

SPECIFICATION FOR APPROVAL

承认书

客户 / CUSTOMER : _____

客户型号 / CUSTOMER P/N : _____

产品名称 / ITEM : AC 1串4.2V1A锂离子充电器/ AC 1 Series 4.2V1A Lithium Ion Charger

产品种类 / DESCRIPTION : 线充/ Wire type charger

本公司产品型号 / OUR MODEL NO. : CH-RLi001-01

标准 / STANDARD : _____

额定 / RATING : I/P:AC 100V~240V 50HZ/60HZ
O/P:DC 4.2V 1.0A


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 |
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| 瑞鼎电子/ Ryder Electronics | |
| | 审核/Checked by |
| 签名 Signature | 衣绍鹏 |
| 日期/DATE | 2019-1-28 |

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| 确认 |
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1 产品特点:

- 本产品是一款单节锂电池充电器，采用恒定电流/恒定电压线性控制；确保安全。This product is a single lithium battery charger with constant current/constant voltage linear control to ensure safety.
- 适合 1000mAh-10000mAh 的电池充电。Suitable for 1000 mAh-10000 mAh battery charging.
- 充电时只需将充电器输出端接头与电池包正、负极正确连接；接入 AC 电源即可，使用非常方便。When charging, it is only necessary to connect the outlet connector of the charger with the positive and negative poles of the battery pack correctly. It is very convenient to use AC power supply.
- 双色发光 LED 指示充电状态，显示直观。Dual-color light-emitting LED indicates charging status and shows intuitively.
- 宽电压输入设计，100-240VAC 50/60Hz 适应全球。Wide voltage input design, 100-240VAC 50/60Hz to adapt to the global.

注意：请不要拿本充电器充适应范围以外的其它电池及电池包，本规格书所提及的所有电池均指单节锂离子/锂离子聚合物电池。**Note: Please do not use this charger to charge other batteries and battery packs beyond the scope of application. All batteries mentioned in this specification refer to single lithium ion/lithium ion polymer batteries.**

2 电气性能 Electrical Characteristics

2.1 输入特性

2.1.1 输入电压 Input Voltage

输入电压：Input Voltage AC **100V~240V 50HZ/60HZ**

2.1.2 额定输入电压范围 Range of rated input voltage

额定输入电压及频率范围：Rated input voltage and frequency range AC 90V~260V 47HZ~63H.

2.1.3 额定输入电流 Rated input current

在额定输入电压及输出满载情况下，输入电流小于 0.2A。Under rated input voltage and full load, the input current is less than 0.2A.

2.1.4 浪涌电流 Surge current

浪涌电流：Surge current 30A/ MAX

2.1.5 最大漏电流

最大漏电流：Maximum leakage current ≤ 0.25 mA

2.1.6 启动延迟时间 Startup delay time

接入市电时，启动延迟时间： $\leq 3S$ Start-up delay time: $<3S$ when accessing power market

2.2 输出特性 Output characteristics

2.2.1 输出空载电压 Output no-load voltage

空载电压：No-load voltage $4.2V \pm 0.05V$

2.2.2 额定充电电流：Rated Charging Current (正常充电条件下 Normal Charging Conditions)

额定充电电流：Rated charging current (CV=3.7V 时的电流 Current at CV = 3.7V) $1.0A \pm 10\%$

2.2.3 充饱转灯电流 Full switching current

当电池快到充饱状态时的电流，由红灯转为绿灯检测电流，称为转灯电流；When the battery is fast to full state, the current is changed from red light to green light to detect the current, which is called switching current.

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转灯电流: $\leq 150\text{mA}$ Turn-lamp current: $<150\text{ mA}$

2.2.4 充电方式 Charging Method

采用恒流恒压充电方式 Constant Current and Constant Voltage Charging Method

2.2.5 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, 指示灯灭, 短路电流 $< 50\text{mA}$; When the output terminal of the charger is short-circuit, the charger enters the short-circuit protection state, the indicator lights out, and the short-circuit current is less than 50 mA .

2.2.6 充电器反向漏电流 Reverse leakage current of charger

充电器反向漏电流: $\leq 1\text{mA}$, (当无市电输入时) Reverse leakage current of charger: $<1\text{mA}$, (when no electricity input is available)

(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。) During the normal charging process, when AC is off, the current discharged by the battery pack through the charger is called reverse leakage current. A small leakage current is beneficial to maintaining the charge of the battery.

2.2.7 输出纹波 Output ripple

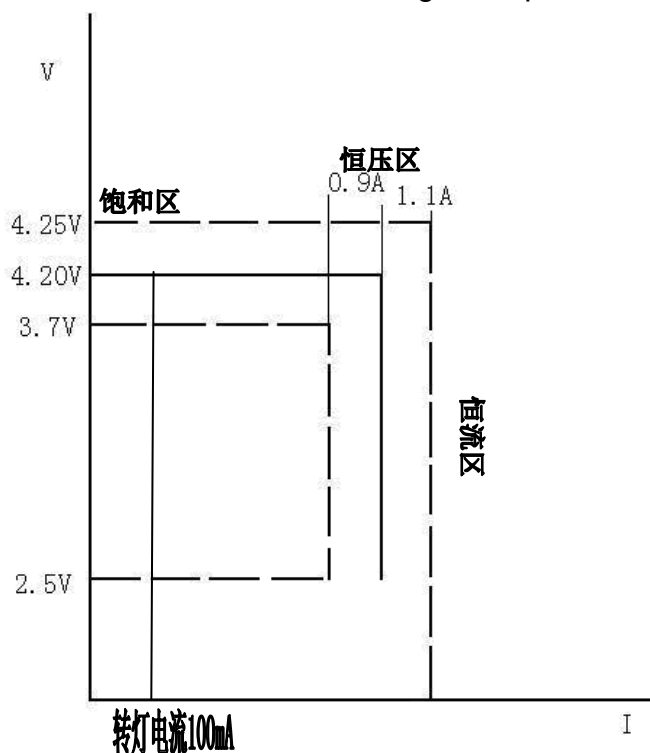
输出纹波: $\leq 150\text{mV}$ (CV=3.7V/1A 时) Output ripple: $<150\text{ mV}$ (CV=3.7V/1A)

2.2.8 适用电池 Applicable Batteries

本充电器适用于单节锂电池充电 The charger is suitable for charging single lithium battery.

3 充电方式及 LED 指示状态 Charging mode and LED indication status

3.1 充电器输出特性曲线 Charger Output Characteristic Curve



3.2 LED 指示 LED Indicators

不接电池 No battery 充电指示灯——绿灯常亮 Charging Indicator Light - Green Light always on
 充电状态 Charging state 充电指示灯——红灯常亮 Charging Indicator Lamp - Red Lamp always on
 充电饱状态 Full state 充电指示灯——绿灯常亮 Charging Indicator Light - Green Light always on
 输出短路 Output short circuit 充电指示灯——熄灭 Charging Indicator - Turn Out

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4 适用环境 Applicable environment

4.1 工作温度 Working temperature

在 0~+40℃ Between 0 ~+40 C

4.2 工作湿度 Working humidity

工作湿度: ≤90% (不结露) Working humidity: <90% (no condensation)

4.3 贮存温度 Storage temperature

贮存温度: -20~+80℃ Storage temperature: - 20 ~ + 80 ~C

4.4 存储湿度 Storage humidity

相对湿度: ≤85% Relative humidity: <85%

4.5 大气压力 Atmospheric Pressure

大气压力: 70~106KPa Atmospheric pressure: 70-106 KPa

5 安全要求 Safety requirements

5.1 抗电强度 Anti electric strength

初、次级抗电强度≥3000VAC 50HZ/60HZ 正弦波有效值一分钟无击穿、飞弧现象,漏电流≤10 mA
No breakdown and arc phenomena occur in one minute when the primary and secondary resistances are greater than 3000VAC 50HZ/60HZ, and the leakage current is less than 10 mA

5.2 绝缘电阻 insulation resistance

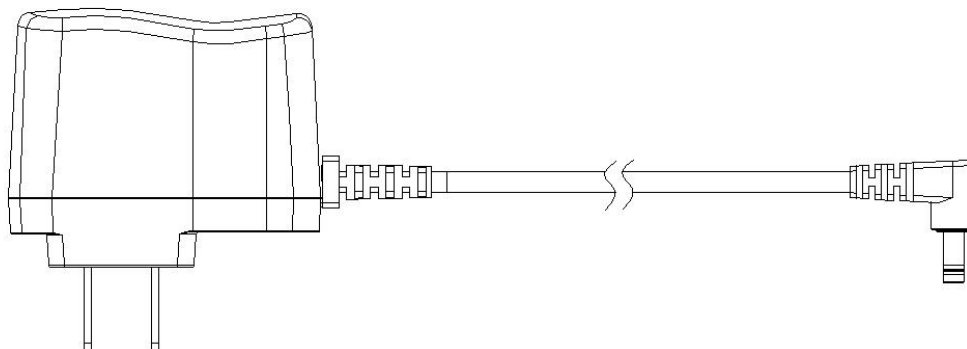
绝缘电阻≥10MΩ(在 DC500V 条件下) Insulation Resistance (> 10M) (under DC500V condition)

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6 机械 Mechanics

6.1 外观图: Appearance plan

外壳颜色: 实际外观颜色或印字内容按客户订制 Shell color: actual appearance color or print content customized by customer



6.2 输入 AC 头标准 Input AC Header Standard

具体 AC 头标准规格按客户要求订制 Specific AC Head Standard Specifications According to Customer Requirements

6.3 输出线材 DC 极性要求 DC Polarity Requirements for Output Wire

具体 DC 插头标准及线材标准按客户要求订制 Specific DC plug standards and wire standards are customized according to customer requirements

音叉 4.0*1.7*9.5DC 头 线芯颜色: 红, 白 Tuning Fork 4.0*1.7*9.5DC Head Core Color: Red, White

6.4 铭牌标贴 Nameplate label

具体内容按客户要求订制 Specific content customized according to customer requirements

7 可靠性能 Reliable characteristics

1. 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、绝缘强度、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; 绝缘测试无击穿、飞弧现象; 成品电性能正常; LED 指示功能正常。High temperature test: the temperature of the experiment is 65 ± 2 . The product is not packaged and lasts for 5 hours. After restoring at room temperature, the appearance, insulation strength, indicating function and electrical performance of the device are re-tested. Appearance should be flat without scratches, burrs and other mechanical damage, exposed metal parts should not be rusted; insulation testing without breakdown, arc phenomenon; electrical performance of finished products is normal; LED indicator function is normal.

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2. 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、绝缘强度、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；绝缘测试无击穿、飞弧现象；成品电性能正常；LED 指示功能正常。Low temperature test: the experimental temperature is $-20 (+3 (?)^{\circ}\text{C}$, the product is not packaged and lasts for 8 hours. After restoring at room temperature, the appearance, insulation strength, indicating function and electrical performance of the device are re-tested. Appearance should be flat without scratches, burrs and other mechanical damage, exposed metal parts should not be rusted; insulation testing without breakdown, arc phenomenon; electrical performance of finished products is normal; LED indicator function is normal.
3. 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、绝缘强度、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；绝缘测试无击穿、飞弧现象；成品电性能正常；LED 指示功能正常。Constant humidity and heat test: the experimental temperature is $40 \pm 2^{\circ}\text{C}$ and the humidity is 90%-95%. The product is not packaged and lasts for 48 hours. After testing, its appearance, insulation strength, indicating function and electrical performance were re-tested. Appearance should be flat without scratches, burrs and other mechanical damage, exposed metal parts should not be rusted; insulation testing without breakdown, arc phenomenon; electrical performance of finished products is normal; LED indicator function is normal.
4. 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、绝缘强度、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；绝缘测试无击穿、飞弧现象；成品电性能正常；LED 指示功能正常。Vibration test: the frequency is 10-55 HZ, the amplitude is 0.35 mm, and the frequency sweeping cycles in each direction are 10 times. After the experiment, its appearance, insulation strength, indicating function and electrical performance were re-tested. Appearance should be flat without scratches, burrs and other mechanical damage, exposed metal parts should not be rusted; insulation testing without breakdown, arc phenomenon; electrical performance of finished products is normal; LED indicator function is normal.
5. 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，外观应无机械破损，外露金属部分不应有锈蚀；绝缘测试无击穿、飞弧现象；成品电性能正常；LED 指示功能正常；成品内部应无异响。Drop test: Hardwood board with height of 1 meter and thickness of 20 mm, 6 surfaces, once in each direction. After the experiment, its appearance, insulation strength, indicating function and electrical performance were re-tested. There should be no mechanical damage in the appearance, no rust in the exposed metal part, no breakdown and arc phenomenon in the insulation test, normal electrical performance of the finished product, normal LED indicating function and no abnormal sound inside the finished product.

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8 外观要求外观要求 Appearance requirements

- 9 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。The surface of the charger shell is flat and without scratches, burrs and other mechanical damage. The screen printing is complete and clear, and the exposed metal part is free from rust.

10 体积与重量 Volume And Weight

10.1 体积 Volume

体积 L 60 * W 65* H 26 mm³ Volume L 60 * W 65* H 26 mm³

10.2 重量 weight

净重: 209g Net weight 209g

11 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。Sampling inspection of products refers to the MIL-STD-105E standard to formulate a sampling plan to meet the company's product quality inspection, and strictly supervise the implementation. When customers or contracts have special requirements. It can be executed according to customer and contract requirements.

12 包装 Packing

产品配套白盒/彩盒包装, 具体包装方式可按客户要求订制。The products are packaged in white boxes/colour boxes. The specific packaging methods can be customized according to the customer's requirements.

13 使用注意事项 Caution

1. 不可以拿本充电器充适应范围以外的电池。This charger should not be used to charge batteries beyond the scope of application

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2. 不可在超过 40℃环境使用本充电器对电池充电；建议在 35℃以下的环境下充电，电池在充足的时候有轻微的发热，属正常现象，请放心使用。This charger should not be used to charge batteries in the environment of over 40 C. It is recommended to charge batteries under 35 C. It is normal for batteries to have slight fever when they are sufficient. Please rest assured that they will be used.
3. 充电时请远离热源和火源。Keep away from heat and fire sources when charging.
4. 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 this charger or battery in acid, alkali or corrosive environment
5. 请勿将充电器进水或淋雨，以免引起安全问题。Do not water or rain the charger to avoid causing safety problems.
6. 请勿自行拆开充电器和电池，以免发生危险。Do not disassemble chargers and batteries on your own to avoid danger.
7. 不得让小孩单独使用本充电器充电。Children should not be allowed to charge with this charger alone.

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