QUCC

Q-RJ

Product specification

Version 2.0

2022/2/15

version	date	Modify the description	Review
V1.0	2021-05-11	New report	
V2.0	2021-05-11	Replaced relay	

Catalog

1.Overview

Q-RJ It supports 7s-20s batteries. The software can modify parameters. It supports Li ion and LiFePO4 batteries. It is suitable for special application scenarios of high-capacity batteries and high current.

2.Product features

• It is compatible with 7s-20s battery through different connection modes;
• One control relay is adopted, which has high reliability and high current characteristics;
• Real-time high-precision monitoring of cell voltage, total battery voltage, cell temperature, charge and discharge current and other parameters;
• BMS has built-in shunt and relay switching elements, which are used to cut off the negative pole of the battery.
• Real-time high-precision battery pack remaining power (SOC) estimation, battery state of health (SOH) estimation;
• With battery balance function, 160mA current and cable disconnection detection function;
• Reliable charge and discharge overvoltage, high and low temperature, overcurrent and short circuit protection;
• The dual protection mechanism combining software and hardware is adopted to improve the reliability of system charge discharge protection;
• It can monitor the temperature of charge and discharge in real time and has 1-way over temperature protection function;
• UART serial communication;
• Can be connected to the company's supporting PC software, display system operating parameters and status, configure battery protection and alarm parameters, and can also upgrade the program online;
• You can display the operating parameters and status of the system, and configure some parameters such as battery protection and alarms through an external display screen provided by our company;
• The power supply method is simple, and the protection board can be directly powered by the total voltage of the battery；

3.Main technical indicators of the product

Parameters		Index
Power supply		20～90V
Operating power consumption		≤3.5W (no external active output)
Shutdown power consumption		≤50uA
System startup method		External passive switch signal (self-locking switch)
Number of batteries collected		7S-20S
Number of temperature collections		1 channels
Buzzer port		//
Single cell voltage	Acquisition Range	2～5V
	Detects the difference	±10mV FS
Total battery pressure	Acquisition Range	15～90V
	Detects the difference	±100mV FS
Charge and discharge current	Acquisition Range	400A(built in shunt)
	Detects the difference	±2 %
temperature	Acquisition Range	-40～125℃
	Detects the difference	±1℃
SOC estimation error		±5 %
Cell balance (difference balance)		160mA
Charge and discharge control		Same port
communication method		1 UART-BT interface;
working environment	Operating temperature	-40～85℃
	working environment	10～90 %RH,No condensation, no corrosive gas
	elevation	≤2500m

4. Burn the default Lifepo4 parameters

Lifepo4 category	Set value
Single cell overcharge protection voltage	3.650V
Single cell overcharge protection release voltage	3.550V
Single cell over-discharge protection voltage	2.320V
Single cell over-discharge protection release voltage	2.400V
Battery pack total voltage overcharge protection voltage	//
Battery pack total voltage overcharge protection release voltage	//
Battery pack total voltage over-discharge protection voltage	//
Battery pack total voltage over-discharge protection release voltage	//
Charging overcurrent protection current	//
Discharge primary overcurrent protection current	//
Discharge secondary overcurrent protection current	//
Short circuit protection current	//
Charging over temperature protection temperature	60℃
Charging over temperature protection recovery temperature	50℃
Discharge over temperature protection temperature	60℃
Discharge over temperature protection recovery temperature	50℃
Charging low temperature protection temperature	5℃
Charging low temperature protection recovery temperature	5℃
Discharge low temperature protection temperature	15℃
Discharge low temperature protection recovery temperature	5℃

Li-ion category	Set value
Single cell overcharge protection voltage	4.25V
Single cell overcharge protection release voltage	4.19V
Single cell over-discharge protection voltage	2.700V
Single cell over-discharge protection release voltage	2.900V
Battery pack total voltage overcharge protection voltage	//
Battery pack total voltage overcharge protection release voltage	//
Battery pack total voltage over-discharge protection voltage	//
Battery pack total voltage over-discharge protection release voltage	//
Charging overcurrent protection current	//
Discharge primary overcurrent protection current	//
Discharge secondary overcurrent protection current	//
Short circuit protection current	//
Charging over temperature protection temperature	60℃
Charging over temperature protection recovery temperature	50℃
Discharge over temperature protection temperature	60℃
Discharge over temperature protection recovery temperature	50℃
Charging low temperature protection temperature	5℃
Charging low temperature protection recovery temperature	5℃
Discharge low temperature protection temperature	15℃
Discharge low temperature protection recovery temperature	5℃

category	time
Single cell overcharge protection voltage	1S
Single cell overcharge protection release voltage	30S
Single cell over-discharge protection voltage	1S
Single cell over-discharge protection release voltage	30S
Battery pack total voltage overcharge protection voltage	1S
Battery pack total voltage overcharge protection release voltage	30S
Battery pack total voltage over-discharge protection voltage	1S
Battery pack total voltage over-discharge protection release voltage	30S
Charging overcurrent protection current	1S
Discharge primary overcurrent protection current	5S
Discharge secondary overcurrent protection current	1S
Short circuit protection current	//
Charging over temperature protection temperature	1S
Charging over temperature protection recovery temperature	30S
Discharge over temperature protection temperature	1S
Discharge over temperature protection recovery temperature	30S
Charging low temperature protection temperature	1S
Charging low temperature protection recovery temperature	30S
Discharge low temperature protection temperature	1S
Discharge low temperature protection recovery temperature	30S

Set according to the corresponding battery, the table is only a case reference.

Remarks:

1. The recovery conditions after charging overcurrent protection depend on the actual operating environment. It can be divided into:

① After the charger is removed, the set recovery time is reached;

② After the charger is removed, the load is detected.

2. The recovery conditions after discharge overcurrent protection are generally:

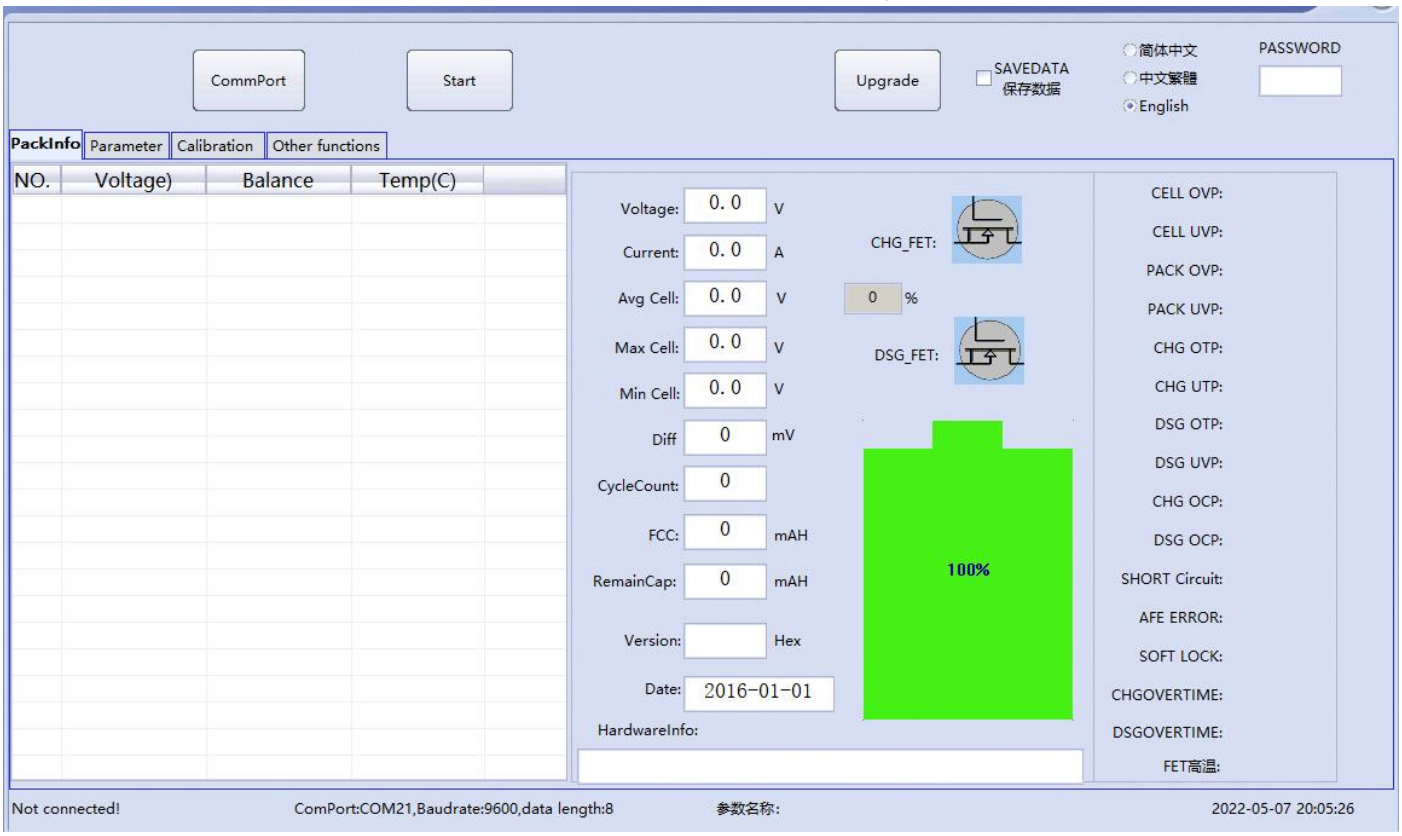
① After the load is removed, the set recovery time is reached;

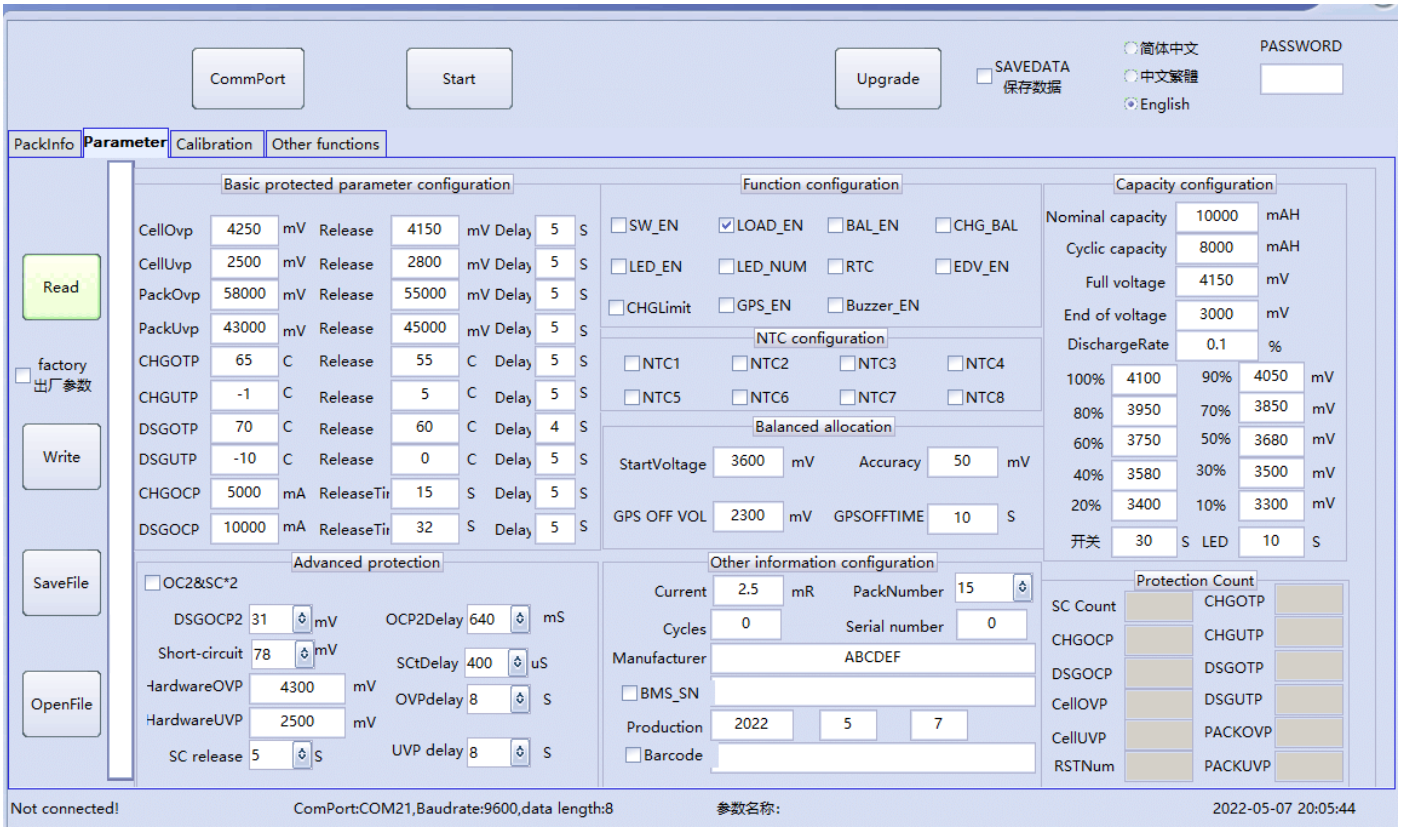
② After the load is removed, it is detected that the charging device is connected.

6.PC upper computer software

This product is compatible with the PC-side BMS host computer software developed by our company, and supports functions such as monitoring parameters and modifying configuration.

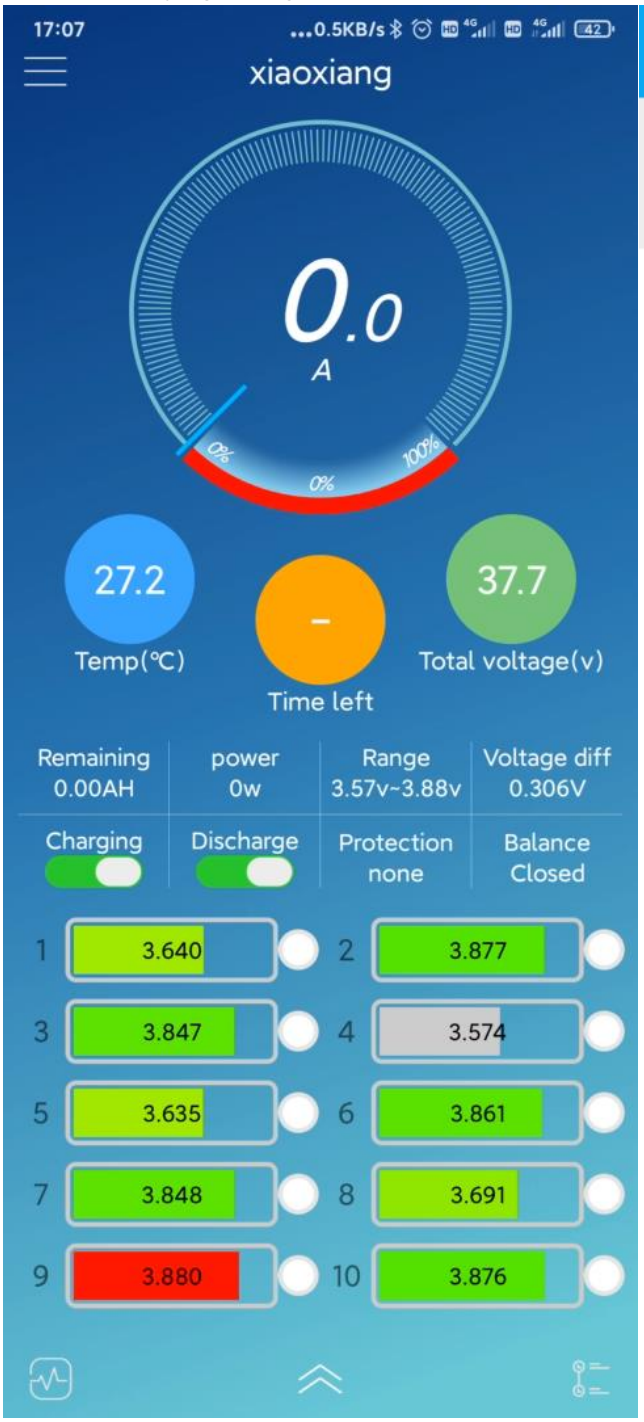
Connect the computer with the communication box of the corresponding port of BMS.

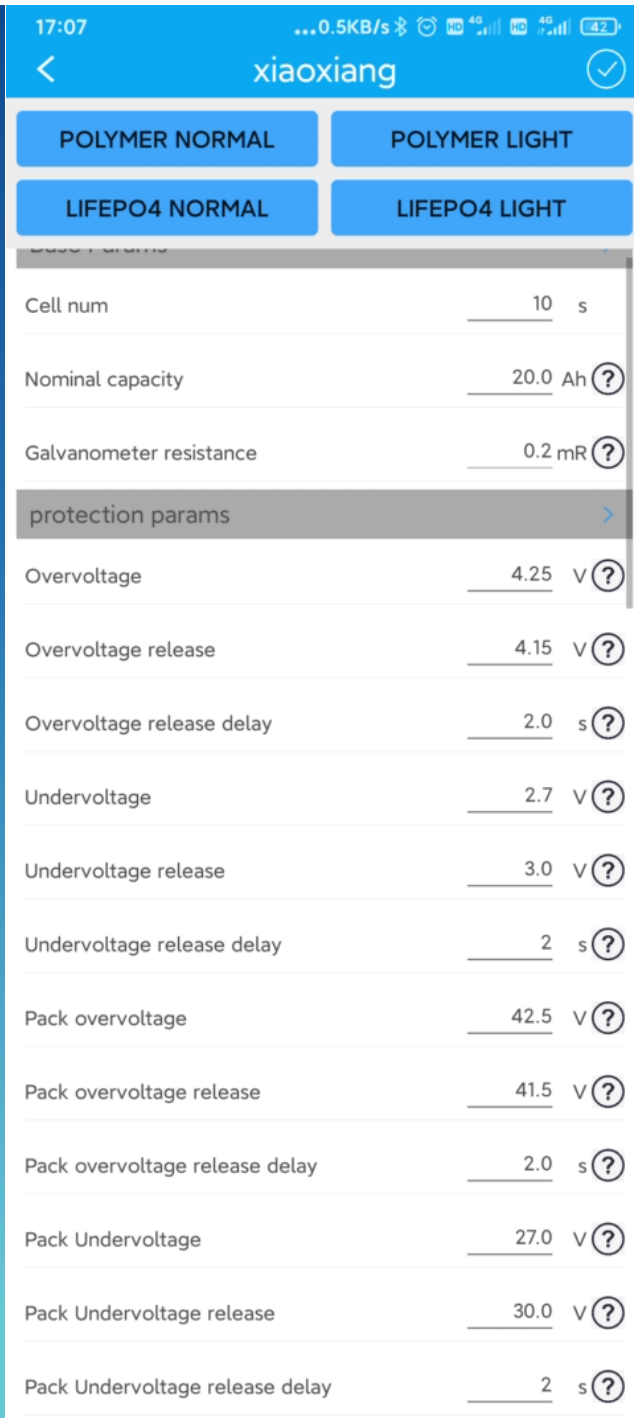




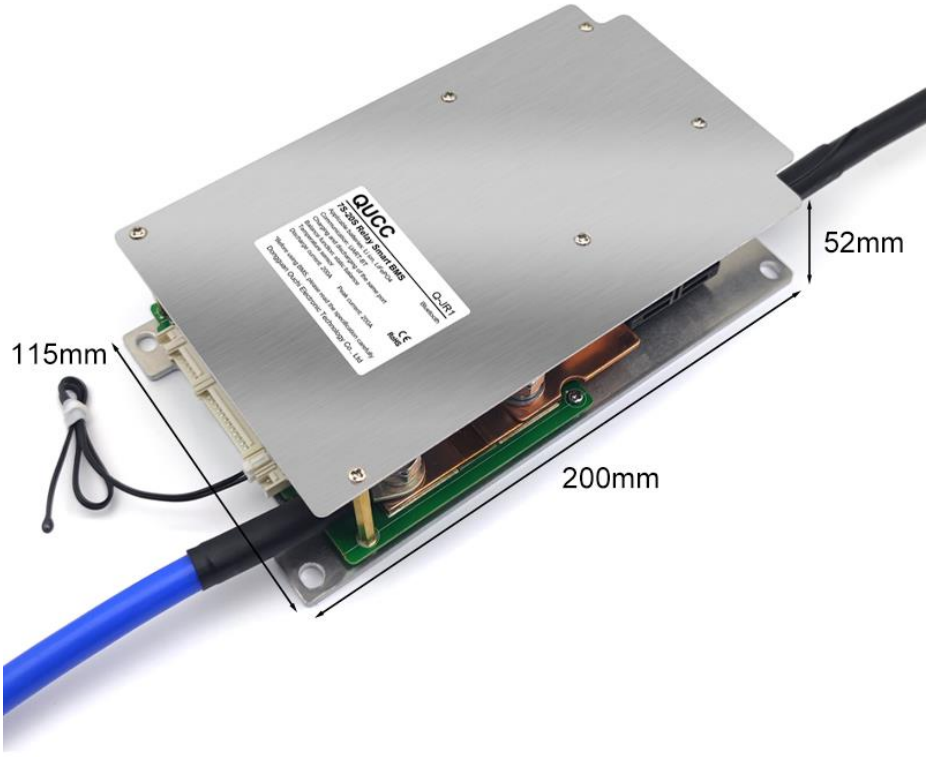
7.Mobile App

This product adapts to the mobile app developed by our company, connects via Bluetooth, supports monitoring parameters, modifying configuration and other functions.





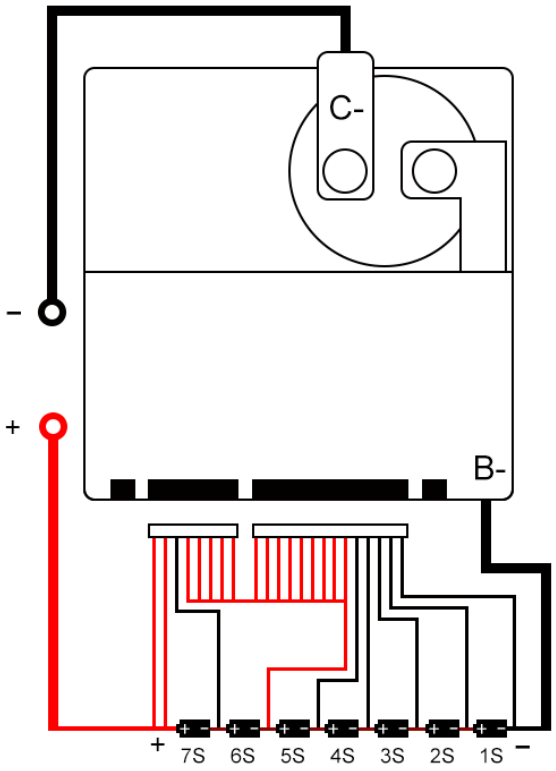
8.Size appearance



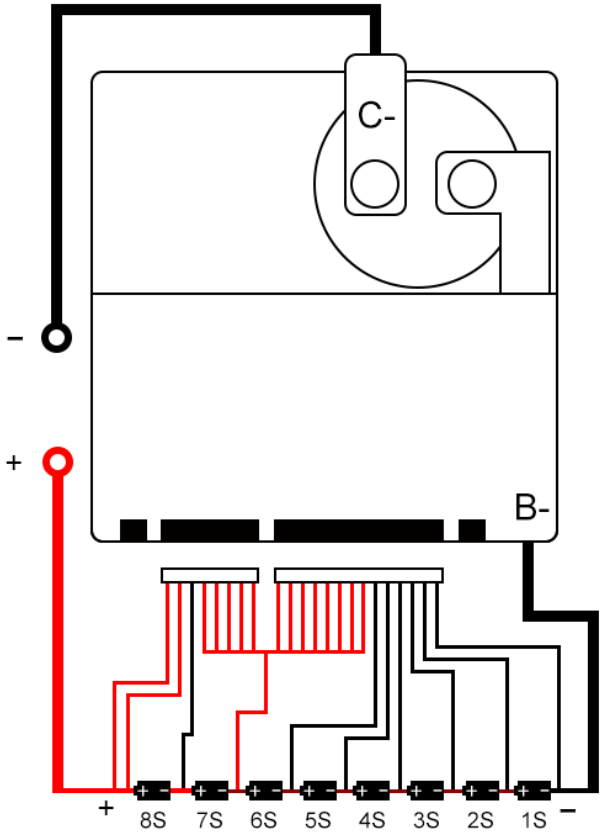
*The products are the same, but if there is a shortage of relay materials, we will replace the relay and the BMS will change in size.

9.Wiring instructions

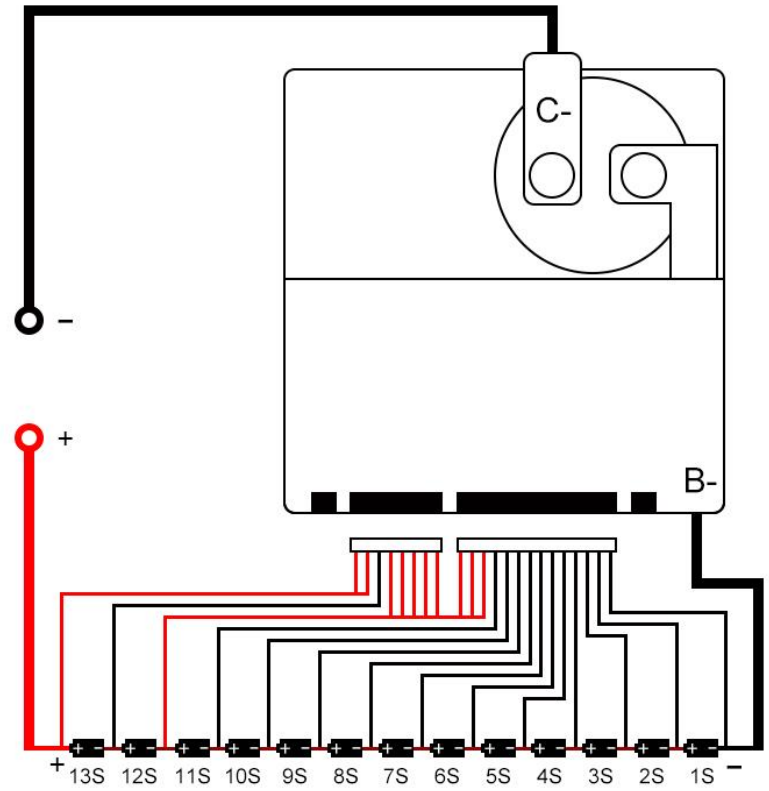
7S wiring method:



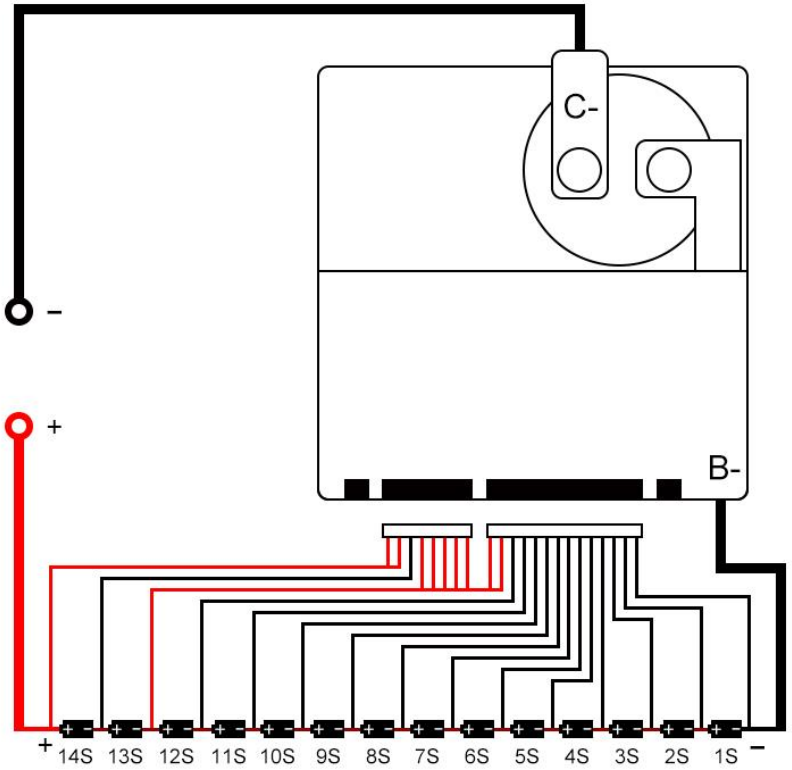
8S wiring method:



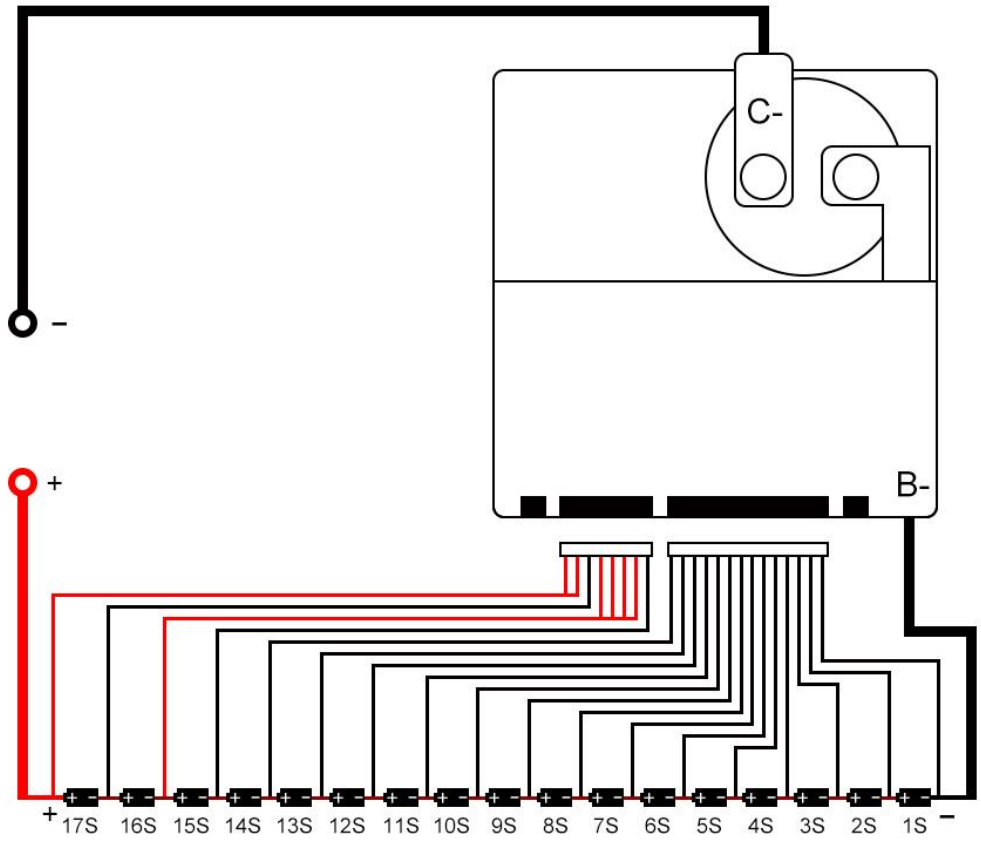
13S wiring method:



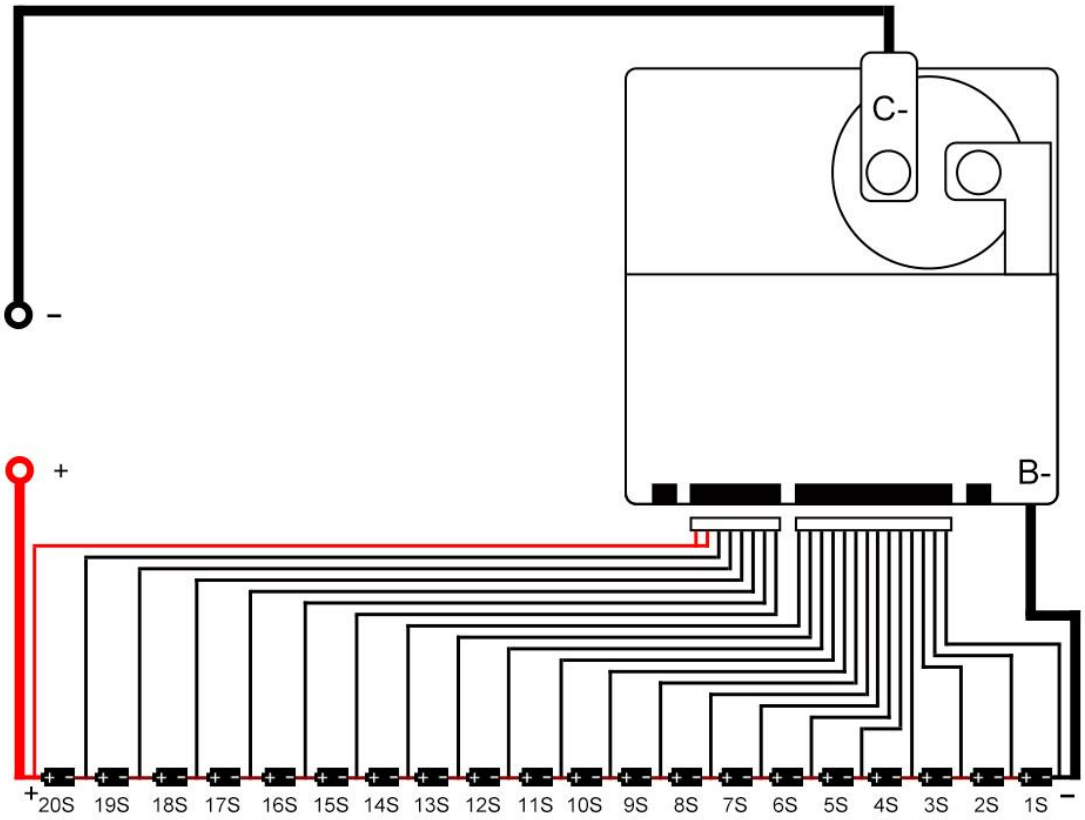
14S wiring method:



17S wiring method:



20S wiring method:



pay attention:

1. Solder B- first when inserting the voltage collection line
2. It is forbidden to weld the battery after inserting the voltage detection line
3. The operation sequence of unplugging the connection between the BMS and the battery is opposite to the insertion sequence
4. Please insulate the BMS cable when welding, and do not cause weak current short circuit.