



Li-ion Battery Specification

锂离子电池规格书

Model/型号: RN48V25Ah

Prepared by 编制	Checked by 审核	Approved by 批准

Customer Name 客户名称	
Customer Approval 客户确认/盖章	
Date/日期	

Note (注意):

1. Kindly please sign specification back to us, if the sample has been approved.

如果样品已确认, 请回签规格书给我司。

2. Kindly please contact us as soon as possible if the sample has not been approved. Thanks!

如果样品未确认, 请尽快与我司联系, 谢谢!



AMENDMENT RECORDS 修改记录				
Edition 版本	Description 描述	Prepared by 编制	Approved by 批准	Date 日期

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1. Scope/适用范围

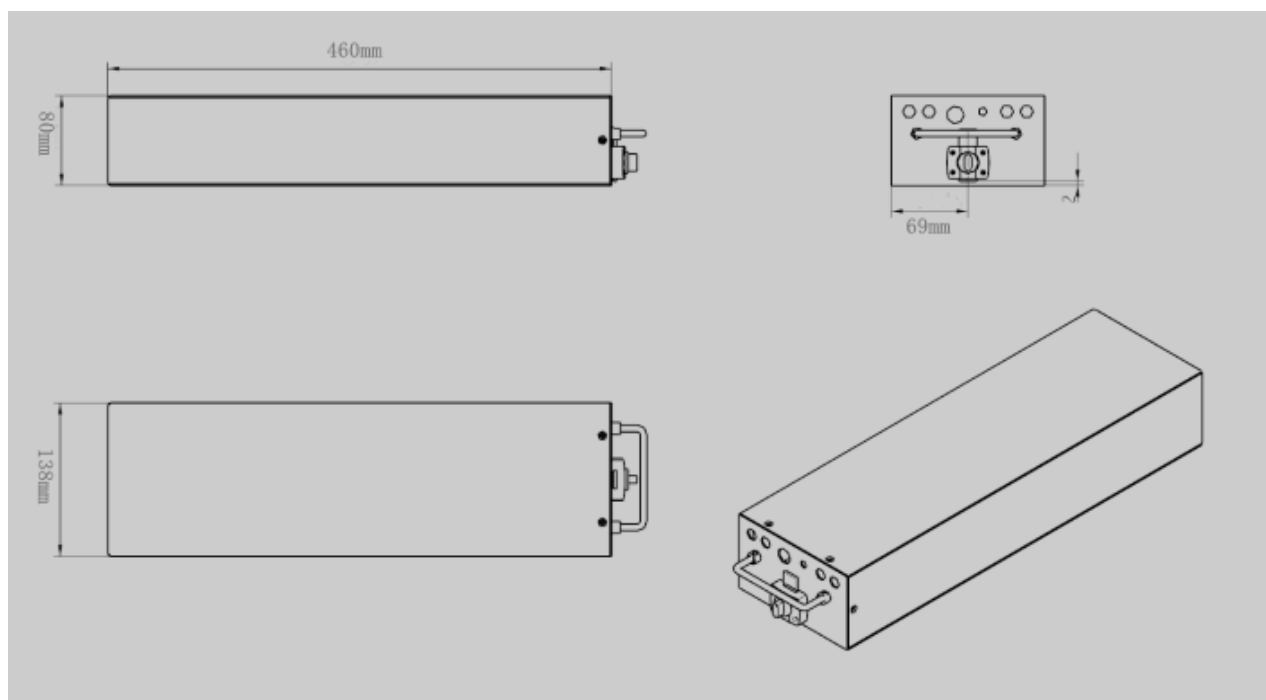
Application of this specification to 48V25Ah Suzhou Runing Power Technoiogy Co.,Ltd.

本规格书适用于苏州润能动力科技有限公司生产的 48V25Ah 电池。

2.Product Configuration/产品配置

No. /序号	Item/项目	SPEC/规格	Remark/备注
1	Lithium ion core 锂离子电芯	18650	35E
2	PCBA/保护板	13 串软件版	
3	Connector/连接器	充电 50A 灰色安德森 放电 50A 红色安德森	出线 200mm
4	Communication/通讯	RS485	

3.Product Dimension/产品尺寸



4. Product Specification/产品规格

No. 序号	Items/项目	Rated Performance/额定性能	Remarks/备注
1	Rated Capacity/标称容量	25Ah	
2	Minimum Capacity/最小容量	25Ah	
3	Nominal Voltage/标称电压	48V	
4	Charge voltage/充电电压	54.6V	
5	Outgoing voltage/出货电压	$\geq 48V$	
6	Discharge cut-off voltage 放电截止电压	36.4V	
7	Energy/能量	1200Wh	
8	Voltage at end of Discharge 放电保护电压	35.1V	
9	Charging Protection Voltage 充电保护电压	55.2V	
10	Over discharge current/放电保护过流	80A	
11	AC Impedance /电池阻抗	$\leq 100 \text{ m}\Omega$	
12	Standard Charge/标准充电	5A	
13	Standard Discharge/标准放电	10A	
14	Fast Charge/快速充电	10A	
15	Fast Discharge/快速放电	15A	
16	Maximum Continuous Charge Current/ 最大持续充电电流	20A	
17	Maximum Continuous Discharge Current/最大持续放电电流	25A	
18	Operation Temperature Range 工作温度范围	Charge 充电: 0~45°C	Humidity /湿度 60±25%
		Discharge 放电: -10~50°C	
19	Storage T/H Range 存储温、湿度范围	-10~60°C/60±25%	
20	Weigh/重量	约 10Kg	
21	Battery size/电池尺寸	长度 Length:460±1mm	Initial dimension 初始尺寸
		宽度 Width:138±0.5mm	
		厚度 Thickness:80±0.5mm	

5. Product Performance/产品性能.

Standard Testing Conditions/标准测试环境

Temperature/温度: 25±5°C

Humidity Range /湿度: 25 ~ 85% 范围内进行。

Test method and request/检测方法 with 要求

No. 序号	Items /项目	Test Method /检测方法	Request/要求
1	Appearance 外观	By sight 目测	No obvious flaw, blot, scratch distorted, tympanous. 无凹陷、划痕、污渍、变形、鼓胀等缺陷。
2	Open-Circuit Voltage 开路电压	Shipped with a multimeter test voltage 用万用表测试出货电压	≥48V
3	Impedance 内阻	AC Impedance Resistance 交流阻抗电阻	≤100 mΩ
4	Nominal Capacity 标称容量	0.2C discharge 0.2C 放电容量	Discharge Capacity/放电容量 25Ah
5	Cycle Life 循环寿命 (0.2C)	测试条件/Test condition 第1步: 0.2C 充电至 54.6V Step1: Charged the cell at 0.2C to 54.6V 第2步: 静置 3 分钟 Step 2: Standby 3 min 第3步: 0.2C 放电至 36.4V/ Step3: Discharge the cell at 0.2C to 36.4V 第4步: 静置 3 分钟/ Step 4: Standby 3min 第5步: 重复第1步至第4步 500 次, 记录 500 周循环后容量与第1次循环容量的比值 Step5: Repeat step1 to step4 for 500 times. Measure the capacity of 1st cycle capacity at 0.2C discharge of Operation	1) 容量保持率不低于 80% Capacity retention ≥80% of initial capacity 2) 厚度膨胀不大于 6% Thickness Swelling ≤6% of initial thickness



6. Cell Specification/电芯规格

No.	项目/Items	规格 /Specification	
1	容量/Capacity/	标称容量/Typical Rated Capacity	0.2C 放电容量 3500mAh 3500mAh @ 0.2C discharge
		最小容量/Minimum Rated Capacity	0.2C 放电容量 3450 mAh 3450mAh @ 0.2C discharge
2	标称电压/Nominal Voltage	3.7V	
3	内阻 /Internal Resistance	小于 50m Ω	
4	标准充电方式 Standard Charging method	0.2C 恒流充电至 4.2V, 然后 4.2V 恒压充电至电流 0.02C 截止. 0.2C CC(constant current) charge to 4.2V, then CV (constant voltage 4.2V) charge till charge current decline to 0.02C .	
5	标准充电时间 Standard Charging time	6 小时 (参考) 6hours (Ref.)	
6	标准放电方式 Standard Discharge method	0.2C 恒流放电至 2.8V . 0.2C electric constant exile to 2.8V.	
10	电池重量/Battery Weight	约 45g	

7. PCM Specification and Characteristic/保护板规格与特性
7.1 PCM Electrical Characteristics 保护板性能参数

Item 项目	Symbol 符号	Content 详细内容	Criterion 标准
Over charge Protection 过充保护	VDET1	Over charge detection voltage 过充电检测电压	4.250±0.05V
	tVDET1	Over charge detection delay time 过充电检测延迟时间	1.00±0.30S
	VREL1	Over charge release voltage 过充电解除电压	4.1±0.05V
Over discharge protection 过放保护	VDET2	Over discharge detection voltage 过放电检测电压	2.70±0.10V
	tVDET2	Over discharge detection delay time 过放电检测延迟时间	1±0.30S
	VREL2	Over discharge release voltage 过放解除电压	3.0±0.10V
Over current protection 过流保护	VDET3	Over current detection voltage 过电流检测电压	0.20±0.015V
	IDP	Over current detection current 过电流保护电流	80±5A
	tVDET3	Detection delay time 检测延迟时间	1±0.3S
		Release condition 保护解除条件	Cut load 断开负载
Short protection 短路保护		Detection condition 保护条件	Exterior short circuit 外部电路短路
	TSHORT	Detection delay time 检测延迟时间	200±50uS
		Release condition 保护解除条件	Cut short circuit 断开短路电路
Interior resistance 内阻	RDS	Main loop electrify resistance 主回路通态电阻	≦ 10m Ω

8. Packaging, Storage and Transportation/包装、储存和运输

8.1 Packaging/包装标签:(实物图片暂缺,)

8.2 Storage/储存:

The Polymer Li-ion battery should be stored in a cool, dry and well-ventilated area, and should be far from the fire and the high temperature.

聚合物电池组应储存在阴凉、干燥、通风良好的地方。并应远离火和高温。

The best capacity in storage is 50%-65% .

保持储容量最好是在 50%-65%。

The battery should be stored within the proper temperature and humidity range specified by specification.

电池应储存在产品规格书规定的温度和湿度范围内。

If stored for more than six months or longer, the battery will be suggested to charge.

如果电池存放时间超过六个月以上或更长, 建议对电池进行充电。

8.3 Transportation/运输:

Forbidden to mix battery with other goods. /禁止将电池与其他货物混装。

Forbidden to immerse battery into liquid such as water or soak it with liquid. /禁止将电池浸入水中或弄湿。

Forbidden to deposit battery over 6 layers or upside-down. /禁止电池堆放超过 6 层或倒立。

The highest temperature during battery transportation should be lower than 65°C. /电池运输过程中最高温度应低于 65°C。

9. Use Attentions/使用注意事项

9.1 Attentions /注意事项

Avoid insolation or dropping into fire. /避免暴晒或投入火中。

Avoid shorting the battery. /避免将电池短路。

Avoid excessive physical shock or vibration. /避免电池过度冲击或振动。

Don't disassemble or deform the battery. /不得拆卸或扭曲电池

Don't immerse in water. /不得浸入水中

Don't use the battery mixed with other model or manufacturer batteries. /不要与其他型号或品牌的电池混合使用。

Battery usage by children should be supervised. /儿童使用电池应受到监督。

9.2 Charge/充电

Battery charge should be used appropriate charger. /电池充电必须使用专用的充电器。

Forbidden to use modified or damaged charger. /禁止使用改装或已损坏的充电器。

Forbidden to charge over 24 hours for battery. /禁止充电超过 24 小时。

Charge current: can't surpass the biggest charge current specified by battery specification.

充电电流：不能超过在规格书规定的最大充电电流。

Charge voltage: can't surpass the highest charge voltage specified by battery specification.

充电电压：不能超过在规格书规定的最高电压。

Charge temperature: The battery should be charged within proper temperature range specified in specification.

充电温度：电池必须在规格书规定的环境温度范围内进行充电。

Forbidden of reverse charge: The battery should be connected correctly, the polarity has to be confirmed before wiring in case of the battery is connected improperly, the battery can't be charge. Simultaneously, the reverse charge may cause damaging to the battery which may lead to degradation of battery performance and damage the battery safety, and could cause heat generation or leakage.

禁止反充：电池应该当正确连接，配线前就要确认极性，万一连接不正确，电池将不能充电。同时，反充可能会损坏电池，会导致电池性能下降，破坏电池安全性，还可能导致发热或泄漏。

9.3 Discharge/放电:

Discharge current: can't surpass the biggest discharge current specified by battery specification.

放电电流：不能超过在规格书规定的最大放电电流。

Discharge temperature: The battery should be discharged within proper temperature range specified by specification.

放电温度：电池必须在规格书规定的环境温度范围内进行放电。

Over-discharge: it should be noted that the battery would be at over-discharged state by its self-self-discharge characteristics in case the battery is not used for long time. To prevent over-discharge, the battery shall be charged periodically to maintain between 48V and 50V.

过放：需要注意的是，在电池长期未使用期间，它可能会因其自放电特性而处于某种过放电状态。为防止过放电的发生，电池应定期充电，将其电压维持在 48V 到 50V 之间。

9.4 Disposal/处置:



The disposal of battery should meet the local law.

电池的处理应当符合当地法律。

10.Warranty Period /质保期

Unless special declaration in product specification, the warranty period of battery is 12months from the day of battery manufacture.

除在产品规格书中特别声明，电池质保期自制造之日起 12 个月内有效。

11.Note/注释

Any other items which are not covered in this specification shall be agreed with both parties.

任何其他不包括在本规范的项目，应由双方协商决定。