



DCR120 RAILWAY DC/DC CONVERTER

SERIES DCR120

The DCR120 series consists of PWM 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.

There are two options to choose:

- 1 - With remote sensing
- 2 - With low output voltage alarm

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 overload 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
- Standard size Eurocard 3U
- High input-output isolation
- Adjustable output voltage
- Input voltage OK LED
- Output voltage presence LED
- Remote inhibit
- Protection against overloads and short-circuits
- Protection against input undervoltage
- Option: remote sensing or alarm



High frequency technology



Light weight, compact size



Full electronic protection



Extended temperature range



Convection Cooling (no Fan)



Remote inhibit



Optional Output fail alarm (Form B)

SPECIFICATIONS

	24Vin 14,4V ... 30V 16,8V ... 30V ⁽¹⁾	36Vin 21,6V ... 47V 25,2V ... 47V ⁽¹⁾	48Vin 28,8V ... 60V 33,6V ... 60V ⁽¹⁾	72Vin 43,2V ... 90V 50,4V ... 90V ⁽¹⁾	110Vin 66V ... 144V 77V ... 144V ⁽¹⁾
5Vout	DCR120-24-5 100W 78%	DCR120-36-5 100W 79%	DCR120-48-5 100W 79%	DCR120-72-5 100W 79%	DCR120-110-5 100W 80%
12Vout	DCR120-24-12 120W 83%	DCR120-36-12 120W 84%	DCR120-48-12 120W 84%	DCR120-72-12 120W 84%	DCR120-110-12 120W 85%
24Vout	DCR120-24-24 120W 84%	DCR120-36-24 140W 86%	DCR120-48-24 140W 86%	DCR120-72-24 140W 86%	DCR120-110-24 140W 87%
48Vout	DCR120-24-48 120W 85%	DCR120-36-48 140W 88%	DCR120-48-48 140W 88%	DCR120-72-48 140W 88%	DCR120-110-48 140W 89%

Input	
Input voltage range	See table
Maximum input ripple	15% Vin nom (EN50155)
Output	
Output voltage range	
V _{min} >60% V _i nom	-10% ... +0% V _o nom
V _{min} >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%
Ripple	< 50 mVpp
Noise (BW = 20MHz)	< 100 mVpp
Maximum remote sensing	0,3V / pole
Environmental	
Storage temperature	-40°C ... 85°C
Operating temperature full load	-25°C ... 60°C (-40°C ... 60°C, see note-1)
Operating temperature 75% load	-25°C ... 70°C (-40°C ... 70°C, see note-1)
Operating temperature 37.5% load	-25°C ... 85°C (-40°C ... 85°C, see note-1)
Maximum Relative humidity	95% without condensation
Shock and vibration	EN61373 Category 1 class B body mounted
MTBF	500.000h @ 40°C according to IEC61709

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

EMC	
Immunity according to	EN61000-6-2 / EN50121-3-2
Emissions according to	EN61000-6-3 / EN50121-3-2
Safety	
Safety according to	EN60950, EN50155
Dielectric strength: Input / output	3000Vac, 4200Vdc 1min.
Dielectric strength: Output / ground	1500Vac, 2100Vdc 1min.
Dielectric strength: Input / ground	1500Vac, 2100Vdc 1min.
Fire and smoke	EN45545-2:2013 + A1:2015
Mechanical	
Weight	430 g
Dimensions	160 x 100 x 38.5mm
Protections	
Against overloads and short-circuits	Current limiting
Against reverse input voltage	Input fuse
Against input under-voltage	Under-voltage lock-out
Against Input over-currents	Input fuse

