

SK24V150PH-MARINE

Rechargeable Lithium Battery

Installation and Operation manual



Version: V-1.0

If you have any Suggestions or require assistance, please send us an email: sales@sokbattery.com. Please note, if no reply in 24 hours, it maybe went to your spam folder or please resend again. Or give us a call at: 725 765 2879 Monday-Friday 9AM - 4PM (PST).

About This Document

Purpose

This document describes the SK24V150PH-MARINE-Marine Rechargeable Lithium battery in terms of its features, performance, working principles, appearance as well as instructions for installation and operation.

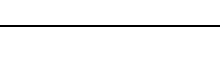
Intended Audience

This document is intended for:

- Sales engineers
- Technical support engineers
- System engineers
- Hardware installation engineers
- Commissioning engineers
- Maintenance engineers
- Knowledge of how an energy storage system (including PV/ lithium iron phosphate batteries /hybrid inverter, MPPT, Meter etc.) works and is operated.

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

REVISION LOG

Version Num.	Date	Purpose of Revision
V-1.0	2025/5/10	This issue is the first official release.
V-1.1	2026/09/26	Added Marine information

Contents

1 Information	1
1.1 Applicability.....	1
1.2 Safety	1
1.3 Symbol Description.....	3
1.4 Abbreviation Description	4
2 Product introduction.....	4
2.1 Features Description	4
2.2 Specifications	5
2.3 Dimensions.....	7
2.4 Controls and indicators	8
2.4.1 Link IN / Link OUT	9
2.4.2 Battery LED indicators	10
3 Installation.....	11
3.1 Installation environment.....	11
3.2 Installation Inspection	12
3.2.1 Unpacking	12
3.2.2 Checking components	12
3.3 Wiring	15
3.3.1 Parallel installation (Communication with GX Devices)	16
3.3.2 Series installation (Communication with GX Devices)	17
3.4 Connecting with inverter.....	17
3.5 Commissioning	18
3.5.1 Power on	18
3.5.2 Switch off battery	19
3.6 Mobile device APP	19
3.6.1 Adding batteries to the app.....	19
3.6.2 Battery information display.....	21
4 Troubleshooting	25
5 Disposal of battery	26

1 Information

1.1 Applicability

This document applies to the: SK24V150PH-MARINE Rechargeable Lithium battery. When transporting, storing, installing, operating and maintaining the equipment, please read this manual first and strictly follow all safety precautions marked on the equipment and in the manual.

1.2 Safety

Statement

Before installing, operating, and maintaining the equipment, read this document and observe all the safety instructions on the equipment and in this document.

The "NOTICE", "WARNING", and "DANGER" statements in this document do not cover all the safety instructions. They are only supplements to the safety instructions. SOK will not be liable for any consequence caused by the violation of general safety requirements or design, production, and usage safety standards.

Ensure that the equipment is used in environments that meet the listed specifications. Otherwise, the equipment may become faulty, and the resulting equipment malfunction, component damage, personal injuries, or property damage are not covered under the warranty.

Follow local laws and regulations when installing, operating, or maintaining the equipment. The safety instructions in this document are only supplements to local laws and regulations.

SOK will not be liable for any consequences of the following circumstances:

- Damage caused during shipping or mishandling of the Product.
- Damage due to improper installation: loose terminal connections, under-sized cabling, incorrect series (cannot be used in series) or parallel connections, reverse polarity connections.
- Environmental damage such as inappropriate storage conditions as defined by the Manufacturer, exposure to extreme hot or cold temperatures, fire or freezing, or water damage,

impact, or collision.

- Damage due to improper operation or maintenance such as under- or over-charging the Product, cold temperature charging, lack of cleaning resulting in corroded terminal connections or build-up of dirt, debris, organic matter, fossil fuels, or chemicals on the Product casing.
- Product that has been opened, modified, Tampered or removed of manufacture date codes.
- Product that was used for applications other than which it was designed and intended for by the Manufacturer.

Emergency treatment measure

If a battery leaks, protect the skin or eyes from the leaking liquid. If the skin or eyes come in contact with the leaking liquid, wash it immediately with clean water and go to the hospital for medical treatment.

- **Gas Inhalation:** Evacuate the people in the contaminated area and immediately seek medical attention.
- **Eye Contact:** Flush your eye with clean and flowing water for 15 min, and immediately seek medical attention.
- **Skin Contact:** Thoroughly rinse the exposed area with soap and water to be sure no chemical or soap is left on them, and immediately seek medical attention.
- **Ingestion:** Induce vomiting, and immediately seek medical attention.

Support

If you have technical questions about the Product, please contact the place of purchase or SOK Battery directly at techsupport@sales@sokbattery.co.nz.

1.3 Symbol Description

Symbols on products label

Label	Definition
	Do not expose the battery to direct sunlight, rain and snow
	Maintain upward storage/transportation
	Handle with care
	A maximum of 5 layers are stacked
	Pay attention to the positive and negative battery terminals
	Grounding point
UN38.3	The certificate label for UN38.3
	Beware of electrical shock

1.4 Abbreviation Description

Abbreviation	Definition
Battery	Single SK24V150PH-MARINE rechargeable lithium iron phosphate battery pack including cells, BMS and enclosure etc.
BMS	Full name: Battery Management System Unit to ensure lithium cells' safety and display information or control the battery work mode.
SOC	Full name: State of Charge SOC is defined as the ratio of the remaining capacity to the battery capacity.
SOH	Full name: State of Health The ratio of the current battery capacity to the new battery capacity reflects the remaining life and performance of the battery.

2 Product introduction

2.1 Features Description

The SK24V150PH-MARINE battery is designed for PV/Marine systems. It is composed of 8 150AH prismatic LiFePO4 battery cells connected in series. It has an advanced and reliable BMS management system and user-friendly Bluetooth user interface. Has the following features:

- Gas Aerosol Fireproof: Equipped with a gas aerosol fire suppression system for enhanced safety, quickly containing potential fire hazards.
- CAN Communication with Victron GX products: Supports CAN protocol, ensuring seamless communication and integration with Victron inverters, and Cerbo communication center (GX devices).
- Self-Heating: Built-in self-heating functionality allows for reliable operation in low-temperat

ure environment, perfect for installations in colder climates.

- IP67 Waterproof & Dustproof: Designed with IP67 protection, offering excellent water and dust resistance for extended durability in outdoor and harsh environments.
- 4000+ Cycle Life: Delivers a long lifespan with over 8000 charge cycles, ensuring sustained performance over time.
- Bluetooth for iOS and Android Apps: Allows real-time monitoring and control via Bluetooth on both iOS and Android devices.
- ON/OFF Switch: Features an easy-to-use switch for quick power control.
- 800A/10s Peak Discharge Current: Supports a peak discharge of 800A for 10 seconds.
- Supports the NMEA2000 protocol.
- Supports series or parallel switching and communicates with Victron inverters.

2.2 Specifications

Items	SK24V150PH-MARINE
Nominal voltage	25.6V
Nominal capacity	150Ah
Nominal energy	3.84kWh
Max. voltage range	20~30V
Voltage deviation	≤0.5%
Charging voltage	28V (The Charging MOS may go OFF)
Float charging voltage	27.6V (The DVCC of the inverter can be set to the voltage)
Standard charge current	≤150A (The DVCC of the inverter can be set to the current)
Max. charge current	200A
Max. discharge current	200A
Short-circuit current	2000A

Current deviation	$\leq 2\% @ I > 2A$	
Max. charge Temperature	23~149°F/-5~65°C (Turn on heating when the temperature drops below -5°C.)	
Max. discharge Temperature	-4~158°F/-20~70°C	
Storage Environment	Recommend environment	
Storage Environment Communication	≤ 3 months	
Storage Environment Communication Max series/parallel number	≤ 6 months	
Storage Environment Communication Max series/parallel number Dimension	RS485 /CAN	59 ~ 95°F/15~35°C 5~75%RH
	15P or 2S	14 ~ 113°F/-10 ~ 45°C 5~85%RH
	17.1*9.4*10.9 inch	23 ~ 104°F/-5 ~ 40°C 5~80%RH
Weight	Approx 30 KG	

WARNING

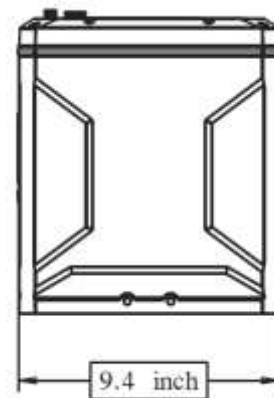
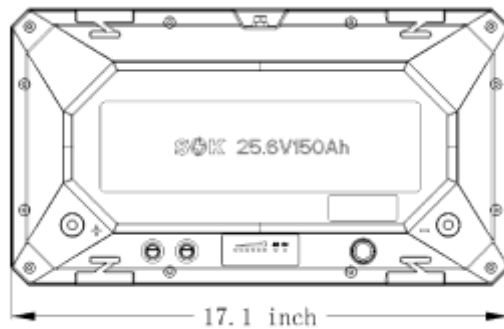
There is a risk of safe if use outside the Max current, Max voltage, Max temperature range.

Do not immerse in water.

CAUTION

The device supports a maximum of 2 batteries in series or 15 batteries in parallel. Batteries cannot be connected in series or parallel at the same time.

2.3 Dimensions



Dimension (L x W x H):

17.1*9.4*10.9 inch

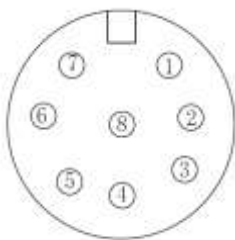
435*240*276 mm

2.4 Controls and indicators



No.	Items	Usage description
A	Cooling aluminum sheet	For BMS heat dissipation
B	Negative terminal	Used to connect the inverter/charger
C	Mounting hole	For holding batteries
D	Power switch	Used to Power on/off battery
E	SOC light	Used to show battery real-time SOC
F	Link OUT	For internal and external communication
G	Link IN	For internal and external communication
H	Positive terminal	Used to connect the inverter/charger
I	Lifting rope	For handling batteries

2.4.1 Link IN / Link OUT



Port	Pin No.	Definition	Remarks
Link IN	1	RS485-B	For internal communication
	2	RS485-A	
	3	RS485-B1	For internal communication or debug
	4	RS485-A1	
	5	CAN-L	Connected inverter GX device or NMEA2000 network
	6	CAN-H	
	7	/	/
	8	/	/
Link OUT	1	RS485-B	For internal communication
	2	RS485-A	
	3	Buzzer+	For external buzzer control
	4	Buzzer-	
	5	CAN-L	For internal communication
	6	CAN-H	
	7	Relay +	For external buzzer control
	8	Relay -	



When multiple batteries are used, the Link-OUT of the first battery must be connected to the Link-IN of the next battery.

2.4.2 Battery LED indicators

Mode	Normal/Alarm/Protection	RUN	ALM	LED indicator						description
										
Shut down	Dormancy	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ALL OFF
Standby	Normal	FLASH1	OFF	According to battery state of charge						Standby
	Warning	FLASH1	FLASH3							Low voltage
Charge	Normal	ON	OFF	According to battery state of charge (highest SOC LED: FLASH2)						All alarm except the over charge
	Warning	ON	FLASH3							
	over charge	ON	OFF	ON	ON	ON	ON	ON	ON	
	Other protection	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging
Discharge	Normal	FLASH3	OFF	According to battery state of discharge						
	Warning	FLASH3	FLASH3							
	over discharge	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharging
	Other protection	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharging
Internal malfunction		OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging/discharging

FLASH Type	ON	OFF
FLASH1	0.25S	3.75S
FLASH2	0.5S	0.5S
FLASH3	0.5S	1.5S

3 Installation

Please strictly follow the local safety regulations along with product technical specifications.
and installation requirements.

3.1 Installation environment

The operating environment shall meet the following requirements:

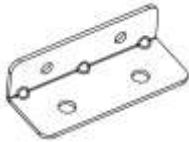
Type	Description
Temperature	-20°C-60°C(maximum operating range)
Humidity	5%RH~90%RH
Altitude	0~4000m (In the 3000m to 4000m environment, derating is required)
Safety requirement	• Do not expose the battery to direct sunlight, rain and snow. • Do not place the battery in reach of children or pets. • Do not place the battery near heat source and flammable material. • Do not place the battery in a closed place where ventilation is not available. • Do not drop, deform, impact, cut, drill or modify the battery enclosure. • Do not store anything on top of the battery. • Do not disassemble the battery without Manufacturer's permission. • If the battery does not function, contact your dealer or SOK Support.

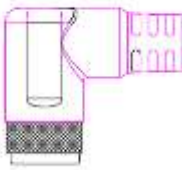
3.2 Installation Inspection

3.2.1 Unpacking

- Step 1. Check if the packing boxes are intact. If the packing case is damaged or wet, note the damage prior to accepting delivery and notify your dealer.
- Step 2. Open the box.
- Step 3. Check the number of parts on the packing list. If the quantity is different from that on the packing list, please notify your dealer.

3.2.2 Checking components

Type	Description	Quantity
Battery		1PCS
Mounting fittings	Used to secure the left and right sides of the battery 	6PCS
Screw	M6 Screw (Use with mounting fittings)	24PCS
Line of Parallel	Battery to battery communication cable(750mm)  Note: The wire harness IN interface must be connected to the battery IN interface. The wire harness OUT interface must be connected to the battery OUT interface.	1PCS

GX devices to Battery BMS communication cable	Battery to inverter(Victron) communication cable(2000mm)				1PCS
					
					
	Pin 1	/	/	Pin 1	
	Pin 2	/	CANOH	Pin 2	
	Pin 3	/	CANOL	Pin 3	
	Pin 4	RS485 A1	RS485 A1	Pin 4	
	Pin 5	RS485 B1	RS485 B1	Pin 5	
	Pin 6	/		Pin 6	
	Pin 7	CANOH		Pin 7	
Pin 8	CANOL	/	Pin 8		
Communication resistance	 It needs to be connected to the OUT terminal of the battery at the farthest end of the inverter in the system.				1PCS
Buzzer and Alarm cable	This cable is used for alerts and relay. Relay output is energised when the battery is on. Buzzer output is energised during an event, such as trigger of low cell volt pre-alarm 				
Warranty Card	/				1PCS



Specification	/	1PCS
Factory quality assurance test report	/	1PCS



Please check whether the accessories are complete, if there is any problem, please contact your dealer.

3.2.3 Installation in marine vessels

Location & mounting - Install in a location within the ambient temperature range specified is not exceeded for this battery

Separation from other chemistries - Don't install this battery in the same cabinet, container, or in close proximity to lead-acid, AGM, or alkaline batteries.

Fuel system clearance - Keep the battery clear of fuel tanks, fuel filters, or metallic fuel system components - not directly above or below them. If installed within 300 mm, any nearby metallic fuel component must be electrically isolated.

Securing - Secure the battery against movement and tilt during normal use. On sailing vessels, mounting must hold the battery in place even in a full capsized.

BMS communication - Before wiring in, confirm the battery's internal BMS has the comms ports needed to talk to your inverter/charger and any monitoring gear (e.g. Victron VE.Bus BMS, CAN-bus). A SmartShunt alone monitoring voltage isn't a substitute for proper BMS-to-charger communication

Alarms - Make sure any BMS warning/alarm output is wired through to somewhere the skipper will actually see or hear it underway, not just buried in an app.

Cable entries & terminals - Terminal covers fitted, cable entries sealed, and torque connections to spec to avoid resistive heating at the terminal.

3.3 Wiring

In systems where one or more batteries are connected in series or parallel, add a FUSE at the positive electrode to enhance electrical protection for the entire system. Fuse rating: number of batteries connected in series $\times$ 200 A.

Secure each battery to prevent lateral or vertical movement if installed in a vehicle or vessel. It is recommended to secure the battery with the provided brackets into a solid material using 4 screws, each able to support at least 30 kg (66 lb.) per fastener withdrawal force. Some severe conditions may require a more robust installation.

3.3.1 Parallel installation (Communication with GX Devices)

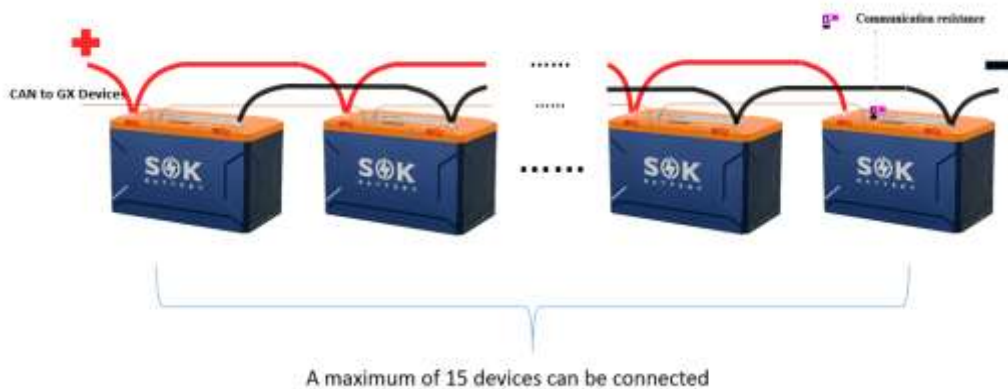
A: Connect 2 batteries (24V 300AH)



B: Connect 3 batteries (24V 450AH)



C: Connect 4 or more batteries (24V 150 * N (N≤15) AH)



3.3.2 Series installation (Communication with GX Devices)

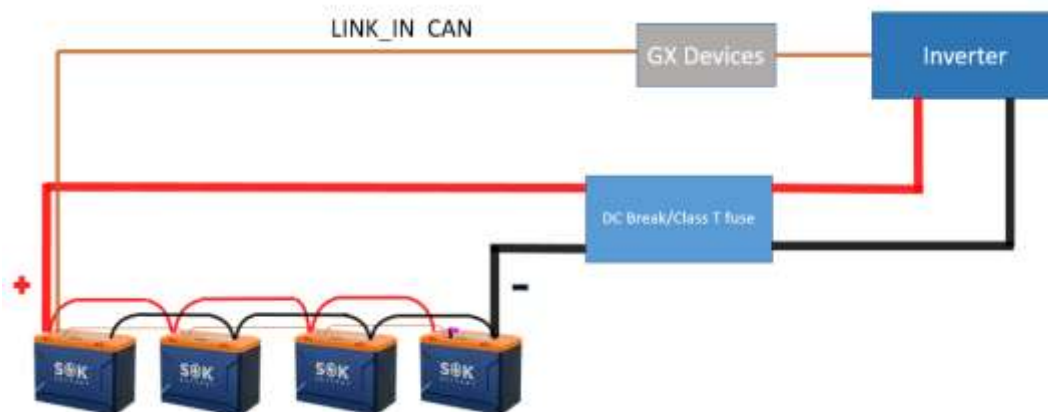
A: Connect 2 batteries (48V 150AH) Max 2



WARNING

Only the above 1 series mode are supported (The number of batteries in series cannot exceed 2). All other operations are illegal and have serious risks (It cannot be used in series and parallel).

3.4 Connecting with inverter





This connection in this diagram is only for illustration; please follow the Manual suggestions of related devices and operate in accordance with locally applicable connection requirements, standards, and directives.

Due to the high discharge current potential of lithium batteries, a fuse with an Ampere Interrupting Capacity of 2000 Amps or higher is recommended within 18 inches of the positive battery terminal. Refer to applicable electrical codes or standards.

- The maximum communication cable length is required to be less than 15m between inverter/charge and battery.
- The maximum power cable length is suggested to be less than 10m between inverter/charge and battery (Screw fixing torque value range 9-11 N.M).
- When multiple batteries are wired in parallel, use a bus bar to connect the battery to the inverter.
- Connecting Master battery Link IN port with inverter CAN communication port communication cable.
- Connecting battery OUT (+) with inverter battery IN (+), battery OUT (-) with inverter battery IN (-), choose the corresponding power cable pair and wiring them correctly.
- Confirm inverter AC input and PV input is disconnected before wiring connection, and the DC/ signal switch of inverter/charger is in off status.
- The maximum permissible current of each power cable and terminal is 150A.
- Please use corresponding number of power cable pairs according to the field configuration and local connection requirements, standards, and directives.

3.5 Commissioning

3.5.1 Power on

Step 1: Make sure the harness is connected correctly.

Step 2: Hold down the switch button of the battery for 3s to start the battery.

Step 3: Then turn on the inverter/charger isolator and other charging sources.

Step 4: Program the inverter/charger and any other charging sources as listed in the battery specifications. On inverter/charger or any other control devices, if everything is correct, you

are ready to use.

3.5.2 Switch off battery

Step 1: Turn off the inverter.

Step 2: Hold down the switch button on the battery for 3s to turn off the battery.

3.6 Mobile device APP

The user can review relevant battery data with the dedicated Bluetooth APP. The APP can be downloaded in the following two ways.

Method 1: Download directly by scanning the QR code.



iOS system

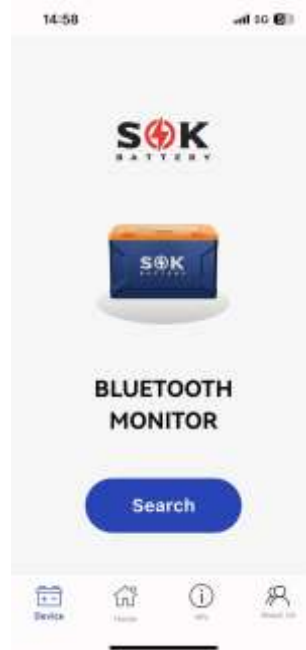


Android system

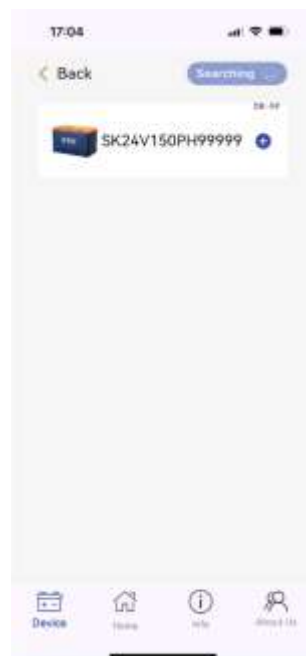
Method 2: Apple users can search for "**SOK Battery**" directly in the App Store. Android users search for "**SOK Battery**" directly in the Google Play (If the search is incorrect, you can search for "**APP: SOK Battery**").

3.6.1 Adding batteries to the app

Step 1: Open the installed APP, and the page is displayed as follows:



Step 2: Click the "Search" button on the main page. If the device is not detected, please check whether the Bluetooth of the mobile phone is turned on or whether the battery is power-on state, and it is within the Bluetooth search range. After the battery is found, the following page is displayed:



Step 3: Click the "+" button to the right of the battery information. The battery is connected successfully.

3.6.2 Battery information display

After the battery is successfully connected, the home page is displayed. The home page displays the following information: Battery voltage information, Battery current information (the negative number is discharge current and the positive number is charge current), Battery SOC information, Battery status information (including normal, heating, Balance , Discharge complete , Charge complete and fault status). The page is displayed as follows:



After clicking the "Enter" button in the home page, you can view more detailed battery data, including detailed cell voltage, temperature information and MOS state. The page is displayed as follows:



The "info" page displays **Status Information**、**Parameter information** and **Parameters Settings**.



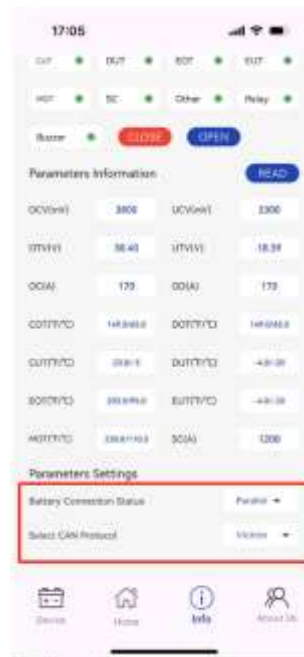
Status Information shows the alarm information of the battery, and the corresponding contents are as follows:

Abbreviation	Full name		Abbreviation	Full name
OCV	Over cell voltage		DOT	Discharging over temperature
UCV	Under cell voltage		CUT	Charging under temperature
OTV	Over total voltage		DUT	Discharging under temperature
UTV	Under total voltage		EOT	Environment over temperature
OC	Over Charge current		EUT	Environment under temperature
OD	Over Charge current		MOT	MOS over temperature
COT	Charging over temperature		SC	Short-circuit
Relay	Relay Status(Reserve)		Buzzer	Buzzer Status (Reserve)



The CLOSE and OPEN switches of Buzzer have no application in this product and are reserved functions.

Parameter information displays the protection item parameters of the BMS after reading.



In the **Parameter settings** module, two modes are supported for selection and setting. They are respectively the series and parallel settings of the battery and the selection settings of the CAN protocol.

The following are the precautions for using these **Battery Connection Status** functions:

- 1: When multiple batteries are selected in series and parallel, each battery must be in the same state. (They are all in series or all in parallel)
- 2: When the series and parallel connection selection is incorrect, the main unit battery (the battery connected to the inverter serves as the main unit) will always light up a red light. And when communicating with the inverter for use, send a command to prohibit charging.
- 3: When the Settings are incorrect and the host lights up a red light. Check all batteries and ensure they are set to the same connection state (either in series or in parallel). Click on the series and parallel settings of the host again and reset it to the correct state. The malfunction will disappear.

The "About Us" page contains the contact information of the manufacturer and the version information of the product, you can contact us if you have any questions.



4 Troubleshooting

Issues	Solution
Unable to start	1: Press and hold the Start button and release it after 5 seconds. 2: Use a charger or inverter that provides 24~28V voltage.
Unable to charge	1: Check whether the battery has a charging fault, which can be observed through the Bluetooth APP. After the charging fault is eliminated, try charging again. 2: Check that the power lines and communication lines of the battery and the inverter/charger are correctly connected. 3: Check whether the inverter or charger is faulty.
Unable to discharge	1: Check whether the battery has a discharging fault, which can be observed through the Bluetooth APP. After the discharging fault is eliminated, try discharging again. 2: Check that the power lines and communication lines of the battery and the inverter/charger are correctly connected. 3: Check whether the inverter or charger is faulty.
High/Low temperature	1. Let the battery stand for a period of time and observe whether the temperature returns to normal. 2. Avoid continuous full charging and discharging. 3. Reduce battery power.
High current	1: Use more batteries for parallel use. 2: Set the correct inverter parameters.
Communication fail	1. Check the communication cable type is correct and is contacted well.

	2. Check the inverter protocol related setting is correct. 3. Check both battery and inverter are working properly.
Long time charge	After the SOC is 100%, the battery can be charged for a long time (> 30min). This is normal because the product itself may have a capacity of > 150AH.
The inverter displays an incorrect number of batteries	Check whether the communication cable of the battery is connected properly, and the OUT of the previous battery is connected to the IN of the next battery.
When multiple batteries are in use, the main battery lights up red	Check the series and parallel Settings through the Bluetooth APP. After all batteries are set to the same state, make a confirmatory setting for the main unit battery and then restore it to normal.
The GX device is unable to display battery information.	1: Check whether the communication wiring is properly connected. 2: The Communication Resistance module needs to be connected to the battery at the farthest end of the system from the GX device.
After the above actions, the battery still cannot be used. Please contact the supplier	

5 Disposal of battery

Disposal of battery must comply with the local applicable disposal regulations for electronic waste and used batteries, please review your local battery recycling or management regulations.