

DC/DC converter for railway applications

Description

The NS series is a range of medium and high power single output converters that comply with both the traditional UK & European rail specifications and norms for protection and EMC. The rugged construction and mounting arrangement ensures compliance with vibration and shock requirements.

Special features include:

- Wide choice of input and output voltages
- High output current capability
- Compliant with rail standards, including EN 50121.3.2

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 (some input versions require external fuse or circuit breaker) Surges and transients to RIA 12, EN 50155 (direct and indirect)
Inrush Current	Limited to typically 6 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	NSL series = 200W NSH series = 400W (24V input version is 300W)
Output Versions	Single output only
Output Voltage	Can be specified from 12V to 48V
Setting Tolerance	±1.0% at 50% load, 15°C to 25°C
Minimum Load	Zero

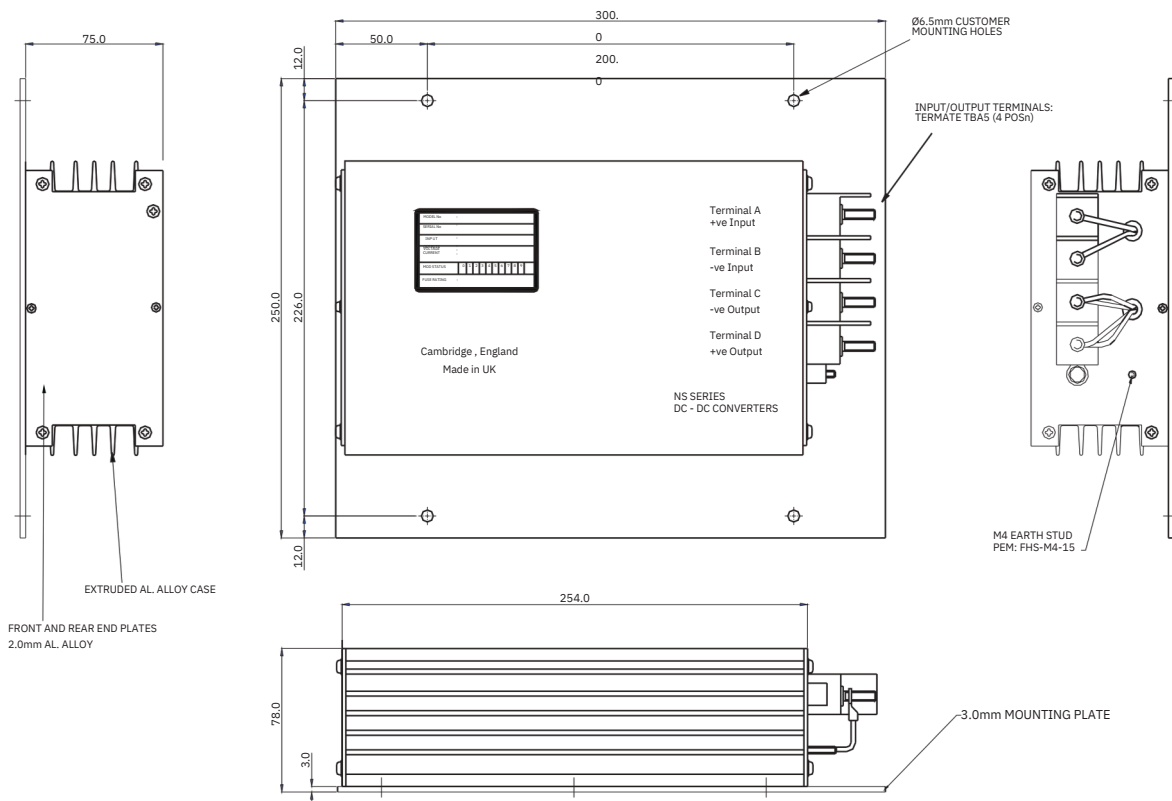
Output specifications (Continued)

Parameter	Detail	
Line Regulation	±0.5%	
Load Regulation	±0.5%	
Temperature Coefficient	<0.02% / °C	
Output Ripple	<1% Pk-Pk of Output Voltage	
Output Noise	<75mV Pk-Pk superimposed (up to 20MHz)	
Response Time	0.5ms to within 2% (for a 10% - 100% load change)	
Current limit	Operates at approximately 110% of full power	
Thermal Protection	Shuts down PSU if safe internal temperature is exceeded. Auto recovery	
Isolation (tested at dc equivalent voltage)	Input to Output	1.0kV ac (tested at 1.4kV dc)
	Input to Case	1.0kV ac (tested at 1.4kV dc)
	Output to Case	1.0kV ac (tested at 1.4kV dc)

Environmental details

Parameter	Detail
Operating Temperature	-25°C to +55°C (no derating)
Storage Temperature	-40°C to +80°C
Cooling	By convection
Relative Humidity	95% max
Shock & Vibration	EN 50155 (EN 61373), RIA 20
Environmental Protection	IP54

Technical drawing



Applicable norms

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

Mechanical characteristics

Parameter	Detail
Construction	Fully enclosed in rugged splash-proof case
Dimensions	Length = 260mm (300mm with connectors)
	Width = 160mm (250mm with plate)
	Height = 75mm (78mm with plate)
Weight	<4.0kg
Connections	Input / output connections are M5 studs. M4 earth stud
Fixings	Four Ø 6.5mm clear holes on mounting plate

Option	Detail	Code
Narrow Mounting plate	330 x 160mm	M1



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