

## Datasheet

### connectPower DC/DC Converter



Weidmüller's new electrically isolated DC/DC Converter from the PRO-M series, optimized for machinery and providing a host of advantages, avoids 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 VDC power supply applications. With its 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 an alarm output, monitoring the status of the 24V output voltage, and an LED that indicates DC OK status for the output voltage, provide clear visual aids making trouble shooting quick and easy and optimize machine up-time.

- 24VDC voltage converter, 250W, 10A
- Space saving 60mm width
- Side-by-side mounting capability
- Shock and vibration resistant metal mounting foot
- > 91% efficiency
- Integrated DC OK LED
- Relay contact status indication
- Integrated transistor output
- Category III protection for floating ground systems
- Power boost 12A @ 24VDC for 1 minute
- Temperature range -25° C to +70° C
- Global approvals: cURus, cULus, CE, TÜV, GL

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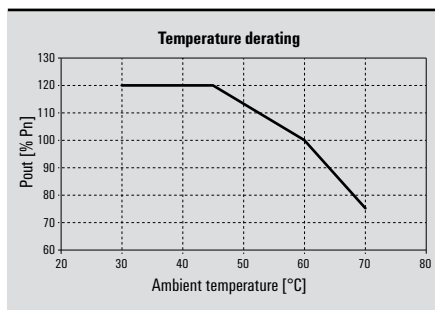
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## connectPower DC/DC converter

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



### Technical data

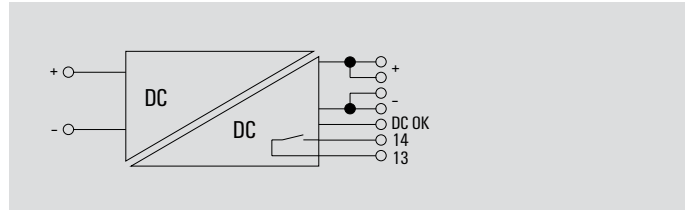
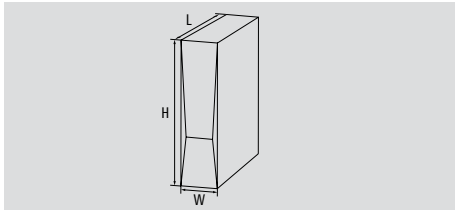
General technical specifications	
Output characteristic curve / current limit	IU / > 120 % I <sub>N</sub>
Earth discharge current	< 0,005 mA
Ambient temp. Operating / storage temperature	-25 °C ... +70 °C / -40 °C ... +85 °C
Max. permitted humidity (operational)	5 %...95 % RH
Protection degree	IP20
Class of protection	III
Contamination degree	2
Insulation voltage	2.5 kV AC 1 min. / 1.5 kV AC 1 min. / 0.5 kV AC 1 min.
Overvoltage category	III
MTBF	> 500,000 hrs. according to IEC 1709 (SN29500)
Protection against load reverse voltages	33...34 V DC
Parallel capability (without diode module)	Yes, max. 5
Mountable side-by-side without gaps	Yes
Housing version, metal	Resistant to corrosion
Signal operations	LED green / red
Mounting position, installation notice	Horizontal on TS35 DIN-rail, above and below 50 mm Clearance for air circulation, suitable for aligning without clearance gap For installation in rotating systems
Metal clip-on foot	Yes
EMC / shock / vibration	
Noise emission according to EN55022	Class B
Interference immunity tests, according to	EN6 1000-4-2 (ESD), EN6 1000-4-3 and EN6 1000-4-8 (Fields), EN6 1000-4-4 (Burst), EN6 1000-4-5 (Surge), EN6 1000-4-6 (conducted), EN6 1000-4-11 (Dips)
Limiting of mains voltage harmonic currents	According to EN 6 1000-3-2
Resistance against vibration and shock	According to EN50178, shock: 5 g in all directions
Electrical safety (applied standards)	
Electrical equipment of machines	According to EN60204
Safety transformers for switched-mode power units	According to EN6 1558-2-17
Machinery with electronic equipment	According to EN50178 / VDE0160
Safety extra-low voltage	SELV according to EN60950, PLEV according to EN60204
Protective separation / protection against electrical shock	VDE0100-410 / according to DIN57100-410
Protection against dangerous shock currents	According to VDE0106-101

### Accessories

	Type	Qty.	Part No.
Diode module (for redundant power supply)	CP M DM 20	1	1222210000
Capacity module (for pulse triggering of circuit breakers)	CP M CAP	1	1222240000

## connectPower DC/DC converter

### CP DCDC 250W 24V 10A



#### Technical data

Input data	
Rated input voltage	24 V DC
Input voltage range, DC	18...31.2 V DC
Current consumption, DC (typ.)	11 A
Current consumption, DC max.	15.5 A
Max. inrush current	< 10 A
Input fuse (internal)	Yes
Recommended back-up fuse	16 A / DI/II Fusible link 16 A, Char. B Circuit breaker, recommended item #9926251816 QY-1-13-DM-3-16-B1 16 A, Char. C Circuit breaker, recommended item #9926251916 QY-1-13-DM-U2-16
Output data	
Nominal output voltage	24 V DC $\pm$ 1%,
Adjustment range of output voltage	22.5...29.5 V DC
Ramp-up time	$\leq$ 100 ms
Max. residual ripple	< 50 mVss
Nominal output current @ Unom	10 A @ 24 V DC
Short-circuit protection	Yes
Overload protection	Yes
Power boost @ 24 V DC, 60 °C, ED = 5 %	12 A for 1 min, ED = 5 %
General information	
Efficiency (typ.)	91 %
Max. power loss (no load)	< 2 W
Max. power loss (nominal load)	< 24 W
Mains failure bridging @ Inom	> 7 ms @ 24 V DC
Length x width x height (mm)	150 x 60 x 130
Weight	1.25 kg
Signal indication	
LED green (DC OK)	Output voltage $\geq$ 21.6 V
LED red (fault)	Output voltage $\leq$ 20.4 V
DC OK transistor output "1" (max. load)	Output voltage $\geq$ 21.6 V ( max. 250 mA)
DC OK transistor output "0"	Output voltage $\leq$ 20.4 V
DC OK short circuit resistant	Yes
Floating contact	Yes
Contact load (NO contact)	max. 30V DC/0.5 A
Relay on/off	Output voltage > 21.6 V / < 20.4 V
Connection data	
Screw connection	<b>Input</b> Screw connection
Number of terminals	2 for (+-)
Wire cross-section, rigid min/max (mm <sup>2</sup> )	7 for (DCOK, 13, 14, ++ --)
Wire cross-section, flexible min/max (mm <sup>2</sup> )	0.5 / 6
Wire cross-section, AWG/kcmil min/max	0.5 / 2.5
Tightening torque	26 / 12
Reverse polarity protection	0.5 ... 0.6 Nm
Approvals	Yes
	CE, cURus, TÜV(IEC 60950-1), cULus, GL

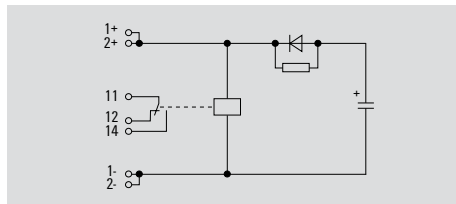
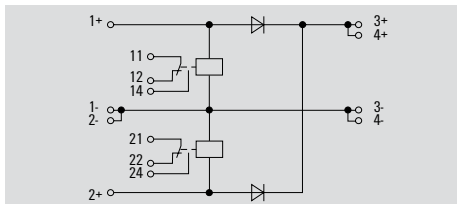
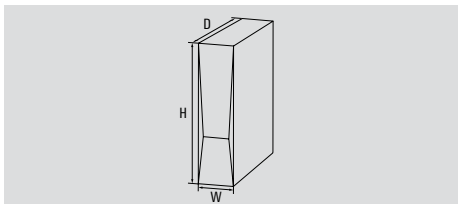
#### Ordering data

Type	Qty.	Part No.
CP DCDC 250W 24V 10A	1	1313320010

**PRO-M: diode and capacity modules**

**CP M DM20**

**CP M CAP**



**Technical data**

<b>Input</b>	
Rated input voltage / DC input voltage range	24 V DC / 18...30 V DC
Input current	2 x 10 A or 1 x 20 A
<b>Output</b>	
Rated output voltage / Output voltage	24 V DC ± 1 % / Input voltage - 0.7 V
Rated (nominal) output current @ U <sub>Nom</sub>	20 A @ 60 °C
Peak current output/Recovery time for capacitor	
Continuous output current @ 24 V DC	24 A @ 45 °C, 22.5 A @ 55 °C, 15 A @ 70 °C
Voltage monitoring / Floating contact	Yes, In both inputs / Yes
Switching thresholds	21.6 V DC, relay is on for Power Good, 20.4 V DC, relay is off for Power Fail
<b>General data</b>	
Degree of efficiency	> 97% @ 24 V input voltage
Height x width x depth / Weight	130 / 34 / 150 mm / 0.3 kg
Ambient temperature (operational) / Storage temperature	-25 °C...+70 °C / -40 °C...+85 °C
Humidity	5...95 %, no condensation
Protection degree / Class of protection / Pollution severity	IP 20 / III, with no ground connection, for SELV / 2
Insulation voltage	0.5 kV <sub>Input/output housing</sub>
MTBF	> 500,000 h acc. to IEC 1709 (SN29500)
Mounting position, installation notice	Horizontal on TS35 mounting rail, w. 50 mm clearance at top/bottom for air circulation. Can be mount side by side w. no space in between.
<b>EMC / shock / vibration</b>	
Noise emission acc. to EN55022	Class B
Interference immunity test acc. to	EN 61000-4-2 (ESD) EN 61000-4-3 and EN 61000-4-8 (fields) EN 61000-4-4 (burst) EN 61000-4-5 (surge) EN 61000-4-6 (conducted)
Resistance to vibration / Shock	1 g according to EN50178 / 15 g In all directions
<b>Electrical safety (applied standards)</b>	
Electrical machine equipment	Acc. to EN60204
For use with electronic equipment	Acc. to EN50178 / VDE0160
Safety extra-low voltage	SELV acc. to EN60950, PLEV acc. to EN60204
<b>Approvals</b>	
Approvals	cCSAus; GL; GOSTME25
<b>Connection data</b>	
Conductor connection system	Input Output
Number of terminals	Screw connection Screw connection
Wire cross-section, rigid min/max (mm <sup>2</sup> )	4 (1+, 2+, 1-, 2-) 4 (3+, 4+, 3-, 4-)
Wire cross-section, flexible min/max (mm <sup>2</sup> )	0.5 / 6 0.5 / 6
Wire cross-section, AWG/kcmil min/max	0.5 / 2.5 0.5 / 2.5
Wire cross-section, AWG/kcmil min/max	26 / 12 26 / 12
<b>Note</b>	
For low-impedance connections we recommend 2.5 mm <sup>2</sup> .	
<b>Ordering data</b>	
<b>Note</b>	
<b>Accessories</b>	
<b>Note</b>	

<b>Input</b>	
Rated input voltage / DC input voltage range	24 V DC / 18...30 V DC
Input current	2 x 10 A or 1 x 20 A
<b>Output</b>	
Rated output voltage / Output voltage	24 V DC ± 1 % / Input voltage - 0.7 V
Rated (nominal) output current @ U <sub>Nom</sub>	20 A @ 60 °C
Peak current output/Recovery time for capacitor	
Continuous output current @ 24 V DC	24 A @ 45 °C, 22.5 A @ 55 °C, 15 A @ 70 °C
Voltage monitoring / Floating contact	Yes, In both inputs / Yes
Switching thresholds	21.6 V DC, relay is on for Power Good, 20.4 V DC, relay is off for Power Fail
<b>General data</b>	
Degree of efficiency	> 97% @ 24 V input voltage
Height x width x depth / Weight	130 / 34 / 150 mm / 0.3 kg
Ambient temperature (operational) / Storage temperature	-25 °C...+70 °C / -40 °C...+85 °C
Humidity	5...95 %, no condensation
Protection degree / Class of protection / Pollution severity	IP 20 / III, with no ground connection, for SELV / 2
Insulation voltage	0.5 kV <sub>Input/output housing</sub>
MTBF	> 500,000 h acc. to IEC 1709 (SN29500)
Mounting position, installation notice	Horizontal on TS35 mounting rail, w. 50 mm clearance at top/bottom for air circulation. Can be mount side by side w. no space in between.
<b>EMC / shock / vibration</b>	
Noise emission acc. to EN55022	Class B
Interference immunity test acc. to	EN 61000-4-2 (ESD) EN 61000-4-3 and EN 61000-4-8 (fields) EN 61000-4-4 (burst) EN 61000-4-5 (surge) EN 61000-4-6 (conducted)
Resistance to vibration / Shock	1 g according to EN50178 / 15 g In all directions
<b>Electrical safety (applied standards)</b>	
Electrical machine equipment	Acc. to EN60204
For use with electronic equipment	Acc. to EN50178 / VDE0160
Safety extra-low voltage	SELV acc. to EN60950, PLEV acc. to EN60204
<b>Approvals</b>	
Approvals	cCSAus; GL; GOSTME25
<b>Connection data</b>	
Conductor connection system	Input Output
Number of terminals	Screw connection Screw connection
Wire cross-section, rigid min/max (mm <sup>2</sup> )	4 (1+, 2+, 1-, 2-) 4 (3+, 4+, 3-, 4-)
Wire cross-section, flexible min/max (mm <sup>2</sup> )	0.5 / 6 0.5 / 6
Wire cross-section, AWG/kcmil min/max	0.5 / 2.5 0.5 / 2.5
Wire cross-section, AWG/kcmil min/max	26 / 12 26 / 12
<b>Note</b>	
For low-impedance connections we recommend 2.5 mm <sup>2</sup> .	
<b>Ordering data</b>	
<b>Type</b>	<b>Qty.</b> <b>Part No.</b>
CP M DM20	1 1222210000
<b>Note</b>	
<b>Accessories</b>	
<b>Note</b>	

<b>Input</b>	
Rated input voltage / DC input voltage range	24 V DC / 18...30 V DC
Input current	
<b>Output</b>	
Rated output voltage / Output voltage	
Rated (nominal) output current @ U <sub>Nom</sub>	
Peak current output/Recovery time for capacitor	Depending on the load (typically 40 A for 1 ms) / Approx. 1 sec.
Continuous output current @ 24 V DC	
Voltage monitoring / Floating contact	Yes
Switching thresholds	21.6 V DC, relay is on for Power Good, 20.4 V DC, relay is off for Power Fail
<b>General data</b>	
Degree of efficiency	
Height x width x depth / Weight	130 / 34 / 150 mm / 0.4 kg
Ambient temperature (operational) / Storage temperature	-25 °C...+70 °C / -40 °C...+85 °C
Humidity	5...95 %, no condensation
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Electrical machine equipment	Acc. to EN60204
For use with electronic equipment	Acc. to EN50178 / VDE0160
Safety extra-low voltage	SELV acc. to EN60950, PLEV acc. to EN60204
<b>Approvals</b>	
Approvals	cULus; GL; GOSTME25
<b>Connection data</b>	
Conductor connection system	Input Output
Number of terminals	Screw connection Screw connection
Wire cross-section, rigid min/max (mm <sup>2</sup> )	4 (++-) 3 (CO contacts)
Wire cross-section, flexible min/max (mm <sup>2</sup> )	0.5 / 6 0.5 / 6
Wire cross-section, AWG/kcmil min/max	0.5 / 4 0.5 / 2.5
Wire cross-section, AWG/kcmil min/max	26 / 12 26 / 12
<b>Note</b>	
For low-impedance connections we recommend 2.5 mm <sup>2</sup> .	
<b>Ordering data</b>	
<b>Type</b>	<b>Qty.</b> <b>Part No.</b>
CP M CAP	1 1222240000
<b>Note</b>	
Please see 2013 Full Line Catalog 4.3 "Switch-Mode and Uninterruptible Power Supplies" or CP M CAP Installation Instructions as supplied with the product for details on how to properly utilize the Weidmüller capacitance module for pulse triggering for cable circuit breakers.	
<b>Accessories</b>	
<b>Note</b>	