SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPM-A30H

Revision History					
Version	Revise Date	Change Items			
Rev. 01	Oct. 16. 2007	Adding index page with safety logos.			
Rev. 02	Apr. 25. 2008	Adding derating curve.			
Rev. 03	Jun. 3. 2008	Update operating temperature.			
Rev. 04	Oct. 17. 2008	Adding UL logo as approved.			
Rev. 05	Mar. 28. 2011	Update the safety approved status.			
Rev. 06	Jun. 18. 2012	Update output connector TB3 and TB4 to be JST B2B-XH-A or equivalent.			
Rev. 07	July. 23. 2012	Update safety approvals status.			
Rev. 08	Feb. 13. 2018	Changed form.			
Rev. 09	Mar. 8. 2018	1.Added Designed to meet IEC 60601-1-2 4th ed. EMC. 2.Changed EMC and Safety Approvals.			





FEATURES

CLASS

The MPM-A30H is a medical grade 300W open frame AC/DC switching mode power supply with active PFC. It features a thermally efficient 1U chassis design with ATX output and no noise quality. This is an ideal fan-less power supply for designing ultra quiet, medical and/or industrial grade systems.
Designed to meet IEC 60601-1-2 4th ed. EMC.

Models & Ratings

Model Number	Wattage	Output	Voltage	Min. Current	Rated Current	Max. Current
	300 W	V1	+5 V	3.0 A	20.0 A	25.0 A
		V2	+12 V	1.0 A	12.0 A	15.0 A
		V3	-12 V	0 A	1.0 A	-
МРМ-АЗОП		V4	-5 V	0 A	0.5 A	-
		V5	+3.3 V	3.0 A	10.0 A	20.0 A
		V6	+5VsB	0 A	1.0 A	2.0 A

Note:

1. At factory, all outputs in 60% rated load and normal line condition, the +5V output is set to between 5.05V and 5.15V the other outputs are checked to be within the specified voltage range.

2. The +12V output peak load of 18A can last 5 seconds, all other outputs at rated load, at nominal line. Regulation can meet ±10%.

Summary					
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Range	90	115 / 230	264	VAC	Continuous input range.
Input Frequency	47		63	Hz	AC input.
Efficiency		80		%	While measuring at nominal line and rated load.
Operating Temperature	-30		70	°C	-30°C could start up. 50°C~70°C could work derating.
Dimensions 250.5 (L) x 16		5.0 (W) x 41.0 (H	H) mm		
EMC	FCC, EN 5501 EN 61000-4-2	55011, EN 60601-1-2, EN 61000-3-2, EN 61000-3-3, EN 61204-3,)-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8			
Safety Approvals	EN 60601-1: 2	2006, IEC 60601	-1: 2005, UL 606	601-1, 1 st Edit	ion, 2006-04-26, CAN/CSA-C22.2 No. 601.1-M90, 2005



Input					
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	90	115 / 230	264	VAC	Continuous input range.
Input Frequency	47		63	Hz	AC input.
Input Current			6/3	А	Nominal AC Input Voltage (115VAC/230VAC), rated load.
Inrush Current			30 / 60	A	Nominal AC Input Voltage (115VAC/230VAC), one cycle at 25°C.

Output								
Character	ristic	Minimum	Typical	Maximum	Units	Notes & Conditions		
			+5 V					
			+12 V		-			
			-12 V					
Output Voltage			-5 V		DC			
			+3.3 V					
			+5VsB					
			3.0		А	Output Voltage +5V, +3.3V		
Minimum Load			1.0			Output Voltage +12V		
			0		А	Output Voltage -12V, -5V, +5Vsb		
Hold Up Time			20		mS	At 115VAC input and rated load, which is measured from the end of the last charging pulse to when the main output drops down to 95% output voltage.		
Line Regulation			$\begin{array}{c} \pm 1^{(V1)} \\ \pm 1^{(V2)} \\ \pm 1^{(V3)} \\ \pm 1^{(V4)} \\ \pm 1^{(V5)} \\ \pm 1^{(V6)} \end{array}$		%	The output line regulation for all output are less than +/-1% while measuring at rated load and +/-10% of normal line input voltage changing.		
Load Regulation			$\begin{array}{c} \pm 5^{(V1)} \\ \pm 5^{(V2)} \\ \pm 10^{(V3)} \\ \pm 10^{(V4)} \\ \pm 5^{(V5)} \\ \pm 5^{(V6)} \end{array}$		%	The output voltage load regulation is less than the values in the following table by changing each output load +/-40% from 60% rated load normal line, and keep all other outputs at 60% rated load.		
	5.1 V	4.75		5.35		6A to 20A		
Dynamic load	12 V	11.4		12.6	V	3.6A to 12A		
10.190	3.3 V	3.14		3.47		3A to 10A		
Ripple & Noise			50 ^(V1) 50 ^(V5)		mV	The other outputs shall be less than 1% of each output voltage at rated load, normal line. Measuring is done by 20MHz bandwidth limited oscilloscope and terminated each output with a 47μ F Electrolytic Capacitor and a 0.47 μ F Ceramic Capacitor.		
Overvoltage Protection		For some reas down the outp +3.3V, 5.7V to be cycled OFF	ome reasons the power supply might fail to control itself, the build-in crowbar circuit will automatically shut the outputs to avoid damaging the external circuits. The trip point of O.V.P circuit is around 3.6V to 5V for /, 5.7V to 7.0V for +5V and 13.4 to 15.6V for +12V. The recover from over voltage protection the AC line shall cled OFF and ON.					
Short Circuit Pro	otection	The power sup condition is re	oply will go into moved the powe	hiccup mode wh er supply will aut	en a short circu omatically resta	uit or overload condition is present. If the faulty art. The -5V is protected by the regulator.		
Thermal protect	ion	When the pow automatically	power supply is operating over the temperature or over load limit, the power supply will shut down ally to protect itself.					



General						
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions	
Efficiency		80		%	While measuring at nominal line and rated load.	
Switching Frequency		65		KHZ		
Power Good Signal When power is (Only with –SB model) within regulation		s turned on, the on limits, at rate	power good sigr d load and norm	nal will go high al line.	100ms to 500ms after all output DC voltages are	
Power Fail Signal (Only with –SB model)	The power fail signal will go low 1ms typical before any of the output voltages fall below the regulation limits, at rated load and normal line.					
Power On/Off This TTL comp secondary con		patible signal is nmon all outputs	used to switch C s except +5Vsb s	N the main out shall turn off.	tput. When power on is disconnected from the	

Environmental						
Chara	cteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature		-30		70	°C	-30 $^\circ\text{C}$ could start up. 50 $^\circ\text{C}$ ~70 $^\circ\text{C}$ could work derating.
Storage Tem	perature	-40		+70	°C	
Relative Hum	nidity	5		95	%RH	Non-condensing.
Operating / Non-Operating Altitude			10000		Feet	
Non- operation		10Hz to 55Hz	at 3G, 3 minutes p	period, 30 minu		
VIDIATION	Operation	10Hz to 55Hz	at 2G, 3 minutes p	period, 30 minu		
Shock	Non- operation	30G for 11ms	half sine wave, on			
	Operation	15G for 11ms	half sine wave, on	e time for eacl		



EMC: Emissions

Phenomenon	Standard	Class	Notes & Conditions
Conducted	FCC, EN 55011, EN 60601-1-2, EN 61204-3	В	
Radiated	FCC, EN 55011, EN 60601-1-2, EN 61204-3	В	
Harmonic Current	EN 61000-3-2	D	
Voltage Flicker	EN 61000-3-3	D	

EMC: Immunity			
Phenomenon	Standard	Criteria	Notes & Conditions
ESD	EN 61000-4-2	А	4KV contact; 8KV air discharge. Target with criterion A.
Radiated	EN 61000-4-3	А	10V/m, 80 - 2700MHz
EFT	EN 61000-4-4	А	2KV. Target with criterion A.
Surges	EN 61000-4-5	А	Line to Line 1KV; Line to GND 2KV. Target with criterion A.
Conducted	EN 61000-4-6	А	10V/m with 80% AM criterion A.
Power Magnetic	EN 61000-4-8	А	30A/m criterion A.
		А	DIP: >95%, 0.5 cycle
Dine and Intermuntions	EN 64000 4 44	А	DIP: 30%, 25 / 30 cycles
Dips and interruptions	EN 01000-4-11	А	DIP: 100%, 1 cycle
		В	INT: 100%, 5 Sec.

Note:

1. Above specification is applied with output equal or below 300W. For higher output power, please re-confirm with us.

Safety Approvals		
Safety Agency	Safety Standard	Notes & Conditions
TUV	EN 60601-1: 2006	Designed to meet.
СВ	IEC 60601-1: 2005	Approved.
UL/cUL	UL 60601-1, 1 st Edition, 2006-04-26 CAN/CSA-C22.2 No. 601.1-M90, 2005	Approved.



Mechanical Details

SIZE : 250.5 (L) x 165.0 (W) x 41.0 (H) mm.







AC Connectors

TB1: IEC 320 / C14 appliance inlet, black.

DC Connectors

TB2: American terminal block, Dinkle type 2EHDVM or equivalent, 8pin.

TB3: Remote ON/OFF connector, JST B2B-XH-A or equivalent.

TB4: PG/PF connector, JST B2B-XH-A or equivalent.

