



DC/DC converter for railway applications

Description

The 150W ERL series is based upon the well-established Martek Power ER series. The ERL offers a lower-cost alternative for customers that do not require any of the extensive electrical options which are available with the ER. In all other respects it is identical to the original ER Series, including mechanical formats and pin assignments. Housed in a rugged 3U Eurocassette, the ERL series is suitable for both rack and bulkhead mounting and is available with either a heatsink or cold wall mounting plate. The range is compliant with national and international railway standards and norms.



Input specifications

The following input voltage versions are available as standard:

Part number	Output – single	
	V _{dc}	A
ERL 1200	12	12.0
ERL 2400	24	6.0

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)

M2 mounting plate option



Parameter

Detail

Input Ripple	To RIA 13 and EN 50155
Input Protection	Reverse polarity protection; surges and transients to RIA 12, EN 50155
Inrush Current	Limited to typically 6x nominal current (after 0.1ms)
Efficiency	80% to 90% dependent on input / output voltage
Hold-up time	10ms to EN 50155 Class S2
Input fuse	20mm cartridge-style mounted on rear panel (except 24V dc input version)

Output specifications

Parameter

Detail

Maximum Output Power	150W (limited to 125W for 24V input version)
Output Versions	Single output
Output Voltage	Can be specified from 12V to 48V
Setting Tolerance	±0.5% at 50% load, 15°C to 25°C
Minimum Load	Zero
Line Regulation	±0.2%



Output specifications (Continued)

Parameter	Detail	
Load Regulation	±0.5%	
Remote Sensing	Compensates for up to 250mV drop in each line (5V output only)	
Temperature Coefficient	<0.02% / °C	
Output Ripple	<1% Pk-Pk of Output Voltage	
Output Noise	<1% Pk-Pk superimposed (up to 20MHz)	
Response Time	1.0ms to within 2% (for a 20% - 90% load change)	
Indicators	Green LED for output	
Output Protection	Output and signal lines protected against indirect transients to RIA 12, EN 50155	
Current limit	Operates at 105 - 130% of rated output current Auto recovery	
Thermal Protection	Shuts down PSU if safe internal temperature is exceeded Auto recovery	
Isolation (tested at dc equivalent voltage)	Input to Output	2.0kV ac
	Input to Case	1.0kV ac
	Output to Case	1.0kV ac

Electrical options

Option	Detail	Code
Input Fuse	Fitted on PCB	B
Input Fuse	Not fitted	Z
Input Fail flag	Operates when input falls below minimum (Active high or Active low)	I or J
Output Fail flag	Operates when U1 output falls below 96% of nominal value. (Active high or Active low)	K or L
Over-voltage	Basic protection of output under fault conditions	P

Environmental details

Parameter	Detail
Operating Temperature	-25°C to +71°C (no derating)
Storage Temperature	-40°C to +85°C
Cooling	Convection
Relative Humidity	95% max
Shock & Vibration	EN 50155 (EN 61373)
Environmental Protection	IP54

Applicable norms

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

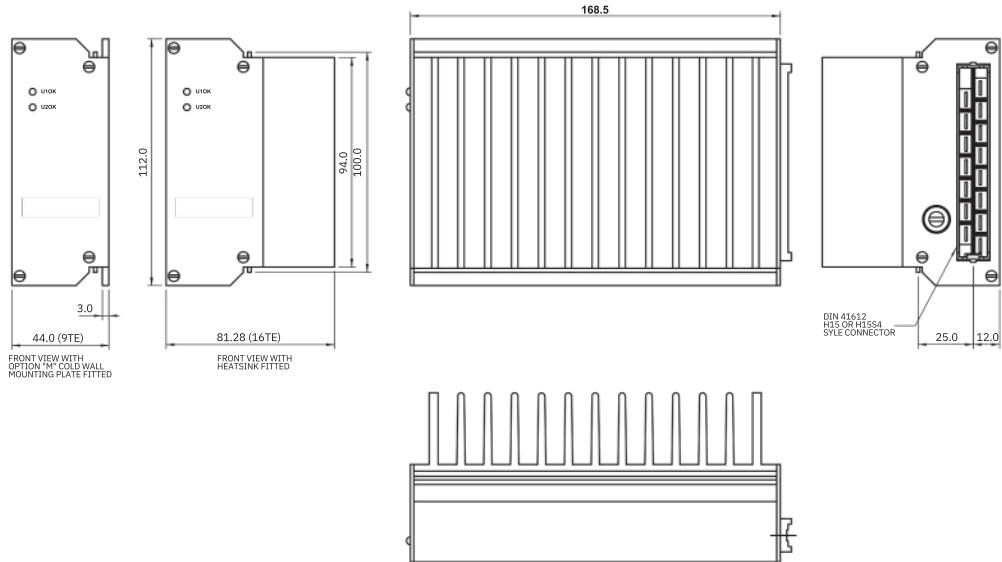
Mechanical characteristics

Parameter	Detail
Construction	Euro cassette - suitable for either rack or bulkhead mounting
Dimensions	Length = 168.5mm
	Width = 16TE - heatsink version 9TE - cold wall mount
	Height = 3U
Weight	1.3kg heatsink version. 0.9kg cold wall mount version
Connections	DIN 41612 H15 Class 1 Retaining clips option. Cable connection option
Fixings	Four slotted M6 holes in heatsink. Cold wall mount options

Environmental & mechanical options

Option	Detail	Code
Extended temperature range	-40°C to +71°C	T
Connector retaining clips	2 per fitted to secure mating DIN connector	H
Cold wall plate	Drawing 289-901	M1
Cold wall plate	Drawing 289-902	M2
Low cost enclosure	Drawing 289-913	M4
Front panel	Front panel and rack mounting plate Drawing 289-908	Q4 + M3
Connections	Cables 350mm (halogen free cable)	Q6

Technical drawing



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