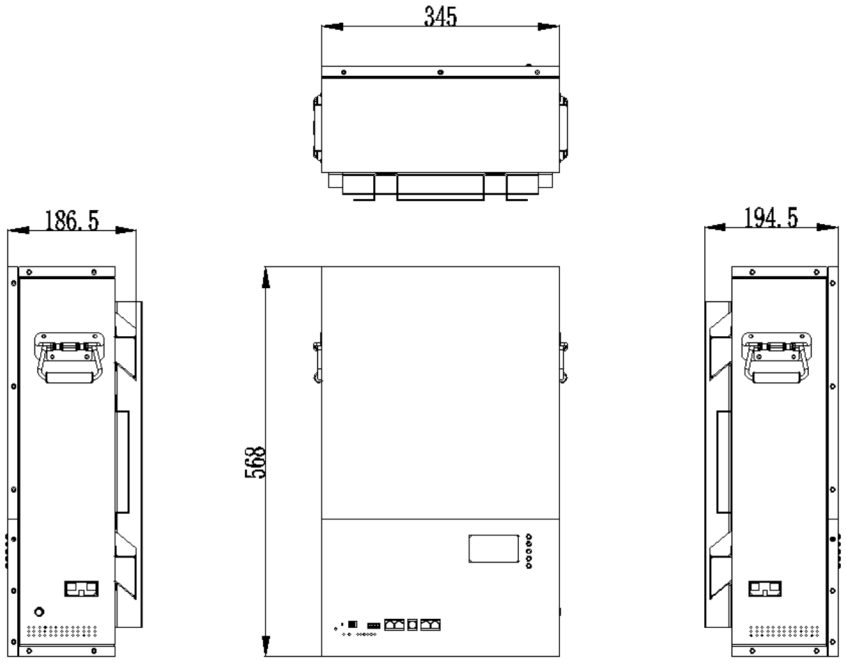
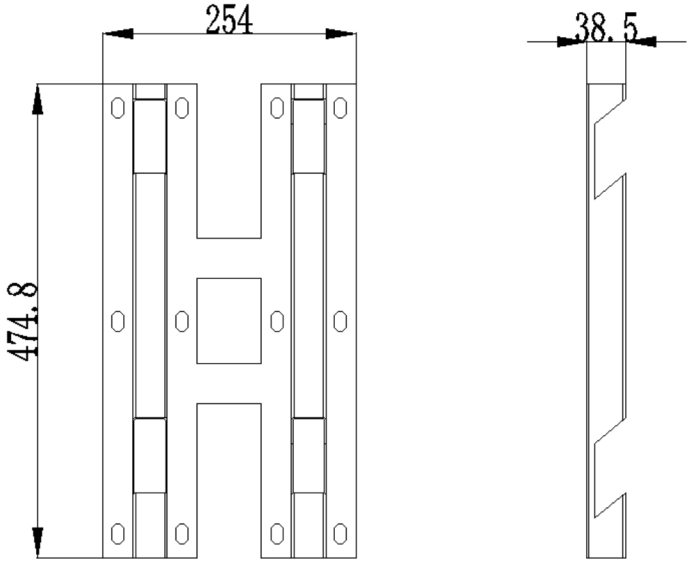
Installation Manual

1.Product Size



Battery Size

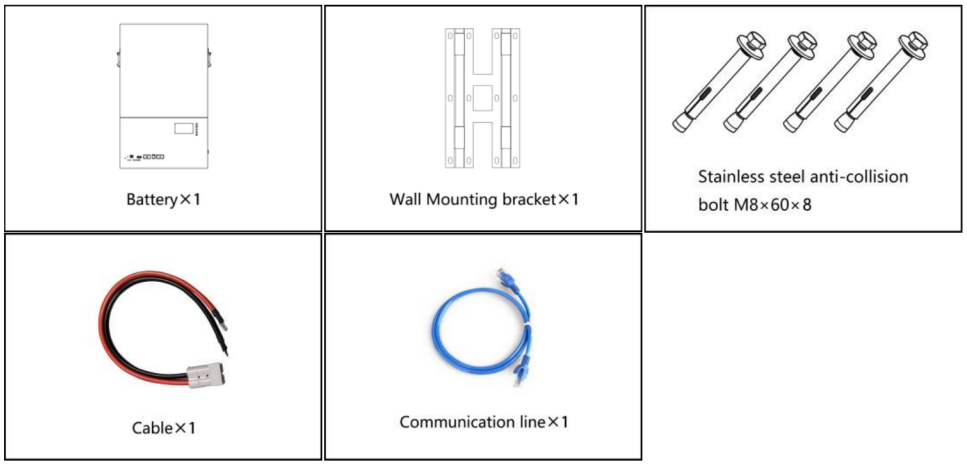


Mounting bracket

2.Battery Installation

Parts List

Check the equipment before installation. Please make sure nothing is damaged in the package. You should have received the items in the following package.



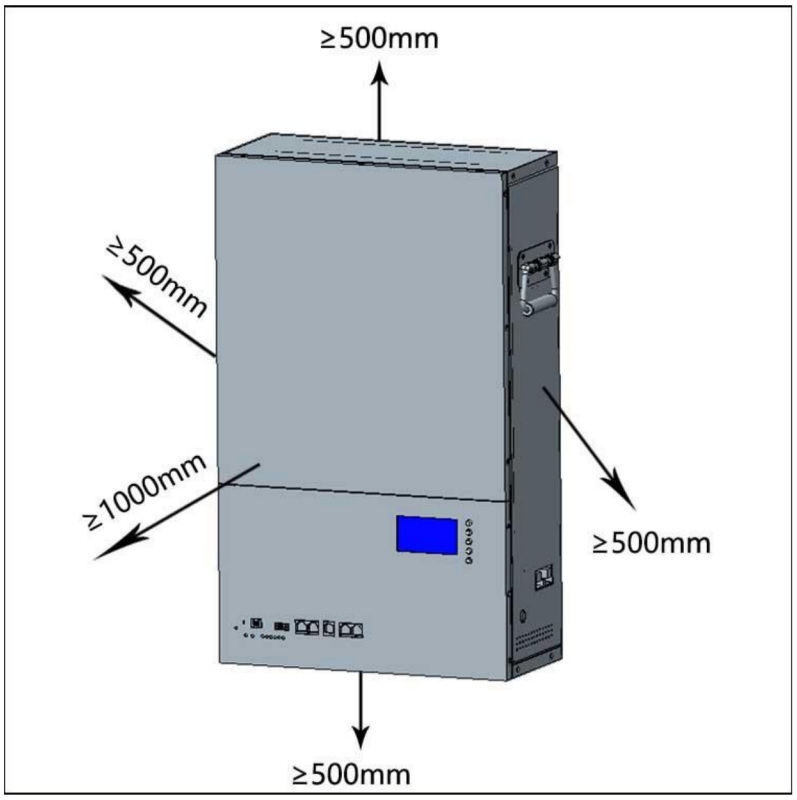
Considering the following points before selecting where to install：

Please select a vertical wall with load-bearing capacity for installation,suitable for installation on concrete or other non-flammable surfaces,installation is shown below.

Install this battery at eye level in order to allow the LCD display to be read at all times.

The ambient temperature should be between -25~60℃ to ensure optimal operation.

Be sure to keep other objects and surfaces as shown in the diagram to guarantee sufficient heat dissipation and have enough space for removing wires.

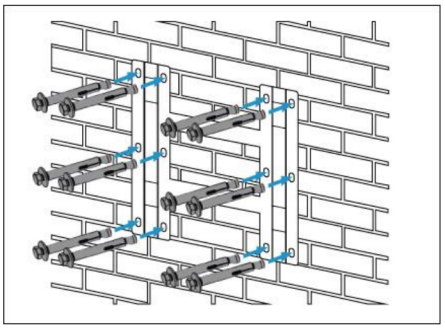


3.Mounting the battery

Remember that this battery is heavy!Please be careful when lifting out from the package.

Choose the recommend drill head(as shown in below pic) to drill 12 holes on the wall, 52-60mm deep.

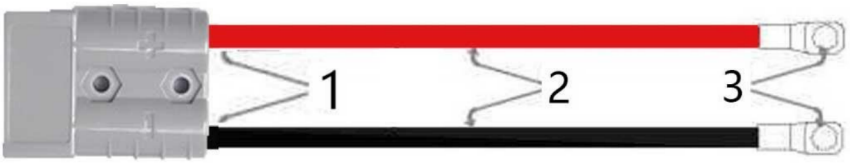
1. Use a proper hammer to fit the expansion bolt into the holes.
2. Carry the battery and holding it,make sure the hanger aim at the expansion bolt,fix the battery on the wall.
3. Fasten the screw head of the expansion bolt to finish the mounting.



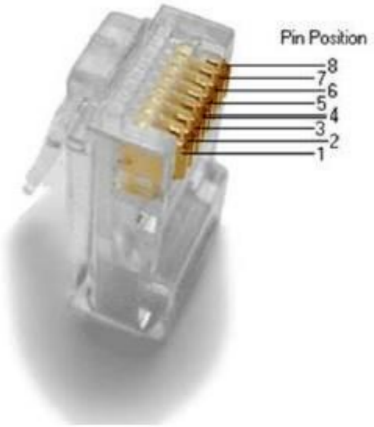
Battery hanging plate installation

Cabling Introduction Communication Port Definition

The battery output terminal is the SC terminal; Power cable section 16mm^2.



Communication Port Definition



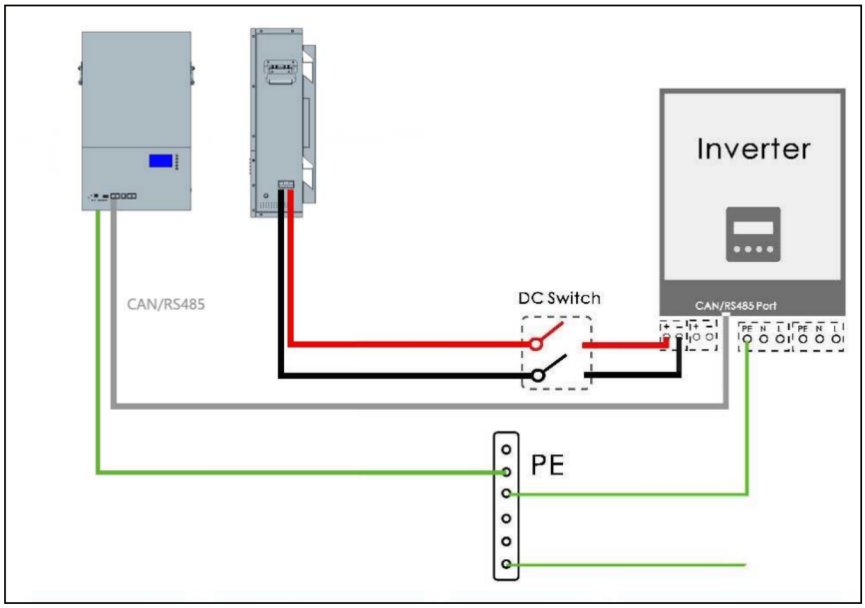
CAN		RS485	
CAN-H	Pin 4	RS485-A	Pin 2, Pin 7
CAN-L	Pin 5	RS485-B	Pin 1, Pin 8

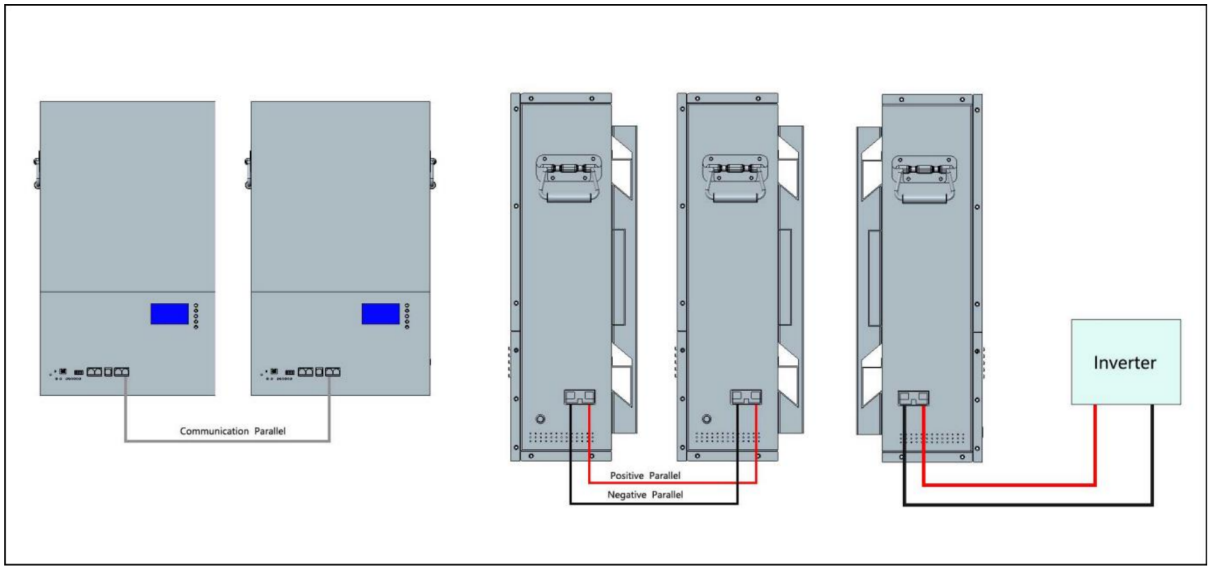
4.Connect the power line

To prevent electric shock and damage to the lithium battery pack, please observe the following precautions:

- Before connecting the power cable, please cut off the Power switch of the battery pack in the Off state and the power supply of the external connected equipment in the off state to avoid the risk of fire and electric shock during the connection process.
- Please confirm that the load full power current is not higher than the battery packcharge and discharge current range
- Please confirm the maximum current that the power line can withstand. The cable current must be higher than the maximum output current of the load.

The same model and the same capacity can support parallel connection, and different models and models are prohibited from parallel connection





5.LED indication

Table 1 LED working status indication

Status	Normal/ Alarm/ Protection	ON/ OFF	RUN	ALM	Battery capacity indicator LED						Description
		●	●	●	●	●	●	●	●	●	
Shutdown	Dormant	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	All off
Standby	Normal	ON	Flash1	OFF	According to battery capacityindicator						Standby mode
	Alarm	ON	Flash1	Flash3							Module low voltage
Charge	Normal	ON	ON	OFF	According to battery capacityindicator (The highest battery capacityindicator LED flashes2)						The highest battery capacity LED flashes (flashing2); ALM does not flash when overcharge alarm
	Alarm	ON	ON	Flash3							
	Overcharge protection	ON	ON	OFF	ON	ON	ON	ON	ON	ON	If there is no mains power, the indicatorturns to standby
	Temperature,overcurrent, failure protection	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging
Discharge	Normal	ON	Flash3	OFF	According to battery capacityindicator						
	Alarm	ON	Flash3	Flash3							
	Under voltage protection	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharge
	Temperature,overcurrent,short circuit,reverse connection, failure protection	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharge
Invalidation		OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging and discharging

Table 2 Description of capacity indication

Status		Charge						Discharge					
Capacity indicator		L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●
Capacity（%）	0～16.6	OFF	OFF	OFF	OFF	OFF	Flash2	OFF	OFF	OFF	OFF	OFF	ON
	16.6～33.2%	OFF	OFF	OFF	OFF	Flash2	ON	OFF	OFF	OFF	OFF	ON	ON
	33.2～49.8%	OFF	OFF	OFF	Flash2	ON	ON	OFF	OFF	OFF	ON	ON	ON
	49.8～66.4%	OFF	OFF	Flash2	ON	ON	ON	OFF	OFF	ON	ON	ON	ON
	66.4～83.0%	OFF	Flash2	ON	ON	ON	ON	OFF	ON	ON	ON	ON	ON
	83.0～100%	Flash2	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
RUN indicator ●		ON						Flash(Flash3)					

5.1 Buzzer action description

• In the event of a fault, it will beep 0.25S every 1S; in protection, it will beep 0.25S every 2S (except for over voltage protection); when it is alarmed, it will beep every 3S (except over voltage alarm);

• The buzzer function can be enabled or disabled by the host computer, and the factory default is disabled.

5.2 Description of reset button

- When the BMS is in dormant state, press the button (3~6S) and release it, the protection board is activated, and the LED indicators will light up for 0.5 seconds from "RUN".

- When the BMS is in the active state, press the button (3~6S) and then release it, the protection board will be dormant, and the LED indicator will turn on for 0.5 seconds from the lowest battery light.

- When the BMS is in the active state, press the button (6~10S) and then release it, the protection board is reset, and all the LED lights are on for 1.5 seconds at the same time.

- After the BMS is reset, the parameters and functions set by the upper computer are still retained. If you need to restore to the initial parameters, you can use the "restore default values" of the upper computer to achieve, but the relevant running records and stored data remain unchanged (such as capacity, cycle times) , Protection of records, etc.).

5.3 Sleep and wake up

Sleep

When any one of the following conditions is met, the system enters low power consumptionmode:

1) Single or overall over-discharge protection has not been released within 60 seconds.
2) Press the button (3~6S) and release the button.
3) The lowest cell voltage is lower than the sleep voltage, and the duration reaches thesleep delay time (at the same time, no communication, no protection, no balance, no current).
4) Standby time exceeds 24 hours (no communication, no charge and discharge, nomains).
5) Force shutdown through the host computer software.

Before entering sleep, make sure that the input terminal is not connected to an externalvoltage, otherwise it will not be able to enter the low power consumption mode.

Wake up

When the system is in low-power mode and meets any of the following conditions,the system will exit low-power mode and enter normal operation mode:

1) When the charger is connected, the output voltage of the charger must be biggerthan 51.2V.
2) Press the button (3~6S) and release the button.

Remarks: After single or overall over-discharge protection, it enters low-power mode, wakes up every 4 hours and turns on the charge and discharge MOS. If it can be charged, it will exit the sleep state and enter normal charging; if it cannot be charged after 10 consecutive automatic wake up, it will no longer wake up automatically.

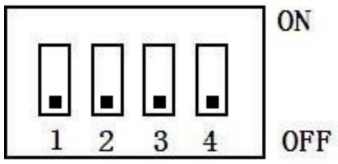
When the system is defined as the end of charging, the recovery voltage is not reached after 2 days of standby (standby time setting value), and the charging is forced to resume until the end of charging again

5.4 RS485 Communication

With dual RS485 interfaces, you can view PACK information, and the default baud rate is 9600bps. If you need to communicate with the monitoring device through RS485, the monitoring device acts as the host, polling data according to the address,

DIP switch settings

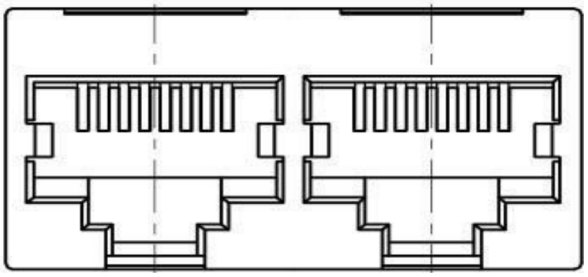
When PACKs are used in parallel, different PACKs can be distinguished by setting the address of the DIP switch on the BMS. Avoid setting the addresses to the same. Refer to the table below for the definition of the BMS DIP switch.



Address	DIP switch position				Description
	#1	#2	#3	#4	
0	OFF	OFF	OFF	OFF	Single use
1	ON	OFF	OFF	OFF	Set as main pack
2	OFF	ON	OFF	OFF	Set as slave pack1
3	ON	ON	OFF	OFF	Set as slave pack2
4	OFF	OFF	ON	OFF	Set as slave pack3
5	ON	OFF	ON	OFF	Set as slave pack4
6	OFF	ON	ON	OFF	Set as slave pack5
7	ON	ON	ON	OFF	Set as slave pack6
8	OFF	OFF	OFF	ON	Set as slave pack7
9	ON	OFF	OFF	ON	Set as slave pack8
10	OFF	ON	OFF	ON	Set as slave pack9
11	ON	ON	OFF	ON	Set as slave pack10
12	OFF	OFF	ON	ON	Set as slave pack11
13	ON	OFF	ON	ON	Set as slave pack12
14	OFF	ON	ON	ON	Set as slave pack13
15	ON	ON	ON	ON	Set as slave pack14

5.5 Interface definition

Interface icon

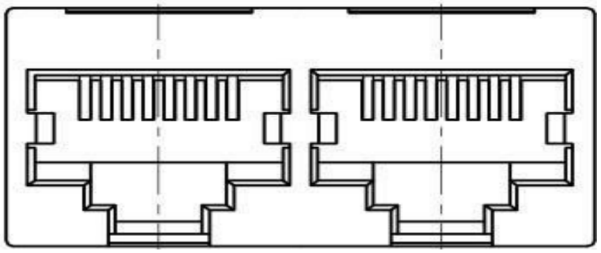


RS485 and CAN interface

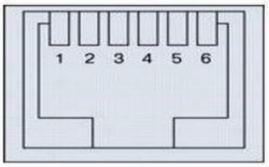
Dry contacts

pin3 to pin4: closed when low battery alarm;

pin1 to pin2: closed when fault protection



Parallel communication port



RS232 communication interface

RS485--Using 8P8C vertical RJ45 socket		CAN--Using 8P8C vertical RJ45 socket	
RJ45 pin	Definition description	RJ45 pin	Definition description
1、8	RS485-B1	9、10、11、14、16	NC
2、7	RS485-A1	12	CANL
3、6	GND	13	CANH
4、5	NC	15	GND

CAN and RS485 interface

RS485--Using 8P8C vertical RJ45 socket		RS485--Using 8P8C vertical RJ45 socket	
RJ45 pin	Definition description	RJ45 pin	Definition description
1、8	RS485-B	9、16	RS485-B
2、7	RS485-A	10、15	RS485-A
3、6	GND	11、14	GND
4、5	NC	12、13	NC

Parallel communication port

6. Common abnormal phenomena of battery packs and troubleshooting methods

Failure phenomenon	Possible reason	Method of exclusion
BMS cannot be activated	The battery pack is seriouslyover-discharged and sleeps after under-voltage	Press the restart switch to restart and activate;Connect to the charger to activate
No output voltage	1. Check whether there is alarm protection(voltage,current,temperature, etc.) through the screen or display lamp 2. Whether there is external overload or short circuit	1. According to screen alarm processing 2. Measure the output voltage after disconnecting the load
BMS cannot communicate with thecomputer software	1. Parallel BMS dial code address duplicate 2. The communication serial port setting is incorrect 3. The RS485 communication line sequence is incorrect 4. Abnormal physical connection	1. When multiple units are connected in parallel, different addresses need to be set, detect and reset the BMS dialing address 2. Set the correct serial port configuration according to our communication protocol 3. Connect the communication line correctly as described in the installation manual 4. Check that the physical connection of the communication circuit is normal
Shorter discharge time	The ambient temperature is too low, the cell capacity is attenuated	1. Increase the temperature of the use environment 2. Turn on the battery for a period of time to let the battery cell heat up
Can't charge	1. Low battery temperature protection 2. Over-discharge protection is not restored, and individual chargers cannot be started	3. Increase the temperature of the use environment 4. Check whether the display unit is under voltage protection, output the connected voltage (series battery) to enable the charger tostart charging