

ARTESYN NLP250-DC SERIES

Single Output



Advanced Energy's Artesyn NLP250-DC series high-density, open-frame switching power supply is designed to operate directly from a -48 Vdc telecom central office power bus and supports a wide input voltage range of -38 to -60 Vdc. It can deliver 250 watts of continuous power with forced air to support battery backup and high-availability applications. The NLP250-DC features a compact 4 x 7 inch footprint – identical to AC models to facilitate a drop-in alternative for OEMs – and offers a low-profile component height of 1.5 inches to support a variety of 1U telecom applications.

DATA SHEET

Total Power:

250 W

Input Voltage:

-38 to -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 to -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.

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, (See derating curve)	-50 °C to +70 °C
	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

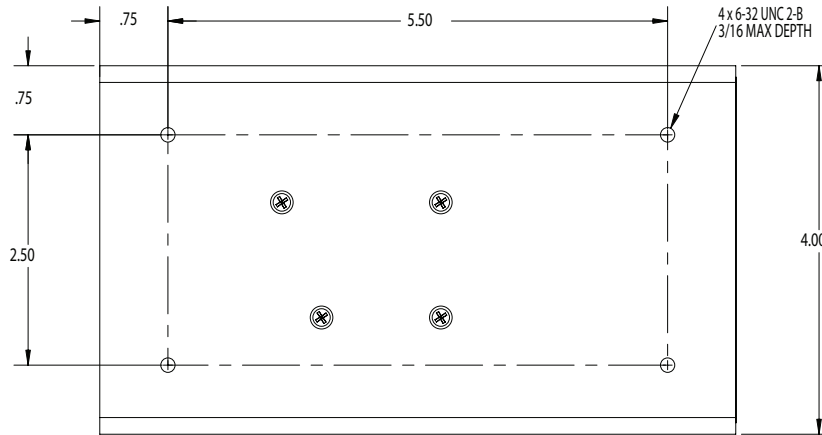
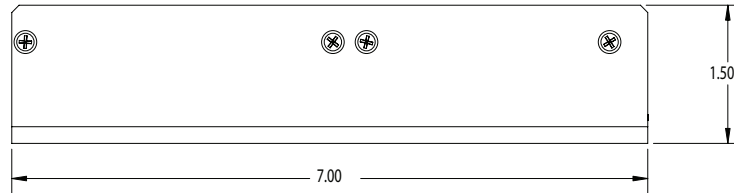
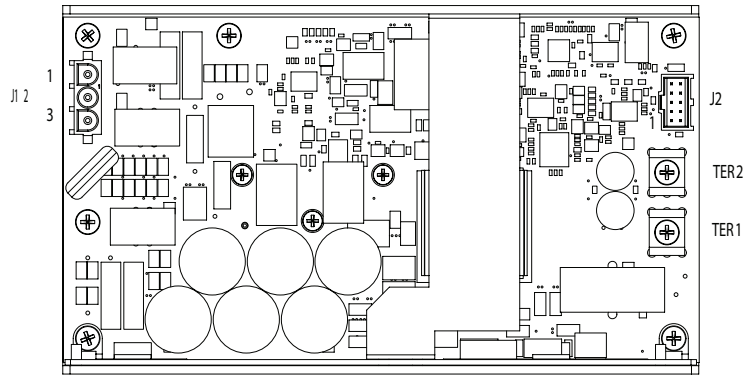
ORDERING INFORMATION

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

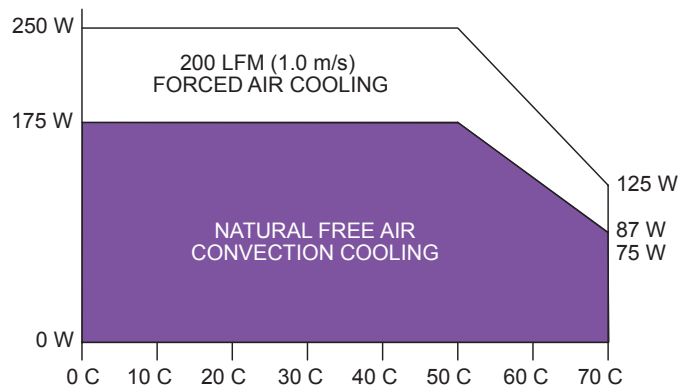
Notes

- 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 µF tantalum capacitor and a 0.1 µF 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>.
- NOTICE: Some models do not support all options. Please contact your local Artesyn Embedded Power representative or use the on-line model number search tool at <http://www.artesyn.com> to find a suitable alternative.

MECHANICAL DRAWING



Derating Curve
Output Power (Watts)



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 ²). 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	-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: Vo > -8% of nominal = Logic High, Out of Regulation = Logic Low
TER1	
TER1	+12 V
TER2	
TER2	GND



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ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE

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