

SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPM-842P-F

Revision History

Version	Revise Date	Change Items
Rev. 01	Apr. 14. 2006	Extending from MPM-842P.
Rev. 02	Apr. 3. 2007	Adding fan control curve.
Rev. 03	Jan. 3. 2008	Adding cover page and additional note of fan control mode description.
Rev. 04	Jan. 30. 2008	Removing the fan control curve and update mechanical drawing.
Rev. 05	Feb. 19. 2008	Update the application note of fan control mode description.
Rev. 06	Feb. 27. 2008	Update the application note of fan control mode description.
Rev. 07	Mar. 28. 2011	Update the safety approved status.
Rev. 08	Aug. 6. 2013	Updated mechanical drawing and remove EN60950-1 in safety standard.
Rev. 09	Feb. 21. 2018	Changed form.



FEATURES

- ✓ 450W peak power and 400W continue Medical ATX power supply with Active PFC for Medical equipment application.
- ✓ Fan controlled by thermal sensor.
- ✓ Power Good/Power Fail signal.
- ✓ +5V Stand by & Remote On/Off.
- ✓ Thermal protection.
- ✓ Design to meet ATX 12V V2.0.

Models & Ratings

Model Number	Wattage (Rated / Max)	Output Voltage		Min. Current	Rated Current	Max. Current	Peak output Current (Note 1)
MPM-842P-F	400 W / 450 W	V1	+5 V	1.0 A	16.0 A	21.0 A	-
		V2	+12 V	1.0 A	21.0 A	22.0 A	25.0 A
		V3	-12 V	0 A	0.8 A	-	-
		V4	+3.3 V	0.5 A	16.0 A	22.0 A	-
		V5	+5VsB	0 A	0.75 A	1.5 A	-

Total Output Power: 450W peak and continue at 400W at 50°C environment temperature. (Note 2)

- Note:
1. +12V Peak current cannot over 10 seconds.
 2. The total DC continuous power shall be kept with 400W and peak power at 450W for maximum 10 seconds at input voltage at 100-264VAC. With input voltage 90-99VAC the total DC continuous power shall be kept with 300W max. Maximum 150W for 3.3V and 5V combined output power and maximum 383W for 3.3V, 5V, and 12V.

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		75		%	Rated load, 115VAC. Varies with distribution of loads among output.
Operating Temperature	0		70	°C	Derate linearly above 50°C by 2.5% per °C to a maximum temperature of 70°C at 50% load.
Weight		1904		g	
Dimensions	150 (L) x 140 (W) x 86 (H) mm, Tolerance +/- 0.4mm.				
EMC	EN 60601-1-2, EN 61000-3-2, EN 610003-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11				
Safety Approvals	IEC 60601-1: 1988+A1+A2, UL 60601-1, 1st Edition, 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			8	A	Nominal AC Input Voltage (90VAC), rated load.
Inrush Current			40 / 80	A	Nominal AC Input Voltage (115VAC/230VAC), one cycle at 25°C.
Input Protection	Non-user serviceable internally located AC input line fuse. Fuse : 5A / 250VAC * 2pcs				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage		+5 V		DC	
		+12 V			
		-12 V			
		+3.3 V			
		+5VsB			
Initial Set Accuracy ^(Note 1)	4.75		5.25	V	Output Voltage +5V
	11.4		12.6	V	Output Voltage +12V
	-10.80		-13.20	V	Output Voltage -12V
	3.14		3.47	V	Output Voltage +3.3V
	4.75		5.25	V	Output Voltage +5Vsb
Minimum Load		1.0		A	Output Voltage +5V, +12V
		0.5		A	Output Voltage +3.3V
		0		A	Output Voltage, -12V, +5Vsb
Hold Up Time	16			mS	Nominal AC Input Voltage (230VAC), rated load.
Line Regulation	$\pm 1^{(V1)}$ $\pm 1^{(V2)}$ $\pm 1^{(V3)}$ $\pm 1^{(V4)}$ $\pm 1^{(V5)}$			%	Less than $\pm 1\%$ at rated load with $\pm 10\%$ changing in input voltage.
Load Regulation		$\pm 5^{(V1)}$ $\pm 5^{(V2)}$ $\pm 10^{(V3)}$ $\pm 5^{(V4)}$ $\pm 5^{(V5)}$		%	Measured from 60% to 100% rated load and from 60% to 20% rated load (60% $\pm 40\%$ rated load) for each output, and others voltage setting at 60%.
Ripple & Noise		50 ^(V1) 120 ^(V2) 120 ^(V3) 50 ^(V4) 120 ^(V5)		mV	Measured by a 20MHz bandwidth limited oscilloscope and the each output is connected with a 10 μ F Electrolytic Capacitor and a 0.1 μ F Ceramic Capacitor, output at rated load and nominal input, and environment at 25°C.
Overvoltage Protection	3.76	4.2	4.9	VDC	
	5.74	6.3	7.5		
	13.4	15.0	15.6		
Short Circuit Protection	Fully protected against short circuit. Auto-recovery modes upon of short circuit condition, except 3.3V latch off mode.				
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.				

Note:

1. Initial Setting Accuracy is at Input 110VAC and all output at 60% rated load.

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		75		%	Rated load, 115VAC. Varies with distribution of loads among output.
Switching Frequency		65		KHZ	
Power Good Signal (Only with –SB model)	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 (Only with –SB model)	The power fail signal will go low at least 1 mS before any of the output voltages fall below the regulation limits.				
Power On/Off	The power supply will be turned on when the power On/Off pin is connected to secondary GND.				
Fan control	A SELV fan control daughter board with a thermal switch to sense the temperature of the secondary heat sink. The fan acts with two steps: slow speed when the temperature is low and get into high speed when the heat sink temperature over the limit. (find application note for details.)				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	0		70	°C	Derate linearly above 50°C by 2.5% per °C to a maximum temperature of 70°C at 50% load.
Storage Temperature	-20		+70	°C	
Relative Humidity	5		95	%RH	Non-condensing.

EMC: Emissions

Phenomenon	Standard	Class	Notes & Conditions
Conducted	EN 60601-1-2	B	
Radiated	EN 60601-1-2	B	
Harmonic Current	EN 61000-3-2	D	
Voltage Flicker	EN 61000-3-3	D	

EMC: Immunity

Phenomenon	Standard	Notes & Conditions
ESD	IEC 61000-4-2	8KV air discharge
Radiated	IEC 61000-4-3	3V/m
EFT	IEC 61000-4-4	2KV line & PE
Surges	IEC 61000-4-5	2KV
Conducted	IEC 61000-4-6	3V
Power Magnetic	IEC 61000-4-8	3A/m
Dips and Interruptions	IEC 61000-4-11	

Safety Approvals

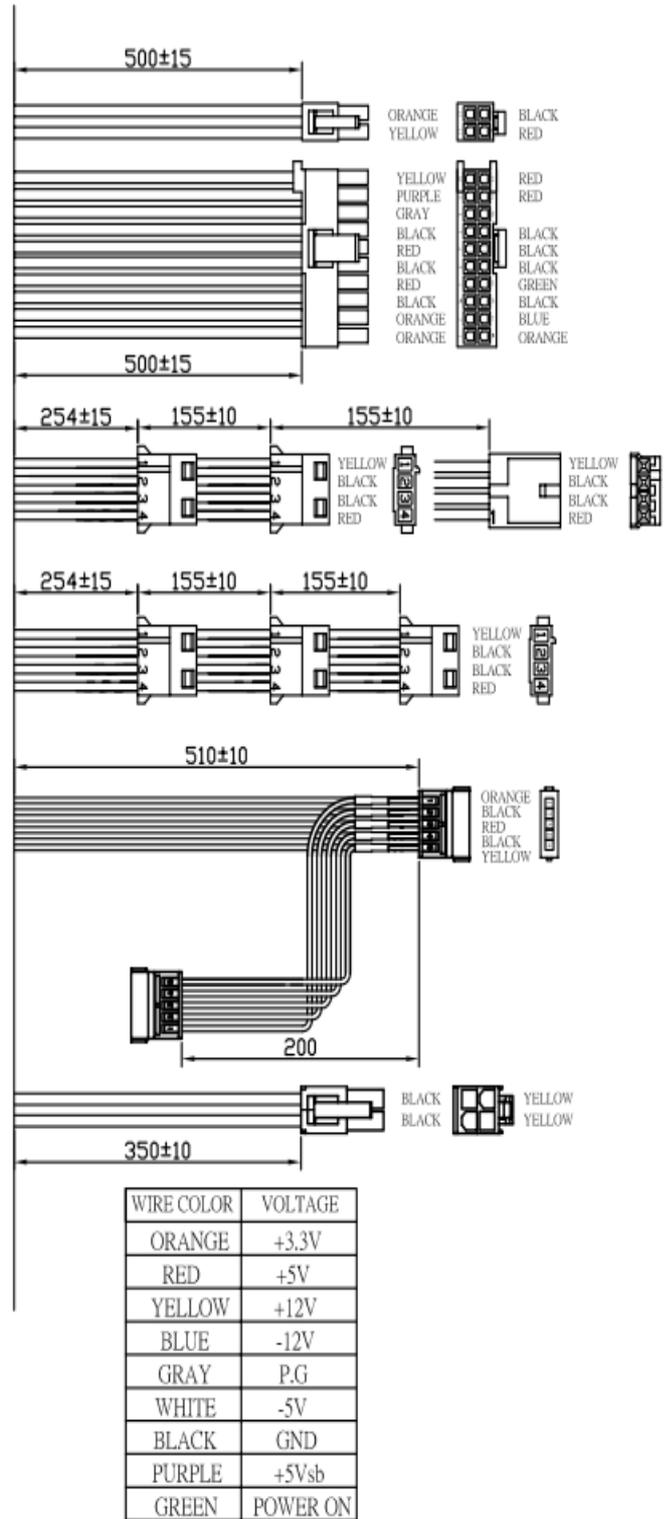
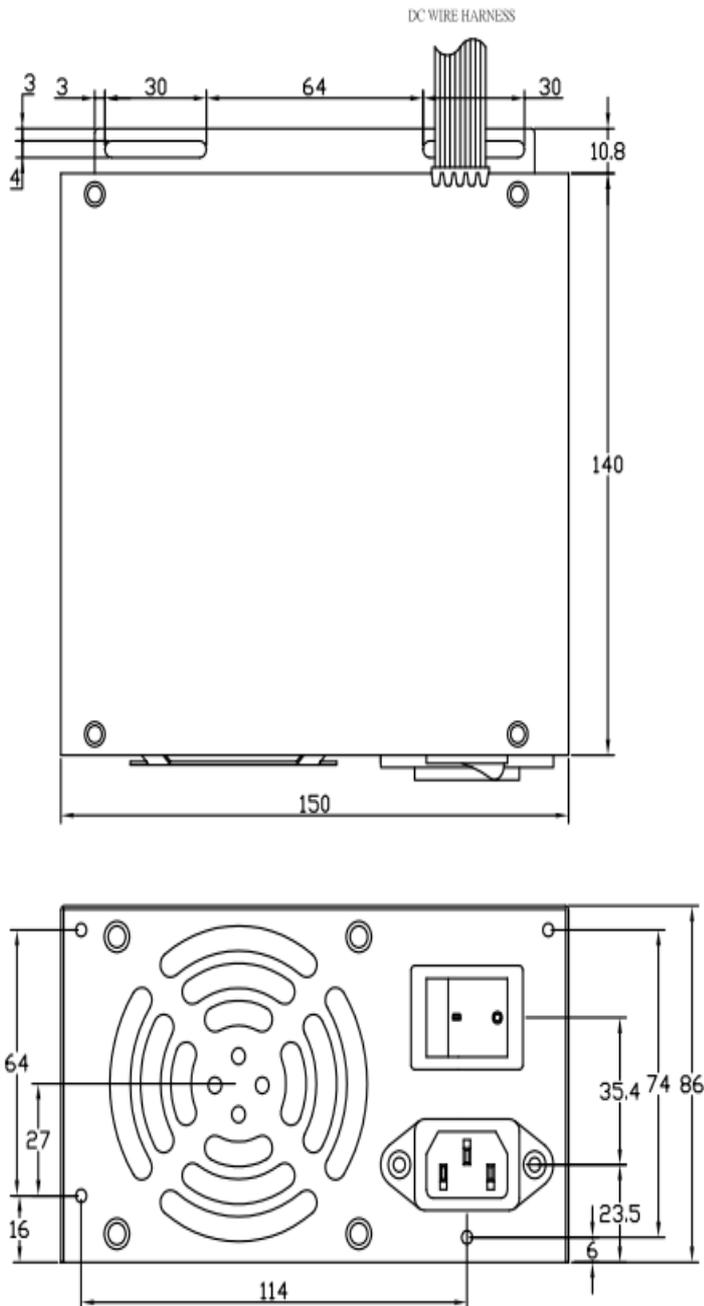
Safety Agency	Safety Standard	Notes & Conditions
CB	IEC 60601-1: 1988+A1+A2	Approved
UL/cUL	UL 60601-1, 1st Edition, 2006-04-26 CAN/CSA-C22.2 No. 601.1-M90, 2005	Approved

MPM-842P-F

400W Medical AC / DC

Mechanical Details

SIZE : 150 (L) x 140 (W) x 86 (H) mm, Tolerance +/- 0.4mm.

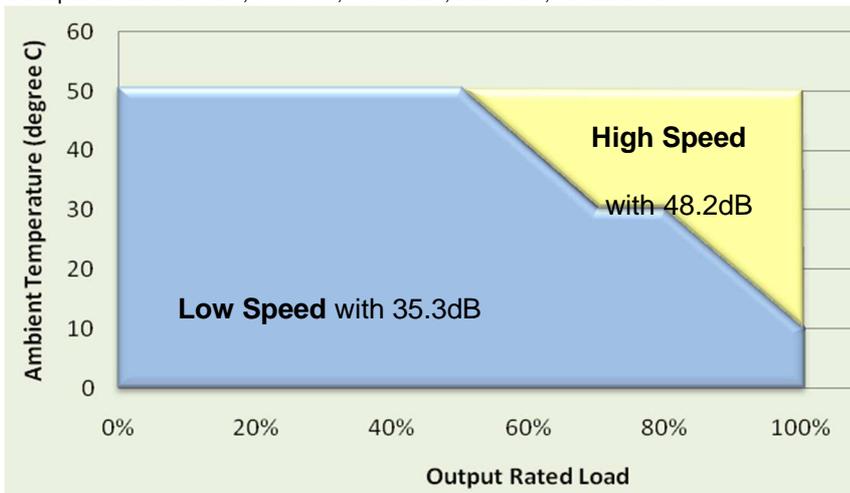


Parameter	Conditions/Description	
Dimension	150 (L) x 140 (W) x 86 (H) mm, Tolerance +/- 0.4mm.	
AC inlet and switch	AC inlet: IEC 320C 320/CEE 22 standard AC switch: Rocker switch	
DC connector	ATX:	WST P20-I42002K11 + P4-I42002K11B or equivalent.
	Disk drive:	AMP 1-480424-0 or equivalent.
	3 1/2" floppy driver:	AMP 171822-4 or equivalent.
	P4 connector:	Molex 39-01-2045 or equivalent.
	SATA:	WST P5-I12707 or equivalent.

Application Note:

Input voltage: 115VAC / 60Hz & 230VAC / 50Hz

Rated Output current: 5V/16A, 12V/21A, -12V/0.8A, 3.3V/16A, +5Vsb/0.75A



- Emission Sound Pressure Level Measurement Test by SGS Taiwan Ltd.

Thermal Considerations

In order to ensure safe operation of the PSU in the end-use equipment, the temperature of the components listed in the table below must not be exceeded.

Temperature should be monitored using J type thermocouples placed on the hottest part of the component (out of any direct air flow). See Mechanical Details for component locations.

Temperature Measurements at max. amb.	
Component	Max Temperature
T1	110°C
Q1	120°C
D7	120°C
C2	105°C
C25	105°C