

# QUINT-PS/1AC/24DC/20/CO - Power supply, with protective coating



2320898

<https://www.phoenixcontact.com/us/products/2320898>

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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 / 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. In addition, the high system availability is ensured by preventive function monitoring which reports critical operating states before errors can occur.

Reliable starting of heavy loads takes place via the static power reserve POWER BOOST. Thanks to the adjustable voltage, all ranges between 18 V DC ... 29.5 V DC are covered.

## Your advantages

- For superior system availability
- 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
- Optimum protection with dip coating for 100 % humidity

## Commercial data

Item number	2320898
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM11
Product key	CMPQ13
GTIN	4046356520003
Weight per piece (including packing)	2,164.4 g
Weight per piece (excluding packing)	1,622 g
Customs tariff number	85044095
Country of origin	TH

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2320898

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## Technical data

### Input data

#### AC operation

Nominal input voltage range	100 V AC ... 240 V AC -15 % / +10 %
Input voltage range	85 V AC ... 264 V AC
Derating $I_{\text{Stat. Boost}}$	< 100 V AC (1 %/V)
Input voltage range AC	85 V AC ... 264 V AC
Input voltage range DC	90 V DC ... 410 V DC +5 % (UL 508: ≤ 250 V DC)
Electric strength, max.	300 V AC
Voltage type of supply voltage	AC
Inrush current	< 20 A
Inrush current integral ( $I^2t$ )	< 3.2 A <sup>2</sup> s
Inrush current limitation	20 A
AC frequency range	45 Hz ... 65 Hz
Frequency range DC	0 Hz
Mains buffering time	typ. 32 ms (120 V AC) typ. 32 ms (230 V AC)
Current consumption	7 A (100 V AC) 3.1 A (240 V AC)
Nominal power consumption	569 VA
Protective circuit	Transient surge protection; Varistor, gas-filled surge arrester
Typical response time	< 0.6 s
Input fuse	12 A (slow-blow, internal)
Permissible backup fuse	B10 B16 AC:
Permissible DC backup fuse	DC: Connect a suitable fuse upstream
Recommended breaker for input protection	10 A ... 16 A (Characteristics B, C, D, K)
Discharge current to PE	< 3.5 mA

#### DC operation

Nominal input voltage range	110 V DC ... 250 V DC (UL 508: ≤ 250 V DC)
Derating $I_{\text{Stat. Boost}}$	< 110 V DC (1 %/V)
Current consumption	6.3 A (110 V DC) 2.7 A (250 V DC)

### Output data

Efficiency	typ. 92 % (120 V AC) typ. 92.7 % (230 V AC)
Nominal output voltage	24 V DC ±1 %
Setting range of the output voltage ( $U_{\text{Set}}$ )	18 V DC ... 29.5 V DC (> 24 V DC, constant capacity restricted)
Nominal output current ( $I_N$ )	20 A
POWER BOOST ( $I_{\text{Boost}}$ )	26 A (-25 °C ... 40 °C permanent, $U_{\text{OUT}} = 24$ V DC)

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2320898

<https://www.phoenixcontact.com/us/products/2320898>

Static Boost ( $I_{Stat.Boost}$ )	26 A
Selective Fuse Breaking ( $I_{SFB}$ )	120 A (12 ms)
Magnetic circuit breaker tripping	B2 / B4 / B6 / B10 / B16 / C2 / C4 / C6
Derating	60 °C ... 70 °C (2.5 %/K)
Feedback voltage resistance	≤ 35 V DC
Protection against overvoltage at the output (OVP)	< 32 V DC
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	< 30 mV <sub>PP</sub> (with nominal values)
Output power	480 W
	624 W
Maximum no-load power dissipation	8 W
Power loss nominal load max.	40 W
Rise time	< 0.1 s ( $U_{OUT}$ (10 % ... 90 %))
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	yes

Signal: DC OK active

Output description	$U_{OUT} > 0.9 \times U_N$ : 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, $U_{OUT} > 0.9 \times U_N$ : 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	$I_{OUT} < I_N$ : 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>

# QUINT-PS/1AC/24DC/20/CO - Power supply, with protective coating



2320898

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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
Stripping length	7 mm
Screw thread	M4
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

## Output

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.	12
Conductor cross section AWG max.	10
Stripping length	7 mm
Screw thread	M4
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

## Signal

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	M4
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
Color	$I_{OUT} < I_N$ : LED ON

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2320898

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Note on status display	LED flashing
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Signal output: DC OK floating	
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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
Color	green
Note on status display	LED flashing

Signal output: POWER BOOST, active	
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Status display	$I_{OUT} > I_N$ : LED "BOOST" yellow
Color	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)	> 900000 h (25 °C)
	> 520000 h (40 °C)

Insulation characteristics	
Protection class	I
Degree of pollution	2

## Dimensions

Width	90 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	93 mm

## Mounting

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2320898

<https://www.phoenixcontact.com/us/products/2320898>

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	yes

## 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)	-40 °C ... 70 °C (> 60 °C Derating: 2,5 %/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	6000 m
Climatic class	3K3 (in acc. with EN 60721)
Max. permissible relative humidity (operation)	100 % (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	T3C (-40 ... +60 °C)

## Standards and regulations

Rail applications	EN 50121-4
	EN 50121-3-2
HART FSK Physical Layer Test Specification Compliance	Output voltage $U_{Out}$ compliant
Standard – Limitation of mains harmonic currents	EN 61000-3-2
Standard - Electrical safety	IEC 61010-2-201 (SELV)
Explosive atmosphere	EN 60079-15 (Zone 2)
Standard - Equipment safety	BG (design tested)
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
Noxious gas test	ISA-S71.04-1985 G3 Harsh Group A
Approval - requirement of the semiconductor industry with regard to mains voltage dips	SEMI F47-0706 Compliance Certificate
DeviceNet approval	DeviceNet™ Power Supply Conformance Tested

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2320898

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## Overvoltage category

EN 61010-1	II (≤ 5000 m)
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## Fire protection in rail vehicles

Standard designation	Fire protection in rail vehicles
Standards/specifications	EN 45545-2 (HL3)

## Approvals

CSA	CAN/CSA-C22.2 No. 60950-1-07 CSA-C22.2 No. 107.1-01
Shipbuilding approval	DNV GL (EMC B, only with upstream filter)
SIQ	BG (type approved)
UL approvals	UL/C-UL listed UL 508 UL/C-UL Recognized UL 60950-1 UL 121201 & CSA C22.2 No. 213-17 Class I, Division 2, Groups A, B, C, D T3C (Hazardous Location)
DeviceNet approval	DeviceNet™ Power Supply Conformance Tested

## Conformity/Approvals

ATEX	Ex II 3 G Ex ec ic nC IIC T4 Gc SIQ 14 ATEX 137 X
IECEx	Ex ec ic nC IIC T4 Gc IECEx SIQ 14.0001X

## 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)
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## 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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2320898

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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)
	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

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

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Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

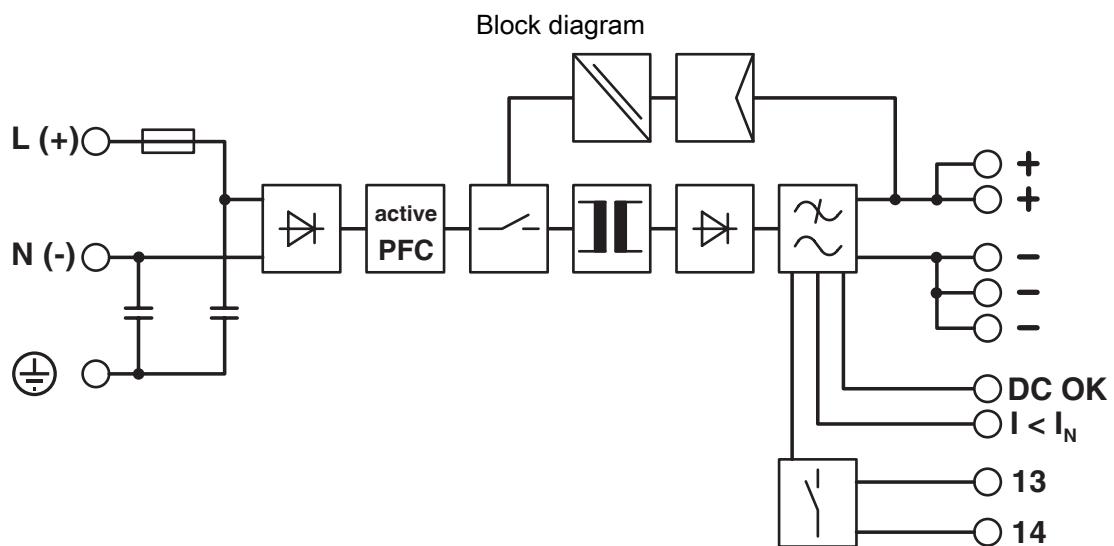
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## Drawings



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## Approvals

>To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2320898>



**cUL Recognized**

Approval ID: E211944



**UL Recognized**

Approval ID: E211944



**EAC**

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



**UL Listed**

Approval ID: E123528-20070724



**Type approved**

Approval ID: SI-SIQ BG 005/110 A1

**DNV**

Approval ID: TAA000030X



**cCSAus**

Approval ID: 1897790

**BIS Licence Document**

Approval ID: R-41268801



**IECEE CB Scheme**

Approval ID: SI-10293



**IECEE CB Scheme**

Approval ID: SI-10262



**EAC Ex**

Approval ID: KZ 7500525010102094

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**IECEx**

Approval ID: IECEx SIQ 14.0001X



**ATEX**

Approval ID: SIQ 14 ATEX 137 X



**NEPSI-EX**

Approval ID: GYJ20.1321X



**CCC**

Approval ID: 2020322303000835

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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

Fulfils EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-l

### 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.
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### EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	f64384df-a5cc-4696-9ae7-8c0a0a7b0471

### EF3.0 Climate Change

CO2e kg	66.848 kg CO2e
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