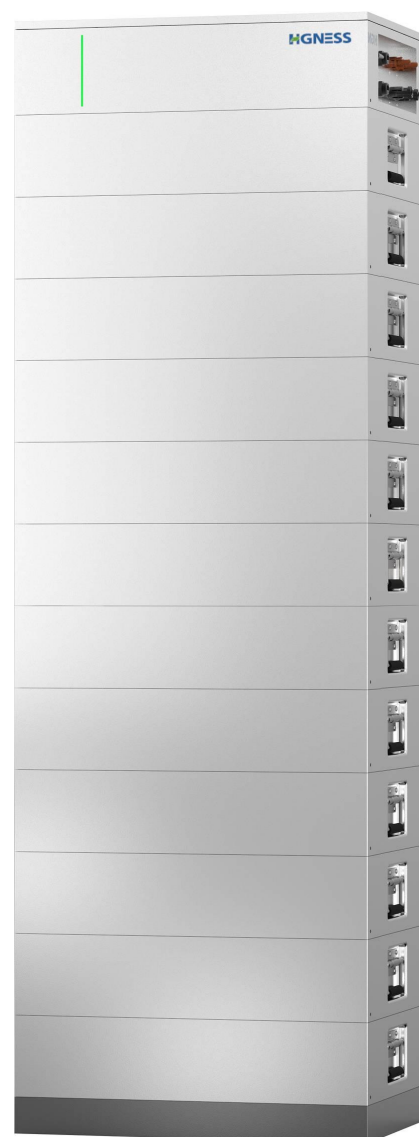




HG-C&I-HV SERIES

User Manual

Product Name	HG-C&I-HV SERIES
Version	1.0



Suzhou Hengge Energy Technology Co., Ltd.

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Foreword

Overview

This document mainly presents methods for the installation, electrical connection, commissioning and troubleshooting of high-voltage household energy storage HG-C&I-HV SERIES energy storage systems (referred to as energy storage systems hereinafter). Please read this manual carefully before installing and using the energy storage system to understand the safety information and familiarize yourself with the functions and features of the energy storage system.

Target Readers

This book is primarily intended for installers who are familiar with local regulations, standards, and electrical systems, have received professional training, and are well-informed about this product.

Symbol Definition

For better use of this manual, the following symbols are used in the manual to highlight important information.

Read the symbols and instructions carefully.

 DANGER
Indicates a situation with a high potential DANGER that, if not avoided, would result in death or serious injury to a person.
 WARNING
Indicates a moderate potential DANGER if a situation that could cause death or serious injury to a person cannot be avoided.
 CAUTION
It indicates a situation with a low potential DANGER, which, if not avoided, may cause moderate or minor injury to personnel.
NOTE
Emphasis and supplementation to the content may also provide tips or tricks for optimizing the use of the product that can help you solve a problem or save your time.

	Beware of a danger zone! This symbol indicates that the product must be additionally grounded if additional grounding or equipotential bonding is required at the installation site.
	Beware of explosion! The battery is an electrochemical device and poses a risk of explosion under extreme conditions. Maintain a safe distance if such a situation arises.
	Beware of DC voltage and operating current! The battery operates at DC voltage and current. Work on the battery must only be carried out by skilled and authorized electricians.
	Beware: Flammable! Keep the battery system away from open flames or ignition sources.
	Recommended: Wear protective gloves. Use suitable gloves when handling or servicing the battery system.
	CE marking The product complies with the requirements of the applicable EU directives.
	WEEE designation Do not dispose of the product together with the household waste. Dispose the product in accordance with local disposal regulations for electronic waste applicable in the country of installation.
	RCM (Regulatory Compliance Mark) The product complies with the requirements of the applicable Australian standards.
	The battery is recyclable The battery can be recycled by a professional recycling organization, please refer to the relevant local regulations.

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1 Safety Precautions

Statement

Before transporting, storing, installing, operating, using or/and maintaining the equipment, please read this manual, operate strictly in accordance with the contents of the manual, and follow all safety precautions marked on the equipment and in the manual.

The "DANGER", "WARNING", "CAUTION", "NOTE" matters in the manual do not represent all safety matters, national or regional standards that should be followed. You also need to comply with relevant international, national and industry practices. **The Company shall not be liable for any violation of safety operation requirements or safety standards for the design, production and use of equipment.**

This equipment should be used in an environment that meets the requirements of the design specifications; otherwise, equipment failure, equipment malfunction or component damage that may result is not covered by the equipment quality guarantee; Otherwise, the Company shall not be liable for personal injury, property damage, etc.

All operations such as transportation, storage, installation, operation, use and maintenance shall comply with applicable laws, regulations, standards and norms.

It is prohibited to reverse engineer, decompile, disassemble, adapt, implant or otherwise derive the equipment software. It is also prohibited to study the internal implementation logic of the equipment in any way, obtain the source code of the equipment software, infringe intellectual property rights, and disclose the results of any performance tests of the equipment software.

The Company shall not be liable for any of the following circumstances or the consequences thereof:

- Damage to equipment caused by earthquakes, flood, volcanic eruption, mudslide, lightning strikes, fires, wars, armed conflicts, typhoons, hurricanes, tornadoes, extreme weather, force majeure;
- Not operating under the conditions of use described in this manual;
- Installation and usage environment not in compliance with relevant international, national or regional standards;
- Installation and use of equipment by unqualified personnel;
- Failure to operate in accordance with the instructions and safety WARNING in the product and documentation;
- Disassembling, altering the product or modifying the software code without authorization;
- Damage caused by transportation by you or a third party entrusted by you;
- Damage caused by storage conditions not meeting requirement of the product documentation;
- Your own materials and tools do not comply with local laws, regulations and relevant standards;
- Damage caused by your or a third party's negligence, intent, gross negligence, improper operation or other reasons not attributable to our company;

1.1 Personal Safety

DANGER

- Do not operate with power on during installation. Do not install or remove cables while they are powered on. When the core of the cable comes into contact with a conductor, an electric arc, electric spark or fire and explosion may occur, which can cause fire or personal injury.
- Improper operation of equipment while it is powered on May cause fire, electric shock or explosion, resulting in casualties or property damage.
- Do not wear watches, bracelets, bangles, rings or other conductive objects during work to avoid electric shock burns.
- Special insulated tools must be used during work to avoid electric shock or short circuit faults, and the insulation withstand voltage level must comply with local laws, regulations, standards and specifications.

General Requirements

- Don't deactivate equipment protection devices and ignore the manual and WARNING, alerts, and precautions on the equipment.
- During the operation of the equipment, if a fault is found that may cause personal injury or damage to the equipment, the operation should be immediately terminated and effective protective measures should be taken.
- Do not directly touch, use other conductors to touch, or indirectly touch power supply equipment through wet objects. Measure the voltage at the contact point before touching any conductor surface or terminal to confirm that there is no risk of electric shock.
- Do not touch the casing when the equipment is in operation, as the temperature is high and there is a risk of burns.
- Do not touch the running fan with fingers, components, screws, tools, etc. to avoid hand injury or damage to the equipment.
- In case of fire, evacuate the building or equipment area immediately and press the fire alarm bell or call the fire alarm number. Under no circumstances should you re-enter a burning building or equipment area.

1.2 Electrical Safety

DANGER

- Make sure the equipment is undamaged before making electrical connections, otherwise it may cause electric shock or fire.
- Improper and incorrect operation may cause accidents such as fire or electric shock.
- Foreign objects must be prevented from entering the interior of the equipment during operation, otherwise it may cause short circuit faults or damage to the equipment, load power supply derating or power loss, and personal injury.

WARNING

- For equipment that needs to be grounded, a protective ground wire must be installed first during installation; When dismantling the equipment, the protective ground wire must be removed last.

CAUTION

- Cables are not allowed to pass through the air inlets and outlets of the equipment.

- Installation, operation and maintenance must be carried out in the order of steps in the manual. Do not modify, add or change equipment without permission, do not change the installation sequence without permission, etc.
- Before installing or removing power cables, the equipment itself and the switches before and after it must be disconnected.
- If liquid is found inside the equipment, turn off the power immediately and do not continue to use it.
- Before installing power cables, make sure the cable labels are correct and the cable terminals are insulated.
- When installing the equipment, use a torque tool of the appropriate range to tighten the screws. When using a wrench to tighten, make sure the wrench is not skewed and the torque value error does not exceed 10% of the specified value.
- After installation, make sure all electrical component protective shells, insulating sleeves, etc. are in place to avoid the risk of electric shock.
- If the equipment has multiple inputs, disconnect all inputs of the equipment and do not operate the equipment until it is completely powered off.

- Check the terminal screws of the device regularly to ensure they are tightened and not loose.
- If the cable is damaged, it must be replaced by a professional to avoid risk.
- Do not deface, damage or cover the markings and nameplates on the equipment. Replace the markings that have become unclear due to prolonged use in a timely manner.
- Do not clean the electrical components inside and outside the equipment with water, alcohol, oil or other solvents.

Grounding requirements

- The grounding impedance of the equipment should meet local electrical standards.
- The equipment should be permanently grounded. Before operating the equipment, check the electrical connections of the equipment to ensure that the equipment is reliably grounded.
- Do not operate equipment without a grounded conductor installed.
- Do not damage the grounding conductor.
- For devices using three-core sockets, it is necessary to ensure that the ground terminal in the three-core socket is connected to the protective ground.
- Before connecting a large contact current device to the input power supply, the protective grounding terminal of the device housing must be grounded first to prevent the contact current of the device from causing electric shock to the human body.

1.3 Environmental Requirements

DANGER

- Flammable and explosive items must not be stored in the equipment area.
- Do not place the equipment in an environment with flammable or explosive gases or smoke, and do not perform any operations in such an environment.
- Do not bring the equipment near heat sources or fire sources such as fireworks, candles, heaters, or other heat-generating devices, as the heat may cause damage to the equipment or cause a fire.

 WARNING

- The equipment should be installed in an area away from liquids and must not be installed beneath water pipes, air outlets, or other places where condensation is likely to occur; Do not install under air conditioning vents, air outlets, room outlet Windows, etc. where water is likely to leak, to prevent liquid from entering the equipment and causing malfunctions or short circuits.
- Do not block vents, cooling systems or cover them with other objects while the equipment is in operation to prevent high temperatures from damaging the equipment or causing fires.

General Requirements

- The temperature and humidity environment in which the equipment is stored should be appropriate. It should be kept in a clean, dry, well-ventilated area and protected from dust and condensation.
- It is strictly prohibited to install and operate the equipment beyond the range specified in the technical specifications, otherwise it will affect the performance and safety of the equipment.
- Installation, use and operation of outdoor equipment and cables (including but not limited to moving equipment, operating equipment and cables, plugging and unplugging signal interfaces connected to the outdoors, working at heights, outdoor installation, opening doors, etc.) are strictly prohibited in adverse weather conditions such as lightning, rain, snow, winds of force 6 or above.
- Do not install equipment in an environment with dust, smoke, volatile gases, corrosive gases, infrared radiation, or excessive organic solvents or salt.
- It is strictly prohibited to install the equipment in an environment with conductive metal dust or magnetic dust.
- Site selection should comply with local laws, regulations and relevant standards.
- Do not install the equipment in a position that can be submerged by water.

1.4 Mechanical safety

WARNING

- Ensure the cabinet is securely fixed before installing the equipment. An unstable cabinet may tip over due to imbalance, potentially causing injury to installation personnel or damage to the equipment.
- Drilling holes into the equipment is strictly prohibited. Drilling may compromise the device's sealing and electromagnetic shielding performance, and may damage internal components or wiring. Metal shavings produced during drilling can enter the equipment and cause short circuits on the circuit boards.

1.5 Equipment Safety

Energy storage system safety

NOTE

- Avoid standing around the device when it malfunctions.

Battery safety

DANGER

- Short-circuiting the battery's positive and negative terminals is strictly prohibited. A battery short circuit can result in a sudden surge of high current and a massive energy release, potentially causing electrolyte leakage, smoke, thermal runaway, fire, or explosion. Batteries must not be serviced while energised to avoid short circuits.
- Do not expose batteries to high-temperature environments or heat sources, such as direct sunlight, open flames, transformers, or heaters. Overheating may lead to leakage, smoke, release of flammable gases, thermal runaway, fire, or explosion.
- Using or replacing the battery with an incorrect model may result in fire or explosion. Only use batteries of the specified model recommended by the manufacturer.
- Battery electrolyte is toxic and volatile. In the event of a leak or unusual odour, avoid contact with the leaked liquid or vapour. Untrained personnel must stay away and immediately contact qualified professionals. Professionals should wear protective equipment including safety goggles, rubber gloves, gas masks, and protective clothing, disconnect the system power supply, remove the leaking battery, and consult a technical engineer for further handling.
- Batteries are sealed systems and do not release gases under normal operating conditions. However, under extreme abuse such as fire exposure, puncture, crushing, lightning strike, overcharging, or other conditions leading to thermal runaway, batteries may rupture or undergo abnormal chemical reactions, resulting in electrolyte leakage or the release of gases such as carbon monoxide (CO) or hydrogen (H₂). Ensure that combustible gas ventilation measures are properly in place to prevent fire or equipment corrosion.

Declaration

The Company shall not be liable for damage to the batteries provided by the Company and other consequences resulting from the following reasons:

WARNING

- Batteries should be installed in areas away from liquids. Do not install them below air conditioning vents, air outlets, computer room exit Windows, water pipes, or other areas prone to leakage to prevent liquids from entering the equipment and causing equipment failure or short circuits.
 - Before removing the battery packaging, when storing and transporting the battery, ensure that the outer packaging box is intact and undamaged, place it correctly according to the packaging box markings, do not place it upside down, on its side, upright or at an Angle, stack it in accordance with the stacking requirements on the outer packaging, and avoid any impact or drop that may cause damage to the battery.
 - After the battery is removed from the packaging, place it in the required direction. Do not place it upside down, on its side, upright, tilted or stacked. Avoid any impact or drop that may cause damage to the battery.
 - After discharging the battery, it should be recharged promptly; otherwise, it may cause damage to the battery due to over-discharge.
- Battery damage caused by earthquakes, floods, volcanic eruptions, mudslides, lightning strikes, fires, wars, armed conflicts, typhoons, hurricanes, tornadoes, extreme weather, force majeure;
 - Direct damage to the battery caused by the operating environment of the on-site equipment or external power parameters not meeting the environmental requirements for normal operation, including but not limited to the actual operating temperature of the battery being too high or too low, unstable power grid conditions and frequent power outages, etc.
 - Battery damage, drops, leaks, bursts, etc. due to improper operation or failure to connect the battery as required;
 - Damage to the battery caused by over-discharge due to your failure to power on in time during on-site installation and connection.
 - Battery damage caused by your failure to accept in a timely manner;
 - You did not set the battery operation management parameters correctly;
 - You are mixing batteries provided by our company with other batteries, causing accelerated capacity decay, including but not limited to: mixing with batteries of other brands, mixing with batteries of different rated capacities, etc.

- Your improper maintenance leads to frequent over-discharge of the battery, your on-site capacity expansion or long-term inability to fully charge, etc.
- You have not properly maintained the battery in accordance with the operating manual of the supporting equipment, including but not limited to: not regularly checking whether the battery terminal screws are tightened, etc.
- Battery damage caused by your failure to store (such as in a damp, rain-prone environment) as required for storage;
- Failure to charge the battery in time due to your own reasons, resulting in over-storage of the battery, causing capacity loss or irreversible damage to the battery, etc.
- Damage to the battery caused by you or a third party, including but not limited to: relocating or reinstalling the battery without following the Company 's requirements;
- You change battery usage scenarios without prior notice to the company;
- You connect additional loads to the battery yourself;
- The battery has exceeded its maximum storage period;
- The battery is out of warranty. Batteries that are out of warranty pose certain safety risks and are not recommended for continued use.

General Requirements

NOTE

- To ensure safe battery operation and accurate battery management, please use batteries provided or approved by the Company. The Company shall not be held responsible for any battery-related faults resulting from the use of non-approved batteries.

2 Product Descriptions

2.1 Introduction

Energy storage product Features Introduction

HG-C&I-HV SERIES is a high-voltage residential energy storage system based on lithium iron phosphate (LFP) batteries. Developed and manufactured by HGNESS, it is a new-generation energy storage product designed to provide reliable power support for a wide range of household devices and systems.

Each battery pack in the C&I-HV SERIES offers an energy capacity of 5 kWh. A single battery cluster can stack up to 12 battery packs, and up to 4 clusters can be connected in parallel. This system is particularly suitable for applications requiring high power, limited installation space, restricted load-bearing capacity, and long service life.

Energy storage product system label

 **DANGER**

1.Do not disconnect disassemble or repair to avoid injuries electric shocks or burns.Service by authorized engineers.

2.Do not damage the unit in such ways as dropping,deforming impacting,cutting or spearing with a sharp object It may cause electrolyte leakage or fire.

3.Breakdown of the unit may cause electrolyte leakage or flammable gas generation.In such case,please contact Company HGNESS QA team immediately.

4.When electrolyte leaks out,avoid contact with eyes skin or clothing.In event of accident rinse with water and get medical help immediately.

5.Do not place near open flame or incinerate it,as it may lead to fire or explosion.

6.Keep the unit away from moisture or liquids.Do not touch or use if liquids were spilled on it.

7.Lifting by one person could cause injury.Use assistance when moving or lifting.

8.Keep out of reach of children or animals.



Suzhou Hengge Energy Technology Co.,Ltd.

No.111 Caizi Road, Wujiang District, Suzhou City, Jiangsu, P.R. China

Rechargeable Li-ion Battery System: HG-C&I-HV SERIES

Rated Capacity:100Ah Rated Charge/Discharge Current: 50A d.c.

DOD:100% Max. Charge/Discharge Current: 60A d.c.

Protective Class: I Ingress Protection: IP66

Model:	Energy	Nominal Voltage	
□HG-C&I-HV3-15	15.36kWh	153.6V d.c.	IFpP51/160/119/[(16S)03S]E/-20+60/90
□HG-C&I-HV4-20	20.48kWh	204.8V d.c.	IFpP51/160/119/[(16S)04S]E/-20+60/90
□HG-C&I-HV5-25	25.60kWh	256.0V d.c.	IFpP51/160/119/[(16S)05S]E/-20+60/90
□HG-C&I-HV6-30	30.72kWh	307.2V d.c.	IFpP51/160/119/[(16S)06S]E/-20+60/90
□HG-C&I-HV7-35	35.84kWh	358.4V d.c.	IFpP51/160/119/[(16S)07S]E/-20+60/90
□HG-C&I-HV8-40	40.96kWh	409.6V d.c.	IFpP51/160/119/[(16S)08S]E/-20+60/90
□HG-C&I-HV9-45	46.08kWh	460.8V d.c.	IFpP51/160/119/[(16S)09S]E/-20+60/90
□HG-C&I-HV10-50	51.20kWh	512.0V d.c.	IFpP51/160/119/[(16S)10S]E/-20+60/90
□HG-C&I-HV11-55	56.32kWh	563.2V d.c.	IFpP51/160/119/[(16S)11S]E/-20+60/90
□HG-C&I-HV12-60	61.44kWh	614.4V d.c.	IFpP51/160/119/[(16S)12S]E/-20+60/90









Series

Number:

10

Energy storage product PACK label

Rechargeable Li-ion Battery PACK

Model :HG-C&I-HVP

Battery Type:LFP(LiFePO4)

Rated Charge/Discharge Current: 50A d.c.

Max. Charge/Discharge Current: 60A d.c.

Charge temperature:2~55℃

Discharge temperature:-20~58℃

Nominal Voltage: 51.2V d.c.

Rated Capacity:100Ah

Rated Energy :5.12kWh

IFpP51/160/119/[(8S)2S]M/-20+60/90

Made in China

Series Number:

DANGER

1.Do not disconnect,disassemble or repair by yourself.

2.Do not drop, deform, impact, cut or spearing with a sharp object.

3.Do not place near open flame or incinerate.

4.Do not sit or put heavy things on the battery.

5.Keep away from moisture or liquid.

6.Keep out of reach of children, animals or insects.

7.Contact the supplier within 24 hours if anything wrong.

Suzhou Hengge Energy Technology Co.,Ltd.

sn:A26F5U01002
bt_mac:2CC682770EB9
wifi_mac:2CC68277168F

Scan this QR code with the app for WiFi configuration

Energy storage product model description

HG-C&I-HV 1-5

1 2 3 4 5

Identification	Definition	Meaning
1	Company name	HG: Suzhou Hengge Energy Technology Co., Ltd.
2	Product code	C&I
3	Voltage level	HV: High voltage
4	Stacking quantity	3~12
5	Available capacity	5: The battery system has 5 kWh of available power

Energy storage product parameter description

NOTE
- The battery system supports expandable usable capacity, allowing up to 12 battery modules per cluster and a maximum of 4 clusters in parallel. - The actual installation height may vary slightly; please refer to the installed height on site for accuracy.

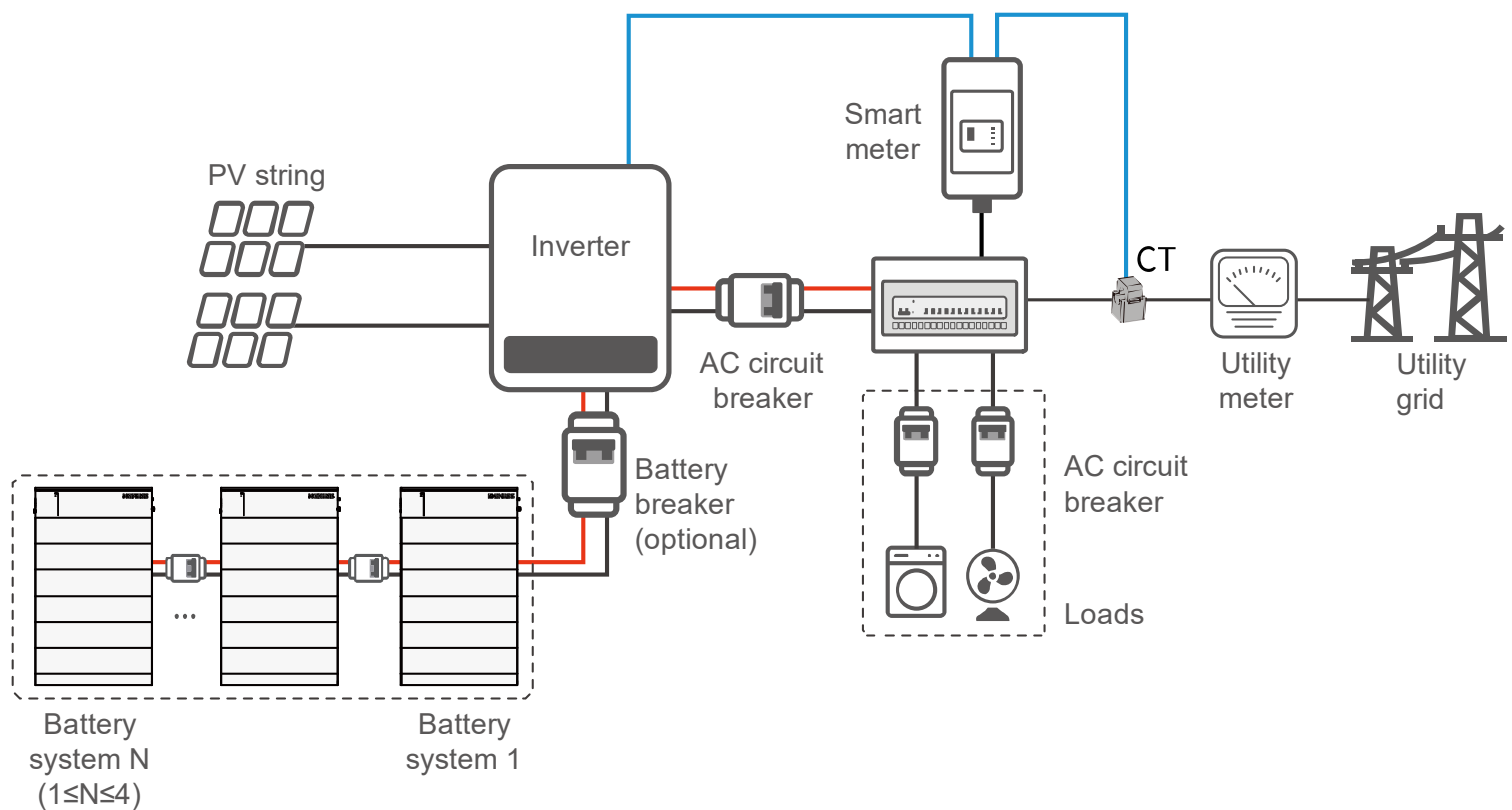
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2.2 Application Scenarios

This section provides detailed technical description, transportation, packaging, storage requirements and precautions for HG-C&I-HV SERIES products.

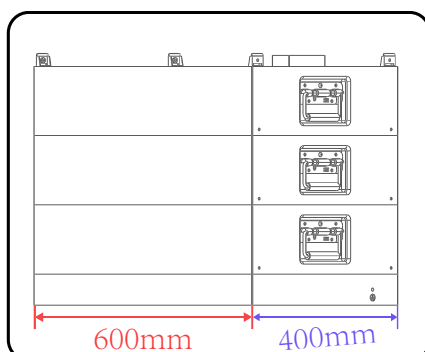
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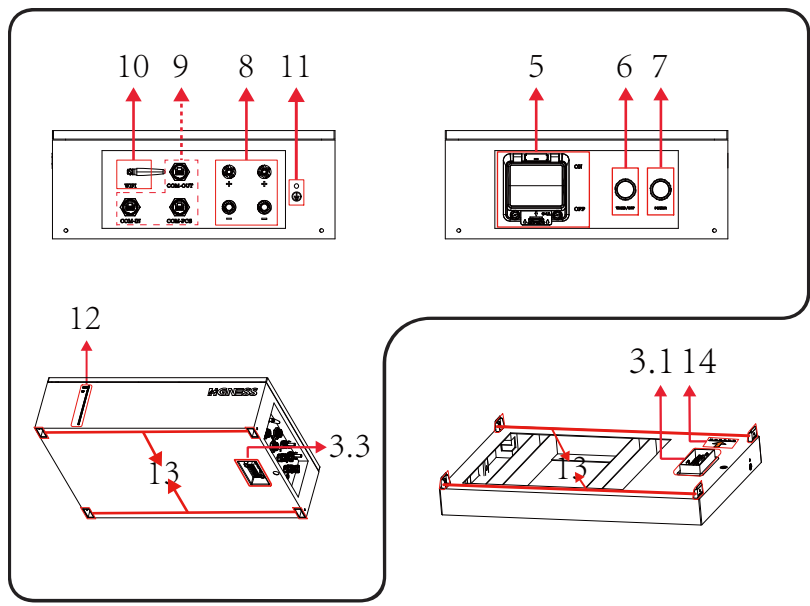
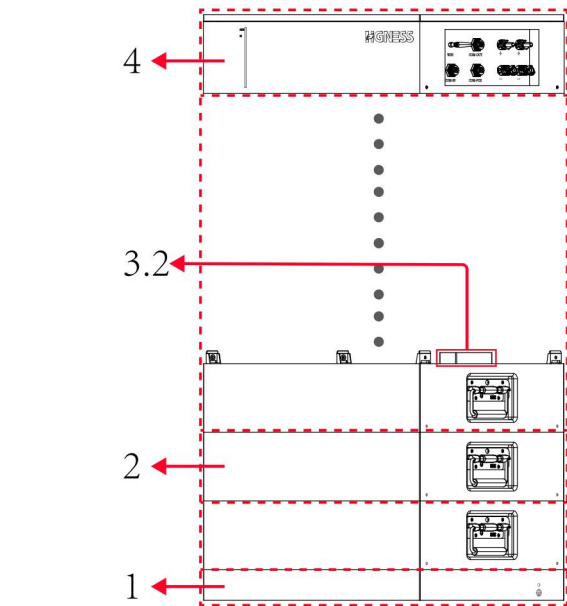
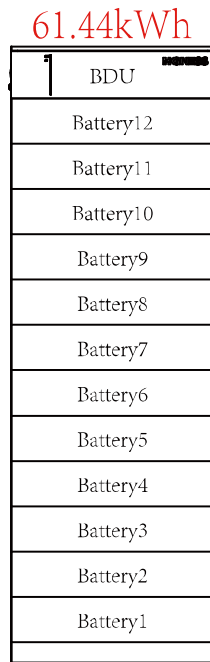
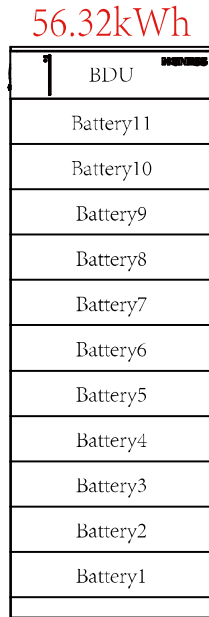
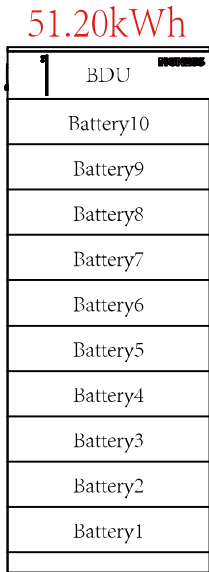
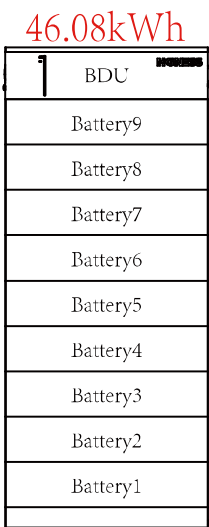
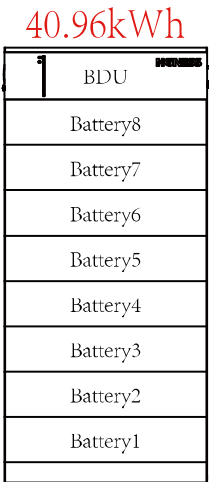
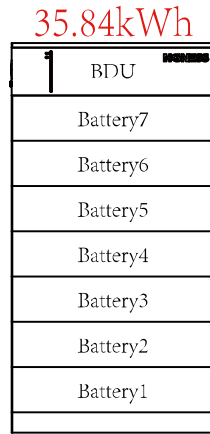
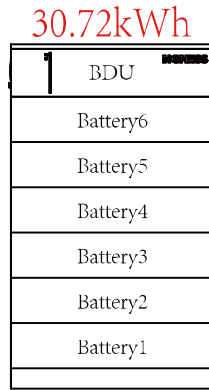
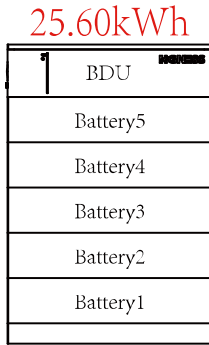
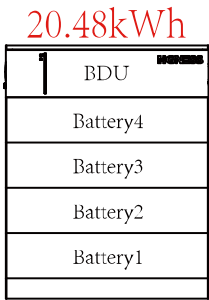
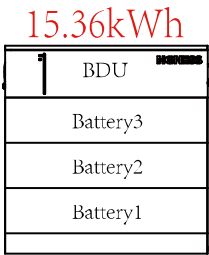
- The same energy storage system supports battery clusters connected in parallel, with up to a maximum of 4 battery clusters in parallel. When connected in parallel, ensure that the available capacity of each battery system is consistent.
- Circuit breakers between inverters and batteries and between battery systems must be installed in accordance with local laws and regulations.



2.3 Appearance Description

Physical Dimensions

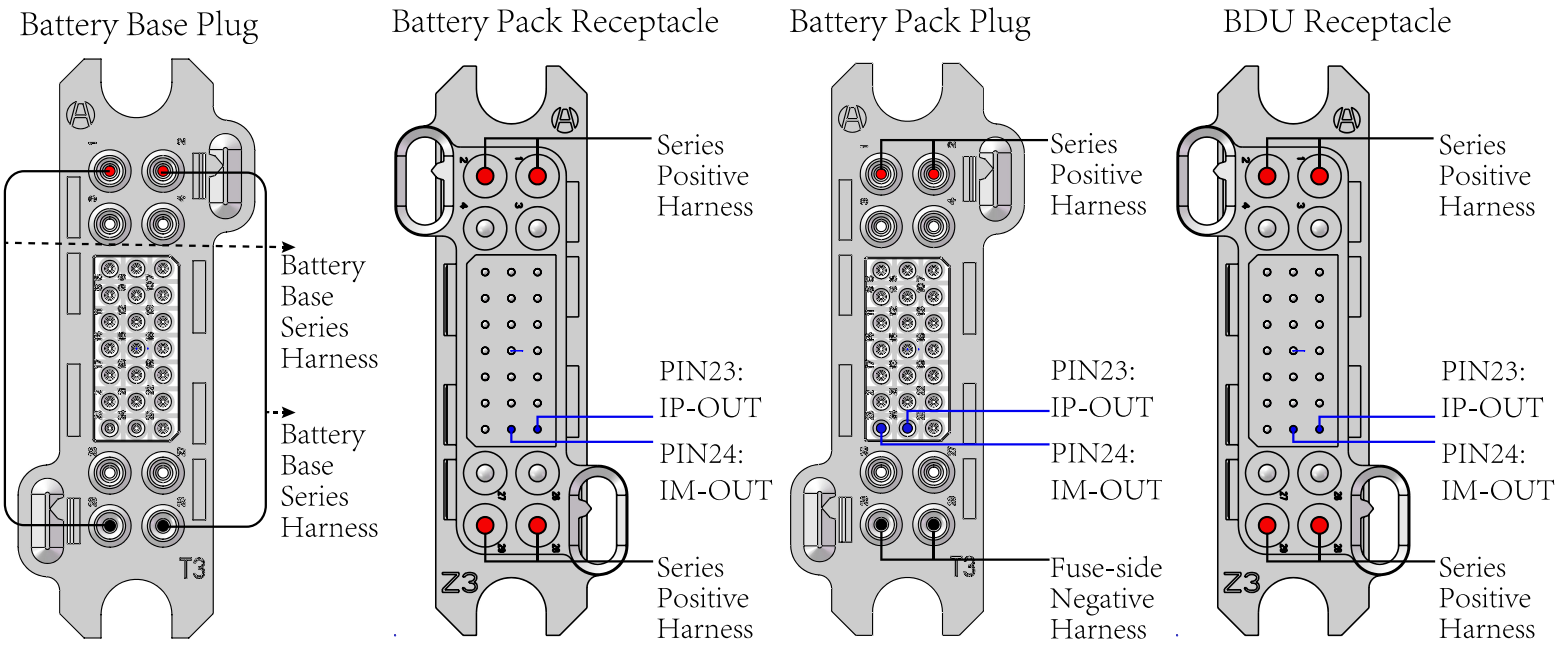




Interface Description

No.	Component Name	Description
1	Battery Base	-
2	PACK	3 to 12 PACK can be connected in the battery system.
3.1	Base Series Interface	Interface used to connect the battery base to the PACK.
3.2	PACK Series Interface	Interface used to connect one PACK to another PACK.
3.3	BDU Series Interface	Interface used to connect the PACK to the BDU.
4	BDU	Controls battery system.
5	Battery system switch	Switches the battery system on or off.
6	WAKE / OFF Button	During power-up and shutdown, press and hold the WAKE/OFF button for 2~3 s to wake or shut down the BMS.
7	Power Button	During power-up and shutdown, press the POWER button to prepare the system for power-on or power-off.
8	DC cable port (BAT)	Connects the DC cables of the battery system to the inverter. 6 DC cable port (BAT) Includes two BAT+ ports and two BAT- ports. The two BAT+ or BATport are functionally identical.
9	Communication terminal (COM)	Connects the communication cable between the battery and inverter or two batteries. COM3 is reserved.
10	Wi-Fi Antenna	Provides wireless connectivity for the energy storage system, enabling functions such as remote system data transmission, real-time monitoring through the mobile app, and firmware upgrades via over-the-air (OTA) updates.
11	Grounding point	Connects grounding cables to the grounding points for protection.
12	SOC indicator	Displays the battery system' s State of Charge (SOC), warning status, and fault status.
13	Battery installation limit	Fix the battery to prevent it from tilting.
14	Direction arrow for battery base	Ensure that the arrow in the battery base points towards the wall when installing the battery base.

2.4 Connector Interface Definition



2.5 Normative References and Appearance Requirements

The following documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition (including all amendments) applies.

UN38.3	UN Manual of Tests and Criteria, Part III, Sub-section 38.3 – Lithium Batteries
IEC 62619:2022	Secondary cells and batteries containing alkaline or other non-acid electrolytes -Safety requirements for secondary lithium cells and batteries, for use in industrial applications (including stationary installations)
IEC 62040-1:2017	Uninterruptible power systems (UPS) -Part 1: Safety requirements
IEC 62477-1:2022	《Safety requirements for power electronic converter systems and equipment -Part 1: General》
ISO 4892-4:2024	Plastics — Methods of exposure to laboratory light sources — Part 4: Open-flame carbon-arc lamps
IEC 61000-6-1:2019	Electromagnetic compatibility (EMC) -Part 6-1: Generic standards -Immunity standard for industrial environments
RoHS	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment

3 Transport Requirements

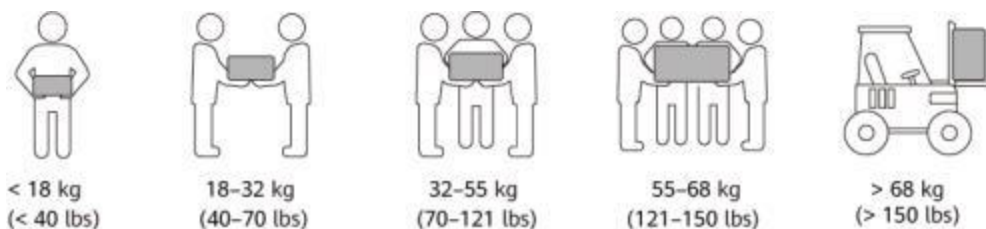
⚠ DANGER

- Rough handling is prohibited as it may cause battery short circuit, damage (leakage, rupture, etc.), fire or explosion, etc.

⚠ WARNING

- Move the battery in the desired direction. Do not invert, tilt, drop, mechanical impact, rain or snow exposure, etc.
- Batteries must be transported separately. Do not transport with batteries. If you need to transport or move the cabinet, remove the batteries first.

3.1 Handling Requirements



- Be prepared to bear weight when moving heavy objects to avoid being crushed or sprained by them.
- When multiple people are moving heavy objects at the same time, consider conditions such as height, and make reasonable personnel combinations and divisions of labor to ensure balanced weight distribution.
- When two or more people are moving a heavy object together, one person should be in charge and lift or lower the equipment at the same time to ensure a uniform pace.
- When moving equipment by hand, safety gear such as protective gloves and safety shoes should be worn to avoid injury.
- Do not lift heavy objects quickly above waist height. Instead, place the object on a worktable at half waist height or an appropriate place, adjust the position of your palm, and then lift it.

- When lifting heavy objects, apply force evenly and steadily; Move at a uniform and low speed; Positioning should be smooth and slow, avoiding any impacts or drops that could scratch the surface of the equipment or damage its components and cables.
- When moving heavy objects, be especially careful of workbenches, slopes, stairs and other slippery areas. When moving heavy objects over thresholds, make sure the width of the door is wide enough for the equipment to pass through in case of bumping or scratching fingers.
- When passing heavy objects, move your feet instead of twisting your waist. When you need to lift and pass a heavy object at the same time, point your feet in the direction you want to move before carrying it.
- When using a forklift, the forklift should be placed in the middle position to prevent overturning. Before moving, fasten the equipment to the forklift with a rope; A dedicated person is required to watch over the move.
- Transport by sea or on roads with good road conditions. Rail and air transport are not supported. Minimize jolts and inclinations during transportation.
- Keep the battery system upright during handling and transportation. Do not place the battery system flat or upside down. If the battery system packaging is damaged or the toppling label on the battery system packaging is discolored, please contact our service engineer for confirmation.
- When moving with a forklift, the forklift must be placed in the middle position to prevent overturning. Secure the equipment to the forklift with a rope before moving; A dedicated person is required to watch over the move.

3.2 Transport Requirements

- Batteries pass through UN38.3 (UN38.3: Section 38.3 of the sixth Revised Edition of the Recommendations on the Transport of dangerous goods: Manual of Tests and Criteria certified this product belongs to Class 9 dangerous goods.
- Transport service providers must be qualified to transport DANGER goods and open-top vehicles are strictly prohibited.
- The batteries can be directly dispatched to the site to meet the transportation requirements of vehicles, ships, etc.
- Comply with international rules for the transport of DANGER goods and meet the regulatory requirements of the transport authorities of the country of origin, transit and destination.
- Transport by sea or on roads in good condition; rail and air transport are not supported. Minimize jolts and inclinations during transportation.
- Sea transportation follows the requirements of the International Maritime DANGER Goods Code (IMDG Code).
- Land transport complies with ADR or JT/T 617 transport requirements.
- Before transportation, the battery packaging must be checked to be intact and free of odor, leakage, smoke, fire, etc. Otherwise, transportation is prohibited.
- Transport packaging boxes must be sturdy. Care should be taken during loading, unloading and transportation, and moisture-proof measures should be taken.
- When handling batteries, handle them gently. Do not bump the batteries and pay NOTE to personal safety.
- Before handling faulty batteries (carbonization, leakage, swelling, water ingress, etc.), insulate the positive and negative terminals of the battery, pack them up and place them in an insulated explosion-proof box as soon as possible, and make records in the outer box, including the name of the site, address, time, phenomenon, etc.

4 Storage and Maintenance

4.1 General Requirements

- It is not recommended to store battery packs for a long time. There is capacity loss when lithium batteries are stored for a long time. After 12 months of storage at the recommended storage temperature, the irreversible capacity loss is generally 3% to 10%.
- Store in a clean and dry place, protected from dust and moisture. Keep away from rain or water on the ground.
- The ambient air must not contain corrosive or flammable gases.
- Do not store on an incline or upside down.
- Devices other than battery packs that have been stored for two years or more must be inspected and tested by professionals before being put into use.

4.2 Storage Requirements

WARNING

- If the battery malfunctions , it must be promptly transferred to a danger materials warehouse for separate storage, at least 3 meters away from surrounding flammable materials, and scrapped as soon as possible.
- Batteries should be stored separately, not mixed with other equipment, and not stacked too high. There must be fire-fighting facilities on site that meet the requirements, such as fire sand, fire extinguishers, etc.
- There is static power consumption of the internal modules of the battery and self-discharge loss of the battery itself after the battery is discharged, which may cause damage to the battery due to over-discharge. Avoid storing the battery in a state of low charge and recharge it promptly. If the battery fails permanently due to failure to recharge within the specified period, our company does not provide corresponding warranty service. Scenarios that trigger low battery storage include, but are not limited to:
 - The battery power cable or signal line is not connected
 - The battery cannot enter the charging state after discharging due to a system failure
 - The battery fails to enter the charging state due to incorrect system configuration

⚠ CAUTION

- Batteries are recommended for immediate use. For batteries that have been stored for a long time, regular recharging is recommended, otherwise it may cause damage to the battery.

• Storage environment requirements:

- Ambient temperature: -20°C to $+35^{\circ}\text{C}$ (0°C to 30°C recommended, long-term storage above 35°C may affect battery performance and service life).
- Dry, well-ventilated, clean.
- Avoid contact with corrosive organic solvents, gases, and other substances.
- Avoid direct sunlight.
- Keep no less than two meters away from heat sources.

- The battery must be disconnected from the outside when stored. If there is an indicator light on the battery panel, the indicator light should be off.
- Charge the battery promptly and calibrate the SOC to keep the SOC within 20% to 50%. Failure to charge the battery as required may affect its performance and lifespan.
- When storing at low power, it must be charged at the maximum time interval allowed by the SOC when the battery is fully discharged. If not recharged beyond the maximum time interval, the battery may be damaged due to over-discharge.

The SOC at the time of discharging before storage	Maximum recharge time interval
$\text{SOC} \geq 50\%$	Refer to the battery charge cycle for individual shipments
$25\% \leq \text{SOC} < 50\%$	3 months
$5\% \leq \text{SOC} < 25\%$	7 days
$\text{SOC} < 5\%$	48 hours

4.3 Routine Maintenance

Maintaining Item	Maintaining Period
Check whether the locking bracket is secured, tighten it if not.	Once every 6 months
Check whether the outer enclosure is broken. Repair the painting or contact the after-sales service if there is any broken,	Once every 6 months
Check whether the cables are exposed, Replace the exposed cable or contact the after-sales service for help.	Once every 6 months
Check whether there is any dust around the battery module. Clean the dust if there is any to avoid affecting heat dissipation.	Once every 6 months
Check whether there is any liquid or pest near the battery to avoid intrusion in a long term.	Once every 6 months

5 Installation Requirements

⚠ WARNING

- Make sure the power switch is set to OFF before installing the battery.
- Do not place installation tools, metal parts or debris on the battery during the installation process. After installation, remove items from the battery and around it promptly.
- Do not remove the protective parts on the battery terminals, such as protective covers or waterproof caps, when moving the battery.

5.1 Pre-installation inspection

Check the outer packaging

Before opening the outer packaging of the equipment, check the outer packaging for visible damage such as holes, cracks, or other signs of internal damage, and verify the model of the equipment. If there is any abnormality in the packaging or the device model does not match, do not open it and contact the dealer.

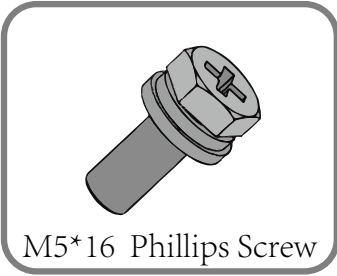
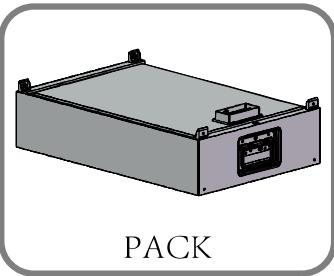
⚠ WARNING

- If the cabinet height exceeds 2 meters, take protective measures for high-altitude operations when removing the outer packaging.

Check the deliverable

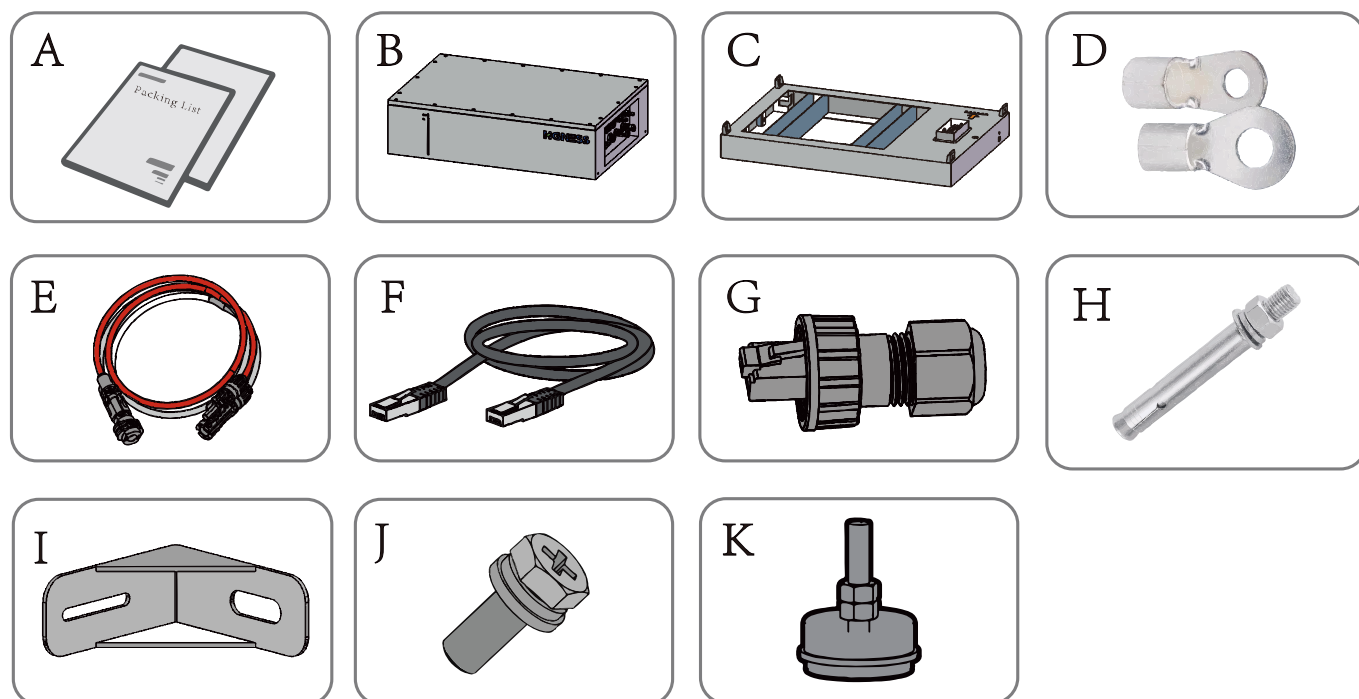
After opening the outer packaging of the equipment, please check that the deliverables are complete and intact, and check for any obvious external damage. Contact your dealer if any items are missing or if there is any damage.

Battery Accessory Kit:



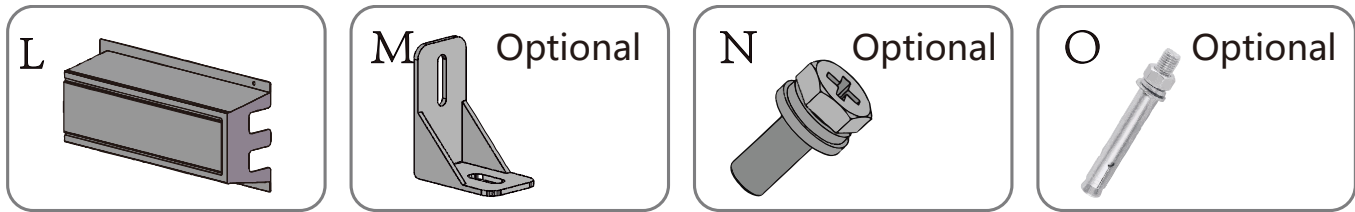
Object	Description	Quantity
1	PACK	1
2	M5*16 Phillips Screw	4

BDU Accessory Kit:



Object	Description	Quantity
A	Packing List	× 1
	Quick Installation Guide	× 1
	Warranty Card	× 1
	User Manual	× 1
B	BDU	× 1
C	Battery Base	× 1
D	Ring terminal OT10-6	× 1
E	Positive Power Harness	× 1
	Negative Power Harness	× 1
F	RJ45 Connector	× 1
G	Termination Resistor	× 1
H	M8*80 Anchor Bolt	× 4
I	Anti-tip Bracket	× 4
J	M4*12 Phillips Screw	× 3
	M5*16 Phillips Screw	× 4
	M6*12 Phillips Screw	× 1
K	Leveling Foot	× 4

Separate Accessory Kit



Object	Description	Quantity
L	Junction Box (Standard) × 1	× 1
M	Anti-tip Bracket (Optional) × 4	× 4
N	M8*20 Phillips Screw (Optional) × 4	× 4
O	M12*100 Anchor Bolt (Optional) × 4	× 4

5.2 Safety gear

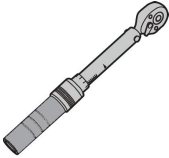
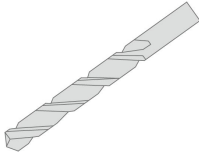
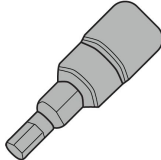
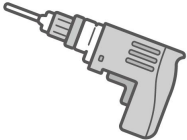
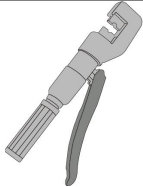
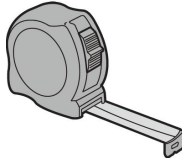
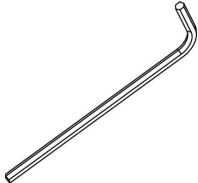
Wear the following safety gear when working on the BESS. Adhere to local occupational health and safety standards.



5.3 Tools

The following tools are required to install the battery pack:

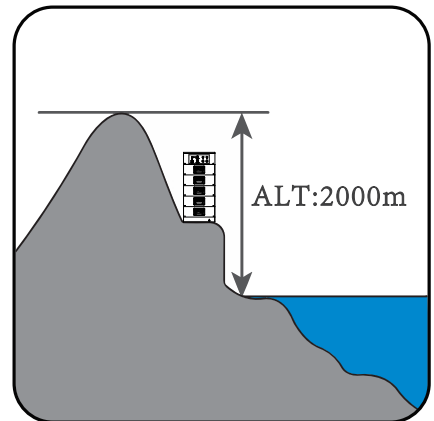
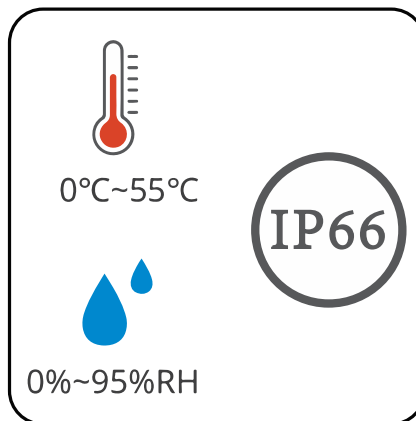
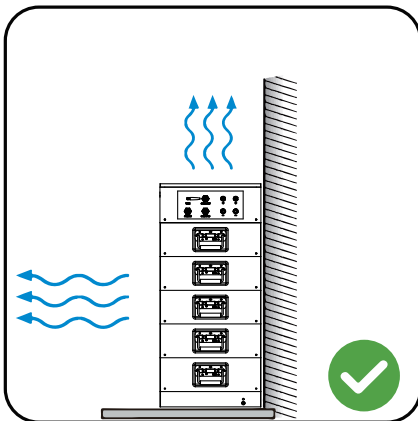
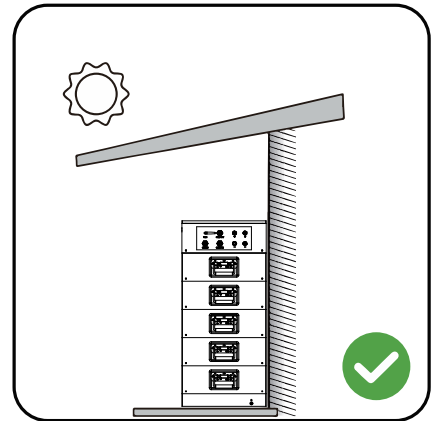
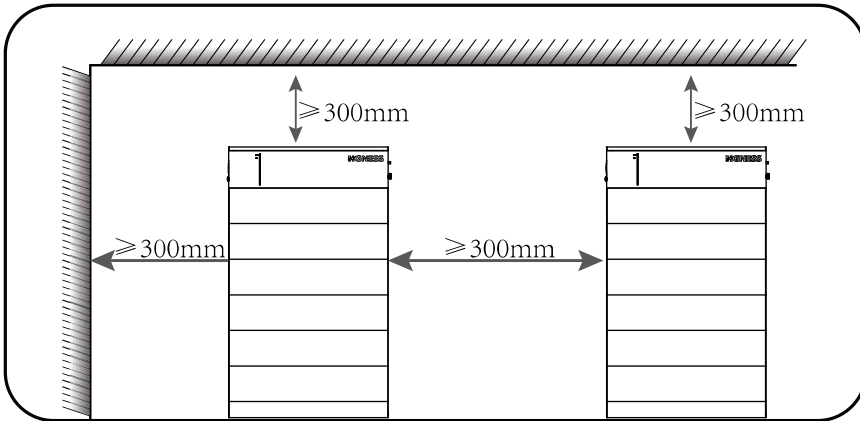
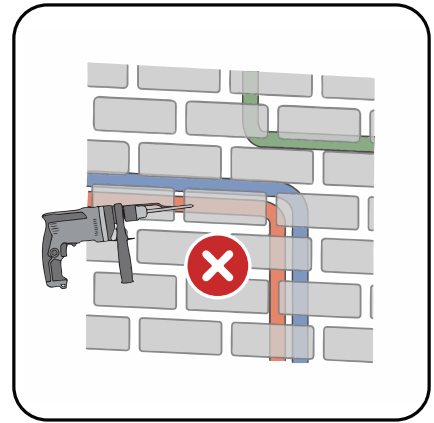


 Phillips-screwdriver Specification: M5/M6	 Marker pen	 Phillips Screwdriver Bit Specification: M5 / M6	 Wrench
 Torque wrench	 Twist drill(4mm)	 Hexagon socket bit S=4	 Heat Gun
 Electric Drill	 Network Cable Crimping Tool	 Wire Stripper	 Crimping Pliers
 Scissor	 Hammer	 Tape measure	 Hex Key S=4

5.4 Installation Requirements

Installation environment requirements

- The equipment must not be installed in flammable, explosive or corrosive environment.
- The installation location should be out of reach of children and avoid being installed in a place that is easily accessible. There may be high temperatures on the surface when the device is in operation to prevent scalding.
- Install away from pipes, cables. within walls to avoid DANGER when drilling holes.
- The protection level of the equipment should be suitable for both indoor and outdoor installation, and the temperature and humidity of the installation environment should be within the appropriate range.



Installation carrier requirement

- The installation carrier must not be made of flammable material and must be fire-resistant.
- Please ensure that the installation carrier is sturdy and reliable, capable of bearing the weight of the equipment.
- Install the battery system close to the wall and install anti-tipping brackets to prevent the battery from toppling over.

Installation Angle requirements

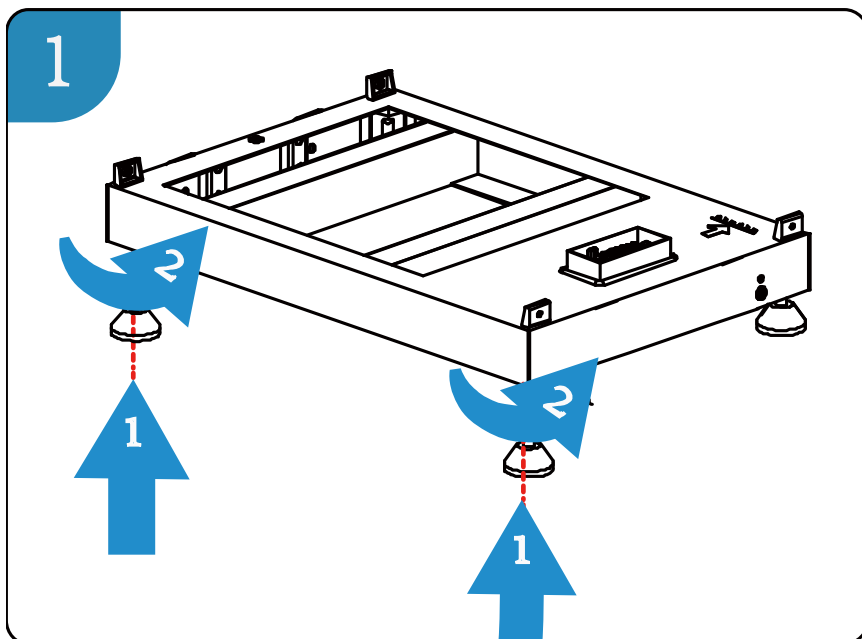
- Make sure the device is installed horizontally and not tilted or inverted.

5.5 Install the battery system

WARNING

- Make sure the control box is installed above the battery. Do not install the battery above the control box.
- Cover the battery system with cardboard or other coverings when using an impact drill to prevent foreign objects from entering the device and causing damage.
- Before installing the battery system, remove the cover plate of the battery module connection port.

Step 1 :

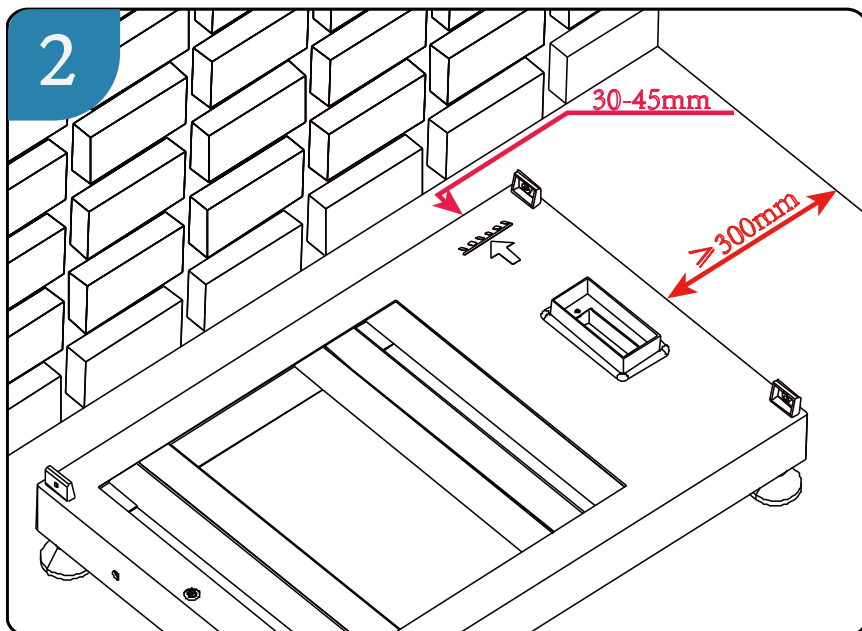


Step 1 :

If the installation surface is uneven, adjustable leveling feet and anti-tip brackets must be used.

Install the adjustable leveling feet onto the base and adjust the height of all four feet until the base is approximate level;

Step 2 :

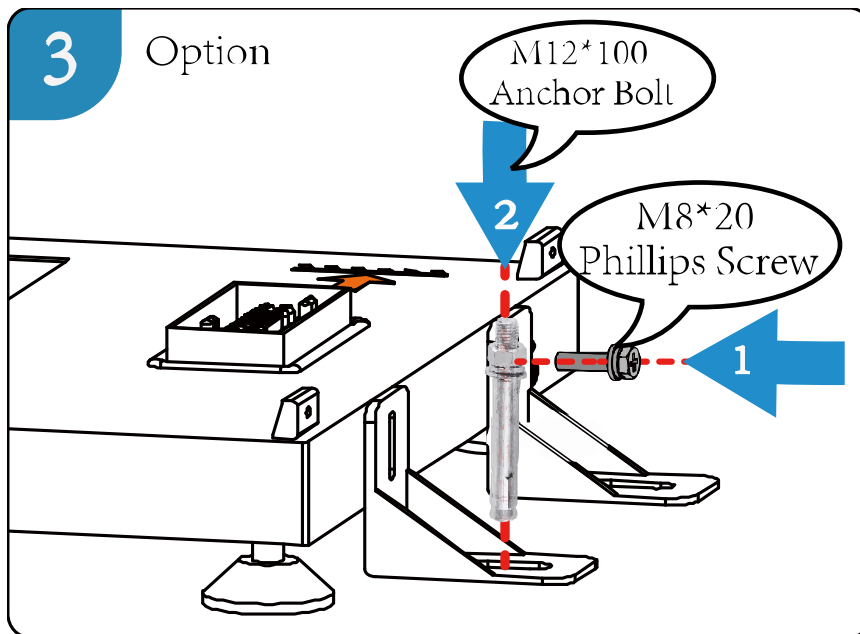


Step 2 :

During installation, the distance on the fixed support side shall be 30–45 mm, and the clearance to the wall on the opposite side shall be ≥ 300 mm.

Note: The arrow marked on the battery base must face the wall.

Step 3(Optional) :

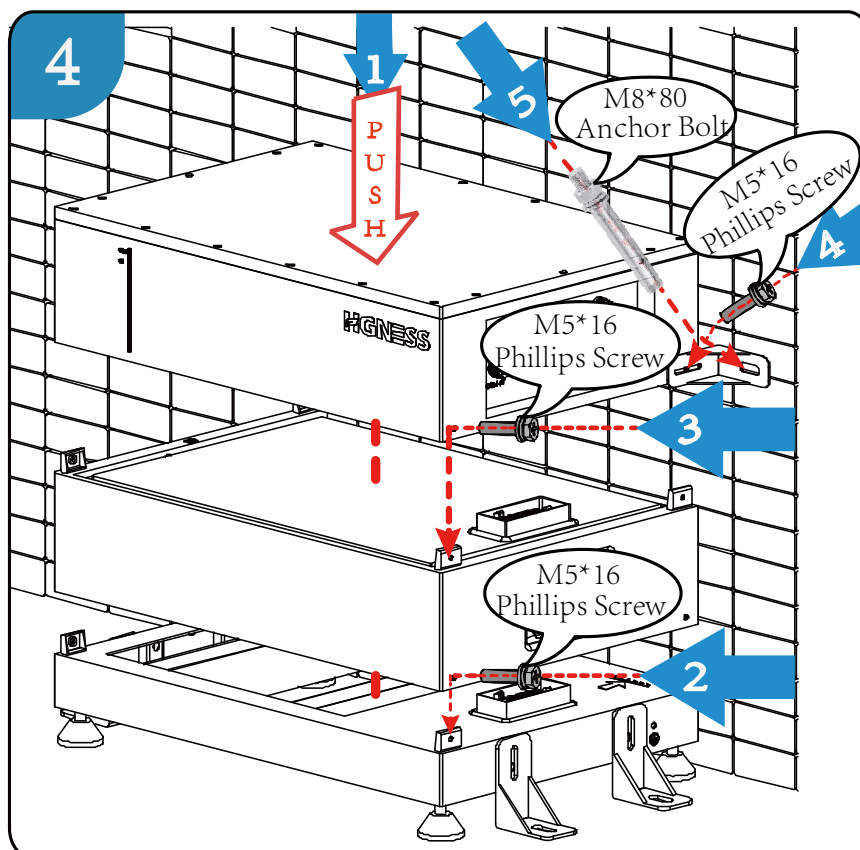


Step 3 (Optional) :

After leveling the base, install anti-tip brackets on the sides of the base.
During installation:

- Use **M8×20 Phillips Screw** to fix and position the anti-tip brackets to the base;
- Use **M12×100 Anchor Bolt** to anchor the anti-tip brackets to the ground to the ground.

Step 4 :



Step 4 :

Stack the batteries one by one.

During PACK stacking installation:

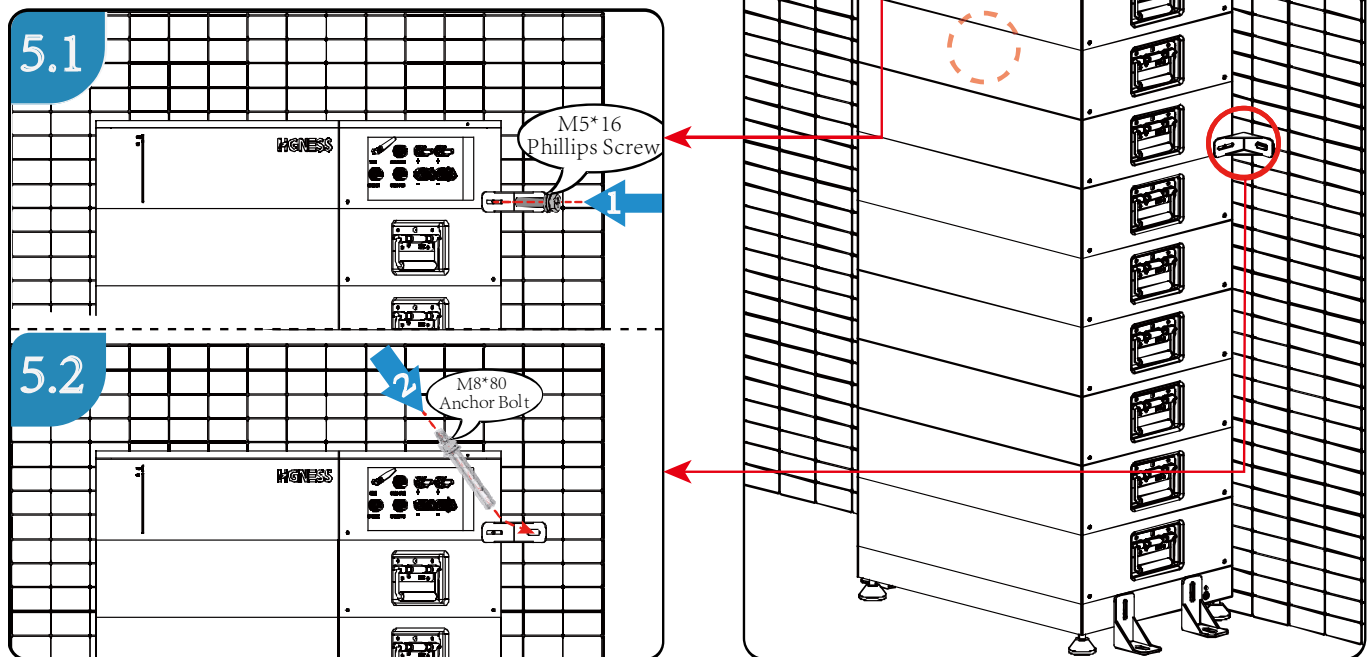
- Use **M5×16 Phillips Screw** to secure the connections between the base, PACK modules, and the BDU;
- Use **M8×80 Anchor Bolt** to anchor the wall-mounted support brackets.

NOTE: After installing the top BDU, press down firmly on the BDU with hands to align the BDU and pack mounting holes, then install and torque the screws at the location indicated by Arrow 4 as specified.

Step 5 :

Install the anti-tip brackets on the PACK modules and the BDU.

- When $PACK \leq 6$, install one anti-tip bracket on the BDU;
- When $PACK \geq 7$, install two anti-tip brackets — one on the 7th PACK module and one on the BDU.

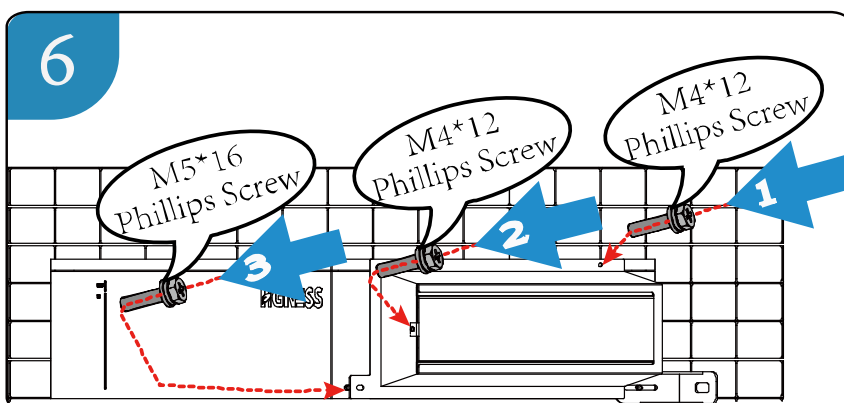


Note:

During installing the anti-tip brackets:

- Use **M5×16 Phillips Screw** to secure the connections between the base, PACK modules, and the BDU;
- Use **M8×80 Anchor Bolt** to anchor the wall-mounted support brackets.

Step 6: Install the junction box.



6 Electrical Connections

DANGER

- Pay NOTE to the positive and negative terminals during battery installation. It is strictly forbidden to short-circuit the positive and negative terminals of a single battery or a string of batteries, otherwise it will cause a battery short circuit.
- Do not smoke or use open flames near the battery.
- Use dedicated protective gear and dedicated insulating tools to avoid electric shock injuries or short-circuit faults.

CAUTION

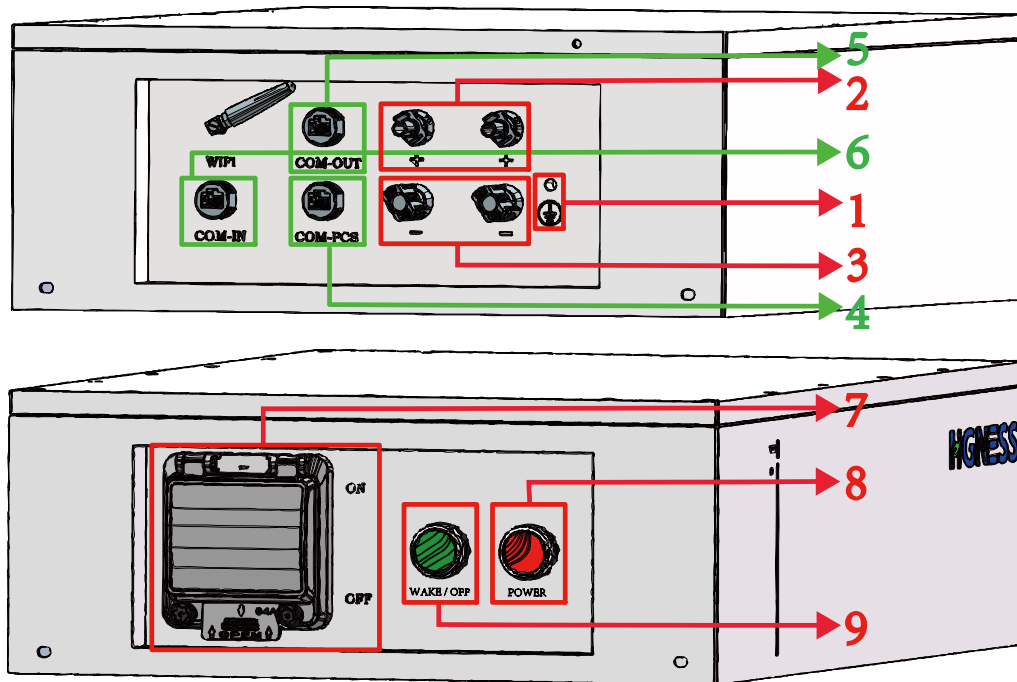
- When fastening the battery connection, make sure the screw spring pad is flattened, the terminal protrusions on the cable face out, and the cable is undamaged.
- It is prohibited to connect two or more cables in parallel at the positive and negative power interfaces of the battery.
- When installing cables, avoid cable debris accidentally entering the equipment, causing a spark and resulting in personal injury and equipment damage.

6.1 Precautions

DANGER

- The battery system is a high-voltage system and there is high voltage when the device is in operation. Before operating the equipment in the system, make sure the equipment is powered off to avoid the risk of electric shock. All safety precautions and safety signs on the equipment must be strictly followed during the operation of the equipment.
- All operations, cables and components used in the electrical connection process must comply with local laws and regulations.
- Cables of the same type should be tied together and arranged separately from different types of cables. Entanglement or cross-arrangement is prohibited.

6.2 Overview of the connection area

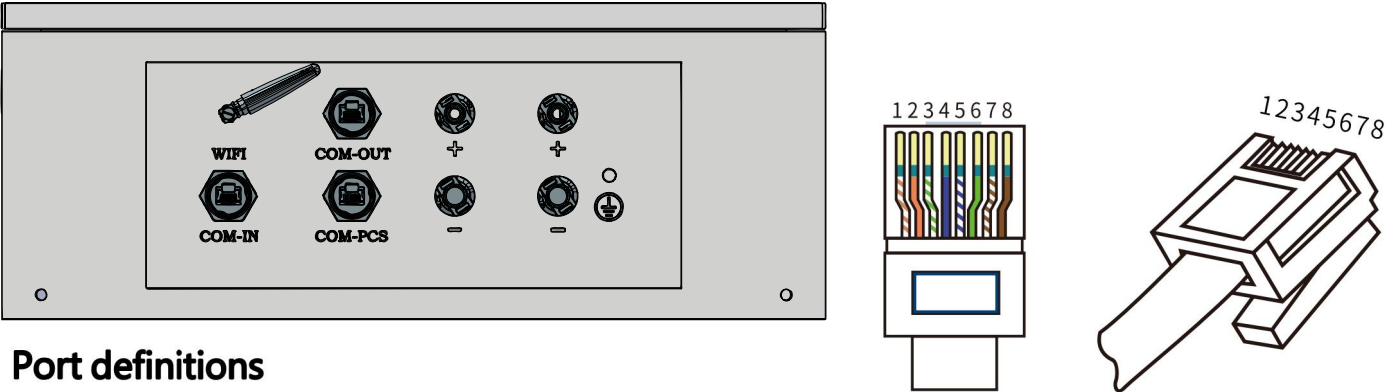


序号	部件名称	说明
1	Grounding point	Connects grounding cables to the grounding points for protection.
2	P+	positive battery power output: Connects the DC cables of the battery system to the inverter.
3	P-	negative battery power output: Connects the DC cables of the battery system to the inverter.
4	COM-PCS	Communication for connecting the battery system with the inverter.
5	COM-OUT	For cluster communication: The connection is routed from the COM-OUT port of the first cluster to the COM-IN port of the second cluster. Note: The COM-OUT port of the last cluster must be connected to a terminal resistor.
6	COM-IN	- For cluster communication: The connection is routed from the COM-OUT port of the first cluster to the COM-IN port of the second cluster. - For communication with the host controller (upper computer).
7	Battery system switch	Switches the battery system on or off.
8	Power Button	During power-up and shutdown, press the POWER button to prepare the system for power-on or power-off.
9	WAKE / OFF Button	During power-up and shutdown, press and hold the WAKE/OFF button for 2~3 s to wake or shut down the BMS.

6.3 Overview of communication line

WARNING

- If the communication cable between the inverter and the battery is factory-provided for matching the inverter model, you may decide whether to use the provided cable based on the actual situation. For detailed cable specifications, refer to the inverter user manual for the corresponding model.
- If you need to bring your own communication cable, the recommended specifications are: standard network cable and RJ45 connector.



Port definitions

PIN	COM-PCS	COM-IN	COM-OUT
1	CAN0H	CAN0H	CAN0H
2	CAN0L	CAN0L	CAN0L
3	CAN0G	GND	GND
4	CAN1H	CAN1H	CAN1H
5	CAN1L	CAN1L	CAN1L
6	RS485G	COM-DI	COM-DO
7	RS485A	RS485A	RS485A
8	RS485B	RS485B	RS485B

6.4 Electrical Connections

NOTE

- COM OUT and COM IN are the common communication output and input ports. Please ensure that the COM OUT port of the battery module is connected to the COM IN port of the inverter.
- A terminal resistor must be installed on the COM OUT port of the last battery module. Failure to install the terminal resistor may result in malfunction of the battery system.

Connecting the grounding conductor

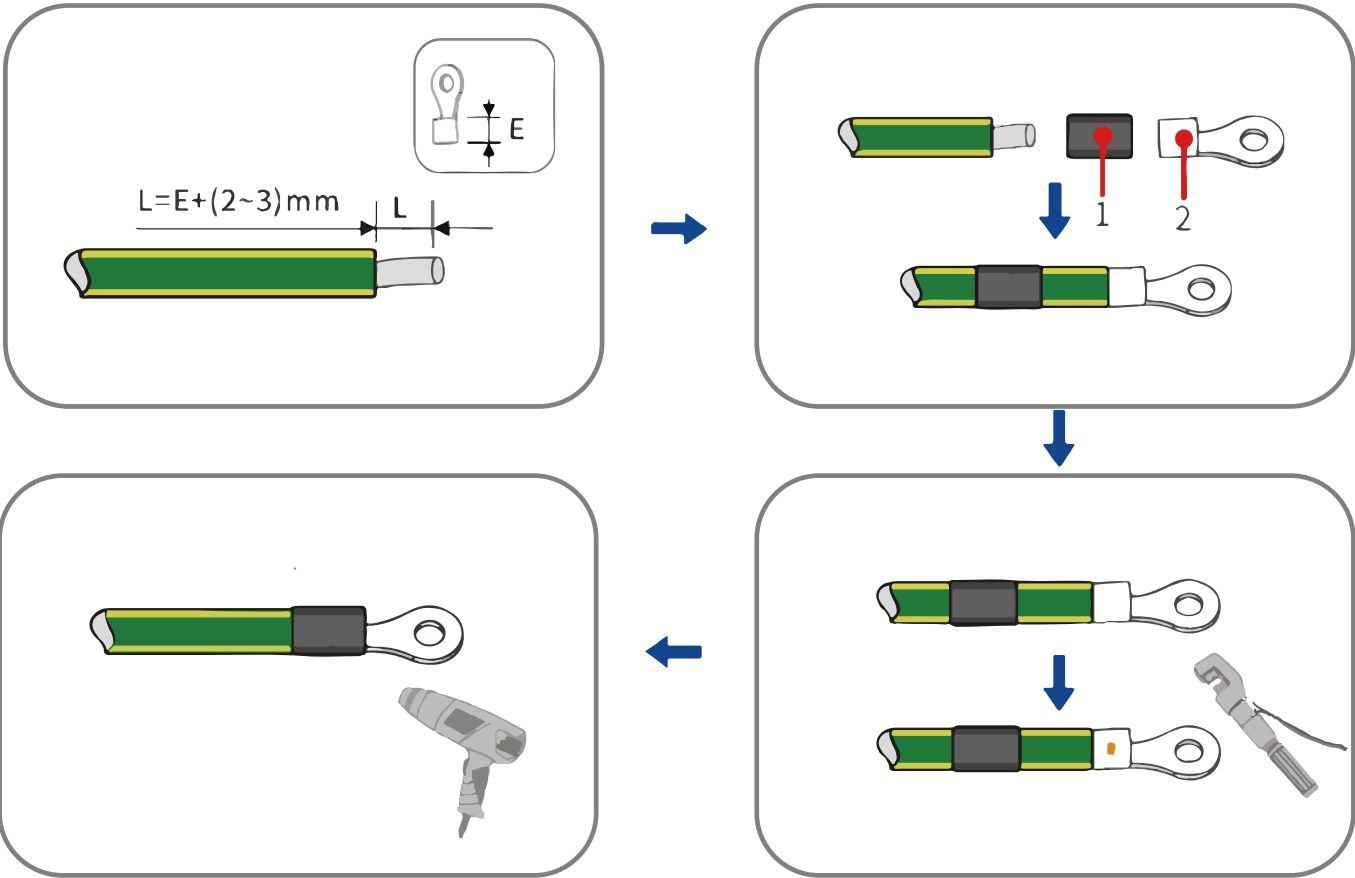
Additional material required (not included in the scope of delivery):

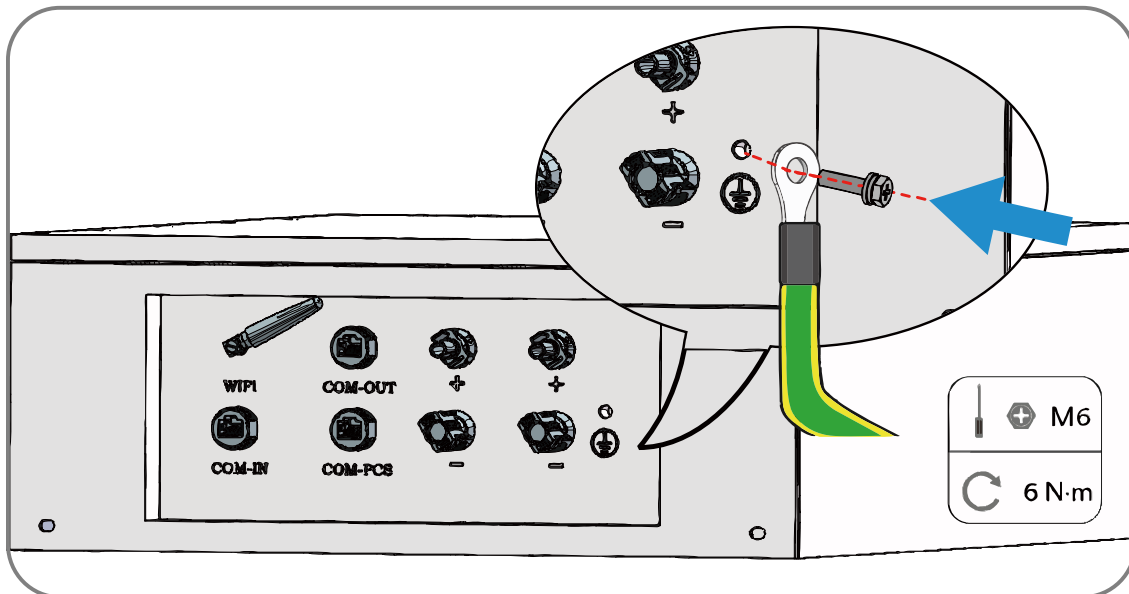
Requirements for the secondary protection ground cable:

Object	Description
1	Grounding cable cross-section: not smaller than 10 AWG.
2	The grounding cable shall have an insulation temperature rating of not less than 105 °C.
3	Heat shrink tubing

Procedure:

- Step 1:** Ensure the circuit breaker of the BDU is off.
- Step 2:** Strip the grounding cable to the length (L) which is approximately 2-3 mm longer than the crimping area of the ring terminal (E).
- Step 3:** Slide the heat shrink tubing over the cable.
- Step 4:** Crimp the cable onto the ring terminal with appropriate crimping pliers.
- Step 5:** Slide the heat shrink tubing to cover both the cable and the crimped section of the ring terminal.
- Step 6:** Use a heat gun to shrink the heat shrink tubing onto the cable and the ring terminal.
- Step 7:** Fix the grounding terminal by the screw(M6×12) with a phillips-screwdriver and tighten (torque: 6 Nm).





Connecting the power cable and network cable

Additional material required (not included in the scope of delivery)

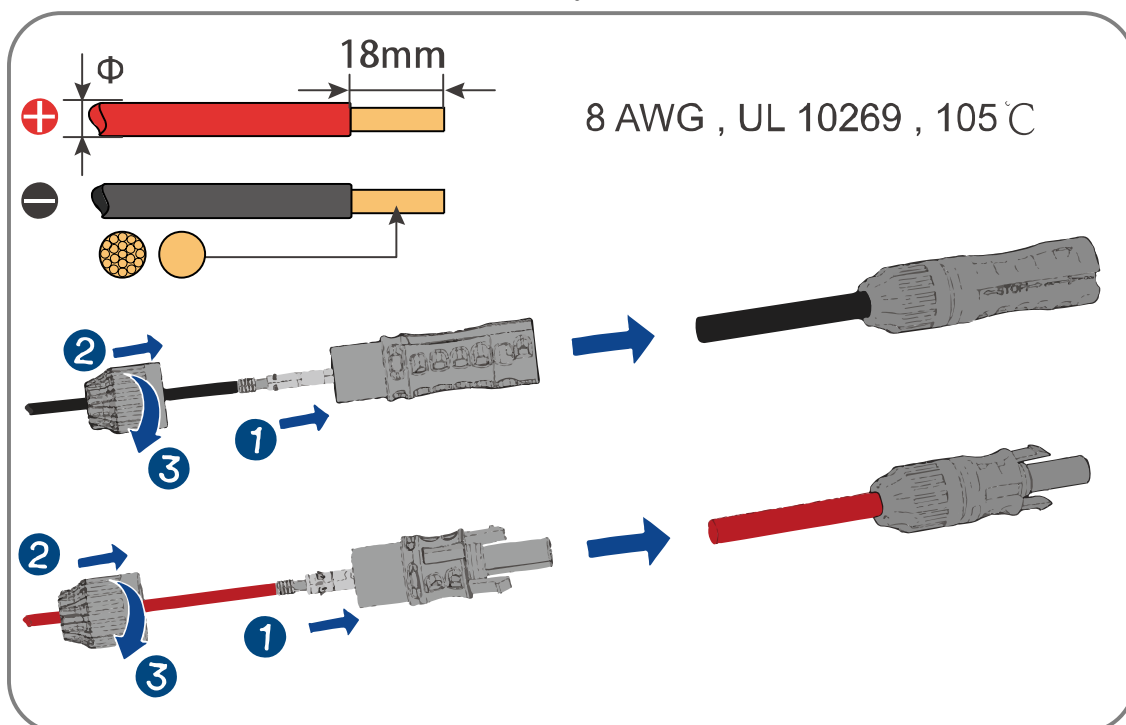
- One network cable (Cat5, Cat5e or higher), see below for the minimum requirements.

Network cable requirements:

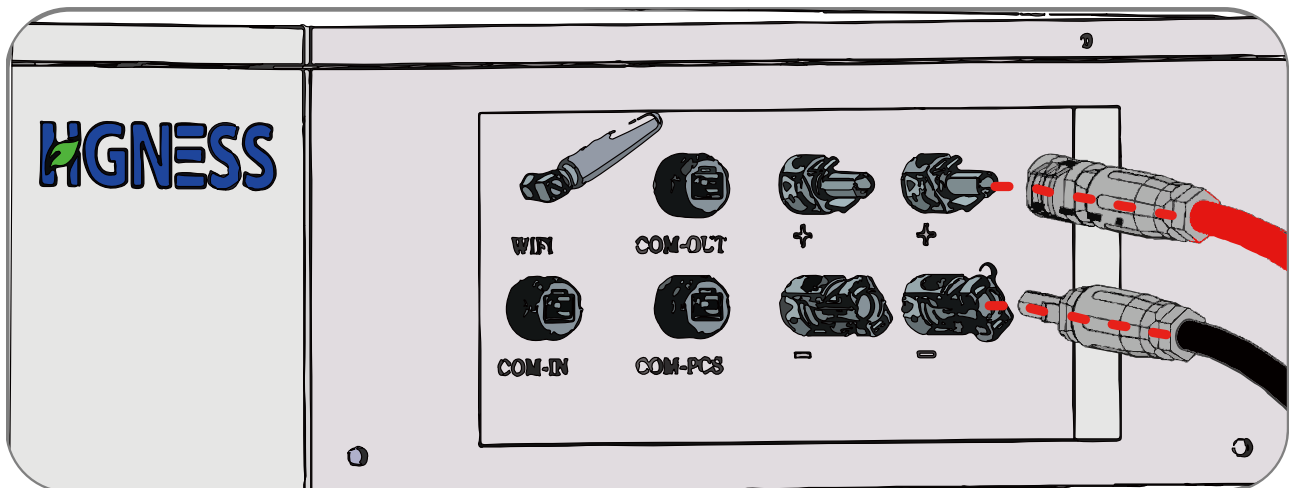
- Cable category: Cat5, Cat5e or higher
- UV-resistant for outdoor use
- Connector type: RJ45 of Cat5, Cat5e
- Shielding: Yes
- Straight-through wired cabled
- Maximum cable length: 20 m

NOTE : Don't use a "CROSSOVER" cable.

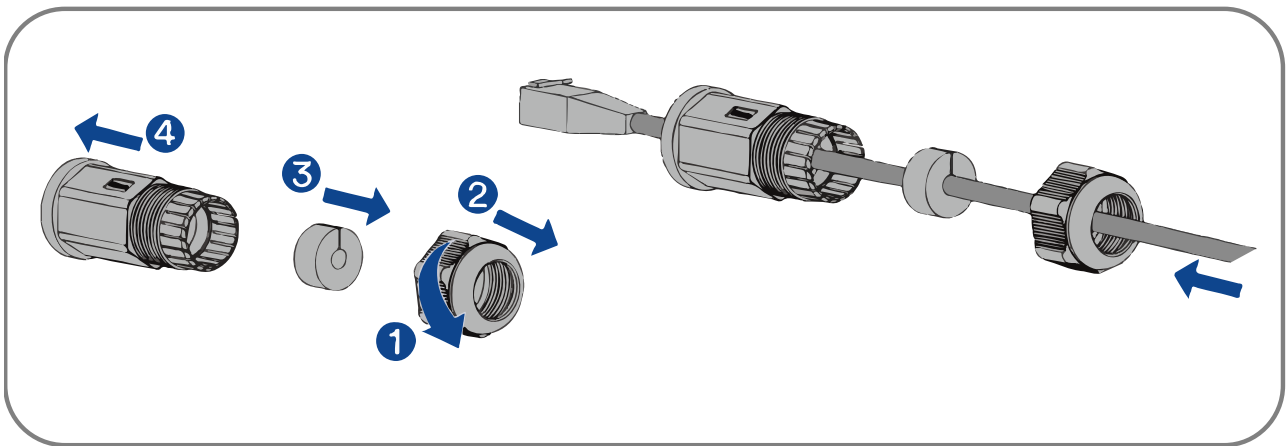
Step 1: Add the connector from the inverter package to the opposite ends of the power cables and connect them to the inverter battery input connectors.



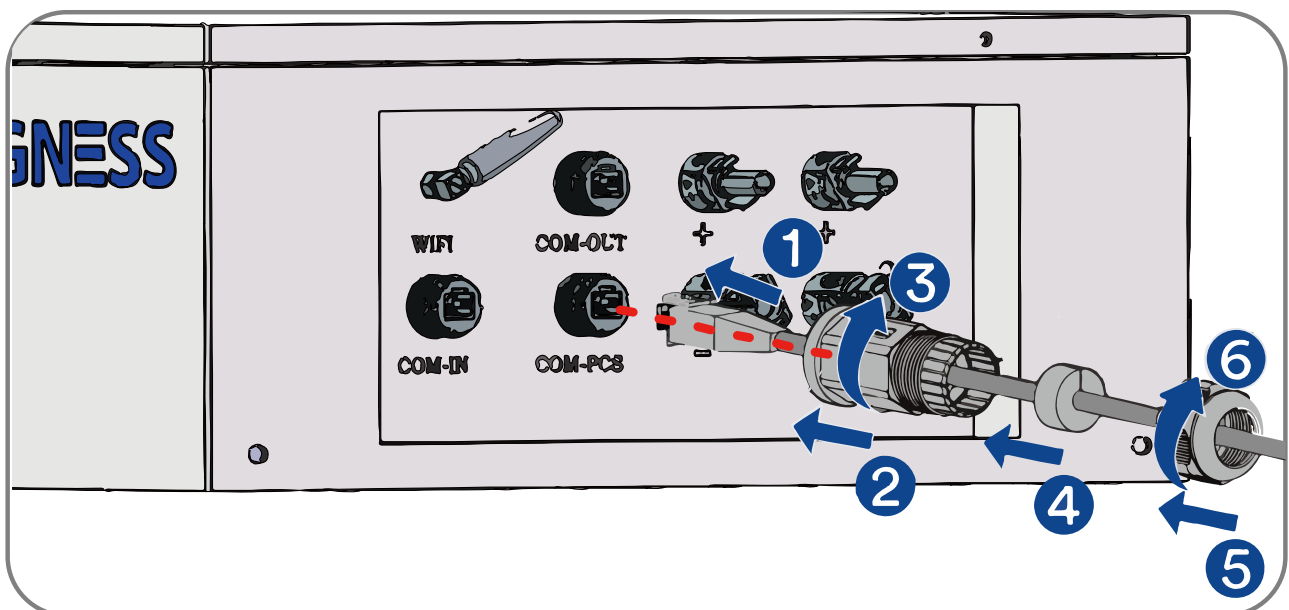
Step 2: Connect the supplied power cables to the DC connectors on the BDU. (P+ cable connect to the P+ terminal and P- cable connect to the P- terminal).



Step 3: Split the connectors. Lead the network cable through cable gland, and insert into the insulator until it snaps into place.



Step 4: Connect the “Link Port In” of the BCU to the BMS port of the inverter using a CAT 5 (or higher) ethernet cable. Tighten the cable gland and the insulator.

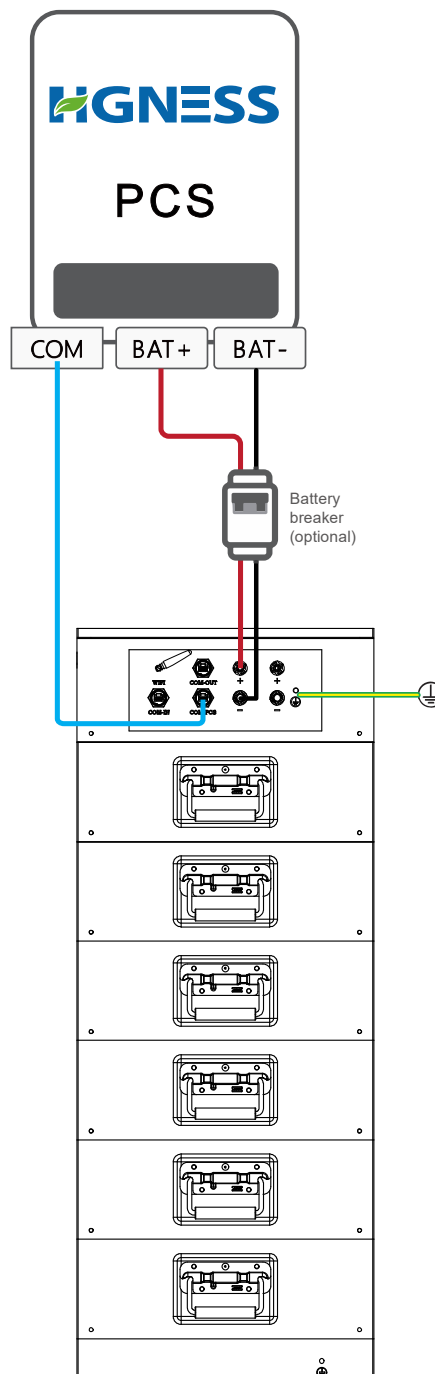


6.5 System connection diagram

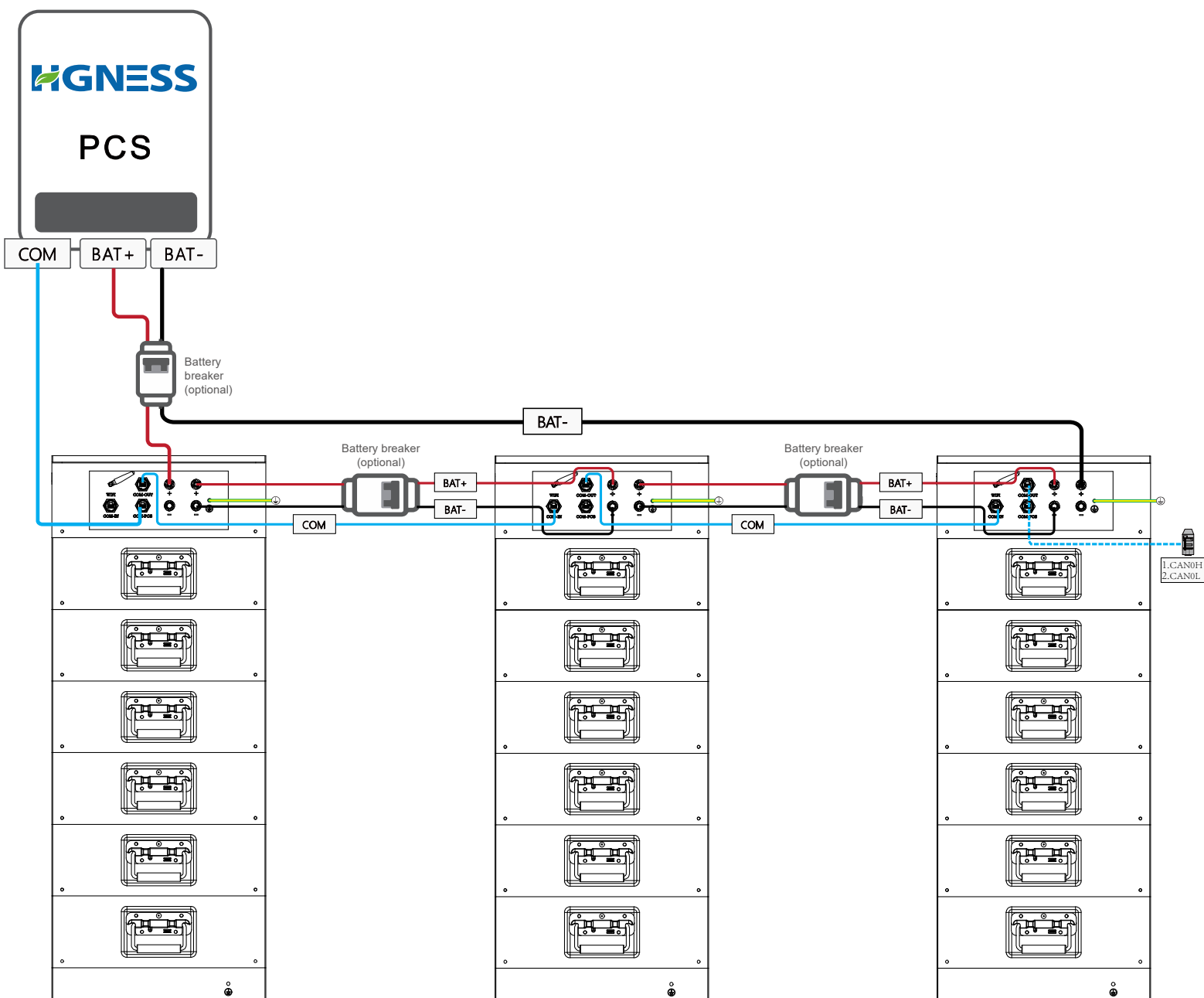
NOTE

- COM OUT and COM IN are common communication output and input ports. Please ensure that the COM PCS port of the battery module is connected to the COM port of the inverter.
- A terminal resistor must be installed on the COM OUT port of the last battery module. Failure to install the terminal resistor may result in malfunction of the battery system.
- The selection of the battery breaker shall comply with the regulatory requirements of the respective country.

Series system connection diagram



Parallel system connection diagram



6.6 Inverter Model Selection

NOTE

- The battery system must be used with a compatible inverter. The list of Inverter Compatibility Declaration can be found at: www.hgness.cc.

7 Mobile APP Settings

7.1 Software Download

Enter Google Play on your mobile phone and search for 'HGNESS' to download and install it.

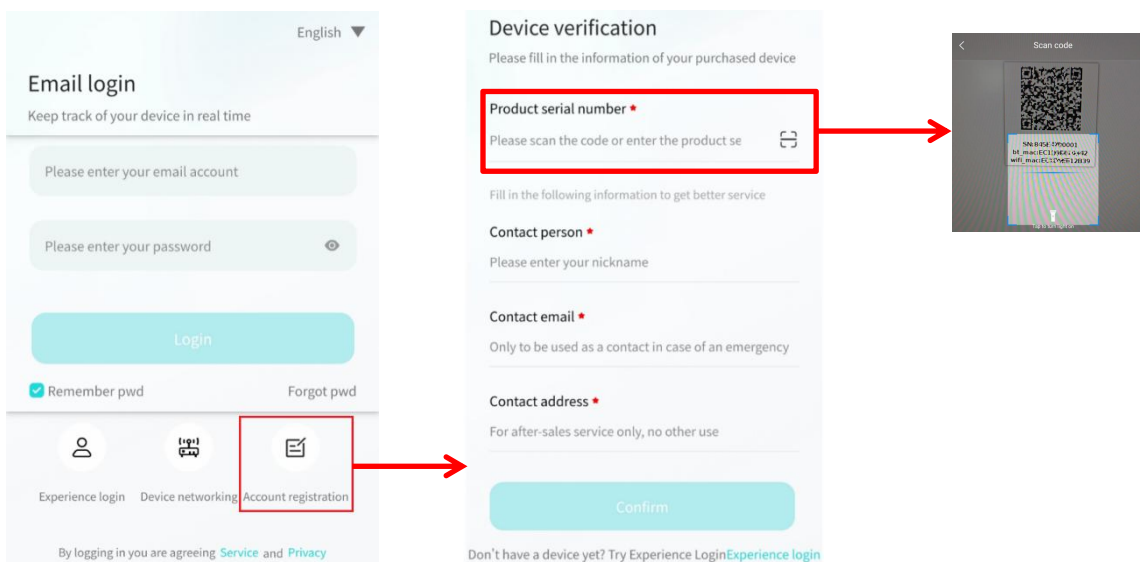


7.2 Register Login

Account registration

At the bottom of the login page, click the 'Account registration' button to enter the registration process.

Connect to 'HGNESS' by scanning the QR Code directly on your device.



Device verification

Currently, only email registration is supported. After registration, you need to complete the device verification process by entering the device SN code or scanning the device QR code.

Experience login

At the bottom of the login page, click the 'Experience login' button to try the app as a guest without registering.

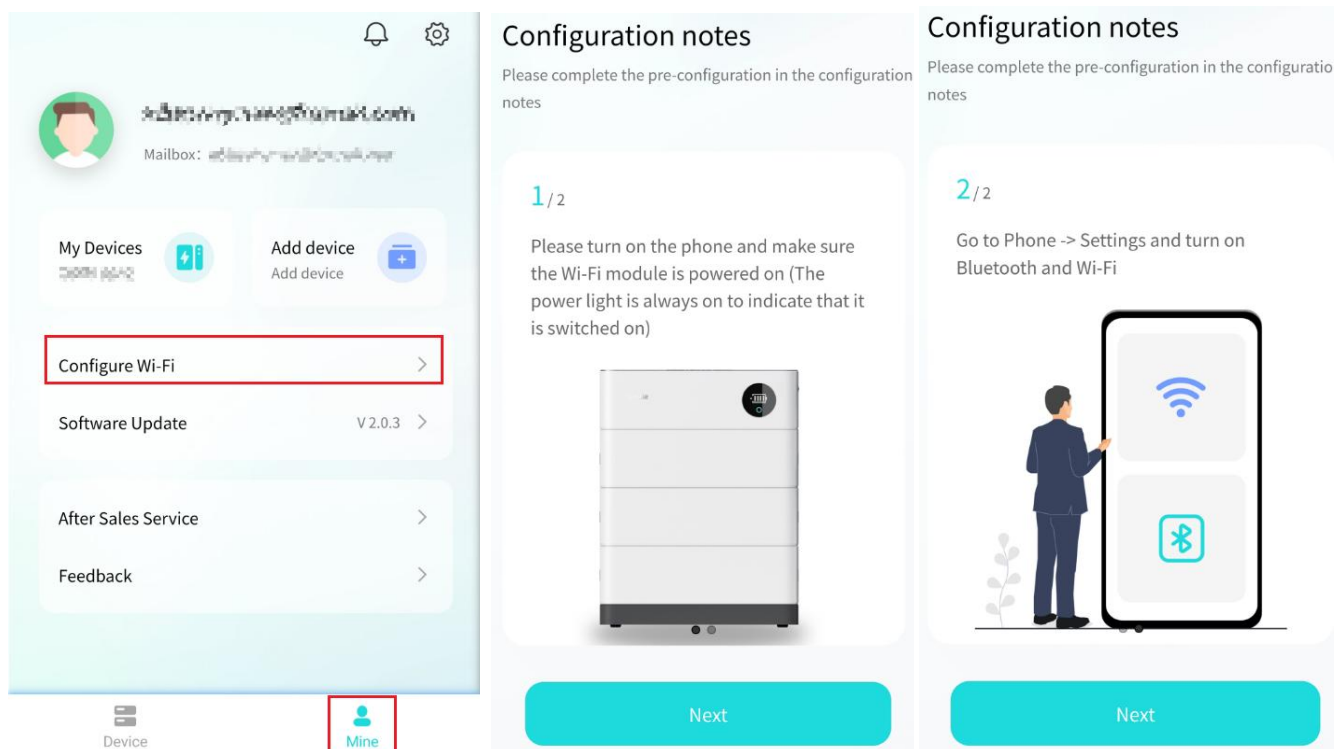
7.3 Configure Wi-Fi

Configure Wi-Fi Overview

Configure Wi-Fi refers to connecting a device to the cloud platform to help users obtain real-time device data.

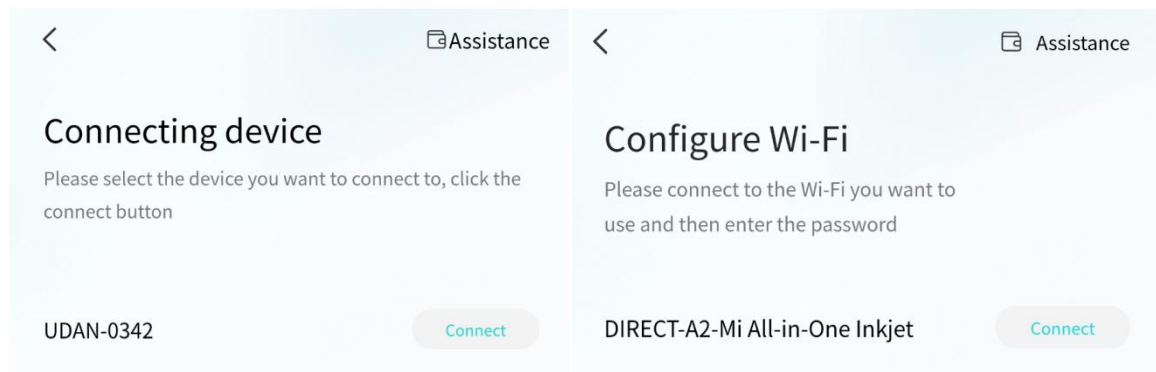
Configuration NOTE

Ensure that the device is in the power-on state, the cell phone Bluetooth is turned on, and the wireless LAN function is enabled. After confirming that there are no errors, click to NEXT.



Connecting device

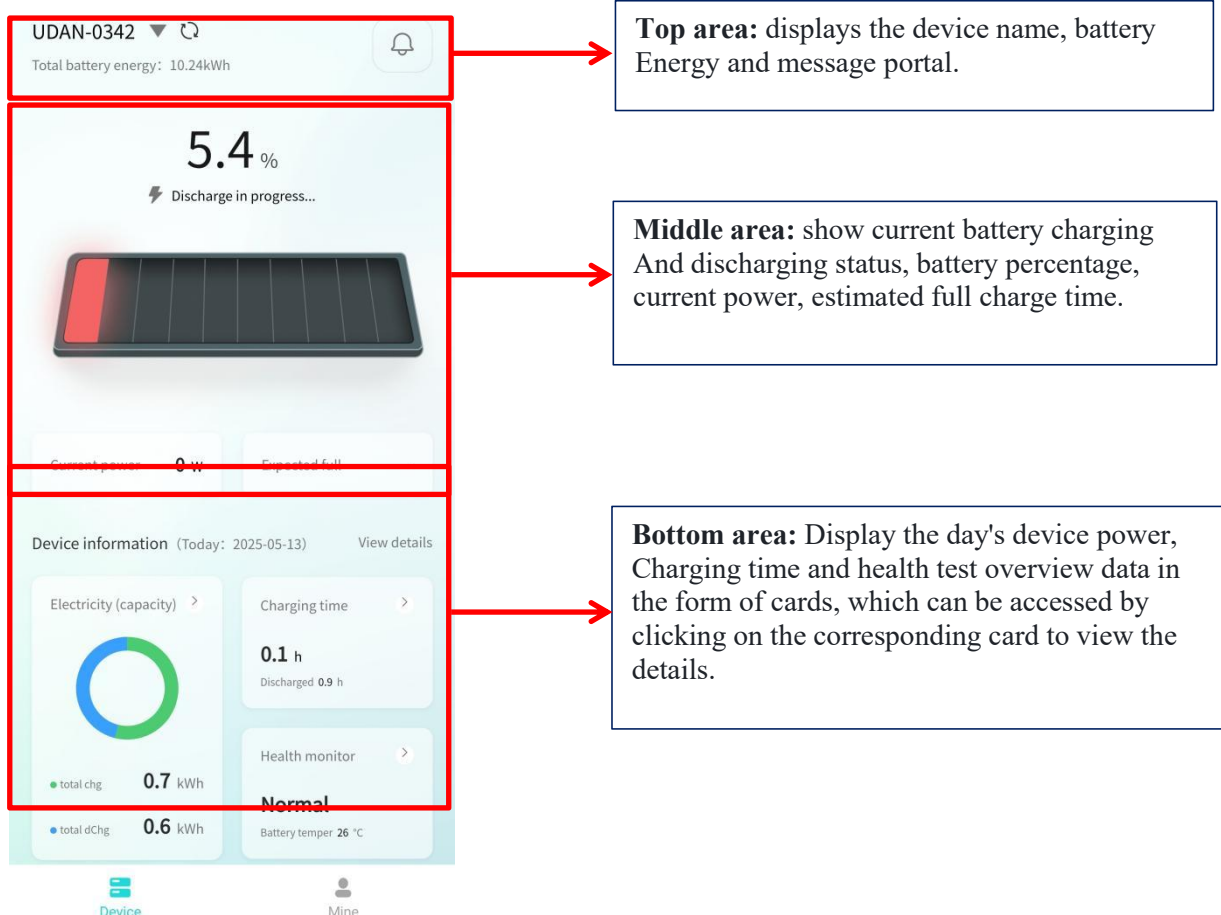
Select the WiFi you want to use and click on the 'Connect' button, enter the WiFi password to connect to the network.



7.4 APP Interface

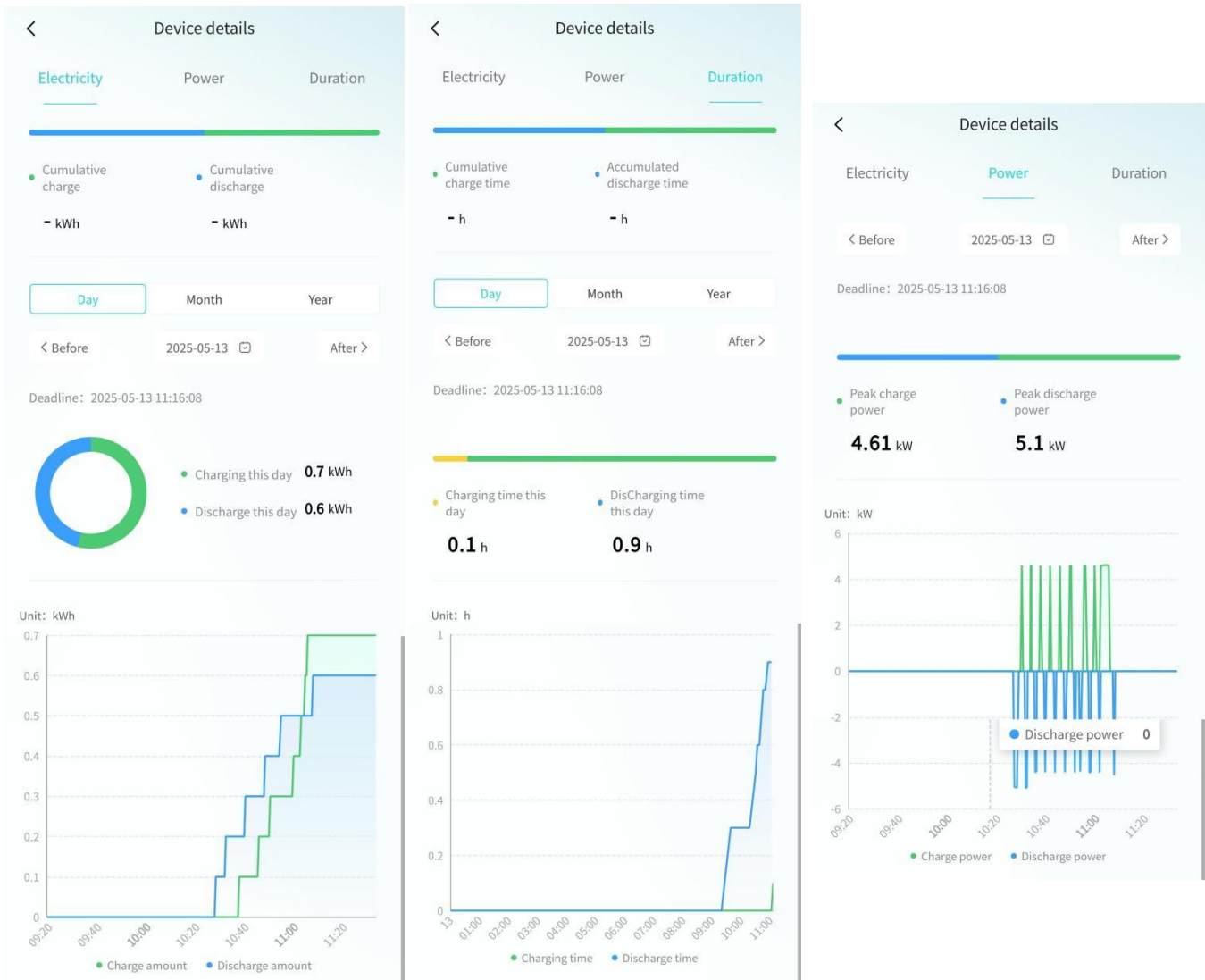
Device Interface Overview

Device Overview is used to display information about the currently managed devices.



Device details

Displays the data details of the current equipment, and allows you to view the Electricity, Power, and Duration data separately, supporting time filtering.



Mine Interface Overview

'Mine' interface supports viewing My Devices, Add device, Configure Wi-Fi, Software Update, After Sales Service, Feedback, and App Settings.

First click Device or Mine at the bottom of the software, then click the bell button at the top of the interface to enter the System information screen to view the current push notifications or history messages.

Click on the Settings button at the top right corner of the Mine screen to enter the App Settings screen. You can perform Language Switch, Privacy Policy, Cache Cleanup, Personal Information, Account and Security, and Logout Account.

Click on 'My Devices' to enter device management. You can view all devices managed under your current account, switch between devices displayed on the main menu, and unbind devices.

Click on 'Add device' to enter the scanning screen.

Click on 'Configure Wi-Fi' to enter the device network configuration process.

Click on 'Software Update' sends you to the version checker, where you will be able to update it if a new version is available.

Click on 'After Sales Service' to go to the After Sales Service screen and display the current supplier's after sales service statement.

Click on 'Feedback' to go to the feedback screen, where you can enter the current issue you want to feedback on and submit it.

The screenshot shows the 'Mine' interface of the HG-C&I-HV SERIES RESS mobile app. At the top, there is a user profile section with a circular avatar, a name, and a mailbox address. Below this is a list of menu items: 'My Devices' (with a device icon and ID 'UDAN-0342'), 'Add device' (with a plus icon and 'Add device' text), 'Configure Wi-Fi' (with a right arrow), 'Software Update' (with version 'V 2.0.3' and a right arrow), 'After Sales Service' (with a right arrow), and 'Feedback' (with a right arrow). At the bottom, there are two tabs: 'Device' and 'Mine', with 'Mine' being the active tab. Annotations include a red box around the 'My Devices' and 'Add device' items, a blue box around the 'Configure Wi-Fi' and 'Software Update' items, and a red box around the 'After Sales Service' and 'Feedback' items. Arrows point from these boxes to corresponding text boxes on the right. Additionally, a red bell icon at the top right is highlighted with a red box and an arrow pointing to a text box, and a blue gear icon at the top right is highlighted with a blue box and an arrow pointing to a text box.

8 System Operation

8.1 Power ON System

Inspection Before Power On

Before power on the battery system, be sure to check the following items to prevent potential damage to the system.

Number	Checks
1	The equipment is securely installed in a position that is easy to operate and maintain, in a space that is easy to ventilate and dissipate heat, and in a clean and tidy environment.
2	The protective ground wire, power line, communication line and terminal resistor are properly and securely connected.
3	The cable binding meets the wiring requirements, is properly distributed, and is undamaged.
4	Unused ports have been sealed.

Power ON System

WARNING

- During power on, closely monitor the system. If any abnormal condition is detected, immediately shut down the battery system, identify the cause, and resume power-up only after the issue is resolved.
- After system shutdown during installation, commissioning, or after battery discharge is complete, promptly recharge the battery. Failure to do so may result in damage due to over-discharge.
- Storing the battery in a low state of charge may cause over-discharge damage. Please ensure timely recharging before storage.

NOTE

- Dashed box is an optional configuration.
- When shutting down the battery system, strictly follow the power-on requirements for the battery system to prevent damage to the battery system.

Power ON Procedure

Step 1: Turn ON the circuit breaker between the inverter and the battery system.

Step 2(Optional): For parallel-cluster systems, turn ON the circuit breakers between battery clusters in sequence.

Step 3: Turn ON the Circuit Breaker on the BDU. For parallel-cluster systems, Turn ON the breakers in sequence.

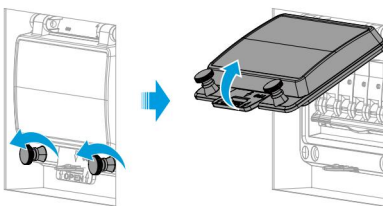
Step 4: Press the POWER button (red), then press and hold the WAKE/OFF button (green) for 2 seconds to power on the device.

Step 5: Power up the inverter in the system. For detailed instructions, please refer to the user manual of the specific inverter model.

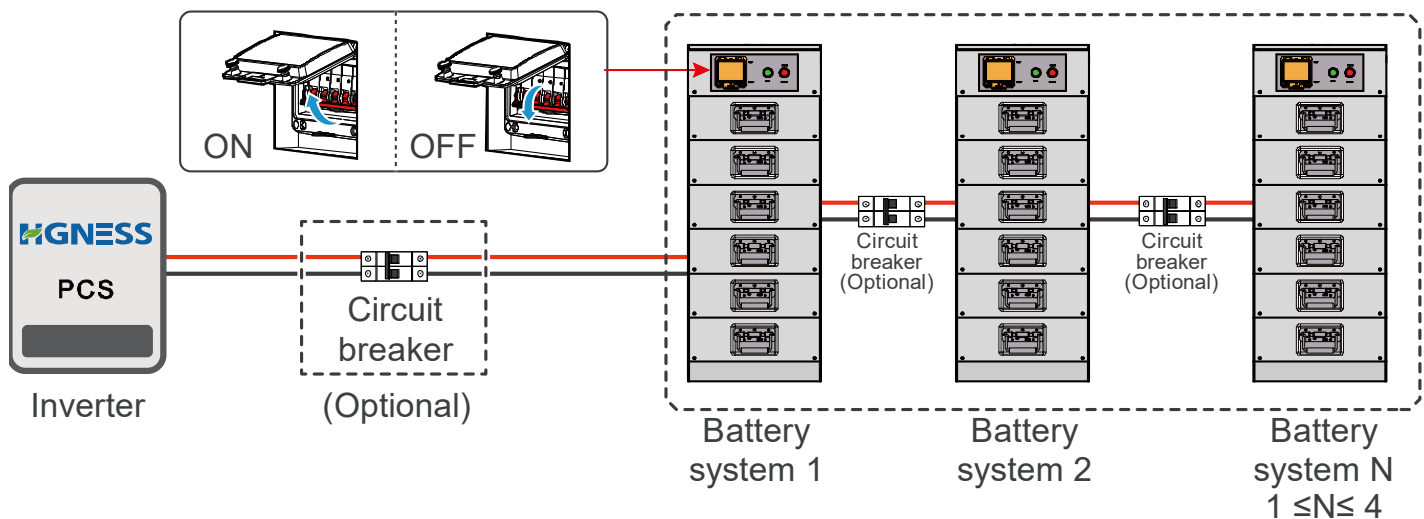
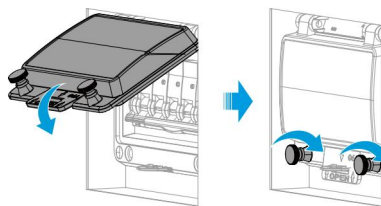
NOTE

- After the battery system is power on, please ensure that communication between the inverter and the battery system is established within 15 minutes.
- If communication fails, the battery system switch will automatically Turn OFF, shutting down the battery system.

Open the cover



Close the cover



8.2 Power OFF System

DANGER

- When operating and maintaining the battery system, disconnect the battery system. Operating the equipment while it is powered on May cause damage to the equipment or pose an electric shock DANGER.
- When shutting down the battery system, please strictly follow the power-off requirement to prevent damage to the battery system.

NOTE

- Dashed box is an optional configuration.
- Circuit breakers between inverters and batteries and between battery systems are required to be installed in accordance with local laws and regulations.
- To ensure effective protection of the battery system, the cover plate of the battery system switch remains closed and automatically closes when the protective cover is opened. If the battery system switch is not in use for a long time, it should be fastened with screws.

Power OFF Procedure

Step 1: Shut down the inverter in the system. For detailed instructions, refer to the user manual of the corresponding inverter model.

Step 2: Press and hold the WAKE/OFF (green) button for 3 seconds until the BDU indicator turns off and you hear a single “click” sound, then press the POWER (red) button to turn the system OFF.

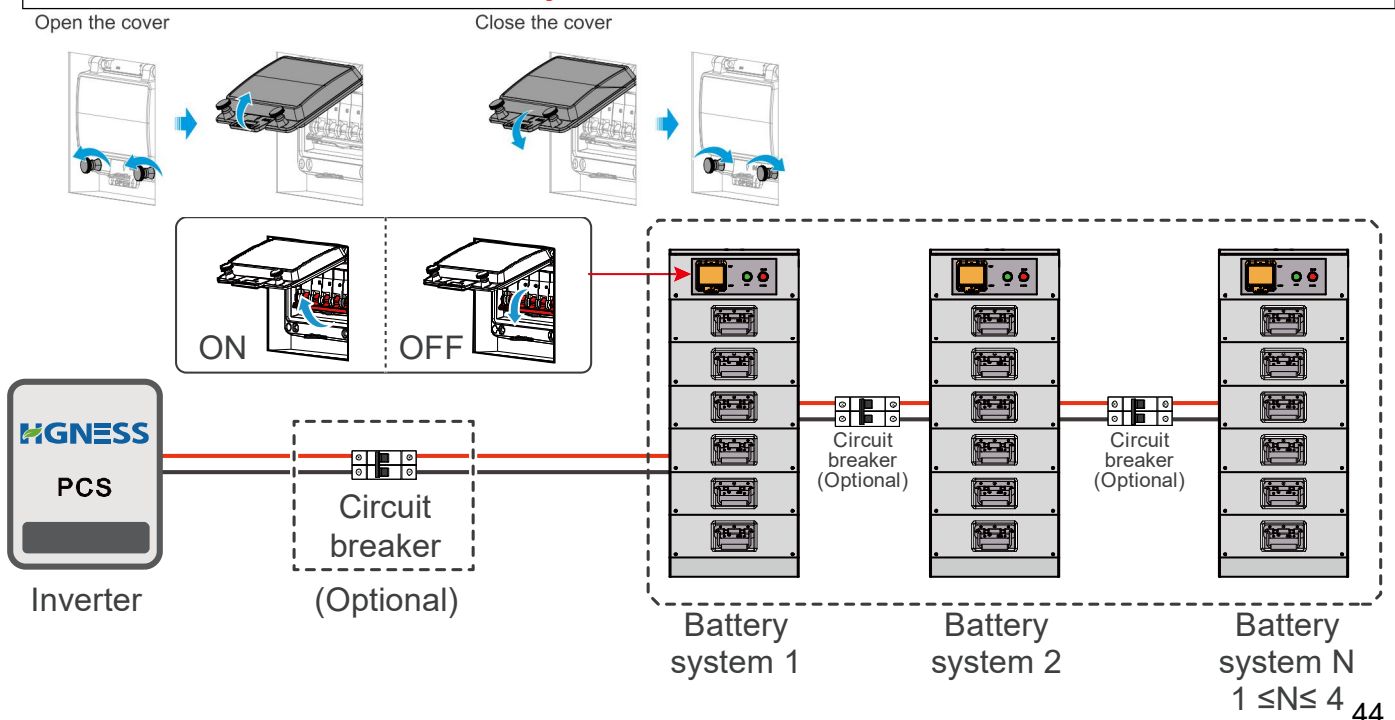
Step 3: Turn OFF the circuit breaker between the inverter and the battery system.

Step 4(Optional): For parallel-cluster systems, turn OFF the circuit breakers between battery clusters in sequence.

Step 5: Turn OFF the Circuit Breaker on the BDU. For parallel-cluster systems, switch them OFF in sequence.

DANGER

- **Do not shutdown battery system while inverter is charging. During shutdown, first return inverter to standby, then power down the battery system.**
- **Failure to do so may cause a transient overvoltage at the inverter, causing it to enter a 5-minute self-recovery mode.**

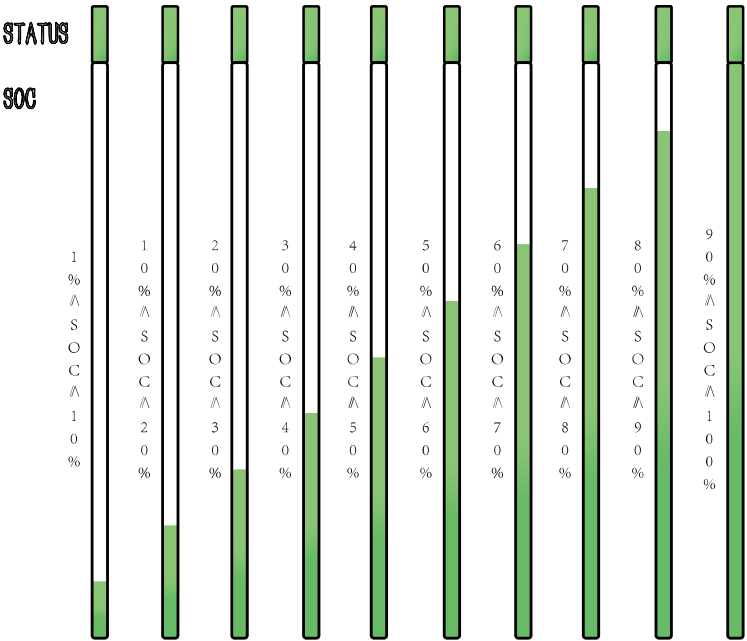


8.3 System Troubleshooting

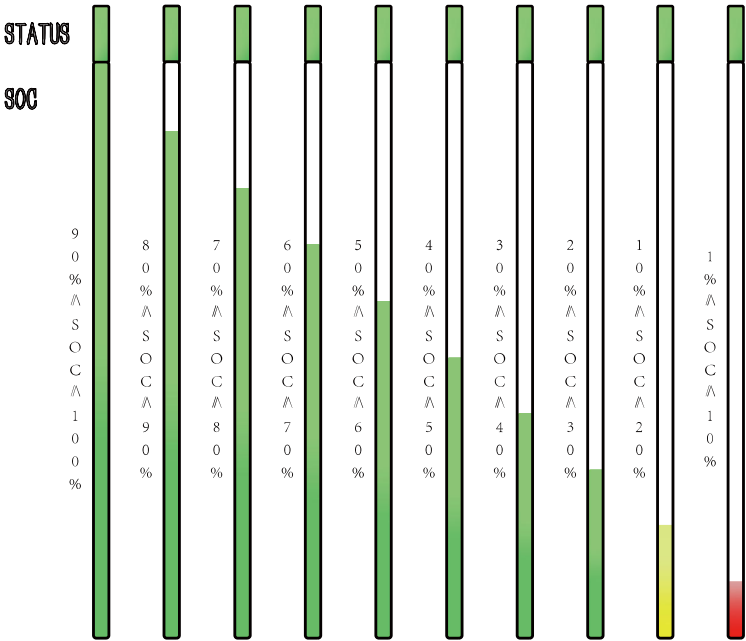
Status Indicator Description

STATUS Red Light: Indicates a system fault. STATUS Green Light: Indicates normal operation. STATUS Blue Light: Indicates Wi-Fi is not connected.		
Conditions	Status	Description
Charge/Discharge Contactor Fault	Red Light	Red light steady on
Inverter Communication Fault	Red Light	Red light on for 0.5s, off for 2.0s, alternating in cycle
Pre-charge Fault	Red Light	Red light on for 1.0s, off for 1.0s, alternating in cycle
Over-temperature Fault	Red Light	Red light on for 2.0s, off for 2.0s, alternating in cycle
Wi-Fi Fault	Green & Blue Lights	Green and blue lights alternate every 1s in cycle

Charging Indicator Description



Discharging Indicator Description



⚠ DANGER

- If a functional failure occurs within the warranty period, the customer must not disassemble, repair or modify the product.
- Servicing must be performed by HGNESS or an authorised service provider;
- Do not disassemble the battery module or its internal parts. If you encounter any issues during use, please contact an authorised service provider.

9 Technical Specification

Technical Data	HG-C&I-HV3-15	HG-C&I-HV4-20	HG-C&I-HV5-25	HG-C&I-HV6-30	HG-C&I-HV7-35
Cell Type	LiFePO4				
Battery Module	HG-C&I-HVP: 51.2V5.12kWh				
Number of Modules (Stackable)	3	4	5	6	7
Capacity	100 Ah				
Rated Energy	15.36 kWh	20.48 kWh	25.6 kWh	30.72 kWh	35.84 kWh
Usable Energy	15.36 kWh	20.48 kWh	25.6 kWh	30.72 kWh	35.84 kWh
Rated Voltage	153.6 V	204.8 V	256 V	307.2 V	358.4 V
Voltage Range	134.4 ~ 172.8 V	179.2 ~ 230.4 V	224 ~ 288 V	268.8 ~ 345.6 V	313.6 ~ 403.2 V
Rated Power	7.60 kW	10.24 kW	12.80 kW	15.30 kW	17.90 kW
Rated Charge/ Discharge Current	50 A				
Max. Charge/ Discharge Current	60 A				
Depth of Discharge	Max. 100 % DOD				
Dimension (W*D*H)	600/400/619 mm	600/400/754 mm	600/400/889 mm	600/400/1024 mm	600/400/1159 mm
Weight	156.5 kg	201.5 kg	246.5 kg	291.5 kg	336.5 kg
Installation Location	Indoor / Outdoor				
Installation Method	Floor-mounted				
Operating Temp.	Charging: 2 ~ 55 °C / Discharging: -20 °C ~ 58 °C				
Cooling	Natural Cooling				
IP Rating	IP66				
RH %	5 ~ 95 %, non-condensing				
Communication	CAN / RS485 / WIFI				
Certifications	UN38.3 / IEC 62619 / IEC 62040/ IEC 62477 / IEC61000/ RoHS				
Cycle Life ¹	≥ 6,000 cycles				
Warranty ²	10 Years				
Technical Data	HG-C&I-HV8-40	HG-C&I-HV9-45	HG-C&I-HV10-50	HG-C&I-HV11-55	HG-C&I-HV12-60
Cell Type	LiFePO4				
Battery Module	HG-C&I-HVP: 51.2V5.12kWh				
Number of Modules (Stackable)	8	9	10	11	12
Capacity	100 Ah				
Rated Energy	40.96 kWh	46.08 kWh	51.2 kWh	56.32 kWh	61.44 kWh
Usable Energy	40.96 kWh	46.08 kWh	51.2 kWh	56.32 kWh	61.44 kWh
Rated Voltage	409.6 V	460.8 V	512 V	563.2 V	614.4 V
Voltage Range	358.4 ~ 460.8 V	403.2 ~ 518.4 V	448.0 ~ 576.0 V	492.8 ~ 633.6 V	537.6 ~ 691.2 V
Rated Power	20.40 kW	23.00 kW	25.50 kW	28.00 kW	30.00 kW
Rated Charge/ Discharge Current	50 A				
Max. Charge/ Discharge Current	60 A				
Depth of Discharge	Max. 100 % DOD				
Dimension (W*D*H)	600/400/1294 mm	600/400/1429 mm	600/400/1564 mm	600/400/1699 mm	600/400/1834 mm
Weight	381.5 kg	426.5 kg	471.5 kg	516.5 kg	561.5 kg
Installation Location	Indoor / Outdoor				
Installation Method	Floor-mounted				
Operating Temp.	Charging: 2 ~ 55 °C / Discharging: -20 °C ~ 58 °C				
Cooling	Natural Cooling				
IP Rating	IP66				
RH %	5 ~ 95 %, non-condensing				
Communication	CAN / RS485 / WIFI				
Certifications	UN38.3 / IEC 62619 / IEC 62040/ IEC 62477 / IEC61000/ RoHS				
Cycle Life ¹	≥ 6,000 cycles				
Warranty ²	10 Years				

¹ Test conditions: 25 °C, 95 % (DOD), 0.2C charge & discharge , 70% EOL

² Refer to battery warranty letter for conditional application.

Information might be subject to change without notice during product improving.