

400W, Encapsulated DC/DC Converter for Railway and other Heavy Duty Applications RWY 400-P400 Series



- EN50155 input ranges
- For train and mobile applications
- Full encapsulation
- Wide temperature range
- Rugged, field-proven design
- Full electronic protection

This fully encapsulated, railway quality DC/DC converter uses a field-proven coupled inductor technology to generate the required output power. It is a mature product with a track-record in numerous applications. The unit meets the requirements of EN50155 for electronic equipment used on rolling stock. This unit meets the requirements of EN50155 for electronic equipment used on rolling stock. It is entirely potted with a thermally conductive MIL-grade silicon rubber compound to ensure immunity to high levels of shock, vibration and humidity. Cooling is by conduction 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 is also suitable for transportation, mining, oilrigs, military and other harsh environments. It 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)
Consult factory for other voltages and ranges

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 \pm 3kHz

Standard Output Voltages

12Vdc/33A, 24Vdc/16A,
36Vdc/11A or 48Vdc/8A
Output is floating, either terminal can be grounded.
Consult factory for other outputs

Redundancy Diode

None installed
Available as option

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 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 specification

Temperature Drift

0.03% per °C over operating temperature range

Cooling

Conduction cooling via base plate to customer heat-sink or chassis

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 'Output ON' LED available

Control Input

None

Alarm Output

None. Available as option

Package/Dimensions (W x H x L)

P400: 131 x 66 x 232 mm (5.2" x 2.6" 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

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.

Designer and manufacturer of quality ac-dc power supplies and battery chargers, converters, inverters, dc-output UPS systems, complete rack mount systems and DC-input fluorescent lamp inverters since 1982. Custom or standard. Absopulse is a BABT-approved Facility.



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