

150W, Rugged, Dual-output, Railway Quality DC/DC Converter DCW 152R-F1 Series

- Rugged, field-proven rugged design
- For train and mobile applications
- Two individually regulated outputs
- Wide input ranges (EN50155)
- Conduction/convection cooled
- Full electronic protection



This 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 by conduction via baseplate. Additional cooling is achieved by natural convection through the cooling slots. All heat generating components are installed on aluminum heatsink blocks which are thermally connected to the base plate. This also provides exceptional mechanical ruggedness. Conformal coating provides protection against humidity and airborne contaminants. Full electronic protection, low component count, large design headroom and the exclusive use of components with established reliability contribute to a high MTBF. The series meets the requirements of EN50155 for electronic equipment used on railway rolling stock. The unit 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 EN60950-1 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

EN50121-3-2

Switching Frequency

47kHz \pm 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

\pm 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 +55°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, assisted by 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. 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

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 | |

Please note: Terminal block pin-outs vary depending on particular design.

The specifications on this data sheet are generic and are subject to change. Enhancements to these specifications can be provided upon request.

OEM of industrial and railway AC/DC power supplies and battery chargers, DC/DC converters, DC-AC sine-wave inverters, phase & frequency converters, DC-output UPS systems and complete power systems in 19" and 23" racks since 1982. Custom & standard. ABSOPULSE is a BAPT-approved facility



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