300W, Rugged DC-DC Converter for Railway and other Heavy-Duty Applications
BAP 65R-F3 Series

- Field-proven rugged design
- For train and mobile applications
- Conduction/convection cooled
- Full electronic protection
- Wide input range (EN50155)
- N+1 redundancy available

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. 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. This chassis-mount design is optimized for low component count and high efficiency. Full electronic protection, low component count, large design headroom and the exclusive use of components with established reliability contribute to 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.

SPECIFICATIONS

Input Voltage
36Vdc (22 – 51V)
48Vdc (29 - 67V)
72Vdc (43 – 101V)
96Vdc (58 – 135V)
110Vdc (66 - 154V)
Other inputs upon request

Input Protection
Inrush current limiting
Reverse polarity protection
Varistor
Internal safety fuse
Lower voltage than specified minimum input will not damage 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:
EN61000-4-2 (ESD)
EN61000-4-3 (RF Immunity)
EN61000-4-4 (Fast Transient)
EN50155 (Surge)
EN61000-4-6 (Conducted immunity)
EN50155 (Voltage variation)

EMI
EN50121-3-2

Switching Frequency
55kHz ±3kHz

Output Voltage
Any single DC output up to 140Vdc

Redundancy diode
Not included.
Available as option

Line/Load Regulation
±1% 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
Self-resetting thermostat for thermal protection

Output Overvoltage Protection
Double regulator loop

Efficiency
80 - 90% depending on input/output configuration

Operating Temperature
-25 to +55°C cold-plate temperature for full specification
Extended temperature ranges available

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
Output ON green LED visible through the cooling slot

Control Input
Optional

Alarm Outputs
Form C output fail alarm as option

Package/Dimensions (W x H x L)
F3: 132mm x 64mm x 300mm (5.2" x 2.5" 11.8") including terminal block and mounting flanges
Mounting holes are clear

Weight
2 kg (4.4 lb)

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

RoHS Compliance
Compliant

Warranty
Two years subject to application within good engineering practice

Terminal Block Pin-out

VDC OUTPUT									VDC INPUT		
NOT USED	NOT USED	+	+	–	–	NOT USED	NOT USED	NOT USED	GND ⏚	–	+
1	2	3	4	5	6	7	8	9	10	11	12

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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Made in Canada