

PU600

DC-DC converter



PU600-series 550 to 600W

Input / Output

- Wide input voltage ranges.
- Input ranges from 20 to 270V.
- Single outputs from 12 to 48 Vd.c.
- Reverse input voltage protection.

Operation

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

Features

- Current sharing.
- Extra output with series diode.
- External output voltage sense.
- Inrush current limit.
- Overvoltage protection OVP.
- Alarm circuit with relay.
- Inhibit input / Power down.
- Output voltage adjustable on frontpanel.ACAL

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, 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.
For 36V use input code B
For 110V use input code C

Output		
Voltage	Current	Power
12V	40.0A	480W
13.8V	40.0A	552W
15V	40.0A	600W
24V	25.0A	600W
48V	12.5A	600W

Output ratings and type code

Output			Input		
Voltage	Current	Power	20 - 60V	50 - 150V	90 - 270V
12V	40.0A	480W	PU600B12	PU600C12	PU600D12
13.8V	40.0A	552W	PU600B13.8	PU600C13.8	PU600D13.8
15V	40.0A	600W	PU600B15	PU600C15	PU600D15
24V	25.0A	600W	PU600B24	PU600C24	PU600D24
48V	12.5A	600W	PU600B48	PU600C48	PU600D48

How to read our product code:

Example **PU600 B12**

PU600 = Family code

B = input voltage code B

12 = Output voltage 12V

Features

- **Current Sharing**
Current sharing is used to balance the load between up to 10 units working in parallel. Even more units can be paralleled with special care. Contact Polyamp.
- **Extra output with series diode**
Use the series diode output when the output is connected in parallel with other power supplies to achieve redundancy.
- **External output voltage sense**
External sense is used when the voltage regulation at the load is critical. The sense can compensate voltage drops up to 5% of the nominal voltage.
- **Inrush current limit**
Models with input code C and D have an active inrush current limit. $I_{peak} < 6 \times I_{nom}$.
- **Over voltage protection OVP**
The output voltage is limited to 15% over nominal output voltage by an extra regulation circuit.
- **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.)
- **Inhibit input / Power down**
The converter will shutdown if the inhibit input is short-circuit by a relay or electrical switch. The current through the short-circuit is 20mA. Note that there is no electrical isolation between the inhibit and the output.
- **Reverse input voltage protection**
All PU600 has input reverse protection. On input code B with a parallel diode, which is dimensioned to blow an external input fuse. Other inputs use an input series thyristor.

Optional Features

- **Conformally coating**
For environment with high non condensing humidity max 98% RH.
- **EN/IEC61000-4-5 level 4**
Input filter to meet level 4 of 61000-4-5 (+/-2kV line to line, 4kV line to ground).
- **Train input**
Input voltage range according to train standard EN50155 and IEC60571.
- **Mounting bracket L-300-1**
See figure 3.
- **Vertical mount 19"-rack**
Up to 4 units can be mounted vertically with L480-2, see figure 2.

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	<15 W
Reverse input voltage protection	
B input code	Parallel diode
C, D input code	Series diode
Dimensions (D x W x H)	337x420x86mm
Weight	10 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	Typ. 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	Yes
Soft start	Yes
Start-up time	1s
Hold-up time, contact factory	2-25ms
Efficiency ³	85-91%
Operating temperature range at 100% load. (Conduction cooling.) with derating ⁴	-25 to +55°C -25 to +70°C
Storage temperature range	-40 to +85°C

- Output ripple might increase to 0.5% RMS of V_{out} , 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

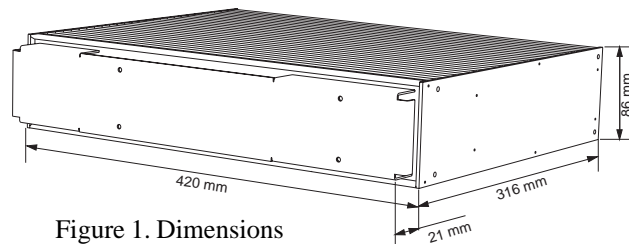


Figure 1. Dimensions

Weight: 10 kg

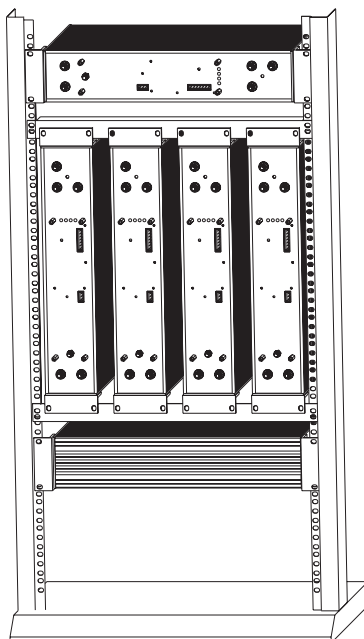


Figure 2. 19''-rack mounting

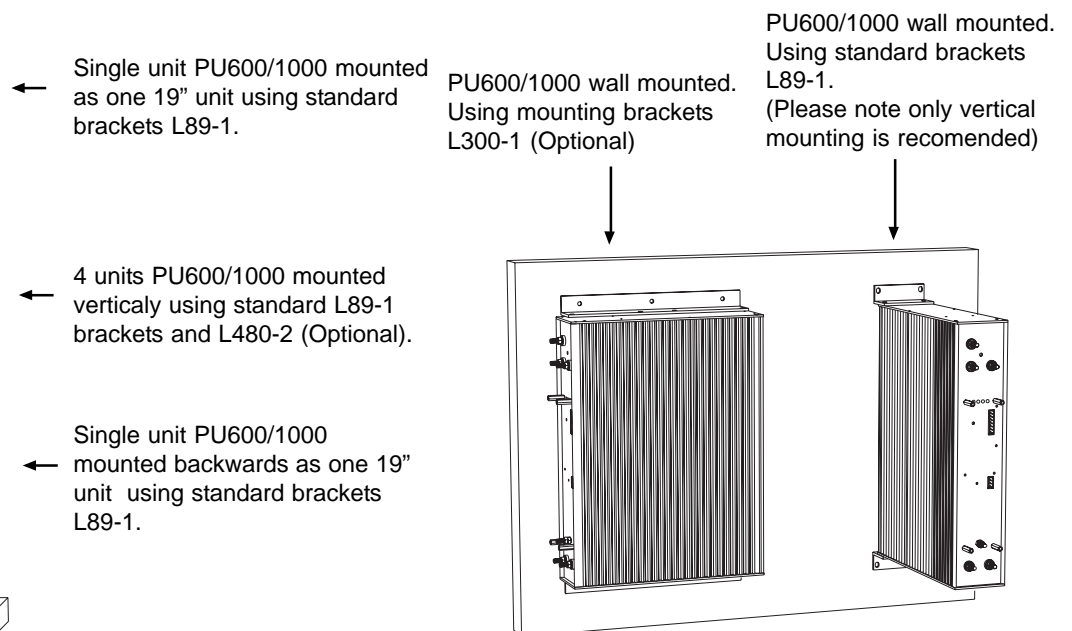


Figure 3. Wall and chassis mount

PU600 meets the requirements defined by CE mark as apparatus.
 PU600 meets requirements of EMC directive and low voltage directive (LVD).
 Thus a PU600 can be used as free standing unit or in installations as well as systems designed according to "The modular approach". PU600 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
Safety class/Installation category	Class II / Class I
Input / output: Input code: B	2kVd.c.
Input code: C, D	2.5kVa.c. / 4kVd.c.
Input / Alarm Input code: B	2kVd.c.
Input code: C, D	2.5kVa.c. / 4kVd.c.
Input / Case Input code: B	2kVd.c.
Input code: C, D	2.5kVa.c. / 4kVd.c.
Alarm / Case Input code: B	2kVd.c.
Input code: C, D	2.5kVa.c. / 4kVd.c.
Output / Case on <75Vd.c. output	2kVd.c.
Output / Alarm	2kVd.c.
Output / Case on >75Vd.c.	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		Remarks
Emission standards	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 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	
EN50155 Figure 4, 1.8kV 1.5/50μs	Yes		Line-line 100 Ω
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
 Specifications subject to change without notice.



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