

Reliable Power

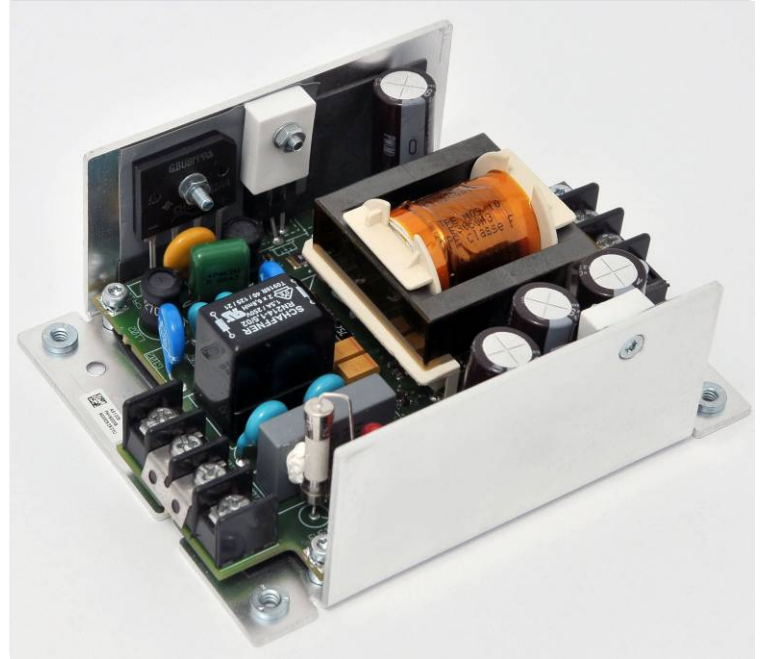
LP100VS-series

LED Power Supply

AC/DC power supply 100W

The LP100VS series of isolated AC/DC power supplies is designed for LED Lighting applications. A fully enclosed metal housing provides good cooling within the luminaire.

The power supply is designed to provide high reliability 100W power in a convenient package for outdoor LED lighting fixtures. The lifetime of the power supply is designed to exceed the lifetime of the LEDs themselves, typically > 60,000 hours at 60°C.



Key Features

Protection:

- Input under and overvoltage
- Output short circuit
- Output overvoltage and over current
- Power supply over temperature

Environmental:

- -40 to +70°C baseplate temperature

Efficiency:

- 89% minimum, 90% typical

EMC:

- Emission: EN55022 CISPR22 Class A

Safety Approvals:

- UL/cUL 60950-1 recognized (US & Canada)

Reliability:

- High reliability, long life (>14 years)
- MTBF > 200,000 hours per MIL-HDBK- 217F, GB, 45°C

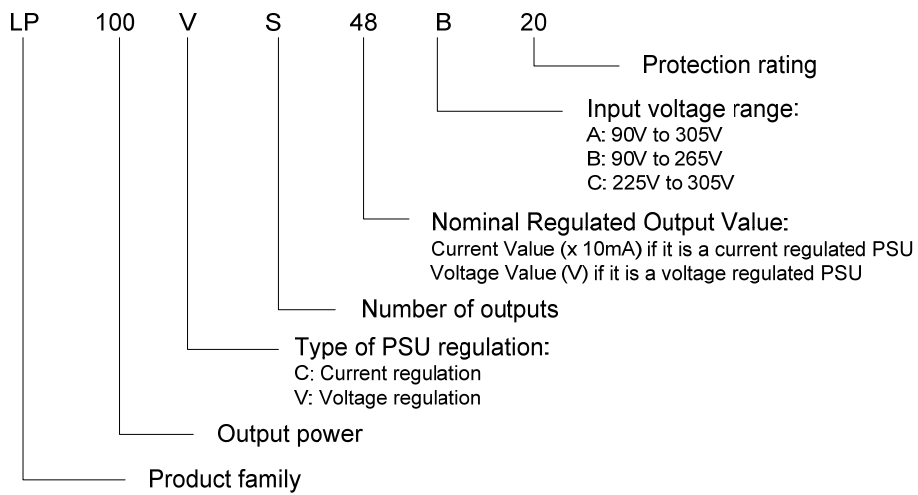
Warranty:

- 5-year factory warranty



Part number input	Voltage Range Output	Voltage Nominal Output	Maximum Current
LP100VS48B20	90V to 265V	48V	2,1A
LP100VS48C20	225V to 305V	48V	2,1A
LP100VS36A20	90V to 305V	36V	2,8A
LP100VS24A20	90V to 305V	24V	4,2A

Part Numbering System with options



INPUT	LP100VS48B20	LP100VS48C20	LP100VS36A20, LP100VS24A20
Nominal voltage	120/208/240 Vrms	277 Vrms	120/208/240/277 Vrms
Voltage range	90-264 Vrms (47-63HZ)	225-305 Vrms (47-63 Hz)	90-305 Vrms (47-63 Hz)
Low input shutdown	<85 Vrms. Automatic restart	<225 Vrms. Automatic restart	<85 Vrms. Automatic restart
Input current (full load)	<1A at 230Vrms		<0.7A at 277Vrms
Leakage current	<3mA at 230Vrms		<3mA at 277Vrms
Efficiency	>90% at nominal input, 50% to 100% load		
Power factor and harmonics	PF>90% (above 1A load) <20% harmonics (above 1A load)		
Inrush current	<40A		
Input fuse	4A internal input fuse		
Reflected noise	Meets CISPR Class A stand alone		
Thermal Protection	Thermal shutdown		
Connector	Screw terminals (3 pole)		
Switching frequency	120 kHz nominal (fixed frequency)		

OUTPUT	48V NOMINAL	24V NOMINAL
Output voltage, nominal	48V +/- 1V	24V
Output current	2.1A	4.2A
Output power	100W maximum @ +70°C baseplate	100W maximum @ +70°C baseplate
Current limit	3A nominal	6A nominal
Output regulation	+/-10%	+/-10%
Overvoltage protection	<60Vdc	<30Vdc
High frequency ripple and noise	<200mV pk-pk	<200mV pk-pk
Ripple at 120 Hz	4V pk-pk	2V pk-pk
Connector	Screw terminals (2 pole)	

ENVIRONMENT	
Cooling	Conduction cooling
Operating temperature range	-40°C to +70°C baseplate
Derating	No derating required up to +70°C baseplate
Storage temperature range	-40°C to +85°C
Humidity	0% to 95% non-condensing
EMC	Class A
Vibration	10 – 55Hz, 2g 1min/cycle period of 60min, x, y, & z axes

SAFETY/MARKING	
Input / output isolation	3000 Vac
Input / case isolation	1500 Vac
Output / case isolation	500 Vac
UL, cUL, CE	Yes

MECHANICAL	
Dimensions	4.5" x 3.5" x 2" (114 x 89 x 52mm)
Housing	Metal baseplate and enclosure
RoHs	Yes

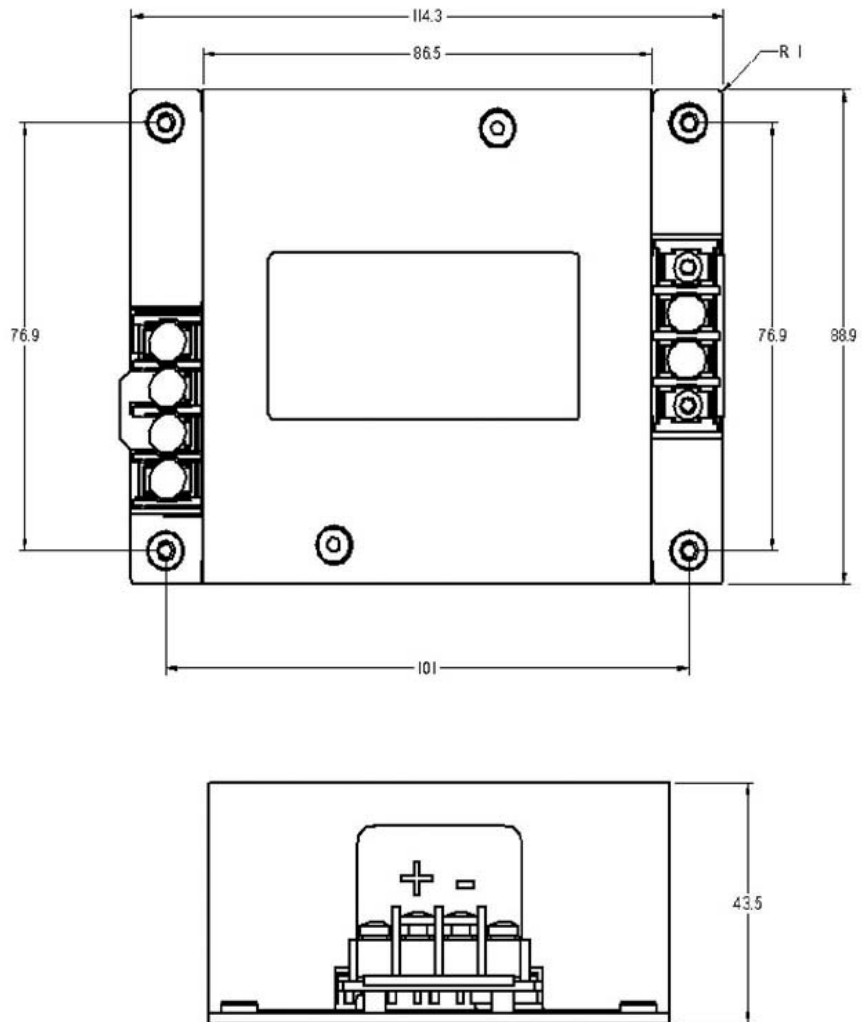
RELIABILITY	
Design life	>14 years
MIL-HDBK-217F, 100% load	>200,000 hours MTBF @ 45°C >65,000 hours MTBF @ 60°C

Overview



Outline drawing

All dimensions in inches (mm).



Connections:

Input: screw terminals (3 positions)

- 1. Line
- 2. Neutral
- 3. Ground

Output: screw terminals (2 positions)

- 1. + Vout
- 2. Return

Reliability

The LP100VS series is designed to provide very high reliability and long life under all normal operating conditions. All components used in the design are operated well within their ratings, following AEG Power Solutions' derating policy. No further derating of the power supply is necessary, and the unit can be used at any load up to its maximum rating.

The MTBF prediction given on page 2 of this datasheet assumes typical long-term operation at 100% load, with a baseplate temperature of +45°C. Short-term excursions above this temperature will not significantly affect the MTBF, provided the maximum rated baseplate temperature is not exceeded. If the power supply is used in an environment where the sustained operating temperature is significantly higher than +45°C, the MTBF will be reduced accordingly.

Voltage transients

The LP100VS series includes internal protection against voltage transients due to lightning and other AC power line surges. In some applications such as highway lighting where there may be an unusually high level of power line surges, it may be necessary to use additional surge protection external to the power supply.

This protection can be achieved using a transient voltage suppressor (TVS) diode connected between the AC line and neutral input terminals of the power supply. The recommended component for use with the LP100VS48B20 is the Littelfuse 1.5KE440CA or equivalent. The recommended component for use with the LP100VS48C20, LP100VS36A20 and LP100VS24A20 is the Littelfuse 1.5KE480CA or equivalent. This part has a higher voltage rating than the 1.5KE440CA and is suitable for use with a 277V input line.

Mounting

The LP100VS series is designed to be mounted to a metal surface that can act as a heatsink, such as the housing of a luminaire. It is recommended to carry out testing in the final configuration to confirm that the baseplate temperature is not excessive under worst-case operating conditions. If the baseplate exceeds +80°C the thermal protection may cause the unit to shut down. AEG Power Solutions can provide assistance with thermal design and simulation if required.

Outdoor environment

The LP100VS series is normally manufactured with conformal coating of the PCB assembly to provide protection against dust and contaminants. This version is suitable for most applications, including outdoor lighting where the product housing can provide sufficient protection for both the light engine and the PSU. For applications requiring a waterproof IP67 housing, please consult AEG Power Solutions.

Safety

The LP100VS series meets North American and international safety specifications at the component level, and is certified according to UL, cUL and CE. It is designed to be mounted inside a final product enclosure and it is the user's responsibility to obtain safety approval for the final product. The LP100VS series includes an internal input fuse. Additional external protection may be needed in some cases, depending on the details of the application.

Dimming

The LP100VS series does not support dimming. If your application requires dimming, AEG Power Solutions has other products available that can be dimmed through industry-standard dimming interfaces.

