

MINI-PS- 12- 24DC/24DC/1 - DC/DC converter



2866284

<https://www.phoenixcontact.com/us/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 |
| Sales key | CM03 |
| Product key | CMDM43 |
| GTIN | 4017918960902 |
| Weight per piece (including packing) | 237.8 g |
| Weight per piece (excluding packing) | 235 g |
| Customs tariff number | 85044095 |
| 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 |
| Voltage type of supply voltage | DC |
| Inrush current | < 15 A (typical) |
| Inrush current integral (I^2t) | 1.8 A ² 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 _{PP} (20 MHz) |
| Short-circuit-proof | yes |
| Output power | 24 W |
| Peak switching voltages nominal load | < 100 mV _{PP} (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 ² |
| Conductor cross-section, rigid max. | 2.5 mm ² |
| Conductor cross-section flexible min. | 0.2 mm ² |
| Conductor cross-section flexible max. | 2.5 mm ² |
| 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 ² |
| Conductor cross-section, rigid max. | 2.5 mm ² |
| Conductor cross-section flexible min. | 0.2 mm ² |
| Conductor cross-section flexible max. | 2.5 mm ² |
| 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 ² |
| Conductor cross-section, rigid max. | 2.5 mm ² |
| Conductor cross-section flexible min. | 0.2 mm ² |
| Conductor cross-section flexible max. | 2.5 mm ² |
| 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 |
|----------------|-------------------|

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) | > 2569000 h (40 °C) |

Insulation characteristics

| | |
|------------------|-----|
| Protection class | III |
|------------------|-----|

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 |
| 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 $\leq 60\text{ °C}$ T3C $\leq 70\text{ °C}$ |

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

| | |
|-----------------------|----------------|
| Shipbuilding approval | DNV GL (EMC A) |
|-----------------------|----------------|

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| | |
|--------------|--|
| 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

| | |
|-------------------------------------|---|
| 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) |
|-----------------------|---------------------|

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 |
|-----------------------|--------------|

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 |
|-----------------------|--------------|

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 |
|-----------------------|--------------|

Surge voltage load (surge)

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

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Conducted interference

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-6 |
|-----------------------|--------------|

Conducted interference

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

Voltage dips

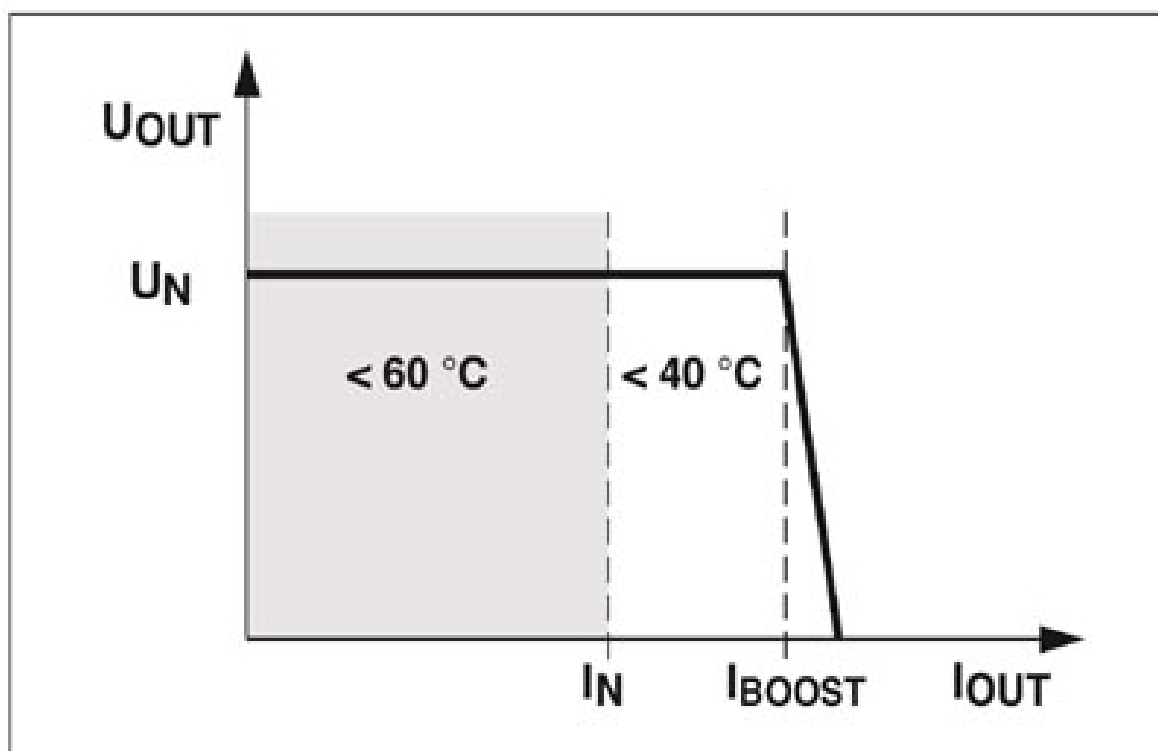
| | |
|-----------------------|---------------|
| Standards/regulations | EN 61000-4-11 |
|-----------------------|---------------|

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

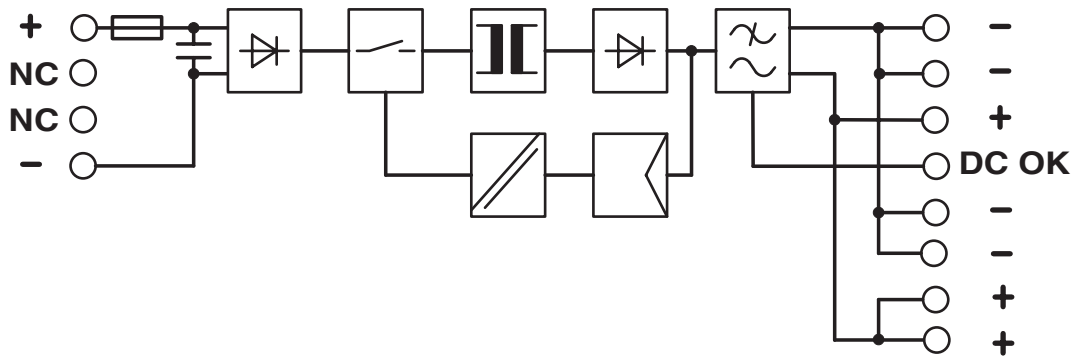
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Block diagram



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2866284>



cUL Recognized
Approval ID: FILE E 211944



UL Recognized
Approval ID: E211944



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



UL Listed
Approval ID: E123528



cUL Listed
Approval ID: E123528

DNV

Approval ID: TAA000030X

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 |
|-----------|----------|

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 | 8f7f11c0-5663-434c-98de-6d9c26b5aa5a |

EF3.1 Climate Change

| | |
|---------|----------------|
| CO2e kg | 18.315 kg CO2e |
|---------|----------------|

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