

# DC/DC converters - MINI-PS- 12- 24DC/24DC/1



2866284

<https://www.phoenixcontact.com/pc/products/2866284>

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Please use the following items in new systems: 1066703, 1066716, 1066718, 1066714.  
Primary-switched MINI DC/DC converter for DIN rail mounting, input: 12 - 24 V DC, output: 24 V DC/1 A

## Product Description

MINI DC/DC converter for MCR technology.

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.

## Your advantages

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

## Commercial Data

Item number	2866284
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CMDM43
Catalog Page	Page 298 (C-4-2019)
GTIN	4017918960902
Weight per Piece (including packing)	235.1 g
Weight per Piece (excluding packing)	235.1 g
Customs tariff number	85044030
Country of origin	CN

## Technical Data

### Input data

#### DC operation

Nominal input voltage range	12 V DC ... 24 V DC
Input voltage range	10 V DC ... 32 V DC
Wide-range input	yes
Input voltage range DC	10 V DC ... 32 V DC
Inrush current	< 15 A (typical)
Inrush current integral ( $I^2t$ )	1.8 A <sup>2</sup> s
Frequency range DC	0 Hz
Mains buffering time	typ. 3 ms (12 V DC) typ. 20 ms (24 V DC)
Current consumption	2.6 A (12 V DC) 1.3 A (24 V DC)
Typical response time	< 0.5 s
Input fuse	6.3 A (slow-blow, internal)

### Output data

Efficiency	> 83 % (at 24 V DC and nominal values)
Output characteristic	U/I
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 ( $I_N$ )	1 A (-25 °C ... 60 °C)
Derating	60 °C ... 70 °C (2.5%/K)
Residual ripple	< 30 mV <sub>PP</sub> (20 MHz)
Output power	24 W
Peak switching voltages nominal load	< 100 mV <sub>PP</sub> (20 MHz)
Maximum no-load power dissipation	< 1.2 W
Power loss nominal load max.	< 5 W
Connection in parallel	yes, for assembling redundant systems and increasing efficiency
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 (Signal)
Continuous load current	$\leq$ 20 mA

### Connection data

#### Input

Connection method	Pluggable screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>

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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.	14
Stripping length	7 mm
Screw thread	M3

## 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.	14
Stripping length	7 mm
Screw thread	M3

## Signal

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.	14
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

## LED signaling

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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## Electrical properties

Number of phases	1.00
Insulation voltage input/output	1.5 kV (type test)
	1 kV (routine test)

## Product properties

Product type	DC/DC converters
MTBF (IEC 61709, SN 29500)	> 2569000 h (40 °C)

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## Insulation characteristics

Protection class	III
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## Dimensions

Width	22.5 mm
Height	99 mm
Depth	107 mm

## Installation dimensions

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

## Mounting

Assembly instructions	alignable: horizontally 0 mm, vertically 50 mm
Mounting position	horizontal DIN rail NS 35, EN 60715
With protective coating	No

## Material specifications

Color	green
Housing material	Plastic
Type of housing	Polyamide PA, color: green

## 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
Max. permissible relative humidity (operation)	$\leq 95\%$ (at 25 °C, non-condensing)

## Standards and regulations

Rail applications	EN 50121-4
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 - Safe isolation	DIN VDE 0100-410
	DIN VDE 0106-101

## Approval data

Shipbuilding approval	DNV GL (EMC A)
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)

## EMC data

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Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
EMC requirements for noise emission	EN 61000-6-3
	EN 61000-6-4
EMC requirements for noise immunity	EN 61000-6-1
	EN 61000-6-2
Noise emission	EN 55011 (EN 55022)
Noise immunity	EN 61000-6-2:2005

## Electrostatic discharge

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

## Electrostatic discharge

Contact discharge	8 kV (Contact discharge)
Discharge in air	8 kV (Air discharge)
Comments	Criterion B

## Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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## Electromagnetic HF field

Frequency range	80 MHz ... 3 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	4 kV (level 4 - asymmetrical: conductor to ground)
Output	2 kV (level 3 - asymmetrical: conductor to ground)
Signal	1 kV
Comments	Level 2 - asymmetrical cable to ground

## Surge voltage load (surge)

Standards/regulations	EN 61000-4-5
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## Conducted interference

Standards/regulations	EN 61000-4-6
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## Conducted interference

Input/Output	Level 3
Frequency range	0.15 MHz ... 80 MHz (10 V)

## Voltage dips

Standards/regulations	EN 61000-4-11
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## Emitted interference

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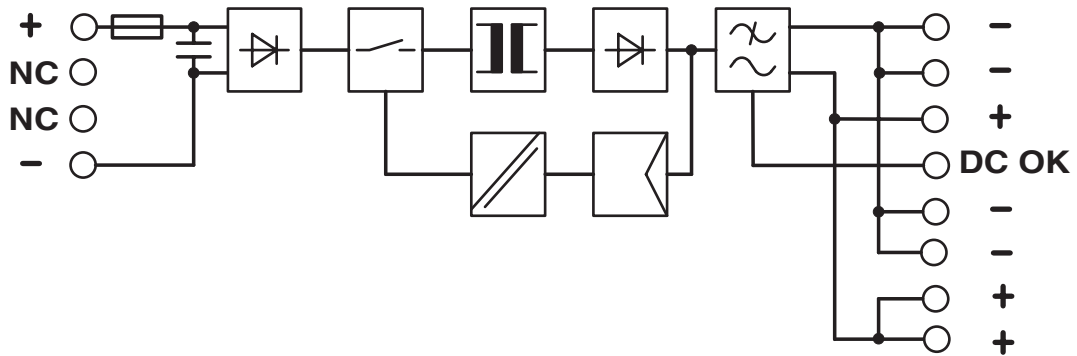
Standards/regulations	EN 61000-6-3
Radio interference voltage in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential
Emitted radio interference in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential

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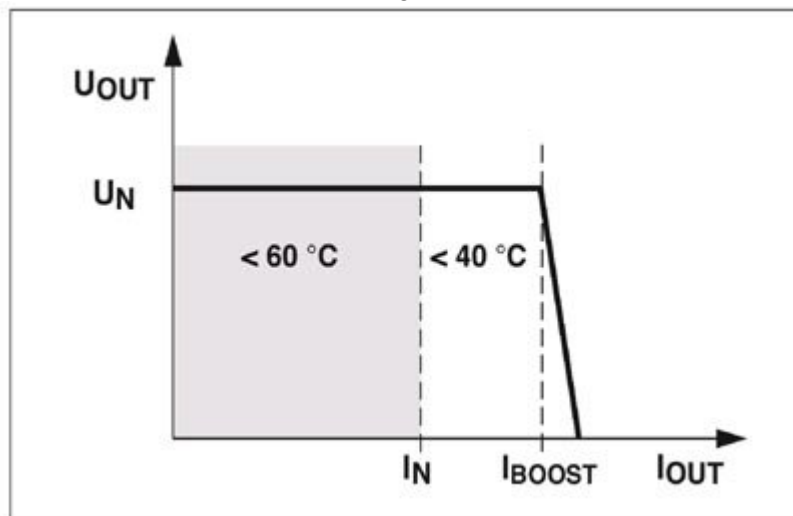
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## Drawings

Block diagram



Diagram



POWER BOOST

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## Approvals



**cUL Recognized**  
Approval ID: FILE E 211944



**UL Recognized**  
Approval ID: FILE E 211944



**EAC**  
Approval ID: EAC-Zulassung



**DNV GL**  
Approval ID: TAA000030X



**EAC**  
Approval ID: RU S-DE.BL08.W.00764



**UL Listed**  
Approval ID: FILE E 123528



**cUL Listed**  
Approval ID: FILE E 123528



**cUL Listed**  
Approval ID: FILE E 199827



**UL Listed**  
Approval ID: FILE E 199827

**cULus Recognized**

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## Classifications

### ECLASS

ECLASS-9.0	27210901
ECLASS-10.0.1	27210901
ECLASS-11.0	27210901

### ETIM

ETIM 8.0	EC002046
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 25; For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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