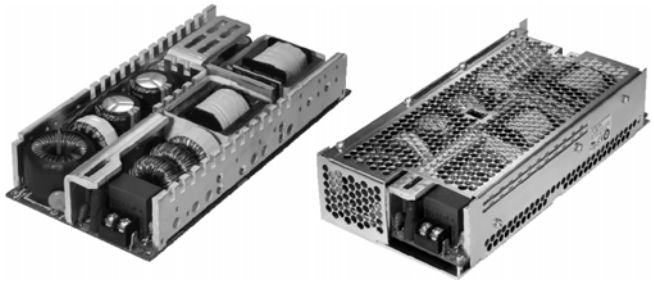
400 WATTS

NXT-400 SERIES AC-DC

FEATURES:

- **RoHS Compliant**
- **2 Year Warranty**
- **High Efficiency, 85% typical**
- **High Power Density, 8.5 W / cu in.**
- **Compact 3.9" x 8.0" x 1.5" size**
- **EN 60950-1 ITE Certification**
- **EN 60601-1 Medical Certification**
- **EMC to EN 61000-6-2 & EN 60601-1-2**
- **Advanced SMT Design**
- **Optional Chassis/Cover**
- **Optional Single Wire Load Sharing**
- **Optional Remote Inhibit/Enable**



OPEN FRAME CHASSIS/COVER

SAFETY SPECIFICATIONS

General		Protection Class: I Overvoltage Category: II Pollution Degree: 2
c UL us	Underwriters Laboratories File E137708/E140259	UL 60950-1 2nd Edition, 2007 UL 60601-1 1st Edition, 2006 ANSI/AAMI ES 60601-1, 2005 (5)2012
IECEE CB SCHEME		CB Reports/Certificates (including all National and Group Deviations) IEC 60950-1/A2:2013 IEC 60601-1:1988 +A1:1991 +A2:1995 IEC 60601-1:2005/A1:2012
c UL us	UL Recognition Mark for Canada File E137708/E140259	CAN/CSA-C22.2 No. 60950-1-07, 2nd Edition CAN/CSA-C22.2 No. 601-1-M90, 2005 CAN/CSA-C22.2 No. 60601-1:2014
TUV	TUV	EN 60950-1/A2:2013 EN 60601-1/A2:1995 EN 60601-1:2006/A1:2012
CE	Low Voltage Directive RoHS Directive (Recast)	(2014/35/EU of February 2014) (2011/65/EU of June 2011)

MODEL LISTING

	OPEN FRAME		CHASSIS/COVER	
MODEL	300 LFM	CONVECTION COOLED	300 LFM	CONVECTION COOLED
NXT-400-1001	2.5V/80.0A	2.5V/45.0A	2.5V/72.0A	2.5V/40.5A
NXT-400-1002	3.3V/80.0A	3.3V/45.0A	3.3V/72.0A	3.3V/40.5A
NXT-400-1003	5V/80.0A	5V/45.0A	5V/72.0A	5V/40.5A
NXT-400-1004	12V/33.3A	12V/18.8A	12V/29.9A	12V/16.9A
NXT-400-1005	15V/26.7A	15V/15.0A	15V/24.0A	15V/13.5A
NXT-400-1006	24V/16.7A	24V/9.4A	24V/15.0A	24V/8.5A
NXT-400-1007	28V/14.3A	28V/8.0A	28V/12.8A	28V/7.2A
NXT-400-1008	48V/8.3A	48V/4.7A	48V/7.5A	48V/4.2A

Please refer to Output Power Derating chart.

ORDERING INFORMATION

Please specify the following optional features when ordering:

CH - Chassis
CO - Cover
LS - Single Wire Load Sharing
LSEVB - Load Share Evaluation Board
RE - Remote Inhibit

All specifications are maximum at 25°C, 400W unless otherwise stated, may vary by model and are subject to change without notice.

OUTPUT SPECIFICATIONS

Output Power at 50°C	225W 400W	Convection Cooled, Open Frame 300 LFM Forced Air, Open Frame
Power Derating	2.5 W_{OUT} / 1 V_{IN} below 100 V_{IN}	
Voltage Centering	± 0.5%	(50% load)
Voltage Adjust Range	95-105%	
Load Regulation	0.5%	(0-100% load change)
Source Regulation	0.5%	
Noise	1.0% or 100mV	Whichever is greater
Turn on Overshoot	None	
Transient Response	Output recovers to within 1% of initial set point due to a 50% step load change, 500µS maximum, 4% maximum deviation.	
Overvoltage Protection	Latching, between 110% and 150% of rated output voltage.	
Overpower Protection	110-130% rated Pout, cycle on/off, auto recovery	
Hold Up Time	16 mS min., Full Power, 85-264V Input	
Start Up Time	3 Seconds, 120V Input	

INPUT SPECIFICATIONS

Source Voltage	85 – 264 Volts AC
Frequency Range	47 – 63 Hz
Input Protection	Internal 10A Time Delay fuse
Peak Inrush Current	50A (cold)
Efficiency	85% Typical, Full Power varies by model
Power Factor	0.95 (Full Power, 230V), 0.98 (Full Power, 120V)

ENVIRONMENTAL SPECIFICATIONS

Ambient Operating Temperature Range	0° C to + 70° C Derating: See Power Rating Chart
Thermal Shutdown	Output voltage is inhibited during excessive internal temperatures, automatic reset.
Ambient Storage Temp. Range	- 40° C to + 85° C
Operating Relative Humidity Range	20-90% non-condensing
Altitude	10,000 ft. ASL Operating/ 40,000 ft. ASL Non-operating
Temperature Coefficient	0.02%/°C
Vibration	2.5g, 10Hz. – 2KHz per MIL-STD-810F Method 514.5
Shock	20g, peak per MIL-STD-810F Method 516.5

GENERAL SPECIFICATIONS

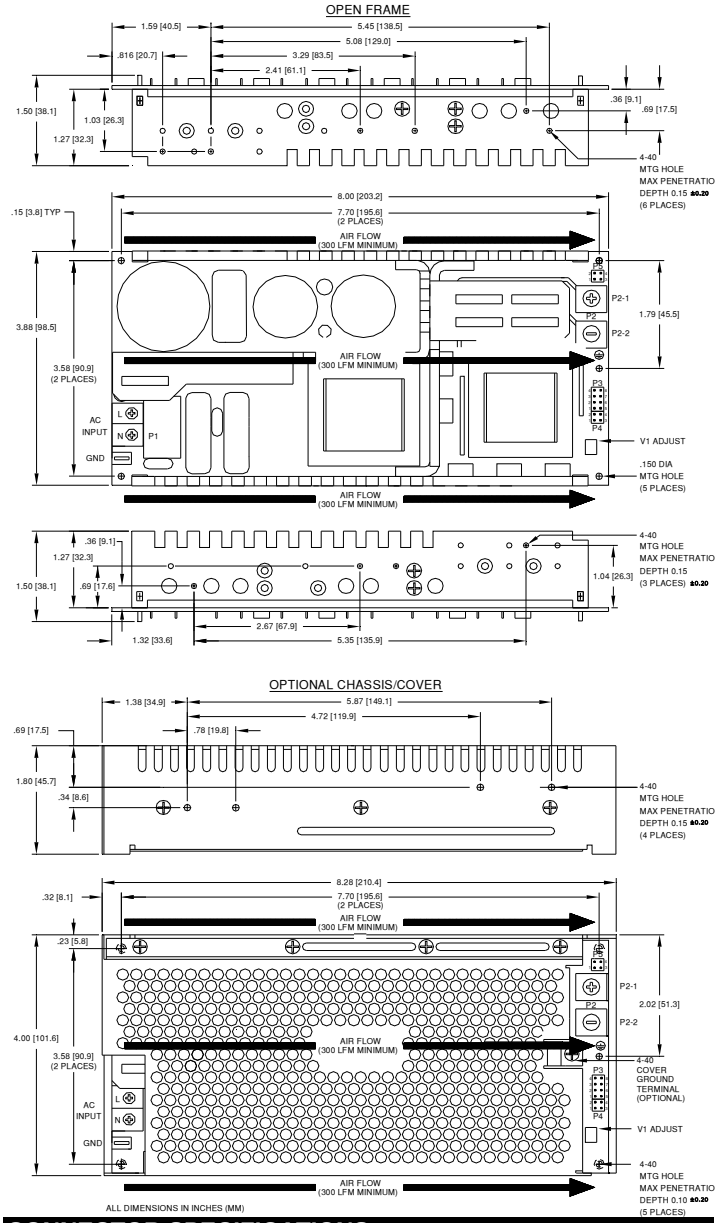
Means of Protection	
Primary to Secondary	2MOPP (Means of Patient Protection)
Primary to Ground	1MOOP (Means of Operator Protection)
Secondary to Ground	Operational Insulation (Consult factory for 1MOOP or 1MOPP)
Dielectric Strength(12)	
Reinforced Insulation	5656 VDC, Primary to Secondary, 1 Sec.
Basic Insulation	2545 VDC, Primary to Ground, 1 Sec.
Operational Insulation	707 VDC, Secondary to Ground, 1 Sec.
Leakage Current	
Earth Leakage	<300uA NC, <1000uA SFC
Touch Current	<100uA NC, <500uA SFC
Power Fail Signal	Logic low with input power failure 10 ms minimum prior to output 1 dropping 1%.
Remote Inhibit (optional)	Isolated. Contact closure inhibits output.
Load Share (optional)	Single wire current sharing with return via negative sense return. Minimum current share load is 10% of each module's output current rating. Maximum output voltage deviation between modules is 5% for 2.5 through 5 V models and 400 mV for remaining models.
Standby Power (optional)	Isolated 5 VDC ± 10%, 10mA available with Remote Inhibit Option.
Remote Sense	400mV compensation of output cable losses
Mean-Time Between Failures	100,000 Hours min., MIL-HDBK-217F, 25° C, GB
Weight	2.65 Lbs. Open Frame/ 3.60 Lbs. Chassis and Cover

ELECTROMAGNETIC COMPATIBILITY SPECIFICATIONS

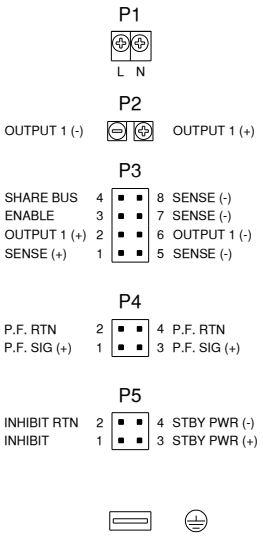
Electrostatic Discharge	EN 61000-4-2	±6kV Contact/ ±8kV Air Discharge
Radiated Electromagnetic Field	EN 61000-4-3	80-2500MHz, 10V/m, 80% AM
EFT/Bursts	EN 61000-4-4	±2 kV
Surges	EN 61000-4-5	±2 kV Line to Earth/ ±1 kV Line to Line
Conducted Immunity	EN 61000-4-6	.15 to 80MHz, 10V, 80% AM
Magnetic Field Immunity	EN 61000-4-8	30A/m, 50/60 Hz.
Voltage Dips	EN 61000-4-11	95% Dip, 10ms 30% Dip, 500ms 60% Reduction, 1s (Criteria B)
Voltage Interruptions	EN 61000-4-11	95% Reduction, 5s
Radiated Emissions	EN 55011/22, FCC Part 15	Class B
Conducted Emissions	EN 55011/22, FCC Part 15	Class B
Harmonic Current Emissions	EN 61000-3-2	Compliance
Voltage Fluctuations and Flicker	EN 61000-3-3	Compliance

INTEGRATED POWER DESIGNS 300 Stewart Road ■ Wilkes-Barre, PA 18706 ■ Phone: (570) 824-4666 ■ Fax: (570) 824-4843 ■ Email: sales@ipdpower.com ■ Web: www.ipdpower.com

NXT-400 SERIES MECHANICAL SPECIFICATIONS



CONNECTOR SPECIFICATIONS

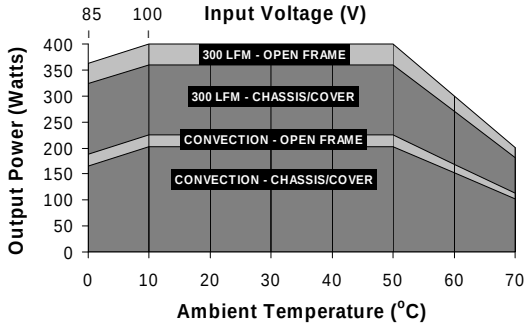


AC Input	Terminal block with 6-32 screws on 0.325 centers mates with #6, spade terminals. (8 in-lb max)
DC Output	10-32 screw down terminal mates with #10 ring tongue terminal. (10 in-lb Max)
Load Share, Sense	.100 friction lock header mates with Molex 22-55-2081 or equivalent crimp terminal housing with Molex 71851 or equivalent crimp terminal.
Power Fail	.100 friction lock header mates with Molex 22-55-2041 or equivalent crimp terminal housing with Molex 71851 or crimp equivalent terminal.
Inhibit, Standby Power	.100 friction lock header mates with Molex 22-55-2041 or equivalent crimp terminal housing with Molex 71851 or equivalent crimp terminal.
Ground	.187 quick disconnect terminal.

APPLICATIONS INFORMATION

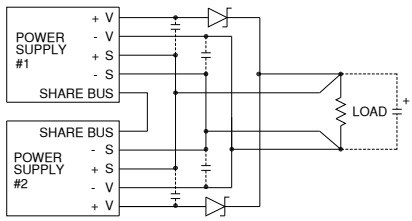
1. Sufficient area must be provided around power supply to allow natural movement of air to develop in convection cooled applications.
2. 300 linear feet per minute (minimum) of airflow must be maintained along all outside surfaces of exposed heatsinks or chassis. See recommended air flow diagram as a guideline.
3. Generally, adequate cooling is provided when semiconductor case temperatures do not exceed 75° C rise and transformer temperature does not exceed 80° C rise at any specified ambient temperature.
4. This product is intended for use as a professionally installed component within information technology, industrial and medical equipment and is not intended for stand alone operation. Common RF shielding precautions may need to be taken to assure emissions compliance. Refer to operating instructions for additional information.
5. This product includes only one fuse in the input circuit. In consideration of Clause 8.11.5 of IEC 60601-1:2005, a second fuse may be required in the end product.
6. Low forward voltage drop oring diodes must be used in all load sharing applications in 2.5 through 15 Volt models. Oring diodes must be used on 24 through 48 Volt models used in fault tolerant applications but are optional in power boosting applications. Oring diode power dissipation must be subtracted from the maximum output power rating of each model.
7. Current carrying conductors in load sharing applications must be short and symmetrical. Remote sense conductors should be a twisted pair. The use of an appropriately rated low impedance capacitor across the load will increase noise immunity.
8. Refer to Load Share Evaluation Board data sheet (page 58) for additional load share applications information.
9. Remote sense terminals may be used to compensate for cable losses up to 400 mV depending on model. The use of a twisted pair, decoupling capacitors and an appropriately rated low impedance capacitor connected across the load will increase noise immunity.
10. A load equal to 5% rated output power must be maintained when using standby power option. An external electrolytic capacitor across standby power output may be used to improve transient response.
11. Peak to peak output ripple and noise is measured directly at the output terminals of the power supply, without the use of the probe ground lead or retractable tip, 20 MHz bandwidth.
12. This product was type tested and safety certified using the dielectric strength test voltages listed in Table 6 of IEC 60601-1:2005. In consideration of Clause 8.8.3, care must be taken to insure that the voltage applied to a reinforced insulation does not overstress different types and levels of insulation. Primary and secondary to ground capacitors may need to be disconnected prior to performing a dielectric strength test on the power supply or the end product. It is highly recommended that the DC test voltages listed in DVB.1, Annex DVB of UL 60601-1 1st Edition are not exceeded during a production-line dielectric strength test of the assembled end product. Please consult factory for further information.
13. This power supply has been safety approved and final tested using a DC dielectric strength test. Please consult factory before performing an AC dielectric strength test.
14. Maximum screw penetration into bottom chassis mounting holes is .100 inches.
15. Maximum screw penetration into side chassis mounting holes is .150 inches.
16. To comply with emissions specifications, all five mounting hole pads must be electrically connected to a common metal chassis. Chassis/cover option recommended and should be grounded.

MAX Pout vs. AMBIENT TEMPERATURE/INPUT VOLTAGE



Derating requirements – Chart above applies to models 1003 thru 1008 only. 400 Watts 300 LFM forced air, open frame. 225 Watts convection cooled open frame. Derate 10% with chassis and cover. Derate 2.5 W_{OUT} / 1 V_{IN} below 100 V_{IN} and between 100 V_{IN} and 85 V_{IN}. Use larger of the two deratings when using chassis/cover below 100 V_{IN}. Derate output power linearly to 50% between 50° and 70° C

TYPICAL LOAD SHARE/REMOTE SENSE APPLICATION



REV.H 05/27/2015