

DCCrail3000 Series DC/DC Voltage Converter



Benefits

- Ultra-Quiet
- Power sensitive electronics without interference
- Rugged & Reliable
- Ensure years of safe and trouble free operation

Applications

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

DC/DC Converters

DCCrail3000 Series (isolated)

Description

This rugged, railway quality DC/DC converter system utilizes field-proven technology to generate up to 3000W output power. It is designed to meet EN50155 for electronic equipment used on railway rolling stock. The converter is built with three internal power modules operating parallel via redundancy diodes.

This modular construction provides inherent redundancy; the failure of one internal module would cause a 33% drop in output power while the unit remains functional at 2000W. The converter can therefore also be used as a 2000W redundant power supply. The redundancy diodes also allow the connection of several units parallel.

Built-in fans provide sufficient airflow for operation without de-rating to the specified temperature. The fans draw air into the unit and the exhaust exits at the rear of the unit. All heat generating components are installed on aluminum heatsink blocks which are thermally connected to the internal heatsink plate.

This also ensures exceptional mechanical ruggedness. Conformal coating provides protection against humidity and airborne contaminants. Full electronic protection, low component count, large design headrooms, and the use of components with established reliability result in a high MTBF.

The series is manufactured at our plant under strict quality control. An industrial quality version of this design is also available.

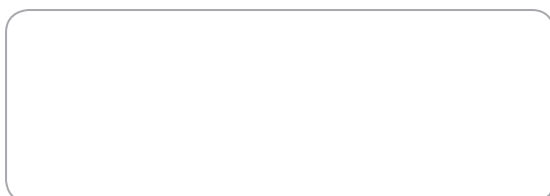
Features

- 1200VDC peak input
- Wide input range (EN50155)
- 3000W output power
- Rugged construction
- Single output
- Full electronic protection
- Field-proven design
- 2 years parts and labour warranty

Specifications (Specifications Subject to Change Without Notice)

Input Voltage range	750Vdc nominal 525V-975Vdc operating range 1200Vdc peak
Input Protection	Inrush current limiting Reverse polarity protection Varistor Internal safety fuse Lower voltage than specified minimum input will not damage unit
Isolation	300Vdc input to chassis 4300Vdc input to output 5600Vdc type test 1000V/1500Vdc output to chassis
Output Voltages	24V, 36V, 48V or 110Vdc Output is floating; either terminal can be grounded Other outputs on request
Switching Frequency	55kHz \pm 3kHz
Redundancy Diode	Installed internally for separation of the internal modules
Line / Load Regulation	+/- 1.5% combined from zero load to full load
Dynamic Response	Max 5% voltage deviation for 10% to 50% load step, with better than 1ms recovery time
Output Overvoltage Protection	Second regulator loop completely stable and independent of main regulator loop
Overload Protection	Rectangular current limiting with short-circuit protection Thermal shutdown with automatic reset in case of insufficient cooling (self-resetting)
Efficiency	Typically better than 84% at full load
EMI	EN50121-3-2
Output Ripple/Noise	Better than 0.2% rms or 1% pp (@ 20MHz BW)
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)
MTBF	110,000 hours @45°C (fans excluded) Demonstrated MTBF is significantly higher.
Indicators	Green "Output ON" LED on each internal power module, visible through the cooling slots
Control Input	None (available as option)
Alarm Output	Module fail alarm. Form C contact
Environmental Protection	Ruggedizing, Conformal coating
Shock/Vibration	IEC 61373 Cat 1 A&B
Humidity	5 – 95% non-condensing
Operating Temperature	-25°C to 55°C for full specification without derating Extended temperature ranges available
Temperature Drift	0.03% per °C over operating temperature range
Cooling	Forced air by two high quality built-in fans. Fans draw air into the unit
Connections	Input: HV terminal block assembly Output: Terminal block or threaded studs according to output current
Dimensions	3U4: 132 x 244 x 407 mm including connectors, excluding flanges 19" rack mounted version also available
Weight	8 Kg
Safety	Designed to meet EN61010-1 and EN50155
RoHS Compliance	Fully compliant
Warranty	2 years

Available from:



RIPEnergy®

The power conversion company

RIPEnergy AG
Wägitalstrasse 24
CH-8854 Siebnen
Switzerland

Ph +41-(0)43-818 53 85
Fax +41-(0)43-818 53 87
www.ripenergy.ch