QUINT-PS- 24DC/24DC/10 - DC/DC converter

2866378

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QUINT DC/DC converter, primary-switched, input: 24 V DC, output: 24 V DC/10 A

Product description

The QUINT DC-DC converter 24 V/10 A converts the DC voltage from 18 V ... 32 V to an adjustable, controlled and galvanically separated 24 V output voltage. If no regulated and stable 24 V DC voltage is available to supply a load, DC-DC converters ensure the adjustment of the 24 V load: A non-regulated DC voltage is converted to an adjustable output voltage of 22.5 V ...28.5 V.
Due to electrical isolation, the DC voltage circuits are electrically isolated from each other in a safe way. With a design width of only 80 mm, the housing is extremely slim. The floating DC-OK output and an LED are available for signaling.

Commercial data

Item number	2866378
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM05
Product key	CMDQ43
GTIN	4017918987169
Weight per piece (including packing)	1,357 g
Weight per piece (excluding packing)	1,192 g
Customs tariff number	85044095
Country of origin	CN

Technical data

Input data

Input voltage	24 V DC
Nominal input voltage range	24 V DC
Input voltage range	18 V DC ... 32 V DC
Wide-range input	yes
Input voltage range DC	18 V DC ... 32 V DC
Voltage type of supply voltage	DC
Inrush current	< 20 A (typical)
Inrush current integral (I^2t)	0.3 A^2s
Frequency range DC	0 Hz
Mains buffering time	> 3 ms (24 V DC)
Current consumption	typ. 11.4 A (24 V)
Protective circuit	Transient surge protection; Varistor
Typical response time	< 1 s
Input fuse	25 A (slow-blow, internal)

Output data

Efficiency	> 88 %
Nominal output voltage	24 V DC ±1 %
Setting range of the output voltage (U_{Set})	22.5 V DC ... 28.5 V DC (> 24 V DC, constant capacity restricted)
Nominal output current (I_N)	10 A (-25 °C ... 60 °C)
Derating	60 °C ... 70 °C (2.5 %/K)
Feedback voltage resistance	35 V DC
Protection against overvoltage at the output (OVP)	< 35 V DC
Max. capacitive load	unlimited
Active current limitation	Approx. 18 A
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	< 60 mV_{PP}
Output power	240 W
Maximum no-load power dissipation	< 2 W
Power loss nominal load max.	< 28 W
Rise time	< 2 ms (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} > 21.5 V: High signal
Maximum switching voltage	≤ 24 V DC
Output voltage	+ 24 V DC
Continuous load current	≤ 40 mA

Signal: DC OK floating

Output description	U_{OUT} > 21.5 V: Contact closed
Maximum switching voltage	≤ 30 V AC/DC
Continuous load current	≤ 1 A

Connection data

Input

Connection method	Pluggable 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.	24
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	Pluggable 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.	24
Conductor cross-section AWG max.	12
Stripping length	7 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
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Signal

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Conductor cross-section flexible max.	2.5 mm²
Conductor cross-section AWG min.	24
Conductor cross-section AWG max.	12
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Signaling

Types of signaling	LED
	Active switching output
Operating voltage display	Green LED

Signal output: DC OK active

Status display	"DC OK" LED green

Signal output: DC OK floating

Status display	"DC OK" LED green

Electrical properties

Number of phases	1
Insulation voltage input/output	1 kV (routine test)
	1.5 kV (type test)

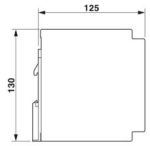
Product properties

Product type	DC/DC converters
Product family	QUINT POWER
MTBF (IEC 61709, SN 29500)	> 500000 h

Insulation characteristics

Protection class	III
Degree of pollution	2

Dimensions

Dimensional drawing	
Width	80 mm
Height	130 mm
Depth	125 mm

Installation dimensions

Installation distance right/left	0 mm / 0 mm (≤ 70 °C)
Installation distance right/left (active)	15 mm / 15 mm (≤ 70 °C)
Installation distance top/bottom	50 mm / 50 mm (≤ 70 °C)
Installation distance top/bottom (active)	50 mm / 50 mm (≤ 70 °C)

Alternative assembly

Width	122 mm
Height	130 mm
Depth	83 mm

Mounting

Assembly note	alignable: horizontally 0 mm, vertically 50 mm

Mounting position	horizontal DIN rail NS 35, EN 60715
With protective coating	no

Material specifications

Housing material	Metal
Type of housing	AluNox (AlMg1)

Environmental and real-life conditions

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
Climatic class	3K3 (in acc. with EN 60721)
Max. permissible relative humidity (operation)	95 % (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

Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations	EN 50178/VDE 0160 (PELV)
Standard - Electrical safety	EN 60950-1/VDE 0805 (SELV)
Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment	EN 50178
Standard – Safety extra-low voltage	EN 60950-1 (SELV)
	EN 60204 (PELV)
Standard - Safe isolation	DIN VDE 0100-410
Standard - Safety of transformers	EN 61558-2-17

Approvals

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

EMC data

Electromagnetic compatibility	Conformance with EMC directive 89/336/EC
Noise immunity	EN 61000-6-2:2005

Electrostatic discharge

Standards/regulations	EN 61000-4-2
Housing	Level 3

Electrostatic discharge

Contact discharge	8 kV

Discharge in air	8 kV
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3

Electromagnetic HF field

Frequency range	80 MHz ... 2 GHz
Test field strength	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4

Fast transients (burst)

Input	2 kV (Level 3 - asymmetrical)
Output	2 kV (Level 3 - asymmetrical)
Signal	1 kV (Level 2 - asymmetrical)

Surge voltage load (surge)

Standards/regulations	EN 61000-4-5

Surge voltage load (surge)

Input/Output	2 kV (Level 3 - asymmetrical)
Comments	Criterion B
Input/Output	2 kV (Level 3 - asymmetrical)
Input/Output/Signal	1 kV (Level 3 - asymmetrical)

Conducted interference

Standards/regulations	EN 61000-4-6

Conducted interference

Input/output/signal	Level 3 - asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V

Voltage dips

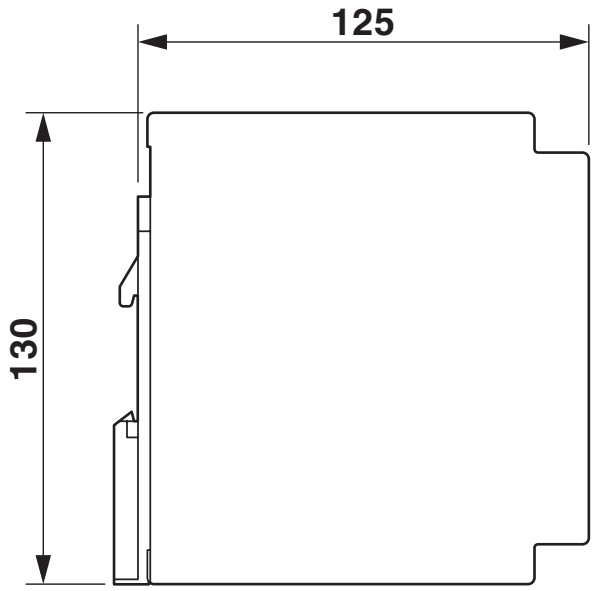
Standards/regulations	EN 61000-4-11

Emitted interference

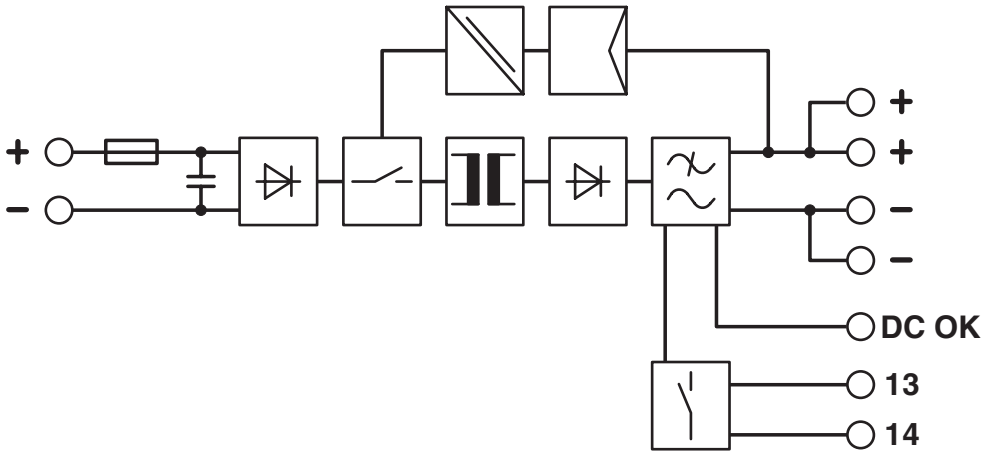
Standards/regulations	EN 61000-6-3
Radio interference voltage in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential
Emitted radio interference in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential

Drawings

Dimensional drawing



Block diagram



Classifications

ECLASS

ECLASS-13.0	27040701
ECLASS-15.0	27040701

ETIM

ETIM 10.0	EC002540

UNSPSC

UNSPSC 21.0	39121000

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-25
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	f8741288-4f90-44a6-b2a3-4828419653e2

EF3.1 Climate Change

CO2e kg	38.535 kg CO2e

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