



Features

- Single-phase AC input
- 3U height
- Active current share
- Power Factor Correction (PFC)
Meets EN61000-3-2
- Remote voltage adjust, and current monitoring
- Overtemperature, overload, and overvoltage protection
- Power supply status indicators
- Output current meter (bar graph)
- MTBF > 700,000 hours

Description

The NHC3000 Series of chassis-mounted power systems provides AC front-end capability to telecom, data communications and other distributed power designs. The NHC3000 can also be used for many other applications requiring bulk power.

NHC3000 power supplies provide excellent protection against input voltage transients. A connector at the rear of the supply provides access to interfaces for remote sensing, remote voltage adjust, current sharing, power supply status, standby logic voltage, remote on/off, and power connections.

Airflow for the NHC3000 is from the front through the rear. The output is floating with respect to the chassis and may be used as a positive or negative polarity supply.

Model Selection

| MODEL | OUTPUT VOLTAGE | ADJUSTMENT RANGE | MAXIMUM OUTPUT CURRENT | LINE REGULATION | LOAD REGULATION (NOTE 1) | RIPPLE & NOISE %p-p (NOTE 2) | INITIAL SETTING ACCURACY |
|------------------|----------------|------------------|------------------------|-----------------|--------------------------|------------------------------|--------------------------|
| NHC3011-5 | 24V | 21.6V to 26.4V | 125A | 0.2% | 0.4% | 1% | 23.95V to 24.05V |
| NHC3011-6 | 28V | 25.2V to 30.8V | 107A | 0.2% | 0.4% | 1% | 27.92V to 28.08V |
| NHC3021-8 | 48V | 43.2V to 52.8V | 62.5A | 0.2% | 0.4% | 1% | 47.90V to 48.10V |

NOTES: 1) With Remote Sense connected.
2) Maximum peak-to-peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.

Input Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|----------------------|---|--------------|------------|------|-------|
| Input Voltage - AC | Single-phase continuous input range. | 180 | | 264 | VAC |
| Input Frequency | AC input. | 47 | | 63 | Hz |
| Hold-up Time | AC turn-off to output greater than or equal to 95%. | 16 | | | ms |
| Input Current | At full rated load per module. | | at 230 VAC | 15.0 | ARMS |
| Inrush Surge Current | | | | 30 | APK |
| Power Factor | Per EN61000-3-2 at full load. At half load. | 0.99 0.98 | | | W/VA |
| Operating Frequency | Switching frequency | | 140 | | kHz |

Output Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|------------------------|--|-----|-----|------|-------|
| Efficiency | Full rated load. | | 88 | | % |
| Minimum Loads | Minimum loading required to maintain regulation. | 0 | | | A |
| Output Power | Per module. | | | 3000 | Watts |
| Overshoot / Undershoot | Output voltage overshoot/undershoot at turn-on. | | | ±3.0 | % |
| Transient Response | Maximum recovery time, to within 1% of initial set point due to a 50-100-50% load change, 1A/μs, ±3.0% max. deviation. | | | 500 | μs |
| Turn-On Delay Time | AC turn-on to output >95%. | | 1.2 | 2.0 | Sec |
| Turn-on Rise Time | Time required for output voltage to rise from 10% to 90%. | | 100 | | ms |

Interface Signals and Internal Protection

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|--|--|------|-----|------|-------|
| Overvoltage Protection | Latch style overvoltage protection. 24V model | 26.4 | | 27.6 | V |
| | | 30.8 | | 33.8 | |
| | | 52.8 | | 55.2 | |
| Overcurrent Protection | Constant current limit, as a percentage of maximum rated load. | 100 | 105 | 110 | % |
| Short Circuit Protection | Short circuit current, as a percentage of maximum rated load. Output recovers automatically after removal of short. | | | 110 | % |
| Overtemperature | Module shuts down when internal temperature reaches an unsafe level. | | | | |
| DC OK, Output Good (Module) | Output low threshold measured at output studs. Form C contacts, rating is 500 mA at 30 VDC. | ±2 | ±5 | ±8 | % |
| Input Power Fail Warning | Relay closes >5 ms before output drops to <95%. Relay opens after output is in regulation. Form C contacts, pull-up to +5 V through a 1 kΩ resistor. | 5 | | | ms |
| Current Monitor | Signal provides an output of 0-10V which applies over 10-100% of rated load. At 50% load: | 4.5 | | 5.5 | VDC |
| Current Share Accuracy | Applies over 10-100% load as a percentage of full load. | | ±5 | | % |
| Remote Sense | Total voltage compensation for cable losses with respect to the main output. | 0.5 | | | V |
| Auxiliary Power (Logic Power) | Referenced to negative output terminal and derived from the internal 5.1 VDC. | | | 50 | mA |
| Output Margin | Margin High - Connect Margin input to Margin Ref. | | +5 | | % |
| | Margin Low - Connect Margin input to Logic Common. | | -5 | | |
| Power Fail Signal & PF Warning Time | PF drops to "0" before output drops to 95% due to loss of AC. PF goes to "1" (logic high) after +5 V is in regulation. Form C Warning Time: contacts pull up to +5 V through a 1 kΩ resistor. | 5 | | | ms |
| Output Voltage and Current Programming | Optional - Consult factory for details.. | | | | |

Mechanical Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|---------------------|--|-----|-----|-----|-------|
| Input Connector | Terminal block. | | | | |
| Output Connector | Copper bus bar blade with single round hole for 5/16 screw. | | | | |
| Signal Connector J1 | Power-One P/N 10X0172-001, Amp 247846-4, ITT Common ZEDBL25SBA Mates with Power=One P/N 10X0105-000, Amp 202208-1, ITT Common DBA25-K87-F0 Mating Pin P/N 12X0005-000, Amp 66506-8 | | | | |
| Visual Indicators | AC-OK LED and DC-OK LED located on the connector end of the supply. | | | | |
| Cooling | Internal fan; approximately 100 CFM. | | | | |
| Mounting | See outline drawing. | | | | |

Safety, Regulatory, and EMI Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|---|---|-----|-----|-----|-------|
| Agency Approvals | UL 60950-1 (UL), CSA C22.2 No. 60950-1, EN60950-1 (TÜV), CE Mark, and CB Report | | | | |
| Electromagnetic Interference Conducted & Radiated | FCC CFR title 47 Part 15 Sub-Part B. EN55022 / CISPR 22. | A | | | Class |
| ESD Susceptibility | Per EN61000-4-2, level 3, direct discharge. | 8 | | | kV |
| | Per EN61000-4-2, level 3, air discharge. | 15 | | | |
| Radiated Susceptibility | Per EN61000-4-3, level 3. | 10 | | | V/m |
| EFT/Burst | Per EN61000-4-4, level 3, @ 5 kHz. | 2 | | | kV |
| Input Transient Protection | Per EN61000-4-5, level 3. Line to Line | 2 | | | kV |
| Conducted Susceptibility | Per EN61000-4-6, level 3; 10V from 150 Hz to 80 MHz. | | | | |
| Leakage Current | Per EN60950. at 240 VAC | | | 1.5 | mA |

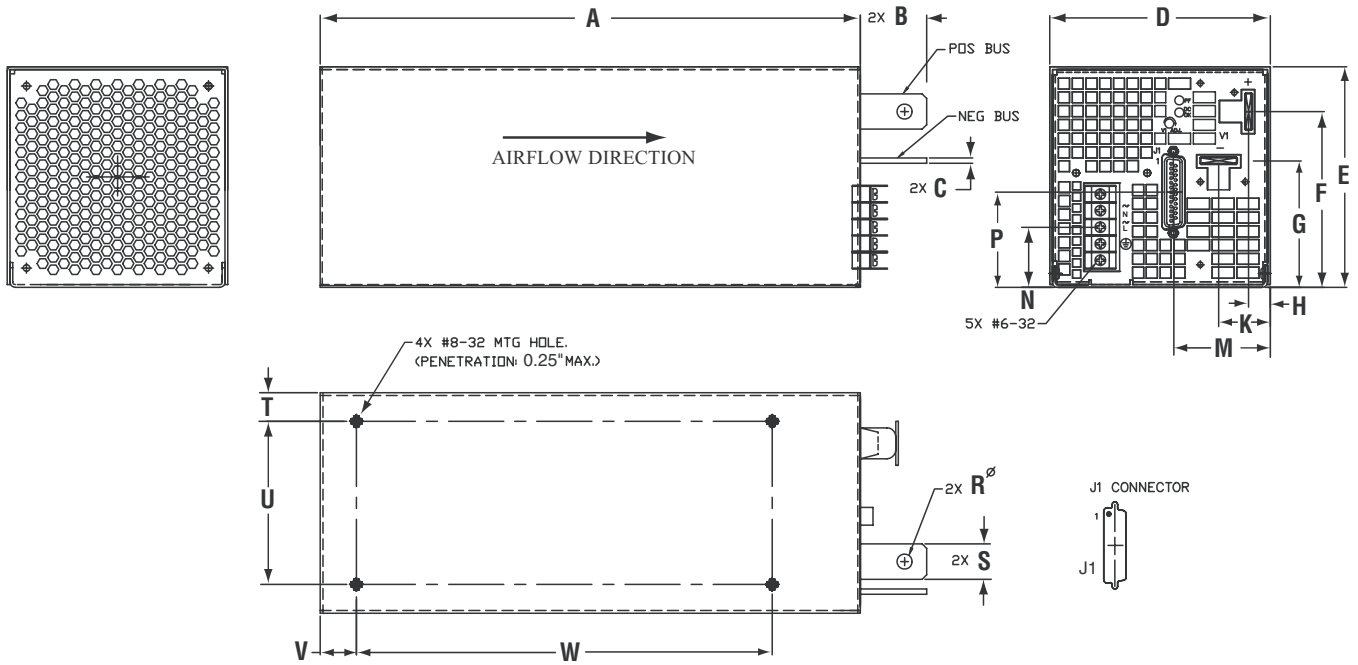
Environmental Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|--------------------------|--|-----|-------|--------|-------|
| Storage Temperature | | -40 | | 85 | °C |
| Operating Temperature | Derate linearly to 60% at 70 °C | 0 | | 50 | °C |
| Temperature Coefficient | After 15-minute warmup. | | 0.008 | | %/°C |
| Humidity, Non-Condensing | | 5 | | 95 | % |
| Altitude | Derate at 7°C/1000 ft above 8000 ft. | | | 13,000 | ft |
| Shock | Operating: half-sine 10 ms, 3 axis. | | | +20 | GPK |
| | Non-operating: half-sine 10 ms, 3 axis. | | | +40 | |
| Vibration | Operating: swept sine 5-2000-5 Hz, 5-32 Hz, 0.02g, 32-2000 Hz. | | | 1 | GPK |
| | Non-operating: random 10-2000 Hz. | | | 6.15 | Grms |
| Acoustics | Sound pressure level at 1 meter. | | | 57 | dBa |
| Weight | | | | 12.1 | lb |
| | | | | 5.49 | kg |

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.

NHC3000 OVERALL SIZE: 12.25" x 5.00" x 5.00" (311.2mm x 127.0mm x 127.0mm)



J1 Connector Pinout

| Callout | Inches | Millimeters |
|---------|--------|-------------|
| A | 12.25 | 311.2 |
| B | 1.50 | 38.1 |
| C | 0.12 | 3.1 |
| D | 5.00 | 127.0 |
| E | 5.00 | 127.0 |
| F | 3.98 | 101.1 |
| G | 2.86 | 72.6 |
| H | 0.49 | 12.5 |
| K | 1.17 | 29.7 |
| M | 2.19 | 55.6 |
| N | 1.36 | 34.5 |
| P | 2.16 | 54.9 |
| R | Ø 0.34 | Ø 8.6 |
| S | 0.80 | 20.3 |
| T | 0.650 | 16.51 |
| U | 3.700 | 93.98 |
| V | 0.825 | 21.0 |
| W | 9.425 | 239.4 |

| Pin | Description | Pin | Description |
|-----|--------------------|-----|----------------------|
| 1 | DC OK N/C | 13 | CURRENT SHARE |
| 2 | DC OK COM | 14 | +5V LOGIC |
| 3 | DC OK N/O | 15 | (-) SENSE |
| 4 | POWER FAIL PULL UP | 16 | (+) SENSE |
| 5 | ENABLE PULL UP | 17 | N/U |
| 6 | POWER FAIL | 18 | N/U |
| 7 | POWER FAIL RTN | 19 | I PROGRAM (OPTIONAL) |
| 8 | REMOTE ON/OFF | 20 | LOGIC COM |
| 9 | REMOTE ON/OFF RTN | 21 | N/U |
| 10 | CURRENT MONITOR | 22 | N/U |
| 11 | MARGIN REF | 23 | N/U |
| 12 | MARGIN | 24 | N/U |
| | | 25 | RESERVED FOR OPTIONS |