



### Features

- Currents over 100 Amps
- Fits 1U chassis height constraints
- No minimum load requirement
- Current-share capabilities on all outputs
- Patented high-efficiency design
- Meets European power factor requirements
- Excellent load transient response

### Description

Designed to meet the stringent requirements of today's high-speed datacom and telecom circuitry, Power-One's NET1 Series is an excellent compact power solution for low-voltage, high-current applications. The NET1's high efficiency is achieved through the use of synchronous rectification and a newly-patented "Soft Transition Forward Converter".

The NET1's rectification method lowers output losses, reduces system cooling requirements (allowing greater power in a smaller package), and eliminates minimum-load requirements.

Advanced surface-mount design and packing technology reduce the NET1's height to 1.35" (34.3mm) to fit in 1U applications. NET1's high-performance active power factor circuitry meets EN61000-3-2 requirements for compliance with European Power Line Harmonic Requirements for 2001. A multifunctional output terminal allows connection to #8 ring lugs, 0.25" quick disconnects, cable connectors, and PCB-mounted connectors.

### Multiple-Output Model Selection – 240W WITH 300 LFM FORCED AIR COOLING

| MODEL            | OUTPUT VOLTAGE | ADJUSTMENT RANGE | OUTPUT CURRENT (NOTE 1) | LINE REGULATION | LOAD REGULATION | RIPPLE & NOISE Pk-Pk (NOTE 2) | INITIAL SETTING ACCURACY |
|------------------|----------------|------------------|-------------------------|-----------------|-----------------|-------------------------------|--------------------------|
| <b>NET1-4350</b> | +3.3V          | +0.5V            | 50A                     | 0.2%            | 1%              | 50mV                          | ± 30mV                   |
|                  | +12V           | FIXED            | 4A                      | 0.2%            | 3%              | 120mV                         | ± 100mV                  |
|                  | +12V           | FIXED            | 4A                      | 0.2%            | 3%              | 120mV                         | ± 100mV                  |
|                  | +5V            | +0.5V            | 30A                     | 0.2%            | 1%              | 50mV                          | ± 50mV                   |
| <b>NET1-4230</b> | +3.3V          | +0.5V            | 50A                     | 0.2%            | 1%              | 50mV                          | ± 20mV                   |
|                  | +5V            | FIXED            | 5A                      | 0.2%            | 3%              | 50mV                          | ± 50mV                   |
|                  | +12V           | FIXED            | 4A                      | 0.2%            | 3%              | 120mV                         | ± 100mV                  |
|                  | +2.5V          | +0.5V            | 50A                     | 0.2%            | 1%              | 50mV                          | ± 20mV                   |
| <b>NET1-4130</b> | +3.3V          | +0.5V            | 50A                     | 0.2%            | 1%              | 50mV                          | ± 30mV                   |
|                  | +5V            | FIXED            | 5A                      | 0.2%            | 3%              | 50mV                          | ± 50mV                   |
|                  | +12V           | FIXED            | 4A                      | 0.2%            | 3%              | 120mV                         | ± 100mV                  |
|                  | +1.8V          | +0.5V            | 50A                     | 0.2%            | 1%              | 50mV                          | ± 20mV                   |
| <b>NET1-4112</b> | +1.8V          | +0.5V            | 50A                     | 0.2%            | 1%              | 50mV                          | ± 20mV                   |
|                  | +12V           | FIXED            | 4A                      | 0.2%            | 3%              | 120mV                         | ± 100mV                  |
|                  | +12V           | FIXED            | 4A                      | 0.2%            | 3%              | 120mV                         | ± 100mV                  |
|                  | +1.5V          | +0.5V            | 50A                     | 0.2%            | 1%              | 50mV                          | ± 20mV                   |

NOTES: 1) Output currents ratings are expressed with 300 LFM forced air @ 18 CFM.

2) Maximum peak-to-peak noise for a 20 MHz bandwidth.

Model numbers highlighted in yellow or shaded are not recommended for new designs.

## Input Specifications

| PARAMETER            | CONDITIONS/DESCRIPTION   | MIN  | TYP | MAX | UNITS |
|----------------------|--|------|-----|-----|-------|
| Input Voltage - AC   | Continuous input range.  | 85   |     | 264 | VAC   |
| Input Frequency      | AC input.  | 47   |     | 63  | Hz    |
| Hold-up Time         | After last AC line peak at 240 watts.                              |      | 20  |     | ms    |
| Input Current        | 85 VAC at full rated load.   |      | 4.0 |     | ARMS  |
| Input Protection     | Non-user serviceable internally located AC input line fuse.        |      |     |     |       |
| Inrush Surge Current | Internally limited by thermistor. Vin = 220 VAC, one cycle, 25 °C. |      |     | 35  | APK   |
| Power Factor         | Per EN61000-3-2.   | 0.95 |     |     | W/VA  |

## Output Specifications

| PARAMETER              | CONDITIONS/DESCRIPTION   | MIN                        | TYP | MAX | UNITS |
|------------------------|--|----------------------------|-----|-----|-------|
| Efficiency             | Full Rated Load, 110 VAC. Varies with distribution of loads among outputs.   |                            | 75  |     | %     |
| Ripple and Noise       | Full load, 20 MHz bandwidth.   | See Model Selection Charts |     |     |       |
| Output Power           | With 300 LFM forced air cooling. (Note 1)  |                            | 240 |     | Watts |
| Overshoot / Undershoot | Output voltage overshoot/undershoot at turn-on.  |                            |     | 0   | %     |
| Regulation             | Varies by output. Total regulation includes: line changes over the specified. input range, changes in load starting at 20% load and changing to 100% load. | See Model Selection Charts |     |     |       |
| Transient Response     | Recovery time, to within 1% of initial set point due to a 10-100% load change, 1% max. deviation.  |                            | 500 |     | µs    |
| Turn-on Delay          | Time required for initial output voltage stabilization.  |                            | 2   |     | Sec   |
| Turn-on Rise Time      | Time required for output voltage to rise from 10% to 90%.  |                            | 20  |     | ms    |

## Interface Signals and Internal Protection

| PARAMETER                  | CONDITIONS/DESCRIPTION   | MIN | TYP | MAX | UNITS |
|----------------------------|--|-----|-----|-----|-------|
| Overvoltage Protection     | Overvoltage protection on all outputs. Unit latches off when overvoltage is detected. AC input must be recycled to reset.  | 120 |     | 140 | %     |
| Overload Protection        | Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition. All outputs are individually current limited.  |     |     |     |       |
| Overtemperature Protection | System shutdown due to excessive internal temperature, automatic reset.  |     |     |     |       |
| Output Good                | Signal indicates output good when at a TTL high state. If any of the outputs are <14% or >14% of the nominal output voltage, then this signal will make a transition to a TTL low state. Pull-up resistance is 1kΩ to 5V Vcc and minimum sink current is 50 mA. Maximum voltage at low state is 0.5 V. |     |     |     |       |
| Input Power Fail Warning   | TTL-compatible signal. Pull-up resistance is 1kΩ to 5V Vcc and minimum sink current is 50 mA. Maximum voltage at low state is 0.5 V. Time before regulation dropout due to loss of input power. May be used as independent PSOK signal in redundant applications.                                      | 5   |     |     | ms    |
| Current Share              | Available on all outputs. Accuracy of shared current with up to 6 parallel units. Single wire current share. Isolation diodes need to be added for parallel configurations with or without redundancy.   |     | 10  |     | %     |
| Remote Sense               | Available on all outputs. Total voltage compensation for cable losses with respect to the main output.   |     |     | 500 | mV    |

**NOTES:** 1) Output current ratings are expressed with 300 LFM forced air @ 18 CFM.

## Safety, Regulatory, and EMI Specifications

| PARAMETER                    | CONDITIONS/DESCRIPTION                           | MIN            | TYP | MAX      | UNITS |
|------------------------------|--|----------------|-----|----------|-------|
| Agency Approvals             | UL60950.   |                |     |          |       |
|                              | CSA 22.2 NO. 60950-00 (cUL).                     |                |     | Approved |       |
|                              | EN60950 (TÜV).                                   |                |     |          |       |
| Dielectric Withstand Voltage | Input to output per EN60950.                     | 2600           |     |          | VDC   |
| Electromagnetic Interference | FCC CFR title 47 Part 15 Sub-Part B - Conducted. | B              |     |          | Class |
|                              | EN55022 / CISPR 22 Conducted.                    | B              |     |          |       |
| ESD Susceptibility           | Per EN61000-4-2, level 4.                        | 8              |     |          | kV    |
| Radiated Susceptibility      | Per EN61000-4-3, level 3.                        | 10             |     |          | V/M   |
| EFT/Burst                    | Per EN61000-4-4, level 3.                        | ±2             |     |          | kV    |
| Input Transient Protection   | Per EN61000-4-5, class 3.                        | Line to Line   | 1   |          | kV    |
|                              |  | Line to Ground | 2   |          |       |
| Insulation Resistance        | Input to output.                                 |                | 10  |          | MΩ    |

## Environmental Specifications

| PARAMETER               | CONDITIONS/DESCRIPTION                    | MIN | TYP   | MAX   | UNITS   |
|-------------------------|---|-----|-------|-------|---------|
| Altitude                | Operating.                                |     |       | 10k   | ASL Ft. |
|                         | Non-Operating.                            |     |       | 40k   | ASL Ft. |
| Operating Temperature   | At 100% load                              | 0   |       | 50    | °C      |
| Storage Temperature     |   | -40 |       | 85    | °C      |
| Temperature Coefficient | 0 °C to 70 °C (after 15-minute warmup).   |     | ±0.02 | ±0.05 | %/°C    |
| Relative Humidity       | Non-Condensing.                           | 5   |       | 95    | %RH     |
| Shock                   | Peak acceleration.                        |     |       | 20    | GPK     |
| Vibration               | Random vibration, 10 Hz to 2 kHz, 3 axis. |     |       | 6     | GRMS    |

## Mechanical

| DESCRIPTION     | NOTES  | SIZE IMPACT   |
|-----------------|--|---|
| Metric Mounting | M4 x 0.7 mounting inserts: 2 mounting surfaces |   |
| Size            |  | 7.00" x 4.50" x 1.35"<br>(177.8mm x 114.3mm x 34.3mm) |

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.



## NET1 Connectors

|      |                 |                          |
|------|-----------------|--------------------------|
| J501 | Housing<br>Pins | 50-37-5093<br>08-70-1039 |
| J701 | Housing<br>Pins | 50-37-5093<br>08-70-1039 |
| J801 | Housing<br>Pins | 50-37-5093<br>08-70-1039 |

Note: Part numbers are MOLEX;  
equivalents are acceptable.