

100VA, IP66-Rated, Rugged, Railway Quality DC-AC Sine Wave Inverter

RSI 100-D1 Series (IP66)



- Packaged in waterproof IP66 enclosure
- EN50155 input ranges
- For train and mobile applications
- Internal module ruggedized and conformal coated
- Rugged, field-proven design
- Full electronic protection

This railway quality DC-AC inverter utilizes field proven, microprocessor controlled high frequency PWM technology to generate the required output power, with pure sine wave output voltage. The units are packaged in waterproof, robust die cast aluminum IP66 enclosures. The input and output are via sealed cable glands, circular connectors or custom connections. The internal module is ruggedized and conformal coated for increased immunity to high levels of shock and vibration. Cooling is by internal conduction to the walls of the IP66 enclosure with additional convection via the outside surface. If installed on a heat-sinking surface, cooling is further enhanced and the converters achieve higher output power. The high frequency conversion enables a compact construction, low weight and high efficiency. The input and output are filtered for low noise. Full electronic protection, low component count, large design headroom, and the 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 available. An industrial version suitable for other transportation, mining, marine, oilrigs, military and other harsh environments is also available.

SPECIFICATIONS

Input Voltage

24Vdc (17-34V)
 48Vdc (33 – 67V)
 72Vdc (50 – 101V)
 96Vdc (67 – 135V)
 110Vdc (77 – 154V)
 Consult factory for other input voltages and ranges

Input Protection

Inrush current limiting
 Varistor
 Reverse polarity protection
 Internal safety fuse
 Lower voltage than the specified minimum input will not damage the unit

Isolation

1500Vdc input to chassis
 3000Vdc input to output
 1500 output to chassis

Standards

Designed to meet
 C22.2 No. 107.1 - 01, UL 458,
 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

Output Voltage

115Vac @60Hz or 400Hz/0.86Arms continuous; or
 230Vac @ 50Hz/0.43Arms continuous
 Isolated floating output
 Consult factory for other output requirements

Output Wave Form

Sinusoidal

Total Harmonic Distortion

Less than 5% at full load

Line/Load Regulation

± 3% from no load to full load.

Load Crest Factor

2 at 90% load

Output Noise

High frequency ripple is less than 500mVrms (20MHz BW)

Output Overload Protection

Current limiting with short circuit protection
 Thermal shutdown with automatic recovery in case of insufficient cooling

Output Overvoltage Protection

140Vac (for 115Vac output) or 280Vac (for 230Vac output) by internal supply voltage limiting

Efficiency

Typically 80% at full load
 Dependent on input/output combination

Operating Temperature

-25 to +55°C temperature for full specification
 Contact factory for extended temperature range

Temperature Drift

0.05% per °C over operating temperature range

Cooling

Conduction to customer heat-sink or chassis and by additional natural convection via the surface of the IP66 enclosure

Environmental Protection

IP66 enclosure
 Internal module: Ruggedized and conformal coated
 Potting of the internal module is also available

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5-100% condensing

MTBF

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

Indicators

None

Control Input

None

Alarm Output

Not installed
 Optional output Fail Alarm

Package/Dimensions (L x W x H)

D1: 220 x 120 x 80 mm
 8.7" x 4.7" x 3.1"
 D1 with baseplate:
 267 x 117 x 4 mm
 10.5" x 4.6" x 0.6"

Weight

Approx. 2.4 kg; 5.3 lb

Connections

Internal barrier-type terminal block accessible via sealed cable glands.
 Optional connectors instead of cable glands

RoHS Compliance

Compliant

Warranty

Two years subject to application within good engineering practice

Terminal Block Pin-out (Internal)

9	8	7	6	5	4	3	2	1
-	+	GND	NOT USED	NOT USED	NOT USED	L2	L1	NOT USED
DC INPUT						AC OUTPUT		

The specifications on this data sheet are generic and are subject to change. Enhancements to these specifications can be provided upon request.

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