Specification

Product Name：12V25A Lithium-BMS

Product Model：1225-1205-EJ01-04S

Version	Date	Editor	Version Revision Note
V1.0	2025.1.23	Zhang Jiamin	Create the first draft

Functional configuration table

Customer name		
Cell type	☑Lithium-ion ☐Ternary Lithium ☐Sodium-ion ☐Other	
Number of cells	☑04S	
10A Current-limiting	☐Active limit ☐Passive limit ☑Null	
Precharge function	☑Yes ☐No	
Memory	☐Yes ☑No	
Communication	☐CAN ☐RS485 ☑无 Note: 485 self-adaptation does not require protocol switching	
Optional function	☐ External switch ☐Dry contact point ☐Built-in Bluetooth ☑Null	
	Card type：☑Integrated ☐Split	Note: The communication port, dial code and capacity lamp of the split board can be drawn independently
Other parameters	Battery Capacity （AH）：	

Signature and seal of the supplier			Customer's signature and seal		
Draw up	Amor	Verify		Authorize	
Date		Date		Date	

Content

1、 System survey

1.1、 Summary

This product is a fully functional 4 single group lithium ion battery pack management system, with single overvoltage / undervoltage, total voltage / overvoltage, voltage / discharge overcurrent, high temperature, low temperature, and short circuit protection and recovery functions. Realize the SOC precise measurement and SOH health status statistics in the process of charging and discharging. Realize the voltage balance during the charging process. Parameter configuration and data monitoring are conducted with RS485 communication and host software.

Note: The upper computer baud rate is 9600, Series and parallel are not supported.

1.2、Enjie internal product model definition

12 25-1205-EJ 01-04S

A B C D E F G

Num	Definition	Content
A	Voltage	12V
B	Current	25A
C	Type	1205
D	Customer	Based of the customer's of the customer, for example: EJ
E	Model	The same customer orders different models, model tired superposition
F	String	04S

2、Normative reference documents

The following documents are essential for the application of this document. For all dated references, only the dated version applies to this file. For unspecified references, the latest version (including all modifications) applies to this file.

GB/T 191	Packaging, storage and transportation drawing sign
GB/T 2408-2008	Determination of plastic combustion properties, horizontal and vertical methods
YD/T 983-2013	Electromagnetic compatibility limits and measurement methods for communication power supply equipment
GB/T 17626.5-2008	Electromagnetic compatibility test and measurement technology surge (impact) immunity test
GB/T 17626.2-2006	Electromagnetic compatibility test and measurement technology electrostatic discharge immunity test
YD/T 2344.1—2011	Lithium iron phosphate battery pack for communication- -Part 1: Integrated battery pack
YD/T 2344.2—2015	Communication lithium iron phosphate battery pack Part 2: discrete battery pack
YD/T 1363.3	Power supply, air conditioning and environment centralized monitoring and management system of communications Administration (station) - -Part 3: Front-end intelligent equipment protocol
YD/T 1058-2015	High-frequency switching power supply system used for communication

3、Functional features

3.1、Cell and battery voltage detection

Real-time voltage monitoring of 4 single cell cells is used to realize overvoltage and undervoltage alarm and protection. The detection accuracy of single cell voltage is less than ±20mV under the condition of-20~70℃, and the detection accuracy of PACK voltage is less than ±0.5% under the condition of-20~55℃.

The alarm and protection parameter setting value can be changed by the upper computer.

3.2、Cell, environment and power temperature detection

The NTC is used to collect and monitor the temperature of two cells, one ambient temperature and one power temperature in real time, so as to realize high temperature and low temperature alarm and protection. The temperature detection accuracy is ±2℃.

The alarm and protection parameters can be changed through the upper computer.

3.3、Battery charge and discharge current detection

By detecting the current resistance connected to the main charge and discharge loop, the charge and discharge current of the battery pack is collected and monitored in real time to realize the charging current and discharge current alarm and protection. The current accuracy is-20~70℃, the error below 10A is ± 2%, and the error above 10A is ± 1%.

The alarm and protection parameter setting value can be changed by the upper computer.

3.4、Short circuit protection function

It has the detection and protection function of the short circuit to the output.

3.5、Battery capacity and cycle times

The calculation of real-time battery residual capacity, the learning of total capacity at one time, the SOC estimation accuracy is better than ± 5%.

It has the function of calculating the charge and discharge cycle times. When the cumulative discharge capacity of the battery pack reaches 80% of the set full capacity, the cycle number is increased once.

The battery cycle capacity parameter setting value can be changed through the upper position computer.

3.6、Charge and discharge MOSFET switch

Low internal resistance, large current, for the application of backup power supply of large capacity value capacity load startup, zero switching, double the charging voltage optimization design.

3.7、Balance of intelligent single cell

The unbalanced cells can be balanced during charging or standby, which can effectively improve the service time and cycle life of the battery.

The equilibrium opening voltage and equilibrium voltage difference can be set by the upper computer.

3.8、Upper monitor

The upper computer uses the BatteryMonitor V2.1.13_ neutral_2025 version, which can switch between Chinese and English (the English protocol is loaded when switching to English). The protocol is loaded (Chinese file name: 1204_04S_V20, English protocol name: 1204_04S_V20_EN). Please refer to the operation method in the upper computer file for the operation instructions.

3.9、Program upgrade

1）The main program version can be upgraded by firmware update in the upper computer software.

2）The upper computer and the BMS are connected by RS485.

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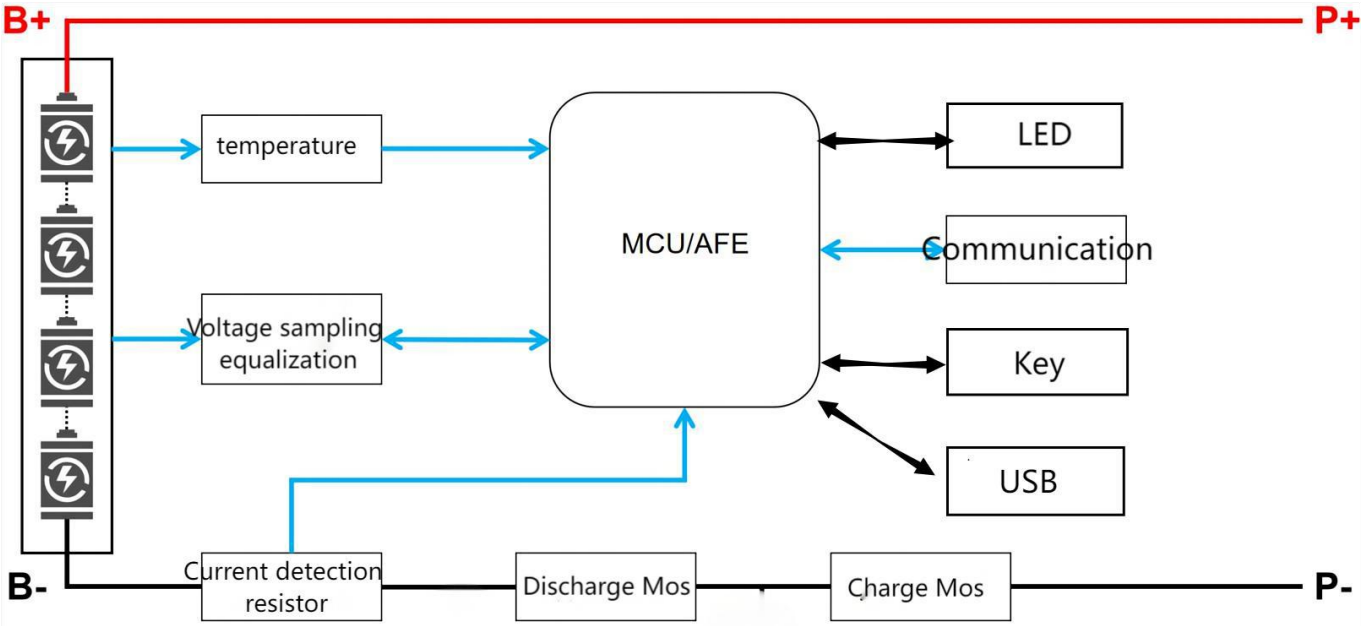
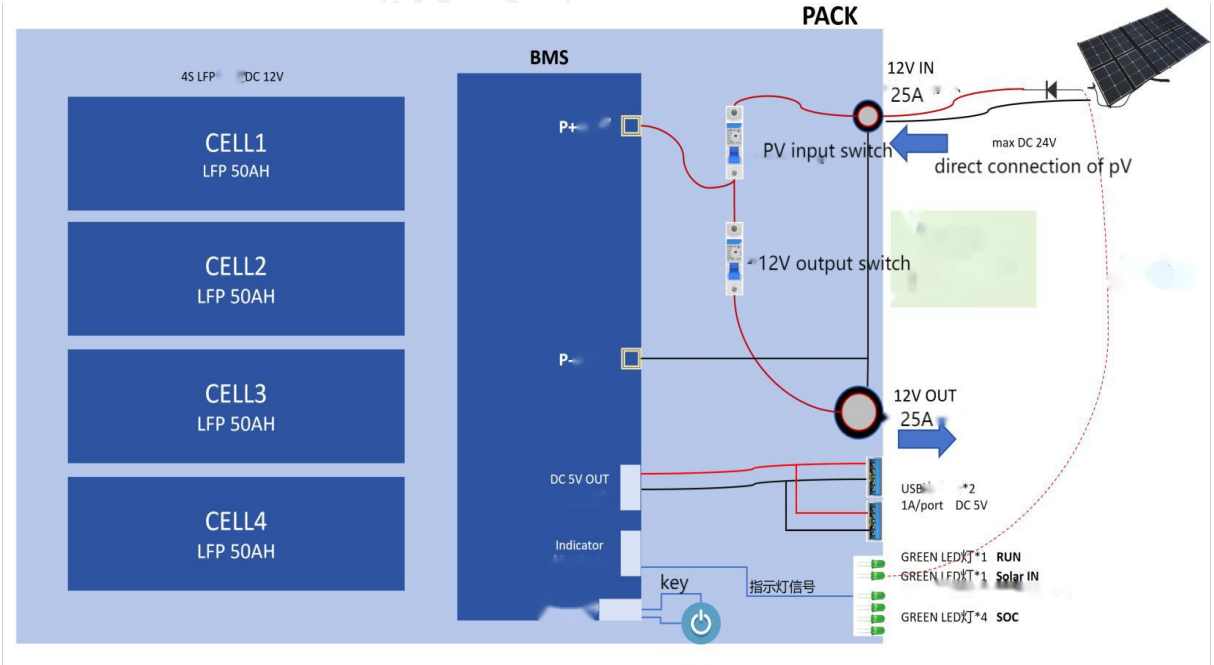
4、Diagrammatic sketch

4.1、Functional framework diagram



4.2、运行框架图



5、Electrical character

Project	Min	Max	Type	Unit
Normal working voltage	10	15	12.8	V
Normal charging voltage	/	30	11.5	V
Operating temperature range	-20	70	25	℃
Storage environment temperature	-40	85	25	℃
Use ambient humidity	10	85	/	%
Continuous charging current	/	25	25	A
Continuous discharge current	/	25	25	A
Discharge output internal resistance	<2			mΩ
Normal operation power consumption	<50			mA
Sleep power consumption	/	200	0	uA
Shutdown power consumption	/	50	0	uA

6、 Essential parameter

6.1、Basic parameter setting

Function name	Function	projects	value	Set the range
Single voltage alarm	Open	Single high voltage alarm	3500mV	Monomer high voltage recovery~Single overvoltage protection
		Single high voltage recovery	3400mV	3000mV~Single high voltage alarm
	Open	Single low voltage alarm	2800mV	Single under-voltage protection~Single low voltage recovery
		Single low voltage recovery	3000mV	Single low voltage alarm~3300mV
Single overvoltage protection	Open	Single overvoltage protection	3650mV	Single high voltage alarm~4500mV

		The excess voltage of the monomer is restored	3400mV	Monomer high voltage recovery~Single overvoltage voltage
		Overvoltage recovery conditions	1、The monomer voltage drops to the overvoltage recovery point 2、The remaining capacity is 96% lower than the intermittent power supply capacity **Note: Two conditions must be met to recover**	
			Battery discharge current was detected>3A	
Single under-voltage protection	Open	Under voltage protection voltage	2600mV	1500mV~Single owe voltage recovery
		Overvoltage recovery voltage	2900mV	Single under-voltage protection~Monolithic low voltage alarm
		Single undervoltage shutdown	Power off after under-voltage protection and maintain communication for 1 minute	
		Reinstatement condition of undervoltage	A charge current is detected（>3A）	
Battery total voltage alarm	Open	Total voltage high voltage alarm	14.0V	Total voltage and high voltage recovery~Total voltage overvoltage protection
		The total voltage is restored to high	13.4V	13.4V~Total voltage high voltage alarm
	Open	Always low voltage alarm	11.8V	Total voltage undervoltage protection~Always lower voltage recovery
		Always lower voltage recovery	12.5V	Always low voltage alarm~13.2V
Total voltage overvoltage protection	Open	Overvoltage protection is always in place	14.5V	General high voltage alarm~15.0V
		Total overvoltage was recovered	13.5V	Total voltage and high voltage recovery~Total voltage overvoltage

		Overvoltage recovery conditions	1、The monomer voltage drops to the overvoltage recovery point 2、The remaining capacity is 96% lower than the intermittent power supply capacity **Note: Two conditions must be met to recover**	
			Battery discharge current was detected>3A	
General under-voltage protection	Open	General under-voltage protection	11.4V	4.0V~Total voltage owed voltage recovery
		Total voltage owed voltage recovery	12.5V	Total voltage undervoltage protection~General low voltage alarm
		Total voltage undervoltage shutdown	Power off after undervoltage protection and maintain communication for 1 minute	
		Reinstatement condition of undervoltage	A charge current is detected（>1A）	
The battery temperature is not charged	Open	Charging high temperature alarm	50℃	Charging high temperature recovery~Charge overtemperature protection
		Charging high temperature recovery	47℃	35℃~Charging high temperature alarm
		Overtemperature protection after charging	60℃	Overheating recovery after charging~80℃
		Charging over temperature recovery	50℃	Charging high temperature recovery~Overtemperature protection after charging
		Charging low temperature alarm	2℃	Charging undertemperature protection~Charging low temperature recovery
		Charging low temperature recovery	5℃	Charging low temperature alarm~10℃
		Charging undertemperature protection	-10℃	-20℃~Charging undertemperature recovery
		Charging undertemperature recovery	0℃	Charging undertemperature protection~Charging low temperature recovery

The temperature of the cell is banned	Open	Discharge high temperature alarm	52℃	Discharge high temperature recovery~Overtemperature protection of discharge
		High temperature recovery after discharge	47℃	35℃~Discharge high temperature alarm
		Overtemperature protection of discharge	60℃	Overtemperature recovery of discharge~80℃
		Overtemperature recovery after discharge	50℃	Discharge high temperature recovery~Overtemperature protection of discharge
		Discharge low temperature alarm	-10℃	Discharge insufficient temperature protection~Discharge low temperature recovery
		Discharge low temperature recovery	3℃	Discharge low temperature alarm~10℃
		Discharge insufficient temperature protection	-20℃	-30℃~The discharge undertemperature is restored
		The discharge undertemperature is restored	-10℃	Undertemperature protection of discharge~Discharge low temperature recovery
Power temperature protection	Open	Power high temperature alarm	80℃	Power high temperature recovery~Power overtemperature protection
		Power high temperature recovery	75℃	60℃~Power high temperature alarm
		Power overtemperature protection	100℃	Power high temperature alarm~120℃
		Power over temperature recovery	85℃	Power high temperature recovery~Power overtemperature protection

Charge excessive alarm	Open	Charge excessive alarm	25A	Overcurrent recovery after charging~Charging over-current protection
		Charging over-flow recovery	23A	0A~Charge excessive alarm
Charging over-current protection	Open	Charging over-current protection	30A	Overcurrent alarm after charging~40A
		Charging overcurrent delay	10S	0S~10S
		Overcurrent recovery conditions	Discharge is immediately restored, or automatically restored after 60S	
Effective charging current	Charge into the current		600mA	
	Charge out current		500mA	
Overcurrent discharge alarm	Open	Overcurrent discharge alarm	-25A	Discharge overcurrent protection ~ discharge overcurrent recovery
		Overcurrent recovery of discharge	-23A	Overcurrent discharge alarm~0A
Overcurrent protection of discharge	Open	Overcurrent protection of discharge	-30A	Transient overcurrent protection ~ discharge overcurrent alarm
		Discharge overcurrent delay	10S	0S~10S
		Overcurrent recovery conditions	Charge immediately or automatically after 60S	
Transient overcurrent protection	Open	Transient overcurrent protection	-50A	Discharge overcurrent protection value~50A
		Transient overcurrent delay	100mS	0mS~100mS

		Transient overcurrent recovery	Charge immediately or automatically after 60S	
	Close	Transient overcurrent lockout	Continuous secondary overcurrent, exceeding the number of overcurrent lock	
		Number of overcurrent lockouts	5 Times	
		Transient lock release	Connect the charger	
Output short circuit protection	Open (Close settings is not supported)	Short circuit protection current and delay	Write-in program (note: not set)	
		Short circuit protection restored	Charge immediately or automatically after 60S	
	Open	Short circuit protection locked	Continuous output short circuit, exceeding the number of overcurrent lock	
		Number of short circuit locks	5 Times	
		Short circuit lock release	Connect the charger	
Effective discharge current	Discharge into current		-500mA	
	Discharge exit current		-400mA	
Cell balancing function	Open	Standby balance	Turn on the balance in no charge or discharge state	
		Standby balancing time	10 Hours	Can Set
	Open	Charging is balanced	Turn on the balance in the charging state and float charging state	
	Turn on voltage conditions	Set the opening voltage	3400mV	Can Set
		Balance the opening voltage difference	30mV	

		Balance the end voltage difference	20mV	
	Open	Balance temperature limits	According to (note: the ambient alarm temperature determines) the balanced shutdown temperature range	
		High temperature prohibition is maintained	50℃	Can Set
		A ban on moderate cooling	0℃	
Cell failure alarm	Open	Cell failure voltage difference	500mV	It could be set up
		Cell recovery voltage difference	300mV	
Battery capacity settings	Battery rated capacity		50Ah	5Ah~300Ah
	Remaining capacity of battery		Estimate the cell voltage	Can Set
	Cumulative capacity of the loop		80%	Cycle index （Can Set）
	Open	Remaining capacity alert	15%	
	Open	Residual capacity protection	5%	Close the output
Precharge function	300ms	Not possible	The precharge function is started at the moment of BMS startup	
BMS Power management	Open	Maximum standby time	48h (charger not present and no valid discharge current)	
The cell is heated at low temperature	Open	The cell is heated at low temperature	0℃	Can Set
		Cell heating recovery	10℃	

		Activate the heating logic	The charger is online and the cell temperature reaches the opening condition, and heating is started. Heating is not started in standby state and discharge state	
External switch	Open	In standby mode, the BMS can operate an external switch to turn off and on the BMS		
LCD	Open	Simplify the monitoring software, you can view the cell, temperature, current and other data		
Manual charging activation	Open	1min	After the under-voltage protection, the BMS shuts down and manually presses the button to activate and clear the under-voltage protection forced output	Can Set

6.2、Basic working mode

Charging mode	When BMS detects that the charger is connected and the external charging voltage is more than 0.5V higher than the internal battery voltage, it enters the charging mode when the charging current reaches the effective charging current.	
Discharge mode	When the BMS detects that the load is connected and the discharge current reaches the effective discharge current, it enters the discharge mode.	
Standby mode	When neither of the above two modes is satisfied, it enters standby mode.	
Shut down mode	Cut-off condition: 1）Normal standby 48 hours; 2）The battery triggers undervoltage protection; 3）Press Reset。	Wake up conditions： 1）Charge activation; 2）1V higher than the battery voltage; 3）Press Reset。

Sleep mode	Entry condition ： 1）Standby for 1 hour, then enter sleep mode。	Wake up conditions： 1）Button activation & charge and discharge activation。

6.3、LED light instructions

6.3.1、LED light sequence

1 running light, 4 capacity indicator lights

L1●	L2●	L3●	L4●	●
SOC				RUN

6.3.2、Capacity indication

status		charge				discharge			
Capacity indicator light		L4●	L3●	L2●	L1●	L4●	L3●	L2●	L1●
residual capacity	0～25%	Off	Off	Off	Flash	Off	Off	Off	On
	25～50%	Off	Off	Flash	On	Off	Off	On	On
	50～75%	Off	Flash	On	On	Off	On	On	On
	≥75%	Flash	On	On	On	On	On	On	On
run the indicator light ●		On				Flash			

6.3.3、Flash description

Flash mode	On	Off
闪 1	0.25s	3.75s
闪 2	0.5s	0.5s
闪 3	0.5s	1.5s

6.3.4、Status indication

System mode	Running state	RUN	SOC				Instruction
		●	L4 ●	L3 ●	L2 ●	L1 ●	
Shut down	Dormant	Off	Off	Off	Off	Off	All off
sleep	Normal	Flash 1	Based on the power indicator				Stand by
Charge	Normal	On	Based on the power meter				Maximum LED flash 2
	Overcurrent alarm	Flash 3	Based on the power meter				Maximum LED flash 2
	Overvoltage protection	Flash 1	Off	Off	Off	Off	
	Temperature, overcurrent protection	Flash 1	Off	Off	Off	Off	
Discharge	Normal	Flash 3	Based on the power meter				According to the constant light indicator of electricity
	Alarm	Flash 3					
	Temperature, overcurrent, short circuit, etc. protection	Off	Off	Off	Off	Off	Stop discharging, and the system will be forced into hibernation after 48h without action when the mains is offline
	Undervol	Off	Off	Off	Off	Off	Stop discharging

	tage protecti on						

7、 Functional description

7.1、 Running state

Num	Function	Definition
1	Power on / start	The BMS is in a dormant state. Press the reset button to start the BMS, After the LED indicator lights flash in turn, it enters the normal working state.
2	Shut down / sleep	When the BMS is in standby or discharge state, press this key and keep it for 6s (including 3s flashing time). After that, the BMS will be put to sleep. The LED indicator light will flash in turn and then enter the sleep state. After the sleep, the BMS has no power consumption.
3	Stand by	1）In the protection state such as overvoltage, undervoltage, overcurrent, short circuit, overtemperature and undervoltage, press the reset button to start up, and the BMS is in standby state. 2）In standby mode, the running light flashes, and the battery can be charged and discharged.

7.2、Overcharge protection and recovery

Overcharge	Single	Protection	When any section is higher than the single overcharge protection setting value, the charging equipment cannot charge the battery.
		Recover	When the maximum single cell voltage drops below the single cell overcharge recovery value and the SOC is lower than 96%, the overcharge protection state is released. It can also be discharged to release.
	Total voltage	Protection	When the battery voltage is higher than the overcharge protection set value, BMS enters the overcharge protection state and the charging device cannot charge the battery.
		Recover	When the total voltage voltage drops below the total overcharge recovery value and the SOC is lower than 96%, the overcharge protection state is released. It can also be discharged to release.

7.3、过放保护和恢复

Overdischarge	Single	Protection	When any section is lower than the over-discharge protection setting value of the single battery, BMS enters the over-discharge protection state and the load cannot discharge the battery. After maintaining communication for 1 minute, BMS shuts down.
		Recover	After the over-discharge protection, charging the battery pack can release the over-discharge protection state. Or press the reset button, BMS will start up and recheck whether the battery pack voltage reaches the recovery value.
	Total voltage	Protection	When the total voltage is lower than the over-discharge protection set value, BMS enters the over-discharge protection state, and the load cannot discharge the battery. After maintaining communication for 1 minute, BMS shuts down.
		Recover	After the over-discharge protection, charging the battery pack can release the over-discharge protection state. Or press the reset button, BMS will start up and recheck whether the battery pack voltage reaches the recovery value.

Note: After the BMS discharge undervoltage protection, the BMS shuts down. The button is activated or the charging is activated. The BMS maintains 1 minute of output voltage to the inverter to detect the battery voltage, so the discharge is not allowed within 1 minute.

7.4、Overcurrent protection and recovery

Overcurrent charging	Protection	When the overcharge current protection setting value is exceeded and the delay time is reached, BMS enters the overcharge current protection and the charging device cannot charge the battery.
	Recover	After overcurrent protection, BMS automatically delays recovery and rechecks the current of the external charger. Discharge can also release the charging overcurrent protection.
Overcurrent discharge	Protection	When the discharge overcurrent protection setting value is exceeded and the delay time is reached, the BMS enters the discharge overcurrent protection and the load cannot charge the battery.

	Recover	After overcurrent protection, BMS automatically delays recovery and rechecks the external load current. Charging can also release the discharge overcurrent protection.

Note: 1) When there is no current limiting function, the overcurrent protection can be triggered.

2) The discharge overcurrent protection has two levels of protection, which can be restored to the same as the discharge overcurrent protection when transient overcurrent protection occurs. The transient overcurrent protection will be locked when the number of occurrences reaches the condition, and the restoration must be turned off and then turned on or charged to release.

7.5、Temperature protection and recovery

Note: BMS has one temperature detection port to monitor the temperature change and implement protective measures.

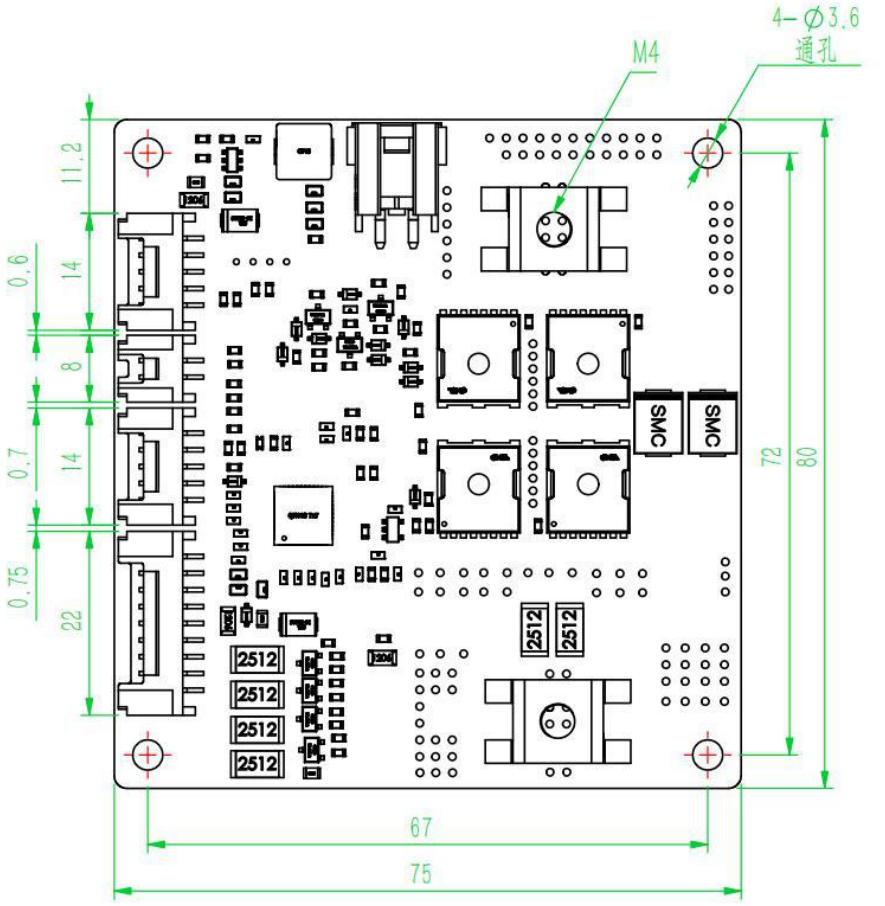
charge-discharge	High temperature	Protection	When any cell NTC is higher than the high temperature protection set value, BMS enters high temperature protection. BMS stops charging or discharging.
		Recover	When the cell temperature is lower than the high temperature recovery value, BMS resumes charging or discharging.
	Low temperature	Protection	When any cell NTC is lower than the low temperature protection set value, BMS enters low temperature protection. BMS stops charging or discharging.
		Recover	When the cell temperature is higher than the low temperature recovery value, BMS resumes charging or discharging.
Environmental temperature protection	Over temperature	Protection	When the NTC detects that the ambient temperature is higher than the ambient high temperature set value, the BMS enters the environmental over-temperature protection. The BMS stops charging and discharging.
		Recover	When the ambient temperature is lower than the ambient recovery value, BMS resumes charging or discharging.
	Under temperature	Protection	When the NTC detects that the ambient temperature is lower than the ambient low

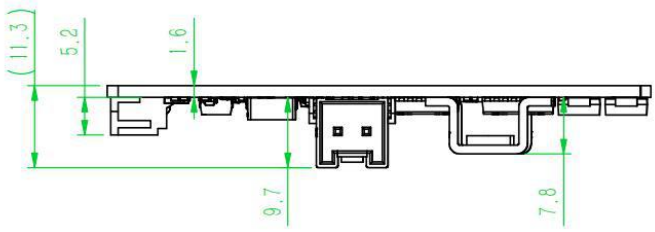
			temperature set value, the BMS enters the environmental under-temperature protection. The BMS stops charging and discharging.
		Recover	When the ambient temperature is higher than the ambient recovery value, BMS resumes charging or discharging.
Power temperature protection	When the NTC detects that the power temperature is higher than the power protection set value, the BMS enters the power high temperature protection. The BMS stops charging and discharging.		

7.6、Other Functions

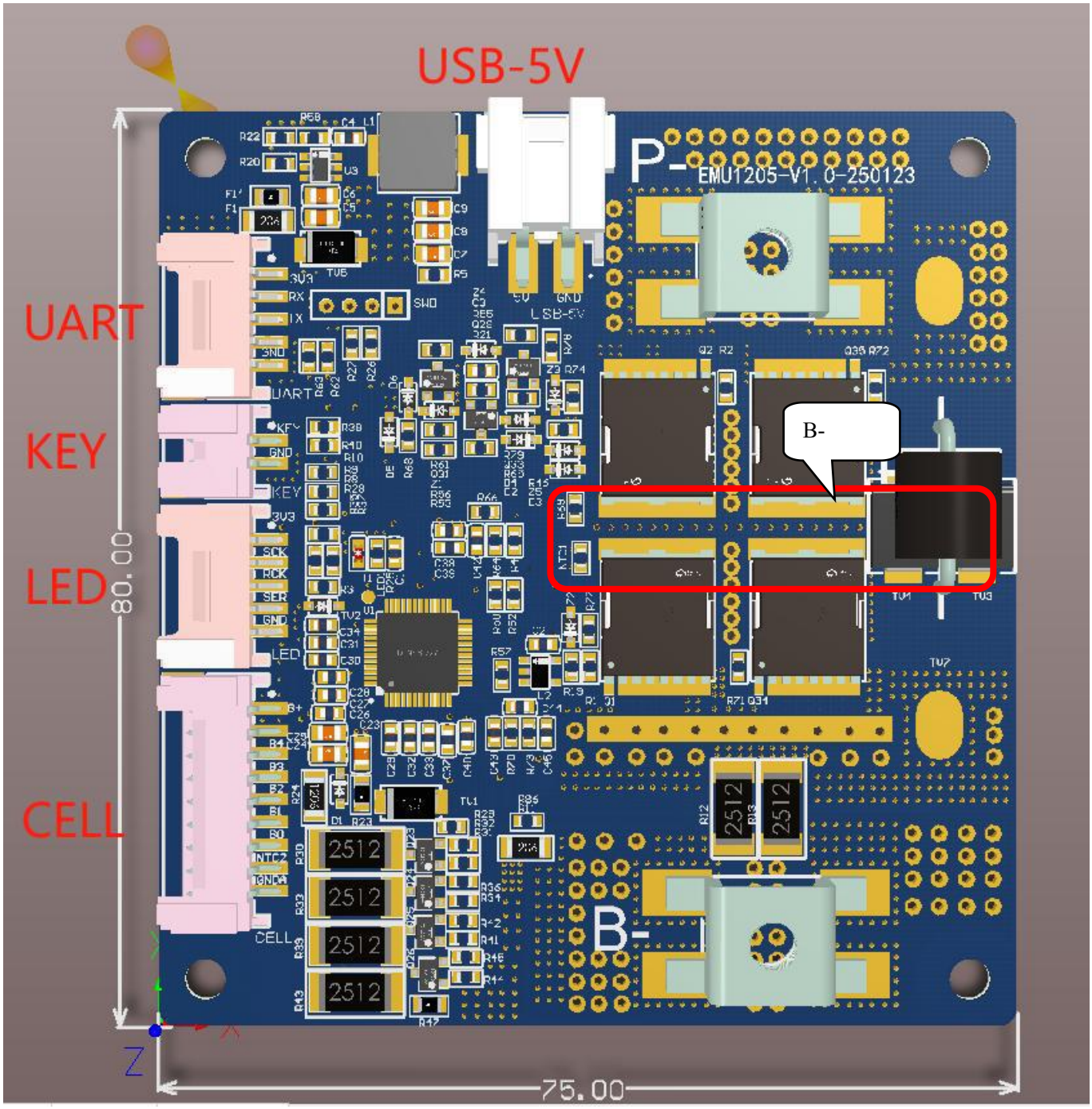
Other funtions	Balanced function	The BMS system adopts an energy-consumption balanced circuit, and the balanced opening voltage software is adjustable. The balanced opening condition is that any one section of the cell voltage is higher than the balanced opening voltage and the voltage difference together meets the condition. When the charging is stopped or the cell voltage difference is less than the set value, the balance stops.	
	Sleep function	Automatic hibernation: In the absence of external charge and discharge, the battery automatically sleeps for 48 hours. When the battery pack is over-discharge protected, it maintains communication for 1 minute, and the BMS enters the sleep state.	Manual hibernation: 1）By manually pressing the 6S reset button, the four LED lights are lit in turn, and the BMS enters sleep. 2）The switch is controlled by an external switch to turn on and off. The switch is turned on when the switch is closed and turned off when the switch is open. 3）Standby sleep can be set by the host computer.
	Precharge function	The precharge function is started at the instant of machine startup or discharge tube opening, and the precharge time is fixed (300mS), which is used to deal with various capacitive load scenarios and avoid BMS output short circuit protection.	

8、Size positioning map





9、Refer to the diagram and connection instructions



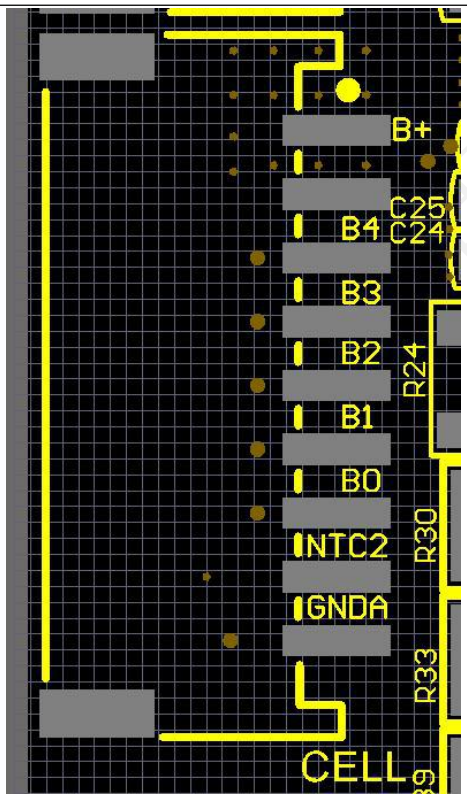
Num	Name	Describe	Affect	Type
1	CELL	Cell voltage collection and temperature	Sample cell voltage and cell temperature	HX20020-9AWB

		collection interface		
2	LED	Plug-in lamp board interface	Light panel control	HX20020-5AWB
3	KEY	Button interface	Keyswitch	HX20020-2AWB
4	UART	Leave the UART interface	Connect to Bluetooth/upper computer	HX20020-5AWB
5	USB-5V	USB	USB5Vpower supply	HX39601-2AWB

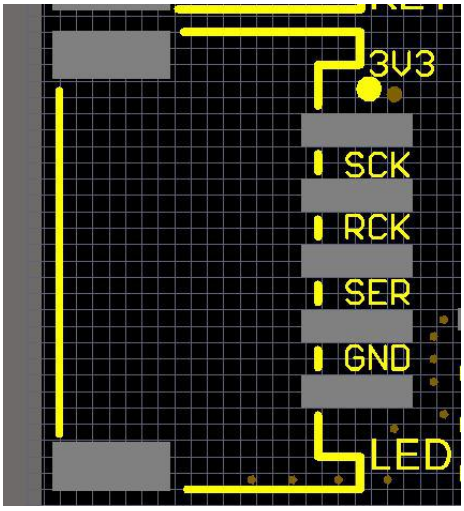
Note: There may be some differences between the actual product and the physical picture of the above products

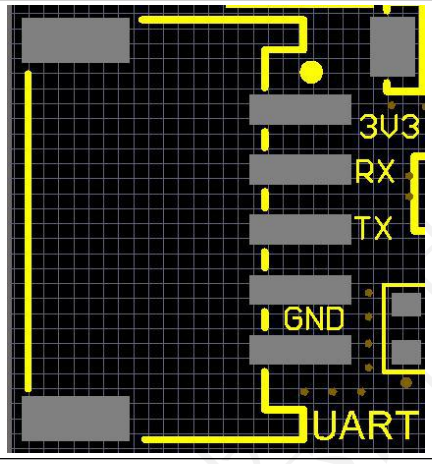
9.1、Wiring definition

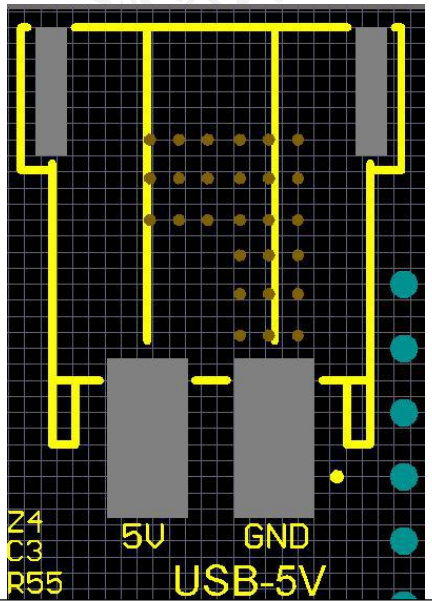
Cell voltage collection and temperature collection interface

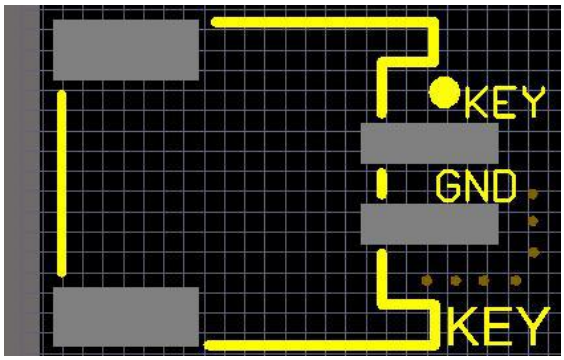


PIN1	B+	Connect the positive terminal of the battery in section 4
PIN2	B+	Connect the positive terminal of the battery in section 4
PIN3	B4	Connect the positive terminal of the battery in section 4
PIN4	B3	Connect the positive terminal of the third section of the battery
PIN5	B2	Connect the positive terminal of the second battery
PIN6	B1	Connect the positive terminal of the first battery
PIN7	B0	Connect the negative terminal of the first battery
PIN8	NTC2	Connect temperature sensor NTC2
PIN9	GNDA	Ground

LED			
	PIN1	3V3	Connect the power supply to the light board
	PIN2	SCK	SCK
	PIN3	RCK	RCK
	PIN4	SER	SER
	PIN5	GND	Ground

UART			
	PIN1	3V3	Power is supplied by Bluetooth
	PIN2	RX	TX
	PIN3	TX	RX
	PIN4	GND	Ground
	PIN5	GND	Ground

USB-5V			
	PIN1	GND	Ground
	PIN2	5V	USB-5V Power output port

KEY interface pin definition			
	PIN1	KEY	Switch
	PIN2	GND	Switch

9.2、Power up and down sequence

1）The power supply is connected in the following order: first connect the motherboard B-, then connect the wiring CELLSAMP and CELLS1, and finally connect P+ and P-to the charger or load (Note: the motherboard is in the shutdown state after the wiring is connected, and the BMS can also be activated by closing the external switch or charging).

2）The power-down sequence is completely opposite: disconnect the charger or load first (note: disconnect the external switch to shut down), then disconnect CELLSAMP and CELLS1, and finally disconnect B-.

3）Input and output

When charging: the positive pole of the charger is connected to the total positive pole of the battery pack, and the negative pole of the charger is connected to "P-" of the protection board.

During discharge: the positive terminal of the load is connected to the total positive terminal of the battery pack, and the negative terminal of the load is connected to "P-" of the protection board.

10、List of components

Num	Name	Number	Configure
1	Voltage pickup line	1	optional
2	Conventional transfer board line	1	optional
3	M5*12 screw	4	optional
4	Conventional transfer board	1	optional

11、Attention

- The battery management system cannot be used in series.
- The BMS power component is rated at 40V.
- If the cell module is assembled in the form of long wires and long copper bars, it must communicate with BMS manufacturers to do impedance compensation. Otherwise, it will affect the consistency of the cell.
- The external switch on the BMS is prohibited from connecting to other devices. If necessary, please confirm with the technical team. Otherwise, BMS will not be liable for any damage.
- Do not directly contact the surface of the cell with the protective plate during assembly to avoid damage to the cell. The assembly should be firm and reliable.
- When using, pay attention to the lead head, soldering iron, solder and other 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 conditions during use, and do not exceed the values in this specification, otherwise the protection board may be damaged.
- After the battery pack and protection board are combined, if no voltage output or charging is found when the battery is first powered on, check whether the wiring is correct.
- The final right of interpretation belongs to the company.