

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



2320924

<https://www.phoenixcontact.com/pc/products/2320924>

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Primary-switched power supply unit QUINT POWER, Screw connection, SFB Technology (Selective Fuse Breaking), 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

Commercial Data

| | |
|--------------------------------------|---------------------|
| Item number | 2320924 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Product Key | CMPQ33 |
| Catalog Page | Page 247 (C-4-2019) |
| GTIN | 4046356605601 |
| Weight per Piece (including packing) | 1,834.5 g |
| Weight per Piece (excluding packing) | 1,834 g |
| Customs tariff number | 85044083 |
| Country of origin | TH |

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Technical Data

Input data

AC operation

| | |
|--|---|
| 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 |
| Voltage type of supply voltage | AC/DC |
| Inrush current | < 20 A (typical) |
| Inrush current integral (I^2t) | < 3.2 A ² s |
| AC frequency range | 45 Hz ... 65 Hz |
| Frequency range DC | 0 Hz |
| Mains buffering time | typ. 28 ms (400 V AC) |
| | typ. 43 ms (500 V AC) |
| 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 |
| Protective circuit | Transient surge protection; Varistor, gas-filled surge arrester |
| Typical response time | < 0.16 s |
| Permissible backup fuse | B6 B10 B16 |
| Permissible DC backup fuse | DC: Connect a suitable fuse upstream |
| Recommended breaker for input protection | 6 A ... 16 A (AC: Characteristics B, C, D, K) |
| Discharge current to PE | < 3.5 mA |

Output data

| | |
|--|---|
| Efficiency | > 93 % (at 400 V AC and nominal values) |
| Nominal output voltage | 24 V DC ± 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) |
| Selective Fuse Breaking (I_{SFB}) | 120 A (12 ms) |
| Magnetic circuit breaker tripping | B2 / B4 / B6 / B10 / B16 / C2 / C4 / C6 |
| Derating | 60 °C ... 70 °C (2.5%/K) |
| Feedback voltage resistance | max. 32 V DC |
| Protection against overvoltage at the output (OVP) | < 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 ± 10 %) |
| Residual ripple | < 40 mV _{PP} (with nominal values) |

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|--------------------------------------|---|
| Output power | 480 W |
| Peak switching voltages nominal load | < 40 mV _{PP} (at nominal values, 20 MHz) |
| Maximum no-load power dissipation | 11 W |
| Power loss nominal load max. | 40 W |
| Rise time | < 0.05 s (U _{OUT} (10 % ... 90 %)) |
| Connection in parallel | yes, for redundancy and increased capacity |
| Connection in series | yes |

Signal: DC OK active

| | |
|-------------------------|---|
| Output description | U _{OUT} > 0.9 x U _N : High signal |
| Switching voltage range | 18 V ... 24 V |
| Output voltage | + 24 V DC |
| Maximum inrush current | ≤ 20 mA (short-circuit-proof) |
| Continuous load current | ≤ 20 mA |

Signal: DC OK floating

| | |
|---------------------------|---|
| Output description | Relay contact, U _{OUT} > 0.9 x U _N : Contact closed |
| Maximum switching voltage | 30 V AC/DC 24 V DC |
| Maximum inrush current | 0.5 A 1 A |
| Continuous load current | ≤ 1 A |

Signal: POWER BOOST, active

| | |
|-------------------------|---|
| Output description | I _{OUT} < I _N : High signal |
| Switching voltage range | 18 V ... 24 V |
| Output voltage | + 24 V DC |
| Maximum inrush current | ≤ 20 mA (short-circuit-proof) |
| Continuous load current | ≤ 20 mA |

Connection data

Input

| | |
|---------------------------------------|---------------------|
| Connection method | Screw connection |
| Conductor cross section, rigid min. | 0.2 mm ² |
| Conductor cross section, rigid 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. | 18 |
| Conductor cross section AWG max. | 10 |
| Stripping length | 7 mm |
| Screw thread | M4 |
| Tightening torque, min | 0.5 Nm |
| Tightening torque max | 0.6 Nm |

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Output

| | |
|---------------------------------------|---------------------|
| Connection method | Screw connection |
| Conductor cross section, rigid min. | 0.2 mm ² |
| Conductor cross section, rigid 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. | 12 |
| Conductor cross section AWG max. | 10 |
| Stripping length | 7 mm |
| Screw thread | M4 |
| Tightening torque, min | 0.5 Nm |
| Tightening torque max | 0.6 Nm |

Signal

| | |
|---------------------------------------|---------------------|
| Conductor cross section, rigid min. | 0.2 mm ² |
| Conductor cross section, rigid 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. | 18 |
| Conductor cross section AWG max. | 10 |
| Screw thread | M4 |
| Tightening torque, min | 0.5 Nm |
| Tightening torque max | 0.6 Nm |

Signaling

| | |
|--------------------|-------------------------|
| Types of signaling | LED |
| | Active switching output |
| | Relay contact |

Signal output: DC OK active

| | |
|------------------------|---|
| Status display | $U_{OUT} > 0.9 \times U_N$: "DC OK" LED green |
| Note on status display | $U_{OUT} < 0.9 \times U_N$: Flashing "DC OK" LED |
| Color | green |
| Note on status display | LED flashing |

Signal output: DC OK floating

| | |
|------------------------|---|
| Status display | $U_{OUT} > 0.9 \times U_N$: "DC OK" LED green |
| Note on status display | $U_{OUT} < 0.9 \times U_N$: Flashing "DC OK" LED |
| Color | green |
| Note on status display | LED flashing |

Signal output: POWER BOOST, active

| | |
|----------------|--------------------------------------|
| Status display | $I_{OUT} > I_N$: LED "BOOST" yellow |
| Color | yellow |

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Electrical properties

| | |
|---------------------------------|-------------------------|
| Number of phases | 3.00 |
| Insulation voltage input/output | 4 kV AC (type test) |
| | 2 kV AC (routine test) |
| Insulation voltage output / PE | 500 V DC (routine test) |
| Insulation voltage input / PE | 3.5 kV AC (type test) |
| | 2 kV AC (routine test) |

Product properties

| | |
|----------------------------|--------------------|
| Product type | Power supply |
| Product family | QUINT POWER |
| MTBF (IEC 61709, SN 29500) | > 900000 h (25 °C) |
| | > 534000 h (40 °C) |

Insulation characteristics

| | |
|---------------------|---|
| Protection class | I |
| Degree of pollution | 2 |

Dimensions

| | |
|--------|--------|
| Width | 69 mm |
| Height | 130 mm |
| Depth | 125 mm |

Installation dimensions

| | |
|----------------------------------|---------------|
| Installation distance right/left | 5 mm / 5 mm |
| Installation distance top/bottom | 50 mm / 50 mm |

Alternative assembly

| | |
|--------|--------|
| Width | 125 mm |
| Height | 130 mm |
| Depth | 72 mm |

Mounting

| | |
|-------------------------|---|
| 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 |
| Mounting position | horizontal DIN rail NS 35, EN 60715 |
| With protective coating | yes |

Material specifications

| | |
|------------------|--------------------------|
| Housing material | Metal |
| Type of housing | Steel sheet, zinc-plated |
| Housing material | Steel sheet, zinc-plated |

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Environmental and real-life conditions

Ambient conditions

| | |
|--|---|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -40 °C ... 70 °C (> 60 °C Derating: 2,5 %/K) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Ambient temperature (start-up type tested) | -40 °C |
| Maximum altitude | 5000 m |
| Climatic class | 3K3 (in acc. with EN 60721) |
| Max. permissible relative humidity (operation) | 100 % (at 25 °C, non-condensing) |
| 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. |

Standards and regulations

| | |
|--|--|
| Rail applications | EN 50121-4 EN 50121-3-2 |
| Standard – Limitation of mains harmonic currents | EN 61000-3-2 |
| Standard - Electrical safety | IEC 61010-2-201 (SELV) |
| Standard - Equipment safety | BG (design tested) |
| Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment | EN 50178 |
| Standard – Safety extra-low voltage | IEC 61010-1 (SELV) IEC 61010-2-201 (PELV) |
| Standard - Safe isolation | IEC 61010-2-201 |
| Standard - safety for equipment for measurement, control, and laboratory use | IEC 61010-1 |
| Noxious gas test | ISA-S71.04-1985 G3 Harsh Group A |
| Approval - requirement of the semiconductor industry with regard to mains voltage dips | SEMI F47-0706 Compliance Certificate |

Overvoltage category

| | |
|------------|-----|
| EN 62477-1 | III |
|------------|-----|

Approvals

| | |
|-----------------------|--|
| CSA | CAN/CSA-C22.2 No. 60950-1-07 CSA-C22.2 No. 107.1-01 |
| 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) |

EMC data

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| | |
|-------------------------------------|---|
| Low Voltage Directive | Conformance with Low Voltage Directive 2014/35/EC |
| EMC requirements for noise emission | EN 61000-6-3 |
| | EN 61000-6-4 |
| EMC requirements for noise immunity | EN 61000-6-1 |
| | EN 61000-6-2 |
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| Noise emission | EN 55011 (EN 55022) |

Electrostatic discharge

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-2 |
|-----------------------|--------------|

Electrostatic discharge

| | |
|-------------------|----------------------|
| Contact discharge | 8 kV (Test Level 4) |
| Discharge in air | 15 kV (Test Level 4) |
| Comments | Criterion A |

Electromagnetic HF field

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-3 |
|-----------------------|--------------|

Electromagnetic HF field

| | |
|---------------------|-----------------------|
| Frequency range | 80 MHz ... 1 GHz |
| Test field strength | 20 V/m (Test Level 3) |
| Frequency range | 1 GHz ... 2 GHz |
| Test field strength | 10 V/m (Test Level 3) |
| Frequency range | 2 GHz ... 3 GHz |
| Test field strength | 10 V/m (Test Level 3) |
| Comments | Criterion A |

Fast transients (burst)

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-4 |
|-----------------------|--------------|

Fast transients (burst)

| | |
|----------|------------------------------------|
| Input | 4 kV (Test Level 4 - asymmetrical) |
| Output | 2 kV (Test Level 3 - asymmetrical) |
| Signal | 2 kV (Test Level 4 - asymmetrical) |
| Comments | Criterion B |

Surge voltage load (surge)

| | |
|-----------------------|------------------------------------|
| Standards/regulations | EN 61000-4-5 |
| Input | 3 kV (Test Level 3 - symmetrical) |
| | 6 kV (Test Level 4 - asymmetrical) |
| Output | 1 kV (Test Level 2 - symmetrical) |
| | 2 kV (Test Level 3 - asymmetrical) |
| Signal | 1 kV (Test Level 2 - asymmetrical) |
| Comments | Criterion A |

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Conducted interference

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-6 |
|-----------------------|--------------|

Conducted interference

| | |
|-----------------|---------------------|
| I/O/S | asymmetrical |
| Frequency range | 0.15 MHz ... 80 MHz |
| Comments | Criterion A |
| Voltage | 10 V (Test Level 3) |

Emitted interference

| | |
|--|--|
| Standards/regulations | EN 61000-6-3 |
| Radio interference voltage in acc. with EN 55011 | EN 55011 (EN 55022) Class B, area of application: Industry and residential |
| Emitted radio interference in acc. with EN 55011 | EN 55011 (EN 55022) Class B, area of application: Industry and residential |

Criteria

| | |
|-------------|--|
| Criterion A | Normal operating behavior within the specified limits. |
| Criterion B | Temporary impairment to operational behavior that is corrected by the device itself. |

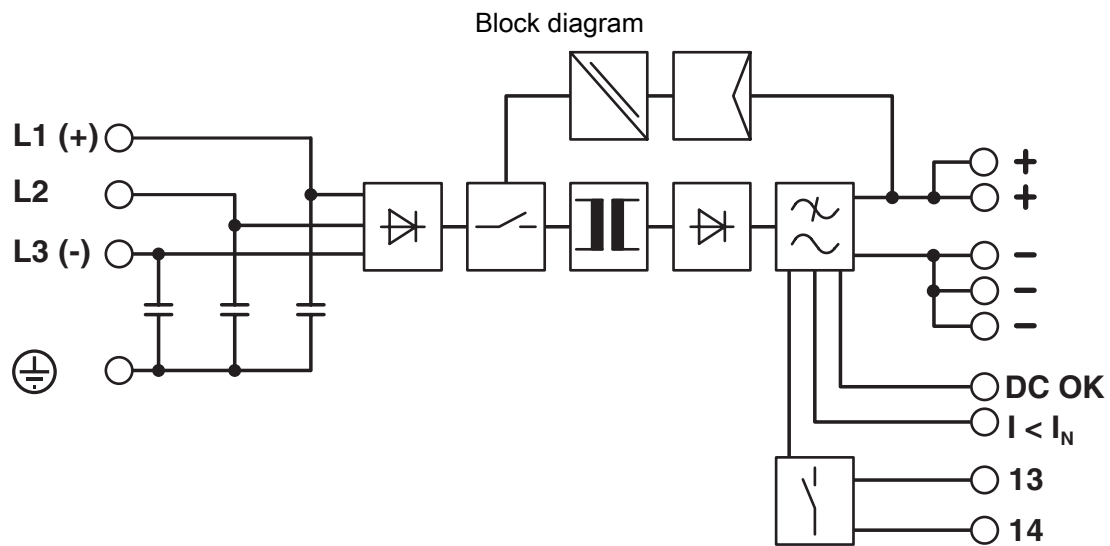
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Drawings



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/pc/products/2320924>



cUL Recognized
Approval ID: FILE E 211944



UL Recognized
Approval ID: FILE E 211944



IECEE CB Scheme
Approval ID: SI-2794



EAC
Approval ID: EAC-Zulassung



EAC
Approval ID: EAC-Zulassung



UL Listed
Approval ID: FILE E 123528



Type approved
Approval ID: SI-SIQ BG 005/002



EAC
Approval ID: RU S-DE.BL08.W.00764



UL Recognized
Approval ID: FILE E 211944



IECEE CB Scheme
Approval ID: SI-2794



cUL Recognized
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UL Listed

Approval ID: FILE E 123528



Type approved

Approval ID: SI-SIQ BG 005/002



EAC

Approval ID: RU S-DE.BL08.W.00764



EAC

Approval ID: RU S-DE.BL08.W.00764



EAC

Approval ID: RU S-DE.BL08.W.00764



cCSAus

Approval ID: 1925529



cCSAus

Approval ID: 1925529



cUL Listed

Approval ID: FILE E 199827



UL Listed

Approval ID: FILE E 199827



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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-11.0 | 27040701 |
| ECLASS-13.0 | 27040701 |
| ECLASS-12.0 | 27040701 |

ETIM

| | |
|----------|----------|
| ETIM 8.0 | EC002540 |
|----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 39121000 |
|-------------|----------|

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Environmental Product Compliance

| | |
|------------|--|
| REACH SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally Friendly Use Period = 25; |
| | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

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