

## SPECIFICATION

For

## SWITCHING POWER SUPPLY

### M/N: MPD-810H(-C)

#### Revision History

Version	Revise Date	Change Items
Rev. 01	Jan. 31. 2008	Adding derating curve at 5.1.
Rev. 02	Jul. 26. 2010	Updating minimum load of +5V is 0.5A.
Rev. 03	Mar. 28. 2011	Updated the safety approvals status.
Rev. 04	Jun. 21. 2012	Revised -12V load regulation.
Rev. 05	Jan. 11. 2018	1. Changed form. 2. Added EN 55032.
Rev. 06	Oct. 22. 2018	1. Changed EN 55022 / EN 55032 to EN 55011. 2. Added Comments / Assembling instructions.
Rev. 07	Dec. 20. 2018	Added output current to output field.
Rev. 08	Sep. 05. 2019	Added LVD 62368-1 Approved.



### FEATURES

- ✓ MPD-810H is 120 watts with forced air cooling, 85 watts with convection cooling, 10-30 VDC input, five outputs switching power supply, it is designed for use in General Purpose.
- ✓ CE-LVD EN 62368-1 Approved.



### Models & Ratings

Model Number	Wattage (Rated / Max)	Output Voltage		Min. Current	Rated Current	Max. Current
		V1	V2			
MPD-810H	85 W / 120 W	+5 V	0.5 A	8.0 A	10.0 A	
		+12 V	0 A	1.5 A	4.0 A	
		-12 V	0 A	0.5 A	1.0 A	
		+3.3 V	0 A	5.0 A	8.0 A	
		+5Vsb	0 A	0.75 A	-	

Total Output Power: 120 watts with forced air cooling, 85 watts with convection cooling.

Note:

1. At the factory, the +5V output is set between 5.08V to 5.13V and all output at 60% rated load; the other outputs are checked to be within the accuracy range. The maximum total combined output power on the +3.3V and +5V rails is 70W. The maximum load cannot exceed 120W.

2 Model no. coding:

### MPD-810H-X

1

1	X=	Mechanical
	blank	Open frame
	C	Optional cover kit

### Summary

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Range	10	12 / 24	30	VDC	
Efficiency	70			%	While measuring at nominal line and rated.
Operation Temperature	0		+50	°C	Output power is 120 watts forced air cooling, 85 watts convection cooling.
Dimensions	141.6 (L) x 83.8 (W) x 38.0 (H) mm, Tolerance +/- 0.4mm.				
EMC	FCC docket 20780 ,EN 55011, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4				
Safety Approvals	UL 60950-1 First Edition, CAN/CSA C22.2 No.60950-1, CE-LVD EN 62368-1:2014+A11:2017				

### Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	10	12 / 24	30	VDC	
Input Current			18	A	At 10 VDC Input.
Inrush Current			30	A	At 10 VDC Input.

### Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage		+5 V		DC	
		+12 V			
		-12 V			
		+3.3 V			
		+5Vsb			
Output current		8.0	10.0	A	
		1.5	4.0		
		0.5	1.0		
		5.0	8.0		
		0.75			
Initial Set Accuracy	4.95		5.15	VDC	
	11.25		12.75		
	-11.75		-13.1		
	3.0		3.5		
	4.80		5.2		
Minimum Load		0.5		A	At Output Voltage +5V
		0			At Output Voltage +12 V, -12 V, +3.3 V, +5Vsb
Line Regulation		±2.5 <sup>(V1)</sup> ±2.5 <sup>(V2)</sup> ±2.5 <sup>(V3)</sup> ±2.5 <sup>(V4)</sup> ±2.5 <sup>(V5)</sup>		%	Less than ±2.5% at rated load with ±10% changing in input voltage.
Load Regulation		±2.0 <sup>(V1)</sup> ±5.0 <sup>(V2)</sup> ±6.0 <sup>(V3)</sup> ±5.0 <sup>(V4)</sup>		%	While the measuring is done by changing the measured output loading ±40% from 60% rated load , and keep other output is at 60% rated load.
Ripple & Noise		100 <sup>(V1)</sup> 120 <sup>(V2)</sup> 200 <sup>(V3)</sup> 100 <sup>(V4)</sup> 120 <sup>(V5)</sup>		mV	At rated load and nominal input, which is measured by a 20MHz bandwidth limited oscilloscope and the each output is connected with a 0.47µF capacitor.
Short Circuit Protection	Output short circuit is defined to be a short circuit load of less than 0.1 ohm. The power supply will generate the hiccup mode to protect itself, and shall return to normal after the short circuit has been removed.				
Over Load Protection	The power supply will generate the hiccup mode while output loading over 110% to 150% of maximum wattage to protect itself, and shall return to normal after the over load condition has been removed.				
Power On / Off	The power supply will start-up when the power On/Off pin be connected to secondary GND.				
Power good signal	The power is turned on, the power good signal will go high between 100ms to 500ms after all output DC voltage are within regulation limits.				
Power fail signal	The power fail signal will go low at least 1ms before any of the output voltages fall below the regulation limits.				

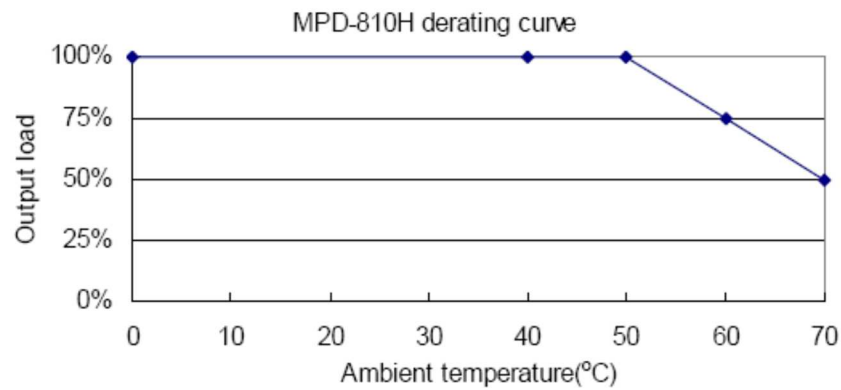
### Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operation Temperature	0		+50	°C	Derate linearly above 50°C by 2.5% per °C to a maximum temperature of 70°C
Storage Temperature	-40		+70	°C	
Relative Humidity	10		90	%RH	Non-condensing.
Cooling	18.0			CFM	Forced-cooled > 85W
Operating Altitude	0		10000	Feet	

### Derating curve

Input: 12VDC

Output: +5V/8A, +12V/1.5A, -12V/0.08A, +3.3V/5A



## EMC: Emissions

Phenomenon	Standard	Class	Notes & Conditions
Conducted	FCC docket 20780, EN 55011	B	
Radiated	FCC docket 20780, EN 55011	B	

## EMC: Immunity

Phenomenon	Standard	Level	Notes & Conditions
ESD	IEC 61000-4-2	3	±8KV air discharge
Radiated	IEC 61000-4-3	3	3V/m
EFT	IEC 61000-4-4	3	2KV

## Safety Approvals

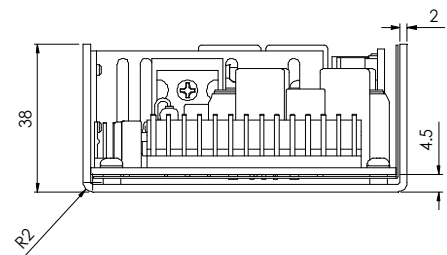
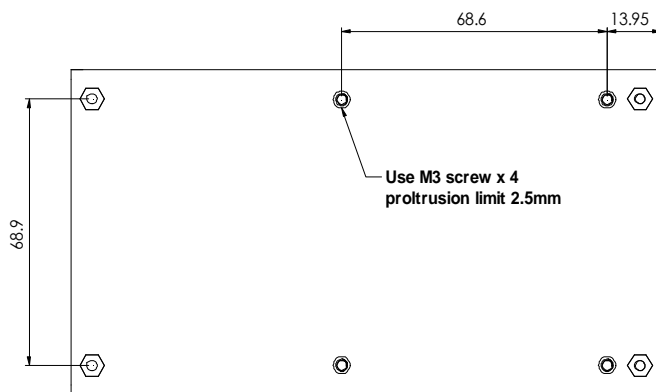
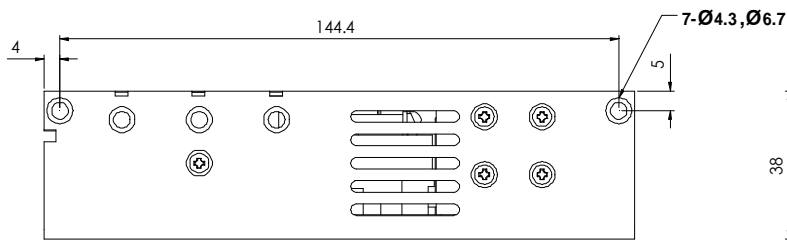
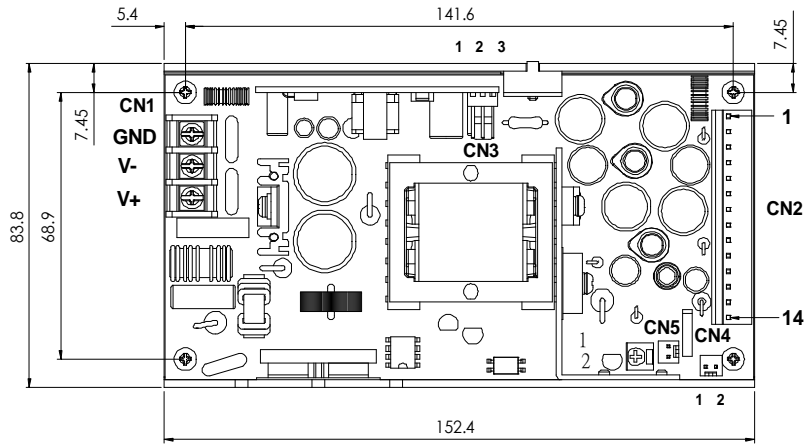
Safety Agency	Safety Standard	Notes & Conditions
UL/cUL	UL 60950-1 First Edition, CAN/CSA C22.2 No.60950-1	Approved.
CE-LVD	EN 62368-1:2014+A11:2017	Approved.

## Comments / Assembling

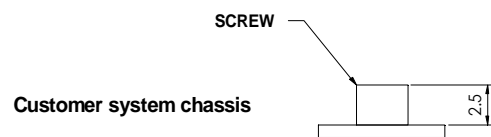
1. Unit is not designed to be used directly as a stand alone unit by end users. Assembling only by professionals.
2. Must be assembled into a RF sealed metal enclosure.
3. End customer is responsible to comply with EMC and safety regulations.

### Mechanical Details

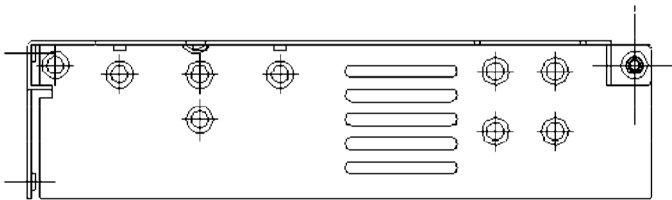
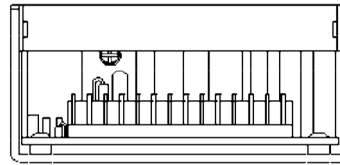
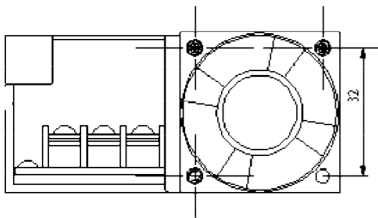
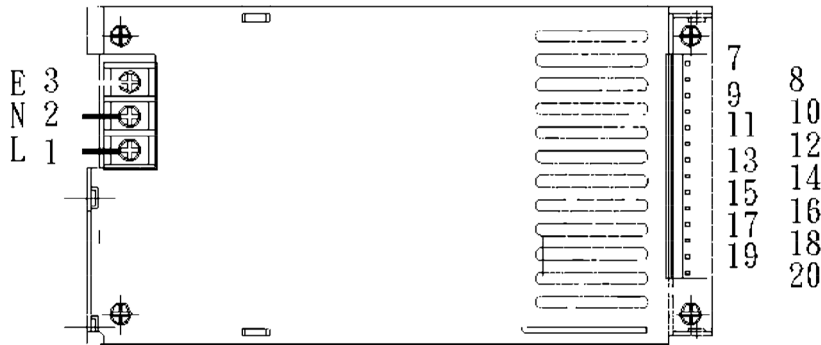
SIZE : 141.6(L) x 83.8(W) x 38.0(H)mm, Tolerance specified is  $\pm 0.4$ mm.



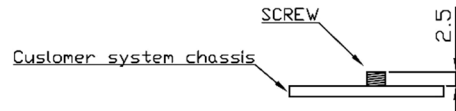
measuring the screw protrusion first:



For m/n: MPD-810H-C



Measuring the screw protrusion first:



### Connectors

CN1—DC input	:	Dinkle DT-35-B01W-03 or equivalent.
CN2—DC output	:	Molex 5273-14A or equivalent.
CN3—DC output	:	Molex 5045-03A or equivalent.
CN4—Power Good output	:	Molex 5045-02A or equivalent.
CN5—Fan output	:	Molex 5045-02A or equivalent

### DC output pin assignment

CN2	Pin	1.	+5V	6.	GND	11.	+3.3V
		2.	+5V	7.	GND	12.	+3.3V
		3.	+5V	8.	GND	13.	+3.3V
		4.	GND	9.	+12V	14.	-12V
		5.	GND	10.	+12V		
CN3	Pin	1.	Power ON/OFF				
		2.	GND				
		3.	+5Vsb				
CN4	Pin	1.	GND	2.	Power Good		
CN5	Pin	1.	GND	2.	+12V (for fan)		