PROTEK

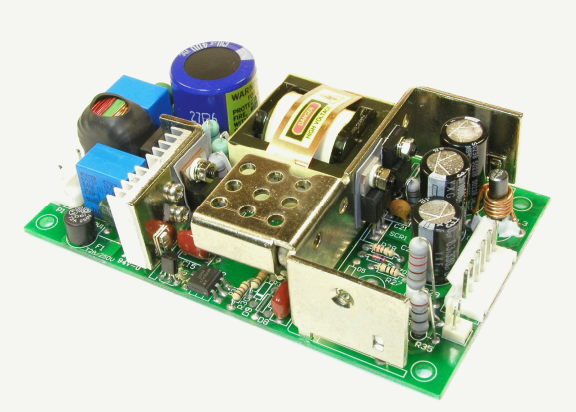
# 51-65 WATT MEDICAL SWITCHING POWER SUPPLIES

## DESCRIPTION

The PM66 series of compact, open PCB constructed, AC-DC switching power supplies are capable of delivering 51 to 65 watts of continuous power. They operate at 90 to 264VAC input voltage without the need of voltage selection. They are ideally suited for use in medical equipment not for life support. All models meet the safety requirements of UL, CSA and IEC.

## PM66 SERIES

CE (LVD)
RoHS



## FEATURES



- **Recognized or certified by UL,CSA and TÜV**
- **Small size**
- **100% burn-in**
- **Wide input range 90 to 264VAC**
- **Input surge current protection**
- **Overvoltage protection**
- **Overcurrent protection**
- **Compliant with RoHS requirements**

## Safety Standard Approvals :

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

IEC 60601-1

**TÜV EN60601-1**

## INPUT SPECIFICATIONS

| | |
|---|---|
| **Input voltage :** | 90 to 264VAC |
| **Input frequency :** | 47 to 63 Hz |
| **Input current :** | 1.60A ( rms ) for 115VAC<br>1.00A ( rms ) for 230VAC |
| **Earth leakage current :** | 90uA max. @ 115VAC, 60Hz<br>150uA max. @ 230VAC, 50Hz |

## OUTPUT SPECIFICATIONS

| | |
|---|---|
| **Output voltage/current :** | See rating chart |
| **Total output power :** | 65 watts maximum |
| **Ripple and noise :** | 1% peak to peak maximum |
| **Overvoltage protection :** | Provided on output; set at 112 - 132% of its nominal output voltage |
| **Overcurrent protection :** | The output protected to short circuit conditions |
| **Temperature coefficient :** | All outputs ±0.04% /℃ 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℃ to +70℃ |
| **Storage temperature :** | -40℃ to +85℃ |
| **Relative humidity :** | 5% to 95% non-condensing |
| **Derating :** | Derate from 100% at +50℃ linearly to 50% at +70℃ |

## GENERAL SPECIFICATIONS

| | |
|---|---|
| **Switching frequency :** | 42KHz ±5KHz |
| **Efficiency :** | 75% minimum on models with Vo≧12V, 66% minimum on the others |
| **Hold-up time :** | 10 msec minimum at 110VAC |
| **Line regulation :** | ±0.5% maximum at full load |
| **Inrush current :** | 17 amps @ 115VAC or 40 amps @230VAC, at 25℃ cold start |
| **Withstand voltage :** | 4000VAC from input to output<br>1500VAC from input to ground<br>500VAC from output to ground |
| **MTBF :** | 400,000 hours minimum at full load at 25℃ 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 |
| **EN61000-3-3:** | Line flicker |
| **EN61000-4-2:** | ESD, ±8KV air and ±6KV contact |
| **EN61000-4-3:** | Radiated immunity, 3V/m for 80~2500MHz |
| **EN61000-4-4:** | Fast transient/burst, ±2KV |
| **EN61000-4-5:** | Surge, ±1KV diff., ±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 |

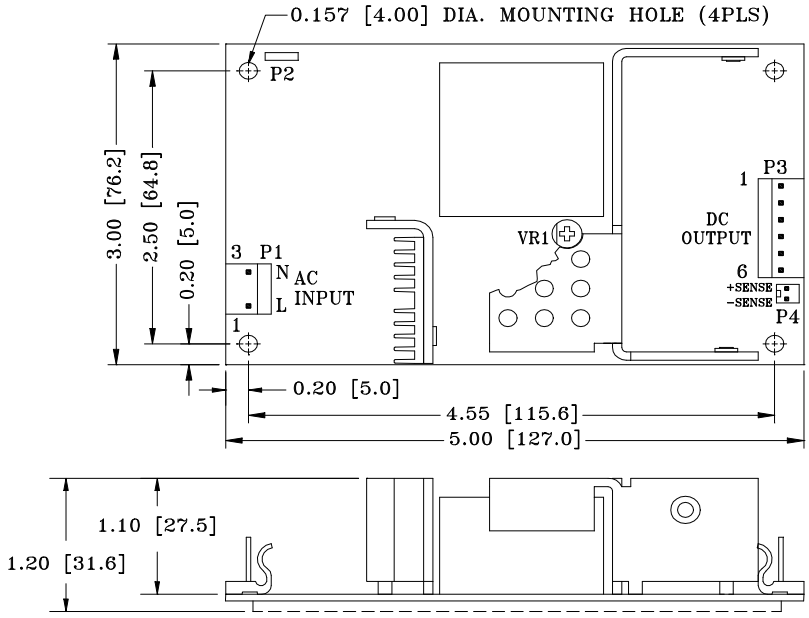
## OUTPUT VOLTAGE/ CURRENT RATING CHART

| MODEL | Output #1 Vnom. | Imin. | Imax. | Tol. | Output #2 Vnom. | Imin. | Imax. | Tol. | Output #3 Vnom. | Imin. | Imax. | Tol. | Maximum Output Power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PM66-10A | 5.1V | 0A | 10A | 3% | | (N/A) | | | | (N/A) | | | 51W |
| PM66-12A | 12V | 0A | 5.5A | 2% | | (N/A) | | | | (N/A) | | | 65W |
| PM66-13A | 15V | 0A | 4.4A | 2% | | (N/A) | | | | (N/A) | | | 65W |
| PM66-13-1A | 18V | 0A | 3.7A | 2% | | (N/A) | | | | (N/A) | | | 65W |
| PM66-14A | 24V | 0A | 2.8A | 2% | | (N/A) | | | | (N/A) | | | 65W |
| PM66-15A | 28V | 0A | 2.4A | 2% | | (N/A) | | | | (N/A) | | | 65W |



NOTE: 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.

## MECHANICAL SPECIFICATIONS




NOTES:

1. Dimensions shown in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector mates with Molex housing 09-50-3031 and Molex 2878 series crimp terminal.
4. Output connector mates with Molex housing 09-50-3061 and Molex 2878 series crimp terminal.
5. P4 is for ±sense connections and mates with Molex housing 22-01-1023 and Molex 40445 series crimp terminal.
6. Weight: 330 grams (PCB format)
7. VR1 is for output voltage adjustment.

## PIN CHART

| CONN / PIN / MODEL | P1 | | P2 | P3 | | | | | | P4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 3 | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 |
| PM66-10A PM66-12A PM66-13A PM66-13-1A PM66-14A PM66-15A | AC LIVE | AC NEUTRAL | AC GROUND | OUTPUT #1 | OUTPUT #1 | OUTPUT #1 | RETURN | RETURN | RETURN | +SENSE | -SENSE |