



## SDCCrail50 RAILWAY DC/DC CONVERTER

### SERIES SDCCrail50

This rugged, railway quality DC-DC converter is designed for an operating life up to 30 years. By eliminating optocouplers in the feedback loop and significantly reducing the component count, the MTBF of the unit is improved over conventional designs.

The use of the latest silicon carbide (SiC) semiconductor technology contributes to high conversion efficiency, high power density and a significantly smaller size than similar designs.

Cooling is by conduction via baseplate. The internal board is conformal coated for immunity to humidity and contamination. The construction is robust and withstands high levels of shock and vibration.

The input and output are filtered for low noise. Full electronic protection eliminates failure due to abnormal operating conditions, including application errors.

Large design headroom and the use of components with established reliability also contribute to the long operating life of the unit.

The converter 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 also available.



High frequency technology



Light weight, compact size



Full electronic protection



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

- No optocouplers, low component count
- High reliability
- Rugged, railway and industrial quality
- Excellent EMI performance
- High input/output isolation
- Conduction/convection cooled
- Compact size
- Designed for rolling applications according to EN50155
- Full electronic protection
- Wide input range (EN 50155)
- 50W output power

# SPECIFICATIONS

Input Voltage	750Vdc 525V – 975V range 1300V surge Input Current: 0.12A max Other input range on request
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	3000Vdc input to chassis 5000Vdc input to output 5600Vdc type test 1000Vdc output to chassis
Switching Frequency	47kHz $\pm$ 5kHz
Output Voltage	24Vdc/2A Output is floating; either terminal can be grounded Other outputs on request
Redundancy Diode	None Available as option
Load/Line Regulation	$\pm$ 2% 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	Better than 60mv rms or 300mVpp (@ 20MHz BW)
Efficiency	Typically 85% at full load
Output Overload Protection	Rectangular current limiting with short-circuit protection (hiccup type)
Output Overvoltage Protection	Transorb across the output
Standards	EN60950-1, EN50155 and related standards
EMI	EN50121-3-2 and EN 55032 Class A

Immunity	Meets criteria of EN50155, 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)
Operating Temperature	-25°C to 55°C for full specification with proper airflow
Humidity	5 - 95% non-condensing
Temperature Drift	0.03% per °C over operating temperature range
Cooling	Conduction to customer heatsink or chassis and natural convection
Environmental Protection	Basic ruggedizing Conformal coating Heavy ruggedizing available on request
Shock/Vibration	IEC 61373 Cat 1 A&B
Dimensions	F1: 114 x 51 x 201 mm including terminal block and flanges. Mounting holes are clear
Weight	0.8 Kg
Connections	Input/Output: Phoenix terminal FRONT 2.5-H/SA5
MTBF	160,000 hours at 45°C Demonstrated MTBF is significantly higher.
Indicators	Green "Output ON" LED visible through cooling slots
Control Input	None
Alarm output	None
RoHS Compliance	Compliant
Warranty	2 years

