

250 - 300W, Dual-Output Encapsulated DC/DC Converter for Railway & other Heavy Duty Applications

RWY 302H-P300H Series



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

This fully encapsulated, dual output railway quality DC/DC converter uses a field-proven RWY 302 design to generate the required output power. The design is based on the field-proven RWY 300 series topology, which has a track record in numerous applications. The unit has two isolated output circuits, each providing up to 150W output power. V1 output is fully regulated and V2 is a tracking output. The unit is entirely potted with a thermally conductive MIL-grade silicon rubber compound to ensure immunity to 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 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 converter 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)
 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

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 main

Output Voltage/Current

V1: 12V, 24V, 48V main
 V2: 12V, 24V, 48V tracking.
 Each output is limited by a 15A maximum current handling capacity or a power capacity of 150W.
 V1 must maintain a minimum of 15W output for V2 tracking output to remain functional.
 Both outputs are floating and isolated from each other.
 Either terminal can be grounded.
 Other voltages are available on request

Redundancy Diode

None

Line/Load Regulation

\pm 1% combined from zero load to full load

Dynamic Response

Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time

Output Ripple/Noise

Less than 0.2% RMS or 1% of the output voltage peak-to-peak (20MHz BW)

Output Overload Protection

Rectangular current limiting with short-circuit protection (hiccup)
 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
 Transorb 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
 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
 LED module for installation on the terminal block is 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
 The case has clear alodine finish according to MIL-C-5541E Class 3
 Mounting holes are clear

Weight

1.5 kg (3.3 lb)

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 | |
|-----------|---|----|---|----------|-----|----------|----------|---|
| V2 | | V1 | | NOT USED | GND | NOT USED | + | - |
| + | - | + | - | 5 | 6 | 7 | 8 | 9 |
| 1 | 2 | 3 | 4 | | | | | |

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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