

500W Railway Quality DC-DC Converters with Convection Cooling by Heatsink Assembly Fins for Railway and other Heavy-Duty Applications

BAP 319R-F4-HSA



- Rugged, field-proven design
- For train and mobile applications
- Convection cooling via heatsink assembly
- Wide input range (EN50155)
- N+1 redundancy available
- Full electronic protection

This series of rugged, railway quality DC-DC converters use field-proven technology to generate the required output power. The design is based on a mature design topology with a track record in numerous applications. The converters meet the requirements of EN50155 for electronic equipment used on railway rolling stock. Convection cooling is achieved by installing the unit on a heatsink assembly block with fins that is specifically designed for the chassis. The heatsink assembly also allows for mounting on uneven and thermally non-conductive surfaces. 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. Full electronic protection, low component count, large design headroom and the exclusive use of components with established reliability contribute to a high MTBF. It is manufactured at our plant under strict quality control. Industrial quality versions of this design are also available. DIN-rail clips available on request.

SPECIFICATIONS

Input Voltage

36Vdc (22-51V)
72Vdc (43-101V)
96Vdc (58-135V)
110Vdc (66-154V)
24Vdc (14.4-34V) 300W only
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 EN62368-1
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 ± 3 kHz

Output Voltage

Any DC output up to 130Vdc

Redundancy diode

Optional

Line/Load Regulation

$\pm 1\%$ 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 range for full
specification. Consult factory for
extended temperature range

Temperature Drift

0.03% per °C over operating
temperature range

Cooling

Natural air 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

Optional

Package/Dimensions (W x H x L)

F4 package installed on HSA-F4
heatsink assembly.
Overall dimensions including
mounting flanges/heatsink:
132 x 106 x 386.mm
5.2" x 4.18" x 15.2"
DIN-rail clips available on request.
Mounting holes are clear

Weight

3 kg (6.6 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

Terminal Block Pin-out

DC OUTPUT				DC INPUT							
+	+	-	-	NOT USED	NOT USED	NOT USED	GND ⏏	-	-	+	+
1	2	3	4	5	6	7	8	9	10	11	12

ABSOPULSE power supplies are designed and built to customer requirements. The specifications on this data sheet are generic guidelines only and are subject to change.

OEM of industrial and railway quality DC-DC converters, AC-DC power supplies and battery chargers, DC-AC sine-wave inverters, phase and frequency converters, DC-output UPS systems and complete power systems in 19" and 23" racks since 1982. Custom or standard. ABSOPULSE is a BABT-approved Facility..

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