

Power supply unit - QUINT-PS-3X400-500AC/24DC/20 - 2938727

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DIN rail power supply unit 24 V DC/20 A, primary switched-mode, 3-phase.

Product Description

QUINT POWER is the powerful 60 - 960 W DC power supply unit for universal use. With its wide-range input, single and three-phase versions, and international approval package, this solution is unrivalled. QUINT POWER provides reliable power supply: generously dimensioned capacitors ensure mains buffering of over 20 ms at full load. Full output power is provided by all three-phase devices, even in the event of a permanent phase failure. The Power Boost power reserve easily starts loads with high inrush currents and ensures that fuses are reliably tripped. Preventive function monitoring diagnoses impermissible operating states and minimizes downtimes in your system. Remote monitoring is provided by an active transistor switching output and a floating relay contact. All devices are idling-proof and short-circuit-proof, and are available with a regulated and adjustable output voltage of 12, 24, and 48 V DC with output currents of 2.5, 5, 10, 20, 30, and 40 A. Power supply units for use in Ex zone 2, uninterruptible solutions, AS-i power supply units, and a QUINT diode complete this comprehensive product range.



Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4017918899547

Technical data

Dimensions

Width	160 mm
Height	130 mm
Depth	125 mm
Width with alternative assembly	122 mm
Height with alternative assembly	130 mm
Depth with alternative assembly	163 mm

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

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Ambient conditions

Max. permissible relative humidity (operation)	95 % (at 25 °C, non-condensing)
Climatic class	3K3 (in acc. with EN 60721)
Degree of pollution	2

Input data

Nominal input voltage range	3x 400 V AC ... 500 V AC
Input voltage range	3x 320 V AC ... 575 V AC (for all three phases)
	450 V DC ... 800 V DC
AC frequency range	45 Hz ... 65 Hz
Frequency range DC	0 Hz
Discharge current to PE	< 3.5 mA
Current consumption	approx. 3x 1.1 A (400 V AC)
	3x 1 A (480 V AC)
Nominal power consumption	526 W
Inrush surge current	< 15 A (typical)
Mains buffering	> 23 ms (400 V AC)
	> 25 ms (480 V AC)
Choice of suitable circuit breakers	3x 6 A ... 16 A (Characteristics B, C, D, K)
Type of protection	Transient surge protection
Protective circuit/component	Varistor

Output data

Nominal output voltage	24 V DC \pm 1 %
Setting range of the output voltage (U_{Set})	22.5 V ... 28.5 V
Nominal output current (I_N)	20 A (up to 60°C)
POWER BOOST (I_{Boost})	27 A
Derating	60 °C (2.5%/K)
Connection in parallel	Yes, for redundancy and increased capacity
Connection in series	yes
Active current limitation	Approx. $I_{BOOST} = 27$ A (for short-circuit)
Control deviation	< 1 % (change in load, static 10 % ... 90 %)
	< 2 % (change in load, dynamic 10 % ... 90 %)
	< 0.1 % (change in input voltage \pm 10 %)
Residual ripple	< 10 mV _{PP} (with nominal values)
Output power	480 W
Typical response time	< 1 s
Peak switching voltages nominal load	< 60 mV _{PP} (20 MHz)
Maximum power dissipation in no-load condition	< 7 W
Power loss nominal load max.	< 47 W

General

Net weight	1.93 kg
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General

Operating voltage display	Green LED
Efficiency	> 91 % (at 400 V AC and nominal values)
Insulation voltage input/output	4 kV AC (type test)
	2 kV AC (routine test)
Insulation voltage input / PE	3.5 kV AC (type test)
	2 kV AC (routine test)
Insulation voltage output / PE	500 V DC (routine test)
Protection class	I (with PE connection)
Degree of protection	IP20
MTBF (IEC 61709, SN 29500)	> 500000 h
Mounting position	horizontal DIN rail NS 35, EN 60715
Assembly instructions	alignable: horizontally 0 mm, vertically 50 mm

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

Connection data, output

Connection method	Screw connection
Conductor cross section solid min.	0.5 mm ²
Conductor cross section solid max.	16 mm ²
Conductor cross section flexible min.	0.5 mm ²
Conductor cross section flexible max.	10 mm ²
Conductor cross section AWG min.	20
Conductor cross section AWG max.	6
Stripping length	10 mm
Screw thread	M4

Signaling

Output name	DC OK active
Output description	$U_{OUT} > 0.9 \times U_N$: High signal
Maximum switching voltage	≤ 24 V
Output voltage	+ 24 V DC (Signal)
Maximum inrush current	≤ 40 mA
Continuous load current	≤ 40 mA

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Signaling

Status display	"DC OK" LED green
Note on status display	$U_{OUT} < 0.9 \times U_N$: LED flashing
Conductor cross section solid min.	0.5 mm ²
Conductor cross section solid max.	16 mm ²
Conductor cross section flexible min.	0.5 mm ²
Conductor cross section flexible max.	10 mm ²
Conductor cross section AWG min.	20
Conductor cross section AWG max.	6
Tightening torque, min	1.2 Nm
Tightening torque max	1.5 Nm
Screw thread	M4
Output name	DC OK floating
Output description	Relay contact, $U_{OUT} > 0.9 \times U_N$: Contact closed
Maximum switching voltage	≤ 30 V AC/DC
Maximum inrush current	≤ 1 A
Continuous load current	≤ 1 A
Status display	"DC OK" LED green

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive 89/336/EC
Noise emission	EN 55011 (EN 55022)
Noise immunity	EN 61000-6-2:2005
Connection in acc. with standard	CUL
Standards/regulations	EN 61000-4-2
Contact discharge	8 kV
Standards/regulations	EN 61000-4-3
Frequency range	80 MHz ... 2 GHz
Test field strength	10 V/m
Standards/regulations	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-4-5
Signal	1 kV (level 2 - asymmetrical: conductor to ground)
Standards/regulations	EN 61000-6-3
	EN 61000-4-6
Frequency range	0.15 MHz ... 80 MHz
Voltage	10 V
Standards/regulations	EN 61000-4-11
Standard - Safety of transformers	EN 61558-2-17
Standard - Electrical safety	EN 60950-1/VDE 0805 (SELV)
	EN 61558-2-17

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Standards and Regulations

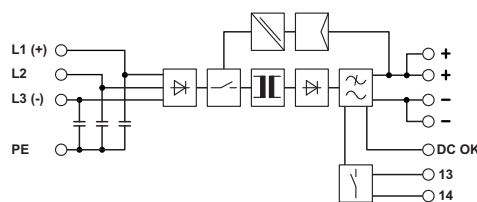
Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations	EN 50178/VDE 0160 (PELV)
Standard – Safety extra-low voltage	EN 60950-1 (SELV)
	EN 60204 (PELV)
Standard - Safe isolation	DIN VDE 0100-410
Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment	EN 50178
Standard – Limitation of mains harmonic currents	EN 61000-3-2
Standard - Equipment safety	GS (tested safety)
Shipbuilding approval	DNV GL (EMC A), ABS
UL approvals	UL/C-UL listed UL 508
	UL/C-UL Recognized UL 60950-1
	UL/C-UL Listed UL 1604 Class I, Division 2, Groups A, B, C, D
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.
Information technology equipment - safety (CB scheme)	CB Scheme
Overvoltage category (EN 62477-1)	III

Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab “Downloads”, Category “Manufacturer’s declaration”

Drawings

Block diagram



Approvals

Approvals

Approvals

PRS / DNV / GL / ABS / UL Listed / UL Recognized / cUL Recognized / IECCEB CB Scheme / cUL Listed / SEMI F47 / EAC / EAC / cULus Recognized / cULus Listed

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Approvals

Ex Approvals


UL Listed / cUL Listed / cULus Listed

Approval details

PRS		http://www.prs.pl/	TE/2104/880590/16
DNV		http://exchange.dnv.com/tari/	E-13904
GL		http://exchange.dnv.com/tari/	43332-02 HH
ABS		http://www.eagle.org/eagleExternalPortalWEB/	15-HG1384628-PDA
UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
UL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 211944
cUL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 211944
IECEE CB Scheme		http://www.iecee.org/	SI-935
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
SEMI F47			SEMI F47


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Approvals

EAC		EAC-Zulassung
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EAC		RU C- DE.A*30.B.01082
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cULus Recognized		
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cULus Listed		
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