

# **100-150 WATT MEDICAL & ITE POWER SUPPLIES**

### DESCRIPTION

The PM150 series of AC-DC switching power supplies in a package of 2 x 4 x 1.3 inches a 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, but not for life-supporting equipment. The units are certified also to IEC /EN /UL /CSA 60950-1 and suitable for data networking, computer and telecommunication applications.

## FEATURES

- BF Class insulation
- Yoperation up to 5000 meters
  2 x 4 inch footprint with 1.3 inch low profile
  Less than 275 µA leakage current
- \* High efficiency 89% typical \* Compliant with RoHS requirements

- \* Meet EN55011 /55022 and FCC Class B \* 100-240 VAC input with active PFC \* No load power consumption less than 0.5W without PFD or 1W with PFD
- \* Power Fail Detect (PFD) signal (option)
- \* 100% burn-in at full load

#### INPUT SPECIFICATIONS 90-264 Vac

Input Range:

- Input Frequency: Input Current:
- 47-63 Hz 1.7 A (rms) for 115 VAC 0.85 A (rms) for 230 VAC
- Earth Leakage Current:

## 275 µA max. @ 264 VAC, 63 Hz

## OUTPUT SPECIFICATIONS

Output Voltage/Current:	see rating chart.	
Max. Output Power:	see rating chart.	
Ripple & Noise:	see rating chart.	
Remote sense:	Compensation for cable loss up to 0.5 V	
Over Voltage Protection:	Set at 112-140% of nominal output voltage	
Over Current Protection:	Protected to output short circuit conditions	
Temperature coefficient:	All outputs ±0.04% /°C maximum	
Transient response:	Maximum excursion of 4%, 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)	

-40°C to +85°C

#### ENVIRONMENTAL SPECIFICATIONS 0°C to +70°C

Operating Temperature:
Storage Temperature:
Relative Humidity:
Derating:
0

5% to 95% non-condensing Derate from 100% at +50°C linearly to 50% at +70 °C, applicable to convection and forced-air cooling conditions

INTERFACE SIGNALS PFD: TTL logic h 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

#### OUTPUT RATING CHART

				Output		Average Active Effic				
Model Name	V1 Min load Min. Peak Tol Rip		Ripple & Noise	Max. PowerMax. Powerat convectionat 7.5 CFM115/230 Vac115/230 Vac		Max. Output Watt.				
PM150-12A	12.0 V	0,0 A	8,35 A	12,50 A	14,00 A	±2%	120mV	87 /89%	86 /88%	100 W /150 W
PM150-13A	15.0 V	0,0 A	6,70 A	10,00 A	11,00 A	±2%	150mV	87 /89%	86 /88%	100 W /150 W
PM150-13-1A	18.0 V	0,0 A	5,56 A	8,34 A	9,20 A	±2%	180mV	87 /89%	86 /88%	100 W /150 W
PM150-14A	24.0 V	0,0 A	4,20 A	6,25 A	7,00 A	±2%	240mV	87 /89%	86 /88%	100 W /150 W
PM150-16A	30.0 V	0,0 A	3,34 A	5,00 A	5,60 A	±2%	300mV	87 /89%	86 /88%	100 W /150 W
PM150-17A	36.0 V	0,0 A	2,78 A	4,17 A	4,60 A	±2%	360mV	87 /89%	86 /88%	100 W /150 W
PM150-18A	48.0 V	0,0 A	2,10 A	3,13 A	3,50 A	±2%	480mV	87 /89%	86 /88%	100 W /150 W

\*Peak output current with 10% duty cycle maximum for less than 15 seconds, average power not to exceed maximum power rating

\*The first value of max. power is at convection cooling. The second value is with 7.5 CFM forced air provided by user

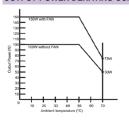
\*Ripple and noise is maximum peak to peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10  $\mu$ F tantalum capacitor in parallel with a 0.1  $\mu$ F ceramic capacitor across the output.

#### MECHANICAL SPECIFICATIONS



1.29133 1.20[3 Î

### OUTPUT POWER DERATING CURVE



#### PIN CHART

nter 0.22 [ 5.6 ]

Connector		P2												
PIN NO.	1	2		3	1	2	2 3 4			5	6	7	8	
Polarity	Neutral	Void	L	.ive	Common Return					+V1				
Connector	r P3 P4													
	FU F4													
PIN NO.	1	2	2		3			4			1		2	
Polarity	Common Return	PFD	PFD		-Sense			+Sense			Fan Return (Isolated)		+12V Fan	

\* Dimension : shown in inches [mm] Tolerance 0.02 [0.5] maximum

\* Weight: 200 grams (0.44 lbs.) approx.

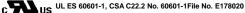
equivalent.

equivalent.

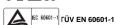
equivalent.



#### SAFETY STANDARD APPROVALS



133KHz (typical)



4

PM150 SERIES

UL 60950-1, CSA C22.2 No. 60950-1

BALLART GEPRÖFT TYPE TÜV EN 60950-1

## GENERAL SPECIFICATIONS

OFFICIAL OF FO
Switching frequency:
Efficiency (Typical):
Hold-up time:
Line regulation:
Inrush Current:
Withstand voltage:
MTBF:
EMC Performance:
EN55011:

FCC: VCCI:

EN61000-3-2: EN61000-3-3: EN61000-4-2:

EN61000-4-3:

EN61000-4-4

EN61000-4-5:

EN61000-4-6

EN61000-4-8: EN61000-4-11:

See rating chart 10 ms minimum at 120 VAC ±0.5% maximum at full load 80A@115V, or 160A@230V, at 25°C cold start 4000 VAC from input to output (2 MOPP) 1500 VAC from input to ground (1 MOPP) 1500 VAC from output to ground 250,000 hours at full load at 25°C ambient calculated per MIL-HDBK-217F Class B conducted, class B radiated

Medical Open Frame

Class B conducted, class B radiated Class B conducted, class B radiated Harmonic distortion, class A and D Line flicker ESD, ±8 KV air and ±6 KV contact Radiated immunity, 3 V/m Fast transient/burst, ±2 KV Surge, ±1 KV diff., ±2 KV com Conducted immunity, 3 Vrms Magnetic field immunity, 3 A/m Voltage dip immunity, 30% reduction for 500ms, 60% reduction for 100 ms, and >95% reduction for 10 ms

\* Input connector P1: JST header P/N B3P-VH, mating with JST housing P/N VHR-3N or

\* Output connector P2: JST header P/N B8P-VH, mating with JST housing P/N VHR-8N or

\* Connector P3: JST header B4B-PH-K-S (LF) (SN) , mating with JST housing PHR-4 or

 $^{\star}$  FAN connector P4: JST header B2B-PH-K-S (LF) (SN) , mating with JST housing PHR-2 or equivalent.

\* Ground tab is 0.25 [6.35] × 0.032 [0.8] fast-on connector.

