

Specification Approval Sheet

产品规格确认书

A 版

型号: KH 51.2V100AH

MODEL: KH51.2V100AH

| 拟制 Prepared by | 审核 Checked by | 批准 Approval |
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| 客户 赞同 Customer Approval | 客户名称: Customer's Name: | |
| | 签字 (盖章) Signature (Stamp) | 日期 Date |
| | | |

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1.Scope

This document describes the Product Specification of the Lithium-ion rechargeable battery supplied by Shenzhen Heyuxin Technology Co., Ltd

适用范围

本规格说明书描述了深圳市赫宇鑫科技有限公司生产的可充电锂离子电池的产品性能指标

2.Model

型号: 48V100Ah

3.Specification

技术参数

| No. | Items | Specifications |
|-----|-------------------------------------|---|
| 1 | Charge voltage 充电电压 | DC 58.4V |
| 2 | Nominal voltage 标称电压 | 51.2V |
| 3 | Nominal capacity 标称容量 | ≥ 100Ah |
| 4 | Energy 能量 | 5120Wh |
| 5 | Charge current 充电电流 | Standard charge (标准充电) : 0.5C Approx 5 Hour (约 5 小时) |
| 6 | Standard Charging method 标准充电方法 | 0.2C. (constant current) charge to 58.4V, then CV(constant voltage 58.4V) charge till charge current decline to ≤0.05C 0.2C. (恒流) 充电至 58.4V,再 CV (恒压 58.4V) 充电直至充电电流≤ 0.05C. |
| 7 | Max. charge current 最大充电电流 | 50A |
| 8 | Max. discharge current 最大放电电流 | 100A |
| 9 | Max.Pulse Current 最大脉冲电流 | / |
| 10 | Discharge cut-off voltage 放电截止电压 | 40V(常规) |
| 11 | cell & Method 电芯组装方式 | (3.2V105Ah)16S1P IFP-105Ah |
| 12 | Operating temperature 工作温度 | Charging(充电): 0°C ~ 45°C Discharging (放电) : -20°C ~55°C |
| 13 | Storage temperature 储存温度 | -10°C ~ + 45°C (每超过一个月需要进行充放电一次) |
| 14 | Battery Weight 电池重量 | Approx. kg 约: 48 kg |
| 15 | Battery Dimension 电池尺寸 | 660mm*450mm*180mm(W*H*D) |
| 16 | Battery outgoing voltage 电池出货电压 | 51.2~54.4V |

4. Battery Performance Inspection

电池性能检查及测试

4.1 Electrical characteristics

充放电性能

| No. | Items | Test Method and Condition | Criteria |
|-----|-------------------------------|--|--|
| 1 | Standard Charge 标准充电 | Charging the Battery initially with constant current at 0.5C and then with constant voltage at 58.4V till charge current declines to 0.05C. 先用 0.5C 恒流充电至 58.4V, 再恒压 58.4V 充电直至充电电流 $\leq 0.05C$ 。 | N.A. |
| 2 | Rated Capacity 初始容量 | The capacity means the discharge capacity of the Battery, which is measured with discharge current of 0.5CA with 40V cut-off voltage after the standard charge. 该容量是指标准充电后, 0.2C 放电至 40V 截止电压所放出的容量。 | $\geq 100Ah$ |
| 3 | Discharge Performance 放电性能 | When connecting with load, the battery can supply power. Charge the battery with standard charge mode, then rest for 0.2h, then discharge with 0.2C until the voltage is 40V. 电池外接负载, 能够供电。将电池按标准充电模式充好电后, 开路搁置 0.2h, 再以 0.2C 放电至 40V。 | The discharge time is required $\geq 56min$ 要求放电时间 $\geq 56min$ |
| 4 | Cycle Life 循环寿命 | Test condition: (常温常湿) Charge: 0.2C to 58.4V Discharge: 0.2C to 40V 80% or more of 1 st cycle capacity at 0.2C discharge of Operation 测试条件: (常温常湿) 充电: 0.2C 充电到 58.4V 放电: 0.2C 放电到 40V 当放电容量降至初始容量的 80% 时, 所完成的循环次数定义为该电池的循环寿命 | ≥ 2500 |
| 5 | Self-discharge 自放电 | After the standard charging, storied the Batteries under the condition for 30days, then measured the capacity with 0.5C till 40V 标准充电后, 贮存 30 天, 再以 0.5C 放电至 40V 所放出的容量。 | Residual capacity $> 80\%$ 剩余容量 $> 80\%$ |
| 6 | Initial Impedance 初始内阻 | Internal resistance measured at AC 1KHz after 50% charge 半充状态下, 测量其 AC 1KHz 下的交流阻抗 | $\leq 50m\Omega$ |

4.2 Visual inspection

外观检查

There shall be no such defect as scratch, flaw, crack, and leakage, which may adversely affect commercial value of the Battery.

不允许有任何影响电池性能的外观缺陷，诸如裂纹、裂缝、划伤等。

4.3 Standard environmental test condition

标准测试环境

Unless otherwise specified, all tests stated in this Product Specification are conducted at below condition:

Temperature : $25 \pm 5^{\circ}\text{C}$

Humidity : $25 \sim 85 \pm 20\% \text{RH}$

除非特别说明，本标准书中所有测试均在以下环境条件下进行：

温度： $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$

湿度： $25 \sim 85 \pm 20\% \text{RH}$

5.Storage and Others

贮存及其它事项

a) Long Time Storage

If the Battery is stored for a long time, full recharge 1 month, the Battery's storage voltage should be 53.4~54V..

长期贮存

长期贮存的电池（超过 1 个月需要进行充放电一次，且最后满电）须置于干燥、凉爽处。贮存电压为 53.4~54V..

b) Others

Any matters that this specification does not cover should be conferred between the customer and HEREWIN.

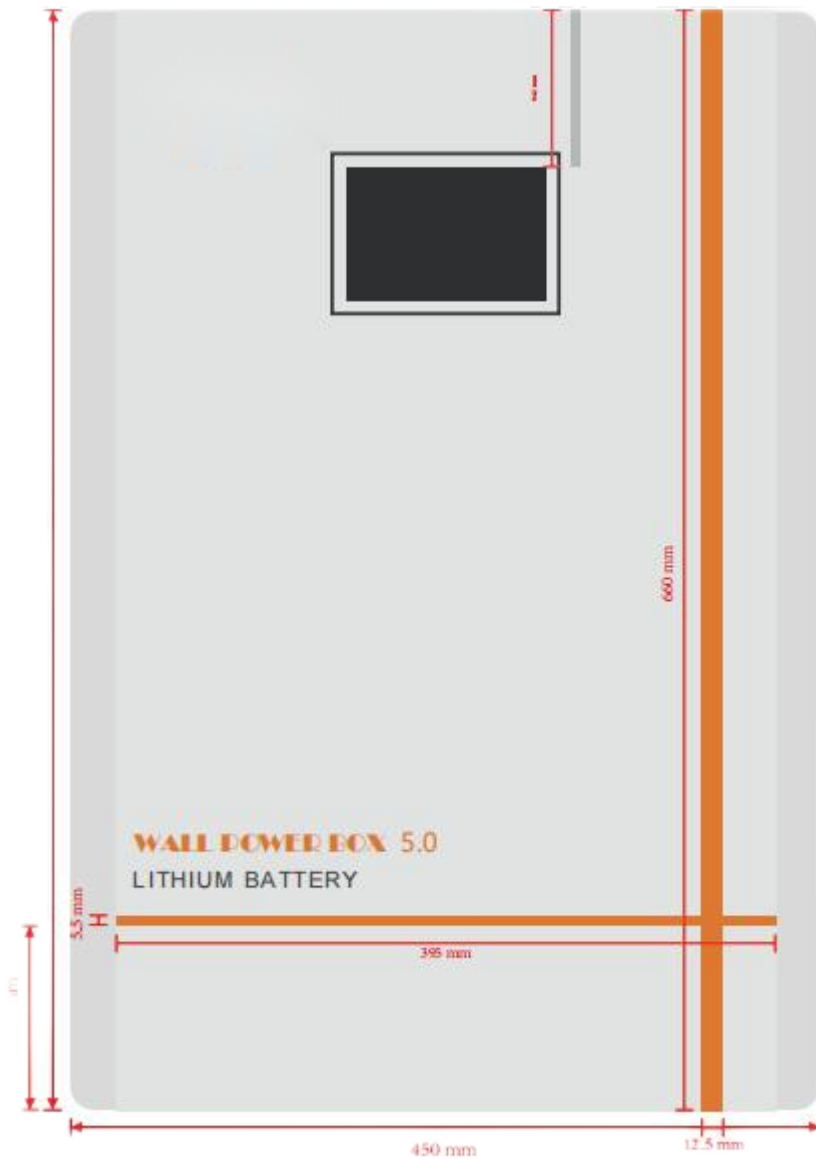
其它事项

任何本说明书中未提及的事项，须经双方协商确定

6.Drawing (all unit in mm, not in scale)

电池外型图 (单位: mm;未按比例)

外形供参考 (具体以实物为准)



Appendix: 7

附录:7

Handling Precautions and Guideline For LIP (Lithium-Ion) Rechargeable Batteries 锂离子充电电池操作指示及注意事项

Preface

This document of 'Handling Precautions and Guideline Keheng Rechargeable Batteries' shall be applied to the Batteries manufactured by Shenzhen Heyuxin Techonology Co., Ltd

前言

本文件“锂离子充电电池操作指示及注意事项”仅适用于深圳市赫宇鑫科技有限公司生产的电池。

Note (1):

The customer is requested to contact Keheng new energy technology (Dongguan) Co., Ltd in advance, if and when the customer needs other applications or operating conditions than those described in this document. Additional experimentation may be required to verify performance and safety under such conditions.

声明一:

客户若需要将电池用于超出文件规定以外的设备,或在文件规定以外的使用条件下使用电池,应事先联系科恒新能源科技(东莞)有限公司,因为需要进行特定的实验测试以核实电池在该使用条件下的性能及安全性。

Note (2):

Shenzhen Heyuxin Techonology Co., Ltd will take no responsibility for any accident when the Battery is used under other conditions than those described in this Document.

声明二:

对于在超出文件规定以外的条件下使用电池而造成的任何意外事故,深圳市赫宇鑫科技有限公司概不负责。

Note (3):

Shenzhen Heyuxin Techonology Co., Ltd will inform, in a written form, the customer of improvement(s) regarding proper use and Handling of the Battery, if it is deemed necessary.

声明三:

如有必要,深圳市赫宇鑫科技有限公司会以书面形式告知客户有关正确操作使用电池的改进措施。