

Electronic circuit breaker - CAPAROC E2 12-24DC/2-10A



1110984

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2-channel electronic circuit breaker module for protecting 12 and 24 V DC loads against overload and short circuit. Nominal current adjustable from 2 A to 10 A via step switch. For DIN rail installation via the CAPAROC current rails.

Your advantages

- The benchmark that you can customize with convenient nominal current level setting on the module
- Easy operation for everyone through tool-free assembly, uninterrupted installation, and transparent operating state
- Exceptionally easy design-in allows the nominal current to be extended beyond the specified levels via PROFINET

Commercial Data

Item number	1110984
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to Order (non-returnable)
Sales Key	C34
Product Key	CLA233
GTIN	4063151028831
Weight per Piece (including packing)	116.1 g
Weight per Piece (excluding packing)	110.8 g
Customs tariff number	85363010
Country of origin	DE

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Technical Data

Notes

General

Note	LABS release – in accordance with test specification VW PV 3. 10.7:2005-0
	When connecting the conductor, make sure that the CAPAROC modules are not pulled apart due to tensile force. Gaps must not be created between the modules.

Product properties

Product type	Device circuit breakers
Number of positions	1
No. of channels	2
Number of slots	2

Insulation characteristics

Protection class	III
Pollution degree	2

Electrical properties

No. of channels	2
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General

Operating voltage	10 V DC ... 30 V DC
Rated voltage	12 V DC 24 V DC
Rated current I_N	10 A DC (per channel)
Rated current I_N	2 / 4 / 6 / 8 / 10 A DC (Adjustable via rotary coding switches) 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A DC (can be set, in RC mode via power module with communication interface)
Rated current (pre-adjusted)	2 A
Rated surge voltage	0.5 kV
Tripping method	E (electronic)
Feedback resistance	max. 35 V DC
Switch-on delay	50 ms (each channel preset by default) can be adapted with CAPAROC PM IOL and CAPAROC PM PN power modules
Required backup fuse	Only required if I_{max} of the power supply > the short-circuit switching capacity. Integrated failsafe element.
Short-circuit switching capacity	300 A
Dielectric strength	35 V DC (Load circuit)
Active current limitation	typ. $2.0 \times I_N$ at $I_N \leq 3$ A typ. $1.5 \times I_N$ at $I_N \geq 4$ A
Fuse	electronic
Efficiency	> 99 %

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Closed circuit current I_0	typ. 25 mA (no load at 24 V)
Power dissipation	typ. 0.6 W (no load at 24 V)
	< 3.3 W (in nominal operation at 24 V and 10 A)
Measuring tolerance I	± 10 % (typ.)
Temperature derating	20 A (Total current at 40°C)
	10 A (Total current at 65 °C)
MTBF (IEC 61709, SN 29500)	11155723 h (at 25 °C with 21 % load)
	4711180 h (at 40°C with 34.25% load)
	535907 h (at 40°C with 100% load)
Voltage drop	0.14 V (at 10 A)
Fail-safe element	15 A DC (per output channel)
Shutdown time	5 s (for overload 1.1... 1.3 x I_N at $I_N \geq 4$ A)
	5 s (for overload 1.1... 1.7 x I_N at $I_N < 4$ A)
	typ. 400 ms (max. 450 ms for high starting currents)
	typ. 20 ms (for short circuit > 1,5 x I_N)
Undervoltage switch-off	≤ 8.5 V DC (active)
	≥ 9.2 V DC (inactive)
Overvoltage switch-off	≥ 32.5 V DC (active)
	≤ 30.5 V DC (inactive)
Max. capacitive load	≤ 75000 µF (Depending on the current setting and the short-circuit current available)

Connection data

Fuse-protected output

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section flexible	0.2 mm ² ... 4 mm ²
Conductor cross section solid	0.2 mm ² ... 4 mm ²
Conductor cross section AWG	24 ... 12
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm ² ... 4 mm ²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm ² ... 4 mm ²

LED signaling

Channel LED off	off (Channel switched off)
Channel LED yellow	lit (Channel switched on, channel load > 80%)
	two flashes (Check the installation, no communication to power module)
Channel LED green	lit (Channel switched on)
	flashing (Channel switched on, coding switch position is not equal to set value)
Channel LED red	lit (Channel switched off, over- or undervoltage active)
	ON temporarily (Channel switched off, 5 s cool-down phase, overload or short-circuit release)
	flashing (Channel switched off, ready to be switched back on,

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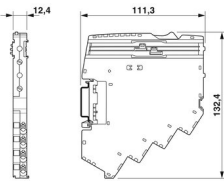


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	overload or short-circuit release)
	two flashes (Channel switched off, system total current limit exceeded)
Channel LED red-yellow	flashing (Channel is overloaded and is switched off)
Channel LED red-green	flashing (Channel switched off, programming mode active, current adjustment after overload or short-circuit release)

Dimensions

Dimensional drawing	
Width	12.4 mm
Height	132.4 mm
Depth	111.3 mm (incl. DIN rail 7.5 mm)

Material specifications

Color	light grey RAL 7035
Material	PA 6 (Housing)
	PA 6 (Pusher)
	PA 6 (Release lever)
	PC (Fiber optics)
Flammability rating according to UL 94	V-0

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-30 °C ... 65 °C (The temperature range of the power module must be taken into consideration)
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Altitude	≤ 4000 m (amsl (above mean sea level))
Humidity test	96 h, 95 % RH, 40 °C
Shock (operation)	30g (11 ms period, half-sine shock pulse, according to IEC 60068-2-27)
	25g (6 ms duration, half-sine shock pulse in accordance with IEC 60068-2-27, continuous shock)
Vibration (operation)	5g (10 ... 150 Hz / 10 cycles / axis / X, Y, Z)

Approval data

UL approval

Identification	UL/C-UL Listed UL 508
	UL Recognized UL 2367

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Standards and regulations

Standards/specifications	EN 61000-6-2
Standards/specifications	EN 61000-6-3
Standards/specifications	EN 60068-2-78
Standards/specifications	EN 50178
Standards/specifications	EN 60068-2-6
Standards/specifications	EN 60068-2-27

Mounting

Mounting type	pluggable onto CAPAROC CR... current rail
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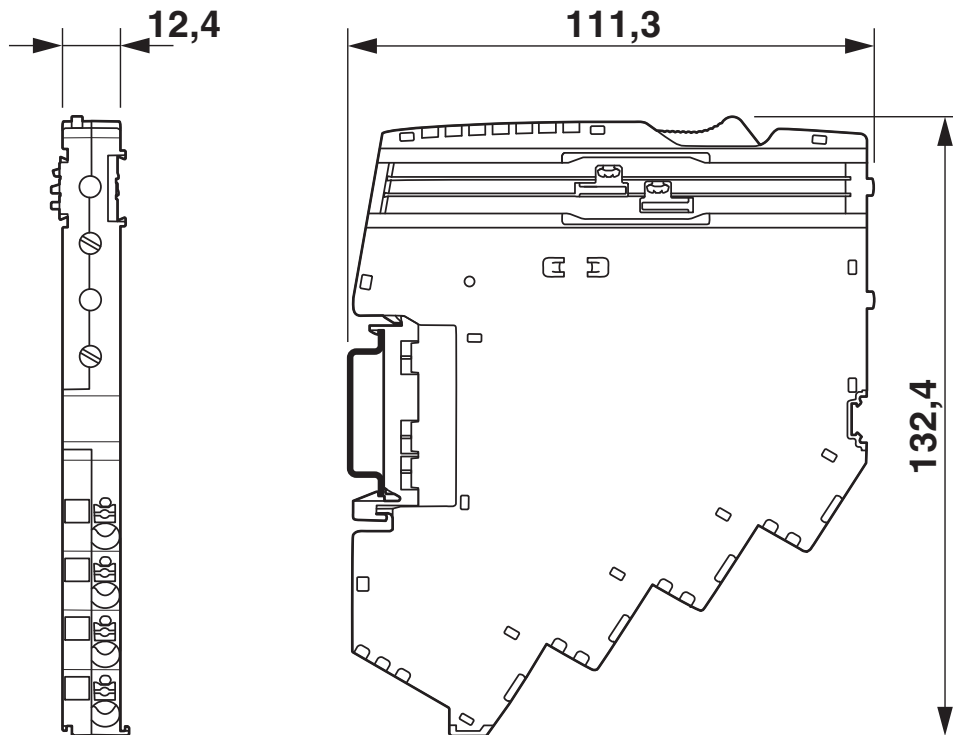


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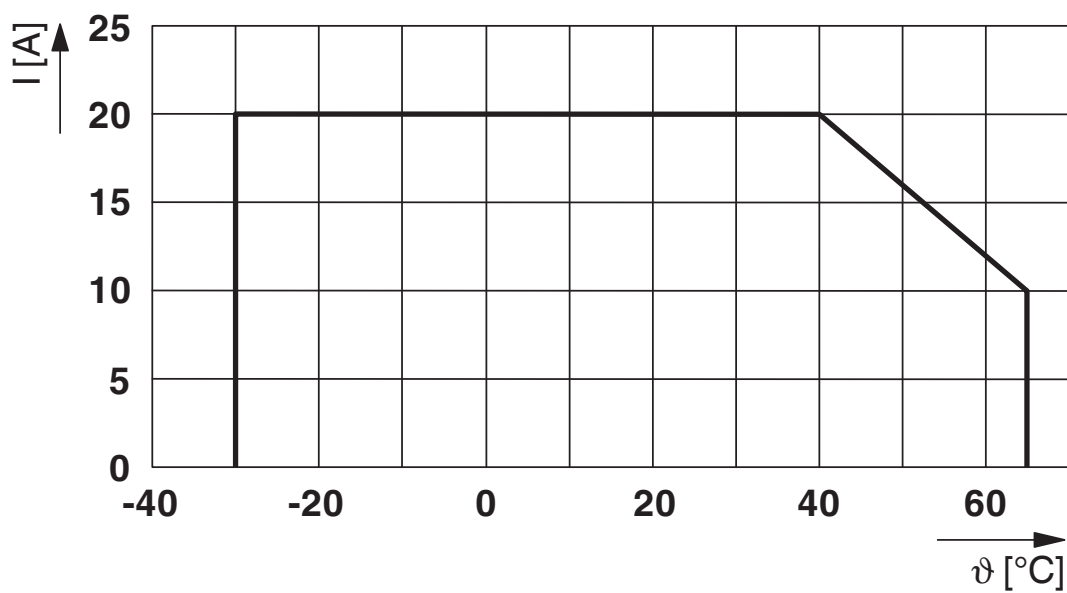
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Drawings

Dimensional drawing



Diagram



Max. permissible current in relation to the ambient temperature

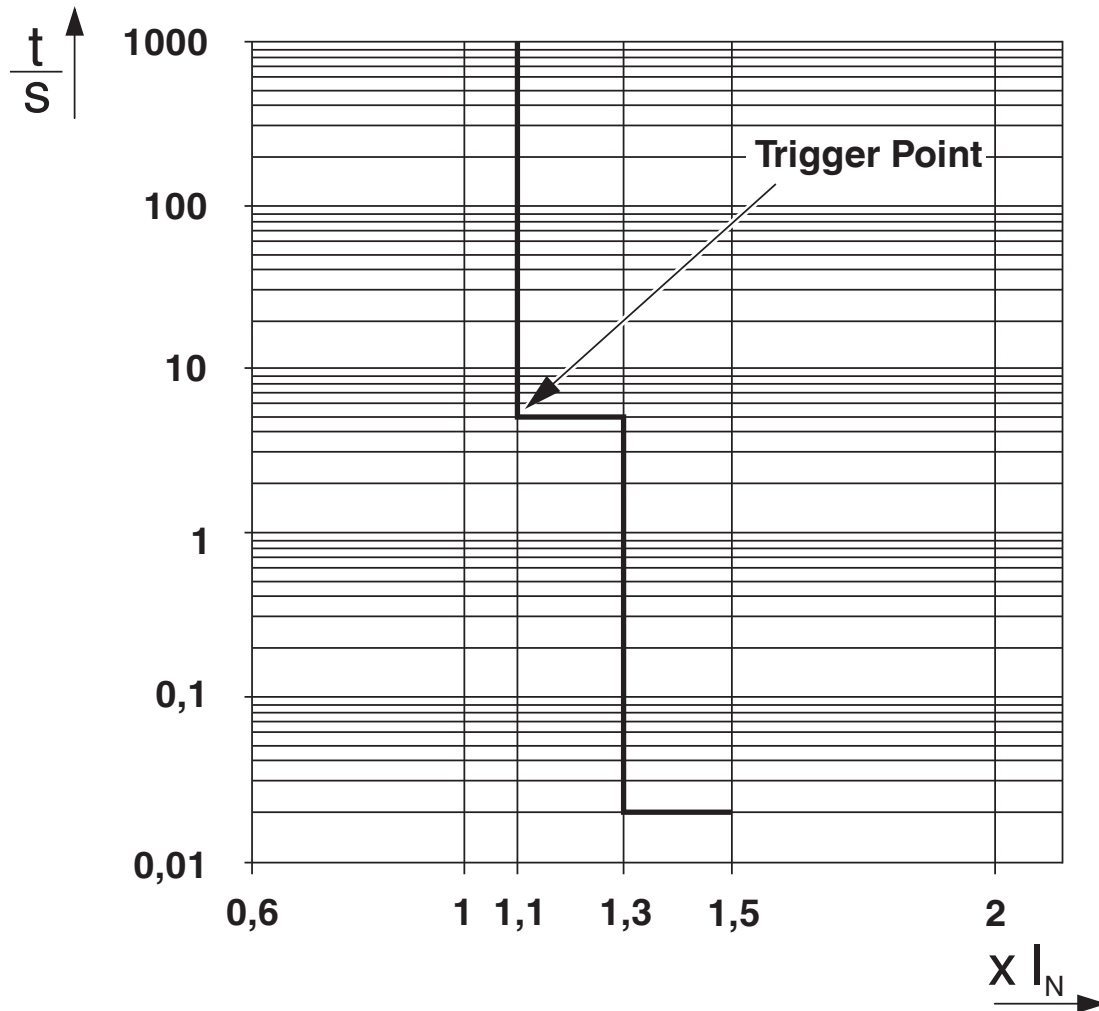
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Diagram



Tripping characteristic ≥ 4 A

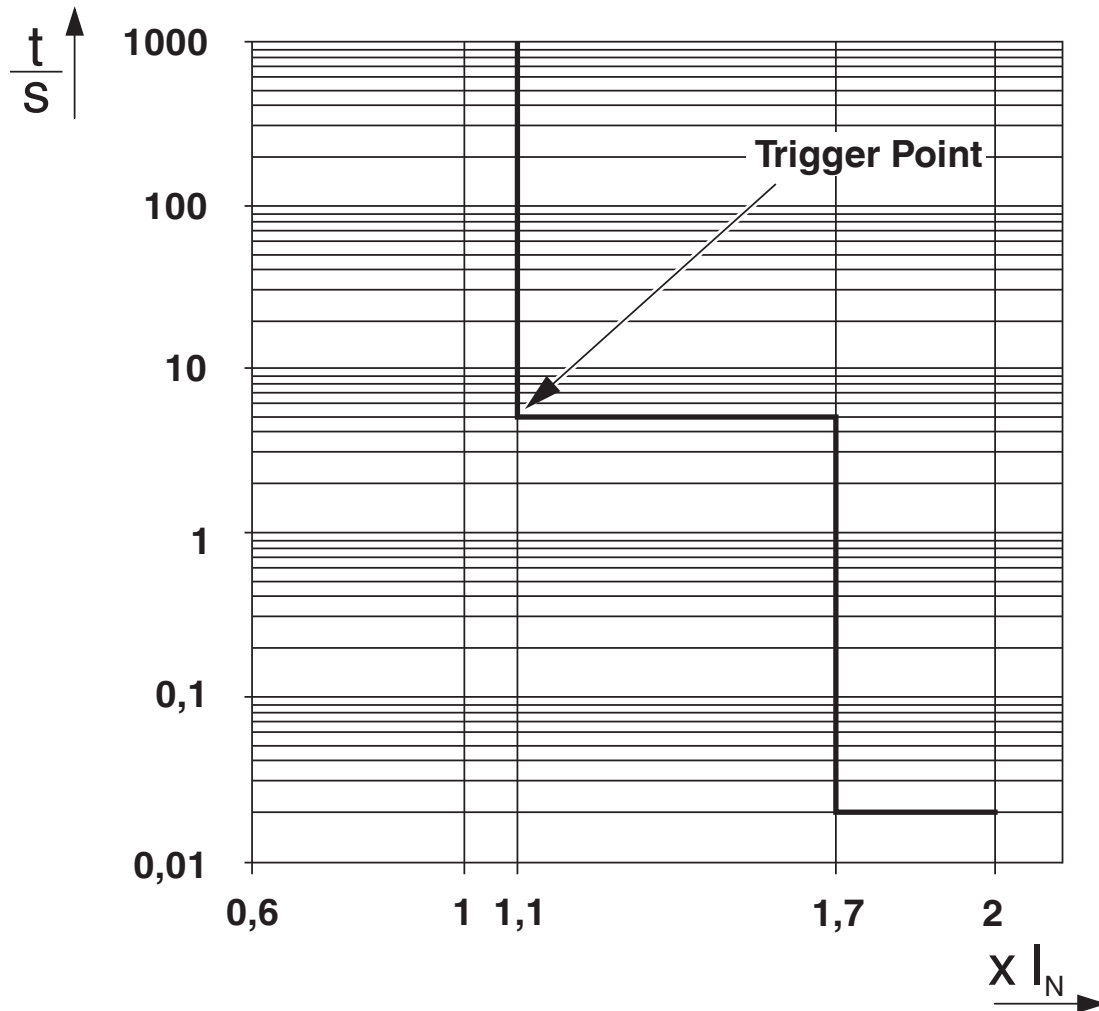
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Diagram



Tripping characteristic < 4 A

Product drawing



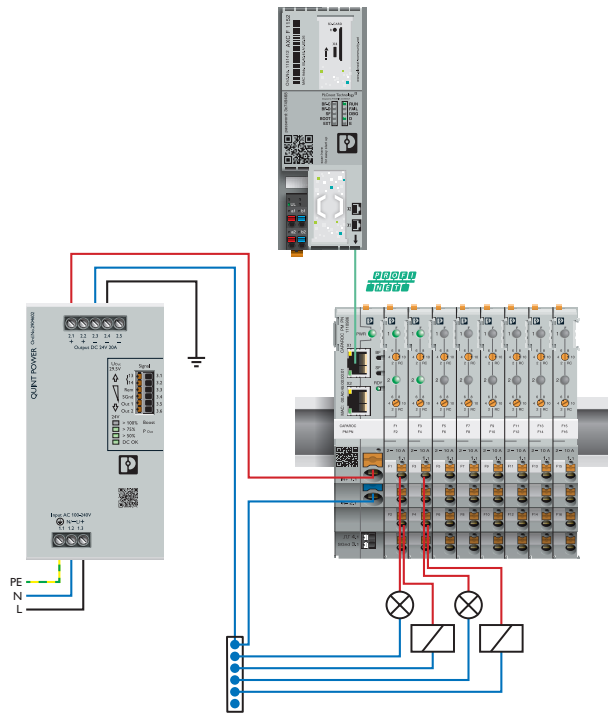
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Application drawing



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Approvals



UL Recognized

Approval ID: FILE E 317172



UL Listed

Approval ID: FILE E 123528



cUL Listed

Approval ID: FILE E 123528

cULus Listed

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Classifications

ECLASS

ECLASS-9.0	27141116
ECLASS-10.0.1	27140401
ECLASS-11.0	27140401

ETIM

ETIM 8.0	EC003538
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UNSPSC

UNSPSC 21.0	39121400
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Environmental Product Compliance

REACH SVHC

Lead 7439-92-1

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Mandatory Accessories

Busbar

Busbar - CAPAROC CR 20 - 1110989

<https://www.phoenixcontact.com/us/products/1110989>

Busbar for CAPAROC system with 20 slots. For installation on a DIN rail.



Busbar

Busbar - CAPAROC CR 8 - 1115672

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Busbar for the CAPAROC system with 8 slots. For installation on a DIN rail.



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Power module

Power module - CAPAROC PM S-R - 1115661

<https://www.phoenixcontact.com/us/products/1115661>



Power module with status output and reset input for supplying the CAPAROC circuit breaker system with 12 or 24 V DC. For DIN rail installation via the CAPAROC current rails.

Power module

Power module - CAPAROC PM PN - 1110986

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Power module with PROFINET interface for supplying the CAPAROC circuit breaker system with 12 or 24 V DC. Additional system interface for communication with the power supply. For DIN rail installation via the CAPAROC current rails.

Accessories

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Potential distributors

Potential distributors - CAPAROC PD 0V - 1110987

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Potential distributor with Push-in connections for directly connecting the 0 V return conductor in the CAPAROC system. For DIN rail installation via the CAPAROC current rails.

Marker for terminal blocks

Marker for terminal blocks - UC-TMF 6 - 0818140

<https://www.phoenixcontact.com/us/products/0818140>



Marker for terminal blocks, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 6.2 mm, lettering field size: 5.6 x 5.1 mm, Number of individual labels: 80

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Marker for terminal blocks

Marker for terminal blocks - UCT-TMF 6 - 0828746

<https://www.phoenixcontact.com/us/products/0828746>



Marker for terminal blocks, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snapped, for terminal block width: 6.2 mm, lettering field size: 5.4 x 4.7 mm, Number of individual labels: 60

Marker for terminal blocks

Marker for terminal blocks - UC-TM 12 - 0819194

<https://www.phoenixcontact.com/us/products/0819194>



Marker for terminal blocks, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 12 mm, lettering field size: 11.45 x 10.5 mm, Number of individual labels: 40

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Marker for terminal blocks

Marker for terminal blocks - UCT-TM 12 - 0829144

<https://www.phoenixcontact.com/us/products/0829144>



Marker for terminal blocks, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snapped, for terminal block width: 12 mm, lettering field size: 10.8 x 9.6 mm, Number of individual labels: 30

Busbar

Busbar - CAPAROC CR EXT20 - 1115674

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Extension busbar with 20 slots for the CAPAROC system. For installation on a DIN rail.

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Busbar

Busbar - CAPAROC CR EXT8 - 1110990

<https://www.phoenixcontact.com/us/products/1110990>



Extension busbar with 8 slots for CAPAROC system. For installation on a DIN rail.

Busbar

Busbar - CAPAROC CR EXT4 - 1110991

<https://www.phoenixcontact.com/us/products/1110991>



Extension busbar with 4 slots for the CAPAROC system. For installation on a DIN rail.

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Metal part

Metal part - CAPAROC CR CON - 1270955

<https://www.phoenixcontact.com/us/products/1270955>



Metal extension rails from connecting CAPAROC initial busbars.

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