



# Installation&User Manual

Hoyhome HV series



Version 1.0

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# 1. Safety precaution

Please read the manual carefully and operate in accordance with the safety precautions. Please refer to local safety regulations on items not covered in this manual. Electrical installation, maintenance must be performed by professional / qualified personnel.

## 1.1 Storage and installation environment















- Handle the product gently, prevent from dropping
- Avoid open flame; keep away from flammables, explosives or corrosive chemicals
- Choose cool and dry place for storage and installation
- Prevent from water or humid intrusion
- Prevent from accidental access (children and animals)
- Do not step on the product packaging.
- Do not place any foreign objects on top of the battery pack.
- Do not store the battery pack upside down

## 1.2 Battery safety guidelines

- Prevent from electrostatic discharge
- Wear insulating gloves when handling batteries
- Do not energize auxiliary power during installation
- Check the polarity carefully before switching on the system
- Defected or damaged batteries shall not be charged or discharged

Use the product only with inverters authorized by Hoypower, or consult Hoypower's product engineers. For compatible inverter list, please visit: <https://hoypower.com>

## 1.3 Warning signs and stickers

	Warning Generic hazard		Do not throw into the trash
	Warning High Voltage-Electrical shock hazard		Please recycle
	No flame		This side up
	No stepping on		User manual
	Warning High temperature		Protective Earth (connector)
	Warning High Voltage Wait 5 min till fully discharged		Protective Earth (general identification)
	Do not short circuit (cut off power)		Keep away from children



Fragile



Do not get wet

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## 1.4 Emergency handling

Wear personal protective equipment (PPE) such as goggle, face mask, insulated gloves and boots.  
Evaluate the situation before taking remedy action. When it is safe to do so, disconnect external AC or DC power connection.

### Damaged or deformed battery enclosure

Risk of chemical leakage (i.e. electrolyte) and internal short-circuit.



#### Warning

Deformed or severely damaged battery pack can lead to piercing of cell pouch (chemical leakage) or internal short-circuit (thermal runaway). The damaged battery pack can release toxic gas. Keep away from it.

In case of accidental skin contact, wash the skin thoroughly with soap and seek medical advice. For eye contact, wash under running water (~15 minutes) and require immediate medical attention.

### Fire hazard

If the fire is not from the battery or not spread to the battery, please use FM-200 or CO<sub>2</sub> fire extinguisher to put out the fire.

If the battery pack catches fire, do not attempt to put out the fire and evacuate immediately.

Seek medical in case of inhalation of pungent and toxic fumes.

Keep damaged batteries isolated and call your local fire department. Contact service department for further support.

### Water damage

Risk of electric shock and internal short-circuit. In case of splash or water spillage, when it is safe to do so, dry the product. If any part of the battery system is submerged, keep away from water.

**Do not reuse the submerged battery. Please contact service department for support**

## 2. Product description

Hoyhome HV series is a modular energy storage system, compatible with mainstream inverter suppliers. This document mainly provides product introduction, installation, commissioning, maintenance, troubleshooting, packaging and transportation information.

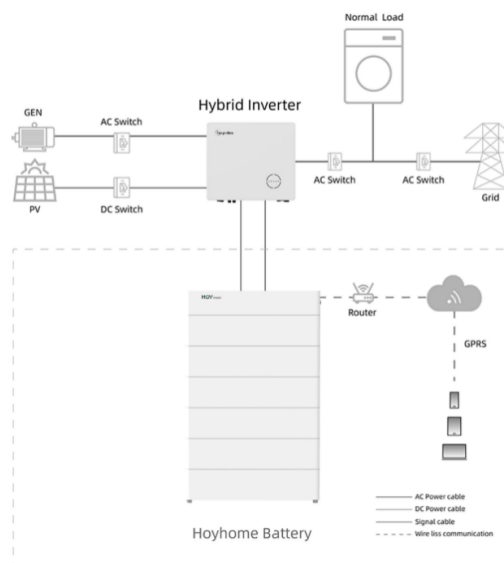
### 2.1 Product introduction

- Residential energy storage system with lithium iron phosphate (LFP) technology
- Modular design; single battery system has 11.52 to 23.04kWh (3-6 pcs batteries)
- Indoor or outdoor installation (IP55)
- Expandable to 69.12kWh (3 systems connected in parallel)
- PCS communication interface: CAN or RS485
- Bluetooth and WiFi for Mobile APP (PowerLite)

Advanced battery management system (BMS) provides data acquisition, status monitoring and control to ensure the safety and reliability of the system.

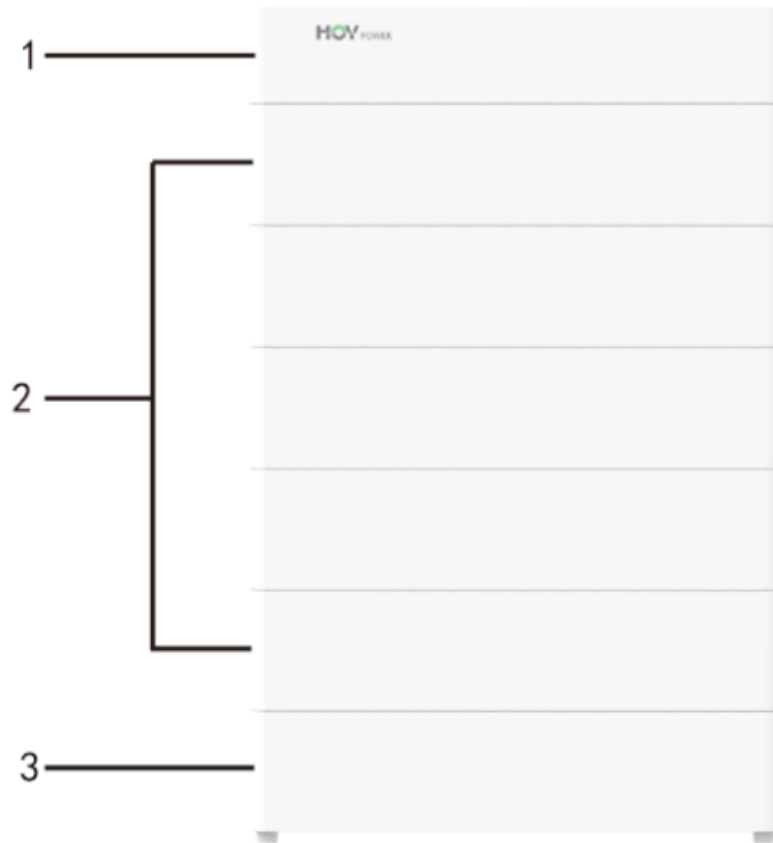


Figure 2-1-1 Hoyhome HV configurations

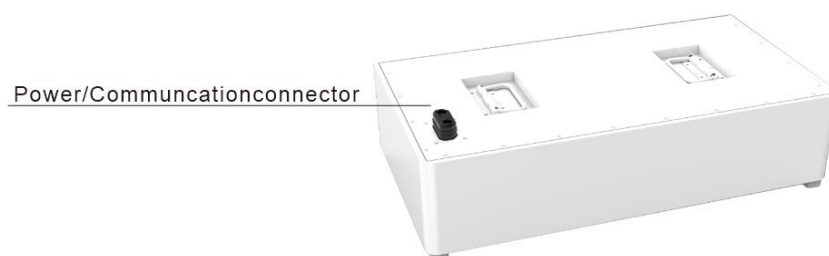


## 2.2 Appearance and packing list










Overall appearance







Power/communication receiver







### 1. Control box

Control box packing list				
				
Control box	Certificate	User manual	Bracket 1	Screw(M4*12)
1PCS	1PCS	1PCS	1PCS	2PCS
				
OT terminal	CT75A-1Z-28	CT75A-1T-28	ICX10-F12A1T	
1PCS	1PCS	1PCS	2PCS	

### 2.PACK A

Packing list			
			
PACK A	Bracket 1	Bracket 2	Screw(M4*12)
1PCS	2PCS	1PCS	4PCS

### 3.PACK B

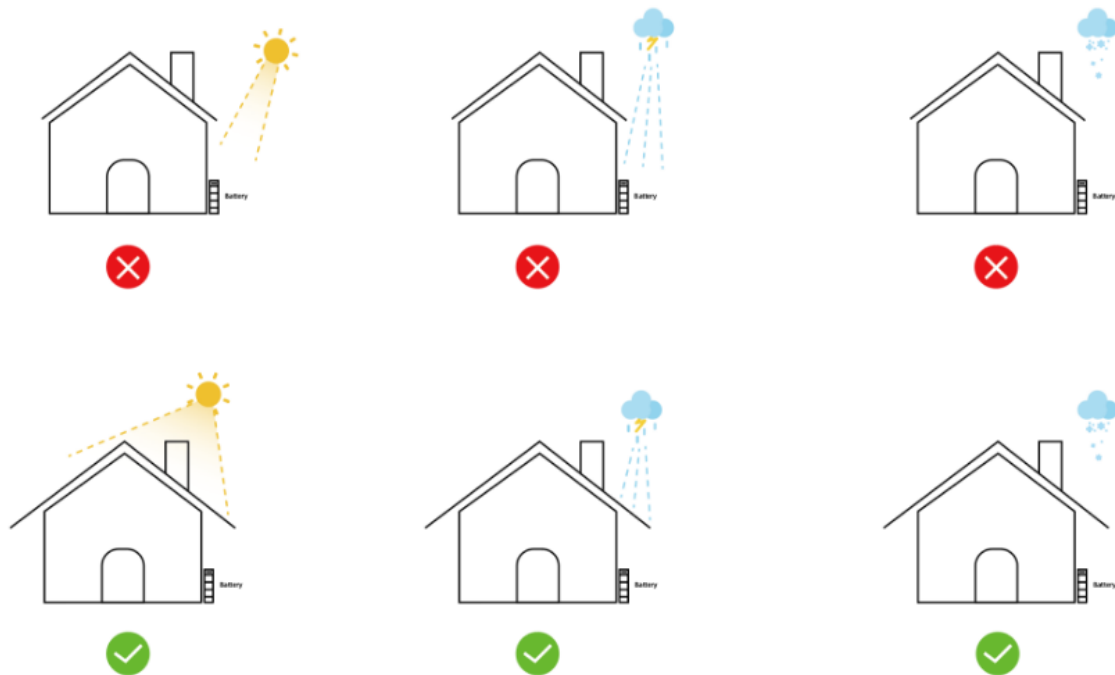
Packing list			
			
PACK B	Bracket 1	Bracket 2	Screw(M4*12)
1PCS	2PCS	1PCS	4PCS

## 3. Installation guide

### 3.1 Environmental requirements

- a. Ambient temperature: 0°C~+50°C (recommended: 10°C~35°C or 50°F~95°F).
- b. Ambient humidity: 10-95%.
- c. Altitude ≤ 2000m.
- d. For outdoor installation
  - a) Avoid direct sunlight
  - b) Avoid rain and snow
  - c) Avoid location susceptible to flooding
  - d) Install under shed if possible
- e. For indoor installation
  - a) Feet clearance from doors, windows, driveway or other batteries
  - b) Keep away from heating device.
  - c) Prevent from corrosive chemicals
  - d) Prevent from water spillage

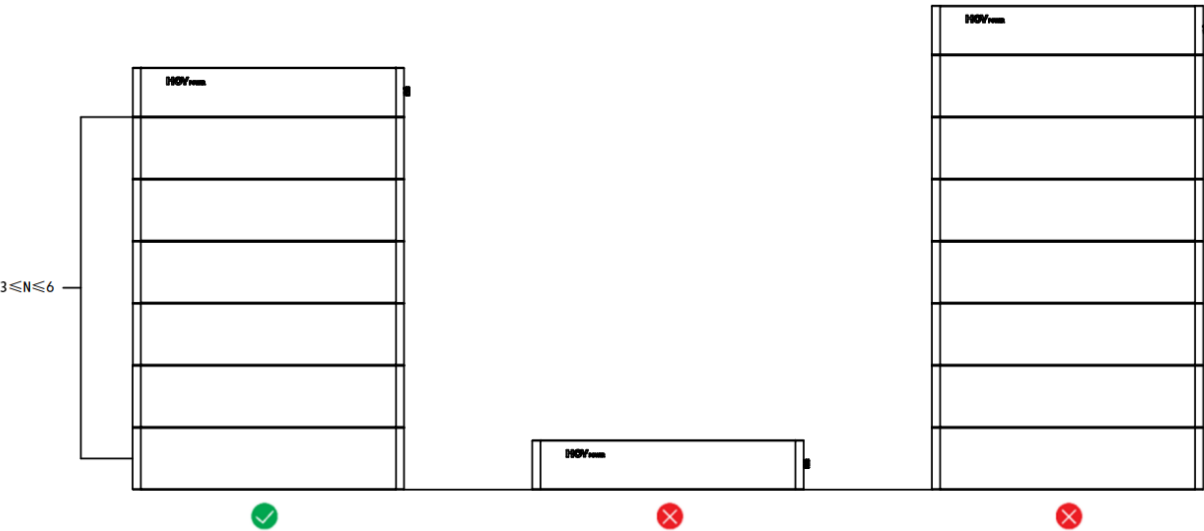
Consider location equipped with ventilation fans, smoke, heat, or flammable gas detector



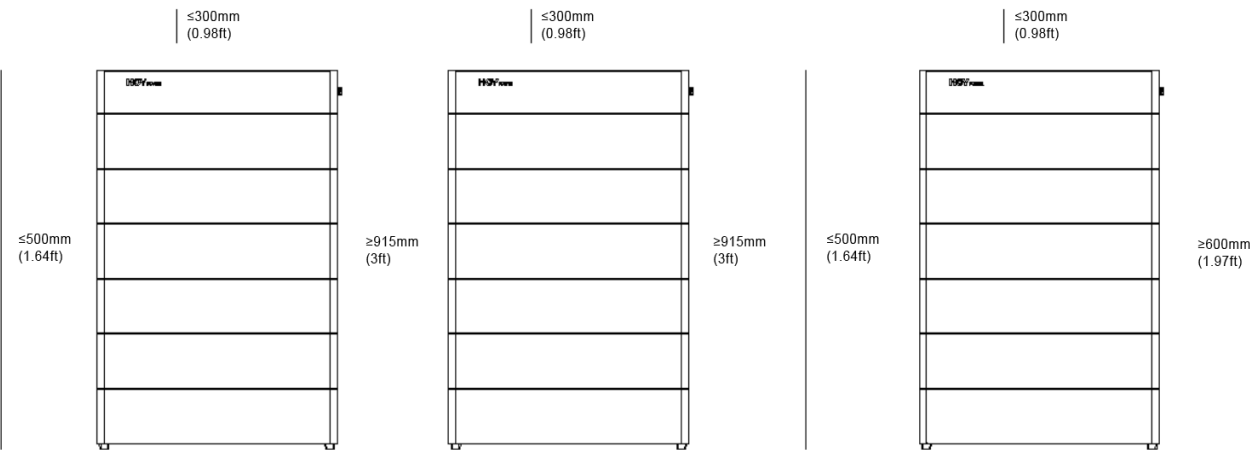
Hoyhome LV performance degrades when ambient temperature is below 10°C(50°F) or above 40°C(104°F) degrees.

### 3.2 Installation physical requirements

Correct quantity for installation



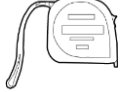










Installation clearance



### 3.3 Installation

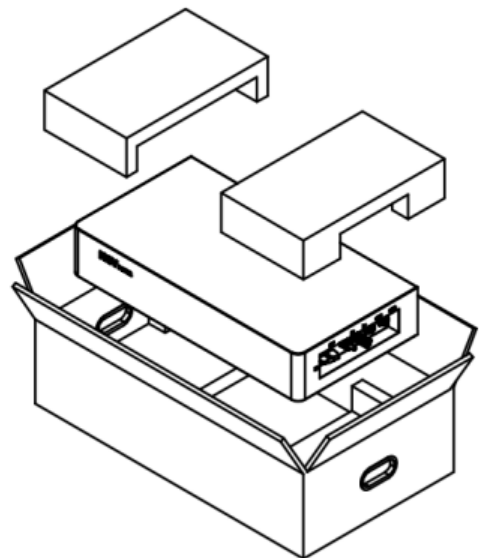
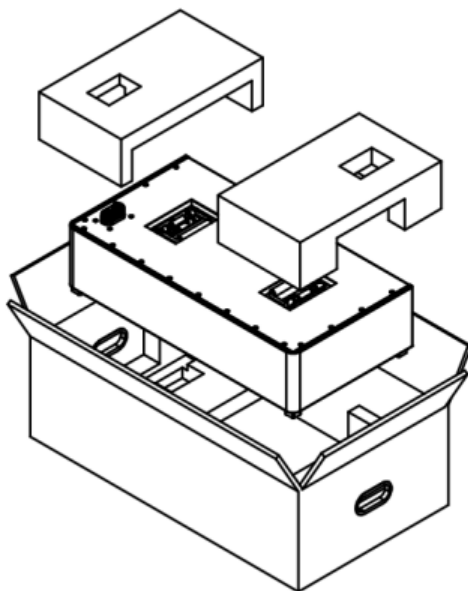
Installation tool preparation

 Detector	 Torque screwdriver	 Steel belt	 Spirit level
 Crimping pliers	 Network cable pliers	 Wire stripper	
Personal safety equipment			
 Safety gloves	 Goggle	 Dust cover	 Safety shoes

### 3.4 Installation steps

#### 1. Unboxing

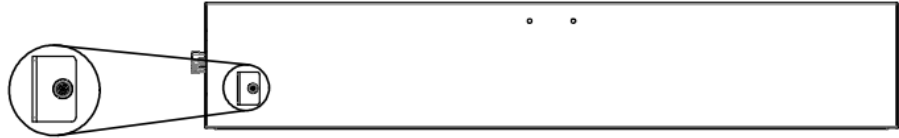
Take out and place the battery and check the components.



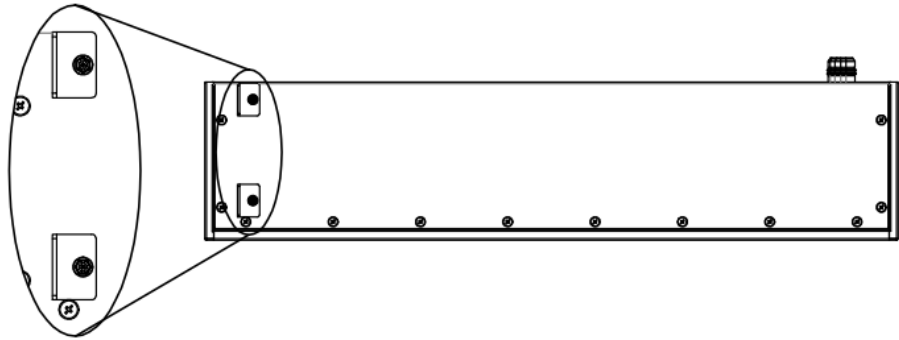
## 2. Bracket Installation

Use a cross screwdriver (torque screwdriver 5 N.M) to secure the control box and bracket 1 on the PACK.

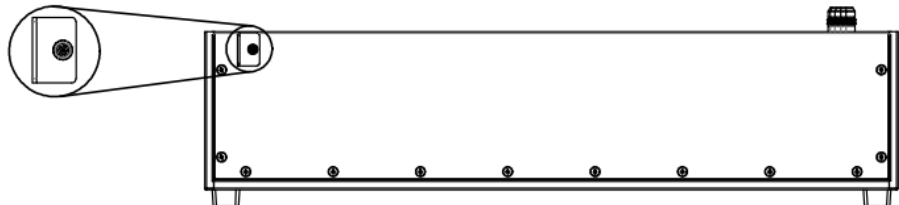
Control box  
Trestle installation



PACK A  
Trestle installation



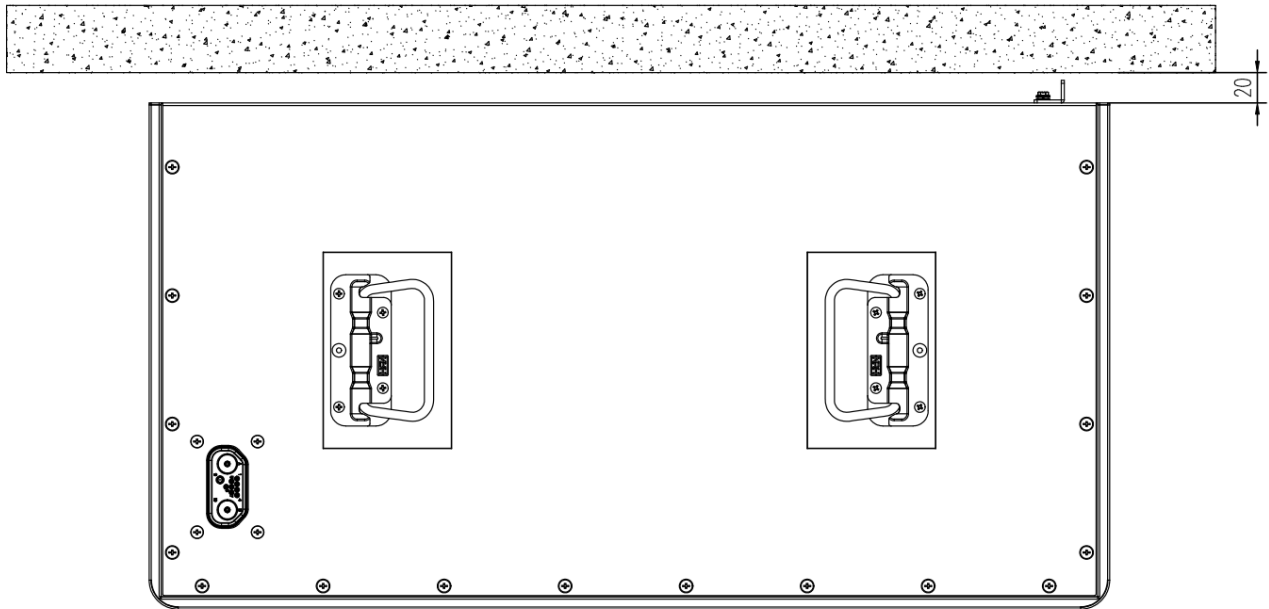
PACK B  
Trestle installation



### 3. PACK B installation

3.1 If installing bracket, use a detector to detect whether there is cable or water tube behind the wall

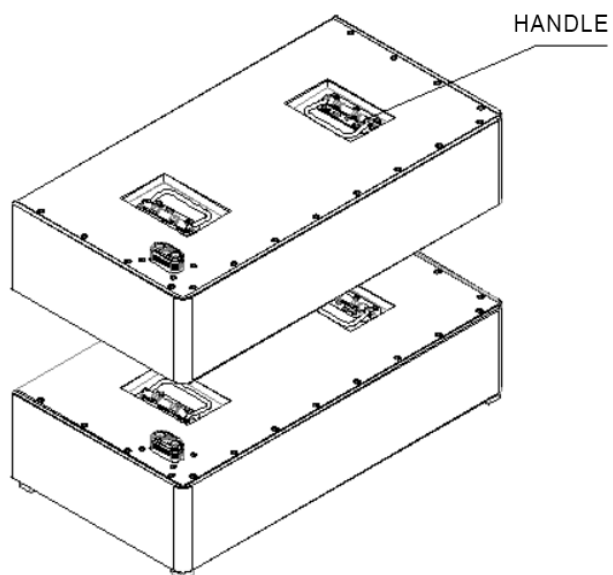
3.2 The pack should be placed on a level ground ( $0^{\circ} \sim 3^{\circ}$ ), parallel to the wall and keep a distance of at least 20mm. The handle must be used to lift the PACK off the ground for movement.



### 4. PACK A installation

When stacking battery modules, align one end of the connector first, then slowly drop the battery connector end until the case fits, and finally drop the other end.

**Warning!** Do not drop the non-connector end first to avoid damage to the connector!



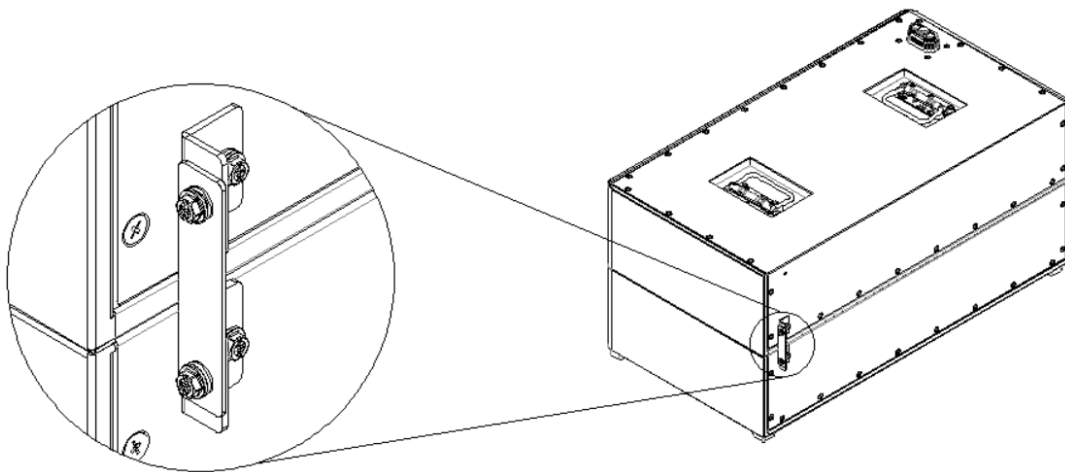
Align one end of the connector first, then slowly drop

⚠ 41kg (91.1lbs)

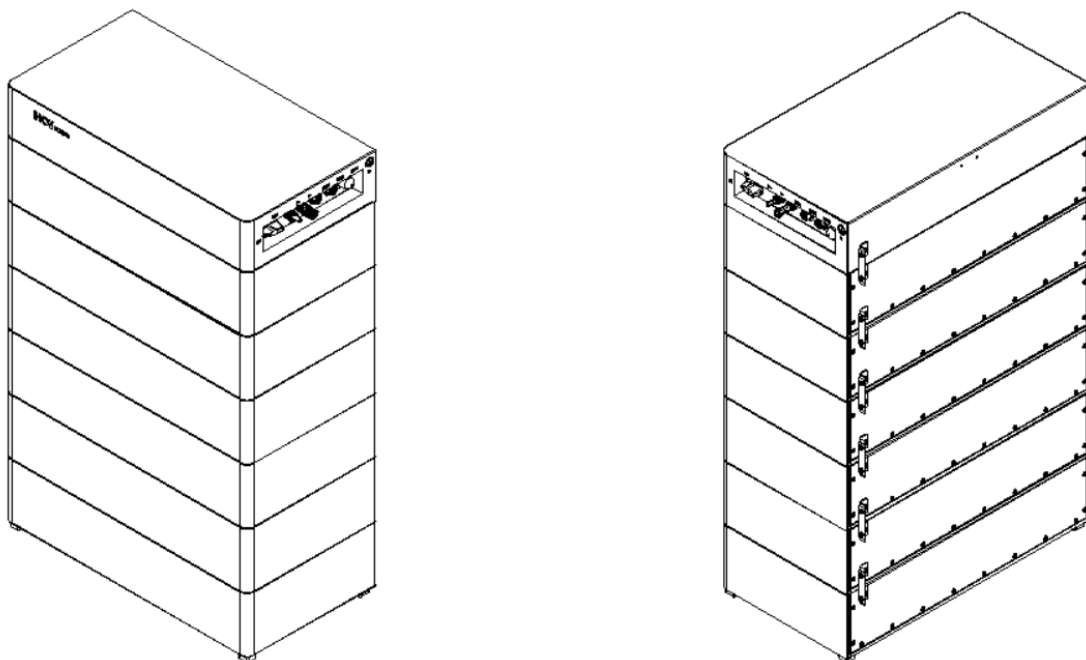


5. After installing PACK A, fix bracket 2 with a cross screwdriver (torque screwdriver 5 N.M). (The

remaining battery modules are stacked layer by layer as shown in the figure)



6.Installation completes (up to 6 battery modules)

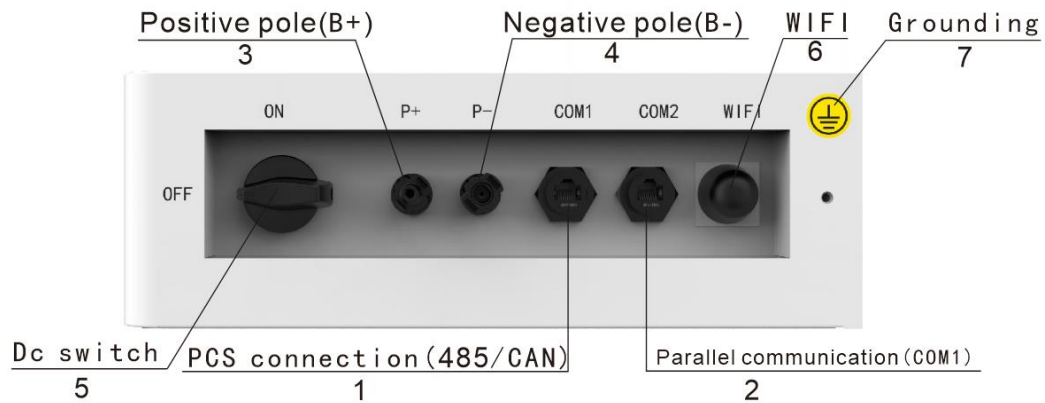


## 4. Electrical connections



NOTE: Before connecting cables, make sure all systems are powered off.

### 4.1 Grounding instructions



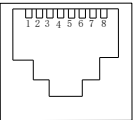
No.	Harness name	Cable mark
1	(485/CAN) PCS communication	COM1
2	COM1 Parallel communication	COM2
3	(D+) Output positive terminal (D+)	P+
4	(D-) Output negative terminal (D-)	P-
5	DC Switch	ON OFF
6	WIFI	WIFI
7	Ground connection	Grounding sign

RS485/CAN port pin definition of the control module:

#### COM1

Color	Port	Pin	Function
Orange-white		1	RS485A
Orange		2	RS485B
Green- white		3	CAN-G
Blue		4	CAN-H
Blue- white		5	CAN-L
Green		6	CAN-3G
Brown-white		7	CAN-3H
Brown		8	CAN-3L

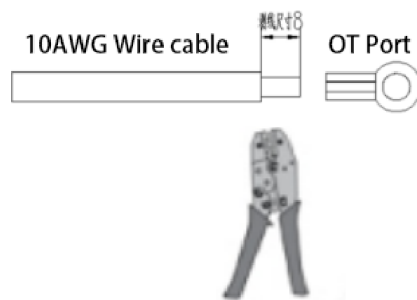
## COM2

Color	Port	Pin	Function
Orange-white		1	RS485A
Orange		2	RS485B
Green- white		3	CAN-G
Blue		4	CAN-H
Blue- white		5	CAN-L
Green		6	CAN-1G
Brown-white		7	CAN-1H
Brown		8	CAN-1L

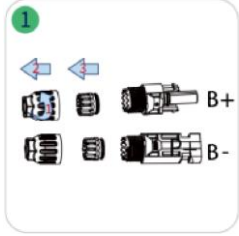
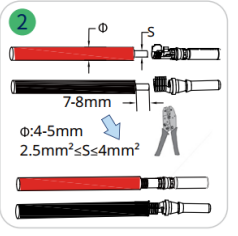
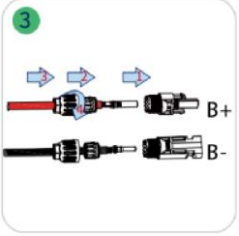
## 4.2 Grounding instructions and preparation

Ensure that it is firmly connected to the ground, and the grounding resistance is less than 4 ohms.

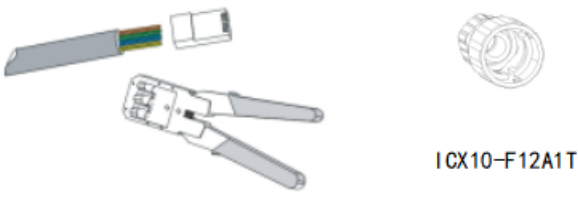
Cable specification	10AWG, yellow-green cable
Stripping size	8mm
Terminal specification	M4 OT terminal



## 4.3 Power line connection

Step1	Step2	Step3
<ul style="list-style-type: none"> <li>Unscrew the battery connector</li> <li>Counterclockwise</li> <li>Remove insulators.</li> <li>Remove the internal cable glands.</li> </ul>	<p>Strip insulation from each DC cable Reduced by 7-8mm.</p> <ul style="list-style-type: none"> <li>Conductive core cross section: <math>S=6 \text{ mm}^2</math>.</li> <li>Assemble cable ends with crimp contacts</li> <li>Via crimping pliers.</li> </ul>	<ul style="list-style-type: none"> <li>Check the cables connected to the batteries for correct polarity and ensure that the input limit of 600 volts is not exceeded under any circumstances.</li> <li>Connect the battery connector to the inverter. If yes, there should be a "click" sound</li> <li>Insert it correctly.</li> </ul>
		

## 4.4 Cable making

Step1	
Strip the communication cable stripper with Ethernet and guide the corresponding signal cable output. Pass the communication cable through ICX10-F12A1T, insert the RJ45 plug in the correct order, and crimp it with a crimper.	

## 4.5 Cable connection

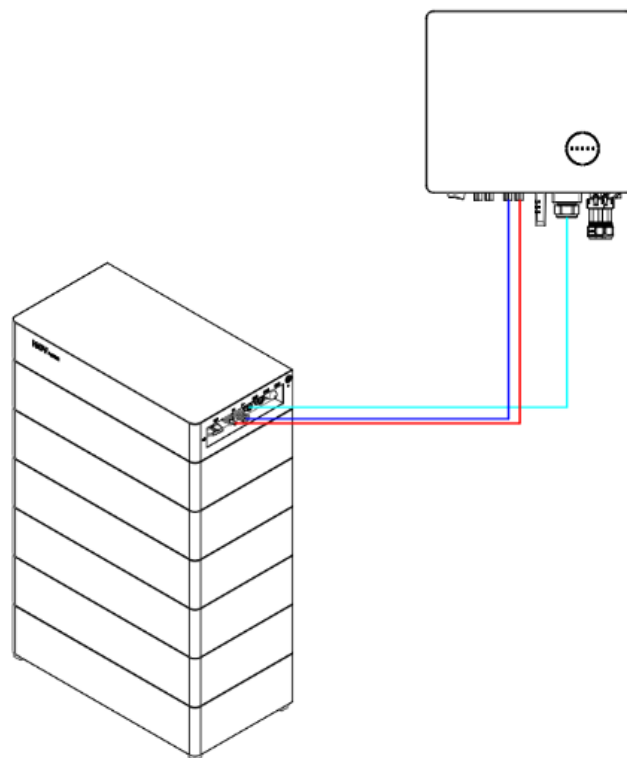
### 4.5.1. Single device cable connection

The wiring of the device is shown in the figure below. For the wiring on the inverter side, please refer to the inverter user manual.

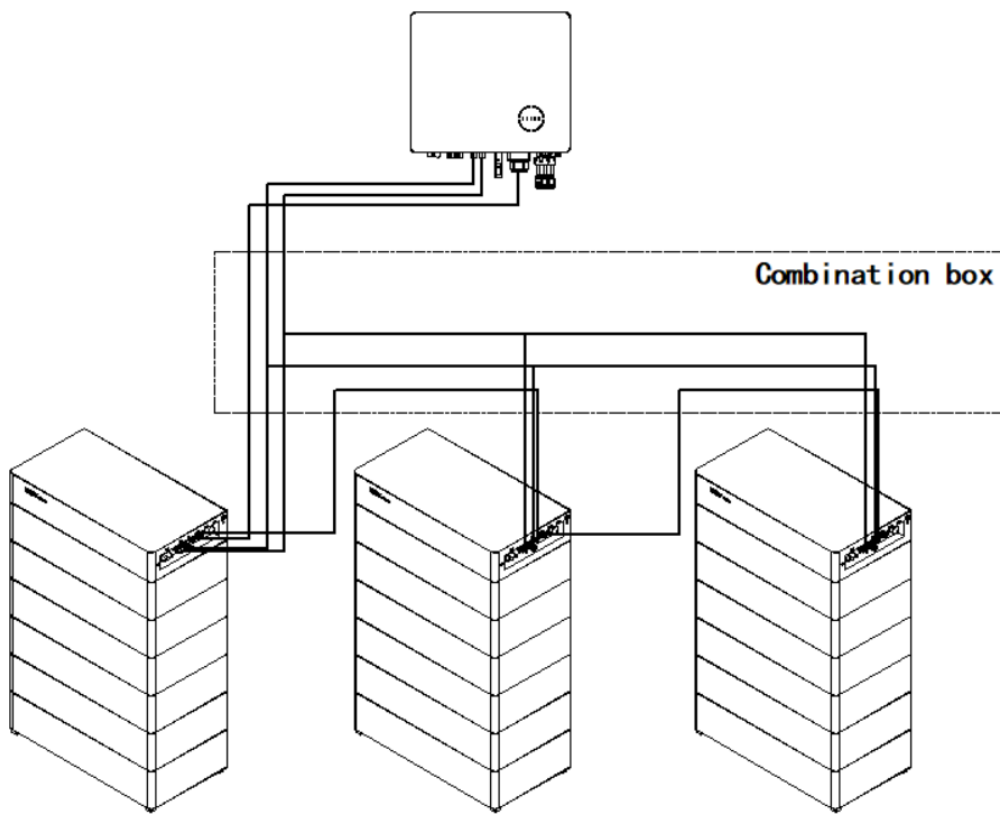
### 4.5.2 Cable connection of parallel cabinets

(1) When the devices are connected to the inverter in parallel, the output positive and negative cables of each device are connected to the combiner box, and then the cables are connected from the combiner box to the inverter.

(2) Up to 3 parallel connections are supported.



Single device cable  
connection



Parallel device cable connection



Parallel system communication wiring diagram

## 5. System debugging



All cables must be connected correctly.

### 5.1 System power-on

1. Turn off the battery switch on the inverter (if the inverter has a separate battery switch) .
2. Open control module DC Switch

### 5.2 System outage

1. Turn off the battery switch on the inverter side (if the inverter has a separate battery switch)
2. Turn off the DC switch, and the indicator light on the light board goes out.

### 5.3 Display description

Green light: discharging

Green flashing: charging

Blue light: stand by

Red light: malfunction

Indicator light

HOY POWER

## 6. Maintenance manual/general troubleshooting

### 6.1 Routine maintenance

The battery needs to be recharged every 6 months if not working

From the date of shipment from the manufacturer, the battery needs to be maintained at a maximum interval of 6 months; the requirements for the recharge interval after the battery is empty are as follows:

Ambient temperature (45,50]°C, should be recharged within 7 days;

Ambient temperature (35,45]°C, should be recharged within 15 days;

Ambient temperature ≤35°C, should be recharged within 30 days.

When the device is placed unused, the battery SOC should be in the range of 45%~55%, and battery output should be disconnected to prevent the battery from draining.

During the storage period of the system, professionals should regularly check the system to check whether the lines are loose or fall off, and clean the surface of the system; if any defects are found, please contact the dealer in time.

### 6.2 Fault treatment

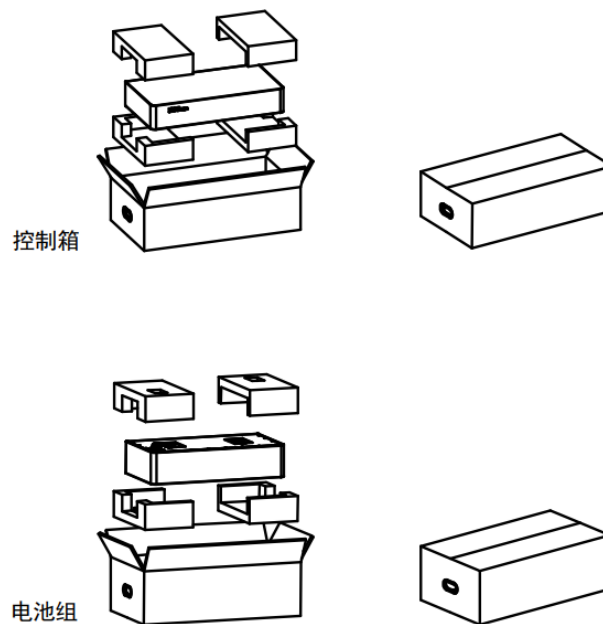
Fault	Cause	Solution
POWER button no response	Damaged POWER button, damaged cable or poor contact	Please contact the supplier to repair or replace the control module
Short discharge time	battery is low	Keep the product charged continuously and keep the energy storage battery system fully charged
	low ambient temperature	Guarantee the product to work within the recommended suitable temperature range
	Product overload	Check load status and remove non-essential loads
	Batteries age and capacity decreases	To replace the battery, please contact the supplier for the battery and its components
Unable to charge and discharge	Internal failure	Log in to the PowerLite APP to view the fault information and contact the supplier
	Battery report charging or discharging protection failure	Log in to the PowerLite APP to view the fault information and contact the supplier
	After the battery is discharged to the SOC protection value, it needs to be charged for a period	The battery is charged to the SOC value set by the restart

	of time before it is allowed to discharge.	
	battery over temperature	Stand at room temperature for more than 3 hours
After the system is powered on, the display cannot be lit or the displayed content is abnormal	Display failure	Please contact the supplier to repair or replace the control module
The display cannot wake up and light up during system operation	1. If the POWER button light is off, the POWER button is faulty or the button wiring is loose 2. If the display still does not light up after restarting, the display is faulty	Please contact the supplier to repair or replace the control module
Abnormal battery communication	Communication disconnection	Check whether the battery stack is installed reliably, and confirm the abnormal battery through the battery status indicator on the display
The system status light on the display is abnormal and blinks every 1S	other	Log in to the PowerLite APP to view the fault information and contact the supplier
The heater works abnormally, and the heating status indicator on the display flashes every 1S	Heating circuit failure	Log in to the PowerLite APP to view the fault information and contact the supplier
Abnormal Bluetooth connection	Bluetooth account connect error	Check whether the paired Bluetooth is consistent with the installed product
Abnormal WiFi connection	1. The WiFi connection is misconfigured 2. The WiFi module is abnormal and the line connection is abnormal	1. Check if the battery WiFi connection configuration is correct 2. Check whether the antenna is installed or connected reliably
The inverter is powered on for the first time through the battery, and the battery reports short-circuit protection	The parallel capacitor value of the input terminal on the battery side of the inverter is large	Battery protection can be automatically restored
Inverter won't start	The battery voltage is too low or the SOC is lower than the shutdown protection value	Charge the battery after starting the inverter from the grid

## 7. Warehouse storage guidelines

### 7.1 Packaging Guidelines

- a. As this product contains lithium-ion batteries, it must be packed as required when shipping by sea or air. The packaging requirements for hazardous packaging of battery products are as follows:
- b. a. Packaging manufacturers with dangerous goods packaging qualifications are responsible for providing product packaging, and the packaging manufacturers have records in the local commodity inspection bureau;
- c. b. After the packaging manufacturer completes the packaging, the supplier needs to submit an application to the Commodity Inspection Bureau. The Commodity Inspection Bureau will provide the "Dangerous Packaging Product Use Inspection Form" and the "Dangerous Packaging Product Performance Inspection Form", and complete the dangerous packaging commodity inspection;
- d. c. Packaged products should be placed in dry, dust-proof and moisture-proof packing boxes;
- e. d. The product name, model, quantity, gross weight, manufacturer, and date of manufacture should be marked on the outside of the packing box.
- f. e. Necessary signs such as "upward" and "fire protection" shall meet the requirements of GB/T 191;
- g. f. Packaging step



### 7.2 Storage

This product contains a lithium-ion battery. When storing, pay attention to the power of the battery module and the temperature and humidity of the storage environment of the whole machine. The battery pack is usually stored in a clean, dry, ventilated room with an ambient temperature of  $25^{\circ}\text{C}\pm 5^{\circ}\text{C}$ , a relative humidity not exceeding 75%, and a state of charge of 45% to 55%. Avoid contact with corrosive substances, keep away from fire and heat sources.

### 7.3 Disposal of used batteries

Batteries must be disposed of in accordance with local regulations for disposal of electronic waste and

## 8. Dispose of used batteries

Disposal of the system must comply with applicable local regulations for the disposal of electronic waste and used batteries.

- Do not dispose of the battery system with your household waste.
- Avoid exposing the battery to high temperatures or direct sunlight.
- Avoid exposing batteries to high humidity or corrosive environments.
- For more information, please contact the original manufacturer.

## 9. Detailed specifications

System Specifications

Item	Parameter			
System model	Hoyhome HV-10	Hoyhome HV-15	Hoyhome HV-19	Hoyhome HV-23
unconnected battery	1P72S	1P96S	1P120S	1P144S
Rated energy	11.52kWh	15.36kWh	19.2kWh	23.04kWh
Maximum discharge current	30A	30A	30A	30A
Dimensions W*H*D,mm	635*335*550	635*335*695	635*335*840	635*335*985
Net weight	136kg	177kg	218kg	259kg
Rated voltage.	230.4V	307.2V	384V	460.8V
Operating Voltage	201.6~259.2V	268.8~345.6V	336~432V	403.2~518.4V
External communication	CAN/RS485			
Cycle life	6000 times (25℃, 0.5C/0.5C, 90%DOD, 70% remaining)			
Scalable	Up to 6 cabinets in parallel			
Protection class	IP55			
Operating temperature	Charging [0,50]°C; Discharging [-20,50]°C			
Working humidity	10%~95%RH			
Working altitude	<2000m,>2000m derating			
Certification	IEC62619, UN38.3			



✉ [sales@hoypower.com](mailto:sales@hoypower.com)

🌐 [service@hoypower.com](mailto:service@hoypower.com)

📍 T5,99 Housheng ST, Hangzhou, China