



PROTEK POWER

PMP135 Medical Power Supplies (120-135W)

Features:

- Low Safety ground leakage current
- Wide input range 90 to 264 VAC
- Power factor corrected
- 200% peak power capability on models below 26Vdc output
- Optional output connectors
- Overvoltage protection
- Over-temperature protection
- Overcurrent protection
- Compliant with CEC and Energy Star Efficiency level V requirements
 - * No Load power consumption less than 0.5W
 - * Average active efficiency greater than 87%
- Compliant with RoHS requirements
- IEC 60601-1-2-4th Edition EMC Compliant



Description:

The PMP135 series of AC/DC switching power supplies are for 120-135 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	Minimum Current	Maximum Current	Peak Current ²	Tol	Ripple & Noise ³	Max Power	
PMP135-12	PMP135F-12	12V	0A	10A	20A	±5%	120mV	120W	87/89%
PMP135-12-1	PMP135F-12-1	13V	0A	9.23A	18.5A	±5%	130mV	120W	87/89%
PMP135-13	PMP135F-13	14-16V	0A	9.29A	18.6A	±5%	150mV	130W	87/89%
PMP135-13-1	PMP135F-13-1	18-19V	0A	7.50A	15A	±5%	180mV	135W	87/89%
PMP135-13-3	PMP135F-13-3	20-21V	0A	6.75A	13.5A	±5%	200mV	135W	87/89%
PMP135-14	PMP135F-14	24-25V	0A	5.63A	11.3A	±5%	240mV	135W	88/90%
PMP135-15	PMP135F-15	28-29V	0A	4.83A	5.8A	±5%	280mV	135W	88/90%
PMP135-16	PMP135F-16	30-32V	0A	4.50A	5.4A	±5%	300mV	135W	89/90%
PMP135-17	PMP135F-17	36-38V	0A	3.75A	4.5A	±5%	360mV	135W	89/91%
PMP135-18	PMP135F-18	46-50V	0A	2.94A	3.5A	±5%	480mV	135W	90/91%

NOTES:

1. Class I models are equipped with IEC320/C14 inlet, and class II models with IEC320/C18 inlet.
2. For 10 seconds maximum, average power not to exceed maximum power rating.
3. 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, 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 to 264 Vdc
Input Frequency Range	47 to 63Hz
Input Current	1.60 A (rms) for 115 VAC or 0.80 A (rms) for 230 VAC
Earth Leakage Current	200 μ A max. @ 264 VAC, 63 Hz
Touch Current	100 μ A max. @ 264 VAC, 63 Hz
Power Factor	>0.9
Output Specifications	
Ripple and noise	1% peak to peak maximum at the full load
Over Voltage Protection	Provided and set at 115-140% of its nominal output voltage
Over Current 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
Derating	Derate from 100% at +40°C, linearly to 50% at +60°C
General Specifications	
Switching Frequency	90-160KHz
Efficiency	87% min. at full load
Hold-up Time	15ms minimum at 110 VAC
Power Factor	0.98 Typical at 115 VAC
Line Regulation	$\pm 0.5\%$ maximum at full load
Inrush Current	80A @ 115 VAC or 160A @ 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, 4000VAC from input to output
MTBF	150,000 hours at full load at 25°C ambient, calculated per MIL-HDBK-217F

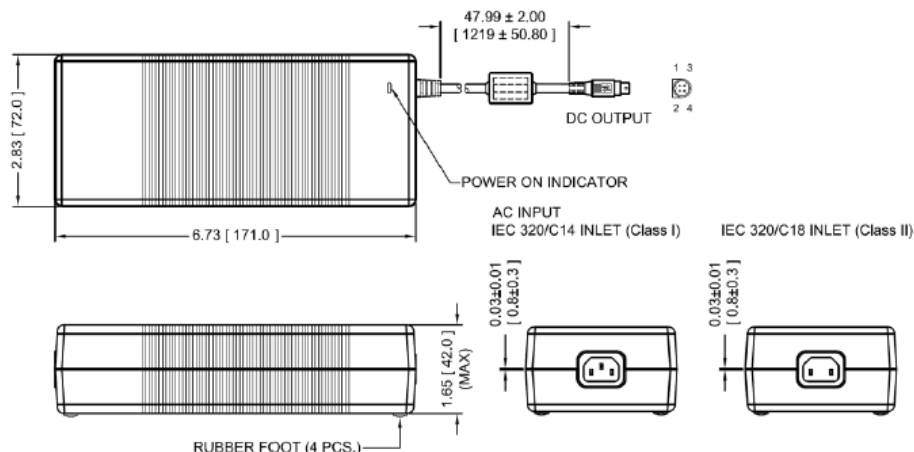


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Diagrams

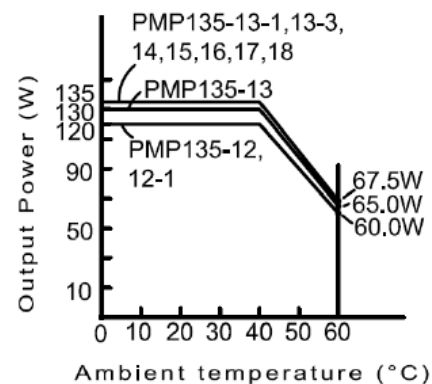
MECHANICAL SPECIFICATIONS



NOTES:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 681 grams (1.505 lbs.) approx.
4. Refer to Section titled "OPTIONAL OUTPUT CONNECTORS". Add the suffix assigned for a selected connector to a wanted model number, e.g. PMP135-14-B1, for ordering.
5. The length of output cable for PMP135-12, PMP135-12-1, PMP135-13, PMP135F-12, PMP135F-12-1, and PMP135F-13 is 37.4 (950)

OUTPUT POWER DERATING CURVE



PIN CHART

MODEL	PIN	1	2	3	4
PMP135-12	PMP135F-12	V1 Return	+V1	V1 Return	+V1
PMP135-12-1	PMP135F-12-1				
PMP135-13	PMP135F-13				
PMP135-13-1	PMP135F-13-1				
PMP135-13-3	PMP135F-13-3				
PMP135-14	PMP135F-14				
PMP135-15	PMP135F-15				
PMP135-16	PMP135F-16				
PMP135-17	PMP135F-17				
PMP135-18	PMP135F-18				