

SPECIFICATION FOR APPROVAL

承认书

客户 / CUSTOMER : _____

客户型号 / CUSTOMER P/N : _____

产品名称 / ITEM : **DC 8槽0.5A镍氢/镍镉LED充电器**

产品种类 / DESCRIPTION : **槽充**

本公司产品型号 / OUR MODEL NO. : **CH-RMH240-01**

标准 / STANDARD : _____

额定 / RATING : **I/P:DC 12V 1500mA**

O/P:DC1.2V AA500mA×8CH

O/P:DC1.2V AAA300mA×8CH


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 RELEASE	2010-11-23
A1	修改格式/CHANGE FORMAT	2019-01-15

瑞鼎电子/ Ryder Electronics	
	批准/ Approved by
签名 Signature	衣绍鹏
日期/DATE	2019-01-15

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

1. 本充电器是一款配 AC 适配器 12.0V /1500mA DC 输入，采用单片机智能控制，精确监测电池电压，确保充电电池不过充、不欠充。It is a 8-slot PWM switching model quick charger with Adopt intelligent single chip control and accessory adapter(12V/1.5A). with accurate detection of battery's status , each channel can control charging quality to prevent insufficient charge and overcharge.
2. 本充电器适用于 1.2VAA/AAA NI-MH/NI-CD 电池充电。8 slots charging separately. AA/AAA battery can be mixed to charge.
3. 恒电流充电模式， $-\Delta V$ 检测,确保对电池快速充电。Constant current charging model, $-\Delta V$ detection, quick charge.
4. 连接好适配器与充电器，将电池正确插入充电槽，适配器接入市电即可进行充电，使用方便。Convenience with DC connection and correct battery placing.
5. 电池自动识别功能，能识别电池及电池的好坏，对电池以外的其它负载将自动停止充电。
6. 8 小时充电安全时间限制，确保使用安全。Limitation of 8-hours charging time for safety
7. 双色发光二极管指示充电状态，显示直观。Bicolor LED
8. 有 NI-CD 电池放电功能，可消除 NI-CD 电池记忆效应。NI-CD battery discharge function. It can dismiss NI-CD battery memory effect.
9. 配套的 DC 适配器 AC 宽电压输入，适应全球电压；使用非常方便。Accessory adapter's input:100-240V AC 50/60Hz

说明：NI-CD 电池充电前请先按充电器的  放电按钮，充电器将先进行电池放电后自动转充电；以消除 NI-CD 电池记忆效应。

Caution : press  button before charge NI-CD. Charger will discharge NI-CD battery then turn to charge period automatically.

2 电气性能 Electrical Specification

2.1 外置电源适配器输入输出特性 Input voltage of adapter

2.1.1 配套 AC 电源适配器输入电压 Input voltage of adapter

输入电压 Input voltage: 100V-240V~ 50Hz/60Hz

2.1.2 配套 AC 电源适配器输出直流空载电压 Output voltage of adapter

输出 DC output DC voltage: 12.0V

2.1.3 配套 AC 电源适配器额定输出电流 Output current of adapter

输出电流 output current :1500mA

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2.2 本充电器输出特性 Output characteristics

2.2.1 充电通道空载电压 No-load Voltage

充电通道空载电压 No-load voltage: $2.0V \pm 10\%$

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

额定充电电流 Rated charging current: AA $500\text{ mA} \pm 10\% \times 8\text{ CH}$ @CV=1.2V(duty:0.25)

额定充电电流 Rated charging current: AAA $300\text{ mA} \pm 10\% \times 8\text{ CH}$ @CV=1.2V(duty:0.25)

2.2.3 涓流充电电流 Trickle charging current

涓流充电 Rated charging trickle current: AA $50\text{ mA} \pm 10\% \times 8\text{ CH}$ @CV=1.2V(duty:0.025)

涓流充电 Rated charging trickle current: AAA $30\text{ mA} \pm 10\% \times 8\text{ CH}$ @CV=1.2V(duty:0.025)

2.2.4 充电方式 Charge method

采用恒流充电方式 Constant current.

2.2.5- ΔV 检测精度- ΔV Detection accuracy

- ΔV 检测精度- ΔV Detection accuracy : $\leq 20\text{mV} \times 8\text{ CH}$

2.2.6 短路电流 Short Current

当充电器输出端短路, 充电器进入短路保护状态, 指示灯熄灭, 短路电流 $< 1.0\text{mA} / \text{CH}$

Charger will apply short protection when output short circuit occur. LED turn off, short current $< 1.0\text{mA} / \text{CH}$

2.2.7 充电器反向漏电流 Reverse leakage current

当无 AC 市电输入时, 充电器输出反向漏电流: $\leq 1\text{mA}$, 以保持已充入电池的电量。

Without DC12V input, charger's output reverse leakage current: $\leq 1\text{mA}$, to keep power which had input to the battery

2.2.8 最长充电时间限制 The maximum charging time limitation

在放入电池开始充电起计时, 8 小时后无论是否充电完成, 充电器将停止充电, 保证电池安全, 即最长充电时间限制 8 小时。

The charger will stop charging since the battery was placed in charger for 8 hours no matter whether battery was fully charged or not.

2.2.9 电池最高温度限制

产品内置过温保护电路, 当电池充电过温超 $55^\circ\text{C} \pm 2^\circ\text{C}$ 时其充电器将停止充电, 以确保电池充电安全。

Temperature protection. Charger stop charge battery when battery's temperature is higher than $55^\circ\text{C} \pm 2^\circ\text{C}$.

2.2.10 适用电池 Suitable Battery

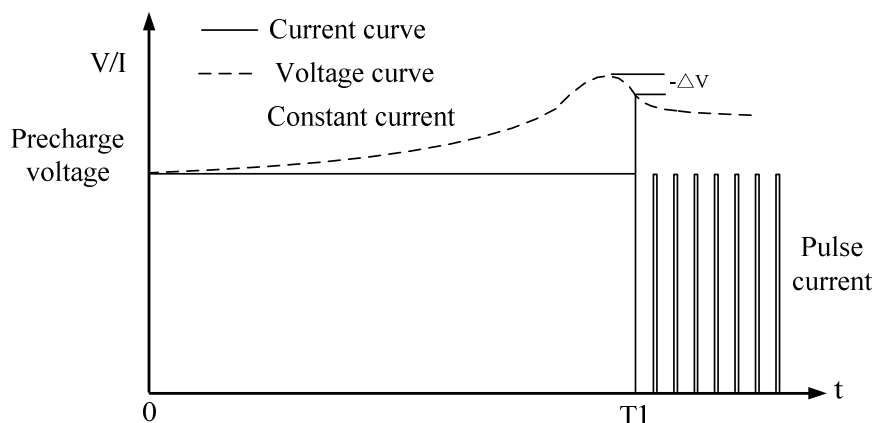
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本充电器适合 1.2VNI-MH/NI-CD 电池。

This charger is suitable for 1.2V NI-MH/NI-CD AA/AA battery

3 充电方式及 LED 指示状态

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



T0-T1: 恒流充电阶段,在此阶段,检测电池的 $-\Delta V$,当检测到 $-\Delta V$ 时,就会转入充电饱阶段;指示灯在由红灯转为绿灯,指示充电饱状态。Constant current charge period. In this period ,charger detects battery's $-\Delta V$. when $-\Delta V$ was detected, it turn into fully charged period that LCD indicate the battery is fully charged.

T1- : 充电饱阶段,充电器转入脉冲涓流状态(占空比约: 10%)。Fully charged period. Charger turn into pulsed trickle current charging (duty cycle: aprx 10%).

3.2LED 指示 LED Indication

不接电池	充电指示灯——熄灭
充电状态	充电指示灯——红灯常亮
充电饱状态	充电指示灯——绿灯常亮
放电状态	放电指示灯——红灯闪烁
坏电池及碱性电池	指示灯 ——红灯闪烁
NO battery	LED-----light off
Charge	LED-----red light
Full charge	LED-----green light
Discharge	LED-----red flash
Bad battery or alkaline battery	LED-----red flash

4 适用环境 Applicable Environment

4.1 工作温度 Working temperature

0~+35℃

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4.2 工作湿度 Working humidity

≤90% （不结露 No condensation）

4.3 贮存温度 Storage temperature

-20~+80℃

4.4 存储湿度 Storage humidity

相对湿度 relative humidity: ≤85%

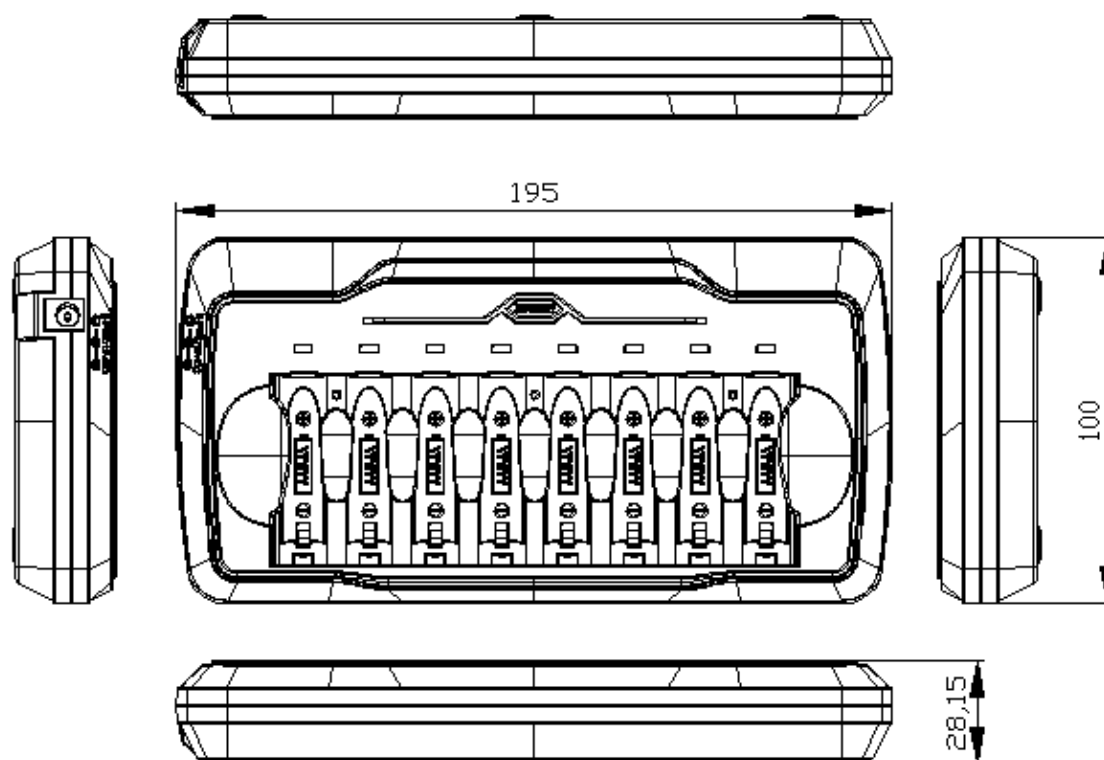
4.5 大气压力 Atmospheric pressure

70~106KPa

5 机械 Mechanics

5.1 本充电器外观图 Appearance

具体外观颜色及印字按客户要求定制 The appearance and print can be customized



5.2 本充电器铭牌标贴 Label

按客户要求订制 Label can be customized

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5.3 适配器外观图 Appearance of adapter

配套 AC 适配器具体外观颜色及 AC 输入插头标准按客户要求定制。

Accessory AC adapter can be customized.

6 可靠性能 Reliable Performance

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，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 should have no corrosion. Insulation test has no breakdown or arcing phenomenon. LED indication function and electrical performance works normally

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，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. Insulation test has no breakdown or arcing phenomenon. LED indication function and electrical performance works normally

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，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. Insulation test has no breakdown or arcing phenomenon. LED indication function and electrical performance works normally

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，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. Insulation test has no breakdown or arcing phenomenon. LED indication function and electrical

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performance works normally

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。产品内部无异响，外观无机械破损，外露金属部分不应有锈蚀，绝缘测试无击穿、飞弧现象，LED 指示功能及电气性能正常。

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.

The appearance should have no damage, no abnormal noise inside; metal parts rust should have no corrosion. Insulation test has no breakdown or arcing phenomenon. LED indication function and electrical performance works normally

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 have 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

195*100*28.15mm

8.2 重量 Weight

net: 125g

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. Also can be based on the customer requirement

10 包装 Packing

产品可配套吸塑包装，具体包装方式可按客户要求订制。Packing can be customized

11 使用注意事项 Caution

1. 本充电器指定使用电源适配器。Please use the accessory adapter.

2. NI-CD 电池充电前请先按充电器的  放电按钮，充电器将先进行电池放电后自动转

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- 充电；以消除 NI-CD 电池记忆效应。press button before charge NI-CD. Charger will discharge NI-CD battery then turn to charge period automatically.
3. 不可以拿本充电器充适应范围以外的电池。This charger is only suitable for AA/AAA NIMH/NICD battery.
4. 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。Do not use the charger to charge when temperature is over 40℃, temperature below 35℃ is recommended. It is normal that there is some heat when battery was fully charged.
5. 充电时请远离热源和火源。Far away from heat and fire
6. 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
7. 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
8. 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
9. 不得让小孩单独使用本充电器；请勿将充电器放置小孩可接触接触到的地方，以免发生危险。Do not let children use the charger alone

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