User Manual

Applicable Models

UNIV-14.3kWh(WP)

UNIV-16kWh(WP)

File version A1-EN Release Date 19 .03.2026

Contents

About this document 2
1. Safety 3
2. Introduction 6
2.1 Features 6
3. Battery Pack Introduction 7
3.1 Battery Pack Specification 7
3.2 Battery Pack Introduction 8
3.2.1 Battery Pack Appearance 8
3.2.2 Battery system self-test 9
3.3 Communication Instructions 10
3.3.1 Communication With Inverter 10
3.3.2 Communication Between The Battery Packs 10
4 Installation And Configuration 11
4.1 Installation Recommendations 11
4.2 Equipment Installation 15
4.2.1 Installation Preparation 15
4.2.2 Connection With Inverter 16
5 Battery Monitor software 18
6 Wi-Fi App User Guide 20
6.1. Connection Preparation 20
6.2. Register & Login 20
6.3. Create a Power Station 21

About this document

This manual describes the product information, installation, electrical connection, commissioning. 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, Please consult the supplier.
This manual introduces the product UNIV-14.3kWh(WP) /UNIV-16kWh(WP) .These two type is an energy storage system composed of lithium iron phosphate batteries. Please read this manual before installing the battery and strictly follow the instructions during the installation process. If you have any questions, please contact the distributor for advice and clarification.

Revision History

Revision No.	Revision Date	Revision Reason
A0	2025-04-27	First Published
A1	2025-03-19	Add heating content

Symbol Definition

⚠ DANGER
Indicates a high-level hazard that, if not avoided, will result in death or serious injury.
⚠ WARNING
Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.
⚠ CAUTION
Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.

1. Safety

⚠ WARNING

Please read all safety instructions carefully before performing any work and strictly follow them while handling the battery.

Only qualified persons are allowed to wire the batteries.

Failure to comply may result in:

- Serious injury or fatality to the operator or others.
- Damage to system components, equipment, or third-party property.

Required Qualifications for Personnel:

Personnel must possess the following qualifications to perform installation, commissioning, and maintenance:

- Training in electrical system installation and hazard management.
- Familiarity with this manual and other relevant documentation.
- Knowledge of local regulations and applicable directives.

⚠ CAUTION

Please read carefully to ensure error-free operation of your battery.

Wrong step may cause battery system failure or life cycle reduction.

Before Connecting

- Before installation, ensure that the grid power is disconnected and the battery is turned off. Properly connect the positive and negative cables to avoid reversal, and confirm there are no short circuits in external devices.
- All the battery pack terminals must be disconnected before any maintenance.
- Do not use cleaning solvents to clean battery pack.
- Do not expose battery to flammable or harsh chemicals or vapors.
- Do not connect battery pack with AC/PV solar wiring directly.
- Do not insert any foreign object into any part of the battery pack.
- Keep the battery away from water and heat sources(not less than 2 meters).
- The battery system must be correctly grounded.

When using

- If the battery system requires relocation or repair, ensure that the power is disconnected and the battery is turned off.
- Do not connect different types of batteries.
- Do not connect the battery to incompatible or malfunctioning inverters.If you insist on using the battery without communication, we will shorten the warranty period in accordance with the warranty agreement.
- If the battery is not fully charged and discharged over a long period, the SOC may become inaccurate. Please perform a full charge calibration at least once every two weeks. Usually, this maintenance process needs to be completed when the communication between external devices such as monitoring software, batteries, and inverters is normal. (Full charge: SOC(100%) Full discharge: SOC(10%))
- Do not touch the battery pack with wet hands.
- Do not crush, drop or puncture the battery pack.
- Always dispose of the battery pack according to local safety regulations.
- Store and recharge the battery pack in a manner in accordance with this user manual.
- Do not reverse the polarity when installing.
- Do not short circuit the terminals, remove all jewelry items that could cause a short circuit before installation and handling.
- The battery packs should be not stacked more than specified numbers.
- Continued operation of a damaged battery pack can result in dangerous situation.

When storing

- For long-term storage (more than 3 months), the battery cells should be stored in following environment: temperature range -20 to 55°C, relative humidity <65% and no corrosive gases. It is recommended to store the battery within a temperature range of 5 to 45 ℃, with a relative humidity of<65% and no corrosive gases.
- If long-term storage is required, the battery should be charged once every 3 months to ensure that the battery pack has a charge greater than 90% SOC.

Special Reminder

- Battery needs to be recharged within 48 hours, after fully discharged
- If you encounter any battery issues, do not attempt to open the battery for inspection or repair by yourself. In case of problems, please immediately contact after-sales personnel or distributor for assistance. Any disassembly of the battery must be done under the supervision of after-sales personnel to prevent accidents.
- Don't conduct any dangerous tests by yourself. All testing must be performed under the supervision of distributor technical to avoid serious accidents.
- Battery startup sequence:

1. Connect external wiring properly.
2. Turn on the circuit breaker to begin usage.
3. Press the switch button and wait for the battery to power on normally.

- Battery turn off sequence:

1. Press the switch button and wait for the battery to power off.
2. Turn off the circuit breaker.
3. Disconnect external wiring properly.

2. Introduction

The UNIV-14.3kWh(WP) /UNIV-16kWh(WP) series battery is a low-voltage energy storage system based on lithium iron phosphate (LiFePO4) batteries. It is one of the new energy storage products.

This system provides reliable power support for various equipment and systems, especially in applications requiring high power, large capacity, limited installation space, and long cycle life.

2.1 Features

- **High Scalability**: Multiple battery can be connected in parallel to expand the capacity. Supports max of 20 batteries in parallel.
- **Environmentally Friendly**: The entire module is non-toxic, non-polluting, and eco-friendly.
- **High Safety & Long Cycle Life**: Uses LiFePO4 as the cathode material for enhanced safety and longevity.
- **Intelligent Battery Management System (BMS)**: Provides protection against over-discharge, over-charge, over-current, and high/low temperature.
- **Exceptional safety performance:** Equipped with secondary protection featuring trip (disconnection) functionality, and optional aerosol configuration for enhanced safety.
- **Wide Operating Temperature Range**: Wide Operating Temperature Range: Supports charging from 0°C to +55°C and discharging from -20°C to +55°C, ensuring excellent performance and long service life.
- **Automatic self-heating**: A heating film(optional) is installed on the side of the UNIV-14.3kWh (WP)/UNIV-16kWh (WP), at the bottom of the battery cells, to ensure that the equipment can be charged normally in an environment of -20℃~0℃.

3. Battery Pack Introduction

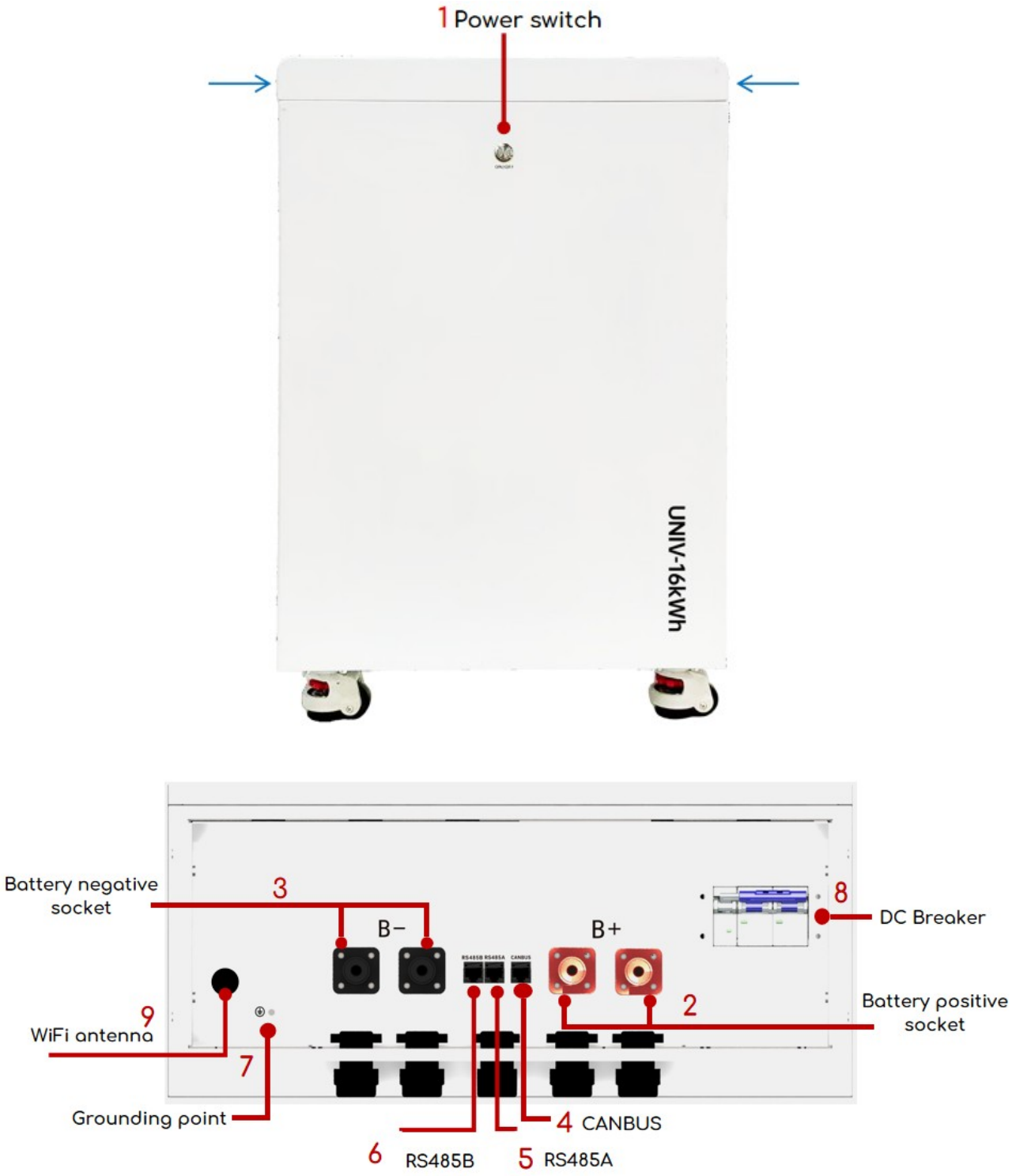
3.1 Battery Pack Specification

MODEL		UNIV-14.3kWh	UNIV-16kWh
BATTERY PARAMETERS			
Total Energy (kWh)		14.34	16.08
Usable Energy (kWh)		13.48	15.11
Nominal Voltage (Vd.c)		51.2	51.2
Voltage Range (Vd.c)		44.8 ~ 57.6	44.8 ~ 57.6
Rated Capacity (Ah)		280	314
Normal Current(A)	Charge	140	157
	Discharge	140	157
Dimension(W *H* D) (mm)		525*720*245	525*720*245
Weight (KG)		111	117
BMS Features		Over-voltage Protection/Over-current Protection Short-circuit Protection/Temperature Protection Low-voltage Protection/ Cell Balance	
Model		WP	
Standard Features		Trip Protection/Bluetooth	
Communication		CAN/RS485	
Charge Temperature		0℃ ~ 55℃/ -20℃ ~ 55℃(optional)	
Discharge Temperature		-20℃ ~ 55℃	
Storage Temperature		-20℃ ~ 55℃	
IP Rating		IP65	
Cooling Type		Natural	
Operating Environment		Indoor (5% ~ 95%(RH) No Condensing)	
Altitude		≤2000 m	
Warranty		10 Years	
Operation Life		15+ Years (25℃/77 ℉)	
Certification		CE/Cell UL 1973/UN38.3/MSDS	

3.2 Battery Pack Introduction

3.2.1 Battery Pack Appearance

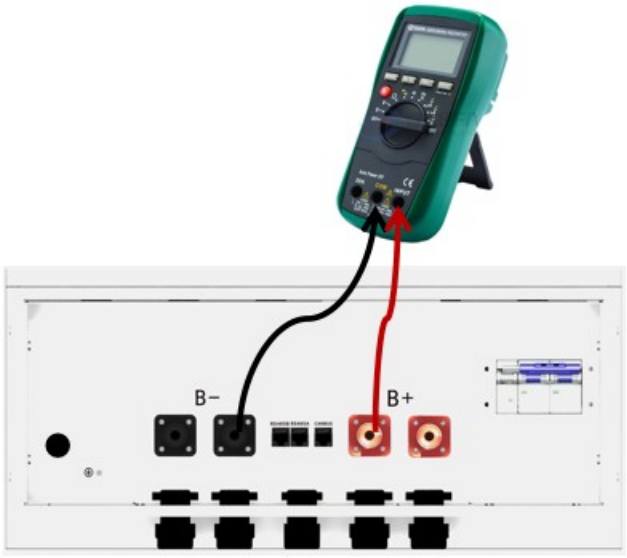
As shown by the arrow in the figure below, use a screwdriver to open the screws on the side and back of the cover plate, and then remove the cover plate to see the wiring panel of the device.



Item	Name	Function Description
1	Power switch	Switch the battery on or off
2	Battery positive socket	Connect with battery positive terminal
3	Battery negative socket	Connect with battery negative terminal
4	CANBUS	Communicate with the inverter
5	RS485A	Parallel communication with other battery
6	RS485B	Parallel communication with other battery
7	Grounding point	Reserved baseline interface
8	DC breaker	The master switch of the battery system
9	WiFi antenna	For WiFi antenna installation

3.2.2 Battery system self-test

1. Connect the Ground point of the device to the Ground point of the inverter
2. Switch the DC breaker to ON position.
3. Press the Power switch to turn on. The position of the button after rebounding will be lower.
4. Check the system output voltage between B- and B+. The voltage range should be 44.8~57.6V.



5. Press the button to turn off. The position of the button after rebounding will be higher.
6. Switch the DC breaker to OFF position.

3.3 Communication Instructions

3.3.1 Communication With Inverter

⚠ CAUTION

Please read the definition of the Battery Communication interface in the inverter's instruction manual before proceeding with this part of the operation.

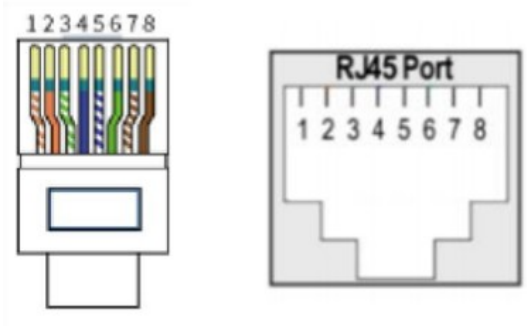
If you have problems with this part of the communication, please contact the after-sales department or an authorized dealer.

if you use CAN communication, you need to pay attention to CAN_H and CAN_L in the definition of battery interface.

When the pin definition of communication between the inverter side and the battery side is the same, the communication can be done by using normal network cable.

If the pin definition of communication between inverter and BMS is not the same, you need to make a special cable according to the inverter pin, otherwise the inverter will not recognize the battery.

Interface Definition



CAN	
Pin	Definition description
1	RS485-B
2	RS485-A
3	NC
4	CAN-H
5	CAN-L
6	NC
7	RS485-A
8	RS485-B

3.3.2 Communication Between The Battery Packs

Communication between batteries can be achieved using the provided standard network cables, with no modifications required.

4 Installation And Configuration

4.1 Installation Recommendations

Environmental Requirements

DANGER

Cleanliness

The battery system features high-voltage connectors, and environmental conditions can affect the system's isolation. Before installation and powering on, ensure that dust and metal debris are removed to maintain system cleanliness. The environment should provide a certain level of dust protection. During ongoing system operation, regularly check for dust and humidity levels.

Fire Protection

The room must be equipped with a fire protection system or fire extinguishers (foam extinguishers are recommended). The fire protection system should be regularly inspected to ensure it is functioning properly. Please follow the local guidelines for the use and maintenance of fire protection equipment.

Grounding Protection

Ensure that the grounding point for the battery system is stable and reliable prior to installation. If the battery system is installed in a standalone equipment cabin (e.g., a container), verify that the grounding of the cabin is stable and reliable. The resistance of the grounding system must be ≤100mΩ.

CAUTION

Temperature Considerations

The LV series battery has a working temperature range of -20°C to +55°C, with an optimal operating temperature range of 5°C to 45°C. Exceeding the rated working temperature range will result in over-temperature/under-temperature alarms or protection, and prolonged use outside of this range may reduce the cycle life of the battery system.

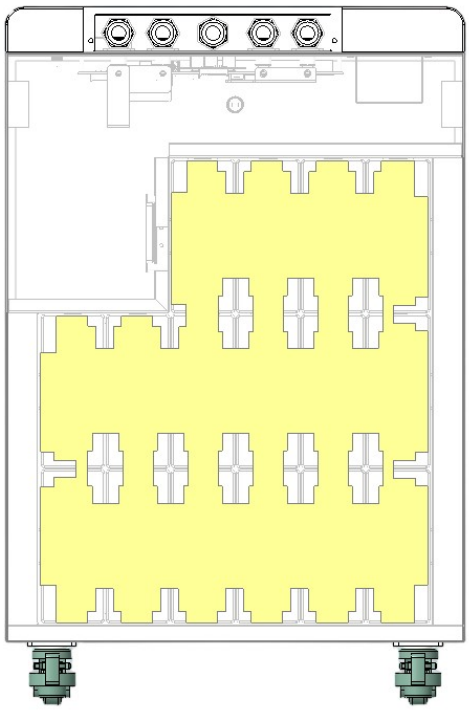
Cooling System

If the temperature does not meet the operating conditions, an external cooling

system, such as central air conditioning, should be provided to ensure the battery system remains within the optimal temperature range. Exceeding the temperature range will trigger over-temperature alarms or protection, which may reduce the service life.

Heating System

When the ambient temperature is between -20 ℃ and 0 ℃, the device can discharge normally after being turned on. If the device needs to be charged between -20 ℃ and 0 ℃, the device will use a heating film(optional) to preheat the cells to around 2 ℃, and then the cells of the device can be charged normally. The heating function requires normal communication with the inverter. If the temperature does not meet the operating conditions (＜-20 ℃), a heating system such as central heating should be provided to ensure that the battery system remains within the optimal temperature range.



The position of the heating film(optional) is shown in the above figure, at the bottom of the battery cells, which is the side of the equipment. The heating function does not use the power of the battery cells. The heating function requires the external voltage greater than the device voltage, that is, the device is in a state of waiting to be charged. The heating function requires normal communication with the inverter. The working logic of the heating film(optional) is shown in the following table.

Cells temperature	Heating/Charging Status
＜ -20℃	Below the operating temperature of the device
-20℃ ~ 2℃	Only heats the battery cells, the device does not charge
2℃ ~ 10℃	Heating the battery cells while charging them normally
＞ 10℃	Charge the battery cells, stop heating the battery cells

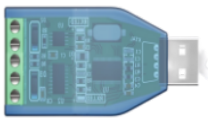
Installation Tools

Wrench	Multimeter	Drilling machine
Crimping tool	Phillips screwdriver	Wire stripper

Protective equipment

Insulated gloves	Safety shoes

Battery Accessories List

Item	Specification	Quantity	Appearance
Battery	UNIV-14.3kWh(WP)/ UNIV-16kWh(WP)	1	
Power Cable (Optional)	Connect with inverter(1.5m)	2	
	Parallel Cable (1.5m)	2	
Copper Lug (Optional)	SC50-8	4	
Network Cable (Optional)	Connect with inverter(1.5m)	1	
	Parallel Cable (1.5m)	1	
RJ45 Plug	RJ45 Plug	4	
Manual	Manual	1	
Copper Lug	OT4-5	2	
Quality Inspection Report	Report	1	
Warranty Card	Warranty Card	1	
RS485 to usb(Optional)	RS485 to usb	1	

Preparation Before Installation

Site Assessment:

Ensure the installation site is dry, clean, and free from dust. The area should be free from direct sunlight and excessive humidity to protect the equipment.

Unpacking:

Before unpacking, check the shipping list to confirm the total number of packages. Inspect each package for any visible damage.

Equipment Inspection:

Once unpacked, verify that all items are intact and match the packing list. If there is any damage to the packaging, document and inspect the goods thoroughly.

Handling:

Handle all equipment with care, paying particular attention to avoid damaging the surface

4.2 Equipment Installation

4.2.1 Installation Preparation

⚠ WARNING

1. Batteries stored for a period of time may experience some capacity degradation. Mixing these batteries with newly manufactured ones may result in capacity loss.
2. Batteries from different production batches may have slight capacity differences. Mixing batteries from different batches may cause capacity loss.
3. Do not mix batteries of different models without proper authorization.
4. **If any of the above unavoidable situations occur, please contact the after-sales service personnel or an authorized distributor.**

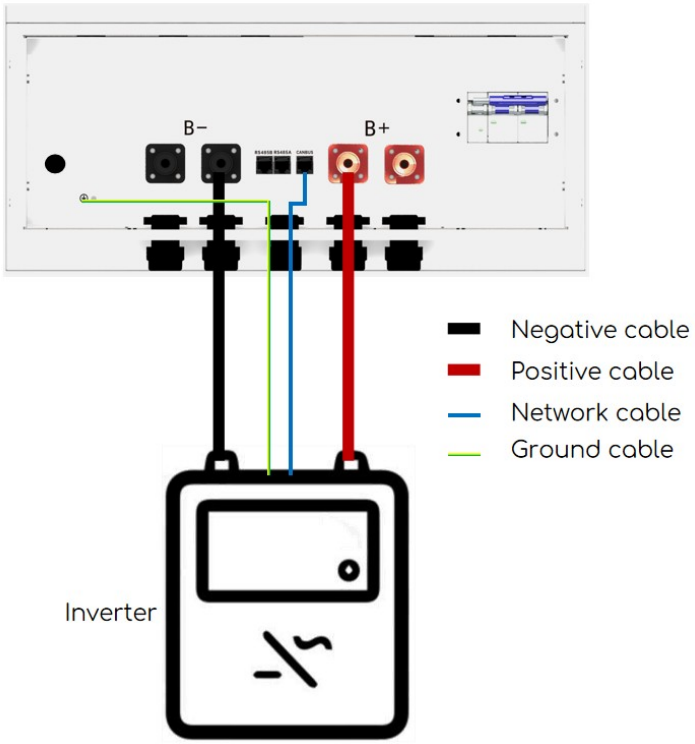
1. Check whether all battery accessories are complete
2. Ensure that the environment meets all the technical specifications.
3. Make sure the installation project adheres to the guidelines outlined in section 4.2.1 Caution.
4. Prepare the necessary equipment and tools for installation.
5. Verify that the DC breaker is in the OFF position.

4.2.2 Connection With Inverter

⚠ CAUTION

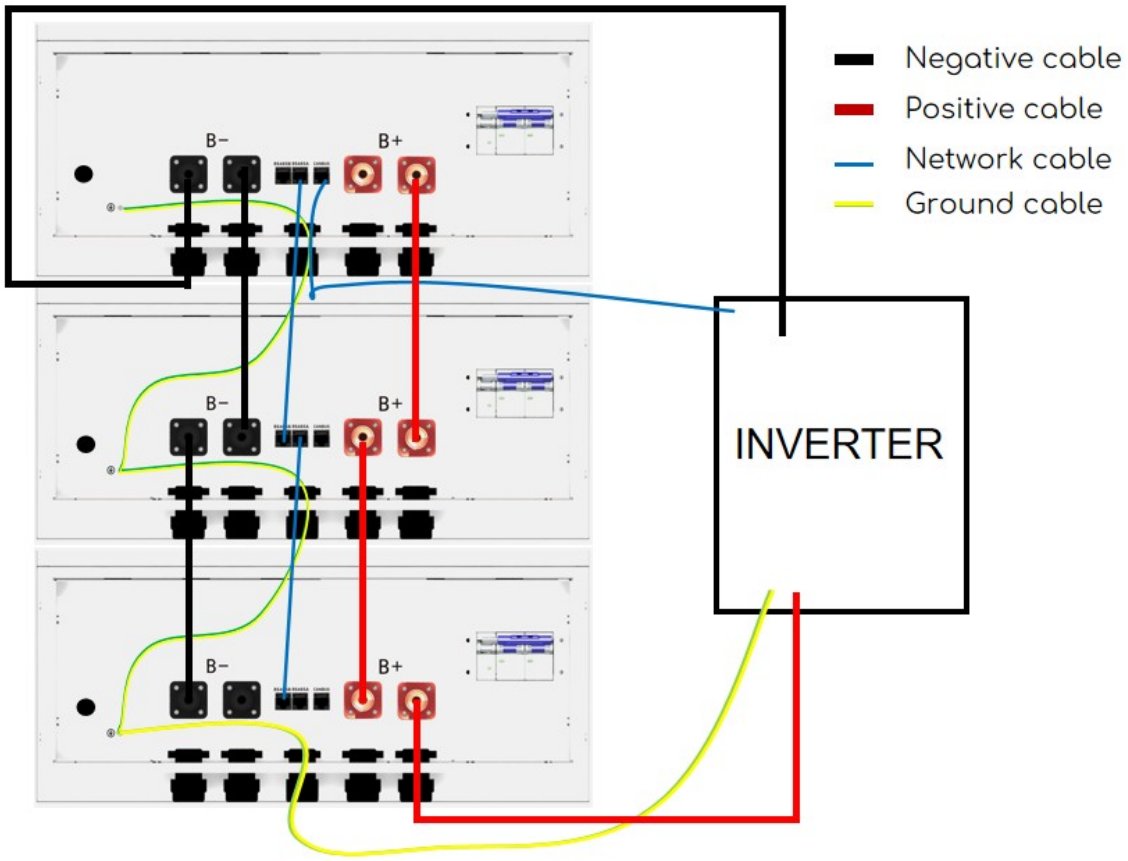
Please double-check if the inverter you are using is listed in the compatibility list. If it is not, the entire battery system will not operate properly. If there is a compatibility issue, please contact after-sales personnel or distributor immediately. we will assist you in resolving the issue promptly.

The wiring between a single device and an inverter is shown in the following figure.



1. Connect the Ground point of the device to the Ground point of the inverter. The resistance of the grounding system must be ≤100mΩ
2. Connect the negative socket(B-) of the device to the negative terminal of the inverter using the corresponding negative power cable
3. Connect the positive socket(B+) of the device to the positive terminal of the inverter using the corresponding positive power cable.
4. Use an RJ45 network cable to connect the CANBUS interface of the device to the CAN/RS485 interface of the inverter. The pin definition of this product is as described in 3.3.1 Communication With Inverter. Some inverters may have different pin definitions. The solution is to refer to the inverter manual and use network cable pliers to repress the RJ45 interface.

The wiring between multiple devices and one inverter is shown in the following figure. Supports max of 20 devices in parallel.



1. Connect the grounding point of each device to the grounding point of the inverter. The resistance of the grounding system must be ≤100mΩ.
2. Connect the negative socket(B-) of each device to the negative terminal of the inverter using the corresponding negative power cord.
3. Connect the positive socket(B+) of each device to the positive terminal of the inverter using the corresponding positive power cord
4. It is recommended to use a breaker to control the on/off of the power cables of the inverter and devices.
5. Use an RJ45 network cable to connect the RS485A interface of the first device to the next RS485B interface of the next device, and so on. Ensure that each device is connected in parallel using RJ45 network cables.
6. Use an RJ45 network cable to connect the CANBUS interface of the first device to the CAN/RS485 interface of the inverter. The pin definition of this product is as described in 3.3.1 Communication With Inverter. Some inverters may have different pin definitions. The solution is to refer to the inverter manual and use network cable pliers to re press the RJ45 interface.

5 Battery Monitor software

You can get the battery monitor software from after-sales department.

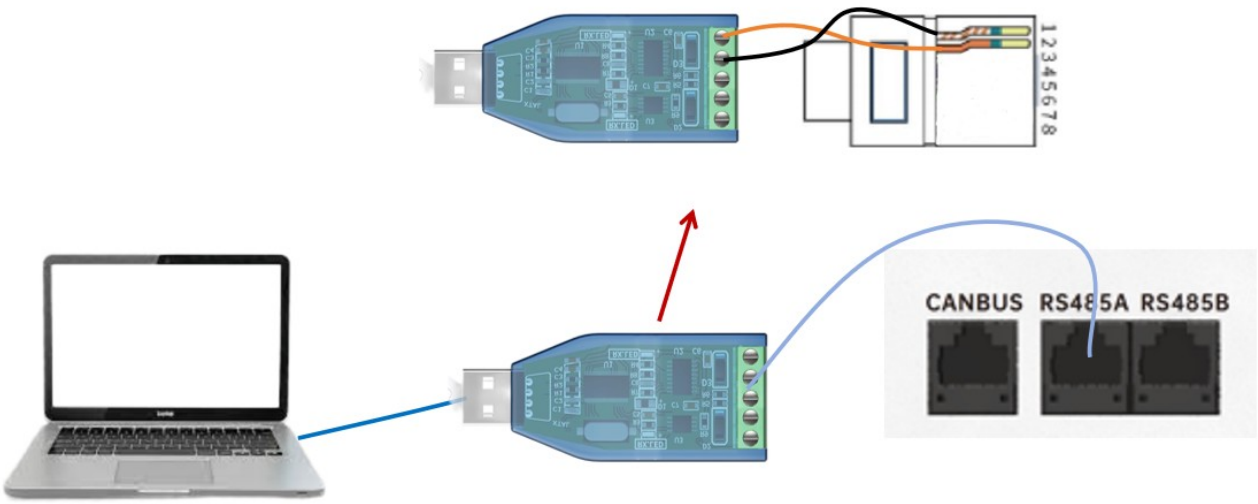
Low Voltage RS485 To USB Production

Please refer to the following images to properly connect the Low-Voltage RS485 to USB, provided by Supplier, to the computer and battery.

(The driver required for the Can Box should be obtained from Distributors.)

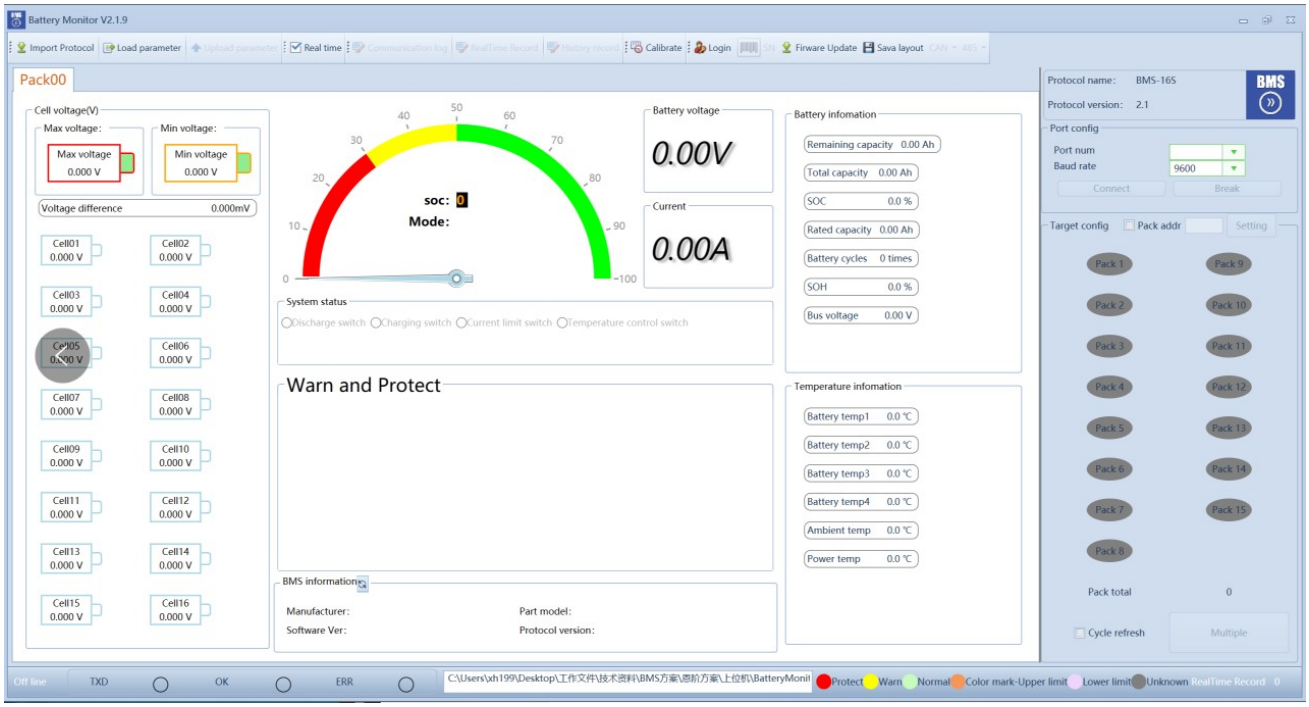
Use the Ethernet cable provided by the RS485 to USB for the setup:

- Connect the first pin of the Ethernet cable to the second port of the RS485
- Connect the second pin of the Ethernet cable to the first port of the RS485



Software Usage Guide

1. Insert the RS485 cable into the battery's RS485A port(When the batteries are connected in parallel, connect to the RS485B port of the master unit.), then connect it to the computer.
2. After installing the driver, open the Battery Monitor System software (for first-time use, you can contact the supplier for technical support).
3. Click "**Import Protocol**", then go to the "**agreement**" folder in the software directory and open **16S_V20_ADDR_EN.xml** (If you need to use another language, go to the "Other language" folder.CS: Czech, DE: German, PL: Polish, PT: Portuguese, IT: Italian, FR: French)
4. Select the baud rate 19200, click "Connect", and you're ready to use the system.



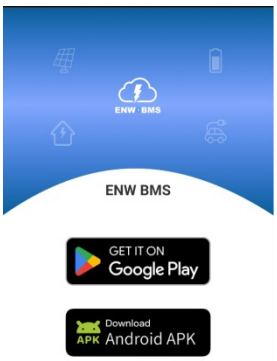
If you encounter any issues while using this software, please contact after-sales personnel or a recommended distributor. We will provide technical support.

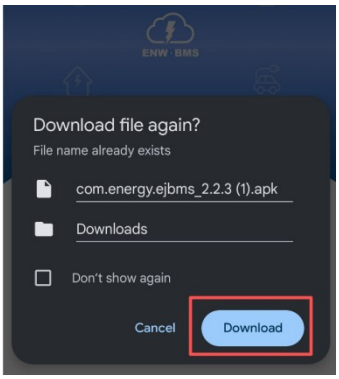
6 Wi-Fi App User Guide

6.1. Connection Preparation

Download the EN ENERGY App to get full functionality of WIFI function

Scan QR Code (Android devices).



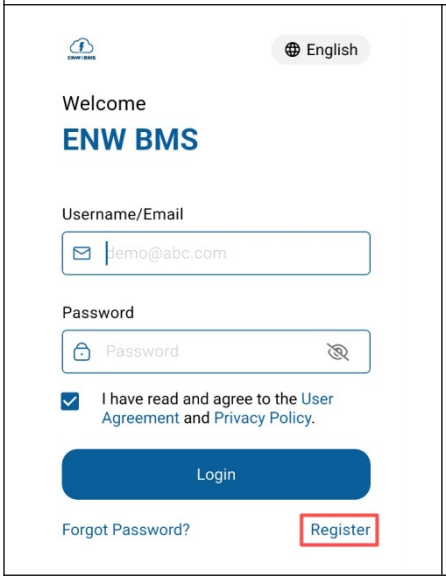


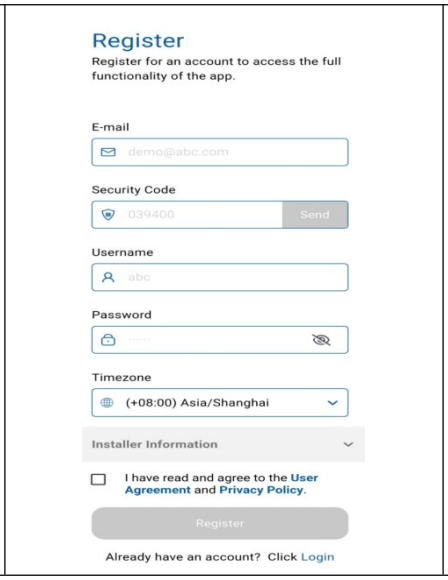
6.2. Register & Login

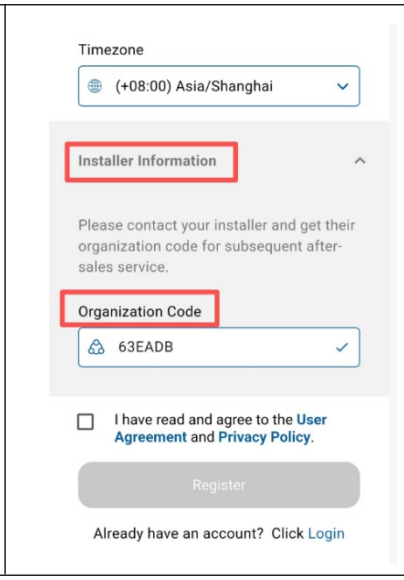
First Login – Step by Step

Registration (First Login)

1. On the first login, tap **"Register"** in the bottom-right corner.
2. Enter your email address → **tap "Send" to request the security code via email** → enter the security code → choose a username, password, and time zone → accept the Terms of Use & Privacy Policy → **tap "Register."**





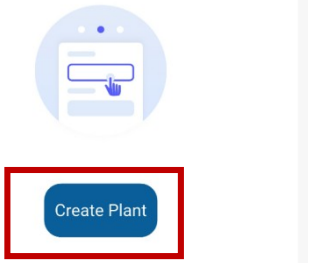


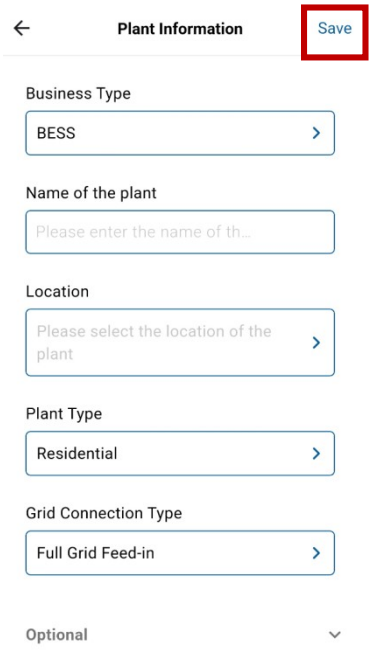
6.3. Create a Power Station

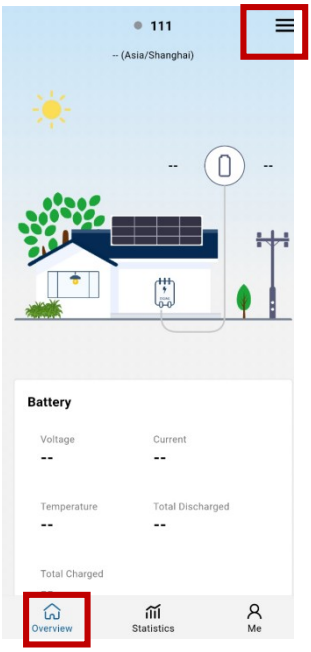
After logging in, you will be taken directly to the **"Create Plant"** page.

Please tap **"Create Plant."**

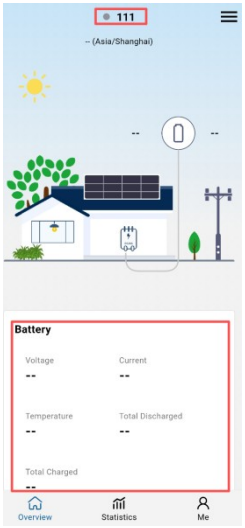
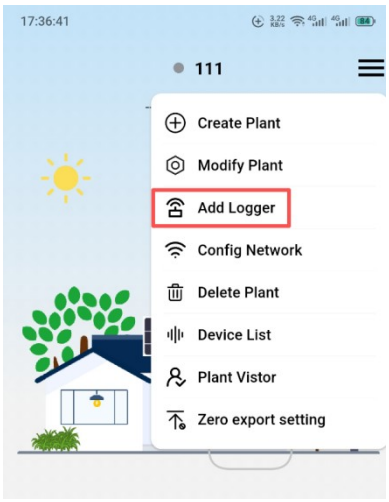
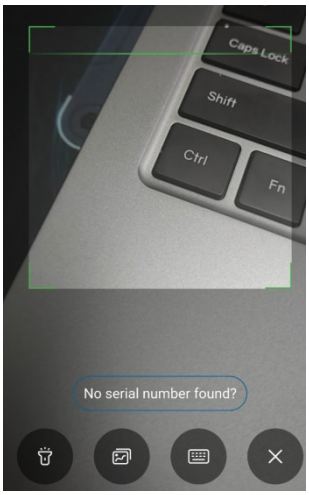
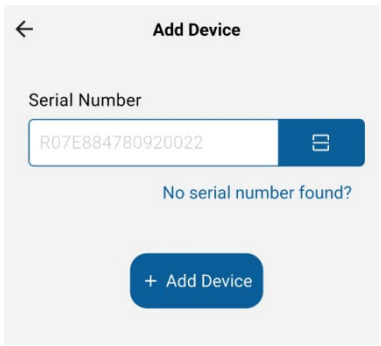
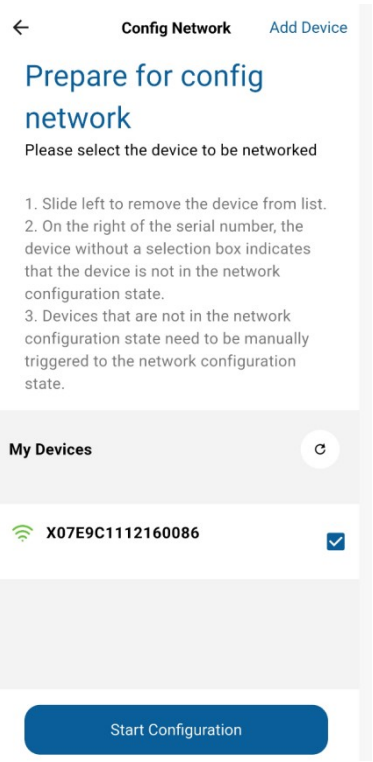
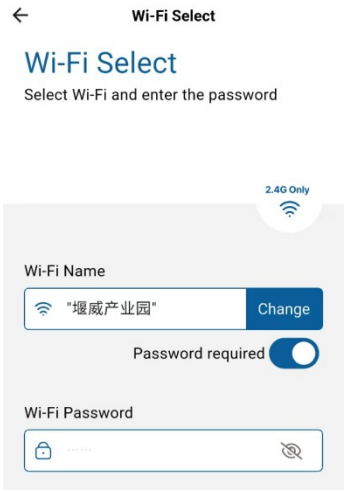
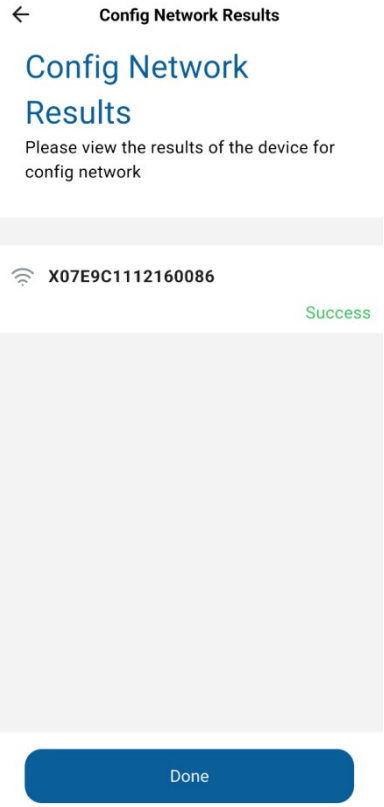
In the next step, enter the required information and tap **"Save" in the upper-right corner.**







After the power station is successfully created, click on the newly created power station to view basic information such as **battery voltage, current, and temperature**. However, if no devices have been added to the power station yet, the **Power Station Overview** will show an **offline status**. At this point, devices need to be added to the power station.



Click **"Add Logger"** → scan or enter the SN code → press **"Add Device"** → turn on Bluetooth on your smartphone → select the device and check the SN code → choose **"Start Configuration"** → enter the Wi-Fi name and password → press **"Start Configuration"** again → **"Finish."**