

## DC/DC converters - QUINT-PS/24DC/24DC/ 5 - 2320034

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Primary-switched QUINT DC/DC converter for DIN rail mounting with SFB (Selective Fuse Breaking) Technology, input: 24 V DC, output: 24 V DC/5 A

### Product Description

QUINT DC/DC converter with maximum functionality

DC/DC converters alter the voltage level, regenerate the voltage at the end of long cables or enable the creation of independent supply systems by means of electrical isolation.

QUINT DC/DC converters magnetically and therefore quickly trip circuit breakers with six times the nominal current, for selective and therefore cost-effective system protection. The high level of system availability is additionally ensured, thanks to preventive function monitoring, as it reports critical operating states before errors occur.

### Why buy this product

- ✓ Reliable starting of difficult loads, thanks to the static POWER BOOST power reserve with up to 125% nominal current permanently
- ✓ Preventive function monitoring indicates critical operating states before errors occur
- ✓ Constant voltage: output voltage regenerated even at the end of long cables
- ✓ Support conversion to various voltage levels
- ✓ Electrical isolation: for setting up independent supply systems



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 STK   |
| GTIN                                 | <br>4 046356 482035 |
| GTIN                                 | 4046356482035   |
| Weight per Piece (excluding packing) | 700.000 g   |
| Custom tariff number                 | 85044030  |
| Country of origin                    | China   |

### Technical data

#### Dimensions

|        |        |
|--------|--------|
| Width  | 32 mm  |
| Height | 130 mm |
| Depth  | 125 mm |

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## Technical data

### Dimensions

|                                  |        |
|----------------------------------|--------|
| Width with alternative assembly  | 122 mm |
| Height with alternative assembly | 130 mm |
| Depth with alternative assembly  | 35 mm  |

### Ambient conditions

|  |   |
|--|---|
| Degree of protection                           | IP20  |
| Ambient temperature (operation)                | -25 °C ... 70 °C (> 60 °C derating, 2.5 %/K, startup at -40 °C type-tested) |
| Ambient temperature (start-up type tested)     | -40 °C  |
| Ambient temperature (storage/transport)        | -40 °C ... 85 °C  |
| Max. permissible relative humidity (operation) | ≤ 95 % (at 25 °C, non-condensing)   |
| Climatic class                                 | 3K3 (in acc. with EN 60721)   |
| Degree of pollution                            | 2   |

### Input data

|                                     |  |
|-------------------------------------|--|
| Nominal input voltage range         | 24 V DC                                    |
| Input voltage range                 | 18 V DC ... 32 V DC                        |
| Current consumption                 | 7 A (24 V, I <sub>BOOST</sub> )            |
| Inrush surge current                | < 15 A (typical)                           |
| Power failure bypass                | > 10 ms (24 V DC)                          |
| Input fuse                          | 15 A (internal (device protection))        |
| Choice of suitable circuit breakers | 10 A ... 16 A (Characteristics B, C, D, K) |
| Type of protection                  | Transient surge protection                 |
| Protective circuit/component        | Varistor                                   |

### Output data

|  |  |
|--|--|
| Nominal output voltage   | 24 V DC ±1 %   |
| Setting range of the output voltage (U <sub>Set</sub> )                    | 18 V DC ... 29.5 V DC (> 24 V DC, constant capacity restricted)  |
| Nominal output current (I <sub>N</sub> )                                   | 5 A (-25 °C ... 60 °C)   |
| POWER BOOST (I <sub>BOOST</sub> )  | 6.25 A (-25 °C ... 40 °C permanent, U <sub>OUT</sub> = 24 V DC ) |
| Selective Fuse Breaking (I <sub>SFB</sub> )                                | 30 A (12 ms)   |
| Derating   | 60 °C ... 70 °C (2.5%/K)   |
| Connection in parallel   | Yes, for redundancy and increased capacity                       |
| Connection in series   | yes  |
| Feedback resistance  | 35 V DC  |
| Circuit breaker against surge voltage at output by invasive foreign matter | < 35 V DC  |
| Max. capacitive load   | Unlimited  |
| Active current limitation  | Approximately 7.2 A  |
| Control deviation  | < 1 % (change in load, static 10 % ... 90 %)                     |
|  | < 2 % (change in load, dynamic 10 % ... 90 %)                    |
|  | < 0.1 % (change in input voltage ±10 %)                          |
| Residual ripple  | < 20 mV <sub>PP</sub>  |
| Peak switching voltages nominal load                                       | < 10 mV <sub>PP</sub> (20 MHz)                                   |

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### Technical data

#### Output data

|  |        |
|--|--------|
| Maximum power dissipation in no-load condition | 2.4 W  |
| Power loss nominal load max.                   | 11.4 W |

#### General

|                                 |   |
|---------------------------------|---|
| Net weight                      | 0.7 kg  |
| Efficiency                      | > 92 %  |
| Insulation voltage input/output | 1.5 kV (type test)<br>1 kV (routine test)   |
| Protection class                | III   |
| Degree of protection            | IP20  |
|                                 | > 890000 h (40 °C)  |
| Mounting position               | horizontal DIN rail NS 35, EN 60715   |
| Assembly instructions           | alignable: $P_N \geq 50\%$ , 5 mm horizontally, 15 mm next to active components, 50 mm vertically<br>anreihbar: $P_N < 50\%$ , 0 mm horizontally, 40 mm vertikaly top, 20 mm vertikaly bottom |

#### Connection data, input

|                                       |                            |
|---------------------------------------|----------------------------|
| Connection method                     | Pluggable screw connection |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup>        |
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup>        |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup>        |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup>        |
| Conductor cross section AWG min.      | 24                         |
| Conductor cross section AWG max.      | 12                         |
| Stripping length                      | 8 mm                       |
| Screw thread                          | M3                         |

#### Connection data, output

|                                       |                            |
|---------------------------------------|----------------------------|
| Connection method                     | Pluggable screw connection |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup>        |
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup>        |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup>        |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup>        |
| Conductor cross section AWG min.      | 24                         |
| Conductor cross section AWG max.      | 12                         |
| Stripping length                      | 7 mm                       |
| Screw thread                          | M3                         |

#### Connection data for signaling

|                                       |                     |
|---------------------------------------|---------------------|
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup> |
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup> |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup> |

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### Technical data

#### Connection data for signaling

|                                  |    |
|----------------------------------|----|
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 12 |
| Screw thread                     | M3 |

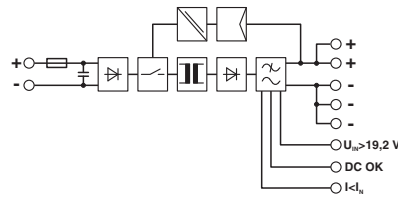
#### Standards and Regulations

|  |  |
|--|--|
| Electromagnetic compatibility  | Conformance with EMC Directive 2014/30/EU  |
| Noise immunity   | EN 61000-6-2:2005  |
| Connection in acc. with standard   | CUL  |
| Standards/regulations  | EN 61000-4-2   |
| Contact discharge  | 4 kV (Test Level 2)  |
| Standards/regulations  | EN 61000-4-3   |
| Frequency range  | 80 MHz ... 1 GHz   |
| Test field strength  | 10 V/m   |
| Frequency range  | 1.4 GHz ... 2 GHz  |
| Test field strength  | 3 V/m  |
| Standards/regulations  | EN 61000-4-4   |
| Comments   | Criterion B  |
| Standards/regulations  | EN 61000-4-5   |
| Signal   | 1 kV (Test Level 2 - asymmetrical)   |
| Standards/regulations  | EN 61000-6-3   |
|  | EN 61000-4-6   |
| Frequency range  | 0.15 MHz ... 80 MHz  |
| Voltage  | 10 V (Test Level 3)  |
| Standard - Electrical safety   | EN 60950-1/VDE 0805 (SELV)   |
| Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations | EN 50178/VDE 0160 (PELV)   |
| Standard – Safety extra-low voltage  | EN 60950-1 (SELV)  |
|  | EN 60204-1 (PELV)  |
| Standard - Safe isolation  | DIN VDE 0100-410   |
| Shipbuilding approval  | DNV GL (EMC B)   |
| UL approvals   | UL/C-UL listed UL 508  |
|  | UL/C-UL Recognized UL 60950-1  |
|  | UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location) |
| Shock  | 18 ms, 30g, in each space direction (according to IEC 60068-2-27)                |
| Vibration (operation)  | < 15 Hz, amplitude ±2.5 mm (according to IEC 60068-2-6)                          |
|  | 15 Hz ... 150 Hz, 2.3g, 90 min.  |
| Rail applications  | EN 50121-4   |

### Drawings

## DC/DC converters - QUINT-PS/24DC/24DC/ 5 - 2320034

Block diagram



### Accessories

#### Accessories

#### Assembly adapter

Assembly adapters - UTA 107/30 - 2320089



Universal DIN rail adapter

Assembly adapters - UWA 182/52 - 2938235



Universal wall adapter for securely mounting the power supply in the event of strong vibrations. The power supply is screwed directly onto the mounting surface. The universal wall adapter is attached at the top/bottom.

Assembly adapters - QUINT-PS-ADAPTERS7/1 - 2938196



Assembly adapter for QUINT-PS... power supply on S7-300 rail

### Power supply

Power supply unit - QUINT-PS/1AC/24DC/10 - 2866763



Primary-switched QUINT POWER supply for DIN rail mounting with SFB (selective fuse breaking) technology, input: 1-phase, output: 24 V DC/10 A

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### Accessories

Power supply unit - QUINT-PS/3AC/24DC/10 - 2866705



Primary-switched QUINT POWER power supply for DIN rail mounting with SFB (Selective Fuse Breaking) Technology, input: 3-phase, output: 24 V DC/10 A

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### Redundancy module

Redundancy module, with protective coating - QUINT-ORING/24DC/2X10/1X20 - 2320173



Active QUINT redundancy module for DIN rail mounting with Auto Current Balancing ACB technology and monitoring functions, input: 24 V DC, output: 24 V DC/2 x 10 A or 1 x 20 A, including mounted UTA 107/30 universal DIN rail adapter

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### Thermomagnetic device circuit breakers

Thermomagnetic device circuit breaker - CB TM1 1A SFB P - 2800836



Thermomagnetic device circuit breaker, 1-pos., tripping characteristic SFB, 1 PDT contact, plug for base element.

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Thermomagnetic device circuit breaker - CB TM1 2A SFB P - 2800837



Thermomagnetic device circuit breaker, 1-pos., tripping characteristic SFB, 1 PDT contact, plug for base element.

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Thermomagnetic device circuit breaker - CB TM1 12A SFB P - 2800844



Thermomagnetic device circuit breaker, 1-pos., tripping characteristic SFB, 1 PDT contact, plug for base element.

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### Accessories

Thermomagnetic device circuit breaker - CB TM1 16A SFB P - 2800845



Thermomagnetic device circuit breaker, 1-pos., tripping characteristic SFB, 1 PDT contact, plug for base element.

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