



Specification

Product Name: Master Control Transfer Board

Product Model: ELPS48-ABG V1.2.1

Configuration	Parameter	Function
One key switch machine	Yes	optional
Touchable display screen	Yes	optional
LED	Yes	optional
Multi-group assembly	Yes	optional
External communication function	CAN、RS485	optional

Signature and seal of the supplier			Signature and seal of the customer		
Executed By	Wang Jixin	Checked By	Wei Qi	Approved By	Huang Bin
Date		Date		Date	



Version	Date	Editor	Version Revision Note
V1.0.0	2023.5.4	Wang Jixin	Create first draft



Content

1、Application scope	4
2、Appearance size	5
2.1、Dimensional drawing	5
2.2、Reference diagram and the functional interface definition	6
2.3、Connect the reference diagram	7
3、Functional characteristics	8
3.1、Single-group data summary is shown	8
3.2、Multi-group parallel machine system	8
3.3、LED deictic function	8
3.4、One key switch machine	8
3.5、The CAN and RS485 communication interfaces	8
4、Transfer board communication instructions	9
4.1、The CAN / RS485 communication	9
4.2、CAN/RS485-1 communication	10
4.3、RS485-D communication	10
4.4、RS485-D-1 communication	11
4.5、RS485-U communication	11
4.6、RS485-U-1 communication	12
4.7、RS485-I communication	12
4.8、RS485-I-1 communication	13
4.9、External switch interface	13
4.10、LCD function	14
4.11、Secondary unbuckle function	14
4.12、LED transfer function	14
5、LED light instructions	15
5.1、LED Light order	15
5.2、Capacity indication	15
5.3、Light Blink explanation	15
5.4、State indication	16
6、Resistor touch screen	17
7、Points for attention	18



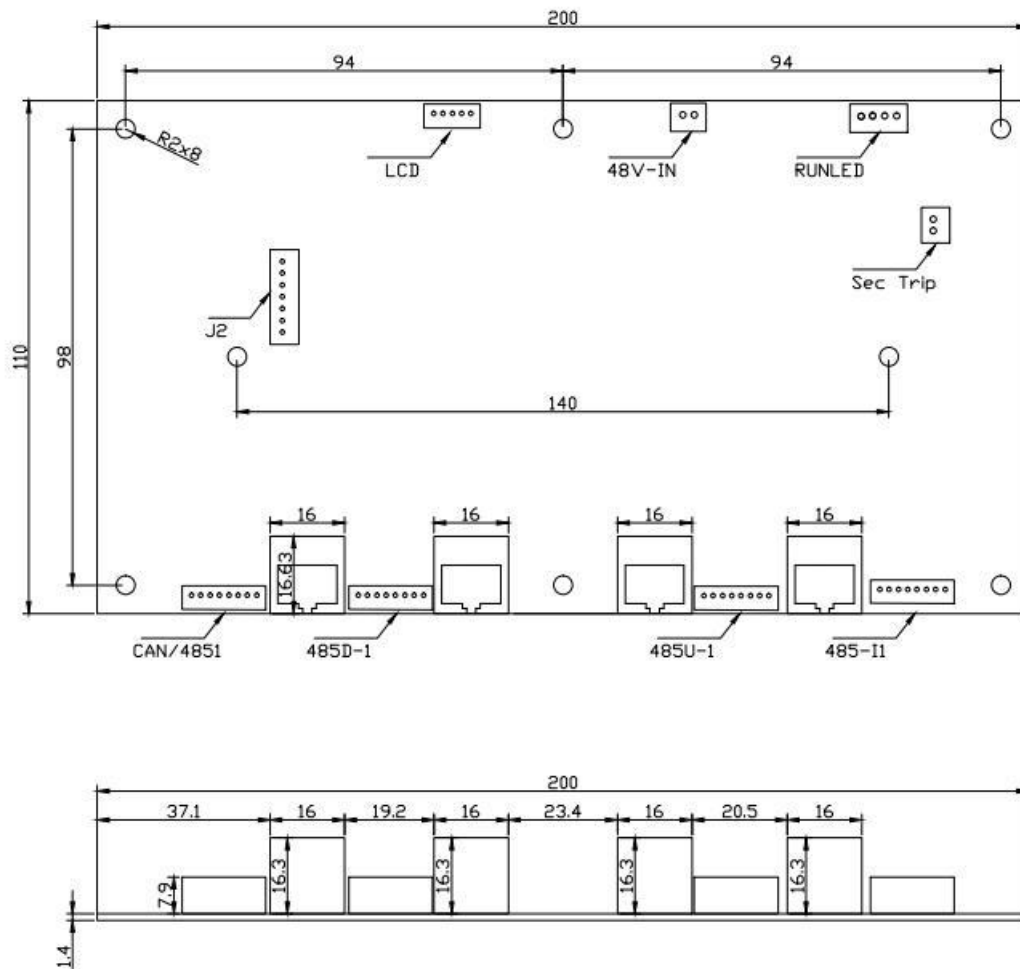
1、 Application scope

This product is a master control transfer board applied to the low-voltage large-capacity parallel machine system, which can realize the data summary display of this group of parallel low-voltage system and the communication control between multiple groups of systems and the inverter. Data communication with the host through RS485 communication, and parameter configuration and data monitoring through human-computer interaction of the upper computer software.

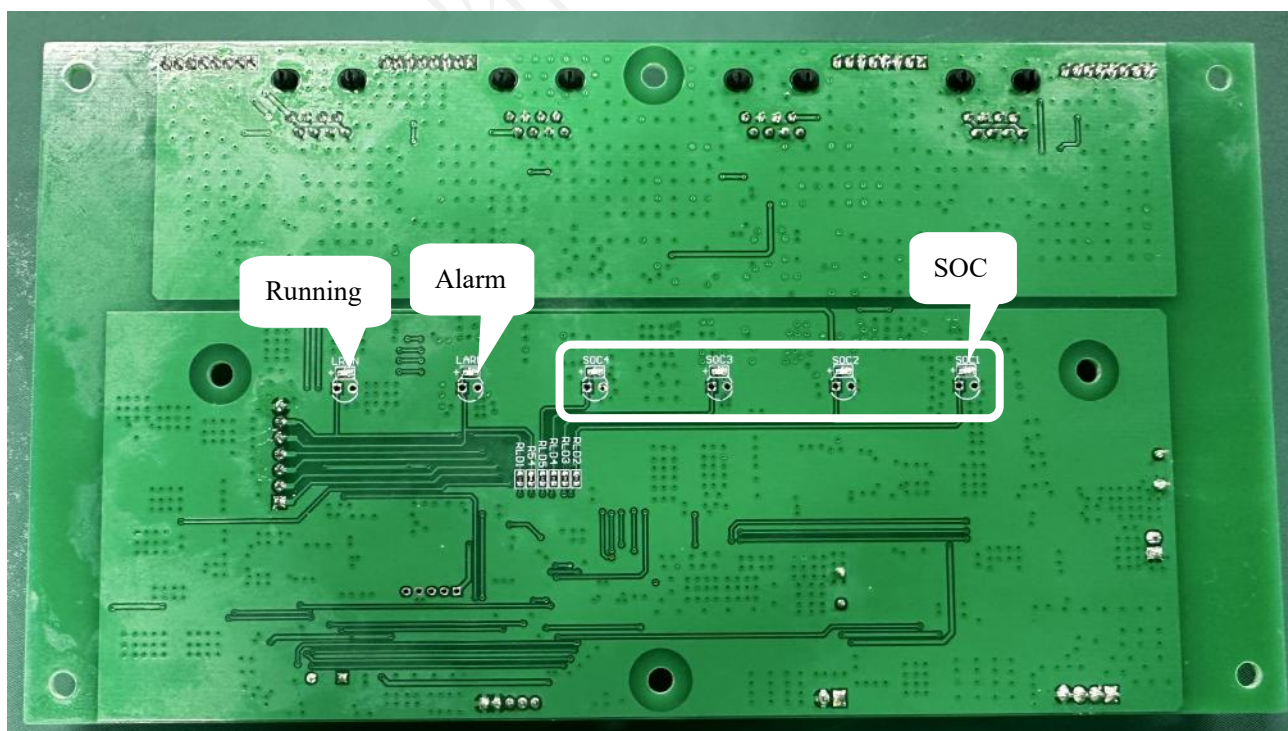
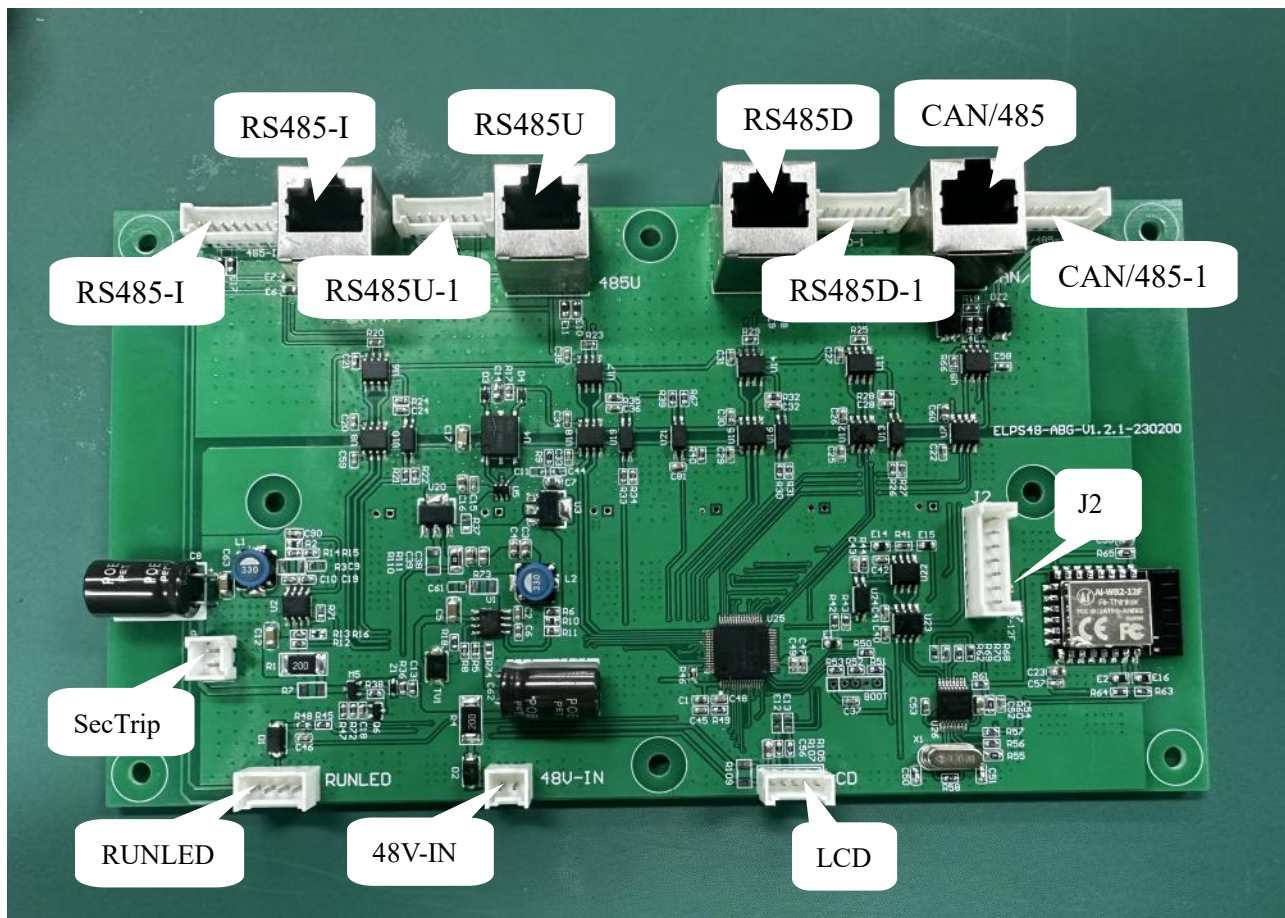
Note: The baud rate of the host computer is 19200.

2、Appearance size

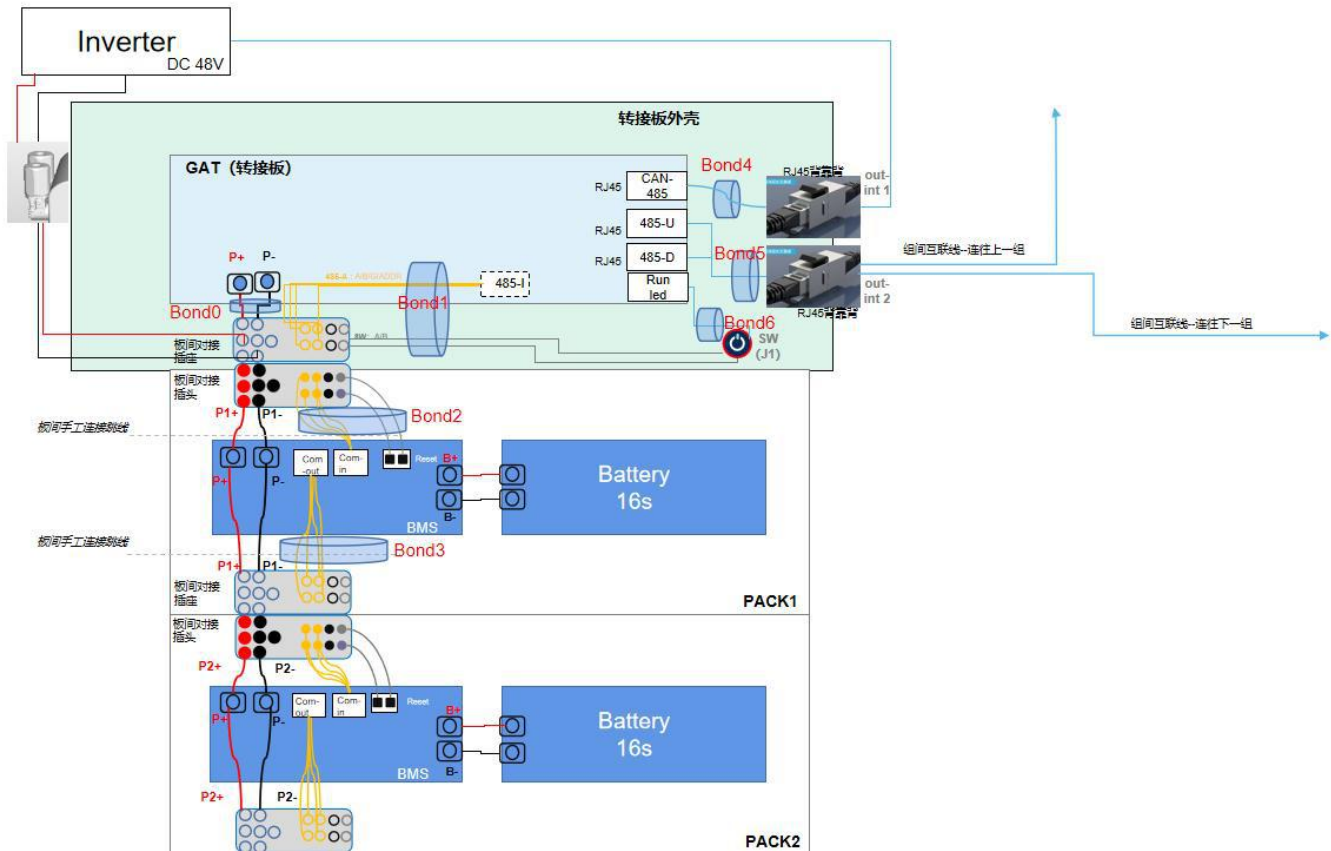
2.1、Dimensional drawing



2.2、Reference diagram and the functional interface definition



2.3、Connect the reference diagram





3、Functional characteristics

3.1、Single-group data summary is shown

The data summary of the parallel low voltage system shows that by default.

3.2、Multi-group parallel machine system

Communication control between multiple group system and inverter, maximum support 4 groups, if more need to contact the manufacturer.

3.3、LED deictic function

It has 6 LED indicators, 4 white LED indicators for current battery pack SOC, 1 red LED lamp for fault indicator during alarm and protection, and 1 white LED lamp for battery standby, charging and discharge state.

3.4、One key switch machine

When the BMS is connected, the transfer board can control the shutdown and startup of the parallel battery pack.

3.5、The CAN and RS485 communication interfaces

CAN communication communicates according to each inverter protocol, and can be connected to the inverter communication.

(Note: Default compatible with PYLON, GOODWE, DEYE, LUXPOWER, TBB, Victron)

RS485 Communication according to each inverter protocol to do communication, can be connected to the inverter communication.

(Note: Automatic identification of Growatt)

The PC or intelligent front-end can realize the battery data monitoring, operation control and parameter setting through RS485 communication telemetry, remote communication, remote control, remote control and other commands.

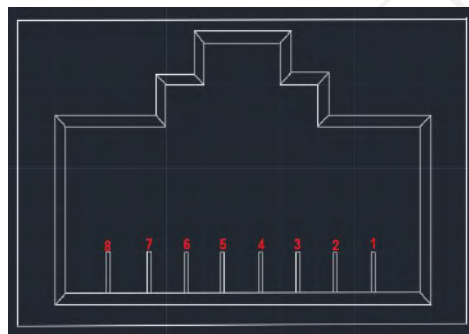
4、Transfer board communication instructions

4.1、The CAN / RS485 communication

The transfer board has the function of uploading CAN communication of a single group parallel system, **with a baud rate of 500K**. The CAN communication interface adopts the 8P8C network cable interface. You can communicate with the inverter or the CAN TEST through the CAN interface. When the battery cluster is connected, the battery cluster data, status and information are uploaded to PCS through CAN communication.

The transfer board RS485 has the function of connecting with the inverter or the 485-D interface with the previous cluster, **with a baud rate of 9600bps**. RS485 The communication interface adopts 8P8C network cable interface. When the battery pack is connected, the data, the status and the information are uploaded to PCS or inverter through RS485 communication.

CAN/RS485-U communication interface definition:



PIN	Definitions
1、8	RS485-B
2、7	RS485-A
4	CAN-H
5	CAN-L
3、6	GND

4.2、CAN/RS485-1 communication

The function is the same as CAN / RS485 ,**baud rate of 9600bps**.

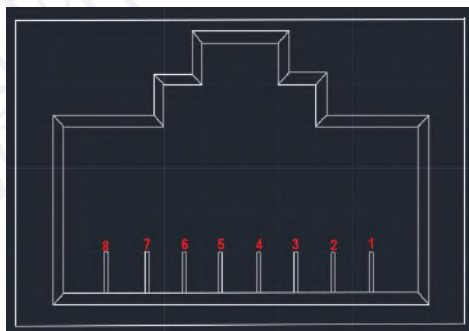


PIN	Definitions
1	RS485-B
2	RS485-A
3	GND
4	CAN-H
5	CAN-L
6	GND
7	RS485-A
8	RS485-B

4.3、RS485-D communication

The transfer board RS485-D has an automatic identification protocol to the next Can-U485 interface, **baud rate of 9600bps**.

RS485-D communication interface definition:



PIN	Definitions
1、8	RS485-D-B
2、7	RS485-D-A
3、6	GND
4、5	Vacancy

4.4、RS485-D-1 communication

The function is the same as RS485-D ,**baud rate of 9600bps**.

RS485-D-1 communication interface definition:

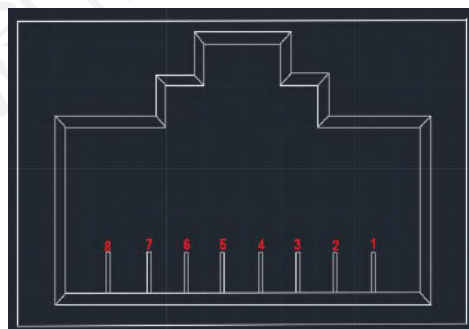


PIN	Definitions
1	RS485-B1
2	RS485-A1
3	GND
4	Vacancy
5	Vacancy
6	GND
7	RS485-A1
8	RS485-B1

4.5、RS485-U communication

The transfer board conducts data communication with the host computer through RS485-U communication, and performs parameter configuration and data monitoring through the human-computer interaction of the upper computer software, **baud rate of 9600bps**.

RS485-U communication interface definition:



PIN	Definitions
1、8	RS485-U-B
2、7	RS485-U-A
3、4、6	GND
5	Vacancy

4.6、RS485-U-1 communication

The function is the same as RS485-U ,**baud rate of 19200bps.**

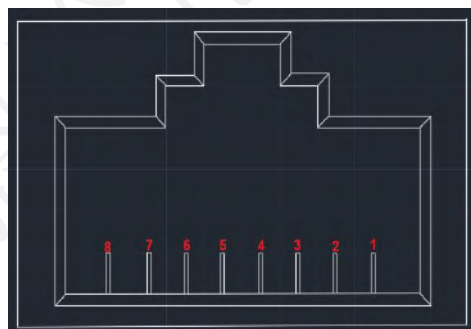


PIN	Definitions
1	RS485-B1
2	RS485-A1
3	GND
4	GND
5	Vacancy
6	GND
7	RS485-A1
8	RS485-B1

4.7、RS485-I communication

The transfer board realizes the data summary of the parallel low-voltage system of the unit through the RS485-I communication port, **baud rate of 19200bps.**

RS485-I communication interface definition:



PIN	Definitions
1、8	RS485-I-B
2、7	RS485-I-A
3、6	GND
4	KEY+
5	KEY-

4.8、RS485-I-1 communication

The function is the same as RS485-I ,**baud rate of 19200bps**.



PIN	Definitions
1	GND
2	RS485-B2
3	RS485-A2
4	GND
5	GND
6	Vacancy
7	KEY-
8	KEY+

4.9、External switch interface

The transfer board has external functions, leading out through the RUNLED interface function. The external switch adopts the form of 4 PIN connector, and can support the external switch with backlight.

1 2 3 4



PIN	Definitions
1	KEY+
2	KEY-
3	Vacancy
4	GND

4.10、LCD function

The adapter has LCD display function through the LCD interface function.



PIN	Definitions
1	GND
2	GND
3	RX1/485-A4
4	RX1/485-B4
5	3.3V/5V/12V

4.11、Secondary unbuckle function

The transfer board has the secondary tripping function, which is introduced through the SecTrip interface function.



PIN	Definitions
1	GND
2	24V/48V

4.12、LED transfer function

The transfer board has LED transfer function, introduced through J2 interface function.



PIN	Definitions
1	LED1
2	LED2
3	LED3
4	LED4
5	LARM
6	LRUN
7	GND



5、LED light instructions

5.1、LED Light order

1 alarm light, 1 running light, and 4 capacity indicator light.

					
SOC				RUN	ALARM

5.2、Capacity indication

Status		Charging				Discharging			
Capacity indicator light		L4 	L3 	L2 	L1 	L4 	L3 	L2 	L1 
Residual capacity	0~25%	OFF	OFF	OFF	Flash	OFF	OFF	OFF	Solid Green
	25~50%	OFF	OFF	Flash	Solid Green	OFF	OFF	Solid Green	Solid Green
	50~75%	OFF	Flash	Solid Green	Solid Green	OFF	Solid Green	Solid Green	Solid Green
	≥75%	Flash	Solid Green	Solid Green	Solid Green	Solid Green	Solid Green	Solid Green	Solid Green
Running indicator light 		Solid Green				Flash			

5.3、Light Blink explanation

Flash Mode	ON	OFF
Flash 1	0.25s	3.75s
Flash 2	0.5s	0.5s
Flash 3	0.5s	1.5s



5.4、State indication

System state	Running state	ALM	RUN	SOC				Note
		●	●	●	●	●	●	
Shutdown	Sleep	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Standby	Normal	OFF	Flash 1	OFF	OFF	OFF	OFF	Standby
Charge	Normal	OFF	Solid Green	According to the electricity instruction				Maximum LED flash 2
	Alarm	Flash 2	Solid Green	According to the electricity instruction				Maximum LED flash 2
	Over-voltage protection	OFF	Flash 1	OFF	OFF	OFF	OFF	
	Temperature、over-current protection	Flash 1	Flash 1	OFF	OFF	OFF	OFF	
Discharge	Normal	OFF	Flash 3	According to the electricity instruction				According to the electricity instruction
	Alarm	Flash 3	Flash 3					
	Temperature、over-current、short-circuit protection	Solid Green	OFF	OFF	OFF	OFF	OFF	The discharge was stopped, and the dormancy was forced without action after 48h
	Under-voltage protection	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharge

6、 Resistor touch screen

Please check the touch screen specification for detailed operation instructions.





7、Points for attention

- ❖ Battery management systems can not be used in series.
- ❖ The withstand voltage resistance of BMS power components is 100V.
- ❖ If the battery module is assembled in the form of long wire and long copper bar, it must communicate with the BMS manufacturer for impedance compensation. Otherwise, it will affect the consistency of the cell.
- ❖ The external switch on BMS is prohibited to connect with other equipment. If necessary, please confirm with the technology for docking. Otherwise, BMS will not bear any responsibility for damage.
- ❖ Do not touch the surface of the core directly when assembling, so as not to damage the core. The assembly should be firm and reliable.
- ❖ In use pay attention to lead wire head, soldering iron, solder and so on do not touch the components on the circuit board, otherwise it may damage the circuit board.
- ❖ Use process should pay attention to anti-static, moisture-proof, waterproof and so on.
- ❖ Please follow the design parameters and use conditions during use, must not exceed the value in this specification, otherwise it may damage the protection board.
- ❖ After combining the battery pack and the protection plate, if you find no voltage output or charge, please check the wiring is correct.
- ❖ The final interpretation right is owned by our company.