



- 110W WITH 11.7CFM FORCED COOLING
- FULLY ISOLATED
- WIDE RANGE 30-120VDC INPUT
- DESIGNED TO MEET EN 50155
- REVERSED INPUT PROTECTION
- COMPACT 2" X 5" FOOTPRINT
- LOW INRUSH CURRENT
- UP TO 90% EFFICIENCY



ND0111 - DC/DC

The ND0111 is a 110W single output DC/DC converter with a compact 2" x 5" footprint and wide 30-120VDC input range and 12VDC output.

Meeting the requirements of EN50155 and IEC60571 for safety as well as EN50121-3-2 EMI, the ND0111 is particularly suitable for use in a wide range of railway rolling stock applications.

The ND0111 is fully isolated from primary to secondary and primary to ground and as a result minimises electrical and RF noise on the output. Other features include reversed polarity input protection, low inrush current, short circuit and overload protection.

Other standards met include EN60950-1 2nd Edition, EN55022 expanding the scope to more general commercial and industrial applications.

STANDARD MODEL	INPUT VOLTAGE (RANGE)	INPUT CURRENT <sup>1</sup>	OUTPUT VOLTAGE	OUTPUT CURRENT <sup>2</sup>	OUTPUT POWER <sup>2</sup>	TYPICAL EFFICIENCY
ND0111-048-0120	30-120VDC	5A	12.0V	7.5A <sup>3</sup> 9.17A	90W 110W	90%
			12.0V (fan only)	0.3A	3.6W	

Notes:

1. Based on typical efficiency at 48VDC input and 90W output.
2. First figure is with free air convection, second figure is with 11.7CFM forced cooling.
3. Rated load.

OTHER DC/DC CONVERTERS  
Encapsulated Bricks to 500W  
Front-Ends to 600W  
MIL spec to 1000W



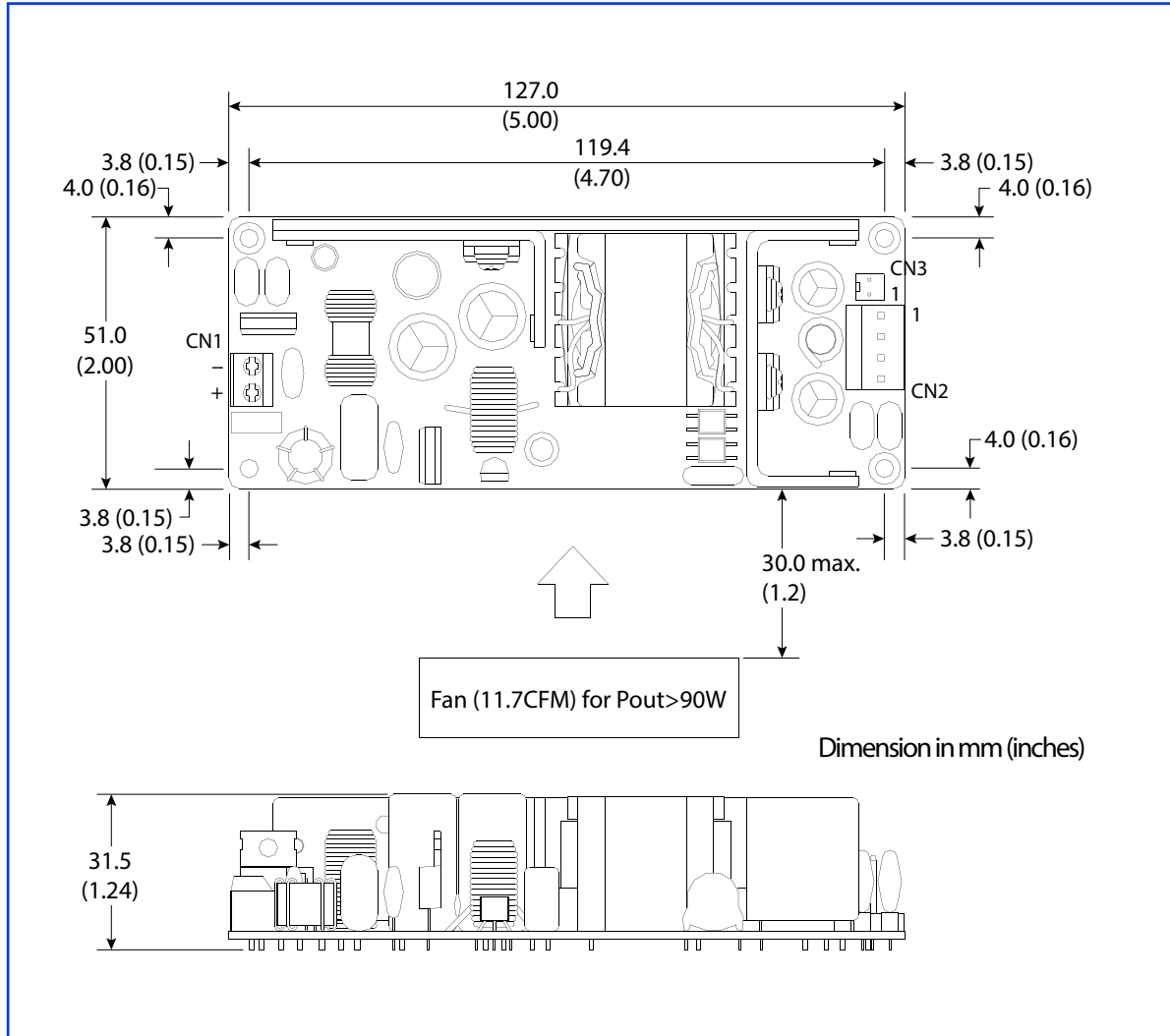
INPUT SPECIFICATIONS	
Input Voltage Range	30-120VDC, 48VDC nominal
Permissible Input Voltage	28-140VDC, 1sec max.
Input Current	5A @ 48VDC input & 90W load
Input Protection	internal fuse, T6.3A
Reversed Input Protection	no damage will occur
Inrush Current (cold start)	10A @ 48VDC & 25°C

OUTPUT SPECIFICATIONS	
Voltage Set-point (typical)	11.76-12.24V @ 60% rated load
Line Regulation	±1% for 48VDC ±10% line change
Load Regulation	±0.5% for 60% ±40% load change at rated load
Efficiency	90% at 48VDC input and rated load
Continuous Output Power	90W convection, 110W with 11.7CFM forced cooling
Overload Protection	hiccup mode with auto-recovery
Short Circuit Protection	hiccup mode with auto-recovery
Ripple & Noise (20MHz)	60mV pk-pk (10µF Electrolytic in parallel with 100nF Ceramic across output)
Overvoltage Protection	12.8-15V, latch off
Minimum Load	0A

GENERAL & ENVIRONMENTAL SPECIFICATIONS	
Temperature Range	-10°C to +70°C operating, -20°C to +75°C storage
Derating	0.6%/°C from 50°C to 70°C convection, none with 11.7CFM cooling (see graph)
Humidity	10-90% non-condensing
Cooling	Free air convection or external forced air
Altitude	2000m max.
Safety Standards	UL/EN/IEC60601-1 2nd Ed. IEC60571 / EN50155
Isolation Voltage	1500VACrms input/output 500VDC input/ground 500VDC output/ground
isolation Resistance	100MΩ / 500VDC
Emissions	EN55022, CISPR22, FCC Part 15J class A conducted & radiated emissions EN50121-3-2 conducted & radiated emissions
Immunity	IEC61000-4-2, ±8kV air discharge, ±6kV contact discharge - criterion A IEC61000-4-3, 10V/m - criterion A IEC61000-4-4, ±2kV line-ground - criterion A IEC61000-4-5, ±1kV line-line, ±2kV line-ground, ±2kV - criterion A IEC61000-4-6, 10V/m - criterion A

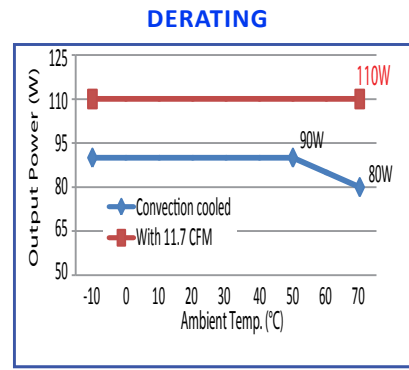


#### MECHANICALS



ND0111 - DC/DC

CONNECTOR DETAILS				
Connector	Pin	Function	Housing	Terminal
CN1 (Input)	1	Vin +	N/A	24-14AWG max. torque=0.4Nm
	2	Vin -		
CN2 (Output)	1	+12V	MOLEX 09-05-1041 (5195-04) or 09-52-4044 (5239-04)	MOLEX 5194, 5225, 2478, 2578, 5176 or 5168
	2	+12V		
	3	0V		
	4	0V		
CN3 (fan)	1	+12V fan	MOLEX 22-01-1022 (5051-02) or 51191-0200	MOLEX 2759, 5159 or 50802
	2	0V fan		



All specifications are typical at nominal line input, full load and 25°C unless otherwise stated.

nd0111-ds-rev2-0517.indd

#### Powerstax Europe

Units 5-6 Heron Avenue  
Wickford  
Essex  
SS11 8DL, UK

#### Powerstax North America

12804 W. Santa Ynez Drive  
Sun City West  
Arizona 85375  
USA

Information and specifications contained in this data sheet are believed to be correct at the time of publication. However, Powerstax accept no responsibility for consequences arising from printing errors or inaccuracies. Specifications are subject to change without notice.