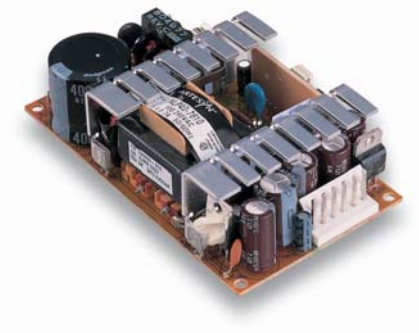
NLP40 Series

Single, dual and triple output

- **4.25 x 2.5 x 1.15 inch package (1U applications)**
- **Smallest industry package**
- **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**
- **Available RoHS compliant**

The NLP40 series is a 40 W universal input ac-dc power supply on a 4.25 x 2.5 inch card with a maximum component height of 1.15 inches for use in 1U applications. This product is the smallest standard 40 W package in the industry making the series ideal for communication applications with space constraints where a standard 5 x 3 inch card solution is not suitable. The NLP40 provides 40 W of output power with free air convection cooling which can be boosted to 50 W with 20 CFM of air. Standard features include overvoltage and short circuit protection. The series, with full international safety approval and the CE mark, meets conducted noise EN55022 level B and has immunity compliance to EN61000-4-2,-3,-4, -5, -6. The NLP40 series is designed for use in low power data networking, computer and telecom applications such as hubs, routers, POS terminals, LCD projectors, cable modems and PABX's. This list is not exclusive as the generic feature set of the NLP40 series with industry standard output configurations provides a solution for most low power applications including many industrial applications.



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	1.0 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)

INPUT SPECIFICATIONS

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

EMC CHARACTERISTICS (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
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, ±5 kHz
Approvals and standards (See Note 8)		EN60950, IEC950, UL1950 VDE0805, CSA C22.2 No. 950
Weight		200 g (7.06 oz)
MTBF	MIL-HDBK-217F	150,000 hours min.

ENVIRONMENTAL SPECIFICATIONS

Thermal performance (See Notes 6, 7, 9)	Operating ambient, (see derating curve) Non-operating 50 °C to 70 °C ambient, convection cooled 0 °C to 50 °C, ambient, convection cooled 0 °C to 50 °C ambient, 20 CFM forced air Peak (0 °C to +50 °C, 60 s) (See Note 2)	0 °C to +70 °C -40 °C to +70 °C Derate to 50% load 40 W 50 W
Relative humidity	Non-condensing	5% to 95% RH
Altitude	Operating Non-operating	10,000 feet max. 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

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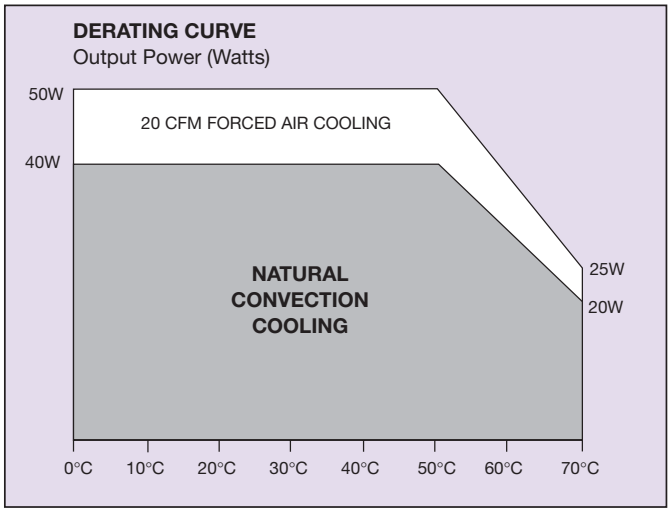
Single, dual and triple output

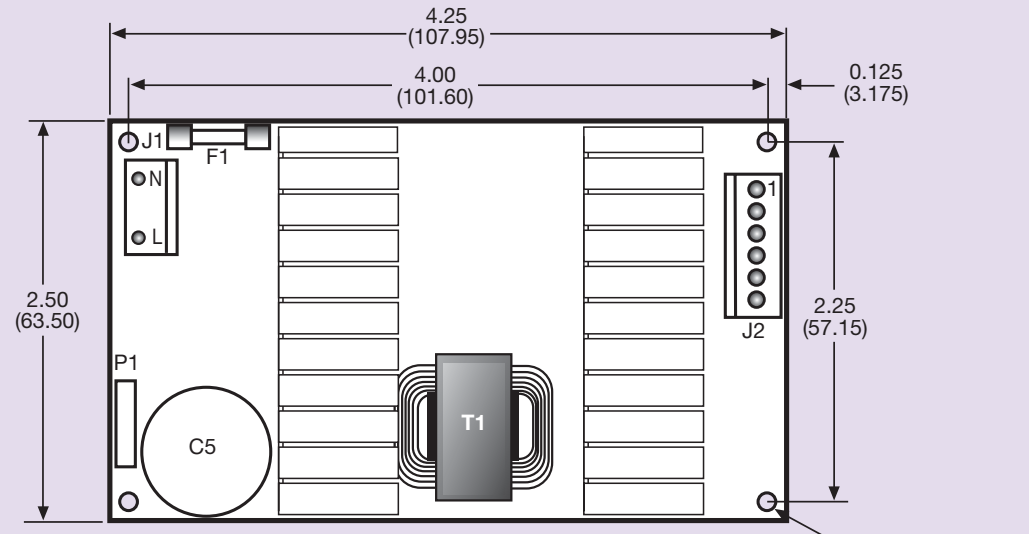
For the most current data and application support visit www.artesyn.com/powergroup/products.htm

OUTPUT VOLTAGE	OUTPUT CURRENT			RIPPLE [3]	TOTAL REGULATION	MODEL NUMBER [11,12]
	MAX [1]	PEAK [2]	FAN [1]			
+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_A min. ≥ 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:
   $0.25 \leq I_A / I_B \leq 4$.
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 (RoHS 6/6) compliant. TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
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/powergroup/products.htm to find a suitable alternative.





Input and output connectors

AC (J1) connector type
Molex 26-60-4030 type.

DC (J2) connector type
Molex 26-60-4060 type.

Mating connectors

AC (J1) mating connector type
Molex 09-50-3031 or equivalent with Molex 08-50-0105 or equivalent crimp terminals.
DC (J2) mating connector type
Molex 09-50-3061 with Triurcon 6838 or equivalent crimp terminals.
Note: The input and output connectors are the same as those used on NFS40, NFN40, NAL40 and NAN40.

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)

International Safety Standard Approvals

VDE0805/EN60950/IEC950 File 10401-3336-0093
Licence No. 93662

UL1950 File No. E136005

CSA C22.2 No. 950 File No. LR41062C