

DC/DC converters - QUINT4-PS/48DC/24DC/5/PT - 2910125

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Primary-switched DC/DC converter, QUINT, DIN rail mounting, SFB Technology (Selective Fuse Breaking), Push-in connection, input: 48 V DC, output: 24 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

- ✓ Most powerful output side: easy system expansion, reliable heavy load startup and miniature circuit breaker tripping
- ✓ Most comprehensive signaling: preventive function monitoring reports critical operating states before errors occur
- ✓ Free selection between Push-in and screw connection



Key Commercial Data

Packing unit	1 pc
GTIN	 4 0 5 5 6 2 6 5 3 7 4 3 6
GTIN	4055626537436

Technical data

Input data

Input voltage range	29 V DC ... 58 V DC
Typical current consumption	3.3 A (48 V DC)
Mains buffering	typ. 18 ms (48 V DC)
Inrush current integral (I^2t)	< 0.2 A ² s
Input fuse	10 A (slow-blow, internal)

Insulation electric strength

Insulation voltage input/output	4 kV DC (type test)
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Insulation electric strength

	2 kV DC (routine test)
Type test (IEC/EN 60950-1) A	2 kV DC
Type test (IEC/EN 60950-1) B	4 kV DC
Type test (IEC/EN 60950-1) C	0.5 kV DC
Type test (IEC/EN 60950-1) D	0.5 kV DC
Production test A	2 kV DC
Production test B	2 kV DC
Production test C	0.5 kV DC
Production test D	0.5 kV DC

Input connection data

Connection method	Push-in connection
Conductor cross section solid	0.2 mm ² ... 6 mm ²
Conductor cross section flexible	0.2 mm ² ... 6 mm ²
Flexible conductor cross section (ferrule with plastic sleeve)	0.2 mm ² 4 mm ²
Flexible conductor cross section flexible (ferrule, w/o plastic sleeve)	0.2 mm ² 4 mm ²
Conductor cross section AWG	24 ... 10
Stripping length	10 mm

Output data

Nominal output voltage (U_N)	24 V DC
Setting range of the output voltage (U_{Set})	24 V DC ... 29.5 V DC (> 24 V DC, constant capacity)
Nominal output current (I_N)	5 A
Static Boost ($I_{Stat.Boost}$)	6.25 A
Dynamic Boost ($I_{Dyn.Boost}$)	10 A (5 s)
Selective Fuse Breaking (I_{SFB})	30 A (15 ms)
Magnetic circuit breaker tripping	A1 ... A4 / B2 / C1 ... C2 / Z1 ... Z4
System deviation, static	< 1 % (change in load, static 10 % ... 90 %)
System deviation, dynamic	< 3 % (Dynamic load change 10 % ... 90 %, 10 Hz)
System deviation, input voltage change	< 0.1 % (change in input voltage ± 10 %)
Short-circuit-proof	yes
No-load proof	yes
Residual ripple	< 15 mV _{pp}
Connection in parallel	yes
Connection in series	yes
Feedback resistance	≤ 35 V DC
Output overvoltage protection	≤ 32 V DC

Output connection data

Connection method	Push-in connection
Conductor cross section solid	0.2 mm ² ... 6 mm ²
Conductor cross section flexible	0.2 mm ² ... 6 mm ²

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Output connection data

Flexible conductor cross section (ferrule with plastic sleeve)	0.2 mm ² 4 mm ²
Flexible conductor cross section flexible (ferrule, w/o plastic sleeve)	0.2 mm ² 4 mm ²
Conductor cross section AWG	24 ... 10
Stripping length	10 mm

LED signaling

P_{Out}	> 100% (LED lights up yellow, output power > 240 W)
	> 75% (LED lights up green, output power > 180 W)
	> 50% (LED lights up green, output power > 120 W)
U_{Out}	> 0.9 x U_{Set} (LED lights up green)
	< 0.9 x U_{Set} (LED flashes green)
U_{In}	> 0.8 x U_{InNom} (LED off)
	< 0.8 x U_{InNom} (LED lights up yellow)

Signal contacts – signal output Out 1 (configurable)

Connection labeling	3.5 +
Digital	0 V DC
	24 V DC
	20 mA
Default	U_{IN} input voltage OK
Signal option	Output voltage
	Output current
	Output power
	Operating hours
	Early warning of high temperatures
	OVP voltage limitation active

Signal contacts – signal output Out 2 (configurable)

Connection labeling	3.6 +
Digital	0 V DC
	24 V DC
	20 mA
Default	Output power
Signal option	Output voltage
	Output current
	Operating hours
	Early warning of high temperatures
	OVP voltage limitation active
Analog	4 mA ... 20 mA $\pm 5\%$ (Load $\leq 400 \#$)
Signal option	Output voltage
	Output current
	Output power

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Signal contacts – signal output relay 13/14 (configurable)

Connection labeling	3.1, 3.2
Switch contact	floating
Maximum contact load	24 V DC
	1 A
	30 V AC
	0.5 A
Default	Output voltage
Signal option	Output current
	Output power
	Operating hours
	Early warning of high temperatures
	OVP voltage limitation active
	U _{IN} input voltage OK

Signal contacts – remote signal input (configurable)

Connection labeling	3.3 +
Function	Output power ON/OFF (remote)
Default	Output power ON (>40 kΩ/24 V DC/open bridge between REM and SGnd)

Signal contacts – signal ground SGnd

Connection labeling	3.4 +
Function	Signal ground
Reference potential	to OUT1, OUT2, REM

Signal connection data

Connection method	Push-in connection
Conductor cross section solid	0.2 mm ² ... 1 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Flexible conductor cross section (ferrule with plastic sleeve)	0.2 mm ² 0.75 mm ²
Flexible conductor cross section flexible (ferrule, w/o plastic sleeve)	0.2 mm ² 1.5 mm ²
Conductor cross section AWG	24 ... 16

Reliability

MTBF (IEC 61709, SN 29500)	> 500000 h (40 °C)
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General data

Degree of protection	IP20
Protection class	Special with SELV input and output
Width	36 mm
Height	130 mm
Depth	125 mm
Weight	0.6 kg
Efficiency	typ. 94 % (48 V DC)

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Ambient conditions

Ambient temperature (operation)	-25 °C ... 70 °C (> 60 °C Derating: 2.5 %/K)
Ambient temperature (start-up type tested)	-40 °C
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, non-condensing)
Maximum altitude	≤ 5000 m (> 2000 m, observe derating)
Degree of pollution	2
Overvoltage category EN 61010-1	II
Overvoltage category EN 62477-1	III

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	Additional basic standard EN 61000-6-5 (immunity in power station), IEC/EN 61850-3 (energy supply)
Noise immunity	Immunity according to EN 61000-6-1 (residential), EN 61000-6-2 (industrial), and EN 61000-6-5 (power station equipment zone), IEC/EN 61850-3 (energy supply)
Standards/regulations	EN 61000-4-2
Contact discharge	4 kV (Test Level 2)
Standards/regulations	EN 61000-4-3
Frequency range	80 MHz ... 1 GHz
Test field strength	10 V/m (Test Level 3)
Frequency range	1.4 GHz ... 2 GHz
Test field strength	3 V/m (Test Level 2)
Standards/regulations	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-4-6
Frequency range	0.15 MHz ... 80 MHz
Voltage	10 V (Test Level 3)
Conducted noise emission	EN 55016 EN 61000-6-4 (Class A)
Standards/regulations	EN 61000-4-8
	EN 61000-4-29
	EN 61000-4-9
	EN 61000-4-16
	EN 61000-4-18
Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Standard – Safety extra-low voltage	EN 61010-1 (SELV)
	IEC 61010-2-201 (PELV)
EMC requirements, power plant	IEC 61850-3
	EN 61000-6-5
Shipbuilding approval	DNV GL
UL approvals	UL Listed UL 61010-1
	UL Listed UL 61010-2-201

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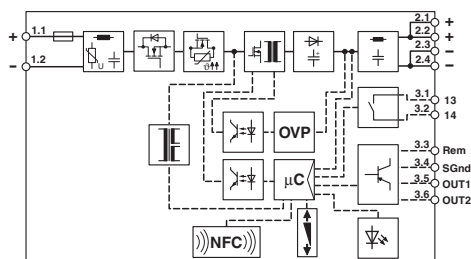
Technical data

Standards and Regulations

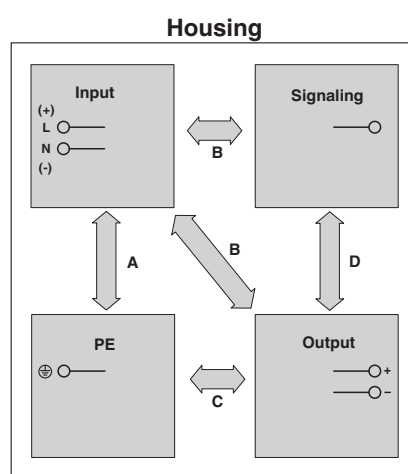
	UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location)
Approval - requirement of the semiconductor industry with regard to mains voltage dips	EN 61000-4-29
ATEX	# II 3 G Ex ec ic nC IIC T4 Gc X
IECEX	IECEX SIQ 19.0005X
	Ex ec ic nC IIC T4 Gc
Overvoltage category (EN 61010-1)	II
Overvoltage category (EN 62477-1)	III

Drawings

Block diagram



Schematic diagram



Approvals

Approvals

Approvals

DNV GL / UL Listed / cUL Listed / Type approved / UL Listed / cUL Listed / DNV GL / Type approved

Ex Approvals

Approval details

DNV GL		http://exchange.dnv.com/tari/	TAA000027S
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Approvals

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
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Type approved			SI-SIQ BG 005/059
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DNV GL		http://exchange.dnv.com/tari/	TAA000027S
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Type approved			SI-SIQ BG 005/059
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