

## 200W, Rugged Dual-output, Railway Quality DC/DC Converter DCW 242R-F1W Series



- EN50155 input ranges
- Rugged, field-proven design
- Fully independent, dual output
- Conduction/convection cooled – no fan
- Wide temperature range
- Full electronic protection

This rugged, dual-output, railway quality DC/DC converter generates up to 200W continuous power, depending on the input/output configuration. The design is based on the field-proven DCW 150 series topology, which has a track record in numerous applications. The unit has two fully independent regulated isolated output stages, each providing up to 120W. Cooling is via base plate to a heat-sinking surface and by natural convection. Ruggedizing and conformal coating provide additional 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 EN50155 for electronic equipment used on railway rolling stock. It is manufactured at our plant under strict quality control. Customized versions are also available.

### SPECIFICATIONS

#### Input Voltage

24Vdc (15 - 34V)  
48Vdc (29 - 67V)  
72Vdc (43 - 101V)  
96Vdc (58 - 135V)  
110Vdc (66 - 154V)  
Other inputs and ranges available 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

1500Vdc input to chassis  
3000Vdc input to output  
1500Vdc output to chassis  
1500Vdc between outputs

#### Standards

Designed to meet EN60950-1 and EN50155

#### Immunity

Meets criteria as requested in EN50155 and EN50121-3-2 according to:  
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

EN50121-3-2

#### Switching Frequency

47KHz  $\pm$ 2KHz

#### Output Voltage

V1: Any voltage 5V to 125Vdc  
V2: Any voltage 5V to 125Vdc  
Each output is limited by 12A max current handling capacity or a power capacity of 120W max  
The outputs are floating, either terminal can be grounded  
Returns are separated.

#### Redundancy diode

None

#### Line/Load Regulation

$\pm$ 1% combined from no load to full load 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 short circuit protection on both outputs (hiccup type)  
Thermal shutdown with automatic recovery in case of insufficient cooling

#### Output Overvoltage Protection

Double regulator loop and transzorb on both outputs

#### Efficiency

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

#### Operating Temperature

-25°C to +55°C cold-plate temperature for full specification

#### Temperature Drift

0.03% per °C over operating temperature range

#### Cooling

Conduction via base plate to customer heat-sink or chassis and natural convection

#### Environmental Protection

Ruggedizing  
Conformal coating  
Heavy ruggedizing available on request

#### Shock/Vibration

IEC 61373 Cat 1 A&B

#### Humidity

5 – 95% non-condensing

#### MTBF

Min. 140,000 hours @45°C  
Demonstrated MTBF is significantly higher

#### Indicators

None on standard version

#### Control Input

None

#### Alarm Output

None on standard version  
Available as option

#### Package/Dimensions (W x H x L)

F1W: 163 x 51 x 200 mm (6.4" x 2" x 7.9") including terminal block and flanges  
Mounting holes are clear

#### Weight

1.4 kg (3 lbs)

#### Connections

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

#### RoHS

Compliant

#### Warranty

Two years subject to application within good engineering practice

#### Standard Terminal Block Pin-Out

V1		OUTPUT		V2		Spares for Options				INPUT		
-	+	NOT USED	-	+	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	GND	+	-
1	2	3	4	5	6	7	8	9	10	11	12	

**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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