

## RIA12, 60W Rugged Railway Quality DC-DC Converter DCR 60R-F0

- RIA12 withstand capacity
- EN50155 input range
- Field-proven rugged design concept
- For train and mobile applications
- Conduction/convection cooled – no fan
- Full electronic protection



This rugged, railway quality DC-DC converter utilizes field proven MIW 100 topology to generate the required output power. The unit meets the requirements of EN50155 for electronic equipment used on railway rolling stock. The input voltage range ensures that the unit can withstand RIA12 surges (3.5Vn for 20msec). Cooling is by conduction via baseplate. Additional cooling is achieved by natural convection through the cooling slots. All heat generating components are installed on aluminum heatsink blocks which are thermally connected to the base plate. This also provides 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.

### SPECIFICATIONS

<p><b>Input Voltage</b> 24Vdc (15-34V) 48Vdc (29-67V) 72Vdc (43-101V) 96Vdc (58-135V) 110Vdc (66-154Vdc) RIA12 surges (3.5Vn for 20msec). Other input voltages upon request</p> <p><b>Input Protection</b> Inrush current limiting Varistor Reverse polarity protection Internal safety fuse Lower voltage than the specified minimum input will not damage the unit</p> <p><b>Isolation</b> 1500Vdc input to chassis 3000Vdc input to output 1500Vdc output to chassis</p> <p><b>Standards</b> Designed to meet EN60950-1, EN50155 and RIA 12</p> <p><b>Immunity</b> Meets criteria as requested in EN50155 and EN50121-3-2 according to: 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 Immunity) EN 50155 (Voltage Variations) Surpasses requirement for RIA 12 with very large time margins</p> <p><b>EMI</b> EN50121-3-2</p>	<p><b>Switching Frequency</b> 47kHz <math>\pm</math>3kHz</p> <hr/> <p><b>Output Voltage/Current</b> 12V <math>\pm</math>0.2V/5A 24V <math>\pm</math>0.2V/2.5A 48V <math>\pm</math>0.2V/1.25A Output is floating, either terminal can be grounded Consult factory for other voltages and higher power rating</p> <p><b>Redundancy diode</b> None</p> <p><b>Line/Load Regulation</b> <math>\pm</math>1% combined from no load to full load.</p> <p><b>Dynamic Response</b> Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time</p> <p><b>Output Ripple/Noise</b> Better than 1% of output voltage peak to peak or 0.2% RMS of the output voltage (20MHZ BW)</p> <p><b>Overload Protection</b> Rectangular current limiting with hiccup-type short-circuit protection Current Limit set to: 4.5A <math>\pm</math> 0.4A</p> <p><b>Output Overvoltage Protection</b> Double regulator loop and transzorb across the output</p>	<p><b>Efficiency</b> 85% typical at full load</p> <p><b>Operating Temperature</b> -25 °C to +55 °C cold plate temperature for full specification</p> <p><b>Temperature Drift</b> 0.03% per °C over operating temperature range</p> <p><b>Cooling</b> Conduction via base plate to customer heat-sink or chassis and natural convection</p> <p><b>Environmental Protection</b> Ruggedizing Conformal coating Heavy ruggedizing available on request</p> <p><b>Shock/Vibration</b> IEC 61373 Cat 1 A&amp;B</p> <p><b>Humidity</b> 95% non-condensing</p> <p><b>MTBF</b> Min. 150,000 hours @45°C Demonstrated MTBF is significantly higher</p>	<p><b>Indicators</b> None</p> <p><b>Control Input</b> None</p> <p><b>Alarm Output</b> None</p> <p><b>Package/Dimensions (W x H x L)</b> F0: 94 x 48 x 160 mm (3.7" x 1.9" x 6.3") including terminal block and flanges Mounting holes are clear.</p> <p><b>Weight</b> 0.55 kg (1.2 lbs)</p> <p><b>Connections</b> 6-pole barrier-type terminal block, 3/8" spacing Snap-on cover included.</p> <p><b>RoHS</b> Compliant</p> <p><b>Warranty</b> Two years subject to application within good engineering practice</p>
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**Standard Terminal Block Pin-Out**

OUTPUT			INPUT		
-	+	NOT USED	GND	+	-
1	2	3	4	5	6

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

*OEM of industrial and railway AC/DC power supplies and battery chargers, DC/DC converters, DC-AC sine-wave inverters, phase & frequency converters, DC-output UPS systems and complete power systems in 19" and 23" racks since 1982. Custom & standard. ABSOPULSE is a BAPT-approved facility*



**ABSOPULSE ELECTRONICS LTD**

110 Walgreen Road, Ottawa, Ontario. K0A 1L0. CANADA

Tel: +1-613-836-3511 | Fax: +1-613-836-7488

E-mail: [absopulse@absopulse.com](mailto:absopulse@absopulse.com) | <http://www.absopulse.com>