250 - 300W, Rugged Dual output DC/DC Converter for Railway and other Heavy Duty Applications
RWY 282H Series

- Rugged, field-proven design
- Two fully independent, regulated outputs
- Full encapsulation
- Wide temperature range
- Full electronic protection
- EN50155 input ranges

This fully encapsulated, dual output, railway quality DC/DC converter uses our field-proven RWY 282 high efficiency power conversion topology to generate up to 300W output power. The unit has two fully independent, regulated isolated output stages, each providing any single output voltage between 5V to 72Vdc. Each output is limited by a 12A maximum current handling capacity or a power capacity of 150W. It is entirely potted with a thermally conductive MIL-grade silicon rubber compound to ensure immunity to shock, vibration and humidity. The unit 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. It meets the requirements of EN50155 for electronic equipment used on rolling stock. The unit is also suitable for transportation, mining, military, marine and other harsh environments. The series is manufactured at our plant under strict quality control. Customized versions are also available.

SPECIFICATIONS

Standard Input Voltages
24Vdc (17-34V)
36Vdc (22 – 51V)
48Vdc (29 - 67V)
72Vdc (43 – 101V)
96Vdc (58 – 135V)
110Vdc (66 - 154V)
Other voltages and ranges available on 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
1000Vdc output to output

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
80kHz ±5kHz

Standard Output Voltage/Current
V1: 5V, 12V, 24V, 48V or 72V
V2: 5V, 12V, 24V, 48V or 72V
Each output is limited by a 12A maximum current handling capacity or a power capacity of 150W.
Both outputs are individually regulated, floating and either terminal can be grounded.
Returns are separated.

Redundancy Diode
Not installed
Available on request

Line/Load Regulation
± 1.5% 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 0.2% RMS or 1% of the output voltage peak-to-peak (20MHz BW)

Output Overload Protection
Rectangular current limiting with hiccup type short-circuit protection

Output Overvoltage Protection
Transzorb installed across each 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
140,000 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
The case has clear alodyne 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 with 3/8" spacing

RoHS Compliance
Compliant

Warranty
Two years subject to application within good engineering practice.

Terminal Block pin-out

V1 OUTPUT		V2 OUTPUT					INPUT	
+	–	+	–	GND ⏚	GND ⏚	NOT USED	+	–
1	2	3	4	5	6	7	8	9

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