RYDBATT® RYDELEC® 深圳市瑞鼎电子有限公司 SHENZHEN RYDER ELECTRONICS CO.,LTD

SPECIFICATION FOR APPROVAL
承 认 书

客戶 / CUSTOMER	:	
客戶型号 / CUSTOMER P/N	:	
产品名称 / ITEM	:	2槽9V镍氢电池充电器/2 slots 9V NI-MH battery charger
产品种类 / DESCRIPTION	:	槽 充/slot type charger
本公司产品型号 / OUR MODEL NO.	:	CH-RMH201-05
标准 / STANDARD	:	
額定 / RATING	:	I/P:AC 100V~240V 50HZ/60HZ
		O/P:DC9V 100mA×2
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	2010-8-26
A1	修改格式/CHANGE FORMAT	2019-01-16

瑞鼎电子/ Ryder Electronics	
	批准/Approved by
签名 Signature	衣绍鹏
日期/DATE	219-01-16

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

目　　录 Content

1 产品特点 Product characteristics

1. 本充电器是一款 2 通道 PWM 开关型快速充电器，采用单片机智能控制，能精确的判断电池状态，控制充电质量，确保不欠充和过充。It is a 2 slots PWM switching model quick charger with MCU. It can control charging quality based on battery's state to prevent insufficient charge and overcharge.
2. 本充电器适用于 9V NI-MH 电池两槽独立充电。This charger is suitable for 9V NI-MH battery.
3. 恒电流充电模式，-△V 检测,确保对电池快速充电。Constant current charge method, -△V detection, to ensure quick charge.
4. 5 小时充电安全时间限制，确保使用安全。Limitation of 5 hours charging time for safety.
5. 充电时只需将电池正确插入充电槽，接入 AC 电源即可，使用非常方便。Convenience with AC connection and correct battery placing.
6. 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。Battery auto detection function. Charger can check battery's state and stop charge load except for battery.
7. 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（注意请不要长时间反接电池充电）。Battery reversely connected protection function, to make sure that battery or charger will not be damaged under the condition of reverse. (Please don't charge battery in the direction of reverse for a long time.)
8. 双色发光二极管指示充电状态，显示直观。Bicolor LED.
9. 宽电压输入设计，适应全球电压；使用非常方便。Input voltage: 100V-240V～ 50Hz/60Hz

注意：请不要拿 9V NI-MH 电池以外的其它电池及电池包和本充电器连接充电，本规格书所提及的所有电池均指 9V NI-MH 电池。

Caution: this spec and charger are only suitable for 9V square NI-MH battery.

2 电气性能 Electrical characteristics

2.1 输入特性 Input characteristics

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 Rated input voltage range

额定输入电压及频率范围：rated input voltage and frequency range

AC 90V~260V 47Hz~63Hz

2.1.3额定输入电流 Rated input current

在额定输入电压及正常充电的情况下，输入电流小于 50mA

Input current < 50mA (rated input voltage and normal charging state)

2.2 输出特性 Output characteristics

2.2.1空载电压 No-load voltage

空载电压：no-load voltage

15V±1V

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

额定充电电流：180mA-300mA &1 通道

Rated charge current: 180mA-300mA &1 channel

额定充电电流 ：180mA-300mA &2 通道

Rated charge current: 180mA-300mA &2 channel

2.2.3涓流充电电流 Trickle current

涓流充电电流（CV:9V）：20mA 平均值 （电池充电饱和后，每停止 10 秒，补充 1 秒）

Trickle current (CV=9V): 20mA average value (when battery was fully charged, charger will charge battery for 1 sec and stop charge for 10 seconds periodically.)

2.2.4充电方式 Charge method

采用恒流充电方式 Constant current charge method

2.2.5-△V 检测精度-△V detection accuracy

-△V 检测精度 ：-△V detection accuracy ≤15mV

2.2.6输出短路及反接保护 Output short circuit and battery reverse connection protection

有短路、反接保护功能，当电池正负极错误的接入或电池短路，充电器将以小电流 < 20mA 对电池放电或充电，5 秒后指示灯红色快速闪烁告警。

When there is a wrong connection or short circuit occurs, charger applies current < 20mA to charge or discharge battery. LED will flash in red about 5 seconds later.

2.2.7输出反向漏电流 Output reverse leakage current

当无 AC 市电输入时，充电器输出反向漏电流：≤1mA，以保持已充入电池的电量）。

Output reverse leakage current ≤1mA to maintain battery's volume (no AC input).

2.2.8 最长充电时间限制 Limitation of charging time

在放入电池开始充电起计时，5 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 5 小时。

The charger will stop charging since the battery was placed in charger for 5 hours no matter whether battery was fully charged or not.

2.2.9 适用电池 Suitable battery

本充电器适合 9V NI-MH 电池

This charger is suitable for 9V NI-MH battery.

3 LED 指示状态 LED indication

3.1 LED 指示 LED indication

充电器上电	充电指示灯——红绿灯交替闪 1 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

Power on	LED—— red and green light flash for 1 sec alternately then light off
No battery	LED —— light off
Charging	LED —— red light
Full-charged	LED —— green light
Output short circuit or reverse connection	LED —— red light flash quickly

4 适用环境 Applicable environments

4.1 工作温度 Working temperature

0~+40℃

4.2 工作湿度 Working humidity

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

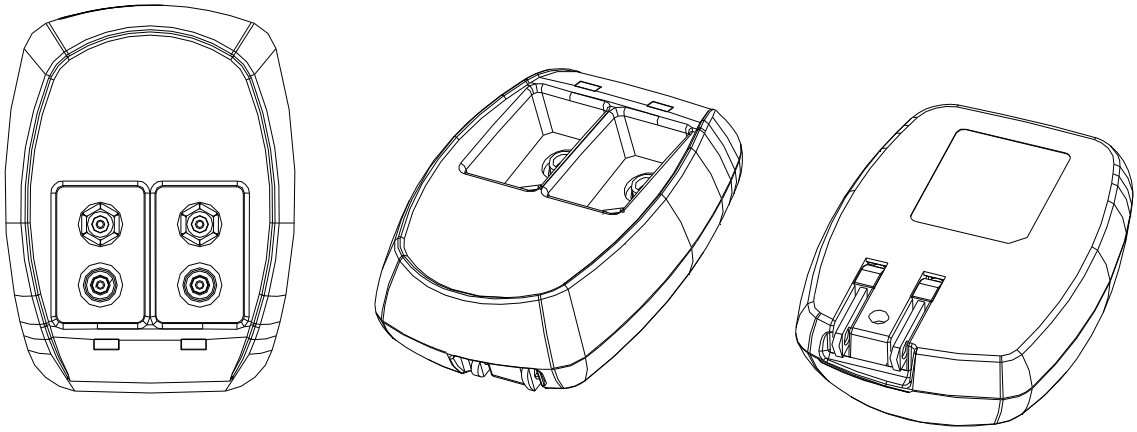
70~106KPa

5 机械 Mechanics

5.1 外观图 Appearance

具体外观颜色及印字可按客户要求定制

Appearance can be customized



5.2 输入 AC 插头 Input AC plug

美规墙插式 US standard, wall insert.

5.3 铭牌标贴 Label

按客户要求订制

Label can be customized.

6 可靠性能 Reliable characteristics

1 高温试验：实验温度为 65℃ ±2℃，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。成品外观应平整无划痕、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℃ ±2℃，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. LED indicator and electrical specification works normally.

2 低温试验：实验温度为 －20℃ ±3℃，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，成品外观应平整无划痕、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℃ ±3℃，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.

3 恒定湿热试验：实验温度为 40℃ ±2℃，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℃ ±2℃，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.

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、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.

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，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 requirements

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

L 145 * W 100* H 38 mm^3

8.2 重量 Weight

net：120g

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's requirements.

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。

Product can be wrapped with blister. Packing can be customized.

11 使用注意事项 Caution

1. 不可以拿本充电器适配 9.0V NI-MH 以外的电池。

   This charger is only suitable for 9.0V NI-MH battery.

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。

   Do not use the charger to charge when temperature is over 40℃.

3. 为了安全，建议使用 TENERGY 公司的 9V NI-MH 电池。

   For safety, 9V NI-MH battery made by TENERGY Co,.Ltd is recommended to use.

4. 充电时请远离热源和火源。

   Far away from heat and fire.

5. 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.

6. 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.

7. 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.

8. 不得让小孩单独使用本充电器。

   Do not let children use the charger alone. Please place the charger out of reach of children.

9. 当电池长时间放置不用后再次使用时，可能会出现假象-△V 现象，导致充电器误判而停止充电，出现此情况后，请对电池反复充电、放电几次后即可修复或部分修复。

When the battery is not in use for a long time, there may be false -△V phenomenon, resulting in wrong detection and stop charging. In this case, please charge and discharge the battery repeatedly for a few times.