

# GoKWh

# USER MANUAL

Smart Bluetooth  
12V & 24V Mini Lifepo4 Battery





## **Important Safety Instructions**

Please save these instructions.

### **DISCLAIMER**

Please read all specifications, usage, storage conditions, and warnings on this document before use. Always adhere to our handling and usage directions for this battery pack. Misuse of batteries can cause the battery to malfunction, degrade and reduce its capacity or life expectancy, overheat, explode, or become a fire hazard. Customers are responsible for the proper use and storage of this battery pack which is outlined on this document. If at any point, the battery excessively overheats, leaks, etc, or does not function as stated, or is visibly damaged; **DO NOT USE**. Please contact our support team for further assistance.

**We do not bear responsibility for any damages caused by the misuse of this battery accidental or otherwise**

### **WARNINGS**

1. DO NOT immerse the battery in water or allow it to get wet.
2. DO NOT use or store the battery near sources of heat such as a fire or heater.
3. DO NOT reverse the positive (+) and negative (-) terminals.
4. DO NOT connect the battery directly to wall outlets or car cigarette-lighter sockets without proper charging equipment. DO NOT allow exposed ends of cables connected to opposite terminals to touch.
5. DO NOT put the battery into a fire or apply direct heat.
6. DO NOT use the battery if the battery casing has been pierced, broken, cracked, or otherwise visibly damaged. DO NOT forcibly open the battery casing for any reason.
7. Avoid severe physical shock. Do not throw the battery or heavily strike the battery in any way. Do not put excessive pressure or step on the battery.
8. Never solder anything directly to the battery terminals.
9. DO NOT attempt to disassemble or modify the battery in any way.
10. DO NOT place the battery in a microwave oven or pressurized container.

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## Product Overview

Battery Dimensions:



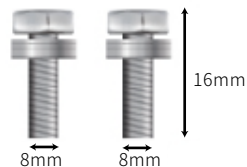
Terminal Size :

M8 (1.25mm Metric Thread)

Post Bolts :

M8 (1.25mm Metric Thread " 16mm Bolt Length)

( The bolts can be replaced with M8 bolts of other lengths based on actual needs)



# Specification



<b>Model</b>	12V100Ah	12V200Ah	12V230Ah	24V100Ah	12V280Ah	12V320Ah	12V340Ah
<b>Basical</b>							
<b>Cell Type</b>	LiFePO4(LFP)						
<b>Dimensions</b>	L10.23*W6.69* H8.26 L260*W170* H210mm	L13.58*W7.48*H9.64 L345*W190*H245mm			L15.27*W7.59*H9.84 L388*W193*H250mm		L15.12*W8.03* H10.63 L384*W204* H270mm
<b>Terminal Type</b>	M8						
<b>Case Material</b>	ABS(Flame Retardant Plastic)						
<b>BMS Built-in</b>	100A BMS	200A BMS		100A BMS		200A BMS	
<b>Warranty</b>	5 Year						
<b>Electrical</b>							
<b>Nominal Voltage</b>	12.8 V			25.6 V		12.8 V	
<b>Nominal Capacity</b>	100 Ah	200 Ah	230 Ah	100 Ah	280 Ah	320 Ah	340 Ah
<b>Nominal Energy</b>	1280 Wh	2560 Wh	2944 Wh	2560 Wh	3584 Wh	4096 Wh	4352 Wh
<b>Charge Method</b>	CC/CV						
<b>Charge Voltage</b>	≤14.6V			≤29.2		≤14.6V	
<b>Charge Current</b>	≤50A	≤100A		≤50 A		≤100A	
<b>Discharge Cut-off Voltage</b>	≥10V			≥20V		≥10V	
<b>Discharge Current</b>	≤100 A	≤200 A		≤100 A		≤200 A	
<b>Internal Resistance</b>	≤30 mΩ						
<b>Performance</b>							
<b>Cycle Life</b>	≥4000 Cycles				≥8000 Cycles		
<b>Service Life</b>	10 Years						
<b>Protection</b>	IP65, Built-in Bluetooth BMS						
<b>Temperature Range</b>							
<b>Charge</b>	0~45°C (32~113°F)						
<b>Discharge</b>	-20~60°C (-4~140°F)						
<b>Storage</b>	-10~45°C (14~113°F)						
<b>Scalability</b>							
<b>Parallel Connection</b>	Up to 4P 12.8V 400Ah 5.12kWh	Up to 4P 12.8V 800Ah 10.24kWh	Up to 4P 12.8V 920Ah 11.776kWh	Up to 4P 25.6V 400Ah 10.24kWh	Up to 4P 12.8V 1120Ah 14.336kWh	Up to 4P 12.8V 1280Ah 16.384kWh	Up to 4P 12.8V 1360Ah 17.408kWh
<b>Series Connection</b>	Up to 4S 51.2V 100Ah 5.12kWh	Up to 4S 51.2V 200Ah 10.24kWh	Up to 4S 51.2V 230Ah 11.776kWh	Up to 2S 51.2V 100Ah 5.12kWh	Up to 4S 51.2V 280Ah 14.336kWh	Up to 4S 51.2V 320Ah 16.384kWh	Up to 4S 51.2V 340Ah 17.408kWh

# Battery Connection

Safe and reliable installation requires trained and certified technicians. Therefore, the purpose of this section is only to serve as a guideline as all scenarios cannot be covered.

## Preparation

Before the installation and operation of the battery, it is recommended to have the following equipment or tools available:

- Proper Protective Equipment
- Insulated Tool(s)
- Multimeter
- Battery Cable
- Battery Charger / Charge Controller

## Inspection

Please check for visible damage including cracks, dents, deformation, and other visible abnormalities. The top of the battery and terminal connections should be clean, free of dirt and corrosion, and dry. If any problems are detected with the battery, please contact us for assistance. Refer to the last page of the manual for contact information.

## Cable Sizing

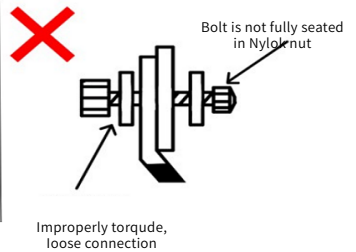
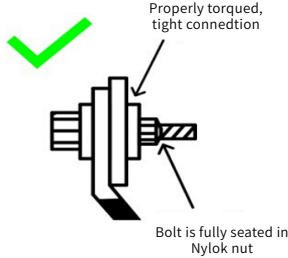
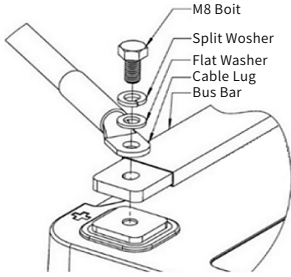
Battery cables (sold separately) should be appropriately sized to handle the expected load. Please refer to the following table for the ampacities of copper cables with different gauge sizes.

Copper Cable Gauge Size (AWG/mm2)	Ampacity (A)
14 (2.08)	20
12 (3.31)	25
10 (5.25)	35
8 (8.36)	50
6 (13.3)	65
4 (21.1)	85
2 (33.6)	115
1 (42.4)	130
1/0 (53.5)	150
2/0 (67.4)	175
4/0 (107)	230

The above values are from the NEC Table 310.15(B)16 for copper cables rated at 75°C (167°F), operating at an ambient temperature of no more than 30°C (86°F). Lengths in excess of 6 feet (1829 mm) may require heavier gauge cable to avoid excess voltage drop in undersized wiring.

# Battery Terminal

The depths of the female battery terminal threads are no more than 12 mm. Consider this when determining the proper bolt length to secure bus bars, cable lugs, and any washers that will be affixed to the terminal connection pad. If too much torque is applied to a bolt, the female threads of the battery terminal will be stripped and the damage will not be covered under warranty due to misuse of the product. Consider the 12 mm thread depth when selecting your bolts so that they do not bottom-out. Conversely, a minimum of 3 threads must be engaged before applying 8 lb-ft of torque so as to not damage the threads.



# Connecting Batteries in Banks

## CAUTION

The batteries pack support max 4S or 4P, but in practical applications, consumers need to calculate based on their own load situation.

The maximum voltage after series and parallel connection of battery packs should less load voltage.

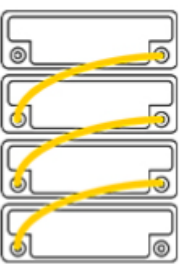
The load current should be less than the recommended current of the battery pack after series and parallel connection.

It is recommended to balance the voltage before using it in series or parallel.

DO NOT string batteries with different chemistries, brands, models, rated capacities, or nominal voltages in parallel.

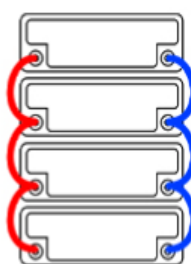
In parallel battery banks, the cables between each battery should be of equal length to ensure that all batteries in the system can work equally together.

The built-in BMS of the battery pack only protect and balance the internal battery cells. If the battery pack is connected in series or parallel, if you want to achieve better protection and balance, you can additionally install an external BMS control.



### Connection In Series

- (Maximum of 4/2 Batteries)
- 12V100AH:**48V(51.2V) 100Ah**
- 12V200AH:**48V(51.2V) 200Ah**
- 12V230AH:**48V(51.2V) 230Ah**
- 24V100AH:**48V(51.2V) 100Ah**
- 12V280AH:**48V(51.2V) 280Ah**
- 12V320AH:**48V(51.2V) 320Ah**
- 12V340AH:**48V(51.2V) 340Ah**



### Connection In Parallel

- (Maximum of 4 Batteries)
- 12V100AH:**12V(12.8V) 400Ah**
- 12V200AH:**12V(12.8V) 800Ah**
- 12V230AH:**12V(12.8V) 920Ah**
- 24V100AH:**12V(12.8V) 400Ah**
- 12V280AH:**12V(12.8V) 1120Ah**
- 12V320AH:**12V(12.8V) 1280Ah**
- 12V340AH:**12V(12.8V) 1360Ah**

## Battery Charging

LiFePO4 Batteries perform a 2-stage charging algorithm called "Constant Current/Constant Voltage" (CC/CV).

The standard LiFePO4 profile is 0.2C CC charge to 14.2V, and then, CV at 14.4V charge until the charge current declines to  $\leq 0.05C$ .

The recommended max. charging current for a 100Ah LiFePO4 battery is 50A (0.5C). A faster charge of 100A (1C) may be used as necessary, however, regularly charging your battery this way may shorten its life and subsequently its total capacity due to the extra heat generated during this process.

We do not recommend using any other types of chargers for LiFePO4 batteries, such as SLA and Gel chargers.

## Battery Storage

### Temperature

The battery can be operated at temperatures of  $-10\sim 45^{\circ}\text{C}$  ( $14\sim 113^{\circ}\text{F}$ ), and a temperature between  $10^{\circ}\text{C}$  to  $35^{\circ}\text{C}$  ( $50^{\circ}\text{F}$  to  $95^{\circ}\text{F}$ ) is ideal for long-term storage. Store in a fireproof container and away from children.

### Capacity

For a longer-lasting product, it is best to store your battery at a 50% charge level and recharge every three months if it is not going to be used for a long time.

## Troubleshooting

If any problems occur during the battery operation, please refer to the following instructions or contact us for assistance

## Bluetooth & APP

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

- Support Chinese and English switching
- Display basic data of the battery
- Setting equalization pressure difference parameters
- Support single and parallel operation

## Bluetooth App Download

Open the phone camera and scan the image below or the QR code on BMS. After scanning the code, you will be redirected to a new page, select the app store of the corresponding system on your phone and download it.

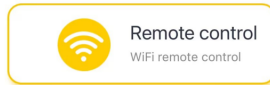


# GoKWh App Guide

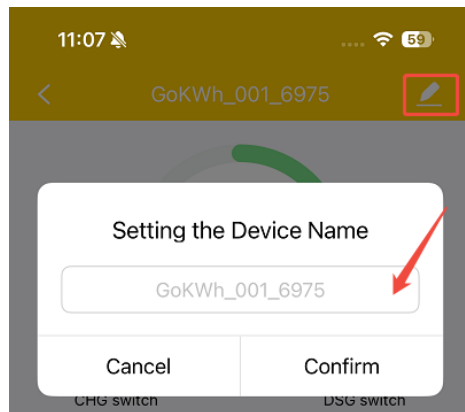
## Pair and connect the App to the battery

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

- Open the App after downloading
- It can be connected through Bluetooth or WiFi. After selection, the app will automatically search for nearby batteries that can be connected and click on the name of the device that needs to be connected.
- After successful matching, the app will automatically jump to the page showing the battery data.



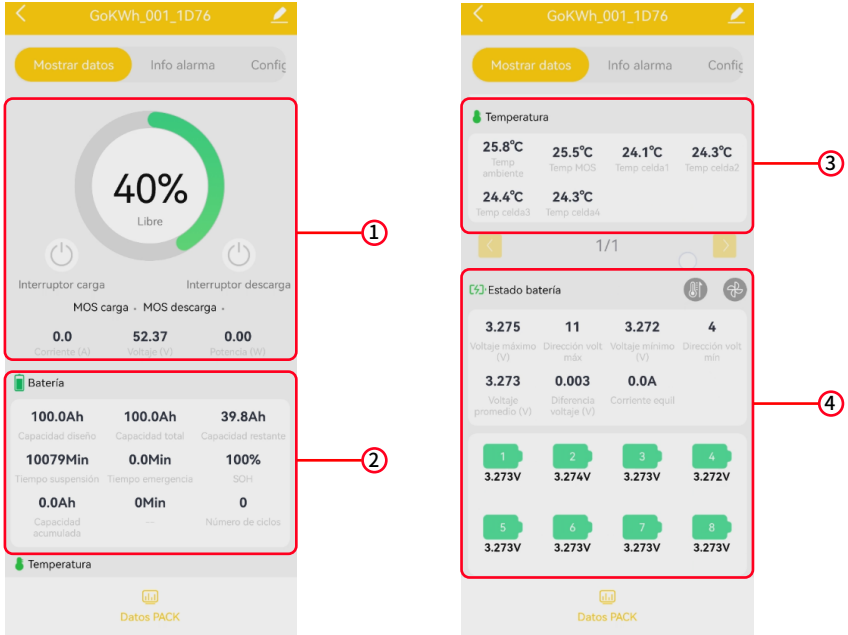
## Modify battery's name



Click the icon in the upper right corner of the "Status Display" page to name your battery.

# 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 Battery status area
- ③ Temperature area
- ④ Cell status area

## ① Battery basic data

The parameters are explained as follows:

**A.Capacity:** In static mode, only the battery SOC and the percentage of remaining capacity are displayed: Estimated battery capacity is displayed when charging: Estimated battery capacity is displayed when discharging.

**B.CHG Switch & CHG MOS:** 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.
- When the battery is charging, the indicator light behind CHG MOS lights up.

**C.DSG Switch & DSG MOS:** 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.
- When the battery is discharging, the indicator light behind DSG MOS lights up

**D.Current:** Displays the total current of the battery in real time.

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

**F.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.

## ② Temperature area

**A.Max Volt(V):** A.Indicates the highest voltage of the single cell in the current battery pack, unit: V.

**B.Min Volt(V):** Indicates the lowest voltage of the single cell in the current battery pack, unit: V.

**C.Average Volt(V):** Indicates the current average voltage of the battery cells, unit: V.

**D.Diff Volt(V):** Indicates the difference between the highest cell voltage and the lowest cell voltage of the entire battery pack currently, unit: V.

## ③ Battery status area

**A.ENV T(°C):** Real-time display of the external NIC temperature, unit: °C.

**B.MOS T (°C):** Real-time display of the current temperature of the BMS power MOS, unit: °C

**C.Cell T(°C) 1-4:** If the temperature sensor is installed, the temperature of the temperature sensor 1-4 is displayed in real time in °C.

## ④ Cell area

**A.Max. Volt(V) :** The maximum voltage cell data in the battery pack, unit: V.

**B.Max. Vol Addr:** Address of the highest voltage cell in the battery pack.

**C.Min. Volt(V) :** The minimum voltage cell data in the battery pack, unit: V.

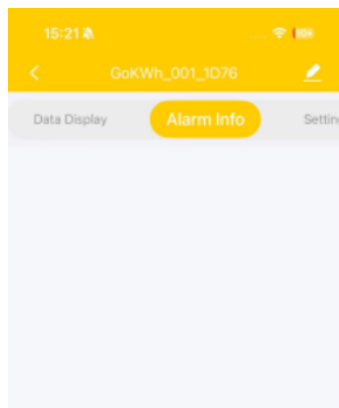
**D.Min. Vol Addr:** Address of the lowest voltage cell in the battery pack.

**E.Average volt(V) :** The average voltage of all cells in a battery pack, unit: V.

**F.Volt Diff(V) :** Voltage difference between max. voltage and min. voltage, unit: V.

**G.Bal Curr(A) :** Balanced current, unit:A.

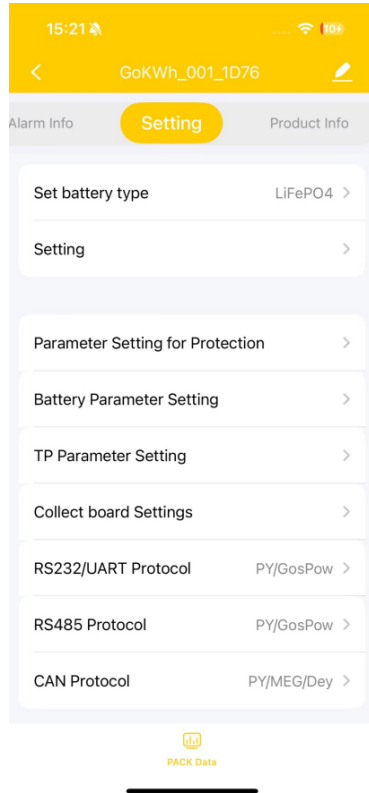
## Alarm Info



The built-in BMS of the battery will perform real-time detection on the battery pack, and when an alarm or fault occurs, an alarm will be issued in real time.

In the alarm area, you can see the cause of the fault, the time when the fault occurred, and other information.

## Setting



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:

**A.Parameter Setting for Protection:** The values for protecting cells and battery can be modified in this area.

- Cell OVP(V)
- Cell OVP Release(V)
- Cell OVP Delay Time(s)
- Cell UVP(V)
- Cell UVP Release(V)
- Cell UVP Delay Time(s)
- Pack OVP(V)
- Pack OVP Release(V)
- Pack OVP Delay Time(s)
- Pack UVP(V)
- Pack UVP Release(V)
- Pack UVP Delay Time(s)
- Diff volt protect:
- CHG OCP(A)
- CHG OCP Delay Time(s)
- DSG OCP(A)1
- DGS OCP Delay Time(s)1
- DSG OCP(A)2
- DGS OCP Delay Time(s)2

**B.Battery Parameter Setting:** Battery pack parameters can be viewed and modified in this area

- Type of battery
- Nominal capacity
- Rated capacity
- Cell reference volt
- BL Threshold(V)
- BL cell(V)
- Sleep waiting time
- Calibration CHG current

**C.Collect Board Setting:** The parameters of the collect board can be modified in this area

- CHG OTP(°C)
- CHG OTP release(°C)
- CHG UTP(°C)
- CHG UTP release(°C)
- DSG OTP(°C)
- DSG OTP release(°C)
- DSG UTP(°C)
- DSG UTP release(°C)
- MOS OTP(°C)
- MOS OTP release(°C)

**D.TP Parameter Setting:** The temperature range of charging, discharging and mos can be modified in this area.

- Set the num of collecting boards
- Set the read add of the collecting board
- Collecting board 1 Address

### **E.RS232/ UART Protocol**

### **F.RS485 Protocol**

### **G.CAN Protocol**

### **H.Change Password**

### **I.Current Return to Zero**

### **J.Factory Reset**

### **K.Restaring the System**

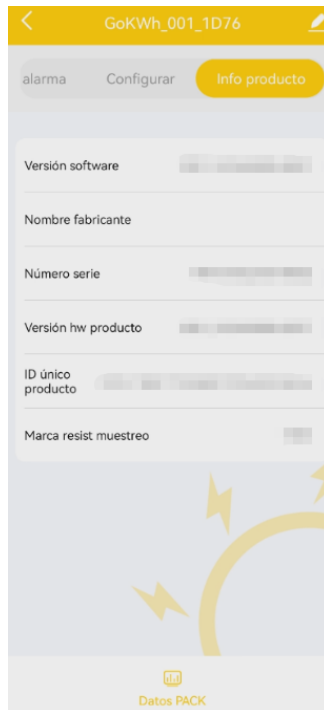
### **L.BMS Update**

### **M.Firmware Download**

### **N.Contact Email**

## **Product Info**

- A. Software Version
- B. Manufacturer Name
- C. Product Serial Number
- D. Product Hardware Version



## Warranty

All GoKWh 12V and 24V series LiFePO4 batteries come with 5-year manufacturer's defect warranty from the date of battery purchase.

This warranty covers the following 12V and 24V Series LiFePO4 battery models:

\*Note: All batteries are fully tested before being shipped.

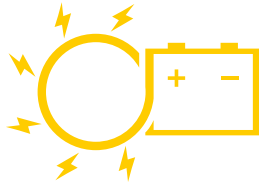
## 5-Year Warranty for After-Sales Service

**Warranty is a guarantee against manufacturer defects only.**

GoKWh warrants this battery to be free from manufacturer defects for 5 years. If for some improbable circumstance the battery is defective, we will replace the battery. The following situation is not covered by the warranty:

- Batteries that have been poorly maintained, incorrectly charged, reversed polarity, improperly installed, stored and used in excessive heat, physical damage, fire, freezing, water damage, tampering, damage to terminals, failure to maintain proper battery charge or use in excess of rated charge/discharge cycles.
- Loss or damage due to force majeure or external causes, misuse, accident, negligence, unauthorized modification or repair.
- Warranties apply only to the original owner and are not transferable. We will verify your purchase before processing any warranty claims or returns.
- The buyer intentionally conceals or fails to cooperate in providing usage information.


GoKWh has a team of technicians to provide technical support if needed. Proof of purchase and your usage will be requested. The customer is responsible for shipping costs. If we deem the product manufacturer defective, we will cover the replacement shipping costs.



# GokWh

**Make Your Daily Power Up.**

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