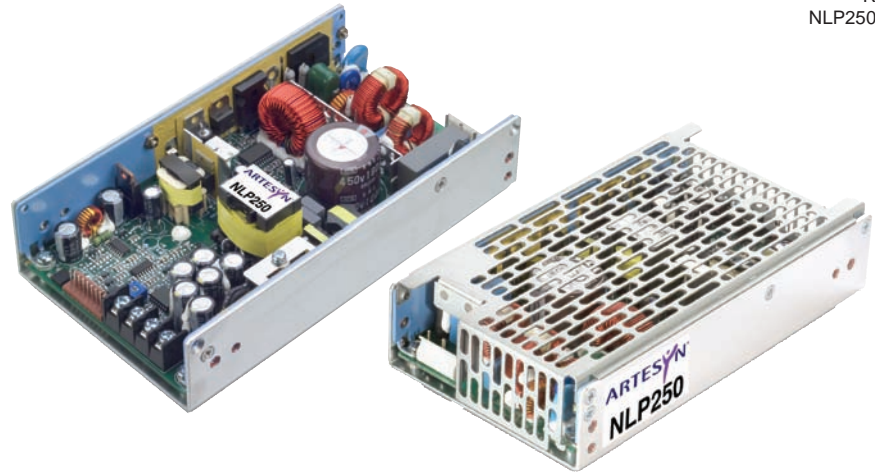


NLP250 Medical Series

Single Output

Total Power: 250 W
Input Voltage: 85 - 264 VAC
of Outputs: Single



Special Features

- Medical safeties
- Active PFC and EN61000-3-2 compliant
- 250 W on main channel with forced air
- Low profile fits 1U applications
- U-Channel for maximum thermal performance
- Optional cover (CJ suffix)
- 5 V standby output
- 12 V fan output
- Integrated control and monitoring features
- Overcurrent, overvoltage and overtemperature protection
- Compliance to EN55022-B conducted noise standard
- Dual AC fuses
- RoHS compliant
- 2 year warranty

Safety

- VDE0750/EN60950
IEC950/IEC60601-1
File No. 1177400-3336-0759
- UL60601-1
File No. E186249
- Certificate No. 40014041
- CB Ref DE1-36628

Electrical Specifications

| Input | | |
|--|--|---|
| Input voltage range: | Universal input | 85 - 264 Vac |
| Input frequency range: | | 47 - 63 Hz |
| Input surge current: | 264 Vac (cold start) | 40 A max. |
| Safety ground leakage current: | 264 Vac, 50 Hz | 150 μ A |
| Input current: | 120 Vac @ 250 W 230 Vac @ 250 W | 2.78 A rms 1.36 A rms |
| Input fuse: | UL/IEC127 | T6.4 AH, 250 Vac In live and neutral |
| Output | | |
| Maximum power: | 200 LFM forced air 250 LFM with cover | 250 watts |
| Adjustment range: | Main output | \pm 5% |
| Total regulation: (line and load) | Main output Auxiliary outputs | \pm 2.0% \pm 5.0% |
| Turn-on delay: | @ 120 Vac Input | 2.0 s max. |
| Transient response: | Main output 50 - 100% Step at 0.5 A/ μ s | 5.0% or 250 mV max. dev., 1 ms max recovery to 1% |
| Temperature coefficient: | | \pm 0.02%/°C |
| Overvoltage protection: | Main output | 115%, \pm 5% |
| Short circuit protection: | Cyclic operation | Continuous |
| Minimum output current: | Singles | 0 A |
| Auxiliary outputs: (See Note 8, page 3) | 5 Vsb 12 V (fan) | 5 V @ 1.0 A 12 V @ 0.3A |

All specifications are typical at nominal input, full load at 25 °C unless otherwise stated



| EMC Characteristics ⁽⁵⁾ | | |
|--|--|--|
| Conducted emissions: | EN55022, FCC part 15 | Level B |
| Harmonic current correction: | EN61000-3-2 | Compliant |
| Voltage flicker: | EN61000-3-3 | Compliant |
| ESD air: | EN61000-4-2 | Level 3 |
| ESD contact: | EN61000-4-2 | Level 3 |
| Radiated immunity: | EN61000-4-3 | Level 3 |
| Fast transients: | EN61000-4-4 | Level 3 |
| Surge: | EN61000-4-5 | Level 3 |
| Conducted immunity: | EN61000-4-6 | Level 3 |
| Voltage dips: | EN61000-4-11 | Compliant |
| General Specifications | | |
| Hold-up time: | 85 Vac @ 50 Hz | 20 ms @ 250 W |
| Efficiency: | 115 Vac @ 250 W 230 Vac @ 250 W | 84% typ. 86% typ. |
| Isolation voltage: | Input/output Input/chassis | 4000 Vac 2000 Vac |
| Safety approvals (see Note 6, page 3): | UL/cUL UL60601-1, VDE EN60601-1, CAN/CSA22.2 No. 601-1 | |
| Weight: | | 650g (22 oz) |
| MTBF (@25° C): | Telcordia SR-332 MIL-HDBK-217F | 317,000 hours min. 158,000 hours min. |

Environmental Specifications

| | | |
|---------------------------------|--------------------------|------------------|
| Thermal performance: | Operating ambient, | 0 °C to +70 °C |
| | (See derating curve) | |
| | Non-operating | -40 °C to +85 °C |
| | 0 °C to 50 °C ambient, | 250 W |
| | 200 LFM forced air | |
| | 250 LFM with cover | |
| | 0 °C to 50 °C ambient, | 175 W |
| | 0 °C to 40 °C with cover | |
| | Convection cooled | |
| | 50 °C to 70 °C ambient, | Derate linearly |
| | Convection cooled | to 50% load |
| Relative humidity: | Non-condensing | 5 - 95% RH |
| Altitude: | Operating | 10,000 feet max. |
| | Non-operating | 30,000 feet max. |
| Vibration (See Note 7, page 3): | 5 - 500 Hz | 2.5 G rms peak |
| Shock: | Per MIL-STD-810E | 516.4 Part IV |

Ordering Information

| Output Voltage | Output Current | | | Ripple ⁽³⁾ | Total Regulation | Model Numbers ^(9, 10) |
|----------------|----------------|---------------------------------|-----------------------------------|-----------------------|------------------|----------------------------------|
| | Min | Max (free air) ^(1,4) | Max (forced air) ^(2,4) | | | |
| 12 V | 0 A | 14.6 A | 21 A | 120 mV | ± 2.0% | NLP250N-99S12J |
| 24 V | 0 A | 7.3 A | 10.5 A | 240 mV | ± 2.0% | NLP250N-99S24J |

Notes

- Free air convection. Maximum continuous output power not to exceed 175 W. Refer to Figure 1 for the derating curve.
- 200 LFM (250 LFM with cover) forced air cooling from the longer side. Maximum continuous output power not to exceed 250 W.
- Figure is peak-to-peak for room temperature rating. Output noise measurements are made across a 20 MHz bandwidth using a 6 inch twisted pair, terminated with a 10 μ F tantalum capacitor and a 0.1 μ F ceramic capacitor.
- CAUTION: Allow a minimum of 1 second after disconnecting line power when making thermal measurements. For optimum reliability no part of the heatsink should exceed 115 °C and no semi-conductor case temperature should exceed 120 °C.
- No external filtering required during conducted emissions testing but some applications may require additional filtering to achieve system compliance. Compliance with radiated EMI specifications may require mounting in a suitable enclosure.
- This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
- Three orthogonal axes, random vibration 10 minutes for each axes, 2.4 G
- 5 V sb (standby) output is available whenever AC is present, regardless of remote ON/OFF signal status. 12 V (fan) present when main output is present.
- The 'J' suffix indicates that these parts are Pb-free (RoHS 6/6) compliant. "CJ" suffix indicates covered RoHS version.
- NOTICE: Some models do not support all options. Please contact your local Emerson Network Power representative or use the on-line model number search tool at <http://www.PowerConversion.com> to find a suitable alternative.

Mechanical Drawing

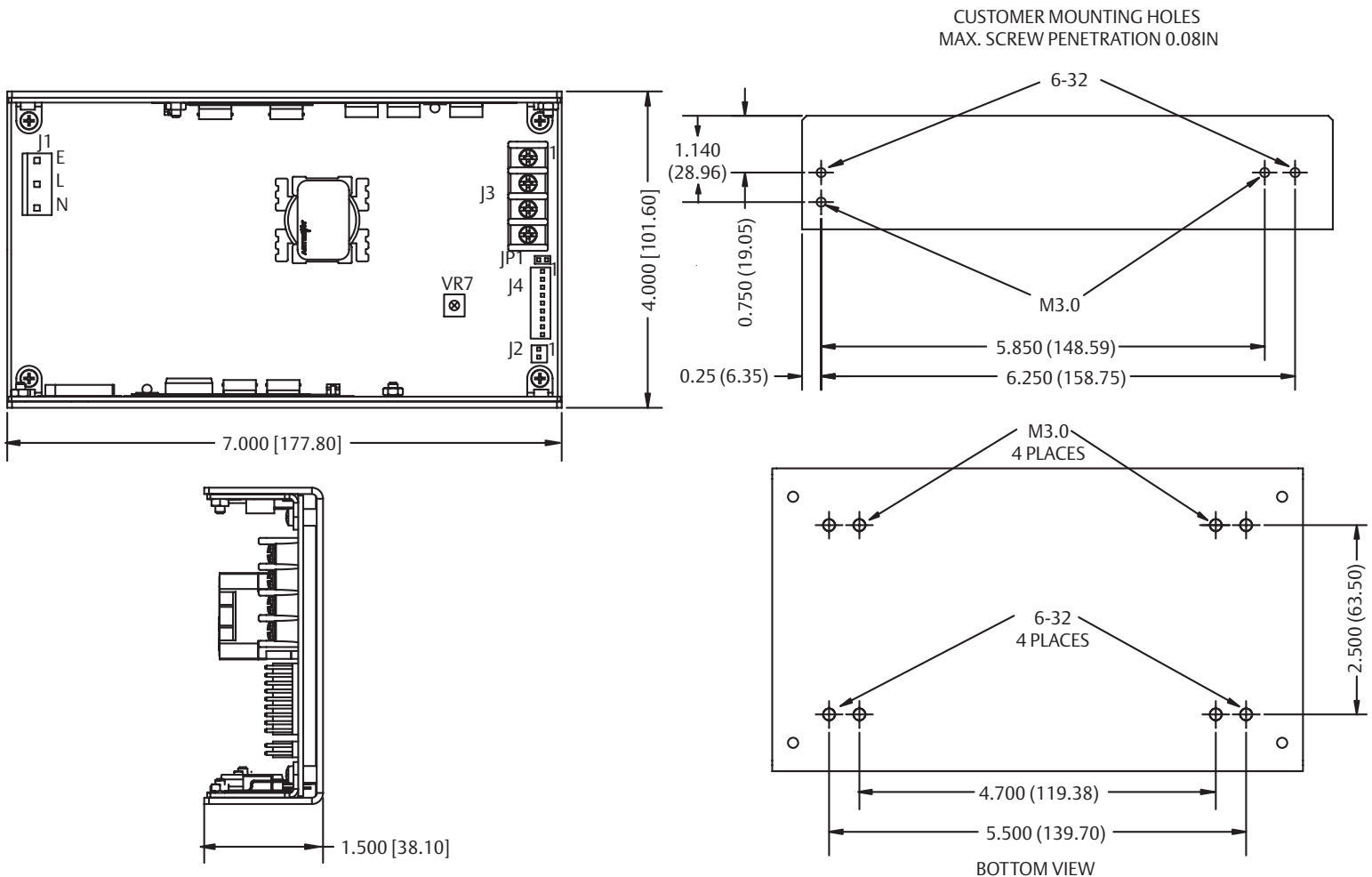


Figure 1: Derating Curve Output Power (Watts)

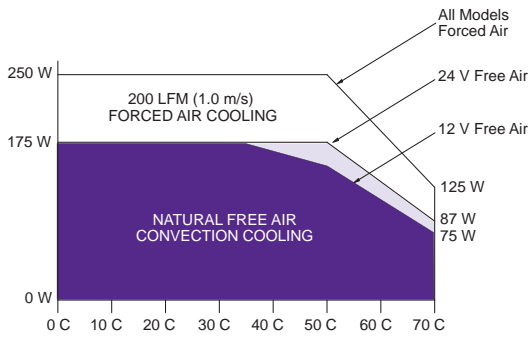
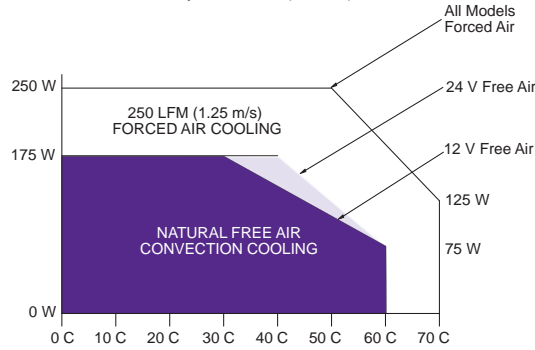


Figure 1b: Derating Curve With Cover Output Power (Watts)



| Connector and Mating Connector Types | | |
|--------------------------------------|--|---|
| Connector | Type | Mating Connector Type |
| J1 | Molex 09-65-2058 (5273 series) void pins 2 and 4 or equivalent | Molex 09-50-8051 or equivalent with Molex 08-52-0113 or equivalent crimp terminals |
| J2 | Molex 22-23-2021 (6373 series) or equivalent | Molex 22-01-3027 (2695 series) or equivalent with Molex 08-50-01113 (2759 series) or equivalent crimp terminals |
| J3 | Molex terminal block 387007504 or equivalent | Terminal block contains #6-32 screw with clamp washer suitable for wire size 12-22 awg (0.5-2.5 mm ²). Max Torque tp 1.36 Nm (12 in.lb) |
| J4 | Molex 22-23-2091 (6373 series) or equivalent | Molex 22-01-3097 (2695 series) or equivalent with Molex 08-50-0113 (2759 series) or equivalent crimp terminals |

| Pin Connections | |
|-----------------|--------------|
| J1 | |
| Pin 1 | Ground/Earth |
| Pin 2 | Live |
| Pin 3 | Neutral |

| Pin Connections Continued | | |
|---------------------------|--------|-------------------------|
| J2 | | |
| Pin 1 | +12 V | Fan Voltage |
| Pin 2 | SGND | Return |
| J3 | | |
| Pin 1 | Vo | + Main Output |
| Pin 2 | Vo | + Main Output |
| Pin 3 | RTN | Main Return |
| Pin 4 | RTN | Main Return |
| J4 | | |
| Pin 1 | +S | +Vo Remote Sense |
| Pin 2 | -S | Vo Remote Sense |
| Pin 3 | LS | Load Share Signal |
| Pin 4 | PS OFF | Remote ON/OFF signal NO |
| Pin 5 | PS ON | Remote ON/OFF signal NC |
| Pin 6 | SGND | Signal Common |
| Pin 7 | PW OK | Power Good |
| Pin 8 | 5 Vsb | Stand-by Voltage |
| Pin 9 | DC OK | DC Power Good Signal |

Americas

5810 Van Allen Way
Carlsbad, CA 92008
USA
Telephone: +1 760 930 4600
Facsimile: +1 760 930 0698

Europe (UK)

Waterfront Business Park
Merry Hill, Dudley
West Midlands, DY5 1LX
United Kingdom
Telephone: +44 (0) 1384 842 211
Facsimile: +44 (0) 1384 843 355

Asia (HK)

14/F, Lu Plaza
2 Wing Yip Street
Kwun Tong, Kowloon
Hong Kong
Telephone: +852 2176 3333
Facsimile: +852 2176 3888

For global contact, visit:

www.PowerConversion.com
techsupport.embeddedpower@emerson.com

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