

## 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

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

#### Temperature Drift

0.03% per °C 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

NOT USED		OUTPUT 1		OUTPUT 2		GND		INPUT	
1	2	+	-	+	-	⊥	+	-	
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.**

*Designer and manufacturer of quality ac-dc power supplies and battery chargers, converters, inverters, dc-output UPS systems, complete rack mount systems and DC-input fluorescent lamp inverters since 1982. Custom or standard. Absopulse is a BABT-approved Facility.*



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