

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



2866705

<https://www.phoenixcontact.com/us/products/2866705>

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Primary-switched power supply unit QUINT POWER, Pluggable screw connection, SFB Technology (Selective Fuse Breaking), input: 3-phase, output: 24 V DC / 10 A, adjustable from 18 V DC ... 29.5 V DC, 450 V DC ... 800 V DC. Please use the following item for new projects: 2904621 QUINT4-PS/3AC/24DC/10

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. The high level of system availability is additionally ensured, thanks to preventive function monitoring, as it reports critical operating states before errors occur.

Reliable starting of heavy loads takes place via the static power reserve POWER BOOST. Thanks to the adjustable voltage, all ranges between 5 V DC ... 56 V DC are covered.

Your advantages

- Reliable starting of difficult loads
- High level of system availability even in the event of permanent phase failure
- Preventive function monitoring

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2866705 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CM11 |
| Product key | CMPQ33 |
| GTIN | 4046356152891 |
| Weight per piece (including packing) | 1,479 g |
| Weight per piece (excluding packing) | 1,100 g |
| Customs tariff number | 85044095 |
| Country of origin | TH |

Technical data

Input data

AC operation

| | |
|--|---|
| Nominal input voltage range | 3x 400 V AC ... 500 V AC |
| Input voltage range | 3x 400 V AC ... 500 V AC -20 % ... +15 % |
| | 2x 400 V AC ... 500 V AC -10 % ... +15 % |
| Input voltage range DC | 450 V DC ... 800 V DC |
| Voltage type of supply voltage | AC |
| Inrush current | < 15 A (at 25 °C) |
| Inrush current integral (I^2t) | < 1.5 A ² s |
| Inrush current limitation | 15 A |
| AC frequency range | 45 Hz ... 65 Hz |
| Frequency range DC | 0 Hz |
| Mains buffering time | > 30 ms (400 V AC) |
| | > 46 ms (500 V AC) |
| Current consumption | 3x 1.2 A (400 V AC) |
| | 3x 1 A (500 V AC) |
| | 2x 1.5 A (400 V AC) |
| | 2x 1.3 A (500 V AC) |
| Nominal power consumption | 411 VA |
| Protective circuit | Transient surge protection; Varistor, gas-filled surge arrester |
| Power factor (cos phi) | 0.62 |
| Typical response time | < 0.45 s |
| Permissible backup fuse | B6 B10 B16 AC: |
| 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 |

DC operation

| | |
|--|---|
| Nominal input voltage range | 500 V DC ... 600 V DC |
| Input voltage range | 500 V DC ... 600 V DC -10 % ... +33 % (mid-point earthed) |
| Voltage type of supply voltage | DC |
| Current consumption | 0.8 A (500 V DC) |
| | 0.7 A (600 V DC) |
| Recommended breaker for input protection | 1x 6 A \geq 1000 V DC (10 x 38 mm, 30 kA L/R = 2 ms) |

Output data

| | |
|---|---|
| Efficiency | typ. 93 % (400 V AC) |
| Output characteristic | U/I |
| 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) | 10 A |

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| | |
|--|---|
| POWER BOOST (I_{Boost}) | 15 A (-25 °C ... 40 °C permanent, $U_{OUT} = 24$ V DC) |
| Static Boost ($I_{Stat.Boost}$) | 15 A |
| Selective Fuse Breaking (I_{SFB}) | 60 A (12 ms) |
| Magnetic circuit breaker tripping | B2 / B4 / B6 / C2 / C4 |
| Derating | 60 °C ... 70 °C (2.5 %/K) |
| Feedback voltage resistance | max. 35 V DC |
| Protection against overvoltage at the output (OVP) | < 35 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 | < 20 mV _{PP} (with nominal values) |
| Output power | 240 W 360 W |
| Peak switching voltages nominal load | < 20 mV _{PP} (at nominal values, 20 MHz) |
| Maximum no-load power dissipation | 7 W |
| Power loss nominal load max. | 19 W |
| Rise time | < 0.15 s (U_{OUT} (10 % ... 90 %)) |
| Connection in parallel | yes, for redundancy and increased capacity |
| Connection in series | yes |

Signal: DC OK active

| | |
|---------------------------|--|
| Output description | $U_{OUT} > 0.9 \times U_N$: High signal |
| Maximum switching voltage | + 24 V DC |
| Switching voltage range | 18 V DC ... 24 V DC |
| 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, $U_{OUT} > 0.9 \times U_N$: 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 |
| Maximum switching voltage | + 24 V DC |
| Switching voltage range | 18 V DC ... 24 V DC |
| Output voltage | + 24 V DC |
| Maximum inrush current | ≤ 20 mA (short-circuit-proof) |
| Continuous load current | ≤ 20 mA |

Connection data

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Input

| | |
|---------------------------------------|----------------------------|
| Connection method | Pluggable screw connection |
| Conductor cross-section, rigid min. | 0.2 mm ² |
| Conductor cross-section, rigid 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. | 16 |
| Conductor cross-section AWG max. | 12 |
| Stripping length | 7 mm |
| Screw thread | M3 |
| Tightening torque, min | 0.5 Nm |
| Tightening torque max | 0.6 Nm |

Output

| | |
|---------------------------------------|----------------------------|
| Connection method | Pluggable screw connection |
| Conductor cross-section, rigid min. | 0.2 mm ² |
| Conductor cross-section, rigid 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. | 16 |
| Conductor cross-section AWG max. | 12 |
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Signal

| | |
|---------------------------------------|----------------------------|
| Connection method | Pluggable screw connection |
| Conductor cross-section, rigid min. | 0.2 mm ² |
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| Conductor cross-section flexible max. | 2.5 mm ² |
| Conductor cross-section AWG min. | 16 |
| Conductor cross-section AWG max. | 12 |
| Screw thread | M3 |
| Tightening torque, min | 0.5 Nm |
| Tightening torque max | 0.6 Nm |

Signaling

| | |
|---------------------------|-------------------------|
| Types of signaling | LED |
| | Active switching output |
| | Relay contact |
| Operating voltage display | Green LED |

Signal output: DC OK active

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| | |
|------------------------|---|
| 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 |

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 |

Signal output: POWER BOOST, active

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

Electrical properties

| | |
|---------------------------------|-------------------------|
| Number of phases | 3 |
| 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) | > 1100000 h (25 °C) |
| | > 630000 h (40 °C) |
| | > 280000 h (60 °C) |

Insulation characteristics

| | |
|-----------------------------------|----------------------|
| Protection class | I |
| Overvoltage category (EN 61010-1) | II (≤ 5000 m) |
| Overvoltage category (EN 62477-1) | III (≤ 2000 m) |
| Degree of pollution | 2 |

Dimensions

| | |
|--------|--------|
| Width | 60 mm |
| Height | 130 mm |
| Depth | 125 mm |

Installation dimensions

| | |
|---|---------------|
| Installation distance right/left (active) | 15 mm / 15 mm |
| Installation distance top/bottom (active) | 50 mm / 50 mm |

Alternative assembly

| | |
|--------|--------|
| Width | 122 mm |
| Height | 130 mm |
| Depth | 63 mm |

Mounting

| | |
|-------------------------|---|
| Assembly note | 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 | no |

Material specifications

| | |
|----------------------|---|
| Housing material | Metal |
| Hood version | Galvanized sheet steel, free from chrome (VI) |
| Side element version | Aluminum |

Environmental and real-life conditions

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 |
| Ambient temperature (start-up type tested) | -40 °C |
| Maximum altitude | ≤ 5000 m (> 2000 m, observe derating) |
| Climatic class | 3K3 (in acc. with EN 60721) |
| Max. permissible relative humidity (operation) | ≤ 95 % (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. |
| Temp code | T4A (-25 ... +60 °C) |

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 | GS (tested safety) |
| Standard - Approval for medical use | IEC 60601-1, 2 x MOOP |
| 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 |
| Standard - surge resistance | VDE 0160 (curve W2) |
| Approval - requirement of the semiconductor industry with regard to mains voltage dips | SEMI F47-0706 Compliance Certificate |

Approvals

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| | |
|-----------------------|--|
| 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 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 T4A (Hazardous Location) |

Conformity/Approvals

| | |
|----------------------------------|---|
| SIL in accordance with IEC 61508 | 0 |
|----------------------------------|---|

EMC data

| | |
|-------------------------------------|---|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| 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 |

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 A |

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Surge voltage load (surge)

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-5 |
|-----------------------|--------------|

Surge voltage load (surge)

| | |
|----------|------------------------------------|
| 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 |

Conducted interference

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

Conducted interference

| | |
|---------------------|---------------------|
| Input/output/signal | 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. |

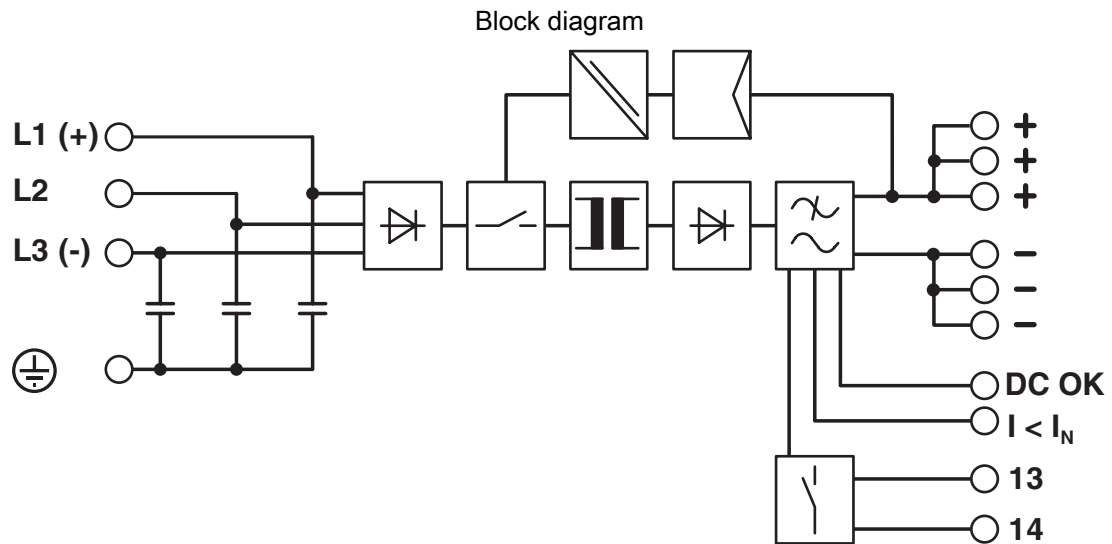
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Drawings



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2866705>



IECEE CB Scheme
Approval ID: SI-11938



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



LR
Approval ID: LR22301698TA-02



NK
Approval ID: TA24091M



BV
Approval ID: 21004/D0 BV



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

BSH

Approval ID: 581



RINA
Approval ID: ELE333522XG

ABS

Approval ID: 23-2355407-PDA

DNV

Approval ID: TAA000030X



cCSAus
Approval ID: 80236684

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IECEE CB Scheme
Approval ID: SI-11829 A1



IECEE CB Scheme
Approval ID: SI-11937



Type approved
Approval ID: SI-SIQ BG 005/114

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-13.0 | 27040701 |
| ECLASS-15.0 | 27040701 |

ETIM

| | |
|-----------|----------|
| ETIM 10.0 | EC002540 |
|-----------|----------|

UNSPSC

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

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Environmental product compliance

EU RoHS

| | |
|---|--------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 7(a), 7(c)-I |

China RoHS

| | |
|--|---|
| Environment friendly use period (EFUP) | EFUP-25 |
| | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

EU REACH SVHC

| | |
|-------------------------------------|--------------------------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1) |
| SCIP | c0f91c38-6d7b-4a9a-a22d-34e125b760ac |

EF3.1 Climate Change

| | |
|---------|---------------|
| CO2e kg | 3.745 kg CO2e |
|---------|---------------|

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