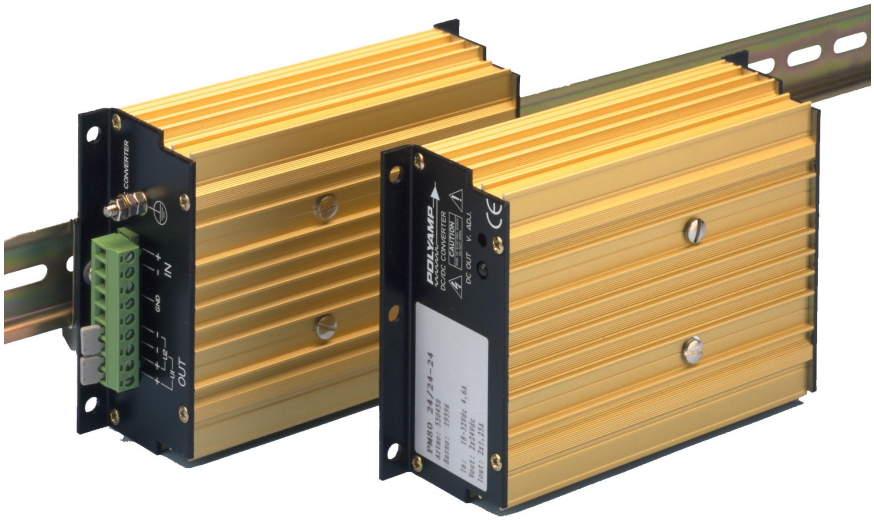
PM80
DC-DC Converter

POLYAMP



PM80-series 60 to 80W with 1&2 outputs.

Input / Output
- Optimized input voltage ranges.
- Input ranges from 18 to 300 Vd.c.
- Single outputs from 24 to 72 Vd.c.
- Two isolated outputs 24 or 36 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.
- Output voltage adjustable on frontpanel.

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

Single outputs

Output			Input				
Voltage	Current	Power	18 - 32V	40 - 60V	88 - 150V	175 - 300V	Connection
24V	2.50A	60W	PM80 24/24-24				Parallel
24V	3.34A	80W		PM80 48/24-24	PM80 110/24-24	PM80 220/24-24	Parallel
36V	1.68A	60W	PM80 24/36-36				Parallel
36V	2.24A	80W		PM80 48/36-36	PM80 110/36-36	PM80 220/36-36	Parallel
48V	1.25A	60W	PM80 24/24-24				Series
48V	1.67A	80W		PM80 48/24-24	PM80 110/24-24	PM80 220/24-24	Series
72V	0.84A	60W	PM80 24/36-36				Series
72V	1.12A	80W		PM80 48/36-36	PM80 110/36-36	PM80 220/36-36	Series

Dual outputs

Output					Input			
Voltage	Current	Voltage	Current	Power	18 - 32V	40 - 60V	88 - 150V	175 - 300V
24V	1.25A	24V	1.25A	60W	PM80 24/24-24			
24V	1.67A	24V	1.67A	80W		PM80 48/24-24	PM80 110/24-24	PM80 220/24-24
36V	0.84A	36V	0.84A	60W	PM80 24/36-36			
36V	1.12A	36V	1.12A	80W		PM80 48/36-36	PM80 110/36-36	PM80 220/36-36

How to read our product code:
Example **PM8048/24-24**
PM80 = Family code
48 = input voltage code 48
24-24 = two outputs with nom. voltage 24V

DC Inputs

Nominal inputs	Input range	Code
24 Vd.c.	18 to 32V	24
48 Vd.c.	40 to 60V	48
110, 127 Vd.c.	88 to 150V	110
220, 250 Vd.c.	175 to300V	220

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

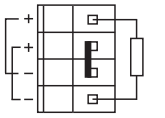
General data / input data

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	
24, 48 input code	Parallel diode
110, 220 input code	Series diode
Dimensions (D x W x H)	157x106x48mm
Weight	0.65 kg

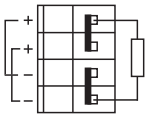
1. Higher ripple affects the input, contact factory

How to connect the output

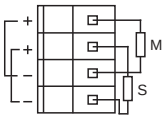
Use the supplied jumpers shown below



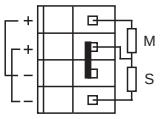
Series
48V (PM80 *24-24)
72V (PM80*36-36)



Parallel
24V (PM80 *24-24)
36V (PM80 *36-36)



Dual
2x24V (PM80 *24-24)
2x36V (PM80*36-36)



± Outputs
±24V (PM80 *24-24)
±36V (PM80*36-36)

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

Figure 1. Jumper position on PM80 connector.

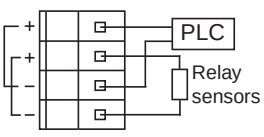


Figure 2. Use the 24V master (U1) for a PLC and the slave (U2) for relays and sensors. The advantage is that the PLC is isolated with less disturbance from relays and sensors.

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 3
Transient recovery time for 10%-90% load step to within 3% of nominal output voltage.	Typ. <3m
Output ripple (45kHz)[2]	Typ. 1mV$_{RMS}$
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	
PM80*24-24	21.6 to 26.4V
PM80*36-36	32.4 to 39.6V
Current limit, fold-back.	See figure 4
Remote sense	No
Soft start	No
Start-up time	1s
Hold-up time, contact factory	2-25ms
Efficiency[3]	83-85%
Operating temperature range at 100% load.	-25 to +55°C
Storage temperature range	-40 to +85°C

2. The output ripple might increase to 0.5% RMS of Vout, when EN/IEC61000-4-3, 10V/m test is applied
3. Lowest efficiency measured within the whole input voltage range at 100% load.

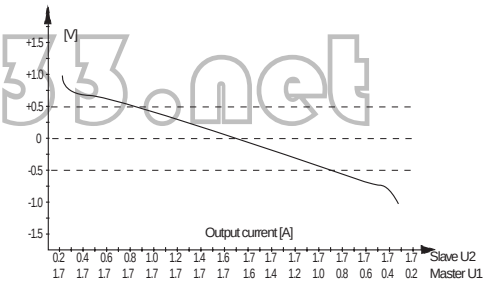


Figure 3. Voltage difference between U1 & U2 depending on load difference on PM80*24-24

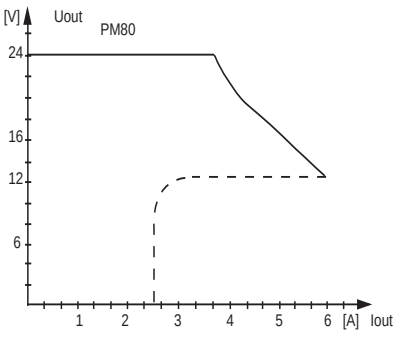
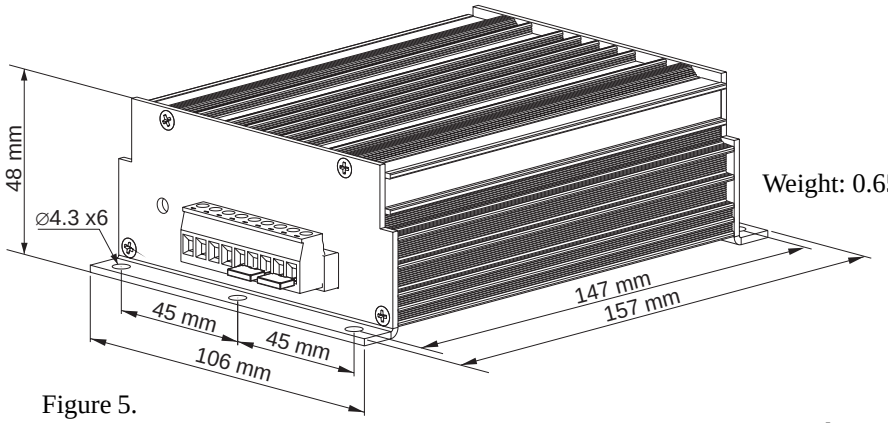


Figure 4. Current limit characteristic on PM80*/24-24 With outputs connected in parallel

Mechanical drawing

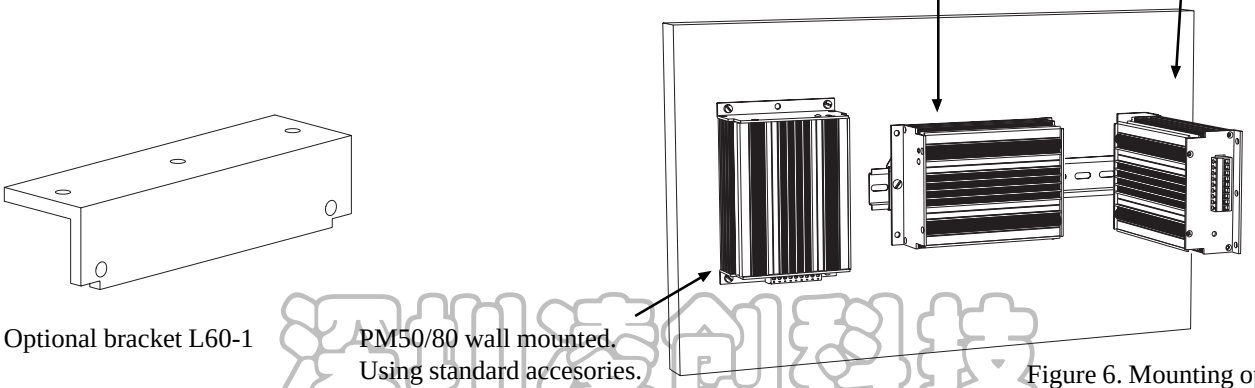


Weight: 0.65 kg

Figure 5.
Dimensions

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

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



Optional bracket L60-1

PM50/80 wall mounted.
Using standard accesories.

Figure 6. Mounting options

Output voltage/power characteristics

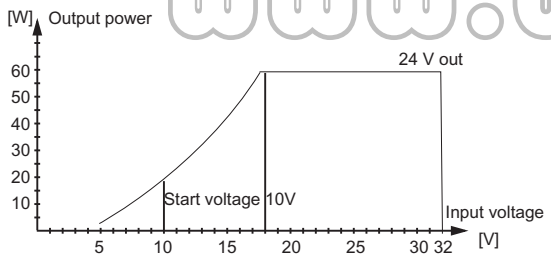


Figure 7. Output power PM80 24/24-24

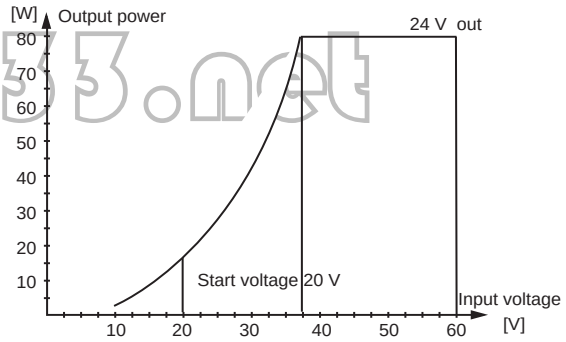


Figure 8. Output power PM80 48/24-24

The PM80 series have no low input voltage lock-out, which stops the converter. The output power is instead automatically derated, see figures 7 to10. Example: PM8024/24-24, figure 7 has start voltage at 10 V and can supply 20W output power at 10 V input.

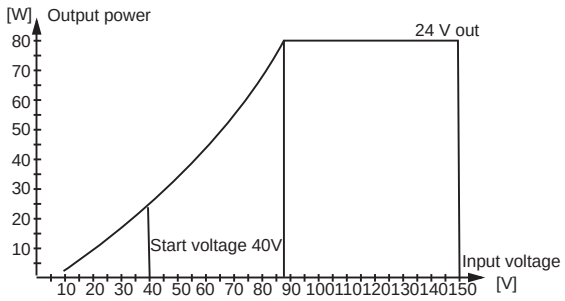


Figure 9.Output power PM80 110/24-24

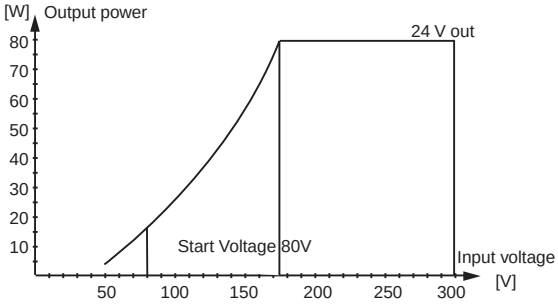


Figure 10. Output power PM80 220/24-24