

**PROTEK POWER**

PMP60N1 60W Medical & ITE Class II Power Supplies

Features:

- Operation up to 5000 metres
- Optional on/off switch
- Optional output connectors
- 100% burn in
- Wide input range 90-264 VAC
- Input surge current protection
- Overvoltage protection
- Overcurrent protection
- Over-temperature protection
- Compliant with DoE Efficiency level VI requirements (except PMP60N1-12)
- Compliant with RoHS requirement
- IEC 60601– 1-1-2 4th Edition EMC Compliant

**RoHS**

Description:

The PMP60N1 series of AC/DC switching power supplies are for 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, EN55022 and FCC class B emission limits, and are designed for medical and ITE applications.

Model	Output						Average Efficiency @115/230 Vac
	V1	Min. Current	Max. Current	Tol.	Ripple & Noise ⁽¹⁾	Max. Output Power	
PMP60N1-12	11-13V	0A	5.46A	±5%	110-130mV	60W	88/88%
PMP60N1-13	13-17V	0A	4.62A	±5%	130-170mV	60W	88/89%
PMP60N1-13-1	17-21V	0A	3.53A	±5%	170-210mV	60W	89/90%
PMP60N1-14	21-27V	0A	2.86A	±5%	210-270mV	60W	88/89%
PMP60N1-16	27-33V	0A	2.23A	±3%	270-330mV	60W	88/89%
PMP60N1-17	33-39V	0A	1.82A	±3%	330-390mV	60W	88/89%
PMP60N1-18	46-50V	0A	1.31A	±3%	460-500mV	60W	89/89%

NOTES:

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



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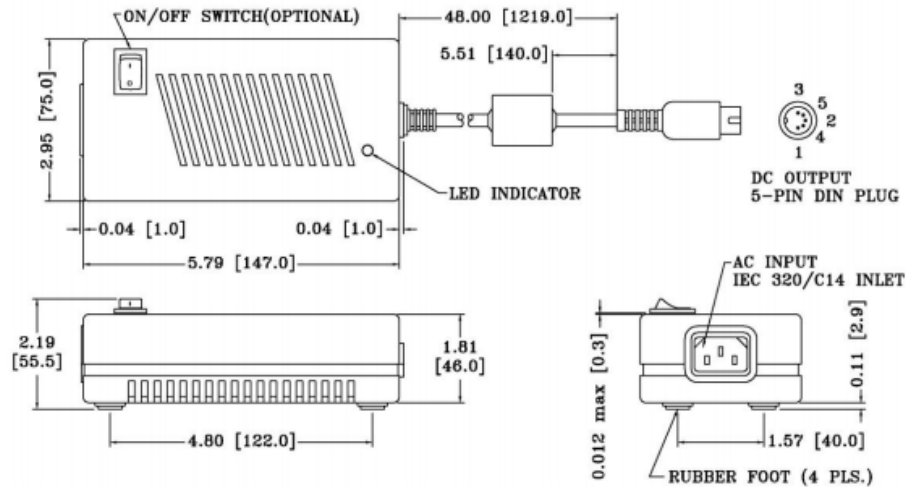
Specifications	
Safety Standards & EMC Specifications	
Safety Standard Approvals	UL ES 60601-1, CSA C22.2 No. 60601-1 File No. E178020 TÜV EN 60601-1
EMI Standard	EN55011 / EN55022: Class B conducted, class B radiated FCC: Class B conducted, class B radiated VCCI: Class B conducted, class B radiated
EMC Performance	EN61000-3-2: Harmonic distortion, class A and D EN61000-3-3: Line flicker EN61000-4-2: ESD, ± 15 KV air and ± 8 KV contact EN61000-4-3: Radiated immunity, 10 V/m for 80-2500 MHz EN61000-4-4: Fast transient/burst, ± 2 KV EN61000-4-5: Surge, ± 1 KV diff., ± 2 KV com EN61000-4-6: Conducted immunity, 10 Vrms EN61000-4-8: Magnetic field immunity, 30 A/m EN61000-4-11: Voltage dip immunity, 30% reduction for 500 ms, 100% reduction for 20 ms
*Consult with TT Electronics for information on additional country safety approvals	
Input Specifications	
Input Voltage Range	90-264VAC
Input Frequency Range	47-63 Hz
Input Current	1.22 A (rms) for 100 VAC 0.68 A (rms) for 240 VAC
Earth Leakage Current	200 μ A max. @ 264 VAC, 63 Hz
Touch current	100 μ A max. @ 264 VAC, 63 Hz
Output Specifications	
Ripple and Noise	1% peak to peak maximum
Overvoltage Protection	Set at 112-140% of its nominal output voltage
Overcurrent Protection	Outputs protected to short circuit conditions
Temperature Coefficient	$\pm 0.04\%$ / $^{\circ}$ C maximum
Transient Response	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 μ s after a 25% step load change
Environmental Specifications	
Operating Temperature	20 $^{\circ}$ C to +60 $^{\circ}$ C (See Derating)
Storage Temperature	-40 $^{\circ}$ C to +85 $^{\circ}$ C
Relative Humidity	5% to 95% non-condensing
Temperature Derating	De-rate from 100% at +40 $^{\circ}$ C linearly to 50% at +60 $^{\circ}$ C
General Specifications	
Switching frequency	20 KHz - 130 KHz
Hold-up Time	20 ms typical at 110 VAC
Line Regulation	$\pm 0.5\%$ maximum at full load
Inrush Current	60 A @ 115 VAC or 120 A @ 230 VAC, at 25 $^{\circ}$ 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 $^{\circ}$ ambient, calculated per MIL-HDBK-217F



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Diagrams

MECHANICAL SPECIFICATIONS



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. PMP60N1-12-B2, for ordering.
6. To order a model with on / off switch, add suffix " S " to the model number, e.g. PMP60N1-12-B2-S

INTERFACE SIGNALS

- PFD:** TTL high for normal operation, low upon loss of input power, turn-on delay time 100-1000 ms, turn-off delay time 1 ms minimum
- Inhibit:** Requires an external TTL high level signal to inhibit outputs for standard models

OUTPUT POWER DERATING CURVE

