100-150 WATT MEDICAL POWER SUPPLIES

DESCRIPTION

The PM150 series of AC-DC switching power supplies in a package of 2 x 4 x 1.3 inches are capable of delivering 100-150 watts of continuous power at 7.5 CFM forced air cooling or 100 watts at convection cooling. The units are constructed on a printed circuit board. They are specially designed for medical applications.

PM150 SERIES

CE

RoHS

FEATURES

- BF Class insulation
- Operation altitude up to 5000 meters
- 2 x 4 inch footprint with 1.3 inch low profile
- Less than 275 µA leakage current
- Wide input range 80-264 VAC
- Meet EN55011 Class B
- Power Factor 0.98 typical
- 100% burn-in at full load
- Short-circuit protection
- Over-temperature protection
- Power Fail Detect (PFD) signal (optional)
- Compliant with RoHS requirements
- No load power consumption less than 0.5W without PFD or 1W with PFD

SAFETY STANDARD APPROVAL

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

TÜV EN 60601-1

INPUT SPECIFICATIONS

Input voltage:	80-264 VAC
Input frequency:	47-63 Hz
Input current:	1.7 A (rms) for 115 VAC 0.85 A (rms) for 230 VAC
Earth leakage current:	275 µA max. @ 264 VAC, 63 Hz
Touch current:	100 µA max. @ 264 VAC, 63 Hz

OUTPUT SPECIFICATIONS

Output voltage/current:	See rating chart.
Total output power:	See rating chart.
Ripple and noise:	See rating chart.
Remote sense:	Compensation for cable losses up to 0.5 V
Over voltage protection:	set at 112-140% of its nominal output voltage, automatic recovery
Short circuit protection:	Automatic recovery
Over temperature protection:	Automatic recovery
Temperature coefficient:	All outputs ±0.04% /℃ maximum
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
Fan power:	12 V at 0.5 A maximum (isolated)

ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	0℃ to +70℃
Storage temperature:	-40℃ to +85℃
Relative humidity:	5% to 95% non-condensing
Temperature derating:	Derate from 100% at +50℃ linearly to 50% at +70℃, applicable to convection and forced-air cooling conditions

GENERAL SPECIFICATIONS

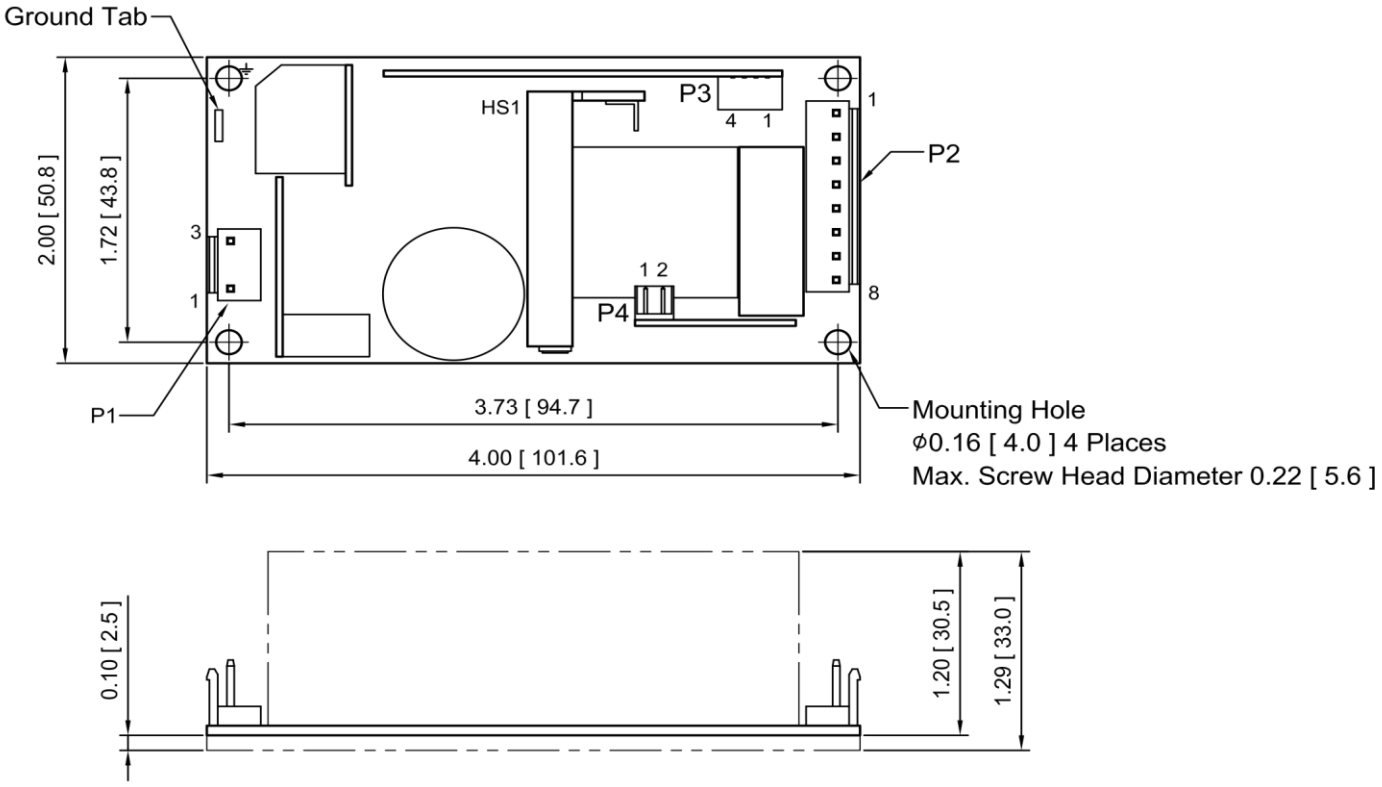
Switching frequency:	133 KHz (typical)
Efficiency:	See rating chart.
Hold-up time:	10 ms minimum at 120 VAC
Line regulation:	±0.5% maximum at full load
Inrush current:	80 A @ 115 VAC or 160 A @ 230 VAC, at 25℃ cold start
Withstand voltage:	4000 VAC from input to output (2 MOPP) 1500 VAC from input to ground (1 MOPP) 1500 VAC from output to ground
MTBF:	150,000 hours at full load at 25℃ ambient, calculated per MIL-HDBK-217F
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[1]	Output								Efficiency (typical) 115/230 Vac
	V1	Min. load	Max. Current at convection	Max. Current at 7.5 CFM	Peak[2] Current	Tol.	Ripple & Noise[4]	Max. Power[3]	
PM150-12A	12 V	0 A	8.35 A	12.50 A	14.0 A	±2%	120 mV	100 W /150 W	90 /92%
PM150-13A	15 V	0 A	6.70 A	10.00 A	11.0 A	±2%	150 mV	100 W /150 W	89 /91%
PM150-13-1A	18 V	0 A	5.56 A	8.34 A	9.2 A	±2%	180 mV	100 W /150 W	91 /92%
PM150-14A	24 V	0 A	4.20 A	6.25 A	7.0 A	±2%	240 mV	100 W /150 W	89 /92%
PM150-16A	30 V	0 A	3.34 A	5.00 A	5.6 A	±2%	300 mV	100 W /150 W	89 /92%
PM150-17A	36 V	0 A	2.78 A	4.17 A	4.6 A	±2%	360 mV	100 W /150 W	90 /92%
PM150-18A	48 V	0 A	2.10 A	3.13 A	3.5 A	±2%	480 mV	100 W /150 W	89 /92%

NOTES:
1. To order a model with PFD signal, please consult factory to get an exclusive part number distinguishing it from the standard model without PFD signal.
2. Peak output current with 10% duty cycle maximum for less than 15 seconds, average power not to exceed maximum power rating.
3. The first value of max. power is at convection cooling. The second value is with 7.5 CFM forced air provided by user.
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 10 µF tantalum (or electrolytic) capacitor in parallel with a 0.1 µF ceramic capacitor across the output except model PM150-12A which is with a 47 µF tantalum (or electrolytic) capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

MECHANICAL SPECIFICATIONS

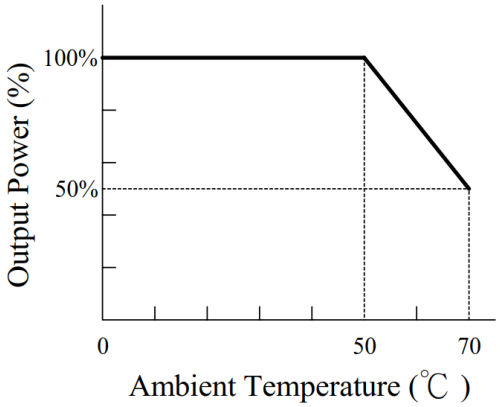


NOTES:
1. Dimensions shown in inches [mm], tolerance 0.02 [0.5] maximum.
2. Input connector P1: JST header P/N B3P-VH, mating with JST housing P/N VHR-3N or equivalent.
3. Output connector P2: JST header P/N B8P-VH, mating with JST housing P/N VHR-8N or equivalent.
4. Connector P3: JST header B4B-PH-K-S (LF) (SN) , mating with JST housing PHR-4 or equivalent.
5. FAN connector P4: JST header B2B-PH-K-S (LF) (SN) , mating with JST housing PHR-2 or equivalent.
6. Ground tab is 0.25 [6.35] × 0.032 [0.8] fast-on connector.
7. PCB form, to ensure compliance with level B emissions, connect the three "∗" marked mounting holes with metallic standoffs to chassis.
8. Weight: 200 grams (0.44 lbs.) approx.

INTERFACE SIGNALS

PFD: TTL logic high for normal operation and TTL logic low upon loss of input power. This signal appears at least 1ms prior to V1 output dropping 5% below its nominal value. This signal also provides a minimum delay of 100 ms after V1 is within regulation.

OUTPUT POWER DERATING CURVE



PIN CHART

Connector	P1			P2							
PIN NO.	1	2	3	1	2	3	4	5	6	7	8
Polarity	Live	Void	Neutral	+V1				Common Return			

Connector	P3				P4	
PIN NO.	1	2	3	4	1	2
Polarity	+Sense	-Sense	PFD (Optional)	Common Return	+12V Fan	Fan Return (Isolated)