QUINT-PS/1AC/24DC/10/CO - Power supply, with protective coating

2320911

https://www.phoenixcontact.com/us/products/2320911

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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 / 10 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	2320911
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM11
Product key	CMPQ13
Catalog page	Page 247 (C-4-2019)
GTIN	4046356520027
Weight per piece (including packing)	1,544.5 g
Weight per piece (excluding packing)	1,145 g
Customs tariff number	85044095
Country of origin	TH

Technical data

Input data

AC operation

Nominal input voltage range	100 V AC ... 240 V AC
	110 V DC ... 250 V DC
Input voltage range	85 V AC ... 264 V AC
	90 V DC ... 410 V DC +5 % (UL 508: ≤ 250 V DC)
Input voltage range AC	85 V AC ... 264 V AC
Input voltage range DC	90 V DC ... 410 V DC +5 % (UL 508: ≤ 300 V DC)
Electric strength, max.	300 V AC
Voltage type of supply voltage	AC/DC
Inrush current	< 15 A
Inrush current integral (I^2t)	< 1.5 A^2s
AC frequency range	50 Hz ... 60 Hz
Mains buffering time	typ. 36 ms (120 V AC)
	typ. 36 ms (230 V AC)
Current consumption	4 A (100 V AC)
	1.7 A (240 V AC)
	2.2 A (120 V AC)
	1.3 A (230 V AC)
	2.5 A (110 V DC)
	1.2 A (220 V DC)
	3.4 A (110 V DC)
	1.5 A (250 V DC)
Nominal power consumption	303 VA
Protective circuit	Transient surge protection; Varistor, gas-filled surge arrester
Typical response time	< 0.15 s
Input fuse	10 A (slow-blow, internal)
Permissible backup fuse	B10 B16
Recommended breaker for input protection	10 A ... 20 A (AC: Characteristics B, C, D, K)
Discharge current to PE	< 3.5 mA

Output data

Efficiency	typ. 92.5 % (230 V AC)
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)
Nominal output current (I_N)	10 A (-25 °C ... 60 °C, U_{OUT} = 24 V DC)
POWER BOOST (I_{Boost})	15 A (-25 °C ... 40 °C permanent, U_{OUT} = 24 V DC)
Selective Fuse Breaking (I_{SFB})	60 A (12 ms)
Magnetic circuit breaker tripping	B2 / B4 / B6 / C2 / C4

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	< 50 mV_{PP} (with nominal values)
Output power	240 W
Maximum no-load power dissipation	9.1 W
Power loss nominal load max.	22 W
Rise time	< 0.05 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 x 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 x U_N: Contact closed
Maximum switching voltage	30 V AC
	24 V DC
Maximum inrush current	0.5 A (ATEX/IECEx: Ohmic loads only)
	1 A (ATEX/IECEx: Ohmic loads only)
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 mm²
Conductor cross section, rigid max.	2.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	2.5 mm²
Conductor cross section AWG min.	16

Conductor cross section AWG max.	12
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.	0.2 mm²
Conductor cross section, rigid max.	2.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	2.5 mm²
Conductor cross section AWG min.	16
Conductor cross section AWG max.	12
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Signal

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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 x U_N: "DC OK" LED green
Note on status display	U_{OUT} < 0.9 x U_N: Flashing "DC OK" LED
	I_{OUT} < I_N: LED ON
Color	green
Note on status display	LED flashing

Signal output: DC OK floating

Status display	U_{OUT} > 0.9 x U_N: "DC OK" LED green

Note on status display	U_{OUT} < 0.9 x U_N: Flashing "DC OK" LED
Color	green
Note on status display	LED flashing

Signal output: POWER BOOST, active

Status display	I_{OUT} > I_N: LED "BOOST" yellow
Color	yellow

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)	> 940000 h (25 °C)
	> 530000 h (40 °C)
	> 230000 h (60 °C)

Insulation characteristics

Protection class	I
Degree of pollution	2

Dimensions

Width	60 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	63 mm

Mounting

Mounting type	DIN rail mounting

Assembly instructions	alignable: P_N ≥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	≤ 5000 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.

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

Overvoltage category

EN 61010-1	II (≤ 5000 m)

EN 62477-1	III (≤ 2000 m)

Approvals

CSA	CAN/CSA-C22.2 No. 60950-1-07
	CSA-C22.2 No. 107.1-01
Shipbuilding approval	DNV GL (EMC B), ABS, LR, RINA, NK, BV
SIQ	BG (type approved)
UL approvals	UL/C-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)
DeviceNet approval	DeviceNet™ Power Supply Conformance Tested

Conformity/Approvals

ATEX	Ⓔx II 3 G Ex ec nC IIC T4 Gc
	TÜV 11 ATEX 079480 X
INMETRO	DNV 19 0189 X
IECEx	Ex ec nC IIC T4 Gc
	IECEx TUN 11.0007X

EMC data

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
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011 (EN 55022)

Electrostatic discharge

Standards/regulations	EN 61000-4-2

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

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

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

Conducted interference

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

Emitted interference

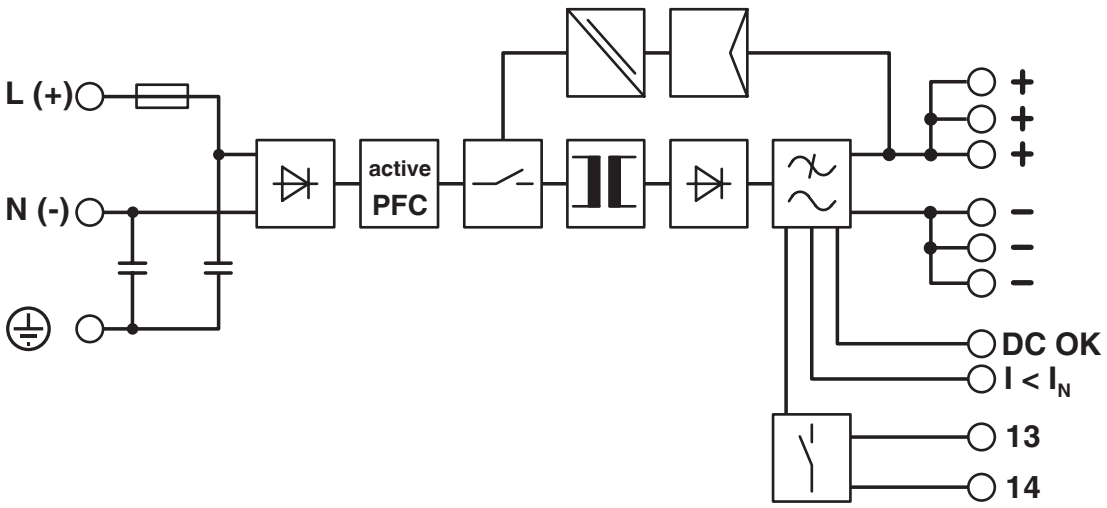
Standards/regulations	EN 61000-6-3
Radio interference voltage in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential
Emitted radio interference in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential

Criteria

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

Drawings

Block diagram



Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2320911

cUL Recognized
Approval ID: FILE E 211944

EAC
Approval ID: EAC-Zulassung

LR
Approval ID: LR22301698TA-02

NK
Approval ID: TA22564M

BV
Approval ID: 21004/C1 BV

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

UL Listed
Approval ID: FILE E 123528

cUL Listed
Approval ID: FILE E 123528

RINA
Approval ID: ELE333522XG

ABS
Approval ID: 23-2355407-PDA

Type approved
Approval ID: SI-SIQ BG 005/008

DNV
Approval ID: TAA000030X

cCSAus
Approval ID: 1897786

EAC Ex
Approval ID: RU C-DE.HB49.B.00004

IECEx
Approval ID: IECEx TUN 11.0007X

cUL Listed
Approval ID: FILE E 199827

UL Listed
Approval ID: FILE E 199827

INMETRO
Approval ID: DNV 19.0189 X

ATEX
Approval ID: TUEV 11ATEX079480 X

NEPSI-EX
Approval ID: GYJ20.1323X

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Classifications

ECLASS

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

ETIM

ETIM 9.0	EC002540

UNSPSC

UNSPSC 21.0	39121000

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”

Accessories

UTA 107 - DIN rail adapter

2853983

https://www.phoenixcontact.com/us/products/2853983

Universal DIN rail adapter, for screwing on switchgear

UWA 182/52 - Mounting adapter

2938235

https://www.phoenixcontact.com/us/products/2938235

Universal wall adapter for securely mounting the device in the event of strong vibrations. The device is screwed directly onto the mounting surface. The universal wall adapter is attached on the top/bottom.

QUINT-PS-ADAPTERS7/2 - Mounting adapter

2938206

https://www.phoenixcontact.com/us/products/2938206

Assembly adapter for QUINT POWER 10A on S7-300 rail

QUINT-PS/FAN/4 - Fan

2320076

https://www.phoenixcontact.com/us/products/2320076

The fan for QUINT-PS/1AC and .../3AC can be mounted without the need for tools or other accessories. By using the fan, optimum cooling is ensured at high ambient temperatures or if the mounting position is rotated.

QUINT-DIODE/12-24DC/2X20/1X40 - Redundancy module

2320157

https://www.phoenixcontact.com/us/products/2320157

DIN rail diode module 12-24 V DC/2x20 A or 1x40 A. Uniform redundancy up to the consumer.

QUINT-ORING/24DC/2X10/1X20 - Redundancy module, with protective coating

2320173

https://www.phoenixcontact.com/us/products/2320173

Active QUINT redundancy module for DIN rail mounting with Auto Current Balancing ACB technology and monitoring functions, input: 24 V DC, output: 24 V DC/2 x 10 A or 1 x 20 A, including mounted UTA 107/30 universal DIN rail adapter

TRIO-DIODE/12-24DC/2X10/1X20 - Redundancy module

2866514

https://www.phoenixcontact.com/us/products/2866514

Redundancy module with function monitoring, 12 ... 24 V DC, 2x 10 A, 1x 20 A

CB TM1 1A SFB P - Thermomagnetic device circuit breaker

2800836

https://www.phoenixcontact.com/us/products/2800836

Thermomagnetic device circuit breaker, 1-pos., tripping characteristic SFB, 1 changeover contact, plug for base element.

CB TM1 2A SFB P - Thermomagnetic device circuit breaker

2800837

https://www.phoenixcontact.com/us/products/2800837

Thermomagnetic device circuit breaker, 1-pos., tripping characteristic SFB, 1 changeover contact, plug for base element.

CB TM1 3A SFB P - Thermomagnetic device circuit breaker

2800838

https://www.phoenixcontact.com/us/products/2800838

Thermomagnetic device circuit breaker, 1-pos., tripping characteristic SFB, 1 changeover contact, plug for base element.

CB TM1 4A SFB P - Thermomagnetic device circuit breaker

2800839

https://www.phoenixcontact.com/us/products/2800839

Thermomagnetic device circuit breaker, 1-pos., tripping characteristic SFB, 1 changeover contact, plug for base element.

CB TM1 5A SFB P - Thermomagnetic device circuit breaker

2800840

https://www.phoenixcontact.com/us/products/2800840

Thermomagnetic device circuit breaker, 1-pos., tripping characteristic SFB, 1 changeover contact, plug for base element.

PLT-SEC-T3-230-FM-UT - Type 3 surge protection device

2907919

https://www.phoenixcontact.com/us/products/2907919

Type 2/3 surge protection, consisting of protective plug and base element with screw connection. For single-phase power supply network with integrated status indicator and remote signaling. Nominal voltage: 230 V AC/DC

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

2907916

https://www.phoenixcontact.com/us/products/2907916

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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