

# 400 WATTS

## MULTI OUTPUT AC-DC

### FEATURES:

- Compact 4.0" x 7.0" x 1.5" Size
- 3 Year Warranty
- Universal 85-264V Input
- 2-4 Regulated & Adjustable Outputs
- 90% Peak/87% Average Efficiency
- <300mW No Load Input Power
- -20 to +70°C Operating Temperature
- RoHS Compliant
- IEC 60601-1 3<sup>rd</sup> ed. Medical Cert.
- IEC 60950-1 2<sup>nd</sup> ed. ITE Certification
- IEC 62368-1 2<sup>nd</sup> ed. Certification
- IEC 60601-1-2 4<sup>th</sup> ed. EMC
- Class B Emissions per EN55011/32
- Optional 5V/2A Standby Output
- Optional Remote Inhibit/Enable
- Optional Chassis/Cover



CHASSIS/COVER



OPEN FRAME

### SAFETY SPECIFICATIONS

	Underwriters Laboratories File E137708/E140259	UL 62368-1:2014, 2 <sup>nd</sup> Edition CAN/CSA-C22.2 No. 62368-1-14 AAMI/ANSI ES60601-1:2005/(R) 2012 CAN/CSA-C22.2 No. 60601-1:2014
		CB Reports/Certificates (including all National and Group Deviations)
	TUV SUD America	EN 62368-1:2014, 2 <sup>nd</sup> Edition EN 60601-1:2006/A1:2013
	Low Voltage Directive RoHS Directive (Recast)	(2014/35/EU of February 2014) (2015/863/EU of March 2015)
	Electrical Equipment (Safety) Regulations 2016 SI No. 1101 Restriction of the Use of Certain Hazardous Substances in EEE Regulations 2012 SI No. 3032 + 2019 SI No. 492	

### MODEL LISTING

MODEL	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4
NXT-400M-4001	+3.3V/50A	+3.3-5V/15A	+12-15V/5A	-12-15V/5A
NXT-400M-4002	+5V/50A	+3.3-5V/15A	+12-15V/5A	-12-15V/5A
NXT-400M-4003	+5V/50A	+12-15V/10A	+12-15V/5A	-12-15V/5A
NXT-400M-4004	+5V/50A	+24-28V/5A	+12-15V/5A	-12-15V/5A
NXT-400M-4005	+24V/12.5A	-24-28V/5A	+12-15V/5A	-12-15V/5A
NXT-400M-3001	+5V/50A	+12-15/10A		-12-15V/5A
NXT-400M-2001	+5V/50A	+24-28V/5A		
NXT-400M-2002	+5V/50A	+12-15V/10A		
NXT-400M-2003	+12V/25A	-12-15V/10A		
NXT-400M-2004	+15V/20A	-12-15V/10A		

### ORDERING INFORMATION

Consult factory for alternate output configurations.  
Please specify output voltage set points when ordering.  
Please specify the following optional features when ordering:

CH-Chassis	I/O-Isolated Outputs
CO-Cover	PF-Power Fail Warning
RE/SB- Remote Inhibit/Standby Output	BF-Type BF

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

# NXT-400M

## OUTPUT SPECIFICATIONS

Output Power at 50°C <sub>(1)</sub> (See Derating Chart)	200W 400W	Convection Cooled, Open Frame 300LFM Forced-Air Cooled, Open Frame
Voltage Centering	Outputs 1-4:	±0.5% (All outputs at 50% load)
Voltage Adjust Range	Outputs 1:	95-105%
	Outputs 2-4:	90-110% <sub>(15)</sub>
Load Regulation	Outputs 1:	±0.2% (0-100% load change)
	Outputs 2-4:	±1.0% (0-100% load change)
Source Regulation	Outputs 1-4:	0.2%
Cross Regulation	Outputs 2-4:	0.2%
Ripple & Noise	Outputs 1-4	1.0% or 100mV p-p, 20MHz BW
Turn On Overshoot	None	
Transient Response	Output recovers to within 1% of initial set point due to a 50-100-50% step load change, 1ms maximum, 4% maximum deviation.	
Overvoltage Protection	Output 1, 110%- 150% of rated output voltage, latching.	
Overpower Protection	110%-150% rated P <sub>OUT</sub> , cycle off/on, auto recovery.	
Hold-Up Time	16ms minimum, full power.	
Start-Up Time	<1 sec., 115/230V input.	
Output Rise Time	Output 1: 5ms typical. Outputs 2-4: 30ms typical.	
Minimum Load <sub>(5)</sub>	No minimum load required.	
Remote Sense <sub>(9)</sub>	Output 1: 250mV compensation of output cable losses.	
Enable/Inhibit (System) <sub>(16)</sub>	Contact closure enables all outputs with RE/SB option.	
Enable/Inhibit (Outputs 2, 3, 4) <sub>(17)</sub>	Contact closure inhibits individual output.	
Standby Output	Provides 5V/2A while all other outputs are Inhibited /off with RE/SB option.	

### INPUT SPECIFICATIONS

Protection Class	I
Source Voltage	85 – 264 VAC (see derating chart)
Frequency Range	47 – 63 Hz
Input Protection	Dual internal 8A time delay fuses, 1500A breaking capacity
Peak Inrush Current	40A max
Peak Efficiency	Up to 90%
Average Efficiency	Up to 87% (Avg. of 25%, 50%, 75% and 100% rated load)
No Load Input Power	<300mW (with RE/SB option) <500mW (with RE/SB and PF option)

### ENVIRONMENTAL SPECIFICATIONS

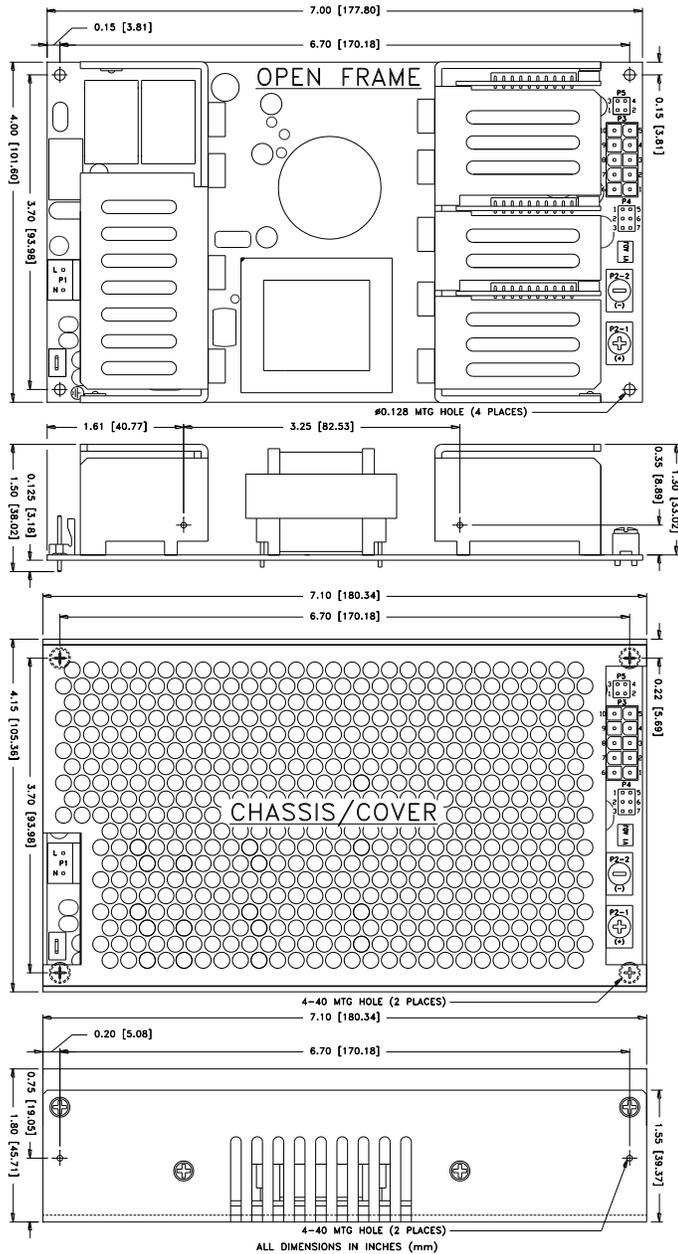
Ambient Operating Temp. Range	-20°C to +70°C, Derating: (see derating chart)
Ambient Storage Temp. Range	-40°C to +85°C
Operating Relative Humidity Range	20-90% non-condensing
Altitude	3,000m ASL Operating (5,000m consult factory) 12,192m ASL – Non-Operating
Temperature Coefficient	0.02%/°C
Vibration (MIL-STD-810G)	2.5G swept sine, 10-2000Hz, 1 octave/min, 3 axis, 1 hour each
Shock (MIL-STD-810G)	20g, 11 ms, 3 axis.

### GENERAL SPECIFICATIONS

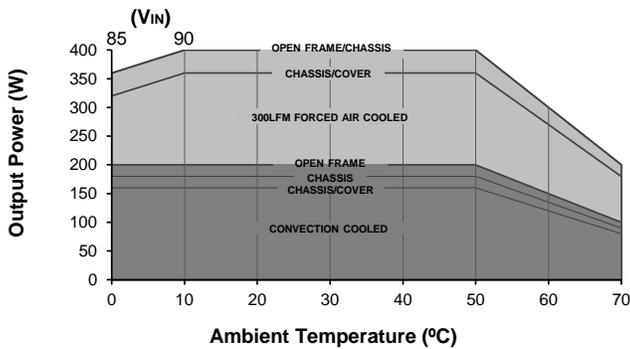
Means of Protection	
Primary to Secondary	2MOPP (Means of Patient Protection)
Primary to Ground	1MOPP (Means of Patient Protection)
Secondary to Ground	Operational Insulation (1MOPP w/ Option BF)
Dielectric Strength <sub>(7, 8)</sub>	
Reinforced Insulation	5656VDC (4000VAC)
Basic Insulation	2121VDC (1500VAC)
Operational Insulation	707VDC (500VAC)/2121VDC (1500VAC) w/ Option BF
Leakage Current	
Earth Leakage	<300µA NC, <1000µA SFC
Touch Current	<100µA NC, <500µA SFC
Patient Leakage Current	<100µA NC, <500µA SFC w/Option BF
AC Power Fail Signal	Logic low 10-15ms prior to V <sub>1</sub> loss of regulation.
Switching Frequency	PWM:133 KHz/PFC:Variable
Mean-Time Between Failures	150,000 hours, MIL-HDBK-217F, 25°C, GB
Weight	1.7 lb. Open frame / 2.2 lb. Chassis and cover

### EMC SPECIFICATIONS (IEC 60601-1-2:2014, 4<sup>TH</sup> ed./IEC 61000-6-2:2005)

Electrostatic Discharge	EN 61000-4-2	±8KV contact / ±15KV air discharge	A
Radiated Electromagnetic Field	EN 61000-4-3	80MHz-2.7GHz, 10V/m, 80% AM	A
Electrical Fast Transients/Bursts	EN 61000-4-4	±2 KV, 5KHz/100KHz	A
Surge Immunity	EN 61000-4-5	±2 KV line to earth / ±1 KV line to line	A
Conducted Immunity	EN 61000-4-6	0.15 to 80MHz, 10V, 80% AM	A
Magnetic Field Immunity	EN 61000-4-8	30A/m, 60 Hz.	A
Voltage Dips	EN 61000-4-11	0% U <sub>T</sub> , 0.5 cycles, 0-315°	100/240V A/A
		0% U <sub>T</sub> , 1 cycles, 0°	100/240V A/A
		40% U <sub>T</sub> , 10/12 cycles, 0°	100/240V B/A
		70% U <sub>T</sub> , 25/30 cycles, 0°	100/240V B/A
Voltage Interruptions	EN 61000-4-11	0% U <sub>T</sub> , 300 cycles, 0°	100/240V B/B
Radiated Emissions	EN 55011/32	Class B	
Conducted Emissions	EN 55011/32	Class B	
Harmonic Current Emissions	EN 61000-3-2	Class A	

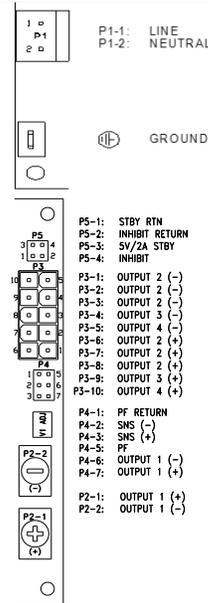


**MAX P<sub>OUT</sub> vs. AMBIENT TEMPERATURE/INPUT VOLTAGE**



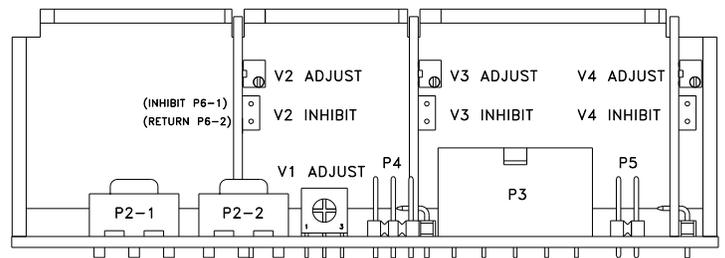
- Derate Outputs 1 (3.3-5V) current rating 40% when convection cooled.
- Derate Outputs 1 (12-15V) current rating 25% when convection cooled.
- Derate Outputs 2 (3.3-15V) current rating 25% when convection cooled.
- Derate Total Output Power linearly from 100% at 50°C to 50% at 70°C.
- Derate Total Output Power linearly from 100% at 90V<sub>IN</sub> to 90% at 85V<sub>IN</sub> when forced-air cooled.
- Derate Total Output Power 10% when convection cooled using Chassis or Chassis/Cover.
- Derate Total Output Power 20% when convection cooled using Chassis/Cover (4001, 4002 only).
- Derate Total Output Power 10% when forced-air cooled using Chassis/Cover.

**CONNECTOR SPECIFICATIONS**



- P1:** 0.156 friction lock header mates with Molex 09-50-3031 or equivalent crimp terminal housing with Molex 08-50-0189 or equivalent crimp terminal.
- Ground:** 0.187 quick disconnect terminal.
- P5:** 0.100 friction lock header mates with Molex 22-55-2041 or equivalent crimp terminal housing with Molex 71851 or equivalent crimp terminal.
- P3:** 5566 Mini-Fit Jr. header mates with 5557 Mini-Fit Jr. or equivalent crimp housing with 5556 Mini-Fit or equivalent Crimp Terminal.
- P4:** 0.100 breakaway header mates with Molex 22-55-2061 or equivalent crimp terminal housing with Molex type 70058 or equivalent crimp terminal.
- P2:** 6-32 screw terminal mates with #6 ring tongue terminal. (10 in-lb Max).

**OUTPUT VOLTAGE ADJUSTMENT LOCATIONS**



**APPLICATIONS INFORMATION**

- Each output can deliver its rated current but Total Output Power must not exceed 400W.
- Generally, adequate cooling is provided when semiconductor case temperatures do not exceed 70°C rise and transformer temperature does not exceed 60°C rise at any specified ambient temperature.
- Sufficient area must be provided around power supply to allow natural movement of air to develop in convection-cooled applications.
- 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.
- Minimum load is not required for reliable operation; however, a 5% load may be required on Output 1 when loading Outputs 2, 3 or 4 to full rated current.
- Peak-to-Peak Output Ripple and Noise is measured directly at the output terminals, without the use of the probe ground lead or retractable tip (tip-and-barrel method), 20 MHz.
- This product was type-tested and safety-certified using the dielectric strength test voltages listed in Table 6 of IEC60601-1:2005. In consideration of clause 8.8.3, care must be taken to ensure 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 type test on the power supply or the end product. It is highly recommended that the DC test voltage listed in DVB.1, annex DVB of UL60601-1 1<sup>ST</sup> Edition are not exceeded during a production-line dielectric strength test of the assembled end product. Please consult factory for further information.
- 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.
- Remote-Sense terminals may be used to compensate for cable losses up to 250mV, 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.
- Maximum screw penetration into bottom chassis mounting holes is 0.100 inches. Maximum screw penetration into side chassis mounting holes is 0.188 inches.
- To comply with emissions specifications, all four mounting hole pads must be electrically connected to a common metal chassis. Chassis/cover option is recommended. Refer to Operating Instructions for additional information.
- Common RF shielding precautions may need to be taken to assure emissions compliance. Refer to Operating Instructions for additional information.
- Power Fail (AC-Good) feature provides a logic-low warning signal from an open collector transistor output 10-15ms prior to loss of output from AC failure, 5V/10mA (4001:3.3V/10mA).
- 300LFM minimum of airflow must be maintained one inch above all points of top-side components or cover when forced-air cooling is required.
- Outputs 2, 3 and 4 are adjustable from -10% of lowest voltage rating to +10% of highest voltage rating.
- RE/SB Option enables all outputs with a P5-4 to P5-2 switch closure, 6V Max./50mA.
- Output 2, 3 and 4 Inhibit feature shuts down only that output with a P6-1 to P6-2 switch closure, 45V Max.