

# CBMC E4 24DC/1-10A S-R - Electronic circuit breaker



1065729

<https://www.phoenixcontact.com/au/products/1065729>

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Multi-channel electronic circuit breaker for protecting four loads at 24 V DC in the event of overload or short circuit. With status output, reset input, and 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
- Enhanced diagnostic and control options, thanks to integrated status output and reset input
- 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                          | 1065729       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CLA152        |
| Product key                          | CLA152        |
| GTIN                                 | 4055626728810 |
| Weight per piece (including packing) | 130 g         |
| Weight per piece (excluding packing) | 123.61 g      |
| Customs tariff number                | 85362010      |
| Country of origin                    | DE            |

## 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                          |

#### 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+)  |
|  | 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)  |
|  | < 9 W (Nominal operation)   |
| Module initialization time                 | 1.6 s   |
| Waiting time after switch off of a channel | 5 s (at overload / short circuit)   |
| Measuring tolerance I                      | ± 15 %  |
|  | 24 A DC (at 60 °C)  |

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|                            |                                       |
|----------------------------|---------------------------------------|
| Temperature derating       | 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)          |
| Contact switching type     | without electrical isolation          |

## 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)  |

## Reset

|   |  |
|---|--|
| Input voltage range   | 7 V DC ... 30 V DC (Reset with falling edge) |
| Current consumption   | typ. 0.4 mA (at 24 V DC)                     |
| Pulse length  | ≥ 50 ms (High)                               |
|   | ≥ 50 ms (Low)                                |
| Voltage   | < 5 V DC (Low state)                         |
|   | > 8 V DC (High state)                        |
| Stripping length  | 10 mm  |
| Conductor cross section rigid   | 0.2 mm² ... 2.5 mm²                          |
| Conductor cross section AWG   | 24 ... 12                                    |
| Conductor cross section, flexible, with ferrule, with plastic sleeve  | 0.25 mm² ... 1.5 mm²                         |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm² ... 2.5 mm²                         |

## Status output

|   |                                   |
|---|-----------------------------------|
| Output voltage  | 24 V DC                           |
| Output current  | max. 0.04 A (Short-circuit-proof) |
| Stripping length  | 10 mm                             |
| Conductor cross section rigid   | 0.2 mm² ... 2.5 mm²               |
| Conductor cross section AWG   | 24 ... 12                         |
| Conductor cross section, flexible, with ferrule, with plastic sleeve  | 0.25 mm² ... 1.5 mm²              |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm² ... 2.5 mm²              |

## Connection data

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## 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> |
| 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> |

## 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)                     |

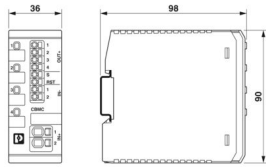
## Dimensions

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

## Material specifications

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

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

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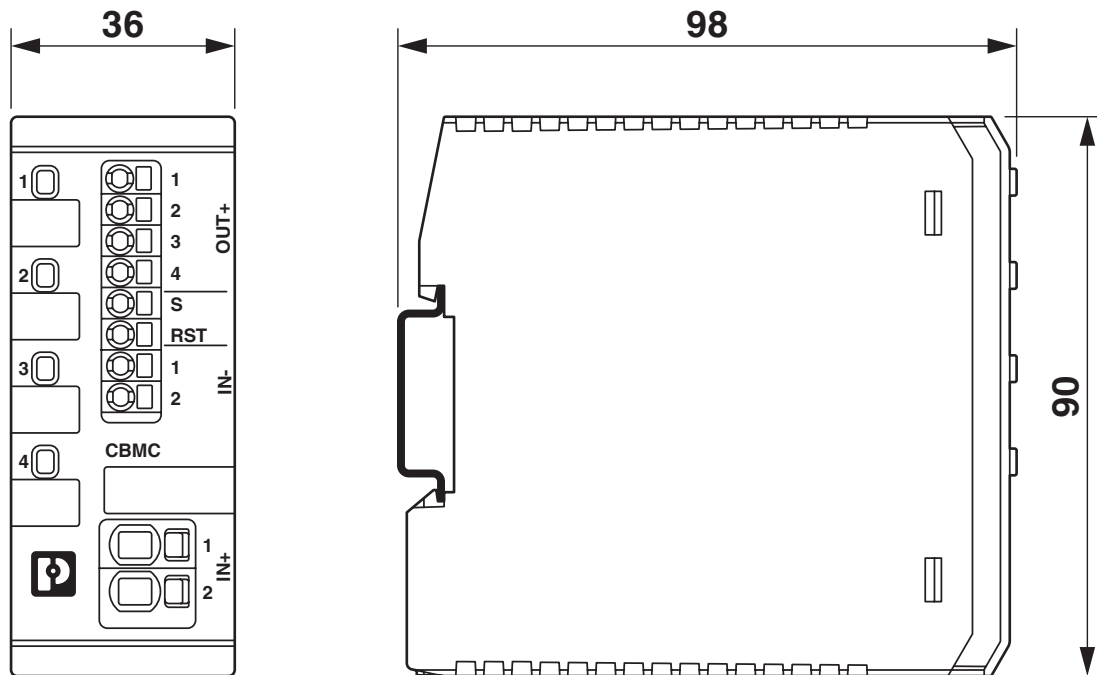


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## Drawings

Dimensional drawing



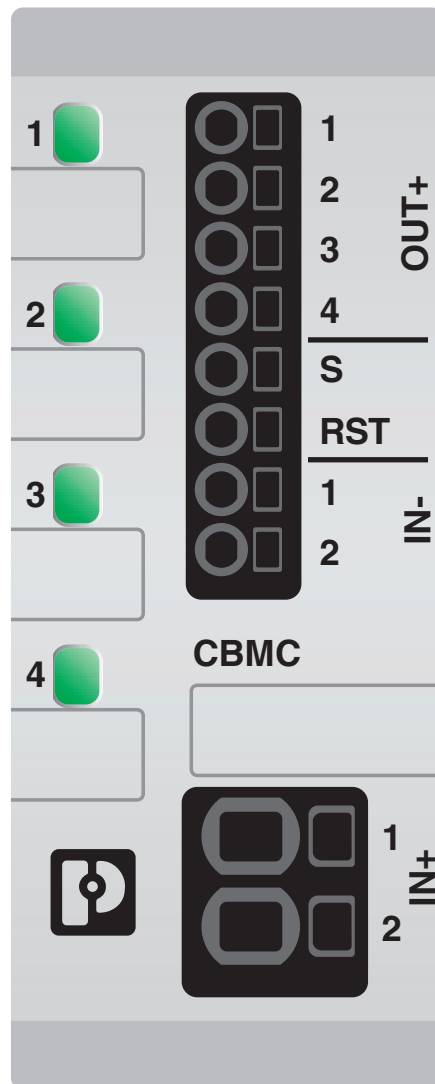
# CBMC E4 24DC/1-10A S-R - Electronic circuit breaker



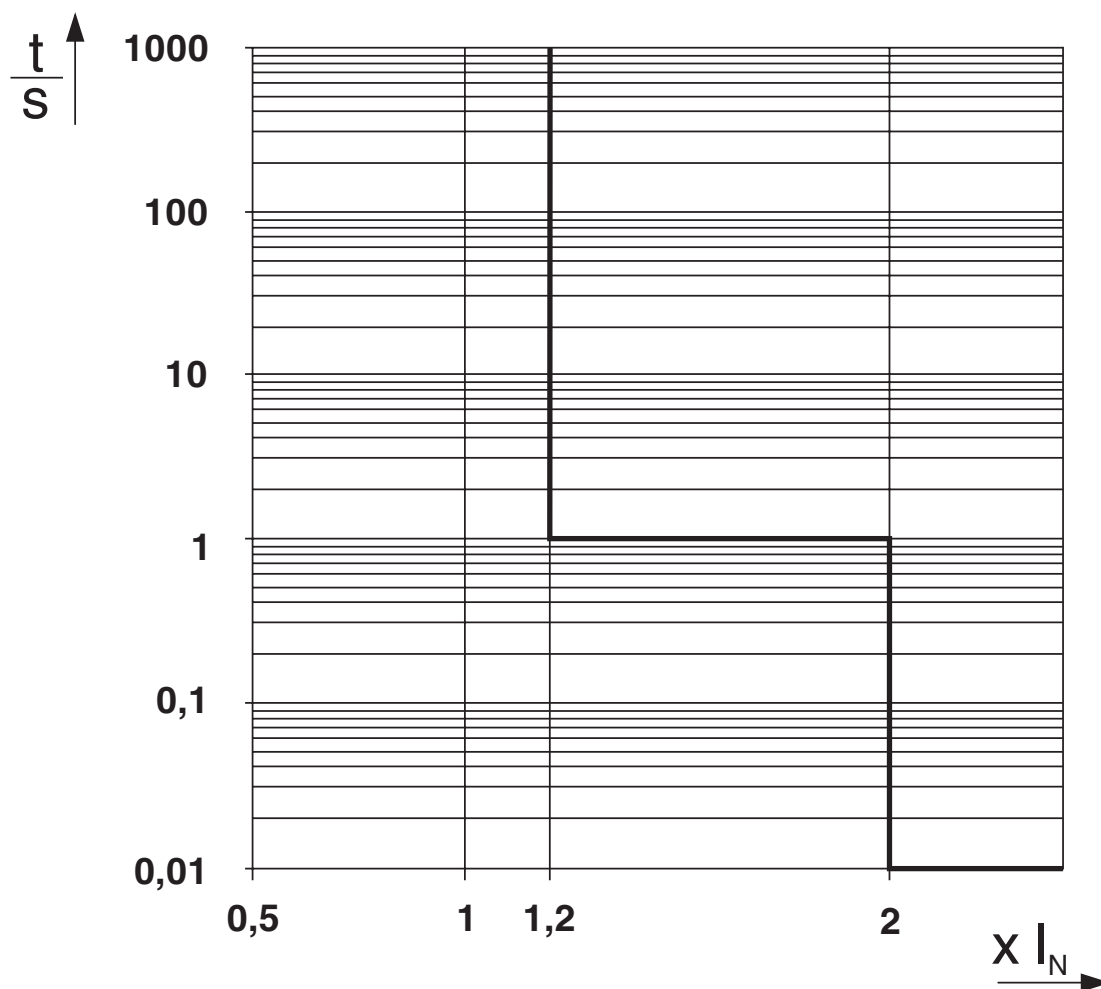
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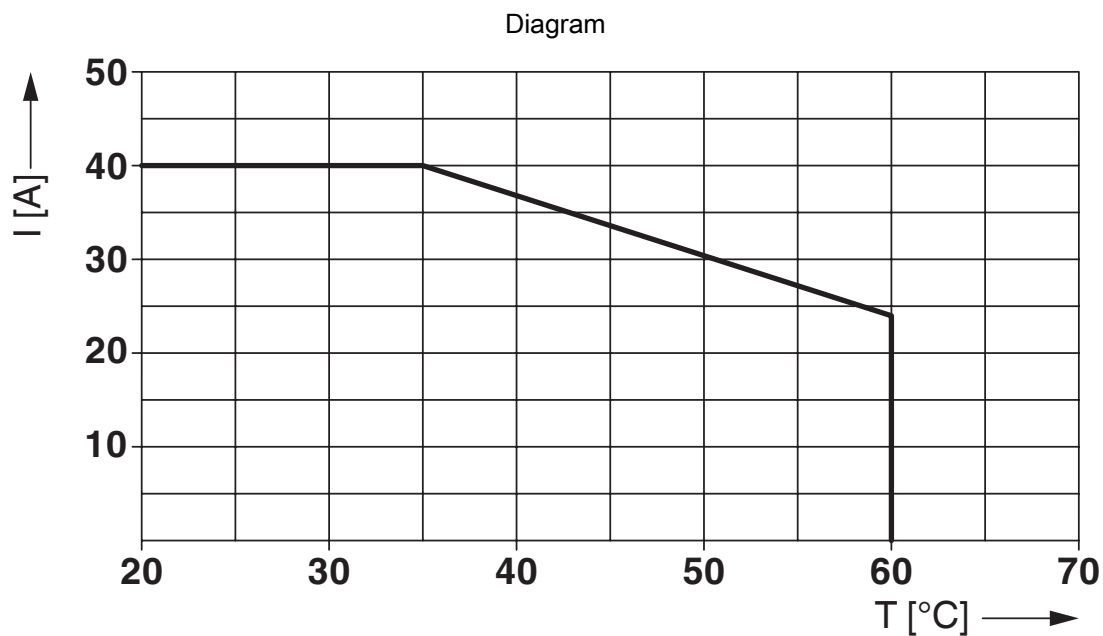
Product drawing



Diagram

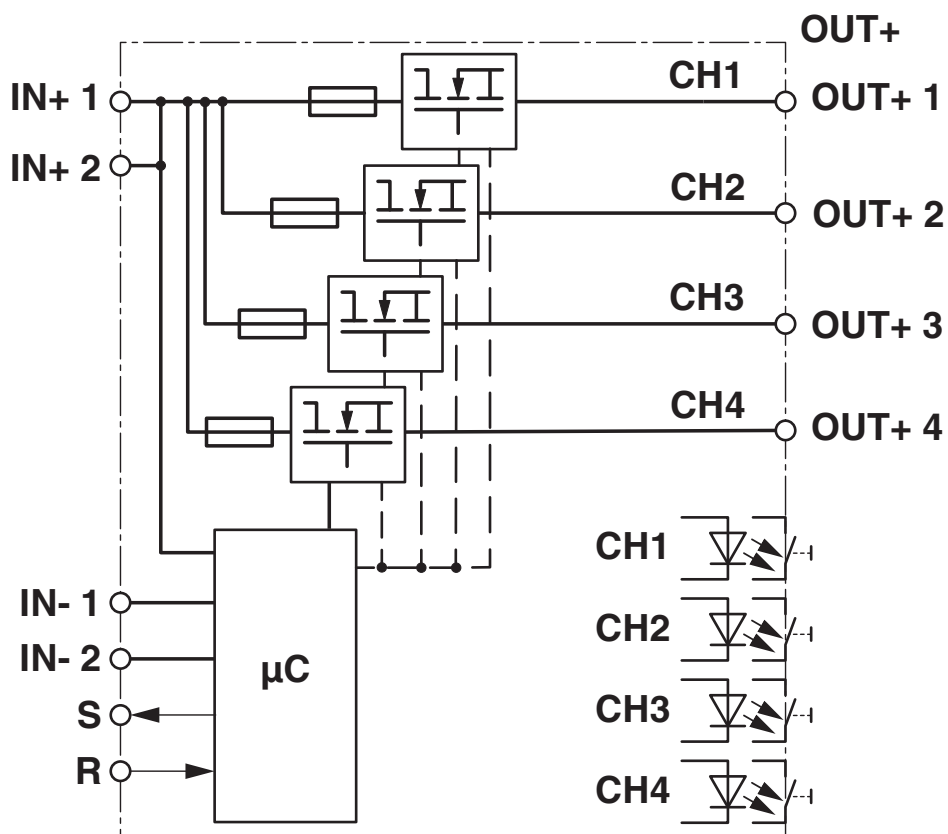


Trigger characteristic in the DC range



Max. permissible current in relation to the ambient temperature

Block diagram



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## Approvals

🔗 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/au/products/1065729>



**UL Recognized**

Approval ID: FILE E 317172



**UL Listed**

Approval ID: E123528



**cUL Listed**

Approval ID: E123528

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27140401 |
| ECLASS-15.0 | 27140401 |

### ETIM

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

### UNSPSC

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

## 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                                | ef65c3a1-2351-4ad6-a0ab-d54d08c4b46d                         |

## EF3.0 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 5.598 kg CO2e |
|---------|---------------|