

# QUINT-PS/3AC/24DC/40 - Power supply



2866802

<https://www.phoenixcontact.com/gb/products/2866802>

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Primary-switched power supply unit QUINT POWER, Screw connection, DIN rail mounting, SFB Technology (Selective Fuse Breaking), input: 3-phase, output: 24 V DC / 40 A, adjustable from 18 V DC ... 29.5 V DC. Please use the following item for new projects: 2904623 QUINT4-PS/3AC/24DC/40

## 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	2866802
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CMPQ33
Product key	CMPQ33
GTIN	4046356152877
Weight per piece (including packing)	3,005 g
Weight per piece (excluding packing)	2,954 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 %
Voltage type of supply voltage	AC
Inrush current	< 15 A (at 25 °C)
Inrush current integral ( $I^2t$ )	< 1 A <sup>2</sup> s
Inrush current limitation	15 A
AC frequency range	45 Hz ... 65 Hz
Frequency range DC	0 Hz
Mains buffering time	> 25 ms (400 V AC) > 35 ms (500 V AC)
Current consumption	3x 2.1 A (400 V AC) 3x 1.7 A (500 V AC)
Nominal power consumption	1342 VA
Protective circuit	Transient surge protection; Varistor, gas-filled surge arrester
Power factor (cos phi)	0.76
Typical response time	< 0.5 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 ... 20 A (Characteristic B, C, D, K or comparable)
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	2.2 A (500 V DC) 1.9 A (600 V DC)
Recommended breaker for input protection	1x 6 A ≥ 1000 V DC (10 x 38 mm, 30 kA L/R = 2 ms)

### Output data

Efficiency	typ. 94 % (400 V AC)
Output characteristic	U/I
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 ( $I_N$ )	40 A
POWER BOOST ( $I_{Boost}$ )	45 A (-25 °C ... 40 °C permanent, $U_{OUT} = 24$ V DC )
Static Boost ( $I_{Stat.Boost}$ )	45 A
Selective Fuse Breaking ( $I_{SFB}$ )	215 A (12 ms)
Magnetic circuit breaker tripping	B2 / B4 / B6 / B10 / B16 / B25 / C2 / C4 / C6 / C13

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Derating	60 °C ... 70 °C (2.5 %/K)
Feedback voltage resistance	≤ 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	< 40 mV <sub>PP</sub> (with nominal values)
Short-circuit-proof	yes
Output power	960 W
	1080 W
Peak switching voltages nominal load	< 5 mV <sub>PP</sub> (at nominal values, 20 MHz)
Maximum no-load power dissipation	18 W
Power loss nominal load max.	63 W
Rise time	< 0.15 s (U <sub>OUT</sub> (10 % ... 90 %))
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	yes

## Signal: DC OK active

Output description	U <sub>OUT</sub> > 0.9 x U <sub>N</sub> : High signal
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 <sub>OUT</sub> > 0.9 x U <sub>N</sub> : 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 <sub>OUT</sub> < I <sub>N</sub> : High signal
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

### Input

Connection method	Screw connection
Conductor cross-section, rigid min.	0.2 mm <sup>2</sup>
Conductor cross-section, rigid max.	6 mm <sup>2</sup>
Conductor cross-section flexible min.	0.2 mm <sup>2</sup>

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Conductor cross-section flexible max.	4 mm <sup>2</sup>
Conductor cross-section AWG min.	18
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 mm <sup>2</sup>
Conductor cross-section, rigid max.	16 mm <sup>2</sup>
Conductor cross-section flexible min.	0.5 mm <sup>2</sup>
Conductor cross-section flexible max.	16 mm <sup>2</sup>
Conductor cross-section AWG min.	8
Conductor cross-section AWG max.	6
Stripping length	10 mm
Screw thread	M4
Tightening torque, min	1.2 Nm
Tightening torque max	1.5 Nm

## Signal

Connection method	Screw connection
Conductor cross-section, rigid min.	0.2 mm <sup>2</sup>
Conductor cross-section, rigid 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	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

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

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Signal output: POWER BOOST, active

Status display	$I_{OUT} > I_N$ : LED "BOOST" yellow
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## 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)	> 880000 h (25 °C)
	> 500000 h (40 °C)
	> 216000 h (60 °C)

## Insulation characteristics

Protection class	I
Overvoltage category (EN 61010-1)	II ( $\leq 5000$ m)
Overvoltage category (EN 62477-1)	III ( $\leq 2000$ m)
Overvoltage category (EN 61558-2-16)	II ( $\leq 5000$ m)
Degree of pollution	2

## Dimensions

Width	96 mm
Height	130 mm
Depth	176 mm

## Installation dimensions

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

## Alternative assembly

Width	176 mm
Height	130 mm
Depth	99 mm

## Mounting

Mounting type	DIN rail 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

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With protective coating	no
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## 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
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)	5 Hz ... 100 Hz resonance search 0.7g, 90 min., resonance frequency 0.7g, 90 min. (in accordance with DNV GL Class A)
Temp code	T4 (-25 ... +70 °C; > 60 °C, Derating: 2,5 %/K)

## 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 – 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)

## Approvals

CSA	CAN/CSA-C22.2 No. 60950-1-07
	CSA-C22.2 No. 107.1-01
Shipbuilding approval	DNV GL (EMC A), ABS, LR, RINA, NK, BV
UL approvals	UL Listed UL 508
	UL/C-UL Recognized UL 60950-1 (3-wire + PE, star net)
	UL 121201 & CSA C22.2 No. 213-17 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location)

## EMC data

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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
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## 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
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## 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
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## 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
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## Surge voltage load (surge)

Input	2 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

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Standards/regulations	EN 61000-4-6
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## 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.

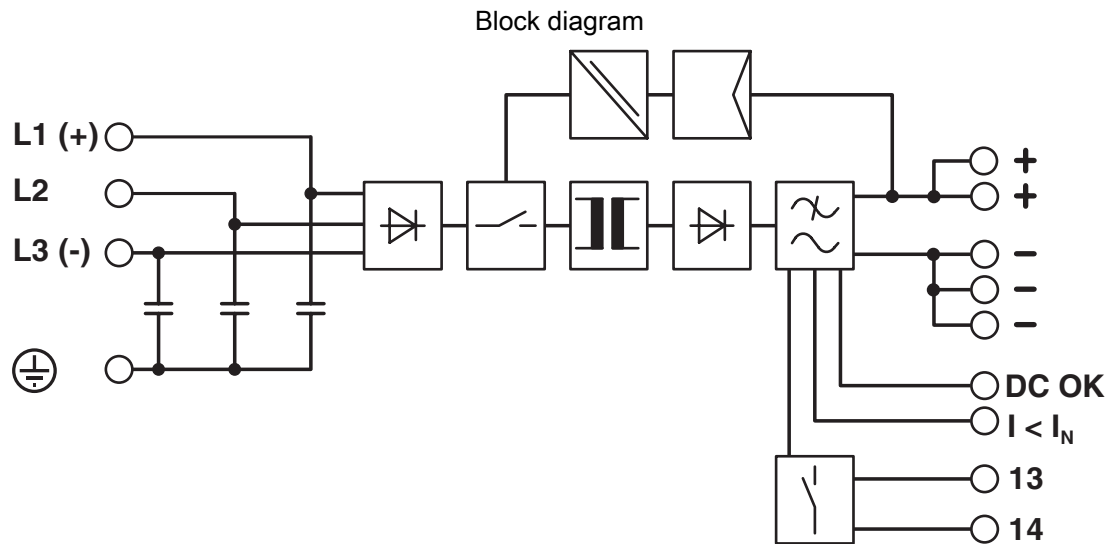
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## Drawings



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/gb/products/2866802>



**IECEE CB Scheme**

Approval ID: SI-11216



**EAC**

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



**LR**

Approval ID: LR22301698TA-02



**NK**

Approval ID: TA24091M



**IECEE CB Scheme**

Approval ID: SI-11173



**BV**

Approval ID: 21004/D0 BV



**EAC**

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



**RINA**

Approval ID: ELE333522XG

**ABS**

Approval ID: 23-2355407-PDA



**Type approved**

Approval ID: SI-SIQ BG 005/009



**Type approved**

Approval ID: SI-SIQ BG 005/113

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## SEMI F47

Approval ID: SEMI F47

## DNV

Approval ID: TAA000030X



## IECEE CB Scheme

Approval ID: SI-11217



## cCSAus

Approval ID: 80146928



## cCSAus

Approval ID: 80187921



## cULus Listed

Approval ID: E123528-20240627



## cULus Listed

Approval ID: E199827-20240918

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## Classifications

### ECLASS

ECLASS-13.0	27040701
ECLASS-15.0	27040701

### ETIM

ETIM 10.0	EC002540
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### 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	981c8c1b-5ae7-4fa3-a960-31711c622f2b

### EF3.1 Climate Change

CO2e kg	98.635 kg CO2e
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