# QUINT-PS/1AC/48DC/20 - Power supply

2866695

https://www.phoenixcontact.com/us/products/2866695

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Please use the following item for new projects: 2904612 QUINT4-PS/1AC/48DC/20. Primary-switched power supply unit QUINT POWER, Screw connection, SFB Technology (Selective Fuse Breaking), input: 1-phase, output: 48 V DC / 20 A, adjustable from 30 V DC ... 56 V DC, 90 V DC ... 300 V DC

## Product description

QUINT POWER power supplies with maximum functionality
QUINT POWER miniature 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
- Quick tripping of standard miniature circuit breakers
- Preventive function monitoring

ELEKTROGERÄTE RÜCKNAHME

## Commercial data

| | |
|---|---|
| Item number | 2866695 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CM11 |
| Product key | CMPQ14 |
| GTIN | 4046356547727 |
| Weight per piece (including packing) | 3,819 g |

| | |
|---|---|
| Weight per piece (excluding packing) | 3,300 g |
| Customs tariff number | 85044095 |
| Country of origin | TH |

# Technical data

## Input data

AC operation

| | |
|---|---|
| Nominal input voltage range | 100 V AC ... 240 V AC |
| | 120 V DC ... 300 V DC (UL 508: ≤ 250 V DC) |
| Input voltage range | 85 V AC ... 264 V AC |
| | 90 V DC ... 300 V DC (UL 508: ≤ 250 V DC) |
| Input voltage range AC | 85 V AC ... 264 V AC |
| Input voltage range DC | 90 V DC ... 300 V DC (UL 508: ≤ 250 V DC) |
| Electric strength, max. | 300 V AC |
| Voltage type of supply voltage | AC |
| Inrush current | < 15 A (typical) |
| Inrush current integral ($I^2t$) | < 1.6 $A^2s$ |
| AC frequency range | 45 Hz ... 65 Hz |
| Frequency range DC | 0 Hz |
| Mains buffering time | typ. 20 ms (120 V AC) |
| | typ. 22 ms (230 V AC) |
| Current consumption | 8.7 A (120 V AC) |
| | 4.5 A (230 V AC) |
| | 9.4 A (110 V DC) |
| | 4.6 A (220 V DC) |
| Nominal power consumption | 1046 VA |
| Protective circuit | Transient surge protection; Varistor |
| Typical response time | < 0.65 s |
| Input fuse | 20 A (fast blow, internal) |
| Permissible backup fuse | B16 B25 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

| | |
|---|---|
| Voltage type of supply voltage | DC |

## Output data

| | |
|---|---|
| Efficiency | > 93 % (for 230 V AC and nominal values) |
| Nominal output voltage | 48 V DC ±1 % |
| Setting range of the output voltage ($U_{Set}$) | 30 V DC ... 56 V DC (> 48 V DC, constant capacity restricted) |
| Nominal output current ($I_N$) | 20 A (-25 °C ... 60 °C, $U_{OUT}$ = 48 V DC) |
| POWER BOOST ($I_{Boost}$) | 22.5 A (-25 °C ... 40 °C permanent, $U_{OUT}$ = 48 V DC ) |
| Selective Fuse Breaking ($I_{SFB}$) | 100 A (12 ms) |
| Magnetic circuit breaker tripping | B2 / B4 / B6 / B10 / C2 / C4 / C6 |
| Derating | 60 °C ... 70 °C (2.5 %/K) |

| | |
|---|---|
| Feedback voltage resistance | max. 60 V DC |
| Protection against overvoltage at the output (OVP) | < 60 V DC |
| Active current limitation | Approx. $I_{BOOST}$ = 22.5 A (for short-circuit) |
| 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 | < 50 $mV_{PP}$ (with nominal values) |
| Output power | 960 W |
| Maximum no-load power dissipation | 12 W |
| Power loss nominal load max. | 74 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 DC ... 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 DC ... 24 V DC |
| Output voltage | + 48 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 mm² |
| Conductor cross-section, rigid max. | 6 mm² |
| Conductor cross-section flexible min. | 0.2 mm² |
| Conductor cross-section flexible max. | 4 mm² |
| Conductor cross-section AWG min. | 14 |
| Conductor cross-section AWG max. | 10 |
| Stripping length | 7 mm |

| | |
|---|---|
| Screw thread | M3 |
| Tightening torque, min | 0.5 Nm |
| Tightening torque max | 0.6 Nm |

Output

| | |
|---|---|
| Connection method | Screw connection |
| Conductor cross-section, rigid min. | 0.5 mm² |
| Conductor cross-section, rigid max. | 16 mm² |
| Conductor cross-section flexible min. | 0.5 mm² |
| Conductor cross-section flexible max. | 16 mm² |
| Conductor cross-section AWG min. | 8 |
| Conductor cross-section AWG max. | 6 |
| Stripping length | 10 mm |
| Screw thread | M3 |
| Tightening torque, min | 1.2 Nm |
| Tightening torque max | 1.5 Nm |

Signal

| | |
|---|---|
| Connection method | Screw connection |
| Conductor cross-section, rigid min. | 0.2 mm² |
| Conductor cross-section, rigid 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 |
| 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 |

Signal output: DC OK active

| | |
|---|---|
| Status display | $U_{OUT}$ > 0.9 x $U_N$: "DC OK" LED green |
| Note on status display | $U_{OUT}$ < 0.9 x $U_N$: Flashing "DC OK" LED |
| | $I_{OUT}$ < $I_N$: LED ON |

Signal output: DC OK floating

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

Signal output: POWER BOOST, active

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

## Electrical properties

| | |
|---|---|
| Number of phases | 1 |
| 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) | > 880000 h (25 °C) |
| | > 523000 h (40 °C) |

### Insulation characteristics

| | |
|---|---|
| Protection class | I |
| Overvoltage category (EN 62477-1) | III |
| Degree of pollution | 2 |

## Dimensions

| | |
|---|---|
| Width | 180 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 | 122 mm |
| Height | 130 mm |
| Depth | 183 mm |

## Mounting

| | |
|---|---|
| Assembly note | alignable: $P_N$ ≥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 |
| Mounting position | horizontal DIN rail NS 35, EN 60715 |
| With protective coating | no |

## Material specifications

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

## 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 | 6000 m |
| 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 | T4 (-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 | 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 |

## Approvals

| | |
|---|---|
| CSA | CAN/CSA-C22.2 No. 60950-1-07 |
| | CSA-C22.2 No. 107.1-01 |
| Shipbuilding approval | DNV GL (EMC A) |
| SIQ | BG (type approved) |
| 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 T4 (Hazardous Location) |

## 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 |

Noise emission

| | |
|---|---|
| Standards/regulations | 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 A |

Surge voltage load (surge)

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

Surge voltage load (surge)

| | |
|---|---|
| Input | 2 kV (Test Level 3 - symmetrical) |
| | 4 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

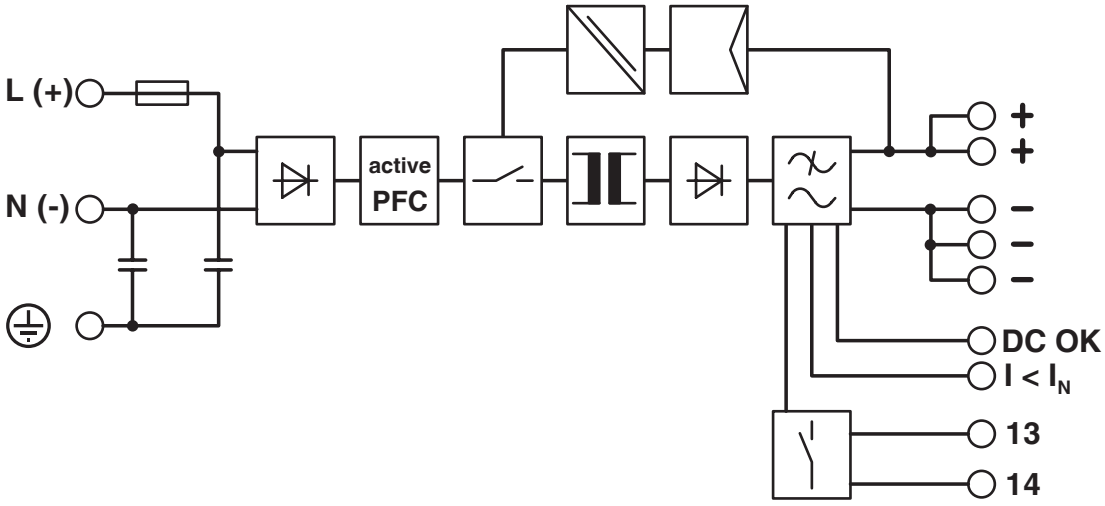
| | |
|---|---|
| Standards/regulations | EN 61000-6-3 |
| Radio interference voltage in acc. with EN 55011 | EN 55011 (EN 55022) Class B, area of application: Industry and residential |
| Emitted radio interference in acc. with EN 55011 | EN 55011 (EN 55022) Class B, area of application: Industry and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

## Drawings

Block diagram



## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2866695

**UL Recognized**
Approval ID: E211944

**IECEE CB Scheme**
Approval ID: SI-2748

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

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

**UL Listed**
Approval ID: E123528

**DNV**
Approval ID: TAA000030X

**cCSAus**
Approval ID: 2448618

**EAC**
Approval ID: KZ7500651 0101 12535

## Classifications

### ECLASS

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

### ETIM

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

### UNSPSC

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

## 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 | a162e15e-b607-4939-8cc2-48f5cdfe67fb |

EF3.1 Climate Change

| | |
|---|---|
| CO2e kg | 111.487 kg CO2e |


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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com