

DC/DC converters - QUINT-PS/24DC/24DC/20 - 2320102

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Primary-switched QUINT DC/DC converter for DIN rail mounting, input: 24 V DC, output: 24 V DC/20 A, with integrated SFB (selective fuse breaking) technology, including mounted universal DIN rail adapter UTA 107

Product Description

The QUINT 24 V/20 A DC/DC converter converts a DC voltage of 18 V ... 32 V to an adjustable, regulated, and electrically isolated 24 V output voltage. If no regulated and stable 24 V DC voltage is available to supply a load, the DC/DC converter ensures the adjustment of the 24 V load: from an unregulated DC voltage, an adjustable output voltage of 18 V ... 29.5 V is generated.

Product Features

- 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
- Support conversion to various voltage levels
- Constant voltage: output voltage regenerated even at the end of long cables
- Electrical isolation: for setting up independent supply systems



Key commercial data

package_quantity	1
GTIN	4046356481892

Technical data

Dimensions

Width	82 mm
Height	130 mm
Depth	125 mm
Width with alternative assembly	122 mm
Height with alternative assembly	130 mm
Depth with alternative assembly	85 mm

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> 60 °C derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, no condensation)
Noise immunity	EN 61000-6-2:2005

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Technical data

Input data

Nominal input voltage	24 V DC
Nominal input voltage range	18 V DC ... 32 V DC
Nominal input voltage range	14 V DC ... 18 V DC (Consider derating during operation)
Input voltage range DC	18 V DC ... 32 V DC
Input voltage range DC	14 V DC ... 18 V DC (Consider derating during operation)
Current consumption	28 A (24 V, I _{BOOST})
Inrush surge current	< 26 A (typical)
Power failure bypass	> 10 ms (24 V DC)
Choice of suitable fuses	40 A ... 50 A (Characteristics B, C, D, K)
Type of protection	Transient surge protection
Protective circuit/component	Varistor

Output data

Nominal output voltage	24 V DC ±1%
Setting range of the output voltage	18 V DC ... 29.5 V DC (> 24 V constant capacity)
Output current	20 A (-25 °C ... 60 °C)
Output current	25 A (with POWER BOOST, -25°C ... 40°C permanently, U _{OUT} = 24 V DC)
Output current	120 A (SFB technology, 12 ms)
Magnetic fuse tripping	B2
Magnetic fuse tripping	B4
Magnetic fuse tripping	B6
Magnetic fuse tripping	B10
Magnetic fuse tripping	B16
Magnetic fuse tripping	C2
Magnetic fuse tripping	C4
Magnetic fuse tripping	C6
Derating	60 °C ... 70 °C (2.5%/K)
Connection in parallel	Yes, for redundancy and increased capacity
Connection in series	Yes
Max. capacitive load	Unlimited
Current limitation	Approximately 29 A
Control deviation	< 1 % (change in load, static 10% ... 90%)
Control deviation	< 2 % (change in load, dynamic 10% ... 90%)
Control deviation	< 0.1 % (change in input voltage ±10%)
Residual ripple	< 20 mV _{PP}
Peak switching voltages nominal load	< 10 mV _{PP} (20 MHz)
Maximum power dissipation NO-Load	2.2 W
Power loss nominal load max.	39 W

General

Net weight	1.7 kg
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General

Efficiency	> 93 %
Insulation voltage input/output	1.5 kV (type test)
Insulation voltage input/output	1 kV (routine test)
Protection class	III
MTBF (IEC 61709, SN 29500)	> 554000 h (According to EN 29500)
Mounting position	horizontal DIN rail NS 35, EN 60715
Assembly instructions	Alignable: 5 mm horizontally, 15 mm next to active components, 50 mm vertically
Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
Standard – Electrical equipment of machines	EN 60204
Standard - Electrical safety	EN 60950-1/VDE 0805 (SELV)
Shipbuilding approval	Germanischer Lloyd (EMC 1)
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)
Standard – Safety extra-low voltage	EN 60204 (PELV)
Standard - Safe isolation	DIN VDE 0100-410
UL approvals	UL/C-UL listed UL 508
UL approvals	UL/C-UL Recognized UL 60950
UL approvals	UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location)

Connection data, input

Connection method	Screw connection
Conductor cross section solid min.	0.5 mm ²
Conductor cross section solid max.	16 mm ²
Conductor cross section stranded min.	0.5 mm ²
Conductor cross section stranded max.	16 mm ²
Conductor cross section AWG/kcmil min.	8
Conductor cross section AWG/kcmil max	6
Stripping length	10 mm
Screw thread	M3

Connection data, output

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	6 mm ²
Conductor cross section stranded min.	0.2 mm ²
Conductor cross section stranded max.	4 mm ²
Conductor cross section AWG/kcmil min.	12
Conductor cross section AWG/kcmil max	10
Stripping length	8 mm

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Technical data

Signaling

Output name	DC OK active
Output description	$U_{OUT} > 0.9 \times U_N$: High signal
Maximum inrush current	< 20 mA (short-circuit resistant)
Status display	"DC OK" LED green
Note on status display	$U_{OUT} < 0.9 \times U_N$: LED flashing
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section stranded min.	0.2 mm ²
Conductor cross section stranded max.	2.5 mm ²
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	12
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm
Screw thread	M3
Output name	POWER BOOST, active
Output description	$I_{OUT} < I_N$: High signal
Maximum inrush current	< 20 mA (short-circuit resistant)
Status display	"BOOST" LED yellow/ $I_{OUT} > I_N$: LED on
Output name	U_{IN} OK, active
Output description	$U_{IN} > 19.2$ V: High signal
Maximum inrush current	≤ 20 mA (short-circuit resistant)
Status display	LED " $U_{IN} < 19.2$ V" yellow/ $U_{IN} < 19.2$ V DC: LED on
Output name	DC OK floating
Output description	Relay
Output voltage	≤ 30 V AC/DC
Maximum inrush current	≤ 100 mA
Note on status display	$U_{OUT} > 0.9 \times U_N$: Contact closed

classifications

eCl@ss

eCl@ss 4.0	27250311
eCl@ss 4.1	27250311
eCl@ss 5.0	27242213
eCl@ss 5.1	27210901
eCl@ss 6.0	27210901
eCl@ss 7.0	27210901
eCl@ss 8.0	27210901

ETIM

ETIM 4.0	EC002542
ETIM 5.0	EC002046

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classifications

UNSPSC

UNSPSC 6.01	30211502
UNSPSC 7.0901	39121004
UNSPSC 11	39121004
UNSPSC 12.01	39121004
UNSPSC 13.2	39121004

approvals

UL Listed / cUL Listed / cULus Listed / UL Recognized / cUL Recognized / IEC EE CB Scheme / UL Listed / cUL Listed / cULus Recognized / cULus Listed /

Approval details

UL Listed

cUL Listed

cULus Listed

UL Recognized

cUL Recognized

IECEE CB Scheme

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approvals



accessories

Power supply

QUINT-PS/ 1AC/24DC/40 - 2866789



QUINT-PS/ 3AC/24DC/40 - 2866802



Redundancy module

QUINT-ORING/24DC/2X20/1X40 - 2320186



Mounting rail adapter

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accessories

UTA 107 - 2853983



Assembly adapter

UWA 182/52 - 2938235

QUINT-PS-ADAPTERS7/2 - 2938206



Thermomagnetic device circuit breakers

CB TM1 1A SFB P - 2800836



CB TM1 2A SFB P - 2800837



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accessories

CB TM1 3A SFB P - 2800838



CB TM1 4A SFB P - 2800839



CB TM1 5A SFB P - 2800840



CB TM1 6A SFB P - 2800841



CB TM1 8A SFB P - 2800842



CB TM1 10A SFB P - 2800843



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accessories

CB TM1 12A SFB P - 2800844



CB TM1 16A SFB P - 2800845



Drawings

Block diagram

