

GoKWh

USER MANUAL

GoKWh 48V

DIY Kits Box with Smart BMS





Important Safety Instructions

Please save these instructions.

DISCLAIMER



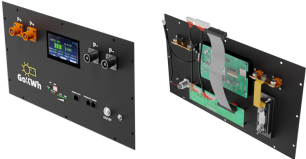

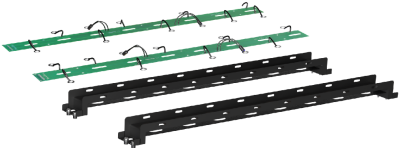
The user manual provides important operation and maintenance instructions for GoKWh 48V DIY Kits Box with Smart BMS(hereinafter referred to as battery kits or kits Box).

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&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>

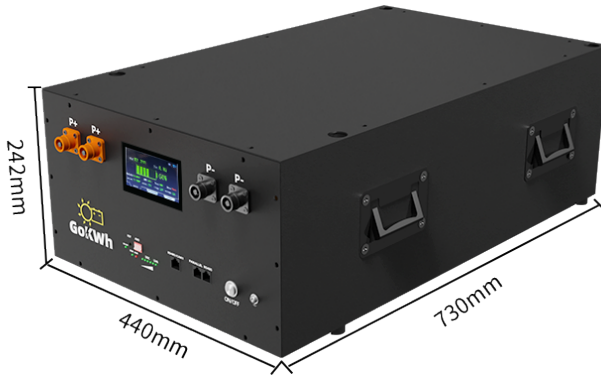
1.1.Screw

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

1.2.Accessories

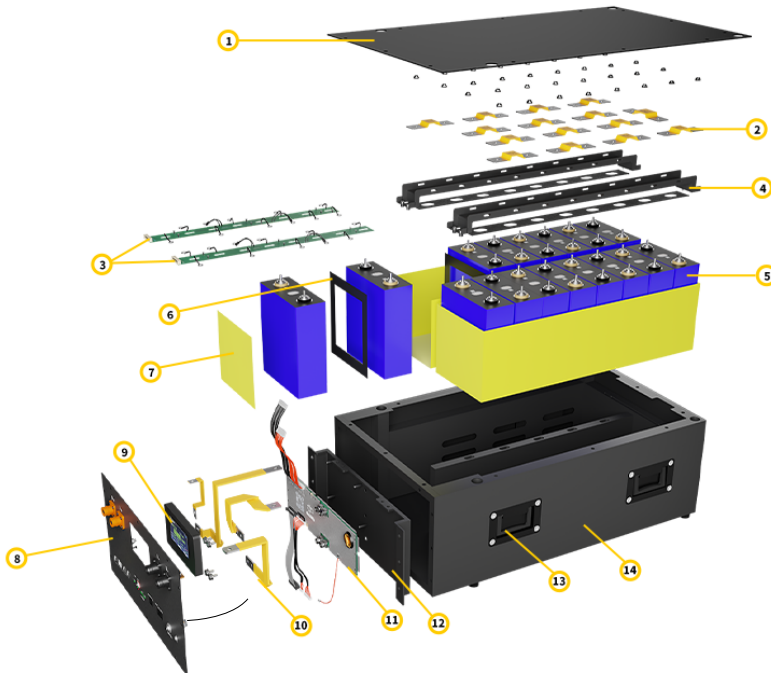
				
1.Short Busbar*15	2.Long Busbar*3	3.Short Insulation Epoxy Plate*2	4.Long EVA Foam Tape*2	5.Short EVA Foam Tape*15

2. APPEARANCE AND DIMENSIONS



3. STRUCTURE AND INTERFACE

3.1. Battery Box



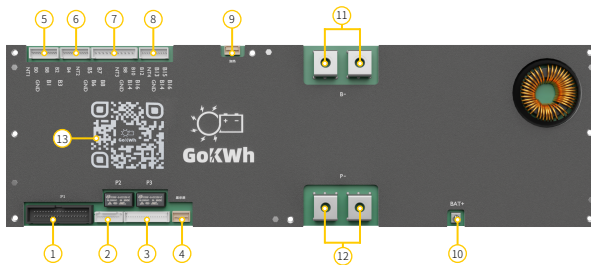
① Box Cover	⑧ Front Panel
② Short Busbar	⑨ Touch-controlled LCD Display
③ PCBA Collection Board	⑩ Long Busbar
④ Fixed bracket	⑪ GoKWh 48V 200A BMS
⑤ 3.2V LiFePO4 Cells (Buy Separately)	⑫ Inner Panel
⑥ EVA Foam Tape	⑬ Box Handle
⑦ Insulation Epoxy Plate	⑭ Battery Box

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


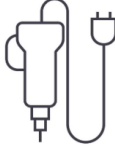






① P1 Interface	⑧ P8 Interface(NT4 to B16)
② P2 Interface	⑨ P9 Heating Interface
③ P3 Interface	⑩ BAT+ (Power Input)
④ P4 Display Interface	⑪ B+ Port
⑤ P5 Interface (NT1 to B4)	⑫ P - Port
⑥ P6 Interface (NT2 to B8)	⑬ Bluetooth QR Code
⑦ P7 Interface(NT3 to B12)	

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:

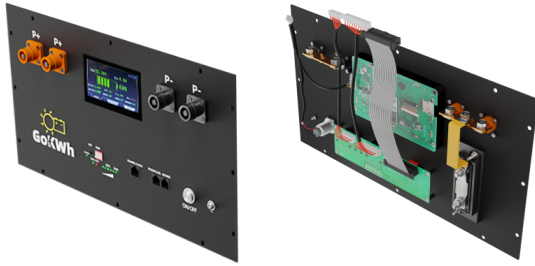
- Box cover



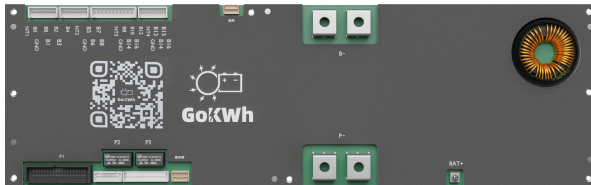
- PCBA collection boards and fixing brackets



- 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.

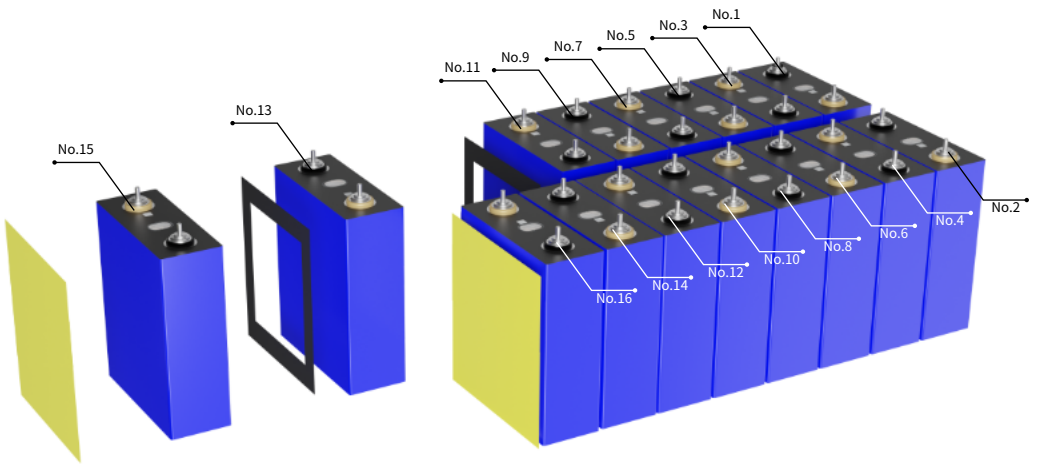
*Please refer to the packing list in “What's In The Package?” above

Step 3. Check and paste the cells

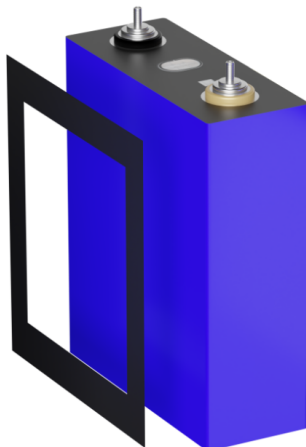
Before pasting the battery cells, use a multimeter to measure and check the prepared cells one by one to maintain the consistency of voltage and resistance.

After checking, start pasting the cells:

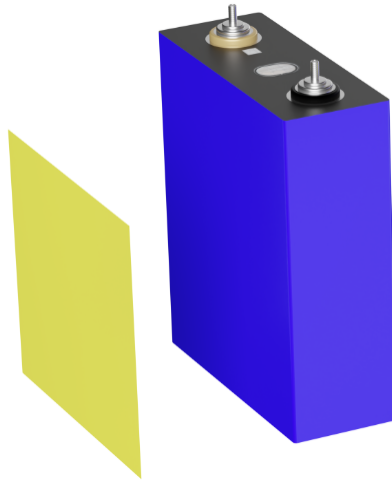
a. Arrange the batteries in the order of positive and negative poles as shown in the following diagram



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

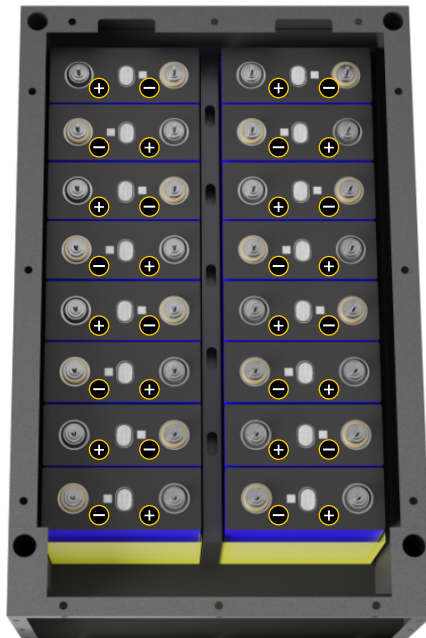


c. Take No.15 and No.16 Cell and paste a insulation epoxy plate on outward side as below.



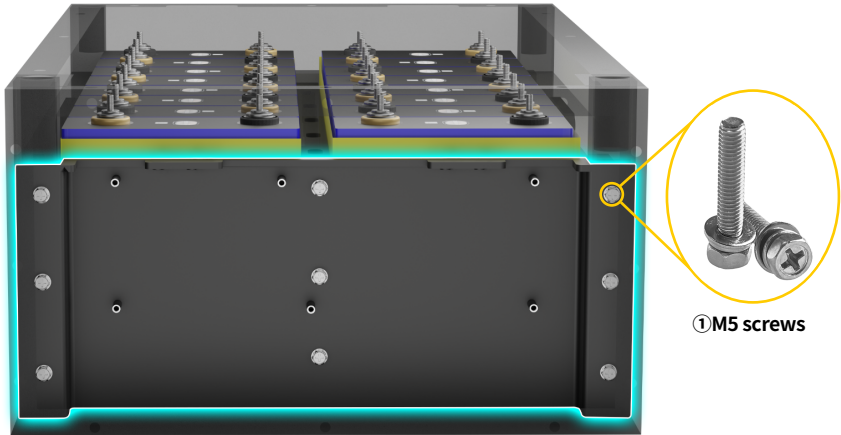
Step 4. Put the cells into the box

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

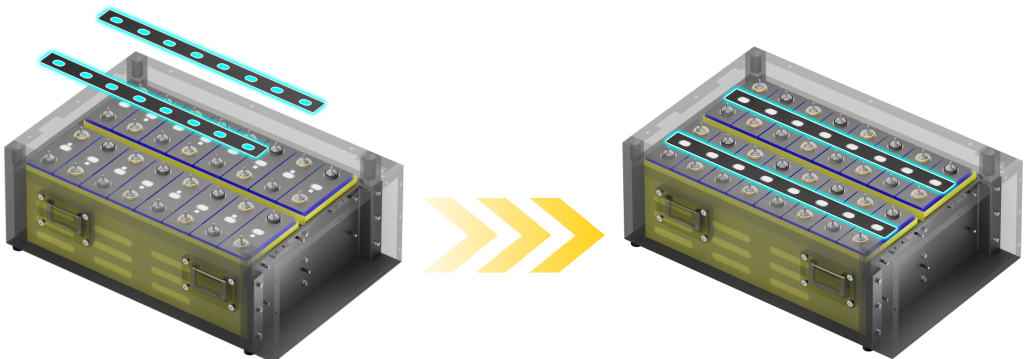
Install the battery cover with the protruding part facing outward. After aligning the battery box hole, use ①M5 screws to fix it.



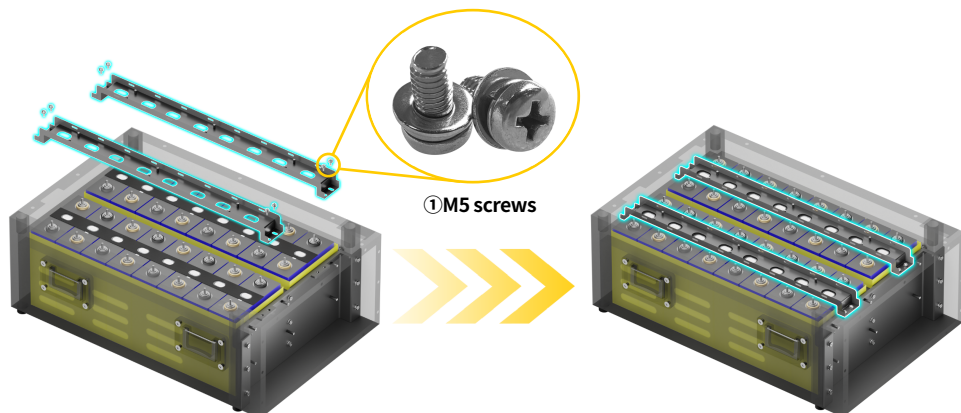
Step 6. Install the PCBA and busbars

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.

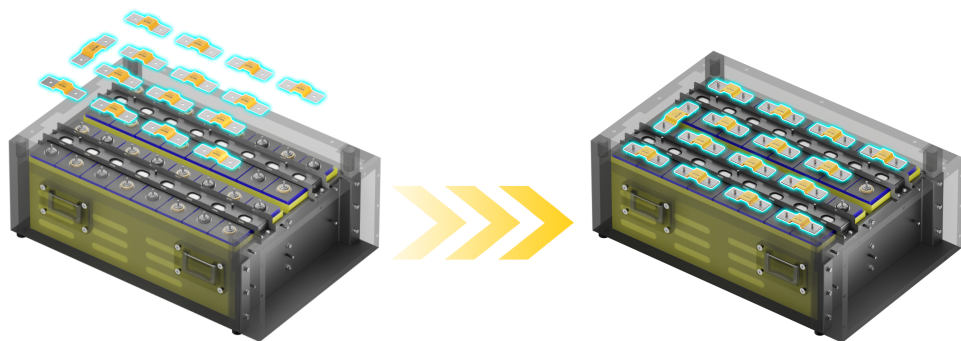


Then, fix the fixing brackets to the safety valve of each column of cells in the same way as EVA foam pasting, and place the fixing brackets with the slot facing upward. After placement, use ③M5 screws to fix the fixing frame to the battery box at the front and back ends of the battery box.



B.Connect short busbars and sampling cable of PCBA

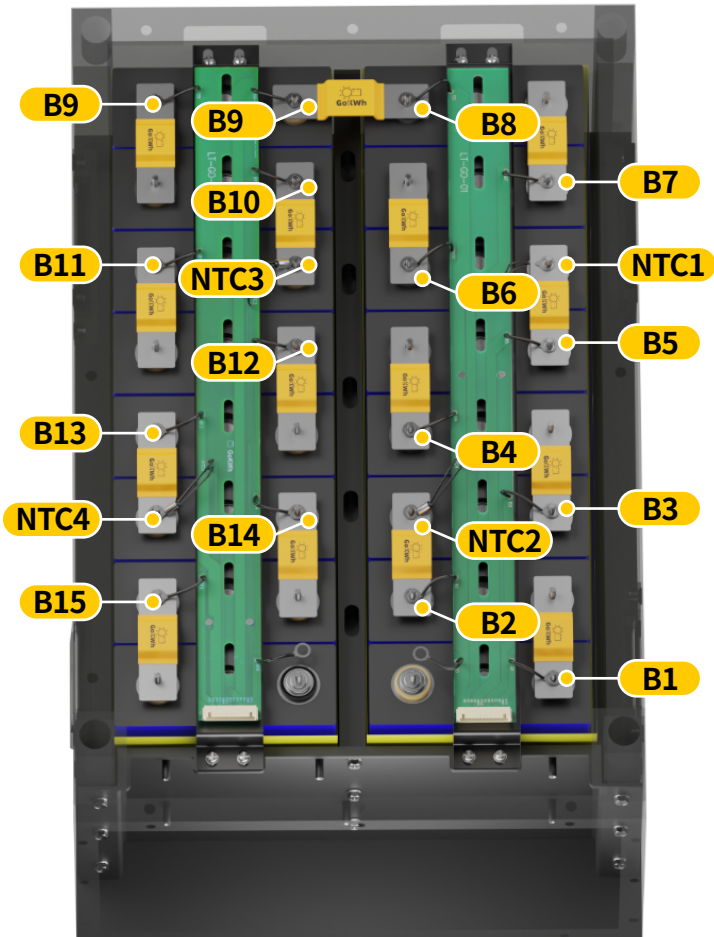
First, place the busbars on the cell to connect the 16PCS battery cells.



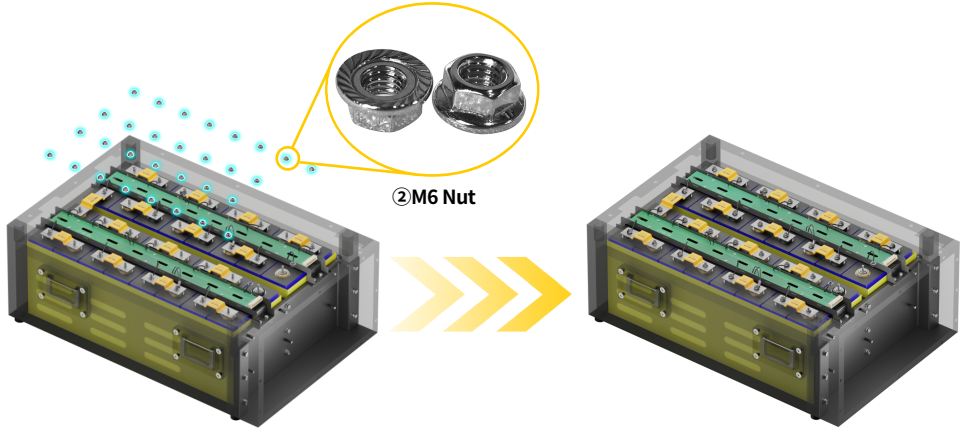
Then, place the PCBA collection board in the groove of the fixed bracket and fix it to the bracket using ④M3 screws.



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.

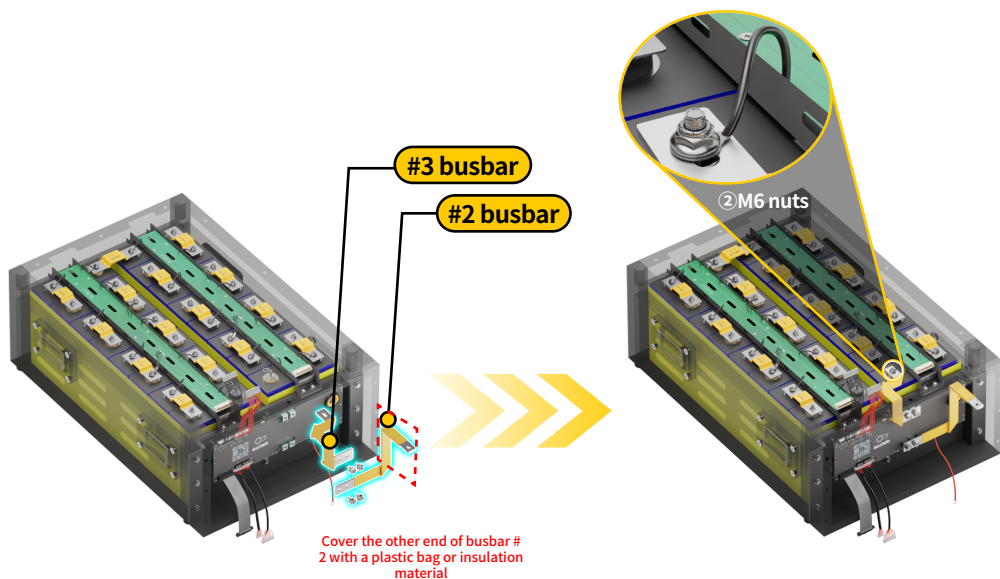
A. Install BMS

- 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.



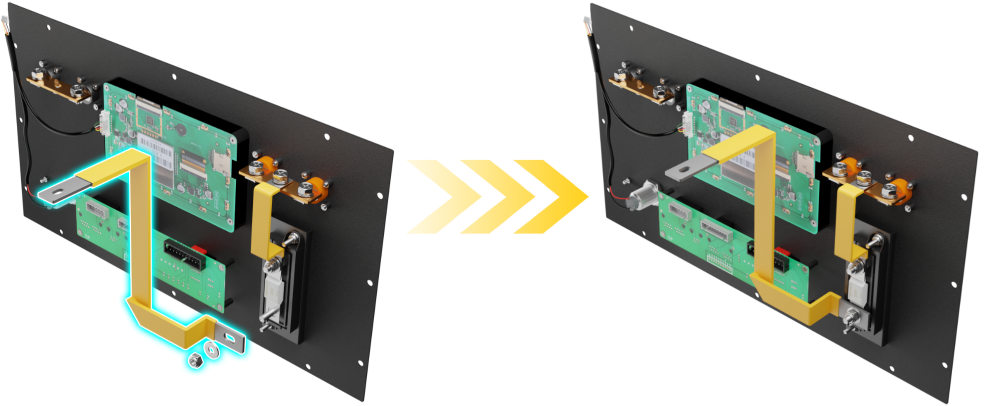
b. Remove the screws from the (B-) interface, align the two ports on the **#3 busbar** with the screw holes and use the removed screws to fix the **#3 busbar** to the BMS. After the connection is completed, insert the other end of the **#3 busbar** into the battery cell (B0) stud, place the sampling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

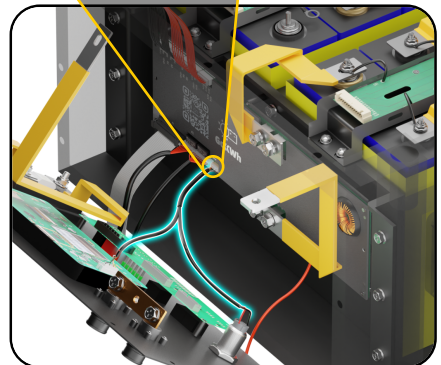
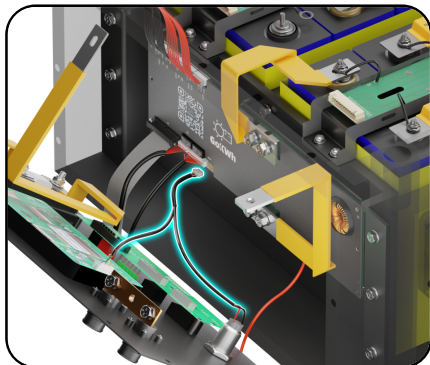
Remove the screws at this end, align the #1 busbar with the terminal, and secure it with the removed screws.



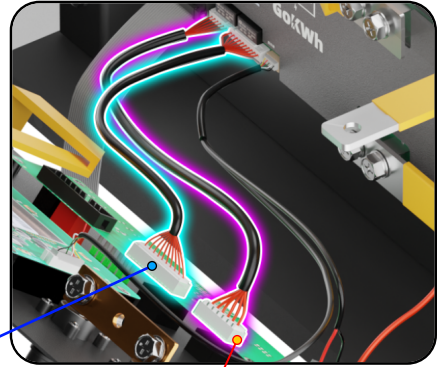
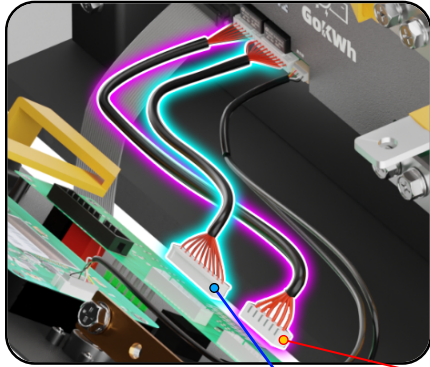
Connecting BMS to the front panel

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



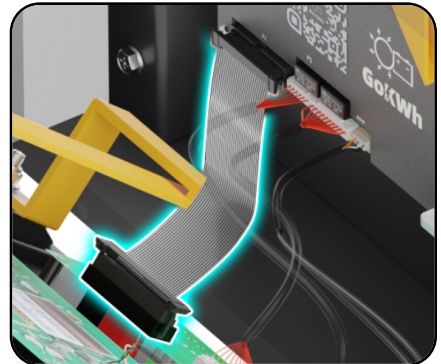
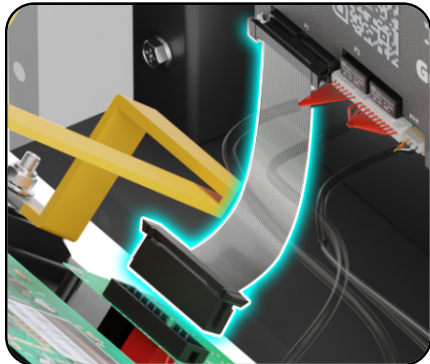
b. Insert the two sets of red sampling cables with insulating tape in the white interfaces (P2) and (P3) at the lower left of the BMS into the interfaces on the power



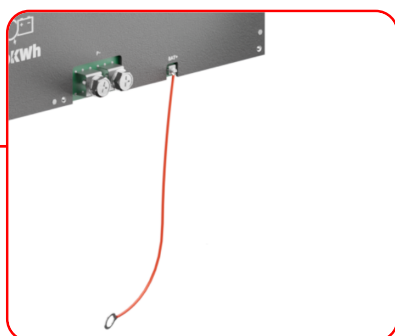
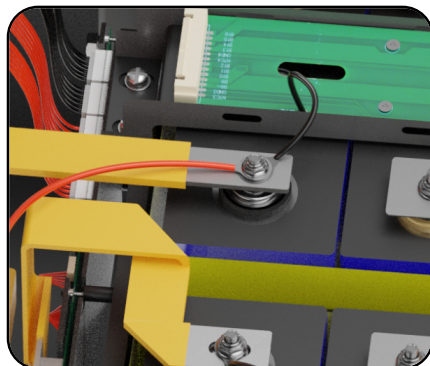
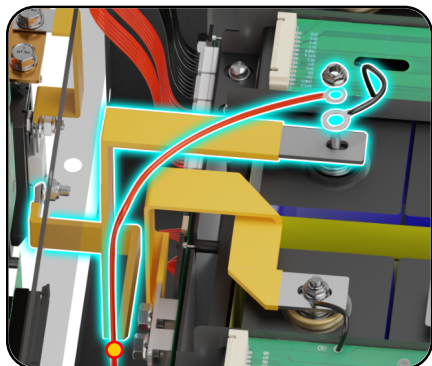
(BMS P3 interface cable)

(BMS P2 interface cable)

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.



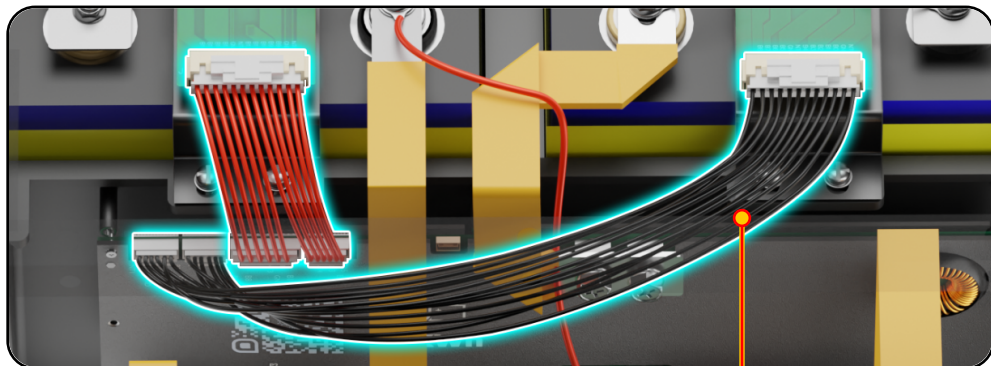
d. Insert the other end of the #1 busbar installed on the front panel into the stud of the No.15 Cell (B16 of PCBA), and place the red sampling cable with black insulat-



(BMS BAT+ "power input" cable)

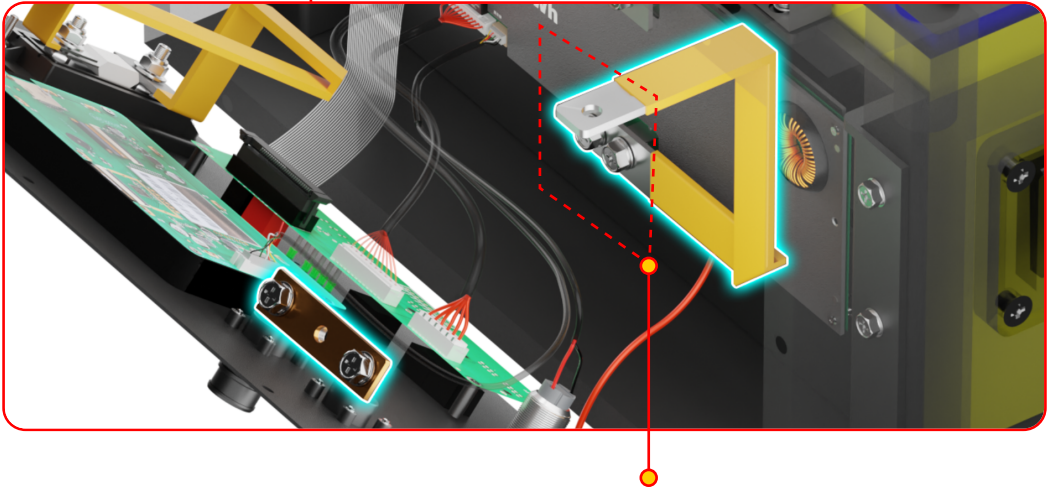
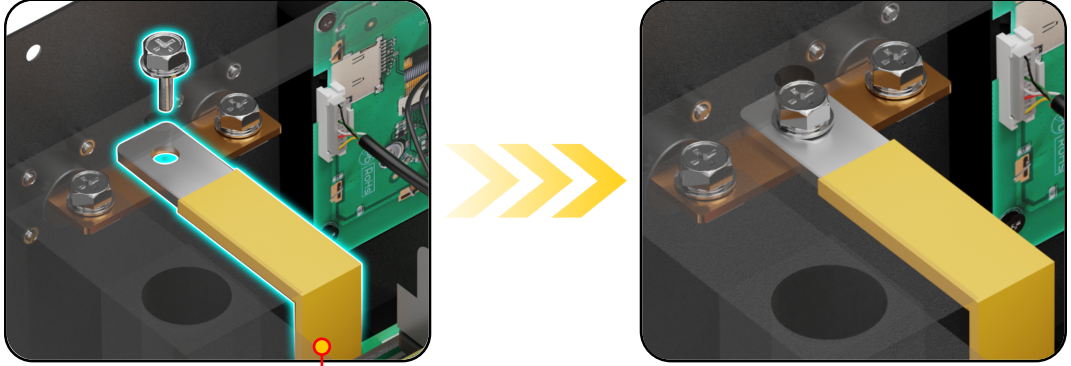
e. Insert the black sampling cable set "P5" and "P6" interfaces of BMS into the PCBA interface labeled LT-GO-01, and insert the red sampling cable set "P7" and "P8" interfaces into the PCBA interface labeled LT-GO-02.

***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.

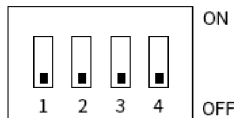
5.4.2.RS485 Communication

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

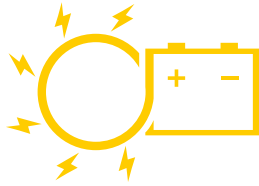
Open the phone camera and scan the QR code on BMS to download.

6.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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