

## DESCRIPTION

The PUP121/PUP136 series of AC/DC switching power supplies are for 96-135 watts of continuous output power. They are enclosed in a 94V-0 rated plastic case with an IEC320/C14, IEC320/C6 inlet to mate with interchangeable cord for world-wide use. All models meet EN55022, EN55024 and FCC class B emission limits and comply with UL, CSA, IEC and CE requirements.

## FEATURES

- No load power consumption less than 0.21w
- Compliant with DoE level VI requirements
- Meet energy star EPS2.0 /ErP lot 7
- Operating altitude up to 5000 meters
- Overvoltage protection (latch)
- Short-circuit protection (auto-recovery)
- Overpower protection (auto-recovery)
- Over temperature protection (latch)
- High Efficiency
- With PFC circuit
- 100% burn-in at full rated load
- Compliant with RoHS requirements

## INPUT SPECIFICATIONS

Input voltage:	90-264 VAC
Input frequency:	47-63 Hz
Input current:	1.8 A (rms) for 115 VAC 0.9 A (rms) for 230 VAC
Touch current:	250 $\mu$ A max. @ 264 VAC, 60 Hz

## OUTPUT SPECIFICATIONS

Output voltage /current:	See rating chart.
Maximum output power:	See rating chart.
Ripple and noise:	See rating chart.
Overvoltage protection:	Set at 110-155% of its nominal output voltage
Overcurrent protection:	All models protected to short circuit conditions
Temperature coefficient:	All outputs $\pm 0.04\%$ / $^{\circ}$ C maximum
Transient response:	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 $\mu$ s after a 25% step load change

## ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	0 $^{\circ}$ C to +40 $^{\circ}$ C
Storage temperature:	-20 $^{\circ}$ C to +80 $^{\circ}$ C
Operating humidity:	20% to 80% non-condensing
Storage humidity:	10% to 90% non-condensing

## PUP121/PUP136 SERIES



CE

RoHS

VI

## SAFETY STANDARD APPROVALS



UL 60950 3 rd, CSA C22.2 NO. 60950 3 rd  
File No. E190414



TÜV EN 60950-1

## GENERAL SPECIFICATIONS

Hold-up time:	10 ms minimum at 115 VAC
Turn on delay time	3 s maximum at 100 VAC
Power factor:	0.9 typical at 115 VAC
Efficiency:	89% typical at full load
Line regulation:	$\pm 0.5\%$ maximum at full load
Inrush current:	70 A @ 115 VAC or 140 A @ 230 VAC, at 25 $^{\circ}$ C cold start
Withstand voltage:	1500 VAC from input to output
MTBF:	500,000 hours at full load at 25 $^{\circ}$ C ambient, calculated per SR332

## EMC Performance

EN55022:	Class B conducted, Class B radiated
FCC:	Class B conducted, Class B radiated
VCCI:	Class B conducted, Class B radiated
EN61000-3-2:	Harmonic distortion, Class D
EN61000-3-3:	Line flicker
EN55024	
EN61000-4-2:	ESD, $\pm 8$ KV air and $\pm 4$ KV contact
EN61000-4-3:	Radiated immunity, 3 V/m
EN61000-4-4:	Fast transient/burst, $\pm 1$ KV
EN61000-4-5:	Surge, $\pm 1$ KV diff., $\pm 2$ 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

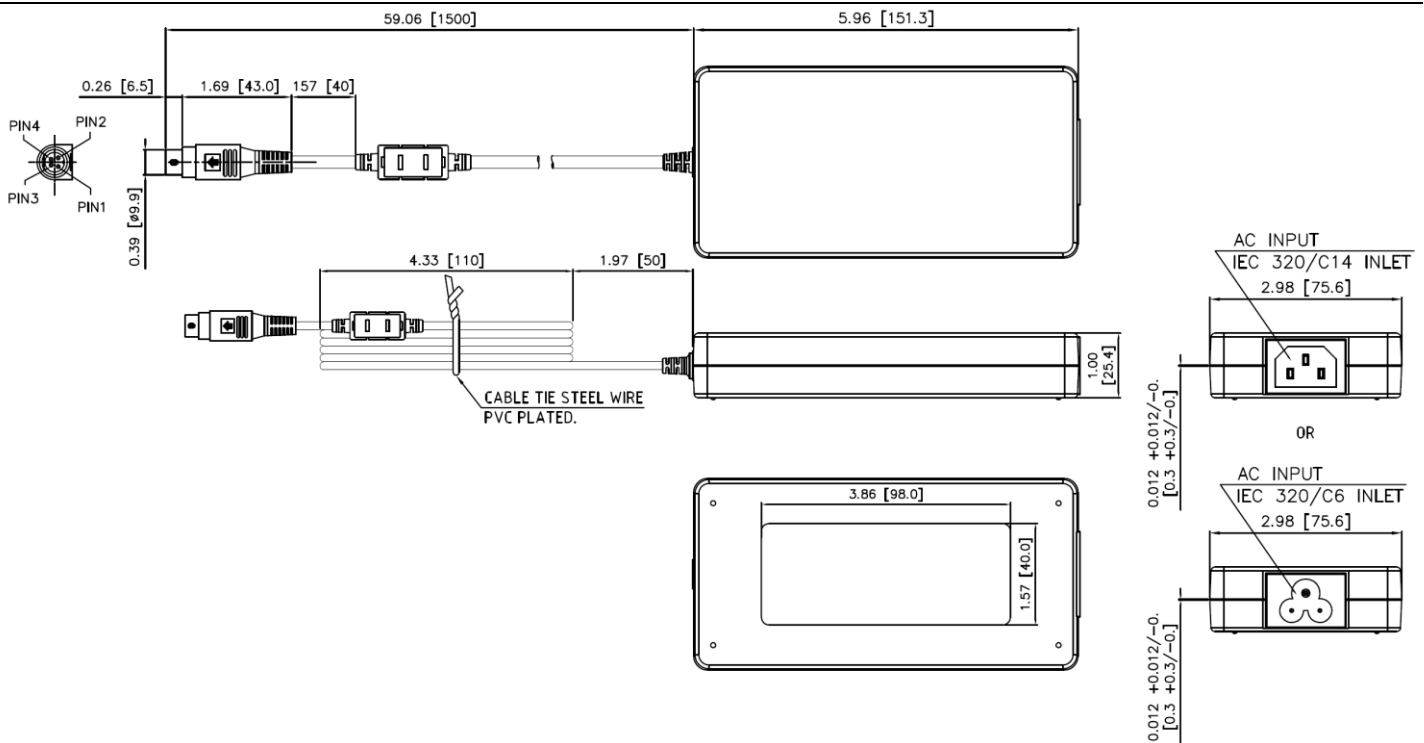
## OUTPUT VOLTAGE/CURRENT RATING CHART

Model <sup>(1)</sup>	Output						Average Active Efficiency (typical) @115 / 230 Vac
	V1	Min. Current	Max. Current	Tol.	Ripple & Noise <sup>(1)</sup>	Max. Output Power	
PUP121-12	12 V	0 A	8.00 A	±5%	350 mV	96 W	89 /89%
PUP121S-12	12 V	0 A	8.00 A	±5%	350 mV	96 W	89 /89%
PUP121-13-2	19 V	0 A	6.32 A	±5%	350 mV	120 W	91 /91%
PUP121S-13-2	19 V	0 A	6.32 A	±5%	350 mV	120 W	91 /91%
PUP121-14	24 V	0 A	5.00 A	±5%	350 mV	120 W	90 /90%
PUP121S-14	24 V	0 A	5.00 A	±5%	350 mV	120 W	90 /90%
PUP121-18	48 V	0 A	2.50 A	±5%	350 mV	120 W	91 /90%
PUP121S-18	48 V	0 A	2.50 A	±5%	350 mV	120 W	91 /90%
PUP121-19	54 V	0 A	2.22 A	±5%	350 mV	120 W	92 /92%
PUP121S-19	54 V	0 A	2.22 A	±5%	350 mV	120 W	92 /92%
PUP136-13-2	19 V	0 A	7.10 A	±5%	350 mV	135 W	91 /91%
PUP136S-13-2	19 V	0 A	7.10 A	±5%	350 mV	135 W	91 /91%

**NOTES:**

- PUP121/PUP136 models are equipped with IEC320/C14 inlet, and PUP121S/PUP136S models with IEC320/C6 inlet.
- 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 47 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

## MECHANICAL SPECIFICATIONS



**NOTES:**

- Dimensions shown in inches [mm]
- Tolerance 0.02 [0.5] maximum
- Weight: 450 grams (0.99 lbs.) approx.
- V1 return (-) is electrically connected to incoming Earth Ground through a 1M ohm resistor as standard.

## PIN CHART

PIN NO.	1	2	3	4	SHELL OF CONNECTOR
Polarity	+V1	+V1	V1 Return	V1 Return	V1 Return