

SPECIFICATION FOR APPROVAL

承认书

客户 / CUSTOMER : _____

客户型号 / CUSTOMER P/N : _____

产品名称 / ITEM : 2槽18500 4.2V锂离子充电器
2 slots of 18500 Li-ion charger

产品种类 / DESCRIPTION : 槽 充 Slot charger

本公司产品型号 / OUR MODEL : CH-RLi220-07

标准 / STANDARD : _____

额定 / RATING : I/P: DC 5V2.4A
O/P: DC 4.2V 1.1A ×2CH

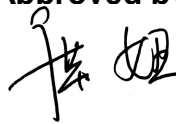
备注 / REMARKS : _____

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	2017-07-05
A1	修改空载指示灯/Modifv no-load LED displav	2017-8-7
A2	修正温度保护功能/Modifv temperature protection function	2017-8-14
A3	修正温度保护描述/Modifv details of temperature protection function	2017-9-26
A4	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	

产品型号/MODEL NO.	受控编号/CONTROLLED DOCUMENTS NO.	版本 /VERSION	拟制/Drawn by	审核 /Verified by	页码/PAGE
CH-RLi220-07	JE-KF-GGS-136	A4	刘君斌	彭荣忠	PAGE1 / 8

目 录 Content

1. 产品特点 PRODUCT CHARACTERISTICS	3
2. 电气性能 ELECTRICAL SPECIFICATION	3
2.1 外置电源适配器输入输出特性 EXTERNAL ADAPTER INPUT AND OUTPUT CHARACTERISTICS	3
2.2 本充电器输出特性 CHARACTERISTICS OF CHARGER BODY	3
3. 充电方式及 LED 指示状态 CHARGING METHOD AND LED STATUS	5
3.1 LED 指示 LED INDICATION	5
4. 适用环境 APPLICABLE ENVIRONMENTS	5
4.1 工作温度 WORKING TEMPERATURE	5
4.2 工作湿度 WORKING HUMIDITY	5
4.3 贮存温度 STORAGE TEMPERATURE	5
4.4 存储湿度 STORAGE HUMIDITY	5
4.5 大气压力 ATMOSPHERIC PRESSURE	5
5. 机械 MECHANICS	6
5.1 本充电器外观图 CHARGER APPEARANCE(DIMENSION UNIT: MM)	6
5.2 本充电器铭牌标贴 CHARGER LABEL	6
5.3 适配器 ADAPTER	6
6. 可靠性 RELIABLE PERFORMANCE	6
7. 外观要求 APPEARANCE REQUIREMENT	7
8. 体积与重量 VOLUME AND WEIGHT	7
8.1 体积 VOLUME	7
8.2 重量 WEIGHT.....	7
9. 抽样标准 SAMPLING STANDARD	7
10. 包装 PACKING	8
11. 使用注意事项 CAUTION	8

产品型号/MODEL NO.	受控编号/CONTROLLED DOCUMENTS NO.	版本 /VERSION	拟制/Drawn by	审核 /Verified by	页码/PAGE
CH-RLI220-07	JE-KF-GGS-136	A4	刘君斌	彭荣忠	PAGE2 / 8

1. 产品特点 Product characteristics

- 本机是一款 2 槽 18500 锂离子 3.7V 电池充电器，采用智能型单片机控制；2 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。
This product is a 3.7V Li-ion rechargeable battery 2-slot charger with Adopt intelligent single chip microcomputer control; each channel charge with CC-CV mode separately; and has pre-charge function to make sure 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。
The charger has battery reverse 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。
Charging state showed by bi-color LED indicator
- 外置的适配器 100-240VAC 50/60Hz 宽电压输入，适应全球。
AC 100-240V 50/60Hz wide range input of External Adapter, adapting to globalization.

2. 电气性能 Electrical specification

2.1 外置电源适配器输入输出特性 External Adapter input and output Characteristics

2.1.1 输入电压 Input voltage

AC 100V~240V 50HZ/60HZ

2.1.2 输出直流空载电压 No-load output voltage

DC: 5.0V $\pm 5\%$

2.1.3 输出电流 Output current

2.4A

2.2 本充电器输出特性 Characteristics of Charger body

2.2.1 输出空载电压 No-load output voltage

DC $4.15 \pm 0.1V \times 2CH$

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

Rated charging current (under normal charging condition)

预充电电流 Pre-charging current: $110mA \pm 10\% \times 2CH$ @CV<3.0V 时

额定充电电流 Rated charging current: $1100mA \pm 10\% \times 2CH$ @CV=3.7V 时

2.2.3 充电电压范围 Charging voltage range

0-4.2V $\times 2CH$

产品型号/MODEL NO.	受控编号/CONTROLLED DOCUMENTS NO.	版本 /VERSION	拟制/Drawn by	审核 /Verified by	页码/PAGE
CH-RLI220-07	JE-KF-GGS-136	A4	刘君斌	彭荣忠	PAGE3 / 8

2.2.4 充饱转灯电流 Current of turn LED after fully charged

备注：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。

Remark:

Current of turn LED after fully charged means: The charging current when LED turn from red to green as the battery fully charged.

转灯电流 Current of turn LED after fully charged: $110\text{mA} \pm 10\% \times 2 \text{ CH}$

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 Adopt CC-CV charging 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 $< 100\text{mA} / \text{CH}$

When the output of charger occurs short-circuit, the charger becomes the protection status, Red LED will be fast flashes, short-circuit $< 100\text{mA} / \text{CH}$

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: $\leq 10\text{mA} / \text{CH}$

指示灯红色快速闪烁告警 Red LED will be fast flashes to warning

(当电池接反时，充电器会自动保护，不会损坏充电器。)

(When battery polarity is reverse, charger will protect automatically, charger will not be damaged.)

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 (当无市电输入时, without AC input)
: $\leq 1\text{mA} / \text{CH}$,

(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 battery discharge current to the charger named reverse leakage current. Small reverse leakage current is good for the power which had input to the battery)

2.2.10 适用电池 Suitable battery

本充电器只适合用于 18500 锂电池 (客户指定 1500mAh /2000mAh)

This charger only suit for 18500 Li-ion rechargeable battery

(Customer-specified 1500mAh /2000mAh)

2.2.11 温度保护 Temperature protection

充电器自身具有温度保护功能，当 NTC 的温度高于 $75 \pm 5^\circ\text{C}$ 或者低于 $0 \pm 5^\circ\text{C}$ ，充电器将会以 $150 \pm 25 \text{ mA}$ 的小电流充电。

Charger has self over-heat protection function. When NTC's temperature is over than $75 \pm 5^\circ\text{C}$ or lower than $0 \pm 5^\circ\text{C}$, the charger will apply current($150 \pm 25 \text{ mA}$)to charge battery.

2.2.12 过充保护 Over charging protection

$4.275 \pm 0.025 \text{ V}$

产品型号/MODEL NO.	受控编号/CONTROLLED DOCUMENTS NO.	版本 /VERSION	拟制/Drawn by	审核 /Verified by	页码/PAGE
CH-RLI220-07	JE-KF-GGS-136	A4	刘君斌	彭荣忠	PAGE4 / 8

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——红灯亮一秒后熄灭，绿灯亮一秒后熄灭
不接电池	充电指示灯——LED 熄灭
充电状态	充电指示灯——红灯常亮
充电饱和	充电指示灯——绿灯常亮
输出短路或反接	充电指示灯——红灯闪烁
Plug in for the charger	LED---Red LED lights for 1 second then LED OFF, and green LED lights for 1 second then LED OFF
No battery	LED---LED OFF
Charging	LED---keep red
Fully charged	LED---keep green
Short-circuit or battery reversely connected	LED---Red LED flashes

4. 适用环境 Applicable environments

4.1 工作温度 Working temperature

0~45℃

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

≤85%

4.5 大气压力 Atmospheric pressure

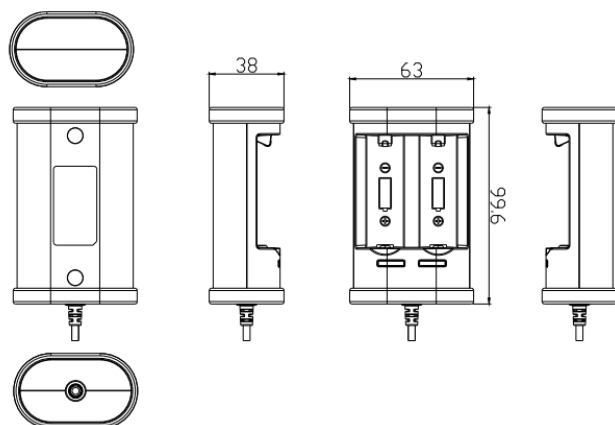
70~106KPa

产品型号/MODEL NO.	受控编号/CONTROLLED DOCUMENTS NO.	版本 /VERSION	拟制/Drawn by	审核 /Verified by	页码/PAGE
CH-RLI220-07	JE-KF-GGS-136	A4	刘君斌	彭荣忠	PAGE5 / 8

5. 机械 Mechanics

5.1 本充电器外观图 Charger appearance(Dimension unit: mm)

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 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。

Its color and AC input 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 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

产品型号/MODEL NO.	受控编号/CONTROLLED DOCUMENTS NO.	版本 /VERSION	拟制/Drawn by	审核 /Verified by	页码/PAGE
CH-RLI220-07	JE-KF-GGS-136	A4	刘君斌	彭荣忠	PAGE6 / 8

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

体积：长宽高($\pm 0.5\text{MM}$): 99.6*63*38MM

Volume: 99.6*63*38MM ($\pm 0.5\text{MM}$)

8.2 重量 Weight

18500 裸机带 USB 线材重量 charger with USB cable: $163.5\text{g} \pm 5\text{g}$

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. It also can be based on the

产品型号/MODEL NO.	受控编号/CONTROLLED DOCUMENTS NO.	版本 /VERSION	拟制/Drawn by	审核 /Verified by	页码/PAGE
CH-RLI220-07	JE-KF-GGS-136	A4	刘君斌	彭荣忠	PAGE7 / 8

customer's 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

- 本充电器只能用于 18500 锂电池充电，不可以拿本充电器充适应范围以外的电池。
This charger is only used to charge the 18500 Li-ion rechargeable battery; Do not charge other batteries.
- 装入电池时请注意电池的极性，反接可能造成充电器或者电池损坏。
Please take attention of the polarity mark in the charger case when install the battery to the charger. Reversing may cause the charger or battery damaged.
- 不可在超过 45℃ 环境使用本充电器对电池充电
Do not use the charger to charge when temperature is over 45℃
- 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.

产品型号/MODEL NO.	受控编号/CONTROLLED DOCUMENTS NO.	版本 /VERSION	拟制/Drawn by	审核 /Verified by	页码/PAGE
CH-RLI220-07	JE-KF-GGS-136	A4	刘君斌	彭荣忠	PAGE8 / 8