

400W, Encapsulated DC/DC Converter for Railway and other Heavy Duty Applications

RWY 400 Series

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



The RWY 400 Series fully encapsulated, railway quality DC/DC converter uses a field-proven design to generate 400W output power. It is a mature product with a track-record in numerous applications. This converter 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 400 is manufactured at our plant under strict quality control. Customized versions are also available.

SPECIFICATIONS

Standard Input Voltages

48Vdc (29 - 67V)
72Vdc (43 - 101V)
96Vdc (58 - 135V)
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

12Vdc/33A, 24Vdc/16A,
36Vdc/11A or 48Vdc/8A
Consult factory for other voltages
Outputs are floating; either terminal can be grounded

Redundancy Diode

Not installed on standard version

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 (not hiccup)
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 +70oC cold plate temperature for full specifications

Temperature Drift

0.03% per °C over operating temperature range

Cooling

Conduction cooling via base plate to customer cold plate

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 oC
Demonstrated MTBF is significantly higher

Indicators

None.
Optional 'Output ON' LED Available

Control Input

None

Alarm Output

None. Available as option

Package/Dimensions (W x H x L)

P400: 131 x 76 x 232 mm (5.2" x 3" x 9.2") including terminal block and flanges
Mounting holes are clear

Weight

2.2 kg (4.85 lbs)

Connections

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

RoHS Compliance

Fully compliant

Warranty

Two years subject to application within good engineering practice

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



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