500W, Rugged DC/DC Converter for Railway and other Heavy Duty Applications
BAP 319R-F4 Series

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

This rugged, railway quality DC/DC converter uses field proven topology to generate the required output power. It is a mature design with a track record in numerous applications. 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. It is manufactured at our plant under strict quality control. Customized versions are also available.

SPECIFICATIONS

Input Voltage
36Vdc (22 – 51V)
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 DC output up to 130Vdc

Redundancy diode
Optional

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 +70°C cold-plate temperature range for full specification

Temperature Drift
0.03% per ^{o}C over operating temperature range

Cooling
Conduction to customer heat-sink 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 ^{o}C
Demonstrated MTBF is significantly higher

Indicators
Output ON green LED visible through the cooling slot

Control Input
Optional

Alarm Outputs
Optional

Package/Dimensions (W x H x L)
F4: 130 x 64 x 353 mm
(5.1" x 2.5" x 13.9) including terminal block and mounting flanges
Mounting holes are clear

Weight
2.2 kg (4.9lb)

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

RoHS Compliance
Compliant

Warranty
Two years subject to application within good engineering practice

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Enhancements to these general specifications and customizing can be accommodated upon request. Specifications are subject to change.

Designer and manufacturer of quality ac-dc power supplies and battery chargers, converters, inverters, dc-output UPS systems, complete rack mount systems and DC-input fluorescent lamp inverters since 1982.   Custom or standard. Absopulse is a BABT-approved Facility.

April 7, 2017/TS/CL   Made in Canada