

## 150W, Encapsulated DC/DC Converter for Railway and other Heavy Duty Applications RWY 150 Series



- Rugged, field-proven design
- Full encapsulation
- Wide temperature range
- Full electronic protection
- EN 50155 input ranges

This fully encapsulated, railway quality, DC/DC converter uses a field-proven design to generate 150W output power. It is a mature product with a track-record in numerous applications. It is entirely potted with a thermally conductive MIL-grade silicon rubber compound to ensure immunity to shock, vibration and humidity. Cooling is by conduction via a base-plate to a heat-sinking surface. Low component count, large design headroom, and the use of components with established reliability result in a high MTBF. The unit meets the requirements of EN50155 for electronic equipment used on rolling stock. It is also suitable for transportation, mining, oilrigs, military and other harsh environments. The converter is manufactured at our plant under strict quality control. Customized versions are also available.

### SPECIFICATIONS

#### Standard Input Voltages

24Vdc (14.4 – 34V)  
36Vdc (22 – 51V)  
48Vdc (29 – 67V)  
72Vdc (43 – 101V)  
96Vdc (58 – 135V)  
110Vdc (66 – 154V)  
Other inputs upon request

#### Input Protection

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

#### Isolation

1500Vdc input to chassis  
3000Vdc input to output  
1500Vdc output to chassis

#### Standards

Meets EN60950-1 and EN50155

#### Immunity

Meets criteria of EN50155 and EN50121-3-2 including  
EN 61000-4-2 (ESD)  
EN61000-4-3 (RF Immunity)  
EN61000-4-4 (Fast Transients)  
EN50155 (Surge)  
EN61000-4-6 (Conducted Imm.)  
EN50155 (Voltage Variations)

#### EMI

EN55022 Class B and EN50121-3-2 conducted and radiated

#### Switching Frequency

80kHz  $\pm$ 5kHz

#### Output Voltage

12Vdc or 24Vdc  
Output is floating, either terminal can be grounded  
Other outputs upon request

#### Redundancy Diode

None

#### Line/Load Regulation

$\pm$  1% combined from zero load to full load on each output

#### Dynamic Response

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

#### Output Ripple/Noise

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

#### Output Overload Protection

Rectangular current limiting with short-circuit protection (hiccup)  
Thermal shutdown with automatic recovery in case of insufficient cooling

#### Output Overvoltage Protection

Second regulator loop completely stable and independent of main regulator loop

#### Efficiency

80 to 90% depending on input/output configuration

#### Operating Temperature Range

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

#### Temperature Drift

0.03% per °C over operating temperature range

#### Cooling

Conduction cooling via base plate to customer chassis or heat-sink

#### 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

#### Humidity

5 – 95% non-condensing  
Contact factory for higher rating

#### MTBF

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

#### Indicators

None  
Optional 'ON' LED adapter available

#### Control Input

None

#### Alarm Output

None

#### Package/Dimensions (W x H x L)

P 100: 58 x 54 x 181 mm  
(2.3" x 2.1" x 7.2")  
Includes terminal block and flanges  
The case has clear alodyne finish according to MIL-C-5541E Class 3  
Mounting holes are clear

#### Weight

0.6 kg (1.4 lb)

#### Connections

5-pole barrier-type terminal block with 3/8" spacing  
Cover can be provided upon request

#### RoHS Compliance

Fully compliant

#### Warranty

Two years subject to application within good engineering practice.

#### Terminal Block Pin-out

OUTPUT		GND	INPUT	
+	-	⊥	+	-
1	2	3	4	5

**Enhancements to these general specifications and customizing can be accommodated upon request. Specifications are subject to change.**

*Designer and manufacturer of quality ac-dc power supplies and battery chargers, converters, inverters, dc-output UPS systems, complete rack mount systems and DC-input fluorescent lamp inverters since 1982. Custom or standard. Absopulse is a BABT-approved Facility.*

