

# 30-60 WATT MEDICAL SWITCHING POWER SUPPLIES

## DESCRIPTION

The PMP60 series of AC/DC switching power supplies are for 30 to 60 watts of continuous output power. They are enclosed in a 94V-1 rated polyphenylene-oxide case with an IEC 320/C14 inlet to mate with interchangeable cord for world-wide use. All models meet CISPR 11 and FCC class B emission limits, and are designed for medical applications, not for life supporting equipment.

## FEATURES

- 12 standard desktop models
- Single or triple outputs
- Optional output connectors
- 100% burn-in
- Wide input range 85 to 264VAC
- Input surge current protection
- Overvoltage protection
- Overcurrent protection
- Compliant with CEC and Energy Star Efficiency level IV requirements  
(For single output models only.)
  - \* No load power consumption less than 0.5W
  - \* Average active efficiency  $\geq 85\%$
- Compliant with RoHs requirement

## INPUT SPECIFICATIONS

Input voltage : 85 to 264 VAC  
Input frequency : 47 to 63 Hz  
Input current : 1.30A (rms) for 115 VAC  
0.70A (rms) for 230VAC  
Leakage current : 90uA max. @ 115VAC, 60Hz  
150uA max. @ 230VAC, 50Hz

## OUTPUT SPECIFICATIONS

Output voltage/current : See rating chart  
Total output power : See rating chart  
Ripple and noise : 2% peak to peak maximum  
Overvoltage protection : Provided on output #1 only; set at 112-132% 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 500us after a 25% step load change

## ENVIRONMENTAL SPECIFICATIONS

Operating temperature :  $0^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$   
Storage temperature :  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$   
Relative humidity : 5% to 95% non-condensing  
Derating : Derate from 100% at  $+40^{\circ}\text{C}$  linearly to 50% at  $+60^{\circ}\text{C}$

## PMP60 SERIES



RoHS



Safety Standard Approvals :

PENDING ...

## GENERAL SPECIFICATIONS

Switching frequency : 65KHz  $\pm$  2KHz  
Efficiency : 85% minimum on single output models, 68% minimum on the others  
Hold-up time : 10 msec minimum at 110VAC  
Line regulation :  $\pm 0.5\%$  maximum at full load  
Inrush current : 30 amps @ 115VAC, or 60 amps @ 230VAC, at  $25^{\circ}\text{C}$  cold start  
Withstand voltage : 4000VAC from input to output  
1500VAC from input to ground  
500VAC from output to ground  
MTBF : 150,000 hours minimum at full load at  $25^{\circ}\text{C}$  ambient , calculated per MIL-HDBK-217F  
EMC performance (EN60601-1-2)  
EN55011: 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 A  
EN61000-3-3: Line flicker  
EN61000-4-2: ESD,  $\pm 8\text{KV}$  air and  $\pm 6\text{KV}$  contact  
EN61000-4-3: Radiated immunity, 3V/m for 80~2500MHz  
EN61000-4-4: Fast transient/burst,  $\pm 2\text{KV}$   
EN61000-4-5: Surge,  $\pm 1\text{KV}$  diff.,  $\pm 2\text{KV}$  com.  
EN61000-4-6: Conducted immunity, 3Vrms  
EN61000-4-8: Magnetic field immunity, 3A/m  
EN61000-4-11: Voltage dips, 30% reduction for 500ms, 60% reduction for 100ms and  $>95\%$  reduction for 10ms

# UNIVERSAL INPUT

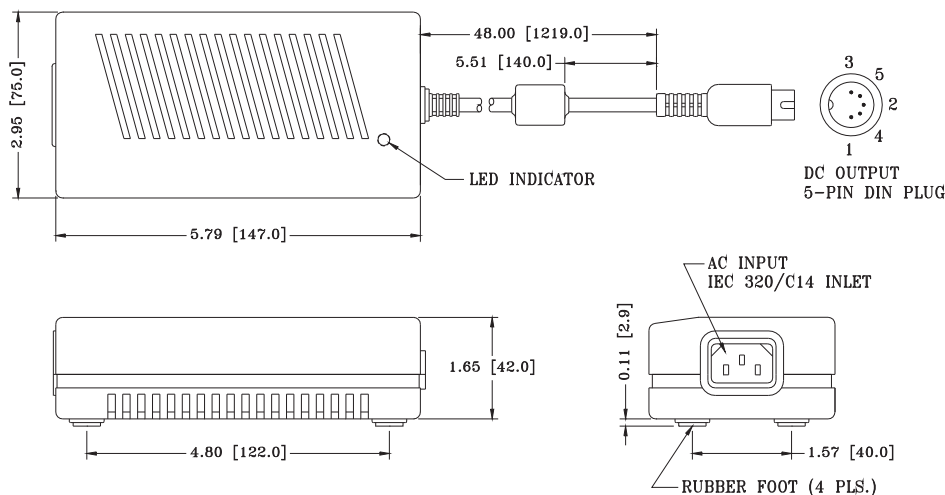
# PMP60 MEDICAL SERIES

## OUTPUT VOLTAGE/CURRENT RATING CHART

Model	Vnom.	Output #1			Vnom.	Output #2			Vnom.	Output #3			Maximum Output Power
		Imin.	Imax.	Tol.		Imin.	Imax.	Tol.		Imin.	Imax.	Tol.	
PMP60-12	11-13V	0A	5.46A	5%		(N/A)				(N/A)		60W	
PMP60-14	21-27V	0A	2.86A	5%		(N/A)				(N/A)		60W	

Notes: (1) Ripple and noise: Peak-to-peak with 20MHz bandwidth and 10uF tantalum capacitor in parallel with a 0.1uF ceramic capacitor at rated line voltage and load ranges  
 (2) The output voltages of a multiple output model may go outside of the stated tolerance when an output load current is out of stated limits. All models may be operated at no-load without damage.

## MECHANICAL SPECIFICATIONS



### NOTES:

1. Dimensions show in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 600 grams approx.
4. See pages 6-9 to 6-18 for optional output connectors. Add the suffix assigned for a wanted model number, e.g. PMP60-10-B2, for ordering.

## PIN CHART

MODEL	PIN	1	2	3	4	5
PMP60-12 PMP60-13 PMP60-13-1		RETURN	RETURN	OUTPUT #1	RETURN	OUTPUT #1
PMP60-14 PMP60-16 PMP60-17		RETURN	RETURN	OUTPUT #1	RETURN	OUTPUT #1
PMP60-18		RETURN	RETURN	OUTPUT #1	NA	OUTPUT #2
PMP60-23		COMMON RETURN	COMMON RETURN	OUTPUT #1	NA	OUTPUT #2
PMP60-30 PMP60-31 PMP60-33		COMMON RETURN	COMMON RETURN	OUTPUT #1	OUTPUT #3	OUTPUT #2
PMP60-36		COMMON RETURN	COMMON RETURN	OUTPUT #1	OUTPUT #3	OUTPUT #2