

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



2866378

<https://www.phoenixcontact.com/us/products/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 <sup>2</sup> s
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 $\pm$ 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 $\pm$ 10 %)
Residual ripple	< 60 mV <sub>PP</sub>
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	$\leq$ 24 V DC
Output voltage	+ 24 V DC
Continuous load current	$\leq$ 40 mA

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Signal: DC OK floating

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

## Connection data

Input

Connection method	Pluggable screw connection
Conductor cross-section, rigid min.	0.2 mm <sup>2</sup>
Conductor cross-section, rigid 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
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 mm <sup>2</sup>
Conductor cross-section, rigid 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
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Signal

Conductor cross-section, rigid min.	0.2 mm <sup>2</sup>
Conductor cross-section, rigid 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
Screw thread	M3
Tightening torque, min	0.5 Nm
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## Signaling

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

Signal output: DC OK active

Status display	"DC OK" LED green
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Signal output: DC OK floating

Status display	"DC OK" LED green
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## Electrical properties

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

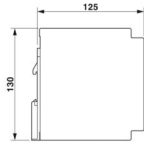
## Product properties

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

Alternative assembly

Width	122 mm
Height	130 mm
Depth	83 mm

## Mounting

Assembly note	alignable: horizontally 0 mm, vertically 50 mm
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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 $\pm 2.5$ 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
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Discharge in air	8 kV
Comments	Criterion B

## Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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## 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
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## 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
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## Surge voltage load (surge)

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
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## 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
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## 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

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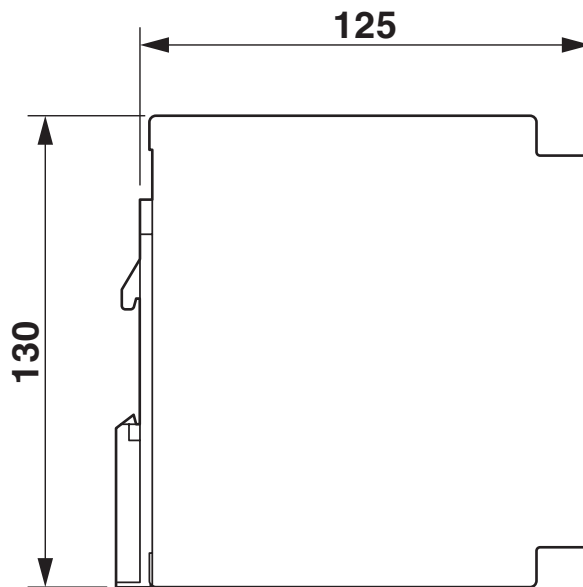


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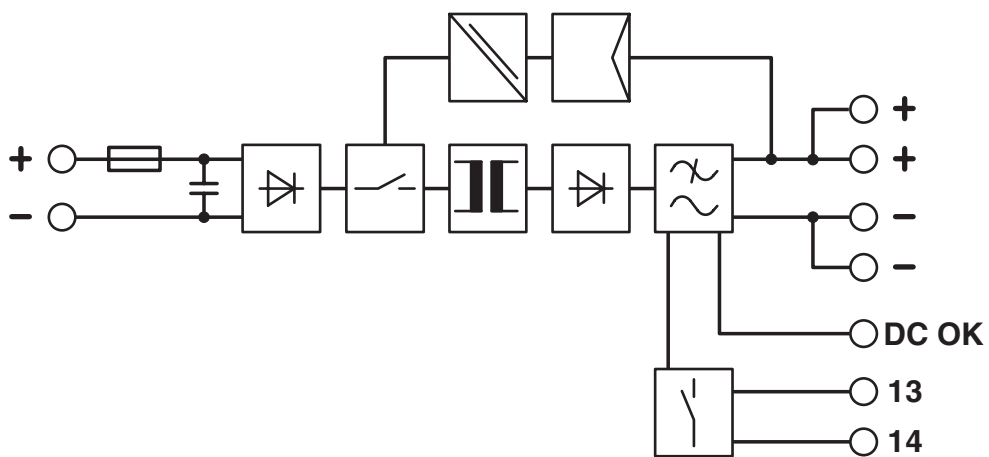
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## Drawings

Dimensional drawing



Block diagram



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## Classifications

### ECLASS

ECLASS-13.0	27040701
ECLASS-15.0	27040701

### ETIM

ETIM 10.0	EC002540
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### UNSPSC

UNSPSC 21.0	39121000
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## 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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