



Device circuit breakers

Selective power distribution

System availability at the highest level

Phoenix Contact device circuit breakers provide ideal protection against overload currents and short-circuit currents for all applications. Select the device circuit breaker suitable for your application from this diverse range of products.

Universal and convenient to bridge

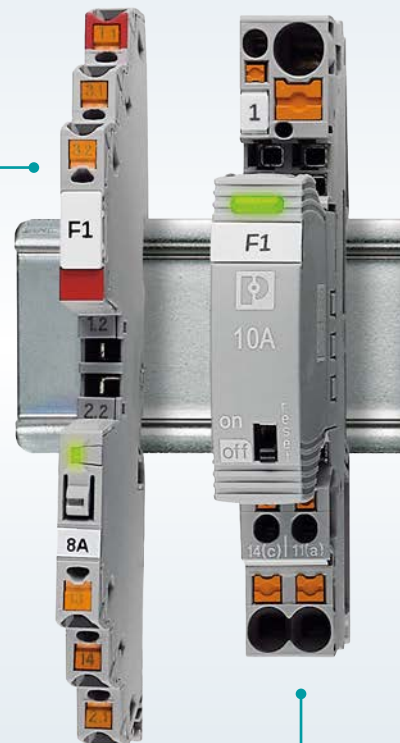
Protect your applications using the narrowest installation space with the PTCB device circuit breakers.

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Modular expansion and remote control

Adapt your application to suit your individual requirements with the CB E device circuit breakers.

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Highly functional and space saving

Protect up to 8 channels with an overall width of just 41 mm with the CBM.

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Compact and adjustable

The CBMC device circuit breakers are operated intuitively and a version is also available with IO-Link interface.

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Variable in application

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

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Tried-and-tested and straightforward

UT 6-TMC – can be reset and featuring a generous marking area.

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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.

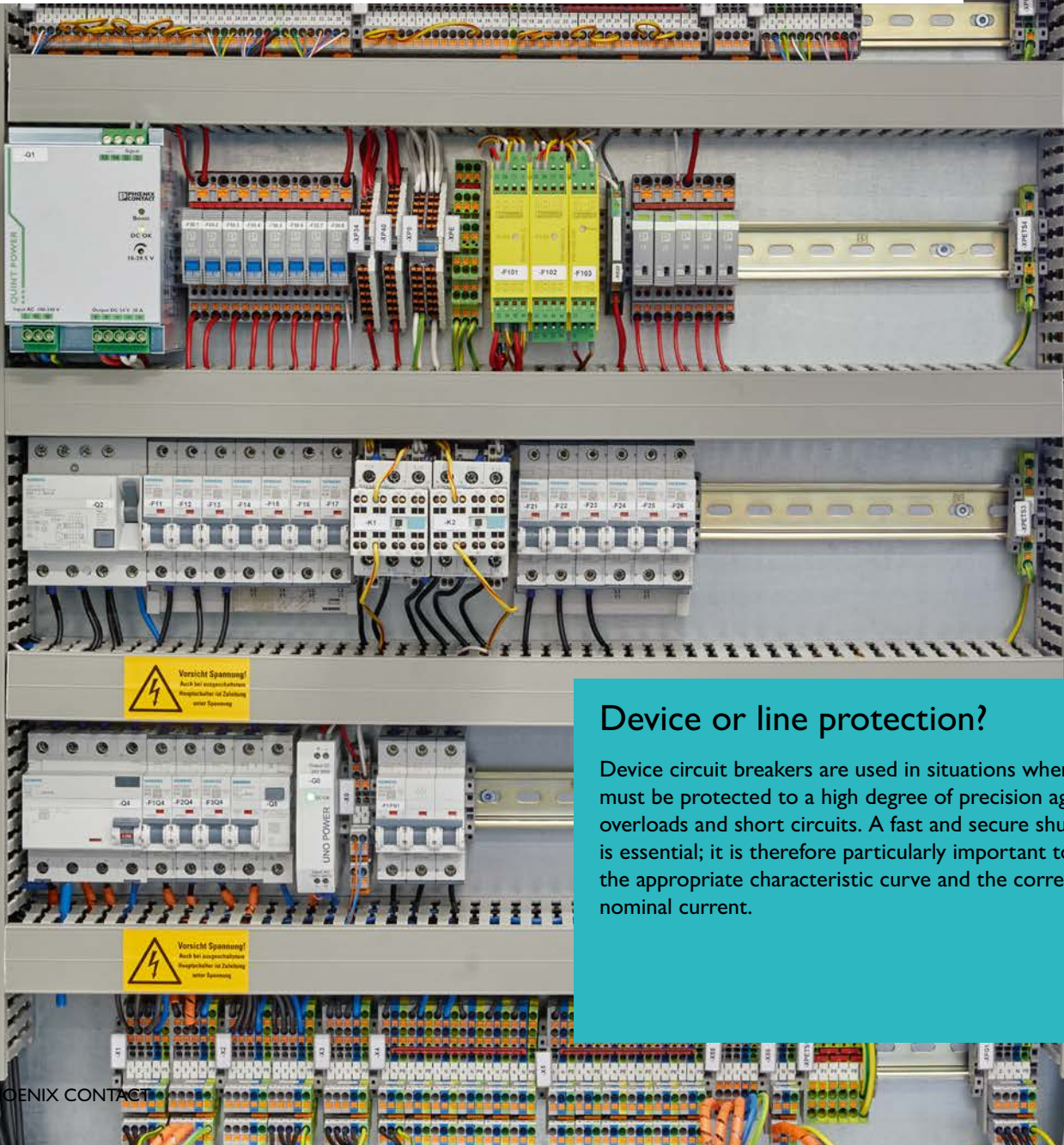
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Or use the direct link:

phoenixcontact.net/webcode/#1234

Fundamentals of device circuit breakers

Selective device protection with the widest range of tripping mechanisms provides maximum safety for every load. This means that only the areas that are actually affected by overload or short circuit current are shut down. Depending on the area of application and task, different requirements are set. You will find the right solution for every application in the Phoenix Contact product range.



Device or line protection?

Device circuit breakers are used in situations where loads must be protected to a high degree of precision against overloads and short circuits. A fast and secure shutdown is essential; it is therefore particularly important to select the appropriate characteristic curve and the correct nominal current.

Options, technologies, and versions

Why device circuit breakers?

Overload currents and short-circuit currents are usually unexpected. They cause malfunctions and interrupt the operation of a system. Production downtimes and repair costs can often be the unfortunate consequences. You can minimize damage by protecting individual devices or device groups separately with device circuit breakers. This protects end devices with optimum protection against damage or destruction. System parts which are not in the affected circuit continue to operate without interruption, insofar as the overall process allows.

Overload currents:

Overload currents occur if end devices unexpectedly require a higher current than the intended rated current. Such situations can arise, for example, when a drive is blocked.

Temporary starting currents for machines are also overload currents. As a rule, their occurrence can be determined by means of calculation, but nonetheless they 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 in the seconds to low minutes range.

Short-circuit currents:

Short circuits can arise between damaged conductors, which carry operating voltage. Typical protective devices for shutting down short-circuit currents include fuses and miniature circuit breakers with various tripping mechanisms.

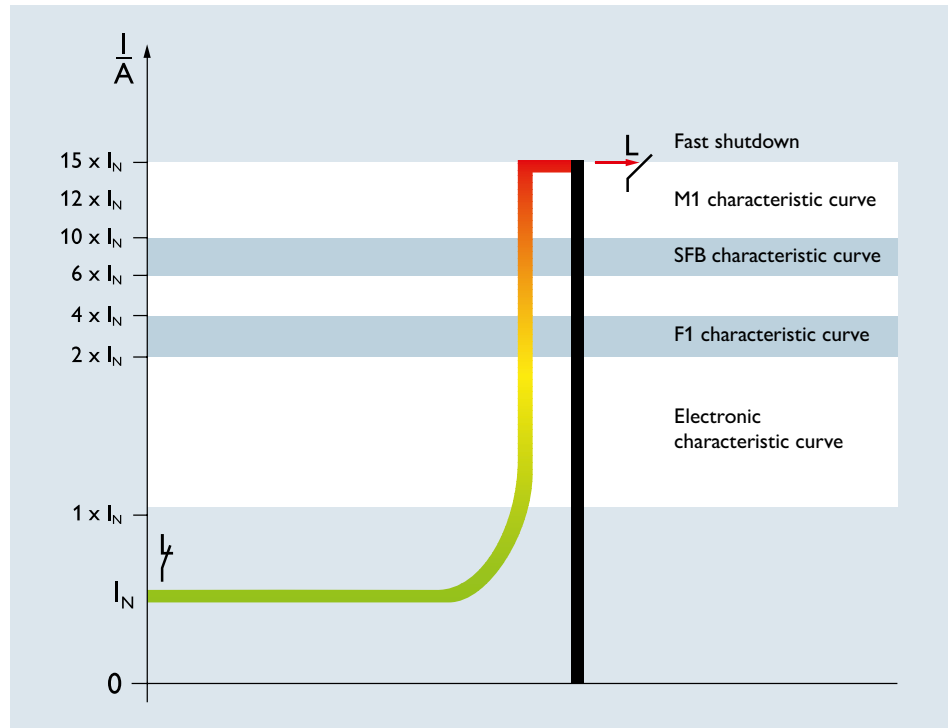
Short-circuit currents should be shut down safely in the millisecond range.

Various technologies, protecting in different ways

Phoenix Contact provides thermal, thermomagnetic and electronic circuit breakers. The thermal circuit breakers protect via a bimetallic strip, that leads to tripping when heated. However, tripping takes place between 300 ms and several minutes. In the event of overloads, this period of time is more than sufficient.

The magnetic part of the thermomagnetic 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 protect against both overloads and short-circuit currents, and also have further advantages. Current



Tripping behavior of various device circuit breakers

and voltage are measured and monitored permanently. Errors are detected more precisely and quickly. Currents are differentiated and, depending on the strength, switched off sooner or later. 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. Reserves do not need to be rated so highly.

Selecting the right device circuit breakers

The demands placed on optimum device protection vary, depending on the area of application and task. Device circuit breakers therefore work with a wide range of technologies: electronic, thermal, and thermomagnetic.

The differences lie in the tripping technology and shutdown behavior. Characteristic curves clearly illustrate the shutdown characteristic of the various device circuit breakers.

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

Fundamentals of electronic circuit breakers

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

Selective protection

Phoenix Contact electronic circuit breakers can provide protection both with and without current limitation. Other loads therefore remain unaffected. The integrated sensor continuously measures the current applied and switches off selectively in the event of an overload current or short circuit.

Intelligent, individual, and intuitive

The advantages of electronic circuit breakers

Intelligent software is the core of an electronic circuit breaker. It differentiates between operating currents and damaging currents and transmits commands to the electronic system extremely rapidly. On the one hand, a faulty current must be detected and shutdown as quickly as possible, and an inrush current or operating current, on the other hand, should not be shut down. The switching operation is performed via the power transistor.

Steps to error detection:

- **Measurement:** all electrical variables are measured continuously in order that the current situation is monitored.
- **Analysis:** the measured values are analyzed to derive a course of action from these.
- **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. Thus, the rest of the system remains in operation and unaffected.
- **Signaling:** the operating states of all circuits are transmitted continuously to the system operator. If an event occurs, this is detected and reported directly.

The correct setting

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 information. In a load group, these deviations are added up, which means that the total current deviates from the calculated value even more.

Here, operators have an exceptional advantage with adjustable device circuit breakers, and thus remain very flexible. Firstly, the set value should not be much higher than the flowing current value. The necessary starting 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 the electronic circuit breakers make it possible for the nominal current to be set individually. Thus, you maintain the highest 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 then be determined during commissioning. You can provide perfect protection for every load, tailored precisely in accordance with 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 project planning. If a value is unsuitable, the entire circuit breaker or protective plug must be replaced.

Keeping currents properly under control

Current limitation:

The magnitude 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 would mean that all connected devices would also fail. This means that in the event of an error, the installed electronics and the integrated firmware have to react quickly and intelligently. This is because a short circuit must be detected and shut down quickly, whilst a capacitive load, on the other hand, must be reliably started.

Calculating the cable length

In order that the protective device shuts down safely in the event of a short circuit or overload current, the maximum usable cable length should be calculated to be on the safe side. The following data is necessary:

- R_{\max} Maximum total resistance
- U Nominal voltage
- I_{CB} Rated current CB
- x_l Tripping factor according to current characteristic curve/multiples of the nominal current
- $R_{L\max}$ Maximum cable resistance
- R_{CB1A} Internal resistance CB 1 A
- L_{\max} Maximum cable length
- A Conductor cross section

- ρ Specific cable resistance
Rho, (Cu 0.01786)

Values for sample calculation:

- $U = 24 \text{ V DC}$
- $x_l = 15$ (from the M1 characteristic curve)
- $I_{CB} = 1 \text{ A}$
- $R_{CB1A} = 1.1$
- $\rho = 0.01786$ (copper)
- $A = 1.5 \text{ mm}^2$ (assumed)

1. Total circuit resistance:

$$R_{\max} = \frac{U}{I_{CB} \cdot x_l} = \frac{24 \text{ V}}{1 \text{ A} \cdot 15} = 1,6 \Omega$$

2. Maximum cable resistance:

$$R_{L\max} = R_{\max} - R_{CB1A} = 1,6 \Omega - 1,1 \Omega = 0,5 \Omega$$

3. Maximum cable length:

$$L_{\max} = \frac{R_{L\max} \cdot A}{\rho} = \frac{0,5 \Omega \cdot 1,5 \text{ mm}^2}{0,01786 \frac{\Omega \cdot \text{mm}^2}{\text{m}}} = 42 \text{ m}$$

Calculation in three steps

Multi-channel electronic circuit breakers

Configuring a device circuit breaker was never so easy. Using the integrated nominal current assistant, you can select the suitable current level for the connected load very easily. This makes configuration fast, convenient, and easy.

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Your advantages

- ✓ Easy configuration, thanks to the nominal current assistant
- ✓ Active current limitation for improved utilization of the upstream power supply
- ✓ Adjustable in increments per channel: from 0.5 A to 10 A

Push-in Technology 
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Product advantages at a glance



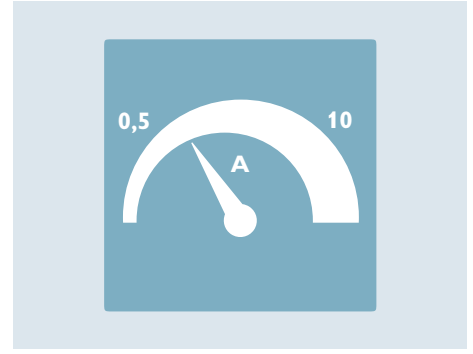
Easy configuration

The nominal current assistant makes configuration of the CBM exceptionally easy. It enables optimal adjustment of the load currents. Simply turn the potentiometers, until the optimum current has been found. The LED displays the ideal setting. It could not be easier to configure the system protection.



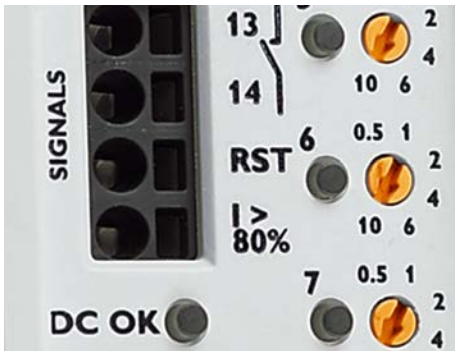
Active current limitation

The 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 the output voltage from dropping at the switched-mode power supply unit. In addition, longer cable paths between the power supply and load are possible, without negatively impacting the shutdown behavior.



Adjustable in steps

The CBM can be adjusted in precise nominal current steps. The nominal current range is 0.5 to 10 amps. Thus, you can adjust the channels individually to the nominal currents of the connected end devices. You can make the settings individually for each channel. Thus, one device can be used for an extremely wide range of loads.



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. Thus, you receive a message as soon as at least one channel is heavily overloaded. The channel that has been switched off can then be easily switched back on remotely via the Reset RST signal input.



Undervoltage/surge voltage

Differentiate between undervoltages and surge voltages in your system and increase your system availability. The channels are shut down in the event of a deviation from the operating voltage and the system is switched to a defined state. The deviation is signaled directly via the remote indication contact. An LED also indicates the deviation directly on the device.



8 channels over the narrowest installation space

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

Compact multi-channel electronic circuit breakers

The CBMC electronic circuit breaker is tailored precisely to your requirements: it combines a compact design and individual adjustability. This means that you can easily and flexibly adjust currents, save space, and reliably protect all applications with just one device.

i Web code: #1646



Your advantages

- ✓ Easy device replacement without re-planning, thanks to compact design and individual adjustability
- ✓ Circuits can be adjusted without tools, via one-button operation of the LED push-buttons
- ✓ Can be ordered preconfigured – for device protection tailored precisely to your system

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Product advantages at a glance



Compact overall width

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



Configuration without tools

One-button operation enables very easy adjustment of individual circuits. Thus, you can adjust the channels of the device circuit breaker individually to your requirements, without tools.



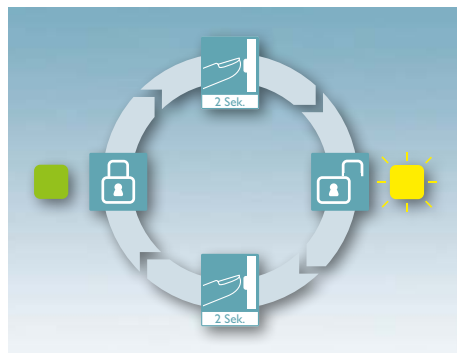
Can be ordered preconfigured

Order your device circuit breakers preconfigured. You thus receive the device finely-tuned to your system. Thanks to this pre-configuration, you save valuable time during commissioning. You can choose whether the settings are to remain adjustable or whether they are to be fixed, thus providing protection against manipulation.



NEC Class 2 circuits

The 1-4 A version is ideally suited to the protection of cables and sensors. The device has an adapted internal output fuse and satisfies the requirements for NEC Class 2 approval. Up to four circuits can therefore be protected in accordance with NEC Class 2. The connected cables and loads require no further special approvals.



Electronic interlock

Thanks to an integrated electronic interlock, the CBMC device circuit breakers provide reliable protection against unauthorized alterations to the configured current values. The circuits connected are therefore safely protected.




Status indicator in traffic light colors

The multi-functional buttons do much more than provide the option of programming the device circuit breaker. They also detect the operating state of the product and connected devices and indicate the status using traffic light colors.

Compact multi-channel electronic circuit breakers with IO-Link

IO-Link provides you with the capability of fully integrating the device circuit breakers into the process monitoring and control systems. This gives you the latest information on currents and capacity utilization at all times and an overview of all processes. Naturally, you also benefit from the features of the standard device with the CBMC IO-Link.

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Your advantages

- ✓ System transparency, thanks to comprehensive diagnostics capabilities
- ✓ Worldwide access to the device, thanks to integration into your IO-Link infrastructure
- ✓ Secure locking, thanks to interlock

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 **IO-Link**

Product advantages at a glance



System transparency

Thanks to the comprehensive diagnostics capabilities, all process-related data is always available at a glance via the IO-Link interface. Thus, you have a view of the nominal current, channel current and also the channel status of the device at all times, anywhere in the world. Simply connect the CBMC to the IO-Link master in your system to enable this function.



Worldwide device access

Through its integration in your system, you can configure and control the CBMC from anywhere in the world. Therefore, adjusting the nominal currents and switching the four independent channels remotely is no longer a problem. Adjustments can thus also be made at any time during operation.



Securely locked

Protect the device securely against unauthorized access. Either the complete device or just individual channels can be blocked via the IO-Link interface. Thus, local adjustments to the CBMC are impossible. Enjoy the highest level of protection with complete flexibility, thanks to the various locking options.



Service intervals

Manage rolling service intervals conveniently via the interface. Thanks to the internal memory, all device-specific data is simple to keep track of. Read the data out and save it in a database. This enables service actions to be planned more efficiently and the costs arising from these are reduced enormously.



Convenient error diagnostics

CBMC circuit breakers detect various types of errors. Immediately upon occurrence of an error, it is recorded in the internal memory. The IO-Link interface allows you unrestricted access to the error log. This simplifies troubleshooting in the event of an error and provides options for retroactive error diagnostics.



Autonomous operation

An IO-Link connection is not absolutely necessary to operate the device in the system. The device is fully functional without the IO-Link interface connection. This provides you with the option of preprogramming the CBMC via the IO-Link interface, and then using it in the field autonomously.

Narrow electronic circuit breakers, universal at 6 mm

Ideally suited to simple, space-saving potential distribution: the PTCB single-channel electronic circuit breaker can be bridged to the CLIPLINE complete terminal block system and offers an adjustment range from 1 to 8 amps, with a very narrow overall width.

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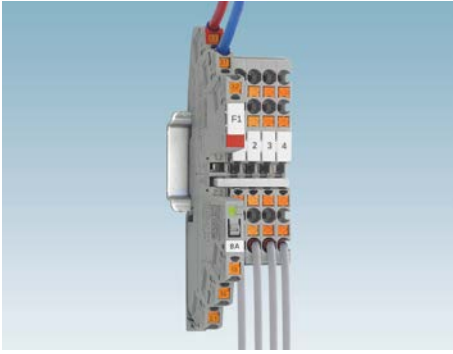
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Your advantages

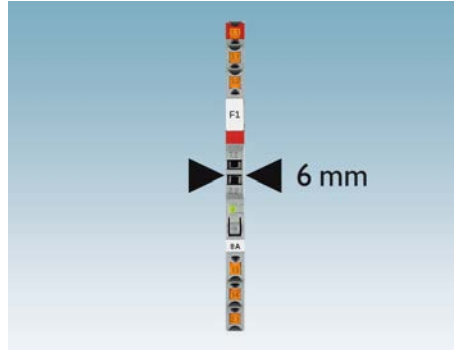
- ✓ Simple application setup, thanks to the capability of bridging to the CLIPLINE complete terminal block range
- ✓ More space in the control cabinet: slimline protection with a width of just 6 mm
- ✓ Flexible use and a reduced inventory, thanks to adjustable current values on each device for an extremely wide range of applications

Product advantages at a glance



Simple application setup

The PTCB device circuit breaker can be bridged to the CLIPLINE complete terminal block range. You can use standard terminal blocks and accessories from the CLIPLINE complete system, and do not have to qualify any new materials. You can therefore add to your existing applications simply and quickly.



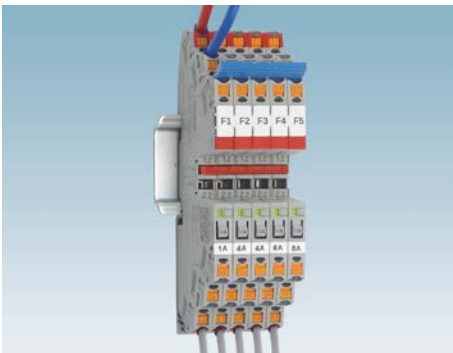
More space in the control cabinet

Space-saving potential distribution can be realized quickly and easily with the PTCB. It is individually adjustable from 1 to 8 amps, and provides reliable protection against overload and short-circuit currents. You thus benefit from reliable protection in a very narrow space.



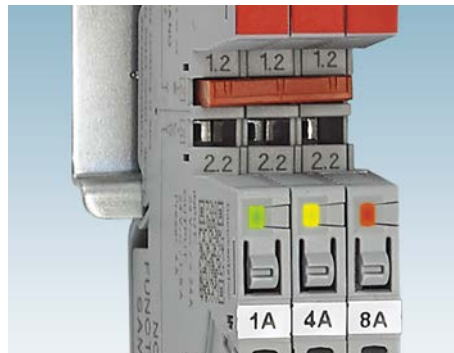
Flexible in use

With adjustable current values per device, you can cover a wide range of applications. You can make modifications even during commissioning, and can respond to changes in the application at any time. Furthermore, you can reduce inventory and logistic costs with the flexible PTCB device circuit breaker for the widest range of applications.



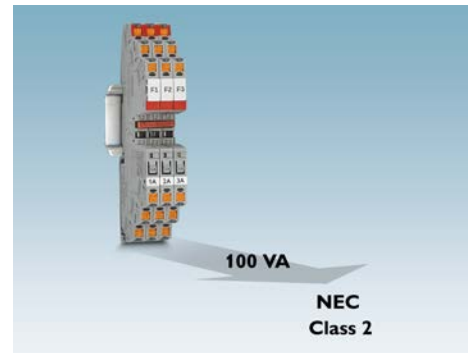
Individual setup

Anything is possible: the individually adjustable device circuit breaker offers unlimited possibilities. The number of channels you want to protect is irrelevant. Save on unnecessary channels and thus reduce the costs of your system – with the flexible PTCB device circuit breaker for a wide variety of applications.



Transparent operating state

The LED detects the operating state of the product and the connected devices. The status is visualized via traffic light colors. This clear display allows you to intuitively understand the operating state and keeps you up to date at a glance. Thanks to the remote messaging function, you have the option of transmitting the status to a remote maintenance station.



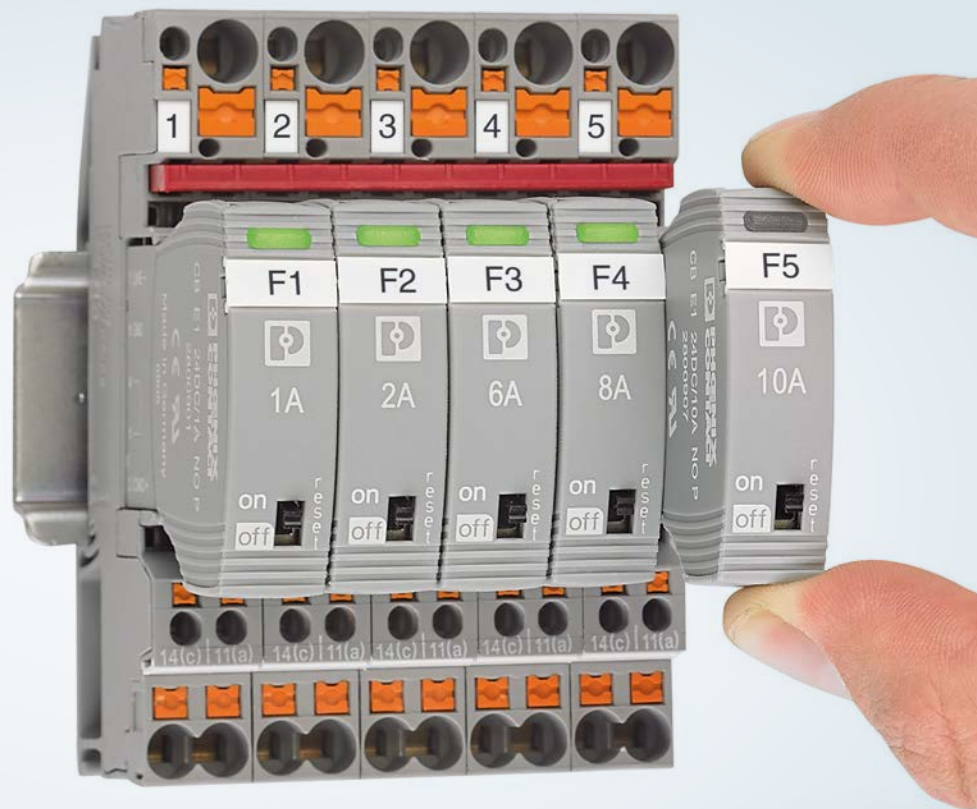
NEC Class 2 circuits

The 1-3 A version is ideally suited to the protection of cables and sensors. The device has an adapted internal output fuse and satisfies the requirements for NEC Class 2 approval. Thus, the circuit can be protected in accordance with NEC Class 2. The connected cables and loads require no further special approvals.

Individually customizable single-channel electronic circuit breakers

Build your applications individually according to your requirements. The number of loads you need to protect is irrelevant. Single-channel circuit breakers have a modular design and can therefore be expanded and adapted to your particular situation.

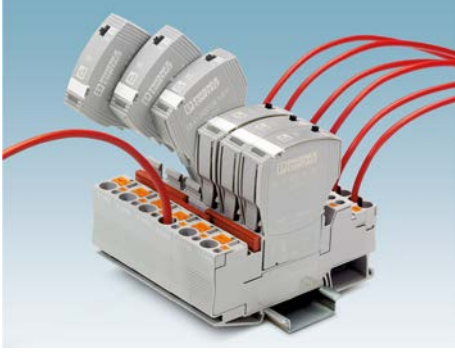
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Your advantages

- ✓ Individually customizable, thanks to protective plugs
- ✓ Large selection of protective plugs with fixed nominal current values for protection against unauthorized changes
- ✓ Active current limitation for improved utilization of the upstream power supply

Product advantages at a glance



Individually 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. Should the requirements for a load change in the meantime, you can simply replace the protective plug in question. The latching ensures a secure fit for the plug, even in harsh environments.



Protection against alterations

Increase the security of your system through fixed, unchangeable current values. Unintentional adjustment of the channel currents are thus prevented. A large selection of protective plugs are available with the CB E circuit breakers. The nominal currents range from 1 to 10 amps. Select the right protective plug for your area of application.



Active current limitation

The active current limitation restricts short circuit and overload currents to a value of 1.25 times the nominal current. This protects the power supply against excessively high currents and prevents the output voltage from dropping at the switched-mode power supply unit. In addition, longer cable paths between the power supply and load are possible, without negatively impacting the shutdown behavior.



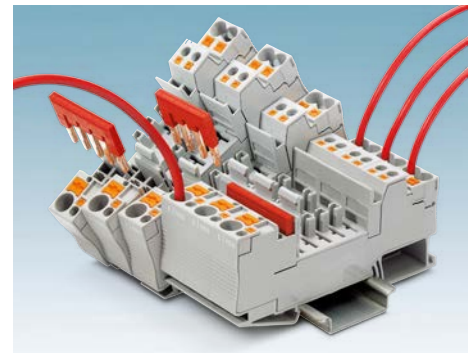
Remote control

The controller function of our CB E series does more than just provide you with the capability of switch different loads on and off remotely. Reconnecting a channel that has tripped is also possible. This eliminates the need for on-site maintenance if no ongoing fault has occurred.



Remote inspection

Increase the transparency of your system via our integrated remote messaging function. In the event of an error, you can obtain an overview of the problem – regardless of your location. You can thus find the faulty channel more quickly and therefore reduce the downtimes caused by this.



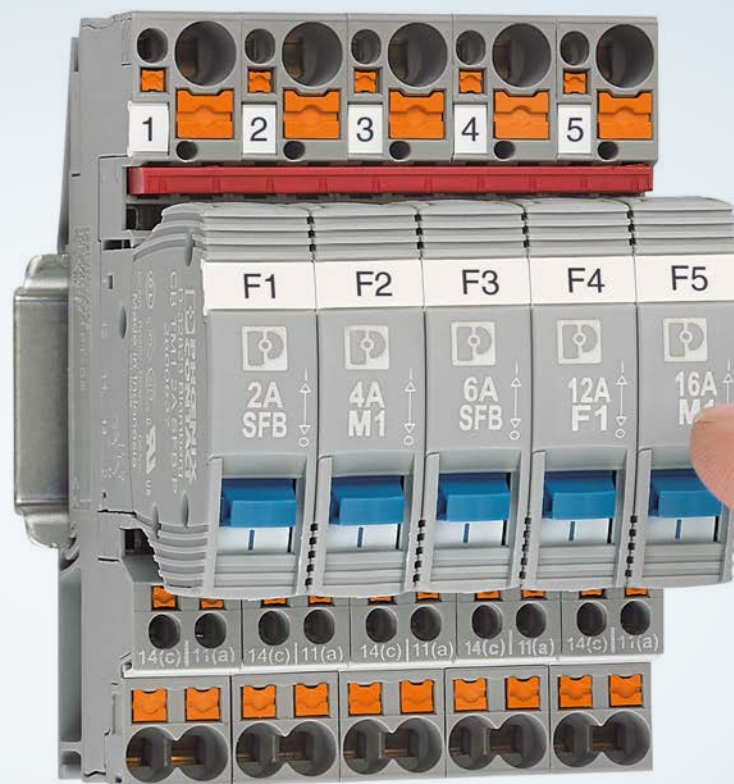
Quick and easy installation

With the unique bridging system from our standard range, the device circuit breakers can be combined easily. Potentials of the same type can be connected quickly and safely. Thanks to the Push-in connection technology, you can wire the devices without tools. This saves time and costs during installation.

Individually customizable thermomagnetic device circuit breakers

Protect your application reliably against overload and short-circuit currents with the CB TM device circuit breakers. Thanks to a large number of different protective plugs, a large range is available which allows you to configure your protection according to your requirements. Take advantage of the numerous features.

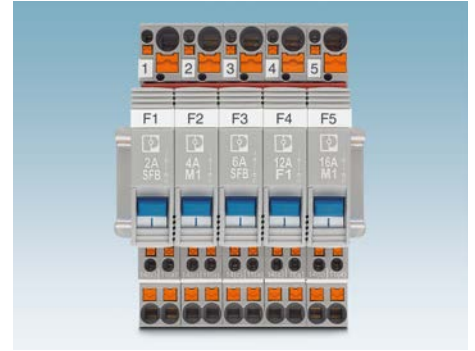
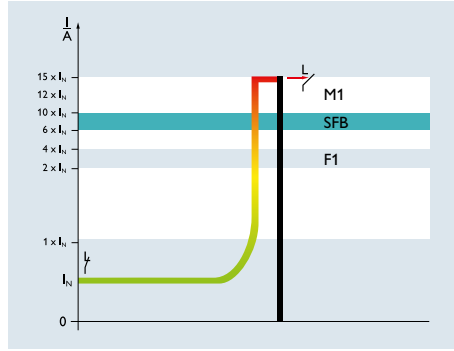
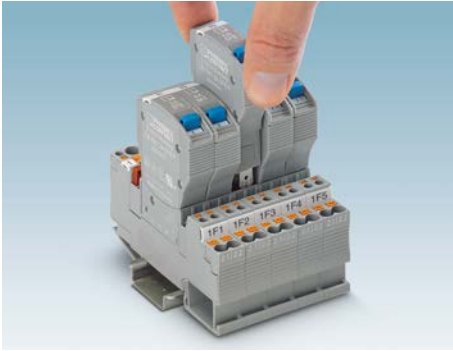
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Your advantages

- ✓ Individually customizable, thanks to protective plugs
- ✓ Easy characteristic curve selection: select between three different characteristics
- ✓ Large selection of protective plugs with fixed nominal current values for protection against unauthorized changes

Product advantages at a glance



Individually customizable

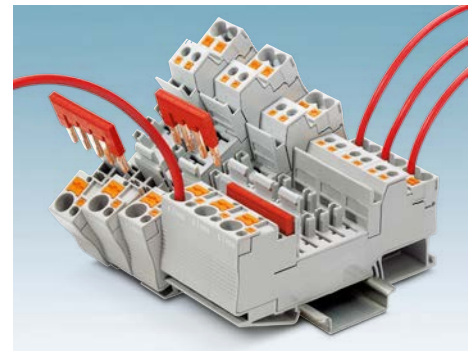
Pre-wire systems and control cabinets with base elements. Simply install the appropriate protective plug to suit your individual requirements at a later date. Should the requirements for a load change in the meantime, you can simply replace the protective plug in question. The latching ensures a secure fit for the plug, even in harsh environments.

Simple characteristic curve selection

With the three different characteristic curve of the CB TM series, you always have the appropriate characteristic curve for your application. Select the F1 characteristic curve if you would like the tripping behavior to be as speedy as possible. The M1 characteristic curve enables switching of higher starting currents. You can protect above average cable lengths via the SFB characteristic curve.

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 amps. Select the right protective plug for your area of application. Thanks to the fixed, unchangeable nominal currents of the plugs, you can increase the security of your system. Unintentional adjustments of the channel current are thus prevented.



Electrical isolation

Higher safety requirements exist in certain sectors of the industry. The electrical isolation of our thermomagnetic circuit breakers helps you comply with these requirements. This is because the power path is physically isolated in the event of an error. You thus reliably protect your application against undesired currents.

1- and 2-position plugs

Ideal protection for your application. Plugs with various numbers of positions are available for this. Select 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. You can thus achieve the ideal protection for your system.

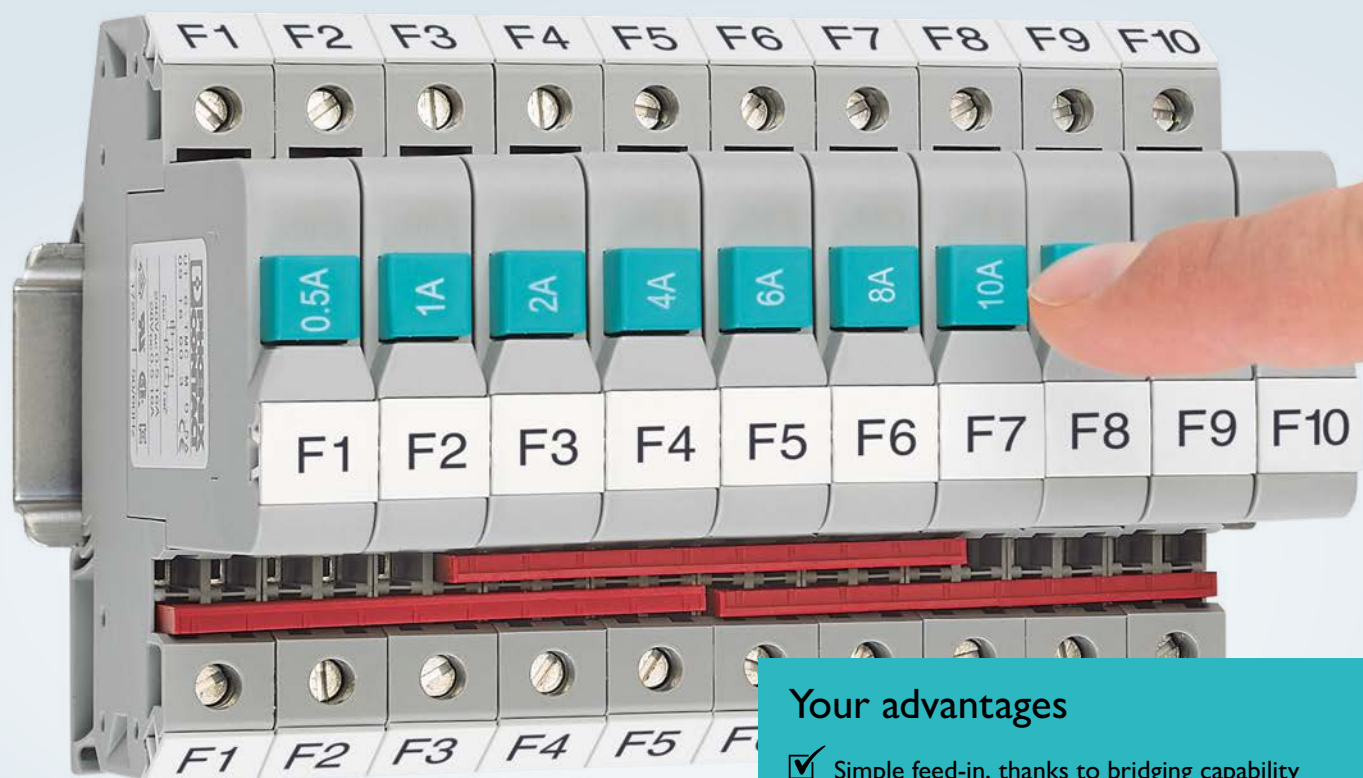
Quick and easy installation

With the unique bridging system from our standard range, the device circuit breakers can be combined easily. Potentials of the same type can be connected quickly and safely. Thanks to the Push-in connection technology, you can wire the devices without tools. This saves time and costs during installation.

Modular thermomagnetic device circuit breakers with expansion capability

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

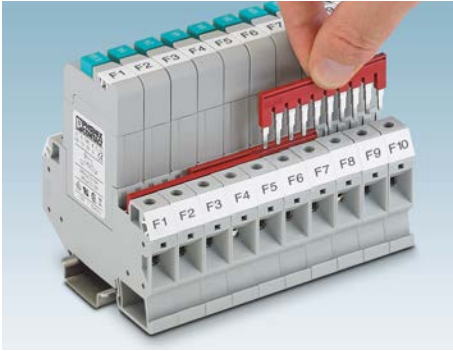
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Your advantages

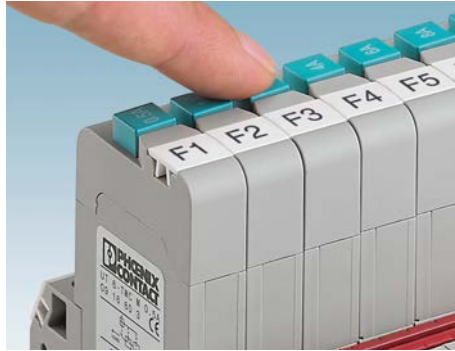
- ✓ Simple feed-in, thanks to bridging capability using CLIPLINE complete accessories
- ✓ High system availability, thanks to easy resetting
- ✓ Quick and easy identification, thanks to large-area marking options

Product advantages at a glance



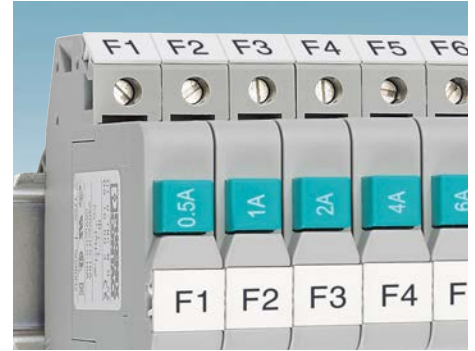
Simple feed-in

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



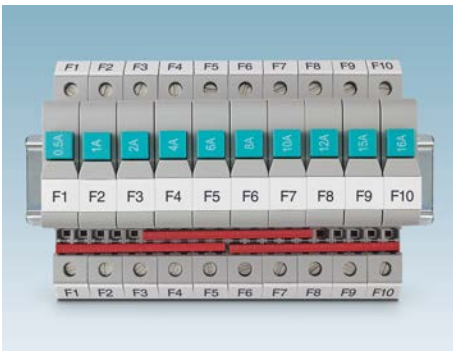
High system availability

A device replacement is not necessary in the event of an error. The system is recommissioned quickly, thanks to easy reconnection. The trip-free mechanism prevents blocking of the shutdown.



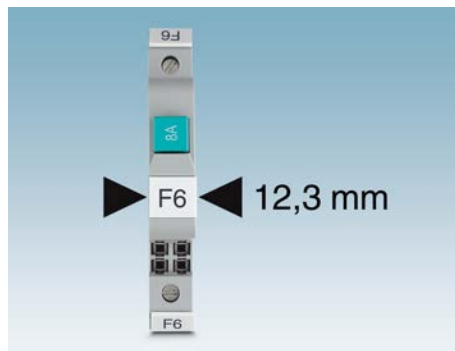
Quick and easy identification

Each circuit can be identified clearly with marking. The UT 6-TMC device circuit breaker features versatile and large-area marking options for this. Thus, the individual circuits are recognizable quickly at a glance. This simplifies troubleshooting.



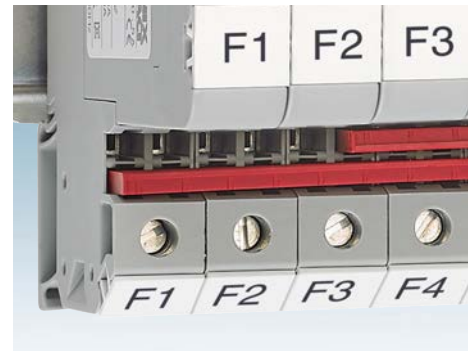
Large nominal current range

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



Compact design




The UT 6-TMC feature a narrow design, with a width of just 12.3 mm. Thanks to this compactness, you save 30% space in the control cabinet compared to standard miniature circuit breakers.



Connection technology

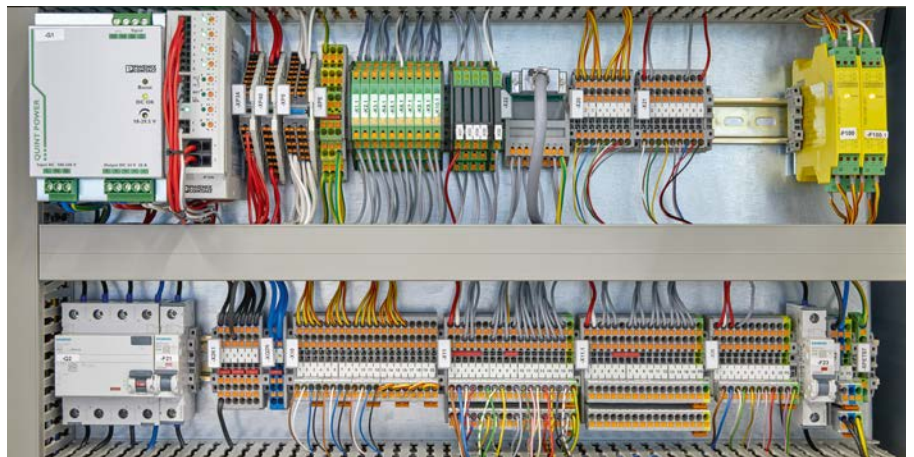
Take advantage of many years of experience in connection technology with the proven screw connection technology of the UT 6-TMC products.

Product and order overview






CBM: Multi-channel electronic circuit breakers		
 Web code: #1650		
Description	CBM with 4 channels	CBM with 8 channels
Type	CBM E4 24DC/0.5-10A NO-R	CBM E8 24DC/0.5-10A NO-R
Order No.	2905743	2905744
Number of channels	4	8
Adjustable nominal current values	0.5/1/2/4/6/10 A	0.5/1/2/4/6/10 A
Preconfigured	Factory-set, 0.5 A	Factory-set, 0.5 A
Max. supply current	40 A	80 A
Backup fuse	15 A	15 A
Current limitation	•	•
Remote reset	•	•
Max. connection cross section (feed-in)	2 x 16 mm ²	2 x 16 mm ²
Dimensions (W x H x D)	41 mm x 130 mm x 121 mm	41 mm x 130 mm x 121 mm

CBM in use

The CBM saves a large amount of space, thanks to its narrow design. It protects various loads in up to eight circuits. With current limitation, the risk in the event of an error is easily predictable. Thanks to its adjustability, the CBM can be adjusted to the system requirements, and protects sensors, actuators, relays, and much more.



CBMC: Compact multi-channel electronic circuit breakers

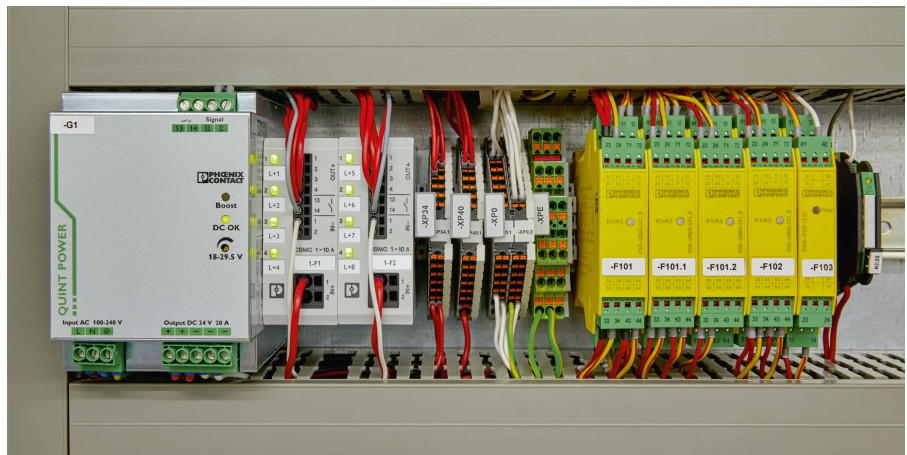
 Web code: #1651				
	Description	CBMC 1-4 A	CBMC 1-10 A	CBMC available preconfigured at 1-4 A
Type	CBMC E4 24DC/1-4A NO	CBMC E4 24DC/1-10A NO	CBMC E4 24DC/1-4A NO-C	CBMC E4 24DC/1-10A NO-C
Order No.	2906031	2906032	2908713*	2908716*
Number of channels	4	4	4	4
Adjustable nominal current values	1 / 2 / 3 / 4 A	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A	Available preconfigured fixed at 1 to 4 A or adjustable	Available preconfigured fixed at 1 to 10 A or adjustable
Preconfigured	Factory-set, 4 A	Factory-set, 4 A		
Backup fuse	4 A	15 A	4 A	15 A
Remote signaling	Floating contact 13-14	Floating contact 13-14	Floating contact 13-14	Floating contact 13-14
Interface	–	–	–	–
For NEC Class 2 circuits	•	–	•	–
Max. connection cross section (feed-in)	2 x 6 mm ²	2 x 6 mm ²	2 x 6 mm ²	2 x 6 mm ²
Dimensions (W x H x D)	36 mm x 90 mm x 98 mm	36 mm x 90 mm x 98 mm	36 mm x 90 mm x 98 mm	36 mm x 90 mm x 98 mm

* Ord. No.	Adjustable	Ch. 1	Ch. 2	Ch. 3	Ch. 4
2908713	ADJ	1	3	1	4
	ADJ: adjustable FIX: not adjustable	Select the current value in amps individually for each channel 1 ... 4 A			




* Ord. No.	Adjustable	Ch. 1	Ch. 2	Ch. 3	Ch. 4
2908716	ADJ	1	5	8	10
	ADJ: adjustable FIX: not adjustable	Select the current value in amps individually for each channel 1 ... 10 A			

CBMC in use

The multi-channel CBMC protect up to four circuits at the same time against the effects of overload and short-circuit currents. All devices are effectively protected, thanks to a combination of electronics and firmware. The four channels can be set individually from 1 to 10 amps. A potential distribution can be perfectly implemented in order to supply and protect several loads. Thanks to its low height, the CBMC can be placed next to each terminal block, saving space.

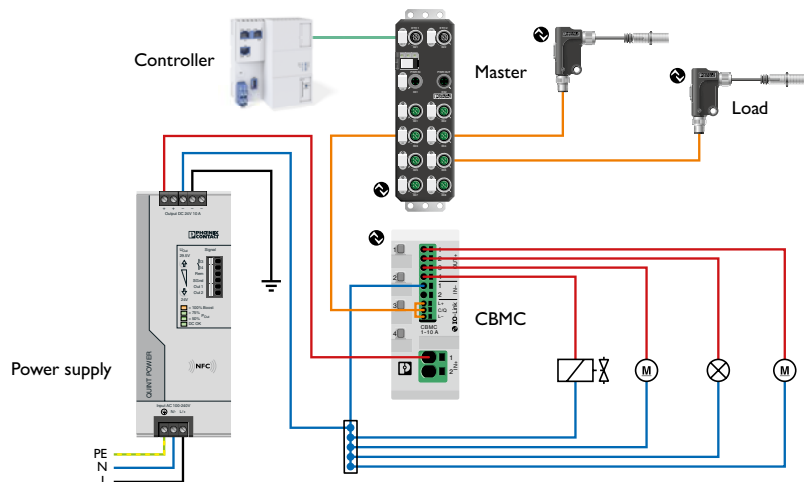


Product and order overview






CBMC IOL: Compact multi-channel electronic circuit breakers with IO-Link interface		
 Web code: #1652		
Description	CBMC 1-4 A nominal current with IO-Link interface	CBMC 1-10 A nominal current with IO-Link interface
Type	CBMC E4 24DC/1-4A+ IOL	CBMC E4 24DC/1-10A IOL
Order No.	2910410	2910411
Number of channels	4	4
Adjustable nominal current values	1 / 2 / 3 / 4 A	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A
Preconfigured	Factory-set, 4 A	Factory-set, 4 A
Backup fuse	4 A	15 A
Remote signaling	Floating contact 13-14	Floating contact 13-14
Interface	IO-Link	IO-Link
For NEC Class 2 circuits	•	–
Max. connection cross section (feed-in)	2 x 6 mm ²	2 x 6 mm ²
Dimensions (W x H x D)	36 mm x 90 mm x 98 mm	36 mm x 90 mm x 98 mm

CBMC with IO-Link application

The illustration shows a 24 V DC application with various sensors and actuators in combination with IO-Link. IO-Link is a manufacturer-independent standard. An extremely wide range of products transmit process relevant data at the IO-Link level to the higher-level fieldbus via a master. You can therefore maintain a perfect overview of your system and have all information available at all times. The currents can also be conveniently set remotely.



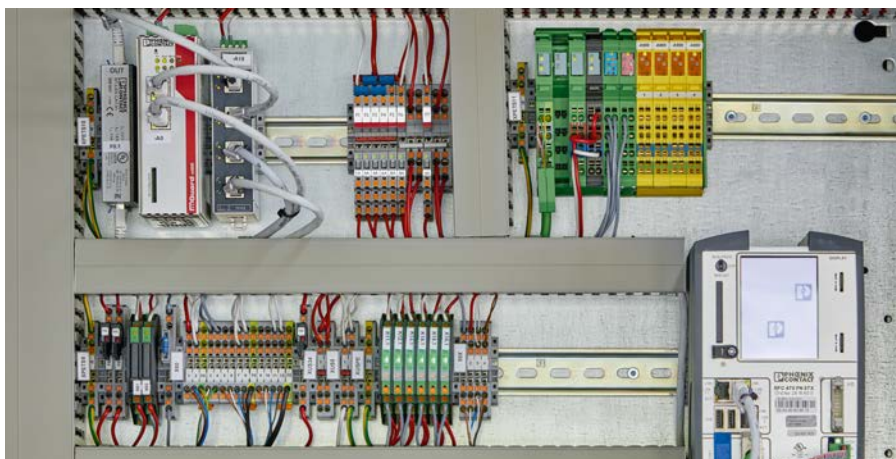
PTCB: Narrow electronic circuit breakers

 Web code: #1649 Remote signaling: Floating contact 13-14 Dimensions (W x H x D): 6.2 x 105.8 x 55.6 mm					
	Description	PTCB adjustable 1-3 A	PTCB adjustable 1-4 A	PTCB adjustable 1-8 A	
	Type	PTCB E1 24DC/1-3A NO	PTCB E1 24DC/1-4A NO	PTCB E1 24DC/1-8A NO	
	Order No.	2909909	2908261	2908262	
Adjustable nominal current values	1 / 2 / 3 A	1 / 2 / 3 / 4 A	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 A		
Preconfigured	Factory-set, 3 A	Factory-set, 4 A	Factory-set, 4 A		
Backup fuse	4 A	4 A	15 A		
Operating voltage	18 V DC ... 27.5 V DC	18 V DC ... 30 V DC	18 V DC ... 30 V DC		
For NEC Class 2 circuits	•	–	–		
Description	PTCB 2 A nominal current	PTCB 3 A nominal current	PTCB 4 A nominal current	PTCB 6 A nominal current	
Type	PTCB E1 24DC/2A NO	PTCB E1 24DC/3A NO	PTCB E1 24DC/4A NO	PTCB E1 24DC/6A NO	
Order No.	2909903	2909904	2909906	2909908	
Nominal current values	2 A	3 A	4 A	6 A	
Backup fuse	4 A	4 A	4 A	15 A	
Operating voltage	18 V DC ... 30 V DC	18 V DC ... 27.5 V DC	18 V DC ... 30 V DC	18 V DC ... 30 V DC	
For NEC Class 2 circuits	•	•	–	–	

PTCB in use

The very narrow electronic PTCBs can be perfectly adjusted to the number of loads requiring protection. They have a comprehensive range of bridging options for the input and output potentials.

Thus, protection can be adapted to the respective application with little wiring effort. Individual protection of the loads and potential distribution across several loads can be set up quickly and easily.



Product and order overview

CB E: Electronic circuit breakers

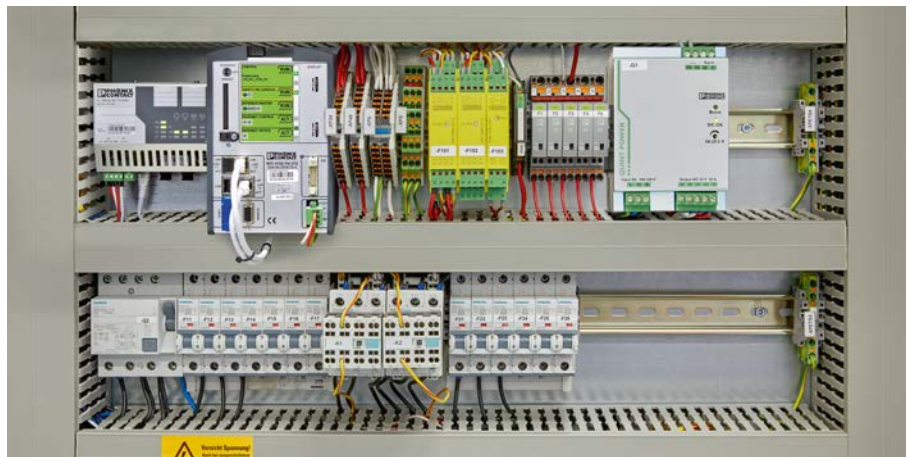
i Web code: #1648





Description	N/O contact (NO)	N/C contact (NC)	Status output and reset input (S-R)	Status output and control input (S-C)
Nominal voltage	24 V DC	24 V DC	24 V DC	24 V DC
Nominal current 1 A	CB E1 24DC/1A NO P Order number 2800901	CB E1 24DC/1A NC P Order number 2800915	CB E1 24DC/1A S-R P Order number 2800908	CB E1 24DC/1A S-C P Order number 2800922
Nominal current 2 A	CB E1 24DC/2A NO P Order number 2800902	CB E1 24DC/2A NC P Order number 2800916	CB E1 24DC/2A S-R P Order number 2800909	CB E1 24DC/2A S-C P Order number 2800923
Nominal current 3 A	CB E1 24DC/3A NO P Order number 2800903	CB E1 24DC/3A NC P Order number 2800917	CB E1 24DC/3A S-R P Order number 2800910	CB E1 24DC/3A S-C P Order number 2800924
Nominal current 4 A	CB E1 24DC/4A NO P Order number 2800904	CB E1 24DC/4A NC P Order number 2800918	CB E1 24DC/4A S-R P Order number 2800911	CB E1 24DC/4A S-C P Order number 2800925
Nominal current 6 A	CB E1 24DC/6A NO P Order number 2800905	CB E1 24DC/6A NC P Order number 2800919	CB E1 24DC/6A S-R P Order number 2800912	CB E1 24DC/6A S-C P Order number 2800926
Nominal current 8 A	CB E1 24DC/8A NO P Order number 2800906	–	CB E1 24DC/8A S-R P Order number 2800913	CB E1 24DC/8A S-C P Order number 2800927
Nominal current 10 A	CB E1 24DC/10A NO P Order number 2800907	–	CB E1 24DC/10A S-R P Order number 2800914	CB E1 24DC/10A S-C P Order number 2800928

CB E in use

The CB E circuit breakers have a modular design which means the protection can be ideally customized. The system is ideally protected, thanks to the fixed current values; manipulation of the current strengths is therefore effectively prevented. One advantage of electronic circuit breakers is that the current reserve is more likely to be sufficient in the event of an emergency. The system availability is effectively increased.



UT 6-TMC: Thermomagnetic device circuit breakers

 Web code: #1655		
Description	TMC device circuit-breaker	
Nominal current 0.5 A	UT 6-TMC M 0.5A Order number 0916603	
Nominal current 1 A	UT 6-TMC M 1A Order number 0916604	
Nominal current 2 A	UT 6-TMC M 2A Order number 0916605	
Nominal current 3 A	UT 6-TMC M 3A Order number 0916606	
Nominal current 4 A	UT 6-TMC M 4A Order number 0916607	
Nominal current 5 A	UT 6-TMC M 5A Order number 0916608	
Nominal current 6 A	UT 6-TMC M 6A Order number 0916609	
Nominal current 8 A	UT 6-TMC M 8A Order number 0916610	
Nominal current 10 A	UT 6-TMC M 10A Order number 0916611	
Nominal current 12 A	UT 6-TMC M 12A Order number 0916612	
Nominal current 16 A	UT 6-TMC M 16A Order number 0916613	

UT 6-TMC in use

Thanks to the single-channel design of the UT 6-TMC, selective protection of the loads is quickly and easily established. The generous marking area helps with identification in the event of errors. Fast recommissioning is possible, as the products can be reset.



Product and order overview

CB-TM: Thermomagnetic device circuit breakers, 1-pos.

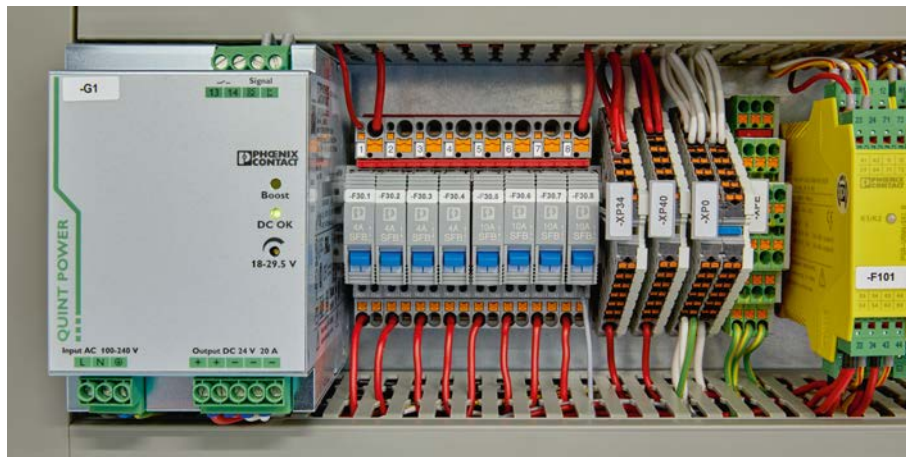
i Web code: #1653



Characteristic curve	SFB	M1	F1
Remote signaling function	1 changeover contact	1 changeover contact	1 changeover contact
Number of positions	1	1	1
Nominal current 0.5 A	CB TM1 0.5A SFB P Order number 2800835	CB TM1 0.5A M1 P Order number 2800846	CB TM1 0.5A F1 P Order number 2800857
Nominal current 1 A	CB TM1 1A SFB P Order number 2800836	CB TM1 1A M1 P Order number 2800847	CB TM1 1A F1 P Order number 2800858
Nominal current 2 A	CB TM1 2A SFB P Order number 2800837	CB TM1 2A M1 P Order number 2800848	CB TM1 2A F1 P Order number 2800859
Nominal current 3 A	CB TM1 3A SFB P Order number 2800838	CB TM1 3A M1 P Order number 2800849	CB TM1 3A F1 P Order number 2800860
Nominal current 4 A	CB TM1 4A SFB P Order number 2800839	CB TM1 4A M1 P Order number 2800850	CB TM1 4A F1 P Order number 2800861
Nominal current 5 A	CB TM1 5A SFB P Order number 2800840	CB TM1 5A M1 P Order number 2800851	CB TM1 5A F1 P Order number 2800862
Nominal current 6 A	CB TM1 6A SFB P Order number 2800841	CB TM1 6A M1 P Order number 2800852	CB TM1 6A F1 P Order number 2800863
Nominal current 8 A	CB TM1 8A SFB P Order number 2800842	CB TM1 8A M1 P Order number 2800853	CB TM1 8A F1 P Order number 2800864
Nominal current 10 A	CB TM1 10A SFB P Order number 2800843	CB TM1 10A M1 P Order number 2800854	CB TM1 10A F1 P Order number 2800865
Nominal current 12 A	CB TM1 12A SFB P Order number 2800844	CB TM1 12A M1 P Order number 2800855	CB TM1 12A F1 P Order number 2800866
Nominal current 16 A	CB TM1 16A SFB P Order number 2800845	CB TM1 16A M1 P Order number 2800856	CB TM1 16A F1 P Order number 2800867

CB TM in use

Along with the modular design, the CB TM... circuit breakers feature electrical isolation. In the event of an error, the corresponding circuit is isolated safely and physically. The circuit can only be recommissioned via manual reconnection. The various characteristic curves provide ideal protection.

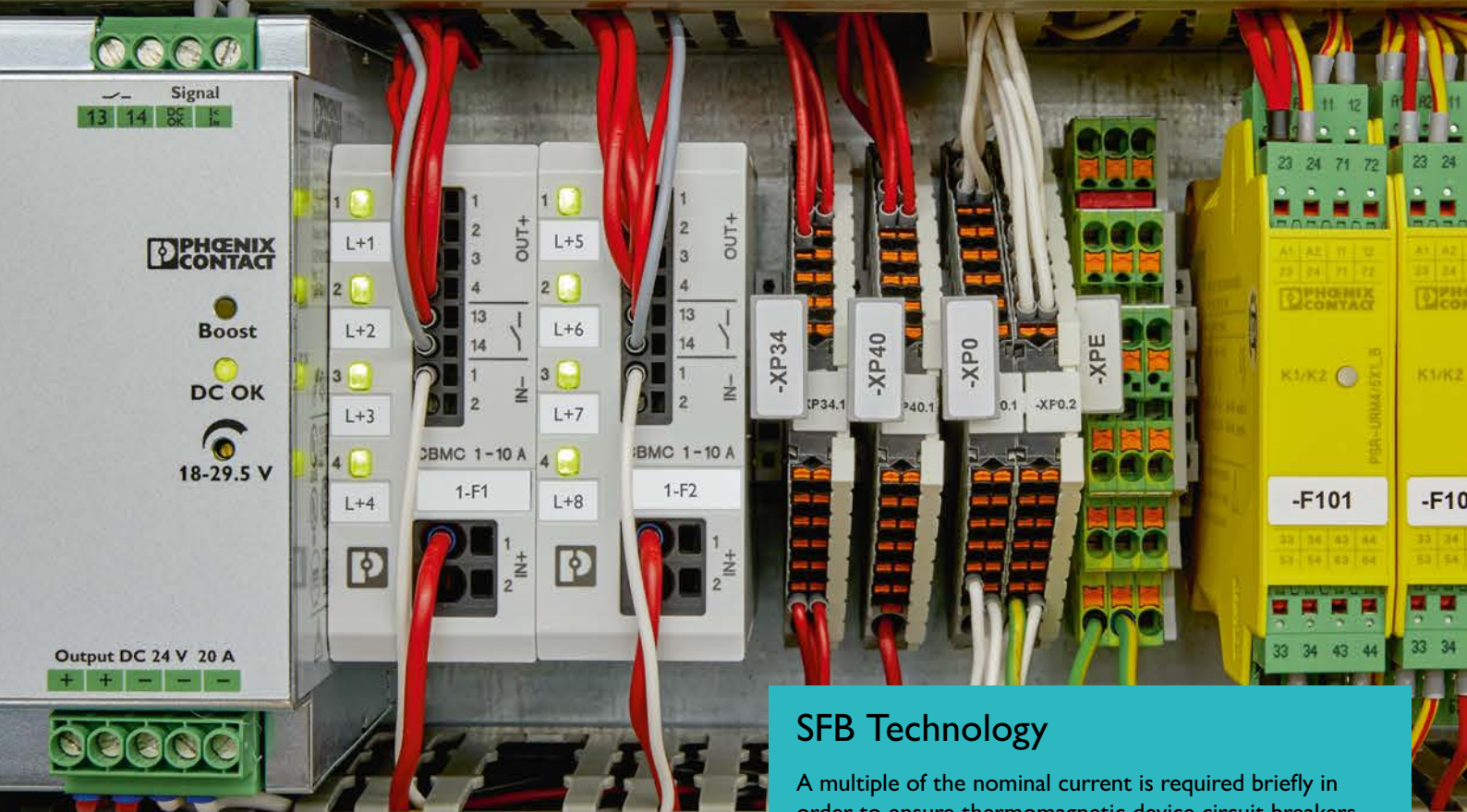
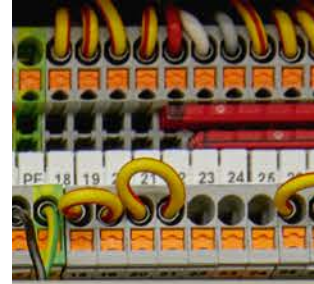


CB-TM: Thermomagnetic device circuit breakers, 2-pos.

 Web code: #1654			
Characteristic curve	SFB	M1	F1
Remote signaling function	2 changeover contacts	2 changeover contacts	2 changeover contacts
Number of positions	2	2	2
Nominal current 0.5 A	CB TM2 0.5A SFB P Order number 2800868	CB TM2 0.5A M1 P Order number 2800879	CB TM2 0.5A F1 P Order number 2800890
Nominal current 1 A	CB TM2 1A SFB P Order number 2800869	CB TM2 1A M1 P Order number 2800880	CB TM2 1A F1 P Order number 2800891
Nominal current 2 A	CB TM2 2A SFB P Order number 2800870	CB TM2 2A M1 P Order number 2800881	CB TM2 2A F1 P Order number 2800892
Nominal current 3 A	CB TM2 3A SFB P Order number 2800871	CB TM2 3A M1 P Order number 2800882	CB TM2 3A F1 P Order number 2800893
Nominal current 4 A	CB TM2 4A SFB P Order number 2800872	CB TM2 4A M1 P Order number 2800883	CB TM2 4A F1 P Order number 2800894
Nominal current 5 A	CB TM2 5A SFB P Order number 2800873	CB TM2 5A M1 P Order number 2800884	CB TM2 5A F1 P Order number 2800895
Nominal current 6 A	CB TM2 6A SFB P Order number 2800874	CB TM2 6A M1 P Order number 2800885	CB TM2 6A F1 P Order number 2800896
Nominal current 8 A	CB TM2 8A SFB P Order number 2800875	CB TM2 8A M1 P Order number 2800886	CB TM2 8A F1 P Order number 2800897
Nominal current 10 A	CB TM2 10A SFB P Order number 2800876	CB TM2 10A M1 P Order number 2800887	CB TM2 10A F1 P Order number 2800898
Nominal current 12 A	CB TM2 12A SFB P Order number 2800877	CB TM2 12A M1 P Order number 2800888	CB TM2 12A F1 P Order number 2800899
Nominal current 16 A	CB TM2 16A SFB P Order number 2800878	CB TM2 16A M1 P Order number 2800889	CB TM2 16A F1 P Order number 2800900

Power supplies and device circuit breakers

When using electronic circuit breakers, a low current reserve should be available. Thanks to the boost function of our TRIO POWER and QUINT POWER power supplies, this current reserve can be supplied even with a capacity utilization of 100%. They can therefore easily ensure a high system availability.



SFB Technology

A multiple of the nominal current is required briefly in order to ensure thermomagnetic device circuit breakers are tripped. The QUINT SFB Technology is particularly well suited to this. It supplies up to six times the nominal current for 12 ms.

Designed by PHOENIX CONTACT

The best combination for superior system availability

TRIO POWER: Robust power supplies

TRIO POWER power supplies are perfect for use in machine building. All functions and the space-saving design are tailored to the stringent demands in this area.

The power supply units, which feature an extremely robust electrical and mechanical design, ensure the reliable supply of all loads, even under harsh ambient conditions.

- Very economical, thanks to time-saving, tool-free Push-in connection
- Reliable starting of heavy loads, dynamic power reserve 150% (max. 5 s)
- Electrically robust, thanks to high electric strength
- Mechanically robust, thanks to high vibration and shock resistance



QUINT POWER: High-performance power supplies

QUINT POWER power supplies feature new functions to ensure superior system availability. SFB technology and preventive function monitoring increase the availability of your application.

Signaling thresholds and characteristic curves can be individually adjusted via the NFC interface. Furthermore, they can be ordered preconfigured from a batch quantity of just 1.

- SFB Technology selectively trips standard circuit breakers; operation of connected loads continues without interruption
- System can be easily expanded, thanks to static boost with permanent 125% performance

- Reliable starting of heavy loads, thanks to dynamic boost with up to 200% power for 5 s
- High level of immunity, thanks to integrated gas-filled surge arrester, more than 20 ms mains buffering
- Comprehensive signaling
- Preventive function monitoring highlights critical operating states before errors occur



Appropriate protection for your requirements

	Electromagnetic device circuit breakers		Thermomagnetic device circuit breakers	
Power supply	CBM, CBMC, PTCB, CB E		CB TM Adapted curves SFB, F1, M1	UT 6-TMC Medium time-lag curves M1
TRIO POWER Boost	■		■	■
QUINT POWER Boost	■		■	■
QUINT POWER SFB Technology		■	■	■

In dialog with customers and partners worldwide

Phoenix Contact is a globally present, Germany-based market leader. Our group is synonym for future-oriented components, systems, and solutions in the fields of electrical engineering, electronics, and automation. A global network across more than 100 countries, and 15,000 employees ensure a close proximity to our customers, which we believe is particularly important.

The wide variety of our innovative products makes it easy for our customers to find future-oriented solutions for different applications and industries. We especially focus on the fields of energy, infrastructure, process and factory automation.



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