V1.0 2026-10-10

BAT-C 61.4-112.6kWh

Commercial and Industrial Battery System

User Manual

GOODWE

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NOTE

This document may be updated periodically due to product version upgrades or other reasons. Unless otherwise agreed, the contents of this document do not supersede the safety precautions on the product label. All descriptions in this document are provided for guidance only.

Preface

Overview

This manual mainly describes the battery system, including product information, transportation and storage, installation and wiring, configuration and commissioning, troubleshooting, and maintenance. Before installing or using the product, read this manual carefully to understand the product safety information and become familiar with its functions and features. Keep this manual in a safe place for future reference.

The illustrations in this manual are for conceptual understanding only and may differ from the actual product. The actual product shall prevail.

This manual is updated periodically.Please obtain the latest version of the materials and more product information from the official website: en.goodwe.com.

Applicable Products

This document applies to battery systems of the following models:

- GW61.4-BAT-AC-G10
- GW92.1-BAT-AC-G10
- GW102.4-BAT-AC-G10
- GW112.6-BAT-AC-G10

NOTE
The illustrations in this manual are based on model GW112.6-BAT-AC-G10 and are for reference only. Equipment varies slightly by model; the actual product shall prevail.

Symbol Definitions

⚠DANGER

Indicates a highly hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING

Indicates a moderately hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION

Indicates a low-level hazardous situation which, if not avoided, could result in moderate or minor injury.

NOTE

Emphasizes and supplements the content, and may also provide tips or tricks for optimizing product use to help you solve a problem or save time.

Table of Contents

1 Safety Precautions 7
1.1 General Safety 7
1.2 Personnel Requirements 10
1.3 Battery Safety 11
1.4 EU Declaration of Conformity (Battery) 14
1.5 Description of Safety Symbols and Certification Marks 15
2 Product Overview 18
2.1 Product Overview 18
2.2 Dimensions 19
2.3 Exterior Overview 19
2.4 Component Overview 21
2.5 Indicator Description 26
2.6 Fire Suppression System Description 26
3 Equipment Inspection and Storage 32
3.1 Equipment Inspection 32
3.2 Items Supplied 32
3.3 Equipment Storage 34
4 Installation 36
4.1 Installation Requirements 36
4.1.1 Environmental Requirements 36
4.1.2 Foundation Requirements 38

4.1.3 Space Requirements 39
4.2 Handling Requirements 39
4.3 Tool Requirements 42
4.4 Equipment Installation 44
5 Electrical Connections 45
5.1 Pre-Wiring Preparations 46
5.2 Connect the Protective Grounding Conductor 50
5.3 Connect the Power Cables 51
5.3.1 Connect the Power Cables Between Battery Packs 51
5.3.2 Connect the DC Power Cables (Inverter–Battery System) 51
5.3.3 Connect the Battery Cluster Power Cables 53
5.3.4 Connect the Air Conditioner Power Cable 54
5.4 Connect the Communication Cables 55
5.4.1 BMS Communications (Inverter–Battery System) 56
5.4.2 Battery System Cluster Communications 57
5.4.3 Cloud Board Communications 59
5.5 Connect the Signal Cables 62
5.6 Post-Wiring Operations 63
6 System Commissioning 65
6.1 Pre-Energization Inspection 65
6.2 Energize the Equipment 65
7 System Commissioning and Monitoring 67

7.1 Commissioning via SEC3000C 67
7.2 Monitoring Power Plants via SEMS+ 67
8 System Maintenance 69
8.1 De-Energize the Equipment 69
8.2 Periodic Maintenance 69
8.3 Troubleshooting 70
8.4 Equipment Removal 77
8.5 Equipment Disposal 78
9 Technical Data 79
10 Appendix 83
10.1 Glossary 83
10.2 Battery SN Code Description 84
11 Contact Details 86

1 Safety Precautions

The safety information in this document must always be observed when operating the equipment.

⚠WARNING
The equipment is designed and tested in strict compliance with safety regulations. However, as electrical equipment, it must be operated in accordance with the relevant safety instructions. Improper operation may result in serious injury or property damage.

1.1 General Safety

⚠DANGER

- Before making electrical connections, disconnect all upstream switches and ensure that the equipment is de-energized. Never work on energized equipment, as this may result in electric shock or other hazards.
- To prevent personal injury or equipment damage caused by working on energized equipment, install a circuit breaker on the equipment's voltage input side.
- All activities, including transportation, storage, installation, operation, use, and maintenance, must comply with applicable laws, regulations, standards, and codes.
- The specifications of cables and components used for electrical connections must comply with local laws, regulations, standards, and codes.
- Use the cable connectors supplied with the equipment to connect its cables. The equipment manufacturer is not liable for damage resulting from the use of connectors of other models.
- Ensure that all equipment cable connections are correct, secure, and free of looseness. Incorrect wiring may result in poor contact or equipment damage.
- The equipment's protective earth cable must be securely connected.
- To protect the equipment and its components from damage during transportation, ensure that transport personnel are professionally trained. Record the handling steps during transportation, keep the equipment balanced, and prevent it from falling.
- The equipment is heavy. Assign an adequate number of personnel according to its Weight to prevent it from exceeding the safe lifting capacity and causing injury.
- Ensure that the equipment is placed securely and is not tilted. If it topples over, it may cause equipment damage or personal injury.

⚠WARNING

- During equipment installation, do not allow the wiring terminals to bear any load, as this may damage them.
- Avoid subjecting cables to excessive tension, as this may result in poor connections. Leave an appropriate length of cable when wiring to prevent it from being taut.
- Secure and support cables properly to prevent their weight, tension, bending force, torsion, or other external mechanical stress from acting on terminals or connectors over an extended period.
- Ensure that the protective earth cable is reliably connected and leave an appropriate amount of slack. If subjected to external mechanical stress, such as an accidental pull, ensure that the protective earth cable does not disconnect before the other conductors.
- Bundle cables of the same type together. Route different types of cables at least 30 mm apart. Do not bundle or cross them together.
- Using cables in high-temperature environments may cause their insulation to age or become damaged. Maintain a distance of at least 30 mm between cables and heating components or the perimeter of heat-source areas.

NOTE

- This document may be updated periodically due to product version upgrades or other reasons. Unless otherwise agreed, the contents of this document do not supersede the safety precautions on the product label. All descriptions in this document are provided for guidance only.
- Before installing the equipment, read this document carefully to understand the product and its precautions.
- All work on the equipment must be performed by qualified electrical technicians who are familiar with the relevant standards and safety regulations in the project location.
- When operating the equipment, use insulated tools and wear personal protective equipment to ensure personal safety. When handling electronic components, wear antistatic gloves and clothing and use an antistatic wrist strap to protect the equipment from electrostatic damage.
- Unauthorized disassembly or modification may damage the equipment. Such damage is not covered by the warranty.
- The equipment manufacturer is not liable for equipment damage or personal injury caused by installing, using, or configuring the equipment in a manner that does not comply with this document or the applicable user manual. For more information about the product warranty, visit the official website:https://www.goodwe.com/warrantyrelated.html。

1.2 Personnel Requirements

NOTE

To ensure safety, compliance, and efficiency throughout the transportation, installation, wiring, operation, and maintenance of the equipment, all work must be performed by qualified or authorized personnel.

1. Qualified or authorized personnel include:
   - Personnel who understand the equipment operating principles and system configuration, are knowledgeable about associated risks and hazards, and have received professional training or have extensive practical experience.
   - Personnel who have received relevant technical and safety training, have some operational experience, can recognize the potential hazards that specific tasks may pose to them, and can take protective measures to minimize risks to themselves and others.
   - Qualified electrical technicians who meet the regulatory requirements of the country/region where they work.
   - Personnel with a degree in electrical engineering, an advanced diploma in an electrical discipline, or an equivalent qualification; or those holding a professional qualification in the electrical field and with at least 2/3/4 years of experience testing and supervising work in accordance with electrical equipment safety standards.
2. Personnel performing specialized tasks such as electrical work, working at heights, or operating special equipment must hold valid qualification certificates required at the equipment installation site.
3. Medium-voltage equipment must be operated by certified high-voltage electricians.
4. Only authorized personnel may replace equipment or components.

1.3 Battery Safety

⚠DANGER

- This battery system is a high-voltage system, and high voltage is present during operation.Before working on any equipment in the system, ensure that it is de-energized to prevent electric shock. Strictly observe all safety precautions in this manual and all safety labels on the equipment while working on it.

⚠DANGER

- This battery system is a high-voltage system. Anyone other than qualified personnel must keep away. Do not touch or operate it without authorization.
- This energy storage system is heavy equipment. Use appropriate equipment and tools and take Protection measures during installation and maintenance. Improper handling may cause personal injury or product damage.
- Do not disassemble, modify, or repair the battery or control box without official authorization from the equipment manufacturer. Doing so may cause electric shock or equipment damage. The equipment manufacturer is not liable for any losses resulting from such actions.
- The equipment must be installed on concrete or another non-combustible surface. Ensure the foundation is level, firm, flat, dry, and has sufficient load-bearing capacity. Depressions or tilting are prohibited.
- Do not strike, pull, drag, squeeze, or step on the equipment, or puncture its enclosure with sharp objects. Do not place the battery in a fire, as this may cause an explosion.
- Do not place the battery in a high-temperature environment. Keep heat sources away from the battery and protect it from direct sunlight. Ambient temperatures above 60°C may cause a fire.
- Do not use the battery or control box if it has any visible defects, cracks, damage, or other abnormalities.
- Battery damage may cause electrolyte leakage.
- Do not move the battery system while the battery is operating.
- Observe polarity when installing the battery system. Do not reverse the positive and negative terminals, as this may cause a short circuit, resulting in personal injury or property damage.
- Never short-circuit the battery's positive and negative terminals. A Battery Short Circuit may cause personal injury. The large instantaneous current generated by a short circuit can release substantial energy and may cause a fire.
- Before working on the equipment, ensure that it is undamaged and that the system has no faults; otherwise, there may be a risk of electric shock or fire.
- Do not open the equipment cabinet doors or touch any terminals or components while the equipment is operating. Doing so may result in electric shock.
- The enclosure temperature may exceed 60°C during operation. Do not touch the enclosure until it has cooled down. Install the equipment out of reach of unqualified personnel.

⚠DANGER

- Do not connect or disconnect terminals or cables while the battery system is operating, as this may create a safety hazard.
- Each battery may be connected to only one energy storage inverter. Do not connect the same battery directly to multiple energy storage inverters. Sharing one battery among multiple inverters may cause abnormal reverse current or circulating current, resulting in GFCI leakage protection trips or battery overcurrent and, in severe cases, damage to the battery and inverters.
- If an abnormal condition occurs while the battery system is operating, immediately de-energize the system and promptly contact the appropriate personnel.
- The battery DC circuit breaker must comply with the requirements of AS/NZS 5139.

⚠WARNING

- Recharge the battery promptly after discharging it. Failure to do so may result in over-discharge and damage to the battery.
  Do not charge or discharge the battery at currents exceeding the rated charge/discharge current.
- Battery Current may be affected by factors such as temperature, humidity, and weather conditions. This may cause current limiting and affect the load-carrying capacity.
- If the battery cannot start, contact the after-sales service center as soon as possible. Otherwise, the battery may be permanently damaged.
- If a battery module needs to be replaced or an additional battery module needs to be added, contact the after-sales service center.
- Avoid charging the battery at low temperatures, as this may reduce the battery system capacity.
- Do not place unrelated items in any part of the battery cabinet.

NOTE

Emergency response measures:

- Battery electrolyte leakage
  If electrolyte leaks from a battery module, avoid contact with the leaked liquid or gas. The electrolyte is corrosive and may cause skin irritation or chemical burns on contact. If you accidentally come into contact with the leaked substance, take the following steps:
  - Inhalation: Leave the contaminated area and seek medical attention immediately.
  - Eye contact: Flush with clean water for at least 15 minutes and seek medical attention immediately.
  - Skin contact: Thoroughly wash the affected area with soap and water, and seek medical attention immediately.
  - Ingestion: Induce vomiting and seek medical attention immediately.
- Fire
  - When the battery temperature exceeds 150°C, there is a risk of fire. A battery fire may release toxic and hazardous gases.
  - To prevent fire, ensure that a carbon dioxide, Novec 1230, or FM-200 fire extinguisher is available near the equipment.
  - Do not use an ABC dry powder fire extinguisher to extinguish a fire. Firefighters must wear protective clothing and self-contained breathing apparatus.

1.4 EU Declaration of Conformity (Battery)

GoodWe Technologies Co., Ltd. hereby declares that batteries available for sale in the European market comply with the requirements of the following directives:

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)*1
- Regulation (EU) 2023/1542 Article 12 - Safety of stationary battery energy storage systems
- Regulation (EU) 2023/1542 Article 10 - Performance and durability requirements

for rechargeable industrial batteries, LMT batteries and electric vehicle batteries
- Regulation (EU) 2023/1542 Article 14 - Information on the state of health and expected lifetime of batteries
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)
  *1: Our battery products comply with the hazardous substance limit requirements stipulated in this regulation.

1.5 Description of Safety Symbols and Certification Marks

⚠DANGER

- After the equipment is installed, labels and warning signs on the enclosure must remain clearly visible. Do not cover, alter, or damage them.
- The following descriptions of warning labels on the enclosure are for reference only. Refer to the labels affixed to the actual equipment.

No.	Symbol	Description
1		Potential hazards are present while the equipment is operating. Take appropriate protective measures when operating the equipment.
2		High-voltage hazard. High voltage is present while the equipment is operating. Ensure that the equipment is de-energized before servicing it.
3		The equipment surface may be hot. Do not touch the equipment while it is operating, as this may cause burns.
4		Use the equipment appropriately. Use under extreme conditions may pose an explosion risk.
5		The battery contains flammable materials. Keep away from fire.

No.	Symbol	Description
6		The equipment contains corrosive electrolyte. Avoid contact with leaked electrolyte or escaping vapors.
7		Delayed discharge. After powering off the equipment, wait 5 minutes for it to fully discharge.
8		Keep the equipment away from open flames or sources of ignition.
9		Keep the equipment out of the reach of children.
10		Use the equipment appropriately. Use under extreme conditions may pose an explosion risk.
11		The battery contains flammable materials. Keep away from fire.
12		Do not lift the equipment after wiring the battery system or while the battery system is operating.
13		Do not extinguish with water.
14	 	Read the product manual carefully before operating the equipment.
15		Wear personal protective equipment during installation, operation, and maintenance.

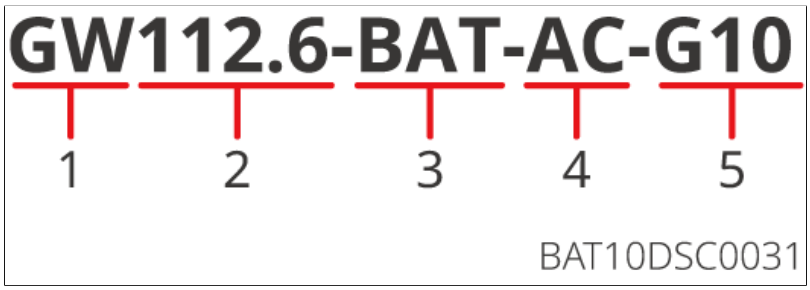
No.	Symbol	Description
16		Do not dispose of the equipment as household waste. Dispose of it in accordance with local laws and regulations, or return it to the equipment manufacturer.
17		Protective earth connection point.
18		Recycling symbol. The equipment must be placed in the appropriate location and recycled in accordance with local environmental regulations.
19		CE certification mark.
20		RCM certification mark.

2 Product Overview

2.1 Product Overview

The BAT-C 61.4–112.6 kWh battery system (hereinafter referred to as the battery system) consists of battery packs, a high-voltage box, an air conditioner, a fire suppression system, and other components. It enables the storage and release of electrical energy.

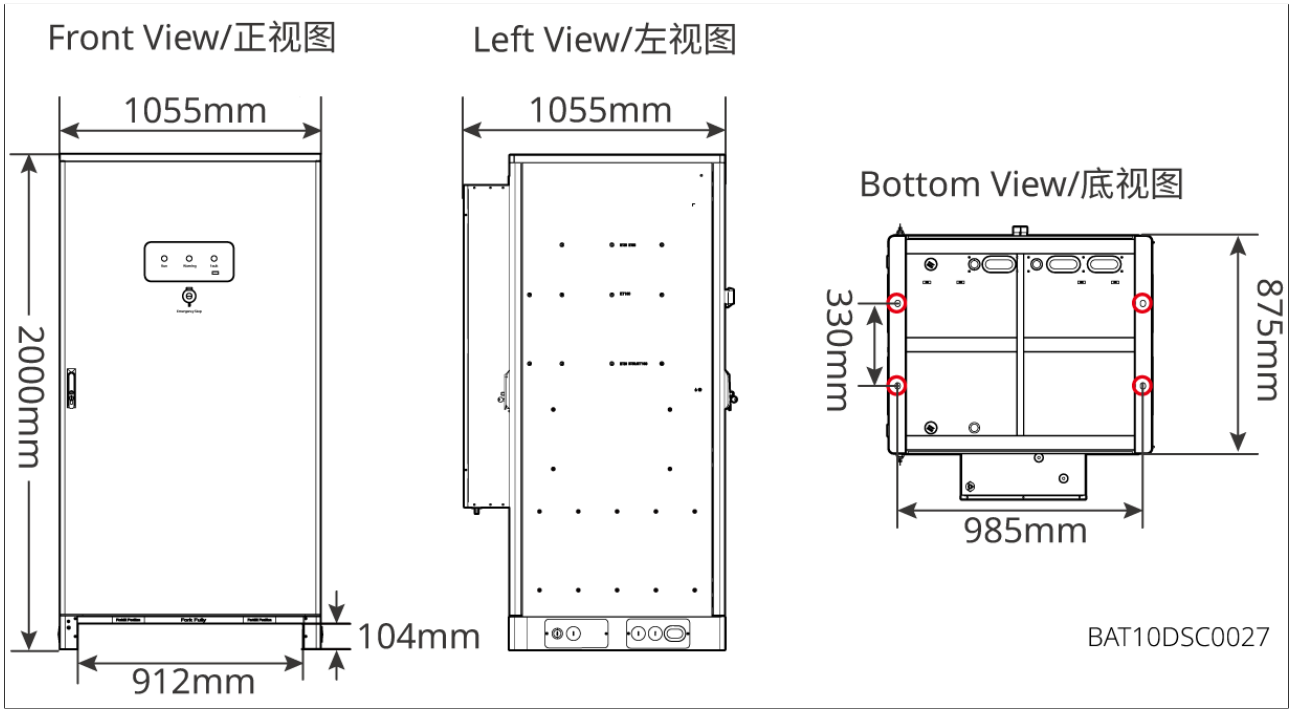
Model Description



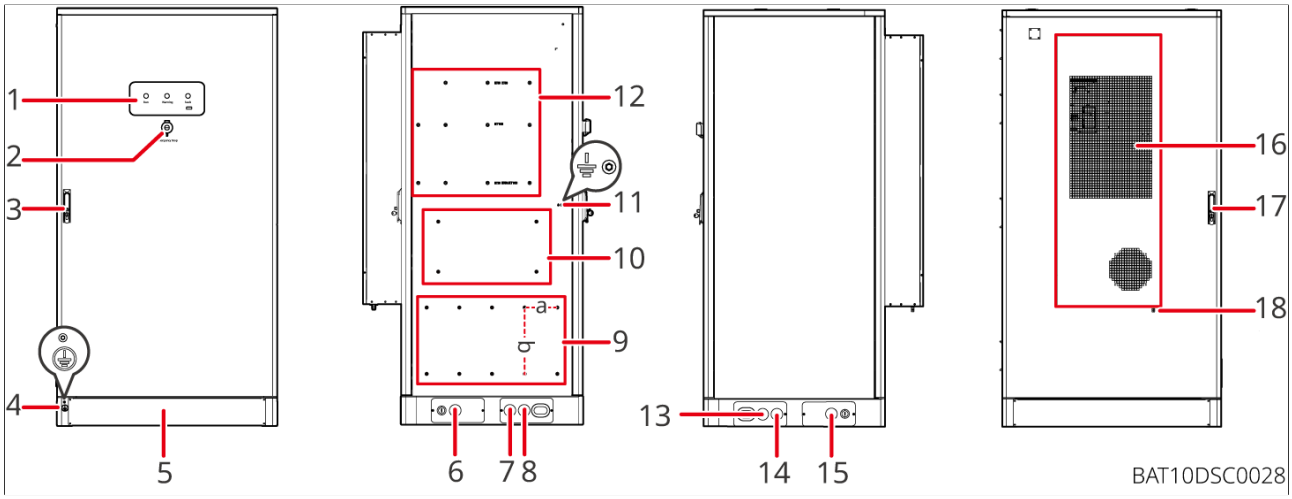
Identifier	Description	Description
1	Brand Code	GW: GOODWE
2	Energy Rating	• 61.4: Rated energy of 61.4 kWh; 6 battery packs in the cabinet • 92.1: Rated energy of 92.1 kWh; 9 battery packs in the cabinet • 102.4: Rated energy of 102.4 kWh; 10 battery packs in the cabinet • 112.6: Rated energy of 112.6 kWh; 11 battery packs in the cabinet
3	Series Name	BAT: BAT series
4	Cooling Method	AC: Air-cooled

Identifier	Description	Description
5	Version Code	G10: First-generation product

2.2 Dimensions



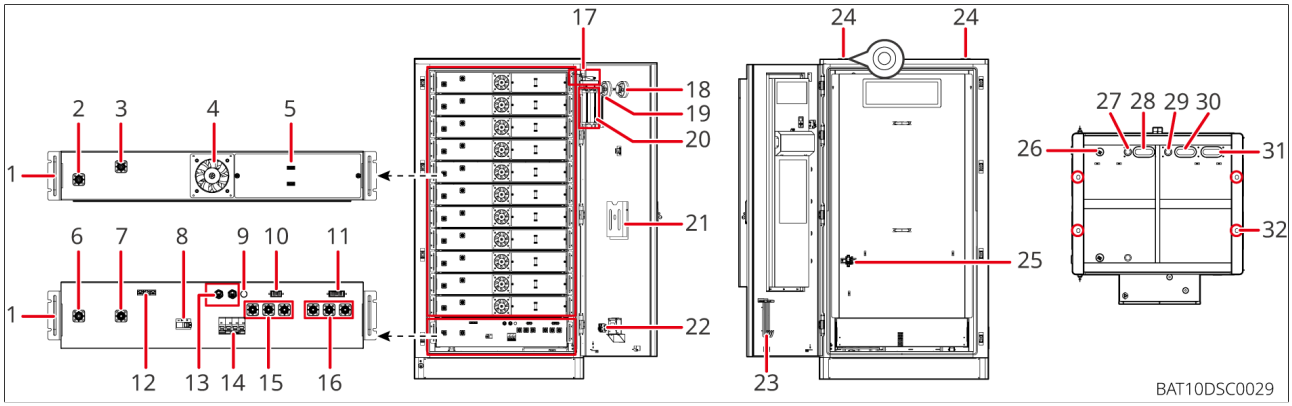
2.3 Exterior Overview



No.	Name	Description
1	LED Indicator	-
2	EPO Button	Pressing the EPO button will power down the battery system
3	Front Door Lock	-
4	Grounding Terminal 1	Connect the battery PE cable
5	Bottom Cover Plate	-
6	Left Cable Entry Hole 1	Air Conditioner Power Cable & ET100 Power Cable
7	Left Cable Entry Hole 2	Inverter communication cable
8	Left-side cable entry hole 3	Inverter power cable
9	Mounting holes for circuit breaker and cable tray	Mounting hole spacing is as follows: • a: 157mm • b: 318mm

No.	Name	Description
10	Protection cover mounting holes	For mounting the cable protection cover (required only in Australia; optional in other regions)
11	Grounding terminal 2	Connect the inverter PE cable
12	Inverter rear mounting bracket holes	For mounting the inverter rear mounting bracket
13	Right-side cable entry hole 1	Battery cluster power cable
14	Right-side cable entry hole 2	Battery cluster communication cable
15	Right-side cable entry hole 3	Air conditioner power cable
16	Air conditioner	Provides temperature control; the air conditioner uses R134A refrigerant
17	Rear door lock	-
18	Air conditioner drain hose installation opening	For installing the air conditioner drain hose

2.4 Component Overview



No.	Name	Description
1	Handle	-
2	Battery PACK power input/output terminal positive pole	-
3	Battery PACK power input/output terminal negative pole	-
4	Fan	-
5	PACK communication port	Communication between adjacent battery PACKs and with the high-voltage box; fan power supply
6	High-voltage box power input/output terminal negative pole 1	Power cable connecting the high-voltage box to the battery PACK
7	Positive terminal 1 of the high-voltage box power input/output port	
8	Molded-case circuit breaker	Controls the high-voltage output of the battery system
9	Black start button	Controls black start of the battery system
10	Internal communication port 1	Port 1 for communication with the battery PACK and power supply to the battery PACK fan
11	Internal communication port 2	Communication port for air conditioner communications, access control identification, EPO, and fire protection signals

No.	Name	Description
12	Cloud board communication port (LAN)	Cloud board communication between battery compartments for transmitting cell-level information (This function is supported only on equipment shipped after October 2025)
13	External communication port 1	Communication with the inverter / termination resistor connection / parallel communication between battery systems
14	Miniature circuit breaker	Controls the low-voltage power supply to the battery system
15	Positive terminal 2 of the high-voltage box power input/output port	Power cable connecting the high-voltage box to the inverter
16	Negative terminal 2 of the high-voltage box power input/output port	Power cable connecting the high-voltage box to the inverter
17	Access door switch	Automatically disconnects when the door is opened to ensure the energy storage system is de-energized

No.	Name	Description
18	Temperature detector	The temperature detector monitors temperature using a dual-thermistor network and outputs a voltage proportional to the ambient temperature. One thermistor is exposed to ensure good thermal contact with the surrounding air, while the other is thermally insulated. When an anomaly is detected, it emits a red light to alert the operator. • Suitable for environments where dust or smoke is normally present • Wide Voltage Range
19	Smoke detector	The smoke detector uses the scattered-light principle to detect smoke entering the detector housing cavity. • Responds effectively to slow-burning and smoldering fires • Unaffected by wind or atmospheric pressure • Some models are equipped with a flashing LED and a magnetic test switch • Alarm indicator: The red light-emitting diode (LED) illuminates red.
20	Aerosol fire suppression device	Monitors fire signals inside the cabinet and activates fire suppression.
21	Document holder	-

No.	Name	Description
22	Fire suppression activation signal port	Dry-contact signal interface, normally NC (normally closed); connect the audible and visual alarm cable. Permissible voltage and current for external connections: • Voltage: 0–24 VDC • Current: 0.3 A
23	Maintenance hook holder	When removing the Pack and PCU, retrieve the maintenance hook here for use.
24	Lifting eye installation hole	-
25	Air conditioner switch	Connects the air conditioner power cable and controls power supply to the air conditioner.
26	Explosion vent	Provides explosion protection and gas venting functions. If abnormal pressure builds up inside the battery system, the exhaust outlet of the explosion-proof one-way valve opens to rapidly vent the internal gas in a controlled direction, thereby preventing an explosion of the battery system.
27	Communication cable entry/exit (bottom)	Communication cable entry/exit between the battery and inverter
28	Power cable entry/exit (bottom)	Power cable entry/exit between the battery and inverter
29	Battery communication cable entry/exit	Battery cluster-parallel communication cable entry/exit
30	Battery power cable entry/exit (positive)	Battery cluster-parallel power cable entry/exit (positive)

No.	Name	Description
31	Battery power cable entry/exit (negative)	Battery cluster-parallel power cable entry/exit (negative)
32	Cabinet mounting hole	Used to secure the cabinet to the base

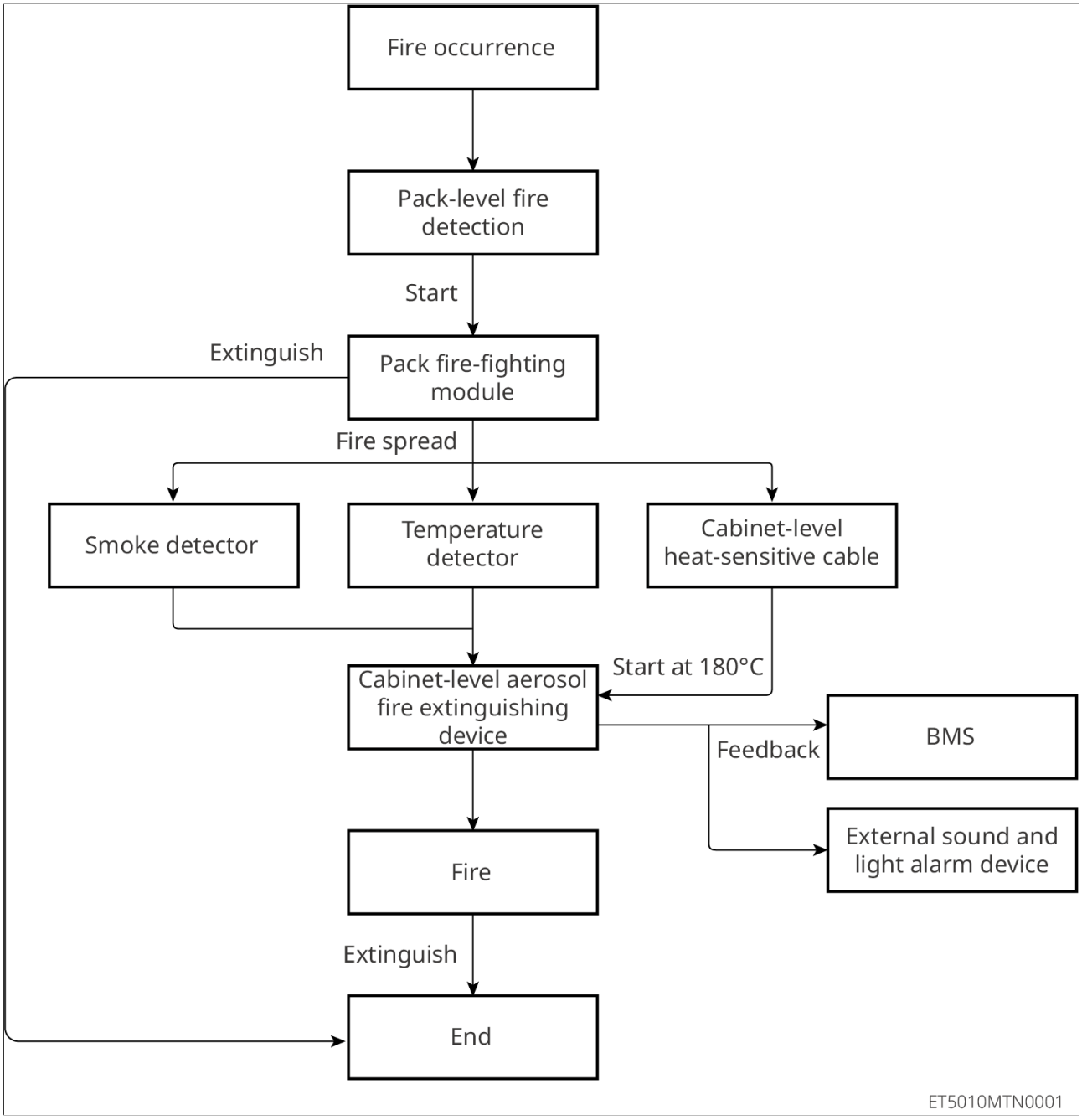
2.5 Indicator Description

Indicator	Status	Description
 Run		Solid green: Equipment operating normally
		Single green flash: Battery operating normally, but not communicating with the inverter
		Two green flashes: Equipment in standby
		• Green off, solid yellow: Equipment alarm • Green off, solid red: Equipment fault • Green, yellow, and red off: Equipment not powered on
 Warning		Solid: Equipment alarm
		Off: No equipment alarm
 Fault		Solid: Equipment fault
		Off: No equipment fault
		Single red flash: Sleep mode (undervoltage)
		Double red flash:SNabnormal

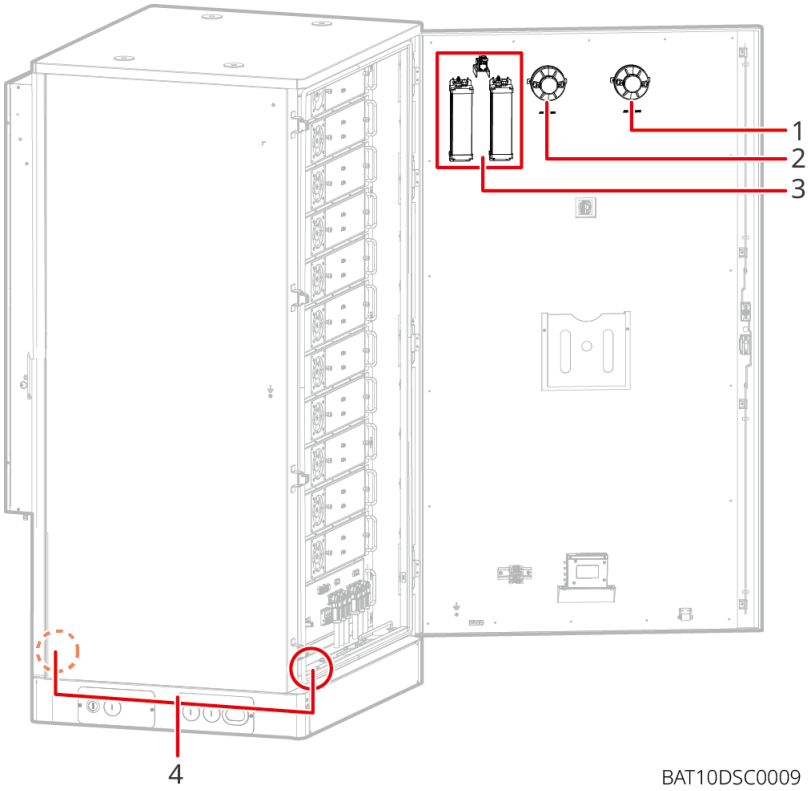
2.6 Fire Suppression System Description

Fire Suppression Logic

The fire protection system for this battery system is designed with a tiered response. If a fire breaks out inside a battery Pack, it is first detected by the Pack-level detector, which immediately activates the aerosol fire suppression device inside the Pack to provide initial suppression. If the fire cannot be controlled and spreads further, cabinet-level fire suppression is triggered. When both the smoke detector and temperature detector detect a fire, or when an open flame ignites the thermosensitive cable (temperature reaches 180°C), the cabinet-level aerosol fire suppression device is automatically activated for comprehensive fire suppression. The aerosol-generating agent produces the extinguishing agent through a combustion reaction; the heat released during the reaction decomposes the chemical coolant. The aerosol extinguishing agent and coolant work together to suppress the fire. At the same time, the BMS receives a feedback signal from the fire protection system and triggers the external audible and visual alarm device, which remains active until the fire is completely extinguished.

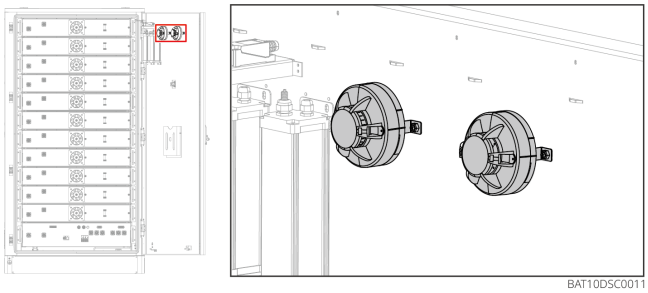


Introduction to Fire Protection Components



1	2	3	4
Smoke detector	Temperature detector	Aerosol fire suppression device	Explosion vent

- **Heat Detector & Smoke Detector**

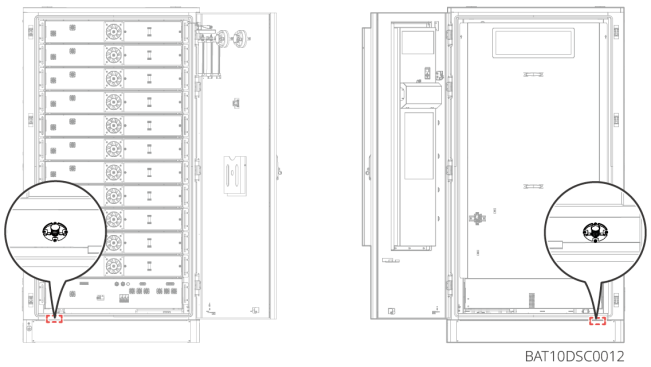


Temperature Detection Principle: The detector uses a negative temperature coefficient thermistor as its sensor, leveraging the thermistor's sensitivity to ambient temperature to obtain ambient temperature information. The internal circuit converts this information into a voltage signal and sends it to the microcontroller, which analyzes and processes the signal using an embedded intelligent algorithm and determines whether a fire alarm or fault condition is present.
Smoke Detection Principle: The detector uses the infrared scattering principle to

detect fires. In the absence of smoke, it receives only a very weak infrared signal. When smoke particles enter the optical smoke detection chamber, scattering increases the received light signal. When the smoke concentration reaches a certain level, an alarm signal is output.

Technical Specifications	Temperature detector	Smoke detector
Dimensions (mm)	102 × 55	
Installation Requirements	Screw-mounted	
Indicator (red)	Flashes during monitoring; stays on during an alarm	
Operating Temperature (°C)	-40~+85	
Relative Humidity	≤95% RH (non-condensing)	

- **Explosion vent**

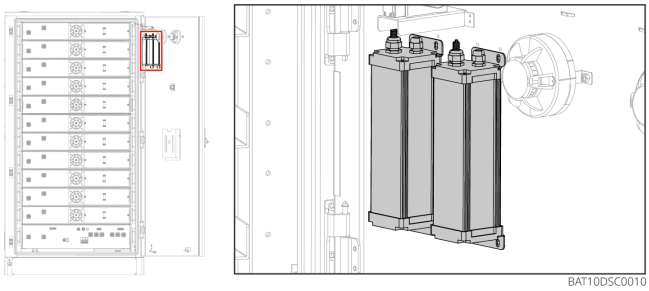


When the internal pressure of sealed products such as enclosures rises rapidly, the explosion-proof one-way valve opens its vent to quickly release the internal gas in a controlled direction, thereby preventing sealed products such as battery enclosures from exploding.

Technical Specifications	Explosion Vent Valve
Ingress Protection Rating	IP68

Technical Specifications	Explosion Vent Valve
Vent Area	570 mm^2
Operating Temperature	-40℃ ~ +130℃
Flame-retardant Performance	UL94-V0

- **Aerosol fire suppression device**



In the event of a fire, upon receiving an electrical activation signal or when an open flame ignites the thermosensitive cable, the electric igniter or thermosensitive cable activates the aerosol-generating agent in the fire suppression device. Heat released by the aerosol-generating agent through an oxidation-reduction reaction decomposes the chemical coolant, allowing the aerosol-generating agent and coolant to work together to suppress the fire.

Technical Specifications	Aerosol fire suppression device
Operating Ambient Temperature Range	-30℃ ~ +70℃
Operating Ambient Relative Humidity	≤95%RH
Thermal Activation Temperature	185±10℃

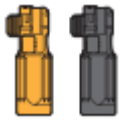
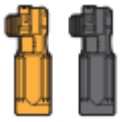
3 Equipment Inspection and Storage

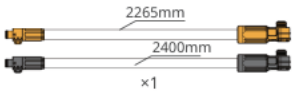
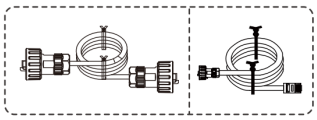
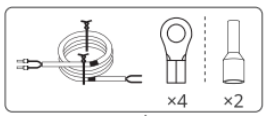
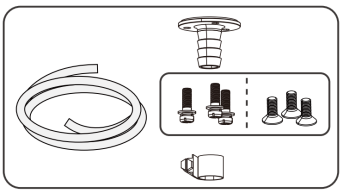
3.1 Equipment Inspection

Before accepting the product, carefully check the following:

- Check the outer packaging for damage, such as deformation, holes, cracks, or any other signs that may indicate damage to the equipment inside. If the packaging is damaged, do not open it and contact your dealer.
- Check the tip-over indicator label. If the window on the label has turned red, the equipment has tipped over. Do not open the packaging and contact your dealer.
- Check that the equipment model is correct. If it does not match, do not open the packaging and contact your dealer or after-sales service center.
- Check that the type and quantity of delivered items are correct and that they are undamaged. If any items are missing or damaged, contact your dealer or after-sales service center.

3.2 Items Supplied

Component	Description	Component	Description
	Battery Cabinet ×1		Expansion Anchors×4
	GroundingM5Screws ×3		Grounding Terminals ×3
	Inverter-to-Battery Connection Terminals25mm² × 2		Inter-battery Connection Terminals50mm² ×2

Component	Description	Component	Description
	Packinterconnection harness • GW61.4-BAT-AC-G10：×5 • GW92.1-BAT-AC-G10：×8 • GW102.4-BAT-AC-G10：×9 • GW112.6-BAT-AC-G10：×10		Packnegative-to-high-voltage-box negative harness ×1
	• Positive inverter-to-battery cable ×1 • Negative inverter-to-battery cable ×1		Adapter mounting bracket ×² (Required only for ET100)
	Battery-to-inverter communication Ethernet cable ×1		Air conditioner power supply harness package ×1
	Firestop putty ×8		Cable ties ×20
	Air conditioner water pipe package ×1		Lifting eye ×4

Component	Description	Component	Description
	Corrugated conduit fittings ×6		25mm² to10mm² Round tube terminal ×4
	Product documentation ×1		

3.3 Equipment Storage

To ensure battery performance and service life, long-term idle storage should be avoided. Extended storage may cause deep battery discharge, resulting in irreversible chemical degradation, capacity deterioration, or even complete failure. Timely use is recommended. After long-term storage, the battery must be inspected and confirmed by qualified personnel before it can be used again.
If the battery needs to be stored for an extended period, maintain it according to the following requirements:

Battery	Initial battery storage SOC range	Recommended Storage Temperature	Charge and discharge maintenance interval	Battery maintenance method
BAT-C 61.4-112.6kWh Commercial and industrial battery system	30%~40%	0~35℃	-20℃~+35℃（≤12months) +35℃~+45℃ (≤6 months)	For maintenance procedures, please consult the distributor or after-sales service center.

NOTE
After the charge and discharge maintenance has been completed successfully, if a Maintaining Label is affixed to the outer carton, update the maintenance information on the Maintaining Label. If there is no Maintaining Label, record the maintenance date and battery SOC yourself and retain the data properly to facilitate maintenance record keeping.

Packaging Requirements:

Ensure that the outer packaging box has not been opened and that the desiccant inside the box has not been lost.

Environmental Requirements:

1. Ensure that the equipment is stored in a cool place, away from direct sunlight. Ambient Overtemperature may create a fire risk for the battery system.
2. Ensure that the storage environment is clean and that the temperature and humidity are within the appropriate ranges, with no condensation. Do not store the equipment in areas exposed to direct cold airflow, such as near air conditioner outlets. Do not install the equipment if condensation is present on its ports.
3. Ensure that the equipment is stored away from flammable, explosive, corrosive, or other hazardous materials.

Stacking Requirements:

1. Ensure that the equipment is stacked at the height and in the orientation indicated on the labels on the packaging.
2. Ensure that the stacked equipment is stable and cannot tip over.

4 Installation

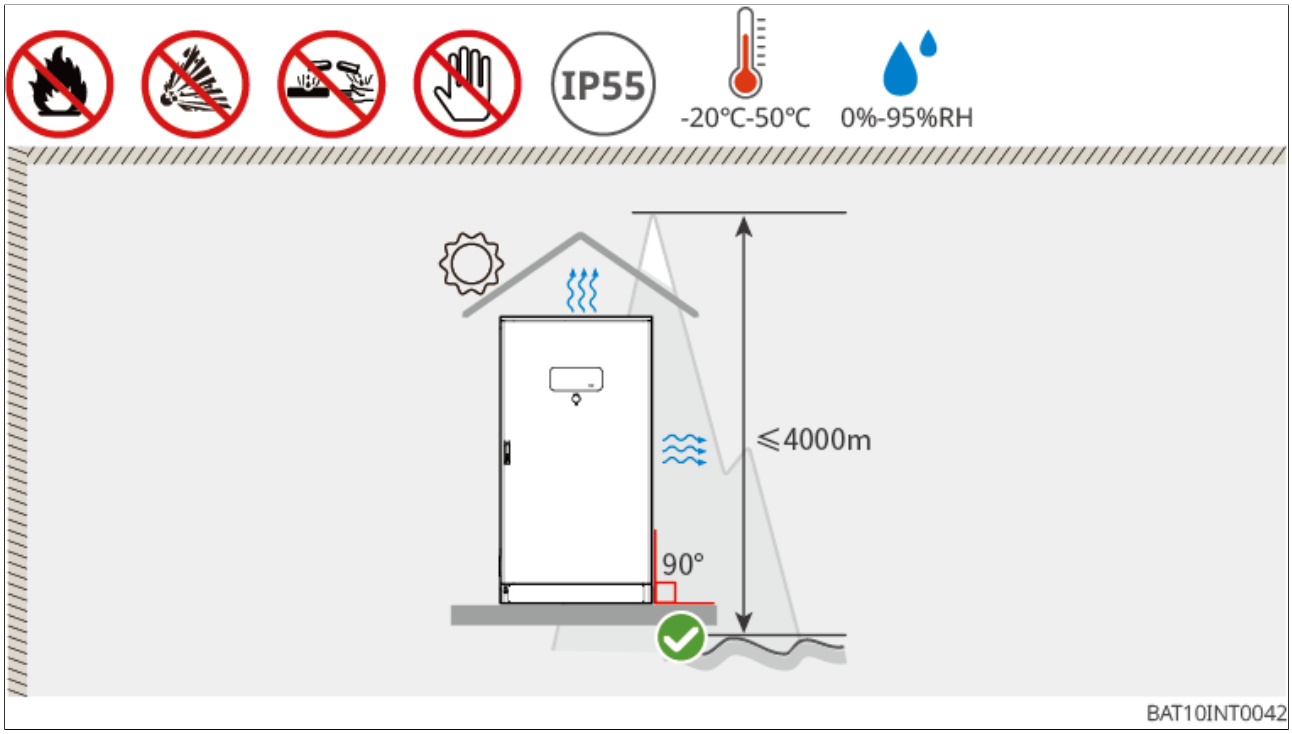
4.1 Installation Requirements

4.1.1 Environmental Requirements

1. The installation site must strictly comply with local laws and regulations and relevant industry standards. Do not install the equipment in environments where flammable, explosive, or corrosive materials are present. Install it near a fire hydrant.
2. The temperature and humidity at the equipment installation site must be within the appropriate ranges.
3. Install the equipment out of children's reach and avoid locations where it can be easily touched.
4. The enclosure temperature may exceed 60°C during operation. Do not touch the enclosure until it has cooled to avoid burns.
5. Avoid installing the equipment where it is exposed to direct sunlight, rain, or snow accumulation. Installation in a sheltered location is recommended; install a sunshade if necessary.
6. The installation space must meet the equipment's ventilation, heat dissipation, and operating space requirements.
7. Do not install the equipment in areas exposed to direct cold airflow, such as near air conditioner outlets. Excessive local temperature differences may cause condensation inside the equipment and damage it.
8. The installation environment must meet the equipment's Ingress Protection Rating. The battery system is suitable for indoor and outdoor installation.
9. The installation site must be protected against flooding and waterlogging:
   - Avoid low-lying areas and locations prone to flooding. The equipment installation site must be at least 250 mm above the highest water level recorded locally.
   - Waves and wind from rivers, lakes, or the sea may affect the equipment. The foundation must be at least 0.6 m above the highest recorded wave level.
   - If large amounts of water flow into or through the equipment installation area, drainage facilities must be provided.
   - For installation sites prone to water accumulation, take waterproofing measures, including but not limited to installing water barriers, providing a drainage

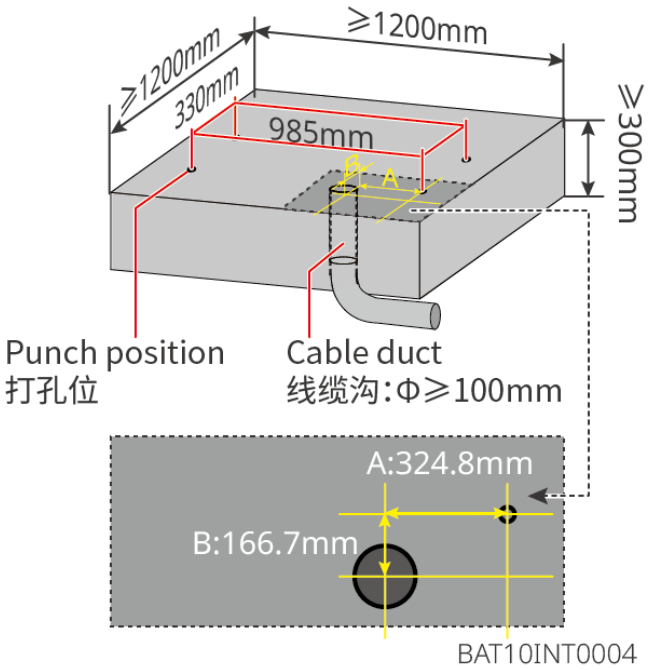
system, or raising the foundation.

10. Install the equipment at a height that allows for easy operation and maintenance. Ensure that the indicator lights and all labels are easy to view and that the terminals are easily accessible.
11. The equipment installation altitude must be below the Max. Operating Altitude.
12. Consult the equipment manufacturer before installing equipment outdoors in salt-affected areas. Salt-affected areas generally refer to locations within 500 m of the coast; the extent of the affected area depends on factors such as sea winds, precipitation, and terrain.
13. Do not install the equipment in noise-sensitive areas (such as residential areas, offices, or schools), as this may result in complaints from residents. If installation in such an area is unavoidable, install the equipment at least 40 m from the noise-sensitive area.
14. If the equipment is installed in a public area other than a workplace or residential area (such as a parking lot, station, or factory), install a protective fence around it and post safety warning signs to prevent unauthorized persons from approaching. This helps avoid personal injury or property damage caused by accidental contact by unqualified personnel or other factors during equipment operation.
15. Keep the equipment away from strong magnetic fields to prevent electromagnetic interference. If a radio station or wireless communication equipment operating below 30 MHz is located near the installation site, install the equipment in accordance with the following requirements:
    - Energy storage system: Add a ferrite core with multiple turns of winding to the DC input cables or AC output cables of the energy storage system, or add a low-pass EMI filter. Alternatively, maintain a distance of more than 30 m between the energy storage system and radio-frequency interference equipment.
    - Other equipment: Maintain a distance of more than 30 m between the equipment and radio-frequency interference equipment.

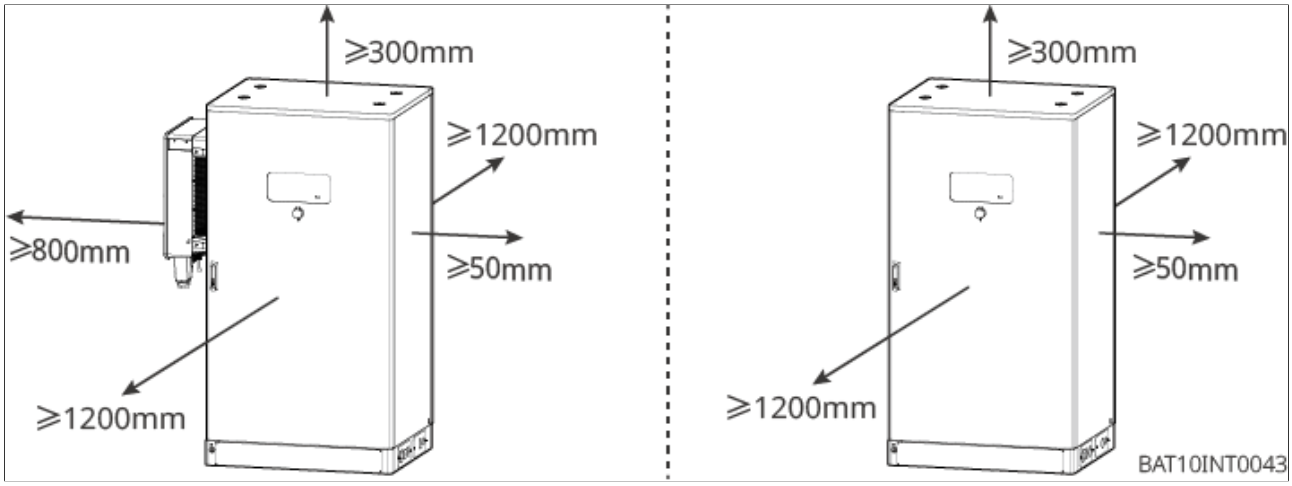


4.1.2 Base Requirements

- The base must be a hardened surface made of plain concrete of grade C25 or higher, or another non-combustible material.
- The bottom of the foundation pit must be reinforced and filled to ensure that the foundation is solid, level, horizontal, dry, and has sufficient load-bearing capacity. Foundations that are sunken, settling, or tilted are unacceptable.
- Pipes or cable outlet openings should be embedded or reserved in the base to facilitate equipment cabling.
- The equipment uses bottom cable entry. The foundation must be protected against dust and rodents to prevent foreign objects from entering.
- The base should be designed to prevent water accumulation and moisture ingress, preventing cables from aging or short-circuiting due to moisture and affecting normal equipment operation.
- The equipment cables are thick, so sufficient space must be provided in the embedded conduits or reserved cable outlets for cable routing, ensuring smooth connections and avoiding abrasion.
- The drawings are for reference only. Construction personnel should verify and adjust them according to actual site conditions, geological conditions, and seismic requirements.



4.1.3 Space Requirements



4.2 Handling Requirements

⚠WARNING

1. Transportation, transfer, installation, and other operations must comply with the laws, regulations, and applicable standards of the country or region in which they are performed.
2. Freight forwarders engaged in the transportation of dangerous goods must hold the relevant qualifications and strictly comply with local dangerous goods transportation regulations.
3. The cabinet tilt angle must be less than 10° during transportation and movement.
4. Before installation, transport the equipment to the installation site. To prevent personal injury or equipment damage during transport, observe the following:
   - Assign an appropriate number of personnel based on the equipment Weight to prevent the equipment from exceeding the safe manual lifting capacity and injuring personnel.
   - Wear safety gloves to prevent injury.
   - Keep the equipment balanced while handling to prevent it from falling.
   - Ensure that the cabinet doors are locked during equipment handling.
5. When lifting the equipment, use flexible slings or straps. Each strap must have a load capacity of≥2t。
6. When moving the equipment with a forklift, the forklift must have a load capacity of≥2t。

⚠CAUTION

Forklift handling must meet the following requirements:

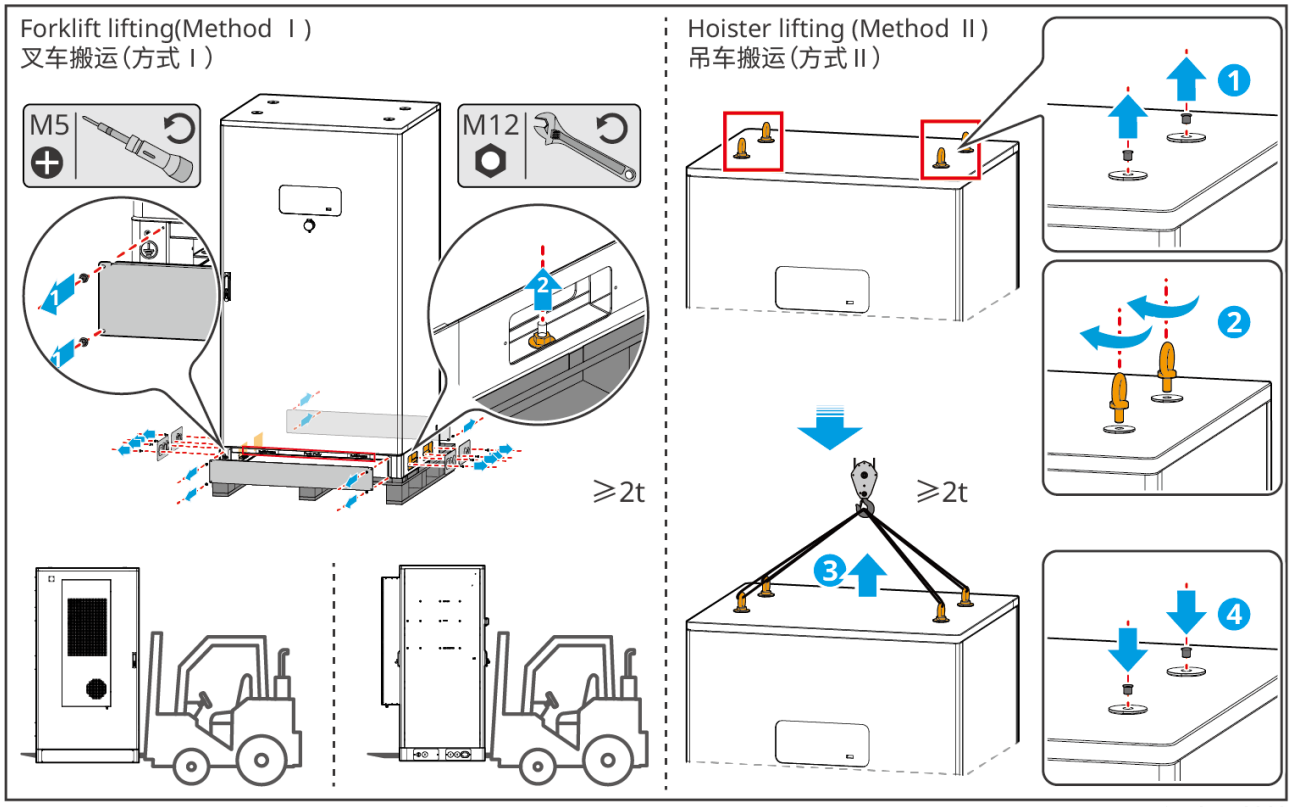
- Before use, confirm that the forklift has a load capacity of ≥2 tonnes, fork width of 350–600 mm, fork thickness of 40–80 mm, and fork length of >1.2 m.
- Before moving the equipment, note its center of gravity and securely fasten it to the forklift using ropes, straps, or other securing measures.
- Assign a designated person to supervise the equipment during forklift transport.
- Refer to the labels on the equipment packaging for the forklift entry points.
- Operate the forklift at low speed and smoothly during transport, and slow down when turning.

Lifting operations must meet the following requirements:

- Crane operators must have good operating skills and safety awareness, complete training, obtain Certification, and operate in accordance with local laws and regulations.
- The crane lifting capacity must be ≥2 tonnes, and the lifting radius must be >2 m.
- Before lifting, confirm that:
  1. Ensure all lifting equipment is in place, has been tested, and is completely safe.
  2. Ensure the equipment doors are closed and locked to prevent them from opening accidentally.
  3. Lifting ropes must meet applicable quality standards and be fully secured to prevent dropping and abrasion.
- Do not perform outdoor lifting operations in severe weather such as rain, snow, or strong winds.
- All four lifting eyes must be used when hoisting. Using only two lifting eyes is strictly prohibited.

NOTE

- A guard plate is fitted at the bottom of the battery system. Remove it before moving the equipment with a forklift.
- For shipment, the battery system is secured to the base with screws. Remove the base before installation.

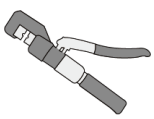


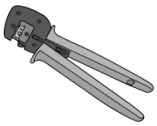
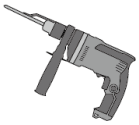
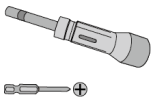
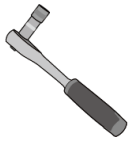
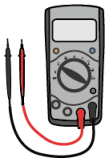
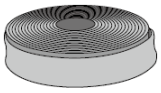
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4.3 Tool Requirements

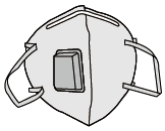
NOTE
The following installation tools are recommended. Other auxiliary tools may be used on-site when necessary.

Installation Tools

Tool Type	Description	Tool Type	Description
	Diagonal Cutters		RJ45 Crimping Tool
	Wire Strippers		YQK-70 Hydraulic Crimping Tool

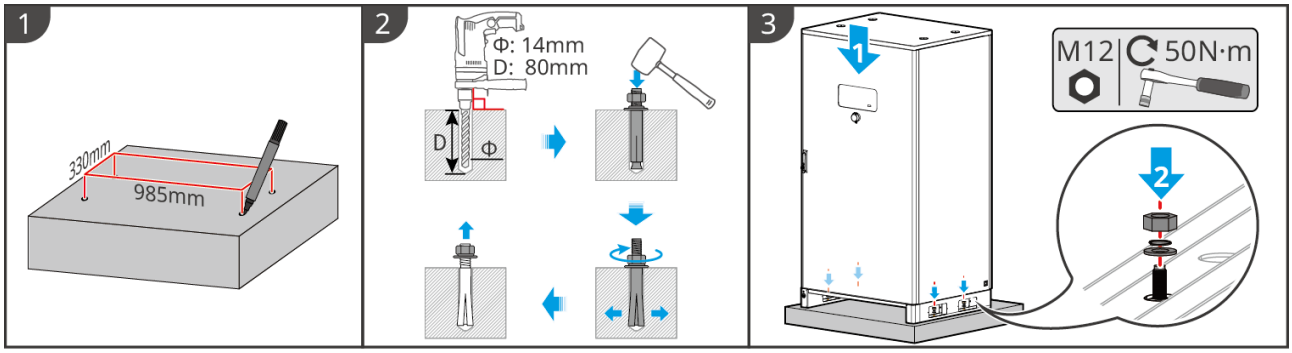
Tool Type	Description	Tool Type	Description
	Open-End Wrench		PV Connector Crimping Tool PV-CZM-61100
	Hammer Drill (Ø8 mm drill bit)		Torque Wrench
	Rubber Mallet		Socket Wrench Set
	Marker		Multimeter Measuring range ≤ 1100 V
	Heat-Shrink Tubing		Heat Gun
	Cable Ties		Vacuum Cleaner

Personal Protective Equipment

Tool Type	Description	Tool Type	Description
	Insulating gloves, protective gloves		Dust mask
	Safety goggles		Safety shoes

4.4 Equipment Installation

1. Mark the drilling locations on the foundation according to the dimensions shown.
2. Drill the holes using a hammer drill and install the expansion anchors.
3. Secure the battery system to the foundation using expansion anchors.



BAT10INT0005

5 Electrical Connections

⚠DANGER

- All operations performed and the specifications of the cables and components used during electrical connection must comply with local laws and regulations.
- Before connecting electrical cables, ensure that all upstream switches for the equipment are disconnected.
- Before making electrical connections, ensure that the equipment is completely de-energized. Live work is strictly prohibited, as it may result in electric shock or other hazards.
- Bundle cables of the same type together and route them separately from cables of other types. Do not twist or cross cables.
- Excessive tension on a cable may result in a poor connection. When wiring, leave sufficient slack in the cable before connecting it to the equipment terminal.
- When crimping a cable lug, ensure that the cable conductor is in full contact with the lug. Do not crimp the cable insulation together with the lug. Failure to do so may prevent the equipment from operating or cause overheating due to an unreliable connection, potentially damaging the equipment terminal block.
- Using cables in high-temperature environments may cause their insulation to age or become damaged. Maintain a distance of at least 30 mm between cables and heating components or the perimeter of heat-source areas.
- Before working on the equipment, ensure that it is reliably grounded and that the relevant protective measures are in place. Otherwise, there is a risk of electric shock.
- After completing the wiring, reliably seal all unused cable entry holes and ports (including communication ports) with the dedicated terminals or plugs provided in the accessories. Otherwise, the following risks may occur:
  - Electric shock hazard: Exposed electrical terminals may result in accidental contact with live parts and cause electric shock.
  - Loss of protection: Unsealed ports may allow dust, moisture, or foreign objects to enter the equipment, causing a short circuit or equipment damage and potentially resulting in a fire.

NOTE

- Before making electrical connections, wear personal protective equipment such as safety shoes, protective gloves, and insulating gloves as required.
- Only trained professionals are permitted to perform electrical connections and related operations.
- The cable colors shown in the illustrations in this document are for reference only. Specific cable specifications must comply with local regulations.

5.1 Pre-Wiring Preparations

Cable Preparation

No.	Cable		Recommended Specifications	Description
1	Protection Grounding Cable		• Single-core outdoor copper cable • Conductor cross-sectional area: 16–25 mm^2	Provided by the user
2	Battery DC Cable	ET30	• Single-core outdoor copper cable • Conductor cross-sectional area: 10 mm^2 • Cable outer diameter: 6.5–9.5 mm	Provided by the user; use with a reducing tube
		ET50		
		ET100		

No.	Cable		Recommended Specifications	Description
		ET G3	• Single-core outdoor copper cable • Conductor cross-sectional area: 25 mm² • Cable outer diameter: 9.4–10.6 mm	The pre-terminated cable harness is included in the shipment. If the pre-terminated cable harness is not long enough, the user must provide the cable.
3	Battery cluster power cable		• Single-core outdoor copper cable • Conductor cross-sectional area: 50 mm² • Cable outer diameter: 13–14 mm	Provided by the user
4	BMS Communication Cable		-	Included in the shipment
5	Battery cluster communication cable		CAT 5Eor higher, standard network cable fitted with an RJ45 connectorEIA/TIA 568Bstandard	Provided by the user
6	Cloud Board Communication Cable		CAT 5Eor higher, standard network cable fitted with an RJ45 connectorEIA/TIA 568Bstandard	Provided by the user

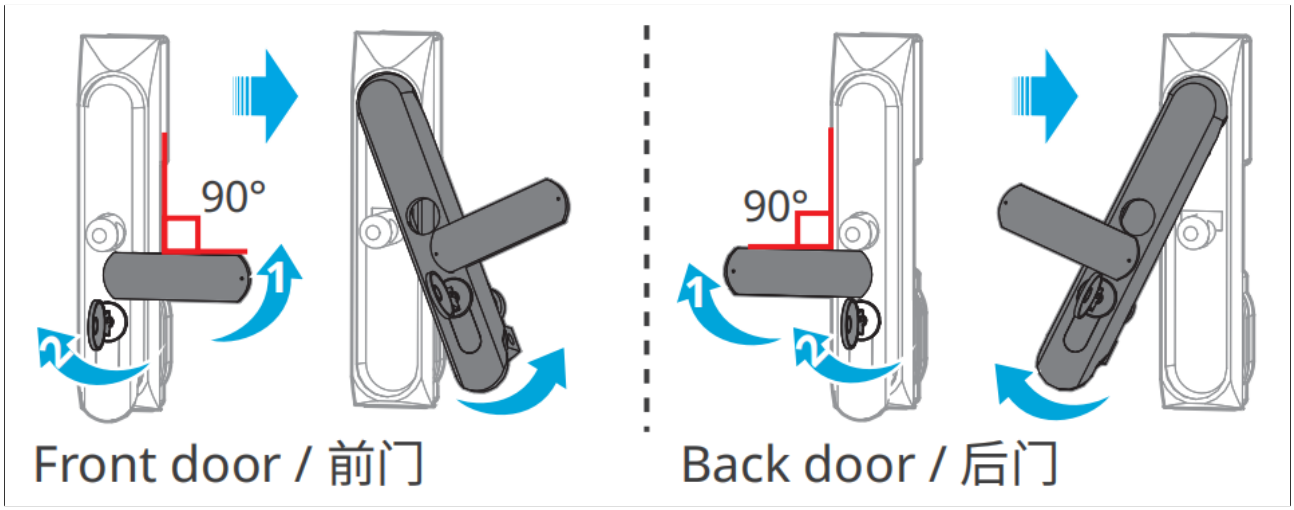
Circuit Breaker Preparation (Optional)

Circuit Breaker	Compatible Inverters	Specifications	Description
Battery DC Circuit Breaker	ET30	Select according to local laws and regulations • 2PDC Switch • Rated Current≥63A • Nominal Voltage≥1000V	
	ET50	Select according to local laws and regulations • 2P DC Switch × 1 • Rated Current ≥125A • Nominal Voltage ≥1000V	Provided by the user Before servicing the equipment, disconnect the circuit breaker to ensure personal safety!
	ET100	Select according to local laws and regulations • 2P DC Switch × 2 (one required for each battery port) • Rated Current ≥125A • Nominal Voltage ≥1000V	

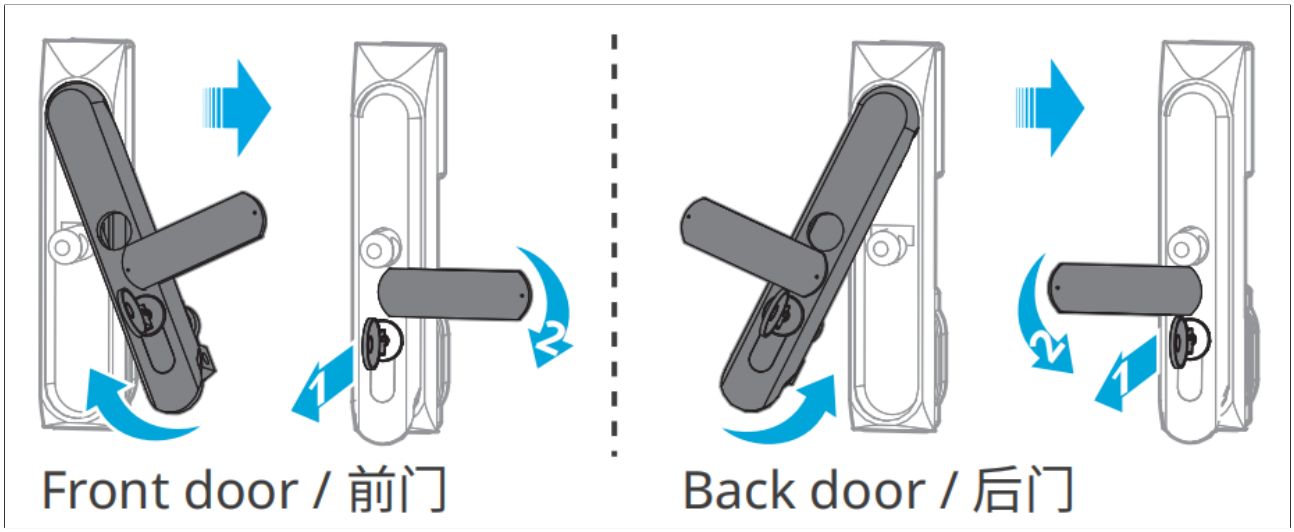
Circuit Breaker	Compatible Inverters	Specifications	Description
	ET G3	Select according to local laws and regulations 2P DC Switch × 2 (one required for each battery port) Nominal voltage ≥1000V; rated current requirements are as follows: • GW25K-ET-G30, GW29.999K-ET-G30, GW30K-ET-G30, GW18K-ET-L-G30: ⩾100A • GW37.5K-ET-G30, GW40K-ET-G30, GW49.999K-ET-G30, GW50K-ET-G30, GW25K-ET-L-G30, GW30K-ET-L-G30: ⩾125A	

Cabinet Door Operation

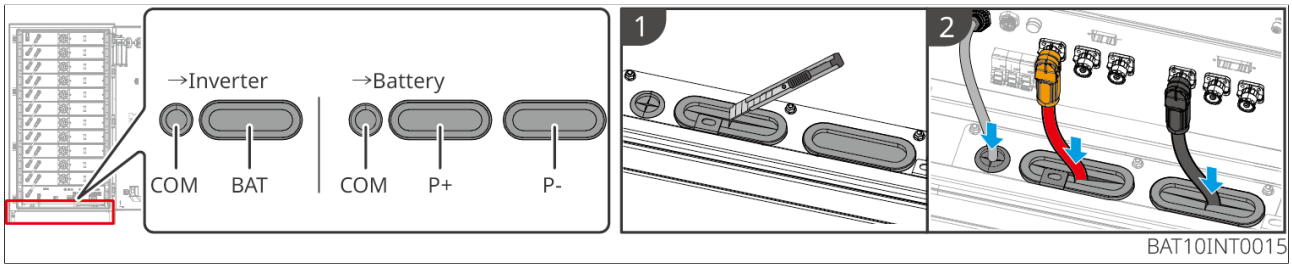
- Open the Cabinet Door



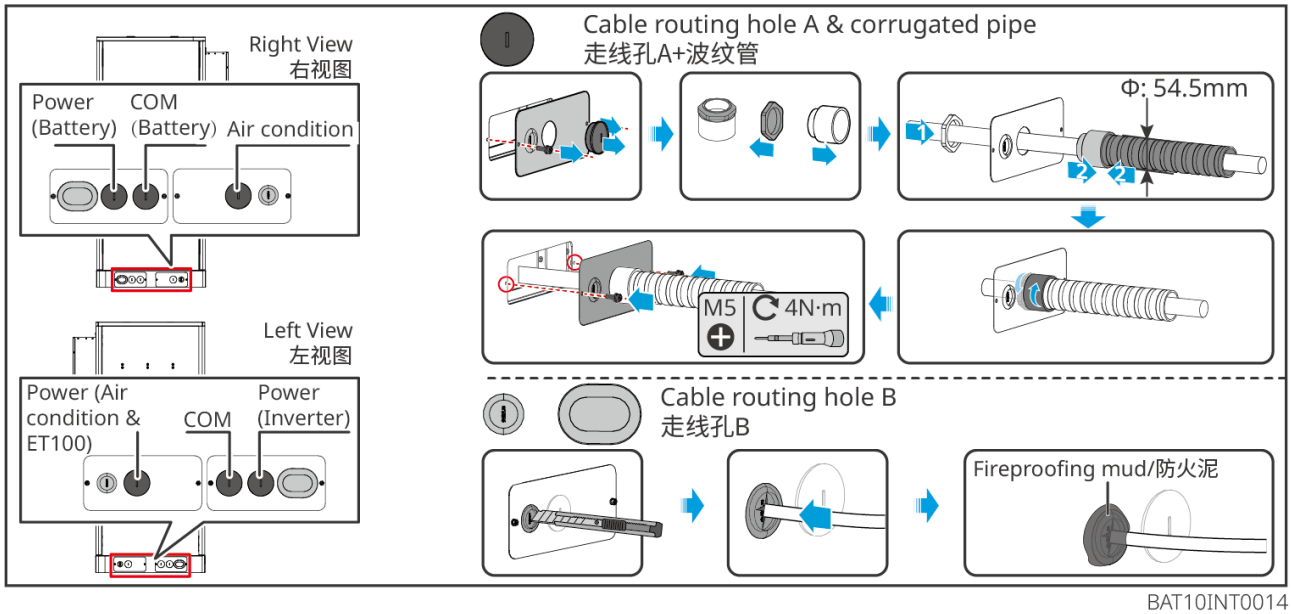
- Close the Cabinet Door



Overview of Internal Cabinet Cable Entry Holes

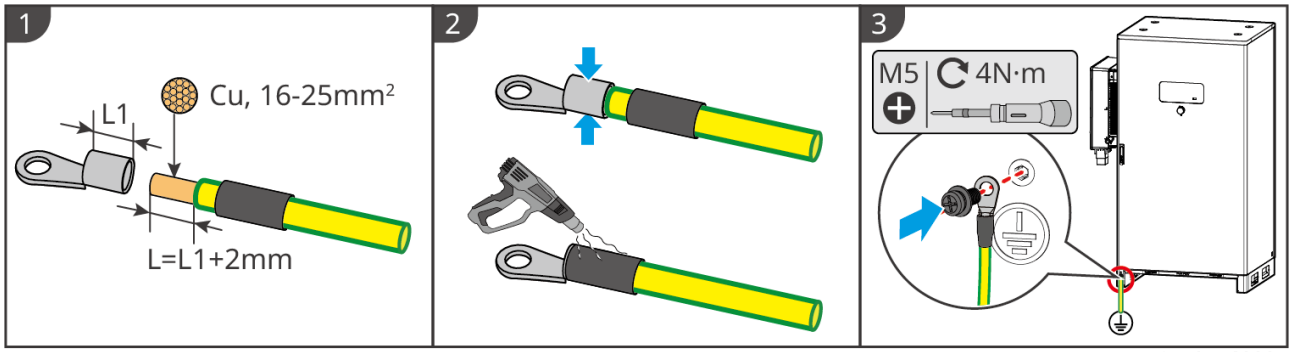


Overview of Cabinet Side Cable Entry Holes



5.2 Connect the Protective Grounding Conductor

1. Prepare the cables and terminals.
2. Crimp the terminals.
3. Connect the ground wire to the cabinet grounding point.

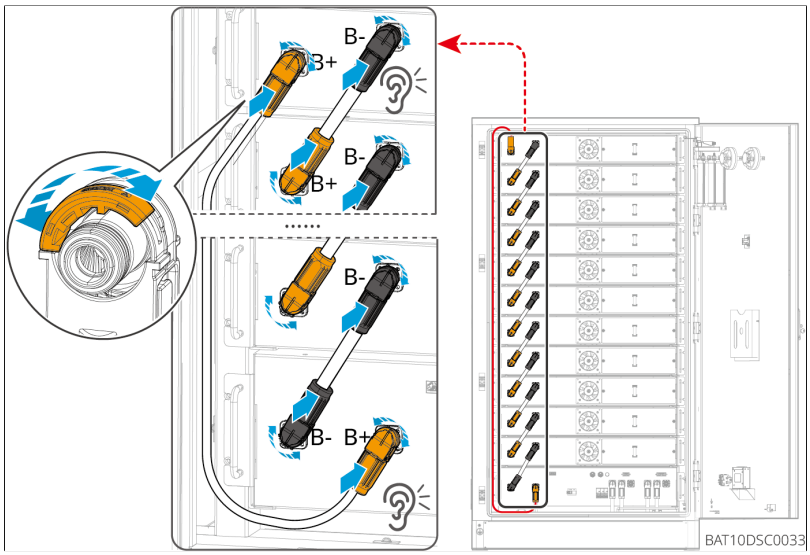


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5.3 Connect the Power Cables

5.3.1 Connect the Power Cables Between Battery Packs

1. Take the power cables out of the accessory kit.
2. Connect the power cables to the positive/negative terminals of the PACK.

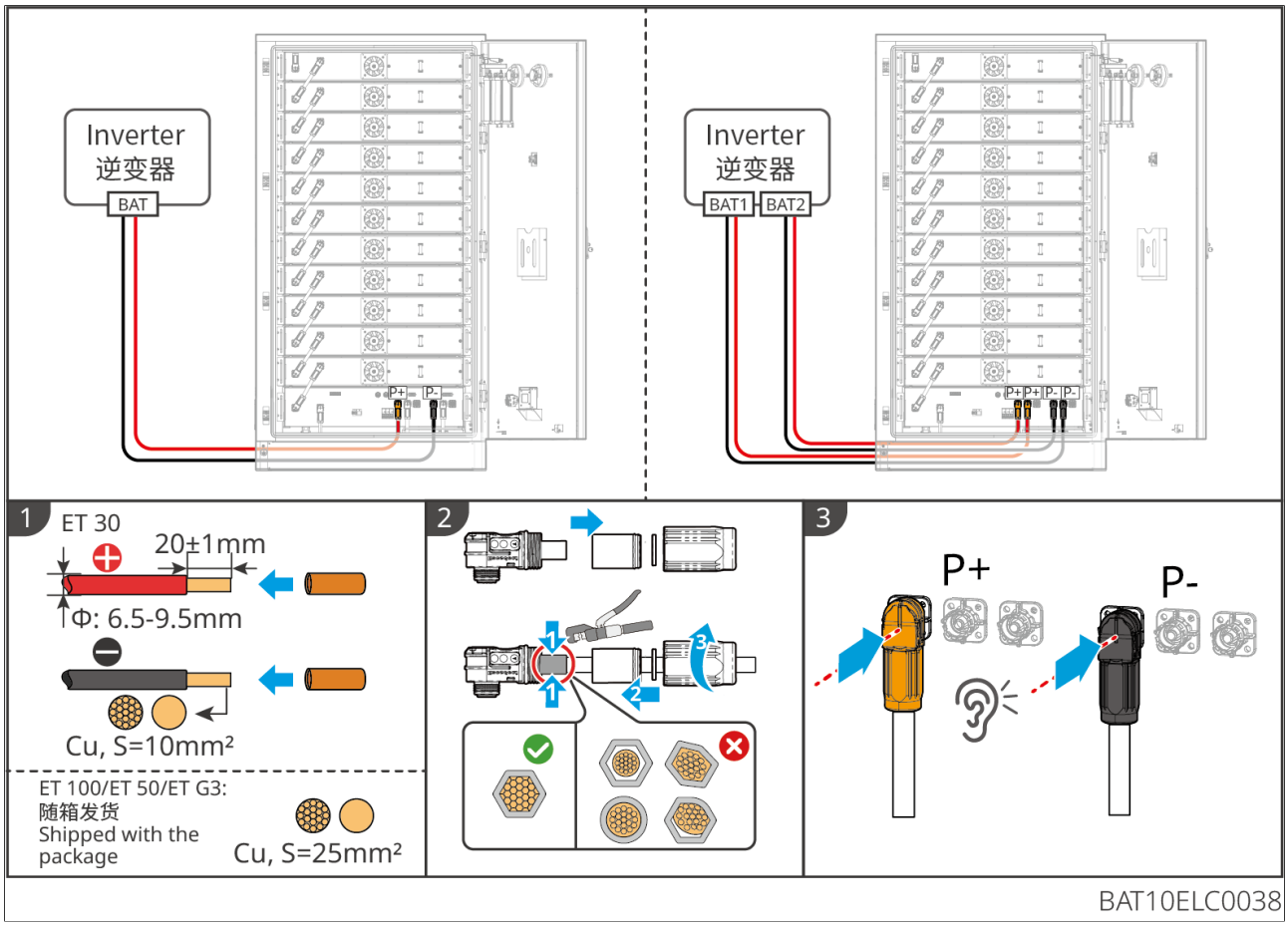


5.3.2 Connect the DC Power Cables (Inverter–Battery System)

NOTE

- Please use the DC power cables supplied with the unit for wiring. If the supplied cables do not meet the actual installation requirements, you may make your own cables.
- When connecting the battery system to an ET30 inverter, provide your own cables and use reducing sleeves to crimp the terminals.

1. (Optional) Prepare the cables.
2. (Optional) Make the cables.
3. Connect one end of the cable to the inverter and the other end to the battery system.



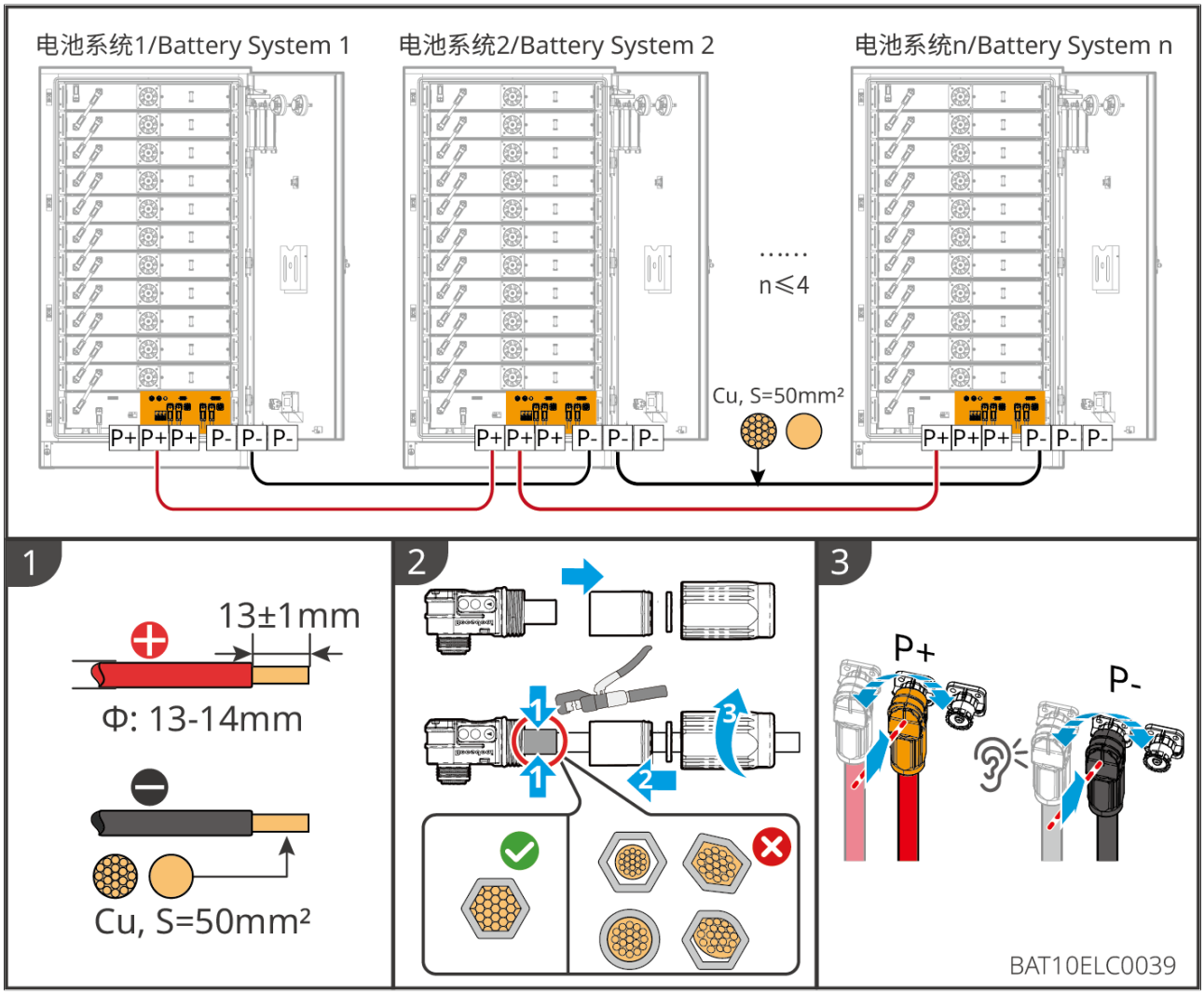
ET 12-30K（ET30）		ET 25-50K（ET50）	ET 50-100K（ET100）	ET G3
BAT×1	BAT×2	BAT×1	BAT×2	BAT×2
GW12KL-ET GW15K-ET GW20K-ET	GW18KL-ET GW25K-ET GW29.9K-ET GW30K-ET	GW25K-ET-10 GW30K-ET-10 GW40K-ET-10 GW50K-ET-10	GW50K-ET-L-G10 GW75K-ET-G10 GW80K-ET-G10 GW99.99K-ET-G10 GW100K-ET-G10	GW25K-ET-G30 GW29.999K-ET-G30 GW30K-ET-G30 GW37.5K-ET-G30 GW40K-ET-G30 GW49.999K-ET-G30 GW50K-ET-G30 GW18K-ET-L-G30 GW25K-ET-L-G30 GW30K-ET-L-G30

Table38 BAT Port Quantity by Inverter Model

5.3.3 Connect the Battery Cluster Power Cables

NOTE
When the battery system is connected to an ET 10-30K inverter, parallel clustering is not supported.

1. Prepare the cable.
2. Crimp the terminals.
3. Connect the cable to the corresponding port.

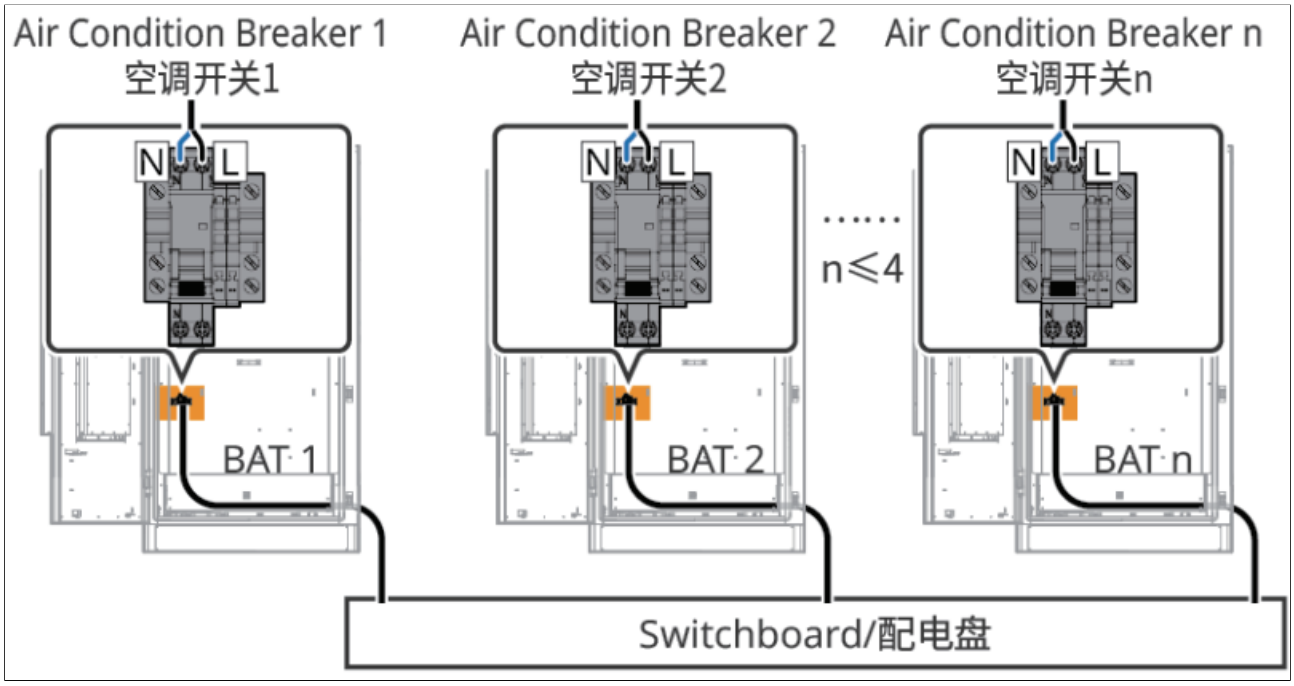


5.3.4 Connect the Air Conditioner Power Cable

NOTE

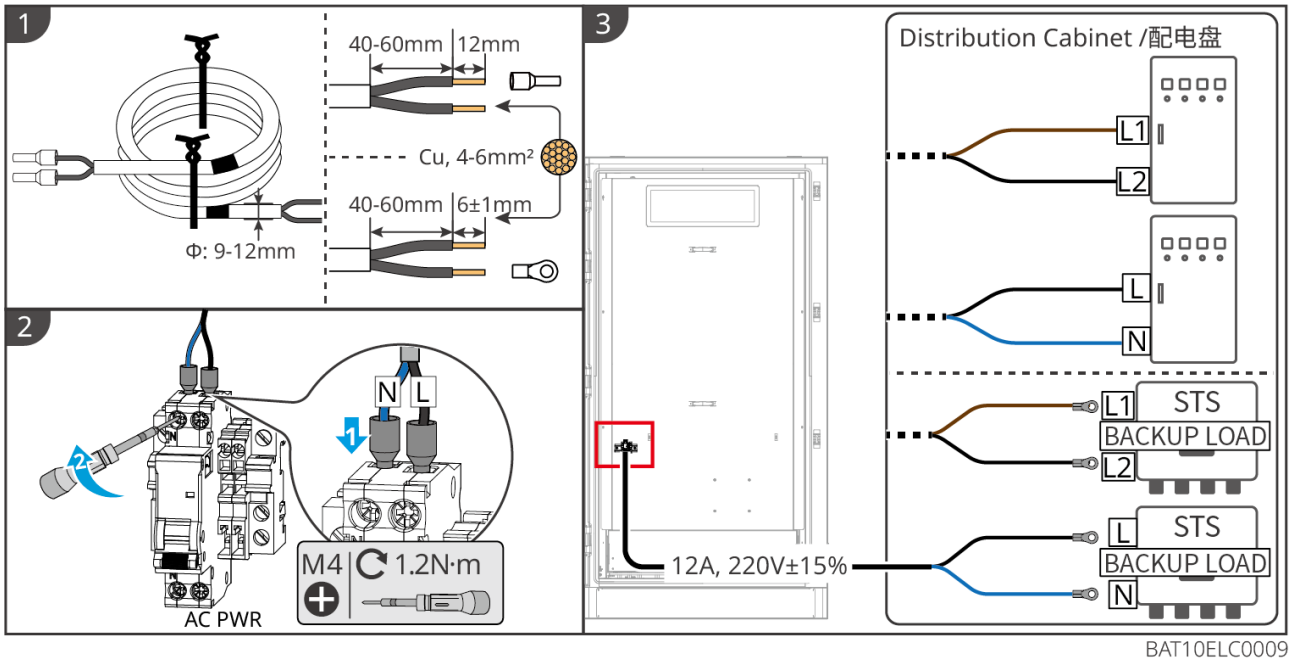
- When battery systems are connected in parallel, wire the air conditioner power cables separately.
- Ensure that the air conditioner power cable voltage is 220 V ±15% and the rated current is 12 A.

Air Conditioner Power Cable Wiring Diagram



Wiring Procedure

1. Crimp a tubular terminal and an OT terminal onto the two ends of the air conditioner power cable, respectively.
2. Connect the tubular terminal to the air conditioner switch in the battery system.
3. Connect the OT terminal to the distribution panel or to the STS BACK UP port.



BAT10ELC0009

5.4 Connect the Communication Cables

5.4.1 BMS Communications (Inverter–Battery System)

NOTE
The communication cable is supplied with the battery system. Use the supplied communication cable.

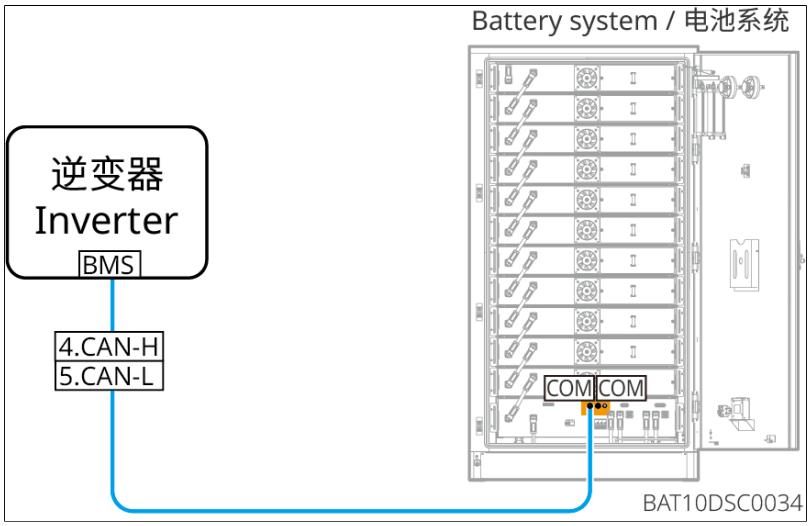
Communication Port Definitions

Port	Definition	Description
1-3，6-8	-	-
4	CAN_H	Communications with the Inverter
5	CAN_L	

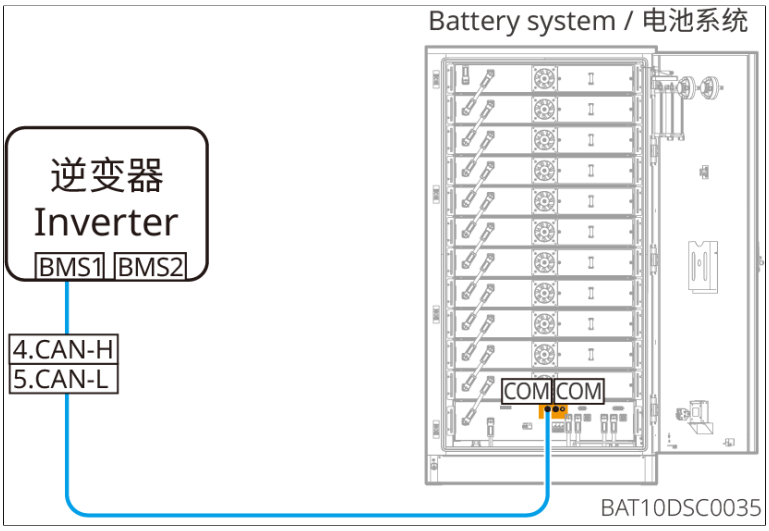
Wiring Overview

- **Connecting to an Inverter with One BAT Port**

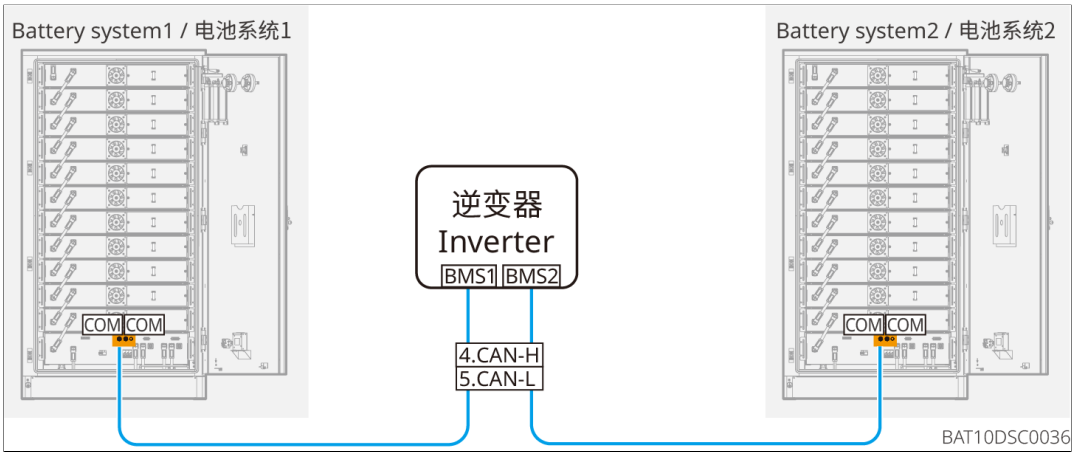
Connect the battery system communication cable to the inverter's BMS port.



- **Connecting to an Inverter with Two BAT Ports**
  - When both BAT ports are connected to the same battery system, connect the battery system communication cable only to the inverter's BMS1 port.



  - When the two BAT ports are connected to different battery systems, connect the communication cables from the battery systems to the inverter's BMS1 and BMS2 ports, respectively.



5.4.2 Battery System Cluster Communications

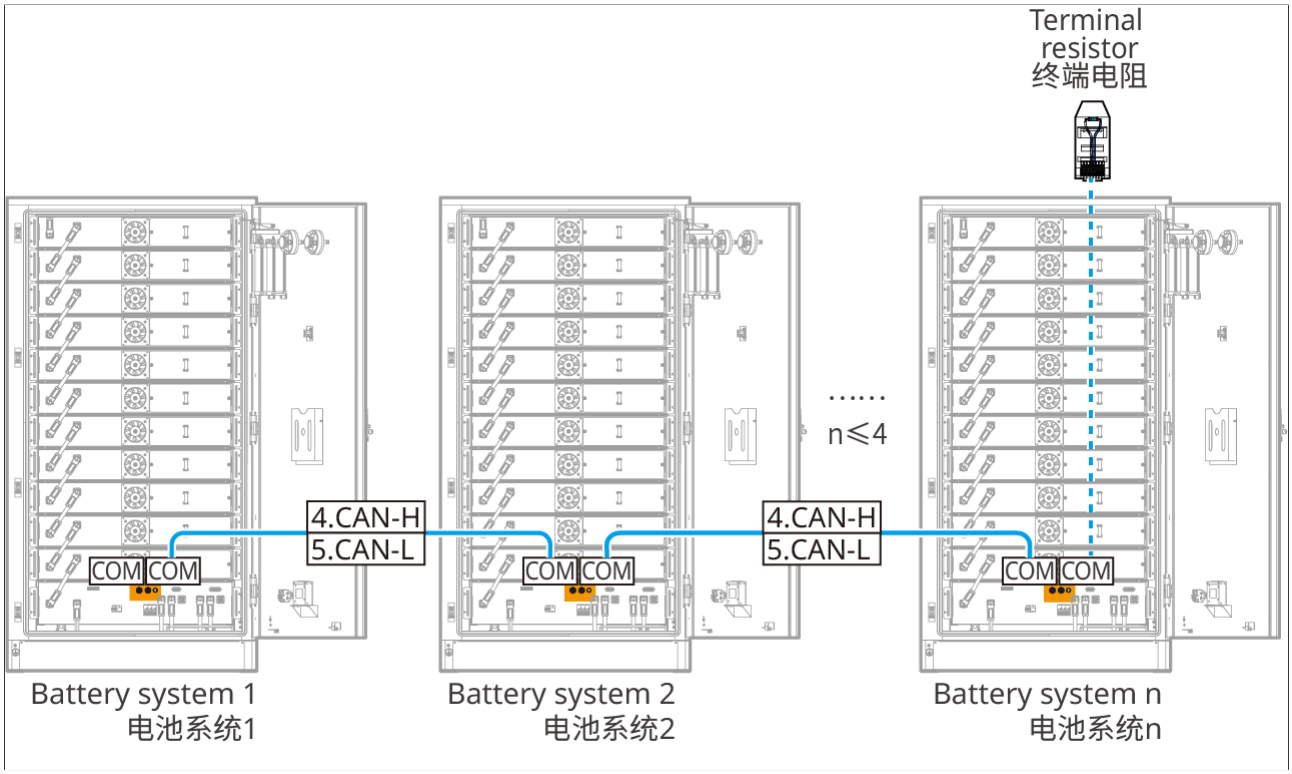
NOTE

- The external communication ports of the battery system are factory-fitted with terminating resistors. Remove a terminating resistor before connecting a communication cable. Keep the terminating resistors in ports that are not connected to communication cables.
- When battery systems are connected in parallel, keep the terminating resistor in the COM port of the battery system farthest from the inverter to improve communication quality.
- When battery systems are connected in parallel, ensure that the distance from the battery system farthest from the inverter to the inverter does not exceed 50 m.
- The battery system supports a maximum of four parallel clusters.

Parallel Communication Port Definitions

Port	Definition	Description
1-3，6-8	-	-
4	CAN_H	Parallel CAN Bus
5	CAN_L	

Wiring Overview



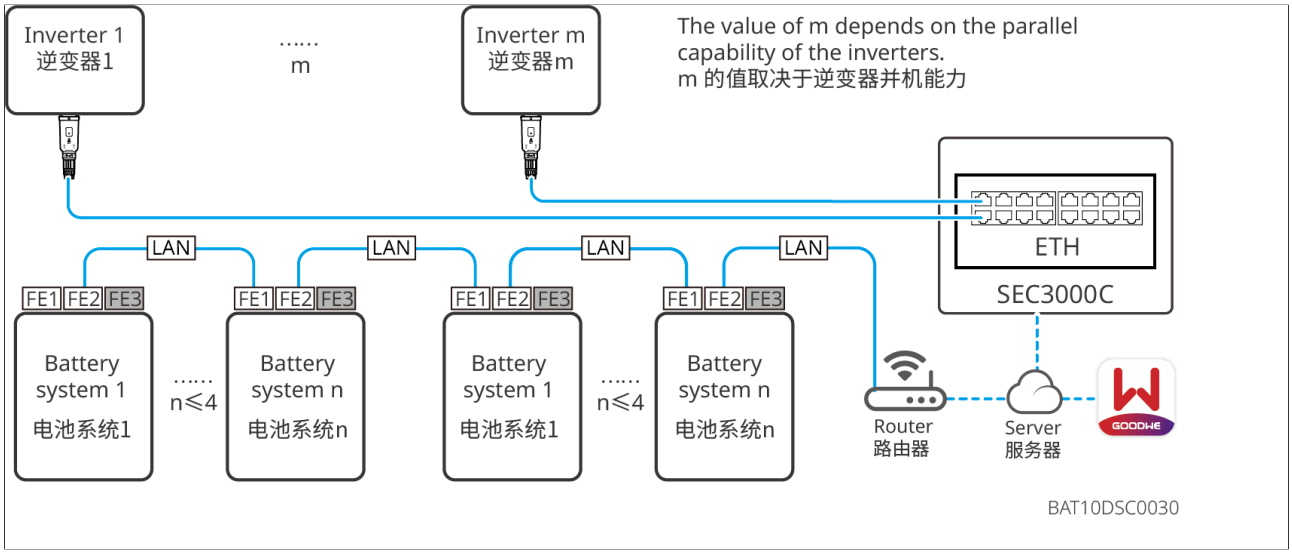
5.4.3 Cloud Board Communications

NOTE

1. This function is available only on battery systems that support cloud board communications (only battery systems shipped in or after October 2025 support cloud board communications).
2. For cloud board communications, use shielded CAT 5E or higher Ethernet cable with RJ45 plugs, wired to the EIA/TIA 568B standard. The cable length must be no more than 100 m.
3. Cloud board communication can connect to a router or SEC3000C to transmit battery information to the monitoring system.
   - When connecting to the SEC3000C, ensure that the cloud board firmware is version 01 or later and the SEC3000C is version 06 or later.
     The cloud board firmware version can be determined from the device production date, which is encoded in the device SN. For details, see11.2.Battery SN Code Description(Page 84):
     - Produced before June 2026 → Version 00
     - Produced after June 2026 → Version 01
   - When connecting to a router, only ports FE1 and FE2 are supported.

Communication between battery cloud boards can transmit cell-level information and supports parallel connection of up to m×n battery systems.

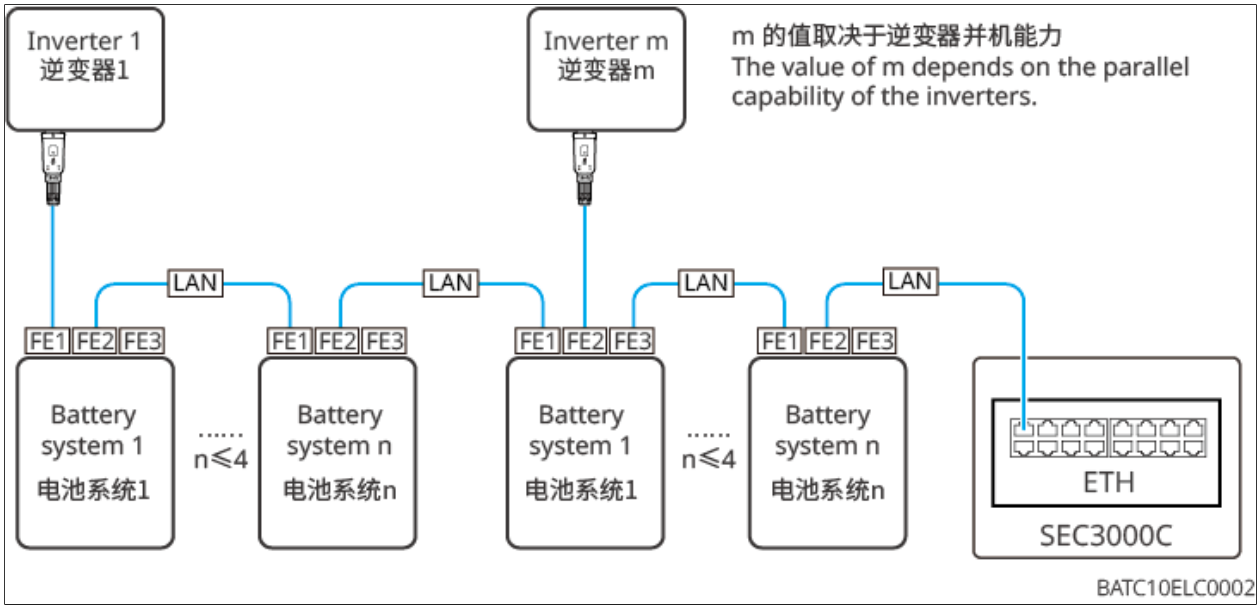
Connect to Router



Connect to SEC3000C

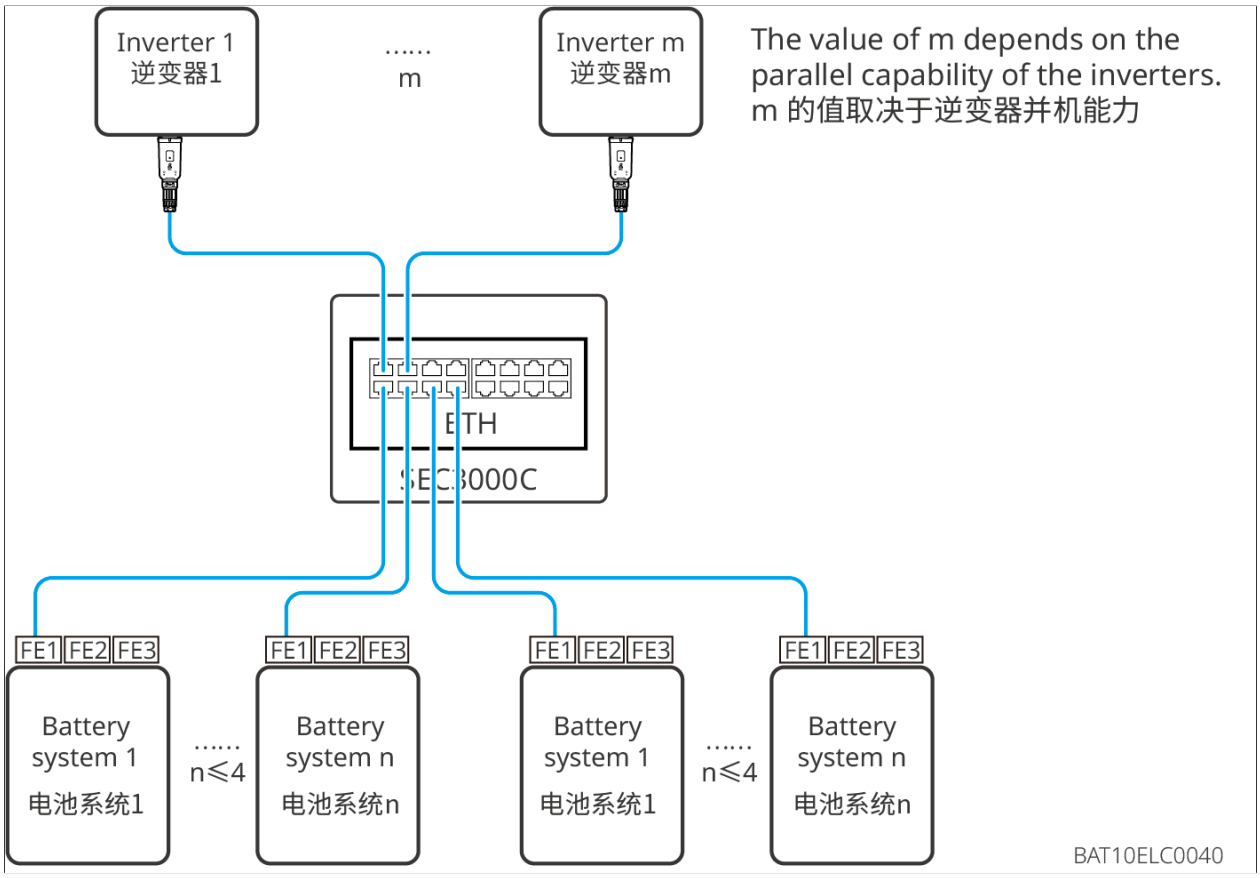
For actual wiring, select a suitable network topology based on the number of inverters and battery systems, the distances between devices, and the number of available ports on the internal switch of the SEC3000C.

- Daisy-chain connection: Suitable for scenarios with many devices, insufficient switch ports, or long distances between devices.



- Star connection: Suitable for scenarios with few devices and sufficient switch ports;

connect the inverters and battery systems to the switch separately.



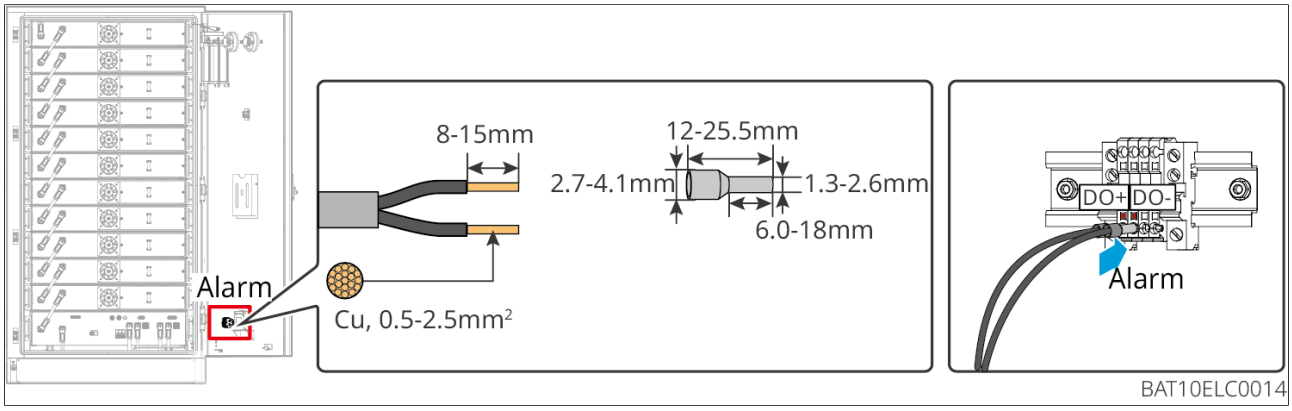
5.5 Connect the Signal Cables

NOTE

- The fire suppression activation signal port of the battery system is a passive dry-contact digital output (DO), normally closed (NC), for connection to an external audible and visual alarm. The port does not provide power; the external audible and visual alarm circuit must be powered by an external source.
- Electrical Limits for the External Circuit:
  - Voltage: 0–24 Vdc
  - Current: 0.3 A

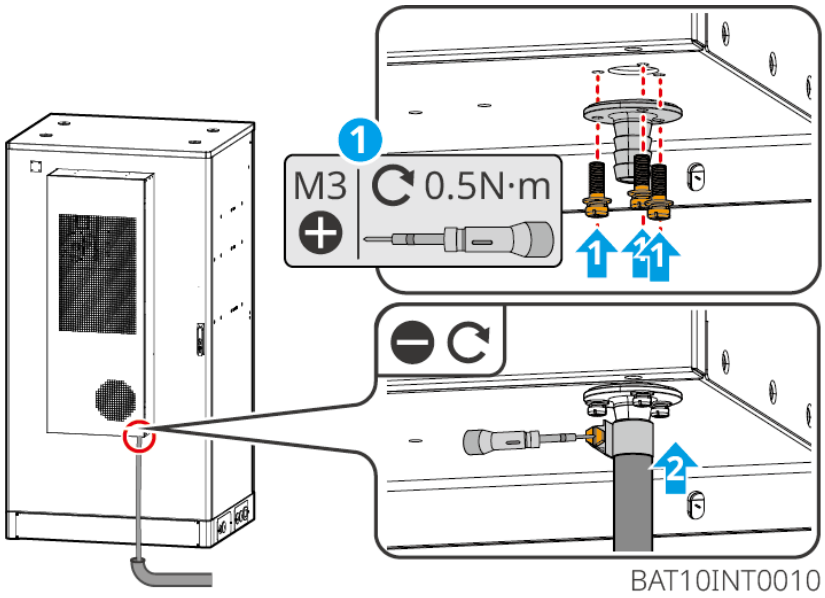
1. Prepare the cables and terminals.

2. Prepare the cable.
3. Connect the cable to the fire suppression activation signal port.

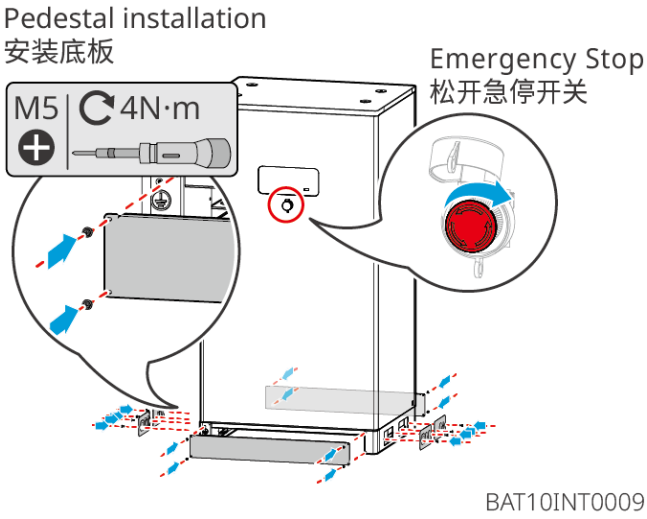


5.6 Post-Wiring Operations

1. Install the air conditioner drain hose connector, then secure the air conditioner drain hose to the connector.



2. Install the bottom baffle and release the EPO switch.

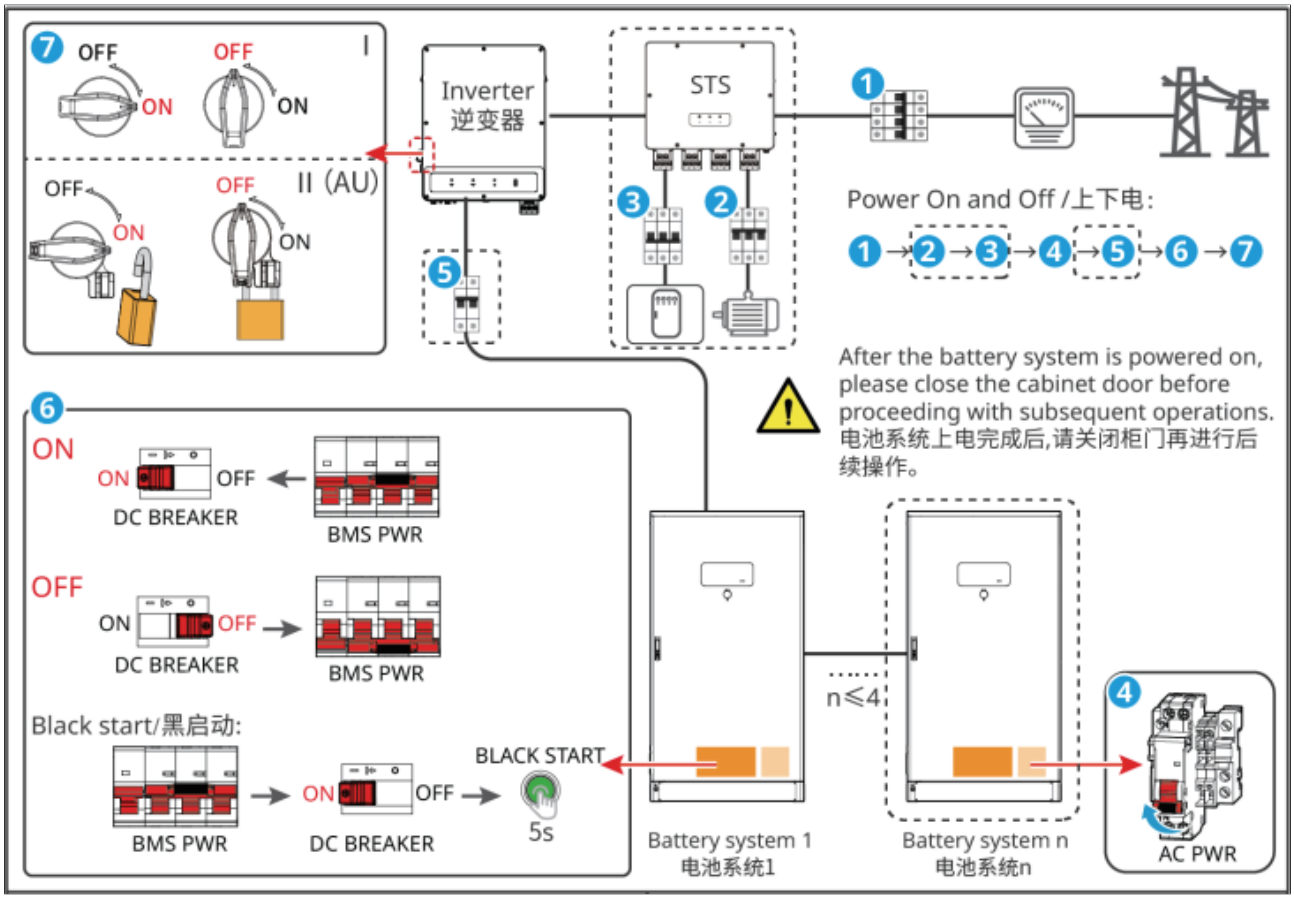

Pedestal installation
安装底板
M5
4N·m
Emergency Stop
松开急停开关
BAT10INT0009

6 System Commissioning

6.1 Pre-Energization Inspection

No.	Inspection item
1	The equipment is securely installed. The installation location allows easy operation and maintenance, the installation space provides adequate ventilation and heat dissipation, and the installation environment is clean and tidy.
2	The Protection ground wire, power cables, communication cables, and terminating resistors are connected correctly and securely.
3	The cables are bundled in accordance with routing requirements, are arranged properly, and are undamaged.
4	All cut cable-routing openings have been sealed with firestop putty.

6.2 Energize the Equipment



1. Close the AC main switch.
2. (Optional) Close the circuit breaker for the STS SMART PORT.
3. (Optional) Close the circuit breaker for the STS BACK UP port.
4. Close the air conditioner switch.
5. (Optional) Close the DC circuit breaker between the inverter and battery system.
6. Power on the battery system: Set the DC BREAKER and BMS PWR switches to ON.
7. Turn the inverter DC Switch to the ON position.

7 System Commissioning and Power Plant Monitoring

7.1 Commissioning via SEC3000C

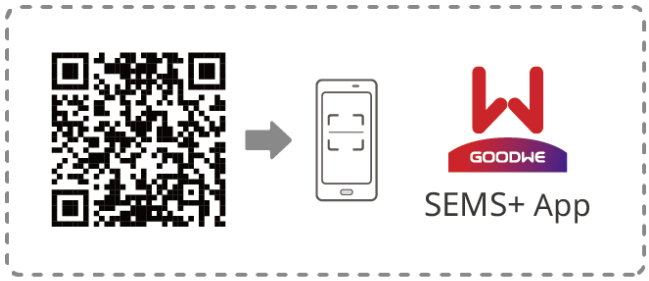
The SEC3000C Smart Energy Control Cabinet is a dedicated device for the monitoring and management platform of PV power generation systems. It collects data from devices in PV power generation systems, such as grid-tied inverters, energy storage inverters, and energy meters, stores logs, and sends the data to the monitoring and management platform, enabling centralized monitoring, operation, and maintenance of PV systems.
For details about the functions, see the 《SEC3000C User Manual》。

7.2 Monitoring Power Plants via SEMS+

SEMS+ is a monitoring platform that communicates with devices via Wi-Fi, LAN, or 4G. The following are some commonly used SEMS+ functions:

1. Manage organizations, user information, and more.
2. Add and monitor power plant information, and more.
3. Maintain devices.

Scan the QR code below to download and install the app.



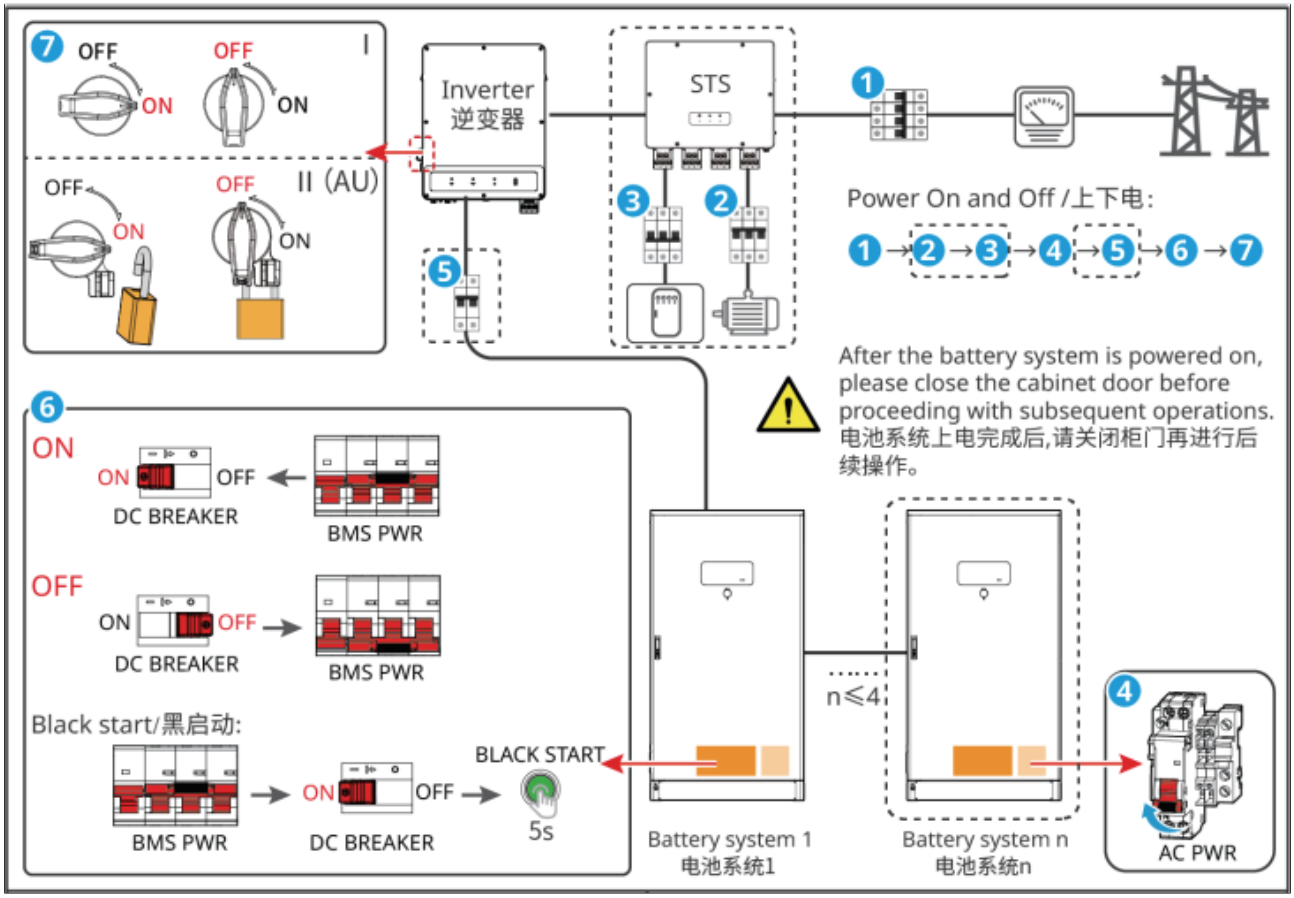
SEMS0164

For details about the functions, see the 《SEMS+ User Manual》. The user manual is available from the official website or by scanning the QR code below.



8 System Maintenance

8.1 De-Energize the Equipment



1. Turn the inverter's DC Switch to the OFF position.
2. Powering Off the Battery System: Set the DC BREAKER and BMS PWR switch levers to the OFF position.
3. (Optional) Open the DC circuit breaker between the inverter and the battery system.
4. Turn off the air conditioner switch.
5. (Optional) Open the circuit breaker for the STS BACK UP port.
6. (Optional) Open the circuit breaker for the STS SMART PORT port.
7. Open the main AC-side switch.

8.2 Periodic Maintenance

⚠WARNING

- If you find any issue that may affect the battery or system, contact after-sales service. Do not disassemble the equipment yourself.
- If copper strands inside a conductive wire are exposed, do not touch them-high-voltage hazard. Contact after-sales service. Do not disassemble the equipment yourself.
- In the event of any other emergency, contact after-sales service immediately. Perform operations under their guidance, or wait for after-sales personnel to perform them on site.

Refer to the 《BAT-C 61.4–112.6 kWh Commercial and Industrial Battery System Maintenance Manual》。

8.3 Troubleshooting

No.	Fault Name	Possible Cause	Troubleshooting
1	Charging Overvoltage2	• Cell voltage/total voltage too high • Voltage sensing cable fault	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.
2	Charging Overvoltage3	• Cell voltage/total voltage too high • Voltage sensing cable fault	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.

No.	Fault Name	Possible Cause	Troubleshooting
3	Discharge Undervoltage3	• Cell voltage/total voltage too low • Voltage sensing cable fault	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists. 2. Check the inverter's operating status and determine whether it is not charging the battery due to its operating mode or other factors. Try charging the battery through the inverter and check whether the fault clears. 3. If the fault persists, contact GoodWe after-sales service.
4	Discharge Undervoltage2	• Cell voltage/total voltage too low • Voltage sensing cable fault	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists. 2. Check the inverter's operating status and determine whether it is not charging the battery due to its operating mode or other factors. Try charging the battery through the inverter and check whether the fault clears. 3. If the fault persists, contact GoodWe after-sales service.

No.	Fault Name	Possible Cause	Troubleshooting
5	Cell Overvoltage2	• Cell voltage/total voltage too high • Voltage sensing cable fault	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.
6	Cell Undervoltage2	Cell undervoltage	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists. 2. Check the inverter's operating status and determine whether it is not charging the battery due to its operating mode or other factors. Try charging the battery through the inverter and check whether the fault clears. 3. If the fault persists, contact GoodWe after-sales service.
7	Significant Cell Voltage Variation2	Significant Cell Voltage Variation	1. Restart the battery and wait 12 hours. 2. If the fault persists, contact GoodWe after-sales service.

No.	Fault Name	Possible Cause	Troubleshooting
8	Charging Overcurrent 2	• Charging Current is too high; battery current limiting is abnormal: sudden changes in temperature and voltage values • Inverter response abnormal	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists. 2. Check whether the inverter power setting is too high, causing the battery's rated operating current to be exceeded; 3. If the fault persists, contact GoodWe after-sales service.
9	Discharging Overcurrent 2	• Discharge current is too high; battery current limiting is abnormal: sudden changes in temperature and SOC values • Inverter response abnormal	
10	Battery Cell Overtemperature 2	• Cell temperature too high • Temperature sensor abnormal	1. Leave the system idle and powered off for 30 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.

No.	Fault Name	Possible Cause	Troubleshooting
11	Battery Cell Low Temperature2	• Ambient temperature too low • Temperature sensor abnormal	1. Leave the system idle and powered off for 30 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.
12	Charging Overtemperature2	• Cell temperature too high • Temperature sensor abnormal	1. Leave the system idle and powered off for 30 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.
13	Charging Low Temperature2	• Ambient temperature too low • Temperature sensor abnormal	1. Leave the system idle and powered off for 30 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.
14	Discharging Overtemperature 2	• Cell temperature too high • Temperature sensor abnormal	1. Leave the system idle and powered off for 30 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.

No.	Fault Name	Possible Cause	Troubleshooting
15	Discharging Low Temperature 2	• Ambient temperature too low • Temperature sensor abnormal	1. Leave the system idle and powered off for 30 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.
16	Significant Cell Temperature Variation2	Significant cell temperature variation	1. Leave the system idle and powered off for 30 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.
17	Precharge Disabled	Precharge MOSFET failed to close	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists. 2. If the fault persists, contact GoodWe after-sales service.
18	Battery Tripping	Battery Trip	1. Leave idle for 10 minutes, then close the circuit breaker again to restore operation. 2. If the fault persists, contact GoodWe after-sales service.

No.	Fault Name	Possible Cause	Troubleshooting
19	Battery and Inverter Comm Failure	Battery and Inverter Comm Failure	1. Confirm that the communication cable wiring sequence and DC cables are correct, and verify continuity. 2. Restart the inverter and battery. 3. If the fault persists, contact GoodWe after-sales service.
20	Specific Failures	Battery Specific Failures	Please contact the after-sales service center.
21	Battery Cluster Parallel Connection Fault	• Battery Cluster Communication Loss • Battery Cluster Parallel Connection Failure	1. Check the reliability of the communication connections in the master-slave wiring harness. 2. Please contact the after-sales service center.
22	Application Software Failure	Software Self-Test Failure	Please contact the after-sales service center.
23	Microelectronics Failure	Electronic Component Failure	Please contact the after-sales service center.
24	Master Control Overload	Exceeds the current-carrying capacity of the power cable	Stop charging. If charging does not resume automatically, contact a qualified technician to restart the system.

No.	Fault Name	Possible Cause	Troubleshooting
25	SN Abnormality	Batteries with duplicate serial numbers (SNs) detected	Please contact the after-sales service center.
26	Circuit Breaker Abnormality	Molded-case circuit breaker tripped unexpectedly	Replace the molded-case circuit breaker.
27	Circuit Breaker Contact Welding Fault	Molded-case circuit breaker or auxiliary circuit breaker fault	Replace the molded-case circuit breaker or auxiliary circuit breaker.
28	Fire Protection System Triggered	Internal thermal runaway or false triggering of the fire protection system	Please contact the after-sales service center.
29	Air Conditioner Fault	An abnormal fault has occurred in the air conditioning system	Please contact the after-sales service center.
30	Access Control Fault	The door was opened unexpectedly or the access control sensor is damaged	Close the door or replace the access control sensor.
31	EPO Triggered	EPO pressed or EPO button damaged	Replace the EPO button.
32	PACK fan fault	PACK fan is stalled or not operating	Replace the corresponding PACK fan.

8.4 Equipment Removal

⚠DANGER

- Before removal, make sure the equipment is de-energized.
- Wear personal protective equipment when operating the equipment.
- Use proper removal tools when disconnecting the terminals to avoid damaging the terminals or equipment.
- Unless otherwise specified, the equipment removal procedure is the reverse of the installation procedure and is not described further in this document.

1. De-energize the system.
2. Label the cables connected to the system to identify their types.
3. Disconnect the cables connected to the inverter, battery, and smart meter in the system, such as DC cables, AC cables, communication cables, and Protection grounding cables.
4. Remove the smart communication dongle, inverter, battery, smart meter, and other equipment.
5. Store the equipment properly. If it will be used again, ensure that the storage conditions meet the requirements.

8.5 Equipment Disposal

When equipment can no longer be used and must be decommissioned, dispose of it in accordance with the electrical waste disposal regulations of the country/region where it is located. Do not dispose of the equipment as household waste.

9 Technical Data

Technical Data	GW61.4-BAT-AC-G10	GW92.1-BAT-AC-G10	GW102.4-BAT-AC-G10	GW112.6-BAT-AC-G10
Battery System				
Cell Type	LFP ($LiFePO_4$)			
Cell Capacity (Ah)	100			
Rated Capacity (Ah)	200			
Pack Type/model	GW10.2-PACK-ACI-G10			
Pack Nominal Energy (kWh)	10.24			
Pack Configuration	2P96S	2P144S	2P160S	2P176S
Pack Weight（kg）	< 90			
Number of Packs	6	9	10	11
Nominal Energy (kWh)	61.4	92.1	102.4	112.6
Usable Energy (kWh) *1	60	90	100	110
Nominal Voltage (V)	307.2	460.8	512	563.2
Operating Voltage Range (V)	275.52~346.56	413.28~519.84	459.2~577.6	505.12~635.36

Technical Data	GW61.4-BAT-AC-G10	GW92.1-BAT-AC-G10	GW102.4-BAT-AC-G10	GW112.6-BAT-AC-G10
Charging Operating Temperature Range（℃）	-20~+55			
Discharging Operating Temperature Range（℃）	-20~+55			
Max. Charge/ Disharge Current (A) *2	180/220			
Rated Charge/ Discharge Current (A) *2	100/100			
Max. Charge/ Discharge Rate *2	0.9C/1.1C			
Max. Charge/ Discharge power (kW) *2	55.2/67.5	82.9/101.3	92.1/112.6	101.3/123.9
Rated Charge/ Discharge power (kW) *2	30.7	46.0	51.2	56.3
Cycle Life*3	≥6000 times until 70% SOH under 25±2°C.0.5C and 100% DOD			
Depth of Discharge	100%			
Efficiency				
Round-trip Efficiency*3	96%@100%DOD, 0.2C, 25±2℃			
General Data				

Technical Data	GW61.4-BAT-AC-G10	GW92.1-BAT-AC-G10	GW102.4-BAT-AC-G10	GW112.6-BAT-AC-G10
Operating Temperature Range (℃)	-20~+55			
Storage Temperature (℃)	+35~+45 (<6 Months); -20~+35 (<1)			
Relative Humidity	0 ~ 100%（Condensationless）			
Max. Operating Altitude (m)	4000			
Cooling Method	Air Conditioner			
User Interface	LED			
Communication	CAN (RS485 Optional)			
Weight (kg)	< 950	< 1220	< 1310	< 1400
Dimension (W×H×Dmm)	1055*2000*1055			
Noise Emission (dB)	≤70			
Ingress Protection Rating	IP55	IP55	IP55	IP55
Anti-corrosion Class	C4（C5-M Optional）			
Fire safety equipment*4	Aerosol (Pack&Cabinet Level)			
Certification *5				
Safety Regulation	IEC62619/IEC63056/IEC60730/IEC62477/VDE2510/ISO13849 IEC62040/N140/EU 2023/1542/UN38.3			
EMC	IEC/EN61000-6-1/2/3/4			

Technical Data	GW61.4-BAT-AC-G10	GW92.1-BAT-AC-G10	GW102.4-BAT-AC-G10	GW112.6-BAT-AC-G10

Note:

1. Test conditions, 100% DOD, 0.2C charge & discharge at +25±2 °C for battery system at beginning life. System Usable Energy may vary with system configuration.
2. Actual Dis-/Charge Current and power derating will occur related to Cell Temperature and SOC. And, Max C-rate continuous time is affected by SOC, Cell Temperature, Atmosphere environment temperature. Rated Charge/ Disharge Current & Rated Charge/ Discharge power only for Australia.
3. For Australian DOD is 98%.
4. Aerosol (Cabinet Level) before May 30th, Aerosol (Pack&Cabinet Level) after May 30th.
5. Not all certifications & standards listed, check the official website for detail.

10 Appendix

10.1 Glossary

- **Overvoltage Category Definitions**
  - **Overvoltage Category I**: Equipment connected to circuits with measures that limit transient overvoltages to a relatively low level.
  - **Overvoltage Category II**: Energy-consuming equipment supplied by fixed electrical installations. This category includes appliances, portable tools, and other household and similar loads. Overvoltage Category III applies when special requirements for the reliability and suitability of such equipment must be met.
  - **Overvoltage Category III**: Equipment in fixed electrical installations, for which special requirements for reliability and suitability must be met. This includes switching devices in fixed electrical installations and industrial equipment permanently connected to fixed electrical installations.
  - **Overvoltage Category IV**: Equipment used at the power supply of an electrical installation, including measuring instruments and upstream overcurrent Protection devices.
- **Definitions of Humid Location Categories**

Environmental Parameter	Class		
	3K3	4K2	4K4H
Temperature Range	0~+40℃	-33~+40℃	-33~+40℃
Humidity Range	5% to 85%	15% to 100%	4% to 100%

- **Environmental Category Definitions:**
  - **Outdoor inverter**: Ambient air temperature range: -25 to +60°C; suitable for environments with Pollution Degree 3;
  - **Indoor Type II inverter**: Ambient air temperature range: -25 to +40°C; suitable for environments with Pollution Degree 3;
  - **Indoor Type I inverter**: Ambient air temperature range: 0 to +40°C; suitable for environments with Pollution Degree 2;
- **Pollution Degree Category Definitions**
  - **Pollution Degree 1**: No pollution or only dry, non-conductive pollution;
  - **Pollution Degree 2**: Normally, only non-conductive pollution occurs; however,

occasional temporary conductivity caused by condensation must be expected;
- **Pollution Degree 3**: Conductive pollution is present, or non-conductive pollution becomes conductive due to condensation;
- **Pollution Degree 4**: Persistent conductive pollution, such as pollution caused by conductive dust, rain, or snow.

10.2 Battery SN Code Description



Digits 11–14 of the product SN code indicate the production date. Example:**2388** corresponds to the production date **2023-08-08**

- **Digits 11 and 12: Production Year (Last Two Digits)**

  For example: 23 indicates 2023

- **Position 13: Production Month**

Month	January–September	October	November	December
Code	1~9	A	B	C

- **Position 14: Production Day**

  Use numbers where possible; use letter codes for the 10th day onward. Do not use the letters I or O to avoid confusion during identification.

Date	1	2	3	4	5	6	7	8	9
Code	1	2	3	4	5	6	7	8	9

Date	10	11	12	13	14	15	16	17	18	19	20
Code	A	B	C	D	E	F	G	H	J	K	L

Date	21	22	23	24	25	26	27	28	29	30	31
Code	M	N	P	Q	R	S	T	U	V	W	X

11 Contact Details

GoodWe Technologies Co., Ltd.
No. 90 Zijin Rd., New District, Suzhou, China
en.goodwe.com
service@goodwe.com