



**PROTEK POWER**

## PMP60 Power Supply Series (30-60W)

### Features:

- 12 standard desktop models
- Single, dual or triple outputs
- Optional output connectors
- Optional on/off switch
- 100% burn in
- Wide input range 90-264VAC
- Input surge current protection
- Overvoltage protection
- Over-temperature protection
- Overcurrent protection
- Single output models compliant with CEC and Energy Star Efficiency Level IV requirements
- No load power consumption less than 0.5W
- Average active efficiency Compliant with RoHS requirement
- ICE 60601-1-2 4th Edition EMC Compliant



CE RoHS



### Description:

The PMP60 series of AC/DC switching power supplies are for 30-60 watts of continuous output power. They are enclosed in a 94V-1 rated polyphenylene-oxide case with an IEC320/C14 inlet to mate with interchangeable cord for world-wide use. All models meet EN55011 and FCC class B emission limits, and are designed for medical applications.

Model	Output 1				Output 2				Output 3				Max. Output Power
	V1	Min Current	Max Current	Tol	V2	Min Current	Max Current	Tol	V3	Min Current	Max Current	Tol	
PMP60N1-12	11-13V	0A	5.46A	±5%	N/A								60W
PMP60N1-13	13-17V	0A	4.62A	±5%									60W
PMP60N1-13-1	17-21V	0A	3.53A	±5%									60W
PMP60N1-14	21-27V	0A	2.86A	±5%									60W
PMP60N1-16	27-33V	0A	2.23A	±3%									60W
PMP60N1-17	33-39V	0A	1.82A	±3%									60W
PMP60N1-18	46-50V	0A	1.31A	±3%									60W
PMP60-23	5V	1A	5A	±5%	12V	0.5A	3A	±5%	N/A				40W
PMP60-30	3.3V	1A	6A	±5%	5V	0.5A	3A	±5%	12V	0.1A	0.7A	±10%	30W
PMP60-31	5V	1A	5A	±5%	12V	0.5A	3A	±5%	-12V	0.1A	0.7A	±10%	40W
PMP60-32	5V	1A	5A	±5%	15V	0.4A	2.3A	±5%	-15V	0.1A	0.7A	±10%	40W
PMP60-36	5V	1A	5A	±5%	24V	0.3A	1.5A	±5%	12V	0.1A	0.7A	±10%	40W

### Notes:

1. 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.
2. Ripple and noise is maximum peak to peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10 µF tantalum capacitor in parallel with a 0.1 µF ceramic capacitor across the output.



## PMP60 Power Supply Series (30-60W)

Specifications	
Safety Standards & EMC Specifications	
Safety Standard Approvals	UL ES 60601-1, CSA C22.2 No. 60601-1 File No. E178020 TÜV EN 60601-1
EMI Standard	EN55011, FCC, and VCCI Class B (radiated and conducted)
EMC Performance	EN61000-3-2: Harmonic distortion, Class A and D EN61000-3-3: Line flicker EN61000-4-2: ESD, $\pm 15$ KV air and $\pm 8$ KV contact EN61000-4-3: Radiated immunity, 10V/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, 10Vrms EN61000-4-8: Magnetic field immunity, 30 A/m EN61000-4-11: Voltage dip immunity, 30% reduction for 500 ms, 100% reduction for 10 ms
*Consult with TT Electronics for information on additional country safety approvals	
Input Specifications	
Input Voltage Range	90 to 264VAC
Input Frequency Range: Input	47 to 63Hz
Input Current	1.22 A (rms) for 100 VAC 0.68 A (rms) for 240 VAC
Earth Leakage Current	200 $\mu$ A max. @ 264VAC, 63Hz
Touch Current	100 $\mu$ A max. @ 264 VAC, 63Hz
Output Specifications	
Ripple & Noise	66 mVp-p maximum on 3.3 V output 100 mVp-p maximum on 5 V output 1% maximum on other voltage outputs (12 V, 15 V ..., 48 V etc.)
Overvoltage Protection	Provided on output #1 only, set at 112-140% of its nominal output voltage
Overcurrent Protection	All outputs protected to short circuit conditions
Temperature Coefficient	$\pm 0.04\%/^{\circ}\text{C}$ maximum
Transient Response	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 $\mu$ s after a 25% step load change
Environmental Specifications	
Operating Temperature	-0°C to +60°C (See Derating)
Storage Temperature	-40°C to +85°C
Relative Humidity	5% to 95% non-condensing
Temperature Derating	Derate from 100% at +40° linearly to 50% at +60°
General Specifications	
Switching Frequency	20/40 KHz to 130 KHz
Efficiency	85% minimum on single output models, 68-74% minimum on the others
Hold-up Time	10ms minimum at 110 VAC
Line Regulation	$\pm 0.5\%$ maximum at full load
Inrush Current	50 A @ 115 VAC or 100 A @ 230 VAC, at 25°C cold start
Withstand Voltage	5600 VDC from input to output (2 MOPP) 2100 VDC from input to ground (1 MOPP) 700 VDC from output to ground (To verify AC strength, get correct test method to avoid power supply damage.)
MTBF	150,000 hours minimum at full load at 25° ambient, calculated per MIL-HDBK-217F Ingress Protection: IP22 Compliant



PROTEK POWER

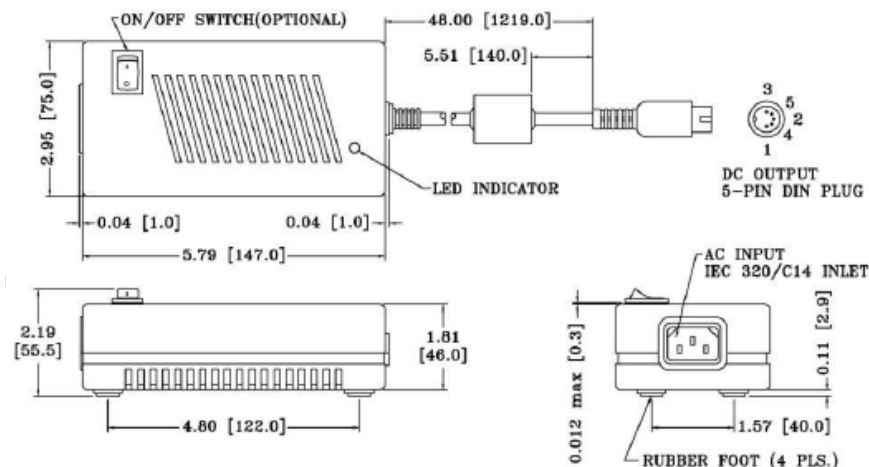


Electronics

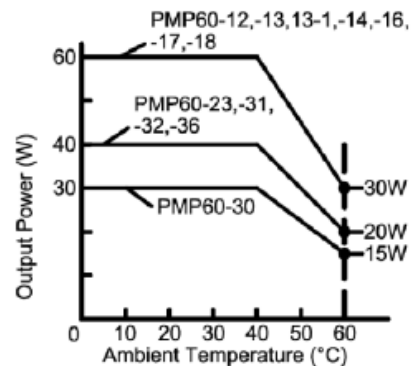
POWER PARTNERS

## PMP60 Power Supply Series (30-60W)

### MECHANICAL SPECIFICATIONS



### OUTPUT POWER DERATING CURVE



#### NOTES:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 600 grams (1.33 lbs.) approx.
4. Output connector is 5 pin DIN plug, mating with Switchcraft P/N 57GB5F receptacle or equivalent.
5. Refer to Section titled "OPTIONAL OUTPUT CONNECTORS" for optional output connectors. Add the suffix assigned for a selected connector to a wanted model number, e.g. PMP60-12-B2, for ordering.
6. To order a model with on / off switch, add suffix " S " to the model number, e.g. PMP60-12-B2-S

### PIN CHART

MODEL	PIN	1	2	3	4	5
PMP60-12 PMP60-14 PMP60-17		V1 Return	V1 Return	+V1	V1 Return	+V1
PMP60-13 PMP60-16 PMP60-13-1 PMP60-18		V1 Return	V1 Return	+V1	V1 Return	+V1
PMP60-23		Common Return	Common Return	V1	N.C.	V2
PMP60-30 PMP60-32 PMP60-36		Common Return	Common Return	V1	V3	V2
PMP60-31		Common Return	Common Return	V1	V3	V2