



DC/DC converter for railway applications

XER open frame version



XER enclosed version



Part number	Output	
	V _o [V dc]	I _o [A]
XER 1200	12	12.5
XER 1500	15	10
XER 2400	24	8.3
XER 3600	36	5.6
XER 4800	48	4.2

Description

The 200W XER series is a range of cost-effective, medium power, single output converters. The range is compliant with the latest European standards for railway equipment, including EMC and fire and smoke.

Special features include:

- Very compact, lightweight and cost-effective
- High efficiency
- Each model covers two nominal vehicle battery voltages
- Fully compliant with rail standards, including EN 50155 (2017) & EN 50121.3.2 (2016)

Input specifications

The following input voltage versions are available as standard:

72V / 110V (50.4 - 137.5V) dc (Suffix AD)

24V / 36V (16.8 - 50.4V) dc (Suffix BF)

Parameter	Detail	
Under-voltage switch-off (Customer configurable) (approximate value)	Standard (factory set) configuration ('L')	Suffix AD 41V
	Alternate configuration ('H')	Suffix BF 13V
		63V 20V
Input Ripple	To EN 50155	
Input Protection	Active reverse polarity protection by series device Surges and transients to EN 50155 (direct and indirect)	
Inrush Current	To EN 50155	
Efficiency	90% typical	
Hold-up time	EN 50155 Class S2 (10ms interruptions) with low impedance source (input short) (24V & 72V input: 9ms @ 200W load, or de-rate to 180W for 10ms)	
Input fuse	Not fitted. External fuse or circuit breaker required	



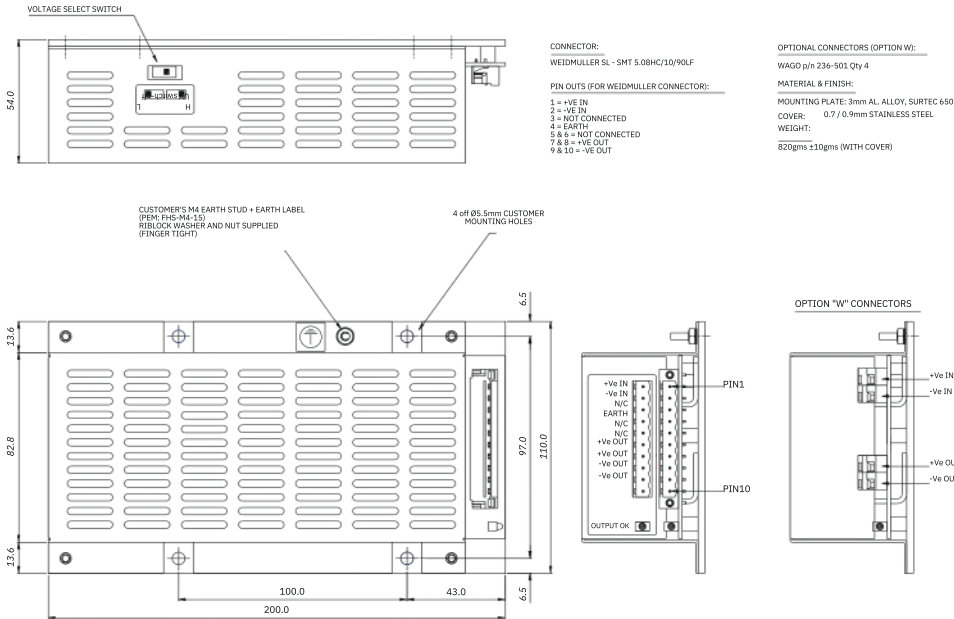
Output specifications

Parameter	Detail				
Maximum Output Power	200W (12V & 15V models de-rated to 150W)				
Output Versions	Single output only				
Output Voltage	Can be specified from 12V to 48V				
Setting Tolerance	±1.00% at 50% load 15°C to 25°C				
Minimum Load	Zero				
Start-up delay (typical)	at 24V input: <1.5s at 36V input: <1.0s		at 72V input: <1.5s at 110V input: <1.0s		
Remote sensing	Not fitted				
Line & Load Regulation	±1.00% combined				
Temperature Coefficient	<0.02% / °C				
Output Ripple	<1% Pk-Pk of Output Voltage				
Output Noise	<75mV Pk-Pk superimposed (up to 20MHz)				
Response Time	0.5ms to within 2% (for a 20% - 90% load change)				
Current limit	Operates at 105 - 130% of rated output current				
Thermal Protection	Shuts down PSU if safe internal temperature is exceeded Auto recovery				
Indictors	Green 'Output OK' LED adjacent to connector				
Maximum capacitive load (output model dependant)	Output model	12V & 15V	24V	36V	48V
	Capacitance:	10,000µF	4,000µF	1,500µF	1,000µF
Isolation	Input to Output	2.0kV ac (tested at 3.0kV dc)			
	Input to Chassis	1.0kV ac (tested at 1.5kV dc)			
	Output to Chassis	1.0kV ac (tested at 1.5kV dc)			

Environmental details

Parameter	Detail
Operating Temperature	EN 50155 class OT4: -40°C to +70°C (no de-rating). (85°C for 10 minutes.) Base plate is intended for cold wall mounting and must not exceed 85°C for full power operation (90°C during 10 minute over temperature)
Output power de-rating	Above 70°C: 3.0% / °C; 100°C absolute maximum
Storage Temperature	-40°C to +85°C
Cooling	Convection / Conduction Mounting surface should be thermally rated at 1.0°C/W. A thermal mass equivalent to 300g of aluminium is required for 10 minutes operation at 85°C.
Relative Humidity	95% max
Shock & Vibration	EN 50155 (EN 61373) for mounting in any orientation
Environmental Protection	IP20 with optional ventilated steel cover

Technical drawing



Applicable norms

Parameter	Detail
EMC	EN 50155 (2017), EN 50121-3-2 (2016)
Other	EN 50155 (2017)
Fire & Smoke	EN 45545-2 (2013)

Mechanical characteristics

Parameter	Detail
Construction	Conformal coated PCB with aluminium base plate. Optional ventilated stainless steel cover
Dimensions (L x W x H) (excluding mounting flanges)	Open frame: 200 x 80 x 50mm With cover: 200 x 83 x 54mm (mounting plate width = 110mm)
Weight	570g (820g with cover)
Connections	Standard: 10 way PCB mounted connector with screw locks, part number: Weidmüller SL-SMT 5.08/ 10 /90LF Option W: Wago cage clamp p/n 236-501 (5 pos) M4 earth stud on base plate
Fixings	Four Ø 5.5mm fixing holes

Options

Code	Detail
S	Ventilated cover
W	Wago connectors



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