

200W, IP66-Rated, Encapsulated, Railway Quality DC-DC Converter RWY 200P-D1 (IP66) Series

- Packaged in waterproof IP66 enclosure
- Internal module fully encapsulated
- EN50155 input ranges
- For train and mobile applications
- Rugged, field-proven design
- Full electronic protection



This series of rugged, railway quality DC-DC converters employ field-proven design topology to generate the required output power. The units are packaged in rugged, waterproof, die cast aluminum IP66 enclosures. The input and output are via sealed cable glands, circular connectors or custom connections. The internal converter unit is entirely potted with a thermally conductive MIL-grade silicon rubber compound for immunity to high levels of shock and vibration. Cooling is by conduction and convection via the walls of the IP66 enclosure. If installed on a heat-sinking surface, cooling is further enhanced and the converters achieve higher output power. Low component count, large design headroom, and the use of components with established reliability result in a high MTBF. The units meet the requirements of EN50155 for electronic equipment used on rolling stock. They are 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 (28 – 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

EN50121-3-2

Switching Frequency

80kHz \pm 5kHz

Output Voltage/Current

12V, 24V, 48V or 110Vdc
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 type)
Thermal shutdown with automatic recovery in case of insufficient cooling

Output Overvoltage Protection

Second regulator loop completely stable and independent of main regulator loop

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

Cooling is by conduction and convection via the walls of the IP66 enclosure.

Environmental Protection

IP66 enclosure
The internal module is fully encapsulated with a thermally conductive silicon potting compound with UL94V-0 flammability rating.

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5 – 100% condensing
Contact factory for higher rating

MTBF

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

Indicators

None

Control Input

None

Alarm Output

None

Package/Dimensions (L x W x H)

D1: 220 x 120 x 80 mm
(8.7" x 4.7" x 3.1")
D1 with baseplate:
267 x 120 x 84 mm
(10.5" x 4.7" x 3.3")

Weight

Approx: 3.2 kg; 7 lb

Connections

Internal barrier-type terminal block accessible via sealed cable glands. Optional connectors instead of cable glands

RoHS Compliance

Fully compliant

Warranty

Two years subject to application within good engineering practice.

The specifications on this data sheet are generic and are subject to change. Enhancements to these specifications can be provided upon request.

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