

## EPS060 Series

### Single Phase

### Primary Switch DC Power Supply Unit

Universal AC/DC Input

Easily Din Rail Installation

High Reliability And Durability

LED Indicator For Functions Control



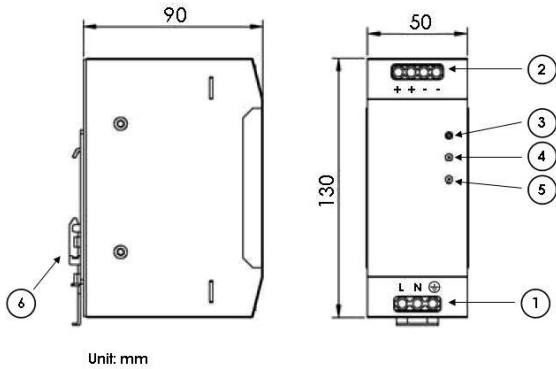
### I. Technical Data

Model	EPS060-12	EPS060-24	EPS060-48
Rated output power:	60W	60W	60W
<b>Input Data</b>			
Input voltage:	100...240VAC		
Input voltage range:	90...264V AC / 120...370V DC		
Frequency AC:	47Hz...63Hz		
Input current:	0,7A for AC 230V; 1,2A for AC 115V		
Peak input current:	<15A for AC 230 V; <20 A for AC 115V		
Mains failure hold-up time:	>20ms for 230V AC		
Power factor:	>0,5 for full load		
Leakage current:	<1mA		
Internal protection:	F3,15A / 250V		
Protection circuit:	Transient overvoltage protection with NTC		
Recommended backup fusing:	Wire breaking C10 or B16		
<b>Output Data</b>			
Output voltage:	12V DC±1%	24V DC±1%	48V DC±1%
Range of adjustment:	10-14V DC	22-27V DC	43,2-52,8V DC
Max. output current:	5A	2,5A	1,3A
Efficiency:	82%	84%	85%
Residual ripple:	100mVpp	120mVpp	120mVpp
Parallel use:	allowed	allowed	allowed
Derating:	3,3%/K over +50°C		
Adjustment accuracy:	±0,5% for line regulation; ±1% for load regulation		
Overload protection:	105%...150% (see characteristic line in part VIII)		

Technical data sheet

Mechanical Data			
Weight:	485g	485g	485g
Dimension (WxHxL):	50x90x130 mm	50x90x130 mm	50x90x130 mm
Housing technology:	Brushed aluminum alloy housing and screen print		
Mounting accessory:	DIN 35 rail		
Connection Technology:	Connection terminal on the housing front side		
Cross section:	0,25...4mm <sup>2</sup> / AWG 24-12		
Cooling:	<p>During operation, some inner components can heat up to more than +100°C.</p> <p>The enclosure surface can heat up to more than 70°C.</p> <p>Recommended minimum distance from adjacent parts in case of natural convection and horizontal mounting: above/below: 70 mm; left/right: 15 mm.</p>		
Environmental requirements			
Storage temperature:	-25°C...+85°C		
Operating temperature:	-10°C...+70°C (over +55 °C Derating)		
Temperature coefficient:	±0,03%/K for 0°C < T < 55°C		
Derating:	-3,3%/K for 50°C < T < 70°C		
Relative humidity (without condensation):	95%		
Pollution degree:	2 (acc. to EN50178)		
MTBF:	>50.000 hours @25°C		
Safety und Protection			
Protection class:	Protection class I		
Degree of protection:	IP20 acc. to EN60529		
Overload protection:	Reduction of output voltage (see characteristic line in part VIII)		
Short circuit protection:	yes, automatical resettable		
Iding proof:	yes		
Vibration stress:	2G 10-500Hz, 10min./1 cycle, 60min. each axis acc. to EN60068-2-6		
Shock stress:	15G acc. to EN60068-2-27		
Isolation voltage	3000V AC for input and output 1500V AC for input and PE 500V AC for output and PE		
Standard und Approvals			
Elektric safety:	EN60950, UL60950		
Electromagnetic Interference (EMI):	EN55011 (EN55022) class B		
Electromagnetic compatibility (EMC):	EN55024, EN61000-6-2		
Harmonic current:	EN61000-3-2		
Approvals:	UL/C-UL Recognized UL 60950		

III. User elements



Unit: mm

1. Input

L	For live line
N	For null line
⊕	For earth line

2. Output

+	Positive output
-	Negative output

3. Trimmer potentiometer [Adjust]

The frontal trim-pot [adjust] can be used from outside to set up the output voltage. Range of adjustment can be found in technical data.

4. LED Indicator [DC OK]

A green LED signals a faultless working situation on the output.

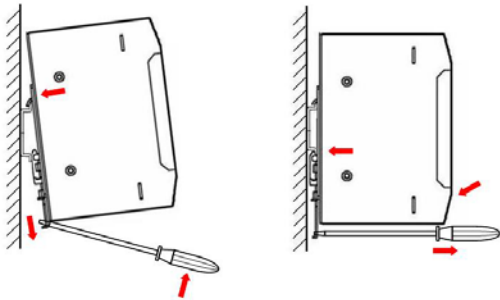
5. LED Indicator [Overload]

A red LED signals an overload / short circuit situation on the output.

6. Universal DIN rail adapter UTA 107/30

For the utilization of DIN rail adapter please see the indication in part IV installation.

IV. Installation



The equipment can be mounted on DIN 35 rail in accordance with EN 60715. For consistent heat dissipation, mount horizontally (air inlet and outlet above and below). Other mounting positions should only be used at one's own risk. We recommend in that case not exceeding a power output of 50% and an ambient operating temperature of 45°C. The minimum distance requirements shall be met.



Assembly:

Put the power supply unit on the upper-shank of the DIN 35 rail. Pull the latch of the DIN rail adapter on the underside with the help of tools and then press the power supply to snap on the rail.

Disassembly:

By pulling the latch on the underside, the rail support release is activated. By tilting the power supply unit forward, it can come unhinged from the rail.

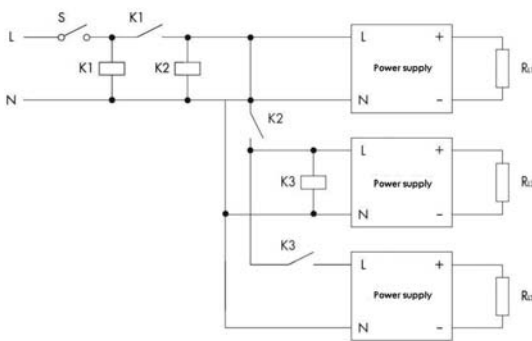
V. Signaling

DC OK   
 Overload 

The "DC OK"-LED and "Overload"-LED of front side signal the below different working states.

State	LED "DC OK"	LED "Overload"
Normal working	green light	off
Not working	off	off
Overload	green blink	red blink
Short circuit	green light	red light

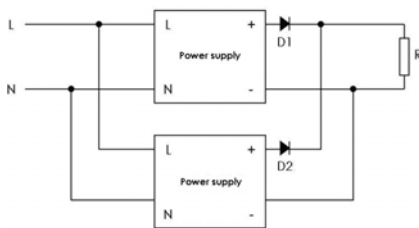
VI. Parallel operating



**Inrush current of input side parallel connection:**

If several devices are connected in parallel and supplied on the input side using the same electric current, higher inrush currents can result. In this case, the use of auxiliary relays, which cause a time delay in startup, is recommended.

The device contains an NTC resistor to reduce the inrush current pulse. This also depends on temperature. In very low operating temperatures (e.g., -10 °C), the NTC has a high resistance, which eventually prevents the device from starting up under a high load. In this case, switch the device on and off several times in standby mode, decrease the load or operate the device in a warmer environment. The number of devices connected to a circuit in parallel arises from the amount of leakage current in the filter capacitors. According to EN 60950, this shall not exceed a maximum of 3.5 mA.



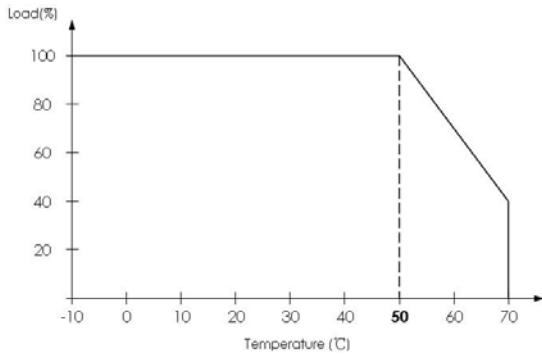
**Parallel use to increase output power:**

In parallel operation, set the output voltage of the devices which are to be connected in parallel to precisely the same value, if possible. Additionally, the wire resistance from the power supply unit to the load must be nearly identical. Only devices of the same type shall be used for connecting in parallel.



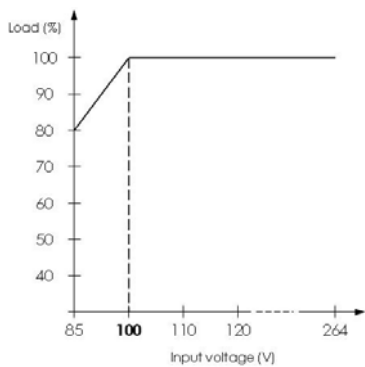
Please use external rail-mounted terminal blocks when connecting in parallel. A parallel connection directly on the secondary side of the terminal strips of the device is not allowed. When decoupling the outputs in parallel mode, the use of diodes in the positive path is recommended. These diodes must be configured for the device's maximum output current.

**VII. Derating Curve**



**Behavior of load and temperature**

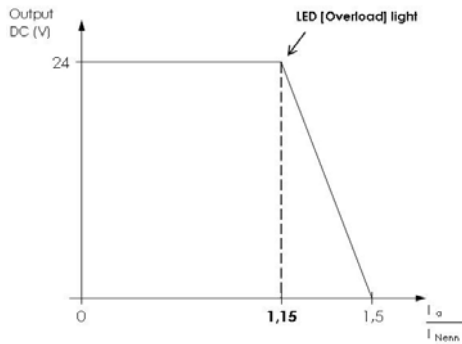
The maximal load is dependent on the ambient operating temperature. A derating of 3.3%/K shall be taken into account for temperatures over 50°C



**Behavior of load and input voltage**

The maximal load is also dependent on the input voltage. A derating shall be taken into account for input voltages smaller than AC 100V.

**VIII. Short circuit and overload behavior**



The equipment's output is electronically protected from overload and short circuits. The output voltage for an output current in the dimensional range of  $1.15 \times I$  is reduced. In this case, the red LED [overload] lights up. After eliminating the overload or short circuit, the power supply unit automatically supplies the output voltage as indicated.