

## DESCRIPTION

The PM450 series comprising single and multiple output models for 450-480 watts of continuous output power is specially designed for medical and ITE applications, not for life-supporting equipment. 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 $\mu$ A 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 $\pm 0.04\%$ / $^{\circ}$ 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
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.

## PM450 SERIES



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

## SAFETY STANDARD APPROVALS



UL 60601-1, CSA C22.2 No. 601.1  
File No. E178020



TÜV EN 60601-1



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



TÜV EN 60950-1

## ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	0 $^{\circ}$ C to +70 $^{\circ}$ C
Storage temperature:	-40 $^{\circ}$ C to +85 $^{\circ}$ C
Relative humidity:	5% to 95% non-condensing
Derating:	Derate from 100% at +50 $^{\circ}$ C linearly to 50% at +70 $^{\circ}$ 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 $^{\circ}$ C cold start
Withstand voltage:	4000 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 $^{\circ}$ C ambient, calculated per MIL-HDBK-217F
EMC Performance (IEC60601-1-2)	
EN55011 / 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 $\pm 6$ KV contact
EN61000-4-3:	Radiated immunity, 3V/m
EN61000-4-4:	Fast transient/burst, $\pm 2$ 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, 3 A/m
EN61000-4-11:	Voltage dip immunity, 30% reduction for 500 ms, 60% reduction for 100 ms, and >95% reduction for 10 ms

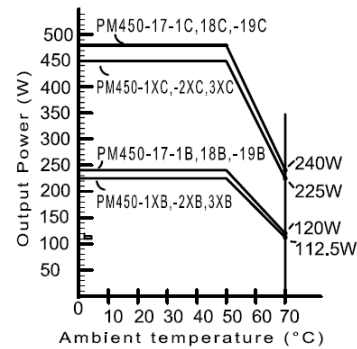
## OUTPUT VOLTAGE/CURRENT RATING CHART

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.	I <sub>max.</sub>	Tol.	V2	Imin.	I <sub>max.</sub>	Tol.	V3	Imin.	I <sub>max.</sub>	Tol.	
PM450-12B	12 V	0 A	37.5 A	±2%	(N/A)				(N/A)				225 / 450 W
PM450-13B	15 V	0 A	30.0 A	±2%	(N/A)				(N/A)				225 / 450 W
PM450-14B	24 V	0 A	18.75 A	±2%	(N/A)				(N/A)				225 / 450 W
PM450-15B	27 V	0 A	16.7 A	±2%	(N/A)				(N/A)				225 / 450 W
PM450-16B	30 V	0 A	15.0 A	±2%	(N/A)				(N/A)				225 / 450 W
PM450-17-1B	40 V	0 A	12.0 A	±2%	(N/A)				(N/A)				240 / 480 W
PM450-18B	48 V	0 A	10.0 A	±2%	(N/A)				(N/A)				240 / 480 W
PM450-19B	55 V	0 A	8.73 A	±2%	(N/A)				(N/A)				240 / 480 W
PM450-20B	24 V	1.0 A	12.0 A	±2%	12 V	1.00 A	17 A	±5%	(N/A)				225 / 450 W
PM450-21B	24 V	1.0 A	12.0 A	±2%	15 V	0.75 A	15 A	±5%	(N/A)				225 / 450 W
PM450-22B	48 V	0.5 A	6.0 A	±2%	24 V	0.50 A	10 A	±5%	(N/A)				225 / 450 W
PM450-23B	48 V	0.5 A	6.0 A	±2%	12 V	1.00 A	17 A	±5%	(N/A)				225 / 450 W
PM450-24B	48 V	0.5 A	6.0 A	±2%	15 V	0.75 A	15 A	±5%	(N/A)				225 / 450 W
PM450-30B	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
PM450-31B	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
PM450-32B	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
PM450-33B	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
PM450-34B	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
PM450-35B	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
PM450-36B	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
PM450-37B	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:

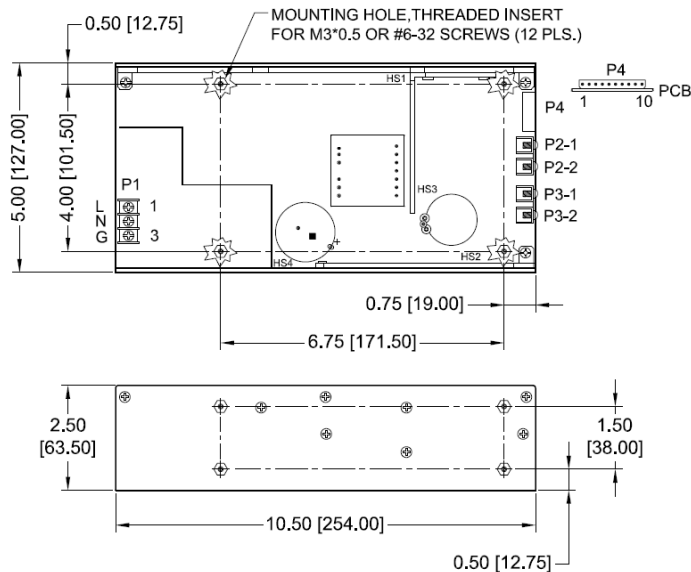
- Suffix "B" in model numbers denotes U-bracket form. Change "B" to "C" for enclosed form with cover-and-fan assembly, e.g. PM450-14C.
- All outputs are floating. They can be connected externally for positive or negative output.
- Output #1 can be adjusted within ±5% of its nominal voltage.
- Output #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

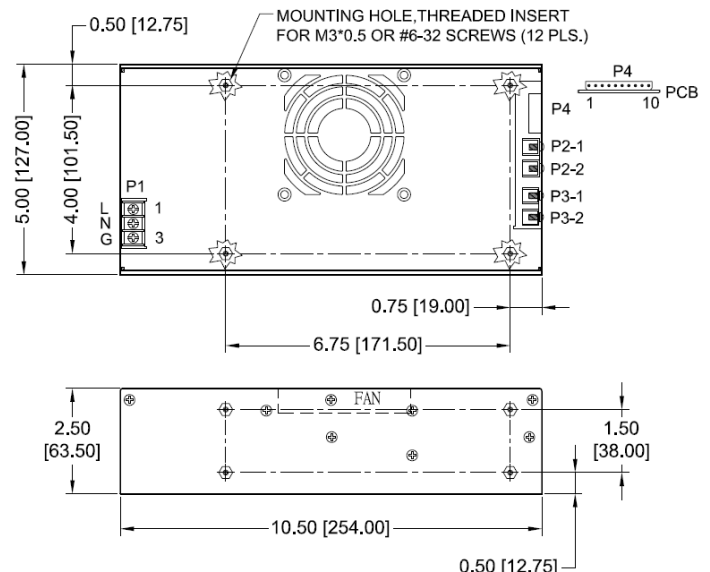


## MECHANICAL SPECIFICATIONS

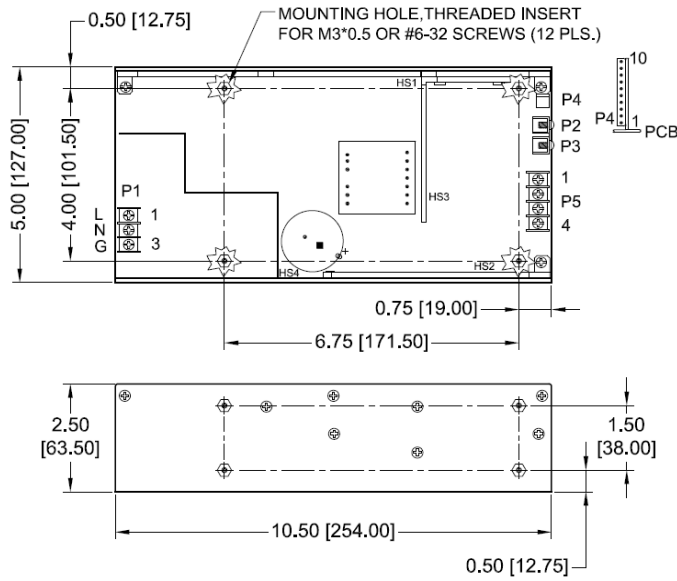
### Single Output Models U-bracket Form



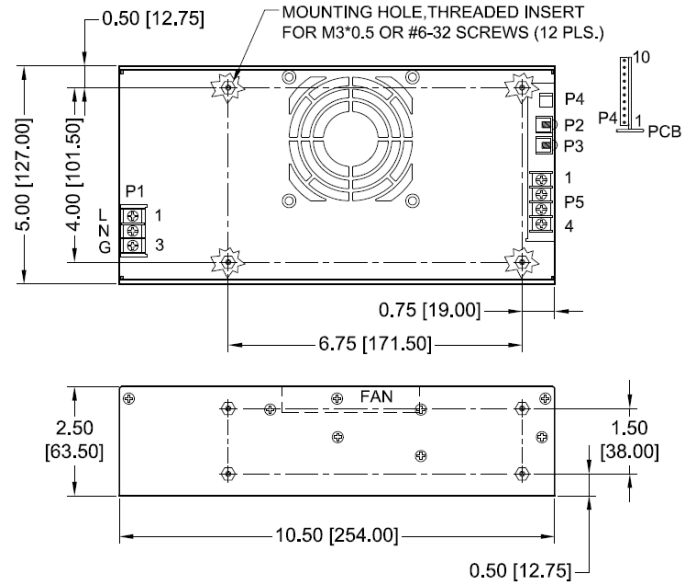
### Enclosed Form



## 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
PM450-12B PM450-13B PM450-14B PM450-15B	PM450-16B PM450-17-1B PM450-18B PM450-19B	Live	Neutral	Ground	+V1	V1 Return	N.A.			
PM450-20B PM450-21B PM450-22B	PM450-23B PM450-24B	Live	Neutral	Ground	+V1	V1 Return	+V2	V2 Return	N.C.	N.C.
PM450-30B PM450-31B PM450-32B PM450-33B	PM450-34B PM450-35B PM450-36B PM450-37B	Live	Neutral	Ground	+V1	V1 Return	+V2	V2 Return	+V3	V3 Return

MODEL	CONN PIN	P4									
		1	2	3	4	5	6	7	8	9	10
PM450-12B PM450-13B PM450-14B PM450-15B	PM450-16B PM450-17-1B PM450-18B PM450-19B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	N.C.	N.C.	Fan Return	+12V Fan
PM450-20B PM450-21B PM450-22B	PM450-23B PM450-24B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	+V2 Sense	-V2 Sense	Fan Return	+12V Fan
PM450-30B PM450-31B PM450-32B PM450-33B	PM450-34B PM450-35B PM450-36B PM450-37B	PFD Return	+V1 Sense	-V1 Sense	PFD	Inhibit +V	Inhibit -V	+V2 Sense	-V2 Sense	Fan Return	+12V Fan