

**LUNA2000-(5-30)-NHS0**

# **Quick Guide**

**Issue: 03**

**Part Number: 31500EMB**

**Date: 2021-05-30**

**HUAWEI TECHNOLOGIES CO., LTD.**

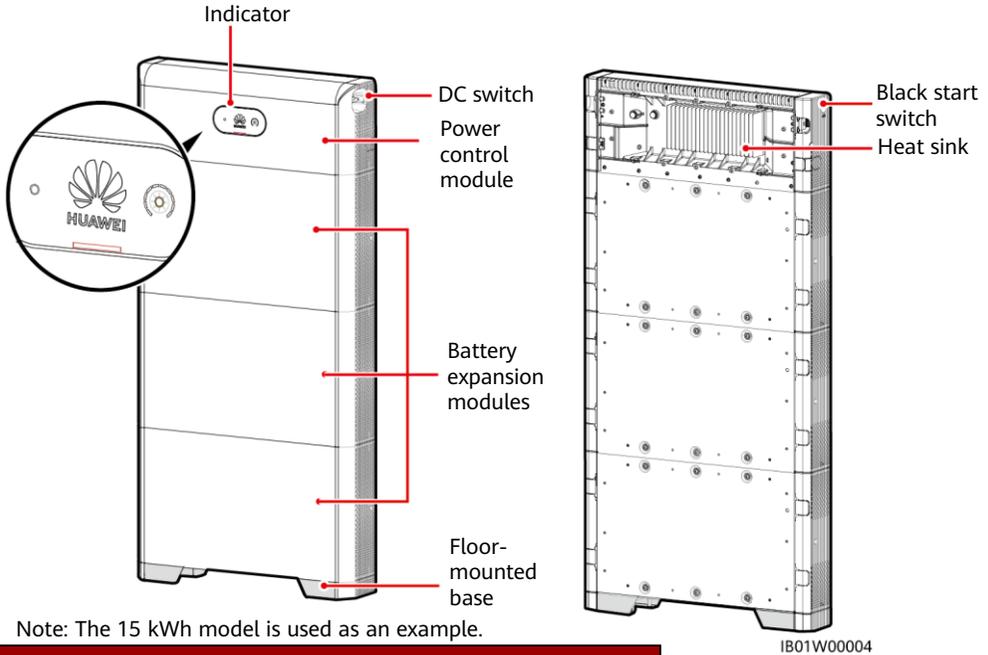


**HUAWEI**

# 1 Product Overview

## LUNA2000 Battery Appearance

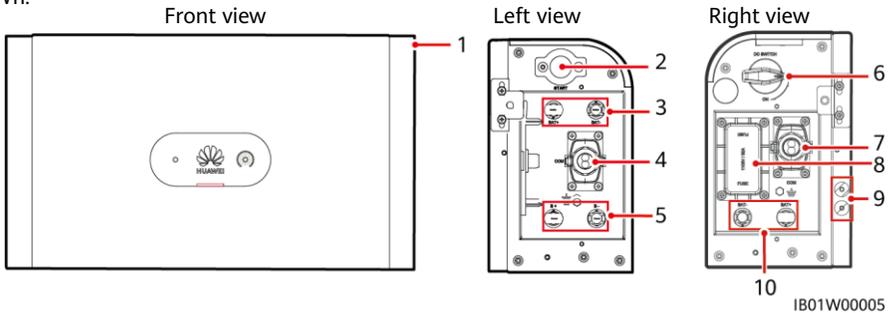
The LUNA2000 battery is applicable to the grid-tied or off-grid systems of residential rooftop PV plants. It can store and release electric energy based on service requirements.



Note: The 15 kWh model is used as an example.

## Power Control Module and Battery Expansion Modules

The LUNA2000 battery consists of a power control module and battery expansion modules. The power control module is 5 kW, and a battery expansion module has a standard capacity of 5 kWh.



(1) Power control module (DCDC)

(2) Black start switch

(3) Battery terminals (BAT+/BAT-)

(4) COM port (COM)

(5) Battery cascading terminals (B+/B-)

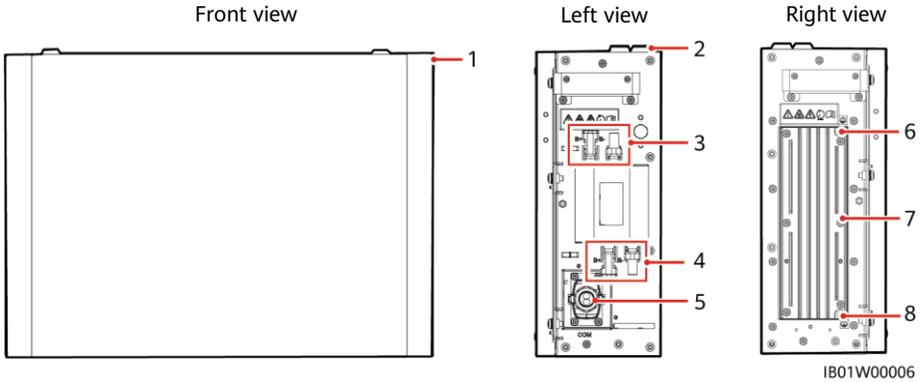
(6) DC switch (DC SWITCH)

(7) COM port (COM)

(8) Fuse

(9) Ground point

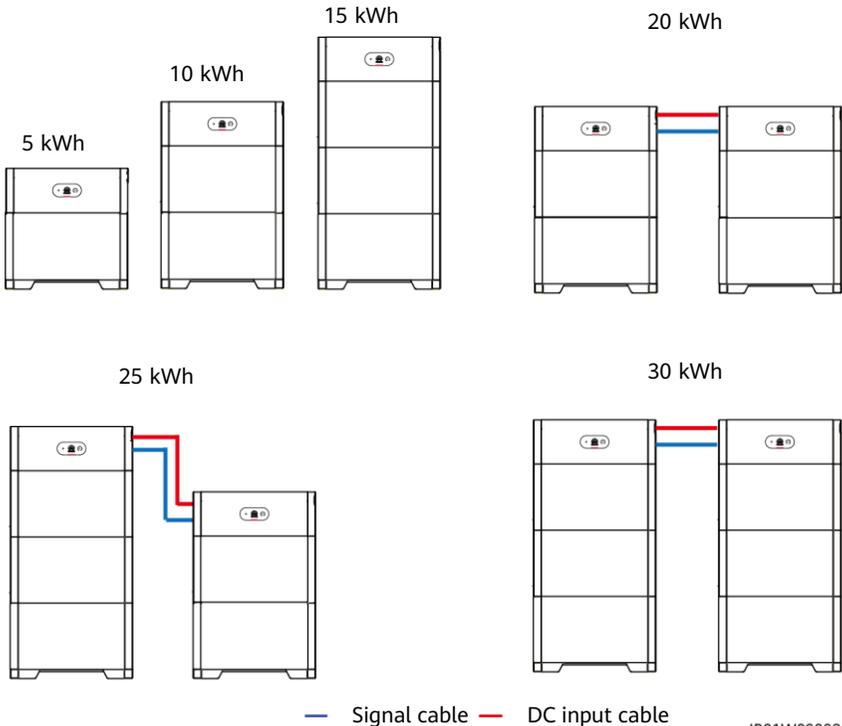
(10) Battery terminals (BAT-/BAT+)



- (1) Battery expansion module
- (2) Boss for alignment
- (3) Battery cascading terminals (B+/B-)
- (4) Battery cascading terminals (B+/B-)
- (5) COM port (COM)
- (6) Ground point
- (7) Heat sink
- (8) Ground point

### Battery Capacity Description

The battery supports power and capacity expansion. Two power control modules can be connected in parallel. One power control module supports a maximum of three battery expansion modules.



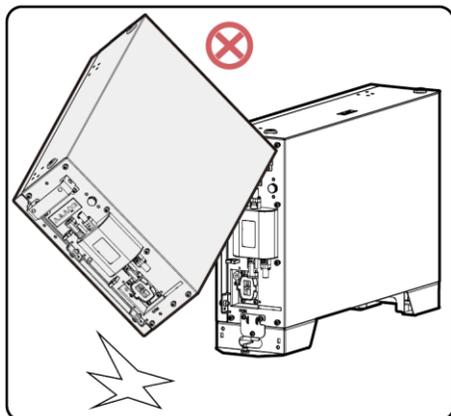
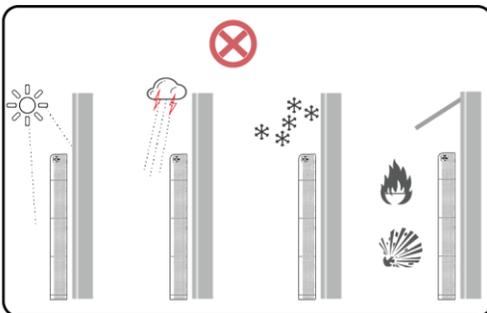
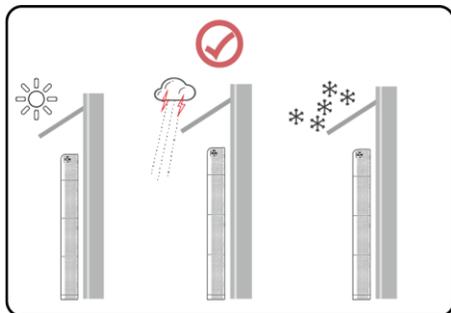
IB01W00008

\* A maximum of three battery expansion modules are supported for the JET/S-JET certification.

## 2 Device Installation

### 2.1 Installation Requirements

#### Installation Environment

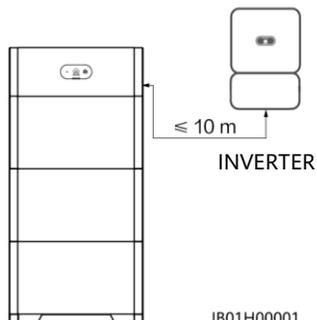
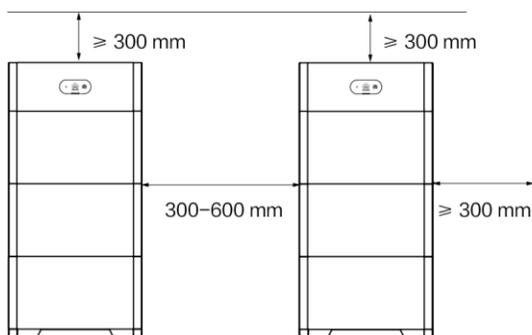


#### DANGER

Do not use a dropped battery module or a battery module that has been subjected to a strong impact force. Otherwise, safety risks (such as cell leakage and electric shock) may arise.

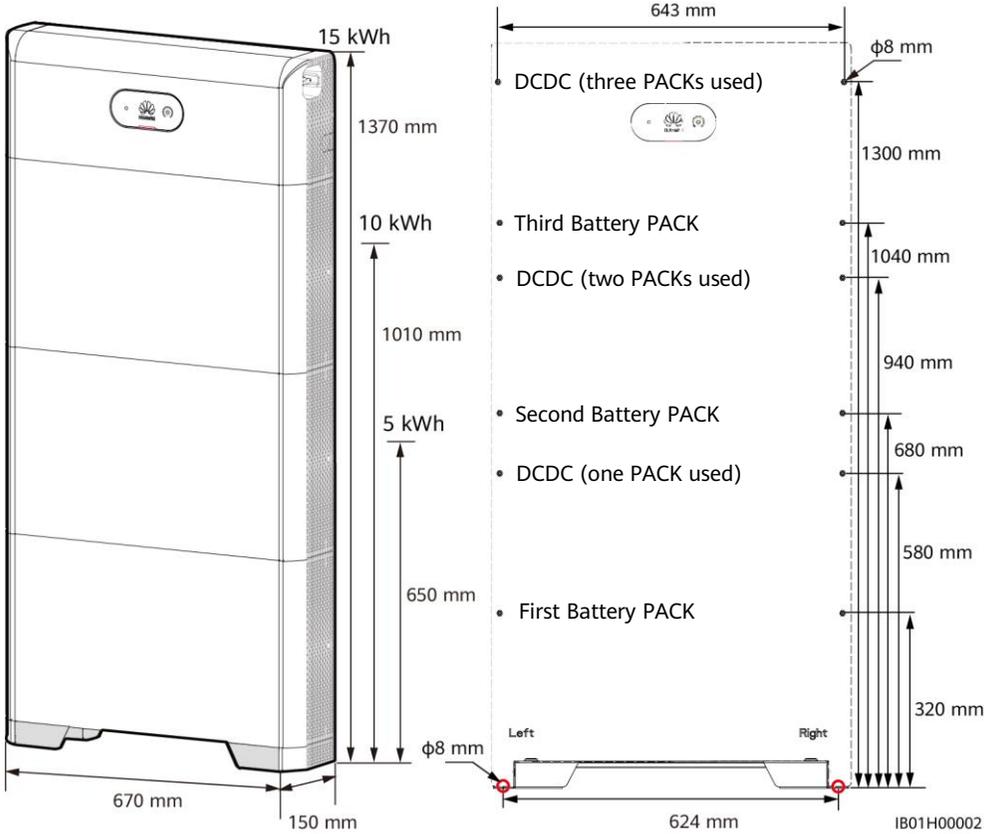
IB01Y00001

#### Installation Space



IB01H00001

## Mounting Hole Dimensions



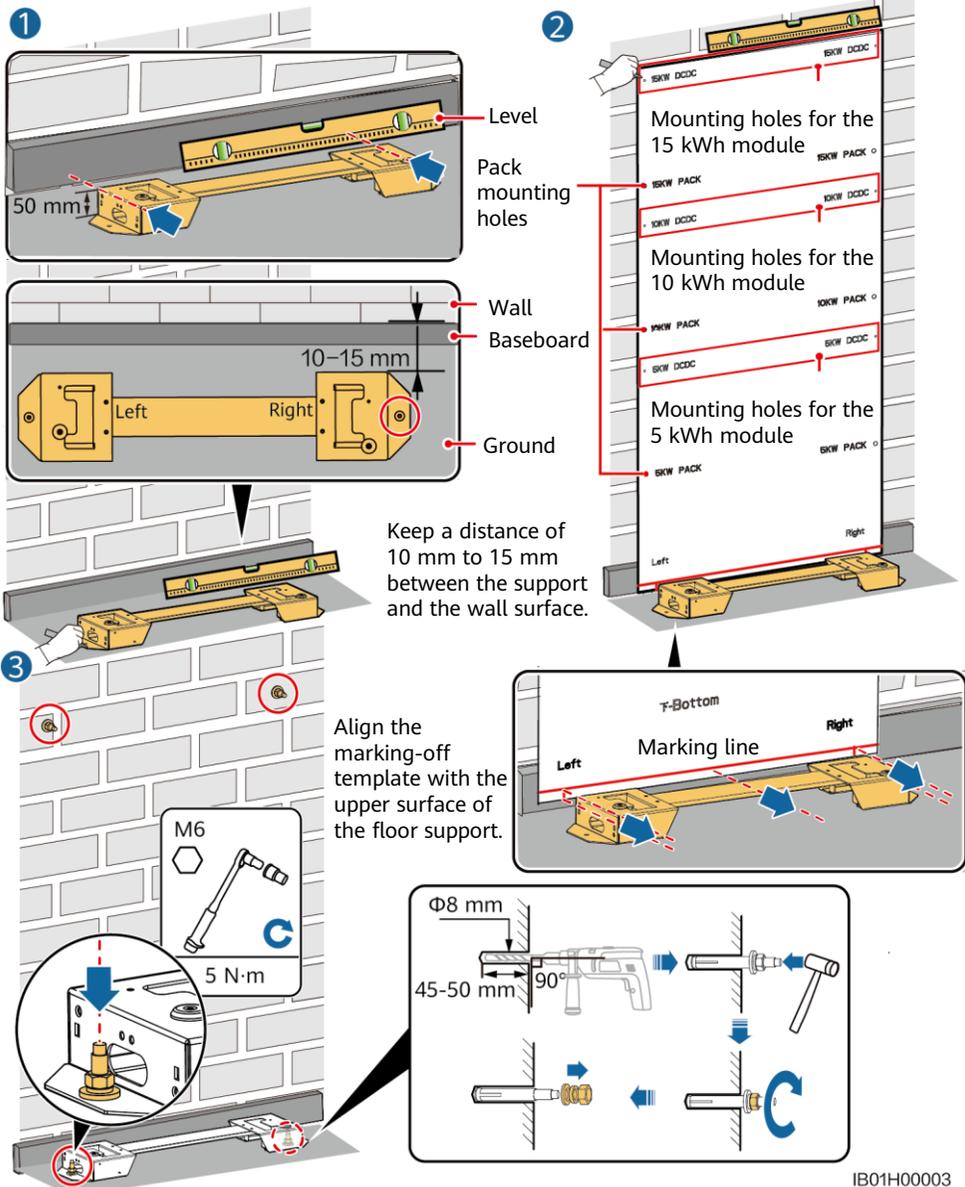
## 2.2 Installing the Floor Support

### **⚠ DANGER**

- Avoid drilling holes in the water pipes and cables buried in the wall.
- The installation position must be far away from water sources such as taps, sewer pipes, and sprinklers to prevent water seepage.

### **📖 NOTE**

The M6x60 expansion bolts delivered with the battery are mainly used for solid concrete walls and concrete floors. If other types of walls and floors are used, ensure that the walls and floors meet the load-bearing requirements (one battery expansion module weighs 50 kg) and select the bolts by yourself.



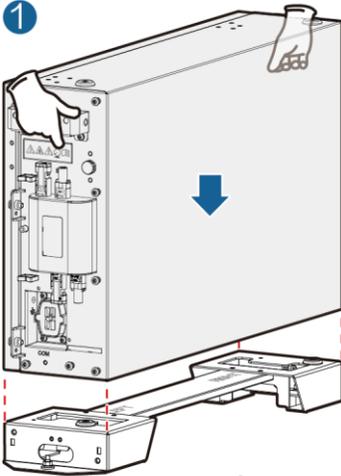
IB01H0003

## 2.3 Installing Battery Expansion Modules

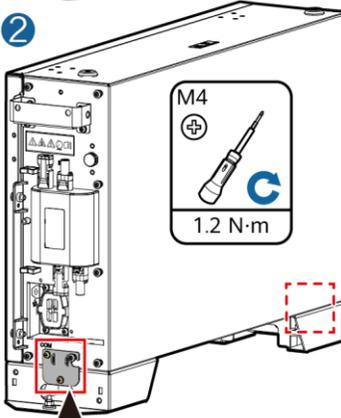
1. Install the battery expansion modules and power control module on the support.

### NOTICE

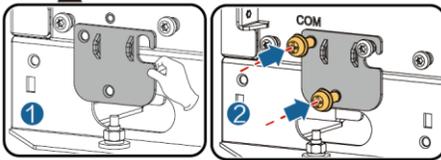
- The following describes how to install the battery expansion modules for a 15 kWh model.
- The installation of battery expansion modules for 5 kWh and 10 kWh models is the same. One battery expansion module is installed for a 5 kWh model, and two battery expansion modules are installed for a 10 kWh model.



Align the first battery expansion module with the support on the floor support.



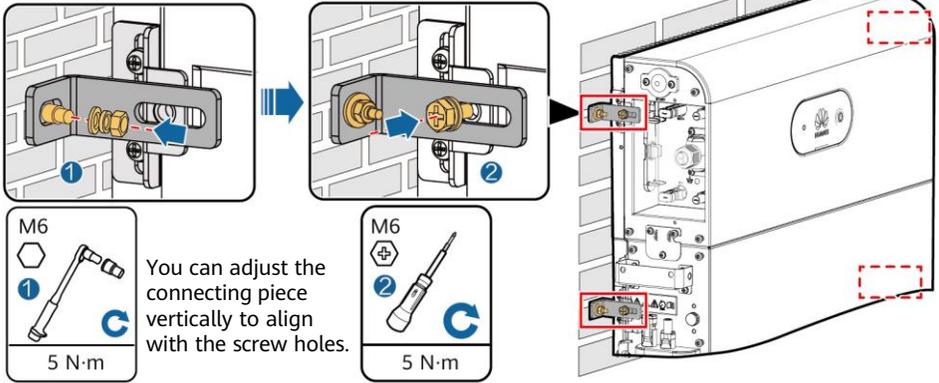
Install the connecting pieces on both sides and tighten the four screws.



IB01H0004

Install the remaining battery modules and power module from bottom to top. After installing a module, secure the left and right connecting pieces, and then install the next module.

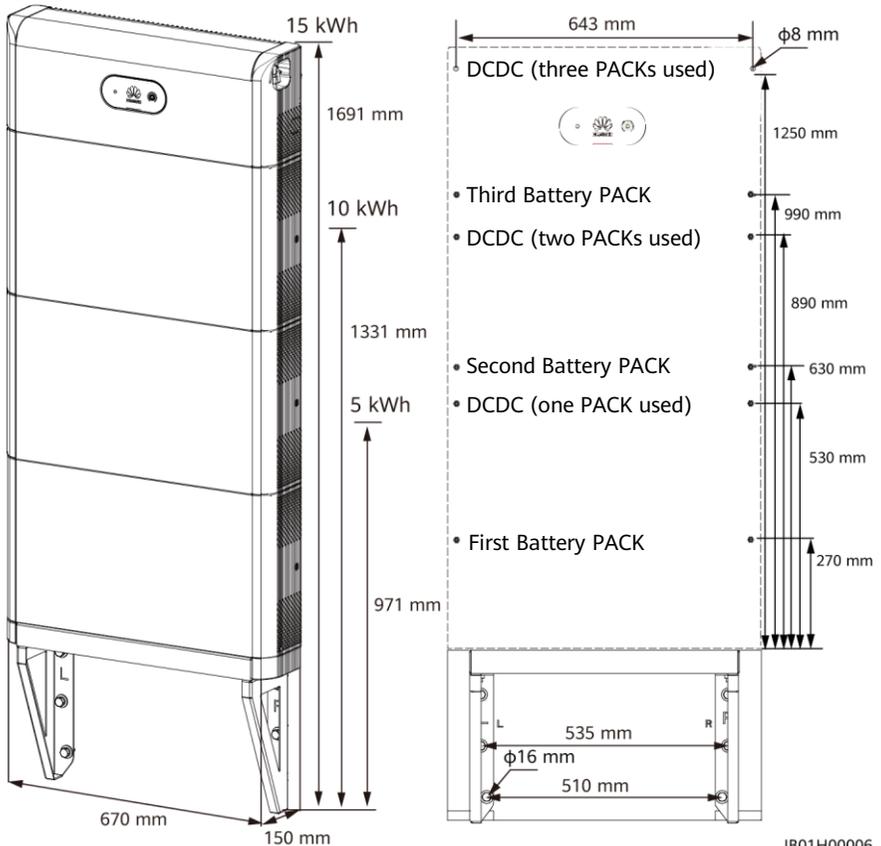
2. Secure the power control module to the wall.



3. Secure the battery expansion modules to the wall by referring to step 2.

## 2.4 Wall-mounted Installation

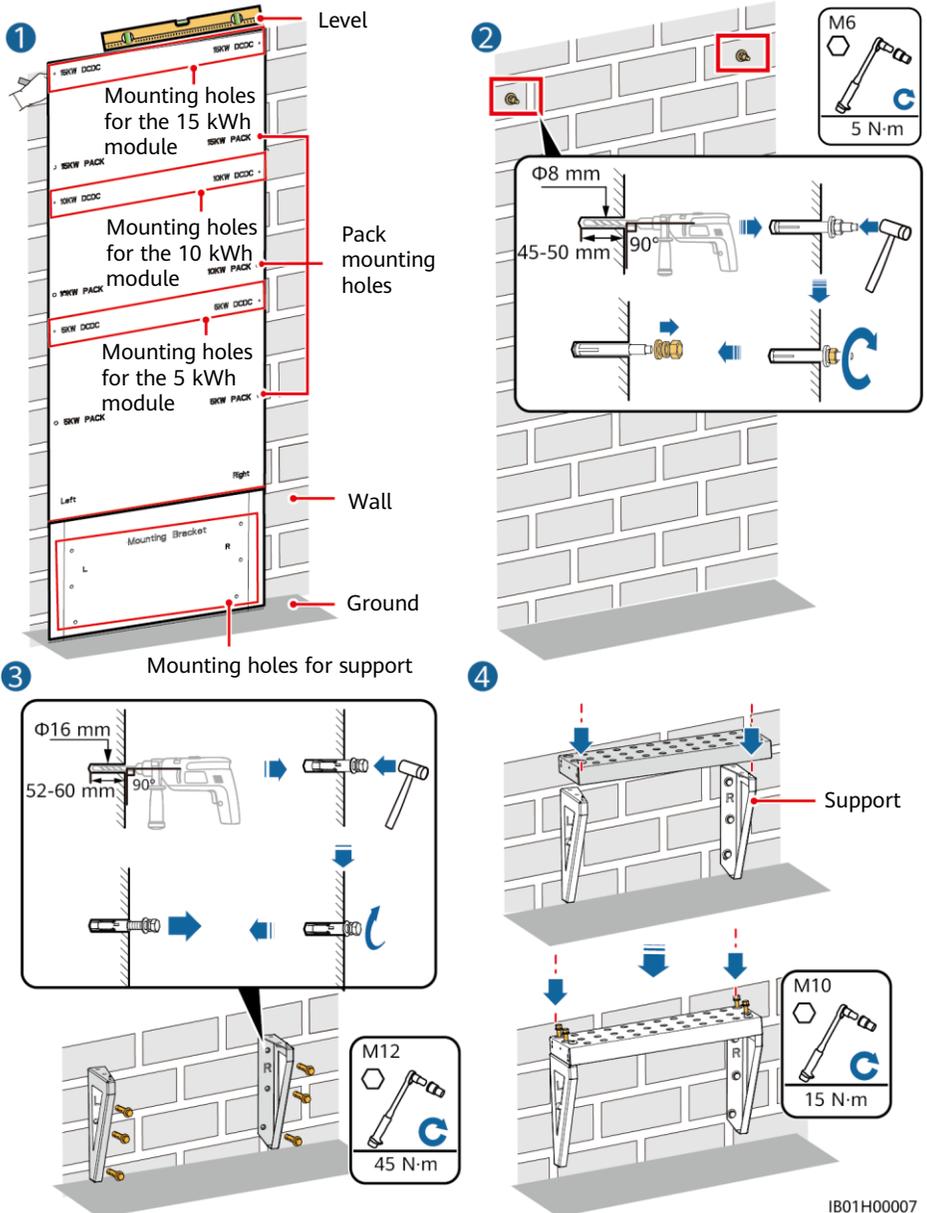
### Mounting Hole Dimensions



## Installing the Support for Wall-mounted Installation

### NOTE

For floor-mounted installation, the base is 50 mm high. If waterproofing requirements cannot be met, the battery can be installed on a wall. The mounting kits need to be purchased separately. For wall- and floor-mounted installation, ensure that the load-bearing capacity meets the requirements (one battery expansion module weighs 50 kg).



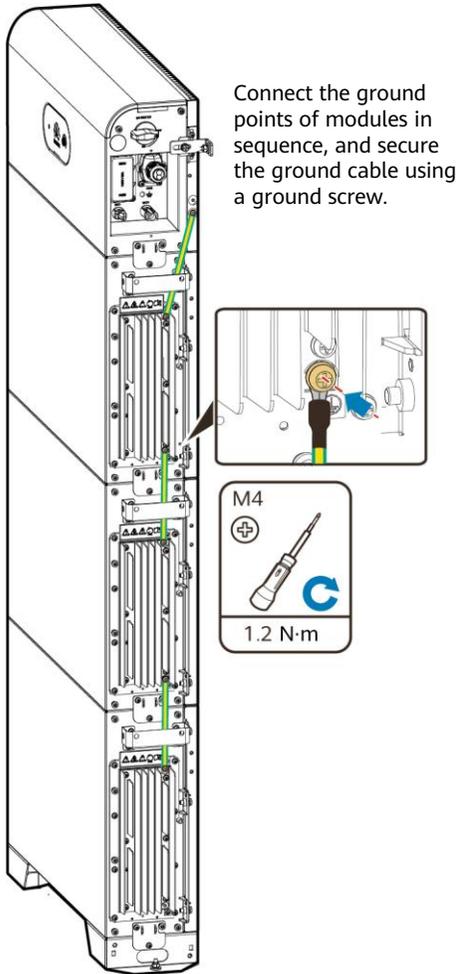
IB01H0007

# 3 Internal Electrical Connections of the Battery

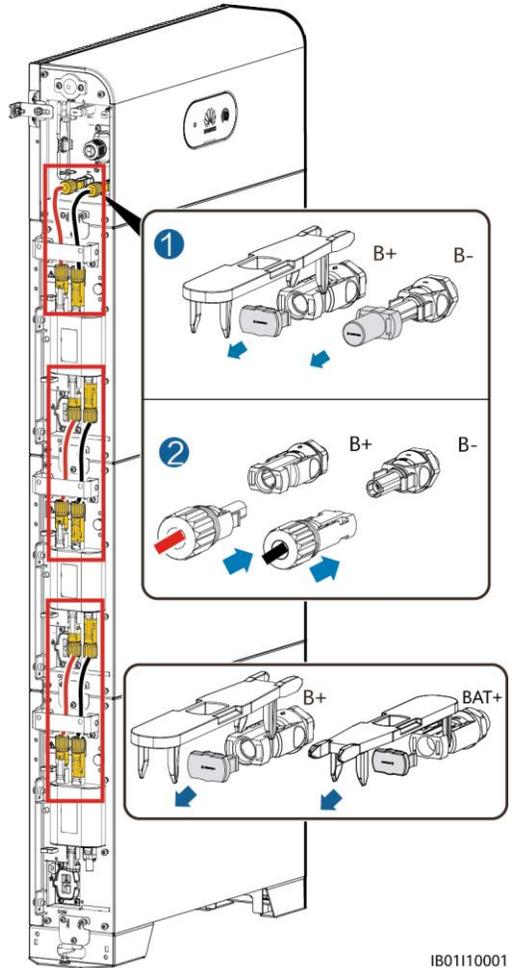
## NOTICE

- Connect cables in accordance with local installation laws and regulations.
- Before connecting cables, ensure that the DC switch on the battery and all the switches connected to the battery are set to OFF. Otherwise, the high voltage of the battery may result in electric shocks.

## 3.1 Installing an Internal Ground Cable



## 3.2 Installing Internal DC Terminals

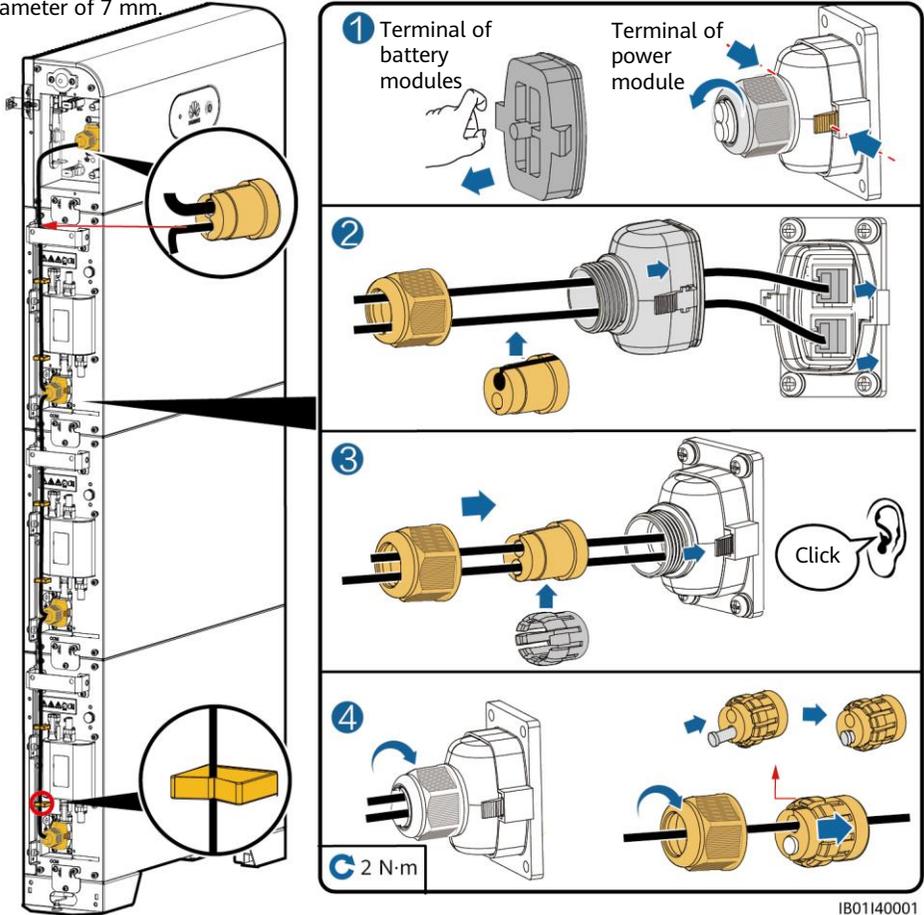


## NOTE

- Internal electrical cables are delivered with the battery, see the *Packing List* in the packing case.
- The Amphenol terminal is used as the DC terminal between the power control module and the battery expansion modules.

### 3.3 Connecting Internal Signal Cables

Install the internal signal cables described in this section using the three signal cables with a diameter of 5 mm and rubber plugs delivered with the DCDC. Do not use signal cables with a diameter of 7 mm.



#### NOTICE

- When a communications terminal is connected to a single network cable, a waterproof rubber plug must be installed. Do not install a cable with a diameter of 5 mm into a  $\Phi 7$  mm rubber plug, the 7 mm hole is used to connect to an inverter or cascaded battery.
- After inserting the terminal shell into the COM port, shake the terminal shell left and right and pull it back to ensure that it is securely installed, and tighten the nut (ensure that the rubber plug is tightly compressed). Otherwise, the waterproof performance is affected.

## 4 External Electrical Connections of the Battery

### 4.1 Preparing Cables

#### NOTICE

Connect cables in accordance with local installation laws and regulations.

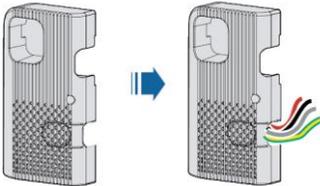
## NOTICE

- Before connecting cables, ensure that the DC switch on the battery and all the switches connected to the battery are set to OFF. Otherwise, the high voltage of the battery may result in electric shocks.
- The DC input power cable and signal cable between the battery and the inverter must be less than or equal to 10 m.

Prepare cables based on site requirements.

No.	Cable	Type	Conductor Cross-Sectional Area Range	Outer Diameter
1	Ground cable	Single-core outdoor copper-core cable	8 mm <sup>2</sup>	N/A
2	DC input power cable (inverter to battery and battery to battery)	Common outdoor PV cable in the industry	3.5–5.5 mm <sup>2</sup>	5.5–9 mm
3	Signal cable (inverter to battery and battery to battery)	Outdoor shielded twisted pair cable (8 cores)	0.20–1 mm <sup>2</sup>	6.2–7 mm

## 4.2 Routing Cables Out of the Cable Hole



IB0110002

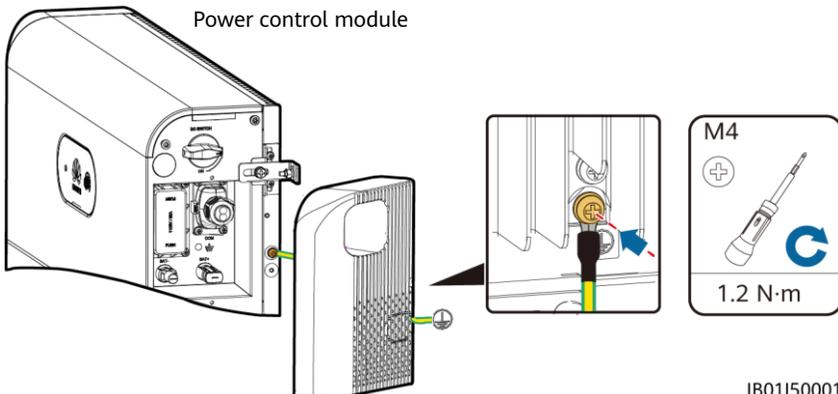
## NOTICE

Before connecting external cables, route the cables through the cable hole to avoid disconnecting after installation.

## 4.3 Installing a Ground Cable

### NOTE

- Ground a ground point of the power control module.
- Apply silica gel or paint around the ground terminal after the ground cable is connected.



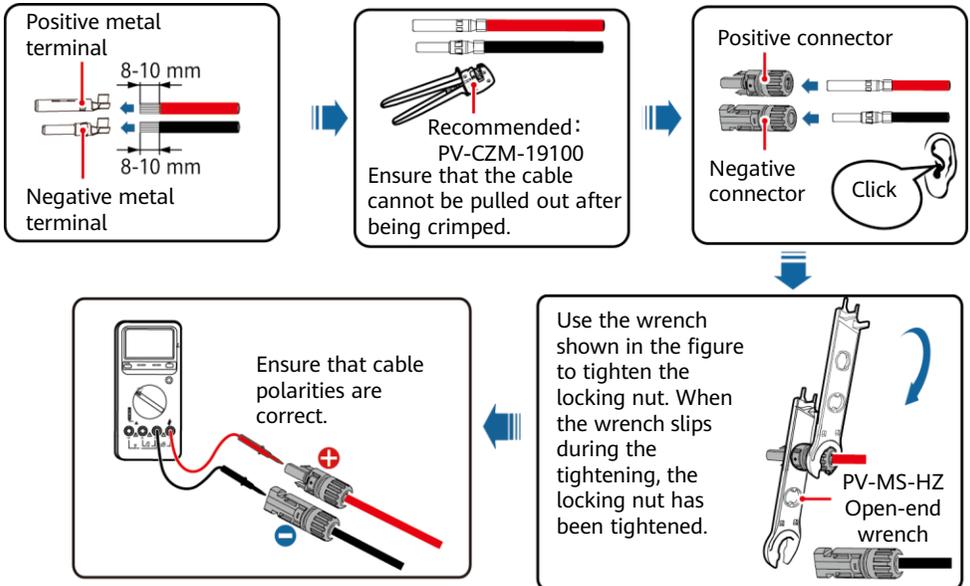
IB01150001

## 4.4 Installing DC Input Power Cables

### NOTICE

1. You are advised to connect the battery terminals (BAT+ and BAT-) on the switch side to the inverter and connect the other side to the cascaded battery.
2. The battery terminals use the Staubli MC4 positive and negative metal terminals and DC connectors supplied with the solar inverter. Using incompatible positive and negative metal terminals and DC connectors may result in serious consequences. The caused device damage is not covered under warranty.

### Assembling DC Connectors

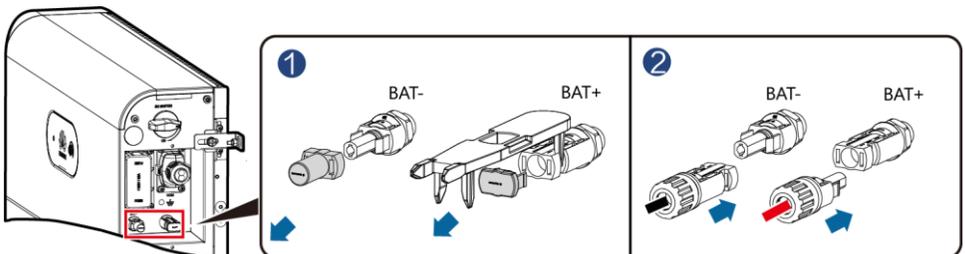


IH07130001

### Installing DC Input Power Cables

### ⚠ DANGER

Use dedicated insulated tools to connect cables. Ensure that battery cables are connected to correct polarities. If the battery cables are reversely connected, the battery may be damaged.



IH01130001

## 4.5 Installing a Signal Cable

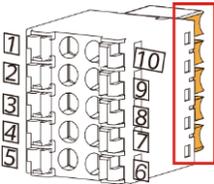
### NOTICE

- When laying out a signal cable, separate it from power cables and keep it away from strong interference sources to prevent communication interruption.
- Ensure that the protection layer of the cable is inside the connector, that excess core wires are cut off from the protection layer, that the exposed core wire is totally inserted into the cable hole, and that the cable is connected securely.
- Use a plug to block the idle cable hole with the waterproof rubber ring, and then tighten the locking cap.
- If multiple signal cables need to be connected, ensure that the outer diameters of the signal cables are the same.

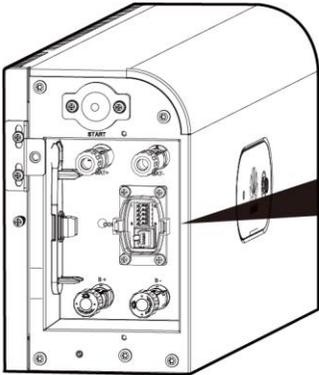
### Communications Terminal Description

#### NOTE

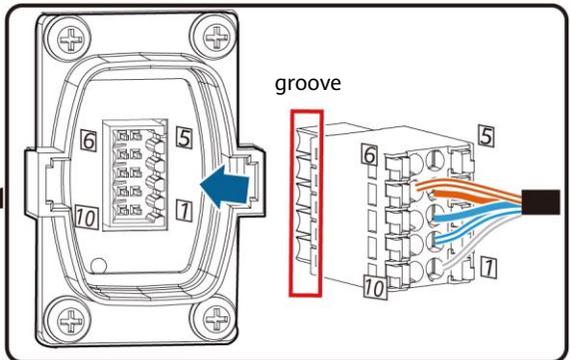
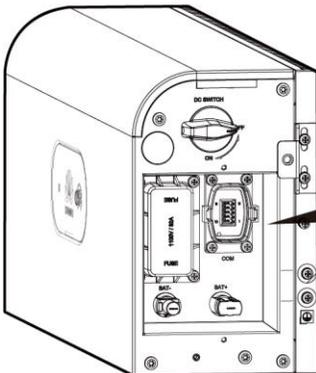
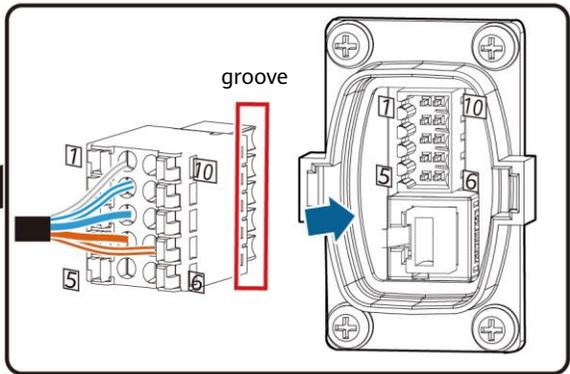
It is recommended that the right side of COM port be connected to the inverter and the left side of the COM port be connected to the cascaded batteries. The communications terminal insertion directions on the left and right side of the COM port are different. Insert the communications terminals in the directions shown in the figures.



Pins 6 to 10 are close to the groove side.



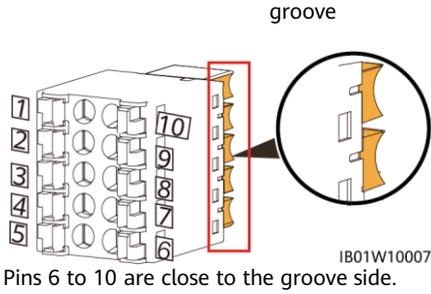
Connects to the battery in parallel.



The COM port on the right side connects to the inverter.

IB01W10008

## COM Port Pin Definitions

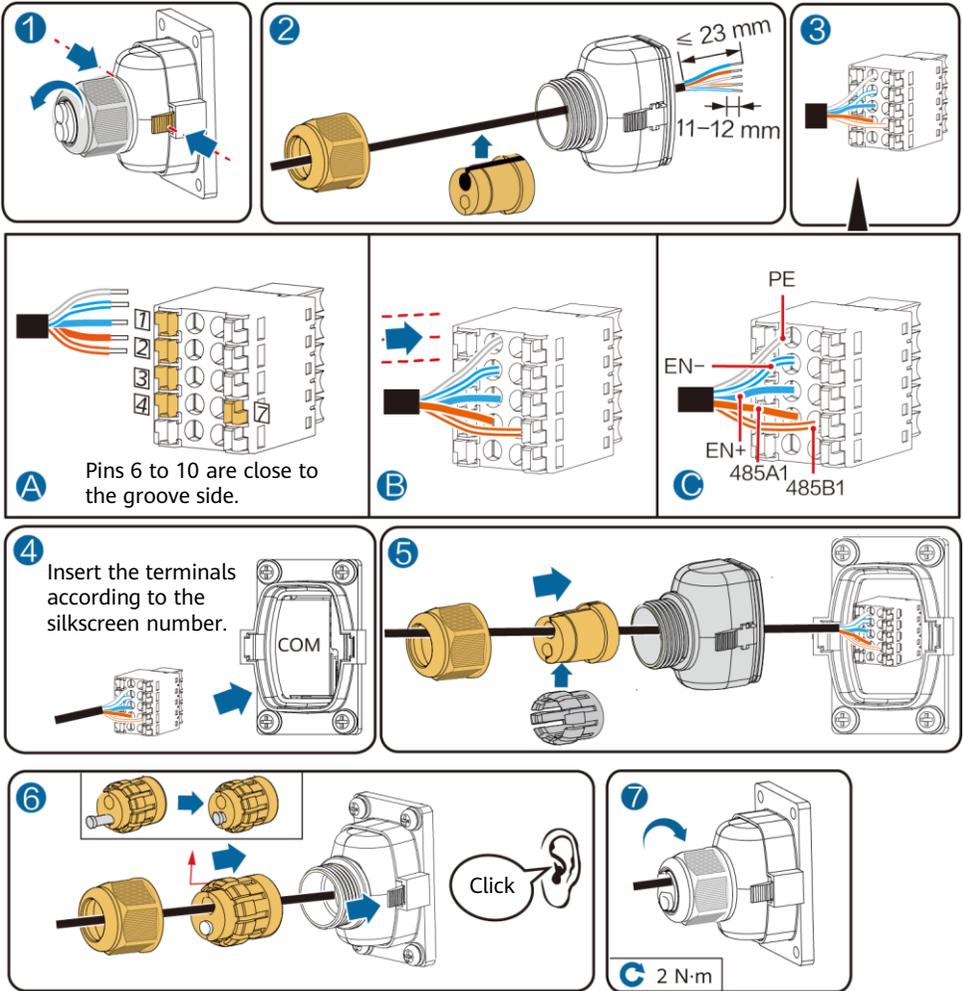


### NOTE

The communications terminals on the inverter side need to be connected to RS485+ \ RS485-, EN+ \ EN-, and PE. The communications terminals on the cascading side need to be connected to RS485+ \ RS485-, EN+ \ EN-, CANH \ CANL, and PE.

No.	Label	Definition	Description
1	PE	Ground point on the shield layer	Ground point on the shield layer
2	Enable-	Enable signal GND	Connects to the enable signal GND of the inverter.
3	Enable+	Enable signal+	Connects to the enable signal of the inverter.
4	485A1	RS485A, RS485 differential signal+	Connects to the RS485 signal port + of the inverter or cascaded batteries.
5	485A2	RS485A, RS485 differential signal+	Reserved
6	485B2	RS485B, RS485 differential signal-	Reserved
7	485B1	RS485B, RS485 differential signal-	Connects to the RS485 signal port - of the inverter or cascaded batteries.
8	CANL	Extended CAN bus port	Used for signal cable cascading in battery cascading scenarios.
9	CANH	Extended CAN bus port	Used for signal cable cascading in battery cascading scenarios.
10	PE	Ground point on the shield layer	Ground point on the shield layer

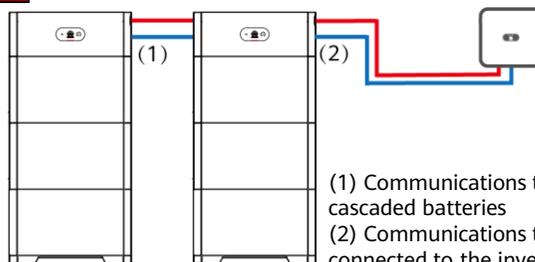
## Connecting the Communications Terminal to the Inverter



IB01140002

## 4.6 (Optional) Cable Connections in Cascading Scenarios

### Cascading Networking



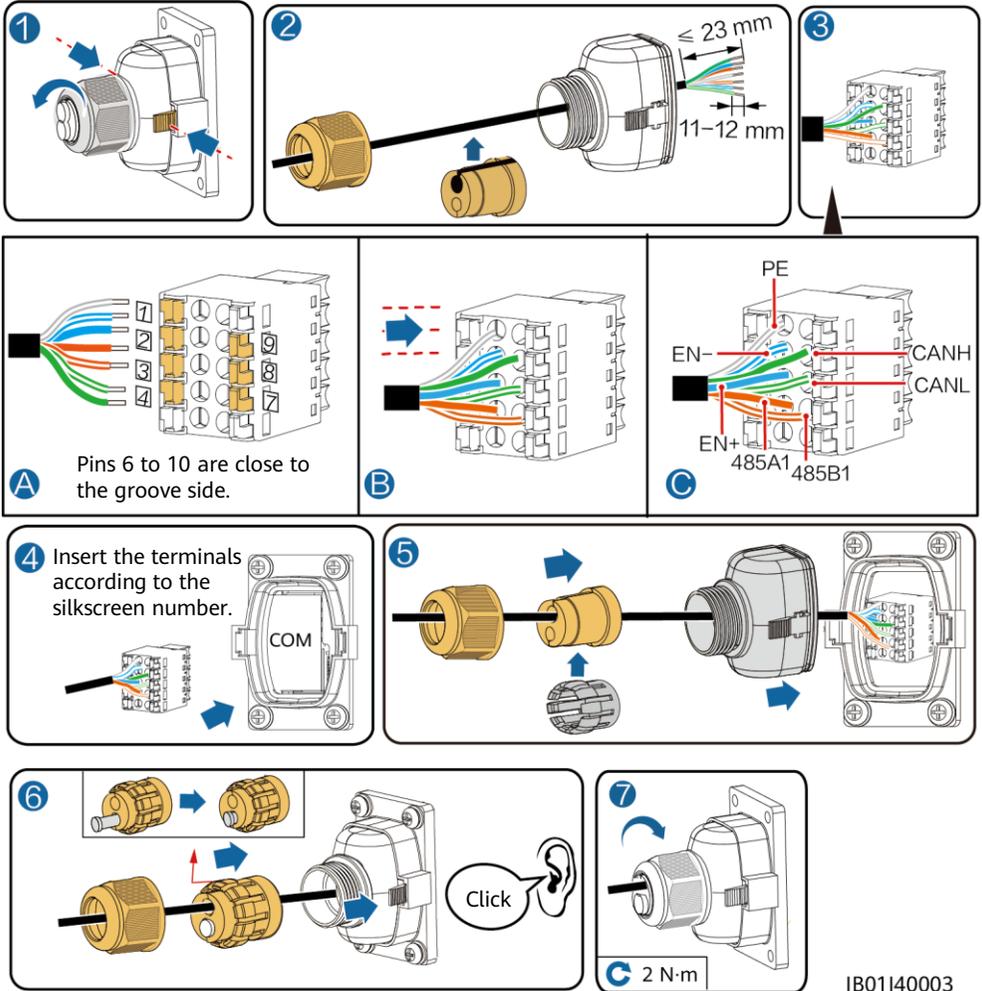
IB01W00009

— Signal cable — DC input cable

## Cascading DC Input Connection

Prepare DC connectors and connect DC battery cascading terminals (BAT+ and BAT-) for cascaded batteries. For details, see section 4.4 "Installing DC Input Power Cables". The positive and negative metal terminals and DC connectors of the Staubli MC4 for cascading need to be purchased.

## Connecting the Communications Terminal for Cascaded Batteries

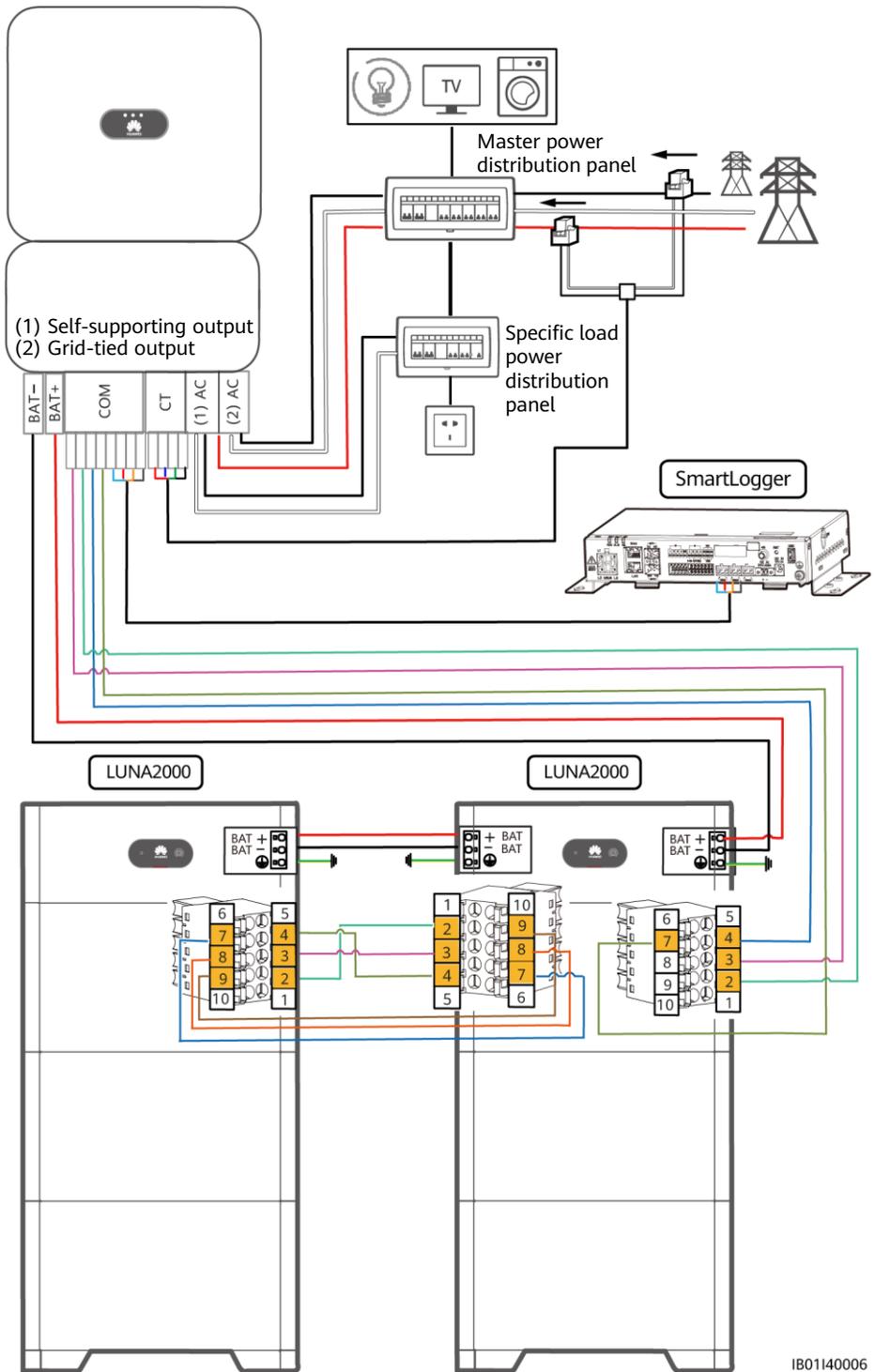


### NOTICE

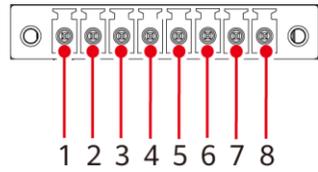
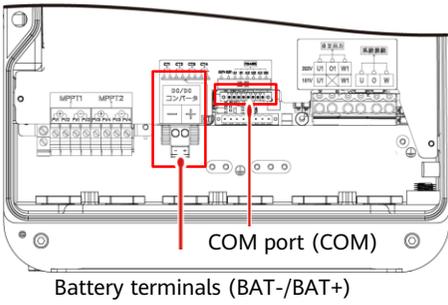
- When a communications terminal is connected to a single network cable, a waterproof rubber plug must be installed.
- After inserting the terminal shell into the COM port, shake the terminal shell left and right and pull it back to ensure that it is securely installed, and tighten the nut (ensure that the rubber plug is tightly compressed). Otherwise, the waterproof performance is affected.

## 4.7 Connecting Cables to the Inverter

SUN2000-4.95KTL-JPL1



IB01140006

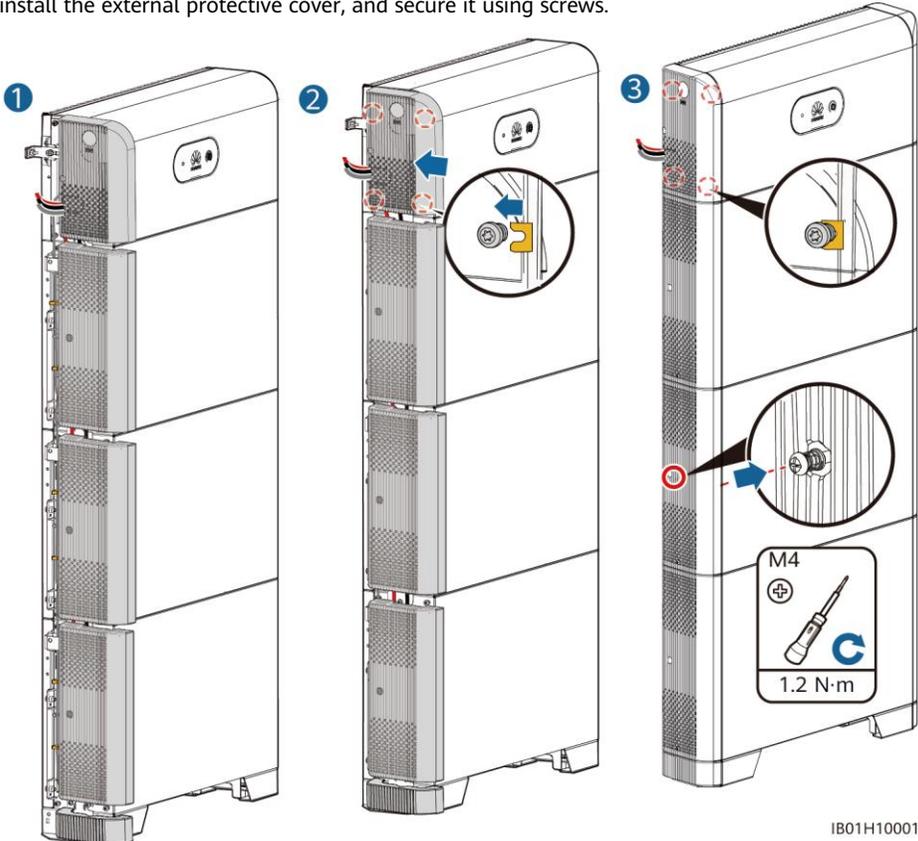


Number	Label	Definition	Description
1	OUT+	12V_OUT+ (Enable+)	Used for connecting to the enable signal of the battery.
2	OUT-	12V_OUT- (Enable-)	
3	A1	RS485A1	Used for connecting to the RS485 signal ports of the battery.
4	B1	RS485B1	

## 5 Verifying the Installation

### 5.1 Installing the Cover

After electrical connections are complete, check that cables are correctly and securely connected, install the external protective cover, and secure it using screws.



IB01H10001

## 5.2 Verifying the Installation

No.	Acceptance Criterion
1	The battery is installed correctly and securely.
2	The cables are routed properly as required by the customer.
3	Cable ties are secured evenly and no burr exists.
4	The ground cable is connected correctly and securely.
5	The battery switch and all switches connected to the battery are OFF.
6	The DC input power cables and signal cables are connected correctly and securely.
7	Idle terminals and ports are locked by watertight caps.
8	The installation space is proper, and the installation environment is clean and tidy.

## 6 System Power-On

### NOTICE

- To prevent the device from being exposed to high humidity in the power-off state, you are advised to power on the LUNA2000 within 24 hours after unpacking it. The period for which the device remains powered-off during maintenance must not exceed 24 hours. Otherwise, condensation may cause damage to the device.
- After turning on the battery switch, power on the inverter. For details about how to power on the inverter, see the quick guide for the corresponding inverter model.
- If no PV module is configured, press the black start button.

Turn on the DC switch on the battery. After the battery is installed and powered on for the first time, the ring LED blinks for three circles. Observe the battery indicator to check the running status.

Type	Status (blinking at long intervals: On for 1s and then Off for 1s; Blinking at short intervals: On for 0.2s and then Off for 0.2s)		Meaning
Running indication			N/A
	Steady green	Steady green	Operating mode
	Blinking green at long intervals	Blinking green at long intervals	Standby mode
	Off	Off	Sleep mode
	Blinking red at short intervals	N/A	Battery power control module environment alarm
	N/A	Blinking red at short intervals	Battery expansion module environment alarm
	Steady red	N/A	Battery power control module fault
	N/A	Steady red	Battery expansion module fault

Type	Status (blinking at long intervals: On for 1s and then Off for 1s; Blinking at short Intervals: On for 0.2s and then Off for 0.2s)	Meaning
Battery system indication		N/A
	Display green	Indicates battery level. One bar represents 10%.
	Steady red	The first three bars indicate the number of faulty battery expansion modules.

## 7 Device Commissioning

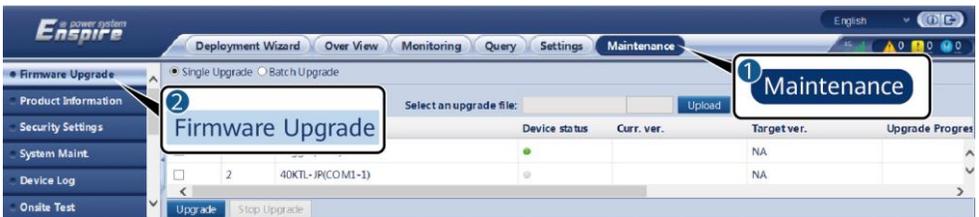
### 7.1 Upgrading the SmartLogger

SmartLogger V300R001C00SPC050 and later versions support batteries. Before deployment, upgrade the SmartLogger. After the upgrade, reconnect the SmartLogger and set battery parameters.

1. If the device is not connected to the FusioSolar management system, you are advised to use a USB flash drive for upgrade. You can insert the USB flash drive with the upgrade package and go to the device upgrade screen to start the upgrade.



2. If no USB flash drive is available, log in to the SmartLogger WebUI by referring to section 8.1 and choose **Maintenance > Firmware Upgrade**.



IL03J00037

### 7.2 Device Commissioning(FusionSolar APP)

#### 7.2.1 Downloading the App

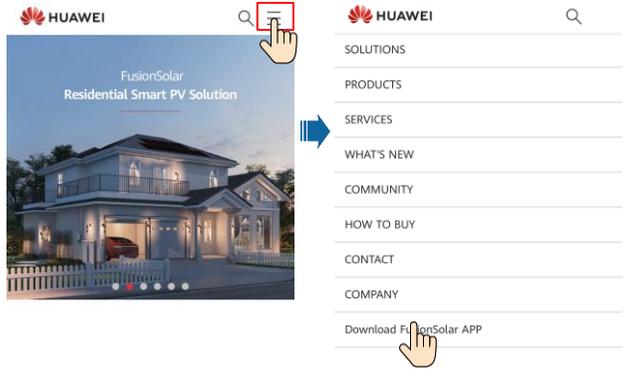
Method 1: Search for FusionSolar on Huawei AppGallery and download the latest installation package.

Method 2: Access <https://solar.huawei.com> using the mobile phone browser and download the latest installation package.

Method 3: Scan the following QR code and download the latest installation package.

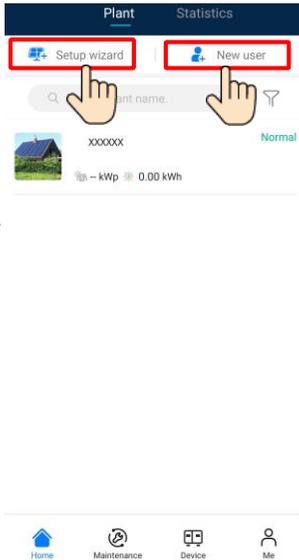
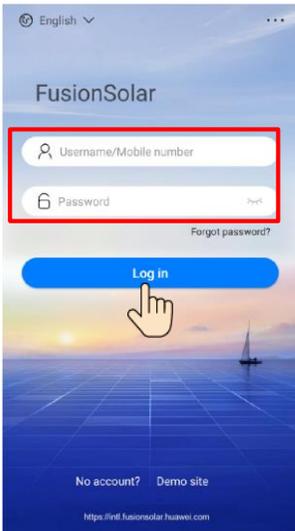


FusionSolar



## 7.2.2 Battery Deployment

### Creating a PV Plant and a User



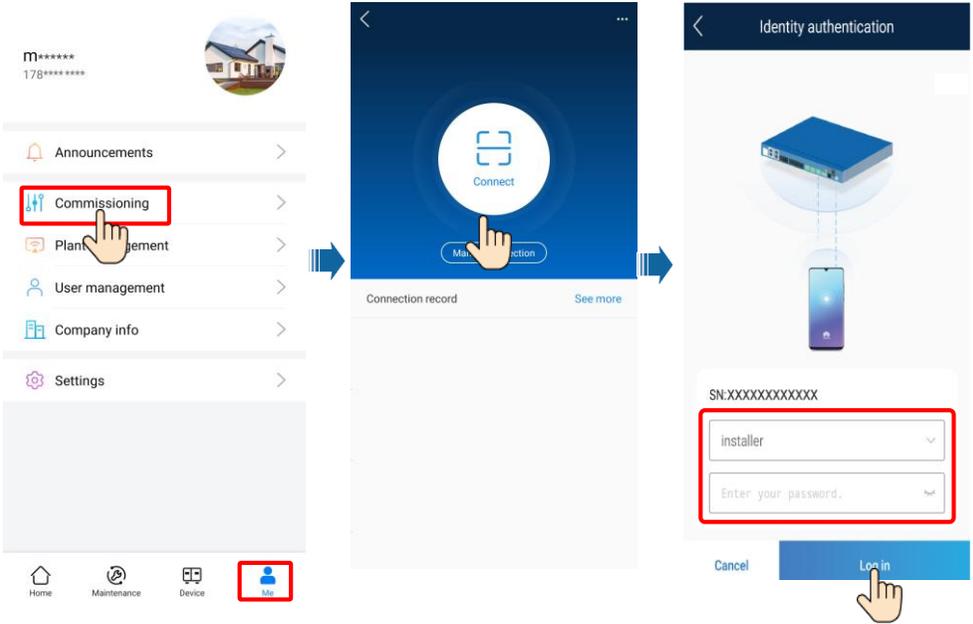
#### NOTE

Download and install the FusionSolar app of the latest version by referring to the quick guide for the corresponding inverter model or the FusionSolar App Quick Guide. Register as an installer and create a PV plant or owner (skip this step if an account exists). You can obtain the FusionSolar App Quick Guide by scanning the QR code.



## Connecting SmartLogger

Log in to the FusionSolar app. Choose My > Device commissioning, and scan the QR code on the SmartLogger or manually connect to the WLAN hotspot of the SmartLogger to connect to the SmartLogger. Log in to the SmartLogger as user installer.



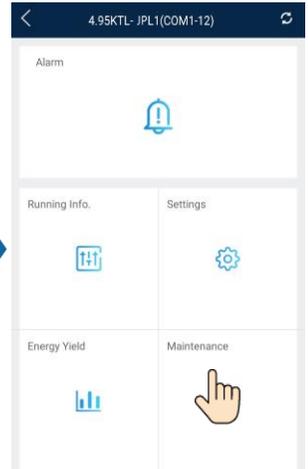
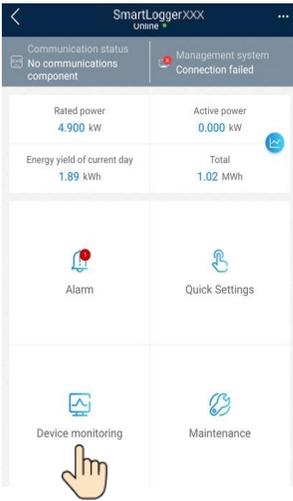
## Quick Settings

### NOTE

Quick SmartLogger configuration is not supported when the language of your phone is set to English. You need to set the language to Japanese. For details, see the Japanese quick guide.

### 7.2.3 Battery Status Check

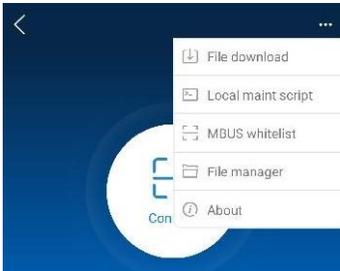
After the battery is added, tap **Device monitoring** on the home screen, and choose **Maintenance > Subdevice management** to view the running status, level, power, and charge and discharge status of the battery.



## 7.2.4 Maintenance and Upgrade

### Battery Upgrade

When the network is connected, the app connection screen, tap **...** > **File download** in the upper-right corner. Then on the home screen, choose **Maintenance** > **Upgrade device** to upgrade the battery version.



### Storage and Recharging

The batteries need to be recharged for a certain period of storage. For details, see the user manual.

### Fuse Replacement

If a fuse needs to be replaced, replace it by referring to the user manual.

## 7.3 System Commissioning(SmartLogger Web)

### NOTE

1. The operating system of Windows 7 or later is supported.
2. The WebUI snapshots are for reference only, and the actual display may vary.

### 7.3.1 Preparations and WebUI Login

1. Connect the network cable between the network port on the PC and the SmartLogger.
2. Set the IP addresses of the PC and SmartLogger in the same network segment.

Port	IP Settings	SmartLogger Default Value	PC Setting Example
LAN port	IP address	192.168.8.10	192.168.8.11
	Subnet mask	255.255.255.0	255.255.255.0
	Default gateway	192.168.8.1	192.168.8.1
WAN port	IP address	192.168.0.10	192.168.0.11
	Subnet mask	255.255.255.0	255.255.255.0
	Default gateway	192.168.0.1	192.168.0.1

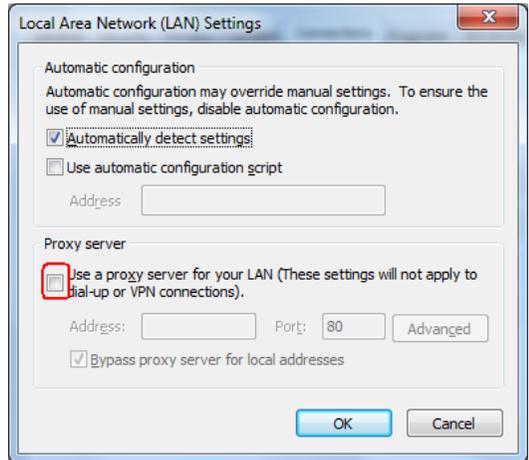
### NOTE

When the IP address of the WAN port is on the 192.168.8.1–192.168.8.255 network segment, the IP address of the LAN port is automatically switched to 192.168.3.10, and the default gateway is 192.168.3.1. If the connection port is a LAN port, adjust the network configuration of the PC accordingly.

3. Set LAN parameters.

### NOTICE

- If the SmartLogger is connected to a local area network (LAN) and a proxy server has been set, you need to cancel the proxy server settings.
  - If the SmartLogger is connected to the Internet and the PC is connected to the LAN, do not cancel the proxy server settings.
- a. Open Internet Explorer.
  - b. Choose **Tools > Internet Options**.
  - c. Click the **Connections** tab and then click **LAN settings**.
  - d. Clear **Use a proxy server for your LAN**.
  - e. Click **OK**.



## 7.3.2 Commissioning Through Deployment Wizard

1. Enter `https://XX.XX.XX.XX` in the address box of the browser (`XX.XX.XX.XX` is the default IP address of the SmartLogger). If you log in to the WebUI for the first time, a security risk warning is displayed. Click Continue to this website.
2. Select a **User Name** to log in.



IL03J00002

Parameter	Description
Language	Set this parameter as required.
User name	Select <b>admin</b> .
Password	<ul style="list-style-type: none"><li>• The initial password is <b>Changeme</b>. Use the initial password upon first power on and change it immediately after login. To ensure account security, change the password periodically and keep the new password in mind. Not changing the initial password may cause password disclosure. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, the user is liable for any loss caused to the PV plant.</li><li>• If you enter wrong passwords for five consecutive times within 5 minutes, your account will be locked out. Try again 10 minutes later.</li></ul>

3. Click **Deployment Wizard** and set parameters as prompted. Click **Skip** for unused devices.



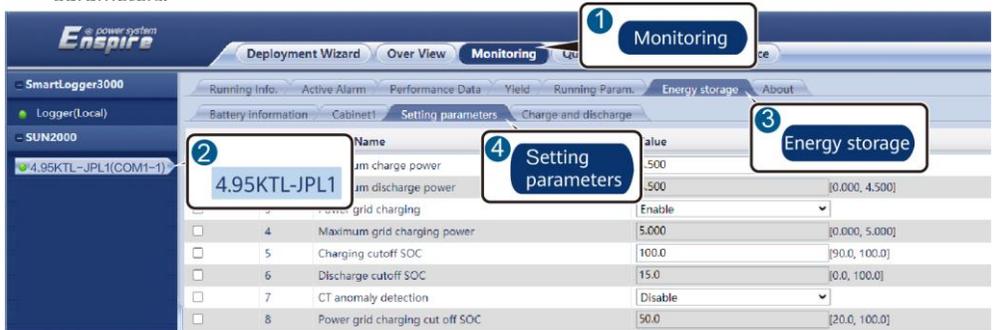
## 7.3.3 Setting Parameters

1. After completing the settings according to the deployment wizard, choose **Settings > EMS Control** and set battery working mode.



IB01P00005

2. Click **Monitoring**, click the inverter under the SUN2000, click **Energy storage**, and set related parameters.



IB01P00006

## 8 Statement

1. The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.
2. Before installing the device, read the user manual carefully to get familiar with product information and safety precautions.
3. Only certified electricians are allowed to operate the device. Operation personnel must wear proper personal protective equipment (PPE).
4. Before installing the device, check that the package contents are intact and complete against the packing list. If any damage is found or any component is missing, contact your dealer.
5. The device damage caused by the violation of instructions in this document is not covered under warranty.
6. The cable colors involved in this document are for reference only. Select cables in accordance with local cable specifications.

## 9 Customer Service Contact

Customer Service Contact Information			
Region	Country	Email	Hotline
Japan	Japan	Japan_ESC@ms.huawei.com	0120258367

**Huawei Technologies Co., Ltd.**  
Huawei Industrial Base, Bantian, Longgang  
Shenzhen 518129 People's Republic of China  
[solar.huawei.com](http://solar.huawei.com)