

# 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 short-circuit 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 start 230 Vac, cold start	15 A max. 30 A max.
Safety ground leakage current	120 Vac, 60 Hz 230 Vac, 50 Hz	0.2 mA 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 CHARACTERISTICS <sup>(10)</sup>

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
Conducted 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, $\pm 5$ 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

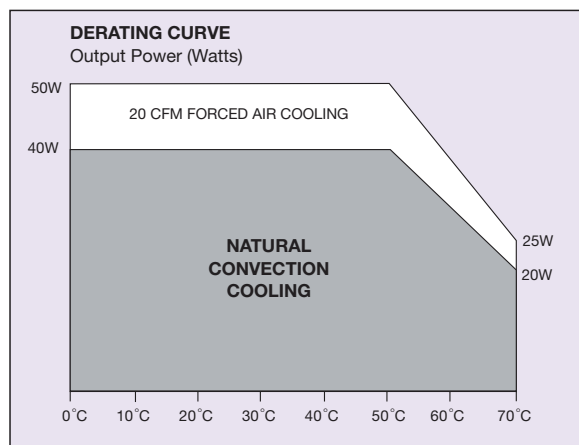
## ORDERING INFORMATION

Output Voltage	Output Current			Ripple <sup>(3)</sup>	Total Regulation	Model Number(11,12)
	Max <sup>(1)</sup>	Peak <sup>(2)</sup>	Fan <sup>(1)</sup>			
+3.3 V (I <sub>A</sub> )	4 A	5 A	4.5 A	50 mV	±2.0%	NLP40-76T366J <sup>(5)</sup>
+12 V (I <sub>B</sub> )	2 A	3 A	3 A	120 mV	±5.0%	
-12 V (I <sub>C</sub> )	0.2 A	1 A	0.5 A	120 mV	±5.0%	
+5 V (I <sub>A</sub> )	4 A	5 A	4.5 A	50 mV	±2.0%	NLP40-7608J <sup>(5)</sup>
+12 V (I <sub>B</sub> )	2 A	3 A	3 A	120 mV	±5.0%	
-12 V (I <sub>C</sub> )	0.2 A	1 A	0.5 A	120 mV	±5.0%	
+5 V (I <sub>A</sub> )	4 A	5 A	4.5 A	50 mV	±2.0%	NLP40-7610J <sup>(5)</sup>
+15 V (I <sub>B</sub> )	1.6 A	2 A	2 A	150 mV	±5.0%	
-15 V (I <sub>C</sub> )	0.2 A	1 A	0.5 A	150 mV	±5.0%	
+12 V (I <sub>A</sub> )	1.8 A	2.2 A	2.1 A	120 mV	±2.0%	NLP40-7627J <sup>(5)</sup>
-12 V (I <sub>B</sub> )	1.8 A	2.2 A	2.1 A	120 mV	±5.0%	
+5 V (I <sub>A</sub> )	4 A	5 A	4.5 A	50 mV	±2.0%	NLP40-7629J <sup>(5)</sup>
+12 V (I <sub>B</sub> )	2 A	3 A	3 A	120 mV	±5.0%	
3.3 V (I <sub>A</sub> )	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

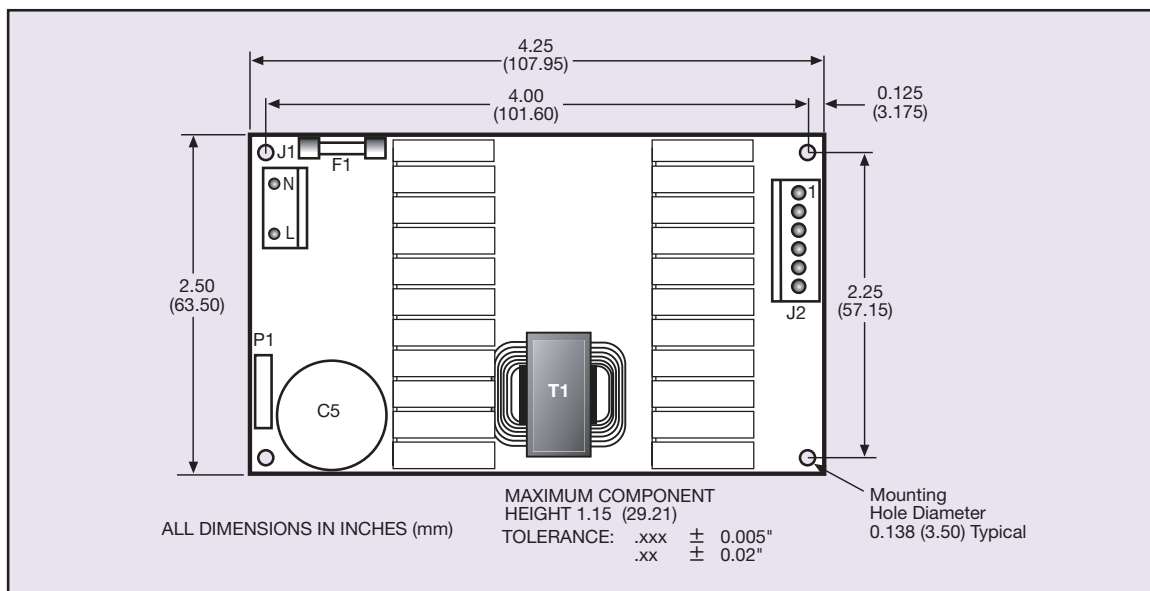
## Notes

- Maximum output power is 40 W for natural convection cooling. With 20 CFM fan cooling, the maximum output power is 50 W.
- Peak output current lasting less than 60 seconds with duty cycle less than 5%. During peak loading, output voltage may exceed total reg. limits.
- 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.
- Three orthogonal axes, random vibration 10 minutes for each axes, 2.4 G rms 5 Hz to 500 Hz.
- 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  $I_C = I_{Max}$ ,  $I_{Amin} \geq 0.5$  A and  $I_A \geq I_B$ .  
 For NLP40-7627J only, to maintain stated regulation then:  $0.5 \leq I_A / I_B \leq 2$ .  
 For NLP40-76T366J only, to maintain stated regulation then:  $0.25 \leq I_A / I_B \leq 4$ .
- For optimum reliability, no part of the heatsink should exceed 120 °C, and no semiconductor case temperature should exceed 130 °C.
- CAUTION: Allow a minimum of 1 second after disconnecting line power when making thermal measurements.
- This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
- When the input voltage is <90 Vac the operating range is 0 °C to +40 °C.
- 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.
- The 'J' suffix indicates that these parts are Pb-free (RoHS6/6) compliant. TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
- 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.
- 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 crimp terminals
DC (J2)	Molex 26-60-4060 type	Molex 09-50-3061 with Triurcon 6838 or equivalent crimp terminals



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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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