



# SPECIFICATION

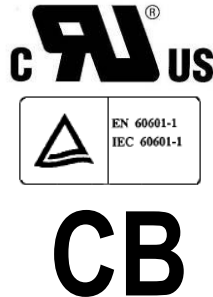
For

SWITCHING POWER SUPPLY

**M/N: MPM-815H**

## Revision Index

REV.	Dec. 26 <sup>th</sup> 2007	1. Adding TUV, CB, and UL logos as approved, part 5 updated. 2. Condition of the cover assembled is added with the derating curve.
REV.	Feb. 14 <sup>th</sup> 2008	Correct typing error from “convention” to “convection”.
REV.	Apr. 29 <sup>th</sup> 2008	Update mechanical drawing.
REV.	Jul. 23 <sup>rd</sup> 2008	Update Short Circuit Protection description.
REV.	Oct. 27 <sup>th</sup> 2008	Update info for the option with cover provided.
REV.	Mar. 16 <sup>th</sup> 2009	Update mechanical dimension (Height).
REV.	Nov. 4 <sup>th</sup> 2010	Update spec of fixed screws.
REV.	Mar. 28 <sup>th</sup> 2011	Update the safety approved status.
REV.	Apr. 26 <sup>th</sup> 2012	Update the safety approved status.



## FEATURES

- 1U 150W convection cooling with ATX
- Input Active PFC for Medical purpose
- Power Good / Power Fail signal
- +5V Stand by & Remote On/Off
- MTBF>130,000 hr. Mil-217F at 50°C
- Thermal protection.
- IEC, EN 60601-1 3<sup>rd</sup> edition approved

## 1. Description

MPM-815H is a 150W ATX power supply with active PFC for medical system application. The device utilizes a thermally efficient U channel chassis design and to be convection cooling.

Output Voltage	Min. Output Current	Rated Output Current	Max. Output Current <sup>(Note 1)</sup>	Line Regulation	Load Regulation	Ripple & Noise p-p <sup>(Note 2)</sup>	Initial Setting Accuracy <sup>(Note 3)</sup>
+5V	1A	11A	14A	±1%	±2%	50mV	5.05V to 5.15V
+12V	0A	5A	10A	±1%	±4%	100mV	11.6V to 12.6V
-12V	0A	0.5A	1A	±1%	±5%	150mV	-11.4V to -12.6V
+3.3V	0A	7.5A	12A	±1%	±4%	50mV	3.20V to 3.40V
+5Vsb	0A	0.75A	1.5A	±1%	±4%	100mV	4.80V to 5.20V

**Total Output Power: 150W at 50°C environment temperature<sup>(Note 4)</sup>.**

- Note: 1) The maximum total combined output power on the +3.3V and +5V rails is 90W.  
 2) Measured by a 20MHz bandwidth limited oscilloscope and the each output is connected with a 10μF Electrolytic Capacitor and a 0.1μF Ceramic Capacitor.  
 3) Initial Setting Accuracy is at Input 110VAC and all output at 60% rated load.  
 4) The total DC continuous power shall be kept with 150W at input voltage at 110-264VAC. With input voltage 90-109VAC the total DC continuous power shall be kept with 120W max. The maximum total combined output power on the +3.3V and +5V rails is 90W. On condition of with the option cover, the maximum 150W is at 30°C environment temperature (Please see part 6 of operating temperature).

## 2. Input Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input Voltage	Continuous input range.	90	115/230	264	VAC
Input Frequency	AC input.	47		63	Hz
Hold Up Time	Nominal AC Input Voltage (115VAC), rated load.	16			ms
Input Current	Nominal AC Input Voltage (115VAC/230VAC), rated load.			4/2	A
Inrush Current	Nominal AC Input Voltage (115VAC/230VAC), one cycle at 25°C.			30/60	A
Input Protect	Non-user serviceable internally located AC input line fuse.				

## 3. Output Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Efficiency	Rated load, 115VAC. Varies with distribution of loads among output.		75		%
Minimum load					See Chart of Description
Ripple & Noise	Rated load, 20MHz bandwidth				See Chart of Description
Output Power	Continuous output power.				See Chart of Description
Line Regulation	Less than ±1% at rated load with ±10% changing in input voltage.				See Chart of Description
Load Regulation	Measured from 60% to 100% rated load and from 60% to 20% rated load (60% ±40% rated load) for each output, and others voltage setting at 60%.				See Chart of Description
Turn-on Delay	Time required for initial output voltage stabilization	0.3		6	Sec



### 4. Interface Signals and Internal Protection

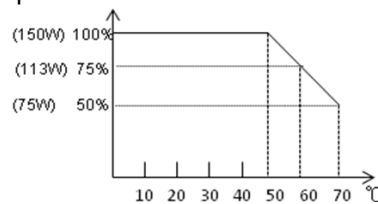
Parameter	Conditions/Description
Power On/Off	The power supply will be turned on when the power On/Off pin is connected to secondary GND.
Power Good Signal	When power is turned on, the power good signal will go high 100ms to 500ms after all output DC voltages are within regulation limits.
Power Fail Signal	The power fail signal will go low at least 1 mS before any of the output voltages fall below the regulation limits.
Short Circuit Protection	The power supply will go into hiccup mode against short circuit or over load conditions, and will auto-recovery while faulty conditions are removed.
Over Voltage Protection	For some reason the power supply fails to control itself, the build-in over voltage protection circuit will shut down the outputs to prevent damaging external circuits. The trigger point is about 5.8-6.4V at +5V. If the OVP occur, PSU cannot be recovered.
Over Temperature Protection	When the power supply operating over the temperature or over load limit, the power supply will be shut down automatically to protect itself. The protection point is at the temperature of the HS1 over 110°C. After the temperature of HS1 going down, the power supply will restart automatically.

### 5. Safety Approvals, EMI and EMS Specification

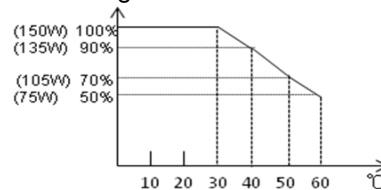
Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Approvals	IEC 60601-1, 3rd edition			CB approved	
	EN 60601-1, 3rd edition			TUV approved	
	UL 60601-1, 1st Edition, 2006-04-26			UL approved	
	CAN/CSA-C22.2 No.601.1-M90, 2005			cUL approved	
EMI	EN 60601-1-2: 2001	B			Class
PFC	EN 61000-3-2: 2000 & EN 610003-3: 2001	D			
EMS	IEC 61000-4-2: 2001, 8KV air discharge, 6KV contact discharge	3			Level
	IEC 61000-4-3: 2002, 3V/m	3			
	IEC 61000-4-4: 2004, 2KV line & PE	3			
	IEC 61000-4-5: 2001, 1KV line to line, 2KV line to PE	3			
	IEC 61000-4-6: 2004, 3V/m	3			
	IEC 61000-4-8: 2001, 3A/m	3			
	IEC 61000-4-11: 2004	3			

### 6. Environment Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Operating Temperature without the option cover (open frame)	Derate linearly above 50°C by 2.5% per °C At 100% load:	0		+50	°C
	to a maximum temperature of 70°C At 50% load:	0		+70	



Operating Temperature with the top cover version <b>Order no. MPM-815H-C</b> (see page 3 "Option")	30°C at 100% rated load, 40°C at 90% rated load and 50°C at 70% rated load as derating curve below:				
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Storage Temperature		-20		+70	°C
Relative Humidity	Non-condensing.	5		95	%RH
Altitude	Operating			10K	Feet



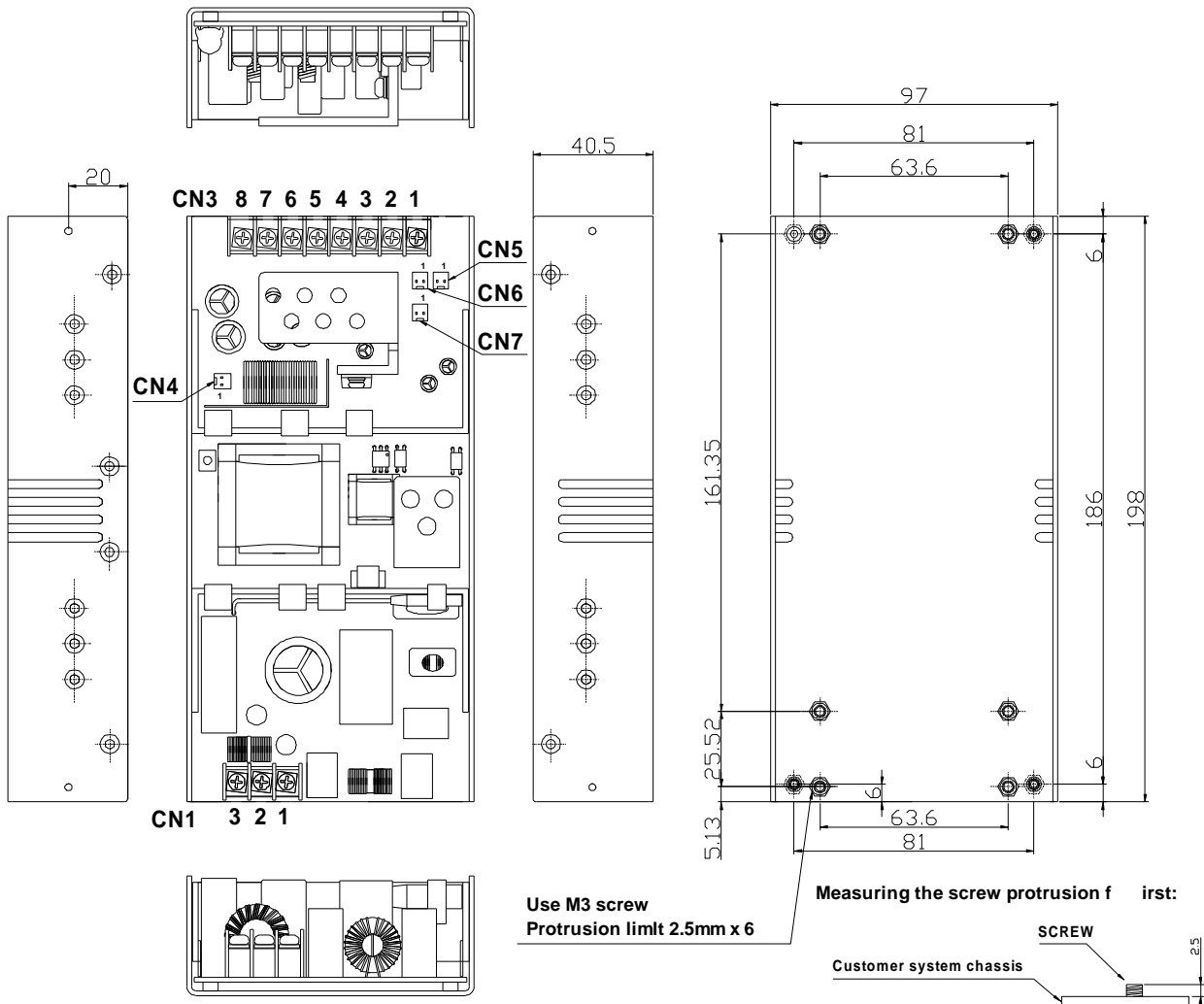
Non-operating

40K

### 7. Mechanical Specification

Parameter	Conditions/Description	
Dimension	198 (L) x 97 (W) x 40.5 (H) mm, Tolerance +/- 0.4mm.	
Connector	CN1 --- AC input: 3 Positions Terminal blocks. CN3 --- DC output: 8 Positions Terminal blocks. CN4 --- Fan output: Molex 5045-02A or equivalent CN5 --- PG/PF: Molex 5045-02A or equivalent CN6 --- PS ON/OFF: Molex 5045-02A or equivalent CN7 --- +5Vsb output: Molex 5045-02A or equivalent	
Pin Assignment	CN1 Pin 1. L 2. N 3. GND CN3 Pin 1. -12V 2. GND 3. +3.3V 4. GND 5. +5V 6. +5V 7. +12V 8. GND CN4 Pin 1. +12V 2. GND CN5 Pin 1. +5V 2. GND CN6 Pin 1. +5V 2. GND CN7 Pin 1. +5Vsb 2. GND	

### Mechanical



### 8. Option

Parameter	Conditions/Description	DIMENSIONS (mm)
Cable (No. 866-815H)	ATX connector, HDD connector x 2, FDD connector x 1	
Order No. MPM-815H-C	MPM-815H with additional top cover provided	