UNIV5200

ON/OFF

B−

B+

ON

OFF

CANBUS RS458A RS458B

RESET

Applicable Models

User Manual

UNIV5200

This manual introduces the product UNIV5200.This battery 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.

Contents

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.

Revision History

Revision No.	Revision Date	Revision Reason
A0	2025-05-15	First Published
A1	2025-08-01	Add a new model

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 fire.
> - 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.

- 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.

Special Reminder

- If the battery pack is stored for a long time, it is required to charge them every six months, and the SOC should be no less than 90%.

- Battery needs to be recharged within 12 hours, after fully discharged.

- 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.

- 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 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 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 UNIV5200 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: 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.

◆ Flexible Configuration: Multiple battery can be connected in parallel to expand the capacity.

◆ 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.
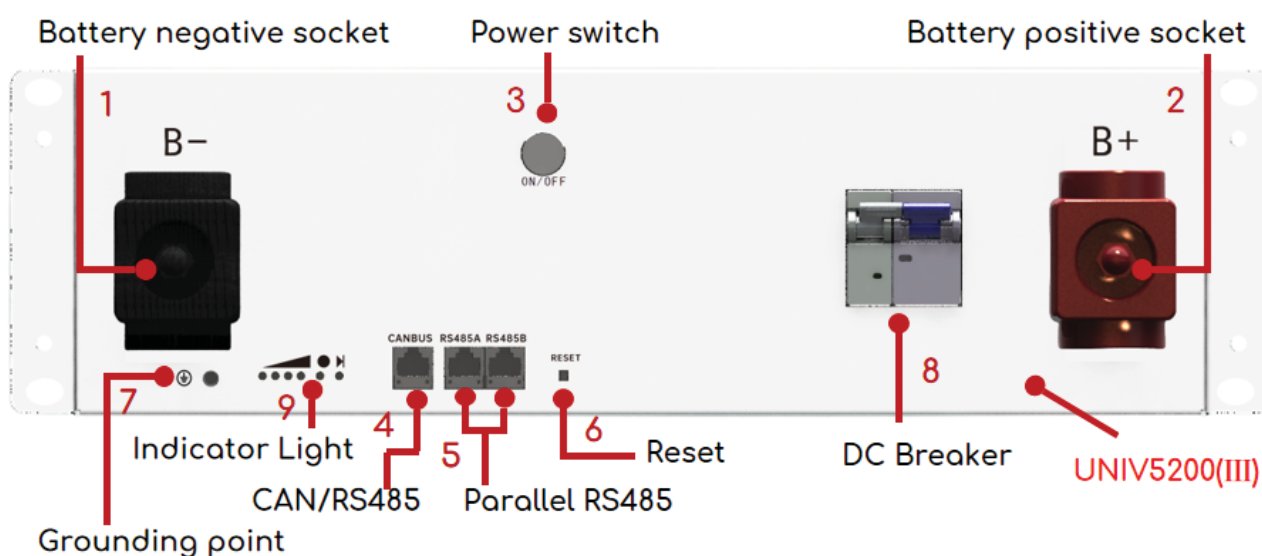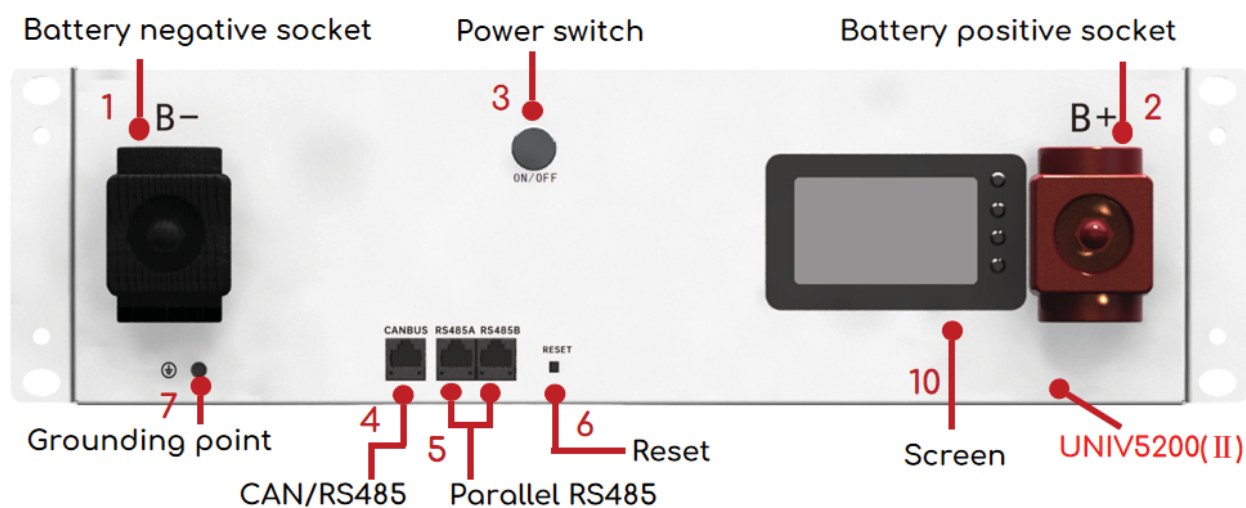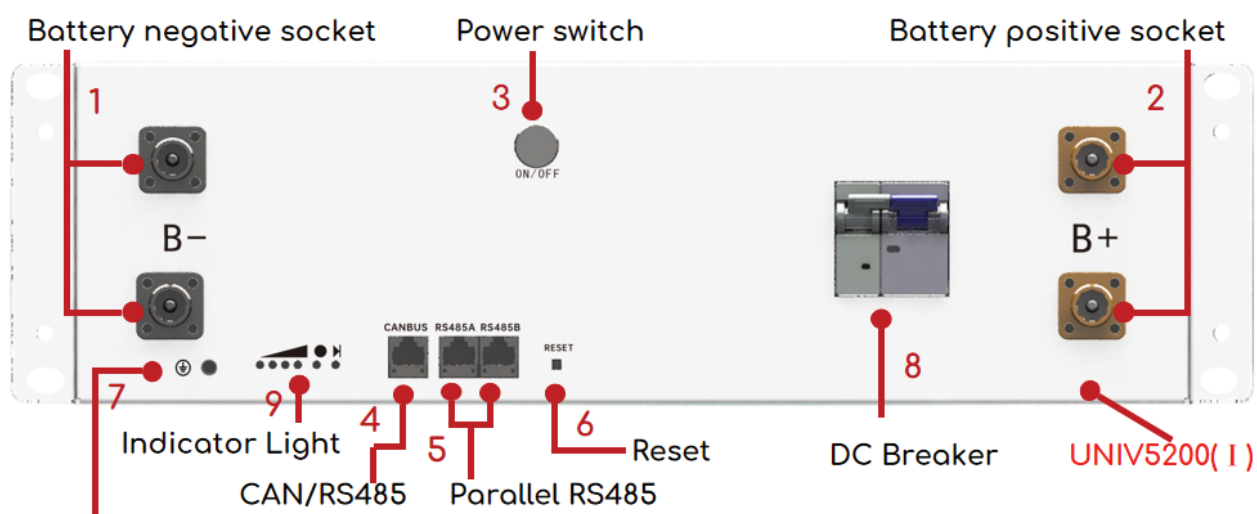
3. Battery Pack Introduction

3.1 Battery Pack Specification

MODEL	UNIV5200		
BATTERY PARAMETERS			
Total Energy (kWh)	5.12		
Usable Energy (kWh)	4.81		
Nominal Voltage (Vd.c)	51.2		
Voltage Range (Vd.c)	44.8 ~ 57.6		
Rated Capacity (Ah)	100		
Normal Current(A) Charge	80		
Normal Current(A) Discharge	80		
Dimension(W *H* D) (mm)	442*135*480		
Weight (KG）	44		
BMS Features	Over-voltage Protection/Over-current Protection Short-circuit Protection/Temperature Protection Low-voltage Protection/ Cell Balance Over		
Model	I	II	III
Standard Features	Trip protection/ Bluetooth	Screen/ Bluetooth	Trip protection/ Bluetooth
Communication	CAN/RS485		
Charge Temperature	0℃ ~ 55℃ (32℉ ~ 131℉)		
Discharge Temperature	-20℃ ~ 55℃ (-4℉ ~ 131℉)		
Storage Temperature	-20℃ ~ 55℃ (-4℉ ~ 131℉)		
IP Rating	IP20		
Cooling Type	Natural		
Operating Environment	Indoor (5% ~ 95%(RH) No Condensing)		
Altitude	≤2000 m		
Warranty	5+5 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

Battery negative socket   Power switch   Battery positive socket

1
3
2

B−

ON/OFF

B+

CANBUS RS485A RS485B

RESET

8

7   9   4   6

Indicator Light   5   Reset   DC Breaker   UNIV5200(I)

CAN/RS485   Parallel RS485

Grounding point

Battery negative socket   Power switch   Battery positive socket

1 B−
3
B+ 2

ON/OFF

CANBUS RS485A RS485B

RESET

7   4   6   10

Grounding point   5   Reset   Screen   UNIV5200(II)

CAN/RS485   Parallel RS485

Battery negative socket   Power switch   Battery positive socket

1
3
2

B−

ON/OFF

B+

CANBUS RS485A RS485B

RESET

8

7   9   4   6

Indicator Light   5   Reset   DC Breaker   UNIV5200(III)

CAN/RS485   Parallel RS485

Grounding point

Item	Name	Function Description
1	Battery negative socket	Connect with battery negative terminal
2	Battery positive socket	Connect with battery positive terminal
3	Power switch	Switch the battery on or off
4	CAN/RS485	Communicate with the inverter
5	Parallel RS485	Parallel communication with other battery
6	Reset	Restore factory settings
7	Grounding point	Reserved baseline interface
8	DC breaker	The master switch of the battery system
9	Indicator Light	Indicate the battery status(Normal/Alarm/Fault)
10	Screen	Check information of battery

3.2.2 Battery Screen Introduction (Applicable to Model II only)

3.2.2.1 Home Screen

After powering on and activation, the battery management interface will be displayed. Press the ENTER key to enter the homepage.

PackV：Total battery voltage   Current：Real-time Current

SOC：The remaining capacity   Warn：Alert

3.2.2.2 Battery parameter interface

Press the UP key to enter the detailed battery parameter information.
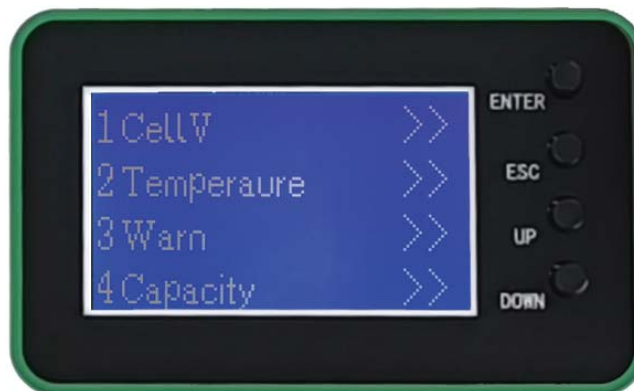
Press the UP and DOWN keys to scroll and select the parameter you want to view. Use the ENTER key to confirm, and the ESC key to exit.

CellV Parameters
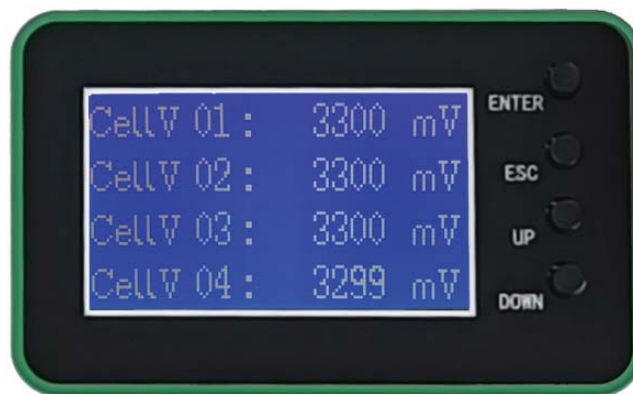
You can view the voltage of all individual battery cells.

Temperature Parameters

You can view the temperature information of all temperature monitoring points, as well as the Power temperature (PCB-temp) and Ambient temperature (Envir-temp).

SOC

FCC: Battery capacity   Rm: The remaining capacity

Cycle Time: Cycles   CAN: CAN protocol

You can enter this interface to view information such as battery capacity.

Warn

OV-Warn: High-voltage warning   OV-Prot: Over voltage protection

UV-Warn: Low-voltage warning   UV-Prot: Under voltage protection

OT-Warn: High temperature warning   OT-Prot: Over temperature protection

UT-Warn: Low temperature warning   UT-Prot: Under temperature protection

OC-Warn: Over current warning   OC-Prot: Over current protection

CAPA-Warn: Remaining capacity alarm   OFF-USE: Failure warning

SCP: Short circuit protection

You can enter this interface to identify the cause of the fault.

3.2.2.3 Protocol switching interface

Press the DOWN key to enter the protocol switching interface.After selecting the corresponding protocol, press and hold the ENTER key for 3 seconds. When "SUCCESS" appears, the switch is complete.

CAN PAGE1:

PNGDLT: Pylon   GRWT: Growatt   VCTR: Victron   SMASF: SMA

CAN PAGE2:

GINL：Solis   STUD：Studer

The RS485 protocol supports adaptive recognition and switching, so manual switching is not required.

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 after-sales department.

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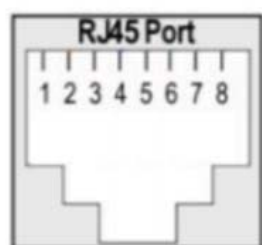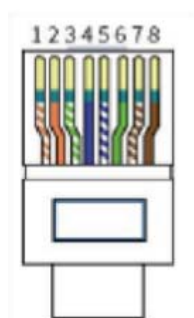
CAN	
Pin	Definition description
1	RS485-B
2	RS485-A
3	NC
4	CAN-H
5	CAN-L
6	NC
7	RS485-A
8	RS485-B

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 -20°C to +55°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 (Only during charging process)

If the temperature does not meet the operating conditions, a heating system, such as central heating, should be provided to ensure the battery system stays within the optimal temperature range. If the ambient temperature falls below 0°C, the system may shut down for protection. In this case, the heating system must be activated first. Exceeding the working temperature range will trigger under-temperature alarms or protection, potentially reducing the cycle life of the battery system.
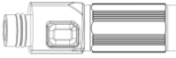
Installation Tools

Wrench	Multimeter	Drilling machine
Crimping tool	Phillips screwdriver	Wire stripper

Protective equipment

Insulated gloves	Safety shoes

Battery Accessories List

Item	Specification	Quantity	Appearance
Battery	UNIV5200(I)/ UNIV5200(II)/ UNIV5200(III)	1	
Power Cable (Optional)	Connect with inverter(1M)	2	
	Parallel Cable (0.3M)	2	
Connector (Optional)	UNIV5200(I)	2	
Copper Lug (Optional)	UNIV5200(II)/ UNIV5200(III)	2	
Network Cable (Optional)	Connect with inverter(1.5M)	1	
	Parallel Cable (0.3M)	1	
RJ45 Plug	RJ45 Plug	4	
Manual	Manual	1	
Copper Lug (Optional)	SC25-8	2	
Support Feet Kit (Optional)	Support Feet	4	
	M4 Screw	20	
	M5 Screw	4	
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.
If any of the above unavoidable situations occur, please contact 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.
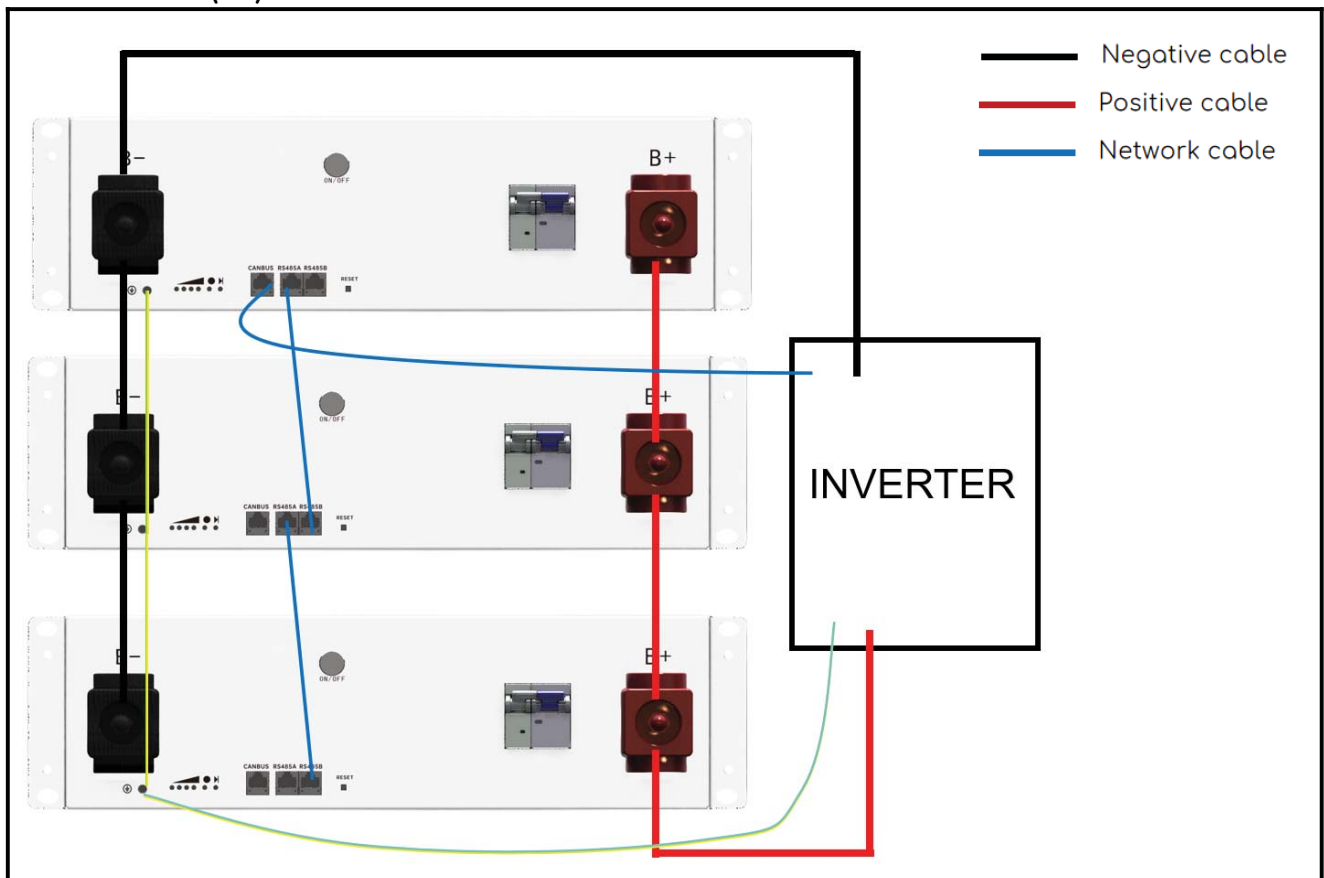
UNIV5200(Ⅰ)
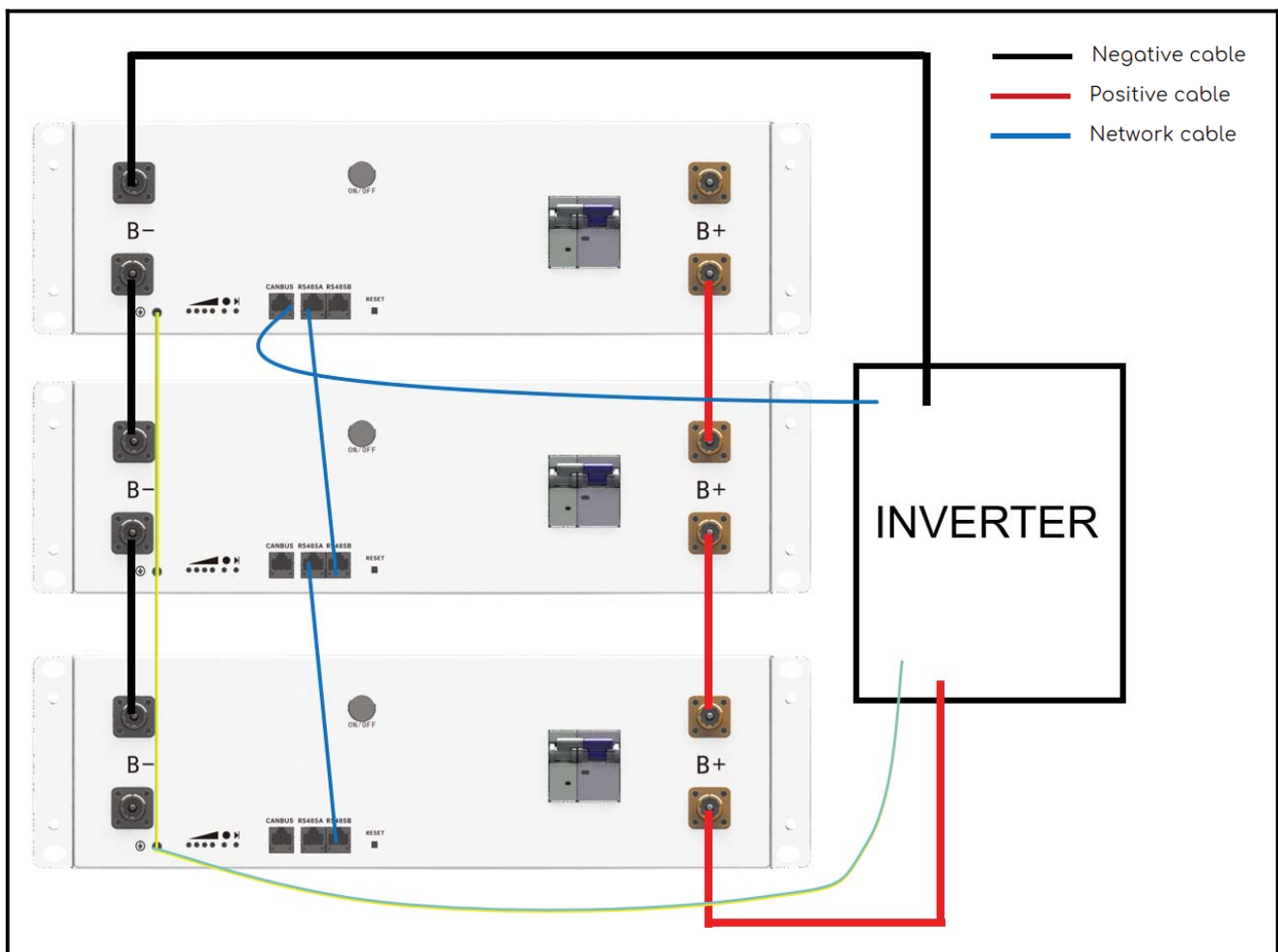
UNIV5200(II)
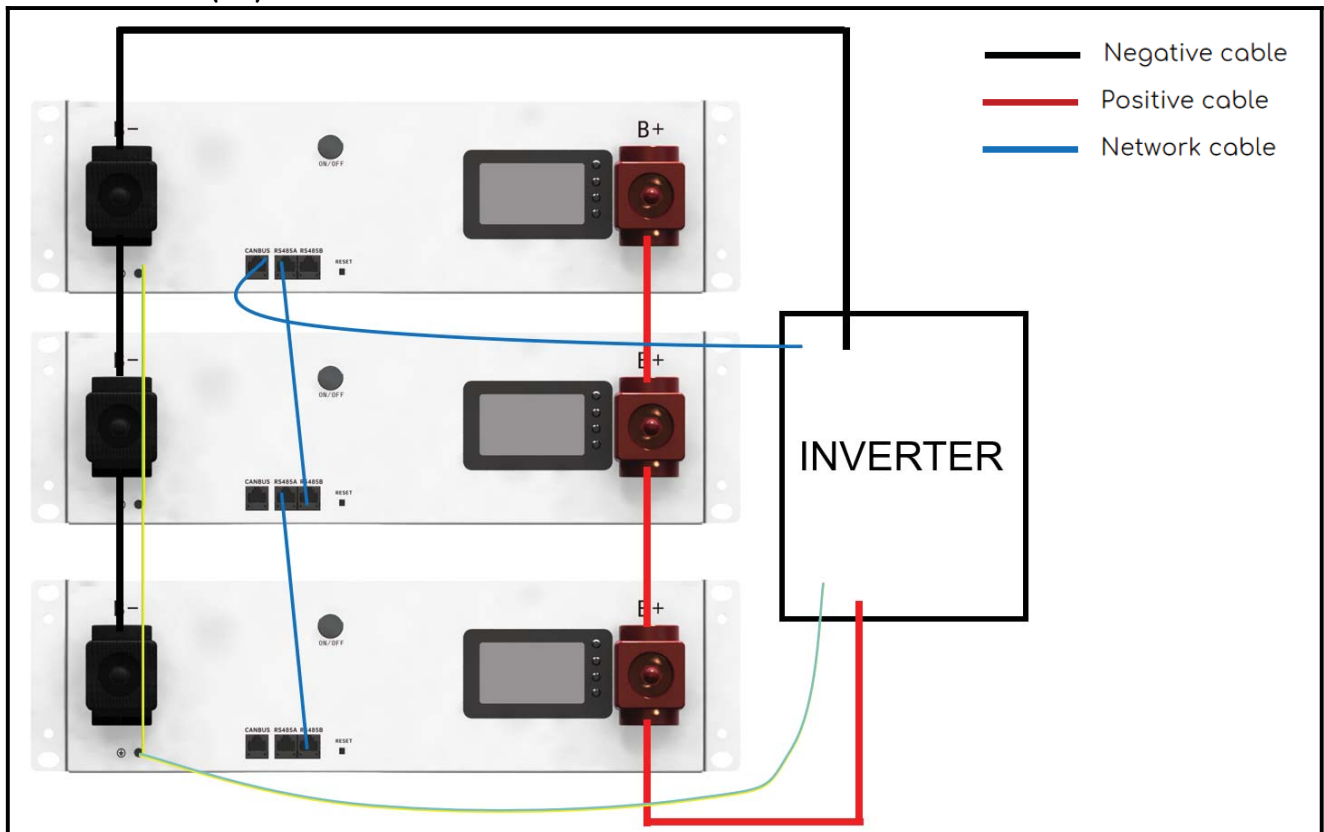
UNIV5200(III)

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
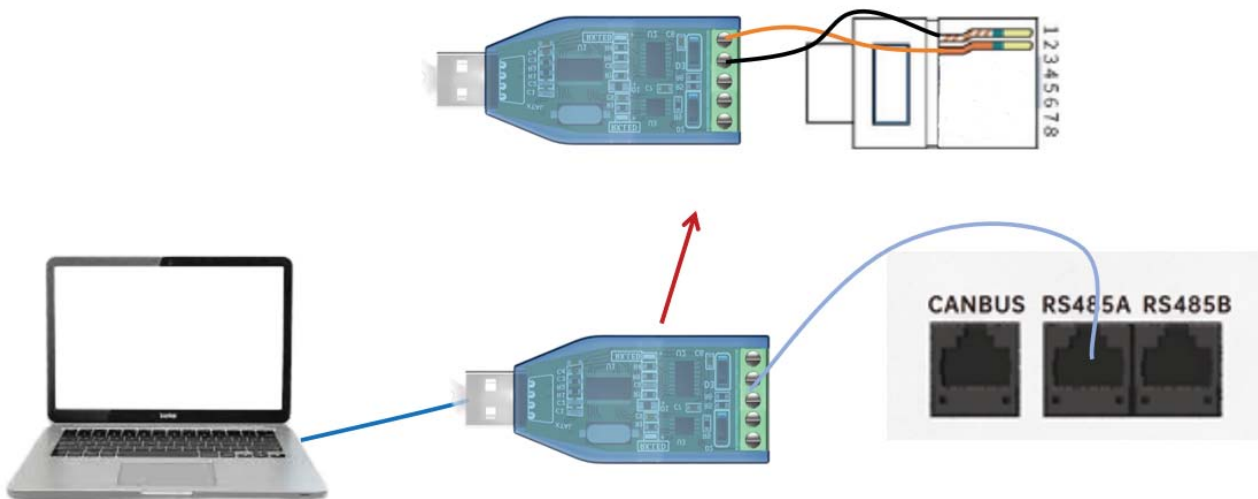
Software Usage Guide

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,
4. IT: Italian, FR: French)
5. Select the baud rate 19200, click "Connect", and you're ready to use the system.
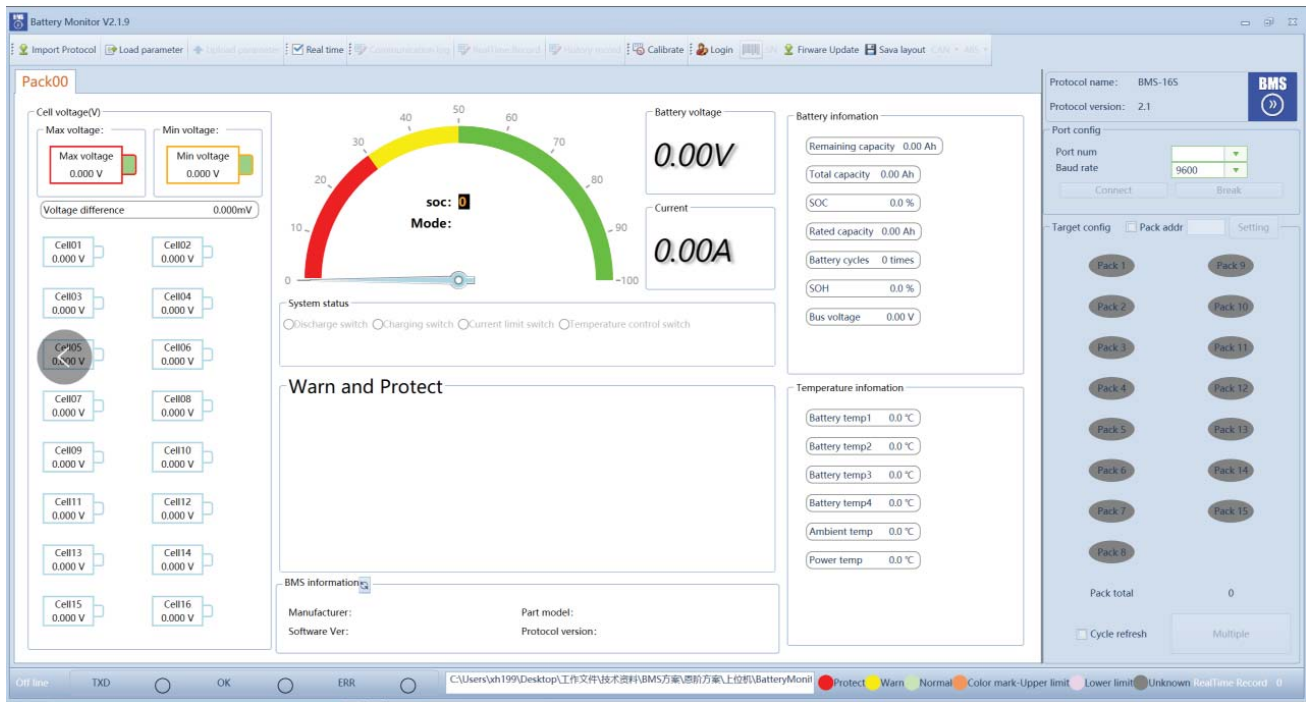
If you encounter any issues while using this software, please contact after-sales personnel or a recommended distributor. We will provide technical support.

6. Bluetooth APP

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

App Download Instructions

Method 1: Scan the QR code below the text to download and install.

Method 2: Search for "EN BMS" in Google Play to download the app.

Method 3: Search for "EN BMS" in APP Store to download the app.

App Usage Instructions

1. Turn on your phone's Bluetooth and ensure the battery is powered on properly.

2. Tap to open the app and enter the login interface.

3. Username: admin   Password: 111111   Click the Login button to enter the app.

4. Click Rescan Device, and once the device appears, tap on it to the parameters.
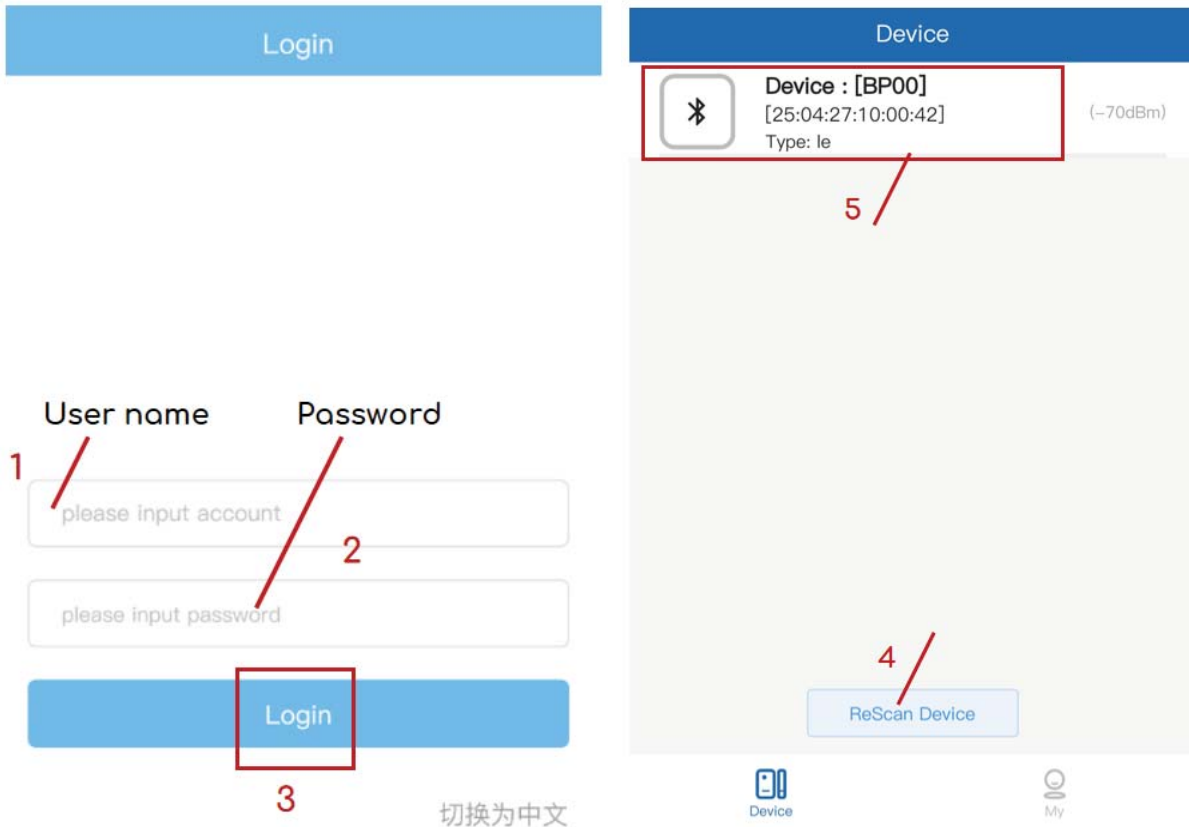
5.You can view detailed information about the battery here.

BP00	Status Bar 1: Displays stand-alone/parallel operation status and Bluetooth connection status.
Number Of Strings 16 — SOC:39.9% 52.79V 0.00A — Remaining Capacity 79.90Ah Standby	Status Bar 2: Displays number of cells strings, SOC, battery voltage, current, remaining capacity, and battery operating status
Alarm: 0Alarm Info — Protection: 0 ...	Status Bar 3: Displays statistics of alarm and protection items. Click to view details. Click on a specific alarm/protection item to view additional information such as the time of occurrence.
Battery Type LFP — Rated Capacity 200.0Ah — Battery Capacity 200.00Ah — Port Voltage 52.79V — Number Of Cycles 1 — SOH 100.0% — Max Voltage 3.300V — Mini Voltage 3.299V — Max Temperature 29.0℃ — Mini Temperature 28.2℃ — Power Temperature 30.6℃	Status Bar 4: Displays basic battery information. In stand-alone mode, it shows individual battery details; in parallel mode, it shows aggregated statistics of all batteries.
Inverter CAN — PN_GDLT — Inverter 485 — PN	Status Bar 5: Displays and configures inverter communication protocols. CAN: Supports 6 major options and 10 communication protocols RS485: Supports 5 different RS485 protocols
Single — Device Detail — Set Param — Switch Setting	Status Bar 6: Displays stand-alone/parallel operation status and allows master-slave switching Device Details: In stand-alone mode (highlighted), battery pack details can be viewed.Click to view more details Parameter Configuration: In stand-alone mode (highlighted), battery pack parameters can be viewed/adjusted. Click to view more details Switch Settings: In stand-alone mode (highlighted), the battery pack switches can be configured. Click to view more details

Through the Bluetooth app, you can view data, status, and parameters of a single battery (or multiple batteries after parallel connection), and perform control operations.

If you need to modify any battery parameters or are unsure how to proceed, please contact after-sales support or distributor for technical assistance.