

1000VA Railway Quality DC-AC Sine Wave Inverter with Encapsulated Internal Modules, Low Profile RSI 1KP-F31 Series

- Sinusoidal wave shape
- Field-proven rugged design
- Fully encapsulated internal modules
- Cooling by conduction and natural convection
- Low profile, compact size
- Full electronic protection



This rugged, railway quality DC-AC inverter series uses field-proven, microprocessor controlled high frequency PWM technology to generate the required output power with pure sine wave output voltage. The units meet the requirements of EN50155 for electronic equipment used on railway rolling stock. The design is based on a mature design topology with a track record in numerous applications. The DC-DC input stage boosts the input voltage to a higher DC voltage, which feeds the DC-AC inverter to generate the required AC output. The use of high frequency conversion enables a compact construction, low weight and high efficiency. The input and output are filtered for low noise. It is built with internal power modules that are 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 baseplate to a cold plate surface and by natural convection. All heat generating components are installed on aluminum heatsink blocks which are thermally connected to the base plate. This also ensures exceptional mechanical ruggedness. Conformal coating provides protection against humidity and airborne contaminants. Full electronic protection, low component count, large design headroom, and the exclusive use of components with established reliability contribute to a high MTBF. All ABSOPULSE products are manufactured at our plant under strict quality control. Industrial quality versions of this design are also available.

SPECIFICATIONS

Input Voltage

24Vdc (17 – 34V)
36Vdc (25 – 51V)
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
Output neutral is connected to the chassis internally.

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/8.7Arms continuous at 60Hz or 400Hz; or
230Vac/4.3Arms continuous at 50Hz
Output neutral is connected to the chassis internally.

Isolated floating output available on request

Output Wave Form

Sinusoidal

Total Harmonic Distortion

Less than 5% at full load

Line Regulation

Maximum 0.5%

Load Regulation

Maximum $\pm 6\%$ from no load to full load.
A $\pm 2\%$ load regulation option is available.

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 cold-plate temperature for full specification

Temperature Drift

0.05% per °C over operating temperature range

Cooling

Conduction to customer heatsink or chassis and natural convection

Environmental Protection

Fully encapsulated internal modules

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5 - 95% non-condensing

MTBF

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

Indicators

None

Control Input

None
Optional remote shut down

Alarm Output

None on standard version
Optional output Fail Alarm (Form C)

Dimensions

F31: 483 x 68 x 356 mm
19" x 2.7" x 14" including terminals and mounting flanges

Weight

12.5 kg (28 lb)

Connections

Input: terminal block or threaded studs
Output: compression-type terminal block

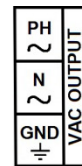
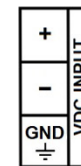
RoHS Compliance

Compliant

Warranty

Two years subject to application within good engineering practice

Terminal Block Pin Out



Please note that ABSOPULSE inverters are designed and built to customer specifications. The specifications on this data sheet are generic and will vary depending on input/output configuration and other customer requirements. Generic specifications are subject to change.

Designer and manufacturer of quality converters, inverters, 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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