



4850-2U Lifepo4 Battery

Datasheet

Global Tech China Ltd, 3 Floor, Wai Yip Industrial Building.171 Wai Yip Street,
Kwun Tong, Kowloon, Hong Kong.
Tel: +852 2884 4318 Fax: +8522884 4816
www.sunsynk.com / sales@globaltech-china.com / www.globaltechhk.com

INDEX

1. SCOPE.....	3
2. TECHNICAL SPECIFICATION.....	3
3. BATTERY TESTING EQUIPMENT AND CONDITIONS	5
3.1. APPEARANCE.....	5
3.2. MEASUREMENTS APPARATUS.....	5
3.3. STANDARD TEST CONDITION	5
3.4. REST PERIOD	5
4. STORAGE AND OTHERS.....	5
4.1. LONG TIME STORAGE.....	5
4.2. OTHERS.....	5
5. BATTERY MANAGEMENT SYSTEM	6
5.1. BMS SPECIFICATION	6
5.2. BMS SPECIFICATION	6
6. CASE STRUCTURE OF THE BATTERY PACK	7
7. APPENDIX.....	8
8. AMENDMENT OF THIS SPECIFICATION.....	9

1. SCOPE

The specification shall be applied to lifepo4 lithium rechargeable battery pack of 4850-2U which is manufactured by Sunsynk.

2. TECHNICAL SPECIFICATION

No.	Item	General Parameter		Remark
		Typical	50Ah	
1	Rated Capacity	Minimum	50Ah	Standard discharge (0.2C ₅ A) after Standard charge
2	Nominal Voltage	3.2V		
3	Internal Impedance	≤0.65 mΩ		Internal resistance measured at AC 1KHz after 50% charge The measure must uses the new batteries that within one week after shipment and cycles less than 5 times
4	Dimension	Thickness: Max 24.5mm		Initial Dimension
		Width: Max 140.5mm		
		Height: Max 160.5mm		
5	Weight	1.15kg		APPROX
6	Standard charge	Constant Current 0.33C ₅ A Constant Voltage 3.65V 0.02C ₅ A cut-off		Charge time : Approx3.5h
7	Rapid Charge	Constant Current 1C ₅ A Constant Voltage 3.65V 0.01C ₅ A cut-off		Charge time : Approx1.5h@ ≥ 10°C
8	Standard discharge	Constant current 0.33C ₅ A end voltage 2.5 V		16.5A
9	Maximum discharge current	Constant current: 2C ₅ A end voltage: 2.5 V		100A@ ≥ 0°C
10	Volumetric specific energy	295 WH/L		APPROX
11	Gravimetric specific energy	139WH/KG		APPROX

	No.	Item	General Parameter		Remark
Package	1	Combination method	15S1P		
	2	Rated Capacity	Typical	50Ah	Standard discharge after Standard charge (package)
			Minimum	50Ah	
	3	Factory Voltage	45.0V-48.0V		Mean Operation Voltage
	4	Voltage at end of Discharge	37.5-42.0V		Discharge Cut-off Voltage
	5	Charging Voltage	54.75V		
	6	Internal Impedance	≤30mΩ		Internal resistance measured at AC 1KHz after 50% charge The measure must uses the new batteries that within one week after shipment and cycles less than 5 times
	7	Standard charge	Constant Current 20A Constant Voltage see No.5 0.02CA cut-off		Charge time : Approx 6 h
	8	Standard discharge	Constant current: 10A end voltage see NO.4		
	9	Maximum Continuous Charge Current	50A		
	10	Maximum Continuous Discharge Current	50A		100A when 0°C > T ≥ -10°C 50A when -10°C > T ≥ -20°C
	11	Operation Temperature Range	Charge: 0~45°C		60±25%R.H. Bare Cell
			Discharge: -20~55°C		
	12	Storage Temperature Range	Less than 12 months : -10~35°C		
			less than 3 months: -10~45°C		
			Less than 7 day : -20~65°C		
	13	Dimensions	442*480*88mm		Include case
	14	Weight	23kg		Include case
	15	Communication	RS485 OR CANBUS		
	16	BMS support	10 PCS		

3. BATTERY TESTING EQUIPMENT AND CONDITIONS

3.1. Appearance

There shall be no such defect as scratch, bur, and other mechanical scratch, and the connector should be no rust dirt. The structure and dimensions, see the attached drawing of the battery.

3.2. Measurements Apparatus

(1) Dimension Measuring Instrument

Instruments with equal or more precision shall implement the dimension measurement scale of 0.01mm.

(2) Voltmeter

The standard class specified in the national standard or more sensitive class has an inner impedance of less than 10 K Ω /V.

(3) Ammeter

The standard class is specified in the national standard or more sensitive class. Total external resistance, including ammeter and wire, is less than 0.01 Ω .

(4) Impedance Meter

Impedance shall be measured by a sinusoidal alternating current method (AC 1kHz LCR meter).

3.3. Standard Test Condition

The test should be conducted with new batteries within one month after shipment from our factory, and the cells shall not be cycled more than five times before the test. Unless otherwise defined, test and measurement shall be done under a temperature of 23 \pm 2 $^{\circ}$ C and relative humidity of less 75%., air 86Kpa~106Kpa.

3.4. Rest Period

Unless otherwise defined, 30min, rest period after charge,30min, rest period after discharge.

4. STORAGE AND OTHERS

4.1. Long Time Storage

If stored for a long time (do not use, exceed three months), the cell should be stored in a drying and cooling place. The cell's storage voltage should be 45.0V-48.0V, and the cell is to be stored in a condition that the temperature of 23 \pm 2 $^{\circ}$ C and the humidity Of 45%- 75%. Long-term use of unused batteries to recharge every 3 months. Ensure that the battery voltage is within the above range.

4.2. Others

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

5. BATTERY MANAGEMENT SYSTEM

5.1. BMS Specification

1) The BMS is designed for 15/16 series lithium battery.

2) The BMS has all the following functions:

- Overcharge detection function
- Over discharge detection function
- Over current detection function
- Short detection function
- Temperature detection function
- Balance function
- Communicate function
- Alarm function
- Total capacity function
- Storage history function

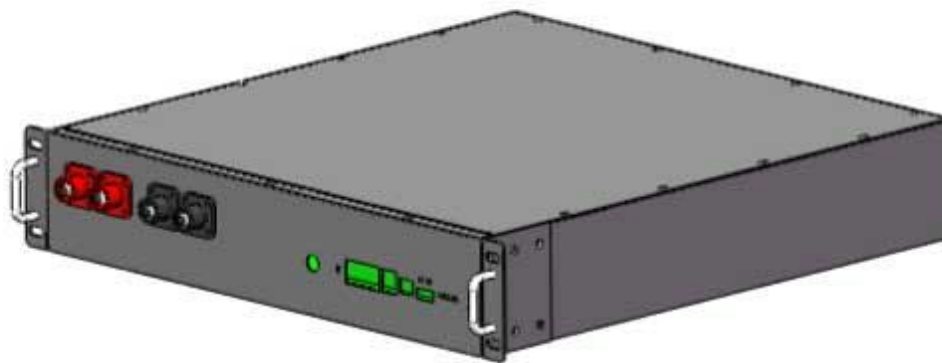
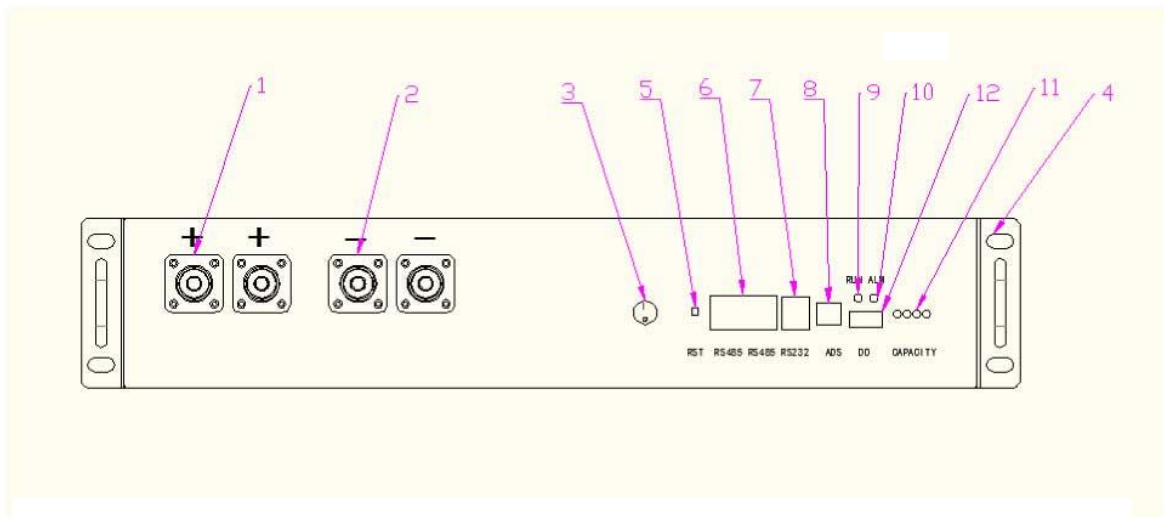
5.2. BMS Protect Parameter

48V Typical Value Specifications

Items	Details	Standard
Cell overcharge protection	Overcharge detection voltage	$3.65 \pm 0.025V$
	Overcharge detection delay time	Typical:1.0s
	Overcharge release voltage	$3.38 \pm 0.02V$
Cell over-discharge protection	Over-discharge detection voltage	$2.5 \pm 0.02V$
	Over-discharge detection delay time	Typical:1.0s
	Over-discharge release voltage	$2.9 \pm 0.02V$ or charge release
Over-current protection	discharge Over-current protection current1	$130 \pm 10A$
	discharge Over-current detection delay time 1	1S
	discharge Over-current protection current2	$150 \pm 10A$
	discharge Over-current detection delay time2	$\leq 100m \pm 50ms$
	Charge OC protection current	$130 \pm 10A$
Short protection	Short protection current	$350 \pm 10A$
	Protection condition	Load short
	Detection delay time	$\leq 300\mu s$
	Protection release condition	Charging release
Temperature(T) protection	Charge high T protection	$55 \pm 3^{\circ}C$
	Charge high T recover	$50 \pm 5^{\circ}C$
	Discharge high T protection	$65 \pm 5^{\circ}C$
	Discharge high T recover	$60 \pm 5^{\circ}C$
	Charge low T protection	$-5 \pm 5^{\circ}C$
	Charge low T recover	$0 \pm 5^{\circ}C$

	Discharge low T protection	-20±5℃
	Discharge low T recover	-15±5℃
Balance	Balance threshold voltage	3.45V
Communication	It has RS232 and RS485 standard communication interface, it can real-time monitoring the capacity of battery bank, the voltage, current, environment temperature, and charging/discharging current.	
Alarm	It has over-temperature, over charge, under-voltage, over-current, short circuit alarm Function.	

6. CASE STRUCTURE OF THE BATTERY PACK



No.	Description	Silk-screen	Remark
1	Barrier terminal block	+	
2	Barrier terminal block - Neg	-	
3	switch		
4	Hanger		For mounting the battery pack
5	Reset button	RST	For reset the battery
6	RS485 port	RS485	RS485 communication port
7	RS232 port	RS232	RS232 communication port
8	Dial switch	ADS	Set the address
9	LED	RUN	Operation indicator
10	LED	ALM	Alarm indicator
11	LED	CAPACITY	Capacity indicator
12	Dry contact	DO	Normal close

7. APPENDIX

Handling Precautions and Guideline for Li-ion Rechargeable Batteries

This document of 'Handling Precautions and Guideline Li-ion Rechargeable Batteries' shall be applied to the battery cells manufactured by ANC.

Note (1): The customer is requested to contact Sunsynk 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.

Note (2): Sunsynk will inform, in a written form, the customer of improvement(s) regarding the proper use and handling of the cell, if it is deemed necessary.

Note (3): Sunsynk will take no responsibility for any accident when the cell is used under other conditions than those described in this document.



DANGER:

- Do not immerse the battery in water or allow it to get wet.
- Do not use or store the battery near sources of heat, such as a fire or heater.
- Do not use any chargers other than those recommended by Sunsynk.
- Do not reverse the positive (+) and negative (-) terminals.
- Do not connect the battery directly to wall outlets or car cigarette-lighter sockets.
- Do not put the battery into a fire or apply direct heat to it.
- Do not short-circuit the battery by connecting wires or other metal objects to the positive (+) and negative (-) terminals.
- Do not pierce the battery casing with a nail or other sharp object, break it open with a hammer, or step on it.
- Do not strike, throw, or subject the battery to severe physical shock.
- Do not directly solder the battery terminals.
- Do not attempt to disassemble or modify the battery in any way.
- Do not place the battery in a microwave oven or pressurized container.
- Do not use the battery in combination with primary batteries (such as dry-cell batteries) or batteries of different capacity, type or brand.
- Do not use the battery if it gives off an odor, generates heat, becomes discolored or deformed, or appears abnormal in any way. If the battery is in use or being recharged, remove it from the device or charger immediately and discontinue use.



CAUTION:

Do not use or store the battery where is exposed to extremely hot, such as under the window of a car in direct sunlight on a hot day. Otherwise, the battery may be overheated. This can also reduce battery performance and/or shorten service life.

If the battery leaks and electrolyte get in your eyes, do not rub them. Instead, rinse them with clean running water and immediately seek medical attention. If left as is, the electrolyte can cause eye injury.

8. AMENDMENT OF THIS SPECIFICATION

This specification is subjected to change with prior notice.

NOTICE OF COMPLETION
AND
AUTHORIZATION TO APPLY THE UL MARK



2019-06-05

MR. Shilong Li
Jiangxi ANC New Energy Technology Limited Company
Economic and Technological Development Zone Xingye Road No.128
Shangrao, , 334100, CN

Our Reference: File MH63605, Vol .1

Order: 12835021

Project No. 4788984641

Your Reference: Ella Li, April.24, 2019

Project Scope: USR – UL 1973/UL 2580 Component Recognition on the Li-ion Prismatic Power Cell, Model 23140160

Dear MR. Shilong Li:

Congratulations! U L's investigation of your product(s) has been completed under the above Reference Number and the product was determined to comply with the applicable requirements. This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Mark at authorized factories under UL's Follow-Up Service Program. To provide your manufacturer(s) with the intended authorization to use the UL Mark, you must send a copy of this notice to each manufacturing location currently authorized under File MH63605, Vol 1 and including any special instructions as indicated in the addendum to this letter.

Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent in the near future.

Additional requirements related to your responsibilities as the Applicant can be found in the document "Applicant responsibilities related to Early Authorizations" that can be found at the following web-site: <http://www.ul.com/EAResponsibilities>

Any information and documentation provided to you involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

We are excited you are now able to apply the UL Mark to your products and appreciate your business. Feel free to contact me or any of our Customer Service representatives if you have any questions.

Very truly yours,

Reviewed by:

JIN HONG LIU
Project Engineer
Jissea.Liu@ul.com

Bruce A. Mahrenholz
CPO Director
Bruce.A.Mahrenholz@ul.com

Jiangxi ANC New Energy Technology Limited
Company

3640e55 f-9f84-4b85-b4ce-fa37dd91 61e0

NOTICE OF COMPLETION
AND
AUTHORIZATION TO APPLY THE UL MARK



IPI ADDENDUM

2019-06-05

MR. Shilong Li
Jiangxi ANC New Energy Technology Limited Company
Economic and Technological Development Zone Xingye Road No.128
Shangrao, , 334100, CN

Our Reference:	File MH63605, Vol .1	Order:	12835021
Your Reference:	Ella Li, April.24,2019	Project No.	4788984641
Project Scope:	USR – UL 1973/UL 2580 Component Recognition on the Li-ion Prismatic Power Cell, Model 23140160		

This addendum covers products manufactured at the following location:

Manu fact urer	Party Site Number	Accoun t	Factory ID	Coun try
Jiang xi ANC New Energy Technology Limited Company 江西安驰新能源科技有限公司 0793-882988 8 江西省上饶市经济技术开发区兴业大道 128 号	228937 4	226323 0	none	CN

Before you may begin shipping product with the UL Mark at the above manufacturing locations, an Initial Production Inspection (IPI) must be successfully performed by a UL representative at the location.

The IPI is intended to confirm that your manufacturing location is capable of producing a product in accordance with UL’s requirements. **YOU MAY NOT SHIP PRODUCTS WITH THE UL MARK UNTIL THE IPI HAS BEEN COMPLETED AND UL HAS FOUND THE PRODUCTS AT THE FACTORY TO COMPLY WITH OUR REQUIREMENTS.** Once the IPI has been successfully completed, you will be granted authorization to ship products bearing the UL Mark.

Instructions for the IPI will be sent to our inspection center nearest to you. The Inspection Center will contact you shortly to make arrangements for the IPI.

INSPECTION CENTER INFORMATION

Shanghai IC (749)
Building 8, North Suzhou Road No. 1040, Shanghai 200032, China
Ms. Shari Zheng
86-21-63646538
UL.InspectionCenter749@ul.com



Global Tech China Ltd, 3 Floor, Wai Yip Industrial Building.171 Wai Yip Street,
Kwun Tong, Kowloon, Hong Kong.
Tel: +852 2884 4318 Fax: +8522884 4816
www.sunsynk.com / sales@globaltech-china.com / www.globaltechhk.com