

**GoKWh**

# USER MANUAL

GoKWh 48V

DIY Kits Box with Smart BMS



Dongguan GoKWh Technology Co., Ltd.  
Version - 2025



## **Important Safety Instructions**

Please save these instructions.

### **DISCLAIMER**

The user manual provides important operation and maintenance instructions for GoKWh 48V DIY Kits Box with Smart BMS(hereinafter referred to as battery kits or kits Box).

Before use, please read all specifications, usage, storage conditions and warnings on this document and save for future reference. Always follow our instructions for the handling and use of this battery kits. Abuse of battery kits can cause failure, performance degradation or shortened life, overheating, explosion or fire.

#### **Note**

- Users should install and use the battery kits in accordance with the requirements of the user manual. If the user uses the battery kits under conditions or equipment beyond the conditions specified in this user manual, GoKWh does not assume any responsibility or liability for direct or indirect personal and property losses.
- The illustrations in the user manual are for demonstration purposes only. Details may vary slightly based on product version and market region
- GoKWh reserves the right to make changes to the user manual without prior notice.
- Please check all the configurations in the package carefully. If any accessories are missing, please contact GoKWh Customer Service Center in time.

# 1.What' s In the Package?

 <p>Battery Box*1</p>	 <p>Accessories&amp;Screw Package*1</p>
 <p>Pre-assembled Front Panel+ LCD Display+Communication Board*1</p>	 <p>Pre-assembled BMS+Cable +Inner Panel*1</p>  <p>Pre-assembled PCBA+Fixed Bracket*2</p>

## 1.1.Screw

						
M5 *9PCS	M6 *34PCS	M5 *8PCS	M3 *15PCS	M3 *6PCS	M4 *18PCS	M8 *2PCS

## 1.2.Accessories

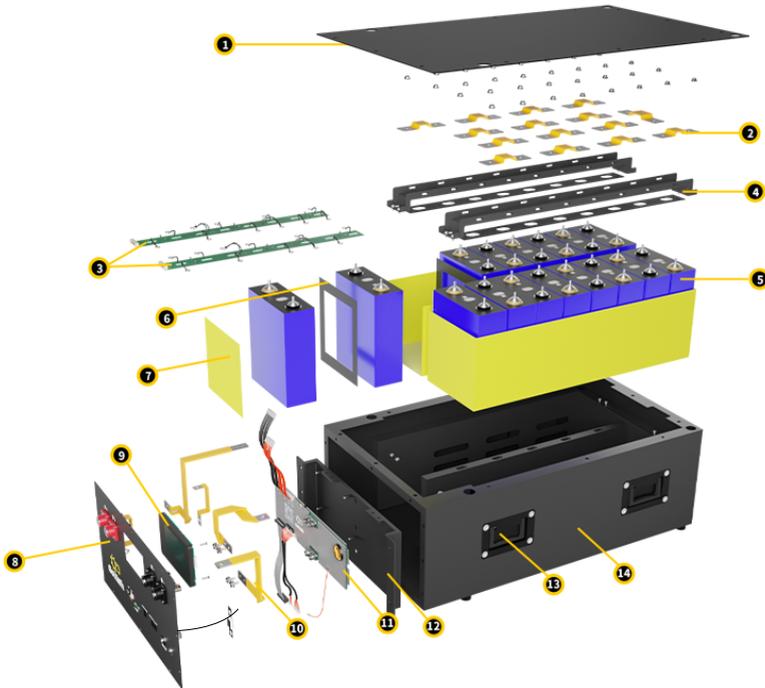
				
1.Short Busbar*15	2.Long Busbar*3	3.Short Insulation Epoxy Plate*2	4.Long EVA Foam Tape*2	5.Short EVA Foam Tape*15

## 2. APPEARANCE AND DIMENSIONS



## 3. STRUCTURE AND INTERFACE

### 3.1. Battery Box



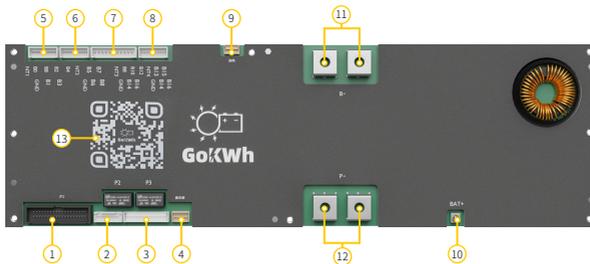
① Box Cover	⑧ Front Panel
② Short Busbar	⑨ Touch-controlled LCD Display
③ PCBA Collection Board	⑩ Long Busbar
④ Fixed bracket	⑪ GoKWh 48V 200A BMS
⑤ 3.2V LiFePO4 Cells (Buy Separately)	⑫ Inner Panel
⑥ EVA Foam Tape	⑬ Box Handle
⑦ Insulation Epoxy Plate	⑭ Battery Box

## 3.2. Front Panel



① Positive Terminal	⑧ Battery Indicator Light
② Negative Terminal	⑨ Link Light
③ Touch-controlled LCD Display	⑩ ON/OFF Indicator Light
④ Battery System Switch	⑪ RUN Light
⑤ RS485 Interface	⑫ ALM Light
⑥ Parallel Interface	⑬ Dip Switch
⑦ RS485/ CAN Interface	

## 3.3. BMS

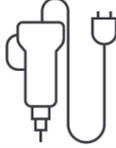


① P1 Interface	⑧ P8 Interface(NT4 to B16)
② P2 Interface	⑨ P9 Heating Interface
③ P3 Interface	⑩ BAT+ (Power Input)
④ P4 Display Interface	⑪ B+ Port
⑤ P5 Interface (NT1 to B4)	⑫ P - Port
⑥ P6 Interface (NT2 to B8)	⑬ Bluetooth QR Code
⑦ P7 Interface(NT3 to B12)	

## 4.INSTALLATION AND USE

A safe and reliable installation requires trained and certified technicians. Therefore, this section is intended as a guide only as it cannot cover all scenarios.

### 4.1.Required Tools & Accessories

		
Wrench	Electric Screwdriver	Screw Driver
		
Insulating Gloves	Goggles	Multimeter

### 4.2.Installation

#### Step 1. Disassemble the battery box

After unpacking, take out the battery box and remove some of the parts installed on the battery box to prepare for subsequent installation.

\*Please keep the removed screws.

Parts you need to remove from the battery box:

- Box cover



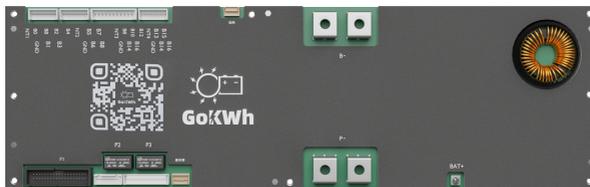
- PCBA collection boards and fixing brackets



- Front panel



- BMS



- Inner panel



## Step 2. Check accessory packages

Unpack and check the accessory package to confirm whether the number of accessories is consistent with the list. If there is any missing, please contact GoKWh Customer Service Center in time.

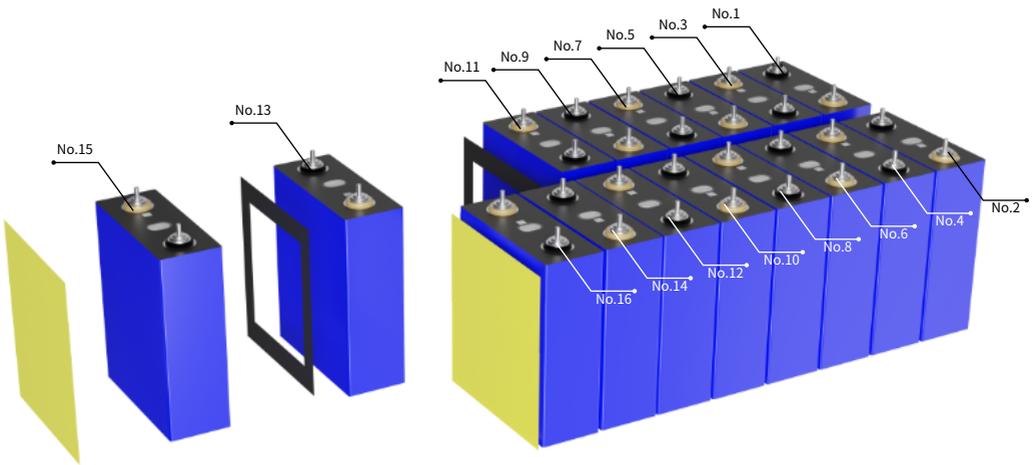
\*Please refer to the packing list in “What's In The Package?” above

### Step 3. Check and paste the cells

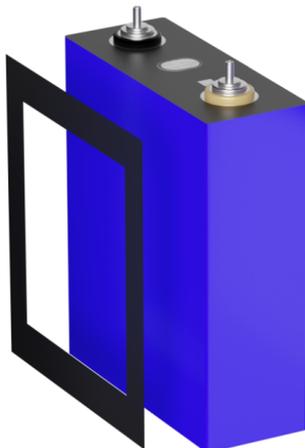
Before pasting the battery cells, use a multimeter to measure and check the prepared cells one by one to maintain the consistency of voltage and resistance.

After checking, start pasting the cells:

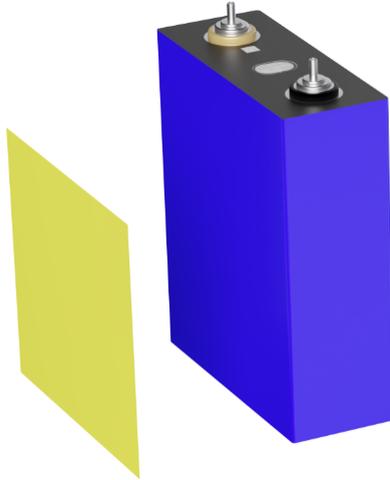
a. Arrange the batteries in the order of positive and negative poles as shown in the following diagram



b. Take No.1 and No.2 cells and paste EVA foam on one sides as below.



c. Take No.15 and No.16 Cell and paste a insulation epoxy plate on outward side as below.



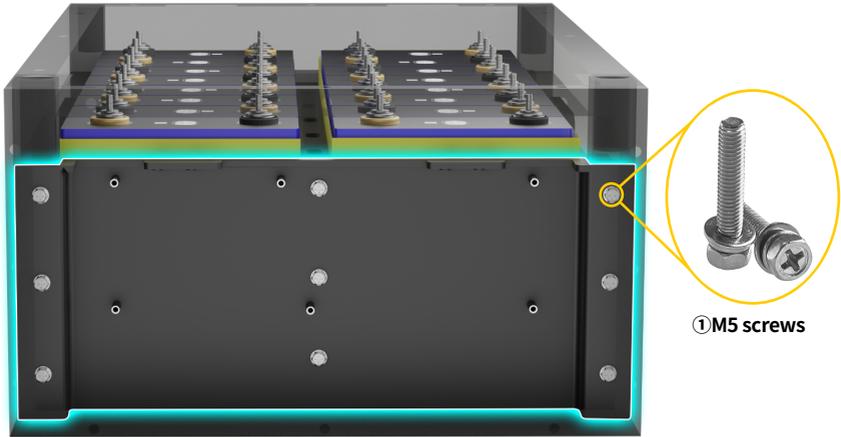
#### Step 4. Put the cells into the box

Place the prepared cells into the battery box in order. The placement of the batteries should be placed with the positive and negative poles crossed as below.



## Step 5. Install the Inner Panel

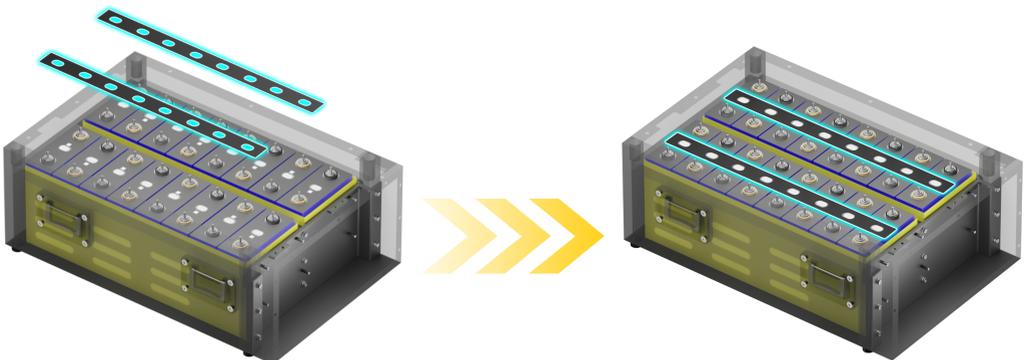
Install the battery cover with the protruding part facing outward. After aligning the battery box hole, use ①M5 screws to fix it.



## Step 6. Install the PCBA and busbars

### A. Install the fixed bracket

Before installing the PCBA collection board, first align two long strips of EVA foam with the safety valve position of each row of cells and paste them.



Then, fix the fixing brackets to the safety valve of each column of cells in the same way as EVA foam pasting, and place the fixing brackets with the slot facing upward. After placement, use ③M5 screws to fix the fixing frame to the battery box at the front and back ends of the battery box.



### B.Connect short busbars and sampling cable of PCBA

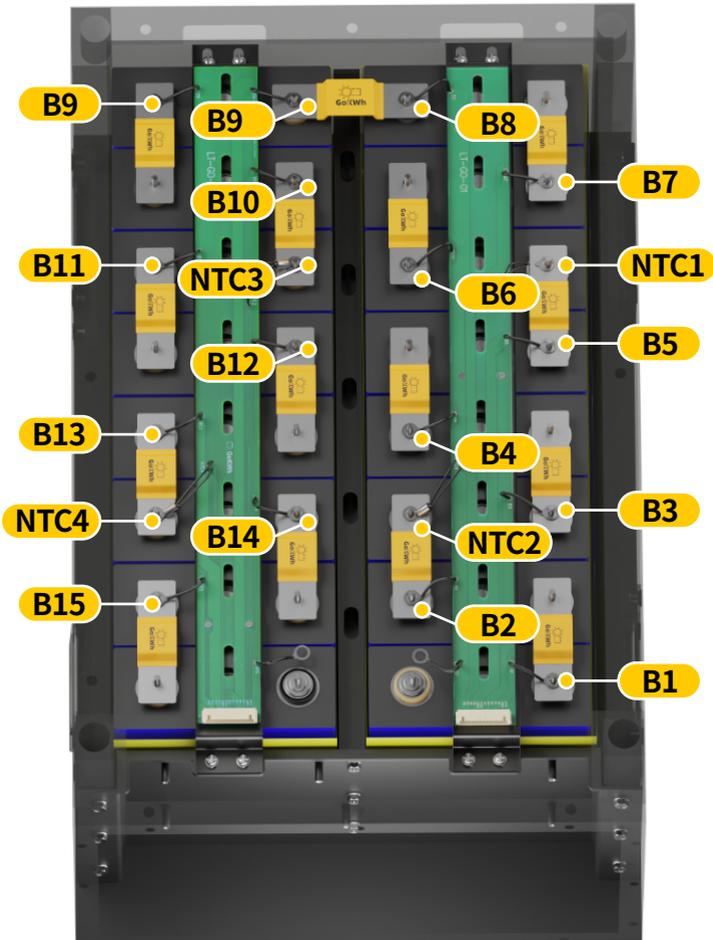
First, place the busbars on the cell to connect the 16PCS battery cells.



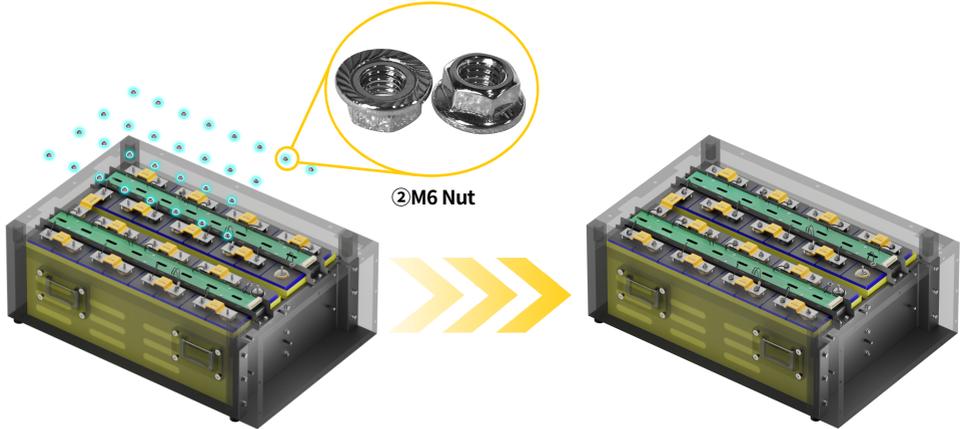
Then, place the PCBA collection board in the groove of the fixed bracket and fix it to the bracket using ④M3 screws.



The method of placing the busbar and sampling cable is as follows:



The method of placing the busbar and sampling cable is as follows:



### Note

- The two PCBA collection boards are not the same, please pay attention to the numbers marked on the collection boards. And install them as shown in the picture.
- The PCBA collection board is marked with LT-GO-01 and LT-GO-02 for distinction

## Step 7. Install BMS and connect interface

### Note

- GoKWh will pre-install the cables on the BMS and front panel before shipment, so users do not need to install the BMS and front panel themselves.

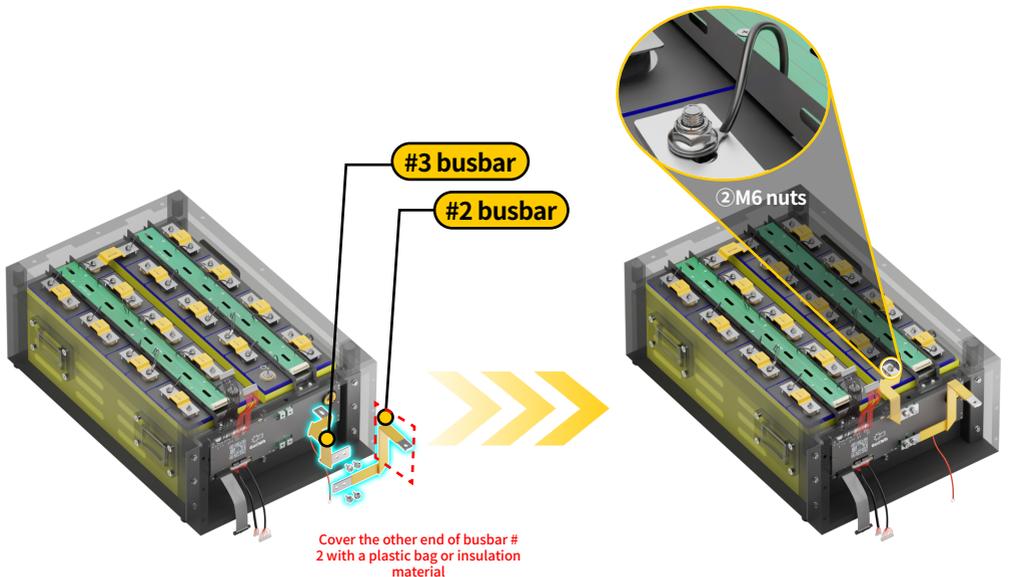
### A. Install BMS

- a. Place the GoKWh BMS on the inner panel of the battery box with the side with the QR code facing outwards, and fix it to the battery box using ⑤ M3 screws.



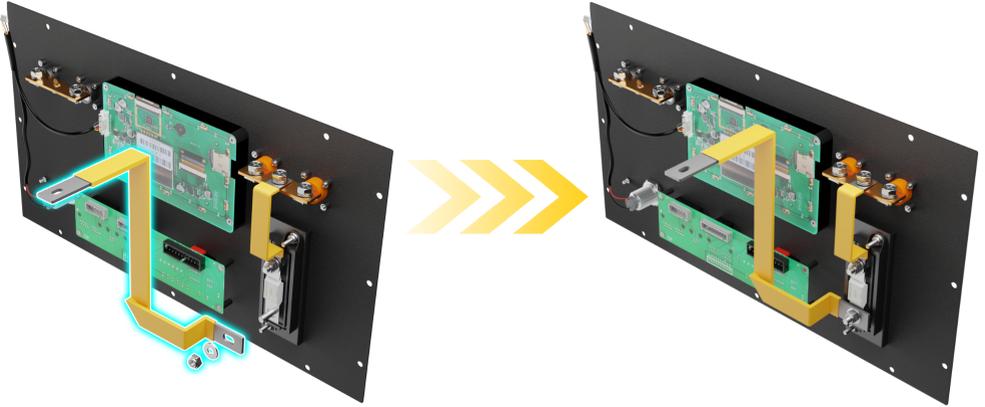
b. Remove the screws from the (B-) interface, align the two ports on the **#3 busbar** with the screw holes and use the removed screws to fix the **#3 busbar** to the BMS. After the connection is completed, insert the other end of the **#3 busbar** into the battery cell (B0) stud, place the sampling cable of the collection board on the connection piece, and fix it with **②M6 nuts**.

c. Remove the screws from the “P-” interface, align the two ports on the **#2 busbar** with the screw holes and use the removed screws to fix the **#2 busbar** to the BMS. And cover the other end of the **#2 busbar** with a plastic bag or insulating material to avoid electric shock accidents when the installation is not completed.



## B. Install front Panel

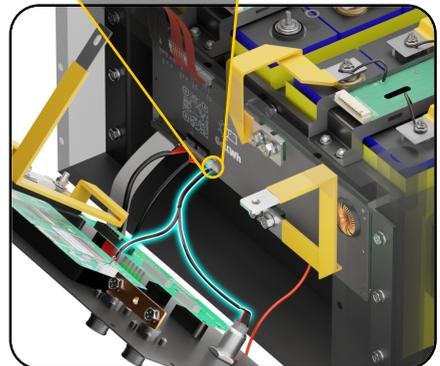
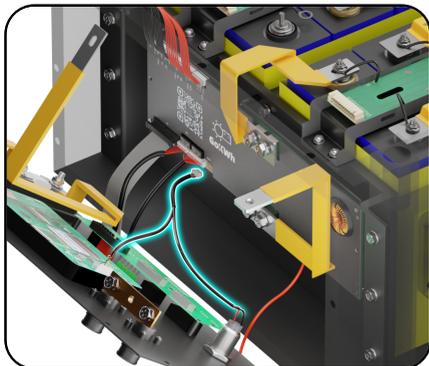
Remove the screws at this end, align the #1 busbar with the terminal, and secure it with the removed screws.



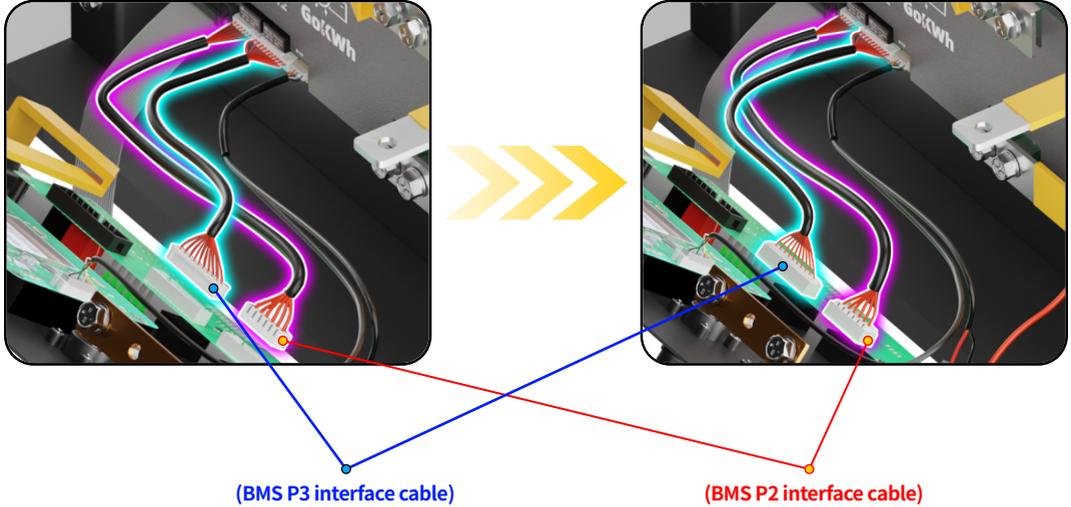
### Connecting BMS to the front panel

After fixing, plug the cable installed on the BMS into the interface on the inside of the front panel:

a. Insert the black sampling cable of the LCD screen inserted inside the front panel into the display interface of the BMS



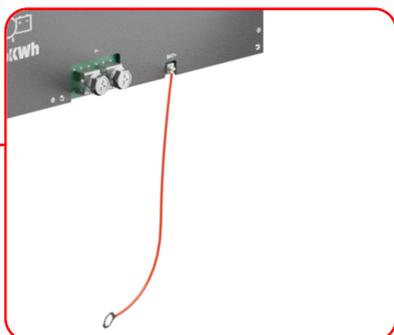
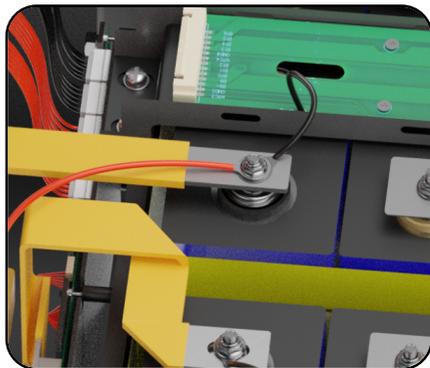
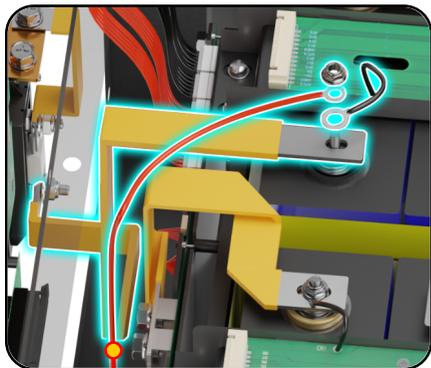
**b.** Insert the two sets of red sampling cables with insulating tape in the white interfaces (P2) and (P3) at the lower left of the BMS into the interfaces on the power indicator board on the front panel.



**c.** Insert the ribbon cable connected to the P1 interface at the bottom left of the BMS into the interface of the power indicator board on the front panel.



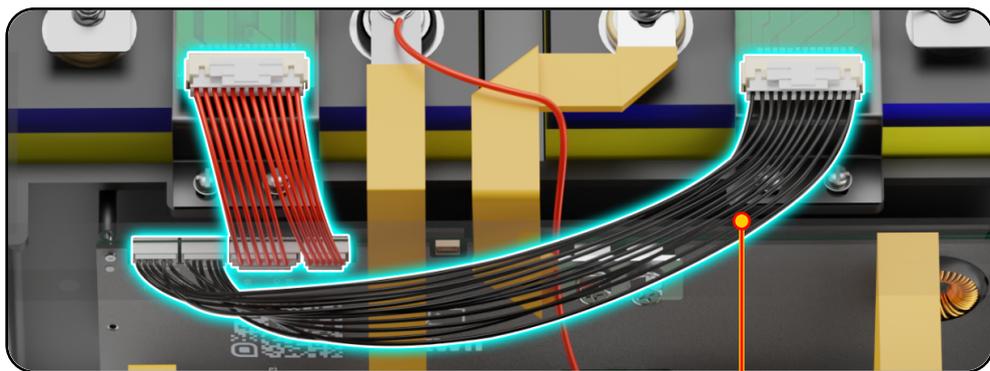
**d.** Insert the other end of the #1 busbar installed on the front panel into the stud of the No.15 Cell (B16 of PCBA), and place the red sampling cable with black insulating tape installed on the BMS and the sampling cable of the collection board (B16) on the connecting piece and fix them with ②M6 nuts.



**(BMS BAT+ "power input" cable)**

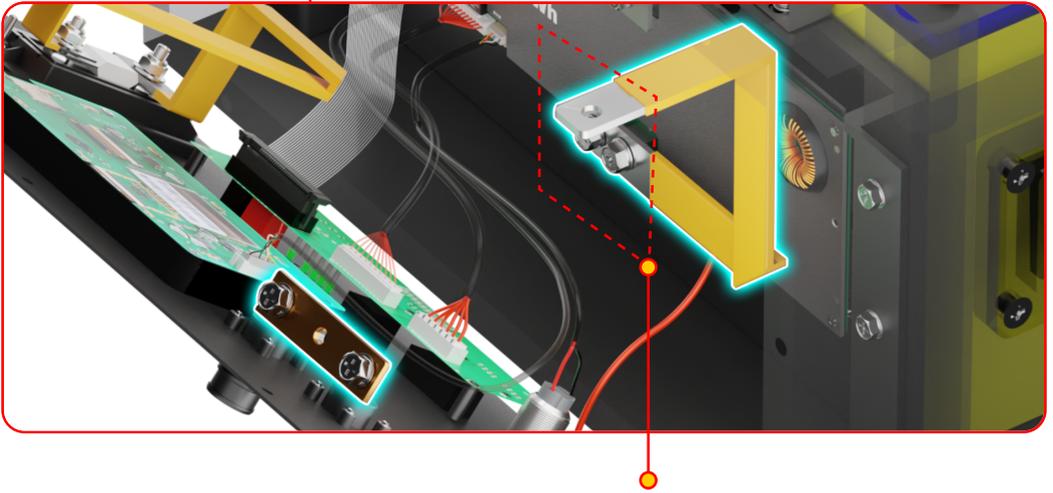
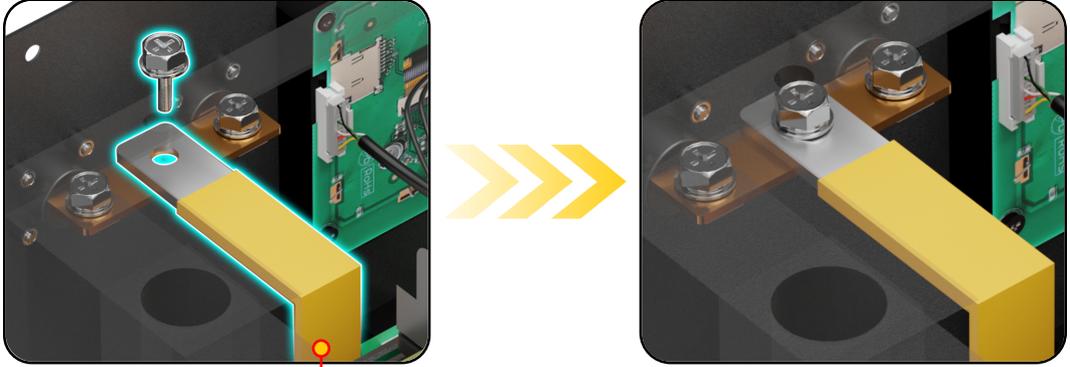
e. Insert the black sampling cable set “P5” and “P6” interfaces of BMS into the PCBA interface labeled LT-GO-01, and insert the red sampling cable set “P7” and “P8” interfaces into the PCBA interface labeled LT-GO-02.

**\*The order of inserting the cable group into the PCBA collection boards must be strictly followed to avoid damage to the BMS.**



**(Insert the black sampling cable first)**

f. After completing the cable connection, remove the plastic bag or any insulating material placed on the #1 busbar of the BMS, and connect and fix the #1 busbar to the front panel with ⑦M8 screws.



(Remove the plastic bag or any insulating material placed on the long connecting piece of BMS)

### Step 8. Power on and check the battery status

Before power on to check the battery status, perform a double-check on the battery system connection and assembly steps, otherwise it may cause serious consequences such as abnormal battery operation or even burnout:

- a. Confirm that all balance cables , "P -" and "B -" are connected correctly.
- b. Use a multimeter to test the battery system voltage

Use ⑥M4 screws to fix the front panel. And press the ON/OFF button to check the installed battery:

- a. The battery indicator light shows the battery level normally
- b. Touch the upper right corner of the LCD screen to switch between Chinese and English languages, and check the battery voltage, power, and each battery cells information.



After checking that the battery system can run normally, press and hold the On/Off button for 5 seconds to shut down.

Finally, place the side with the insulation sticker toward the inside of the battery and use ④M4 screws to fix the box cover and the battery box to complete the assembly.

### Note

- After completing the assembly for the first time, the front panel indicator light and LCD screen may display fault prompts:
  - A. The LCD screen displays “Alam” fault  
Users need to scan the QR code on the BMS and download the BMS App from the Google Play Store or Apple App Store.
- After connecting to the battery via Bluetooth, click on the "One Click Lithium Iron" option in the app, and the app system will automatically match and adjust the battery data.
  - B. The ALM indicator light on the front panel is on  
After the first assembly is completed, the user needs to perform a complete cycle (i.e. fully charge and fully discharge) on the battery.  
After one cycle, the ALM indicator light will turn off automatically.

# 5. BMS (Battery Management System)

## 5.1. BMS Parameters (For LiFePO4)

### Basic Parameters

Model	16S200A
Number of Collection Strings	16S
Active Equalizing Current	2A
Max. Continuous Current	200A
Max. Instantaneous Current	400A
Max. Charging Current	200A
Max. Discharging Current	200A
Dimensions	11.8*3.9*0.7 in (300*100*18mm)
Communication	Bluetooth/ CAN/ RS485
Operating Temperature	-22°F~158°F(-30°C~70°C)

### Default Parameters

Balancing Initial Voltage	2V	Max. Balancing Current	2A
Unit Overcharge Voltage	3.6V	Unit Overcharge Protection Recovery	3.54V
Unit Undervoltage Protection	2.5V	Unit Undervoltage Protection Recovery	2.6V
Automatic Shutdown Voltage	2.5V	SOC-0% Voltage	2.6V
SOC-100% Voltage	3.5V	Trigger Balancing Differential Pressure	0.01V
Charging Overcurrent Protection Delay	3s	Charge Overcurrent Protection Release Time	60s
Discharge Overcurrent Protection Delay	300s	Discharge Overcurrent Protection Release Time	60s
Short-circuit Protection Delay	1500us	Short-circuit Protection Release Time	60s
Charging Over-temp Protection	70°C	Charge Over-temp Restore	60°C
Discharge Over-temp Protection	70°C	Discharge Over-temp Restore	60°C
Charging Low-temp Protection	-20°C	Charge Low-temperature Restore	-10°C
MOS Over-temp Protection	100°C	MOS Over-temp Protection Restore	80°C
Device address	0	Discharge Precharge Time	0s



## 5.4.Communication

### 5.4.1.CAN Communication

There is a CAN1 interface on the front panel, and default CAN communication baud rate is 250k.

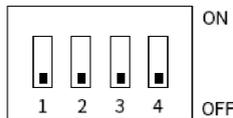
### 5.4.2.RS485 Communication

The panel has two RS485 communication interfaces for detecting battery pack information. Default baud rate is 115200. The communication address can be set via DIP switch with address range 0~15 to poll data from all battery packs.

### 5.4.3.Dip Switch Setting

When multiple battery packs are used in parallel, the address of each battery pack needs to be set through the DIP switch to distinguish different battery packs, and the hardware address of each battery pack is unique.

The hardware address can be set in turn through the dial switch on the board, with 1, 2, 3, 4, dials. Refer to the following table for the definition of switches.



	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

## 5.5. Bluetooth

The BMS is equipped with Bluetooth function, which allows users to monitor the battery status in real time through the mobile phone app.

The Bluetooth application can achieve the following functions:

- Support Chinese and English switching
- Display basic data of the battery
- One-click switching in the App to view and set different types of parameter options for ternary lithium batteries and LFP batteries
- Selectable communication protocol with the inverter
- Setting equalization pressure difference parameters
- Support single and parallel operation

### 5.5.1 Bluetooth App Download

Open the phone camera and scan the QR code on BMS to download.



## 6. GoKWh App Guide

### 6.1 Pair and connect the app to the battery

Before connecting the device, please ensure that your phone's Bluetooth is turned on.

- a. Open the App after downloading.
- b. Click the icon in the upper left corner to scan the device. After the scan is completed, click the name of the device to be connected.



When connecting for the first time, the APP will prompt for a password. The default password of the device is "1234"

After connecting, the APP will automatically record the password, and you don't need to enter it again the next time you connect.

c. After successful matching, the app will automatically jump to the page showing the battery data.

## 6.2 Modify password and name

Click on the icon on the right side of the device list to modify the battery name and password.

## 6.3. Status viewing and data description

Battery real-time status display:



The real-time status page is divided into 3 areas:

- ① Battery basic data
- ② Cell voltage area
- ③ Balance line resistance area

① **Battery basic data, the parameters are explained as follows:**

**A.**Running time: Indicates the total running time since the BMS was first powered on

**B.**Charging: Indicates the current switch status of the BMS charging MOS

- When it displays "On", it means that the current protection board charging MOS is turned on and the battery is allowed to charge
- When it displays "Off", it means that the current protection board charging MOS is turned off and the battery is not allowed to charge

**C.**Discharging: Indicates the current switch status of the BMS discharge MOS

- When it displays "on", it means that the BMS discharge MOS is on and the battery is allowed to discharge
- When it displays "off", it means that the BMS discharge MOS is off and the battery is not allowed to discharge.

**D.Balance:** Indicates the current BMS balance switch status.

- When it is displayed as "on", the protection board automatically balances after the balance trigger condition is met;
- When it is displayed as "off", it means that the balance is off and the protection board will not balance the battery.

**E.Voltage:** Displays the total voltage of the current battery. The total voltage is the sum of all single cell voltages.

**F.Current:** Displays the total current of the battery in real time. When the battery is charging, the current is positive, and when the battery is discharging, the current is negative.

**G.Power:** Indicates the total power currently output or input by the battery. Its value is the product of the current battery voltage and the absolute value of the battery current.

**H.Remaining power:** Indicates the current percentage of battery power remaining.

**I.Battery capacity:** Indicates the actual battery capacity calculated by the current BMS through high-precision SOC, in units of AH. (This value is updated only after the battery has undergone a complete discharge and charge cycle)

**J.Remaining capacity:** Indicates the current remaining capacity of the battery, unit: AH.

**K.Cycle capacity:** Indicates the cumulative discharge capacity of the battery, unit: AH.

**L.Cycle times:** The number of cycles indicates the number of times the battery is fully charged, in units of: times.

**M.Average voltage:** Indicates the current average voltage of the battery cells, unit: V

**N.Voltage difference:** Indicates the difference between the highest cell voltage and the lowest cell voltage of the entire battery pack currently, unit: V.

**O.Balance current:** When the protection board turns on the balance function and reaches the balance condition, the balance current display area displays the balance current in real time, unit: A.

- When balance is in progress, the real-time state of the single cell voltage display area, blue represents the discharged battery, and red represents the charged battery. Negative balance current indicates that the battery is discharging, and the blue color flashes at this time. Positive balance current indicates that the battery is charging, and the red color flashes at this time.
- BMS adopts active balance technology. The principle of balance is to take power from the high-voltage battery cell, store it in the protection board, and then release it to the low-voltage battery cell.

**P.**MOS temperature: Real-time display of the current temperature of the BMS power MOS, unit: °C.

**Q.**Battery temperature 1: If the temperature sensor 1 is not installed, "NA" is displayed. If the temperature sensor is installed, the temperature of the temperature sensor 1 is displayed in real time in °C.

**R.**Battery temperature 2: If the temperature sensor 2 is not installed, "NA" is displayed. If the temperature sensor is installed, the temperature of the temperature sensor 2 is displayed in real time in °C.

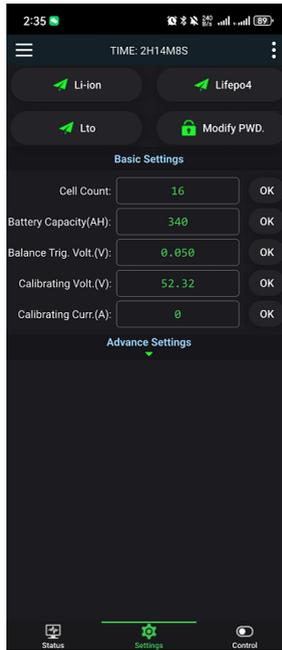
### ②Cell voltage area

Real-time display of the voltage data of each cell in the battery pack, where red represents the cell with the lowest voltage and blue represents the cell with the highest voltage.

### ③Balance line resistance area

The balance line resistance is the balance line resistance obtained by the protection board self-test. This value is only a rough calculation to prevent wrong wiring or poor contact. When the balance line resistance exceeds a certain value, it will be displayed in yellow and the balance cannot be turned on.

## 6.4 Settings



If you need to modify the working parameters of the BMS, you must first click the "Modify PWD." button and enter the parameter setting password to verify the parameter setting authority.

\*If you need to modify the working parameters of the BMS, you must first click the "Authorization Settings" button and enter the parameter setting password to verify the parameter setting permission.

\*The parameter setting password and modification permissions are not open to the public. If necessary, please consult your customer service staff, who will provide an accurate modification plan based on your actual usage.

\*Incorrectly setting parameters may cause battery damage, burnout, etc. Please modify it with caution.

In the settings, you can make the following settings or operations on the battery pack:

### Basic Settings

**A.**Li-ion: Click this button to modify all the working parameters of BMS to ternary battery parameters.

**B.Lifepo4:** Click this button to modify all the working parameters of the BMS to lithium iron battery parameters.

**C.Lto:** Click this button to modify all BMS operating parameters to lithium titanate battery parameters.

**D.Cell Count:** Indicates the number of cells in the current battery. Please set this value accurately before use, otherwise the protection board will not work properly.

**E.Battery capacity:** This value is the design capacity of the battery.

**F.F.Balance Trig. Volt:** When the equalization switch is turned on, when the maximum voltage difference of the battery pack exceeds this value and the current single cell voltage exceeds the equalization start voltage, the equalization starts, and the equalization ends when the voltage difference is lower than this value or the single cell voltage is lower than the equalization start voltage.

For example, if the equalization trigger voltage difference is set to 0.01V, the equalization starts when the battery pack voltage difference is greater than 0.01V, and ends when it is lower than 0.01V.

It is recommended to set the equalization trigger voltage difference to 0.005V for batteries above 50AH and 0.01V for batteries below 50AH.

**G.Calibrating Volt:** The voltage calibration function can be used to calibrate the accuracy of the BMS voltage collection.

When it is found that the total voltage collected by the BMS and the total voltage of the battery are in error, the voltage calibration function can be used to calibrate the BMS. The calibration method is to fill in the current measured total battery voltage, and then click the "Set" button behind the voltage calibration to complete the calibration.

**H.Calibrating Curr:** can be used to calibrate the accuracy of BMS current collection.

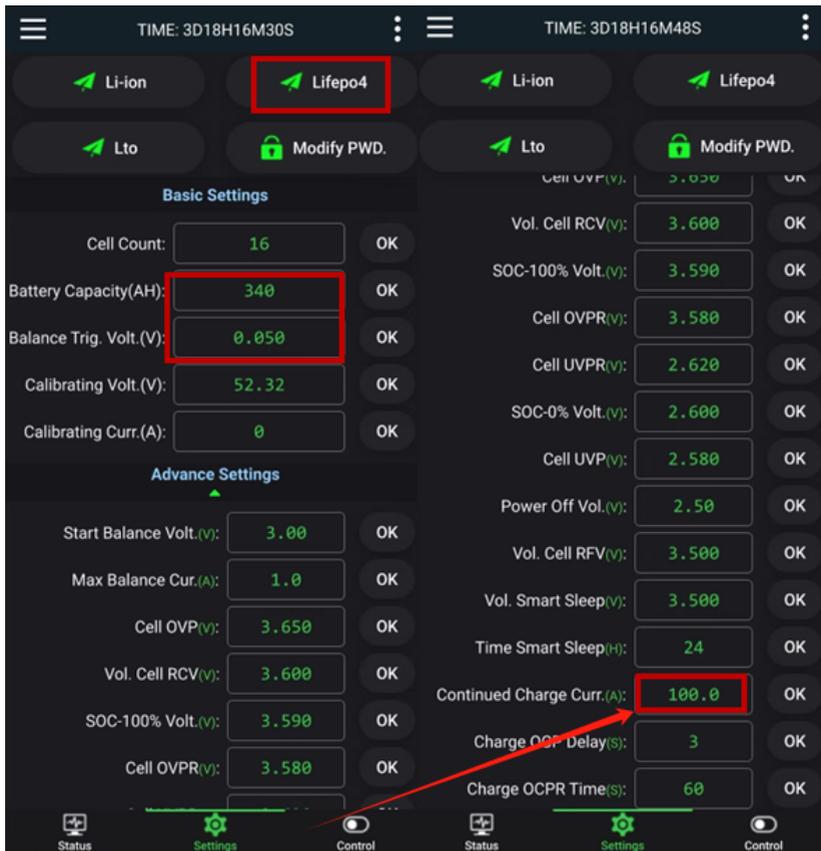
When the total current collected by the BMS is found to be different from the actual current of the battery, the current calibration function can be used to calibrate the protection board. The calibration method is to fill in the current measured total battery current, and then click the "Set" button behind the current calibration to complete the calibration.

## Note

### Setting Example

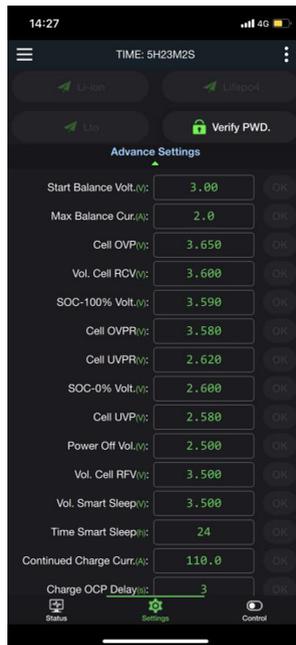
When using LiFePO4 340Ah battery cells for DIY, you need to set the following data on the "Setting" page in the App:

- Please confirm that the BMS has been adjusted to LiFePO4 in the App
- Battery Capacity (AH) is set to **340**
- Balance Trig. Volt (V) is set to **0.050**
- Continued Charge Curr (A) is set to **100**



\*Users who use batteries of other capacities for assembly can consult our customer service for detailed settings.

## Advance Settings



**A.** Start Balance Volt: Used to control the voltage stage of equalization. Equalization will be triggered only when the single cell voltage exceeds this value and the maximum voltage difference of the battery pack exceeds the equalization trigger voltage difference.

**B.** Max Balance Cur: Indicates the continuous current of high voltage battery discharge and low voltage battery charge during energy transfer. Maximum balancing current indicates the maximum current during energy transfer. The maximum balancing current should not exceed  $0.1C$ .

**C.** Cell OVP & Vol. Cell RCV: Refers to the saturation voltage of the battery cell. As long as the voltage of any single cell in the battery pack exceeds this value, a "single cell overcharge alarm" is generated, and the BMS turns off the charging MOS. At this time, the battery cannot be charged but can only be discharged. After the alarm is generated, only when the voltage value of all single cells is lower than the value of "single cell overcharge recovery", the BMS will release the "single cell overcharge alarm" and turn on the charging switch at the same time.

**D.** SOC-100% Volt: Refers to the voltage of a single battery cell when the battery is at 100% charge.

**E.**Cell OVPR & Cell UVPR: Refers to the cut-off voltage of the battery cell. As long as the voltage of any cell in the battery pack is lower than this value, the "Cell Low-voltage Alarm" will be generated. At the same time, the BMS will be turned off to discharge MOS, at this time, the battery can not discharge, but can only charge. When the alarm occurs, only after the voltage of all the cells exceeds the value of "Cell Voltage Recovery" the BMS releases the "Cell Low-voltage Alarm" and turns on the discharge MOS at the same time.

**F.**SOC-0% Volt: Refers to the voltage of a single battery cell when the battery level is at 0%.

**G.**Cell UVP: Refers to the saturation voltage of the cell. As long as the voltage of any single cell in the battery pack exceeds this value, a "single overcharge alarm" will be generated. At the same time, the BMS will turn off the MOS for charging. At this time, the battery cannot be charged and can only be discharged. After the alarm is generated, only when the voltage value of all cells is lower than the value of "Cell OVPR", the BMS will release the "cell overcharge alarm" and open the charging MOS at the same time.

**H.**Power Off Vol: Indicates the lowest working voltage of the BMS. When the highest voltage of the cell in the battery pack is lower than this value, the BMS is closed. The value must be lower than "unit low-voltage protection".

**I.**Vol. Cell RFV: Desired FLOAT voltage. If the battery is data-connected to the inverter, the inverter will take this voltage as its FLOAT charging voltage limit. This function must be activated in the BMS on the "Control" - "Charging float mode" tab.

**J.**Vol. Smart Sleep: If this voltage is reached and at the same time the output or input current is 0A, the countdown for the transition to the energy-saving BMS shutdown mode - Sleep mode will begin. To activate this function, it must be activated on the "Control" - "Smart Sleep On" tab. If charging or discharging occurs during the countdown, the countdown will be interrupted.

**K.**Time Smart Sleep: Setting the transition time to intelligent sleep mode in hours.

**L.**Continued Discharge Curr: According to the parameters of the inverter and the possible charge currents of the cells used.

**M.**Charge OCP Delay: The amount of time the BMS will accept a charging overcurrent before disconnecting.

**N.**Charge OCPR Time: The time after which the OCP protection is reset and the accumulator is activated again

**O.**Continued Discharge Curr: Set the maximum discharge current up to 200A according to the parameters of the inverter and the possible discharge currents of the cells used.

**P.**Discharge OCP Delay :The delay during which the BMS accepts the discharge current above the set limit.

**R.**Charge OTP & Charge OTPR: During the charging process, when the battery temperature exceeds the value of "Charge OTP", the BMS will generate a "charging over temperature protection alarm", and the BMS will turn off charging MOS. After the alarm is generated, when the temperature is lower than "Charge OTPR", the "charging over temperature protection alarm" will be released, and restart the charging MOS.

**S.**Discharge OTP & Discharge OTPR: Discharge OTP & Discharge OTPR: During the discharging process, when the battery temperature exceeds the value of "Discharge OTP", the BMS will generate a "discharging over temperature protection alarm", and the BMS will turn off discharging MOS. After the alarm is generated, when the temperature is lower than "Discharge OTPR", the "discharging over temperature protection alarm" will be released, and restart the discharging MOS.

**T.**Charge UTPR & Charge UTP: During the charging process, when the battery temperature is lower than the value of "Charge UTP", the BMS will generate a "low temperature protection for charging alarm" , and the BMS will turn off the MOS for charging. After the alarm is generated, when the temperature is higher than "charge UTPR", the protection board will release the warning of "low temperature protection of charging alarm" and restart the MOS of charging.

**U.**MOS OTP & MOS OTPR: When the MOS temperature exceeds the value of "MOS OTP", the BMS will generate "MOS over temperature alarm" and close the charge discharge MOS at the same time.

The battery cannot be charged or discharged. After the alarm is generated and the MOS temperature is lower than the value of "MOS OTPR", the BMS will release the "MOS over temperature alarm" and restart the charge and discharge MOS (the MOS over temperature protection value is 100 °C, the MOS over temperature recovery value is 80 °C, these two values are factory default values and cannot be modified).

**V.SCP Dalay:** Short-circuit protection delay, Unit:  $\mu$ s.

**W.S CPR Time:** When the short-circuit protection occurs, the short-circuit protection will be released after the set time of "SCPR Time".

**X.Device Addr:** Communication address of the device, which is assigned according to the DIP Switch setting on the auxiliary panel.

**Y.Data Stored Period:** Setting the time frame for which the status data is stored in the log file in the BMS. To activate this function, it must be activated on the "Control" - "Timed Stored Data" tab. The log data file is then available in the application under the menu (three dots) - "System Log".

**Z.RCV Time:** Setting the time period (in hours) for which the voltage "Vol. Cell. RCV" from reaching it on the first cell while charging.

**AA. RFV Time:** RFV Time: Setting the time period (in hours) for which the "Vol Cell. RFV" RCV time lapse. It is the so-called FLOAT voltage of the cell, when it is still fully charged, but its voltage is maintained at an optimal and gentle value.

**AB. User Private Data:** Any user data can be entered here, for example battery name, manufacturer, SN, etc.

**AC. User Data 2:** Any user data can be entered here, for example battery name, manufacturer, SN, etc

**AD. UART1 Protocol No.:** Selection of the communication protocol for the RS-485 bus according to the connected inverter and according to the protocol.

**AE. UART2 Protocol No.:** Communication protocol for the RS-485 bus for internal communication between parallel connected BMS. This internal protocol cannot be changed.

**AF. CAN Protocol NO.:** Selection of the communication protocol for the CAN BUS according to the connected inverter and according to the protocol it supports.

**AG.** LCD Buzzer Trigger: Setting the condition to automatically turn on the display if it is connected, for example in case of some low SOC type alarm, etc.

**AH.** LCD Buzzer Trigger Val: The LCD Buzzer Trigger set condition value, for example at SOC condition, the minimum % SOC value is set when the display should be activated.

**AI.** LCD Buzzer Release Val: The value to terminate the set LCD Buzzer Trigger condition.

**AJ.** DRY 1 Trigger: Setting the condition in which the dry contact relay 1 is closed, for example, starting the generator, when the battery voltage drops, etc. The contact connector is brought out on the auxiliary board.

**AK.** DRY 1 Trigger Val: The value of the set DRY 1 Trigger condition, for example, at the SOC condition, the minimum % SOC value is set when the contact should close.

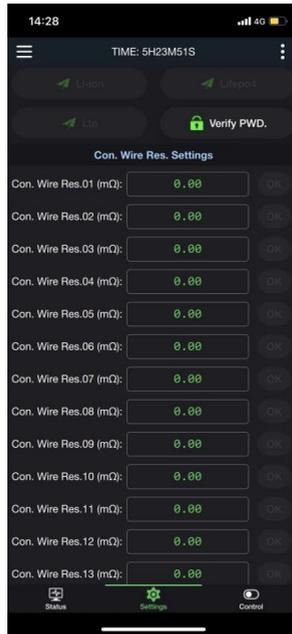
**AL.** DRY 1 Release Val: The value for ending the set DRY 1 Trigger condition.

**AM.** DRY 2 Trigger: Setting the condition in which the dry contact relay 2 closes, for example, starting the generator, when the battery voltage drops, etc. The contact connector is brought out on the auxiliary board.

**AN.** DRY 2 Trigger Val: The value of the set DRY 2 Trigger condition, for example, at the SOC condition, the minimum % SOC value is set when the contact should close.

**AO.** DRY 2 Release Val: The value for ending the set DRY 2 Trigger condition.

## Con. Wire Res. Settings

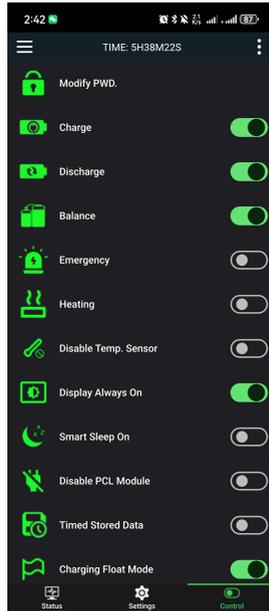


Manual adjustment of the resistance of individual balance wires. There is usually no need to change anything.

### Note

- Please refer to the manual for any parameter modification. Inappropriate parameters may cause the BMS to not work properly or even burn the BMS.
- After any parameter modification, you need to click the "OK" button behind the parameter to complete the parameter distribution.
- After the BMS successfully receives the parameter, it will make a "beep" sound.

## 6.5 BMS Control



Through BMS control, the protection board can be charged, discharged, balanced, switched on and off, and emergency switched on.

**A.**Charging: Used to control the BMS charging switch to open or close.

**B.**Discharge:Used to control the discharge switch of the BMS to open or turn off.

**C.**Balance: Used to control the BMS balance function on or off.

**D.**Emergency: Can turn on the charging and discharge, allowing users to use the battery for the emergency switch.

After the emergency switch is turned on, it is automatically turned off for 30 minutes. After the user is turned off by itself.

After turning on the emergency switch, the battery loses any protection function. Do not open this switch

**E.**Heating:Under the condition that the protection board supports heating, when the heating conditions are met, it can only be turned on when the charger is detected or the heating switch is turned on.

**F.**Disable Temp. Sensor: Turn on the temperature sensor shielding switch, and the protection board ignores temperature-related alarms

This function is often used when the temperature sensor is damaged for some reason.

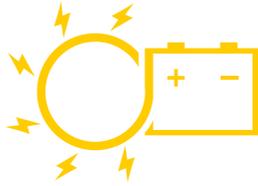
**G.** Display Always ON: Permanent activation of the connected LCD display. If it is off, the display will turn off after 20s..

## **7.WARRANTY & AFTER-SALES SERVICE**

GoKWh guarantees that all product are brand new and are fully tested before shipment. If you encounter any problems when using the product, please feel free to contact us through the official email for after-sales service. If you need to use the warranty service, please refer to the warranty terms in this booklet:

All GoKWh 48V DIY Kits Box with Smart BMS come with a 1-year manufacturer's warranty from the date of purchase.

- Warranty applies only to the original owner and is not transferable.
- We will require proof of purchase and usage before processing any warranty claim or return.
  - a.If GoKWh provides technical support and product repair services for non-manufacturer defects, the customer will be responsible for the corresponding shipping costs.
  - b.If the product is confirmed to have a manufacturer defect, GoKWh will bear the shipping costs of replacing the product.
- Warranty service will not be provided if the product fails due to the following conditions or reasons:
  - a.Improper battery maintenance, incorrect charging, reverse polarity, improper use, improper installation
  - b.Damage to the battery caused by use in an overheated environment, fire, freezing, accidental entry into any body of water (lakes, streams, ponds or oceans)
  - c.Failure to maintain proper battery charge or use beyond the rated charge/discharge cycle
  - d.Battery damage caused by unauthorized tampering or repair
  - e.Force majeure or external causes, misuse, accident, negligence
  - f.The buyer intentionally conceals or fails to cooperate in providing purchase or use information



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