User Manual

DIY Battery Case

SK51300-200A-JK-K

Tips

If any parts are missing, damaged or worn, stop using this KITS. Repair the KITS with manufacturer supplied parts

Suit for battery cell size: 207mm*173mm*71mm(There can be 1mm error)

If any parts are missing, damaged, or otherwise problematic, stop using this kit. Contact the supplier for replacement parts

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1. Safety Tips

1.1 Preface

Thanks for choosing our DIY battery case . In order to make you better use and maintain this product, please read the user manual carefully before use.
The features of the case are as follows:
1. Suit for battery cell size: 207mm*173mm*71mm(There can be 1mm error)
2. Integrated design, not easy to damage;
3. Supports stacking, and recommends 4 or 5 layers per unit;
4. Integrated serial port IC, high voltage accuracy (≤20mV), high current accuracy (≤2%@FS);
5. Four-channel battery temperature detection (≤2℃), SOC estimation function, SOH estimation function;
6. Short-circuit protection function, adjustable overcurrent protection, a variety of sleep and wake up mode, low power consumption;
7. Dual-port RS485 communication, parameter adjustable setting, buzzer alarm function, LED status indicator function, with charge balance power;
8. Parallel connection (up to 15 groups) application expansion is supported, but serial connection is not recommended.

1.2 Safety Disclaimer

When installing, using and maintaining this product, users must read this chapter carefully and follow the safety precautions required in this chapter. Any injuries and losses caused by illegal operation are not related to our company.

1.3 Description of Safety Matters

After installing the batteries, we need to know,

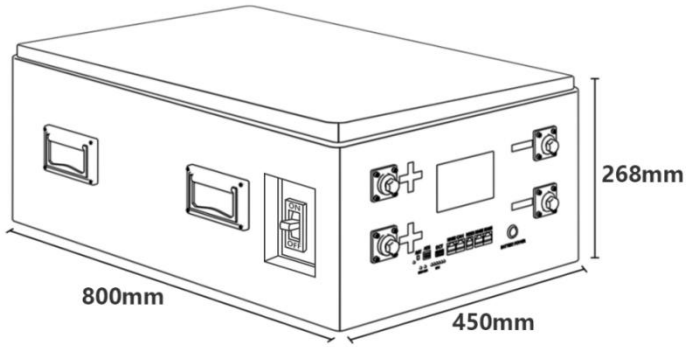
1. Keep the battery out of the reach of children and babies;
2. Do not put the battery in the oven or other similar equipment;
3. Do not remove the product label;
4. Do not try to open the battery pack;
5. Do not be exposed to the environment above 60℃(300F);

6. Do not short-circuit the positive and negative terminals of the battery with wires or other metal objects. Do not transport or store batteries with metal objects;
7. Do not expose the battery to direct heat or flame. Do not use or store batteries near fire or high temperature;
8. Do not immerse the battery in water, salt water or any other liquid or make it wet;
9. Do not pierce the battery with any sharp object, knock it with a hammer or similar device, step on it, fall it or get strong vibration;
10. Do not use the battery if it is damaged or deformed;
11. If the battery produces odor, smoke or abnormal heat, please stop using it immediately;
12. If the battery liquid leaks and comes into contact with your eyes, please don't rub your eyes, and immediately rinse them with plenty of water before seeking medical assistance.

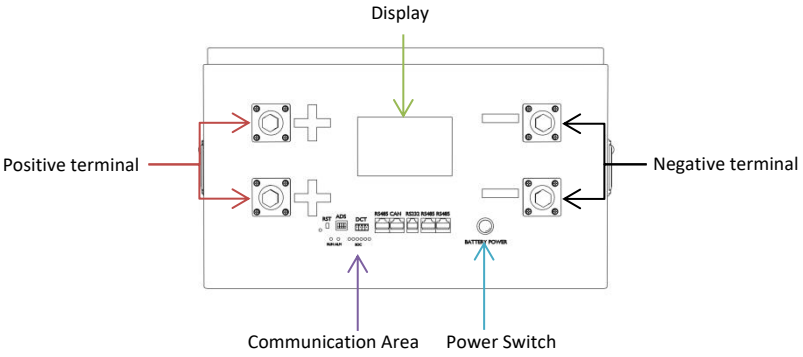
2. Product Description

2.1 Product Dimension

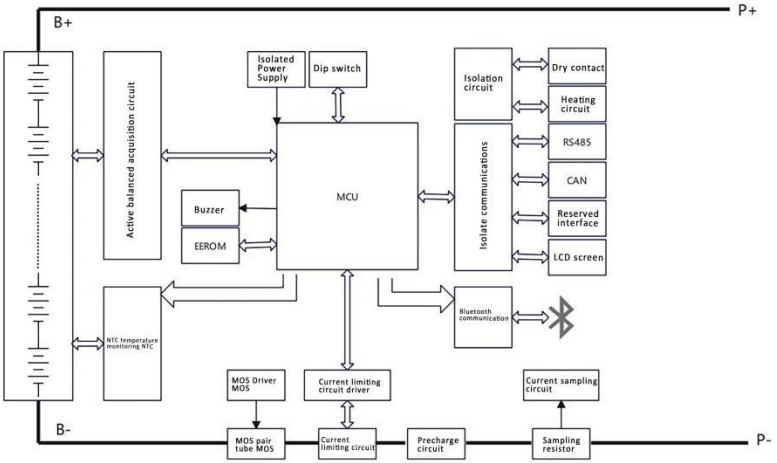
Model	Size(L*W*H mm)
DIY-SK51300-200A-JK-K	800*450*268



2.2 Product Details



2.3 Electrical Schematic Diagram

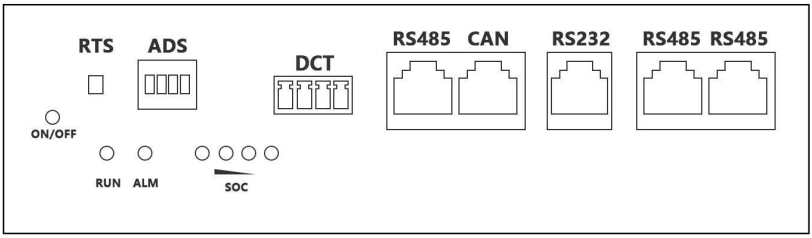


3. Technical Specification

No.	Project	Specifications
1	Model	DIY-SK51300-200A-JK-K
2	BMS Model	JK-PB2A16S20P
3	Nominal voltage	51.2V
4	Charging voltage	56.8-57.6V
5	Discharging Cut-off Voltage	43.2~44.8V
6	Charging standard current	0.2C
7	Standard charging mode	At a temperature of 25°C, charge to 57.6ith a constant current of 0.2C5A, and then change continuously with a constant voltage of 58.4V until the current is not greater than 0.02C5A.
8	Maximum charging current	200A
9	Maximum discharge current	200A
10	Charging temperature	0°C to 45°C (32°F to 113°F) @60±25% relative humidity
11	Discharge temperature	-20°C to 60°C (-4°F to 140°F) @60±25% relative humidity
12	Storage temperature	-20°C to 60°C (-4°F to 140°F) @60±25% relative humidity
13	Line joint	M10 Connector
15	Communication protocol	RS485、RS232、CAN
16	Support inverter brand	Growatt、Deye、Goodwe、Voltronic power、Sofar、VICTRON、Solis、Megarevo、SRNE

4. BMS Characteristics

4.1 Instructions for LED Lights



Four green capacity indicators, a red alarm indicator, a green running indicator and a switch indicator.

4.1.1 SOC capacity indicator

Table 2 SOC indicator status table

Status		charging					discharge				
Capacity indicator light		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
power （%）	0~20%	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
	20~40%	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	ON
	40~60%	OFF	OFF	ON	ON	ON	OFF	OFF	ON	ON	ON
	60~80%	OFF	ON	ON	ON	ON	OFF	ON	ON	ON	ON
	80~100%	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Note: ON indicates that the LED is on, OFF indicates that the LED is off											

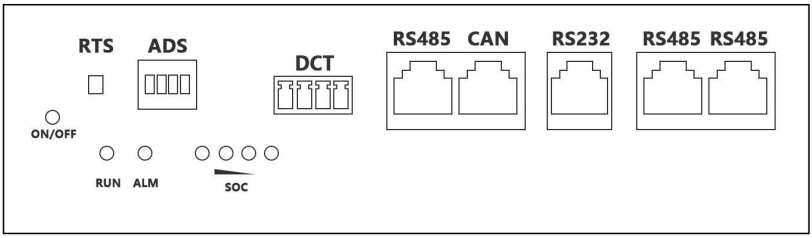
4.1.2 Status indicator

Table 3 Status indicator status table

Status	Warning/ Normal/ Protection	ON/OFF	Run	Alarm	L1	L2	L3	L4	L5	L6	Instructions
Power Off	normal	OFF									
Balance	normal	ON	flicker	OFF	Battery based display					OFF	
Charging	normal	ON	flicker	OFF	Battery based display					OFF	
	Over current, over temperature, over voltage, charging failure	ON	flicker	flicker	Battery based display					OFF	
Discharge	normal	ON	flicker	OFF	Battery based display					OFF	
	Over current, over temperature, under voltage, discharge failure	ON	flicker	flicker	Battery based display					OFF	
Other alarm	Password not changed \ short circuit \ temperature abnormal	ON	flicker	flicker	Battery based display					OFF	
Note: When the device address is set to 0, the last LED indicator L6 blinks. If the value is set to other values, the slave is off and blinks after the communication between the slave and the host is successful.											
Note: ON indicates that the LED is on,OFF indicates that the LED is off.											

4.3 Communication Area

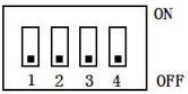
Protection board Factory standard interface board for users to use LED indicator, reset switch, dip switch, dry contact, communication and other functions. The LED indicator can help the user judge the current BMS working status and the remaining battery power; The reset button can be pressed to reset the BMS when the user fails to use the BMS. The dip switch can be used to set the address when the BMS is used in parallel, and supports a total of 16 addresses from 0 to 15. Dry contact user control of external devices such as alarms and fans; CAN and RS485-1 are used for communication between BMS and inverter. RS485-2 is used to connect battery packs in parallel and communicate with the upper computer, The panel interface is described as follows (see the attachment for details)



Definition of a dry contact interface		
Pin number	Pin definition	Remark
1	COM1	
2	S1	
3	COM2	
4	S2	
Interface definition of CAN and RS485-1		
Pin number	Pin definition	Remark
1、8	RS485-B1	
2、7	RS485-A1	
3、6	GND	
4、5	NC	
9、10、11、14、16	NC	
12	CANL	
13	CANH	
15	GND	

Interface definition of RS485-2		
Pin number	Pin definition	Remark
1	RS485- B2	
2	RS485-A2	
3	GND	
4	NC	

Address	Dip switch position			
	1	2	3	4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

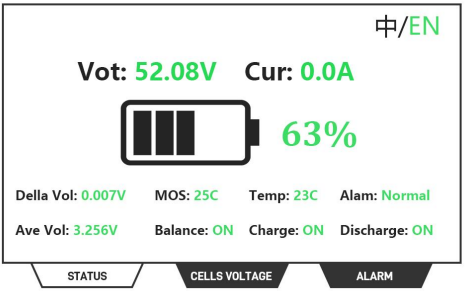


5. APP Installation

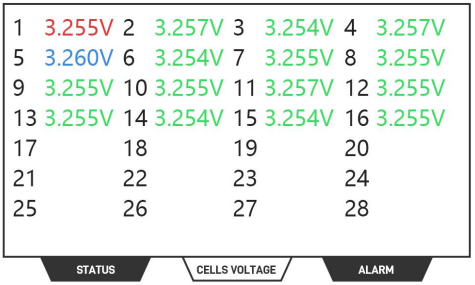
Mobile APP matching the product can be obtained by scanning the QR code shown in Figure . Android Version 7 minimum is required for the Android APP.

6. Display Screen Instruction

Click on “Status” to view the status information of the battery



Click on “CELLS VOLTAGE” to view the voltage information of a single battery cell



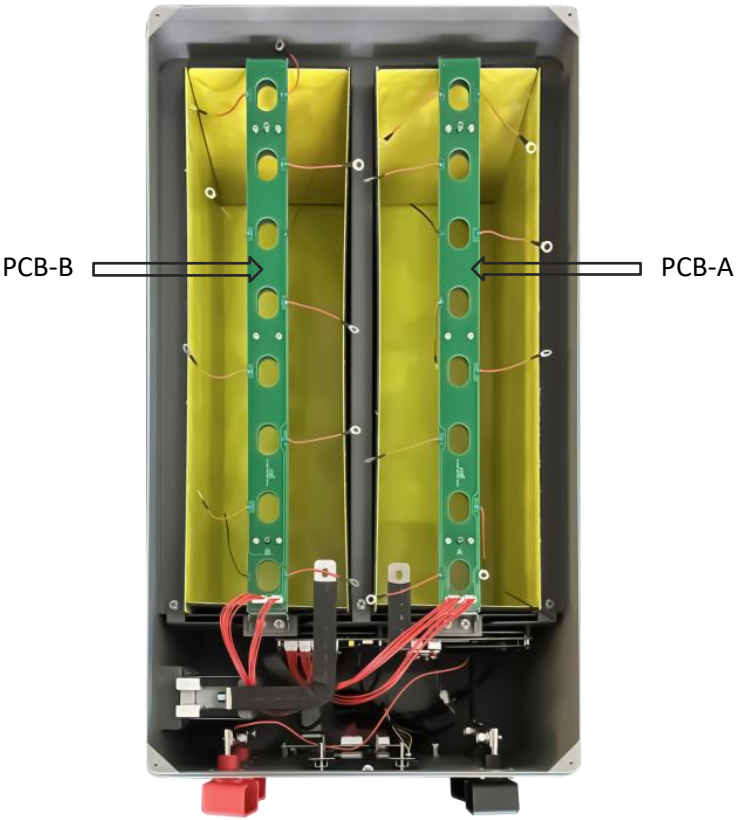
Click on “ALARM” to view the battery alarm

7. Installation Instruction

Model: SK51300-200A-JK

Suit for battery cell size: 207mm*173mm*71mm(There can be a 1mm-mm error)

Note: The 51.2V battery case we sent is already installed as shown in the picture below.



8. Product List

The battery case has been strictly inspected before delivery, but may be damaged in transit, when receiving the 51.2V kits accessories, please check whether the following items are complete, confirm the model, capacity, input voltage and output voltage, and whether the specified content when ordering; If anything abnormal or inconsistent occurs, please contact us.

No.	Picture	Name	Quantity
1		Case	1
2		Epoxy resin board	4
3			2
4			4
5			1
6		Connecting piece	14
7		EVA Foam	18
8		Acquisition board	2
9		Copper Bar	1
10			1
11			1
12			1
13		Collection line	4
14		BMS+LED Display	1

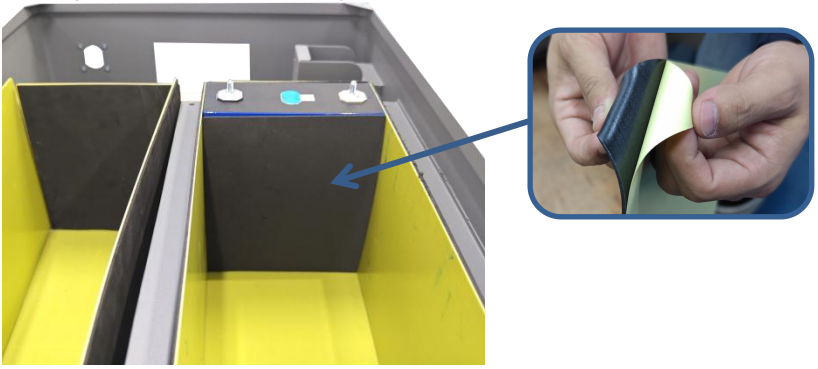
9. Installation Methods

9.1 Test the Voltage and Internal Resistance of The Battery Cell

Note：Cells Voltage difference ≤ 20mV

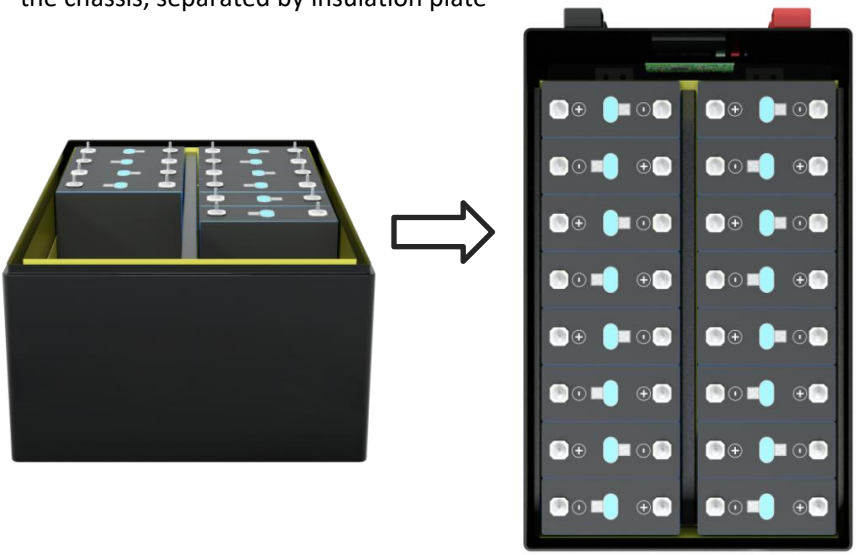
9.2 Tear The EVA Foam and Stick to The Battery Cells

A total of 14 pieces, and the remaining 2 battery cells do not need to be pasted. Note that only one piece of EVA is needed between the two battery cells, as shown in the picture



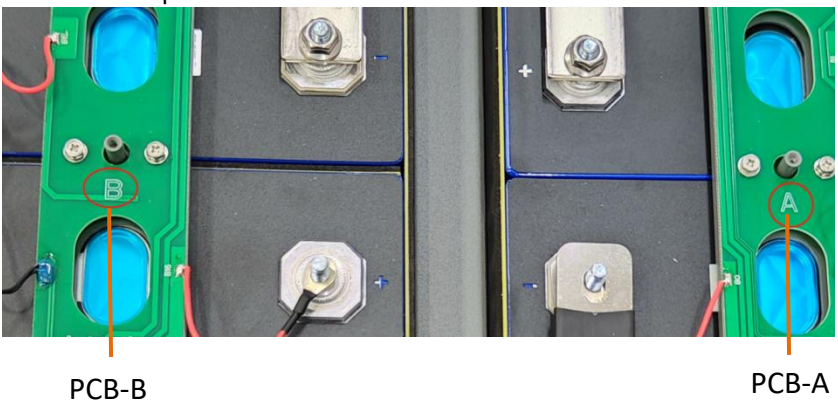
9.3 Battery Installation Sequence

Install the battery as shown in the picture, paying attention to the positive and negative poles of the battery. Note: Place the battery cells in the chassis, separated by insulation plate



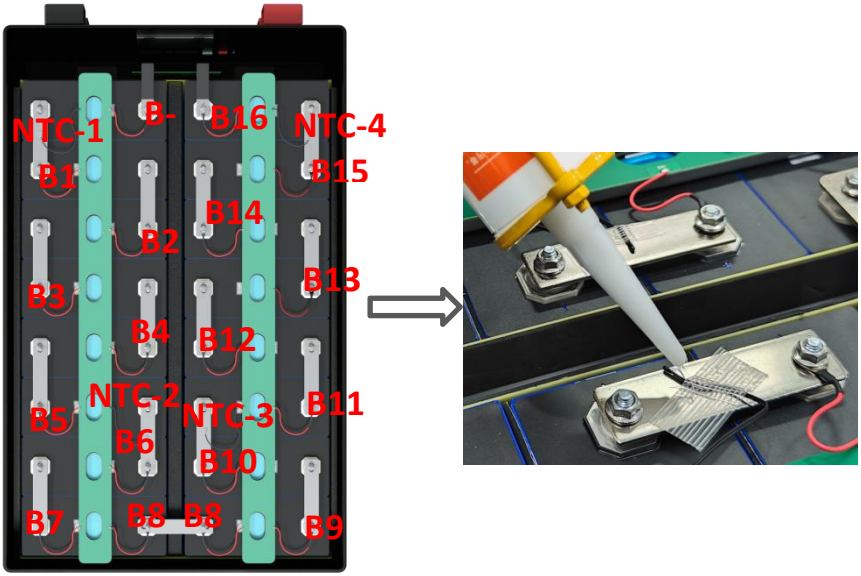
9.4 Install the PCB Board on The Bracket

Install the case bracket, and fix the screws. Note that PCB-A and PCB-B cannot be misplaced.



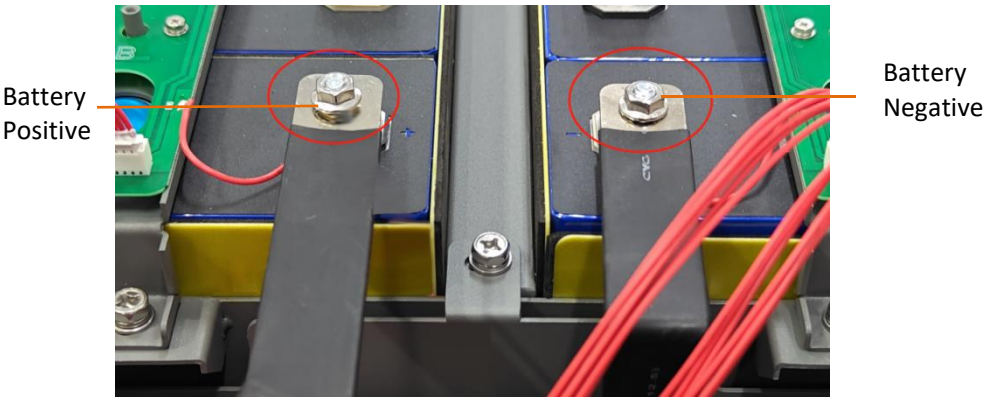
9.5 Install the Busbars and The Acquisition Line

Install the acquisition line to the position shown in the picture. The 4 NTC lines need to be fixed and glued with fiber glue.

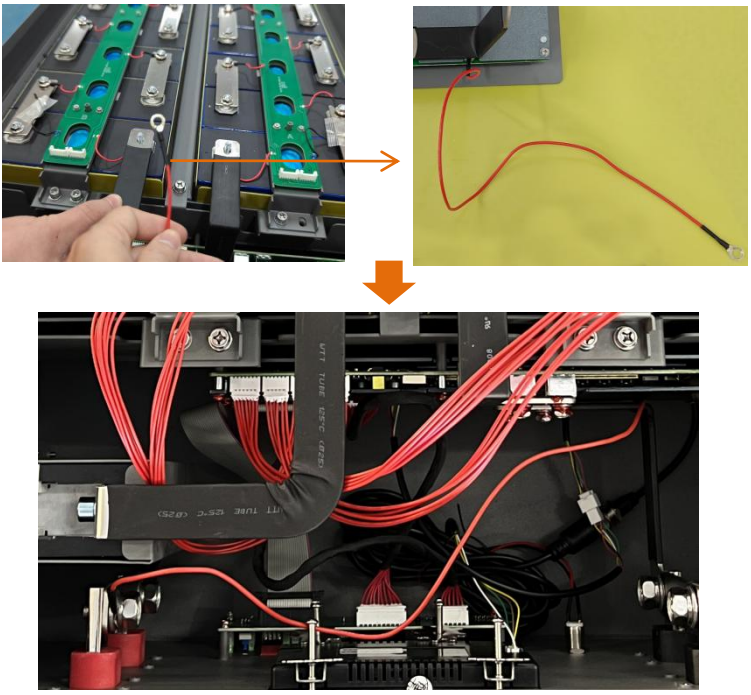


9.6 Connect the Copper Busbar with Battery

Connect the copper busbar of the circuit breaker to the positive pole of the battery, and the B- copper busbar of the BMS to the negative pole of the battery, as shown in the picture below



9.7 Connect the Regulator to The Positive Terminal



9.8 Install the Positive and Negative Battery Screws

9.9 Install the Top Insulation Board and Cover

9.10 Turn on the Circuit Breaker, Activate the Battery, And the Installation Is Complete.

DIY Battery Case

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