

## 250W, Rugged, Encapsulated AC/DC Power Supply for Heavy-duty Applications POL 59-P59W Series



- Rugged, field proven design
- Conduction cooling
- Fully encapsulated
- Full electronic protection

This fully encapsulated, rugged, industrial quality AC/DC power supply uses field-proven technology to generate 100W output power. It is a mature product with a track-record in numerous applications. The unit is entirely potted with a thermally conductive MIL-grade silicon rubber compound to provide immunity to shock, vibration and humidity. It is conduction cooled via a base plate to a heat-sinking surface. Full electronic protection, low component count, large design headroom, and the use of components with established reliability ensure high MTBF. The unit is suitable for transportation, mining, oilrigs, military and other harsh environments. The converter is manufactured at our plant under strict quality control. Versions that are designed to meet EN 50155 railway specifications are also available.

### SPECIFICATIONS

#### Input Voltage

115 or 230Vac  $\pm 15\%$   
47 - 63Hz  
Auto-ranging available  
Consult factory for other voltages

#### Input Protection

Inrush current limiting  
Varistor  
Internal safety fuse  
Lower voltage than the specified minimum input will not damage the unit

#### Isolation

2250VDC input to chassis  
4300VDC input to output  
8mm spacing  
500VDC output to chassis

#### Standards

Designed to meet EN60950-1 and corresponding UL and CSA standards

#### EMI

EN55022 Class A with margins

#### Switching Frequency

55 kHz  $\pm 3$ kHz

#### Hold-Up Time

Min. 10ms at full load for 5% drop in output voltage

#### Output Voltage/Current

12V/20A, 24V/10 or 48V/5A  
Output is floating, either terminal can be grounded  
Consult factory for other voltages

#### Redundancy Diode

None

#### Line/Load Regulation

$\pm 1\%$  combined from zero load to full load

#### Dynamic Response

Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time

#### Output Ripple / Noise

Better than 1% of output voltage peak to peak or 0.2% RMS of the output voltage. (20MHz BW)

#### Output Overload Protection

Rectangular current limiting with short-circuit protection (no hiccup)  
Thermal shutdown in case of insufficient cooling (self-resetting)

#### Output Over-voltage Protection

Second regulator loop.

#### Efficiency

Output voltage dependent  
Typically 85% at full load

#### Operating Temperature Range

-40°C to +70°C cold-plate temperature for full specification

#### Temperature Drift

0.03% per °C over operating temperature range.

#### Cooling

Conduction via base plate to customer heatsink or chassis

#### Environmental Protection

Full encapsulation with thermally conductive silicon potting compound with UL94V-0 flammability rating.  
Meets environmental criteria as requested in MIL-810 C, D

#### Shock/Vibration

IEC 61373 Cat 1 A&B

#### MTBF

150,000 hours @ 45°C  
Demonstrated MTBF is significantly higher

#### Indicators

None

#### Control Input

None

#### Alarm Output

None  
Available on custom versions

#### Package/Dimensions

P59W: 133 x 68 x 165 mm  
5.3" x 2.7" x 6.5" including terminal block and flanges  
Mounting holes are clear

#### Weight

2 kg (4.5 lb)

#### Connections

9 pole barrier type terminal block, 3/8" spacing

#### RoHS Compliance

Compliant

#### Warranty

Two years subject to application within good engineering practice

#### Terminal Block Pin-out

| DC OUTPUT |   |          |          |          |          | DC INPUT |        |       |
|-----------|---|----------|----------|----------|----------|----------|--------|-------|
| -         | + | NOT USED | NOT USED | NOT USED | NOT USED | GND      | (+) PH | (-) N |
| 1         | 2 | 3        | 4        | 5        | 6        | 7        | 8      | 9     |



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