

Power supply unit - QUINT-PS/2AC/1DC/24DC/20



2320830

<https://www.phoenixcontact.com/us/products/2320830>

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Primary-switched DIN rail power supply unit. AC input: suitable for operation between two phases (400 V AC). DC input: suitable for operation in an FI intermediate circuit. Output: 24 V DC/20 A.

Product Description

QUINT POWER power supply units – Superior system availability with SFB technology

Compact power supply units of the new QUINT POWER generation maximize the availability of your system. With the SFB technology (Selective Fuse Breaking Technology), six times the nominal current for 12 ms, even the standard power circuit-breakers can now also be triggered reliably and quickly. Faulty current paths are switched off selectively, the fault is located and important system parts continue to operate. Comprehensive diagnostics are provided through constant monitoring of output voltage and current. This preventive function monitoring visualizes critical operating modes and reports them to the control unit before an error can occur.

Your advantages

- Compact buffer solution
- Fast tripping of standard circuit breakers
- Preventive function monitoring
- Reliable starting of difficult loads and easy system extension

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Commercial Data

Item number	2320830
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	C14
Product Key	CMPQ23
Catalog Page	Page 245 (C-4-2019)
GTIN	4046356580915
Weight per Piece (including packing)	2,026.7 g
Weight per Piece (excluding packing)	2,000 g
Customs tariff number	85044030
Country of origin	CN

Technical Data

Input data

AC operation

Nominal input voltage range	2x 400 V AC ... 500 V AC
Input voltage range	2x 360 V AC ... 575 V AC
Input voltage range AC	2x 360 V AC ... 575 V AC
Voltage type of supply voltage	AC/DC
Inrush current	< 45 A (typical)
Inrush current integral (I^2t)	< 1.5 A ² s
AC frequency range	45 Hz ... 65 Hz
Frequency range DC	0 Hz
Mains buffering time	typ. 20 ms (400 V AC)
Current consumption	2.5 A (400 V AC) 2.1 A (500 V AC)
Nominal power consumption	888 VA
Protective circuit	Transient surge protection; Varistor
Input fuse	3.15 A (slow-blow, internal)
Recommended breaker for input protection	10 A ... 16 A (Characteristic B, C)

DC operation

Nominal input voltage range	600 V DC
Input voltage range	450 V DC ... 840 V DC
Input voltage range DC	450 V DC ... 840 V DC
Voltage type of supply voltage	AC/DC
Mains buffering time	< 28 ms (600 V DC)
Current consumption	0.9 A (600 V DC)
Protective circuit	Transient surge protection; Varistor
Permissible backup fuse	1000 V DC fuse 4 A 6 A

Output data

Efficiency	> 92 % (600 V DC)
	> 90.5 % (400 V AC)
Nominal output voltage	24 V DC \pm 1 %
Setting range of the output voltage (U_{Set})	18 V DC ... 29.5 V DC ($U_{IN} \geq 360$ V AC / 480 V DC)
	18 V DC ... 26 V DC (< 480 V DC)
Nominal output current (I_N)	20 A (-25 °C ... 60 °C)
POWER BOOST (I_{Boost})	26 A (-25 °C ... 40 °C permanent, $U_{OUT} = 24$ V DC)
Selective Fuse Breaking (I_{SFB})	120 A (20 ms)
Magnetic circuit breaker tripping	C6 / B16
Derating	60 °C ... 70 °C (2.5%/K)
Feedback voltage resistance	< 35 V DC
Protection against overvoltage at the output (OVP)	< 35 V DC

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Max. capacitive load	unlimited
Active current limitation	Approx. 27 A
Control deviation	< 1 % (change in load, static 10 % ... 90 %)
	< 2 % (change in load, dynamic 10 % ... 90 %)
	< 0.1 % (change in input voltage ± 10 %)
Residual ripple	< 50 mV _{PP} (with nominal values)
Output power	480 W
Peak switching voltages nominal load	< 50 mV _{PP} (20 MHz)
Maximum no-load power dissipation	11 W
Power loss nominal load max.	51 W
Rise time	< 2 ms (U _{OUT} (10 % ... 90 %))
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	yes

Signal: DC OK floating

Output description	U _{OUT} > 0.9 x U _N : Relays closed
Switching voltage range	≤ 30 V AC/DC
Maximum inrush current	≤ 100 mA (short-circuit-proof)

Signal: POWER BOOST, active

Output description	I _{OUT} < I _N : High signal
Switching voltage range	18 V DC ... 24 V DC
Maximum inrush current	< 20 mA (short-circuit-proof)

Signal: DC_{IN} OK, active

Output description	U _{IN} > 450 V DC: high signal
Switching voltage range	18 V DC ... 24 V DC
Maximum inrush current	< 20 mA (short-circuit-proof)

Signal: DC OK floating

Output description	U _{OUT} > 0.9 x U _N : Relays closed
Switching voltage range	≤ 30 V AC/DC
Maximum inrush current	≤ 100 mA (short-circuit-proof)

Signal: POWER BOOST, active

Output description	I _{OUT} < I _N : High signal
Switching voltage range	18 V DC ... 24 V DC
Maximum inrush current	< 20 mA (short-circuit-proof)

Signal: DC_{IN} OK, active

Output description	U _{IN} > 450 V DC: high signal
Switching voltage range	18 V DC ... 24 V DC
Maximum inrush current	< 20 mA (short-circuit-proof)

Signal: DC OK floating

Output description	U _{OUT} > 0.9 x U _N : Relays closed
Switching voltage range	≤ 30 V AC/DC

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Maximum inrush current	≤ 100 mA (short-circuit-proof)
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Signal: POWER BOOST, active

Output description	$I_{OUT} < I_N$: High signal
Switching voltage range	18 V DC ... 24 V DC
Maximum inrush current	< 20 mA (short-circuit-proof)

Signal: DC_{IN} OK, active

Output description	$U_{IN} > 450$ V DC: high signal
Switching voltage range	18 V DC ... 24 V DC
Maximum inrush current	< 20 mA (short-circuit-proof)

Connection data

Input

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid 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.	24
Conductor cross section AWG max.	10
Stripping length	8 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Output

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid 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.	12
Conductor cross section AWG max.	10
Stripping length	8 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Signal

Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid 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.	24

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Conductor cross section AWG max.	10
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

LED signaling

Types of signaling	LED
	Relay contact

Signal output: DC OK floating

Status display	"DC OK" LED green
Color	green

Signal output: POWER BOOST, active

Status display	"BOOST" LED yellow/ $I_{OUT} > I_N$: LED on
Color	yellow
Note on status display	LED on

Signal output: DC_{IN} OK, active

Status display	LED "DC _{IN} OK" green / $U_{IN} > 450$ V DC: LED on
Color	green
Note on status display	LED on

Electrical properties

Insulation voltage input/output	1.5 kV AC (type test)
	2 kV AC (routine test)
Insulation voltage output / PE	500 V DC (routine test)
Insulation voltage input / PE	4 kV AC (type test)
	1.5 kV AC (routine test)

Product properties

Product type	Power supply
MTBF (IEC 61709, SN 29500)	> 860000 h (40 °C)

Insulation characteristics

Protection class	I
Degree of pollution	2

Dimensions

Width	120 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

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

Material specifications

Color	aluminium
Housing material	Metal
Type of housing	Steel sheet, zinc-plated
Housing material	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
Maximum altitude	≤ 2000 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.

Standards and regulations

Rail applications	EN 50121-4
Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations	EN 50178/VDE 0160 (PELV)
Standard - Electrical safety	EN 60950-1/VDE 0805 (SELV) EN 61558-2-17
Standard - Safe isolation	DIN VDE 0100-410
Standard - Safety of transformers	EN 61558-2-17

Approval data

UL approvals	UL/C-UL listed UL 508 UL/C-UL Recognized UL 60950-1
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Conformity/Approvals

SIL in accordance with IEC 61508	0
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EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
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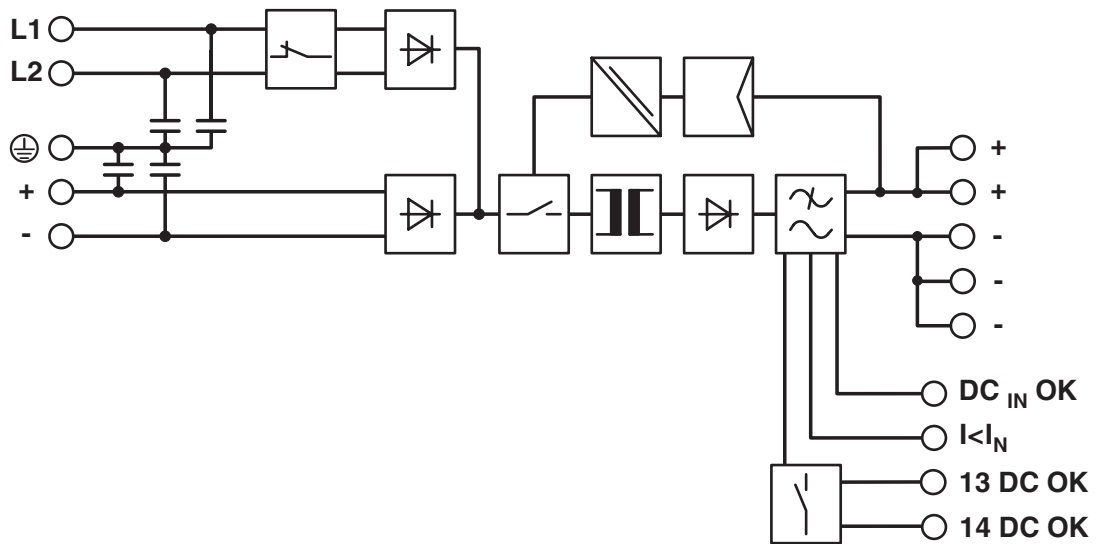


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Drawings

Block diagram



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Approvals



cUL Recognized
Approval ID: FILE E 211944



UL Recognized
Approval ID: FILE E 211944



EAC
Approval ID: EAC-Zulassung



UL Listed
Approval ID: FILE E 123528



cUL Listed
Approval ID: FILE E 123528



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

cULus Recognized

cULus Listed

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Classifications

ECLASS

ECLASS-9.0	27040701
ECLASS-10.0.1	27040701
ECLASS-11.0	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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Accessories

Type 3 surge protection device

Type 3 surge protection device - PLT-SEC-T3-24-FM-UT - 2907916

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Type 3 surge protection, consisting of protective plug and base element, with integrated status indicator and remote signaling for single-phase power supply networks. Nominal voltage: 24 V AC/DC

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