

50W, Encapsulated DC/DC Converter for Railway and other Heavy Duty Applications RWY 50-72/48



- Rugged, field-proven design
- For train and extreme environments
- Complete encapsulation
- Full electronic protection
- Wide input ranges

The RWY 50-72/48 Series fully encapsulated, single output DC/DC converter uses a field-proven design to generate 50W output power. It was specifically designed for 72Vdc input and 48Vdc output applications. This converter is entirely potted with a thermally conductive MIL-grade silicon rubber compound to ensure immunity to shock, vibration and humidity. It is conduction cooled via a base plate to a heatsinking surface. Low component count, large design headrooms, 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. The unit is also suitable for transportation, mining, oil rigs, military and other harsh environments. The RWY 50-72/48 is manufactured at our plant under strict quality control. Customized versions are also available.

SPECIFICATIONS

Standard Input Voltages

72Vdc nominal
Operating Range: 43-101Vdc
Input Current 1.5A max.

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 EN 60950 and EN 50155

Immunity

Meets criteria of EN 50155 and EN 50121-3-2 according to the following standards:
EN 61000-4-2 (ESD)
EN 61000-4-3 (RF Immunity)
EN 61000-4-4 (Fast Transients)
EN 50155 (Surge)
EN 61000-4-6 (Conducted Imm.)
EN 50155 (Voltage Variations)

EMI

EN 55022 Class B and
EN 50121-3-2 conducted and radiated

Switching Frequency

100kHz \pm 5kHz

Output Voltage/Current

48V \pm 0.05V/1A continuous.
Output is floating, either terminal can be grounded
Other outputs upon request

Redundancy Diode

None

Line/Load Regulation

\pm 1.5% combined from zero load to full load including redundancy diode

Dynamic Response

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

Output Ripple/Noise

Better than 50mVrms or 300mVpp (@ 20MHz BW)

Output Overload Protection

Rectangular current limiting with hiccup type short-circuit protection
Current Limit: 1.2A \pm 0.1A

Output Overvoltage Protection

Second regulator loop completely stable and independent of main regulator loop.
56V transzorb installed across the output

Efficiency

Min 80% at full load

Operating Temperature Range

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

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.

Shock/Vibration

Designed to meet IEC 61373
Cat 1 A&B and Cat 2 as a min.

Humidity

5 – 95% non-condensing

MTBF

180,000 hours @ 45 °C
Demonstrated MTBF is significantly higher

Indicators

None.
Optional 'ON' LED available

Control Input

None

Alarm Output

None

Package/Dimensions (W x H x L)

P 100: 58.4 x 54 x 180.8 mm (2.3" x 2.1" x 7.12") including terminal block and flanges
Mounting holes are clear

Weight

0.8 Kg (1.8 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.

Enhancements to these general specifications and customizing can be accommodated upon request. Specifications 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.



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