

ARTESYN NLP40 SERIES

Single, Dual and Triple Output



Advanced Energy's Artesyn NLP40 series of AC-DC power supplies includes single, dual and triple output models, covering voltages from 3.3 V to 48 V. Their compact 4.25 x 2.5 x 1.15 inch form factor makes them ideal for use in space constrained and 1U applications. NLP40 power supplies provide 40 watts of output power with free air convection cooling, which can be boosted to 50 watts with 20 CFM of forced air. Standard features include overvoltage and shortcircuit protection. The power supplies are designed for use in low power data networking, computer and telecom applications such as hubs, routers, POS terminals, LCD projectors, cable modems and PABX systems. They are also suitable for a wide range of low power industrial applications.

DATA SHEET

Total Power:

40 - 50 W

Input Voltage:

90 - 264 Vac 120 - 370 Vdc

of Outputs:

Single, dual, triple

SPECIAL FEATURES

- 4.25 x 2.5 x 1.15 inch package (1U applications)
- Universal input
- Overvoltage and short circuit protection
- 40 W with free air convection
- EN55022, EN55011 conducted emission level B
- EN61000-4-2, -3, -4, -5, -6 immunity compliant
- UL, VDE and CSA safety approvals
- NLP40 enclosure kit available
- RoHS compliant

SAFETY

- VDE0805/EN60950/IEC950
 File 10401-3336-0093
 Licence No. 93662
- UL 60950 File No. E132002
- CSA C22.2 No. 950
 File No. LR41062C

ELECTRICAL SPECIFICATIONS

Input			
Input voltage range (See Note 9)	Universal input	90 - 264 Vac 120 - 370 Vdc	
Input frequency range		47 - 440 Hz	
Input surge current	120 Vac, cold start15 A max.230 Vac, cold start30 A max.		
Safety ground leakage current	t 120 Vac, 60 Hz 0.2 mA 230 Vac, 50 Hz 0.4 mA		
Input current	120 Vac 230 Vac	1.4 A rms 0.7 A rms	
Input fuse	UL/IEC127	250 Vac H 3.15 A	
Output			
Total regulation (Line and load)	Main output Auxiliary outputs	±2.0% ±5.0%	
Rise time	At turn-on	1.0 s, max.	
Transient response	Main output 25% step at 0.1 A/µs	5.0% max. dev., 1 ms rec. to 1.0%	
Temperature coefficient		±0.02%/°C	
Overvoltage protection	Main outputs	135%, ±15%	
Short circuit protection	Cyclic operation	Continuous	
Minimum output current	Single Multiple	0 A (See Note 5)	

EMC CHARATERISTICS (10)

Conducted emissions	EN55022, FCC part 15	Level B	
Radiated emissions	EN55022, FCC part 15	Level A	
ESD air	EN61000-4-2, level 3	Perf. criteria 1	
ESD contact EN61000-4-2, level 3		Perf. criteria 1	
Surge	EN61000-4-5, level 3	Perf. criteria 1	
Fast transients	EN61000-4-4, level 3	Perf. criteria 1	
Radiated immunity	EN61000-4-3, level 3	Perf. criteria 1	
onducted immunity EN61000-4-6, level 3		Perf. criteria 1	



GENERAL SPECIFICATIONS

Hold-up time	120 Vac 230 Vac	12 ms @ 40 W 20 ms @ 40 W	
Efficiency		75% typical	
Isolation voltage	Input/output Input/chassis	3000 Vac 1500 Vac	
Switching frequency	Fixed	65 kHz, ±5 kHz	
Approvals and standards (See Note 8)		UL, CSA VDE 60950, IEC950, UL1950 VDE0805, CSA C22.2 No. 950	
Weight		200 g (7.06 oz)	
MTBF demonstrated	MIL-HDBK-217F	150,000 hours min.	

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating ambient (see derating curve) 0° C to +70 °C	
(See Notes 6, 7, 9)	Non-operating	-40 °C to +70 °C
	50 °C to 70 °C ambient, convection cooled Derate to 50% load	
	0 °C to 50 °C ambient, convection cooled 40 W	
	0 °C to 50 °C ambient, 20 CFM forced air	50 W
	Peak (0 °C to +50 °C, 60 s) (See Note 2)	
Relative humidity	Non-condensing	5 to 95% RH
Altitude	Operating	10,000 feet max.
	Non-operating	30,000 feet max.
Vibration (See Note 4):	5-500 Hz	2.4 G rms peak
Shock	Per MIL-STD-810E	516.4 Part IV



ORDERING INFORMATION

0	Output Current		- •••• (3)		Model	
Output voltage	Max ⁽¹⁾	Peak ⁽²⁾	Fan ⁽¹⁾	кірріе⊗	Iotal Regulation	Number(11,12)
+3.3 V (I _A)	4 A	5 A	4.5 A	50 mV	±2.0%	NLP40-76T366J ⁽⁵⁾
+12 V (I _B)	2 A	3 A	3 A	120 mV	±5.0%	
-12 V (I _C)	0.2 A	1 A	0.5 A	120 mV	±5.0%	
+5 V (I _A)	4 A	5 A	4.5 A	50 mV	±2.0%	NLP40-7608J ⁽⁵⁾
+12 V (I _B)	2 A	3 A	3 A	120 mV	±5.0%	
–12 V (I _C)	0.2 A	1 A	0.5 A	120 mV	±5.0%	
+5 V (I _A)	4 A	5 A	4.5 A	50 mV	±2.0%	NLP40-7610J ⁽⁵⁾
+15 V (I _B)	1.6 A	2 A	2 A	150 mV	±5.0%	
–15 V (I _C)	0.2 A	1 A	0.5 A	150 mV	±5.0%	
+12 V (I _A)	1.8 A	2.2 A	2.1 A	120 mV	±2.0%	NLP40-7627J ⁽⁵⁾
-12 V (I _B)	1.8 A	2.2 A	2.1 A	120 mV	±5.0%	
+5 V (I _A)	4 A	5 A	4.5 A	50 mV	±2.0%	NLP40-7629J ⁽⁵⁾
+12 V (I _B)	2 A	3 A	3 A	120 mV	±5.0%	
3.3 V (I _A)	8 A	10 A	9 A	50 mV	±2.0%	NLP40-76S3J
5 V	8 A	10 A	9 A	50 mV	±2.0%	NLP40-7605J
12 V	3.3 A	4.5 A	4 A	120 mV	±2.0%	NLP40-7612J
15 V	2.6 A	3.6 A	3.3 A	150 mV	±2.0%	NLP40-7615J
24 V	1.6 A	2.5 A	2 A	240 mV	±2.0%	NLP40-7624J
48 V	0.8 A	1.1 A	1 A	300 mV	±2.0%	NLP40-7617J

Notes

1. Maximum output power is 40 W for natural convection cooling. With 20 CFM fan cooling, the maximum output power is 50 W.

2. Peak output current lasting less than 60 seconds with duty cycle less than 5%. During peak loading, output voltage may exceed total reg. limits.

3. Figure is peak-to-peak. Output noise measurements are made across a 50 MHz bandwidth using a 12 inch twisted pair, terminated with a 47 µF capacitor.

4. Three orthogonal axes, random vibration 10 minutes for each axes, 2.4 G rms 5 Hz to 500 Hz.

5. For multiple output units (except -7627J, 76T366J) to maintain stated regulation then:

 $0.25 \leq I_{A}/$ $I_{B} \leq 5,$ for $I_{B} > 0.3$ A

0.50 \leq I_A/ I_B \leq 5, for I_B < 0.3 A

For maximum output current I(C) on triple output models, i.e. for I_{C} = IMax., I Amin. ≥ 0.5 A and $I_{A} \ge I_{B}$.

For NLP40-7627J only, to maintain stated regulation then: $0.5 \le I_A/I_B \le 2$.

For NLP40-76T366J only, to maintain stated regulation then: 0.25 \leq I_A/ I_B \leq 4.

6. For optimum reliability, no part of the heatsink should exceed 120 °C, and no semiconductor case temperature should exceed 130 °C.

7. CAUTION: Allow a minimum of 1 second after disconnecting line power when making thermal measurements.

8. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.

9. When the input voltage is <90 Vac the operating range is 0 °C to +40 °C.

10. For system EMI compliance, a ground choke may be required before connecting the ground wire to the chassis. It is recommended that this ground choke be placed as close as possible to the systems ac inlet to eliminate noise pick-up in the system.

11. The 'J' suffix indicates that these parts are Pb-free (RoHS6/6) compliant. TSE RoHS 5/6 (non Pb-free) compliantversions may be available on special request, please contact your local sales representative for details.

12. NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at http://www.artesyn.com to find a suitable alternative.

13. This product is a Component Power Supply and is only for inclusion by professional installers within other equipment and must not be operated as a standalone product. EMC compliance to appropriate standards must be verified at the system level. This product is for sale to OEMs and System Integrators, including through Distribution Channels. It is not intended for sale to End Users.



ORDERING INFORMATION (CONTINUED)



MECHANICAL DRAWING



INPUT PIN CONNECTIONS

J1		
Pin 1	AC Line	
Pin 2	No Pin	
Pin 3	AC Neutral	
P1		
Pin 1	Safety Ground	

OUTPUT PIN CONNECTIONS

J2	SINGLE	DUAL	TRIPLE
Pin 1	+Vout	V (B)	V (B)
Pin 2	+Vout	V (A)	V (A)
Pin 3	+Vout	V (A)	V (A)
Pin 4	Return	Return	Return
Pin 5	Return	Return	Return
Pin 6	Return	Return	V (C)

INPUT AND OUTPUT CONNECTORS

MATING CONNECTORS

AC (J1)	Molex 26-60-4030 type	Molex 09-50-3031 or equivalent with Molex 08-50-0105 or equivalent crimpterminals
DC (J2)	Molex 26-60-4060 type	Molex 09-50-3061 with Triurcon 6838 or equivalent crimp terminals





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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Advanced Energy:

<u>NLP40-76S3J</u> <u>NLP40-76T366J</u> <u>NLP40-7610J</u> <u>NLP40-7612J</u> <u>NLP40-7615J</u> <u>NLP40-7617J</u> <u>NLP40-7624J</u> <u>NLP40-7624J</u> <u>NLP40-7627J</u> <u>NLP40-7629J</u>