

# 100W, Encapsulated DC/DC Converter for Railway and other Heavy Duty Applications

## RWY 100-P100 Series



- Rugged, field-proven design
- Full encapsulation
- Wide temperature range
- Full electronic protection
- EN50155 input ranges

This fully encapsulated, railway quality power converter utilizes field-proven technology to generate the required output power. It is a mature design with a track record in numerous applications. The unit is entirely potted with a thermally conductive MIL-grade silicon rubber compound which provides protection from moisture and other contaminants, as well as immunity to shock and vibration. Cooling is by conduction via a base plate to a heatsinking surface. Full electronic protection, low component count, large design headroom and the exclusive use of components with established reliability contribute to a high MTBF. The unit meets the requirements of EN50155 for electronic equipment used on railway rolling stock. It is manufactured at our plant under strict quality control.

### 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 available on 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

Designed to meet EN60950-1 and EN50155

#### Immunity

Meets criteria of EN50155 and EN50121-3-2 according to the following standards:  
 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

EN50121-3-2

#### Switching Frequency

135kHz  $\pm$ 5kHz

#### Output Voltage

12Vdc or 24Vdc  
 Output is floating, either terminal can be grounded  
 Other outputs available on 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 alodine 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

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 ABBT-approved Facility.*



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