

# CAPAROC E1 12-24DC/1-10A - Electronic circuit breaker



1115649  
<https://www.phoenixcontact.com/us/products/1115649>

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1-channel electronic circuit breaker module for protecting 12 and 24 V DC loads against overload and short circuit. Nominal current adjustable from 1 A to 10 A via LED button. For DIN rail installation via the CAPAROC current rails.

## Your advantages

- The benchmark that you can tailor with channel-precise design with integrated potential distribution
- Easy operation for everyone through tool-free assembly, uninterrupted installation, and transparent operating state
- Exceptionally easy design-in with the narrowest of space requirements and four protected outputs

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1115649       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CL11          |
| Product key                          | CLA232        |
| GTIN                                 | 4063151039967 |
| Weight per piece (including packing) | 77.46 g       |
| Weight per piece (excluding packing) | 95 g          |
| Customs tariff number                | 85363010      |
| Country of origin                    | DE            |

# CAPAROC E1 12-24DC/1-10A - Electronic circuit breaker



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## Technical data

### Notes

#### General

|      |                                                                           |
|------|---------------------------------------------------------------------------|
| Note | LABS release – in accordance with test specification VW PV 3. 10.7:2005-0 |
|------|---------------------------------------------------------------------------|

### Product properties

|                     |                         |
|---------------------|-------------------------|
| Product type        | Device circuit breakers |
| Product family      | CAPAROC                 |
| Number of positions | 1                       |
| No. of channels     | 1                       |
| Number of slots     | 1                       |

#### Insulation characteristics

|                  |     |
|------------------|-----|
| Protection class | III |
| Pollution degree | 2   |

### Electrical properties

#### General

|                                  |                                                                                                                     |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Operating voltage                | 10 V DC ... 30 V DC                                                                                                 |
| Rated voltage                    | 12 V DC                                                                                                             |
|                                  | 24 V DC                                                                                                             |
| Rated current $I_N$              | 10 A DC                                                                                                             |
| Rated current $I_N$              | 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 A DC (adjustable per output channel)                                         |
| Rated current (pre-adjusted)     | 4 A                                                                                                                 |
| Rated surge voltage              | 0.5 kV                                                                                                              |
| Tripping method                  | E (electronic)                                                                                                      |
| 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)                                                                                              |
| Fuse                             | electronic                                                                                                          |
| Efficiency                       | > 99 %                                                                                                              |
| Closed circuit current $I_0$     | typ. 8.5 mA (no load at 24 V)                                                                                       |
| Power dissipation                | typ. 0.2 W (no load at 24 V)                                                                                        |
|                                  | < 1.6 W (in nominal operation at 24 V and 10 A)                                                                     |
| Measuring tolerance I            | ± 15 % (typ.)                                                                                                       |
| Temperature derating             | 10 A (Total current at 40°C)                                                                                        |
|                                  | 7 A (Total current at 65 °C)                                                                                        |
|                                  | 1102033 h (at 40°C with 100% load)                                                                                  |
| MTBF (IEC 61709, SN 29500)       | 18685596 h (at 25 °C with 21 % load)                                                                                |
|                                  | 7871572 h (at 40°C with 34.25% load)                                                                                |
|                                  | 1102033 h (at 40°C with 100% load)                                                                                  |

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|                   |                              |
|-------------------|------------------------------|
| Voltage drop      | 0.14 V (at 10 A)             |
| Fail-safe element | 15 A DC (per output channel) |

## Load circuit

|                         |                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------|
| Shutdown time           | 4 s (with overload $1.1 \dots 1.5 \times I_N$ )                                                 |
|                         | 1 s (with overload $1.5 \dots 2.0 \times I_N$ )                                                 |
|                         | 0.1 s (with overload $2.0 \dots 3.0 \times I_N$ )                                               |
|                         | typ. 10 ms (For short circuit $> 3.0 \times I_N$ )                                              |
| Undervoltage switch-off | $\leq 8.5$ V DC (active)                                                                        |
|                         | $\geq 9.2$ V DC (inactive)                                                                      |
| Overvoltage switch-off  | $\geq 32.5$ V DC (active)                                                                       |
|                         | $\leq 30.5$ V DC (inactive)                                                                     |
| Max. capacitive load    | $\leq 20000$ $\mu$ F (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 <sup>2</sup> ... 4 mm <sup>2</sup>  |
| Conductor cross section rigid                                         | 0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>  |
| Conductor cross section AWG                                           | 24 ... 12                                  |
| Conductor cross section, flexible, with ferrule, with plastic sleeve  | 0.25 mm <sup>2</sup> ... 4 mm <sup>2</sup> |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 4 mm <sup>2</sup> |

## Signaling

|                    |                                                                                                  |
|--------------------|--------------------------------------------------------------------------------------------------|
| Channel LED off    | off (Channel switched off)                                                                       |
| Channel LED yellow | lit (Channel switched on, channel load $> 80\%$ )                                                |
|                    | flashing (Programming mode active)                                                               |
|                    | two flashes (Check the installation, no communication to power module)                           |
| Channel LED green  | lit (Channel switched on)                                                                        |
| 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, overload or short-circuit release) |

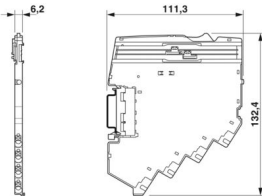
## Dimensions

# CAPAROC E1 12-24DC/1-10A - Electronic circuit breaker



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|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 6.2 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                  |
|                                        | PA 6                  |
|                                        | PA 6                  |
|                                        | PC                    |
| 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)                                                                                                                                             |
| 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)                                                              |
|                                         | 15g (6 ms duration, half-sine shock pulse in accordance with IEC 60068-2-27, continuous shock. If more than six CAPAROC E1 modules are used in the system.) |
| Vibration (operation)                   | 5g (10 ... 150 Hz / 10 cycles / axis / X, Y, Z)                                                                                                             |

## Approvals

### UL approval

|                |                                                       |
|----------------|-------------------------------------------------------|
| Identification | UL/C-UL Listed UL 508                                 |
|                | UL Recognized UL 2367                                 |
|                | UL 121201 Class I, Division 2, Groups A, B, C, D, T4A |

### Corrosive gas test

|                |                                  |
|----------------|----------------------------------|
| Identification | ISA S71.04.2013 G3 Harsh Group A |
|----------------|----------------------------------|

## Standards and regulations

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|                          |                                                                                         |
|--------------------------|-----------------------------------------------------------------------------------------|
| Standards/specifications | EN 61000-6-2                                                                            |
| Note                     | EMC – Immunity for industrial areas                                                     |
| Standards/specifications | EN 61000-6-3                                                                            |
| Note                     | EMC – Emission for residential, business and commercial properties and small operations |
| Standards/specifications | EN 60068-2-78                                                                           |
| Note                     | Environmental influences – Moisture and heat, constant                                  |
| Standards/specifications | EN 50178                                                                                |
| Note                     | Equipping power installations with electronic equipment                                 |
| Standards/specifications | EN 60068-2-6                                                                            |
| Note                     | Environmental influences – Vibrations (sinusoidal)                                      |
| Standards/specifications | EN 60068-2-27                                                                           |
| Note                     | Environmental influences – Shocks                                                       |

## Mounting

|               |                                           |
|---------------|-------------------------------------------|
| Mounting type | pluggable onto CAPAROC CR... current rail |
|---------------|-------------------------------------------|

# CAPAROC E1 12-24DC/1-10A - Electronic circuit breaker

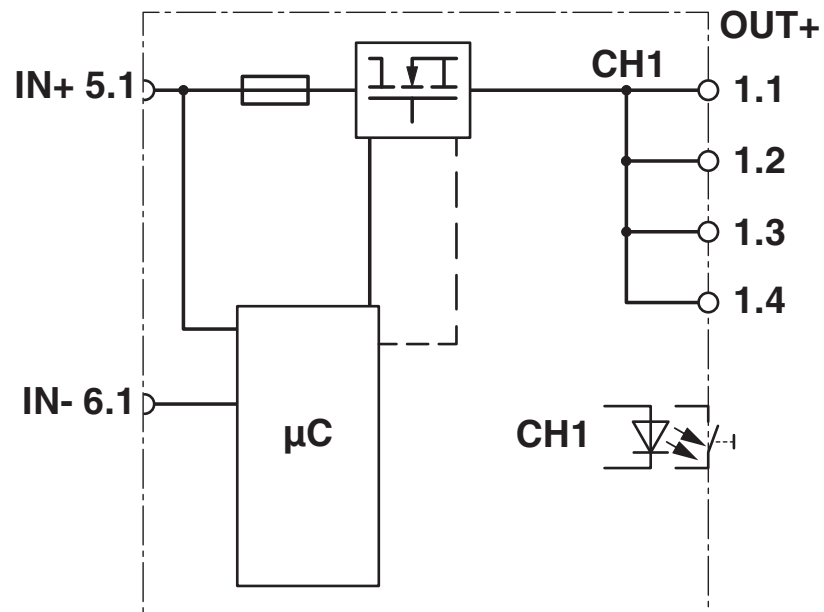


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## Drawings

Block diagram



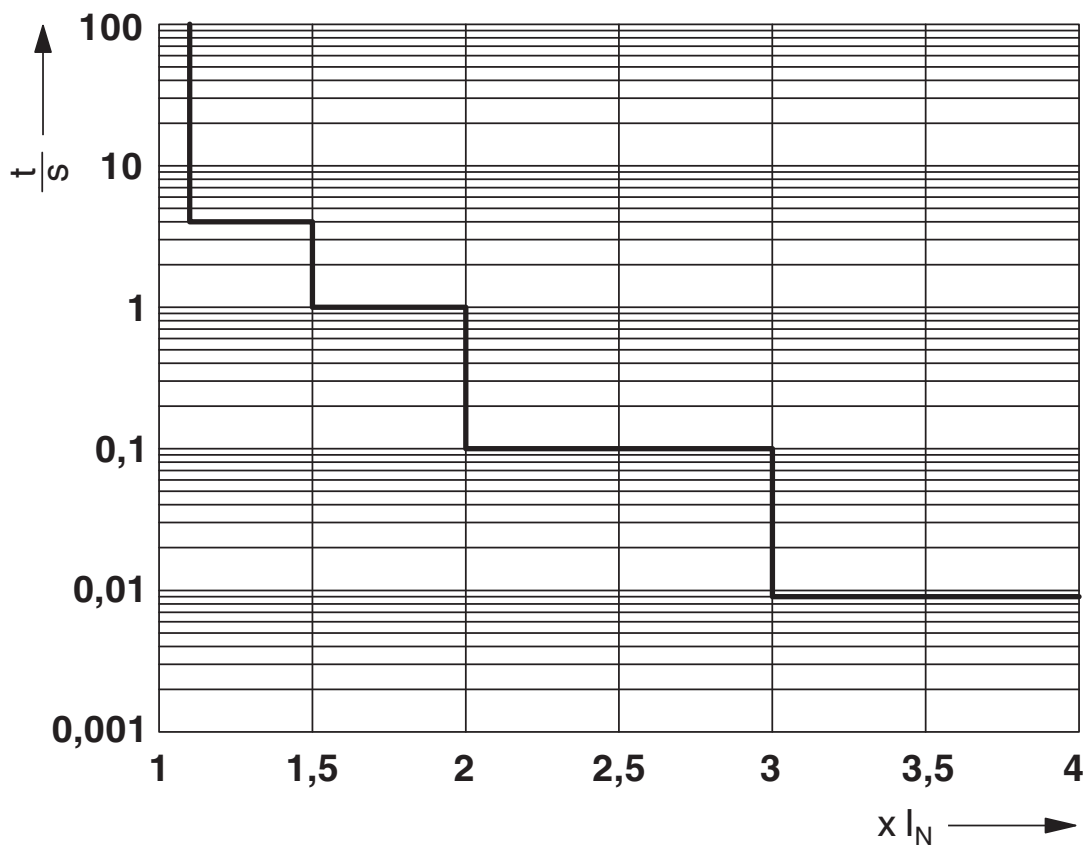
# CAPAROC E1 12-24DC/1-10A - Electronic circuit breaker



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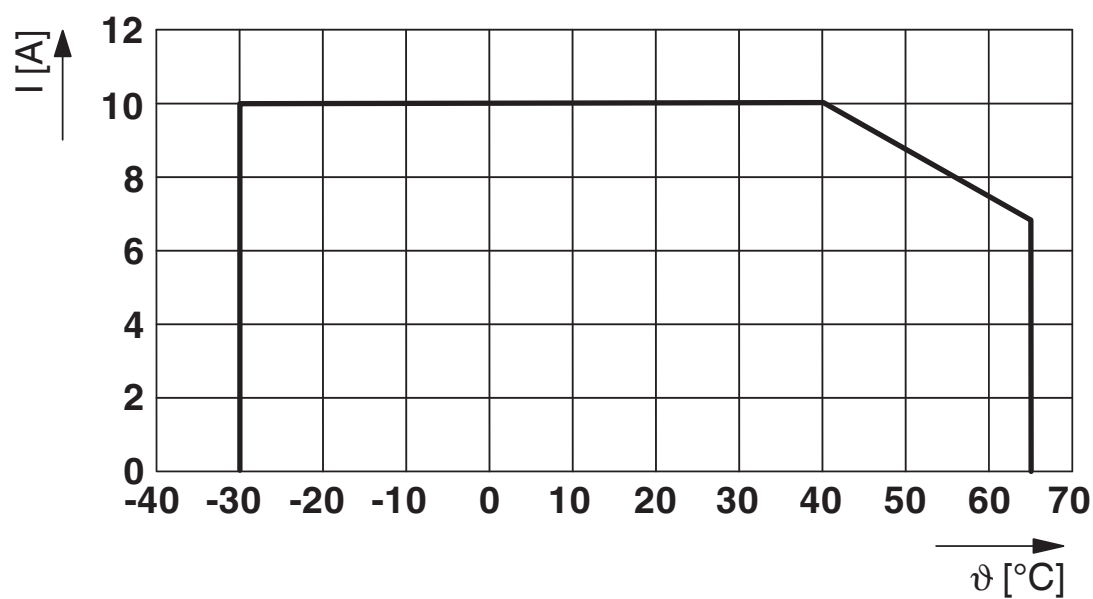
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Diagram



Trigger characteristic

Diagram



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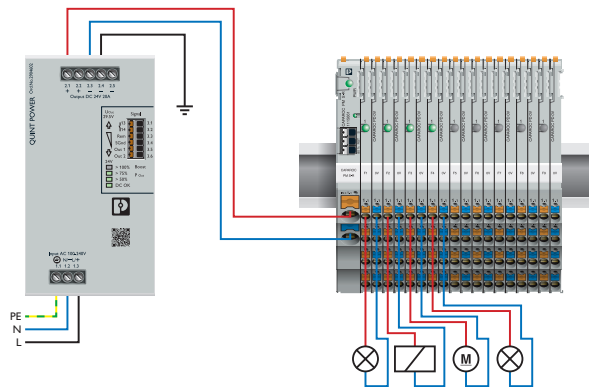
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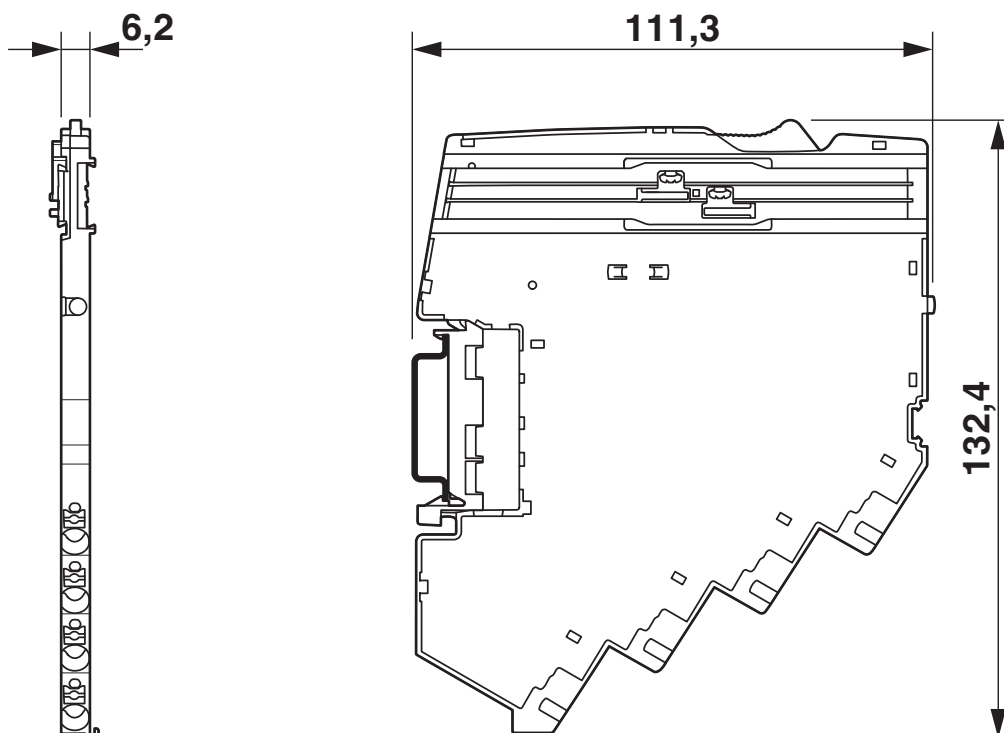
Product drawing



Application drawing



Dimensional drawing



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1115649>



**UL Recognized**  
Approval ID: FILE E 317172



**UL Listed**  
Approval ID: FILE E 123528



**cUL Listed**  
Approval ID: FILE E 123528



**UL Recognized**  
Approval ID: FILE E 324415



**cUL Listed**  
Approval ID: FILE E 483407



**UL Listed**  
Approval ID: FILE E 483407

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27140401 |
| ECLASS-12.0 | 27140401 |
| ECLASS-13.0 | 27140401 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC003538 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121400 |
|-------------|----------|

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## Environmental product compliance

|                                         |                                                                                                                                                                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU RoHS                                 |                                                                                                                                                                                                                                   |
| Fulfills EU RoHS substance requirements | Yes                                                                                                                                                                                                                               |
| Exemption                               | 7(a), 7(c)-I                                                                                                                                                                                                                      |
| China RoHS                              |                                                                                                                                                                                                                                   |
| Environment friendly use period (EFUP)  | EFUP-50                                                                                                                                                                                                                           |
|                                         | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |
| EU REACH SVHC                           |                                                                                                                                                                                                                                   |
| REACH candidate substance (CAS No.)     | Lead(CAS: 7439-92-1)                                                                                                                                                                                                              |
| SCIP                                    | b3210588-c241-47b6-b354-b245d989b46b                                                                                                                                                                                              |

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## Mandatory accessories

### CAPAROC CR 20 - Busbar

1110989

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



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### CAPAROC CR 8 - Busbar

1115672

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



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## CAPAROC PM S-R - Power module

1115661

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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.

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## CAPAROC PM PN - Power module

1110986

<https://www.phoenixcontact.com/us/products/1110986>



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.

# CAPAROC E1 12-24DC/1-10A - Electronic circuit breaker



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## CAPAROC PM IOL - Power module

1115670

<https://www.phoenixcontact.com/us/products/1115670>



Power module with IO-Link interface for supplying the CAPAROC circuit breaker system with 12 or 24 V DC for up to 20 channels. For DIN rail installation via the CAPAROC current rails.

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## CAPAROC PM EIP - Power module

1393553

<https://www.phoenixcontact.com/us/products/1393553>



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

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## Accessories

# CAPAROC E1 12-24DC/1-10A - Electronic circuit breaker



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## CAPAROC PD 0V - Potential distributors

1110987

<https://www.phoenixcontact.com/us/products/1110987>



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.

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## UC-TMF 6 - Marker for terminal blocks

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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## UCT-TMF 6 - Marker for terminal blocks

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

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## UC-TM 6 - Marker for terminal blocks

0818085

<https://www.phoenixcontact.com/us/products/0818085>



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 10.5 mm, Number of individual labels: 80

# CAPAROC E1 12-24DC/1-10A - Electronic circuit breaker



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## UCT-TM 6 - Marker for terminal blocks

0828736

<https://www.phoenixcontact.com/us/products/0828736>



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: 5.6 x 10.5 mm, Number of individual labels: 60

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## CAPAROC CR EXT20 - Busbar

1115674

<https://www.phoenixcontact.com/us/products/1115674>



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

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## CAPAROC CR EXT8 - Busbar

1110990

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



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

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## CAPAROC CR EXT4 - Busbar

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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## CAPAROC CR CON - Metal part

1270955

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



Metal extension rails from connecting CAPAROC initial busbars.

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