

DESCRIPTION

The PU400 series of AC-DC switching power supplies in a package of 4 x 7 x 1.58 inches are capable of delivering 400 watts of continuous power at 7 CFM forced air cooling or 300 watts at convection cooling. The units are constructed on a printed circuit board with a U-bracket for mechanical support and heat sinking. A cover-and-fan assembly can be added during manufacturing for 400 watt output without the change of any dimension. The units are certified to IEC/EN/UL 60950-1 and suitable for data networking, computer and telecommunication applications.

FEATURES

- 4 x 7 inch footprint with 1.58 inch low profile
- 100-240 VAC input with active PFC
- 300 watt convection rating up to +50°C
- 400 watt output with 7 CFM forced air
- Standby output 5VDC at 100mA
- EN55022 Class B conducted emissions
- Inhibit - TTL low to disable output
- Standard PS Off and DC OK signals
- Efficiency greater than 88%
- Compliant with RoHS requirements

INPUT SPECIFICATIONS

Input voltage:	90-264 VAC
Input frequency:	47-63 Hz
Input current:	4.2 A (rms) @115 VAC, 60 Hz 2.1 A (rms) @ 230 VAC, 50 Hz
Touch current:	250 µA max. @ 264 VAC, 63 Hz

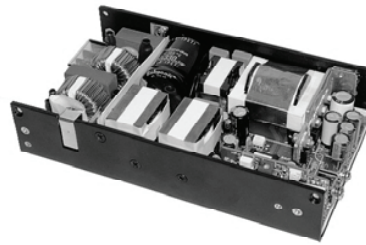
OUTPUT SPECIFICATIONS

Output voltage/current:	See rating chart.
Maximum output power:	See rating chart.
Ripple and noise:	1% peak to peak maximum
Remote sense	Compensation for cable losses up to 0.5V
Overvoltage protection:	Set at 115-140% of nominal output voltage
Overcurrent protection:	Protected to output short circuit conditions
Thermal shutdown	Protected to overtemperature conditions
Temperature coefficient:	All outputs ±0.04% /°C maximum
Transient response:	Maximum excursion of 4%, recovering to 1% of final value within 500 µs after a 25% step load change
Standby power	5 V at 100 mA maximum
Fan power	12 V at 250 mA maximum

ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	-10°C to +70°C
Storage temperature:	-40°C to +85°C
Relative humidity:	5% to 95% non-condensing
Derating:	Derate from 100% at +50°C linearly to 50% at +70°C, applicable to convection and forced-air cooling conditions

PU400 SERIES



CE (LVD)
 RoHS

SAFETY STANDARD APPROVALS



UL 60950-1, CSA C22.2 No. 60950-1



TÜV EN 60950-1

GENERAL SPECIFICATIONS

Switching frequency:	85 KHz (typical)
Efficiency:	Typical 89% @ 115 VAC, 92% @ 230 VAC
Hold-up time:	12 ms minimum at 110 VAC & 400 W
Line regulation:	±0.5% maximum at full load
Inrush current:	20 A @ 115 VAC, or 40 A @ 230 VAC, at 25°C cold start
Withstand voltage:	3000 VAC from input to output, 1500 VAC from input to ground, 500 VAC from output to ground
MTBF:	350,000 hours at full load at 25°C ambient, calculated per MIL-HDBK-217F
EMC Performance	
EN55022:	Class B conducted, class A radiated
FCC:	Class B conducted, class A radiated
VCCI:	Class B conducted, class A radiated
EN61000-3-2:	Harmonic distortion, class A and D
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD, ±8 KV air and ±4 KV contact
EN61000-4-3:	Radiated immunity, 3 V/m
EN61000-4-4:	Fast transient/burst, ±1 KV
EN61000-4-5:	Surge, ±1 KV diff., ±2 KV com
EN61000-4-6:	Conducted immunity, 3 Vrms
EN61000-4-8:	Magnetic field immunity, 1 A/m
EN61000-4-11:	Voltage dip immunity, 30% reduction for 500 ms and >95% reduction for 10 ms

INTERFACE SIGNALS

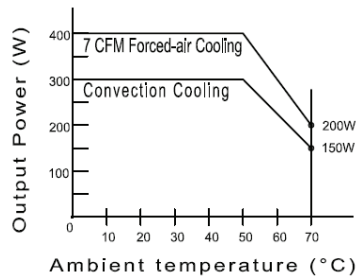
PFD: TTL high for normal operation, low upon loss of input power, turn-on delay time 100-500 ms, turn-off delay time 5 ms minimum

Inhibit: TTL low to turn off output

DC OK: TTL high when output voltage >95%

PS OFF: TTL high to turn off output

OUTPUT POWER DERATING CURVE



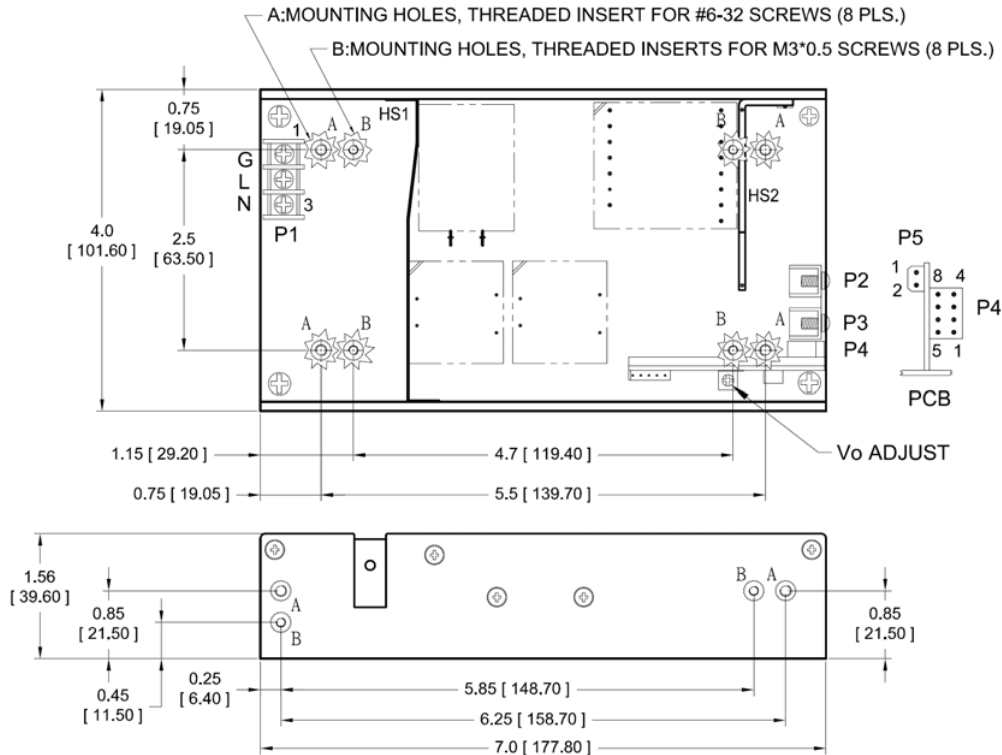
OUTPUT VOLTAGE/CURRENT RATING CHART

Model ⁽¹⁾	Output							Efficiency (typical)	
	V1	Min. Current	Max. Current at convection	Max. Current at 7 CFM ⁽²⁾	Tol.	Ripple & Noise ⁽³⁾	Max. Output Power	@ 300 W 115/230 Vac	@ 400 W 115/230 Vac
PU400-12B	12 V	0 A	25.00 A	33.34 A	±2%	120 mV	300 W/400 W	90/92 %	88/91 %
PU400-13B	15 V	0 A	20.00 A	26.67 A	±2%	150 mV	300 W/400 W	90/92 %	88/91 %
PU400-13-1B	18 V	0 A	16.67 A	22.23 A	±2%	180 mV	300 W/400 W	90/92 %	88/91 %
PU400-14B	24 V	0 A	12.50 A	16.67 A	±2%	240 mV	300 W/400 W	90/92 %	89/92 %
PU400-15B	28 V	0 A	10.72 A	14.29 A	±2%	280 mV	300 W/400 W	90/92 %	89/92 %
PU400-17B	36 V	0 A	8.34 A	11.12 A	±2%	360 mV	300 W/400 W	90/92 %	89/92 %
PU400-18B	48 V	0 A	6.25 A	8.34 A	±2%	480 mV	300 W/400 W	90/92 %	89/92 %

- NOTES: 1. Change suffix "B" for U-Bracket form to "C" for enclosed form with cover-and-fan assembly, e.g. PU400-14C.
2. 300 W without moving air or 400 W with 7 CFM forced air provided by user for "B" version, 400 W for "C" version with cover-and-fan assembly
3. Ripple and noise is maximum peak-to-peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

MECHANICAL SPECIFICATIONS

U-bracket Form



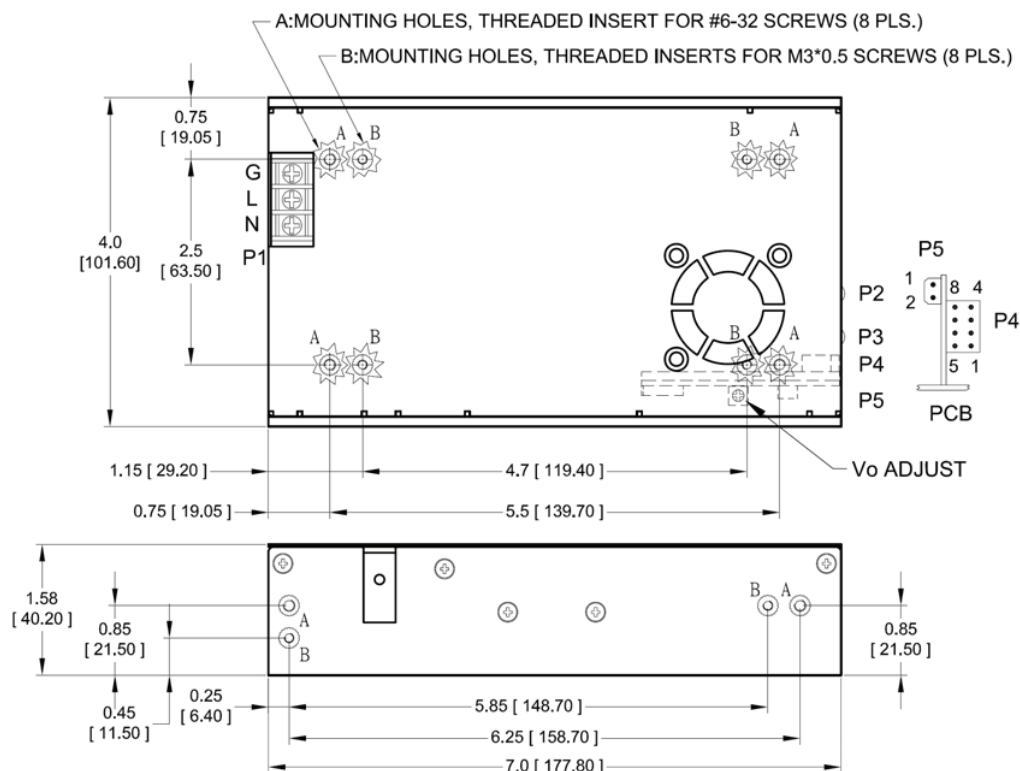
Specifications are subject to change without notice. It is responsibility of each customer to thoroughly test each product and part number under their unique parameters and environments to ensure a product will work properly and reliably.

Click below for more details, to buy on-line or request volume pricing:
<http://power.sager.com/protek-PU400C-power-supply.html>

(866) 588-1750
 power@sager.com
<http://power.sager.com>

MECHANICAL SPECIFICATIONS

Enclosed Form



NOTES:

- Dimensions shown in inches [mm]
- Tolerance 0.02 [0.5] maximum
- Input connector P1 is Dinkle terminal P/N DT-35-B01W-03, with nickel plated M3 screws.
- P2, P3: M3 x 0.5 screw connectors
- Connector P4: Molex header 87833-08 or equivalent, mating with Molex housing 51110-0850 or equivalent.
- Fan connector P5: Molex header 53048-0210 or equivalent, mating with Molex housing 51021-0200 or equivalent.
- Weight: 1.0 Kg (2.23 lbs.) approx. for U-bracket form, 1.14 Kg (2.52 lbs.) approx. for enclosed form
- Maximum penetration depth of fixing screws is 4 mm from the outer surface of chassis.

PIN CHART

MODEL	CONN PIN	P1 (AC)			P2	P3	P5	
		1	2	3			1	2
PU400-12B	PU400-15B	Ground	Live	Neutral	+V1	Common Return	+12V Fan	Common Return
PU400-13B	PU400-17B							
PU400-13-1B	PU400-18B							
PU400-14B								

MODEL	CONN PIN	P4							
		1	2	3	4	5	6	7	8
PU400-12B	PU400-15B	Common Return	+V1 Sense	-V1 Sense	PFD	Inhibit	+5V Standby	DC OK	PS OFF
PU400-13B	PU400-17B								
PU400-13-1B	PU400-18B								
PU400-14B									