

QUINT-PS/3AC/48DC/20 - Power supply



2320827

<https://www.phoenixcontact.com/us/products/2320827>

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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: 48 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. 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

- Adjustable output voltage of 30 to 56 V DC
- 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 indicates critical operating states before errors occur

Commercial data

Item number	2320827
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM11
Product key	CMPQ34
GTIN	4046356547734
Weight per piece (including packing)	2,912.1 g
Weight per piece (excluding packing)	2,500 g
Customs tariff number	85044095
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 400 V AC ... 500 V AC -20 % ... +15 %
Voltage type of supply voltage	AC/DC
Inrush current	< 20 A (typical)
Inrush current integral (I^2t)	< 1 A ² s
Inrush current limitation	20 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) 1.7 A (600 V DC)
Nominal power consumption	1386 VA
Protective circuit	Transient surge protection; Varistor
Typical response time	< 1 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)
Current consumption	2.2 A (500 V DC) 1.9 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	48 V DC $\pm$ 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
POWER BOOST (I_{Boost})	22.5 A (-25 °C ... 40 °C permanent, U_{OUT} = 48 V DC)
Static Boost ($I_{Stat.Boost}$)	22.5 A
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)

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Feedback voltage resistance	max. 60 V DC
Protection against overvoltage at the output (OVP)	< 60 V DC
Active current limitation	Approx. $I_{\text{BOOST}} = 22.5 \text{ A}$ (for short-circuit)
Control deviation	< 1 % (change in load, static 10 % ... 90 %)
	< 4 % (change in load, dynamic 10 % ... 90 %)
	< 0.1 % (change in input voltage $\pm 10 \%$)
Residual ripple	< 50 mV _{PP} (with nominal values)
Output power	960 W
	1080 W
Maximum no-load power dissipation	24 W
Power loss nominal load max.	70 W
Rise time	< 0.5 ms (U_{OUT} (10 % ... 90 %))
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	yes

Signal: DC OK active

Output description	$U_{\text{OUT}} > 0.9 \times U_N$: High signal
Switching voltage range	18 V DC ... 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, $U_{\text{OUT}} > 0.9 \times U_N$: Contact closed
Maximum switching voltage	30 V AC/DC
	24 V DC
Maximum inrush current	0.5 A
	1 A
Continuous load current	$\leq 1 \text{ A}$

Signal: POWER BOOST, active

Output description	$I_{\text{OUT}} < I_N$: High signal
Switching voltage range	18 V DC ... 24 V DC
Output voltage	+ 48 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 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

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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 ²
Conductor cross-section, rigid max.	16 mm ²
Conductor cross-section flexible min.	0.5 mm ²
Conductor cross-section flexible max.	16 mm ²
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 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	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

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)	> 890000 h (25 °C)
	> 509000 h (40 °C)

Insulation characteristics

Protection class	I
Degree of pollution	2

Dimensions

Width	96 mm
Height	130 mm
Depth	179 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
With protective coating	no

Material specifications

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

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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	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)	< 15 Hz, amplitude ±2.5 mm (according to IEC 60068-2-6) 15 Hz ... 150 Hz, 2.3g, 90 min.
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	BG (design tested)
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 - Safety of transformers	IEC 61558-2-17

Overvoltage category

EN 61010-1	II (≤ 5000 m)
EN 62477-1	III (≤ 2000 m)
EN 61558-2-16	II (≤ 5000 m)

Approvals

CSA	CAN/CSA-C22.2 No. 60950-1-07 CSA-C22.2 No. 107.1-01
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
Conducted interference	
Input/output/signal	asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V (Test Level 3)
Criteria	
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

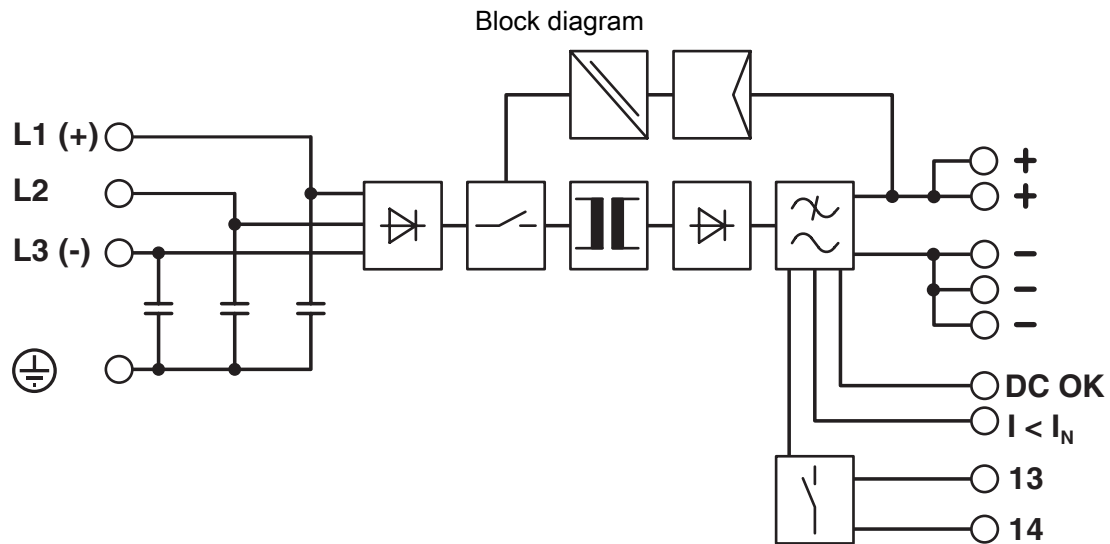
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Drawings



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2320827>

	cUL Recognized Approval ID: E211944
	UL Recognized Approval ID: E211944
	IECEE CB Scheme Approval ID: SI-11221
	EAC Approval ID: RU S-DE.BL08.W.00764
	IECEE CB Scheme Approval ID: SI-11221
	EAC Approval ID: RU S-DE.BL08.W.00764
	UL Listed Approval ID: E123528
	cUL Listed Approval ID: E123528
	Type approved Approval ID: 005-006
	Type approved Approval ID: 005-006
	EAC Approval ID: RU S-DE.BL08.W.00764

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	IECEE CB Scheme Approval ID: SI-11173
	cCSAus Approval ID: 2386029
	Type approved Approval ID: 005-006
	cCSAus Approval ID: 80188288
	UL Recognized Approval ID: E211944
	cUL Recognized Approval ID: E211944
	cULus Listed Approval ID: E123528-20240627
	EAC Approval ID: RU S-DE.BL08.W.00764
	IECEE CB Scheme Approval ID: SI-11173
	IECEE CB Scheme Approval ID: SI-11217
	IECEE CB Scheme Approval ID: SI-11217
	Type approved Approval ID: SI-SIQ BG 005/113

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Type approved
Approval ID: SI-SIQ BG 005/113



cCSAus
Approval ID: 80187921



cCSAus
Approval ID: 80187921



cULus Listed
Approval ID: E199827-20240918



cULus Listed
Approval ID: E199827-20240918

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Classifications

ECLASS

ECLASS-13.0	27040701
ECLASS-15.0	27040701

ETIM

ETIM 9.0	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	b8a40412-89cf-4437-bab6-8bb3cb1925f6
EF3.0 Climate Change	
CO2e kg	103.796 kg CO2e

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