

## DESCRIPTION

The PU450 series comprising single and multiple output models for 450-480 watts of continuous output power is specially designed for ITE and industrial applications. They operate at 90-264 VAC input voltage without the need of a selector strap. 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.

## FEATURES

- EN61000-3-2 class A and D compliant
- Power Factor 0.98 typical
- Overvoltage protection
- Short-circuit protection
- Thermal protection
- Power Fail Detect (PFD) Signal
- 100% burn-in at full rated load
- Remote sense on output #1 and output #2
- Remote inhibit – TTL high to disable output
- Compliant with RoHS requirements

## INPUT SPECIFICATIONS

Input voltage: 90-264 VAC  
 Input frequency: 47-63 Hz  
 Input current: 7.1 A (rms) for 115 VAC  
 3.5 A (rms) for 230 VAC  
 Earth leakage current: 240 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  
 Overvoltage protection: Provided on output #1 only; set at 115-140% of its nominal output voltage  
 Overcurrent protection: All outputs protected to short circuit conditions  
 Temperature coefficient: All outputs  $\pm 0.04\%$  / $^{\circ}\text{C}$  maximum  
 Transient response: Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500µs after a 25% step load change  
 Fan power: 12 V at 400 mA for B version, 12 V at 100 mA for C version

## INTERFACE SIGNALS

PFD: TTL logic high for normal operation and TTL logic low upon loss of input power. This signal appears at least 1ms prior to master output dropping 5% below its nominal value. This signal also provides a minimum delay of 100 ms after master output is within regulation.  
 Inhibit : Requires an external TTL high level signal to inhibit outputs for standard models.

## PU450 SERIES



**CE (LVD)**  
**RoHS**

## SAFETY STANDARD APPROVALS



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



TÜV EN 60950-1

## ENVIRONMENTAL SPECIFICATIONS

Operating temperature: 0 $^{\circ}\text{C}$  to +70 $^{\circ}\text{C}$   
 Storage temperature: -40 $^{\circ}\text{C}$  to +85 $^{\circ}\text{C}$   
 Relative humidity: 5% to 95% non-condensing  
 Derating: Derate from 100% at +50 $^{\circ}\text{C}$  linearly to 50% at +70 $^{\circ}\text{C}$

## GENERAL SPECIFICATIONS

Switching frequency: 60 KHz  $\pm 10$  KHz  
 Power factor: 0.98 typical  
 Efficiency: 80% minimum on all models  
 Hold-up time: 12 ms minimum at 110 VAC  
 Line regulation:  $\pm 0.2\%$  maximum at full load  
 Inrush current: 40 A @ 115 VAC or 80 A @ 230 VAC, at 25 $^{\circ}\text{C}$  cold start  
 Withstand voltage: 3000 VAC from input to output, 1500 VAC from input to ground, 500 VAC from output to ground  
 MTBF: 300,000 hours at full load at 25 $^{\circ}\text{C}$  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,  $\pm 8$  KV air and  $\pm 4$  KV contact  
 EN61000-4-3: Radiated immunity, 3V/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 V/ms  
 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

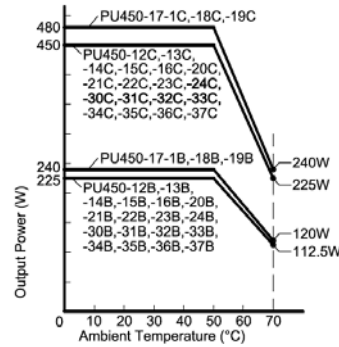
## OUTPUT VOLTAGE/CURRENT RATING CHART

Model <sup>(1)</sup>	Output #1 <sup>(3)(5)</sup>				Output #2 <sup>(5)</sup>				Output #3 <sup>(4)</sup>				Max. Output Power <sup>(5)</sup>
	V1	Imin.	Imax.	Tol.	V2	Imin.	Imax.	Tol.	V3	Imin.	Imax.	Tol.	
PU450-12B	12 V	0 A	37.5 A	±2%	(N/A)				(N/A)				225 / 450 W
PU450-13B	15 V	0 A	30.0 A	±2%	(N/A)				(N/A)				225 / 450 W
PU450-14B	24 V	0 A	18.75 A	±2%	(N/A)				(N/A)				225 / 450 W
PU450-15B	27 V	0 A	16.7 A	±2%	(N/A)				(N/A)				225 / 450 W
PU450-16B	30 V	0 A	15.0 A	±2%	(N/A)				(N/A)				225 / 450 W
PU450-17-1B	40 V	0 A	12.0 A	±2%	(N/A)				(N/A)				240 / 480 W
PU450-18B	48 V	0 A	10.0 A	±2%	(N/A)				(N/A)				240 / 480 W
PU450-19B	55 V	0 A	8.73 A	±2%	(N/A)				(N/A)				240 / 480 W
PU450-20B	24 V	1.0 A	12.0 A	±2%	12 V	1.00 A	17 A	±5%	(N/A)				225 / 450 W
PU450-21B	24 V	1.0 A	12.0 A	±2%	15 V	0.75 A	15 A	±5%	(N/A)				225 / 450 W
PU450-22B	48 V	0.5 A	6.0 A	±2%	24 V	0.50 A	10 A	±5%	(N/A)				225 / 450 W
PU450-23B	48 V	0.5 A	6.0 A	±2%	12 V	1.00 A	17 A	±5%	(N/A)				225 / 450 W
PU450-24B	48 V	0.5 A	6.0 A	±2%	15 V	0.75 A	15 A	±5%	(N/A)				225 / 450 W
PU450-30B	24 V	1.0 A	12.0 A	±2%	12 V	1.00 A	17 A	±5%	3.3 V	0 A	8 A	±3%	225 / 450 W
PU450-31B	24 V	1.0 A	12.0 A	±2%	15 V	0.75 A	15 A	±5%	3.3 V	0 A	8 A	±3%	225 / 450 W
PU450-32B	24 V	1.0 A	12.0 A	±2%	12 V	1.00 A	17 A	±5%	5.1 V	0 A	8 A	±3%	225 / 450 W
PU450-33B	24 V	1.0 A	12.0 A	±2%	15 V	0.75 A	15 A	±5%	5.1 V	0 A	8 A	±3%	225 / 450 W
PU450-34B	48 V	0.5 A	6.0 A	±2%	12 V	1.00 A	17 A	±5%	3.3 V	0 A	8 A	±3%	225 / 450 W
PU450-35B	48 V	0.5 A	6.0 A	±2%	15 V	0.75 A	15 A	±5%	3.3 V	0 A	8 A	±3%	225 / 450 W
PU450-36B	48 V	0.5 A	6.0 A	±2%	12 V	1.00 A	17 A	±5%	5.1 V	0 A	8 A	±3%	225 / 450 W
PU450-37B	48 V	0.5 A	6.0 A	±2%	15 V	0.75 A	15 A	±5%	5.1 V	0 A	8 A	±3%	225 / 450 W

**NOTES:**

- Suffix "B" in model numbers denotes U-bracket form. Change "B" to "C" for enclosed form with cover-and-fan assembly, e.g. PU450-14C.
- All outputs are floating. They can be connected externally for positive or negative output.
- Output #1 can be adjusted within ±5% of its nominal voltage.
- Output #3 can be adjusted within ±15% of its nominal voltage.
- 450-480 watts for "C" version with cover-and-fan assembly. 225-240 watts for "B" version without moving air (maximum current of output #1 & 2 derated to 50%), or 450 watts with 40 CFM forced air provided by user.
- All models may be operated at no-load. At no-load, output voltage tolerance increases to ±10%.

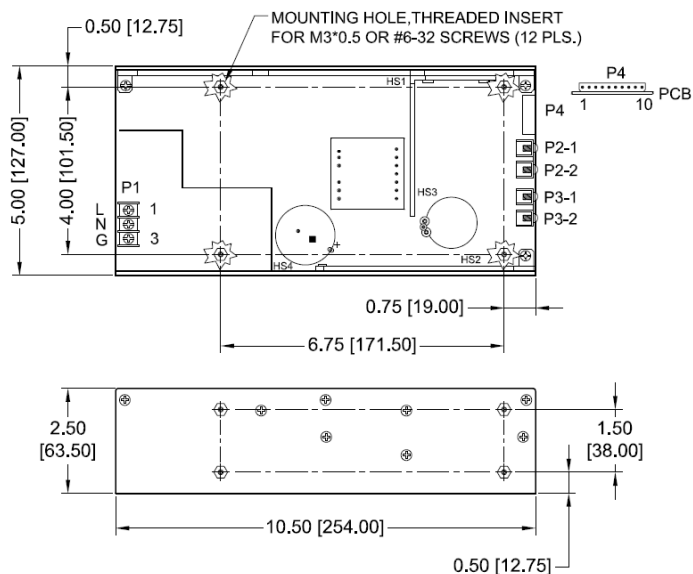
## OUTPUT POWER DERATING CURVE



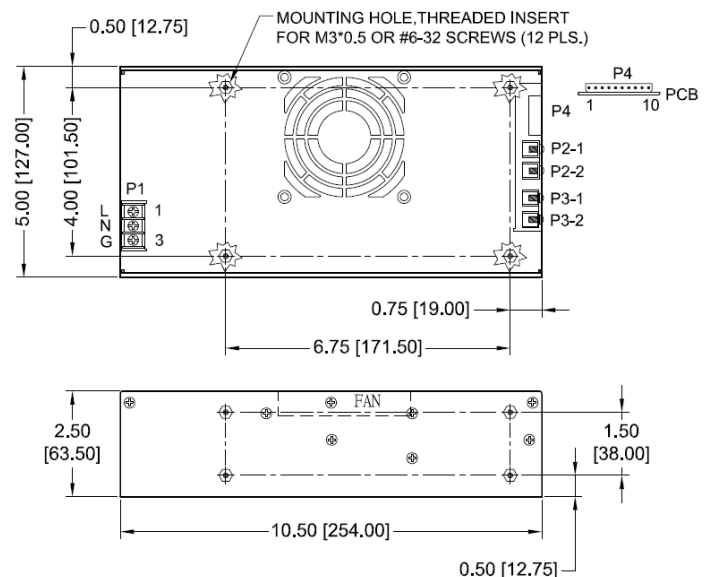
## MECHANICAL SPECIFICATIONS

### Single Output Models

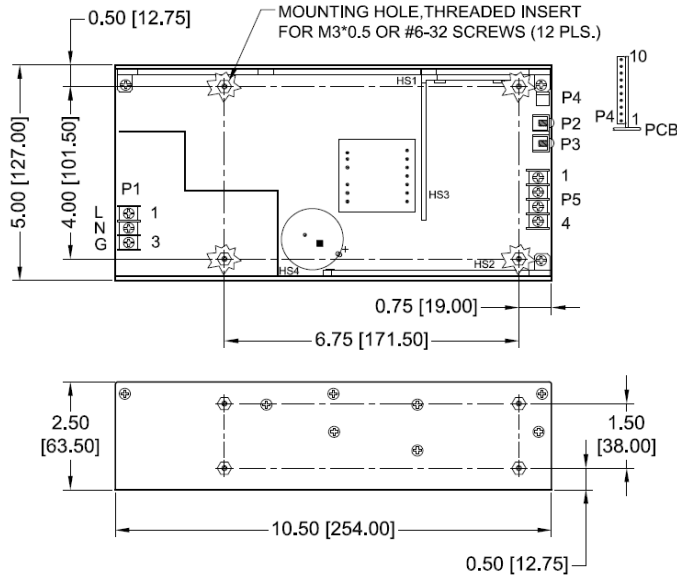
#### U-bracket Form



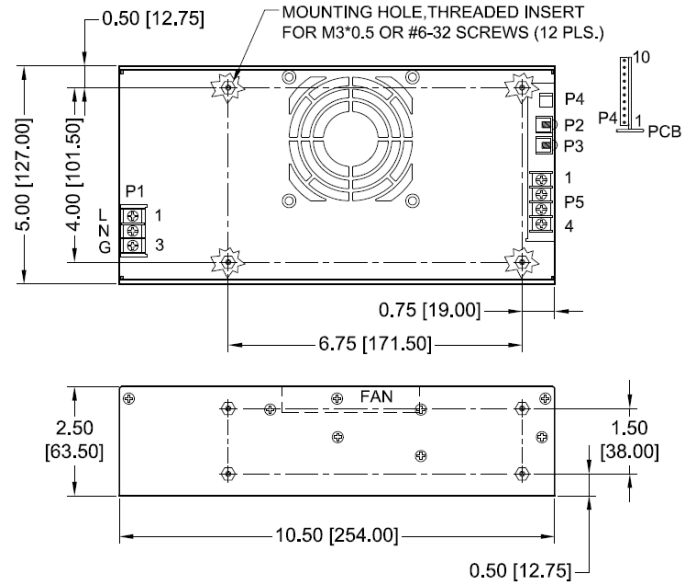
#### Enclosed Form



## Multiple Output Models U-bracket Form



## Enclosed Form



- NOTES:
1. Dimensions shown in inches [mm]
  2. Tolerance 0.02 [0.5] maximum
  3. Input connector P1 is Dinkle DT-35-B01W-03 with M3, nickel plated screws.
  4. Connector P4 mates with Molex housing 50-37-5103 and pins 5263.
  5. P2, P2-1, P2-2, P3, P3-1 & P3-2: M3\*0.5 screw connections
  6. Output connector P5 is Dinkle DT-35-B01W-04 with M3, nickel plated screws.
  7. Weight: 1.8 Kgs (3.96 lbs.) approx. for U-bracket form, 2.0 Kg (4.4 lbs.) approx. for enclosed form
  8. 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	3	4
PU450-12B	PU450-16B	Live	Neutral	Ground	+V1	V1 Return	N.A.			
PU450-13B	PU450-17-1B									
PU450-14B	PU450-18B									
PU450-15B	PU450-19B									
PU450-20B	PU450-23B	Live	Neutral	Ground	+V1	V1 Return	+V2	V2 Return	N.C.	N.C.
PU450-21B	PU450-24B									
PU450-22B										
PU450-30B	PU450-34B	Live	Neutral	Ground	+V1	V1 Return	+V2	V2 Return	+V3	V3 Return
PU450-31B	PU450-35B									
PU450-32B	PU450-36B									
PU450-33B	PU450-37B									

MODEL	CONN PIN	P4									
		1	2	3	4	5	6	7	8	9	10
PU450-12B	PU450-16B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	N.C.	N.C.	Fan Return	+12V Fan
PU450-13B	PU450-17-1B										
PU450-14B	PU450-18B										
PU450-15B	PU450-19B										
PU450-20B	PU450-23B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	+V2 Sense	-V2 Sense	Fan Return	+12V Fan
PU450-21B	PU450-24B										
PU450-22B											
PU450-30B	PU450-34B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	+V2 Sense	-V2 Sense	Fan Return	+12V Fan
PU450-31B	PU450-35B										
PU450-32B	PU450-36B										
PU450-33B	PU450-37B										