

200W, Dual-Output Encapsulated DC/DC Converter for Railway & other Heavy Duty Applications RWY 182-P300H Series

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



This fully encapsulated, dual output, railway quality DC/DC converter uses field-proven topology to generate the required 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 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. 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

Designed to meet 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. 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

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
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

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

Indicators

None.
Optional 'ON' LED available

Control Input

None

Alarm Output

None

Package/Dimensions

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

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

RoHS Compliance

Compliant

Warranty

Two years subject to application within good engineering practice.



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