

## 280W, Encapsulated, Railway Quality DC/DC Converter RWY 280H-P300H Series



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

This fully encapsulated, rugged, 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. 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:

40kHz  $\pm$ 3kHz

#### Standard Output Voltages

Any single voltage from 12V to 96Vdc  
Output is floating; either terminal can be grounded  
Consult factory for other voltages  
For higher outputs, see RWY 300H

#### Redundancy Diode

None  
Available on request

#### 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 non-hiccup type short-circuit protection  
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

160,000 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.

DC OUTPUT				DC INPUT				
+	+	-	-	NOT USED	NOT USED	GND	+	-
1	2	3	4	5	6	7	8	9



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