

# DC/DC converters - MINI-PS- 12- 24DC/ 5-15DC/2 - 2320018

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DC/DC converter, primary-switched, slim design, input: 12 - 24 V DC, output: 5 - 15 V DC/2 A

## Product Description

The DC/DC converter converts the DC voltage of 12 V DC ... 24 V DC to an adjustable, controlled and electrically isolated 5 V DC ... 15 V DC output voltage. Due to electrical isolation, the DC voltage circuits are electrically isolated from each other in a safe way. The active "DC-OK" switching output as well as an LED are available for signaling. With a design width of only 22.5 mm, the housing is extremely slim.

## Product Features

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



## Key commercial data

|                  |               |
|------------------|---------------|
| package_quantity | 1             |
| GTIN             | 4046356478519 |

## Technical data

### Dimensions

|        |         |
|--------|---------|
| Width  | 22.5 mm |
| Height | 99 mm   |
| Depth  | 107 mm  |

### Ambient conditions

|  |                                     |
|--|-------------------------------------|
| Degree of protection                           | IP20                                |
| Ambient temperature (operation)                | -25 °C ... 70 °C (> +60°C derating) |
| Ambient temperature (storage/transport)        | -40 °C ... 85 °C                    |
| Max. permissible relative humidity (operation) | ≤ 95 % (At +25°C, non-condensing)   |
| Noise immunity                                 | EN 61000-6-2:2005                   |

### Input data

|                     |   |
|---------------------|---|
| Input voltage range | 10 V DC ... 32 V DC (> 10.5 V DC start) |
| Frequency range DC  | 0 Hz                                    |
| Current consumption | 2.3 A (12 V DC)                         |

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#### Input data

|                      |                             |
|----------------------|-----------------------------|
| Current consumption  | 1.1 A (24 V DC)             |
| Inrush surge current | < 10 A (typical)            |
| Power failure bypass | > 4 ms (12 V DC)            |
| Power failure bypass | > 18 ms (24 V DC)           |
| Input fuse           | 6.3 A (slow-blow, internal) |

#### Output data

|                                      |   |
|--------------------------------------|---|
| Nominal output voltage               | 12 V DC $\pm$ 1%  |
| Setting range of the output voltage  | 5 V DC ... 15 V DC  |
| Output current                       | 2 A (-25 °C ... 60 °C)  |
| Derating                             | 60 °C ... 70 °C (2.5%/K)  |
| Connection in parallel               | Yes, for assembling redundant systems and increasing efficiency |
| Connection in series                 | Yes   |
| Residual ripple                      | < 20 mV <sub>PP</sub> (20 MHz)                                  |
| Peak switching voltages nominal load | < 10 mV <sub>PP</sub> (20 MHz)                                  |
| Maximum power dissipation NO-Load    | < 1 W   |
| Power loss nominal load max.         | < 4.2 W   |

#### General

|  |   |
|--|---|
| Net weight   | 0.2 kg  |
| Efficiency   | > 88 % (at 24 V DC and nominal values)              |
| Insulation voltage input/output  | 1.5 kV (type test)                                  |
| Insulation voltage input/output  | 1 kV (routine test)                                 |
| Protection class   | III   |
| MTBF (IEC 61709, SN 29500)   | > 2072000 h (According to EN 29500)                 |
| Mounting position  | horizontal DIN rail NS 35, EN 60715                 |
| Assembly instructions  | Can be aligned: Horizontally 0 mm, vertically 50 mm |
| Electromagnetic compatibility  | Conformance with EMC Directive 2004/108/EC          |
| Noise emission   | EN 50081-2  |
| Low Voltage Directive  | Conformance with LV directive 2006/95/EC            |
| Standard - Electrical safety   | EN 60950-1/VDE 0805 (SELV)                          |
| Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations | EN 50178/VDE 0160 (PELV)                            |
| Standard - Safe isolation  | DIN VDE 0100-410                                    |
| Standard - Safe isolation  | DIN VDE 0106-101                                    |
| UL approvals   | UL/C-UL listed UL 508                               |
| UL approvals   | UL/C-UL Recognized UL 60950                         |

#### Connection data, input

|                                       |                            |
|---------------------------------------|----------------------------|
| 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 stranded min. | 0.2 mm <sup>2</sup>        |

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### Technical data

#### Connection data, input

|  |                     |
|--|---------------------|
| Conductor cross section stranded max.  | 2.5 mm <sup>2</sup> |
| Conductor cross section AWG/kcmil min. | 24                  |
| Conductor cross section AWG/kcmil max  | 14                  |
| Stripping length                       | 7 mm                |
| Screw thread                           | M3                  |

#### Connection data, 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 stranded min.  | 0.2 mm <sup>2</sup>        |
| Conductor cross section stranded max.  | 2.5 mm <sup>2</sup>        |
| Conductor cross section AWG/kcmil min. | 24                         |
| Conductor cross section AWG/kcmil max  | 14                         |
| Stripping length                       | 7 mm                       |

#### Signaling

|  |  |
|--|--|
| Output name                            | DC OK active                             |
| Output description                     | $U_{OUT} > 0.9 \times U_N$ : High signal |
| Output voltage                         | $U_{out}$                                |
| Continuous load current                | $\leq 20$ mA                             |
| Status display                         | "DC OK" LED green                        |
| Note on status display                 | $U_{OUT} > 0.9 \times U_N$ : LED ON      |
| 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 stranded min.  | 0.2 mm <sup>2</sup>                      |
| Conductor cross section stranded max.  | 2.5 mm <sup>2</sup>                      |
| Conductor cross section AWG/kcmil min. | 24                                       |
| Conductor cross section AWG/kcmil max  | 14                                       |
| Tightening torque, min                 | 0.5 Nm                                   |
| Tightening torque max                  | 0.6 Nm                                   |
| Screw thread                           | M3                                       |

#### classifications

##### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27250311 |
| eCl@ss 4.1 | 27250311 |
| eCl@ss 5.0 | 27242213 |
| eCl@ss 5.1 | 27210901 |
| eCl@ss 6.0 | 27210901 |
| eCl@ss 7.0 | 27210901 |
| eCl@ss 8.0 | 27210901 |

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## classifications

### ETIM

|                 |          |
|-----------------|----------|
| <b>ETIM 3.0</b> | EC001039 |
| <b>ETIM 4.0</b> | EC002542 |
| <b>ETIM 5.0</b> | EC002046 |

### UNSPSC

|                      |          |
|----------------------|----------|
| <b>UNSPSC 6.01</b>   | 30211502 |
| <b>UNSPSC 7.0901</b> | 39121004 |
| <b>UNSPSC 11</b>     | 39121004 |
| <b>UNSPSC 12.01</b>  | 39121004 |
| <b>UNSPSC 13.2</b>   | 39121004 |

## approvals

UL Listed / cUL Listed / cULus Listed / UL Recognized / UL Listed / cUL Recognized / cUL Listed / cULus Recognized / cULus Listed /

### Approval details

UL Listed

cUL Listed

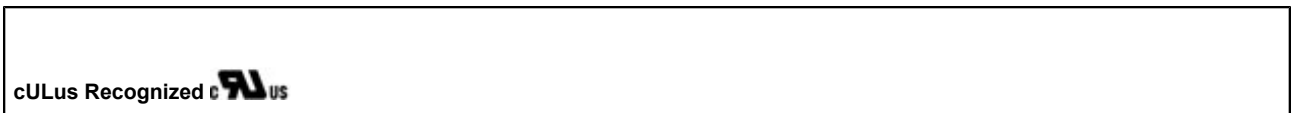
cULus Listed

UL Recognized

cUL Recognized

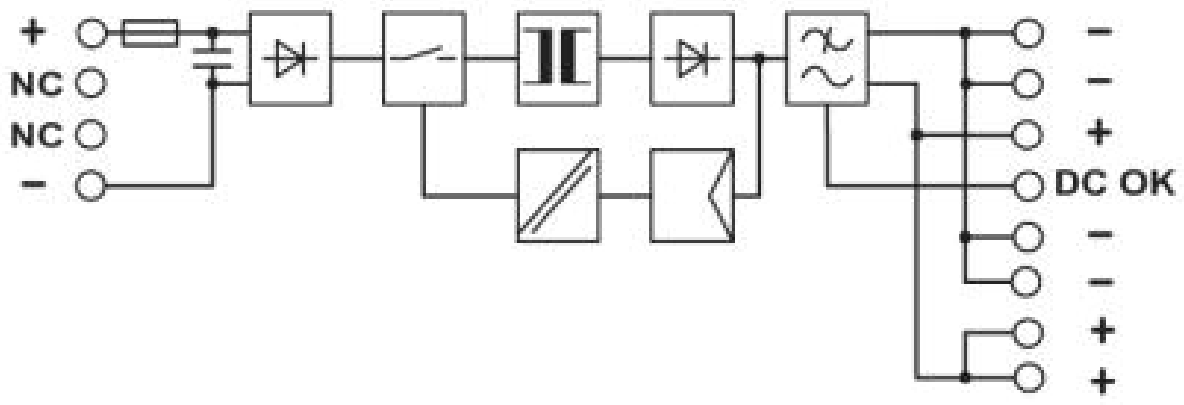
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approvals



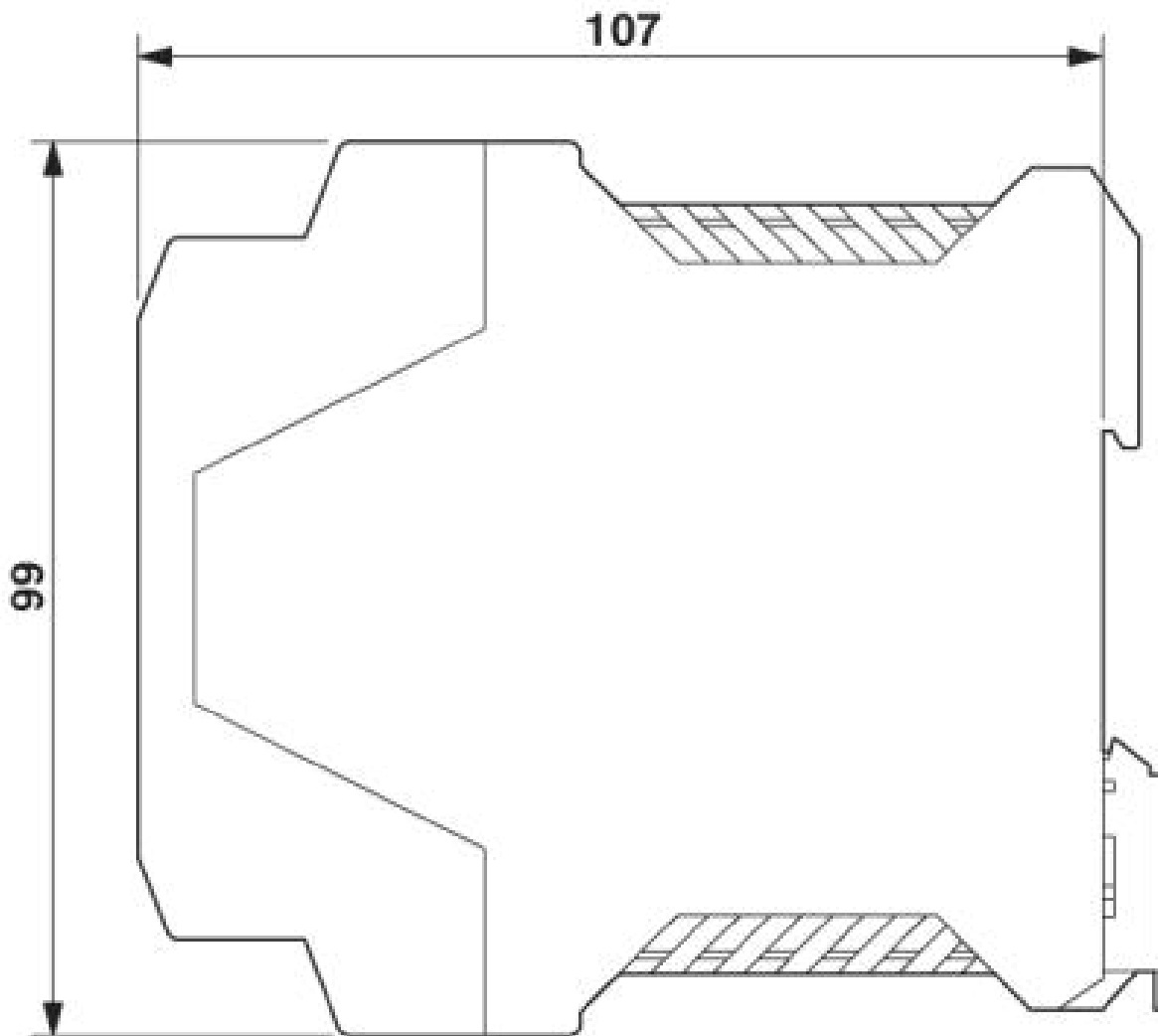
## Drawings

Block diagram



# DC/DC converters - MINI-PS- 12- 24DC/ 5-15DC/2 - 2320018

Dimensioned drawing



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