

## 200W, Rugged, Convection Cooled DC/DC Plug-in module for Railway and other Heavy Duty Applications BAP 236R-EH Series



- Field-proven rugged design
- For train and mobile applications
- Convection cooled
- Full electronic protection
- Wide selection of input/output combinations
- N+1 redundancy
- 3U x 220mm Eurocard

The BAP 236R-EH Series rugged, single-output DC/DC converter in Eurocard (Plug-in) format utilizes field proven topology to generate 200W 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, with natural convection cooling. The internal redundancy diode allows parallel connection to achieve higher output power or N+1 redundancy. These models are fully ruggedized and conformal coated for immunity to shock, vibration, humidity, moisture, dust and insects. This 3U x 220mm Eurocard design is optimized for low component count and high efficiency. The use of components with established reliability results in a high demonstrated MTBF. The BAP 236R-EH is manufactured at our plant under strict quality control. Customized versions are also available.

### SPECIFICATIONS

#### Input Voltage

24Vdc (14.4 – 34V)  
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

Meets EN60950 and EN50155

#### Immunity

Meets criteria of EN50155 and EN50121-3-2 including:  
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

Installed

#### Line/Load Regulation

Typically +/-1% from no load to full load including output redundancy diode

#### 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 with convection cooling.  
Unimpeded airflow required.

#### Temperature Drift

0.03% per °C over operating temperature range

#### Cooling

Convection by natural air movement

#### Environmental Protection

Ruggedizing  
Conformal coating

#### Shock/Vibration

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

#### MTBF

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

#### Indicators

Output ON green LED on the front panel

#### Control Input

Optional

#### Alarm Outputs

Optocoupler alarm output (C-E low-normal)

#### Package/Dimensions (H x W x D)

3U x 14HP x 220mm  
Eurocard plug-in module

#### Weight

1.13 kg (2.5 lb)

#### Connections

H15 connector

#### 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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