

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



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
Note	Made to Order (non-returnable)
Sales Key	C09
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	85363090
Country of origin	DE

## Technical Data

### Notes

#### General

Note	Repeated hard short circuits can reduce the melting integral of the integrated backup fuse.
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### Product properties

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

#### Insulation characteristics

Protection class	III
Pollution degree	2

### Electrical properties

No. of channels	4
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#### 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. 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)
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)

## 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)

## 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 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>

### 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>

### Main circuit OUT

Connection method	Push-in connection
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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>

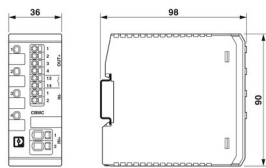
## Remote indication circuit

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>

## LED 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 grey RAL 7035
Material	PC (Housing) PA 6.6 (Terminal blocks) PA 6.3T (Light emission area) POM (Base latch)
Flammability rating according to UL 94	V-0

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## 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 (above mean sea level))
	≤ 4000 m up to 46 °C (amsl (above mean sea level))
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)

## Approval data

### UL approval

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

## Standards and regulations

Standards/specifications	EN 61000-6-2
Standards/specifications	EN 61000-6-3
Standards/specifications	EN 60068-2-6
Standards/specifications	EN 60068-2-27
Standards/specifications	EN 60068-2-78
Standards/specifications	EN 50178

## Mounting

Mounting type	DIN rail: 35 mm
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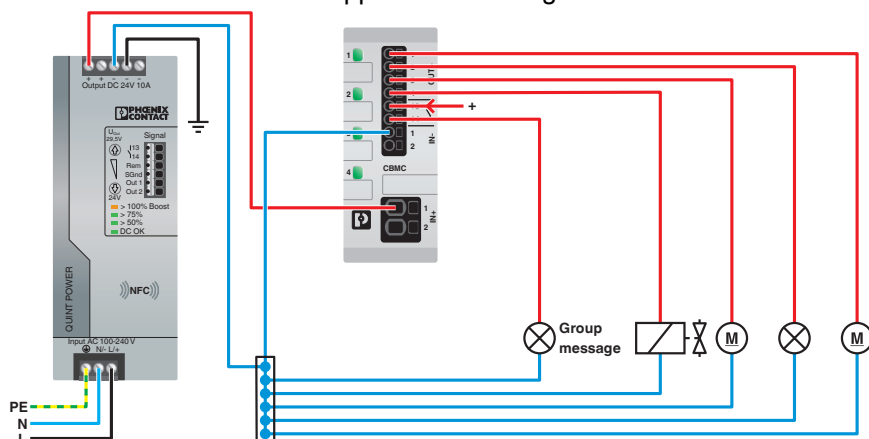
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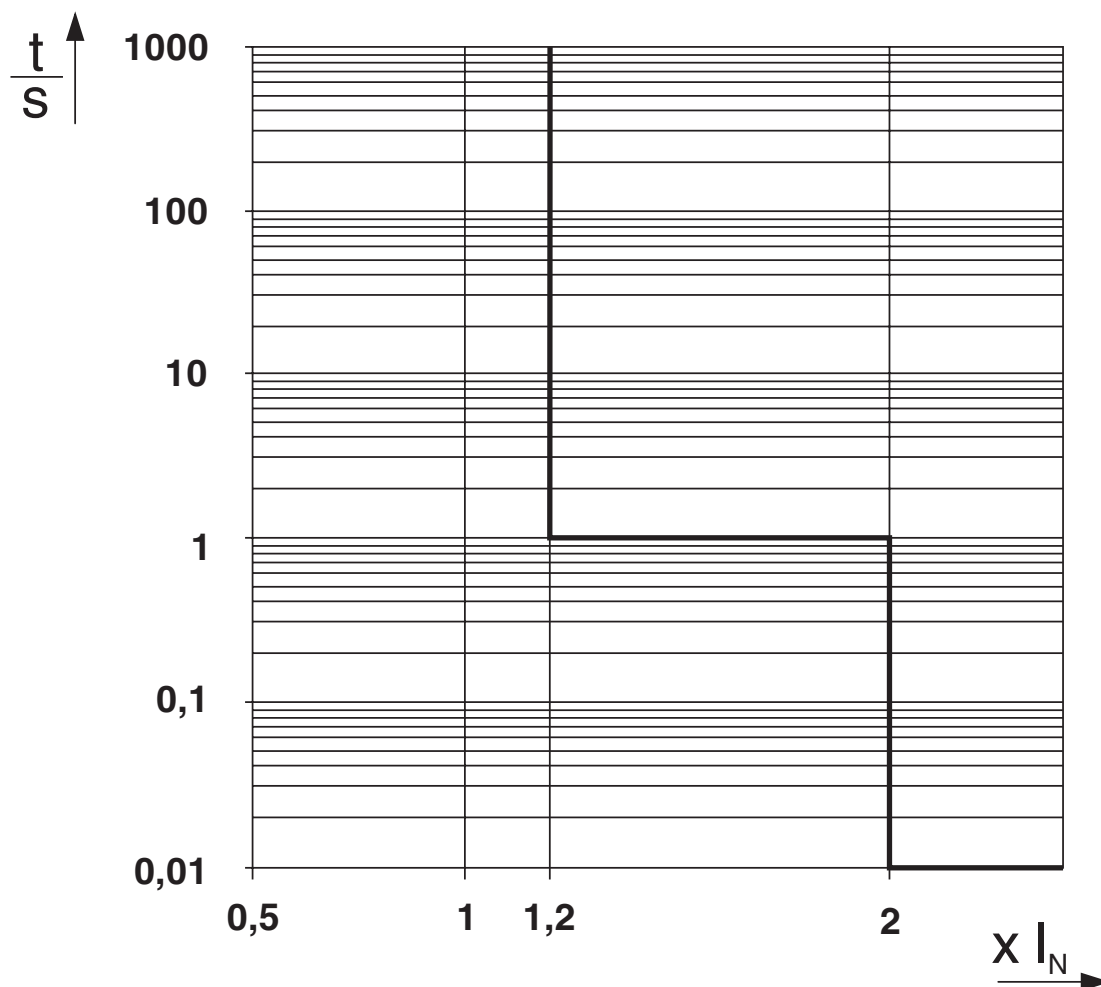


## Drawings

Application drawing



Diagram



Trigger characteristic in the DC range

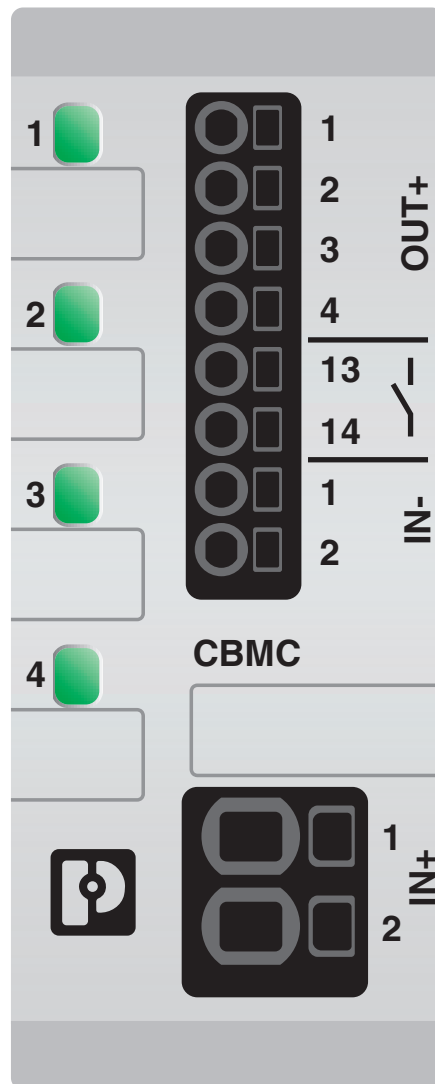
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Product drawing

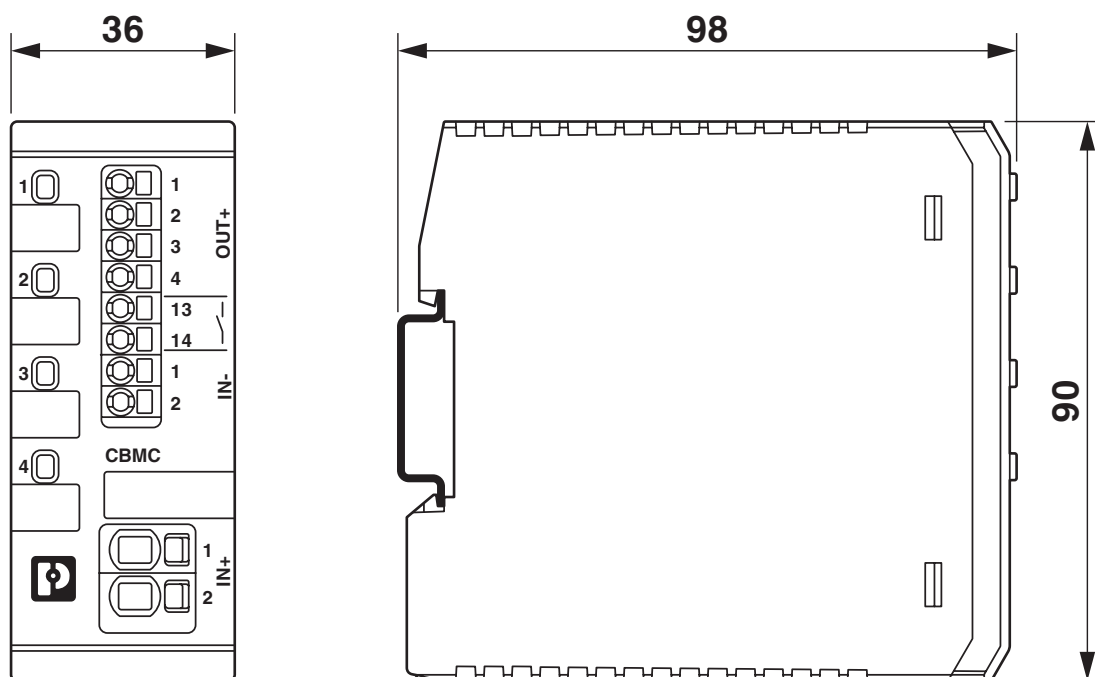


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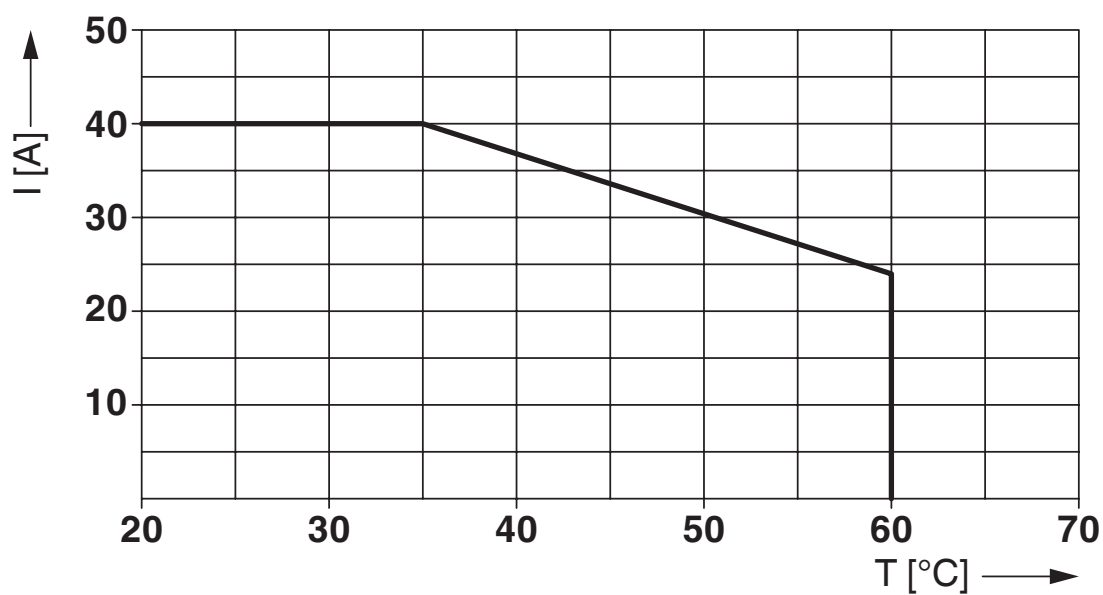
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Dimensional drawing



Diagram



Max. permissible current in relation to the ambient temperature



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## Approvals



**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-9.0	27141116
ECLASS-10.0.1	27140401
ECLASS-11.0	27140401

### ETIM

ETIM 8.0	EC003538
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### UNSPSC

UNSPSC 21.0	39121400
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Environmental Product Compliance

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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## Accessories

### Label

Label - EML (10X7)R - 0816663

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

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### Equipment marking

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

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

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## Power supply unit

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

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

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## Power supply unit

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

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

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2906032

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## Power supply unit

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

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

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

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

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## Power supply unit

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

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

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

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

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

<https://www.phoenixcontact.com/us/products/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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## Power supply unit

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

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

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

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

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

<https://www.phoenixcontact.com/us/products/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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Phoenix Contact USA

586 Fulling Mill Road

Middletown, PA 17057, United States

(+717) 944-1300

[info@phoenixcon.com](mailto:info@phoenixcon.com)