GOODWE

User Manual

Rechargeable Li-ion Battery System

Lynx Home FH Series US

V1.4-2024-03-30

Trademarks

NOTICE

The information in this user manual is subject to change due to product updates or other reasons. This guide cannot replace the product labels or the safety precautions in the user manual unless otherwise specified. All descriptions here are for guidance only.

Content

01 About This Manual

This manual describes the product information, installation, electrical connection, commissioning, troubleshooting and maintenance. Read through this manual before installing and operating the product. All the installers and users have to be familiar with the product features, functions, and safety precautions.

This manual is subject to update without notice. For more product details and latest documents, visit https://en.goodwe.com.

1.1 Applicable Model

This manual applies to the listed models below:

- LX F9.6-30
- LX F12.8-30
- LX F16.0-30
- LX F19.2-30

1.2 Target Audience

This manual applies to trained and knowledgeable technical professionals. The technical personnel has to be familiar with the product, local standards, and electric systems.

1.3 Symbol Definition

Different levels of warning messages in this manual are defined as follows:

⚠ DANGER(DANGER)
Indicates a high-level hazard that, if not avoided, will result in death or serious injury.
⚠ WARNING(AVERTISSEMENT)
Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.
⚠ CAUTION(MISE EN GARDE)
Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.
NOTICE(AVIS)
Highlight and supplement the texts. Or some skills and methods to solve product-related problems to save time.

1.4 Updates

The latest document contains all the updates made in earlier issues.

V1.0 2022-11-01

- First Issue

V1.1 2023-02-15

- Updates **3.4** Dimensions.
- Updates **4.3** Storage.
- Updates **5.2** Installing the Battery System.
- Updates **6.2.5** Connecting the Terminal Resistor.

V1.2 2023-03-20

- Updates **4.3** Storage.

V1.3 2023-10-31

- Updates **4.2** Deliverables.
- Updates **5.2.2** Installing the Battery System.
- Updates **6.2.3** Connecting the Power Cable.
- Updates **6.2.4** Connecting the Communication Cable.
- Updates **7.2** Power ON the Battery System.

2 IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS
Please strictly follow these safety instructions in the user manual during the operation.

NOTICE(AVIS)
The products are designed and tested strictly to comply with related safety rules. Read and follow all the safety instructions and cautions before any operations. Improper operation might cause personal injury or property damage as the products are electrical equipment.

2.1 General Safety

NOTICE(AVIS)
• The information in this user manual is subject to change due to product updates or other reasons. This guide cannot replace the product labels or the safety precautions in the user manual unless otherwise specified. All descriptions here are for guidance only. • Before installations, read through the user manual to learn about the product and the precautions. • All operations should be performed by trained and knowledgeable technicians who are familiar with local standards and safety regulations. • Use insulating tools and wear personal protective equipment (PPE) when operating the equipment to ensure personal safety. Wear anti-static gloves, cloths, and wrist strips when touching electronic devices to protect the equipment from damage. • Strictly follow the installation, operation, and configuration instructions in this manual. The manufacturer shall not be liable for equipment damage or personal injury if you do not follow the instructions. For more warrant information, please visit: https://en.goodwe.com/warranty.

2.2 Battery Safety

⚠ DANGER(DANGER)
• The battery system exists high voltage during the equipment running. Please keep Power Off before any operations to avoid danger. Strictly follow all safety precautions outlined in this manual and safety labels on the equipment during the operation. • The inverter used with the battery shall be approved by the battery manufacturer. The approved list of battery and the matched inverter can be obtained through the official website. • Do not disassemble, modify, or replace any part of the battery or the power control unit without official authorization from the manufacturer. Otherwise, it will cause electrical shock or damages to the equipment, which shall not be borne by the manufacturer. • Do not hit, pull, drag, squeeze or step on the equipment or put the battery into fire. Otherwise, the battery may explode. • Do not place the battery in a high temperature environment. Make sure that there is no direct sunlight and no heat source near the battery. When the ambient temperature exceeds 60°C, it will cause fire. • Do not use the battery or the power control unit if it is defective, broken, or damaged. Damaged battery may leak electrolyte. • To protect the battery pack and its components from damage during transportation, please ensure that the transportation personnel are professionally trained. All operations during the transportation have to be recorded. The equipment shall be kept in balance, thus avoiding falling down.

⚠ DANGER(DANGER)

- The battery equipment is heavy. Please equip the corresponding personnel according to its weight, so that the equipment does not exceed the weight range of the human body can carry, and cause personnel injury.
- Contact After Sale Service immediately if the battery is not able to be started. Otherwise, the battery might be damaged permanently.
- Do not move the battery system if it is connected with external battery modules. Contact after-sales service if the battery shall be replaced or added.

⚠ CAUTION(MISE EN GARDE)

- Protect the battery system from damage during transportation and storage.
- The transportation must be carried out by trained professionals. All operations during the process have to be recorded.
- Keep the equipment stable to avoid dumping, which can result in equipment damage and personal injuries.
- Place the cables at least 30mm away from the heating components or heat sources, otherwise the insulation layer of the cables may be aging or broken due to high temperature.
-
- Tie the cables of the same type together, and place cables of different types at least 30mm apart. Do not place the cables entangled or crossed.

Label Description

	Potential risks exist. Wear proper personnel protective equipment before any operations.		Install the equipment away from fire sources.
	HIGH VOLTAGE HAZARD High voltage exists during the equipment's running. Ensure the equipment is power off before any operations.		Keep the equipment away from children.
	Operate the equipment properly to avoid explosion danger.		It is forbidden to dismantle the equipment personally.
	The equipment contains corrosive electrolytes. In case of a leak in the equipment, avoid contact the leaked liquid or gas.		Do not short-circuit the positive and negative pole of the equipment. Otherwise it may cause damage to the cables.
	Batteries contain flammable materials, beware of fire.		Grounding point.
	Read through the user manual before any operations.		SGS marking for United States and Canada

2.3 Emergency Measures

Battery Electrolyte Leakage

If the battery module leaks electrolyte, avoid contact with the leaking liquid or gas. The electrolyte is corrosive. It will cause skin irritation or chemical burn to the operator. Anyone contact the leaked substance accidentally has to do as following:

- Breath in the leaked substance: Evacuate from the polluted area, and seek immediate medical assistance.
- Eye contact: Rinse your eyes for at least 15 minutes with clean water and seek immediate medical assistance.
- Skin contact: Thoroughly wash the touch area with soap and clean water, and seek immediate medical assistance.
- Ingestion: Induce vomiting, and seek immediate medical assistance.

Fire

- The battery may explode when the ambient temperature exceeds 150℃. Poisonous and hazard gas may be released if the battery is on fire.
- In the event of a fire, please make sure that the carbon dioxide extinguisher or Novac1230 or FM-200 is nearby.
- The fire cannot be put out by water or ABC dry powder extinguisher. Firefighters are required to wear full protective clothing and self-contained breathing apparatus.

03 Product Introduction

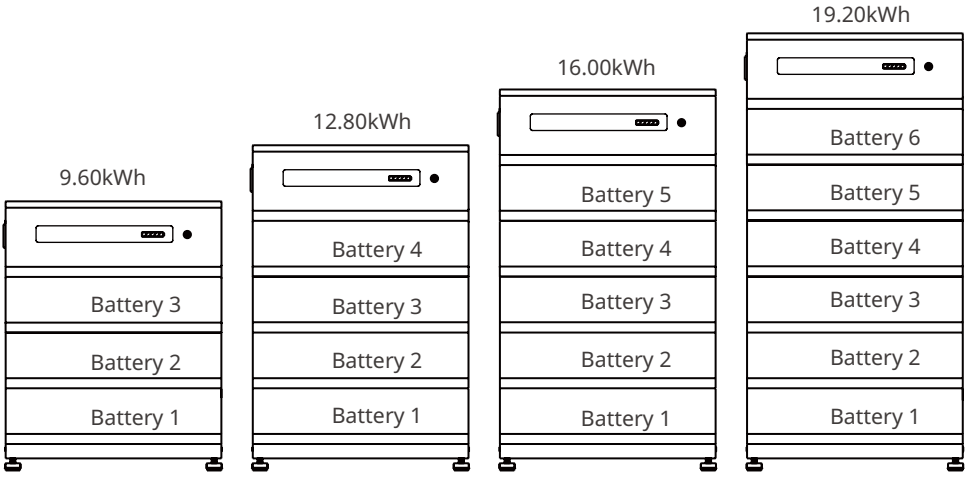
3.1 Product Overview

Intended usage

The battery system, which consists of a power control unit (PCU for short) and battery modules, can store and release the electric energy according to the requirements of the solar energy storage system. The input and output ports of the energy storage system are high voltage direct current ports.

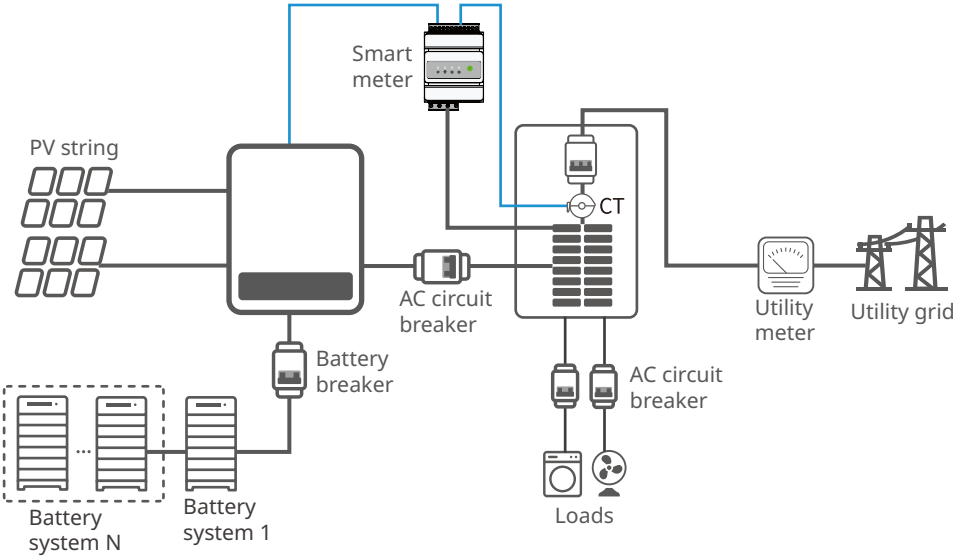
Usable energy description

The battery system supports capacity expansion. A maximum of 6 battery modules can be used to extend the usable energy of the battery system.



A max of eight battery systems can be parallel connected in one energy storage system. Ensure that the usable energy of each battery system is the same.

3.2 Application Scenarios



Approved inverter list

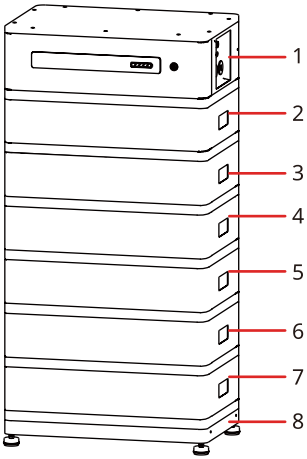
Scan the QR code below or visit the official website to get the Approved Inverter List matched with the Battery System.

GoodWe Inverter

GE Inverter

3.3 Appearance

Battery system appearance

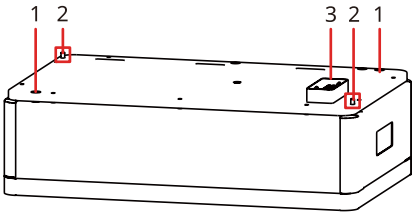


NOTICE(AVIS)

- Ensure that the PCU is installed above the battery modules. Do not install any battery modules above the PCU.
- This manual will show you the installation and electrical connection of 6 battery modules.

No.	Parts
1	PCU
2, 3, 4, 5, 6, 7	Battery
8	Base

Battery appearance

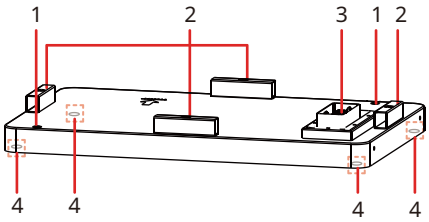


No.	Parts
1	Spacing hole
2	Positioning pin
3	Rectangular connector

Base appearance

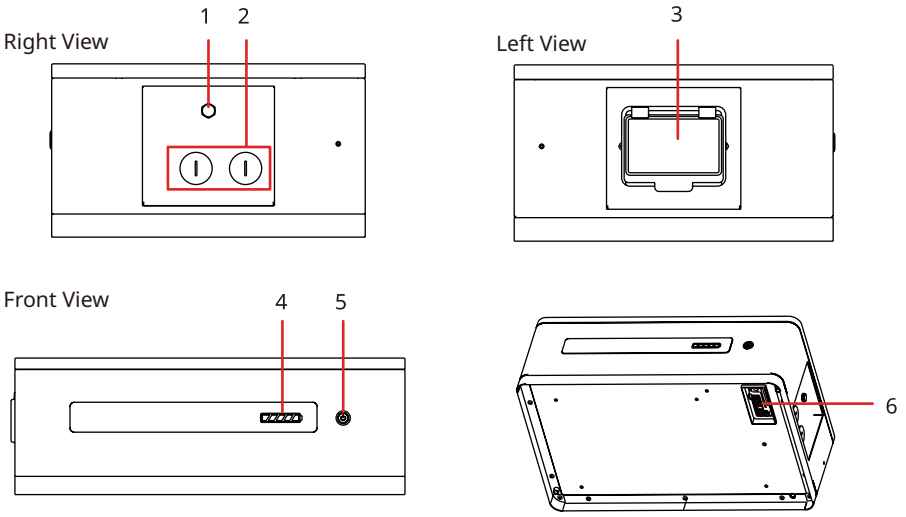
NOTICE(AVIS)

The appearance of the battery base is slightly different, and the installation method is the same. This manual uses one of the base as an example.



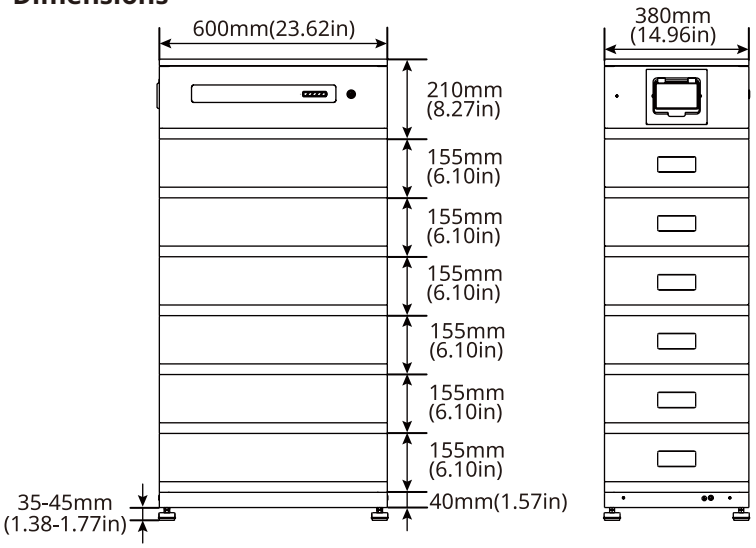
No.	Parts
1	Spacing hole
2	Positioning pin
3	Rectangular connector
4	Adjustable feet

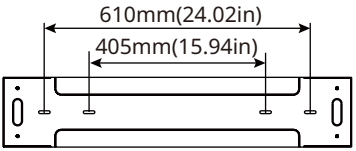
Power control unit appearance

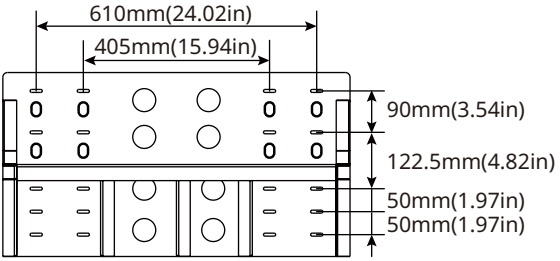


No.	Parts
1	Ventilation valve
2	Cable hole
3	Air switch
4	SOC indicator
5	Multi-function button
6	Battery serial connection interface

3.4 Dimensions







04 Check and Storage

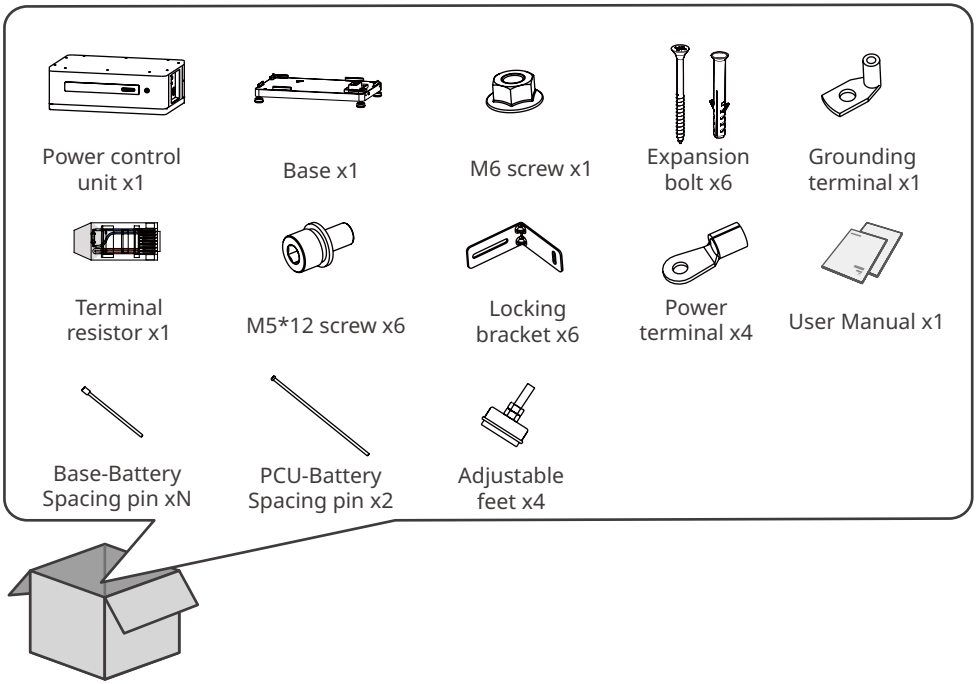
4.1 Check Before Receiving

Check the following items before receiving the product.

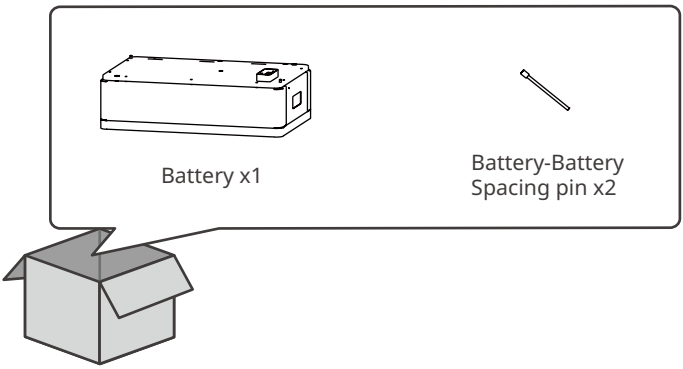
1. Check the outer packing box for damage, such as holes, cracks, deformation, and other signs of equipment damage. Do not unpack the package and contact the supplier as soon as possible if any damage is found.
2. Check the product model. If the product model is not what you requested, do not unpack the product and contact the supplier.
3. Check the deliverables for correct model, complete contents, and intact appearance. Contact the supplier as soon as possible if any damage is found.

4.2 Deliverables

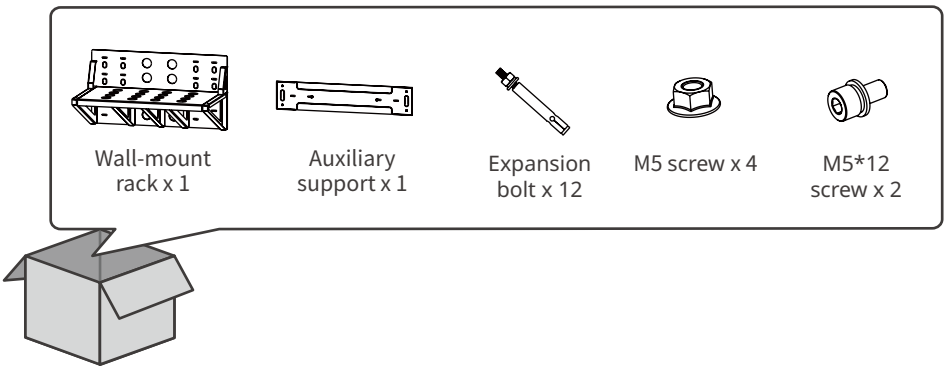
Power control unit



Battery module



Wall-mount rack（Optional）



4.3 Storage

If the equipment is not to be installed or used immediately, please ensure that the storage environment meets the following requirements:

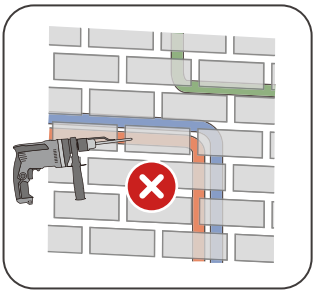
1. Do not unpack the outer packing box or throw the desiccant away.
2. Complete the equipment installation in three days after unpacking it. Pack and store the equipment using the original packing box if it is not installed.
3. Stack the equipment complying with the labels and requirements on the packing box.
4. The equipment must be stacked with caution to prevent them from falling.
5. Keep the equipment away from flammable, explosive, and corrosive matters.
6. Place the equipment in a cool place where away from direct sunlight.
7. Store the equipment in a clean place. Make sure the temperature and humidity are appropriate and no condensation.
8. Storage SOC: 25%~50% SOC. Circle the charge-discharge every 6 months.
9. Recommended storage temperature: 0℃~35℃ (less than one year), -20℃~0℃ or 35℃~45℃(less than one month).
10. Recommended storage humidity: 0%~95%RH (no condensation). Do not install the battery if there is any moisture or condensation.

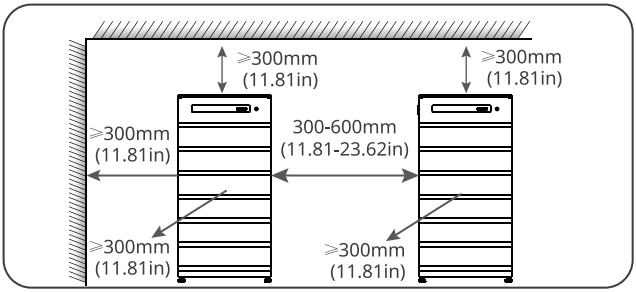
5 System Installation

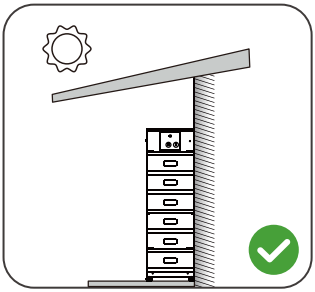
5.1 Installation Requirements

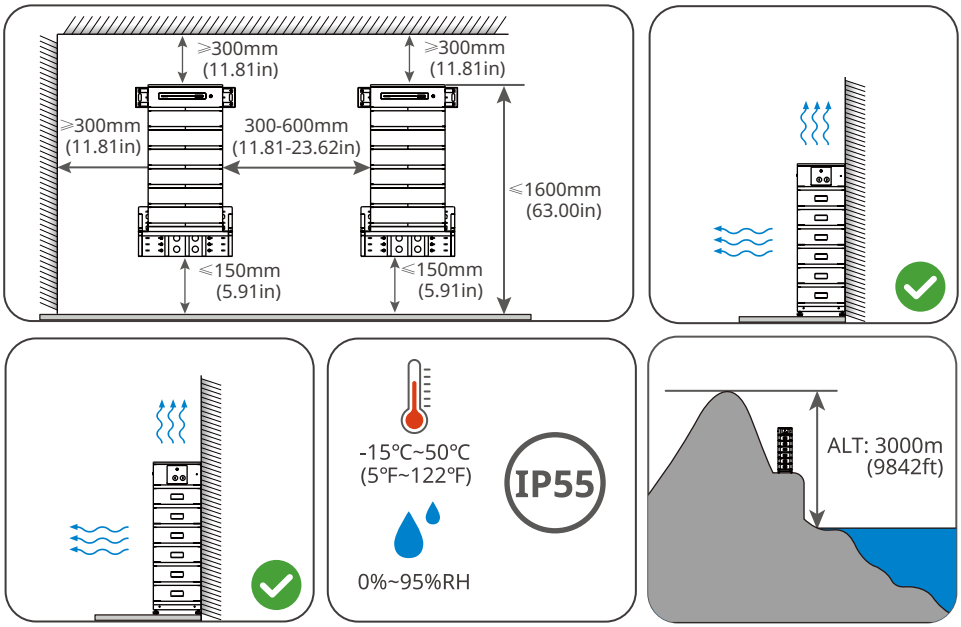
Installation Environment Requirements

1. Do not install the equipment in a place near flammable, explosive, or corrosive materials.
2. Do not install the equipment in a place that is easy to touch, especially within children's reach. High temperature exists when the equipment is working. Do not touch the surface to avoid burning.
3. Avoid thewater pipes and cables buried in the wall when drilling holes.
4. Install the equipment in a sheltered place to avoid direct sunlight, rain, and snow. Build a sunshade if it is needed.
5. Install the equipment in a well-ventilated place to ensure good dissipation. Also, the installation space should be large enough for operations.
6. The equipment with a high ingress protection rating can be installed indoors or outdoors. The temperature and humidity at the installation site should be within the appropriate range.
7. Install the equipment at a height that is convenient for operation and maintenance, electrical connections, and checking indicators and labels.
8. The altitude to install the equipment shall be lower than the maximum working altitude 3000m (9842ft).









Mounting Support Requirements

- The mounting support shall be nonflammable and fireproof.
- Install the equipment on a surface that is solid enough to bear the product weight.
- Put the battery system near the wall and install the locking brackets to prevent the battery from falling down.

Installation Angle Requirements

- Install the equipment vertically, no tilt or upside down.

Installation Tool Requirements

The following tools are recommended when installing the equipment. Use other auxiliary tools on site if necessary.

5.2 Installing the Battery System

5.2.1 Moving the Equipment

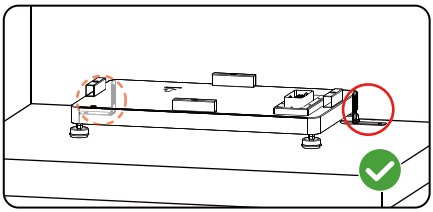
CAUTION(MISE EN GARDE)

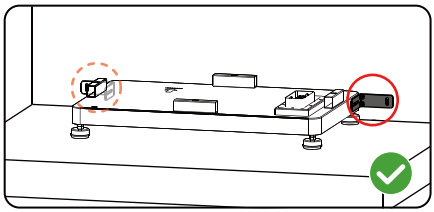
- Operations such as transportation, turnover, installation and so on must meet the requirements of the laws and regulations of the country or region where it is located.
- Move the equipment to the site before installation. Follow the instructions below to avoid personal injury or equipment damage.
  1. Consider the weight of the equipment before moving it. Assign enough personnel to move the equipment to avoid personal injury.
  2. Wear safety gloves to avoid personal injury.
  3. Keep balance to avoid falling down when moving the equipment.

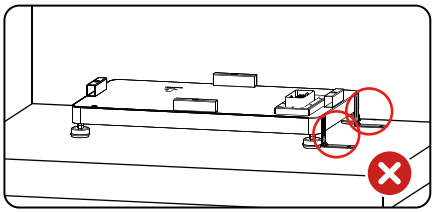
5.2.2 Installing the Battery System

NOTICE(AVIS)

- Ensure that the ground is flat and no inclination.
- Ensure that the base stands on the floor vertically.
- Ensurethat the base clings to the wallwith its arrow directs at the wall
- Align the holes of the upper and the lower battery modules when placing the upper battery module.
- Put the locking bracket of the PCU cling to the wall, and ensure that the bottom of the PCU is vertically and closely put on the battery.
- Cover the equipment with a cardboard to prevent foreign matters when drilling holes.
- Beware of the batteries and PCU falling down.
- Do not install the base and the locking bracket on one side.



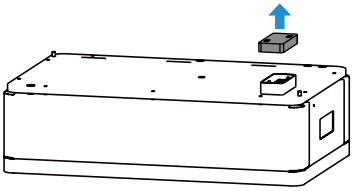




NOTICE(AVIS)
• Keep the fastening screws after opening the top cover of PCU for later usage. • Use the PCU-Battery Spacing pin to fix the last battery and PCU. Do not install the Battery-Battery Spacing pin. • If you need to open the top cover of PCU in rain or snow, please take protective measures to prevent rain or snow from entering the maintenance chamber. If it is not able to be guaranteed, do not open the top cover.

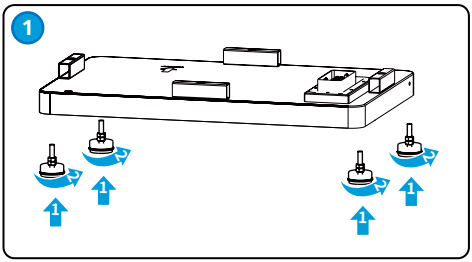
Floor Mounting

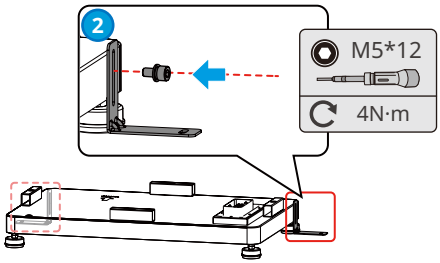
Disassemble the protective cover of the blind-mate connector.

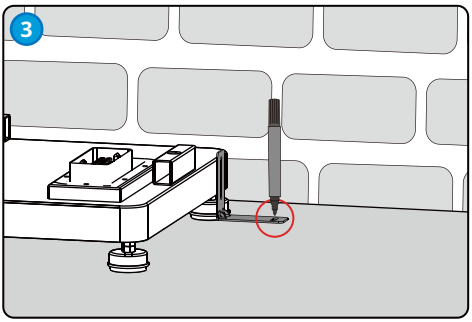


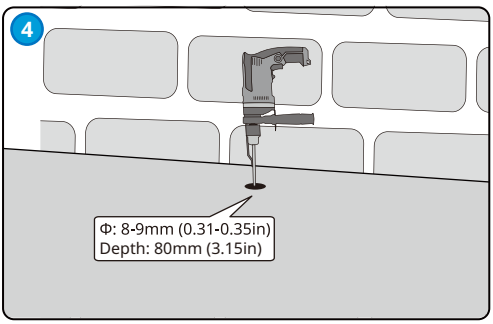
Step 1: Install the adjustable feet to the base.
Step 2: Install the locking bracket to the base.
Step 3: Place the base cling to the wall and mark the drilling positions. Then remove the base.
Step 4: Drill holes with the hammer drill.
Step 5: Check the battery base and ensure that the narrow on the base points to the wall.
Step 6: Fasten the expansion bolts, ensuring the base is firmly installed.
Step 7: Install the battery to the base.
Step 8: Install the batteries from the bottom up as the instruction of Step 7.
Step 9: Install the locking bracket of the PCU.
Step 10: Put the PCU above the installed battery module securely. Mark the drilling hole with a marker, then remove the PCU.

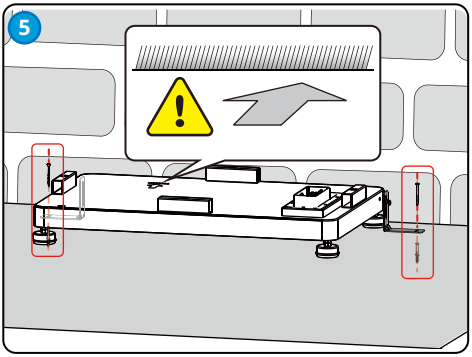
Step 11: Drill holes with the hammer drill.
Step 12: Fasten the expansion bolts, ensuring the PCU is firmly installed.
Step 13: Open the top cover of the PCU.
Step 14: Install the positioning pin between the PCU and the battery.

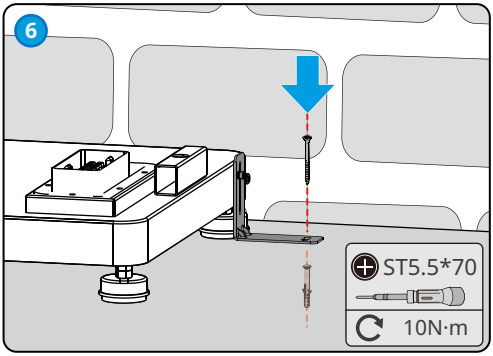


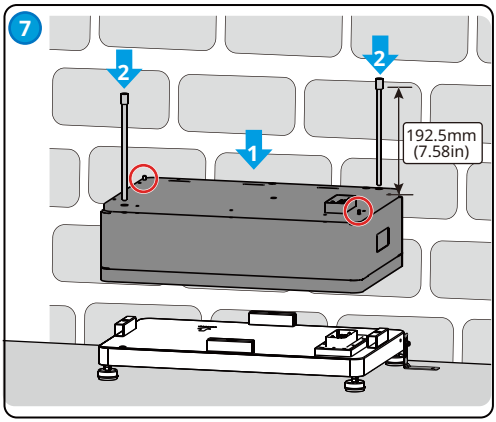


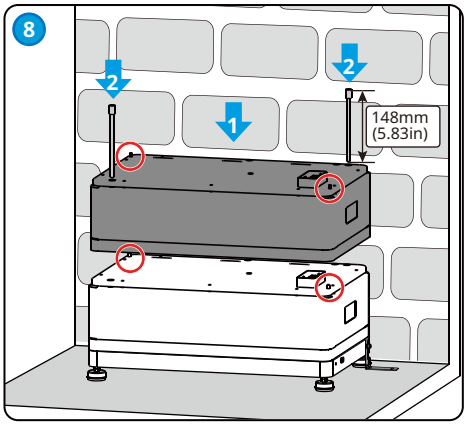


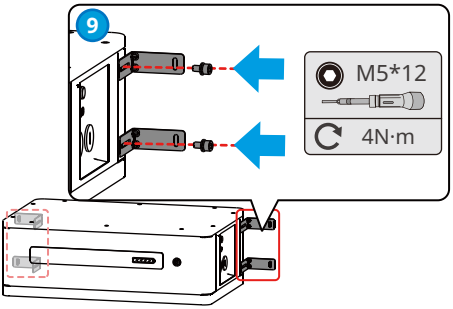


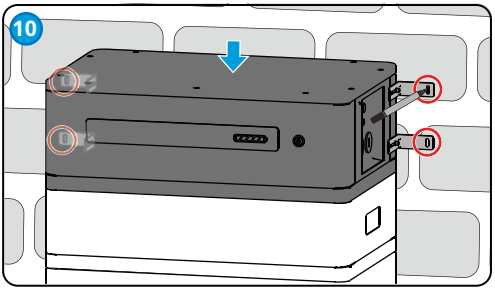





7
2
2
1
192.5mm
(7.58in)


8
2
2
1
148mm
(5.83in)


9
M5*12
4N·m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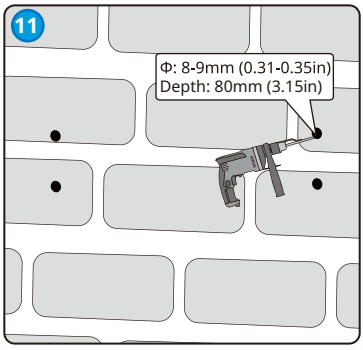
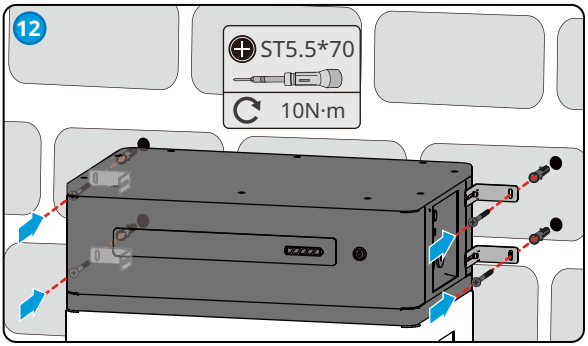
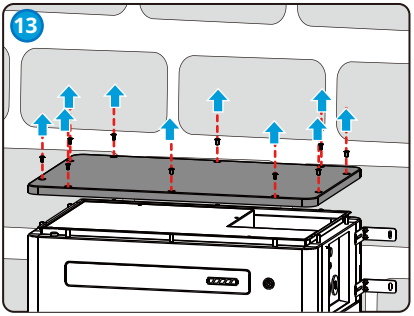

11
Φ: 8-9mm (0.31-0.35in)
Depth: 80mm (3.15in)


12
ST5.5*70
10N·m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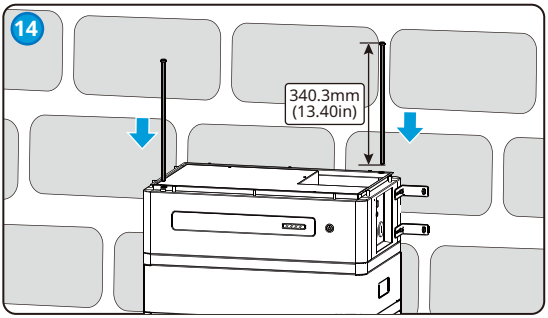
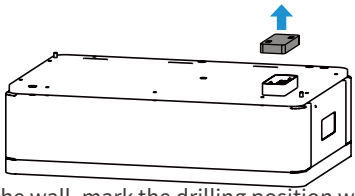
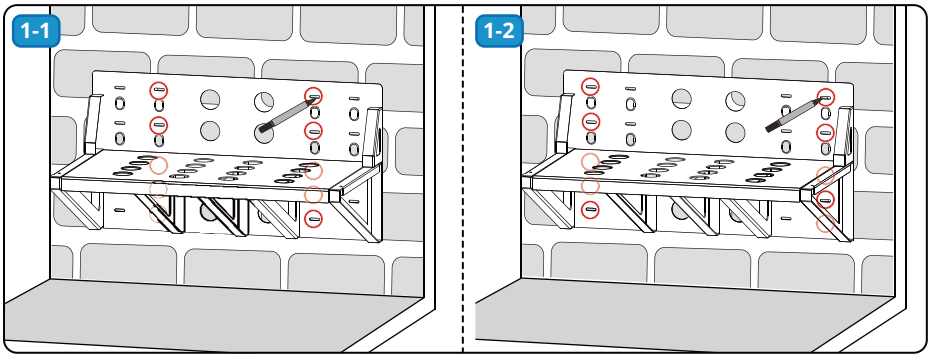

14
340.3mm
(13.40in)

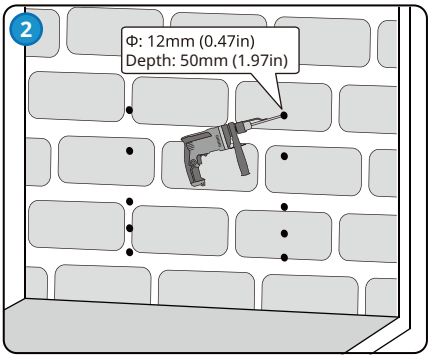
Wall Mounting

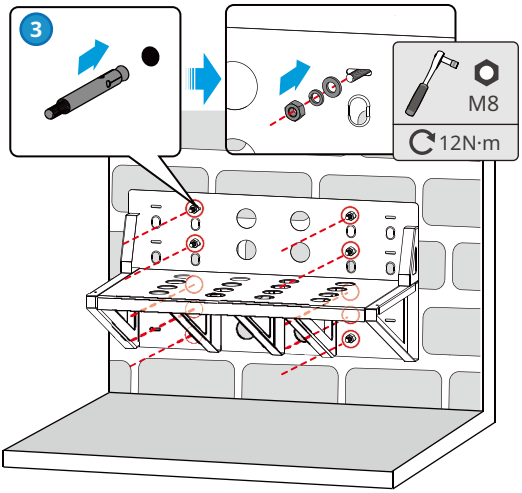
Disassemble the protective cover of the blind-mate connector.

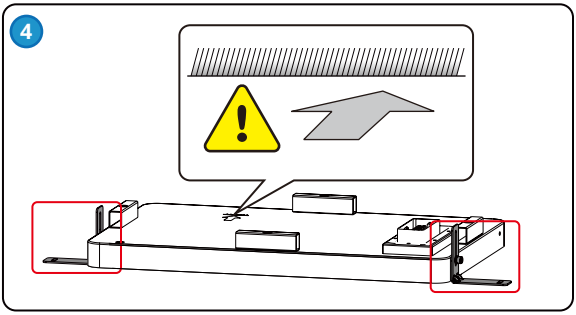


Step 1: Place the rack against the wall, mark the drilling position with a marker, and remove the base.
Step 2: Drill holes with the hammer drill.
Step 3: Fix the rack with expansion screws.
Step 4: Check the battery base and ensure that the narrow on the base points to the wall.
Step 5: Install the locking bracket to the base.
Step 6: Align the installation holes of the locking bracket and the rack.
Step 7: Fix the base and rack.
Step 8: Install the remaining batteries and PCU based on the actual needs.
Step 9: Install the locking bracket of the PCU.
Step 10: Put the PCU above the installed battery module securely. Mark the drilling hole with a marker, then remove the PCU.
Step 11: Align the auxiliary bracket with the hole position on the PCU, mark the drilling position with a marker, and remove the auxiliary support.
Step 12: Drill holes with the hammer drill.
Step 13: Secure the auxiliary support with expansion screws.
Step 14: Tighten the nuts to ensure that the PCU is securely installed.
Step 15: Open the top cover of the PCU.
Step 16: Install the positioning pin between the PCU and the battery.




2
Φ: 12mm (0.47in)
Depth: 50mm (1.97in)


3
M8
12N·m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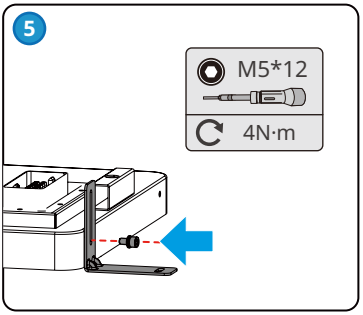
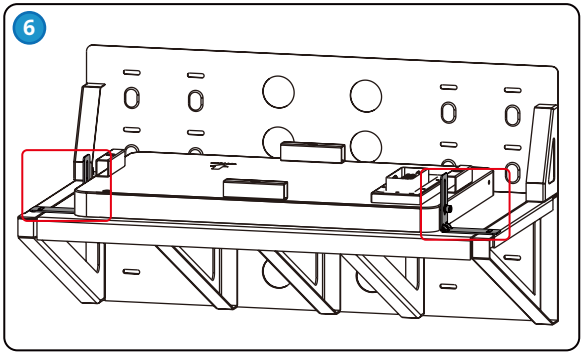

5
M5*12
4N·m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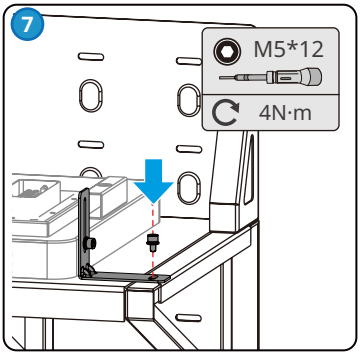
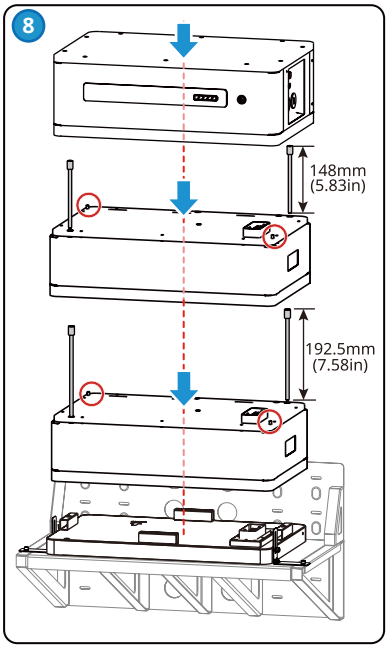
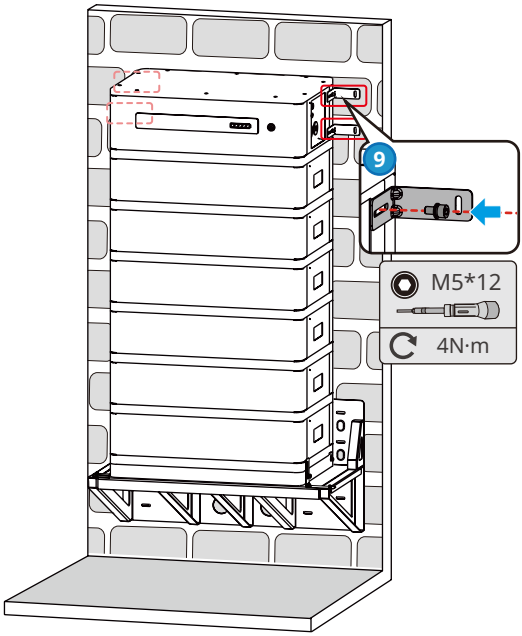
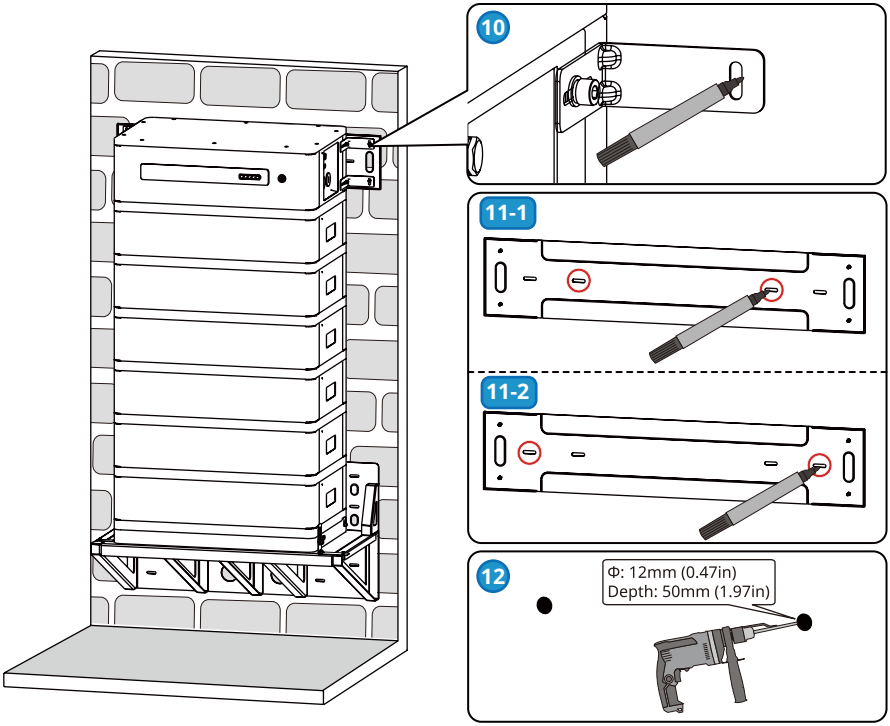
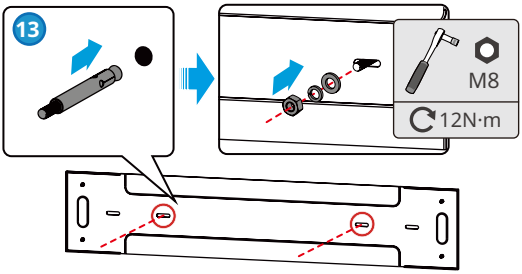
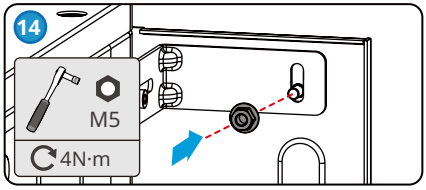

7
M5*12
4N·m

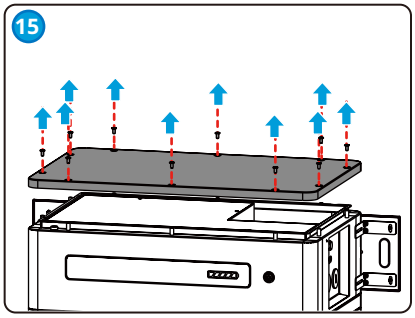

8
148mm
(5.83in)
192.5mm
(7.58in)

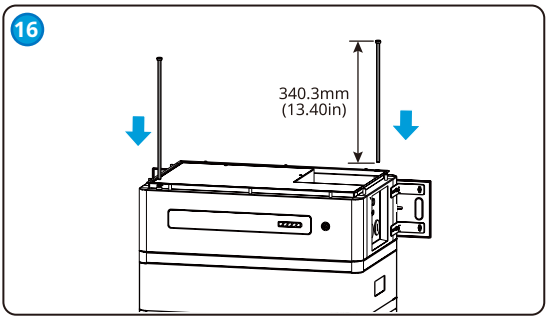

9
M5*12
4N·m


10
11-1
11-2
12
Φ: 12mm (0.47in)
Depth: 50mm (1.97in)


13
M8
12N·m


14
M5
4N·m


15


16
340.3mm
(13.40in)

6 Electrical Connection

6.1 Safety Precaution

DANGER(DANGER)

INSTRUCTIONS PERTAINING TO A RISK OF FIRE OR ELECTRIC SHOCK

- Perform electrical connections, including operations, cables, and component specifications in compliance with local laws and regulations ANSI/NFPA 70.
- The battery system exists high voltage during the equipment running. Please keep Power Off before any operations to avoid danger. Strictly follow all safety precautions outlined in this manual and safety labels on the equipment during the operation.
- All operations, cables and parts specification during the electrical connection shall be in compliance with local laws and regulations.
- Tie the same type cables together, and place them separately from cables of different types. Do not place the cables entangled or crossed.
- When crimping the terminals, ensure that the conductor part of the cable is in full contact with the terminals. Do not crimp the cable jacket with the terminal. Otherwise the charger may not operate, or its terminal block getting damaged due to heating and other phenomenon because of unreliable connection after operation.

WARNING(AVERTISSEMENT)

GROUNDING INSTRUCTIONS

This product must be connected to a grounded, metal, permanent wiring system, or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the product.

NOTICE(AVIS)

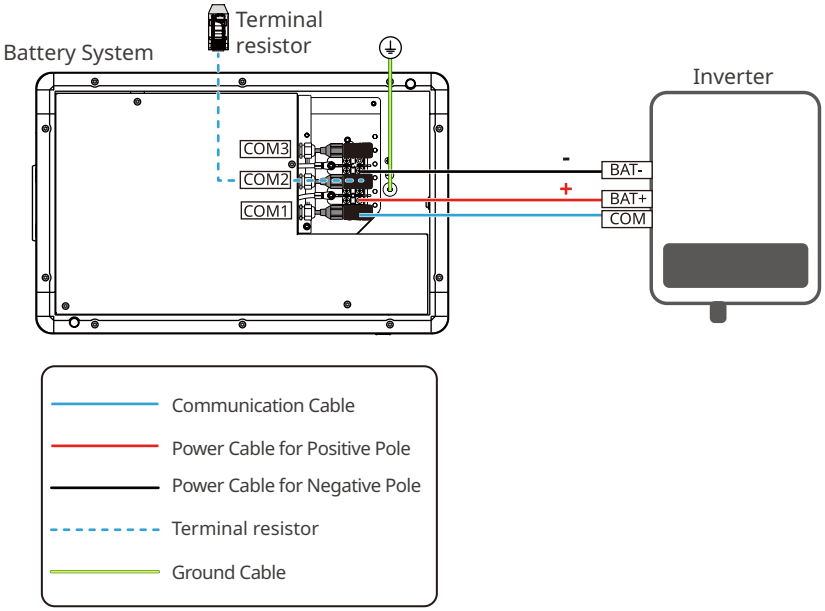
- Wear personal protective equipment like safety shoes, safety gloves, and insulating gloves during electrical connections.
- All electrical connections should be performed by qualified professionals.
- Cable colors in this document are for reference only. The cable specifications shall meet local laws and regulations.

6.2 Electrical Connection

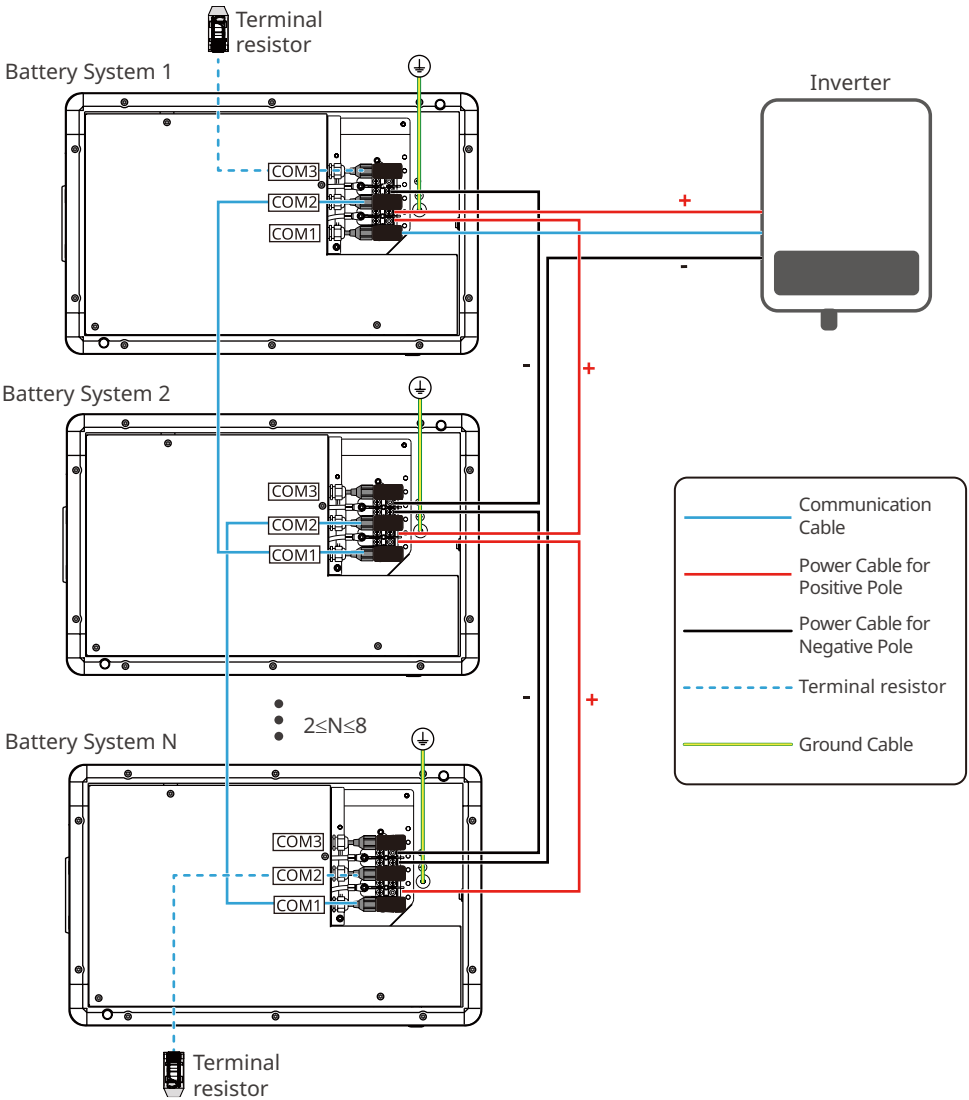
NOTICE(AVIS)

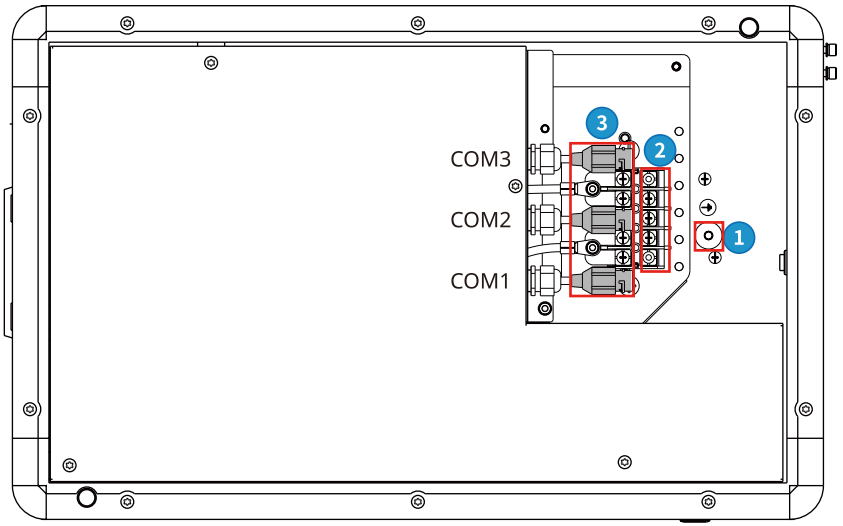
- A max of eight battery systems can be parallel connected in one energy storage system. Ensure that the usable energy of each battery system is the same.
- The PCU is installed with a terminal resistor by default.
- When a single battery system is applied, do not remove the terminal resistor.
- When using a multi battery system, please follow the steps below to install the terminal resistors:
  1. Remove the terminal resistor from COM2 of battery system 1 and install it in COM3.
  2. Remove the terminal resistors of battery system 2 to battery system N-1 and store them properly, then connect parallel communication cables.
  3. Do not remove the terminal resistor of battery system N.

Single battery system



Parallized battery systems





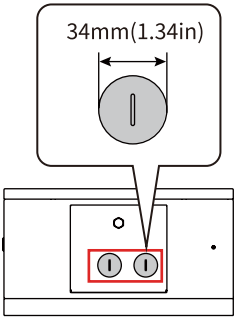
No.	Terminal/Port	Silkscreen	Recommended Cable Specifications
1	Grounding point	⏚	Connecting the PE cable • The recommended specification: copper, temperature105℃ (221°F), cross-sectional area 10AWG.
2	DC Terminal (BAT)	⊕	Connecting the Power cable • The recommended specification: copper, temperature105℃ (221°F), cross-sectional area 6AWG.
		⊖	
3	Communication terminal	COM1	To realize the communication between the battery and the inverter, as well as among the batteries.
		COM2	
		COM3	

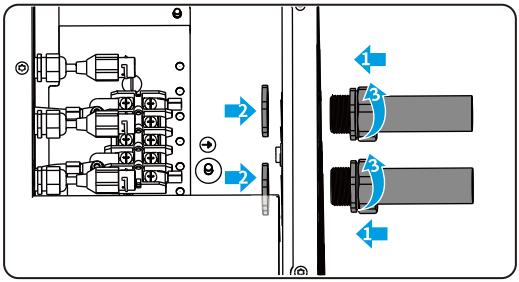
6.2.1 Installing the Wiring Conduit

⚠ WARNING(AVERTISSEMENT)

- Conduit shall be prepared by Users with specification matched with the waterproof end cap.
- It is recommended to use 1 inch cable gland for routing. The diameter for the routing hole on the PCU is 34mm (1.34 in).
- When installing the conduit, make sure the installation is in place, and the hole between the conduit and the equipment interface is sealed. Otherwise the protection level of the equipment may be affected, which may cause damage to the equipment.

Diameter for the PCU routing hole



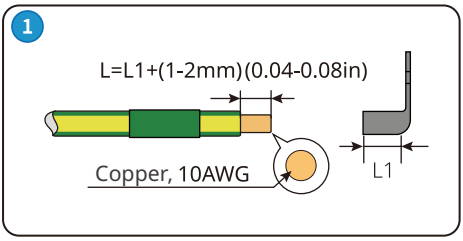


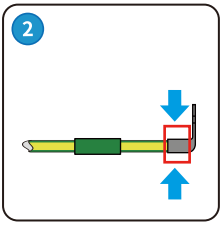
6.2.2 Connecting the Communication Cable

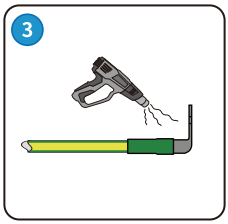
NOTICE(AVIS)

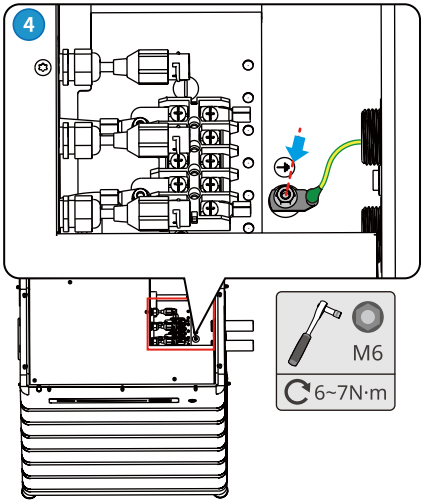
- Connect the PE cable first before installing the equipment. Disconnect the PE cable before dismantling the equipment.
- Prepare the PE cable by Users. The cable should meet standards for outdoor use.
- The drawing force of the cable after crimping should be at least 400N.

Step 1: Strip the insulation layer and insert the bared conductor into the terminal.
Step 2: Crimp the PE cable.
Step 3: Install the heat shrink tube.
Step 4: Connect the PE cable.





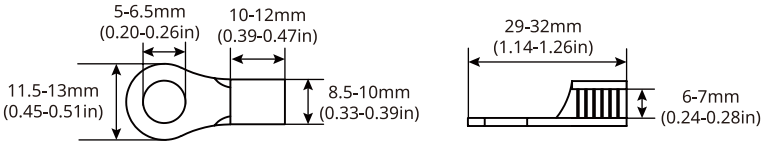




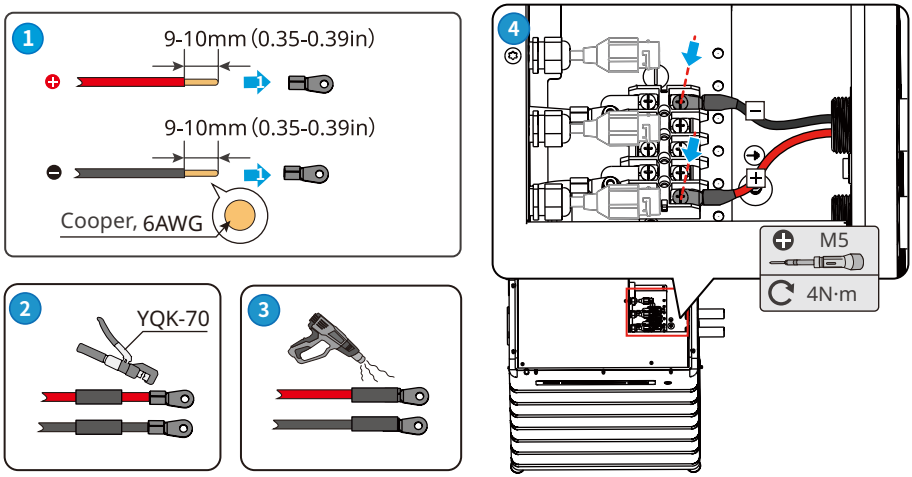
6.2.3 Connecting the Power Cable

⚠ WARNING(AVERTISSEMENT)

- Connect the DC cables with the delivered terminals. The manufacturer shall not be liable for the damage if other terminals are used.
- Power off the battery system before connecting the power cable to avoid high voltage danger.
- It is recommended to use a YQK-70 hydraulic plier with an "16" mark on the crimping dies to crimp the DC terminal of the battery.
- If the power terminal needs to be prepared by customers, it is recommended to use RNB 14-5 terminal. If the terminal cannot be purchased, choose the appropriate terminal according to the recommended size.
- If the recommended hydraulic plier cannot be purchased, please choose the crimping tool according to the terminal size to ensure that the crimped terminals meet the usage requirements.
- The PE cable should be prepared by the customer.Type: outdoor PV cables satisfying the inverter's max input voltage.



Step 1: Strip the insulation layer and insert the bared conductor into the terminal.
Step 2: Crimp the Power cable.
Step 3: Install the heat shrink tube.
Step 4: Connecting the Power cable.

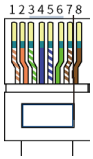


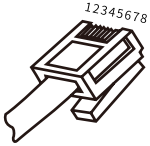
6.2.4 Connecting the Communication Cable

NOTICE(AVIS)

- Please refer to the following pin definitions if you need to make a new battery communication cable.

RJ45 Modular Connector





CAN Communication port

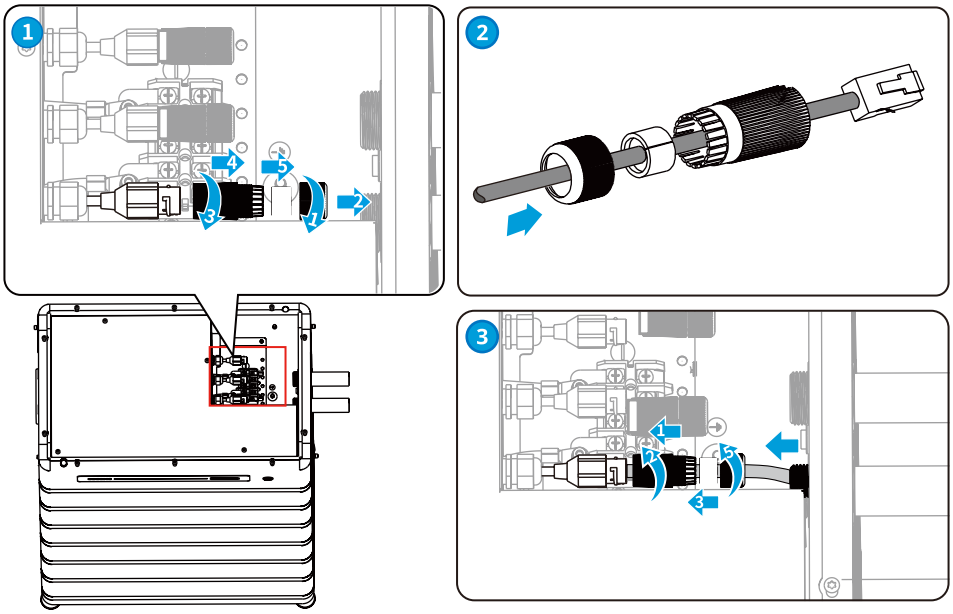
PIN	COM1	COM2	COM3	Description
1	CAN3H	CAN3H	CAN3H	BMS communication for battery system parallel connection
2	CAN3L	CAN3L	CAN3L	
3	N/A	N/A	N/A	Reserved
4	CAN2H	N/A	N/A	COM1: connects to the inverter BMS communication port to communication with the inverter COM2, COM3: reserved
5	CAN2L	N/A	N/A	
6	ISO_GND	ISO_GND	N/A	PIN for grounding.
7	HVIL_IN	HVIL_IN	N/A	COM1, COM2: interlock function COM3: reserved
8	HVIL_OUT	HVIL_OUT	N/A	

WARNING(AVERTISSEMENT)

- Detailed requirements for communication cable connection and termination resistor installation can be obtained in the system wiring network. This chapter only describes the connection method of communication cables and port definitions.
- If the termination resistor is not installed, the Interlock Failure will occur, and the battery system cannot work correctly.

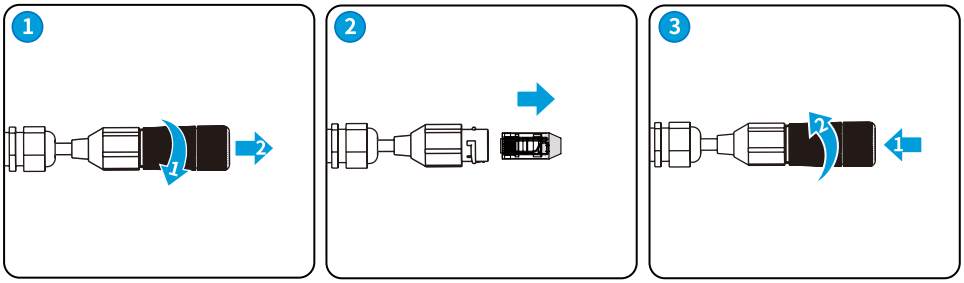
Connecting the Communication Cable

Step 1: Disassemble the waterproof module.
Step 2: Route the communication cable through the waterproof module.
Step 3: Connect the communication cable to the battery. Tighten the waterproof module.



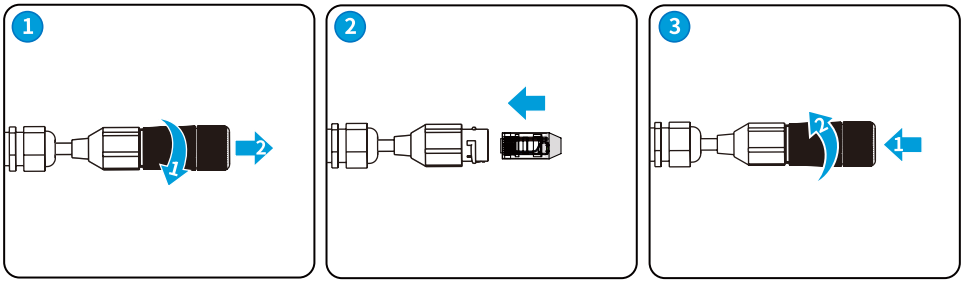
Remove the Terminal Resistor

Step 1: Disassemble the waterproof module.
Step 2: Remove the terminal resistor from the communication port.
Step 3: Tighten the waterproof module.

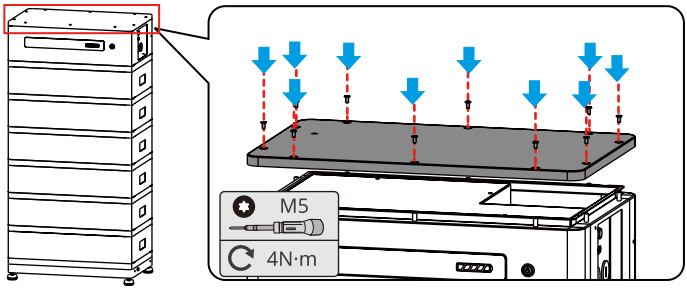


Installing the Termination Resistor

Step 1: Disassemble the waterproof module.
Step 2: Install the terminal resistor.
Step 3: Tighten the waterproof module.



6.2.5 Installing the top cover of the PCU



07 System Operation

7.1 Check Before Power ON

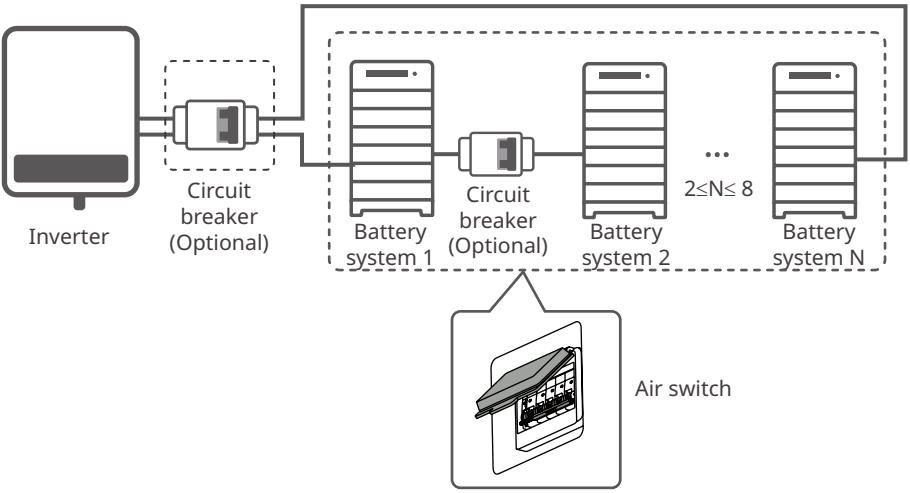
Check the following items before power on to avoid the battery system being damaged.

No.	Check Item
1	The equipment is firmly installed in a clean place where is well-ventilated and easy to operate.
2	The PE cable, power cable, communication cable, and terminal resistor are connected correctly and securely.
3	Cable ties are intact, routed properly and evenly.
4	Unused ports and terminals are sealed.

7.2 Power ON the Battery System

NOTICE(AVIS)
• The equipment in the dashed boxes are optional. • Install the circuit breaker between the inverter and the battery and the circuit breaker between the two battery systems in compliance with local laws and regulations. • Strictly follow the power on requirements to avoid damaging the system. • To ensure effective protection, the cover of the battery system switch should remain closed. The cover can be closed automatically after being opened. Fasten the cover with screws if the switch is not to be used for a long-term period.

Method I:
Step 1: Turn on the breaker between the inverter and the battery system.
Step 2: (Optional) Turn on the breaker between the battery systems if they are clustered.
Step 3: Turn on the battery system switch. Turn on the switches of the battery systems in turn if they are clustered.
Step 4: Turn on the inverter in the system following the instructions in the user manual of the inverter.



NOTICE(AVIS)
• When the inverter cannot be started through the DC voltage of the PV string, the battery can be turned on to provide power to the inverter. • After the battery system is started, set the battery model through SolarGo App within 10 minutes to ensure normal communication between the inverter and the battery.

Method II:

Step 1: Long press the multi-function button for 5-15s to start the battery system. If it is a parallel battery system, long press the multi-function button of every battery system in sequence.

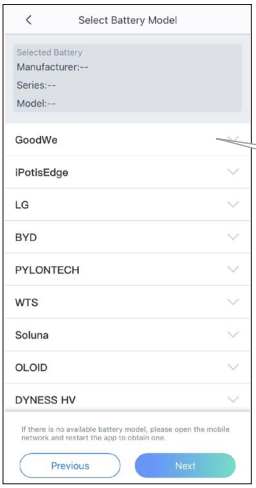
Step 2: Turn on the inverter in the system following the instructions in the user manual of the inverter.

7.3 Setting the Battery Parameters

Select battery model via SolarGo after successfully connecting the battery module and the inverter.

APP installation and connection

Set battery model via the SolarGo App.

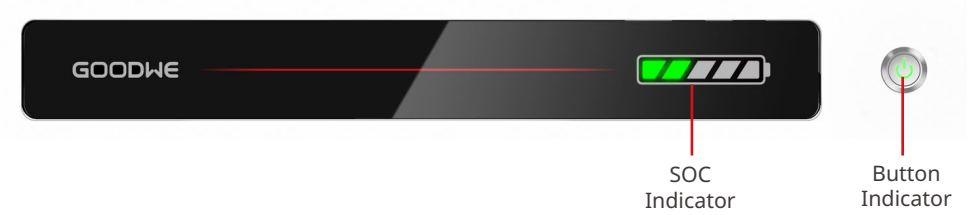


LX F-H-US

Select “LX F-H-US” on “Select Battery Model” window via the SolarGo App.

NOTICE(AVIS)
"Battery Communication Failure" will be displayed if you select the wrong battery model. Please select the right battery model accordingly.

7.4 Indicator Status



Multi-function Button	Status
Green	Standby or Working
Red	Alarming or Faulty

7.4.1 Normal Status

Button Indicator	SOC Indicator	Description
Idle: green light blink 2 times Standby: green light blink 1 time Working: steady green		SOC<5%
		5%≤SOC<25%
		25%≤SOC<50%
		50%≤SOC<75%
		75%≤SOC<95%
		SOC≥95%

NOTICE(AVIS)

- The SOC indicator keeps on when charging.
- The SOC indicator blinks one time when discharging.

7.4.2 Alarming Status

Multi-function Button	SOC Indicator	Alarm	Solutions
Red light blink 2 times		Battery Overvoltage	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Battery Undervoltage	Long press the button for 5 seconds to start the battery under charging conditions. Contact the After Sale Service if the problem could not be solved.
		Overcurrent Charging	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Overcurrent Discharging	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Temperature Difference Exception	Power off and wait for 2 hours. Contact the After Sale Service if the problem could not be solved.
		High Temperature	Power off and wait for 2 hours. Contact the After Sale Service if the problem could not be solved.
		Low Temperature	Power off and wait for 2 hours. Contact the After Sale Service if the problem could not be solved.
		Interlock Failure	Contact the After Sale Service if the problem could not be solved.
		Others	Contact the After Sale Service.

7.4.3 Faulty Status

Button Indicator	SOC Indicator	Fault	Solutions
Steady red		Battery Overvoltage	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Battery Undervoltage	Long press the button for 5 seconds to start the battery under charging conditions. Contact the After Sale Service if the problem could not be solved.
		Overcurrent Charging	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Overcurrent Discharging	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Temperature Difference Exception	Power off and wait for 2 hours. Contact the After Sale Service if the problem could not be solved.
		High Temperature	Power off and wait for 2 hours. Contact the After Sale Service if the problem could not be solved.

Steady red		Low Temperature	Power off and wait for 2 hours. Contact the After Sale Service if the problem could not be solved.
		Inconsistent Software Version	Contact the After Sale Service if the problem could not be solved.
		Precharge Fault	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Relay Fault	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Air Switch Fault	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Insulation Fault	Do not touch the battery. Contact the After Sale Service.
		Internal Communication Fault	Power off and check the communication cables. Restart the battery. Contact the After Sale Service if the problem could not be solved.
		SN Fault	Contact the After Sale Service.
		Voltage Balance Fault	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Inconsistent Master and Slave	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Temp. Sensor Fault	Restart the battery. Contact the After Sale Service if the problem could not be solved.
		Others	Contact the After Sale Service if the problem could not be solved.

08 Maintenance

8.1 Power OFF the Battery System

⚠ DANGER(DANGER)

INSTRUCTIONS PERTAINING TO A RISK OF FIRE OR ELECTRIC SHOCK
- Power off the battery system before operations and maintenance. Otherwise, the equipment may be damaged or electric shocks may occur.
- Push the air switch to restart the battery.

Follow the steps below to power off the battery system to prevent the system from being damaged.

Method one:
Step 1: Turn off the inverter in the system following the instructions in the user manual of the inverter.
Step 2: Long press the multifunction Multi-function button for more than 15s, and make sure that the SOC indicator and the Multi-function button of the PCU are off.

Method two:
Step 1: Turn off the inverter in the system following the instructions in the user manual of the inverter.
Step 2: Disconnect the air switch, and make sure that the SOC indicator and the Multi-function button of the PCU are off.

8.2 Routine Maintenance

⚠ WARNING(AVERTISSEMENT)

- Contact the after-sales service for help if you find any problems that may influence the battery or the hybrid inverter. Disassemble without permission is strictly forbidden.
- Contact after-sale service for help if the copper conductor is exposed. Do not touch or disassemble privately because the high voltage danger exists.
- In case of other emergencies, contact the after-sales service as soon as possible. Operate following the instructions or wait for the after-sales service personnel.

Maintaining Item	Maintaining Period
Checkwhether the locking bracket is secured, tighten it if not.	Once every 6 months
Check whether the outer enclosure is broken. Repair the painting or contact the after-sales service if there is any broken.	Once every 6 months
Check whether there is an exposed cable. Replace the exposed cable or contact the after-sales service for help.	Once every 6 months
Check whether there is any dust around the battery module. Clean the dust if there is any to avoid affecting heat dissipation.	Once every 6 months
Check whether there is any liquid or pest near the battery to avoid intrusion in a long term.	Once every 6 months

09 Parameters

Technical Parameters		LX F9.6-30	LX F12.8-30	LX F16.0-30	LX F19.2-30
Usable Energy (kWh)*		9.6	12.8	16.0	19.2
Battery Module		LX F3.2-30: 64V 50Ah 3.2 kWh			
Number of Modules		3	4	5	6
Cell Type		LFP(LiFePO4)			
Cell Configuration		60S1P	80S1P	100S1P	120S1P
Nominal Voltage (V)		192	256	320	384
Operating Voltage Range (V)		171~216	228~288	285~360	342~432
Nominal Dis-/Charge Current (A)*2		35			
Nominal Power(kW)*		6.72	8.96	11.2	13.44
Short-Circuit Current		4.2kA 1.0ms	4.6kA 1.0ms	4.7kA 1.0ms	4.9kA 1.0ms
Operating Temperature Range (°F)		Charge: +32~+122; Discharge: +5~+122			
Relative Humidity		≤95%			
Altitude (Ft)		≤9842			
Communication		CAN			
Weight (lb)		300.9	384.7	468.5	552.3
Dimensions (W×H×D in)		23.6*15*29.5	23.6*15*35.6	23.6*15*41.7	23.6*15*47.8
Ingress Protection Rating		IP55			
Storage Temperature (°F)		-4~+131			
Mounting Method		Ground-Mounted			
Round-trip Efficiency		95.98%			
Cycle Life		3500@77°F			
Standard and Certification	Safety	UL1973-2018, UL9540A-2019			
	EMC	FCC part 15			
	Transportation	UN38.3			

*1: Test conditions, 100% DOD, 0.2C charge & discharge at 77±2°F for battery system at beginning life. System Usable Energy may vary with different Inverter.
*2: Nominal Dis-/Charge Current and power derating will occur related to Temperature and SOC.
*3: Based on 2.5~3.65V voltage rang @77±2°F of Cell under 1C/1C test condition and 80% EOL.

Official Website

SolarGo App

GoodWe Technologies Co.,Ltd.

No. 90 Zijin Rd., New District, Suzhou, 215011, China

www.goodwe.com

service@goodwe.com

Contact Information