400 WATT MEDICAL POWER SUPPLIES

DESCRIPTION

The PMP400 series of AC-DC switching power supplies are for 400 watts of continuous output power. They are enclosed in a 94V-0 rated polycarbonate case with an IEC 320/C14 inlet to mate with interchangeable cord for world-wide use. All models meet EN55011 class B emission limits, and are designed for medical applications.

PMP400 SERIES

CE

RoHS

FEATURES

- BF Class insulation
- Operation altitude up to 5000 meters
- Wide input range 90 to 264VAC
- Low safety ground leakage current
- Less than 300 µA leakage current
- Efficiency greater than 85%
- Overvoltage Protection
- Over temperature Protection
- Short-Circuit Protection
- Compliant with RoHs requirements

SAFETY STANDARD APPROVALS

UL ES 60601-1, CSA C22.2 No. 60601-1
File No. E178020

TÜV EN 60601-1

INPUT SPECIFICATIONS

Input voltage:	90-264 VAC
Input frequency:	47-63 Hz
Input current:	4.2 A (rms) @115 VAC, 60 Hz 2.1 A (rms) @ 230 VAC, 50 Hz
Earth leakage current:	300 µA max. @ 264 VAC, 63 Hz
Touch current:	100 µA max. @ 264 VAC, 63 Hz

OUTPUT SPECIFICATIONS

Output voltage/current:	See rating chart
Maximum output power:	See rating chart
Ripple and noise:	1% peak to peak maximum
Over voltage protection:	Set at 115-140% of nominal output voltage, latching by recycle input to reset
Short circuit protection:	Automatic recovery
Over temperature protection:	Latching by recycle input to reset
Temperature coefficient:	All outputs ±0.04% /℃ maximum
Transient response:	Maximum excursion of 4%, recovering to 1% of final value within 500 us after a 25% step load change

ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	-10℃ to +60℃
Storage temperature:	-40℃ to +85℃
Relative humidity:	5% to 95% non-condensing
Temperature derating:	Derate from 100% at +40℃ linearly to 50% at +60℃

GENERAL SPECIFICATIONS

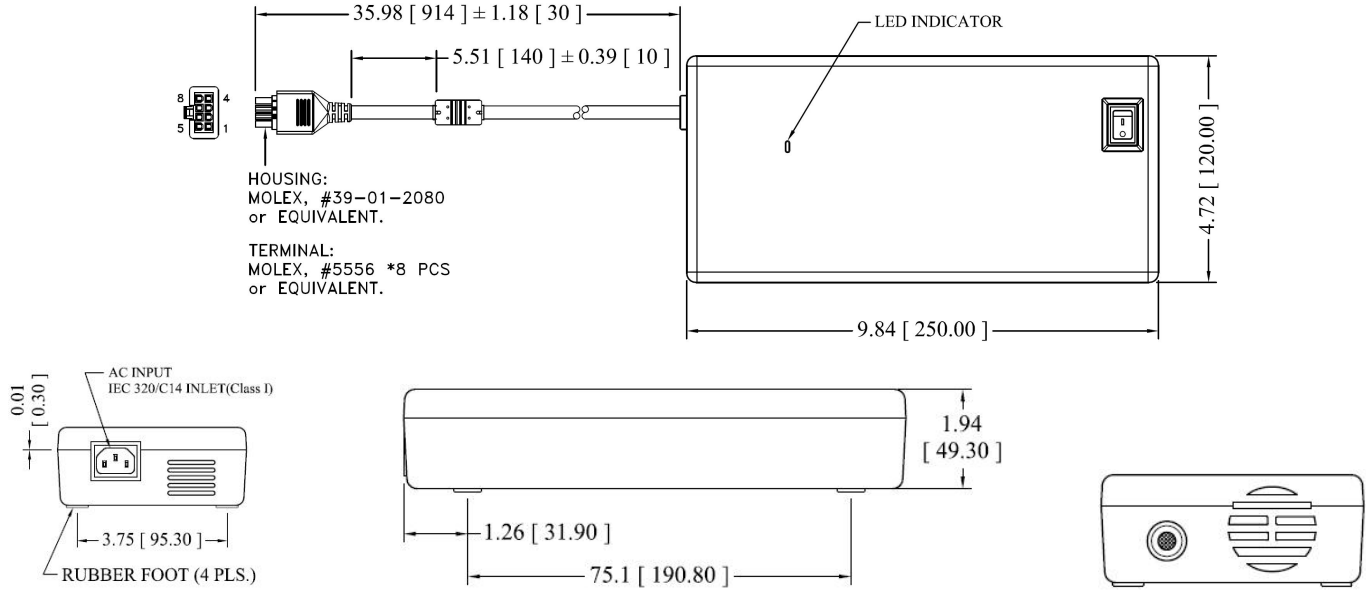
Switching frequency:	85 KHz (typical)
Efficiency:	85% min. at 115 VAC or 230 VAC
Hold-up time:	12 ms minimum at 110 VAC & 400 W
Line regulation:	±0.5% maximum at full load
Inrush current:	20 A @ 115 VAC, or 40 A @ 230 VAC, at 25℃ cold start
Withstand voltage:	4000 VAC from input to output (2 MOPP) 1500 VAC from input to ground (1 MOPP) 1500 VAC from output to ground
MTBF:	250,000 hours at full load at 25℃ ambient, calculated per MIL-HDBK-217F, excluding DC fan
EMC Performance	
EN55011:	Class B conducted, class B radiated
EN61000-3-2:	Harmonic distortion, class A and D
EN61000-3-3:	Line flicker
EN60601-1-2	
EN61000-4-2:	ESD, ±15 KV air and ±8 KV contact
EN61000-4-3:	Radiated immunity, 9-28 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

OUTPUT VOLTAGE/CURRENT RATING CHART

Model[2]	Output						Efficiency (typical) @ 400 W 115/230 Vac
	V1	Min. Current	Max. Current at 13 CFM	Tol.	Ripple & Noise[1]	Max. Output Power	
PMP400-13-1-S	18 V	0 A	22.23 A	±5%	180 mV	400 W	85 /88%
PMP400-14-S	24 V	0 A	16.67 A	±5%	240 mV	400 W	86 /89%
PMP400-15-S	28 V	0 A	14.29 A	±5%	280 mV	400 W	86 /89%
PMP400-17-S	36 V	0 A	11.12 A	±5%	360 mV	400 W	86 /89%
PMP400-18-S	48 V	0 A	8.34 A	±5%	480 mV	400 W	87 /89%

NOTES: 1. 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.
2. All models are with built-in fan.

MECHANICAL SPECIFICATIONS



NOTES:
1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 1.5 Kg (3.28 lbs.) approx.
4. Output connector is Molex Mini - Fit receptacle, P/N: 39-01-2080 with female terminal #5556 or equivalent, mating with Molex plug 39-01-2086 and male terminal #5558 or equivalent. It also mates with Molex headers #5566, #5569, or equivalent.

PIN CHART

PIN NO.	1	2	3	4	5	6	7	8
Polarity	+V1				V1 Return			

OUTPUT POWER DERATING CURVE