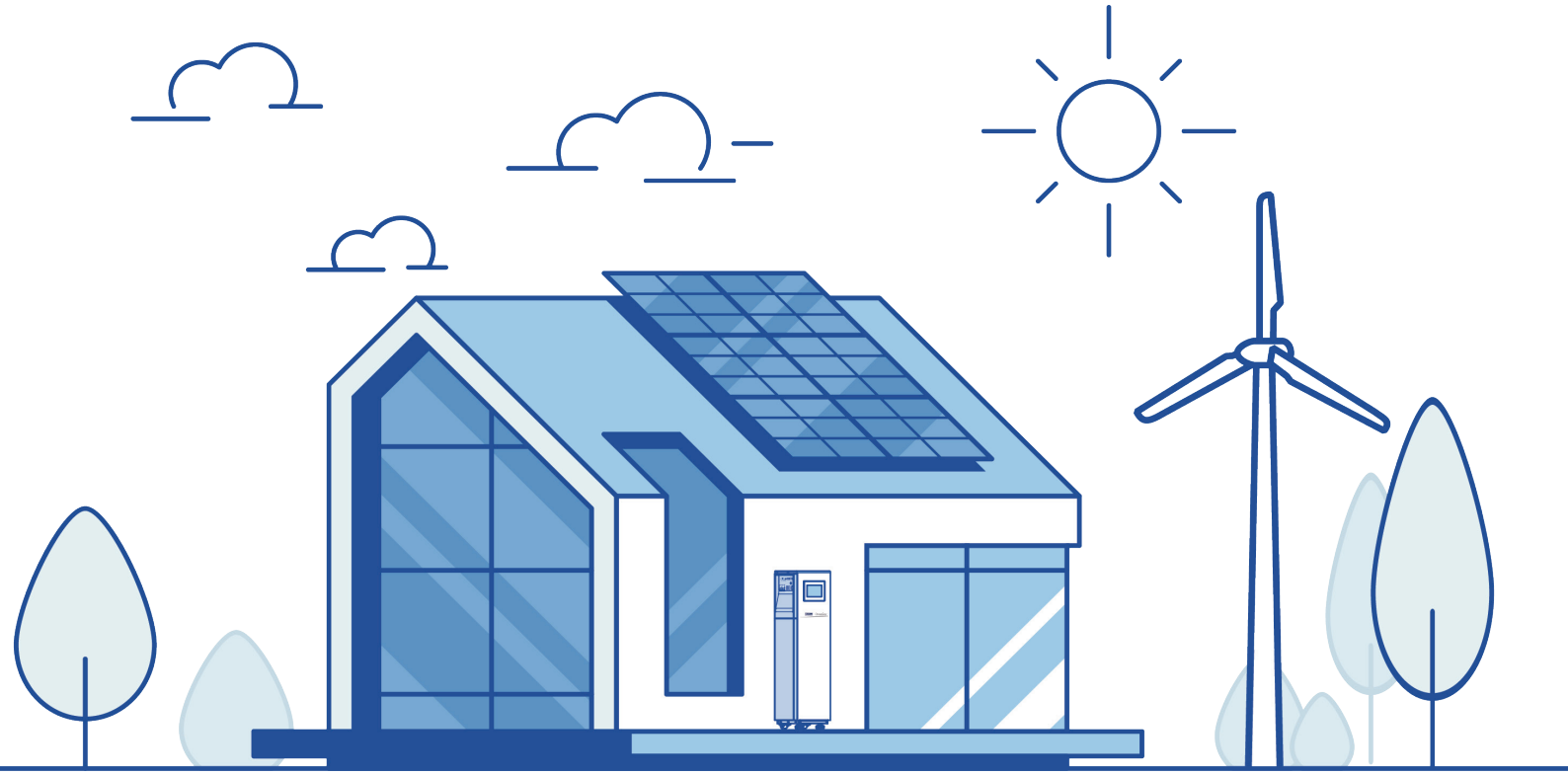
DBG02-XFM15K-EU

Energy Storage Battery

User Manual

V1.0



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1. Overview

Thank you very much for choosing the DBG02-XFM15K-EU series household energy energy storage system developed and produced by our company. Please read and understand all contents of the Manual carefully before installing and using the product. If you have any suggestions during the use, please do not hesitate to give us feedback.

1.1 Range of Application

The installation and user manual of DBG02-XFM15K-EU series is applicable to theinstallation and use of the following products:

No	Model	Rated voltage	Rated capacity	Rated energy	Max current
1	280Ah	51.2V	280Ah	14336Wh	100A
					200A
2	314Ah		314Ah	16076Wh	100A
					200A

The product should be used in compliance with local standards, laws and regulations, because any non- compliance with the use may lead to personal injuries and property loss.

The drawings provided in this Manual are used to explain the concepts related to the product, including product information, installation guide, electrical connection, system debugging, safety information, common problems and maintenance, etc.

The internal parameters of this product have been adjusted before delivery. No internal parameters can be changed without permission. Any unauthorized changes to the settings will invalidate the warranty, and the company will not be liable for any loss resulting therefrom.

These Manual and other related documents are an integral part of the product and should be kept properly for onsite installation personnel and related technical personnel to consul

1.2 Meaning of Abbreviations

Abbreviation	Fll form
AC	Alternating Current
DC	Direct Current
PV	Photovoltaic
BMS	Battery Management System
PCS	Power Conversion System
RJ45	Registered Jack 45
SOC	State Of Charge
C	Charge C-rate
RS485	RS485 Communication Interface
CAN	Controller Area Network

1.3 Symbol Stipulations

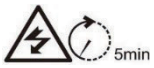
There may be following symbols herein, and their meanings are as follows.

Symbols	Description
	Indicate a hazard with a high level of risk which, if not avoided, will result in death or serious injuries.
	Indicate a hazard with a medium level of risk which, if not avoided, could result in death or serious injuries.
	Indicate a hazard with a low level of risk which, if not avoided, could result in minor or moderate injuries.
	Warning information about device or environment safety. If not avoided,equipment damage, data loss, performance degradation or other unanticipated results may be resulted in. The "NOTICE" does not involve any personal injuries.

2 Safety Precaution

2.1 Safety Symbols

This product contains the following symbols, please pay attention to identifying.

Symbol	Description
	Observe enclosed documentation
	Danger. Risk of electric shock!
	Danger of high voltages. Danger to life due to high voltages in the Energy storage system
	Hot surface
	CE certification
	Do not touch the product in 5mins after shutdown
	Comply with RoHS standard
	The Energy storage system should not be disposed together with the household waste.

2.2 General Safety

2.2.1 Important Notic

Before installing, operating, and maintaining the device, please read this Manual first and follow the symbols on the device and all the safety precautions in this Manual.

The matters indicated with "DANGER", "CAUTION", "ATTENTION" and "NOTICE" in this Manual do not represent all the safety matters to be observed but are only the supplements to all the safety precautions.

The Company will not be liable for any violation of general safety operating requirements, or any violation of safety standards for the design, production, and use of the device.

The device must be used in an environment that meets the requirements of the design specifications. Otherwise, the device may fail, and the abnormal device function

or component damage, personal safety accident, and property loss arising from this are not covered within the quality assurance scope of the device.

When installing, operating, and maintaining the device, the local laws, regulations, and codes shall be followed.

The safety precautions in this Manual are only supplements to local laws, regulations, and codes.

The Company shall not be liable for any of the following circumstances.

- The device is not run under the conditions of operating described in this Manual.
- The installation and operating environment is beyond the requirements of relevant international or national standards.
- The product is disassembled or changed, or the software code is modified without authorization.
- The operation instructions and safety warnings related with the product and in the documents are not followed.
- Damage of the device is caused by abnormal natural environment (force majeure, such as earthquake fire, and storm).
- Transportation damage is caused during customer's own transportation.
- The storage condition does not meet the requirements of the product related documents and causes damage.

2.2.2 General Requirements

	Operating when the power is on is strictly prohibited during installation.
	It is strictly prohibited to install, use, and operate any outdoor equipment or cables (including but not limited to transporting equipment, operating equipment and cables, plugging and removing signal ports connected to the outdoor, working at altitude, and outdoor installation) in severe weather, such as thunder, rain, snow, and gale level 6.
	In case of any fire, evacuate the building or equipment area and press the fire alarm bell or dial the fire call. Under any circumstances, re-entry into a burning building is strictly prohibited.
	Under no circumstances should the structure and installation sequence of the device be changed without the manufacturer's permission.
	The battery terminal components shall not be affected during transportation. And, the battery terminal bolts shall not be lifted or transported.

	It is strictly prohibited to alter, damage or block the marks and nameplates on the device.
	The composition and working principle of the entire photovoltaic power generation system, as well as the relevant standards of the country/region where the project is located shall be known fully.
	After the device is installed, the empty packing materials, such as cartons, foam, plastics, and cable ties, shall be removed from the device area.

2.2.3 Personnel Safety

- When operating the device, appropriate personal protective equipment shall be worn. If any fault that may lead to personal injury or damage of the device is found, immediately terminate the operation, report to the responsible person, and take effective protective measures.
- Before using any tools, learn the correct method of using the tool to avoid injuries and damage of the device.
- When the device is running, the temperature of the case is high, which may cause burns. Therefore, do not touch the case.
- In order to ensure personal safety and normal use, reliable grounding should be carried out before use.
- Do not open or damage the battery. The electrolyte released is harmful to skin and eyes, so avoid touch it.
- Do not place irrelevant items on the top of the device or insert them into any part of the device.
- Do not place flammable items around the device.
- Never place the battery in the fire to avoid explosion and prevent the personal safety from being endangered.
- Do not place the battery module in water or other liquids.
- Do not short-circuit the battery terminals, because short-circuiting of the battery may cause combustion.
- The battery may pose a risk of causing electric shocks and large short-circuit currents. When using the battery, the following precautions should be paid attention to:

a) The metal objects, such as watch and rings, shall be removed.

b) Tools with insulated handles should be used.

c) Rubber gloves and shoes should be worn.

d) The charging power supply shall be disconnected before connecting or disconnecting terminals of the battery.

e) Check whether the battery is accidentally grounded. If the battery is accidentally grounded, remove the power supply from the ground.

- Do not clean the internal and external electrical components of the cabinet with water or detergent.
- Do not stand, lean or sit on the device.
- Do not damage any modules of

2.3 Personnel Requirements

- The personnel in charge of installation and maintenance must be strictly trained to understand all safety precautions and master proper operation methods.
- Only qualified professionals or trained personnel are allowed to install, operate and maintain the device.
- The personnel who operate the device, including the operators, trained personnel and professionals, must have special operation qualifications required by the local country, such as high voltage operation, working high above the ground, and special equipment operation qualification.
- The replacement of device or components (including software) must be carried out by professionals or authorized personnel.

2.4 Electrical Safety

2.4.1 General Requirement

Before carrying out electrical connections, ensure that the device is not damaged, or an electric shock or fire may occur.

Never install or remove any power cables when the power is on. The electric arcs or sparks may be generated now when the power cable contacts with the conductor, which may cause fire or personal injuries.

- All the electrical connections must meet the electrical standards of the country/region where the project is located.
- The cables prepared by users themselves shall comply with local laws and regulations.
- Special insulating tools should be used in high-voltage operations.

- Before connecting the power cord, ensure that the label identification on the power cord is correct.
- Operations on the device are allowed only five minutes after the device is completely powered off.
- The insulation layer of the cable may be aged or damaged when the cable is used in a high temperature environment. Therefore, the distance between the cable and the heat source must be at least 30mm.
- Cables of the same type should be bundled together. Whereas the cables of different types should be routed at least 30mm apart, and shall not be wrapped together or crossed.

2.4.2 Grounding Requirement

- When installing the device to be grounded, the protective grounding wire must be installed first; when removing the device, the protective grounding wire must be removed at last.
- It is forbidden to destroy the grounding conductor.
- It is forbidden to operate the device without a grounding conductor installed.
- The device shall be permanently connected to the protective grounding wire. Before operating the device, the electrical connection of the device shall be checked to ensure that the device is reliably grounded.

2.5 Installation Environment Requirements

- Do not install or use this product in an environment where the temperature is lower than -10 ℃ or higher than 50 ℃.
- It should be installed in a dry and well-ventilated environment to ensure good heat dissipation performance.
- The product can be installed at a maximum altitude of 2,000m.
- The installation position should be away from the fire source.
- The product should be installed and used away from children and animals.
- The installation position should be far away from water sources, such as faucets, sewer pipes, and sprinklers, to avoid entering of water.
- The device should be placed on a firm and flat supporting surface.
- Do not place any inflammable or explosive items around the device.
- When the device is running, do not block the ventilation vent or heat dissipation system to prevent fire caused by high temperature.

The operation and service life of energy storage is related to the operating temperature. The energy storage should be installed at a temperature equal to or better than the ambient temperature.

Max+50℃

Min-10℃

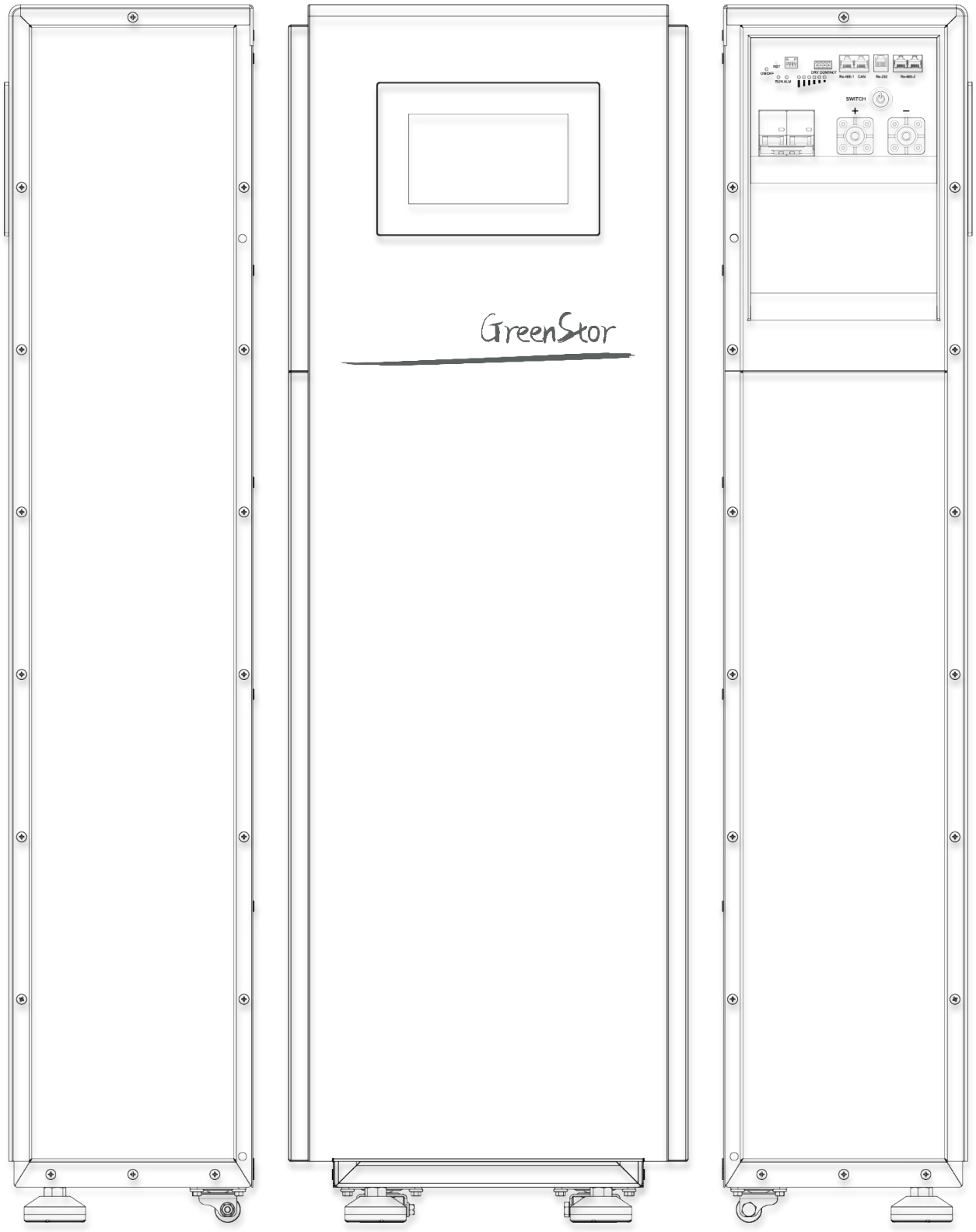
RH.+5%~+95%

3 Product Introduction

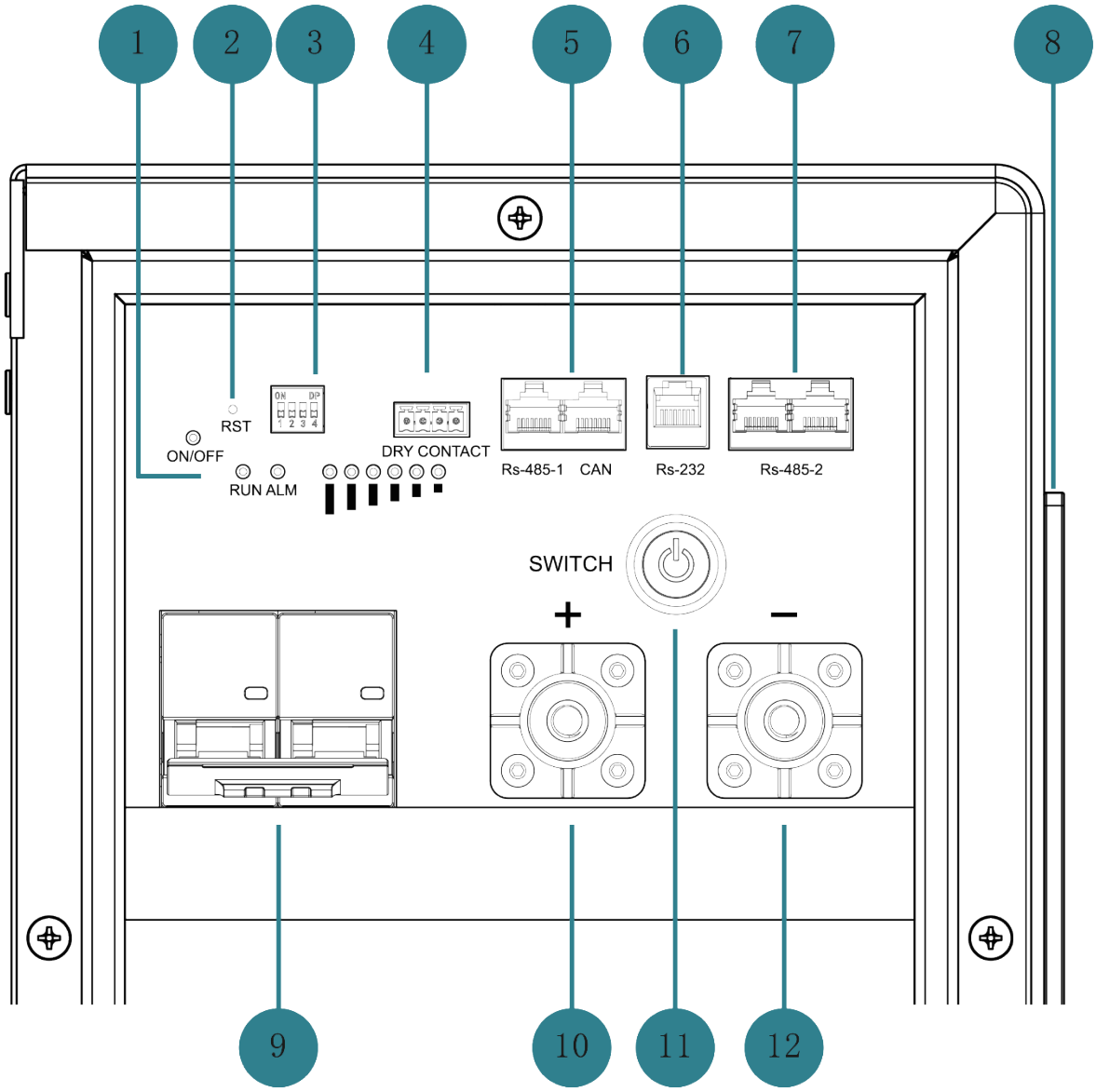
3.1 Battery Specifications

Product model	280Ah/100A	341Ah/100A	280Ah/200A	314Ah/200A
Rated voltage	51.2V			
Rated capacity	280Ah	314Ah	280Ah	314Ah
Rated energy	14336Wh	16076Wh	14336Wh	16076Wh
Weight	130kg	140kg	130kg	140kg
Dimensions（L*W*H）	1190*390*238±2mm			
Standard charge current	75A		150A	
Standard discharge current	75A		150A	
Max. charging current	100A		200A	
Max. discharging current	100A		200A	
Peak charging current	110A(3S)		220A(3S)	
Peak discharging current	110A(3S)		220A(3S)	
Breaker Current	120A		240A	
Screen	Touch Screen			
Battery type	LFP			
Life time(25℃)	20 Years			
Life cycle（80% DOD,0.5C,25℃）	6000 Cycles	8000 Cycles	6000 Cycles	8000 Cycles
Max. charging voltage	57.6V			
Over discharge voltage	40V			
Max. number of parallel	16			
Communication interfaces	CAN/RS485/USB/ Bluetooth			
Lithium Battery Standard	UN38.3、MSDS、DGM、CE			
Storage time / temperature	6 months @25℃;3 months @35℃;1 month @45℃;			
Charging temperature range	0 ~ 55℃	0 ~ 45℃	0 ~ 55℃	0 ~ 45℃
Discharging temperature range	-10 ~ 55℃	-10 ~ 45℃	-10 ~ 55℃	-10 ~ 45℃
Cooling method	Natural cooling			
Enclosure protection rating	IP55			
Operation Environment	Indoor			

3.2 Product appearance



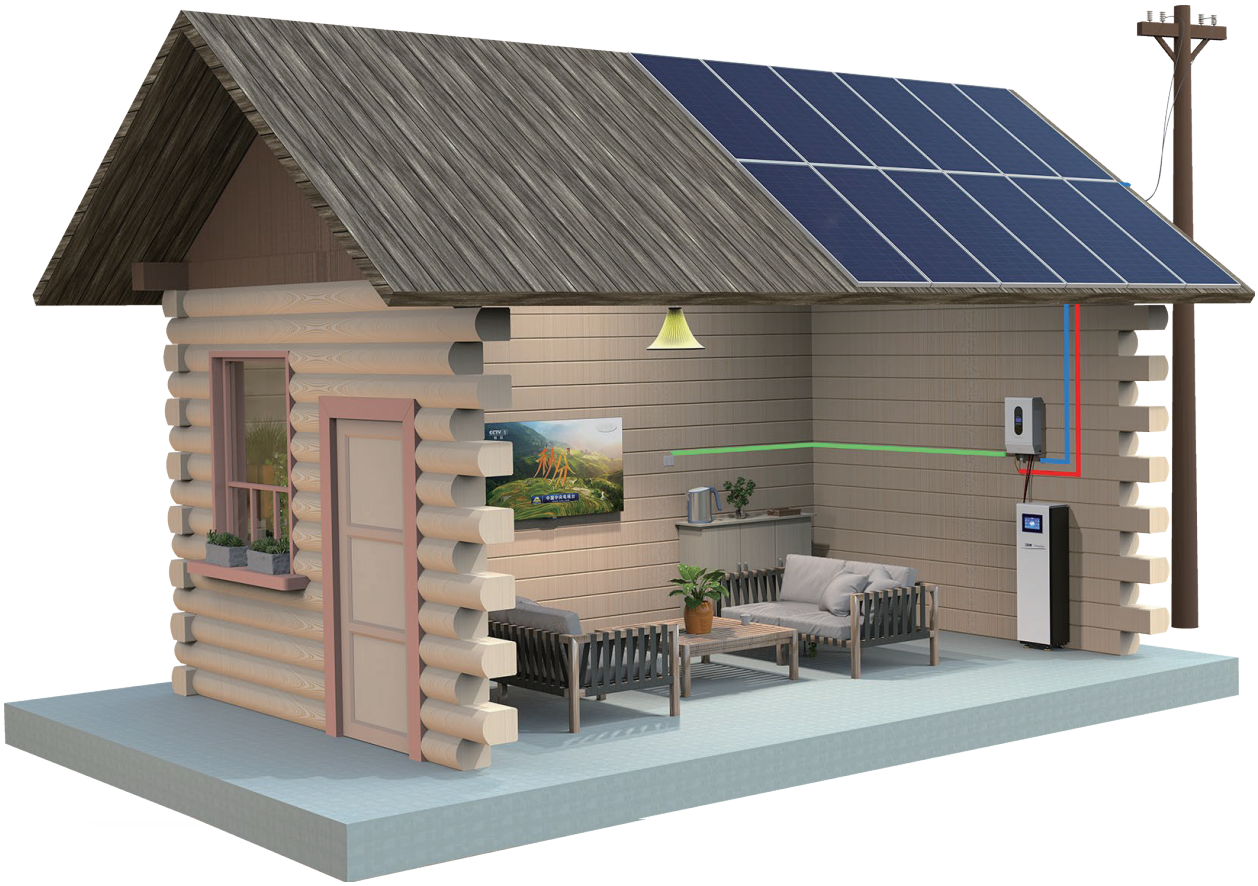
3.3 Interface Description



1	System status indicator light	7	RS485-2 communication interface
2	System reset button (hidden)	8	Touch display
3	DIP dial switch	9	breaker
4	DRY CONTACT	10	Battery's positive and polar
5	RS485-1 CAN communication interface	11	Battery Pack BMS Switch
6	RS-232 communication interface	12	Negative polar terminal of the battery

4 Application Scenarios

This product features high-performance lithium iron phosphate prismatic batteries specially designed for energy storage, sourced from leading global manufacturers. Renowned for their superior performance, excellent consistency, and exceptional cycle life, these batteries fully cater to the diverse needs of users. The product's enclosure is crafted from thickened steel plates that have undergone electrostatic spraying, providing exceptional structural strength and durability. An integrated intelligent battery management system further ensures power stability and safety. We employ quick-plug-and-play input and output ports for convenient operation and robust overcurrent capabilities. Additionally, the product is equipped with a variety of communication interfaces, ensuring broad compatibility with mainstream inverter brands on the market, offering users greater flexibility and versatility. With its outstanding performance, stable quality, and high compatibility, this product perfectly aligns with the diversity and complexity of modern household energy storage needs, providing users with a more reliable and efficient energy solution.



5 System Installation

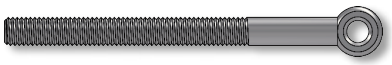
5.1 Inspections before Installation

Inspection of outer package

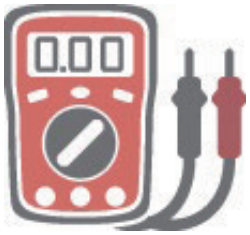
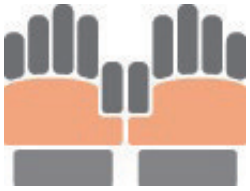
Before opening the outer package of the energy storage, check if there is any visible damage on the outer package, such as holes, cracks or other signs of possible internal damage, and check the type of energy storage. If there is any abnormality on the package or the model of the energy storage is inconsistent, do not open it and contact us as soon as possible.

Inspection of deliverables

After opening outer package of the energy storage, check if the deliverable is complete and whether there is any visible external damage. If any items are missing or damaged, please contact us.

NO.	Picture	Item	Quantity	Specification
1		Battery Pack	1	14336Wh 16076Wh
2		Eyebolt	4	M8×100mm
3		Power Cable	2	1.5M
4		Data cable	1	RJ45-568B 1M
5		Cross Hex Head Machine Screws	2	M8×12mm

5.2 Preparation of Tools and Meters

Types	Tools and meters	
Installation tool		
		
		
		
Personal protective equipment		
		

5.3 Election of Installation Location

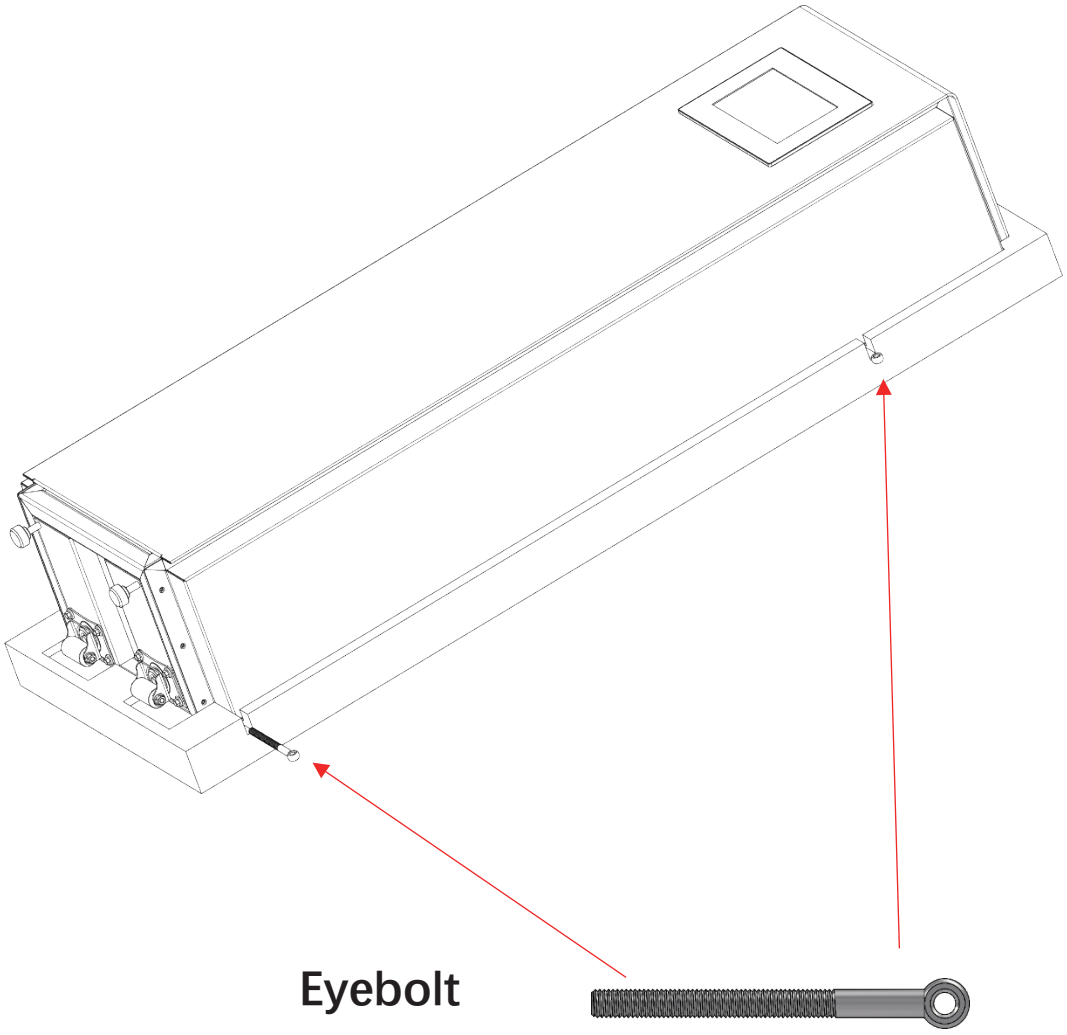
5.3.1 Basic Requirements

- When the energy storage is running, the temperature of the case and the radiator will be high. Therefore, do not install them in a place that is easy to touch.
- Do not install in areas where flammable and explosive materials are stored.
- If the energy storage is installed in areas with salt damage, it will be corroded and may cause fire. Therefore, do not install it outdoors in areas with salt damage. The areas with salt damage are defined as the areas which are not 500m away from shore or will be affected by sea breezes. The areas affected by the sea breezes vary depending on meteorological conditions (e.g. typhoons, monsoons) or topographical conditions (dams, hills).
- Do not install in the place where children can touch.
- The energy storage cannot be installed forwardly, horizontally, inversely, backwardly or sideways.
- When drilling holes on walls or ground, goggles and protective gloves shall be worn.
- During drilling, the device should be shielded to prevent debris from falling into the device. After drilling, the debris shall be cleaned up in time.
- When handling any heavy objects, you should be prepared to bear loads to avoid being crushed or sprained.
- When handling the device by hand, wear protective gloves to avoid injury.

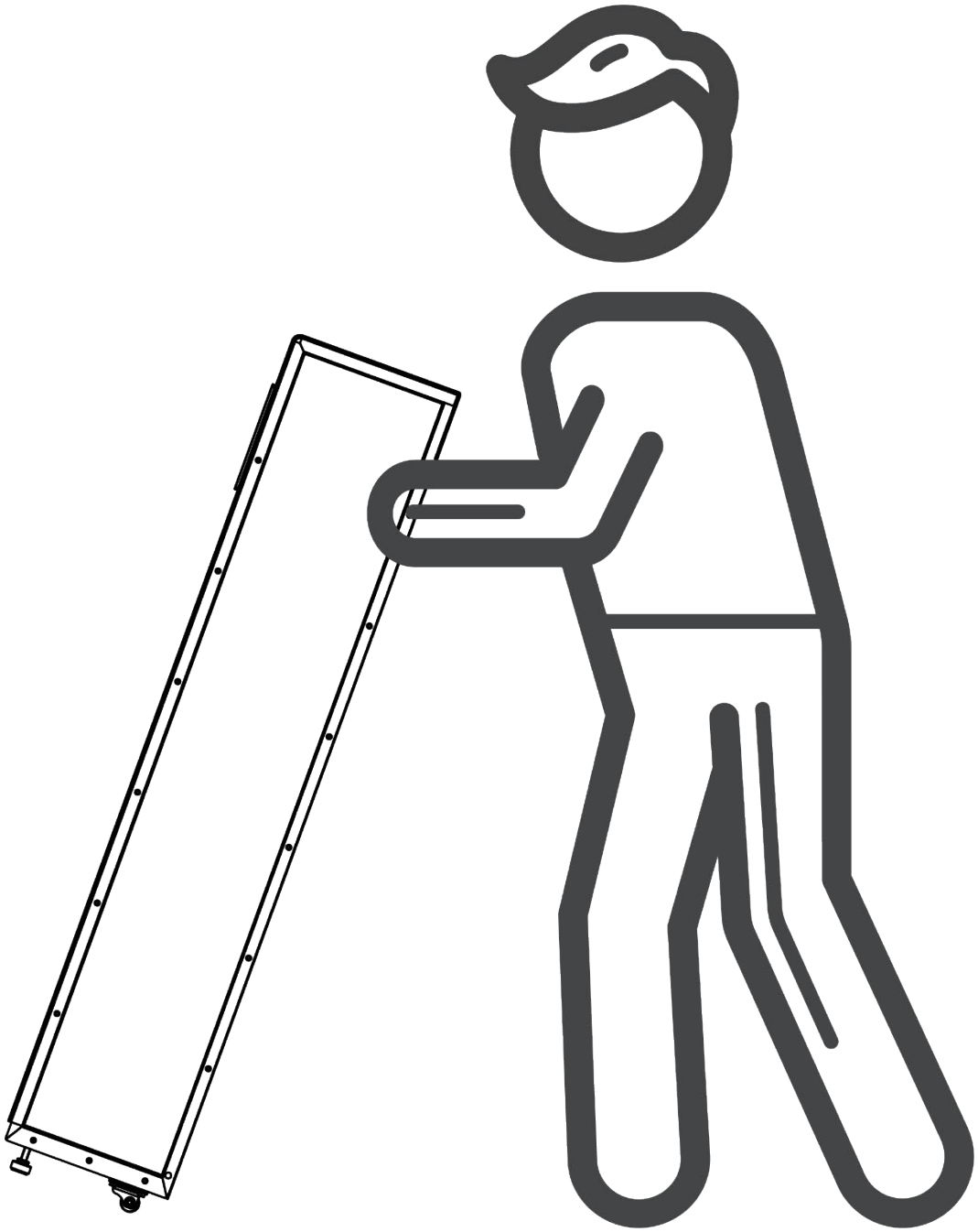
5.3.2 Installation Space Requirements

The precise location for battery placement should be clearly defined, and the selected site must be level and solid to provide stable support. The surrounding facilities should be firm and reliable to prevent accidental collisions or tipping. A safety distance of at least 200 mm should be maintained between the battery and any surrounding equipment or obstacles. It is strictly forbidden to place any objects above the battery to maintain its normal operation and safety performance, ensure air circulation, and prevent potential heat accumulation.

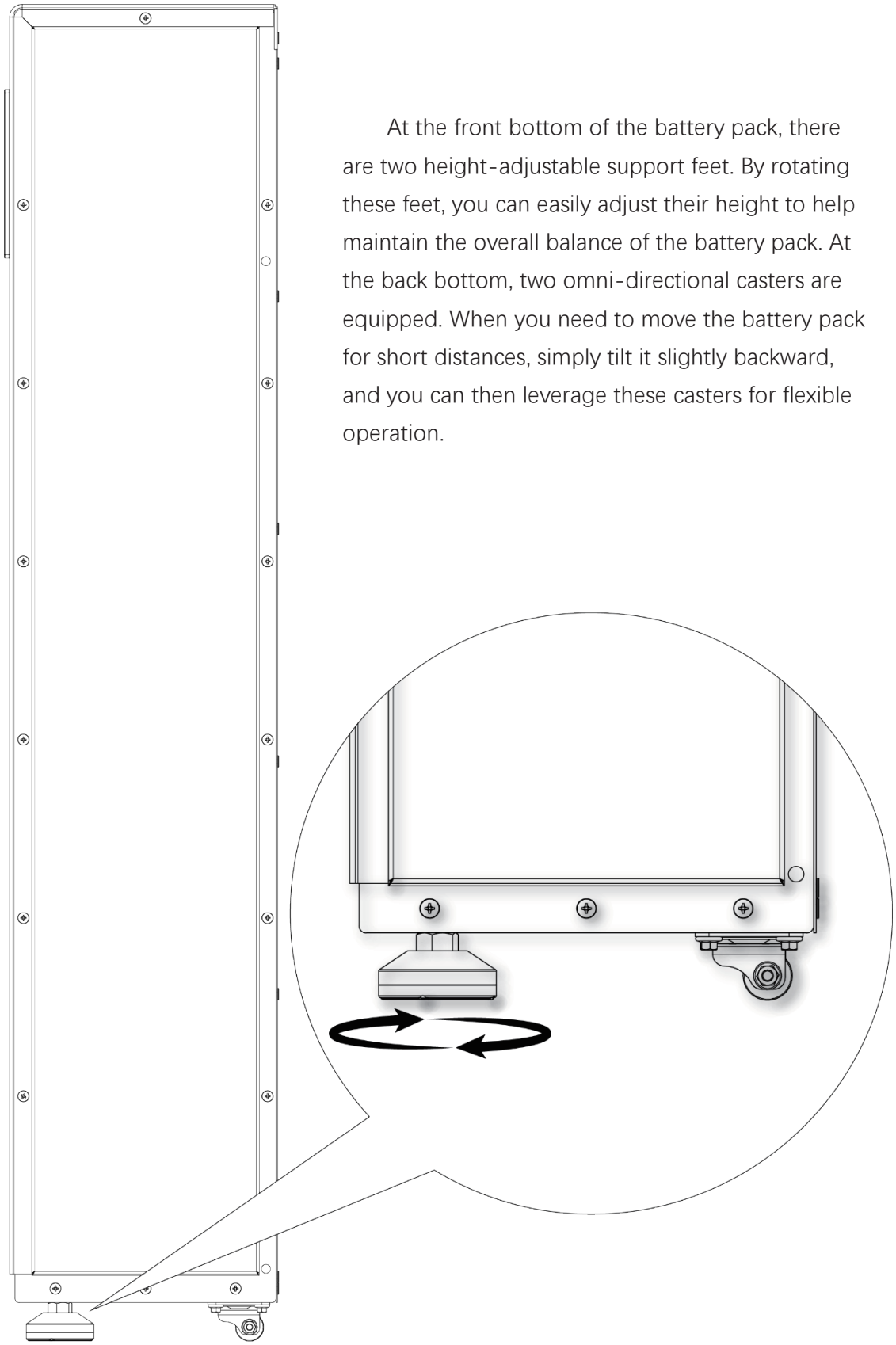
5.4 Device Installation



After opening the wooden box, please place the four eyebolts that come with the box into the load-bearing bolt holes at the rear end of both sides of the box. These four eyebolts serve as temporary mobile auxiliary grips or bearing points during lifting operations.



Facing the back of the battery box, hold the eyebolts on the left and right sides of the upper part with your hands, tilt the battery backward about 20 degrees, and use the universal wheels at the bottom of the box to move a short distance. Please do not tilt the battery too much, because the battery is heavy, and if the tilt angle is too large, your hands may not be able to support it, causing the risk of the battery falling.



At the front bottom of the battery pack, there are two height-adjustable support feet. By rotating these feet, you can easily adjust their height to help maintain the overall balance of the battery pack. At the back bottom, two omni-directional casters are equipped. When you need to move the battery pack for short distances, simply tilt it slightly backward, and you can then leverage these casters for flexible operation.

6 Electrical Connection

Before making electrical connections, make sure that all associated equipment switches are in the "OFF" position, otherwise the equipment may be damaged or even cause electric shock.

The operations related to electrical connections must be carried out by professional electrical technicians. When carrying out electrical connections, the operator must wear personal protective articles.

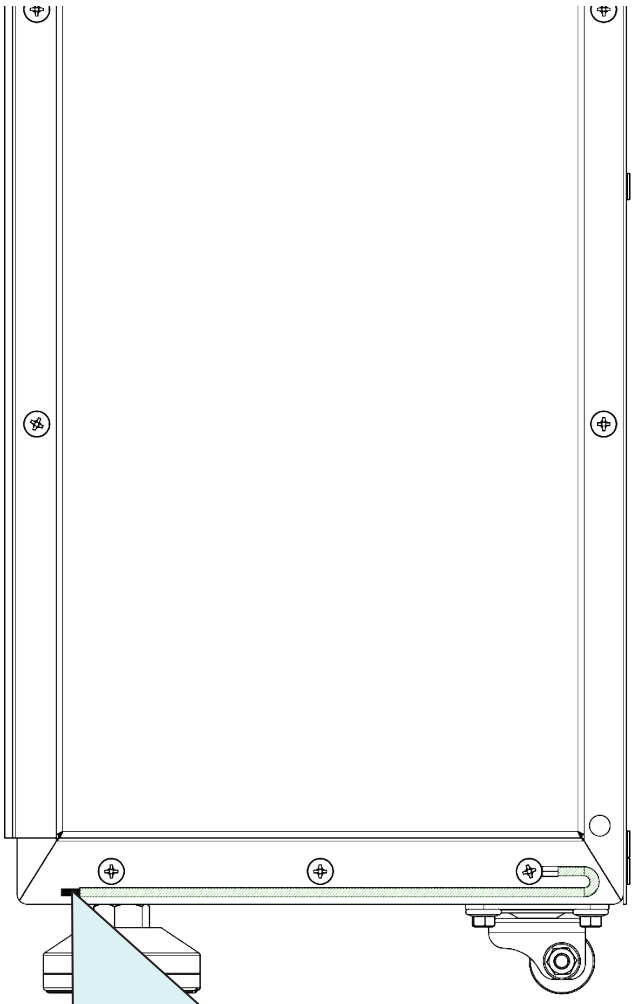
6.1 Preparation of Cables

NO	Cables	Description	Recommended specifications	Source
1	Power Cable	The DC power line connecting the battery pack to the inverter		Provide with the product together
2	Data cable	Communication data transmission line between battery pack and battery pack or inverter		Provide with the product together
3	Ground wire	Battery pack grounding cable		Provide with the product together
4	Photovoltaic input line	Wires between photovoltaic panels and inverters	Determine the cable withstand voltage and overcurrent according to the configuration of the photovoltaic panels and inverters	Prepare by the user itself
5	AC input line	AC input power lines from the grid to the inverter	Determine the cable size based on the maximum AC input power of the inverter	Prepare by the user itself
6	AC output line	AC output power lines from the inverter	Determine the cable size based on the maximum AC output power of the inverter	Prepare by the user itself

6.2 Electrical Connection of One Battery Module

Connecting Grounding Wire

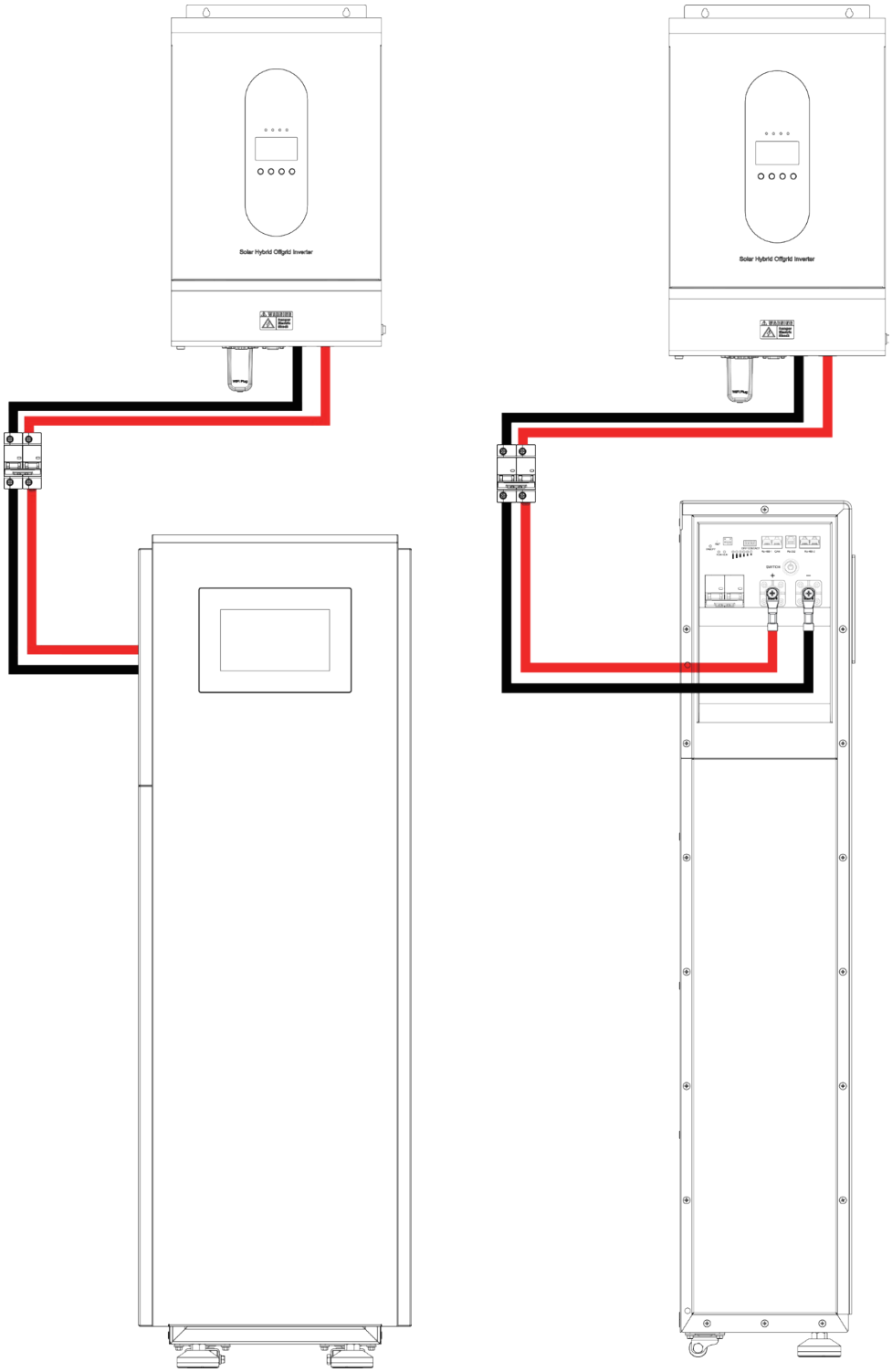
After the battery module is installed in place, connect the ground wire to the ground wire reserved on the right side of the bottom of the battery box.



Please use a wire no smaller than 2.5mm² to connect the ground wire reserved in the battery pack to the ground wire. This step is crucial for the normal operation and safety of the device, so please make sure to connect accurately.

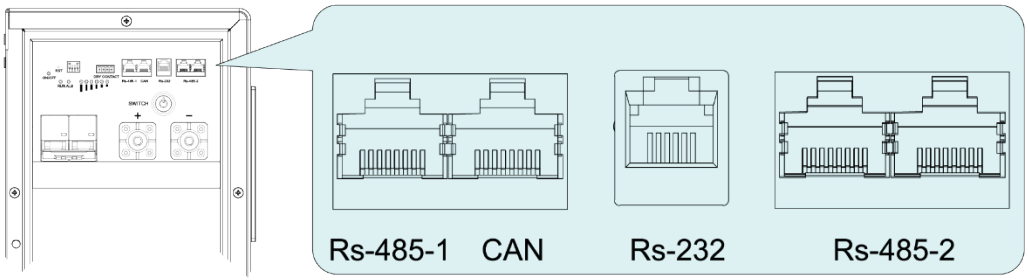
Connecting Power Cord

When connecting the battery power lead, please make sure that the battery and the equipment connected to it are in off state. (The off state means that all switches of the relevant equipment are in the off state and all indicator lights are off.)



Connect the data cable

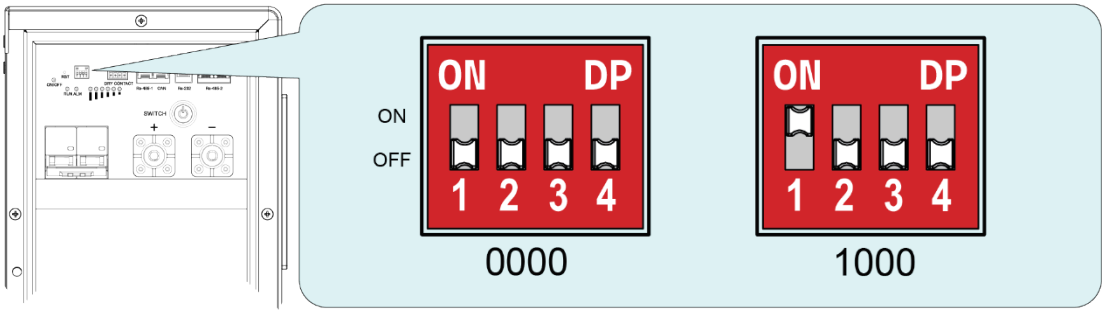
The data line is used for data communication between the battery module and the inverter. The battery module has three sets of RS485, one set of RS232 and one set of CAN communication interfaces. Select the corresponding communication interface according to the connected device. RS485 and CAN interfaces use RJ45 ports, and RS232 uses RJ11 ports.



When connecting the inverter, the communication line must be connected, and the communication protocol must be consistent.

For single battery pack, it is recommended to use RS485-1 or CAN connect the inverter

Communication address setting of energy storage battery



The on and off states of each bit of the DIP switch are realized through a mechanical contact point. The switch state is encoded in binary form, with the on state representing 1 and the off state representing 0. A 4-bit DIP switch can be encoded as any binary number between 0000 (all four bits are off) and 1111 (all four bits are on).

When a single battery pack is connected to an inverter, the DIP address is usually 0000, but in very rare cases the DIP address needs to be 1000.

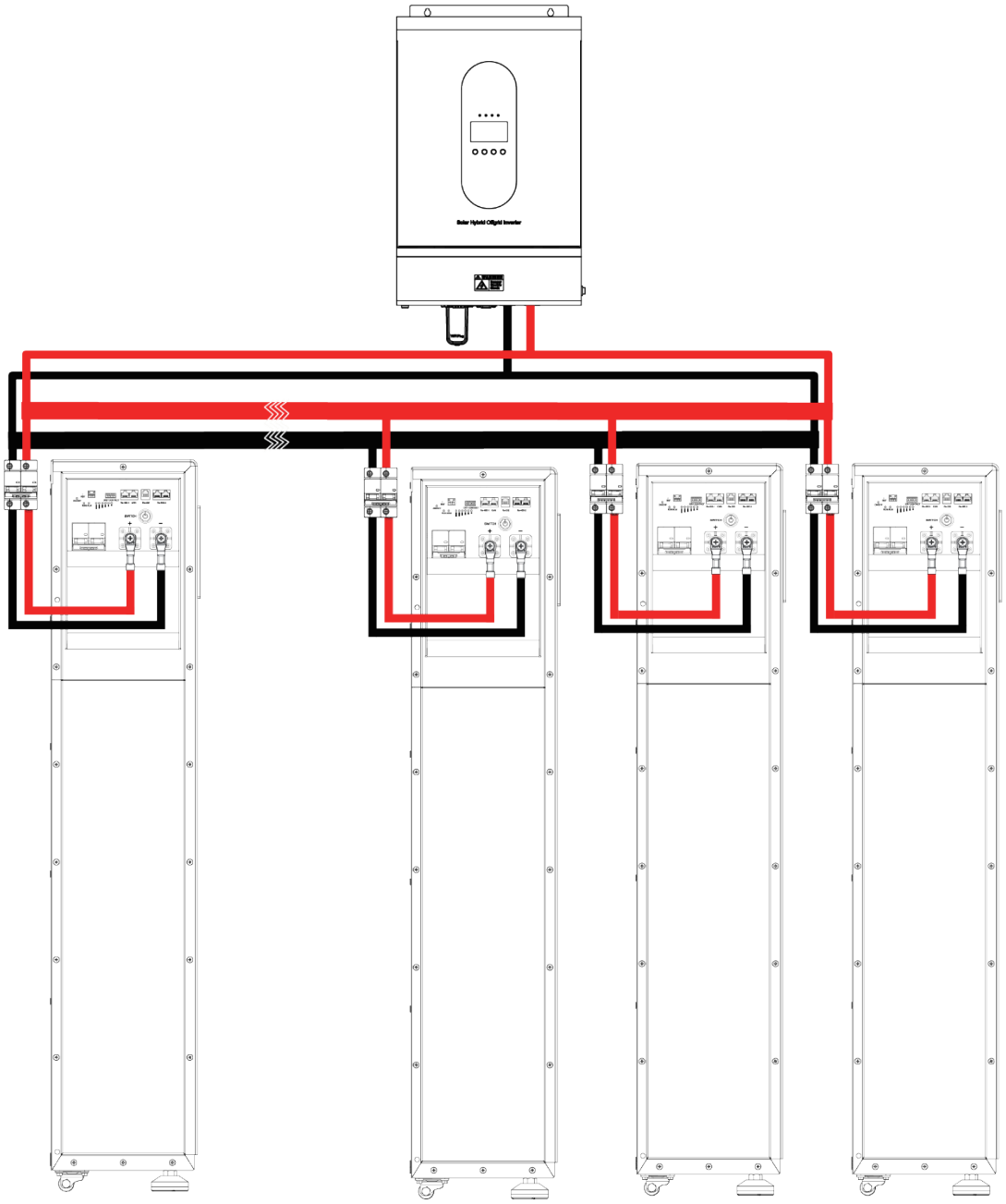
6.3 Electrical Connection of Multiple Battery Modules

Connecting Grounding Wire

When multiple energy storage battery packs are used in parallel, the ground wire must be connected to all related equipment.

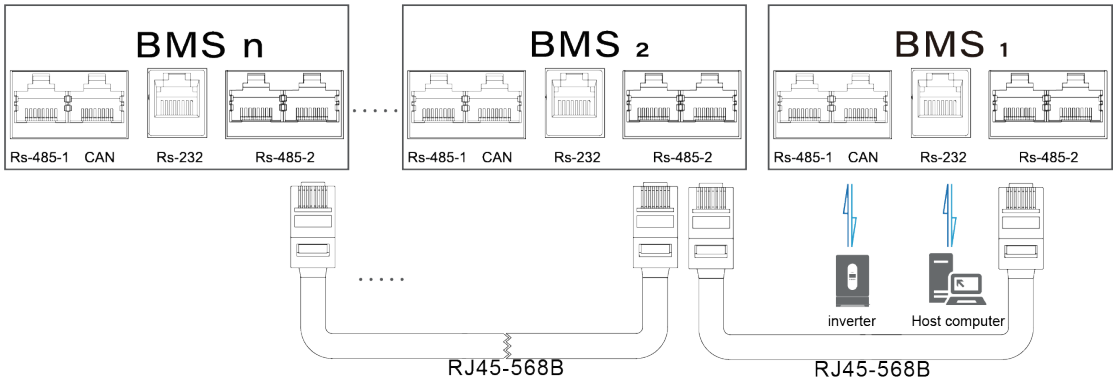
Connecting Power Cord

If multiple battery packs are used in parallel, a busbar is required to connect the battery packs to the busbar and then to the inverter. The busbar overcurrent value is based on the maximum power of the inverter.



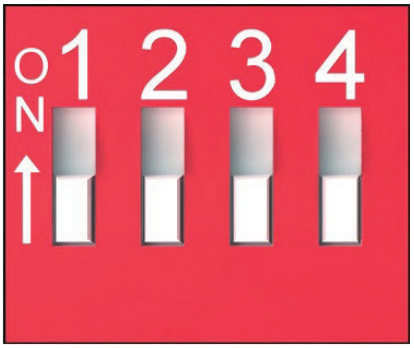
Connect the data cable

If multiple energy storage batteries need to be used in parallel, it is usually recommended to use the RS-485-2 port group for battery group cascade communication, RS-485-1 or CAN connect the inverter communication, and RS232 can be used to connect the PC host computer communication.

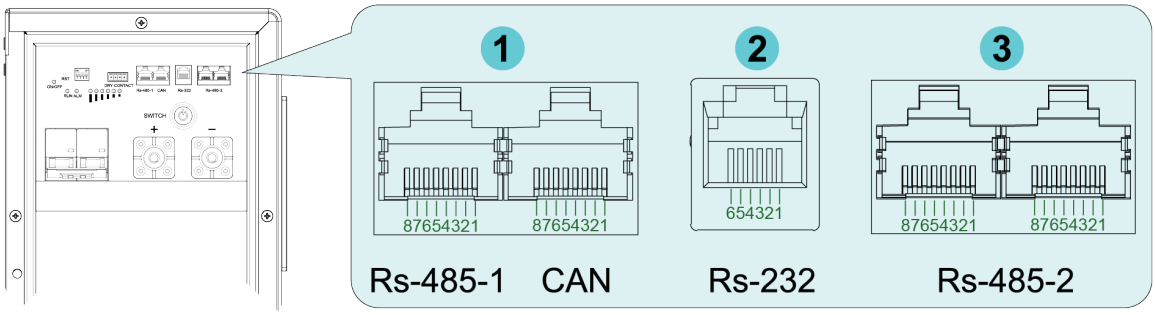


Energy Storage Battery Module Address Setting

The 4-bit DIP switch can be encoded into any binary number between 0000 (all four bits are disconnected) and 1111 (all four bits are connected). When parallel use is required, the DIP switch can be used to set the unique address of the power supply to distinguish different power supplies. The detailed definition of the power supply address is as follows:

	No	DIP switch status	No	DIP switch status
When multiple machines are used in parallel, the address of the battery group connected to the inverter is usually: 0000 	0	0000	8	0001
	1	1000	9	1001
	2	0100	10	0101
	3	1100	11	1101
	4	0010	12	0011
	5	1010	13	1011
	6	0110	14	0111
	7	1110	15	1111

6.4 Communication port line sequence definition



	RS485--Using 8P8C vertical RJ45 socket		CAN--Using 8P8C vertical RJ45 socket	
1	RJ45 Pinout	Definitions	RJ45 Pinout	Definitions
	1.8	RS485-B1	9、10、11、14、16	NC
	2.7	RS485-A1	12	CANL
	3.6	GND	13	CANH
	4.5	NC	15	GND

	RS232--Using 6P6C vertical RJ11 socket	
2	RJ11 Pinout	Definitions
	2	NC
	3	TX
	4	RX

	RS485--Using 8P8C vertical RJ45 socket			
3	RJ45 Pinout	Definitions	RJ45 Pinout	Definitions
	1.8	RS485-B	9、16	RS485-B
	2.7	RS485-A	10、15	RS485-A
	3.6	GND	11、14	GND
	4.5	NC	12、13	NC

7 System Debugging

7.1 Inspections Before Power-On

1、Confirm whether the energy storage system has been installed correctly, safely and reliably.

2、Please confirm whether the installation environment meets the requirements, ensure that the space layout is reasonable, the environment is clean, and the installation ground is stable.

3、Please check the power cord connection to ensure that the positive and negative poles are connected correctly and the connection is tight and secure.

4、Please confirm whether the data communication cable is connected correctly, ensure that there is no misalignment, and that the connection is firm.

5、Please make sure that the grounding wire is correctly connected and secure.

6、Please make sure that all switches in the energy storage system are in the disconnected state, including the battery pack, inverter and all related electrical switches. Make sure that the indicator lights of all equipment are off.

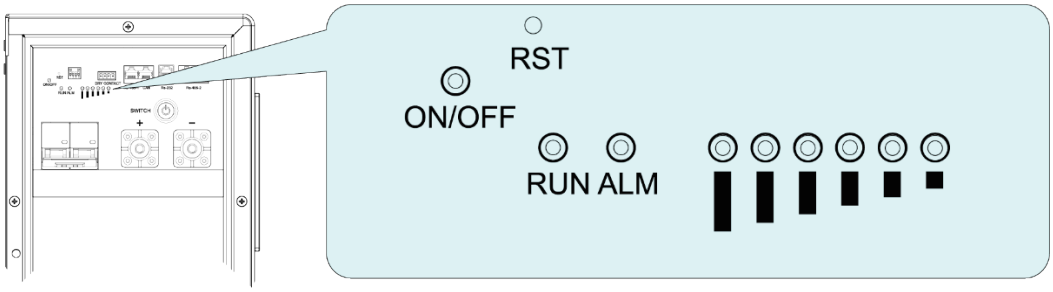
7.2 Power-On of Battery Module

Power-up Sequence

After the battery is connected to the inverter, please power on in the following order.

First, turn on the breaker switch, if there are multiple battery modules, turn on all the breaker switches. Secondly, turn on the battery switch button and the battery start to work. If there are multiple modules, please turn on the power switch one by one according to the address sequence.

System Status



LED instructions

State	Normal Alarm protection	POW	RUN	ALM	SOC(power indicator LED)	Instruction
Shutdown	Sleep					ALL OFF
Standby	Normal		3		According to battery indicator	Standby state
	Alarm		2	1		Battery pack low voltage
Charging	Normal				According to battery indicator(Battery indicator maximum LED flash2)	Maximum power LED Flash2
	Alarm		3	1		
	Overcharge protection		3	1		If there is no mains supply, the indicator is in standby state
	Temperature, overcurrent, fail-safeprotection		2	1	According to battery indicator	Stop charging
Discharging	Normal		1		According to battery indicator	
	Alarm		1	1		
	Under-voltage protection		2	1		Stop discharging
	Temperature, over current,short-circuit,reverse connection,fail-safe protection		2	1	According to battery indicator	Stop discharging
Failure						Stop discharging

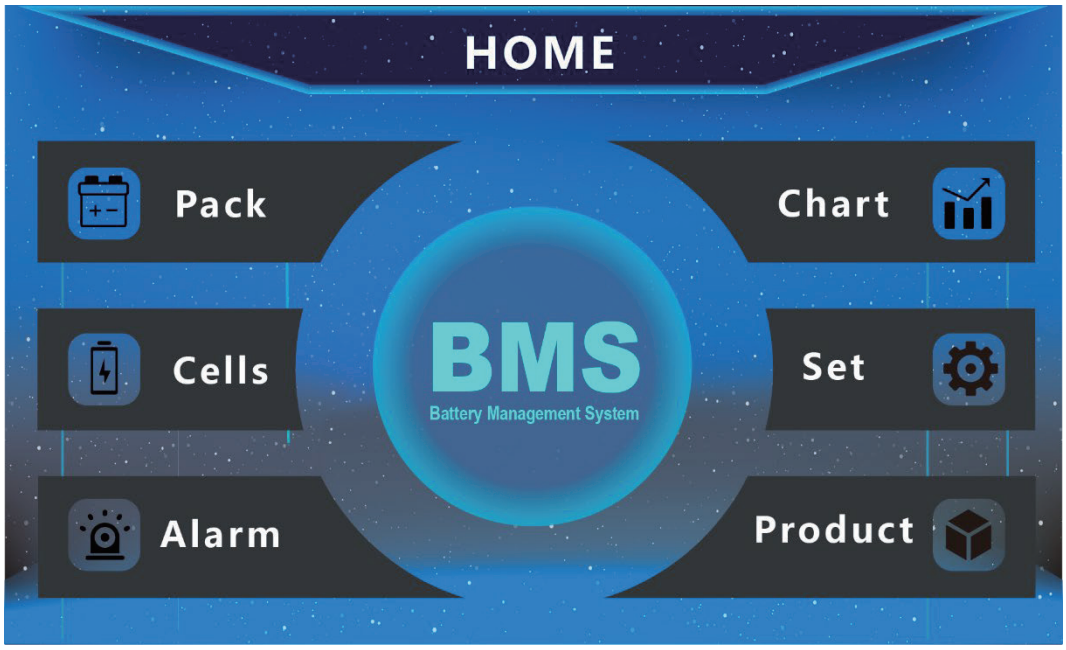
Battery soc status indicator light description

State		Charge						Discharge					
Capacity indicator		L1	L2	L3	L4	L5	L6	L1	L2	L3	L4	L5	L6
Power(%)	0~ 16.6%												
	16.6 ~33.2%												
	33.2 ~49.8%												
	49.8 ~66.4%												
	66.4 ~83.0%												
	83.0 ~100%												

LED Flashing instructions

LED flashing mode		ON	OFF
Flashing mode 1	1	0.25S	3.75S
Flashing mode 2	2	0. 5S	0. 5S
Flashing mode 3	3	0. 5S	1.5S

7.3 LCD Touch Screen



The LCD display shows various critical data, including operating status, real-time including the remaining battery capacity, operating status, real-time power, and fault alarms. Through the LCD display screen, users can clearly see the battery's voltage, current, temperature, and other data. Additionally, it supports touch operations, allowing users to conveniently monitor the battery's status and manage its usage in real-time.

7.4 Bluetooth Communication

Bluetooth communication: With Bluetooth function, you can connect Bluetooth through the mobile phone APP to monitor various information of the battery.

Apple phone: search "BMS Meta" on apple app store.

Android phone: search "BMS Meta" on google play

8 System Maintenance

8.1 System Power-Off

After the system is powered off, the case still has residual power and heat, which may cause electric shocks or burns. Therefore, protective gloves should be worn before operating the energy storage 5 minutes after the system is powered off. Maintenance operations on energy storage should be performed only after ensuring that all indicator lights of the energy storage are off.

Power-off operation steps of the system:

Step 1 Turn off the breaker switch between the inverter and AC output (If installed).

Step 2 Turn off the breaker switch between the inverter unit and AC input(If installed).

Step 3 Turn off the breaker switch between the inverter unit and the PV string(If installed).

Step 4 Turn off the breaker switch between the inverter and battery.

Step 5 Turn off button on all storage battery modules, the energy storage is powered off successfully.

8.2 Routine Maintenance

To ensure the long-term and good operation of the energy storage system, it is recommended to perform the routine maintenance as described in this section.

1. Once every six months, check whether the equipment is stable, whether there is any covering, clean the dust on the surface, and observe whether the appearance of the equipment is damaged or deformed.

2. Once every six months, listen to whether the equipment makes any abnormal sounds during operation, and check whether the indicator lights are normal.

3. Check at least once a year whether all connecting cables are stable and whether the cables are damaged.

8.3 Common Faults and Handling Methods

Faults	Handling measures
The indicator light and LCD do not work	Check whether battery is sleeping mode. If the battery is neither charged nor discharged, it will automatically enter sleep mode after a period of time.
All indicators of the battery are off	If the battery power is low, you need to charge it before using it. If the battery is not used for a long time, it will automatically sleep, and it can be used normally after restarting.
Battery overcurrent protection fault	Check whether there is a short circuit in the battery wiring. Check whether the load power exceeds the maximum
The battery cannot be charged	Check if the battery is fully charged Check whether the ambient temperature is below -10 degrees.
Communication error with inverter	Check whether the communication interface is incorrectly plugged in and Whether the wiring is secure. Whether the battery address is set correctly. Whether the protocol is secure.

8.4 Battery Storage and Maintenance

8.4.1 Battery Storage Requirements

Do not put the battery into fire. The battery may explode.

Do not open or damage the battery. The electrolyte flowing out from the battery is harmful to the skin and eyes. The electrolyte may also be toxic.

1. When being stored, the batteries shall be placed correctly in accordance with the marks on the packing case. Do not put them upside down or on the side.

2. When stacking up the battery packing cases, the stacking requirements on the outer package shall be met.

3. Batteries should be handled with care, and damage to batteries should be strictly prohibited.

4. Requirements for the storage environment:

- Ambient temperature: -10℃ to 55 ℃, recommended storage temperature: 20℃ to 30℃.
- Relative humidity: 5%RH-80%RH.
- Dry, well ventilated, and clean.
- The corrosive organic solvents, gases and other substances shall be kept away.

- Exposing to direct sunlight shall be avoided.
- The distance from the heat source should not be less than two meters.

5. When being stored, the battery shall be disconnected from the external connection. If there is an indicator light on the battery panel, the indicator light shall be off.

6. The warehouse keeper shall make monthly statistics on the battery storage, and regularly inform the planning link of the battery inventory. If any battery has been stored for nearly 15 months (-10 ℃ to 25 ℃), 9 months (25 ℃ to 35 ℃), or 6 months (35 ℃ to 55 ℃), recharging shall be arranged in time.

7. When the stored batteries are going to be delivered, the first-in first-out principle should be followed.

8. After battery use or debugging, it shall be recharged to at least 50% SOC before being stored. If the device will not be used for a long period of time, discharge the battery to 45% to 60% of the battery capacity and disconnect the battery output to avoid the battery runs out;

9. Do not touch the battery pack with wet hands.

10. Do not squeeze, drop, or pierce the battery.

11. The battery should always be disposed in accordance with local safety regulations.

12. The battery should be stored and recharged in accordance with this User's Manual.

13. Do not reverse polarity of the battery when storing or transporting the batteries, the batteries shall not be stacked up without protective packaging, and the number of stacked packed batteries should not exceed the number specified on the packaging.

14. All operators of the energy storage system shall comply with the user manual, installation and service manual, and quality assurance requirements. Any damage to the device resulting from neglecting or misreading of the user's manual, installation and service manual, and the quality assurance requirements will invalidate the product warranty.

8.4.2 Requirements for Charging Battery

The batteries to be stored for a long period of time (unused, for more than 3 months) must be kept in a dry and cool place. The storage voltage is 51V~53V. The batteries should be stored in a clean environment of 23± 2℃ and humidity of 45%~75%. If the battery will be shelved and not used for a long period of time, it should be recharged every 3 months to ensure that the battery voltage is within the above range.

As for batteries and long-term storage, routine maintenance is required. Please charge the battery to 40% SOC at a current of 0.2C according to the requirements in the table below.

Ambient temperature for storage	Relative humidity for storage environment	Storage Time	SOC
<-10℃	/	Prohibited	/
-10~25℃	5%~70%	⩽12 months	30%⩽SOC⩽60%
25~35℃		⩽6 months	
35~45℃		⩽3 months	
>45℃	/	Prohibited	/

8.5 Device Cleaning

It is recommended to clean and maintain the product from time to time. When cleaning, the dust and stains on the product shall be removed with a piece of soft dry cloth or vacuum cleaner. The product shall not be cleaned with organic solvents, corrosive liquids and other cleaning products.

END