

# 200W, Dual-Output Encapsulated DC/DC Converter for Railway & other Heavy Duty Applications

## RWY 182 Series

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



The RWY 182 Series fully encapsulated, dual output, railway quality DC/DC converter uses field-proven topology to generate 200W output power. It employs forward topology on one output and push-pull topology on the other. Both outputs are individually regulated and current limited. This is a mature product with a track-record in numerous applications. The unit 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 heat-sinking surface. Low component count, large design headroom, 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, oilrigs, military and other harsh environments. The RWY 182 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 (29 – 67V)  
72Vdc (43 – 101V)  
96Vdc (58 – 135V)  
110Vdc (66 – 154V)  
Other inputs upon request

### Input Protection

Inrush current limiting.  
Reverse polarity protection  
Varistor.  
Internal safety fuse  
Lower voltage than specified  
input min. 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

80kHz  $\pm$ 5kHz. Push-pull  
130kHz  $\pm$ 5kHz forward.

### Output Voltage/Current

Two individually regulated outputs. Any single voltage on either output within the 5V to 72Vdc range is available. Max 100W or max 8A per output (whichever represents the limit) Outputs are floating; either terminal can be grounded

### Redundancy Diode

None

### 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 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 the main regulator loop for the main output. Transzorb installed across other output

### Efficiency

80 to 90% depending on input/output configuration

### Operating Temperature Range

-40 to +70°C cooling surface 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

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

### Indicators

None.  
Optional 'ON' LED available

### Control Input

None

### Alarm Output

None

### Package/Dimensions

P300: 114 x 54 x 201 mm (4.5" x 2.10" x 8") including terminal block and flanges. Mounting holes are clear

### Weight

1.5 kg (3.2 lbs)

### Connections

Barrier-type terminal block with 3/8" spacing. Cover provided

### RoHS Compliance

According to requirements

### 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.



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