100W, Rugged DC/DC Converter for Railway and other Harsh Environments
DCW 100R-F0 Series

- Field-proven rugged design
- For train and mobile applications
- EN50155 input ranges
- Conduction/convection cooled – no fan
- Full electronic protection
- Wide selection of input/output combinations

This rugged, railway quality power converter utilizes field-proven technology to generate the required output power. It is a mature design with 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 (nominal/range)
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 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 ±2kHz

Output Voltage/Current
12V/8A, 24V/4A, 48V/2A or 110A/0.9A
Derating may be required depending on input voltage
Consult factory for other voltages and higher power rating

Redundancy diode
None

Line/Load Regulation
±1% combined from no load to full load

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 (hiccup)

Output Overvoltage Protection
Double regulator loop and transzorb

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

Operating Temperature
-25 to +70°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. 150,000 hours @45°C
Demonstrated MTBF is significantly higher

Indicators
None

Control Input
None

Alarm Output
None
Available as option

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 lbs)

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

RoHS
Compliant

Warranty
Two years subject to application within good engineering practice

Terminal Block Pin-Out:
12, 24, 36, 48V input

OUTPUT			INPUT		
–	+	NOT USED	GND ⏚	–	+
1	2	3	4	5	6

Terminal Block Pin-Out: ≥60V input

OUTPUT			INPUT		
–	+	NOT USED	GND ⏚	+	–
1	2	3	4	5	6

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

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