

500W, Rugged DC/DC Converter for Railway and other Heavy Duty Applications

BAP 319R-FT Series

- ◆ Rugged, field-proven design
- ◆ For train and mobile applications
- ◆ Conduction/convection cooled
- ◆ Full electronic protection
- ◆ Wide selection of input/output combinations
- ◆ N+1 redundancy available



The BAP 319R Series rugged, railway quality DC/DC converter uses field proven topology to generate 500W output power. It is a mature design with a track record in numerous applications. Cooling is via baseplate to a heatsinking 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

Meets EN60950 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

EN55022 Class B and
EN50121-3-2 conducted and radiated

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 +70oC cold-plate temperature range for full specification without derating

Temperature Drift

0.03% per oC 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 oC
Demonstrated MTBF is significantly higher

Indicators

Output ON green LED visible through the cooling slot

Control Input

Optional

Alarm Outputs

Optional

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

Fully compliant

Warranty

Two years subject to application within good engineering practice

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



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