

## SPECIFICATION FOR APPROVAL

### 承认书

客户 / CUSTOMER	:	
客户型号 / CUSTOMER P/N	:	
产品名称 / ITEM	:	4槽RCR123A 4.2V锂离子充电器
产品种类 / DESCRIPTION	:	槽充/slottype charger
本公司产品型号 / OUR MODEL NO.	:	CH-RMU006-01
标准 / STANDARD	:	
额定 / RATING	:	I/P: DC 12V1A
		O/P: DC 3.7V 400mA × 4CH
备注 / REMARKS	:	

注意:在贵司出单前,请确认签回以下项目/Attention: Before placing orders, please confirm to sign back the followings:

- ☐ 产品规格(首页)/Production Spec(Front Page)
- ☐ 铭牌规格(如有)/Nameplate Spec(if any)
- ☐ 包装规格(如有)/Packing Spec(if any)

版本 REV	描述/DESCRIPTION	日期 DATE
A0	首次发行/FIRST EDITION	2016-04-29
A1	修改温度参数/CHANGE TEMPERATURE PARAMETERS	2016-10-31
A2	修改格式/CHANGE FORMAT	2019-01-14

瑞鼎电子/ Ryder Electronics	
	批准/Approved by
签名 Signature	衣绍鹏
日期/DATE	2019-01-14

客户/CUSTOMER	
确认	
Approved by	
	(签字或公司盖章)
日期/DATE	

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## 1. 产品特点 Product characteristics

- 本机是一款 4 槽 RCR123A 锂离子 3.7V 电池充电器，采用智能型单片机控制；4 槽独立恒流恒压充电方式，带有预充功能，确保充电的质量及安全。It is a RCR123A 3.7V Li-ion 4-slot battery charger with MCU. Each channel charges with CC-CV separately, with pre-charge function, to ensure charging quality and safety.
- 具有电池反接保护功能，确保充电器及电池在误操作（接反）的情况下不会损坏充电器及电池。Battery reverse connection protection function, to make sure that battery or charger will not be damaged under the condition of reverse.
- 双色发光 LED 指示充电状态，显示直观。Bicolor LED.
- 外置的适配器 100-240VAC 50/60Hz 宽电压输入，适应全球。Input voltage: 100-240V AC 50/60Hz

## 2. 电气性能 Electrical characteristics

### 2.1 外置电源适配器输入输出特性 Input and output characteristics of adapter

#### 1.1.1 输入电压 Input voltage

AC 100V~240V 50HZ/60HZ

#### 1.1.2 输出直流空载电压 Output DC no-load voltage

DC: 12.0V  $\pm 5\%$

#### 1.1.3 输出电流 Output current

1A

### 2.2 本充电器输出特性 Charger's output characteristics

#### 2.2.1 输出空载电压 Output no-load voltage

$5 \pm 0.5V \times 4CH$

#### 2.2.2 额定充电电流：（正常充电条件下） Charging current (under normal charging condition)

预充电电流 Pre-charging current:  $40mA \pm 10\% \times 4CH$  @CV<2.5V

额定充电电流 Rated charging current:  $400mA \pm 10\% \times 4CH$  @CV=3.7V

#### 2.2.3 充电电压范围 The range of charging voltage

2.50V- 4.25V  $\times 4CH$

#### 2.2.4 充饱转灯电压 The voltage of turn LED after fully charged

当电池到充饱状态时由红灯转为绿灯的电流，称为转灯电流

When battery is near full-charged state,

the current that cause LED turn to green from red is called turn light current.

转灯电流 The turn light current:  $50mA \pm 10\% \times 4CH$

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2.2.5最大充电时间 (Maximum charging time) : 3 hours

2.2.6充电方式 Charging method

采用恒流恒压充电方式 constant current and voltage method.

2.2.7短路电流 Short-circuit current

当充电器输出端短路, 充电器进入短路保护状态, 指示灯红灯快闪, 短路电流 < 5mA /CH

When the output of charger occurs short-circuit, the charger applies protection and LED will quickly flash in red. short-circuit < 5mA /CH

2.2.8反接保护电流 The current of reverse protection

充电器反接保护电流 The current of reverse protection: ≤10mA /CH 指示灯红色快速闪烁告警

(当电池接反时, 充电器会自动保护, 不会损坏充电器。注意: 不要将充电器、长时间反接。)

(When battery polarity is reverse, charger will apply protection automatically, charger will not be damaged. Caution: do not let the battery reversed for a long time) .

2.2.9充电器反向漏电流 Chargers reverse leakage current

充电器反向漏电流 Chargers reverse leakage current: ≤1mA /CH, (当无市电输入时, without AC input)

(当电池在正常充电过程中, AC 断电时电池包通过充电器放电的电流称反向漏电流, 小的漏电流有利于保持已充入电池的电量。)

(when the battery is under normal charging process, when AC input cut off, the current discharged through charger by battery pack is named reverse leakage current. Small reverse leakage current is benefit to maintain battery's quantity of electricity.)

2.2.10适用电池 Suitable battery

本充电器只适合用于 Tenergy 30281/34153/34154 RCR123A 锂离子电池充电。

This charger is only suitable for Tenergy 30281/34153/34154 RCR123A Li-ion battery

2.2.11过热保护 Over-heat protection

充电器自身具有过热保护功能, 达到 60±5℃时, 将会停止充电。

Charger itself has the over-heat protection, when the temperature of key components is over 60 ±5℃, the charger will stop charging.

### 3. 充电方式及 LED 指示状态 Charging method and LED status

#### 3.1 LED 指示 LED indication

充电器上电充电指示灯——红绿交替亮一秒后熄灭

不接电池充电指示灯——熄灭

充电状态充电指示灯——红灯常亮

充饱状态充电指示灯——绿灯常亮

输出短路或反接充电指示灯——红灯快闪

电池电压小于 1V 充电指示灯——红灯慢闪

Power on

LED---red and green light flash for 1 sec alternately then light off

No battery

LED---turn off

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Charging LED---keep red  
 Fully charged LED---keep green  
 Short-circuit or battery is reversely connected LED---red light flash quickly  
 Battery's voltage is lower than 1V LED---red light flash slowly

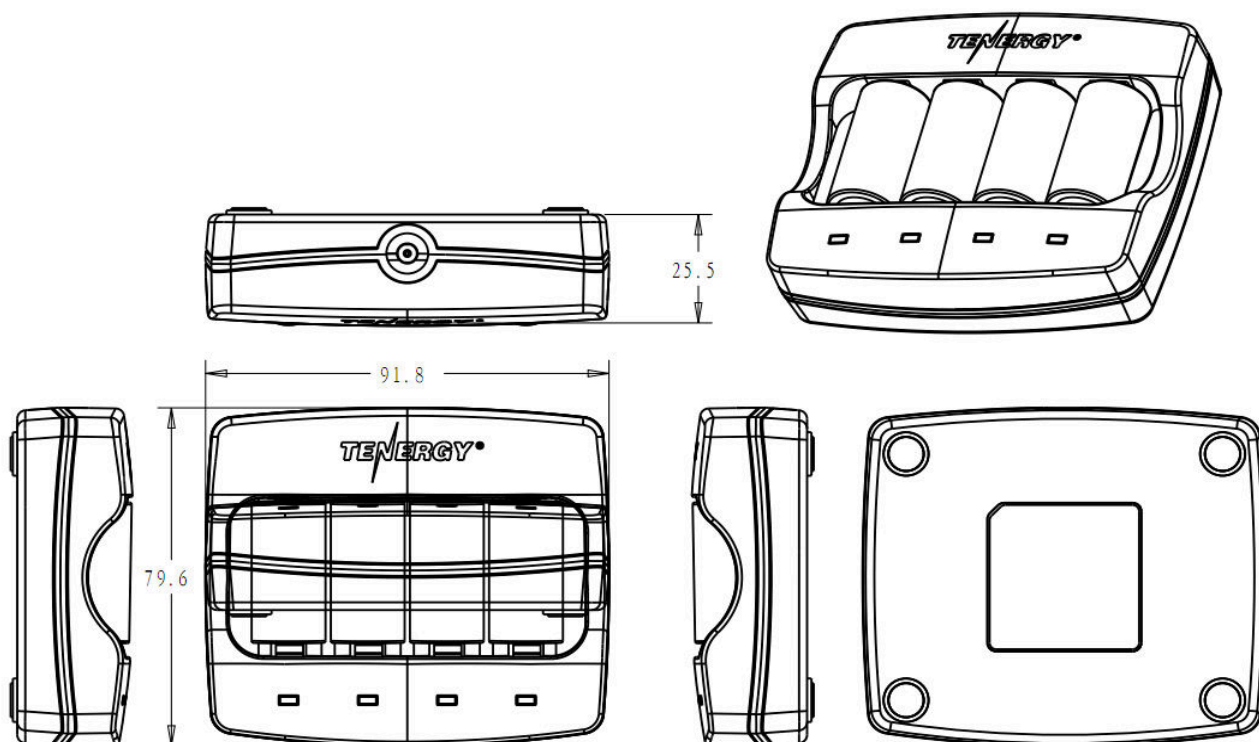
## 4. 适用环境 Applicable environment

- 4.1 工作温度 Working temperature  
 0~40℃
- 4.2 工作湿度 Working humidity  
 ≤90% （不结露, No condensation）
- 4.3 贮存温度 Storage temperature  
 -20~+70℃
- 4.4 存储湿度 Storage humidity  
 Relative humidity ≤85%
- 4.5 大气压力 Atmospheric pressure  
 70~106KPa

## 5. 机械 Mechanics

- 5.1 本充电器外观图 Charger appearance  
 具体外观颜色及印字按客户要求定制 The appearance and print can be customized

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## 5.2 本充电器铭牌标贴 Charger label

铭牌具体规格可按客户要求订制 Charger label can be customized

## 5.3 适配器 Adapter

外置适配器具体外观颜色及 AC 输入插头标准按客户要求定制。

Outlay adapter's color and AC input plug can be customized

## 5.4 车载头 Car charger

外置车载头具体外观颜色按客户要求定制。

Car charger's appearance can be customized

# 6. 可靠性能 Reliable performance

- 高温试验：实验温度为  $65^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ，产品不包装，持续时间为 5 小时。在常温下放置待恢复后对其外观、指示功能及电气性能进行重新测试。外观应平整无划痕、毛刺以及其它机械损伤，外露金属部分不应有锈蚀；LED 指示功能及电气性能正常。

High temperature test: under  $65^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , the charger without packing, last for 5 hours. Then take it into the room temperature, test its appearance, LED and electrical specification. The appearance should have no scratches, burrs and other mechanical damage, metal parts rust

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should have no corrosion. LED indicator and electrical specification works normally

- 低温试验：实验温度为 $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ，产品不包装，持续时间为 8 小时。在常温下放置待恢复后对其外观、指示功能及电性能进行重新测试外观应平整无划痕、毛刺以及其它机械损伤，外露金属部分不应有锈蚀； LED 指示功能及电气性能正常。

Low temperature test: under  $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , the charger without packing, last for 8 hours. Then take it into the room temperature, test its appearance, LED and electrical specification. The appearance should have no scratches, burrs and other mechanical damage, metal parts rust should have no corrosion. LED indicator and electrical specification works normally

- 恒定湿热试验：实验温度为  $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ，湿度为 90%~95%，产品不包装，持续时间为 48 小时。测试后对其外观、指示功能及电性能进行重新测试。外观应平整无划痕、毛刺以及其它机械损伤，外露金属部分不应有锈蚀； LED 指示功能及电气性能正常。

The constant humidity and heat test: under  $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , humidity 90%~95%, the charger without packing, last for 48 hour. Then test its appearance, LED and electrical specification. The appearance should have no scratches, burrs and other mechanical damage, metal parts rust should have no corrosion. LED indicator and electrical specification works normally

- 振动试验：频率为 10~55HZ，振幅为 0.35mm，每个方向上扫频循环次数为 10 次。实验后对其外观、指示功能及电性能进行重新测试。外观应平整无划痕、毛刺以及其它机械损伤，外露金属部分不应有锈蚀； LED 指示功能及电气性能正常。

Vibration test: 10~55HZ, amplitude 0.35mm, Sweep cycles in each direction 10 times. Then test its appearance, LED and electrical specification. The appearance should have no scratches, burrs and other mechanical damage, metal parts rust should have no corrosion. LED indicator and electrical specification works normally

- 跌落试验：高度为 1 米，实验台厚度为 20mm 的硬木板，6 个表面，每个方向 1 次。实验后对其外观、绝缘强度、指示功能及电性能进行重新测试，电性能应满足要求。外观无破损，内部无异响。

Drop test: from 1M, the test platform is the hardboard with 20mm thickness. 6 surface, once in each direction. Then test its appearance, Dielectric strength, LED and electrical specification. Electrical specification should meet the requirements. The appearance no damage, no abnormal noise inside

## 7. 外观要求 Appearance requirement

充电器外壳表面平整无划痕，毛刺及其它机械损伤，丝印完整清晰，外露金属部份无锈蚀。

Charger case should be smooth and no scratches, burrs and other mechanical damage, complete and clear screen, the exposed metal parts no rust

## 8. 体积与重量 Volume and Weight

### 8.1 体积 Volume

$91.8 \times 79.6 \times 25.5 = 186336 \text{mm}^3$

### 8.2 重量 Weight

Net: 92g

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## 9. 抽样标准 Sampling Standard

产品抽样检验参照 MIL-STD-105E 标准制定满足本公司产品品质检验之抽样计划，并严格督导实施。当客户或合同有特殊要求时。可按客户和合同要求执行。

Product sampling reference MIL-STD-105E standards to meet the company's products quality inspection of the sampling plan, and implement strict supervision. Standard also can be based on the customer requirements.

## 10. 包装 Packing

产品包装方式按客户要求订制。

Packing can be customized

## 11. 使用注意事项 Caution

- 不可以拿本充电器充适应范围以外的电池。  
Only suitable for 3.7V RCR123A Li-ion battery.
- 不可在超过 40℃ 环境使用本充电器对电池充电  
Do not use the charger when temperature is over 40℃
- 充电时请远离热源和火源。  
Far away from heat and fire
- 请勿在酸、碱、和有腐蚀的环境中使用本充电器及电池。  
Do not use the charger under the environment of acids, alkalis, and corrosion
- 请勿将充电器进水或淋雨，以免引起安全问题。  
Do not place the charger into rain or water, or may cause problems
- 请勿自行拆开充电器和电池，以免发生危险。  
Do not disassemble charger and battery, to avoid danger
- 不得让小孩单独使用本充电器。  
Do not let children use the charger alone

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