Advance Product Release

Features

- 400W output power with currents over 100 Amps
- 85% efficiency (typical)
- 5-output construction
- Isolated V2 and V3 outputs
- Standby output of 5V @ 2A
- Fits 1U chassis height constraints
- No minimum load requirement
- Active current-share capabilities with redundant capabilities on the four main outputs
- Patented high-efficiency design
- Meets European power factor requirements
- Excellent load transient response
- Redundancy without use of ORing diode

Description

Designed to meet the stringent requirements of today's high-speed circuitry, Power-One's NET2 Series is an excellent compact power solution for low-voltage, high-current applications. The NET2's high efficiency is achieved through the use of synchronous rectification and a newly-patented "Soft Transition Forward Converter".

The NET2'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 NET2's height to 1.59" (40.3mm) to fit in 1U applications. NET2'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 – 400W WITH 460 LFM FORCED-AIR COOLING

MODEL		OUTPUT VOLTAGE	ADJUSTMENT RANGE	OUTPUT CURRENT	LINE REGULATION	LOAD & CROSS-REGULATION	RIPPLE & NOISE Pk-Pk (NOTE 2)	INITIAL SETTING ACCURACY (NOTE 3)
NET2-4350 (Note1)	V1	+3.3V	+5%, -2%	55A	0.6%	1%	50mV	+40mV, -10mV
	V2	12V	+5%, -5%	5A	0.5%	1%	120mV	± 70mV
	V3	12V	+5%, -5%	5A	0.5%	1%	120mV	± 70mV
	V4	+5V	+5%, -2%	40A	0.5%	1%	50mV	+50mV, -10mV
	V5	$+5.2V_{SB}$	FIXED	2A	0.5%	4%	50mV	± 110mV
NET2-4231 (Note1,4)	V1	+3.3V	+5%, -2%	55A	0.6%	1%	50mV	+40mV, -10mV
	V2	12V	+5%, -5%	5A	0.5%	1%	120mV	± 70mV
	V3	1.8V	+5%, -2%	15A	0.6%	1%	120mV	± 70mV
	V4	+2.5V	+5%, -2%	55A	0.6%	1%	50mV	+30mV, -10mV
	V5	$+5.2V_{SB}$	FIXED	2A	0.5%	4%	50mV	± 110mV

NOTES: 1) V1 + V2, or V3 + V4 must not exceed 200W.
2) Maximum peak-to-peak noise for a 20 MHz bandwidth.
3) Initial set points: V1 @ 40A, V2 @ 4A, V3 @ 4A, V4 @ 30A, and V5 @ 1A.
4) Consult factory for availability.

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 400 watts.	20			ms
Input Current	85 VAC at full rated load.			7.0	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 (Over the entire input range and above 60W load).	0.95			W/VA

Output Specifications

PARAMETER	CONDITIONS/DESCRIPTION	MIN	TYP	MAX	UNITS
Efficiency	Full Rated Load, 115 VAC. Varies with distribution of loads among outputs.		85		%
Ripple and Noise	Full load, 20 MHz bandwidth.		See Model Selection Charts		
Output Power	With 460 LFM forced-air cooling (25 CFM through the power supply opening), V1+V2+V3+V4+V5: V1+V2 or V3+V4:			 400 200	Watts
Overshoot / Undershoot	Output voltage overshoot/undershoot at turn-on.			3.5	%
Regulation	Varies by output. Regulation includes: line changes over the specified input range and changes in load between 0% and 100% load.		See Model Selection Charts		
Transient Response	Recovery time, to within 1% of initial set point due to a 50% load change in the load range of 10 to 100%; 3.5% or 100mV deviation, whichever is greater. V1/V4/V5: V2/V3		 1 0.5		ms
Turn-on Delay	Time required for initial output voltage stabilization.		1.5	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 except V5. Unit latches off when overvoltage is detected. AC input must be recycled to reset. V5 is protected by a 6.2V ±5%, 2W Zener diode.	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	Power supply shuts down due to excessive internal overtemperature at the output converter's primary switching transistors. Power supply resets automatically upon removal of the overtemperature cause.				
Output Good	TTL-compatible global Output Good signal. The signal is active when any of the V1-V4 outputs drop >14% below nominal. Source impedance is 1kΩ.				
Input Power Fail Warning	Open collector signal. 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 except V5. Accuracy of shared current with up to two parallel units. Single wire current share is provided. For paralleling more than two units, consult factory.		10		%
Remote Sense	Available on all outputs except V5. Total voltage compensation for cable losses with respect to the main output.			500	mV

Safety, Regulatory, and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	TYP	MAX	UNITS
Agency Approvals	UL60950.		NET2-4350 Approved; NET2-4231 Pending			
	CSA 22.2, NO. 60950-00 (cUL).		NET2-4350 Approved; NET2-4231 Pending			
	EN60950-1 (TÜV).		NET2-4350 Approved; NET2-4231 Pending			
	IEC60950-1		NET2-4350 Approved; NET2-4231 Pending			
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. Contact discharge: ±10%		8			kV
	Air discharge:		10			
Radiated Susceptibility	Per EN61000-4-3, level 3. Frequency 0.8 - 1.0 GHz, 80% AM @ 1 kHz		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			
Ground Leakage	UL60950/EN60950/CSA 6950-00	@254VAC			1	mA

Environmental Specifications

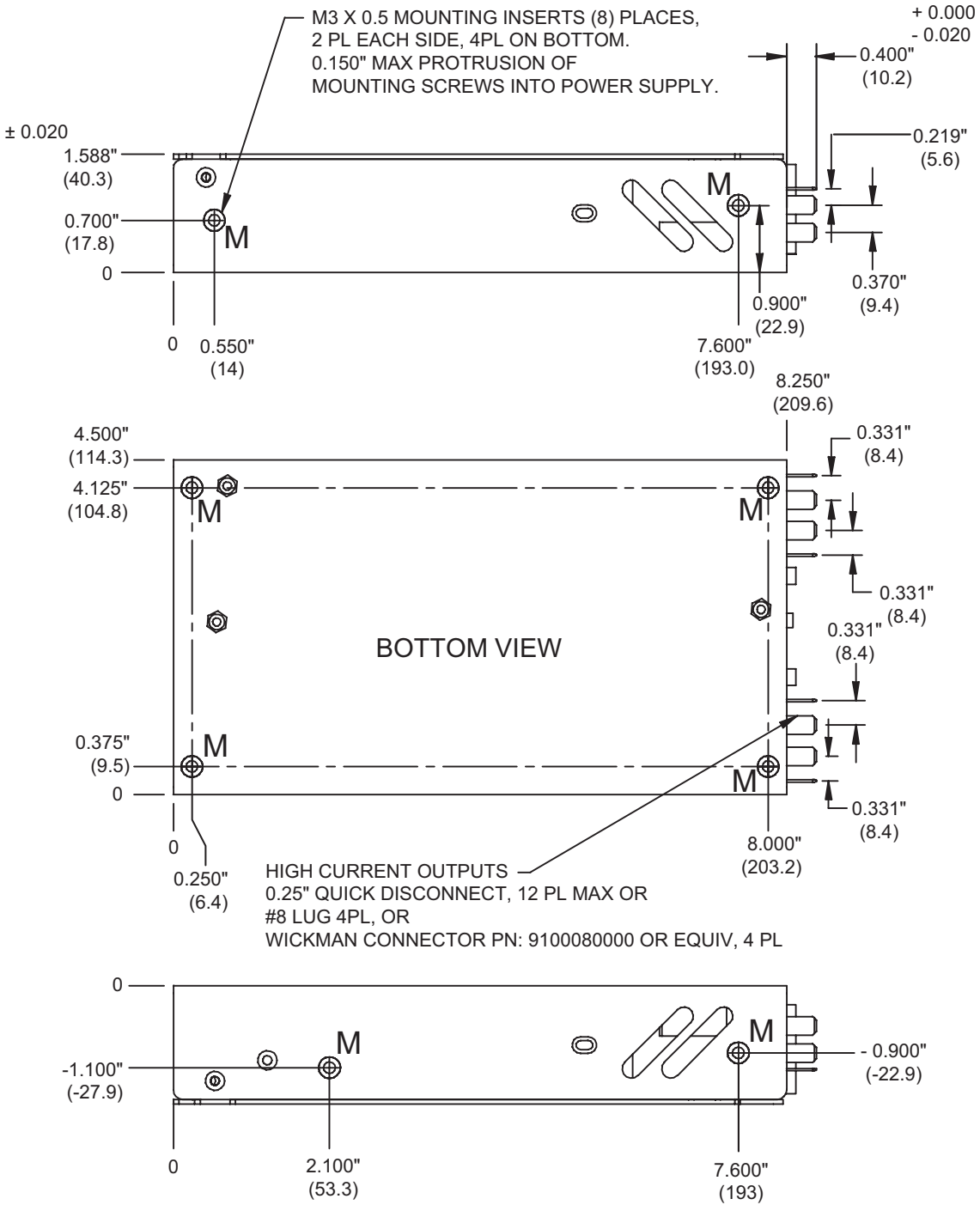
PARAMETER	CONDITIONS/DESCRIPTION		MIN	TYP	MAX	UNITS
Altitude	Operating.				10k	ASL Ft.
	Non-Operating.				40k	ASL Ft.
Operating Temperature	From 50°C to 70°C derate each output and total power to 50% of rating at 70°C.	At 100% load	0		50	°C
Storage Temperature			-40		85	°C
Temperature Coefficient	0°C to 70°C (after 15-minute warmup).			± 0.02	± 0.05	%/°C
Relative Humidity	Non-Condensing.		5		95	%RH
Shock	Operating: Half-sine, 10 ± 3ms duration; one positive and one negative shock in each of the three perpendicular axes for a total of 6 shocks.		10		20	GPK
	Non-Operating: Half-sine, 10 ± 3ms duration; one positive AND one negative shock in each of the three perpendicular axes for a total of 6 shocks.		30		40	GPK
Vibration	Operating: Logarithmic sweep, 1 octave/min 5-2000-5 Hz vertical, lateral, and longitudinal axes;					
	5-32 Hz, 0.02" double amplitude;					
	32-2000 Hz			1		Gpk
	2000-32 Hz			1		Gpk
	32-5 Hz double amplitude.					
	Non-Operating: Random 1 hour/axis, vertical, lateral, and max longitudinal over 10-2000 Hz.				6.15	Grms

Mechanical

DESCRIPTION	NOTES	SIZE IMPACT
Metric Mounting	M3 x 0.5 mounting inserts: 3 mounting surfaces	
Chassis Size		8.25" x 4.50" x 1.59" (209.6mm x 114.3mm x 40.4mm)

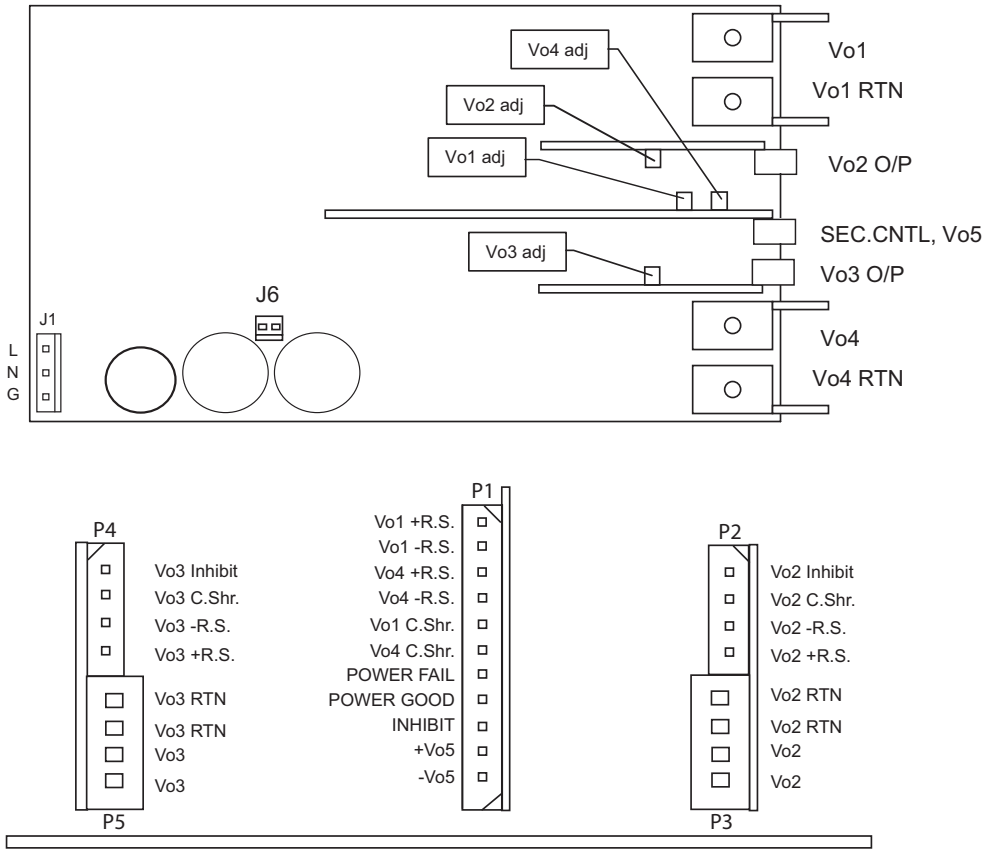
Mechanical Drawing

NOTE: METRIC DIMENSIONS ARE SHOWN IN BRACKETS



NOTE: TOLERANCE (.XXX = ± 0.010 UNLESS OTHERWISE SPECIFIED)

INPUT & OUTPUTS



Vo3 OUTPUT PINOUT **SEC.CNTL.BRD.PINOUT** **Vo2 OUTPUT PINOUT**

Connectors

The NET2 uses #8-32 screw terminal and/or 0.25" faston connections for outputs 1 and 4, and Molex 5264-N Series connectors (50-37-5093) for auxiliary outputs and control signals. For the AC input, the NET2 uses a Molex 41694/2139 (09-50-3051) series connector.

NET2-4350
NET2-4231

P1	Housing	50-37-5113
	Pins	08-70-1039
P2 & P4	Housing	50-37-5043
	Pins	08-70-1039
P3 & P5	Housing	39-01-4041
	Pins	39-00-0038

NOTE: Part numbers are MOLEX; equivalents are acceptable.