

# CBMC E4 24DC/1-4A+ NO-C - Electronic circuit breaker



1021728

<https://www.phoenixcontact.com/us/products/1021728>

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Multi-channel electronic circuit breaker that can be preconfigured, 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
- Pre-configuration available – for device protection that meets the specific requirements of your system
- Optimum protection for cables and sensors as well as NEC Class 2 circuits by means of an additional internal output fuse
- 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	1021728
Packing unit	1 pc
Minimum order quantity	6 pc
Note	Made to order (non-returnable)
Sales key	CL99
Product key	CLA152
Weight per piece (including packing)	139.7 g
Weight per piece (excluding packing)	121.4 g
Customs tariff number	85362010
Country of origin	DE

# CBMC E4 24DC/1-4A+ NO-C - Electronic circuit breaker



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## 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

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	06
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#### 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. 16 A DC (IN+) max. 40 A DC (per terminal position when bridging additional devices via IN+)
Rated current $I_N$	1 / 2 / 3 / 4 A DC (adjustable or fixed per output channel)
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) < 2 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 %

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MTBF (IEC 61709, SN 29500)	11764705 h (at 25 °C with 21 % load)
	5319148 h (at 40°C with 34.25% load)
	846023 h (at 60°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	30000 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>
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>

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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

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

## Environmental and real-life conditions

Ambient conditions

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Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 3000 m up to 52 °C (amsl)
	≤ 4000 m up to 46 °C (amsl)
Humidity test	240 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
	NEC Class 2 according to UL 1310

### Corrosive gas test

Identification	ISA S71.04.2013 G3 Harsh Group A
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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 60068-2-6
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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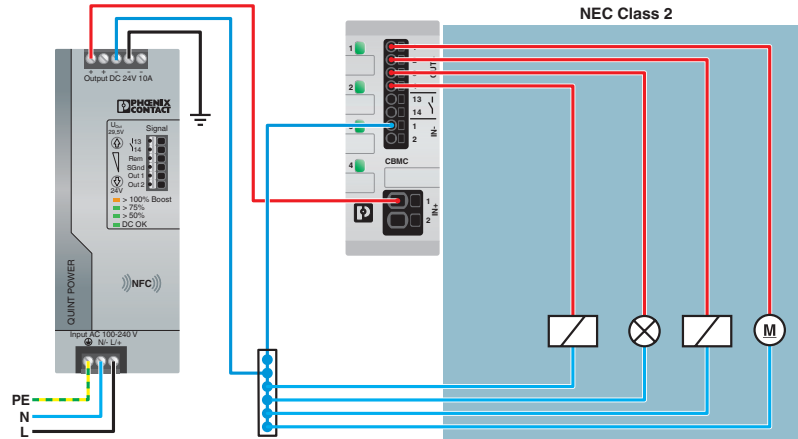
# CBMC E4 24DC/1-4A+ NO-C - Electronic circuit breaker

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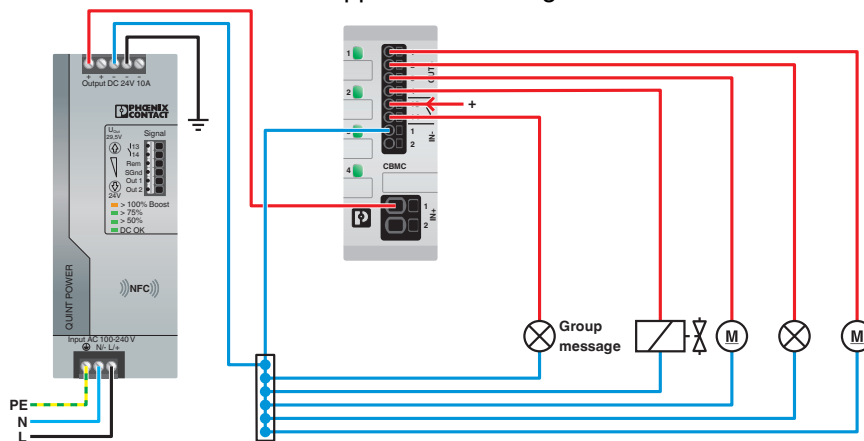
<https://www.phoenixcontact.com/us/products/1021728>

## Drawings

Application drawing



Application drawing



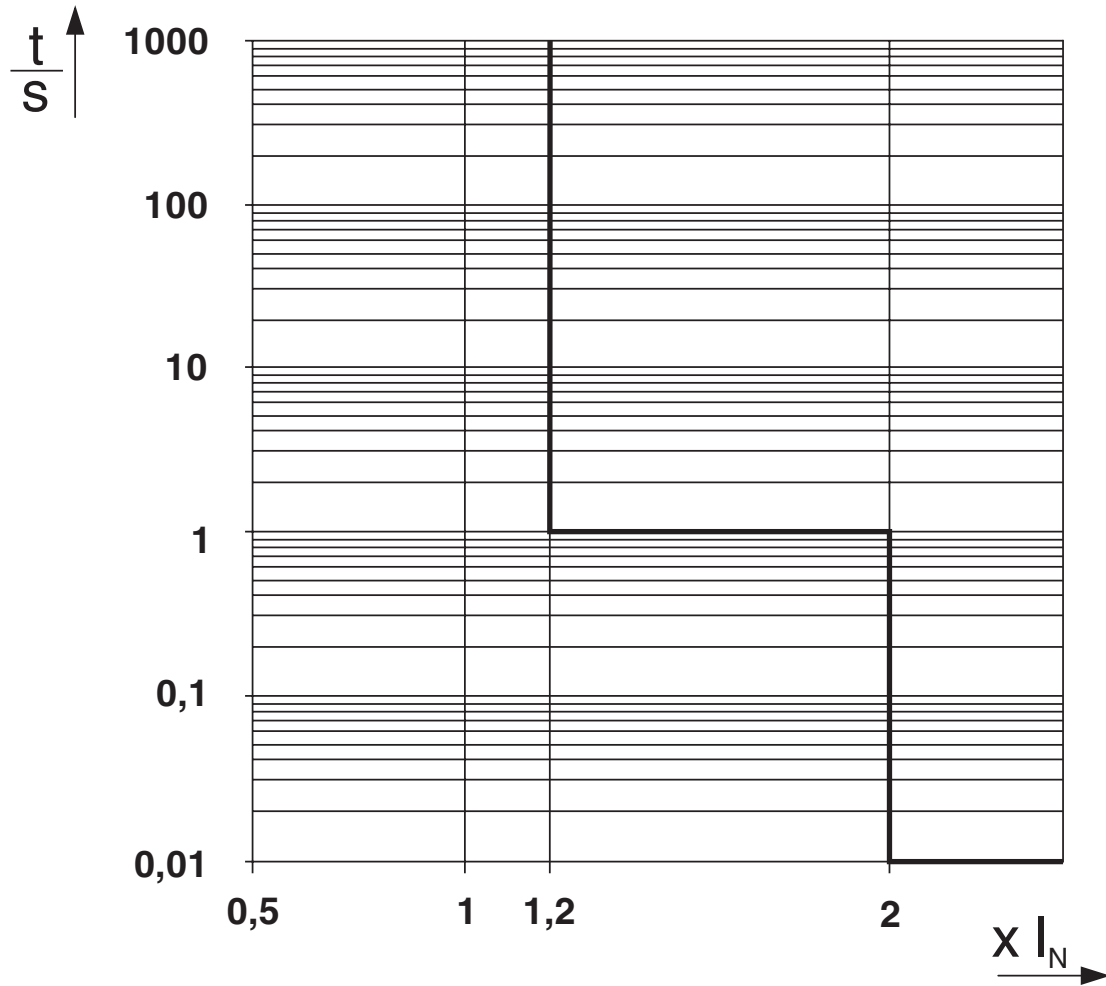
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Diagram



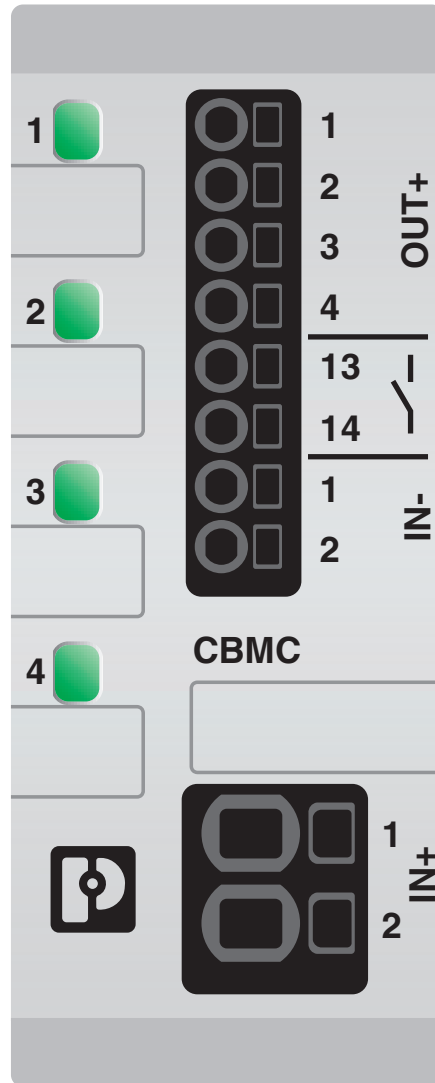
Trigger characteristic in the DC range

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Product drawing



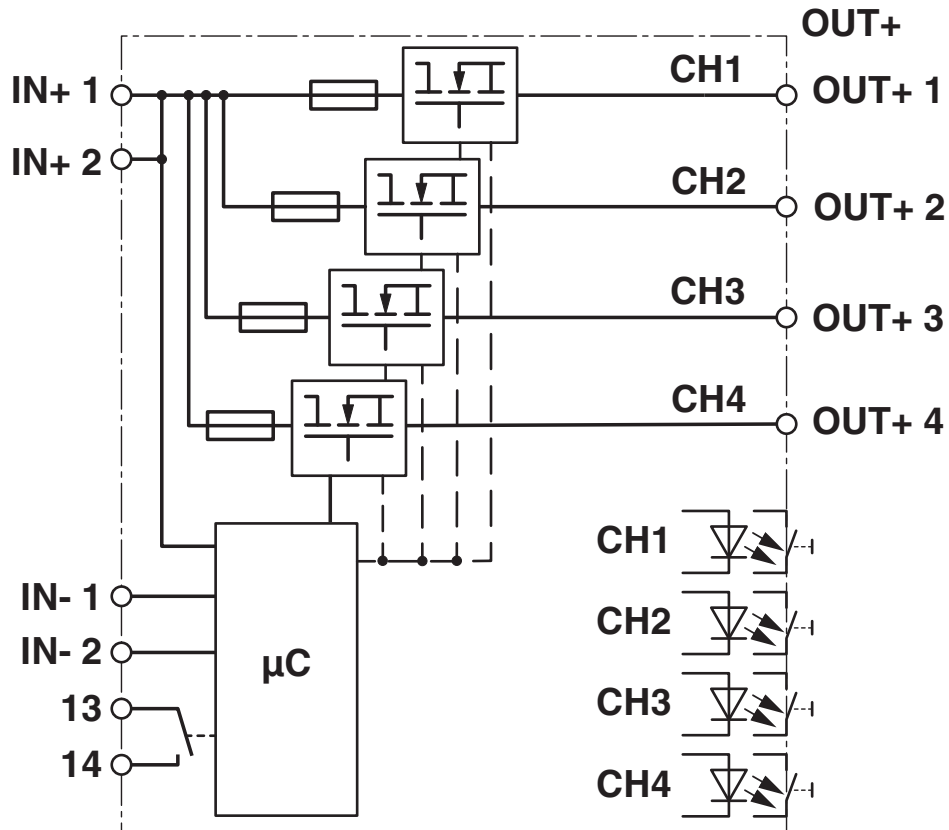
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Block diagram



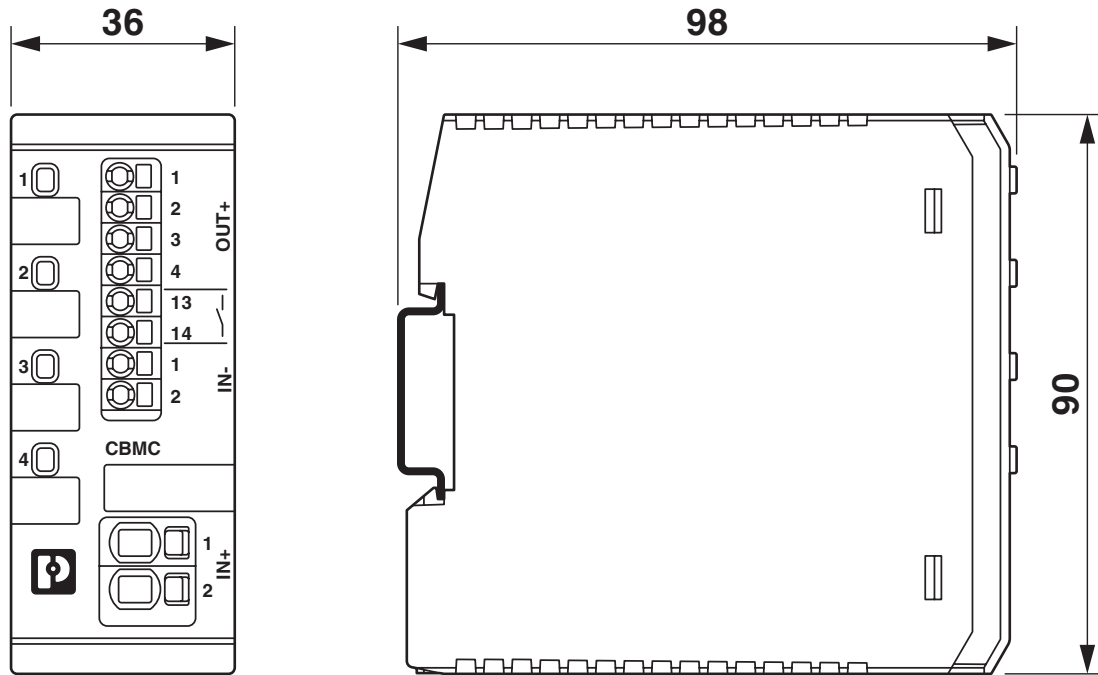
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Dimensional drawing



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1021728>



**UL Recognized**

Approval ID: FILE E 317172



**UL Listed**

Approval ID: E123528



**cUL Listed**

Approval ID: E123528

**cULus Listed**

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## Classifications

### ECLASS

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

### ETIM

ETIM 9.0	EC003538
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### UNSPSC

UNSPSC 21.0	39121410
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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)

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## Accessories

### EML (10X7)R - Label

0816663

<https://www.phoenixcontact.com/us/products/0816663>



Label, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: adhesive, Number of individual labels: 10000, text field height: 7 mm, text field width: 10 mm

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

0830567

<https://www.phoenixcontact.com/us/products/0830567>



Equipment marking, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: adhesive, Number of individual labels: 4000, text field height: 7 mm, text field width: 20 mm

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

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

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

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

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

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

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

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

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

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

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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