NLP250-DC Series
Single Output

Total Power: 250 W
Input Voltage: 38 - 60 Vdc
# of Outputs: Single

RoHS 2002/95/EC

Special Features

- -48 Vdc Input
- 250 W on main channel with forced air
- Low profile fits 1U applications
- U-Channel for maximum thermal performance
- 5 V standby output
- 12 V fan output
- Integrated control and monitoring features
- Overcurrent, overvoltage and overtemperature protection
- Compliance to EN55022-B conducted noise standard
- RoHS compliant
- 2 year warranty

Safety

- VDE0805/EN60950-1
- IEC950/IEC60950-1
- UL/cUL 60950-1
- CSA-C22.2 60950-1
- CB Certificate
- CE Mark (LVD)

Electrical Specifications

Input		
Input voltage range:	-48 Vdc Nominal	38 - 60 Vdc
Input surge current:	60 Vdc (cold start)	40 A max.
Input voltage protection:	Reverse polarity protected	
Input current:	-48 Vdc @ 250 W	7 A
Input fuse:	UL/IEC127	T6.4 AH, 250 Vac
Output		
Maximum power:	200 LFM forced air	250 watts
Total regulation: (line and load)	Main output Auxiliary outputs	± 2.0% ± 5.0%
Turn-on delay:	-48 Vdc Input	2.0 s max.
Transient response:	Main output 50 - 100% Step at 0.5 A/µs	5.0% or 250 mV max. dev., 1 ms max recovery to 1%
Temperature coefficient:		±0.04%/°C
Overvoltage protection:	Main output	115%, ± 5%
Short circuit protection:	Cyclic operation	Continuous
Minimum output current:	Singles	0 A
Auxiliary outputs: (See Note 8, page 3)	5 Vsb 12 V (fan)	5 V @ 1.0 A 12 V @ 1.5 A

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

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EMC Characteristics [5]		
Conducted emissions:	EN55022, FCC part 15 CISPR22, GR-1089 Core, ETSi 300-386	Level B
ESD air:	EN61000-4-2	Level 3
ESD contact:	EN61000-4-2	Level 3
Radiated immunity:	EN61000-4-3	Level 3
Fast transients:	EN61000-4-4	Level 3
Surge:	EN61000-4-5	Level 3
Conducted immunity:	EN61000-4-6	Level 3
General Specifications		
Hold-up time:	-48 Vdc Input	4 ms @ 250 W
Efficiency:	-48 Vdc @ 250 W	85% typ.
Isolation voltage:	Input/output Input/chassis	1500 Vdc 1500 Vdc
Safety approvals (see note 6, page 3):	UL/cUL UL60950-1, VDE EN60950-1, CAN/CSA22.2 No. 60950-1	
Weight:		650g (22 oz)
MTBF (@25 °C):	Telcordia SR-332	317,000 hours min.

Environmental Specifications

Thermal performance:	Operating ambient,	-5 °C to +70 °C
	(See derating curve)	
	Non-operating	-40 °C to +85 °C
	0 °C to 50 °C ambient,	250 W
	200 LFM forced air 250 LFM with cover	
	0 °C to 50 °C ambient	175 W
	Convection cooled	
	50 °C to 70 °C ambient,	Derate linearly
	Convection cooled	to 50% load
Relative humidity:	Non-condensing	Per GR-63-Core
Altitude:	Operating	10,000 feet max.
	Non-operating	30,000 feet max.
Vibration:	5-100 Hz	Per GR-63-Core
Shock:	Per GR-63-Core	Zone 4

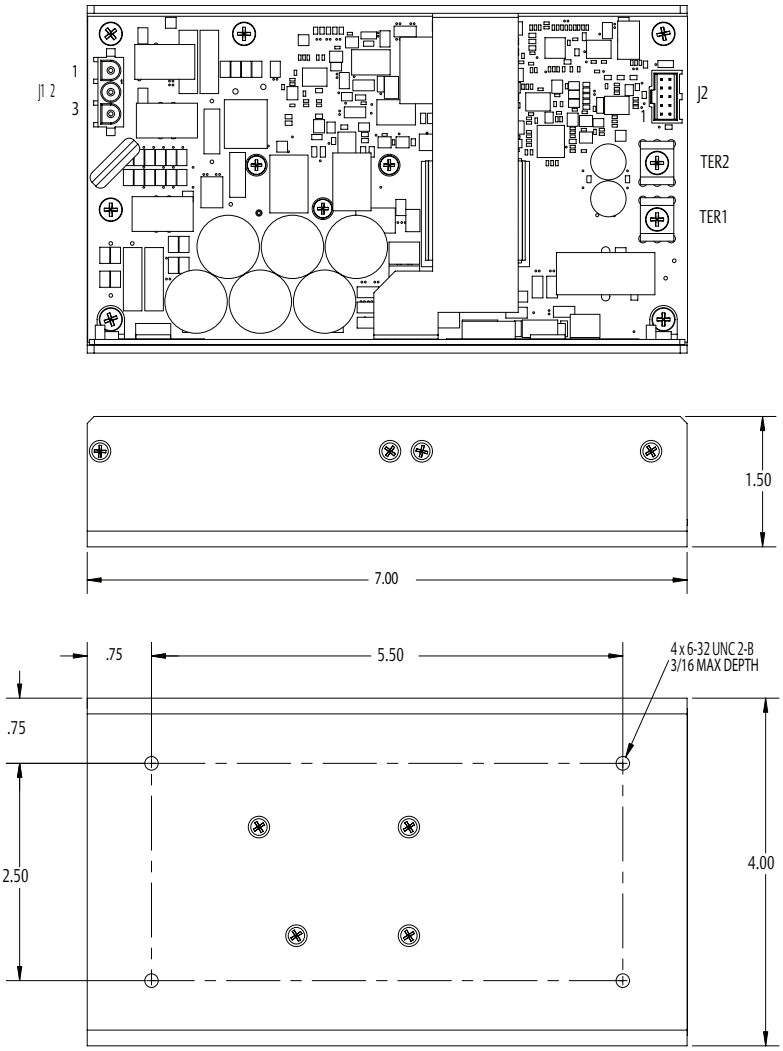
Ordering Information

Output Voltage	Output Current			Ripple (3)	Total Regulation	Model Numbers (9, 10)
	Min	Max (free air) (1,4)	Max (forced air) (2,4)			
12 V	0 A	14.6 A	21 A	120 mV	± 2.0%	NLP250N-48S12J

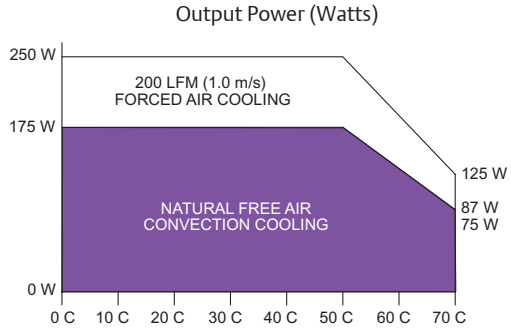
Notes

1 Free air convection. Maximum continuous output power not to exceed 175 W. Refer to Figure 1 for the derating curve.
2 200 LFM (250 LFM with cover) forced air cooling from the longer side. Maximum continuous output power not to exceed 250 W.
3 Figure is peak-to-peak for room temperature rating. Output noise measurements are made across a 20 MHz bandwidth using a 6 inch twisted pair, terminated with a 10 µF tantalum capacitor and a 0.1 µF ceramic capacitor.
4 CAUTION: Allow a minimum of 1 second after disconnecting line power when making thermal measurements. For optimum reliability no part of the heatsink should exceed 115 °C and no semi-conductor case temperature should exceed 120 °C.
5 No external filtering required during conducted emissions testing but some applications may require additional filtering to achieve system compliance. Compliance with radiated EMI specifications may require mounting in a suitable enclosure.
6 This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
7 5 V sb (standby) output is available whenever DC input is present, regardless of remote ON/OFF signal status. 12 V (fan) present when main output is present.
8 The 'J' suffix indicates that these parts are Pb-free (RoHS 6/6) compliant.
9 NOTICE: Please contact your local Emerson representative or visit our website at http://www.PowerConversion.com.

Mechanical Drawing



Derating Curve



Connector and Mating Connector Types		
Connector	Type	Mating Connector Type
J1	Molex 10-84-5030 (4202 series)	Molex 50-84-1035 (42021 series) or equivalent with Molex 02-08-1001 (42024 series) or equivalent crimp terminals
J2	Molex	Molex 90142-0010 Molex 90119-2110 crimp terminals
TER1 TER2	Terminal block	Terminal block contains #6-32 screw with clamp washer suitable for wire size 12-22 awg (0.5-2.5 mm²). Max Torque tp 1.36 Nm (12 in.lb)

Pin Connections	
J1	
Pin 1	-48 Vdc
Pin 2	Ground
Pin 3	Return
J2	
Pin 1	N/C
Pin 2	-VO Remote Sense
Pin 3	+VO Remote Sense: Load compensation for 0.2 V to 0.5 V drop at load (sense point)
Pin 4	5 V Standby
Pin 5	Signal Common (RTN): 5 V standby and 12 V fans
Pin 6	12 V DC Fan Voltage
Pin 7	Signal Common (RTN): 5 V standby and 12 V fans
Pin 8	Inhibit: A closed contact (Low) will shut down PSU main output within 200ms (typical)
Pin 9	DC Power Good: Vo > -8% of nominal = Logic HI, Out of Regulation = Logic Low
TER1	+12 V
TER2	GND

Americas
5810 Van Allen Way
Carlsbad, CA 92008
USA
Telephone: +1 760 930 4600
Facsimile: +1 760 930 0698

Europe (UK)
Waterfront Business Park
Merry Hill, Dudley
West Midlands, DY5 1LX
United Kingdom
Telephone: +44 (0) 1384 842 211
Facsimile: +44 (0) 1384 843 355

Asia (HK)
14/F, Lu Plaza
2 Wing Yip Street
Kwun Tong, Kowloon
Hong Kong
Telephone: +852 2176 3333
Facsimile: +852 2176 3888

For global contact, visit:

www.PowerConversion.com

techsupport.embeddedpower@emerson.com

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