

- > Designed for inductive loads.
- > Response time of instantaneous trip: 5 – 10 x I_n current rating
- > UL Recognized and CSA Certified as Supplementary Protectors
- > For international and domestic use (conform to IEC / EN60898)

Type C Characteristics

Suitable for applications where medium levels of inrush current are expected. Instantaneous trip is 5 to 10 x rating of device (I_n). Applications include small transformers, lighting, pilot devices, control circuits, and coils. Medium magnetic trip point.

Trip Characteristic C – Designed for inductive loads ❶

Rated Current I_n [A]	1 pole		2 poles		3 poles		4 poles	
								
	Catalog Number	Price	Catalog Number	Price	Catalog Number	Price	Catalog Number	Price
0.5	FAZ-C0,5/1	32	FAZ-C0,5/2	70	FAZ-C0,5/3	105	FAZ-C0,5/4	134
1	FAZ-C1/1	32	FAZ-C1/2	70	FAZ-C1/3	105	FAZ-C1/4	134
1.6	FAZ-C1,6/1	32	FAZ-C1,6/2	70	FAZ-C1,6/3	105	FAZ-C1,6/4	134
2	FAZ-C2/1	32	FAZ-C2/2	70	FAZ-C2/3	105	FAZ-C2/4	134
3	FAZ-C3/1	32	FAZ-C3/2	70	FAZ-C3/3	105	FAZ-C3/4	134
4	FAZ-C4/1	32	FAZ-C4/2	70	FAZ-C4/3	105	FAZ-C4/4	134
6	FAZ-C6/1	26	FAZ-C6/2	59	FAZ-C6/3	88	FAZ-C6/4	125
8	FAZ-C8/1	26	FAZ-C8/2	59	FAZ-C8/3	88	FAZ-C8/4	125
10	FAZ-C10/1	26	FAZ-C10/2	59	FAZ-C10/3	88	FAZ-C10/4	125
13	FAZ-C13/1	26	FAZ-C13/2	59	FAZ-C13/3	88	FAZ-C13/4	125
16	FAZ-C16/1	26	FAZ-C16/2	59	FAZ-C16/3	88	FAZ-C16/4	125
20	FAZ-C20/1	26	FAZ-C20/2	59	FAZ-C20/3	88	FAZ-C20/4	125
25	FAZ-C25/1	26	FAZ-C25/2	59	FAZ-C25/3	88	FAZ-C25/4	125
32	FAZ-C32/1	26	FAZ-C32/2	59	FAZ-C32/3	88	FAZ-C32/4	125
40	FAZ-C40/1	30	FAZ-C40/2	65	FAZ-C40/3	98	FAZ-C40/4	190
50	FAZ-C50/1	40	FAZ-C50/2	85	FAZ-C50/3	140	FAZ-C50/4	195
63	FAZ-C63/1	50	FAZ-C63/2	100	FAZ-C63/3	160	FAZ-C63/4	230

❶ In North America, these switches are UL recognized and CSA certified as Supplementary Protection devices. Per the intent of NEC (National Electrical Code), article 240, and CEC (Canadian Electrical Code), part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide over-current protection within an appliance or other electrical equipment where branch circuit over-current protection is already provided, or is not required. See FAZ Branch Circuit Breakers in this catalog.

See Trip Curve chart on opposite page

NEW >>

series FAZ supplementary protectors

Supplementary protection up to 10kA



Moeller's FAZ line of miniature circuit breakers includes a broad range of devices defined as "supplementary protectors." These breakers comply with UL 1077 and CSA 22.2 No. 235 regulations defining supplementary over-current protection. In these applications, branch circuit protection is not required, or is provided by a separate device like a fuse or molded case circuit breaker.

FAZ Supplementary Protectors are typically used for control circuits, lighting, business equipment, appliances and a range of other applications where "closer" protection is desired than that offered by a branch circuit protection device.

Extensive product range

Moeller Supplementary Protectors are available in one, two and three pole configurations and up to 17 different current ratings from 0.5A to 63A. One pole plus neutral, and three-pole plus neutral devices are also available. Six different trip characteristics including B, C, D, K, S and Z curves give you the ability to configure the exact protection scheme you require. Devices can be used in applications up to 480V AC and 48V DC with short circuit ratings up to 10kA.

Straightforward installation

All breakers mount on a standard 35mm DIN-rail. Each device has box terminals that accept multiple conductors. Bus Connectors and Feeder Terminals facilitate mounting and wiring of multiple miniature circuit breaker arrays in control panel assemblies. Power to the circuit breakers can also be fed from the line or load side.

Standard features enhance safety

As with most products from Moeller, FAZ breaker terminals provide finger and back-of-hand protection to guard against accidental contact with live parts.

A color-coded red/green indicator provides immediate visual indication of device status (green for OFF, red for ON) and isolation function.

All FAZ breakers also incorporate a "trip-free" mechanism. This prevents the trip function from being defeated by holding the operator in the ON position.

Worldwide acceptance

FAZ Supplementary Protectors are UL Recognized for use in the United States in accordance with NFPA 70 (NEC). The devices comply with UL 1077 and CSA 22.2 No.235, meeting the requirements for supplementary protectors. These devices also comply with IEC 60898 and are CE marked.

See page 43 about...

Applying

FAZ

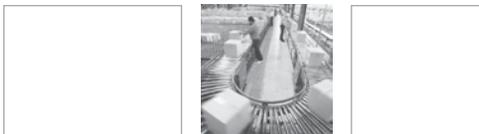
in North America

> Supplementary protector per
UL 1077 / CSA 22.2 No. 235

> Current limiting device

> Very broad product range

> Worldwide approvals

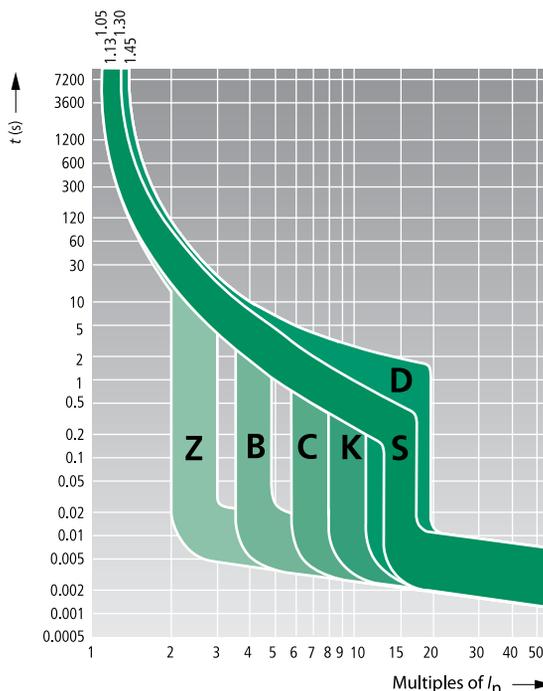




Six tripping curves to choose

Moeller FAZ Supplementary Protectors are available with six different tripping characteristics, including Type B, C, D, K, S and Z. Definitions for each trip curve are contained on the ordering pages and can be used to determine the optimal characteristic for your application. For example, low level short-circuit faults in control wiring, such as PLCs, are best protected by devices with Type B trip characteristics (3 to 5 X continuous rating of the device (I_n)).

Even though not required by NEC or CEC for Supplementary Protectors, Moeller's FAZ devices are current limiting, which means they interrupt fault currents within one half cycle. Current limiting devices offer superior protection by reducing peak let-through current and energy.



This graph shows trip-time versus over-current for all FAZ Supplementary Protectors.

Discover these advanced features

Available in over 400 configurations including B, C, D, K, S and D trip curves

Breakers install on standard DIN-rail

Available in one, two and three pole models; one and three pole plus neutral also available

Color coded indicator provides breaker status for easy troubleshooting

Complete bus bar system available for quickly installing breaker arrays in panel assemblies



Captive posidrive terminal screws with finger and back-of-hand protection (IP20)

Short circuit rating to 10kA (@277V AC and 480V/277V AC for multi-pole to 40A)

Trip-free design; breaker cannot be defeated by holding the handle in the ON position

Box terminals accept #16 to #4 wire (1.5 to 25mm²)

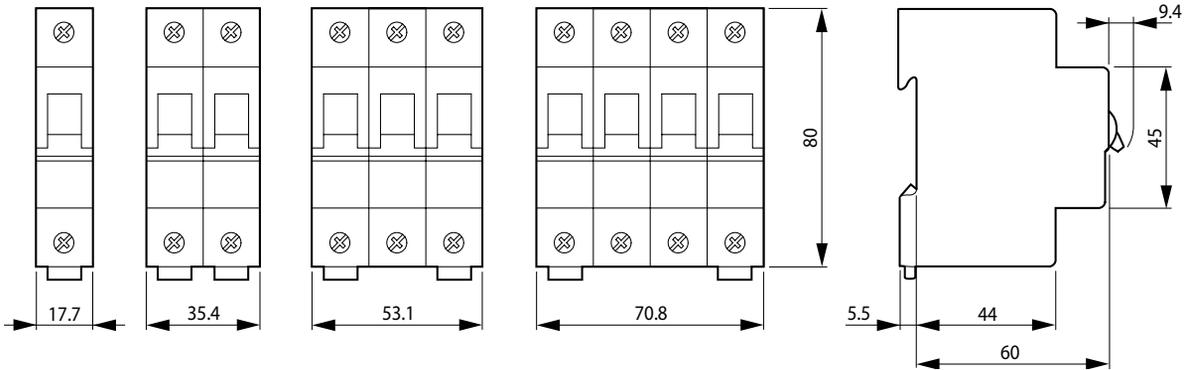
Breaker information printed on the front of the device for quick identification

		B curve	C curve	D curve	K curve	S curve	Z curve
Electrical							
Approvals		UR (UL 1077), CSA (CSA 22.2 No. 235), CE, VDE					
Standards		IEC/EN 60947-2					
Short Circuit Trip Response		3 x 5 I_n	5 x 10 I_n	10 x 20 I_n	8 x 12 I_n	13 x 17 I_n	2 x 3 I_n
Supplementary Protectors - UL / CSA							
Current Range	[A]	6...63	0.5...63	6...40	0.5...63	0.5...63	1...40
Maximum voltage ratings – UL / CSA							
1 pole & 1 pole + neutral	[V AC]	277	277	277	277	277	277
	[V DC]	48	48	48	48	48	48
2, 3, 4 pole & 3 pole + neutral	[V AC]	480Y/277	480Y/277	480Y/277	480Y/277	480Y/277	480Y/277
2 pole	[V DC]	125	125	125	125	125	125
Thermal Tripping Characteristics							
Single Pole				1.35 x I_n @ 40°C			
Multi-pole				1.45 x I_n @ 40°C			
Short circuit ratings (at max. voltage)							
1 pole	[kA]		10 (5 for 40A device)			5 (10 @ 48V DC)	
1 pole + neutral	[kA]		10 (5 for 40A device)			5 (10 @ 48V DC)	
2, 3 & 4 pole	[kA]		10 (5 for 40A device)			5 (10 @ 48V DC)	
3 pole + neutral	[kA]		10 (5 for 40A device)			5 (10 @ 48V DC)	
2 poles in series	[kA]		10 @ 125V DC			10 @ 125V DC	
Miniature Circuit Breaker - IEC							
Current Range	[A]	6...40	0.5...40	6...25	0.5...40	0.5...40	1...16
Maximum voltage ratings – IEC							
1 pole & 1 pole + neutral	[V AC]	240	240	240	240	240	240
	[V DC]	48	48	48	48	48	48
2, 3, 4 pole & 3 pole + neutral	[V AC]	240/415	240/415	240/415	240/415	240/415	240/415
Thermal Tripping Characteristics							
Single Pole				>1 hour @ 1.05 x I_n			
Multi-pole				< 1 hour @ 1.3 x I_n			
Interrupt ratings (at max. voltage)	[kA]	15	15	15	15	10	10
Operational switching capacity	[kA]			7.5			
Max. back-up fuse	[A gL/gG]			125			
Rated impulse withstand - U_{imp}	[V AC]			4000			
Rated insulation voltage - U_i	[V AC]			440			
Environmental / General							
Selectivity Class				3			
Lifespan	[ops.]			> 10000 (1 operation = ON/OFF)			
Shock (IEC 68-2-22)	[g]			10g - 120ms			
Operating Temperature Range	[°F]			+23...+104 (-5...+40°C)			
Shipment & short term storage	[°F]			-40...+185 (-40...+85°C)			
Housing material				Nylon			
Mechanical							
Standard front dimension							
Device height	[mm]			80			
Terminal protection	[mm]			Finger and back-of-hand proof to IEC 536			
Mounting width per pole	[mm]			17.7			
Mounting				IEC/EN 60715 top-hat rail			
Degree of protection				IP20			
Terminals top and bottom				Twin-purpose terminals			
Supply connection				Line or load side			
Terminal capacity	[mm ²]			1 x 25 (AWG 4...18)			
	[mm ²]			2 x 10 (AWG 8...18)			
Torque	[nm]			2.4			
Thickness of busbar material	[mm]			0.8 – 2			
Mounting position				As required			

Miniature circuit-breakers

FAZ

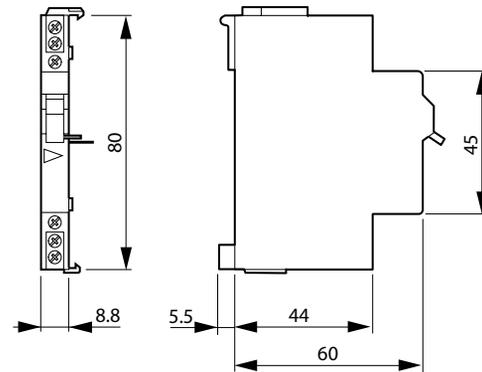
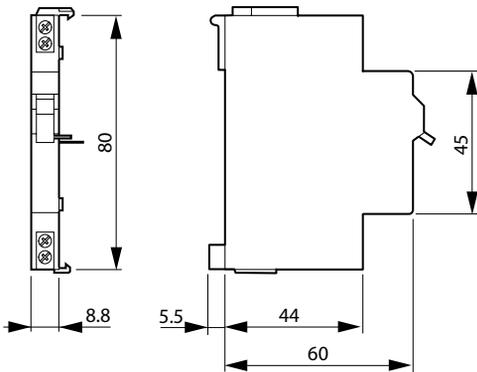
Dimensions are in millimeters.
Not intended for manufacturing purposes.



Auxiliary Contacts

FAZ-XH11

FAZ-XAM002

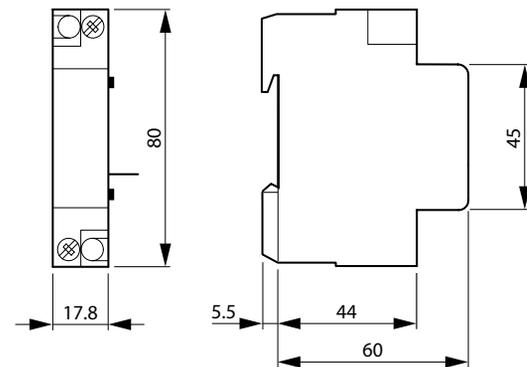
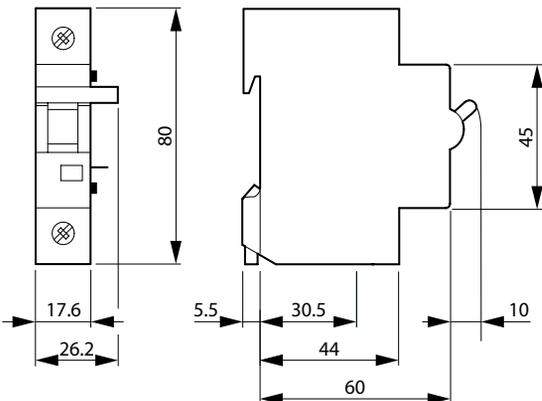


Shunt Releases

FAZ-XAA

Undervoltage Releases

FAZ-XUA



The advantages of a current limiting device

As already mentioned, all Moeller FAZ devices are current limiting by design. In the case of the UL 489 devices, they are also classified by UL/CSA in that manner and are marked on the label.

A circuit breaker that is marked as a current limiting device is one that does not use a fusible element and, when operating within its current limiting range, limits the let-through energy (I^2t) to less than the energy of a ½ cycle wave of the available symmetrical current.

The label on FAZ-NA(RT) devices lists the actual let-through energy ($I^2t = 45 \text{ kA}^2 \text{ s}$) and peak let-through current (6.2kA) at the maximum interrupting rating of 10kA.

Current limiting circuit breakers substantially reduce the amount of damage sustained by downstream components in the event of a high short circuit fault by clearing the fault in the shortest amount of time possible due to the quick separation of its contacts and ensuing extinction of the arc current.

HACR and SWD

FAZ-NA(RT) circuit breakers are also marked “HACR” for use in Heating, Air Conditioning and Refrigeration applications. In addition, the abbreviation “SWD” on the label indicates the devices are suitable for switching fluorescent lighting loads on a regular basis.

Short Circuit markings on FAZ devices

Below is tabulated summary of short circuit rating values that apply to the FAZ line of Supplementary Protectors and Molded Case circuit breakers.

It is important to keep in mind that short circuit markings on FAZ Supplementary Protectors (UL 1077) and FAZ-NA(RT) Molded Case Circuit breakers (UL 489) must not be interpreted in the same manner.

Supplementary Protectors have short circuit markings in association with upstream primary overcurrent protective devices. Conversely, Molded Case Circuit Breakers *are* primary overcurrent protective devices and their ratings thus refer to their short circuit Interrupting capability.

FAZ Supplementary Protectors (UL 1077)	Trip Characteristic	Max. Amps	Max. Volts	Short Circuit Rating
Single pole	B and C	0.5...35A	277 V AC	10kA
		40...63A	277V AC	5kA
		0.5...63A	48V DC	10kA
	D	6...40A	277 V AC 48V DC	5kA 10kA
2, 3, 4 pole	B and C	0.5...35A	480Y/277V AC ①	10kA
40...63A		480Y/277V AC ①	5kA	
2 poles in series		6...25A	125V DC	10kA
2, 3, 4 pole	D	0.5...40A	480Y/277V AC ①	5kA
2 poles in series			125V DC	10kA
FAZ-(NA)(RT) Branch Circuit Breakers (UL 489)	Trip Characteristic	Max. Amps	Max. Volts	Short Circuit Interrupting Rating
Single pole	C and D	0.5...20A	277 V AC	10kA
		25...40A	240V AC	10kA
2, 3 pole	C and D	0.5...20A	480Y/277V AC ①	10kA
		20...40A	240V AC	10kA

① A circuit breaker with a 480Y/277V AC rating can be applied in a solidly grounded circuit where the nominal voltage of any conductor to ground does not exceed the lower value of the circuit breaker's rating (e.g. 277V AC) and the nominal voltage between any two conductors does not exceed its higher value (480V AC). These ratings can be typically found on protective devices such as molded case circuit breakers, as well as self-protected “Type E” combination motor controllers.