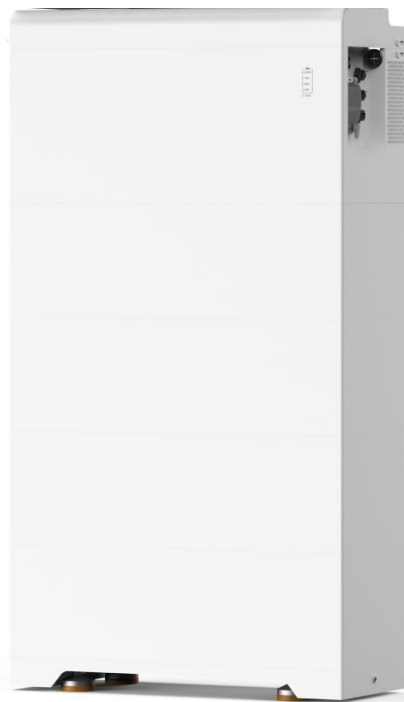


Rechargeable Li-ion Battery system

User Manual

RBmax3.8MH & 5.5MH Series



Document No: RD-RBmaxMH Series-Y-060

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RBmax3.8MH & 5.5MH Series

Type	Parameter
Product Name	Rechargeable Li-ion Battery system
Product Model	RBmax3.8MH & 5.5MH Series
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Examined by	JZ.Li / KJ.Yang / HY.Zheng

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V1.1	December 06 , 2024	Update nameplate	
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Preface

About this manual






Please read this manual and related documents carefully before using this product, and store them in a place where installation, operation, and maintenance personnel can access them at any time. The illustrations in this user manual are for reference only, please refer to the actual object for details. This user manual is subject to change without prior notice, please download the latest user manual from the official website.

Target group






Must be installed by professional electrical engineers who have obtained relevant qualifications.





Safety instructions

The following safety instructions and general information are used within this user manual.

	DANGER	Indicates an imminently hazardous situation which, if not correctly followed, will result in serious injury or death.
	WARNING	Indicates a potentially hazardous situation which, if not correctly followed, will result in serious injury or death.
	CAUTION	Indicates a potentially hazardous situation which, if not correctly followed, could result in moderate or minor injury.
	NOTICE	Indicates a potentially hazardous situation which, if not correctly followed, could result in equipment failure to run, or property damage.
	NOTE	Calls attention to important information, best practices and tips: supplements additional safety instructions for better use of the ESS inverter to reduce wastel resources.

Symbols Used

	The equipment shall be disposed according to local regulations as it's not household waste!
	The battery system must be disposed at a proper facility for environmentally safe recycling.
	Danger of high voltage. Residual voltage in the battery system need 5 mins to discharge, wait 5 mins before operation.
	Refer to the operating instructions.
	CE marking

	RCM certification mark
	High voltage risk
	Watch out for danger
	Danger of hot surface

1. Safety

1.1 Safety statement

While install, operate, and maintain the equipment, please read the manual first, and follow all safety considerations included in equipment labels and the manual.

"Danger", "Warning" and "Caution" items in the manual do not represent all safety considerations that you should follow, but only the supplement of those considerations. RoyPow is not liable for any consequences due to the breach of safety operation requirements or the violation of safety criterion of design, produce and use of the equipment.

The equipment should be used under the condition aligned with designed specification requirements, otherwise may cause equipment fault, and the consequent equipment malfunction or parts damage, personnel safety accident, property loss etc. are not included within the equipment quality warranty scope.

When you install, operate, and maintain the equipment, local laws, regulations, and standards shall be abided by. The safety considerations within this manual are only the supplement for local laws, regulations, and standards.

RoyPow is not liable for the occurrence of any of the following situations:

- Damages to hardware or data caused by clients' negligence, improper operation or intended damage.
- System damages caused by a third party or customer, including: handling, installation, commissioning, change or removal of identification marks etc., which are in compliance with the requirements of this manual.
- Customer fails to follow the operating instructions and safety warnings from the product and manual.
- Customers use Non-RoyPow provided materials to replace part of product components by themselves.

- The equipment is not running under the condition described in this manual.
- The installation and using environment are in compliance with regulations of international, national, or local standards.
- Remove or alter products or modify software code without authorization.
- Equipment damages caused by abnormal climates (force majeure, such as earthquake, fire, storm, flood, debris flow etc.).
- Damages caused by storage condition in compliance with the requirements in the product documents.

1.2 Safety requirements

Personnel Safety

The operator who is responsible for installing and maintaining RoyPow products must go through a strict training, understand each safety consideration, and master correct operation method.

- Only qualified professionals or well trained and licensed personnel are allowed to install, operate, and maintain the equipment.
- Personnel who operates the equipment, including operators, qualified personnel, and professionals, shall hold the special operation qualifications (such as high voltage operation, aloft work and special equipment operation) required by the local government.
- When operating a high voltage system, at least two people are required, with one person to operate and the other person to supervise and protect.

Operators should follow the requirements below during the operation:

- Appropriate personal protective equipment should be worn during the operation.
- If a malfunction which may cause personal injury or equipment damage is found, stop the operation immediately, report it to the person in charge, and take effective protective measures.
- Before using the tools, please master the correct using method and prevent personnel injury or equipment damage.
- When the equipment is running, the temperature of enclosure is relatively high, and may cause burns. Please do not touch.
- To ensure personal safety and proper working, a reliable grounding shall be completed before use.
- When a battery fault occurs, the temperature may higher than the burn threshold of touchable surface. Please do not touch it.
- Please do not open or damage the battery. The released electrolyte may be harmful to skins

and eyes. Please do not contact it.

- Please do not place irrelevant items around the equipment or insert into any location of the equipment.
- Please do not place any flammable items around the equipment.
- Placing the battery on fire is strictly prohibited to prevent explosion and jeopardize personal safety.
- Please do not place the battery module in water or other liquids.
- Please do not short circuit battery terminals as it may cause fire.
- While using the battery, please remove metal items such as watch, ring etc., use tools with insulation handle, wear rubber gloves and boots.
- Please do not place any metal tools or parts on top of the battery.
- Before connecting or disconnecting battery terminals, please disconnect charging power, and make sure no-power at the power supply with multimeter.
- Determine whether the battery is accidentally grounded. If so, please remove the power supply from the ground.
- Please do not clean interior or exterior electrical components of the cabinet with water or detergent.
- Please do not stand on, lean to, or sit on the top of the equipment.
- Please do not sabotage any equipment module.

Battery Safety

RoyPow is not liable to any equipment malfunction or component damage, personal safety accident, property loss etc. due to following reasons:

- Clients fail to charge promptly and cause battery overdue storage, which result in battery capacity loss or irreversible damage etc.
- Battery damage, drop, leaking etc. due to improper operation or failure of following requirement to connect the battery.
- When the battery is installed onsite and connected to the system, it is over discharged as the client fails to power it on promptly, and result in damage.
- Customers fail to set up battery operation management parameters correctly.
- The client or any third party alters battery usage scenarios without informing RoyPow, such as connecting additional workload to the battery by themselves; mixture use of RoyPow battery with batteries from other companies, including but not limited to: mixture use with other brand batteries, mixture use with different rated capacity batteries etc.
- As the onsite equipment operation environment or external power parameters cannot satisfy the environment requirements for normal operation, including too high/low battery

operating temperature, unstable grid condition, and too high/low grid voltage, which directly damage the battery.

- Battery frequently over discharge due to clients' improper maintenance; clients' onsite capacity expansion or the battery is not fully charged for a long time.
- Clients fail to conduct correct maintenance for the battery in accordance with corollary equipment instruction manual, including but not limited to: fails to regularly inspect for tightness of battery terminals etc., battery is stolen, battery is beyond the quality warranty period.



Danger

- ✧ Please do not expose the battery to a high temperature environment or place around a heat generating devices, such as sunshine, fire, transformer, heater etc.
 - ✧ Battery removal, alteration or sabotage is strictly prohibited (such as insert foreign matters, immerse into water or other liquids etc.), to prevent battery from leaking, overheat, on fire or explosion.
 - ✧ Please consider following safety risks thoroughly prior to any operation of the lithium-ion battery energy storage system:
 - Battery electrolyte is flammable, toxic and volatile.
 - Battery thermal runaway will generate flammable gas and toxic gases, such as CO, HF etc.
 - Gas generated after the battery thermal runaway will accumulate and is risky for deflagration and explosion.
-
- The battery must be stored separately and placed in the exterior package to prevent from mixing with other items, storing openly stored or stacking too high.
 - Using batteries beyond the quality warranty period is strictly prohibited.
 - Normally, exterior package of the battery shouldn't be removed. Please follow professional's instruction to charge the battery if necessary. Once charging is completed, please return the battery to the package.
 - While handling the battery, please follow the direction instruction, inversion and incline is prohibited.
 - Battery collision should be avoided.
 - Please do not conduct works like welding, grinding etc. to prevent fire hazards caused by spark or arc generated.
 - Please use the battery under the temperature within the range specified in this manual.
 - Please do not use damaged battery (damages due to dropping, collision or dent on the

enclosure etc.). Damaged battery may cause flammable gas releasing. Please do not place them close to undamaged products.

- Please do not place damaged batteries close to flammable materials, and non-professionals shall not approach.
- While damaged batteries are stored, they should be monitored to ensure that no signs of fog, fire, electrolyte leaking, or heating is observed.

Environment Safety

- The installation and usage environment shall abide by stipulations of local laws and regulations as well as relevant international, national, and local standards regarding lithium-ion battery products.
- The installation location is inaccessible to children, away from areas for daily work and life, including but not limited to: work room, bedroom, lounge, living room, music room, kitchen, study room, game room, home theatre, sunlight room, rest room, shower, laundry, and loft.
- For garage installation, please keeps it away from vehicle heading direction. It's recommended to mount on the wall above vehicle bumper to avoid accidental collision.
- For basement installation, please maintains the ventilation. Do not place any flammable and explosive items around the equipment. It's recommended to mount on the wall to avoid water accumulation.
- The installation position should be dry and well-ventilated, and the equipment is fixed on a solid and flat supporting surface.
- Please select a sheltered installation site, or build an awning to avoid direct sunlight or rain.
- Please ensure that the installation environment is clean, without existence of large amount of IR radiation, organic solution, and corrosive gas etc.
- For regions with frequent occurrence of natural disasters such as flood, debris flow, earthquake, typhoon etc., corresponding preventive measures should be implemented for the installation.
- The installation location should be far away from fire source and heat source. Please do not place any flammable or explosive items around the equipment.
- The installation location should avoid water accumulation. It should be away from water sources such as taps, sewer line, sprinklers etc. to prevent water infiltration.
- When the equipment is running, the temperature of case and cooling fins are relatively high. Do not install it at any location with easy access.
- While the equipment is running, please do not block the air vent or cooling system, to prevent fire caused by high temperature.
- Placing the equipment close to flammable or explosive gas or smog is prohibited, and any

operation in such environment is prohibited.

- Installing in any mobile environments, such as boat, train, vehicle etc. is prohibited.
- Under backup scenarios, please do not use the power supply for following purposes:
 - ✧ Used in medical equipment directly related to human life.
 - ✧ Used in control equipment such as trains, elevators etc., which may cause personal injuries.
 - ✧ Used in a computer system which is crucial to society and public.
 - ✧ Used at locations close to a medical equipment.
 - ✧ Same type of equipment as described above.
- Battery systems installed in a high salt fog environment will be corroded. At high salt fog area, please do not install it outdoor. High salt fog area refers to those areas 500 meters inward coastline or influenced by ocean breeze. The condition of ocean breeze influence area varies depending on weather condition (such as typhoon, monsoon) or terrain (with dam, massif).



Caution

-
- ✧ The operation and lifetime of energy storage system is related to the working temperature. Please install the energy storage system in an area with equal or better environmental temperature.
 - ✧ If the environment temperature where the battery installed is lower than 10°C, charge/discharge power rate of battery module will decrease.
-

Operation Safety

When the equipment is under higher voltage. Non-standard operation may result in electric shock or fire, causing personnel death, severe personal injuries, or serious property loss. Please operation by standard.

- It's prohibited to install or operate outdoor equipment and cables under harsh weathers, such as thunderstorm, rain, snow, and gales above 10m/s, including but not limited to handling equipment, operate equipment and cables, plug/unplug signal ports connected outdoor, aloft work, outdoor installation etc.
- Please follow the operating sequence and safety considerations specified in the manual and other relevant documents.
- Please follow the caution labels, warnings, and protective measures shown on the equipment.
- Please follow the requirements of the manual, use appropriate tools, and master the correct usage of tools.
- It's prohibited to install or operate outdoor equipment and cables under harsh weathers, such

as thunderstorm, rain, snow, and gales above 10m/s, including but not limited to handling equipment, operate equipment and cables, plug/unplug signal ports connected outdoor, aloft work, outdoor installation etc.

- Please follow the operating sequence and safety considerations specified in the manual and other relevant documents.
- Please follow the caution labels, warnings, and protective measures shown on the equipment.
- Please follow the requirements of the manual, use appropriate tools, and master the correct usage of tools.
- Cleaning the equipment with water is prohibited.
- Before contacting any conductor surface or terminal, please check the voltage of the contact point and ensure no risk for electric shock exists.
- Paint scratch occurred during equipment transportation and installation must be repaired promptly. The scratched part is strictly prohibited to expose to outdoor environment for long time.
- During the handling process, it's prohibited to affect the component of battery terminals, and it's not allowed to conduct hoist handling via the bolt of battery terminals.
- In any cases, please do not alter equipment structure and installation sequence without manufacturer's permission.
- If a fire hazard occurs, please evacuate immediately and call for emergency rescue. In any cases, it's strictly prohibited to re-enter the building on fire.
- During transportation, transfer, installation and cable connection, requirements of national and local laws and regulations as well as relevant standards shall be satisfied.
- Materials brought by the user and tools needed during the operation must be aligned with the requirements of national and local laws and regulations as well as relevant standards.
- You should adequately be familiar with the constitution and principles of the entire battery system, as well as the relevant national and local standards.
- All electrical connections must be aligned with the national/local electrical standards.
- Grid-connected operations must be licensed by the country's power authority.
- User-supplied cables should comply with local laws and regulations.
- Please use dedicated insulating tools when you conduct high voltage operations.

Installation Safety

- Before the installation, please check the package integrity. Batteries with broken package cannot be used.
- During the installation, please be careful with positive/negative poles, which are prohibited to be short circuited.

- During the installation, a torque wrench is used to ensure that the screws are tightened without loosening, which should be checked regularly
- Once the equipment is installed, please remove the empty packing material around the equipment area, such as carton box, foam, plastics, cable ties etc.

Grounding Safety

- For equipment with grounding required, protective grounding wire must be installed first during the installation; when the equipment is removed, the grounding wire should be removed at last.
- Sabotaging the grounding conductor is prohibited.
- Operating the equipment without the grounding conductor installed is prohibited.
- The equipment should be permanently connected to the protective ground wire. Before operating the equipment, please check the electrical connection to ensure that the equipment is securely grounded.
- The grounding resistance of the equipment should be less than 0.1Ω .
- While multiple equipment is running in parallel, it's required to ensure that the grounding resistance of each equipment is consistent.

Equipment Operation

- Before the electrical connection, the corresponding breakers of the upper level must be disconnected if the risk of touching live parts exists.
- Before connecting to the power supply, it is crucial to confirm that the label on the power supply is correct first, then make the connection.
- If the equipment has multiple inputs, all inputs of the equipment should be disconnected. Operations to the equipment are only allowed once it is entirely powered off.



Danger

-
- ✧ Live installation and removal of mains lead is prohibited. The instant mains lead contacting a conductor, it will generate electrical arc or electrical spark, which may cause fire hazard or personal injuries.
-

Wiring Safety

- Using cables in a high temperature environment may cause insulation layer aging and damage. The minimum distance between cables and heating devices or outer ring of heat source area is 30mm.
- Same type of cables should be tied together. Different type of cables should be placed

separately with minimum interval of 30mm. Twine or cross layout is prohibited.

- Cables used in the main circuit of the battery system must be connected securely, with good insulation and proper specification implemented.
- Locations for cable through or entrance holes must come with protection to prevent cable from damaging by sharp edge or glitch.
- If the temperature is too low, vigorous impact or vibration may cause crack on cable's plastic sheath. To ensure operation safety, please follow the requirements below:
 - a. All cables should be installed above 0 °C. While handling cables, especially in the low temperature environment, please handle them gently.
 - b. If the cable storage temperature is lower than 0°C, before cabling, cables must be moved to a room temperature environment and stored there for more than 24 hours.

Handling and Transportation Safety

Handling Requirements

The energy storage system should be handled in accordance with the local laws and regulations, as well as industrial standards. Rough handling may cause battery within the cabinet short circuited, or battery leaking, crack, explosion or on fire.

Shipping Prerequisite

Before the shipment, the battery must be checked for integrity, without symptoms like obvious odor, smoking or on fire discovered. Otherwise, the departure is prohibited.



Caution

-
- ✧ Products can be delivered directly to the premise, available for vehicle and shipping transportation. The transfer package must be solid. Please handle it with care during handling and transportation, and take precautions against moisture. With the influence of external environment (such as temperature, transportation, storage etc.), product specification parameters are subject to the date of manufacture.
-

Requirements of Transportation Process

The battery module satisfies the UN38.3 transportation standard. During battery system transportation, special rules regarding road freight transportation and current Dangerous Cargo Act must abide by, particularly the revised European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR). During ocean transportation, International Maritime Dangerous Goods Code (IMDG CODE) requirements should be followed. Supervising and administrative requirements of local government of country of departure, countries of pathway and the destination shall be satisfied. The supervising and administrative requirements of International Dangerous

Goods Code and corresponding national transportation administrative authority shall abide by.



Danger

The following conditions are prohibited during handling and transportation:

- ✧ Directly expose to rain or snow or drop into water.
- ✧ Dropping or mechanical impact.
- ✧ Inversion or toppling.

Drilling Safety

The following safety cautions shall be considered while drilling holes on the wall/ground:

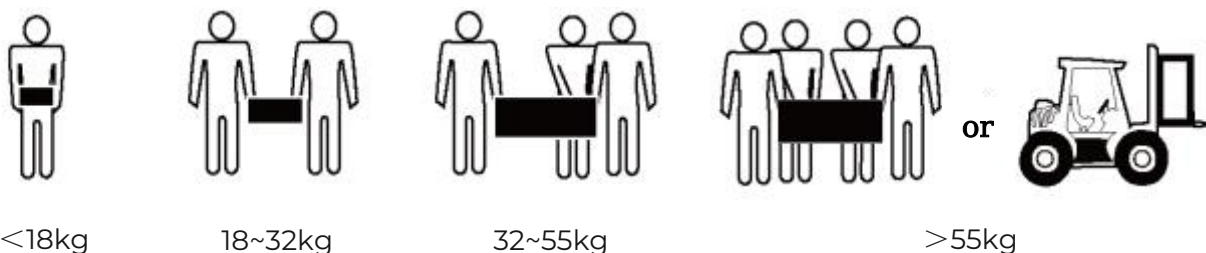
- Please wear goggles and protective gloves while drilling holes.
- While drilling holes, proper shield shall be placed for the equipment to prevent debris dropping into the equipment. Please clean and clear debris after drilling.

Handling Safety

When handling heavy objects, please prepare for load bearing, and prevent being crushed or sprain by the heavy objects.

When handling the equipment with hands, please wear protective gloves to prevent being injured.

During the handling, the local maximum weight regulation for labors shall be strictly followed. If the weight is beyond the specified amount, multiple people or forklift is required.



Maintenance and Replacement



Danger

- ✧ When the equipment is running, high voltage exists and may generate electric shock and cause death, severe personal injuries, or serious property loss. Therefore, you must power off the equipment before any maintenance, ensure dangerous power doesn't exist with multimeter,

and operate in accordance with safety considerations specified in the manual and other relevant documents.

- Please maintain the equipment under the condition that you are familiar with contents of the manual and holding proper tools and test devices.
- Before the maintenance, please power off the equipment, then wait for times specified in the instruction of delayed discharge label to ensure that the device is power off, then start the operation.
- During the maintenance, irrelevant personnel should be avoided to access to the maintenance site. A temporary warning sign or a fence must be setup for isolation.
- For any fault occurs to the equipment, please contact your vendor for further treatment.
- The equipment shall not be powered on unless the fault is resolved, otherwise, it may cause fault expansion or equipment damage.
- Please do not open the cover without authorization, as risks of electric shock may exist, and faults resulting from it are beyond the warranty scope.
- Maintenance personnel and professional technicians should have thorough trainings regarding safety use and equipment maintenance, and the equipment should be operated under the condition that sufficient preventive measures and personal protective equipment are in place.
- If movement or cable reconnection is required, the power supply must be cut off for at least 5 minutes to let the internal energy completely released, confirm with multimeter that dangerous power doesn't exist at DC bus and internal maintenance location, then start the maintenance.
- The battery maintenance should be conducted or supervised by personnel who is familiar with the battery and the preventive measures required.
- While replacing the battery, please use the same type of battery or battery module.
- Once the maintenance is completed, please verify if any tools or other parts are left inside the equipment immediately.
- If the equipment is not used for a long time and the battery power is too low, please start the battery system and charge the battery through the mains or photovoltaic power to make the SOC greater than 50%.

1.3 Emergency operation

Emergency

Dangers: When a battery terminal contacts with other metals, it may cause heat or electrolyte leaking. Electrolyte is flammable, if it leaks, please remove the battery from the fire immediately.

Poisonous: Steam generated by battery burning may stimulate eyes, skin, and throat.

Electrolyte is corrosive, exposing to it may cause skin stimulation and chemical burn. For any battery electrolyte exposure, please take the following measures:

- ✧ Inhalation: Evacuate the contaminated area, breath fresh air immediately, and seek medical help.
- ✧ Eye contact: Rinse eyes with a lot of water immediately for 15 minutes in minimum, do not rub and seek medical help.
- ✧ Skin contact: Rinse the contact area with a lot of water and soap immediately and seek medical help.
- ✧ Ingestion: Seek medical help immediately.



Danger

-
- ✧ For any electrolyte leaking or odor smell, please avoid contacting the leaked liquid or gas. For non-professionals, please do not approach, and contact professionals to deal with the situation immediately. Professional personnel shall wear goggles, rubber gloves, gas mask, protective clothing etc. to prevent injuries caused by electrolyte overflow.
-

Fire Hazard

1. When a fire disaster occurs, please quickly transfer people to a safe place and setup an isolation area.
2. Once you are secure, remotely save system information, and send them to the supplier and power off the system remotely. Meanwhile, call emergency service and wait for firefighters to put the fire down.
3. Firefighters should avoid contacting high voltage components during fire extinguishment, otherwise they may under risks of electric shock.
4. When the battery temperature is too high, it may cause battery deformation, damage, or electrolyte overflow, leaking poisonous gas. Hence respiratory protective equipment should be worn. Please do not approach and avoid skin stimulation and chemical burn.
5. Once the fire is extinguished, please wait for at least 24 hours and confirm with the supplier that the inspection is completed, then you can approach and dispose it.

Flood

1. When flood occurs, please quickly transfer people to a safe place. Once you are secure, remotely power off the system.
2. If any part of the battery is immersed in water, please do not touch the battery to prevent from

electric shock.

3. Once the flood retreats, please contact the supplier for further treatment.
4. Please do not use flooded battery. Contact the recycle company for disposition.

Dropping

- While installing the battery, if the battery drops or impacted vigorously, it may result in internal damage of the equipment, and further usage is prohibited, otherwise it may have safety risks (such as cell leaking, electric shock etc.)
- When the battery drops, if symptoms like obvious odor, broken, smoking, or fire occur, please evacuate personnel immediately, call the police, and contact professionals. The professional will use fire control equipment to put out fire while their safety is secured.
- If the battery drops, and no obvious deformation or broken is observed on the appearance, and no obvious odor, broken, smoking, or fire is spotted, please contact professionals to transfer the battery to an open and safe place, or contact recycle company for disposition.

Other Emergency Measures

For other emergency situations, please quickly transfer people to a safe place based on the onsite situation, remotely retrieve battery system information and contact supplier for further support. If the accident is urgent and may be expanded, please call emergency service promptly and seek for fire rescue.

1.4 Others

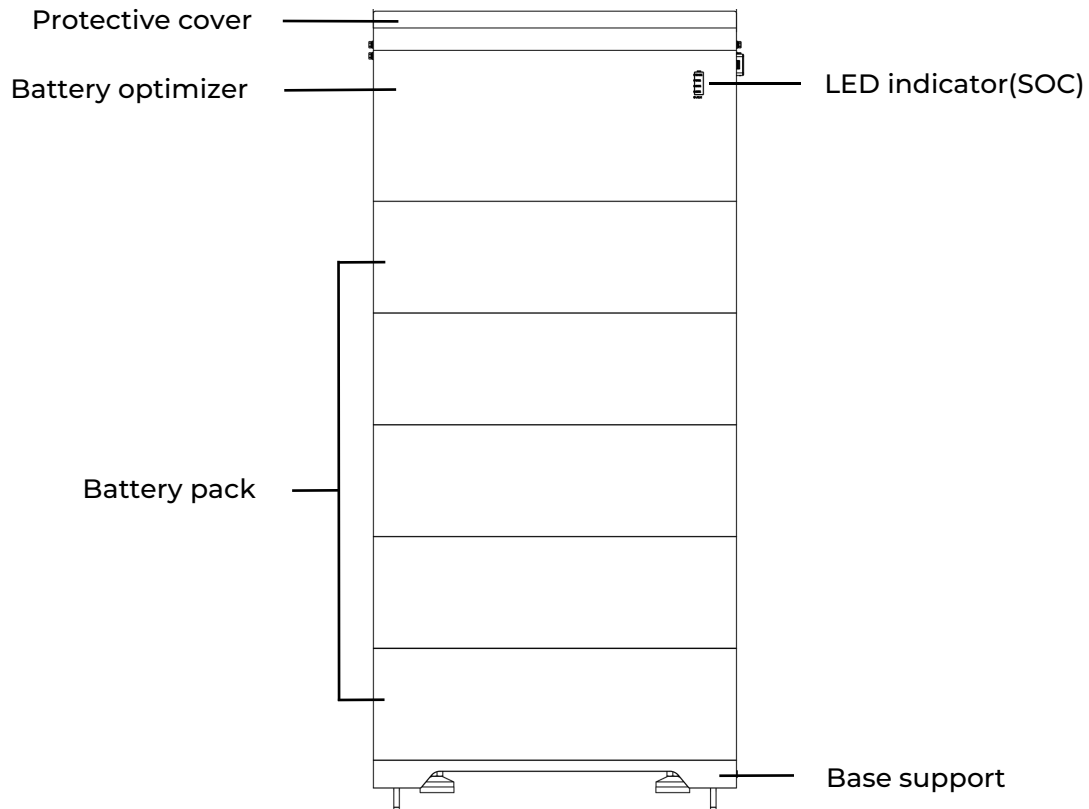
Battery Recycle

Please dispose wasted batteries in accordance with local laws and regulations. They cannot be disposed as household waste. Inappropriate disposal of battery may result in environment pollution.

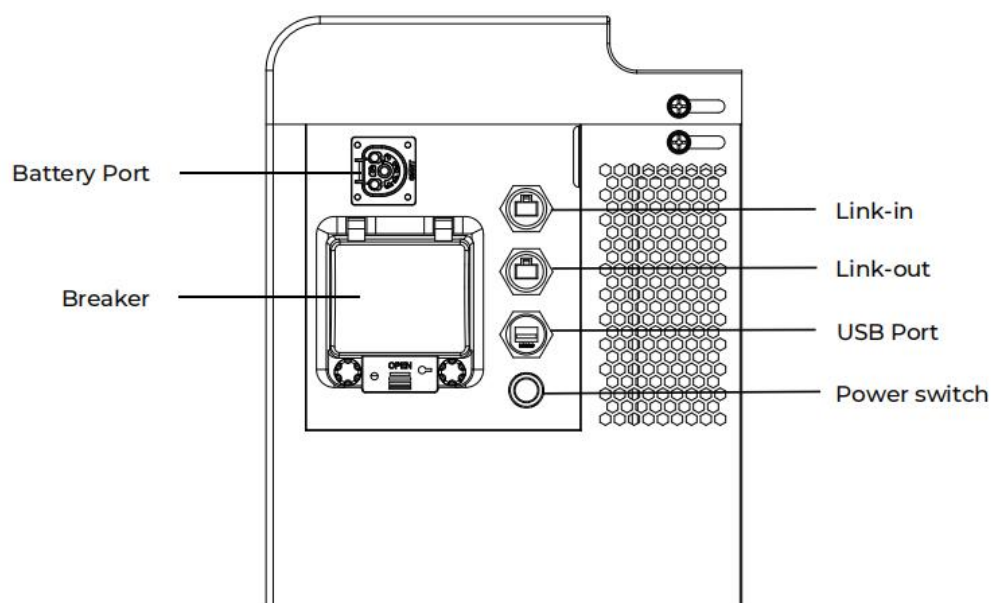
- If leaking or damage occurs to the battery, please contact technical support or a battery recycle company for disposition.
- When a battery is beyond usage lifetime and becomes unusable, please contact a battery recycle company for disposition.
- Please do not place wasted batteries under high temperature or direct sunlight.
- Please do not place wasted batteries under high humidity or corrosive environment.

2. Product introduction

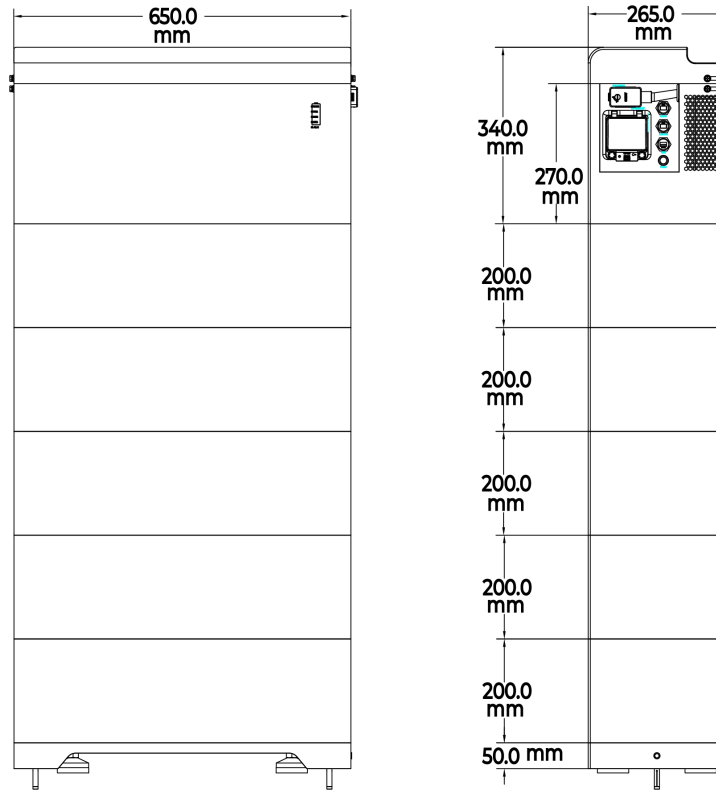
2.1 Product appearance




Battery optimizer:





2.2 Product size



2.3 Product nameplate




Model:	RBmax3.8H
Max. charge current:	45A
Max. discharge current:	45A
Rated Voltage:	76.8V d.c.
Rated charge power:	3.46kW
Rated discharge power:	3.46kW
Rated energy:	3.84kWh
Usable energy:	3.59kWh
Rated capacity:	50Ah
Ambient temperature:	Charge: 0~45°C Discharge: -20~45°C






Weight:	40kg
Max. short circuit current:	2.5kA@10ms
Dimensions(W*D*H):	650*265*200mm
IP rating:	IP65
Protective class :	CLASS I

IFpP41/150/102/[24S]M/-20+50/95




Model:	RBmax5.5H
Max. charge current:	50A
Max. discharge current:	50A
Rated Voltage:	76.8V d.c.
Rated charge power:	3.84kW
Rated discharge power:	3.84kW
Rated energy:	5.53kWh
Usable energy:	5.09kWh
Rated capacity:	72Ah
Ambient temperature:	Charge: 0~50°C Discharge: -18~50°C

Weight:	45kg
Max. short circuit current:	2.5kA@10ms
Dimensions(W*D*H):	650*265*200mm
IP rating:	IP65
Protective class :	CLASS I






IFpP41/150/112/[112S]M/-10+50/95



Rechargeable Li-ion Battery System

System Model	System Model
<input type="checkbox"/> 2*RBmax5.5MH	<input type="checkbox"/> 2*RBmax3.8MH
IFpP41/150/112/[112S]2S]M/-10+50/95	IFpP41/150/102/[112S]2S]M/-10+50/95
<input type="checkbox"/> 3*RBmax5.5MH	<input type="checkbox"/> 3*RBmax3.8MH
IFpP41/150/112/[112S]2S]3S]M/-10+50/95	IFpP41/150/102/[112S]2S]3S]M/-10+50/95
<input type="checkbox"/> 4*RBmax5.5MH	<input type="checkbox"/> 4*RBmax3.8MH
IFpP41/150/112/[112S]2S]4S]M/-10+50/95	IFpP41/150/102/[112S]2S]4S]M/-10+50/95
<input type="checkbox"/> 5*RBmax5.5MH	<input type="checkbox"/> 5*RBmax3.8MH
IFpP41/150/112/[112S]2S]5S]M/-10+50/95	IFpP41/150/102/[112S]2S]5S]M/-10+50/95
<input type="checkbox"/> 6*RBmax5.5MH	<input type="checkbox"/> 6*RBmax3.8MH
IFpP41/150/112/[112S]2S]6S]M/-10+50/95	IFpP41/150/102/[112S]2S]6S]M/-10+50/95

Nominal power: <input type="checkbox"/> 7.6kW <input type="checkbox"/> 11.5kW <input type="checkbox"/> 15kW	Nominal power: <input type="checkbox"/> 6.9kW <input type="checkbox"/> 10.3kW <input type="checkbox"/> 13.8kW <input type="checkbox"/> 15kW
Nominal energy: <input type="checkbox"/> 11.06kWh <input type="checkbox"/> 16.59kWh <input type="checkbox"/> 22.12kWh <input type="checkbox"/> 27.65kWh <input type="checkbox"/> 33.18kWh	Nominal energy: <input type="checkbox"/> 7.68kWh <input type="checkbox"/> 11.52kWh <input type="checkbox"/> 15.36kWh <input type="checkbox"/> 19.2kWh <input type="checkbox"/> 23.04kWh
Usable energy: <input type="checkbox"/> 10.18kWh <input type="checkbox"/> 15.26kWh <input type="checkbox"/> 20.35kWh <input type="checkbox"/> 25.44kWh <input type="checkbox"/> 30.53kWh	Usable energy: <input type="checkbox"/> 7.06kWh <input type="checkbox"/> 10.6kWh <input type="checkbox"/> 14.13kWh <input type="checkbox"/> 17.66kWh <input type="checkbox"/> 21.2kWh
Rated capacity: <input type="checkbox"/> 72Ah	Rated capacity: <input type="checkbox"/> 50Ah
Max. current: <input type="checkbox"/> 50A	Max. current: <input type="checkbox"/> 45A
Nominal voltage: <input type="checkbox"/> 153.6Vd.c. <input type="checkbox"/> 230.4Vd.c. <input type="checkbox"/> 307.2Vd.c. <input type="checkbox"/> 384Vd.c. <input type="checkbox"/> 460.8Vd.c.	
Battery optimizer model: RMH95050	
Optimizer max. current: 27A	
Voltage range: 550V-950V	
Protective class: CLASS I	
IP rating: IP65	
Operation Ambient Temperature: Charge: 0~50°C Discharge: -18~50°C	

S/N

Made in China
Manufacture: Huizhou RoyPow Technology Co., Ltd.

Note: After the user completes the system installation, check the box on the nameplate according to the actual installation situation.


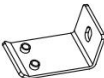







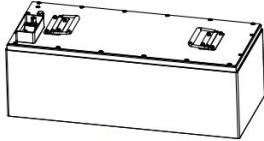


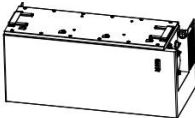
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3. Installation

3.1 Packing list

After unpacking, please carefully check the following packing list for damage or missing items. In the event of any damage or missing parts, please contact the supplier for assistance.

Battery System Configuration List		
Battery system model	Battery Optimizer	Battery Pack
2*RBmax3.8MH/2*RBmax5.5MH	1pc	RBmax3.8H/RBmax5.5H (2pcs)
3*RBmax3.8MH/3*RBmax5.5MH	1pc	RBmax3.8H/RBmax5.5H (3pcs)
4*RBmax3.8MH/4*RBmax5.5MH	1pc	RBmax3.8H/RBmax5.5H (4pcs)
5*RBmax3.8MH/5*RBmax5.5MH	1pc	RBmax3.8H/RBmax5.5H (5pcs)
6*RBmax3.8MH/6*RBmax5.5MH	1pc	RBmax3.8H/RBmax5.5H (6pcs)

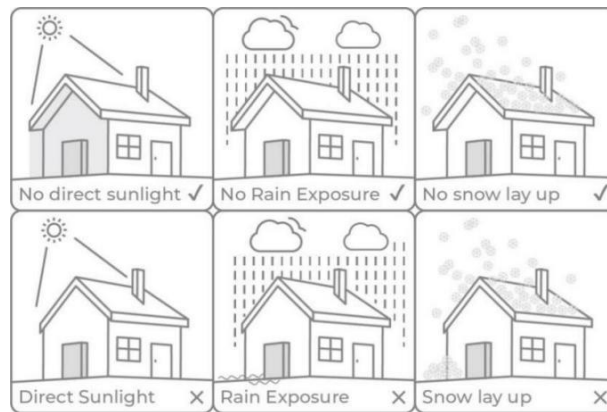
Battery Optimizer				Single battery pack	
					
Inverter-Optimizer Power Signal Wire	Wall bracket*2	M8*70 expansion bolt*6	Wall bracket-1*2	RoyPow Warranty Card	
					
Protective cover	Wall bracket-2*2	M6 screw*4	M8 screw*8	Battery Pack	
					
RoyPow Warranty Card	Battery base	Optimizer			

3.2 Selecting the mounting location

3.2.1 Installation environment requirements

- The mounting location must be inaccessible to unrelated personnel since the enclosure and heat sinks are extremely hot during operation.
- Do not install the product in areas containing highly flammable materials or gases.
- To ensure optimum operation and long service life, the ambient temperature must be below 50°C.
- The product must be mounted in a well ventilated environment to ensure good heat dissipation.
- To ensure long service life, the product must not be exposed to direct solar irradiation, rain, or snow. It is recommended that the product be mounted in a sheltered place.

- The carrier where the product is mounted must be fire-proof. Do not mount the product on flammable building materials.
- Do not install the product in a rest area since it will cause noise during operation.
- The installation height should be reasonable and make sure it is easy to operate and view the display.
- Product label and warning symbols shall be clear to read after installation.
- Please avoid direct sunlight, rain exposure.



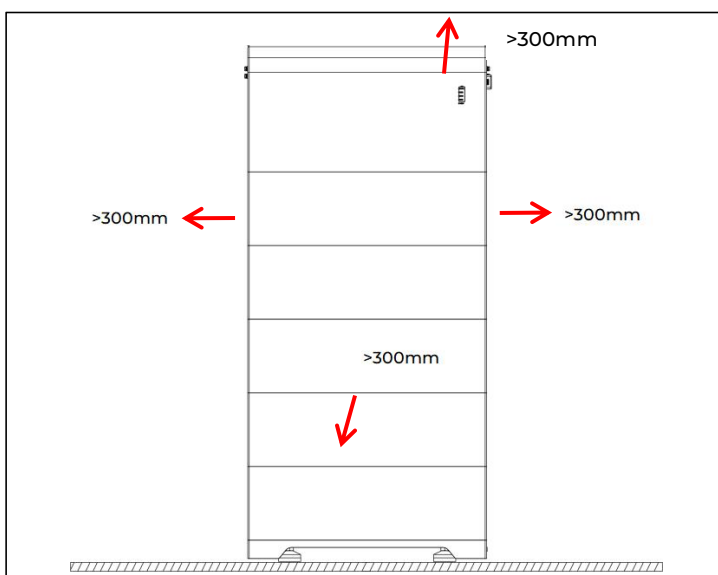
3.2.2 Installation angle requirements

Recommended device installation angle: vertical.

Do not turn the device upside down, or install it horizontally.

3.2.3 Installation space requirements

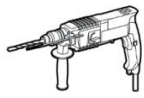



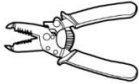
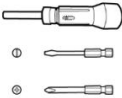



















To ensure the Energy Storage All In One normally and easy to operate, there are requirements on available spaces of the Energy Storage All In One, eg. to keep enough clearance. Refer to the following figures.



If there is no inverter hanging above the battery system, the top reserved clearance should be greater than 300mm; if there is an inverter hanging, the top reserved clearance should be greater than 700mm.

3.3 Installation tool requirements

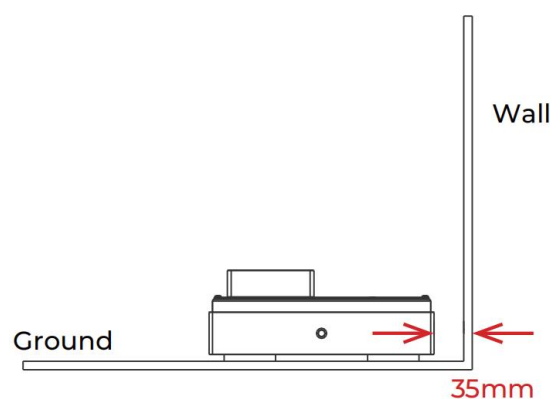
The following tools are recommended when installing the equipment. use other auxiliary tools if necessary. Please refer to the actual usage scenario

				
Hammer drill	Torque socket wrench	Torque wrench	Diagonal plier	Wire stripper
				
Torque screwdriver	Rubber mallet	Utility knife	Cable cutter	Heat shrink tubing
				
Heat gun	Cable tie	Vacuum cleaner	Multimeter (DC voltage measurement range ≥ 600 VDC)	Marker
				
Measuring tape	Level	Stud finder	Hex key (M6)	Safety shoes
				
Safety gloves	Safety goggles	Anti-dust respirator	Safety ladder	Safety Helmet Hat

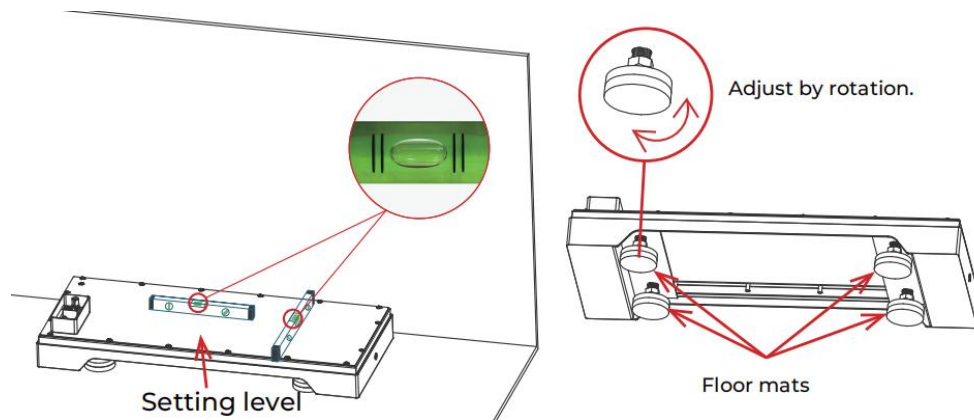
3.4 Installation diagram

(1) Fixed the base and battery pack

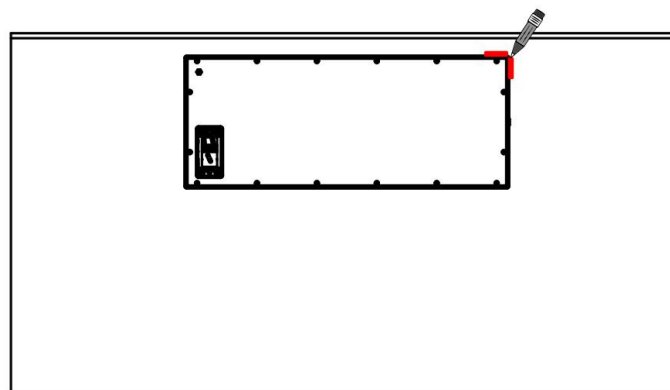
- ① The base is recommended to be placed 35mm away from the wall ;



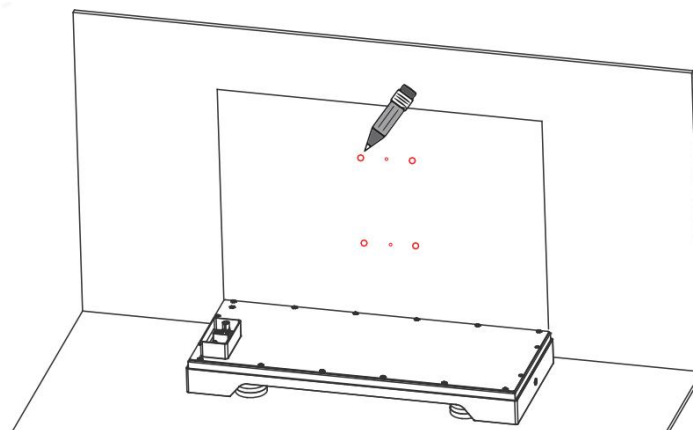
- ② According to the Level Instrument, adjust the base foot bolts until the top surface of the base is level;



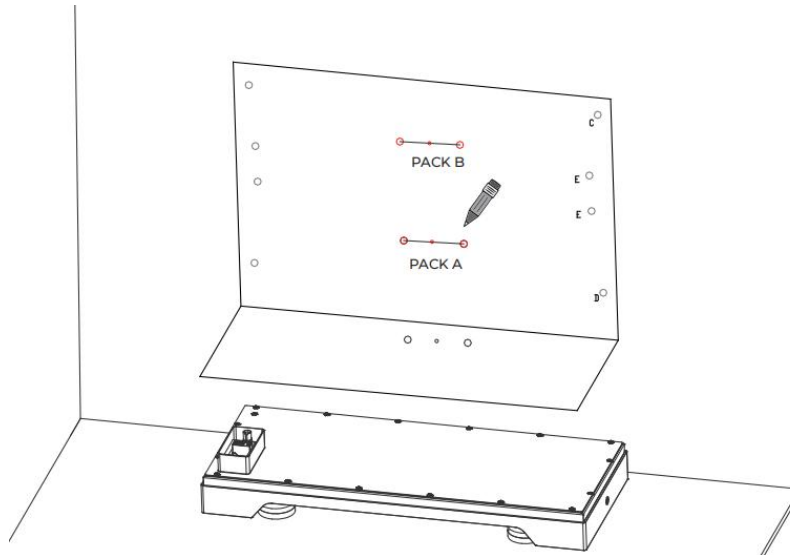
- ③ Mark the base position line;



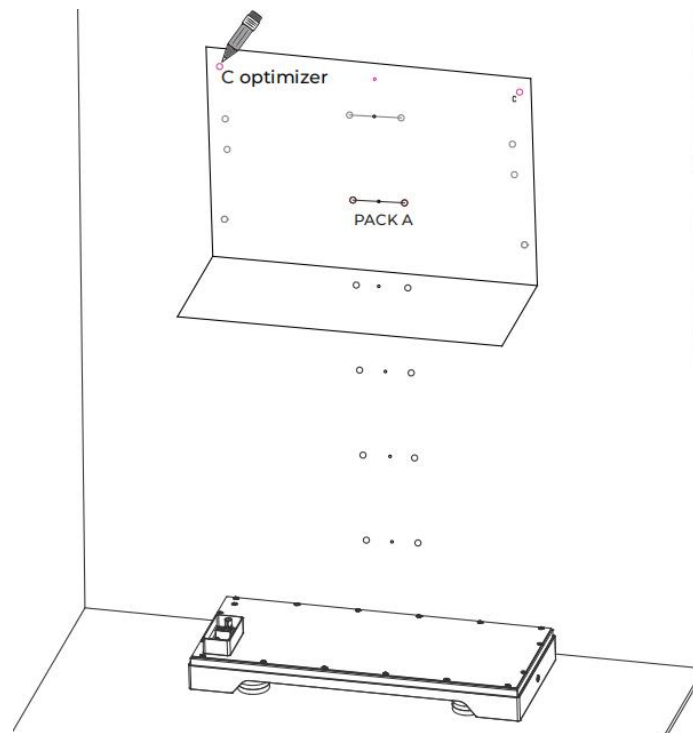
- ④ Use cardboard to mark the 6 holes of the 1st and 2nd battery packs;



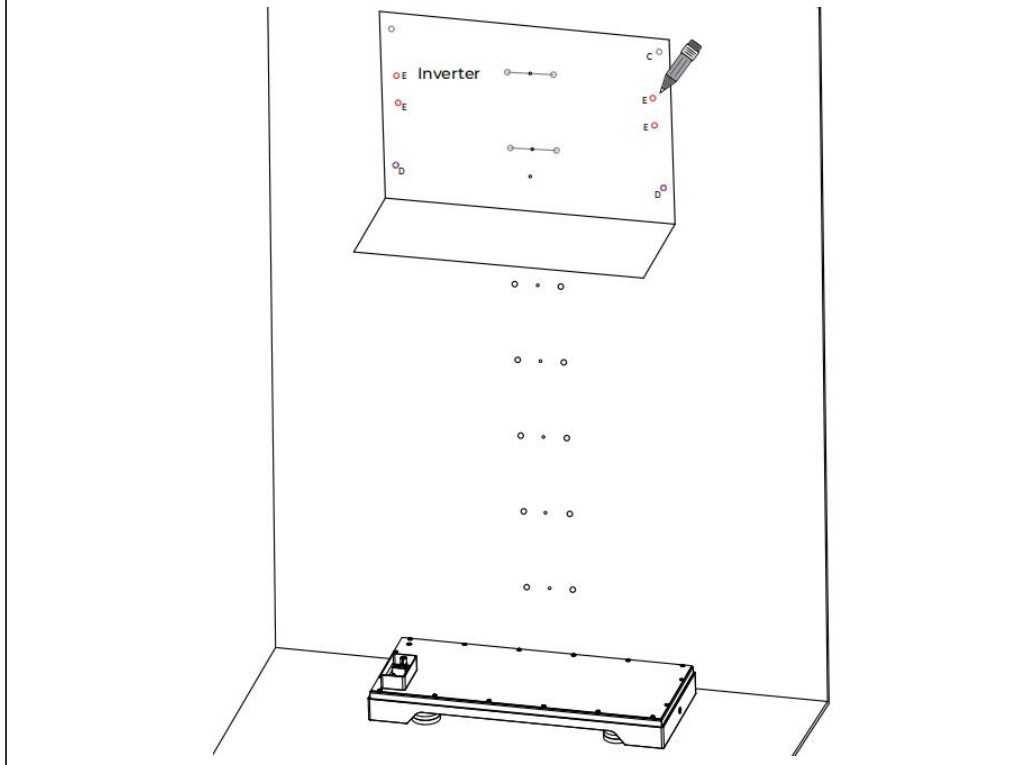
- ⑤ After aligning the A battery pack hole of the cardboard with the hole of the second battery pack, mark the 3 holes of the third battery pack (B battery pack holes) Similarly, mark the installation holes of the 4th to 6th battery packs (Please determine how many layers of mounting holes need to be marked according to the actual number of battery packs configured).



- ⑥ After aligning the A battery pack hole of the cardboard with the mounting hole of the last battery pack, mark the 3 holes of the battery optimizer;

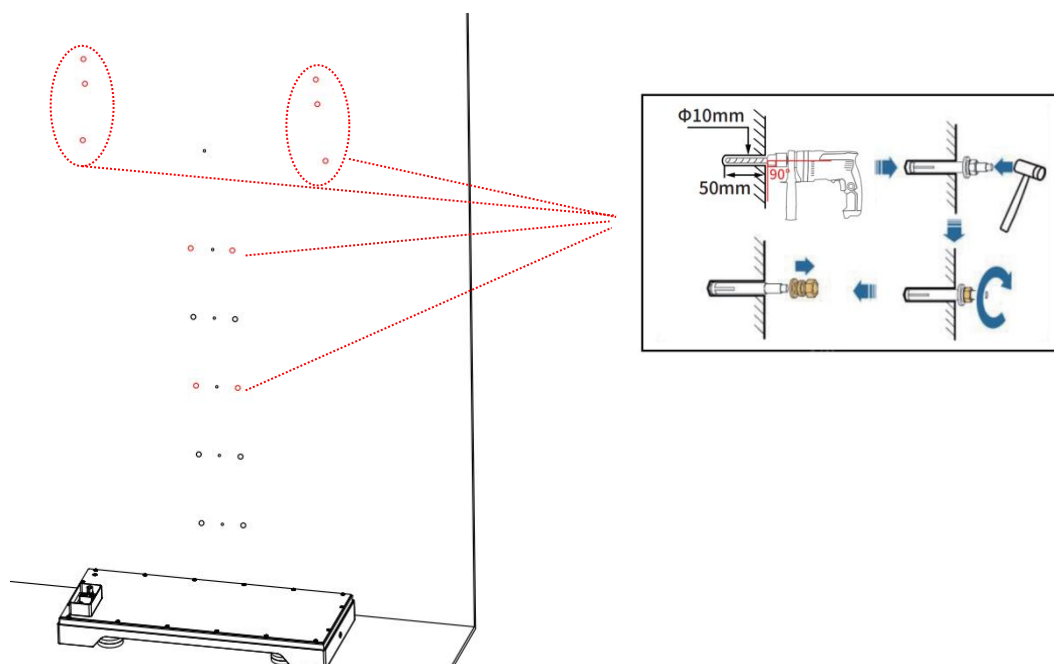


⑦ The battery optimizer hole alignment diagram below the cardboard ⑥ has marked the optimizer installation holes, and then marked the 4 installation holes of the inverter ;



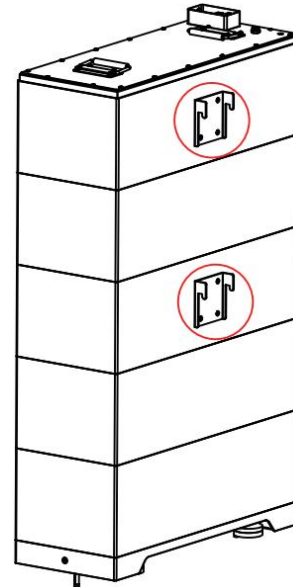
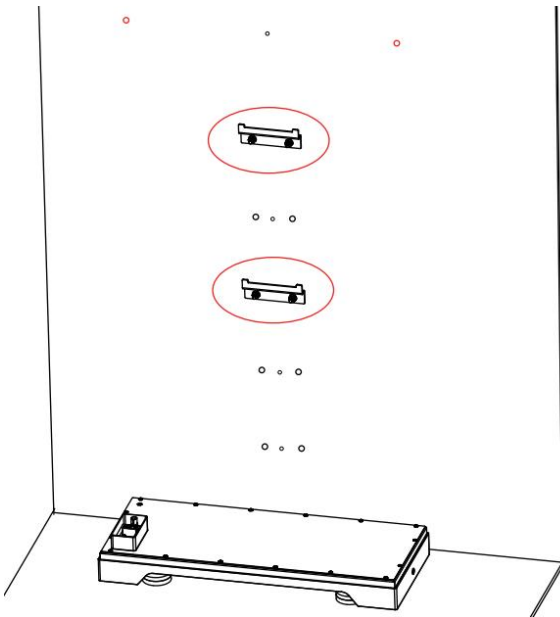
⑧ Install expansion bolts 10 PCS (Please determine the number of expansion screws required based on the actual number of battery packs configured.) :

1. Use an electric drill to drill holes at the marked locations (hole diameter 10mm, hole depth 50mm);
2. Place the expansion bolt kit into the hole;
3. Tighten the nut with a torque of 15 N.m;
4. Loosen the nut in the opposite direction and remove the nut and gasket.

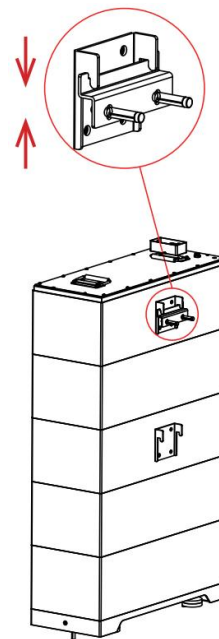
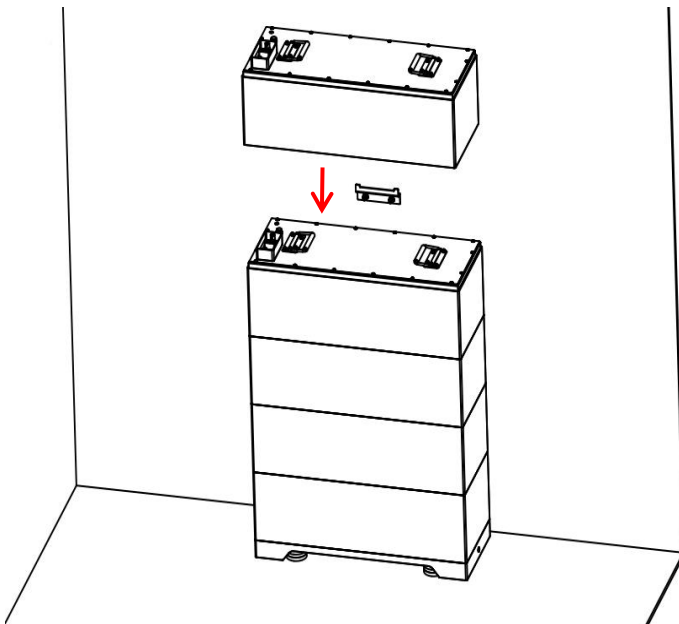


- ⑨ Fix the battery pack wall bracket (tighten the nut with a torque of 15 N.m);

Lock battery pack fixed block with M8 screw;

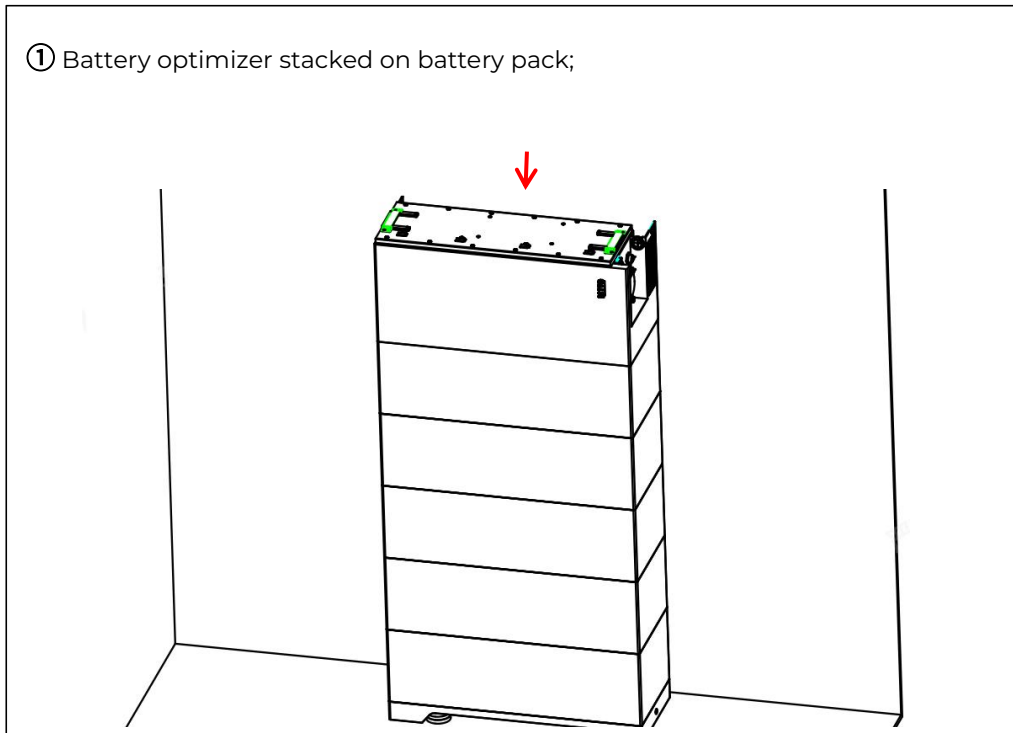


- ⑩ Stack the battery packs on the base and snap the clips on the back of the battery packs into place with the wall brackets.

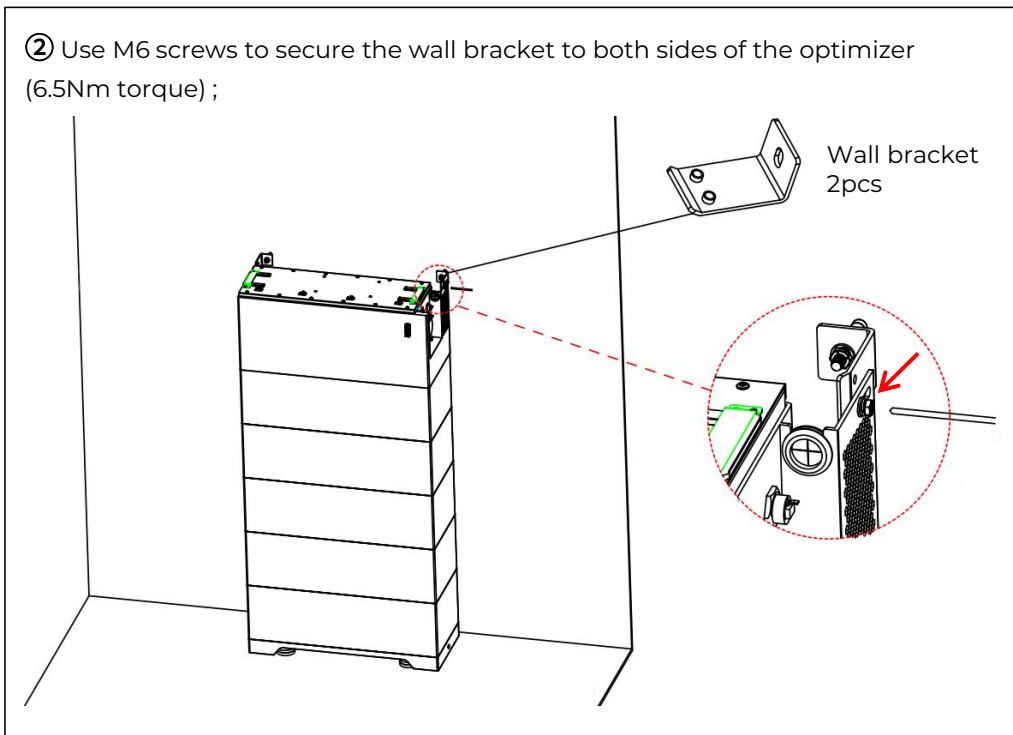


(2) Fixed battery optimizer

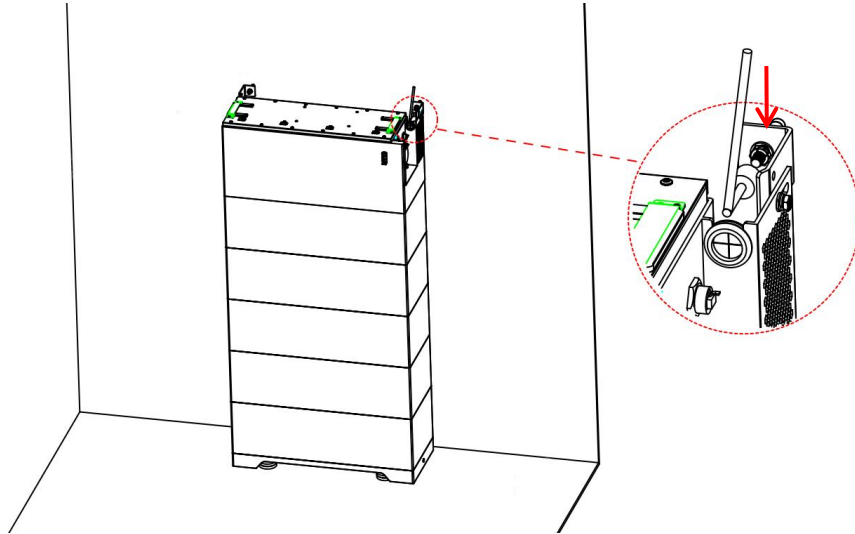
① Battery optimizer stacked on battery pack;



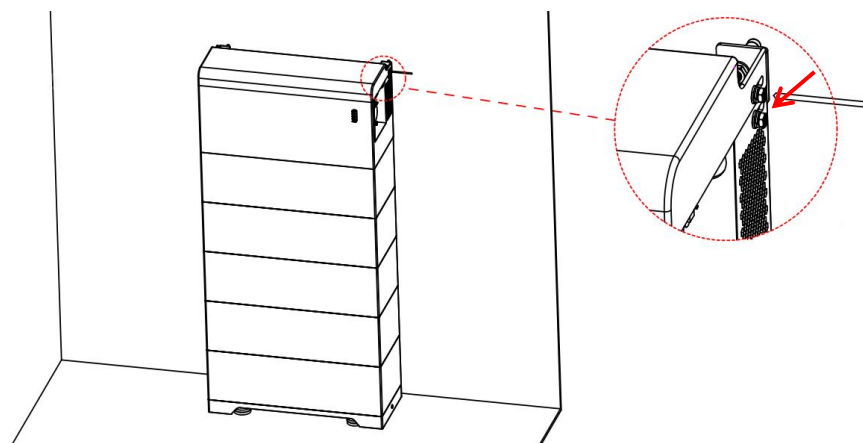
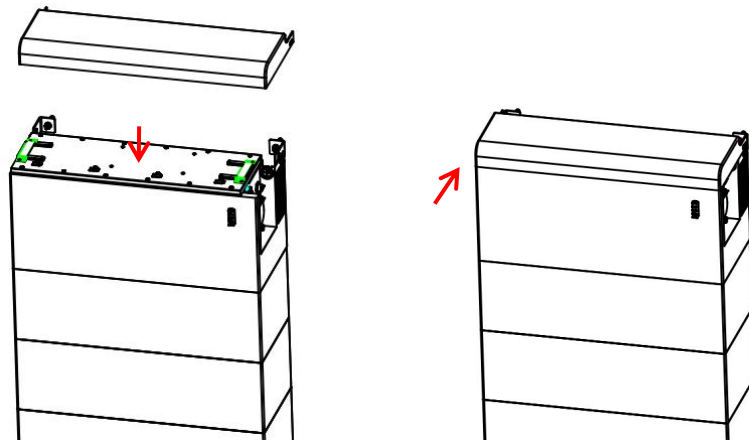
② Use M6 screws to secure the wall bracket to both sides of the optimizer (6.5Nm torque) ;



- ③ Use M8 expansion bolt nut to secure the wall bracket against the wall (torque 15N.m);



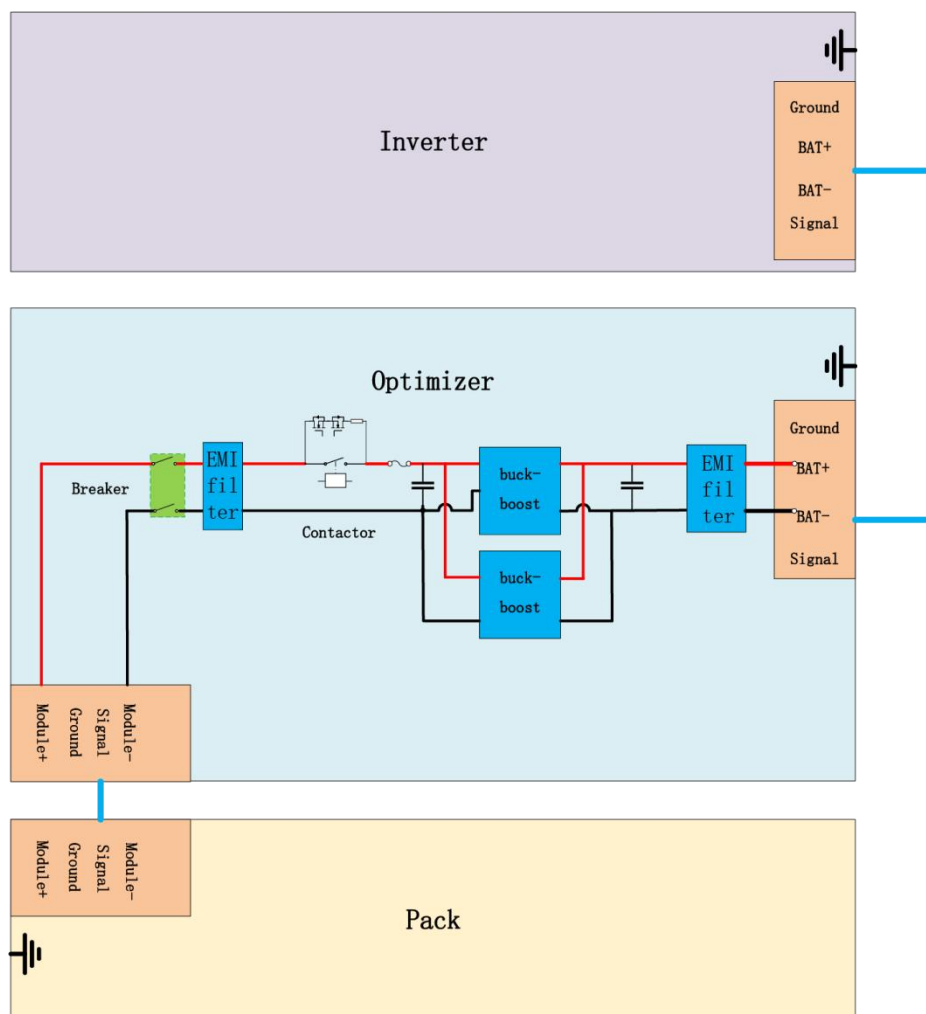
- ④ Place the protective cover on the optimizer and push it back until the end surface is flush; then use M6 screws to lock the wall bracket to the side of the optimizer (6.5Nm torque);

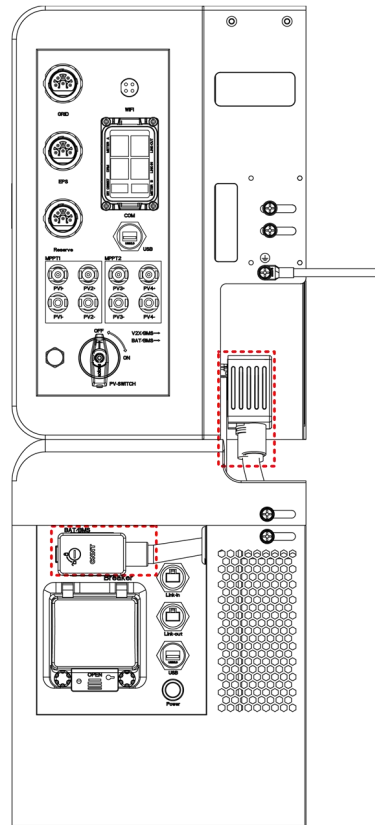


4. Electrical connections

Before wiring, please turn “OFF” the breakers.

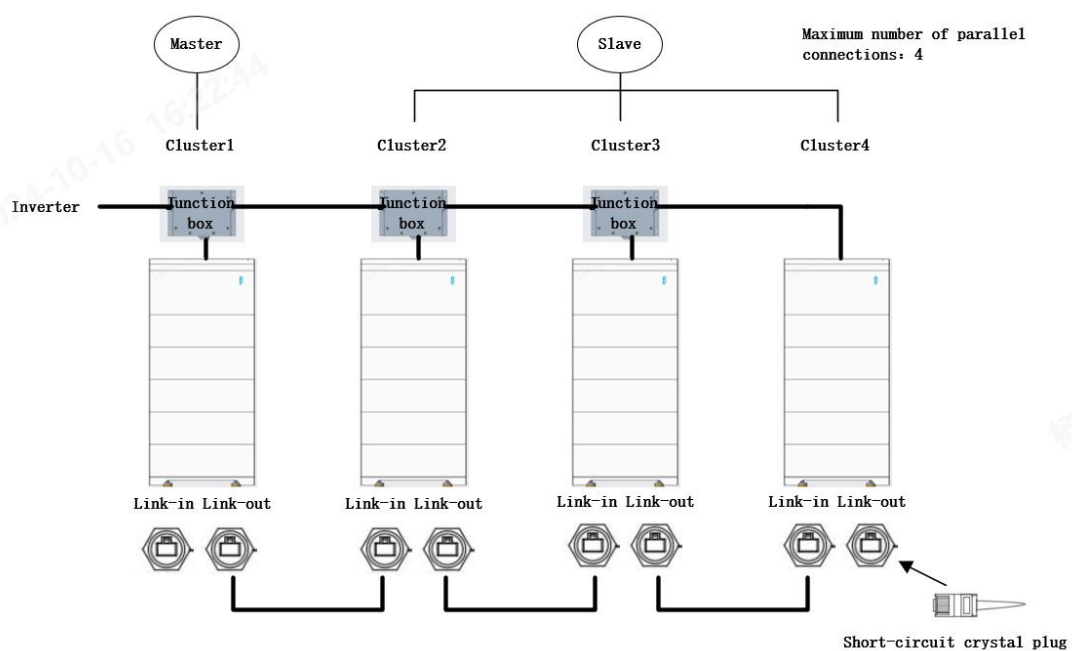
- All operations, cables, and component specifications used during the electrical connection must comply with local laws and regulations.
- Cables of the same type should be bundled together and arranged separately from cables of different types. Intertwining or crossing arrangement is prohibited.
- When making electrical connections, please wear personal protective equipment such as safety shoes, protective gloves, and insulating gloves as required.
- Only professionals are allowed to perform operations related to electrical connection.
- The cable colors in this document are for reference only, and the specific cable specifications must comply with local regulations.





Note:

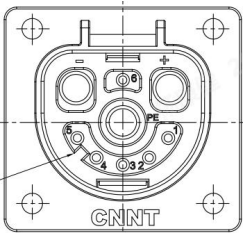


The red box indicates the connection wires between the inverter and the battery, including the power line, ground line, and signal line. The ground line of the battery system is connected to the inverter, and then connected from the inverter external interface to the ground bar of the distribution box to achieve grounding protection.



The Link-in and Link-out signals are used for parallel communication between battery clusters. If the system has only one cluster, this terminal does not need to be connected. The junction box is located inside the cover and is used for power and signal connection between clusters. If there is only one cluster, this junction box is not needed.

1. The Link-in signal of the host at the head end is left hanging, and the Link-out of the slave at the end needs to be connected to a short-circuit crystal plug;
2. The battery system supports a maximum of 4 parallel clusters. A single cluster does not require a junction box, two clusters require one junction box, and n clusters require n-1 junction boxes.

Optimizer:

Port	Definition			Cable type	Recommended Specifications	Origin
	BAT/BMS: Connect the Inverter battery Port	1	GND	Same as Inverter BAT/BMS cable	Same as Inverter BAT/BMS cable	Accessories for battery optimizer RMH95050
		2	Wakeup			
		3	CANH			
		4	CANL			
		5	A			
		6	B			
		7	BAT+			
		8	BAT-			
		9	PE			
	Link-in	1	GND	Outdoor twisted pair	cross-sectional area: 0.1mm ² ~0.4mm ²	Prepared by users
		2	Wakeup			
		3	CANH			
		4	CANL			
		5	null			
		6	GND			
		7	null			
		8	GND			
	Link-out	1	GND	Outdoor twisted pair	cross-sectional area: 0.1mm ² ~0.4mm ²	Prepared by users
		2	Wakeup			
		3	CANH			
		4	CANL			
		5	GND			
		6	GND			
		7	null			
		8	null			

BAT/BMS Wiring Connection

Step1: Find the BAT/BMS cable equipped with the battery optimizer RMH95050;

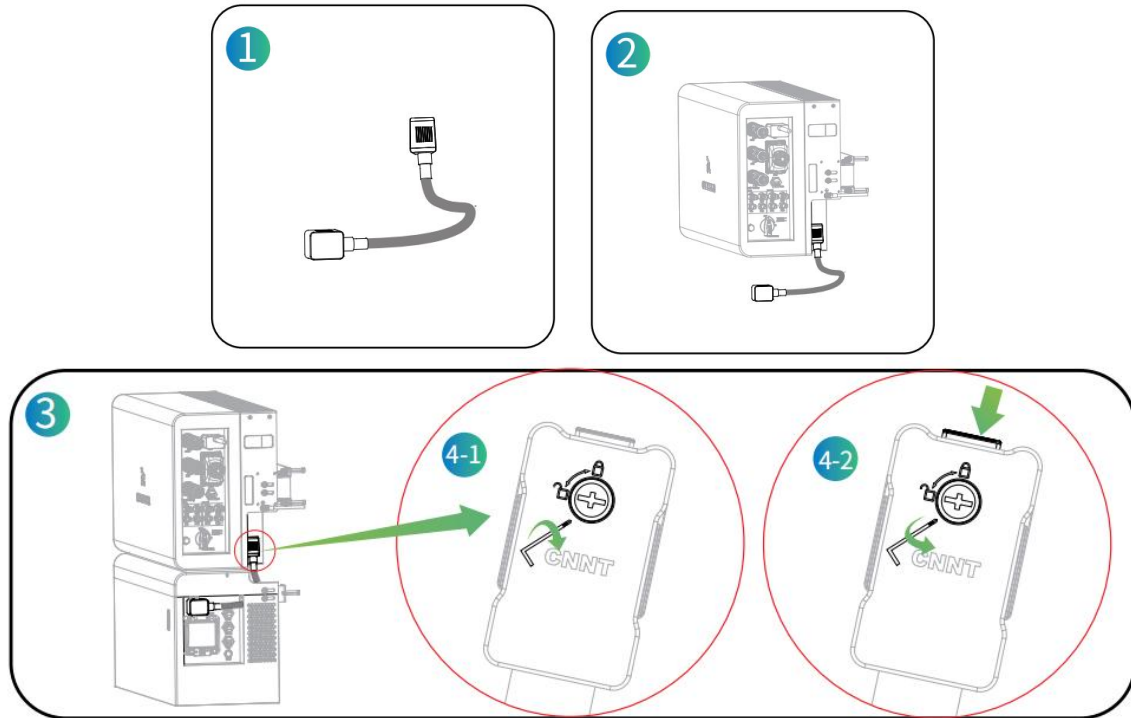
Step2: Connect one end of the cable to the BAT/BMS terminal of the radiator on the back of the inverter.

Step3: Connect the other end of the cable to the BAT/BMS terminal of the battery optimizer RMH95050.

Step4:

(1) Lock connector: Use a small L-shaped screwdriver to turn the screw 90 degrees clockwise to lock the connector;

(2) Unlock connector: Use a small L-shaped screwdriver to turn the screw 90 degrees counterclockwise to unlock the terminal, press the button on the top of the terminal, and pull out the terminal



Power on/off instructions:

After the battery system and the inverter are connected, the following methods can be used to power it on and off.

1. Turn the optimizer's circuit breaker to "ON", and the battery system can be awakened after the inverter's mains or photovoltaic power is connected;
2. Turn the optimizer's circuit breaker to "ON", and press and hold the Power Switch button for more than 3S to wake up the battery system;
3. Turn the optimizer's circuit breaker to "OFF" to shut down the battery system.

5. Commissioning

It is necessary to make a complete commissioning of the battery system. This will essentially protect the system from fire, electric shock or other damages or injuries.

5.1 Inspection

No.	Check item
1	The battery is firmly installed, the installation location is convenient for operation and maintenance, the installation space is convenient for ventilation and heat dissipation, and the installation environment is clean and tidy.
2	The protective ground wire, DC input wire, AC output wire, and communication wire are correctly and firmly connected.
3	Make sure waterproof covers are installed over unused cable holes.
4	The used cable holes must be sealed.

Before commissioning, the operator or installer (qualified person) must carefully inspect the system and ensure that:

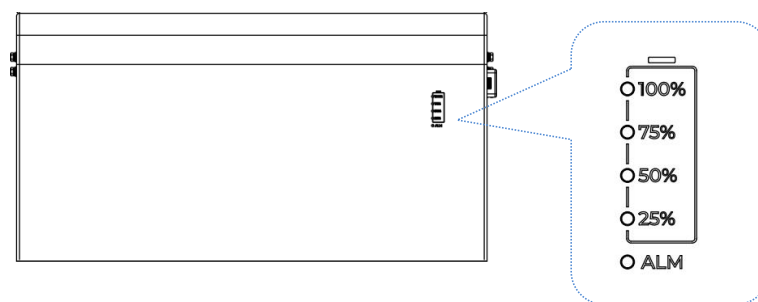
- 1) The system is installed correctly and securely according to the contents and prompts in this manual, and there is enough space for operation, maintenance and ventilation;
- 2) All terminals and cables are intact;
- 3) No items shall be left on the battery or in the specified clearance area;
- 4) The photovoltaic and battery packs are working normally, and the power grid is normal;

5.2 System commissioning

- 1) Set parameters on the APP according to user needs.

Note: The monitoring and network connection of the APP are completed on the inverter. Please refer to the inverter user manual.

LED indicator Description



Optimizer indicator (battery SOC)	Green Light	
○ 100%	When the battery level is between 75% and 100%, the green light flashes.	When the power value is $\geq 100\%$, the green light is always on.
○ 75%	When the battery level is between 50% and 75%, the green light flashes.	When the power level is $\geq 75\%$, the green light is always on.
○ 50%	When the battery level is between 25% and 50%, the green light flashes.	When the power value is $\geq 50\%$, the green light is always on.

○ 25%	When the battery level is between 0 and 25%, the green light flashes.		When the power level is $\geq 25\%$, the green light is always on.
ALM	Green Light ●	Yellow Light ●	Red light ●
	normal	Alarm	Fault

6. Maintenance

Please confirm that the equipment is powered off when operating, and wear personal protective equipment.

maintenance content	maintenance method	Maintenance Interval
System cleaning	Check the cooling fins and air inlet/outlet for foreign objects and dust.	Semiannually
System running status	Observe whether the appearance of the energy storage is damaged or deformed. Listen to whether there is any abnormal sound during the operation of the energy storage. When the energy storage is running, check whether the parameters of the energy storage are set correctly.	Semiannually
Electrical connections	Check whether the cable connection is disconnected or loose. Check whether the cable is damaged, and especially check whether the surface of the cable in contact with the metal surface has cut marks. Check whether the unused DC input terminals, energy storage terminals, COM ports, and waterproof covers are locked.	Semiannually
Grounding reliability	Check whether the grounding cable is reliably grounded.	Semiannually

7. Troubleshooting

Please troubleshoot according to the following methods. If the troubleshooting methods cannot help you, please contact the after-sales service center.

No.	Fault name	Fault cause	Solution
1	BuckBoost1 rapid OC	Detect BuckBoost1 current greater than 40A, lasting 468.75us	Detect whether there is a short circuit on the output side of the optimizer
2	BuckBoost2 rapid OC	Detect BuckBoost2 current greater than 40A, lasting 468.75us	
3	Input curr. rapid OC	Detect battery current greater than 68A, lasting 468.75us	
4	Bus rapid OV	Detect bus voltage greater than 1030V, lasting 3ms	1. The optimizer has an internal fault. Please turn off the optimizer, wait for about 1 minute, and then turn it back on to check whether the problem is solved. 2. This fault will be locked after frequent occurrence. Please turn off the inverter and wait for about 1 hour before restarting or power off the optimizer to
5	Bus volt. OV	Detects that the average value of bus voltage is greater than 1020V and lasts for 200ms	

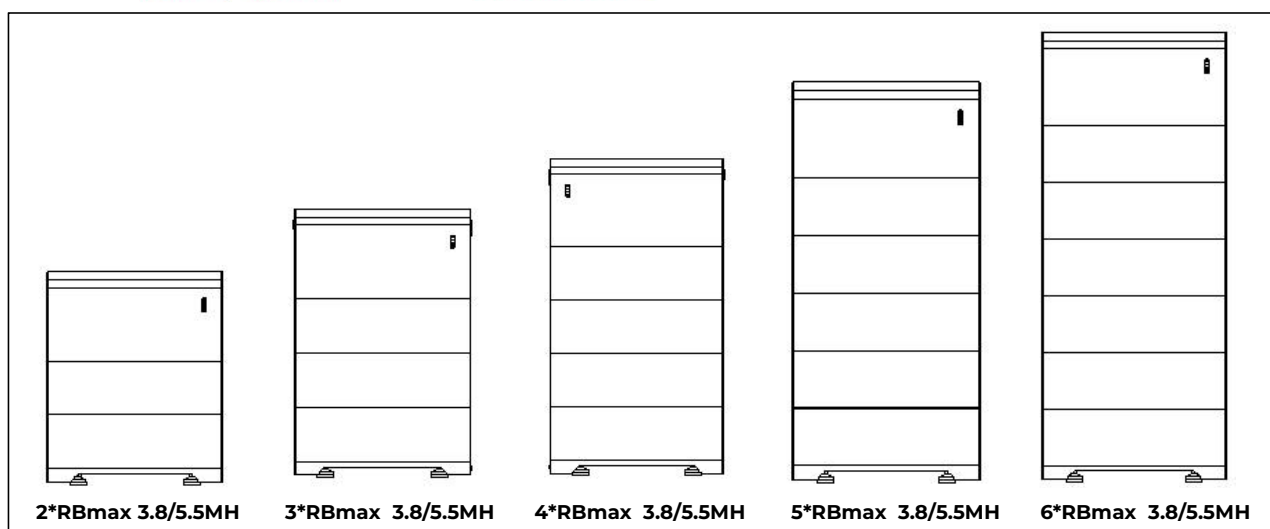
			restart and check whether the problem is solved. 3. If the problem is still not resolved, please contact after-sales service.
6	Bus volt. UV	Detects that the average value of bus voltage is less than 450V and lasts for 200ms	Please check whether the optimizer is overloaded.
7	BuckBoost1 RMS OC	Detect that the RMS of current of BuckBoost1 is greater than 30A and lasts for 200ms	Check whether the optimization is running overloaded. If the problem is still not solved, please contact after-sales service.
8	BuckBoost2 RMS OC	Detect that the RMS of current of BuckBoost2 is greater than 30A and lasts for 200ms	
9	Input curr. RMS OC	Detects that the RMS of battery current is greater than 60A and lasts for 200ms	
10	Input volt. OV	Detects that the average value of battery voltage is greater than 570V and lasts for 200ms	Check whether the battery pack voltage is within the normal input range
11	Input volt. OV	Detects that the average value of battery voltage is less than 100V, lasting 200ms	
12	DC side radiator OverTemp	Detect that the DC side radiator temperature is greater than 105 degrees and lasts for 1 second	Detect whether the optimizer is overloaded for a long time or the environment where the optimizer is placed has poor heat dissipation.
13	Discharge EOD(on-grid)	Detect battery SOC less than 15% [user-settable], lasting 2S	Alarm, the battery is discharged to the set alarm value
14	Battery EOD SoC	Detect battery SOC less than 10% [R&D can set], last for 2S	Alarm, the battery is discharged to the set alarm value
15	BuckBoost hard OC shutdown	The hardware over current fault occurs continuously for 200ms	Please check whether the optimizer is overloaded.
16	DCDC hardware OC	Single channel current greater than 50A triggers hardware over current action.	
17	Flash error	/	Internal fault, please contact after-sales service.
18	Arm comm. Fail	/	Internal fault, please contact after-sales service.
19	Parallel CAN comm. Fail	/	Check whether the parallel communication line is in good contact
20	INV DSP comm.fail	/	Check whether the inverter communication line is in good contact
21	BMS comm.fail	/	Check whether the battery pack communication line is in good contact
22	Bus volt. soft start failed	1. Within 30 seconds of bus voltage boosting, the bus voltage does not reach the given value minus 20V (during startup) 2. The battery voltage is 10V greater than the bus voltage for 5 seconds.	Detect whether the output side of the optimizer is overloaded
23	No discharge during battery UV	The battery has secondary undervoltage (single cell or total voltage)	Alarm, the battery voltage is too low, stop discharging

24	No charging during battery OV	When the battery has a first-level overvoltage (single cell or total voltage), battery charging is prohibited.	Alarm, battery voltage is too high, stop charging
25	Indiv. OV level 1	The highest voltage is greater than or equal to 3.56V and lasts for 2S	Internal fault, shut down and restart the optimizer. If the fault persists, please contact after-sales service.
26	Indiv. UV level 1	The lowest voltage is less than or equal to 2.8V and lasts for 2S	Alarm, battery power is too low
27	Indiv. Volt. Imbalance level 1	The voltage difference is greater than 0.4V and continues for 2S	Internal fault, shut down and restart the optimizer. If the fault persists, please contact after-sales service.
28	Total volt. OV level 1	The total voltage is greater than or equal to 3.56*number of voltage strings and lasts 2S	Internal fault, shut down and restart the optimizer. If the fault persists, please contact after-sales service.
29	Total volt. UV level1	The total voltage is less than or equal to 2.8*number of voltage strings and lasts 2S	Alarm, battery power is too low
30	Charging temp. too high level 1	The highest temperature is greater than or equal to 50°C and lasts for 2S	Alarm, detect whether the heat dissipation conditions of the environment where the battery pack is located are good
31	Discharge temp. too high level 1	The highest temperature is greater than or equal to 50°C and lasts for 2S	
32	Charging temp. too low level 1	The lowest temperature is less than or equal to -15°C and lasts for 2S	
33	Discharge temp. too low level 1	The lowest temperature is less than or equal to -15°C and lasts for 2S	
34	Temp. Imbalance level 1	The temperature difference is greater than 10°C and lasts for 2S	
35	Charge curr. level 1	Charging current is greater than 52A and lasts for 2S, [50AH, 47A]	Alarm, shut down and restart the optimizer. If the fault still exists, please contact after-sales service.
36	Discharge curr. level 1	Discharge current greater than 52A and lasts for 2S, [50AH, 47A]	Warning, whether the optimizer load is too heavy
37	Indiv. OV level 2	The highest voltage is greater than or equal to 3.6V and lasts for 2S	Internal fault, shut down and restart the optimizer. If the fault persists, please contact after-sales service.
38	Indiv. UV level 1	The lowest voltage is less than or equal to 2.6V and lasts for 2S	
39	Indiv. Volt. Imbalance level 2	The voltage difference is greater than 0.6V and lasts for 2S	
40	Total volt. OV level 2	The total voltage is greater than or equal to 3.6*number of voltage strings and lasts 2S	
41	Total volt. UV level 2	The total voltage is less than or equal to 2.6*number of voltage strings and lasts 2S	
42	Charging temp. too high level 2	The highest temperature is greater than or equal to 55°C and lasts for 2S	

43	Discharge temp. too high level 2	The highest temperature is greater than or equal to 55°C and lasts for 2S	Internal fault, shut down and restart the optimizer. If the fault persists, please contact after-sales service.
44	Charging temp. too low level 2	The lowest temperature is less than or equal to -10°C and lasts for 2S	
45	Discharge temp. too low level 2	The lowest temperature is less than or equal to -15°C and lasts for 2S	
46	Temp. Imbalance level 2	The temperature difference is greater than 10°C and lasts for 2S	
47	Charging overcurrent level 2 alarm	Charging current is greater than 55A and lasts for 2S, [50AH, 52A]	
48	Discharge overcurrent level 2 alarm	Discharge current is greater than 55A and lasts 2S, [50AH, 52A]	
49	Master positive-phase relay adhesion	The positive relay is stuck	
50	AFE fault	AFE communication continuous 1S communication error	
51	Temp. test fault	Temperature sensor open or short circuit	Check if the battery pack communication line is in good contact
52	ARM-DCDC comm. Fault	The communication between ARM and DSP is abnormal and lasts for more than 2 seconds	
53	ARM-battery comm. Fault	The communication between ARM and BMS is abnormal and lasts for more than 2s	
54	BMS-battery comm. Fault	/	
55	INV - DC comm. Fail	The CAN communication between INV and DCDC is abnormal and lasts for more than 5 seconds	
56	Flash error	Flash write exception	Internal fault, please contact after-sales service.

8. Technical specifications

(1) RBmax MH Battery System Technical Specifications



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Model	2*RBmax3.8MH	3*RBmax3.8MH	4*RBmax3.8MH	5*RBmax3.8MH	6*RBmax3.8MH
Electric Data					
Nominal Energy (kWh)	7.68	11.52	15.36	19.2	23.04
Usable Energy (kWh)	7.06	10.6	14.13	17.66	21.2
Cell Type	LFP (LiFePO4)	LFP (LiFePO4)	LFP (LiFePO4)	LFP (LiFePO4)	LFP (LiFePO4)
Nominal Voltage (V)	153.6	230.4	307.2	384	460.8
Operating Voltage Range (V)	124.8~172.8	187.2~259.2	249.6~345.6	312~432	374.4~518.4
Max. Continuous charge Current (A)	45	45	45	45	45
Max. Continuous Discharge Current (A)	45	45	45	45	45
General Data					
Weight (Kg)	100.4	140.4	180.4	220.4	260.4
Dimensions (W × D × H) (mm)	650*265*780	650*265*980	650*265*1180	650*265*1380	650*265*1580
Operating Temperature (°C)	0~50°C (Charge) , -18~50°C (Discharge)	0~50°C (Charge) , -18~50°C (Discharge)	0~50°C (Charge) , -18~50°C (Discharge)	0~50°C (Charge) , -18~50°C (Discharge)	0~50°C (Charge) , -18~50°C (Discharge)
Storage temperature (°C) Delivery SOC State (20~40%)	>1 month: 0~35°C	>1 month: 0~35°C	>1 month: 0~35°C	>1 month: 0~35°C	>1 month: 0~35°C
	≤1 month: -20~45°C	≤1 month: -20~45°C	≤1 month: -20~45°C	≤1 month: -20~45°C	≤1 month: -20~45°C
Relative Humidity	≤ 95%	≤ 95%	≤ 95%	≤ 95%	≤ 95%
Max. Altitude (m)	4000	4000	4000	4000	4000
Protection Degree	IP65	IP65	IP65	IP65	IP65
Installation Location	Ground-Mounted Wall-Mounted	Ground-Mounted Wall-Mounted	Ground-Mounted Wall-Mounted	Ground-Mounted Wall-Mounted	Ground-Mounted Wall-Mounted
Communication	CAN, RS485	CAN, RS485	CAN, RS485	CAN, RS485	CAN, RS485
Certification					
Safety	IEC62619, UL 1973	IEC62619, UL 1973	IEC62619, UL 1973	IEC62619, UL 1973	IEC62619, UL 1973
FCC	CE	CE	CE	CE	CE
Transportation	UN38.3	UN38.3	UN38.3	UN38.3	UN38.3

Model	2*RBmax5.5MH	3*RBmax5.5MH	4*RBmax5.5MH	5*RBmax5.5MH	6*RBmax5.5MH
Electric Data					
Nominal Energy (kWh)	11.06	16.59	22.12	27.65	33.18
Usable Energy (kWh)	10.18	15.26	20.35	25.44	30.53
Cell Type	LFP (LiFePO4)	LFP (LiFePO4)	LFP (LiFePO4)	LFP (LiFePO4)	LFP (LiFePO4)
Nominal Voltage (V)	153.6	230.4	307.2	384	460.8
Operating Voltage Range (V)	124.8~172.8	187.2~259.2	249.6~345.6	312~432	374.4~518.4
Max. Continuous charge Current (A)	50	50	50	50	50
Max. Continuous Discharge Current (A)	50	50	50	50	50
General Data					
Weight (Kg)	110.4	155.4	200.4	245.4	290.4
Dimensions (W × D × H) (mm)	650*265*780	650*265*980	650*265*1180	650*265*1380	650*265*1580
Operating Temperature (°C)	0~ 50°C (Charge) , -18~50°C (Discharge)	0~ 50°C (Charge) , -18~50°C (Discharge)	0~ 50°C (Charge) , -18~50°C (Discharge)	0~ 50°C (Charge) , -18~50°C (Discharge)	0~ 50°C (Charge) , -18~50°C (Discharge)
Storage temperature (°C)	>1 month: 0~35°C	>1 month: 0~35°C	>1 month: 0~35°C	>1 month: 0~35°C	>1 month: 0~35°C
Delivery SOC State (20~40%)	≤1 month: -20~45°C	≤1 month: -20~45°C	≤1 month: -20~45°C	≤1 month: -20~45°C	≤1 month: -20~45°C
Relative Humidity	≤ 95%	≤ 95%	≤ 95%	≤ 95%	≤ 95%
Max. Altitude (m)	4000	4000	4000	4000	4000
Protection Degree	IP65	IP65	IP65	IP65	IP65
Installation Location	Ground-Mounted Wall-Mounted	Ground-Mounted Wall-Mounted	Ground-Mounted Wall-Mounted	Ground-Mounted Wall-Mounted	Ground-Mounted Wall-Mounted
Communication	CAN, RS485	CAN, RS485	CAN, RS485	CAN, RS485	CAN, RS485
Certification					
Safety	IEC62619, UL 1973	IEC62619, UL 1973	IEC62619, UL 1973	IEC62619, UL 1973	IEC62619, UL 1973
FCC	CE	CE	CE	CE	CE
Transportation	UN38.3	UN38.3	UN38.3	UN38.3	UN38.3

(2) Power Module(BMS inside) Technical Specifications

Power Module	
Model	RMH95050
Voltage Range(V)	550-950
Max.Charge/Discharge Current(A)	27/27
Communication	CAN, RS485
Dimensions (WxDxH,mm)	650 x 265 x 270
Weight (Kg)	15

(3) Battery system charging strategy

1) RBmax3.8 battery system charging strategy

Charge at constant current 45A until any cell voltage reaches 3.55V with the recommended charging voltage, then charge at constant current 35A until any cell voltage reaches 3.55V with the recommended charging voltage, then charge at constant current 25A until any cell voltage reaches 3.55V with the recommended charging voltage, then charge at constant current 15A until any cell voltage reaches 3.55V with the recommended charging voltage, then charge at constant current 5A until any cell voltage reaches 3.55V with the recommended charging voltage, then stop charging.

2) RBmax5.5 battery system charging strategy

Charge at constant current 50A until any cell voltage reaches 3.55V with the recommended charging voltage, then charge at constant current 35A until any cell voltage reaches 3.55V with the recommended charging voltage, then charge at constant current 25A until any cell voltage reaches 3.55V with the recommended charging voltage, then charge at constant current 15A until any cell voltage reaches 3.55V with the recommended charging voltage, then charge at constant current 5A until any cell voltage reaches 3.55V with the recommended charging voltage, then stop charging.

Note:

The step-down current charging is because the battery has internal resistance. When the charging current is large, the internal resistance voltage drop is large, and the internal resistance voltage division causes the actual single cell voltage to not reach 3.55V. When the current is small, the internal resistance voltage division is small, and the small current is charged to 3.55V to be considered full.

Inverter Compatibility Statement

ESD manufacturer: Huizhou RoyPow Technology Co., Ltd.

Address: ROYPOW Industrial Park, No. 16, Dongsheng South Road, Chenjiang Street, Zhongkai High-Tech District, Huizhou City, Guangdong Province, China.

Product: Rechargeable Li-ion Battery System

Trade Name: ROYPOW

Model Number: 2*RBmax3.8MH, 3*RBmax3.8MH, 4*RBmax3.8MH,
5*RBmax3.8MH, 6*RBmax3.8MH, 2*RBmax5.5MH, 3*RBmax5.5MH,
4*RBmax5.5MH, 5*RBmax5.5MH, 6*RBmax5.5MH

Inverters manufacturer: Huizhou RoyPow Technology Co., Ltd.

Address: ROYPOW Industrial Park, No. 16, Dongsheng South Road, Chenjiang Street, Zhongkai High-Tech District, Huizhou City, Guangdong Province, China.

Product: Three-phase Hybrid inverter

Trade Name: ROYPOW

Model Number: SUN8000T-E/I, SUN10000T-E/I, SUN12000T-E/I, SUN15000T-E/I

The company declares that the above inverter models can fully match and use the battery system models produced by our company.

Signature and company chop:



THANKS!

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