

SPECIFICATION

产品规格书

Revision: 1.0

Issued Date: 2020-05-28

Model No: MPT210-24V

Description: POWER SUPPLY

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1. Electrical Specification (电气规格)

1.1 Input Electrical Characteristics (输入特性)

Table 1

Input voltage range 输入电压范围	90-132Vac / 180-264Vac (通过开关 115V/230V 对应选择)
Rated Input voltage range 额定输入电压	100-120Vac / 200-240Vac
Frequency range 频率范围	47Hz-63Hz
Max input ac current 最大输入电流 (Full Load)	4.8A@100-120Vac 2.4A@200-240Vac
Inrush current (Cold state) 冷启动浪涌电流	<80A @230Vac,25°C
Efficiency (full load) 效率	Typ.89.5% @230Vac,25°C
Leakage Current 泄漏电流	Less Than 2.0 mA @ 264Vac input
Normal output power 额定功率	211.2W
Input Fuse 输入保险	T10AL/250Vac

1.2 Output Electrical Characteristics (输出特性)

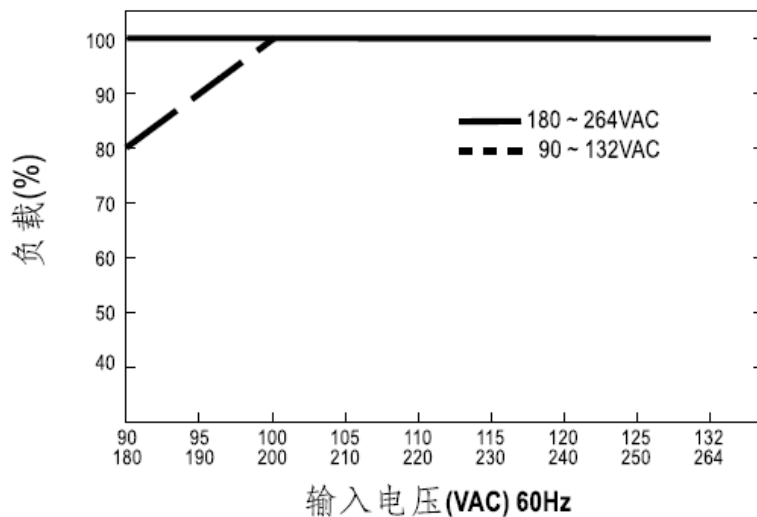
1.2.1 Output Voltage & Current Regulation (输出电压电流调整率)

Table 2

Output Rated Voltage 额定输出电压	Output Voltage Adjustable Range 输出电压可调范围	Regulation 调整率	Min Current 最小电流	Rated Current 额定电流
+24V	+22~+26V	±1%	0A	8.8A

1.2.2 Input voltage Derating Guideline (输入电压降额曲线)

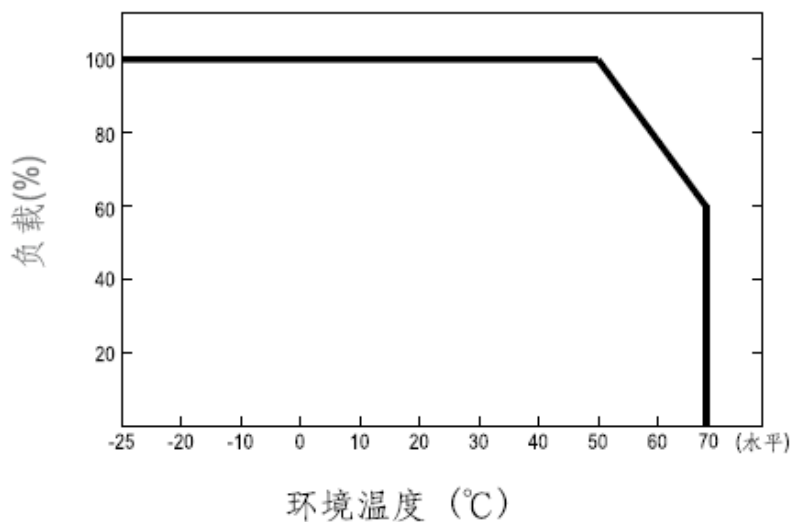
Table 3



备注：测试时电源模块机壳需要紧贴散热板。（建议外加散热板有效散热面积等同或大于电源自身机壳）。

1.2.3 Operate temperature rating Guideline (工作温度降额曲线)

Table 4



1.2.4 DC Output Ripple & Noise (输出纹波和噪声)

Table 5

Output Voltage	Ripple & Noise (Max.)
+24V	200mVp-p@ 25°C, 115Vac/230Vac, Full load,
	200mVp-p@ -25°C, 115Vac/230Vac, Full load

Note: 1) Ripple & Noise test: Ripple & Noise bandwidth is set to 20MHz.

纹波和噪声测试: 纹波和噪音带宽设置在 20 兆赫兹。

2) Use a 0.1uF ceramic capacitor in parallel with a 10uF electrolytic capacitor at output connector terminals for ripple & noise measurements.

输出端并联一个 0.1uF 的陶瓷电容和一个 10uF 的电解电容来测试纹波和噪声。

1.2.5 Output Transient Response (输出动态响应)

Table 6 Test condition (测试条件)

Voltage Tolerance Limit	Slew Rate	Load Change
+24V $\leq$ $\pm$ 5%	1A/uS	25% to 50% load OR 50% to 75% load
+24V $\leq$ $\pm$ 10%	1A/uS	25% to 75% load

Note: 1) Load change repetition rate: 100Hz to 10KHz.

跳变负载频率: 100Hz~10KHz。

2) Use a 0.1uF ceramic capacitor in parallel with a 10uF electrolytic capacitor at output connector terminals for ripple & noise measurements.

输出端并联一个 0.1uF 的陶瓷电容和一个 10uF 的电解电容来测试纹波和噪声。

1.2.6 Hold-Up Time (输出保持时间)

Table 7

Output Voltage	115Vac input	230Vac input
+24V	$\geq$ 8 mS	$\geq$ 15 mS

Note: 1) All of dc output at full load. 所有输出带满载。

2) Use a 0.1uF ceramic capacitor in parallel with a 10uF electrolytic capacitor at output connector terminals for ripple & noise measurements.

输出端并联一个 0.1uF 的陶瓷电容和一个 10uF 的电解电容来测试纹波和噪声。

1.2.7 DC Output Overshoot During Turn-On & Turn-Off (输出超调)

Table 8

Output Channel	Output	Overshoot Voltage 超调电压	
		Turn-on 开机	Turn-off 关机
+V	+24V	≤5%	≤5%

Note: 1) All of dc output current from Min. to Max.

测试时负载范围：最小到最大。

- 2) Use a 0.1uF ceramic capacitor in parallel with a 10uF electrolytic capacitor at output connector terminals for ripple & noise measurements.
输出端并联一个 0.1uF 的陶瓷电容和一个 10uF 的电解电容来测试纹波和噪声。

1.2.8 DC output voltage rise time (输出上升时间)

Table 9

Output Voltage	115Vac input &Full Load	230Vac input &Full Load
+24V	≤200 mS	≤200mS

Note: 1) The rise time measured is when the output voltages rise from 10% to 90% of specified output voltage V_{out} observed on the channel waveform.
上升时间为输出电压从 10% 上升到 90% 的时间。

- 2) Use a 0.1uF ceramic capacitor in parallel with a 10uF electrolytic capacitor at output connector terminals for ripple & noise measurements.
输出端并联一个 0.1uF 的陶瓷电容和一个 10uF 的电解电容来测试纹波和噪声。

1.2.9 Power on delay time (开机输出延迟时间)

Table 10

Output Voltage	115Vac input @ 25°C, Full load	230Vac input @ 25°C, Full load
+24V	≤5S	≤5S

Note: 1) The Power delay time measured is when AC power on to 90% of specified output voltage observed on the channel waveform.
开机延迟时间为 AC 上电到输出电压 90% 的时间。

- 2) Use a 0.1uF ceramic capacitor in parallel with a 10uF electrolytic capacitor at output connector terminals for ripple & noise measurements.

输出端并联一个 0.1uF 的陶瓷电容和一个 10uF 的电解电容来测试纹波和噪声。

1.3 Protection (保护功能)

1.3.1 DC Output Over Current Protection (输出过流保护)

Table 11

Output Voltage	Over Current	Comments
+24V	9.7~12.4A	Hiccup (打嗝模式)

1.3.2 DC Output Short Circuit Protection (输出短路保护)

Table 12

Output Voltage	Comments
+24V	Hiccup (打嗝模式, 异常条件移除后可以自动恢复)

1.3.3 Over Voltage Protection (输出过压保护)

Table 13

Output Voltage	Comments
+24V	28~33.5V (打嗝模式, 异常条件移除后可以自动恢复)

2. Isolation (绝缘性能)

2.1 Insulation Resistance (绝缘阻抗)

Table 14

Input To Output	DC500V 100 MΩ min. (at room temperature)
Input To FG	DC500V 100 MΩ min. (at room temperature)
Output To FG	DC500V 100 MΩ min. (at room temperature)

2.2 Dielectric Strength (绝缘耐压)

Table 15

Input To Output	3000Vac/50Hz 1minute ≤10mA
Input To FG	2000Vac/50Hz 1minute ≤10mA
Output to FG	500Vac/50Hz 1minute ≤10mA

Notes: Input line (L&N) should be shorted, and all output should be Shorted.

电路如有防雷器件，进行耐压测试时需断开放电气隙管后进行。

如下操作：

输入线需要短接（L&N）在一起，所有的输出线需要短接在一起。

输入对输出： 输入短接线 TO 输出短接线

输入对 FG： 输入短接线 TO FG

输出对 FG： 输出短接线 TO FG

3. Safety (安全规格)

The power supply shall comply with the following criterion:

电源安全性满足下列标准：

- 1) UL60950/IEC60950/EN60950

4. EMC (电磁兼容性)

4.1 EMS (电磁抗扰)

The power supply shall comply with the following criterion:

电源电磁抗扰满足下列标准：

- 1) ESD (静电抗扰度)

*GB17626.2/IEC61000-4-2 Level 3 判据： A

- 2) EFT (脉冲群抗扰度)

*GB17626.4/IEC61000-4-4 Level 3 判据： A

- 3) SURGE (浪涌)

*GB17626.5/IEC61000-4-5 Level 3 判据： B

- 4) DIP (电压跌落)

*GB17626.11/IEC61000-4-11 判据： C

电源 DIP 电压跌落要求表

Table 16

跌落至	跌落时间	性能判据
0%Ut	10ms	B
70%Ut	500ms	C
40%Ut	200ms	C
0%Ut	5000ms	C

5) Lighting (雷击) NOT APPLICABLE /不适用

5. Environmental Requirement (工作环境)

5.1 Temperature (环境温度)

* Operating 工作温度: -25°C to $+70^{\circ}\text{C}$ (请参考工作温度降额曲线)。

Note: the power can power on and work @ -40°C .

-40°C 低温能够开机工作, 电源正常工作时没有啸叫声。

* Storage 存储温度: -40°C to $+85^{\circ}\text{C}$

5.2 Humidity (环境湿度)

* Operating 工作: From 10% to 90% relative humidity (non-condensing)

* Storage 存储: From 10% to 95% relative humidity (non-condensing)

5.3 Altitude (海拔高度)

* Operating : -60 to 5000m

* Storage: UP to 5000m

当操作海拔高于 2000 米时, 工作环境温度需降额 $5^{\circ}\text{C}/1000$ 米。

5.4 Cooling Method (冷却方式)

自然冷却

5.5 Vibration (振动耐受)

* $10\text{-}55\text{Hz}$, 19.6m/s^2 (2G), 20minutes each along X、Y and Z axis

5.6 Shock (冲击耐受)

* 49m/s^2 (5G), 11ms, once each X、Y and Z axis

7. Weight (重量)

700g

8. Pin Connection (端子脚位定义)

Table 17

引脚编号	引脚功能
PIN1	L
PIN2	N
PIN3	EARTH
PIN4~PIN6	-V
PIN7~PIN9	+V

9. Requirements for Burning in Test (老化测试要求)

We recommend that the Power Supply should be mounted tightly with the heatsink described as the following heatsink drawing while the products burn in at 50°C and 230Vac input. 在环境温度 50°C 下，不加湿，输入 230Vac，输出满载老化，机壳底面紧贴散热板（建议外加散热板有效散热面积等同或大于电源自身机壳）。（本规格书中指标，是在建议环境下测试的结果）。