

# MINI-PS- 48- 60DC/24DC/1 - DC/DC converter



2866271

<https://www.phoenixcontact.com/us/products/2866271>

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Please use the following item in new systems: 1066708.

Primary-switched MINI DC/DC converter for DIN rail mounting, input: 48 - 60 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	2866271
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM03
Product key	CMDM43
GTIN	4017918960919
Weight per piece (including packing)	227.2 g
Weight per piece (excluding packing)	200 g
Customs tariff number	85044095
Country of origin	CN

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## Technical data

### Input data

#### DC operation

Nominal input voltage range	48 V DC ... 60 V DC
Input voltage range	36 V DC ... 75 V DC
Wide-range input	yes
Input voltage range DC	36 V DC ... 75 V DC
Voltage type of supply voltage	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. 15 ms (48 V DC) typ. 20 ms (60 V DC)
Current consumption	0.6 A (48 V DC) 0.5 A (60 V DC)
Typical response time	< 0.5 s
Input fuse	3.15 A (slow-blow, internal)

### Output data

Efficiency	> 85 % (at 60 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	< 40 mV <sub>PP</sub>
Short-circuit-proof	yes
Output power	24 W
Peak switching voltages nominal load	< 50 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
Fuse protection (secondary side)	electronic

#### 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

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## 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.	14
Stripping length	7 mm
Screw thread	M3

## 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.	14
Stripping length	7 mm
Screw thread	M3

## 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.	14
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
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## Electrical properties

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

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## Product properties

Product type	DC/DC converters
Product family	MINI POWER
MTBF (IEC 61709, SN 29500)	> 1147000 h (40 °C)

### Insulation characteristics

Protection class	II
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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 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	Plastic
Housing material	PA
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)
Temp code	T4A $\leq 70\text{ °C}$

## 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

## Approvals

UL/C-UL listed UL 508
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UL approvals	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

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
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

Standards/regulations	EN 55011 (EN 55022)
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### 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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### Surge voltage load (surge)

Input	2 kV (Level 3)
	1 kV (Level 3)

### Conducted interference

# MINI-PS- 48- 60DC/24DC/1 - DC/DC converter



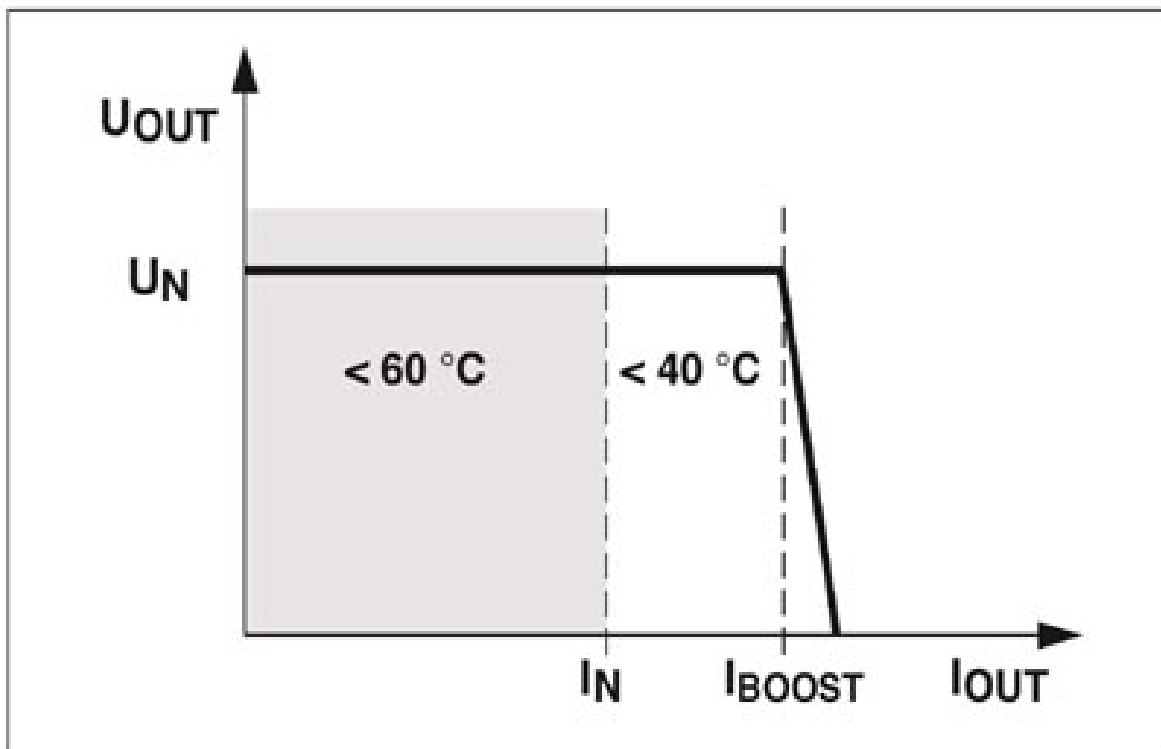
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Standards/regulations	EN 61000-4-6
Conducted interference	
Input/Output	Level 3
Frequency range	0.15 MHz ... 80 MHz (10 V)
Voltage dips	
Standards/regulations	EN 61000-4-11
Emitted interference	
Standards/regulations	EN 61000-6-3
Radio interference 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

Diagram



POWER BOOST

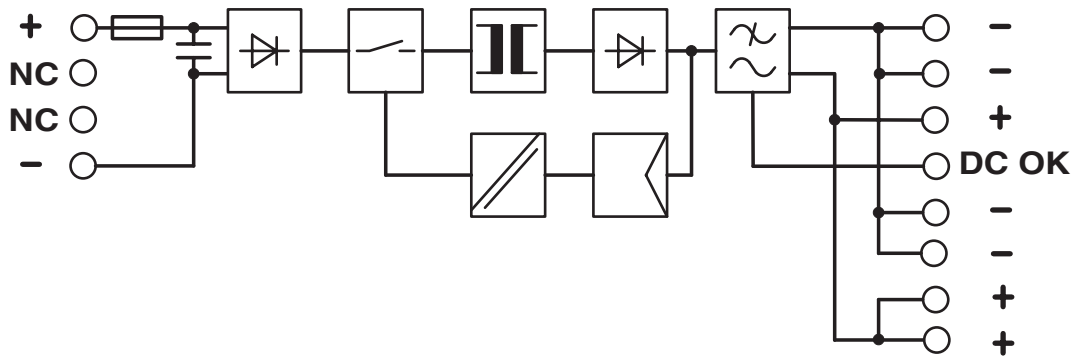
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Block diagram



# MINI-PS- 48- 60DC/24DC/1 - DC/DC converter



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2866271>



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



**UL Recognized**  
Approval ID: E211944



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



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



**UL Listed**  
Approval ID: E123528



**cUL Listed**  
Approval ID: E123528

### CoC / Compliance Statement

Approval ID: 19-049-00



**cUL Listed**  
Approval ID: E199827



**UL Listed**  
Approval ID: E199827

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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	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	e6ff8662-a591-48fd-a038-2a8ef5fde62b

### EF3.1 Climate Change

CO2e kg	17.589 kg CO2e
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