



中国认可
国际互认
检测
TESTING
CNAS L4065



Report No.:

报告编号: FLS20231215U02-2

UN38.3 TEST REPORT

UN38.3 检测报告

Product Name: 产品名称:	Lithium iron phosphate battery 磷酸铁锂电池
Model and Parameters: 型号参数:	FLA48500, 51.2V, 500Ah, 25kWh
Test Classification: 检测类别:	Commission test 委托检测
Issue Date: 签发日期:	2024-04-24

Tested by/测试	Reviewed by/审核	Approved by/批准
Test Engineer	Audit Engineer	Approval Engineer

Guangzhou MCM Certification & Testing Co., Ltd.
广州邦禾检测技术有限公司

General Information 基本信息	
Application Information/申请信息:	
Applicant: 申请单位:	Guangzhou Felicity Solar Technology Co., Ltd 广州菲利斯太阳能科技有限公司
Address: 申请单位地址:	No.2, Donghua Huaye Road, Renhe Town, Baiyun Area, Guangzhou 广州市白云区人和镇东华业路 2 号
Contact Information: 联系方式:	Tel: 13580621578 E-mail: hailin.wu@felicitysolar.com
General Information/基本信息:	
Product Name: 产品名称:	Lithium iron phosphate battery 磷酸铁锂电池
Product Classification: 产品分类:	Rechargeable Lithium Ion Battery 可充电锂离子电池
Trade Mark: 商标名称:	--
Model and Parameters: 型号参数:	FLA48500, 51.2V, 500Ah, 25kWh
Manufacturer: 制造单位:	Guangzhou Felicity Solar Technology Co., Ltd 广州菲利斯太阳能科技有限公司
Address: 制造单位地址:	No.2, Donghua Huaye Road, Renhe Town, Baiyun Area, Guangzhou 广州市白云区人和镇东华业路 2 号
Contact Information: 联系方式:	Tel: 13580621578 E-mail: hailin.wu@felicitysolar.com
Factory: 生产单位:	Guangzhou Felicity Solar Technology Co., Ltd 广州菲利斯太阳能科技有限公司
Address: 生产单位地址:	No.2, Donghua Huaye Road, Renhe Town, Baiyun Area, Guangzhou 广州市白云区人和镇东华业路 2 号
Testing Laboratory/测试实验室:	
Laboratory: 测试单位:	Guangzhou MCM Certification & Testing Co., Ltd. 广州邦禾检测技术有限公司
Address: 测试单位地址:	Building 2 No. 45 Zhong Er Section of Shiguang Road, Zhongcun Street, Panyu District, Guangzhou City, Guangdong Province, China. 中国广东省广州市番禺区钟村街市广路钟二路段 45 号 2 栋
Testing Location: 测试实验室地址:	As above 同上
Test Standard/测试标准:	
Standard Used: 使用标准:	Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, section 38.3 《试验和标准手册》 ST/SG/AC.10/11/Rev.7/Amend.1, section 38.3
Deviation Description: 偏差描述:	None

Product Information/产品信息:																								
1.	This battery assembly whose watt-hour rating is more than 6200Wh, is constructed with 8 Lithium ion Battery Modules (Model: 2P2S) , and has overcharge, over-discharge, over current and short-circuits proof circuit. 这个电池总成由 8 个锂离子电池模组 (型号: 2P2S) 组成, 额定瓦时数大于 6200Wh, 具有过充、过放、过流和短路保护电路。																							
2.	The assembled batteries inside the battery assembly is tested according to the requirements of Rev.7 Amend.1 version and met the requirements (Test report shown as below) 电池总成中的组成电池按照第七版修订一的要求进行测试并满足其要求 (测试报告如下)																							
	<table border="1"> <tr> <th>TR no. 测试报告号</th> <th>Model 型号</th> <th>Rating 额定值</th> </tr> <tr> <td>FLS20231214U02</td> <td>2P2S</td> <td>(2P2S) 6.4V, 500Ah, 3200Wh</td> </tr> </table>	TR no. 测试报告号	Model 型号	Rating 额定值	FLS20231214U02	2P2S	(2P2S) 6.4V, 500Ah, 3200Wh																	
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FLS20231214U02	2P2S	(2P2S) 6.4V, 500Ah, 3200Wh																						
3.	This battery assembly's mass and size 组装电池质量和尺寸																							
	<table border="1"> <tr> <th>Mass 质量</th> <td>215±2kg</td> <th>Size 尺寸</th> <td>/</td> </tr> </table>	Mass 质量	215±2kg	Size 尺寸	/																			
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Label/标签:																								
<table border="1" style="margin: 10px auto;"> <tr><td>Model</td><td>FLA48500</td></tr> <tr><td>Nominal Voltage</td><td>51.2V</td></tr> <tr><td>Energy</td><td>25kWh</td></tr> <tr><td>Operating Voltage</td><td>44.8-57.6V</td></tr> <tr><td>Recommend Charge/Discharge Current</td><td>≤200A</td></tr> <tr><td>Recommend Charge/Discharge Power</td><td>≤10,000W</td></tr> <tr><td>Scalability</td><td>Up to 15 units in parallel</td></tr> <tr><td>Communication</td><td>RS485 / CAN</td></tr> <tr><td>Cycle Life</td><td>≥6,000@25°C, 80%DOD</td></tr> <tr><td>Charging Temperature Range</td><td>0-55°C</td></tr> <tr><td>Discharging Temperature Range</td><td>-20-55°C</td></tr> </table> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> </div>			Model	FLA48500	Nominal Voltage	51.2V	Energy	25kWh	Operating Voltage	44.8-57.6V	Recommend Charge/Discharge Current	≤200A	Recommend Charge/Discharge Power	≤10,000W	Scalability	Up to 15 units in parallel	Communication	RS485 / CAN	Cycle Life	≥6,000@25°C, 80%DOD	Charging Temperature Range	0-55°C	Discharging Temperature Range	-20-55°C
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Technical Parameters/技术参数:																								
Device Under Test 待检器件	Assembled battery 组成电池	Battery assembly 电池总成																						
Model 型号	2P2S	FLA48500																						
Nominal Capacity 额定容量 (Ah)	500	500																						
Nominal Voltage 额定电压 (V)	6.4	51.2																						
Nominal Charge Current 额定充电电流 (A)	150	150																						
Nominal Discharge Current 额定放电电流 (A)	150	150																						
Maximum Charge Current 最大充电电流 (A)	200	200																						
Maximum Discharge Current 最大放电电流 (A)	200	200																						
Maximum Charge Voltage 最大充电电压 (V)	7.3	58.4																						
Cut-off Voltage 放电截止电压 (V)	5.6	48.0																						
Remark/备注:																								
修改: 取代原报告 FLS20231215U02-1, 2024.01.30 签发																								

Test Conclusion 测试结论				
Clause 条款	Test item 测试项目	Sample No. 样品编号	Test Result 测试结论	Remark 备注
38.3.3(f)	(Small battery assembly) (小型电池总成)	/	N/A	/
38.3.3(g)	(Large battery assembly) (大型电池总成)	BP1#	P	/
38.3.4.1	Altitude simulation 高度模拟	/	N/A	/
38.3.4.2	Thermal test 温度循环测试	/	N/A	/
38.3.4.3	Vibration 振动	/	N/A	/
38.3.4.4	Shock 冲击	/	N/A	/
38.3.4.5	External short circuit 外部短路	/	N/A	/
38.3.4.6	Impact / Crush 撞击 / 挤压	/	N/A	/
38.3.4.7	Overcharge 过度充电	/	N/A	/
38.3.4.8	Forced discharge 强制放电	/	N/A	/
Ambient Temperature: 20 ± 5°C 环境温度:				
Receipt Date: 2023-12-15 接收日期:				
Test Date: 2023-12-15 ~ 2024-01-24 测试时间:				
Test Conclusion/测试结论: <p>The samples submitted by Guangzhou Felicity Solar Technology Co., Ltd have passed the test items of Manual of Test and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, section 38.3.</p> <p>由广州菲利斯太阳能科技有限公司送检的样品符合《试验和标准手册》ST/SG/AC.10/11/Rev.7/Amend.1, section 38.3 的要求。</p> <p style="text-align: center;">Seal: 检测专用章:</p>				

Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, section 38.3 《试验和标准手册》ST/SG/AC.10/11/Rev.7/Amend.1, section 38.3			
Clause 条款	Requirement + Test 要求+测试方法	Result - Remark 备注-结果	Verdict 判断
38.3.2	Scope 范围		P
38.3.3	(Required test samples) (所需测试样品)		P
38.3.3 (a)~(e)	(Full test samples & states) (全项测试样品及状态)	No need to full test 无需全项测试	N/A
38.3.3(f)	(Small battery assembly) (小型电池总成)	Not small battery assembly 非小型电池总成	N/A
38.3.3(g)	(Large battery assembly) (大型电池总成)	Complied 符合要求	P
(Detail 1) (细则说明一)	The assembled battery which the aggregate lithium content of all anodes, when fully charged, is more than 500g, or in the case of a lithium ion battery, with a Watt-hour rating of more than 6200Wh. 集成电池组在完全充电时所有正极的合计锂含量超过 500g; 或在锂离子电池组的情况下, 如额定的瓦特小时数超过 6200Wh	Lithium ion battery, The total watt-hour rating is 25kWh 锂离子电池, 总瓦时数为 25kWh	P
(Detail 2) (细则说明二)	Batteries that have passed all applicable tests. 集成电池组的组成电池通过适用的所有测试	The lithium-ion battery module comprises the battery system through a hierarchical structure. The base battery module passes all applicable tests of UN 38.3 And See test report FLS20231214U02 锂离子电池模块通过层级结构组成电池系统, 作为基础的电池模块通过 UN 38.3 的适用的所有测试, 见测试报告 FLS20231214U02	P
(Detail 3) (细则说明三)	The assembled battery has been verified as preventing: (i) Overcharge; (ii) Short circuits; and (iii) Over discharge between the batteries. 集成电池组如进过验证属于可防止下列状况, 即无需进行试验: (一) 过充电; (二)短路; 和(三)电池组之间的过度放电。	The protection functions of the battery system have been verified at the battery system level. And See test report FLS20231215O02 电池系统的保护功能在电池系统层面上已被验证。见测试报告 FLS20231215O02	P
(Detail 4) (细则说明四)	The overcharge protection verification at the battery, equipment or vehicle level 电池组、设备或车辆层面的过度充电保护验证	The assembled batteries equipped with overcharge protection. Not applied to this clause. 自身配备过度充电保护装置, 不适用于此项	N/A

Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, section 38.3 《试验和标准手册》ST/SG/AC.10/11/Rev.7/Amend.1, section 38.3			
Clause 条款	Requirement + Test 要求+测试方法	Result - Remark 备注-结果	Verdict 判断
(Detail 5) (细则说明五)	A physical system or process controls to prevented overcharging 防止过度充电的物理系统或过程控制	The assembled batteries equipped with overcharge protection. Not applied to this clause. 自身配备过度充电保护装置，不适用于此项	N/A
38.3.4	Procedure 程序		N/A
	Test T.1 to T.5 shall be conducted in sequence on the same cell or battery. 小型电芯或电池应按顺序进行试验 T.1 至 T.5。 Test T.6 and T.8 shall be conducted using not otherwise tested cells or batteries. 试验 T.6 和 T.8 应使用未试验过的电芯或电池。 Test T.7 may be conducted using undamaged batteries previously used in tests T.1 to T.5 for purpose of testing on cycled batteries. 试验 T.7 可以使用原先在试验 T.1 至 T.5 中使用过的未损坏电池进行。	The test object meets the requirements of 38.3.3(g) and no need to be tested 测试对象满足 38.3.3(g)的要求，无需对其进行测试	N/A
38.3.4.1	Altitude Simulation 高度模拟		N/A
38.3.4.2	Thermal Test 温度试验		N/A
38.3.4.3	Vibration 振动		N/A
38.3.4.4	Shock 冲击		N/A
38.3.4.5	External Short Circuit 外部短路		N/A
38.3.4.6	Impact/Crush 撞击/挤压		N/A
38.3.4.7	Overcharge 过度充电		N/A
38.3.4.8	Forced Discharge 强制放电		N/A

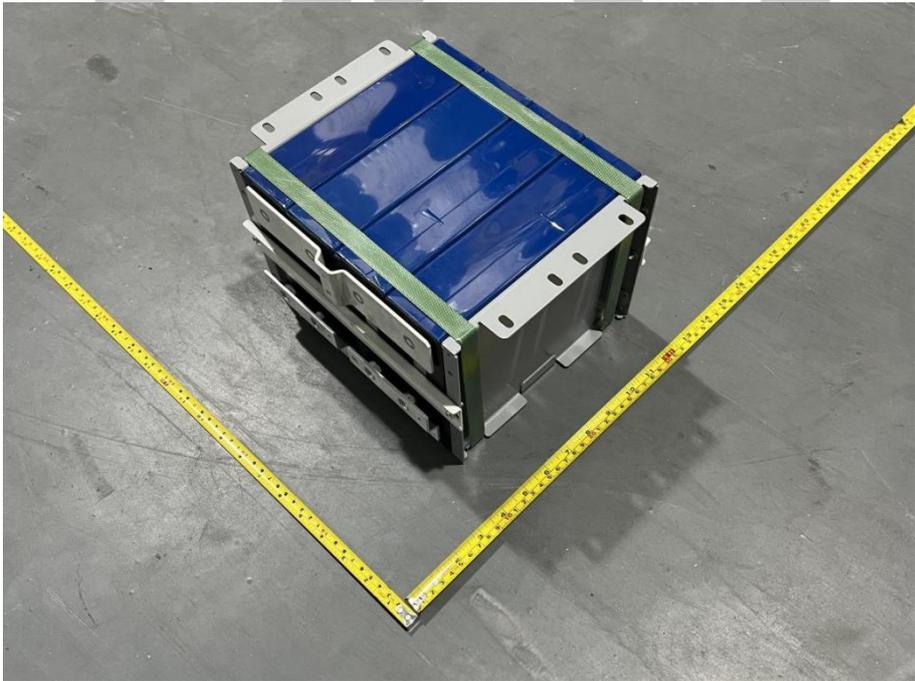
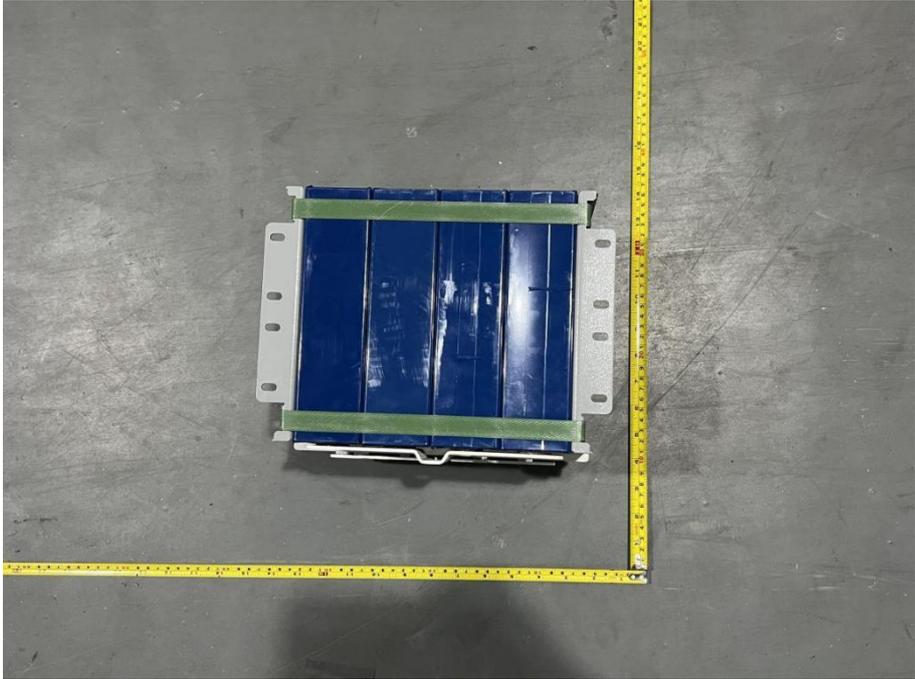
Photos of the Battery 电池照片

Battery Assembly: FLA48500, 51.2V, 500Ah, 25kWh



Photos of the Battery 电池照片

Battery module: 2P2S, 6.4V, 500Ah, 3200Wh



--End of the report--

Important Note
注意事项

1. This test report is invalid without the special testing seal and cross-page seal of Guangzhou MCM Certification & Testing Co., Ltd.
本检测报告无广州邦禾检测技术有限公司检测专用章、骑缝章无效。
2. Nobody is allowed to photocopy or partly photocopy this test report without written permission of Guangzhou MCM Certification & Testing Co., Ltd.
未经广州邦禾检测技术有限公司书面同意，不得全部或部分复制本检测报告。
3. This test report is invalid without the signatures of Approver, Reviewer and Tester.
本检测报告无批准人、审核人及检测员签名无效。
4. This test report is invalid if altered.
本检测报告涂改无效。
5. Objection to this test report must be submitted to Guangzhou MCM Certification & Testing Co., Ltd. within 15 days after the publication of the report.
若对此检测报告有异议，必须在报告发布之日起十五天内向广州邦禾检测技术有限公司提出。
6. This test report is only responsible for the received samples.
本检测报告仅对收到的样品负责。
7. As for the test results, "N/A" means "Not applicable", "P" means "Pass" and "F" means "Fail".
本检测结果中"N/A"表示“不适用”，"P"表示“通过”，"F"表示“不通过”。

Testing Lab.:	Guangzhou MCM Certification & Testing Co., Ltd.
检测单位:	广州邦禾检测技术有限公司
Address:	Building 2 No. 45 Zhong Er Section of Shiguang Road, Zhongcun Street, Panyu District, Guangzhou City, Guangdong Province, China.
地址:	中国 广东省广州市番禺区钟村街市广路钟二路段 45 号 2 栋
Tel/电话:	+86-20-3477 7662 或 0086-020-3477 7662
Email/电子邮箱:	service@mcmtek.com
Web/公司网址:	https://www.mcmtek.com