

# 1000VA Low-profile Sine Wave Inverter for Railway Applications

## RSI 1KP-FT Series

- Field-proven rugged design
- Fully encapsulated internal modules
- Low profile, compact size
- Sinusoidal wave shape
- Full electronic protection



This rugged DC/AC inverter uses field proven, microprocessor controlled high frequency PWM technology to generate the required output power with pure sine wave output voltage. It is a mature design 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 high frequency conversion enables a compact construction, low weight and high efficiency. The unit has full electronic protection. 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 via baseplate to a cold plate surface and by additional natural convection. The use of components with established reliability results in high MTBF. The unit meets the requirements of EN 50155 for electronic equipment used on railway rolling stock. It is manufactured at our plant under strict quality control. Customized versions are available.

### SPECIFICATIONS

#### Input Voltage

24Vdc (14.4 – 34V)  
 36Vdc (22 – 51V)  
 48Vdc (28 – 67V)  
 72Vdc (43 – 101V)  
 96Vdc (58 – 135V)  
 110Vdc (66 – 154V)  
 Consult factory for other inputs

#### 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

#### Standards

Designed to meet  
 C22.2 No. 107.1 - 01, UL 458,  
 EN60950 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

EN55022 Class B and  
 EN50121-3-2 conducted and radiated

#### Output Voltage

115Vac @ 60Hz or  
 400Hz/8.7A rms continuous;  
 or 230Vac @ 50Hz/4.3A rms continuous.  
 Output neutral is connected to the chassis internally.  
 Isolated floating output optional  
 Consult factory for other output requirements

#### 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

Maximum 2.5 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

#### Temperature Drift

0.05% per °C over operating temperature range

#### Cooling

Conduction via base plate to customer cold plate

#### 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

F 31: 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

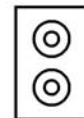
#### RoHS Compliance

Fully compliant

#### Warranty

Two years subject to application within good engineering practice

#### Terminal Block Pin Out



Studs for  $\leq 36V$  input

Enhancements to these general specifications and customizing can be accommodated upon request. 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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