

# QUINT-PS/1AC/24DC/40 - Power supply unit



2866789

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Primary-switched power supply unit QUINT POWER, Screw connection, DIN rail mounting, SFB Technology (Selective Fuse Breaking), input: 1-phase, output: 24 V DC / 40 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. 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 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
- For superior system availability
- Preventive function monitoring

## Commercial Data

Item number	2866789
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CMPQ13
Catalog Page	Page 210 (C-4-2017)
GTIN	4046356421720
Weight per Piece (including packing)	3,820 g
Weight per Piece (excluding packing)	3,445 g
Customs tariff number	85044083
Country of origin	TH

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## Technical Data

### Input data

#### AC operation

Nominal input voltage range	100 V AC ... 240 V AC
Input voltage range	85 V AC ... 264 V AC
Derating	< 100 V AC (1 %/V)
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 ( $I^2t$ )	< 1.7 A <sup>2</sup> s
AC frequency range	45 Hz ... 65 Hz
Frequency range DC	0 Hz
Mains buffering time	> 35 ms (120 V AC) > 35 ms (230 V AC)
Current consumption	8.8 A (120 V AC) 4.6 A (230 V AC) 9.5 A (110 V DC) 4.7 A (220 V DC)
Nominal power consumption	1157 VA
Protective circuit	Transient surge protection; Varistor, gas-filled surge arrester
Power factor (cos phi)	0.88
Typical response time	< 0.7 s
Input fuse	20 A (slow-blow, internal)
Permissible backup fuse	B16 B25 AC:
Permissible DC backup fuse	DC: Connect a suitable fuse upstream
Recommended breaker for input protection	16 A ... 20 A (AC: Characteristics B, C, D, K)
Discharge current to PE	< 3.5 mA

#### DC operation

Nominal input voltage range	120 V DC ... 300 V DC (UL 508: ≤ 250 V DC)
Input voltage range	90 V DC ... 300 V DC (UL 508: ≤ 250 V DC)
Derating	< 120 V DC (0.5 %/V)
Voltage type of supply voltage	DC

### Output data

Efficiency	> 92 % (for 230 V AC and nominal values)
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 (-25 °C ... 60 °C, $U_{OUT}$ = 24 V DC)

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POWER BOOST ( $I_{\text{Boost}}$ )	45 A (-25 °C ... 40 °C permanent, $U_{\text{OUT}} = 24 \text{ V DC}$ )
Selective Fuse Breaking ( $I_{\text{SFB}}$ )	215 A (12 ms)
Magnetic circuit breaker tripping	B2 / B4 / B6 / B10 / B16 / B25 / C2 / C4 / C6 / C13
Derating	60 °C ... 70 °C (2.5%/K)
Feedback voltage resistance	$\leq 35 \text{ V DC}$
Protection against overvoltage at the output (OVP)	$\leq 35 \text{ V DC}$
Residual ripple	$< 30 \text{ mV}_{\text{PP}}$ (with nominal values)
Short-circuit-proof	yes
Output power	960 W
Maximum no-load power dissipation	14 W
Power loss nominal load max.	80 W
Rise time	$< 0.1 \text{ s}$ ( $U_{\text{OUT}}$ (10 % ... 90 %))
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	yes

Signal: DC OK active

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

Signal: DC OK floating

Output description	Relay contact, $U_{\text{OUT}} > 0.9 \times U_{\text{N}}$ : Contact closed
Maximum switching voltage	30 V AC
	24 V DC
Maximum inrush current	0.5 A
	1 A
Continuous load current	1 A

Signal: POWER BOOST, active

Output description	$I_{\text{OUT}} < I_{\text{N}}$ : High signal
Switching voltage range	18 V DC ... 24 V DC
Output voltage	+ 24 V DC
Maximum inrush current	$\leq 20 \text{ mA}$ (short-circuit-proof)
Continuous load current	$\leq 20 \text{ mA}$

## 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>
Conductor cross section flexible max.	4 mm <sup>2</sup>
Conductor cross section AWG min.	14

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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.	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	$U_{OUT} > 0.9 \times U_N$ : "DC OK" LED green
Note on status display	$U_{OUT} < 0.9 \times U_N$ : Flashing "DC OK" LED
	$I_{OUT} < I_N$ : LED ON

### 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

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Status display	$I_{OUT} > I_N$ : LED "BOOST" yellow
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## Electrical properties

Number of phases	1.00
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)
	> 530000 h (40 °C)
	> 240000 h (60 °C)

## Insulation characteristics

Protection class	I
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

Mounting type	DIN rail 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	No

## Material specifications

Housing material	Metal
Hood version	Galvanized sheet steel, free from chrome (VI)

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Side element version	Aluminum
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## 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	4000 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)

## 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

### Overvoltage category

EN 62477-1	III
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## Approvals

CSA	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
	UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location)

### Conformity/Approvals

Performance level according to ISO 13849	without
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## EMC data

Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
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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
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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
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
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## Conducted interference

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

## Wireless telephone simulation

Standards/regulations	ENV 50204
Frequency	900 MHz 1800 MHz
Field intensity	20 V/m

## 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.



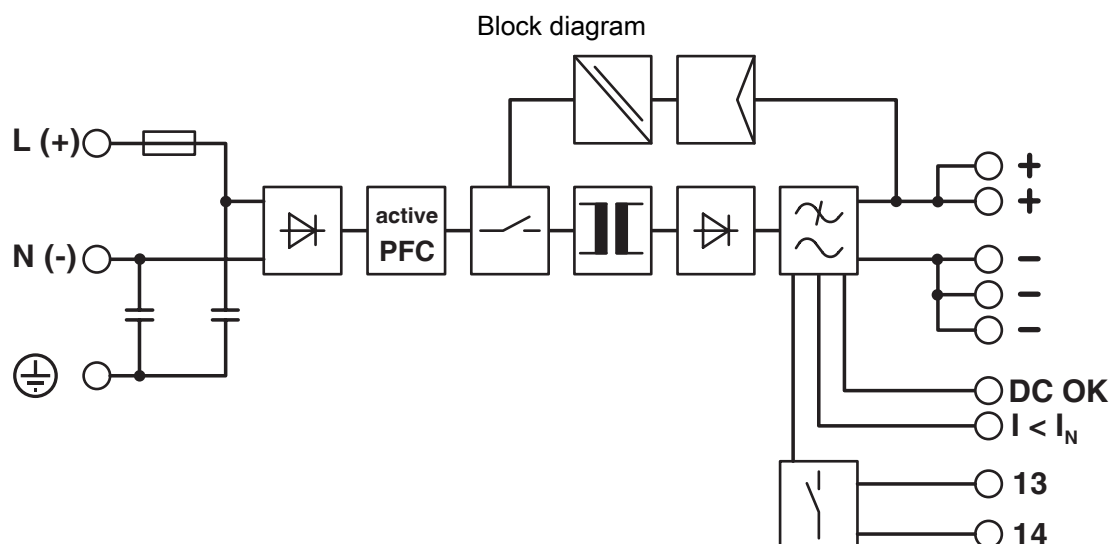
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## Drawings



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/pc/products/2866789>



**cUL Recognized**  
Approval ID: FILE E 211944



**UL Recognized**  
Approval ID: FILE E 211944



**IECEE CB Scheme**  
Approval ID: SI-5547



**EAC**  
Approval ID: EAC-Zulassung



**LR**  
Approval ID: LR22301698TA-02



**NK**  
Approval ID: TA22564M



**BV**  
Approval ID: 21004/C1 BV



**EAC**  
Approval ID: EAC-Zulassung



**UL Listed**  
Approval ID: FILE E 123528



**cUL Listed**  
Approval ID: FILE E 123528



**RINA**  
Approval ID: ELE333522XG

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**EAC**

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



**UL Recognized**

Approval ID: FILE E 211944



**IECEE CB Scheme**

Approval ID: SI-5547



**cUL Recognized**

Approval ID: FILE E 211944



**cUL Listed**

Approval ID: FILE E 123528



**UL Listed**

Approval ID: FILE E 123528



**BV**

Approval ID: 21004/C1 BV



**NK**

Approval ID: TA22564M



**RINA**

Approval ID: ELE333522XG



**LR**

Approval ID: LR22301698TA-02



**EAC**

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



**EAC**

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

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**EAC**

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



**cUL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827



**cUL Listed**

Approval ID: FILE E 199827

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## Classifications

### ECLASS

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

### ETIM

ETIM 8.0	EC002540
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### 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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