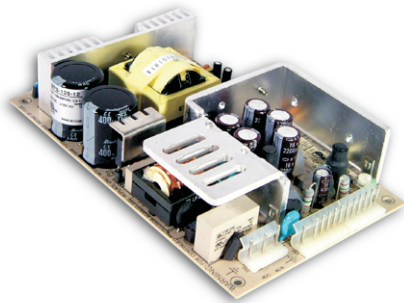




1~4 Output Medical Type

# 120W Medical series



## Specification

### AC INPUT VOLTAGE

90~264 VAC, 47~440Hz / 127~370VDC.

### AC INPUT CURRENT (Typ.)

Maximum input current 2.9A at 115VAC, 60Hz or 1.7A at 230VAC, 60Hz with 100% output load.

### INRUSH CURRENT (Typ.)

Inrush current is less than 22A at 115VAC or less than 45A at 230VAC under cold start conditions. Limiting provided by internal thermistors.

### SETUP, RISE TIME

MPS-120: 800ms, 20ms / 230VAC at full load  
2000ms, 50ms / 115VAC at full load  
MPD,T,Q-120:500ms, 20ms / 230VAC at full load  
1200ms, 50ms / 115VAC at full load

### HOLD-UP TIME (Typ.)

80ms / 230VAC at full load  
14ms / 115VAC at full load

### LEAKAGE CURRENT

Leakage current is less than 180 $\mu$ A at 264VAC

### DC OUTPUT ADJ. RANGE

DC output voltage (or Ch1 of multiple output models) can be adjusted between -5%~+10% rated output voltage by potential meter.

### OVERLOAD PROTECTION

Fully protected against short circuit and output overload. The hiccup type protection will be activated at 110~150% (For MPD,T,Q-120), 120~160%(For MPS-120) rated load and recovers automatically after fault condition is removed.

### OVER VOLTAGE PROTECTION

Provided on output channel 1 only at 115%~135% rated output voltage. (120%~140% for MPS-120-15/24/48). Output will be shut down when this protection is activated.

### POWER GOOD / FAIL SIGNAL (OPTIONAL)

TTL logic high for power good and TTL low for power fail. When the output voltage reaches 90% of rated value, a +5V TTL signal will be sent out with a 10~500ms delay; At least 1ms before the output voltage goes below 90% of the rated value, the TTL signal will be turned off.

\* MPS-120-3.3 does not have this optional function.

### WORKING TEMP.

Whole series can operate from -20~70 $^{\circ}$ C. Please refer to the derating curves.

### WORKING HUMIDITY

20~90% RH non-condensing.

### STORAGE TEMP., HUMIDITY

-40~+85 $^{\circ}$ C, 10~90% RH

## Features

- Universal AC input / Full range
- Low leakage current <180 $\mu$ A
- Protections: Short circuit / Overload / Over voltage
- UL60601-1 medical safety approved
- With power good and fail signal output (Optional)
- 100% full load burn-in test
- Fixed switching frequency at 45KHz
- 3 years warranty



### TEMP. COEFFICIENT

$\pm$ 0.04%/ $^{\circ}$ C on all outputs at full load between 0~50 $^{\circ}$ C of ambient temperature.

### VIBRATION

2G of acceleration, vibrating frequency adjust from 10Hz ~500Hz within a 10-minute cycle. 6 testing cycles (60 minutes) each along X, Y, Z axes.

### SAFETY STANDARDS

Medical : UL60601-1, TUV EN60601-1, IEC60601-1 approved  
Commercial : Also design refer to UL60950-1, TUV EN60950-1

### WITHSTAND VOLTAGE

4000VAC between input and output  
1500VAC between input and F.G.  
500VAC between output and F.G.

### ISOLATION RESISTANCE

>100M Ohms for I/P-O/P, I/P-FG, O/P-FG by using 500VDC test voltage.

### EMI COMPLIANCE

EMI Specifications  
Conducted & Radiation  
  
Harmonic distortion  
Voltage flicker

Compliance Level  
EN55011, Class B  
EN55022, Class B  
EN61000-3-2  
EN61000-3-3

### EMS COMPLIANCE

EMS Specification  
ESD air  
ESD contact  
RF field susceptibility

Compliance Level  
EN61000-4-2, Level 3, 8KV  
EN61000-4-2, Level 2, 4KV  
EN61000-4-3, Level 2, 3V/m  
Level 3, 10V/m  
EN61000-4-4, Level 2, 1KV/5KHz  
Level 3, 2KV/5KHz  
EN61000-4-5, Level 4, 2KV/Line-Line  
4KV/Line-Earth  
EN61000-4-6, Level 2, 3Vrms/m  
Level 3, 10Vrms/m  
EN61000-4-8, Level 2, 3A/m  
Level 3, 10A/m  
EN61000-4-11, Compliance  
EN50204, Level 2, 3V/m, 900MHz  
Level 3, 10A/m, 900MHz

### EFT(Electrical Fast Transient)/Burst

### Lightning/Surge

### Conducted RF susceptibility

### Magnetic field immunity

### Voltage dip, interruption

### Digital phone carrier immunity

### MTBF

262,100 hours min. at full load and 25 $^{\circ}$ C of ambient temperature, calculated per MIL-HDBK-217F.

### DIMENSION (L\*W\*H)

177.8x107.95x35.5mm or 7"x4.25"x1.4"

### PACKING

0.55Kg; 24pcs/14.5Kg/1.04CUFT



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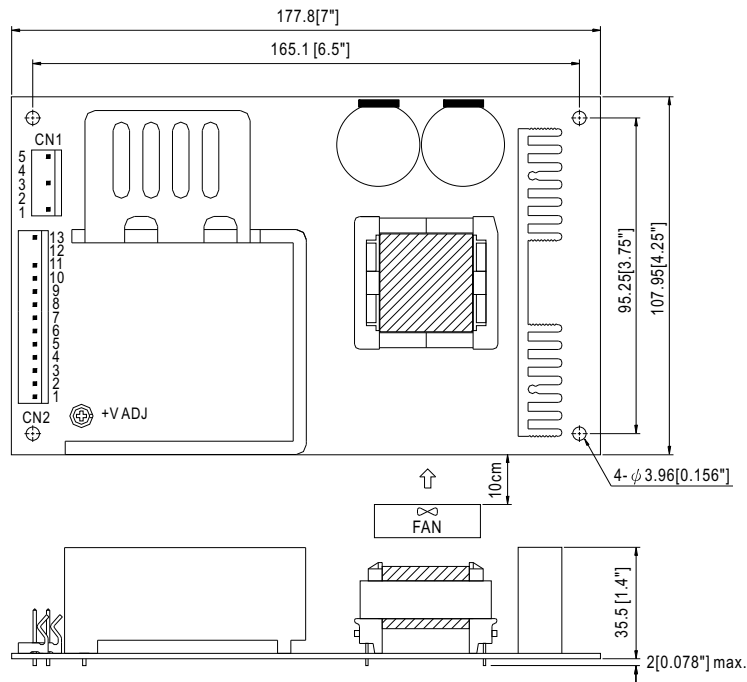
## Output Chart

MODEL	OUTPUT VOLTAGE	RATED CURRENT	OUTPUT CURRENT				RIPPLE & NOISE (Max.) (Note 2)	VOLTAGE TOLERANCE (Note 3)	LINE REGULATION	LOAD REGULATION	EFFICIENCY
			MINIMUM LOAD	CONVECTION (max.)	WITH FAN (25CFM)	PEAK LOAD WITH 25CFM FAN (Note 4)					
MPS-120-3.3	3.3V	24A	0A	16A	24A	26A	80mVp-p	±3.0%	±1.0%	±3.0%	68%
MPS-120-5	5V	22A	0A	14.7A	22A	26A	80mVp-p	±3.0%	±1.0%	±3.0%	73%
MPS-120-12	12V	10A	0A	6.7A	10A	11A	100mVp-p	±2.0%	±1.0%	±2.0%	77%
MPS-120-15	15V	8A	0A	5.3A	8A	8.8A	100mVp-p	±2.0%	±1.0%	±2.0%	79%
MPS-120-24	24V	5A	0A	3.3A	5A	5.5A	120mVp-p	±2.0%	±1.0%	±2.0%	81%
MPS-120-48	48V	2.5A	0A	1.7A	2.5A	2.8A	120mVp-p	±2.0%	±1.0%	±2.0%	82%
MPD-120A	5V	10A	2A	7.3A	10A	12A	80mVp-p	±2.0%	±0.5%	±0.5%	75%
	12V	5A	0.5A	3.6A	5A	6A	120mVp-p	±7.0%	±2.0%	±3.5%	
MPD-120B	5V	10A	2A	7A	10A	12A	80mVp-p	±2.0%	±0.5%	±0.5%	76%
	24V	2.9A	0.3A	1.9A	2.9A	3.2A	250mVp-p	±8.0%	±2.0%	±4.0%	
MPT-120A	5V	10A	2A	7.3A	10A	12A	80mVp-p	±2.0%	±0.5%	±1.0%	72%
	12V	4.8A	0.4A	3.5A	4.8A	5.8A	120mVp-p	+8,-6%	±1.5%	±3.5%	
	-5V	0.6A	0A	0.3A	0.6A	1A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPT-120B	5V	10A	2A	7.3A	10A	12A	80mVp-p	±2.0%	±0.5%	±1.0%	73%
	12V	4.4A	0.4A	3.2A	4.4A	5.3A	120mVp-p	±6.0%	±1.5%	±3.5%	
	-12V	0.6A	0A	0.4A	0.6A	1A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPT-120C	5V	10A	2A	7A	10A	11A	80mVp-p	±2.0%	±0.5%	±1.0%	72%
	15V	4A	0.4A	2.6A	4A	4.4A	150mVp-p	+6,-7%	±2.0%	±3.5%	
	-15V	0.6A	0A	0.4A	0.6A	1A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPT-120D	5V	10A	2A	7.3A	10A	12A	80mVp-p	±2.0%	±0.5%	±1.0%	74%
	24V	2.2A	0.4A	1.6A	2.2A	2.64A	300mVp-p	+8,-6%	±3.0%	+4,-3%	
	12V	0.6A	0A	0.4A	0.6A	1A	120mVp-p	±5.0%	±0.5%	±1.0%	
MPQ-120B	5V	10A	2A	7.3A	10A	11A	80mVp-p	±2.0%	±0.5%	±0.5%	71%
	12V	4.2A	0.5A	3.1A	4.2A	5A	120mVp-p	±6.0%	±1.5%	±3.5%	
	-5V	0.6A	0A	0.4A	0.6A	1A	80mVp-p	±5.0%	±0.5%	±1.0%	
	-12V	0.6A	0A	0.4A	0.6A	1A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPQ-120C	5V	10A	2A	7.3A	10A	11A	80mVp-p	±2.0%	±0.5%	±0.5%	71%
	15V	3.2A	0.5A	2.4A	3.2A	3.8A	150mVp-p	+6,-7%	±2.0%	±3.5%	
	-5V	0.6A	0A	0.4A	0.6A	1A	80mVp-p	±5.0%	±0.5%	±1.0%	
	-15V	0.6A	0A	0.4A	0.6A	1A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPQ-120D	5V	10A	2A	7A	10A	11A	80mVp-p	±2.0%	±0.5%	±0.5%	74%
	12V	1A	0.2A	0.7A	1A	1.1A	150mVp-p	+8,-6%	±2.0%	±3.5%	
	24V	2.1A	0.3A	1.4A	2.1A	2.3A	300mVp-p	±8.0%	±2.0%	±3.5%	
	-12V	0.6A	0A	0.3A	0.6A	1A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPQ-120E	5V	10A	2A	7.3A	10A	11A	80mVp-p	±2.0%	±0.5%	±0.5%	73%
	12V	3A	0.5A	2.3A	3A	3.3A	120mVp-p	±6.0%	±2.0%	±3.0%	
	15V	0.6A	0A	0.4A	0.6A	1A	80mVp-p	±8.0%	±2.0%	±3.0%	
	24V	0.6A	0A	0.4A	0.6A	1A	80mVp-p	±5.0%	±0.5%	±1.0%	

- Notes :
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
  2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor.
  3. Tolerance : includes set up tolerance, line regulation and load regulation.
  4. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.
  5. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

## Mechanical Specification

Unit:mm



## Pin Assignment

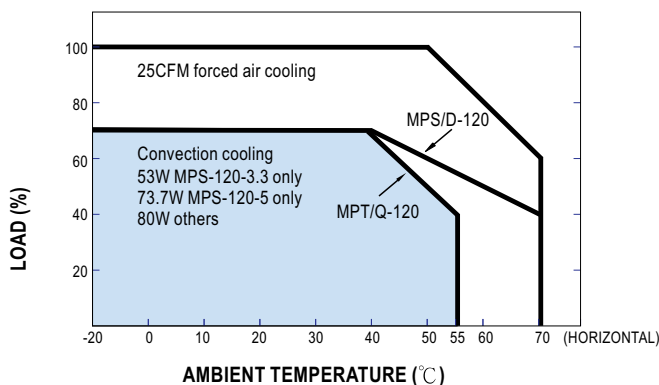
AC Input Connector (CN1) : Molex 5273-05 or equivalent

Pin No.	MPS-120	MPD-120	MPT-120	MPQ-120	Mating Housing	Terminal
1	FG	FG	FG	FG	Molex 5195 or equivalent	Molex 5194 or equivalent
2,4	No Pin	No Pin	No Pin	No Pin		
3	AC/N	AC/N	AC/N	AC/N		
5	AC/L	AC/L	AC/L	AC/L		

DC Output Connector (CN2) : Molex 5273-13 or equivalent

Pin No.	MPS-120	MPD-120	MPT-120	MPQ-120	Mating Housing	Terminal
1	+V	V1	V1	V1	Molex 5195 or equivalent	Molex 5194 or equivalent
2	+V	V1	V1	V1		
3	+V	V1	V1	V1		
4	-V	COM	COM	COM		
5	-V	COM	COM	COM		
6	-V	COM	COM	COM		
7	-V	COM	COM	COM		
8	+V	V2	V2	V2		
9	+V	V2	V2	V2		
10	P.F.D.	P.F.D.	P.F.D.	P.F.D.		
11	NC	NC	V3	V3		
12	No Pin	No Pin	No Pin	No Pin		
13	NC	NC	NC	V4		

## Derating Curve



## Static Characteristics

