

250W, Rugged, Dual-output Railway Quality DC/DC Converter

BAP 265R-F3 Series

- Rugged, field-proven design
- For train and mobile applications
- Two individually regulated outputs
- Conduction/convection cooled
- Full electronic protection
- Wide input range (EN50155)



This rugged, dual-output railway quality DC/DC converter uses field proven topology to generate the required output power. It has two individually regulated isolated outputs. This mature design has a track record in numerous applications. Cooling is via base plate to a heat-sinking surface and by natural convection. Ruggedizing and conformal coating provide added immunity to shock, vibration and humidity. Full electronic protection, 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 railway rolling stock. It is manufactured at our plant under strict quality control.

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
 Varistor
 Reverse polarity protection
 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
 1000Vdc between outputs

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 \pm 3kHz

Output Voltage

Typical configuration:
 V1: 24Vdc \pm 0.3V/10A
 V2: 12Vdc \pm 0.2V/3A
 Consult factory for required output combination
 Derating may be required depending on input voltage
 Both outputs are individually regulated, floating and isolated from each other.
 Either terminal can be grounded

Redundancy diode

None
 Available as option

Line/Load Regulation

\pm 1% combined from zero load to full load for both outputs.

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

Rectangular current limiting with short-circuit protection.
 Thermal shutdown in case of insufficient cooling (self resetting)

Output Overvoltage Protection

Double regulator loop on V1
 Transzorb installed across V2 output

Efficiency

Typically 80% at full load depending on input/output configuration

Operating Temperature

-25 to +55°C cold-plate temperature for full specification
 Extended temperature range available on requester

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

IEC 61373 Cat 1 A&B

Humidity

5 – 95% non-condensing

MTBF

120,000 hours @ 45 °C
 Demonstrated MTBF is significantly higher

Indicators

Green 'Output ON' LED visible through cooling slots

Control Input

Optional

Alarm Outputs

None on standard version
 Form C available as option

Package/Dimensions (W x H x L)

F3: 132 x 64 x 300 mm (5.2" x 2.5" x 11.8") including terminal block and flanges
 Mounting holes are clear

Weight

2 kg (4.4lbs)

Connections

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

RoHS Compliance

Compliant

Warranty

Two years subject to application within good engineering practice

Terminal Block Pin-out

V1 OUTPUT		V2 OUTPUT		ALARM (OPTION)			DC INPUT				
+	-	+	-	FAIL OPEN	COM	FAIL CLOSED	GND	-	-	+	+
1	2	3	4	5	6	7	8	9	10	11	12



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