

250-300W, Encapsulated, Railway Quality DC/DC Converter RWY 250H-P300H Series



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

This fully encapsulated, railway quality DC/DC converter uses 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 of this design. 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)
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

Designed to meet EN60950-1, 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:

55kHz ±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
Other voltages on request

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.
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

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

1.5 kg (3.3 lbs)

Connections

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

RoHS Compliance

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	+	-
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	+	-
1	2	3	4	5	6	7	8	9



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