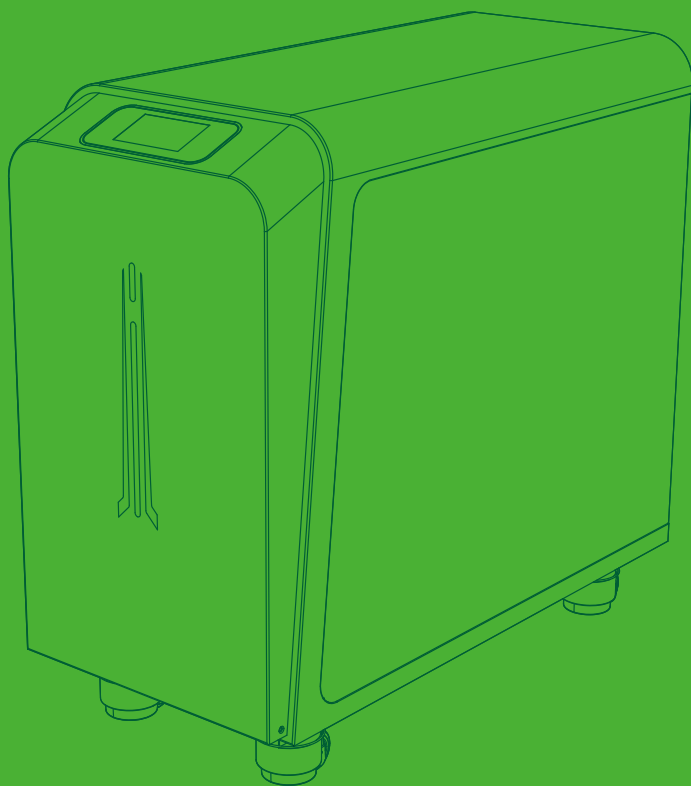
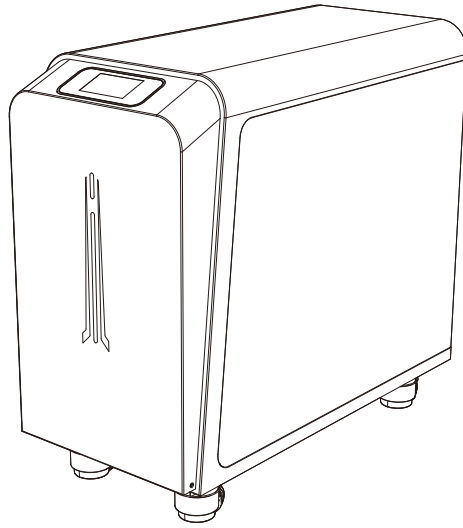


**KAPSUN**

# USER MANUAL



**ATHENA Power Storage System  
C SERIES BMS 300A**



## PRODUCT PRESENTATION

Energy storage battery is a battery system used to store electrical energy. They are able to convert electrical energy into chemical energy, store the charge in the battery, and then release it when needed. Energy storage batteries are typically designed for long periods of energy storage and charging and discharging. This product uses brand new LiFePO<sub>4</sub> battery, high capacity, long cycle life, safety performance. Equipped with the brand intelligent battery management system, with over discharge, overload, overcurrent, short circuit, over-voltage and other multiple protection. compatible with the global mainstream inverter communication. Normally this product is installed in combination with inverter and PV system to provide green electricity to household users, reduce energy consumption and reduce negative impacts on the environment, it's widely used in remote areas or areas with unstable power supply, to provide reliable, stable, and cost-effective energy supply.

It is very important and necessary to read the user guide carefully before installing or using the battery. Failure to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, death, or may damage the battery and the whole system.

- Keep the battery away from fire and water.
- Do not use in high temperature (above 55°C), humid (humidity greater than 90%), or places with danger of gas or dust explosion.
- Do not short-circuit positive and negative with wire or metal objects.
- If the battery is stored for a prolonged time, it is required that they are charged every three to six months, and the SOC should be no less than 60%.
- The battery needs to be recharged within 12 hours, after fully discharging.
- Do not expose cable outside.
- All battery terminals must be disconnected before maintenance.
- Do not use cleaning solvents to clean the battery.
- Do not expose the battery to flammable or harsh chemicals or vapors.
- Do not paint any part of the battery, include any internal or external components.
- Do not connect battery with PV solar wiring directly. Any foreign object is prohibited to be inserted into any part of the battery.
- Any warranty claims are excluded for direct or indirect damage due to items above.

## Before Connecting

After unpacking, please check the battery and packing list first. If the battery is damaged or spare parts are missing, please contact the dealer.

- Before installation, be sure to cut off the grid power and make sure the battery is in the turned-off mode. Wiring must be correct, do not mix-connect the positive and negative cables, and ensure no short circuit with the external device.

- It is prohibited to connect the battery with AC power directly.
- The embedded BMS in the battery is designed for 48VDC, please Do not connect battery in series.
- It is prohibited to connect the battery with different type of battery.
- Please ensure the electrical parameters of battery system are compatible to inverter.

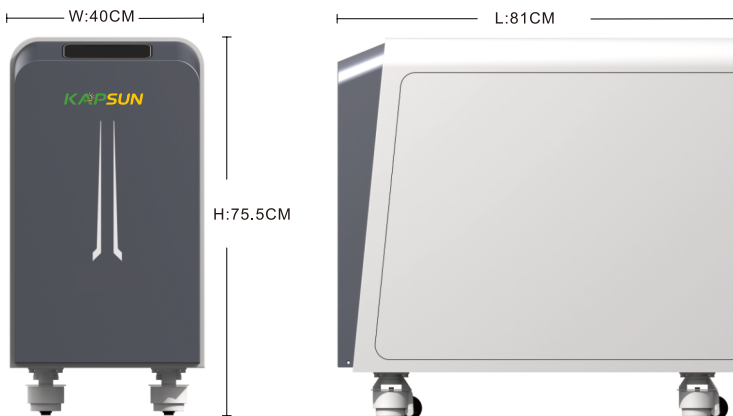
## During Operation

If the battery system needs to be moved or repaired, the power must be cut off first and the battery is completely shut down.

- It is prohibited to connect the battery with different type of battery
- It is prohibited to put the batteries working with faulty or incompatible inverter
- In case of fire, only dry powder fire extinguisher can be used, liquid fire extinguishers are prohibited
- Please do not open, repair or disassemble the battery.

We do not undertake any consequences or related responsibility due to violation of safety operation or violating of design, production and equipment safety standards.

## DURING OPERATION



# PRODUCT PARAMETER



## Battery

Model	SCAE-C-51.2-600	SCAE-C-51.2-670
Rated Capacity	30720Wh(600Ah)	34304Wh(670Ah)
Nominal Voltage	51.2V	
Discharge Voltage Range	43.2V-58.4V	
Standard Charging Current	150A	
Max Charging Current	300A	
Max Discharging Current	300A	
Depth of Discharge	95%	
Communication Interface	CAN/RS485	
Cycle Life	≥8000 , 25+2°C , 0.5C , EOL80%	
Working Temperature Range	Charge: 0°C-50°C; Discharge: -20°C -60°C	
Storage Temperature	-20°C -60°C	
Dimension	81*40*75.5cm	

## PACKING LIST



Storage Battery\*1



Screw Pack\*4



Silicon Bronze Cable\*2

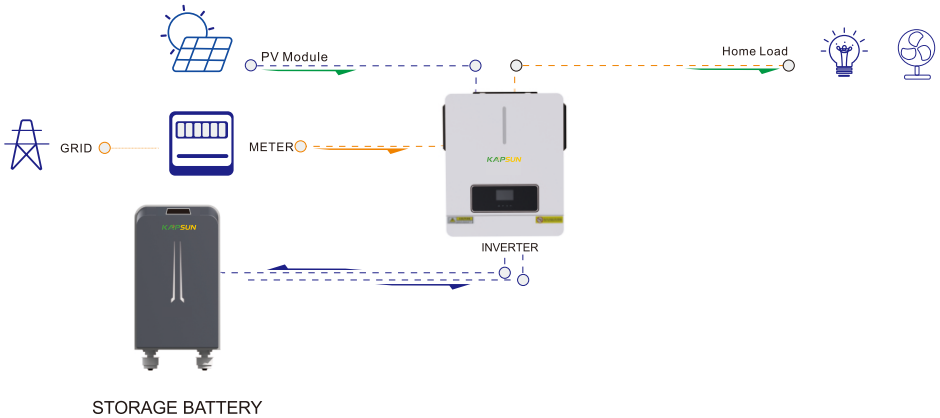


1m Communication Cable

Name	Item No	Components	CNT	Carton Size	N.W (Kg)	G.W (Kg)	Unit CBM (m <sup>3</sup> )
ATHENA SERIES 30KWH	SCAE-C-51.2-600	Battery, FumaWheel; ScrewPack; DC Cable; Communication Cable	1	87*46*92CM	235	258	0.368
ATHENA SERIES 34KWH	SCAE-C-51.2-670	Battery, FumaWheel; ScrewPack; DC Cable; Communication Cable	1	87*46*92CM	239	262	0.368

# SYSTEM DIAGRAM

KAPSUN



## INSTALLATION STEPS

### ■ Step 1: Prepare tools and Security Equipment

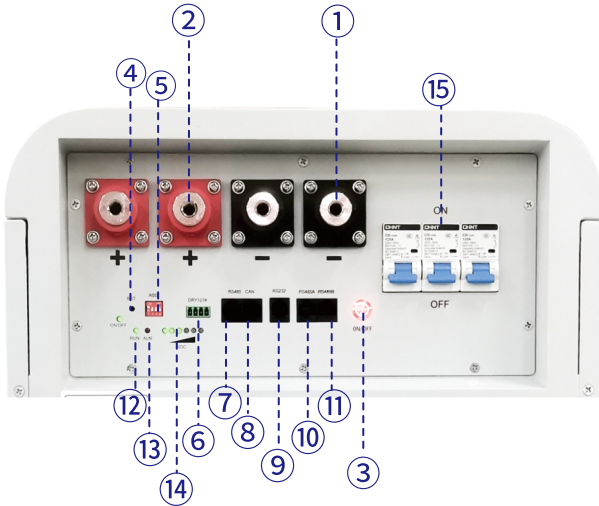
Use insulated tools to prevent accidental electric shock or short circuit. If there is no insulation tool, use insulation tape to cover all exposed metal surfaces of the tool for insulation treatment. When handling the battery pack, it is recommended to wear the safety equipment.



## ■ Step2: Connecting Inverter and Multi-Units Connection

• Terminal Instruction

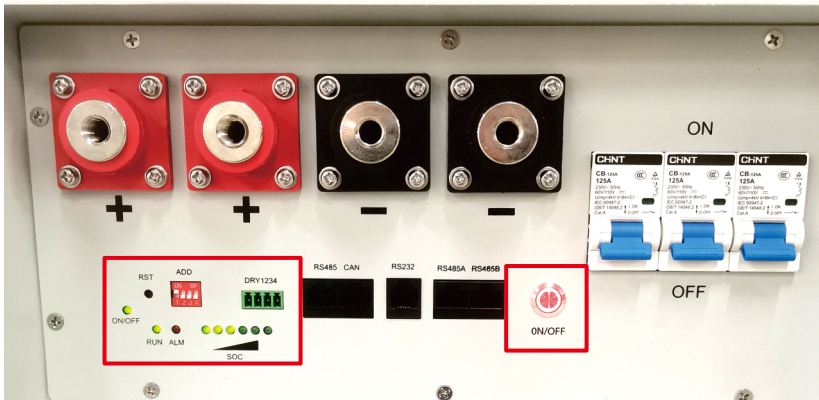
### Battery Interface



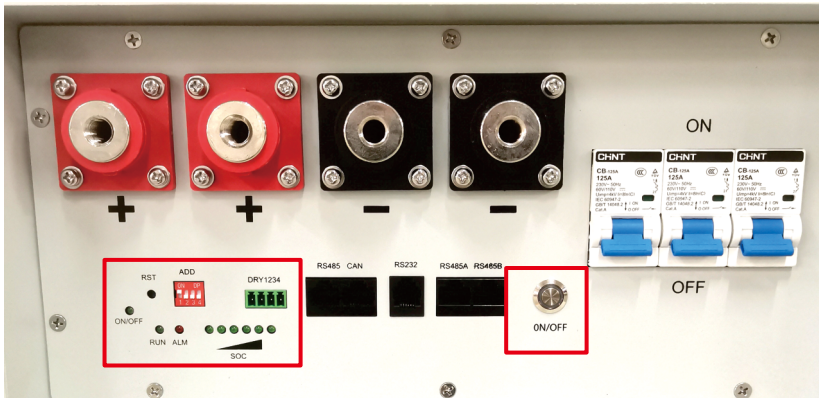
No.	Instruction
①	Negative
②	Positive
③	ON/OFF
④	Reset Button
⑤	DIP switch
⑥	Dry Contacts
⑦	RS485A Communication Port
⑧	CAN Communication Port
⑨	RS232 Communication Port
⑩	RS485-A Communication Port
⑪	RS485-B Communication Port
⑫	Operation Indicator
⑬	Alarm Indicator
⑭	Charging Indicator
⑮	Breaker

## Battery Interface

When PACKs are used in parallel, setting all DIP switches to OFF activates manual DIP address configuration. Otherwise, the default auto-addressing function is used. Use the DIP switches on the BMS to set addresses to distinguish different PACKs. Avoid setting identical addresses. Refer to the table below for BMS DIP switch definitions. The system supports up to 15 parallel units.



Operating Status



Not activated

## Batteryin parallel

The LiFePO4 battery is a smart battery to match all off-grid and hybrid solar inverter(48Vdc/51.2Vdc)types.

When the battery needs to be used in parallel, the maximum connection is 15 units. And we recommend 2-8 units according to application.

**NOTE: Parallel power cable standard is 2 meters. This is not standard cable in battery package. For parallel cable quantity needed, please consult with sales manager for proper use and related quantity.**

Inverterin Lead-acid battery modelf the inverter dose not match the battery BMS communication, the inverter can be set in Lead-acid mode.And the battery communication RS485/CAN) port can be float. If in verter brand factory does not have CAN/RS485 port, just plug and play use.

Battery in parallel without communication is as follows:



### ■ Step3: Dip switch

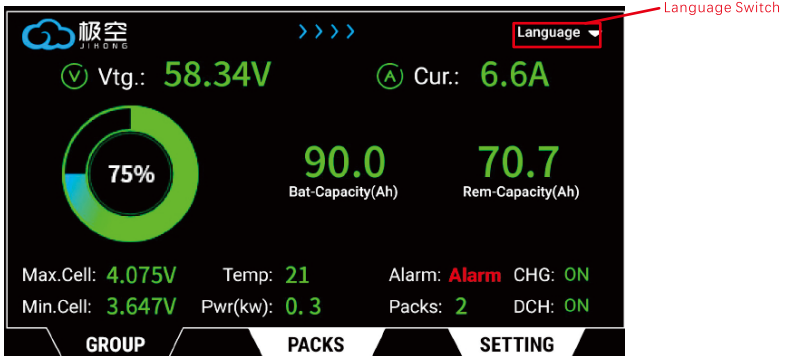
When PACKs are used in parallel, setting all DIP switches to OFF activates manual DIP address configuration. Otherwise, the default auto-addressing function is used. Use the DIP switches on the BMS to set addresses to distinguish different PACKs. Avoid setting identical addresses. Refer to the table below for BMS DIP switch definitions. The system supports up to 15 parallel units.

拨码开关设置  
(Dip switch Settings)

地址(address)	拨码开关位置(Dip switch position)			
	1	2	3	4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

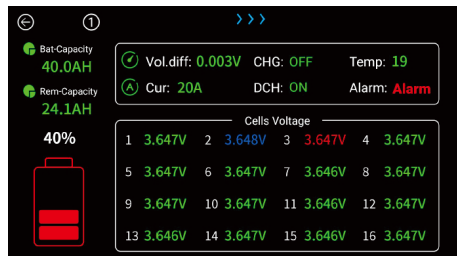
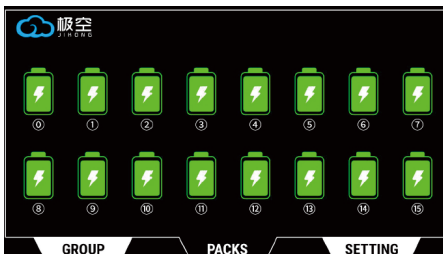
## Battery interface

The battery pack display shows the current voltage and current of the battery pack, the number of online battery modules, the overall charging/discharging status of the battery pack, and the highest and lowest cell temperatures. The language can be switched via the dropdown menu in the upper-right corner.



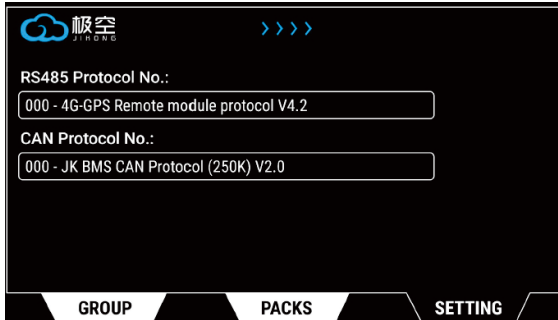
## Battery pack interface

In parallel mode, by selecting the battery pack, you can display different battery pack design capacity, remaining capacity, charging and discharging status of each battery pack, voltage of each cell and other parameters, up to 16 battery packs can be displayed.

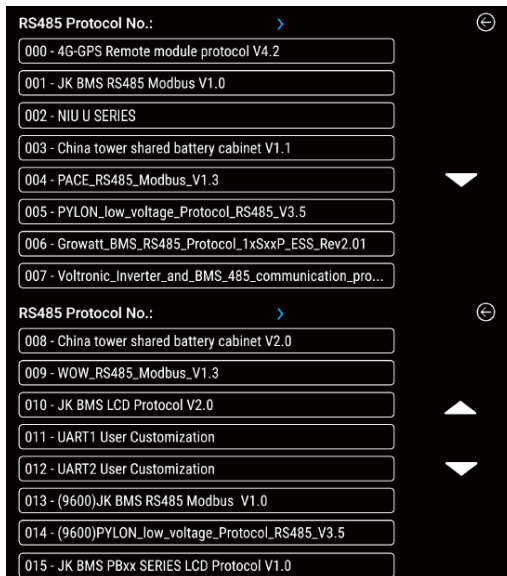


## Protocol selection interface

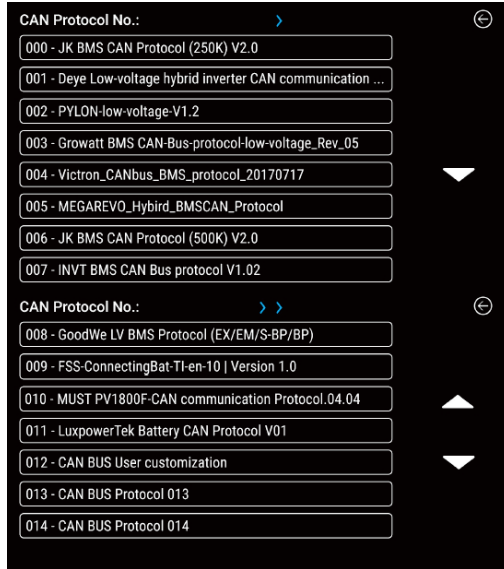
Through protocol selection, you CAN select the corresponding 485 protocol and CAN protocol, so as to select the appropriate communication protocol for communication.



## 485 Protocol Selection

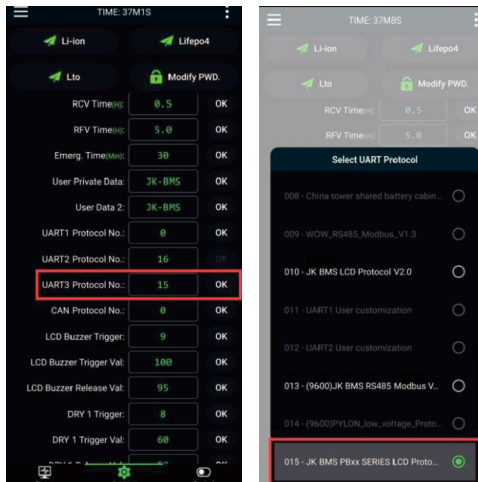


# CAN Protocol Selection



## ■ Step4: APP Operation instruction

Open the JiKong BMS APP, and change the "Serial port 3 protocol" to "015-JK BMS PBxx SERIES LCD Protocol V1.0" on the "Parameter Setting" page.



# KAPSUN APP Download and Usage

## OPERATING STEPS

### Step ①

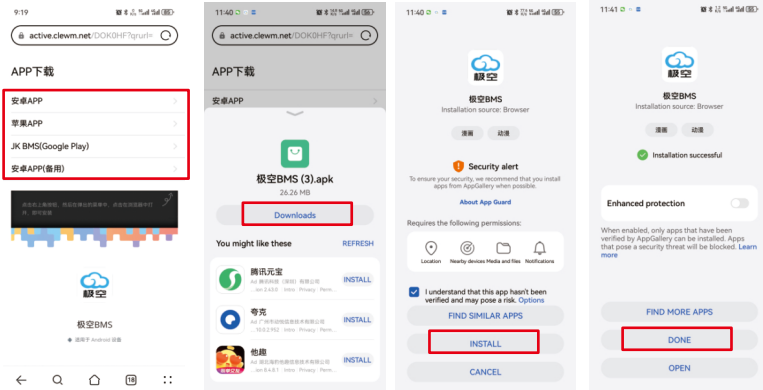
1. Scan the QR code below using your browser.



JKBMS APP

### Step ②

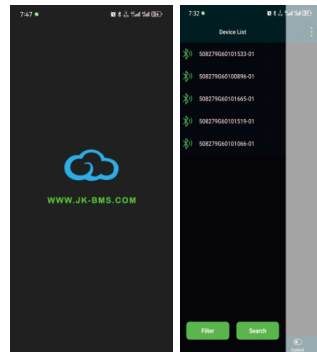
Registration and Login.



## CONNECTION AND USAGE

### Step ①

1. Open the app on your phone and turn on Bluetooth.



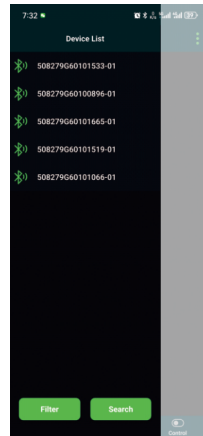
### Step②

2. Check the chassis serial number



### Step③

3. Scan nearby devices, then select the SN code corresponding to the chassis for pairing. The default password is “1234”.



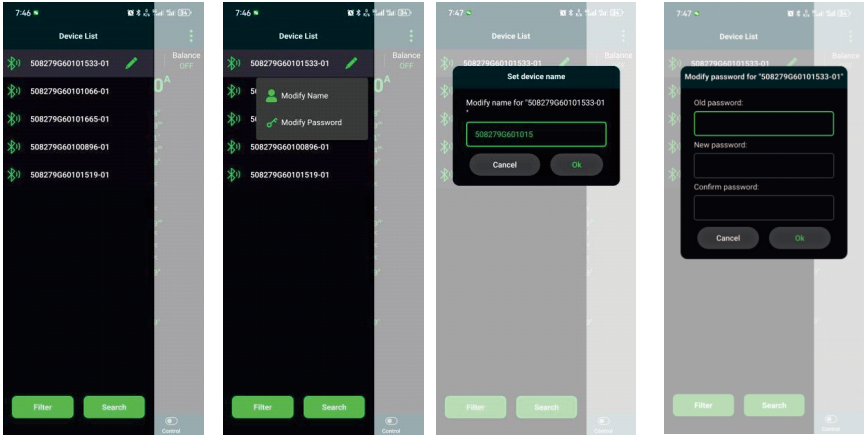
### Step④

4. After successfully connecting the device, you will first enter the “Real-Time Status Page.” The top, middle, and bottom sections display the battery summary information panel, individual cell voltage readings, and balancing line resistance data respectively. In the diagram, blue voltage values indicate cells currently discharging, while red voltage values indicate cells currently charging.



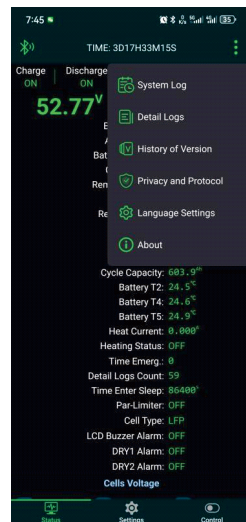
### Step 5

5. Swipe right on your phone screen and tap the pencil icon next to the device name to modify the device name and password.



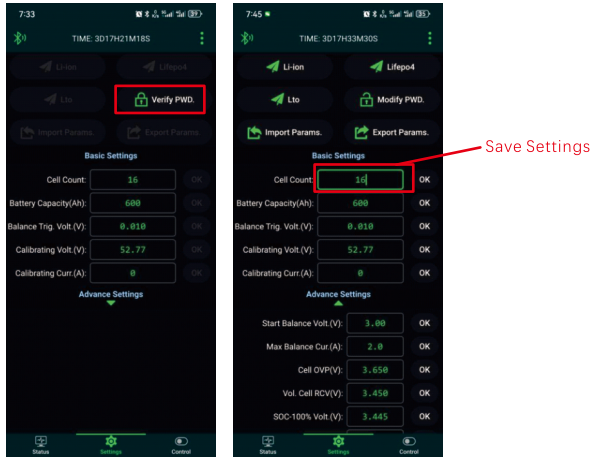
### Step 6

6. Tap the "..." icon in the upper-right corner of the app to view app version history, switch languages, and check product information.



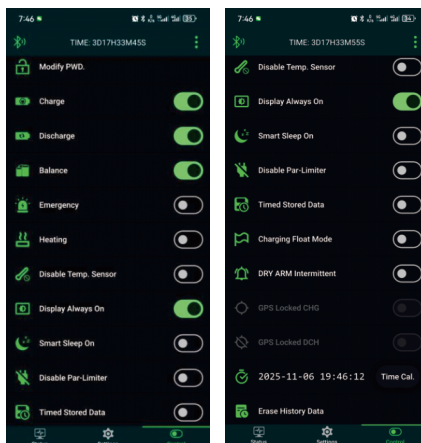
### Step ⑦

7. The first time you modify parameters, you must enter the authorization password. The default password is "666888". After successful verification, you may modify the parameters. After modifying parameters, click the "Settings" button on the right to save them.



### Step ⑧

8. After entering the authorization password, the BMS page will unlock simultaneously. By default, the app enables the charging switch, discharging switch, and balancing switch. Other switches can be configured as needed.



## Reset key switch description

When the BMS is in hibernation state, press the key (1S) and release it, the protection board is activated, and the LED indicator lights up successively from "LED1" for 0.5 seconds. When the BMS is active, press the button (3 to 6S), and the LED indicator will turn on for 0.5 seconds from the lowest power indicator. When released, the system will go to sleep. When the BMS is in the active state, press the button (6-10s) and release it, the protection board is reset, and the LED indicator is displayed according to the current power.

## Description of the self-locking switch

When the BMS is in hibernation state, after closing the self-lock, the protection board is powered on, and the LED indicator lights up successively from "LED1" for 0.5 seconds. When the BMS is active, turn off the self-locking switch and wait for 1-3s before the system enters the power-off state.

# EMERGENCY RESPONSE PROCEDURE

**When the ESS operates abnormally, the inverter, battery, and all load switches must be turned off first.**

**If the battery system leaks electrolyte, avoid contact with the leaking liquid or gas. If exposed to the leaking material, take the following measures immediately:**

- Inhalation: Evacuate contaminated area and seek medical attention.
- Eye Contact: Flush eyes with running water for 5 minutes, then seek medical attention.
- Skin Contact: Wash affected area thoroughly with soap and water and seek medical attention.
- Ingestion: Induce vomiting and seek medical attention.

## In the event of a fire, please do the following:

- Equipment combustion: If the fire is controllable and personnel are safe, please use Novec 1230, FM-200 or dioxin fire extinguisher to put out the fire. If the fire is uncontrollable, do not try to put it out. When the battery is heated to more than 150°C, it may explode. Evacuate personnel immediately to ensure life safety.
- Fire near the equipment: If it is safe, firstly disconnect the battery system circuit breaker to shut down the power charging. Then immediately extinguish the fire and evacuate personnel.

# DAILY MAINTENANCE



- **Cable Inspection:** Check whether the wire connection is loose, aged, damaged, or falling off; check whether the cable terminals are loose or overheated; and the ground connection is good or not.
- **Equipment Inspection:** Check the battery system equipment for failure or damage every 6 months. When the system is running, check whether there is any abnormal noise in any part of the system. Check the battery voltage, temperature and other parameters. Check whether the equipment parameters are normal when the system is running.
- **Equipment Cleaning:** After using the equipment for half a year, the filter cotton on the left side of the ventilation needs to be removed, cleaned, dried and reinstalled, and the warning and guidance signs must be clear and intact, and the on-site environment must be clean and tidy.

# QUALITY ASSURANCE

**If the product failure during warranty, please contact a professional person to repair.**

**The product nameplate cannot be torn off; otherwise, warranty service will be void.**

**The following 7 points are not included in the warranty scope. If the customer requires repairment, should pay for the maintenance service.**

- The equipment is damaged during transportation which is not arranged by our company
- The equipment has been improperly installed, reinstalled or used.
- The equipment operated in harsh environments.
- The malfunction or damage was caused by installation, repair, modification or disassembly.
- Repaired by non-professionals
- By using of non-standard accessories
- Damage caused by unexpected natural factors