

# Power supplies and UPS

## DC/DC converters

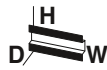
### MINI DC/DC converters

#### MINI POWER, 12 V DC to 60 V DC input

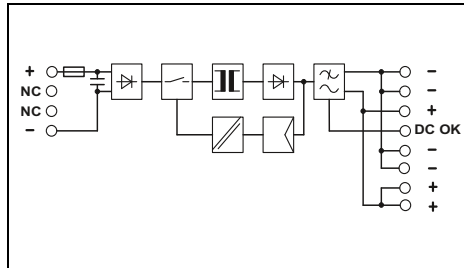
- Support conversion to various voltage levels
- Constant voltage: output voltage regenerated even at the end of long cables
- Electrical isolation: for setting up independent supply systems

#### MINI AC power terminal

- For supplying MINI DC/DC converters from unregulated AC networks
- The AC voltage of a transformer is rectified and filtered



DC/DC converter,  
12 - 24 V DC / 24 V DC, 1 A

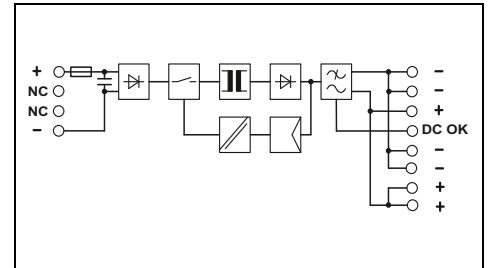


#### Technical data

|                                                            |                                                                                                                                      |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Input data                                                 |                                                                                                                                      |
| Nominal input voltage range                                | 12 V DC ... 24 V DC                                                                                                                  |
| Input voltage range                                        | 10 V DC ... 32 V DC                                                                                                                  |
| Current consumption (nominal load)                         | 2.6 A (12 V DC) / 1.3 A (24 V DC)                                                                                                    |
| Inrush current limitation at 25°C (typ.) / I <sub>lt</sub> | < 15 A / 1.8 A <sup>2</sup> s                                                                                                        |
| Output data                                                |                                                                                                                                      |
| Nominal output voltage                                     | 24 V DC ±1 %                                                                                                                         |
| Setting range of the output voltage                        | 22.5 V DC ... 28.5 V DC (> 24 V constant capacity)                                                                                   |
| Output current                                             | 1 A                                                                                                                                  |
| Can be connected in parallel / series                      | Yes / Yes                                                                                                                            |
| Max. power dissipation (no load / nominal load)            | < 1.2 W / < 5 W                                                                                                                      |
| Efficiency (typ.)                                          | > 83% (at 24 V DC and nominal values)                                                                                                |
| Residual ripple                                            | < 30 mV <sub>pp</sub>                                                                                                                |
| Signaling                                                  |                                                                                                                                      |
| Signaling DC OK                                            | LED, active switching output                                                                                                         |
| General data                                               |                                                                                                                                      |
| Weight / Dimensions W x H x D                              | 0.2 kg / 22.5 x 99 x 107 mm                                                                                                          |
| Spacing when mounting                                      | Alignable: horizontally 0 mm, vertically 50 mm                                                                                       |
| Connection method                                          | Plug-in screw connection                                                                                                             |
| Input connection data (solid / stranded / AWG)             | 0.2 - 2.5 mm <sup>2</sup> / 0.2 - 2.5 mm <sup>2</sup> / 24 - 14                                                                      |
| Output connection data (solid / stranded / AWG)            | 0.2 - 2.5 mm <sup>2</sup> / 0.2 - 2.5 mm <sup>2</sup> / 24 - 14                                                                      |
| Signal connection data (solid / stranded / AWG)            | 0.2 - 2.5 mm <sup>2</sup> / 0.2 - 2.5 mm <sup>2</sup> / 24 - 14                                                                      |
| Degree of protection / Protection class                    | IP20 / III                                                                                                                           |
| MTBF (IEC 61709, SN 29500)                                 | > 2569000 h (40°C)                                                                                                                   |
| Ambient temperature (operation)                            | -25°C ... 70°C (> 60°C derating: 2.5%/K)                                                                                             |
| Max. permissible relative humidity (operation)             | ≤ 95% (at 25°C, non-condensing)                                                                                                      |
| Standards/regulations                                      |                                                                                                                                      |
| Insulation voltage input/output                            | 1 kV (routine test) / 1.5 kV (type test)                                                                                             |
| Electromagnetic compatibility                              | Conformance with EMC Directive 2004/108/EC                                                                                           |
| Electrical safety                                          | EN 60950-1/VDE 0805 (SELV)                                                                                                           |
| Electronic equipm. for electrical power installations      | EN 50178/VDE 0160 (PELV)                                                                                                             |
| Safe isolation                                             | DIN VDE 0100-410, DIN VDE 0106-101                                                                                                   |
| UL approvals                                               | UL/C-UL listed UL 508, UL/C-UL Recognized UL 60950, UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location) |



DC/DC converter,  
12 - 24 V DC / 5 - 15 V DC, 2 A



#### Technical data

|                                                            |                                                                                                                                      |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Input data                                                 |                                                                                                                                      |
| Nominal input voltage range                                | 12 V DC ... 24 V DC                                                                                                                  |
| Input voltage range                                        | 10 V DC ... 32 V DC                                                                                                                  |
| Current consumption (nominal load)                         | 2.3 A (12 V DC) / 1.1 A (24 V DC)                                                                                                    |
| Inrush current limitation at 25°C (typ.) / I <sub>lt</sub> | < 10 A / 0.2 A <sup>2</sup> s                                                                                                        |
| Output data                                                |                                                                                                                                      |
| Nominal output voltage                                     | 12 V DC ±1 %                                                                                                                         |
| Setting range of the output voltage                        | 5 V DC ... 15 V DC                                                                                                                   |
| Output current                                             | 2 A                                                                                                                                  |
| Can be connected in parallel / series                      | Yes / Yes                                                                                                                            |
| Max. power dissipation (no load / nominal load)            | < 1 W / < 4.2 W                                                                                                                      |
| Efficiency (typ.)                                          | > 88% (at 24 V DC and nominal values)                                                                                                |
| Residual ripple                                            | < 20 mV <sub>pp</sub>                                                                                                                |
| Signaling                                                  |                                                                                                                                      |
| Signaling DC OK                                            | LED, active switching output                                                                                                         |
| General data                                               |                                                                                                                                      |
| Weight / Dimensions W x H x D                              | 0.2 kg / 22.5 x 99 x 107 mm                                                                                                          |
| Spacing when mounting                                      | Alignable: horizontally 0 mm, vertically 50 mm                                                                                       |
| Connection method                                          | Plug-in screw connection                                                                                                             |
| Input connection data (solid / stranded / AWG)             | 0.2 - 2.5 mm <sup>2</sup> / 0.2 - 2.5 mm <sup>2</sup> / 24 - 14                                                                      |
| Output connection data (solid / stranded / AWG)            | 0.2 - 2.5 mm <sup>2</sup> / 0.2 - 2.5 mm <sup>2</sup> / 24 - 14                                                                      |
| Signal connection data (solid / stranded / AWG)            | 0.2 - 2.5 mm <sup>2</sup> / 0.2 - 2.5 mm <sup>2</sup> / 24 - 14                                                                      |
| Degree of protection / Protection class                    | IP20 / III                                                                                                                           |
| MTBF (IEC 61709, SN 29500)                                 | > 2072000 h (40°C)                                                                                                                   |
| Ambient temperature (operation)                            | -25°C ... 70°C (> +60°C derating)                                                                                                    |
| Max. permissible relative humidity (operation)             | ≤ 95% (at +25°C, non-condensing)                                                                                                     |
| Standards/regulations                                      |                                                                                                                                      |
| Insulation voltage input/output                            | 1 kV (routine test) / 1.5 kV (type test)                                                                                             |
| Electromagnetic compatibility                              | Conformance with EMC Directive 2004/108/EC                                                                                           |
| Electrical safety                                          | EN 60950-1/VDE 0805 (SELV)                                                                                                           |
| Electronic equipm. for electrical power installations      | EN 50178/VDE 0160 (PELV)                                                                                                             |
| Safe isolation                                             | DIN VDE 0100-410, DIN VDE 0106-101                                                                                                   |
| UL approvals                                               | UL/C-UL listed UL 508, UL/C-UL Recognized UL 60950, UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location) |

#### Ordering data

| Description                       | Type                     | Order No. | Pcs. / Pkt. |
|-----------------------------------|--------------------------|-----------|-------------|
| DC/DC converter, primary-switched | MINI-PS- 12- 24DC/24DC/1 | 2866284   | 1           |

#### Ordering data

| Description                       | Type                        | Order No. | Pcs. / Pkt. |
|-----------------------------------|-----------------------------|-----------|-------------|
| DC/DC converter, primary-switched | MINI-PS- 12- 24DC/ 5-15DC/2 | 2320018   | 1           |