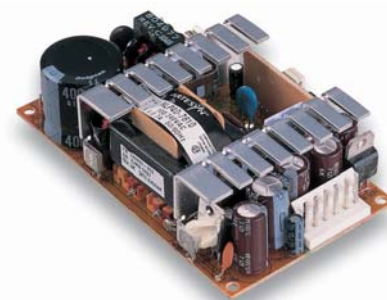


# NLP40 Series

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          | ±2.0%             |
|                                  | Auxiliary outputs    | ±5.0%             |
| Rise time                        | At turn-on           | 1.0 s, max.       |
| Transient response               | Main output          | 5.0% max. dev.,   |
|                                  | 25% step at 0.1 A/μs | 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               | 0 A               |
|                                  | Multiple             | (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 | 15 A max.        |
|                                  | 230 Vac, cold start | 30 A max.        |
| Safety ground leakage current    | 120 Vac, 60 Hz      | 0.2 mA           |
|                                  | 230 Vac, 50 Hz      | 0.4 mA           |
| Input current                    | 120 Vac             | 1.4 A rms        |
|                                  | 230 Vac             | 0.7 A rms        |
| Input fuse                       | UL/IEC127           | 250 Vac H 3.15 A |

### 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       | 12 ms @ 40 W  |
|                                      | 230 Vac       | 20 ms @ 40 W  |
| Efficiency                           |               | 75% typical   |
| Isolation voltage                    | Input/output  | 3000 Vac  |
|                                      | Input/chassis | 1500 Vac  |
| Switching frequency                  | Fixed         | 65 kHz, ±5 kHz  |
| Approvals and standards (See Note 8) |               | EN60950, IEC950, UL1950<br>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)   | 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 | 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      |

# NLP40 Series

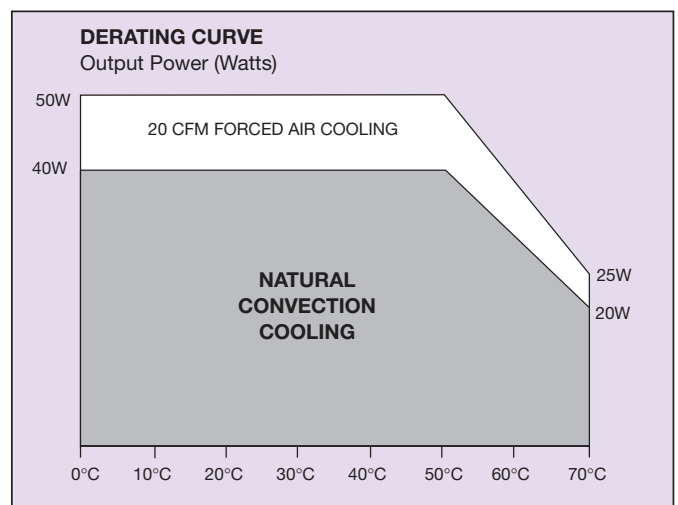
Single, dual and triple output

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| OUTPUT VOLTAGE           | OUTPUT CURRENT     |                     |                    | RIPPLE <sup>(3)</sup> | TOTAL REGULATION | MODEL NUMBER <sup>(11,12)</sup> |
|--------------------------|--------------------|---------------------|--------------------|-----------------------|------------------|---------------------------------|
|                          | 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  $I_C = I_{Max.}$ ,  $I_A \text{ min.} \geq 0.5$  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 (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.
- 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.



# NLP40 Series

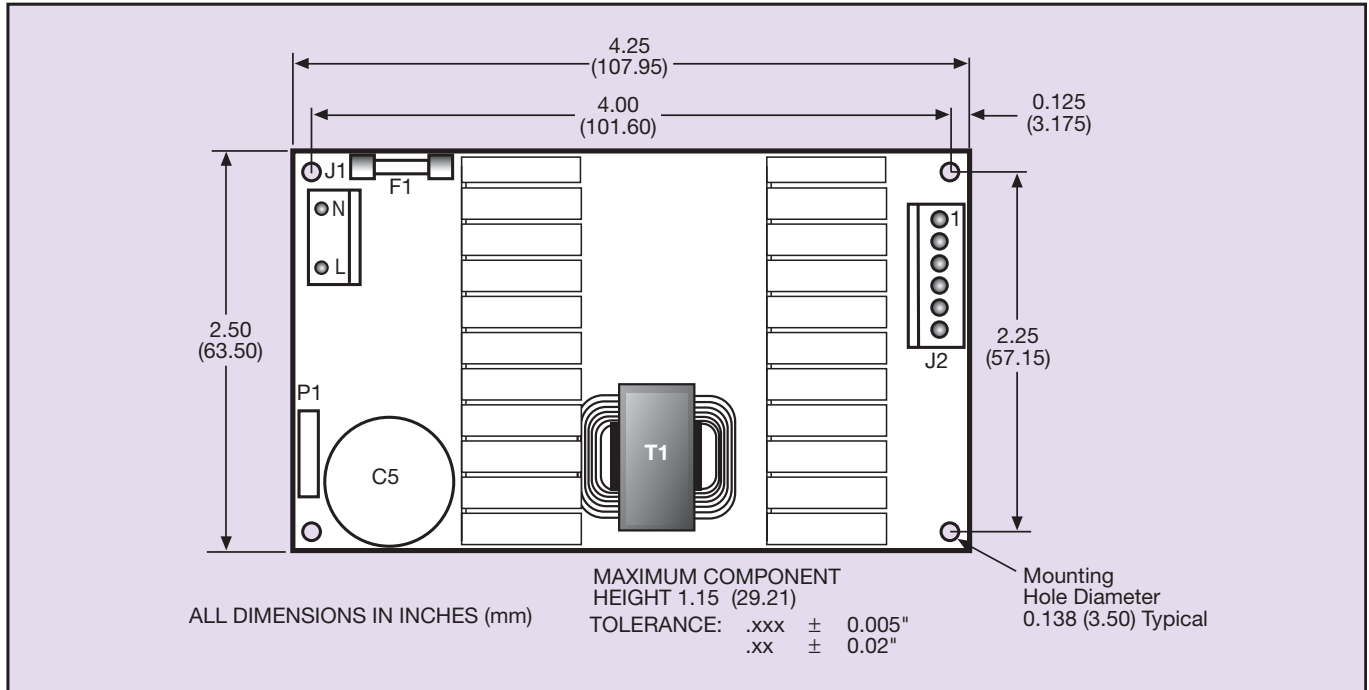
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40-50 W AC/DC Universal Input Switch Mode Power Supplies

3

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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.

| 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

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