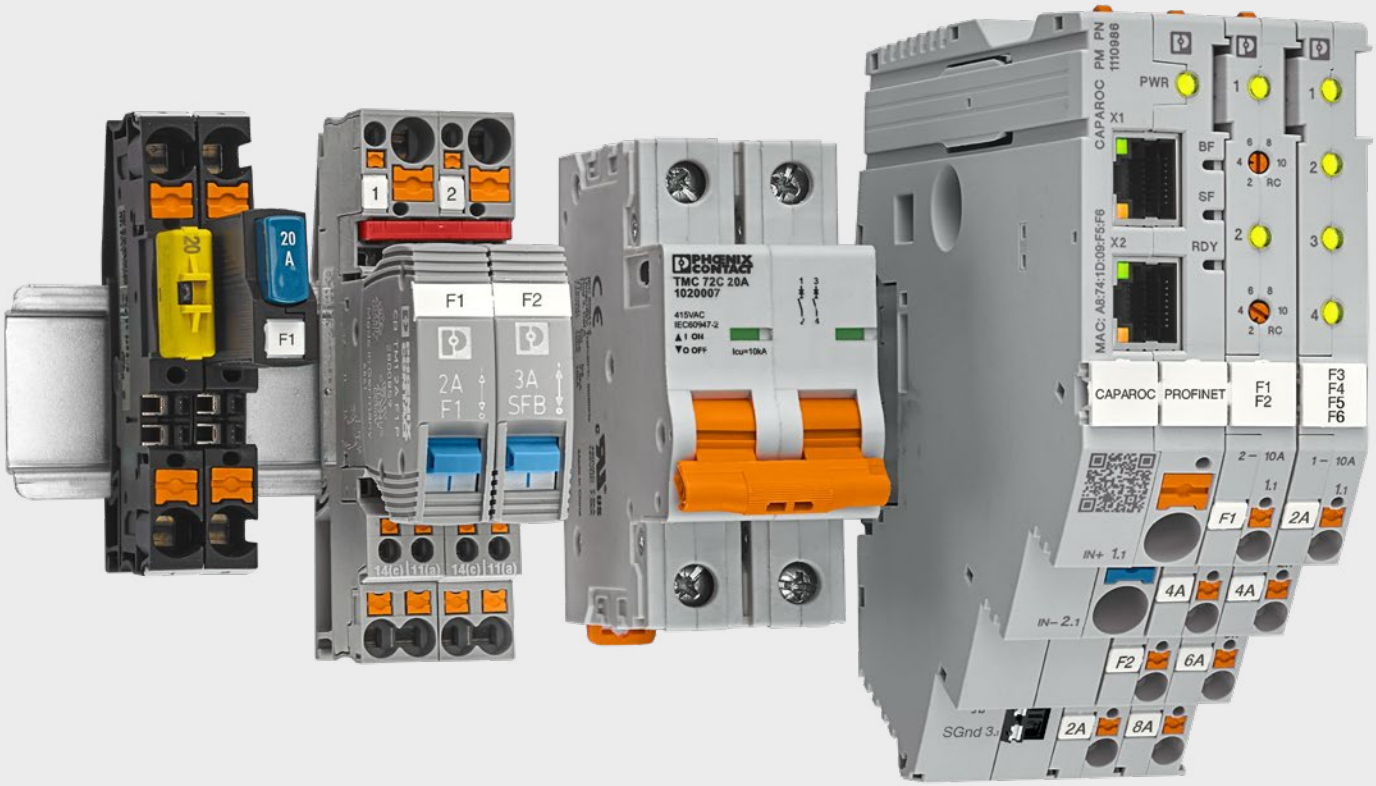
Power Reliability

2025



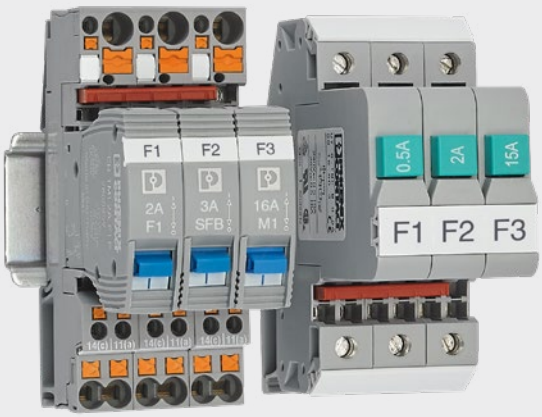
Device circuit breakers and miniature circuit breakers

Electronic, thermal-magnetic, and thermal circuit breakers

PHOENIX CONTACT

High-level system availability

Increasing demand for high quality and efficiency in production is leading to the construction of increasingly complex systems. At the same time, the requirements for safety and availability are increasing because the failure of one machine or major system parts can result in significant costs. Having a well-planned safety concept for individual circuits and end devices throughout the entire system contributes significantly to operational safety. This also includes selecting a sufficiently powerful power supply and suitable protective devices.



1 Electronic circuit breakers

High functionality, low space requirement and flexible use. With intelligent analysis and signaling of interference, electronic circuit breakers are a perfect way to monitor the system states. They protect system components and switched-mode power supply units against failure.

› More information starting on page 10

2 Thermal-magnetic device circuit breakers

With proven simplicity and suitable for a wide range of applications. Thermal-magnetic circuit breakers feature a thermal and a magnetic tripping mechanism. This means that they trip faster than thermal fuses in case of short circuit. They provide ideal protection against overload and short-circuit currents.

› More information starting on page 38

Find out more with the web code

For detailed information, use the web codes provided in this brochure. Simply enter # and the four-digit number in the search field on our website.

Web code: #1234 (example)

Or use the direct link:
phoenixcontact.com/webcode/#1234

3

Thermal device circuit breakers

Compact, optimal basic protection against overload. Thermal circuit breakers can be switched on again immediately after tripping. Replacement, as is the case with fuses, is therefore not necessary.

› More information starting on page 48

4

Thermal-magnetic miniature circuit breakers

Designed for use in industrial applications, the miniature circuit breakers provide optimum protection for high short-circuit currents and meet the corresponding standards.

› More information starting on page 54

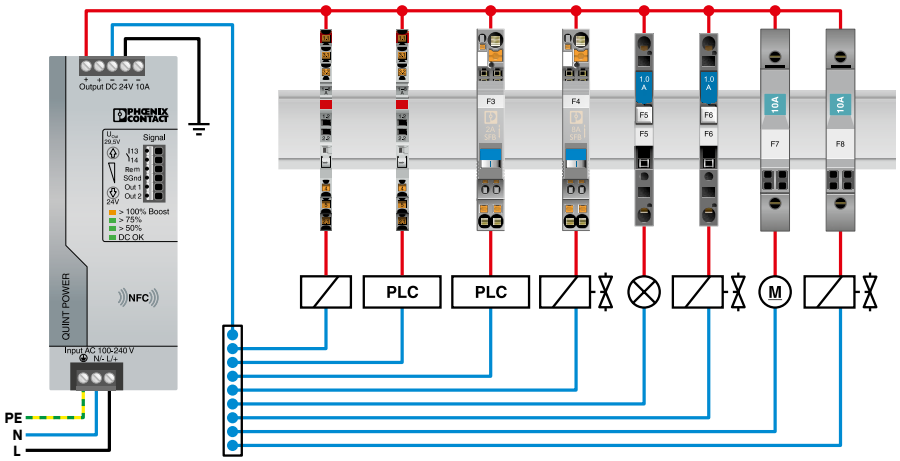
Contents

Device circuit breakers in comparison

Advantages through selective device protection

An electrical system consists of many components that must work together in concert. Many loads are supplied by the same power supply in this type of arrangement. This creates dependencies that are important and critical to system availability. Unscheduled machine downtime must be avoided at all costs. Therefore, it is very important to ensure that if there is a fault, any loads and circuits not involved remain unaffected by the fault. The supply voltage must likewise be maintained in the event of a fault. This is the only way to ensure smooth operation.

Using device circuit breakers minimizes potential damage and downtimes by separately protecting individual devices or device groups with device circuit breakers. In this way, end devices are optimally protected against damage or destruction. System parts that are not in the affected circuit continue to operate without interruption to the extent that the overall process allows it.



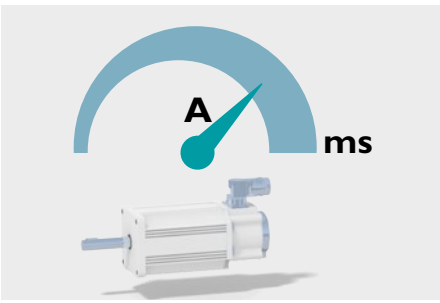
Potential errors

Overload currents

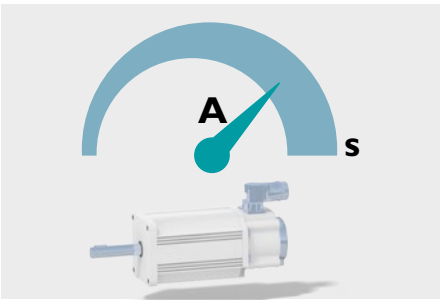
Overload currents occur when end devices unexpectedly require a higher current than the intended rated current. Such situations will arise, for example, when a drive is blocked. Temporary starting currents from machines are also considered to be overload currents. Although in principle their occurrence can be calculated, it can vary depending upon the machine load when starting. Take these conditions into account when selecting suitable fuses or circuit breakers for such circuits. Safe shutdown should occur within a range of a few seconds up to a few minutes.

Short-circuit currents

Short circuits can occur between damaged conductors that are carrying operating voltage. Typical protective devices for interrupting short-circuit currents include fuses and miniature circuit breakers with various tripping mechanisms. Short-circuit currents should be reliably shut down in the milliseconds range.



Shutdown of short-circuit currents in the milliseconds range



Shutdown of overload currents in the seconds range

Various technologies that provide different forms of protection

Phoenix Contact provides thermal, thermal-magnetic, and electronic circuit breakers. The differences are in the tripping technology and the shutdown behavior. Characteristic curves are used to clearly illustrate the shutdown characteristics of the various device circuit breakers.

Thermal circuit breakers protect via a bimetallic strip that leads to tripping when heated. However, this takes between 300 ms and several minutes. In the event of overloads, this period of time is more than sufficient. The magnetic part of the thermal-magnetic circuit breaker provides protection in the event of a short circuit. If the current suddenly increases, shutdown occurs within a few milliseconds. Electronic circuit breakers reliably protect against both overloads and short-circuit currents, and also offer many advantages. Current and voltage are measured and monitored permanently. Errors are detected far more precisely and quickly. Currents are assessed and shut down sooner or later, depending on their intensity. An electronic circuit breaker will trip at a significantly lower current than an electromechanical circuit breaker. This allows the power supply output to be utilized far more efficiently. Lower reserves can therefore be dimensioned.

Device circuit breakers are selected based on the nominal voltage, nominal current, and, if required, the startup current of an end device. The expected error situation - short circuit or overload - then determines the appropriate shutdown behavior.

Single channel, electronic

Adjustable and narrow

Circuit breaker system, electronic

Individual and customizable

Multi-channel, electronic

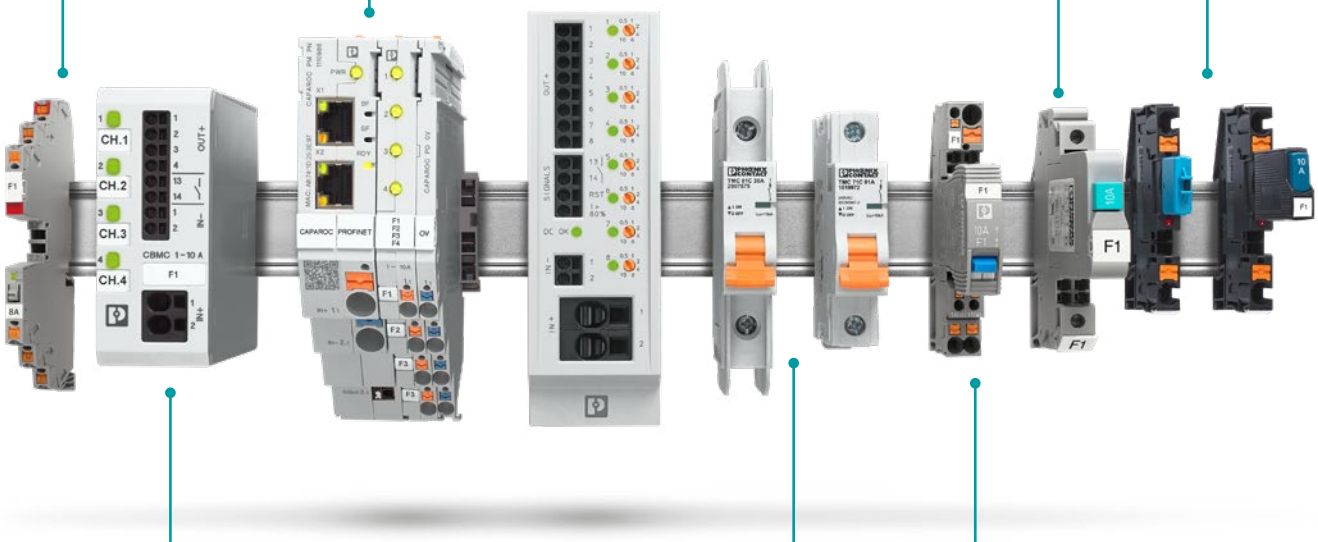
Highly functional and space saving

Single channel, thermal-magnetic

One-piece and can be reset

Single channel, thermal

Pluggable, and can be switched on and off



Multi-channel, electronic

Compact with tool-free adjustability

Single, two, and three-position, thermal-magnetic

Can be reset and used in a wide range of applications

Single channel, thermal-magnetic

Pluggable and suitable for a wide range of applications

Device circuit breaker properties in comparison

Product family	CAPAROC	PTCB	PTCB eFuse
Customized order			
Can be ordered preconfigured	•		
Complete system can be ordered	•		
Installation and startup			
Overall width per channel	6 mm [1] (1-/2-channel)	6 mm	6 mm
Number of channels	1 / 2 / 4	1	1
Input voltage	12 V DC / 24 V DC	24 V DC / 48 V DC	12 V DC / 24 V DC
Nominal current range	1 A … 10 A	1 A … 8 A	0.1 A … 0.63 A
Two-pole shutdown (isolated systems)			
Assisted nominal current setting	•		
Adjustable	•	•	•
Parameterization lock	•		
Tool-free configuration	•	•	•
Rotary switch configuration	•		
Protection against setting changes	Electronic	Electronic	Electronic
Interchangeable with pluggability	•		
Vertical wiring			
Bridgeable to terminal blocks		•	•
Electrical isolation			
Additional functions			
Current limitation	•		•
Remote signaling	•	•	•
Remote signaling early warning threshold	•		
Remote reset	•	•	•
Remotely controllable	• [3]		
Undervoltage/overvoltage switch-off	<10 V / >30 V	<18 V / >30 V <28 V / >56 V	<9 V / >30 V
High starting currents			
Breaking capacity at 24 V DC	300 A	300 A	300 A
Communication			
Communication (interface)	IO-Link / Ethernet/IP™ PROFINET / Modbus TCP		

[1] plus feed-in module [2] EG4 version [3] via communication interface

CBM	CBMC	CB TM	UT 6-TMC	TCP ... / DC	TCP
	•				
5 mm	9 mm	12 mm	12 mm	6 mm	8.2 mm / 9.5 mm
4 / 8	4	1	1	1	1
24 V DC	24 V DC	24 V AC ... 277 V AC 5 V DC ... 72 V DC	50 V AC ... 264 V AC 5 V DC ... 30 V DC	32 V DC	250 V AC 65 V DC 72 V DC
0.5 A ... 10 A	1 A ... 10 A	0.5 A ... 16 A	0.5 A ... 16 A	5 A ... 40 A	0.5 A ... 20 A
		•			
•					
•	•				
	• [3]				
	•				
•					
Electronic	Electronic	•	•	•	•
		•		•	•
		•		•	•
	•[2]	•	•	•	•
•					
•	•	•			
•	• [3]				
•	•				
	• [3]				
<18 V / >30 V	<18 V / >30 V	- / -	- / -	- / -	- / -
		•	•	•	•
300 A	300 A	1500 A	400 A	2000 A	2000 A
	IO-Link				

Power supplies and device circuit breakers

The perfect match for system protection

Combine our products to create an overall concept and benefit from the advantages of system integration.

Systems are precisely clocked – one component fails, and system downtimes occur. Surge voltages, mains interruptions, or fluctuations as well as an overload or short circuit can severely impact your system. High availability requires coordinated components that not only supply, but also protect.

Your advantages

- Surge protection for protection concepts in every application
- Device circuit breaker for protection against overload and short circuit
- Failsafe and reliable through coordinated components
- Individual expansion with the comprehensive product portfolio

Further information on surge protection and device protection

Simply scan the QR code or enter the web code into the search field on our website.

Surge protection

Web code: #1260

Power supply

Web code: #0151

Protection for high system availability

Our products for the operational safety of electrical systems, installations, and devices enable you to effortlessly create an uninterruptible and clean power supply, as well as a stable data connection.

Increasing demand for high quality and efficiency in production is leading to the construction of increasingly complex systems. At the same time, the requirements on safety and availability are increasing. The failure of machines or larger system parts results in significant costs.

With our coordinated product portfolio for power supplies and coordinated protective devices, a protection concept can be created for any application.

Surge protection for:

- Power supply systems, for protecting power feed-in through subdistributions all the way to the end device
- MCR technology, for protecting sensitive interfaces for the interference-free transmission of signals from the field to the control center
- Information technology, for the interference-free transmission of signals at high transmission speeds and minimum attenuation
- Transceiver systems, for protecting antenna cables and receivers for interference-free signal transmission

Power supplies, DC/DC converters, redundancy modules, and uninterruptible power supplies

- Power supplies for the reliable supply of your system, with various designs, performance classes, and functions
- DC/DC converters for a regulated direct voltage, with long cable lengths
- Redundancy, UPS, and battery modules for decoupling power supply units connected in parallel as well as for uninterrupted system operation of DC and AC loads

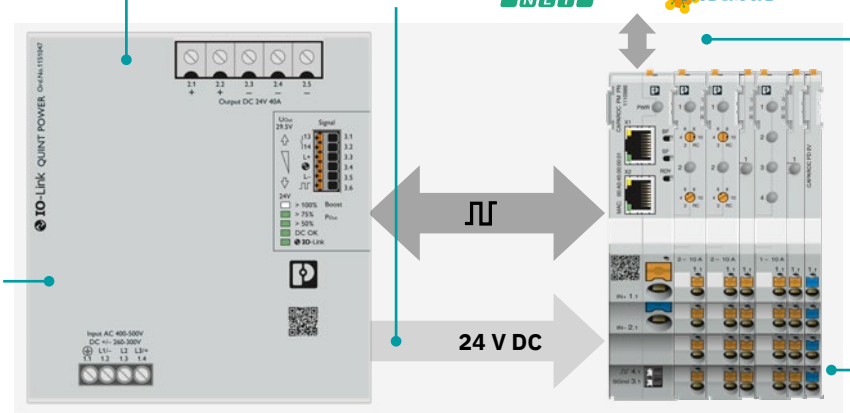
The protected system

Combine the QUINT POWER IOL power supply with the CAPAROC circuit breaker system and benefit from the advantages of system integration. One central interface for QUINT POWER and CAPAROC enables simple and cost-effective integration of the power supply into the network protocol of the circuit breaker system:

- The following interfaces enable complete transparency and access to the entire system: PROFINET, EtherNet/IP™, and Modbus/TCP
- A web server enables remote access to operating states, error messages, and setting details of the system solution
- Function blocks are available for the following engineering environments: PLCnext, TIA Portal, Studio 5000, and CODESYS

General operating data
- Temperature
- Operational runtime
- Forecast of the remaining service life

DC-side diagnostic data
Current, voltage, DC OK, P < PN



Digital nameplate
- Device IDs
- Item numbers
- Serial numbers
- Revisions
- Production data

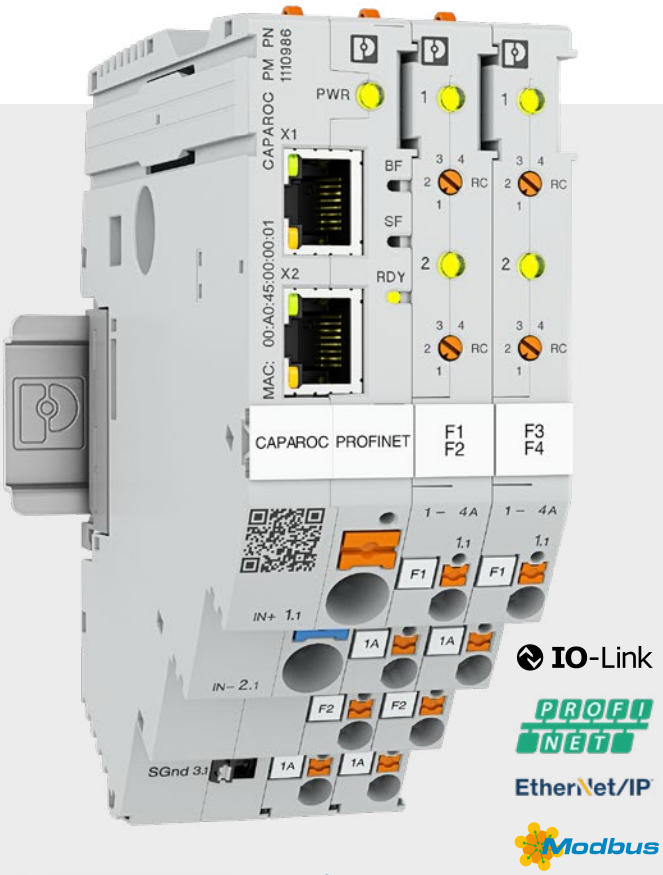
AC-side diagnostic data
- Three input voltages
- Phase monitoring
- Input frequency
- Rotary field direction

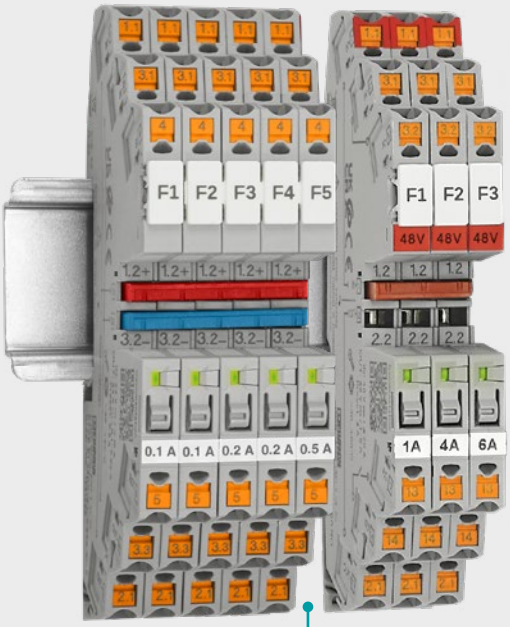
Diagnostic data for the protected DC side
- Status of all circuits
- On, off, error message
- Early warning at channel current load >80%
- Flowing current
- Error memory

Electronic circuit breakers

1

Electronic circuit breakers feature high functionality and take up little space. They offer many advantages, such as adjustability, signaling, evaluation, and controllability. They can be installed flexibly in the widest variety of applications, and therefore provide reliable device protection in any application.





Circuit breaker system

CAPAROC is the electronic circuit breaker system. You can put together your personal system with a variety of modules to ensure the optimum protection for your system.

› More information starting on page 14

Single-channel circuit breakers

With single-channel electronic circuit breakers, you can configure your system protection in accordance with your specific needs. Starting at an overall width of 6 mm, the circuit breakers ensure a high level of flexibility.

› More information starting on page 22

Compact multi-channel circuit breakers

Multi-channel electronic circuit breakers can be adjusted individually for each channel and provide a functional, space-saving solution for every application.

› More information starting on page 30

Electronic circuit breakers: Intelligent, individual, and intuitive

The advantages of electronic circuit breakers

Intelligent software is the core of an electronic circuit breaker. The software differentiates between operating currents and harmful currents and rapidly transmits commands to the electronic system. This is because it has to ensure that faults are detected and shut down as quickly as possible while not shutting off an inrush current or normal operating current. The switching operation is performed via the power transistor.

Steps to error detection:

- Measurement: To monitor the ongoing situation, all electrical variables are measured continuously.
- Analysis: the measured values are analyzed in order to determine a course of action.
- Classification: the currents are evaluated and classified.
- Protect and switch: Depending on the class of the analyzed current, the load is started or shut down. The rest of the system thus remains in operation and unaffected.
- Signaling: The operating states of all circuits are transmitted continuously to the system operator. If an event occurs, it is detected immediately and reported.

Overcurrents under control

Electronic circuit breakers are in some cases equipped with active current limiting. This function limits short circuit and overload currents. It protects the power supply against currents that are too high and prevents the output voltage from dropping at the switched-mode power supply unit.

Current limitation

The extent of current limitation is described by a factor, normally between 1.25 and 2.0. This value is not exceeded, even in the event of an error. For the power supply, even a hard short circuit therefore has the same effect as a slight overload, the current is significantly lower than without current limitation and the supply voltage to the system remains unaffected.

Without current limitation

With a circuit breaker without current limitation, the supply voltage can drop out in the event of an error, which means that all the connected devices would fail as well. In other words, in the event of an error, the installed electronics and the integrated firmware must react quickly and intelligently. Although short circuit must be detected and shut down quickly, it must still be possible to reliably start a capacitive load.

Setting the device circuit breaker correctly

To be able to determine the correct nominal current value for a device circuit breaker, you should know the load(s). However, the actual current often deviates from the manufacturer's specifications. In a load group, these errors accumulate, which means that the total current deviates even more from the calculated value.

Here, adjustable device circuit breakers offer a considerable advantage and remain flexible. Firstly, the set value should not be much higher than the flowing current value. The required startup current of a load can, however, influence the necessary set value. In this case, set the lowest value at which smooth operation can be assured.

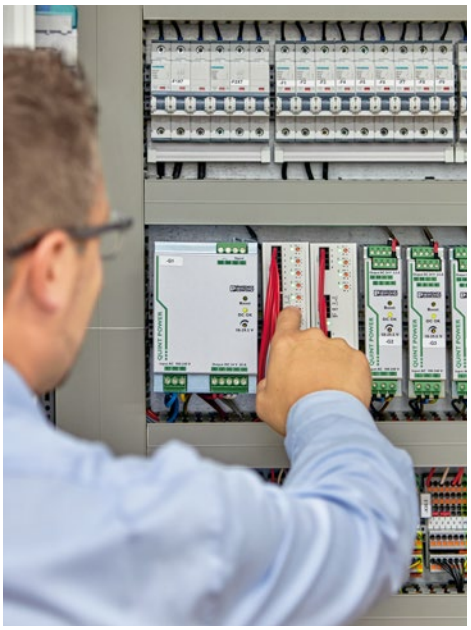
Adjustable circuit breakers

The intelligent software in electronic circuit breakers allows the nominal current to be set individually. This means you can maintain a high level of flexibility throughout. It is not always possible to determine the correct current value right at the start of a project. Adjustability is therefore a useful function, because the final current value can be determined during commissioning. You can provide optimal protection for every load, tailored precisely to the application.

This adjustability also provides you with the option of covering several applications with one device. This not only saves you inventory costs, it also makes selecting the correct circuit breaker much easier.

Circuit breakers with fixed values

For many, circuit breakers provide a high degree of safety if the current value is not adjustable. In this case, nothing can be adjusted in the system, and all of the settings carried out by the installer remain unchanged. The current values must, however, be determined during configuration. If a value is unsuitable, the entire circuit breaker or protective plug must be replaced.

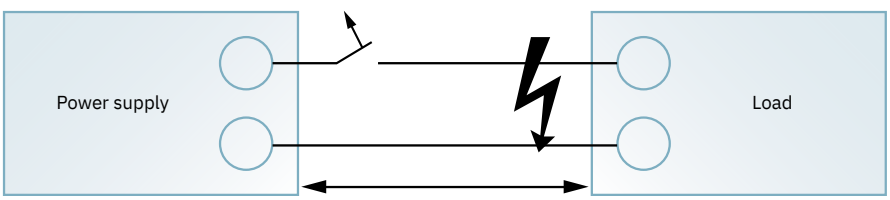


Influence of cable lengths

Line resistance can limit the flowing current, which means that in the event of a short-circuit, the required tripping current does not flow and shutdown occurs too late.

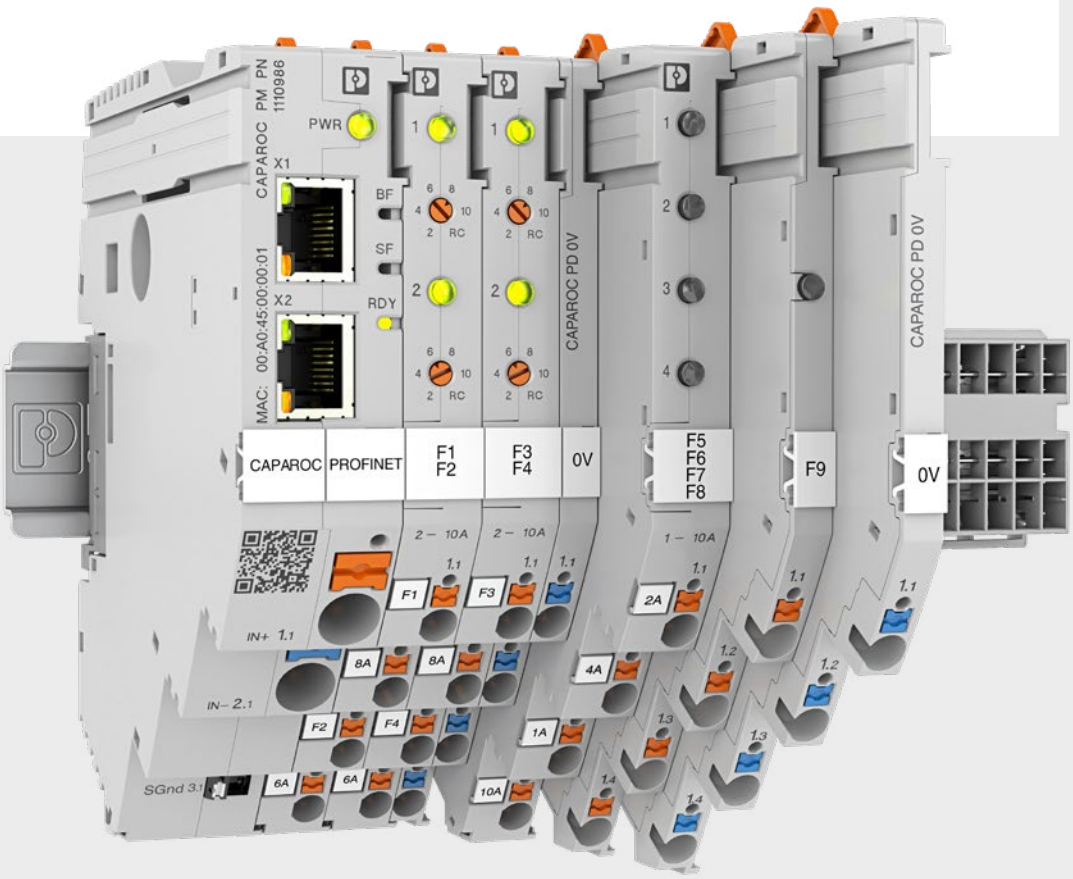
Electronic circuit breakers require a much lower tripping current, so only the voltage drop across the line needs to be considered, because if the voltage at the load is too low, the load supply is disrupted.

The following applies to electronic circuit breakers: If the load functions in rated operation, the circuit breaker will also trip reliably in the event of a fault.



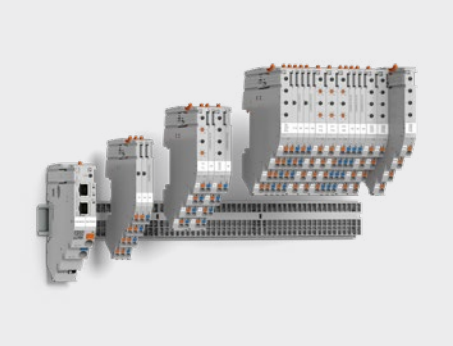
Circuit breaker system

CAPAROC is your individual modular system for overcurrent protection. With many combination options, easy operation, and rapid design-in, you receive your own personal benchmark in device protection. Using this system, you are perfectly positioned for the future.



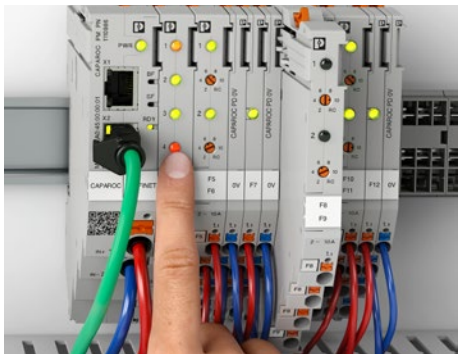
Your advantages

- The customizable standard with a wide range of possible combinations
- Easy operation for all with tool-free assembly, installation without interruptions
- Strikingly simple design-in with extensive support from the selection up to digital services



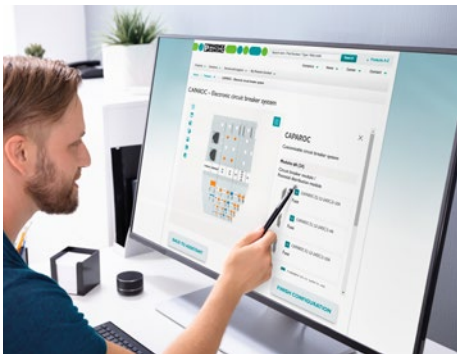
Customizable standard

The system for the future: Thanks to a wide range of individual modules and many combination options you create your customized solution with CAPAROC. The modular system is completely compatible, always technologically up-to-date with future updates, and extendable at any time – even during operation.



Easy operation

Use CAPAROC and experience easy operation through tool-free assembly, uninterrupted installation, and a transparent operating state. The modules can easily be snapped on, even when assembled. The easy nominal current setting and the clear identification of connections and potentials ensure intuitive operation.



Intuitive design-in

Strikingly simple: The online configurator helps you assemble a system that precisely meets your needs, and with your personal item number you can reorder your solution again and again. Appropriate digital services support you, for example, with your individual data from the 3D model and marking to the data sheet.

Product overview

Power modules

Supply and communicate centrally

Single-channel circuit breaker modules

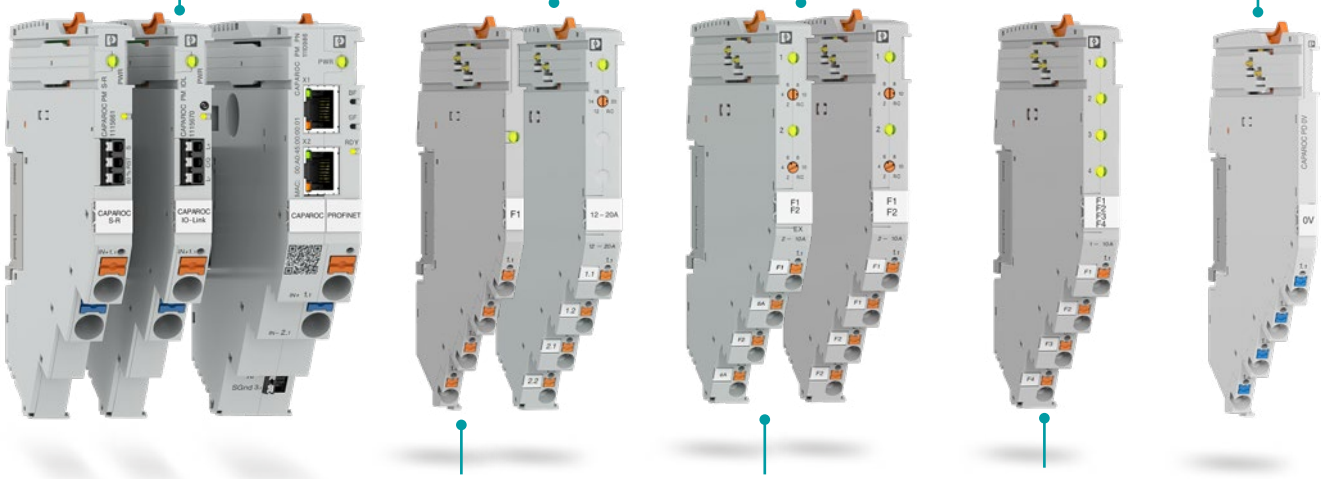
Protection up to 20 A

Two-channel circuit breaker modules

With Ex e approval for zone 2

Potential distributors

For load supply of plus and 0 V



PROFINET
Modbus
EtherNet/IP
IO-Link

Single-channel circuit breaker modules

4 protected outputs on 6.2 mm

Two-channel circuit breaker modules

Intuitive and easy configuration

Four-channel circuit breaker modules

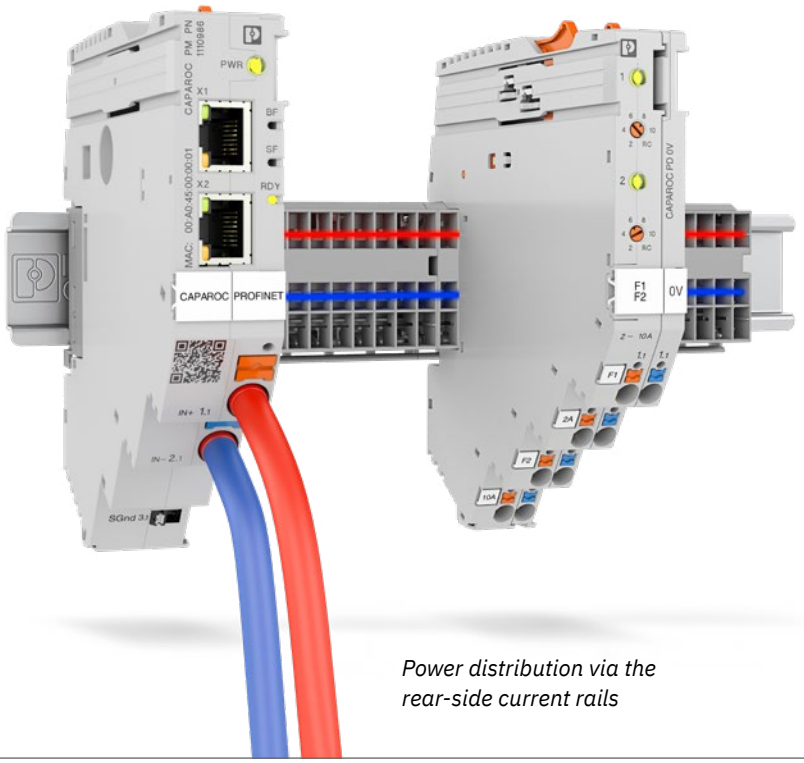
Four-channel protection on just 12.4 mm

Reliably supply and distribute potentials

Central feed-in

The rear-side current rails of the CAPAROC system are used to supply all modules reliably. The current rails are available as an initial current rail with 8 or 20 slots. The individual modules are plugged onto this current rail and snapped into place. If the length is insufficient, the system can be extended with extension rails without the need for tools.

By connecting the supply line for positive and negative to the feed-in module, the current rails are also supplied directly. This reduces the installation effort. Directly eliminates errors between the feed-in and the fused connections of each protective module. The current rails connect the feed-in module to every single module in the system. With potential distributors that can be integrated into the system, the return conductor from every fused circuit can be optimally connected in the system. The color-coded actuating push buttons also integrated here make it easy to see what function the respective connections have. This helps to prevent wiring errors. Additional terminal blocks are not necessary. The innovative rear-side supply means that system maintenance and operational adjustments can be performed without interrupting operation.



Power distribution via the rear-side current rails

Feed-in module with EtherNet/IP™

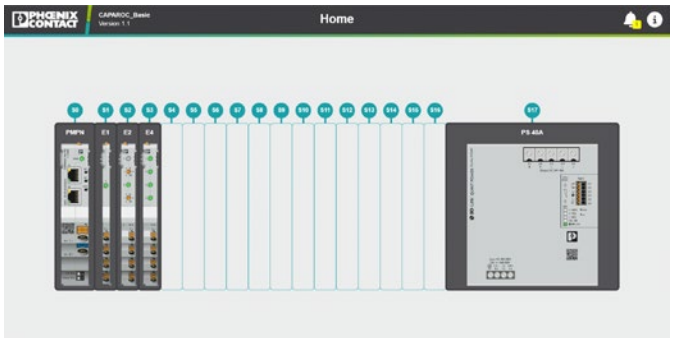
With its modular design, CAPAROC enables access to various control systems via various feed-in modules and interfaces. The feed-in module with EtherNet/IP™, for example, provides access to other applications in which this interface is used as the standard. With CAPAROC and the new feed-in module, you can also set up communicative 24 V DC solutions here. You have all the data in view, from the power supply, each 24 V DC circuit, right through to the connected load.

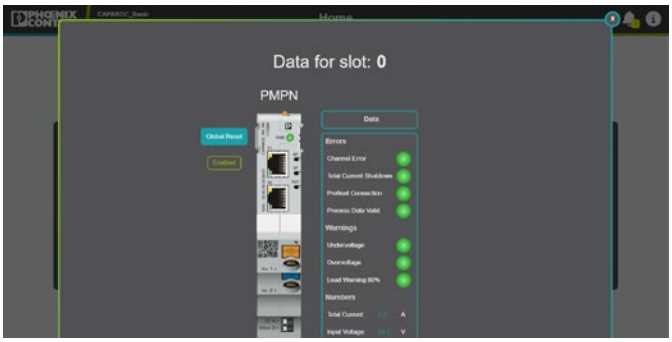
By providing the device description file (EDS file) and the function block (Add-on Instruction) in the download area of the product, integration into the engineering tool is quick and easy. With full access to the data of the QUINT POWER and the CAPAROC system, you can respond to deviations in the system at an early stage.

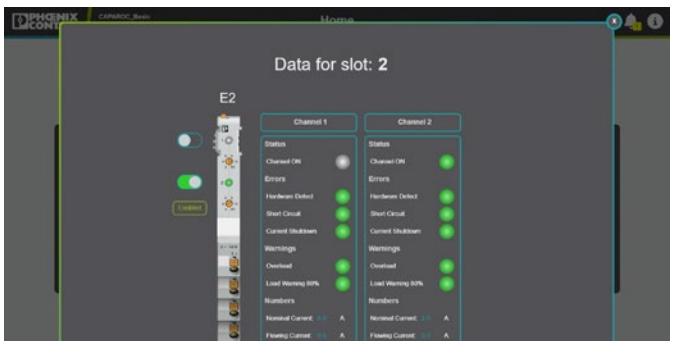
Function blocks with visualization template

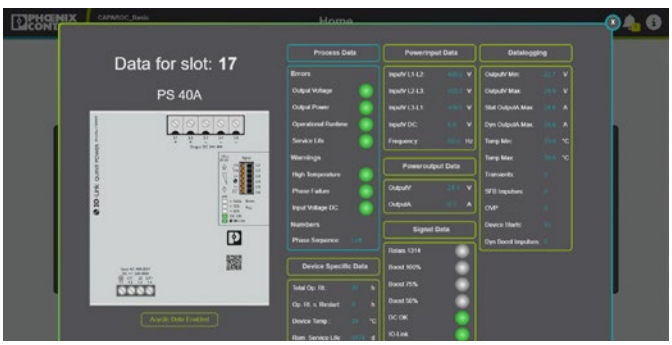
The various feed-in modules offer different communication options. We offer the appropriate function blocks for the PROFINET and EtherNet/IP™ module in the download area for various engineering tools to provide the easiest possible introduction for our customers. For the PROFINET module, there are, for example, function blocks for CODESYS, for the Siemens TIA Portal, and for our in-house PLCnext Engineer.

If a PLCnext Control is used with our engineering tool, we even offer the right visualization to start directly with a ready-made user interface, thus easily accessing and processing all important data. The visualization adapts to the structure in the engineering tool and can therefore be used directly, which saves a lot of work and effort.









Feed-in module with IO-Link interface

The CAPAROC PM IOL feed-in module features an IO-Link interface which is often used in machine building and systems manufacturing.

Installation of IO-Link devices is very simple, quickly completed, and does not require complex training. The additional information available from the machines reflects the condition of the machine. With the IO-Link interface, error states and threshold values that have been exceeded are detected at an early stage.

You can therefore plan maintenance at an early stage. The integrated error log enables rapid problem identification when troubleshooting in the 12 to 24 V DC range.

IO-Link

CAPAROC circuit breaker system

Power modules

					
Communication	**Status output and reset input**	**IO-Link**	**PROFINET**	**EtherNet/IP™** new	**Modbus TCP/IP**
Approvals					
Operating voltage	12 V DC / 24 V DC				
Rated current	45 A DC				
Number of slots	2		4		
Connection cross-section	Main circuit IN+: 0.5 mm² ... 16 mm² Main circuit IN-: 0.5 mm² ... 16 mm²	Main circuit IN+: 0.5 mm² ... 16 mm² Main circuit IN-: 0.5 mm² ... 16 mm² IO-Link: 0.2 mm² ... 1.5 mm²	Main circuit IN+: 0.5 mm² ... 16 mm² Main circuit IN-: 0.5 mm² ... 16 mm² System communication: 0.2 mm² ... 1.5 mm²		
Dimensions (W x H x D in mm)	12.4 x 132.4 x 111.3		24.8 x 132.4 x 111.3		24.8 x 132.4 x 111.3
Type	CAPAROC PM S-R	CAPAROC PM IOL	CAPAROC PM PN	CAPAROC PM EIP	CAPAROC PM MB
Item no.	1115661	1115670	1110986	1393553	1687559

Circuit breaker modules, fixed nominal current

									
Rated current	**1 A DC**	**2 A DC**	**4 A DC**	**6 A DC**	**8 A DC**	**10 A DC**	**12 A DC** new	**16 A DC** new	**20 A DC** new
Approvals									
Number of channels	1-channel								
Operating voltage	12 V DC / 24 V DC								
Backup fuse	5 A DC			15 A DC			30 A DC (2x 15 A parallel per output channel)		
Number of slots	1						2		
Connection cross-section	Fuse-protected output: 0.25 mm² ... 4 mm²								
Dimensions (W x H x D)	6.2 x 132.4 x 111.3						12.4 x 132.4 x 111.3		
Type	CAPAROC E1 12-24DC/ 1A	CAPAROC E1 12-24DC/ 2A	CAPAROC E1 12-24DC/ 4A	CAPAROC E1 12-24DC/ 6A	CAPAROC E1 12-24DC/ 8A	CAPAROC E1 12-24DC/ 10A	CAPAROC E1 12-24DC/ 12A	CAPAROC E1 12-24DC/ 16A	CAPAROC E1 12-24DC/ 20A
Item no.	1157288	1157290	1157285	1157286	1157279	1157284	1524929	1115666	1524930

CAPAROC circuit breaker system

Circuit breaker modules, variable nominal current							
							
Rated current	**1 / 2 / 3 / 4 A DC**	**1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A DC**	**1 / 2 / 3 / 4 A DC**	**2 / 4 / 6 / 8 / 10 A DC**	**1 / 2 / 3 / 4 A DC**	**1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A DC**	**12 / 14 / 16 / 18 / 20 A DC** new
Approvals							
Number of channels	1-channel		2-channel		4-channel		1-channel
Operating voltage	12 V DC / 24 V DC						
Backup fuse	5 A DC	15 A DC	5 A DC	15 A DC	5 A DC	15 A DC	30 A DC (2x 15 A parallel per output channel)
Number of slots	1		2				
Connection cross-section	Fuse-protected output: 0.25 mm² ... 4 mm²						
Dimensions (W x H x D)	6.2 x 132.4 x 111.3		12.4 x 132.4 x 111.3				
Type	CAPAROC E1 12-24DC/ 1-4A	CAPAROC E1 12-24DC/ 1-10A	CAPAROC E2 12-24DC/ 1-4A	CAPAROC E2 12-24DC/ 2-10A	CAPAROC E4 12-24DC/ 1-4A	CAPAROC E4 12-24DC/ 1-10A	CAPAROC E1 12-24DC/ 12-20A
Item no.	1115415	1115649	1115655	1110984	1115657	1115658	1115663

Potential distribution module - 0 V	
	
Rated current	4x 10 A DC (per output) / 2x 20 A DC (per output) / 40 A DC (total)
Approvals	
Operating voltage	12 V DC / 24 V DC
Connection cross-section	Load circuit: 0.25 mm² ... 4 mm²
Dimensions W x H x D	6.2 x 132.4 x 109.9
Type	CAPAROC PD 0V
Item no.	1110987

CAPAROC circuit breaker system

Device protection in Ex applications

The fields of application in process technology are varied and the requirements high. Having the appropriate approvals is therefore mandatory.

Precision device protection is becoming increasingly important. Electronic circuit breakers are therefore becoming increasingly important in process engineering. Due to modernization, 24 V DC loads are increasingly being used, which means that protection must also be provided in zone 2 with the corresponding approvals.

The CAPAROC ... EX modules meet the requirements of the Ex e type of protection for increased safety. They are used, for example, to protect small drives, sensors, and actuators. As a result, the availability of the system is significantly increased, with consequential damage caused by overloads and short circuits effectively prevented.

Processing plant in the pharmaceutical industry with various loads

Feed-in module for the Ex area	
	
Communication	**Status output and reset input**
Approvals	
Operating voltage	12 V DC / 24 V DC
Rated current	45 A DC
Number of slots	2
Connection cross-section	Main circuit IN+: 0.5 mm² ... 16 mm² Main circuit IN-: 0.5 mm² ... 16 mm²
Dimensions (W x H x D)	12.4 x 132.4 x 111.3
Type	CAPAROC PM S-R EX
Item no.	1344363

Circuit breaker modules for the Ex area		
		
Rated current	**1 / 2 / 3 / 4 A DC**	**2 / 4 / 6 / 8 / 10 A DC**
Approvals		
Number of channels	2-channel	
Operating voltage	12 V DC / 24 V DC	
Backup fuse	5 A DC	15 A DC
Number of slots	2	
Connection cross-section	Fuse-protected output: 0.25 mm² ... 4 mm²	
Dimensions (W x H x D)	12.4 x 132.4 x 111.3	
Type	CAPAROC E2 12-24DC/ 1-4A EX	CAPAROC E2 12-24DC/ 2-10A EX
Item no.	1344361	1344364

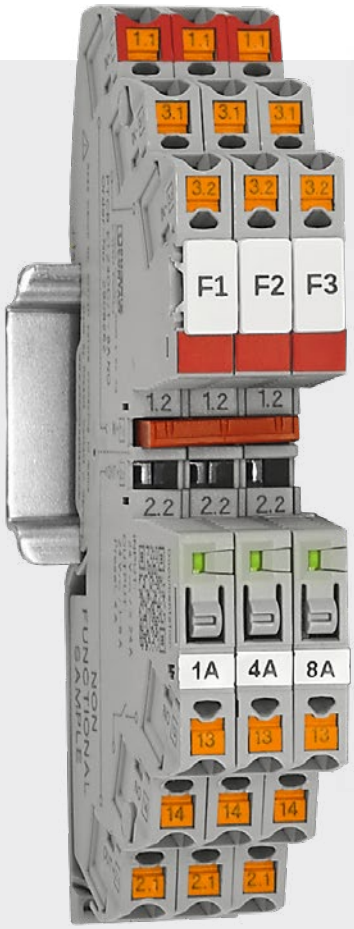
Current rails		
	Initial current rails	
		
Length	**123.8**	**49.4**
Approvals		
Number of slots	20	8
Rated current	45 A DC	
Type	CAPAROC CR 20	CAPAROC CR 8
Item no.	1110989	1115672

	Extension current rails		
			
Length	**133.6**	**59.2**	**34.4**
Approvals			
Number of slots	20	8	4
Rated current	45 A DC		
Type	CAPAROC CR EXT20	CAPAROC CR EXT8	CAPAROC CR EXT4
Item no.	1115674	1110990	1110991

Current rails, optional accessories		
	Connectors	Mechanical fixing
		
Type	CAPAROC CR CON	CAPAROC FIX
Item no.	1270955	1812286

Single-channel circuit breakers – adjustable and narrow

The narrow and universal circuit breakers are perfectly suited for simple, space-saving potential distribution. The single-channel electronic circuit breaker can be bridged to the CLIPLINE complete terminal block system, and offers a setting range from 1 to 8 A with a narrow overall width.



Your advantages

- Simple application setup with the capability of bridging to the CLIPLINE complete terminal block range
- More space in the control cabinet: narrow protection with a width of just 6 mm
- Flexible use and lower inventory stocks due to adjustable current values on each device for a wide range of applications

Single-channel circuit breakers

Space-saving and flexible setup of applications

The PTCB device circuit breaker can be bridged to the CLIPLINE complete terminal block system. You can use standard terminal blocks and accessories from the CLIPLINE complete system, and do not have to qualify any new materials. This enables you to quickly and easily add the ideal protection module to your existing applications.

More space in the control cabinet

The PTCB enables potential distribution and device protection to be combined in a fast, space-saving manner. With an overall width of just 6 mm, the PTCB reliably protects against overload and short-circuit currents. This enables you to achieve space savings of up to 70% compared to standard miniature circuit breakers. You benefit from reliable protection that takes up very little space.

Flexible in use

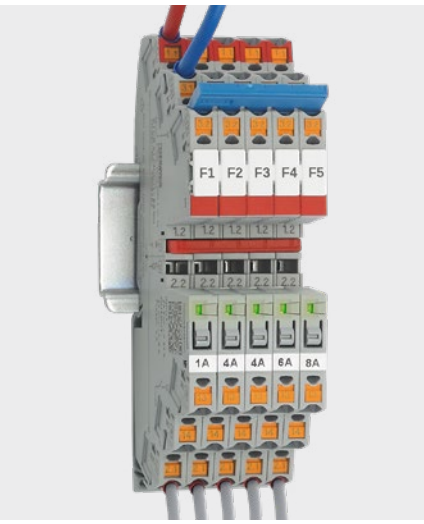
With adjustable current values from 1 to 8 A, you can cover the requirements of a wide range of applications. During startup, you can flexibly adjust the settings and respond to changes in the application at any time.

Individual setup

Anything is possible: the individually configurable device circuit breaker offers unlimited possibilities. The number of channels you want to protect is irrelevant. Eliminate unnecessary channels, thereby reducing the costs of your system – with the flexible PTCB device circuit breaker for a wide variety of applications.

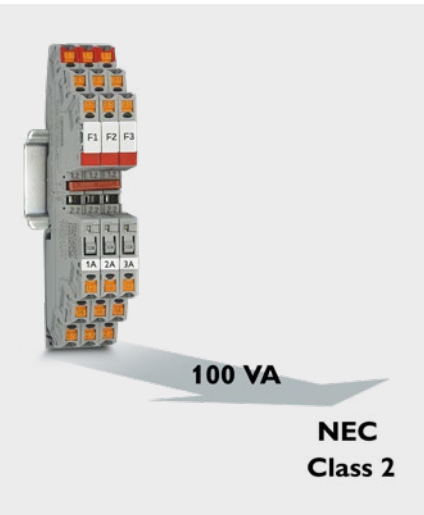
Transparent operating state

The LED indicates the operating state of the product and the connected devices. The status is visualized via traffic light colors. This unambiguous display allows you to intuitively understand the operating state and provides a quick overview. With the remote messaging function, you have the option of transmitting the status to a remote maintenance station.



NEC Class 2 circuits

The device circuit breakers are also approved in accordance with NEC Class 2. You can therefore easily configure energy-limited circuits with PTCB. Instead of an NEC Class 2 power supply unit, simply use your powerful standard power supply unit. Benefit from quicker and easier installation and testing of your application.



Single-channel circuit breakers

Adjustable and narrow

	PTCB – with floating contact 13-14, adjustable		
			
Rated current	**1 / 2 / 3 A DC**	**1 / 2 / 3 / 4 A DC**	**1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 A DC**
Approvals			
Number of positions	1-position		
Operating voltage	24 V DC		
Backup fuse	4 A DC		15 A DC
Connection cross-section	Main circuit IN+: 0.2 mm² ... 2.5 mm² Main circuit IN-: 0.2 mm² ... 2.5 mm² Main circuit OUT: 0.2 mm² ... 2.5 mm²		
Dimensions (W x H x D)	6.2 x 105.8 x 55.6		
Type	PTCB E1 24DC/ 1-3A NO	PTCB E1 24DC/ 1-4A NO	PTCB E1 24DC/ 1-8A NO
Item no.	2909909	2908261	2908262

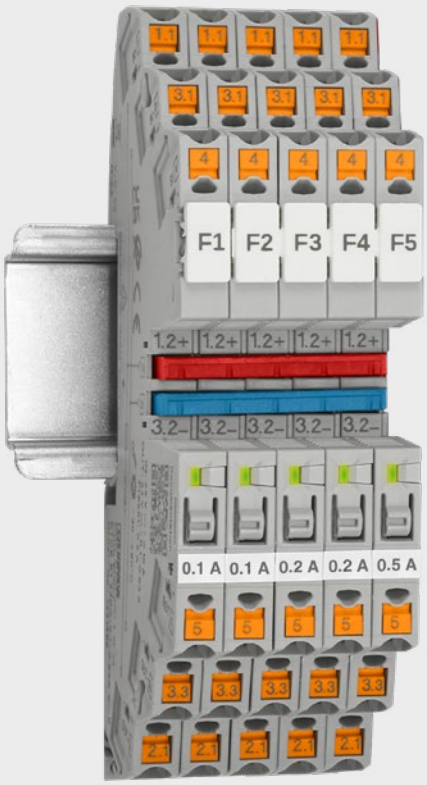
	PTCB – with floating contact 13-14, fixed rated currents					
						
Rated current	**1 A DC**	**2 A DC**	**3 A DC**	**4 A DC**	**6 A DC**	**8 A DC**
Approvals						
Number of positions	1-position					
Operating voltage	24 V DC					
Backup fuse	4 A DC				15 A DC	
Connection cross-section	Main circuit IN+: 0.2 mm² ... 2.5 mm² Main circuit IN-: 0.2 mm² ... 2.5 mm² Main circuit OUT: 0.2 mm² ... 2.5 mm²					
Dimensions (W x H x D)	6.2 x 105.8 x 55.6					
Type	PTCB E1 24DC/ 1A NO	PTCB E1 24DC/ 2A NO	PTCB E1 24DC/ 3A NO	PTCB E1 24DC/ 4A NO	PTCB E1 24DC/ 6A NO	PTCB E1 24DC/ 8A NO
Item no.	2909902	2909903	2909904	2909906	2909908	2909910

Single-channel circuit breakers

Adjustable and narrow					
	PTCB – with status output and reset input, adjustable				
					
Rated current	**1 / 2 / 3 / 4 A DC**			**1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 A DC**	
Approvals					
Number of positions	1-position				
Operating voltage	24 V DC				
Backup fuse	5 A DC			15 A DC	
Connection cross-section	Main circuit IN+: 0.2 mm² ... 2.5 mm² Main circuit IN-: 0.2 mm² ... 2.5 mm² Main circuit OUT: 0.2 mm² ... 2.5 mm²				
Dimensions (W x H x D)	6.2 x 105.8 x 55.6				
Type	PTCB E1 24DC/ 1-4A SI-R			PTCB E1 24DC/ 1-8A SI-R	
Item no.	1135753			1135752	
	PTCB – with status output and reset input, fixed nominal currents				
					
Rated current	**1 A DC**	**2 A DC**	**4 A DC**	**6 A DC**	**8 A DC**
Approvals					
Number of positions	1-position				
Operating voltage	24 V DC				
Backup fuse	5 A DC			15 A DC	
Connection cross-section	Main circuit IN+: 0.2 mm² ... 2.5 mm² Main circuit IN-: 0.2 mm² ... 2.5 mm² Main circuit OUT: 0.2 mm² ... 2.5 mm²				
Dimensions (W x H x D)	6.2 x 105.8 x 55.6				
Type	PTCB E1 24DC/ 1A SI-R	PTCB E1 24DC/ 2A SI-R	PTCB E1 24DC/ 4A SI-R	PTCB E1 24DC/ 6A SI-R	PTCB E1 24DC/ 8A SI-R
Item no.	1135751	1135749	1135745	1135740	1135734

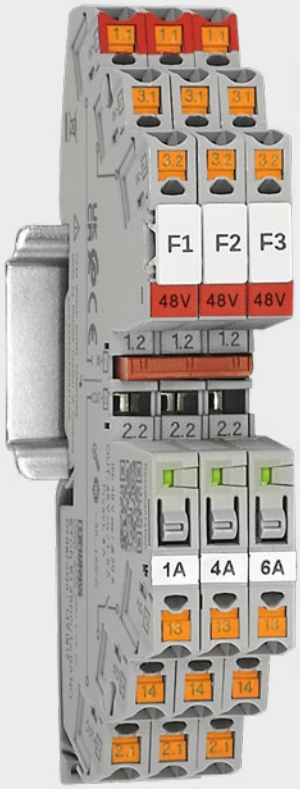
Single-channel circuit breakers – versatile in use

Even more applications can now be covered with the PTCB device circuit breakers. 48 V versions for protection when starting heavy loads are now also included in the portfolio, as are nominal current versions below 1 A. These versions can be used in no time at all for greater transparency and effective protection in the microfuse range.



The electronic microfuse

Benefit from faster re-availability of your protection without the time-consuming replacement of conventional glass fuses. The PTCB eFuse is available with standardized fuse values from 0.1 to 1 A.



Universal protection at 48 V DC

Protect your 48 V DC loads with the PTCB single-channel electronic circuit breakers. Select the appropriate fuse for your 48 V application from an adjustable and a fixed nominal current version.

Single-channel circuit breakers

Single-channel circuit breakers		
	PTCB – with floating contact 13-14 for 48 V DC, fixed nominal current	**PTCB – with floating contact 13-14 for 48 V DC, adjustable nominal current**
		
Rated current	**2 A DC**	**1 / 2 / 3 / 4 / 5 / 6 A DC**
Approvals		
Number of positions	1-position	
Operating voltage	48 V DC	
Backup fuse	5 A DC	15 A DC
Connection cross-section	Main circuit IN+: 0.2 mm² ... 2.5 mm² Main circuit IN-: 0.2 mm² ... 2.5 mm² Main circuit OUT: 0.2 mm² ... 2.5 mm²	
Dimensions (W x H x D)	6.2 x 105.8 x 55.6	
Type	PTCB E1 48DC/ 2A NO	PTCB E1 48DC/ 1-6A NO
Item no.	1471918	1471917

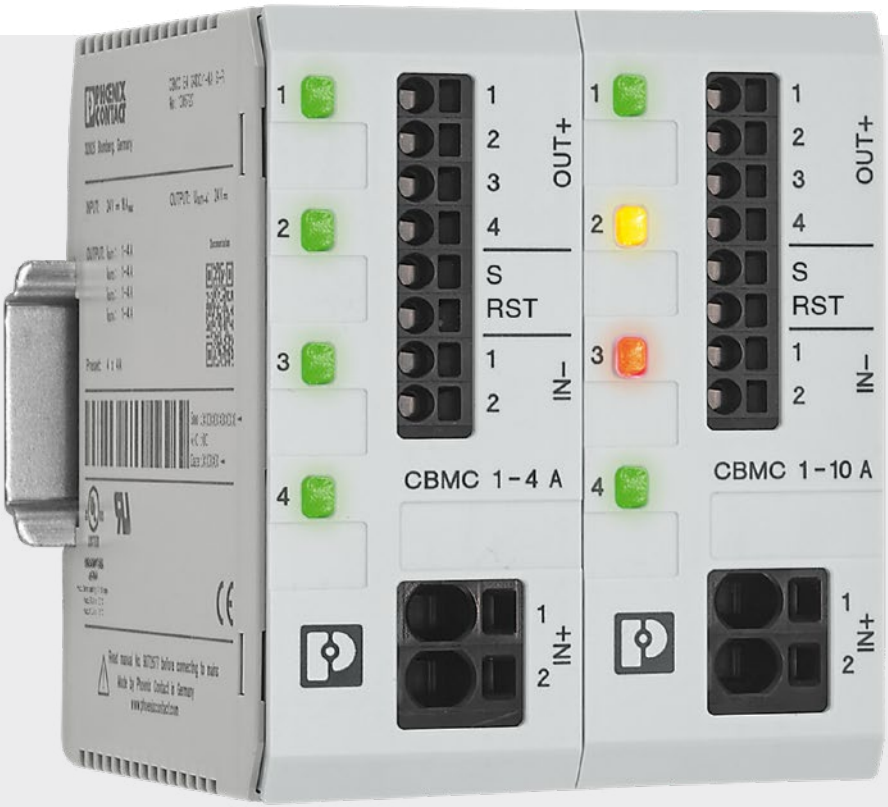
Single-channel circuit breakers				
	PTCB eFuse – with floating contact 13-14, fixed nominal current			
				
Rated current	**0.1 A DC**	**0.2 A DC**	**0.5 A DC**	**0.63 A DC**
Approvals				
Number of positions	1-position			
Operating voltage	12 V DC / 24 V DC			
Backup fuse	4 A DC			
Connection cross-section	Main circuit IN+: 0.2 mm² ... 2.5 mm² Main circuit IN-: 0.2 mm² ... 2.5 mm² Main circuit OUT: 0.2 mm² ... 2.5 mm²			
Dimensions (W x H x D)	6.2 x 105.8 x 55.6			
Type	PTCB E1 24DC/ 0.1A NO	PTCB E1 24DC/ 0.2A NO	PTCB E1 24DC/ 0.5A NO	PTCB E1 24DC/ 0.63A NO
Item no.	1464484	1361055	1361051	1464486

Single-channel circuit breakers

Single-channel circuit breakers				
	PTCB eFuse – with status output and reset input, fixed nominal current			
				
Rated current	**0.1 A DC**	**0.2 A DC**	**0.5 A DC**	**0.63 A DC**
Approvals				
Number of positions	1-position			
Operating voltage	12 V DC / 24 V DC			
Backup fuse	4 A DC			
Connection cross-section	Main circuit IN+: 0.2 mm² ... 2.5 mm² Main circuit IN-: 0.2 mm² ... 2.5 mm² Main circuit OUT: 0.2 mm² ... 2.5 mm²			
Dimensions (W x H x D)	6.2 x 105.8 x 55.6			
Type	PTCB E1 24DC/ 0.1A SI-R	PTCB E1 24DC/ 0.2A SI-R	PTCB E1 24DC/ 0.5A SI-R	PTCB E1 24DC/ 0.63A SI-R
Item no.	1464483	1361049	1361043	1464485
	PTCB eFuse – with floating contact 13-14, adjustable nominal current		**PTCB eFuse – with status output and reset input, adjustable nominal current**	
				
Rated current	**0.1 / 0.2 / 0.315 / 0.4 / 0.5 / 0.63 A DC**			
Approvals				
Number of positions	1-position			
Operating voltage	12 V DC / 24 V DC			
Backup fuse	4 A DC			
Connection cross-section	Main circuit IN+: 0.2 mm² ... 2.5 mm² Main circuit IN-: 0.2 mm² ... 2.5 mm² Main circuit OUT: 0.2 mm² ... 2.5 mm²			
Dimensions (W x H x D)	6.2 x 105.8 x 55.6			
Type	PTCB E1 24DC/ 0.1-0.63A NO		PTCB E1 24DC/ 0.1-0.63A SI-R	
Item no.	1441495		1441496	

Multi-channel circuit breakers – compact with tool-free adjustability

CBMC circuit breakers are tailored exactly to your specific requirements. They combine a compact design with options for individual adjustment. This means that you can easily and flexibly adjust currents, save space, and reliably protect all applications with just one device. A version with the IO-Link interface makes it possible to integrate the device circuit breakers into the process monitoring and control systems.



Your advantages

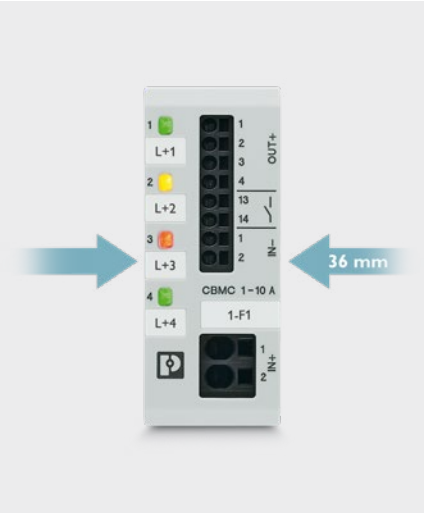
- Easy device replacement without re-planning, with a compact design and options for individual adjustment
- Circuits can be adjusted tool-free via a single LED pushbutton
- Worldwide access to the device with integration into your IO-Link infrastructure

CBMC compact multi-channel electronic circuit breakers

Save space in the control cabinet with the CBMC, or convert existing systems with little effort. With the combination of compact overall width and individual adjustability, selecting the correct product is easy. At the same time you save inventory costs because only one device is required.

The integrated early warning system also ensures fewer failures with CBMC. When the set nominal current of a channel reaches 80%, a warning is output via the associated LED.

This means that you can easily and flexibly adjust currents, save space, and reliably protect all applications with just one device.



Intelligent control and comprehensive monitoring with IO-Link

The CBMC portfolio also includes versions with the IO-Link interface. IO-Link lets you fully integrate the device circuit breakers into the process monitoring and control systems. It gives you a continuous overview of process-related data, keeping you up to date at all times and from anywhere.

Device circuit breaker versions equipped with status output and reset input give you more diagnostic and control options in your system. After all, this product provides the option of remotely resetting the circuit. It also makes it possible to install the device circuit breaker in locations that are difficult to access.

Another version electrically interrupts load outputs with the help of built-in relays. In this case, as opposed to other electronic circuit breakers, the protected output is not only switched to high impedance in the event of an error, but is also electrically isolated.

NEC Class 2 circuits

The 1-4 A version is approved in accordance with NEC Class 2. You can therefore easily configure energy-limited circuits with the CBMC. Instead of an NEC Class 2 power supply unit, simply use your powerful standard power supply unit. Benefit from quicker and easier installation and testing of your application.

Multi-channel circuit breakers – highly functional and space-saving

Four to eight channels can be safely protected against overload and short-circuit currents with CBM multi-channel device circuit breakers. Setting a circuit breaker was never so easy. With the integrated nominal current assistant, selecting the appropriate current for the connected load is incredibly easy. This makes configuration fast, convenient, and simple.

Your advantages

- Easy setting with the nominal current assistant
- Active current limitation to improve the capacity of the upstream power supply
- Adjustable in increments per channel: from 0.5 A to 10 A

CBM device circuit breakers with nominal current assistants

The nominal current assistant makes configuration of the CBM exceptionally easy. It enables optimal adaptation to the load currents. Simply turn the rotary switch until the optimum current has been found.

The LED displays the ideal setting. It could not be easier to configure the ideal system protection.

Active current limitation restricts short circuit and overload currents to a value that is 1.5 to 2 times the nominal current. This protects the power supply against excessively high currents and prevents output voltage dips at the switched-mode power supply unit. In addition, longer cable paths between the power supply and load are possible without negatively impacting shutdown behavior.

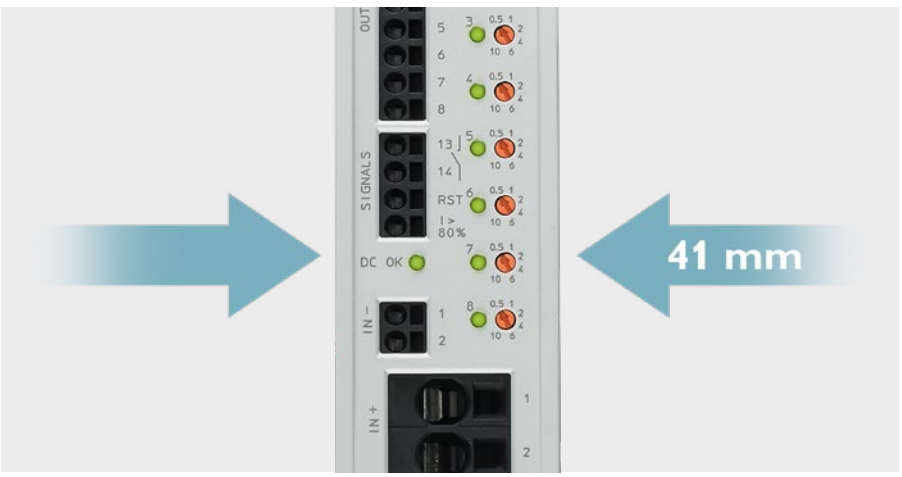
Analysis and signaling

The currents flowing are constantly monitored. The CBM not only features a potential-free signal contact to indicate capacity utilization, it also has an 80% output. You are alerted as soon as at least one channel is being heavily utilized. The channel that has been switched off can be easily switched back on remotely via the Reset RST signal input.

Differentiate between undervoltages and overvoltages in your system to increase your system availability. The channels are shut down in the event of an error in the operating voltage and the system is switched to a defined state. The error is signaled directly via the remote indication contact. An LED also provides a message directly on the device.

8 channels in a narrow installation space

Save space in the control cabinet with the 8-channel CBM E8 device circuit breaker. Reliably protect eight channels against overload and short-circuit currents in just one device with an overall width of only 41 mm. Reduce inventory costs and also ensure high flexibility in system planning.



Multi-channel circuit breakers

Compact with tool-free adjustability		
	CBMC – compact, with floating contact 13-14	
		
Rated current	**1 / 2 / 3 / 4 A DC**	**1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A DC**
Approvals		
Number of channels	4-channel	
Number of positions	1-position	
Operating voltage	24 V DC	
Backup fuse	4 A DC	15 A DC
Connection cross-section	Main circuit IN+: 0.25 mm² … 6 mm² Main circuit IN-: 0.25 mm² … 2.5 mm² Main circuit OUT: 0.25 mm² … 2.5 mm²	
Dimensions (W x H x D in mm)	36 x 90 x 98	
Type	CBMC E4 24DC/ 1-4A NO	CBMC E4 24DC/ 1-10A NO
Item no.	2906031	2906032
	CBMC – compact, with floating contact 13-14, can be ordered preconfigured	
		
Rated current	**1 / 2 / 3 / 4 A DC**	**1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A DC**
Approvals		
Number of channels	4-channel	
Number of positions	1-position	
Operating voltage	24 V DC	
Backup fuse	4 A DC	15 A DC
Connection cross-section	Main circuit IN+: 0.25 mm² … 6 mm² Main circuit IN-: 0.25 mm² … 2.5 mm² Main circuit OUT: 0.25 mm² … 2.5 mm²	
Dimensions (W x H x D in mm)	36 x 90 x 98	
Type	CBMC E4 24DC/ 1-4A NO-C	CBMC E4 24DC/ 1-10A NO-C
Item no.	2908713	2908716

Multi-channel circuit breakers

Compact with tool-free adjustability		
	CBMC – compact, with status output and reset input	
		
Rated current	**1 / 2 / 3 / 4 A DC**	**1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A DC**
Approvals		
Number of channels	4-channel	
Number of positions	1-position	
Operating voltage	24 V DC	
Backup fuse	4 A DC	15 A DC
Connection cross-section	Main circuit IN+: 0.25 mm² … 6 mm² Main circuit IN-: 0.25 mm² … 2.5 mm² Main circuit OUT+: 0.25 mm² … 2.5 mm²	
Dimensions (W x H x D) in mm	36 x 90 x 98	
Type	CBMC E4 24DC/ 1-4A S-R	CBMC E4 24DC/ 1-10A S-R
Item no.	1065727	1065729
	CBMC – compact, with status output and reset input, available preconfigured	
		
Rated current	**1 / 2 / 3 / 4 A DC**	**1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A DC**
Approvals		
Number of channels	4-channel	
Number of positions	1-position	
Operating voltage	24 V DC	
Backup fuse	4 A DC	15 A DC
Connection cross-section	Main circuit IN+: 0.25 mm² … 6 mm² Main circuit IN-: 0.25 mm² … 2.5 mm² Main circuit OUT+: 0.25 mm² … 2.5 mm²	
Dimensions (W x H x D in mm)	36 x 90 x 98	
Type	CBMC E4 24DC/ 1-4A S-R-C	CBMC E4 24DC/ 1-10A S-R-C
Item no.	1103876	1103875

Multi-channel circuit breakers

Compact with tool-free adjustability		
	CBMC – compact, with IO-Link interface	
		
Rated current	**1 / 2 / 3 / 4 A DC**	**1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A DC**
Approvals		
Number of channels	4-channel	
Number of positions	1-position	
Operating voltage	24 V DC	
Backup fuse	15 A DC	
Connection cross-section	Main circuit IN+: 0.25 mm² … 6 mm² Main circuit IN-: 0.25 mm² … 2.5 mm² Main circuit OUT: 0.25 mm² … 2.5 mm² IO-Link: 0.25 mm² … 1.5 mm²	
Dimensions (W x H x D) in mm	36 x 90 x 98	
Type	CBMC E4 24DC/ 1-4A+ IOL	CBMC E4 24DC/ 1-10A IOL
Item no.	2910410	2910411
	CBMC – compact, electrically isolating with floating contact 13-14	**CBMC – compact, electrically isolating with floating contact 13-14, can be ordered preconfigured**
		
Rated current	**1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 A DC**	
Approvals		
Number of channels	4-channel	
Number of positions	1-position	
Operating voltage	24 V DC	
Backup fuse	15 A DC	
Connection cross-section	Main circuit IN+: 0.25 mm² … 6 mm² Main circuit IN-: 0.25 mm² … 2.5 mm² Main circuit OUT: 0.25 mm² … 2.5 mm²	
Dimensions (W x H x D in mm)	36 x 90 x 98	
Type	CBMC EG4 24DC/ 1-8A NO	CBMC EG4 24DC/ 1-8A NO-C
Item no.	1065730	1449883

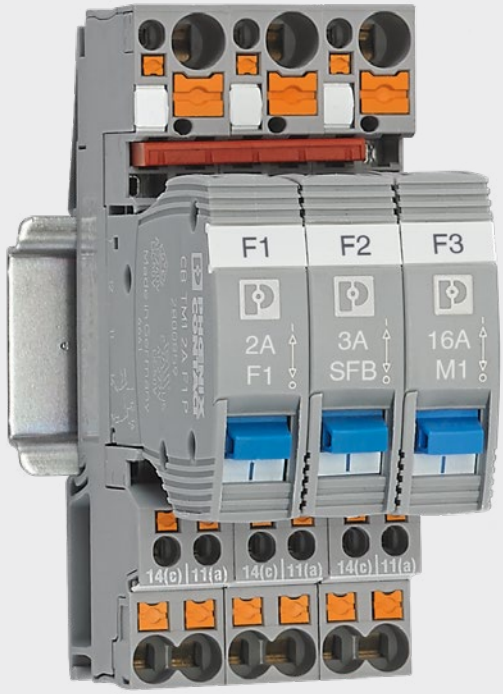
Multi-channel circuit breakers

Highly functional and space saving		
	CBM – with floating contact 13-14, reset input, and I >80% signaling	
		
Rated current	**0.5 / 1 / 2 / 4 / 6 / 10 A DC**	
Approvals		
Number of channels	4-channel	8-channel
Number of positions	1-position	
Operating voltage	24 V DC	
Backup fuse	15 A DC	
Connection cross-section	Main circuit IN+: 0.75 mm² ... 16 mm² Main circuit IN-: 0.25 mm² ... 2.5 mm² Main circuit OUT: 0.25 mm² ... 2.5 mm²	
Dimensions (W x H x D in mm)	41 x 130 x 121	
Type	CBM E4 24DC/ 0.5-10A NO-R	CBM E8 24DC/ 0.5-10A NO-R
Item no.	2905743	2905744

Thermal-magnetic device circuit breakers

2

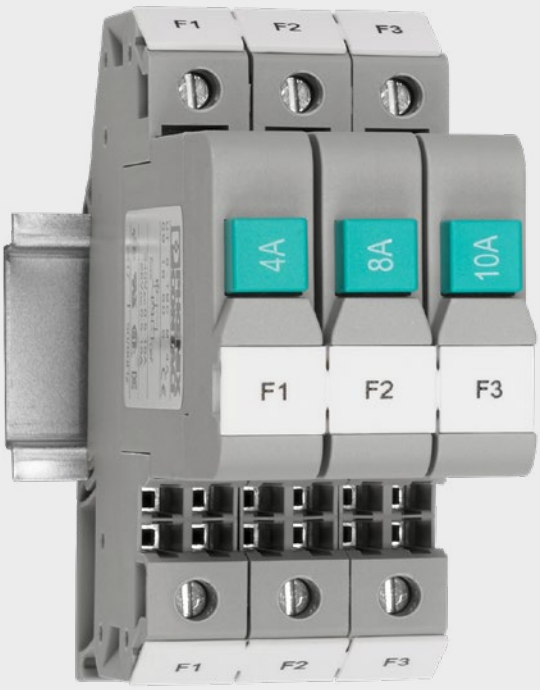
Always the right choice – whether with basic functionality or highly functional. Our thermal-magnetic device circuit breakers are used in information, communication, and process technology. Due to the various tripping characteristics, the device circuit breakers can be used in a wide range of applications. Integrated remote signaling enables you to permanently monitor the operating state of your system.



CB TM

When you opt for the CB TM device circuit breakers, three tripping characteristics are available for different applications.

› More information starting on page 40



UT 6-TMC

The UT 6-TMC device circuit breaker can be reset and features a generous marking area.

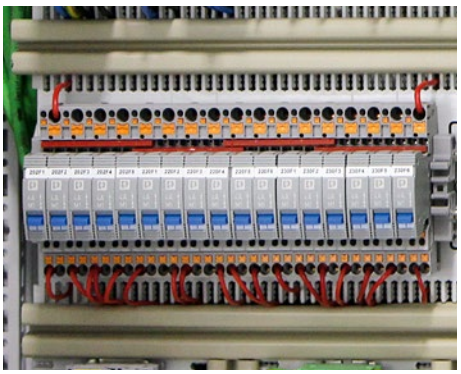
› More information starting on page 46

Thermal-magnetic device circuit breakers

Using thermal-magnetic device circuit breakers

Thermal-magnetic device circuit breakers are used among other things in information and communication technology as well as process control. With a variety of versions with different tripping characteristics, the circuit breakers are ideally suited for protecting programmable logic controllers, valves, motors, and frequency converters.

The reactivation and immediate remote signaling of the operating state ensure high availability. The different characteristic curves for this protection technology can even start critical loads while at the same time providing secure protection in nominal operation.



Tripping characteristics

SFB characteristic curve

Circuit breakers with the SFB tripping characteristic offer maximum overcurrent protection, even in large systems with long cable paths. SFB stands for “selective fuse breaking,” i.e., selective shutdown. Protective devices with this characteristic curve prevent unnecessarily early switch-off in the event of brief current increases and starting currents during operation, for example. They simultaneously prevent unnecessarily long, persistent overload currents, which may lead to the hazardous generation of heat in operating equipment.

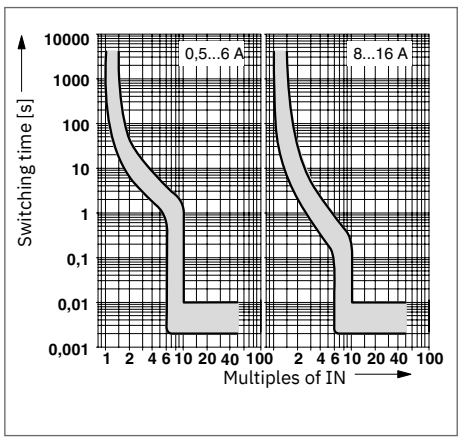
M1 characteristic curve

Circuit breakers with the M1 characteristic curve trip later than those with SFB or F1 characteristic curves. They withstand starting currents for somewhat longer periods but consciously respond less swiftly to fault situations.

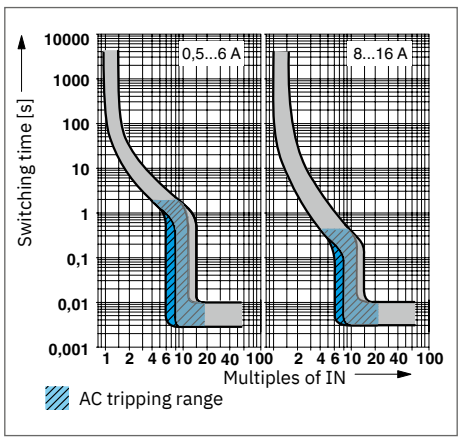
In comparison to the direct current characteristic curve, the alternating current characteristic curve is dragged forward on the axis of the nominal current multiple. Even at a lower multiple of the nominal current, alternating currents cause the circuit breaker to trip.

F1 characteristic curve

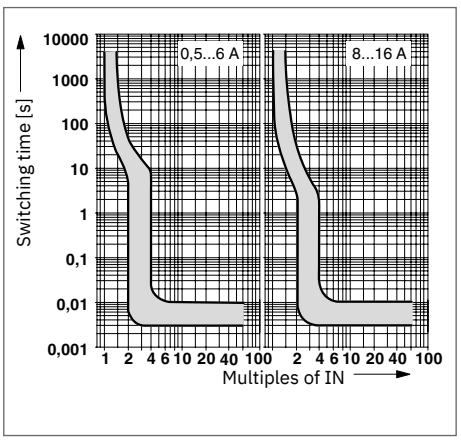
Circuit breakers with the F1 characteristic curve trip quickly. They react very quickly to overload situations. However, this can lead to unnecessary shutdowns during operation. This means they offer optimal protection for sensitive loads with very low startup current and thus provide protection over great distances. End devices, which can be damaged by temporary overloads and slightly increased operating current, are also protected by these circuit breakers.



SFB characteristic curve



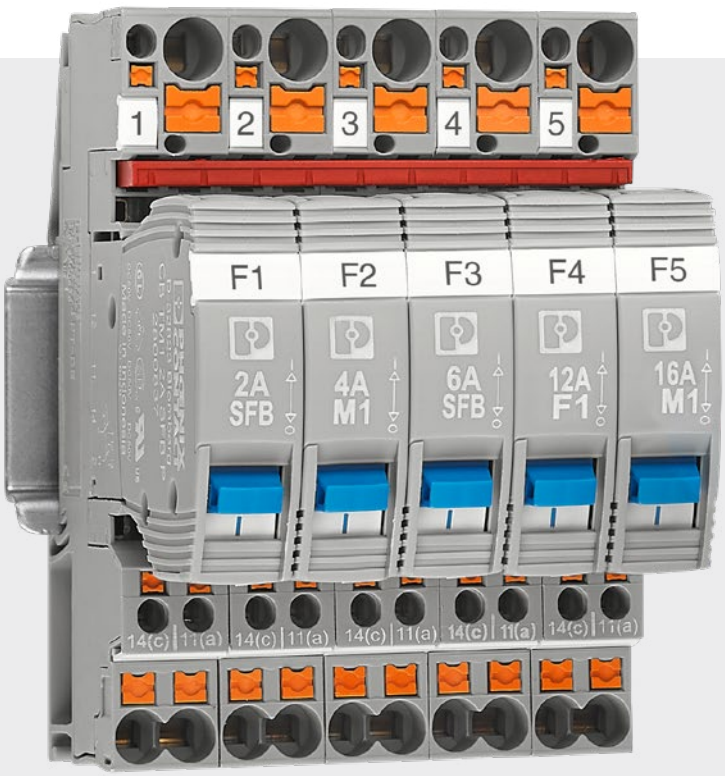
M1 characteristic curve



F1 characteristic curve

Pluggable and customizable circuit breakers

Protect your application reliably against overload and short-circuit currents with the CB TM device circuit breakers. A large range of many different protective plugs is available for customizing your protection. Take advantage of the numerous features.



Your advantages

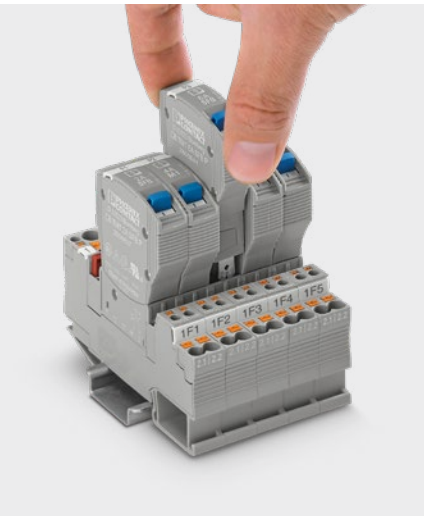
- Individually adjustable with protective plugs
- Easy characteristic curve selection: choose between three different characteristics
- Large selection of protective plugs with fixed nominal current values for protection against unauthorized changes

Customizable

Pre-wire systems and control cabinets with base elements. Simply install the appropriate protective plug to suit your individual requirements at a later date. If the demands placed on a load change in the meantime, you can simply replace the protective plug. The secure latching ensures that the plug remains firmly in place, even in harsh environments.

Large selection of current values

A large selection of protective plugs are available in the CB TM range. The nominal currents range from 0.5 to 16 A. Select the right protective plug for your area of application. With the fixed, unchangeable nominal currents of the plugs, you can increase the security of your system. This prevents unintentional changes to the channel currents.



Device circuit breakers with SFB characteristic curve

Thermal-magnetic device circuit breakers with SFB tripping characteristic provide maximum overcurrent protection – even in large systems with long cable paths.

Protective devices with this characteristic curve prevent unnecessary prior shutdown in the event of brief current increases during operation. They simultaneously prevent lengthy overload currents, which may lead to the hazardous generation of heat in operating equipment.

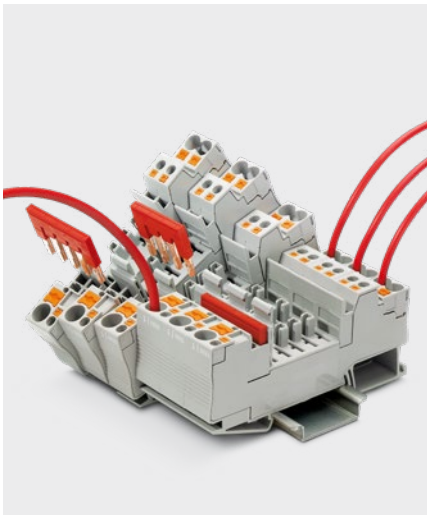
This tripping characteristic was specifically developed for use with power supplies that operate on the basis of SFB Technology. Combining these two devices ensures particularly reliable tripping in the event of a fault, even in the case of long cable runs between the power supply and end device. The SFB characteristic curve is based on characteristic C, but its tolerance is significantly narrower. The circuit breaker therefore reaches its tripping current faster and is tripped sooner. This limits the short-circuit current and reduces the load on cables and connected devices.

Quick and easy installation

The device circuit breakers can be easily combined using the unique bridging system from our standard range. Potentials of the same type can be connected quickly and safely. Push-in connection technology enables you to wire the devices tool-free. This saves time and costs during installation.

Single and double-position connectors

Ideal protection for your application. Plugs with various numbers of positions are available for this. Choose single-position plugs for the protection of grounded systems. Use our two-position plug to provide protection across all poles, as is required in insulated systems, for example. This way, you can ensure optimal protection for your system.



Thermal-magnetic circuit breakers

Pluggable and customizable

	CB TM – with SFB characteristic curve, 1 changeover contact										
											
Rated current	**0.5 A**	**1 A**	**2 A**	**3 A**	**4 A**	**5 A**	**6 A**	**8 A**	**10 A**	**12 A**	**16 A**
Approvals											
Number of positions	1-position										
Operating voltage	50 V DC										
Dimensions (W x H x D)	12.3 x 45 x 52										
Type	CB TM1 0.5A SFB P	CB TM1 1A SFB P	CB TM1 2A SFB P	CB TM1 3A SFB P	CB TM1 4A SFB P	CB TM1 5A SFB P	CB TM1 6A SFB P	CB TM1 8A SFB P	CB TM1 10A SFB P	CB TM1 12A SFB P	CB TM1 16A SFB P
Item no.	2800835	2800836	2800837	2800838	2800839	2800840	2800841	2800842	2800843	2800844	2800845

	CB TM – with SFB characteristic curve, 2 changeover contacts										
											
Rated current	**0.5 A**	**1 A**	**2 A**	**3 A**	**4 A**	**5 A**	**6 A**	**8 A**	**10 A**	**12 A**	**16 A**
Approvals											
Number of positions	2-position										
Operating voltage	80 V DC										
Dimensions (W x H x D)	24.6 x 45 x 52										
Type	CB TM2 0.5A SFB P	CB TM2 1A SFB P	CB TM2 2A SFB P	CB TM2 3A SFB P	CB TM2 4A SFB P	CB TM2 5A SFB P	CB TM2 6A SFB P	CB TM2 8A SFB P	CB TM2 10A SFB P	CB TM2 12A SFB P	CB TM2 16A SFB P
Item no.	2800868	2800869	2800870	2800871	2800872	2800873	2800874	2800875	2800876	2800877	2800878

Thermal-magnetic circuit breakers

Pluggable and customizable											
	CB TM – with M1 characteristic curve, 1 changeover contact										
											
Rated current	**0.5 A**	**1 A**	**2 A**	**3 A**	**4 A**	**5 A**	**6 A**	**8 A**	**10 A**	**12 A**	**16 A**
Approvals											
Number of positions	1-position										
Operating voltage	240 V AC / 50 V DC										
Dimensions (W x H x D)	12.3 x 45 x 52										
Type	CB TM1 0.5A M1 P	CB TM1 1A M1 P	CB TM1 2A M1 P	CB TM1 3A M1 P	CB TM1 4A M1 P	CB TM1 5A M1 P	CB TM1 6A M1 P	CB TM1 8A M1 P	CB TM1 10A M1 P	CB TM1 12A M1 P	CB TM1 16A M1 P
Item no.	2800846	2800847	2800848	2800849	2800850	2800851	2800852	2800853	2800854	2800855	2800856
	CB TM – with M1 characteristic curve, 2 changeover contacts										
											
Rated current	**0.5 A**	**1 A**	**2 A**	**3 A**	**4 A**	**5 A**	**6 A**	**8 A**	**10 A**	**12 A**	**16 A**
Approvals											
Number of positions	2-position										
Operating voltage	240 V AC / 80 V DC										
Dimensions (W x H x D)	24.6 x 45 x 52										
Type	CB TM2 0.5A M1 P	CB TM2 1A M1 P	CB TM2 2A M1 P	CB TM2 3A M1 P	CB TM2 4A M1 P	CB TM2 5A M1 P	CB TM2 6A M1 P	CB TM2 8A M1 P	CB TM2 10A M1 P	CB TM2 12A M1 P	CB TM2 16A M1 P
Item no.	2800879	2800880	2800881	2800882	2800883	2800884	2800885	2800886	2800887	2800888	2800889

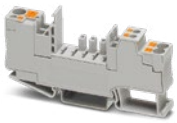
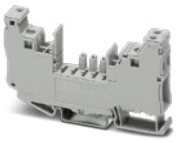
Thermal-magnetic circuit breakers

Pluggable and customizable

	CB TM – with F1 characteristic curve, 1 changeover contact										
											
Rated current	**0.5 A**	**1 A**	**2 A**	**3 A**	**4 A**	**5 A**	**6 A**	**8 A**	**10 A**	**12 A**	**16 A**
Approvals											
Number of positions	1-position										
Operating voltage	50 V DC										
Dimensions (W x H x D)	12.3 x 45 x 52										
Type	CB TM1 0.5A F1 P	CB TM1 1A F1 P	CB TM1 2A F1 P	CB TM1 3A F1 P	CB TM1 4A F1 P	CB TM1 5A F1 P	CB TM1 6A F1 P	CB TM1 8A F1 P	CB TM1 10A F1 P	CB TM1 12A F1 P	CB TM1 16A F1 P
Item no.	2800857	2800858	2800859	2800860	2800861	2800862	2800863	2800864	2800865	2800866	2800867

	CB TM – with F1 characteristic curve, 2 changeover contacts										
											
Rated current	**0.5 A**	**1 A**	**2 A**	**3 A**	**4 A**	**5 A**	**6 A**	**8 A**	**10 A**	**12 A**	**16 A**
Approvals											
Number of positions	2-position										
Operating voltage	80 V DC										
Dimensions (W x H x D)	24.6 x 45 x 52										
Type	CB TM2 0.5A F1 P	CB TM2 1A F1 P	CB TM2 2A F1 P	CB TM2 3A F1 P	CB TM2 4A F1 P	CB TM2 5A F1 P	CB TM2 6A F1 P	CB TM2 8A F1 P	CB TM2 10A F1 P	CB TM2 12A F1 P	CB TM2 16A F1 P
Item no.	2800890	2800891	2800892	2800893	2800894	2800895	2800896	2800897	2800898	2800899	2800900

Thermal-magnetic circuit breakers

Necessary accessories for CB TM			
	Base element		
			
Connection technology	**Push-in connection**	**Screw connection**	**Solder connection**
Approvals			
Mounting type	DIN rail: 35 mm		On PCB
Connection cross-section	Connection 1: 0.5 mm² … 6 mm² Connection 2.1 / 2.2: 0.2 mm² … 4 mm²	Connection 1: 0.5 mm² … 10 mm² Connection 2: 0.5 mm² … 10 mm²	
Dimensions (W x H x D in mm)	12.3 x 90 x 46.7	12.3 x 90.8 x 70	12.3 x 34.8 x 36.4
Type	CB 1/6-2/4 PT-BE	CB 1/10-1/10 UT-BE	CB S-BE
Item no.	2800929	2801305	2905067

One-piece and modular, extendable circuit breakers

The UT 6-TMC device circuit breakers provide optimal basic protection. With their thermal-magnetic characteristic curve, which is available in various nominal currents, they reliably protect loads and cables against overload and short-circuit currents.

Your advantages

- Simple feed-in with bridging capability using CLIPLINE complete accessories
- High system availability, thanks to easy resetting
- Quick and easy identification with large-area marking options

Simple feed-in

Feed-in to the UT 6-TMC is simple with the double bridge shaft. Systems can also be extended quickly and easily. You can use standard accessories from the CLIPLINE complete portfolio, and do not need to qualify any new materials.

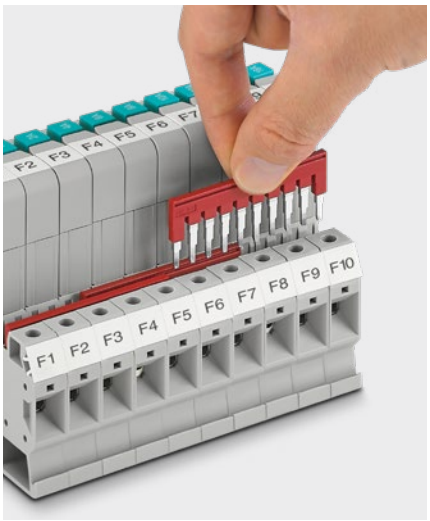
Quick and easy identification

Each circuit can be clearly marked. The UT 6-TMC device circuit breakers feature versatile and large-area marking options for this. Individual circuits can be quickly identified at a glance. This simplifies troubleshooting.

Compact design

The UT 6-TMC feature a narrow design with a width of just 12.3 mm.

With this compactness, you save 30% space in the control cabinet compared to standard miniature circuit breakers.



High system availability

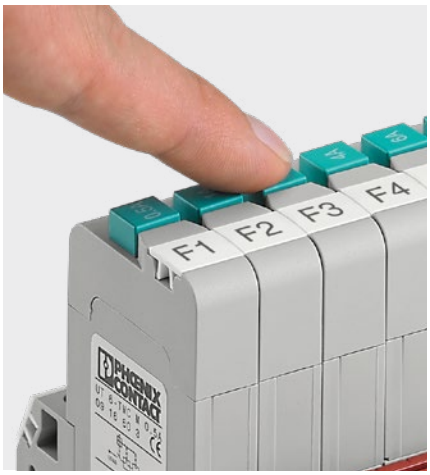
Device replacement is not necessary in the event of an error. The system is easy to reset and can therefore be quickly restarted. The trip-free mechanism prevents blocking of the shutdown.

Large nominal current range

The device circuit breakers are available in 11 nominal current levels. With a nominal current range of 0.5 to 16 A, you are sure to find the appropriate device for your application.

Connection technology

Take advantage of many years of experience in connection technology with the proven screw connection technology of the UT 6-TMC products.



One-piece and modular extension possible

	UT 6 TMC – with M1 characteristic curve										
											
Rated current	**0.5 A**	**1 A**	**2 A**	**4 A**	**5 A**	**6 A**	**8 A**	**10 A**	**12 A**	**15 A**	**16 A**
Approvals											
Number of positions	1-position										
Operating voltage	240 V AC / 28 V DC										
Dimensions (W x H x D)	12.3 x 85.5 x 89.5										
Type	UT 6-TMC M 0.5A	UT 6-TMC M 1A	UT 6-TMC M 2A	UT 6-TMC M 4A	UT 6-TMC M 5A	UT 6-TMC M 6A	UT 6-TMC M 8A	UT 6-TMC M 10A	UT 6-TMC M 12A	UT 6-TMC M 15A	UT 6-TMC M 16A
Item no.	0916603	0916604	0916605	0916606	0916607	0916608	0916609	0916610	0916611	0916612	0916613

Thermal device circuit breakers

3

Thermal circuit breakers provide optimal protection against overload for your loads in power distribution systems. When the circuit breaker trips, the integrated switch function enables immediate reactivation. Unlike a fuse, the circuit breaker does not need to be replaced. The higher the overload, the faster the thermal device circuit breaker trips.

Thermal device circuit breakers for the DC voltage range

The protective plugs can be reset and are suitable for applications up to 40 A DC.

› More information starting on page 50

Thermal device circuit breakers for the DC and AC voltage range

The protective plugs can be switched on and off and are used in applications up to 20 A AC/DC.

› More information starting on page 52

Thermal device circuit breakers

Field of application

Thermal device circuit breakers provide optimum protection against overload for inductive and resistive loads in power distribution systems, control cabinet engineering, and systems manufacturing. They are resistant to high starting currents like those that occur when starting a motor or switching on a transformer. They are also used for protecting circuits in battery and onboard systems. Compared to other protection technologies, however, thermal circuit breakers do not offer rapid protection from short circuits.

Function

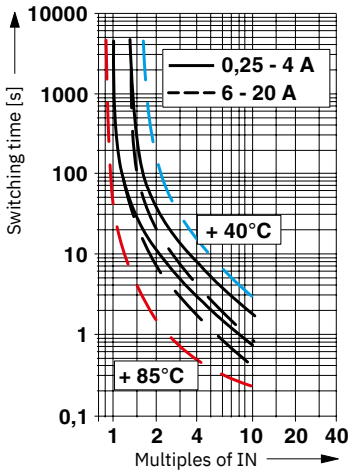
The tripping element of thermal device circuit breakers is bimetallic. It may also be a combination of bimetal and an electrical heating element. The bimetal consists of steel and zinc, which is formed by heat. When a predefined heat level is reached as a result of an excessively high current in the heating element, the thermal bimetal trips the shutdown mechanism.

This thermal tripping element makes the thermal protection more susceptible to higher ambient temperatures. Thermal device circuit breakers represent a simple, cost-effective solution for applications which do not necessarily require fast and precise shutdown.

Tripping characteristics

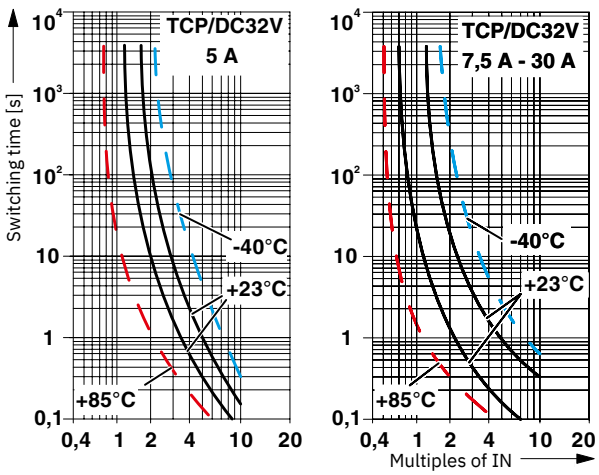
The tripping time of thermal device circuit breakers depends on the overload current that is flowing and the ambient temperature. The characteristic curves show that the tripping time is reached faster as the overload increases. With smaller overload currents, it therefore takes longer for the connected load to be disconnected from the power supply (Fig. 1).

For circuit breakers with different nominal currents but the same tripping characteristics, tripping behavior can also be visualized as characteristic curve fields (Fig. 2). Of course, thermal device circuit breakers respond to the effects of heat. The ambient temperature can also affect the tripping time. The circuit breaker trips more easily at a high ambient temperature and more slowly at a low ambient temperature. This behavior is indicated by additional characteristic curves with corresponding information.



Typical tripping characteristic of a thermal circuit breaker:

t Switching time (in seconds)
xI Multiples of the nominal current/ tripping factor
1 Current ranges of the characteristic curve field
2 Tripping characteristic of the lower temperature range (blue)
3 Tripping characteristics group 1
4 Tripping characteristics group 2
5 Tripping characteristic of the upper temperature range (red)



Two key characteristic curves of thermal circuit breakers

Space-saving basic protection

With their small design and low installation height, resettable TCP device circuit breakers are ideal for use in applications with limited installation space. The range of protective plugs can be distinguished by their color coding in the different rated currents. Installation is via direct connection of the plug-in base to a suitable and bridgeable terminal block.

Your advantages

- Suitable for all flat-type fuse inserts, thanks to standardized plug-in contacts
- Shorter downtimes with immediate reset after tripping
- Space-saving installation with a slim design

Space-saving basic protection, can be reset

	TCP – with 32 V DC nominal voltage, medium time-lag							
								
Rated current	**5 A**	**6 A**	**7.5 A**	**10 A**	**15 A**	**20 A**	**25 A**	**30 A**
Number of positions	1-position							
Dimensions (W x H x D)	6.2 x 19.7 x 29.5							
Type	TCP 32DC/ 5A M	TCP 32DC/ 6A M	TCP 32DC/ 7.5A M	TCP 32DC/ 10A M	TCP 32DC/ 15A M	TCP 32DC/ 20A M	TCP 32DC/ 25A M	TCP 32DC/ 30A M
Item no.	1499963	1499965	1499966	1499967	1499968	1499969	1499972	1499987

	TCP – with 32 V DC nominal voltage, fast-acting								
									
Rated current	**5 A**	**6 A**	**7.5 A**	**10 A**	**15 A**	**20 A**	**25 A**	**30 A**	**40 A**
Number of positions	1-position								
Dimensions (W x H x D)	6.2 x 19.7 x 29.5								
Type	TCP 32DC/ 5A F	TCP 32DC/ 6A F	TCP 32DC/ 7.5A F	TCP 32DC/ 10A F	TCP 32DC/ 15A F	TCP 32DC/ 20A F	TCP 32DC/ 25A F	TCP 32DC/ 30A F	TCP 32DC/ 40A F
Item no.	1499939	1499940	1499941	1499942	1499943	1499944	1499945	1499946	1499947

Accessories for TCP 32 V DC and 65 V DC

	Fuse terminal blocks								
									
Connection technology	**Push-in connection**			**Spring-cage connection**			**Screw connection**		
Nominal current	25 A			30 A					
Nominal voltage	400 V	12 V	24 V	400 V	12 V	24 V	250 V	12 V	24 V
Connection cross-section	0.5 mm² ... 10 mm²			0.08 mm² ... 4 mm²			0.2 mm² ... 6 mm²		
Type	PT 6-FSI/C	PT 6-FSI/ C-LED 12	PT 6-FSI/ C-LED 24	ST 4-FSI/C	ST 4-FSI/C- LED 12	ST 4-FSI/C- LED 24	UK 6-FSI/C	UK 6-FSI/ C-LED12	UK 6-FSI/ C-LED24
Item no.	3212166	3212169	3212172	3036372	3036495	3036505	3118203	3001925	3001938

Basic protection for AC and DC applications

TCP device circuit breakers can be switched on and off again and are used in applications up to 250 V AC and 72 V DC. The products are ideal for replacing existing fuses with a switchable version. This minimizes maintenance work. Pluggable protective devices and potential distribution via the terminal blocks significantly reduce the installation work.

Your advantages

- Suitable for all flat-type fuse inserts, thanks to standardized plug-in contacts
- Shorter downtimes with immediate reset after tripping
- Space-saving installation with a slim design

Basic protection for AC and DC applications, can be reset

	TCP – 250 V AC / 65 V DC nominal voltage										
											
Rated current	**0.1 A**	**0.25 A**	**0.5 A**	**1 A**	**2 A**	**3 A**	**4 A**	**5 A**	**6 A**	**8 A**	**10 A**
Approvals											
Number of positions	1-position										
Operating voltage	250 V AC / 65 V DC										
Dimensions (W x H x D)	8.2 x 24.4 x 44.5										
Type	TCP 0.1A	TCP 0.25A	TCP 0.5A	TCP 1A	TCP 2A	TCP 3A	TCP 4A	TCP 5A	TCP 6A	TCP 8A	TCP 10A
Item no.	0712107	0712123	0712152	0712194	0712217	0712233	0712259	1538622	0712275	0712291	0712314

	TCP – 250 V AC / 72 V DC nominal voltage		
			
Rated current	**12 A**	**16 A**	**20 A**
Approvals			
Number of positions	1-position		
Operating voltage	250 V AC / 72 V DC		
Dimensions (W x H x D)	9.5 x 24.4 x 44.5		
Type	TCP 10/12A	TCP 10/16A	TCP 10/20A
Item no.	1538627	1324402	1324401

Accessories for TCP 72 V DC

	Fuse terminal blocks
	
Connection technology	**Push-in connection**
Nominal current	25 A
Nominal voltage	400 V
Connection cross-section	0.5 mm² ... 10 mm²
Type	PT 10-FSI/C
Item no.	1088498

Miniature circuit breakers

4

The miniature circuit breakers of the TMC 7 and TMC 8 product families consist of one-, two-, and three-position thermal-magnetic protective devices. They are available in nominal current versions from 1 A ... 63 A and thus provide comprehensive protection for branch lines and devices. The miniature circuit breakers are available with tripping characteristics B, C, and D and comply with the standards UL 1077/EN 60947-2 (TMC 7) and UL 489 (TMC 8). All items are consistently equipped with the corresponding approvals.

TMC 7 miniature circuit breakers

TMC 7 miniature circuit breakers are UL 1077-approved and therefore suitable for use as supplementary protection. Full compliance with IEC 60947-2 and the housing design in accordance with DIN 43880 also expand the range of application.

› More information starting on page 56

TMC 8 miniature circuit breakers

TMC 8 miniature circuit breakers are approved in accordance with UL 489. Due to their high switching capacity of 10 kA, they are suitable for use as branch circuit protection. Full compliance with IEC 60947-2 and the housing design in accordance with DIN 43880.

› More information starting on page 58

Miniature circuit breakers

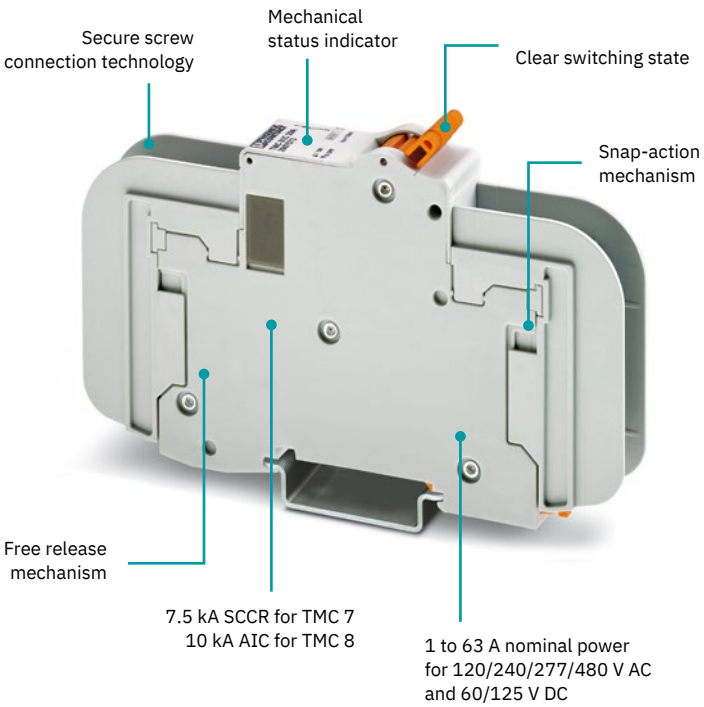
Field of application

The thermal-magnetic circuit breakers of the TMC 7 and TMC 8 families reliably protect your applications in the event of an overcurrent or short circuit.

The reliable switching behavior, uninfluenceable positive trip-free mechanism, and color status indicator ensure safety during operation and maintenance. The integrated snap-action mechanism effectively reduces wear on the internal contacts, which increases the service life of the devices.

Three different tripping characteristics and a wide selection of nominal currents up to 63 A in one-, two-, and three-position switch versions create a product range that provides perfectly coordinated protection. Optional accessories, such as shunt releases, signal contacts, and auxiliary contacts, make it easier to control and evaluate remotely.

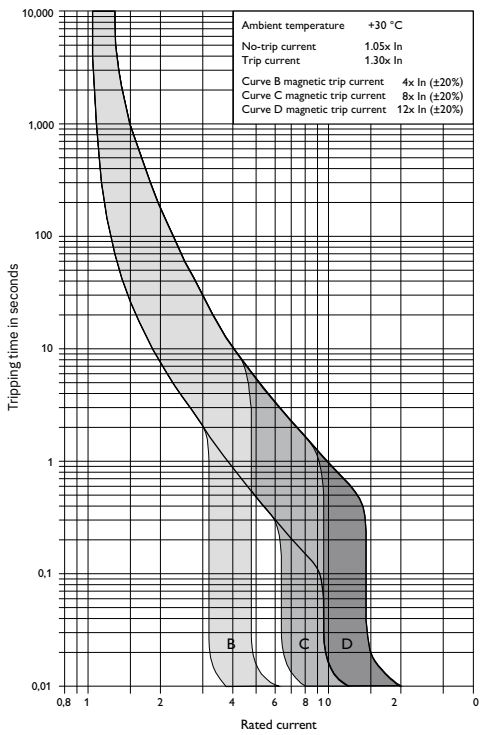
Functions and advantages



Tripping characteristics

The TMC 7 and TMC 8 miniature circuit breakers include a range of tripping characteristic curves for a variety of applications: B, C, and D characteristic curve.

Charact. curve	Applications
B	• Heating systems • Sensitive devices
C	• Small transformers • Command and signaling devices • Lighting • Control circuits
D	• Motors • Generators



Magnetic tripping currents increase by 30% with DC supply

TMC 7

TMC 7 miniature circuit breakers are UL 1077-approved and therefore suitable for use as supplementary protection. Full compliance with IEC 60947-2 and the housing design in accordance with DIN 43880 also expand the range of application.

Use the miniature circuit breakers in systems up to 277/480 V AC or 80/125 V DC.
The maximum short-circuit current is 7.5 kA.

Your advantages

- Can be used worldwide due to international approvals UL 1077/EN 60947-2
- Suitable for various grid types, as available in one-, two-, and three-position versions
- Ideally coordinated protection due to various tripping characteristics and a wide selection of nominal currents

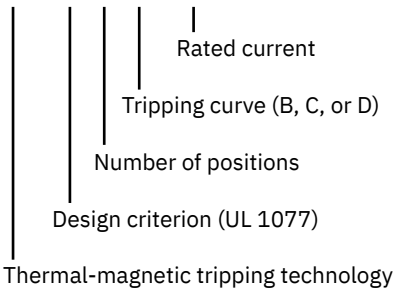
Product overview

	Tripping characteristic B						Tripping characteristic C					
A	1-position		2-position		3-position		1-position		2-position		3-position	
1	TMC 71B 01A	1011962	TMC 72B 01A	1019930	TMC 73B 01A	1019951	TMC 71C 01A	1019972	TMC 72C 01A	1019994	TMC 73C 01A	1020015
2	TMC 71B 02A	1019909	TMC 72B 02A	1019931	TMC 73B 02A	1019952	TMC 71C 02A	1019973	TMC 72C 02A	1019995	TMC 73C 02A	1020016
3	TMC 71B 03A	1019910	TMC 72B 03A	1019932	TMC 73B 03A	1019953	TMC 71C 03A	1019974	TMC 72C 03A	1019996	TMC 73C 03A	1020017
4	TMC 71B 04A	1019911	TMC 72B 04A	1019933	TMC 73B 04A	1019954	TMC 71C 04A	1019975	TMC 72C 04A	1019997	TMC 73C 04A	1020018
5	TMC 71B 05A	1019912	TMC 72B 05A	1019934	TMC 73B 05A	1019955	TMC 71C 05A	1019976	TMC 72C 05A	1019998	TMC 73C 05A	1020019
6	TMC 71B 06A	1019913	TMC 72B 06A	1019935	TMC 73B 06A	1019956	TMC 71C 06A	1019977	TMC 72C 06A	1019999	TMC 73C 06A	1020020
7	TMC 71B 07A	1019914	TMC 72B 07A	1019936	TMC 73B 07A	1019957	TMC 71C 07A	1019978	TMC 72C 07A	1020000	TMC 73C 07A	1020021
8	TMC 71B 08A	1019915	TMC 72B 08A	1019937	TMC 73B 08A	1019958	TMC 71C 08A	1019979	TMC 72C 08A	1020001	TMC 73C 08A	1020022
10	TMC 71B 10A	1019916	TMC 72B 10A	1019938	TMC 73B 10A	1019959	TMC 71C 10A	1019980	TMC 72C 10A	1020002	TMC 73C 10A	1020023
12	TMC 71B 12A	1019917	TMC 72B 12A	1019939	TMC 73B 12A	1019960	TMC 71C 12A	1019981	TMC 72C 12A	1020003	TMC 73C 12A	1020024
13	TMC 71B 13A	1019918	TMC 72B 13A	1019940	TMC 73B 13A	1019961	TMC 71C 13A	1019982	TMC 72C 13A	1020004	TMC 73C 13A	1020025
15	TMC 71B 15A	1019919	TMC 72B 15A	1019941	TMC 73B 15A	1019962	TMC 71C 15A	1019983	TMC 72C 15A	1020005	TMC 73C 15A	1020026
16	TMC 71B 16A	1019920	TMC 72B 16A	1019942	TMC 73B 16A	1019963	TMC 71C 16A	1019984	TMC 72C 16A	1020006	TMC 73C 16A	1020027
20	TMC 71B 20A	1019921	TMC 72B 20A	1019943	TMC 73B 20A	1019964	TMC 71C 20A	1019985	TMC 72C 20A	1020007	TMC 73C 20A	1020028
25	TMC 71B 25A	1019922	TMC 72B 25A	1019944	TMC 73B 25A	1019965	TMC 71C 25A	1019986	TMC 72C 25A	1020008	TMC 73C 25A	1020029
30	TMC 71B 30A	1019923	TMC 72B 30A	1019945	TMC 73B 30A	1019966	TMC 71C 30A	1019987	TMC 72C 30A	1020009	TMC 73C 30A	1020030
32	TMC 71B 32A	1019924	TMC 72B 32A	1019946	TMC 73B 32A	1019967	TMC 71C 32A	1019988	TMC 72C 32A	1020010	TMC 73C 32A	1020031
40	TMC 71B 40A	1019925	TMC 72B 40A	1019947	TMC 73B 40A	1019968	TMC 71C 40A	1019989	TMC 72C 40A	1020011	TMC 73C 40A	1020032
50	TMC 71B 50A	1019926	TMC 72B 50A	1019948	TMC 73B 50A	1019969	TMC 71C 50A	1019990	TMC 72C 50A	1020012	TMC 73C 50A	1020033
60	TMC 71B 60A	1019927	TMC 72B 60A	1019949	TMC 73B 60A	1019970	TMC 71C 60A	1019991	TMC 72C 60A	1020013	TMC 73C 60A	1020035
63	TMC 71B 63A	1019928	TMC 72B 63A	1019950	TMC 73B 63A	1019971	TMC 71C 63A	1019992	TMC 72C 63A	1020014	TMC 73C 63A	1020036

	Tripping characteristic D					
A	1-position		2-position		3-position	
1	TMC 71C 01A	1019972	TMC 72C 01A	1019994	TMC 73C 01A	1020015
2	TMC 71C 02A	1019973	TMC 72C 02A	1019995	TMC 73C 02A	1020016
3	TMC 71C 03A	1019974	TMC 72C 03A	1019996	TMC 73C 03A	1020017
4	TMC 71C 04A	1019975	TMC 72C 04A	1019997	TMC 73C 04A	1020018
5	TMC 71C 05A	1019976	TMC 72C 05A	1019998	TMC 73C 05A	1020019
6	TMC 71C 06A	1019977	TMC 72C 06A	1019999	TMC 73C 06A	1020020
7	TMC 71C 07A	1019978	TMC 72C 07A	1020000	TMC 73C 07A	1020021
8	TMC 71C 08A	1019979	TMC 72C 08A	1020001	TMC 73C 08A	1020022
10	TMC 71C 10A	1019980	TMC 72C 10A	1020002	TMC 73C 10A	1020023
12	TMC 71C 12A	1019981	TMC 72C 12A	1020003	TMC 73C 12A	1020024
13	TMC 71C 13A	1019982	TMC 72C 13A	1020004	TMC 73C 13A	1020025
15	TMC 71C 15A	1019983	TMC 72C 15A	1020005	TMC 73C 15A	1020026
16	TMC 71C 16A	1019984	TMC 72C 16A	1020006	TMC 73C 16A	1020027
20	TMC 71C 20A	1019985	TMC 72C 20A	1020007	TMC 73C 20A	1020028
25	TMC 71C 25A	1019986	TMC 72C 25A	1020008	TMC 73C 25A	1020029
30	TMC 71C 30A	1019987	TMC 72C 30A	1020009	TMC 73C 30A	1020030
32	TMC 71C 32A	1019988	TMC 72C 32A	1020010	TMC 73C 32A	1020031
40	TMC 71C 40A	1019989	TMC 72C 40A	1020011	TMC 73C 40A	1020032
50	TMC 71C 50A	1019990	TMC 72C 50A	1020012	TMC 73C 50A	1020033
60	TMC 71C 60A	1019991	TMC 72C 60A	1020013	TMC 73C 60A	1020035
63	TMC 71C 63A	1019992	TMC 72C 63A	1020014	TMC 73C 63A	1020036

Designation key

TMC 7 1 C 01A



TMC 8

TMC 8 miniature circuit breakers are approved in accordance with UL 489. Due to their high switching capacity of 10 kA, they are suitable for use as branch circuit protection. Full compliance with IEC 60947-2 and the housing design in accordance with DIN 43880 also expand the range of application.

Use the miniature circuit breakers in systems up to 277/480 V AC or 60/125 V DC. The maximum short-circuit current is 10 kA.

Your advantages

- Can be used worldwide due to international approvals UL 489/EN 60947-2
- Suitable for various grid types, as available in one-, two-, and three-position versions
- Ideally coordinated protection due to various tripping characteristics and a wide selection of nominal currents

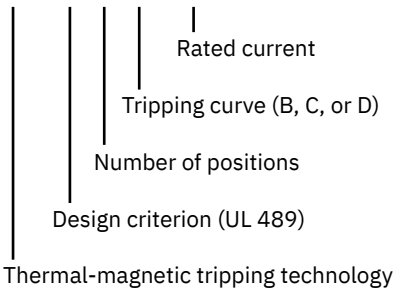
Product overview

	Tripping characteristic B						Tripping characteristic C					
A	1-position		2-position		3-position		1-position		2-position		3-position	
1	TMC 81B 01A	2907478	TMC 82B 01A	2907502	TMC 83B 01A	2907539	TMC 81C 01A	2907558	TMC 82C 01A	2907582	TMC 83C 01A	2907607
2	TMC 81B 02A	2907479	TMC 82B 02A	2907503	TMC 83B 02A	2907540	TMC 81C 02A	2907559	TMC 82C 02A	2907584	TMC 83C 02A	2907608
3	TMC 81B 03A	2907480	TMC 82B 03A	2907504	TMC 83B 03A	2907542	TMC 81C 03A	2907560	TMC 82C 03A	2907585	TMC 83C 03A	2907609
4	TMC 81B 04A	2907481	TMC 82B 04A	2907505	TMC 83B 04A	2907543	TMC 81C 04A	2907561	TMC 82C 04A	2907586	TMC 83C 04A	2907610
5	TMC 81B 05A	2907482	TMC 82B 05A	2907506	TMC 83B 05A	2907544	TMC 81C 05A	2907562	TMC 82C 05A	2907587	TMC 83C 05A	2907611
6	TMC 81B 06A	2907483	TMC 82B 06A	2907507	TMC 83B 06A	2907545	TMC 81C 06A	2907563	TMC 82C 06A	2907588	TMC 83C 06A	2907612
7	TMC 81B 07A	2907484	TMC 82B 07A	2907508	TMC 83B 07A	2907546	TMC 81C 07A	2907564	TMC 82C 07A	2907589	TMC 83C 07A	2907613
8	TMC 81B 08A	2907485	TMC 82B 08A	2907510	TMC 83B 08A	2907547	TMC 81C 08A	2907565	TMC 82C 08A	2907590	TMC 83C 08A	2907614
10	TMC 81B 10A	2907487	TMC 82B 10A	2907511	TMC 83B 10A	2907548	TMC 81C 10A	2907566	TMC 82C 10A	2907591	TMC 83C 10A	2907615
12	TMC 81B 12A	2907488	TMC 82B 12A	2907512	TMC 83B 12A	2907549	TMC 81C 12A	2907568	TMC 82C 12A	2907592	TMC 83C 12A	2907616
13	TMC 81B 13A	2907489	TMC 82B 13A	2907513	TMC 83B 13A	2907550	TMC 81C 13A	2907569	TMC 82C 13A	2907593	TMC 83C 13A	2907617
15	TMC 81B 15A	2907490	TMC 82B 15A	2907514	TMC 83B 15A	2907551	TMC 81C 15A	2907571	TMC 82C 15A	2907594	TMC 83C 15A	2907618
16	TMC 81B 16A	2907491	TMC 82B 16A	2907515	TMC 83B 16A	2907552	TMC 81C 16A	2907572	TMC 82C 16A	2907595	TMC 83C 16A	2907620
20	TMC 81B 20A	2907492	TMC 82B 20A	2907516	TMC 83B 20A	2907553	TMC 81C 20A	2907573	TMC 82C 20A	2907597	TMC 83C 20A	2907621
25	TMC 81B 25A	2907493	TMC 82B 25A	2907530	TMC 83B 25A	2907555	TMC 81C 25A	2907574	TMC 82C 25A	2907598	TMC 83C 25A	2907623
30	TMC 81B 30A	2907494	TMC 82B 30A	2907531	TMC 83B 30A	2907556	TMC 81C 30A	2907575	TMC 82C 30A	2907599	TMC 83C 30A	2907624
32	TMC 81B 32A	2907495	TMC 82B 32A	2907532	TMC 83B 32A	2907557	TMC 81C 32A	2907576	TMC 82C 32A	2907600	TMC 83C 32A	2907625
35	TMC 81B 35A	2907496	TMC 82B 35A	2907533	TMC 83B 35A	1010309	TMC 81C 35A	2907577	TMC 82C 35A	2907601	TMC 83C 35A	1010303
40	TMC 81B 40A	2907497	TMC 82B 40A	2907534	TMC 83B 40A	1010308	TMC 81C 40A	2907578	TMC 82C 40A	2907602	TMC 83C 40A	1010305
50	TMC 81B 50A	2907498	TMC 82B 50A	2907535	TMC 83B 50A	1010307	TMC 81C 50A	2907579	TMC 82C 50A	2907603	TMC 83C 50A	1010302
60	TMC 81B 60A	2907500	TMC 82B 60A	2907536	TMC 83B 60A	1010306	TMC 81C 60A	2907580	TMC 82C 60A	2907604	TMC 83C 60A	1010301
63	TMC 81B 63A	2907501	TMC 82B 63A	2907537	TMC 83B 63A	1010286	TMC 81C 63A	2907581	TMC 82C 63A	2907605	TMC 83C 63A	1010291

	Tripping characteristic D					
A	1-position		2-position		3-position	
1	TMC 81D 01A	2907626	TMC 82D 01A	2907650	TMC 83D 01A	2907674
2	TMC 81D 02A	2907627	TMC 82D 02A	2907652	TMC 83D 02A	2907675
3	TMC 81D 03A	2907628	TMC 82D 03A	2907653	TMC 83D 03A	2907676
4	TMC 81D 04A	2907629	TMC 82D 04A	2907654	TMC 83D 04A	2907678
5	TMC 81D 05A	2907630	TMC 82D 05A	2907655	TMC 83D 05A	2907679
6	TMC 81D 06A	2907631	TMC 82D 06A	2907656	TMC 83D 06A	2907681
7	TMC 81D 07A	2907632	TMC 82D 07A	2907657	TMC 83D 07A	2907682
8	TMC 81D 08A	2907633	TMC 82D 08A	2907658	TMC 83D 08A	2907683
10	TMC 81D 10A	2907634	TMC 82D 10A	2907659	TMC 83D 10A	2907684
12	TMC 81D 12A	2907636	TMC 82D 12A	2907660	TMC 83D 12A	2907685
13	TMC 81D 13A	2907637	TMC 82D 13A	2907661	TMC 83D 13A	2907686
15	TMC 81D 15A	2907638	TMC 82D 15A	2907662	TMC 83D 15A	2907687
16	TMC 81D 16A	2907639	TMC 82D 16A	2907663	TMC 83D 16A	2907688
20	TMC 81D 20A	2907640	TMC 82D 20A	2907665	TMC 83D 20A	2907689
25	TMC 81D 25A	2907641	TMC 82D 25A	2907666	TMC 83D 25A	2907690
30	TMC 81D 30A	2907642	TMC 82D 30A	2907667	TMC 83D 30A	2907691
32	TMC 81D 32A	2907643	TMC 82D 32A	2907668	TMC 83D 32A	2907692
35	TMC 81D 35A	2907644	TMC 82D 35A	2907669	TMC 83D 35A	1010290
40	TMC 81D 40A	2907645	TMC 82D 40A	2907670	TMC 83D 40A	1010289
50	TMC 81D 50A	2907646	TMC 82D 50A	2907671	TMC 83D 50A	1010284
60	TMC 81D 60A	2907647	TMC 82D 60A	2907672	TMC 83D 60A	1010288
63	TMC 81D 63A	2907649	TMC 82D 63A	2907673	TMC 83D 63A	1010287

Designation key

TMC 8 1 C 01A



Accessories for TMC 7

Item no.	Type	Description
1022238	TMC 7 B1 80 57 C	Busbar for up to 57 positions, 1-position version
1022237	TMC 7 B1 80 37 CA	Busbar for up to 37 positions, 1-position version with auxiliary switch module
1022236	TMC 7 B2 80 56 C	Busbar for up to 56 positions, 2-position version
1022235	TMC 7 B2 80 46 CA	Busbar for up to 46 positions, 2-position version with auxiliary switch module
1022234	TMC 7 B3 80 57 C	Busbar for up to 57 positions, 3-position version
1025400	TMC 7 B3 80 48 CA	Busbar for up to 48 positions, 3-position version with auxiliary switch module
1022233	TMC 7 B1 TERM	Terminal adapter for 1-position busbars
1022232	TMC 7 B2/3 TERM	Feed-in terminal adapter for 2- and 3-position bus bars
1022231	TMC 7 B1 END CAP	Insulating end cover for cut-to-length, 1-position busbars
1022229	TMC 7 B2/3 END CAP	Insulating end cover for cut-to-length, 2- and 3-position busbars
1022224	TMC 7 B BUS CAP	Touch protection cap for busbar connections
2908219	TMC 7/8 AUX	Auxiliary switch for remote signaling of the switching state
2908220	TMC 7/8 ALARM	Error signaling switch for remote signaling of tripping
2908221	TMC 7/8 12VDC SHNT	12 V DC shunt trip, for remote tripping
2908222	TMC 7/8 24VDC SHNT	24 V DC shunt trip, for remote tripping
2908224	TMC 7/8 48VDC SHNT	48 V DC shunt trip, for remote tripping
2908225	TMC 7/8 125VDC SHNT	125 V DC shunt trip, for remote tripping
2908226	TMC 7/8 120VAC SHNT	120 V AC shunt trip, for remote tripping
2908227	TMC 7/8 240VAC SHNT	240 V AC shunt trip, for remote tripping
2908228	TMC 7/8 277VAC SHNT	277 V AC shunt trip, for remote tripping

Accessories for TMC 8

Item no.	Type	Description
2907991	TMC 8 B1 80 57 C	Busbar for up to 57 positions, 1-position version
2907992	TMC 8 B1 80 37 CA	Busbar for up to 37 positions, 1-position version with auxiliary switch module
2907993	TMC 8 B2 80 56 C	Busbar for up to 56 positions, 2-position version
2907995	TMC 8 B2 80 46 CA	Busbar for up to 46 positions, 2-position version with auxiliary switch module
2907996	TMC 8 B3 80 57 C	Busbar for up to 57 positions, 3-position version
2907997	TMC 8 B3 80 48 CA	Busbar for up to 48 positions, 3-position version with auxiliary switch module
2907998	TMC 8 B TERM PIN	Terminal adapter for busbars
2907999	TMC 8 B END CAP	Insulating end cover for cut-to-length busbars
2908000	TMC 8 B BUS CAP	Touch protection cap for busbar connections
2908219	TMC 7/8 AUX	Auxiliary switch for remote signaling of the switching state
2908220	TMC 7/8 ALARM	Error signaling switch for remote signaling of tripping
2908221	TMC 7/8 12VDC SHNT	12 V DC shunt trip, for remote tripping
2908222	TMC 7/8 24VDC SHNT	24 V DC shunt trip, for remote tripping
2908224	TMC 7/8 48VDC SHNT	48 V DC shunt trip, for remote tripping
2908225	TMC 7/8 125VDC SHNT	125 V DC shunt trip, for remote tripping
2908226	TMC 7/8 120VAC SHNT	120 V AC shunt trip, for remote tripping
2908227	TMC 7/8 240VAC SHNT	240 V AC shunt trip, for remote tripping
2908228	TMC 7/8 277VAC SHNT	277 V AC shunt trip, for remote tripping

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Power Reliability

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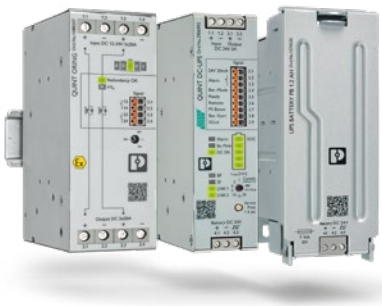

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