

# Power supply, with protective coating - QUINT-PS/3AC/24DC/20/CO - 2320924

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Primary-switched QUINT POWER power supply for DIN rail mounting with SFB (Selective Fuse Breaking) Technology, with protective coating, input: 3-phase, output: 24 V DC/20 A

## Product Description

QUINT POWER power supplies with maximum functionality

QUINT POWER circuit breakers magnetically and therefore quickly trip at six times the nominal current, for selective and therefore cost-effective system protection. In addition, the high system availability is ensured by preventive function monitoring which reports critical operating states before errors can occur.

Reliable starting of heavy loads takes place via the static power reserve POWER BOOST. Thanks to the adjustable voltage, all ranges between 18 V DC ... 29.5 V DC are covered.

## Your advantages

- ✓ For superior system availability
- ✓ Reliable starting of difficult loads with the static POWER BOOST power reserve with up to 1.5 times the nominal current permanently
- ✓ Fast tripping of standard circuit breakers with dynamic power reserve SFB (selective fuse breaking) technology with up to 6 times the nominal current for 12 ms
- ✓ Preventive function monitoring
- ✓ Optimum protection with dip coating for 100 % humidity



## Key Commercial Data

|                                      |               |
|--------------------------------------|---------------|
| Packing unit                         | 1 pc          |
| GTIN                                 |               |
| GTIN                                 | 4046356605601 |
| Weight per Piece (excluding packing) | 1,873.000 g   |
| Custom tariff number                 | 85044030      |
| Country of origin                    | Thailand      |

## Technical data

### Dimensions

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## Technical data

### Dimensions

|                                  |        |
|----------------------------------|--------|
| Width                            | 69 mm  |
| Height                           | 130 mm |
| Depth                            | 125 mm |
| Width with alternative assembly  | 125 mm |
| Height with alternative assembly | 130 mm |
| Depth with alternative assembly  | 72 mm  |

### Ambient conditions

|  |  |
|--|--|
| Degree of protection                           | IP20   |
| Ambient temperature (operation)                | -40 °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) | 100 % (at 25 °C, non-condensing)             |
| Climatic class                                 | 3K3 (in acc. with EN 60721)                  |
| Degree of pollution                            | 2  |
| Installation height                            | 5000 m                                       |

### Input data

|                                     |   |
|-------------------------------------|---|
| Nominal input voltage range         | 3x 400 V AC ... 500 V AC                      |
| Input voltage range                 | 3x 320 V AC ... 575 V AC                      |
|                                     | 2x 360 V AC ... 575 V AC                      |
|                                     | 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                 | 3x 1.6 A (400 V AC)                           |
|                                     | 3x 1.3 A (500 V AC)                           |
|                                     | 0.9 A (600 V DC)                              |
| Nominal power consumption           | 783 VA  |
| Inrush surge current                | < 20 A (typical)                              |
| Mains buffering                     | typ. 28 ms (400 V AC)                         |
|                                     | typ. 43 ms (500 V AC)                         |
| Choice of suitable circuit breakers | 6 A ... 16 A (AC: Characteristics B, C, D, K) |
| Type of protection                  | Transient surge protection                    |
| Protective circuit/component        | Varistor, gas-filled surge arrester           |

### Output data

|   |   |
|---|---|
| Nominal output voltage                            | 24 V DC $\pm$ 1 %   |
| Setting range of the output voltage ( $U_{Set}$ ) | 18 V DC ... 29.5 V DC (> 24 V DC, constant capacity restricted) |
| Nominal output current ( $I_N$ )                  | 20 A (-25 °C ... 60 °C, $U_{OUT}$ = 24 V DC)                    |
| POWER BOOST ( $I_{Boost}$ )                       | 26 A (-25 °C ... 40 °C permanent, $U_{OUT}$ = 24 V DC)          |

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## Technical data

### Output data

|  |   |
|--|---|
| Selective Fuse Breaking ( $I_{SFB}$ )          | 120 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                            | max. 32 V DC                                      |
| Protection against surge voltage on the output | < 32 V DC   |
| Control deviation                              | < 1 % (change in load, static 10 % ... 90 %)      |
|  | < 3 % (change in load, dynamic 10 % ... 90 %)     |
|  | < 0.1 % (change in input voltage $\pm 10$ %)      |
| Residual ripple                                | < 40 mV <sub>PP</sub> (with nominal values)       |
| Output power                                   | 480 W   |
| Typical response time                          | < 0.16 s  |
| Peak switching voltages nominal load           | < 40 mV <sub>PP</sub> (at nominal values, 20 MHz) |
| Maximum power dissipation in no-load condition | 11 W  |
| Power loss nominal load max.                   | 40 W  |

### General

|                                 |   |
|---------------------------------|---|
| Net weight                      | 1.5 kg  |
| Efficiency                      | > 93 % (at 400 V AC and nominal values)   |
| 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)   |
| Protection class                | I   |
| Degree of protection            | IP20  |
| MTBF (IEC 61709, SN 29500)      | > 900000 h (25 °C)  |
|                                 | > 534000 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>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 <sup>2</sup> |
| Conductor cross section solid max.    | 6 mm <sup>2</sup>   |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross section flexible max. | 4 mm <sup>2</sup>   |
| Conductor cross section AWG min.      | 18                  |

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## Technical data

### Connection data, input

|                                  |      |
|----------------------------------|------|
| Conductor cross section AWG max. | 10   |
| Stripping length                 | 7 mm |
| Screw thread                     | M4   |

### Connection data, output

|                                       |                     |
|---------------------------------------|---------------------|
| Connection method                     | Screw connection    |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup> |
| Conductor cross section solid max.    | 6 mm <sup>2</sup>   |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross section flexible max. | 4 mm <sup>2</sup>   |
| Conductor cross section AWG min.      | 12                  |
| Conductor cross section AWG max.      | 10                  |
| Stripping length                      | 7 mm                |
| Screw thread                          | M4                  |

### Connection data for signaling

|                                       |                     |
|---------------------------------------|---------------------|
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup> |
| Conductor cross section solid max.    | 6 mm <sup>2</sup>   |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross section flexible max. | 4 mm <sup>2</sup>   |
| Conductor cross section AWG min.      | 18                  |
| Conductor cross section AWG max.      | 10                  |
| Screw thread                          | M4                  |

### Standards and Regulations

|                                  |   |
|----------------------------------|---|
| Electromagnetic compatibility    | Conformance with EMC Directive 2014/30/EU |
| Connection in acc. with standard | CSA                                       |
| 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 (Test Level 3)                     |
| Frequency range                  | 1.4 GHz ... 2 GHz                         |
| Test field strength              | 3 V/m (Test Level 2)                      |
| 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 (Test Level 3)                       |
| Standard - Electrical safety     | IEC 60950-1/VDE 0805 (SELV)               |

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## Technical data

### Standards and Regulations

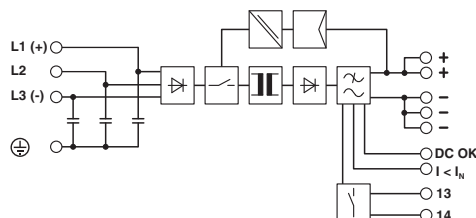
|  |  |
|--|--|
| Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations | EN 50178/VDE 0160 (PELV)   |
| Standard – Safety extra-low voltage  | IEC 60950-1 (SELV) and EN 60204-1 (PELV)   |
| Standard - Safe isolation  | DIN VDE 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  | BG (design tested)   |
| Shipbuilding approval  | DNV GL (EMC B), ABS, LR, RINA, NK, BV  |
| UL approvals   | UL/C-UL listed UL 508  |
|  | UL/C-UL Recognized UL 60950-1 (3-wire + PE, star net)                            |
|  | 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.  |
| Approval - requirement of the semiconductor industry with regard to mains voltage dips   | SEMI F47-0706 Compliance Certificate   |
| Information technology equipment - safety (CB scheme)  | CB Scheme  |
| Rail applications  | EN 50121-4   |
| Noxious gas test   | ISA-S71.04-1985 G3 Harsh Group A   |
| Overvoltage category (EN 62477-1)  | III  |

### 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

Block diagram



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## Classifications

### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27040702 |
| eCl@ss 4.1 | 27040702 |
| eCl@ss 5.0 | 27049002 |
| 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 3.0 | EC001039 |
| ETIM 4.0 | EC000599 |
| ETIM 5.0 | EC002540 |
| ETIM 6.0 | EC002540 |

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211502 |
| UNSPSC 7.0901 | 39121004 |
| UNSPSC 11     | 39121004 |
| UNSPSC 12.01  | 39121004 |
| UNSPSC 13.2   | 39121004 |

## Approvals

### Approvals

#### Approvals

DNV GL / CSA / UL Listed / UL Recognized / cUL Recognized / IECCE CB Scheme / Bauartgeprüft / EAC / EAC / cULus Recognized

#### Ex Approvals

UL Listed / cUL Listed / cULus Listed

### Approval details

|        |  |   |            |
|--------|--|---|------------|
| DNV GL |  | <a href="http://exchange.dnv.com/tari/">http://exchange.dnv.com/tari/</a> | TAE000014W |
|--------|--|---|------------|

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## Approvals

|                  |  |   |                      |
|------------------|--|---|----------------------|
| CSA              |  | <a href="http://www.csagroup.org/services-industries/product-listing/">http://www.csagroup.org/services-industries/product-listing/</a>               | 1925529              |
| UL Listed        |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 123528        |
| UL Recognized    |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 211944        |
| cUL Recognized   |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 211944        |
| IECEE CB Scheme  |  | <a href="http://www.iecee.org/">http://www.iecee.org/</a>   | SI-2794              |
| Bauartgeprüft    |  |   | SI-SIQ BG 005/002    |
| EAC              |  |   | EAC-Zulassung        |
| EAC              |  |   | RU C-DE.A*30.B.01082 |
| cULus Recognized |  |   |                      |

## Accessories

Accessories

Assembly adapter

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### Accessories

#### 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.

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#### Assembly adapters - QUINT-PS-ADAPTERS7/2 - 2938206



Assembly adapter for QUINT POWER 10A on S7-300 rail

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### Device protection

#### 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.

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#### 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.

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### Fan

#### Fan - QUINT-PS/FAN/4 - 2320076



The fan for QUINT-PS/1AC and .../3AC can be mounted without the need for tools or other accessories. By using the fan, optimum cooling is ensured at high ambient temperatures or if the mounting position is rotated.

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### Mounting rail adapter



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### Accessories

DIN rail adapter - UTA 107 - 2853983

Universal DIN rail adapter



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### Redundancy module

Diode - QUINT-DIODE/12-24DC/2X20/1X40 - 2320157



DIN rail diode module 12-24 V DC/2x20 A or 1x40 A. Uniform redundancy up to the consumer.

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Redundancy module - TRIO-DIODE/12-24DC/2X10/1X20 - 2866514



Redundancy module with function monitoring, 12 ... 24 V DC, 2x 10 A, 1x 20 A

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Redundancy module, with protective coating - QUINT-ORING/24DC/2X20/1X40 - 2320186



Active QUINT redundancy module for DIN rail mounting with ACB (Auto Current Balancing) Technology and monitoring functions, input: 24 V DC/2x 20 A, output: 24 V DC/1 x 40 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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### Accessories

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 3A SFB P - 2800838



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 4A SFB P - 2800839



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 5A SFB P - 2800840



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 6A SFB P - 2800841



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

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## Power supply, with protective coating - QUINT-PS/3AC/24DC/20/ CO - 2320924

### Accessories

Thermomagnetic device circuit breaker - CB TM1 8A SFB P - 2800842



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 10A SFB P - 2800843



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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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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