



PM240-series 216 to 240W

Input / Output

- Optimized input voltage ranges.
- Input ranges from 18 to 300 Vd.c.
- Single outputs from 24 to 110 Vd.c.
- Reverse input voltage protection.
- 2.5 kVa.c. isolation input/output, input/case, output/case.

Features

- Overvoltage protection OVP.
- Extra output with series diode.
- Over/Under voltage alarm relay.

Operation

- High efficiency >88%
- Operating temperature range -25 to +55°C and +70° with derating.
- Fully encapsulated, meets IP20 as standard.
- Convection cooled.

EMC

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

Input and output ratings

Nominal inputs	Input range	Code
24 Vd.c.	18 to 32V	24
48 Vd.c.	38 to 60V	48
110, 127 Vd.c.	88 to 150V	110
220, 250 Vd.c.	175 to 300V	220

Input voltages meeting train standard EN50155/IEC60571, can be made on demand.

Output		
Voltage	Current	Power
24V	9 - 10A	216 - 240W
36V	6.7A	240W
48V	4.5 - 5A	216 - 240W
60V	3.6 - 4A	216 - 240W
110V	1.97 - 2.2A	216 - 240W

Output ratings and type code

Output			Input			
Voltage	Current	Power	18 - 32V	38 - 60V	88 - 150V	175 - 300V
24V	9.0A	216W	PM240 24/24			
24V	10.0A	240W		PM240 48/24	PM240 110/24	PM240 220/24
36V	6.7A	240W		PM240 48/36		
48V	4.5A	216W	PM240 24/48			
48V	5.0A	240W		PM240 48/48	PM240 110/48	PM240 220/48
60V	3.6A	216W	PM240 24/60			
60V	4.0A	240W		PM240 48/60	PM240 110/60	PM240 220/60
110V	1.97A	216W	PM240 24/110			
110V	2.2A	240W		PM240 48/110	PM240 110/110	PM240 220/110

How to read our product code:

Example **PM240 110/24**

PM240 = 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 archive 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 funktion. The relay rating is 30V 0.5A (d.c. or a.c.)

Optional Features

- **Inrush current limit with NTC**
Reduces the inrush current during start up. The input voltage range will be affected. Only available on 110 & 220 input code.
- **Conformally coating**
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 L214-1**
See figure 3.
- **19" Rack mounting set PL88-2**
To mount two PM240 together to form a full 19" rack unit, see figure 2.
- **19" Rack mounting bracket PL88-3**
To mount one PM240 to form a full 19" rack unit, see figure 2.
- **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)
- **DIN-rail clips**
Clips to mount PM240 on a 35mm DIN-rail. Used with PL88-1 & L214 see figure 3.
- **Train input**
Input voltage range according to train standard EN50155 and IEC60571.

General data / input data

Design topology	Push-Pull
Switching frequency	30 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	No
Reverse input voltage protection	
24, 48 input code	Parallel diode
110, 220 input code	Series diode
Dimensions (D x W x H)	160x214x88mm
Weight	2.5 kg

- Higher ripple affects the input, contact factory

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).	150:1
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	88-91%
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

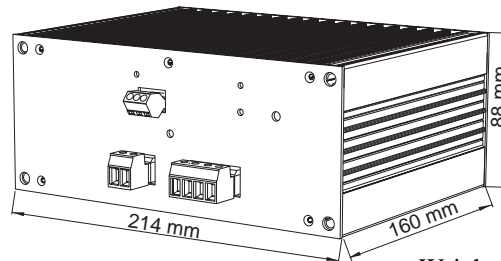


Figure 1.
Dimensions

Weight: 2.5 kg

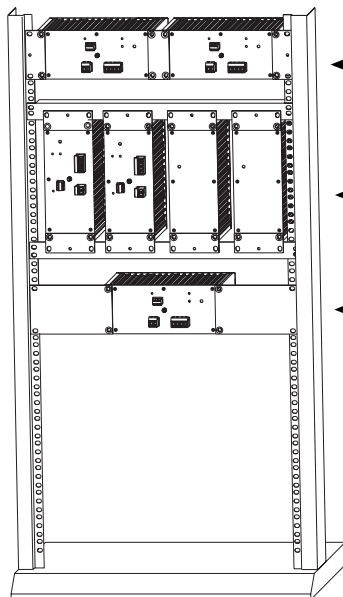


Figure 2. 19''-rack mounting

- ← 2 units PM150/240 mounted side by side forming one 19'' unit using standard bracket PL88-1 and PL88-2 (Optional).
- ← 4 units PM150/240 mounted vertically using standard PL88-1 brackets and L480-2 (Optional).
- ← Single unit PM150/240 mounted as one 19'' unit using PL88-3 brackets (Optional).

PM150/240 wall mounted.
Using mounting brackets
(Optional) L214-1

PM150/240 wall mounted.
Using standard brackets
PL88-1

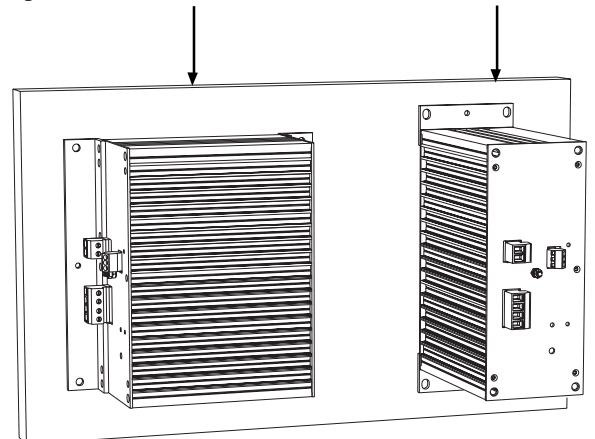


Figure 3. Wall and chassis mounting

PM240 meets the requirements defined by CE mark as apparatus.

PM240 meets requirements of EMC directive and low voltage directive (LVD).

Thus a PM240 can be used as free standing unit or in installations as well as systems designed according to "The modular approach". PM240 can be used in installation without further EMC tests, if our installation instructions are followed. Please note that product standards can demand different levels or other basic standard tests. We test according to levels below. For higher levels or other tests, contact factory.

Isolation testable levels	Test voltage
Input / output	2.5kVa.c. / 4kVd.c.
Input / Case	2.5kVa.c. / 4kVd.c.
Output / Case all outputs	2.5kVa.c. / 4kVd.c.
Input / Alarm	2.5kVa.c. / 4kVd.c.
Output / Alarm	2.5kVa.c. / 4kVd.c.
Case / Alarm	2.5kVa.c. / 4kVd.c.

We use the product standard Low voltage power supplies, DC outputs EN/IEC61204-3 and the generic EMC standards:

EN/IEC61000-6-2 (Immunity)

EN/IEC61000-6-3 (Emission)

EMC

EMC-standards	EMC-performance		
Emission standards	Input	Output	Remarks
EN55011/EN55022 (0.15-30MHz)	Level B	Level B	
EN55011/EN55022 (30-1000MHz)	Level B		Enclosure test
Immunity standards	IEC/EN61000-6-2		
EN/IEC61000-4-2	8 kV/15 kV		Contact / air, Enclosure test
EN/IEC61000-4-3	10 V/m AM-Modulated		Output ripple can increase to 0.5% of Vout Enclosure test
EN/IEC61000-4-3	10 V/m Pulse modulated		Enclosure test
EN/IEC61000-4-4	4 kV	4 kV	
EN/IEC61000-4-5, Input code 24, 48	0.5kV / 1 kV	0.5kV / 1 kV	Line-line 2Ω / Line-case 12Ω
EN/IEC61000-4-5, Input code 110 ¹ , 220 ¹	1kV / 2 kV	0.5kV / 1 kV	
EN/IEC61000-4-6	10 V _{RMS}	10 V _{RMS}	AM-Modulated
EN/IEC61000-4-8	Not sensitive		Enclosure test
EN/IEC61000-4-10	Not sensitive		Enclosure test

1 Higher level 2kV / 4kV with external filters, contact factory.

Contact

For updates on this datasheet we refer to www.polyamp.com/htm/download.html
Specifications subject to change without notice.

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