

300W, Rugged DC/DC Converter with built-in RIA 12 Protection for Railway Applications

BAR 65R-F3 Series



- Meets RIA 12 (surge withstanding)
- Field-proven rugged design
- For train and mobile applications
- Conduction/convection cooled
- Full electronic protection
- Wide input ranges

The BAR 65 Series rugged, railway quality DC/DC converter uses field proven topology to generate 300W output power. This design meets the requirements of EN50155 for electronic equipment used on railway rolling stock and has the input voltage surge withstand capability to meet RIA 12 (3.5V_n for 20msec). Cooling is via baseplate to a heat-sinking surface and by natural convection. Ruggedizing and conformal coating provide additional immunity to shock, vibration and humidity. An optional redundancy diode allows parallel connection to achieve higher output power or N+1 redundancy. Other options include a Form C output fail alarm and remote shutdown. 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 rolling stock. The BAR 65R is manufactured at our plant under strict quality control. Customized versions are also available.

SPECIFICATIONS

Input Voltage

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
Limiter circuit for RIA 12 surges
Low input voltages of less than the specified minimum 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 Immunity)
EN 50155 (Voltage Variations)
Built-in protection against the 3.5V_n, 20ms surge according to RIA 12.

EMI

EN50121-3-2

Switching Frequency

55kHz ±3kHz

Output Voltage/Current

Any voltage from 12V to 110Vdc
Outputs is floating; either terminal can be grounded
Consult factory for other voltages

Redundancy Diode

Optional

Line/Load Regulation

±1% combined from zero load to full load

Dynamic Response

Max 5% voltage deviation for 10% to 50% load step, with better than 2msec recovery time

Output Ripple / Noise

Better than 1% of output voltage peak to peak or 0.2% RMS of the output voltage (20MHZ BW)

Output Overload Protection

Rectangular current limiting with short-circuit protection.
Thermal shutdown with automatic Recovery in case of insufficient cooling

Output Overvoltage Protection

Double regulator loop. Second loop completely stable and independent of main regulator loop

Efficiency

Typically min. 80% at full load depending on input/output configuration

Operating Temperature Range

-25 °C to +70 °C cold plate temperature 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

150,000 hours @ 45 °C
Demonstrated MTBF is significantly higher

Indicators

Green "Output ON" LED visible through the cooling slots

Control Input

Optional

Alarm Outputs

Optional

Package / Dimensions (W x H x L)

F3: 132 x 64 x 300 mm (5.2" x 2.5" x 11.8") including terminal block and mounting flanges. Mounting holes are clear

Weight

2 kg (4.4 lbs)

Connections

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

RoHS Compliance

Compliant

Warranty

Two years subject to application within good engineering practice

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



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>