# Power supply unit - QUINT-PS-3X400-500AC/24DC/20 - 2938727

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DIN rail power supply unit 24 V DC/20 A, primary switched-mode, 3-phase.

## Product Description

QUINT POWER is the powerful 60 - 960 W DC power supply unit for universal use. With its wide-range input, single and three-phase versions, and international approval package, this solution is unrivalled. QUINT POWER provides reliable power supply: generously dimensioned capacitors ensure mains buffering of over 20 ms at full load. Full output power is provided by all three-phase devices, even in the event of a permanent phase failure. The Power Boost power reserve easily starts loads with high inrush currents and ensures that fuses are reliably tripped. Preventive function monitoring diagnoses impermissible operating states and minimizes downtimes in your system. Remote monitoring is provided by an active transistor switching output and a floating relay contact. All devices are idling-proof and short-circuit-proof, and are available with a regulated and adjustable output voltage of 12, 24, and 48 V DC with output currents of 2.5, 5, 10, 20, 30, and 40 A. Power supply units for use in Ex zone 2, uninterruptible solutions, AS-i power supply units, and a QUINT diode complete this comprehensive product range.

RoHS




## Key Commercial Data

| | |
|---|---|
| Packing unit | 1 pc |
| GTIN | 4 017918 899547 |
| GTIN | 4017918899547 |
| Weight per Piece (excluding packing) | 2,380.000 g |
| Custom tariff number | 85044030 |
| Country of origin | Germany |

## Technical data

### Dimensions

| | |
|---|---|
| Width | 160 mm |
| Height | 130 mm |
| Depth | 125 mm |
| Width with alternative assembly | 122 mm |

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## Technical data

### Dimensions

| | |
|---|---|
| Height with alternative assembly | 130 mm |
| Depth with alternative assembly | 163 mm |

### Ambient conditions

| | |
|---|---|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -25 °C ... 70 °C (> 60 °C Derating: 2.5 %/K) |
| 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 | 3x 400 V AC ... 500 V AC |
| Input voltage range | 3x 320 V AC ... 575 V AC (for all three phases) |
| | 450 V DC ... 800 V DC |
| AC frequency range | 45 Hz ... 65 Hz |
| Frequency range DC | 0 Hz |
| Discharge current to PE | < 3.5 mA |
| Current consumption | approx. 3x 1.1 A (400 V AC) |
| | 3x 1 A (480 V AC) |
| Nominal power consumption | 526 W |
| Inrush current | < 15 A (typical) |
| Mains buffering time | > 23 ms (400 V AC) |
| | > 25 ms (480 V AC) |
| Recommended breaker for input protection | 3x 6 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 ($U_{Set}$) | 22.5 V ... 28.5 V |
| Nominal output current ($I_N$) | 20 A (up to 60 °C) |
| POWER BOOST ($I_{Boost}$) | 27 A |
| Derating | 60 °C (2.5%/K) |
| Connection in parallel | Yes, for redundancy and increased capacity |
| Connection in series | yes |
| Active current limitation | Approx. $I_{BOOST}$ = 27 A (for short-circuit) |
| Control deviation | < 1 % (change in load, static 10 % ... 90 %) |
| | < 2 % (change in load, dynamic 10 % ... 90 %) |

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## Technical data

### Output data

| | |
|---|---|
| | < 0.1 % (change in input voltage ±10 %) |
| Residual ripple | < 10 $mV_{PP}$ (with nominal values) |
| Output power | 480 W |
| Typical response time | < 1 s |
| Peak switching voltages nominal load | < 60 $mV_{PP}$ (20 MHz) |
| Maximum power dissipation in no-load condition | < 7 W |
| Power loss nominal load max. | < 47 W |

### General

| | |
|---|---|
| Net weight | 1.93 kg |
| Operating voltage display | Green LED |
| Efficiency | > 91 % (at 400 V AC and nominal values) |
| MTBF (IEC 61709, SN 29500) | > 500000 h |
| 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 kV AC (routine test) |
| Insulation voltage output / PE | 500 V DC (routine test) |
| Degree of protection | IP20 |
| Protection class | I (with PE connection) |
| Mounting position | horizontal DIN rail NS 35, EN 60715 |
| Assembly instructions | alignable: horizontally 0 mm, vertically 50 mm |

### Connection data, input

| | |
|---|---|
| Connection method | Screw connection |
| Conductor cross section solid min. | 0.2 mm² |
| Conductor cross section solid max. | 6 mm² |
| Conductor cross section flexible min. | 0.2 mm² |
| Conductor cross section flexible max. | 4 mm² |
| Conductor cross section AWG min. | 24 |
| Conductor cross section AWG max. | 10 |
| Stripping length | 8 mm |
| Screw thread | M3 |

### Connection data, output

| | |
|---|---|
| Connection method | Screw connection |
| Conductor cross section solid min. | 0.5 mm² |
| Conductor cross section solid max. | 16 mm² |
| Conductor cross section flexible min. | 0.5 mm² |

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## Technical data

### Connection data, output

| | |
|---|---|
| Conductor cross section flexible max. | 10 mm² |
| Conductor cross section AWG min. | 20 |
| Conductor cross section AWG max. | 6 |
| Stripping length | 10 mm |
| Screw thread | M4 |

### Signaling

| | |
|---|---|
| Output name | DC OK active |
| Output description | $U_{OUT}$ > 0.9 x $U_N$: High signal |
| Maximum switching voltage | ≤ 24 V |
| Output voltage | + 24 V DC (Signal) |
| Maximum inrush current | ≤ 40 mA |
| Continuous load current | ≤ 40 mA |
| Status display | "DC OK" LED green |
| Note on status display | $U_{OUT}$ < 0.9 x $U_N$: LED flashing |
| Conductor cross section solid min. | 0.5 mm² |
| Conductor cross section solid max. | 16 mm² |
| Conductor cross section flexible min. | 0.5 mm² |
| Conductor cross section flexible max. | 10 mm² |
| Conductor cross section AWG min. | 20 |
| Conductor cross section AWG max. | 6 |
| Tightening torque, min | 1.2 Nm |
| Tightening torque max | 1.5 Nm |
| Screw thread | M4 |
| Output name | DC OK floating |
| Output description | Relay contact, $U_{OUT}$ > 0.9 x $U_N$: Contact closed |
| Maximum switching voltage | ≤ 30 V AC/DC |
| Maximum inrush current | ≤ 1 A |
| Continuous load current | ≤ 1 A |
| Status display | "DC OK" LED green |

### Standards and Regulations

| | |
|---|---|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| Noise emission | EN 55011 (EN 55022) |
| Noise immunity | EN 61000-6-2 |
| Connection in acc. with standard | CUL |
| Standards/regulations | EN 61000-4-2 |
| Contact discharge | 8 kV |

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## Technical data

### Standards and Regulations

| | |
|---|---|
| Standards/regulations | EN 61000-4-3 |
| Frequency range | 80 MHz ... 2 GHz |
| Test field strength | 10 V/m |
| Standards/regulations | EN 61000-4-4 |
| Comments | Criterion B |
| Standards/regulations | EN 61000-6-3 |
| | EN 61000-4-6 |
| Frequency range | 0.15 MHz ... 80 MHz |
| Voltage | 10 V |
| Standards/regulations | EN 61000-4-11 |
| Low Voltage Directive | Conformance with Low Voltage Directive 2014/35/EC |
| Standard - Safety of transformers | EN 61558-2-17 |
| Standard - Electrical safety | EN 60950-1/VDE 0805 (SELV) |
| | EN 61558-2-17 |
| 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 (PELV) |
| Standard - Safe isolation | DIN VDE 0100-410 |
| Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment | EN 50178 |
| Standard – Limitation of mains harmonic currents | EN 61000-3-2 |
| Standard - Equipment safety | GS (tested safety) |
| Shipbuilding approval | DNV GL (EMC A), ABS |
| UL approvals | UL/C-UL listed UL 508 |
| | UL/C-UL Recognized UL 60950-1 |
| | UL/C-UL Listed UL 1604 Class I, Division 2, Groups A, B, C, D |
| 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. |
| Certificate | CB Scheme |
| Overvoltage category (EN 62477-1) | III |

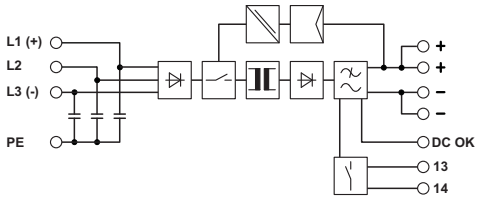
### Environmental Product Compliance

| | |
|---|---|
| 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” |

# Power supply unit - QUINT-PS-3X400-500AC/24DC/20 - 2938727

## Drawings

Block diagram




## Classifications

### eCl@ss

| | |
|---|---|
| eCl@ss 10.0.1 | 27040701 |
| eCl@ss 11.0 | 27040701 |
| eCl@ss 4.0 | 27040700 |
| eCl@ss 4.1 | 27040700 |
| eCl@ss 5.0 | 27049000 |
| eCl@ss 5.1 | 27049000 |
| eCl@ss 6.0 | 27049000 |
| eCl@ss 7.0 | 27049002 |
| eCl@ss 8.0 | 27049002 |
| eCl@ss 9.0 | 27040701 |

### ETIM

| | |
|---|---|
| ETIM 2.0 | EC001039 |
| ETIM 3.0 | EC001039 |
| ETIM 4.0 | EC000599 |
| ETIM 5.0 | EC002540 |
| ETIM 6.0 | EC002540 |
| ETIM 7.0 | EC002540 |

### UNSPSC

| | |
|---|---|
| UNSPSC 6.01 | 30211502 |
| UNSPSC 7.0901 | 39121004 |
| UNSPSC 11 | 39121004 |
| UNSPSC 12.01 | 39121004 |
| UNSPSC 13.2 | 39121004 |
| UNSPSC 18.0 | 39121004 |
| UNSPSC 19.0 | 39121004 |
| UNSPSC 20.0 | 39121004 |

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## Classifications

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 39121004 |

## Approvals

### Approvals

Approvals

PRS / UL Listed / UL Recognized / cUL Recognized / IECEE CB Scheme / cUL Listed / SEMI F47 / EAC / DNV GL / EAC / UL Recognized / IECEE CB Scheme / UL Listed / cUL Listed / cUL Recognized / PRS / EAC / DNV GL / EAC / SEMI F47 / cULus Recognized / cULus Listed

Ex Approvals

UL Listed / cUL Listed / UL Listed / cUL Listed / cULus Listed

### Approval details

| | | |
|---|---|---|
| PRS | http://www.prs.pl/ | TE/2104/880590/16 |
| 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 |
| cUL Recognized | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 211944 |
| IECEE CB Scheme | http://www.iecee.org/ | SI-935 |

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## Approvals

| | | | |
|---|---|---|---|
| cUL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 123528 |
| SEMI F47 | | | SEMI F47 |
| EAC | | | EAC-Zulassung |
| DNV GL | | https://approvalfinder.dnvgl.com/ | TAA0000249 |
| EAC | | | EAC-Zulassung |
| UL Recognized | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 211944 |
| IECEE CB Scheme | | http://www.iecee.org/ | SI-935 |
| UL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 123528 |
| cUL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 123528 |
| cUL Recognized | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 211944 |

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## Approvals

| | | |
|---|---|---|
| PRS | http://www.prs.pl/ | TE/2104/880590/16 |
| EAC | | RU*DE*08.B.01873/19 |
| DNV GL | https://approvalfinder.dnvgl.com/ | TAA0000249 |
| EAC | | RU*DE*08.B.01873/19 |
| SEMI F47 | | SEMI F47 |
| cULus Recognized | | |
| 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.

### Device protection

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## Accessories

Type 3 surge protection device - PLT-SEC-T3-3S-230-FM - 2905230



Plug-in device protection, according to type 3/class III, for 3-phase power supply networks with separate N and PE (5-conductor system: L1, L2, L3, N, PE), with integrated surge-proof fuse and remote indication contact.

Type 3 surge protection device - PLT-SEC-T3-24-FM-UT - 2907916



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 24 V AC/DC.

Type 3 surge protection device - PLT-SEC-T3-3S-230-FM - 2905230



Plug-in device protection, according to type 3/class III, for 3-phase power supply networks with separate N and PE (5-conductor system: L1, L2, L3, N, PE), with integrated surge-proof fuse and remote indication contact.

Type 3 surge protection device - PLT-SEC-T3-24-FM-UT - 2907916



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 24 V AC/DC.

## Mounting rail adapter

DIN rail adapter - UTA 107 - 2853983

Universal DIN rail adapter, for screwing on switchgear



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