



SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPM-A30H

Revision Index

REV.	101607	Adding index page with safety logos
REV.	042508	Adding derating curve
REV.	060308	Update operating temperature
REV.	101708	Adding UL logo as approved
REV.	032811	Update the safety approved status.
REV.	061812	Update output connector TB3 and TB4 to be JST B2B-XH-A or equivalent
REV.	072312	Update safety approvals status.



1.0 INTRODUCTIONS

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.

2.0 INPUT SPECIFICATIONS

2.1 Input Voltage

The range of input voltage is from 90VAC to 264VAC, normal line is 115VAC/230VAC.

2.2 Input frequency

The range of input frequency is from 47Hz to 63Hz.

2.3 Inrush current

The inrush current will not exceed 30A at 115V input or 60A at 230V input, cold start at 25°C.

2.4 Input current

The maximum input current is 6A at 115VAC or 3A at 230VAC.

2.5 Power Factor Correction

0.95 minimum at full load and nominal line input voltage.

3.0 OUTPUT SPECIFICATIONS

3.1 Load range

	Output voltage	Min. load	Rated load	Max. load	Peak load	Total voltage range
1	+5V	3A	20A	25A		4.75V to 5.35V
2	+12V	1A	12A	15A	18A	11.40V to 12.60V
3	-12V	0A	1A			-10.80V to -13.20V
4	-5V	0A	0.5A			-4.50V to -5.50V
5	+3.3V	3A	10A	20A		3.14V to 3.47V
6	+5Vsb	0A	1A	2A		4.75V to 5.25V

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.

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

3.2 Output power

The total DC continuous total power shall be kept within 300W at normal input and 50°C.

Total combined output power on the +3.3V and +12V rails is 200W maximum.

Total combined output power on +3.3V, +5V and +12V rails are 280W maximum.

3.3 Ripple and noise

The peak to peak ripple and noise for +5V and +3.3V outputs shall be less than 50mV. 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 47 μ F Electrolytic Capacitor and a 0.47 μ F Ceramic Capacitor.



3.4 Line regulation

The output line regulation for all output are less than +/-1% while measuring at rated load and +/-10% of normal line input voltage changing.

3.5 Load regulation

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.

Output #	1	+/-5%	3	+/-10%	5	+/-5%
	2	+/-5%	4	+/-10%	6	+/-5%

3.6 Dynamic load range

Output	5.1V	4.75V to 5.35V from 6A to 20A
	12V	11.4V to 12.6 from 3.6A to 12A
	3.3V	3.14V to 3.47V from 3A to 10A

All other outputs at 60% Rated load, the load change repetition rate of 50 Hz to 10K Hz.

3.7 Efficiency

The efficiency shall be 80% typical while measuring at nominal line and rated load.

3.8 Hold up time

The hold up time is 20mS typical 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.

3.9 Protection

3.9.1 Over Voltage Protection

For some reasons the power supply might fail to control itself, the build-in crowbar circuit will automatically shut down the outputs to avoid damaging the external circuits. The trip point of O.V.P circuit is around 3.6V to 5V for +3.3V, 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 be cycled OFF and ON.

3.9.2 Short circuit protection

The power supply will go into hiccup mode when a short circuit or overload condition is present. If the faulty condition is removed the power supply will automatically restart. The -5V is protected by the regulator.

3.9.3 Thermal protection

When the power supply is operating over the temperature or over load limit, the power supply will shut down automatically to protect itself.

3.10 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, at rated load and normal line.

3.11 Power fail signal

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.

3.12 Power ON/OFF

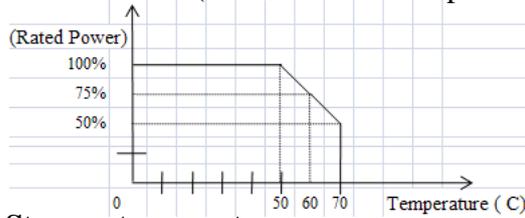
This TTL compatible signal is used to switch ON the main output. When power on is disconnected from the secondary common all outputs except +5Vsb shall turn off.



4.0 ENVIRONMENT SPECIFICATIONS

4.1 Operating temperature

-30°C to 70°C (-30°C could start up. 50°C~70°C could work derating.)



4.2 Storage temperature

-40°C to +75°C

4.3 Operating humidity

The power supply can operate from 5% humidity to 95% humidity non-condensing at 40°C.

4.4 Altitude

Will operate properly at any altitude between 0 to 10000ft.

4.5 Vibration

Non-operation : 10Hz to 55Hz at 3G, 3 minutes period, 30 minutes along X, Y, and Z axis.

Operation : 10Hz to 55Hz at 2G, 3 minutes period, 30 minutes along X, Y, and Z axis.

4.6 Shock

Non-operation : 30G for 11ms half sine wave, one time for each of ±X, ±Y, ±Z axis.

Operation : 15G for 11ms half sine wave, one time for each of ±X, ±Y, ±Z axis.

5.0 INTERNATIONAL STANDARDS

5.1 Safety standards

IEC 60601-1: 2005

TUV approved

EN 60601-1: 2006

TUV, CE approved

UL 60601-1, 1st Edition, 2006-04-26

UL approved

CAN/CSA-C22.2 No. 601.1-M90, 2005

cUL approved

5.2 EMI standards

Designed to meet the following limits:

FCC class "B"

EN 55011 class "B"

EN 60601-1-2

EN 61000-3-2 class "D"

EN 61000-3-3

EN 61204-3

5.3 EMS standards

Designed to meet the following standards:

EN 61204-3

EN 61000-4-2 4KV contact; 8KV air discharge. Target with criterion A.

EN 61000-4-3 10V/m with 80% AM criterion A

EN 61000-4-4 2KV. Target with criterion A.

EN 61000-4-5 Line to Line 1KV; Line to GND 2KV. Target with criterion A.

EN 61000-4-6 10V/m with 80% AM criterion A.

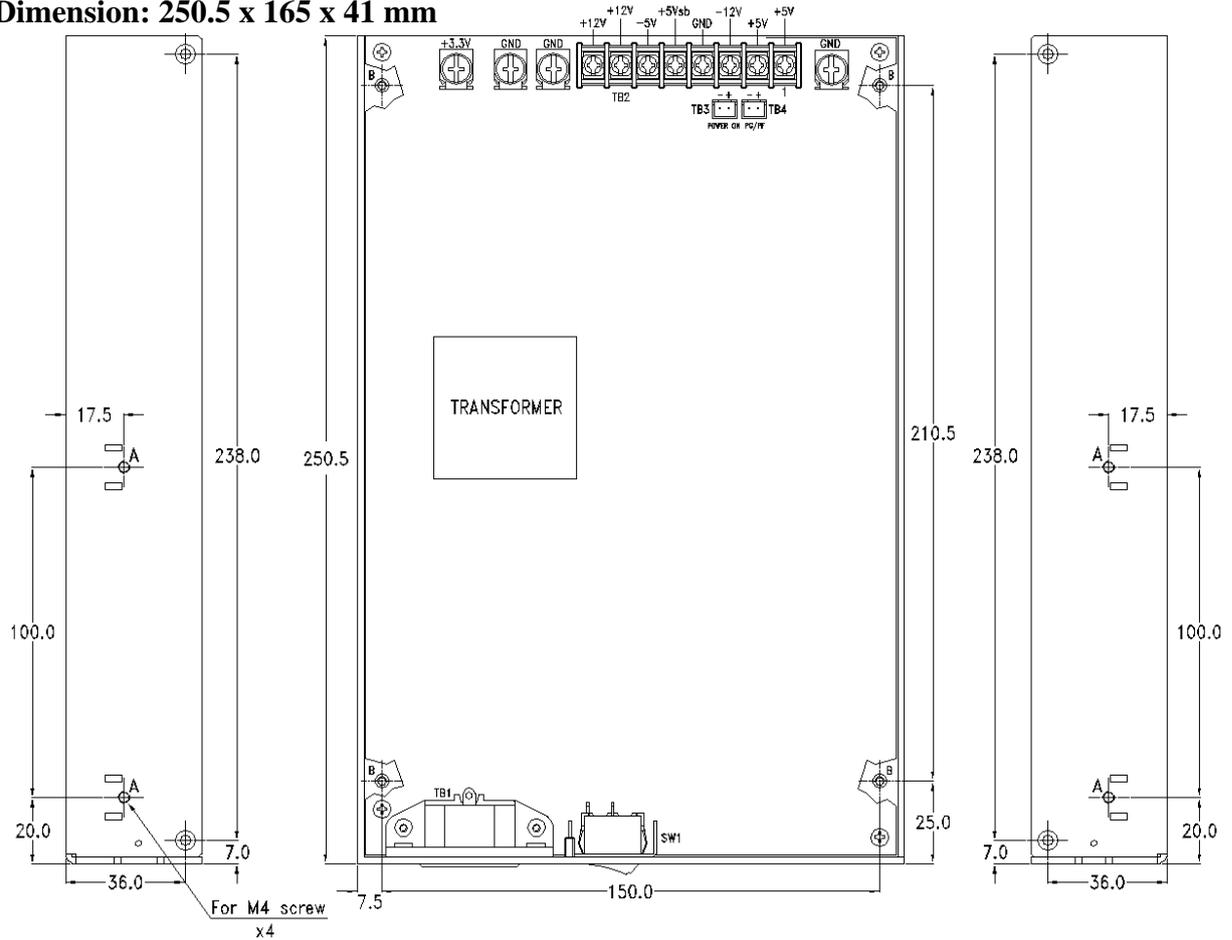
EN 61000-4-8 30A/m criterion A.

EN 61000-4-11 30% dips 10ms, criterion B; 60% dips 100ms, criterion C;
>95% dips 5000ms, criterion C



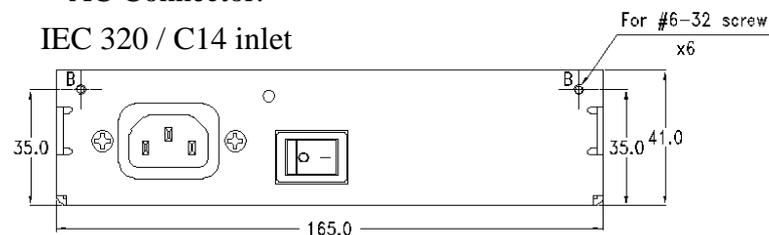
6.0 MECHANICAL SPECIFICATION

Dimension: 250.5 x 165 x 41 mm



AC Connector:

IEC 320 / C14 inlet



6.1 Dimensions

Dimensions above showed in mm.

6.2 AC Connectors

TB1: IEC 320 / C14 appliance inlet, black.

6.3 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.