

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



## Key Commercial Data

|              |                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------|
| Packing unit | 1 pc                                                                                                    |
| GTIN         | <br>4 055626 728810 |
| GTIN         | 4055626728810                                                                                           |

## Technical data

### Dimensions

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

### Ambient conditions

|                                         |                                                    |
|-----------------------------------------|----------------------------------------------------|
| Ambient temperature (operation)         | -25 °C ... 60 °C                                   |
| Ambient temperature (storage/transport) | -40 °C ... 70 °C                                   |
| Humidity test                           | 96 h, 95 % RH, 40 °C                               |
| Altitude                                | ≤ 3000 m up to 52 °C (amsl (above mean sea level)) |
|                                         | ≤ 4000 m up to 46 °C (amsl (above mean sea level)) |
| Shock (operation)                       | 30g (IEC 60068-2-27, Test Ea)                      |

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### Ambient conditions

|                       |                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------|
| Vibration (operation) | 10 Hz ... 57.6 Hz (Amplitude $\pm 0.35$ 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)        |
| Degree of protection  | IP20                                                                                   |

### General

|                                        |                            |
|----------------------------------------|----------------------------|
| Flammability rating according to UL 94 | V-0                        |
| Mounting type                          | DIN rail: 35 mm            |
| Color                                  | light grey RAL 7035        |
| Number of positions                    | 1                          |
| Protection class                       | III                        |
| Degree of pollution                    | 2                          |
| Type                                   | DIN rail module, one-piece |

### Electrical data

|                                            |                                                                               |
|--------------------------------------------|-------------------------------------------------------------------------------|
| Fuse type                                  | electronic                                                                    |
| Rated surge voltage                        | 0.5 kV                                                                        |
| 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+) |
| Measuring tolerance I                      | $\pm 15$ %                                                                    |
| Feedback resistance                        | max. 35 V DC                                                                  |
| Fail-safe element                          | 15 A DC (per output channel)                                                  |
| Efficiency                                 | > 99 %                                                                        |
| Closed circuit current $I_0$               | typ. 33 mA                                                                    |
| Power dissipation                          | typ. 0.8 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)                                             |
| 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)                                                            |
| Tripping method                            | E (electronic)                                                                |
| Required backup fuse                       | not required, integrated failsafe element                                     |
| Dielectric strength                        | max. 35 V DC (Load circuit)                                                   |
| 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)                                             |

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## Technical data

### Electrical data

|                                                                       |                                                                                     |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Shutdown time load circuit                                            | ≤ 10 ms (for short circuit > 2.0 x I <sub>N</sub> )                                 |
|                                                                       | 1 s (1.2 ... 2.0 x I <sub>N</sub> )                                                 |
| Undervoltage shutdown load circuit                                    | ≤ 17.8 V DC (active)                                                                |
|                                                                       | ≥ 18.8 V DC (inactive)                                                              |
| Surge voltage shutdown load circuit                                   | ≥ 30.5 V DC (active)                                                                |
|                                                                       | ≤ 29.5 V DC (inactive)                                                              |
| Max. capacitive load load circuit                                     | 45000 µF (Depending on the current setting and the short-circuit current available) |
| Output voltage status output                                          | 24 V DC                                                                             |
| Output current status output                                          | max. 0.04 A (Short-circuit-proof)                                                   |
| Stripping length                                                      | 10 mm                                                                               |
| Conductor cross section solid                                         | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                                         |
| 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>                                        |
| Conductor cross section AWG                                           | 24 ... 12                                                                           |
| Input voltage reset input                                             | 7 V DC ... 30 V DC (Reset with falling edge)                                        |
| Current consumption reset input                                       | typ. 0.4 mA (at 24 V DC)                                                            |
| Pulse length reset input                                              | ≥ 50 ms (High)                                                                      |
|                                                                       | ≥ 50 ms (Low)                                                                       |
| Voltage reset input                                                   | < 5 V DC (Low state)                                                                |
|                                                                       | > 8 V DC (High state)                                                               |
| Stripping length                                                      | 10 mm                                                                               |
| Conductor cross section solid                                         | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>                                         |
| 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>                                        |
| Conductor cross section AWG                                           | 24 ... 12                                                                           |

### Signaling

|                    |                                                                                                  |
|--------------------|--------------------------------------------------------------------------------------------------|
| Channel LED off    | off (Channel switched off)                                                                       |
| Channel LED green  | lit (Channel switched on)                                                                        |
| Channel LED yellow | lit (Channel switched on, channel load > 80% )                                                   |
|                    | flashing (Programming mode active)                                                               |
| 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)                     |

### Connection data

|                   |                    |
|-------------------|--------------------|
| Connection name   | Main circuit IN+   |
| Connection method | Push-in connection |

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## Technical data

### Connection data

|                                                                       |                                              |
|-----------------------------------------------------------------------|----------------------------------------------|
| Stripping length                                                      | 15 mm                                        |
| Conductor cross section solid                                         | 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>   |
| Connection name                                                       | Main circuit IN-                             |
| Connection method                                                     | Push-in connection                           |
| Stripping length                                                      | 10 mm                                        |
| Conductor cross section solid                                         | 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> |
| Connection name                                                       | Main circuit OUT+                            |
| Connection method                                                     | Push-in connection                           |
| Stripping length                                                      | 10 mm                                        |
| Conductor cross section solid                                         | 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> |

### Standards and Regulations

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

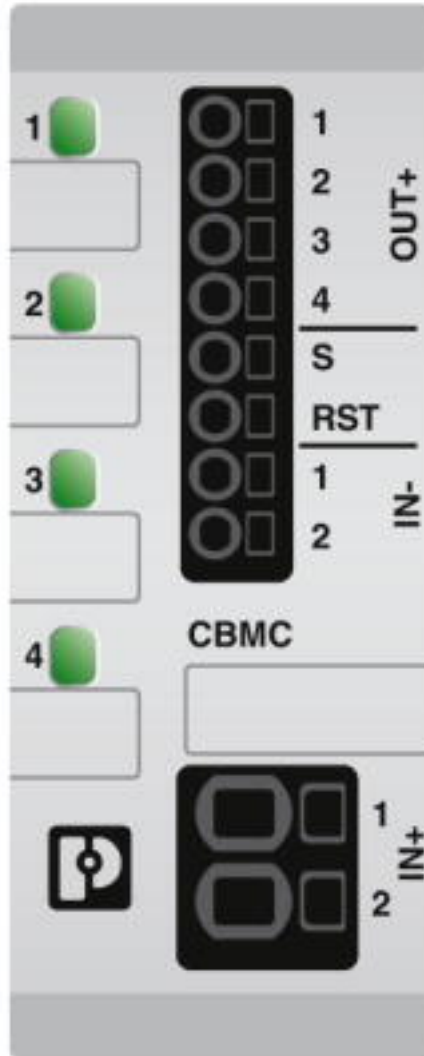
### Environmental Product Compliance

|            |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| REACH SVHC | Lead 7439-92-1                                                                                      |
| China RoHS | Environmentally Friendly Use Period = 50 years                                                      |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

## Drawings

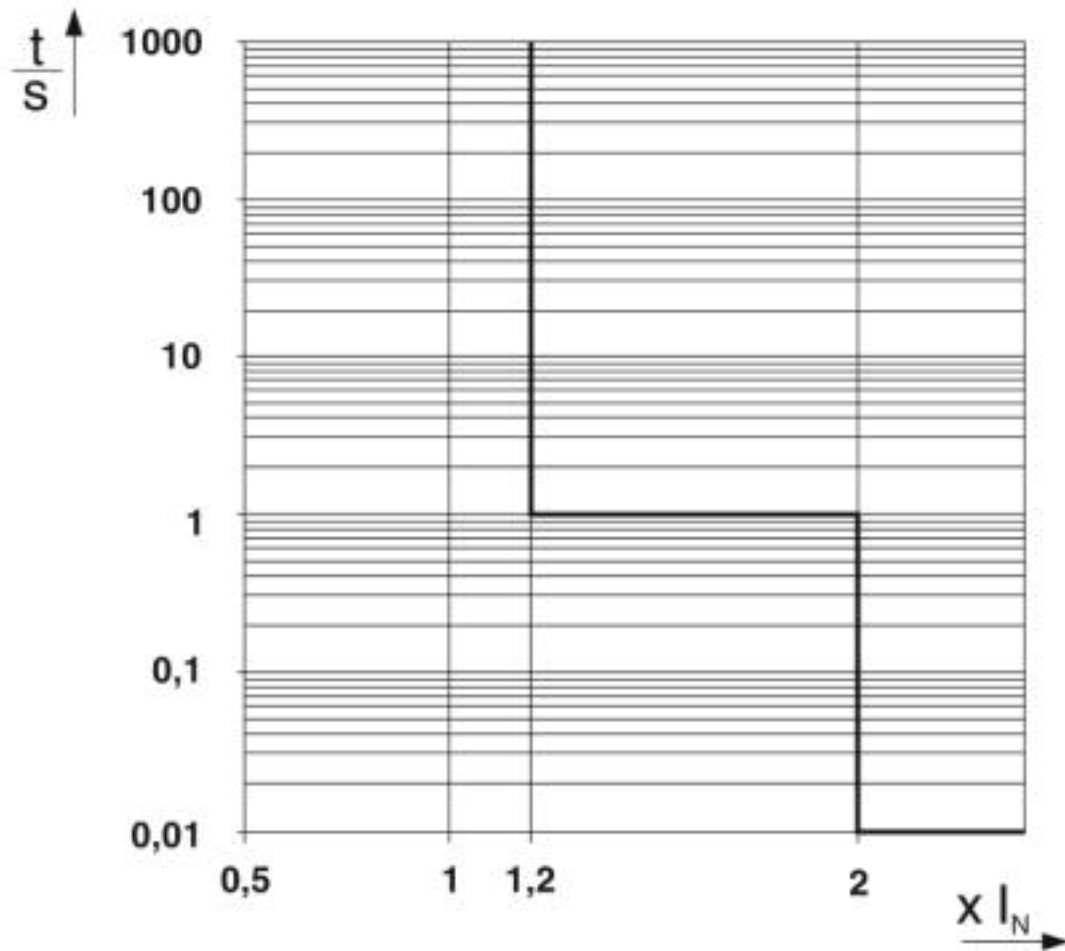
# Electronic device circuit breaker - CBMC E4 24DC/1-10A S-R - 1065729

Product drawing



# Electronic device circuit breaker - CBMC E4 24DC/1-10A S-R - 1065729

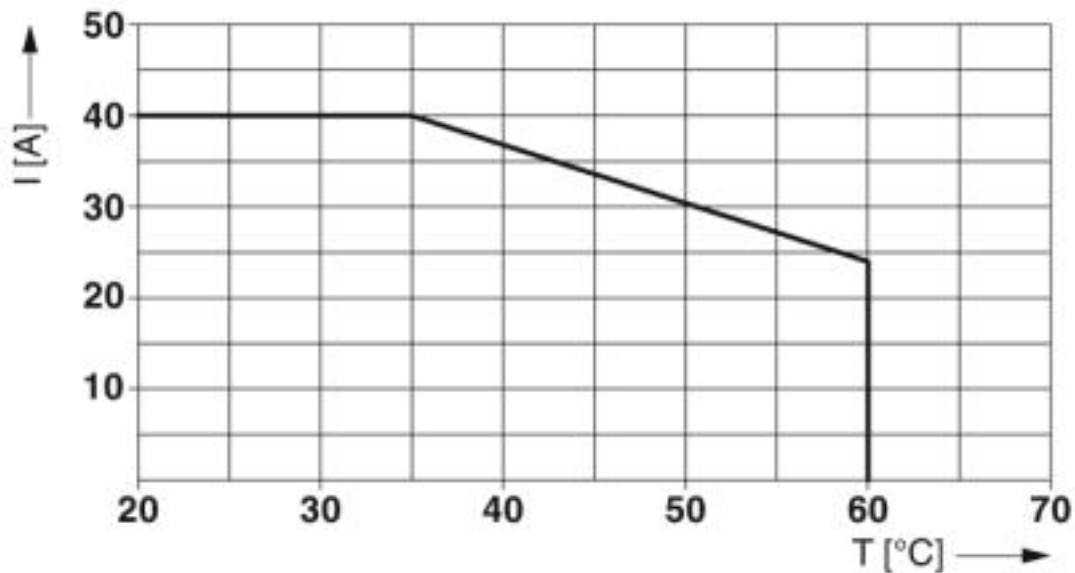
Diagram



Trigger characteristic in the DC range

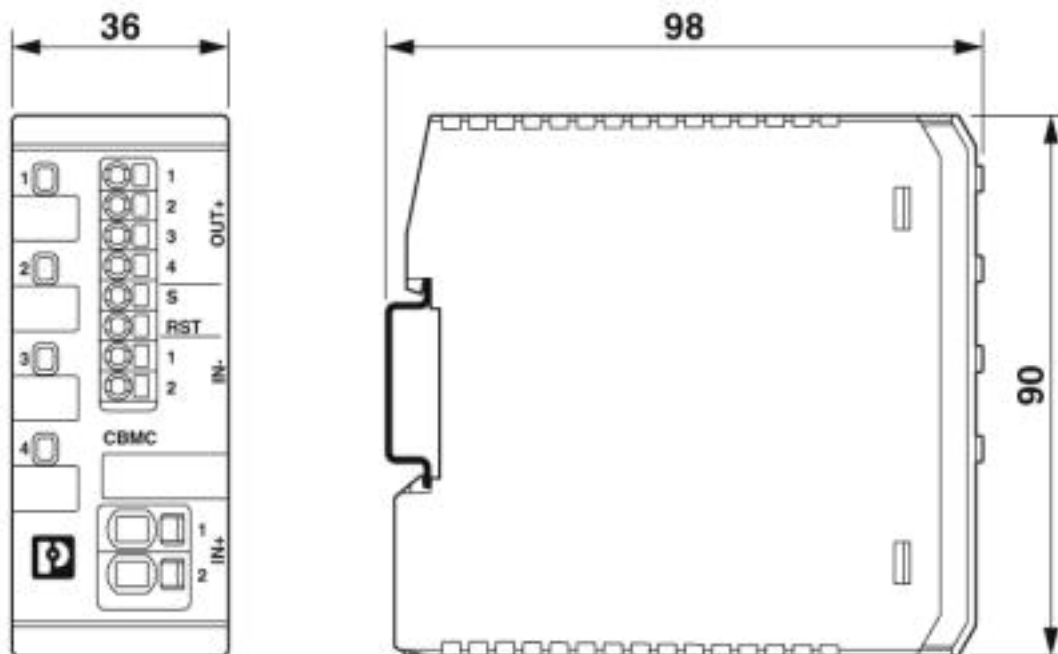
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Diagram



Max. permissible current in relation to the ambient temperature

Dimensional drawing



## Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27140401 |
| eCl@ss 4.0    | 27141100 |

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## Classifications

### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.1 | 27141100 |
| eCl@ss 5.0 | 27141100 |
| eCl@ss 5.1 | 27141100 |
| eCl@ss 6.0 | 27141100 |
| eCl@ss 7.0 | 27141116 |
| eCl@ss 8.0 | 27141116 |
| eCl@ss 9.0 | 27141116 |

### ETIM

|          |          |
|----------|----------|
| ETIM 5.0 | EC000899 |
| ETIM 6.0 | EC000899 |
| ETIM 7.0 | EC000899 |

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 13.2 | 39121410 |
| UNSPSC 18.0 | 39121410 |
| UNSPSC 19.0 | 39121410 |
| UNSPSC 20.0 | 39121410 |
| UNSPSC 21.0 | 39121410 |

## Approvals


### Approvals


#### Approvals

UL Listed / UL Recognized / cUL Listed / cULus Listed

#### Ex Approvals

### Approval details

|           |                                                                                     |                                                                                                                                                       |               |
|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| UL Listed |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 123528 |
|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|

|               |                                                                                     |                                                                                                                                                       |               |
|---------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| UL Recognized |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 317172 |
|---------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|

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## Approvals

|            |  |                                                                                                                                                       |               |
|------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| cUL Listed |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 123528 |
|------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|

|              |  |  |  |
|--------------|--|--|--|
| cULus Listed |  |  |  |
|--------------|--|--|--|

## Accessories

### Additional products

Label - EML (10X7)R - 0816663



Label, Roll, white, unlabeled, can be labeled with: THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, THERMOMARK ROLL X1, THERMOMARK ROLL 2.0, THERMOMARK ROLL, mounting type: adhesive, lettering field size: 10 x 7 mm, Number of individual labels: 10000

Equipment marking - EML-ESD (20X7)R - 0830567



Equipment marking, Roll, white, unlabeled, can be labeled with: THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, THERMOMARK ROLL X1, THERMOMARK ROLL 2.0, THERMOMARK ROLL, mounting type: adhesive, lettering field size: 20 x 7 mm, Number of individual labels: 4000

Power supply unit - QUINT4-PS/1AC/24DC/10 - 2904601



Primary-switched QUINT POWER power supply with free choice of output characteristic curve, SFB (selective fuse breaking) technology, and NFC interface, input: 1-phase, output: 24 V DC/10 A

Power supply unit - QUINT4-PS/1AC/24DC/20 - 2904602



Primary-switched QUINT POWER power supply with free choice of output characteristic curve, SFB (selective fuse breaking) technology, and NFC interface, input: 1-phase, output: 24 V DC/20 A

## Electronic device circuit breaker - CBMC E4 24DC/1-10A S-R - 1065729

### Accessories

Power supply unit - QUINT4-PS/3AC/24DC/10 - 2904621



Primary-switched QUINT POWER power supply with free choice of output characteristic curve, SFB (selective fuse breaking) technology, and NFC interface, input: 3-phase, output: 24 V DC/10 A

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Power supply unit - QUINT4-PS/3AC/24DC/20 - 2904622



Primary-switched QUINT POWER power supply with free choice of output characteristic curve, SFB (selective fuse breaking) technology, and NFC interface, input: 3-phase, output: 24 V DC/20 A

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Power supply unit - TRIO-PS-2G/1AC/24DC/10 - 2903149



Primary-switched TRIO POWER power supply with push-in connection for DIN rail mounting, input: single phase, output: 24 V DC/10 A

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Power supply unit - TRIO-PS-2G/1AC/24DC/20 - 2903151



Primary-switched TRIO POWER power supply with push-in connection for DIN rail mounting, input: single-phase, output: 24 V DC/20 A

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Power supply unit - TRIO-PS-2G/3AC/24DC/5 - 2903153



Primary-switched TRIO POWER power supply with push-in connection for DIN rail mounting, input: 3-phase, output: 24 V DC/5 A

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## Electronic device circuit breaker - CBMC E4 24DC/1-10A S-R - 1065729

### Accessories

Power supply unit - TRIO-PS-2G/3AC/24DC/10 - 2903154



Primary-switched TRIO POWER power supply with push-in connection for DIN rail mounting, input: 3-phase, output: 24 V DC/10 A

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Power supply unit - TRIO-PS-2G/3AC/24DC/20 - 2903155



Primary-switched TRIO POWER power supply with push-in connection for DIN rail mounting, input: 3-phase, output: 24 V DC/20 A

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Power supply unit - TRIO-PS-2G/3AC/24DC/40 - 2903156



Primary-switched TRIO power supply for DIN rail mounting, input: 3-phase, output: 24 V DC/40 A, dynamic boost, tool-free fast connection technology for solid and stranded conductors with ferrule

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