



# 30-40 WATT MEDICAL SWITCHING POWER SUPPLIES

## DESCRIPTION

The PM41 series of compact, open PCB constructed, AC-DC switching power supplies are capable of delivering 30 to 40 watts of continuous output power. They operate at 85 to 264VAC input voltage without the need of voltage selection. They are ideally suited for use in medical equipment, safety systems and monitoring equipment, not for life support.

## FEATURES

- Low safety ground leakage current
- 100% burn-in
- Wide input range 85 to 264VAC
- Input surge current protection
- Overvoltage protection
- Overcurrent protection
- Open PCB construction
- Compliant with RoHS requirements

## INPUT SPECIFICATIONS

**Input voltage :** 85 to 264VAC;  
110 to 280VDC

**Input frequency :** 47 to 63Hz

**Input current :** 1.1A ( rms ) for 115VAC  
0.6A ( rms ) for 230VAC

**Earth 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 :** 1% peak to peak max.

**Over voltage protection :** Provided on output; set at 112 - 132% of its nominal output voltage

**Over current protection :** The output 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 500us after a 25% step load change

## 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

## PM41 SERIES



## Safety Standard Approvals :



UL 2601-1, CSA C22.2 NO. 601.1  
File NO. E178020



TÜV EN60601-1

## GENERAL SPECIFICATIONS

**Switching frequency:** 42KHz  $\pm$ 5KHz

**Efficiency:** 70% minimum on single output model with  $V_o \geq 12V$ , 68% minimum on the others

**Hold-up time:** 20 msec minimum at 110VAC

**Line regulation:**  $\pm 0.5\%$  maximum at full load

**Inrush current:** 12 amps @ 115VAC or 24 amps @ 230VAC, at 25 $^{\circ}$ C cold start

**Withstand voltage:** 4000VAC from input to output  
1500VAC from input to ground  
500VAC from output to ground

**MTBF:** 600,000 hours minimum at full load at 25 $^{\circ}$ C ambient, calculated per MIL-HDBK- 217F

**EMC Performance (EN60601-1-2: 2001)**

**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 and D

**EN61000-3-3:** Line flicker

**EN61000-4-2:** ESD,  $\pm 8KV$  air and  $\pm 6KV$  contact

**EN61000-4-3:** Radiated immunity, 3V/m for 80-2500MHz

**EN61000-4-4:** Fast transient/burst,  $\pm 2KV$

**EN61000-4-5:** Surge,  $\pm 1KV$  diff.,  $\pm 2KV$  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

# MEDICAL

# UNIVERSAL INPUT

# PM41 MEDICAL SERIES

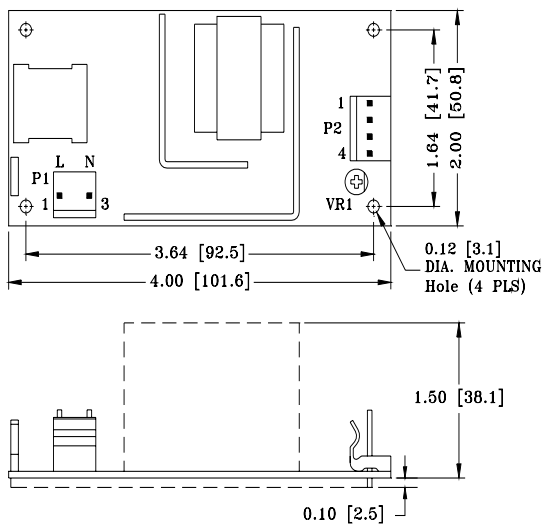
## OUTPUT VOLTAGE/CURRENT RATING CHART

MODEL	Vnom.	Output			Maximum Output Power
		Imin.	Imax.	Tol.	
PM41-10A	5.1V	0A	6.0A	2%	30W
PM41-12A	12V	0A	3.3A	2%	40W
PM41-13A	15V	0A	2.7A	2%	40W
PM41-13-1A	18V	0A	2.3A	2%	40W
PM41-14A	24V	0A	1.7A	2%	40W
PM41-15A	28V	0A	1.4A	2%	40W

NOTES: Ripple and noise: Peak-to-peak with 20MHz bandwidth and 10uF in parallel with a 0.1uF capacitor at rated line voltage and load ranges.

**MEMO:**

## MECHANICAL SPECIFICATIONS



### NOTES:

1. Dimensions shown in inch [mm]
2. Tolerance 0.03 [0.76] maximum
3. Input connector mates with Molex housing 09-50-3031 and Molex 2878 series crimp terminal.
4. Output connector mates with Molex housing 09-50-3040 and Molex 2878 series crimp terminal.
5. Weight : 190 grams (PCB format)

## PIN CHART

### Single Output Models

MODEL	PIN	1	2	3	4	
PM41-10A PM41-13-1A	PM41-12A PM41-14A	PM41-13A PM41-15A	OUTPUT	OUTPUT	RETURN	RETURN