V2.6 2026-10-16

Commercial and Industrial Smart Inverter Solutions

ET Series (25-50kW)

· Lynx C Series Commercial and Industrial Battery (101-156kWh)
· BAT Series High-Voltage Battery (25.6-56.3kWh)
· BAT Series Commercial and Industrial Battery System (92.1-112.6kWh)

Solutions Manual

GOODWE

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Preface

Overview

This document mainly describes product information, installation and wiring, configuration and commissioning, troubleshooting, and maintenance for an energy storage system comprising an inverter, battery system, and smart meter. Before installing or using the product, carefully read this manual to understand the product safety information and become familiar with its functions and features. This document may be updated periodically. Please visit the official website for the latest documentation and more product information.

Applicable Products

This manual applies to the following products. Select the specific configuration based on the actual application scenario.

Product Type	Product Information	Description
Inverter	ET 25-50kW	Rated output power: 25 kW to 50 kW.
Static Transfer Switch Cabinet	STS200-80-10	Rated Apparent Power is 50 kW.
Battery System	Lynx C Series 101–156 Kwh High-Voltage Battery	Energy storage capacity per cluster: 101.38 kWh to 156.67 kWh. Maximum energy storage capacity with parallel clusters: 468 kWh. *This series of battery systems is compatible with ET40–50 kW inverters only when the BMS version is 25600 or later (the date in the SN code is June 1, 2024 or later). For the meaning of the SN code, see12.4.Battery SN Code Definition(Page 316) 。

Product Type	Product Information	Description
	BAT Series 25.6–56.3 Kwh High-Voltage Battery	Energy storage capacity per cluster: 25.6/30.7/35.8/40.9/46.0/ 51.2/56.3 kWh。 Maximum energy storage capacity with parallel clusters: 153.6/184.2/214.8/245.4/276.0/307.2/337.8 kWh.
	BAT Series 92.1–112.6 Kwh C&I Battery System	Energy storage capacity per cluster92.1/102.4/112.6 kWh。 Maximum energy storage capacity with parallel clusters368.4/409.6/450.4 kWh。
Smart Meter	GM330	The monitoring module in the smart meter energy storage system can detect operating voltage, current, and other system information.
Smart Energy Control Box	SEC3000C	If energy storage inverters are to operate in parallel or form a hybrid system with grid-tied inverters, the SEC3000C can be used. When using the SEC3000C for parallel operation, a maximum of 10 energy storage inverters can be connected in parallel.
Smart Communication Stick	WiFi/LAN Kit-20	For standalone inverter applications and parallel operation using the SEC3000C, system operating information can be uploaded to the monitoring platform via Wi-Fi or LAN.
	4G Kit-CN (China only)	For standalone inverter applications. System operating information can be uploaded to the monitoring platform via 4G.
	4G Kit-CN-G21 (China only)	For standalone inverter applications. System operating information can be uploaded to the monitoring platform via 4G; Bluetooth can be used for local device commissioning.

Symbol Definitions

⚠DANGER
Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

⚠WARNING
Indicates a moderate potential hazard that, if not avoided, could result in death or serious injury.

⚠CAUTION
Indicates a low potential hazard that, if not avoided, could result in moderate or minor injury.

NOTICE
Emphasizes or supplements information 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 12
1.1 General Safety 12
1.2 Personnel Requirements 15
1.3 System Safety 16
1.3.1 PV String Safety 16
1.3.2 Inverter Safety 17
1.3.3 Battery Safety 18
1.3.4 Meter Safety 21
1.4 Safety Symbols and Certification Marks 21
1.5 European Declaration of Conformity 23
1.5.1 Equipment with Wireless Communication Functionality 23
1.5.2 Devices Without Wireless Communication Functionality (Excluding Batteries) 24
1.5.3 Batteries 24
2 System Overview 26
2.1 System Overview 26
2.2 Product Overview 31
2.2.1 Inverter 31
2.2.2 STS 34
2.2.3 Batteries 35
2.2.3.1 Lynx C Series 101–156 Kwh High-Voltage Battery 35

2.2.3.2 BAT Series 25.6–56.3 Kwh High-Voltage Battery 36
2.2.3.3 BAT Series 92.1–112.6 Kwh C&I Battery System 40
2.2.4 Smart Meter 50
2.2.5 Smart Communication Stick 51
2.3 Supported Grid Configurations 52
2.4 System Modes 52
2.5 Features 62
3 Device Inspection and Storage 64
3.1 Device Inspection 64
3.2 Contents of Delivery 64
3.2.1 Inverter Package Contents (ET 25–50 Kw) 64
3.2.2 STS Delivery Package 67
3.2.3 Lynx C Series 101–156 Kwh High-Voltage Battery 68
3.2.4 BAT Series 25.6–56.3 Kwh High-Voltage Battery 71
3.2.5 BAT Series 92.1–112.6 Kwh C&I Battery System 75
3.2.6 Smart Meter Package Contents (GM330) 77
3.2.7 Communication Module Package Contents 77
3.3 Equipment Storage 78
4 Installation 81
4.1 System Installation and Commissioning Process 81
4.2 Installation Requirements 82
4.2.1 Installation Environment Requirements 82

4.2.2 Installation Space Requirements 84
4.2.3 Foundation Requirements 85
4.2.4 Tool Requirements 87
4.2.5 Handling Requirements 89
4.3 Installing the Battery System 92
4.3.1 Opening the Cabinet Door 92
4.3.2 Installing the Lynx C Series 101–156 Kwh High-Voltage Battery 93
4.3.3 Installing BAT Series 25.6–56.3 Kwh High-Voltage Batteries 94
4.3.4 Installation of the BAT Series 92.1–112.6 Kwh C&I Battery System 98
4.4 Installing the Inverter 100
4.5 Installing the STS 104
4.6 Install the Energy Meter 105
5 System Wiring 106
5.1 System Wiring Schematic 107
5.2 Detailed System Wiring Diagram 109
5.2.1 Single-Unit Application 110
5.2.1.1 Single Inverter, Without off-Grid Capability 110
5.2.1.2 Single Inverter, with off-Grid Capability 111
5.2.2 Parallel Application 112
5.2.2.1 Multiple Inverters, Without off-Grid Capability 112
5.2.2.2 Multiple Inverters, off-Grid Parallel Operation 113
5.2.2.3 Multiple Inverters, No off-Grid Parallel Operation 115

5.3 Materials Required 117
5.3.1 Switch Preparation 117
5.3.2 Cable Preparation 118
5.3.3 Combiner Box Preparation 125
5.4 Connect the Protective Earth Conductor 126
5.5 Connecting the PV Cables 128
5.6 Connecting the Battery Cables 129
5.6.1 Lynx C Series 101–156 Kwh High-Voltage Battery 131
5.6.1.1 Connecting the Power Cables Between the Inverter and Battery 131
5.6.1.2 Connecting the Internal Power Busbars of the Battery System 133
5.6.1.3 Connecting the Communication Cable 134
5.6.1.4 (Optional) Connecting the AC Power Cable for the Lynx C Series 101–156 Kwh High-Voltage Battery 136
5.6.2 BAT Series 25.6–56.3 Kwh High-Voltage Battery 137
5.6.2.1 Connecting the Power Cables Between the Inverter and Battery 137
5.6.2.2 Connecting the Power Cables Between Batteries 139
5.6.2.3 Connecting the Communication Cable 140
5.6.3 BAT Series 92.1–112.6 Kwh C&I Battery System 142
5.6.3.1 Battery Cable Entry Holes and System Wiring Overview 142
5.6.3.2 Connecting the Power Cables Between the Inverter and Battery, and Between Batteries 143
5.6.3.3 Connecting the Communication Cable 145
5.6.3.4 Connecting the Battery Air Conditioner Cable 148
5.6.3.5 Reinstall the Base Plate and Release the EPO Switch 149

5.7 Connecting the AC Cables 149
5.7.1 Connecting the Inverter AC Cable 149
5.7.2 (Optional) Connecting the STS AC Cable 151
5.8 Connecting the Power Meter Cables 154
5.9 Connecting the Inverter Communication Cable 155
6 System Commissioning 161
6.1 Pre-Energization System Checks 161
6.2 Powering on the System 161
6.2.1 Single Inverter, Without off-Grid Capability 162
6.2.2 Single Inverter, with off-Grid Capability 163
6.2.3 Multiple Inverters, Without off-Grid Capability 164
6.2.4 Multiple Inverters, No off-Grid Parallel Operation 165
6.2.5 Multiple Inverters, off-Grid Parallel Operation 166
6.3 Indicator Description 167
6.3.1 Inverter Indicators 168
6.3.2 STS Indicator 169
6.3.3 Battery Indicator 170
6.3.4 GM330 172
6.3.5 Smart Communication Stick Indicator 172
6.4 Close the Cabinet Door 176
7 System Commissioning 178
7.1 Set Inverter Parameters Using the App 178

7.2 Commissioning Devices via the SEC3000C Embedded Web Interface 178
8 Monitor the PV Plant via SEMS+ 180
9 System Maintenance 181
9.1 Powering off the System 181
9.1.1 Single Inverter, Without off-Grid Capability 181
9.1.2 Single Inverter, with off-Grid Capability 182
9.1.3 Multiple Inverters, Without off-Grid Capability 183
9.1.4 Multiple Inverters, No off-Grid Parallel Operation 184
9.1.5 Multiple Inverters, off-Grid Parallel Operation 185
9.2 Removing the Equipment 186
9.2.1 Removing the Inverter 187
9.2.2 Removing the Lynx C Series 101–156 Kwh High-Voltage Battery 187
9.2.3 Removing the BAT Series 25.6–56.3 Kwh High-Voltage Battery 187
9.2.4 Removing the BAT Series 92.1–112.6 Kwh Commercial and Industrial Battery System 188
9.3 Equipment Disposal 189
9.4 Periodic Maintenance 189
9.5 Fault 190
9.5.1 Fault Information and Troubleshooting 191
9.5.1.1 System Communication Fault 193
9.5.1.2 Inverter Fault 195
9.5.1.3 Battery Fault 264

9.5.1.4 View Fault/Alarm Details 282
10 Technical Specifications 283
10.1 Inverter Technical Data 283
10.2 STS Technical Data 292
10.3 Battery Technical Specifications 295
10.3.1 Lynx C Series 101-156kWh High Voltage Battery 295
10.3.2 BAT Series 25.6-56.3kWh High Voltage Battery 299
10.3.3 BAT Series 92.1-112.6kWh C&I Battery System 303
10.4 Smart Meter Technical Specifications 306
10.5 Smart Dongle Technical Data 308
11 Appendix 311
11.1 FAQ 311
11.1.1 How to Perform Meter/CT Auxiliary Detection? 311
11.1.2 How to Upgrade the Device Firmware 311
11.2 Abbreviation 312
11.3 Glossary 315
11.4 Battery SN Code Definition 316

1 Safety Precautions

Always observe the safety precautions in this document when operating the equipment.

⚠WARNING

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

1.1 General Safety

⚠DANGER

- Before making electrical connections, open all upstream switches and ensure that the equipment is de-energized. Live working is strictly prohibited; otherwise, electric shock or other hazards may occur.
- For equipment that supports PV string connections, the PV input has a low withstand capability against inrush current. Never energize the equipment by directly connecting a DC voltage source to the PV port. If energizing via the PV port is required, follow the steps below. Damage to the machine resulting from non-compliance is considered user-caused damage and is not covered by the product warranty.
  1. First, limit the DC voltage source output current to within the maximum input current range permitted at the PV port
  2. Then close the inverter's DC Switch
  3. Finally, slowly increase the DC source output voltage from 0 to the target value at a rate of ≤50 V/s
- To prevent personal injury or equipment damage caused by live working, install a circuit breaker on the equipment's voltage input side.
- All operations, including transportation, storage, installation, operation, use, and maintenance, must comply with applicable laws, regulations, standards, and specifications.

⚠DANGER

- 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 device to connect its cables. If connectors of other models are used, the device manufacturer will not be liable for any resulting damage to the device.
- Ensure that all cables on the device are connected correctly and securely, with no loose connections. Improper wiring may result in poor contact or damage to the device.
- The device's protective earth cable must be securely connected.
- To protect the device and its components from damage during transportation, ensure that transport personnel are professionally trained. Record the operating steps during transportation, keep the device balanced, and prevent it from falling.
- The device is heavy. Assign an appropriate number of personnel based on the device Weight to prevent the load from exceeding the safe lifting capacity and causing injury.
- Ensure that the device is placed securely and is not tilted. If the device tips over, it may be damaged and cause personal injury.

⚠WARNING

- Do not allow the wiring terminals to bear any load during device installation, as this may damage the terminals.
- Avoid applying excessive tension to cables, as this may result in poor connections. Leave an appropriate length of cable when wiring to ensure that the cables are not 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. In the event of 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 twist or cross cables with one another.
- Using cables in high-temperature environments may cause their insulation to age or become damaged. Maintain a clearance of at least 30 mm between cables and heating components or the perimeter of heat source areas.

NOTICE

- This document is updated periodically due to product version upgrades or other reasons. Unless otherwise agreed, the content of this document does not replace the safety precautions on product labels. All descriptions in this document are provided for guidance only.
- Read this document carefully before installing the equipment to learn about the product and the precautions.
- All work on the equipment must be performed by qualified electrical technicians who are familiar with the applicable 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 anti-static gloves, an anti-static wrist strap, anti-static clothing, and other protective equipment to prevent electrostatic discharge damage to the equipment.
- Unauthorized disassembly or modification may damage the equipment; such damage is not covered by the warranty.
- The device manufacturer is not liable for device damage or personal injury caused by installing, using, or configuring the device in a manner that does not comply with this document or the corresponding user manual. For more information about the product warranty, visit the official website:https://www.goodwe.com/warrantyrelated.html。

1.2 Personnel Requirements

NOTICE

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

1. Qualified or trained personnel include:
   - Personnel who understand the equipment's operating principles and system structure, are familiar with related risks and hazards, and have received professional operation training or have extensive practical experience.
   - Personnel who have received relevant technical and safety training, have some operational experience, can recognize the 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 the equipment is located.
   - Personnel with a degree in electrical engineering, an advanced diploma in an electrical discipline or equivalent qualifications, or professional certification in the electrical field, and at least 2/3/4 years of experience in testing and supervision using electrical equipment safety standards.
2. Personnel performing specialized tasks such as electrical work, work at heights, or operation of special equipment must hold valid qualification certificates required at the equipment location.
3. Medium-voltage equipment must be operated by licensed high-voltage electricians.
4. Equipment and component replacement may only be performed by authorized personnel.

1.3 System Safety

1.3.1 PV String Safety

⚠WARNING

- Ensure that the module frames and mounting system are properly grounded.
- After completing the DC cable connections, ensure that the cables are securely connected and not loose. Incorrect wiring may result in poor contact or high impedance and damage the inverter.
- Use a multimeter to measure the positive and negative poles of the DC cables, and ensure that the polarity is correct, with no reverse connection, and that the voltage is within the permissible range.
- Use a multimeter to measure the DC cables and ensure that the polarity is correct, with no reverse connection. The voltage must be lower than the Max. Input Voltage. Damage caused by reverse polarity or Overvoltage is not covered by the equipment manufacturer's liability.
- PV string outputs do not support grounding. Before connecting PV strings to the inverter, ensure that the minimum insulation resistance of the PV strings to ground meets the minimum insulation resistance requirement (R=Max. Input Voltage (V)/30mA).
- Do not connect the same PV string to multiple inverters, as this may damage the inverters.
- PV modules used with the inverter must comply with IEC 61730 Class A.
- A high PV string input voltage or input current may cause the inverter's output power to be derated.

1.3.2 Inverter Safety

⚠WARNING

- Ensure that the voltage and frequency at the grid connection point meet the inverter's grid-connection specifications.
- It is recommended to install Protection devices such as a circuit breaker or fuse on the inverter AC side. The rating of the Protection device must be greater than 1.25 times the inverter's AC output Max. Current.
- If the inverter triggers an Arc Failure alarm fewer than five times within 24 hours, the alarm can be cleared automatically. After the fifth Arc Failure alarm, the inverter shuts down for Protection. The fault must be cleared before the inverter can resume normal operation.
- If no battery is configured in the PV system, use of the BACK-UP function is not recommended, as it may result in a risk of system power outage.
- Changes in grid voltage and frequency may cause the inverter to derate its output power.

1.3.3 Battery Safety

⚠DANGER

- Before operating any equipment in the system, make sure it is de-energized to avoid the risk of electric shock. Strictly observe all safety precautions in this manual and all safety labels on the equipment during operation.
- Do not disassemble, modify, or repair the battery or control box without official authorization from the equipment manufacturer. Doing so may result in electric shock or equipment damage. The equipment manufacturer shall not be liable for any resulting losses.
- Do not strike, pull, drag, squeeze, or step on the equipment. Do not place the battery in a fire, as this may cause it to explode.
- Do not place the battery in a high-temperature environment. Ensure that there are no heat sources near the battery and that it is not exposed to direct sunlight. A fire may occur if the ambient temperature exceeds 60°C.
- Do not use the battery or control box if it has obvious defects, cracks, damage, or other issues. A damaged battery may leak electrolyte.
- Do not move the battery system while the battery is operating. If you need to replace or add a battery, contact the after-sales service center.
- Battery Short Circuit may cause personal injury. The instantaneous high current caused by a short circuit can release a large amount of energy and may cause a fire.
- The battery DC circuit breaker must comply with the requirements of AS/NZS 5139.
- Only one energy storage inverter may be connected to a given battery. Do not connect the same battery directly to multiple energy storage inverters. Sharing one battery between multiple inverters may cause abnormal reverse current or circulating current, triggering GFCI leakage Protection or battery overcurrent and, in severe cases, damaging the battery and inverters.

⚠WARNING

- Battery Current may be affected by factors such as temperature, humidity, and weather conditions. This may cause the battery current to be limited and affect its 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.
- Inspect and maintain the battery regularly in accordance with its maintenance requirements.

Emergency Response Measures

- Battery Electrolyte Leakage
  If electrolyte leaks from a battery module, avoid contact with the leaking 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 measures:
  - 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 burning battery may release toxic and harmful gases.
  - To prevent a 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 put out a fire. Firefighters must wear protective clothing and self-contained breathing apparatus.
- Battery Fire Suppression Function Activation
  For batteries equipped with the optional fire suppression function, take the following measures after it is activated:
  - Immediately disconnect the main power switch and ensure that no current is flowing through the battery system.

- Perform an initial visual inspection of the battery for damage, deformation, leakage, or unusual odors. Check the battery enclosure, connectors, and cables.
- Use a temperature sensor to measure the temperature of the battery and its surroundings to ensure there is no risk of overheating.
- Isolate and label the damaged battery, and dispose of it properly in accordance with local regulations.

1.3.4 Meter Safety

⚠WARNING

If the grid voltage fluctuates above 265 V, prolonged operation under overvoltage conditions may damage the meter. It is recommended to install a 0.5 A fuse on the voltage input side of the meter for Protection.

1.4 Safety Symbols and Certification Marks

⚠DANGER

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

No.	Symbol	Meaning
1		Potential hazards exist 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 performing any operations on it.

No.	Symbol	Meaning
3		The inverter surface can become hot. Do not touch the equipment during operation, as this may cause burns.
4		Use the equipment appropriately. Use under extreme conditions poses a risk of explosion.
5		Beware of fire.
6		The equipment contains corrosive electrolyte. Avoid contact with leaked electrolyte or vapors.
7		Delayed discharge. After powering down the equipment, wait 5 minutes for it to fully discharge.
8		Do not install the equipment in an explosive environment.
9		Do not install the equipment in a corrosive environment.
10	 	Keep the equipment away from open flames and sources of ignition.
11		Keep the equipment out of reach of children.
12		Do not allow children to touch.
13		Do not lift the equipment.
14		Do not disassemble.

No.	Symbol	Meaning
15		Do not disconnect under load, as this may cause electric shock, fire, or other hazards.
16	 	Read the product manual carefully before operating the equipment.
17		Wear personal protective equipment during installation, operation, and maintenance.
18		The equipment must not be disposed of as household waste. Dispose of it in accordance with local laws and regulations, or return it to the equipment manufacturer.
19		Protective earth connection point.
20		Recycling symbol.
21		CE Certification Mark.
22		TÜV mark.
23		RCM mark.

1.5 European Declaration of Conformity

1.5.1 Equipment with Wireless Communication Functionality

Equipment with wireless communication functionality that is sold on the European market complies with the requirements of the following directives:

- Radio Equipment Directive 2014/53/EU (RED)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

1.5.2 Devices Without Wireless Communication Functionality (Excluding Batteries)

Devices without wireless communication functionality sold in the European market comply with 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)
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

1.5.3 Batteries

Batteries sold in the European market comply with 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 meet the hazardous substance limit requirements stipulated in this regulation.

More EU Declarations of Conformity are available on theofficial website.

2 System Overview

2.1 System Overview

The C&I smart inverter solution integrates inverters, static transfer switch cabinets, batteries, smart energy control boxes, smart meters, smart communication sticks, and other equipment. In a PV system, it converts solar energy into electrical energy or purchases electricity from the grid to meet the electricity needs of commercial and industrial users. By monitoring the system's overall power status, the energy IoT devices in the system manage power-consuming equipment, enabling intelligent management of electricity for use by loads, storage in batteries, or export to the grid.

⚠WARNING

- The PV system is not suitable for connecting equipment that requires a stable power supply, such as life-support medical equipment. Ensure that a system power failure will not result in personal injury.
- Avoid using loads with high starting currents in the PV system, such as high-power water pumps. Otherwise, excessive transient current may cause off-grid output failure.
- If no battery is configured in the PV system, use of the BACK-UP function is not recommended, as it may result in a risk of system power outage.
- Battery Current may be affected by factors such as temperature, humidity, and weather conditions. This may cause the battery current to be limited and affect its load-carrying capacity.
- If the inverter triggers Overload Protection once, it can restart automatically. If this occurs multiple times, the inverter restart interval will increase. To restart the inverter as soon as possible, restart it immediately via the SolarGo app.
- When the inverter is operating in off-grid mode, it can supply C&I loads normally, such as:
  - Motor loads:
    - If the power of a single-phase motor is greater than or equal to3kWor the power of a three-phase motor is greater than or equal to8kW, aVFD/VSD;
    - The total Rated Power of single-phase motor loads must not exceed0.5*Pn/3, and the total Rated Power of all motor loads must not exceed0.5*Pn;

⚠WARNING

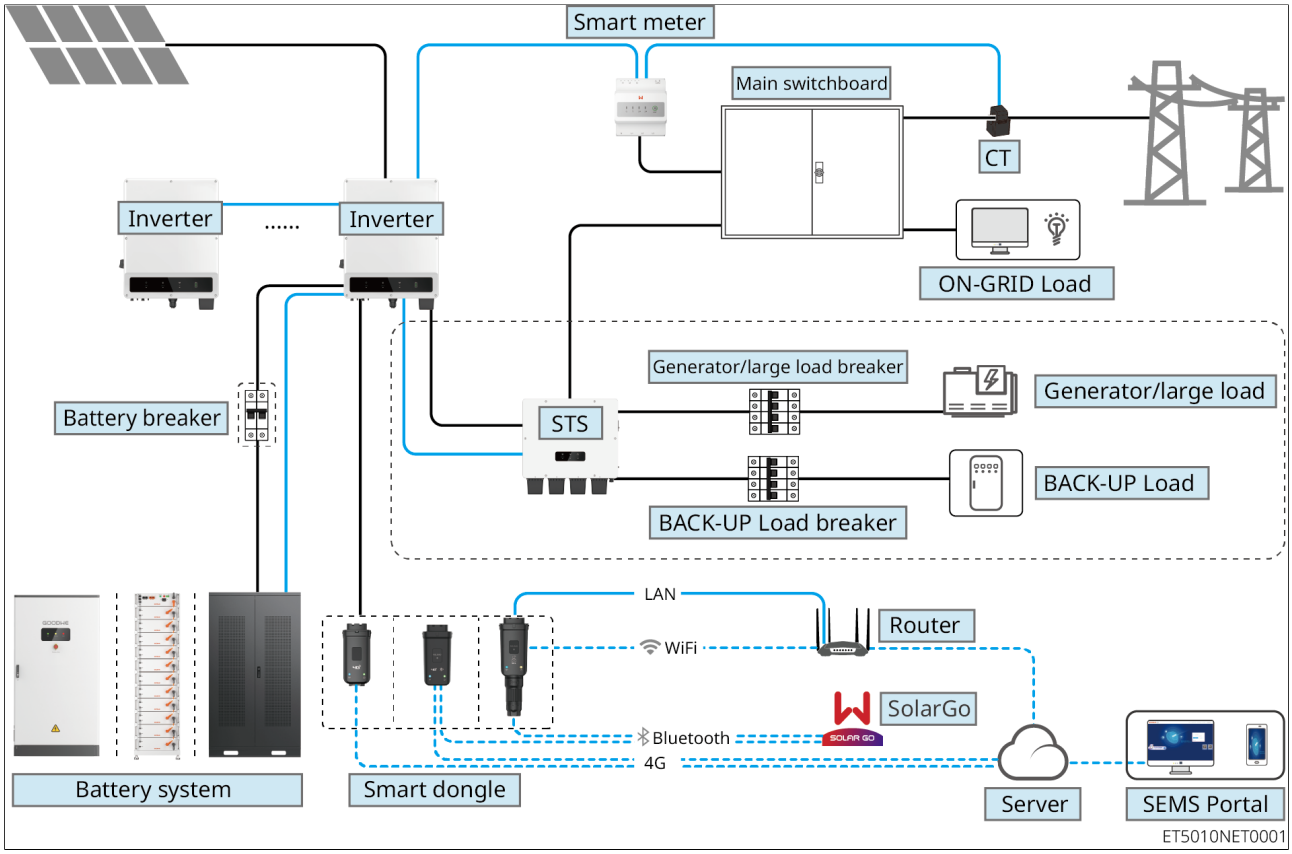
    - The total power of motor loads connected to a single inverter must not exceed25kW； 2or2or more inverters operating in parallel may be connected to motor loads with a total power not exceedingPn*50%*number of parallel inverters*80%；
    - If other loads are present, reduce the motor load accordingly and calculate based on the specific application conditions.
  - Capacitive loads: total power ≤ 0.33Pn。Pnrefers to the inverter's rated output power.
  - The inverter does not support half-wave loads.
- In a fully off-grid inverter system, if the battery remains under low-irradiance or rainy conditions for an extended period and is not recharged in time, it may be over-discharged, resulting in degraded battery performance or damage. To ensure long-term stable system operation, avoid fully discharging the battery. Recommended measures are as follows:
  1. When operating off-grid, set the minimum SOC Protection threshold. It is recommended to set the lower limit of the off-grid battery SOC to 30%.
  2. When the SOC approaches the Protection threshold, the system automatically enters load-limiting or Protection mode.
  3. If sunlight is insufficient for several consecutive days and the battery SOC is too low, recharge the battery promptly using an external energy source, such as a generator or supplementary charging from the grid.
  4. Check the battery status regularly to ensure it remains within a safe operating range.
  5. It is recommended to fully charge and discharge the battery once every six months to calibrate SOC accuracy.

When the inverter is in off-grid mode, it can supply power to commercial and industrial loads for normal operation.

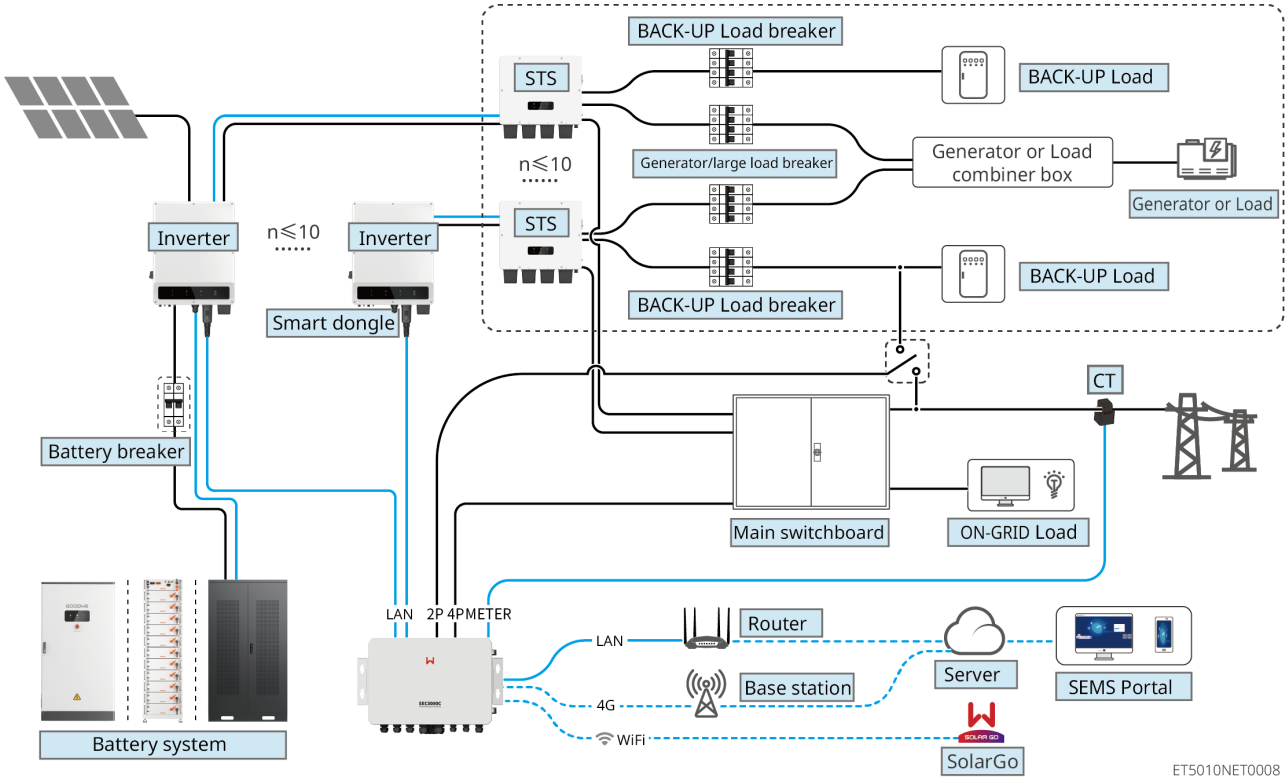
Parameter	Single-phase	Three-phase
Rated Power of a single motor load (kVA)	3	8
Total Rated Power of motor loads (kVA)	0.5*Pn/3	0.5*Pn

Parameter	Single-phase	Three-phase
Capacitive load (kVA)	0.33*Pn/3	0.33*Pn
Note: 1. Pn: Inverter rated output power. 2. If the Rated Power of a single motor load is greater than or equal to the nominal value in the table above, a VFD/VSD must be configured. 3. 2or22Pn*50%*number of parallel inverters*80%。		

Single Inverter



Parallel Networking of Inverters via SEC3000C



Device Type	Model	Description
Inverter	GW25K-ET-10 GW30K-ET-10 GW40K-ET-10 GW50K-ET-10	GW25K-ET-10，GW30K-ET-10do not support parallel connection viaSEC3000C. When inverters are connected in parallel, the following version requirements must be met: • All inverters in the parallel system must have the same software version • Inverter software version requirements: ◦ The inverter ARM software version must be 11.475 or later ◦ The inverter DSP software version must be 4.400 or later

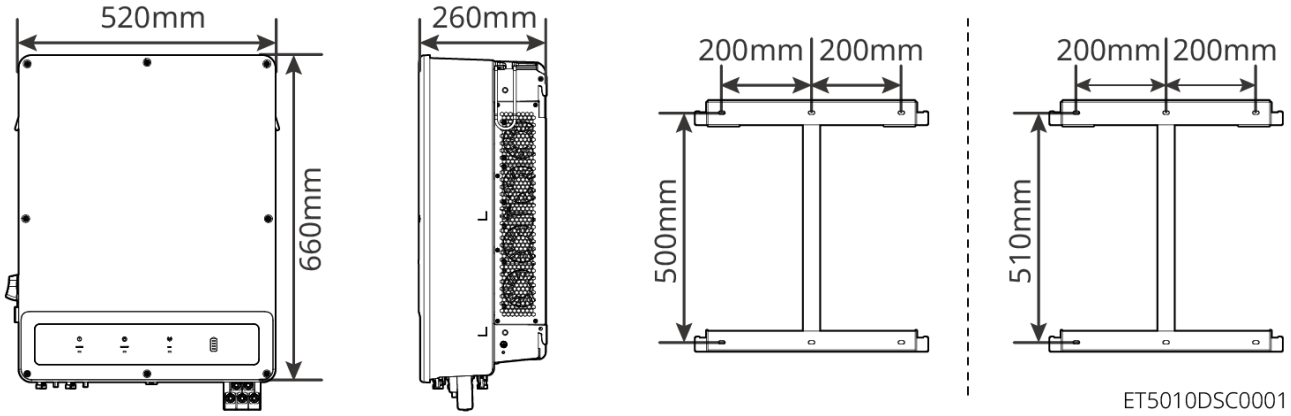
Device Type	Model	Description
Static Transfer Switch Cabinet	STS200-80-10	To use the off-grid function, the energy storage system must be equipped with a static transfer switch cabinet. The static transfer switch cabinet software version must be 4.400 or later.
Battery System	LX C101-10 LX C120-10 LX C138-10 LX C156-10	• Supports the parallel connection of up to 3 battery clusters • Battery systems of different models cannot be mixed in a parallel cluster
	GW25.6-BAT-I-G10 GW30.7-BAT-I-G10 GW35.8-BAT-I-G10 GW40.9-BAT-I-G10 GW46.0-BAT-I-G10 GW51.2-BAT-I-G10 GW56.3-BAT-I-G10	• Supports the parallel connection of up to 6 battery clusters • Battery systems of different models cannot be mixed in a parallel cluster
	GW92.1-BAT-AC-G10 GW102.4-BAT-AC-G10 GW112.6-BAT-AC-G10	• Supports the parallel connection of up to 4 battery clusters • Battery systems of different models cannot be mixed in a parallel cluster
Smart Energy Control Box	SEC3000C	For requirements, installation, wiring, and other information about the SEC3000C, see theSEC3000C User Manual。

Device Type	Model	Description
Smart Meter	GM330	When the inverter operates independently, it must be used with a smart meter in a network. The meter is supplied with the inverter. CTs can be purchased from GoodWe or independently. Required CT ratio: nA/5A • n A: CT primary-side input current; n ranges from 200 to 5000 • 5 A: CT secondary-side output current
communication module	• 4G Kit-CN (China only) • 4G Kit-CN-G21 (China only) • WiFi/LAN Kit-20	• For standalone operation, use the WiFi/LAN Kit-20, 4G Kit-CN, or 4G Kit-CN-G21. • When inverters are connected in parallel via the SEC3000C, each inverter must be equipped with a WiFi/LAN Kit-20 for network wiring.

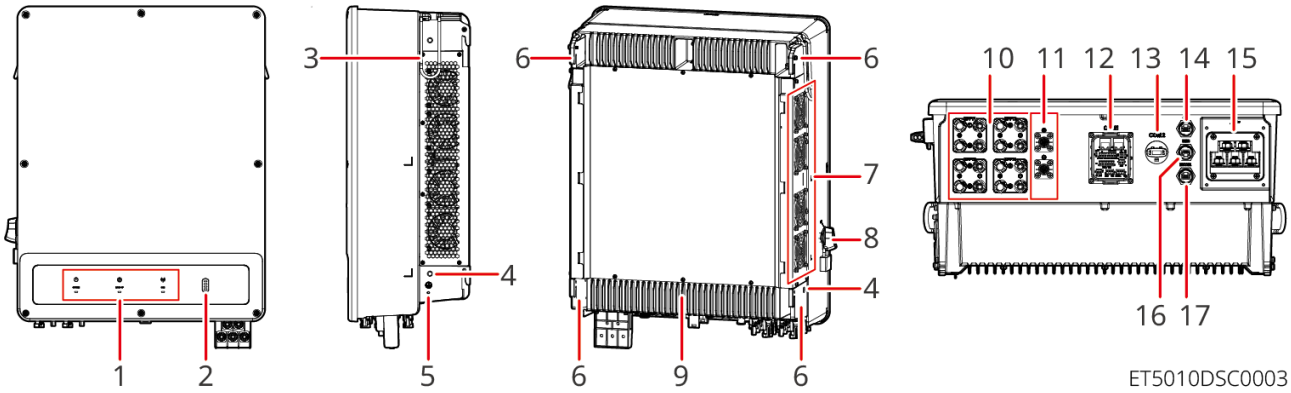
2.2 Product Overview

2.2.1 Inverter

The inverter uses its integrated energy management system to control and optimize energy flows in a PV system. The electricity generated by the PV system can be used by loads, stored in batteries, or exported to the grid.



No.	Model	Rated Output Power	Rated Output Voltage	Number of MPPTs
1	GW25K-ET-10	25kW	380V, 3L/N/PE	3
2	GW30K-ET-10	30kW		3
3	GW40K-ET-10	40kW		3
4	GW50K-ET-10	50kW		4



No.	Components	Description
1	System operation indicator	Indicates the inverter operating status
2	Battery SOC indicator	Indicates the batterySOC
3	Handle	For handling the inverter

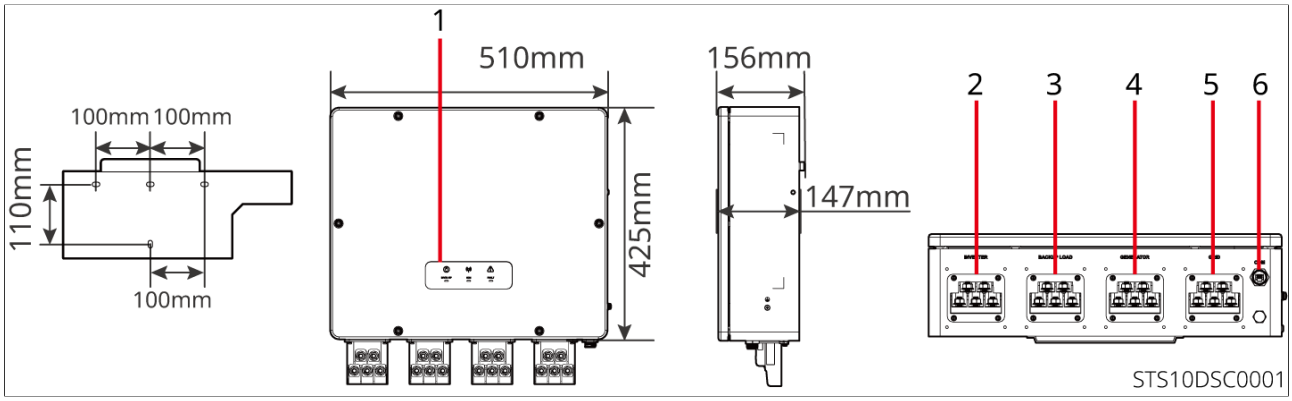
No.	Components	Description
4	Handle mounting hole	A handle can be installed as an option to facilitate inverter handling
5	Protection grounding terminal	Connect the enclosure protective ground wire
6	Mounting bracket	Mount the inverter
7	Fan	Inverter heat dissipation
8	DC Switch	Controls connection or disconnection of the PV input
9	Heat sink	Inverter heat dissipation
10	PV DC input port	Can connectPVmodule DC input cables • GW25K-ET-10，GW30K-ET-10，GW40K-ET-10: MPPT x 3 • GW50K-ET-10: MPPT x 4
11	Battery connection port	Connect the battery DC cables
12	Communication port (COM1)	Connect communication cables; supports Rapid Shutdown,DRED , Remote Shutdown, RCR , load control, Diesel Generator Control, and EV charger communication
13	Communication module interface (COM2)	Can connect communication modules, including4G、WiFi/LAN Kit-20modules; use a USB drive to upgrade the system software
14	STS communication port (STS)	Connect the STS communication cable
15	AC port (AC)	Connect the AC cables

No.	Components	Description
16	Battery communication port (BMS)	Connect the BMS communication cable
17	Meter communication port (METER)	Connect the smart meter communication cable

2.2.2 STS

The STS static transfer switch cabinet is designed for commercial and industrial energy storage systems. The STS controls the inverter's On/Off-grid status. The STS supports connection to a generator and large loads such as heat pumps and high-power motors. The power rating of a single non-variable-frequency motor load must be ≤5.5 kVA.
When the grid is interrupted:

- When the energy storage system is Not Connected to a generator, it switches to off-grid operation. PV generation or battery discharge supplies the loads.
- When the energy storage system is connected to a generator and PV generation and battery discharge are sufficient to supply the loads, the generator does not start. The system switches to off-grid operation.
- When the energy storage system is connected to a generator and PV generation and battery discharge are insufficient to supply the loads, the system switches to generator grid-connected operation. The generator supplies the loads, while PV and generator power charge the battery.
- When grid power is restored: The system switches back to grid-connected operation.



No.	Name	Description
1	LED Indicators	Indicates the STS operating status.
2	INVERTER	For connecting the inverter.
3	BACKUP LOAD	For connecting critical loads.
4	GENERATOR	For connecting the diesel generator.
5	GRID	For connecting the grid.
6	COM	For communication with the inverter.

2.2.3 Batteries

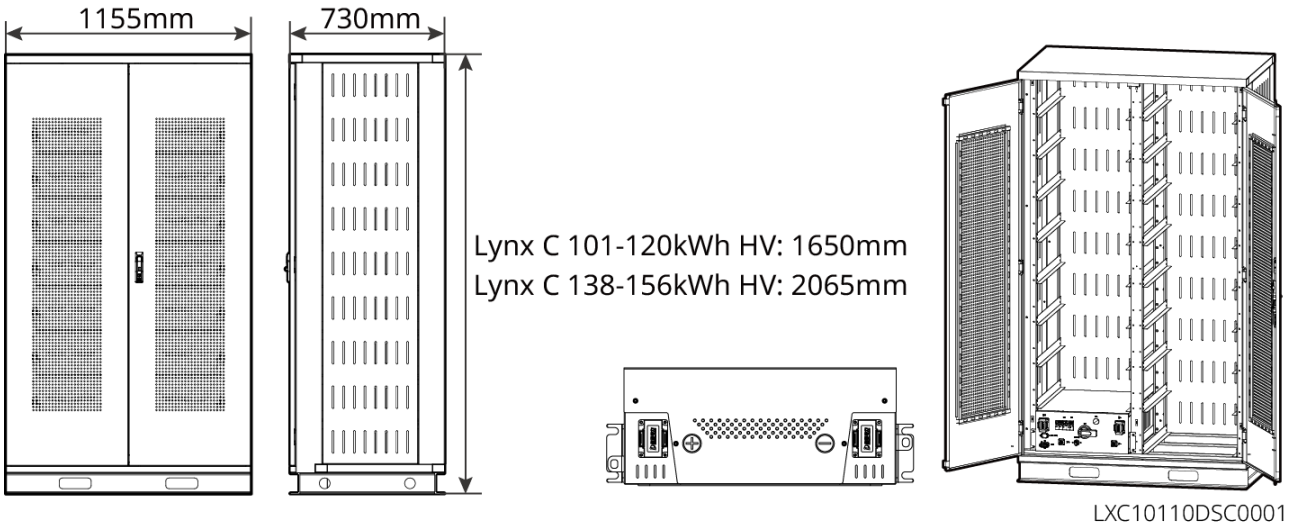
The battery system consists of the PCU and PACKs.
The battery system stores and releases energy as required by the PV energy storage system. Both the input and output ports of the energy storage system carry high-voltage DC.

NOTICE

- After installation, a single battery cabinet cannot be expanded by addingPACK.
- BATseries battery system, additional battery cabinets of the same model and part number can be added to expand the cluster. For details, contact after-sales service.

2.2.3.1 Lynx C Series 101–156 Kwh High-Voltage Battery

No.	Model	Number of PACKs	Height (mm)	Rated Energy (kWh)
1	LX C 101-10	11	1650	101.38
2	LX C 120-10	13		119.81
3	LX C 138-10	15	2065	138.24
4	LX C 156-10	17		156.67



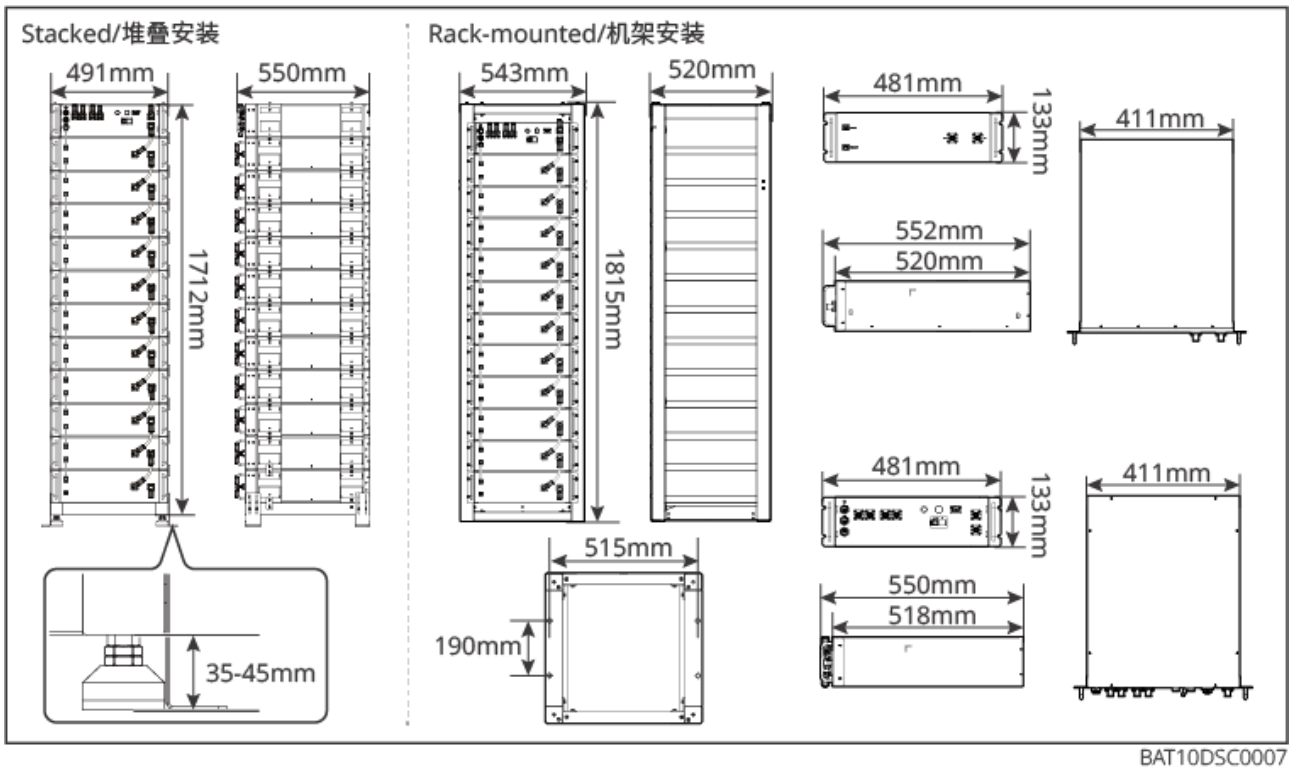
LXC10110DSC0001

2.2.3.2 BAT Series 25.6–56.3 Kwh High-Voltage Battery

No.	Model	Number of PACKs	Rated Energy (kWh)
1	GW25.6-BAT-I-G10	5	25.6
2	GW30.7-BAT-I-G10	6	30.7
3	GW35.8-BAT-I-G10	7	35.8
4	GW40.9-BAT-I-G10	8	40.9
5	GW46.0-BAT-I-G10	9	46.0
6	GW51.2-BAT-I-G10	10	51.2

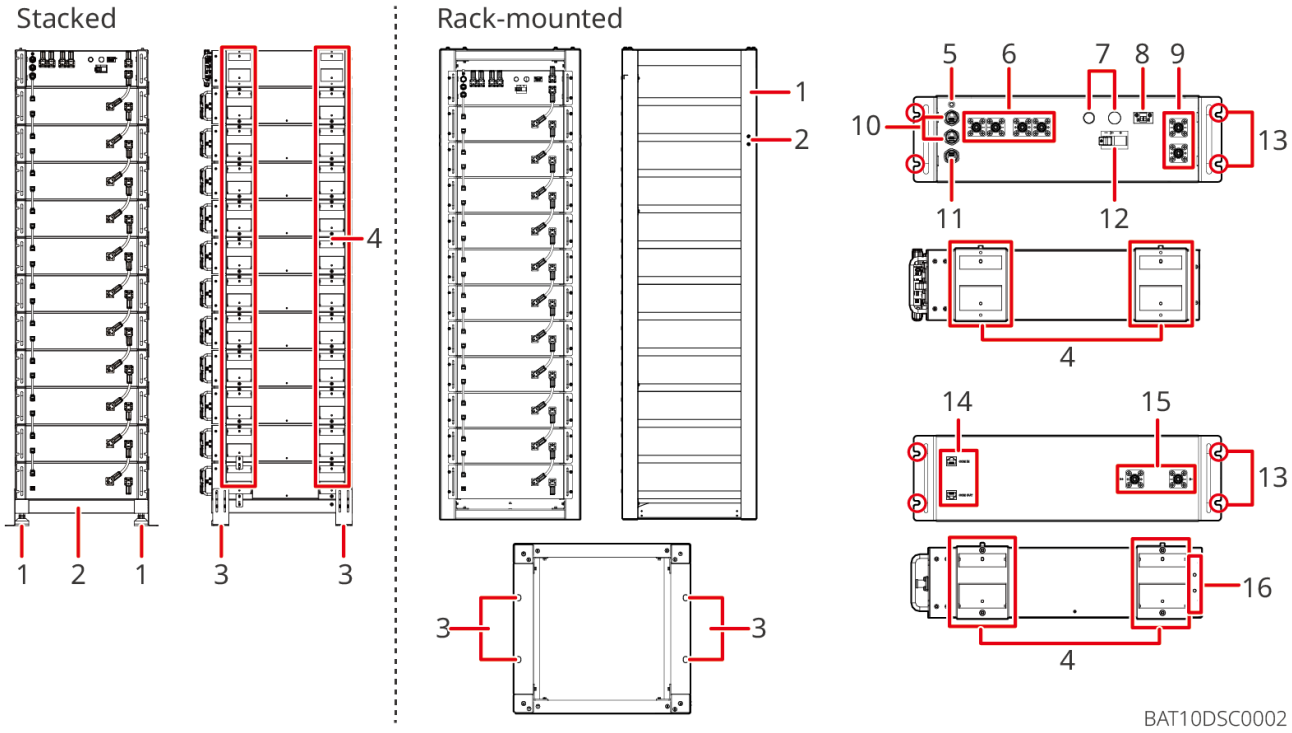
No.	Model	Number of PACKs	Rated Energy (kWh)
7	GW56.3-BAT-I-G10	11	56.3

Dimensions



BAT10DSC0007

Component Introduction



No.		Name	Description
Stacked Installation	1	Adjustable foot	Adjust the height to keep the base level
	2	Base	Stack the battery system on the base
	3	Floor mounting bracket	Secures the base to the floor to prevent tipping
	4	Stacking bracket	Secured to the battery pack for stacking battery units
Rack mounting	1	Battery rack	For installing the battery system
	2	Wall-mounting bracket fixing hole	Secures the battery rack to the wall to prevent tipping
	3	Floor anchoring bracket fixing hole	Secures the battery rack to the floor to prevent tipping
5		Protection grounding point	For connecting the ground wire

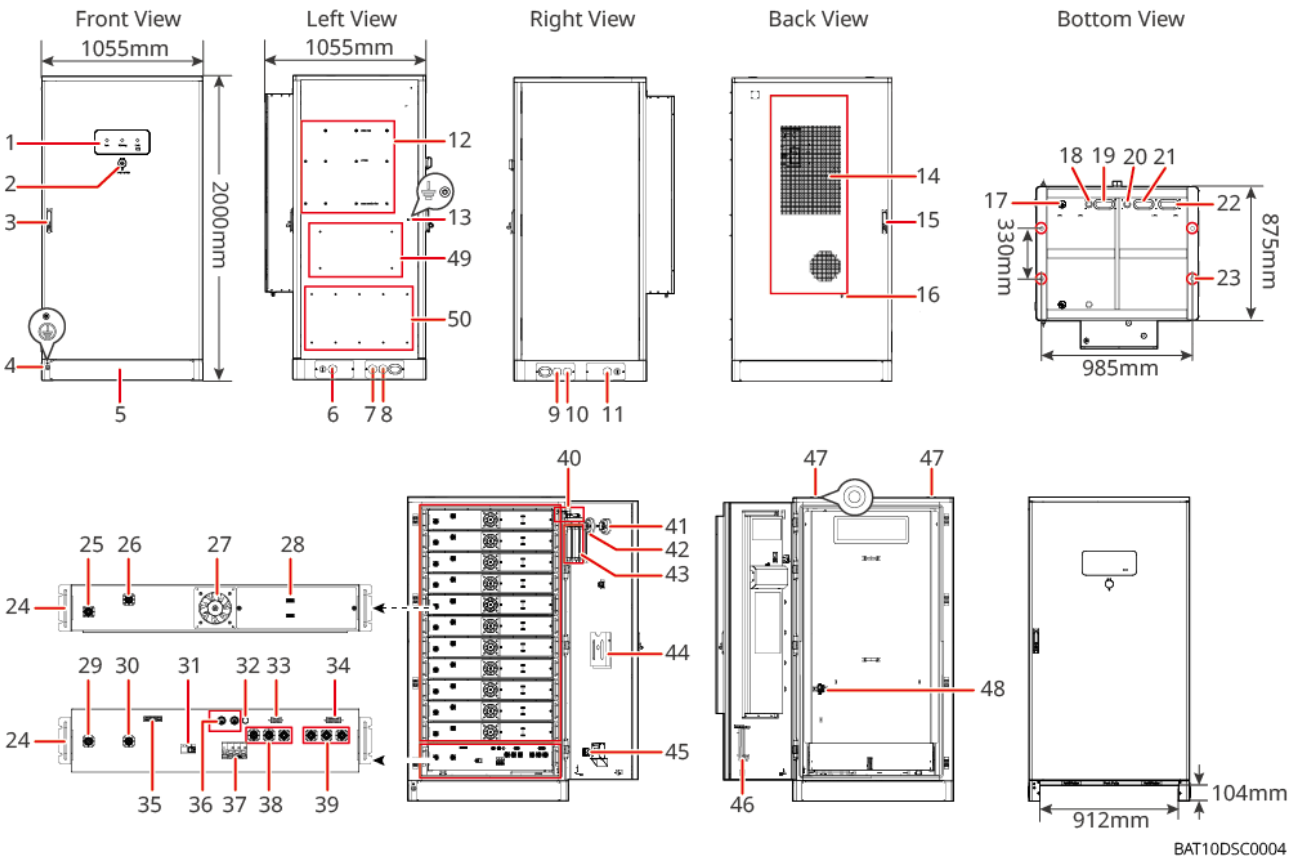
No.	Name	Description
6	High-voltage box power input/output port 1	Power cable connecting the high-voltage box and inverter
7	Battery Indicator	Indicates the status of the battery system
8	Dry contact	Contact for activation by the external fire suppression system (normally open; when a closed dry contact is detected, the battery system automatically powers down)
9	High-voltage box power input/output port 2	Power cable connecting the high-voltage box and battery modules
10	External communication port	For communication with the inverter, connecting the termination resistor, and parallel communication between battery systems
11	High-voltage box communication port	For communication with battery modules
12	Battery system switch	Controls battery system startup and shutdown
13	High-voltage box/battery pack mounting holes	Used to secure the high-voltage box/battery pack to the battery rack
14	Battery module communication port	Used for communication between adjacent battery packs and between the battery pack and the high-voltage box
15	Battery module power input/output port	Connects the power cables between adjacent battery packs

No.	Name	Description
16	Wall-bracket mounting holes	Used to install the wall bracket. Only the first and last battery packs require a wall bracket.

2.2.3.3 BAT Series 92.1–112.6 Kwh C&I Battery System

No.	Model	Number of PACKs	Rated Energy (kWh)
1	GW92.1-BAT-AC-G10	9	92.1
2	GW102.4-BAT-AC-G10	10	102.4
3	GW112.6-BAT-AC-G10	11	112.6

Component Introduction



No.	Name	Description
1	LED Indicators	-
2	EPO button	Pressing the EPO button will power down the battery system
3	Front door lock	-
4	PE port 1	Connects the battery grounding cable
5	Bottom panel	-
6	Left-side cable entry hole 1	Air conditioner power cable and ET100 power cable
7	Left-side cable entry hole 2	Inverter communication cable
8	Left-side cable entry hole 3	Inverter power cable
9	Right-side cable entry hole 1	Battery cluster-parallel power cable
10	Right-side cable entry hole 2	Battery cluster-parallel communication cable
11	Right-side cable entry hole 3	Air conditioner power cable
12	Rear mounting plate mounting holes	Inverter rear mounting plate mounting positions
13	PE Port 2	Connects to the inverter grounding cable
14	Air conditioner	Provides temperature control. The air conditioner uses R134A refrigerant.
15	Rear door lock	-
16	Air conditioner drain outlet	-

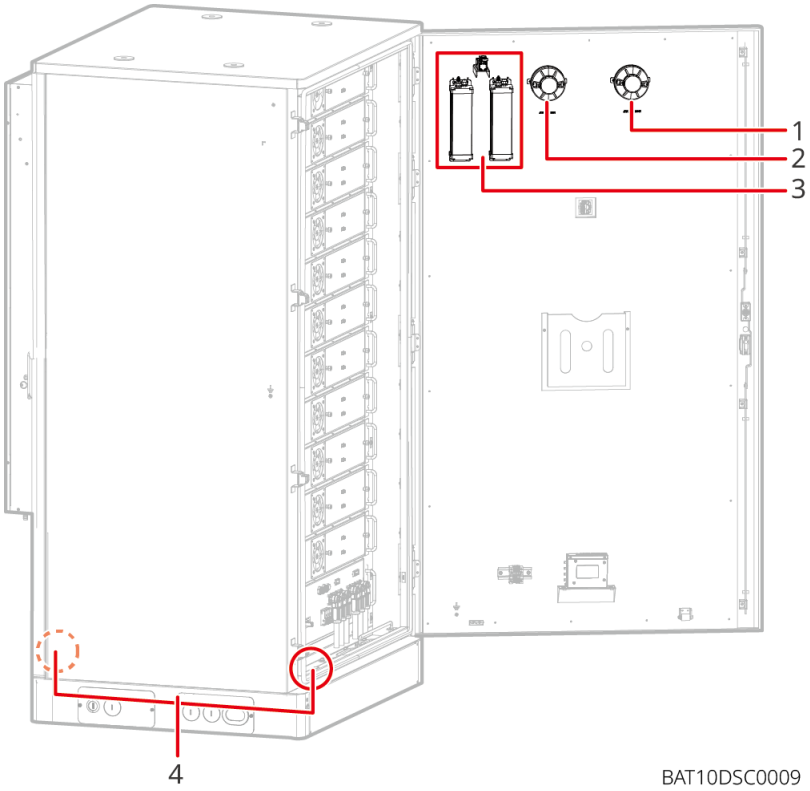
No.	Name	Description
17	Explosion-proof valve	Provides explosion protection and exhaust functions. If abnormal pressure builds up inside the battery system, the exhaust port of the explosion-proof check valve opens to rapidly release the internal gases in a controlled direction, thereby preventing an explosion.
18	Communication cable entry/exit (bottom)	Communication cable entry/exit between the battery and inverter
19	Power cable entry/exit (bottom)	Power cable entry/exit between the battery and inverter
20	Battery communication cable entry/exit	Battery cluster interconnection communication cable entry/exit
21	Battery power cable entry/exit (positive)	Battery cluster interconnection power cable entry/exit (positive)
22	Battery power cable entry/exit (negative)	Battery cluster interconnection power cable entry/exit (negative)
23	Foundation mounting hole	Secures the battery system to the foundation
24	Handle	-
25	Battery PACK power input/output port, positive	-
26	Battery PACK power input/output port, negative	-
27	Fan	-
28	Battery PACK communication port	Communication between adjacent battery PACKs and with the high-voltage box; fan power supply

No.	Name	Description
29	High-voltage box power input/output port, negative 1	Power cable connecting the high-voltage box and battery PACK
30	High-voltage box power input/output port, positive 1	
31	Molded-case circuit breaker	Controls the high-voltage output of the battery system
32	Black start button	Controls black start of the battery system
33	Internal communication port 1	Communication and fan power supply port 1 for the battery PACK
34	Internal communication port 2	Communication port for air conditioning, access control, EPO, and fire protection signals
35	LAN communication port	Battery room LAN communication for transmitting cell-level information (Supported only on units shipped after October 2025)
36	External communication port 1	For communication with the inverter, connecting the termination resistor, and parallel communication between battery systems
37	Circuit breaker	Controls the low-voltage power supply to the battery system
38	Positive terminal 2 of the high-voltage box power input/output port	Power cable connecting the high-voltage box and inverter
39	Negative terminal 2 of the high-voltage box power input/output port	Power cable connecting the high-voltage box and inverter

No.	Name	Description
40	Access control switch	Automatically disconnects when the door is opened to ensure that the energy storage system is de-energized
41	Heat detector	The heat 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. A red light alerts operators when an abnormal condition is detected. • Suitable for environments where dust or smoke is normally present • Wide Voltage Range
42	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: a red light-emitting diode (LED) illuminates.

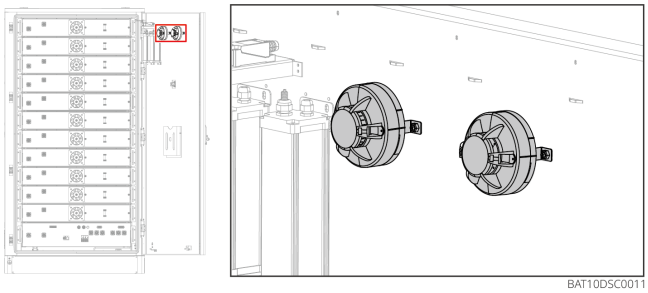
No.	Name	Description
43	Aerosol fire suppression device	Monitors fire signals inside the cabinet and performs fire suppression. When a fire occurs, the aerosol fire suppression device ignites the thermal cord upon receiving an electrical activation signal or detecting an open flame. The electric igniter's thermal cord burns and activates the aerosol generator in the suppression device. Heat released through a series of reactions in the aerosol generator decomposes the chemical coolant, enabling the generator and coolant to work together to extinguish the fire.
44	Document holder	-
45	Fire Alarm Activation Signal Port	Dry-contact signal interface, normally NC (normally closed); connect the cables for the audible and visual alarm. Permissible external voltage and current: • Voltage: 0–24 Vdc • Current: 0.3 A
46	Maintenance Hook Holder	When removing the Pack and PCU, retrieve the maintenance hook from here.
47	Lifting Eye Installation Hole	-
48	Air Conditioner Switch	Connect the air conditioner power cable to control its power supply.

Fire Protection System Description



1	2	3	4
Smoke detector	Heat detector	Aerosol fire suppression device	Explosion-proof valve

- **Heat Detector & Smoke Detector**

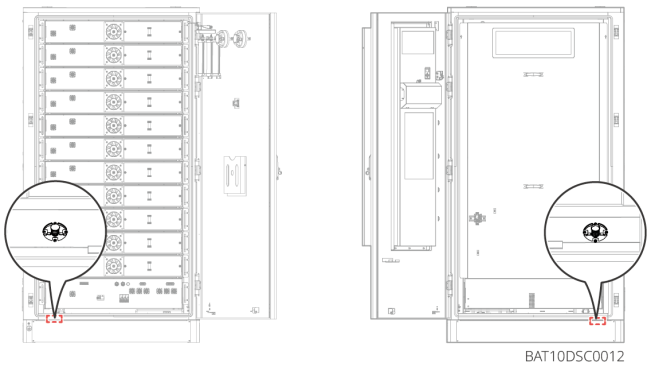


Temperature Detection Principle: The detector uses a negative temperature coefficient (NTC) thermistor as its sensor. It detects ambient temperature based on the thermistor's sensitivity to changes in ambient temperature. The internal circuit converts this information into a voltage signal and sends it to the microcontroller, which analyzes and processes the signal using an embedded intelligent algorithm to determine whether a fire alarm or fault condition is present.
Smoke Detection Principle: The detector uses the infrared light-scattering principle

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

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

- **Explosion-proof valve**

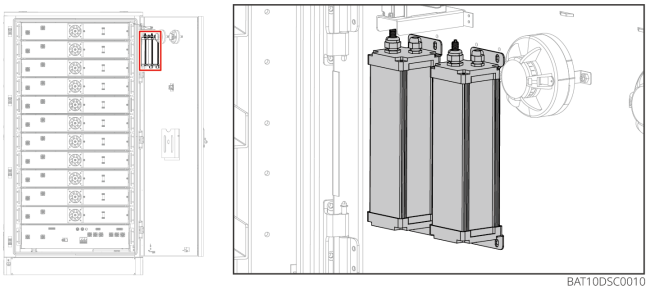


When the internal pressure of a sealed product such as an enclosure rises rapidly, opening the vent outlet of the explosion-proof one-way valve rapidly releases the internal gas in a controlled direction, preventing sealed products such as battery enclosures from exploding.

Technical Specifications	Explosion Vent Valve
Ingress Protection Rating	IP68

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

- **Aerosol fire suppression device**



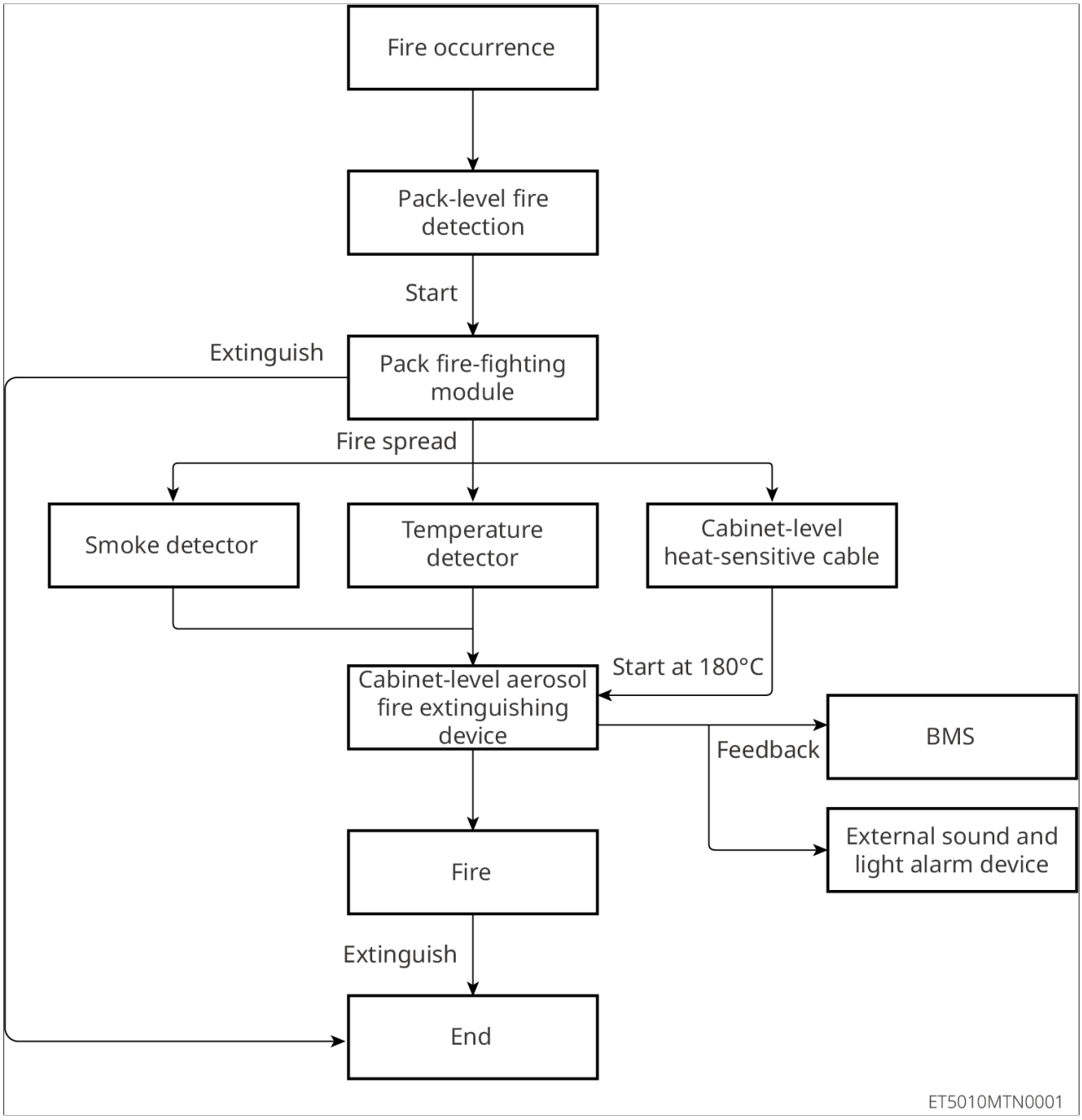
In the event of a fire, after receiving an electrical activation signal or when exposed to an open flame, the electric igniter or thermosensitive cord activates the aerosol-generating agent in the fire suppression device. Heat released by the agent through an oxidation-reduction reaction decomposes the chemical coolant, enabling both the aerosol-generating agent and coolant to contribute to fire suppression.

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

Fire Protection Logic

The fire protection system for this battery system uses a tiered response design. In

the event of a fire inside a battery pack, the pack-level detector detects it first and immediately activates the aerosol fire suppression device inside the pack to contain the fire in its early stages. If the fire cannot be contained and spreads further, the cabinet-level fire protection system is triggered. When both the smoke detector and temperature detector detect a fire, or when an open flame ignites the heat-sensitive cable (at a temperature of 180°C), the cabinet-level aerosol fire suppression device is automatically activated to extinguish the fire throughout the cabinet. The aerosol-forming agent produces a fire extinguishing agent through a combustion reaction. The heat released during the reaction decomposes the chemical coolant, allowing the aerosol extinguishing agent and coolant to work together to extinguish the fire. At the same time, the BMS receives a feedback signal from the fire protection system and activates the external audible and visual alarm until the fire is completely extinguished.

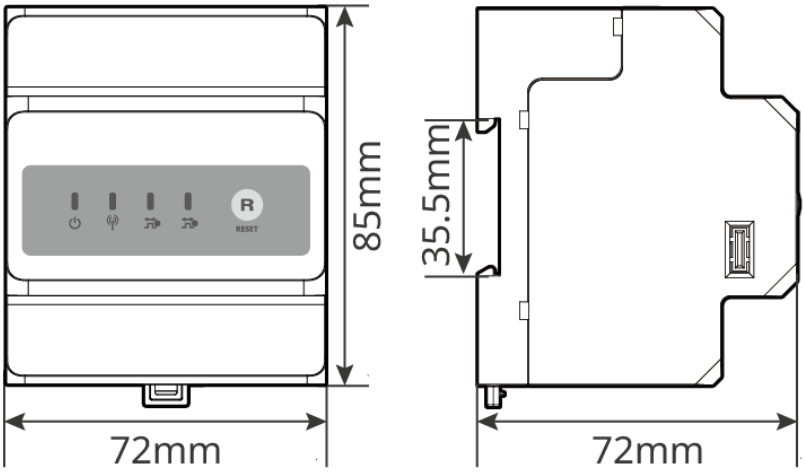


2.2.4 Smart Meter

The smart meter measures parameters such as grid voltage, current, power, frequency, and energy, and transmits the information to the inverter to control the input and output power of the energy storage system.
GM330The energy meter is supplied with the inverter,CT and may be purchased from the manufacturer or independently.CT CT ratio requirement:nA/5A

- nA：CT primary-side input current; the range ofn is 200-5000
- 5A：CT secondary-side output current

GM330

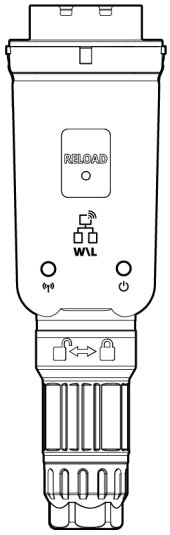
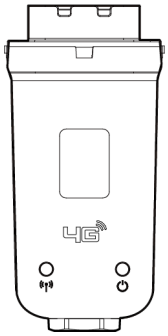
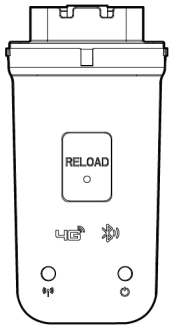


GMK10DSC0003

2.2.5 Smart Communication Stick

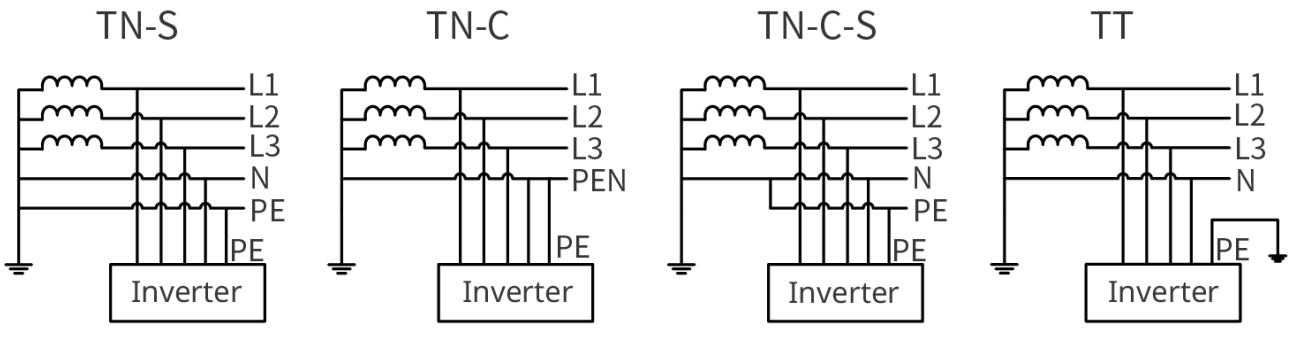
The communication module is mainly used to transmit various inverter power generation data to the Xiaogu Cloud remote monitoring platform in real time, and to connect to the communication module via the SolarGo app for commissioning nearby devices.

- The 4G Kit-CN uploads system operating information to the monitoring platform via a 4G signal. To commission nearby devices, use the WiFi/LAN Kit-20 supplied with the product.
- The 4G Kit-CN-G21 uploads system operating information to the monitoring platform via a 4G signal, provides device positioning via GNSS, and enables nearby device commissioning via Bluetooth.
- The WiFi/LAN Kit-20 uploads system operating information to the monitoring platform via WiFi or LAN and enables nearby device commissioning via Bluetooth.

WiFi/LAN Kit-20	4G Kit-CN LS4G Kit-CN	4G Kit-CN-G21
WiFi/LAN Kit-20  Smart dongle 0006	4G Kit-CN LS4G Kit-CN  Smart dongle 0003	4G Kit-CN-G21  Smart dongle 0009

No.	Model	Signal type	Applicable scenarios
1	WiFi/LAN Kit-20	WiFi, LAN, Bluetooth	Single-inverter scenarios and inverter parallel operation using the SEC3000C
2	4G Kit-CN	4G	Single-inverter scenarios
3	4G Kit-CN-G21	4G, Bluetooth, GNSS	

2.3 Supported Grid Configurations

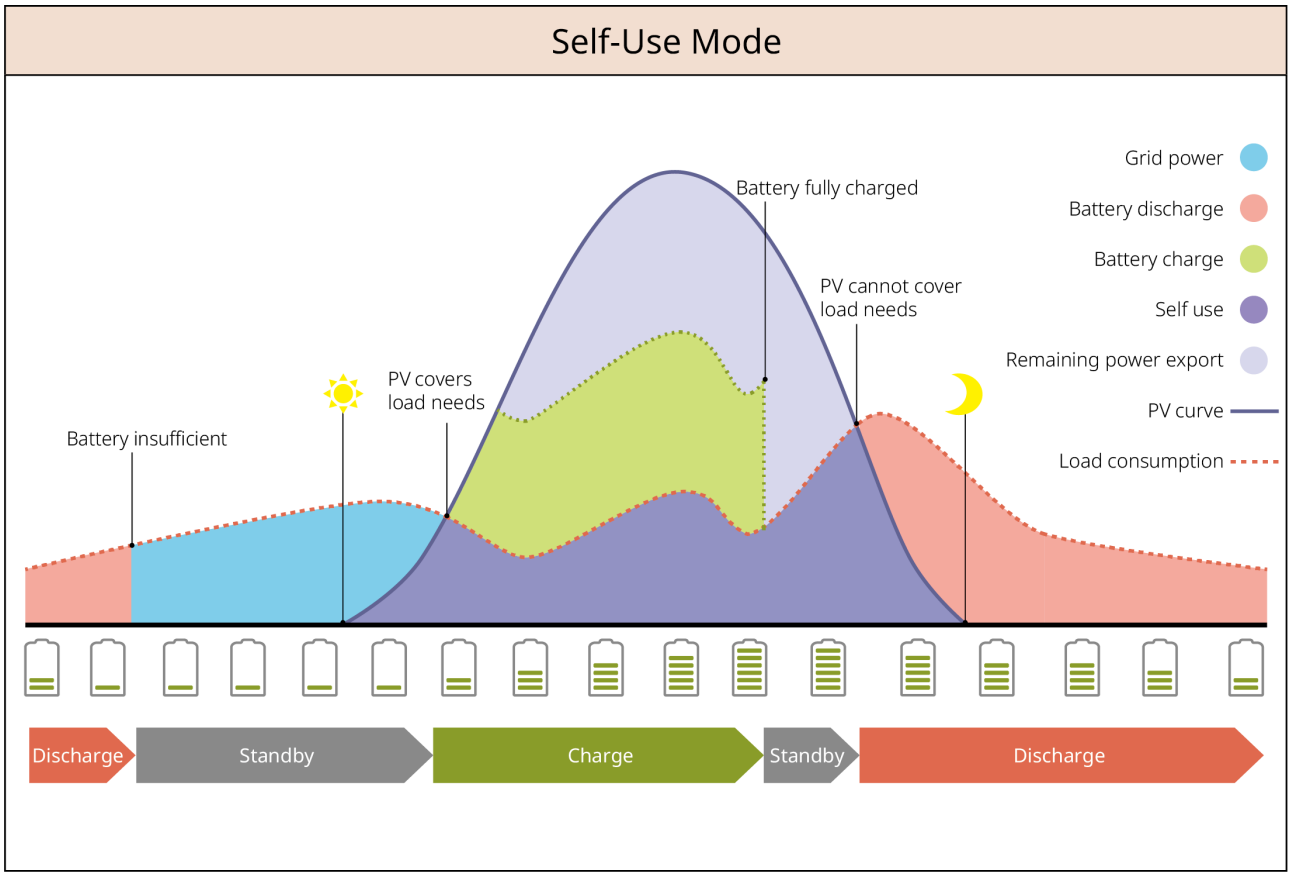


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2.4 System Modes

Self-Consumption Mode

- The system's basic operating mode.
- PV power is used first to supply the loads. Any surplus power charges the battery, and any remaining power is exported to the grid. If PV generation is insufficient to meet the load demand, the battery supplies the loads. If the battery charge is also insufficient, the grid supplies the loads.

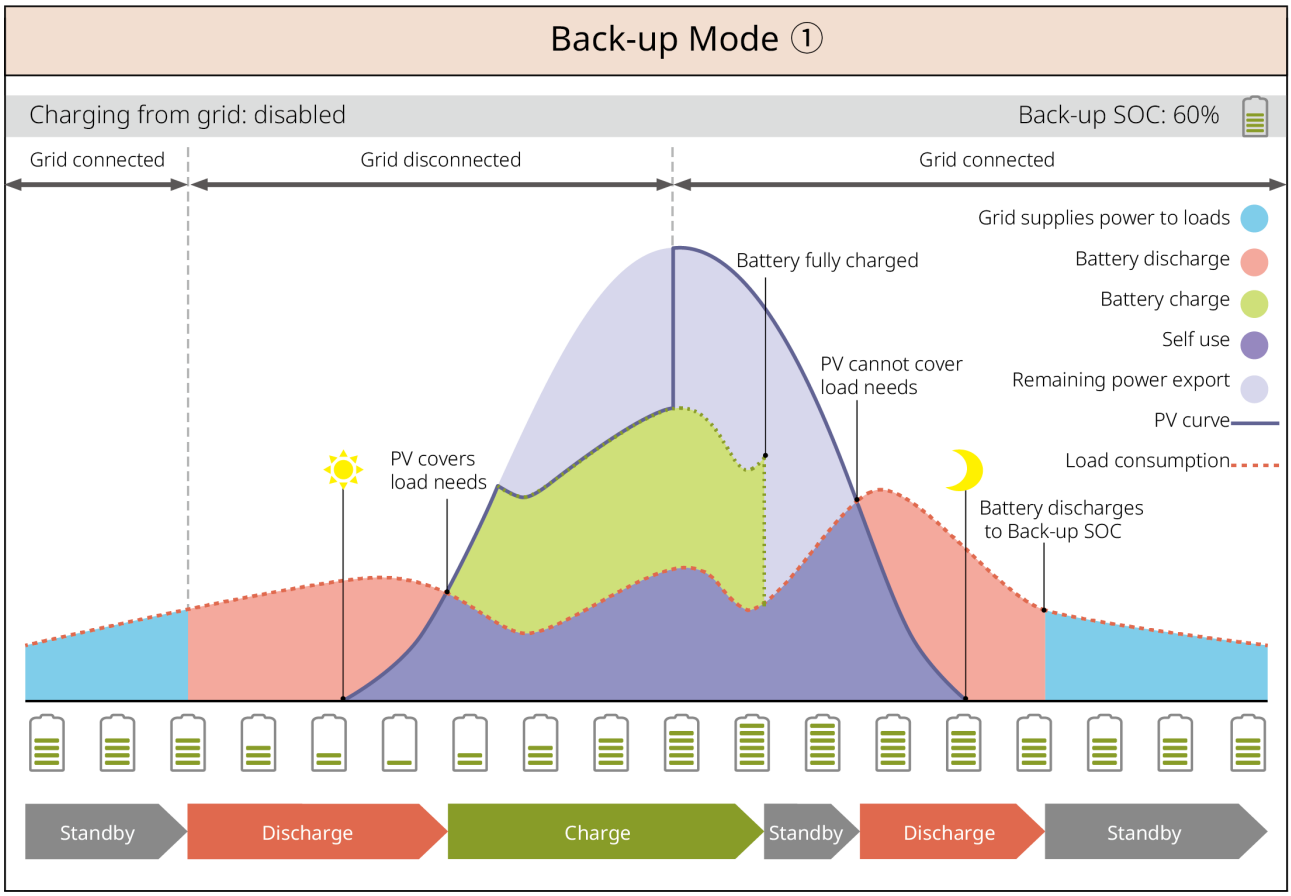


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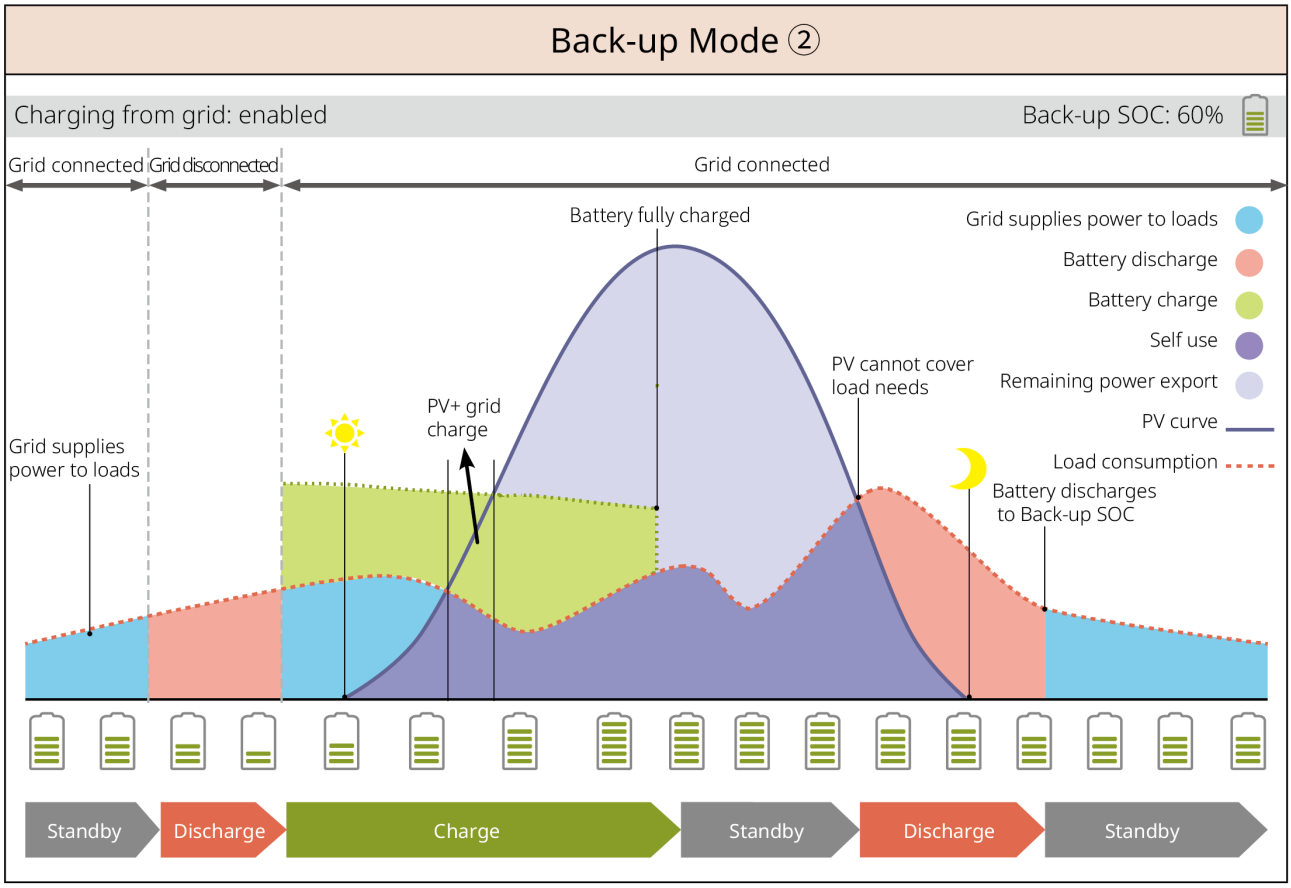
Backup Mode

- Recommended for areas with an unstable grid.
- When a Grid Power Outage occurs, the inverter switches to off-grid operation, and the battery discharges to supply the loads and ensure uninterrupted power to the BACK-UP loads. When grid power is restored, the inverter switches to grid-connected operation.
- To ensure that the battery SOC is sufficient for normal system operation when off-

grid, the battery is charged to the backup power SOC using PV power or electricity purchased from the grid while the system is grid-connected. If you need to purchase electricity from the grid to charge the battery, confirm that this complies with local grid laws and regulations.



SLG00NET0002



SLG00NET0003

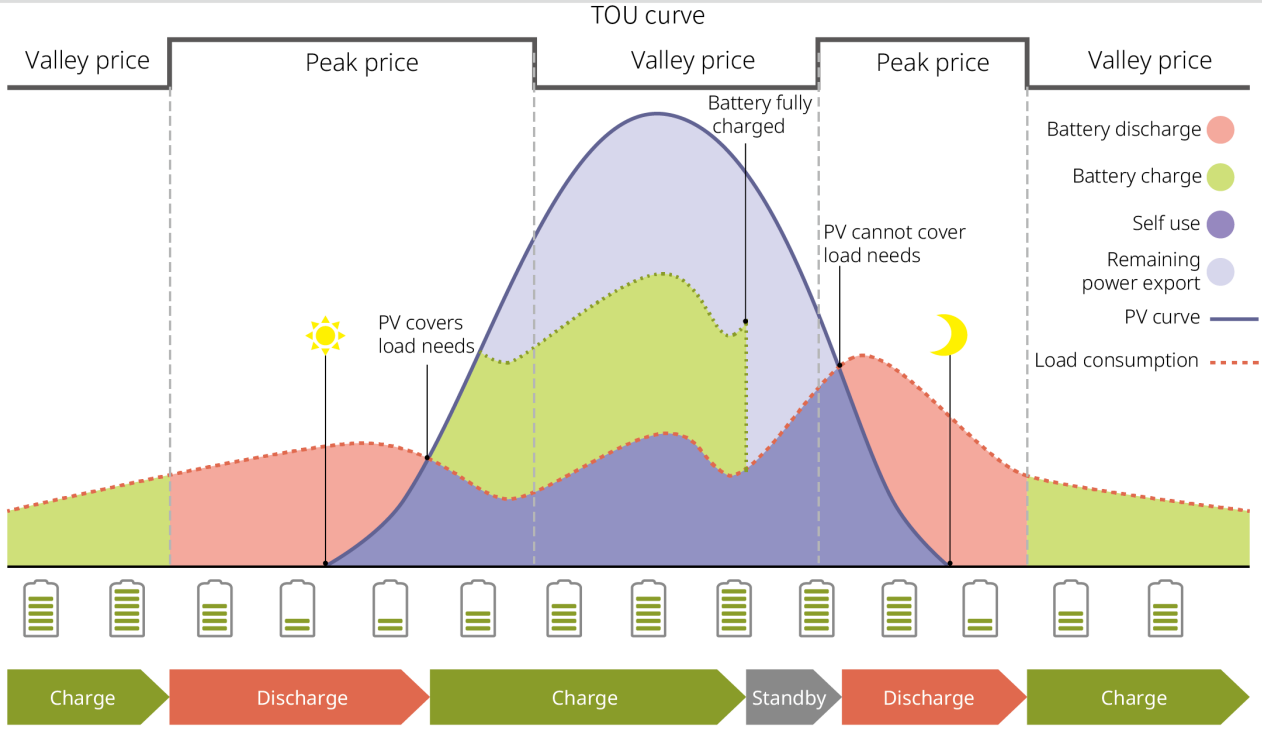
TOU Mode

Where permitted by local laws and regulations, set different time periods for purchasing and Export Energy based on variations in the grid Tariff during peak and off-peak periods.

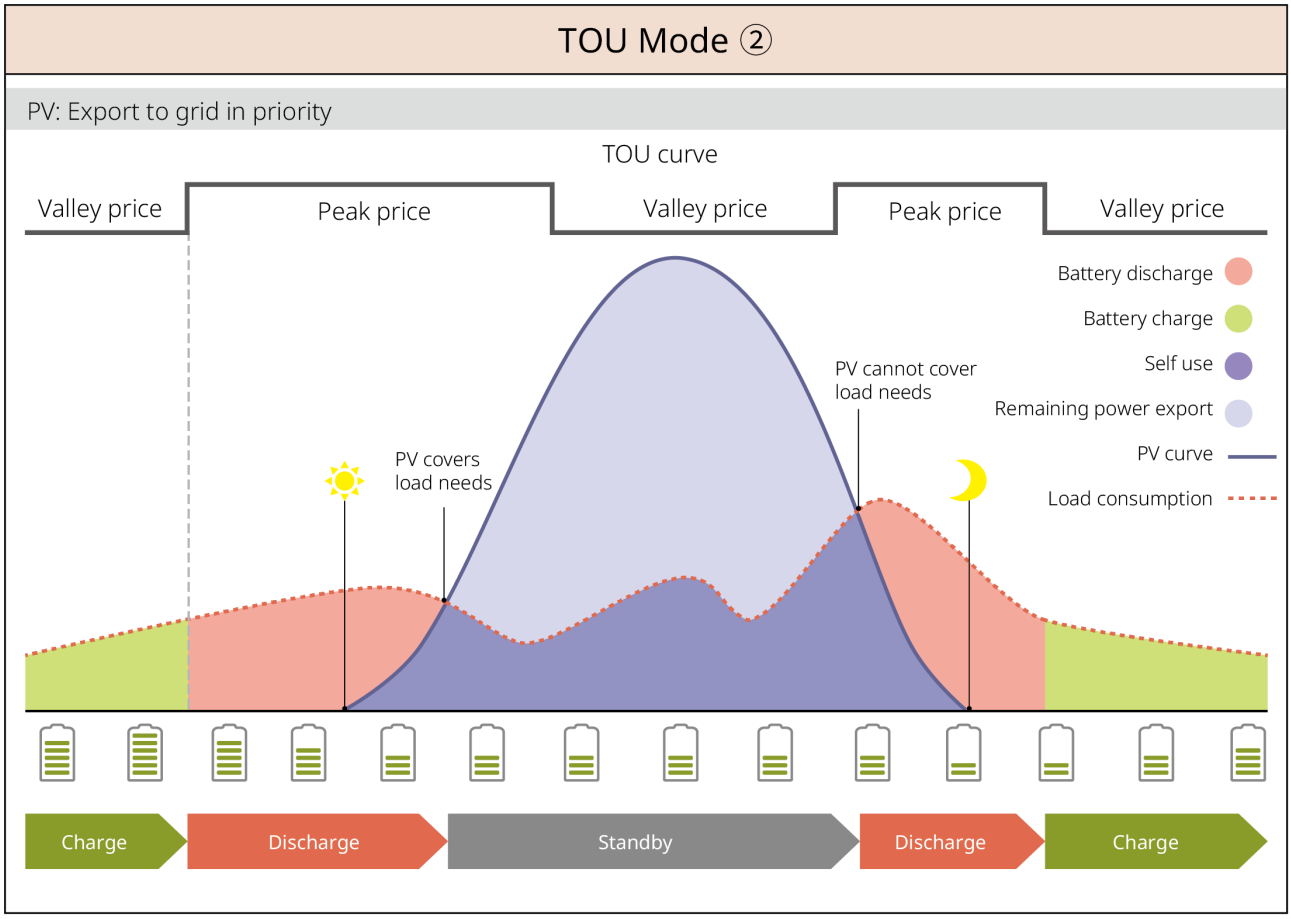
For example, set the battery to charging mode during off-peak periods to charge it using electricity purchased from the grid; during peak periods, set the battery to discharging mode to supply the loads.

TOU Mode ①

PV: Charge battery in priority



SLG00NET0004



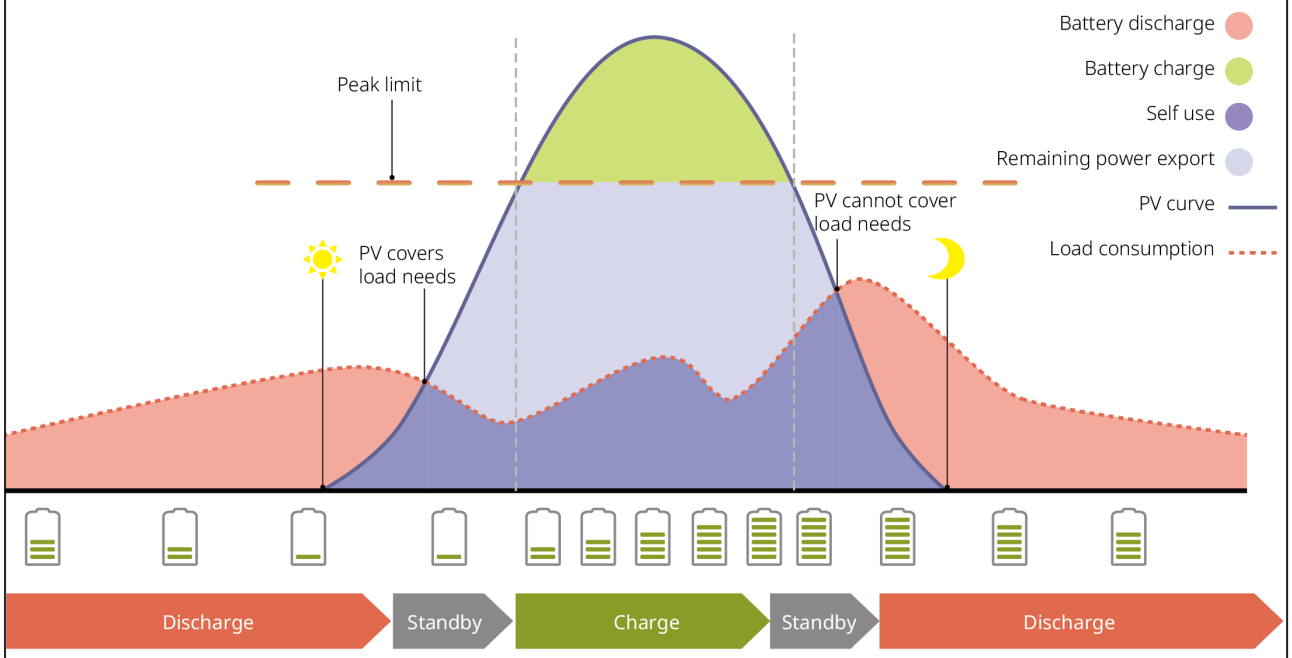
SLG00NET0005

Smart Charging (Delayed Charging) Mode

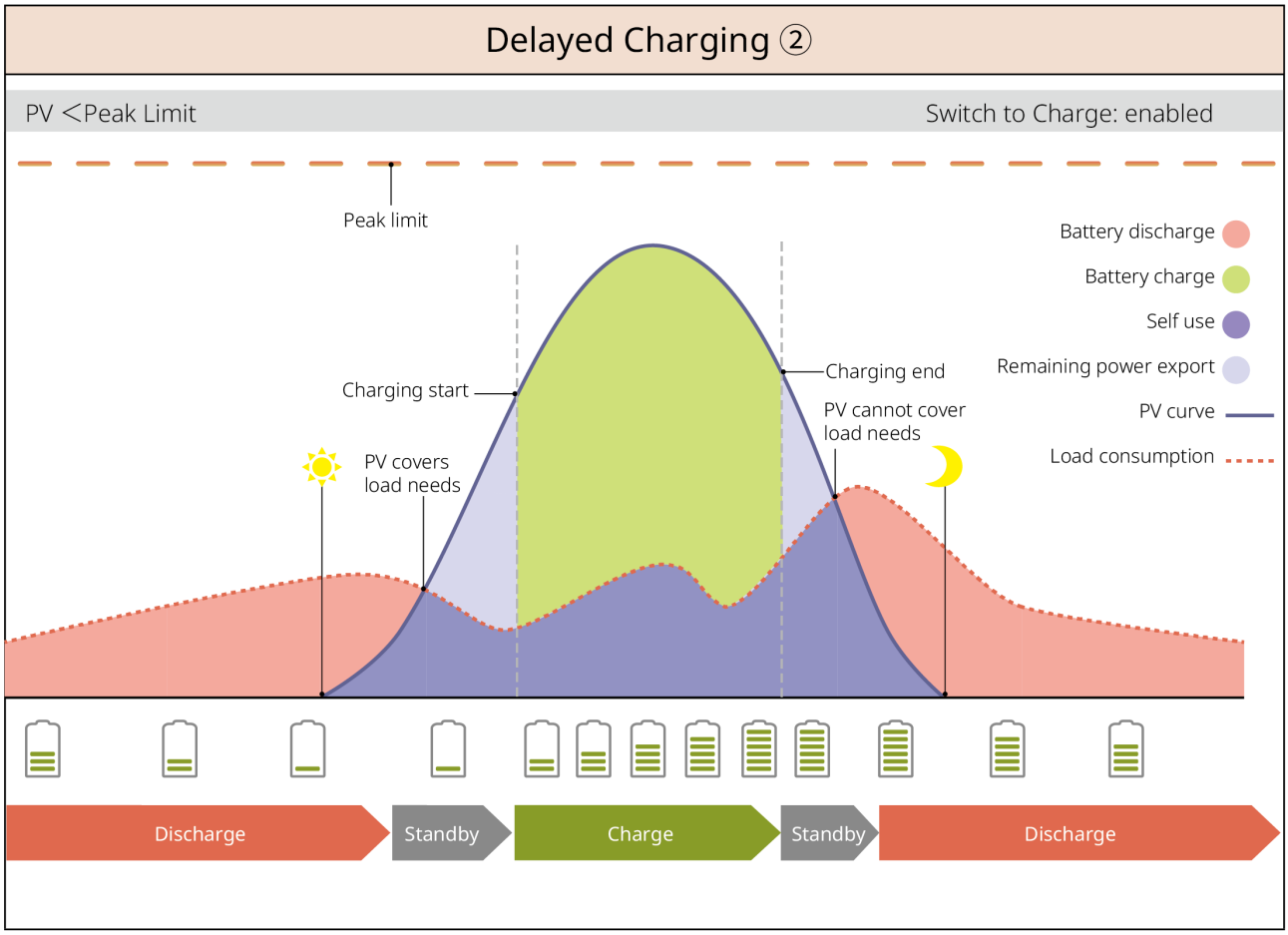
- Suitable for areas with grid-connected power output limits.
- Setting a peak power limit allows PV power exceeding the grid-connected limit to be used to charge the battery. Alternatively, set a PV charging period to charge the battery using PV power during that period.

Delayed Charging ①

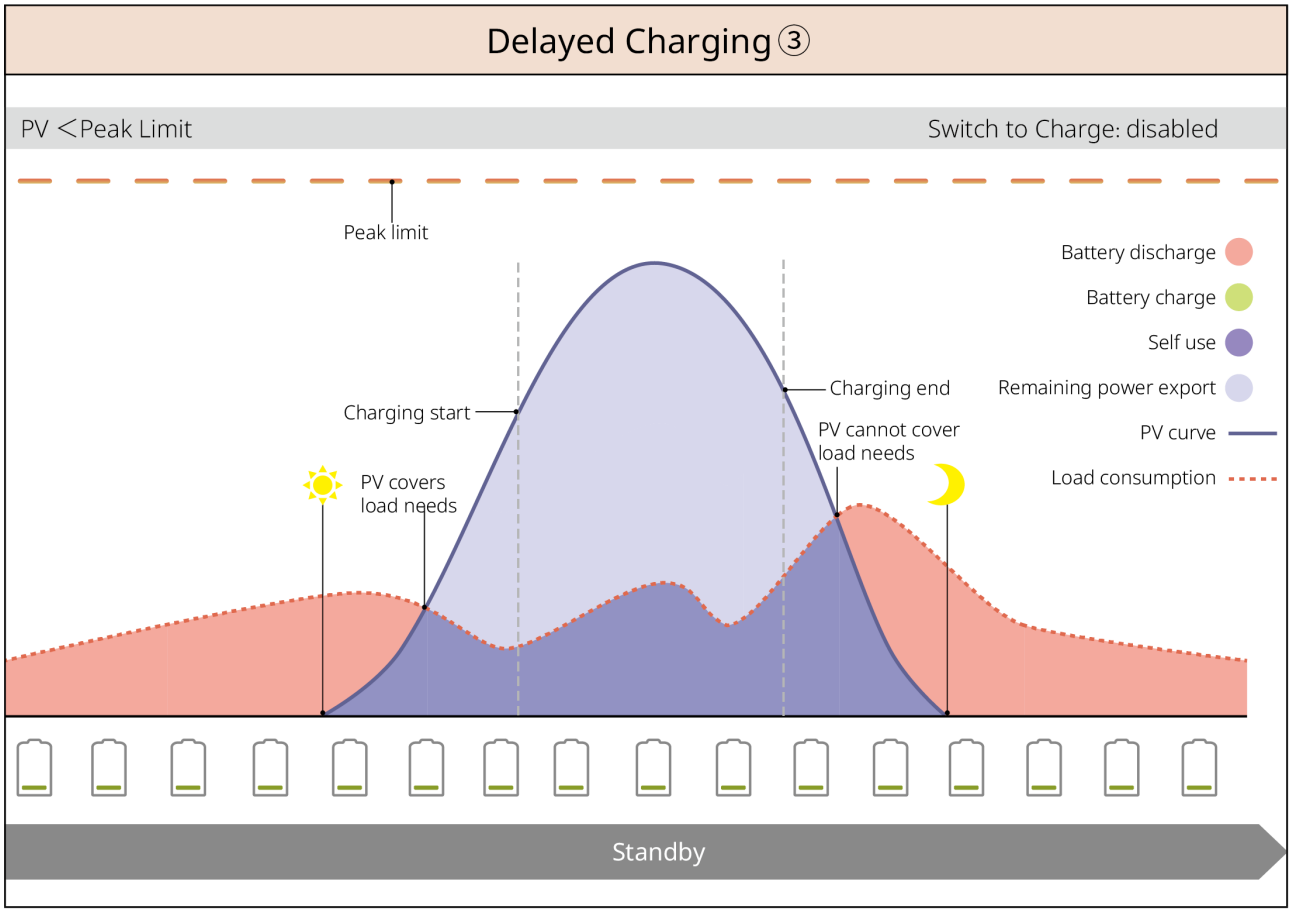
PV > Peak Limit | Switch to Charge: enabled/disabled



SLG00NET0006



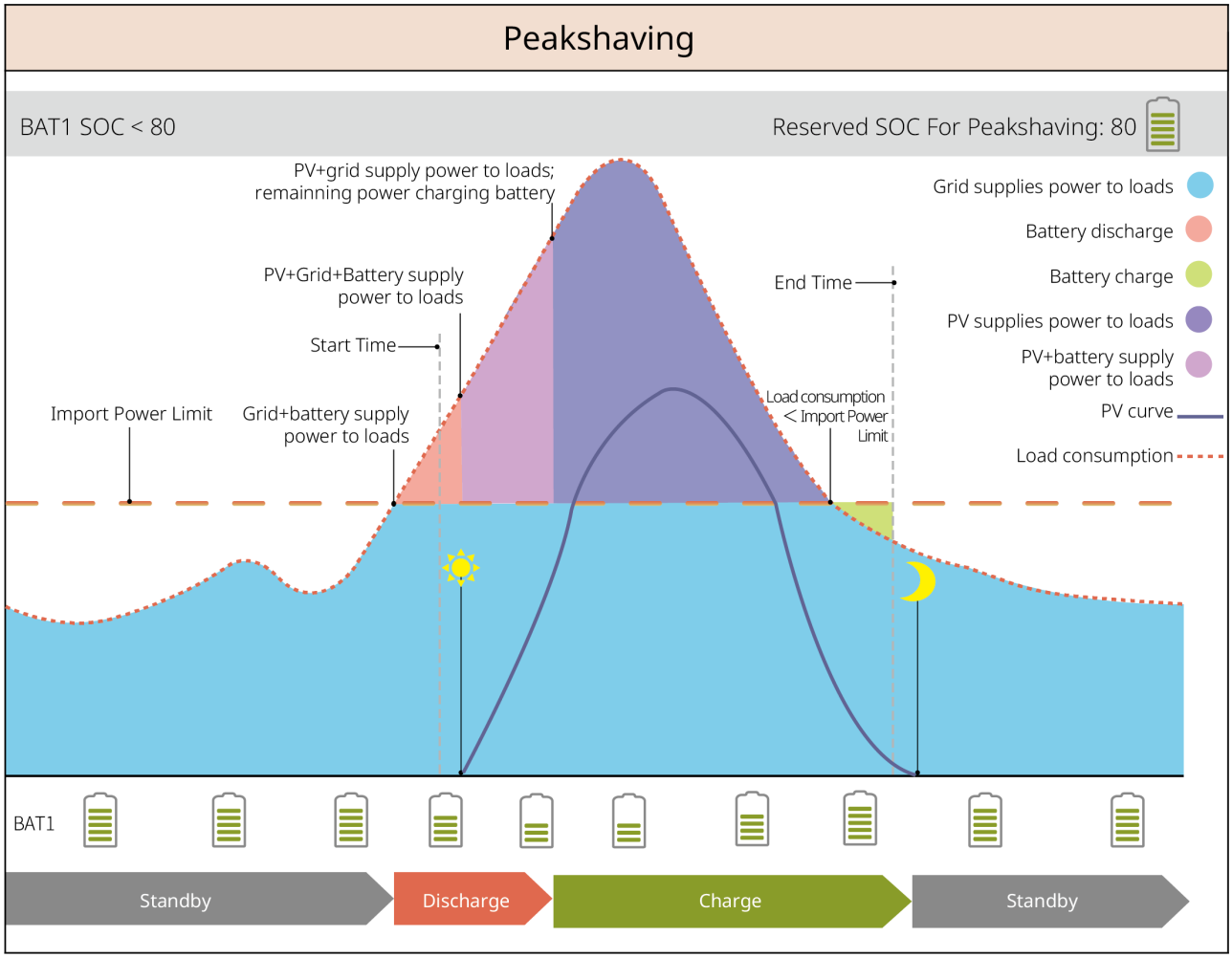
SLG00NET0007



SLG00NET0008

Demand Control Mode

- Primarily applicable to commercial and industrial applications.
- When the total load power exceeds the electricity consumption quota for a short period, the battery can discharge to reduce the amount of electricity consumed above the quota.
- When the battery SOC is below the reserve SOC for demand control, the system imports power from the grid based on the time period, load consumption, and peak grid import power limit.



SLG00NET0001

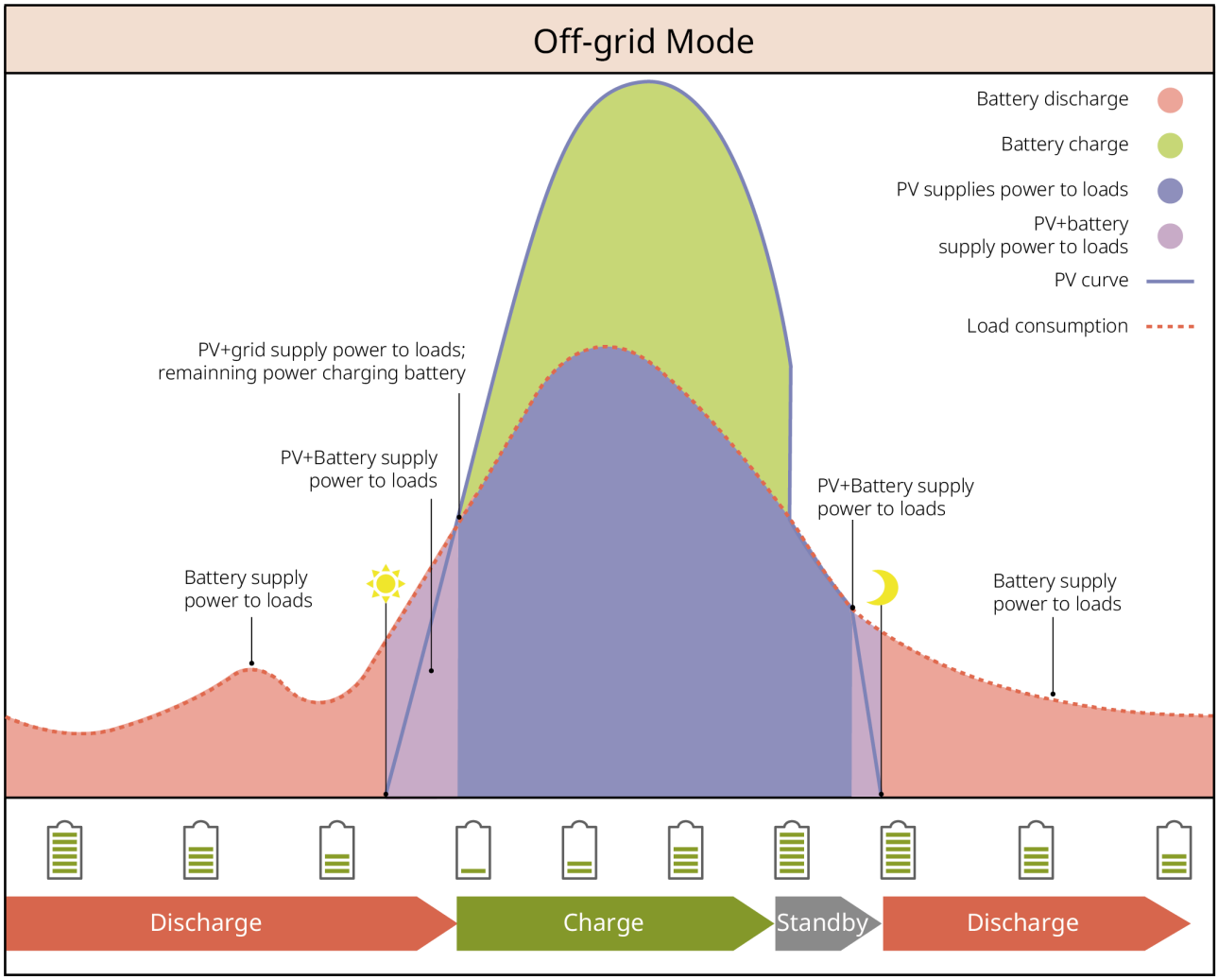
Off-grid Mode

NOTICE

Do not operate in pure off-grid mode when the inverter is Not Connected to a battery system.

When a Grid Power Outage occurs, the inverter switches to off-grid operating mode.

- During the day, PV power is prioritized for supplying the loads, and any surplus power is used to charge the battery.
- At night, the battery discharges to supply the loads, ensuring an uninterrupted power supply to the BACK-UP loads.



SLG00NET0012

2.5 Features

Three-phase unbalanced output

Both the grid-connected and BACK-UP ports of the inverter support three-phase unbalanced output, and each phase can be connected to loads of different power ratings. The maximum output power per phase for each model is shown in the table below:

Model	Maximum output power per phase
GW25K-ET-10	1/3 x 27.5kW
GW30K-ET-10	1/3 x 33kW
GW40K-ET-10	1/3 x 44kW

Model	Maximum output power per phase
GW50K-ET-10	1/3 x 55kW

3 Device Inspection and Storage

3.1 Device Inspection

Before accepting delivery of the product, carefully check the following:

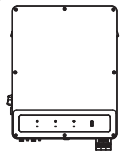
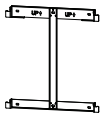
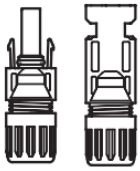
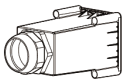
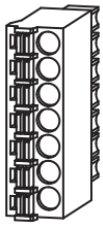
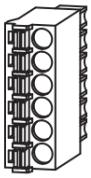
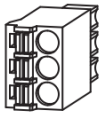
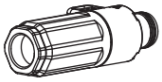
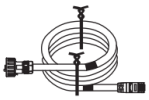
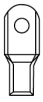
1. Check the outer packaging for damage, such as deformation, holes, cracks, or other signs that may indicate damage to the equipment inside. If damage is found, do not open the package and contact your distributor.
2. Check the tip-over indicator label on the outside of the battery cabinet packaging. A white circular indicator means the unit was transported without incident; a red indicator means it tipped over during transport. Do not open the packaging and contact your dealer.
3. Check that the inverter model is correct. If it does not match, do not open the packaging and contact your dealer.
4. After unpacking, check the battery tip-over indicator labels inside the front door and on the side wall. A white circular indicator means the unit was transported without incident; a red indicator means it tipped over during transport. Do not use this battery; contact the after-sales service center for inspection and repair.

3.2 Contents of Delivery

⚠WARNING

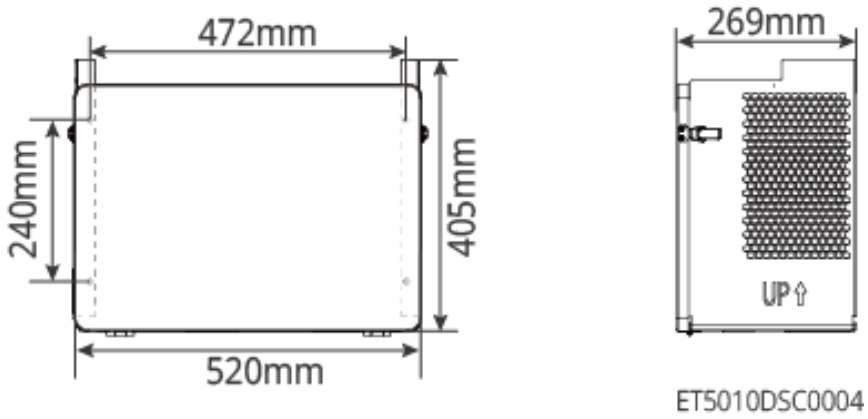
Check that the type and quantity of the supplied items are correct and that there is no visible damage. If anything is damaged, contact your distributor.
After removing the supplied items from the packaging, do not place them on rough, uneven, or sharp surfaces to prevent the paint from being scratched.

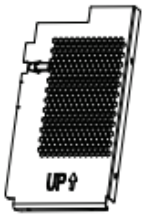
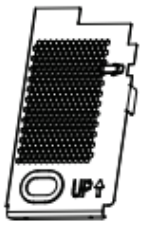
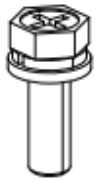
3.2.1 Inverter Package Contents (ET 25–50 Kw)

Components	Description	Components	Description
	Inverter × 1		Backplate x 1
	Expansion bolts × 6		M5 fastening screws x 2
	Protection grounding terminal x 1		Tubular terminals × 25
	PV connectors • GW25K-ET-10 x 6 • GW30K-ET-10 x 6 • GW40K-ET-10 x 6 • GW50K-ET-10 x 8	 or 	AC terminal protective cover × 1
	Communication module × 1		7-pin communication terminal × 1
	6-pin communication terminal × 1		3-pin communication terminals × 2
	2-pin communication terminals × 2		Battery connectors × 2
	Energy meter communication cable × 1		AC OT terminals × 6

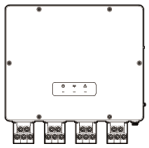
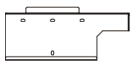
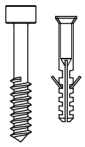
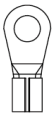
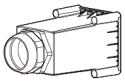
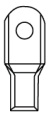
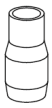
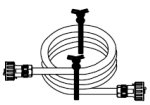
Components	Description	Components	Description
	PV wiring tool × 1		Insulating bushings x 6
	Energy meter and accessories x 1		Product information x 1

Protection Cover Deliverables (Optional)



Components	Description	Components	Description
	Protection cover front panel x 1		Protection cover bottom panel x 1
	Protection cover right side panel x 1		Protection cover left side panel x 1
	M5 screws x 10		Expansion bolts x 4
	M5 nuts x 5		Cable ties x 10

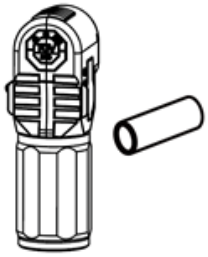
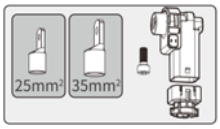
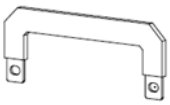
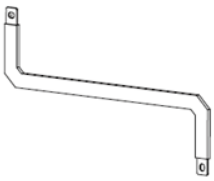
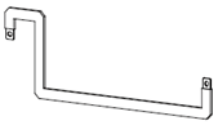
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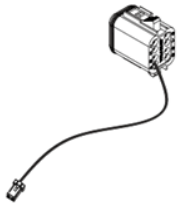
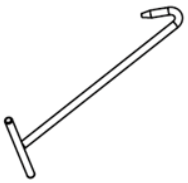
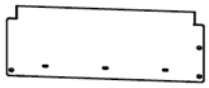
Components	Description	Components	Description
	STS x 1		Backplate x 1
	Expansion bolts x 4		M5 fastening screws x 2
	Protection grounding terminal x 1	 or 	AC cable protective cover x 4
	AC OT terminal x 22 The AC OT terminals supplied with the unit are suitable for applications with a connection current of 90 A. For applications with a connection current of 200 A, contact the supplier or after-sales service center to obtain terminals of the appropriate specification.		Insulation sleeve x 22
	Inverter communication cable x 1 Standard: 10 m; length optional, up to 100 m.		Product information x 1

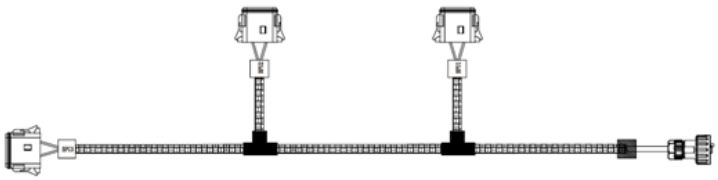
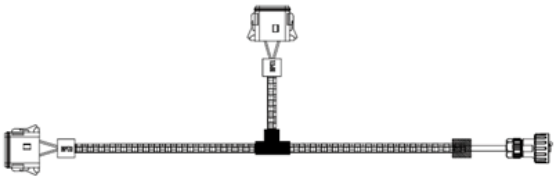
3.2.3 Lynx C Series 101–156 Kwh High-Voltage Battery

NOTICE
Pack all accessories other than the battery cabinet and place them inside the battery cabinet.

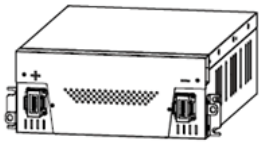
- **Battery Cabinet and Accessories**

Components	Description	Components	Description
	Battery Cabinet x 1		AC connection terminal x 1
 or 	Reducer x 2 &Power connectorA x 2 or power connectorB x 2		Cable tie x 20
	Battery power busbarA x 1		Battery power busbarB x 1
	Battery power busbarC • LX C101-10 x 9 • LX C120-10 x 11 • LX C138-10 x 13 • LX C156-10 x 15		Battery power busbarD x 1

Components	Description	Components	Description
	Main control box-to-battery communication cable x 1		Internal battery communication cable • LX C101-10 x 10 • LX C120-10 x 12 • LX C138-10 x 14 • LX C156-10 x 16
	M6screw • LX C101-10、LX C120-10 x 56 • LX C138-10、LX C156-10 x 72		M8screw • LX C101-10 x 24 • LX C120-10 x 28 • LX C138-10 x 32 • LX C156-10 x 36
	Mounting hook x 4		Cover plate • LX C101-10 x 10、LX C138-10 x 2 • LX C120-10、LX C156-10 x 0
	Protection grounding terminal x 2		ET 25-50series inverter communication cable x 1
	ETC/BTCseries inverter communication cablex 1		Product documentation x 1

Components	Description	Components	Description
			Communication cable for three battery clusters in parallel x 1(purchased separately)
			Communication cable for two battery clusters in parallel x 1(purchased separately)

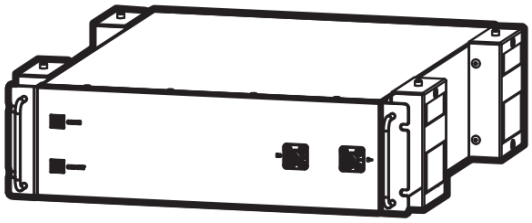
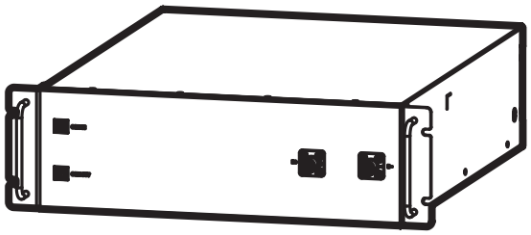
- **Battery Module Pack**

Components	Description
	Battery Module • LX C101-10 x 11 • LX C120-10 x 13 • LX C138-10 x 15 • LX C156-10 x 17

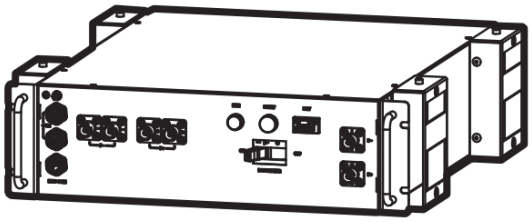
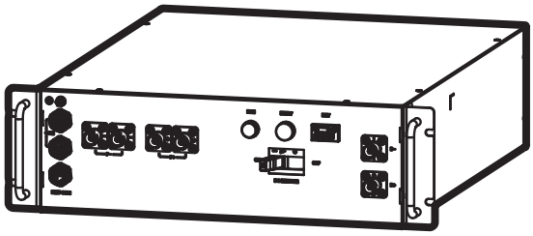
3.2.4 BAT Series 25.6–56.3 Kwh High-Voltage Battery

NOTICE
The configuration and installation options supported vary by region. Please contact your sales representative for details.

Battery Pack

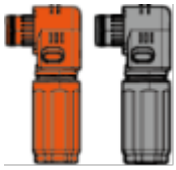
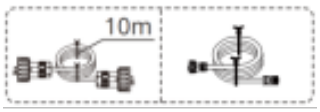
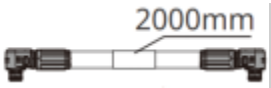
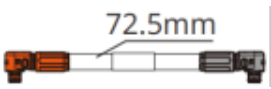
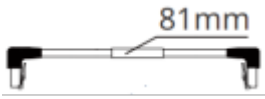
Components	Description
Stacked Installation  Rack mounting 	Battery Pack • GW25.6-BAT-I-G10: × 5 • GW30.7-BAT-I-G10: × 6 • GW35.8-BAT-I-G10: × 7 • GW40.9-BAT-I-G10: × 8 • GW46.0-BAT-I-G10: × 9 • GW51.2-BAT-I-G10: × 10 • GW56.3-BAT-I-G10: × 11

PCU

Components	Description
Stacked Installation  Rack mounting 	PCU × 1

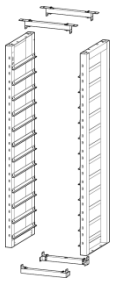
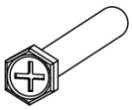
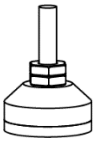
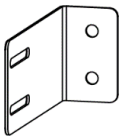
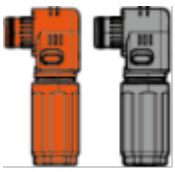
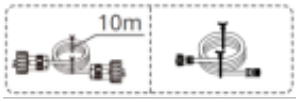
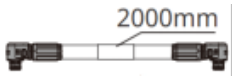
Accessories

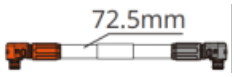
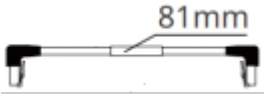
- **Stacked Installation**

Components	Description	Components	Description
	Floor mounting bracket×4		Wall mounting bracket×4
	Equipotential bonding strip×15		M5 screw×N
	Cable grommet×1		Expansion bolt×8
	Adjustable foot×4		Base×1
	Power connector×2		Battery-to-inverter communication cable×1
	B− power cable×1		B+ power cable×1
	Internal battery power cable ×N		Internal battery communication cable ×N
	Protection grounding terminal ×2		M12 expansion bolt ×4

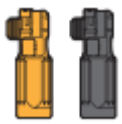
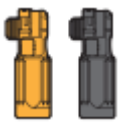
Components	Description	Components	Description
	Nameplate×1		Cable tie×10
	Reducer×4 (Included only with units shipped after April 3, 2026)		Product documentation×1

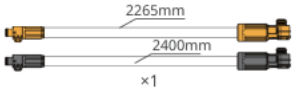
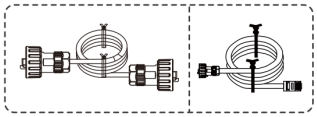
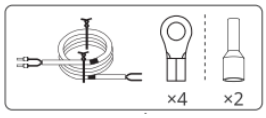
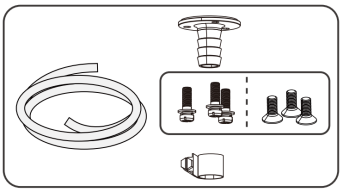
- **Rack mounting**

Components	Description	Components	Description
	Battery rack ×1		Rubber pad×4
	M5 screw×N		ST6.3screw×4
	Adjustable foot×4		Wall fixing bracket×2
	Power connector×2		Battery-to-inverter communication cable×1
	B– power cable×1		B+ power cable×1

Components	Description	Components	Description
	Internal battery power cable×N		Internal battery communication cable×N
	Protection grounding terminal×2		M12 expansion bolt×4
	Nameplate×1		Cable tie×10
	Reducer×1		Product documentation×1

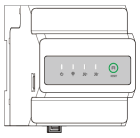
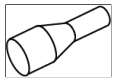
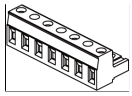
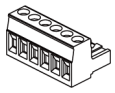
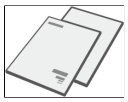
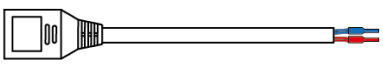
3.2.5 BAT Series 92.1–112.6 Kwh C&I Battery System

Components	Description	Components	Description
	Battery Cabinet x 1		Expansion Screw x 4
	GroundingM5screw x 3		Grounding Terminal x 3
	Inverter-to-Battery Connection Terminal25mm2 x 2		Inter-Battery Connection Terminal50mm2 x 2

Components	Description	Components	Description
	PackInter-Pack Series Cable Harness • GW92.1-BAT-AC-G10：x 8 • GW102.4-BAT-AC-G10：x 9 • GW112.6-BAT-AC-G10：x 10		PackNegative Cable Harness from Pack to High-Voltage Box x 1
	Inverter-to-Battery Connection (Positive)x 1 Inverter-to-Battery Connection (Negative) x 1		Adapter Mounting Bracket x 2 (Required for ET100 only)
	Battery and Inverter Communication Ethernet Cable x 1		Air Conditioner Power Cable Harness Kit x 1
	Firestop Putty x 8		Cable tie x 20
	Air Conditioner Water Pipe Kit x 1		Eye Bolt x 4
	Corrugated Conduit Connector x 6		25mm² to10mm2 Tubular Cable Lug x 4

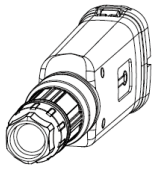
Components	Description	Components	Description
	Product Documentation x 1		

3.2.6 GM330

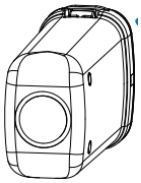
Components	Description	Components	Description
	Smart meter x 1		2-pin communication terminal x1
	Tubular terminals x 6		7-pin communication terminal x 1
	6-pin communication terminal x1		RS485 communication terminal x 1
	Screwdriver x 1		Product documentation x 1
	2PINterminal toRJ45terminal adapter cable x 1	-	-

3.2.7 Communication Module Package Contents

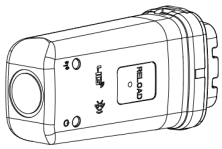
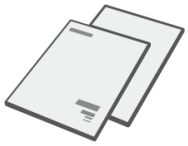
WiFi/LAN Kit-20

Components	Description	Components	Description
	Communication module x 1		Product documentation x 1

4G Kit-CN

Components	Description	Components	Description
	4G communication module x 1	-	-

4G Kit-CN-G21

Components	Description	Components	Description
	4G communication module x 1		Product documentation x 1

3.3 Equipment Storage

If the equipment will not be put into service immediately, store it according to the following requirements. After long-term storage, the equipment must be inspected and approved by qualified personnel before it can be used again.

1. If the inverter has been stored for more than two years or has been out of operation for more than 6 months after installation, it is recommended that it be inspected and tested by a qualified professional before use.
2. To ensure the inverter's internal electronic components remain in good electrical condition, it is recommended that the inverter be energized once every 6 months during storage. If it has not been energized for more than 6 months, it is

recommended that it be inspected and tested by a qualified professional before use.

3. To ensure battery performance and service life, avoid leaving the battery in storage for extended periods. Long-term storage may cause deep discharge, resulting in irreversible chemical degradation, capacity loss, or even complete failure. Use the battery promptly. If long-term storage is necessary, maintain the battery as follows:

Batteries	Initial battery SOC range for storage	Storage Temperature	Charge/discharge maintenance interval[1]	Battery maintenance method[2]
Lynx C Series 101-156Kwh High-Voltage Battery	30%~50%	0~35℃	-20℃≤T < 0℃ （≤1month) 0℃≤T≤35℃（≤6month) 35℃ < T≤45℃（≤1month)	Contact your distributor or after-sales service center for maintenance instructions.
BAT Series 25.6–56.3 kWh High-Voltage Battery	30%~40%	0~35℃	-20~35℃（≤12month) 35~+45℃（≤6month)	
BAT Series 92.1–112.6 kWh C&I Battery System				

NOTICE

[1] The storage period is calculated from the SN date on the battery's outer packaging. Once the storage period is exceeded, charge/discharge maintenance is required. (Battery maintenance date = SN date + charge/discharge maintenance interval.) For instructions on locating the SN date, see:Meaning of the SN Code。

[2] After charge/discharge maintenance is completed successfully, update the maintenance information on the Maintaining Label if one is affixed to the outer carton. If there is no Maintaining Label, record the maintenance date and battery SOC yourself and keep the data safe for maintenance record-keeping.

Packaging Requirements:

Ensure that the outer packaging remains unopened and that the desiccant inside the package is not missing.

Environmental Requirements:

1. Store the equipment in a cool place and protect it from direct sunlight.
2. Ensure that the storage environment is clean, with suitable temperature and humidity and no condensation. Do not install the equipment if condensation is present on its ports.
3. Keep the equipment away from flammable, explosive, corrosive, and other hazardous materials during storage.

Stacking Requirements:

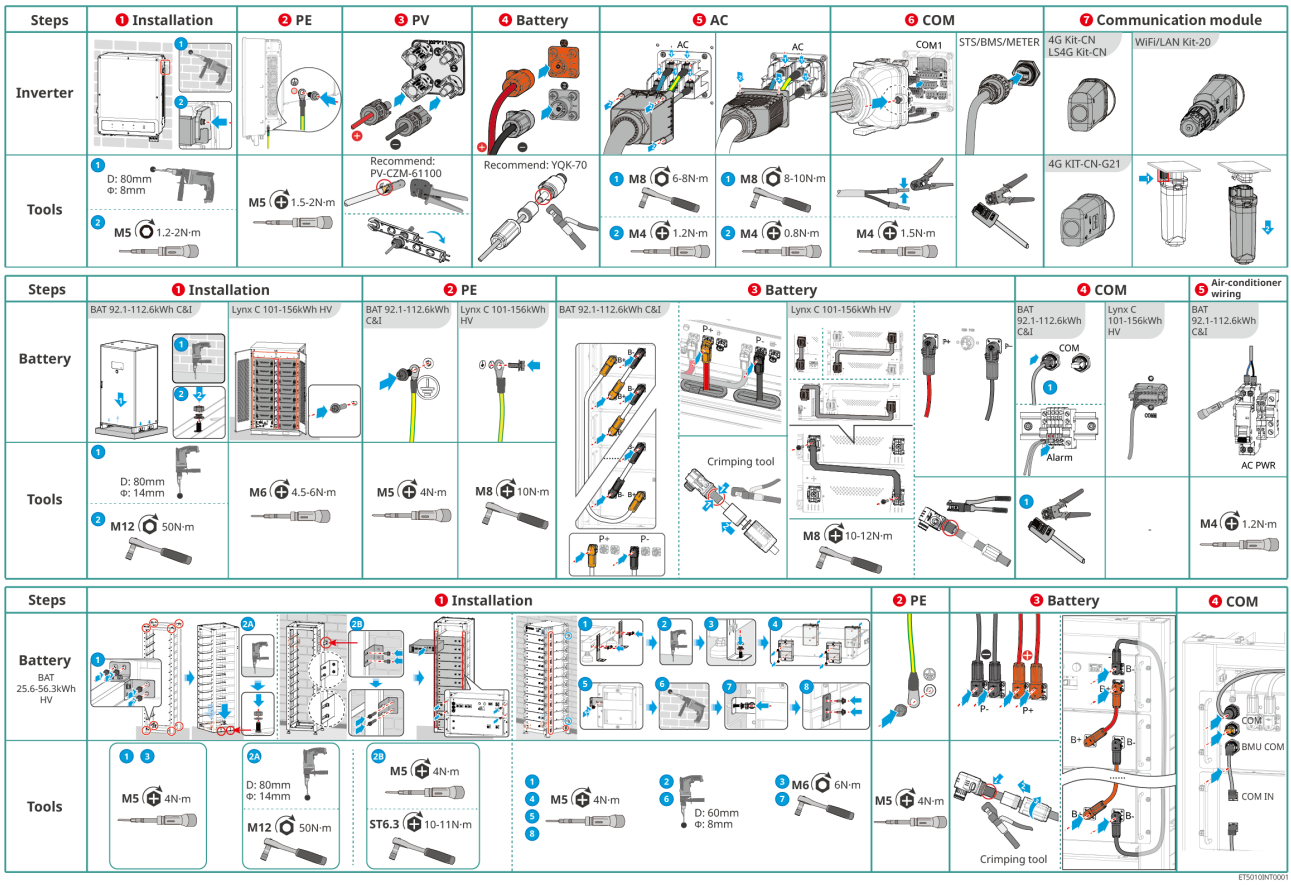
1. Ensure that the stacking height and orientation of the equipment comply with the instructions on the packaging label.
2. Ensure the equipment is stacked securely to prevent it from tipping over.

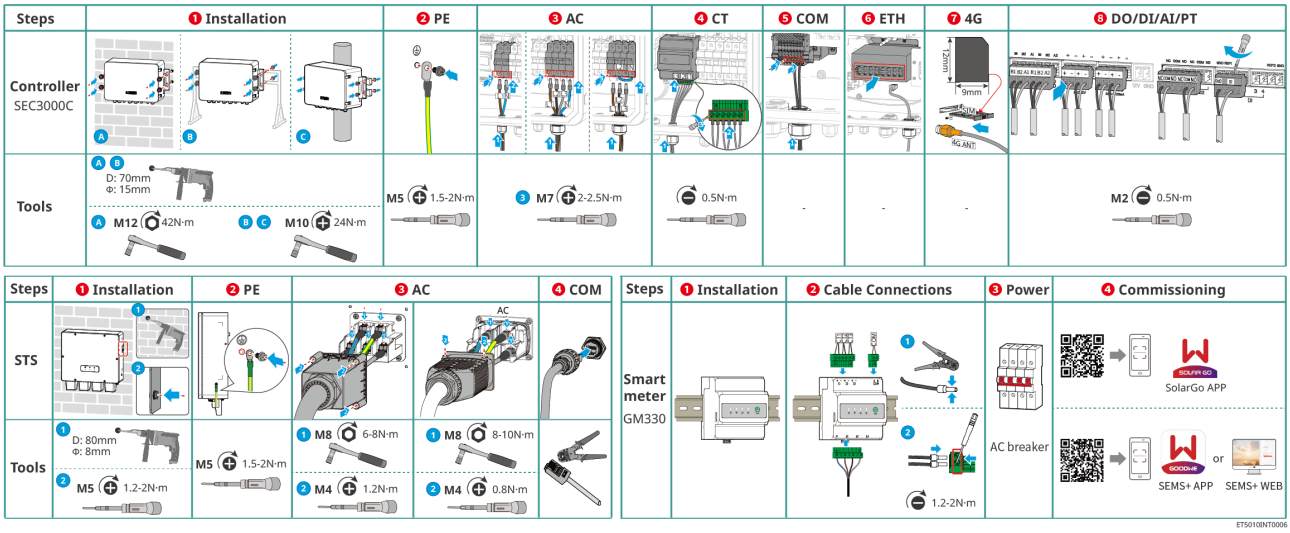
4 Installation

⚠DANGER

Use the items supplied with the equipment for installation and electrical connections. Any equipment damage resulting from failure to do so is not covered by the warranty.

4.1 System Installation and Commissioning Process





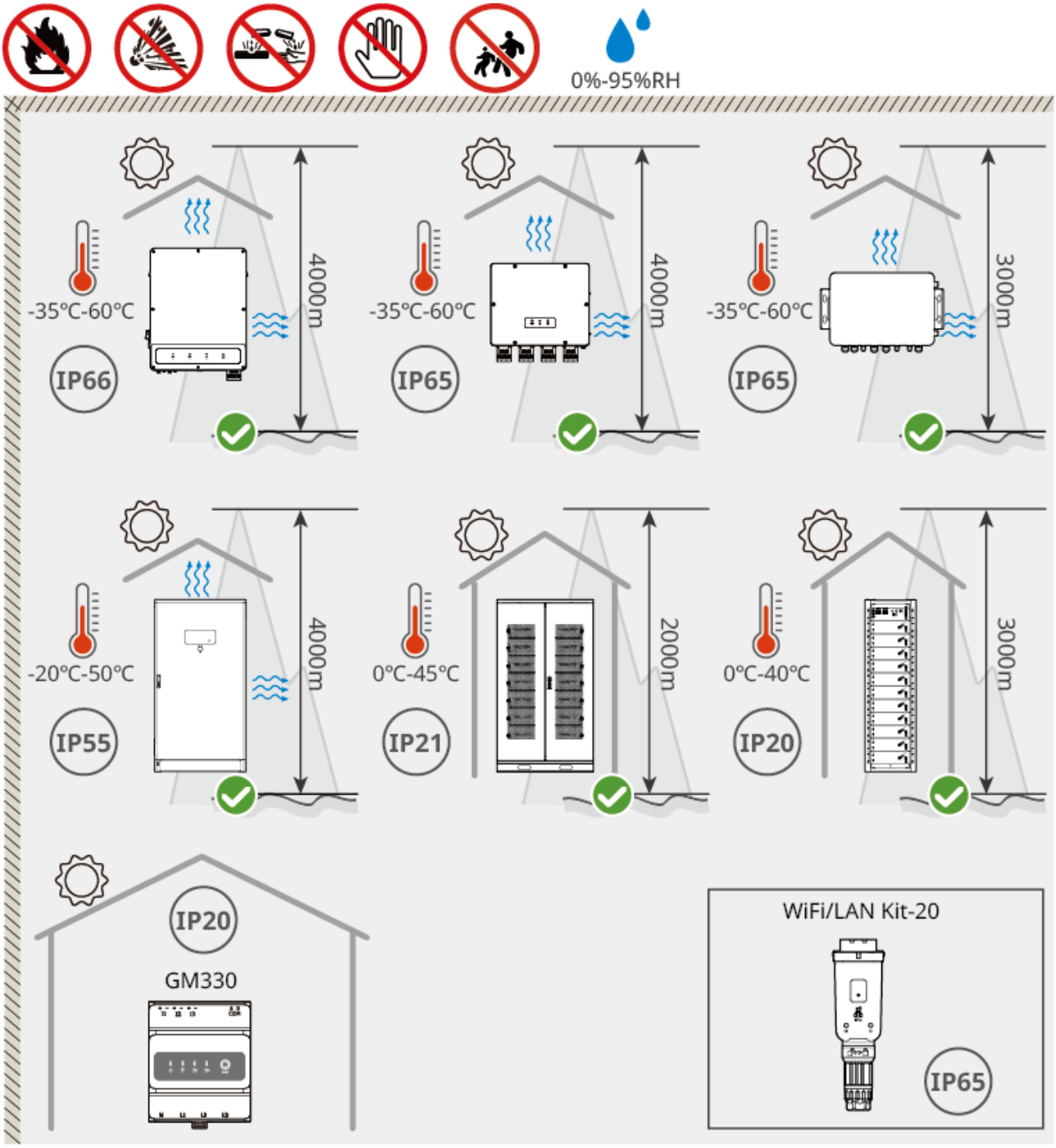
4.2 Installation Requirements

4.2.1 Installation Environment Requirements

1. The installation location must strictly comply with local laws and regulations and relevant industry standards. Do not install in environments that are flammable, explosive, or corrosive. Install near a fire hydrant.
2. The ambient temperature and humidity at the equipment installation site must be within the specified range.
3. Install the equipment out of the reach of children and away from locations where it may be accidentally touched.
4. During inverter operation, the enclosure temperature may exceed 60°C. Do not touch the enclosure until it has cooled to prevent burns.
5. Avoid installing the equipment where it is exposed to direct sunlight, rain, or snow. Installation in a sheltered location is recommended; install a sunshade if necessary.
6. Direct sunlight, high temperatures, and other unfavorable environmental conditions may cause inverter output power derating.
7. The installation space must meet the equipment ventilation and heat dissipation requirements, as well as the required operating clearance.
8. Avoid installing the equipment in areas exposed to direct cold air from air conditioner outlets. Excessive localized temperature differences may cause condensation inside the equipment and result in damage.
9. The installation environment must meet the equipment's Ingress Protection Rating.
   - The inverter, Smart Communication Stick, and Smart Energy Controller enclosure are suitable for indoor and outdoor installation;

- The electricity meter is suitable for indoor installation;
- BATSeries 92.1-112.6Kwh The C&I battery system is suitable for both indoor and outdoor installation;
- Lynx C Series 101-156Kwh high-voltage batteries andBATSeries 25.6-56.3Kwh high-voltage batteries are suitable for indoor installation and require adequate ventilation.

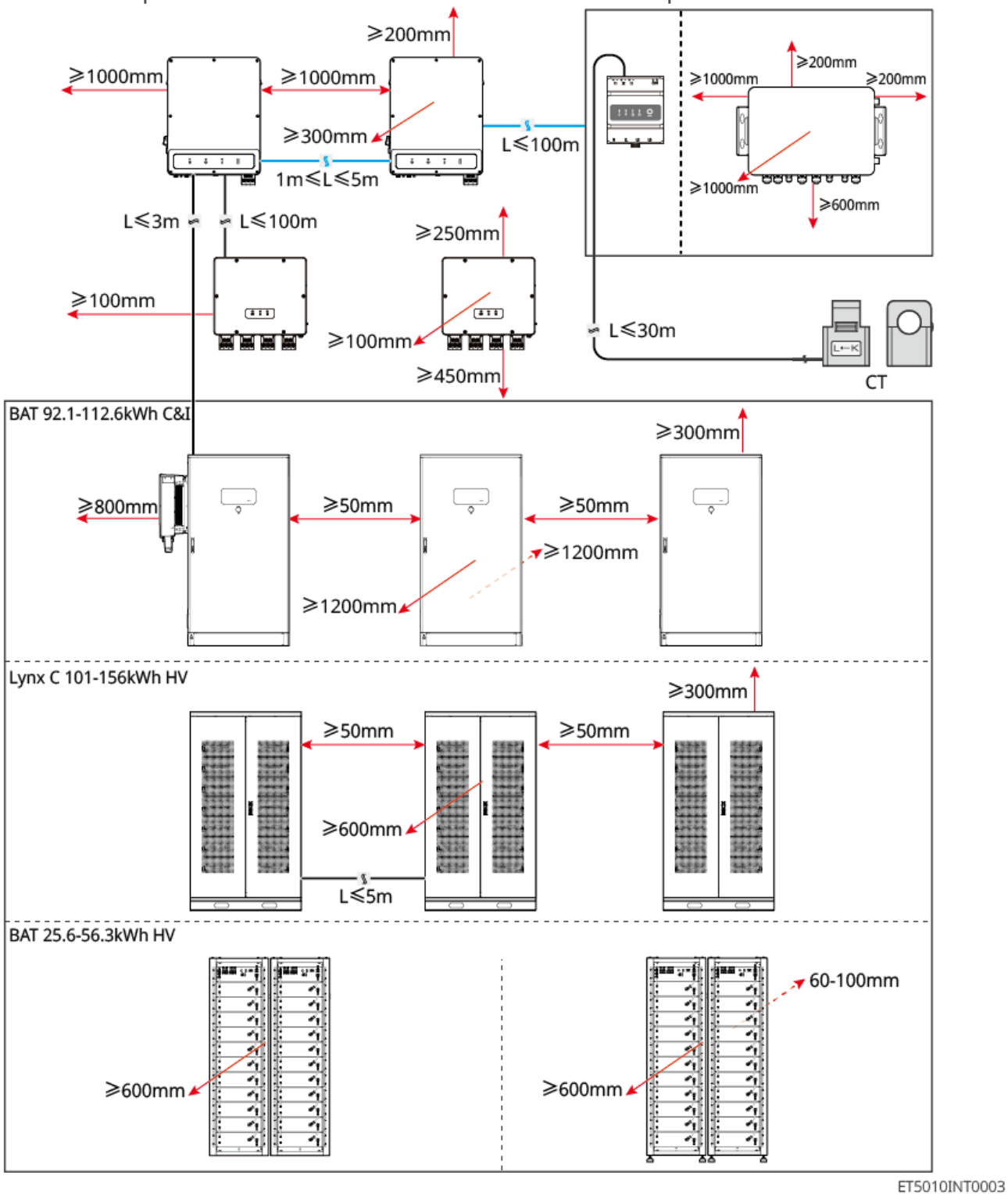
10. Install the equipment at a height that allows for easy operation and maintenance. Ensure that the equipment indicators and all labels are easy to see, and that the terminals are easily accessible.
11. The equipment installation altitude must be below the Max. Operating Altitude.
12. The battery system must be installed on a level, dry surface. The surface must not be uneven or sloped; installation on a surface prone to water accumulation or subsidence is strictly prohibited. Ensure that the surface can support the Weight of the battery system.
13. Before installing equipment outdoors in areas subject to salt damage, consult the equipment manufacturer. Areas subject to salt damage mainly refer to locations within 500 m of the coastline. The affected area depends on factors such as sea breezes, precipitation, and topography.
14. Keep the equipment away from strong magnetic fields to prevent electromagnetic interference. If a radio station or wireless communications equipment operating below 30 MHz is located near the installation site, install the equipment in accordance with the following requirements:
    - Inverter: Add a ferrite core with multiple turns on the inverter's DC input cables or AC output cables, or add a low-pass EMI filter; alternatively, ensure a distance of more than 30 m between the inverter and radio equipment susceptible to electromagnetic interference.
    - Other equipment: Ensure a distance of more than 30 m between the equipment and radio equipment susceptible to electromagnetic interference.
15. Ensure that carbon dioxide, Novec 1230, or FM-200 fire extinguishers are available near the equipment. Use an extinguisher containing the recommended agent when fighting a fire; do not use water or ABC dry chemical extinguishers. Firefighters must wear protective clothing and self-contained breathing apparatus.
16. The DC cables and communication cables between the battery and inverter must be less than 3 m long. Ensure that the installation distance between the inverter and battery meets the cable length requirements.
17. The equipment emits Noise Emission during operation. Install it away from noise-sensitive areas, such as residential areas, schools, and hospitals, to prevent operating noise from disturbing people in the vicinity.



4.2.2 Installation Space Requirements

NOTICE
The battery installation space dimensions may be adjusted based on the actual installation scenario and local regulations.

When installing equipment in the system, leave sufficient space around each unit to ensure adequate clearance for installation and heat dissipation.



ET5010INT0003

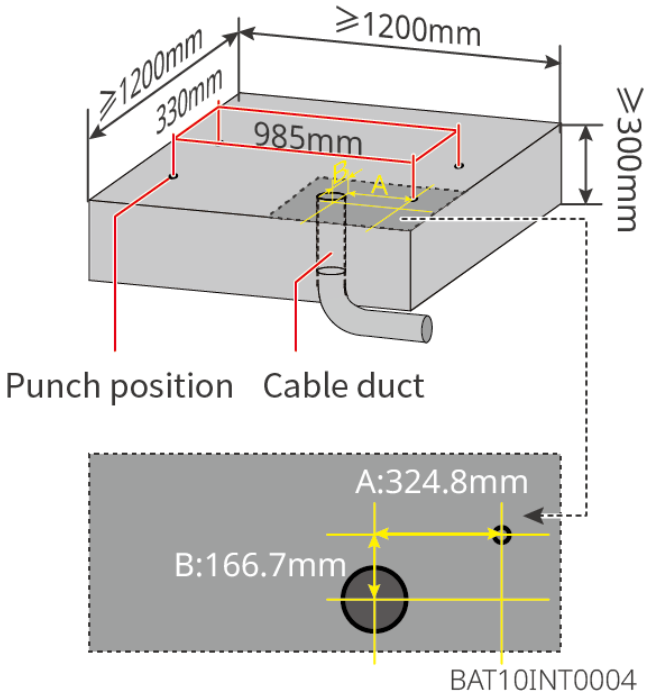
4.2.3 Foundation Requirements

NOTICE

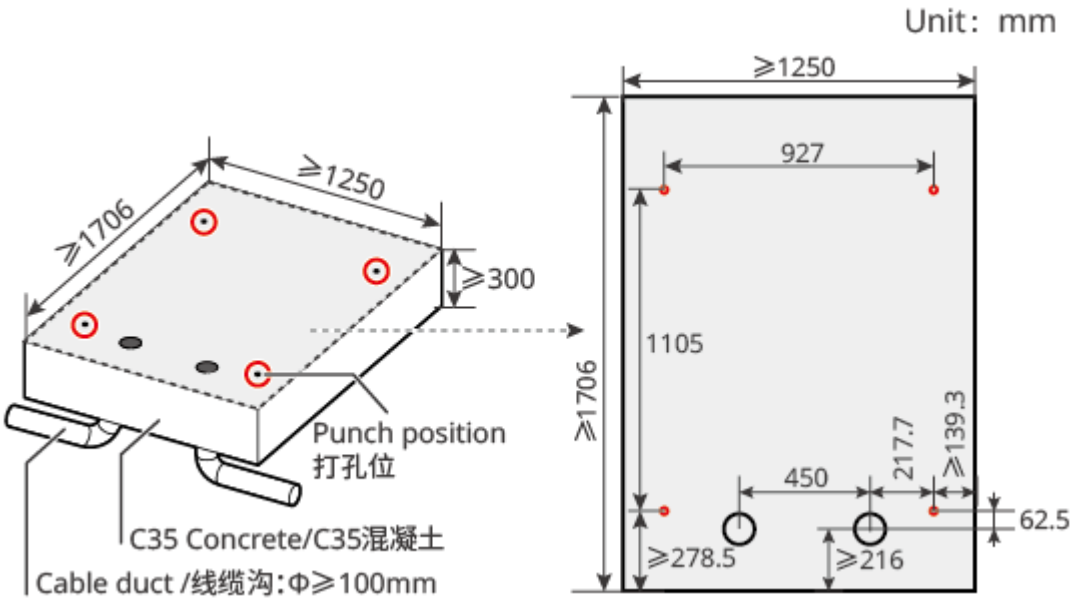
- The BAT Series 92.1–112.6 kWh commercial and industrial battery system and the BAT-C Series 208.9–261.2 kWh commercial and industrial battery system require a foundation.
- The conduit can be replaced with a suitable size according to site conditionsPVCconduit.

1. Foundation material requirements:
   - The foundation for the BAT Series 92.1–112.6 kWh commercial and industrial battery system must be a C25 plain concrete hardstand or another non-combustible surface.
   - The foundation for the BAT-C Series 208.9–261.2 kWh commercial and industrial battery system must be a C35 plain concrete hardstand or another non-combustible surface.
2. Provide a trench or cable outlet opening in the foundation to facilitate equipment cabling.
3. Adjust the equipment (including its height, embedded expansion anchors, and conduits) to suit the installation process and site conditions.
4. The finished height of the equipment foundation may be adjusted according to the equipment and actual site requirements.
5. Ensure the equipment is installed level. Do not tilt or invert it.
6. Cable trench requirements:
   - If the equipment uses bottom cable entry, the trench must be designed to prevent dust and rodents from entering.
   - The trench must be designed to prevent water ingress and moisture, which could cause cable aging and short circuits and affect the normal operation of the equipment.
   - Because the equipment cables are thick, allow sufficient space for them when designing the trench to ensure they can be routed smoothly without abrasion.

BAT Series 92.1–112.6 Kwh Commercial and Industrial Battery System:



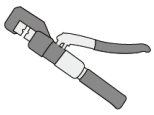
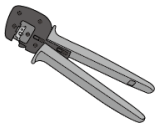
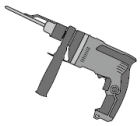
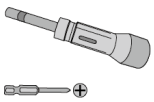
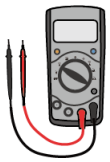
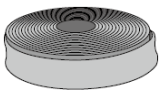
BAT Series 208.9 Kwh Commercial and Industrial Battery System:



4.2.4 Tool Requirements

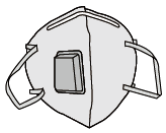
NOTICE
The following tools are recommended for installation. Other auxiliary tools may be used on site as necessary.

Installation Tools

Tool Type	Description	Tool Type	Description
	Diagonal cutting pliers		RJ45 crimping tool
	Wire stripper		YQK-70 hydraulic crimping tool
	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 Range ≤ 1100 V
	Heat-shrink tubing		Heat gun

Tool Type	Description	Tool Type	Description
	Cable ties		Vacuum cleaner
	Spirit level	-	-

Personal Protective Equipment

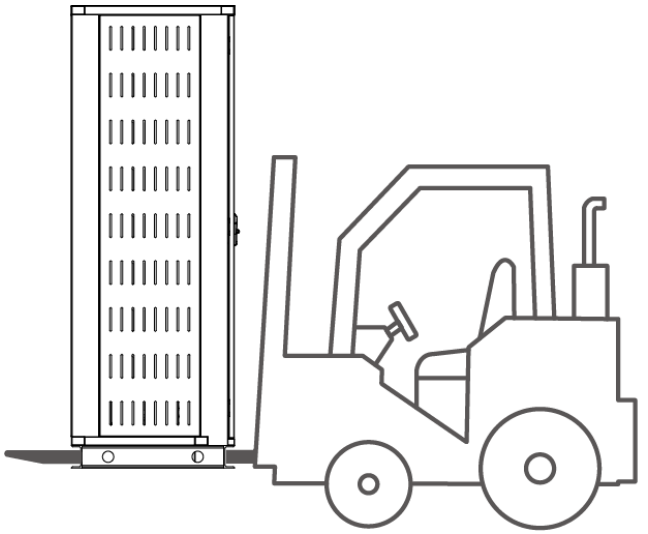
Tool Type	Description	Tool Type	Description
	Insulating gloves, protective gloves		Dust mask
	Safety glasses		Safety shoes

4.2.5 Handling Requirements

⚠WARNING

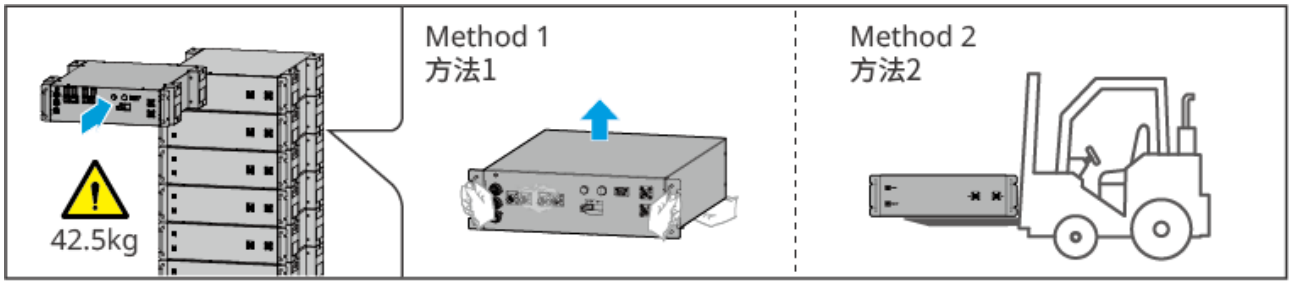
1. Transportation, handling, installation, and other operations must comply with the laws, regulations, and applicable standards of the country or region where they are performed.
2. Before installation, move the equipment to the installation site. To prevent personal injury or equipment damage during handling, observe the following precautions:
   - Assign an appropriate number of personnel according to the equipment Weight to prevent it from exceeding the safe lifting capacity of the personnel and causing injury.
   - Wear safety gloves to prevent injury.
   - Keep the equipment balanced during handling to prevent it from falling.
   - Ensure that the cabinet doors are locked during equipment handling.
3. The energy storage system can be transported to the installation site by crane or forklift.
4. When lifting the equipment, use flexible slings or straps. Each strap must have a load-bearing capacity of ≥2 t.
5. When transporting the equipment by forklift, the forklift must have a load-bearing capacity of ≥2 t.

- **Lynx C Series 101-156Kwh High-Voltage Battery**



LXC10110INT0001

- **BATSeries 25.6-56.3Kwh High-Voltage Battery**

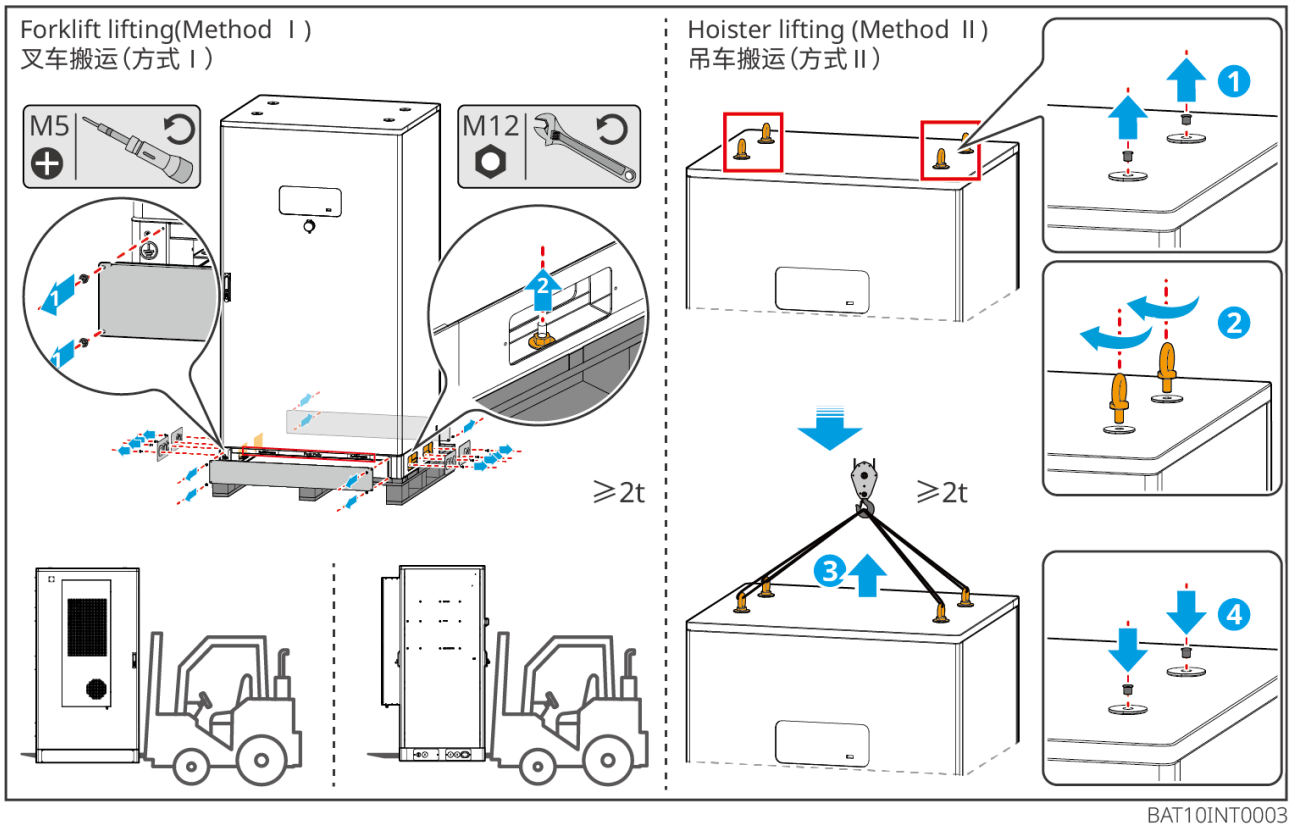


BAT10INT0032

- **BAT Series 92.1–112.6 Kwh C&I Battery System**

NOTICE

- Remove the baffle before transporting the equipment by forklift.
- For shipping, the battery system is secured to the base with bolts underneath. Remove the base before installation.



BAT10INT0003

4.3 Installing the Battery System

⚠WARNING

- Before installation, check that the ground is level and not inclined.
- Ensure that the energy storage system is upright and firmly placed on the ground, with no risk of tipping over.

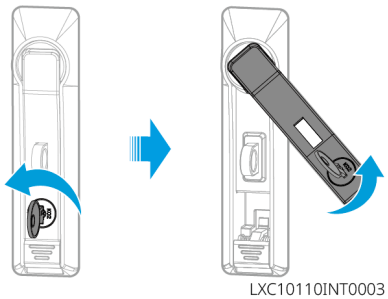
4.3.1 Opening the Cabinet Door

⚠WARNING

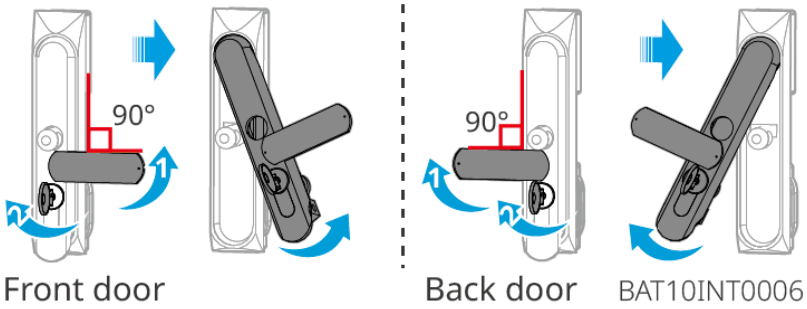
- Do not open the cabinet doors while handling the equipment.
- Close the cabinet doors after completing equipment installation, wiring, and commissioning.

Step 1: Unlock the cabinet door with the key.
Step 2: Turn the door handle to open the cabinet door.

- **Lynx C Series 101-156Kwh High-Voltage Battery**

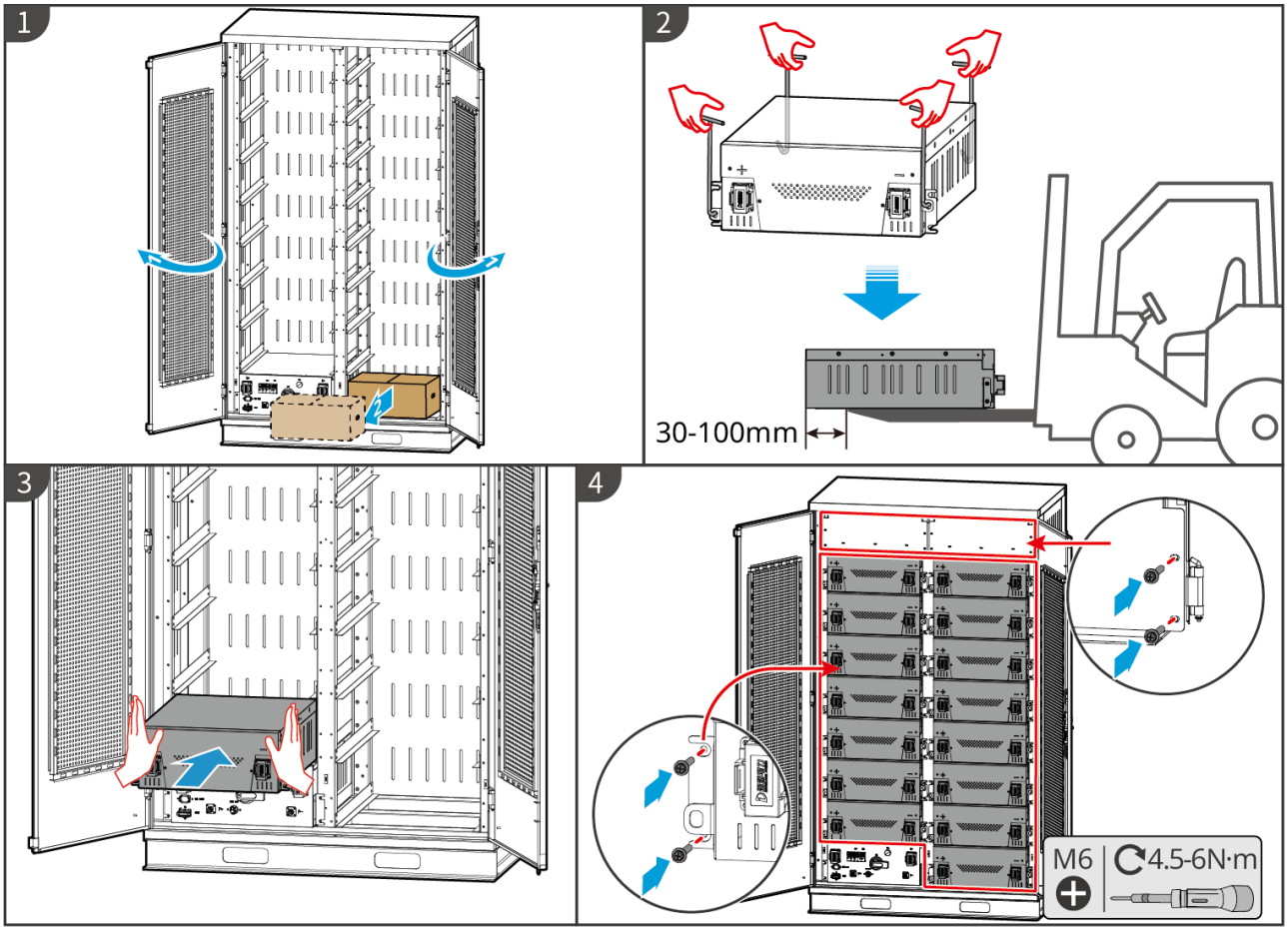

LXC10110INT0003

- **BATSeries 92.1-112.6Kwh C&I Battery System**



4.3.2 Installing the Lynx C Series 101–156 Kwh High-Voltage Battery

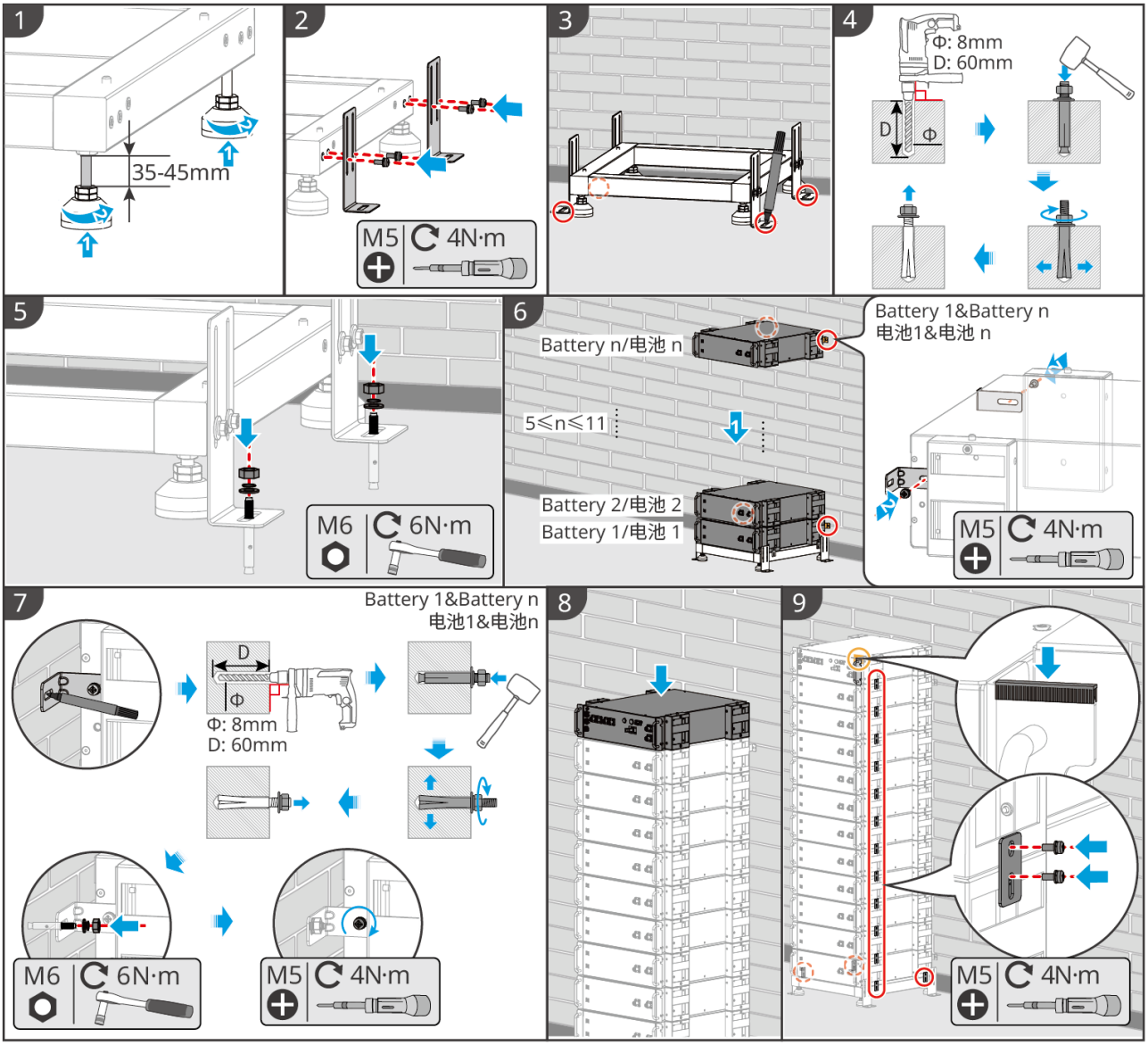
Step 1: Open the battery cabinet door and remove the accessory kit.
Step 2: Use the lifting-hook tool to move the battery pack onto a forklift or lifting equipment.
Step 3: Use a forklift or lifting equipment to install the battery packs in the battery cabinet from bottom to top. Do not install a battery in the topmost position of the LX C 101-10 or LX C138-10 battery cabinet.
Step 4: Tighten the fixing screws for the battery packs and cover panels (a cover panel must be installed only at the top of the LX C 101-10 and LX C138-10 battery cabinets).



4.3.3 Installing BAT Series 25.6–56.3 Kwh High-Voltage Batteries

· Stacked Installation

Step 1: Install the adjustable feet underneath the base. The feet can be adjusted to a height of 35–45 mm.
Step 2: Secure the floor-fixing bracket to the base.
Step 3: Mark the floor drilling positions for the expansion bolts with a pen.
Step 4: Install the expansion bolts.
Step 5: Secure the floor-fixing bracket to the floor using the expansion bolts.
Step 6: Stack the battery PACKs, and loosely attach the wall-fixing brackets to the top and bottom battery PACKs.
Step 7: Mark the wall drilling positions for the expansion bolts with a pen. Secure the wall-fixing brackets using the expansion bolts, then tighten the wall-fixing brackets on the battery PACKs.
Step 8: Place the high-voltage box.
Step 9: Install the equipotential bonding jumper and cable grommet.



BAT10INT0021

• Battery Rack Installation

Install the Battery Rack

Step1： Lay the support flat, align the holes according to the numbered markings, and secure it withM5screws.

Step2： Position the rack upright according to the arrow markings.

Secure the Battery Cabinet

- **Type I**

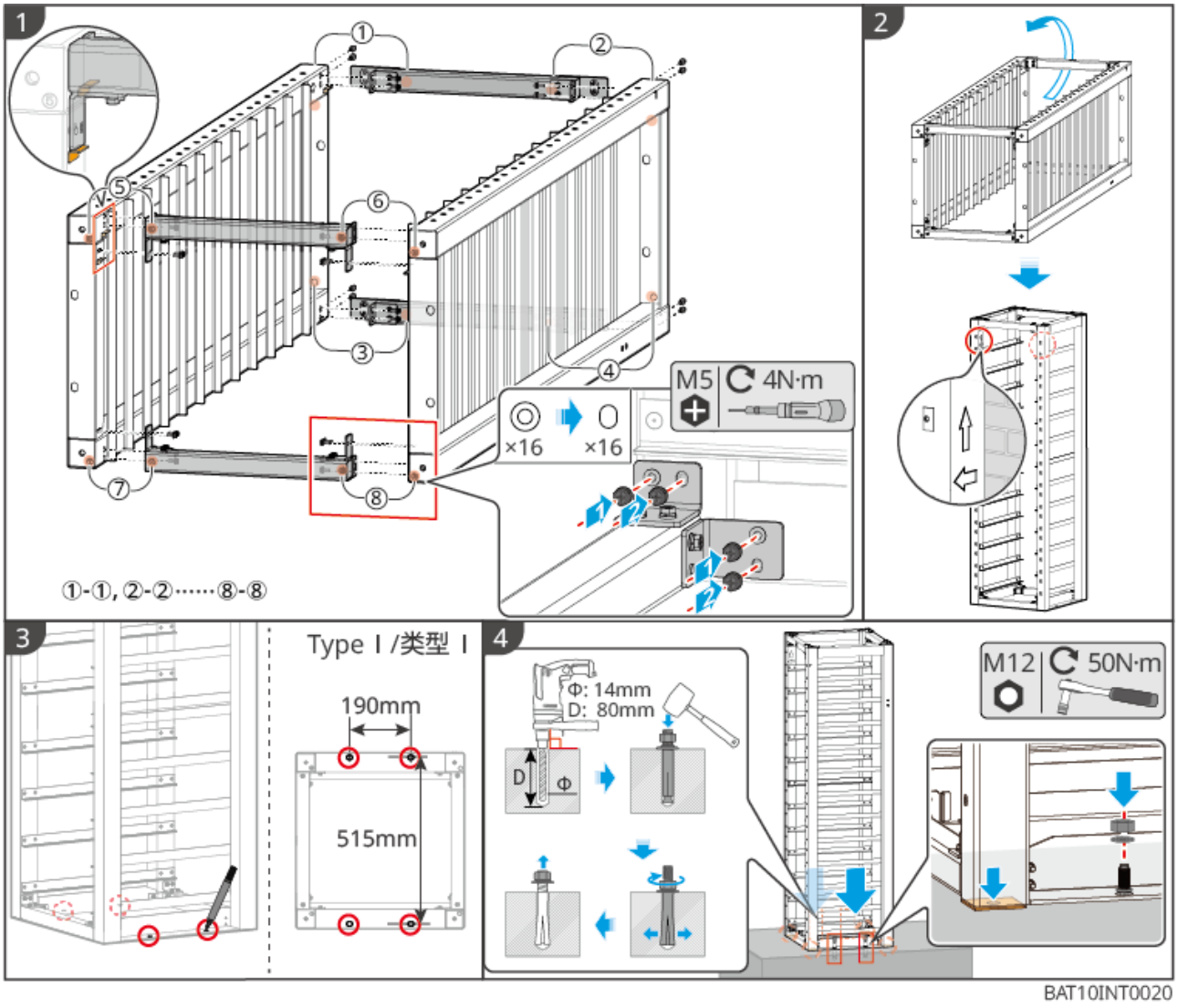
Step3： Use a marker to mark the anchor bolt drilling locations on the level floor.
Step4： Install the expansion anchors and use them to secure the battery rack to the level floor.

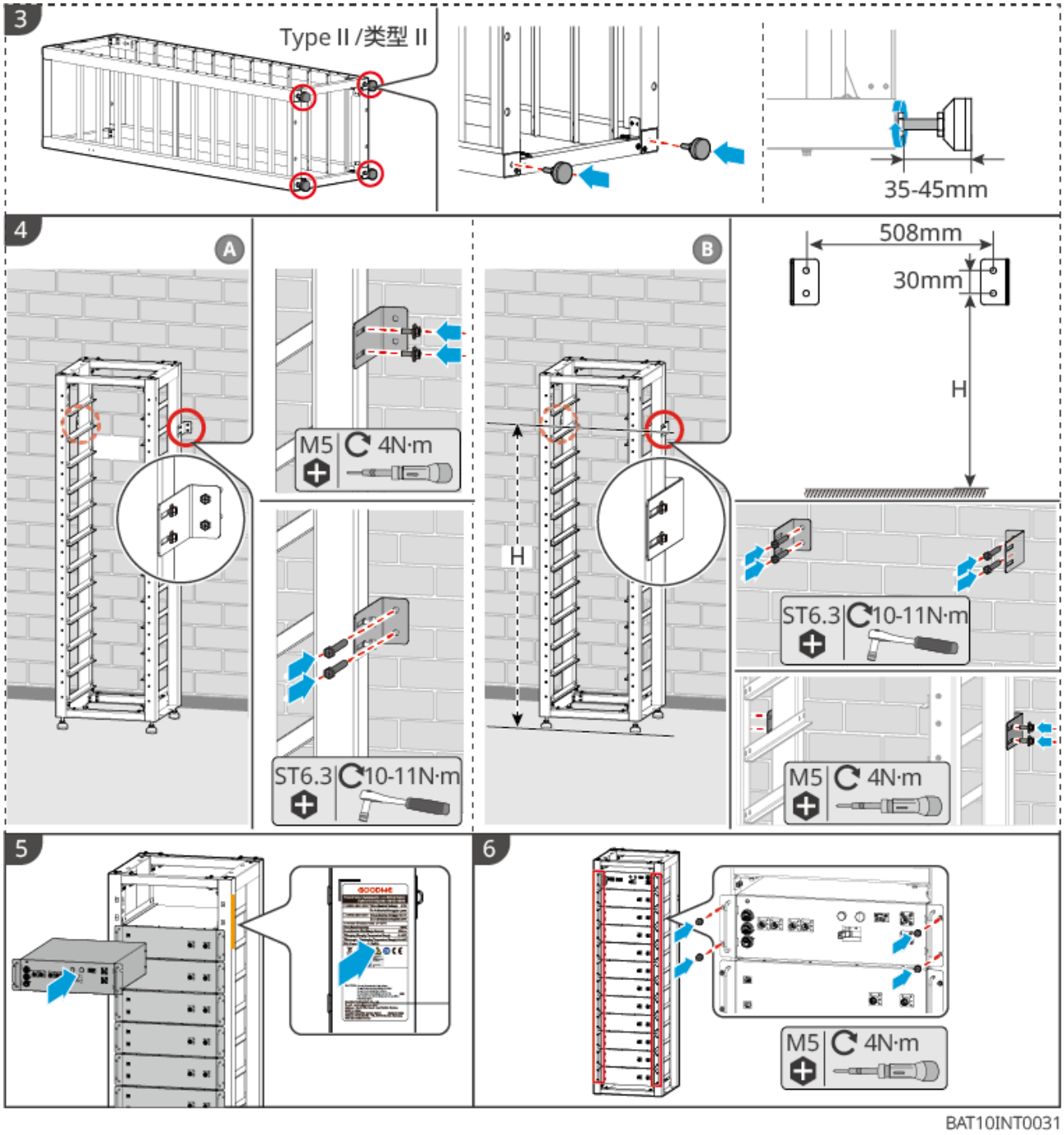
- **Type II**

Step3： Lay the rack on its side and install the adjustable feet on the bottom.
Step4： Position the rack upright and secure it to the wall using the wall-mounting brackets.

Install the High-Voltage Box and Battery PACK

Step5： Slide the high-voltage box and batteryPACK into the rack in sequence, then attach the labels to the side of the rack。
Step6： Unable to findM5PACK withPACK。


1
①-①, ②-②……⑧-⑧
M5 4N·m
×16
×16
2
3
Type I /类型 I
190mm
515mm
4
Φ: 14mm
D: 80mm
D
Φ
M12 50N·m
BAT10INT0020

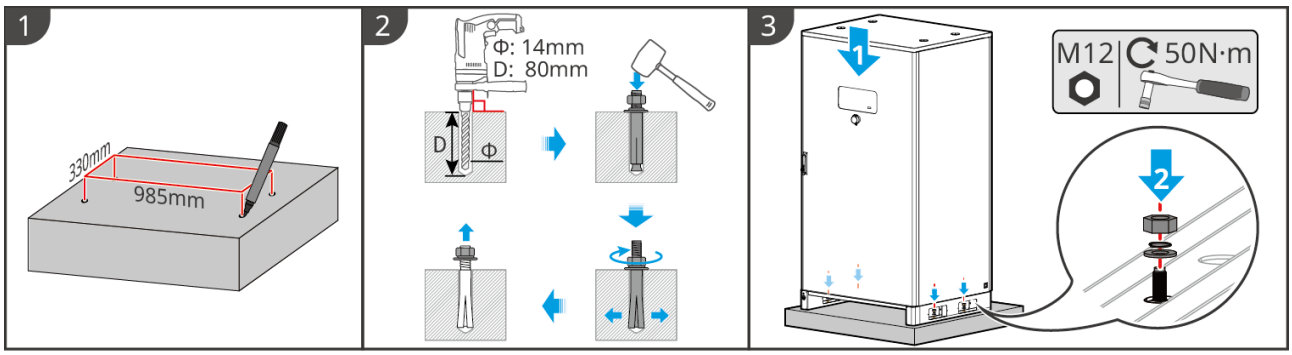


4.3.4 Installation of the BAT Series 92.1–112.6 Kwh C&I Battery System

Step 1: Secure the battery system to the foundation.

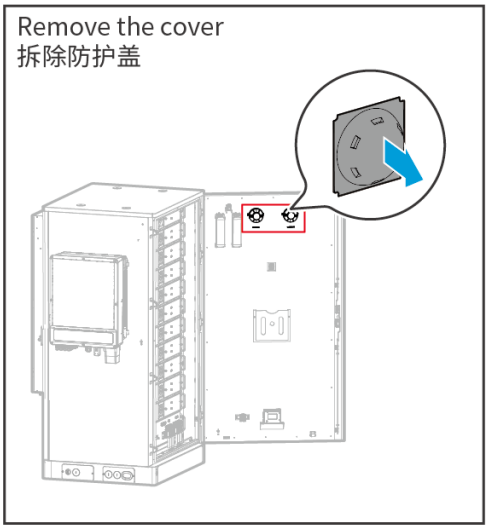
1. Mark the drilling locations according to the dimensions shown in the figure.

2. Drill the holes with a rotary hammer drill and install the expansion anchors.
3. Move the battery rack to the holes and secure the battery to the foundation with expansion anchors.



BAT10INT0005

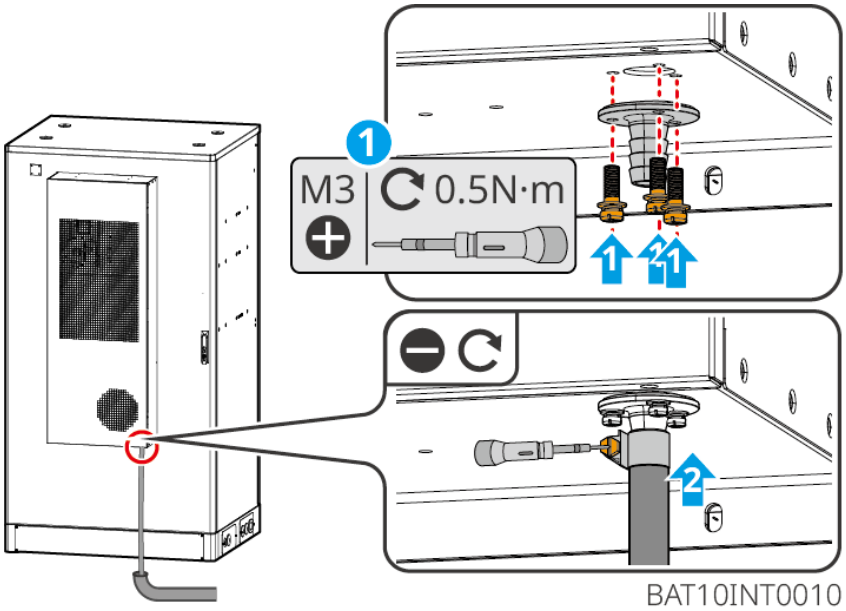
Step 2: Remove the Protection covers from the smoke and heat detectors. The alarms on the smoke detector and temperature sensor are fitted with Protection covers when the battery is shipped. Remove these covers to ensure the alarms operate correctly.



BAT10INT0016

Step 3: Install the air conditioner drain hose.

1. Install the air conditioner drain hose connector.
2. Secure the air conditioner drain hose to the connector.



4.4 Installing the Inverter

⚠CAUTION

- When drilling, ensure that the holes do not pass through water pipes, cables, or other items inside the wall to avoid hazards.
- When drilling, wear safety goggles and a dust mask to prevent dust from entering your respiratory tract or eyes.
- Ensure the inverter is securely installed to prevent it from falling and injuring anyone.

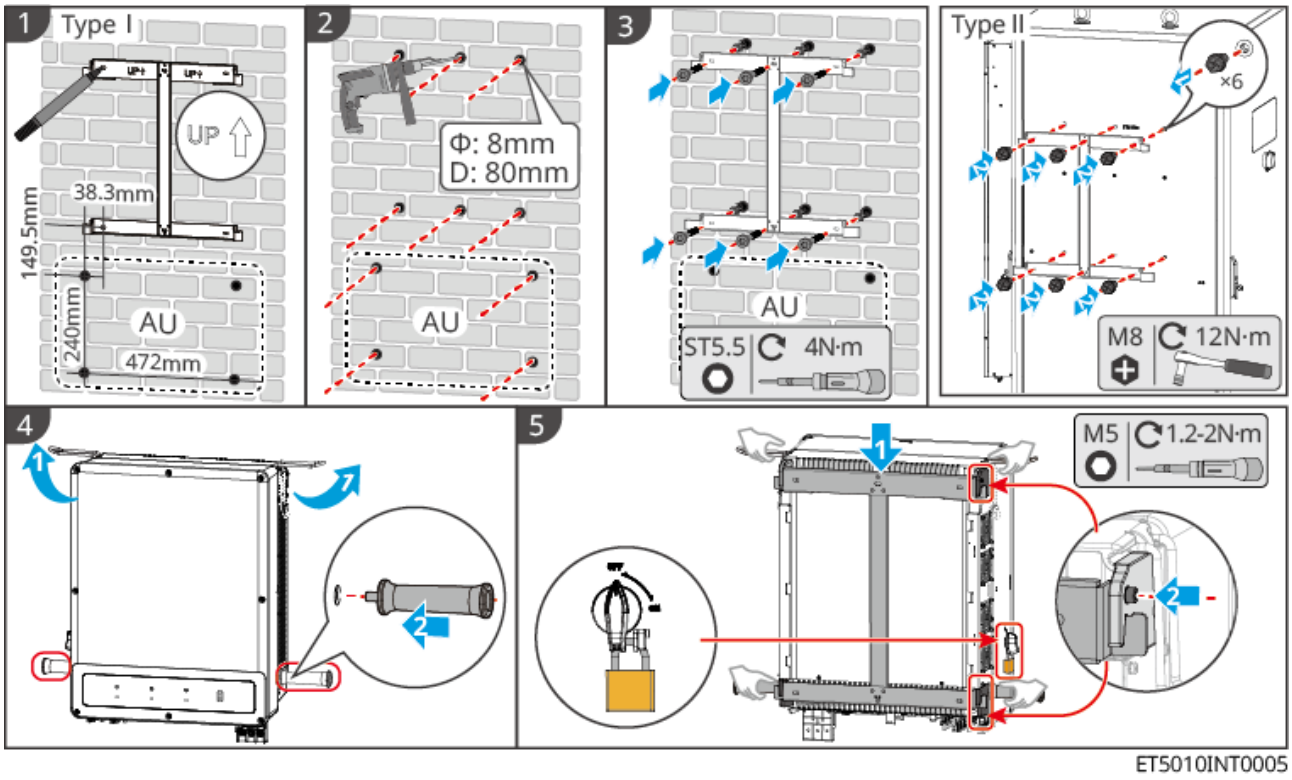
- **Wall-Mounted Inverter Installation**

Step 1: Place the backplate level against the wall and mark the drilling locations with a marker.
Step 2: Drill the holes using a hammer drill.
Step 3: Secure the inverter backplate to the wall using expansion bolts.
Step 4: Open the inverter handle. If an additional lifting rod is required, contact the after-sales service center to obtain one.
Step 5: Secure the inverter to the backplate.

1. (Optional) Use a DC Switch lock to lock the DC Switch in the“OFF”position. The

DC Switch lock is user-supplied. Ensure that the lock's shackle diameter is suitable for the lock hole.

2. Hang the inverter on the backplate and tighten the retaining screw (only one side needs to be secured). Ensure that the inverter is firmly installed.



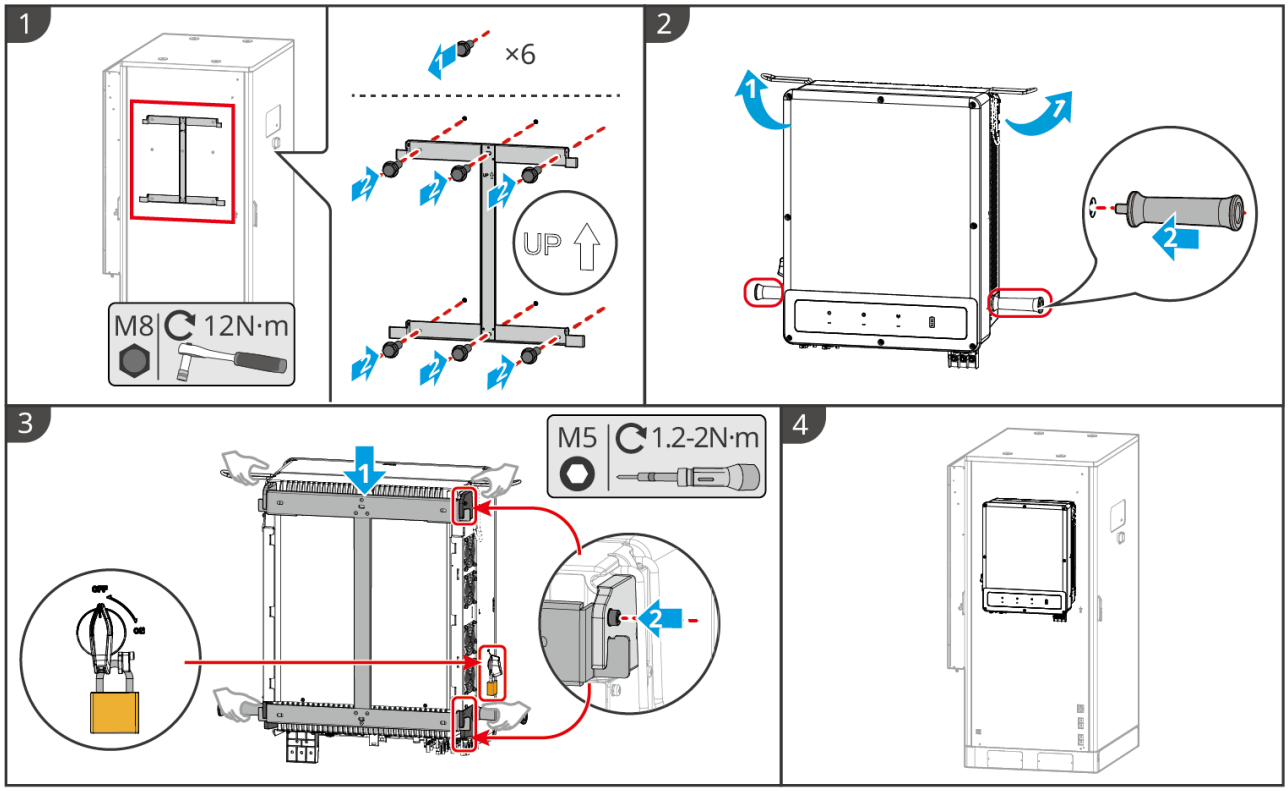
- **Inverter Installation in the Battery System Cabinet**

Step1： Secure the inverter backplate to the battery cabinet.

Step2： Open the inverter handle. If an additional lifting rod is required, contact the after-sales service center to obtain one.

Step 3: Secure the inverter to the backplate.

1. (Optional) Use a DC Switch lock to lock the DC Switch in the“OFF”position. The DC Switch lock is user-supplied. Ensure that the lock's shackle diameter is suitable for the lock hole.
2. Hang the inverter on the backplate and tighten the retaining screw (only one side needs to be secured). Ensure that the inverter is firmly installed.



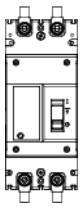
ET5010INT0004

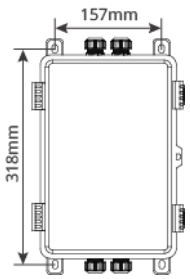
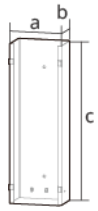
Install the Protection Cover (Optional)

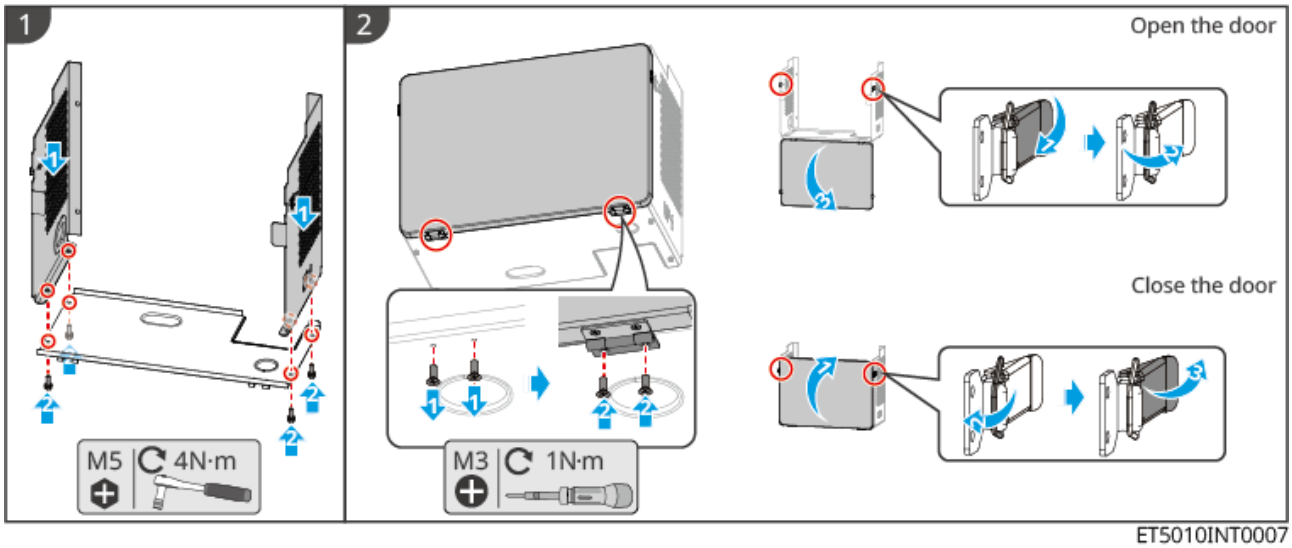
Step1： Assemble the Protection cover.

Step2： Install the front cover.

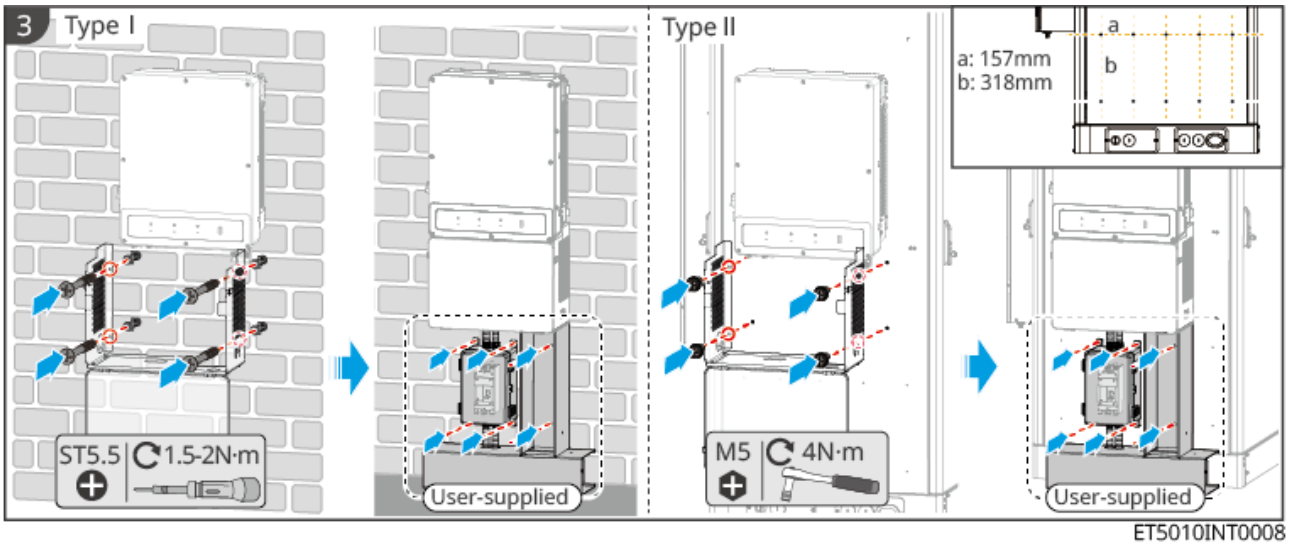
Step3： Secure the Protection cover to the wall/side of the battery cabinet, and install the circuit breaker, waterproof enclosure, and cable tray in accordance with local regulations. Refer to the table below for specific requirements.

Equipment		Recommended model/specifications	Description
Circuit breaker		Model: NDM3NZ-320V/23 Rating: 1000 V/125 A	User-supplied.

Equipment		Recommended model/specifications	Description
Water proof enclosure		Ingress protection rating > IP65 Required hole spacing: • Horizontal hole spacing: 157 mm • Vertical hole spacing: 318 mm Appearance and dimensions are for reference only	User-supplied. If the hole spacing on the waterproof enclosure does not meet the requirements and it cannot be mounted on the battery cabinet, provide a mounting plate. First, drill holes in the mounting plate as required and secure it to the battery cabinet. Then secure the waterproof enclosure to the mounting plate.
Cable tray		a: 150mm b: 250mm c: To be determined by the user based on the actual cable routing Illustration for reference only	User-supplied.



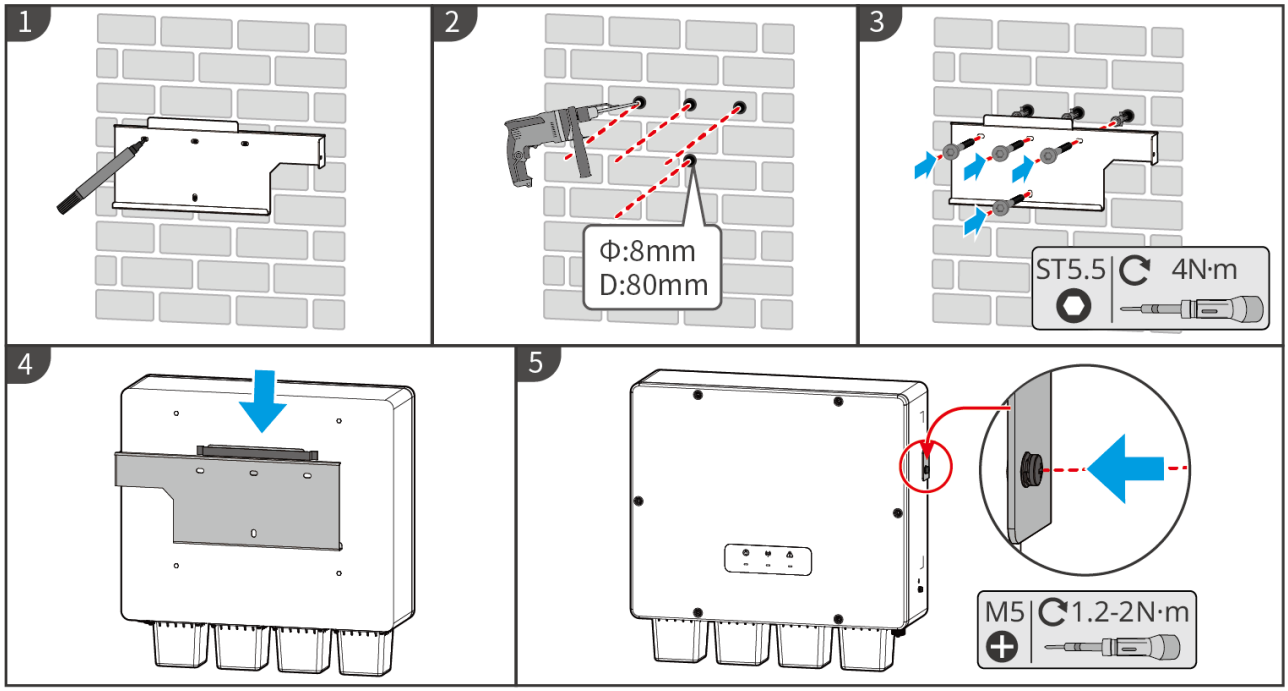
ET5010INT0007



ET5010INT0008

4.5 Installing the STS

Step 1: Place the backplate level against the wall and mark the drilling locations with a marker.
Step 2: Drill the holes using a hammer drill.
Step 3: Secure the backplate to the wall using expansion bolts.
Step 4: Hang the STS on the backplate.
Step 5: Secure the backplate to the STS and ensure the STS is firmly installed.



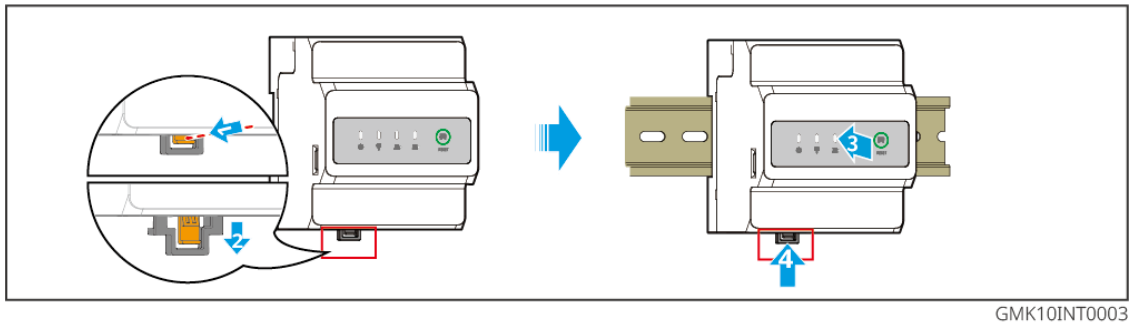
STS10INT0001

4.6 Install the Energy Meter

⚠WARNING

In areas with a risk of lightning, if the energy meter cable is longer than 10 m and is not routed through a grounded metal conduit, installation of an external lightning protection device is recommended.

GM330



GMK10INT0003

5 System Wiring

⚠DANGER

- Cable installation, routing, and connection must comply with local laws, regulations, and standards.
- All operations performed and the specifications of cables and components used during electrical connections must comply with local laws and regulations.
- Before making electrical connections, disconnect the DC Switch and AC output switch, and ensure that the equipment is 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 the cable may result in a poor connection. When wiring, leave some slack in the cable before connecting it to the inverter 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, as this may prevent the equipment from operating or cause overheating due to an unreliable connection, potentially damaging the inverter terminal block.

⚠WARNING

- Do not connect any loads between the inverter and the AC Switch directly connected to the inverter.
- Each inverter must be equipped with an AC output circuit breaker. Multiple inverters must not be connected to the same AC circuit breaker.
- To ensure that the inverter can be safely disconnected from the grid in the event of an abnormal condition, install an AC circuit breaker on the inverter's AC side. Select a suitable AC circuit breaker in accordance with local regulations.
- The inverter's BACK-UP function requires an STS static transfer switch cabinet.

NOTICE

- Wear personal protective equipment, such as safety shoes, protective gloves, and insulating gloves, when making electrical connections.
- Electrical connection work may only be performed by qualified personnel.
- Cable colors shown in the illustrations are for reference only. Actual cable specifications must comply with local regulations.
- External overcurrent protection devices for the battery and AC output ports must be provided during on-site installation and specified in the installation manual.

5.1 System Wiring Schematic

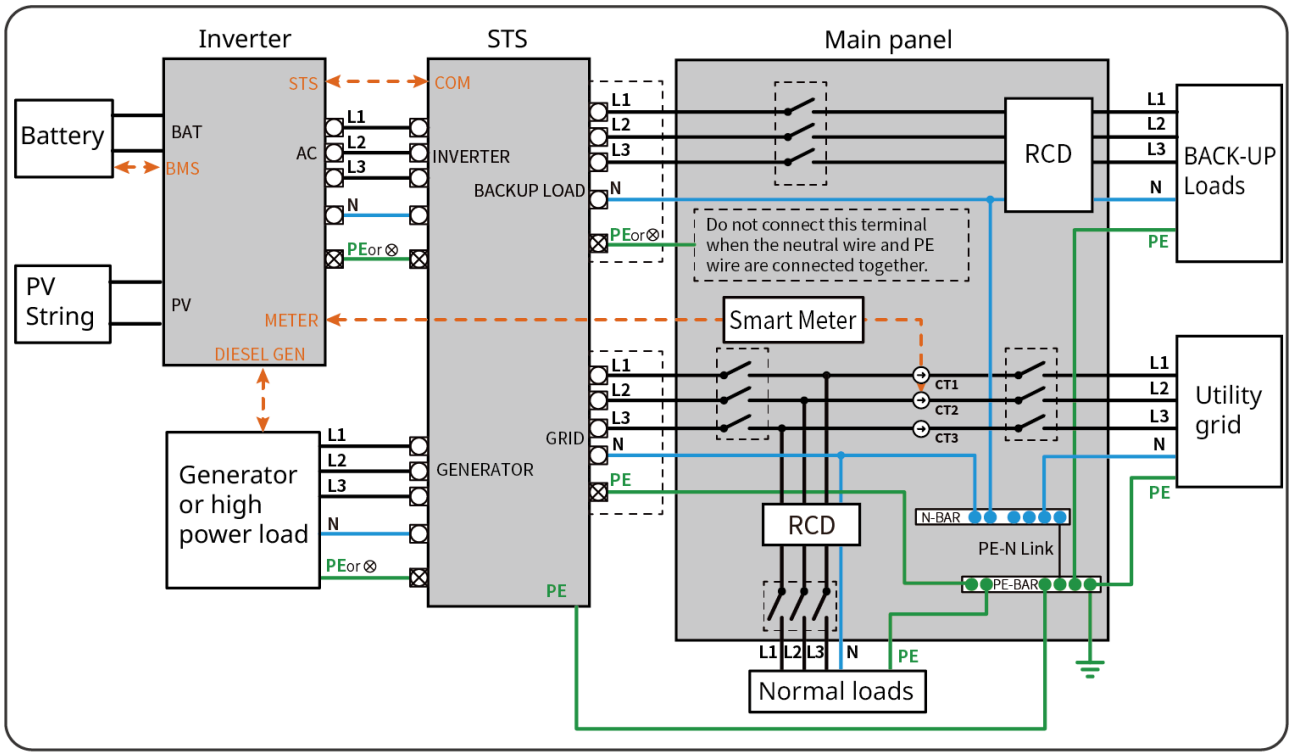
NOTICE

- The wiring configuration for the neutral (N) and protective earth (PE) conductors at the ON-GRID and BACK-UP ports varies according to regional regulations. Refer to local requirements.
- The inverter's BACK-UP function can only be used with an STS. The ON-GRID and BACK-UP ports are located on the STS.
- The STS ON-GRID AC port has a built-in relay. When the energy storage system is operating in off-grid mode, the built-in ON-GRID relay is open; when the system is operating in grid-connected mode, the relay is closed.
- Once the energy storage system is powered on, the BACK-UP AC port is energized. To service BACK-UP loads, power down the energy storage system; otherwise, electric shock may occur.

N and PE Conductors Connected Together in the Distribution Board

NOTICE

- To maintain neutral integrity, the neutral conductors on the grid-connected and off-grid sides must be connected together; otherwise, off-grid operation will not function properly.
- The diagram below shows a power system configuration for regions such as Australia and New Zealand. The internal N relay is open during a grid fault:



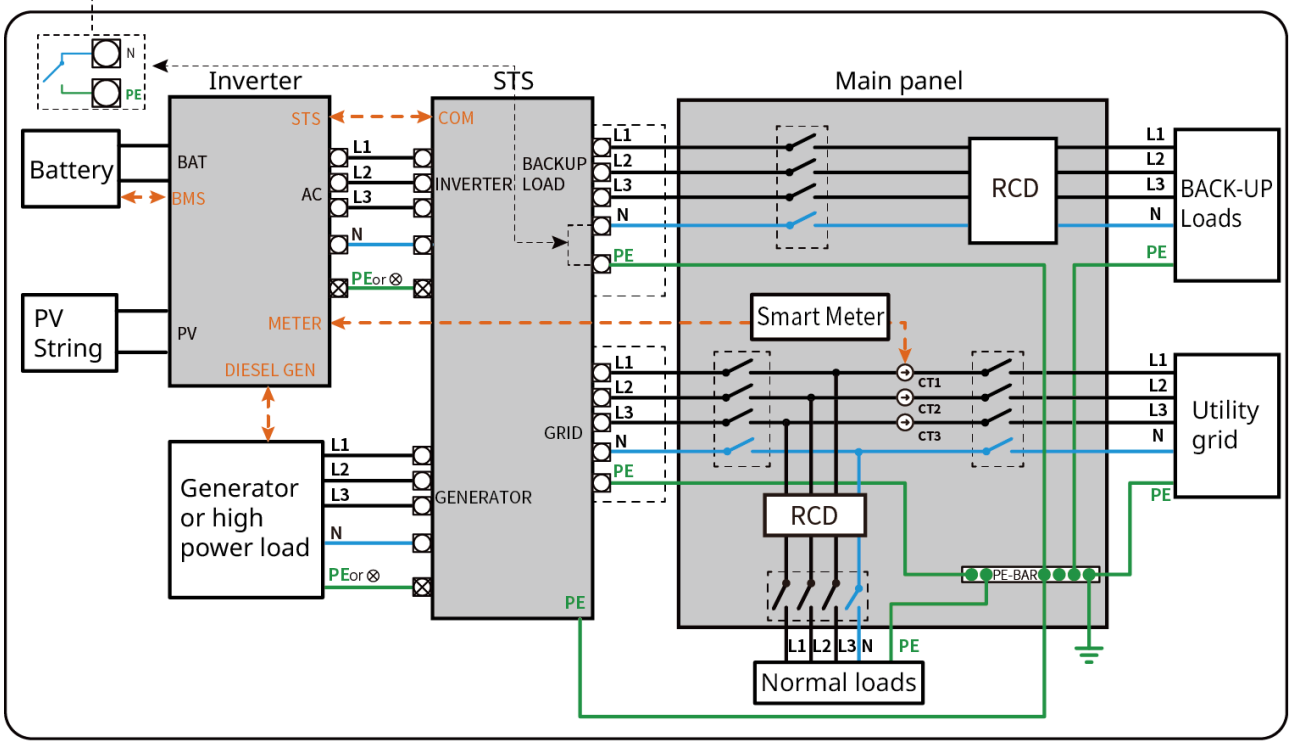
ET5010NET0010

N and PE Conductors Connected Separately in the Distribution Board

NOTICE

If the inverter does not need to connect the N and PE conductors when switching to off-grid mode, this function can be configured on the SolarGo app's "Advanced Settings" screen under "Backup N-PE Relay Switch." The following wiring configuration applies to regions other than Australia, New Zealand, and similar areas:

- When the inverter switches to off grid mode, the STS internal relay automatically connects, connecting the PE and N cables.
- When the inverter switches to grid connection mode, the STS internal relay automatically disconnects, disconnecting the PE and N cables.



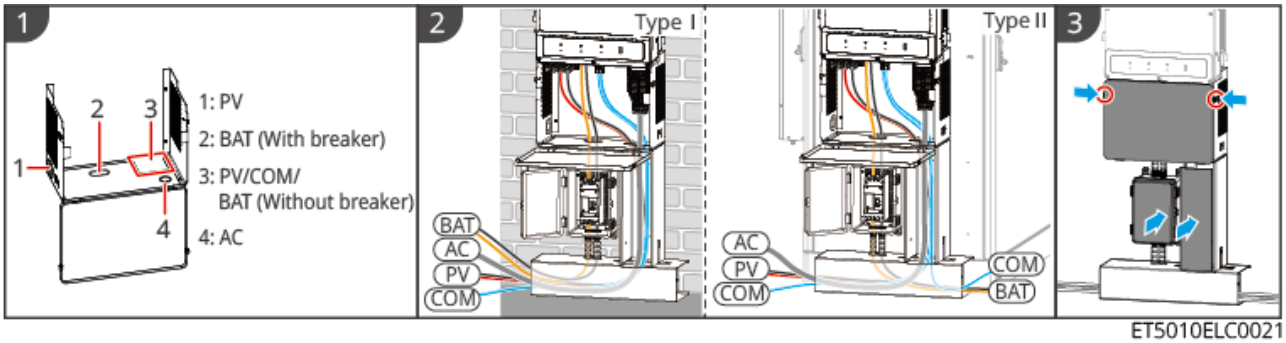
ET5010NET0011

5.2 Detailed System Wiring Diagram

NOTICE

- To use the off-grid function, the energy storage system must be used with a static transfer switch cabinet.
- Do not connect a circuit breaker between the inverter and the static transfer switch cabinet.
- (Optional) When wiring, use the protective cover, circuit breaker, and cable tray together to ensure that no cables are exposed. Close all covers after wiring is complete.

Wiring Diagram with Protective Cover (Optional)



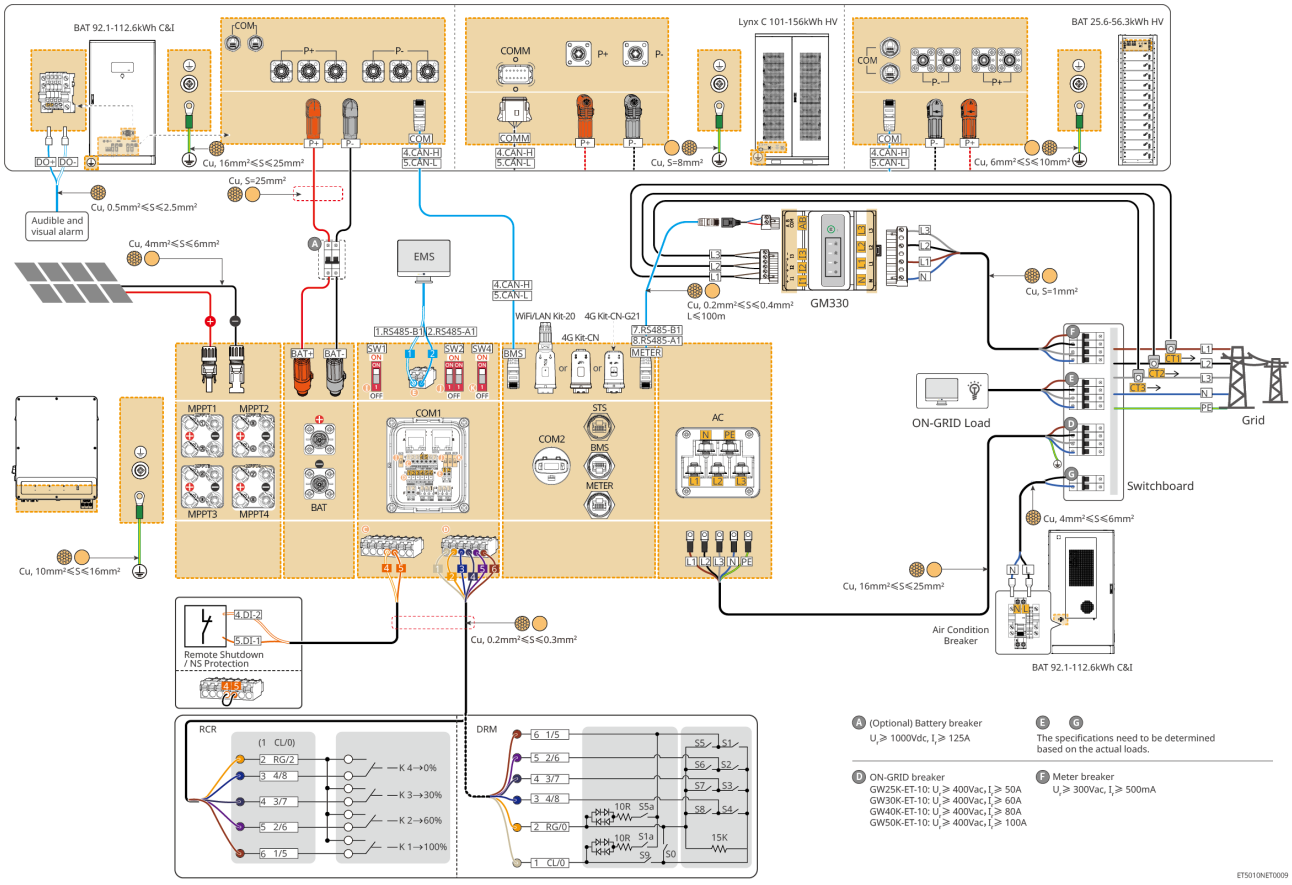
5.2.1 Single-Unit Application

5.2.1.1 Single Inverter, Without off-Grid Capability

This system supports grid-connected operation with a single inverter only and does not support off-grid operation.

- In a single-inverter scenario, the inverter uses a WiFi/LAN Kit-20, 4G Kit-CN, or 4G Kit-CN-G21 smart communication stick.
- The GM330 smart meter is supplied as standard for single-inverter scenarios.
- DIP switchSW1： ON。

ET50 + Battery + GM330

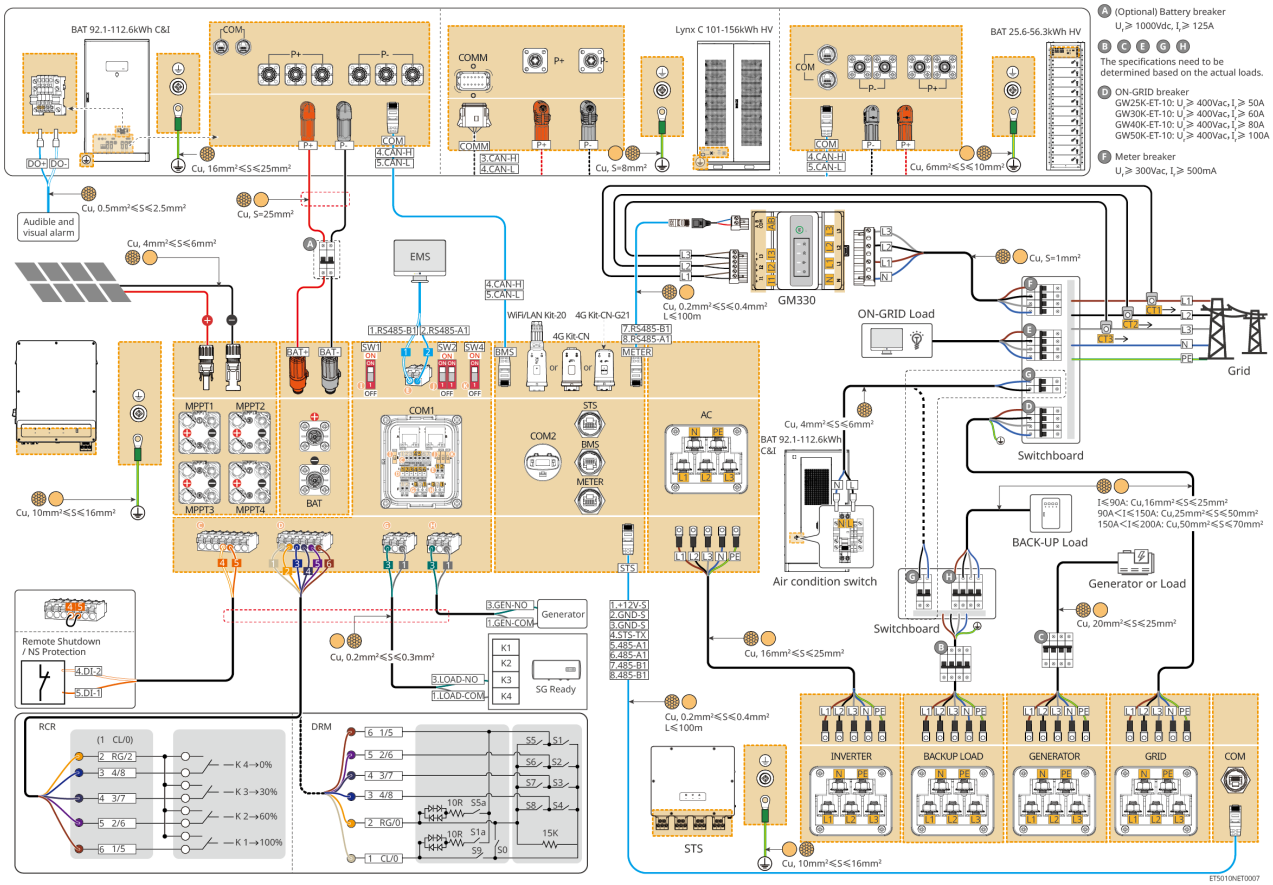


5.2.1.2 Single Inverter, with off-Grid Capability

This is a single-inverter energy storage system that supports grid-connected and off-grid operation.

- When paired with an STS, the inverter provides UPS-level On/Off-grid switching, with a switchover time of less than 10 ms. Ensure that the BACK-UP load capacity is < the inverter Rated Power; otherwise, the function may fail during a Grid Power Outage.
- The inverter can be connected to a generator when paired with an STS. The generator power must be ≤ 1.1 × the inverter Rated Power.
- In a single-inverter scenario, the inverter uses a WiFi/LAN Kit-20, 4G Kit-CN, or 4G Kit-CN-G21 smart communication stick.
- The GM330 smart meter is supplied as standard for single-inverter scenarios.
- DIP switchSW1：ON。

ET + STS + Battery + GM330



5.2.2 Parallel Application

5.2.2.1 Multiple Inverters, Without off-Grid Capability

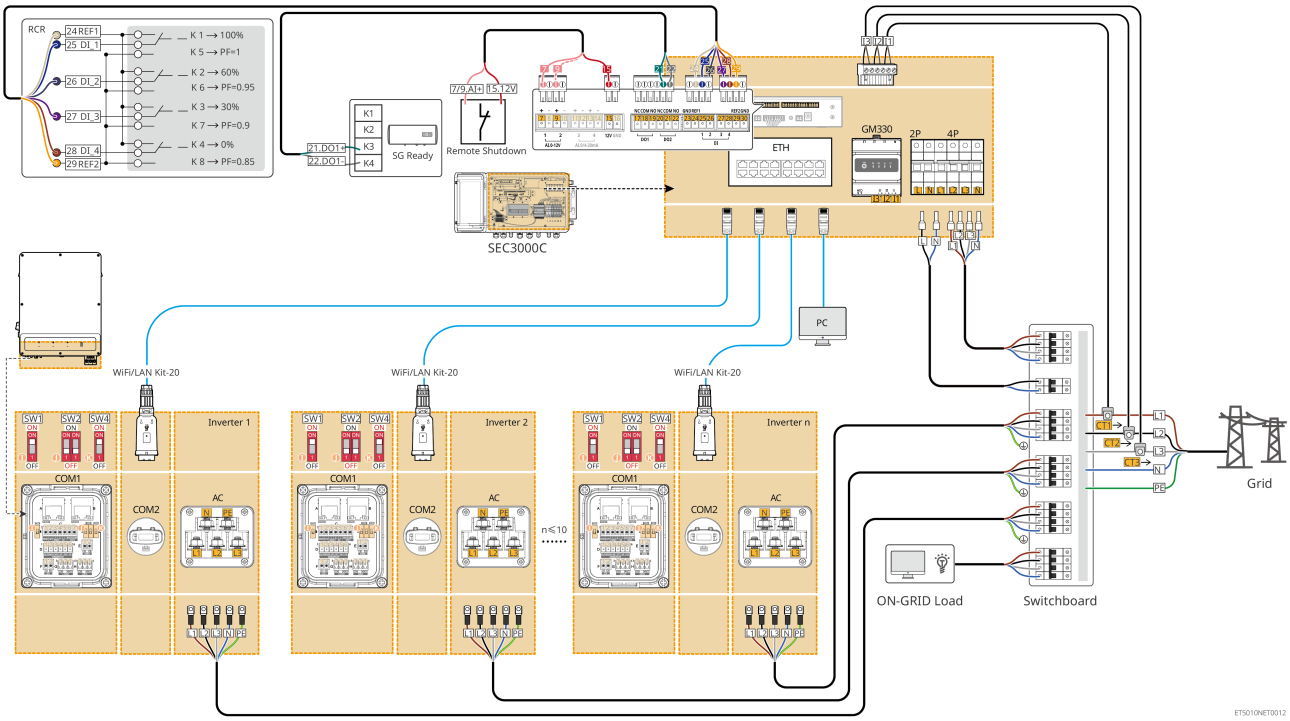
This is a parallel-inverter energy storage system that supports grid-connected operation only and does not support off-grid operation.

NOTICE

- The inverter can be paired with an SEC3000C Smart Energy Controller to enable Parallel Networking.
- The diagrams below focus on the wiring for parallel operation. For wiring requirements for other ports, refer to the single-inverter system.

ET + Battery + SEC3000C + Wifi/LAN Kit-20 (≤10 Inverters in Parallel)

- In a parallel system configured with the SEC3000C, to enable functions such as Remote Shutdown, DRED, RCR, load control, and Diesel Generator Control, connect the communication cable to the SEC3000C.
- When configuring a parallel system with the SEC3000C, each inverter must be connected to the SEC3000C using a WiFi/LAN Kit-20.
- DIP switch
  - InverterSW1 of 1：ON。
  - Inverter2 toInvertern-1 SW1：ON。
  - Invertern SW1：ON。



5.2.2.2 Multiple Inverters, off-Grid Parallel Operation

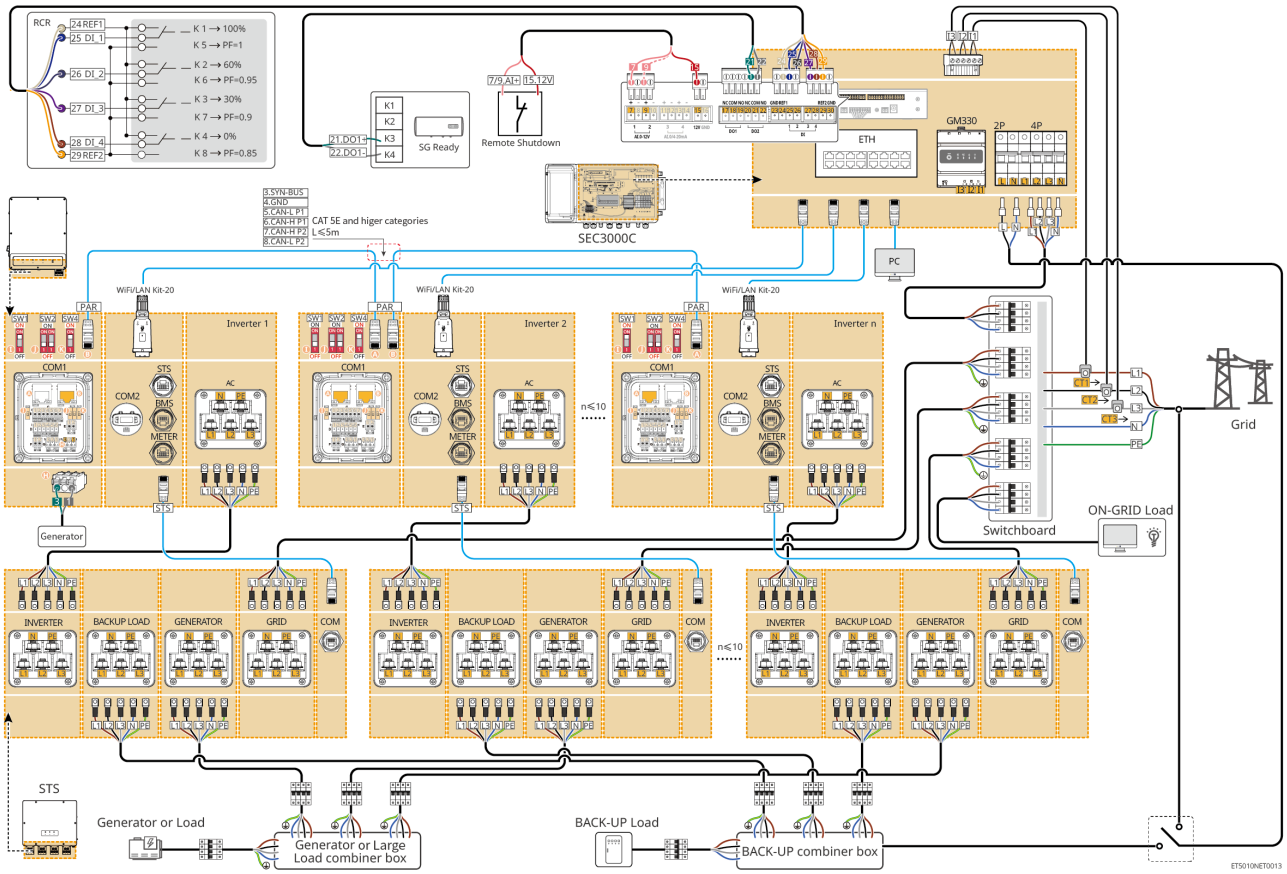
This is an inverter parallel energy storage system. The inverters operate in parallel both when grid-connected and when off-grid.

NOTICE

- The inverters support connection to the SEC3000C Smart Energy Controller to enable Parallel Networking. The SEC3000C supports drawing power from the grid or from the BACK UP port.
- When used in an inverter parallel system with an STS, the system provides UPS-level On/Off-grid transfer functionality. The On/Off Grid Transfer Time is less than 20 ms. Ensure that the total BACK-UP load capacity is <0.9 × the total Rated Power of the inverters; otherwise, the function may fail during a Grid Power Outage.
- In a parallel system, an STS can be used to connect a generator. The total generator power must be ≤1.1 × the total Rated Power of the inverters.
- The power of the generator/large load connected to the system must not exceed 100 kW. If it does, it is recommended to connect the generator through an automatic transfer switch (ATS) and use it for grid switching; large loads should be connected to the grid-side load connection.
- The diagram below focuses on parallel-system wiring. For wiring requirements for other ports, refer to the single-inverter system.

ET+STS+Battery+SEC3000C+Wifi/LAN Kit-20 (Number of Inverters in Parallel ≤10 Units)

- In a parallel system configured with the SEC3000C, to enable functions such as Remote Shutdown, DRED, RCR, load control, and Diesel Generator Control, connect the communication cable to the SEC3000C.
- When configuring a parallel system with the SEC3000C, each inverter must be connected to the SEC3000C using a WiFi/LAN Kit-20.
- DIP switch
  - InverterSW1 of 1：ON。
  - Inverter2 toInvertern-1 SW1：OFF。
  - Invertern SW1：ON。



5.2.2.3 Multiple Inverters, No off-Grid Parallel Operation

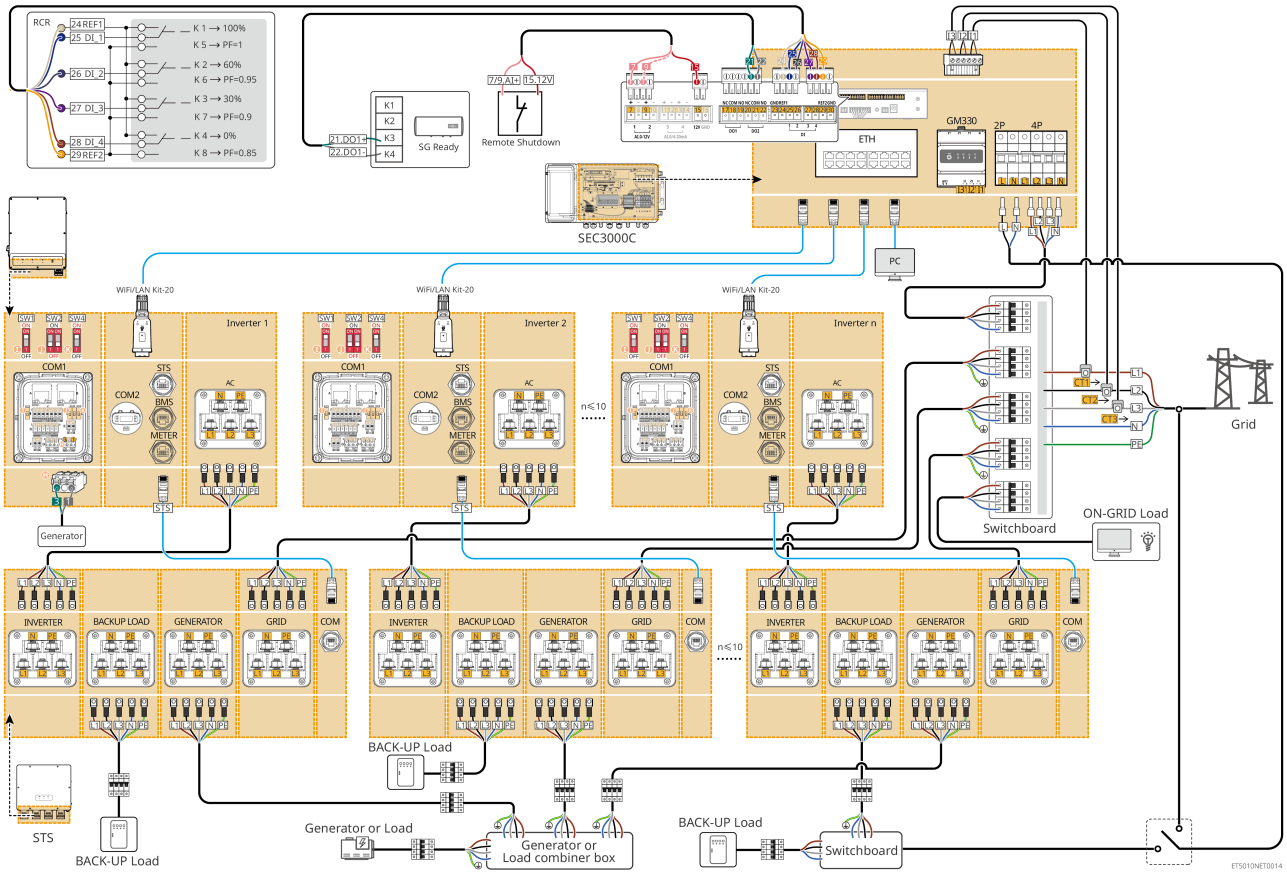
This is an inverter parallel energy storage system. The inverters operate in parallel only when grid-connected; when off-grid, they operate individually.

NOTICE

- The inverters can be connected to the SEC3000C Smart Energy Controller to enable Parallel Networking. The SEC3000C supports drawing power from the grid or from the BACK UP port.
- When used in an inverter parallel system with an STS, the system provides UPS-level On/Off-grid transfer functionality. The On/Off Grid Transfer Time is less than 10 ms. Ensure that the BACK-UP load connected to each STS has a capacity of < the Rated Power of the inverter connected to the corresponding STS; otherwise, the function may fail during a Grid Power Outage.
- In a parallel system, an STS can be used to connect a generator. The total generator power must be ≤1.1 × the total Rated Power of the inverters.
- The diagrams below focus on the wiring for parallel operation. For wiring requirements for other ports, refer to the single-inverter system.

ET+STS+Batteries+SEC3000C+Wifi/LAN Kit-20 (Number of Inverters in Parallel ≤10Units)

- In a parallel system configured with the SEC3000C, to enable functions such as Remote Shutdown, DRED, RCR, load control, and Diesel Generator Control, connect the communication cable to the SEC3000C.
- When configuring a parallel system with the SEC3000C, each inverter must be connected to the SEC3000C using a WiFi/LAN Kit-20.
- DIP switch
  - InverterSW1 of 1： ON
  - Inverter2 toInvertern-1 SW1： ON
  - Invertern SW1： ON



5.3 Materials Required

5.3.1 Switch Preparation

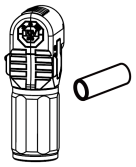
No.	Circuit breaker	Recommended Specifications	Source
1	ON-GRID circuit breaker BACK-UP circuit breaker Generator circuit breaker	Nominal Voltage ≥400V, with the following Rated Current requirements: • GW25K-ET-10: Rated Current ≥50A • GW30K-ET-10: Rated Current ≥60A • GW40K-ET-10: Rated Current ≥80A • GW50K-ET-10: Rated Current ≥100A	Customer-supplied

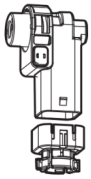
No.	Circuit breaker	Recommended Specifications	Source
2	Battery Switch	Select according to local laws and regulations • 2P DC Switch • Rated Current ≥125A • Nominal Voltage ≥1000V	Customer-supplied
3	Residual Current Protective Device	Select according to local laws and regulations • Type A • ON-GRID side: 500mA • BACK-UP side: 30mA	Customer-supplied
4	Energy Meter Switch	• Nominal Voltage: 380V/400V • Rated Current: 0.5A	Customer-supplied
5	Load Circuit Breaker	Specifications must be determined based on the actual load in use	Customer-supplied

NOTICE
Do not install a Bypass switch; otherwise, the user shall bear all consequences.

5.3.2 Cable Preparation

No.	Cable	Recommended Specifications	Source
1	Inverter,STSprotective earth conductor	• Single-core outdoor copper cable • Conductor cross-sectional area:10mm2-16mm2	Customer-supplied

No.	Cable	Recommended Specifications	Source
2	Battery protective earth conductor Lynx C Series 101–156 Kwh High-Voltage Battery	• Single-core outdoor copper cable • Conductor cross-sectional area:8mm2	Customer-supplied
	Battery protective earth conductor BATSeries 25.6-56.3Kwh High-Voltage Battery	• Single-core outdoor copper cable • Conductor cross-sectional area:6-10mm2	Customer-supplied
	Battery protective earth conductor BATSeries 92.1-112.6Kwh C&I Battery System	• Single-core outdoor copper cable • Conductor cross-sectional area:16-25mm2	Customer-supplied
3	PVDC cable	• Industry-standard outdoor PV cable • Conductor cross-sectional area:4mm2-6mm2 • Cable outer diameter:5.9mm-8.8mm	Customer-supplied
4	Battery DC cable: Terminal Type I 	• Single-core outdoor copper cable • Conductor cross-sectional area:25mm2 • Cable outer diameter:9.4mm-10.6mm	Supplied with the unit / provided by the user

No.	Cable	Recommended Specifications	Source
	Battery DC cable: Terminal Type II 		
	Battery DC cable (parallel battery clusters) Lynx C Series 101–156 Kwh High-Voltage Battery	• Single-core outdoor copper cable • Conductor cross-sectional area:35mm2 • Cable outer diameter:10mm-12mm	Customer-supplied
	Battery DC cable (parallel battery clusters) BATSeries 25.6-56.3Kwh High-Voltage Battery	• Single-core outdoor copper cable • Conductor cross-sectional area:25mm2 • Cable outer diameter:9mm-11mm	Customer-supplied
	Battery DC cable (parallel battery clusters) BATSeries 92.1-112.6Kwh C&I Battery System	• Single-core outdoor copper cable • Conductor cross-sectional area:50mm2 • Cable outer diameter:13mm-14mm	Customer-supplied
5	Inverter AC cable Generator AC cable	• Single-core outdoor copper cable • Conductor cross-sectional area:16mm2-25mm2 • Cable outer diameter:18-42mm	Customer-supplied

No.	Cable	Recommended Specifications	Source
6	BACK-UPAC cable ON-GRIDAC cable	• Multi-core outdoor copper cable;YJVorRVVfive-core cable is recommended* • WhenBACKUP LOADthe output current of the port orGRIDthe input/output current of the port is less than90A: ◦ Conductor cross-sectional area:20mm2-25mm2 ◦ Cable outer diameter:18-42mm • WhenBACKUP LOADthe output current of the port orGRIDthe input/output current of the port is greater than90Aand less than or equal to150A: ◦ Conductor cross-sectional area:25mm2-50mm2 ◦ Cable outer diameter:18-42mm • WhenBACKUP LOADthe output current of the port orGRIDthe input/output current of the port is greater than150Aand less than or equal to200A: ◦ Conductor cross-sectional area:50mm2-70mm2 ◦ Cable outer diameter:32-42mm	Customer-supplied
7	Smart meter power cable	Outdoor Copper-Core Cable Conductor cross-sectional area:1mm2	Customer-supplied
8	BatteriesBMScommunication cable	-	Supplied with the unit

No.	Cable	Recommended Specifications	Source
9	MeterRS485communication cable	-	RJ45-2PINterminal adapter cable and standard Ethernet cable, supplied with the unit
10	Battery cluster-parallel communication cable Lynx C Series 101–156 Kwh High-Voltage Battery	Custom communication cable	Contact GoodWe to purchase
	Battery cluster-parallel communication cable BATSeries 25.6-56.3Kwh High-Voltage Battery	CAT 5Eor higher, with RJ45 connectorsEIA/TIA 568Bstandard Ethernet cable	Customer-supplied
	Battery cluster-parallel communication cable BATSeries 92.1-112.6Kwh C&I Battery System	CAT 5Eor higher, with RJ45 connectorsEIA/TIA 568Bstandard Ethernet cable	Customer-supplied
11	Load ControlDOcommunication cable		Customer-supplied
12	Diesel Generator Control communication cable		

No.	Cable	Recommended Specifications	Source
13	Remote Shutdown communication cable	• Shielded cable compliant with local standards • Conductor cross-sectional area: 0.2 mm^2–0.4 mm^2 • Cable outer diameter: 5 mm–8 mm	
14	RSDcommunication cable		
15	RCR/DREDsignal cable		
16	(Reserved)DODry contact		
17	Inverter parallel communication cable	• CAT 5Eor higher standard Ethernet cable with RJ45 connectors; cable length less than5m。 • CAT 7Eor higher standard Ethernet cable with RJ45 connectors; cable length less than10m。	Customer-supplied
18	EMS RS485communication cable	• Shielded twisted-pair cable compliant with local standards • Conductor cross-sectional area:0.2mm2-0.4mm2 • Cable outer diameter: 5mm-8mm	Customer-supplied
19	(Reserved) EV chargerRS485communication cable		
20	Inverter andSTScommunication cable	-	Included in the package

No.	Cable	Recommended Specifications	Source
21	MeterCTCable	• Single-core outdoor copper cable • Conductor cross-sectional area:1.3mm2-2.3mm2 • Cable outer diameter:1.3-1.7mm	Customer-supplied
22	Single-phase AC cable	• Single-core outdoor copper cable • Conductor cross-sectional area:2.5mm2-6.0mm2 • Cable outer diameter:1.8mm-2.8mm	Customer-supplied
23	SEC3000Cthree-phase AC cable		Customer-supplied
24	External deviceRS485communication cable	• Shielded twisted-pair cable compliant with local standards • Conductor cross-sectional area:0.07mm2-1.3mm2 • Cable outer diameter:0.3mm-1.3mm	Customer-supplied
25	External device network cable	• Standard shielded network cable: standard network cable ofRJ45or higher, fitted with anCAT 5connector • Network cable length: no more than100m	Customer-supplied

No.	Cable	Recommended Specifications	Source
*If theBACK-UPAC cable and theON-GRIDAC cable are to use single-core cables, apply firestop putty at the AC cable protection cover connector to ensure the Ingress Protection Rating. *If theBACK-UPAC cable and theON-GRIDAC cable diameter is greater than38mmor the cable is difficult to install, strip theLconductor to a length of at least240mm, and strip theNandPEconductor to a length of at least270mm, then seal the AC cable protection cover connector with firestop putty.			

5.3.3 Combiner Box Preparation

NOTICE

- For parallel operation, connect the STS generator connection port to the generator using a combiner box.
- For grid-connected or off-grid parallel operation, connect the STS BACK-UP port to the BACK-UP load using a combiner box.
- For parallel connection of LX C101-10, LX C120-10, LX C138-10, and LX C156-10 battery systems, provide busbars and connection terminals.

No.	Combiner box	Recommended Specifications	Source
1	Generator combiner box	I ≥ 90 A × N; N is the number of inverters in parallel	Customer-supplied
2	BACK-UP load combiner box	I ≥ 200 A × N; N is the number of inverters in parallel	Customer-supplied

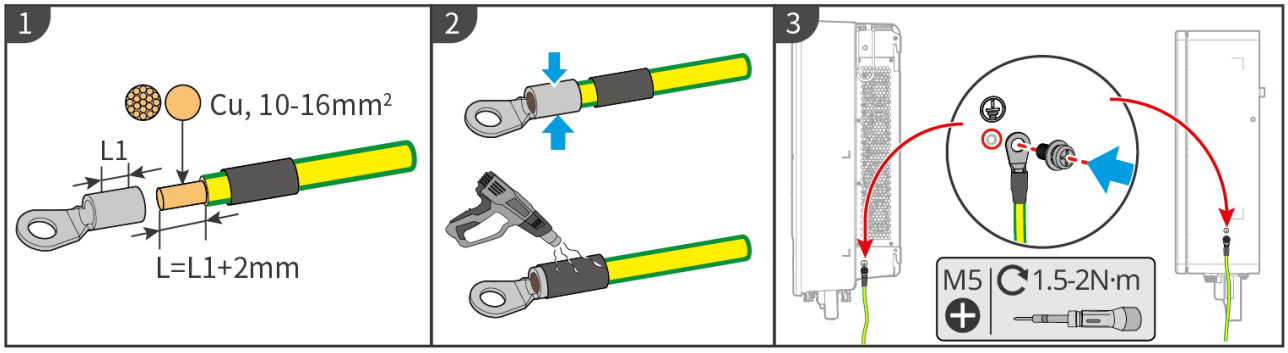
No.	Combiner box	Recommended Specifications	Source
3	Busbars and connection terminals for parallel battery connection	1. Withstand voltage requirement: 3800 V a.c./5320 V d.c., 60 s; no breakdown or flashover; leakage current ≤ 2 mA. 2. Maximum current-carrying capacity: ≥ 100 A. 3. Insulation resistance: 2500 V d.c., 60 s; insulation resistance ≥ 500 MΩ. 4. Busbars and connection terminals must be made of copper. 5. All materials must comply with RoHS. 6. The busbar and terminal materials and plating must be consistent (T2 copper with tin plating is recommended).	Customer-supplied

5.4 Connect the Protective Earth Conductor

⚠WARNING

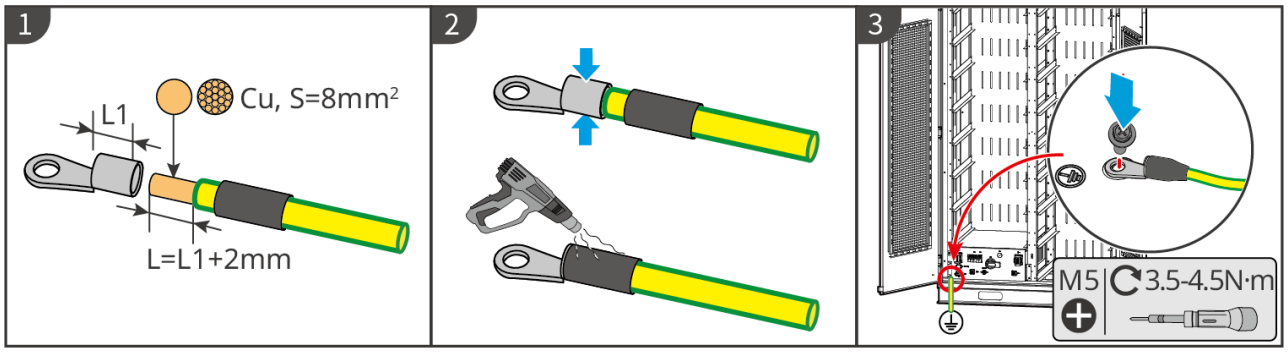
- When installing equipment, connect the protective earth conductor first; when removing equipment, disconnect the protective earth conductor last.
- Protective earthing of the enclosure cannot replace the protective earth conductor at the AC output port. When wiring, ensure that the protective earth conductors at both points are securely connected.
- When multiple devices are installed, ensure equipotential bonding between the enclosure protective earthing points of all devices.
- To improve terminal corrosion resistance, after completing the protective earth conductor connection, apply silicone sealant or paint to the outside of the grounding terminal for protection.
- Provide the protective earthing cable.

Inverter/STS



ET5010ELC0001

Lynx C Series 101-156Kwh High-Voltage Battery

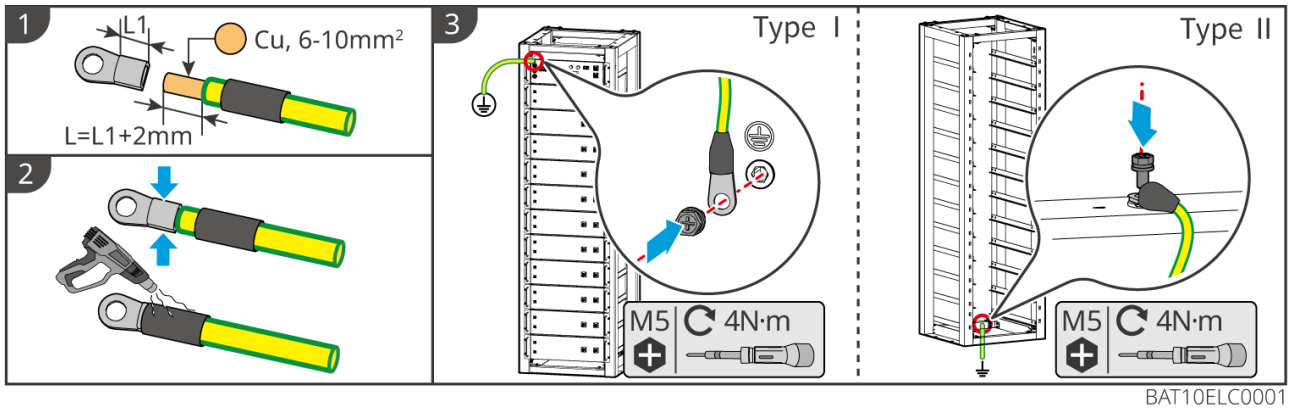


LXC10110ELC0001

BATSeries 25.6-56.3Kwh High-Voltage Battery

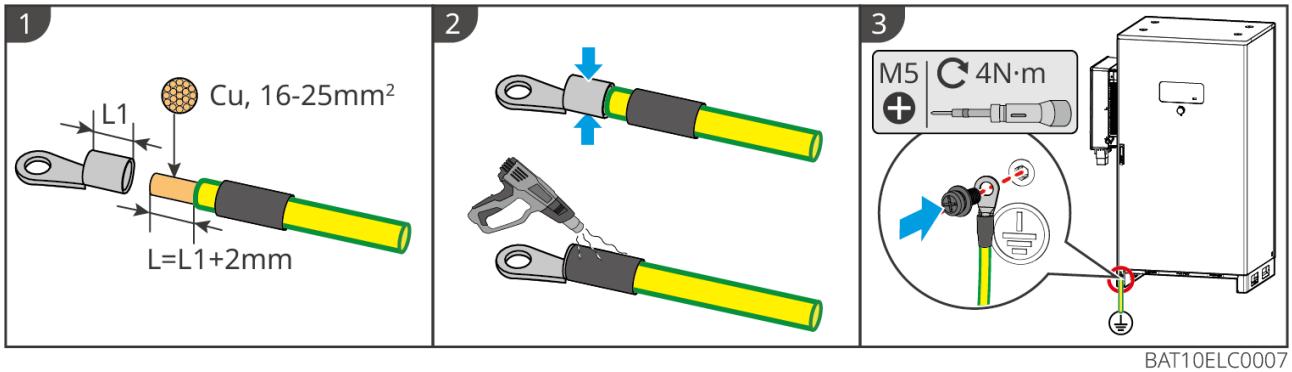
NOTICE

Select one of the grounding points for earthing, as appropriate.



BAT10ELC0001

BATSeries 92.1-112.6Kwh C&I Battery System



BAT10ELC0007

5.5 Connecting the PV Cables

⚠DANGER

- Do not connect the same PV string to multiple inverters, as this may damage the inverters.
- PV strings generate high-voltage DC when exposed to sunlight. Exercise caution during electrical connections.
- Before connecting PV strings to the inverter, verify the following information. Failure to do so may permanently damage the inverter and, in severe cases, cause a fire resulting in personal injury or property damage.

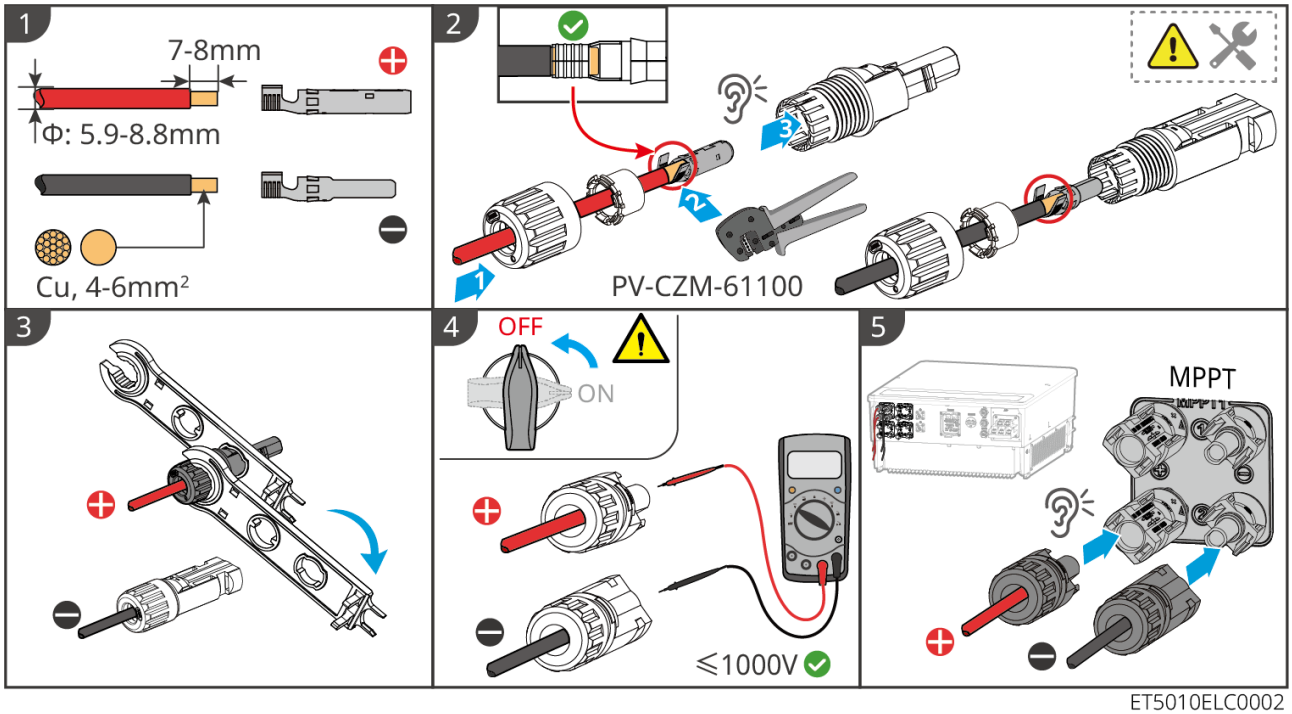
1. Ensure that the maximum short-circuit current and Max. Input Voltage of each MPPT are within the inverter's allowable range.
2. Ensure that the positive terminal of each PV string is connected to the inverter's PV+ terminal and the negative terminal to the inverter's PV– terminal.

⚠WARNING

- The PV string output is not grounded. Before connecting PV strings to the inverter, ensure that the minimum insulation resistance to ground of the PV strings meets the minimum insulation resistance requirement (R = Max. Input Voltage/30 mA).
- After connecting the DC cables, ensure that all cable connections are secure and not loose.
- Use a multimeter to measure the positive and negative poles of the DC cables, and ensure that the polarity is correct, with no reverse connection, and that the voltage is within the permissible range.
- Parallel connection of strings to an MPPT must comply with local laws and regulations.

NOTICE

The two PV strings connected to each MPPT must use the same model of modules and have the same number of modules, tilt angle, and azimuth to maximize Efficiency.



ET5010ELC0002

5.6 Connecting the Battery Cables

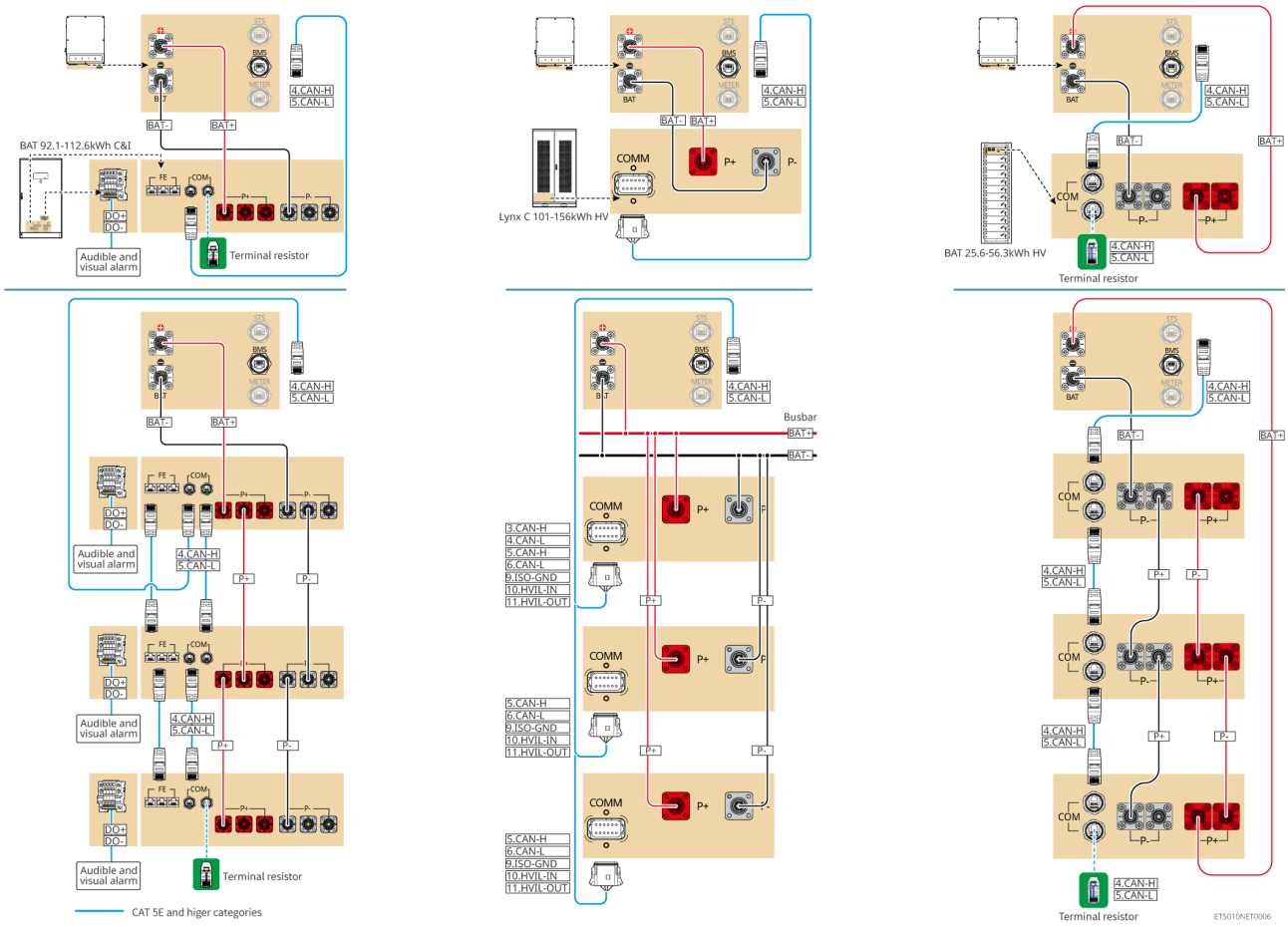
⚠DANGER

- Do not connect the same Battery BANK to multiple inverters, as this may damage the inverters.
- Do not connect loads between the inverter and the battery.
- Use insulated tools when connecting the battery cables to prevent accidental electric shock or a Battery Short Circuit.
- Ensure that the battery's open-circuit voltage is within the inverter's allowable range.
- Select whether to install a DC Switch between the inverter and the battery in accordance with local laws and regulations.

⚠WARNING

- Use a multimeter to measure the positive and negative poles of the DC cables, and ensure that the polarity is correct, with no reverse connection, and that the voltage is within the permissible range.
- When wiring, ensure that the battery cables match the battery terminals marked "BAT+" and "BAT−" and the grounding port. Incorrect cable connections will damage the equipment.
- Ensure that the conductor is fully inserted into the terminal wiring hole, with no exposed wire.
- Ensure that the cable connections are secure. Otherwise, the terminals may overheat during equipment operation and damage the equipment.

Battery System Wiring Diagram

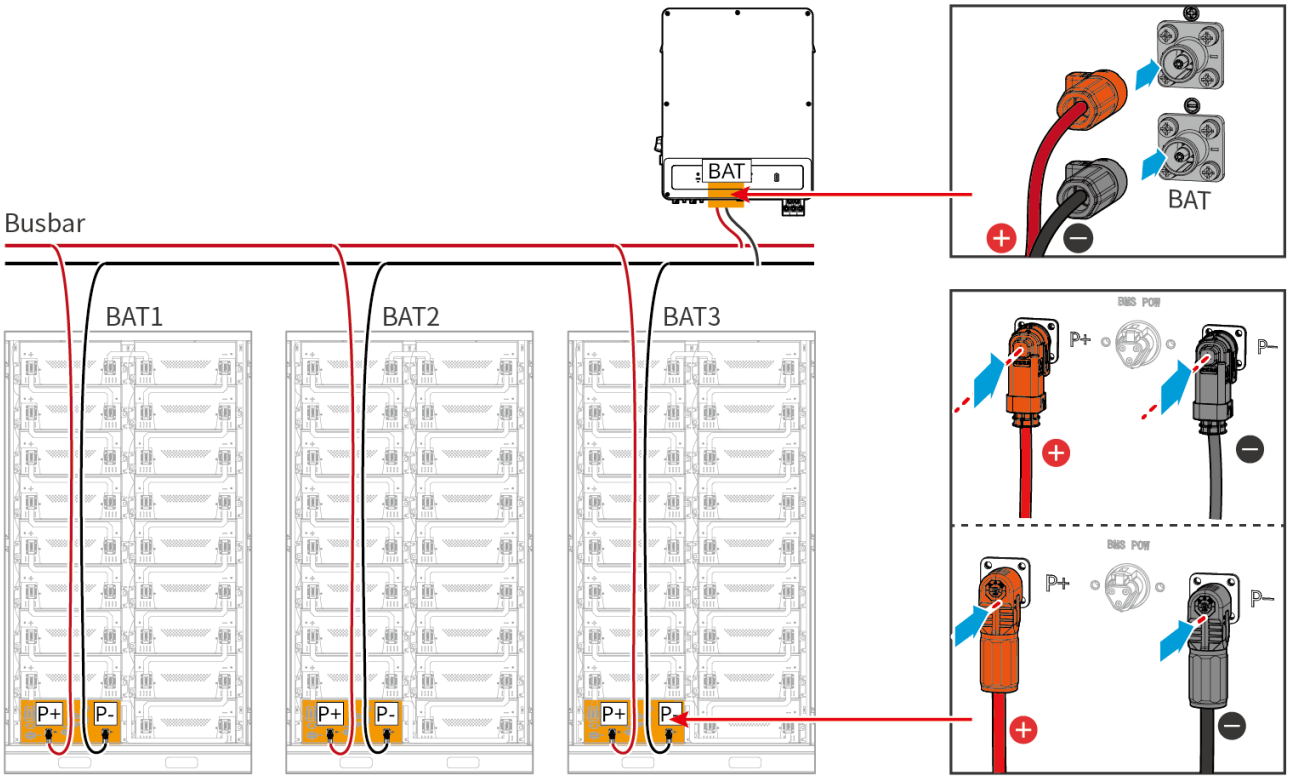


5.6.1 Lynx C Series 101–156 Kwh High-Voltage Battery

5.6.1.1 Connecting the Power Cables Between the Inverter and Battery

NOTICE
The Lynx C Series 101–156 kWh high-voltage battery supports paralleling up to 3 battery cabinets.

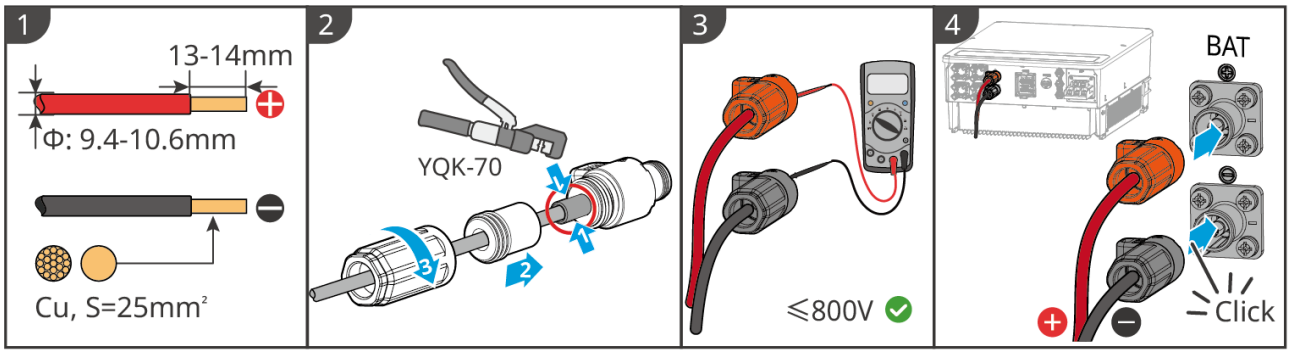
Overview of Power Cable Connections Between the Inverter and Battery



Lynx C 101-156kWh HV

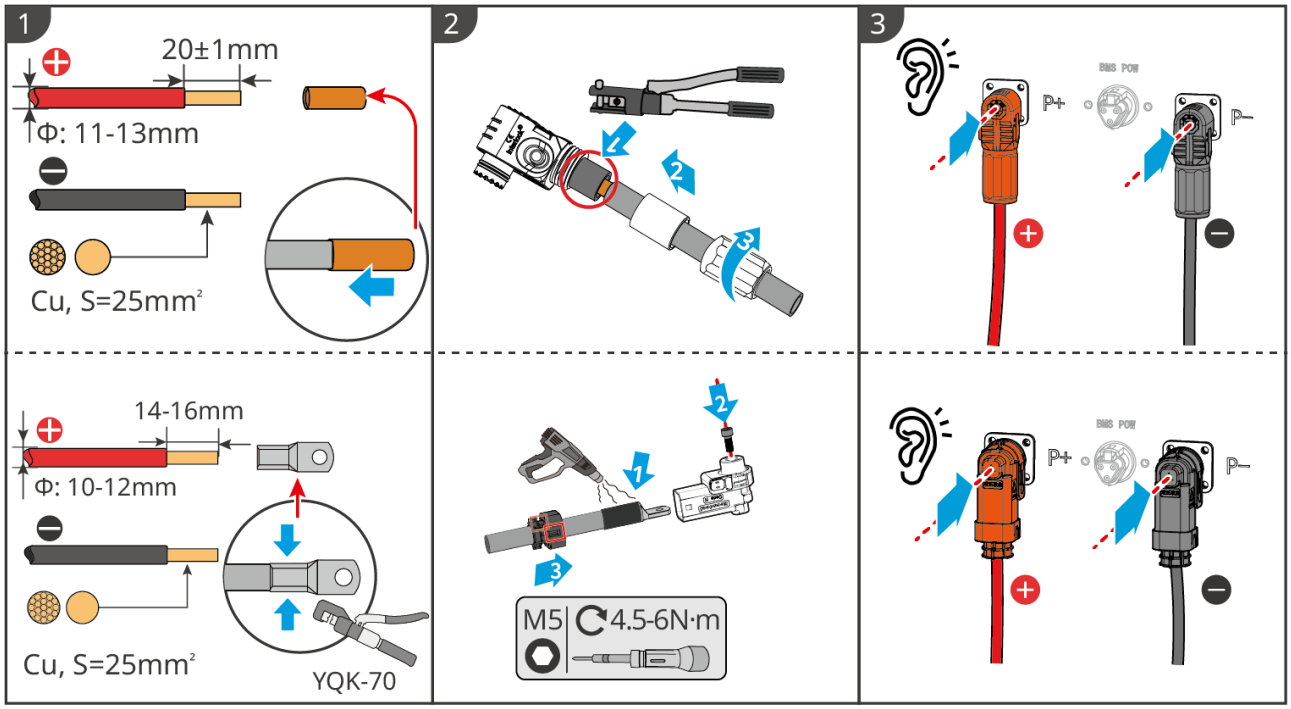
ET5010ELC0003

Preparing the Inverter-Side Cables



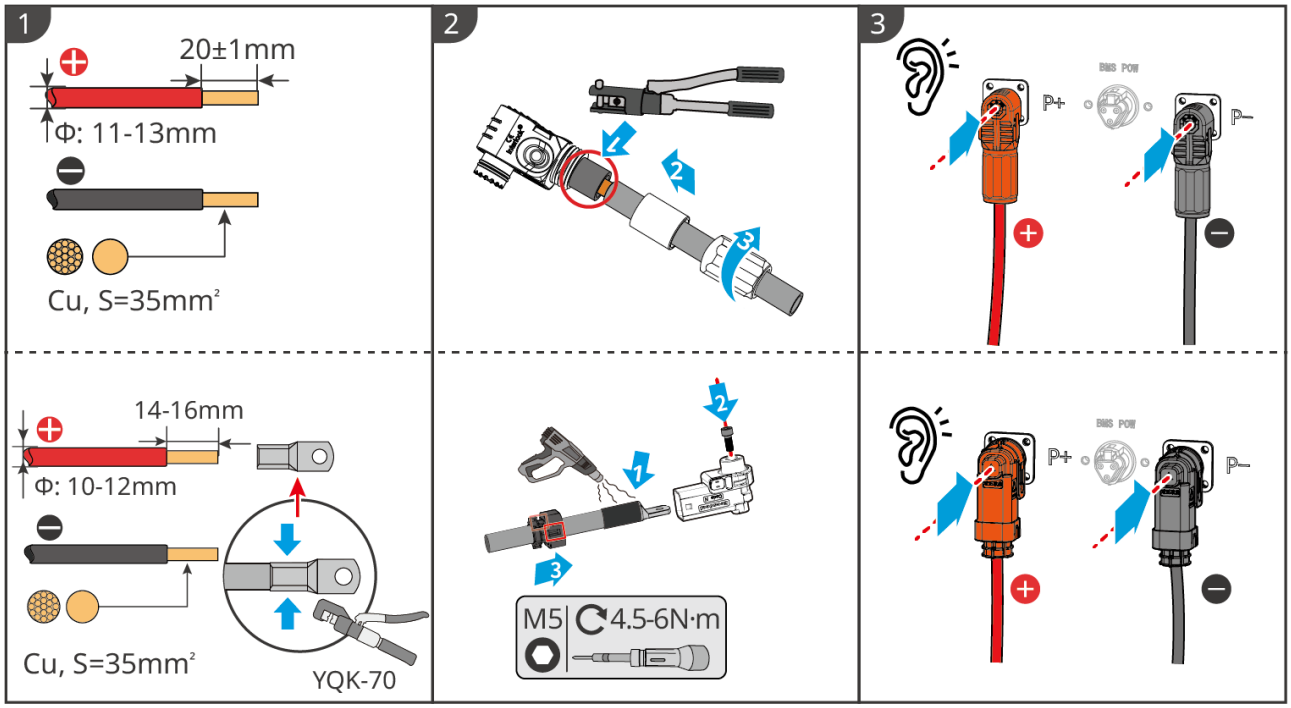
ET5010ELC0005

Battery-Side Cable Fabrication Method



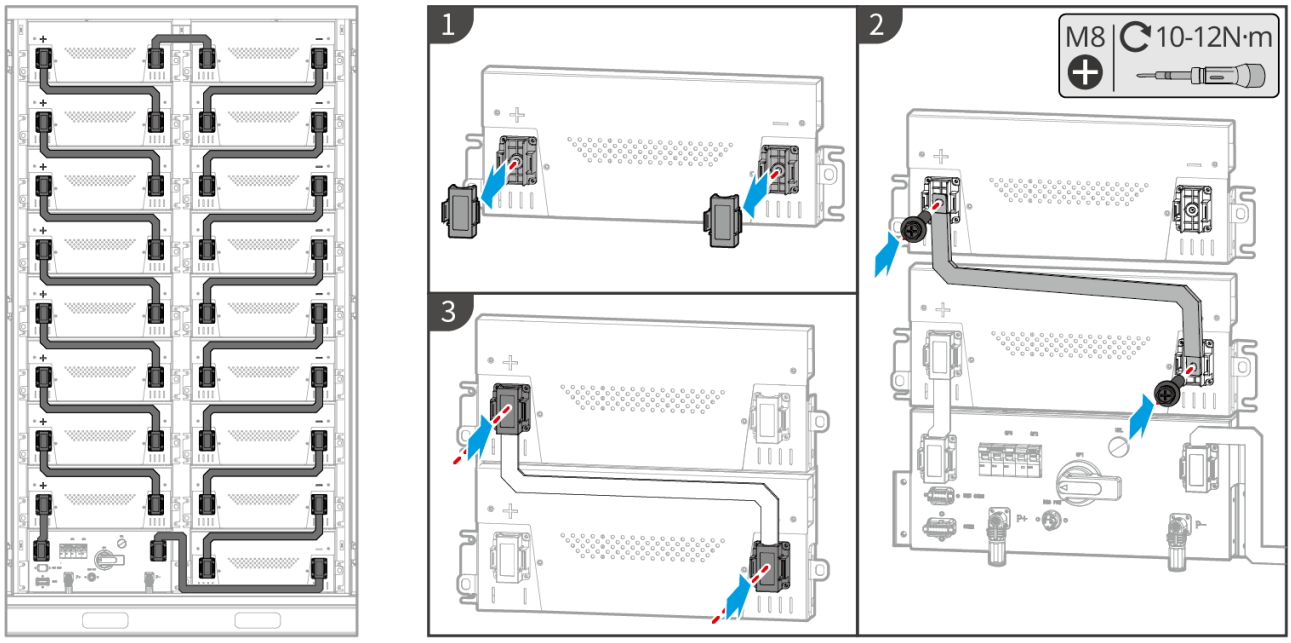
LXC10110ELC0002

Battery-Side Cluster-Paralleling Cable Fabrication Method



LXC10110ELC0006

5.6.1.2 Connecting the Internal Power Busbars of the Battery System



LXC10110ELC0003

5.6.1.3 Connecting the Communication Cable

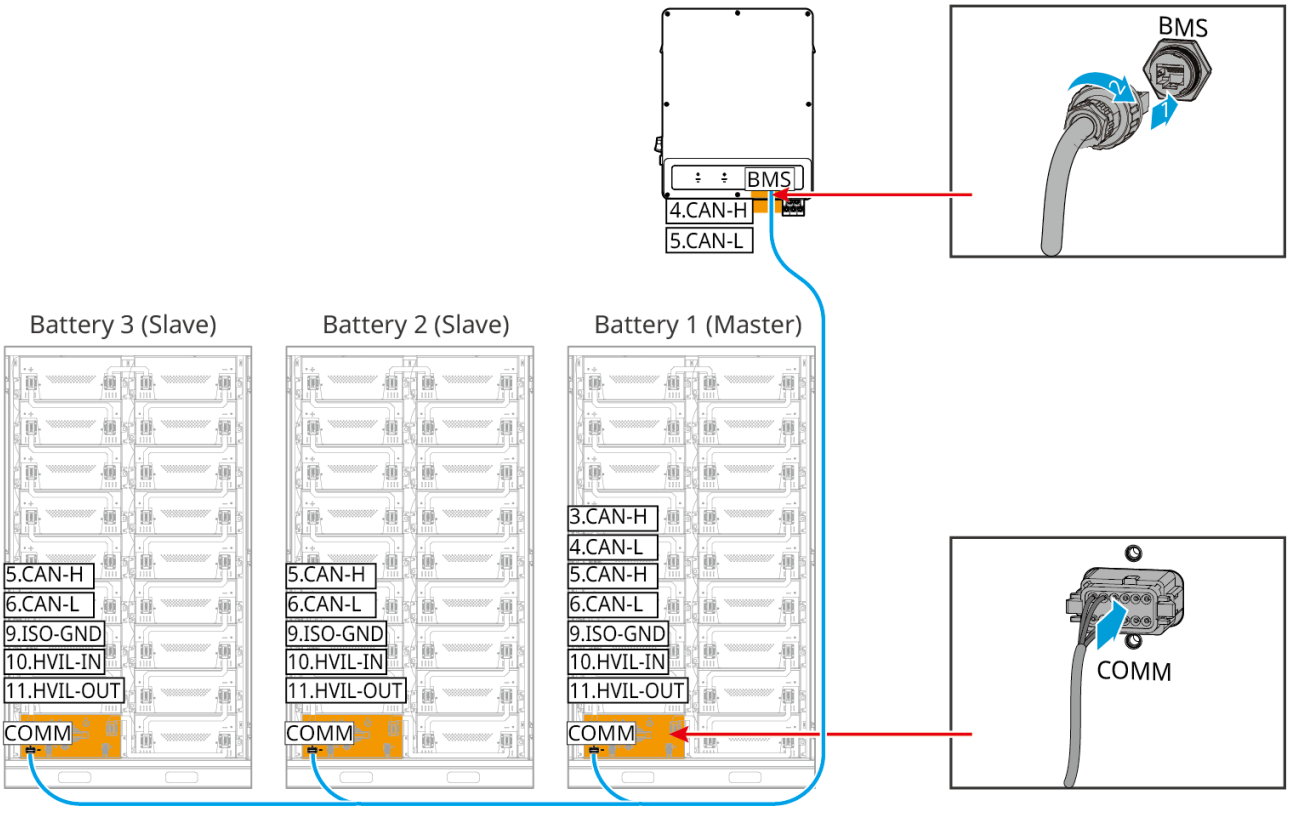
NOTICE
A communication cable is supplied with the battery system. Use the supplied communication cable.

Communication Port Description:

Port	Description	Description
BMS	4: CANH1 5: CANL1	CAN communication is used between the inverter and battery.
COM	3: CAN2H 4: CAN2L	Connecting an Inverter Using CAN Communication
	5: CAN3H 6: CAN3L	CAN Communication Between Paralleled Battery Clusters

Port	Description	Description
	7：RS485_A1 8：RS485_B1	Connecting an Inverter Using RS485 Communication
	9：ISO_GND	Interlock Grounding Between Paralleled Battery Clusters
	10：HVIL_IN 11：HVIL OUT	Interlock Signal Input and Output Between Paralleled Battery Clusters

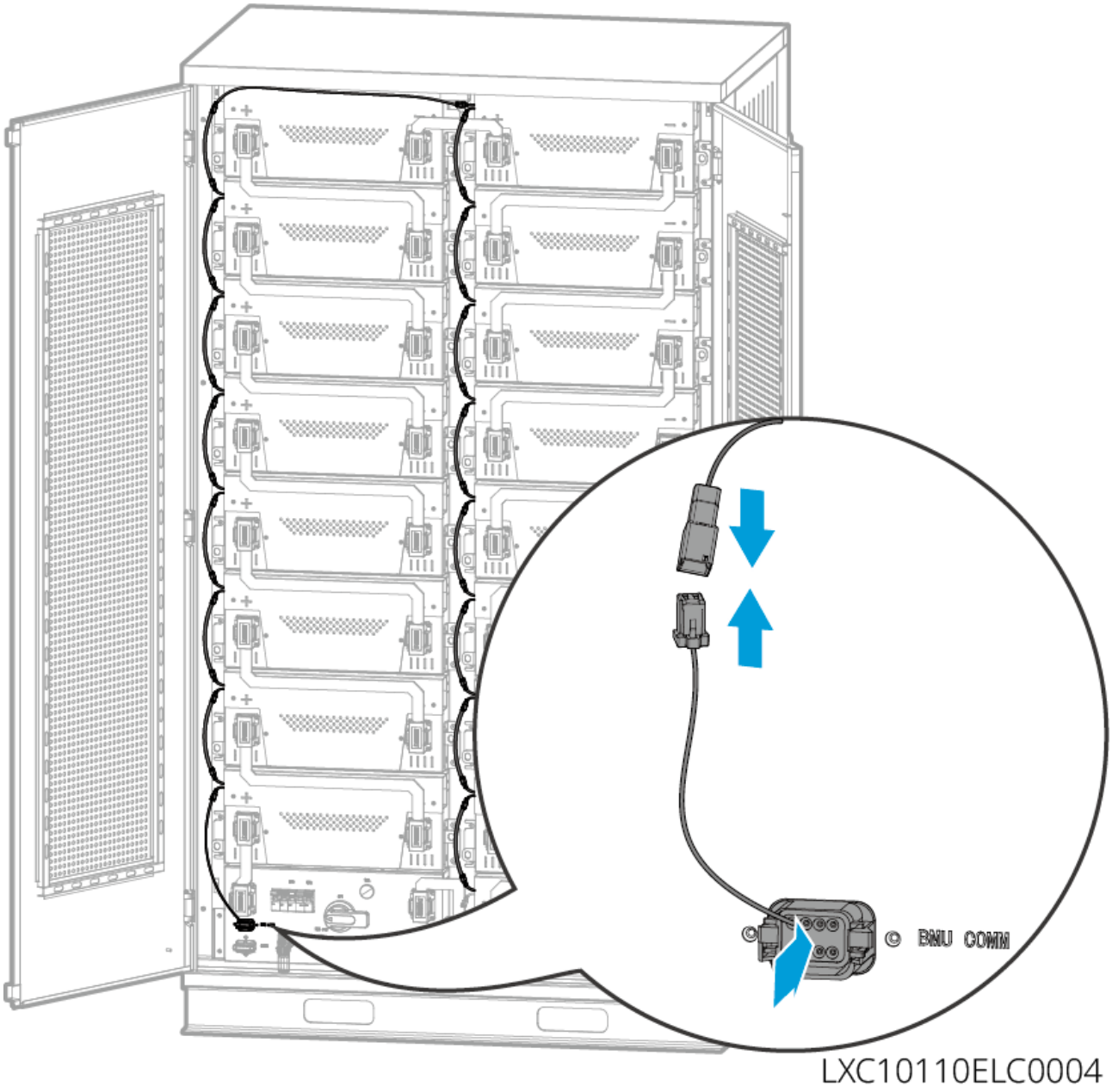
Connecting the Communication Cable Between the Inverter and Battery



Lynx C 101-156kWh HV

ET5010ELC0006

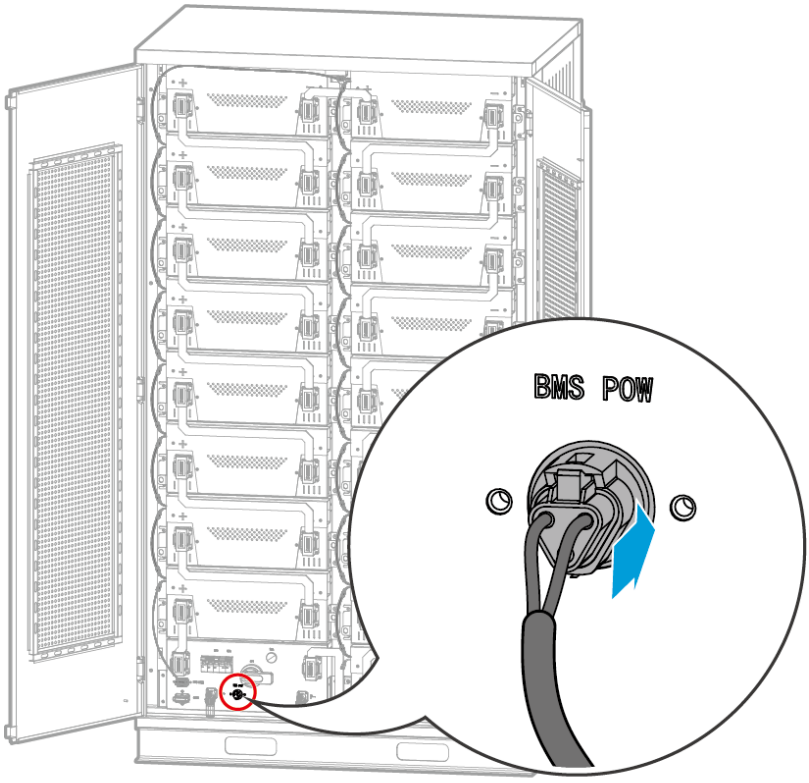
Connecting the Internal Battery Communication Cable



5.6.1.4 (Optional) Connecting the AC Power Cable

NOTICE

- The battery system can supply its own DC power and also supports an external single-phase AC power supply. The single-phase AC cable supplies auxiliary power; use it as required.
- Use an uninterruptible power supply (UPS) for the single-phase AC power supply.
- Single-phase AC input voltage range: 100–240 V; power: ≥60 W; Frequency Range: 50–60 Hz.
- The single-phase AC terminals and cables are included in the package.



LXC10110ELC0005

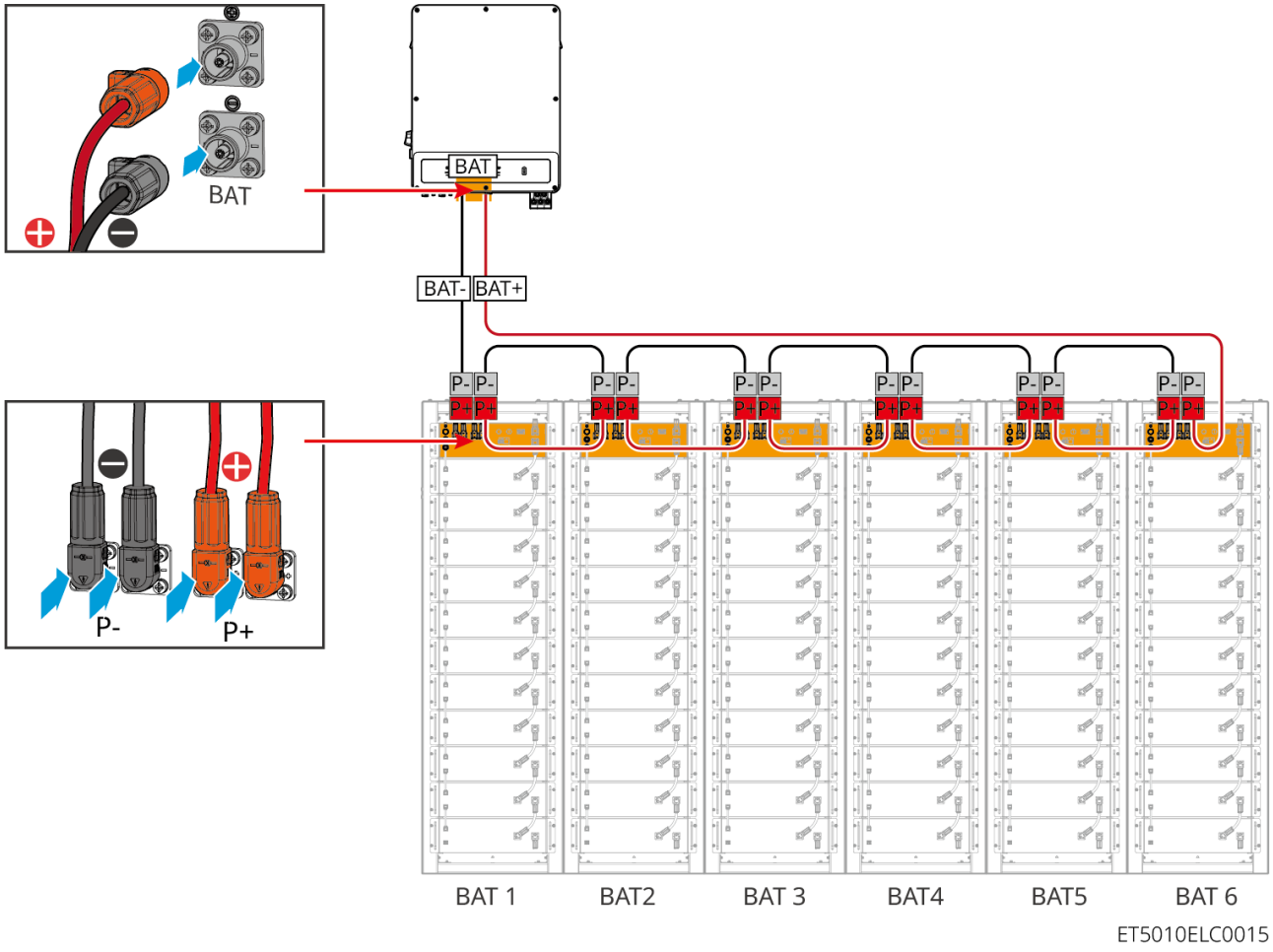
5.6.2 BAT Series 25.6–56.3 Kwh High-Voltage Battery

5.6.2.1 Connecting the Power Cables Between the Inverter and Battery

NOTICE

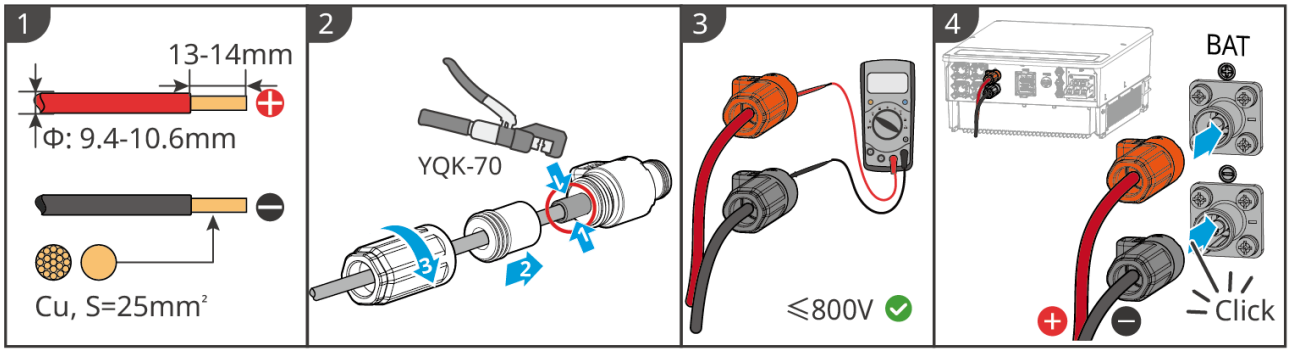
The BAT Series 25.6–56.3 kWh high-voltage battery supports paralleling up to 6 battery cabinets.

Wiring Overview



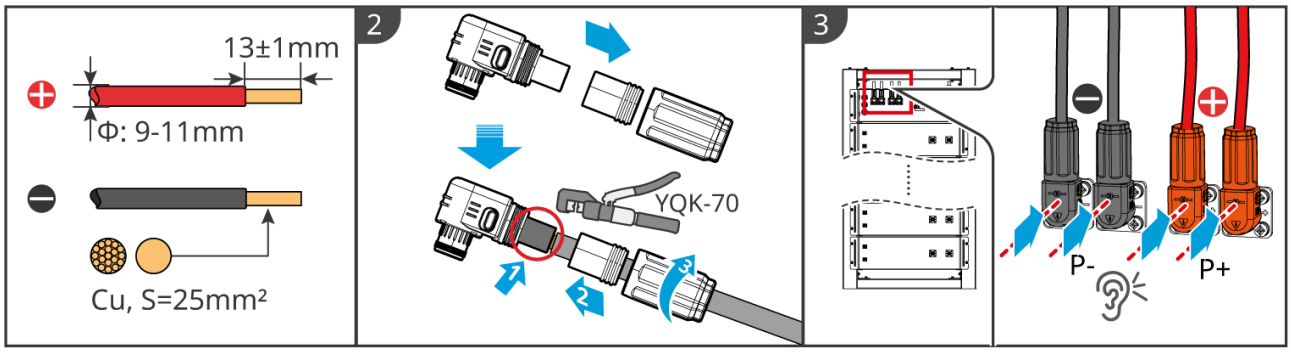
ET5010ELC0015

Preparing the Inverter-Side Cables



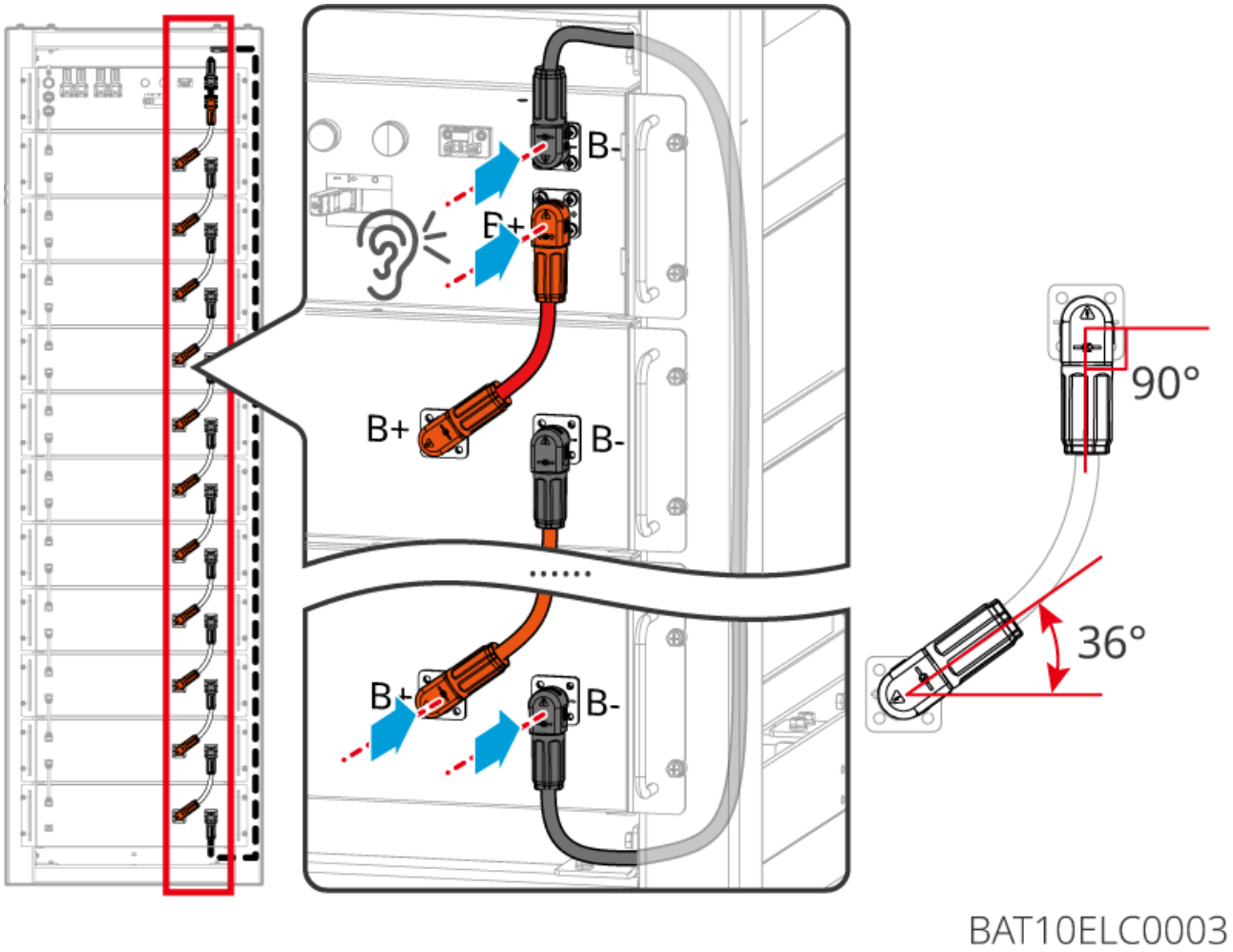
ET5010ELC0005

Preparing the Battery-Side Cables (Including Parallel Connection Wiring)



BAT10ELC0002

5.6.2.2 Connecting the Power Cables Between Batteries



5.6.2.3 Connecting the Communication Cable

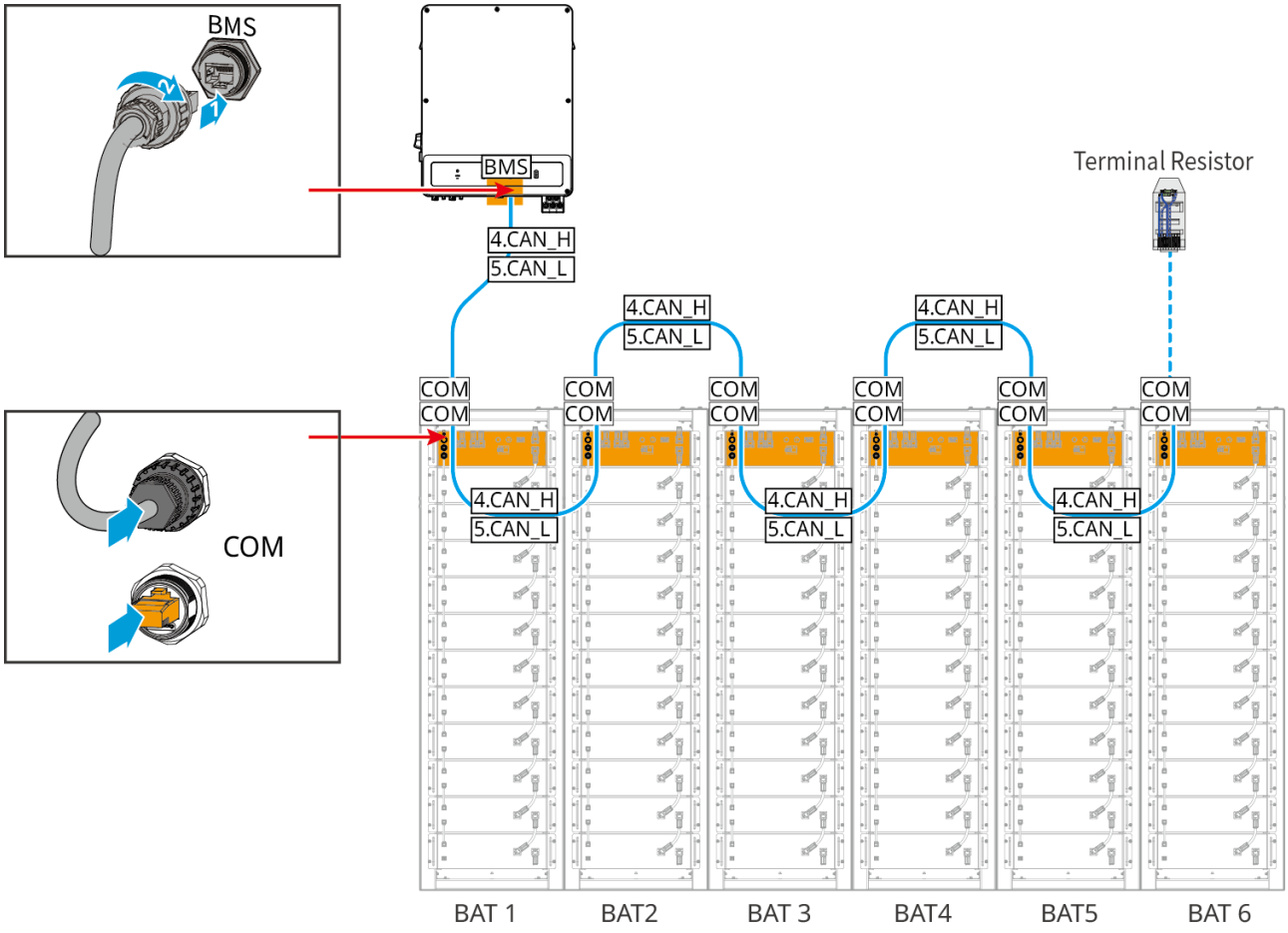
NOTICE
A communication cable is supplied with the battery system. Use the supplied communication cable.

BMS communication connection between the inverter and battery:

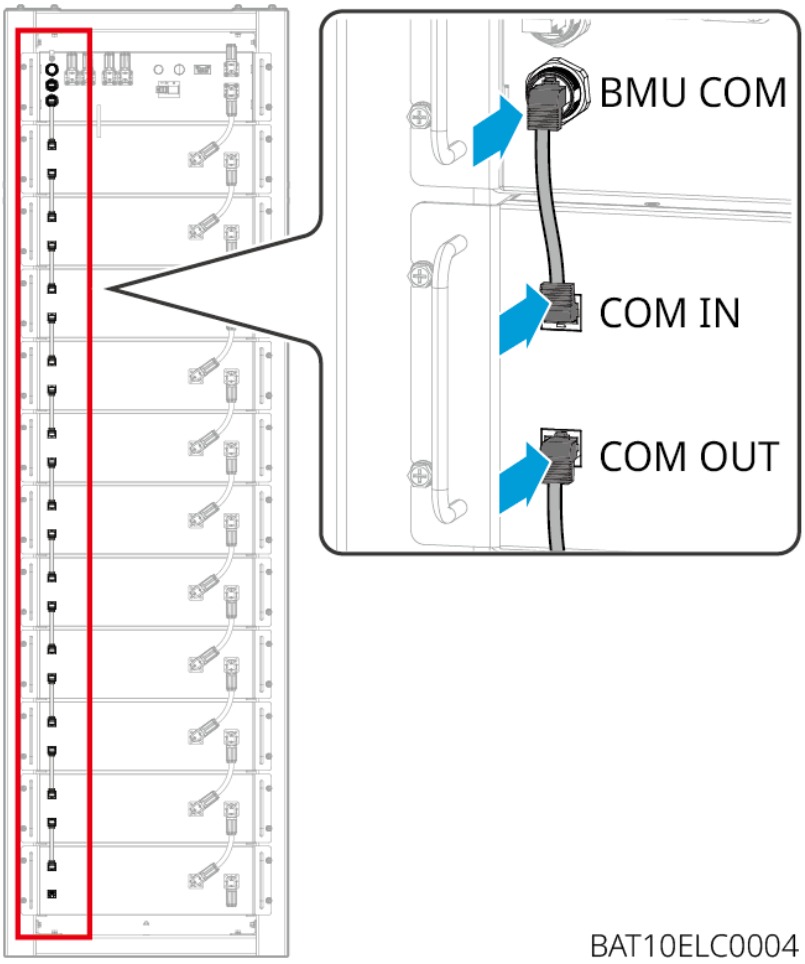
Port	Description	Description
COM1、COM2	1：RS485_A1 2：RS485_B1	Communication with the inverter (reserved).

Port	Description	Description
	4：CAN_H 5：CAN_L	Communication with the inverter or communication between paralleled units.

Communication Wiring Between the Inverter and Battery



Communication Wiring Between Battery Packs

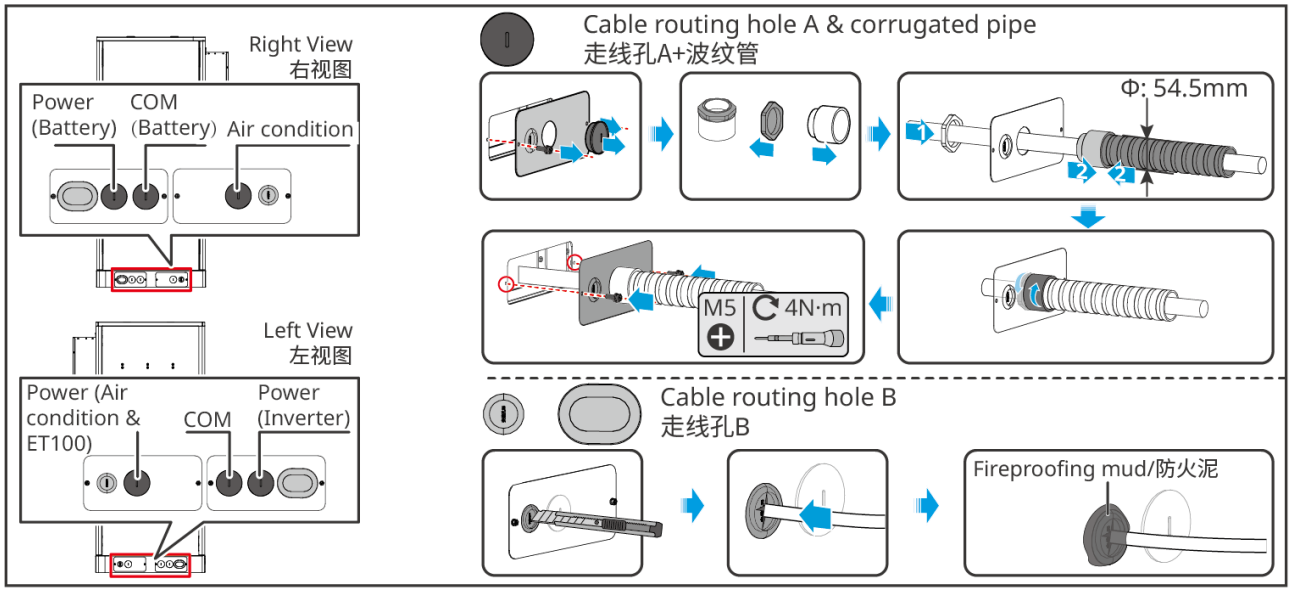


NOTICE

When connecting communication cables between battery packs, leave the COM OUT port on the bottom pack unconnected. No terminating resistor is required!

5.6.3 BAT Series 92.1–112.6 Kwh C&I Battery System

5.6.3.1 Battery Cable Entry Holes and System Wiring Overview



BAT10INT0014

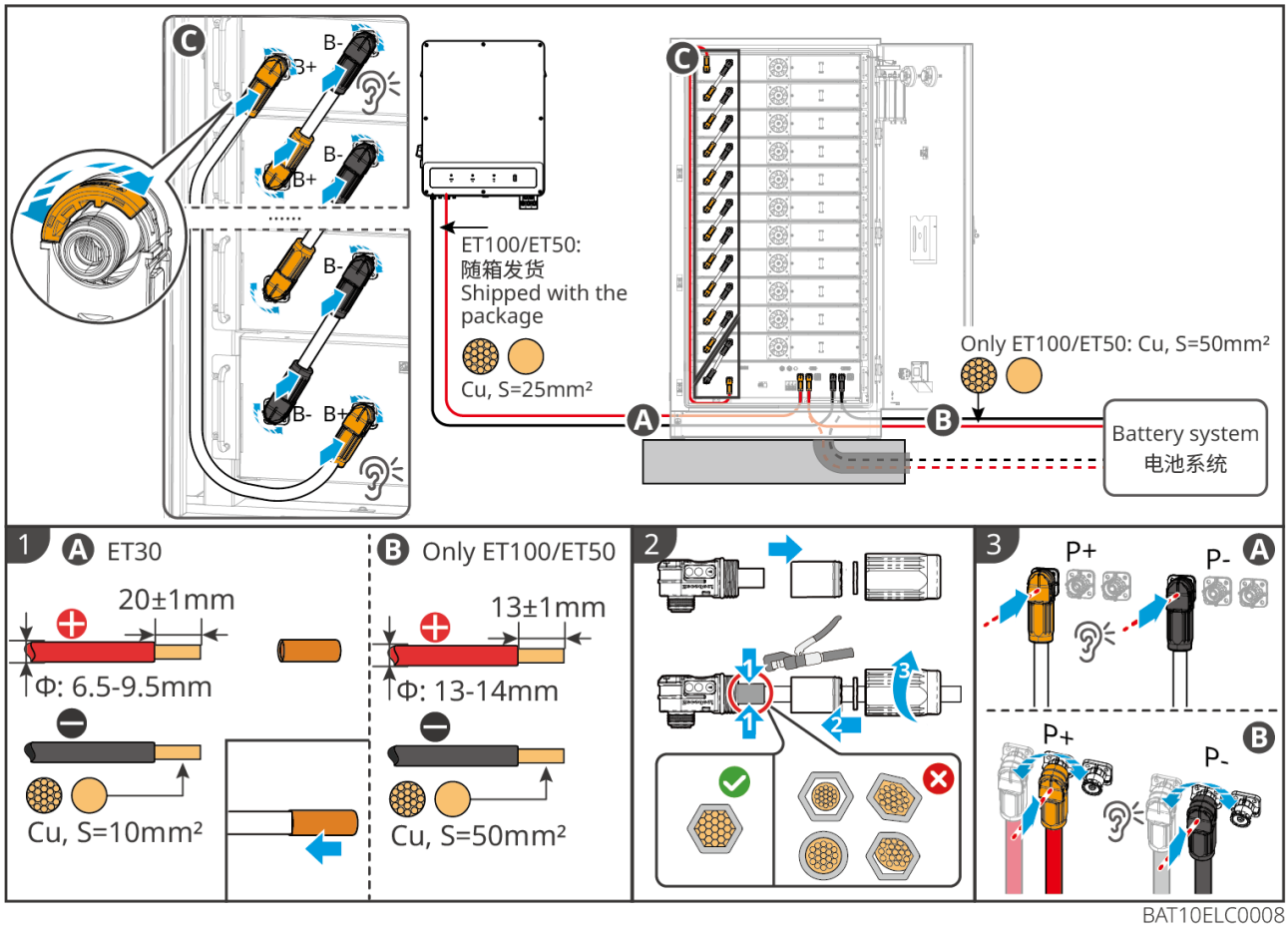
NOTICE

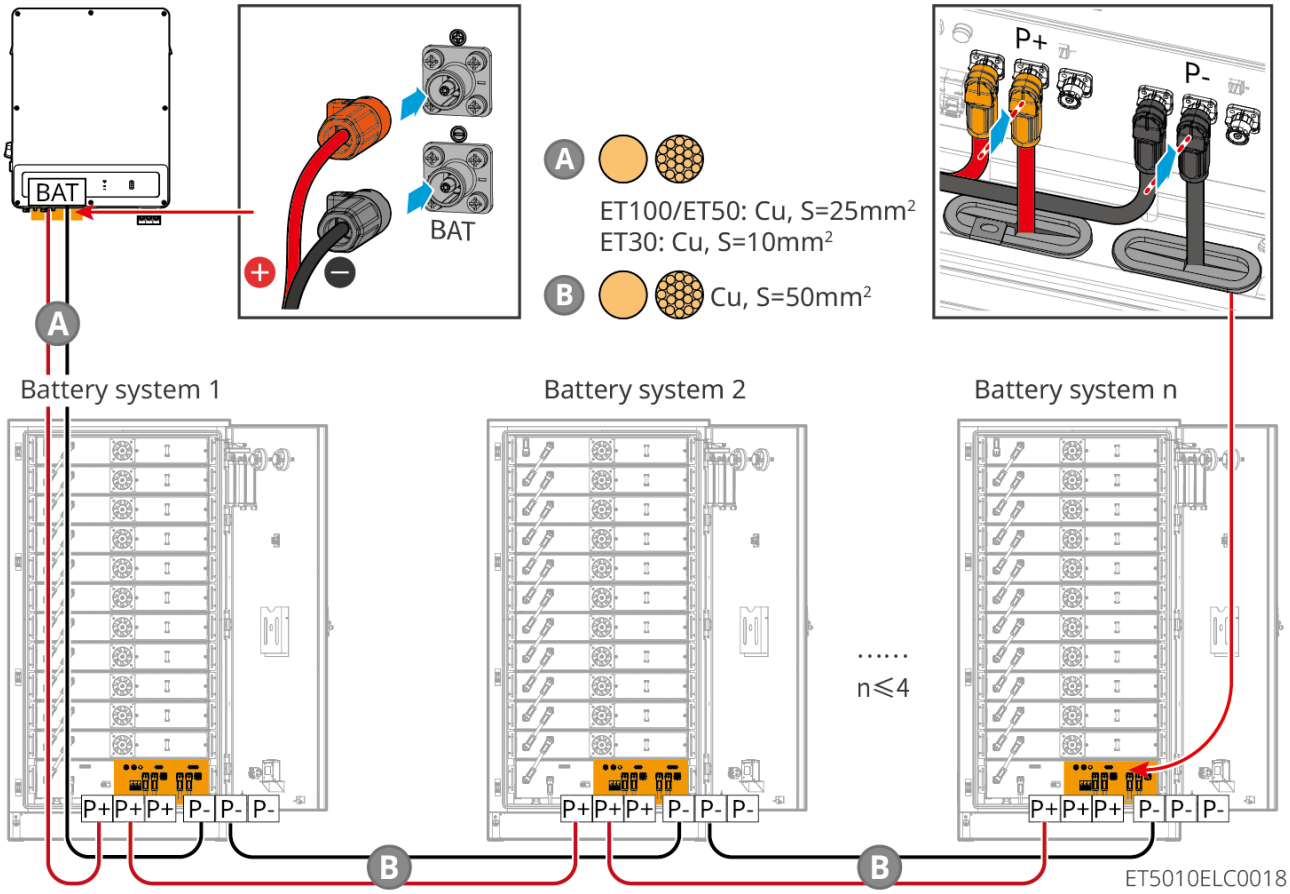
Seal all cut cable entry holes with firestop putty.

5.6.3.2 Connecting the Power Cables Between the Inverter and Battery, and Between Batteries

NOTICE

- When connecting the battery to the inverter, use the pre-terminated cables supplied with the product. If these cables are not long enough, prepare cables that meet the requirements.
- The BAT Series 92.1–112.6 kWh C&I Battery System supports paralleling up to four battery cabinets.


C
B-
B+
B-
B+
B-
B-
B+
ET100/ET50:
随箱发货
Shipped with the package
Cu, S=25mm²
C
Only ET100/ET50: Cu, S=50mm²
A
B
Battery system
电池系统
1
A ET30
20±1mm
Φ: 6.5-9.5mm
Cu, S=10mm²
B Only ET100/ET50
13±1mm
Φ: 13-14mm
Cu, S=50mm²
2
3
P+
P-
A
P+
P-
B
BAT10ELC0008



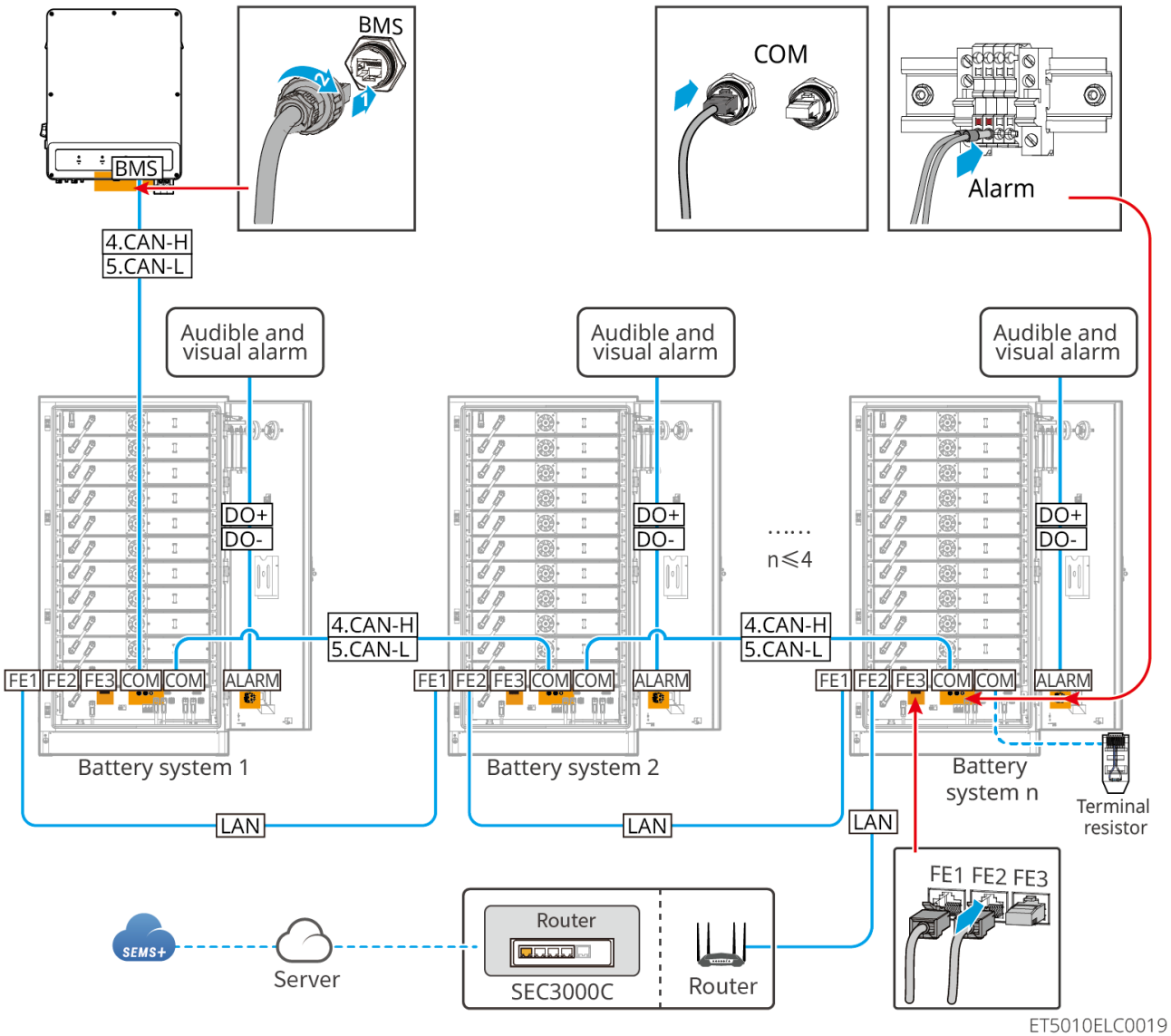
5.6.3.3 Connecting the Communication Cable

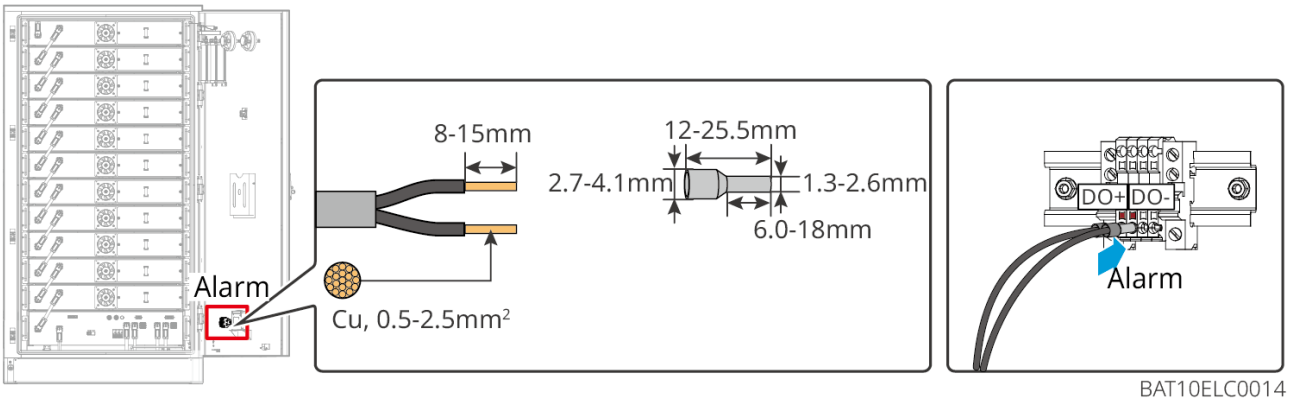
NOTICE

- The external communication ports of the battery system are fitted with terminating resistors at the factory. Remove the terminating resistor before connecting a communication cable. Leave the terminating resistor in place on any port without a communication cable.
- When paralleling batteries, leave the terminating resistor in the COM port of the battery farthest from the inverter to improve communication quality.
- When paralleling batteries, ensure that the distance between the battery farthest from the inverter and the inverter does not exceed 50 m.
- A communication cable is supplied with the battery system. Use the supplied communication cable.

BMS Communication Between the Inverter and Battery

Port	Description	Description
1-3，6-8	-	-
4	CAN_H	CAN bus for communication with the inverter and battery paralleling.
5	CAN_L	





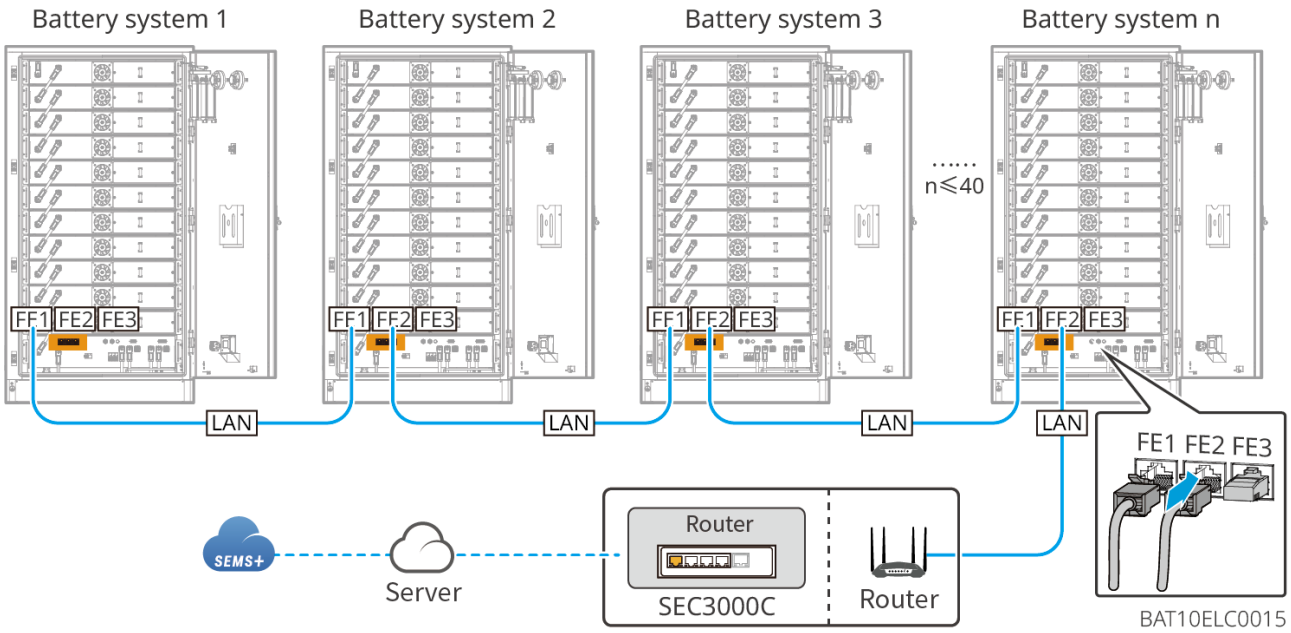
BAT10ELC0014

Cloud Board Communication Between Batteries

NOTICE

- This function applies only to BAT Series 92.1–112.6 kWh C&I Battery Systems equipped with a cloud board.
- Version Requirements:
  - Cloud board firmware: Version 01 or later
  - SEC3000C: Version 05 or later

Cloud board communication between batteries supports transmission of cell-level data and paralleling of up to 40 battery systems. Use a shielded Ethernet cable for LAN communication, and ensure the connected router is the same router used to connect the inverter to the network.

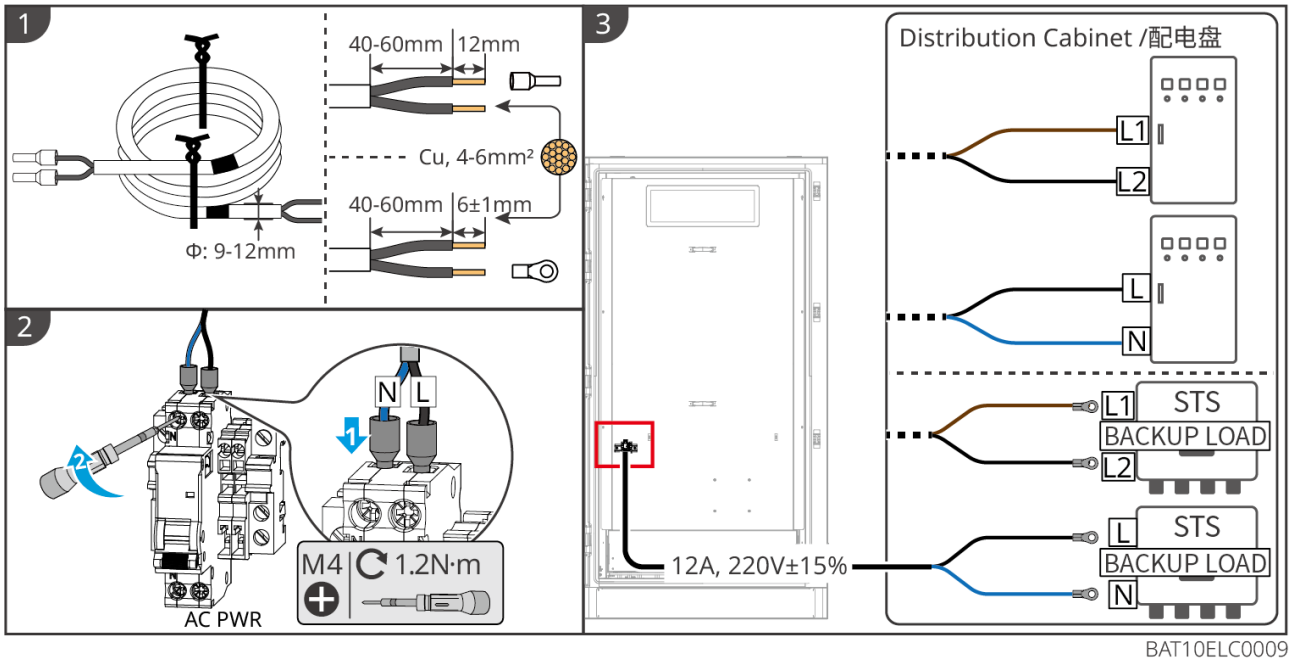


5.6.3.4 Connecting the Battery Air Conditioner Cable

Step 1: Prepare the air conditioner cable.
Step 2: Connect the cable to the battery air conditioner switch.
Step 3: Connect the cable to the distribution board, or connect it to the inverter BACKUP port via the STS.

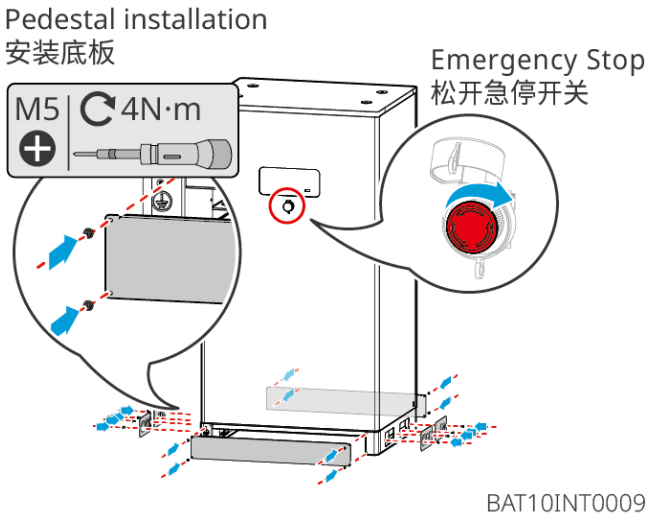
NOTICE

- When paralleling battery systems, wire the air conditioner power cables separately.
- Ensure that the air conditioner power supply voltage is 220 V ±15% and the Rated Current is 12 A.



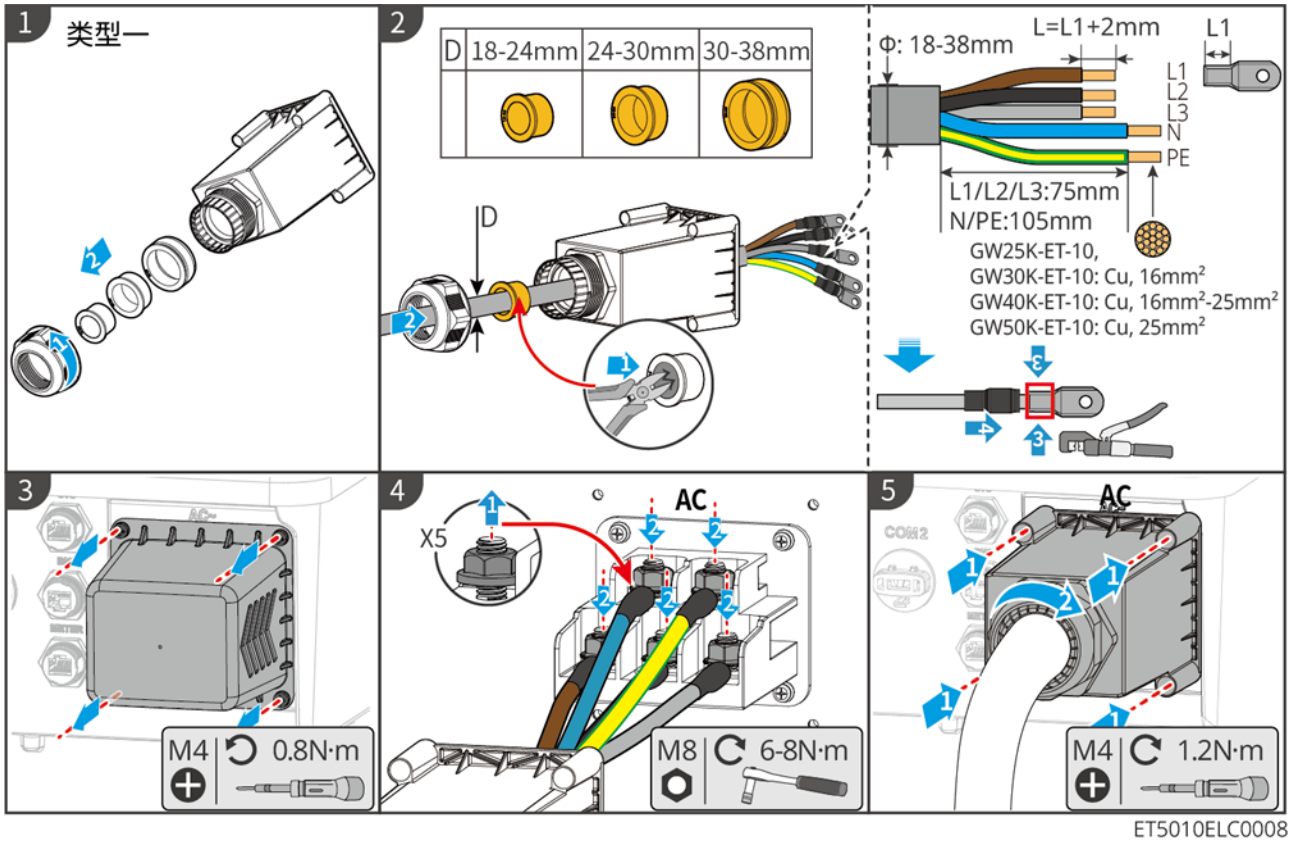
5.6.3.5 Reinstall the Base Plate and Release the EPO Switch

After completing the wiring, reinstall the cover plate on the bottom of the battery, then turn the EPO switch clockwise to release it.

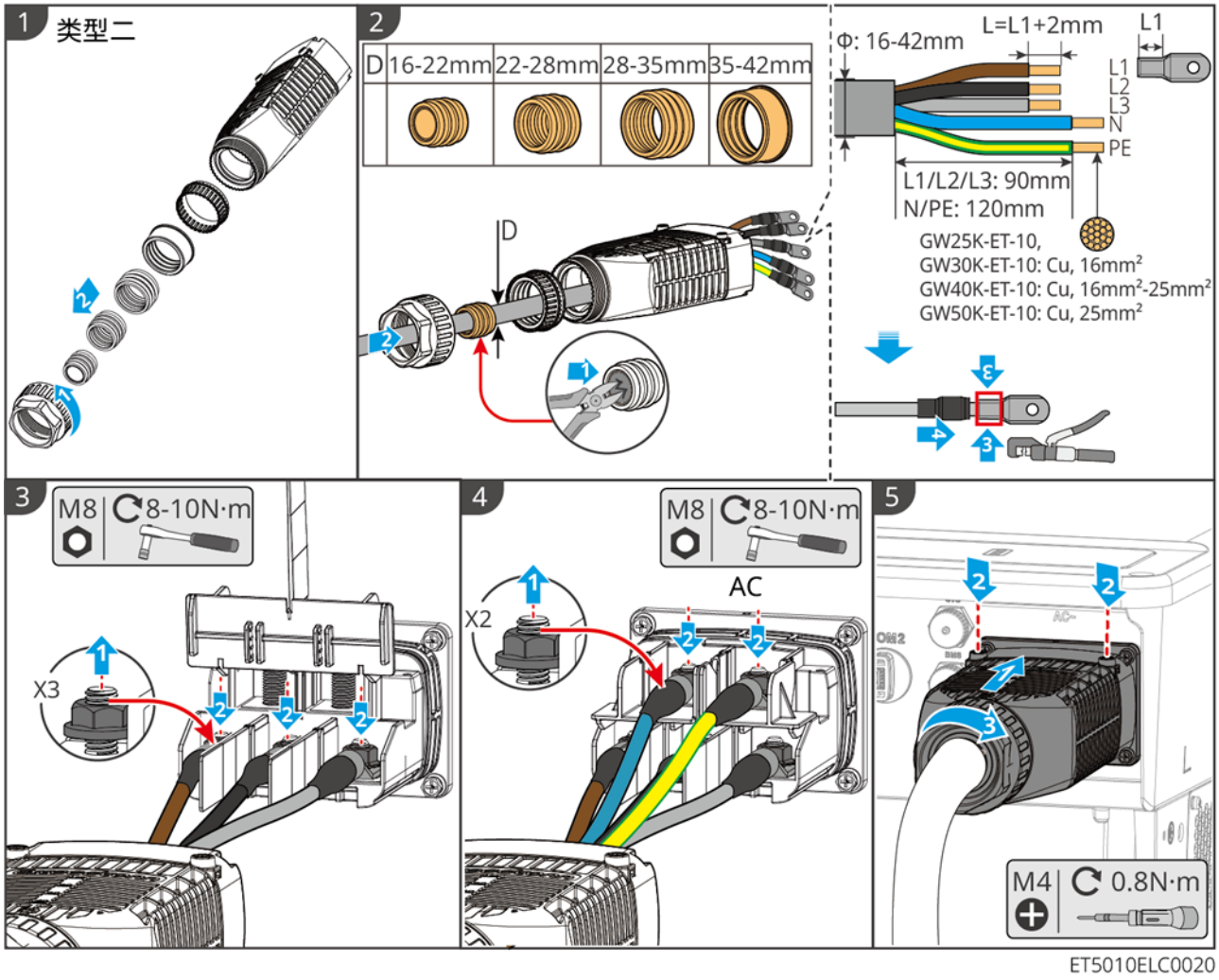


5.7 Connecting the AC Cables

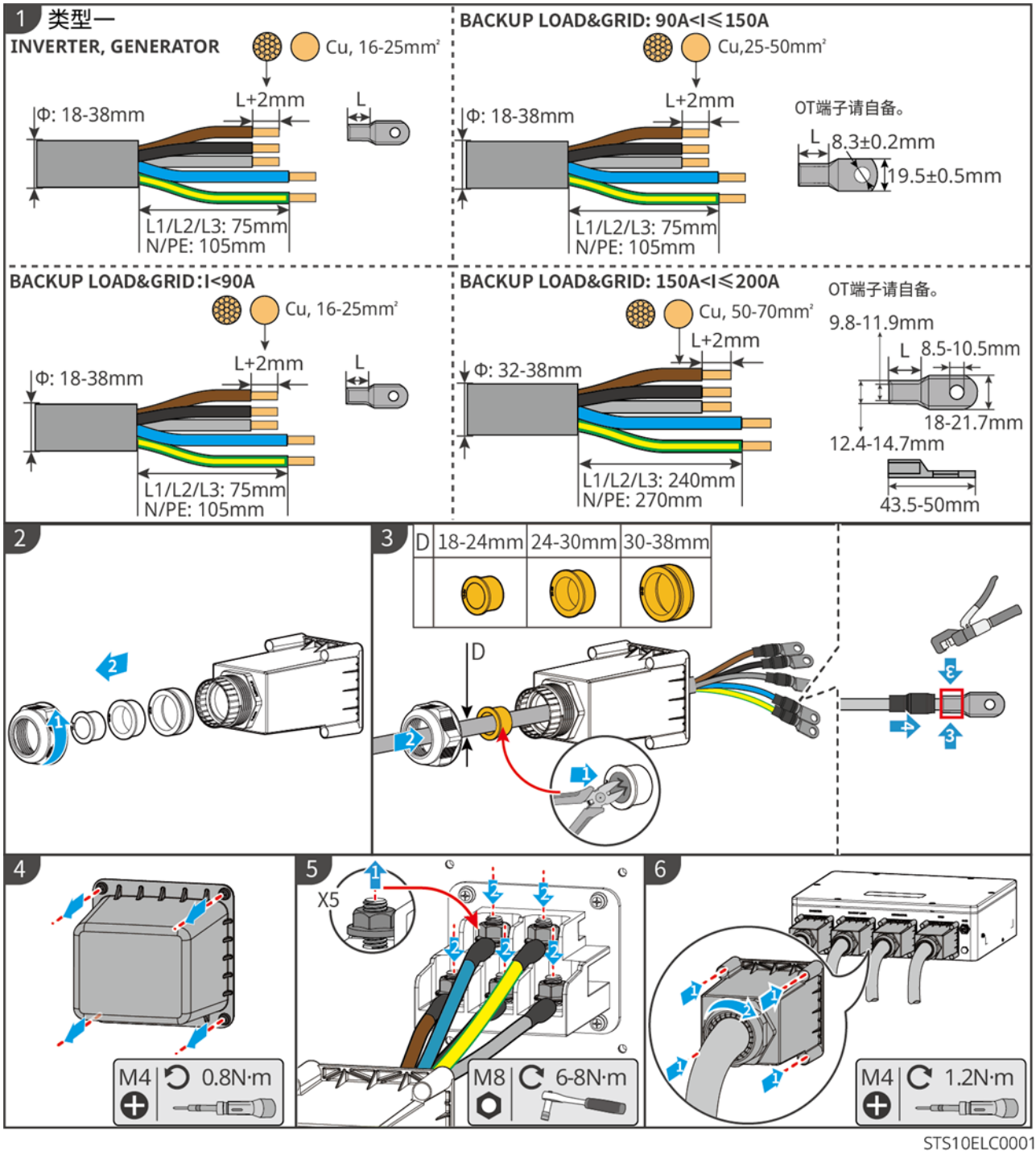
5.7.1 Connecting the Inverter AC Cable



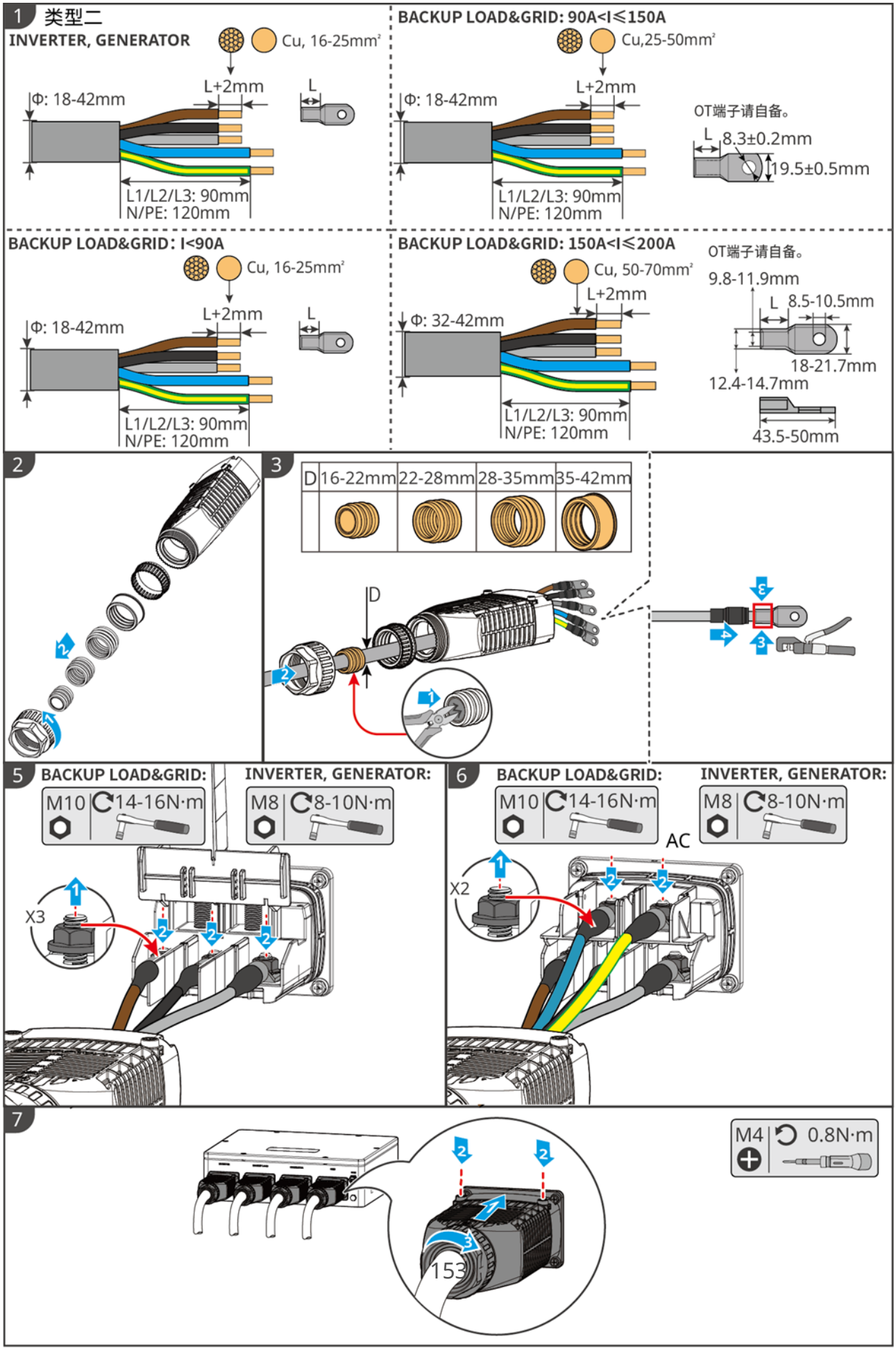
ET5010ELC0008



5.7.2 (Optional) Connecting the STS AC Cable



STS10ELC0001



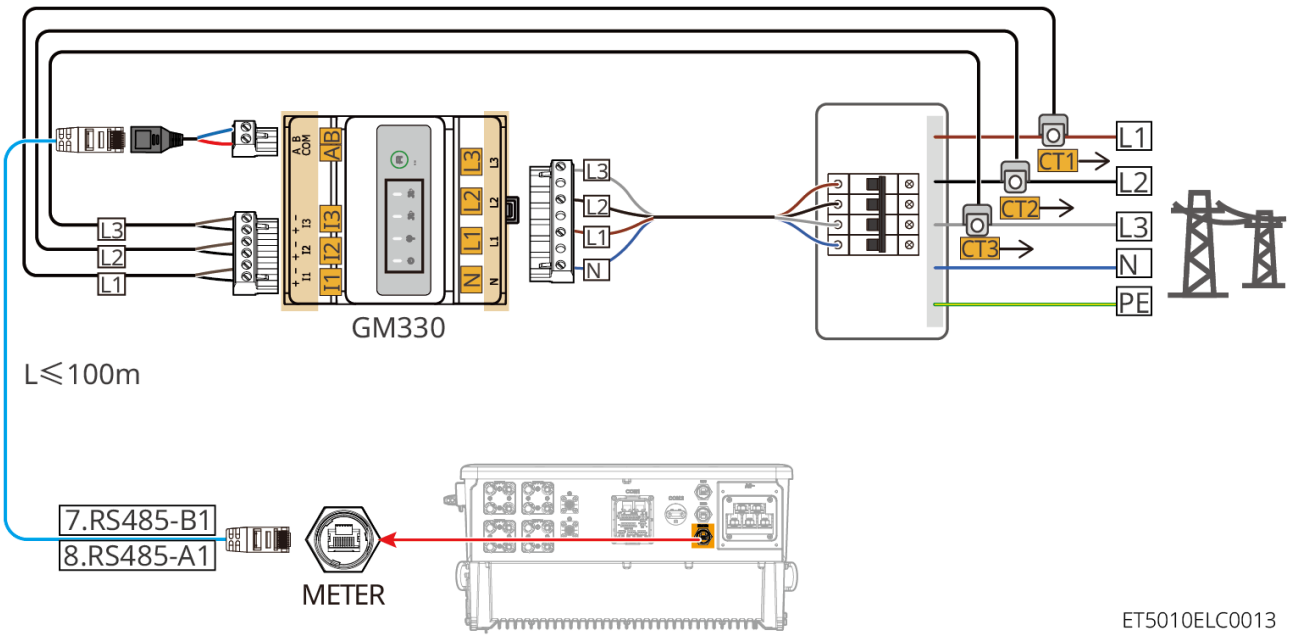
STS10ELC0004

5.8 Connecting the Power Meter Cables

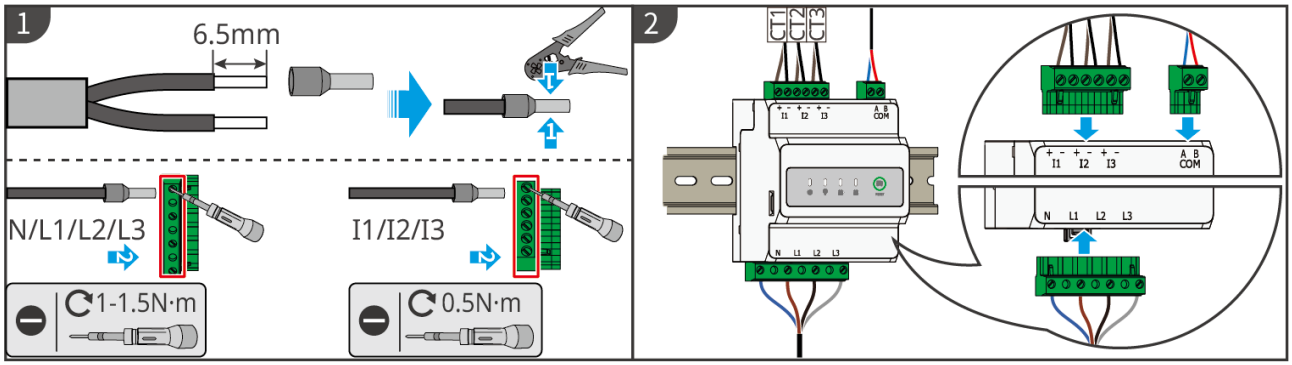
NOTICE

- The power meter supplied with the inverter is for use with one inverter only. Do not connect one power meter to multiple inverters. If you need to use multiple inverters, contact the manufacturer to purchase additional power meters separately.
- Ensure that the CTs are installed in the correct direction and that the phase sequence is correct; otherwise, monitoring data may be inaccurate.
- Ensure that all cables are connected correctly and securely, with no loose connections. Improper wiring may result in poor contact or damage to the power meter.
- In areas with a risk of lightning, if the energy meter cable is longer than 10 m and is not routed through a grounded metal conduit, installation of an external lightning protection device is recommended.

GM330 Power Meter Wiring

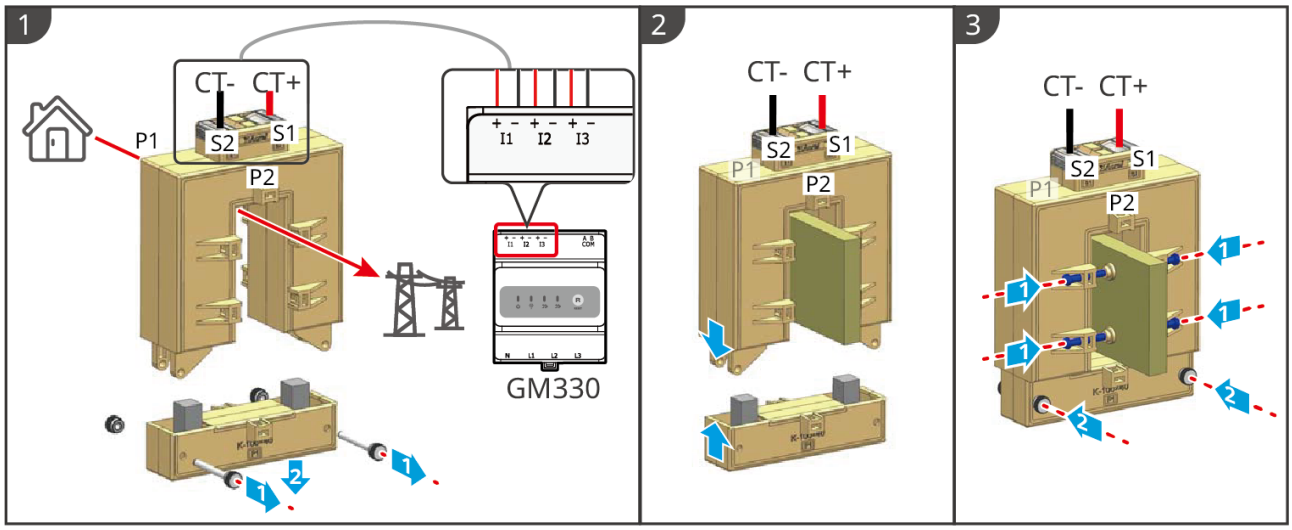


Wiring Procedure



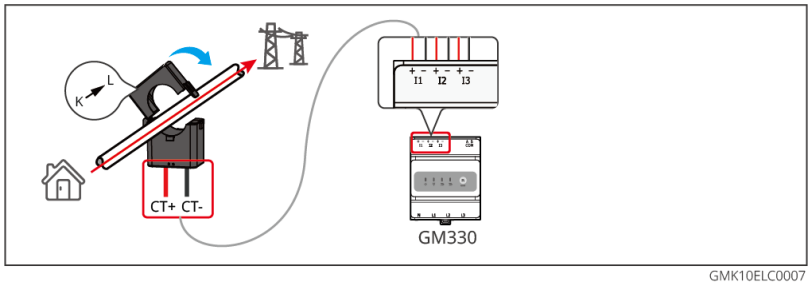
GMK10ELC0004

Installing the CT (Type 1)



GMK10ELC0006

Installing the CT (Type 2)



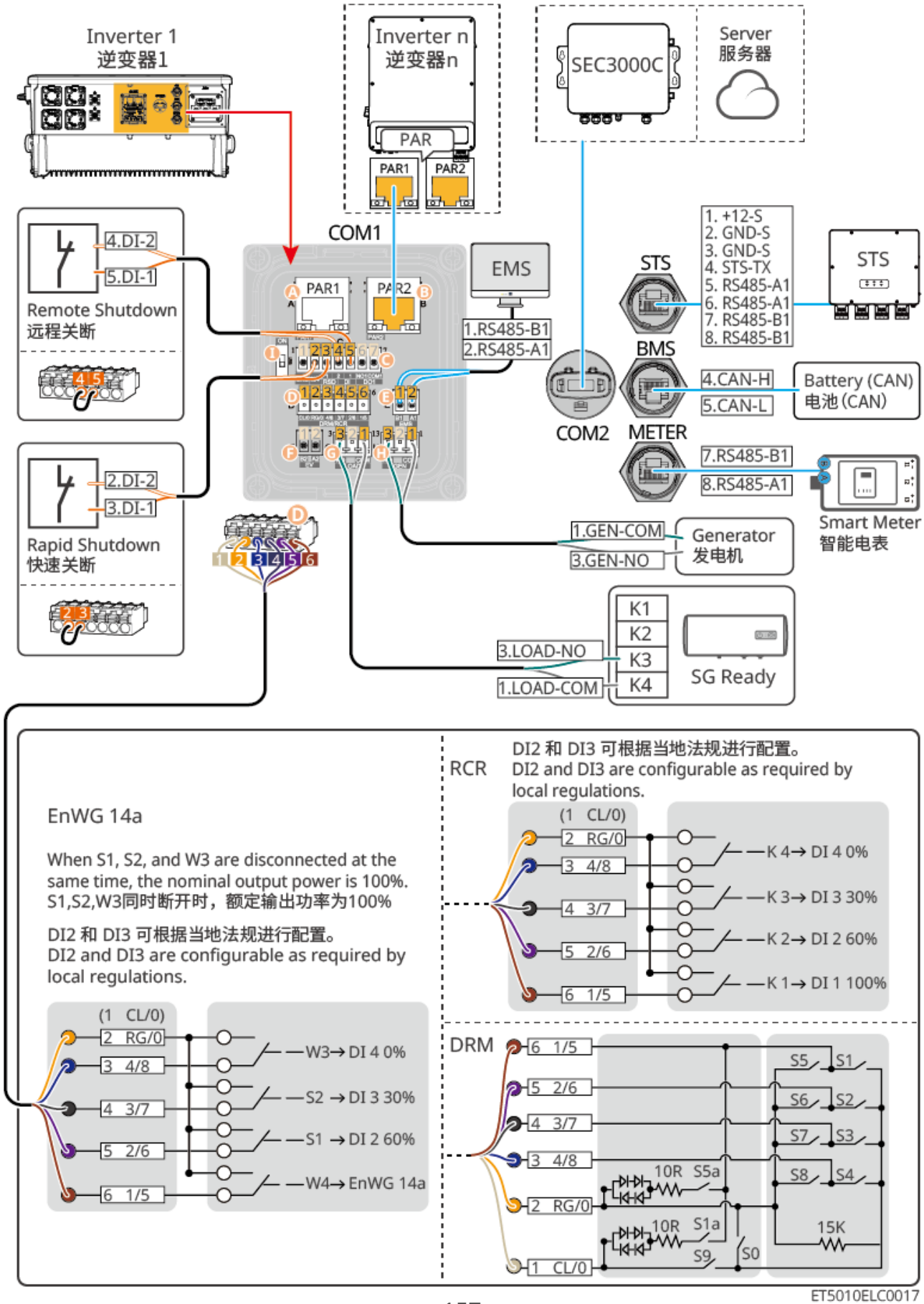
GMK10ELC0007

5.9 Connecting the Inverter Communication Cable

NOTICE

- The inverter communication functions are optional. Select the functions according to the actual application scenario.
- To use the DRED, RCR, or Remote Shutdown function, enable it in the SolarGo App or the SEC3000C web interface after completing the wiring.
- If no DRED device or Remote Shutdown device is connected to the inverter, do not enable this function in the SolarGo App or the SEC3000C web interface; otherwise, the inverter cannot operate in grid-connected mode.
- When the inverter communicates via a 4G module, note the following:
  - The 4G module is an LTE device with a single antenna, suitable for applications with low data transmission rate requirements.
  - To ensure good 4G signal quality, do not install the device indoors or in areas where metal may interfere with the signal.
  - To ensure accurate positioning, do not install the 4G Kit-CN-G21 indoors, in obstructed locations, or in areas with signal interference.
  - The built-in SIM card in the 4G module is a China Mobile SIM card. Confirm that the device is installed in an area covered by China Mobile's 4G network.
  - The communication module of the 4G Kit-CN-G21 supports SIM cards from other carriers. If China Mobile's signal does not cover your area, contact the after-sales service center to replace the SIM card with one from another carrier.
  - After installing the 4G Kit-CN-G21 communication stick, contact the after-sales service center to bind the inverter to the communication stick. Once bound, contact the after-sales service center to unbind the communication stick before installing it on another inverter.

Communication Function Description

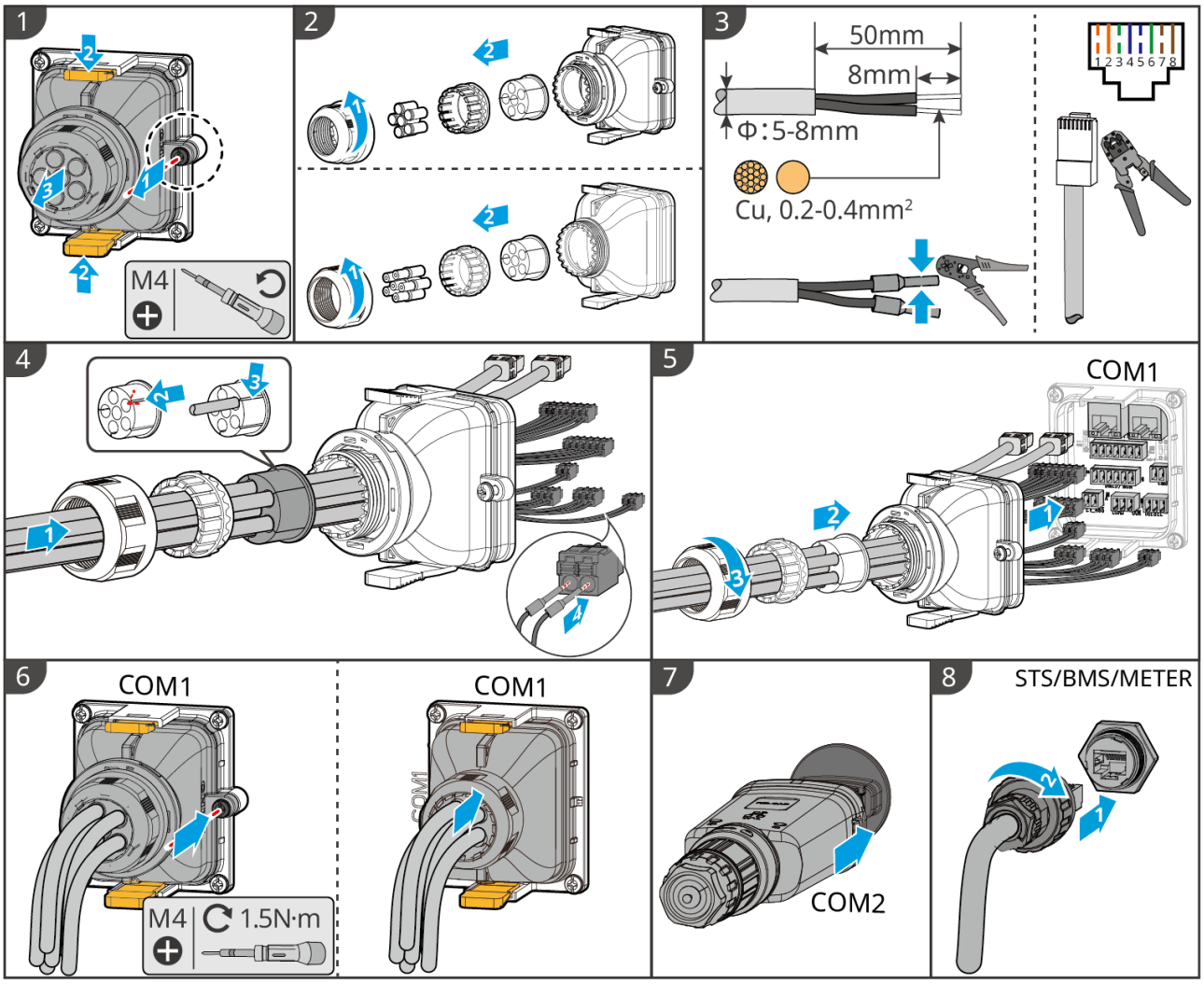


No.	Function	Description
A/B		CANandBUS

No.	Function	Description
C （1-3）	Rapid Shutdown Function Port (12V AUX RSD Control）	(Optional) Connect a Rapid Shutdown device to stop the equipment in an emergency. • 2 and 3 shorted: Equipment operates normally • 2 and 3 not shorted: Equipment stops operating
C （4-5）	Remote Control Function Port (Remote Control）	• In an emergency, the equipment can be stopped remotely. • When the inverter uses theRCRorDREDfunction, short-circuitDGND_SandIO1。
D	DREDorRCRFunction connection port (DRED/RCR）	• DRED (Demand Response Enabling Device) : The inverter meets Australia'sDREDCertification requirements and is equipped with aDREDsignal control port. • RCR (Ripple Control Receiver) : In Germany and some other European regions, utilities use aRipple Control Receiverto convert grid dispatch signals into dry-contact signals. The power station receives grid dispatch signals via dry-contact communication.
F	(Reserved) EV Charger Communication Port (EV_485）	(Reserved) Used to connect theRS485communication cable for an EV charger.
G	Load Control Port (LOAD CON）	The inverter has a dry-contact control port that supports connection to an additional contactor for switching the load on or off. Load Control Mode is disabled by default, and the dry-contact signal is open. When Load Control Mode is enabled, the dry-contact signal is short-circuited.

No.	Function	Description
H	Generator Start/Stop Control Port (DIESEL GEN)	Supports connection of a Diesel Generator Control signal. Diesel Generator Control Mode is disabled by default, and the dry contact signal is open circuit; when Control Mode is enabled, the dry contact signal changes to short circuit.
E	Energy Management System connection port (EMS)	AnEMScommunication port for connecting third-partyRS485equipment.
I/J/K	DIP switch	When operating the inverter as a standalone unit or in parallel, adjust the DIP switches according to the actual operating scenario and refer to6.2 System Wiring Diagram section to ensure communication quality.
STS	STScommunication port (STS)	Connect theSTScommunication cable for an EV charger.
BMS	Battery system communication port (BMS)	Connect to the battery system'sCANcommunication port.
METER	Meter communication port (METER)	Unable to findRS485communication cable.
COM2	Smart communication stick connection port	The inverter supports connection to a mobile phone orWEBinterface via a smart communication stick to configure device parameters, view operating status and error messages, and monitor system status in a timely manner. Supports connection toWiFi/LAN Kit-20、4G Kit-CN、4G Kit-CN-G21 smart communication sticks。

Communication Cable Connection Procedure



ET5010ELC0009

6 System Commissioning

6.1 Pre-Energization System Checks

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 orderly.
2	Ensure that the protective earth wire, DC cables, AC cables, communication cables, and terminating resistor are connected correctly and securely.
3	Ensure the cables are bundled in accordance with routing requirements, arranged properly, and free from damage.
4	For unused cable entry holes and ports, use the terminals supplied with the accessories to make secure connections, and seal the openings.
5	Ensure that all used cable entry holes are sealed.
6	The voltage and frequency at the inverter grid connection point meet grid connection requirements.

6.2 Powering on the System

⚠WARNING

- If the system has multiple inverters, ensure that all slave inverters are powered on from the AC side within one minute after the master inverter is powered on from the AC side.
- Before powering on a BAT Series 92.1–112.6 kWh C&I battery system, ensure that the battery EPO switch is released.

NOTICE

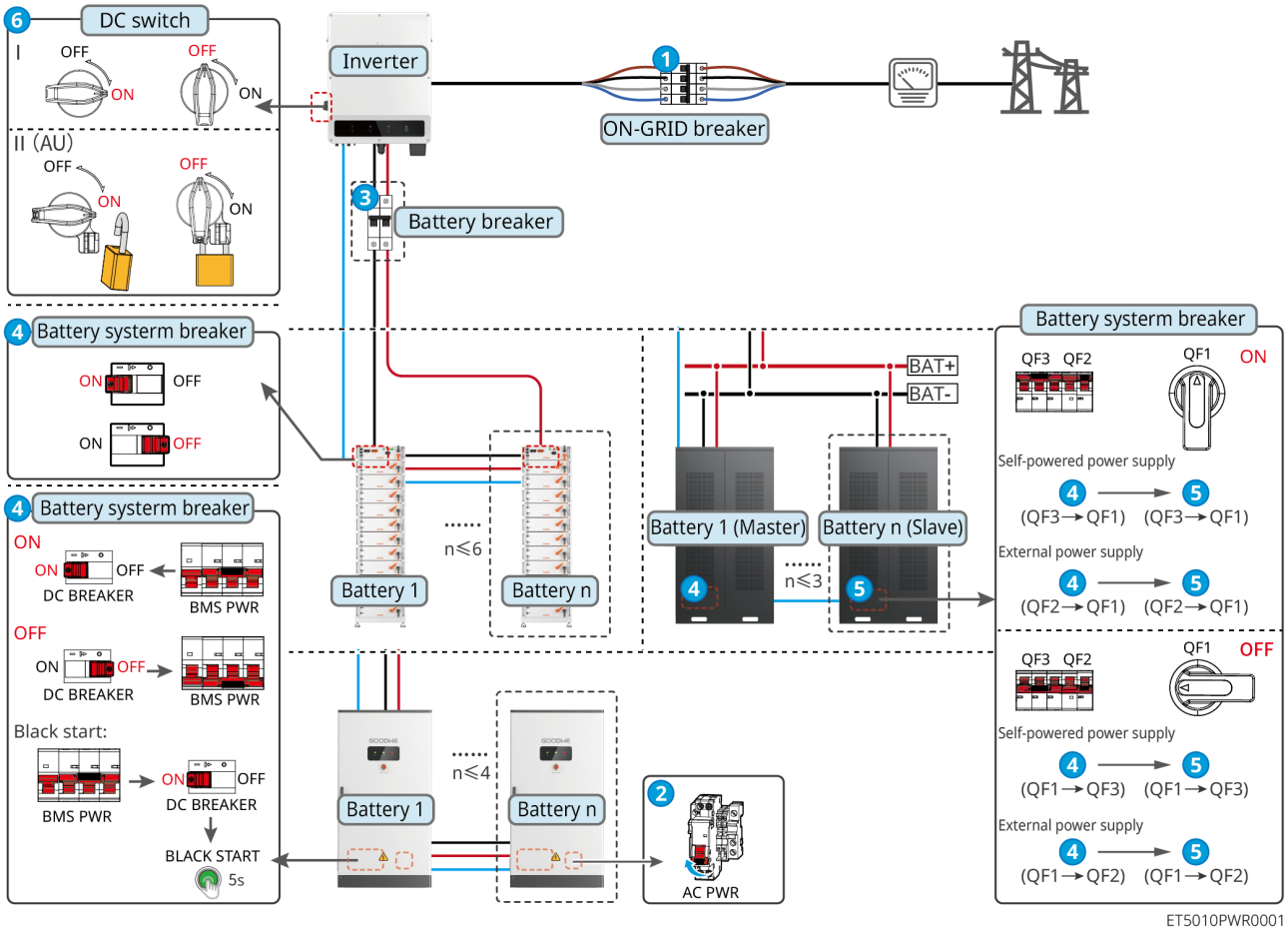
When the PV system is not generating power and the grid is abnormal, the battery black-start function can be used if the inverter cannot operate normally. This function forces the battery to discharge and start the inverter, enabling the inverter to operate in off-grid mode and supply power to the loads from the battery.

- BAT Series 25.6–56.3 kWh high-voltage battery black-start procedure:

1. After closing the molded-case circuit breaker, the RUN indicator flashes and the FAULT indicator remains off.
2. Press and hold the RUN indicator for 5 seconds. If you hear the contactor close and the RUN indicator turns solid, black start is successful. If the RUN indicator continues flashing while the FAULT indicator remains off, black start has failed.
3. If black start fails, press and hold the RUN indicator for 5 seconds to repeat the procedure. If it fails again, contact GoodWe After-Sales Service.

- For the black-start procedure for the BAT Series 92.1–112.6 kWh C&I battery system, see the power-on and power-off procedure.
- The black-start procedure for other batteries is the same as the power-on procedure.

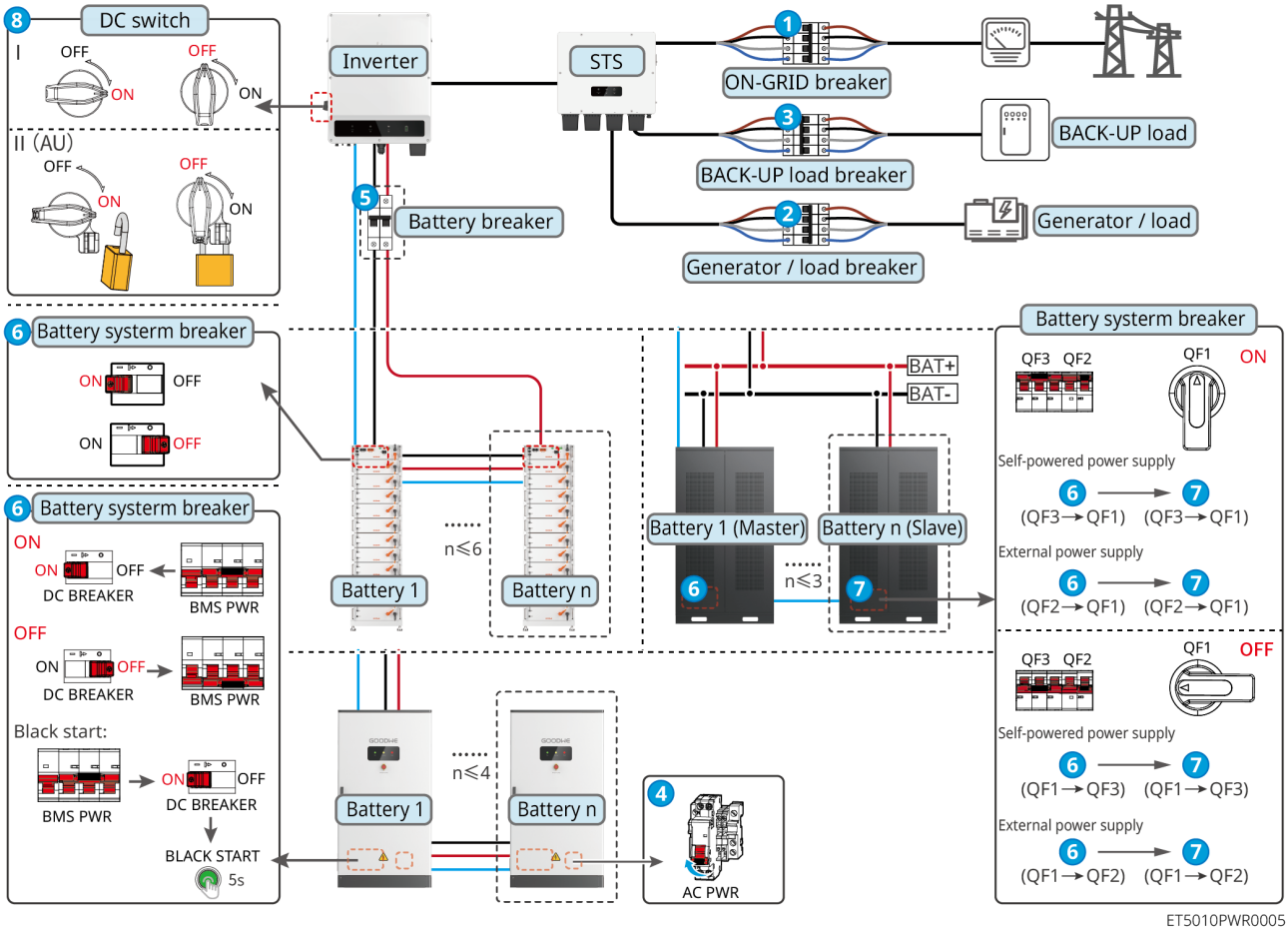
6.2.1 Single Inverter, Without off-Grid Capability



System power-on:1→2→3→4→5→6

3: Select according to local laws and regulations。

6.2.2 Single Inverter, with off-Grid Capability

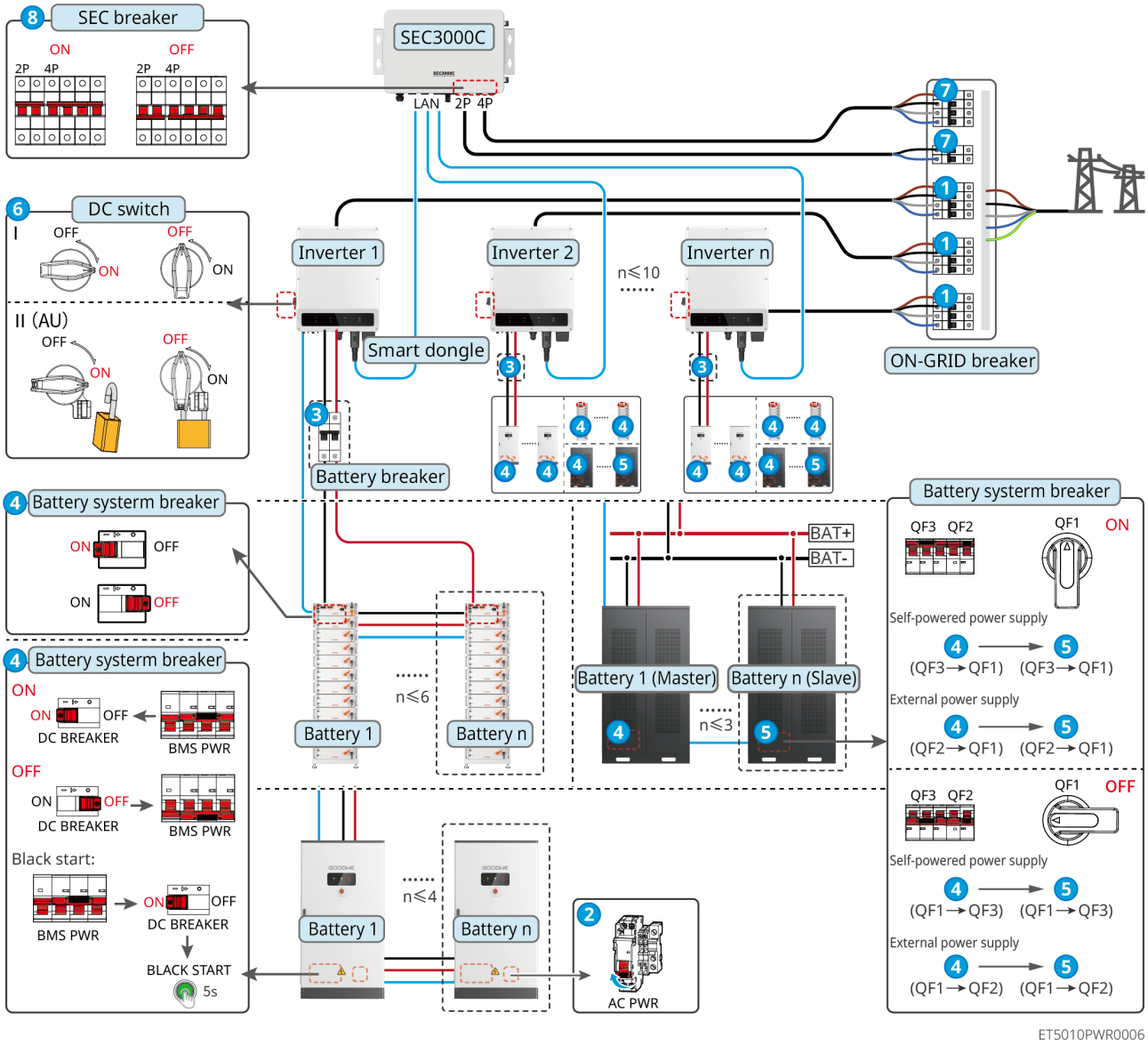


System power-on:❶→❷→❸→❹→❺→❻→❼ →❽

❺: Select according to local laws and regulations。

6.2.3 Multiple Inverters, Without off-Grid Capability

ET + Battery + SEC3000C + Wifi/LAN Kit-20 (≤10 Inverters in Parallel)

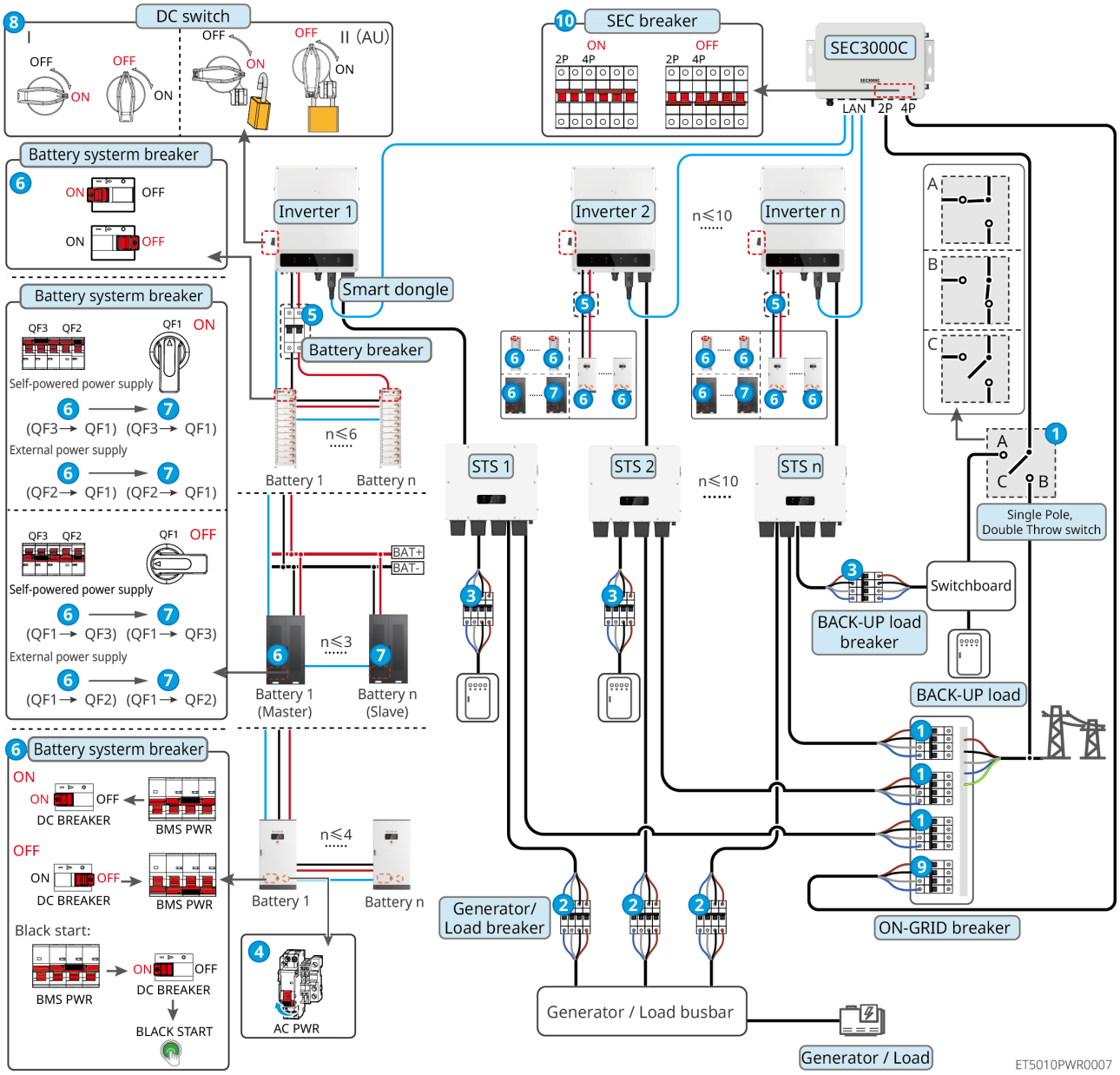


System Power-On: ❶→❷→❸→❹→❺→❻→❼→❽

❸: Optional, subject to local laws and regulations.

6.2.4 Multiple Inverters, No off-Grid Parallel Operation

ET+STS+Battery+SEC3000C+Wifi/LAN Kit-20 (Number of Inverters in Parallel ≤10 Units)



System power-on:❶→❷→❸→❹→❺→❻→❼→❽→❾→❿

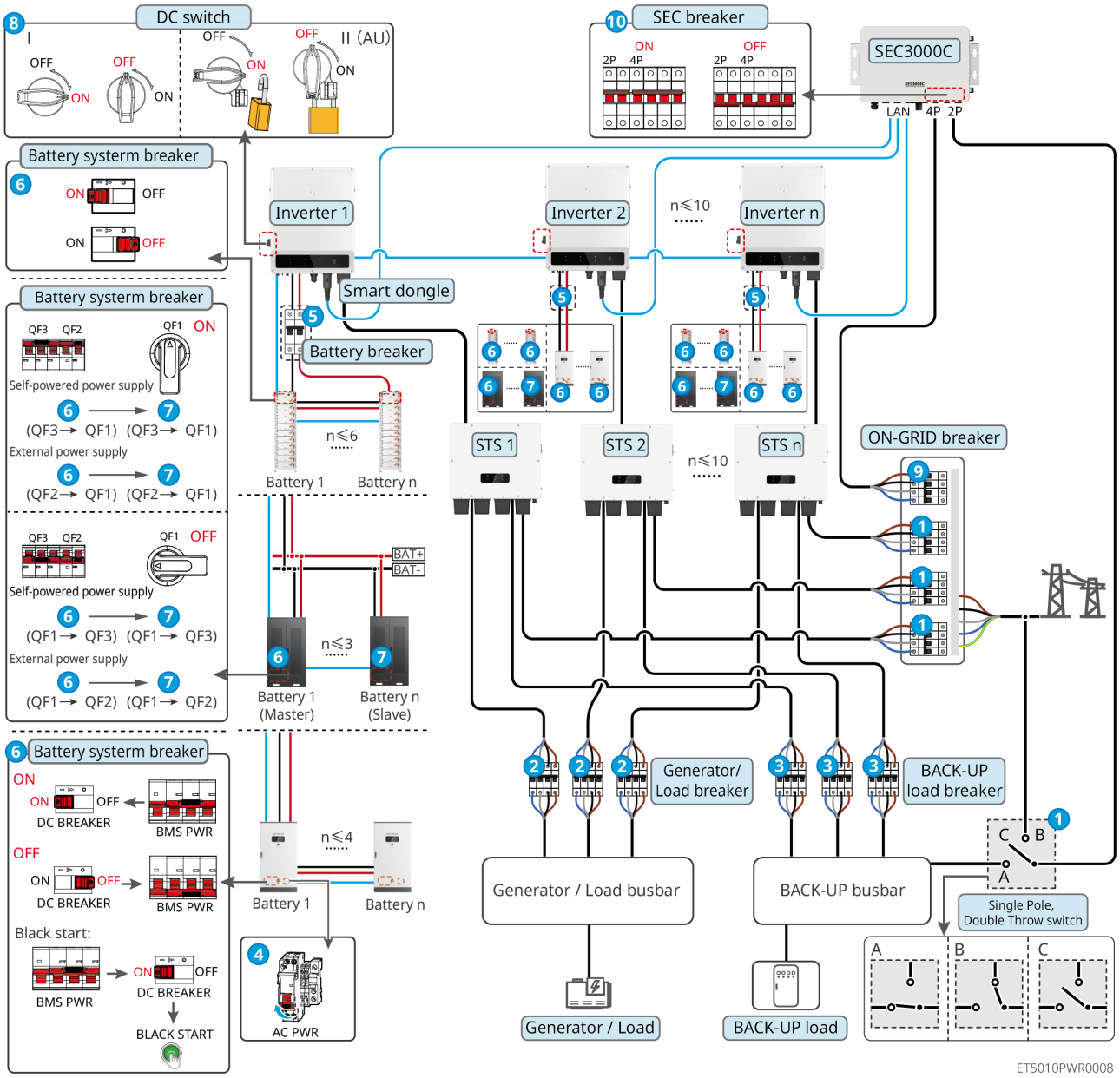
❺: Select according to local laws and regulations。

❶SPDT switch: Set to positionAwhen the energy storage system is powered on; set to positionBwhen the energy storage system is powered off for maintenance; set to positionSEC3000Cto positionCwhen powered off for maintenance.

6.2.5 Multiple Inverters, off-Grid Parallel Operation

ET+STS+Battery+SEC3000C+Wifi/LAN Kit-20 (Number of Inverters in Parallel ≤10

Units)



System power-on:❶→❷→❸→❹→❺→❻→❼→❽→❾→❿

❺: Select according to local laws and regulations。

❶SPDT switch: Set to positionAwhen the energy storage system is powered on; set to positionBwhen the energy storage system is powered off for maintenance; set to positionSEC3000Cto positionCwhen powered off for maintenance.

6.3 Indicator Description

6.3.1 Inverter Indicators

Indicator Light	Status	Description
		The inverter is powered on and in standby mode
		The inverter is starting up and performing a self-check
		The inverter is generating power normally in grid-connected mode or operating in off-grid mode
		BACK-UP output Overload
		System fault
		Inverter powered off
		Grid abnormal; BACK-UP port of the inverter is supplying power normally
		Grid normal; BACK-UP port of the inverter is supplying power normally
		No power supply at the BACK-UP port
		Inverter monitoring module resetting
		No connection established between the inverter and the communication terminal
		Communication failure between the communication terminal and the cloud server
		Inverter monitoring operating normally
		Inverter monitoring module not started

Indicator Light	Description
	75% < SOC≤100%
	50% < SOC≤75%
	25% < SOC≤50%
	0% < SOC≤25%
	Battery not connected
Indicator flashes while the battery is discharging: for example, when the battery SOC is between 25% and 50%, the 50% indicator flashes at the uppermost position.	

6.3.2 STS Indicator

Indicator Light	Status	Description
 BACK-UP		The energy storage system is in BACK-UP (off-grid) mode.
		The energy storage system is in ON-GRID (grid-connected) mode.
		The energy storage system is in standby mode.
 COM		STS power supply normal; communication with the inverter normal.
		STS power supply normal; communication with the inverter failed.
		STS power supply abnormal; communication with the inverter failed.
		System fault

Indicator Light	Status	Description
⚠ FAULT	————	No system faults

6.3.3 Battery Indicator

- **Lynx C Series 101-156Kwh High-Voltage Battery**



Button indicator	Battery system status
Solid green	Battery system operating normally
Single green flash	Battery system idle
Double green flash	Battery system in standby
Single red flash	Minor battery system alarm
Double red flash	Battery System Minor Alarm
Red indicator steady on	Battery System Fault

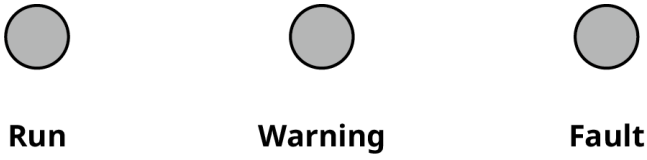
- **BATSeries 25.6-56.3Kwh High-Voltage Battery**



BAT10DSC0003

Indicator Light	Status	Description
Run		Green indicator steady on: Device operating normally
		Green indicator flashes once: Battery operating normally, not communicating with the inverter
		Green indicator flashes twice: Device in standby
Fault		Steady on: Device fault
		Red indicator flashes once: System undervoltage3~4levels
		Red indicator flashes twice: SNAbnormal

- **BATSeries 92.1-112.6Kwh C&I Battery System**



LXC10010DSC0002

Indicator Light	Status	Description
Run		Green indicator steady on: Device operating normally
		Green indicator flashes once: Battery operating normally, not communicating with the inverter
		Green indicator flashes twice: Device in standby

Indicator Light	Status	Description
		Green indicator off, yellow indicator steady on: Device alarm Green indicator off, red indicator steady on: Device fault Green, yellow, and red indicators all off: Device not powered on
 Warning		Steady on: Device alarm
		Off: No device alarm
 Fault		Steady on: Device fault
		Off: No device fault
		Red single flash: Sleep mode (undervoltage)
		Red indicator flashes twice:SNAbnormal

6.3.4 GM330

Type	Status	Description
Power Indicator 	Steady On	Meter powered on; no RS485 communication
	Flashing	Meter powered on; RS485 communication normal
	Off	Meter powered off
Communication Indicator 	Off	Reserved
	Flashing	Press and hold the Reset button for ≥5 s; the power and import/export indicators flash: meter reset
Import/Export Energy Indicator 	Steady On	Importing power from the grid
	Flashing	Export Energy to the Grid
	Off	No Energy Import or Export
	Reserved	

6.3.5 Smart Communication Stick Indicator

4G Kit-CN

Indicator Light	Color	Status	Description
Power Indicator 	Green	On	Module secured and powered on
		Off	Module not secured or not powered on
Communication Indicator 	Blue	Slow flashing (0.2 s on, 1.8 s off)	• Inverter communication indicator flashes twice: Dialing, searching for network • Inverter communication indicator flashes four times: Failed to connect to the cloud due to no data traffic
		Slow flashing (1.8 s on, 0.2 s off)	• Inverter communication indicator flashes twice: Dialing successful • Inverter communication indicator steady on: Connected to the cloud successfully • Inverter communication indicator flashes four times: Failed to connect to the cloud due to no data traffic
		Fast flashing (on for 0.125 s, off for 0.125 s)	The inverter is communicating with the cloud via the module.
		On for 0.2 s, off for 8 s	No SIM card installed or poor SIM card contact

4G Kit-CN-G21

Indicator Light	Status	Description
Power Indicator		Steady on: The smart communication stick is powered on.
		Off: The smart communication stick is not powered on.
Communication Indicator		Steady on: The smart communication stick is connected to the server and communication is normal.
		Two flashes: The smart communication stick is Not Connected to the base station.
		Four flashes: The smart communication stick is connected to the base station but Not Connected to the server.
		Six flashes: Communication between the smart communication stick and the inverter is disconnected.
		Off: The smart communication stick is resetting its software or is not powered on.

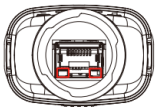
Button	Description
Reload	Press and hold for 0.5–3 seconds to restart the smart communication stick.
	Press and hold for 6–20 seconds to restore the smart communication stick to factory settings.

WiFi/LAN Kit-20

NOTICE

- After double-clicking the Reload button to enable Bluetooth, the communication indicator switches to a single-flash state. Connect to the SolarGo app within 5 minutes; otherwise, Bluetooth will turn off automatically.
- The single-flash state of the communication indicator appears only after Bluetooth is enabled by double-clicking the Reload button.

Indicator Light	Status	Description
Power Indicator		Steady on: The smart communication stick is powered on.
		Off: The smart communication stick is not powered on
Communication Indicator		Steady on: Communication is normal in WiFi or LAN mode.
		Single flash: Bluetooth is enabled on the smart communication stick; waiting to connect to the SolarGo app.
		Two flashes: The smart communication stick is Not Connected to the router.
		Four flashes: Communication between the smart communication stick and the router is normal, but it is Not Connected to the server
		Six flashes: The smart communication stick is identifying the connected device.
		Off: The smart communication stick is resetting its software or is not powered on.

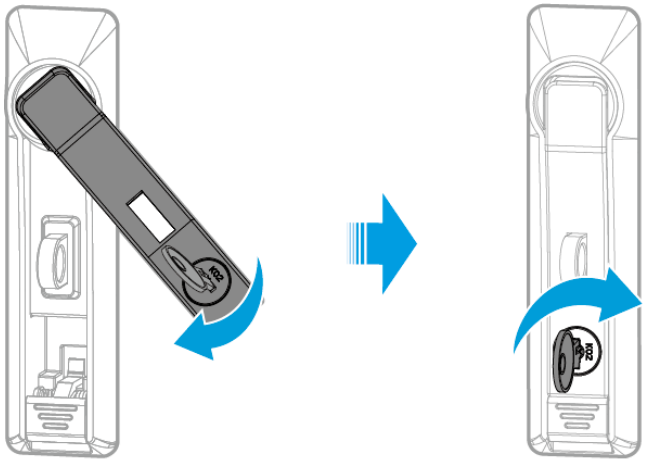
Indicator Light	Color	Status	Description
LAN port communication indicator 	Green	Steady On	100 Mbps wired network connection is normal.
		Off	• Ethernet cable Not Connected. • 100 Mbps wired network connection is abnormal. • 10 Mbps wired network connection is normal.
	Yellow	Steady On	10/100 Mbps wired network connection is normal; no communication data is being transmitted or received.
		Flashing	Communication data is being transmitted or received.
		Off	Ethernet cable Not Connected.

Button	Description
Reload	Press and hold for 0.5–3 seconds to reset the smart communication stick.
	Press and hold for 6–20 seconds to restore the smart communication stick to factory settings.
	Quickly double-click to enable the Bluetooth signal (available for 5 minutes only).

6.4 Close the Cabinet Door

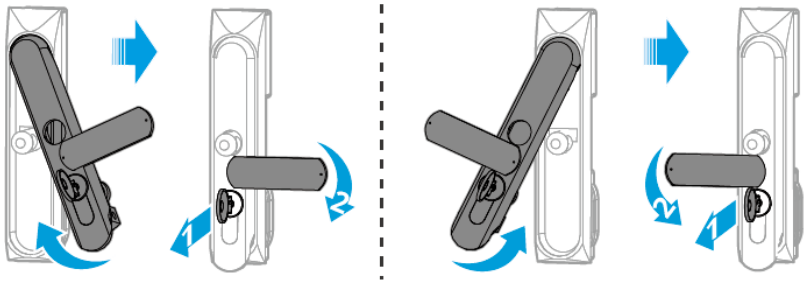
NOTICE
After the system has powered on, close the battery cabinet door.

- **Lynx C Series 101–156 Kwh High-Voltage Battery**



LXC10110INT0004

- **BATSeries 92.1-112.6Kwh C&I Battery System**



Front door Back door BAT10INT0007

7 System Commissioning

NOTICE

- If an energy storage system has previously operated as a standalone unit, ensure that the parameters of all energy storage systems are set identically before configuring them as a parallel system; otherwise, parameter configuration for the parallel system may fail.
- Energy storage system pairingSEC3000CFor parallel operation, refer to the relevant parameter settings in theSEC3000C User Manual。

7.1 Set Inverter Parameters Using the App

SolarGo App is a mobile application that communicates with inverters via Bluetooth or Wi-Fi. The following are its commonly used functions:

1. View the inverter's operating data, software version, alarm information, and more.
2. Configure the inverter's grid parameters, communication parameters, and more.
3. Maintain the equipment.

For details about the functions, see the *SolarGo App User Manual*. The user manual is available on the official website or by scanning the QR code below.

SolarGo App

SolarGo App User Manual

7.2 Commissioning Devices via the SEC3000C Embedded Web Interface

The SEC3000C Smart Energy Control Cabinet is a dedicated device for the monitoring

and management platform of photovoltaic power generation systems. It can collect data from devices in the PV power generation system, such as grid-connected inverters, energy storage inverters, and energy meters, store logs, and send data to the monitoring and management platform to enable centralized monitoring, operation, and maintenance of the PV system.
For detailed functions, refer to the SEC3000C User Manual.

8 Monitor the PV Plant via SEMS+

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

1. Manage organizations, user information, and more.
2. Add and monitor PV plant information, and more.
3. Maintain the equipment.

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

9 System Maintenance

9.1 Powering off the System

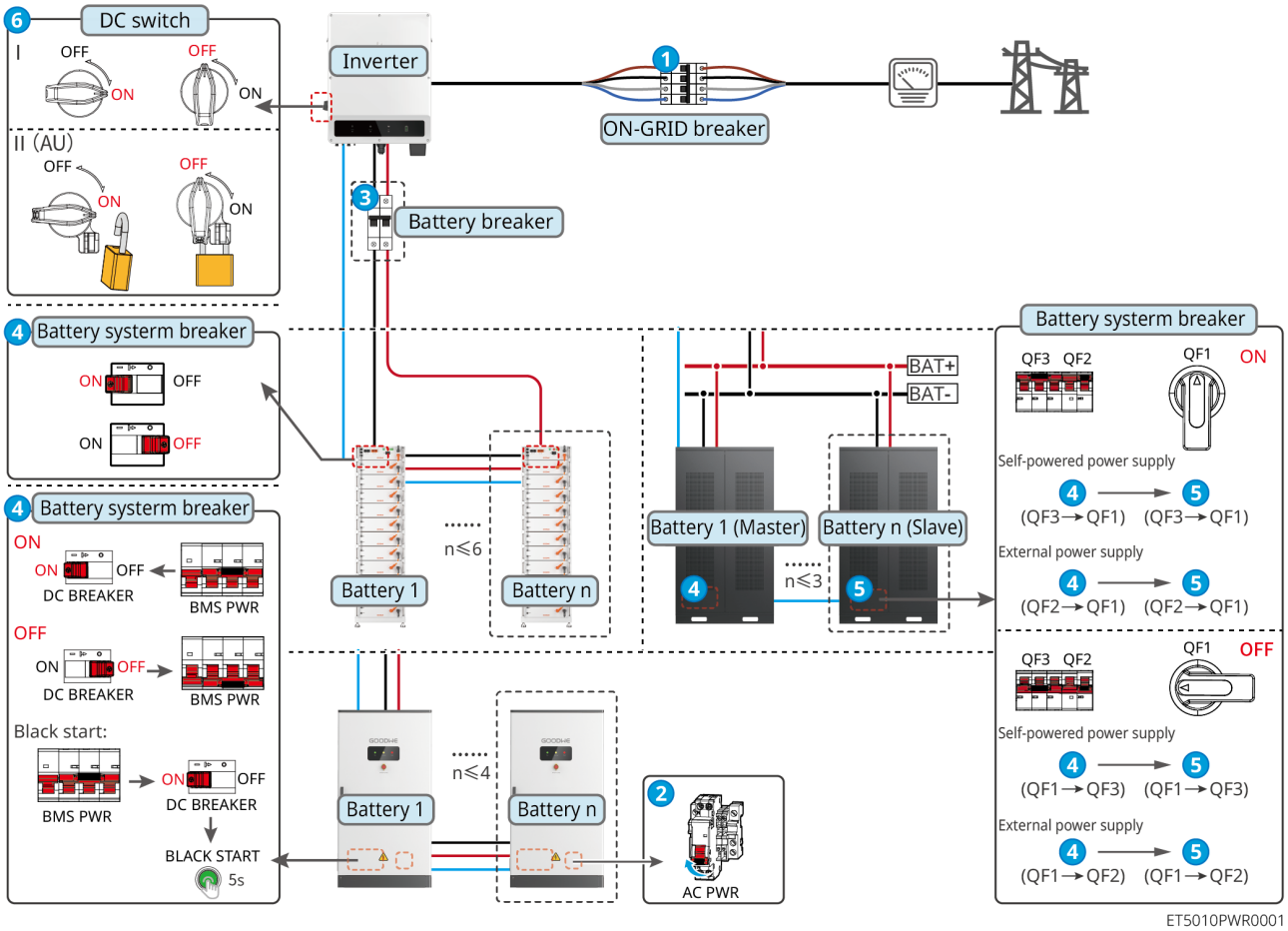
⚠DANGER

- Before performing operation and maintenance on equipment in the system, de-energize the system. Operating equipment while energized may damage the equipment or cause an electric shock hazard.
- After the equipment is powered off, the internal components need time to discharge. Wait until the equipment is fully discharged, as indicated on the label.
- When shutting down the battery system, strictly follow the battery system shutdown requirements to prevent damage to the system.
- In an emergency requiring the battery to be shut down, press the EPO switch to immediately de-energize the battery.

NOTICE

Circuit breakers between the inverter and battery, and between battery systems, must be installed in accordance with local laws and regulations.

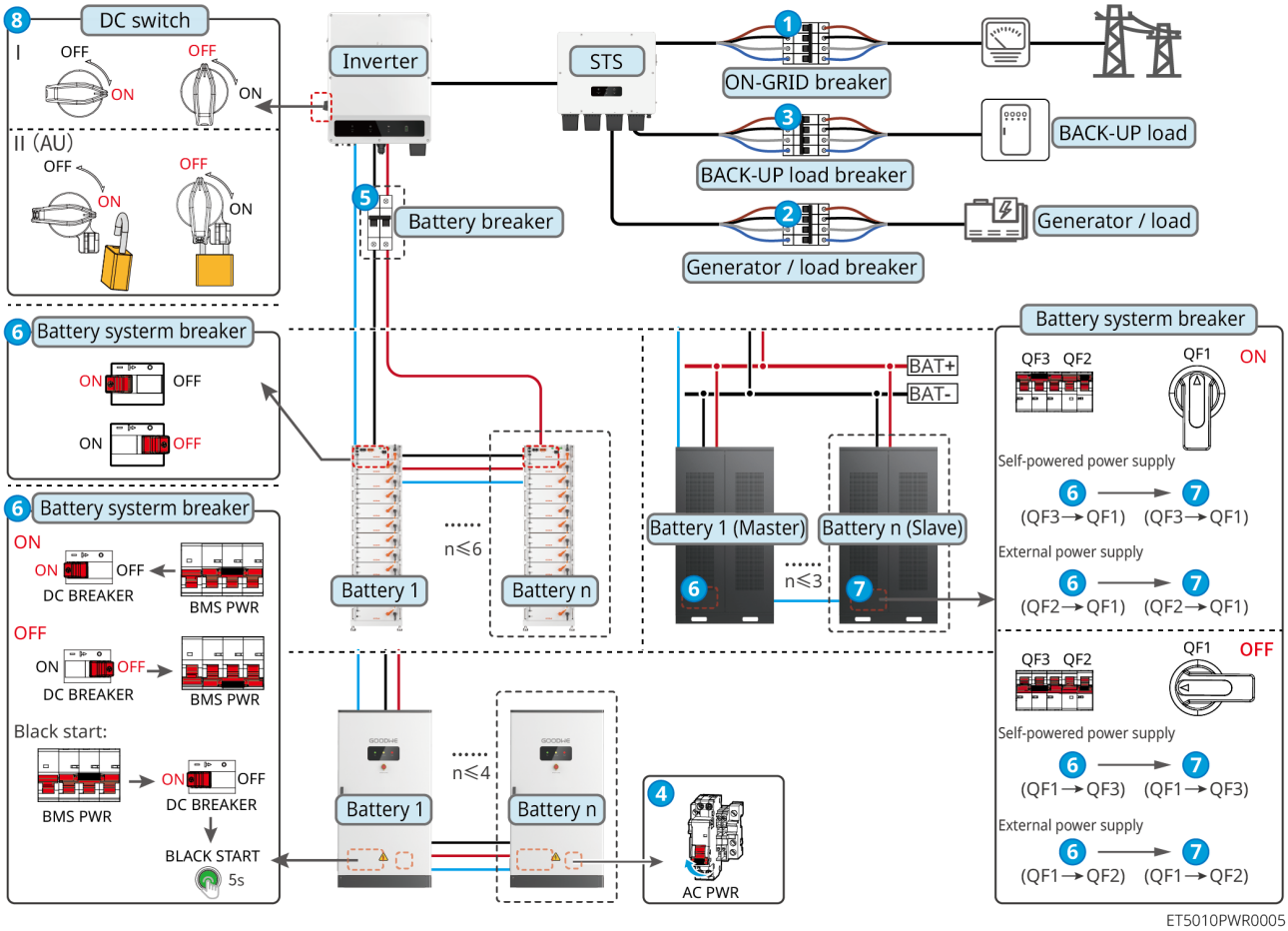
9.1.1 Single Inverter, Without off-Grid Capability



System shutdown: ❶→❷→❸→❹→❺→❻

❸: Optional, subject to local laws and regulations.

9.1.2 Single Inverter, with off-Grid Capability

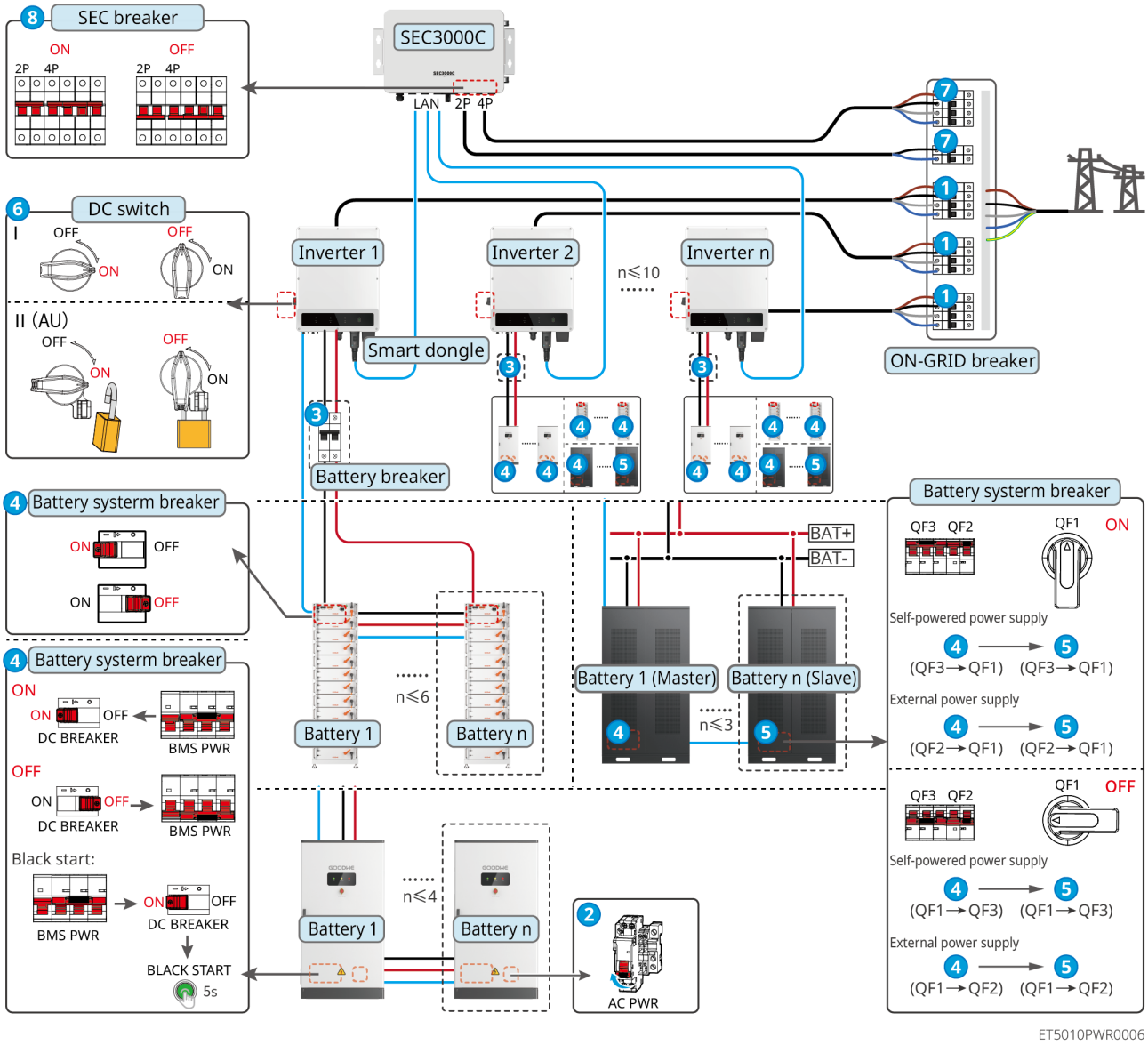


System shutdown: ❶→❷→❸→❹→❺→❻→❼→❽

❺: Optional, subject to local laws and regulations.

9.1.3 Multiple Inverters, Without off-Grid Capability

ET + Battery + SEC3000C + Wifi/LAN Kit-20 (≤10 Inverters in Parallel)

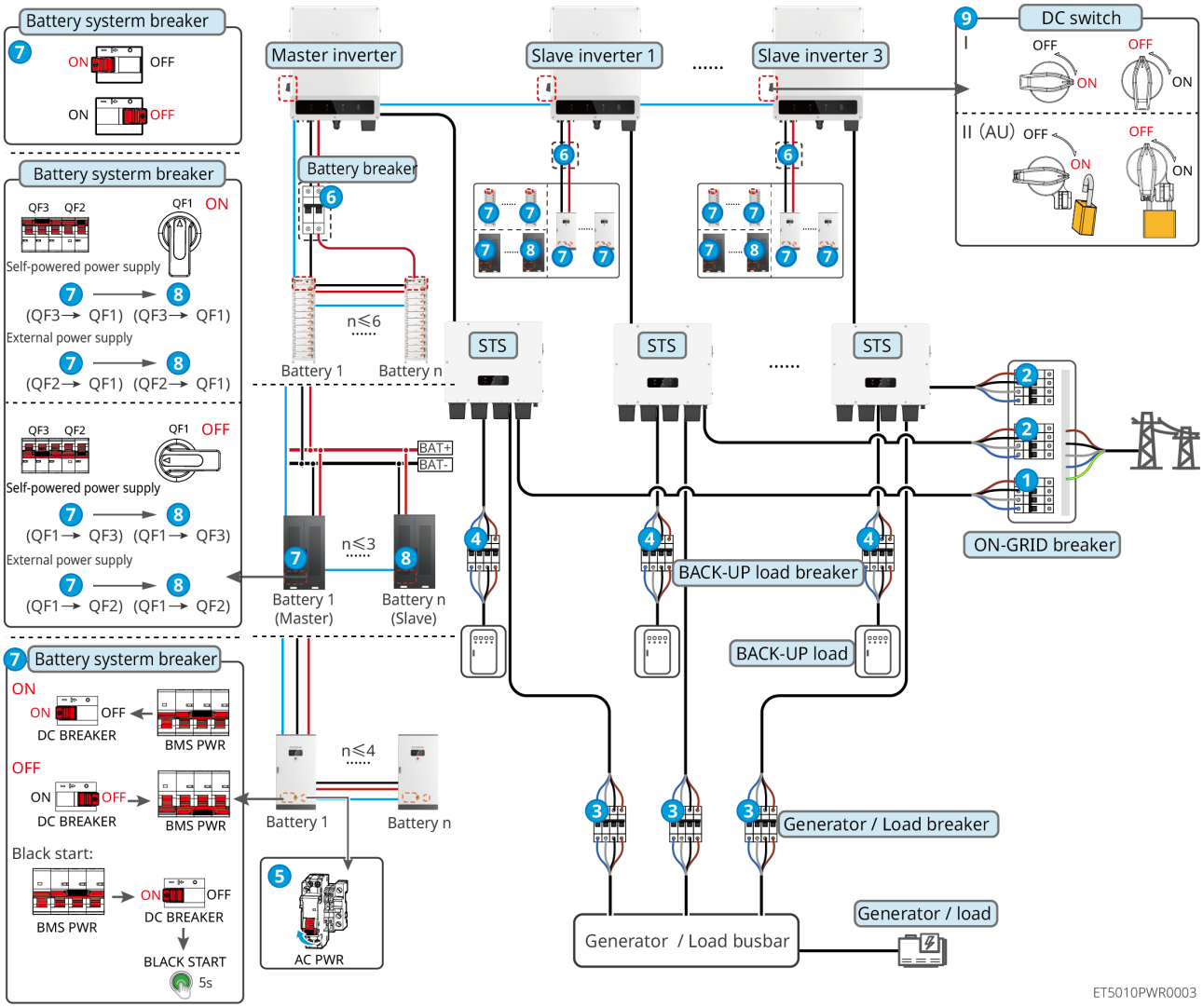


System shutdown: ❶→❷→❸→❹→❺→❻→❼→❽

❸: Optional, subject to local laws and regulations.

9.1.4 Multiple Inverters, No off-Grid Parallel Operation

ET+STS+Battery+SEC3000C+Wifi/LAN Kit-20 (Number of Inverters in Parallel ≤10 Units)



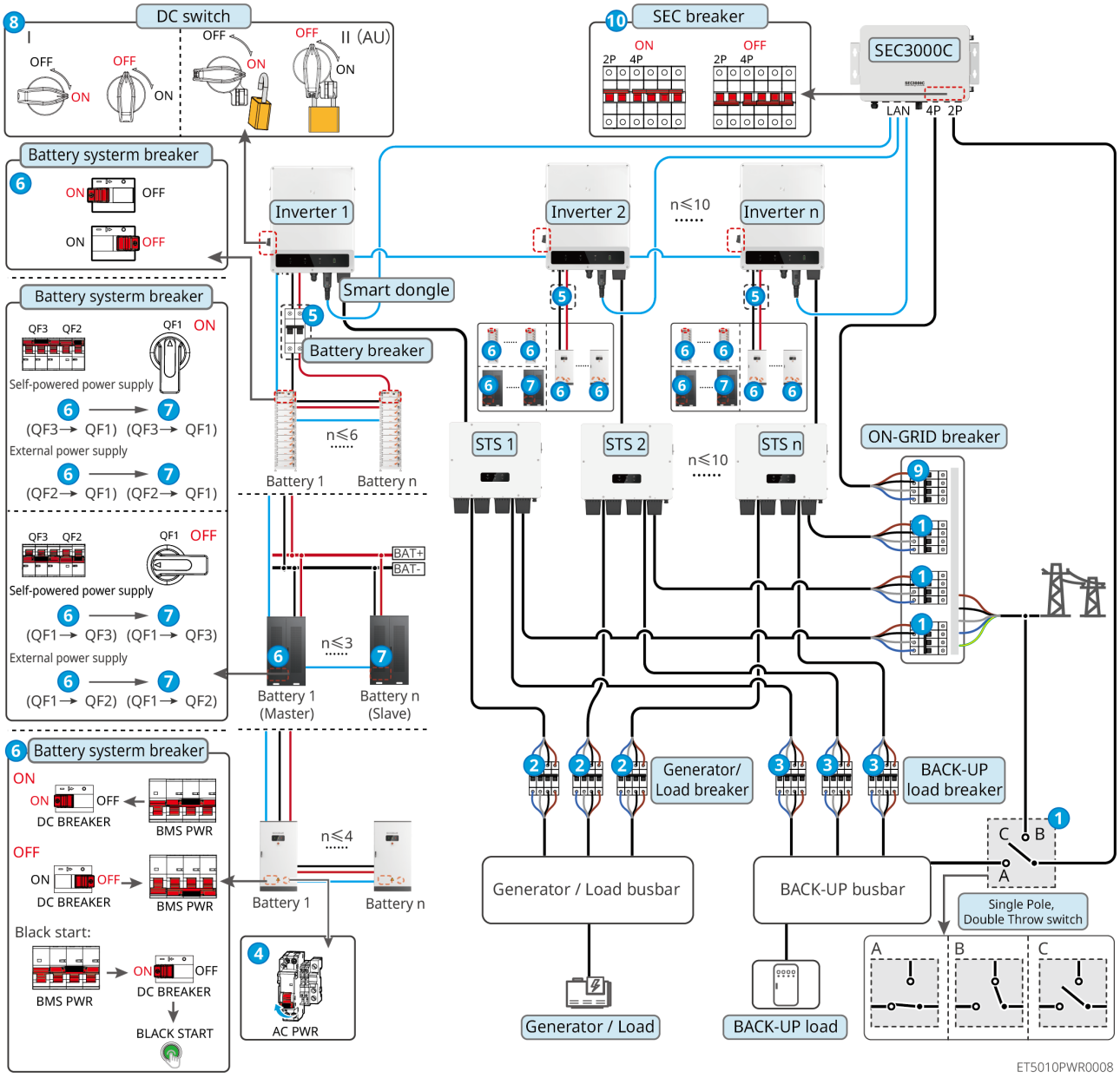
System shutdown: ❶→❷→❸→❹→❺→❻→❼→❽→❾→❿

❺: Optional, subject to local laws and regulations.

❶: SPDT switch: Set to positionAwhen the energy storage system is powered on; set to positionBwhen the energy storage system is powered off for maintenance; set to positionSEC3000Cto positionCwhen powered off for maintenance.

9.1.5 Multiple Inverters, off-Grid Parallel Operation

ET+STS+Battery+SEC3000C+Wifi/LAN Kit-20 (Number of Inverters in Parallel ≤10 Units)



System shutdown: ❶→❷→❸→❹→❺→❻→❼→❽→❾→❿

❺: Optional, subject to local laws and regulations.

❶: SPDT switch: Set to positionAwhen the energy storage system is powered on; set to positionBwhen the energy storage system is powered off for maintenance; set to positionSEC3000Cto positionCwhen powered off for maintenance.

9.2 Removing the Equipment

⚠DANGER

- Ensure the equipment is de-energized.
- Wear personal protective equipment when working on the equipment.
- When removingPVterminals or battery terminals, use the removal tool supplied with the equipment.

NOTICE

Unless otherwise specified, the removal procedure for equipment in this document is the reverse of the installation procedure.

9.2.1 Removing the Inverter

Step1： Power down the system.
Step2： Label the cables connected to the system to identify their types.
Step3： Disconnect the electrical connections to the inverter,STS, battery, andBACK-UPload.
Step4： Remove the equipment from the backplate and remove the equipment backplate.
Step5： Remove the meter and communication module.
Step6： Store the equipment properly. If it will be used again, ensure that the storage conditions meet the requirements.

9.2.2 Removing the Lynx C Series 101–156 Kwh High-Voltage Battery

Step 1: Power down the battery.
Step 2: Disconnect all power cables and communication cables
Step 3: Remove the cover panels and battery packs.
Step 4: Place the battery and all removed accessories back in the original packaging and store them properly.

9.2.3 Removing the BAT Series 25.6–56.3 Kwh High-Voltage Battery

- **Type I (Rack-Mounted)**

Step 1: Power down the battery.
Step 2: Remove the low-voltage communication cables.
Step 3: Remove the power cables.
Step 4: Remove the high-voltage box and battery PACK.
Step 5: Remove the wall-mounting brackets and adjustable feet / unscrew the fixing screws at the bottom of the rack.
Step 6: Lay the rack down and remove the screws securing the uprights to the crossbars.
Step 7: Place the battery and all removed accessories back in the original packaging and store them properly.

- **Type II (Stack-Mounted)**

Step 1: Power down the battery.
Step 2: Remove the low-voltage communication cables.
Step 3: Remove the power cables.
Step 4: Remove the cable protection sleeves and equipotential bonding straps.
Step 5: Remove the wall-mounting brackets, then remove the high-voltage box and battery PACK in sequence.
Step 6: Remove the floor-mounting brackets and adjustable feet.
Step 7: Place the battery and all removed accessories back in the original packaging and store them properly.

9.2.4 Removing the BAT Series 92.1–112.6 Kwh Commercial and Industrial Battery System

Step 1: Power down the system.
Step 2: Remove the air conditioner drain pipe and base plate.
Step 3: Remove the communication cable between the battery system and inverter, the inter-cluster communication cable, and the signal cable for the audible and visual alarm.
Step 4: Install protective covers on the temperature and smoke detectors.
Step 5: Remove the air conditioner power cable.
Step 6: Remove the power cable between the battery system and inverter, and the inter-cluster power cable.
Step 7: Remove the battery system grounding cable.
Step 8: Close the cabinet doors.

Step 9: Unscrew the bolts securing the battery system to the base.
Step 10: Move the battery system onto a pallet.
Step 11: Tighten the bottom screws to secure the battery system to the pallet, and install the baffles.
Step 12: Place the battery system and all removed accessories back in the original packaging and store them properly.

9.3 Equipment Disposal

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

9.4 Periodic Maintenance

⚠WARNING

- If you identify any issue that may affect the battery or energy storage inverter system, contact after-sales service. Do not disassemble the equipment yourself.
- If copper strands are exposed inside a conductive wire, 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. Follow their instructions or wait for an after-sales service technician to perform the work on site.

Maintenance item	Maintenance method	Maintenance interval	Maintenance objective
System cleaning	Check the heat sink, fans, and air inlets/outlets for foreign objects and dust. Check whether the installation space meets the requirements and whether debris has accumulated around the equipment.	Once every six months (For equipment installed in areas with heavy sand and dust, it is recommended that the maintenance interval be changed to once a month.)	Prevent cooling faults.
System installation	Check that the equipment is securely installed and that the fastening screws are not loose. Check the equipment for damage or deformation.	Once every 6 months to once a year	Confirm that the equipment is securely installed.
Electrical connections	Check for loose electrical connections, damaged cables, or exposed copper conductors.	Once every 6 months to once a year	Confirm that the electrical connections are secure.
Sealing	Check that the sealing of the equipment cable entry holes meets the requirements. If the gaps are too large or the holes are not sealed, seal them again.	Once a year	Confirm that the unit is properly sealed and its waterproof performance is intact.
Battery Maintenance	If the battery has not been used for an extended period or has not been fully charged, periodic charging is recommended.	Once every 15 days	Protection of battery service life.

9.5 Fault

NOTICE
The fault information in this manual is updated periodically. Faults may vary slightly between models; refer to the information displayed on the equipment in real time.

9.5.1 Fault Information and Troubleshooting

Troubleshoot the fault using the methods below. If these methods do not resolve the issue, contact the after-sales service center.
When contacting the after-sales service center, collect the following information to help resolve the issue quickly.

1. Product information, such as the serial number, software version, equipment installation date, fault occurrence time, and fault frequency.
2. Information about the equipment installation environment, such as weather conditions and whether modules are obstructed or shaded. Photos, videos, or other files are recommended to help analyze issues related to the installation environment.
3. Grid conditions.

If the system encounters an issue not listed here, or if following the instructions does not resolve the issue or abnormal condition, stop operating the system immediately and contact your dealer immediately.

No.	Fault	Corrective actions
1	Unable to find the Smart Communication Stick's Wi-Fi signal	1. Make sure no other devices are connected to the Smart Communication Stick's Wi-Fi signal. 2. Make sure the app is updated to the latest version. 3. Make sure the Smart Communication Stick is receiving power properly and that its blue indicator is flashing or steadily lit. 4. Make sure the smart device is within communication range of the Smart Communication Stick. 5. Refresh the device list in the app. 6. Restart the inverter.
2	Unable to connect to the Smart Communication Stick's Wi-Fi signal	1. Make sure no other devices are connected to the Smart Communication Stick's Wi-Fi signal. 2. Restart the inverter or communication stick, then try connecting to the Smart Communication Stick's Wi-Fi signal again. 3. Make sure Bluetooth pairing with encryption has been completed successfully.
3	Unable to find the router SSID	1. Move the router closer to the Smart Communication Stick, or add a Wi-Fi repeater to boost the Wi-Fi signal. 2. Reduce the number of devices connected to the router.
4	The Smart Communication Stick fails to connect to the router after all settings are configured	1. Restart the inverter. 2. Check that the network name, encryption method, and password in the Wi-Fi settings match those of the router. 3. Restart the router. 4. Move the router closer to the Smart Communication Stick, or add a Wi-Fi repeater to boost the Wi-Fi signal.

No.	Fault	Corrective actions
5	The Smart Communication Stick fails to connect to the server after all settings are configured	Restart the router and inverter.

9.5.1.1 System Communication Fault

No.	Fault	Corrective actions
1	Unable to Find the Smart Communication Stick's Wireless Signal	1. Ensure the smart communication stick is powered properly and its blue indicator is flashing or steadily lit. 2. Ensure the smart device is within communication range of the smart communication stick. 3. RefreshAppdevice list. 4. Restart the inverter.
2	Unable to connect to the Smart Communication Stick's Wi-Fi signal	1. Make sure no other smart devices are connected to the inverter'sWiFisignal. 2. Restart the inverter and reconnect to the inverter'sWiFisignal. 3. If connecting via Bluetooth, make sure pairing is successful.
3	Unable to find routerSSID	1. Move the router closer to the smart communication stick, or add aWiFirepeater to strengthen theWiFisignal. 2. Reduce the number of devices connected to the router. 3. Check whether the router is a2.4Grouter.

4	The Smart Communication Stick fails to connect to the router after all settings are configured	1. Restart the inverter. 2. Check that theWiFiconfiguration match those of the router. 3. Restart the router. 4. Move the router closer to the smart communication stick, or add aWiFirepeater to strengthen theWiFisignal.
5	The Smart Communication Stick fails to connect to the server after all settings are configured	Restart the router and inverter.
6	Unable to find4G Kit-CN-G20when using theGSA-***	1. Make sure the smart communication stick connected to the inverter is powered properly and its blue indicator is flashing or steadily lit. 2. Ensure the smart device is within communication range of the smart communication stick. 3. RefreshAppdevice list. 4. Restart the inverter.
7	Unable to find4G Kit-CN-G20when using theGSA-***	1. Make sure Bluetooth pairing is successful. 2. Restart the inverter and reconnect toGSA-***。 3. UnpairGSA-***in your phone's Bluetooth settings, then reconnect via theApp.
8	 Unable to find4G Kit-CN-G20module, the indicator flashes six times	Make sure the smart communication stick is properly connected to the inverter.

9	The inverter cannot recognize the4G Kit-CN-G20communication module	Restart the inverter.

9.5.1.2 Inverter Fault

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F01	Grid Power Outage	1. Grid power outage. 2. The AC line or AC Switch is disconnected.	1. The alarm will clear automatically when grid power is restored. 2. Check whether the AC line or AC Switch is disconnected.
F02	Grid Overvoltage Protection	The grid voltage is above the allowable range, or the Duration of the high voltage exceeds the high-voltage ride-through setting.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage is outside the allowable range, contact your local power utility. • If the grid voltage is within the allowable

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
			range, obtain approval from the local power utility before changing the inverter's Grid Overvoltage Protection threshold,HVRTsettings, or disabling the Grid Overvoltage Protection function. 3. If normal operation cannot be restored for an extended period, check that the AC-side circuit breaker and output cables are properly connected.
F03	Grid Undervoltage Protection	The grid voltage is below the allowable range, or the Duration of the low voltage exceeds the low-voltage ride-through setting.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage is outside the allowable range, contact your local power utility.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
			• If the grid voltage is within the allowable range, obtain approval from the local power utility before changing the inverter's Grid Undervoltage Protection threshold,LVRTsettings, or disabling the Grid Undervoltage Protection function. 3. If normal operation cannot be restored for an extended period, check that the AC-side circuit breaker and output cables are properly connected.
F04	Grid Rapid Overvoltage Protection	An abnormal grid voltage measurement or excessively high voltage has triggered a fault.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage is outside the allowable

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
			range, contact your local power utility. • If the grid voltage is within the allowable range, obtain approval from the local power utility before changing the inverter's Grid Undervoltage Protection threshold,LVRTsettings, or disabling the Grid Undervoltage Protection function. 3. If normal operation cannot be restored for an extended period, check that the AC-side circuit breaker and output cables are properly connected.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F05	10minOvervoltage Protection	Within10min, the grid voltage moving average exceeds the range specified by the safety regulations.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. Check whether the grid voltage remains high for an extended period. If this occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage is outside the allowable range, contact your local power utility. • If the grid voltage is within the allowable range, obtain approval from the local utility before changing the grid10minovervoltage protection threshold.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F06	Grid Overfrequency	Grid anomaly: The actual grid frequency is higher than required by the local grid standard.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, contact the local utility. • If the grid frequency is within the allowable range, obtain approval from the local utility before changing the grid overfrequency protection threshold.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F07	Grid Underfrequency	Grid anomaly: The actual grid frequency is lower than required by the local grid standard.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, contact the local utility. • If the grid frequency is within the allowable range, obtain approval from the local utility before changing the grid overfrequency protection threshold.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F08	Grid Frequency Instability	Grid anomaly: The rate of change of the actual grid frequency does not meet the local grid standard.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, contact the local utility. • If the grid frequency is within the allowable range, contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F163	Grid Phase Instability	Grid anomaly: The rate of change of the grid voltage phase does not meet the local grid standard.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, contact the local utility. • If the grid frequency is within the allowable range, contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F09	Anti-islanding Protection	The grid has disconnected, but the load is maintaining the grid voltage. Grid-connected operation has been stopped in accordance with safety protection requirements.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, contact the local utility. • If the grid frequency is within the allowable range, contact your distributor or after-sales service center.
F10	Voltage Ride-Through Undervoltage Fault	Grid anomaly: The duration of the grid voltage abnormality exceeds the specified high/low voltage ride-through time.	

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F11	HVRT Overvoltage	Grid anomaly: The duration of the grid voltage abnormality exceeds the specified high/low voltage ride-through time.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage and frequency are within the allowable ranges and stable. If not, contact the local utility; if they are, contact your distributor or after-sales service center.
F43	Grid Waveform Abnormal	Grid anomaly: An abnormal grid voltage measurement has triggered a fault.	
F44	Grid Phase Loss	Grid fault: Single-phase grid voltage sag.	

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F45	Grid Voltage Imbalance	Excessive difference between grid phase voltages.	1. If this occurs occasionally, it may be due to a temporary grid abnormality. The inverter will resume normal operation once it detects that the grid has returned to normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage and frequency are within the allowable ranges and stable. If not, contact the local utility; if they are, contact your distributor or after-sales service center.
F46	Grid Phase Sequence Failure	Abnormal inverter-to-grid wiring: incorrect phase sequence	1. Check that the inverter-to-grid wiring has the correct phase sequence. The fault will clear automatically once the wiring is corrected (for example, by swapping any two phase conductors). 2. If the wiring is correct and the fault persists, contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F47	Grid Rapid Shutdown Protection	Output is shut down rapidly when a Grid Power Outage is detected	1. The fault will clear automatically once grid power is restored
F48	Grid Neutral Wire Loss	Split-phase Grid Neutral Wire Loss	1. The alarm will clear automatically when grid power is restored. 2. Check whether the AC line or AC Switch is disconnected.
F160	EMS/Forced off-grid operation	EMSA command to force off-grid operation was issued, but the off-grid function is not enabled	Enable the off-grid function
F161	Passive Anti-islanding Protection	-	-
F162	Grid Type Fault	The actual Type of Electrical Supply System (two-phase or split-phase) does not match the configured grid code	Select the grid code corresponding to the actual Type of Electrical Supply System.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F12	30mAGfciProtection	During inverter operation, the input-to-ground insulation resistance decreases.	1. If this occurs occasionally, it may be caused by a temporary external wiring fault. The inverter will resume normal operation once the fault is cleared; no manual intervention is required. 2. If this occurs frequently or does not clear for an extended period, check whether the insulation resistance of the PV strings to ground is too low.
F13	60mAGfciProtection	During inverter operation, the input-to-ground insulation resistance decreases.	1. If this occurs occasionally, it may be caused by a temporary external wiring fault. The inverter will resume normal operation once the fault is cleared; no manual intervention is required. 2. If this occurs frequently or does not clear for an extended period, check whether the insulation resistance of the PV strings to ground is too low.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F14	150mAGfciProtection	During inverter operation, the input-to-ground insulation resistance decreases.	1. If this occurs occasionally, it may be caused by a temporary external wiring fault. The inverter will resume normal operation once the fault is cleared; no manual intervention is required. 2. If this occurs frequently or does not clear for an extended period, check whether the insulation resistance of the PV strings to ground is too low.
F15	GfciSlow-Ramp Protection	During inverter operation, the input-to-ground insulation resistance decreases.	1. If this occurs occasionally, it may be caused by a temporary external wiring fault. The inverter will resume normal operation once the fault is cleared; no manual intervention is required. 2. If this occurs frequently or does not clear for an extended period, check whether the insulation resistance of the PV strings to ground is too low.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F16	DCILevel 1 Protection	The DC component of the inverter output current exceeds the range permitted by the grid code or the machine's default settings.	1. If the anomaly is caused by an external fault, the inverter will automatically resume normal operation once the fault is cleared; no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.
F17	DCIDCI Protection Level2	The DC component of the inverter output current exceeds the range permitted by the grid code or the machine's default settings.	1. If the anomaly is caused by an external fault, the inverter will automatically resume normal operation once the fault is cleared; no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F18	Low Insulation Resistance	1. PV string-to-PE short circuit. 2. The PV strings are installed in a persistently humid environment, and the insulation resistance of the wiring to ground is poor. 3. Low insulation resistance between the battery port wiring and ground.	1. Check the resistance between the PV strings/battery port and PE. A value greater than 80 kΩ is normal. If the measured value is less than 80 kΩ, locate and rectify the short circuit. 2. Check that the inverter PE conductor is connected correctly. 3. If the resistance is confirmed to be below the default value in rainy conditions, use the app to reset the inverter's "Insulation Resistance Protection Threshold." For inverters in the Australian and New Zealand markets, an insulation resistance fault can also trigger the following alerts: 1. The inverter is equipped with a buzzer, which sounds continuously for 1 minute when a fault occurs. If the fault is not resolved, the buzzer sounds again every 30 minutes. 2. If the inverter is added

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
			to a monitoring platform, configure the alert notification method to have alert messages sent to the customer by email.
F19	Grounding Abnormal	1. The inverter PE conductor is Not Connected. 2. When the PV string output is grounded, no isolation transformer is connected on the inverter output side.	1. Check whether the inverter PE conductor is properly connected. 2. If the PV string output is grounded, check whether an isolation transformer is connected on the inverter output side.
F49	L-PE Short Circuit	Output phase-to-PELow impedance or short circuit	Measure the impedance between the output phase conductor andPEto locate and repair the location with low impedance.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F50	DCVLevel 1 Protection	Abnormal Load Fluctuation	1. If the anomaly is caused by an external fault, the inverter will automatically resume normal operation once the fault is cleared; no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.
F51	DCVDCI Protection Level2	Abnormal Load Fluctuation	1. If the anomaly is caused by an external fault, the inverter will automatically resume normal operation once the fault is cleared; no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F20	Hardware Export Limit Protection	Abnormal Load Fluctuation	1. If the anomaly is caused by an external fault, the inverter will automatically resume normal operation once the fault is cleared; no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.
F21	Internal Comm Loss	Refer to the specific subcode for the cause	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F52	Multiple fault shutdowns due to leakage current (GFCI)	North American safety regulations require that the system not recover automatically after multiple faults. Manual recovery or waiting is required24hbefore recovery	1. Check whether the insulation resistance between the PV strings and ground is too low.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F53	Multiple fault shutdowns due to DC arc faults (AFCI)	North American safety regulations require that the system not recover automatically after multiple faults. Manual recovery or waiting is required24hbefore recovery	1. After the unit reconnects to the grid, check whether the voltage and current on each circuit have dropped abnormally or fallen to zero. 2. Check that the DC-side terminals are securely connected.
F54	Loss of communication with external device	Communication with an external inverter device has been lost. Possible causes include a power supply issue with the external device, mismatched Communication Protocols, or the corresponding external device not being configured.	The detection is based on the actual model and the detection enable bit. Unsupported external devices are not detected on some models.
F55	Back-upOutput Overload	1. Prevent the inverter from continuously operating under Overload conditions.	1. Turn off some off-grid loads to reduce the inverter's off-grid output power.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F56	Back-upOutput Overvoltage	2. Prevent overvoltage at the inverter output from damaging the loads.	1. If this occurs occasionally, it may be caused by load switching and does not require manual intervention. 2. If this occurs frequently, contact your dealer or after-sales service center.
F107	On-grid PWM Sync Failure	Abnormality during on-grid carrier synchronization	1. Check that the synchronization cable is connected properly 2. Check that the master/slave settings are correct; 3. Open the AC output-side and DC input-side switches,5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F57	ExternalBoxFault	Wait time forBoxrelay switching is too long when switching from on-grid to off-grid	1. Check that theBoxis operating normally; 2. Check that theBoxcommunication wiring is correct;
-	Generator Failure		

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F22	Generator waveform detection fault	1. This fault will remain displayed when no generator is connected 2. This fault is triggered if the generator does not meet the grid code requirements while operating	1. Ignore this fault if no generator is connected; 2. This fault may occur when the generator has a fault, which is normal. After the generator recovers, wait for a while and the fault will clear automatically; 3. This fault does not affect normal operation in off-grid mode; 4. When both the generator and the grid are connected and grid code requirements are met, the grid takes priority for grid connection, and the system operates in grid-connected mode.
F23	Abnormal generator connection		
F24	Generator undervoltage		
F25	Generator voltage high		
F26	Generator frequency low		
F27	Generator frequency high		
F109	ExternalSTSFault	Inverter andSTSAbnormal connection cable	Check the wiring harness connection sequence between the inverter and theSTSto ensure that the wires correspond one-to-one in the correct order.
F58	CTCommunication loss fault	CTConnection cable disconnected (required by Japanese safety regulations)	Check that theCTwiring is correct.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F110	Export Limit Protection	1. Inverter reports an error and disconnects from the grid 2. meterCommunication is unstable 3. Reverse power flow occurs	1. Check whether the inverter has any other error messages. If so, take the appropriate corrective action. 2. Check that themeterIs the connection reliable? 3. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.
F111	BypassOverload	-	-
F112	Black Start Failure	-	-
F28	Parallel operationIOSelf-test error	The parallel communication cable is not securely connected, or the parallelIOchip is damaged	Check that the parallel communication cable is securely connected, then check whether theIOchip is damaged. If so, replace theIOchip.
F59	Parallel operationCANCommunication fault	Parallel communication cable is not securely connected, or a unit is offline	Check that all units are powered on and that the parallel communication cable is securely connected.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F29	Paralell Grid Line Reversed	The grid wiring of some units is reversed relative to the others	Reconnect the grid wires.
F60	Parallel operationBack-upconnected in reverse	Some unitsbackupcables are connected in reverse with other	Reconnect thebackupcables.
F61	Inverter Soft Start Failure	Inverter Soft Start Failure during Off-Grid Cold Start	Check whether the inverter module is damaged.
F113	Offgrid AC Ins Volt High	-	-
F30	AC HCT check Abnormal	AC sensor sampling abnormality detected	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F62	AC HCT Failure	HCTsensor abnormality detected	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F31	GFCI HCT Check Abnormal	Leakage current sensor sampling abnormality detected	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F63	GFCI HCT Failure	Leakage current sensor abnormality detected	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F32	Relay Check Abnormal	Relay abnormality, cause: 1. Relay abnormality (relay short circuit) 2. Relay sampling circuit abnormality. 3. AC measurement wiring abnormality (loose connection or short circuit may be present)	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F64	Relay Failure	1. Relay abnormality (relay short circuit) 2. Relay sampling circuit abnormality. 3. AC measurement wiring abnormality (loose connection or short circuit may be present)	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F164	DC Arcing Failure (String17~32)	1. DC-side connection terminals are loose; 2. DC-side connection terminals have a poor connection; 3. DC cable conductor is damaged, resulting in a poor connection	1. After the system reconnects to the grid, check whether the voltage or current on any circuit has abnormally decreased to zero; 2. Check that the DC-side terminals are securely connected.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F165	DC Arcing Failure (String33~48)	1. DC-side connection terminals are loose; 2. DC-side connection terminals have a poor connection; 3. DC cable conductor is damaged, resulting in a poor connection	1. After the system reconnects to the grid, check whether the voltage or current on any circuit has abnormally decreased to zero; 2. Check that the DC-side terminals are securely connected.
F33	FlashR/W Abnormal	Possible causes: flashcontents have changed;flashhas reached the end of its service life;	1. Upgrade to the latest firmware 2. Contact your dealer or after-sales service center.
F42	DC Arcing Failure (String1~16)	1. DC-side connection terminals are loose; 2. DC-side connection terminals have a poor connection; 3. DC cable conductor is damaged, resulting in a poor connection	1. After the system reconnects to the grid, check whether the voltage or current on any circuit has abnormally decreased to zero; 2. Check that the DC-side terminals are securely connected.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F34	AFCI Check Failure	During the AFCI self-check, the arc detection module did not detect an arc fault	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F65	AC Terminal Overtemperature	AC Terminal Overtemperature; possible causes: 1. Poor ventilation at the inverter installation location. 2. Ambient Overtemperature. 3. Internal fan malfunction.	1. Check that the inverter installation location is well ventilated and that the ambient temperature is within the maximum permitted range. 2. If ventilation is poor or the ambient temperature is too high, improve ventilation and heat dissipation. 3. If ventilation and ambient temperature are both normal, contact your dealer or service center.
F35	Cabinet Overtemperature	Cabinet Overtemperature; possible causes: 1. Poor ventilation at the inverter installation location. 2. Ambient Overtemperature. 3. Internal fan malfunction.	

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F66	INVModule Overtemperature	Inverter module overtemperature; possible causes: 1. Poor ventilation at the inverter installation location. 2. Ambient Overtemperature. 3. Internal fan malfunction.	
F67	BoostModule Overtemperature	BoostModule Overtemperature; possible causes: 1. Poor ventilation at the inverter installation location. 2. Ambient Overtemperature. 3. Internal fan malfunction.	

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F68	AC Capacitor Overtemperature	Output filter capacitor overtemperature; possible causes: 1. Poor ventilation at the inverter installation location. 2. Ambient Overtemperature. 3. Internal fan malfunction.	
F114	Relay Failure2	Relay abnormality, cause: 1. Relay abnormality (relay short circuit) 2. Relay sampling circuit abnormality. 3. AC measurement wiring abnormality (loose connection or short circuit may be present)	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F69	PV IGBT Short-Circuit Fault	Possible causes: 1. IGBTshort circuit 2. Inverter sampling circuit fault	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F70	PV IGBTOpen Circuit	1. No PWM output due to a software issue: 2. Drive circuit fault: 3. IGBTopen circuit	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F71	NTCAbnormall	NTCtemperature sensor malfunction	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F72	PWM Abnormal	PWMAbnormal waveform detected	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F73	CPUCPU Interrupt Abnormal	CPUInterrupt abnormality detected	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F74	Microelectronics fault	Function Safety detected an abnormality	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F75	PV HCTFault	boostCurrent sensor abnormality	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F76	1. 5VReference voltage abnormality	Reference circuit fault	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F77	0. 3VReference voltage abnormality	Reference circuit fault	
F78	CPLDCPLD Version Error	CPLDCPLD Version Error	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F79	CPLDCPLD Comm Failure	CPLDandDSPcommunication data error or timeout	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F80	Model identification fault	Fault related to Model Recognition Error	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F115	SVGPrecharge Disabled	SVGSVG precharge hardware failure	Contact your dealer or after-sales service center.
F116	NighttimeSVG PIDSVG Mode PID Prevention Failure	PIDAnti-PID hardware abnormality	Contact your dealer or after-sales service center.
F117	DSPCPLD Version Error	DSPSoftware version identification error	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F36	Bus Overvoltage		

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F81	P-Bus Overvoltage	BUSovervoltage. Possible causes: 1. PVvoltage is too high; 2. InverterBUSvoltage sampling abnormality; 3. Poor isolation of the dual-split transformer on the inverter output side causes the two inverters to interfere with each other when connected in parallel to the grid, resulting in a DC overvoltage alarm when one inverter connects to the grid;	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F82	N-Bus Overvoltage		
F83	Bus Overvoltage (secondaryCPU1)		
F84	P-Bus Overvoltage (AuxiliaryCPU1)		
F85	N-Bus Overvoltage (AuxiliaryCPU1)		
F86	Bus Overvoltage (secondaryCPU2)		
F87	P-Bus Overvoltage (AuxiliaryCPU2)		
F88	N-Bus Overvoltage (AuxiliaryCPU2)		
F89	P-Bus Overvoltage(CPLD)		
F90	N-Bus Overvoltage (CPLD)		

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F118	MOSContinuous Overvoltage	1. A software issue causes the inverter drive to shut down before the flyback drive: 2. An inverter drive circuit fault prevents it from turning on: 3. PVvoltage is too high; 4. Mosvoltage sampling abnormality;	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F119	Bus Short-Circuit Fault	1. Hardware damaged	If the inverter remains off-grid after aBUSshort-circuit fault occurs, contact your dealer or after-sales service center.
F120	Abnormal Bus Sampling	1. Busvoltage sampling hardware fault	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F121	DCSample Abnormal	1. Bus voltage sampling hardware fault 2. Battery voltage sampling hardware fault 3. Dcrly relay failure	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F37	PVInput Overvoltage	PVinput voltage is too high. Possible cause: Incorrect PV array configuration: too many PV modules connected in series in a string, causing the string's open-circuit voltage to exceed the inverter's maximum operating voltage.	Check the series configuration of the relevant PV array strings and ensure that the open-circuit voltage of each string does not exceed the inverter's maximum operating voltage. The inverter alarm will clear automatically once the PV array is configured correctly.
F38	PVContinuous Hardware Overcurrent	1. Improper module configuration 2. Hardware damaged	Open the AC output-side switch and DC input-side switch, then5minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F39	PVContinuous Software Overcurrent	1. Improper module configuration 2. Hardware damaged	

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F91	FlyCap Software Overvoltage	FlyCap overvoltage. Possible cause: 1. PVvoltage is too high; 2. Inverter flying capacitor voltage sampling abnormality;	Open the AC output-side switch and DC input-side switch, then5minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F92	FlyCap Hardware Overvoltage	FlyCap overvoltage. Possible cause: 1. PVvoltage is too high; 2. Inverter flying capacitor voltage sampling abnormality;	
F93	FlyCap Undervoltage	FlyCap Undervoltage, possible causes: 1. PVenergy is insufficient; 2. Inverter flying capacitor voltage sampling abnormality;	

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F94	FlyCap Precharge Failure	FlyCap Precharge Failure, possible causes: 1. PVenergy is insufficient; 2. Inverter flying capacitor voltage sampling abnormality;	
F95	FlyCap Precharge Abnormal	1. Control loop parameters are unreasonable 2. Hardware damaged	
F96	PV String Overcurrent(String1~16)（PV string1~16)	Possible causes: 1. PV string overcurrent; 2. PV string current sensor abnormality	
F97	PV String Overcurrent(String1~16)（PV string17~32)		
F40	PV String Reversed(String1~16)（PV string1~16)	PVPV String Reversed(String1~16)	Check whether the PV string is connected in reverse polarity.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F98	PV String Reversed(String1~16)（PV string17~32)	PVPV String Reversed(String1~16)	Check whether the PV string is connected in reverse polarity.
F99	PV String Loss(String1~16)（PV string1~16)	PV string fuse is open (if applicable)	Check whether the fuse is open.
F100	PV String Loss(String1~16)（PV string17~32)	PV string fuse is open (if applicable)	Check whether the fuse is open.
F122	PVInput Mode Error	PVThere are three PV Access Modes. Taking a four-channelMPPTas an example: 1. Parallel mode: theAAAAmode（common-source mode），PV1-PV4share a common source, and all4channels ofPVare connected to the same PV array	Check that thePVAccess Mode is set correctly (ABCD、AACC、AAAA), then set thePVAccess Mode again using the correct configuration. 1. Confirm that each actualPVinput is connected correctly. 2. If thePVinputs are connected correctly, use theAppor display to check whether the configured "PVAccess Mode" matches the actual connection

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
		2. Partial parallel mode: theAACCmode, in whichPV1andPV2are connected to a common source, andPV3andPV4are connected to a common source 3. Independent mode: theABCDmode（non-common-source mode），PV1、PV2、PV3、PV4are connected independently, with each of the4channels ofPVconnected to a separate PV array This fault is reported if the actualPVAccess Mode does not match thePVAccess Mode configured on the device	mode. 3. If the currently configured "PVAccess Mode" does not match the actual access mode, use theAppor display to set the "PVAccess Mode" to match the actual configuration. After setting it, disconnect thePVandACpower supplies, then restart the unit. 4. After completing the setting, if the current "PVAccess Mode" matches the actual access mode but this fault is still reported, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
-	PV String Reversed(String1~16)（PV string33~48)	PVPV String Reversed(String1~16)	Check whether the PV string is connected in reverse polarity.
-	PV String Loss(String1~16)（PV string33~48)	PV string fuse is open (if applicable)	Check whether the fuse is open.
-	PV String Overcurrent(String1~16)（PV string33~48)	Possible causes: 1. PV string overcurrent; 2. PV string current sensor abnormality	

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F123	PV Multi-Channel Phase Error	Incorrect PV Input Mode Setting	Check whether the PV Access Mode is set correctly (ABCD, AACC, or AAAA), and reset it to the correct mode. 1. Verify that each PV input is correctly connected. 2. If the PV inputs are connected correctly, use the app or display to check whether the currently configured "PV Access Mode" matches the actual configuration. 3. If the currently configured "PV Access Mode" does not match the actual access mode, use the app or display to set the "PV Access Mode" to match the actual configuration. After setting it, disconnect the PV and AC power supplies, then restart the unit. 4. After completing the setting, if the current "PV Access Mode" matches the actual access mode but this fault is still reported, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F101	Batteries1Precharge Failure	Batteries1precharge circuit failure (e.g., precharge resistor burned out)	Check that the precharge circuit is functioning properly. With only the battery powered on, check whether the Battery Voltage matches the DC bus voltage. If they do not match, contact your dealer or after-sales service center.
F102	Batteries1Relay Failure	Batteries1relay fails to operate normally	After powering on the battery, check whether the battery relay operates and whether you hear it click closed. If it does not operate, contact your dealer or after-sales service center.
F103	Batteries1BAT1 Overvoltage	Batteries1input voltage exceeds the unit's rated range	Check whether the Battery Voltage is within the unit's rated range.
F104	Batteries2Precharge Failure	Batteries2precharge circuit failure (e.g., precharge resistor burned out)	Check that the precharge circuit is functioning properly. With only the battery powered on, check whether the Battery Voltage matches the DC bus voltage. If they do not match, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F105	Batteries2Relay Failure	Batteries2relay fails to operate normally	After powering on the battery, check whether the battery relay operates and whether you hear it click closed. If it does not operate, contact your dealer or after-sales service center.
F106	Batteries2BAT1 Overvoltage	Batteries2input voltage exceeds the unit's rated range	Check whether the Battery Voltage is within the unit's rated range.
F124	Batteries1BAT1 Reversed	Batteries1positive and negative terminals reversed	Check that the battery polarity matches the polarity of the terminals on the unit.
F125	Batteries2BAT1 Reversed	Batteries2positive and negative terminals reversed	Check that the battery polarity matches the polarity of the terminals on the unit.
F126	Abnormal Battery Connection	Abnormal Battery Connection	Check that the battery is operating normally.
-	BMS Status Bit Error	BMS Module Fault	Open the AC output-side switch and DC input-side switch. After 5 minutes, close both switches. If the fault persists, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F127	BAT Overtemperature	Battery temperature is too high. Possible causes: 1. Poor ventilation at the inverter installation location. 2. Ambient Overtemperature. 3. Internal fan malfunction.	
F128	Ref Voltage Abnormal	Reference circuit fault	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F129	Cabinet Under Temperature	Cabinet Under Temperature 1. Ambient temperature is too low.	
F130	AC-sideSPDFault	AC-side surge protection device has failed	Replace theAC-side surge protection device.
F131	DC-sideSPDFault	DC-side surge protection device has failed	Replace theDC-side surge protection device.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F132	Fan Abnormal	Fan Abnormal. Possible causes: 1. Abnormal fan power supply; 2. Mechanical fault（locked rotor）; 3. The fan is worn out or damaged.	Open the AC output-side switch and DC input-side switch, then5 minutes later, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
F133	External Fan Abnormal	External Fan Abnormal. Possible causes: 1. Abnormal fan power supply; 2. Mechanical fault（locked rotor）; 3. The fan is worn out or damaged.	
F134	PIDAbnormal	PIDhardware fault orPVvoltage too high;PIDsuspended	PVCaused by excessive voltagePIDNo action is required for the pause warning.PIDA hardware fault can be cleared by switching off thePIDswitch and then switching it back on.PIDReplace the faultyPIDdevice.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F135	Trip-Switch Trip Warning	Possible causes: An overcurrent orPVreverse connection caused the trip switch to open	Contact your dealer or after-sales service center. The trip was caused by aPVshort circuit or reverse connection. Check the fault history for aPVshort-circuit warning orPVreverse-connection warning. If either is present, have a service technician inspect the correspondingPVcondition. Once the inspection is complete and no fault is found, manually close the trip switch, then clear this warning using the clear fault history function in theApp.
F136	HistoricalPV IGBT Short-Circuit Warning	Possible causes: An overcurrent caused the trip switch to open	Contact your dealer or after-sales service center. Based on the subcode of the historicalPVshort-circuit warning, a service technician must inspect the short-circuitedBoosthardware and the connected string for faults. Once the inspection is complete and no fault is found, clear this warning using the clear fault history function in theApp.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F137	HistoricalPVReverse Polarity Warning（PV string1~16)	Possible causes: APVreverse connection caused the trip switch to open	Contact your dealer or after-sales service center. Service personnel should check whether the corresponding strings have reverse polarity according to the historicalPVreverse polarity warning subcode, and check whether there is a voltage difference between thePVpanel configurations. After confirming that no fault is present, clear this warning using the Clear Historical Faults operation on theApp.
F138	HistoricalPVReverse Polarity Warning（PV string17~32)	Possible causes: APVreverse connection caused the trip switch to open	Contact your dealer or after-sales service center. Service personnel should check whether the corresponding strings have reverse polarity according to the historicalPVreverse polarity warning subcode, and check whether there is a voltage difference between thePVpanel configurations. After confirming that no fault is present, clear this warning using the Clear Historical Faults operation on theApp.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F139	FlashR/W Error	Possible causes: flashcontents have changed;flashhas reached the end of its service life;	1. Upgrade to the latest firmware version. 2. Contact your dealer or after-sales service center.
F140	Meter Comm Loss	This warning may occur only when the Power Limit function is enabled. Possible causes: 1. The meter is not connected. 2. The communication cable between the meter and inverter is wired incorrectly.	Check the meter wiring and connect the meter correctly. If the fault persists after checking, contact your dealer or after-sales service center.
F141	PVType Identification Failure	PVPanel Identification Hardware Fault	Contact your dealer or after-sales service center.
F142	PV String Mismatch	PVString Mismatch: The two strings connected to the sameMPPThave different open-circuit voltage configurations.	Check the open-circuit voltage of both strings and configure strings with the same open-circuit voltage to the sameMPPT. A prolonged PV String Mismatch poses a safety risk.
F143	CTNot Connected	CTNot Connected	Check that theCTwiring.
F144	CTReversed	CTReversed	Check that theCTwiring.

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F145	PE Loss/PE Loss	Ground wire not connected	Check the ground wire.
F146	PV String Terminal Overtemperature（PV string1~8)	3717637176PVterminal temperature alarm subcode1is set	-
F147	PV String Terminal Overtemperature（PV string9~16)	3717737176PVterminal temperature alarm subcode2is set	-
F148	PV String Terminal Overtemperature（PV string17~20)	3717837176PVterminal temperature alarm subcode3is set	-
F149	HistoricalPVReverse Polarity Warning（PV string33~48)	Possible causes: APVreverse connection caused the trip switch to open	Contact your dealer or after-sales service center. Service personnel should check whether the corresponding strings have reverse polarity according to the historicalPVreverse polarity warning subcode, and check whether there is a voltage difference between thePVpanel configurations. After confirming that no fault is present, clear this warning using the Clear Historical Faults operation on theApp.
F150	Batteries1Voltage Low	Battery Voltage below the setpoint	-

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F151	Batteries2Voltage Low	Battery Voltage below the setpoint	-
F152	Low Voltage of Battery Power	Battery is not charging; voltage is below the shutdown voltage	-
F153	BAT1 Voltage High	-	-
F154	Battery 2 Voltage High	-	-
F155	Online Low Insulation Resistance	1. PV string short circuit to protective earth. 2. The PV strings are installed in a persistently damp environment, and the insulation resistance of the wiring to ground is poor.	1. Check the impedance between the PV strings and protective earth. If there is a short circuit, rectify the short-circuit point. 2. Check that the inverter PE conductor is connected correctly. 3. If you confirm that the impedance is indeed below the default value in rainy weather, reset the "Insulation Resistance Protection Threshold."
F156	Micro-grid Overload Warning	Backup port input current too high	No action is required if this occurs occasionally. If this alarm occurs frequently, contact your dealer or after-sales service center.
F157	Manual Reset	-	-

Fault Code	Fault Name	Cause of fault	Recommended Fault Handling
F158	Generator Phase Sequence Abnormal	-	-
F159	Multiplexed Port Configuration Abnormal	The multiplexed (generator) port is configured for micro-grid or large load, but a generator is actually connected.	Use the app to change the configuration of the multiplexed (generator) port.
F41	Generator Port Overload	1. Off-grid-side output exceeds the specifications. 2. Off-grid-side short circuit 3. Off-grid port voltage too low 4. When used as a large-load port, the load exceeds the specifications.	Review the data for off-grid-side output voltage, current, and power to determine the cause of the issue.
F108	DSP Communication Failure	-	-

Fault Name	Cause of fault	Recommended Fault Handling
Parallel Comm Timeout Shutdown	In parallel operation, if a slave unit fails to communicate with the master unit for more than400seconds	Check that the parallel communication cable is securely connected and that slave addresses are not duplicated.

Fault Name	Cause of fault	Recommended Fault Handling
One-click shutdown	Use the app to check whether the one-click shutdown function is enabled.	Disable one-click shutdown.
Offline Shutdown	-	-
Remote Shutdown	-	-
Child Node Communication Failure	Internal Comm Abnormal	Restart the unit and check whether the fault is cleared.
DG Communication Failure	Communication link between the control board and the diesel generator is abnormal	1. Check the communication cable harness and see whether the fault is cleared; 2. Try restarting the unit and see whether the fault is cleared; 3. If the fault persists after restarting, contact the after-sales service center.
Battery Over Voltage	1. Voltage of an individual cell is too high 2. Voltage sensing cable is abnormal	Record the fault symptoms, restart the battery, and wait a few minutes to check whether the fault clears. If the problem persists after restarting, contact the after-sales service center.
	1. Total battery voltage is too high 2. Voltage sensing cable is abnormal	
Battery Undervoltage	1. Voltage of an individual cell is too low 2. Voltage sensing cable is abnormal	
	1. Total battery voltage is too low 2. Voltage sensing cable is abnormal	

Fault Name	Cause of fault	Recommended Fault Handling
Battery Overcurrent	1. Charging Current is too high, or battery current limiting is abnormal: sudden changes in temperature and voltage values 2. Inverter response is abnormal	
	Battery discharge current is too high	
Battery Overtemperature	1. Ambient Overtemperature 2. Temperature sensor is abnormal	
	1. Ambient Overtemperature 2. Temperature sensor is abnormal	
Battery Undertemperature	1. Ambient temperature is too low 2. Temperature sensor is abnormal	
	1. Ambient temperature is too low 2. Temperature sensor is abnormal	
Battery Terminal Overtemperature	Battery terminal temperature is too high	

Fault Name	Cause of fault	Recommended Fault Handling
Battery Imbalance	1. Excessive temperature differences: At different stages, the battery power is limited, which limits the charging and discharging current. Therefore, this issue is generally unlikely to occur. 2. Cell capacity degradation leads to excessive internal resistance. During Overcurrent, the temperature rises significantly, resulting in a large temperature difference. 3. Poor welding of cell tabs causes the cell temperature to rise too quickly during Overcurrent. 4. Temperature sampling issue; 5. Power cable connection is loose	
	1. Cells have different degrees of aging 2. A slave board chip issue can also cause an excessive cell voltage difference; 3. A slave board balancing issue can also cause an excessive cell voltage difference 4. Caused by a wiring harness issue	
	1. Cells have different degrees of aging 2. A slave board chip issue can also cause an excessive cell voltage difference; 3. A slave board balancing issue can also cause an excessive cell voltage difference 4. Caused by a wiring harness issue	

Fault Name	Cause of fault	Recommended Fault Handling
Insulation Resistance	Insulation resistance is damaged	Check that the ground wire is properly connected, then restart the battery. If the problem persists after restarting, contact the after-sales service center.
Pre-charging Failure Fault	Pre-charging Failure	Indicates that during pre-charging, the voltage across the pre-charge MOSFET remains above the specified threshold. Power the unit off and restart it, then check whether the fault persists. Check that the wiring is correct and that the pre-charge MOSFET is not damaged.
Acquisition Wire Fault	Battery acquisition wire has poor contact or is disconnected	Check the wiring, then restart the battery. If the problem persists after restarting, contact the after-sales service center.
	Cell voltage acquisition wire has poor contact or is disconnected	
	Cell temperature acquisition wire has poor contact or is disconnected	

Fault Name	Cause of fault	Recommended Fault Handling
	The current measurement difference between the two channels is excessive, or the current acquisition circuit is abnormal	Check the wiring, then restart the battery. If the problem persists after restarting, contact the after-sales service center.
	The voltage measurement difference between the two channels, or between the MCU and AFE, is excessive, or the voltage acquisition circuit is abnormal	
	The temperature acquisition circuit is abnormal, has poor contact, or is disconnected	
	Level 5 overvoltage or level 5 overtemperature; the three-terminal fuse is blown	The three-section fuse is blown. Contact the after-sales service center to replace the main control board.
Relay or MOSFET overtemperature	Relay or MOSFET overtemperature	This fault indicates that the MOSFET temperature has exceeded the specified threshold. Power the unit off and leave it idle for 2 hours to allow the temperature to return to normal.

Fault Name	Cause of fault	Recommended Fault Handling
Shunt overtemperature	Shunt overtemperature	This fault indicates that the shunt temperature has exceeded the specified threshold. Power the unit off and leave it idle for 2 hours to allow the temperature to return to normal.
BMS1 Other Fault 1 (Residential Energy Storage)	Relay or MOSFET open circuit	1. Upgrade the software, power the unit off and leave it idle for 5 minutes, then restart it and check whether the fault persists; 2. If the fault persists, replace the battery pack
	Relay or MOSFET short circuit	1. Upgrade the software, power the unit off and leave it idle for 5 minutes, then restart it and check whether the fault persists; 2. If the fault persists, replace the battery pack

Fault Name	Cause of fault	Recommended Fault Handling
	Communication between the master and slave clusters is abnormal, or the cells in different clusters are inconsistent	1. Check the slave unit's battery information and software version, and verify that its communication cable connection to the master unit is normal 2. Upgrade the software
	The battery system loop harness is abnormal, preventing the interlock signal from forming a closed circuit	Check that the termination resistor is installed correctly
	Communication between the BMS and PCS is abnormal	1. Confirm that the communication cable pinout for the connection between the inverter and battery is correct; 2. Contact the after-sales service center to check the backend data and verify that the inverter and battery software versions are compatible.
	Abnormal communication harness between the BMS master control unit and slave control unit	1. Check the wiring and restart the battery; 2. Upgrade the battery. If the issue persists after restarting, contact the after-sales service center.
	Communication loss between the main and negative chips	

Fault Name	Cause of fault	Recommended Fault Handling
	Abnormal circuit breaker or shunt trip release	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. Check the blind-mate connectors at the bottom of the PACK and PCU for loose or misaligned communication pins;
	MCU self-test failure	Upgrade the software and restart the battery. If the issue persists after restarting, contact the after-sales service center.
	1. The software version is too old, or the BMS board is damaged 2. A large number of inverters are connected in parallel, causing excessive inrush current during battery precharge	1. Upgrade the software and check whether the fault persists 2. If the inverters are connected in parallel, black-start the battery first, then start the inverters

Fault Name	Cause of fault	Recommended Fault Handling
	Internal MCU fault	Upgrade the software and restart the battery. This is generally caused by a fault detected in the MCU or damage to an external component. If the issue persists after restarting, contact the after-sales service center.
	The master control current exceeds the specified threshold	1. Shut down the system and leave it 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 bus load limit to be exceeded;
	Cell inconsistency in parallel battery clusters	Confirm that the cells in the parallel battery clusters are consistent
	Reverse polarity connection of parallel battery clusters	Check whether the positive and negative terminals of the parallel battery clusters are connected in reverse
	Severe overtemperature, overvoltage, or other conditions have triggered the fire protection system	Contact the after-sales service center.

Fault Name	Cause of fault	Recommended Fault Handling
Air Conditioner Failure	Air conditioner malfunction	Try restarting the system. If the fault is not cleared, contact the after-sales service center.
	Cabinet door not closed	Check that the cabinet door is properly closed
	Supply voltage too high	Confirm that the supply voltage is within the air conditioner's input voltage requirements, then restore power.
	Insufficient supply voltage	
	No voltage input	
	Unstable supply voltage	
	Unstable compressor voltage	Try restarting the system. If the fault is not cleared, contact the after-sales service center.
	Poor sensor connection or sensor failure	
	Air conditioner fan fault	
BMS1 other fault 2 (residential energy storage)	Abnormal voltage or current inside the DC-DC converter	Refer to the specific DC Failure details.
	DC-DC converter overload or heatsink temperature too high, etc.	
	Abnormal cell monitoring or inconsistent aging levels	Please contact the after-sales service center.
	The fan did not operate as expected	Please contact the after-sales service center.

Fault Name	Cause of fault	Recommended Fault Handling
	Output terminal screws are loose or making poor contact	1. Shut down the battery and check the wiring and output terminal screws 2. After confirming, restart the battery and check whether the fault persists. If it does, please contact the after-sales service center.
	The battery has been in use for too long or the cells are severely damaged	Please contact the after-sales service center to replace the pack.
	1. The software version is too old, or the BMS board is damaged 2. A large number of inverters are connected in parallel, causing excessive inrush current during battery precharge	1. Upgrade the software and check whether the fault persists. 2. If the inverters are connected in parallel, black-start the battery before starting the inverters.
	Heating film damaged	Please contact the after-sales service center.
	The heating film's three-terminal fuse is open, so the heating function is unavailable	Please contact the after-sales service center.
	Software model, cell type, and hardware model do not match	Check that the software model, serial number, cell type, and hardware model are consistent. If not, please contact the after-sales service center.

Fault Name	Cause of fault	Recommended Fault Handling
	Thermal management board communication disconnected	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. If the fault is not cleared, contact after-sales service to replace the pack.
	Thermal management board communication disconnected	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. If the fault is not cleared, contact after-sales service to replace the pack.
	Thermal management board communication disconnected	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. If the fault is not cleared, contact after-sales service to replace the pack.

Fault Name	Cause of fault	Recommended Fault Handling
	Pack fan fault signal triggered	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. If the fault is not cleared, contact after-sales service to replace the pack.
DC Failure	Output terminal voltage too high	Check the output terminal voltage. If the voltage is normal and the fault does not clear after restarting the battery, please contact the after-sales service center.
	The DC-DC converter detected that the Battery Voltage exceeds the maximum charging voltage	Stop charging and discharge the battery until the SOC is below 90%, or leave it idle for 2 hours. If the issue persists after restarting, contact the after-sales service center.
	Heat sink temperature too high	Leave the battery idle for 1 hour until the heat sink temperature drops. If the issue persists after restarting, contact the after-sales service center.

Fault Name	Cause of fault	Recommended Fault Handling
	Battery discharge current is too high	Check whether the load exceeds the battery's discharge capability. Turn off the load or stop the PCS for 60 seconds. If the issue persists after restarting, contact the after-sales service center.
	The positive and negative power cables at the output port are connected in reverse to the parallel-connected battery racks or PCS	Turn off the battery manual switch, check that the output port wiring is correct, and restart the battery.
	Output power relay failed to close	Check that the output port wiring is correct and that there is no short circuit. If the issue persists after restarting, contact the after-sales service center.
	Power device temperature too high	Leave the battery idle for 1 hour until the temperature of the internal power devices drops. If the issue persists after restarting, contact the after-sales service center.
	Relay stuck	If the issue persists after restarting, contact the after-sales service center.

Fault Name	Cause of fault	Recommended Fault Handling
Battery Rack Circulating Current Failure	1. Cell imbalance 2. Full-charge calibration not performed at initial power-up	-
BMS1 Other Fault 3 (utility-scale storage)	Communication error with the Linux module	1. Check whether the communication link is normal 2. Upgrade the software and restart the battery to check whether the fault persists. If it does, contact the after-sales service center.
	Cell temperature rising too quickly	Cell fault. Contact after-sales service to replace the pack.
	SOC below 10%	Charge the battery.
	SN entry does not comply with the required format	Check whether the SN has the correct number of characters. If not, contact the after-sales service center.
	1. Daisy-chain communication fault within the battery rack 2. Cell aging levels are inconsistent across battery racks	1. Check the connections of the battery packs in each rack 2. Confirm the usage of each battery rack, such as cumulative charge/discharge capacity and cycle count 3. Contact the after-sales service center.

Fault Name	Cause of fault	Recommended Fault Handling
	Humidity inside the pack is too high	-
	Fuse open	Contact after-sales service to replace the pack.
	Battery charge low	Charge the battery.
BMS1 Other Fault 4 (utility-scale storage)	Circuit Breaker Abnormality	Contact after-sales service to replace the pack.
	External Device Abnormality	Contact after-sales service to replace the pack.
Contactor Failure 1	-	-
Contactor Failure 2	-	-
Overload Protection (Ksic)	Sustained Overload (>690 kVA) for 10 s	Please contact the after-sales service center.
Overload Protection (Smart Port	Sustained Overload (>690 kVA) for 10 s	Please contact the after-sales service center.
Master AC On Meter Comm Error	1. The meter may not be connected to the master unit 2. The meter communication cable may be loose	1. Check whether the meter is connected to the master unit 2. Check whether the meter communication cable is loose
Parallel Slave Meter Error	Meter connected to the slave unit	Set the unit with the meter connected as the master

Fault Name	Cause of fault	Recommended Fault Handling
Slave AC On Timeout with Master	1. Incorrect slave address setting 2. Slave communication cable is loose	1. Check whether the slave addresses are duplicated 2. Check whether the parallel communication cable is loose

9.5.1.3 Battery Fault

- **Lynx C Series 101-156Kwh High-Voltage Battery**

No.	Fault Name	Possible causes	Troubleshooting
1	Charging Overvoltage2	• Cell voltage/total voltage too high • Abnormal voltage sensing cable	1. Shut down the system and leave it 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 • Abnormal voltage sensing cable	1. Shut down the system and leave it 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 causes	Troubleshooting
3	Discharge Undervoltage3	• Cell voltage/total voltage too low • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. Check the inverter operating status and determine whether the battery is not being charged due to the operating mode or another issue. 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 • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. Check the inverter operating status and determine whether the battery is not being charged due to the operating mode or another issue. Try charging the battery through the inverter and check whether the fault clears. 3. If the fault persists, contact GoodWe After-Sales Service.
5	Cell Overvoltage2	• Cell voltage/total voltage too high • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; If the fault persists, contact GoodWe After-Sales Service.

No.	Fault Name	Possible causes	Troubleshooting
6	Cell Undervoltage2	Cell undervoltage	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. Check the inverter operating status and determine whether the battery is not being charged due to the operating mode or another issue. 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.
8	Charging Overcurrent 2	• Charging Current is too high; battery current limiting is abnormal: abrupt changes in temperature and voltage values • Abnormal inverter response	1. Shut down the system and leave it 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 current to exceed the battery's rated operating current; 3. If the fault persists, contact GoodWe After-Sales Service.

No.	Fault Name	Possible causes	Troubleshooting
9	Discharge Overcurrent 2	• Discharge current is too high; battery current limiting is abnormal: abrupt changes in temperature and SOC values • Abnormal inverter response	
10	Battery Cell High Temperature 2	• Cell temperature is too high • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes. After restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
11	Battery Cell Low Temperature2	• Ambient temperature is too low • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes. After restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
12	Charging Overtemperature2	• Cell temperature is too high • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.

No.	Fault Name	Possible causes	Troubleshooting
13	Charging Low Temperature2	• Ambient temperature is too low • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
14	Discharge Overtemperature 2	• Cell temperature is too high • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
15	Discharge Low Temperature 2	• Ambient temperature is too low • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, 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 battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
17	Precharge Disabled	Precharge MOSFET failed to close	1. Shut down the system and leave it 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 causes	Troubleshooting
18	Battery Tripping	Battery Trip	1. Leave idle for 10 min, then close the circuit breaker again to restore operation; 2. If the fault persists, contact GoodWe After-Sales Service.
19	Battery and Inverter Comm Failure	Battery and Inverter Comm Failure	1. Check that the communication cable pinout and DC cables are correct, and that continuity is normal. 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	Parallel Cluster Fault	Slave Cluster Communication Lost Parallel Cluster Failure	Check the reliability of the communication connection between the master and slave harnesses Please contact the after-sales service center.

- **BATSeries 25.6-56.3Kwh High-Voltage Battery**

No.	Fault Name	Possible causes	Troubleshooting
1	Charging Overvoltage2	• Cell voltage/total voltage too high • Abnormal voltage sensing cable	1. Shut down the system and leave it 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 • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
3	Discharge Undervoltage3	• Cell voltage/total voltage too low • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. Check the inverter operating status and determine whether the battery is not being charged due to the operating mode or another issue. 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 causes	Troubleshooting
4	Discharge Undervoltage2	• Cell voltage/total voltage too low • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. Check the inverter operating status and determine whether the battery is not being charged due to the operating mode or another issue. Try charging the battery through the inverter and check whether the fault clears. 3. If the fault persists, contact GoodWe After-Sales Service.
5	Cell Overvoltage2	• Cell voltage/total voltage too high • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; If the fault persists, contact GoodWe After-Sales Service.
6	Cell Undervoltage2	Cell undervoltage	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. Check the inverter operating status and determine whether the battery is not being charged due to the operating mode or another issue. 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 causes	Troubleshooting
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.
8	Charging Overcurrent 2	• Charging Current is too high; battery current limiting is abnormal: abrupt changes in temperature and voltage values • Abnormal inverter response	1. Shut down the system and leave it 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 current to exceed the battery's rated operating current; 3. If the fault persists, contact GoodWe After-Sales Service.
9	Discharge Overcurrent 2	• Discharge current is too high; battery current limiting is abnormal: abrupt changes in temperature and SOC values • Abnormal inverter response	
10	Battery Cell High Temperature 2	• Cell temperature is too high • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes. After restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.

No.	Fault Name	Possible causes	Troubleshooting
11	Battery Cell Low Temperature2	• Ambient temperature is too low • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes. After restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
12	Charging Overtemperature2	• Cell temperature is too high • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
13	Charging Low Temperature2	• Ambient temperature is too low • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
14	Discharge Overtemperature 2	• Cell temperature is too high • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
15	Discharge Low Temperature 2	• Ambient temperature is too low • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.

No.	Fault Name	Possible causes	Troubleshooting
16	Significant Cell Temperature Variation2	Significant Cell Temperature Variation	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
17	Precharge Disabled	Precharge MOSFET failed to close	1. Shut down the system and leave it 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 min, then close the circuit breaker again to restore operation; 2. If the fault persists, contact GoodWe After-Sales Service.
19	Battery and Inverter Comm Failure	Battery and Inverter Comm Failure	1. Check that the communication cable pinout and DC cables are correct, and that continuity is normal. 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.

No.	Fault Name	Possible causes	Troubleshooting
21	Parallel Cluster Fault	Slave Cluster Communication Lost Parallel Cluster Failure	Check the reliability of the communication connection between the master and slave harnesses Please contact the after-sales service center.
22	Application Software Failure	Software Self-Test Failed	Please contact the after-sales service center
23	Microelectronics fault	Electronic Component Failure	Please contact the after-sales service center
24	Master Controller 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.
25	Abnormal SN	Batteries with duplicate SNs are present	Please contact the after-sales service center
26	Circuit Breaker Abnormality	Molded-case circuit breaker tripped unexpectedly	Replace the molded-case circuit breaker

- **BATSeries 92.1-112.6Kwh C&I Battery System**

No.	Fault Name	Possible causes	Troubleshooting
1	Charging Overvoltage2	• Cell voltage/total voltage too high • Abnormal voltage sensing cable	1. Shut down the system and leave it 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 causes	Troubleshooting
2	Charging Overvoltage3	• Cell voltage/total voltage too high • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
3	Discharge Undervoltage3	• Cell voltage/total voltage too low • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. Check the inverter operating status and determine whether the battery is not being charged due to the operating mode or another issue. 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 • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. Check the inverter operating status and determine whether the battery is not being charged due to the operating mode or another issue. 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 causes	Troubleshooting
5	Cell Overvoltage2	• Cell voltage/total voltage too high • Abnormal voltage sensing cable	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; If the fault persists, contact GoodWe After-Sales Service.
6	Cell Undervoltage2	Cell undervoltage	1. Shut down the system and leave it off for 5 minutes, then restart it and check whether the fault persists; 2. Check the inverter operating status and determine whether the battery is not being charged due to the operating mode or another issue. 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 causes	Troubleshooting
8	Charging Overcurrent 2	• Charging Current is too high; battery current limiting is abnormal: abrupt changes in temperature and voltage values • Abnormal inverter response	1. Shut down the system and leave it 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 current to exceed the battery's rated operating current; 3. If the fault persists, contact GoodWe After-Sales Service.
9	Discharge Overcurrent 2	• Discharge current is too high; battery current limiting is abnormal: abrupt changes in temperature and SOC values • Abnormal inverter response	
10	Battery Cell High Temperature 2	• Cell temperature is too high • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes. After restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.

No.	Fault Name	Possible causes	Troubleshooting
11	Battery Cell Low Temperature2	• Ambient temperature is too low • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes. After restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
12	Charging Overtemperature2	• Cell temperature is too high • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
13	Charging Low Temperature2	• Ambient temperature is too low • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
14	Discharge Overtemperature 2	• Cell temperature is too high • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
15	Discharge Low Temperature 2	• Ambient temperature is too low • Temperature sensor fault	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.

No.	Fault Name	Possible causes	Troubleshooting
16	Significant Cell Temperature Variation2	Significant Cell Temperature Variation	1. Leave the battery idle and shut it down for 30 minutes; after restarting, check whether the fault persists; 2. If the fault persists, contact GoodWe After-Sales Service.
17	Precharge Disabled	Precharge MOSFET failed to close	1. Shut down the system and leave it 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 min, then close the circuit breaker again to restore operation; 2. If the fault persists, contact GoodWe After-Sales Service.
19	Battery and Inverter Comm Failure	Battery and Inverter Comm Failure	1. Check that the communication cable pinout and DC cables are correct, and that continuity is normal. 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.

No.	Fault Name	Possible causes	Troubleshooting
21	Parallel Cluster Fault	Slave Cluster Communication Lost Parallel Cluster Failure	Check the reliability of the communication connection between the master and slave harnesses Please contact the after-sales service center.
22	Application Software Failure	Software Self-Test Failed	Please contact the after-sales service center
23	Microelectronics fault	Electronic Component Failure	Please contact the after-sales service center
24	Master Controller 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.
25	Abnormal SN	Batteries with duplicate SNs are present	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

No.	Fault Name	Possible causes	Troubleshooting
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	The EPO button was pressed or is damaged	Replace the EPO button
28	PACK fan fault	The PACK fan is stalled or not operating	Replace the corresponding PACK fan

9.5.1.4 View Fault/Alarm Details

Details of all faults and alarms in the energy storage system are displayed in the [SEMS+ App] and [SEMS+ WEB]. If your product is abnormal but no relevant fault information is shown in the [SEMS+ App] or [SEMS+ WEB], please contact the after-sales service center.

- SEMS+ App

1. Open the SEMS+ App and log in with any account.
2. Go to [Plant] > [Alarms] to view fault information for all plants.
3. Click a specific fault name to view when the fault occurred, its possible causes, and the corresponding solutions.

- SEMS+ WEB

1. Open SEMS+ WEB and log in with any account.
2. On the plant details page, click [Alarms] to view all current alarms for the plant.

10 Technical Specifications

10.1 Inverter Technical Data

Technical Data	GW25K-ET-10*8	GW30K-ET-10*8	GW40K-ET-10	GW50K-ET-10
Battery Input Data				
Battery Type*5	Li-Ion	Li-Ion	Li-Ion	Li-Ion
Nominal Battery Voltage (V)	500	500	500	500
Battery Voltage Range (V)	200~800	200~800	200~800	200~800
Start-up Voltage (V)	200	200	200	200
Number of Battery Input	1	1	1	1
Max. Continuous Charging Current (A)	100	100	100	100
Max. Continuous Discharging Current (A)	100	100	100	100
Max. Charge Power (W)	27500	33000	44000	55000
Max. Discharge Power (W)	27500	33000	44000	55000
PV String Input Data				

Technical Data	GW25K-ET-10*8	GW30K-ET-10*8	GW40K-ET-10	GW50K-ET-10
Max. Input Power (W)*1	50000	60000	60000	75000
Max. Input Voltage (V)*4	1000	1000	1000	1000
MPPT Operating Voltage Range (V)*6	165~850	165~850	165~850	165~850
MPPT Voltage Range at Nominal Power (V)	400~850	400~850	400~850	400~850
Start-up Voltage (V)	200	200	200	200
Nominal Input Voltage (V)	620	620	620	620
Max. Input Current per MPPT (A)	42/32/42	42/32/42	42/32/42	42/32/42/32
Max. Short Circuit Current per MPPT (A)	55/42/55	55/42/55	55/42/55	55/42/55/42
Max. Backfeed Current to The Array (A)	0	0	0	0
Number of MPP Trackers	3	3	3	4

Technical Data	GW25K-ET-10*8	GW30K-ET-10*8	GW40K-ET-10	GW50K-ET-10
Number of Strings per MPPT	2	2	2	2
AC Output Data (On-grid)				
Nominal Output Power (W)	25000	30000	40000	50000
Max. Output Power (W)	25000	30000	40000	50000
Nominal Apparent Power Output to Utility Grid (kVA)	25000	30000	40000	50000
Max. Apparent Power Output to Utility Grid (kVA)	25000	30000	40000	50000
Nominal Power at 40℃ (kW)	25000	30000	40000	50000
Max. Power at 40℃ (Including AC Overload) (kW)	25000	30000	40000	50000
Nominal Apparent Power from Utility Grid (kVA)	25000	30000	40000	50000

Technical Data	GW25K-ET-10*8	GW30K-ET-10*8	GW40K-ET-10	GW50K-ET-10
Max. Apparent Power from Utility Grid (kVA)	25000	30000	40000	50000
Nominal Output Voltage (V)	380/400, 3L/N/PE	380/400, 3L/N/PE	380/400, 3L/N/PE	380/400, 3L/N/PE
Output Voltage Range (V)*2	176~276	176~276	176~276	176~276
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45-55/55-65	45-55/55-65	45-55/55-65	45-55/55-65
Max. AC Current Output to Utility Grid (A)	37.9 @380V 36.3 @400V	45.5 @380V 43.6 @400V	60.6 @380V 58.0 @400V	75.8 @380V 72.5 @400V
Max. AC Current From Utility Grid (A)	37.9 @380V 36.3 @400V	45.5 @380V 43.6 @400V	60.6 @380V 58.0 @400V	75.8 @380V 72.5 @400V
Nominal AC Current From Utility Grid (A)	37.9 @380V 36.3 @400V	45.5 @380V 43.6 @400V	60.6 @380V 58.0 @400V	75.8 @380V 72.5 @400V
Max. Output Fault Current (Peak and Duration) (A)	178 @2μs	178 @2μs	178@2μs	178@2μs

Technical Data	GW25K-ET-10*8	GW30K-ET-10*8	GW40K-ET-10	GW50K-ET-10
Inrush Current (Peak and Duration) (A)	178 @2μs	178 @2μs	178@2μs	178@2μs
Nominal Output Current (A)	36.3 @380V 37.9 @400V	45.5 @380V 43.6 @400V	60.6 @380V 58.0 @400V	75.8 @380V 72.5 @400V
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	156	156	156	156
AC Output Data (Back-up) *requires additional STS box				
Back-up Nominal Apparent Power (VA)	25000	30000	40000	50000
Max. Output Apparent Power (VA)	27,500 (30,000 at 60s, 37,500 at 10s)	33,000 (36,000 at 60s, 45,000 at 10s)	44,000 (48,000 at 60sec, 60,000 at 10sec)	55,000 (60,000 at 60sec, 75,000 at 10sec)
Nominal Output Current (A)	37.9 @380V 36.3 @400V	45.5 @380V 43.6 @400V	60.6 @380V 58.0 @400V	75.8 @380V 72.5 @400V

Technical Data	GW25K-ET-10*8	GW30K-ET-10*8	GW40K-ET-10	GW50K-ET-10
Max. Output Current (A)	41.7 @380V 39.8 @400V	50.0 @380V 47.8 @400V	66.7 @380V 63.8 @400V	83.3 @380V 79.7 @400V
Max. Output Fault Current (Peak and Duration) (A)	178@2μs	178@2μs	178@2μs	178@2μs
Inrush Current (Peak and Duration) (A)	178@2μs	178@2μs	178@2μs	178@2μs
Maximum Output Overcurrent Protection (A)	156	156	156	156
Nominal Output Voltage (V)	380/400, 3L/N/PE	380/400, 3L/N/PE	380/400, 3L/N/PE	380/400, 3L/N/PE
Nominal Output Frequency (Hz)	50/60	50/60	50/60	50/60
Output THDv (@Linear Load)	<3%	<3%	<3%	<3%
Efficiency				
Max. Efficiency	98.1%	98.1%	98.1%	98.1%
European Efficiency	97.5%	97.5%	97.5%	97.5%
Max. Battery to AC Efficiency	97.7%	97.7%	97.7%	97.7%
MPPT Efficiency	99%	99%	99%	99%

Technical Data	GW25K-ET-10*8	GW30K-ET-10*8	GW40K-ET-10	GW50K-ET-10
Protection				
Residual Current Monitoring	Integrated	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated	Integrated
Battery Reverse Polarity Protection	Integrated	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated	Integrated
DC Surge Protection	Type II	Type II	Type II(Type I+II Optional)	Type II(Type I+II Optional)
AC Surge Protection	Type II	Type II	Type II	Type II
AFCI	Optional	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated	Integrated
General Data				

Technical Data	GW25K-ET-10*8	GW30K-ET-10*8	GW40K-ET-10	GW50K-ET-10
Operating Temperature Range (℃)	-35~+60	-35~+60	-35~+60	-35~+60
Operating Environment	Outdoor	Outdoor	Outdoor	Outdoor
Relative Humidity	0~95%	0~95%	0~95%	0~95%
Max. Operating Altitude (m)	4000	4000	4000	4000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, WLAN+APP	LED, WLAN+APP	LED, WLAN+APP	LED, WLAN+APP
Communication with BMS	CAN	CAN	CAN	CAN
Communication with Meter	RS485	RS485	RS485	RS485
Communication with Portal	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth(Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth(Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth(Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth(Optional)
Weight (kg)	62	62	62	65
Dimension (W×H×D mm)	520×660×260	520×660×260	520×660×260	520×660×260
Noise Emission (dB)	56	56	56	56

Technical Data	GW25K-ET-10*8	GW30K-ET-10*8	GW40K-ET-10	GW50K-ET-10
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<15	<15	<15	<15
Ingress Protection Rating	IP66	IP66	IP66	IP66
DC Connector	MC4 (4~6mm2)	MC4 (4~6mm2)	MC4 (4~6mm^2)	MC4 (4~6mm^2)
AC Connector	OT	OT	OT	OT
Environmental Category	4K4H	4K4H	4K4H	4K4H
Pollution Degree	PD 3 (External), PD 2 (Internal)	PD 3 (External), PD 2 (Internal)	PD 3 (External), PD 2 (Internal)	PD 3 (External), PD 2 (Internal)
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I	I
Storage Temperature (℃)	-40~+85	-40~+85	-40~+85	-40~+85
The Decisive Voltage Class (DVC)	Battery：C PV：C AC：C Com：A	Battery：C PV：C AC：C Com：A	Battery：C PV：C AC：C Com：A	Battery：C PV：C AC：C Com：A
Mounting Method	Wall Mounted	Wall Mounted	Wall Mounted	Wall Mounted

Technical Data	GW25K-ET-10*8	GW30K-ET-10*8	GW40K-ET-10	GW50K-ET-10
Active Anti-islanding Method	AFDPF + AQDPF *7	AFDPF + AQDPF *7	AFDPF + AQDPF *7	AFDPF + AQDPF *7
Type of Electrical Supply System	Three phase Grid	Three phase Grid	Three phase Grid	Three phase Grid
Country of Manufacture	China	China	China	China
Certification*3				
Grid Standards	NRS097-2-1,VDE-AR-N 4105, PPDS 2021Type A2, 50549-1, NBT32004			
Safety Regulation	IEC62109-1&2			
EMC	EN61000-6-1,EN61000-6-2,EN61000-6-3 EN61000-6-4			

*1: For most of the PV module, the max. Input power can achieve 2*Pn, Such as the max. input power of GW50K-ET can achieve 100kW.
*2: Output Voltage Range: phase voltage.
*3: Not all certifications & standards listed, check the official website for details.
*4: When the input voltage is greater than 980V, the inverter will enter standby mode, and when the voltage returns to below 970V the inverter will return to normal operation.
*5: The Li-Ion battery usually contain two mainstream type: LFP and Ternary Lithium battery.
*6: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*7: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.
*8: Only available in SEA, MENA and other regions, please contact sales for more information.

10.2 STS Technical Data

Technical Data	STS200-80-10
Electrical Data	
Nominal Output Voltage (V)	380/400, 3L/N/PE
Output Voltage Range (V)	176~276
Nominal AC Frequency (Hz)	50/60
AC Frequency Range (Hz)	45~65
Inverter Side Data	
Nominal Apparent Power(VA)	50, 000
Max. Apparent Power (VA)*1	50, 000
Nominal Current (A)*5	72.5
Max. Current (A)*2*6	75.8
Grid Side Data	
Nominal Apparent Power (VA)	50, 000
Max. Apparent Power (VA)*3	50, 000
Nominal Current (A)*5	72.5
Max. Current (A)*4*6	75.8
Back-up Side Data	
Nominal Apparent Power (VA)	50, 000
Max. Apparent Power without Grid (VA)	55, 000
Max. Apparent Power with Grid (VA)	138000
Nominal Current (A)*5	72.5
Max. Current (A)*4*7	83.3

Technical Data	STS200-80-10
Generator/PV inverter Side Data	
Nominal Apparent Power (VA)	50, 000
Max. Apparent Power (VA)	55, 000
Nominal Current (A)*5	72.5
Max. Current (A)*7	83.3
Other Electrical Data	
Nominal Current of AC Side Relay (A)	200
Nominal Current of Generator Side Relay (A)	90
Switch Time(ms)	<10
General Data	
Operating Temperature Range (℉)	-35℃~+60℃
Max. Operating Altitude (m)	4000
Cooling Method	Natural Convection
Communication with Inverter	RS485
Weight (kg)	16.5
Dimension (W×H×D mm)	510*425*156
Noise Emission (dB)	<48
Topology	Non-isolated
Mounting Method	Wall Mounted
Ingress Protection Rating	IP65
Overvoltage Category	AC III
Protective Class	I

Technical Data	STS200-80-10
Certification	
Safety Regulation	IEC62109-1/-2
EMC	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4
*1: When the inverter is operating in the off-gird state, Max.Apparent Power of Inverter Side can be reached 55kW. *2: When the inverter is operating in the off-gird state, Max. Current of Inverter Side can be reached 83.3A. *3: Max. Input Power at grid port (purchased power) 138kW. *4: Max purchases current of gid side and back up side can be reached at 200A. *5: When Nominal Output Voltage is 380V, the Nominal Current is 75.8A. *6: When Nominal Output Voltage is 400V, the Max. Current is 72.5A. *7: When Nominal Output Voltage is 400V, the Max. Current is 79.7A.	

10.3 Battery Technical Specifications

10.3.1 Lynx C Series 101-156kWh High Voltage Battery

Technical Data	LX C 101-10	LX C120-10
Usable Energy (kWh)*1	101.38	119.81
Battery Module	LX C9.2-10: 38.4V 9.21kWh	LX C9.2-10: 38.4V 9.21kWh
Number of Modules	11	13
Cell Type	LFP（$LiFePO_4$）	
Cell Configuration	132S2P	156S2P

Technical Data	LX C 101-10	LX C120-10
Nominal Voltage Range (V)	422.4	499.2
Operating Temperature Range (V)	369.6~468.6	436.8~553.8
Nominal Dis-/Charge Current(A)*2	100	
Nominal Power(kW)*2	42.24	49.92
Short-Circuit Current	4.0kA 0.66ms@468.6V.dc	4.1kA 0.62ms@553.8V.dc
Operating Temperature Range（℃）	• Charge: 0~+45 • Discharge: -20~+50	
Relative Humidity	0~95%	
Max. Operating Altitude（m）	2000	
Communication	CAN+RS485	
Weight (Kg)	1120	1280
Dimensions（W×H×D mm）	1155×1650×730	
Ingress Protection Rating	IP21	
Storage Temperature（℃）	• 0~35 (< 1 Year) • -20~0 or +35~+45 (< 3 Months)	
Mounting Method	Grounded	

Technical Data		LX C 101-10	LX C120-10
Round-trip Efficiency*1		96.0%	
Cycle Life*3		4000	
Standard and Certification	Safety	IEC62619, IEC62040, IEC63056	
	EMC	IEC/EN61000-6-1/2/3/4	
	Transportation	UN38.3	
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 different Inverter. 2. Nominal Charge/Discharge and power derating will occur related to Temperature and SOC. 3. Based on 2.5~3.65V voltage rang @25±2℃ of Cell under 0.5C/0.5C test condition and 100%DOD 80% EOL.			

Technical Data	LX C138-10	LX C156-10
Usable Energy (kWh)*1	138.24	156.67
Battery Module	LX C9.2-10: 38.4V 9.21kWh	LX C9.2-10: 38.4V 9.21kWh
Number of Modules	15	17
Cell Type	LFP（$LiFePO_4$）	
Cell Configuration	180S2P	204S2P
Nominal Voltage Range (V)	576	652.8
Operating Temperature Range (V)	504.0~639.0	571.2~724.2

Technical Data		LX C138-10	LX C156-10
Nominal Dis-/Charge Current(A)*2		100	
Nominal Power(kW)*2		57.6	65.28
Short-Circuit Current		4.2kA 0.57ms@639V.dc	4.3kA 0.53ms@724.2V.dc
Operating Temperature Range（℃）		• Charge: 0~+4 • Discharge: -20~+50	
Relative Humidity		0~95%	
Max. Operating Altitude（m）		2000	
Communication		CAN+RS485	
Weight (Kg)		1480	1650
Dimensions（W×H×D mm）		1155×2065×730	
Ingress Protection Rating		IP21	
Storage Temperature（℃）		• 0~35 (< 1 Year) • -20~0 or +35~+45 (< 3 Months)	
Mounting Method		Grounded	
Round-trip Efficiency*1		96.0%	
Cycle Life*3		4000	
	Safety	IEC62619, IEC62040, IEC63056	

Technical Data		LX C138-10	LX C156-10
Standard and Certification	EMC	IEC/EN61000-6-1/2/3/4	
	Transportation	UN38.3	
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 different Inverter. 2. Nominal Charge/Discharge and power derating will occur related to Temperature and SOC. 3. Based on 2.5~3.65V voltage rang @25±2℃ of Cell under 0.5C/0.5C test condition and 100%DOD 80% EOL.			

10.3.2 BAT Series 25.6-56.3kWh High Voltage Battery

Technical Data	GW25.6-BAT-I-G10	GW30.7-BAT-I-G10	GW35.8-BAT-I-G10	GW40.9-BAT-I-G10	GW46.0-BAT-I-G10	GW51.2-BAT-I-G10	GW56.3-BAT-I-G10
Battery System							
Cell Type	LFP ($LiFePO_4$)						
Capacity (Ah)	100						
Pack Type/model	GW5.1-PACK-I-G10						
Pack Nominal Energy (kWh)	5.12						
Pack Configuration	1P80S	1P96S	1P112S	1P128S	1P144S	1P160S	1P176S

Technical Data	GW25.6-BAT-I-G10	GW30.7-BAT-I-G10	GW35.8-BAT-I-G10	GW40.9-BAT-I-G10	GW46.0-BAT-I-G10	GW51.2-BAT-I-G10	GW56.3-BAT-I-G10
Pack Weight（kg）	42.5						
Number of Packs	5	6	7	8	9	10	11
Nominal Energy (kWh)	25.6	30.7	35.8	40.9	46	51.2	56.3
Usable Energy (kWh) *1	25	30	35	40	45	50	55
Nominal Voltage (V)	256	307.2	358.4	409.6	460.8	512	563.2
Operating Voltage Range (V)	229.6~288.8	275.52~346.56	321.44~404.32	367.36~462.08	413.28~519.84	459.2~577.6	505.12~635.36
Charging Operating Temperature Range（℃）	0~+55						
Discharging Operating Temperature Range（℃）	-20~+55						

Technical Data	GW25.6-BAT-I-G10	GW30.7-BAT-I-G10	GW35.8-BAT-I-G10	GW40.9-BAT-I-G10	GW46.0-BAT-I-G10	GW51.2-BAT-I-G10	GW56.3-BAT-I-G10
Max. Charge/ Disharge Current (A) *2	100/110						
Max. Charge/ Discharge Rate *2	1C/1.1C						
Max. Charge/ Discharge power (kW) *2	25.6/28.1	30.7/33.7	35.8/39.4	40.9/44.9	46.0/50.6	51.2/56.3	56.3/61.9
Cycle Life	6000（25±2°C，0.5C，90%DOD，70%EOL）						
Depth of Discharge	1						
Efficiency							
Round-trip Efficiency	96%@100%DOD, 0.2C, 25±2℃						
General Data							
Operating Temperature Range (℃)	0~40℃						
Storage Temperature (℃)	+35°C~+45°C(< 6 Months)； -20°C~+35°C(< 1 Year)						
Relative Humidity	5 ~ 85%， No condensation						

Technical Data	GW25.6-BAT-I-G10	GW30.7-BAT-I-G10	GW35.8-BAT-I-G10	GW40.9-BAT-I-G10	GW46.0-BAT-I-G10	GW51.2-BAT-I-G10	GW56.3-BAT-I-G10
Max. Operating Altitude (m)	3000						
Cooling Method	Natural Cooling						
User Interface	LED						
Communication	CAN (RS485 Optional)						
Weight-rack mounted (kg)	-	-	-	-	-	495	540
Weight-stacked(kg)	248	293	338	383	428	472	517
Dimension-rack mounted (W×H×D mm)	-	-	-	-	-	543*1815*520	
Dimension-stacked (W×H×D mm)	481*925*552	481*1063*552	481*1201*552	481*1339*552	481*1477*552	481*1615*552	481*1753*552
Ingress Protection Rating	IP20						
Fire safety equipment	Aerosol, Pack Level						

Technical Data	GW25.6-BAT-I-G10	GW30.7-BAT-I-G10	GW35.8-BAT-I-G10	GW40.9-BAT-I-G10	GW46.0-BAT-I-G10	GW51.2-BAT-I-G10	GW56.3-BAT-I-G10
Certification *3							
Safety Regulation	For details, please visit our official website						
EMC	For details, please visit our official website						

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 .
3. Not all certifications & standards listed, check the official website for detail.

10.3.3 BAT Series 92.1-112.6kWh C&I Battery System

Technical Data	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		

Technical Data	GW92.1-BAT-AC-G10	GW102.4-BAT-AC-G10	GW112.6-BAT-AC-G10
Pack Configuration	2P144S	2P160S	2P176S
Pack Weight（kg）	< 90		
Number of Packs	9	10	11
Nominal Energy (kWh)	92.1	102.4	112.6
Usable Energy (kWh) *1	90	100	110
Nominal Voltage (V)	460.8	512	563.2
Operating Voltage Range (V)	413.28~519.84	459.2~577.6	505.12~635.36
Charging Operating Temperature Range（℃）	-20~+55		
Discharging Operating Temperature Range（℃）	-20~+55		
Max. Charge/ Discharge Current (A) *2	180/220		
Rated Charge/ Discharge Current (A) *2	100/100		
Max. Charge/ Discharge Rate *2	0.9C/1.1C		

Technical Data	GW92.1-BAT-AC-G10	GW102.4-BAT-AC-G10	GW112.6-BAT-AC-G10
Max. Charge/ Discharge power (kW) *2	82.9/101.3	92.1/112.6	101.3/123.9
Rated Charge/ Discharge power (kW) *2	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°C		
General Data			
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)	< 1220	< 1310	< 1400
Dimension (W×H×Dmm)	1055*2000*1055		

Technical Data	GW92.1-BAT-AC-G10	GW102.4-BAT-AC-G10	GW112.6-BAT-AC-G10
Noise Emission (dB)	≤70		
Ingress Protection Rating	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		

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.

10.4 The Parameter of the Smart Meter

Technical parameters			GM330
Input	Grid		Three-phase
	Voltage	Nominal Voltage-Line to N (Vac)	220/230
		Nominal Voltage-Line to Line (Vac)	380/400
		Voltage Range	0.88Un-1.1Un
		Nominal AC Grid Frequency (Hz)	50/60
	Current	Current Transformer Ratio	nA: 50A
Communication			RS485
Communication Distance (m)			1000
User interface			4 LED, Reset button
Accuracy	Voltage/Current		Class 0.5
	Active Energy		Class 0.5
	Reactive Energy		Class 1
Power Consumption(W)			<5
Mechanical	Dimensions (W×H×D mm)		72*85*72
	Weight (g)		240
	Mounting		Din rail
Environment	Ingress Protection Rating		IP20
	Operating Temperature Range (℃)		-30~70
	Storage Temperature Range(℃)		-30~70
	Relative Humidity (non-condensing)		0~95%

Technical parameters		GM330
	Max. Operating Altitude (m)	3000

10.5 Smart Dongle Technical Data

Technical parameters		WiFi/LAN Kit-20
Input voltage (V)		5
Power Consumption (W)		≤3
Connection Interface		USB
Communication	Ethernet Interface	10M/100Mbps Self-adaption
	WLAN	IEEE 802.11 b/g/n @2.4 GHz
	Bluetooth	Bluetooth V4.2 BR/EDR Bluetooth LE Specification
Mechanical Parameters	Dimensions (W×H×D mm)	48.3*159.5*32.1
	Weight (g)	82
	Ingress Protection Rating	IP65
	Installation	Plug and Play
Operating Temperature Range (℃)		-30~60
Storage Temperature Range (℃)		-40~70

Technical parameters	WiFi/LAN Kit-20
Relative Humidity	0~95%
Max. Operating Altitude (m)	4000

Technical Parameters	4G Kit-CN
General Data	
Maximum number of supported inverters	1
Interface form	USB
Mounting Method	Plug-and-play
Indicator	LED indicator
Dimension (W×H×D mm)	49*96*32
SIM card size (mm)	15*12
Ingress Protection Rating	IP65
Power Consumption (W)	<4
Ambient temperature (℃)	-30~60℃
Storage Temperature (℃)	-40~70℃
Relative Humidity	0-100% (no condensing)
Max. Working Altitude (m)	4000
Wireless Parameters	
LTE-FDD	B1/B3/B5/B8
LTE-TDD	B34/B38/B39/B40/B41
GSM/GPRS	B3/B8
Life (Year)	≥25

Technical Parameters	4G Kit-CN-G21
General Data	
Maximum number of supported inverters	1
Interface form	USB
Mounting Method	Plug-and-play
Indicator	LED indicator
Dimension (W×H×D mm)	48.3*95.5*32.1
SIM card size (mm)	15*12
Weight (g)	87
Ingress Protection Rating	IP66
Power Consumption (W)	<4
Ambient temperature (℃)	-30~+65
Storage Temperature (℃)	-40~+70
Relative Humidity	0~100%
Max. Working Altitude (m)	4000
Wireless Parameters	
LTE-FDD	B1/B3/B5/B8
LTE-TDD	B34/B39/B40/B41
GNSS positioning	Beidou, GPS
Bluetooth	5.0
Life (Year)	≥25

11 Appendix

11.1 FAQ

11.1.1 How to Perform Meter/CT Auxiliary Detection?

The Meter Connect Check function can verify whether the meter CT is connected correctly and check the current operating status of the meter and CT.

- Method 1:

1. Navigate to**[Home]** > **[Settings]** > **[Meter/CT Auxiliary Detection]**to open the detection page.
2. Tap Start Detection. Once detection is complete, review the results.

- Method 2:

1. Tap > **[System Setup]** > **[Quick Setting]** > **[Meter/CT Assisted Test]**to open the detection page.
2. Tap Start Detection. Once detection is complete, review the results.

11.1.2 How to Upgrade the Device Firmware

Firmware information allows you to view or upgrade the inverter's DSP version, ARM version, BMS version, and communication module software version. Some communication modules do not support software upgrades via the SolarGo app. Please refer to the actual device.

- **Upgrade Notification:**

When the user opens the app, an upgrade notification appears on the home page. The user can choose whether to upgrade. If they choose to upgrade, follow the on-screen instructions to complete the process.

- **Regular Upgrade:**

Navigate to**[Home]** > **[Settings]** > **[Firmware Information]**to open the firmware information page.

Tap Check for Updates. If a new version is available, follow the on-screen instructions to complete the upgrade.

- **Mandatory Upgrade:**

The app will push an upgrade notification. The user must follow the instructions to upgrade; otherwise, the app cannot be used. Follow the on-screen instructions to complete the upgrade.

11.2 Abbreviation

Abbreviation	English Description	Chinese Description
Ubatt	Battery Voltage Range	Battery Voltage Range
Ubatt,r	Nominal Battery Voltage	Rated Battery Voltage
Ibatt,max (C/D)	Max. Charging Current Max. Discharging Current	Max. Charge/Discharge Current
EC,R	Rated Energy	Rated Energy
UDCmax	Max.Input Voltage	Max. Input Voltage
UMPP	MPPT Operating Voltage Range	MPPT Voltage Range
IDC,max	Max. Input Current per MPPT	Max. Current from Grid per MPPT
ISC PV	Max. Short Circuit Current per MPPT	Max. Short-Circuit Current per MPPT
PAC,r	Nominal Output Power	Rated Output Power
Sr (to grid)	Nominal Apparent Power Output to Utility Grid	Rated Grid-Connected Output Apparent Power
Smax (to grid)	Max. Apparent Power Output to Utility Grid	Max. Grid-Connected Output Apparent Power
Sr (from grid)	Nominal Apparent Power from Utility Grid	Rated Apparent Power to Grid
Smax (from grid)	Max. Apparent Power from Utility Grid	Max. Apparent Power to Grid
UAC,r	Nominal Output Voltage	Rated Output Voltage
fAC,r	Nominal AC Grid Frequency	Output Voltage Frequency
IAC,max(to grid)	Max. AC Current Output to Utility Grid	Max. Grid-Connected Output Current

Abbreviation	English Description	Chinese Description
IAC,max(from grid)	Max. AC Current From Utility Grid	Max. Current from Grid
P.F.	Power Factor	Power Factor
Sr	Back-up Nominal apparent power	Off-Grid Rated Apparent Power
Smax	Max. Output Apparent Power (VA) Max. Output Apparent Power without Grid	Max. Apparent Power to Grid
IAC,max	Max. Output Current	Max. Current to Grid
UAC,r	Nominal Output Voltage	Maximum Output Voltage
fAC,r	Nominal Output Freqency	Rated Output Voltage/Frequency
Toperating	Operating Temperature Range	Operating Temperature Range
IDC,max	Max. Input Current	Max. Current from Grid
UDC	Input Voltage	Input Voltage
UDC,r	DC Power Supply	DC Input
UAC	Power Supply/AC Power Supply	Input Voltage Range/AC Input
UAC,r	Power Supply/Input Voltage Range	Input Voltage Range/AC Input
Toperating	Operating Temperature Range	Operating Temperature Range
Pmax	Max Output Power	Maximum Power
PRF	TX Power	Transmission Power
PD	Power Consumption	Power Consumption
PAC,r	Power Consumption	Power Consumption
F (Hz)	Frequency	Frequency
ISC PV	Max. Input Short Circuit Current	Maximum Input Short-Circuit Current
Udcmin-Udcmax	Range of input Operating Voltage	Operating Voltage Range
UAC,rang(L-N)	Power Supply Input Voltage	Adapter Input Voltage Range
Usys,max	Max System Voltage	Maximum System Voltage
Haltitude,max	Max. Operating Altitude	Max. Operating Altitude
PF	Power Factor	Power Factor

Abbreviation	English Description	Chinese Description
THDi	Total Harmonic Distortion of Current	Current Harmonics
THDv	Total Harmonic Distortion of Voltage	Voltage Harmonics
C&I	Commercial & Industrial	Commercial and Industrial
SEMS	Smart Energy Management System	Smart Energy Management System
MPPT	Maximum Power Point Tracking	Maximum Power Point Tracking
PID	Potential-Induced Degradation	Potential-Induced Degradation
Voc	Open-Circuit Voltage	Open-Circuit Voltage
Anti PID	Anti-PID	Anti-PID
PID Recovery	PID Recovery	PID Recovery
PLC	Power-line Commucation	Power Line Carrier Communication
Modbus TCP/IP	Modbus Transmission Control / Internet Protocol	Modbus over TCP/IP
Modbus RTU	Modbus Remote Terminal Unit	Modbus over serial link
SCR	Short-Circuit Ratio	Short-circuit ratio
UPS	Uninterruptable Power Supply	Uninterruptible power supply
ECO mode	Economical Mode	Economy mode
TOU	Time of Use	Time of use
ESS	Energy Stroage System	Energy storage system
PCS	Power Conversion System	Power conversion system
RSD	Rapid shutdown	Rapid Shutdown
EPO	Emergency Power Off	Emergency Power Off
SPD	Surge Protection Device	Lightning Protection
ARC	zero injection/zero export Power Limit / Export Power Limit	Power Limit
DRED	Demand Response Enabling Device	Command response device
RCR	Ripple Control Receiver	-
AFCI	AFCI	AFCI

Abbreviation	English Description	Chinese Description
GFCI	Ground Fault Circuit Interrupter	Grounding Failure interrupter
RCMU	Residual Current Monitioring Unit	Residual current monitoring device
FRT	Fault Ride Through	Fault ride-through
HVRT	High Voltage Ride Through	High-voltage ride-through
LVRT	Low Voltage Ride Through	Low Voltage ride-through
EMS	Energy Management System	Energy management system
BMS	Battery Management System	Battery management system
BMU	Battery Measure Unit	Battery acquisition unit
BCU	Battery Control Unit	Battery Control unit
SOC	State of Charge	Battery state of charge
SOH	State of Health	Battery state of health
SOE	State Of Energy	Remaining battery energy
SOP	State Of Power	Battery charge/discharge capability
SOF	State Of Function	Battery functional status
SOS	State Of Safety	Safety status
DOD	Depth of discharge	Depth of Discharge

11.3 Glossary

- **Overvoltage Category Definitions**
  - **Overvoltage Category I**: Equipment connected to circuits with measures to 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. Category III applies when special requirements are imposed on the reliability and suitability of such equipment.
  - **Overvoltage Category III**: Equipment in fixed electrical installations, for which special requirements apply to reliability and suitability. This includes switching devices in fixed electrical installations and industrial equipment permanently connected to fixed electrical installations.
  - **Overvoltage Category IV**: Equipment used at the supply source of an electrical installation, including measuring instruments and upstream overcurrent protection devices.
- **Definitions of Damp Location Categories**

Environmental Parameters	Level		
	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 taken into account;
  - **Pollution Degree 3**: Conductive pollution is present, or non-conductive pollution becomes conductive due to condensation;
  - **Pollution Degree 4**: Persistent conductive pollution, for example, pollution caused by conductive dust, rain, or snow.

11.4 Battery SN Code Definition



Digits 11–14 of the product SN code are the production date code.
The production date shown above is 2023-08-08

- Digits 11 and 12 indicate the last two digits of the production year; for example,

2023 is represented as 23;

- Digit 13 indicates the production month; for example, August is represented as 8; Details are as follows:

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

- The 14th character indicates the production date; for example, the 8th day is represented by 8;
  Digits are preferred, with 1–9 representing the 1st–9th days, and A representing the 10th day, and so on. The letters I and O are not used to avoid confusion. Details are as follows:

Day of Production	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Code	1	2	3	4	5	6	7	8	9

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

Day of Production	21st	22nd	23rd	24th	25th	26th	27th	28th	29th	30th	31st
Code	M	N	P	Q	R	S	T	U	V	W	X

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