

250-300W, Encapsulated, Railway Quality DC/DC Converter

RWY 250H Series

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



This fully encapsulated, railway quality DC/DC converter uses our field-proven RWY 301 technology to generate the required output power. The use of the latest semiconductor technology enables lower component count than earlier generations. Comprehensive electronic protection, generous design headrooms and the use of components with established reliability ensure high MTBF. The unit 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. The unit meets the requirements of EN50155 for electronic equipment used on 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)
 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 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:

55kHz \pm 3kHz

Standard Output Voltages

Any single voltage from 12V to 110Vdc
 Output power is 250-300W depending on the input/output combination.
 Output is floating; either terminal can be grounded
 Consult factory for other voltages

Redundancy Diode

None
 Available on request

Line/Load Regulation

+/- 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

Efficiency

80 to 90% depending on input/output configuration

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

IEC 61373 Cat 1 A&B

Humidity

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

MTBF

170,000 hours @ 45 °C
 Demonstrated MTBF is significantly higher

Indicators

None
 Optional 'ON' LED available

Control Input

None

Alarm Output

None
 Available on request

Package/Dimensions (W x H x L)

P300H: 113 x 60 x 200 mm (4.5" x 2.4" x 7.9") including terminal block and flanges
 Mounting holes are clear

Weight

1.8 kg (4 lb)

Connections

9-pole barrier type terminal block
 3/8" spacing

RoHS Compliance

Fully compliant

Warranty

Two years subject to application within good engineering practice

Terminal Block Pin-out. Output current <20A

DC OUTPUT						DC INPUT		
+	Not used	Not used	-	Not used	Not used	GND $\frac{\perp}{\text{---}}$	+	-
1	2	3	4	5	6	7	8	9

Terminal Block Pin-out. Output current >20A

DC OUTPUT						DC INPUT		
+	+	+	-	Not used	Not used	GND $\frac{\perp}{\text{---}}$	+	-
1	2	3	4	5	6	7	8	9

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



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