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 20 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

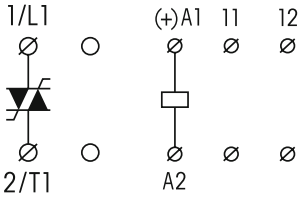
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 6 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

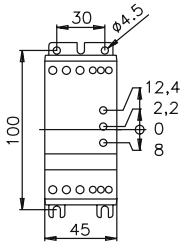
### Product References

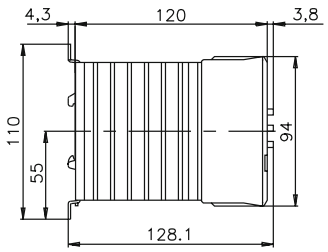
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H430** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC1H450

## 50 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 50 A |
| Operation current AC-3 @ $U_{nom}$ | 15 A |
| Operation current AC-55b @ $U_{nom}$ | 20 A |
| Operation current AC-56a @ $U_{nom}$ | 15 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

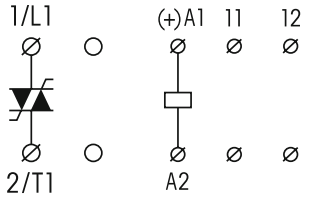
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 10 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 1050 g |

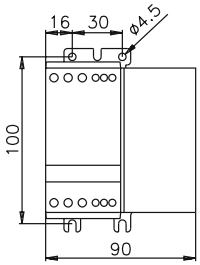
### Product References

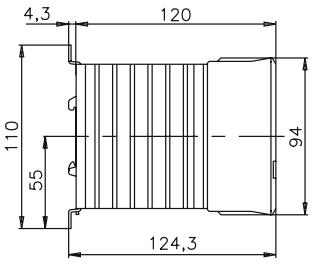
| | |
|---|---|
| Solid State Contactor 1ph. | **CC1H450** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC3H410

## 10 A | Triple phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 3 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 10 A |
| Operation current AC-3 @ $U_{nom}$ | 10 A |
| Operation current AC-55b @ $U_{nom}$ | 10 A |
| Operation current AC-56a @ $U_{nom}$ | 5 A |
| Response/Release time | 20 ms |
| Limit load | 610 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

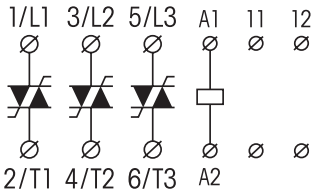
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 6 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

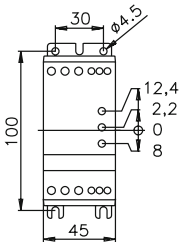
### Product References

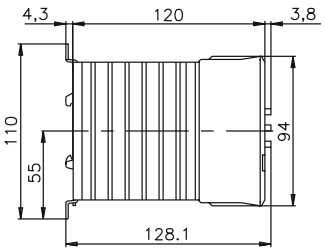
| | |
|---|---|
| Solid State Contactor 3ph. | **CC3H410** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CC3H420

## 20 A | Triple phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 3 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 20 A |
| Operation current AC-3 @ $U_{nom}$ | 10 A |
| Operation current AC-55b @ $U_{nom}$ | 10 A |
| Operation current AC-56a @ $U_{nom}$ | 5 A |
| Response/Release time | 20 ms |
| Limit load | 610 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |
| Min. voltage | 20.4 V AC/DC |
| Max. voltage | 253 V AC/DC |
| Release voltage | 7.2 V AC/DC |
| Max. current | 6 mA |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

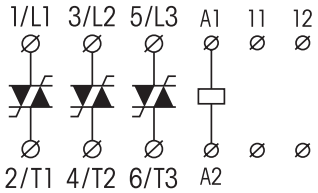
### Specifications

| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 10 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 1050 g |

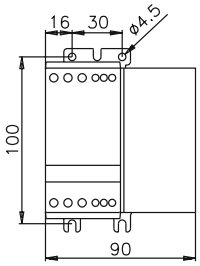
### Product References

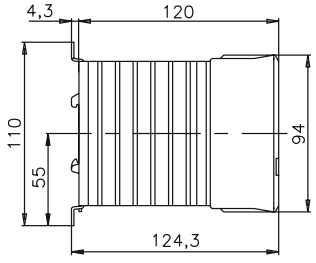
| | |
|---|---|
| Solid State Contactor 3ph. | **CC3H420** |

### Connection diagram




### Dimensions




### Technical approvals, conformities

IEC/EN 60947-4-3

# CCR3H410

## 10 A | Three phase reversing contactor 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 3 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 24 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 50 mA |
| Max. leakage current | 5 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 10 A |
| Operation current AC-53 @ $U_{nom}$ | 10 A |
| Response/Release time | 20 ms |
| Limit load | 610 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 – 230 V AC/DC |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

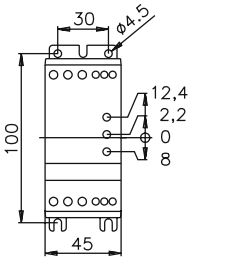
### Specifications

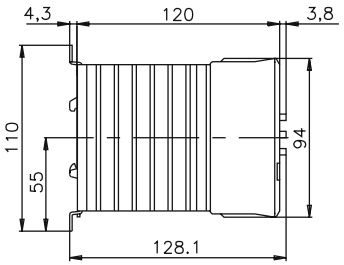
| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

### Product References

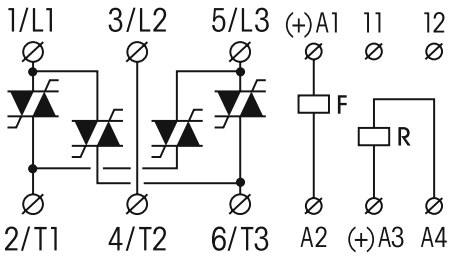
| | |
|---|---|
| Reversing contactor | **CCR3H410** |

## Dimensions




## Connection diagram




## Technical approvals, conformities

IEC/EN 60947-4-2

# CPC1230

## 30 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 230 V AC |
| Output voltage range | 208 – 240 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1000 Vrrm |
| Peak reverse voltage | 1100 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 30 A |
| Operation current AC-3 @ $U_{nom}$ | 15 (non uL) |
| Operation current AC-55b @ $U_{nom}$ | 30 A |
| Operation current AC-56a @ $U_{nom}$ | 30 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 V AC/DC |
| Control signal | 0 – 10 V, 10 – 0 V |
| | 0 – 20 mA, 20 – 0 mA |
| | 4 – 20 mA, 20 – 4 mA |
| Potentiometer | 0 – 10 kΩ, 10 – 0 kΩ |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

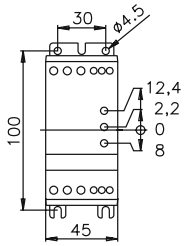
### Specifications

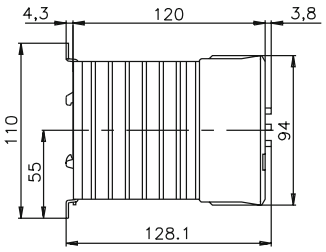
| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

### Product References

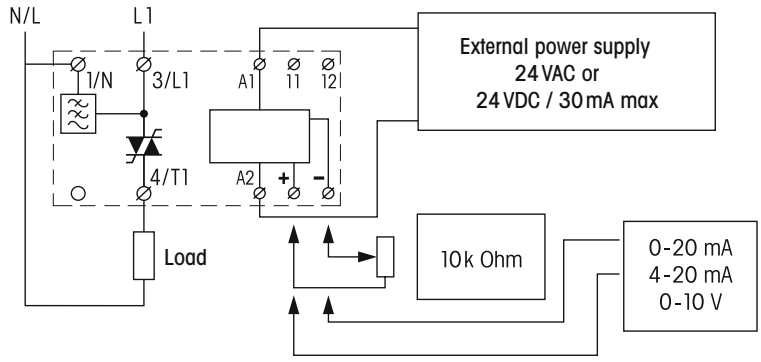
| | |
|---|---|
| Performance Regulator | **CPC1230** |

### Dimensions




### Connection diagram




### Technical approvals, conformities

IEC/EN 60947-4-3

# CPC1250

## 50 A | Single phase 230 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 230 V AC |
| Output voltage range | 208 – 240 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1000 Vrrm |
| Peak reverse voltage | 1100 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 50 A |
| Operation current AC-3 @ $U_{nom}$ | 15 (non uL) |
| Operation current AC-55b @ $U_{nom}$ | 30 A |
| Operation current AC-56a @ $U_{nom}$ | 30 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 V AC/DC |
| Control signal | 0 – 10 V, 10 – 0 V |
| | 0 – 20 mA, 20 – 0 mA |
| | 4 – 20 mA, 20 – 4 mA |
| Potentiometer | 0 – 10 kΩ, 10 – 0 kΩ |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

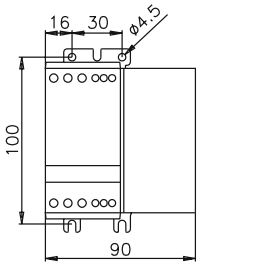
### Specifications

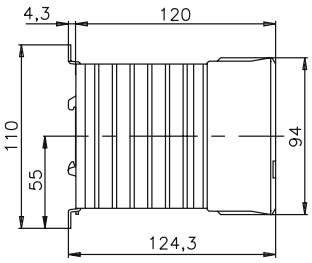
| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

### Product References

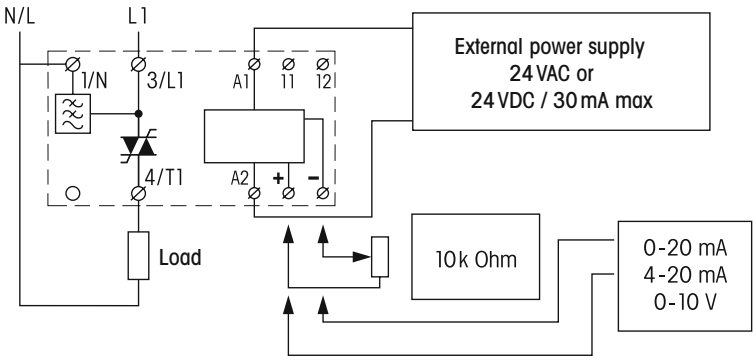
| | |
|---|---|
| Performance Regulator | **CPC1250** |

### Dimensions




### Connection diagram




### Technical approvals, conformities

IEC/EN 60947-4-3

# CPC1430

## 30 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 380 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 30 A |
| Operation current AC-3 @ $U_{nom}$ | 15 (non uL) |
| Operation current AC-55b @ $U_{nom}$ | 30 A |
| Operation current AC-56a @ $U_{nom}$ | 30 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 V AC/DC |
| Control signal | 0 – 10 V, 10 – 0 V |
| | 0 – 20 mA, 20 – 0 mA |
| | 4 – 20 mA, 20 – 4 mA |
| Potentiometer | 0 – 10 kΩ, 10 – 0 kΩ |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

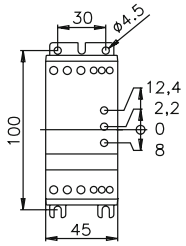
### Specifications

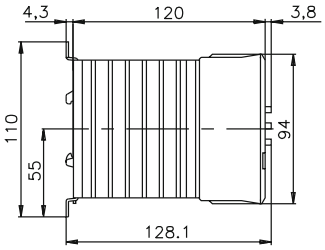
| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 650 g |

### Product References

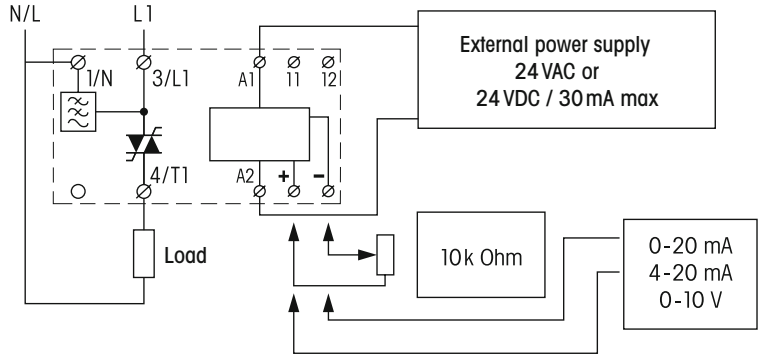
| | |
|---|---|
| Performance Regulator | **CPC1430** |

### Dimensions




### Connection diagram




### Technical approvals, conformities

IEC/EN 60947-4-3

# CPC1450

## 50 A | Single phase 400 V AC

### Output

| | |
|---|---|
| Switching element | Thyristor |
| Numbers of phases | 1 |
| Nominal voltage ($U_{nom}$) | 400 V AC |
| Output voltage range | 380 – 480 V AC |
| Frequency | 50/60 Hz |
| Reverse voltage | 1200 Vrrm |
| Peak reverse voltage | 1300 Vrsm |
| Min. load | 10 mA |
| Max. leakage current | 1 mA |
| Operation current AC-1/51 @ $U_{nom}$ | 50 A |
| Operation current AC-3 @ $U_{nom}$ | 15 (non uL) |
| Operation current AC-55b @ $U_{nom}$ | 30 A |
| Operation current AC-56a @ $U_{nom}$ | 30 A |
| Response/Release time | 20 ms |
| Limit load | 1800 $A^2s$ |

### Input

| | |
|---|---|
| Voltage | 24 V AC/DC |
| Control signal | 0 – 10 V, 10 – 0 V |
| | 0 – 20 mA, 20 – 0 mA |
| | 4 – 20 mA, 20 – 4 mA |
| Potentiometer | 0 – 10 kΩ, 10 – 0 kΩ |

### Insulation

| | |
|---|---|
| Insulation voltage | 4 kV |
| Dielectric strength | 660 V |

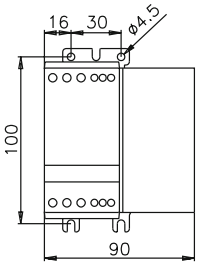
### Specifications

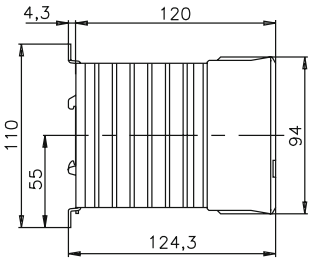
| | |
|---|---|
| Ambient temperature storage/operation | -20 … 80°C / -5 … 40°C (no ice) |
| Connection terminals | Screw terminal 2.5 $mm^2$ |
| Protection degree | IP 20 |
| Mounting | TS-35 or Back Panel Mounting |
| Housing material | PPE / Aluminium |
| Weight | 1050 g |

### Product References

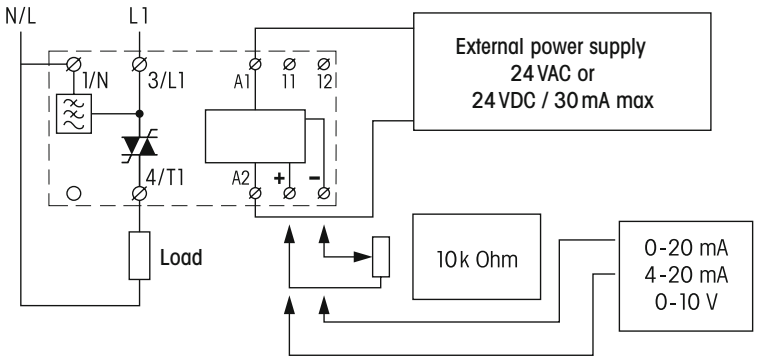
| | |
|---|---|
| Performance Regulator | **CPC1450** |

### Dimensions




### Connection diagram




### Technical approvals, conformities

IEC/EN 60947-4-3

## Notes

## Notes

# 2.0 Time Relays

# Time functions

## Delay functions

**E** **On delay**

S ⇒ R on with delay
SOFF ⇒ R off

**A** **Off delay**

S ⇒ R on
SOFF ⇒ R off with delay

**F** **On and off delay**

S ⇒ R on with delay (t1)
SOFF ⇒ R off with delay (t2)

## Puls shaping

**K** **Puls shaping**

S (pulse or continuous contact)
⇒ R on for t
S --- no influence on R and t

**L** **Pulse shaping,** retrigger (subsequ.time operation from 0)

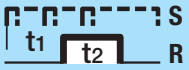
S (pulse or continuous contact)
⇒ R on for t
S on for t = tRESET

**M** **Puls shaping**

SOFF ⇒ R on for t
S --- no influence on R and t

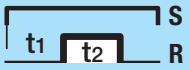
## Delayed pulse

**G** **On delay single shot**




S (pulse or continuous contact)
⇒ R after t1 on for t2
S --- no influence on R and t

**H** **On delay single shot**



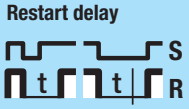

S ⇒ R after t1 on for t2
SOFF ⇒ R off

## Special functions

**Y** **Star-delta timer**

S ⇒ ⅄ on for t⅄
⅄OFF ⇒ Δ on with delay for t⅄-Δ
SOFF ⇒ Δ off

**X1** **Restart delay**




S ⇒ R on
SOFF ⇒ R off and starts t
S ⇒ R restart only after t

## Shot timing modes

**W** **One shot leading edge**

S ⇒ R on for t
SOFF ⇒ R off
(pulse clipping)

**N** **One shot trailing edge**

SOFF ⇒ R on for t
S on for t ⇒ R off

**Q** **One shot leading and trailing edge**

S ⇒ R on for t1
SOFF ⇒ R on for t2
SOFF off for t1 ⇒ R off

## Blinker functions

**B** **Blinker,** pulse start

S ⇒ R on/off periodically according to t
SOFF ⇒ R off

**B1** **Blinker,** pulse start, trailing pulse

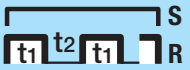
S ⇒ R on/off periodically according to t
SOFF: last pulse = t

**B2** **Blinker,** interval start

S ⇒ R after t on/off periodically according to t
SOFF ⇒ R off

## Repeat cycle timer

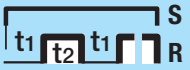
**I** **Repeat cycle timer,** pulse start




S ⇒ R on/off periodically according to t1 and t2
SOFF ⇒ R off

**P** **Repeat cycle timer,** interval start

C55, CT1: t2 t1



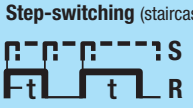

S ⇒ R after t1 (t2) on/off periodically according to t2 and t1
SOFF ⇒ R off

## Special functions

**S** **Step-on / Step-off switch**

S ⇒ R on/off

**LS** **Step-switching** (staircase lighting timer), with time lapse




S ⇒ R on and starts t
S on for t ⇒ R off

## Stop / Reset

**t STOP** SSTOP interrupts t (t-addition)

**t RESET** SRESET reset t
t restarts immediately

**T** t is stopped ⇒ R on/off

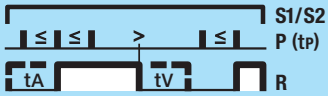
**T** Test

S = Triggering
R = Output circuit
⇒ = switches…

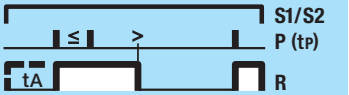
ON OFF

## Pulse sequence monitoring

**U**




**V**




S1/S2 = Monitoring start
P = Pulse sequence
tP = Pulse separation

≤: Pulse separation is **smaller** than the time tP
>: Pulse separation is **larger** than the time tP

Start with **S1** = **without** start-up short-out tA
Start with **S2** = start-up short-out tA

tV = settable alarm delay
delay (tA = tV)

## Time Cubes

| Type | Function | | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | $X_1$ | U | V | | | | sec | min | h | d | Page |
| CT..-E 30 | ● | | | | | | | | | | | | | | | | | | | | | | | | | 30 | | | 118 |
| CT..-A 30 | | ● | | | | | | | | | | | | | | | | | | | | | | | | 30 | | | |
| CT..-K 30 | | | | ● | | | ● | | | | | | | | | | | | | | | | | | | 30 | | | |
| CT..-B 30 | | | | | | | | | | ● | | | | | | | | | | | | | | | | 30 | | | |

## Modular plug-in Time Relays (CT-System)

| Type | Function | | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | $X_1$ | U | V | | | | sec | min | h | d | Page |
| CT32... | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | | | | | | | | | | 60* | | | 123 |
| CT33... | ● | ● | △ | ● | ● | △ | ● | ● | | ● | ● | | ▲ | ▲ | | | | | | | | | | | | | 60* | | |
| CT36... | | | | | | | | | | | | | | | ● | ● | | | | | | | | | | | 60* | | |

## DIN Time Relays

DIN

| Type | Function | | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | Y | U | V | | | | sec | min | h | d | Page |
| CMD11 A | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | 100 |
| CMD11 E | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | 100 |
| CIM1 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | 106 |
| CIM12 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | 107 |
| CIM13 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | 108 |
| CIM14 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | 109 |
| CIM2 | ● | ● | | | | | | ● | ● | | | ● | ● | ● | | | | | | | | | | | | | 60* | | 110 |
| CIM22 | ● | ● | | | | | | ● | ● | | | ● | ● | ● | | | | | | | | | | | | | 60* | | 111 |
| CIM23 | ● | ● | | | | | | ● | ● | | | ● | ● | ● | | | | | | | | | | | | | 60* | | 112 |
| CIM3 | | | ● | | | ● | | | | | | | ● | ● | ● | ● | | | | | | | | | | | 60* | | 113 |
| CIM32 | | | ● | | | ● | | | | | | | ● | ● | ● | ● | | | | | | | | | | | 60* | | 114 |
| CIM33 | | | ● | | | ● | | | | | | | ● | ● | ● | ● | | | | | | | | | | | 60* | | 115 |

*** TF-60 Setting of long times**

The TF60 time setting methode permits short examination of long delay time settings. Elapsing times of hours can be monitored in the sec. range.

**Example for a delay time of 38h:**

1. Set range switch to 60sec
2. Set 38sec on the potentiometer (e.g. check 38sec by chronometer)
3. Set range switch to 60h

The delay time now amounts to 38h.

[1] alternatively with instantaneous contact
■ without auxiliary voltage (relay bistable)
□ without auxiliary voltage (relay monostable)
△ t2 = t1
▲ t2 = 0.5s

## Notes

# 2.1 ON and OFF delay Relays

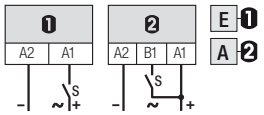
| Application | Types | Contacts | AC ratings | DC ratings |
|---|---|---|---|---|
| **CMD Series** | | | | |
| ON or OFF delay \| 12 V AC / DC supply | CMD11-A/UC12V, CMD11-E/UC12V | 1 CO | 8 A / 250 V | 8 A / 30 V |
| ON or OFF delay \| 24 V AC / DC supply | CMD11-A/UC24V, CMD11-E/UC24V | 1 CO | 8 A / 250 V | 8 A / 30 V |
| ON or OFF delay \| 115 V AC supply | CMD11-A/AC115V, CMD11-E/AC115V | 1 CO | 8 A / 250 V | 8 A / 30 V |
| ON or OFF delay \| 230 V AC supply | CMD11-A/AC230V, CMD11-E/AC230V | 1 CO | 8 A / 250 V | 8 A / 30 V |

# CMD11-A/UC12V, CMD11-E/UC12V

## 1 CO contact | ON or OFF delay | 12 V AC / DC supply

| | | |
|---|---|---|
| **Maximum contact load** | **8 A 250 V AC-1** | **8 A 30 V DC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** | |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)




### Time data

| | |
|---|---|
| 5 partial time ranges, $t_{max}$ (DIP switch) | 0.6 s / 6 s / 60 s / 6 min / 60 min |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -30 % … +0 % / $t_{max}$: -0 % … +30 % |
| Repetition accuracy | ± 0.2 % or 20 ms |
| Response time, power on, on A1 | ≤ 50 ms |
| Min. trigger pulse width on input B1 | 100 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 90 ms |
| Voltage failure buffering | ≥ 5 ms |

### Contacts

| | |
|---|---|
| Type | Single contact, CO |
| Material | AgNi |
| Rated operational current | 10 A |
| Max. inrush current (10ms) | 15 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig. 1) | 2500 VA AC-1 |
| Max. DC load DC-1 24 V / 220 V (Fig. 2) | 150 W / 70 W |

| **Power supply- and control input** | **CMD11-.../UC12V** |
|---|---|
| Nominal voltage (UC = AC / DC) | 12 V AC/DC |
| Operating voltage range | 9.6 ... 14.4 V AC/DC |
| Power consumption DC typ. | 32 mA |
| Power consumption AC typ. | 50 mA |
| Frequency range | 48 ... 62 Hz |
| Input current into B1 typ. AC / DC | 2.7 / 4.3 mA |
| Trigger threshold voltage on B1 typ AC / DC | 5.2 / 8.8 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2 kV rms / 1 min |

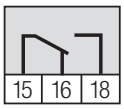
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Life time of contacts 8 A, 250 V AC-1 | 75 x $10^3$ |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.5 Nm |
| Housing material / Weight | Polyamide PA-66 (UL94-V0) / 48 g |
| Mounting | TS-35 or Back Panel Mounting |

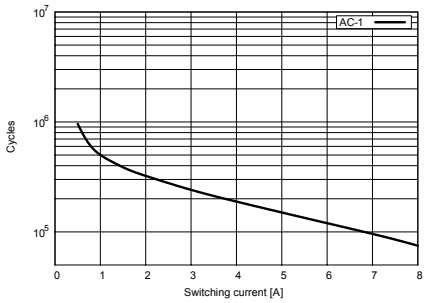
### Product References

| | |
|---|---|
| **Monofunction Time Relay (Off delay)** | **CMD11-A/UC12V** |
| **Monofunction Time Relay (On delay)** | **CMD11-E/UC12V** |

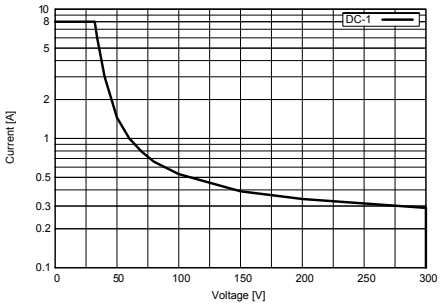
### Connection diagram



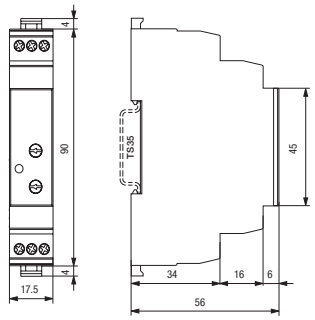

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

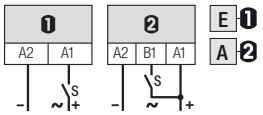
IEC/EN 60947

# CMD11-A/UC24V, CMD11-E/UC24V

## 1 CO contact | ON or OFF delay | 24 V AC / DC supply

| | | |
|---|---|---|
| **Maximum contact load** | **8 A 250 V AC-1** | **8 A 30 V DC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** | |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)




### Time data

| | |
|---|---|
| 5 partial time ranges, $t_{max}$ (DIP switch) | 0.6 s / 6 s / 60 s / 6 min / 60 min |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -30 % … +0 % / $t_{max}$: -0 % … +30 % |
| Repetition accuracy | ± 0.2 % or 20 ms |
| Response time, power on, on A1 | ≤ 50 ms |
| Min. trigger pulse width on input B1 | 100 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 90 ms |
| Voltage failure buffering | ≥ 5 ms |

### Contacts

| | |
|---|---|
| Type | Single contact, CO |
| Material | AgNi |
| Rated operational current | 10 A |
| Max. inrush current (10ms) | 15 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig. 1) | 2500 VA AC-1 |
| Max. DC load DC-1 24 V / 220 V (Fig. 2) | 150 W / 70 W |

| **Power supply- and control input** | **CMD11-.../UC24V** |
|---|---|
| Nominal voltage (UC = AC / DC) | 24 V AC/DC |
| Operating voltage range | 19.2 ... 28.8 V AC/DC |
| Power consumption DC typ. | 12 mA |
| Power consumption AC typ. | 21 mA |
| Frequency range | 48 ... 62 Hz |
| Input current into B1 typ. AC / DC | 11.6. / 9.5 mA |
| Trigger threshold voltage on B1 typ AC / DC | 9.5 / 14 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2 kV rms / 1 min |

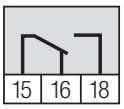
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Life time of contacts 8 A, 250 V AC-1 | 75 x $10^3$ |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.5 Nm |
| Housing material / Weight | Polyamide PA-66 (UL94-V0) / 48 g |
| Mounting | TS-35 or Back Panel Mounting |

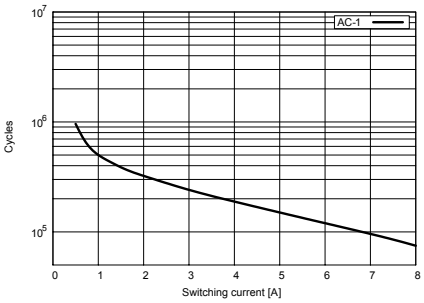
### Product References

| | |
|---|---|
| **Monofunction Time Relay (Off delay)** | **CMD11-A/UC24V** |
| **Monofunction Time Relay (On delay)** | **CMD11-E/UC24V** |

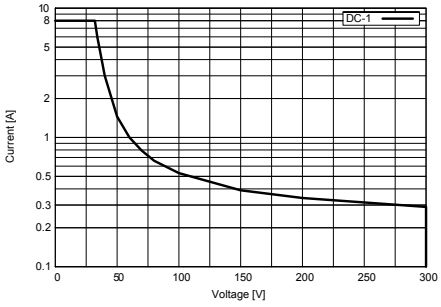
### Connection diagram



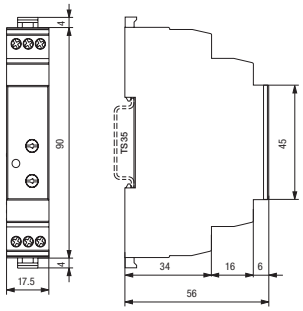

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

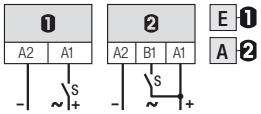
IEC/EN 60947

# CMD11-A/AC115V, CMD11-E/AC115V

## 1 CO contact | ON or OFF delay | 115 V AC / DC supply

| | |
|---|---|
| **Maximum contact load** | **8 A 250 V AC-1  8 A 30 V DC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)




### Time data

| | |
|---|---|
| 5 partial time ranges, $t_{max}$ (DIP switch) | 0.6 s / 6 s / 60 s / 6 min / 60 min |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -30 % … +0 % / $t_{max}$: -0 % … +30 % |
| Repetition accuracy | ± 0.2 % or 20 ms |
| Response time, power on, on A1 | ≤ 50 ms |
| Min. trigger pulse width on input B1 | 100 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 90 ms |
| Voltage failure buffering | ≥ 5 ms |

### Contacts

| | |
|---|---|
| Type | Single contact, CO |
| Material | AgNi |
| Rated operational current | 10 A |
| Max. inrush current (10ms) | 15 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig. 1) | 2500 VA AC-1 |
| Max. DC load DC-1 24 V / 220 V (Fig. 2) | 150 W / 70 W |

| **Power supply- and control input** | **CMD11-.../AC115V** |
|---|---|
| Nominal voltage | 115 V AC |
| Operating voltage range | 92 ... 138 V AC |
| Power consumption AC typ. | 47 mA |
| Frequency range | 48 ... 62 Hz |
| Input current into B1 typ. AC | 1.7 mA |
| Trigger threshold voltage on B1 typ AC | 42 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2 kV rms / 1 min |

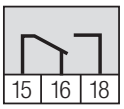
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Life time of contacts 8 A, 250 V AC-1 | 75 x $10^3$ |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.5 Nm |
| Housing material / Weight | Polyamide PA-66 (UL94-V0) / 48 g |
| Mounting | TS-35 or Back Panel Mounting |

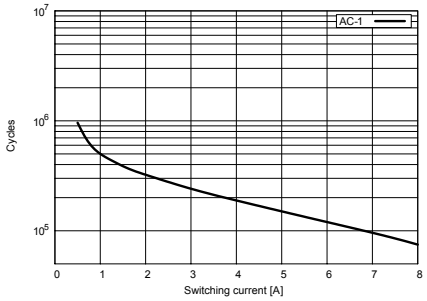
### Product References

| | |
|---|---|
| **Monofunction Time Relay (Off delay)** | **CMD11-A/AC115V** |
| **Monofunction Time Relay (On delay)** | **CMD11-E/AC115V** |

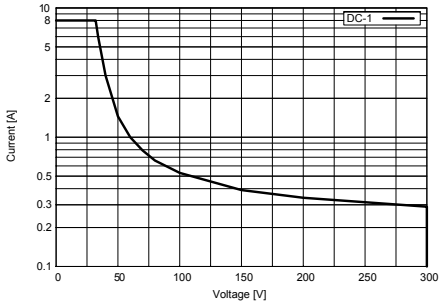
### Connection diagram



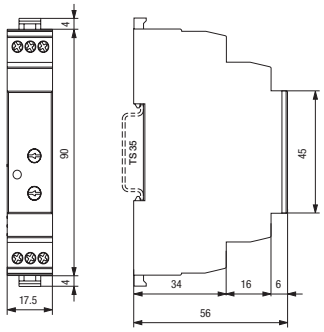

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

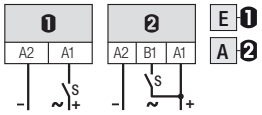
IEC/EN 60947

# CMD11-A/AC230V, CMD11-E/AC230V

## 1 CO contact | ON or OFF delay | 230 V AC / DC supply

| | |
|---|---|
| **Maximum contact load** | **8 A 250 V AC-1  8 A 30 V DC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)




### Time data

| | |
|---|---|
| 5 partial time ranges, $t_{max}$ (DIP switch) | 0.6 s / 6 s / 60 s / 6 min / 60 min |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -30 % … +0 % / $t_{max}$: -0 % … +30 % |
| Repetition accuracy | ± 0.2 % or 20 ms |
| Response time, power on, on A1 | ≤ 50 ms |
| Min. trigger pulse width on input B1 | 100 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 90 ms |
| Voltage failure buffering | ≥ 5 ms |

### Contacts

| | |
|---|---|
| Type | Single contact, CO |
| Material | AgNi |
| Rated operational current | 10 A |
| Max. inrush current (10ms) | 15 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig. 1) | 2500 VA AC-1 |
| Max. DC load DC-1 24 V / 220 V (Fig. 2) | 150 W / 70 W |

| **Power supply- and control input** | **CMD11-.../AC230V** |
|---|---|
| Nominal voltage | 230 V AC |
| Operating voltage range | 184 ... 255 V AC |
| Power consumption AC typ. | 60 mA |
| Frequency range | 48 ... 62 Hz |
| Input current into B1 typ. AC | 1.9 mA |
| Trigger threshold voltage on B1 typ AC | 80 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2 kV rms / 1 min |

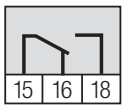
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Life time of contacts 8 A, 250 V AC-1 | 75 x $10^3$ |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.5 Nm |
| Housing material / Weight | Polyamide PA-66 (UL94-V0) / 48 g |
| Mounting | TS-35 or Back Panel Mounting |

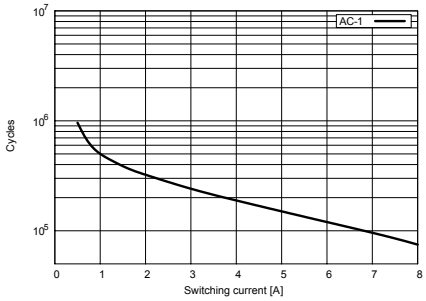
### Product References

| | |
|---|---|
| **Monofunction Time Relay (Off delay)** | **CMD11-A/AC230V** |
| **Monofunction Time Relay (On delay)** | **CMD11-E/AC230V** |

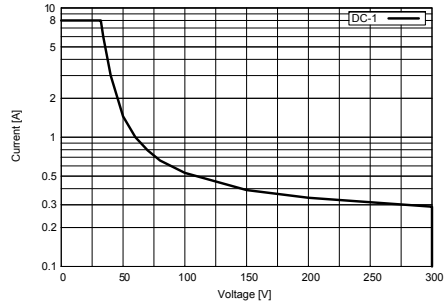
### Connection diagram



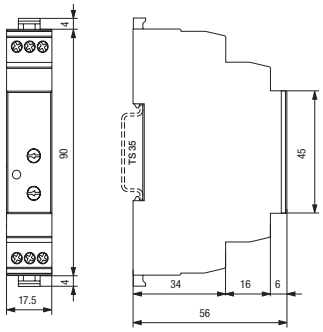

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 60947

## Notes

# 2.2 Multifunction Time Relays

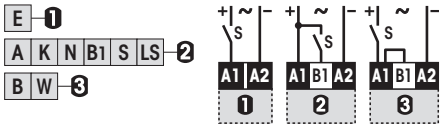
| Application | Types | Contacts | AC ratings | DC ratings |
|---|---|---|---|---|
| **CIM Series** | | | | |
| Multifunction \| 24-240 V AC / DC | CIM1, CIM1R | 1 CO | 16 A / 250 V | 16 A / 24 V |
| Multifunction \| 24-240 V AC / DC | CIM12, CIM12R | 1 Triac | 2 A / 250 V | - |
| Multifunction \| 24-240 V AC / DC | CIM13, CIM13R | 1 Mosfet | - | 4 A / 30 V |
| Multifunction \| 24-240 V AC / DC | CIM14 | 1 NO | 16 A / 250 V | 16 A / 24 V |
| Multifunction \| 24-240 V AC / DC | CIM2, CIM2R | 1 CO | 16 A / 250 V | 16 A / 24 V |
| Multifunction \| 24-240 V AC / DC | CIM22, CIM22R | 1 Triac | 2 A / 250 V | - |
| Multifunction \| 24-240 V AC / DC | CIM23, CIM23R | 1 Mosfet | - | 4 A / 30 V |
| Multifunction \| 24-240 V AC / DC | CIM3, CIM3R | 1 CO | 16 A / 250 V | 16 A / 24 V |
| Multifunction \| 24-240 V AC / DC | CIM32, CIM32R | 1 Triac | 2 A / 250 V | - |
| Multifunction \| 24-240 V AC / DC | CIM33, CIM33R | 1 Mosfet | - | 4 A / 30 V |

# CIM1, CIM1R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1 16 A / 24 V DC-1** |
| **Recommended minimum contact load** | **10 mA / 10 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Contacts

| | |
|---|---|
| Material CIM1 / CIM1R / Type | AgNi / 1 CO, micro disconnection, zero crossing |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 30 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |
| Max. DC load DC-1 30 V / 250 V (Fig.2) | 240 W / 85 W |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (A1, B1) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |

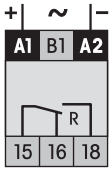
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -46 °C) (no ice) |
| Mechanical life of contact | 30 x 1‘000‘000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

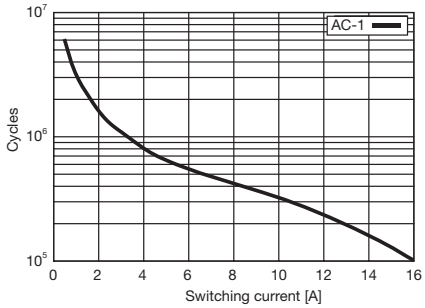
### Product References

| | |
|---|---|
| **Standard** | **CIM1/UC24-240V** |
| **Railway** | **CIM1R/UC24-240V** |

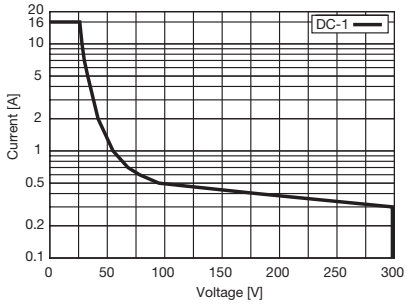
### Connection diagram



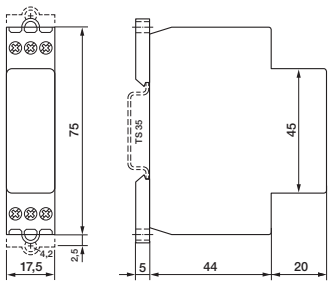

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

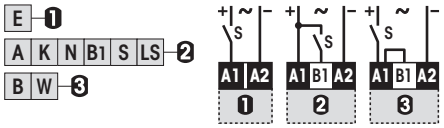
IEC/EN 50155, IEC/EN 60730

# CIM12, CIM12R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **2 A / 250 V AC-1** |
| **Minimum contact load** | **50 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | Triac, zero crossing |
| Rated operational current at 40 °C (Fig.1) | 2 A |
| Max. inrush current (10 ms) | 100 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 | 300 VA |
| $I^2t$ value | 78 $A^2s$ |
| Leakage current | < 1 mA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

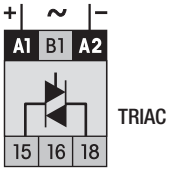
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -70 °C) (no ice) |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

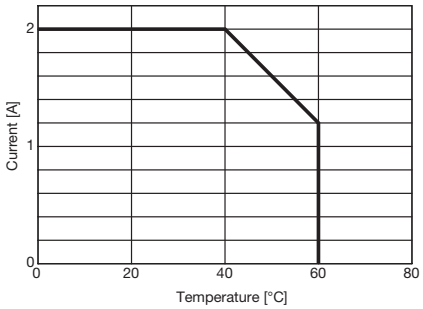
### Product References

| | |
|---|---|
| **Standard** | **CIM12/UC24-240V** |
| **Railway** | **CIM12R/UC24-240V** |

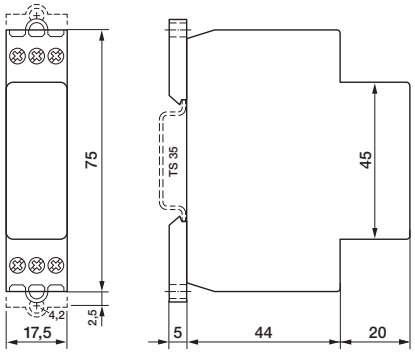
### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

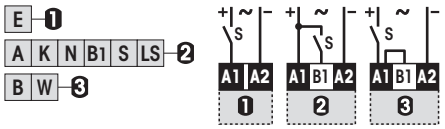
IEC/EN 50155, IEC/EN 60730

# CIM13, CIM13R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **4 A / 30 V DC-1** |
| **Recommended minimum contact load** | **1 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | MOS FET |
| Rated operational current (Fig. 1) | 4 A |
| Max. inrush current (10 µs) | 40 A |
| Max. switching voltage | 30 V |
| Leakage current | < 10 µA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (UC = AC / DC) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

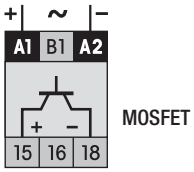
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -70 °C) (no ice) |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / Weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

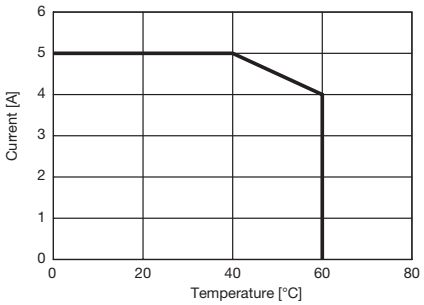
### Product References

| | |
|---|---|
| **Standard** | **CIM13/UC24-240V** |
| **Railway** | **CIM13R/UC24-240V** |

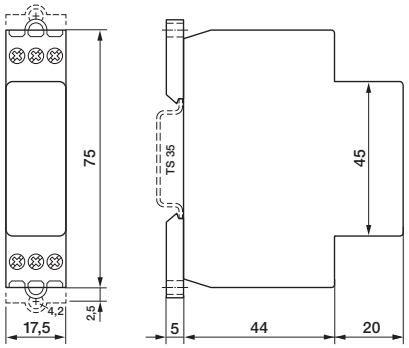
### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

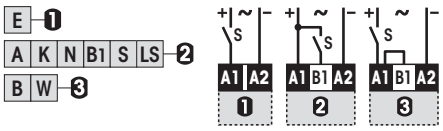
IEC/EN 50155, IEC/EN 60730

# CIM14

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1 16 A / 24 V DC-1** |
| **Recommended minimum contact load** | **100 mA / 12 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Contacts

| | |
|---|---|
| Material | W / $AgSnO_2$ |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 165 A / 20 ms |
| | 800 A / 200 µs |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |
| Max. DC load DC-1 24 V | 384 W |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (A1, B1) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | 16.8 … 250 V |
| Power consumption | 1.2 VA / 0.43 W |
| Frequency range | 16 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |

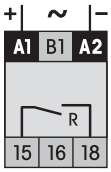
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (no ice) |
| Mechanical life of contact | 5 x 1'000'000 operations |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

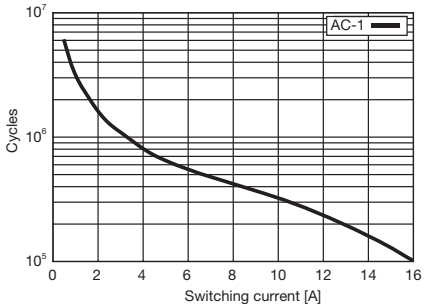
### Product References

| | |
|---|---|
| **Standard** | **CIM14/UC24-240V** |

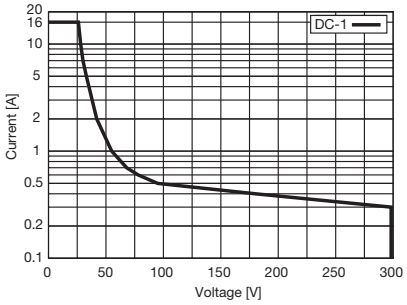
### Connection diagram



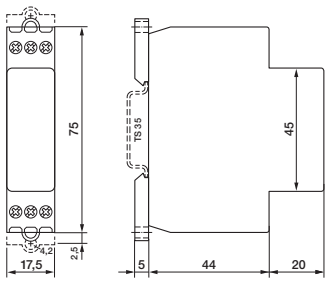

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

IEC/EN 50155, IEC/EN 60730

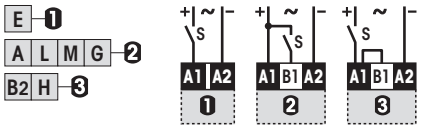
# CIM2, CIM2R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1 16 A / 24 V DC-1** |
| **Recommended minimum contact load** | **10 mA / 10 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)

The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Contacts

| | |
|---|---|
| Material CIM2 / CIM2R / Type | AgNi / 1 CO, micro disconnection |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 30 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |
| Max. DC load DC-1 30 V / 250 V (Fig.2) | 240 W / 85 W |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (A1, B1) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |

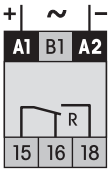
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (Railway: -46 °C) (no ice) |
| Mechanical life of contact | 30 x 1‘000‘000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

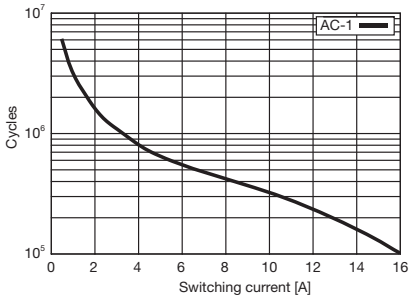
### Product References

| | |
|---|---|
| **Standard** | **CIM2/UC24-240V** |
| **Railway** | **CIM2R/UC24-240V** |

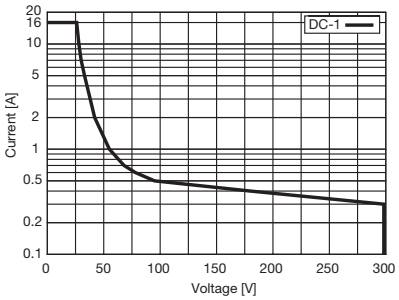
### Connection diagram



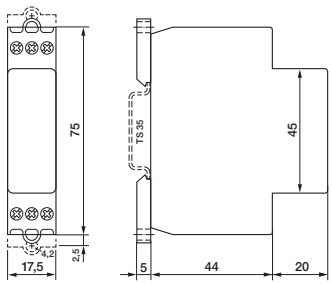

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

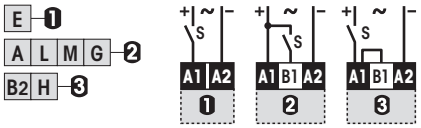
IEC/EN 50155, IEC/EN 60730

# CIM22, CIM22R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **2 A / 250 V AC-1** |
| **Minimum contact load** | **50 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | Triac, zero crossing |
| Rated operational current at 40 °C (Fig.1) | 2 A |
| Max. inrush current (10 ms) | 100 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 | 300 VA |
| $I^2t$ value | 78 $A^2s$ |
| Leakage current | < 1 mA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

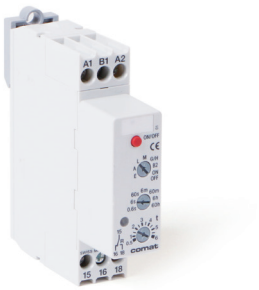
| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

### Specifications

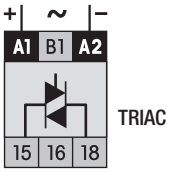
| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -70 °C) (no ice) |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

### Product References

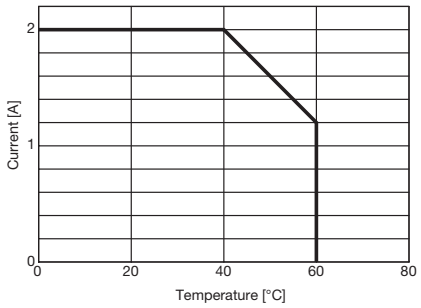
| | |
|---|---|
| **Standard** | **CIM22/UC24-240V** |
| **Railway** | **CIM22R/UC24-240V** |



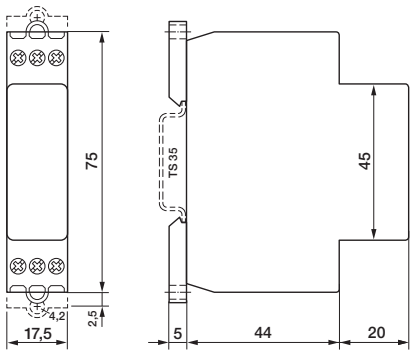
### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

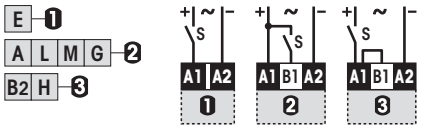
IEC/EN 50155, IEC/EN 60730

# CIM23, CIM23R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **4 A / 30 V DC-1** |
| **Recommended minimum contact load** | **1 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | MOS FET |
| Rated operational current (Fig. 1) | 4 A |
| Max. inrush current (10 µs) | 40 A |
| Max. switching voltage | 30 V |
| Leakage current | < 10 µA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (UC = AC / DC) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

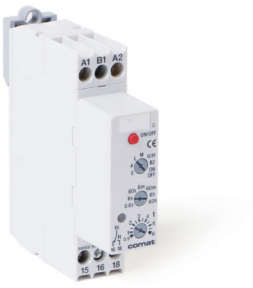
| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

### Specifications

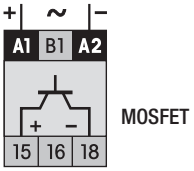
| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -70 °C) (no ice) |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / Weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

### Product References

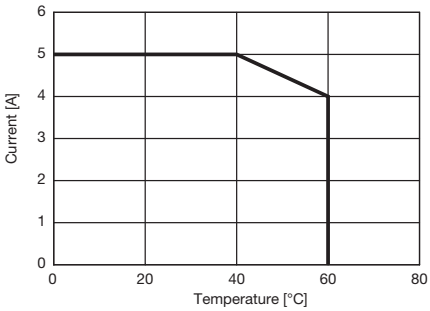
| | |
|---|---|
| **Standard** | **CIM23/UC24-240V** |
| **Railway** | **CIM23R/UC24-240V** |



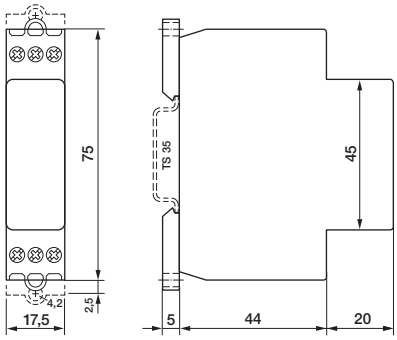
### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

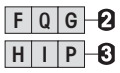
IEC/EN 50155, IEC/EN 60730

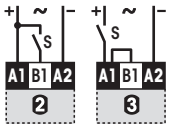
# CIM3, CIM3R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **16 A / 250 V AC-1 16 A / 24 V DC-1** |
| **Recommended minimum contact load** | **10 mA / 10 V** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Contacts

| | |
|---|---|
| Material CIM3 / CIM3R / Type | AgNi / 1 CO, micro disconnection |
| Rated operational current at 40 °C / 60 °C | 16 A / 13 A |
| Max. inrush current | 30 A |
| Max. switching voltage AC-1 | 250 V |
| Max. AC load AC-1 (Fig.1) | 4 kVA |
| Max. DC load DC-1 30 V / 250 V (Fig.2) | 240 W / 85 W |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (A1, B1) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

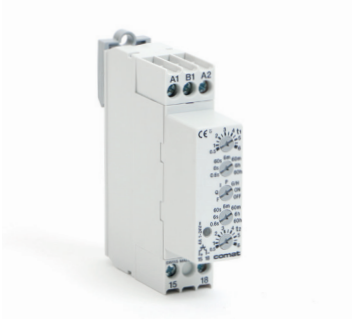
| | |
|---|---|
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage between contacts and control input | 2.5 kV rms / 1 min |

### Specifications

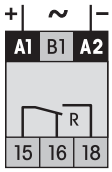
| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C<br>(Railway: -46 °C) (no ice) |
| Mechanical life of contact | 30 x 1'000'000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

### Product References

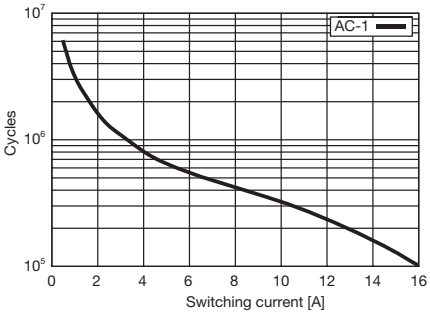
| | |
|---|---|
| **Standard** | **CIM3/UC24-240V** |
| **Railway** | **CIM3R/UC24-240V** |



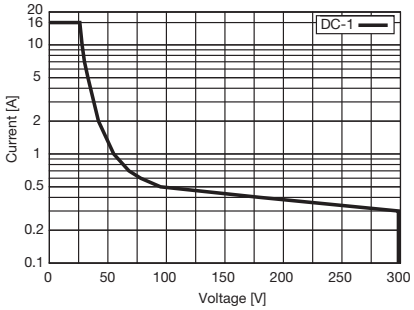
### Connection diagram



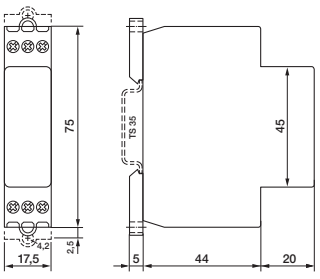

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions




### Technical approvals, conformities

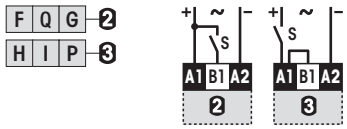
IEC/EN 50155, IEC/EN 60730

# CIM32, CIM32R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **2 A / 250 V AC-1** |
| **Minimum contact load** | **50 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | Triac, zero crossing |
| Rated operational current at 40 °C (Fig.1) | 2 A |
| Max. inrush current (10 ms) | 100 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 | 300 VA |
| $I^2t$ value | 78 $A^2s$ |
| Leakage current | < 1 mA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

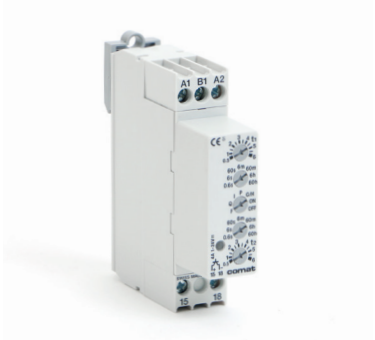
| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

### Specifications

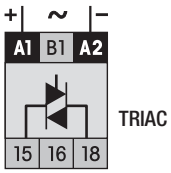
| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 …60 °C (No Ice)<br>(Railway: -70 °C) (No Ice) |
| Conductor cross section | Stranded wire 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

### Product References

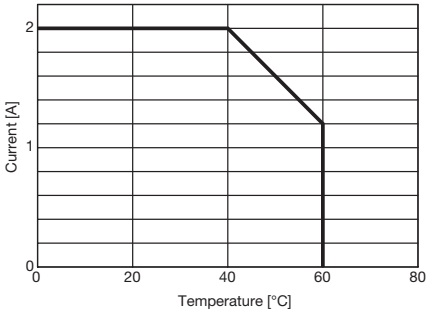
| | |
|---|---|
| **Standard** | **CIM3/UC24-240V** |
| **Railway** | **CIM3R/UC24-240V** |



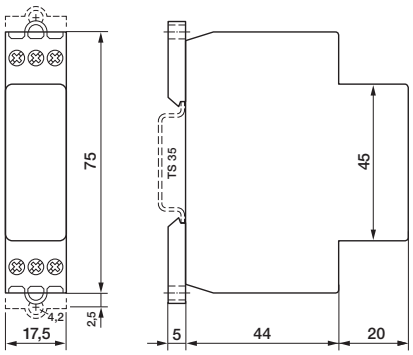

### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

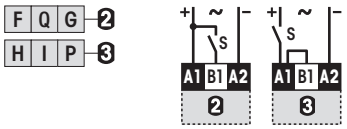
IEC/EN 50155, IEC/EN 60730

# CIM33, CIM33R

## Multifunction | 24-240 V AC / DC

| | |
|---|---|
| **Maximum contact load** | **4 A / 30 V DC-1** |
| **Recommended minimum contact load** | **1 mA** |

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)
The functions are selectable by rotary switch




**LED function table:**

| LED | Relay | Time run |
|---|---|---|
| OFF | OFF | NO |
| Continuous ON | ON | NO |
| Short blinking | OFF | YES |
| Long blinking | ON | YES |

### Time data

| | |
|---|---|
| 7 partial time ranges, $t_{max}$ (rotary switch) | 0.6, 6, 60 s / 6, 60 min / 6, 60 h |
| Fine adjustment range (rotary knob) | $t_{min}$ … $t_{max}$, 0.5 … 6 |
| Time range tolerance | $t_{min}$: -5 % … +0 % / $t_{max}$: -0 % … +5 % |
| Repetition accuracy | ± 0.1 % or DC: 2 ms / AC: 10 ms |
| Response time, power on, on A1 | ≤ 45 ms |
| Min. trigger pulse on B1 | 20 ms (AC / DC) |
| Reset time B1 (AC/DC) | ≤ 30 ms |
| Voltage failure buffering (50 / 60 Hz) | ≥ 20 ms |

### Output

| | |
|---|---|
| Type | MOS FET |
| Rated operational current (Fig. 1) | 4 A |
| Max. inrush current (10 µs) | 40 A |
| Max. switching voltage | 30 V |
| Leakage current | < 10 µA |

### Power supply- and control input

| | |
|---|---|
| Nominal voltage (UC = AC / DC) | **UC 24-240 V (UC = AC / DC)** |
| Operating voltage range | UC 19 … 250 V |
| Power consumption | approx. 1 W |
| Frequency range | 15 … 60 Hz |
| Allowed DC residual current into B1 | ≤ 0.5 mA |
| AC Neon lamp residual current into B1 | ≤ 10 mA |
| Trigger threshold voltage on B1, AC / DC | 15 / 17 V |

### Insulation

| | |
|---|---|
| Test voltage between output and control input | 2.5 kV rms / 1 min |

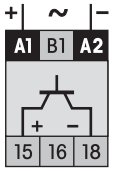
### Specifications

| | |
|---|---|
| Ambient temperature storage / operation | -40 … 85 °C / -40 …60 °C (No Ice)<br>(Railway: -70 °C) (No Ice) |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP 20 |
| Nominal screw torque | 0.4 Nm |
| Housing material / Weight | Lexan / 70 g |
| Mounting | TS-35 or Back Panel Mounting |

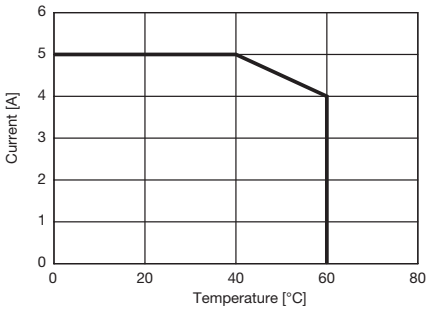
### Product References

| | |
|---|---|
| **Railway** | **CIM33R/UC24-240V** |

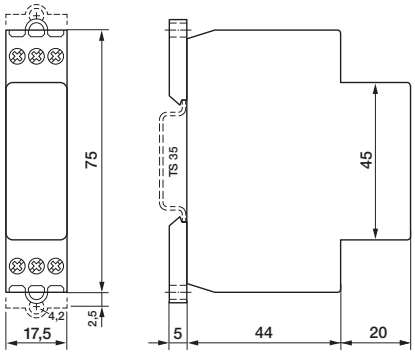
### Connection diagram




### Fig.1 Output derating curve




### Dimensions




### Technical approvals, conformities

IEC/EN 50155, IEC/EN 60730

## Notes

# 2.3 Time Cubes

| Application | Types |
|---|---|
| **CT Series** | |
| 8-pin and 11-pin Timecube | CT2, CT3 |

# CT2, CT3

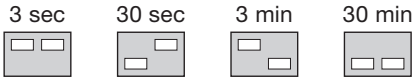
## 8-pin and 11-pin Timecube®

**Time functions** (Function diagrams: refer to page 148)

| *Operating voltage controlled types* | *Trigger input controlled types* |
|---|---|
| CT2- / CT3-E30: Function E, on delay | CT2- / CT3-A30, off delay |
| CT2- / CT3-W30: Function W, one shot | CT2- / CT3-K30, pulse shaping |
| CT2- / CT3-B30: Function B, blinker | |

**Time data**

4 partial time ranges (DIP switch)




| | |
|---|---|
| Fine adjustment time range (rotary knob) | $t_{min}$ … $t_{max}$, 2 … 30 |
| Time range tolerance | $t_{min}$: 0 … + 35 % |
| Repetition accuracy | ± 0.5 % or ± 20 ms |
| Reset time | ≤ 200 ms |
| Reset time B1 (trigg. inp.) A, K | ≤ 80 ms |
| Voltage failure buffering | 5 ms (except the relay) |

**Power supply- and control input** (UC = AC or DC)

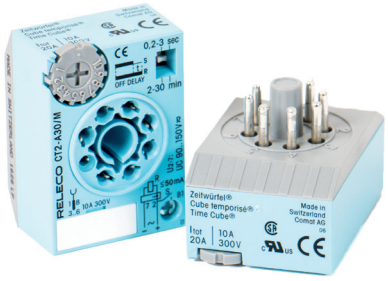
| | | |
|---|---|---|
| CT2- / CT3- … / S | DC 9.5 … 18 V | 12 mA |
| CT2- / CT3- … / L | UC 20 … 65 V | 6 mA |
| CT2- / CT3- … / M | UC 90 … 150 V | 2 mA |
| CT2- / CT3- … / U | UC 180 … 265 V | 2 mA |
| CT2- / CT3- … / H | UC 90 … 265 V | 2 mA |
| Residual current E, W, B | ≤ 0.3 mA | |
| Residual current B1 (trigg. inp.) A, K | ≤ 0.2 mA | |

**Specifications**

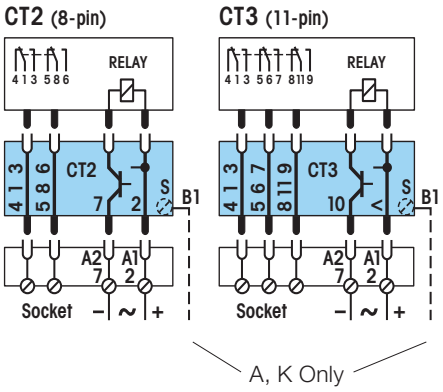
| | |
|---|---|
| Ambient temperature storage / operation | -40 … +70 °C / -25 … +60 °C (no ice) |
| Protection degree | IP40 |
| Housing material | Lexan |
| Weight | 35 g |
| Mounting | Socket |

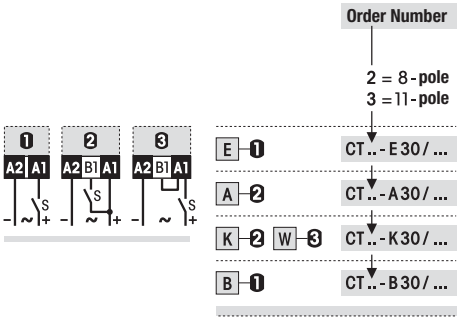
**Product References**

| 8 pole | 11 pole | Voltage |
|---|---|---|
| CT2-E30/S<br>CT2-B30/S<br>CT2-A30/S<br>CT2-K30/S | CT3-E30/S<br>CT3-B30/S<br>CT3-A30/S<br>CT3-K30/S | DC 9.5…18 V |
| CT2-E30/L<br>CT2-B30/L<br>CT2-A30/L<br>CT2-K30/L | CT3-E30/L<br>CT3-B30/L<br>CT3-A30/L<br>CT3-K30/L | UC 20…65 V |
| CT2-A30/M<br>CT2-K30/M | CT3-A30/M<br>CT3-K30/M | UC 90…150 V |
| CT2-A30/U<br>CT2-K30/U | CT3-A30/U<br>CT3-K30/U | UC 180…265 V |
| CT2-E30/H<br>CT2-B30/H | CT3-E30/H<br>CT3-B30/H | UC 90…265 V |

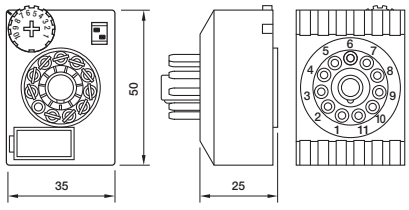


### Wiring diagram




### Dimensions




Only 11-pin version shown.
The dimension of the 8-pin version are identical

### Technical approvals, conformities

## Notes

## Notes

# 2.4 Time Modules



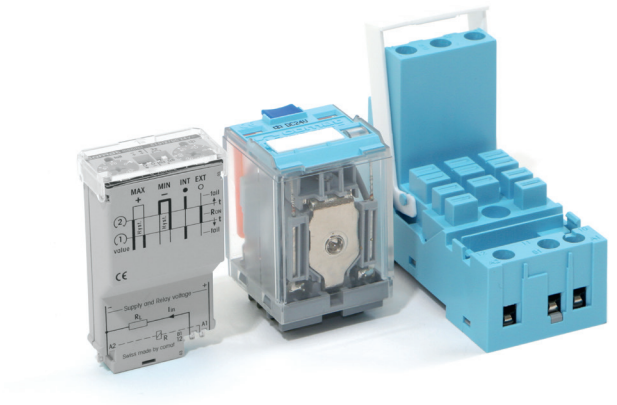
| Application | Types | Contacts | AC ratings | DC ratings | Socket |
|---|---|---|---|---|---|
| **CT Series** | | | | | |
| Multifunction Time Module | CT32R | - | - | - | S3-M / S5-M |
| Multifunction Time Module | CT33R | - | - | - | S3-M / S5-M |
| Multifunction Time Module | CT36R | - | - | - | S3-M / S5-M |

## The modular Comat timer CT System

The time delay relays and monitoring relays consist of plug-in CT electronic modules and 11-pole output relays. Both system components can be combined in a variety of combinations. This allows adapting the system for the specific application.

Subsequent modifications, for example a change from mechanical contacts to solid-state outputs, are possible at any time just by replacing the relay.

This system provides the user a complete universal system with worldwide unmatched flexibility.



**The system sockets** S3-MB0 or C-155 serve as a basis for the secure reception of the electronic modules. The sockets have a 4-pole module slot in which the CT modules lock firmly and vibration proof also without the output relay. Contact is made with reliable twin knife contacts.

With the A2 connector bridge "C-A2", the neutral conductor (N/-) can be connected from socket to socket. It reduces wiring work considerably.

Robust terminals for wires up to 4 mm² and spacious labeling are other advantages of this practical Comat modular system.

Clear markings close to the terminal connections on the sockets make it easy to identify the connections for wiring and servicing.

**The CT modules** are proof of the practical oriented experiences of Comat in the field of industrial electronics. All control and display elements are arranged easy accessible at all times on the front side of the modules. The functions and settings are self-explanatory schematically illustrated on the front and allow to review the set values also during operation.

A transparent cover over the module setting components provides protection from unintentional settings and additionally links the module to the output relay.

Triggering is performed with the operating voltage. (L1 or +). No potential-free contacts are therefore required. The triggering complies to machine standards. Parallel connection to B1 is admissible.

**The wide UC voltage range** (AC/DC) of the modules give a wide flexibility. It permits the connection to AC or DC supplies and provides a high level of reliability in triggering.

Note: In case of even wider voltage ranges, for example UC 24-240V, triggering currents on B1 are often in the range of 100µA with simultaneous low threshold voltages of less than 20V. Due to capacitive or inductive pickups this may lead to unintentional triggering or switching errors caused by insufficient load on the control contacts (It is not seldom that 50V or more can be measured in open lines).

**The output relays** show the connection diagram and the technical values on the front side, (exception C3 and C5 relays). A color code indicates an AC coil with red and a DC coil with blue color. Most of the relays have a lockable test button for manual operation.

**The standard contacts** have proven its reliability for high switching current applications over many years. The contact material AgNi permits a wide switching range and due to the large dimensioning they are designed for a high number of switching cycles. The high breaking capacity of up to 10A/400V and a low load switching capability of 12V/10mA makes the contact suitable for the use in main circuits as well as for low voltage applications.

**The twin contacts** are switching the load circuit with 2 independent contact tongues. The switching safety for low currents is therefore 100 times higher compared to a single contact relay. Despite the high switching capacity of up to 6A/250V, these contacts are very suitable to switch low currents and voltages up to 1mA/6V.

**The solid-state relays** are an alternative to mechanical relays. In the standard version, the relay has a potential-free universal semiconductor output for AC or DC loads. The advantage is a bouncing- and wear-free, overload resistant, short circuit protected output with a practical unlimited life cycle.

Solid-state relays are specially recommended for applications of high switching cycles, for example for repeat cycle timers, flushing lights, but also for high inductive switching loads of solenoid valves, couplings, motors, etc. The solid state relays are also suitable for capacitive loads, for example long power lines, or compensated lighting circuits.

Additional protection circuits of the output or of the load are not necessary in any application for this type of Comat relays.

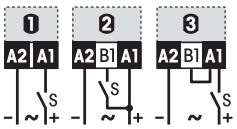
The solid-state relays are insensitive in any aggressive environment such as chemical plants, sewage plants etc. and are therefore an excellent choice for the employment in such environments.

The train symbol indicates products available in a special railway execution according EN 50155.
Please refer to our special railway brochure for details.

# CT32R, CT33R, CT36R

## Multifunction Time Module

**Time functions and related connection diagrams** (Function diagrams: refer to page 148)




| | CT32R | CT33R | CT36R |
|---|---|---|---|
| | Universal | Universal | Repeat cycle timer |
| | E 2 3<br>A N K B1 2<br>W B 3 | E 2 3<br>A N L F K G B1 Q<br>W H B 3 2 | I P 1 |

### Time data

| Type | CT 32R | CT33R | CT36R |
|---|---|---|---|
| Partial time ranges, $t_{max}$ | 1.5, 6, 15, 60 /s /min | 150, 600 ms | 2 x 600 ms |
| | 1.5, 6, 15, 60 /s /min /h | 2 x 6, 60 /s /min /h | |
| Min. time $t_{min}$ | 0.15 s | 30 ms | 2 x 50 ms |
| Fine adj. range $t_{min}$ … $t_{max}$ | 1 … 1 0 | 0.2 … 1 | 2 x 5 … 60 |
| Time range tolerance $t_{min}$ | -25 … 0 % | -25 … 0 % | -25 … 0 % |
| $t_{max}$ | 0 … 25 % | 0 … 25 % | 0 … 25 % |
| Repetition accuracy | ± 0.2 % or 20 ms | ± 0.2 % or 20 ms | ± 0.2 % or 20 ms |
| Temperature drift of time | 0.1 % / K | 0.1 % / K | 0.1 % / K |
| Min. trigger pulse width B1 | ≥ 30 ms | ≥ 30 ms | - |
| Reset time pow. supply | ≤ 150 ms | ≤ 150 ms | ≤ 150 ms |
| Voltage failure buffering | ≥ 20 ms | ≥ 20 ms | ≥ 20 ms |

### Output data

| | |
|---|---|
| Nominal voltage | **110 – 240, 115, 230 V, UC 24-48V, UC 110-240V, DC 110V, UC 115V, UC 230V** |
| Type | Solid state |
| Rated operational current | 50 mA |
| On-state resistance | ≤ 100 Ω |
| Leakage current | ≤ 150 µA |

### Power supply and control input (UC = AC / DC)

| Type | CT36R | CT36R | CT32R |
|---|---|---|---|
| Nominal voltage | **UC 24 – 48 V** | **UC 110 – 240 V** | **DC 110 V** |
| Operating voltage range | 19…60 V | 82 … 265 V | 77…138 V |
| Supply current | 6 … 12 mA | 4 … 8 mA | 1…3 mA |

| Type | CT32R, CT33R | CT32R, CT33R | CT32R, CT33R |
|---|---|---|---|
| Nominal voltage | **UC 24 – 48 V** | **UC 115 V** | **UC 230 V** |
| Operating voltage range | 19 … 60 V | 90 … 150 V | 180 … 265 V |
| Input B1 inactive | ≤ 9 V | ≤ 60 V | ≤ 100 V |
| Supply current | 5 … 11 mA | 4 … 7 mA | 1 … 4 mA |

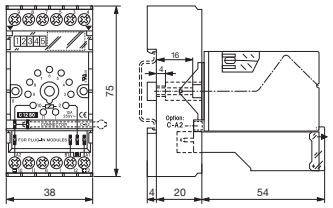
### Specification

| | |
|---|---|
| Ambient temperature storage /operation | -40 … 85 °C / -40 … 60 °C (no ice) |
| Housing material | Lexan |
| Weight | 25 g |
| mounting | Socket |

### Product References

| | |
|---|---|
| **CT32R, CT33R, CT36R, UC24-48 V** | **CT3xR/UC24-48V R** |
| **CT36, UC110-240 V** | **CT3xR/UC110-240V R** |
| **CT32, CT33, UC115 V** | **CT3xR/UC115V R** |
| **CT32, CT33, UC230 V** | **CT3xR/UC230V R** |

### Dimensions




### Technical approvals, conformities

## Notes

# 3.0 Monitoring & Measuring Devices

## Notes

# 3.1 Multifunction Monitoring

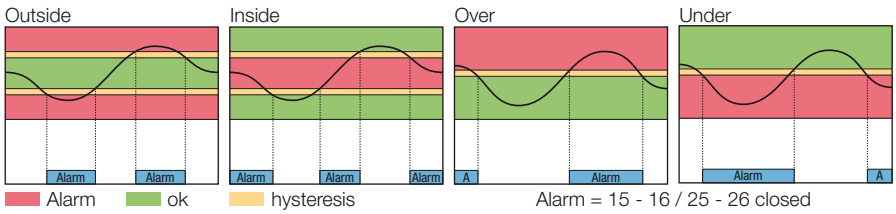


| Application | Types | Monitoring | Monitoring ratings | Output contacts | Design |
|---|---|---|---|---|---|
| **MRM Series** | | | | | |
| Multifunction monitoring I AC / DC single phase | MRM11 | | U, I, P, f, cosφ | 1 CO | 35 mm |
| Multifunction monitoring I AC / DC three phase | MRM32 | | U, I, P, f, cosφ | 2 CO | 35 mm |

# MRM11

## Multifunction Monitoring | AC / DC single phase

### Monitoring function




### Measuring circuit data

| | |
|---|---|
| Voltage setting ranges AC / DC | 0.1 … 480 V / ±0.1 … 690 V |
| Current setting ranges AC / DC | 0.1 … 5 A |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 1 MΩ / 5 MΩ |
| Measured variables | U, I, f, P, S, cosφ |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Alarm contacts

| | |
|---|---|
| Type / Material | 1 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

| **Power supply** | **UC12-48V** | **UC110-240V** |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

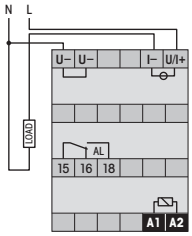
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C (no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 1 000 000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 107 g |

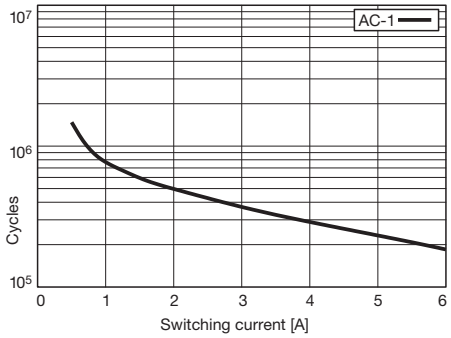
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRM11/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRM11/UC110-240V** |

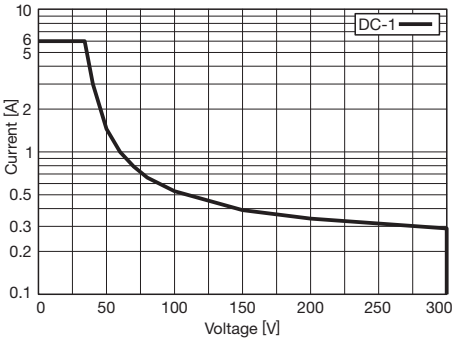
### Connection diagram



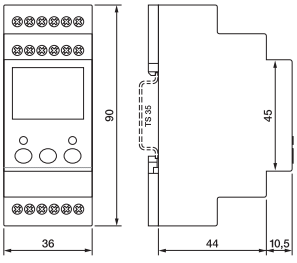

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]



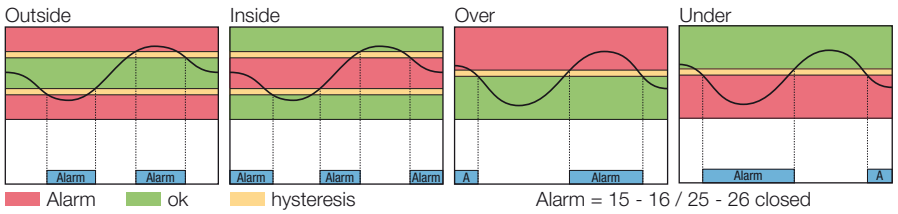

### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

# MRM32

## Multifunction Monitoring | AC / DC three phase

### Monitoring function




### Measuring circuit data

| | |
|---|---|
| Voltage setting ranges AC / DC | 0.1 … 480 V / ±0.1 … 690 V |
| Current setting ranges AC / DC | 0.1 … 5 A |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 1 MΩ / 5 MΩ |
| Measured variables | U, I, f, P, S, cosφ und Δφ (phase sequence) |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Contacts

| | |
|---|---|
| Type / Material | 2 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

| **Power supply** | **UC12-48V** | **UC110-240V** |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

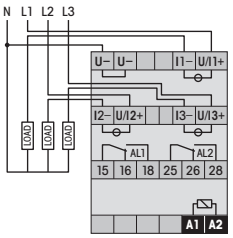
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C 8no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 1'000'000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 125 g |

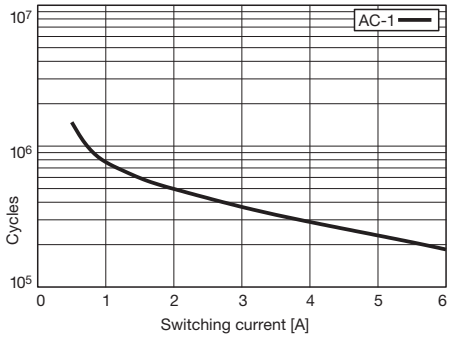
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRM32/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRM32/UC110-240V** |

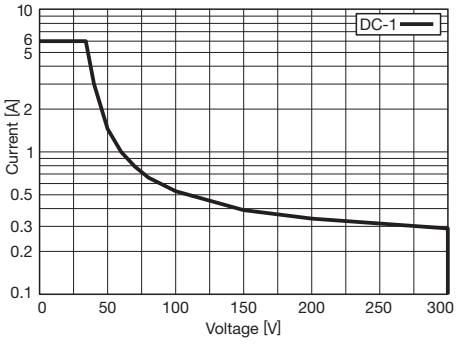
### Connection diagram



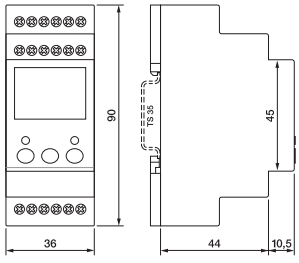

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]




### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

## Notes

# 3.2 Voltage Monitoring

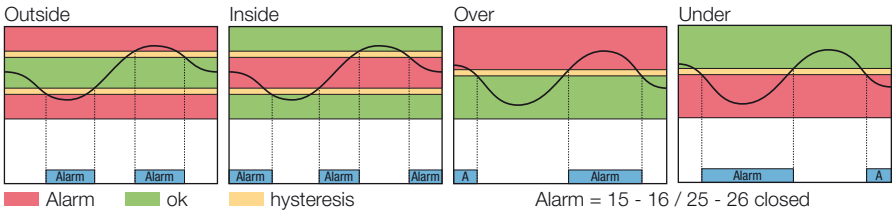


| Application | Types | Monitoring | Monitoring ratings | Output contacts | Design |
|---|---|---|---|---|---|
| **MRU Series** | | | | | |
| Voltage monitoring I AC / DC single phase | MRU11 | | 0.1 … 480 V AC / 690 V DC | 1 CO | 35 mm |
| Voltage monitoring I AC / DC three phase | MRU32 | | 0.1 … 480 V AC / 690 V DC | 2 CO | 35 mm |

# MRU11

## Voltage Monitoring | AC / DC single phase

### Monitoring function




### Measuring circuit data

| | |
|---|---|
| Voltage setting ranges AC / DC | 0.1 … 480 V / ±0.1 … 690 V |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 1 MΩ |
| Measured variables | U, f |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Alarm contacts

| | |
|---|---|
| Type / Material | 1 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

### Power supply

| | UC12-48V | UC110-240V |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

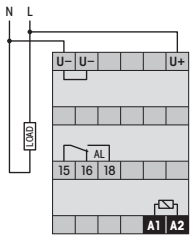
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C (no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 1 000 000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 107 g |

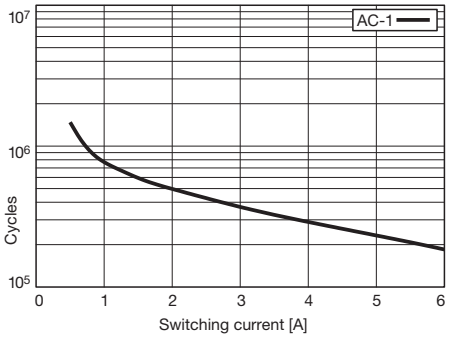
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRU11/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRU11/UC110-240V** |

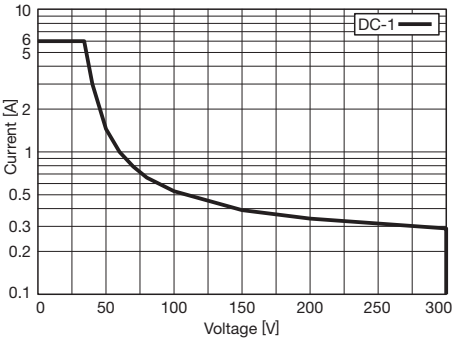
### Connection diagram



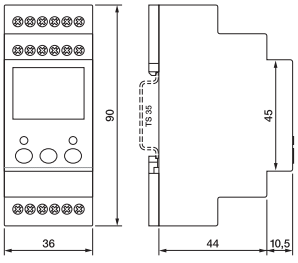

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]



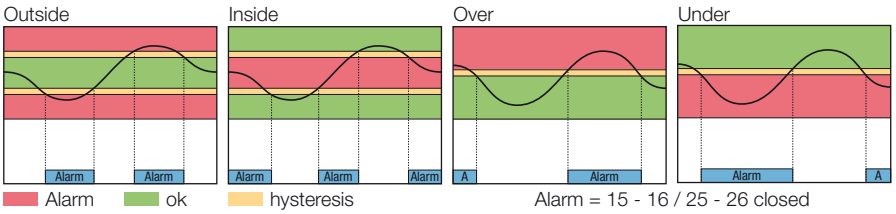

### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

# MRU32

## Voltage Monitoring | AC / DC three phase

### Monitoring function




### Measuring circuit data

| | |
|---|---|
| Voltage setting ranges AC / DC | 0.1 … 480 V / ±0.1 … 690 V |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 1 MΩ |
| Measured variables | U, f, Δφ (phase sequence) |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Alarm contacts

| | |
|---|---|
| Type / Material | 2 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

| **Power supply** | **UC12-48V** | **UC110-240V** |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

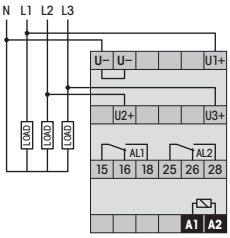
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C (no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 1 000 000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 125 g |

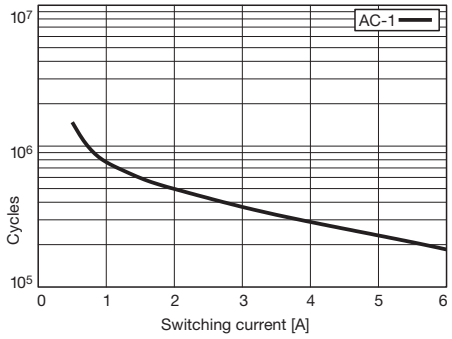
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRU32/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRU32/UC110-240V** |

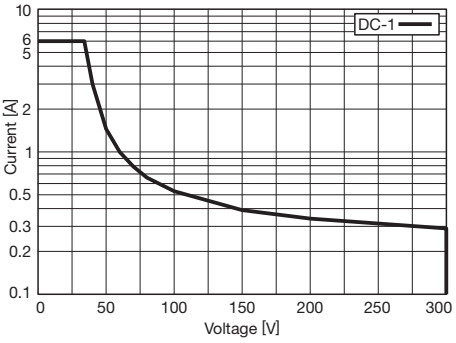
### Connection diagram



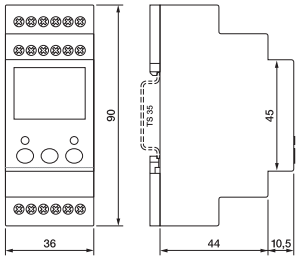

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]




### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

## Notes

# 3.3 Current Monitoring

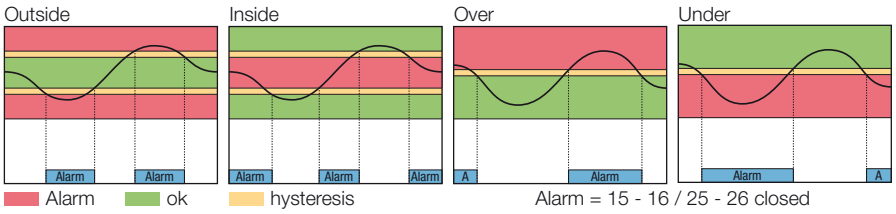


| Application | Types | Monitoring | Monitoring ratings | Output contacts | Design |
|---|---|---|---|---|---|
| **MRI Series** | | | | | |
| Current monitoring I AC / DC single phase | MRI11 | | 0.1 … 5 A | 1 CO | 35 mm |
| Current monitoring I AC / DC three phase | MRI32 | | 0.1 … 5 A | 2 CO | 35 mm |

# MRI11

## Current monitoring | AC / DC single phase

### Monitoring function



### Measuring circuit data

| | |
|---|---|
| Current setting ranges AC / DC | 0.1 … 5 A |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 5 MΩ |
| Measured variables | I, f |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Alarm contacts

| | |
|---|---|
| Type / Material | 1 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

| **Power supply** | **UC12-48V** | **UC110-240V** |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

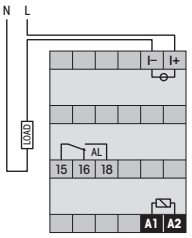
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C (no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 10 000 000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 107 g |

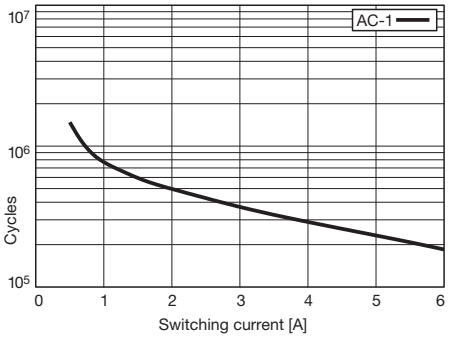
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRI11/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRI11/UC110-240V** |

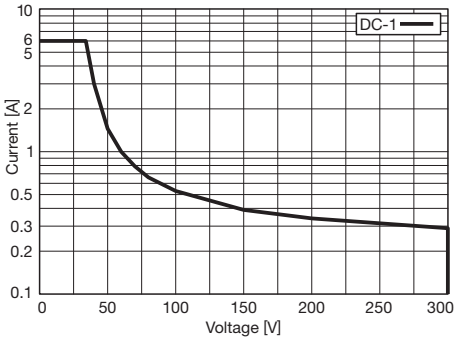
### Connection diagram



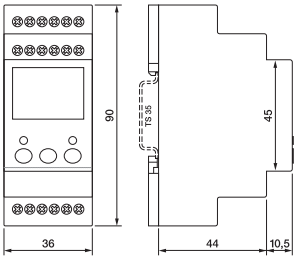

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]



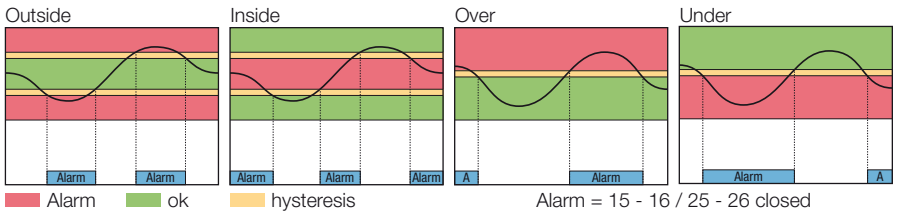

### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

# MRI32

## Current monitoring | AC / DC three phase

### Monitoring function



### Measuring circuit data

| | |
|---|---|
| Current setting ranges AC / DC | 0.1 … 5 A |
| Frequency | AC 15 … 150 Hz |
| Input resistance U / I | 5 MΩ |
| Measured variables | I, f |

### Time data

| | |
|---|---|
| Voltage failure buffering | ca. 30 ms |

### Contacts

| | |
|---|---|
| Type / Material | 2 CO / AgNi 0.15 |
| Rated operational current | 6 A |
| Max. inrush current | 15 A |
| Max. switching voltage | 250 V |
| Max. AC load AC-1 (Fig.1) | 1250 VA |
| Max. DC load DC-1, 24 V / 220 V (Fig.2) | 120 W / 25 W |
| Recommended min. contact load | 10 mA / 10 V |
| Alarm delay setting time | 0.1 … 999.9 s (factory adjustment = 0.0 s) |
| Reset time setting range | 0.1 … 999.9 s (factory adjustment = 0.0 s) |

### Power supply

| | UC12-48V | UC110-240V |
|---|---|---|
| Nominal voltage AC/DC | 12 … 48 V | 110 … 240 V |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| AC frequency | 16 … 63 Hz | 16 … 63 Hz |
| Power consumption | 1.6 W / 3.2 VA | 1.5 W / 2.6 VA |

### Insulation

| | |
|---|---|
| Measuring input – Measuring input | 1.5 kV 1 minute |
| Measuring input – Supply | 2.0 kV 1 minute |
| Measuring input – Contact | 2.0 kV 1 minute |
| Supply – Contact | 2.0 kV 1 minute |
| Contact set – Contact set | 1.5 kV 1 minute |

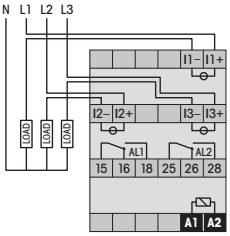
### Specifications

| | |
|---|---|
| Ambient temperature storage /operation | -40 … +85 °C / -40 …+60 °C( no ice)<br>LCD: -20 ... +60 °C (no ice) |
| Mechanical life of contacts | 30 x 10 000 000 operations |
| Conductor cross section | Stranded wire 2.5 mm², 2 x 1.5 mm² |
| Protection degree | IP20, (electronics: IP40) |
| Nominal screw torque | 0.4 Nm |
| Housing material | Lexan EXL 9330 |
| Weight | 125 g |

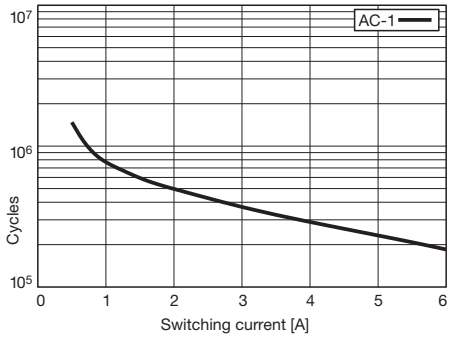
### Product References

| | |
|---|---|
| **AC/DC 12-48 V, 15…60 Hz** | **MRI32/UC12-48V** |
| **AC/DC 110-240 V, 15…60 Hz** | **MRI32/UC110-240V** |

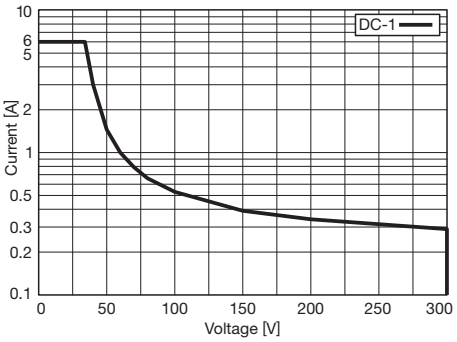
### Connection diagram



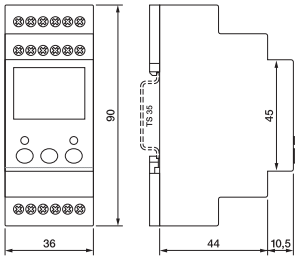

### Fig.1 AC voltage endurance




### Fig. 2 DC load limit curve




### Dimensions [mm]




### Technical approvals, conformities

IEC/EN 60730 IEC/EN 60947

## Notes

# 4.0 Sockets

| Application | Types | Pins | Reted load |
|---|---|---|---|
| Socket for 8-pin Relays and Time Cubes | S2-B | | 10 A / 300 V |
| PCB Socket for 8-pin Relays and Time Cubes | S2-PO | | 10 A / 300 V |
| Socket for 11-pin Relays and Time Cubes | S3-B | | 10 A / 300 V |
| Socket for 11-pin standard Relays and Time Cubes | S3-S | | 10 A / 250 V |
| PCB Socket for 11-pin Relays and Time Cubes | S3-L / -PO | | 10 A / 250 V |
| System Socket for 11-pin Relays and Time / Monitoring Modules | S3-MB0 / S3-MB1 | | 10 A / 250 V |
| System Socket for 11-pin Relays and Time / Monitoring Modules | S3-M | | 10 A / 250 V |
| Socket for 14-pin C4 Relays | S4-J | | 10 A / 250 V |
| PCB Socket for 14-pin C4 Relays | S4-L / -P | | 10 A / 250 V |
| Socket for 11-pin Relays | S5-M | | 16 A / 400 V |
| Socket for 11-pin Relays | S5-SSY | | 16 A / 400 V |
| PCB Socket for 11-pin Relays | S5-L / -P | | 16 A / 400 V |
| Socket for 8-pin Relays | S7-C | | 10 A / 250 V |
| Socket for 8-pin Relays | S7-IO | | 10 A / 250 V |
| PCB Socket for 8-pin Relays | S7-P | | 10 A / 250 V |
| Socket for 14-pin Relays | S9-M | | 6 A / 250 V |
| PCB Socket for 14-pin Relays | S9-P | | 6 A / 150 V |
| Socket for 5-pin Relays | S10 | | 10 A / 250 V |
| PCB Socket for 8-pin Relays | S10-P | | 10 A / 250 V |
| Socket for 8-pin Relays | S12 | | 5 A / 250 V |
| PCB Socket for 8-pin Relays | S12-P | | 5 A / 250 V |
| Socket for 8-pin Relays | S16-M |  | 10 A / 300 V |
| Socket for 8-pin Relays | S18-M |  | 10 A / 300 V |

# Socket selection for industrial Relays

| Socket Selection for industrial Relays | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Socket Type** | **Description** | **C2** | **C3** | **C4** | **C5** | **C7** | **C9** | **C10** | **C12** | **C16PTL / C18PTL** | **C18-A15PT** | **C21** | **C22** | **C31** | **C32** | **R7** | **R-Module** |
| EC-11 | Socket for industrial Relay | | ● | | | | | | | | | | | ● | ● | | |
| S2-B | Socket for industrial Relay | ● | | | | | | | | | | | | | | | |
| S2-S | Socket for industrial Relay | | | | | | | | | | | ● | ● | | | | |
| S2-L | Socket for industrial Relay | ● | | | | | | | | | | | | | | | |
| S2-P | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S2-P0 | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S3-B | Socket for industrial Relay | | ● | | | | | | | | | | | ● | ● | | |
| S3-MP | Socket for industrial Relay | | ● | | | | | | | | | | | ● | ● | | |
| S3-S | Socket for industrial Relay | | ● | | | | | | | | | | | ● | ● | | |
| S3-L | Socket for industrial Relay | | ● | | | | | | | | | | | | | | |
| S3-P | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S3-P0 | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S3-MB0 | Socket for industrial Relay | | ● | | | | | | | | | | | ● | ● | | ● |
| S3-MB1 | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S3-N | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S4-J | Socket for industrial Relay | | | ● | | | | | | | | | | | | | |
| S4-L | Socket for industrial Relay | | | ● | | | | | | | | | | | | | |
| S4-P | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S5-M | Socket for industrial Relay | | | | ● | | | | | | | | | | | | ● |
| S5-L | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S5-P | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S7-C | Socket for industrial Relay | | | | | ● | | | | | | | | | | ● | ● |
| S7-I0 | Socket for industrial Relay | | | | | ● | | | | | | | | | | ● | ● |
| S7-16 | Socket for industrial Relay | | | | | ● | | | | | | | | | | ● | ● |
| S7-P | Socket for industrial Relay | | | | | ● | | | | | | | | | | ● | |
| S7-L, | Socket for industrial Relay | | | | | ● | | | | | | | | | | ● | |
| S7-P0 | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S9-M | Socket for industrial Relay | | | | | | ● | | | | | | | | | | |
| S9-P | Socket for industrial Relay | | | | | | ● | | | | | | | | | | |
| S9-L | Socket for industrial Relay | | | | | | ● | | | | | | | | | | |
| S9-P0 | Socket for industrial Relay | | | | | | | | | | | | | | | | |
| S10 | Socket for industrial Relay | | | | | | | ● | | | | | | | | | |
| S10-P | Socket for industrial Relay | | | | | | | ● | | | | | | | | | |
| S12 | Socket for industrial Relay | | | | | | | | ● | | | | | | | | |
| S12-P | Socket for industrial Relay | | | | | | | | ● | | | | | | | | |
| S16-M | Socket for industrial Relay | | | | | | | | | ● | | | | | | | ● |
| S18-M | Socket for industrial Relay | | | | | | | | | | ● | | | | | | ● |

# Socket Accessores

| Socket Accessoires | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type** | **Description** | **S3-M** | **S3-MB0** | **S3-MB1** | **S2-B** | **S3-B** | **S5-M** | **S7-C** | **S10** | **S7-IO** | **S12** | **S9-M** | **S4-J** | **S7-L** | **S7-P** | **S9-L** | **S9-P** |
| CA-11 | Code Ring (BAG 5 PCS) | | | | | ● | | | | | | | | | | | |
| CA-8 | Code Ring (BAG 5 PCS) | | | | ● | | | | | | | | | | | | |
| C-A2 | Neutral-Connector (BAG 5 PCS or 50 PCS) | ● | ● | ● | | | ● | | | | | | | | | | |
| SC-3 | A1-Connector (BAG 10 PCS) | | ● | ● | | | ● | | | | | | | | | | |
| LH-1 | Label carrier transparent (BAG 5 PCS) | ● | ● | ● | | | | | | | | | | | | | |
| SL-36 | Label holder transparent (BAG 5 PCS) | | | | ● | ● | | | | | | | | | | | |
| SP-36 | Labeling strips (BAG 5 PCS) | | | | ● | ● | | | | | | | | | | | |
| L-16 | Labeling strips (BAG 5 PCS) | ● | ● | ● | | | | | | | | | | | | | |
| SD-1T | Lock lid transparent (BAG 5 PCS) | ● | ● | ● | | | ● | | | | | | | | | | |
| SD-1W | Lock lid white (BAG 5 PCS) | ● | ● | ● | | | ● | | | | | | | | | | |
| B20-G | Bridge Bar grey (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| B20-R | Bridge Bar red (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| B20-A | Bridge Bar blue (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| CC-30 | Clip grey | | | | | | | | | | | | | | | | |
| CMX1 | LED-Module | | | | | | | | | | | | | | | | |
| CMR1 | R/C-Module | | | | | | | | | | | | | | | | |
| PS-W | Labeling strips | | | | | | | ● | | | | | | | | | |
| S7-BB | Bridge bar (BAG 5 PCS ( 5 x 4 )) | | | | | | | ● | | ● | | | | | | | |
| S9-CH | Labeling strib white (BAG 10 PCS) | | | | | | | | | ● | | ● | | | | | |
| S10-BB | Bridge bar (BAG 20 PCS ( 5 x 4 )) | | | | | | | | ● | | | | | | | | |
| S10-RH | Labeling strib white (BAG 10 PCS) | | | | | | | | ● | | ● | | | | | | |
| S10-RT | Transparent Cover (BAG 20 PCS) | | | | | | | | ● | | | | | | | | |
| SA-O | Wall Adapter | | | | | | | ● | ● | | ● | | | | | | |
| SS-T | Transparent Cover | | | | | | | ● | | | | | | | | | |
| SS-W | White Cover | | | | | | | ● | | | | | | | | | |
| V10-G | Bridge Bar grey (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| V10-R | Bridge Bar red (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| V10-A | Bridge Bar blue (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| V40-G | Bridge Bar grey (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| V40-R | Bridge Bar red (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |
| V40-A | Bridge Bar blue (BAG 5 PCS) | | | | | | | | | | ● | | | | | | |

TURCK | comat RELECO WORLD OF RELAYS

## Clip Selection for industrial Relays

| Socket type | Made in | C2 ESP | C2 ESP + CT2 Timecube | C2 IND | CT 2 IND + CT2 Timecube | C3 ESP | C3 ESP + CT3 Timecube | C3 IND | C3 ESP + CT3 Timecube | C4 ESP | C4 CN | C5 ESP | C5 CN | C7 ESP | C7 CN | C9 ESP | C9 CN | C10 ESP | C10 CN | C10 IND | C12 ESP | C12 IND | C16PTL / C18PTL | C18-A15PT | C21 | C21 + CT2 Timecube | C22 | C22 + CT2 Timecube | C31 | C31 + CT3 Timecube | C32 | C32 + CT3 Timecube | R3 ESP | R3 IND | R7 ESP | R7 CN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EC-8 | ESP | | S3-C | | HF-32 | | S3-C | | HF-32 | | | | | | | | | | | | | | | | HF-32 | HF-33 | HF-32 | HF-33 | | | | | | | | |
| EC-11 | CN | | | | | | | | | | | | | | | | | | | | | | | | | | | | HF-32 | HF-33 | HF-32 | HF-33 | S3-C | HF-32 | | |
| S2-B. S2-S | CN | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | | HF-32 | HF-33 | HF-32 | HF-33 | | | | | | | | |
| S20-B | ESP | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S2-L, S2-P, S2-PO | ESP | | S3-C | | HF-32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S3-B | CN | | | | | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | S30-CM HF-32 | HF-33 | S30-CM HF-32 | HF-33 | S3-CM CP-15B S3-C | S30-CM HF-32 | | |
| S30-B | ESP | | | | | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | S30-CM HF-32 | HF-33 | S30-CM HF-32 | HF-33 | S3-CM CP-15B S3-C | S30-CM HF-32 | | |
| S3-MP | ESP | | | | | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | S30-CM HF-32 | HF-33 | S30-CM HF-32 | HF-33 | S3-CM CP-15B S3-C | S30-CM HF-32 | | |
| S3-S | CN | | | | | | S3-CM CP-15B S3-C | S3-CT | S30-CM HF-32 | HF-33 | | | | | | | | | | | | | | | | | | S30-CM HF-32 | HF-33 | S30-CM HF-32 | HF-33 | S3-CM CP-15B S3-C | S30-CM HF-32 | | |
| S3-L, S3-P, S3-PO | ESP | | | | | | S3-C | | HF-32 | | | | | | | | | | | | | | | | | | | | HF-32 | | HF-32 | | | | | |
| S3-MB0 | ESP | | | | | | S3-C | S3-CT | HF-32 | HF-33 | | | | | | | | | | | | | | | | | | | HF-32 | HF-33 | HF-32 | HF-33 | | | | | |
| S4-J | CN | | | | | | | | | | S3-CM CP-15B S3-C | S3-CM CP-15B S3-C | | | | | | | | | | | | | | | | | | | | | | | | | |
| S4-L, S4-P, S4-PO | ESP | | | | | | | | | | S4-CL | S4-CL | | | | | | | | | | | | | | | | | | | | | | | | |
| S5-S | ESP | | | | | | | | | | | | S3-CM CP-15B S4-C | S3-CM CP-15B S4-C | | | | | | | | | | | | | | | | | | | | | | |
| S5-M | CN | | | | | | | | | | | | S5MCP HF-32 | S5MCP HF-32 | | | | | | | | | | | | | | | | | | | | | | |
| S7-C | CN | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B | | | | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B |
| S7-I0 | ESP | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B | | | | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B |
| S7-I0 | CN | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B | | | | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B |
| S7-16 | ESP | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B | | | | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B |
| S7-P | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B | | | | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B |
| S7-L, S7-PO | ESP | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B | | | | | | | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B |
| S9-M | CN | | | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B | | | | | | | | | | | | | | | | | | | |
| S9-P | | | | | | | | | | | | | | | | | S7-CPO CP-07B | S7-CPO CP-07B | | | | | | | | | | | | | | | | | | | |
| S9-L, S9-PO | ESP | | | | | | | | | | | | | | | | S9-C CP-01B | S9-C CP-01B | | | | | | | | | | | | | | | | | | | |
| S10 | CN | | | | | | | | | | | | | | | | | | S10-C CP-17B | S10-C CP-17B | S10-C CP-17B | | | | | | | | | | | | | | | | |
| S10-P | CN | | | | | | | | | | | | | | | | | | CP-24B | CP-24B | CP-24B | | | | | | | | | | | | | | | | |
| S12 | CN | | | | | | | | | | | | | | | | | | | | | S10-C CP-17B | S10-C CP-17B | | | | | | | | | | | | | | |
| S12-P | ESP | | | | | | | | | | | | | | | | | | | | | CP-24B | CP-24B | | | | | | | | | | | | | | |
| S16-M | CN | | | | | | | | | | | | | | | | | | | | | | | CP-16 | | | | | | | | | | | | |
| S18-M | CN | | | | | | | | | | | | | | | | | | | | | | | | CP-16 | | | | | | | | | | | | |

# S2-B

## Socket for 8-pin Relays and Time Cubes

| | |
|---|---|
| **Rated Load** | **10 A / 300 V** |

**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm² / AWG 12 or 2 x 2.5 mm² / AWG 14 |
| – Multi-wire | 0.34 mm² / AWG 22 - 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation / storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Weight | 48g |

**Included Accessories**

| | |
|---|---|
| Retaining Clip, plastic | S30-CM for C2 / C2x Relays |

**Optional Accessories**

| | |
|---|---|
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C2 / C2x Relays<br>HF-33 (BAG 10 PCS) for Time Cube CTx |

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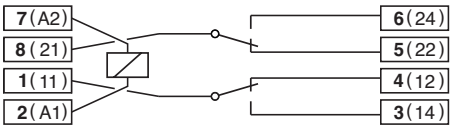
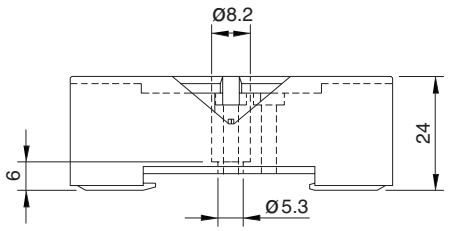
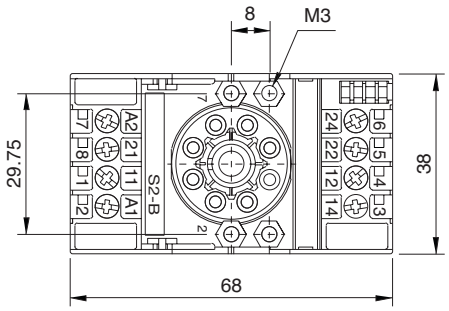
### Connection diagram




### Dimensions [mm]



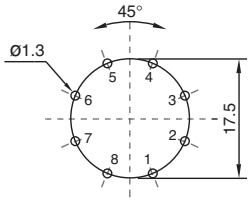

### Technical approvals, conformities

# S2-PO

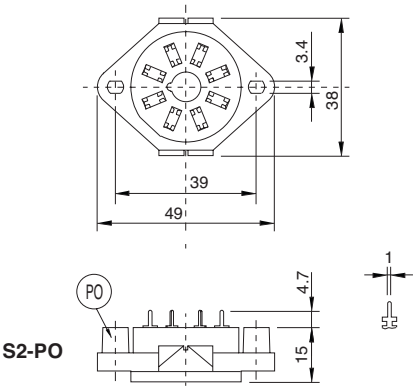
## PCB Socket for 8-pin Relays and Time Cubes

| | |
|---|---|
| **Rated Load** | **10 A / 300 V** |
| **Specifications** | |
| Rated impulse withstand voltage | |
| – Pin / Pin | 2.5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 ºC /-40 ... 80 °C (no ice) |
| Weight | 17g |
| **Optional Accessories** | |
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C2 / C2x Relays<br>HF-33 (BAG 10 PCS) for Time Cube CTx |

### Printed circuit lay-out [mm]




### Dimensions [mm]




S2-PO

### Technical approvals, conformities

# S3-B

## Socket for 11-pin Relays and Time Cubes

| | |
|---|---|
| **Rated Load** | **10 A / 300 V** |

**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm² / AWG 12 or 2 x 2.5 mm² / AWG 14 |
| – Multi-wire | 0.34 mm² / AWG 22 - 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 55g |

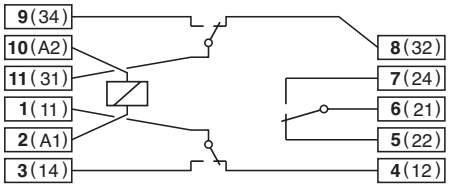
**Included Accessories**

| | |
|---|---|
| Retaining Clip, plastic | S30-CM for C3 / C3x Relays |

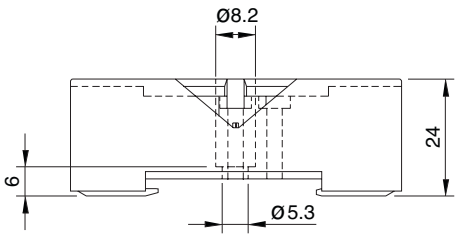
**Optional Accessories**

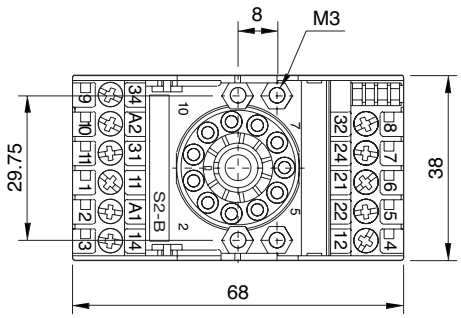
| | |
|---|---|
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C3 / C3x Relays |
| | HF-33 (BAG 10 PCS) for Time Cube CTx |
| Coding Ring | S3-BC (BAG 5 PCS) for C3 / C3x Relays |

### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S3-S

## Socket for 11-pin standard Relays and Time Cubes

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

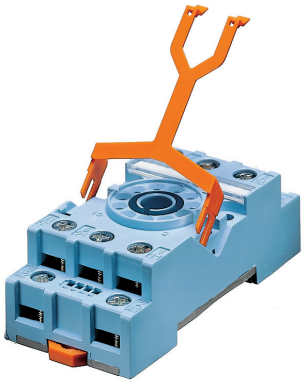
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm² / AWG 12 or 2 x 2.5 mm² / AWG 14 |
| – Multi-wire | 0.34 mm² / AWG 22 - 2.5 mm² / AWG 14 |
| Nominal screw torque | 1.2 Nm |
| Screw dimensions | M3.5 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40….60 °C /-40 ... 80 °C (no ice) |
| Weight | 69g |

**Included Accessories**

| | |
|---|---|
| Retaining Clip, plastic | S30-CM for C3 / C3x Relays |

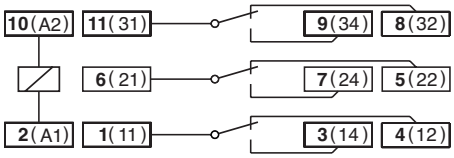
**Optional Accessories**

| | |
|---|---|
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C3 / C3x Relays |
| | HF-33 (BAG 10 PCS) for Time Cube CTx |
| Coding Ring | S3-BC (BAG 5 PCS) for C3 / C3x Relays |

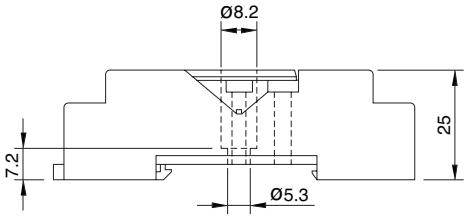


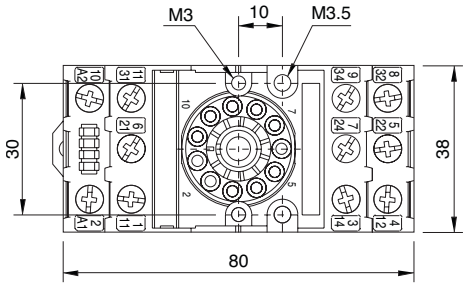
11

### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S3-L, S3-PO

## PCB Socket for 11-pin Relays and Time Cubes

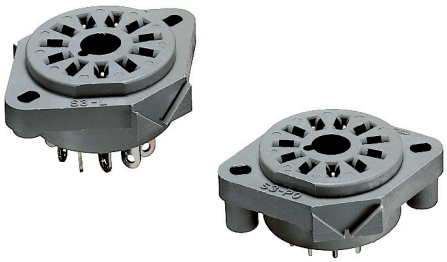
| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

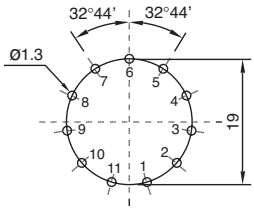
| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pin | 2.5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 17g |

**Optional Accessories**

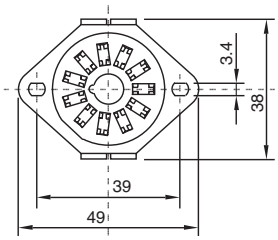
| | |
|---|---|
| Retaining spring, steel | HF-32 (BAG 10 PCS) for C3 / C3x Relays |



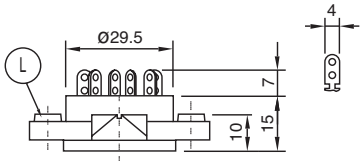
### Printed circuit lay-out [mm]



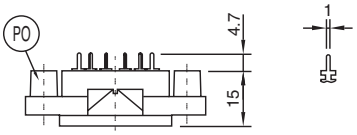

### Dimensions [mm]




S3-L




S3-PO




### Technical approvals, conformities

# S3-M

## Socket for 11-pin Relays and Time / Monitoring Module

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

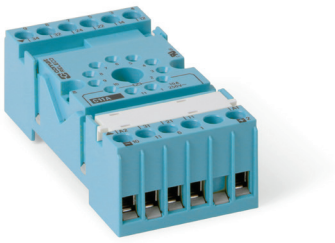
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 x 6 mm²/ AWG 10, 2 x 1.5 mm²/ AWG 16 |
| – Multi-wire | 1 x 4 mm²/AWG 12, 2 x 1.5 mm²/AWG 16 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -25 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 61g |

**Included Accessories**

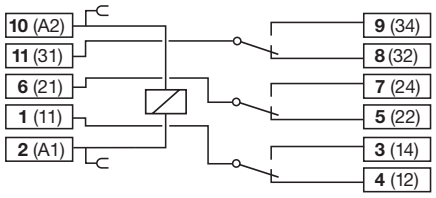
| | |
|---|---|
| A2-Connector | C-A2 |

**Optional Accessories**

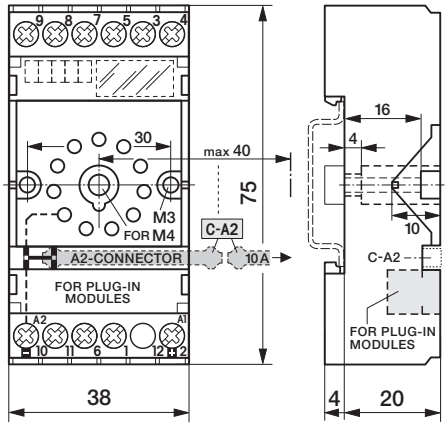
| | |
|---|---|
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C3 / C3x Relays |
| | HF-33 (BAG 10 PCS) for Time Cube CTx |
| Coding Ring | S3-BC (BAG 5 PCS) for C3 / C3x Relays |
| A2-Connector | C-A2 (BAG 5 PCS), C-A2 (BAG 50 PCS) |
| Freewheeling Diode Module | RD1/DC12-220V |
| RC-Suppressor Module | RC1/UC110-240V |



### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

IEC/EN 50155

# S3-MB0 / S3-MB1

## Socket for 11-pin Relays and Time / Monitoring Module

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

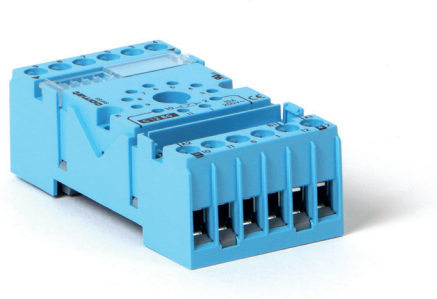
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 x 6 mm²/ AWG 10, 2 x 1.5 mm²/ AWG 16 |
| – Multi-wire | 1 x 4 mm²/AWG 12, 2 x 1.5 mm²/AWG 16 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -25 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 61g |

**Included Accessories**

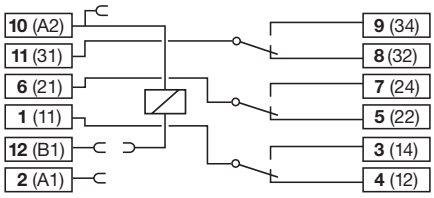
| | |
|---|---|
| A2-Connector | C-A2 |

**Optional Accessories**

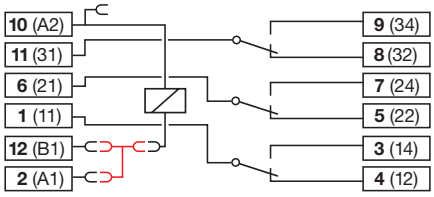
| | |
|---|---|
| Retaining clip, steel | HF-32 (BAG 10 PCS) for C3 / C3x Relays |
| | HF-33 (BAG 10 PCS) for Time Cube CTx |
| Coding Ring | S3-BC (BAG 5 PCS) for C3 / C3x Relays |
| A2-Connector | C-A2 (BAG 5 PCS), C-A2 (BAG 50 PCS) |
| Freewheeling Diode Module | RD1/DC12-220V |
| RC-Suppressor Module | RC1/UC110-240V |



### Connection diagram S3-MB0

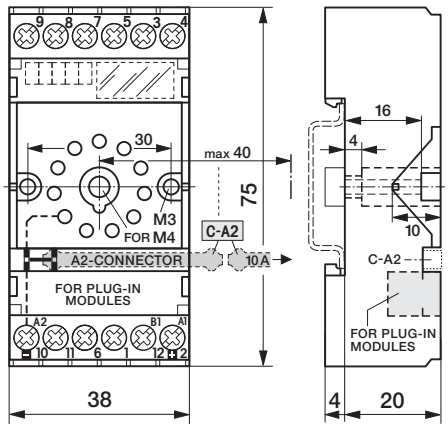



### Connection diagram S3-MB1




With Bridge Connector SC-3

### Dimensions [mm]




### Technical approvals, conformities

# S4-J

## Socket for 14-pin C4 Relays

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

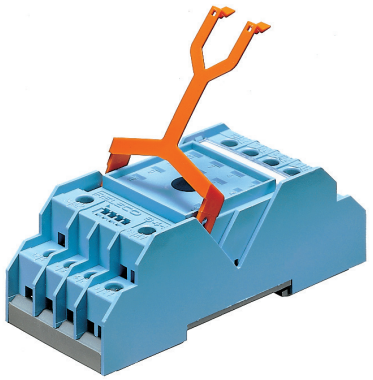
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm² / AWG 12 or 2 x 2.5 mm² / AWG 14 |
| – Multi-wire | 0.34 mm² / AWG 22 - 2.5 mm² / AWG 14 |
| Nominal screw torque | 1 Nm |
| Screw dimensions | M3.5 Philips-slot (combo) |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 80g |

**Included Accessories**

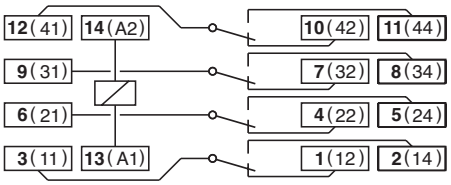
| | |
|---|---|
| Retaining Clip, plastic | S3-C for C4 / C4x Relays |

**Optional Accessories**

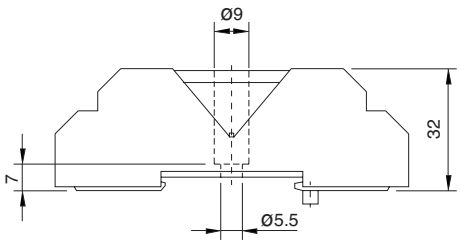
| | |
|---|---|
| Retaining Clip, plastic | S3-C (BAG 10 PCS) for C4 Relays |

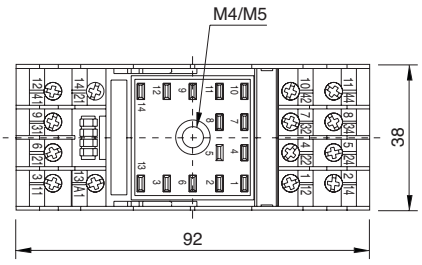


### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S4-L, S4-P

## PCB Socket for 14-pin C4 Relays

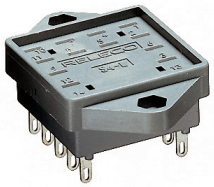
| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

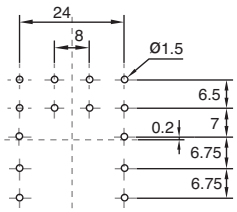
| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pin | 2.5 kV rms / 1 min |
| Ambient temperature | -30 °C ... +60 °C (no ice) |
| Weight | 21g |

**Optional Accessories**

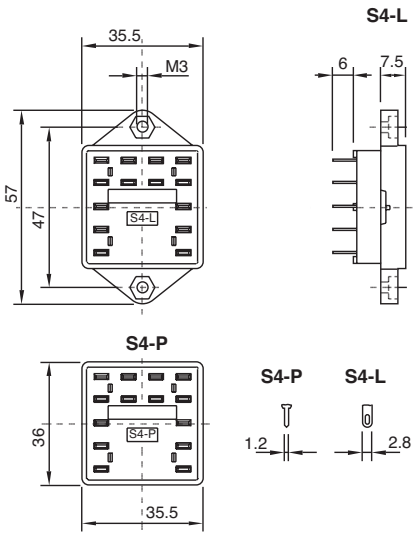
| | |
|---|---|
| Retaining spring, steel | S4-CL for C4 / C4x Relays |



### Printed circuit lay-out [mm]




### Dimensions [mm]




### Technical approvals, conformities

# S5-M

## Socket for 11-pin Relays

| | |
|---|---|
| **Rated Load** | **16 A / 400 V** |

**Specifications**

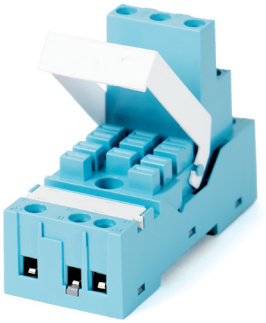
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 4 kV rms / 1 min |
| – Terminal / Terminal | 4 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 x 6 mm²/ AWG 10, 2 x 2.5 mm²/ AWG 14 |
| – Multi wire | 1 x 6 mm²/ AWG 10, 2 x 1.5 mm²/ AWG 16 |
| Nominal screw torque | 1 Nm |
| Screw dimensions | M3.5 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation / storage | -40 … 60° C/-40 … 80° C (no ice) |
| Weight | 92g |

**Integrated Accessories**

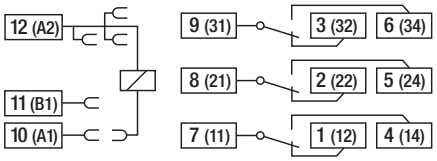
| | |
|---|---|
| A2-Connector | C-A2 |
| Retaining clip, plastic | S5M-CP for C5 / C5x Relays |
| A1-, B1-Connector | SC-3 |

**Optional Accessories**

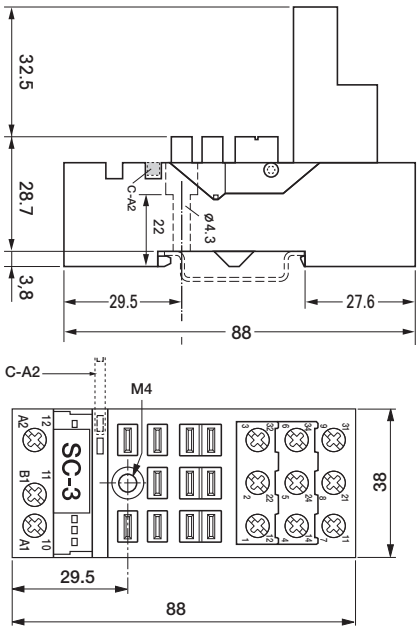
| | |
|---|---|
| Retaining Clip, steel | HF-32 (BAG 10 PCS) for C5 / C5x Relays |
| A2-Connector | C-A2 (BAG 5 PCS), C-A2 (BAG 50 PCS) |
| A1-, B1-Connector | SC-3 (BAG 10 PCS) |



### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S5-L, S5-P

## PCB Socket for 11-pin Relays

| | |
|---|---|
| **Rated Load** | **16 A / 400 V** |

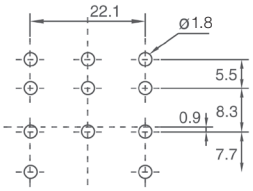
**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pin | 2.5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 °C / -40 ... 80 °C (no ice) |
| Weight | 20g |

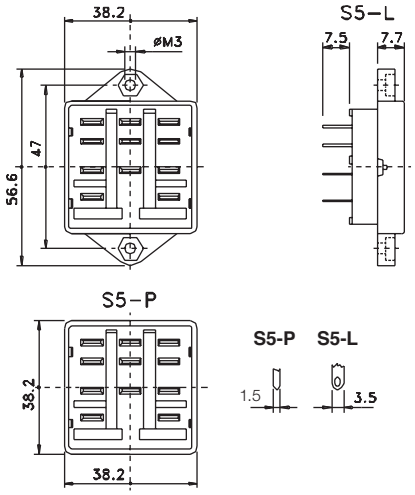
**Optional Accessories**

| | |
|---|---|
| Retaining spring, steel | S5-CL for C5 / C5x Relays |

### Printed circuit lay-out [mm]




### Dimensions [mm]




### Technical approvals, conformities

# S5-SSY

## Socket for 11-pin Relays

| | |
|---|---|
| **Rated Load** | **16 A / 400 V** |

**Specifications**

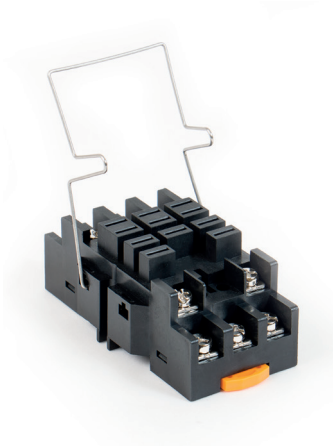
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 4 kV rms / 1 min |
| – Terminal / Terminal | 4 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 x 6 mm²/ AWG 10, 2 x 2.5 mm²/ AWG 14 |
| – Multi wire | 1 x 6 mm²/ AWG 10, 2 x 1.5 mm²/ AWG 16 |
| Nominal screw torque | 1 Nm |
| Screw dimensions | M3.5 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation / storage | -40 … 60° C/-40 … 80° C (no ice) |
| Weight | 92 g |

**Integrated Accessories**

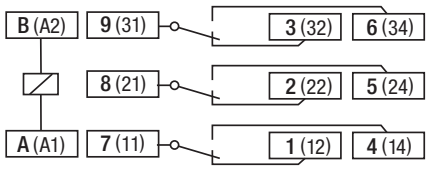
| | |
|---|---|
| A2-Connector | C-A2 |
| Retaining clip, plastic | S5M-CP for C5 / C5x Relays |
| A1-, B1-Connector | SC-3 |

**Optional Accessories**

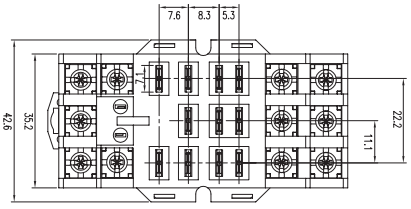
| | |
|---|---|
| Retaining Clip, steel | HF-32 (BAG 10 PCS) for C5 / C5x Relays |
| A2-Connector | C-A2 (BAG 5 PCS), C-A2 (BAG 50 PCS) |
| A1-, B1-Connector | SC-3 (BAG 10 PCS) |

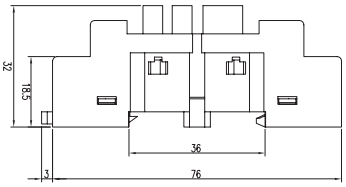


### Anschlussschema




### Abmessungen [mm]




### Technische Zulassungen, Konformitäten

# S7-C

## Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A, 16 A for 1-pole / 250 V** |

**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm²/ AWG 12, 2 x 1.5 mm²/ AWG 16 |
| – Multi wire | 2.5 mm²/ AWG 14, 2 x 1 mm²/ AWG 18 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40…60 °C (50 °C for 16 A) / -40…80 °C (no ice) |
| Weight | 37g |

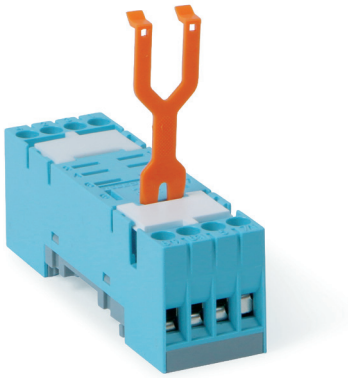
**Included Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B for C7 / C7x Relays |

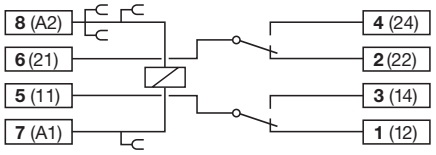
**Optional Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B (BAG 50 PCS) for C7 / C7x Relays |
| A2-Connector | S7-BB (BAG 20 PCS) |
| Panel Adapter | S9-G |

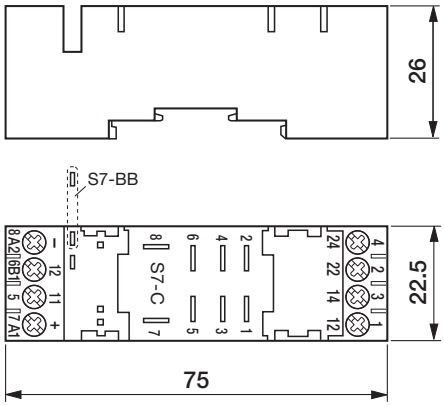
**Please Note:**
This socket replaces former socket S7-M and S7-16



### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S7-IO

## Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

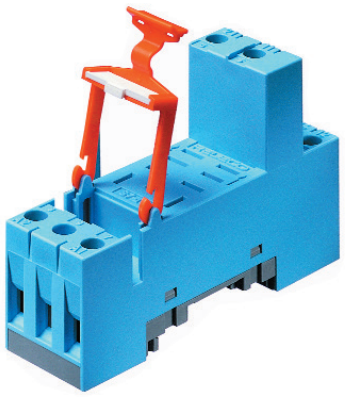
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm²/ AWG 12, 2 x 2.5 mm²/ AWG 14 |
| – Multi wire | 0.34 mm²/ AWG 22 - 2.5 mm²/ AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40…60 °C / -40 ... 80 °C (no ice) |
| Weight | 38g |

**Included Accessories**

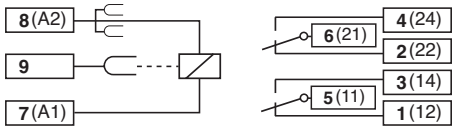
| | |
|---|---|
| Retaining clip, plastic | S9-C for C7 / C7x Relays |

**Optional Accessories**

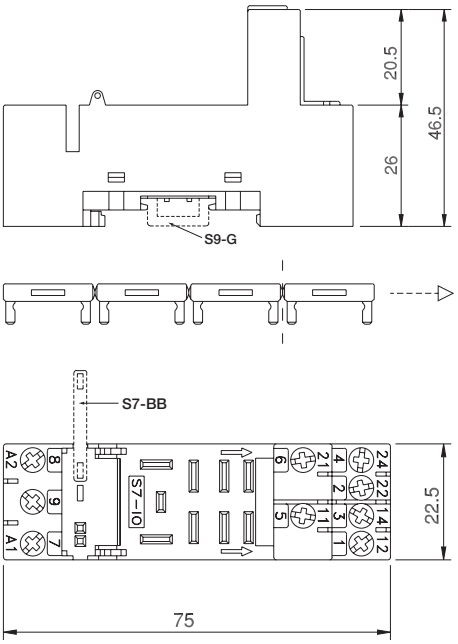
| | |
|---|---|
| Retaining clip, plastic | S9-C (BAG 10 PCS) for C7 / C7x Relays |
| A2-Connector | S7-BB (BAG 20 PCS) |
| Panel Adapter | S9-G (BAG 10 PCS) |



### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S7-P

## PCB Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

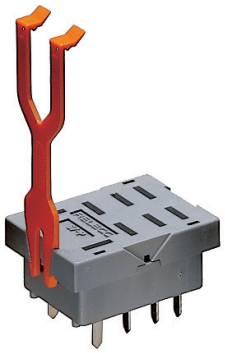
| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pin | 2.5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 10g |

**Included Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B for C7 / C7x Relays |

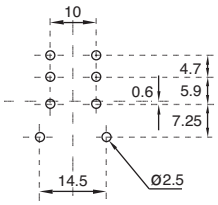
**Optional Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B (BAG 50 PCS) for C7 / C7x Relays |



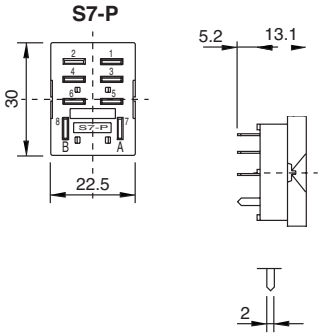
### Printed circuit lay-out [mm]

S7-P




### Dimensions [mm]

S7-P




### Technical approvals, conformities

# S9-M

## Socket for 14-pin Relays

| | |
|---|---|
| **Rated Load** | **6 A / 250 V** |

**Specifications**

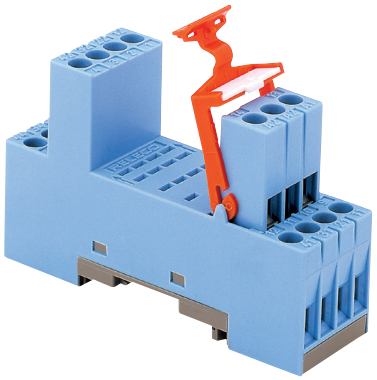
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 2.5 kV rms / 1 min |
| – Terminal / Terminal | 2.5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm²/ AWG 12 or 2 x 2.5 mm²/ AWG 14 |
| – Multi-wire | 0.34mm²/ 22 - 2.5 mm²/ AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 54 g |

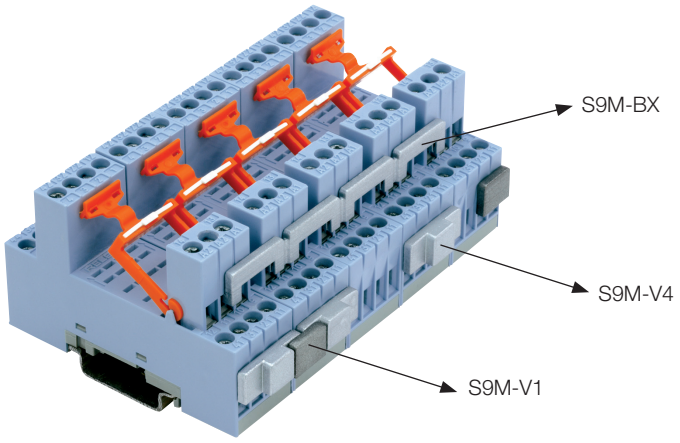
**Included Accessories**

| | |
|---|---|
| Retaining clip, plastic | S9-C for C9 / C9x Relays |

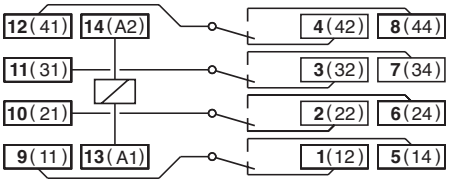
**Optional Accessories**

| | |
|---|---|
| Retaining clip, plastic | S9 (BAG 10 PCS) for C9 / C9x Relays |
| Panel Adapter | S9-G (BAG 10 PCS) |
| Bridge Bar | S9M-V1 (BAG 5 PCS) |
| Bridge Bar | S9M-V4 (BAG 5 PCS) |
| Bridge Bar | S9M-BX (BAG 5 PCS) |

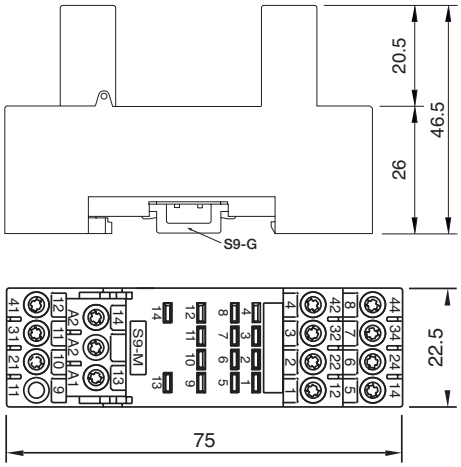





### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S9-P

## PCB Socket for 14-pin Relays

| | |
|---|---|
| **Rated Load** | **6 A / 150 V** |

**Specifications**

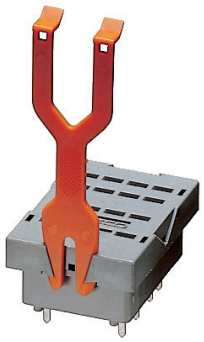
| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pin | 1.5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 12 g |

**Included Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B for C9 / C9x Relays |

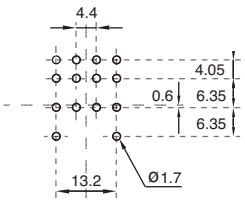
**Optional Accessories**

| | |
|---|---|
| Retaining clip, plastic | CP-07B (BAG 50 PCS) for C9 / C9x Relays |



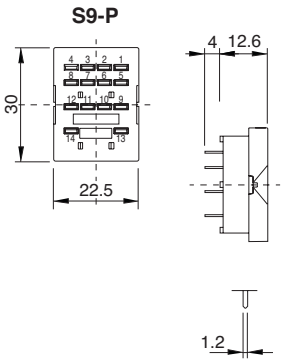
### Printed circuit lay-out [mm]

S9-P




### Dimensions [mm]

S9-P




This print socket must be used in pollution degree 2 environment only, hence office, laboratory, household or similar. It is not suitable for industry environment (pollution degree 3).

Maximum voltage between two separate circuits on neighbouring contacts: 150 V
**Not permitted:** 24 V DC next to 230 V AC, 230 V AC next to neutral, 230 V AC next to 230 V AC of different phases
**Permitted:** 230 V AC next to 230 V AC same phase

### Technical approvals, conformities

# S10

## Socket for 5-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |

**Specifications**

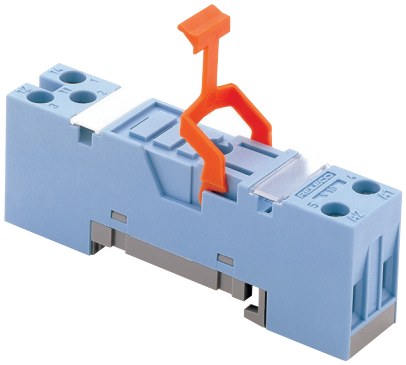
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 5 kV rms / 1 min |
| – Contact / Terminals | 2.5 kV rms / 1 min |
| – Contact / Coil terminals | 5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm² / AWG 12 or 2 x 2.5 mm² / AWG 14 |
| – Multi-wire | 0.34mm² / 22 - 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40….60 ºC /-40 ... 80 °C (no ice) |
| Weight | 23g |

**Included Accessories**

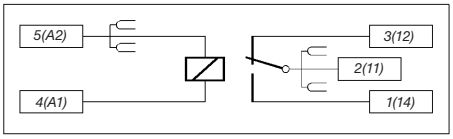
| | |
|---|---|
| Retaining Clip, plastic | S10-C for C10 / C10x Relays |

**Optional Accessories**

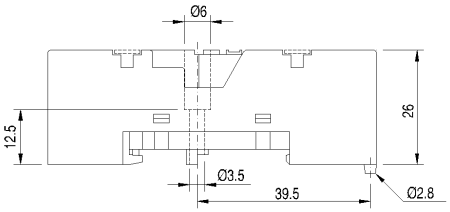
| | |
|---|---|
| Retaining clip, plastic | S10-C / CP-17B (BAG 10 PCS) for C10 / C10x |
| Bridge bar | S10-BB (BAG 20 PCS) |

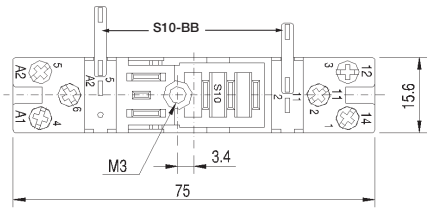


### Connection diagram




### Dimensions [mm]



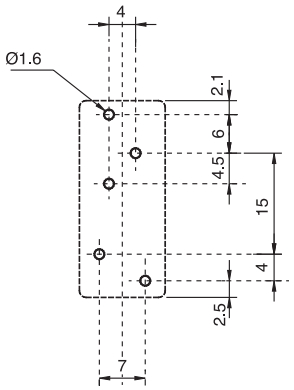

### Technical approvals, conformities

# S10-P

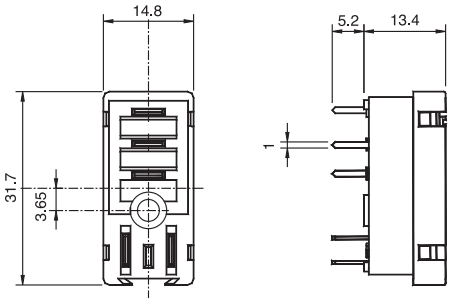
## PCB Socket for 5-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 250 V** |
| **Specifications** | |
| Rated impulse withstand voltage | |
| – Pin / Pin | 5 kV rms / 1 min |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 7g |
| **Included Accessories** | |
| Retaining clip, plastic | CP-24B for C10 / C10x Relays |

### Printed circuit lay-out [mm]




### Dimensions [mm]




### Technical approvals, conformities

# S12

## Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **5 A / 250 V** |

**Specifications**

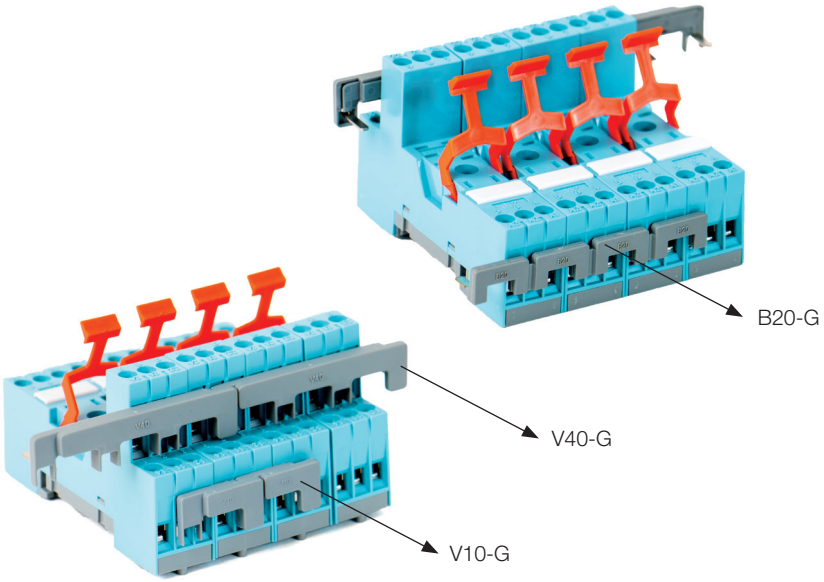
| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 5 kV rms / 1 min |
| – Contact / Terminals | 2.5 kV rms / 1 min |
| – Contacts / Coil terminals | 5 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 4 mm²/ AWG 12 or 2 x 2.5 mm²/ AWG 14 |
| – Multi-wire | 0.34mm²/ 22 - 2.5 mm²/ AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi slot |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature operation/storage | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 31g |

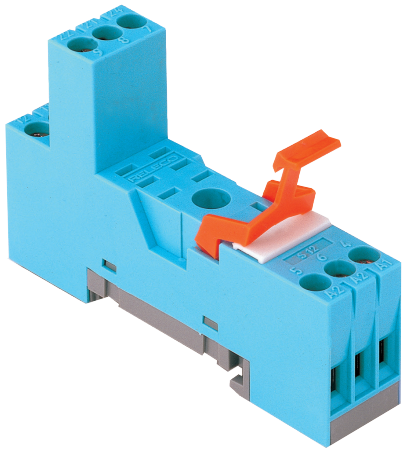
**Included Accessories**

| | |
|---|---|
| Retaining Clip, plastic | S10-C for C12 / C12x Relays |

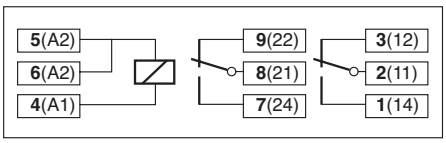
**Optional Accessories**

| | |
|---|---|
| Retaining Clip, plastic | S10-C / CP-17B (BAG 10 PCS) for C12 / C12x Relays |
| A2-Connector grey | B20-G (BAG 5 PCS) |
| A2-Connector red | B20-R (BAG 5 PCS) |
| A2-Connector blue | B20-A (BAG 5 PCS) |
| Bridge Bar twofold grey | V10-G (BAG 5 PCS) |
| Bridge Bar twofold red | V10-RC (BAG 5 PCS) |
| Bridge Bar twofold blue | V10-AC (BAG 5 PCS) |
| Bridge Bar fourfold grey | V40-G (BAG 5 PCS) |
| Bridge Bar fourfold red | V40-R (BAG 5 PCS) |
| Bridge Bar fourfold blue | V40-AC (BAG 5 PCS) |

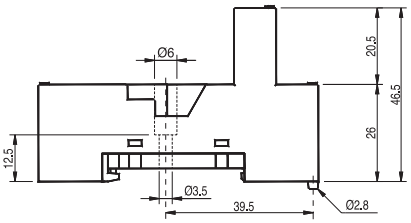


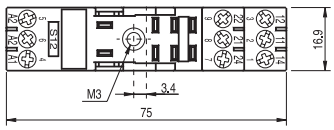



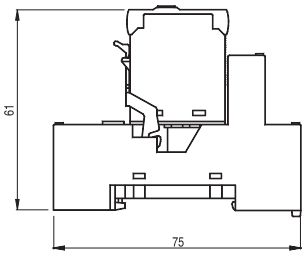
## Connection diagram




## Dimensions [mm]




## Technical approvals, conformities

# S12-P

## PCB Socket for 8-pin Relays

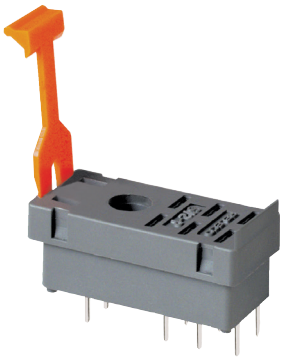
| | |
|---|---|
| **Rated Load** | **5 A / 250 V** |

**Specifications**

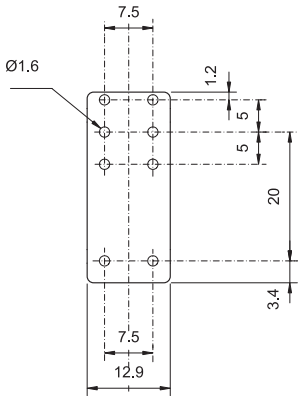
| | |
|---|---|
| Rated impulse withstand voltage | |
| – Pin / Pole | 3 kV rms / 1 min |
| – Coil / contact terminals | 5 kV rms / 1 min |
| Weight | 7 g |

**Included Accessories**

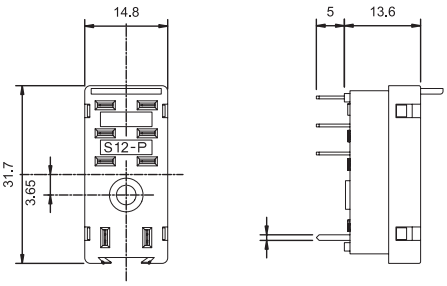
| | |
|---|---|
| Retaining clip, plastic | CP-24B for C12 / C12x Relays |



### Printed circuit lay-out [mm]




### Dimensions [mm]




### Technical approvals, conformities

# S16-M

## Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 300 V** |

**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 3 kV rms / 1 min |
| – Terminal / Terminal | 3 kV rms / 1 min |
| – Terminal / Coil | 3 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 × 0.5 mm² / AWG 20 |
| – Multi-wire | 1 × 2.5 mm² / AWG 14 or 2 × 1.0 mm² / AWG 18 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi 1 slot 2 |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature | -40….60 °C /-40 ... 80 °C (no ice) |
| Weight | 42 g |

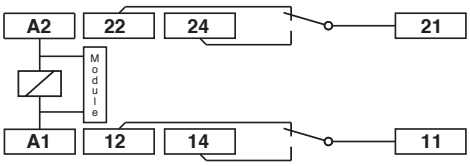
**Included Accessories**

| | |
|---|---|
| Retaining / Ejector clip, plastic | CP-16 |

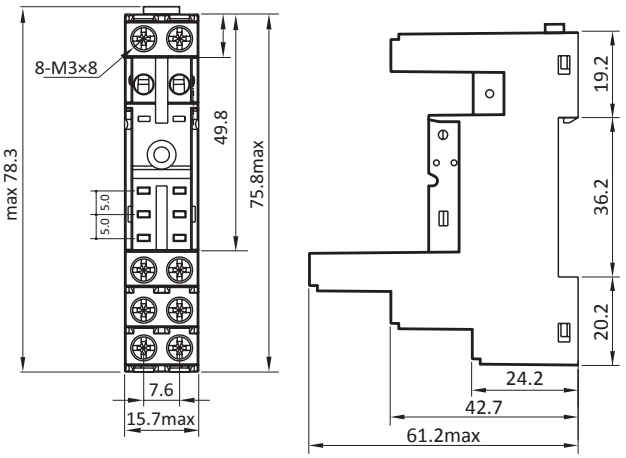
**Optional Accessories (modules)**

| | |
|---|---|
| Free wheeling diode | RD16/DC12-240V |
| Green LED & free wheeling diode, 6-24VDC | RDL16/DC6-24V |
| Green LED & free wheeling diode, 24-60VDC | RDL16/DC24-60V |
| Green LED & free wheeling diode, 110-240VDC | RDL16/DC110-240V |
| Green LED, 6-24V AC/DC | RL16/UC6-24V |
| Green LED, 24-60V AC/DC | RL16/UC24-60V |
| Green LED, 110-240V AC/DC | RL16/UC110-240V |
| RC-Network 6-24V | RC16/UC6-24V |
| RC-Network 24-60V | RC16/UC24-60V |
| RC-Network 110-240V | RC16/UC110-240V |

### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

# S18-M

## Socket for 8-pin Relays

| | |
|---|---|
| **Rated Load** | **10 A / 300 V** |

**Specifications**

| | |
|---|---|
| Rated impulse withstand voltage | |
| – All terminals / DIN rail | 3 kV rms / 1 min |
| – Terminal / Terminal | 3 kV rms / 1 min |
| – Terminal / Coil | 3 kV rms / 1 min |
| Cross-section of connecting wire | |
| – Single-wire | 1 × 0.5 mm² / AWG 20 |
| – Multi-wire | 1 × 2.5 mm² / AWG 14 or 2 × 1.0 mm² / AWG 18 |
| Nominal screw torque | 0.7 Nm |
| Screw dimensions | M3 Pozi 1 slot 2 |
| Mounting | TS-35 or Back Panel Mounting |
| Ambient temperature | -40 ….60 °C /-40 ... 80 °C (no ice) |
| Weight | 42 g |

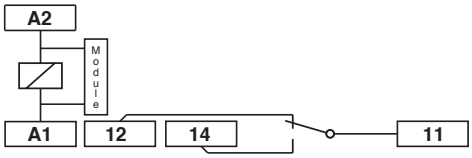
**Included Accessories**

| | |
|---|---|
| Retaining / Ejector clip, plastic | CP-16 |

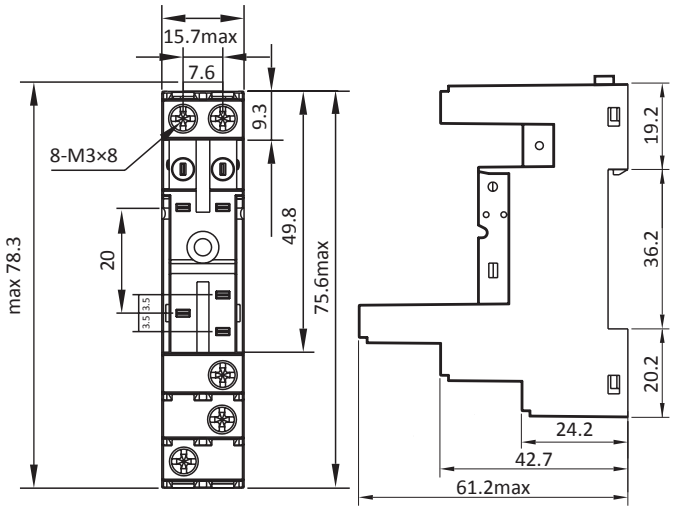
**Optional Accessories (modules)**

| | |
|---|---|
| Free wheeling diode | RD16/DC12-240V |
| Green LED & free wheeling diode, 6-24VDC | RDL16/DC6-24V |
| Green LED & free wheeling diode, 24-60VDC | RDL16/DC24-60V |
| Green LED & free wheeling diode, 110-240VDC | RDL16/DC110-240V |
| Green LED, 6-24V AC/DC | RL16/UC6-24V |
| Green LED, 24-60V AC/DC | RL16/UC24-60V |
| Green LED, 110-240V AC/DC | RL16/UC110-240V |
| RC-Network 6-24V | RC16/UC6-24V |
| RC-Network 24-60V | RC16/UC24-60V |
| RC-Network 110-240V | RC16/UC110-240V |

### Connection diagram




### Dimensions [mm]




### Technical approvals, conformities

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