

User manual for Lithium Ion Battery

锂离子电池使用说明书

MODEL/型号: C45-300B

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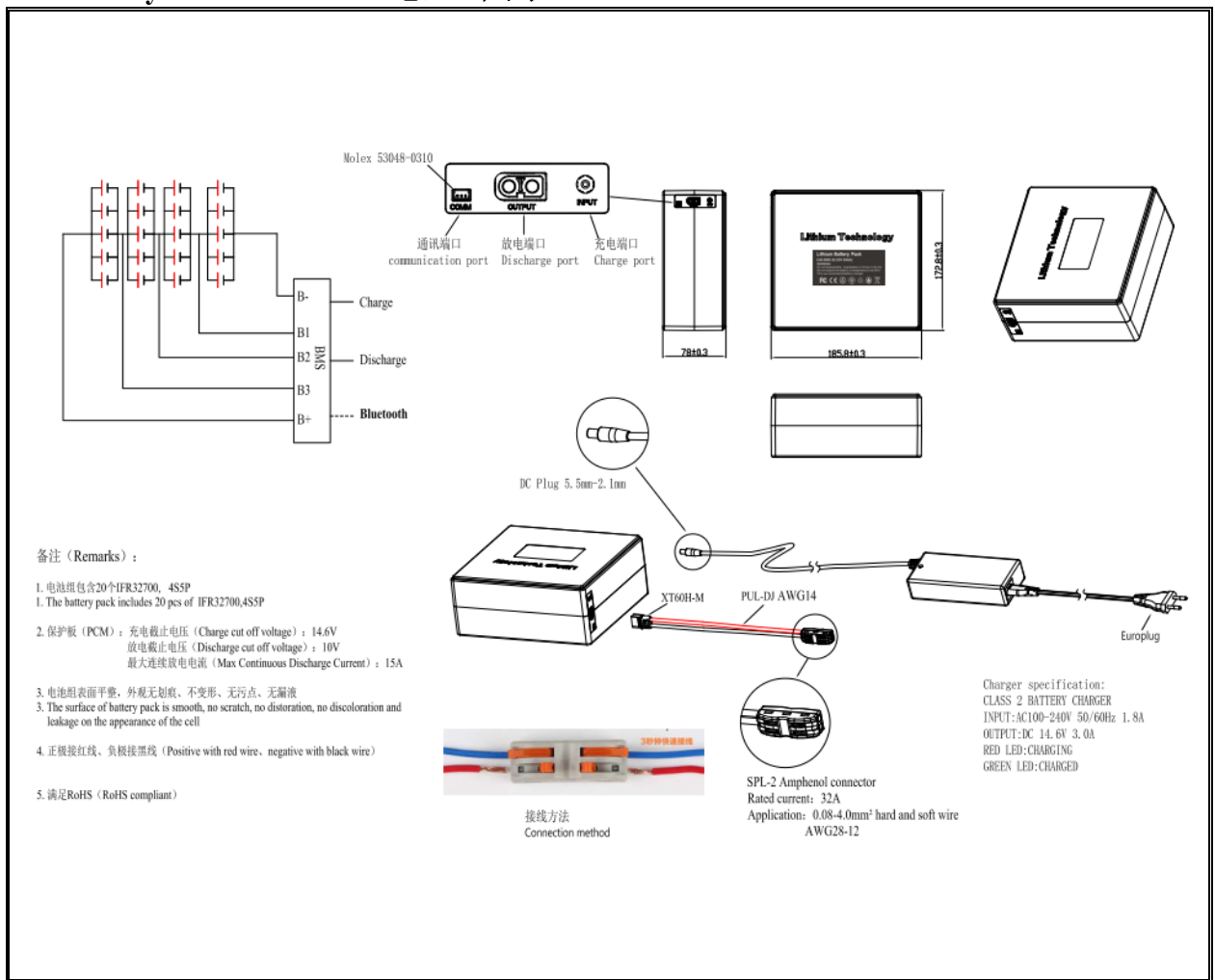
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1.Scope 适用范围

This specification describes the basic performance, technical requirement, testing method ,warning and caution of the Li-ion rechargeable battery pack, the pack defined in this documentation is an assembly which include battery, PCM and wire, the specification only applies to GREEN ENERGY BATTERY Co., Ltd.

本标准规定了锂离子电池可充电的基本性能、技术要求、测试方法及注意事项，电池组合定义的是包括电芯，保护板和连接线的组合，本标准只适用于深圳市吉毅创能源科技有限公司所生产的锂离子电池。

2. Battery Pack Dimension 电池组尺寸



备注 (Remarks):

1. 电池组包含20个1FR32700, 4S5P
 1. The battery pack includes 20 pcs of 1FR32700,4S5P
2. 保护板 (PCM): 充电截止电压 (Charge cut off voltage): 14.6V
 放电截止电压 (Discharge cut off voltage): 10V
 最大连续放电电流 (Max Continuous Discharge Current): 15A
3. 电池组表面平整, 外观无划痕、不变形、无污点、无漏液
 3. The surface of battery pack is smooth, no scratch, no distortion, no discoloration and leakage on the appearance of the cell
4. 正极接红线、负极接黑线 (Positive with red wire, negative with black wire)
5. 满足RoHS (RoHS compliant)

Unit 单位 (mm)

电池 Pack	L(长度)Max	185	W (宽度) Max	78	H(高度)Max	172
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3.Specification 产品规格

No.	Item	Spec	Note
3.1	Model 型号	C45-300B	
3.2	Nominal Voltage 标称电压	12.8V	The average value of voltage during the discharge period(with standard charge and discharge).When shipping the voltage without load is between 11.2V and 12.8V. 按标准充放电后，放电过程中的电压平均值。
3.3	Charge Cut-off Voltage 充电截止电压	14.6V	
	Discharge Cut-off Voltage 放电截止电压	10.0V	
3.4	Nominal Capacity 额定容量	Typ: 30Ah @ 0.2 C Min: 30Ah @ 0.2 C Discharge(放电)	Nominal Capacity refer to the capacity of 0.2C discharge to 10.0V cut-off voltage, after charging with standard Method. 额定容量是指用标准方法充电后，用 0.2C 电流放电至 10.0V 的容量。
3.5	Impedance 内阻	Cell Impedance 单电芯内阻: $\leq 25 \text{ m}\Omega$	After Standard charging, measure the internal resistance with AC 1KHz 标准充电后，测量其 AC 1KHz 下的交流阻抗。
		Assemblage Impedance 装配后内阻: $\leq 200 \text{ m}\Omega$	Measure two sides of the drawing line after assembling. (Red B+, Black B-) 装配后测电池引线两端(红 B+、黑 B-)
3.6	Standard Charge Current 标准充电电流	3A	
3.7	Standard Discharge Current 标准放电电流	6A	
3.8	Max. Continuous Discharge Current 最大持续放电电流	15A	
3.9	Standard Charging 标准充电	Constant Current Charging at 3A to 14.6V. Constant Voltage Charging at 14.6V to cut-off current $\leq 0.01\text{C}$ 先用 3A 恒流充电至 14.6V，再用 14.6V 恒压充电至截止电流 $\leq 0.01\text{C}$ 。	
3.10	Standard Discharge 标准放电	Constant discharge at 6A to cut-off voltage of 10.0V. 用 6A 恒流放电至截止电压为 10.0V。	
3.11	Operating Temperature 工作温度	Discharge: $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$ (放电) Charge: $0^{\circ}\text{C} \sim +45^{\circ}\text{C}$ (充电)	Cells must be stored at $12.0\text{V} \sim 13.8\text{V}$. Over long storage periods cells should be cycled every 90 days. The method is to do a charge-discharge cycle with standard method, the charge to $12.0\text{V} \sim$

			13.8V. 电芯应在 12.0V~13.8V 状态下储存。过长时间储存的电芯应每隔 90 天用标准方法适时地进行一次充放电循环。	
3.12	Storage Temperature 储存温度	-20°C~35°C	≤3 month	Percentage of recoverable capacity no less than 80% of the initial capacities 恢复容量不低于初始容量的 80%
		-20°C~25°C	≤1 year	
3.13	Charger 充电器(Charger optional 充电器可选)	Specification(规格):CLASS 2 BATTERY CHARGER		
		Input 输入: Europlug, AC100-240V, 50/60Hz, 1.8A		
		Output 输出:DC Plug (5.5mm-2.1mm), DC 14.6V, 3.0A		
3.14	Conversion Line of Battery 电池组转换线	Specification(规格):Length of wire is 300mm 线长 300 毫米		
		Port 1 端口 1:XT60H-M		
		Port 2 端口 2: SPL-2		
3.15	Bluetooth 蓝牙	Available 可获得		
3.16	Weight 重量	Approximate 3287g		
3.17	Appearance 外观	Without distortion and leakage 无变形、电解液泄露		
3.18	Standard Testing Condition 标准测试环境	Temperature(温度)	: 25±5°C	
		Humidity (湿度)	: ≤75%RH	
		Atmospheric Pressure (大气压)	: 86-106 Kpa	

Remark: 1.From3.1 to 3.18the testing condition is following 3.18(standard testing condition)

从 3.1 至 3.18 目，测试环境遵从 3.18 标准测试环境)

2. If the working condition is out of 3.18the performance will be some shift.

如果工作环境超出 3.18 围，性能将会有一些偏移。

4. Single Cell Performance Criteria 单电芯性能标准

4.1 Standard testing environment

标准测试环境

Unless specifically stated otherwise, tests must be done within one month of delivery and the number of charging-recharging cycles is fewer than 5. The following is test conditions:

Test conditions:

Ambient Temperature: 25±5°C

Ambient Humidity: 45~75%RH

Atmospheric Pressure: 86-106 Kpa

除非另有说明，测试应在电池出货的 1 个月内进行，且充放电循环的次数少于 5 次。本产品规格书中的所有测试均在以下环境条件下进行：

温度： 25±5℃

湿度： 45~75%RH

大气压： 86-106 Kpa

4.2 The requirement of measure instrument

测量设备要求

- (1) The measurement instrument has been certified by a qualified source.
- (2) The accuracy of the measuring instrument is less than 0.01mm.
- (3) The accuracy of multimeter is at least 0.5%. While measuring the voltage, the internal resistance can not be less than 10KΩ.
- (4) The principle internal resistance is 1KHz LCR; the accuracy is 0.2%.
- (5) The internal resistance can vary based upon temperature and the charging mode. It is relevant to the PTC and the length and resistance of the wiring.
- (6) The current accuracy of the battery test system is at least ±0.1%, isobarically accuracy is ±0.5%, and timer accuracy is not less than ±0.1%.
- (7) The accuracy of the thermometer is at least ±0.5℃.
- (1) 测量设备、仪器需经检定机构检验合格。
- (2) 测量尺寸的仪器精确度小于 0.01mm。
- (3) 万用表测量电压及电流的准确度应不低于 0.5%，测量电压时内阻不应小于 10KΩ。
- (4) 内阻测试仪测量原理应为交流阻抗法（1KHz LCR），精确度为 0.2%。
- (5) 内阻不是恒定值，会随着温度和充电方式而变化。与装有 PTC 保护组件及引线长度、电阻有关。
- (6) 电池测试系统的电流精度应在±0.1%以上，恒压精度±0.5%，计时精度不低于±0.1%。
- (7) 测量温度的仪表准确度应不低于±0.5℃。

4.3 Visual inspection

外观检查

Not allowing any visual defects which will affect the electronic characteristics, such as scratch, crack, smear,rust, leakage and damage.

不允许有影响电芯性能的外观缺陷，诸如划痕、破裂、污迹、生锈、漏液及损坏等。

4.4 Stand charge and discharge 标准充放电方式

4.4.1	Standard Charging 标准充电	Constant Current Charging at 0.2C to 3.65V. Constant Voltage Charging at 3.65V to cut-off current≤0.01C 先用 0.2C 恒流充电至 3.65V，再用 3.65V 恒压充电至截止电流≤0.01C。
4.4.2	Standard Discharge 标准放电	Constant discharge at 0.2C to cut-off voltage of 2.0V. 用 0.2C 恒流放电至截止电压为 2.0V。

4.5 General Performance 常规性能

No.	Item 项目	Test Methods and Condition 测试方法和条件	Criteria 标准
4.5.1	0.2C Capacity 0.2C 容量	At standard testing condition, after standard charging, rest battery for 30min, then discharging at 0.2C to voltage 2.0V,	≥300min(分钟)

		<p>recording the discharging time.</p> <p>在标准测试环境下, 标准充电后, 搁置 30 分钟, 然后用 0.2C 电流放电至 2.0V, 所记录放电时间</p>	
4.5.2	<p>1C Capacity</p> <p>1C 容量</p>	<p>At standard testing condition, after standard charging, rest battery for 30min, then discharging at 1C to voltage 2.0V, recording the discharging Capacity</p> <p>在标准测试环境下, 标准充电后, 搁置 30 分钟, 然后用 1C 电流放电至 2.0V, 记录容量</p>	≥54min(分钟)
4.5.3	<p>Cycle Life</p> <p>循环寿命</p>	<p>At standard testing condition, constant current 0.2C charge to 3.65V, then constant voltage charge to current declines to 0.01C, rest 15min, constant current 0.2C discharge to 2.0V, rest 15min. Repeat above steps till continuously discharging capacity Lower than 80% of the Initial Capacities of the Cells</p> <p>在标准测试环境下, 先用 0.2C 恒流充电至 3.65V, 再恒压 3.65V 充电直至充电电流≤0.01C, 搁置 15 分钟, 再用 0.2C 电流放电至 2.0V; 又搁置 15 分钟, 重复以上步骤, 直到放电容量是衰减到初始容量的 80% 以下.</p>	<p>≥</p> <p>2000times(次)</p>
4.5.4	<p>Capability of keeping electricity</p> <p>荷电保持能力</p>	<p>At standard testing condition, After standard charging, rest the battery for 28days, discharging at 0.2C to voltage 2.0V, recording the discharging time.</p> <p>在标准测试环境下, 标准充电后, 电池搁置 28 天后, 然后用 0.2C 放电至 2.0V, 所记录放电时间.</p>	≥255min (分钟)

4.6 High and low temperature performance 高低温性能

No.	Item 项目	Test Methods and Condition 测试方法和条件	Criteria 标准
4.6.1	<p>Discharge at high temperature</p> <p>高温放电</p>	<p>At standard testing condition, after standard charging, rest the Cells 4h at 60±2°C, then discharging at 0.2C to voltage 2.0V, recording the discharging time.</p> <p>在标准测试环境下, 标准充电后, 在 60±2°C 条件下贮存 4h, 然后用 0.2C 放电至 2.0V, 所记录放电时间.</p>	≥294min(分钟)
4.6.2	<p>Discharge at low temperature</p> <p>低温放电</p>	<p>At standard testing condition, after standard charging, rest the Cells 4h at -10±2°C, then discharging at 0.2C to voltage 2.0V, recording the discharging time.</p> <p>在标准测试环境下, 标准充电后, 在 -10±2°C 条件下贮存 4h, 然后用 0.2C 放电至 2.0V, 所记录放电时间.</p>	≥180min (分钟)

5. Storage and others 贮存及其它事项

5.1 Long term Storage

长期贮存

The battery pack should be stored accordance with item 3.12. In case of over-discharge, pack should be charged for one time every 3 months while storing and batteries should be discharge and charge after

being stored more than a year in order to activate it and restore energy.

长期储存电池时，应符合 3.12 条款的要求。为防止电池过放，建议每 3 个月进行一次充电，如储存时间超过一年，建议每年进行一次充、放电以激活电池。

5.2 Do not use the battery in a location where static electricity and magnetic field is great, otherwise, the safety devices may be damaged, causing hidden trouble of safety.

禁止在强静电和强磁场的地方使用,否则易破坏电池安全保护装置,带来不安全的隐患

5.3 Any issues not covered in this specification should be discussed between the customer and GREEN ENERGY.

本说明书中未提及的任何事项，须经双方协商确定。

6. Repair period 包修期限

The repair period is 6 months from the data that the batteries are shipped out from the factory (the printing date on the cell).

产品包修期限为 6 个月，自出厂日期（喷码）开始算起。

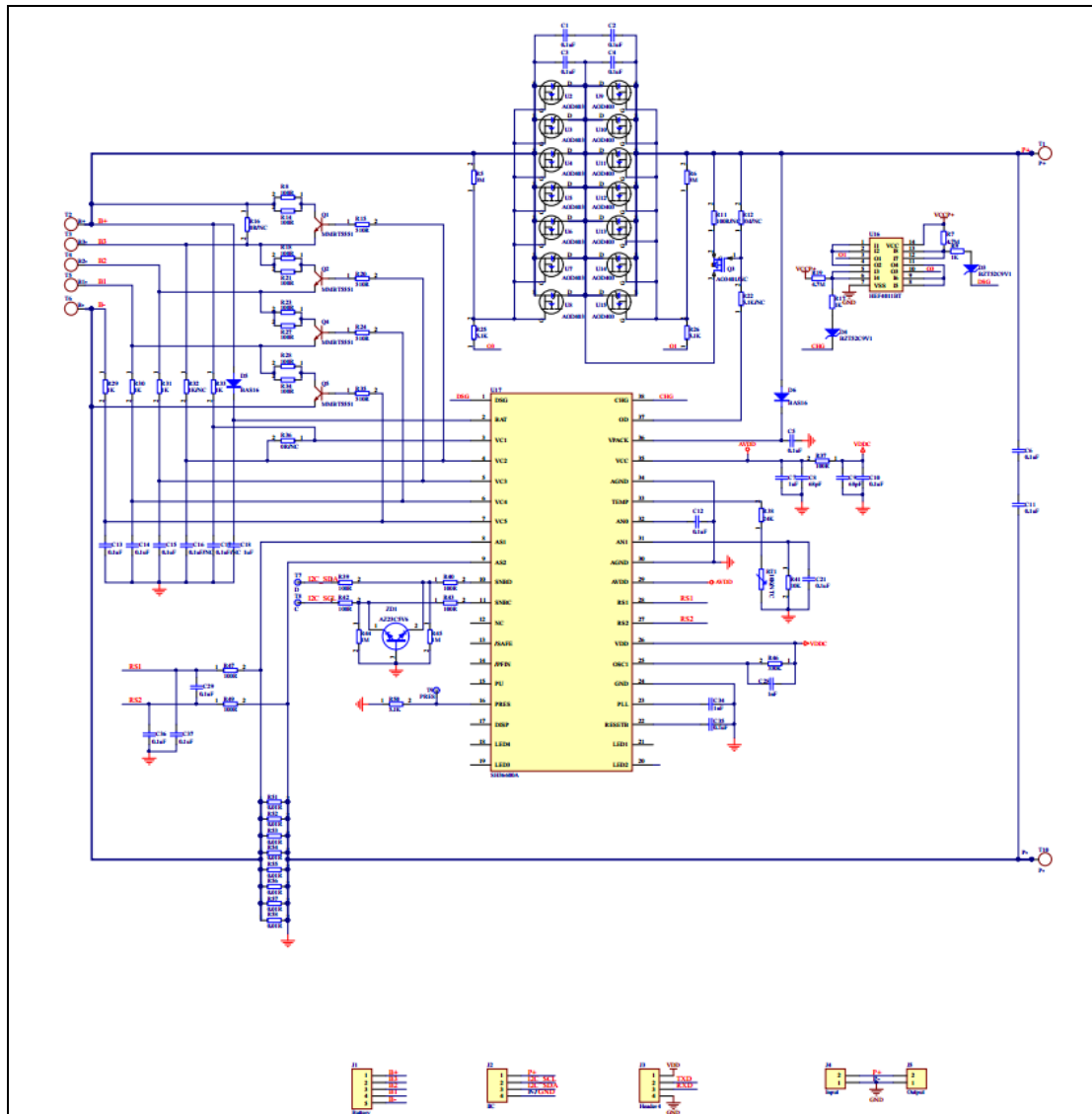
7. Protection circuit 保护电路

7.1 Electrical characteristics 电气特性

Item 项目	Content 详细内容	Criterion 标准
Over charge Protection 过充保护	Single Over-Charge Voltage Protection 单体过充保护电压	3.65±0.05V
	Over-Charge detection delay time 过充电检测延迟时间	<3000ms
	Over charge release voltage 过充电解除电压	3.45±0.05V
Over discharge protection 过放保护	Single Over-Discharge Voltage Protection 单体过放保护电压	2.5±0.05V
	Over-Discharge detection delay time 过放电检测延迟时间	<3000ms
	Over discharge release voltage 过放电解除电压	2.70±0.05V
Over current protection 过流保护	Over-Current Discharge Protection 放电保护电流	27A~33A
	Detection delay time 检测延迟时间	<65ms
Short protection 短路保护	Short Protection Detection delay time 短路保护检测延迟时间	<2ms
Balanced 均衡	Equalization starting voltage 均衡启动电压	3.8V
	Equalizing current 均衡电流	45mA
Interior resistance 内阻	Internal resistance in normal operation P+,P-导通内阻	≤50mΩ
Current consumption 消耗电流	Current consume in normal operation 正常工作时消耗电流	<1mA

(L*W*H) 尺寸	145*60*1.6mm
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7.2 Application Circuit 线路板原理图



(Schematic diagram for reference only 原理图仅供参考)

Handling Precaution and Guideline

For Lithium-Ion Rechargeable batteries

Preface

This document of 'Handling Precautions and Guidelines for LI-ion Rechargeable Batteries' shall be applied to the battery cells manufactured by GREEN ENERGY BATTERY Co., Ltd.

前言

本文件“锂离子充电电芯操作指示及注意事项”仅适用于深圳市吉毅创能源科技有限公司生产的电芯。

Note (1):

The customer is requested to contact GREEN ENERGY in advance if and when the customer needs variations of the operating conditions described in this document. Additional experimentation may be required to verify performance and safety under such conditions.

注(1):

客户若需要变动文件中规定的工作条件,应事先联系吉毅创能源。需要额外进行试验以核实电芯在该使用条件下的性能及安全性。

Note (2):

GREEN ENERGY will take no responsibility for any accident when the cell is used under conditions outside of this specification.

注(2):

对于在超出文件规定以外的条件下使用电芯而造成的任何意外事故,吉毅创能源概不负责。

Note (3):

GREEN ENERGY will inform the customer in writing of improvement(s) regarding proper use and handling of the cell if it is deemed necessary.

GREEN ENERGY reserves the right to revise this specification before the customer signs the datasheet. If a revision is required, GREEN ENERGY will notify the customer.

注(3):

如有必要吉毅创能源会以书面形式告知客户有关正确使用及操作电芯的改进措施。

在规格书未签确前,本公司有权对本产品规格书进行修订,如有必要修订后,吉毅创能源将会通知客户。

1. Charging 充电

1.1 Charging Current

充电电流

The charging current must be less than the maximum charge current specified in the specification

approval Sheet.

充电电流不能超过本规格书中规定的最大充电电流。

1.2 Charging Voltage

充电电压

The charging voltage of single cell must be less than the maximum nominal voltage **3.65V**, and the charging voltage upper limit is **3.65V** (single pack).

单节带电池的充电电压不能超过本规格书中规定的最大标称电压 **3.65V**; **3.65V** (单节) 为充电电压最高极限。

1.3 Charging Temperature

充电温度

The cell must be charged within the range specified in this Specification Approval Sheet.

电芯必须在本规格书规定的环境温度范围内进行充电。

1.4 Notes

Since charging is done with a constant current or a constant voltage, reverse charging is prohibited. If the cell is connected improperly it cannot be charged. Reverse charging can damage the cell and lead to degradation of cell performance, impair cell safety, and cause heat generation or leakage. **Use a dedicated charger.**

采用恒流恒压方式充电,禁止反向充电。若电池正、负极接反,将无法对电芯进行充电;同时,反向充电会降低电芯的充放电性能和安全性,并会导致发热和泄漏。**使用专用充电器。**

2. Discharging Current 放电电流

The cell shall be discharged at less than the maximum discharge current specified in the specification Approval Sheet. A high discharging current may reduce the discharge capacity significantly or cause overheating.

放电电流不得超过本规格书规定的最大放电电流,过大的放电电流会导致电芯容量剧减并导致电芯过热。

3. Discharging Temperature 放电温度

The Discharging Temperature must be within the range specified in this Specification Approval Sheet.

电芯放电温度必须在本规格书规定的环境温度范围内进行。

4. Over-Discharge 过放电

Over-discharging will cause cell degradation and functional losses. The cell can degrade into an over-discharge state through self discharging. In order to prevent over-discharging, the cell should be charged periodically to retain between **3.0V and 3.45V**.

过放电会导致电芯性能及功能的丧失,要避免过放电。电芯长期未使用期间,它也可能因

其自放电特性而处于某些过放电状态，为防止过放电的发生，电芯应定期充电，使其电压维持在 3.0V 到 3.45V 之间。

5. Protective Circuit Module 保护电路模块 (PCM)

5.1 The cell/battery pack shall contain a PCM that can protect the cell/battery pack properly.

PCM shall have the following functions to ensure safety and prevent deterioration of cell performance:

- (1) overcharging prevention
- (2) over-discharging prevention
- (3) over current prevention.

电芯/电池外壳应装有 PCM 以正确保护电芯/外壳。

PCM 应具备以下功能以保证安全并防止电芯性能损坏：

- 1) 过充电保护；
- 2) 过放电保护；
- 3) 过流保护。

5.2 Overcharging Protection

过充电保护

Overcharging prevention stops charging if any cell of the battery pack reaches 3.65V.

若电池中任一电芯的电压达 3.65 V,过充电保护应立刻停止充电。

5.3 Over- discharging protection

过放电保护

The Over-discharging protection monitors the voltage of every cell in the pack and works to avoid a drop in the cell voltage to 2.5V or less.

过放电保护监测每个电芯电压，并避免电压降至 2.5V 以下。

6. Storage 贮存

Cells should be stored at the proper temperature that is identified in the Specification Approval Sheet.

电芯应在产品规格书规定的温度范围内储存。

7. Notice 注意事项

7.1 Handling of cells

- ★ Don't charge the cells and keep them in a charged state for a long time. (Display units should dismantle the battery)
- ★ Avoid any short-circuit. It will cause the leads to get hot and lose electronic functions.
- ★ Soft package is easily damaged by sharp objects such as needles and knives. Avoid touching the cells with sharp objects when handling and storing.

- ★ Next to the leads is the sealed edge. Don't bend or fold the sealing edge as it is sensitive to movement.
- ★ Don't open the folded edge on the sides of the cell.
- ★ Don't bend the tabs as the tabs are sensitive.
- ★ Avoid mechanical shock to the cells.
- ★ Don't put the cells into an oven, washing machine or any high-voltage container.
- ★ Don't use a charger without a safety certification. Use only a recommended charger.
- ★ You should immediately stop charging if the cell overheats, emits an odor, changes color, changes shape, etc.
- ★ Battery should be storage away from children.
- ★ Adults should supervise the use of batteries by children.
- ★ Before using batteries, please carefully read and understand the handling guidelines.
- ★ Avoid electro-static discharge when using, charging, and storing cells.
- ★ Avoid putting the battery in contact with metal conductors such as neck chains, barrettes, or bolts, etc.
- ★ Don't use metal conductors to connect the positive and negative leads together.
- ★ Avoid errors during assembly by contacting the positive lead with the negative lead.
- ★ Avoid use cell with serious deformation .
- ★ Do not directly solder the pack or battery and pierce the battery with a nail or other sharp object.

7.1 使用电芯时应注意

- ★ 电池不能长时间充电，不能长期处于充电状态。（如展示品需拆下电池）
- ★ 慎防短路，任何情况引起的短路可能会导致极耳金属发热，使电池功能失效。
- ★ 电芯属于软包装,包装材料易被尖锐物品刺伤,诸如尖针,刀片等,电芯在使用和存放时,应避免与尖锐物品碰撞。
- ★ 电芯极耳引出端为顶封边，顶封边为电芯密封敏感区，使用时，禁止弯折顶封边。
- ★ 禁止打开电芯两侧的折边。
- ★ 电芯极耳的机械强度并非异常坚固，禁止弯折极耳，特别是铝极耳。
- ★ 禁止机械撞击电芯、坠落、弯折电芯。
- ★ 不要把电池放在加热器皿、洗衣机或高压容器中。
- ★ 不要使用非指定的和没有安全认证的充电器给电池充电。
- ★ 在使用充电或储存期间如发现电池有变热、散发气味、变色、变形或其它反常之处应停止使用。
- ★ 把电池放到小孩够不到的地方以免吞服。
- ★ 儿童使用电池时，监护人应详细解释操作方法。
- ★ 在使用电池之前，应仔细阅读操作指南并对使用中的注意事项有足够深刻的理解。
- ★ 电池应在远离静电的场所进行充电、使用和储存。
- ★ 不要把电池同项链发夹硬币或螺钉等金属品一起放在手提包中，也不要将电池同上述物

品一起储存。

- ★ 不要使用金属导体短路电池的正、负极。
- ★ 在使用时应注意电池的正、负极不要反装。
- ★ 不要使用带有严重变形的电池。
- ★ 禁止直接焊接电池组合或电芯，禁止用钉子或其它利器刺穿电池组合或电芯。

7.2 Notice for Designing Battery Pack

电池外壳设计注意 事项

7.2.1 Package Design

外壳设计

- ① The battery pack should have sufficient strength and the battery should be protected from mechanical shock.
- ② No sharp objects should be inside the pack containing the battery.
- ① 电池外壳应有足够的机械强度以确保其内部电芯免受机械伤害。
- ② 外壳内安装电芯的部位不应有锋利的边角。

7.2.2 PCM Design

保护电路模块设计

- ① The overcharge threshold voltage should be less than **3.65V** (single pack).
- ② The over-discharge threshold voltage should not be lower than **2.5V** (single pack).
- ③ The PCM should have short circuit protection.
- ① 过充的限制电压应小于 **3.65V** (单节电芯)。
- ② 过放的限制电压应大于 **2.5V** (单节电芯)。
- ③ 保护电路模块应具有短路保护功能。

7.3 Notice for Assembling Battery Pack

电池外壳组装注意 事项

6.3.1 Tab connection

电芯的连接

- ① Ultrasonic welding or spot welding is recommended to connect the battery with the PCM or other parts.
- ② If the tab is to be soldered to the PCM, the instructions below are very important to ensure battery performance.
 - a) The solder iron should be temperature controlled and ESD safe.
 - b) Soldering temperature should not exceed $350\pm 10^{\circ}\text{C}$.
 - c) Soldering time should not be longer than 3 seconds.
 - d) Soldering times should not be fewer than 5.
 - e) Let the battery tab cool down before soldering again.
 - f) Direct heat to the cell body is strictly prohibited. The battery will be damaged by

heat above approx. 60°C.

- ① 建议使用超声波焊接或点焊技术来连接电芯与保护电路模块或其它部分。
- ② 如使用手工锡焊，须注意以下事项，以保证电芯的功能：
 - a) 烙铁的温度可控且防静电。
 - b) 烙铁的温度不能超过 350±10°C。
 - c) 锡焊时间不能超过 3 秒；
 - d) 锡焊次数不能超过 5 次；
 - e) 必须在极耳金属片冷却后再进行二次焊接；
 - f) 禁止直接加热电芯，高于 60°C 会导致电芯损坏。

7.3.2 Cell fixing

电芯的安装

- ① The cell should be fixed to the battery pack by its large surface area.
 - ② There should be no sharp edges at the assembly contact area.
 - ③ Cells must be held firmly in the battery pack; movement is not allowed.
- ① 应将电芯的宽面安装在外壳内；
 - ② 装电芯的位置不能有毛刺和尖锐边角；
 - ③ 电芯不能在壳内活动。

8. Others 其它注意事项

8.1 Disassembly may cause an internal short circuit to the cell, which may cause out-gassing, fire, or other problems.

在任何情况下不得拆卸或解剖电芯，拆卸和解剖可能会引致电芯内部短路，进而引起鼓气、冒烟、起火及其它安全问题。

8.2 Lithium ion battery should not have liquid flowing, but in case the electrolyte come into contact with the skin, or eyes, physicians, we recommend as below:

电芯内容物理论上不存在流动的电解液,但万一电池密封不严或刺伤造成吸潮而泄漏接触到皮肤、眼睛、或身体其它部位，以下是建议预防措施：

- a. The electrolyte touch eyes: Flush the electrolyte immediately with fresh water for 15min. and medical advice is to be sought.
 - b. The electrolyte touch skin: Flush the electrolyte immediately with a great deal of fresh water.
 - c. Breath the released gas: Go outside to breath fresh air.
 - d. Mis-eaten: Go to take some medical advice.
- a. 眼睛触到电芯内容物：立即用清水冲洗至少 15 分钟，如仍有不适，建议到相关医院就诊。
 - b. 皮肤接触：立即用大量的清水冲洗。
 - c. 吸入排放气体：换场所吸入新鲜空气。

d. 误食：需马上医疗就诊。

8.3 Prohibition of dumping of cells into fire

Never incinerate or dispose the cells in fire, for these may cause firing of the cells.

严禁将电芯投入火中。

8.4 The cells should never be soaked with liquids such as water, drinks or oil.

严禁将电芯浸入液体中,如水,饮料,汽油等。

8.5 Prohibit using the cells mixed with different manufactories. Prohibit using new cells mixed with old ones.

禁止和不同厂家的电芯混用,禁止新旧电芯混用。

8.6 Prohibit using damaged cells.

禁止使用已损坏的电芯。

9. Recommended Notice 推荐使用事项

9.1 Using cells on specified facilities only.

仅在指定的设备上使用电池。

9.2 Using cells in normal ambition temperature. Temperature: -10~35℃, Relative Humidity: 45~75%.

请在正常的室内环境中使用电池。温度-10~35℃, 相对湿度: 45~75%。

9.3 Using the cells, away from heat source. Don't let children play with cells.

Don't drop cells. Charge cells with specified charger.

在使用过程中, 应远离热源, 避免儿童玩弄电池。切勿摔打电池。本电池只能使用配套标准充电器充电。

9.4 Avoid the positive pole short cutting with the negative one. Avoid the cells affected with damp.

切勿将电池正、负极短路, 切勿让电池受潮, 以免发生危险。

9.5 Useless cells should be deal with in a safety way. Don't drop them into the water or fire.

废弃电池请安全妥当处理, 不要投入火中或水中。

▲Special Notice: If the cell isn't used for a long time, please keep the cells in a half-charged state neither fully charged and not completely discharged. Recharge the cells and use half of the power after 2~3 months. Store the cells in a cool and dry place. It will protect the cell from damage.

特别提醒: 若电池长期不使用时, 使其处于半充饱电状态(一半电量), 即:不充满电, 也不放完电。并在 2~3 个月之后重新充电, 并使用一半电量, 电池应在阴凉干燥处储存, 这样可以使电池不受损坏。

10. FCC Statement FCC 声明

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1) this device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

The device has been evaluated to meet general RF exposure requirement, the device can be used in portable exposure condition without restriction.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

该设备符合 FCC 规则的第 15 部分。操作应符合以下两个条件：1) 该装置不会造成有害的干扰，并且 2) 该设备必须接受任何干扰，包括可能导致不希望的操作的干扰。

未经当事人明确认可的变更或修改可能会影响你操作设备的权限。

该装置已被评估以满足一般的射频曝光要求，该装置可在不受限制的便携式曝光条件下使用。

注：本设备已经过测试，根据 FCC 规则的第 15 部分，符合 B 类数字设备的限制。这些限制旨在为住宅安装中的有害干扰提供合理的保护。

这种设备会产生、使用和发射无线电频率能量，并且，未按照规定安装使用的，可能对无线电通信造成有害干扰。然而，不能保证在特定的安装中不会发生干扰。如果该设备确实对无线电或电视接收造成有害干扰，这可以通过关闭和开启设备来确定，则鼓励用户尝试通过以下措施中的一个或多个来校正干扰：

- 调整接收天线的方向或位置。

- 加大设备和接收器之间的距离。

- 将设备连接到与接收器连接的电路不同的电路插座上。

- 咨询经销商或有经验的广播/电视技术人员寻求帮助。

11. Statement of Bluetooth operation 蓝牙操作声明

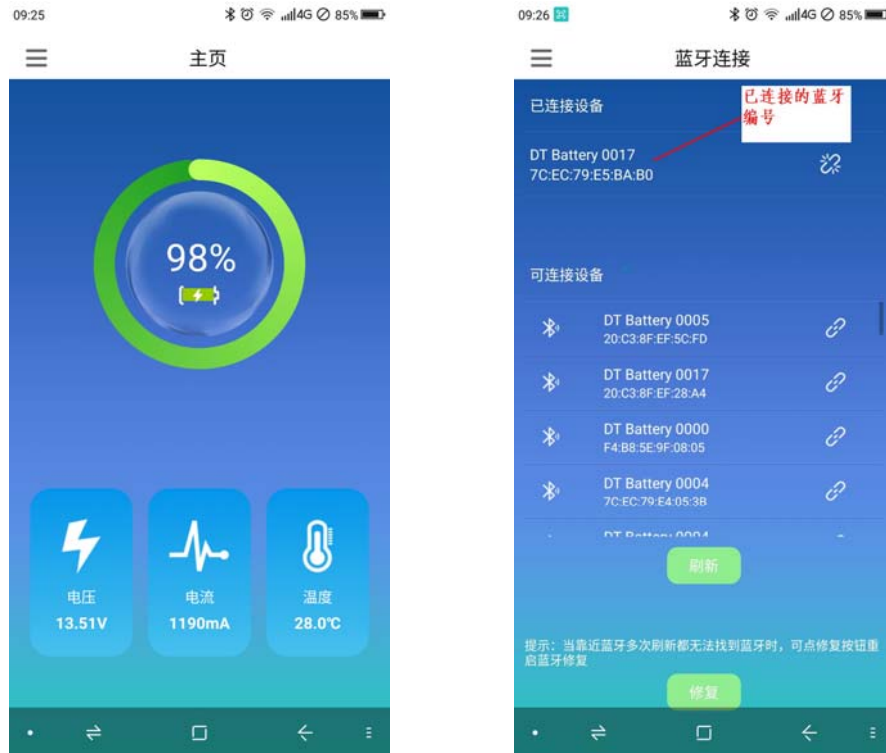
- 1) Open the Bluetooth and Position Information of your mobile phone(Bluetooth of PCM is opened if battery is not out of capacity completely)打开手机上的蓝牙和位置信息（只要电池组有电，保护板上的蓝牙模块就处于开启状态）；
- 2) Open the Smart Battrry of your mobile phone(The Smart Battery can only check status of the battery because Bluetooth of PCM can opened automatically. The Smart Battery is supplied by GREEN ENERGY BATTERY Co.,LTD), as following picture: 打开手机上的“智能电池”操作软件（因保护板上的蓝牙模块是自动开启的，故该软件只是用于查看电池组状态。该软件由吉毅创提供。），如下图：



- 3) You can see the connected devices, as following pictures:出现可连接的蓝牙设备，如下图：



4) Click the number of the battery bluetooth, you can see status of the battery, including capacity、current、voltage、temperature, as following pictures: 点击电池组对应的蓝牙编号, 可看到电池组目前的状态, 包括带电量、电流、电压、温度, 如下图:



5) Click top left corner of main page,you can see the status of cells, as following pictures: 点击主页左上角, 可查看电芯状态, 如下图:

