



## Polyamp PU300-series 216 to 300 W

### INPUT / OUTPUT

- Wide input voltage ranges
- Input ranges from 10 to 270 Vd.c.
- Single outputs from 12 to 60 Vd.c.
- Reverse input voltage protection

### FEATURES

- Overvoltage protection OVP
- Extra output with series diode
- Over/Under voltage alarm relay
- Remote sense
- Inhibit input / Power down
- Output voltage adjustable on frontpanel.

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

### OPERATION

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

### EMC

- EN IEC 61000-6-3, Emission.
- EN IEC 61000-6-2, Immunity.
- EN IEC 61000-4-4, 4 kV.
- EN IEC 61000-4-5 level 2 & 3.

OUTPUT		
Voltage	Current	Power
12 V	18-25 A	216-300 W
13.8 V	16-21.8 A	220-300 W
15 V	16-20 A	240-300 W
24 V	10-12.5 A	240-300 W
28 V	8.6-10.7 A	240-300 W
36 V	6.7-8.3 A	240-300 W
48 V	5-6.2 A	240-300 W
60 V	4-5.0 A	240-300 W

## OUTPUT RATING & TYPE CODE

OUTPUT			INPUT			
Voltage	Current	Power	10 - 30 V	20 - 60 V	50 - 150 V	90 - 270 V
12 V	18.0 A	216 W	PU300A12			
12 V	25.0 A	300 W		PU300B12	PU300C12	PU300D12
13.8 V	16.0 A	220 W	PU300A13.8			
13.8 V	21.8 A	300 W		PU300B13.8	PU300C13.8	
15 V	20.0 A	300 W		PU300B15	PU300C15	PU300D15
24 V	10.0 A	240 W	PU300A24			
24 V	12.5 A	300 W		PU300B24	PU300C24	PU300D24
28 V	8.58 A	240 W	PU300A28			
28 V	10.8 A	300 W		PU300B28	PU300C28	
36 V	6.67 A	240 W	PU300A36			
36 V	8.34 A	300 W		PU300B36	PU300C36	
48 V	5.00 A	240 W	PU300A48			
48 V	6.25 A	300 W		PU300B48	PU300C48	PU300D48
60 V	5.00 A	300 W		PU300B60	PU300C60	PU300D60

How to read our product code: Example PU300A12

PU300 = Family code, A = input voltage code A, 12 = Output voltage 12 V

## FEATURES

### Overvoltage protection OVP

The output voltage is limited to 15 % over nominal output voltage by an extra regulation circuit.

### 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.

### Remote 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.

### 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 30 V 0.5 A (d.c. or a.c.)

### Inhibit input / Power down

This input allows remote start and shutdown of the converter by a signal voltage of 5 to 12V. Max 35mA.

## OPTIONAL FEATURES

### Inrush current limit with NTC

Reduces the inrush current during start up. The input voltage range will be affected. Only available on C & D inputs.

### Conformally coating

For environment with high non condensing humidity max 98 % RH.

### Train input

Input voltage range according to train standard EN 50155 and IEC 60571. For train 36V use standard B-range and for 110V use standard C-range.

### Mounting brackets L216-1

See figure 3.

### 19" Rack mounting set

To mount two PU300 together to form a full 19" rack unit, see figure 2.

### 19" Rack mounting bracket L86-3

To mount one PU300 to form a full 19" rack unit, see figure 2.

### Empty box

To produce a full 19"-rack unit. Includes 19"-rack mounting set, see middle section of figure 2. (One converter replaced by empty box.)

## GENERAL DATA / INPUT DATA

LABEL	VALUE
Design topology	Push-Pull
Switching frequency	40 kHz
Emission / Immunity	See page 4
Safety EN/IEC 60950	Class I
Max. accepted input ripple <sup>1</sup> 50-400 Hz	2 % of nominal voltage
Input power at no load	
Uout <36 V	Max 10 W
Uout 36-50 V	Max 12 W
Uout 60 V	Max 17 W
<b>Reverse input voltage protection</b>	
A, B input code	Parallel diode
C, D input code	Series diode
Dimensions (D x W x H)	232 x 210 x 86 mm
Weight	4.2 kg
Power connectors	0,5 - 4 mm <sup>2</sup>
Signal connectors	0,25 - 2,5 mm <sup>2</sup>

1. Higher ripple affects the input, contact factory

2. The output ripple might increase to 0.5% RMS of Vout, when EN IEC 61000-4-3, 10 V/m test is applied.

3. Lowest efficiency measured within the whole input voltage range at 100% load.

4. Contact factory for derating as depends on model. The alarm relay can not be used at +70 °C

## OUTPUT DATA

LABEL	VALUE
Source regulation	0.1%
Load regulation (0 to 100% load)	0.2%
Transient recovery time for 10 to 90% load step to within 3% of nominal output voltage.	<3 ms
Output ripple (80 kHz) <sup>2</sup>	Typ. 15 mV 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 - 110%
Current limit, rectangular	105%
Remote sense	Yes
Soft start	Yes
Start-up time	1 s
Hold-up time, contact factory	2 - 25 ms
Efficiency <sup>3</sup>	77 - 88 %
Operating temperature range at 100% load. (Convection cooling) with derating <sup>4</sup>	-25 to +55 °C -25 to +70 °C
Storage temperature range	-40 to +85 °C

## MECHANICAL DRAWING

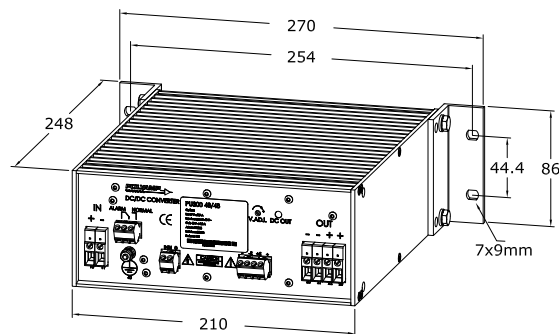
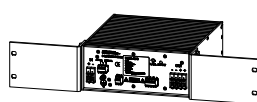
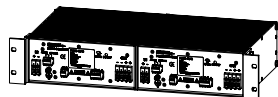


Figure 1. Dimensions

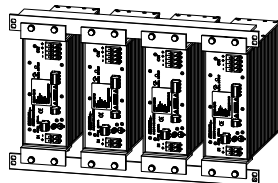
Weight: 4.2 kg



Single unit PU300/500 mounted as one 19" unit using L86-3 brackets (Optional).



2 units PU300/500 mounted side by side forming one 19" unit, using 19" rack mounting set (Optional).



4 units PU300/500 mounted vertically, using standard L86-1 brackets and L480-1 (Optional).

Figure 2. 19"-rack mounting

PU300/500 wall mounted. Using standard brackets L86-1

PU300/500 wall mounted. Using mounting brackets L216-1 (Optional)

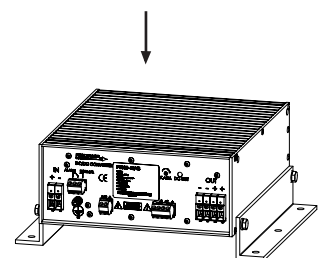


Figure 3. Wall and chassis mounting

## CE MARK

PU300 meets the requirements defined by CE mark as apparatus.

PU300 meets requirements of EMC directive and low voltage directive (LVD) and RoHS II directive.

The PU300 family is in respect to EMC, a stand alone unit can also be installed in any other environment by a professional installer.

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

## SAFETY STANDARD EN/IEC 60950

ISOLATION TESTABLE LEVELS		TEST VOLTAGE
Input / Output	Input code: A, B	2 kVd.c.
	Input code: C, D	2.5 kVa.c. / 4 kVd.c.
Input / Signal*	Input code: A, B	2 kVd.c.
	Input code: C, D	2.5 kVa.c. / 4 kVd.c.
Input / Case	Input code: A, B	2 kVd.c.
	Input code: C, D	2.5 kVa.c. / 4 kVd.c.
Output / Case all outputs		2 kVd.c.
Output / Signal*		2 kVd.c.
Case / Signal*	Input code: A, B	2 kVd.c.
	Input code: C, D	2.5 kVa.c. / 4 kVd.c.

\* Signal = Alarm + Inhibit

## EMC

EMC STANDARDS	EMC PERFORMANCE		
<b>Emission standards</b>	<b>EN IEC 61000-6-3</b>		<b>Commercial and light-industrial environments</b>
	<b>Input</b>	<b>Output</b>	
EN 55016 CISPR16 (0.15-30 MHz)	OK	OK	opt. EN 55022 level B
EN 55016 CISPR16 (30-1000 MHz)	OK		Enclosure test
<b>Immunity standards</b>	<b>EN IEC 61000-6-2</b>		<b>Industrial environments</b>
EN IEC 61000-4-2	8 kV / 15 kV		Contact / air, Enclosure test
EN IEC 61000-4-3	20 V/m AM-Modulated		Output ripple can increase to 0.5% of Vout Enclosure test
EN IEC 61000-4-4	± 4 kV	± 4 kV	
EN IEC 61000-4-5, Input code A, B	± 0.5 kV / ± 1 kV	± 0.5 kV / ± 1 kV	Line-line 2 Ω / Line-case 12 Ω
EN IEC 61000-4-5, Input code C <sup>1</sup> , D <sup>1</sup>	± 1 kV / ± 2 kV	± 0.5 kV / ± 1 kV	Line-line 2 Ω / Line-case 12 Ω
EN 50121-3-2 IEC 62236-3-2	± 1 kV / ± 2 kV	± 1 kV / ± 2 kV	Line-line 42 Ω / Line-case 42 Ω
EN IEC 61000-4-6	10 V <sub>RMS</sub>	10 V <sub>RMS</sub>	AM-Modulated
EN IEC 61000-4-8	Not sensitive		Enclosure test
EN IEC 61000-4-10	Not sensitive		Enclosure test

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

We use the EMC product standard "Low voltage power supplies DC output" EN 61204-3 as base for measurement principles. The Immunity EMC levels are elevated in order to comply to EN 50121-3-2 (IEC 62236-3-2) Railway application: Rolling stock – Apparatus, and EN 50121-4 (IEC 62236-4) Railway application: Signaling and telecommunication apparatus. Also to meet relevant parts of IEC 61000-6-5 Generic Standards – Immunity for power stations and substation environments.



- A secure part of your system



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