



产品规格书
PRODUCT SPECIFICATION

DOC NO.: 12.8V100Ah-A

REV.: V1.0

Date: 2020/07/26

Customer's Name:

客户名称:

Spec.No. : 20200726008

File. No.:

Ver: A/0

Date: 2020-07-26

Easun Power Technology Corp Limited

深圳市易尚光伏科技有限公司

Specification For Approval
客户承认书

Model : IBattery-TP-12100AH

型 号: IBattery-TP-12100AH

Type : 23140160-4S2P-12.8V100Ah

类 型: 23140160-4S2P-12.8V100Ah

Approval	Checked	Draft
Customer Approval		



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更新记录 Update record

版本 REV	描述 Description	日期 Date	修订人 Reviser
V1.0	新版本发行	2020-7-26	



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目录

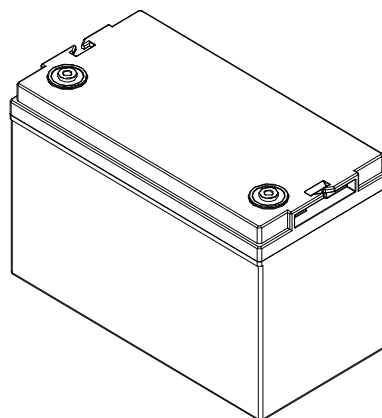
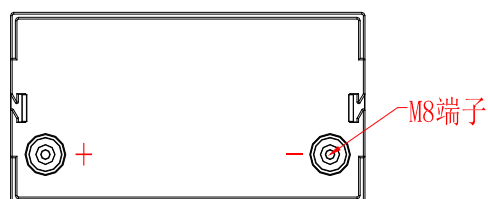
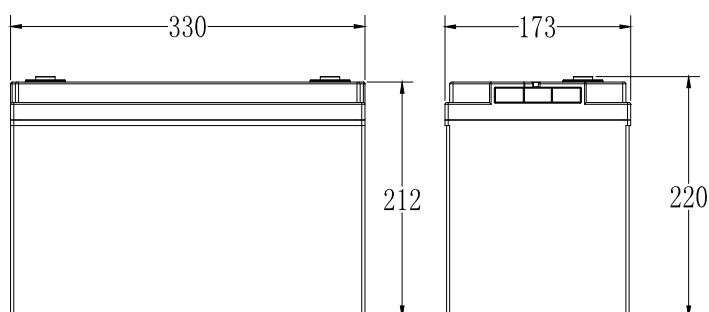
1. 概述 / General Information	4
2. 产品尺寸/Product dimension.....	4
3. 电池技术规格 / Battery Specification （@ 25±5℃℃）	4
4. 电气性能及测试条件 Electrical Characteristics & Test Condition.....	5
5. 保护电路规格参数 Circuit Protection.....	6
6. 电池使用规范/Battery usage specification.....	9
7. 运输、存储注意 / Transport & Store.....	9
8. 警示及注意事项 / Warning & Tips.....	9
9. 质保期限 Warranty.....	10

1. 概述 / General Information

本规格书适用于深圳市易尚光伏科技有限公司生产的 23140160-4S2P-12.8V100Ah 锂离子可充电电池。

The specification shall be applied to Li-ion rechargeable battery pack Of 23140160-4S2P-12.8V100Ah which is manufactured by Easun Power Technology Corp Limited.

2. 产品尺寸/Product dimension



单位 Unit: mm

备注: ① 外壳默认为黑色普通 ABS 塑胶, 可根据客户要求定制;

② 正极端子胶为暗红色, 负极端子胶为黑色或蓝色;

③ 正负极端子为 M8, 配 M8 组合螺丝。(默认不配连接线, 连接线可根据客户要求定制)

3. 电池技术规格 / Battery Specification (@ 25±5℃)

序号 NO.	项目 Items	特性 Characteristics
3.1	额定容量 Nominal capacity	100Ah
3.2	最小容量 Mix. capacity	98Ah
3.3	额定能量 Nominal energy	1280Wh
3.3	电池组电芯组合结构 Combination structure of battery	23140160-4S2P
3.4	额定电压 Nominal voltage	12.8V

3.5	放电终止电压 End of discharge voltage	10.8V
3.6	标准充电电压 Standard charge voltage	14.6±0.2V
3.7	浮充充电电压 Float charge voltage	13.8V
3.8	标准充电电流 Standard charge current	20A
3.9	推荐充电电流 Recommended charge current	≤20A
3.10	最大持续充电电流 Allowed Max. charge current	70A
3.11	标准放电电流 Standard charge current	20A
3.12	推荐放电电流 Recommended charge current	≤50A
3.13	最大持续放电电流 Allowed Max. charge current	100A
3.14	峰值电流 Peak current	250A,10Sec
3.15	内阻 Internal Resistance	≤40mΩ
3.16	重量 Weight	Approx.12.0kg±5%
3.17	出货电量 Ex-factory capacity	Approx.50% SOC
3.18	工作温度 Operation temperature	放电 Discharge -20℃~60℃
		充电 Charge 0℃~45℃
3.19	储存环境 Storage environment	≤1Month -20~+60℃、5~75%RH
		≤6Month -10~+45℃、5~75%RH
		Recommend environment 15~+35℃、5~75%RH

4. 电气性能及测试条件 Electrical Characteristics & Test Condition

测试条件 Testing Conditions: Ambient Temperature: 25±5℃; Humidity:45%~75%.

标准充电: 在 CC(0.2C)/CV(14.4V)模式下充电至电流减小至 0.02C, 然后静置 1h。

Normal charge: Charge battery under CC(0.2C)/CV(14.4V) mode until the charge current reduce to 0.02C, and then rest for 1h.

序号 No.	项目 Items	标准 Standard	测试方法 Test condition
4.1	额定容量 Normal capacity	≥100Ah	电池经标准充电后, 以 0.2C 电流放电至截止电压。 After Normal charge, discharge @0.2C current to the end of discharge voltage.
4.2	初始内阻 Internal Impedance	≤40mΩ	在 50%SOC 条件下用 1kHz AC 的交流内阻测试仪。 @50% SOC @1kHz AC internal resistance test Instrument.
4.3	短路保护 Short circuit protection	短路后自动断开负载 Auto cutoff load when short circuit	用 0.1Ω 的电阻短接电池的输出正、负极。 Connect the positive and negative of this battery pack through a lead with 0.1Ω resistance.
4.4	放电温度特性 Discharge temperature Characteristic	-20℃/25℃≥45%	电池按标准规定充电, 按 0.5C 的电流放电至 10.8V。电池必需先在不同的试验温度中放置 4 个小时后放电, 百分比按放电容量比最小容量计
		-10℃/25℃≥70%	

		0℃/25℃≥85%	算。 Battery shall be charged according to standard charge, discharged at 0.5C to 10.8 V. Battery shall be stored for 4 hours at the test temperature prior to discharging and then shall be discharged at the test temperature, The percentage shall be calculated using discharging capacity compared to the minimum capacity.
		25℃/25℃≥100%	
		55℃/25℃≥95%	
4.5	常温放电性能 Discharge performance in normal temperature	放电容量 Discharge capacity 0.2C ≥100% 1C ≥95% 2C ≥85%	在 25℃±2℃环境中，电池标准充电后，搁置 10min，然后以 0.2C、1C、2C 放电至 10.8V。计算各倍率下的放电容量与额定容量的比值。 When the battery is in the environment of 25 °C ± 2 °C, after standard charging, rest for 10min, and then discharge to 10.8v with 0.2C, 1C, 2C. Calculate the ratio of discharge capacity to rated capacity at each multiple.
4.6	容量保存率 Capacity retention rate	保持容量≥90% 恢复容量≥95% Capacity retention ≥90% Capacity recovery ≥95%	测量电池的初始状态和初始容量，电池标准充电后，开路放置28天，测量电池最终状态；以 0.2 C 放电至10.8V，测量电池的剩余容量；电池再经标准充电后，以 0.2C 放电至10.8V，测量电池的恢复容量；可循环三次，当有一次达到标准，即达到标准要求。 Measure the initial state and capacity of the battery, after standard charge, then rest for 28 days, measure the final state of the battery; discharge at 0.2C to 10.8 V, measure the remaining capacity of the battery. After standard charging, the battery is discharged at 0.2C to 10.8 V to measure its recovery capacity. It can be cycled three times.
4.7	循环寿命 Cycle life@DOD100%	≥2000 cycles	电池标准充电后以 0.5C 电流放电至截止电压，静置 1h；重复上述步骤直至放电容量小于初始容量的 80%。 After Normal charge, discharge @0.5C current to the end of discharge voltage. Repeat above process until discharge capacity reduce to 70% of initial value.

5. 保护电路规格参数 Circuit Protection

本电池内部包含磷酸铁锂电池保护板，能实时监控电池运行状态，必要时提供过充、过放、过流、过温等保护，

必要时切断动力电池的输入输出进行保护。

The batteries are supplied with a LiFePO₄ Battery Management System (PCB) that can monitor and optimized each single prismatic cell during charge & discharge, to protect the battery pack overcharge, over discharge, short circuit. Overall, the BMS helps to ensure safe and accurate running.

序号 NO.	项目 Item	内容 Content	参数 Parameter
5.1	过充 Over charge	单串过充保护电压 Over-charge protection for each cell	3.65±0.05V
		整组过充保护电压 Over-charge protection for battery	14.6±0.20V
		单串过充保护延迟时间 Over-charge protection delay time	0.5-2S
		过充保护恢复方法 Over-charge release method	1. 单串电压≤3.50±0.05V 且电池电压≤14.0±0.20V 或 Cell voltage≤3.50±0.05V and battery voltage ≤14.0±0.20V or 2. 放电电流大于 2A. Discharge current≥2A
5.2	充电过流保护 Over charge current	充电过流保护 Charge over current protection 1	充电电流 90±20A Charge current 90±20A
		充电过流延时 Charge over current protection delay time	300~800mS
		充电过流解除条件 Charge over current release	1. 断开负载自动恢复或 2. 放电电流>2A Cut load, Auto Recovery or discharge current>2A
5.3	过放 Over discharge	单串过放保护电压 Over-discharge protection for each cell	2.3V±0.10V
		整组过放保护电压 Over-discharge protection for battery	10.8±0.30V
		过放保护延迟时间 Over-discharge protection delay time	0.5-1.5S
		过放保护恢复方法 Over-discharge release method	1. 单串电压大于 2.70±0.05V, 且整组电池电压大于 11.2±0.20V 或; 2. 充电电流大于 2A Cell voltage≥2.70±0.05V and battery voltage ≥11.2±0.20V or charge current >2A
5.4	放电过流保护 Over discharge current	放电过流保护 Discharge over current protection	放电电流 300±30A Discharge current 300±30A
		放电过流延时 Discharge over current protection	50~150mS



产品规格书
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12.8V100Ah-A

REV.:

V1.0

Date:

2020/07/26

		delay time	
		放电过流解除条件 Discharge over current release	1. 断开负载自动恢复或 2. 充电电流>2A Cut load,Auto Recovery or charge current>2A
5.5	温度 Temperature	充电高温保护 Charging high temperature protection	$50 \pm 5^{\circ}\text{C}$
		充电电池保护温度解除 Charge Over-temperature release method	$40 \sim 45^{\circ}\text{C}$
		充电低温保护 Charging low temperature protection	$0 \pm 5^{\circ}\text{C}$
		放电电池温度保护 Discharge over temperature protection	$70 \pm 5^{\circ}\text{C}$
		放电电池温度保护解除 Discharge Over-temperature release method	$50 \sim 60^{\circ}\text{C}$
		放电低温保护 Discharge low temperature protection	$-20 \pm 5^{\circ}\text{C}$
		保护板温度保护 PCB temperature protection	$90 \pm 5^{\circ}\text{C}$
		保护板温度解除 PCB Over-temperature release method	$90 \pm 5^{\circ}\text{C}$
		温度保护延时 temperature protection delay time	<10S
5.6	均衡功能 Cell balance	均衡启动电压 Balance Start Voltage	$3.525 \pm 0.025\text{V}$
		均衡电流 Balance current	$36 \pm 10\text{mA}$
5.7	短路保护 Short circuit protection	短路保护电流 Short Circuit Protection Current	$1050 \pm 200\text{A}$
		保护条件 Protection condition	负载短路或 Load short circuit
		保护延时 Protection delay	$450 \sim 800\mu\text{S}$
		保护解除条件 Short circuit protection release	断开负载, 自动恢复 Cut load,Auto Recovery

备注: 保护板厂家规格信息

6. 电池使用规范/Battery usage specification

6.1 电池单只使用时，可以直接使用。

6.2 电池需要并联或串联使用时，应先将每只电池按标准充电方式充满电后再并联或串联。

6.3 电池最大串联数不超过两串，并联数建议不要大于 4 并。

- When the battery is used alone, it can be used directly.
- When the battery needs to be used in parallel or in series, each battery shall be fully charged according to the standard charging method before parallel or in series.
- The maximum series number of batteries shall not exceed two, and the parallel number shall not exceed four.

7. 运输、存储注意 / Transport & Store

长期储存时，电池带电量一般在 30%~50%，高的带电量储存会加快电池容量衰减。

按规格书规定的方式每 6 个月需充放电循环一次。

运输过程装卸电池时请注意不要摔落，请勿超过 10 层堆积、翻转放置，保证正面朝上。

When long-time storage, the battery SOC is 30% ~ 50% , if high-SOC storage will accelerate the battery capacity degradation.

The battery need to be charged every 6 months if out of use

No fall down, no pile up over 10 layers, and keep face up.

8. 警示及注意事项 / Warning & Tips.

使用电池前请仔细阅读规格书和电池箱表面的警示标志。不当的使用电池可能会引起电池过热损坏，对于未按规格书操作造成的任何意外事故，深圳市拓湃新能源科技有限公司不负担任何责任，为了使电池安全的

使用及处理请在使用前认真的阅读操作说明：

Please read and follow the handling instructions before use. Improper use may cause heat, fire, rupture, damage or capacity deterioration of the battery. TOPAK POWER TECHNOLOGY CO., LTD. Describes is not responsible for any accidents caused by the usage without following our handling instructions.

警告 Warning

- 电池请远离热源、高压场所、并避免长时间的日光暴晒；
- 不能将电池投入水或火中；
- 不要接反电池的正负极；
- 不要用金属短接电池正负极；
- 避免过分的物理震动和冲击电池，不要撞击、摔落、踩踏电池；
- 未经厂家许可和指导，严禁私自拆卸或组装电池；
- 不能将其它不同厂家，类型，型号的电池混合使用；



产品规格书
PRODUCT SPECIFICATION

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- Battery must be far away from heat source, high voltage, and no exposed in sunshine for long time.
- Never throw the battery into water or fire;
- Never reverse two electrodes when use the battery;
- Never connect the positive and negative of battery with metal;
- Never knock, throw or trample the battery;
- Never disassemble the battery without manufacturer's permission and guidance.
- Never use mixed with other type of battery;

注意 Attention

- 请不要高温环境下使用或储存，否则会引起电池发热、起火或使用寿命降低；
- 电池用完电后，请及时(15 天内)充电；
- 请使用配套或者推荐的专业锂电池充电器；
- 电池有异味、变色、噪音、漏液、严重变形等异常情形时，请停止使用；
- 电解液泄露溅入皮肤、眼睛时，请用清水冲洗并立即找医生诊治；
- 请将电池放置在宠物和儿童接触不到的位置，禁止小孩接触电池；
- Keep the battery against high temperature. Otherwise it will cause battery heat, get into fire or lose some function and reduce the life.
- When battery run out of power, please charge your battery timely (≤ 15 day).
- Please use the matched or suggested charger for this battery.
- If battery emit peculiar smell, heating, distortion or appear any abnormity, please stop using.
- If the battery leaks and get into the eyes or skin, do not wipe, instead, rinse it with clean water and see doctor immediately.
- Please far away from children or pets.

9. 质保期限 Warranty

以质保协议为准。Subject to the warranty agreement.