



PROTEK POWER

PMP90 Medical Power Supplies (60-90W)

Features:

- Low safety ground leakage current
- Wide input range 90 to 264 VAC
- Optional output connectors
- 100% burn-in
- Overvoltage protection
- Over-temperature protection
- Overcurrent protection
- Compliant with CEC and Energy Star Efficiency level IV requirements (except models PMP90-10, PMP90-10-1 and PMP90-11)
- No load power consumption less than 0.5W
- Average active efficiency greater than 85%
- Compliant with RoHS requirements
- IEC 60601-1-2 4th Edition EMC Compliant



Description:

The PMP90 series of AC/DC switching power supplies are for 60-90 watts of continuous output power. They are enclosed in a 94V-0 rated polyphenylene-oxide case with an IEC320/C14 or IEC320/C18 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 ¹		Output						Average Active Efficiency (typical) @115/230 Vac
Class-I	Class-II	V1	Min. Current	Max. Current	Tol.	Ripple & Noise ²	Max. Power	
PMP90-10	PMP90F-10	5V	0A	12A	±5%	100mV	60W	78/79%
PMP90-10-1	PMP90F-10-1	6V	0A	10A	±5%	100mV	60W	78/79%
PMP90-11	PMP90F-11	9V	0A	7.78A	±5%	100mV	70W	81/82%
PMP90-12	PMP90F-12	12V	0A	6.67A	±5%	120mV	80W	86/85%
PMP90-12-1	PMP90F-12-1	13.5V	0A	6.3A	±5%	135mV	85W	86/85%
PMP90-13	PMP90F-13	15V	0A	5.67A	±5%	150mV	85W	86/85%
PMP90-13-1	PMP90F-13-1	18V	0A	5A	±5%	180mV	90W	86/85%
PMP90-13-2	PMP90F-13-2	19V	0A	4.74A	±5%	190mV	90W	86/86%
PMP90-14	PMP90F-14	24V	0A	3.75A	±5%	240mV	90W	87/86%
PMP90-16	PMP90F-16	30V	0A	3A	±5%	300mV	90W	87/86%
PMP90-18	PMP90F-18	48V	0A	1.87A	±5%	480mV	90W	88/87%

NOTES:

1. Class I models are equipped with IEC320/C14 inlet, and class II models with IEC320/C18 inlet.
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.



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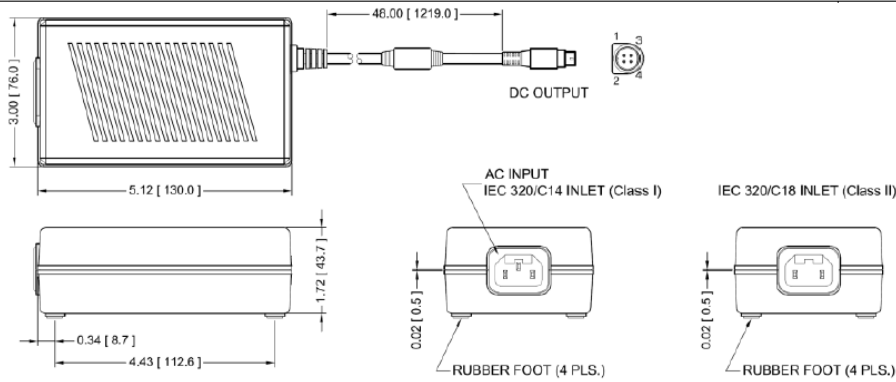
Specifications	
Safety Standards & EMC Specifications	
Safety Standard Approvals	UL ES 60601-1, CSA C22.2 No. 60601-1 File No. E178020 TÜV EN 60601-1
EMI Standard	EN55011/EN55022, FCC, and VCCI Class B (radiated and conducted)
EMC Performance	EN61000-3-2: Harmonic distortion, Class A and D EN61000-3-3: Line flicker EN61000-4-2: ESD, ± 15 KV air and ± 8 KV contact EN61000-4-3: Radiated immunity, 10V/m EN61000-4-4: Fast transient/burst, ± 2 KV EN61000-4-5: Surge, ± 1 KV diff., ± 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 500ms, and 100% reduction for 10ms
*Consult with TT Electronics for information on additional country safety approvals	
Input Specifications	
Input Voltage Range	90 to 264VAC
Input Frequency Range	47 to 63Hz
Input Current	1.2A (rms) for 115 VAC or 0.6A (rms) for 230 VAC
Earth Leakage Current	180 μ A max. @ 264VAC, 63Hz
Touch Current	100 μ A max. @ 264 VAC, 63Hz
Output Specifications	
Ripple & Noise	100 mVp-p maximum on 5V, 6V and 9V outputs, 1% maximum on other voltage outputs (12V, 13.5V ..., 48V etc.)
Overvoltage Protection	Provided and set at 112-140% of nominal output voltage
Overcurrent Protection	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 μ 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°C, linearly to 50% at +60°C
General Specifications	
Switching Frequency	50-110KHz
Power Factor	0.98 typical
Efficiency	85% min. (except 77% min. for PMP90-10, PMP90-10-1, PMP90-11 and PMP90-12)
Hold-up Time	15ms minimum at 110 VAC
Line Regulation	$\pm 0.5\%$ maximum at full load
Inrush Current	50A @ 115VAC or 100A @ 230VAC, at 25°C cold start
Withstand Voltage	5600VDC from input to output (2 MOPP) 2100VDC from input to ground (1 MOPP) 700VDC from output to ground (To verify AC strength, get correct test method to avoid power supply damage.) For Class II models, 4000 VAC from input to output)
MTBF	150,000 hours at full load at 25°C ambient, calculated per MIL-HDBK-217F



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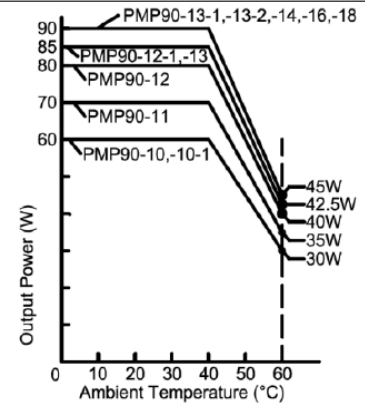
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MECHANICAL SPECIFICATIONS



Diagrams

OUTPUT POWER DERATING CURVE



NOTES:

- Dimensions shown in inches [mm]
- Tolerance 0.02 [0.5] maximum
- Weight: 658 grams (1.45 lbs.) approx.
- Output connector is 4 pin plug without lock, mating with Kycon P/N KPJX-4S-S socket or equivalent.
- Refer to Section titled "OPTIONAL OUTPUT CONNECTORS". Add the suffix assigned for a selected connector to a wanted model number, e.g. PMP90-14-B1, for ordering.

PIN CHART

MODEL	PIN	1	2	3	4
PMP90-10	PMP90F-10	V1 Return	+V1	V1 Return	+V1
PMP90-10-1	PMP90F-10-1				
PMP90-11	PMP90F-11				
PMP90-12	PMP90F-12				
PMP90-12-1	PMP90F-12-1				
PMP90-13	PMP90F-13				
PMP90-13-1	PMP90F-13-1				
PMP90-13-2	PMP90F-13-2				
PMP90-14	PMP90F-14				
PMP90-16	PMP90F-16				
PMP90-18	PMP90F-18				