PROTEK POWER

TT Electronics
POWER PARTNERS

PMP220 Medical Power Supply Series (200-220W)

Features:

- High Efficiency
- Low ripple & noise
- Overvoltage protection
- Overcurrent protection
- Over-temperature protection
- 100% burn-in at full rated load
- Standby consumption less than 0.5W
- Compliant with CEC and ENERGY STAR efficiency level V requirements
- Compliant with RoHS requirements
- IEC 60601-1-2-4th Edition EMC Compliance

CE

RoHS

V

TÜV EN 60601-1 IEC 60601-1

c UL us

Description:

The PMP220 series of AC/DC switching power supplies are for 200-220 watts of continuous output power. They are enclosed in a 94V-0 rated polycarbonate case with an 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[1]	Class II[2]	V1	Min Current[3]	Max. Current	Tol.	Ripple & Noise[4]	Max Power	
PMP220-13-2	PMP220SF-13-2	19V	0.1A	10.53A	±5%	190mV	200W	87/87%
PMP220-14	PMP220SF-14	24V	0.1A	9.17A	±5%	240mV	220W	90/92%
PMP220-15	PMP220SF-15	28V	0.1A	7.86A	±5%	280mV	220W	90/92%
PMP220-17	PMP220SF-17	36V	0.1A	6.11A	±5%	360mV	220W	90/92%

NOTES:

1. Class I models are equipped with IEC320/C14 inlet. To order a model with C6 inlet, add “S” to the prefix, PMP220, of model number, e.g. PMP220S-12.
2. Class II models are equipped with IEC320/C8 inlet. To order a model with C18 inlet, change “SF” in the prefix of model number to “F”, e.g. PMP220F-12.
3. All models may be operated at no-load without damage. At no load, output voltage fluctuates beyond 5% due to the burst-mode operation of the control IC in them for energy saving.
4. 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 47 µF electrolytic 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, FCC & VCCI Class B conducted and 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 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 10 ms
*Consult with TT Electronics for information on additional country safety approvals	
Input Specifications	
Input Voltage Range	90-264VAC
Power Derating	Derate from 100% at +40˚C linearly to 50% at +60˚C
Input Frequency Range	47 to 63Hz
Input Current	2.5A (rms) for 115 VAC or 1.2A (rms) for 230 VAC
Earth Leakage Current	100 µA max. @ 264 VAC, 63 Hz
Touch Current	100 µA max. @ 264 VAC, 63 Hz
Output Specifications	
Ripple and Noise	1% peak to peak maximum
Overvoltage Protection	Set at 110% to 130% of its nominal output voltage
Overcurrent Protection	All models protected 110% to 120% of full load condition
Transient Response	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 us after a 25% step load change
Environmental Specifications	
Operating Temperature	0˚C to +60˚C (See Derating)
Storage Temperature	-20˚ C +80˚C
Relative Humidity	10% to 90% non-condensing
Temperature Derating	Derate from 100% at +40˚C linearly to 50% at +60˚C
General Specifications	
Hold-up Time	12ms minimum at 100 VAC
Turn on Delay Time	3s maximum at 100 VAC
Power Factor	0.95 Typical
Efficiency	87% minimum at 100 VAC or 240 VAC
Line Regulation	±0.5% maximum at full load
Inrush Current	100A @ 115 VAC or 200A @ 230 VAC 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	100,000 hours at full load at 25°C ambient, calculated per MIL-HDBK-217F

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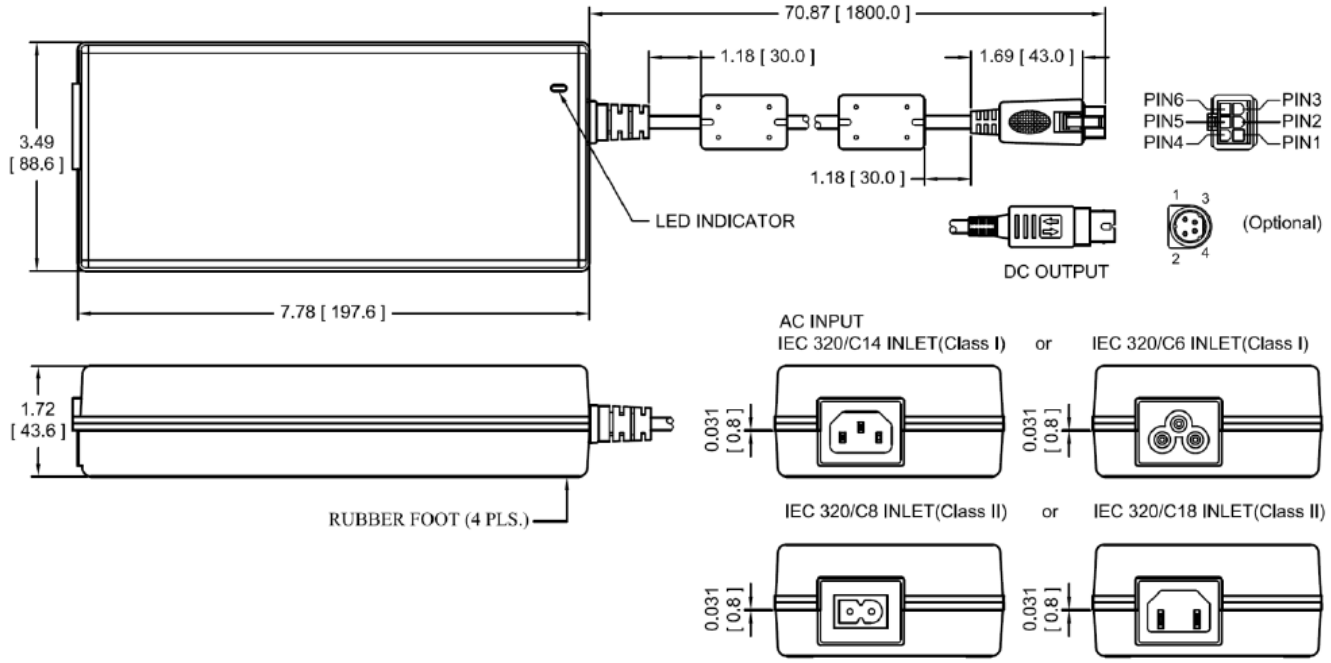
Diagrams

MECHANICAL SPECIFICATIONS



NOTES:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 1.0 kg (2.2 lbs.) approx.
4. Output connector is Molex Mini - Fit receptacle, P/N: 39-01-2060 with female terminal #5556 or equivalent, mating with Molex plug 39-01-2066 and male terminal #5558 or equivalent. It also mates with Molex headers #5566, #5569, or equivalent.
5. Optional output connector is 4-pin plug with lock, Kycon P/N KPPX-4P or equivalent, mating with 4-pin socket, Kycon P/N KPJX-4S-S or equivalent, add the suffix assigned for a selected connector to a wanted model number, e.g. PMP220-13-2-HI, for ordering.

PIN CHART

PIN	1	2	3	4	5	6
PIN6 PIN5 PIN4 — PIN3 PIN2 PIN1	+V1	V1 Return	V1 Return	+V1	+V1	V1 Return

PIN	1	2	3	4	SHELL OF CONNECTOR	
					Class I	Class II
HI (1 3 / 2 4)	+V1		V1 Return		AC Ground	NC