

CAPAROC E4 12-24DC/1-4A - Electronic circuit breaker



1115657

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Four-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 4 A via LED button. For DIN rail installation via the CAPAROC current rails.

Your advantages

- The benchmark that you can tailor with the individual combination of multi-channel protective modules
- Easy operation for everyone through tool-free assembly, uninterrupted installation, and transparent operating state
- Exceptionally easy design-in with four separately fused channels with the narrowest of space requirements of just 3 mm per channel

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 1115657 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CL11 |
| Product key | CLA234 |
| GTIN | 4063151040185 |
| Weight per piece (including packing) | 94.2 g |
| Weight per piece (excluding packing) | 86.4 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 using CAPAROC E1... modules, for continuous shock in accordance with IEC 60068-2-27 the 6 ms / 15g degree of severity applies |

Product properties

| | |
|---------------------|-------------------------|
| Product type | Device circuit breakers |
| Product family | CAPAROC |
| Number of positions | 1 |
| No. of channels | 4 |
| Number of slots | 2 |

Insulation characteristics

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

Electrical properties

| | |
|-----------------|---|
| No. of channels | 4 |
|-----------------|---|

General

| | |
|----------------------------------|---|
| Operating voltage | 10 V DC ... 30 V DC |
| Rated voltage | 12 V DC 24 V DC |
| Rated current I_N | 4 A DC (per channel) |
| Rated current I_N | 1 / 2 / 3 / 4 A DC (adjustable per output channel) |
| Rated current (pre-adjusted) | 4 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) |
| Fuse | electronic |
| Efficiency | > 99 % |
| Closed circuit current I_0 | typ. 20 mA (no load at 24 V) |
| Power dissipation | typ. 0.48 W (no load at 24 V) |

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|--|---|
| | < 2.2 W (in nominal operation at 24 V and 4 A) |
| Waiting time after switch off of a channel | 5 s (at overload / short circuit) |
| Measuring tolerance I | ± 10 % (typ.) |
| Temperature derating | 12 A (Total current at 65 °C) 16 A (Total current at 55°C) |
| MTBF (IEC 61709, SN 29500) | 12874678.91 h (at 25 °C with 21 % load) |
| | 4942154.06 h (at 40°C with 34.25% load) |
| | 620311.92 h (at 55°C with 100% load) |
| Voltage drop | 0.1 V (at 4 A) |
| Fail-safe element | 5 A DC (per output channel) |

Load circuit

| | |
|-------------------------|---|
| Shutdown time | 4 s (with overload 1.1...1.5 x I _N) |
| | 1 s (with overload 1.5...2.0 x I _N) |
| | 0.1 s (with overload 2.0...3.0 x I _N) |
| | ≤ 10 ms (For short circuit > 3.0 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 | ≤ 20000 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 rigid | 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 |

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) |

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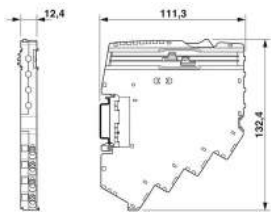


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| | |
|------------------------|--|
| | two flashes (Channel switched off, system total current limit exceeded) |
| Channel LED red-yellow | flashing (Channel switched on, overload mode, capacity approximately 110 ... 150%, shutdown after 5 s) |
| 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

| | |
|--|------|
| 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) |
| 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 |
| | NEC Class 2 according to UL 1310 |

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Standards and regulations

| | |
|--------------------------|---|
| 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 |
|---------------|---|

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Approvals

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

ETIM

| | |
|----------|----------|
| ETIM 8.0 | EC003538 |
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UNSPSC

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| UNSPSC 21.0 | 39121400 |
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Environmental product compliance

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|------------|--|
| REACH SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally Friendly Use Period = 50 years |
| | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

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