*The actual product may slightly differ from certain promotional videos or images; please refer to the actual product as the standard. Unless otherwise specified, all data on this page is derived from our laboratory testing and may vary due to environmental factors.
*Specifications are subject to change without prior notice.

A0-2025.06.06

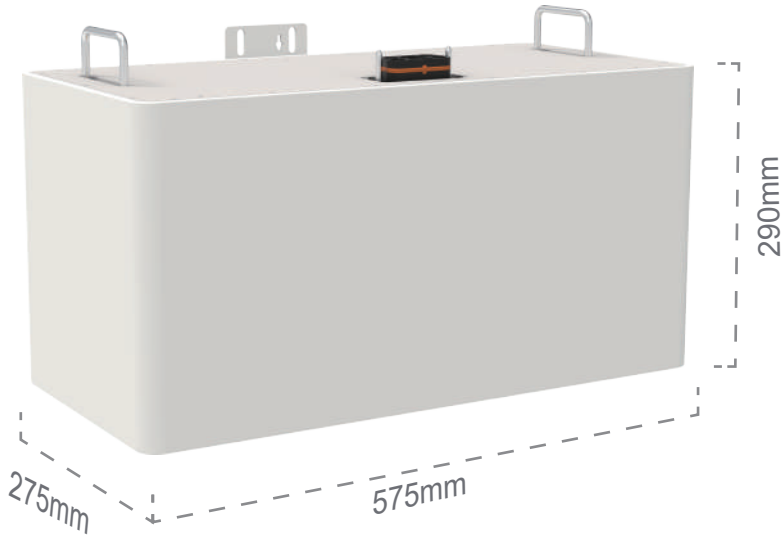
AF5000W-HR **Operation Manual**

This Manual introduces AF5000W-HR.

AF5000W-HR is a High-voltage Lithium-iron Phosphate Battery energy storage system. Please read this manual before you install the battery and follow the instruction carefully during the installation process.

Catalogue

1. Technical Specication



Model	AF5000W-HR				
Number of layers	1layers	2layers	3layers	4layers	5layers
Picture					
Energy	5.12KWh	10.24KWh	15.36KWh	20.48KWh	25.6KWh
Operatingvoltage range	89.6-116.8V	179.2-233.6V	268.8-350.4V	358.4-467.2V	448-584V
Dimension(L*W*H)	575*275*696mm	575*275*986mm	575*275*1276mm	575*275*1566mm	575*275*1856mm
Weight	59.5kg	94.5kg	129.5kg	164.5kg	199.5kg

Single Module Technical Specification	
Dimension (L*W*H)	High VoltageBox: 575*275*258mm, Battery Box:575*275*290mm, Base:575*275*148mm
Weight	High Voltage Box: 16kg, Battery Box:35kg, Base: 8.5kg
Nominal voltage	102.4V
Nominal capacity	50Ah
Energy	5.12KWh
Recommendedchargingcurrent	25A
Max continue charge current	50A
Max continuedischarge current	50A
Chargingtemperature	0-45℃
Discharge temperature	-20-55℃
Environment	Indoor or outdoor eaves
Altitude	3000m
Relative humidity	5%～95%
Cooling	Natural convection
Celltechnology	Lithium-iron phosphate (LiFePO4)
Protection rating	IP65
Life cycle	6000 times @80%DOD(25℃)
Communication	CAN/RS485
Extendedfunction	Thermal aerosol fire extinguishing device (standard) / Heating function (optional)
Certificates	CE、IEC 62619、UN38.3、MSDS

2. Safety Information

2.1 General Safety

Please read the user manual carefully and check all the safety instructions on the equipment and in this document.
The "DANGER"， "WARNING", and "NOTICE" statements in this document do not cover all the safety instructions. They are only supplements to the safety instructions.
For user safety and utilization efficiency of this manual, a list of symbols is designed to alert people from danger. You must understand and comply with the emphasized information to avoid personal injury and property damage. Relative safety symbols have been listed below.

Danger	DANGER indicates a hazardous situation which, if not avoided, will result in serious injury and/or fire.
Warning	WARNING indicates a hazardous situation which, if not avoided, will result in property loss and/or void the warranty.
NOTICE	NOTICE indicates normal situation which, if not avoided, will result in damage to the battery.

NOTICE

Follow local laws and regulations when installing, operating, or maintaining the equipment. The safety instructions in this document are only supplements to local laws and regulations.

2.2 Personal Safety

Personal Requirements

People who plan to install or maintain battery equipment must be trained, understood all necessary safety precautions, and are able to correctly perform all operations.
Only qualified professionals or trained people are allowed to install, operate, and maintain the equipment.

⚠ DANGER

- Keep the batteries away from children and pets.
- Do not touch the energized battery, the temperature of the battery enclosure may increase during operation.
- Do not touch the energized battery terminals.
- Do not stand on, lean on, or sit on the battery.

2.3 Electrical Safety

Symbols on Battery

There are some electrical symbols on battery relate to electrical safety. Please make sure you have fully understood them before installation.

	Electrical danger	Voltage exists when the battery is powered on. Only qualified engineers are allowed to operate.
	Earth connector	Earth connection.
	DC positive and negative connectors	Identify positive and negative connectors of DC power source.
	CE mark	The product meets CE certification.
	WEEE label	Batteries must not be disposed with general waste. It must be appropriately recycled in accordance with local regulations.
	Recycle	Batteries can be recycled, please refer to your local regulations regarding the correct disposal methods.

Electrical Safety

⚠ DANGER

- Before installation, ensure that the equipment is intact. Otherwise, electric shock or fire may occur.
- Do not connect or disconnect power cables when battery is power-on. Which may cause electric arcs and sparks, moreover fire or personal injury.
- Before connecting a power cable, check the positive or negative connectors are correct.
- Do not connect the battery with different batteries in parallel.
- Do not connect the battery with AC supply directly.
- Do not connect the battery with PV wiring directly.
- Do not connect the batteries in series.
- Do not connect the battery to faulty or unqualified inverter or charger.
- Do not create short circuits with the external connection.
- Make sure the grid is cut off and the battery is powered off before maintenance.
- Make sure the earth cable is connected correctly before operation.

⚠ WARNING

- Recharge the battery in every six months if not in use.
- Recharge the battery within 10 days after the battery is fully discharged(SOC=0%).
- Ensure the battery cable is installed correctly.
- When the battery is being installed or repaired, ensure the battery is powered off and and isolated. Using a multimeter check to ensure there is no voltage in the positive and negative terminals.

⚠ CAUTION

- Please use appropriately insulated tools for installation and maintenance.
- Please check the LED status indicator when the battery is powered on.
- Please ensure the communication cable is connected correctly between the battery and the inverter.
- Please check for inverter alarms and the SOC reading once communication is established between the inverter and the battery.

Environment Safety

⚠ WARNING

- Ensure the battery is installed in a dry and well-ventilated location.
- The installation position must be away from direct sunlight and rain.
- The installation position must be far away from potential sources of fire..
- The installation position must be far away from all sources of water.
- Do not install the equipment in locations that contain flammable gases and/or flammable liquids.
- The operation and service life of the battery depends on the operating temperature. Operate the battery at a temperature equal to or better than the ambient temperature. The recommended operating temperature range is from 0°C to 30°C.

2 . 4 Transportation Safety

⚠ WARNING

- The products have passed UN38.3 certification.
- The products have MSDS documents available.
- The products belong to class 9 dangerous goods.
- **Please protect the packing case from the following situations:**

• Being dampened by rains, snows, or falling into water;
• Falling down or mechanical impact;
• Being upside-down or tilted.

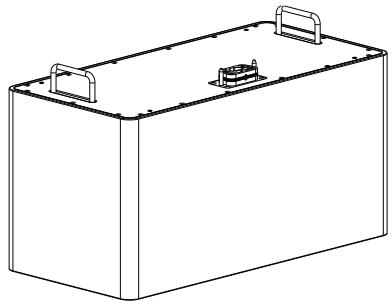
3. System Information

3.1 Product Introduction

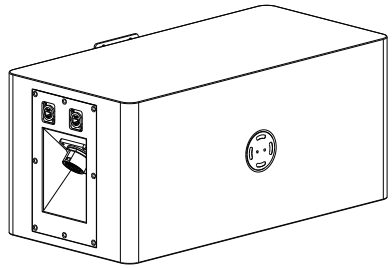
AF5000W-HR is a high-voltage battery storage system based on lithium-iron phosphate technology. It is used to primarily store excess PV power that is generated by an inverter based on PV system.

3.2 Specification

3.2.1 Battery Module

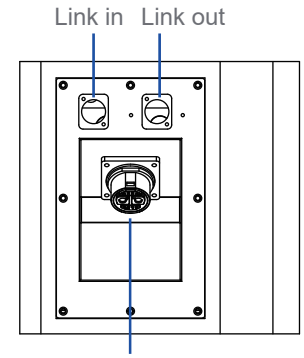


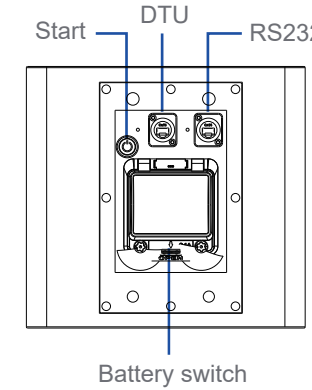
3.2.2 High-voltage box



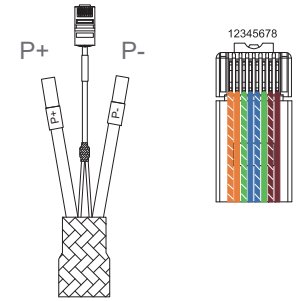
3.3 Port definitions

3.3.1 Connection Area





Communication



Pin	Defenition
1	485B
2	485A
3	NC
4	CANH
5	CANL
6	GND
7	NC
8	NC

3.3.2 Start

(1) ON

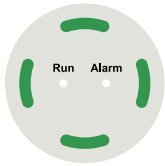
For multiple Battery Modules in series, long press (for more than 5 seconds) Start button of the High-voltage box (which is connected to the inverter), the Normal LED indicator on the front panel will flash. L1 to L4 show the battery SOC,L5/L6 shows the battery status. The high-voltage box which contains the BMS will automatically encode and assign an ID to each battery module and the battery will operate normally.

(2) OFF

Press Start button of the High-voltage box (which is connected to the inverter) for more than 5s, the LED indicator on the front panel will flash, and then release the button, the master pack will shut down after all the slave packs shut down (Sleep Mode).

Tip: If the system does not work, keep the internal DC switch on the battery cluster closed.

3.3.3 LED Indicators Definitions



flash 1 - every 0.25s on/3.75s off

flash 2- every 0.5s on/ 0.5s off

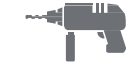
flash 3 - every 0.5s on / 1.5s off

LED Indicators Definitions

Status	Nml/Alm/Protection	ALM	Battery Level Indicator					Descriptions
Shut down	Dormancy	●	●	●	●	●	●	
		OFF	OFF	OFF	OFF	OFF	OFF	All OFF
Standby	Normal	OFF	According to the battery level					Indicates Standby
	Give an alarm	Flash 3						Module low voltage
Charging	Normal	OFF	According to the battery level					The highest capacity LED indicator flashes(flash 2), others lighting
	Give an alarm	Flash 3						
	Protection	OFF	Light	Light	Light	Light	Light	Turn to standby status when charger off
	Temperature, overcurrent, failure protection	Light	OFF	OFF	OFF	OFF	OFF	Stop charging
Discharge	Normal	OFF	According to the battery level					
	Give an alarm	Flash 3						
	Protection	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharging
	Protection	Light	OFF	OFF	OFF	OFF	OFF	Stop discharging
Fault		Light	OFF	OFF	OFF	OFF	OFF	Stop charging and Discharging

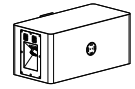
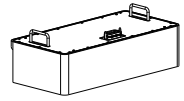
4. Installation

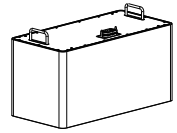
4.1 Tools

Tools			
Installation	Rubber mallet 	Star screwdriver 	Hammer drill（10 mm） 
	ESD gloves 	Safety goggles 	Anti-dust respirator 
	Safety shoes 	Level 	

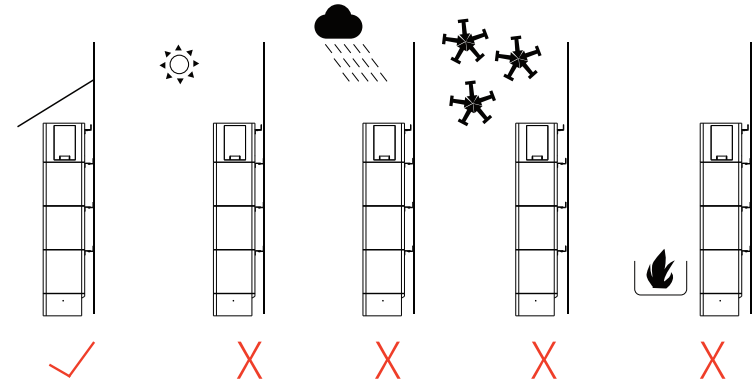
4.2 Checking deliverables

After unpacking the battery, check whether deliverables are intact and complete.

Packing list of HV Box				
No.	Part name/size	Quantity	Photo	Used for
1	High-voltage box	1		
2	Foot	4		To let the base stand on
3	Base	1		To put at the bottom of the battery
4	Fixing plate	1		Wall hanging bracket
5	Wall pendant	1		Wall hanging bracket
6	Cross shaped hexagonal three combination screw	4		Lock base L parallel machine fixing plate
7	Positioning pin	4		Used for positioning multiple packs
8	304 stainless steel Wall plug	2		To fix the wall hanging bracket
9	Cross screw	2		Fixed DTU
10	yellow-green two-color grounding cable	1		Grounding cable
11	Communication cable	1		Communication cable
12	leadwire	1		leadwire
13	User manual	1		User manual
14	Red nylon tube type terminal	1		Accessory terminals
15	Black nylon tube type terminal	1		Accessory terminals
16	DTU module	1		DTU module
17	moisture-proof desiccant	2		Moisture proof

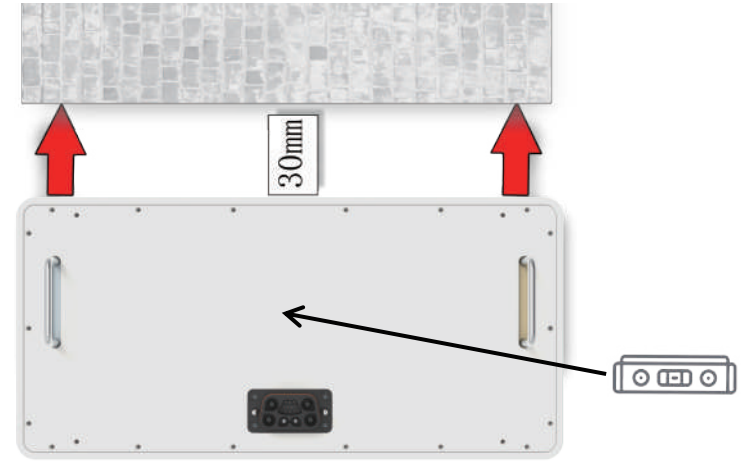
Packing list of Battery Box				
No.	Part name/size	Quanti ty	Photo	Used for
1	Battery box	1		
2	Fixing plate	1		Wall hanging bracket
3	Wall pendant	1		Wall hanging bracket
4	Phillips hexagon screw with three combination	4		To fix the fixing plate
5	Positioning pin	4		Used for positioning multiple packs
6	304 stainless steel Wall plug	2		To fix the wall hanging bracket
7	moisture-proof desiccant	2		Moisture proof

4.3 Installation



Step 1

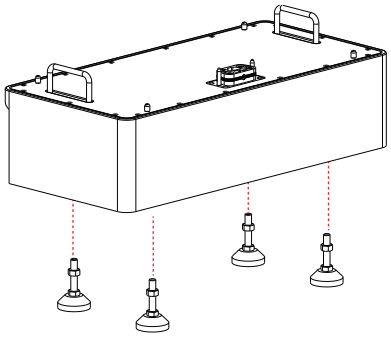
Place the base against the wall, the distance between the base and the wall is 30mm as followed.



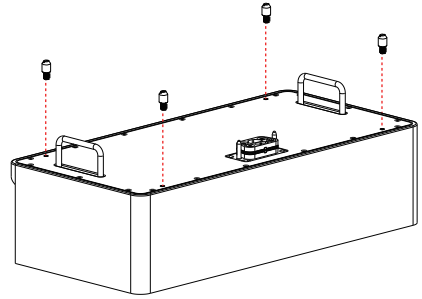
Note: Levelness of the base is less than 2mm.

Step 2

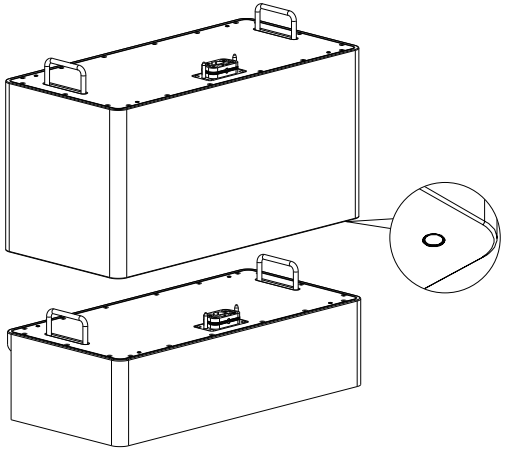
Screw the locating pin into the base and put the first battery pack on the base.



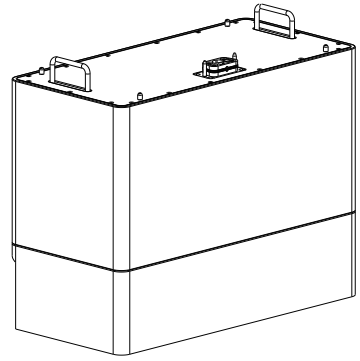
（2.1）



（2.2）



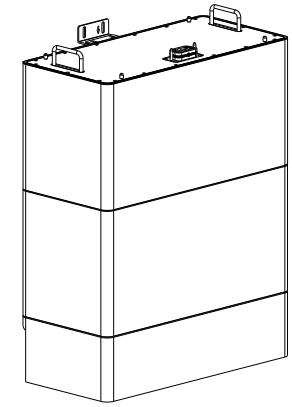
（2.3）



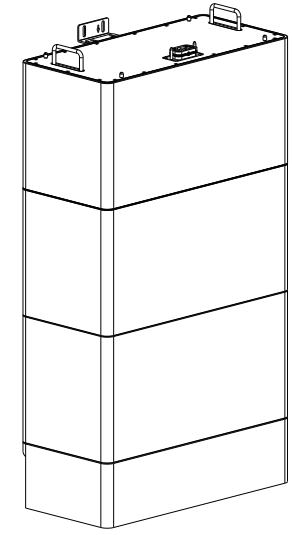
（2.4）

Step 3

As shown in the photos,Start on the first floor, each floor needs to be fixed to the wall with fixing plates



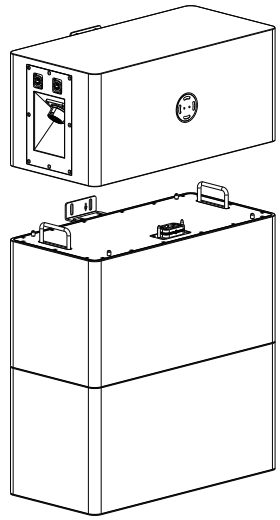
（3.1）



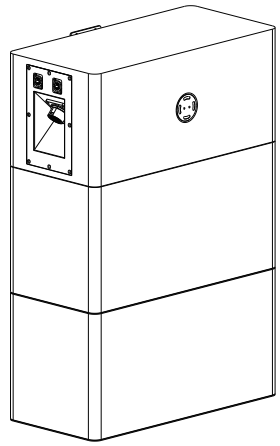
（3.2）

Step 4

Place the next battery module on top of the first battery module and secure the battery modules with the fixing plate. Repeat this step until all battery modules have been installed. Place the high-voltage box on top of the last module and secure it using the L-shape wall hanging bracket.



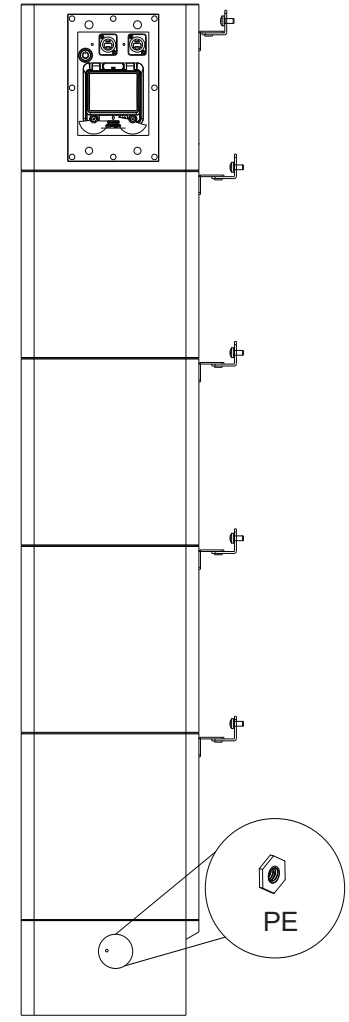
（4.1）



（4.2）

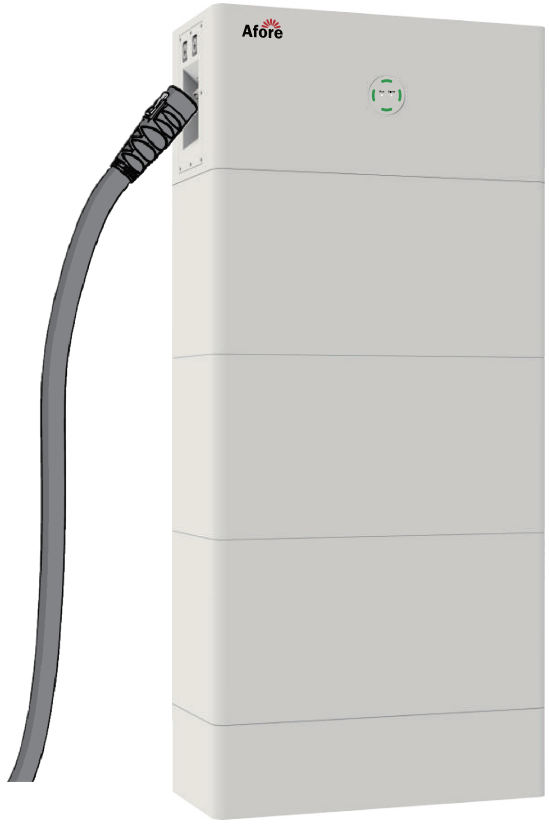
Step 5

Fix the L-shaped wall hanging bracket on the wall as shown in the picture.



Step 6

Plug the power and data cables into the linker until you hear a "click" sound. Make sure the metal clip on the plug is facing up.

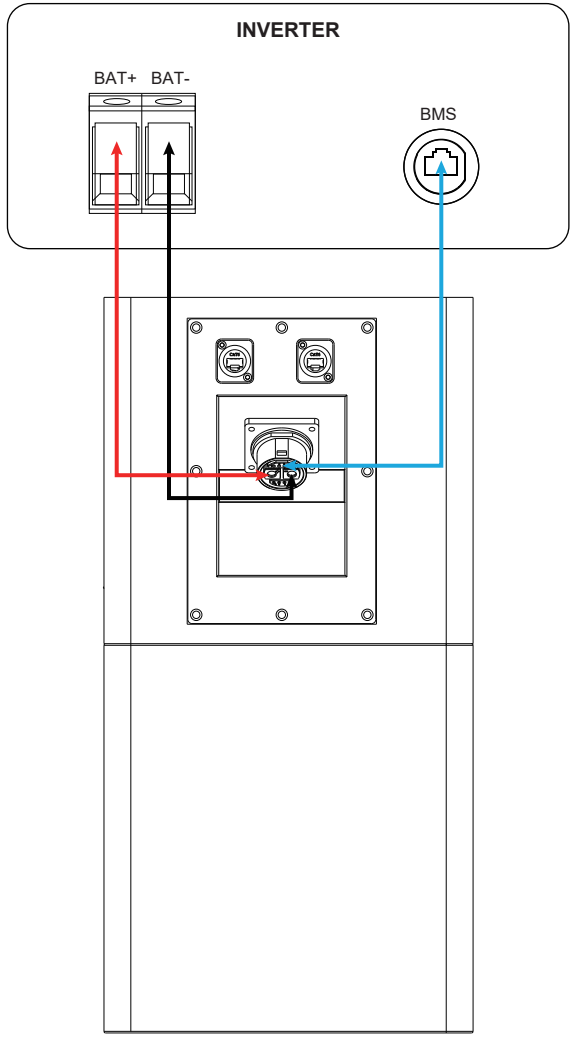


Step 7

Remove the magnetic hatch cover on the side of the high pressure case, lift the battery switch protection cover, turn the lever up to open the circuit breaker, then press the switch button, and the HS5-5A is up and running

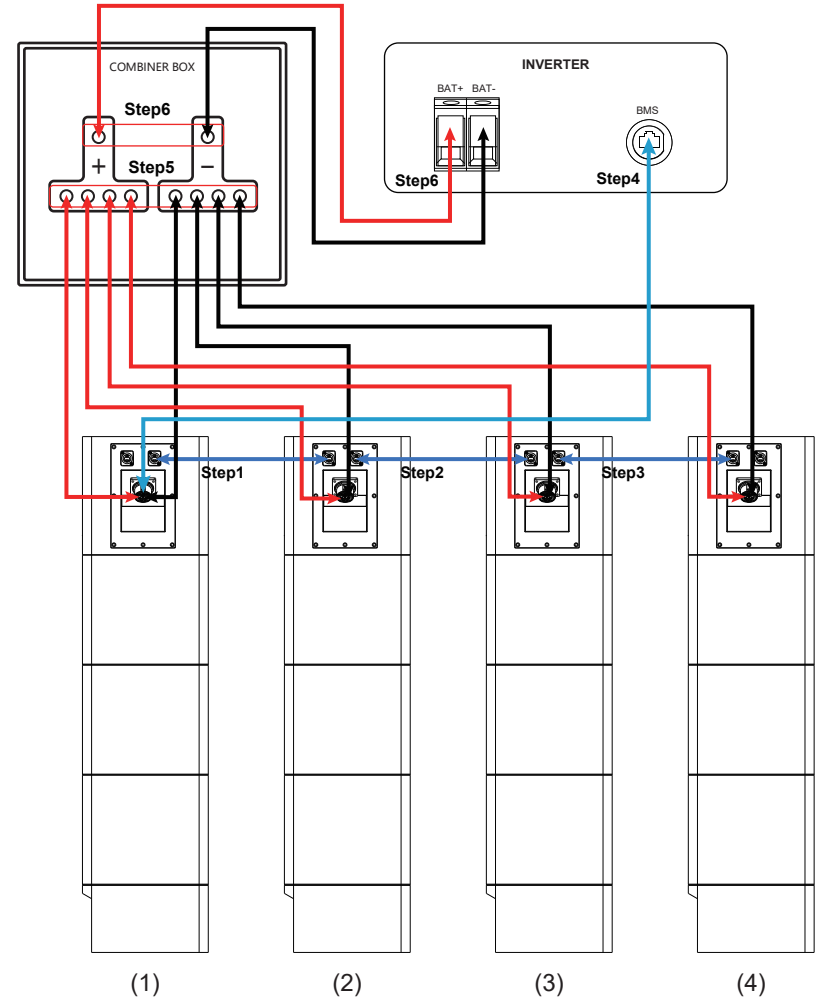
Single cluster connection method:

Connect the power through P+ and P-
Connect the first High-voltage box Link Com Terminal to the inverter BMS port for communication beween inverter and battery.



Multi-clusters connection method:

1. Connect the first High-voltage box Link Com Terminal to the inverter BMS port for communication beween inverter and battery.
2. Then the P+ and P- ports of the connected single cluster are combined for output through the combiner box.



⚠ Danger	Ensure power cables are installed with the correct polarity. A dangerous situation may arise if the polarities are reversed.
⚠ Danger	Do not create a short circuit between the positive and negative terminals of the battery. Ensure the polarity is correct during installation.
⚠ Warning	Incorrect communication cable connection will cause the battery system to operate in unexpected ways which may lead to system failure.

5. Commissioning Procedure

After all the cable (power and communication) connections are completed, please ensure the following:

- Ensure the DC switch on the inverter is OFF
- Ensure the AC switch that is connected to the grid and EPS output (if used) of the inverter is OFF
- Ensure the DC switch on the HV box is OFF

For commissioning we recommend the following steps:

- Turn the DC switch on the HV box ON
- Refer to section 3.3.2 Start for turning on the battery
- Wait until the HV box LED´s on
- Wait until the inverter LED´s on
- Turn on the DC switch on the inverter
- Set up the battery and the inverter on the App
- Turn on the AC switch that is connected to the grid and EPS output of the inverter

6. Maintenance

- Recharge Requirements During Normal Storage

Battery should be stored in an environment with temperature range between -10°C ~ +45°C and maintained regularly according to following table with 0.5C(25A) current till 100% SOC after long storage time.

Storage Environment Temperature	Relative Humidity of Storage Environment	Storage Time	SOC
Below - 10℃	/	Prohibit	/
-10~25℃	5%~70%	≤12 months	30%≤SOC≤60%
25~35℃	5%~70%	≤ 6 months	30%≤SOC≤60%
35~45℃	5%~70%	≤ 3 months	30%≤SOC≤60%
Above 45℃	/	Prohibit	/

- Recharge Requirements When Over Discharged

Over discharged (90%DOD) battery should be recharged according to following table, otherwise over discharged battery will be damaged.

Storage Environment Temperature	Storage Time	Note
-10~25℃	≤ 15 days	Battery Pack disconnected to inverter
25~35℃	≤7 days	
35~45℃	<12 hours	Battery Pack connected to inverter