

40W, Encapsulated DC/DC Converter for Railway and other Heavy Duty Applications

RWY 40 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 40W 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

100kHz \pm 5kHz

Output Voltage

12V or 24V are standard.
 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

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 hiccup type short-circuit protection
 Thermal shutdown with automatic recovery in case of insufficient cooling

Output Overvoltage Protection

Transzorb installed across the output

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 heat-sink 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

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)

P100: 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

0.6kg (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.

