

Datasheet

connectPower PRO DC/DC Converter



The new electrically isolated PRO DC/DC Converter from Weidmüller compliments the PROmax power supply series. Optimized for the Process, Transportation and Machinery Industry, this converter provides a host of advantages including avoidance of critical earth loops. From an unregulated or distorted input voltage, it generates a stable, low-distortion output voltage.

The DC/DC Converter is a versatile solution for all 24 V DC power supply applications. With its HazLoc and Class III protection, it's also ideal for use in floating ground systems, such as battery backup systems found in marine technology.

Integrated features such as *LED indicators, status relay and transistor outputs facilitate status and rapid error analysis*, monitors the status of the 24V output voltage, and a LED that indicates DC OK status for the output voltage; all providing clear visual aids making trouble shooting quick and easy and optimize machine up-time.

- HazLoc C1D2 and ATEX
- High efficiency up to 94%
- High shock and vibration immunity
- Narrow housing
- Galvanic isolation: Protection Class III
- Super boost with more than 600% * I_N for 16ms
- Integrated status relay and active switching outputs
- Comprehensive international approvals: TUV, UL, GL, DNV, ABS, BV, RINA, LR



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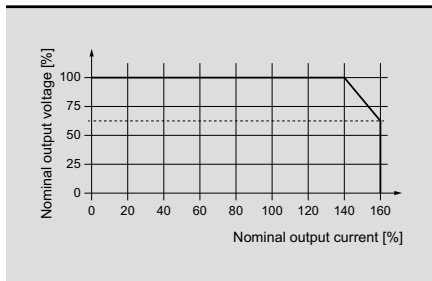
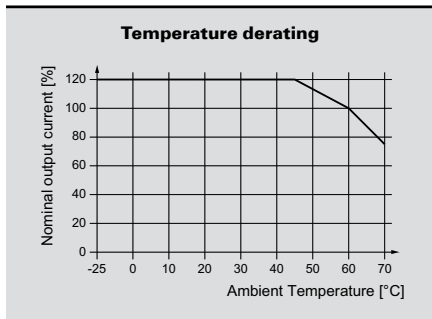
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connectPower PRO DC/DC Converter

DC voltage converter for preparation and potential isolation in 24 V DC systems

- Overvoltage category III
- Class III protection
- Status of relay contact
- DC OK transistor output



| Event | Input | Output | LED (Gr/Ye/Rd) | | Transistor status outputs | | | Status relay |
|---|------------------------|--------|----------------|----------|---------------------------|------------------------|------------------------|--------------|
| | | | gr = "DC OK" | LED (Ye) | DC OK | I > 90% I _N | I < 90% I _N | |
| U _{in} < 14 V | - | - | OFF | ON | Low | Low | Low | OFF |
| U _{in} = 14...19.2 V ^{*)} | I < 90% I _N | Gr | ON | High | Low | Low | Low | ON |
| | I > 90% I _N | Ye | ON | High | High | Low | Low | ON |
| U _{in} > 19.2 V | U < 20.4 V | Rd | ON | Low | Low | Low | Low | OFF |
| | I < 90% I _N | Gr | OFF | High | Low | High | High | ON |
| U _{in} > 19.2 V | I > 90% I _N | Ye | OFF | High | High | High | High | ON |
| | U < 20.4 V | Rd | OFF | Low | Low | High | High | OFF |

Gr = grün / green / verde / verde / verde / verde / 绿色
 Ye = gelb / yellow / jaune / giallo / amarillo / amarillo / 黄色
 Rd = rot / red / rosso / rosso / rojo / vermelho / 红色
^{*)} während des Betriebes / during operations / en cours de fonctionnement / durante l'esercizio / durante el servicio / durante a operação / 运行过程中

Technical data

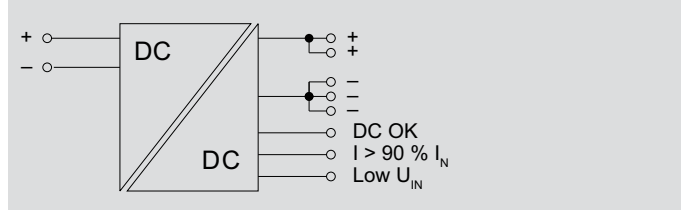
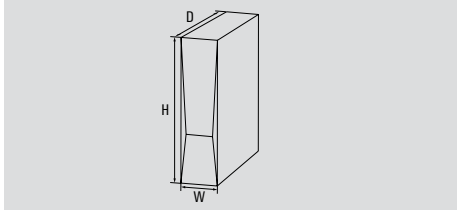
| General technical specifications | |
|---|---|
| Current limiting | 150% I _{out} |
| Housing version | Metal, corrosion resistant |
| Operating temperature | -25°C...70°C |
| Humidity | 5 ... 95%, no condensation |
| Humidity at operating temperature | 5 ... 95%, no condensation |
| Max. perm. air humidity (operational) | 5% ... 95% RH |
| Storage temperature | -40°C ... 85°C |
| MTBF | 1,250,000 h |
| Protection against reverse voltages from the load | 33 ... 34 V DC |
| Protective circuit | Overtemperature, Short-circuit, Inverse voltage |
| Start-up | ≥ -40°C |
| Clip-in foot | Metal |
| Degree of efficiency | typ. 92% |
| Mounting position, installation notice | Horizontal on TS35 mounting rail. 50mm of clearance at top and bottom for air circulation. Can mount side by side with no space in between. 50mm clearance at top and bottom for free air circulation, mountable side by side without clearance |
| Short-circuit protection | Yes |
| Protection against over-heating | Yes |
| Protection degree | IP20 |
| Surge voltage category | III |
| EMC / shock / vibration | |
| Limiting of mains voltage harmonic currents | in accordance with EN 61000-3-2 |
| Vibration resistance IEC 60068-2-6 | 2.3 g (15 Hz ... 150 Hz) |
| Shock resistance IEC 60068-2-27 | 30 g in all directions |
| Noise emission acc. to EN55022 | Class B |
| Interference immunity test acc. to | EN 61000-4-2 (ESD), EN 61000-4-4 (burst), EN 61000-4-5 (surge), EN 61000-4-6 (conducted), EN61000-4-3 (HF field) |
| Insulation coordination | |
| Class of protection | III, with no ground connection, for SELV |
| Insulation voltage input / earth | 1.5 kV |
| Insulation voltage output / earth | 0.5 kV |
| Insulation voltage, input / output | 1.5 kV |
| Surge voltage category | III |
| Pollution severity | 2 |
| Electrical safety (applied standards) | |
| Electrical machine equipment | Acc. to EN60204 |
| Protection against dangerous shock currents | Acc. to VDE0106-101 |
| Safety extra-low voltage | SELV acc. to EN60950, PELV acc. to EN60204 |
| For use with electronic equipment | Acc. to EN50178 / VDE0160 |
| Protective separation / protection against electrical shock | VDE0100-410 / acc. to DIN57100-410 |
| Safety transformers for switch-mode power supplies | nach EN61558-2-16 |

Accessories

| | Type | Qty. | Part No. |
|---------------------------------------|-----------------------|------|------------|
| Diode module 10A for redundancy power | CP DM 10 | 1 | 8710620000 |
| Diode module 20A for redundancy power | CP M DM 20 | 1 | 1222210000 |
| DC UPS for 10A/20A | CP DC UPS 24V 20A/10A | 1 | 1370050010 |
| DC UPS for 40A | CP DC UPS 24V 40A | 1 | 1370040010 |

**connectPower PRO
DC/DC Converter**

PRO DCDC 120W 24V 5A



Technical data

| Input data | |
|---|--|
| Rated input voltage | 24 V DC |
| DC input voltage range | 14...32 V (during operation), 18...32 V (commissioning) |
| Inrush current | max. 10 A |
| Input fuse (internal) | Yes |
| Turn-on current limit | Yes |
| Recommended back-up fuse | 10 A, Char. B circuit breaker, 10 A, Char. C circuit breaker |
| Output data | |
| Capacitive load | unrestricted |
| Output current | 5 A |
| Output voltage | 22.5...29.5 V |
| Parallel connection option | Yes, max. 5 (without diode module) |
| Protection against inverse voltage | Yes |
| Rated output voltage | 24 V DC \pm 1% |
| Continuous output current @ U_{Rated} | 5 A @ 60°C, 6 A @ 45°C, 3.75 A @ 70°C |
| Output power | 120W |
| Short-circuit protection | Yes |
| Overload protection | Yes |
| Power boost @ U_{Rated} | 600% IN for 16 ms |
| Ramp-up time | \leq 9 ms (U_{out} : 10%...90%) |
| Residual ripple, breaking spikes | max. 20 mVpp @ 24 V DC, IN |
| General data | |
| AC failure bridging time @ I_{Nom} | > 10 ms @ 24 V DC |
| Power loss, nominal load | 11 W |
| Power loss, idling | 2 W |
| Protection against reverse voltages from the load | 33...34 V DC |
| Width x Height x Depth | in. (mm) 1.26" x 5.118" x 4.724" (32 x 130 x 120) |
| Net weight | 791 g |
| Signaling | |
| Contact Load (NO contact) | |
| Floating contact | |
| Relay on/off | |
| Transistor output, positive-switching | |
| Connection data | |
| Connection system | Screw connection pluggable |
| Number of terminals | 2 for (+, -) 8 (+ / - / signal) |
| Conductor cross-section, AWG/kcmil, min/max | 30 / 12 24 / 14 |
| Conductor cross-section, flexible, min/max | mm ² 0.2 / 4 0.2 / 2.5 |
| Conductor cross-section, rigid, min/max | mm ² 0.2 / 4 0.2 / 2.5 |
| Tightening torque | 0.4 ... 0.5 Nm |
| Wire connection cross section, flexible (input), max. | 4 mm ² |
| Reverse polarity protection | Yes |
| Approvals | |
| Classifications | eClass 6.2, 27-14-91-90 |
| Approvals | ROHS Conform |

| Input | Output |
|--|--------------------|
| DC OK: 20 mA max., short-circuit-proof, I > 90%: 20 mA max., short-circuit-proof, Low U_{IN} : 20 mA max., short-circuit-proof | |
| Input | |
| 2 for (+, -) | 8 (+ / - / signal) |
| 30 / 12 | 24 / 14 |
| 0.2 / 4 | 0.2 / 2.5 |
| 0.2 / 4 | 0.2 / 2.5 |
| 0.4 ... 0.5 Nm | |
| 4 mm ² | |
| Yes | |
| Part No. | |
| 2001800000 | |

Ordering data

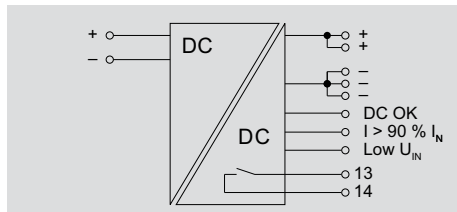
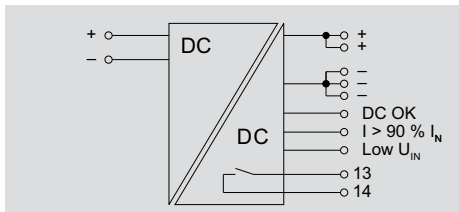
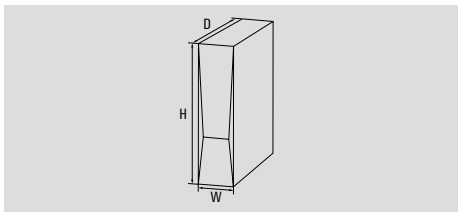
| Type | Qty. | Part No. |
|----------------------|------|------------|
| PRO DCDC 120W 24V 5A | 1 | 2001800000 |

| Type | Qty. | Part No. |
|----------------------|------|------------|
| PRO DCDC 120W 24V 5A | 1 | 2001800000 |

connectPower PRO DC/DC Converter

PRO DCDC 240W 24V 10A

PRO DCDC 480W 24V 20A



Technical data

Input data

| |
|--------------------------|
| Rated input voltage |
| DC input voltage range |
| Inrush current |
| Input fuse (internal) |
| Turn-on current limit |
| Recommended back-up fuse |

Input data

| |
|---|
| 24 V DC |
| 14...32 V (during operation), 18...32 V (commissioning) |
| max. 15 A |
| Yes |
| Yes |
| 25 A, Char. B circuit breaker, 25 A, Char. C circuit breaker |

Input data

| |
|---|
| 24 V DC |
| 14...32 V (during operation), 18...32 V (commissioning) |
| max. 30 A |
| Yes |
| Yes |
| 40 A, Char. B circuit breaker, 40 A, Char. C circuit breaker |

Output data

| |
|--|
| Capacitive load |
| Output current |
| Output voltage |
| Parallel connection option |
| Protection against inverse voltage |
| Rated output voltage |
| Continuous output current @ U _{Rated} |
| Output power |
| Short-circuit protection |
| Overload protection |
| Power boost @ U _{Rated} |
| Ramp-up time |
| Residual ripple, breaking spikes |

Output data

| |
|--|
| unrestricted |
| 10 A |
| 22.5...29.5 V |
| Yes, max. 5 (without diode module) |
| Yes |
| 24 V DC ± 1% |
| 10 A @ 60°C, 12 A @ 45°C, 7.5 A @ 70°C |
| 240W |
| Yes |
| Yes |
| 600% IN for 16 ms |
| ≤ 9 ms (U _{out} : 10%...90%) |
| max. 20 mVpp @ 24 V DC, IN |

Output data

| |
|---------------------------------------|
| unrestricted |
| 20 A |
| 22.5...29.5 V |
| Yes, max. 3 |
| Yes |
| 24 V DC ± 1% |
| 20 A @ 60°C, 24 A @ 45°C, 15 A @ 70°C |
| 480W |
| Yes |
| Yes |
| 600% IN for 16 ms |
| ≤ 9 ms (U _{out} : 10%...90%) |
| max. 20 mVpp @ 24 V DC, IN |

General data

| |
|---|
| AC failure bridging time @ I _{Nom} |
| Power loss, nominal load |
| Power loss, idling |
| Protection against reverse voltages from the load |
| Width x Height x Depth in. (mm) |
| Net weight |

General data

| |
|---|
| > 12 ms @ 24 V DC |
| 22 W |
| 2 W |
| 33...34 V DC |
| 1.693" x 5.118" x 4.724" (43 x 130 x 120) |
| 1,112 g |

General data

| |
|---|
| > 10 ms @ 24 V DC |
| 40 W |
| 3 W |
| 33...34 V DC |
| 2.953" x 5.118" x 4.724" (75 x 130 x 120) |
| 1,300 g |

Signaling

| |
|---------------------------------------|
| Contact Load (NO contact) |
| Floating contact |
| Relay on/off |
| Transistor output, positive-switching |

Signaling

| |
|---|
| max. 30 V / 0.5 A |
| Yes |
| Output voltage > 21.6 V / < 20.4 V |
| DC OK: 20 mA max., short-circuit-proof, I > 90%: 20 mA max., short-circuit-proof, Low U _{IN} : 20 mA max., short-circuit-proof |

Signaling

| |
|---|
| max. 30 V / 0.5 A |
| Yes |
| Output voltage > 21.6 V / < 20.4 V |
| DC OK: 20 mA max., short-circuit-proof, I > 90%: 20 mA max., short-circuit-proof, Low U _{IN} : 20 mA max., short-circuit-proof |

Connection data

| |
|--|
| Connection system |
| Number of terminals |
| Conductor cross-section, AWG/kcmil, min/max |
| Conductor cross-section, flexible, min/max mm ² |
| Conductor cross-section, rigid, min/max mm ² |
| Tightening torque |
| Wire connection cross section, flexible (input), max. |
| Reverse polarity protection |

Connection data

| Input | Output |
|----------------------------|----------------------------|
| Screw connection pluggable | Screw connection pluggable |
| 2 for (+, -) | 10 (+ / - / signal) |
| 30 / 12 | 24 / 14 |
| 0.8 / 4 | 0.2 / 2.5 |
| 0.8 / 4 | 0.2 / 2.5 |
| 0.4 ... 0.5 Nm | |
| 4 mm ² | |
| Yes | |

Connection data

| Input | Output |
|----------------------------|----------------------------|
| Screw connection pluggable | Screw connection pluggable |
| 2 for (+, -) | 10 (+ / - / signal) |
| 22 / 8 | 26 / 10 |
| 0.5 / 16 | 0.18 / 6 |
| 0.5 / 16 | 0.18 / 6 |
| 0.4 ... 0.5 Nm | |
| 16 mm ² | |
| Yes | |

Approvals

| |
|-----------------|
| Classifications |
| Approvals |

Approvals

| |
|-------------------------|
| eClass 6.2, 27-14-91-90 |
| ROHS Conform |

Approvals

| |
|-------------------------|
| eClass 6.2, 27-14-91-90 |
| ROHS Conform |

Ordering data

| Type | Qty. | Part No. |
|-----------------------|------|------------|
| PRO DCDC 240W 24V 10A | 1 | 2001810000 |

| Type | Qty. | Part No. |
|-----------------------|------|------------|
| PRO DCDC 240W 24V 10A | 1 | 2001810000 |

| Type | Qty. | Part No. |
|-----------------------|------|------------|
| PRO DCDC 480W 24V 20A | 1 | 2001820000 |