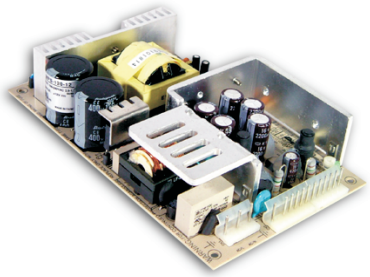
MEAN WELL

1~4 Output Medical Type

120W Medical series



Features

- Universal AC input / Full range
- Low leakage current <180μA
- 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

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 180μA 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℃. Please refer to the derating curves.

WORKING HUMIDITY
20~90% RH non-condensing.

STORAGE TEMP., HUMIDITY
-40~+85℃, 10~90% RH

TEMP. COEFFICIENT
±0.04%/℃ on all outputs at full load between 0~50℃ 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	Compliance Level
Conducted & Radiation	EN55011, Class B EN55022, Class B
Harmonic distortion	EN61000-3-2
Voltage flicker	EN61000-3-3

EMS COMPLIANCE

EMS Specification	Compliance Level
ESD air	EN61000-4-2, Level 3, 8KV
ESD contact	EN61000-4-2, Level 2, 4KV
RF field susceptibility	EN61000-4-3, Level 2, 3V/m Level 3, 10V/m
EFT(Electrical Fast Transient)/Burst	EN61000-4-4, Level 2, 1KV/5KHz Level 3, 2KV/5KHz
Lightning/Surge	EN61000-4-5, Level 4, 2KV/Line-Line 4KV/Line-Earth
Conducted RF susceptibility	EN61000-4-6, Level 2, 3Vrms/m Level 3, 10Vrms/m
Magnetic field immunity	EN61000-4-8, Level 2, 3A/m Level 3, 10A/m
Voltage dip, interruption	EN61000-4-11,Compliance
Digital phone carrier immunity	ENV50204, Level 2, 3V/m, 900MHz Level 3, 10A/m, 900MHz

MTBF
262,100 hours min. at full load and 25℃ 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℃ 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.

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MEAN WELL

1~4 Output Medical Type

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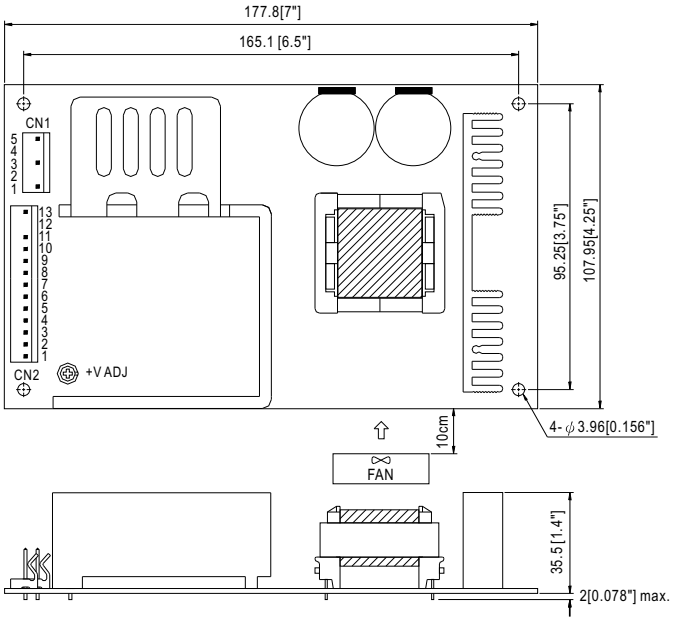
■ Mechanical Specification

Unit:mm



■ Pin Assignment

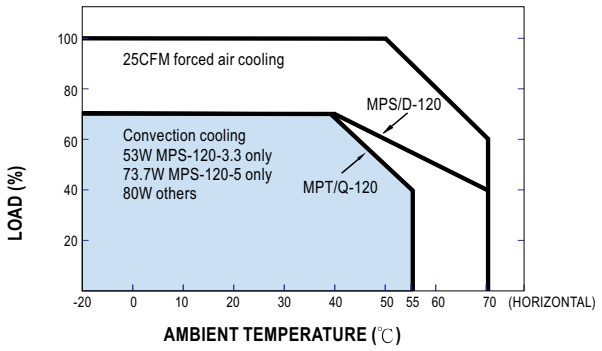
AC Input Connector (CN1) : Molex 5273-05 or equivalent

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		

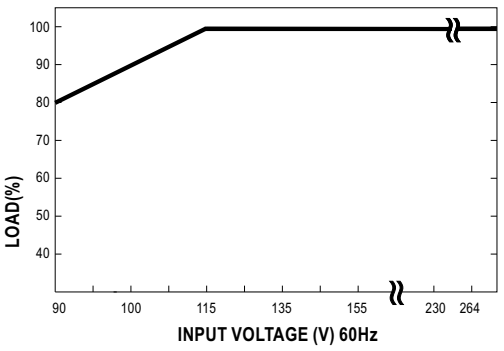
DC Output Connector (CN2) : Molex 5273-13 or equivalent

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



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