Dongguan Hinen New Energy Technology Co., Ltd
Add: No.24 Dongkang Road, Dalingshan Town,
Dongguan City, Guangdong, China
Tel: +86 (769) 89920666 ext 8318
Email: service@hinen.com
Website: https://www.hinen.com

Hinen Australia Pty. Ltd.
Add: Suite 503,Level 5, Tenancy 3,107 Mount Street, North Sydney
Email: service@hinen.com.au
Tel: +61 2 7258 1272
Website: https://au.hinen.com

Europe HL Hinen B.V.
Add: John M. Keynesplein 1, 1066EP Amsterdam
Email: service@hinen.com
Tel: +86 (769) 89920666 ext 8318
Website: https://eu.hinen.com

Hinen Energy Eastern Europe
Add: Wąska 95, 05-806 Sokołów Poland
Email: biuro@hinen.com
Tel: +48 606 807 712
Website: https://eu.hinen.com

Hinen South Africa (Pty) Ltd
Add: Ground floor, Block B, 100 West Street,
Sandton.Johannesburg 2196, South Africa
Email: SAfrica@hinen.com
Tel: +27 10 449 2306
Website: https://za.hinen.com

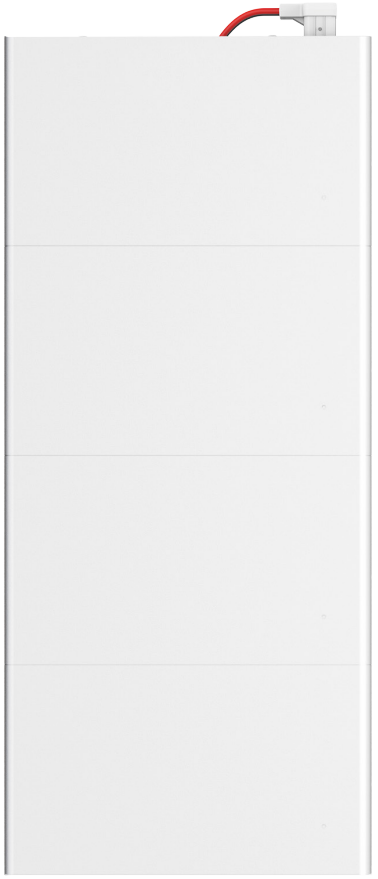
Hinen Technology East Africa LIMITED
Add: No. 6, Kirichwa Lane Court, next to
GreenhouseMall, Ngong Road, Nairobi, Kenya
Email: EAfrica@hinen.com
Tel: +254789688999
Website: https://za.hinen.com

Hinen West Africa LIMITED
Add: 30A Opebi Rd, IKEJA, Ikeja 101233, Lagos, Nigeria
Email: WAfrica@hinen.com
Tel: +86 (769) 89920666 ext 8318
Website: https://za.hinen.com

RECHARGEABLE LI-ION BATTERY SYSTEM

(Low-voltage)

User Manual



About this Document

This document describes the installation, electrical connections, operation, commissioning, maintenance, and troubleshooting of the BP5000 and the BP5000 Battery System (hereafter referred to as the BP5000). Before installing and operating the BP5000, make sure you are familiar with the product features, functions and safety precautions provided in this document.

Symbol	Description
 **WARNING**	Indicates a potentially hazardous situation which could result in serious injury or death if not avoided.

Foreword

- All information in this document is the property of the battery system manufacturer. Any parts of this document shall not be copied or reproduced in any commercial forms. Internal use allowed.
- The manufacturer makes no warranties or guarantees, express or implied, with respect to any device and/or software other than this product that may be described in this document, including, but not limited to, any implied warranties of merchantability, fitness for a particular purpose, accuracy or completeness of responses.
- In no event shall the manufacturer or its distributors or resellers be liable for indirect, incidental or consequential damages arising from non-compliance with the guidelines in this document.
- Specifications in this document are subject to change without notice. Every effort has been made to make this document complete, accurate and up to date. However, the manufacturer may require some improvements under certain circumstances without prior notice. The manufacturer shall not be liable for any damage caused by this document, including but not limited to omissions, typographical errors, arithmetic errors or errors listed in the document.

Disclaimer

The manufacturer shall not be liable for direct or indirect battery system damage or property loss caused under the following circumstances.

- Modify or replace parts without official authorization from the manufacturer.
- Change or clear the serial number by non-manufacturer technical professionals.
- System, assembled with other devices, design and installation fail to meet standards, safety regulations and other relevant requirements.
- Battery system damage caused by failure to comply with the user manual.
- Battery system damage caused by improper use or misuse.
- Battery system damage caused by insufficient ventilation.
- The maintenance procedures do not comply with acceptable standards.
- Battery system damage caused by force majeure, such as earthquake, storm, lightning, overvoltage, fire, etc.
- Battery system damage caused by any external factors.

Table of Contents

01 Safety

Safety information contained in this section must be observed at all times when working on or with batteries.For safety, installers are responsible to familiarize themselves with this manual and all warnings before installation.

1.1 Symbol Definition

For better use of this manual, the following symbols are used to highlight important information, so please read the symbols and descriptions carefully.

Danger

Indicates a situation with a high potential for danger which, if not avoided, will result in death or serious injury.

Warning

Indicates a situation of moderate potential hazard that could result in death or serious injury if not avoided.

Caution

Indicates a situation with a low potential hazard that, if not avoided, could result in moderate or minor injury to personnel.

Note

Highlights and additions to the content may also provide tips or tricks for optimal use of the product that can help you solve a problem or save your time.

1.2 Safety Precautions

1.2.1 Environment Requirements

- Do not expose the battery to temperature above 50°Cor heat sources.
- Do not install or use the battery in wet locations, moisture, corrosive gases or liquids, such as bathroom.
- Do not expose the battery to direct sunlight for extended periods of time.
- Place battery in safe place away from children and animals.
- Battery power terminals shall not touch conductive objects such as wires.
- Do not dispose the batteries in fire, which may cause an explosion.
- The PACK shall not come in contact with liquids.
- The PACK can only be installed indoors. Regarding indoor installation, please do not install it in the bedroom, living room, kitchen, etc.

1.2.2 Operation Precautions

- Do not touch the PACK with wet hands.
- Do not disassemble the PACK without permission.
- Do not crush, drop or puncture the PACK and battery.
- Dispose the batteries according to local safety regulations.
- Store and recharge battery in accordance with this manual.
- Ensure the connection of ground wire reliable.
- Remove all metal objects such as watches and rings that could cause a short-circuit before installation, replacement and maintenance.
- The Pack shall be repaired, replaced or maintained by skilled personnel that has been recognized.
- When storing or handling batteries, do not stack batteries without package.
- Do not broke the battery, the released electrolyte may be toxic and is harmful to skin and eyes.
- Packaged batteries should not be stacked more than specified number stipulated on the packing case.
- Do not use damaged, failed or deformed batteries, which may lead to high temperature or even dangerous accidents. Continued operation of damaged battery may result in electrical shock, fire or even worse.

System lock:

When the battery exceeds the limit (voltage, current and temperature) protection during use, it will be locked and cannot be recovered by itself. It needs to contact manutacturer for reset.

1.3 Warning Labels

Symbol Explanation

Caution!
Failure to observe any warnings contained in this manual may result in injury.

Danger-high voltage and electric shock!

Danger-hot surface!

The components of the product can be recycled.

Lithium ion battery can be recycled.

This side up! This package must always be transported, handled and stored in such a way that the arrows always point upwards.

No more than six (6) identical packages being stacked on each other.

Products shall not be disposed as household waste.

Fragile - The package/product should be handled with care and never be tipped over or slung.

Refer to the operation structions.

Keep dry! The package/product must be protected from excessive humidity and must be stored under cover.

CE mark.

UK certification.

Explosive gas.

May leak corrosive electrolyte.

Heavy enough to cause severe injury.

Keep the Pack away from children.

Make sure the battery polarity well connected.

Do not expose to fire.

Personal protective equipment is required during installation, operation and maintenance.

Protective earth wire connection point.

1.4 Emergency Responses

Manufacturer takes foreseeable risk scenarios into consideration and is designed to reduce hazards and dangers. However, if the following situation occurs, do as below:

Situation Occurs	Description and Action Need
Leakage	Avoid touch of leaking liquid or gas. If you touch the leaking electrolyte, do as below immediately. **Inhalation:** Evacuate the contaminated area, and seek medical help. **Eye contact:** Rinse eyes with flowing water for 15 minutes, and seek medical help. **Skin contact:** Rinse contacted area thoroughly with soap and water, and seek medical help. **Ingestion:** Emetic, and seek medical help.
Fire	It's hard for PACK systems to ignite spontaneously. If the PACK has caught a fire, do not try to extinguish the fire but evacuate people immediately.
Wet Packs	Do not touch the PACK if it is flooded or submerged. Contact an after-sales service centre or distributor immediately for technical assistance.
Damaged PACKS	Damaged PACKs are dangerous and must be handled with extreme care. They are no longer suitable for use and may pose a danger to people. If the PACK is damaged, stop using it and contact an after-sales service centre or distributor.

02 Product Overview

2.1 Intended Use

The manual involves introduction of battery with IP54 rating and IP65 rating, which is designed to satisfy indoor and outdoor installation.

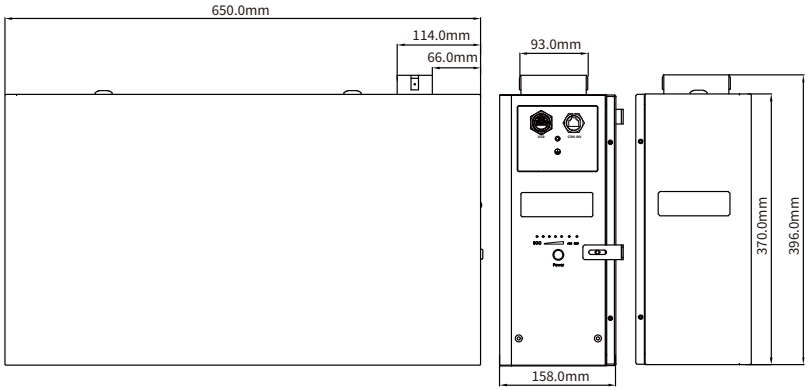
Each BP5000 is a 51.2V battery module consisting of 16 100Ah cells in serial connections (1P16S). Up to 4 batteries can be connected in parallel to a single PACK to expand the capacity and power of the energy storage system. PACKs of the same type of battery and the same software version can be used in parallel. Specifically, when there is no solar energy at night, the BP5000 Battery System supplies power to the loads through the inverter; when solar energy is available during the day, the solar energy is prioritised to supply power to the loads and the remaining solar energy is stored in the BP5000 Battery System.

2.2 Appearance

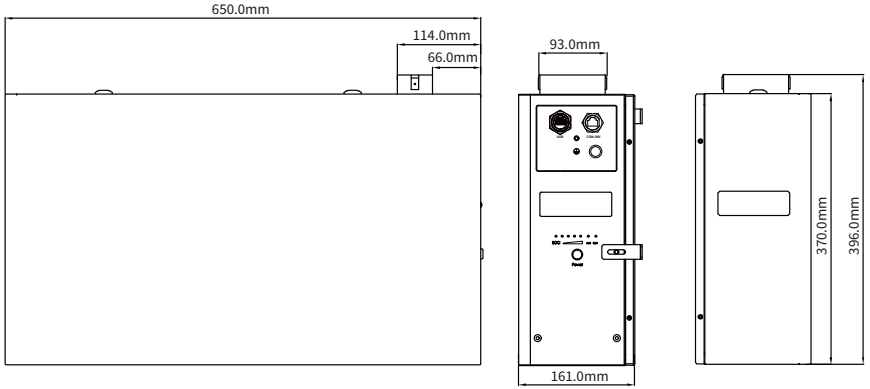
The BP5000 consists of a battery module (including cells and mechanical components), a battery management system (BMS), connectors, and communication terminals. The decompression valve is exclusive to IP65-rated battery. The product's appearance is shown below.

2.2.1 Dimension

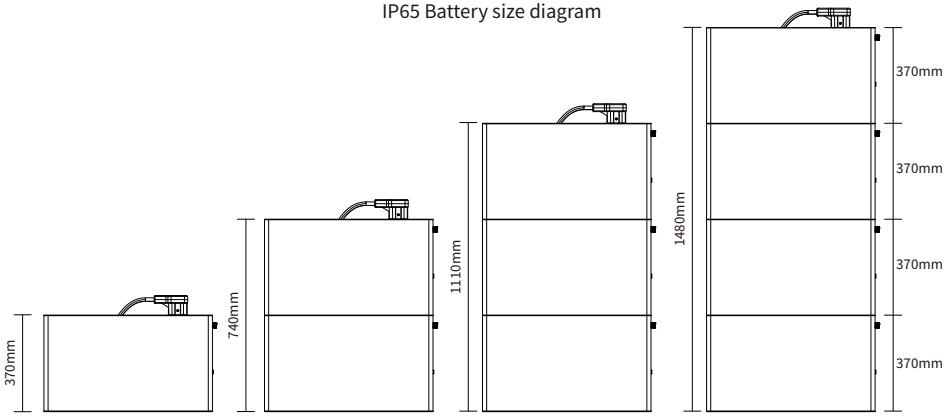
The BP5000 is available with IP54 and IP65 for indoor and outdoor installation. The decompression valve is exclusive to IP65-rated battery.



IP54 Battery size diagram



IP65 Battery size diagram



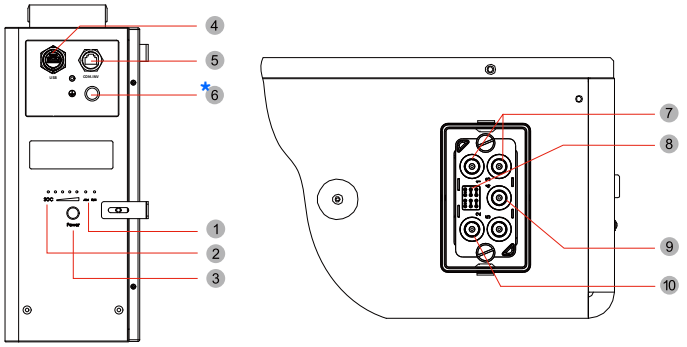
1 module
5.12kWh

2 module
10.24kWh

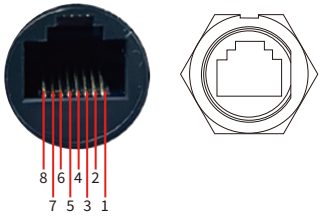
3 module
15.36kWh

4 module
20.48kWh

2.2.2 Part Description



1	Fault light	6	*Decompression valve (only for IP65 rated battery)
2	SOC light	7	Negative terminal
3	Power button	8	Communication between battery packs of single cluster
4	USB interface	9	PE terminal
5	COM.INV for INV CAN communication	10	Positive terminal



COM_INV Interface Definition		COM_INV Interface Definition	
RJ45 Pin No.	Definition Note	RJ45 Pin No.	Definition Note
1	WAKE_UP+	5	INV_CANL
2	WAKE_UP-	6	GND_COM
3	GND_COM	7	INV_RS485A
4	INV_CANH	8	INV_RS485B

2.3 Working Principle and Function

The BP5000 is a high-performance energy storage unit that combines an electrochemical battery, switching button, battery management system (BMS), power and signaling terminals, and mechanical components. It delivers superior charging and discharging efficiency, precise condition monitoring, extended cycle life, and minimal self-discharge losses compared to other battery solutions. The system is scalable, allowing for up to 4 batteries to be stacked in parallel.

The whole battery system communicates to Power Conversion System (Inverter) via CAN.

Monitoring: voltage, current and temperature detection of both single cells and PACK.

Protection and alarms: Provide protection and alarms in the event of over-voltage, under-voltage, over-current, over-heating or under-temperature. See 7.4 for details.

Report: Report all alarms and status data to the inverter.

Power off triggered by fault: Communication with the inverter overtime battery does not shut down and power off, undervoltage protection 10S alarm, 30S shut down and power off.

03 Equipment Inspection and Storage

3.1 Check Before Signing

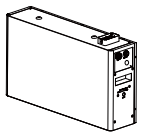
Before signing for the product, please check the following in detail:

1. Check whether the outer packaging is damaged, such as deformation, holes, cracks or other signs that may cause damage to the equipment in the box. If there is any damage, please do not open the packaging and contact your dealer.

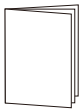
2. Check whether the device model is correct. If there is any discrepancy, please do not open the package and contact your dealer.

3. Check whether the type and quantity of the delivered parts are correct, and whether there is any damage to the appearance. If damaged, please contact your dealer.

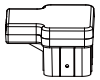
3.2 Packing List



Battery module
x1



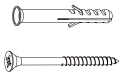
User manual
x1



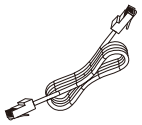
Socket
x1

Chassis Locking
Wall Bracket x2

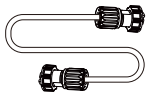
M5 combination screws
x2



Expansion bolt
x2



Communication line
x1



Communication line
x1

3.3 Storage Requirements

1. Place the PACK follow the identification on the packing case during storage.

2. Do not put the PACK upside down or sidelong.

3. The defective PACK needs to be separated from other PACKs.

4. The storage environment requirements are as follows:
   - Install the PACK in a dry and clean place with proper ventilation.
   - The storage temperature for a short week is between -20°C to 50°C.
   - If you store the PACK over a long period of six months, the storage temperature is between-20°C to 40°C, relative humidity: 10%~85%RH.
   - Place the PACK away from corrosive and organic substances (including gas exposure).
   - Free from direct exposure to sunlight and rain.
   - At least two meters away from heat sources (such as a radiator).
   - Free from exposure to intensive infrared radiation.

5. If the PACK has not been used for more than six months, it needs to be charged, The charging procedure is as follows:
   - Identify the PACK that needs charging.
   - Refer to quick installation guidance, complete the installation and wire connection. Ensure PACK in off status during all the steps.
   - Set the power system as "CC≤25A, CV=55.8V" , activate the PACK and start recharging.
   - Charge until the battery is fully charged.
   - Having completed recharge, leave circuit open for five minutes before check voltage. If voltage is not less than 52V, the recharge succe.

3.4 Transportation Requirements

1. The PACK shall not be transported with other inflammable, explosive or toxic substances.

2. Ensure the original Package and label complete and recognizable.

3. Prohibit direct exposure to sunlight, rain, condensing water caused by temperature difference and mechanical damages.

4. There will be a drop in capacity during transportation and storage.

5. Transportation temperature is between-20°C to 45°C, relative humidity: 10%~85%RH.

04 Installation

Note: The diagram shows the IP65-rated battery, but the installation methods and requirements in this manual are applicable to both batteries with IP65 and IP54 ratings.

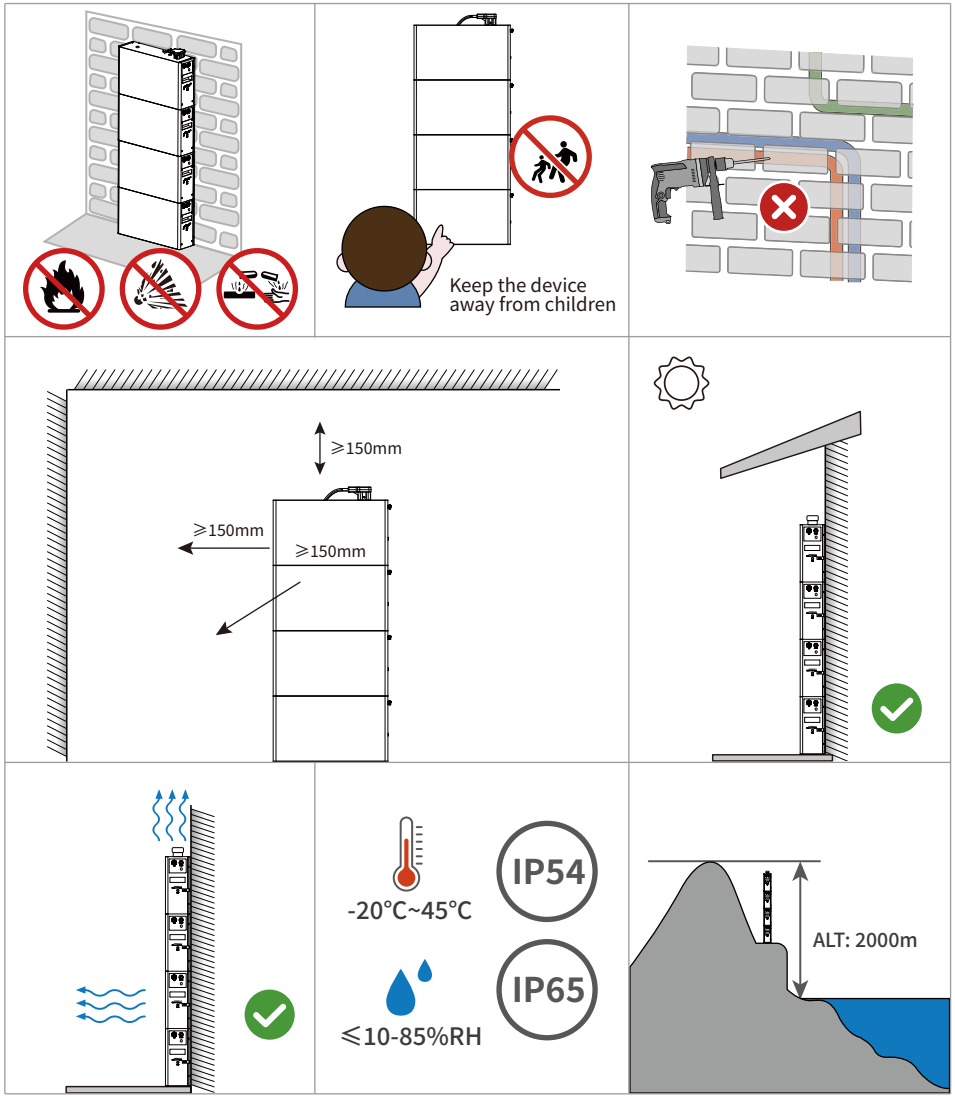
WARNING

- Ensure to read the Guidance before installation in order to understand product information and safety cautions.
- Operators should be well trained technicians and fully understand the whole photovoltaic system, grid network, working principle and national regional standards.
- Installers must use insulating tools and wear safety equipment.
- Device damages caused by failure to comply with storage, transportation, installation and use requirements specified in Guidance are not coved by Warranty.
- The PACK can only be installed indoors. Regarding indoor installation, please do not install it in the bedroom, living room, kitchen, etc.
- Different types of batteries are not recommended to be mixed and used in parallel.
- The battery system cannot be installed, dismantled, and maintained when it has been powered on.

4.1 Installation Requirements

Installation environment requirements

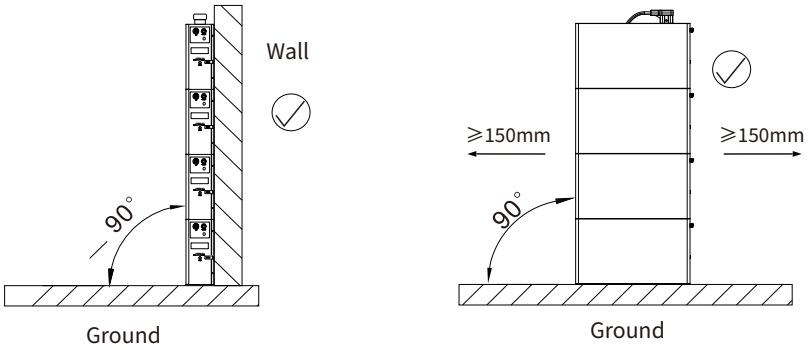
1. The equipment must not be installed in flammable, explosive or corrosive environments.
2. The installation location must be out of the reach of children, and avoid installation in easily accessible locations. High temperatures may exist on the surface when the equipment is in operation, preventing burns.
3. The installation location must avoid water pipes, cables, etc. in the wall to avoid danger when drilling holes.
4. The installation environment needs to be away from the sun, rain, snow, etc. It is recommended to install it in a sheltered installation location. If necessary, an awning can be built.
5. The installation space must meet the ventilation and heat dissipation requirements of the equipment and the operating space requirements. For indoor installation, install one meter away from the vertical plane of windows or building vents that ventilate habitable rooms to ensure air circulation.
6. The equipment protection level meets indoor and outdoor installation, and the temperature and humidity of the installation environment must be within a suitable range.
7. The equipment must be installed at a height that is convenient for operation and maintenance. Make sure that the equipment indicators and all labels are easy to view, and the wiring terminals are easy to operate.
8. The equipment installation altitude is lower than the maximum working altitude of 2000m.
9. Stay away from strong magnetic field environments to avoid electromagnetic interference. If there are radio stations or wireless communication equipment below 30MHz near the installation location, please ensure that the distance between the battery and the wireless electromagnetic interference equipment is greater than 30m.
10. Keep the equipment at least two meters away from heat sources, such as direct sunlight, a fireplace,a thermally uninsulated wall exposed to sunlight,hot water, or a heater.
11. Install the battery system on the ground with sufficient bearing capacity and flatness. If not, increase the bearing capacity and flatness of the ground by laying the foundation, adding bearing plates and so on.



Installation carrier requirements

- The installation carrier must not be made of flammable materials and must have fire-retardant properties.
- Make sure the mounting carrier is sturdy and can bear the weight of the device.
- The battery system needs to be installed close to the wall and an anti-tip bracket should be installed to prevent the battery from tipping over.

4.2 Basic Requirements of Installation



WARNING

Do not turn the PACK upside down, and keep the ground level.

4.3 Handling Equipment Requirement

Warning

1. When carrying out transportation, turnover, installation and other operations, the laws, regulations and relevant standards of the country and region must be met.

2. Before installation, the equipment needs to be transported to the installation site. To avoid personal injury or equipment damage during transportation, please pay attention to the following matters:

- Please assign corresponding personnel according to the weight of the equipment to prevent the equipment from exceeding the weight range that the human body can carry and injuring people.
- Wear safety gloves to avoid injury.
- Please ensure that the device remains balanced during transportation to avoid falling.

4.4 Battery System Installation

Warning

1. When installing the battery system, make sure the installation site is level and secure. Align the batteries' connectors when stacking. The wall-lock bracket should be securely fixed on the battery and the wall.

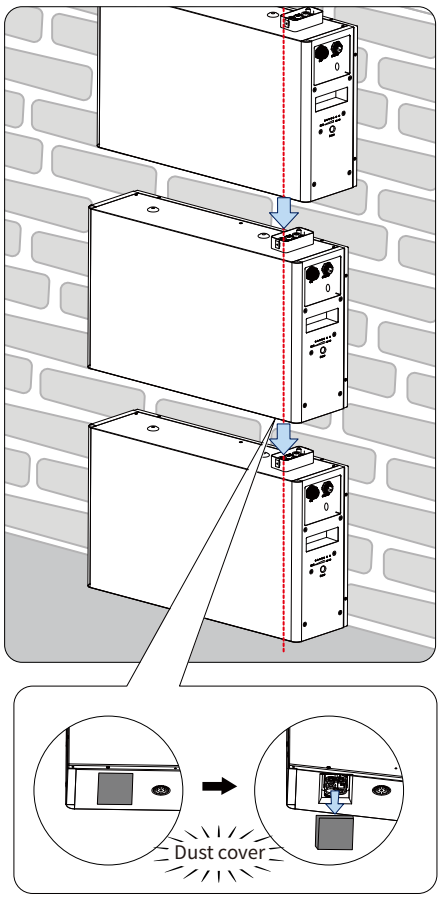
2. When using an impact drill to drill holes, the battery system must be covered with cardboard or other objects to prevent foreign matter from entering the device and causing damage to the device.

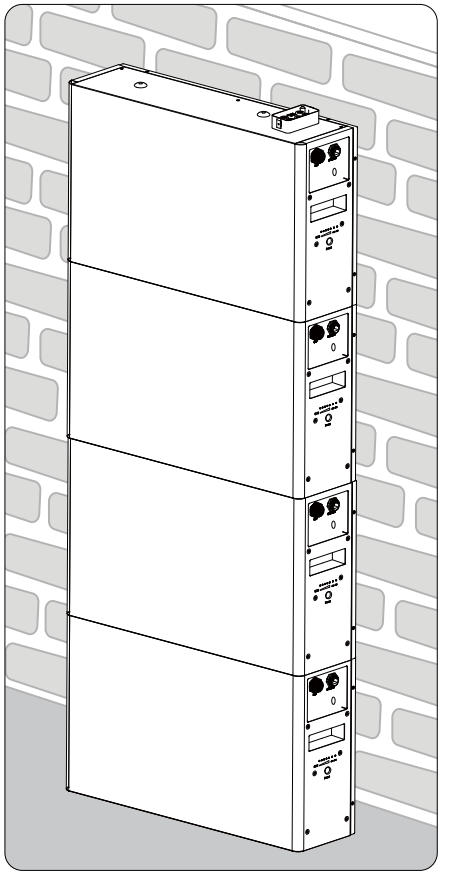
3. Do not start the power supply before installing the battery system.

Step 1: Install the battery module according to the actual type of battery system selected.

Step 2: Slowly lift and stack the battery one by one.

(Except for the bottom battery, the dust cover of all other stacked units must be removed before installation. The dust cover on the bottom battery must not be removed.

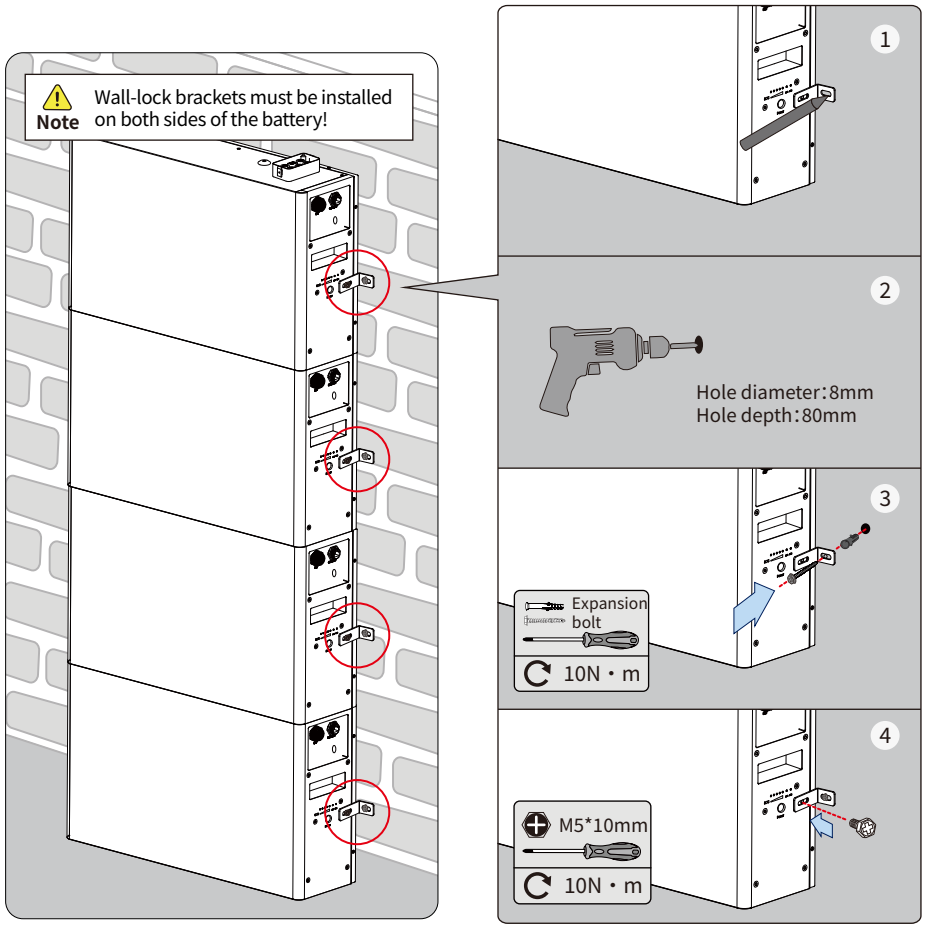




Note

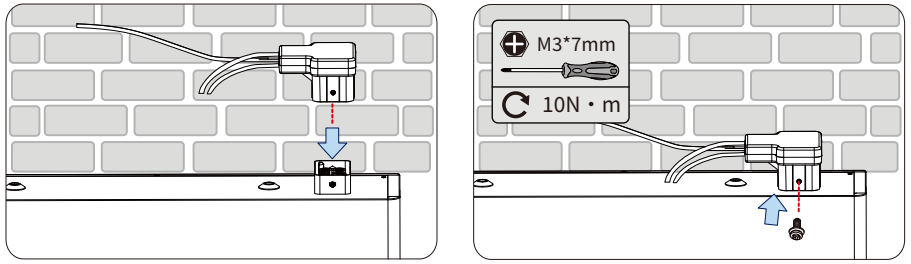
Please ensure the dust cover at the bottom of the battery remains intact to prevent water and dust from entering the equipment.

Step 3: Install the wall-lock brackets on both sides of each battery to securely fix them on the wall.



Step 4: Plug the socket on the connector of the top battery.

Step 5: Install the M5 screw on the socket to fix it.



05 Connection

5.1 Safety Precautions

Danger

1. Before operating the equipment in the system, make sure the equipment is powered off to avoid the risk of electric shock. When operating the equipment, you must strictly abide by all safety precautions in this manual and the safety signs on the equipment.

2. All operations, cables and component specifications used during the electrical connection process must comply with local laws and regulations.

3. Cables of the same type should be bundled together and arranged separately from cables of different types. It is prohibited to entangle or cross each other.

4. When crimping the terminal block, please ensure that the conductor part of the cable is in full contact with the terminal block. Do not crimp the cable insulation and the terminal block together. Otherwise, the equipment may not be able to operate, or the device may generate heat due to unreliable connection after operation. This may lead to damage to the inverter terminal block.

Note

1. When making electrical connections, please wear safety shoes, protective gloves, insulating gloves and other personal protective equipment as required.

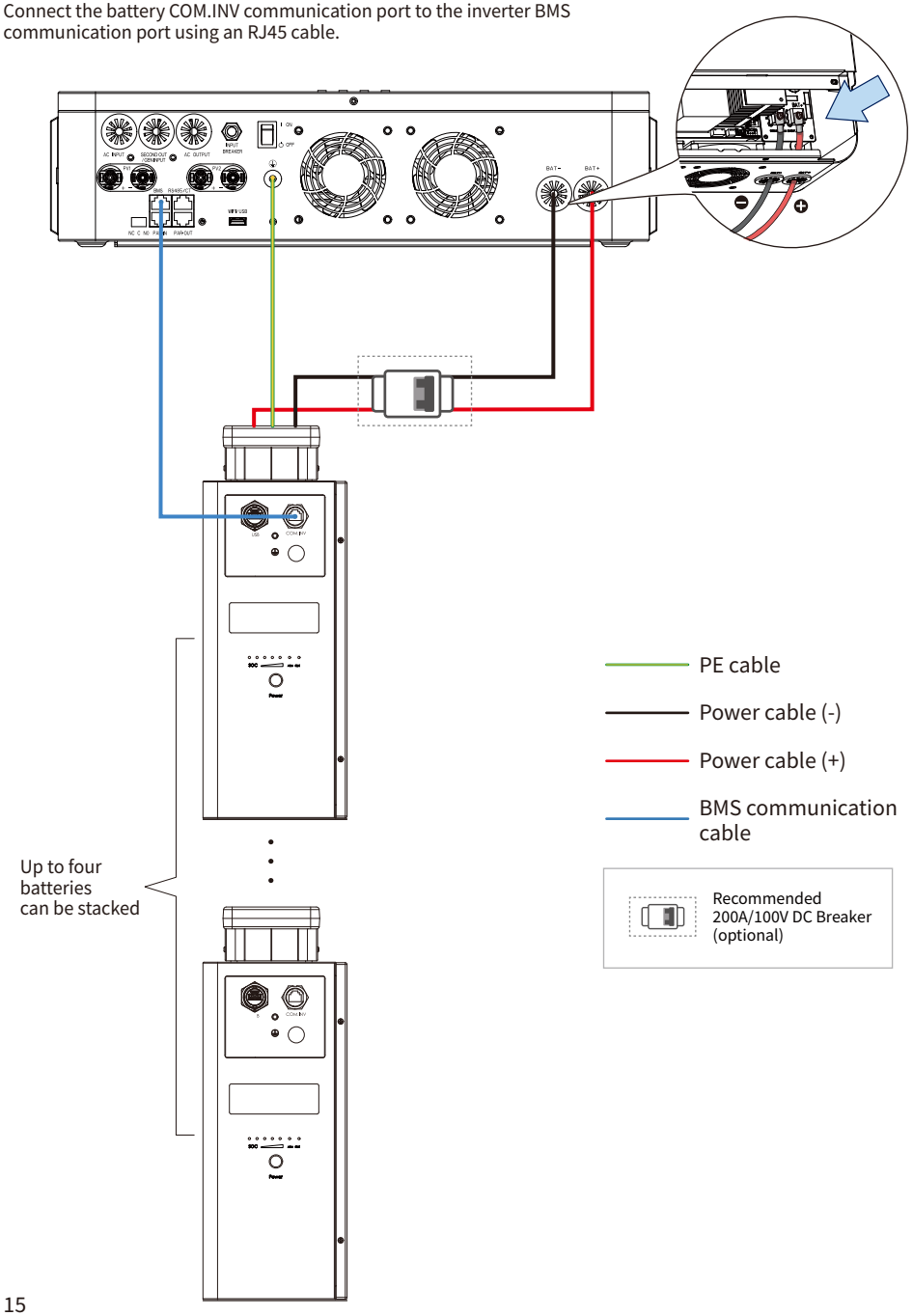
2. Only professionals are allowed to perform electrical connection related operations.

3. The cable colors in the graphics in this article are for reference only, and the specific cable specifications must comply with local regulations.

5.2 Electrical Connection

Note: The diagram shows the IP65-rated battery, but the electrical connection in this manual are applicable to both batteries with IP65 and IP54 ratings.

Connect the battery COM.INV communication port to the inverter BMS communication port using an RJ45 cable.



06 Power On and Off the Battery

WARNING

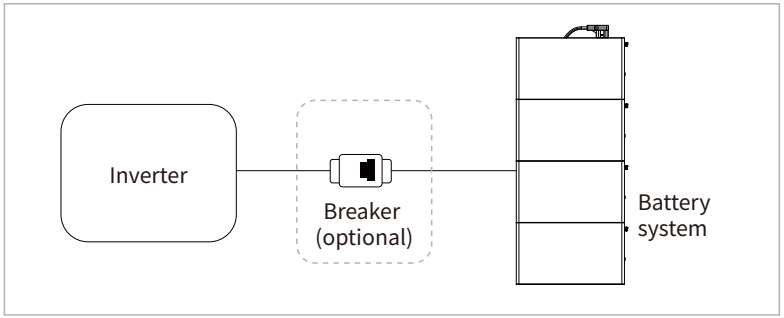
- The installation and use of batteries involve much specialized knowledge. Therefore, technicians should be given appropriate technical training and obtain operational certificates in compliance with local laws and regulations. Please ensure technicians have obtained training certificate before operation.
- Please stand on dry insulating objects and do not wear conductive material such as watches and necklace during operation. Insulated tools should be used.
- Do not contact any positions with potential difference.
- Prohibition sign should be hung on the battery: " Non - professionals, do not touch".
- If any abnormalities occur during the startup phase, power off the PACK immediately. After problem confirmed, proceed again.
- Make sure the inverter is turned off before checking the PACK.

6.1 Power On

When multiple batteries are connected in parallel, press one of the battery power button to turn on all the batteries connected.

Power on the PACK by pressing power button		
Serial	**Procedures**	**Acceptation criteria**
1	Connecting the battery and inverter.	Make sure the wiring harnesses are well connected.
2	Close the breaker of the PACK.	Make sure the breaker is ON.
3	Press the power button. Observe the LEDs on the panel.	1. If both RUN/ALM and SOC lights turn on normally, PACK is powered on successfully. 2. If ALM light turns red, there is a failure and should solve it before power on again.

Power on the PACK by inverter		
1	Connecting the battery and inverter.	Make sure the wiring harnesses are well connected.
2	Close the breaker of the PACK.	Make sure the breaker is ON.
3	Turn on the inverter power. The inverter outputs a 5V wake-up signal or output 46-58V main circuit voltage signal.	1. If both RUN/ALM and SOC lights turn on normal, PACK powers on successfully. 2. If ALM light turns red, there is a failure and should solve it before power on again.



6.2 Viewing and Configuring Battery Parameters

After connecting the battery and inverter, use the Hinen App to select the appropriate options for parameter viewing and configuration.

• **APP Installation and Connection:**

Method 1:

Download and install the Hinen App.

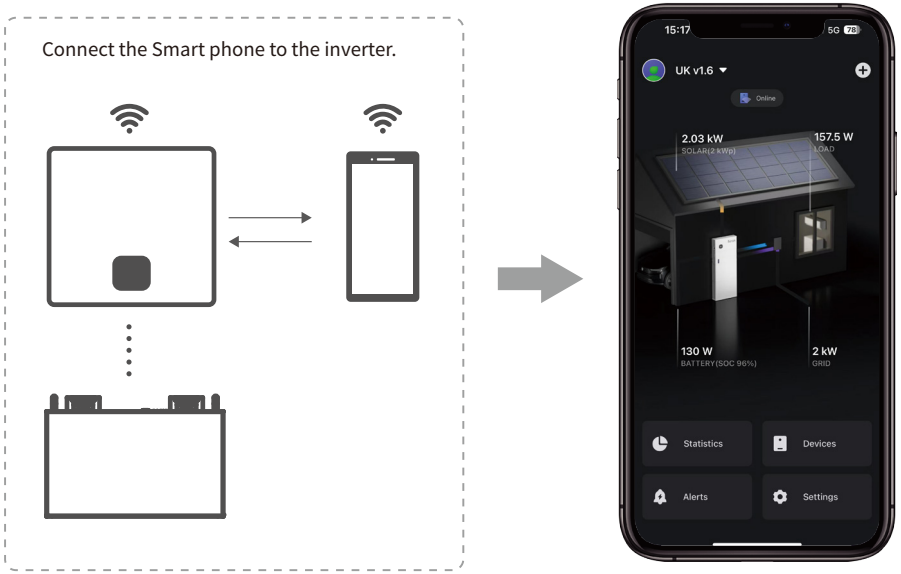
Google Play

App Store

Method 2:

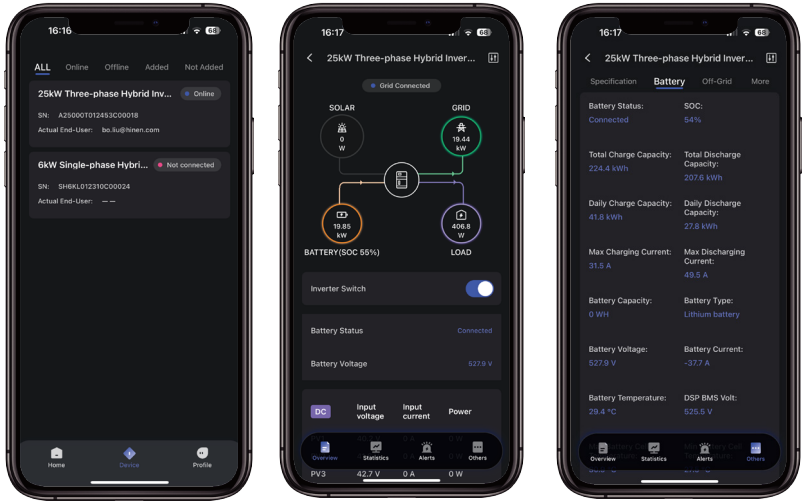
Hinen INSTALL

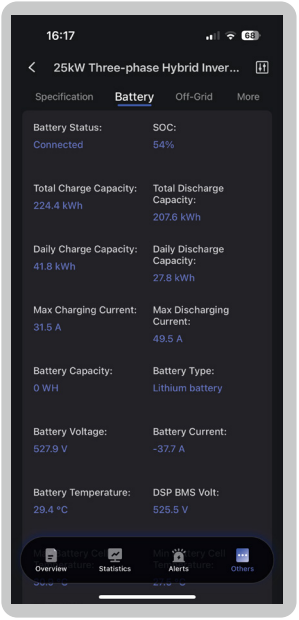
Hinen SOLAR



• **Viewing Battery Parameter**

Tap the inverter connected with battery to enter the corresponding interface and check the battery parameter.

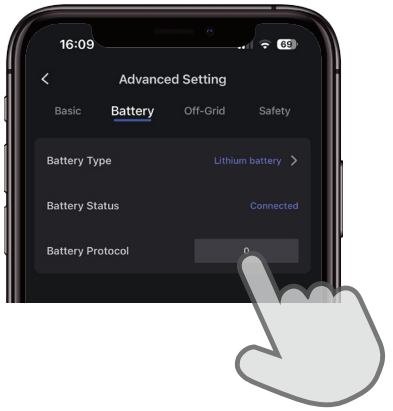




Battery

Here is the battery information: battery status, battery type, main battery voltage, slave battery voltage, battery capacity, battery charging power, battery discharging power, battery SOC, battery SOH, total charge capacity, total discharge capacity, daily charge capacity, daily discharge capacity, and so on.

• **Select battery protocol**



Enter the correct battery protocol and click "Save".

Battery Protocol		
	Single-phase Inverter	Three-phase Inverter
0	PYLON Protocol	
1	HINEN Protocol	
2	Growatt Protocol	
3	Growcol Protocol	
4	SHOTO Protocol	
5	GoodWE Protocol	
6	YUZEI Protocol	
7-20	Battery 7~20	

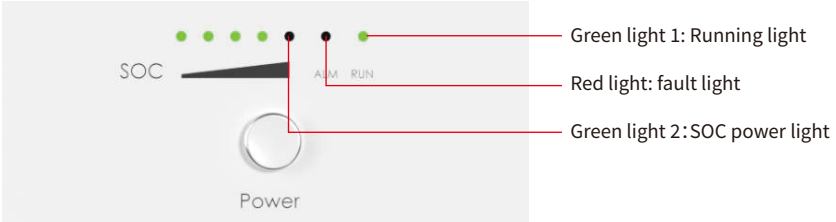
Warning: Please choose the correct battery protocol. Otherwise the battery system will not work normally.

You can check and configure parameters by Solarman Smart.

SOLARMAN Business

SOLARMAN Smart

6.3 Indicator Status



Indicator light	Condition
Green 1	When the PACK starts, the Running light is always on.
Green 2	SOC battery indicator light shows the current battery capacity.
Red	It does not light up during normal operation and is always on when a fault occurs.

SOC indicator light	○○○○○ ○●	●○○○○ ○●	●●○○○ ○●
Describe	SOC= 0%	0%≤SOC<20%	20%≤SOC<40%
SOC indicator light	●●●○○ ○●	●●●●○ ○●	●●●●● ○●
Description	40%≤SOC<60%	60%＜SOC＜80%	80%≤SOC≤100%

6.4 Power Off

Press the power button to switch off the battery pack. If several battery packs are in parallel connection, the whole battery system will be shut down when the main unit is switched off.

Press the power button for about 5 seconds to turn off the PACK power.		
Serial	**Procedures**	**Acceptation criteria**
1	Disconnect the battery and inverter.	Ensure wiring is disconnected.
2	Turning on the PACK's Circuit Breaker.	Make sure the circuit breaker is disconnected.
3	Press the power button for about five seconds. Observe the LEDs on the panel.	If both the RUN and SOC lamps are off, the PACK power supply has been successfully disconnected. The PACK power supply has been successfully disconnected.

NOTE: If one of the battery packs are switched off in parallel connection, the whole battery system will be shut down.

07 Maintenance

Danger

1. When operating and maintaining the battery system, please power off the battery system. Operating the device with power on may cause damage to the device or risk of electric shock.

2. When shutting down the battery system, please strictly comply with the battery system power-off requirements to prevent damage to the battery system.

7.1 Preparation

Tools like safety gloves, Phillips screwdriver and socket wrench should be prepared.

Turn off and turn on new PACK.

1. If the PACK is in power-off condition, press the power button to switch it on.

2. If the PACK is power-on, make sure the PACK is powered off by turning off the circuit breaker and pressing the power button for about 5 seconds before servicing the battery. Install and wire as described above. Before turning on the circuit breaker, make sure the wires are connected properly. Then, turn on the circuit breaker and press the power button on any PACK to check whether the system is working properly.

3. When installing or maintaining, it is recommended that the battery SOC be at 35%～45% percent.

7.2 PACK Replacement

- Wear safety gloves.
- Open the breaker and power off the PACK.
- Remove your safety screw under the power supply, and disconnect the power cord and CAN communication line of the PACK.
- Remove the safety part at the left end of the battery and lift the PACK upward.
- Put the PACK into the packing box according to the repair procedure and transport the PACK to the designated repair site.
- Install new PACK based on procedure specified in Section 4.

7.3 Maintenance

Warning

1. If you find any problems that may affect the battery or energy storage inverter system, please contact after-sales personnel. Private disassembly is prohibited.

2. If you find that the internal copper wire of the conductive wire is exposed, it is forbidden to touch because of high-voltage. Please contact after-sales pesonnel, for it is forbidden to dismantle it privately.

3. If other emergencies occur, please contact after-sales personnel as soon as possible and perform operations under the guidance of after-sales personnel, or wait for on-site operation by after-sales personnel.

Maintain content	Maintenance cycle
Check whether the anti-tipping bracket is loosely installed, if so, please tighten the corresponding position.	Once every 6 months
Check whether the casing is damaged. If so, please repaint it or contact the after-sales service center.	Once every 6 months
Check whether the exposed wires are worn. If so, please replace the corresponding cables or contact the after-sales service center.	Once every 6 months
Check whether there is any debris accumulated around the battery. If so, please clean it to avoid affecting the heat dissipation of the battery.	Once every 6 months
Check for water or pests to avoid long-term intrusion into the battery.	Once every 6 months

7.4 Troubleshooting

When the battery system fails, it may cause the battery system to automatically shut down or some functions to become abnormal. Please troubleshoot according to the following methods. If the trouble-shooting methods cannot help you, please contact the after-sales service center. When contacting the after-sales service center, please collect the following information to facilitate quick resolution of the problem.

1. Battery information, such as: serial number, software version, equipment installation time, fault occurrence time, fault occurrence frequency, etc.
2. Equipment installation environment, such as weather conditions, etc. Installation environment recommendations can provide photos, videos and other files to assist in analyzing problems.

Warning Code

Red light is blinking.

SOC indicator	Fault category	Solution
● ○ ○ ○ ○ ● ○	Cell overvoltage	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
○ ● ○ ○ ○ ● ○	Cell excessive differential voltage	In case of charging, charge the battery and wait for the voltage to rise and return to normal, if the problem is not solved, please contact the after-sales service centre.
● ● ○ ○ ○ ● ○	Cell undervoltage	In case of charging, charge the battery and wait for the voltage to rise and return to normal, if the problem is not solved, please contact the after-sales service centre.

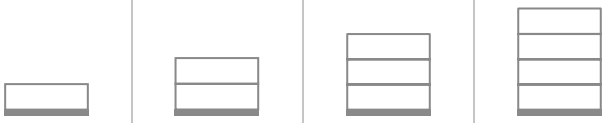
SOC indicator	Fault category	Solution
○○●○○ ●○	Battery undervoltage	In case of charging, charge the battery and wait for the voltage to rise and return to normal, if the problem is not solved, please contact the after-sales service centre.
●○●○○ ●○	Battery overvoltage	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
○●●○○ ●○	Battery over-temperature (the changing and discharging over-temperature)	Turn off the machine and wait for 2 hours, if the problem is not solved, please contact the after-sales service centre.
●●●○○ ●○	Battery under-temperature (the changing and discharging under-temperature)	Turn off the machine, wait for the temperature to rise, restart the battery, if the problem is not solved, please contact the after-sales service centre.
○○○●○ ●○	Charging overcurrent	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
●○○●○ ●○	Discharging Overcurrent 1	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
○●○●○ ●○	Discharging Overcurrent 2	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
○●○●● ●○	Discharging Overcurrent 3	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
●●○●○ ●○	Discharging short circuit	Turn off the machine, unplug the checking device, restart the battery, if the problem is not solved, please contact the after-sales service centre.
○○●●○ ●○	Charging short circuit	Turn off the machine, unplug the checking device, restart the battery, if the problem is not solved, please contact the after-sales service centre.
●○●●○ ●○	PCB over-temperature	Turn off the machine and wait for 2 hours, if the problem is not solved, please contact the after-sales service centre.
○●●●○ ●○	Precharge resistance over-temperature	Turn off the machine and wait for 2 hours, if the problem is not solved, please contact the after-sales service centre.
●●●●○ ●○	MOS over-temperature	Turn off the machine and wait for 2 hours, if the problem is not solved, please contact the after-sales service centre.
○○○○● ●○	IUIP signal failure	Turn off the machine, check the parallel communication connection cable, restart the battery, if the problem is not solved, please contact the after-sales service centre.
●○○○● ●○	I_WORK signal failure	Turn off the machine, check the parallel communication connection cable, restart the battery, if the problem is not solved, please contact the after-sales service centre.

Error Code

Red light is always on.

SOC indicator	Fault category	Solution
●○○○○ ●○	Battery voltage sampling wire broken	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
●●○○○ ●○	AFE communication failure	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
○○●○○ ●○	EEPROM failure	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
●○●○○ ●○	Voltage sensor failure	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
○●●○○ ●○	Extremely high battery voltage fault	Please contact the after-sales service centre.
●●●○○ ●○	Main circuit anomaly	Please contact the after-sales service centre.
○○○●○ ●○	Pre-charge over time	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
○●○●○ ●○	Dead battery	Restart the battery, if the problem is not solved, please contact the after-sales service centre.
●●○●○ ●○	Inverter communication failure	Switch off the machine, check the communication cable with the inverter, if the problem is not solved, please contact the after-sales service centre.
●●●●○ ●○	Extremely high cell voltage fault	Restart the battery, if the problem is not solved, please contact the after-sales service centre.

08 Technical Parameter

	BP5000	BP10000	BP15000	BP20000
System Demo				
Rated Energy[1]	5.12kWh	10.24kWh	15.36kWh	20.48kWh
Usable Energy	4.6kWh	9.21kWh	13.82kWh	18.43kWh
Battery Type	LFP($LiFePO_4$)			
Number of Modules	1	2	3	4
Battery Configuration	16S1P	16S2P	16S3P	16S4P
Recommended (rated) charge method	Charge the battery with 100A constant current to the system protection voltage of 58.4V at an ambient temperature of 25°C.			
Recommended (rated) discharge method	Discharge the battery with 100A constant current to the system protection voltage of 48V at an ambient temperature of 25°C.			
Cycle life[2]	6000 cycles			
Rated Voltage	51.2V			
Operating Voltage Range	48-58.4V			
Peak Current	150A 90S at 25°C			
Depth of Discharge (DOD)	90%	90%	90%	90%
Max Continuous Charge/ Discharge Current*	100A	120A	120A	120A
Rated Power*	5.12kW	6.14kW	6.14kW	6.14kW
Run Log Recording	32MB			

Communication	CAN/RS485			
Weight (Battery base not included)	(45±3)KG	(90±3) KG	(135±3)KG	(180±3) KG
Dimensions(W*H*D mm)	650*158*370mm	650*158*740mm	650*158*1110mm	650*158*1480mm
Operating Temperature	Charge：0°C＜T＜55°C/Discharge：-20＜T＜60°C			
Storage Temperature	-20~45°C (≤1 Months) / 0~35°C (≤6 Months)			
Relative Humidity	≤10-85%			
Altitude	≤2000m			
Ingress Protection Rating	IP54 (Indoor) / IP65(Outdoor)			
Class of equipment	Class I			
Overvoltage category	OVC II			
Installation type	Floor Stand installation			
Warranty[3]	5 Years Warranty			
Country of manufacturer	Made in China			

1. Rated Energy[1] : Test conditions, 25°C,100% DOD,0.33C charge & discharge.
2. Cycle life[2]: Test conditions, 25°C, 90%DOD, 0.2C charge & 0.2C discharge, 70%SOH.
3. Warranty[3]: Refer to the product warranty terms for details.