

# CBMC E4 24DC/1-10A NO - Electronic circuit breaker



2906032

<https://www.phoenixcontact.com/us/products/2906032>

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Multi-channel electronic circuit breaker for protecting four loads at 24 V DC in the event of overload and short circuit. With electronic locking of the set nominal currents. For installation on DIN rails.

## Your advantages

- Easy device replacement without replanning, thanks to compact design and options for individual adjustments
- Circuits can be adjusted without any tools by means of one single pushable LED button
- Reliable protection against unintentional adjustment of current values, thanks to electronic locking
- Status LEDs in traffic light colors enable instantaneous determination of operating states

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2906032             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | CL14                |
| Product key                          | CLA152              |
| Catalog page                         | Page 375 (C-4-2019) |
| GTIN                                 | 4055626149356       |
| Weight per piece (including packing) | 140.2 g             |
| Weight per piece (excluding packing) | 133.94 g            |
| Customs tariff number                | 85362010            |
| Country of origin                    | US                  |

## Technical data

### Notes

#### General

|      |   |
|------|---|
| Note | Repeated hard short circuits can reduce the melting integral of the integrated backup fuse. |
|------|---|

### Product properties

|                     |                            |
|---------------------|----------------------------|
| Product type        | Device circuit breakers    |
| Product family      | CBMC                       |
| Type                | DIN rail module, one-piece |
| Number of positions | 1                          |
| No. of channels     | 4                          |

#### Data management status

|                  |    |
|------------------|----|
| Article revision | 12 |
|------------------|----|

#### Insulation characteristics

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

### Electrical properties

#### General

|                                  |   |
|----------------------------------|---|
| Operating voltage                | 18 V DC ... 30 V DC   |
| Rated voltage                    | 24 V DC   |
| Rated current $I_N$              | max. 40 A DC (IN+)<br>max. 40 A DC (per terminal position when bridging additional devices via IN+)                 |
| 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)  |
| Feedback resistance              | max. 35 V DC  |
| 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              | max. 35 V DC (Load circuit)   |
| Fuse                             | electronic  |
| Efficiency                       | > 99 %  |
| Closed circuit current $I_0$     | typ. 25 mA  |
| Power dissipation                | typ. 0.6 W (No-load operation)<br>< 9 W (Nominal operation)   |
| Module initialization time       | 1.6 s   |

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|  |                                       |
|--|---------------------------------------|
| Waiting time after switch off of a channel | 5 s (at overload / short circuit)     |
| Measuring tolerance I                      | ± 15 %                                |
| Temperature derating                       | 24 A DC (at 60 °C)                    |
|  | 28 A DC (at 54 °C)                    |
|  | 32 A DC (at 47 °C)                    |
|  | 36 A DC (at 41 °C)                    |
|  | 40 A DC (at 35 °C)                    |
| MTBF (IEC 61709, SN 29500)                 | 8403361 h (at 25 °C with 21 % load)   |
|  | 3067484 h (at 40 °C with 34.25% load) |
|  | 534188 h (at 35 °C with 100 % load)   |
| Fail-safe element                          | 15 A DC (per output channel)          |

## Load circuit

|                         |   |
|-------------------------|---|
| Shutdown time           | ≤ 10 ms (for short circuit > 2.0 x I <sub>N</sub> )                                 |
|                         | 1 s (1.2 ... 2.0 x I <sub>N</sub> )   |
| Undervoltage switch-off | ≤ 17.8 V DC (active)  |
|                         | ≥ 18.8 V DC (inactive)  |
| Overvoltage switch-off  | ≥ 30.5 V DC (active)  |
|                         | ≤ 29.5 V DC (inactive)  |
| Max. capacitive load    | 45000 µF (Depending on the current setting and the short-circuit current available) |
| Switch-on delay         | 0.1 s (per output channel)  |

## Indicator/remote signaling

|                    |                           |
|--------------------|---------------------------|
| Connection name    | Remote indication circuit |
| Switching function | N/O contact               |
| Operating voltage  | 0 V DC ... 30 V DC        |
| Operating current  | 100 mA DC                 |

## Connection data

### Main circuit IN+

|   |  |
|---|--|
| Connection method   | Push-in connection                         |
| Stripping length  | 15 mm                                      |
| Conductor cross section rigid   | 0.2 mm <sup>2</sup> ... 10 mm <sup>2</sup> |
| Conductor cross section AWG   | 24 ... 8                                   |
| 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> ... 6 mm <sup>2</sup> |

### Main circuit IN-

|  |  |
|--|--|
| Connection method  | Push-in connection                           |
| Stripping length   | 10 mm  |
| Conductor cross section rigid  | 0.2 mm <sup>2</sup> ... 2.5 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> ... 1.5 mm <sup>2</sup> |

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|   |  |
|---|--|
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
|---|--|

## Main circuit OUT

|   |  |
|---|--|
| Connection method   | Push-in connection                           |
| Stripping length  | 10 mm  |
| Conductor cross section rigid   | 0.2 mm <sup>2</sup> ... 2.5 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> ... 1.5 mm <sup>2</sup> |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |

## Remote indication circuit

|   |  |
|---|--|
| Stripping length  | 10 mm  |
| Conductor cross section rigid   | 0.2 mm <sup>2</sup> ... 2.5 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> ... 1.5 mm <sup>2</sup> |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 2.5 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)   |
| 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) |
|                    | two flashes (Channel switched off, device total current limit 40 A exceeded)                     |

## Dimensions

|                     |                               |
|---------------------|-------------------------------|
| Dimensional drawing |                               |
| Width               | 36 mm                         |
| Height              | 90 mm                         |
| Depth               | 98 mm (incl. DIN rail 7.5 mm) |

## Material specifications

|       |                       |
|-------|-----------------------|
| Color | light gray (RAL 7035) |
|       | PC                    |

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|  |         |
|--|---------|
| Material                               | PA 6.6  |
|  | PA 6.3T |
|  | POM     |
| Flammability rating according to UL 94 | V-0     |

## Environmental and real-life conditions

### Ambient conditions

|   |   |
|---|---|
| Degree of protection                    | IP20  |
| Ambient temperature (operation)         | -25 °C ... 60 °C  |
| Ambient temperature (storage/transport) | -40 °C ... 70 °C  |
| Altitude                                | ≤ 3000 m up to 52 °C (amsl)   |
|   | ≤ 4000 m up to 46 °C (amsl)   |
| Humidity test                           | 96 h, 95 % RH, 40 °C  |
| Shock (operation)                       | 30g (IEC 60068-2-27, Test Ea)   |
| Vibration (operation)                   | 10 Hz ... 57.6 Hz (Amplitude ±0.35 mm; in accordance with IEC 60068-2-6, Test Fc) |
|   | 57.6 Hz ... 150 Hz (Acceleration 5g; in accordance with IEC 60068-2-6, Test Fc)   |

## Approvals

### UL approval

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

### Corrosive gas test

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

## Standards and regulations

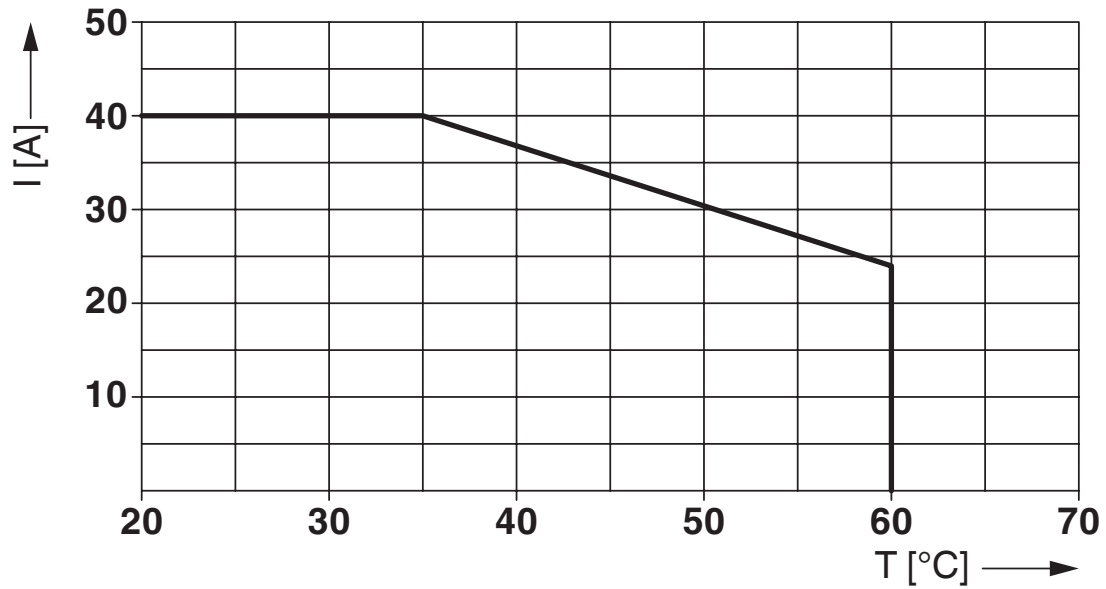
|                          |   |
|--------------------------|---|
| Standards/specifications | EN 61000-6-2  |
| Note                     | EMC – Immunity for industrial areas   |
| Standards/specifications | EN 61000-6-3  |
| Note                     | EMC – Emission for residential, business and commercial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

## Mounting

|               |                 |
|---------------|-----------------|
| Mounting type | DIN rail: 35 mm |
|---------------|-----------------|

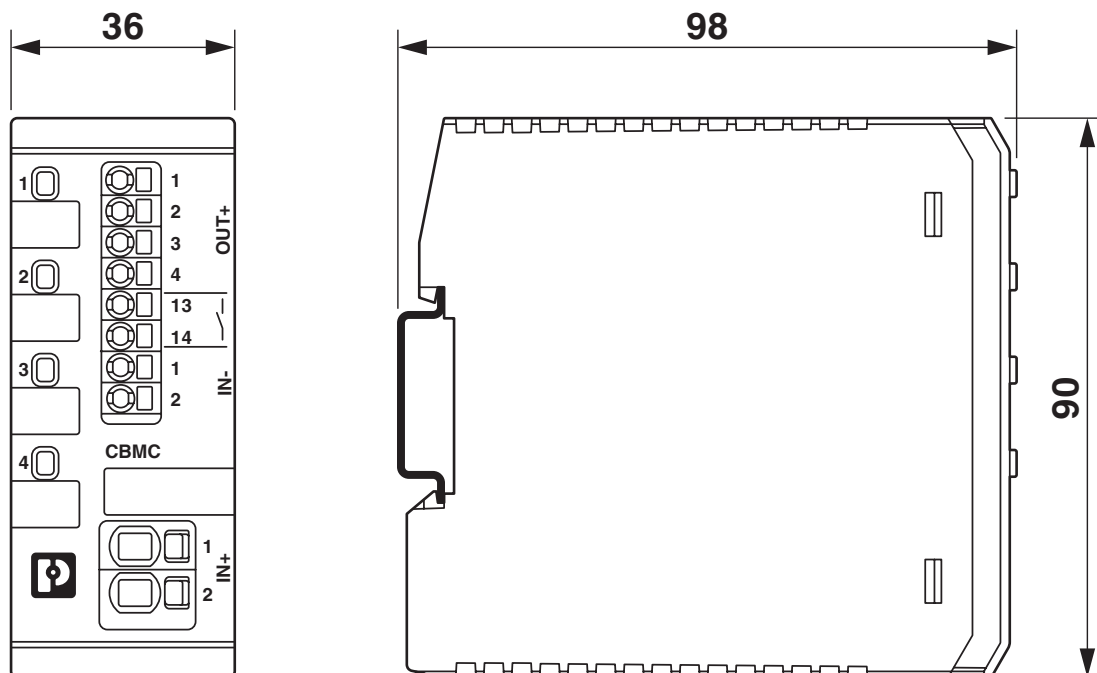
## Drawings

Diagram



Max. permissible current in relation to the ambient temperature

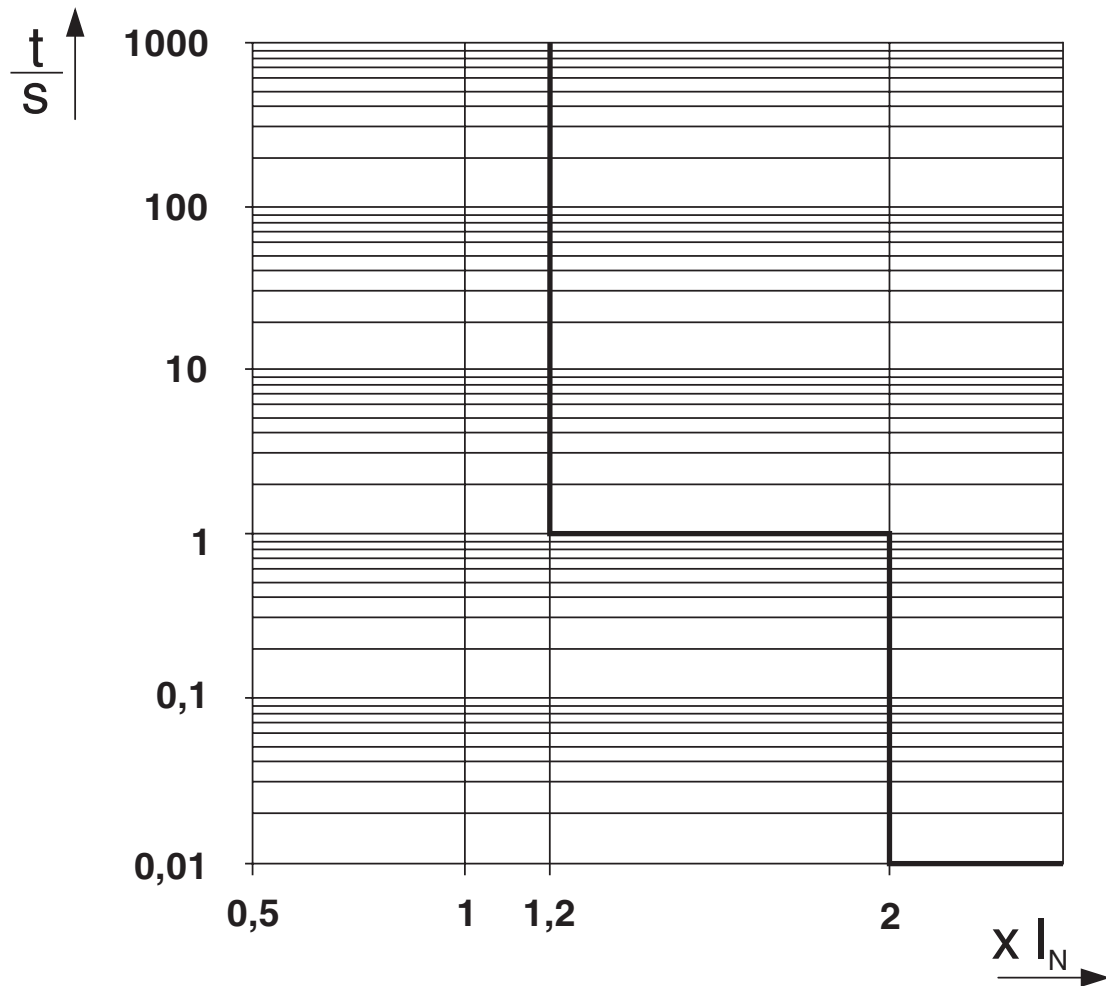
Dimensional drawing



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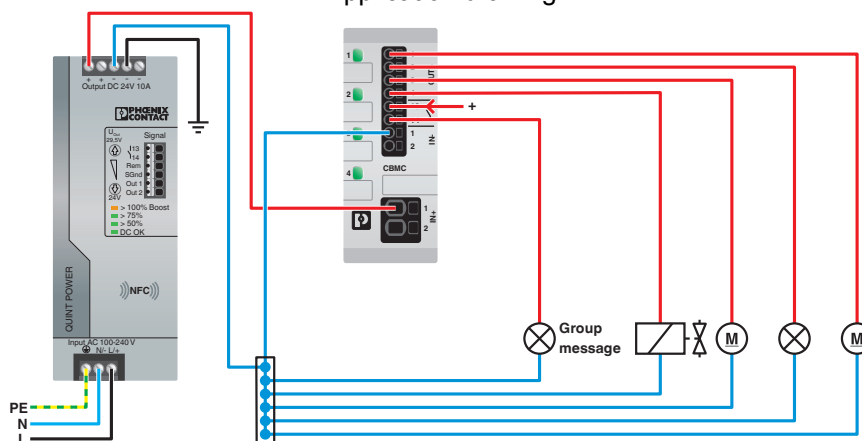
<https://www.phoenixcontact.com/us/products/2906032>

Diagram

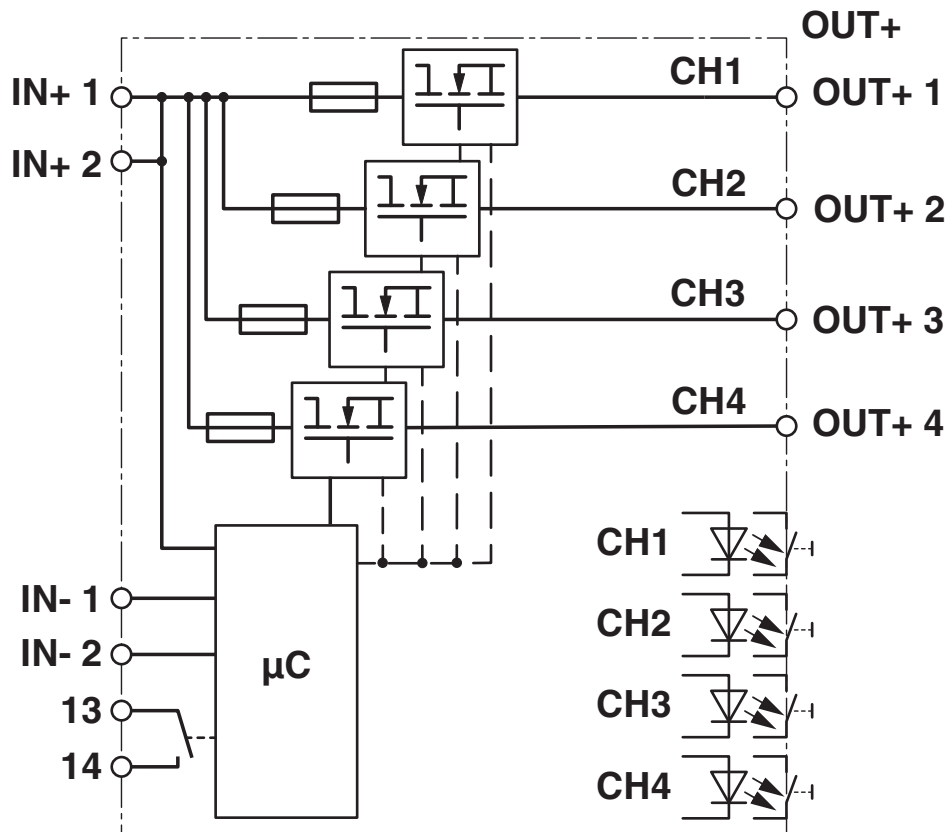


Trigger characteristic in the DC range

Application drawing



Block diagram





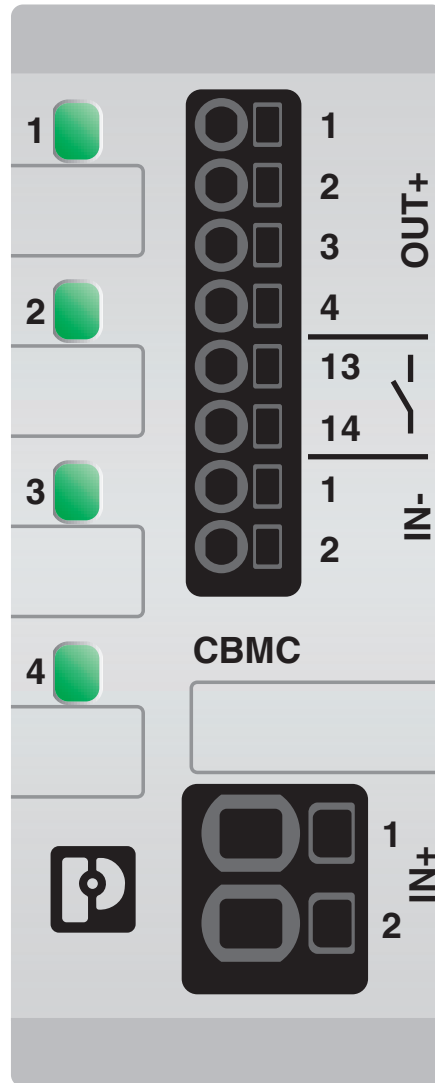
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Product drawing



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2906032>



**UL Recognized**

Approval ID: FILE E 317172



**UL Listed**

Approval ID: E123528



**cUL Listed**

Approval ID: E123528

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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)   |
|                                     | Perfluorobutane sulfonic acid (PFBS) and its salts(CAS: n/a) |
| SCIP                                | 284d1f8e-2027-421f-9448-d1dbcb4de437                         |

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