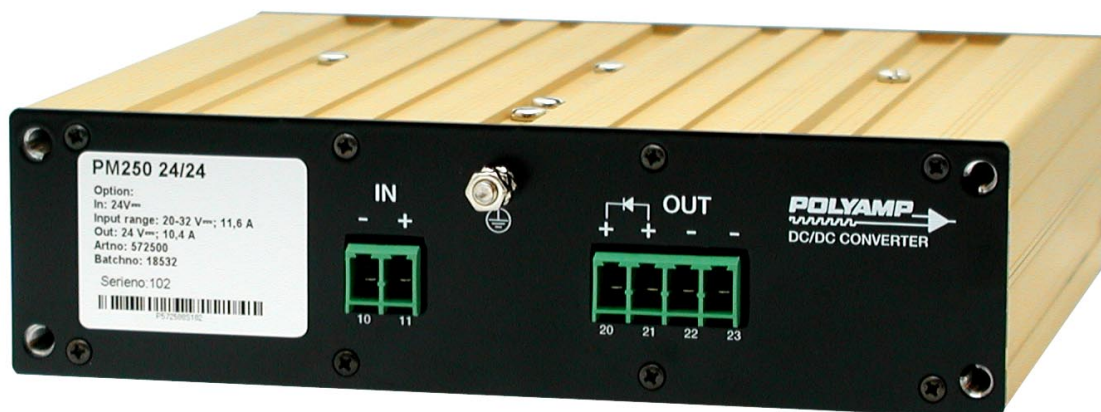




PM250-series 187 to 250W

Input / Output

- Optimized input voltage ranges.
- Input ranges from 11 to 300 Vd.c.
- Single outputs from 13.2 to 110 Vd.c.
- Reverse input voltage protection.

Operation

- Operating temperature range -25 to +55°C
- Fully encapsulated, meets IP20 as standard.
- Convection cooled.

Features

- Overvoltage protection, OVP.
- Over/Under voltage alarm with relay output
- Extra output with series diode.
- Output voltage adjustable from outside.

EMC

- EN61000-6-2, Immunity
- EN61000-6-4, Emission.
- EN/IEC61000-4-4, 4kV.
- EN/IEC61000-4-5 level 2&3.

Input and output ratings

Nominal inputs	Input range	Stop level	Code
12 Vd.c.	11 to 16V	<10Vd.c.	12
24 Vd.c.	20 to 32V	<16.8Vd.c.	24
48 Vd.c.	41 to 60V	<33.6Vd.c.	48
110, 127 Vd.c.	93 to 150V	<77Vd.c.	110
220, 250 Vd.c.	187 to 300V	<154Vd.c.	220

Input range, is the range we guarantee full output performance, Uout +10%, Iout +5% @+55°C. The converter works down to the stop level -35%. The output voltage might decrease to approx -10% of nominal output at the stop level.

Output		
Voltage	Current	Power
13.2V	14.1 - 18.9A	187 - 250W
24V	7.8 - 10.4A	187 - 250W
36V	5.2 - 6.9A	187 - 250W
48V	3.9 - 5.2A	187 - 250W
60V	3.1 - 4.2A	187 - 250W
110V	1.7 - 2.3A	178 - 250W

Other input and output combinations on demand.

Output ratings and type code

Output			Input				
Voltage	Current	Power	11 - 16V	20 - 32V	41 - 60V	93 - 150V	187 - 300V
13.2V	14.1A	187W	PM250 12/13.2				
13.2V	18.9A	250W		PM250 24/13.2	PM250 48/13.2	PM250 110/13.2	PM250 220/13.2
24V	7.8A	187W	PM250 12/24				
24V	10.4A	250W		PM250 24/24	PM250 48/24	PM250 110/24	PM250 220/24
36V	5.2A	187W	PM250 12/36				
36V	6.9A	250W		PM250 24/36	PM250 48/36	PM250 110/36	PM250 220/36
48V	3.9A	187W	PM250 12/48				
48V	5.2A	250W		PM250 24/48	PM250 48/48	PM250 110/48	PM250 220/48
60V	3.1A	187W	PM250 12/60				
60V	4.2A	250W		PM250 24/60	PM250 48/60	PM250 110/60	PM250 220/60
110V	1.7A	187W	PM250 12/110				
110V	2.3A	250W		PM250 24/110	PM250 48/110	PM250 110/110	PM250 220/110

Highlighted types are available now,
other types will be available during 2005.

How to read our product code:

Example **PM250 110/24**

PM250 = Family code

110 = Input voltage code 110

24 = Output voltage 24V

Features

- **Overvoltage protection OVP**
The output voltage is limited to 15% over nominal output voltage by an extra regulation circuit.
- **Extra output with series diode**
Use the series diode output when the output is connected in parallel with other power supplies to achieve redundancy.
- **Over / Under voltage alarm**
The built in relay changes to alarm state if the converter output voltage is not within 90% to 115% of nominal output.
The user can select NO or NC relay function. The relay rating is 30V 0.5A (d.c. or a.c.)

Optional Features

- **Inrush current limit with NTC, option H**
Reduces the inrush current during start up. The input voltage range will be affected. Only available on 110 & 220 input code.
- **Conformally coating, option I**
For environment with high non condensing humidity max 98% RH.
- **+70°C operating temperature**
Contact factory for derating as it depends on model. The alarm can not be used at +70°C.
- **Mounting brackets L214-2**
See figure 4.
- **Mounting brackets L58-1**
See figure 4.
- **19" frontpanel 2U for two units**
To mount two PM250 together to form a full 19" rack unit, see figure 3.
- **19" frontpanel 2U for one unit**
To mount one PM250 to form a full 19" rack unit, see figure 3.
- **EN/IEC61000-4-5 level 4**
External varistor + surge arrestor mounted from pole to ground. With this filter the input meets level 4 of EN/IEC61000-4-5 (+/-2kV line to line, 4kV line to ground)
- **Train input**
Input voltage range according to train standard EN50155 and IEC60571.

General data / input data

Design topology	Push-Pull
Switching frequency	100 kHz
Emission / immunity	See page 4
Safety EN/IEC60950	Class I
Max. accepted input ripple ¹ 50-400Hz	2% of nominal voltage
Input power at no load Uout <55 V	Max. 9 W
Input power at no load Uout >55 V	Max. 20 W
Inrush current limit	NTC
Reverse input voltage protection	
24, 48 input code	Parallel diode
110, 220 input code	Series diode
Dimensions (D x W x H)	194x214x58mm
Weight	2.4 kg

- Higher ripple affects the input, contact factory

Optional T-Inputs

DC inputs mobile		
Uin 0.1s- S2	Continuous range	Code
14.4 - 33.6Vd.c.	16.8 - 30Vd.c.	24T
21.6 - 50.4Vd.c.	25.2 - 45Vd.c.	36T
28.8 - 67.2Vd.c.	33.6 - 60Vd.c.	48T
43.2 - 100.8Vd.c.	50.4 - 90Vd.c.	72T
66 - 154Vd.c.	77 - 138Vd.c.	110T

Output data

Source regulation	0.1%
Load regulation (0-100% load)	0.3%
Transient recovery time for 10%-90% load step to within 3% of nominal output voltage.	<3ms
Output ripple (60kHz) ²	30mV p-p
Input ripple attenuation to output (50 to 400 Hz).	500:1
Emission / Immunity	See page 4
Temperature coefficient	0.02% /°C
Min output adjustment range adjustable with a 15 turn potentiometer	95% to 110%
Current limit, rectangular.	105%
Remote sense	No
Soft start	Yes
Start-up time	<1s
Hold-up time, contact factory	2-25ms
Efficiency ³	>80%
Operating temperature range at 100% load. (Convection cooling.) with derating ⁴	-25 to +55°C +70°C
Storage temperature range	-40 to +85°C

- The output ripple might increase to 0.5% RMS of Vout, when EN/IEC61000-4-3, 10V/m test is applied
- Lowest efficiency measured within the whole input voltage range at 100% load.
- Contact factory for derating as it depends on model. The alarm relay can not be used at +70°C.

Mechanical drawing

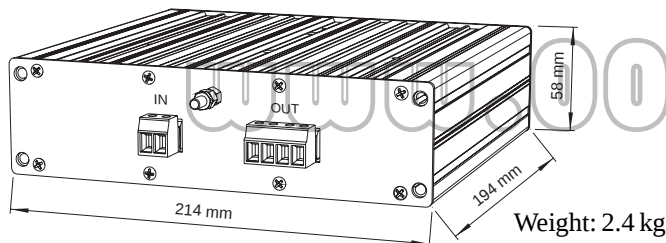


Figure 1. In/out Connector side

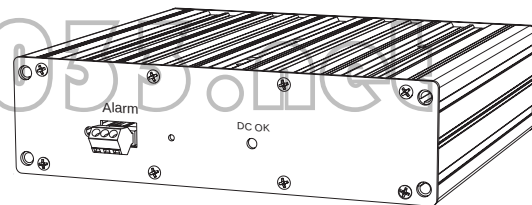


Figure 2. Indicator side

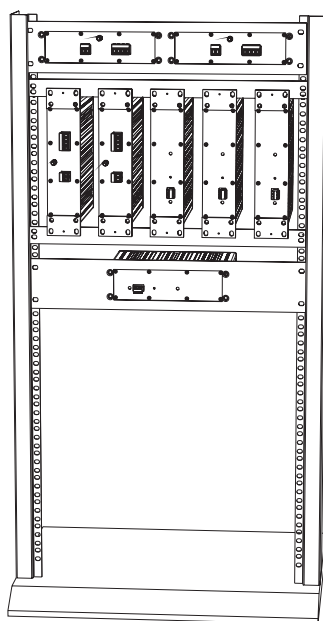


Figure 3. 19"-rack mounting

← Black 19" front panel 2 U for two units PM250 mounted side by side. (Optional).

← 5 units PM250 mounted vertically using brackets PL58-1 and L480-3 (Optional), forming 19" 7U unit.

← Black 19" front panel 2 U for one unit PM250 mounted in the middle. (Optional).

PM250 wall mounted.
Using standard brackets L58-1

PM250 wall mounted.
Using brackets L214-2 (Optional)

PM250 DIN-Rail mounted.
Using standard brackets L58-1 and the optional DIN-Rail clips

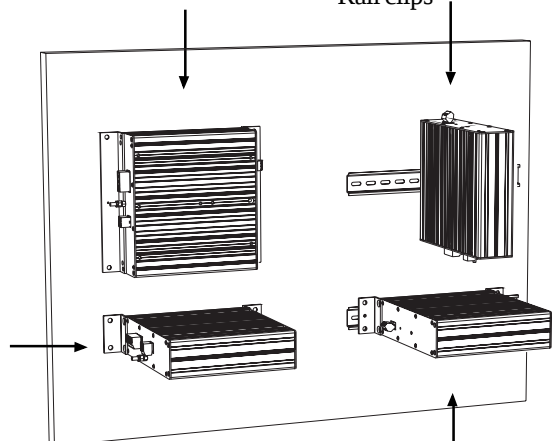


Figure 4. Wall chassis & DIN mounting

PM250 DIN-Rail mounted.
Using DIN-Rail holder (Optional).