Product Specifications

Product Name : RIMDIN 280L-JK 51.2V280AH

Lithium-ion Battery System

Project Name	Configuration
External switch function	have
Current limiting function	have
Display	have
Storage function	have
Pre-charge function	none
Communication Function	have
Secondary protection	have
Bluetooth	have

Update Record

Version	describe	date	state
A	First edition released	2025.06.06	controlled

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1. Basic Introduction

This battery system is suitable for household energy storage and small and medium-sized commercial storage . It uses 3.2 V 280Ah The lithium battery cells form a 1-in- 1 6- in- 1 battery module and an intelligent BMS to form a 51.2V280Ah lithium battery system. The system supports up to 16 groups of batteries in parallel. The system is prohibited from being used in series and mixed with other batteries of different brands and models.

2. Function introduction and usage instructions

2.1 Active balancing

This product uses active balancing technology. The principle of balancing is to transfer the energy of high-voltage cells to low-voltage cells, and to achieve energy transfer through the protection board as a medium. Before using the balancing function, users need to set the basic parameters of the battery. They need to download the Jikong BMS-APP. After downloading, set the battery type on the parameter setting page in the Jikong APP. After setting the battery type, set the basic battery parameters in the common settings, including the number of cells, battery capacity, triggering balancing voltage difference (can be kept as default), voltage calibration, current calibration, etc.

Users can set the equalization trigger voltage difference (mV) in the parameter settings of the APP. When the equalization is turned on, the equalization will automatically turn on when the voltage difference between any two battery strings in the battery pack is greater than the set value, and will be turned off when the voltage difference is less than the set value. The default equalization current is the maximum value of 1A/2A. Users can adjust it according to their own battery capacity. It is recommended that the equalization current does not exceed 0.2C of the battery capacity (C). If the equalization function is not required, the equalization switch can be set to off in the BMS control page of the APP.

2.2 Charging overvoltage protection and recovery

This product comes standard with charging overvoltage protection. Users can set the single-cell overcharge protection voltage and single-cell overcharge recovery voltage in the parameter setting page of the Jikong APP. When any string of batteries is overvoltage during charging, the protection board will shut down charging to protect the battery. When all single-cell voltages are lower than the single-cell overcharge recovery voltage, the protection board will start charging again to prevent the battery from overcharging and damaging the battery cell.

2.3 Discharge undervoltage protection and recovery

This product is equipped with a discharge undervoltage protection function. Users can set the battery undervoltage protection voltage (V) , battery undervoltage recovery voltage (V) , and automatic shutdown voltage (V) in the parameter setting page of the Jikong APP according to their own battery type . When the

protection board is in the discharge state, when the voltage of any string of batteries is lower than the set undervoltage protection voltage value, the protection board triggers the undervoltage protection and shuts down the discharge to protect the battery cell and prevent overdischarge from damaging the battery cell. When the battery is charged When the voltage of all cells is higher than the undervoltage recovery voltage, the undervoltage protection is released and the discharge will be turned on again. When the voltage is lower than the automatic shutdown voltage, the protection board will automatically shut down to protect the battery.

2.4 Charging overcurrent protection and recovery

This product is equipped with a charging overcurrent protection function. Users can set the continuous charging current (A), charging overcurrent delay (S), and charging overcurrent release (S) in the parameter setting page of the Jikong APP according to their own battery capacity and charger output current. When the charging current is greater than the set continuous charging current, the charging protection is triggered after the set charging overcurrent delay time, and the protection board turns off charging. After the charging overcurrent release time, the protection board will turn on charging again.

2.5 Discharge overcurrent protection and recovery

This product comes standard with a discharge overcurrent protection function. Users can set the continuous discharge current (A), discharge overcurrent delay (S), and discharge overcurrent release (S) in the parameter setting page of the Jikong APP according to their own battery capacity and load output current. When the discharge current is greater than the set continuous discharge current, the discharge overcurrent protection is triggered after the set discharge overcurrent delay time, and the protection board turns off the discharge. After the discharge overcurrent release time, the protection board will turn on the discharge again. (Note: The maximum continuous discharge current that can be set cannot exceed the design value of 200A)

2.6 Over temperature protection and recovery

This product is equipped with charging and discharging over-temperature protection function as standard. Users can set charging over-temperature protection (℃), charging over-temperature recovery (℃), discharging over-temperature protection (℃), and discharging over-temperature recovery (℃) in the parameter setting page of the Jikong APP according to their own needs. When the temperature data collected by the protection board is higher than the set charging over-temperature protection value, the protection board shuts down charging. When the temperature returns to below the set charging over-temperature recovery value, charging is turned on again. The same applies to discharging over-temperature protection and recovery.

2.7 Low temperature protection and recovery

This product is equipped with a charging low temperature protection function as standard. Users can set the charging low temperature protection (℃) and charging low temperature recovery (℃) in the parameter setting page of the Jikong APP according to their own needs. When the temperature data collected by the protection board is lower than the set charging low temperature protection value, the protection board will shut down the charging, and when the temperature returns to a value higher than the set charging low temperature recovery value, it will turn on the charging again.

2.8 Short circuit protection and recovery

This product is equipped with a short-circuit protection function as standard. This parameter does not require the user to set the current that triggers the short-circuit protection. If necessary, the user can set the short-circuit protection delay (us) and short-circuit protection recovery time (S) in the parameter setting page of the Jikong APP according to their own needs. When the user connects the charger for charging for the first time, after the external line is correctly connected, if the charging short-circuit protection is triggered after charging is turned on in the BMS control page, the short-circuit protection delay can be increased. The cause of the protection is that the peak current at the moment the charger is turned on is too large. At this time, after the short-circuit protection recovery time, the short-circuit protection is released, and the protection board is turned on for charging. When the discharge short-circuit protection occurs when the user connects the load for the first time, it can be solved by increasing the short-circuit protection delay when ensuring that there is no short circuit in the external wiring. Because the internal capacitance of some loads is large, the instantaneous current at the start may be large, which will trigger the short-circuit protection. At this time, after the short-circuit protection recovery time, the short-circuit protection is released, and the protection board is turned on for discharge.

2.9 Charging current limiting function

The protection board is equipped with a charging current limiting function as standard. Users can set the continuous charging current (A), charging overcurrent delay (S), and charging overcurrent release time (S) in the Jikong APP according to their own battery capacity and charging current. When the battery is overcharged, the current limiting function starts and keeps the charging current constant at about 10A to protect the battery.

2.10 **Emergency switch**

The protection board is equipped with an emergency switch function as standard. If overheating, over-discharge, overcharging, or string loss occurs during normal use, after turning on the emergency switch on the BMS control page in the Jikong APP, the protection board will simultaneously start charging and discharging for 30 minutes, giving the user an emergency use time. During this process, if the voltage of a single battery cell has reached the automatic shutdown voltage, the protection board will continue to work until the end of the 30-minute emergency switch cycle to avoid dangerous situations such as breaking down on the road.

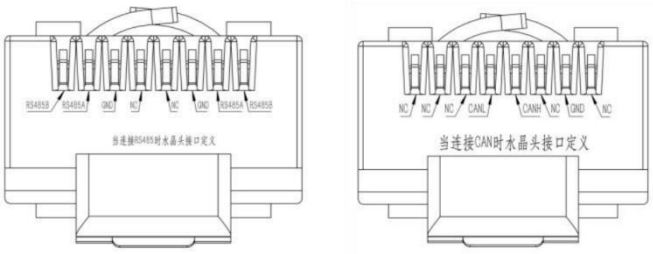
2.11 Smart sleep

The protection board is equipped with an intelligent sleep function, which users can choose to turn on or off in the BMS control page of the Jikong APP according to their own needs. The purpose of this function is to turn off the protection board when it is in standby mode (the charging and discharging current is less than 1A for 26 consecutive hours) to reduce the energy consumption of the battery by the protection board itself. When the user needs to activate it again, he can use the button to activate it or the charger to activate it.

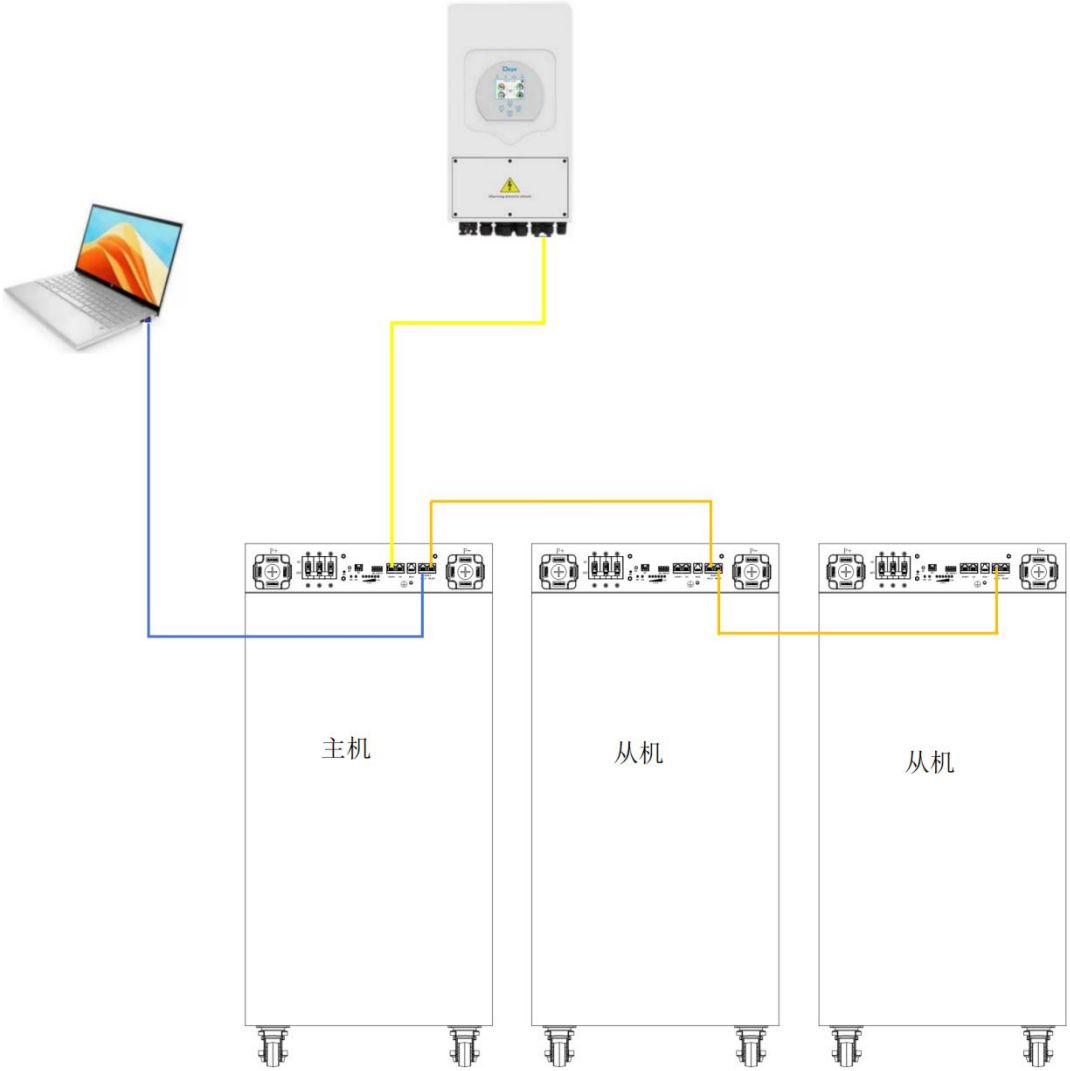
2.12 Communication Function

The protection board is equipped with CAN and RS485 communication as standard. The default communication rate of CAN communication is 250K. Users can select the corresponding protocol in the Jikong APP according to the brand and specific specifications of the inverter they use. It also has two RS45

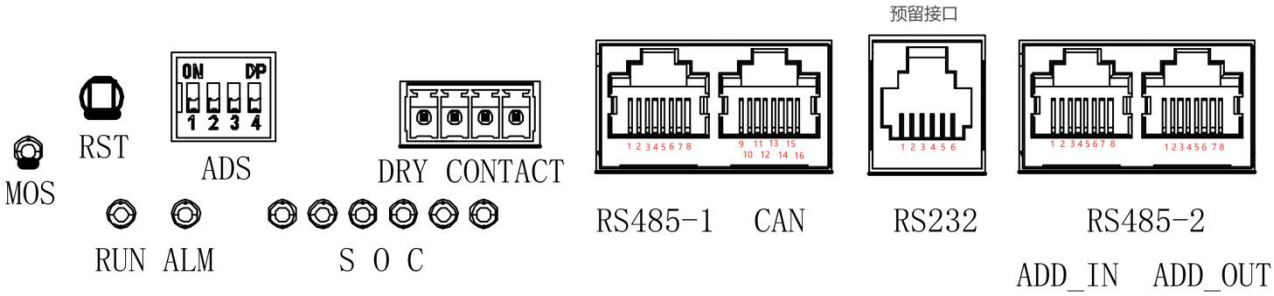
communication interfaces, of which RS485-1 is used to communicate with the inverter and other settings. Users can select the corresponding protocol in the Jikong APP according to the brand and specific specifications of the inverter they use. RS485-2 parallel outputs two interfaces for parallel connection of battery packs and simultaneous connection to the host computer to view the battery pack information. The default baud rate is 115200. The protection board can set the communication address by setting the dip switch, and the data of all battery packs can be queried through the host polling. The address setting range is 0~15.



The RS485-2 between the host computer and the BMS host is connected via a USB to RS485 serial cable, and then the RS485-2 of the BMS are connected to each other using a network cable with an RJ45 plug (RS485-2 has two RJ45 sockets, one socket of the host is connected to the host computer with a serial cable, and the other is connected to the slave through a network cable. The RS485-2 communication interfaces between the slaves are connected in turn through network cables). The specific operation diagram is as follows:



Communication Description

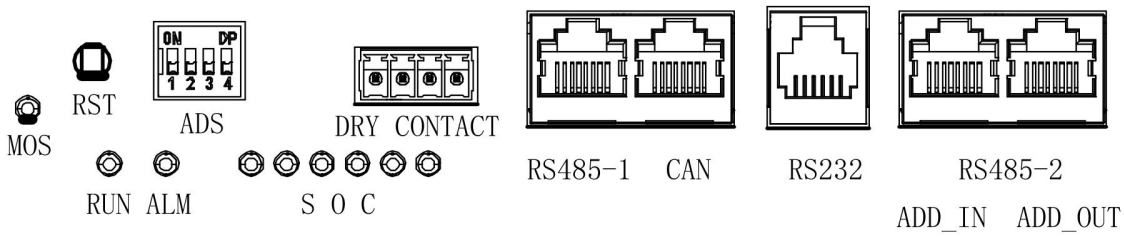


CAN and RS 485-1 Interface Definition definition ofCAN and RS 485-1)		
Pin number number)	**Pin Definition definition)**	**Remark**
1，8	RS 485- B1	
2，7	RS 485-A1	
3，6	GND	
4，5	NC	
9，10，11，14，16	NC	
12	CANL	
13	CANH	
15	GND	
Reserved interface definition interface definition)		
Pin number number)	**Pin Definition definition)**	**Remark**
1-6	NC	Reserved interface, not used yet
RS 485-2 Interface Definition definition ofRS 485-2)		
Pin number number)	**Pin Definition definition)**	**Remark**
1	RS 485- B2	
2	RS 485-A2	

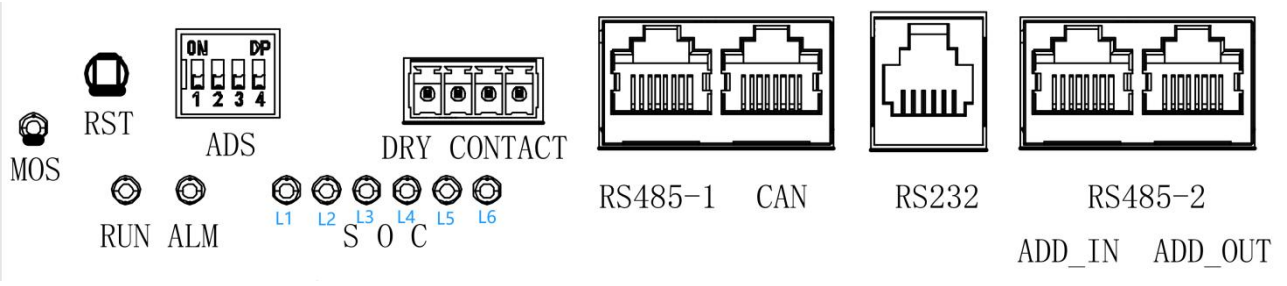
3	GND	
4	NC	
5	NC	
6	GND	
7	RS 485-A2	
8	RS 485-B2	

2.13 Interface Board Function Introduction

The protection board is equipped with an interface board to facilitate users to use LED indicators, reset switches, dip switches, dry contacts, communication and other functions. The LED indicator can help users determine the current BMS working status and the remaining battery power; the reset button can be pressed to reset the BMS when the user encounters an abnormality when using the BMS; the dip switch can be used to set the address when the BMS is used in parallel, supporting a total of 16 addresses from 0 to 15; the dry contact user controls external devices such as alarms and fans; CAN and RS485-1 are used for communication between the BMS and the inverter; RS485-2 is used for parallel connection of battery packs and communication with the host computer. The panel interface is as shown in the figure below (see attachment for details).



2.14 LED Indicator Description



state	Normal / Warning / Protection	ON/OFF F indicatio n	RUN	ALM	L1	L2	L3	L4	L5	L6	illustrate
Shutdown	normal	OFF									
Balance	normal	ON	Flash	OFF	Display based on power level					OFF	
Charge	normal	ON	Flash	OFF	Display based on power level					OFF	
	Overcurrent \ overtemperature \ overvoltage \ Charging failed	ON	Flash	Flash	Display based on power level					OFF	
Discharge	normal	ON	Flash	OFF	Display based on power level					OFF	
	Overcurrent \ overtemperature \ undervoltage Discharge failure	ON	Flash	Flash	Display based on power level					OFF	
Other warnings	Password not changed \ short Road \ Temperature Abnormal	ON	Flash	Flash	Display based on power level					OFF	

Note: When the device address is set to 0, the last LED light L6 flashes. When set to other values, it goes out when acting as a slave, and flashes after the slave and host communicate successfully.

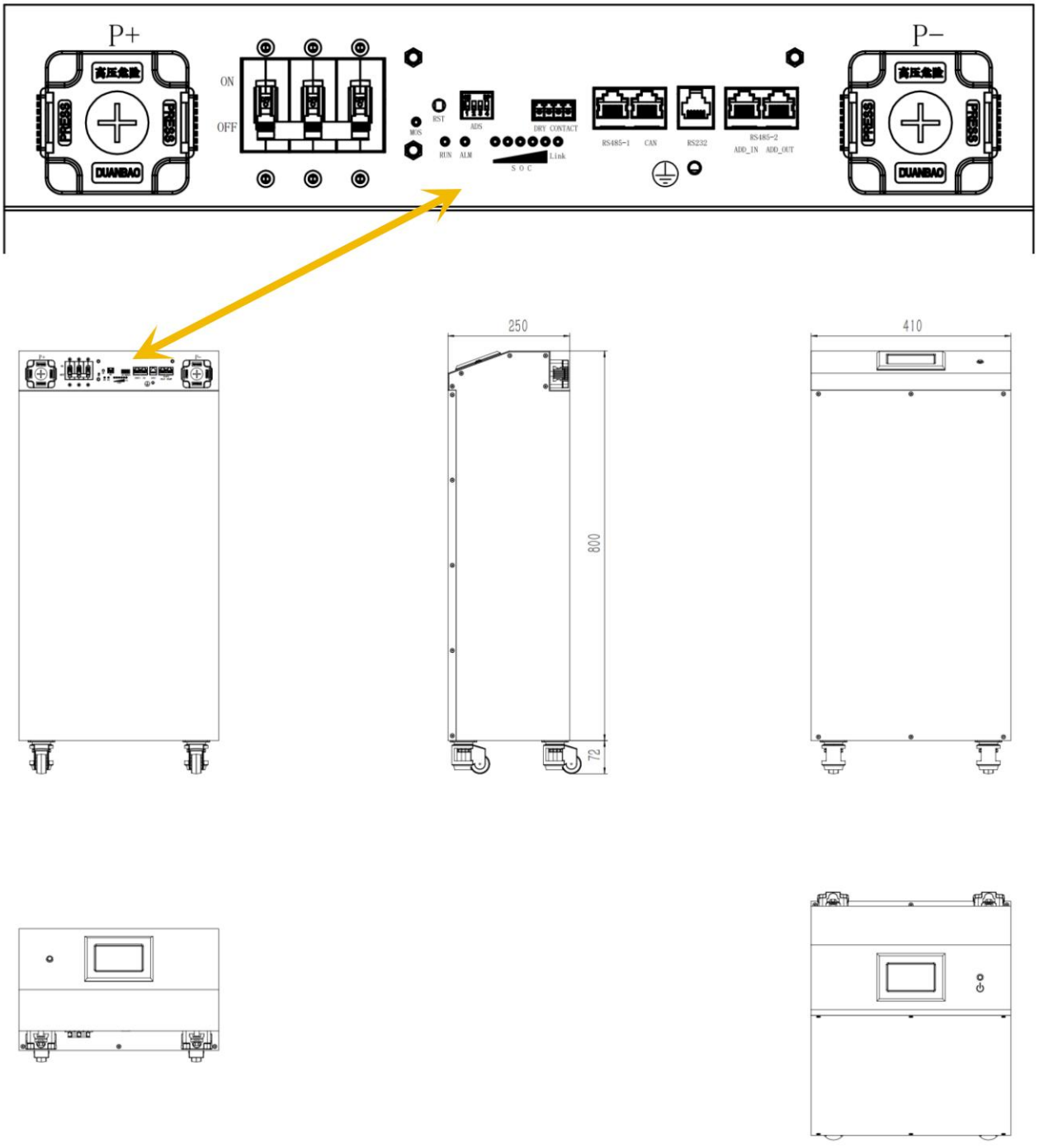
Note: ON means the LED is on, OFF means the LED is off.

state		Charge					Discharge				
Capacity indicator light		L5	L4	L3	L2	L1	L5	L4	L3	L2	L1
	0~20%	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OF F	ON
	20~40%	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	ON

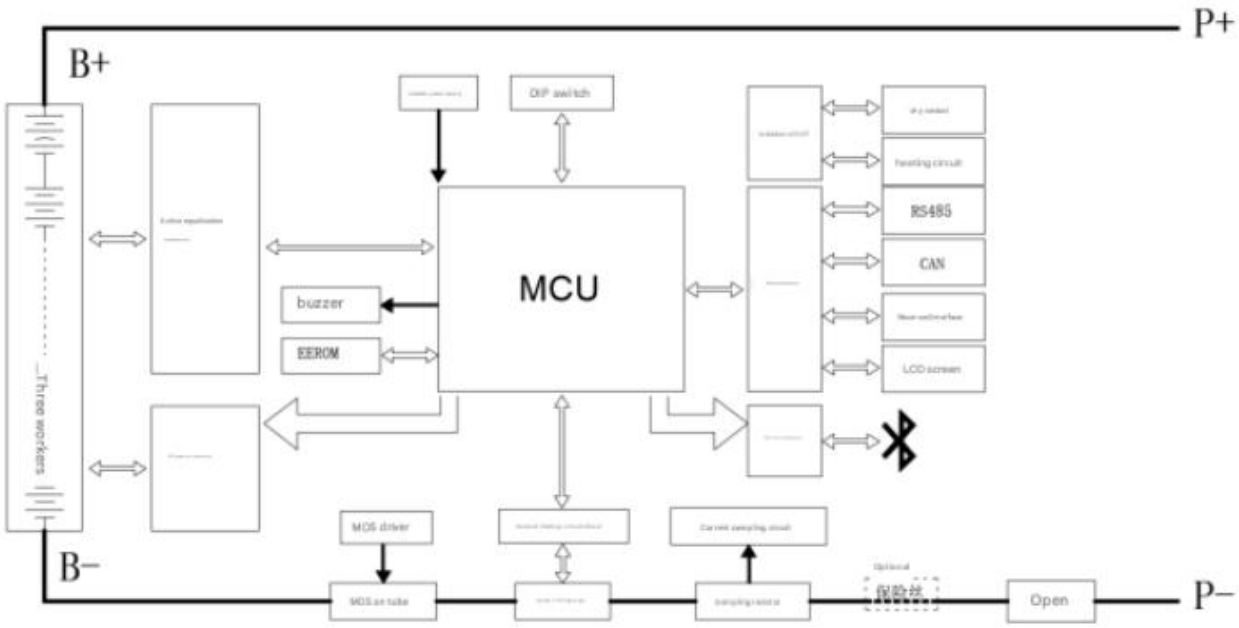
Battery %	40~60%	OFF	OFF	ON	ON	ON	OFF	OFF	ON	ON	ON
	60~80%	OFF	ON	ON	ON	ON	OFF	ON	ON	ON	ON
	80~100%	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Note: ON means the LED is on, OFF means the LED is off											

3. Product Details

3.1 Dimensions and interface diagram



3.2 Electrical Schematic Diagram



3.3 Battery performance parameters

Serial number	project	Specification
1	Battery Configuration	1 P 16 S
2	Rated voltage	51.2 V
3	Operating voltage range	41.6 V~ 57.6 V
4	Rated capacity	280Ah
5	capacity	14.336KWh
6	Standard charge/discharge current	100A @ 25 ±2℃
7	Maximum charging current	200A @ 25 ±2 ℃
8	Maximum discharge current	200A @ 25 ±2℃
9	Operating temperature	0 ～ 55 ℃(Charge)
		-20 ～ 55 ℃(Discharge)
10	Storage temperature and humidity	-10 ℃ ~35 ℃ (stored within one month)2 5 ± 2 ℃ (storage within three months) 65%±20%RH
11	Dimensions (L x W x H)	(410)×(250)×(800 + 72)mm
12	weight	113 K g±3kg
13	Cycle life	8000 cycles @25℃ 100A charge and discharge current 80% DOD
18	IP Rating	IP 20
20	Altitude	0- 3 000 m
twenty one	Humidity range	5~ 90 %

3.4 Battery protection parameters

Serial number **NUM**	parameter **PARA**	Iron lithium default **LIFEPO4**	unit **(unit)**
1	Equalization start voltage (balancing initial voltage)	3	V
2	Maximum balancing current (Maximum balancing current)	1	A
		2	A
3	Single cell overcharge voltage (Unit overcharge voltage)	3.6	V
4	Single cell overcharge protection recovery (Single overcharge protection recovery	3.55	V
5	Single cell undervoltage protection (Monomer undervoltageprotection	2.6	V
6	Single cell undervoltage protection recovery (Single undervoltage protection recovery	2.65	V
7	Automatic shutdown voltage (Automatic shutdown voltage)	2.5	V
8	SOC-0% voltage (SOC-0% voltage)	2.6	V
9	SOC-100% voltage (SOC-100% voltage)	3.5	V
10	Trigger equalization pressure difference (Trigger balancing differential pressure)	0.01	V

11	Charging overcurrent protection delay (Charging overcurrentprotection delay)	30	Seconds (S)
12	Charging overcurrent protection release time (Charge overcurrent protection release time)	60	Second (S)
13	Discharge overcurrent protection delay (Discharge overcurrentprotection delay)	300	Second (S)
14	Discharge overcurrent protection release time (Discharge overcurrent protection release time)	60	Second (S)
15	Short circuit protection delay (Short-circuit protection delay)	1500	Microseconds (uS)
16	Short circuit protection release time (Short circuit protection release time)	60	Second (S)
17	Charging over-temperature protection temperature Charging overtemperatureprotection temperature	70	℃
18	Charging over-temperature recovery temperature (Charge overtemperature restore temperature	60	℃
19	Discharge over-temperature protection temperature (Discharge overtemperature protection temperature	70	℃

20	Discharge over-temperature recovery temperature (Discharge overtemperature recovery temperature	60	℃
twenty one	Charging low temperature protection temperature (Charging low temperature protection temperature	-20	℃
twenty two	Charging low temperature recovery temperature (Charge low temperature torestore temperature	-10	℃
twenty three	MOS Over temperature protection temperature (MOS Overtemperature protection temperature	100	℃
twenty four	MOS Over temperature protection recovery temperature (MOS Overtemperatureprotection recovery temperature	80	℃
25	Device Address (Device address)	0	/
26	Discharge pre-charge time (Discharge precharge time)	0	Second (S)

4. Install

4.1 Unpacking and Inspection

Handling:

It is forbidden to apply force on the terminal to prevent terminal damage and cracking of the sealing part;

Avoid turning the battery upside down, dropping it or causing it to impact;

Absolutely avoid using metal wires such as steel ropes to prevent battery short circuit.

Inspection: Packing box and battery appearance - no damage;

Check: battery quantity and accessories - complete;

Refer to: Instructions, Precautions.

4.2 Pre-installation precautions

After checking that there is no abnormality in the battery, install it in the designated location (e.g. battery room);

If the battery is placed in the battery room, it should be placed at the lowest point in the battery room as much as possible;

Avoid installing the battery near heat sources (such as transformers);

Because batteries may generate flammable gases when stored, avoid installing them near spark-generating devices (such as fuses);

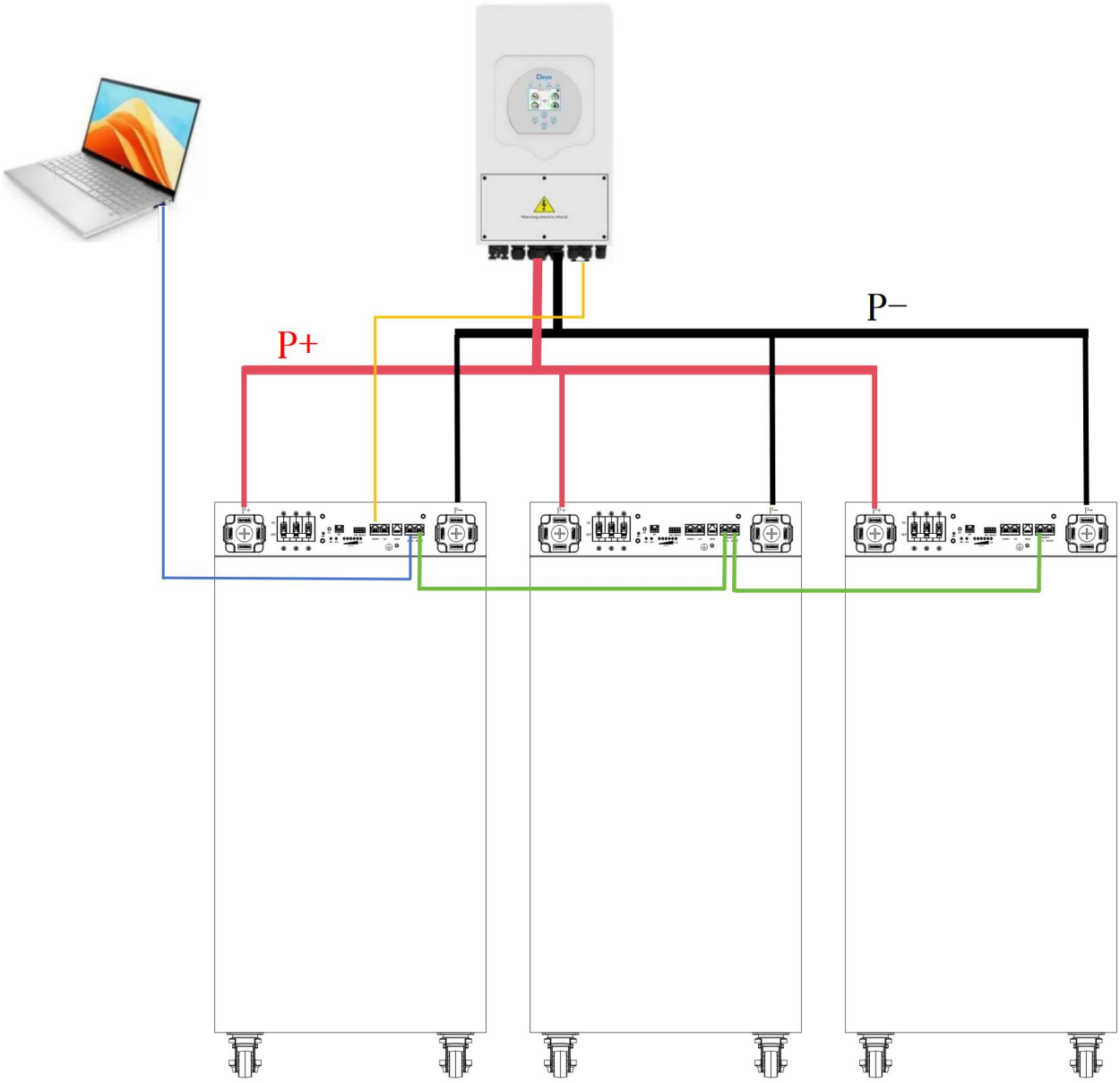
Before connecting, polish the battery terminals to give them a shiny metallic look; be careful not to short-circuit the positive and negative battery terminals with conductive materials.

When using multiple batteries together, first make sure that the batteries are connected correctly, and then connect the batteries to the charger or load. In this case, the positive pole of the battery should be connected to the positive pole of the charger or load, and the negative pole to the negative pole. If the battery is not connected to the charger correctly, the charger will be damaged. Be careful not to connect it incorrectly. Remember to connect correctly.

When wiring, make sure the connection is firm, but do not use too much force to avoid damaging the terminals. The recommended tightening torque is shown in Table 1. Do not use too much force on the terminals. Each connecting nut and bolt must be tightened. The tightening torque is as shown in Table 1.

4.3 Wiring connection

Before connecting, the battery should be turned off; the connection diagram is as follows:



5. Equipment Instructions

5.1 APP Installation

By scanning the QR code shown below, you can get the mobile APP that matches the product.

手机 APP 链接二维码

5.2 Parameter settings

Press the button to activate the device. Use the mobile APP to connect to the product to set parameters. Customers can set parameters according to their needs or according to the battery parameters in 3.4 above.

6. Package

Packed in a dry, dust and moisture proof packaging box. Packed in plastic film/EPE, packed in cartons. Specifications: L950mm*W500mm*H 350mm Packing quantity 1 unit Weight: 118kg

7. Notes

- Do not use the battery if it is significantly impacted or deformed.
- Do not install batteries in multiple layers.
- the polarity of the power supply and the input terminal .
- Ensure good equipment insulation and use tools and instruments correctly.
- The battery installation site should be away from fire sources and flammable objects, and the installation site should be kept ventilated and dry.
- It is strictly forbidden to plug or unplug the plug-in while the product is running.
- Non-professional technical personnel of our company are strictly prohibited from opening various functional modules, and the consequences are at their own risk.
- Before using a new battery or using the battery for a long time, fully charge the battery with a dedicated charger.
- Do not disassemble, open, crush, bend, deform, puncture or break the product.
- Do not modify or insert any foreign objects into the battery. Do not immerse or expose the product to water or other liquids such as fresh water, sea water, or beverages (coffee, juice, etc.). Keep away from fire, explosive substances or other hazards.
- Do not short-circuit the battery and do not allow metal or other conductors to come into contact with the battery contact terminals.
- Do not drop the battery. If this does happen (especially on a hard surface), contact a service center.
- If electrolyte leaks, do not allow the battery to come into contact with your skin or eyes. If it does occur, wash the contact area with plenty of water or seek medical help.
- Do not disassemble the battery under any circumstances. This may cause an internal short circuit, or even lead to fire or other problems.
- Do not burn the battery or dispose of it in fire under any circumstances. Otherwise, the battery may burn.