GoKWh

USER MANUAL

Smart Bluetooth
12V & 24V Mini Lifepo4 Battery

Dongguan GoKWh Technology Co., Ltd.
Version - 2023

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.

Table of Contents

Product Overview

Battery Dimensions:

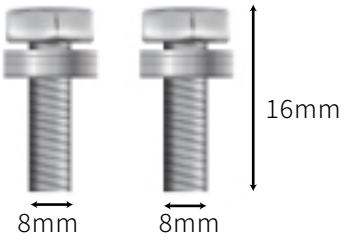
Terminal Size :

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

Model	12V100AH	12V200AH	12V230AH	24V100AH	12V280AH	12V320AH
Basical						
Cell Type	LiFePO4(LFP)					
Dimensions	L10.23*W6.69*H8.26 L260*W170*H210mm	L13.58*W7.48*H9.64 L345*W190*H245mm			L13.38*W7.40*H10.63 L340*W188*H270mm	
Terminal Type	M8					
Case Material	ABS(Flame Retardant Plastic)					
BMS Bulit-in	100A BMS	200A BMS			250A BMS	
Warranty	5 Year					
Electrical						
Nominal Voltage	12.8 V			25.6 V	12.8 V	
Nominal Capacity	100 Ah	200 Ah	230 Ah	100 Ah	280 Ah	320 Ah
Nominal Energy	1280 Wh	2560 Wh	2944 Wh	2560 Wh	3584 Wh	4096 Wh
Charge Method	CC/CV					
Recommend Charge Voltage	⩽14.6V			⩽29.2	⩽14.6V	
Recommend Charge Current	⩽50A	⩽100A		⩽50 A	⩽100A	
Recomend Discharge Cut-off Voltage	⩾10V			⩾20V	⩾10V	
Recomend Discharge Current	⩽100 A	⩽200 A		⩽100 A	⩽200 A	
Internal Resistance	⩽30 mΩ					
Performance						
Cycle Life	⩾8000 Cycles					
Service Life	10 Years					
Protection	IP65, Built-in Bluetooth BMS					
Temperature Range						
Charge	0~45°C (32~113°F)					
Discharge	-20~60°C (-4~140°F)					
Storage	-10~45°C (14~113°F)					
Scalability						
Parallel Connection	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
Series Connection	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

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

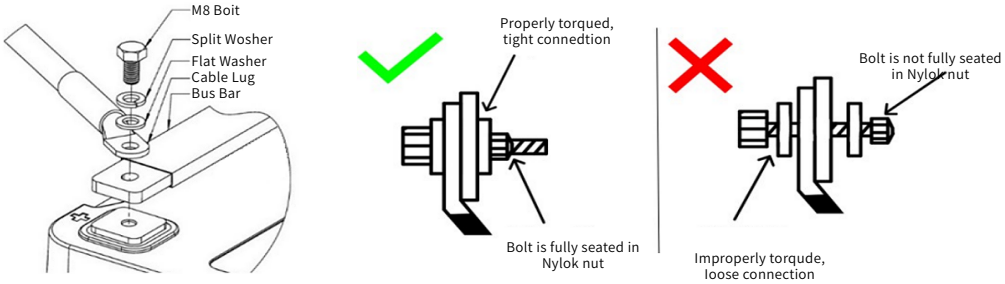
Battery cables (sold separately) should be appropriately sized to handle the expected load. Please refer to the following table for the ampacities of copper cables with different gauge sizes.

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.

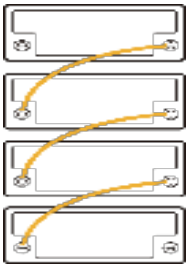
The maximum voltage after series and parallel connection of battery packs should less load voltage.

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.

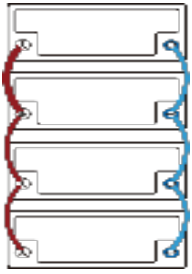
The built-in BMS of the battery pack only protect and balance the internal battery cells. If the battery pack is connected in series or parallel, if you want to achieve better protection and balance, you can additionally install an external BMS control.



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**



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**

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 <=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 -10~45°C (14~113°F), and a temperature between 10°C to 35°C(50°F to 95°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 Setting

Supports Android and IOS systems

Scan the code to jump to the download address, and follow the instructions to complete the download and installation.

Scan to download Xiaoxiang Electric App

IOS-client

Android-client

Function introduction

Module	Fuunction	Describe	Example
History	Voltage , current , remainingca-pacity , temperature	Display the batterymaximum , minimumaverage voltage , batterycurrent , remainingcapacity , BMS boardtemperature change curve	The last 100 pieces of data , one per minute , Graph
	Charging switch , discharge	Issue commands through	Control switch
Control	Switch , automatic equalization switch , clear alarm , reset capacity	the APP to control the BUS board : clear alarm data : reset remaining capacity : open equalization	on / off : automatic equalization switch ,clear alarm . reset capacity ls not displayed in some BMS versions
Real time	SOC display diagram , Estimated filling time , Estimated release time , charging switch , Discharge switch , Equilibrium , Protection status . total voltage , current , power , Maximum voltage (single string) , Minimum voltagesingle string) , Average voltage , differential pressure , Cycles , temperature ,humidity , Single String Voltage Information	Dashboard , displaying battery vol tage ,current , temperature ,SOC , protection status differential pressure cycle times and other data	Real-time data of battery static ,charging and charging
Parameter	Basic information . initial settings	Display the basic informat ion of the protection board	Display BMS basic information ; initial settings are not displayed in some BMS versions
Mine	Complete information unbundle equipment , use instructions for lithium batteries , use instructions for BMS . about us , log out of account	Display personal information and settings , Instructions for use . and introduction to our Company , purchase channels . etc	Account information manufacturer information , etc

APP User Guide

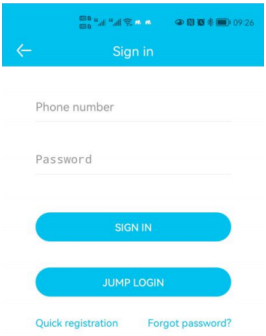
Operating Environment

Android version 5.0 / 10S version 10.0 or above , it can be used on devices that support Blue tooth 4.0 , and after obtaining the permission to use Blue tooth and GPS , it can run .

Login connection

Registering an Account

After the Xiaoxiang Elect ric APP is successfully installed , open the APP , allow Bluetooth to be turned on , and obtain location information , the APP willautomaticthe account registration page pops up , please enter the mobile phone number as required , set the password , and click Confirm when finished



APP physical display Figure 1

Bluetooth connect / disconnect

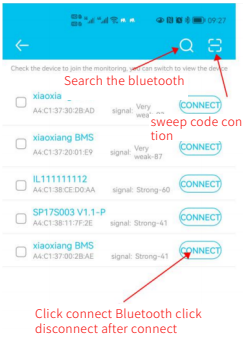
(1) Connect to Bluetooth : After successful login , the APP will jump to the Blue tooth list , select the Bluetooth that needs to be connected to connect

(2) Switch battery : When there are multiple batteries , you can check multiple Bluetooth names in the list , and quickly switch the battery to be connected on the real-time interface

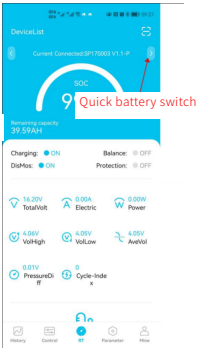
(3) Scan code connect ion : In the upper right corner of the real-time interface , click the scan code button to connect directly by scanning the barcode of the Bluetooth module

(4) Search for Bluetooth : On the device list page , when there are multiple batteries , you can quickly find the battery that needs to be connected by searching for the Bluetooth name

(5) Disconnect Bluetooth : On the device list page , click Disconnect .



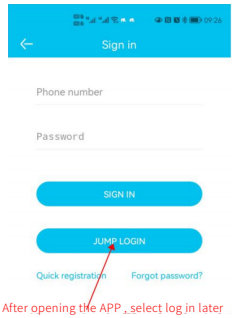
APP physical display Figure



APP physical display Figure

Guest mode

when the mobile phone signal in the user s environment is poor or the user needs to skip the account registration , they can choose to use the guest mode . Note that this mode cannot obtain the setting permsbecause theregin account . To obtain the setting permission , you must log in to the account . Operation steps : Open the APP , enter the login interface , choose to log in later , and the APP will directly



APP physical display Figure 3

Real-time interface

1. Capacity information: In static mode, only the percentage of battery SOC and remaining capacity are displayed: estimated battery level displayed during charging: estimated battery level displayed during discharge.

2. Switch and protection status: The current status display of the charging and discharging switch: When the switch is open, it is open, otherwise it is closed: The balance status display shows that the balance is open, it is open, and vice versa: The protection status display shows that when the protection board triggers the protection threshold or manual control when charging and discharging, the protection status displays the corresponding protection status. When the protection status is not triggered, the status display is closed

3. Battery information: total voltage, current, power, maximum voltage of a single battery, minimum voltage of a single battery, average voltage, voltage difference, number of cycles, read or calculated through the protection board, and the above data is displayed on the APP

4. Temperature and humidity: The MOS temperature is the ambient temperature of the protective board, while the other temperatures are the external NIC temperature, and the temperature of the battery is detected. Humidity is the ambient humidity, which needs to be measured with a humidity probe to display.

5. Single string voltage: Single string battery voltage, information collected by the detection board, high voltage displayed in green, middle value displayed as the highest voltage

Control interface

1. Charging and discharging switch: Through the APP, you can directly control the opening or closing of the charging and discharging switch, and control the charging and discharging of the battery.
2. Automatic balancing: Force the balancing function to be enabled. After successful switching, the real-time interface balance status will be displayed.
3. Clear alarm: Clear alarm data
4. Reset capacity: Reassess the remaining capacity based on the current voltage value.

Guest mode

primary information	secondary information	Example
	bluetooth name	Xiaoxiangbms , modifiable
Basic Information	Serial number	Can be modified according to customer needs
	Bar-code	Can be modified according to customer needs
	battery model	Can be modified according to customer needs
	battery manufacturer	DG , IBD , can be modified
	BMS version number	30 . read the BMS version . cannot be modified
	BMS model	SP17S003 , read cannot be modified
	Production Date	2022-1-18 , read unmodifiable
	BMS address	24 digits , read and cannot be modified
	Rated charging current	20.0A . read cannot be modified
	Rated discharge current	19.0A . read unmodifiable
	Rated shop power	492W . read unmodifiable
De fault setting	Nominal capacity	10000mAH , can be modified
	Cycle capacity	8000mAH , can be modified

My interface

Interface introduction

primary information	secondary information	Example
Complete material	Phone number	Phone number
	Mail	eman address
Device bound	Bluetooth list	Unbind the device
Lithium battery notice	Web links	Web links
instructions for using BMS	Web links	Web links
About Us	Company Profile	company profiles
	The way of buying	Albaba . Taobao service hotline
	Contact us	Official website link service hotlinemanufacturer address
Logout	Log out of current account	quit

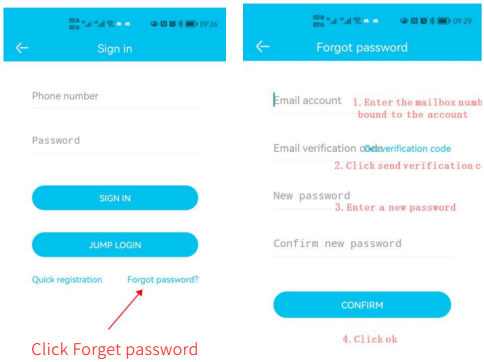
Bind / Unbind Device

When you forget your login password , You can reset a new password through your email . The stepsare as follows :

1 . Open the login interface , find the forgotten password , click it , and the reset password interface will pop up ;

2 . Enter the corresponding binding email and click Send Verification Code . Generally , you will receive the verification code within 60S , pay attention to open the mailbox to check

3 . Enter the verification code , set a new password , and finally click OK



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. lf 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.

hi @ gokwh.com

+86-18566184618

gokwh.com

Puxin Road, Tangxia Town,Dongguan, Guangdong, China