

NLP40 Series

Single, Dual and Triple Output

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 ⁽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) | | 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. |

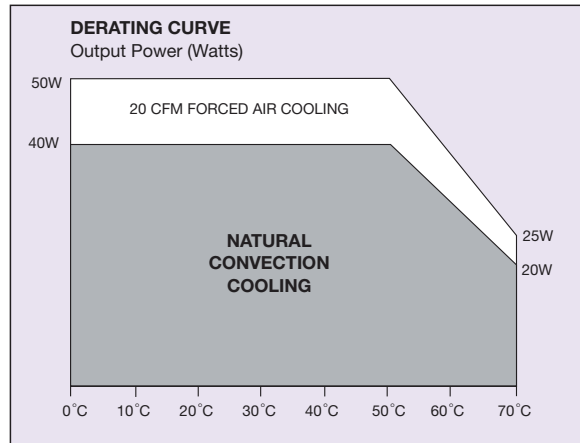
Environmental Specifications

| | | |
|-------------------------|---|--------------------|
| 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 |

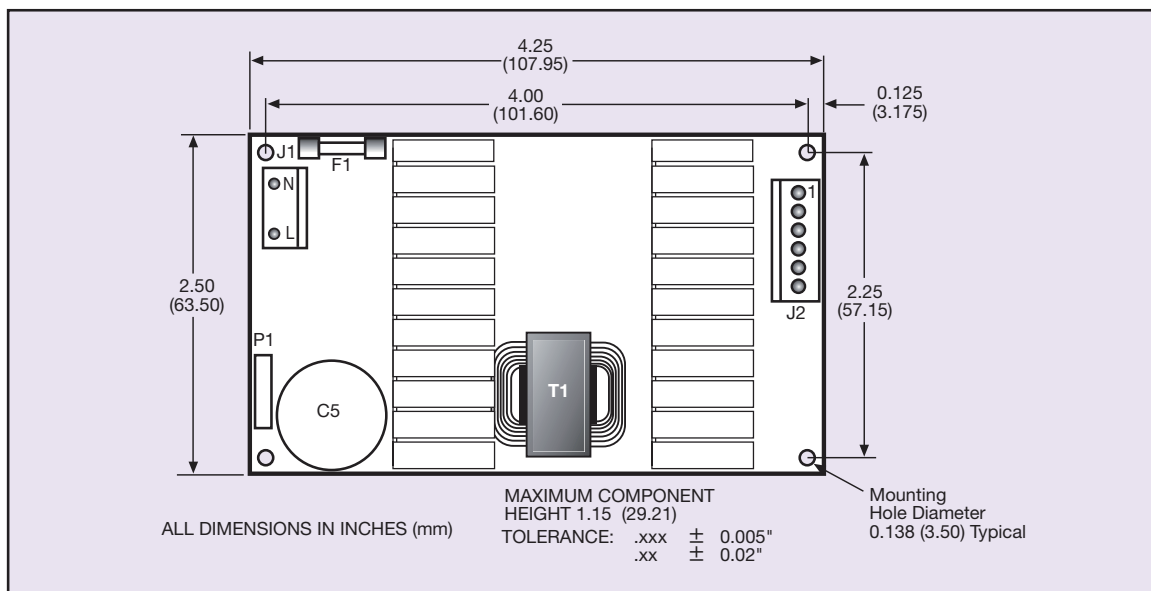
| Output Voltage | Output Current | | | Ripple ⁽³⁾ | Total Regulation | Model Number ^(11,12) |
|--------------------------|--------------------|---------------------|--------------------|-----------------------|------------------|---------------------------------|
| | Max ⁽¹⁾ | Peak ⁽²⁾ | Fan ⁽¹⁾ | | | |
| +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

- 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/power> 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.



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 |

WORLDWIDE OFFICES

Americas

2900 S.Diablo Way
 Tempe, AZ 85282
 USA
 +1 888 412 7832

Europe (UK)

Waterfront Business Park
 Merry Hill, Dudley
 West Midlands, DY5 1LX
 United Kingdom
 +44 (0) 1384 842 211

Asia (HK)

14/F, Lu Plaza
 2 Wing Yip Street
 Kwun Tong, Kowloon
 Hong Kong
 +852 2176 3333



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For more information: www.artesyn.com/power
 For support: productsupport.ep@artesyn.com