

50 - 100W, Rugged Dual-output DC/DC Converter for Railway and other Harsh Environments

DCW 102R-F0 Series



- Rugged, field-proven design
- For train and mobile applications
- Two outputs, one regulated
- Wide input ranges (EN 50155)
- Conduction/convection cooled
- Full electronic protection

This rugged, railway quality, dual-output, DC/DC converter uses a field-proven technology to generate up to 100W continuous power, depending on the input/output configuration. One output is regulated, with the second output tracking. 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 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

Standards

Designed to meet EN60950 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/Current

V1: 12Vdc/2A
V2: 12Vdc/2A
Both outputs are floating and isolated from each other. Either terminal can be grounded. Other voltages are available on request

Redundancy diode

None

Line/Load Regulation

V1: \pm 1% combined from no load to full load
V2: \pm 5% combined from 10% to full load with constant load of min 10% on V1

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% Vrms (20MHz BW)

Output Overload Protection

Current limiting with short circuit protection (hiccup)

Output Overvoltage Protection

V1: Double regulator loop
V2: Transzorb clamp

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 heatsink 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

None

Control Input

None

Alarm Output

None

Package/Dimensions (W x H x L)

F0: 94 x 48 x 160 mm (3.7" x 1.9" x 6.3") including terminal block and flanges
Mounting holes are clear.

Weight

0.55kg (1.2 lb)

Connections

7-pole barrier-type terminal block, 7.5mm spacing

RoHS

Compliant

Warranty

Two years subject to application within good engineering practice

Standard Terminal Block Pin-Out

| V1 OUTPUT | | V2 OUTPUT | | INPUT | | |
|-----------|-------|-----------|-------|-------|---|---|
| + | RTN 1 | + | RTN 2 | GND | + | - |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

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

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 BABT-approved facility



ABSOPULSE ELECTRONICS LTD

110 Walgreen Road, Ottawa, Ontario | K0A 1L0 | CANADA

Tel: +1-613-836-3511 | Fax: +1-613-836-7488

E-mail: absopulse@absopulse.com | <http://www.absopulse.com>