



DC/DC converter for railway applications

Description

The 140W EBR series is a single output unit, which has been widely used for supplying the power to train radios. The converter meets RIA rail standards and many thousands are now in service. The standard unit has been adapted for several other rail applications, with alternative input and output voltage combinations.



Special features include:

- Enclosed design with removable terminal access cover
- Rugged construction with earth boss, conduit compatible
- Compliant with RIA 12, 13, 18 & 20 standards and EN 50155
- Many variants on standard design

Input specifications

The following input voltage versions are available as standard:

110V	(66.0 - 137.5V)	dc	(Suffix A)
72V	(43.2 - 90.0V)	dc	(Suffix D)
52V	(31.2 - 65.0V)	dc	(Suffix C)
36V	(21.0 - 50.4V)	dc	(Suffix F)
24V	(16.8 - 33.6V)	dc	(Suffix B)

Parameter	Detail
Input Ripple	To RIA 13 and EN 50155
Input Protection	Reverse polarity protection. Surges and transients to RIA 12 (direct and indirect) & EN 50155
Inrush Current	Limited to typically 5 x nominal current (after 0.1ms)
Efficiency	85% typical
Hold-up time	10ms to EN 50155 Class S2

Output specifications

Parameter	Detail
Maximum Output Power	Up to 140W
Output Versions	Single output only
Output Voltage	Can be specified between 12 and 48V dc
Setting Tolerance	±1.0% at 50% load, 15°C to 25°C
Minimum Load	Zero

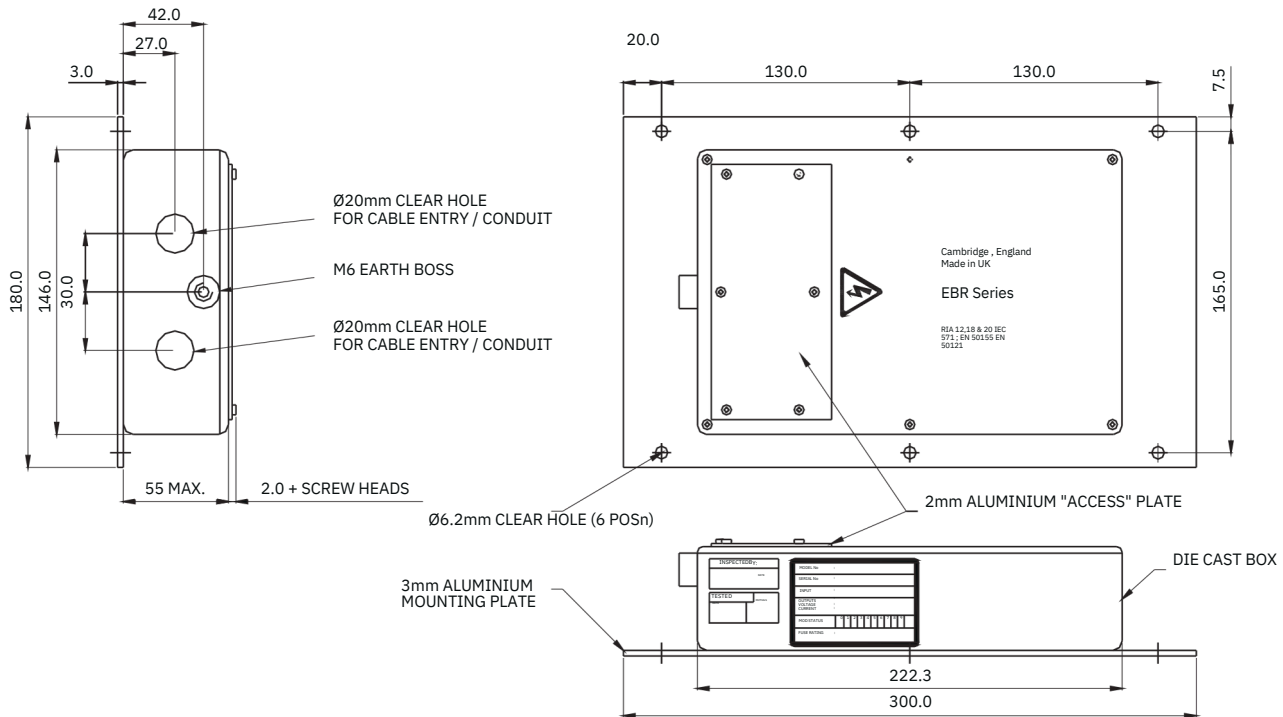
Output specifications (Continued)

Parameter	Detail
Line Regulation	±0.5%
Load Regulation	±0.5%
Temperature Coefficient	<0.02% / °C
Output Ripple	<50mV Pk-Pk
Output Noise	<200mV Pk-Pk
Response Time	1.0ms (for a 10% - 100% load change)
Primary Power Limit	Operates at approximately 120% of full power
Thermal Protection	Output shuts off when safe operating temperature is exceeded. Auto recovery
Isolation (tested at dc equivalent voltage)	Input to Output 1.0kV ac Input to Earth 1.0kV ac Output to Earth 1.0kV ac (optional internal link to connect output to case)

Environmental details

Parameter	Detail
Operating Temperature	-25°C to +55°C (no derating)
Storage Temperature	-40°C to +80°C
Cooling	Convection
Relative Humidity	85% max
Shock & Vibration	EN 50155 (EN 61373), RIA 20
Environmental Protection	IP54 when appropriate cable glands are used

Technical drawing



Applicable norms

Parameter	Detail
EMC	RIA 12, 18; EN 50155 (2007), EN 50121-3-2 (2006)
Other	RIA 13, 18, 20; EN 50155 (2007)

Mechanical characteristics

Parameter	Detail
Construction	Fully enclosed rugged splash-proof case
Dimensions	Length = 222 mm (300mm with base plate) Width = 146 mm (180mm with base plate) Height = 57 mm (60mm with base plate)
Weight	2.0kg
Connections	Via access cover: Input: M5 studs Output: M6 studs Earth: M6 stud (Note: earth boss connection also on outside of case)
Fixings	Six Ø M6 fixing holes on base plate



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