

150W, Rugged, Dual-output, Railway Quality DC/DC Converter

DCW 152R Series

- ◆ Field-proven rugged design
- ◆ For train and mobile applications
- ◆ Two individually regulated outputs
- ◆ Conduction/convection cooled
- ◆ Full electronic protection
- ◆ Wide selection of input/output combinations



The DCW 152R Series rugged, railway quality, dual-output DC/DC converter uses a field proven topology to generate up to 150W continuous power, depending on the input/output configuration. It has two individually regulated isolated outputs. This mature design has a track record in numerous applications. Cooling is via base plate to a heat-sinking surface and by natural convection. Ruggedizing and conformal coating provide added immunity to shock, vibration and humidity. Full electronic protection, low component count, large design headroom, and the use of components with established reliability result in a high MTBF. The unit meets the requirements of EN 50155 for electronic equipment used on railway rolling stock. It is manufactured at our plant under strict quality control.

SPECIFICATIONS

Input Voltage

48Vdc (29 - 67V)
72Vdc (43 - 101V)
96Vdc (58 - 135V)
110Vdc (66 - 154V)
Other inputs upon 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

1500Vdc input to chassis
3000Vdc input to output
1500Vdc output to chassis

Standards

Designed to meet IEC60950 and EN50155

Immunity

Meets criteria of EN50155 and EN50121-3-2 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)

EMI

EN55022 Class B and
EN50121-3-2 conducted and
Radiated

Switching Frequency

47KHz +/- 2KHz

Output Voltage

V1: any voltage in the range of 5...48V (8A max.)
V2: any voltage in the range of 5...24V (3A max.)
Derating may be required depending on input voltage
Both outputs are individually regulated, floating and isolated from each other.
Either terminal can be grounded.
Other voltages available on Request

Redundancy diode

None
Available as option

Line/Load Regulation

+/-1% combined on both outputs

Dynamic Response

Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time

Output Ripple/Noise

Better than 1% of output voltage peak to peak or 0.2% RMS of the output voltage (20MHZ BW)

Overload Protection

Current limiting with hiccup type short circuit protection

Output Overvoltage Protection

Double regulator loop and Transzorbs

Efficiency

80 to 90% at full load depending on input/output configuration

Operating Temperature

-25oC to +70oC cold-plate temperature range for full specification

Temperature Drift

0.03% per oC over operating temperature range

Cooling

Conduction to customer heat-sink or chassis and natural convection

Environmental Protection

Ruggedizing
Conformal coating

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5 - 95% non-condensing

MTBF

Min. 150,000 hours @45°C
Demonstrated MTBF is significantly higher

Indicators

Green output ON LED visible through cooling slots

Control Input

None

Alarm Output

None
Available as option

Package/Dimensions (W x H x L)

F1: 114 x 51 x 201 mm (4.5" x 2" x 7.9") including terminal block and flanges.
Mounting holes are clear

Weight

0.8kg (1.8 lbs)

Connections

9-pole barrier-type terminal block, 3/8" spacing

RoHS

Fully compliant

Warranty

Two years subject to application within good engineering practice

Standard Terminal Block Pin-out

		OUTPUT 1		OUTPUT 2		INPUT		
Not Used	Not Used	+	-	+	-	GND	+	-
1	2	3	4	5	6	7	8	9

Note: A few existing designs of this extensive series have a slightly different Pin-out

Enhancements to these general specifications and customizing can be accommodated upon request. Specifications are subject to change.



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