

PM50-series 32 to 50W with 1&2 outputs.

Input / Output

- Wide input voltage ranges.
- Input ranges from 10 to 270 Vd.c.
- Single outputs from 12 to 132 Vd.c.
- Two isolated outputs 12-16,18 or 60 Vd.c.
- Reverse input voltage protection.

Operation

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

Features

- Conformally coating; tropical version for environment with high non condensing humidity max 98% RH.
- Wall or DIN-rail mounting.
- One unit covers many output voltages.

EMC

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

Single outputs PM50

Output			Input				Connection
Voltage	Current	Power	10 - 30V	20 - 60V	50 - 150V	90 - 270V	
12V	2.67A	32W	PM50A15-15				Parallel
12V	3.34A	40W		PM50B15-15	PM50C15-15	PM50D15-15	Parallel
15V	2.67A	40W	PM50A15-15				Parallel
15V	3.34A	50W		PM50B15-15	PM50C15-15	PM50D15-15	Parallel
18V	2.60A	47W	PM50A18-18				Parallel
18V	3.20A	57W		PM50B18-18			Parallel
18V	2.78A	50W			PM50C18-18		Parallel
24V	1.34A	32W	PM50A15-15				Series
24V	1.67A	40W		PM50B15-15	PM50C15-15	PM50D15-15	Series
28V	1.34A	37W	PM50A15-15				Series
28V	1.67A	47W		PM50B15-15	PM50C15-15	PM50D15-15	Series
36V	1.30A	47W	PM50A18-18				Series
36V	1.60A	57W		PM50B18-18			Series
36V	1.39A	50W			PM50C18-18		Series
60V	0.67A	40W	PM50A60-60				Parallel
60V	0.84A	50W		PM50B60-60	PM50C60-60	PM50D60-60	Parallel
110V	0.34A	37W	PM50A60-60				Series
110V	0.42A	46W		PM50B60-60	PM50C60-60	PM50D60-60	Series

How to read our product code:

Example **PM50B15-15**

PM50 = Family code

B = input voltage code B

15-15 = two outputs with nom. voltage 12-16V

Dual outputs

Outputs					Input			
Voltage	Current	Voltage	Current	Power	10 - 30V	20 - 60V	50 - 150V	90 - 270V
12V	1.34A	12V	1.34A	32W	PM50A15-15			
12V	1.67A	12V	1.67A	40W		PM50B15-15	PM50C15-15	PM50D15-15
15V	1.34A	15V	1.34A	40W	PM50A15-15			
15V	1.67A	15V	1.67A	50W		PM50B15-15	PM50C15-15	PM50D15-15
18V	1.30A	18V	1.30	47W	PM50A18-18			
18V	1.60A	18V	1.60A	57W		PM15B18-18		
18V	1.39A	18V	1.39A	50W			PM50C18-18	
60V	0.34A	60V	0.34A	40W	PM50A60-60			
60V	0.42A	60V	0.42A	50W		PM50B60-60	PM50C60-60	PM50D60-60

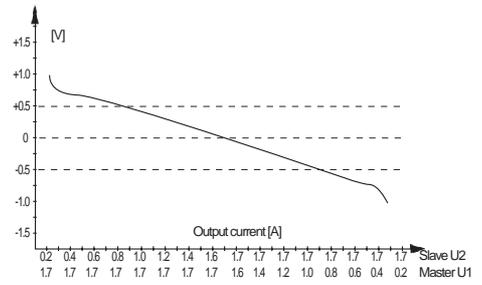


Figure 1. Voltage difference between U1 & U2 Depending on load difference on PM50*15-15. On PM50*60-60 the voltage difference is relatively smaller.

DC Inputs

Nominal inputs	Input range	Code
12, 24 Vd.c.	10 to 30V	A
24, 28, 36, 48 Vd.c.	20 to 60V	B
72, 96, 110, 127 Vd.c.	50 to 150V	C
110, 127, 220, 250 Vd.c.	90 to 270V	D

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

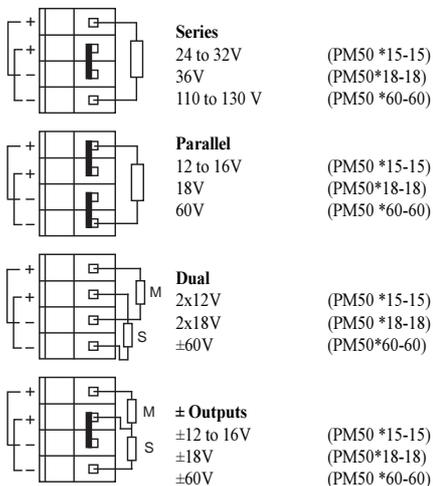
General data / input data

Design topology	Fly back
Switching frequency	Typ. 45 kHz
Emission / immunity	See page 4
Safety EN/IEC60950	Class I
Max. accepted input ripple ¹ 50-400Hz	2% of nominal
Input power at no load	<5 W
Inrush current limit	No
Reverse input voltage protection	
A, B input code	Parallel diode
C, D input code	Series diode
Dimensions (D x W x H)	157x106x48mm
Weight	0.65 kg

1. Higher ripple affects the input, contact factory

How to connect the output

Use the supplied jumpers shown below



*= Input voltage code. M = Master output U1. S= Slave output U2.

Figure 3. Jumper position on PM50 connector. (Series & Parallel)

Output data

Source regulation	0.2%
Load regulation parallel outputs	0.2%
Load regulation with series connected outputs 10-100% load.	1%
Load regulation on U1	0.2%
Load regulation on U2	See figure 1
Transient recovery time for 10%-90% load step to within 3% of nominal output voltage.	Typ. <3ms
Output ripple (45kHz)²	
PM50A15-15, PM50*15-15	Typ. 1mV _{RMS}
PM50A60-60, PM50*60-60	Typ. 2 mV _{RMS}
Input ripple attenuation to output (50 to 400 Hz).	150:1
Emission / Immunity	See page 4
Temperature coefficient	0.02% /°C
Output voltage adj. range	
PM50*15-15	12 to 16 V
PM50*18-18	17 to 20V
PM50*60-60	54 to 66 V
Current limit, fold-back.	See figure 2
Remote sense	No
Soft start	No
Start-up time	1s
Hold-up time, contact factory	2-25ms
Efficiency ³	78-85%
Operating temperature range at 100% load.	-25 to +55°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.

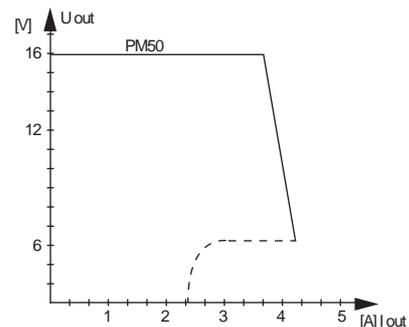
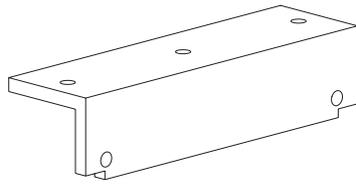
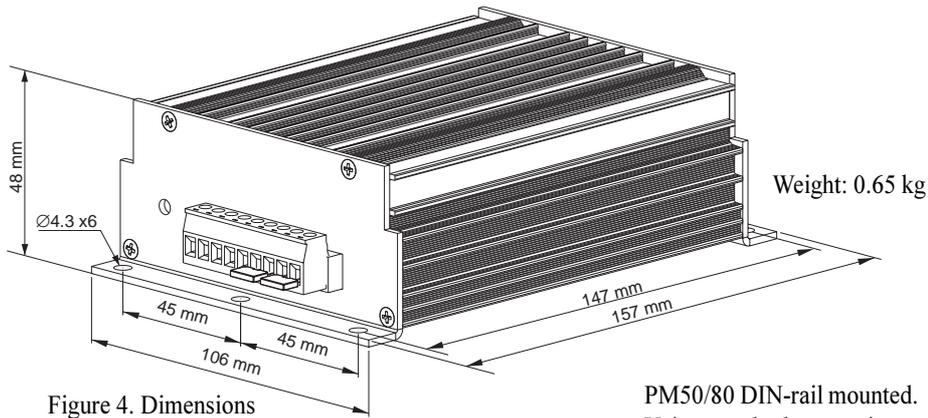


Figure 2. Current limit characteristic for PM50*15-15 with outputs connected in parallel.

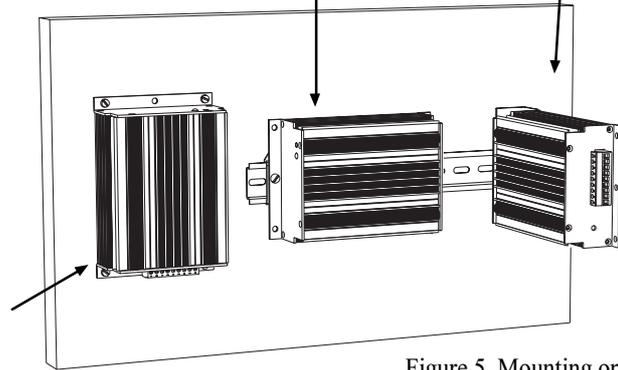
Mechanical drawing



PM50/80 wall mounted.
Using standard accessories.

PM50/80 DIN-rail mounted.
Using standard accessories.

PM50/80 DIN-rail mounted.
Using mounting bracket
L60-1. (Optional)



Output voltage/power characteristics

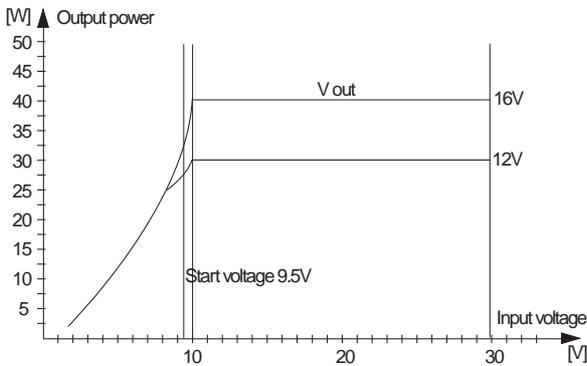


Figure 6. Output power PM50A15-15

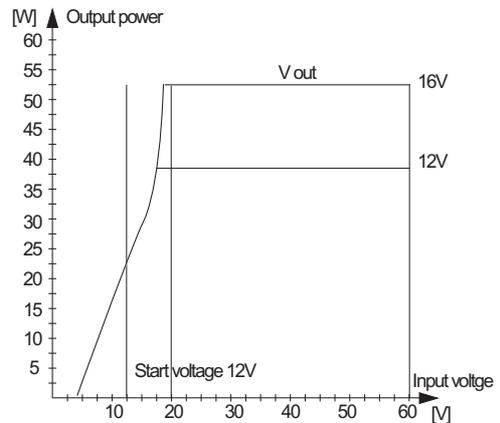


Figure 7. Output power PM50B15-15

The PM50 series have no low input voltage lock-out, which stops the converter. The output power is instead automatically derated, see figures 6 to 9. Example: PM50A15-15, figure 6, has start voltage at 9.5 V and can supply 15W output power at 6 V input.

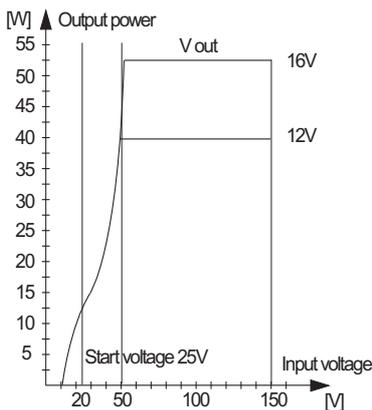


Figure 8. Output power PM50C15-15

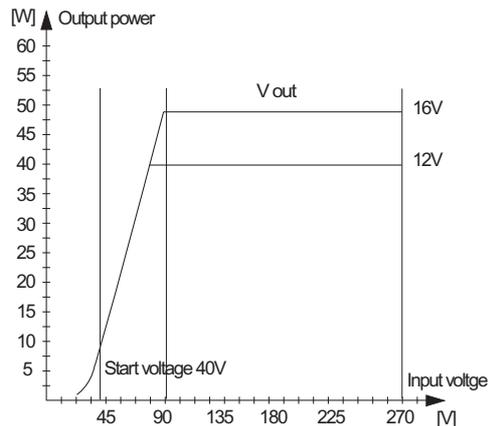


Figure 9. Output power PM50D15-15

PM50 meets the requirements defined by CE mark as apparatus.

PM50 meets requirements of EMC directive and low voltage directive (LVD).

Thus a PM50 can be used as free standing unit or in installations as well as systems designed according to "The modular approach". PM50 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: Input code A, B		2kVd.c.
	Input code C, D	2.5kVa.c. / 4kVd.c.
Input / Case Input code A, B		2kVd.c.
	Input code C, D	2.5kVa.c. / 4kVd.c.
Output / Case all outputs		1 kVd.c.
Between U1 / U2		500Vd.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		Remarks
Emission standars	Input	Output	
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 A, B	0.5kV / 1 kV	0.5kV / 1 kV	Line-line 2Ω / Line-case 12Ω
EN/IEC61000-4-5, Input code C ¹ , D 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 Optional 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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