

Specification For Approval

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Foshan EnrSaver New Energy Technology Co., Ltd

Specification For Approval

Customer Name Code		
Model	ESLB-100/384	
Description	15S1P*4	
Effective Date	2022-05-19	
Made By	Checked By	Approved By
Jack Li		

Customer Confirmation	Company Name
	Signature
	Company Stamp

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Catalogue

1. Scope.....	3
2. The Specification Amendment/	3
3. Product or Cell testing conditions/.....	3
4. Standard /	3
4.1 Reference Standard/.....	3
4.2 Measuring Instrument and Apparatus/	3
4.3 Testing Conditions (Unless Specially Requirements)	3
5. Main specifications	4
5.1 Cell Battery specifications.....	5
5.2 Battery Pack specifications.....	6
5.3. Battery Management System	7
5.3.1 BMS function introduction.....	8
5.3.2 BMS Protect parameter.....	8-9

Specification For Approval

1、Scope of application documents

The specification of this product is only applicable to the protection parameters of a rechargeable lithium-ion battery Product and cell designed by Foshan EnrSaver New Energy Technology Co., Ltd.

2、The Specification Amendment

If the raw materials, production processing, production system or battery usage environments & other conditions need to be changed, the amendment side needs provide the written advice to the other side, only the both sides come to agreement, the amendment will be effective.

3、Product or Cell testing conditions

It is recommended to use newly produced battery packs and new cells for related tests. Unless specified, testing and measurement shall be done under temperature of $20\pm 5^{\circ}\text{C}$ and relative humidity of 45~75%.

4、Standard

4.1 Reference Standard

GB 31241-2014

UL1642

GB/T 31486-2015

GB/T 31485-2015

GB/T 31484-2015

4.2 Measuring Instrument and Apparatus

.1 Dimension Measuring Instrument

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.02mm.

.2 Voltmeter

Standard class specified in the national standard or more sensitive class having inner impedance more than $10\text{k}\Omega/\text{V}$

.3 Ammeter

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

.4 Impedance Meter

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

4.3 Testing Conditions (Unless Specially Requirements)

Atmosphere Pressure : 86~106kPa

Temperature: $20^{\circ}\text{C}\pm 5^{\circ}\text{C}$

Relative Humidity: $\leq 75\%$

Specification For Approval

5. Main specifications (IFP23140160-100Ah)

5.1 Cell Battery specifications

No	Item	General Parameter		Remark
1	Rated Capacity	Typical	100Ah	Standard discharge after Standard charge
		Minimum	100Ah	
2	Nominal Voltage	3.2V		Mean Operation Voltage
3	Internal Impedance	$\leq 0.4m\Omega$		Under $20\pm 5^{\circ}C$ Environment Temperature , the Usage Frequency of Fully Charge (1KHz) , Use AC Internal Impedance test machine to test
4	Standard charge	Constant Current $0.5C_5A$ Constant Voltage 3.6V $0.02C_5A$ cut-off		Charge time : Approx2.5h
5	Rapid Charge	Constant Current $1C_5A$ Constant Voltage 3.6V $0.02C_5A$ cut-off		Charge time : Approx1.5h
6	Standard Charge Cut-off Voltage	3.6V		Voltage of the battery when the Charge is stopped
7	Standard Discharge Cut-off Voltage	2.5V		Voltage of the battery when the discharge is stopped
8	Standard discharge	Constant current $1C_5A$ end voltage 2.5 V		100A
9	Maximum discharge current	Constant current: $1C_5A$ end voltage: 2.5 V		$100A @ \geq 0^{\circ}C$
10	Dimension	Thickness: $48 \pm 0.5mm$		Initial Dimension
		Width: $173.9 \pm 0.8mm$		
		Height: $120.6 \pm 0.8mm$		
11	Weight	$2300g \pm 0.05kg$		APPROX
12	Operating Temperature Range	Temperature: $-20 \sim 60^{\circ}C$ Humidity: $\leq 65\%RH$		Recommended charge/discharge current $\leq 1I1$ (50A), when cell temperature is lower than $0^{\circ}C$, Recommended cool the cell, when cell temperature is higher than $60^{\circ}C$
13	Storage Temperature Range	$-20^{\circ}C \sim 25^{\circ}C$		Recommend ($25 \pm 3^{\circ}C$) ; $\leq 90\%RH$ storage moisture range.

Specification For Approval

5.2 Battery Pack specifications for single module 48V 100AH

No	Item	General Parameter		Remark
1	Combination method	15S1P		
2	Rated Capacity	Typical	100Ah	Standard discharge after Standard charge (package)
		Minimum	98Ah	
3	Factory Voltage	48V-50.5V		Mean Operation Voltage
4	Voltage at end of Discharge	<=40.5V		Discharge Cut-off Voltage
5	Charging Voltage	54.6V		
6	Internal Impedance	≤100mΩ		Under 20±5°C Environment Temperature , the Usage Frequency of Fully Charge(1KHz) , Use AC Internal Impedance test machine to test
7	Max Charging Current (Icm)	120A		Ampere-meter ,Maximum allowable charging current of the battery pack
8	Limited Charging Voltage(Ucl)	54.6V		Volta-meter (Serial*3.6V) ,Battery pack safe charging voltage
9	Max Discharging current	120A		Maximum discharge current allowed by the battery pack
10	Discharge Cut-off voltage(Udo)	40.5V		Voltage of the battery when the discharge is stopped
11	Operation Temperature Range	Charge:0~55°C		
		Discharge: -20~60°C		
12	Storage Temperature Range	-20°C~25°C		Recommend (25±3°C) ; ≤90%RH storage moisture range.
13	Single module Size/weight	480*442* 220mm /45Kg		1PCS of Module weight 45kg
	Main control box size/weight	/		/

Specification For Approval

5.3 384V 100AH battery cabinet specifications			
No	Item	General Parameter	Remark
1	Combination method	PACK*4	4 sets of modular (48V 100AH) connect in series
2	Rated Capacity	192V/100AH	Standard discharge after Standard charge (package)
3			
4	Factory Voltage	192V-200V	Mean Operation Voltage
5	Voltage at end of Discharge	$\leq 162V$	Discharge Cut-off Voltage
6	Charging Voltage	216V	3.6V/cell
7	Internal Impedance	$\leq 100m\Omega$	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
8	Standard charge	standard	50A* number of parallel strings
9	Standard discharge	standard	100A* number of parallel strings
10	Maximum Continuous Charge Current	standard	50A* number of parallel strings
11	Maximum Continuous Discharge Current	standard	100A* number of parallel strings
12	Operation Temperature Range	Charge: 0~55°C	
13		Discharge: -20~60°C	
14	Storage Temperature Range	-20°C~25°C	Recommend (25±3°C) ; $\leq 90\%RH$ storage moisture range.
15	System size	4 modulars with size: 480*442* 220mm each	
16	System weight	200KG	
17			