

## NLP250-DC Series

Single Output

### Data Sheet

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

### 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
- Two 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 Vac
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	± 2.0%
	Auxiliary outputs	± 5.0%
Turn-on delay	-48 Vdc input	2.0 s max.
Transient response	Main output	5.0% or 250 mV
	50 - 100% Step at 0.5 A/μs	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	5 V @ 1.0 A
	12 V (fan)	12 V @ 1.5 A

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

EMC Characteristics <sup>(5)</sup>		
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,	-50 °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

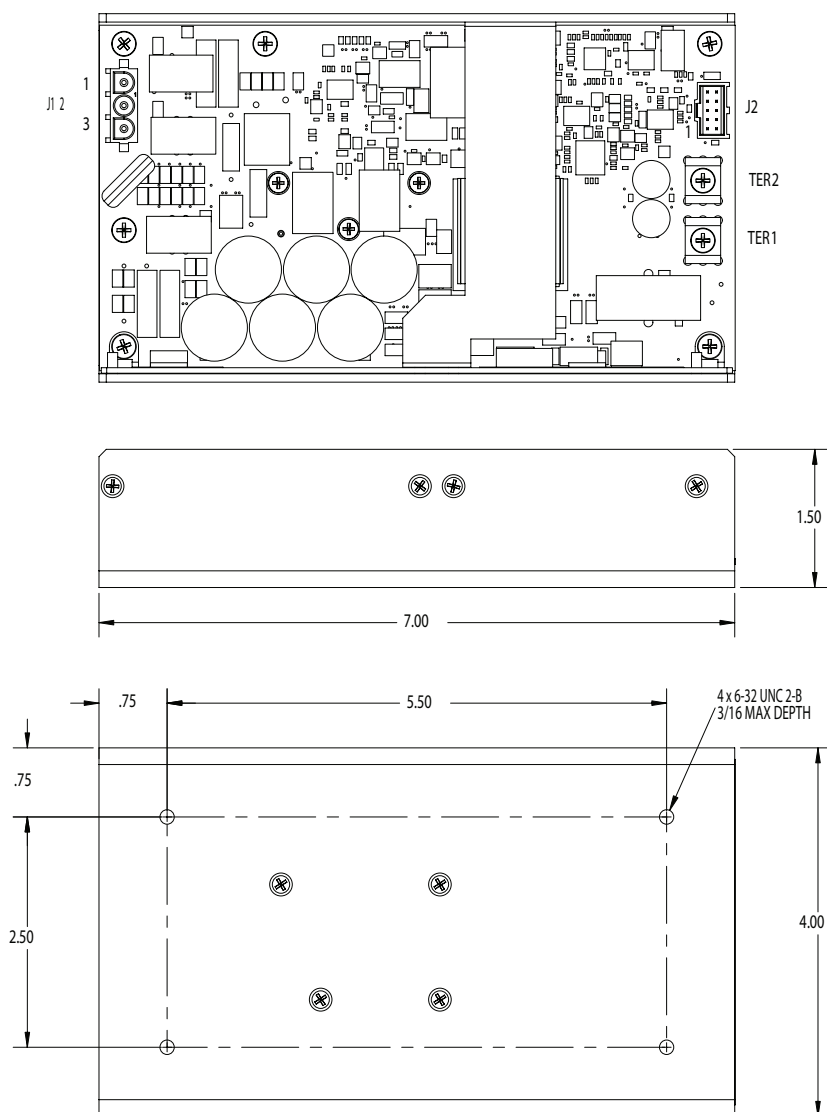
## Ordering Information

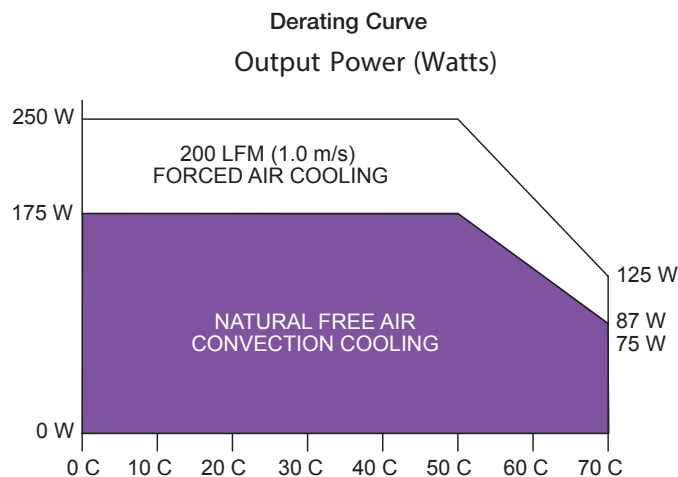
Output Voltage	Output Current			Ripple <sup>(3)</sup>	Total Regulation	Model Numbers <sup>(9,10)</sup>
	Min	Max (free air) <sup>(1,4)</sup>	Max (forced air) <sup>(2,4)</sup>			
12 V	0 A	14.6 A	21 A	120 mV	± 2.0%	NLP250N-48S12J

## Notes

- Free air convection. Maximum continuous output power not to exceed 175 W. Refer to Figure 1 for the derating curve.
- 200 LFM (250 LFM with cover) forced air cooling from the longer side. Maximum continuous output power not to exceed 250 W.
- 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  $\mu$ F tantalum capacitor and a 0.1  $\mu$ F ceramic capacitor.
- 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.
- 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.
- This product is only for inclusion by professional installers within other equipment and must not be operated as a standalone product.
- 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.
- The 'J' suffix indicates that these parts are Pb-free (RoHS 6/6) compliant.
- NOTICE: Please contact your local Emerson representative or visit our website at <http://www.PowerConversion.com>.10 NOTICE: Some models do not support all options. Please contact your local Artesyn Embedded Technologies representative or use the on-line model number search tool at <http://www.artesyn.com/power> to find a suitable alternative.

## Mechanical Drawing





### Pin Connections

J1	
Pin 1	-48 Vdc
Pin 2	Ground
Pin 3	Return
J2	
Pin 1	N/C
Pin 2	-V0 Remote Sense
Pin 3	+V0 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 200 ms (typical)
Pin 9	DC Power Good: $V_o > -8\%$ of nominal = Logic High, Out of Regulation = Logic Low
TER1	
TER1	+12 V
TER2	
TER2	GND

### 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 mm <sup>2</sup> ). Max Torque tp 1.36 Nm (12 in.lb)

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