

SPECIFICATION FOR APPROVAL

承 认 书

客户 / CUSTOMER : _____

客户型号 / CUSTOMER P/N : _____

产品名称 / ITEM : 1-4串1A LIPO/LIFE 平衡充

产品种类 / DESCRIPTION : 平衡充/Balance charge

本公司产品型号 / OUR MODEL NO. : CH-RLi031-01

标准 / STANDARD : _____

额定 / RATING : I/P:DC10-16V

O/P 4.2V,8.4,12.6,16.8V/1A

O/P 3.6V,7.2,10.8,14.4V/1A


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)

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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. 宽电压输入，适合车充和大部分常用适配器。Wide voltage input, It is suitable for car chargers and most commonly used adapters
2. 内置可选式平衡充电电路，能快速充满不平衡的电池组，不需要漫长的等待。It has an optional balanced charging circuit inside and can fast fall upon Unbalanced battery pack, Don't have to wait long
3. 输入，输出有反接保护功能，能长时间接反不损坏，并有提示功能。Input and output have reverse connection protection.it can be connected for a long time without damage and has a prompt function
4. 自动实现涓流，恒流，恒压充电。Automatic turbulence, constant current, constant voltage charging.
5. 输入电压过低，过高保护功能。当电压不符合要求时，停止充电并提示。Input voltage has too low, too high Protective function.When the voltage does not conform the requirements,It will stop charging and prompt
6. 坏电池检测功能。Bad battery detection
7. 高温保护功能。High temperature protection
8. 自检功能。Self-test function
9. 双色发光二极管指示充电状态，显示直观。Two-color LED indicates charging status, Display intuitive
10. 可充锂电和磷酸铁锂电池。Can charger Lithium battery and lithium iron phosphate battery

注意：本产品虽能适用于 1-4 节的电池组，但是不能同时接入任何两个电池组。
 note:This product can be applied to 1-4 battery packs.but you cannot access any two battery packs at the same time.

2 电气性能 Electrical performance

2.1 输入特性 Input characteristics

2.1.1 输入电压 Input voltage

输入电压 Input voltage: DC 10-16V

2.1.2 输入功率 input power

输入功率 input power: $\geq 22.5W$

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: $<0.2V$

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 : $1000mA \pm 100\text{ mA}$

2.2.3 涓流充电电流 Trickle charging current

涓流充电电流 Trickle charging current: $200mA \pm 50\text{ mA}$

2.2.4 充电方式 Charging method

采用恒流,恒压充电方式。Constant current, constant voltage charging

2.2.5 充满检测精度 Full of detection accuracy

充满检测精度 Full of detection accuracy : LIPO $4.20V \pm 0.02V$ LIFE $3.60V \pm 0.02V$

2.2.6 输出短路保护 Output short circuit protection

当充电器输出端短路，无电流输出。When the charger output is shorted,it has no current output

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2.2.7 电池反接保护 Reverse battery protection

结构防反接 Structure prevents reverse connection

2.2.8 输出反向漏电流 Output reverse leakage current

当无 DC 输入时,充电器输出反向漏电流: $\leq 10\text{mA}$, 以保持已充入电池的电量。When there is no DC input,Charger output reverse leakage current: $\leq 10\text{mA}$,Keep battery power

2.2.9 适用电池

锂离子和磷酸铁锂电池组, 1-4 串,容量在 1000mAh-6600mAh 之间。Lithium ion and lithium iron phosphate battery pack,1-4 string,With a capacity between 1000mAh and 6600mAh

3 充电 LED 指示状态及使用方法 Charging LED indication and instructions

3.1 LED 指示 LED Indication

输入电源	电源指示灯	状态指示灯
输入电源正常, 不接电池	绿灯常亮	熄灭
输入电源接反, 不接电池	红灯常亮	熄灭
输入电源正常, 正常充电	绿灯常亮	红灯常亮
输入电源正常, 电池充满	绿灯常亮	绿灯常亮
输入电源异常, 不接电池	绿灯常亮	绿灯慢闪
输入电源正常, 电池异常	绿灯常亮	红灯慢闪
输入电源正常, 电池接反	绿灯常亮	红绿灯交替闪
输入电源正常, 充电器自检失败	绿灯常亮	红灯快闪

Input power	power supply Indicator light	status Indicator light
normal, Not connected battery	Green light is always on	Extinguished
Reverse, Not connected batter	Red light is always on	Extinguished
normal, Normal charging	Green light is always on	Red light is always on
normal, Battery full	Green light is always on	Green light is always on
abnormal, Not connected battery	Green light is always on	Green light slow flash
normal, Abnormal battery	Green light is always on	Red light slow flash
normal, Battery reverse	Green light is always on	Green/Red light flash alternately
normal, Charger self-test failed	Green light is always on	Red light fast flash

3.2 使用方法与功能描述 Instructions and function description

1) 使用 DC10-16v , $\geq 22.5\text{W}$ 的适配器。Use DC10-16v , $\geq 22.5\text{W}$ adapter

适配器正常时, 电源灯亮绿灯, 状态灯熄灭。可以充电。When the adapter is normal,Power light:Green light,status light:Extinguished,Can charger.

适配器插反时, 电源灯亮红灯, 提示适配器插反, 状态灯熄灭。不能充电。When the adapter is inserted,Power Red light,status light:Extinguished,Can not charger.

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适配器电压不正常时，低于 10v 或高于 16v，电源等亮绿灯，状态灯绿灯闪烁。不能充电。
 When the adapter is not working properly, Less than 10v or higher than 16v, Power light: Green light, status light: green light Flash, Can not charger.

2) 在插入电池前请确定电池的种类，如果能选择电流，请确定电流。出于安全考虑，在电池组

插入后这两个参数不能再改变。Please determine the type of battery before inserting the battery. If you can select the current, please determine the current. For safety reasons, these two parameters cannot be changed after the battery pack is inserted.

3) 插入合适的电池组，进行充电。Insert a suitable battery pack and charge it.

根据你选择的电池类型，插入合适的电池组，LIOP 或者 LIFE. Insert the appropriate battery pack, LIOP or LIFE, depending on the type of battery you have selected.

充电器能自动识别电池组的串数，自动为电池组充电。The charger automatically recognizes the number of strings in the battery pack and automatically charges the battery pack.

充电过程中能自动进入涓流，恒流，恒压充电。当电池组有电池电压低于 2.7v 时，进入涓流状态，电流 200mA 左右，保护电池不被充坏。高于 2.7v 时，进入恒流状态快速充电。During the charging process, it can automatically enter turbulent flow, constant current and constant voltage charging. When the battery pack has a battery voltage lower than 2.7v, it enters a turbulent state, and the current is about 200mA, so that the protection battery is not damaged. When it is higher than 2.7v, it enters the constant current state and is quickly charged.

充电后期，当某节电池电压相差过大时，充电器能快速补充这节电池，进行快速平衡充电。In the later stage of charging, when the voltage difference of a certain battery is too large, the charger can quickly replenish this battery for fast balanced charging.

充电状态为状态灯红灯常亮。The state of charge is the status light and the red light is always on.

电池组充满时状态灯绿灯常亮。The status light is steady green when the battery pack is full.

4) 坏电池检测 Bad battery test

当电池组中有某节电池低过 1.8v，将认为是坏电池，安全起见不能进行充电。状态灯红灯闪烁提示。When a certain battery in the battery pack is lower than 1.8v, it will be considered as a bad battery, and it cannot be charged for safety. The status light flashes red.

5) 电池组接反检测 Battery pack reverse detection

当电池组接反时，充电器能检测并提示。状态灯红绿灯将交替闪烁提示。When the battery pack is reversed, the charger can detect and prompt. The status light traffic light will flash alternately.

6) 高温保护功能 High temperature protection

能监控内部主要器件的温度并保护。如果某些不良原因导致内部温度过高，在温度达到 75 度时，充电电流减半。当达到 100 度时，充电停止。预防损坏。It monitors the temperature of the main internal components and protects them. If some of the bad causes cause the internal temperature to be too high, the charging current is halved when the temperature reaches 75 readings. When it reaches 100 degrees, the charging stops. Prevent damage.

7) 数据自检功能 Data self-test function

充电器能在整个充电过程中监控校验充电数据。预防数据出差造成的充电参数误差。The charger can monitor the calibration charge data throughout the charging process. Prevent charging parameter errors caused by data travel.

4 适用环境 Applicable environment

2.3 工作温度 Working temperature

在 0~+40℃

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2.4 工作湿度 Working humidity

工作湿度 Working humidity: $\leq 90\%$ (不结露 no condensation)

2.5 贮存温度 Storage temperature

贮存温度 Storage temperature: -20~+80℃

2.6 存储湿度 Storage humidity

相对湿度 relative humidity: $\leq 85\%$

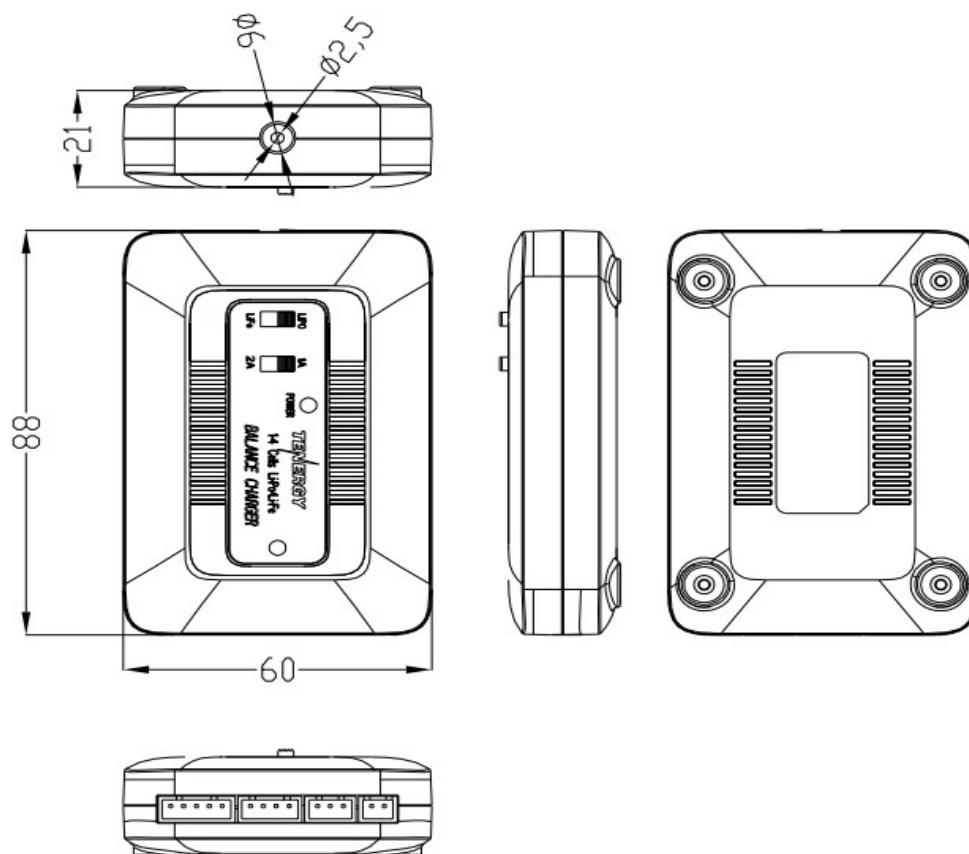
2.7 大气压力 Atmospheric pressure

大气压力 Atmospheric pressure: 70~106KPa

5 机械 Mechanics

2.8 外观图 Appearance

当参数不一样时，外观会有些少区别。When the parameters are different, the appearance will be somewhat different.



6 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

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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

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

6. 认证要求：暂无

Certification requirements

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 have no scratches, burrs and other mechanical damage, complete and clear screen, the exposed metal parts no rust

8 体积与重量

8.1. 体积 Volume

体积 Volume L 87 * W 60* H 22 mm³

8.2. 重量 Weight

净重 net: 50g

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

产品配套吸塑包装。

Product can be packed with blister. Packing can be customized

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11 使用注意事项

1. 不可以拿本充电器充规格要求以外的电池组。

Do not use this charger to charge a battery pack other than the specifications.

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 this charger to charge the battery in the environment above 40 ° C; it is recommended to charge in the environment below 35 ° C, the battery is slightly hot when there is sufficient, it is normal, please feel free to use.

3. 充电时远离热源和火源。

Keep away from heat and fire when charging.

4. 不得在酸、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 environments.

5. 不得让充电器进水或淋雨，以免引起安全问题。

Do not allow the charger to enter or rain, so as to avoid safety problems.

6. 不得拆解充电器和电池，以免引起危险。

Do not disassemble the charger and battery to avoid danger.

7. 不得让小孩单独使用本充电器。

Do not allow the child to use the charger alone.

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