



- 3" x 5" Footprint
- <1U High
- High Power Density: 8.5W/Inch³
- Up to 90% Efficiency
- Universal AC Input
- Active PFC (90-264VAC)
- N+1 (Built in OR'ing Diodes)
- No Load Operation
- RoHS Compliant

Electrical Specifications

Input

Input Voltage	90-264VAC
Input Frequency	47-63 Hz
Input Current	2.2A @ 100VAC
Input Protection	3.15A Fuse
Inrush Current	33A @ 115VAC
Power Factor	Per EN61000-3-2
Leakage Current	150µA
Safety Isolation	3000VAC Input to output 1500VAC Input to ground

Output

Total Output	160W
Output Voltage	See table
Hold Up Time	22mS minimum
Efficiency	Up to 90% (Note 1)
Minimum Load	No minimum load
Over/Under Shoot	10% maximum @ turn-on

Protection

Overvoltage	On main outputs
Overpower	Auto recovery
Short Circuit	Auto recovery (all outputs)
Thermal Shutdown	Auto recovery against over temperature

Notes:

1. See product specification.
2. On some models.

Signals

Remote Sense	On main output (Note 1, 2)
Current Sharing	Active, using OR'ing diode or MOSFETs
Power Good Output	Provided (Note 1)
PS-OK	Output (Note 1)
LED Indicators	Some models

Environmental & Operating

Operating Temperature	-20°C to +50°C
Temperature Derating	2.5%/°C from +50°C to +70°C
Storage Temperature	-40°C to +85°C
Forced Air Cooling	10CFM minimum
Convection Cooling	See product specification
MTBF:	>200,000 hours calculated

Compliance

Safety Approvals

USA	UL60950-1/2007
Canada	CSA-C22.2 No. 60950-1-07
Europe	Directive 2006/95/EC (Low Voltage Safety) IEC60950-1-2005 (2nd Edition) CB Report

EMC

Harmonic Currents	Directive 2004/106EC (EMC Directive) EN61204-3-2001
Voltage Flicker	EN61000-3-2 EN61000-3-3
Radiated Immunity	EN61000-4-3
EFT/Burst	EN61000-4-4
Surge Immunity	EN61000-4-5
Conducted Immunity	EN61000-4-6
Dips / Interruptions	EN61000-4-11


Models and Ratings Chart (CS=Current Sharing)

Model	Output #	Voltage	Current	Regulation	Ripple & Noise (p-p)
PNA160-05 PNA160-05CS	V1	5	32A	3%	50mV
	V2	12	1A	5%	120mV
PNA160-07CS	V1	7	22.9A	3%	70mV
	V2	12	1A	5%	120mV
PNA160-08CS	V1	8	20A	3%	80mV
	V2	12	1A	5%	120mV
PNA160-11CS	V1	5	20A	4%	50mV
	V2	12	6A	5%	120mV
	V3	-12	1A	5%	120mV
PNA160-12 PNA160-12CS	V1	12	13.3A	3%	120mV
	V2	12	1.0A	5%	120mV
PNA160-15 PNA160-15CS	V1	15	10.7A	3%	150mV
	V2	12	1A	5%	120mV
PNA160-19CS	V1	19	8.4A	3%	190mV
	V2	12	1A	5%	120mV
PNA160-24 PNA160-24CS	V1	24	6.7A	3%	240mV
	V2	12	1A	5%	120mV
PNA160-30CS	V1	30	5.3A	3%	300mV
	V2	12	1A	5%	120mV
PNA160-48 PNA160-48CS	V1	48	3.3A	3%	480mV
	V2	12	1A	5%	120mV
PNA160-51 PNA160-51CS	V1	51	3.1A	3%	510mV
	V2	12	1A	5%	120mV
PNA160-54 PNA160-54CS	V1	54	2.9A	3%	540mV
	V2	12	1A	5%	120mV
PNA160-56 PNA160-56CS	V1	56	2.8A	3%	560mV
	V2	12	1A	5%	120mV
PNA160-1	V1	3.3	15A	3%	50mV
	V2	5	20A	5%	50mV
	V3	12	6A	5%	120mV
	V4	-12	1A	5%	120mV
PNA160-7	V1	2.5	15A	3%	50mV
	V2	5	20A	4%	50mV
	V3	12	6A	5%	120mV
	V4	-12	1A	5%	120mV
PNA160-8	V1	5	20A	4%	50mV
	V2	12	6A	5%	120mV
	V3	-12	1A	5%	120mV
PNA160-10	V1	5.6	24A	3%	56mV
	V2	-5.8	1.5A	5%	58mV



Mechanical Outline

