Medical Power Supply

MEGMEET

MP1500 Series

1500W AC-DC OPEN FRAME

FEATURES

- Medical IEC60601-1 & ITE / AV IEC62368-1Safety Approvals
- Internal Fan Forced-Air Cooling
- High Efficiency - Up to 91%
- Compact size 5.1" x 8.2" x 1.8" / 130 x 208 x 46mm
- Universal AC Input With Active PFC
- EN55011 / FCC Part 15 Class B Emissions
- 3-Year Warranty

GENERAL DESCRIPTION

The MP1500 series is a compact size AC-DC converter with high efficiency, high reliability and full protection. The series meet medical and ITE/AV certified and compatible with Class I & II dual construction. The model has low leakage current and excellent EMI and thermal performance, which makes it prefect for BF type medical equipments. The series can be used in multiple applications including ventilator, oxygen concentrator, anesthesia, patient monitor, surgery and etc.

APPLICATIONS

MODEL ENCODING

MP1500	–	xx/xxx	—	abc
OPEN FRAME		OUTPUT VOLTAGE		CUSTOMER CODE
1500 Watts		12: 12V		OR OTHERS
		196: 19.6V		

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MODELS & RATINGS

MODELS	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE (MAX)	STANDBY OUTPUT	VOLTAGE TOLERANCE
MP1500-24	24V	62.5A	250mV	5VSB @ 0.1A	±2%
MP1500-36	36V	42.0A	480mV	5VSB @ 0.1A	±2%
MP1500-48	48V	31.5A	480mV	5VSB @ 0.1A	±2%

INPUT ELECTRICAL CHARACTERISTICS

Normal Voltage Range	100-240VAC
Input Voltage Range	85~264Vac (Universal)
Input Frenquency	47~63Hz
Input Current	20A max @90VAC
Inrush Current	<70A @ 240 VAC, 25℃ Cold start
Input Protection	Internal 25A / 250V Fuse (Line & Neutral)
Power Factor	>0.95

Efficiency	≥90%/91.0% lowest @ 115/230 VAC, Full Load
Earth Leakage Current(NC)	<250μA @ 264VAC
Earth Leakage Current (SFC)	<500μA @ 264VAC
Touch Current (NC)	<100μA @ 264VAC
Touch Current (SFC)	<200μA @ 264VAC
Rated output power	1500W @ Forced-air flow

OUTPUT ELECTRICAL CHARACTERISTICS

Total Voltage Tolerance	±2%
Set up Tolerance	±1.5%, 50% load, 115/230 VAC
Line Regulation	±0.5%
Load Regulation	±2%
Minimum Load	None

Ripple & Noise	See Table
Turn-On Delay	3.0 seconds Max @ 100VAC
Hold-Up Time	>10ms 1500W Load
Over shoot	≤5%
Transient Response	±5%, 25%-50% or75%-100%, Slew Rate 1A/μS

NOTES

1). Total voltage tolerance：includes set up tolerance, line regulation and load regulation.

2). The power supply need be mounted on the metal plate.

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EMC & SAFETY

EMC	IEC60601-1-2	
EMI	Conducted Emission	CISPR 11 Class B
	Radiated Emission	CISPR 11 Class B
	Harmonic Current	IEC 61000-3-2 Class A
	Voltage Flicker	IEC 61000-3-3
EMS	ESD	IEC 61000-4-2, Criterion A 8kV contact, 15kV Air Discharge
	Radiated Immunity	IEC 61000-4-3 10V/m, 80% Am at 1kHz Criterion A
	EFT/Burst	IEC 61000-4-4, 2kV, Criterion A
	Surge	IEC 61000-4-5 Installation Class 3, Criterion A
	Conducted Immunity	IEC 61000-4-6, 10V ,Criterion A
	Magnetic Field	IEC 61000-4-8, 30A/m, Criterion A
	Dips & Interruption(1)	IEC 61000-4-11
CB	IEC 60601-1, IEC 62368-1	
cTUVus	ANSI/AAMI ES 60601-1	
	CSA C22.2 No.60601-1	
CE	EMC	EN 55032
		EN IEC 61000-3-2
		EN 61000-3-3
		EN 55035
	LVD	EN 62368-1, BS EN 62368-1

PROTECTION

Over-Voltage	110-150% Latching
Over-Temperature	Auto-Recovery
Over-Load	107~150% (Hiccup Mode, Auto-Recovery)
Short Circuit	Hiccup Mode
Over Current Protection	Hiccup, Auto-Recovery
Input Brown Out	Brown In ≤85Vac
	Brown Ou≥60Vac
	Minimum Hysteresis 5Vac

ENVIRONMENTAL REQUIREMENTS

Operating Temperature	0℃ to +70℃
Derating	2.5%/°C > 50°C, up to 70°C max
Storage Temperature	-40℃ to +80℃
Operating Humidity	5% to 95% (non-condensing)
Operating Altitude	0 to 3000m
Storage Altitude	up to 5000m
Cooling Method	Forced air
Shock	98m/s² (10G), 6ms, once each on 3 axes
Vibration	10-500Hz, 19.6m/s² (2G), 30minutes each along X, Y and Z axis.

RELIABILITY & DIMENSION

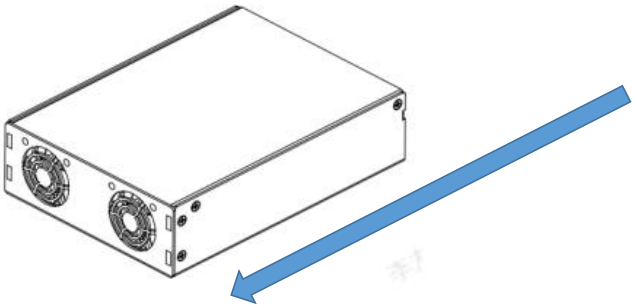
Isolation	4000 VAC – Input to Output; 2xMOPP
	1500 VAC – Input to earth; 1xMOPP
	1500 VAC – Output to earth; 1xMOPP
MTBF	800K Hours, @ 230Vac, 25℃, Rated output
Weight	2kg Max
Dimensions	130x208x46mm
	5.1x 8.2x 1.8"inch

(1) Power supply DIP voltage sag requirements table:

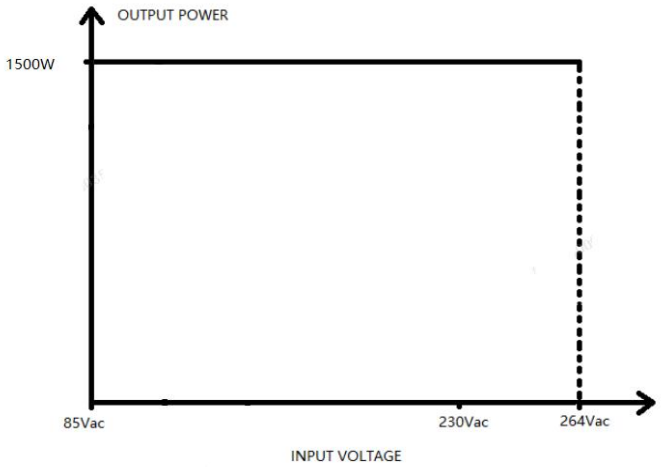
Drop	Time	Criterion
0%Ut	0.5cycle	A
0%Ut	1cycle	B
70%Ut	25/30 cycles	B
0%Ut	250/300cycles	B

DERATING CURVE

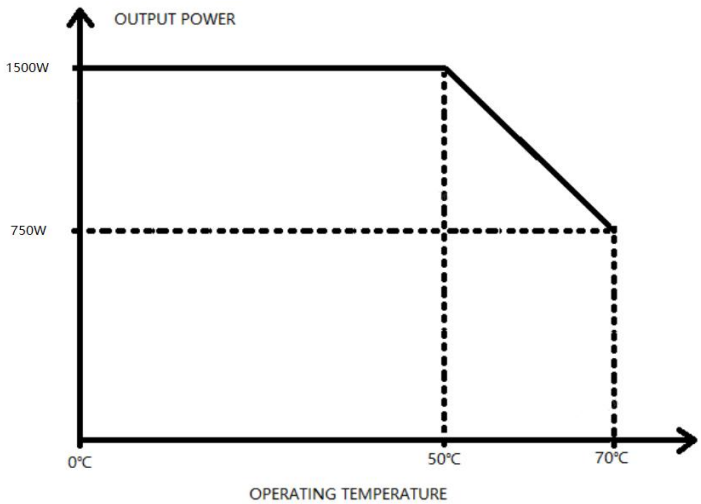
AIRFLOW DIRECTION



OUTPUT POWER VS INPUT VOLTAGE



OUTPUT POWER VS AMBIENT TEMPERATURE



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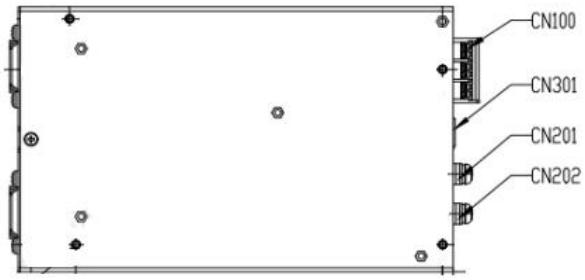
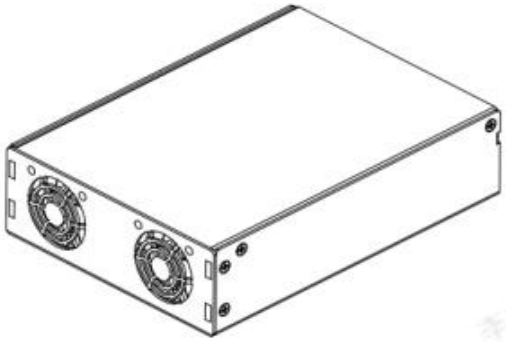
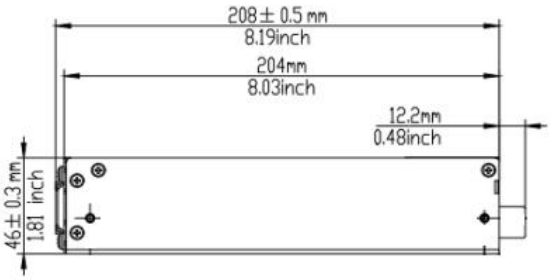
MECHANICAL AND CONNECTOR INFORMATION

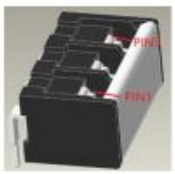






1.Input terminal（CN100）

The input terminals adopt standard 3-pin fence welded terminals with covers, and the center spacing of the pins is 9.5mm.

PIN	instruction	
PIN1	PE	
PIN2	L	
PIN3	N	

2.Output terminal（CN200/CN201）

The output terminals adopt two standard screw-locked metal terminals.

PIN	instruction		
CN200	Vo+		Terminal model: M5 Recommended connection terminal: KST(TLK10-6)
CN201	Vo-		

3.Signal terminal（CN301）

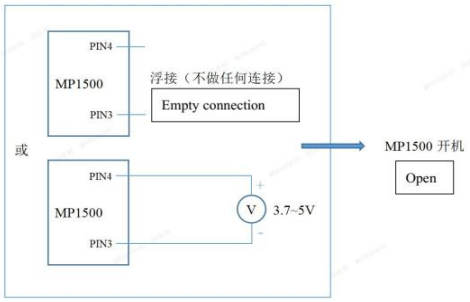
PIN	instruction		
PIN1, 2	NC		Terminal model: Molex 430450800 OR EQ Recommended connection terminal: Molex 430250810 OR EQ
PIN3	GND		
PIN4	Remote on/off		
PIN5	Fan good		
PIN6	AC power good		
PIN7	DC power good		
PIN8	5Vsb		

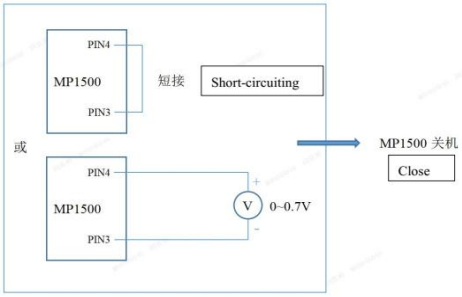
Note: The reference ground for all pins on the signal terminal is PIN3.

Auxiliary function

Remote On/Off

Remote On/Off is an enabling signal. When it is at a high level (3.7-5V), the main output is activated. When it is at a low level (0-0.7V), the main output is turned off. This signal can be floated (without any connection) to normally activate the main output, as shown in the following figure.





Fan good

The Fan good signal is the Fan status monitoring signal. When the fan is abnormal, Fan good is at a low level (0-1.7V). When the Fan is working normally, "Fan good" is a PWM signal, and the fan speed can be calculated by detecting the number of times from low level to high level. The fan speed = (the number of times from low level to high level within 1 second) ×28.

AC power good

The AC power good signal is the AC input monitoring signal. When the AC is normal, the AC power good signal is at a high level (5V), and when abnormal, it is at a low level (0-1.7V).

DC power good

The DC power good signal is an output voltage monitoring signal. When the output voltage is within the range of 44-51V, it is a high level (0-1.7V); otherwise, it is a low level.

5Vsb

The 5Vsb signal is the output of the power supply auxiliary circuit, with an output specification of 5V/100mA. Meanwhile, 5Vsb serves as the input signal of the Remote On/Off signal, making the Remote On/Off signal at a high level to power on the product.

GLOBAL OPERATION AND SERVICE

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