NLP150L Series

Quad output

- **90VAC to 264VAC universal input range**
- **Provides low voltage outputs (3.3V)**
- **EN61000-3-2 compliant**
- **Overvoltage and short circuit protection**
- **Power fail detection**
- **Current sharing (on V_A and V_B)**
- **3.8 x 7.8 x 1.26 inches**
- **UL, CSA and VDE safety approvals and CE-marked to LVD**
- **Compliance to EN55022-B conducted noise standard**
- **Compliance to EN55022-A radiated noise standard**
- **Meets all applicable and relevant immunity standards EN61000-4-2, -3, -4, -5 and -6**

The NLP150L series of 150 Watt AC/DC open frame power supplies are available with single, triple or quad outputs. The quad output versions described in this datasheet are housed in a 3.8 x 7.8 x 1.26 inch package. All NLP150L series power supplies are harmonic current corrected to meet the EN61000-3-2 standard, and support current sharing. The power supplies are designed for use in 1U shelves or boxes, and are primarily intended for networking applications that have a heavy logic content, such as access concentrators, midrange routers, LAN switches and shared media hubs.

CE (LVD)

2 YEAR WARRANTY

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

SPECIFICATIONS

OUTPUT SPECIFICATIONS

Total regulation (Line and load)	Main output Auxiliary outputs	±2.0% ±5.0%
Rise time	At turn-on	1.5s, max.
Transient response	Main output 75% to 100% step at 0.1A/µs	5.0% or 250mV max. dev., 1ms max. recovery to 1%
Temperature coefficient		±0.02%/°C
Overvoltage protection	Main outputs	125%, ±10%
Short circuit protection	Cyclic operation	Continuous
Minimum output current	Single and multiple	See table

INPUT SPECIFICATIONS

Input voltage range	Universal input	90 to 264VAC
Input frequency range		47Hz to 63Hz
Input surge current	264VAC (cold start)	40A max.
Safety ground leakage current	264VAC, 60Hz	0.99mA
Input current	120VAC @ 150W 230VAC @ 150W	1.95A rms 1.10A rms
Input fuse	UL/IEC127	F3.15A H, 250VAC

EMC CHARACTERISTICS (10)

Conducted emissions	EN55022, FCC part 15	Level B
Radiated emissions	EN55022, FCC part 15	Level A
Harmonic current emission correction	EN61000-3-2	Compliant
ESD air	EN61000-4-2	Level 3
ESD contact	EN61000-4-2	Level 3

EMC CHARACTERISTICS (continued) (10)

Surge	EN61000-4-5	Level 3
Fast transients	EN61000-4-4	Level 3
Radiated immunity	EN61000-4-3	Level 3
Conducted immunity	EN61000-4-6	Level 3

GENERAL SPECIFICATIONS

Hold-up time	120VAC @ 60Hz	20ms @ 150W
Efficiency	120VAC @ 150W	73% typical
Isolation voltage	Input/output Input/chassis	3000VAC 1500VAC
Approvals and standards pending		EN60950, VDE0805, IEC950 UL1950, CSA C22.2 No. 950
Weight		540g (19oz)
MTBF (@ 25°C)	MIL-HDBK-217F Bellcore	350,000 hours min. 800,000 hours min.

ENVIRONMENTAL SPECIFICATIONS (8)

Thermal performance	Operating ambient, (See derating curve)	0°C to +50°C
	Non-operating	-40°C to +85°C
	50°C to 70°C ambient, convection cooled	Derate to 50% load
	0°C to 50°C ambient, convection cooled	110W
	0°C to 50°C ambient, 300LFM forced air	150W
	Peak (0°C to +50°C)	
Relative humidity	Non-condensing	5% to 95% RH
Altitude	Operating Non-operating	10,000 feet max. 30,000 feet max.
Vibration (See Note 6)	5Hz to 500Hz	2.4G rms peak
Shock	per MIL-STD-810E	516.4 Part IV

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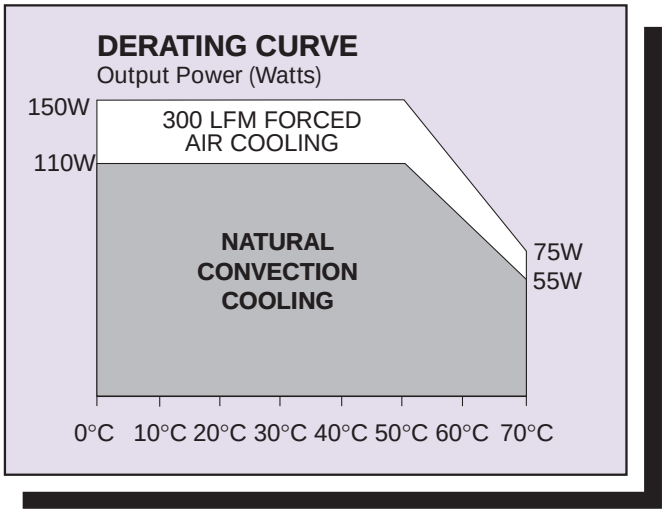
OUTPUT VOLTAGE	OUTPUT CURRENT			RIPPLE (4)	TOTAL REGULATION	MODEL NUMBERS
	MIN (5)	MAX (1)	300 LFM (2)			
5.1V (V_A)	1.5A	20A	30A	50mV	±2.0%	NLP150L-96Q5366
+3.3V (V_B)	0.5A	10A	15A	50mV	±2.0%	
+12V (V_C)	0A	2.0A	3.0A	120mV	±5.0%	
12V, $_{ISO}$ (V_D)	0A	0.65A	1.0A	120mV	±5.0%	

Notes

1. Free air convection.
   Multiple output units: maximum continuous output power not to exceed 110W and the output current not to exceed: $I_A+I_B+2(I_C+I_D)\leq 23A$.
2. 300LFM forced air cooling from the longer side.
   Multiple output units: maximum continuous output power not to exceed 150W and the output current not to exceed: $I_A+I_B+2(I_C+I_D)\leq 32A$.
3. Peak output current lasting less than 30 seconds with duty cycle less than 5%. During peak loading, output voltage may exceed total regulation limits.
4. Figure is peak-to-peak for room temperature rating. Output noise measurements are made across a 20MHz bandwidth using a 6 inch twisted pair, terminated with a 10µF electrolytic capacitor and a 0.1µF ceramic capacitor.
5. Minimum load required for correct start-up and operation on single outputs and on main output of multiple versions. Failure to observe minimum load on main output will not allow the supply to start-up correctly. Some electronic test loads have a large delay time before they start drawing current even though the voltage from the supply is present. During this time delay, there is no load on the output and as a result, the supply may not be able to start-up properly and maintain its correct output voltage. In these instances, a dummy resistive load across the output may be necessary to load the output of the supply until the test load can function correctly and draw the intended minimum load. Minimum load required on auxiliary outputs to maintain regulation.
6. Three orthogonal axes, random vibration 10 minutes for each axes, 2.4G rms 5Hz to 500Hz.
7. For optimum reliability no part of the heatsink should exceed 110°C and no semi-conductor case temperature should exceed 120°C.
8. CAUTION: Allow a minimum of 1 second after disconnecting line power when making thermal measurements.
9. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
10. The EMI specifications reference measurements made with the power supply mounted on a grounded metal sheet extending 1 inch beyond each edge, using an unshielded cable. No external filtering required during conducted emissions testing but some applications may require additional filtering to achieve system compliance
11. All models require a minimum mounting stand-off of 6.35mm (0.25 inches) in the end use product.



International Safety Standard Approvals

VDE 0805/EN60950/IEC950 File No. 10401-3336-0183/326TX F13/S
Licence No. 129114
UL1950 File No. E136005
CSA C22.2 No. 950 File No. LR41062C

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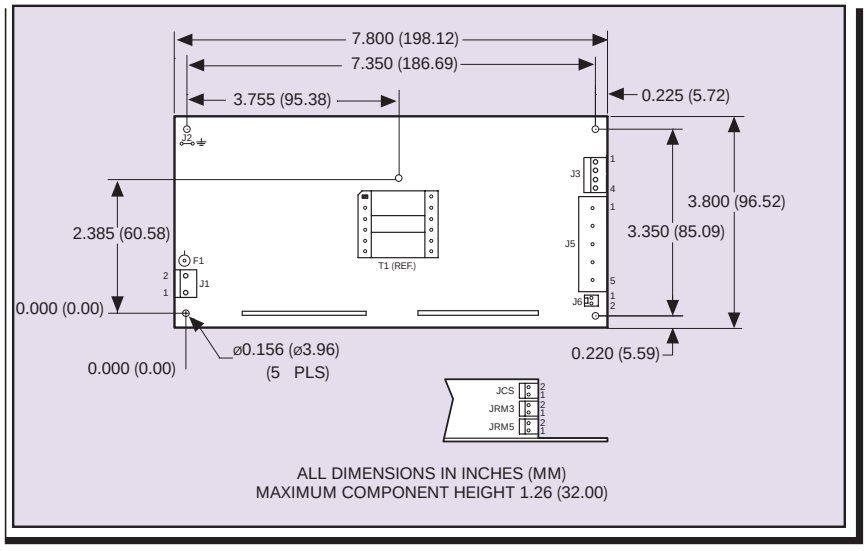
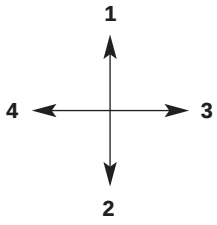
Mechanical Notes

A All dimensions are in inches (mm).





Recommended direction for forced air relative to power supply orientation shown below.

1 Best.
2 Good.
3 Not recommended.
4 Not recommended.

CONNECTOR AND MATING CONNECTOR TYPES		
CONNECTOR	**TYPE**	**MATING CONNECTOR TYPE**
J1	Molex 26-60-4030 or equivalent	Molex 09-50-3031 or equivalent with Molex 08-50-0105 or equivalent crimp terminals
J2	Male 0.250 quick disconnect	Molex 22-01-AA-5261, AA22-01 or equivalent
J3	Molex 26-60-4040 or equivalent	Molex 09-50-3041 or equivalent with Molex 2478 phosphor bronze or equivalent crimp terminals
J5	Beau Interconnect 70505-C-50 or equivalent	70 5 05-C50
J6	Molex 22-23-3021 or equivalent	Molex 22-01-2021 and contact 08-50-0113 terminals or equivalent
JRM3, JRM5 & JCS	Leoco 2421P02H000 or equivalent	Leoco 2420S02000 and contact 2453TPB00V1

J1 PIN CONNECTIONS	
Pin 1	Neutral
Pin 2	Void
Pin 3	Line

J3 PIN CONNECTIONS	
Pin 1	V_D Positive
Pin 2	V_D RTN
Pin 3	V_C Positive
Pin 4	V_C RTN

Note: V_D is a floating output.
It can be configured as positibe or negative

J5 PIN CONNECTIONS	
Pin 1	V_A Positive
Pin 2	V_A Positive
Pin 3	Main RTN
Pin 4	Main RTN
Pin 5	V_B Positive

JRM5 PIN CONNECTIONS	
Pin 1	V_A Sense +
Pin 2	V_A Sense -

JRM3 PIN CONNECTIONS	
Pin 1	V_B Sense +
Pin 2	V_B Sense -

J6 PIN CONNECTIONS	
Pin 1	Signal
Pin 2	RTN

JCS PIN CONNECTIONS	
Pin 1	Load A Current Sharing
Pin 2	Load B Current Sharing