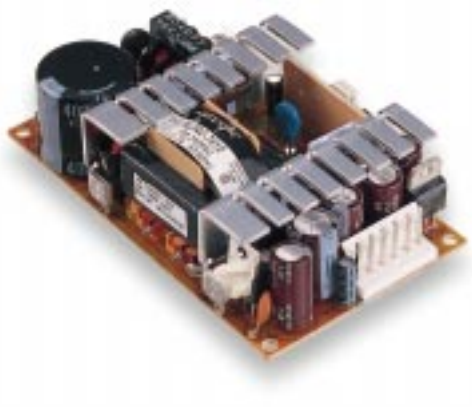
NLP40 Series

Single, dual and triple output

ARTESYN TECHNOLOGIES

- **4.25 x 2.5 x 1.15 inch package (1U applications)**
- **Smallest industry package**
- **Overvoltage and short circuit protection**
- **40W 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**



The NLP40 series is a 40W 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 40W 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 40W of output power with free air convection cooling which can be boosted to 50W with 20CFM 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	1.0s, max.
Transient response	Main output 25% step at 0.1A/µs	5.0% max. dev., 1ms 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	0A (See Note 5)

INPUT SPECIFICATIONS

Input voltage range (See Note 9)	Universal input	90 to 264VAC 120 to 370VDC
Input frequency range		47Hz to 440Hz
Input surge current	120VAC, cold start 230VAC, cold start	15A max. 30A max.
Safety ground leakage current	120VAC, 60Hz 230VAC, 50Hz	0.2mA 0.4mA
Input current	120VAC 230VAC	1.4A rms 0.7A rms
Input fuse	UL/IEC127	250VAC H 3.15A

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	120VAC 230VAC	12ms @ 40W 20ms @ 40W
Efficiency		75% typical
Isolation voltage	Input/output Input/chassis	3000VAC 1500VAC
Switching frequency	Fixed	65kHz, ±5kHz
Approvals and standards (See Note 8)		EN60950, IEC950, UL1950 VDE0805, CSA C22.2 No. 950
Weight		200g (7.06oz)
MTBF	MIL-HDBK-217F	150,000 hours min.

ENVIRONMENTAL SPECIFICATIONS

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

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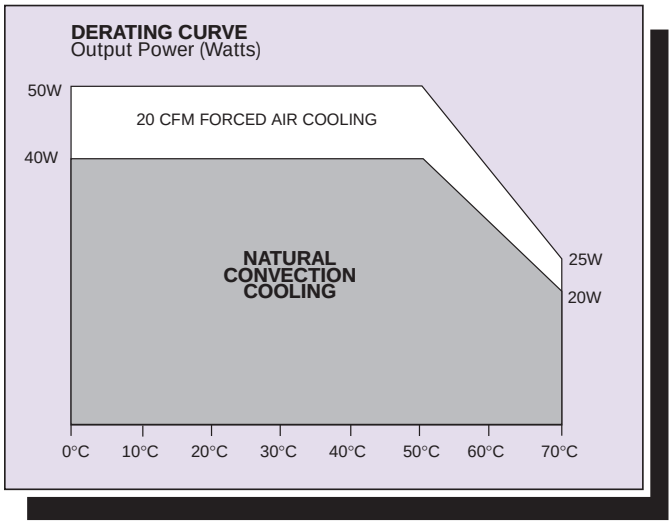
For the most current data and application support visit www.artesyn.com/powergroup/products.htm

OUTPUT VOLTAGE	OUTPUT CURRENT MAX (1)	OUTPUT CURRENT PEAK (2)	OUTPUT CURRENT FAN (1)	RIPPLE (3)	TOTAL REGULATION	MODEL NUMBER
+5V (I_A)	4.0A	5.0A	4.5A	50mV	±2.0%	NLP40-7608 (5)
+12V (I_B)	2.0A	3.0A	3.0A	120mV	±5.0%	
–12V (I_C)	0.2A	1.0A	0.5A	120mV	±5.0%	
+5V (I_A)	4.0A	5.0A	4.5A	50mV	±2.0%	NLP40-7610 (5)
+15V (I_B)	1.6A	2.0A	2.0A	150mV	±5.0%	
–15V (I_C)	0.2A	1.0A	0.5A	150mV	±5.0%	
+12V (I_A)	1.8A	2.2A	2.1A	120mV	±2.0%	NLP40-7627 (5)
-12V (I_B)	1.8A	2.2A	2.1A	120mV	±5.0%	
+5V (I_A)	4.0A	5.0A	4.5A	50mV	±2.0%	NLP40-7629 (5)
+12V (I_B)	2.0A	3.0A	3.0A	120mV	±5.0%	
5V	8.0A	10A	9.0A	50mV	±2.0%	NLP40-7605
12V	3.3A	4.5A	4.0A	120mV	±2.0%	NLP40-7612
15V	2.6A	3.6A	3.3A	150mV	±2.0%	NLP40-7615
24V	1.6A	2.5A	2.0A	240mV	±2.0%	NLP40-7624
48V	0.8A	1.1A	1.0A	300mV	±2.0%	NLP40-7617

Notes

1. Maximum output power is 40W for natural convection cooling. With 20CFM fan cooling, the maximum output power is 50W.
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 50MHz bandwidth using a 12 inch twisted pair, terminated with a 47µF capacitor.
4. Three orthogonal axes, random vibration 10 minutes for each axes, 2.4G rms 5Hz to 500Hz.
5. For multiple output units (except -7627) to maintain stated regulation then:
   $0.25 \leq I_A / I_B \leq 5$, for $I_B > 0.3A$
   $0.50 \leq I_A / I_B \leq 5$, for $I_B < 0.3A$
   For maximum output current I(C) on triple output models, i.e. for I_C = IMax., I_A min. ≥ 0.5A and $I_A \geq I_B$.
   For NLP40-7627 only, to maintain stated regulation then:
   $0.5 \leq I_A / I_B \leq 2$.
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 <90VAC 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.



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)

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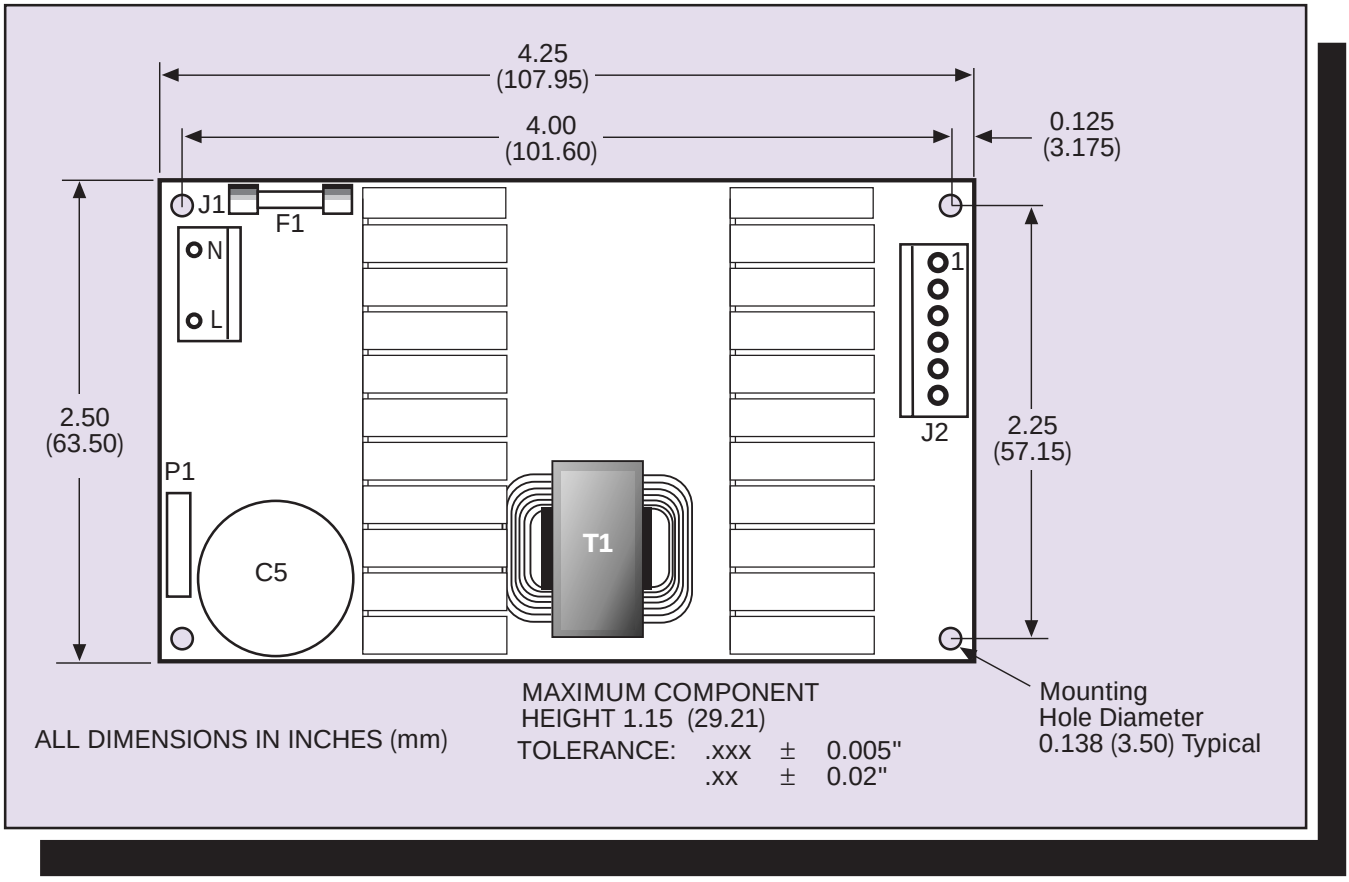

Input and output connectors

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.

International Safety Standard Approvals

VDE0805/EN60950/IEC950 File No. pending

UL1950 File No. E136005

CSA C22.2 No. 950 File No. LR41062C