RIPEENERGY
The Power Conversion Company

DCCrail150 RAILWAY DC/DC CONVERTER

SERIES DCCrail150

This fully encapsulated, railway quality power converter utilizes field-proven technology to generate the required output power.

It is a mature design with a track record in numerous applications.

The unit is entirely potted with a thermally conductive MIL-grade silicon rubber compound which provides protection from moisture and other contaminants, as well as immunity to shock and vibration.

Cooling is by conduction via a base plate to a heatsinking surface.

Full electronic protection, low component count, large design headroom and the exclusive 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 also available.

HF — High frequency technology

Light weight, compact size

Full electronic protection

Extended temperature range

Conduction Cooling (no Fan)

APPLICATIONS

- Railway Applications
- Transportation
- Mining
- Oil Rigs
- Military Applications
- Marine / Automotive / RV
- Electric Utilities and Substations
- Telecom Power Plants
- Manufacturing Locations
- Steel Mills
- Industrial Controls
- OEM Applications

FEATURES

- Field-proven rugged design
- Full encapsulation
- Conduction cooled, no fan
- Wide temperature range
- Compact size
- Designed for rolling applications according to EN50155
- Full electronic protection
- Wide input range
- 150W output power

SPECIFICATIONS

Input Voltage	24Vdc (14.4-34V) 36Vdc (22-51V) 48Vdc (29-67V) 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 1500Vdc output to chassis
Switching Frequency	80kHz ± 5kHz
Output Voltage	5V, 12V, 24V, 36V, 48V or 110V Outputs is floating; either terminal can be grounded Consult factory for other voltages
Redundancy Diode	None
Load/Line Regulation	±1% combined from zero load to full load
Dynamic Response	Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time
Output Ripple Noise	Less than 1% peak-to-peak or 0.2% RMS of the output voltage (20MHz BW)
Efficiency	80 to 90% depending on input/ output configuration
Output Overload Protection	Rectangular current limiting with short-circuit protection (hiccup type) Thermal shutdown with automatic recovery in case of insufficient cooling
Output Overvoltage Protection	Second regulator loop completely stable and independent of main regulator loop
Standards	Designed to meet EN60950-1, EN 62368-1, CE, EN50155 and related standards
EMI	EN50121-3-2

Immunity	Meets criteria of EN50155 and EN50121-3-2 according to the following standards: EN61000-4-2 (ESD) EN61000-4-3 (RF Immunity) EN61000-4-4 (Fast Transients) EN50155 (Surge) EN61000-4-6 (Conducted Imm.) EN50155 (Voltage Variations)
Operating Temperature	-40 to +70° C cold-plate temperature for full specification
Humidity	5 - 95% non-condensing
Temperature Drift	0.03% per ° C over operating temperature range
Cooling	Conduction cooling via base plate to customer heat-sink or chassis
Environmental Protection	Full encapsulation with thermally conductive silicon potting compound with UL94V-0 flammability rating Meets environmental criteria as requested in MIL-810 C, D
Shock/Vibration	IEC 61373 Cat 1 A&B
Dimensions	P150: 69 x 61 x 180 mm Includes terminal block and flanges The case has clear alodyne finish according to MIL-C-5541E Class 3 Mounting holes are clear
Weight	0.8 Kg
Connections	5-pole barrier-type terminal block with 3/8" spacing Cover can be provided upon request
MTBF	150,000 hours at 45°C Demonstrated MTBF is significantly higher
Indicators	None Optional ON LED adapter available
Control Input	None
Alarm output	None
RoHS Compliance	Fully compliant
Warranty	2 years

Terminal Block Pin-out

OUTPUT		GND	INPUT	
+	-	⏚	+	-
1	2	3	4	5

RIPENERGY
The Power Conversion Company

RIPEnergy AG
Wägitalstrasse 24
CH-8854 Siebnen
Switzerland

Phone +41 43 818 53 85
www.ripenergy.ch