

Power supply unit - QUINT4-PS/1AC/48DC/10 - 2904611

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Primary-switched QUINT POWER power supply for DIN rail mounting with free choice of output characteristic curve and SFB (Selective Fuse Breaking) technology, input: 1-phase, output: 48 V DC / 10 A

Product Description

The fourth generation of the high-performance QUINT POWER power supplies ensures superior system availability by means of new functions. Signaling thresholds and characteristic curves can be individually adjusted via the NFC interface. The unique SFB technology and preventive function monitoring of the QUINT POWER power supply increase the availability of your application.

Your advantages

- ✓ Preventive function monitoring indicates critical operating states before errors occur
- ✓ Signaling thresholds and characteristic curves that can be adjusted via NFC maximize system availability
- ✓ Power reserve for easy system extension thanks to static boost with sustained power of up to 125% and ability to start difficult loads thanks to dynamic boost with up to 200% for 5 seconds
- ✓ High degree of immunity, thanks to integrated gas-filled surge arrester and mains failure bridging time of more than 20 milliseconds
- ✓ Robust design thanks to metal housing and wide temperature range from -40°C to +70°C
- ✓ Worldwide use thanks to the wide range input and international approval package



Key Commercial Data

| | |
|--------------------------------------|---------------------|
| Packing unit | 1 pc |
| GTIN | 4 055626 355078 |
| GTIN | 4055626355078 |
| Weight per Piece (excluding packing) | 1,620.000 g |
| Custom tariff number | 85044030 |
| Country of origin | Thailand |

Technical data

Dimensions

| | |
|--------|--------|
| Width | 70 mm |
| Height | 130 mm |

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Technical data

Dimensions

| | |
|----------------------------------|---------------|
| Depth | 125 mm |
| Width with alternative assembly | 122 mm |
| Height with alternative assembly | 130 mm |
| Depth with alternative assembly | 73 mm |
| Installation distance right/left | 5 mm / 5 mm |
| Installation distance top/bottom | 50 mm / 50 mm |

Ambient conditions

| | |
|---|--|
| Degree of protection | IP20 |
| Inflammability class in acc. with UL 94 (housing / terminal blocks) | V0 |
| Ambient temperature (operation) | -25 °C ... 70 °C (> 60 °C Derating: 2.5 %/K) |
| 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 |
| Installation height | ≤ 5000 m (> 2000 m, observe derating) |

Input data

| | |
|--|---|
| Nominal input voltage range | 100 V AC ... 240 V AC |
| | 110 V DC ... 250 V DC |
| Input voltage range | 100 V AC ... 240 V AC -15 % ... +10 % |
| | 110 V DC ... 250 V DC -18 % ... +40 % |
| Dielectric strength maximum | 300 V AC 60 s |
| AC frequency range | 50 Hz ... 60 Hz -10 % ... +10 % |
| Frequency range (f _N) | 50 Hz ... 60 Hz -10 % ... +10 % |
| | 16.7 Hz (acc. to EN 50163) |
| Discharge current to PE | < 3.5 mA |
| Current consumption | 6.8 A (100 V AC) |
| | 5.5 A (120 V AC) |
| | 2.8 A (230 V AC) |
| | 2.7 A (240 V AC) |
| Nominal power consumption | 519 VA |
| Inrush current | typ. 11 A (at 25 °C) |
| Mains buffering time | typ. 32 ms (120 V AC) |
| | typ. 32 ms (230 V AC) |
| Input fuse | 12 A (slow-blow, internal) |
| Recommended breaker for input protection | 10 A ... 16 A (Characteristic B, C, D, K or comparable) |

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Input data

| | |
|------------------------------|-------------------------------------|
| Type of protection | Transient surge protection |
| Protective circuit/component | Varistor, gas-filled surge arrester |

Output data

| | |
|--|--|
| Nominal output voltage | 48 V DC |
| Setting range of the output voltage (U_{Set}) | 48 V DC ... 56 V DC (constant capacity) |
| Nominal output current (I_N) | 10 A |
| Static Boost ($I_{Stat.Boost}$) | 12.5 A |
| Dynamic Boost ($I_{Dyn.Boost}$) | 15 A (5 s) |
| Selective Fuse Breaking (I_{SFB}) | 60 A (15 ms) |
| Derating | > 60 °C (2.5%/K) |
| Connection in parallel | Yes, for redundancy and increased capacity |
| Connection in series | yes |
| Feedback voltage resistance | ≤ 60 V DC |
| Protection against overvoltage at the output (OVP) | ≤ 60 V DC |
| Control deviation | < 0.5 % (Static load change 10 % ... 90 %) |
| | < 2 % (Dynamic load change 10 % ... 90 %, (10 Hz)) |
| | < 0.25 % (change in input voltage ±10 %) |
| Residual ripple | < 70 mV _{PP} (with nominal values) |
| Output power | 480 W |
| Typical response time | 300 ms (from SLEEP MODE) |
| Maximum power dissipation in no-load condition | < 5 W (120 V AC) |
| | < 5 W (230 V AC) |
| Power loss nominal load max. | < 36 W (120 V AC) |
| | < 28 W (230 V AC) |

General

| | |
|---------------------------------|--------------------------|
| Net weight | 1.3 kg |
| Efficiency | typ. 94 % (120 V AC) |
| | typ. 95 % (230 V AC) |
| MTBF (IEC 61709, SN 29500) | > 1100000 h (25 °C) |
| | > 676000 h (40 °C) |
| | > 317000 h (60 °C) |
| Insulation voltage input/output | 4 kV AC (type test) |
| | 2 kV AC (routine test) |
| Insulation voltage input / PE | 3.5 kV AC (type test) |
| | 2.4 kV AC (routine test) |
| Insulation voltage output / PE | 0.5 kV DC (type test) |

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Technical data

General

| | |
|---|---|
| | 0.5 kV DC (routine test) |
| Degree of protection | IP20 |
| Protection class | I |
| Inflammability class in acc. with UL 94 (housing / terminal blocks) | V0 |
| 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 alignable: $P_N < 50\%$, 0 mm horizontally, 40 mm vertically top, 20 mm vertically bottom |

Connection data, input

| | |
|---------------------------------------|---------------------|
| Connection method | Screw connection |
| Conductor cross section solid min. | 0.2 mm ² |
| Conductor cross section solid max. | 6 mm ² |
| Conductor cross section flexible min. | 0.2 mm ² |
| Conductor cross section flexible max. | 4 mm ² |
| Conductor cross section AWG min. | 30 |
| Conductor cross section AWG max. | 10 |
| Stripping length | 6.5 mm |

Connection data, output

| | |
|---------------------------------------|---------------------|
| Connection method | Screw connection |
| Conductor cross section solid min. | 0.2 mm ² |
| Conductor cross section solid max. | 2.5 mm ² |
| Conductor cross section flexible min. | 0.2 mm ² |
| Conductor cross section flexible max. | 2.5 mm ² |
| Conductor cross section AWG min. | 30 |
| Conductor cross section AWG max. | 10 |
| Stripping length | 6.5 mm |

Connection data for signaling

| | |
|---------------------------------------|---------------------|
| Connection method | Push-in connection |
| Conductor cross section solid min. | 0.2 mm ² |
| Conductor cross section solid max. | 1 mm ² |
| Conductor cross section flexible min. | 0.2 mm ² |
| Conductor cross section flexible max. | 1.5 mm ² |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 16 |
| Stripping length | 8 mm |

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Technical data

Standards

| | |
|--|--|
| EMC requirements for noise immunity | EN 61000-6-1 |
| | EN 61000-6-2 |
| EMC requirements for noise emission | EN 61000-6-3 |
| | EN 61000-6-4 |
| EMC requirements, power plant | IEC 61850-3 |
| | EN 61000-6-5 |
| HART FSK Physical Layer Test Specification Compliance | Output voltage U_{Out} compliant |
| Standard - Safety of transformers | EN 61558-2-16 (air clearances and creepage distances only) |
| Standard - Electrical safety | IEC 60950-1/VDE 0805 (SELV) |
| Standard - safety for equipment for measurement, control, and laboratory use | IEC 61010-1 |
| Standard – Safety extra-low voltage | IEC 60950-1 (SELV) |
| | EN 60204-1 (PELV) |
| Standard – Limitation of mains harmonic currents | EN 61000-3-2 |
| Mains variation/undervoltage | SEMI F47-0706; EN 61000-4-11 |
| Rail applications | EN 50121-3-2 |
| | EN 50121-4 |
| | EN 50121-5 |
| | IEC 62236-3-2 |
| | IEC 62236-4 |
| | IEC 62236-5 |

Conformance/approvals

| | |
|-----------------------|--|
| UL approvals | 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) |
| CSA | CAN/CSA-C22.2 No. 60950-1-07 |
| | CSA-C22.2 No. 107.1-01 |
| Shipbuilding approval | DNV GL, PRS, BV, LR, ABS |

EMC data

| | |
|-------------------------------|---|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| Low Voltage Directive | Conformance with Low Voltage Directive 2014/35/EC |
| Conducted noise emission | EN 55016 |
| | EN 61000-6-3 (Class B) |
| Noise emission | EN 55016 |
| | EN 61000-6-3 (Class B) |
| Harmonic currents | EN 61000-3-2 |

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EMC data

| | |
|--------------------------------|------------------------------------|
| | EN 61000-3-2 (Class A) |
| Flicker | EN 61000-3-3 |
| | EN 61000-3-3 |
| DNV GL conducted interference | Class A |
| Additional text | Area power distribution |
| DNV GL noise radiation | Class B |
| Additional text | Bridge and deck area |
| Electrostatic discharge | EN 61000-4-2 |
| Contact discharge | 8 kV (Test Level 4) |
| Discharge in air | 15 kV (Test Level 4) |
| Electromagnetic HF field | EN 61000-4-3 |
| Frequency range | 80 MHz ... 1 GHz |
| Test field strength | 20 V/m (Test Level 3) |
| Frequency range | 1 GHz ... 6 GHz |
| Test field strength | 10 V/m (Test Level 3) |
| Frequency range | 1 GHz ... 6 GHz |
| Test field strength | 10 V/m (Test Level 3) |
| Comments | Criterion A |
| Fast transients (burst) | EN 61000-4-4 |
| Input | 4 kV (Test Level 4 - asymmetrical) |
| Output | 4 kV (Test Level 4 - asymmetrical) |
| Signal | 4 kV (Test Level 4 - asymmetrical) |
| Comments | Criterion A |
| Surge voltage load (surge) | EN 61000-4-5 |
| Input | 3 kV (Test Level 4 - symmetrical) |
| | 6 kV (Test Level 4 - asymmetrical) |
| Output | 1 kV (Test Level 3 - symmetrical) |
| | 2 kV (Test Level 3 - asymmetrical) |
| Signal | 1 kV (Test Level 2 - asymmetrical) |
| Comments | Criterion A |
| Conducted interference | EN 61000-4-6 |
| I/O/S | asymmetrical |
| Frequency range | 0.15 MHz ... 80 MHz |
| Voltage | 10 V (Test Level 3) |
| Comments | Criterion A |
| Power frequency magnetic field | EN 61000-4-8 |
| Frequency | 16.7 Hz |

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Technical data

EMC data

| | |
|-----------------------------------|--|
| | 50 Hz |
| | 60 Hz |
| Test field strength | 100 A/m |
| Additional text | 60 s |
| Comments | Criterion A |
| Frequency | 50 Hz |
| | 60 Hz |
| Frequency range | 50 Hz ... 60 Hz |
| Test field strength | 1 kA/m |
| Additional text | 3 s |
| Frequency | 0 Hz |
| Test field strength | 300 A/m |
| Additional text | DC, 60 s |
| Voltage dips | EN 61000-4-11 |
| Voltage | 230 V AC |
| Frequency | 50 Hz |
| Voltage dip | 70 % |
| Number of periods | 0.5 / 1 / 25 periods |
| Additional text | Test Level 2 |
| Comments | Criterion A: 0.5 / 1 / 25 periods |
| Voltage dip | 40 % |
| Number of periods | 5 / 10 / 50 periods |
| Additional text | Test Level 2 |
| Comments | Criterion A |
| Voltage dip | 0 % |
| Number of periods | 0,5 / 1 / 5 / 50 / 250 periods |
| Additional text | Test Level 2 |
| Comments | Criterion A: 0.5 / 1 period Criterion B: 5 / 50 / 250 periods |
| Pulse-shape magnetic field | EN 61000-4-9 |
| Test field strength | 1000 A/m |
| Comments | Criterion A |
| Damped oscillating magnetic field | EN 61000-4-10 |
| Test field strength | 110 A/m |
| Test level 1 | 100 kHz |
| Test field strength | 110 A/m |
| Test level 2 | 1 MHz |

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Technical data

EMC data

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|--|--|
| Comments | Criterion A |
| Attenuated sinusoidal oscillations (ring wave) | EN 61000-4-12 |
| Input | 2 kV (Test Level 4 - symmetrical) |
| | 4 kV (Test Level 4 - asymmetrical) |
| Comments | Criterion A |
| Asymmetrical conducted disturbance variables | EN 61000-4-16 |
| Test level 1 | 15 Hz 150 Hz (Test Level 4) |
| Voltage | 30 V 3 V |
| Test level 2 | 150 Hz 1.5 kHz (Test Level 4) |
| Voltage | 3 V |
| Test level 3 | 1.5 kHz 15 kHz (Test Level 4) |
| Voltage | 3 V 30 V |
| Test level 4 | 15 kHz 150 kHz (Test Level 4) |
| Voltage | 30 V |
| Test level 5 | 16.7 Hz 50 Hz 60 Hz (Test Level 4) |
| Voltage | 30 V (Permanent) |
| Test level 6 | 16.7 Hz 50 Hz 60 Hz (Test Level 4) |
| Voltage | 300 V (1 s) |
| Comments | Criterion A |
| Attenuated oscillating wave | EN 61000-4-18 |
| Input, output (test level 1) | 100 kHz 1 MHz (Test Level 3 - symmetrical) |
| Voltage | 1 kV |
| Input, output (test level 2) | 10 MHz |
| Voltage | 1 kV |
| Input, output (test level 3) | 100 kHz 1 MHz (Test Level 3 - asymmetrical) |
| Voltage | 2.5 kV |
| Signals (test level 1) | 100 kHz 1 MHz (Test Level 3 - symmetrical) |
| Voltage | 1 kV |
| Signals (test level 2) | 100 kHz 1 MHz (Test Level 3 - asymmetrical) |
| Voltage | 2.5 kV |
| Comments | Criterion A |
| Criterion A | Normal operating behavior within the specified limits. |
| Criterion B | Temporary impairment to operational behavior that is corrected by the device itself. |
| Criterion C | Temporary adverse effects on the operating behavior, which the device corrects automatically or which can be restored by actuating the operating elements. |

Environmental Product Compliance

Power supply unit - QUINT4-PS/1AC/48DC/10 - 2904611

Technical data

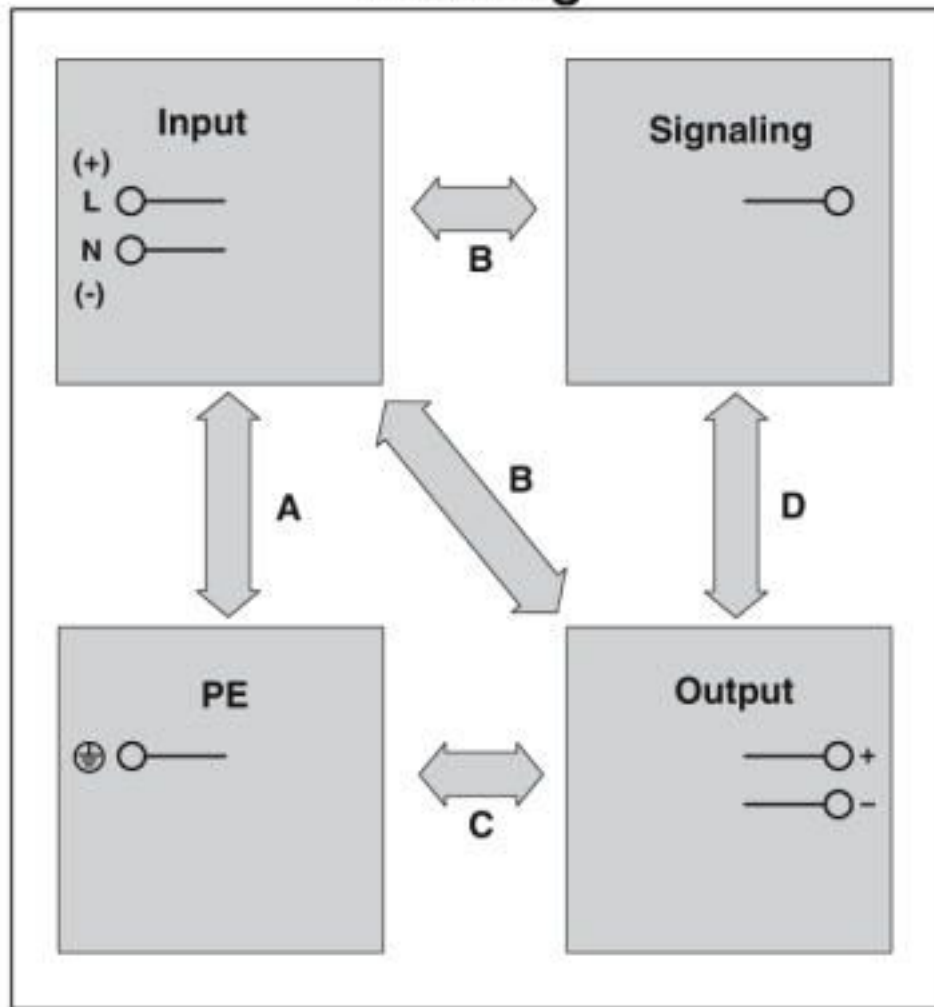
Environmental Product Compliance

| | |
|------------|---|
| REACH SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally Friendly Use Period = 25; |
| | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

Drawings

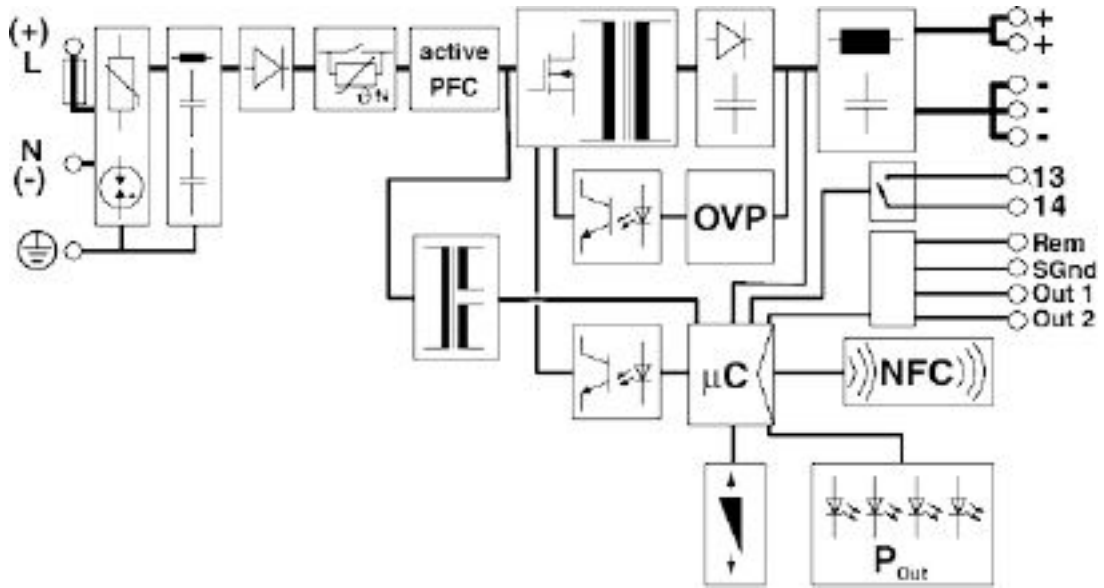
Schematic diagram

Housing

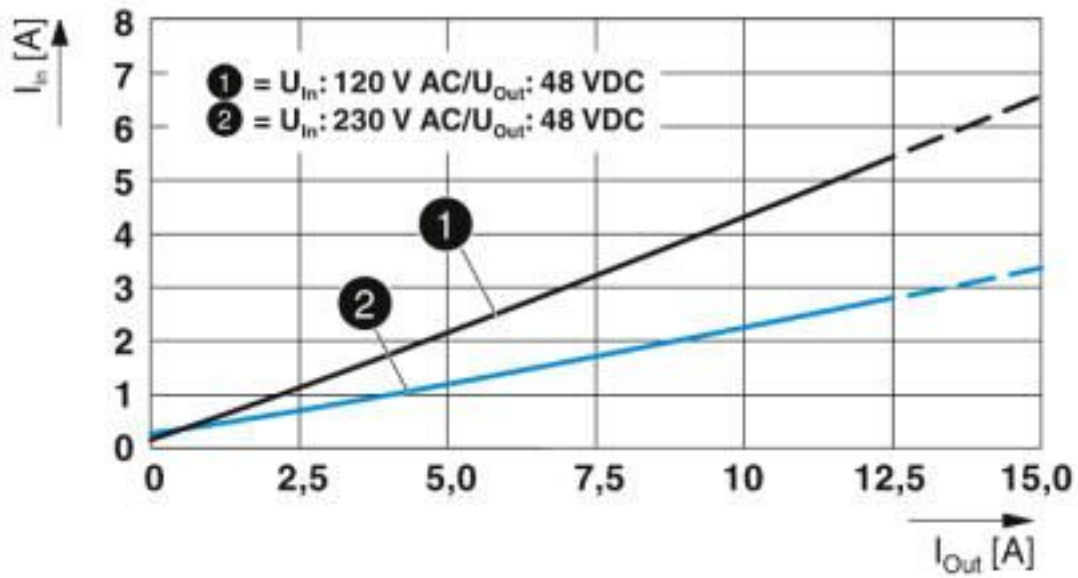


Power supply unit - QUINT4-PS/1AC/48DC/10 - 2904611

Block diagram

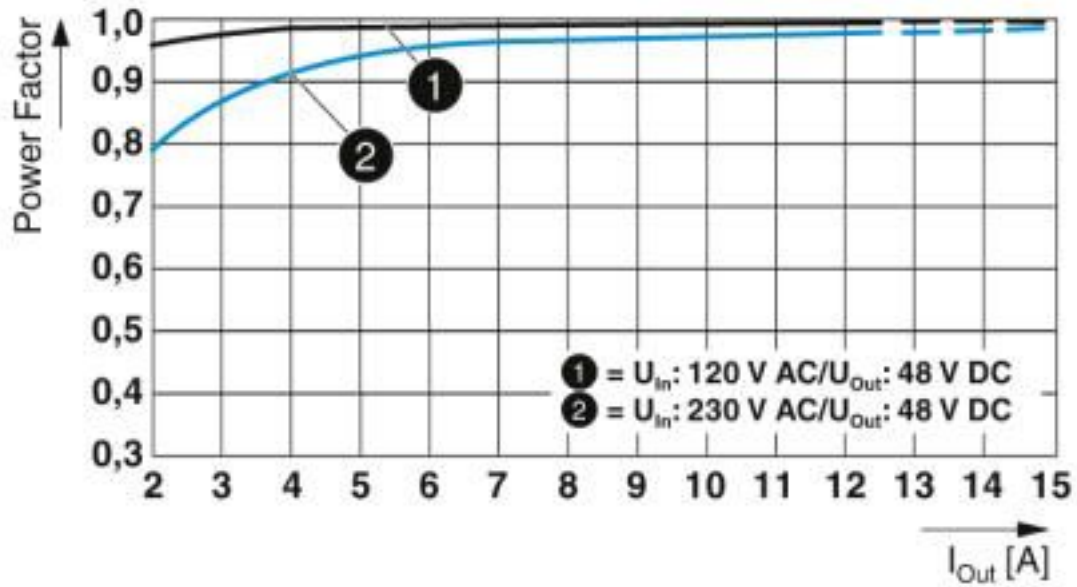


Diagram

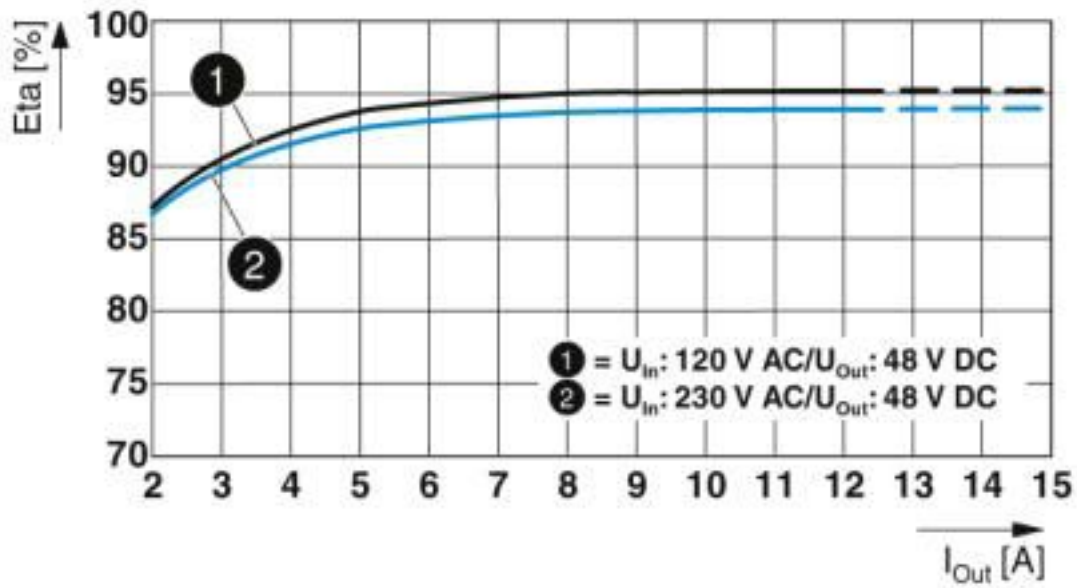


Power supply unit - QUINT4-PS/1AC/48DC/10 - 2904611

Diagram

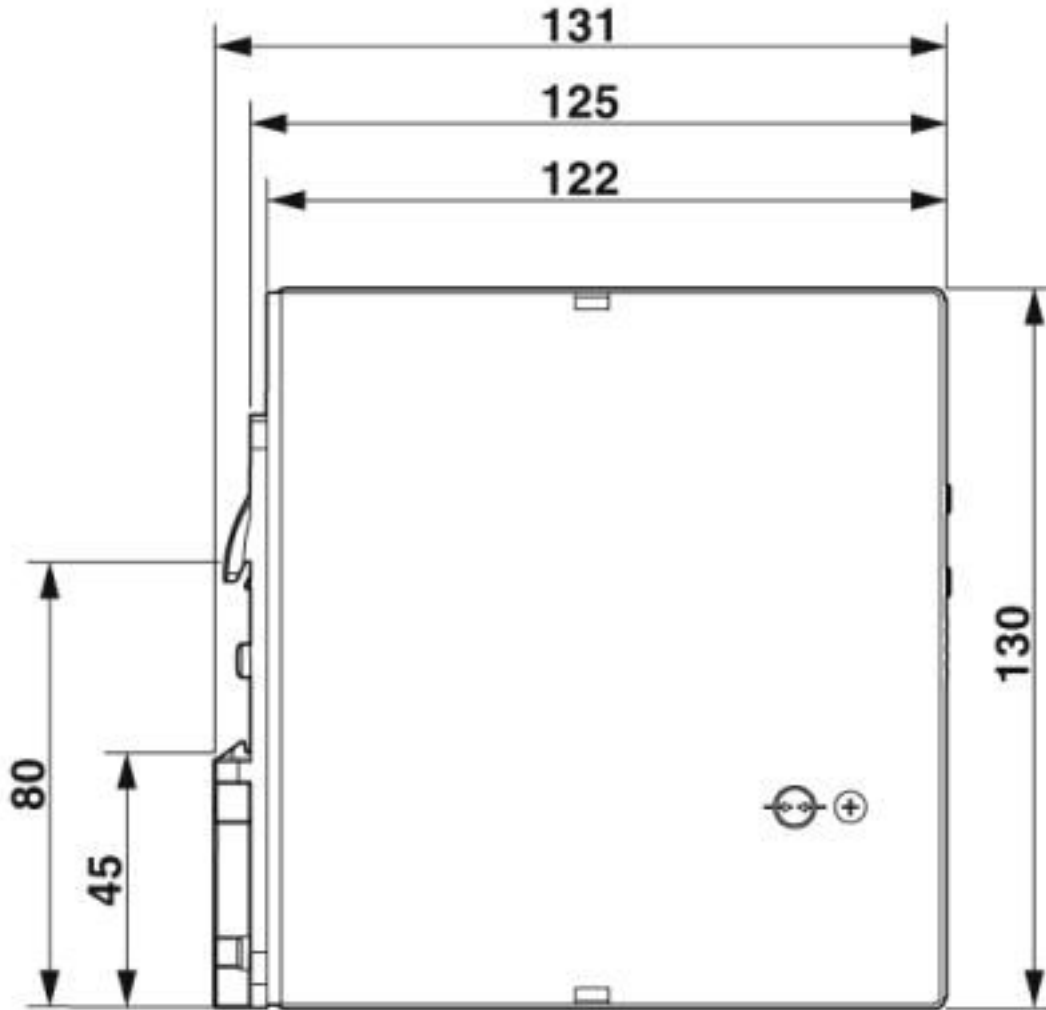


Diagram



Power supply unit - QUINT4-PS/1AC/48DC/10 - 2904611

Dimensional drawing



Classifications

eCl@ss

| | |
|---------------|----------|
| eCl@ss 10.0.1 | 27040701 |
| eCl@ss 8.0 | 27049002 |
| eCl@ss 9.0 | 27040701 |

ETIM

| | |
|----------|----------|
| ETIM 5.0 | EC002540 |
| ETIM 6.0 | EC002540 |
| ETIM 7.0 | EC002540 |

Power supply unit - QUINT4-PS/1AC/48DC/10 - 2904611

Approvals







Approvals

Approvals

DNV GL / CSA / BV / LR / ABS / UL Listed / UL Recognized / cUL Recognized / IECCEB Scheme / cUL Listed / CSAus / EAC / cULus Recognized / cULus Listed

Ex Approvals

Approval details

| | | | |
|---------------|---|---|------------------------|
| DNV GL |  | https://approvalfinder.dnvgl.com/ | TAA00000BV |
| CSA |  | http://www.csagroup.org/services-industries/product-listing/ | 70119409 |
| BV |  | http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials | 44621/A0 BV |
| LR |  | http://www.lr.org/en | 17-20107-02 |
| ABS | | http://www.eagle.org/eagleExternalPortalWEB/ | 17- HG1649297-1-PDA |
| UL Listed |  | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 123528 |
| UL Recognized |  | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 211944 |

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Approvals

| | | | |
|----------------|--|---|---------------|
| cUL Recognized | | http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm | FILE E 211944 |
|----------------|--|---|---------------|

| | | | |
|-----------------|--|---|---------|
| IECEE CB Scheme | | http://www.iecee.org/ | SI-5825 |
|-----------------|--|---|---------|

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|------------|--|---|---------------|
| cUL Listed | | http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm | FILE E 123528 |
|------------|--|---|---------------|

| | | | |
|-------|--|---|----------|
| CSAus | | http://www.csagroup.org/services-industries/product-listing/ | 70119409 |
|-------|--|---|----------|

| | | | |
|-----|--|--|---------------------|
| EAC | | | RU*DE*08.B.01873/19 |
|-----|--|--|---------------------|

| | | | |
|------------------|--|--|--|
| cULus Recognized | | | |
|------------------|--|--|--|

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

Accessories

Accessories

Assembly adapter

Assembly adapters - UWA 182/52 - 2938235



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

Power supply unit - QUINT4-PS/1AC/48DC/10 - 2904611

Accessories

Assembly adapters - UWA 130 - 2901664



2-piece universal wall adapter for securely mounting the device in the event of strong vibrations. The profiles that are screwed onto the side of the device are screwed directly onto the mounting surface. The universal wall adapter is attached on the left/right.

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



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

Device protection

Type 3 surge protection device - PLT-SEC-T3-230-FM-UT - 2907919



Type 2/3 surge protection, consisting of protective plug and base element with screw connection. For single-phase power supply network with integrated status indicator and remote signaling. Nominal voltage 230 V AC/DC.

Type 3 surge protection device - PLT-SEC-T3-60-FM-UT - 2907917



Type 3 surge protection, consisting of protective plug and base element, with integrated status indicator and remote signaling for single-phase power supply networks. Nominal voltage 60 V AC/DC.

Type 3 surge protection device - PLT-SEC-T3-230-FM-PT - 2907928



Type 2/3 surge protection, consisting of protective plug and base element with Push-in connection. For single-phase power supply network with integrated status indicator and remote signaling. Nominal voltage 230 V AC/DC.

Power supply unit - QUINT4-PS/1AC/48DC/10 - 2904611

Accessories

Type 3 surge protection device - PLT-SEC-T3-60-FM-PT - 2907926



Type 3 surge protection, consisting of protective plug and base element, with integrated status indicator and remote signaling for single-phase power supply networks. Nominal voltage 60 V AC/DC.

Programming adapter

Programming adapter - TWN4 MIFARE NFC USB ADAPTER - 2909681



Near Field Communication (NFC) programming adapter with USB interface for the wireless configuration of NFC-capable products from PHOENIX CONTACT with software. No separate USB driver is required.