

750Vdc Input, Rugged 400W DC/DC Converter for Railway and other Heavy-duty Applications HVI 400R Series

- Field-proven rugged design
- For train and mobile applications
- Single regulated and adjustable output
- Conduction/convection cooled (no fans)
- Full electronic protection
- Wide input ranges (EN 50155)
- N+1 redundancy available



This rugged, railway quality DC/DC converter uses field-proven technology to generate the required output power. It is a mature design with a track record in numerous applications. The unit accepts input voltage of 750Vdc (525V – 975Vdc range), the traction voltage typically required for mass transit vehicles (trams, light rail, metros), mining locomotives and other harsh environments. It meets the requirements of EN 50155 for electronic equipment used on railway rolling stock. An optional built-in redundancy diode allows for a number of units to be connected in parallel to achieve higher output power or N+1 redundancy. The output separation diode also makes the unit suitable for battery charging applications. To ensure high reliability and long operating life, all critical components on the primary side are designed and tested for corona inception levels that are significantly higher than the operating voltages. The unit is cooled by natural air convection and requires no fans. It has full electronic protection. Low component count, large design headroom, and the use of components with established reliability result in high MTBF. The unit is manufactured at our plant under strict quality control.

SPECIFICATIONS

<p>Input Voltage 750Vdc 525V – 975V range Input current: 1.2A max.</p> <p>Input Protection Inrush current limiting Varistors Reverse polarity protection Internal safety fuse Lower voltage than the specified minimum input will not damage the unit</p> <p>Isolation 3000Vdc input to chassis on each unit 3000Vdc input to output on each unit 5600Vdc type test 500Vdc output to chassis</p> <p>Standards Designed to meet EN 60950 and EN 50155</p> <p>Immunity Meets criteria of EN 50155 and EN 50121-3-2, including: EN 61000-4-2 (ESD) EN 61000-4-3 (RF Immunity) EN 61000-4-4 (Fast Transients) EN 50155 (Surge) EN 61000-4-6 (Conducted Imm.) EN 50155 (Voltage Variations)</p> <p>EMI EN55022 Class B and EN50121-3-2 conducted and radiated</p>	<p>Switching Frequency 55kHz +/- 3kHz</p> <hr/> <p>Output Voltage/Current 24V, 36V or 48Vdc Output is floating; either terminal can be grounded Other outputs on request</p> <p>Redundancy Diode None. Available as option.</p> <p>Line/Load Regulation +/-1.5% combined from zero load to full load</p> <p>Dynamic Response Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time</p> <p>Output Ripple/Noise Better than 0.2% rms or 1% pp (@ 20MHz BW)</p> <p>Output Overload Protection Rectangular current limiting with short-circuit protection (no hiccup) Thermal shutdown in case of insufficient airflow (self-resetting)</p> <p>Output Overvoltage Protection Second regulator loop, completely stable and independent of main regulator loop</p>	<p>Efficiency Typically 80% at full load</p> <p>Operating Temperature Range -25°C to 55°C for full specification with proper airflow</p> <p>Temperature Drift 0.03% per °C over operating temperature range</p> <p>Cooling Convection and conduction via base plate</p> <p>Environmental Protection Ruggedizing Conformal coating</p> <p>Shock/Vibration IEC 61373 Cat 1 A&B</p> <p>Humidity 5 – 95% non-condensing</p> <p>MTBF 150,000 hours at 45 °C Demonstrated MTBF is significantly higher.</p>	<p>Indicators None.</p> <p>Control Input None</p> <p>Alarm Outputs None. Available as option</p> <p>Dimensions (W x H x D) FX: 153 x 67 x 357 mm (6" x 2.7" x 14.1") including mounting flanges and terminals</p> <p>Weight 2.2 kg (4.9 lb)</p> <p>Connections 12-pole barrier type terminal block with 3/8" spacing</p> <p>RoHS Compliance Fully compliant</p> <p>Warranty Two years subject to application within good engineering practice</p>
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Enhancements to these general specifications can be accommodated upon request. Designed to meet common approval requirements

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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