

安徽品源之家电源技术有限公司

Anhui Pinyuan Home Power Technology Co., Ltd

客户承认书

SPECIFICATION FOR APPROVAL

客户CUSTOMER:	型号MODEL NO:	PY-2002000
产品描述 PRODUCT DESCRIPTION	产品版本号 PRODUCT NO:	2002000D1
客户规格型号 CUSTOMER MAINFRAME MODEL:	修订版本号 REV. NO:	A0
品名规格 DESCRIPTION:	编制日期/DATE:	2023/6/06
	输入电压/Input: 200-240Vac; 输出电压/ Output: 20V2A	

CUSTOMER AUTHORIZED SIGNATURE/客户承认签核

拟制/PREPARED BY	审核/CHECKED BY	批准/APPROVED BY

确认签署后,请回传一份,有任何问题,请尽快告知我们。 Please return us one copy of the approved sheet after Signed. Please tell us if you find out some problems in this specification as quickly as possible.

安徽品源之家电源技术有限公司/Anhui Pinyuan Home Power Technology Co., Ltd

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1 SCOPE 范围

This technical requirement is applicable to PY-2002000 Desktop power adapter
 本技术要求适用于 PY-2002000 桌面式电源适配器。

2 INPUT CHARACTERISTICS 输入特性

21 Input voltage and frequency 输入电压与频率

	Units/单位	Minimum /最小	Normal/额定值	Maximum /最大
Input Voltage/输入电压	Vac	180	200-240V	264
Input Frequency/输入频率	Hz	47	60/50	63

Note: Withstand high voltage of 275Vac for at least 4 hours. During the 4 hours, the power supply cannot work abnormally and cannot explode or burn. Dangerous phenomena such as explosion and combustion shall not occur after 4 hours. 注: 耐高压 275Vac 至少 4 小时, 4 小时期间电源工作不能异常及不能有爆炸燃烧现象, 4 小时后不能出现爆炸燃烧等危险现象。

22 Input current 输入电流

Input AC Current $0.8A_{Max}$, @ 180Vac-264Vac, input & max. load. 输入电流在 180Vac-264Vac, 输入和最大负载条件下最大 0.8A

23 AC surge current(cold start) AC 浪涌电流(冷启动)

At cold start; 25°C; DC output rated loading; 264Vac input conditions, when input power is applied to the power supply, peak inrush current shall be less than circuit components ratings (including fuse, rectifier bridge pile, etc.), Repetitive ON/OFF cycling of the input voltage will not damage the adapter. 在 25°C、输入电压为 264Vac 输出额定负载时冷启动, 浪涌电流应小于电路中元器件的额定值 (包括保险丝, 整流桥堆等), 重复交流通断不会损坏电源。

24 EFFICIENCY 电源效率

Power adapter in accordance with the standard requirements of the average efficiency: $\geq 80\%$ (60HZ/230V50Hz, load 25% 50% 75% 100% of the average efficiency, no-load power consumption: $\leq 0.3W$ Input 200Vac - 240Vac) 电源适配器按标准要求平均效率: $\geq 80\%$ (60HZ/230V 50Hz, 负载 25% 50% 75% 100% 下的平均效率, 空载功耗: $\leq 0.3W$ 输入 200Vac- 240Vac)。

3 DC OUTPUT CHARACTERISTICS 输出特性

31 Output voltage and current 输出电压与电流

Rated output voltage/ 额定输出电压 (V)	Rated output current/ 额定输出电流 (A)	Peak current/ 峰值电流	Output Voltage Range/ 输出电压范围 (V)	Ripple noise/纹波噪声 (mVpp)
20	2		+ 19.2 ~ + 20.6	<120

Output voltage ripple/noise voltage is less than 120mV p-p, Measured within Performed by 20MHz bandwidth in oscilloscope, Applied 0.1uF ceramic capacitor and 10uF electrolytic capacitor across output connector terminals Measured at the end of DC cable. 输出端并 0.1uF 与 10uF 电容, 限制示波器带宽 20MHz 时, 测得纹波小于 120mVp-p。

32 Dynamic load test 动态负载测试

The power adapter output voltage shall not undershoot or overshoot beyond the specified limits shown after applying load changes with a 0.1A/μsec slew rate on the output. Frequency of the dynamic load will be 100Hz to 1 kHz with a duty cycle of 20% to 90%. 动态负载变化速率 0.1A/usec, 频率为 100HZ~1KHZ, 占空比为 20%~90%, 输出电压应满足规定范围。

Voltage Limits		Load Change
Minimum	Maximum	25% to 50% load and back to 25%
19.2	20.6	50% to 75% load and back to 50%

恢复时间 200uS 以内 The recovery time is less than 200us

33 Capacitance Load Test 容性负载测试

The power adapter shall be able to turn on and operate normally with the following capacitances. Capacitive load: 3000uF, at input voltage 230Vac. 适配器能在 3000uF 容性负载, 交流额定输入电压 230Vac 下能正常启动。

34 Overshoot 输出过冲

During either Turn-On or Turn-Off, the output overshoot voltage shall not exceed upper limit voltage 7%. No voltage of opposite polarity shall be present on the output during turn-on or turn-off. 在电源开关机过程中, 输出过冲电压不能超过上限电压的7%, 不能有反极性电压发生。

35 Regulation 调整率

Voltage regulation should be $< \pm 5\%$ 。电压调整率应该 $< \pm 5\%$ 。

4 PROTECTION REQUIREMENTS 保护要求

41 Output Over Current Protection 输出过电流保护

The output shall be protected against the over current conditions." 过流保护

Parameter	Min	Max	Unit
OCP	1.5	2.5	A

输出具有过电流保护, 过电流范围是: 1.5A-2.5A

After performing OCP test, the power adapter shall return to normal operating when the OCP does not exist, there shall be no permanent damage to the power adapter components. 进行OCP测试后, 当OCP不存在时, 电源适配器应恢复正常工作, 电源适配器组件不应有永久性损坏。

42 OUTPUT SHORT CIRCUIT PROTECTION 输出短路保护

Shorting of output will not cause power supply to damage or any safety hazard. A long time short circuit is not damaged. Dynamic average power consumption demand is less than 3w. The power supply shall resume normal operation after short is removed. 输出短路时, 电源不能损坏或造成安全灾害。可长时间短路不损坏。动态平均功耗要求小于 3W。当短路消除时, 电源应恢复正常工作。

43 Output overvoltage protection 输出过压保护

Output overvoltage protection point should be 19.2-20.6V, 输出过压保护点应该在 19.2-20.6V

5 TIME SEQUENCE 时间序列

51 Turn On Time 启动时间

Turn on time shall be < 3 S, the delay time is between AC being applied to output being within regulation。从交流输入到输出达到稳压的启动时间小于 3 秒。

52 Rise Time 输出上升时间

Rise time shall be < 30 mS, the 230Vac input, full load. 在 230Vac 输入, 满载条件下, 输出上升时间 < 30 mS。

53 Hold-up Time 输出保持时间

The power supply shall have a hold-up time greater than 10mS at input 230V and full load." 在输入 230V 和满载时, 电源的保持时间应大于 10mS

Parameter	Min	Norm	Max	Unit
230Vrms, 50Hz	10	/	/	ms

(Measured from AC-off at a zero crossing)输出保持时间大于 10mS, 测量条件: 230Vac 50Hz, 交流电压过零点。

6 HI-POT 耐压

Primary-to-Secondary: VOLTAGE 1500VAC TIME 60S, CUT OFF CURRENT 5mA

初级到次级: 交流 1500V 持续 60 秒, 漏电流最大 5mA。Primary-to-Secondary. Insulation resistance >100MΩ.
 (500V DC) 初级到次级: 绝缘阻抗>100MΩ (直流 500V)。

7 EMC REQUIREMENTS EMC 要求

序号	项目		指标	标准
1	EMI	传导干扰(CE)	CLASS B	EN55022/GB9254
		辐射干扰(RE)	CLASS B	EN55022/GB9254
2	EMS	静电放电(ESD)	4.0kV Contact Discharge (level 2) 8.0kV Air Discharge (level 3) criteria A	EN61000-4-2/GB/T17626.2
		快速瞬变脉冲群(EFT)	1.0kV,5/50(Tr/Th),5kHz; (level 2) criteria A	EN61000-4-4 GB/T17626.4)
		浪涌(SURGE)	1.2/50(Tr/Th.,uS) 1.0kV on Differential(L-N) 2.0kV on Common(L-PE,N-PE,L+N-PE)criteria A	EN61000-4-5 YD/T993-2006 GB/T17626.5

备注: 性能判据(criteria)

Criteria A:在技术要求限值内功能正常; Criteria B:功能暂时降低或丧失,但在骚扰停止后能自行恢复,不需要操作者干预; Criteria C: 功能暂时降低或丧失,但需要操作者干预或系统复位。

8 SAFETY REQUIREMENTS 安全要求

81 Leakage Current 漏电流

In 264V ac input, leakage current of input can not more than 0.25mA。在 264V 交流输入时, 输入对输出的漏电流不能超过 0.25mA。

82 Safety standards 安全标准

serial/序号	Type/安规	Country/国家	Standard/标准		Mark 备注	
1	CCC	China/中国	GB4943.1	<input checked="" type="checkbox"/>	IT信息类	
2	CE	Europe/欧洲	EN62368-1	<input checked="" type="checkbox"/>	EN60950 <input type="checkbox"/>	IT信息类
3	cULuc	USA/Canada美国/加拿大	UL62368-1	<input type="checkbox"/>	UL60950 <input type="checkbox"/>	IT信息类
4	PSE	Japan/日本	J62368-1	<input type="checkbox"/>	J60950 <input type="checkbox"/>	IT信息类
5	BIS	INDIA/印度	IS 302-1:2008	<input type="checkbox"/>	EN60950 <input type="checkbox"/>	IT信息类
6	KC	Korea/韩国	K60950	<input type="checkbox"/>		IT信息类
7	FCC	USA/美国	PART 15 CLASS B(EMC)	<input type="checkbox"/>		IT信息类
8	TUV	Germany/德国	IEC 60601-1	<input type="checkbox"/>		医疗类
9	GS	Germany/德国	IEC 62368	<input type="checkbox"/>		IT信息类
10	UKCA	Britain/英国	BN EN62368	<input type="checkbox"/>		IT信息类
Others						

9 ENVIRONMENTAL PERFORMANCES 环境性能

91 Operating Ambient Temperature: -10°C to +35°C使用环境温度: -10°C 至 +35°C,使用环境相对湿度: 20%至 80%

Storage Ambient Temperature -20°C to +70°C 储存环境温度: -20°C to +70°C; Storage Ambient Relative Humidity 5% to 95%, 储存环境相对湿度: 5% to 95% 海拔高度/Height Above Sea Level; 电源在海拔-65~5000 米能正常工作。/The power supply can normal operate at-65~ 5000 meter.

92 Operating at the lower temperature 低温工作实验

At -10±2°C, with the rated voltage 200-240Vac charged to the primary and unloaded and full load on the secondary 2 hours, no abnormality in electric and mechanical characteristic, after 2 hours recovery at the room temperature; 环境温度-10±2°C, 在输入端施加额定电压 200-240Vac 输出端空载与满载状态下工作 2 小时, 试验后常温放置 2 小时, 无特性异常。

93 Operating at the high temperature 高温工作实验

At 50±2°C, with the rated voltage 200-240Vac charged to the primary and unloaded and full load on the secondary 2 hours, No abnormality in electric and mechanical characteristic after 2 hours recovery at the room temperature; 环境温度 50±2°C, 在输入端施加额定电压 200-240Vac 输出端空载与满载状态下工作 2 小时, 试验后常温放置 2 小时, 无特性异常。

94 Storage at the lower temperature 低温存储

At -20±2°C, test of non-operated 16 hours, No abnormality in electric and mechanical characteristic after 2 hours recovery at the room temperature; 在-20±2°C 非工作状态下进行试验 16 小时, 试验后常温放置 2 小时后测试无异常。

95 Storage at the higher temperature 高温存储

At 70±2°C, 95%RH, test of non-operated 16 hours, No abnormality in electric and mechanical characteristic after 2 hours recovery at the room temperature 在 70±2°C, 95%RH 非工作状态下进行试验 16 小时, 试验后常温放置 2 小时后测试无异常。

96 Storage at high temperature and high humidity 高温高湿度存储

At 40±2°C, 90~95%RH, test of non-operated 16 hours, no abnormality in electric and mechanical characteristic, after 2 hours recovery at the room temperature. 在40±2°C, 90~95%RH, 非工作状态下进行试验 16 小时, 试验后常温放置 2 小时后测试机械特性无异常。

10 RELIABILITY REQUIREMENTS 可靠性要求

10.1 The stability requirements 稳定性要求

Should be able to long-term, stable work, MTBF 50000 hours (25 °C, full load). 应能长期稳定的工作, MTBF 达到 50000 小时 (25°C, 满载)。

10.2 The device reliability requirements 器件可靠性要求

10.2.1 Temperature rise requirements 器件温升要求

80% rated load, the worst environment temperature (40 °C) under the condition of each device (transformer and winding components, controller, switch tube, X key components such as capacitor, electrolytic capacitor, PCB) comply with the provisions of the IEC60950 / GB4943 temperature and other devices in its specifications and operating temperature range. Input voltage, rated, upper limit condition, the rated load, 40 °C environment temperature conditions, meet the device temperature derating requirements in the table below: 80% 额定负载, 最恶劣环境温度(40°C)条件下, 各器件(变压器和绕组元件、控制器、开关管、X电容、电解电容、PCB 等关键器件)温升符合 IEC60950/ GB4943 的规定, 其他器件在其规格工作温度范围内。输入电压下限、额定、上限条件下, 额定负载, 40°C 环境温度条件下, 满足下表中 器件温度降额要求:

序号	器件类型	温度降额要求
1	保险丝/保险电阻	T≤100°C
2	压敏电阻	T≤100°C
3	输入端二极管	Tc≤Tjmax-20°C
4	电解电容	T≤105°C
5	X 电容	T≤100°C
6	NTC	T≤100°C
7	MOS 管	Tc≤Tjmax-20°C)
8	IC 芯片	T≤110°C
9	变压器绕线	T≤110°C
10	变压器磁芯	T≤110°C
11	功率电感和共模电感	T≤130°C

12	外壳	$T \leq 85^{\circ}\text{C}$
13	变压器下PCB	$T \leq 130^{\circ}\text{C}$
14	输出端二极管	$T_c \leq T_{jmax} - 20^{\circ}\text{C}$
15	光耦	$T_c \leq T_{max} - 5^{\circ}\text{C}$

10.3 Temperature shock 温度冲击

The reliability of the resistance to cold and hot shock, high temperature (70 °C) 1 h - low temperature (20 °C) - 1 h, 1 h, temperature rise and temperature drop process at least 10 cycle impact. No abnormality in electric and mechanical characteristic, after 2 hours recovery at the room temperature。耐冷热冲击的可靠性：高温（70℃）1H—低温（-20℃）1H，温升、温降过程 1H，至少 10 个周期循环冲击。试验后常温放置 2 小时，无特性异常。

10.4 Drop Test 跌落试验

Adaptor shall withstand six times oriented drops from 1000mm onto concrete(fall on each of the 6faces).适配器应承受六次定向下降从1000毫米到混凝土（每一面都落下）。

10.5 Vibration Test Requirement 振动试验

Meet the GB/T 2423.10 95 "electrical and electronic products environmental test Part 2: test method for vibration test, vibration test requirement.满足 GB/T 2423.10—95 《电工电子产品环境试验 第二部分：试验方法 振动试验》振动试验要求。

10.6 impact test 冲击试验

Meet the GB/T 2423.5 95 "electrical and electronic products environmental test Part 2: test method for impact test, impact test requirements.满足 GB/T 2423.5—95 《电工电子产品环境试验 第二部分：试验方法 冲击试验》冲击试验要求。

10.7 Ac switch machine impact test 交流开关机冲击试验

Limit the input voltage, frequency, rated load conditions, subjected to electric shock at least 2000 times, should be able to work properly.极限输入电压、频率，额定负载条件，经受电冲击至少2000次，应能够正常工作。

10.8 Load switch machine test 负载开关机试验

Limit under the condition of the input voltage, frequency, maximum and minimum load impact at least 2000 times, should be able to work properly.极限输入电压、频率条件下，最大和最小负载冲击至少 2000次，应能够正常工作。

11 MECHANICAL CHARACTERISTICS 机械性能

11.1 Appearance 外观

Visual inspection the case have no visual abnormality, no obvious nick, burr and other mechanical damage, outer metal have no rust. Use limit sample to check for any failures。目视检查，无外观异常，表面无明显划痕、毛刺及其它机械损伤，外露金属部分无锈，其它限度根据样品确认。

12 TEMPERATURE REQUIREMENTS 温升要求

Transformer and winding components, power cord, terminal blocks, PCB and other key components comply with the provisions of the IEC60950 / GB4943 temperature;Other devices in its normal operating temperature range.The rated load, the temperature (40 °C) under the condition of bad environment, 变压器和绕组元件，电源线，接线端子，PCB 等关键器件的温升符合 IEC60950/ GB4943 的规定;其他器件在其正常工作温度范围内。额定负载，最恶劣环境温度(40 °C)条件下。

13 DIFFERENT SOUND REQUIREMENTS 异音要求

Power adapter there cannot be any different sound, steady work protection status, under the condition of dynamic load jump with noise and different sounds. Specific test requirements: under the condition of normal temperature, the input voltage range, full load range, at 100 hz - 20 KHZ frequency range, the 20 cm distance, the noise is less than 40db (A) (the bottom of the environment noise is less than 30 db (A)).电源适配器稳态工作时不能有任何异音，保护状态、动态负载跳变条件下不可有啸叫和异音。具体测试要求：常温条件下，全输入电压范围，全负载范围，在 100HZ—20KHZ 频段范围，在 20CM 距离，噪声小于 45dB(A)（环境底噪小于 30dB(A)）。

14 FLAME RETARDANT REQUIREMENT 阻燃要求

The adapter shell, PCB, insulation gasket ,flame resistance applies to UL94V-0, 适配器外壳、PCB、绝缘垫片,可燃性遵循 UL94V-0

15 HEAT RESISTANCE REQUIREMENTS 耐热性要求

The ball pressure test, the indentation is less than 2.0 mm, 壳体球压测试，压痕小于 2.0mm

16 ROHS REQUIREMENT 环保要求


The power supply meets the environmental protection requirements 。该电源符合环保要求。

NAMEPLATE SIGNS /铭牌标志

铭牌/ Name Plate:

单位：毫米/ (Unit: mm)

辐射铭牌



品源之家
PINYUANZHJIA

AC ADAPTER/电源适配器

型号MODEL: PY-2002000

输入INPUT: 200-240V~ 50/60Hz 1.5A MAX

输出OUTPUT: +20A $\overline{=}$ 2A

⚡

警告：非专业人员请勿自行开启此盖。

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

⚡

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

!







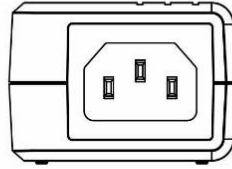

仅适用于海拔2000m
以下地区安全使用

安徽品源之家电源技术有限公司 制造

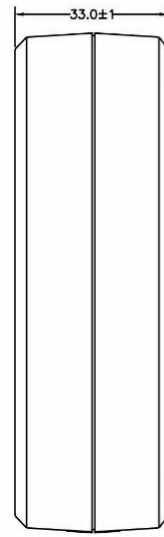
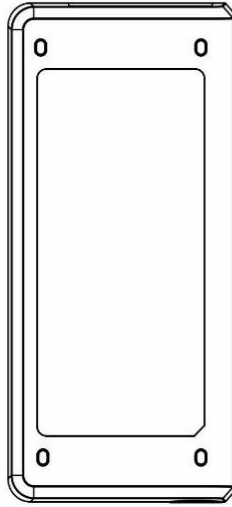
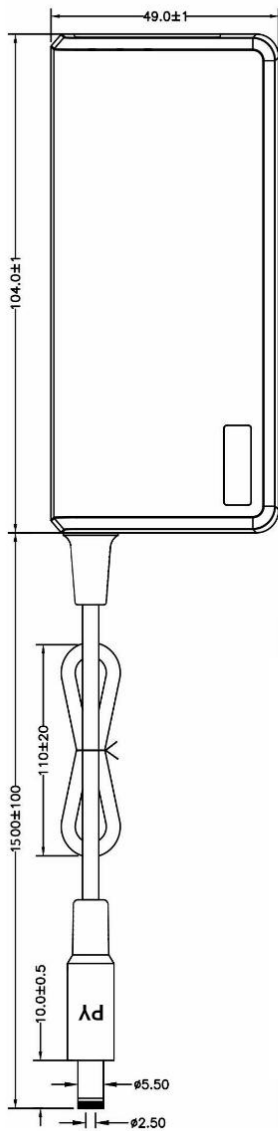
中国制造 /Made in China

DIMENSION AND THE MAIN PARAMETERS 外形尺寸及主要参数
外形尺寸：104*49*33

Black body shell 外壳本体为 黑色 白色

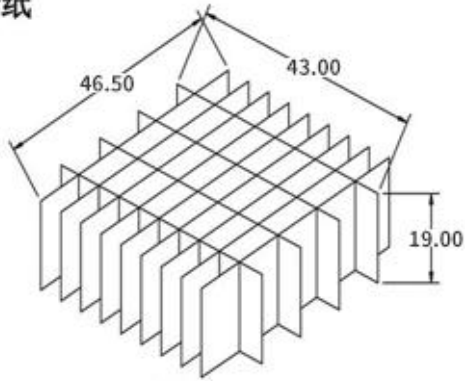


我司制单号，每批次不同

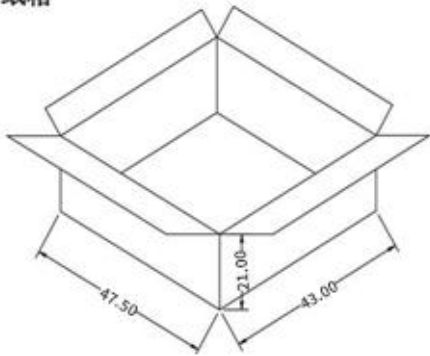


PACKAGING /包装示意图

卡纸



纸箱



尺寸 (单位:CM) / Size (Unit: CM)

	L/长	W/宽	H/高	Item No./ 品号
纸箱 carton	47.5	43	21	PY150010047
卡纸 paperboard	46.5	43	19	PY150010048
PP袋 PP bag	13	19		PY150010071

包装方式/PACKING METHOD:

包装方式 PACKING METHOD	50个每层*1层 50PCS/LAYER X 1LAYERS
数量/ QTY	50个/ 50PCS
净重/每个 / N.W./PC	克/g
毛重/每箱 / G.W./CARTON	千克/kg