



DCR500 RAILWAY DC/DC CONVERTER

SERIES DCR500

The DCR500 series consists of DC-DC converters with a galvanic isolation between input and output. The converters operate at a fixed switching frequency and use push-pull converter topology.

For maximum regulation, the remote sensing terminals can be connected to the load. This will allow a power cable voltage drop of up to 0.3 V on each cable to be offset.

The device is protected against overloads and short-circuits by means of a current limiting circuit.

The device is also protected against reverse polarity input voltage, and the input fuse blows if an improper connection is made.

When a converter input undervoltage condition occurs, the converter is disabled, thus preventing the battery from becoming totally discharged.

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

- Designed according to EN50155
- Fire and smoke: EN45545-2 approved
- High input-output isolation
- Adjustable output voltage
- Remote sensing
- Remote inhibit
- Input & Output OK LEDs
- Output failure alarm
- Protection against overloads and short-circuits
- Protection against input undervoltage
- Option: Oring FET



High frequency technology



Light weight, compact size



Full electronic protection



Extended temperature range



Convection Cooling (no Fan)



Remote inhibit



Output fail alarm (Form B)

SPECIFICATIONS

	24Vin 14,4V ... 30V 16,8V ... 30V ⁽¹⁾	36Vin 21,6V ... 45V 25,2V ... 45V ⁽¹⁾	48Vin 28,8V ... 60V 33,6V ... 60V ⁽¹⁾	72Vin 43,2V ... 90V 50,4V ... 90V ⁽¹⁾	110Vin 66V ... 144V 77V ... 144V ⁽¹⁾
24Vout	DCR500-24-24 500W 88%	DCR500-36-24 500W 88%	DCR500-48-24 500W 91%	DCR500-72-24 500W 91%	DCR500-110-24 500W 91%
48Vout	DCR500-24-48 500W 89%	DCR500-36-48 500W 89%	DCR500-48-48 500W 91%	DCR500-72-48 500W 91%	DCR500-110-48 500W 92%
110Vout	DCR500-24-110 500W 90%	-	-	-	-

Input	
Input voltage range	See table
Maximum input ripple	5% Vrms, 15% Vpp
Typical efficiency at full load	See table
Output	
Output voltage range	
V _{imin} >60% V _i nom	-10% ... +0% V _o nom
V _{imin} >70% V _i nom ⁽¹⁾	-10% ... +15% V _o nom ⁽¹⁾
Line regulation (I _o = nom)	<0.2%
Load regulation (V _{in} = nom)	<0.2%, 2.5 % for ORing FET option
Ripple	< 50 mVpp (< 100mV for 72 / 110 Vout)
Noise (BW = 20MHz)	< 100 mVpp (< 500mV for 72 / 110 Vout)
Maximum remote sensing	0,3V / pole
Max. overvoltage protection	< 140% Vout nom
Environmental	
Storage temperature	-40°C ... 85°C
Operating temperature full load	-25°C ... 55°C (-40°C ... 55°C, see note-1)
Operating temperature 63% load	-25°C ... 70°C (-40°C ... 70°C, see note-1)
Cooling	Natural convection
Maximum Relative humidity	95% without condensation
MTBF	400.000h @ 40°C according to IEC61709

EMC	
Immunity according to	EN61000-6-2 / EN50121-3-2
Emissions according to	EN61000-6-3 / EN50121-3-2
Safety	
Safety according to	EN60950
Dielectric strength: Input / output	3000Vac, 4200Vdc 1min.
Dielectric strength: Output / ground	1500Vac, 2100Vdc 1min.
Dielectric strength: Input / ground	1500Vac, 2100Vdc 1min.
Fire and smoke	EN45545-2 (Levels HL1 and HL2)
Mechanical	
Weight	1800 g
Dimensions	180 x 266 x 54.8mm
Protections	
Against overloads and short-circuits	Current limiting
Against output over-voltages	Shutdown (reset by input switch off)
Against reverse input voltage	Input fuse
Against input under-voltage	Under-voltage lock-out
Against Input over-currents	Input fuse

Note-1: The unit can start up and work at an ambient temperature of -40°C with the following restrictions:

- 1) Do not actuate over the connectors below -25°C.
- 2) The output ripple can rise up to 150mVpp at -40°C

