

## DC/DC converters - QUINT-PS/24DC/48DC/ 5 - 2320128

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Primary-switched QUINT DC/DC converter for DIN rail mounting with SFB (Selective Fuse Breaking) Technology, input: 24 V DC, output: 48 V DC/5 A

### Product Description

QUINT DC/DC converter with maximum functionality

DC/DC converters alter the voltage level, regenerate the voltage at the end of long cables or enable the creation of independent supply systems by means of electrical isolation.

QUINT DC/DC converters magnetically and therefore quickly trip circuit breakers with 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.

### Your advantages

- ✓ Reliable starting of difficult loads, thanks to the static POWER BOOST power reserve with up to 125% nominal current permanently
- ✓ Preventive function monitoring indicates critical operating states before errors occur
- ✓ Constant voltage: output voltage regenerated even at the end of long cables
- ✓ Support conversion to various voltage levels
- ✓ Electrical isolation: for setting up independent supply systems



### Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4046356481908

### Technical data

#### Dimensions

Width	48 mm
Height	130 mm
Depth	125 mm
Width with alternative assembly	122 mm
Height with alternative assembly	130 mm
Depth with alternative assembly	51 mm

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## Technical data

### Dimensions

Installation distance right/left	0 mm / 0 mm ( $\leq 70\text{ °C}$ )
Installation distance right/left (active)	15 mm / 15 mm ( $\leq 70\text{ °C}$ )
Installation distance top/bottom	50 mm / 50 mm ( $\leq 70\text{ °C}$ )
Installation distance top/bottom (active)	50 mm / 50 mm ( $\leq 70\text{ °C}$ )

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> 60 °C derating, 2.5 %/K, startup at -40 °C type-tested)
Ambient temperature (start-up type tested)	-40 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	$\leq 95\%$ (at 25 °C, non-condensing)
Climatic class	3K3 (in acc. with EN 60721)
Degree of pollution	2

### Input data

Nominal input voltage range	24 V DC
Input voltage range	18 V DC ... 32 V DC
Extended input voltage range in operation	14 V DC ... 18 V DC (Derating)
Current consumption	14 A (24 V, $I_{\text{BOOST}}$ )
Inrush current	< 15 A (typical)
Mains buffering time	> 12 ms (24 V DC)
Input fuse	25 A (internal (device protection))
Type of protection	Transient surge protection
Protective circuit/component	Varistor

### Output data

Nominal output voltage	48 V DC $\pm 1\%$
Setting range of the output voltage ( $U_{\text{Set}}$ )	30 V DC ... 56 V DC (> 48 V DC, constant capacity restricted)
Nominal output current ( $I_N$ )	5 A (-25 °C ... 60 °C)
POWER BOOST ( $I_{\text{Boost}}$ )	6.25 A (-25 °C ... 40 °C permanent, $U_{\text{OUT}} = 48\text{ V DC}$ )
Selective Fuse Breaking ( $I_{\text{SFB}}$ )	30 A (12 ms)
Derating	60 °C ... 70 °C (2.5%/K)
Connection in parallel	Yes, for redundancy and increased capacity
Connection in series	yes
Feedback voltage resistance	60 V DC
Protection against overvoltage at the output (OVP)	< 60 V DC
Max. capacitive load	unlimited
Active current limitation	Approximately 7 A
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	< 20 mV <sub>PP</sub>

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#### Output data

Peak switching voltages nominal load	< 10 mV <sub>PP</sub> (20 MHz)
Maximum power dissipation in no-load condition	5.2 W
Power loss nominal load max.	21 W

#### General

Net weight	0.9 kg
Efficiency	> 92.5 %
	> 761000 h (40 °C)
Insulation voltage input/output	1.5 kV (type test)
	1 kV (routine test)
Degree of protection	IP20
Protection class	III
Mounting position	horizontal DIN rail NS 35, EN 60715
Assembly instructions	alignable: P <sub>N</sub> ≥50%, 5 mm horizontally, 15 mm next to active components, 50 mm vertically alignable: P <sub>N</sub> <50%, 0 mm horizontally, 40 mm vertically top, 20 mm vertically bottom

#### Connection data, input

Connection method	Pluggable screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	8 mm
Screw thread	M3

#### Connection data, output

Connection method	Pluggable screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm
Screw thread	M3

#### Connection data for signaling

Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>

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### Technical data

#### Connection data for signaling

Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Screw thread	M3

#### Standards

EMC requirements for noise immunity	EN 61000-6-1
	EN 61000-6-2
EMC requirements for noise emission	EN 61000-6-3
	EN 61000-6-4
Standard - Electrical safety	EN 60950-1/VDE 0805 (SELV)
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
Rail applications	EN 50121-4

#### Conformance/approvals

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)
Shipbuilding approval	DNV GL (EMC B)

#### EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Electrostatic discharge	EN 61000-4-2
Contact discharge	8 kV (Test Level 4)
Discharge in air	15 kV (Test Level 4)
Electromagnetic HF field	EN 61000-4-3
Frequency range	80 MHz ... 1 GHz
Test field strength	10 V/m
Frequency range	1.4 GHz ... 2 GHz
Test field strength	10 V/m
Frequency range	2 GHz ... 3 GHz
Test field strength	10 V/m
Comments	Criterion A
Fast transients (burst)	EN 61000-4-4
Input	2 kV (Test Level 3 - asymmetrical)
Output	2 kV (Test Level 3 - asymmetrical)
Signal	2 kV (Test Level 4 - asymmetrical)
Comments	Criterion A

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## Technical data

### EMC data

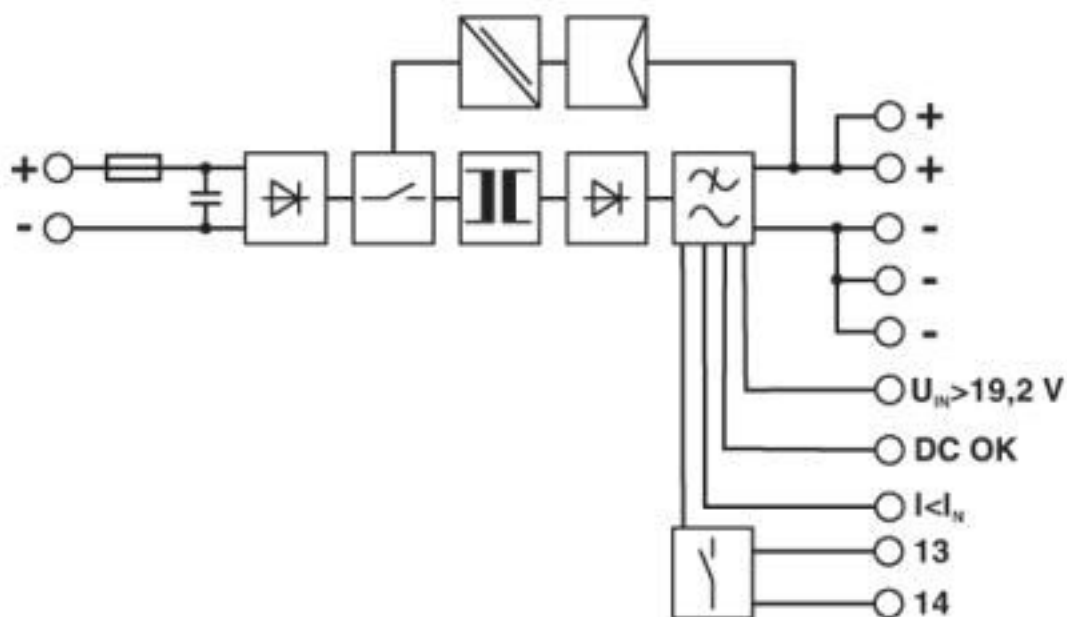
Surge voltage load (surge)	EN 61000-4-5
Input	1 kV (Test Level 2 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Output	1 kV (Test Level 2 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Signal	1 kV (Test Level 2 - asymmetrical)
Comments	Criterion A
Conducted interference	EN 61000-4-6
I/O/S	asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Voltage	10 V (Test Level 3)
Comments	Criterion A
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 25;
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

Block diagram



## DC/DC converters - QUINT-PS/24DC/48DC/ 5 - 2320128

### Classifications

#### eCl@ss

eCl@ss 10.0.1	27210901
eCl@ss 4.0	27210900
eCl@ss 4.1	27210900
eCl@ss 5.0	27210900
eCl@ss 5.1	27210900
eCl@ss 6.0	27210900
eCl@ss 7.0	27210901
eCl@ss 8.0	27210901
eCl@ss 9.0	27210901

#### ETIM

ETIM 4.0	EC002542
ETIM 5.0	EC002046
ETIM 6.0	EC002046
ETIM 7.0	EC002046

#### UNSPSC

UNSPSC 6.01	30211502
UNSPSC 7.0901	39121004
UNSPSC 11	39121004
UNSPSC 12.01	39121004
UNSPSC 13.2	39121041
UNSPSC 18.0	39121041
UNSPSC 19.0	39121041
UNSPSC 20.0	39121041
UNSPSC 21.0	39121041

### Approvals

#### Approvals

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#### Approvals

BV / LR / NK / ABS / RINA / UL Listed / UL Recognized / cUL Recognized / IECCEB Scheme / cUL Listed / EAC / DNV GL / EAC / UL Recognized / LR / IECCEB Scheme / UL Listed / cUL Listed / NK / cUL Recognized / ABS / EAC / DNV GL / BV / EAC / RINA

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#### Ex Approvals

UL Listed / cUL Listed / UL Listed / cUL Listed

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#### Approval details

## DC/DC converters - QUINT-PS/24DC/48DC/ 5 - 2320128

### Approvals

BV		<a href="http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials">http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials</a>	27662/B0 BV
LR		<a href="http://www.lr.org/en">http://www.lr.org/en</a>	12/20030
NK		<a href="http://www.classnk.or.jp/hp/en/">http://www.classnk.or.jp/hp/en/</a>	12A013
ABS		<a href="http://www.eagle.org/eagleExternalPortalWEB/">http://www.eagle.org/eagleExternalPortalWEB/</a>	15-GD1363806-PDA
RINA		<a href="http://www.rina.org/en">http://www.rina.org/en</a>	ELE112814XG
UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 123528
UL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 211944
cUL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 211944
IECEE CB Scheme		<a href="http://www.iecee.org/">http://www.iecee.org/</a>	DK-5535-M1
cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 123528
EAC			EAC-Zulassung

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### Approvals

DNV GL		<a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>	TAA000010E
EAC			EAC-Zulassung
UL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 211944
LR		<a href="http://www.lr.org/en">http://www.lr.org/en</a>	12/20030
IECEE CB Scheme		<a href="http://www.iecee.org/">http://www.iecee.org/</a>	DK-5535-M1
UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 123528
cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 123528
NK		<a href="http://www.classnk.or.jp/hp/en/">http://www.classnk.or.jp/hp/en/</a>	12A013
cUL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 211944
ABS		<a href="http://www.eagle.org/eagleExternalPortalWEB/">http://www.eagle.org/eagleExternalPortalWEB/</a>	15-GD1363806-PDA
EAC			RU*DE*08.B.01873/19



# DC/DC converters - QUINT-PS/24DC/48DC/ 5 - 2320128

## Approvals

DNV GL		<a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>	TAA000010E
Nominal voltage UN	750 V		
Nominal current IN	15 A		
mm <sup>2</sup> /AWG/kcmil	4		

BV		<a href="http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials">http://www.veristar.com/portal/veristarinfo/generalinfo/approved/approvedProducts/equipmentAndMaterials</a>	27662/B0 BV
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EAC			RU*DE*08.B.01873/19
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RINA		<a href="http://www.rina.org/en">http://www.rina.org/en</a>	ELE112814XG
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## Accessories

### Accessories

#### Assembly adapter

Assembly adapters - UTA 107/30 - 2320089



Universal DIN rail adapter

Assembly adapters - UWA 182/52 - 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.

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### Accessories

Assembly adapters - QUINT-PS-ADAPTERS7/1 - 2938196



Assembly adapter for QUINT-PS... power supply on S7-300 rail

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### Power supply

Power supply unit - QUINT-PS/1AC/24DC/20 - 2866776



Primary-switched QUINT POWER power supply for DIN rail mounting with SFB (Selective Fuse Breaking) Technology, input: 1-phase, output: 24 V DC/20 A

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Power supply unit - QUINT-PS/3AC/24DC/20 - 2866792



Primary-switched QUINT POWER power supply for DIN rail mounting with SFB (Selective Fuse Breaking) Technology, input: 3-phase, output: 24 V DC/20 A

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### Redundancy module

Redundancy module - TRIO-DIODE/48DC/2X10/1X20 - 2866527



Redundancy module with function monitoring, 48 V DC, 2x 10 A, 1x 20 A

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### Thermomagnetic device circuit breakers

Thermomagnetic device circuit breaker - CB TM1 1A SFB P - 2800836



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

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## DC/DC converters - QUINT-PS/24DC/48DC/ 5 - 2320128

### Accessories

Thermomagnetic device circuit breaker - CB TM1 2A SFB P - 2800837



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

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Thermomagnetic device circuit breaker - CB TM1 12A SFB P - 2800844



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

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Thermomagnetic device circuit breaker - CB TM1 16A SFB P - 2800845



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

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PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstr. 8  
32825 Blomberg  
Germany  
Tel. +49 5235 300  
Fax +49 5235 3 41200  
<http://www.phoenixcontact.com>

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[CE-1004](#) [GQ2541-7R](#) [RDS180245](#) [MAU228](#) [DFC15U48D15](#) [XGS-0512](#) [XGS-1205](#) [XGS-1212](#) [XGS-2412](#) [XGS-2415](#) [XKS-1215](#) [06322](#)  
[NCT1000N040R050B](#) [SPB05B-15](#) [SPB05C-15](#) [L-DA20](#) [DCG40-5G](#) [QME48T40033-PGB0](#) [XKS-2415](#) [XKS-2412](#) [XKS-2405](#) [XKS-1212](#)  
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