HENRYUAN GROUP

**Henryuan Electronic Co., Limited**

**衡睿源電子有限公司**

IS0 9001:2015

# 規格承認書

# SPECIFICATION FOR APPROVAL

| | |
|---|---|
| CUSTOMER / 客戶名稱: | |
| PRODUCT / 產品: | SWITCHING POWER SUPPLY/CHARGER |
| MODEL NO. / 產品型號: | HRY2924000 |
| OUTPUT / 輸出: | 29.2V 4A |
| VERSION./版本: | V/A0 |
| CERTIFICATE/認證： | UL,FCC,CUL,PSE,SAA,CE EMC, LVD, UKCA |
| DATE / 日期: | 2024/5/7 |

| 客戶承認簽字 CUSTOMER AUTHORIZED SIGNATURE | | |
|---|---|---|
| | | |

PLEASE SIGN AND RETURN ONE COPY. 請簽字回傳給我們

With your signature ,you agree that all contents in this approval sheet are correct and all production units will be built according to the specification described in this sheet. 經簽字確認，您同意此承認書中的所有內容，並且所有的產品都將根據此表中規範生產

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SDN: RD-HRY-012

Core values: Respect technology and employees to achieve sustainable development and bring higher value to clients.核心價值觀：尊重技術，尊重員工，實現可持續發展，為客戶創造更高價值

# Directory table(目錄)


| | |
|---|---|
| 1.INPUT PARAMETER/ 輸入參數 | **3** |
| 2.OUTPUT PARAMETER/ 輸出參數 | **3** |
| 3.CHARGING DIAGRAM/充電圖 | **3** |
| 4.SAFETY CERTIFICATE / 安全證書 | **3** |
| 5.EMC STANDARDS / 電磁兼容標準 | **4** |
| 6.PROTECTION DESIGN / 保護設計 | **4** |
| 7.ENVIRONMENTAL CONDITIONS / 環境條件 | **5** |
| 8.RELIABILITY TEST / 信賴性測試 | **6** |
| 9.WEIGHT / 重量 | **6** |
| 10.DIMENSIONS / 尺寸參數 | **6** |
| 11.INSULATION RESISTANCE / 絕緣阻抗 | **6** |
| 12.LEAKAGE CURRENT / 漏電流 | **6** |
| 13 MAJOR MEASURE DEVICE / 主要測量設備 | **6** |
| 14.DIMENSIONS / 尺寸參數 | **7** |
| 15.DC OUTPUT CORD / 輸出線材 | **8** |
| 16.RATING LABEL / 標貼 | **9** |
| | |
| | |
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| | |
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1.INPUT PARAMETER / 輸入參數

1.1 INPUT VOLTAGE RANGE：90Vac - 264Vac. 輸入電壓90Vac-264Vac.

1.2 RATED INPUT VOLTAGE：100Vac - 240Vac. 額定輸入電壓100Vac-240Vac.

1.3 INPUT FREQUENCY RANGE：47Hz - 63Hz. 輸入頻率47Hz-63Hz.

1.4 Maximum AC Current: 3A max(Input 100-240Vac). 最大輸入電流3A(輸入 100-240Vac)

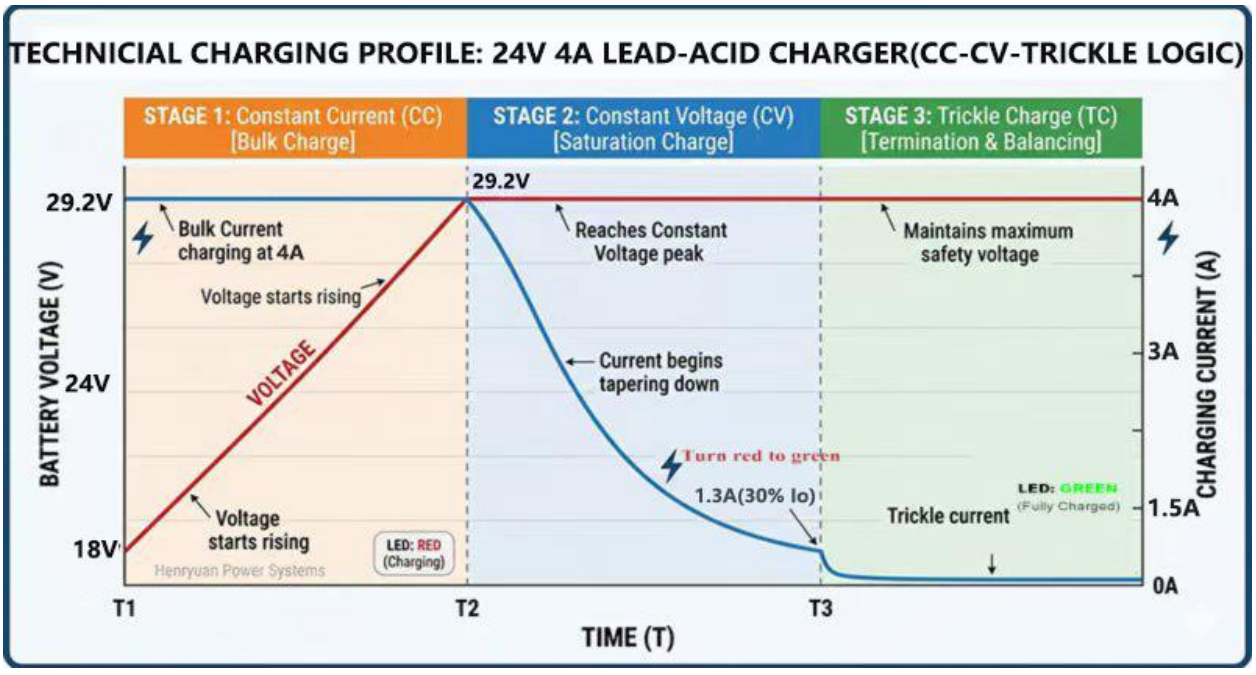
1.5 INRUSH CURRENT：60A max. （Input 100-240Vac) for a cold start at 25℃.在准開機條件下，最大浪湧電流不超過60A (輸入 100-240Vac).

1.6 AVERAGE EFFICIENCY：Input 115/230Vac. and 100%,75%,50%,25% Rated Load condition. Averageefficiency (η):87% MIN,在輸入115/230Vac,輸出100%,75%,50%,25%額定負載,平均效率(η):87% Min

2.OUTPUT PARAMETER/輸出參數

| Output | | Charging Stage | LED Indicator |
|---|---|---|---|
| Current | Voltage | | |
| 4A | 18V-29.2V | Constant Current | Red(Charging) |
| 4A->1.3A | 29.2V | Constant Voltage | Red(Charging) |
| 1.3A->0 | 29.2V | Trickle Current | Green(Fully Charged) |

3.CHARGING DIAGRAM/充電圖



## 4.SAFETY CERTIFICATE／安規證書

4.1 The power unit complies with the following international safety regulations電源應符合下列的國際安全規範標準：

| Certificate | Country |
|---|---|
| ■ UL/CUL | America |
| ■ LVD/ GS | Germany |
| ■ CB | Global |
| ■ PSE | Japan |

| Certificate | Country |
|---|---|
| ■ FCC | America |
| ■ CE | Europe |
| ■ UKCA | United Kingdom |
| ■ SAA/RCM | Australia/New Zealand |

## 5.EMC STANDARDS／電磁兼容標準

5.1 EMI STANDARDS／EMI 標準

The power supply met the radiated and conducted emission requirements for FCC CLASS B, EN55022 CLASS B.
本充電器符合輻射及傳導要求，滿足FCC CLASS B, EN55022 CLASS B.

5.2 EMS STANDARDS／EMS 標準

The power supply shall meet the following EMS standards：
本充電器滿足下列EMS標準

5.2.1 EN61000－4－2：2009／A1：1998 Electrostatic Discharge(ESD)

5.2.2 EN61000－4－3：2010／A1：1998 Radiated Electromagnetic Fields(RS)

5.2.3 EN61000－4－4：2012 Electrical Fast Transient／Burst(EFT)

5.2.4 EN61000－4－5：2014 Lighting Surge Attachment. Line to Neutral：1KV

## 6.PROTECTION DESIGN／保護設計

6.1 OVER CURRENT PROTECTION／過電流保護：

The green mode power supply shall be hiccup when any output operating in overload condition(set@ Max load 100～180% ) under any line condition for an indefinite period of time.The power supply shall be self －recovery when the fault condition is removed.在任何時候任何輸入條件，當輸出操作在超載條件最大充電器的（100～180% ）時，充電器將進入打嗝模式，當故障被移走後，充電器要能自動恢復到正常

6.2 SHORT CIRCUIT PROTECTION / 輸出短路保護：

The power supply shall be hiccup and no damage shall occur when any output operating in a short circuit condition under any line condition for an indefinite period of time. The power supply shall be self－recovery when the fault condition is removed. 在任何時候，任何輸入條件下，當輸出操作在短路情況下，充電器將進入打嗝模式，當故障消失後，充電器要能自動恢復正常。

6.3 REVERSE POLARITY PROTECTION/防反接保護(Optional)

6.3.1. To use Fool-Proof type DC plug.建議使用防呆式設計的DC連接頭
6.3.2.When Connect wrong polarity, the charger will be self-recovery when fault condition is removed. this function is optional, customer could choose it in according to real requirement. 當錯誤操作，反向連接時，充電器進入保護狀態，直到故障解除.此為選配功能，客戶可根據實際情況選擇.

6.4 OVER VOLTAGE PROTECTION: / 輸出过压保護：

The power supply shall protect itself from any over voltage condition. 电源在过压情况下可自动保护。

## 7.ENVIRONMENTAL CONDITIONS / 環境條件

7.1 OPERATING / 操作條件 ：

The power supply shall be capable of operating continuously in any mode without performance deterioration in the following environmental conditions.在下列環境條件下，充電器要能夠連續操作在各種模式，且不能造成性能的退化。

7.1.1 Operation Temperature：-25℃～40℃ 工作測度：-25℃～40℃

7.1.2 Relative Humidity：10%～90% 相對濕度：10%～90%

7.1.3 Vibration：1.0mm, 10－25Hz，15 minutes per cycle for each axis (X, Y, Z)

7.1.4 Cooling：The power supply will operate with convection cooling. Blocking of vents must not cause damage to The power supply. 充電器將操作在對流冷卻的環境下，即使將通風口阻塞充電器也不允許有任何損傷發生。

7.2 NON - OPERATING / 非操作條件：

The power supply shall be capable of withstanding the following environmental conditions extended periods of time, without sustaining electrical or mechanical damage and subsequent operational deficiencies：
充電器要能夠長期的經受下列的環境條件，且不允許有電氣級機械方面的損傷和併發的操作的缺失

7.2.1 Storage Temperature：－30℃～70℃ 儲存溫度：－30℃～70℃

7.2.2 Relative Humidity：10%～90%相對濕度：10%～90%

7.2.3 Color of case and cable / 外殼及線材顏色：Black / 黑色

7.2.4 Vibration and Shock／振動和衝擊

The power supply shall be designed to withstand normal transportation vibration per MIL－STD－810D,method 514 and procedures X, as it s mounted in the chassis assembly and packed for shipping.
充電器出貨的包裝設計，均要能承受正常運輸的振動，並符合MIL－STD－810D方法514 和程式 X。

7.2.5 Dropping Testing／跌落試驗：

X-Y-Z direction 100cm,one time with each direction
X-Y-Z三個方向高度1m每個方向各一次。

8.Reliability 信賴性測試

8.1 BURN－IN／老化 The power supply shall undergo a minimum of 4 hours Burn－In test under full load at 40℃～±5℃. 充電器應在40℃～±5℃和滿載條件下老化4小時。

8.2 COMPONENT DERATING／元件溫度要求 Semiconductor junction temperatures shall not exceed the manufacturer's maximum thermal rating.半導體結溫不允許超過其製造商要求的最大溫度值。

IELECTRIC WITHSTANDING STRENGTH(HI-POT)／絕緣介電強度（耐壓）

8.3 Primary to Secondary AC3000V, 10mA,1 minute for type test, 3 second for production.
一次側對二次側：AC3000V, 10mA標準測試1分種，量產測試3秒鐘.

9.WEIGHT／重量 The weight of the power supply shall be about 350 g. 充電器的重量大約為 350 g

10.DIMENSIONS／尺寸參數

The power supply size:L153*W39.5*H60MM.外殼尺寸：L153*W39.5*H60MM

11. INSULATION RESISTANCE／絕緣阻抗 Input to output：50M OHM(500VDC)輸入對輸出50兆歐姆(500VDC)

12.LEAKAGE CURRENT／漏電流

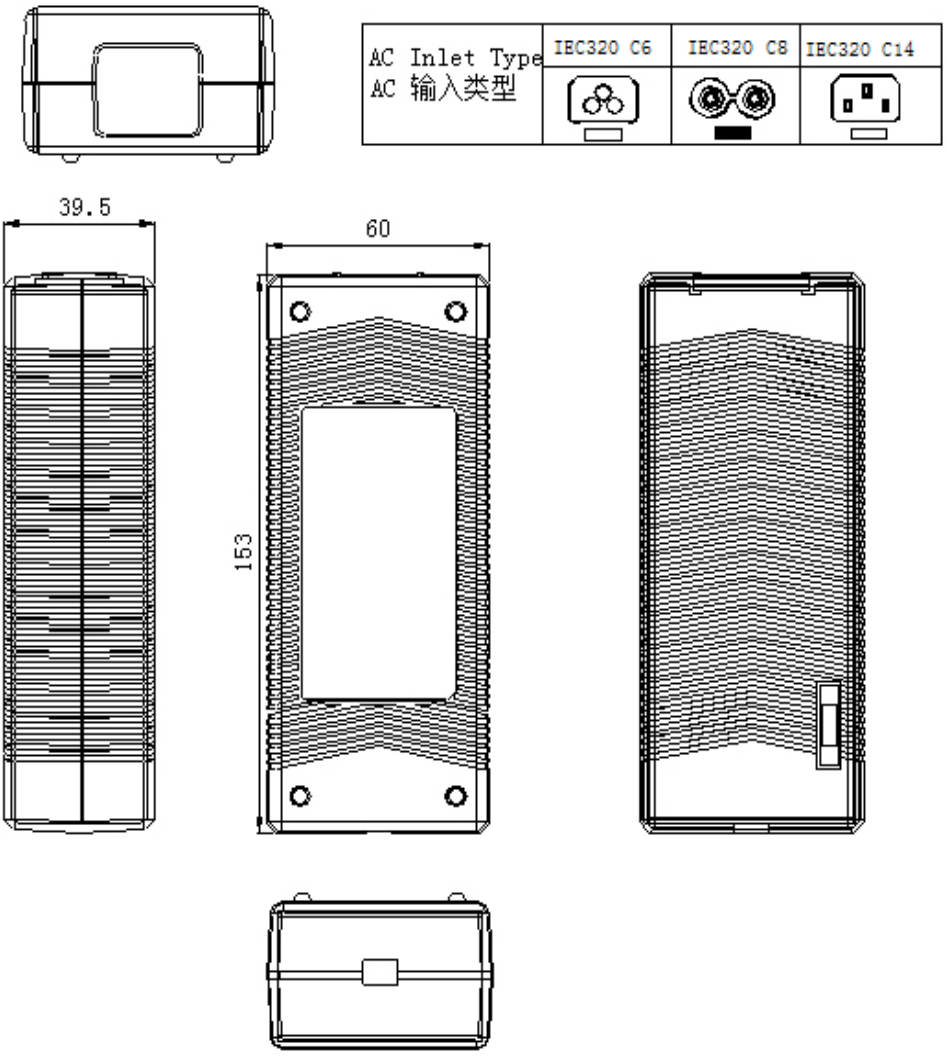
The leakage current shall be less than 0.25mA for class II when power supply is operated maximum input voltage and maximum load. 當充電器操作在最大輸入及最大負載情況下，其漏電流應小於0.25mA, 滿足class II等級。

13 MAJOR MEASURE DEVICE／主要測量設備

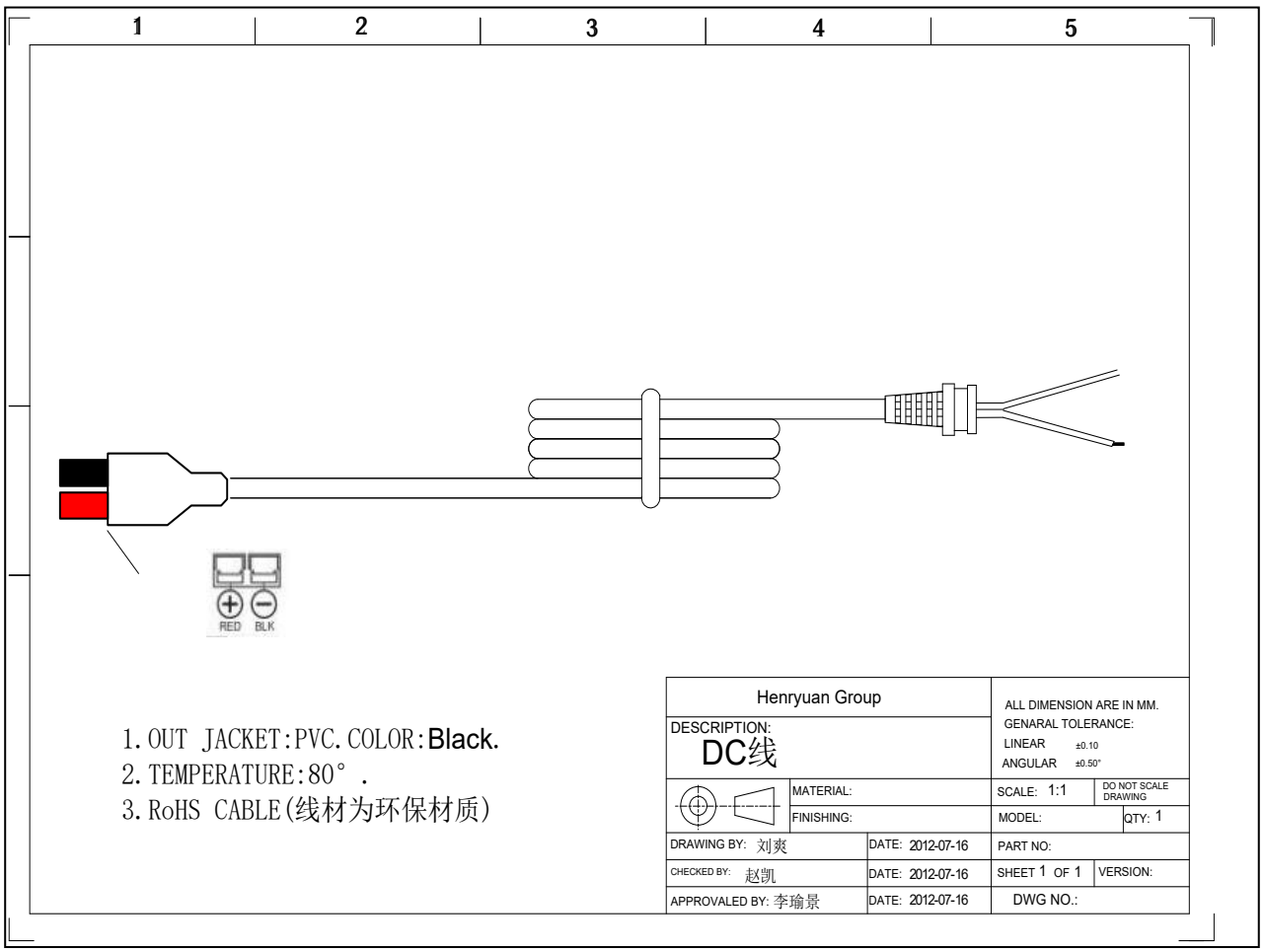
A. AC SOURCE／交流输入电源：AFC－500W
B. POWER METER／电源功率计：CHROMA 2100
C. ELECTRONIC LOAD／电了负载：PRODIGIT 3310C
D. OSCILLOSCOPE／存储示波器：TDS-2012B
E. DIGITAL MULTIMETER／数字式万用表：Fluke 4.5
F. DC POWER／直流输入电源：WYK－6030
G. HI－POT TESTER／耐压测试仪：LANKE ELECTRONICS 7112
H. INSULATION RASISTANCE TESTER／绝缘电阻表：YD2681A

14.DIMENSIONS / 尺寸參數

Unit / 單位:mm



15.DC OUTPUT CORD / 輸出線材




| Description（描述） | |
|---|---|
| Cable Specifications(線材規格） | UL2464 18AWG 1.2M Black |
| Size of DC connector（DC頭尺寸） | Anderson PP30, Red + Black - |