



Residential Energy Storage Battery

Model: XESHES-U-48V13.5kWh-A

XESHES-U-48V13.5kWh-A-H

User Manual

V1.11 2026.09.29

Notice: Please read this user manual carefully and follow the instructions before installation of this battery.

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Preface

What is the XESHES residential energy storage battery?

The XESHES Residential Energy Storage Battery adopts high-performance Lithium Iron Phosphate (LiFePO_4) cells. It is designed to enhance the utilization of residential photovoltaic (PV) systems, reduce electricity costs, and lower carbon emissions. XESHES residential energy storage battery is an attractive, and electrically safe design and has all electrical protections and a service life of more than 10 years. The battery BMS allows the multiple units of same battery can connect in parallel up to 7 units, so that the battery storage capacity of the energy storage system can expand easily as per requirements.

System Operation Mode

1. Self-Consumption (Load > Battery > Grid)

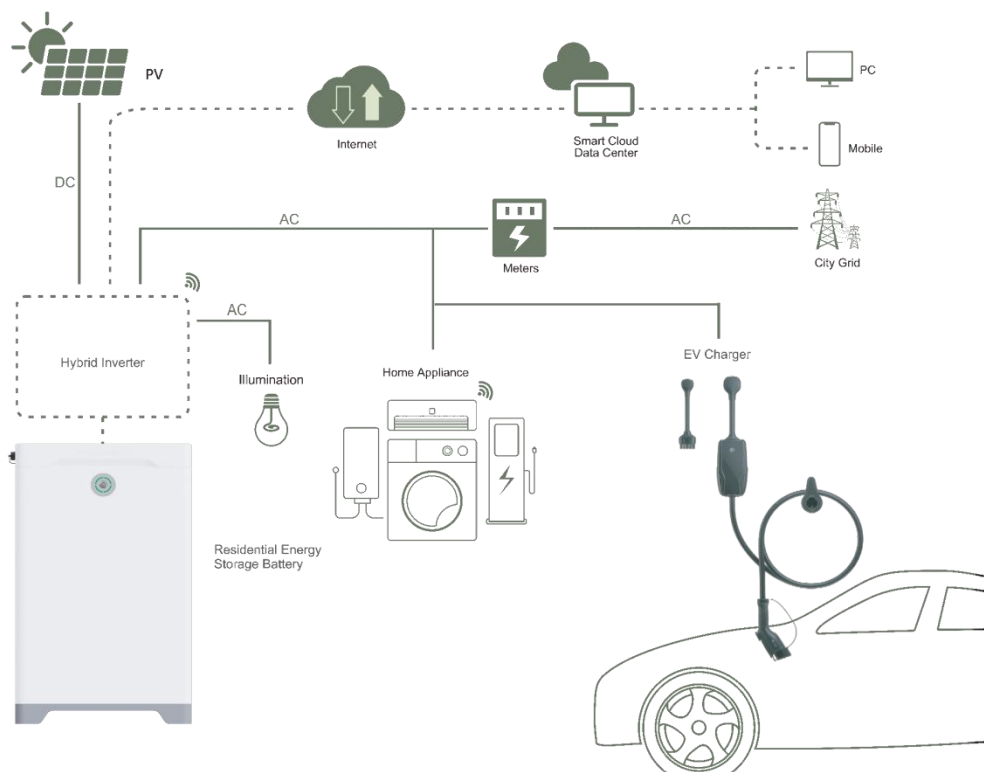
Self-consumption mode is best for those locations where the cost of grid-tied electricity is lower, and energy prices are higher.

2. Peak shaving: Load > Battery > Grid (when discharging)

This mode is suitable for areas with peak and valley costs (time-sharing tariffs). Users can charge the battery using PV power and off-peak power.

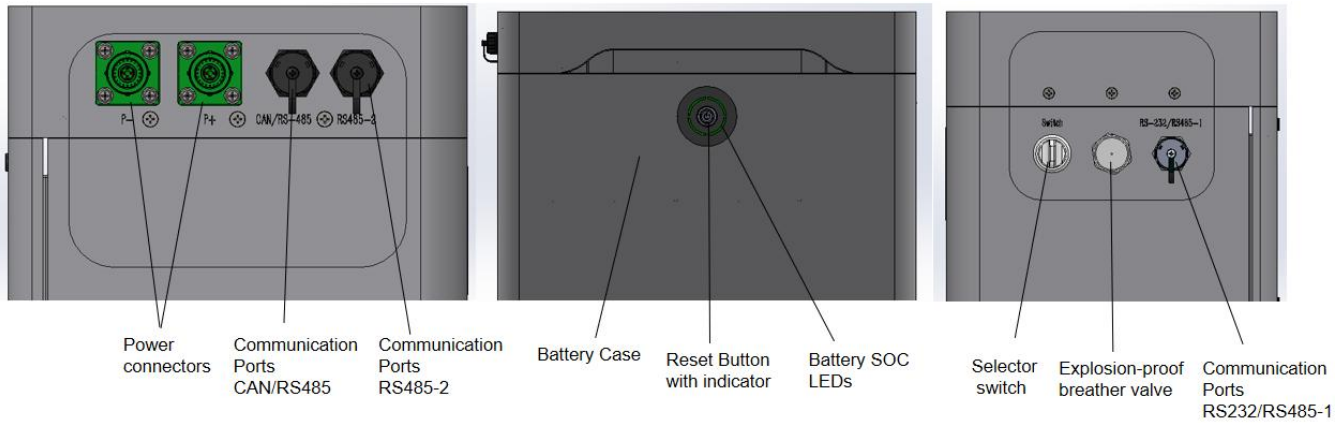
3. Standby mode: (Battery > load > grid)

It is suitable for areas with regular power outages. This mode ensures that the battery has an acceptable stock of energy when the grid is disconnected.



Operating Schematic of Residential Energy Storage System

Chapter 1 Introduction



Residential energy storage battery

Item	Description
Selector switch	Turn ON & Turn OFF Switch for the battery
Power Terminals	Used on the +/- terminal of the battery
Communication Ports	Used for PCS communication, parallel connection and commissioning
Reset Button with indicator	Used to realize activation, sleep and reset of the battery system
Battery Case	Used for natural cooling
Battery SOC LEDs	Used to display battery SOC (State of Charge)
Explosion-proof breather valve	Explosion-proof valve used to release pressure in the battery

The purpose of this user manual is to provide information to the users and guide the installers, and ensures that the XESHES residential energy storage battery is properly install and operate and perform its functions efficiently. This user manual lists the key standards for describing the quality of system, as well as the key engineering and installation notes that should meet to achieve this goal. This user manual involves the XESHES residential energy storage battery and is applicable to the following energy storage system:

XESHES-U-48V13.5kWh-A、XESHES-U-48V13.5kWh-A-H(with heating film)

These systems should be installed by qualified installers who have passed the training course on energy storage system installation. For the next generation product, we will work closely with distributors to promote the training courses on energy storage system. As for all the specifications and instructions contained in this user manual, the latest release shall prevail. As Xinyi has been always seeking continuous improvement, we reserve the right to modify our products from time to time.

The images provided in this user manual are for demonstration purpose only. Details may vary slightly depending on product version and market area. For more information about the training on the XESHES residential energy storage battery and how to obtain the installer certificate, please visit our website: <http://www.xinyies.com>

Thank you for choosing Xinyi XESHES residential energy storage battery. We believe that, through proper operation and maintenance, our system will provide you with continuous clean energy application.

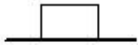
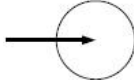
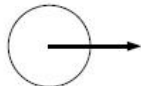
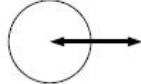
This manual does not list all the precautions required for safe operation. Any energy storage system must comply with the Health and Safety Requirements and other relevant standards and codes of practice in the country where it is installed. This manual provides installation guide, but it does not guarantee the quality during the installation process. Please complete all installation operations in a serious, responsible and professional way.

All electrical operations shall be done by a qualified electrician. It is the responsibility of qualified installers to ensure that XESHES is suitable for you and that the PCS is certified by Xinyi Electric Storage so that we can provide the best performance for you.

Section 1 Symbols Used

Symbol	Description
	Warning! It indicates a dangerous situation that may cause minor injury if you fail to pay attention to it.
	Attention! It indicates a situation that may cause property damage if you fail to pay attention to it.
	Information "Information" provides valuable tips for the optimal installation and operation of the product.
	Watch out for the hot surface. The inverter will heat up during operation. Do not touch it with your hands.
	Follow the guidelines indicated in all relevant documents.
	Do not dispose of the product as domestic waste. Please refer to the installation manual for detailed information on how to dispose of the product.

No.	Symbol	Description
1		DC
2		AC
3		DC and AC
4	3~	Three-phase AC
5	3N~	Three-phase AC with neutral line
6		Ground terminal
7		Protective ground terminal
8		Housing ground terminal
9		Refer to the operation instructions
10		Power on
11		Power off
12		Double insulation or reinforced insulation protection equipment

No.	Symbol	Description
13		Caution! Electric shock
14		Caution! Hot surface
15		Danger!
16		Button pressed
17		Button normal
18		Input terminal
19		Output terminal
20		Two-way terminal
21		Electric shock! Battery discharges at set intervals
22		Attention, Wear hearing protection equipment

Chapter 2 Precautions



Warning

Failure to comply with the precautions described in this section may cause serious personal injury or property damage.

Please note the following:

Explosion hazard

- ◆ Avoid powerful hit on the product.
- ◆ Do not squeeze or puncture the product.
- ◆ Do not handle the product in case of fire.

Fire hazard

- ◆ Do not expose the product to a hot environment (above 50°C).
- ◆ Do not place the product near a heat source, for example, a fireplace.
- ◆ Do not expose the product to direct sunlight.
- ◆ The battery connector shall not contact conductive objects such as wires.

Electric shock hazard

- ◆ Do not disassemble the product without permission.
- ◆ Do not touch the product with wet hands.
- ◆ Do not expose the product to moisture or any liquid.
- ◆ Keep the product away from kids and animals.

Risk of damage to the product

- ◆ The product shall not come into contact with liquid.
- ◆ Do not subject the product to high voltage.
- ◆ Do not put any heavy object on the top of the product.

Handling and transportation hazard

- ◆ The battery weighs approximately 116 kg. Always use at least two people or mechanical lifting equipment (e.g., a forklift or transport harness) when moving the product to avoid personal injury.
- ◆ Keep the battery upright during handling and transportation. Tilting or laying the battery flat may cause internal damage or electrolyte leakage.
- ◆ Use the dedicated transport harness (provided or self-prepared) to secure the battery before lifting or moving.
- ◆ Do not drag, roll, or drop the battery during transportation. Sudden impacts may damage the internal cells.
- ◆ Ensure the battery is powered off (knob switch turned off) before moving to prevent accidental short circuits.

Storage Precautions

- ◆ Do not store the battery in direct sunlight, near heat sources, or in areas exposed to rain, flooding, or high humidity.
- ◆ Keep the battery away from flammable, explosive, or corrosive materials during storage.
- ◆ The Product shall not be exposed and stored in a temperature higher than 40℃, and shall not be exposed in an installed area to direct sunlight. The Product installation location must be ventilated in accordance with the requirements of User Manual and Installation Guidance.
- ◆ The product needs to be fully charged to more than 75% capacity and turned off for storage when not in use for a long time. It needs to be charged and maintained every three months.

When connecting the XESHES product to PCS, please wear the following safety devices.



Insulating gloves



Safety goggles



Safety shoes

Chapter 3 Step-by-step Checklist

The scope of this user manual includes installing the XESHES residential energy storage battery on ground near the wall, connecting the positive and negative DC Cables with the PCS, and connecting the AC line required to connect the PCS to the building's power supply. The typical project process of the XESHES residential energy storage battery is as follows. It describes instructions from the start of the project through installation, commissioning, and completion, as well as operation and maintenance instructions.

Installation steps

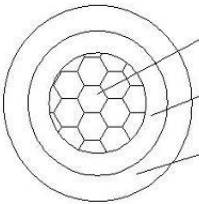
01	Check the goods in the package
02	Read the manual
03	Check installation tools
04	Risk assessment/planning approval
05	Wall requirements
06	Determine an appropriate location for the XESHES residential energy storage battery
07	Installation space planning
08	Installation and wiring

Section 1 Parts inspection

Check the parts against the attached parts list, including the description and quantity of the parts.

Before starting the installation, make sure that all parts and their quantities are OK.

Part	Diagram
Energy storage battery	 ×1
Mounting bracket	 ×4
Mounting bracket 2	 ×1
Expansion screw (M8*70)	 ×4
User Manual	 ×1
DC-side wire (50mm ²)	 ×2 (self-provided) ×2 Connector (provided by customer) Positive: Orange plug,1/0AWG (Reference model: FSPC80180P-50A4, manufacturer: HUIZHENG ELECTRONIC TECHNOLOGY CO., LTD.), Negative: Black plug,1/0AWG(Reference model: FSPC80180Q-50B4, manufacturer: HUIZHENG ELECTRONIC TECHNOLOGY CO., LTD.) ×2 Double insulated cable (provided by customer)

	 Conductor Insulation Sheath L:1.5m(The length can be adjusted according to the actual situation.) Details:50mm² ,1/0 AWG,OD of wire:14.0 ±0.6mm(Reference model: 62930 IEC 131, manufacturer: SHANG HAI AEIN WIRE & CABLE CO.LTD)
Network cable (Super Class 5 network cable)	 ×2 (self-provided)
RJ45 connector (8P8C)	 ×2 (self-provided)

The following are components of the junction box:

Part	Diagram
Junction box system	 ×1
Claw-type grounding gasket(M4)	 ×1
Claw-type grounding gasket(M5)	 ×1
Cross recessed hexagon socket truss head three-combination bol(M4×12)	 ×6
Cross recessed hexagon socket truss head three-combination bol(M4×16)	 ×3

Section 2 Read the manual

Read carefully and understand all instructions before to install, connect, operate and maintain the XESHES residential energy storage battery. Whether the energy storage battery is connected or disconnected, contact with battery terminal may cause burns, sparks and fatal electrical shocks. XESHES products shall be installed only by qualified and certified professionals, including but not limited to certified contractors and certified electricians. Please keep this manual for reference.

Section 3 Check installation tools

Tool	Diagram	Description
Hammer drill (M14)		Drill holes on the wall
Screwdriver		Install the mounting bracket
Insulating tape		Prevent electric leakage and insulate wires
Torque wrench		Fix expansion screws
Multimeter		Test electrical connection
Claw hammer		Fix expansion screws
Transport harness		Move battery packs
Cable crimping pliers		Connect Ethernet cable with modular connector to RJ45 (T568B) communication port

Section 4 Risk assessment/standard compliance

The XESHES residential energy storage battery can be used in combination with PCS to storage PV power, and supply power to your home, thus providing solutions for residential and commercial and industrial applications.

As the installation standards vary from country to country, we recommend that you check as per local standards in all cases before you are ready to install our energy storage battery. This user manual involves no health, safety, electrical or building code matters, and the on-site evaluation of the construction scheme should be completed before the installation begins.

Section 5 Wall requirements

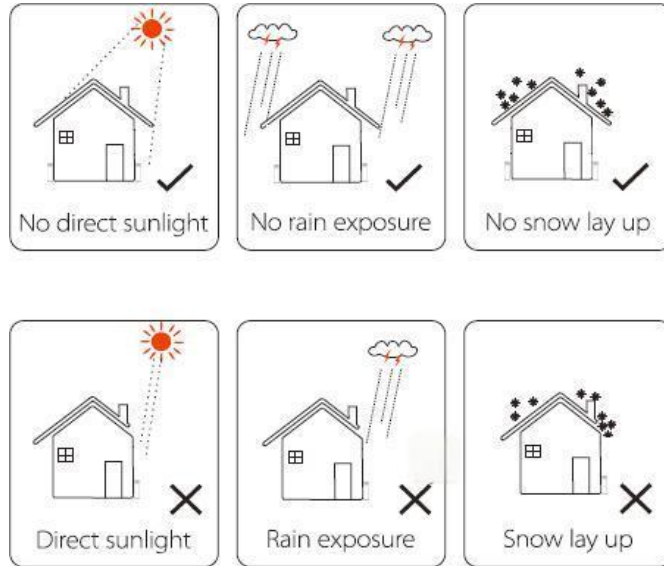


Warning

- ◆ When an XESHES battery is installed indoors, a fire separation zone shall be set between the installation area and other areas. When an XESHES battery is installed outdoors, the battery should be at a certain distance from exposed objects such as buildings and public roads and be separated from any exit, so as to prevent direct rain contact and sunlight.
- ◆ Observe local building codes and standards so that any fire rating that may apply can be considered.

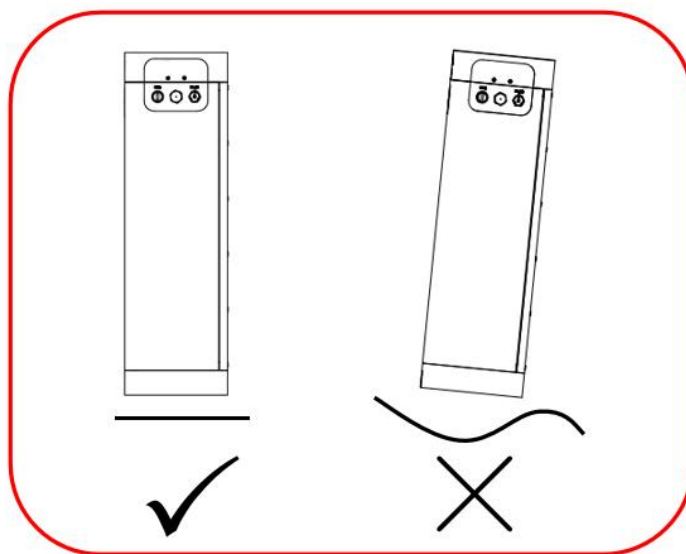
● Fix the position

XESHES battery can be installed indoors or outdoors. Considering the cooling and waterproofing factors of the machine, we recommended installing XESHES products in a well-ventilated and shaded place so as to avoid direct sunlight, rain and snow, and prolong the service life of the system.



● Installation angle

- XESHES battery shall be installed on the ground close to the wall and fixed vertically.
- Do not place XESHES battery on uneven and inclined ground.
- Please place XESHES battery close to a solid and ventilated surface.



Section 6 Identify the appropriate location for product installation

- ◆ Make sure that the bearing capacity of the ground surface is greater than 200kPa.
- ◆ Make sure that the installation site is not accessible to kids and that the installation area is free of explosive or corrosive environment.
- ◆ As a residential installation, the energy storage battery is usually installed in a safe and ventilated position to avoid direct sunlight and rain.
- ◆ Indoor ventilation requirements: When installed indoors, the room must be equipped with adequate natural or mechanical ventilation to dissipate heat generated during charging and discharging.
- ◆ The indoor installation room should have a minimum air exchange rate of at least 0.5 air changes per hour (ACH), or a mechanical exhaust fan with a flow rate of no less than 50 CFM (85 m³/h) to ensure sufficient air circulation around the battery enclosure.
- ◆ Do not install the battery in enclosed, airtight spaces (e.g., sealed cabinets or closets) without active ventilation. Restricted airflow may lead to heat buildup, triggering the battery's over-temperature protection and reducing system efficiency.
- ◆ Ensure that air intake and exhaust vents (if present) are not blocked by furniture, decorations, or other obstructions. Maintain a minimum clearance of 100mm on all sides of the battery housing for proper air circulation.
- ◆ If the indoor installation area is a small, enclosed room (e.g., a utility room or garage), it is strongly recommended to install a temperature and smoke detector in the same room to provide early warning of abnormal conditions.
- ◆ XESHES energy storage battery must be placed vertically on the ground, not horizontally, because this may damage the battery.
- ◆ To ensure optimal performance and safety, install the XESHES energy storage battery within the appropriate temperature range. If operating outside this range, the battery may automatically stop to prevent damage. Additionally, consider the following key points regarding heating systems:

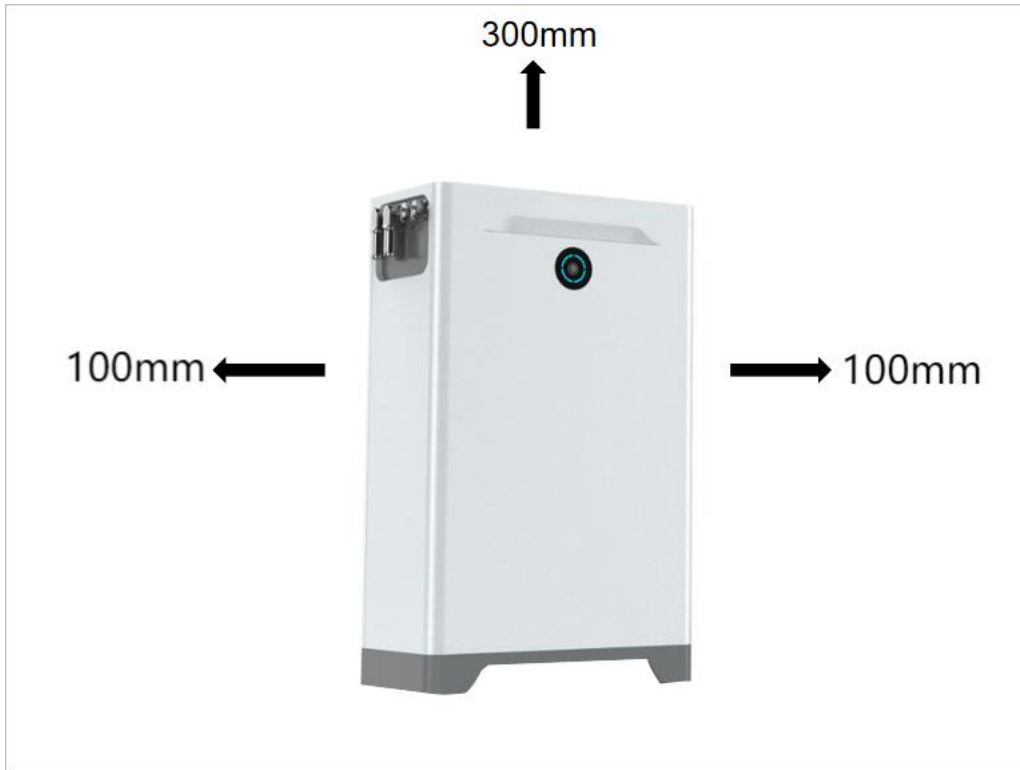
Activation Thresholds: In cold environments, if the battery is equipped with heating films, the built-in thermal control system activates when the cell temperature drops below +5° C to optimize battery performance. It deactivates when the temperature exceeds +10° C. Note that this heating process consumes stored battery energy, leading to a transient reduction in system efficiency.

Performance: When the ambient temperature is at or above -10° C, the heating film can heat the cell to a rechargeable state. The heating film does not affect heat dissipation under high temperatures. In addition, thermal insulation is recommended for battery when

temperatures fall below -10°C to prevent operational failure.

- ◆ There shall be at least 100mm space around the housing to ensure optimal ventilation.
- ◆ Do not put the XESHES energy storage battery close to walls or heat sources directly exposed to sunlight (such as walls in the boiler room unless the walls are properly insulated).
- ◆ Install the XESHES energy storage battery only when it is completely powered off, and pay attention to the radiator temperature. The installation can only be performed by qualified personnel.
- ◆ To minimize resistance and power loss, users should ensure that the length of cable between XESHES, PCS and utility grid access board is minimized.
- ◆ Make sure that the XESHES energy storage battery is installed next to the cable inlet to ensure that it is successfully connected to the PCS.
- ◆ When the XESHES energy storage battery is installed indoors, a 2-hour fire barrier shall be set between the room where the battery is installed and other areas. Or it should be installed in a place where fire-fighting vehicles can pass, such as underground garages.
- ◆ When the XESHES energy storage battery is installed near a wall, the minimum clearance distance to windows and doors must comply with all applicable local codes and regulations.
- ◆ For outdoor installation, the minimum clearance distance of the XESHES energy storage battery from exposed structures, public access ways, and any building exit must comply with all applicable local codes and regulations.
- ◆ If the XESHES energy storage battery is installed in a low-lying place, please raise the base to prevent the product from flooding.

Section 7 Recommended Installation Spacing

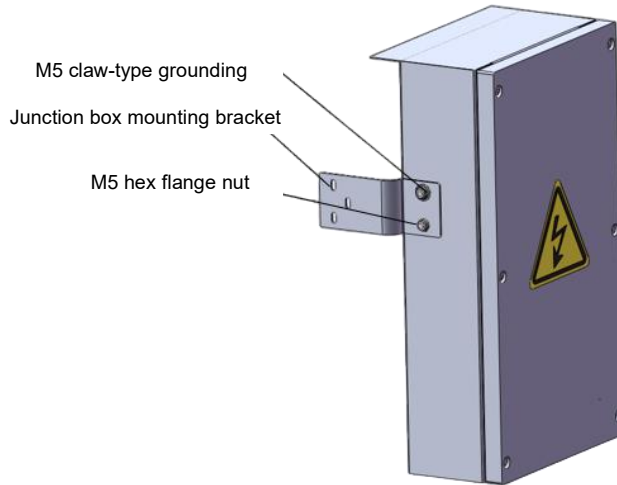


Note: The above data are the recommended space size, which can be adjusted according to the actual installation, but refer to section 6.

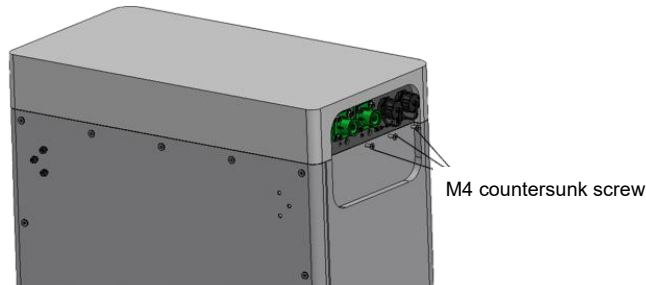
Chapter 4 Installation

Section 1 Junction box system installation

Step 1: Bracket fixation: Take out the mounting bracket from the junction box assembly. Use two M5 hex flange nuts (note: one of the nuts must be fitted with an M5 claw-type grounding washer) to securely fasten the bracket to the junction box body.



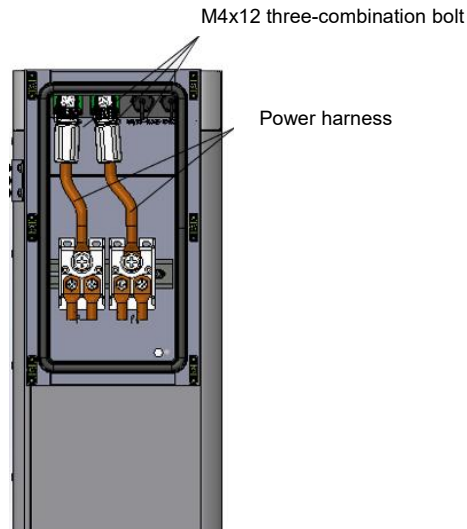
Step 2: Disassembly preparation: Locate the M4x10 countersunk Phillips screw on the power cable side of the battery pack and remove it completely.



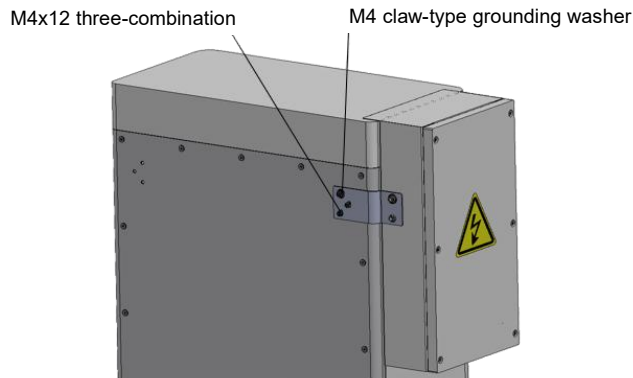
Step 3: Adhesive positioning: ① Remove the junction box cover plate; ② Peel off the protective film from the 3M adhesive tape on the back of the junction box, then attach the junction box to the side of the battery pack; ③ Ensure that the mounting holes on the box align precisely with the holes on the battery pack.



Step 4: Internal fixation: Tighten the three M4x12 cross recessed hex head three-combination bolts inside the junction box. Insert the power cable harness into the power connector until you hear a "click," indicating the connection is secure.



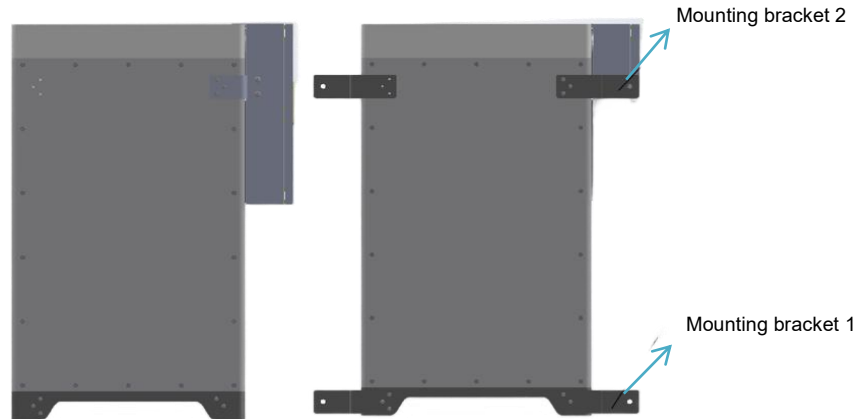
Step 5: External fixation: Secure the three M4x12 cross-recessed hexagon socket head combination bolts at the fixed mounting bracket, noting that one of the bolts must be equipped with an M4 claw-type grounding washer (if a back bracket is to be installed, the bolt at this location may be left uninstalled for now); Tighten the M8 screw (torque 12Nm) and the M10 screw (torque 15Nm) at the one-to-two terminal, then reinstall the cover plate using the M4 screw (torque 2.5Nm).



Section 2 Rear bracket installation

Step 1: Positioning and installation: Align the three mounting brackets with the preset positions on the back of the battery unit, ensuring they fit snugly against the battery. Secure them using M4×12 three-combination bolts.

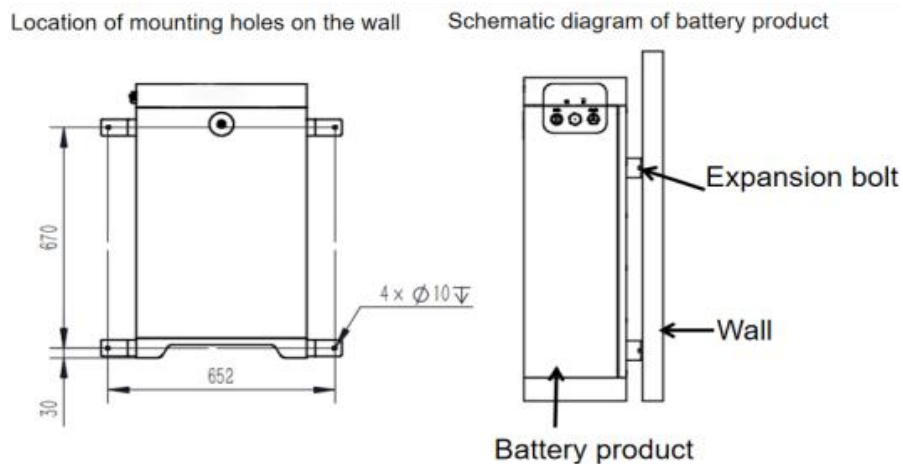
Step 2: Special handling for bracket 2: Pre-remove the M4×12 three-combination bolt at the specified location. Align bracket 2 with the mounting hole and re-secure it using an M4×16 three-combination bolt.



Section 3 Product installation

⚠ Warning

- ◆ As the XESHES residential energy storage battery is heavy, if you need to move the battery during installation, we recommend that more than two people work together to move it.
- ◆ We recommend completing the installation as indicated in the schematic diagram.
- ◆ If you plan to install multiple XESHES residential energy storage batteries in parallel, repeat the same installation process until all XESHES residential energy storage batteries are installed.



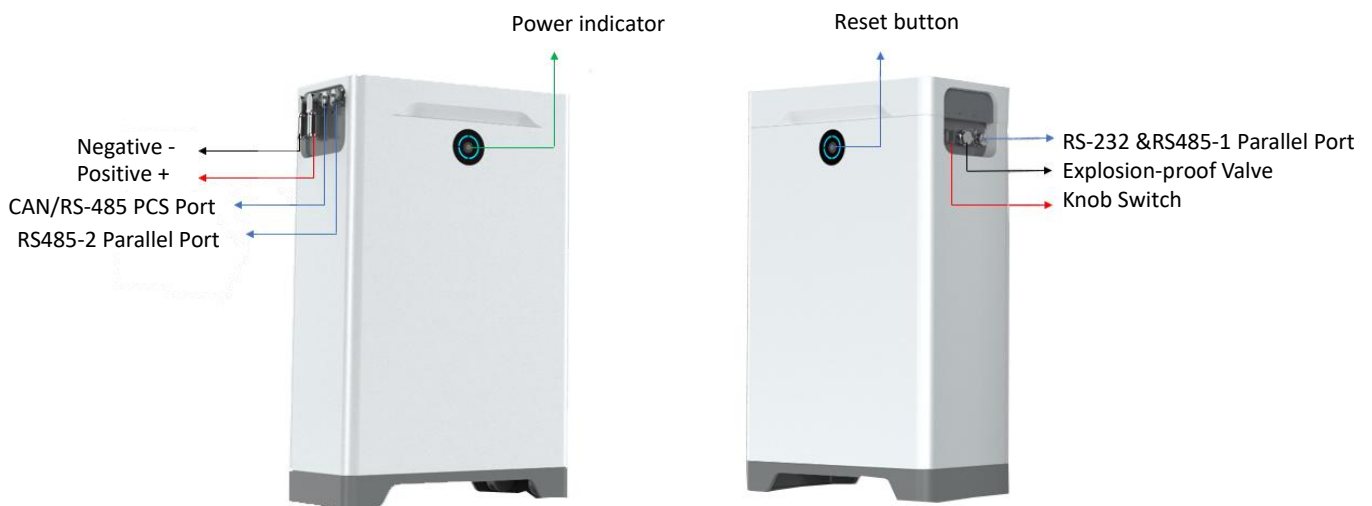
Installation of energy storage battery

Steps	Description
Step 1	Draw a line on the wall with a ruler to determine the mounting hole
Step 2	Drill 4×φ10×70mm round holes in the wall and fix the expansion bolts
Step 3	Move the battery product to the corresponding position and fix it

Chapter 5 Wiring

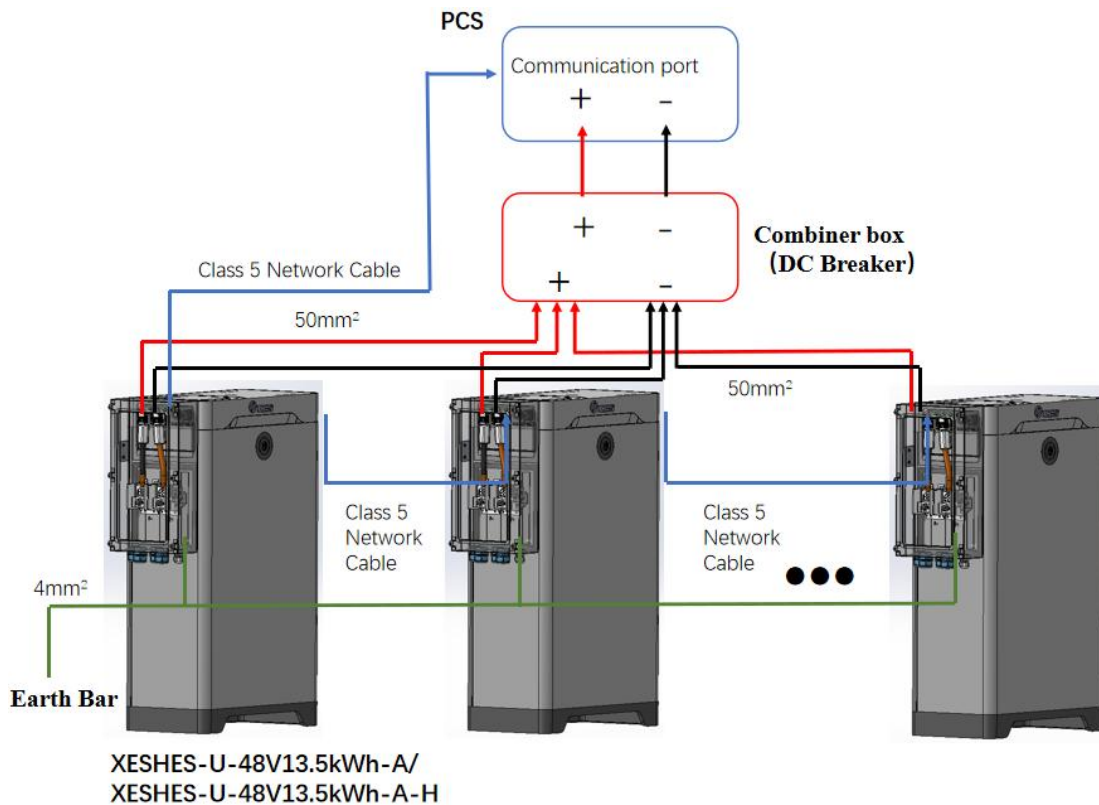
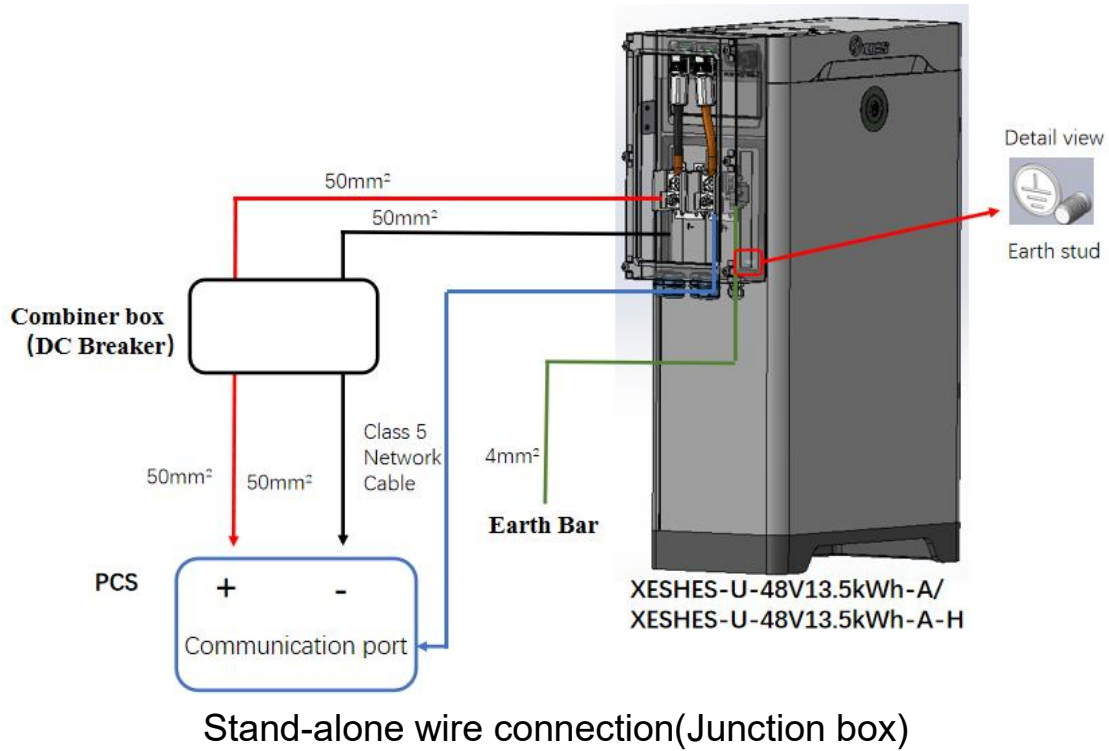
Warning

- ◆ Measure the electric energy voltage between positive and negative terminals of battery with the multimeter before and after wiring (make sure that the electric energy is connected). The initial voltage of battery should be in the range of 48-53.25V DC voltage. If the reading exceeds this range, please call your authorized Xinyi dealer for consultation.
- ◆ We recommend that the DC cable connection between the energy storage PCS and the energy storage battery be kept to the shortest limit to minimize the line loss. Where possible, interconnected DC cables should also have variable length.
- ◆ Before connecting the power cord, please turn the battery pack knob switch off.
- ◆ If an insulation cover is to be installed, do not route cables from the rear of the battery, as rear cabling will interfere with and prevent proper installation of the cover.



Steps	Description
Step 1	Make sure the battery pack knob switch is turned off
Step 2	Plug in the positive and negative power terminals of the battery pack, and connect the other end to the corresponding PCS port
Step 3	Plug in the PCS communication connector of the battery pack and connect the other end to the PCS communication port
Step 4	Plug in the master battery pack parallel communication connector and the other end is connected to the slave battery pack parallel communication port
Step 5	Turn on the battery knob switch and light up the power indicator

Section 1 Wiring diagram



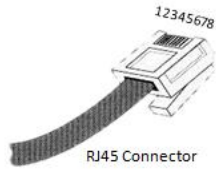
Attention

- ◆ According to the design specification, the single pack is only suitable for PCS with maximum 100A charge/140A discharge.
- ◆ Cable dimensions are for reference only, and should confirm to local standards.
- ◆ To avoid triggering circulating current protection, please make sure that the voltage difference of the battery packs is controlled within 1V before multiple battery packs are connected in parallel.
- ◆ Please turn the knob switch off before connecting the cable power cord.
- ◆ Reverse polarity of the cable power cord is not allowed.
- ◆ Connect the communication harness in strict accordance with the schematic diagram to prevent communication failure.

After the power harness and the communication harness are connected, turn on the knob switches in turn

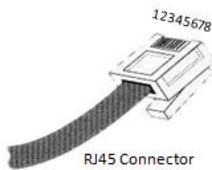
Section 2 Wiring details

A. Interface definition of the RS232 communication cable for the battery pack



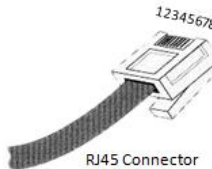
RJ45	1	2	3	4	5	6	7	8
BMS Port	RX	TX	GND	/	/	/	/	/

B. Interface definition of battery pack parallel communication cable



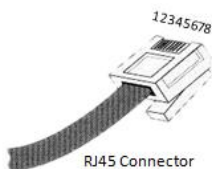
RJ45	1	2	3	4	5	6	7	8
BMS Port	/	/	/	/	UP_IN	GND	RS485-A	RS485-B

C. Interface Definition for Communication between Battery Pack and RS485 Communication Inverter Communication Cable

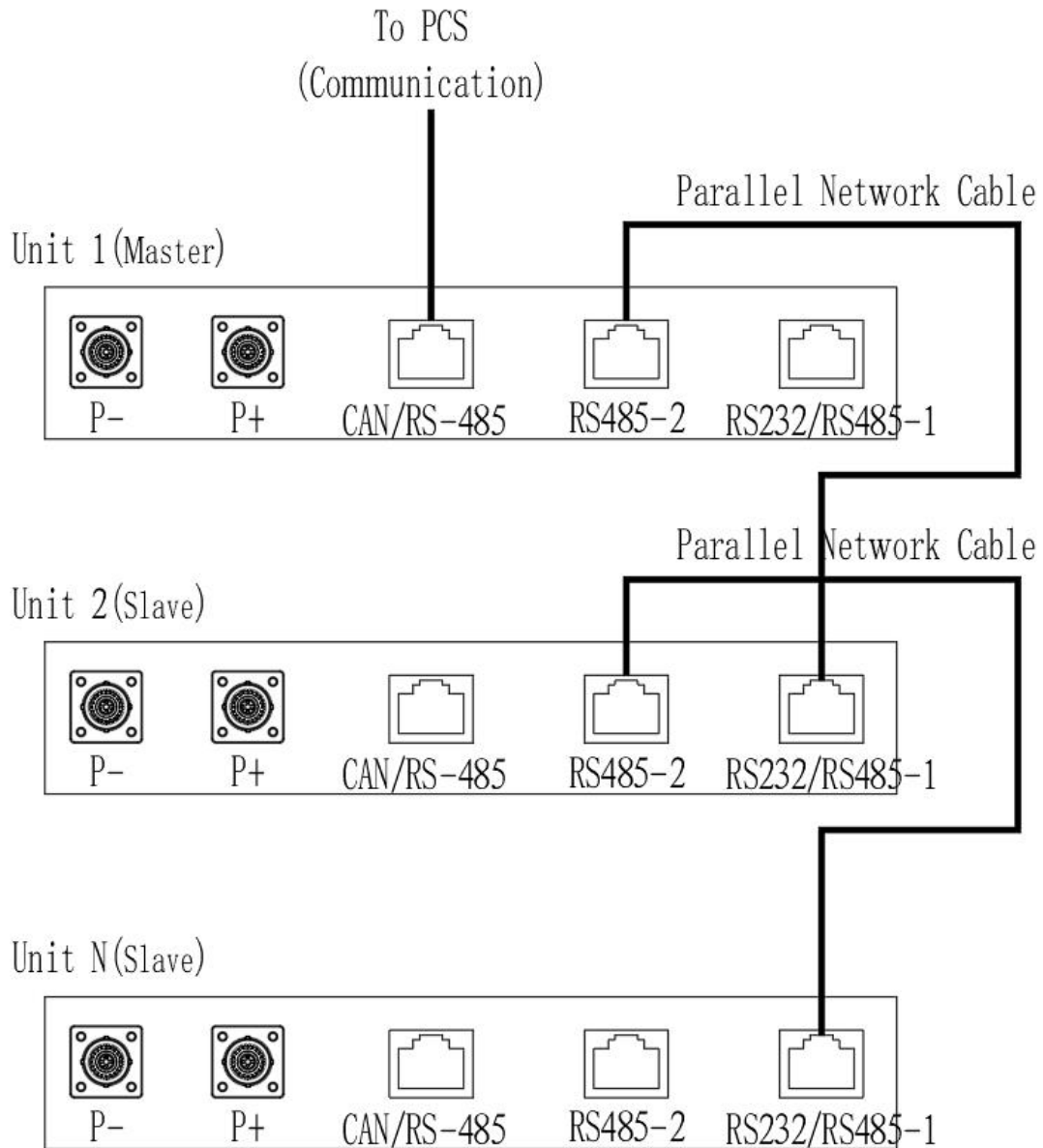


RJ45	1	2	3	4	5	6	7	8
BMS Port	RS485-B	RS485-A	GND	/	/	/	/	/

D. Interface Definition for Communication Cables between Battery Pack and CAN Inverter



RJ45	1	2	3	4	5	6	7	8
BMS Port	/	/	/	CAN_H	CAN_L	/	/	/

E. Battery pack communication cable wiring

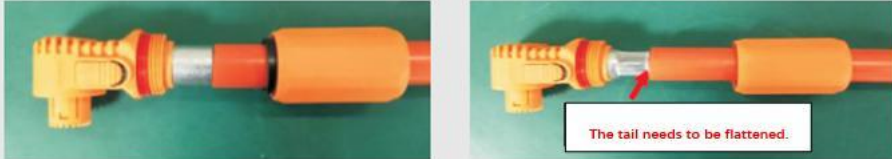
Follow the wiring diagram above for parallel network cables between battery packs. After wiring is completed, turn on the knob switch from the last battery (Unit N) to the first (Unit 1) in order. Unit 1 will act as the master and perform automatic addressing. If addressing fails, all indicator lights on the affected battery will flash simultaneously.

F. DC-side wire ASSEMBLYINSTRUCTION

[1.1] CONNECTOR PLUG ASSEMBLY
INSTRUCTION

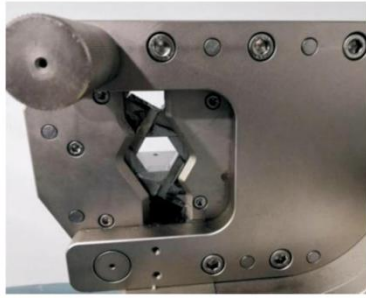


①		Explanation REMOVE NUT BACK COVER
②		Explanation PASS THE WIRE THROUGH THE PARTS OF THE NUT COVER

③	STRIP WIRE 	Expl anat ion	REMOVE THE INSULATION OF THE CABLE OVER A LENGTH OF 15.00mm TO 15.50mm. (If a bare copper cable is used for crimping, oxidation may occur in subsequent use, which may increase the temperature rise at the crimping joint. Therefore, tinned cables are recommended.)
	CRIMPING 		The tail needs to be flattened.
④	Expl anat ion	INSERT THE CABLE AFTER STRIPPING INTO THE RIVETING WIRE MOUTH OF CONNECTOR PLUG, HEXAGON RIVETING MACHINE SET THE CORRESPONDING CRIMPING HEIGHT, INSERT THE CONNECTOR PLUG ASSEMBLY INTO THE RIVETING WIRE INTO THE PRESSURE INTERFACE OF HEXAGON RIVETING MACHINE, THE PRESSURE SHALL BE KEPT FOR 2 SECONDS, THE APPEARANCE INSPECTION AND PULLING FORCE SPOT CHECK AFTER THE COMPLETION OF RIVETING.	
⑤		Explanation LOCK NUT BACK COVER TIGHTLY (FLAT FRONT END PLANE)	

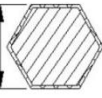
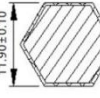
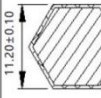
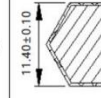
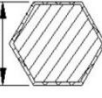
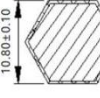
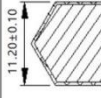
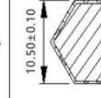
[1.2] Recommended CRIMP dimensions and Line tensile force requirements





Hexagon crimping machine

Riveting dimensions of terminals

	UL		TUV	
	2/0 AWG	1/0 AWG	70mm ²	50mm ²
Plug				
Socket				

PULL-OUT FORCE REQUIREMENT

CABLE SIZE	PULL-OUT FORCE
2/0,1/0 AWG,70mm ² , 50mm ²	2700 N

G. DC-side wire Connecting

1. Align plug, socket main key position.

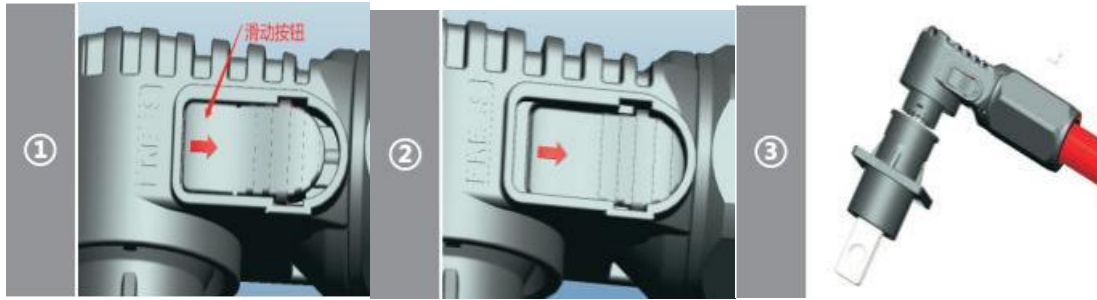


2. Plug in and hear, the click to indicate, that the assembly is in place.



H. Disconnecting

1. Slide the button to the right
2. Press the slide button
3. Pull the plug up and you can pull it out



I. Isolation device (DC Breaker)

The system's controls the negative conductor. Therefore, An isolation device must be installed between the PCS and the battery.

Install an isolation device (i.e. a DC Breaker) between the PCS and the battery system to run both positive and negative conductor overcurrent protection. The steps for installing isolation devices (i.e. a DC Breaker) are as follows:

1. The isolation device (DC Breaker) recommended rated current is 200A and rated working voltage is $>DC100V$.
2. Use the DC Cable to connect the battery to the isolation device (DC Breaker) /Combiner box (DC Breaker) .
3. Insert the DC Cable into the connection port of the isolation device (DC Breaker) , and distinguish the positive and negative terminals of the isolation device (DC Breaker) (see the device specifications for details);
4. Use the DC Cable to connect the PCS to the isolation device (DC Breaker) /Combiner box (DC Breaker)

Note: During installation, please turn off the battery power switch and check whether the power is off. The DC Cable from the battery to the isolation device (DC Breaker) /Combiner box (DC Breaker) and the isolation device (DC Breaker) /Combiner box (DC Breaker) to the PCS is provided by the installation personnel. (Please refer to the Product Packaging List for cable specifications).

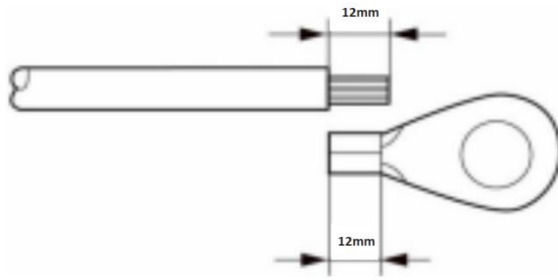
J. Ground Cable Installation

An external ground connection is provided at the right side of inverter. Prepare OT terminals: M4 . Use proper tooling to crimp the lug to the terminal .Connect the OT terminal with ground cable to the right side of inverter. The torque is $2N \cdot m$.

To connect the grounding terminal on the heat sink , please follow the steps below:

1. It is recommended to use copper wire for the chassis ground. Either solid conductor or stranded wire is acceptable . Refer to local code standard for wire sizing.
2. Attach OT terminal: M4.
3. Strip the ground cable insulation to a suitable length .
4. Crimp a ring connector onto the cable and then connect it to the chassis ground terminal.
5. The external grounding conductor is recommended to be connected to $4mm^2$ and above .

Note: The ground cable is provided by the installation personnel.



Chapter 6 Commissioning, Operation and Maintenance

Section 1 Commissioning

Sequence for Single-Unit Power-on

Step	Description
Step 1	Close DC Breaker
Step 2	Turn on the knob switch until the SOC indicator lights up stably, and ensure that XESHES energy storage batteries are powered on.
Step 3	Turn on the PCS power and select the unit configuration interface.
Step 4	Select "Xinyi XESHES Energy Storage Product" in the unit configuration interface.
Step 5	Select PCS operation mode (peak load shifting, backup power supply, self-generation and self-consumption) in the unit configuration interface, etc.
Step 6	Make sure that PCS and XESHES battery are connected.
Step 7	If the connection fails, an error message will be displayed on the cloud platform / APP .(See the troubleshooting section to solve the problem.)
Step 8	If the problem cannot be solved, please contact the after-sales service of XESHES battery and PCS providers.

Sequence for Single-Unit Power-off

Step	Description
Step 1	On the cloud platform or APP, operate the inverter to stop battery charging or discharging.
Step 2	Turn off the knob switch until the SOC indicator lights off stably, and ensure that XESHES energy storage batteries are powered off.
Step 3	Open DC Breaker

Sequence for Multi-Unit Parallel Power-on

Step	Description
Step 1	Close DC Breaker
Step 2	Turn on the knob switch(Master) until the SOC indicator lights up stably, and ensure that XESHES energy storage batteries are powered on.
Step 3	Turn on the knob switch(Slave 1) until the SOC indicator lights up stably, and ensure that XESHES energy storage batteries are powered on.
Step 4	Turn on the knob switch(Slave n) until the SOC indicator lights up stably, and ensure that XESHES energy storage batteries are powered on.
Step 5	Turn on the PCS power and select the unit configuration interface.
Step 6	Select "Xinyi XESHES Energy Storage Product" in the unit configuration interface.
Step 7	Select PCS operation mode (peak load shifting, backup power supply, self-generation and self-consumption) in the unit configuration interface,etc.
Step 8	Make sure that PCS and XESHES battery are connected.
Step 9	If the connection fails, an error message will be displayed on the cloud platform or APP . (See the troubleshooting section to solve the problem.)
Step 10	If the problem cannot be solved, please contact the after-sales service of XESHES battery and PCS providers.

Sequence for Multi-Unit Parallel Power-off

Step	Description
Step 1	On the cloud platform or APP, operate the inverter to stop battery charging or discharging.
Step 2	For master, Turn off the knob switch until the SOC indicator lights off stably .
Step 3	For Slave 1, Turn off the knob switch until the SOC indicator lights off stably .
Step 4	For Slave n, Turn off the knob switch until the SOC indicator lights off stably .
Step 5	Open DC Breaker

Remarks: The cloud platform or APP of the inverter can display battery data information, such as voltage, current, SOC (State of Charge), SOH (State of Health), etc.

Section 2 Operation

When using XESHES products, please follow this manual and maintain and use them correctly. There are three modes:

- 1) Normal
- 2) Standby and sleep
- 3) Storage/transportation

Notice

- ◆Make sure that the same mode is selected for each XESHES energy storage battery in the connection.
- ◆Purpose: To protect battery life, we recommend keeping the full system operation of PV, PCS and XESHES battery; Long downtime should be avoided.

Mode	Step	Function	Description
Normal mode (service condition: normal operation)	Step 1	Power on	Turn on the XESHES battery knob switch until the SOC indicator is on.
	Step 2	Power off	When XESHES battery is in standby state, turn off the knob switch until the SOC indicator goes out.
Standby and sleep	Step 3	Automatic standby	If XESHES battery fails to connect with PCS

			communication in more than 5 minutes, it will automatically enter Standby Mode to conserve power.
	Step 4	Sleep	Press and hold the reset button of XESHES battery for 3~6s, and release the reset button until the SOC indicator goes out; The standby time exceeds 24 hours.
	Step 5	Wake up	Press and hold the reset button of XESHES battery for 3~6s, and release the reset button until the SOC indicator is on.
Storage/transportation mode (service condition: during storage or transportation)	Step 6	Forced shutdown	When XESHES battery is in standby state, turn off the knob switch until the SOC indicator goes out.
	Step 7	Wake up	Turn on the XESHES battery knob switch until the SOC indicator is on.

Section 3 Cleaning

To maintain the best airflow, please keep the top edge of the XESHES energy storage battery away from leaves and other debris.

Clean the XESHES energy storage battery with a soft lint-free cloth, and you can only gently wet the cloth when necessary. To avoid possible damage, do not clean the battery with high pressure water.

Note: Do not clean the XESHES energy storage battery with detergent.

Section 4 Maintenance

The XESHES energy storage battery must be repaired by certified installers trained by Xinyi Electric Storage. In case of any problem, please refer to 7.1 Troubleshooting and contact the authorized Xinyi dealer who sold the product to you.

If the battery is left unused for a long period of time, please charge the battery to more than 75% and shut it down before storage. During the storage period, please charge the battery every three months. To extend the service life of the battery, please charge the battery in time when the battery percentage is less than 10% during use.

Chapter 7: Appendix

Section 1 Troubleshooting

If the XESHES battery is not operating normally, please follow these steps. If the problem persists, please contact the authorized Xinyi dealer who sold the XESHES battery to you.

Problem	Solution
The product fails	Check indoor temperature and increase ventilation if necessary
Neither PCS nor XESHES battery responds	Turn off the PCS circuit breaker and wait at least one minute before turning it on
Power failure or outage while the standby power supply is operating	Reduce the load and check the circuit breaker
Unable to communicate with PCS through its portal.	Ensure the RJ45 connector is securely inserted into the communication port. Verify that the pin configuration matches the required standard (T568B).
	Check whether the line sequence of RJ45 communication interface is correctly crimped

Section 2 Emergency

Water damage

If the XESHES battery is submerged in water, do not touch it, and then contact your authorized Xinyi dealer for technical support.

Damage

This battery is specially designed, multi-layered security is adopted and is free of leakage or fire. XESHES battery may produce smoke under strong external shocks. In this case, please stay away from the XESHES battery until the smoke disappears, turn off the power of the XESHES battery, and then return it to the authorized dealer.

Damaged XESHES batteries are dangerous, so please handle them with care. Do not continue to use them, because they may cause danger to human body or property.

If the XESHES battery appears to be damaged, please pack it in the original container and return it to the authorized dealer.

In case of continuous smoke emission from the XESHES battery, make sure that the following devices are available nearby:

SCBA (self-contained breathing apparatus) and protective devices that comply with Personal Protective Equipment Directive 89/686/EEC and Novec 1230, FM-200 or CO2 fire extinguishers.

Section 3 Specification Parameter

Parameters of Residential Energy Storage Battery		
Series Name	XESHES series	
Model	XESHES-U-48V13.5kWh-A	XESHES-U-48V13.5kWh-A-H
Rated battery power	13.44kWh	13.44kWh
Rated capacity	280Ah	280Ah
Depth of discharge	90% DOD	90% DOD
Rated battery voltage	48VDC	48VDC
Voltage range	40.5~53.25VDC	40.5~53.25VDC
Maximum charge voltage	53.25VDC	53.25VDC
Rated discharge current	140A	140A
Rated charge current	100A	100A
Rated DC Power(kW)	6.72	6.72
Usable Battery Capacity (kWh)	12.09	12.09
Maximum discharge current	140A	140A
Maximum charge current	100A	100A
Efficiency	>93%	>93%
Environmental conditions	Outdoor	Outdoor
Operating temperature	Charging: 0℃~40℃	Charging: -20℃~40℃
Operating temperature	Discharging: -20℃~40℃	Discharging: -20℃~40℃
Dimensions (L * W * H)	490±2*251.3±2*832±2mm	490±2*251.3±2*832±2mm
Weight	116±5kg	116±5kg
Cooling method	Natural cooling	Natural cooling
Case material	Metal	Metal
Installation method	Floor fixing	Floor fixing
Enclosure	IP65	IP65
Service life	>10 years (1 charge cycle/day)	>10 years (1 charge cycle/day)
Communication mode	RS-232, RS-485, CAN	RS-232, RS-485, CAN
Protections	Overvoltage, overcurrent, overtemperature, undervoltage, short circuit	Overvoltage, overcurrent, overtemperature, undervoltage, short circuit
Junction box system	Dimensions (L * W * H):212±2*130±2*410±2mm Weight: 6±1kg	Dimensions (L * W * H):212±2*130±2*410±2mm Weight: 6±1kg
Heating function	Not Available	Built-in Heating Film