

## 500W, Rugged Convection/Conduction Cooled DC/DC Converter for Railway and other Heavy Duty Applications BAP 319R-FT Series

- Field-proven rugged 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, single output DC/DC converter uses field proven topology to generate 500W output power. It is a mature design with a track record in hundreds of applications. The series is rated for operation over a -25 to +70°C temperature range without derating. It is cooled by conduction via baseplate to a heatsinking surface and by natural convection. These models are fully ruggedized and conformal coated for immunity to shock, vibration, humidity, moisture, dust and insects. 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. The use of components with established reliability results in a demonstrated MTBF exceeding 1,000,000 hours. The BAP 319R is manufactured at our plant under strict quality control. Customized versions are also available.

### SPECIFICATIONS

#### Input Voltage

36Vdc (22 – 55V)  
72Vdc (42 – 110V)  
110Vdc and 96Vdc (57 – 168V)  
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 +70°C cold-plate  
temperature

#### 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

Designed to meet IEC 61373  
Cat 1 A&B and Cat 2 as a min.

#### MTBF

170,000 hours @ 45 °C (calculated)  
Demonstrated MTBF exceeds  
1,000,000 hours at typical operating  
temperatures

#### Indicators

Output ON green LED visible  
through the cooling slot

#### Control Input

Optional

#### Alarm Outputs

Optional

#### Dimensions (W x H x L)

F4: 129.5mm x 66.8mm x 351.0 mm  
(5.1" x 2.63" x 13.82") including  
terminal block and mounting flanges  
Mounting holes are clear

#### Weight

2kg (4.4lb)

#### 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.**

*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.*



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