

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

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NOTICE

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Preface

Overview

This document mainly introduces the product information, installation and wiring, configuration and commissioning, troubleshooting, and maintenance contents of an energy storage system composed of an inverter, battery system, and smart meter. Before installing and using the product, carefully read this manual to understand product safety information and become familiar with the product's functions and features. The document may be updated from time to time; please obtain the latest version of the materials and more product information from the official website.

Applicable Products

This manual applies to the following products. Select the specific solution according to the actual usage scenario.

Product Type	Product Information	Description
Inverter	ET 25-50kW	Rated output power 25kW to 50kW.
Static Transfer Switch Cabinet	STS200-80-10	The Rated Apparent Power is 50kW.
Battery System	Lynx C Series 101-156Kwh High-Voltage Battery	Single-cluster energy storage capacity is 101.38kWh to 156.67kWh. Maximum parallel-cluster energy storage capacity can reach 468kWh. *This series of battery systems is only compatible with ET40-50kW inverters when the BMS version is 25600 or above (SN code date on or after June 1, 2024). For the meaning of the SN code, please refer to 12.4.Meaning of Battery SN Code(Page 315) 。

Product Type	Product Information	Description
	BAT Series 25.6-56.3Kwh High-Voltage Battery	Single-cluster energy storage capacity 25.6/30.7/35.8/40.9/46.0/51.2/56.3 kWh。 Maximum parallel-cluster energy storage capacity can reach 153.6/184.2/214.8/245.4/276.0/307.2/337.8 kWh.
	BAT Series 92.1-112.6Kwh Commercial and Industrial Battery System	Single-cluster energy storage capacity is 92.1/102.4/112.6 kWh。 The maximum parallel-cluster energy storage capacity can reach 368.4/409.6/450.4 kWh。
Smart Meter	GM330	The monitoring module in the smart meter energy storage system can detect operating voltage, current, and other information in the system.
Smart Energy Control Box	SEC3000C	If the energy storage inverter needs to operate in parallel or form a hybrid parallel system with grid-tied inverters, it can be used with SEC3000C. When paralleled using SEC3000C, up to 10 energy storage inverters can be supported to form a parallel system.
Smart Communication Dongle	WiFi/LAN Kit-20	Used in standalone inverter scenarios and when paralleled with SEC3000C. It can upload system operation information to the monitoring platform via WiFi or LAN signals.
	4G Kit-CN (China only)	For use in single-inverter scenarios. System operation information can be uploaded to the monitoring platform via a 4G signal.
	4G Kit-CN-G21 (China only)	For use in single-inverter scenarios. System operation information can be uploaded to the monitoring platform via a 4G signal; Bluetooth signal is used for near-end device commissioning.

Symbol Definitions

DANGER

Indicates a high potential hazard that, if not avoided, will result in death or serious personal injury.

WARNING

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

CAUTION

Indicates a low potential hazard that, if not avoided, may result in moderate or minor personal injury.

NOTICE

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

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1 Safety Precautions

Always observe the safety precautions contained 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, the relevant safety instructions must be observed before any operation on the equipment. Improper operation may cause serious injury or property damage.

1.1 General Safety

NOTICE

- Due to product version upgrades or other reasons, the document content will be updated from time to time. Unless otherwise specified, the document content does not replace the safety precautions on the product labels. All descriptions in this document are for guidance only.
- Before installing the equipment, carefully read this document to understand the product and precautions.
- All operations on the equipment must be performed by professional and qualified electrical technicians, and the technicians must be familiar with the relevant standards and safety regulations of the project location.
- When operating the equipment, use insulated tools and wear personal protective equipment to ensure personal safety. When touching electronic components, wear electrostatic gloves, ESD wrist straps, anti-static clothing, etc., to provide Protection for the equipment against electrostatic damage.
- Unauthorized disassembly or modification may cause equipment damage, and such damage is not covered by the warranty.
- Equipment damage or personal injury caused by installing, using, or configuring the equipment not in accordance with this document or the corresponding user manual is not within the responsibility of the equipment manufacturer. For more product warranty information, please visit the official website: <https://www.goodwe.com/warrantyrelated.html>.

1.2 Personnel Requirements

NOTICE

To ensure the safety, compliance, and efficiency of the entire process of equipment transportation, installation, wiring, operation, and maintenance, operations must be performed by professionals or qualified personnel.

1. Professionals or qualified personnel include:
 - Personnel who have mastered the equipment working principles, system structure, and knowledge of risks and hazards, and who have received professional operation training or have extensive practical experience.
 - Personnel who have received relevant technical and safety training, have certain operating experience, are able to recognize the dangers that specific operations may pose to themselves, and can take protective measures to minimize risks to themselves and others.
 - Qualified electrical technicians who meet the regulatory requirements of the country/region where they are located.
 - Personnel with an electrical engineering degree / advanced diploma or equivalent in electrical discipline / professional qualification in the electrical field, and at least 2/3/4 years of experience in testing and supervisory work using safety standards for electrical equipment.
2. Personnel involved in special tasks such as electrical work, work at height, and special equipment operation must hold valid qualification certificates required by the location of the equipment.
3. Medium-voltage equipment operations must be performed by certified 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 bracket system are properly grounded.
- After the DC cables are connected, ensure that the cable connections are tight and not loose. Improper wiring may cause poor contact or high impedance and damage the inverter.
- Use a multimeter to measure the positive and negative terminals of the DC cables, and ensure that the positive and negative terminals are correct and not reversed; and that the voltage is within the allowable range.
- Use a multimeter to measure the DC cables, and ensure that the positive and negative terminals are correct and not reversed; the voltage should be lower than the maximum DC input voltage. Damage caused by reverse connection and Overvoltage is not within the responsibility of the equipment manufacturer.
- 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 impedance requirement ($R = \text{Max. Input Voltage (V)} / 30\text{mA}$).
- Do not connect the same PV string to multiple inverters; otherwise, the inverter may be damaged.
- PV modules used together with the inverter must comply with IEC 61730 Class A standard.
- When the PV string input voltage or input current is relatively high, the inverter output power may be derated.

1.3.2 Inverter Safety

WARNING

- Ensure that the voltage and frequency at the grid connection point comply with the inverter's grid connection specifications.
- It is recommended to add Protection devices such as circuit breakers or fuses on the AC side of the inverter. The Protection device rating must be greater than 1.25 times the inverter AC output Max. Current.
- If the inverter triggers an Arc Failure alarm fewer than 5 times within 24 hours, the alarm can be automatically cleared. After the 5th Arc Failure alarm, the inverter will shut down for Protection. The inverter can only work normally after the fault is cleared.
- If no battery is configured in the PV system, it is not recommended to use the BACK-UP function; otherwise, it may cause a risk of system power outage.
- Changes in grid voltage and frequency may cause inverter output power derating.

1.3.3 Battery Safety

 DANGER

- Before operating equipment in the system, ensure that the equipment is powered off to avoid electric shock hazards. During equipment operation, strictly comply with all safety precautions in this manual and the safety signs on the equipment.
- Without official authorization from the equipment manufacturer, do not disassemble, modify, or repair the battery or control box; otherwise, electric shock hazards may occur or equipment damage may result. Losses caused by this are not within the scope of the equipment manufacturer's responsibility.
- Do not impact, pull, drag, squeeze, or step on the equipment, and do not place the battery in fire; otherwise, the battery may explode.
- Do not place the battery in a high-temperature environment. Ensure there is no heat source near the battery and that it is not exposed to direct sunlight. If the ambient temperature exceeds 60°C, a fire may occur.
- If the battery or control box has obvious defects, cracks, damage, or other abnormalities, do not use it. Battery damage may cause electrolyte leakage.
- While the battery is operating, do not move the battery system. If you need to replace or add batteries, please 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 shall comply with the requirements of AS/NZS 5139 standard.
- The same battery may only be connected to one energy storage inverter. It is prohibited to connect the same battery directly to multiple energy storage inverters. Multiple inverters sharing one battery may cause abnormal backflow current or circulating current, and cause GFCI leakage Protection and battery overcurrent; in severe cases, it may cause damage to the battery and inverter.

WARNING

- Battery Current may be affected by factors such as temperature, humidity, weather conditions, etc., which may cause battery current limiting and affect load-carrying capability.
- If the battery cannot be started, contact the after-sales service center as soon as possible. Otherwise, the battery may be permanently damaged.
- Perform regular inspection and maintenance on the battery in accordance with the battery maintenance requirements.

Emergency Measures for Emergency Situations

- Battery electrolyte leakage

If the battery module leaks electrolyte, avoid contact with the leaked liquid or gas. Electrolyte is corrosive; contact may cause skin irritation and chemical burns. If you accidentally come into contact with the leaked substance, perform the following actions:

- Inhalation: Evacuate from 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 contacted area with soap and clean water and seek medical attention immediately.
- Ingestion: Induce vomiting and seek medical assistance immediately.
- Fire
 - When the battery temperature exceeds 150°C, there is a risk of battery fire, and a burning battery may release toxic and harmful gases.
 - To avoid fire, ensure that carbon dioxide, Novec1230, or FM-200 fire extinguishers are available near the equipment.
 - When extinguishing a fire, do not use ABC dry powder fire extinguishers. Firefighters must wear protective clothing and self-contained breathing apparatus.
- Battery fire suppression function triggered

For batteries equipped with the optional fire suppression function, after the fire suppression function is triggered, perform the following operations:

 - Immediately turn off the main power switch to ensure that no current flows

through the battery system.

- Perform a preliminary visual inspection of the battery to check for damage, deformation, leakage, or odor; inspect the battery enclosure, connectors, and cables.
- Use a temperature sensor to measure the battery and ambient temperature to ensure there is no risk of overheating.
- Isolate and label damaged batteries, and handle them properly in accordance with local regulatory requirements.

1.3.4 Electricity Meter Safety

WARNING

If grid voltage fluctuations exceed 265 V, long-term overvoltage operation may damage the electricity meter. It is recommended to add a fuse with a Rated Current of 0.5 A on the voltage input side of the electricity meter to provide Protection for the electricity meter.

1.4 Safety Symbols and Certification Mark Explanation

DANGER

- After the equipment is installed, the labels and warning signs on the enclosure must remain clearly visible and must not be obscured, altered, or damaged.
- The following descriptions of enclosure warning labels are for reference only. Please refer to the actual labels used on the equipment.

No.	Symbol	Meaning
1		Potential hazards exist during equipment operation. Take proper protective measures when operating the equipment.

No.	Symbol	Meaning
2		High voltage hazard. High voltage is present during equipment operation. Before operating the equipment, ensure that it has been de-energized.
3		The inverter surface is hot. Do not touch it while the equipment is running; otherwise, burns may result.
4		Use the equipment properly. Using it under extreme conditions may present an explosion hazard.
5		Beware of fire.
6		The equipment contains corrosive electrolyte. Avoid contact with leaked electrolyte or vapors.
7		Delayed discharge. After the equipment is powered off, wait 5 minutes until the equipment is fully discharged.
8		The device must not be installed in an explosive environment.
9		The device must not be installed in a corrosive environment.
10		Keep the equipment away from open flames or ignition sources.
		
11		Keep the equipment out of reach of children.
12		Children must not touch.
13		Do not lift the device.

No.	Symbol	Meaning
14		Do not disassemble.
15		Do not disconnect under load; this may cause electric shock, fire, or other hazards.
16		Before operating the equipment, carefully read the product manual.
		
17		Wear personal protective equipment (PPE) 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		Protection grounding conductor connection point.
20		Recycling symbol.
21		CE Certification Mark.
22		TUV Mark.
23		RCM Mark.

1.5 European Declaration of Conformity

1.5.1 Devices with Wireless Communication Function

Equipment with wireless communication functions that can be sold in the European

market meets the following directive requirements:

- 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 Function (Excluding the Battery)

Equipment without wireless communication functions that can be sold in the European market meets the following directive requirements:

- 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 Battery

Batteries that can be sold on the European market meet the requirements of the following directives:

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)*¹
- Regulation (EU) 2023/1542 Article 12 - Safety of stationary battery energy storage systems
- Regulation (EU) 2023/1542 Article 10 - Performance and durability requirements for rechargeable industrial batteries, LMT batteries and electric vehicle batteries
- Regulation (EU) 2023/1542 Article 14 - Information on the state of health and expected lifetime of batteries
- Waste Electrical and Electronic Equipment 2012/19/EU

- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

*1: Our battery products meet the hazardous substance limit requirements specified in this regulation.

More EU Declarations of Conformity can be obtained from [the official website](#).

2 System Introduction

2.1 System Overview

The commercial and industrial smart inverter solution integrates equipment such as inverters, static transfer switch cabinets, batteries, smart energy control boxes, smart meters, and smart communication dongles. In the PV system, it converts solar energy into electrical energy or purchases electricity from the grid to meet commercial and industrial power consumption requirements. The energy IoT devices in the system manage electrical equipment by identifying the overall power status of the system, thereby intelligently managing power for load use, storage in batteries, or output to the grid.

WARNING

- The PV system is not suitable for connecting devices that rely on a stable power supply, such as life-sustaining medical equipment. Please ensure that when the system is powered off, it does not cause personal injury.
- In the PV system, try to avoid using loads with high starting current, such as high-power water pumps; otherwise, excessive instantaneous current may cause off-grid output failure.
- If no battery is configured in the PV system, it is not recommended to use the BACK-UP function; otherwise, it may cause a risk of system power outage.
- Battery Current may be affected by factors such as temperature, humidity, weather conditions, etc., which may cause battery current limiting and affect load-carrying capability.
- When the inverter experiences Overload Protection once, the inverter can automatically restart; if it occurs multiple times, the inverter restart time will be extended. If the inverter needs to be restarted as soon as possible, it can be restarted immediately through the SolarGo App.
- When the inverter is in off-grid mode, it can supply power to commercial and industrial loads for normal operation, such as:
 - Motor loads:
 - If the power of a single single-phase motor is greater than or equal to 3kW or the power of a single three-phase motor is greater than or equal to 8kW, it is

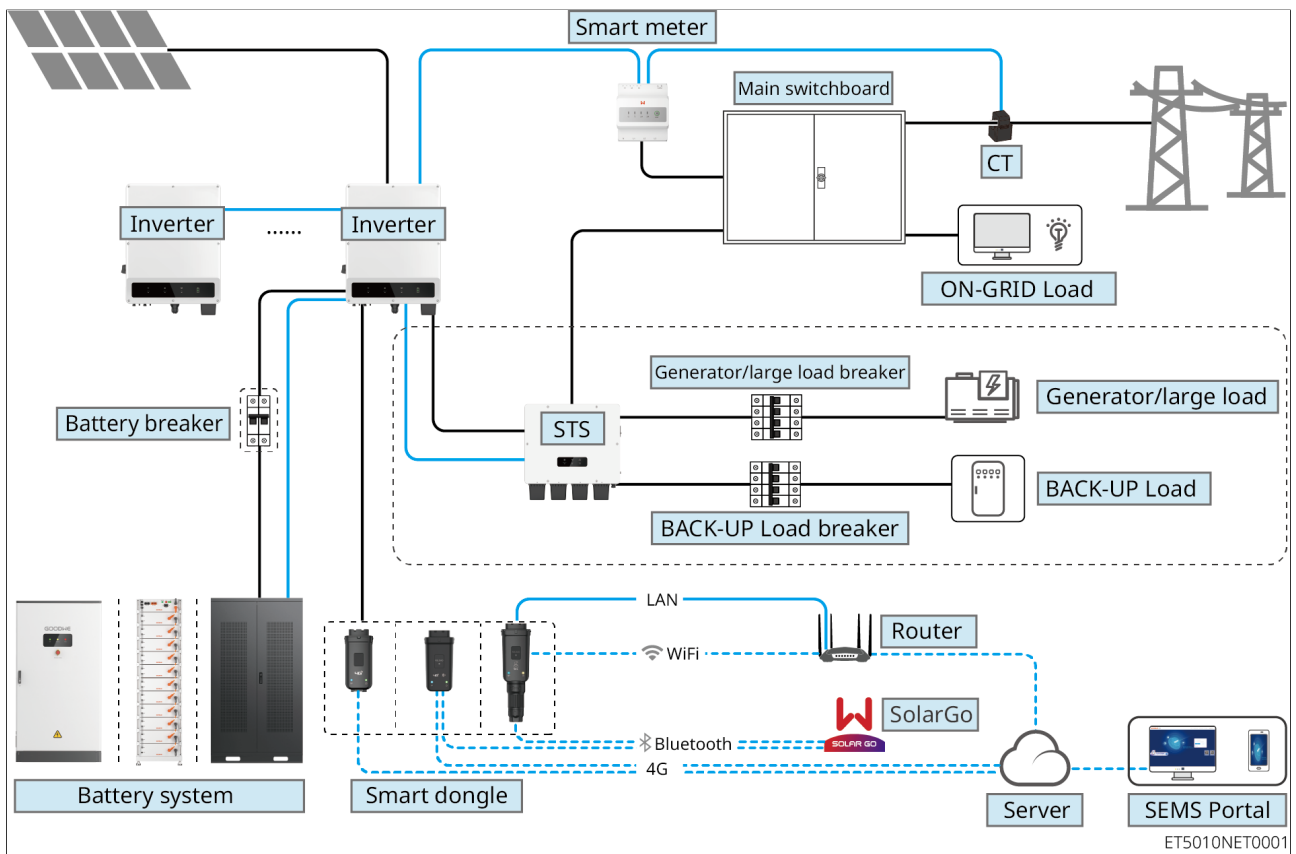
WARNING

- necessary to configure VFD/VSD;
- The sum of the Rated Power of single-phase motor loads shall not exceed $0.5 \cdot P_n / 3$, and the sum of the Rated Power of the total motor load shall not exceed $0.5 \cdot P_n$;
 - The total power of motor loads allowed to be connected to a single inverter shall not exceed 25kW; 2 units or 2 or more inverters connected in parallel, the total motor load power allowed to be connected shall not exceed $P_n \cdot 50\% \cdot \text{number of inverters in parallel} \cdot 80\%$;
 - If other loads exist, the motor load should be reduced accordingly; refer to the calculation based on the specific application conditions.
 - Capacitive load: total power $\leq 0.33 P_n$. P_n refers to the rated output power of the inverter.
 - The inverter does not support half-wave loads.
 - In a fully off-grid inverter system, if the battery is exposed to low irradiance or rainy weather for a long time and is not recharged in time, it may be over-discharged, resulting in battery performance degradation or damage. To ensure long-term stable operation of the system, avoid completely discharging the battery. Recommended measures are as follows:
 1. During off-grid operation, 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 there is insufficient sunlight for consecutive days and the battery SOC is too low, the battery should be recharged in a timely manner using external energy (such as a generator or grid auxiliary charging).
 4. Regularly check the battery status to ensure it is within the safe operating range.
 5. It is recommended to fully charge and fully discharge the battery once every six months to calibrate SOC accuracy.

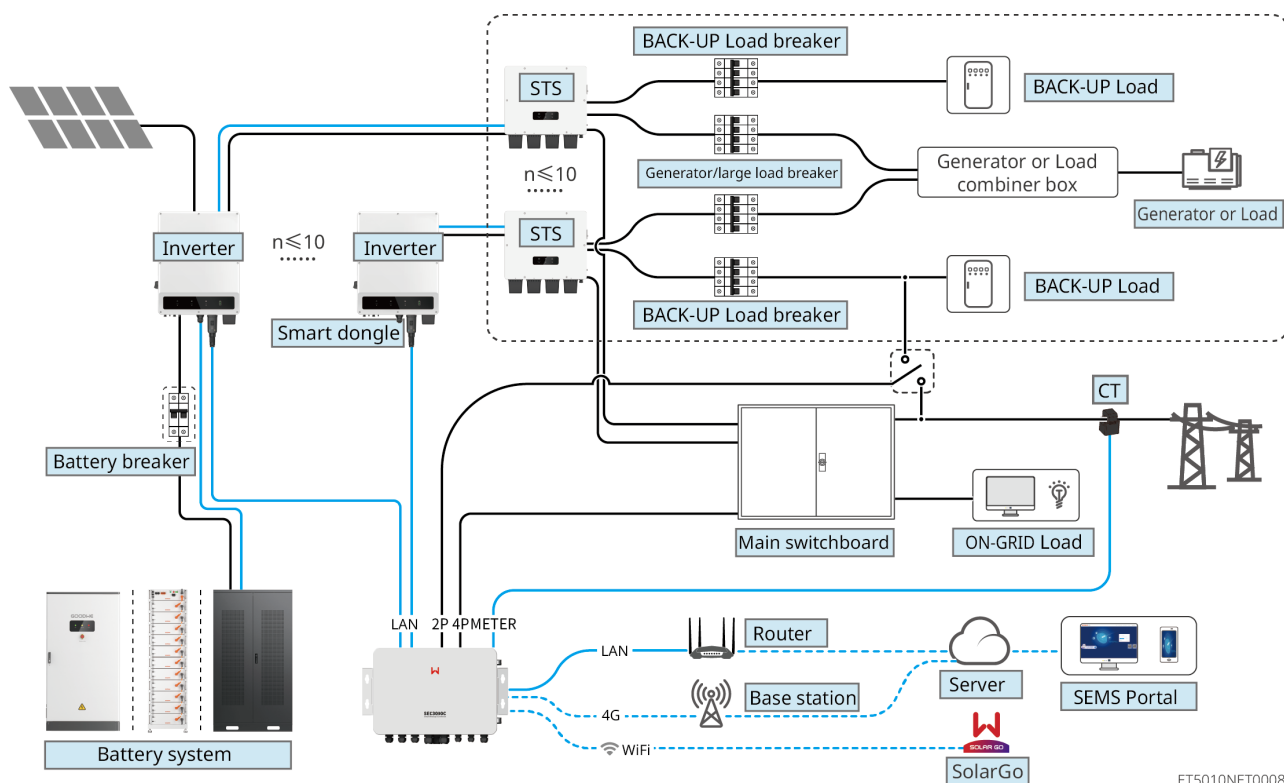
When the inverter is in off-grid mode, it can supply power to commercial and industrial loads for normal operation.

Parameter item	Single-phase	Three-phase
Rated Power of a single motor load (kVA)	3	8
Sum of Rated Power of motor loads (kVA)	$0.5 \cdot P_n / 3$	$0.5 \cdot P_n$
Capacitive load (kVA)	$0.33 \cdot P_n / 3$	$0.33 \cdot P_n$
Note: 1. P_n: 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, VFD/VSD is required. 3. 2 units or 2 or more inverters in parallel, the total allowable connected motor load power is equal to $P_n \cdot 50\% \cdot \text{number of inverters in parallel} \cdot 80\%$.		

Single Inverter



Inverter Parallel Networking via SEC3000C



Device type	Model	Description
Inverter	GW25K-ET-10 GW30K-ET-10 GW40K-ET-10 GW50K-ET-10	GW25K-ET-10, GW30K-ET-10 do not support parallel connection via SEC3000C. When inverters use Parallel Networking, the following version requirements must be met: - All inverters in a parallel system must have the same software version - Inverter software version requirements: - Inverter ARM software version must be 11.475 or later - Inverter DSP software version must be 4.400 or later

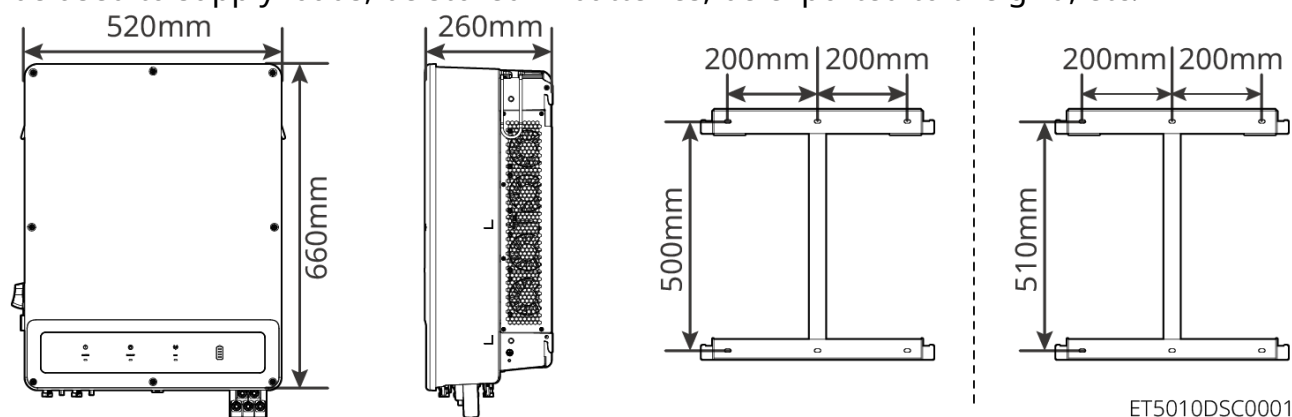
Device type	Model	Description
Static Transfer Switch Cabinet	STS200-80-10	If the energy storage system needs to use the off-grid function, it must be implemented with a static transfer switch cabinet. The static transfer switch cabinet software version must be 4.400 or later.
Battery System	LX C101-10 LX C120-10 LX C138-10 LX C156-10	• Supports up to 3 battery clusters in parallel • Different battery system models cannot be mixed and connected in parallel.
	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 up to 6 battery clusters in parallel • Different battery system models cannot be mixed and connected in parallel.
	GW92.1-BAT-AC-G10 GW102.4-BAT-AC-G10 GW112.6-BAT-AC-G10	• Supports up to 4 battery clusters in parallel • Different battery system models cannot be mixed and connected in parallel.
Smart Energy Control Box	SEC3000C	For SEC3000C related requirements, installation, wiring, and other information, refer to SEC3000C User Manual .

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

2.2 Product Overview

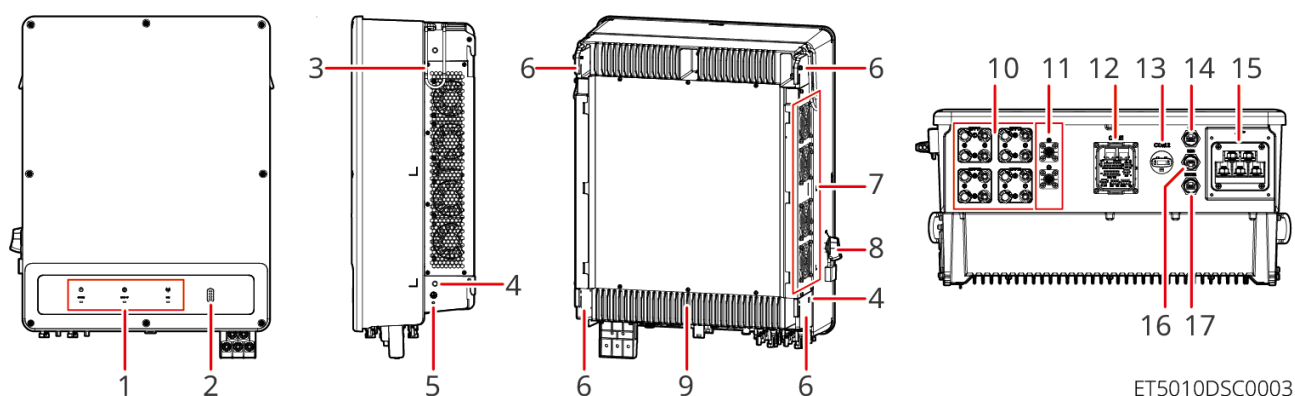
2.2.1 Inverter

In a PV system, the inverter controls and optimizes energy flow through an integrated energy management system. The power generated in the PV system can be used to supply loads, be stored in batteries, be exported to the grid, etc.



ET5010DSC0001

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 running indicator	Indicates the operating status of the inverter
2	Battery SOC indicator light	Indicates the battery's SOC
3	Handle	Moving the Inverter
4	Handle mounting holes	Additional handles can be installed to facilitate carrying the inverter
5	Protection grounding terminal	Connect the enclosure Protection ground cable
6	Mounting Bracket	Mounting the inverter
7	Fan	Inverter heat dissipation

No.	Components	Description
8	DC Switch	Controls connection or disconnection of PV input
9	Heat sink	Inverter heat dissipation
10	PV DC input port	Can be connected to PV module 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 battery DC cables
12	Communication port (COM1)	Connect the communication cable; supports communication with Rapid Shutdown, DRED, Remote Shutdown, RCR, Load Control, Diesel Generator Control, EV charger communication
13	Communication module interface (COM2)	Can be connected to a communication module, supports connection to 4G, WiFi/LAN Kit-20 modules, and supports system software upgrade via USB flash drive
14	STS communication port (STS)	Connect the STS communication cable
15	AC port (AC)	Connect AC cables
16	Battery communication port (BMS)	Connect the BMS communication cable
17	Meter communication port (METER)	Connect the Smart Meter Communication Cable

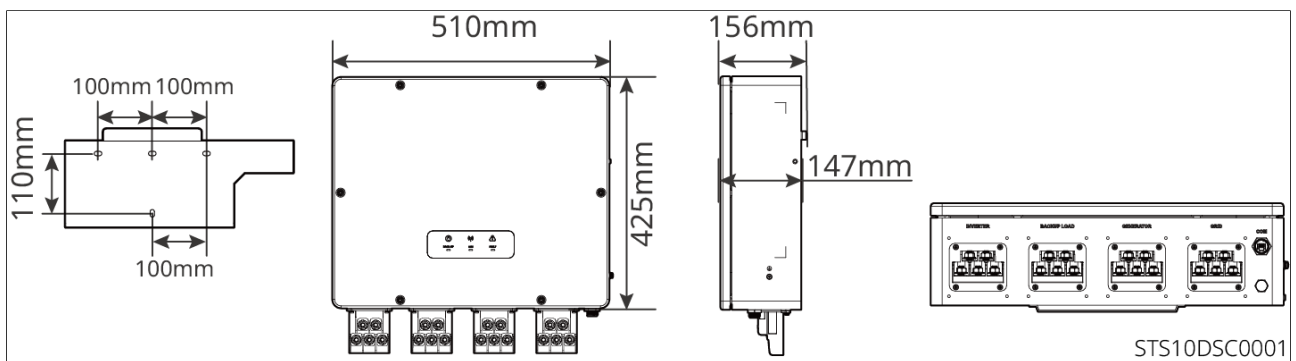
2.2.2 STS

The STS static transfer switch cabinet is applicable to commercial and industrial energy storage systems. The system can control the inverter's On/Off-grid status via

the STS. The STS supports connection to generators and large loads such as heat pumps and high-power motors; the power of a single non-variable-frequency motor device must be ≤ 5.5 kVA.

When the grid fails:

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



No.	Name	Description
1	LED Indicator	Indicates the STS operating status.
2	INVERTER	Used to connect the inverter.
3	BACKUP LOAD	Used to connect critical loads.
4	GENERATOR	Used to connect the diesel generator.
5	GRID	Used to connect the grid.
6	COM	Used to communicate with the inverter.

2.2.3 Battery

The battery system consists of a PCU and PACK.

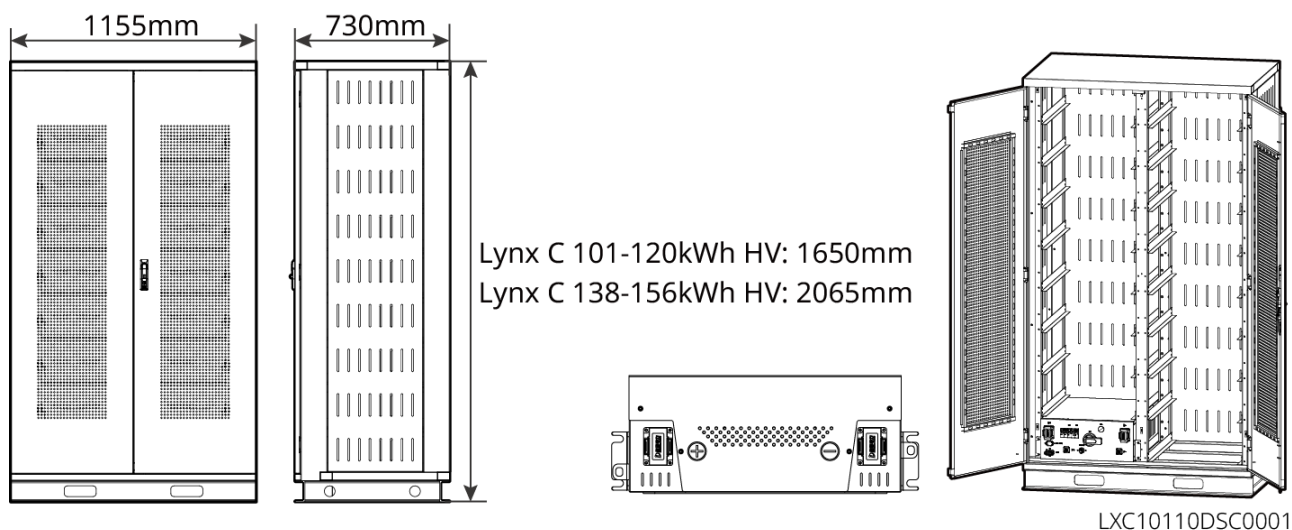
The battery system can store and release electrical energy according to the requirements of the PV energy storage system. The input and output ports of this energy storage system are both high-voltage DC.

NOTICE

- After a single battery cabinet is installed, it does not support adding a PACK to expand capacity.
- BATseries battery system can undergo cluster expansion within one year after installation by adding battery cabinets of the same model and same part number. For details, please consult after-sales service.

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

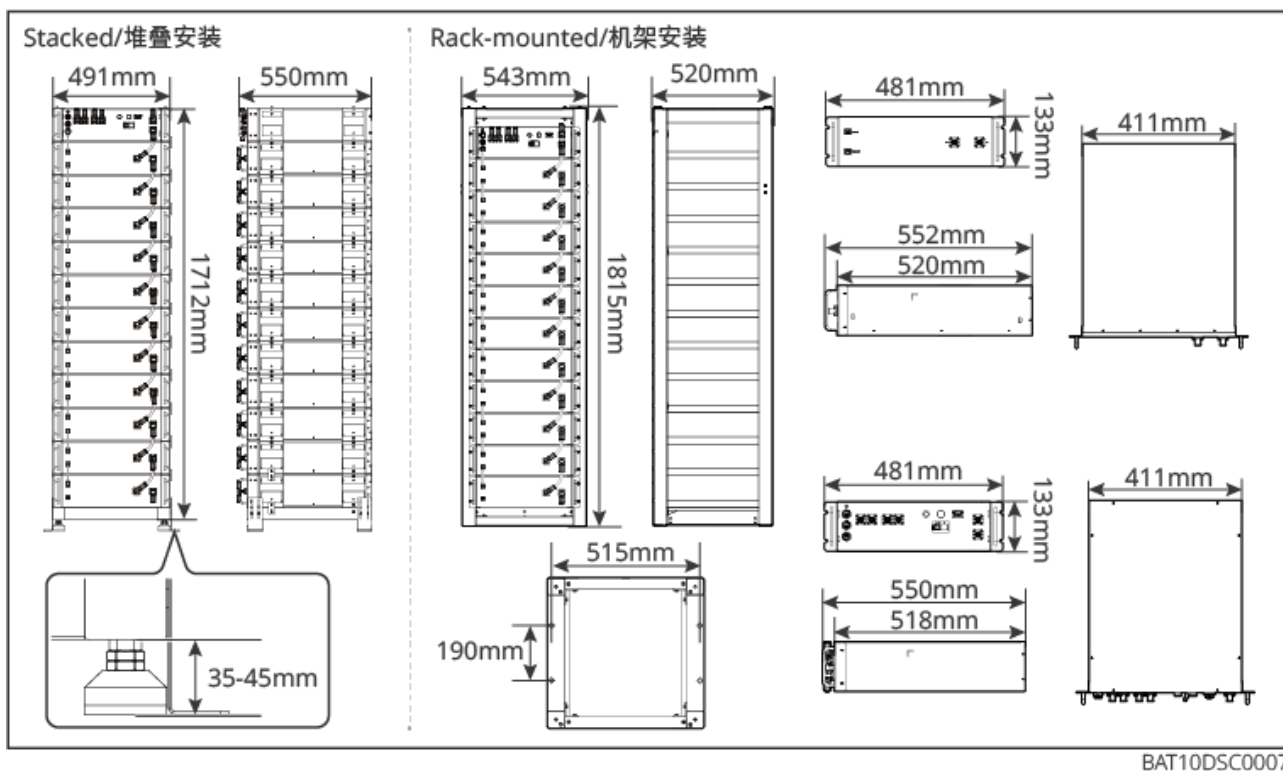
No.	Model	PACK Quantity	Height (mm)	Rated Energy (kWh)
1	LX C 101-10	11	1650	101.38
2	LX C 120-10	13		119.81
3	LX C 138-10	15	2065	138.24
4	LX C 156-10	17		156.67



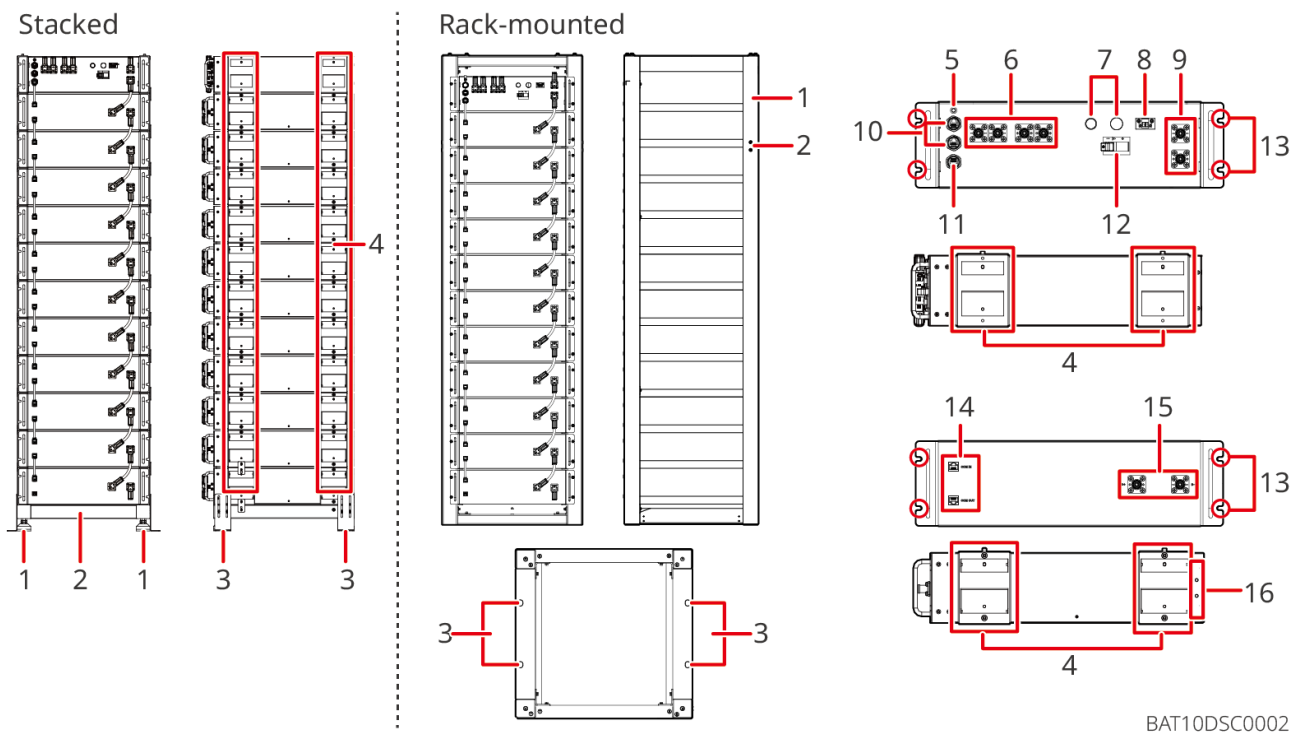
2.2.3.2 BAT Series 25.6-56.3Kwh High-Voltage Battery

No.	Model	PACK Quantity	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
7	GW56.3-BAT-I-G10	11	56.3

Dimensions



Component Introduction



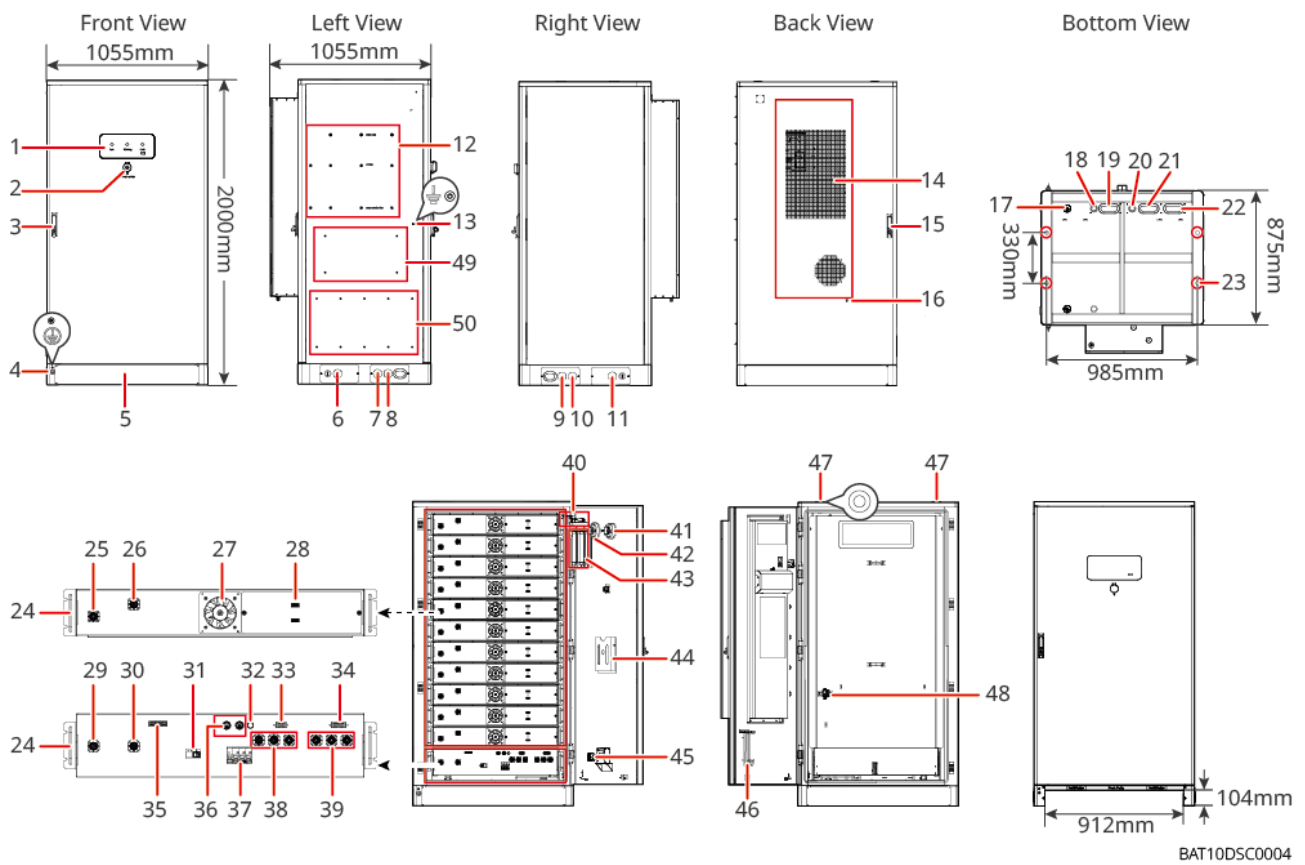
No.		Name	Description
Stack Installation	1	Adjustable feet	Adjustable height to keep the base level
	2	Base	The battery system is stacked on the base
	3	Floor mounting bracket	Used to secure the base to the floor to prevent tipping
	4	Stacking Bracket	Secured to the battery PACK for stacking batteries
Rack Mounting	1	Battery rack	Used for installing the battery system
	2	Wall Locking Bracket Mounting Hole	Used to secure the battery rack to the wall to prevent tipping
	3	Floor Locking Bracket Mounting Hole	Used to secure the battery rack to the floor to prevent tipping
5		Protection Grounding Point	Used to connect the ground wire
6		High-voltage Box Power Input/Output Port 1	Connects the power cable between the high-voltage box and the inverter
7		Battery Indicator Light	Used to indicate the battery system status
8		Dry contact	External fire protection system activation contact (under normal conditions, the dry contact remains normally open; when dry contact closure is detected, the battery system automatically powers off)
9		High-voltage Box Power Input/Output Port 2	Power cable connecting the high-voltage box and battery module

No.	Name	Description
10	External communication port	Communication with inverter / Terminal resistor placement / Battery system parallel cluster communication
11	High-voltage box communication port	Communication with battery modules
12	Battery system switch	Controls start/stop of the battery system
13	High-voltage box/battery pack mounting holes	Used to secure the high-voltage box/battery pack on the battery rack
14	Battery module communication port	Used for communication between adjacent battery packs and between battery packs and the high-voltage box
15	Battery module power input/output port	Power cable connecting adjacent battery packs
16	Wall-lock bracket mounting holes	Used to install wall-lock brackets. Only the first and last battery packs require wall-lock brackets.

2.2.3.3 BAT Series 92.1-112.6Kwh Commercial and Industrial Battery System

No.	Model	PACK Quantity	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 Indicator	-
2	EPO button	Pressing the EPO button will power down the battery system.
3	Front door lock	-
4	PE port 1	Connect the battery grounding cable
5	Bottom baffle	-
6	Left cable entry hole 1	Air conditioner power cable & ET100 power cable
7	Left cable entry hole 2	Inverter communication cable

No.	Name	Description
8	Left cable entry hole 3	Inverter power cable
9	Right cable entry hole 1	Battery cluster parallel power cable
10	Right-side cable entry hole 2	Battery parallel cluster communication cable
11	Right-side cable entry hole 3	Air conditioner power cable
12	Back mounting plate mounting hole	Inverter back mounting plate mounting hole positions
13	PE port 2	Connect inverter grounding cable
14	Air conditioner	Responsible for temperature control; the air conditioner refrigerant model is R134A
15	Rear door lock	-
16	Air conditioner drain pipe installation port	-
17	Explosion-proof valve	Responsible for explosion prevention, venting, and other functions. When abnormal pressure rises inside the battery system, the explosion-proof check valve vent is opened to quickly and directionally release internal gas, thereby preventing the battery system from exploding.
18	Communication cable inlet/outlet (bottom)	Communication cable inlet/outlet between battery and inverter
19	Power cable inlet/outlet (bottom)	Power cable inlet/outlet between battery and inverter
20	Battery communication cable inlet/outlet	Battery parallel cluster communication cable inlet/outlet

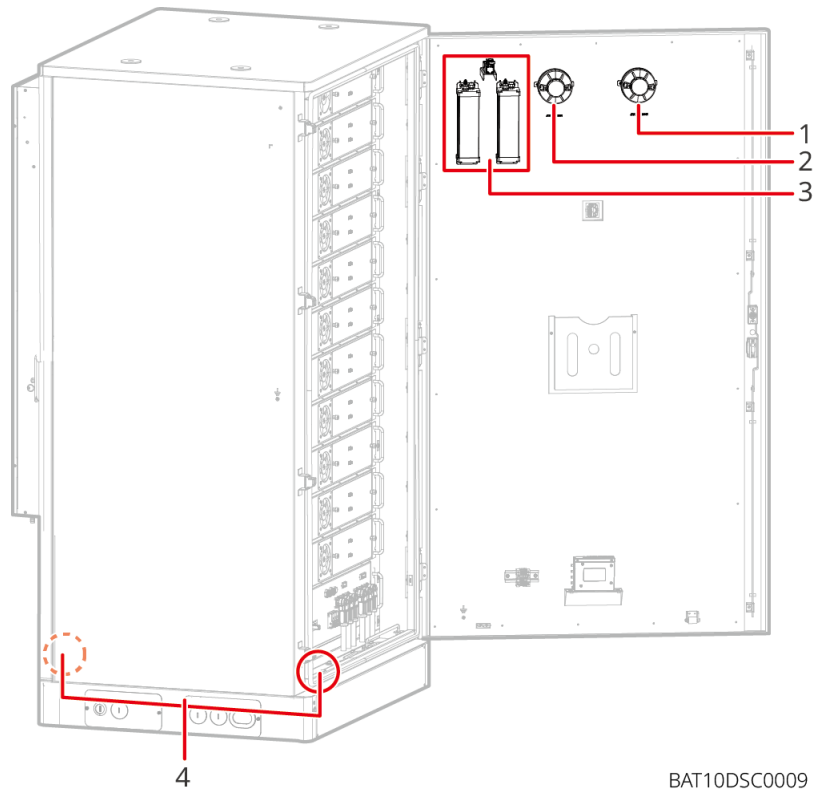
No.	Name	Description
21	Battery power cable inlet/outlet (positive)	Battery parallel cluster power cable inlet/outlet (positive)
22	Battery power cable inlet/outlet (negative)	Battery parallel cluster power cable inlet/outlet (negative)
23	Foundation fixing hole	This is used to fasten the battery system and foundation together
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, communication with the high-voltage box, and fan power supply
29	High-voltage box power input/output port negative terminal 1	Power cable connecting the high-voltage box and battery PACK
30	High-voltage box power input/output port positive terminal 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	Port 1 for communication with the battery PACK and battery PACK fan power supply

No.	Name	Description
34	Internal communication port 2	Communication port for air conditioning, access control identification, EPO, and fire protection signals
35	LAN communication port	Inter-battery LAN communication, used to transmit cell-level information (Only supported by machines shipped after October 2025)
36	External communication port 1	Communication with inverter / Terminal resistor placement / Battery system parallel cluster communication
37	Air circuit breaker	Controls the low-voltage power supply of the battery system
38	High-voltage box power input/output port positive terminal 2	Connects the power cable between the high-voltage box and the inverter
39	High-voltage box power input/output port negative terminal 2	Connects the power cable between the high-voltage box and the inverter
40	Access control switch	Automatically disconnects after the door is opened, ensuring the energy storage system is de-energized

No.	Name	Description
41	Heat detector	The heat detector monitors temperature through a dual thermistor network and outputs a voltage proportional to the external air temperature. One thermistor is exposed to ensure good thermal contact with the surrounding air, while the other thermistor is thermally insulated. When an abnormality is detected, it emits red light to alert operators. • Suitable for environments where dust or smoke is normally present • Wide Operating Voltage Range
42	Smoke detector	The smoke detector uses the principle of scattered light to detect smoke entering the inner chamber of the detector housing • Responds well to slow-burning and smoldering fires • Unaffected by wind or atmospheric pressure • Some models are equipped with a flashing LED and a magnetic test switch. • Alarm indicator: The red light-emitting diode (LED) emits red light.

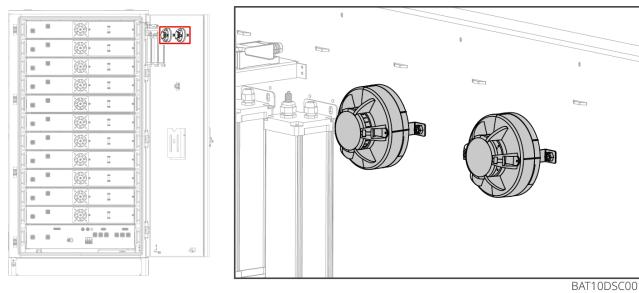
No.	Name	Description
43	Aerosol fire suppression device	Monitors fire signals inside the cabinet and carries out fire suppression. When a fire occurs, the aerosol fire suppression device ignites the heat-sensitive wire after receiving an electrical activation signal or open flame. The heat-sensitive wire of the electric igniter burns and activates the aerosol generator in the suppression device. The aerosol generator decomposes the chemical coolant through the heat released by a series of reactions, so that the aerosol generator and coolant combine to suppress the fire together.
44	Document shelf	-
45	Fire suppression actuation signal port	Dry contact signal interface, normally NC (normally closed state), connected to the audible and visual alarm cable. Allowable external voltage and current: • Voltage: 0-24 Vdc • Current: 0.3 A
46	Maintenance hook storage rack	When removing the Pack and PCU, the maintenance hook can be taken out from here for operation.
47	Lifting ring mounting hole	-
48	Air conditioner switch	Connect the air conditioner power cable to control the power supply to the air conditioner.

Fire Suppression System Description



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

■ Heat detector & smoke detector

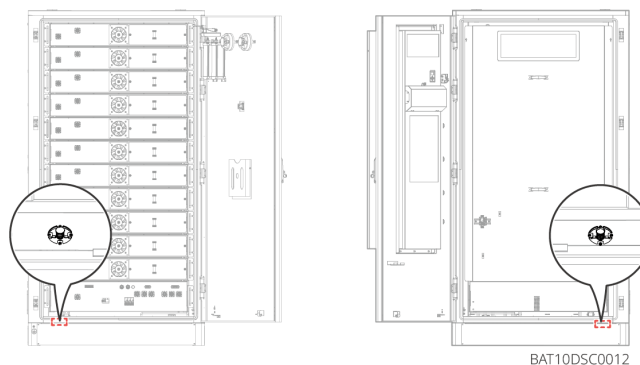


Temperature detection principle: The detector uses a negative temperature coefficient (NTC) thermistor as the sensor, and utilizes the thermistor's sensitivity to ambient temperature to acquire ambient temperature information. The internal circuit converts this information into a voltage signal and transmits it to the microcontroller; the microcontroller analyzes and processes the signal through a built-in intelligent algorithm, while determining whether it is currently in a fire alarm or fault state.

Smoke detection principle: The detector uses the infrared scattering principle to detect fire. In a smoke-free state, it receives only very weak infrared light. When smoke enters the optical smoke detection chamber, the received optical signal is enhanced due to scattering. When the smoke reaches a certain concentration, an alarm signal can be output.

Technical specifications	Heat detector	Smoke detector
Dimensions (mm)	102 × 55	
Installation Requirements	Screw mounting	
Indicator light (red)	Flashes during monitoring; steady on during alarm	
Operating temperature (°C)	-40~+85	
Relative Humidity	≤95%RH (non-condensing)	

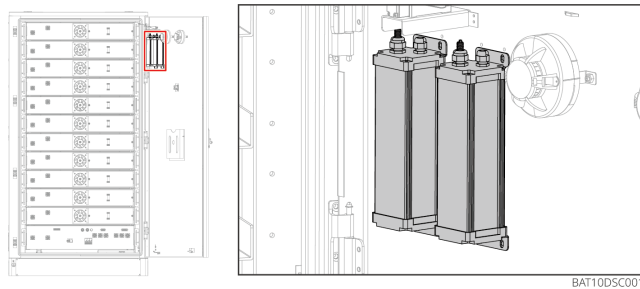
■ Explosion-proof valve



When the internal pressure of sealed products such as enclosures rises rapidly, the explosion-proof check valve exhaust port opens to quickly and directionally release the internal gas, thereby preventing sealed products such as battery enclosures from exploding.

Technical specifications	Explosion vent valve
Ingress Protection Rating	IP68
Opening Area	570 mm ²
Operating Temperature	-40°C ~ +130°C
Flame Retardant Performance	UL94-V0

■ Aerosol fire suppression device

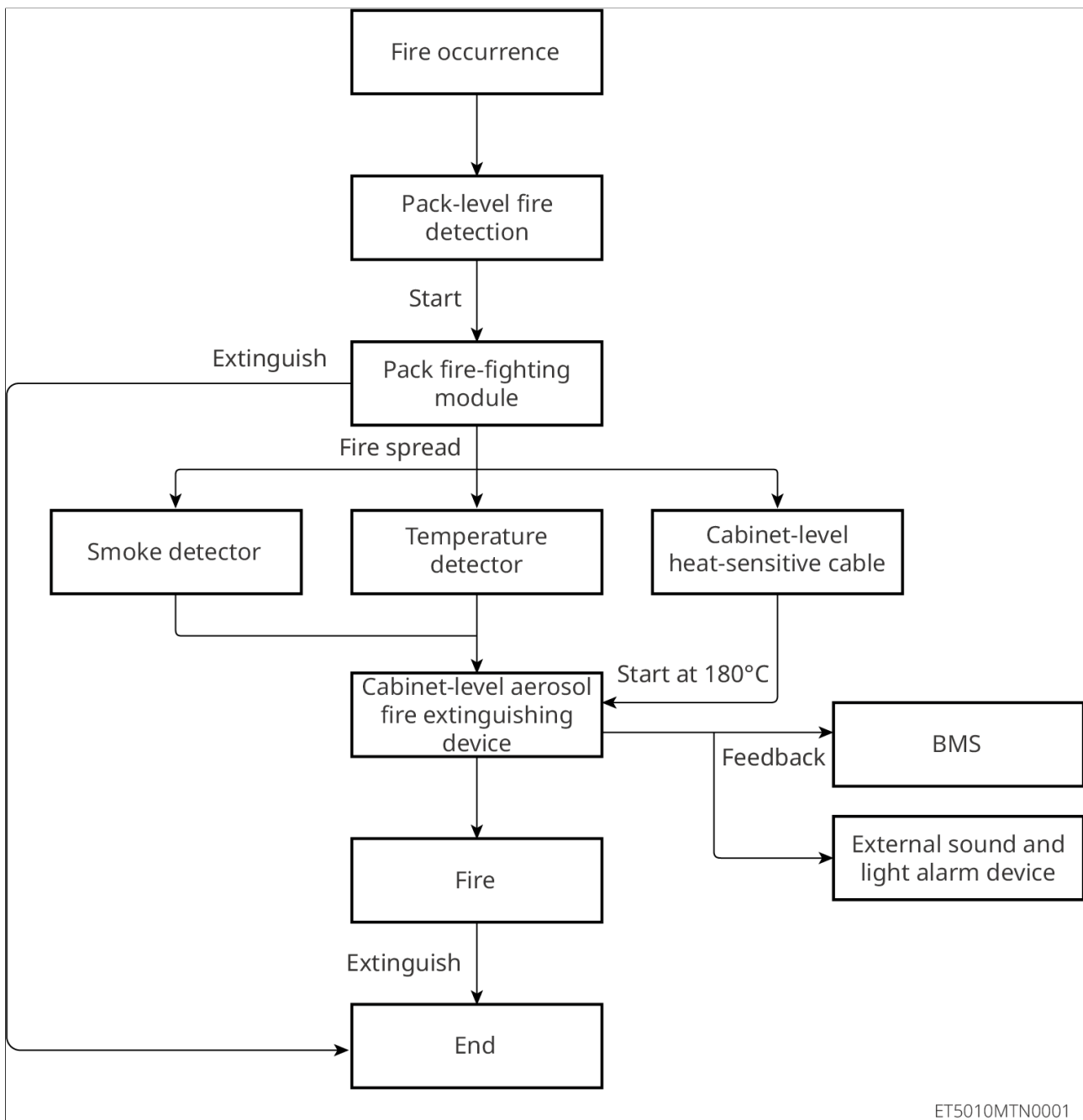


When a fire occurs, after the fire extinguishing device receives an electrical activation signal or an open flame ignites the heat-sensitive wire, the electric initiator or the burning heat-sensitive wire activates the aerosol-generating agent in the fire extinguishing device. The heat released by the aerosol-generating agent through a redox reaction decomposes the chemical coolant, enabling the aerosol-generating agent and the coolant to jointly participate in fire extinguishing.

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

Fire Protection Logic

The fire protection of this battery system adopts a hierarchical response design. When a fire occurs inside the battery Pack, the Pack-level detector detects it first and immediately activates the aerosol fire suppression device inside the Pack for initial firefighting. If the fire cannot be controlled and spreads further, cabinet-level fire protection will be triggered. When the smoke detector and temperature detector simultaneously detect a fire, or an open flame ignites the heat-sensitive wire (when the temperature reaches 180°C), the cabinet-level aerosol fire extinguishing device is automatically activated for comprehensive fire extinguishing. The aerosol-generating agent generates a fire extinguishing agent through a combustion reaction. The heat released during the reaction decomposes the chemical coolant, and the aerosol fire extinguishing agent and coolant act synergistically to extinguish the fire. At the same time, the BMS receives feedback signals from the fire protection system and triggers the external audible and visual alarm device until the fire is completely extinguished.



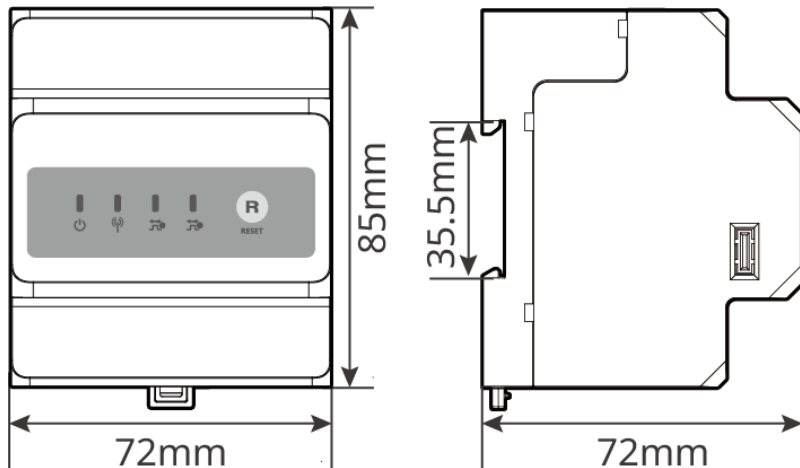
2.2.4 Smart Meter

The smart meter can measure grid voltage, current, power, frequency, energy, and other parameters, and transmit the information to the inverter to control the input and output power of the energy storage system.

GM330The meter is supplied with the inverter;CT can be purchased from the manufacturer or on your own,CT ratio requirement:nA/5A

- nA: CT primary-side input current,n has a range of 200-5000
- 5A: CT secondary-side output current

GM330

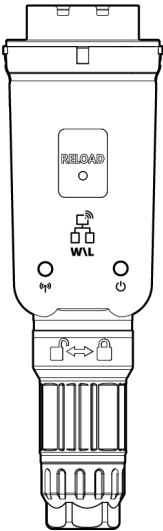
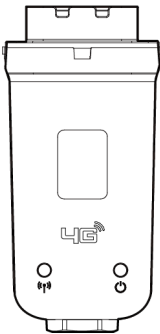
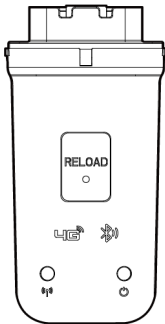


GMK10DSC0003

2.2.5 Smart Communication Dongle

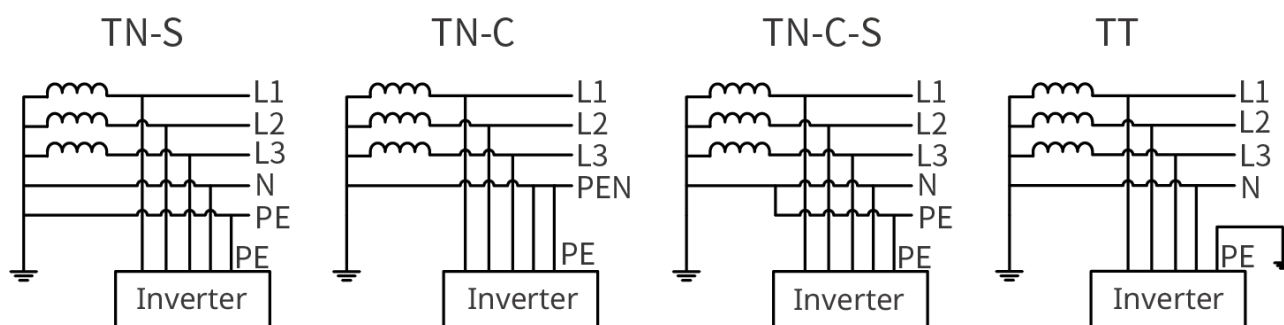
The communication module is mainly used to transmit various types of inverter power generation data in real time to the Xiaogu Cloud Window remote monitoring platform, and to connect to the communication module via the SolarGo APP for local device commissioning.

- The 4G Kit-CN can upload system operation information to the monitoring platform via a 4G signal. For local device commissioning, please use the WiFi/LAN Kit-20 shipped in the box.
- The 4G Kit-CN-G21 can upload system operation information to the monitoring platform via a 4G signal; locate the device via GNSS; and use Bluetooth signals for local device commissioning.
- The WiFi/LAN Kit-20 can upload system operation information to the monitoring platform via WiFi or LAN signals; and use Bluetooth signals for local device commissioning.

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	Inverter single-unit scenario and inverter parallel operation scenario using SEC3000C
2	4G Kit-CN	4G	Inverter single-unit scenario
3	4G Kit-CN-G21	4G, Bluetooth, GNSS	

2.3 Supported Grid Types

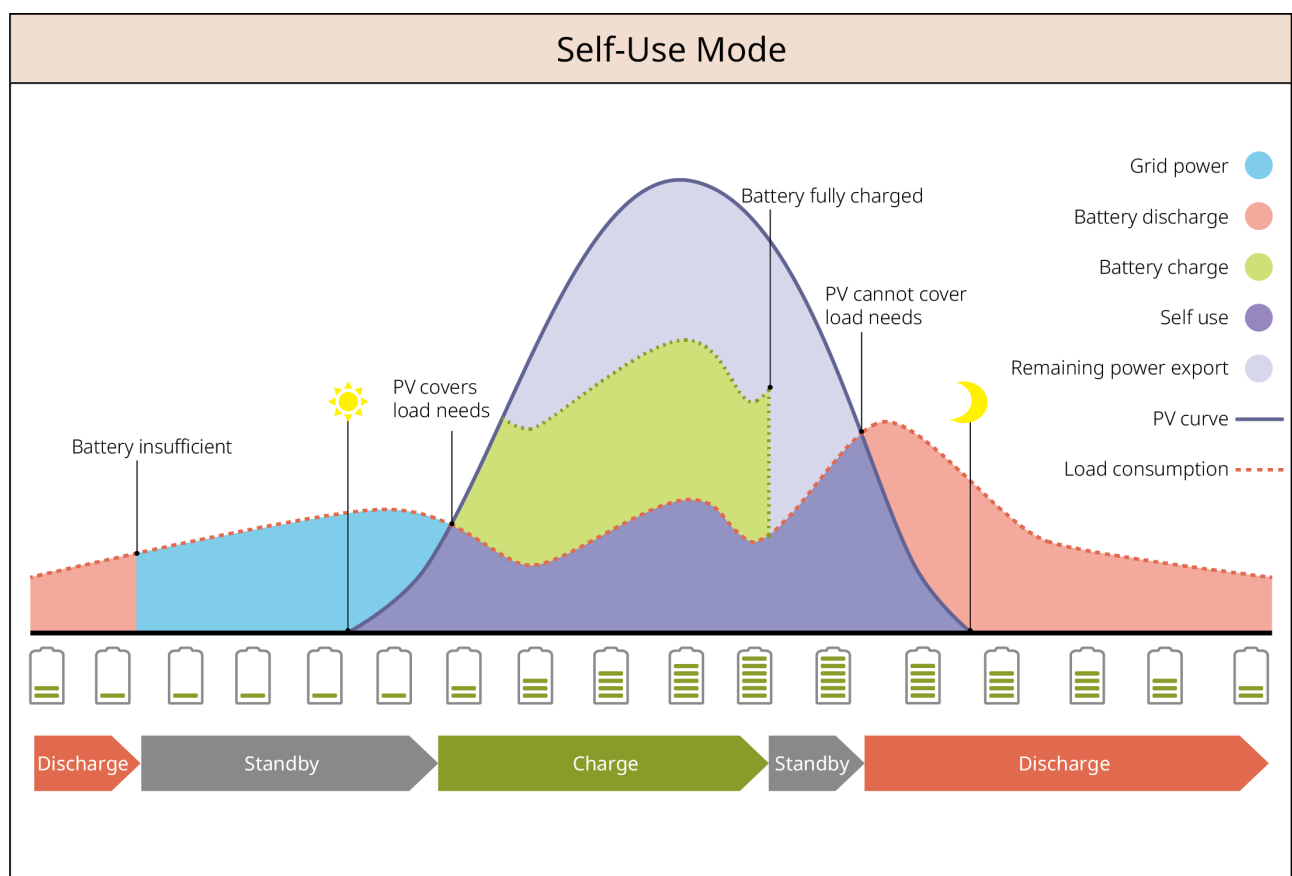


TNNET0003

2.4 System Mode

Self-consumption Mode

- Basic mode of system operation.
- PV power is preferentially used to supply the load; excess power charges the battery; any remaining power is sold to the grid. When PV generation does not meet the load demand, the battery supplies the load; when the battery energy also does not meet the load demand, the grid supplies the load.

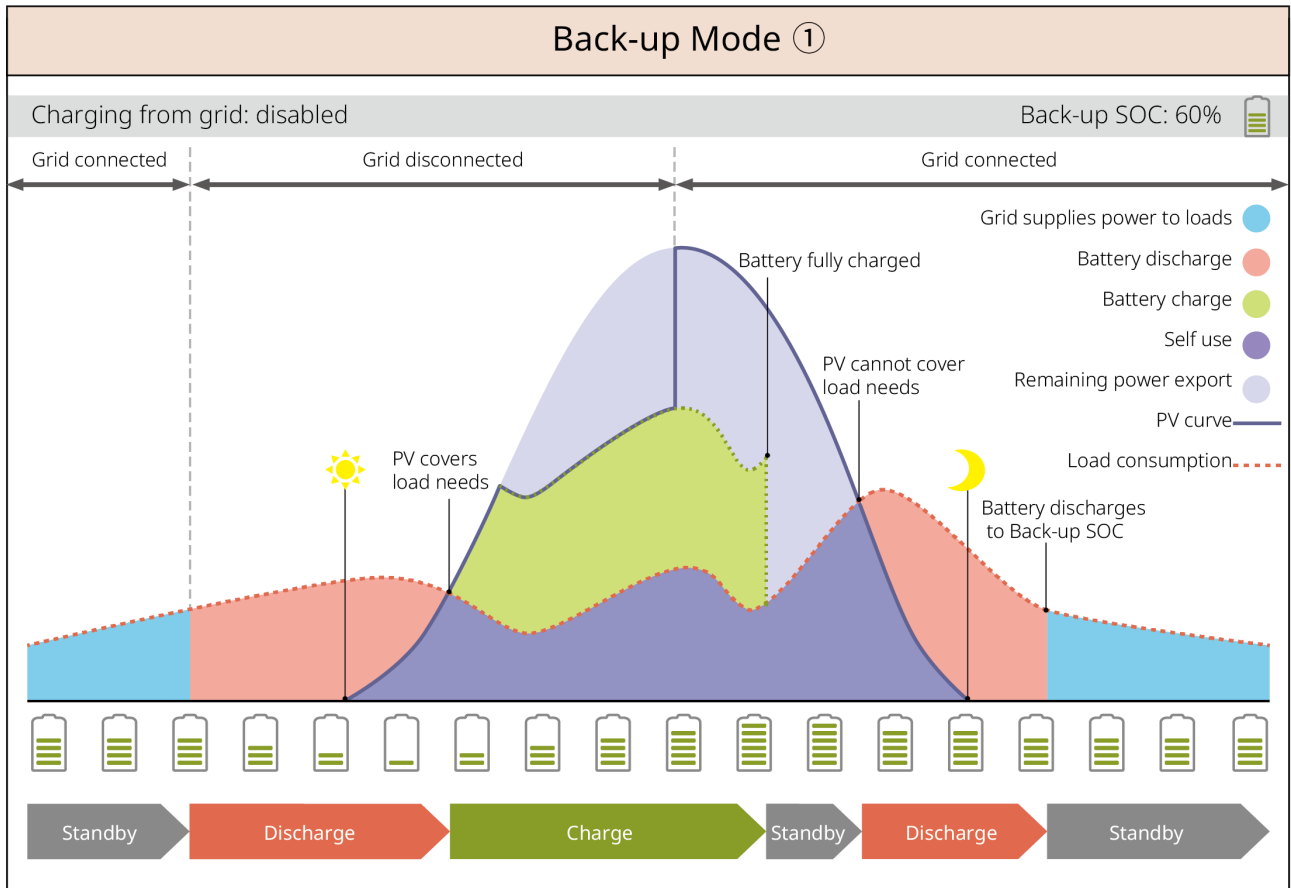


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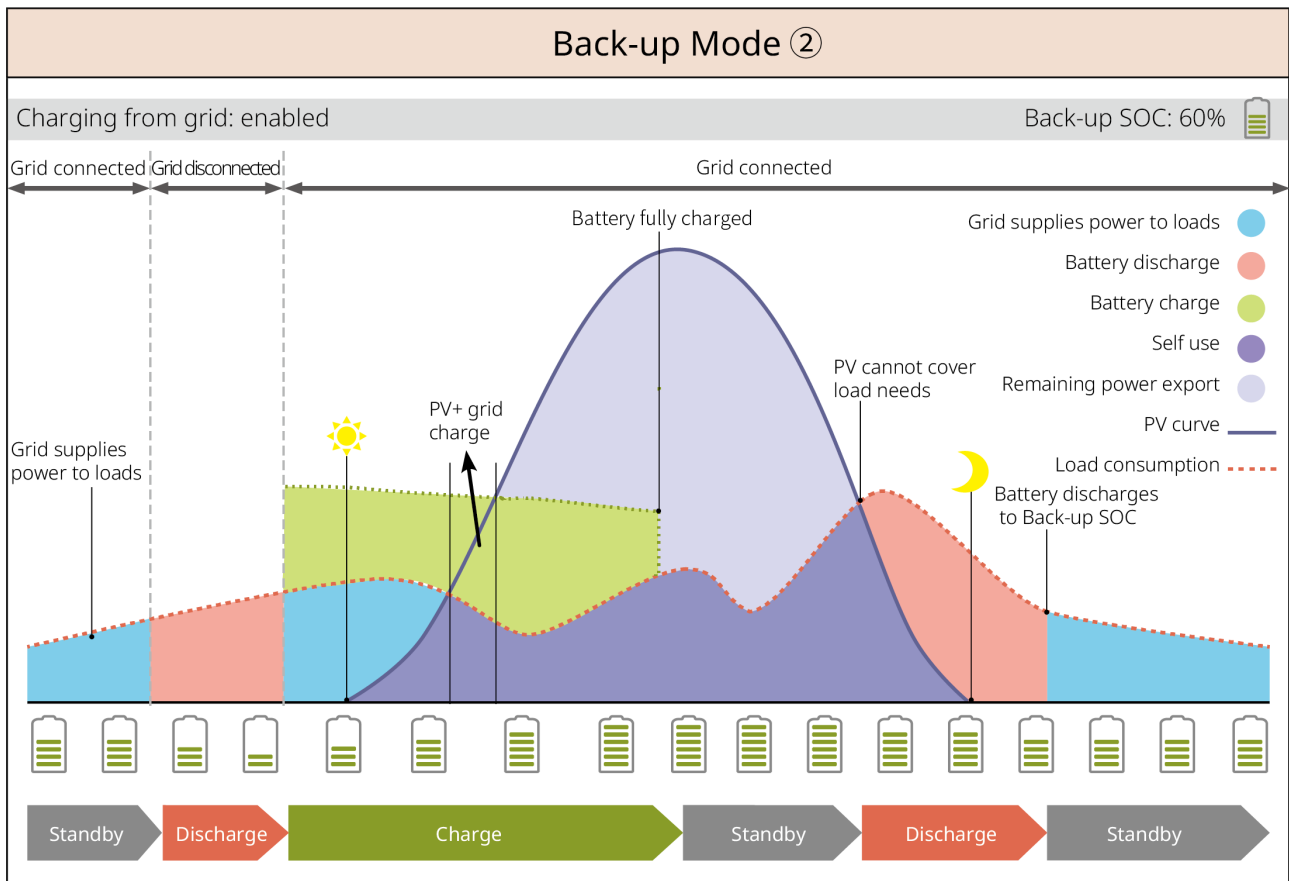
Backup Mode

- Recommended for areas with an unstable grid.
- When a Grid Power Outage occurs, the inverter switches to off-grid operating mode, and the battery discharges to supply power to loads to ensure the BACK-UP loads are not interrupted; when the grid recovers, the inverter switches its operating mode to grid-connected operation.
- To ensure the battery SOC is sufficient to maintain normal system operation in off-

grid mode, when the system is operating in grid-connected mode, the battery will be charged using PV or purchased grid electricity to the backup power SOC. If it is necessary to purchase electricity from the grid to charge the battery, ensure compliance with local grid laws and regulations.



SLG00NET0002

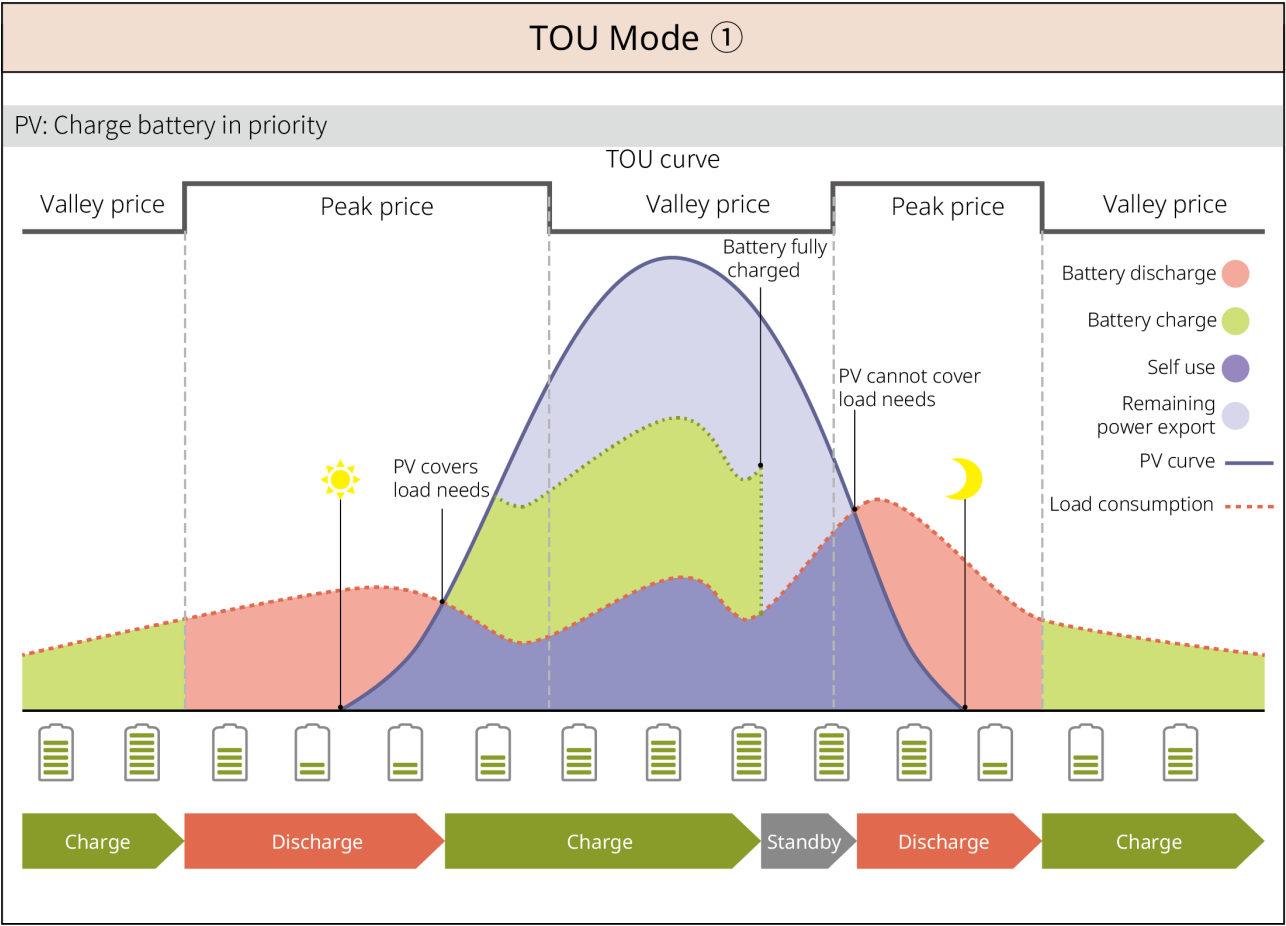


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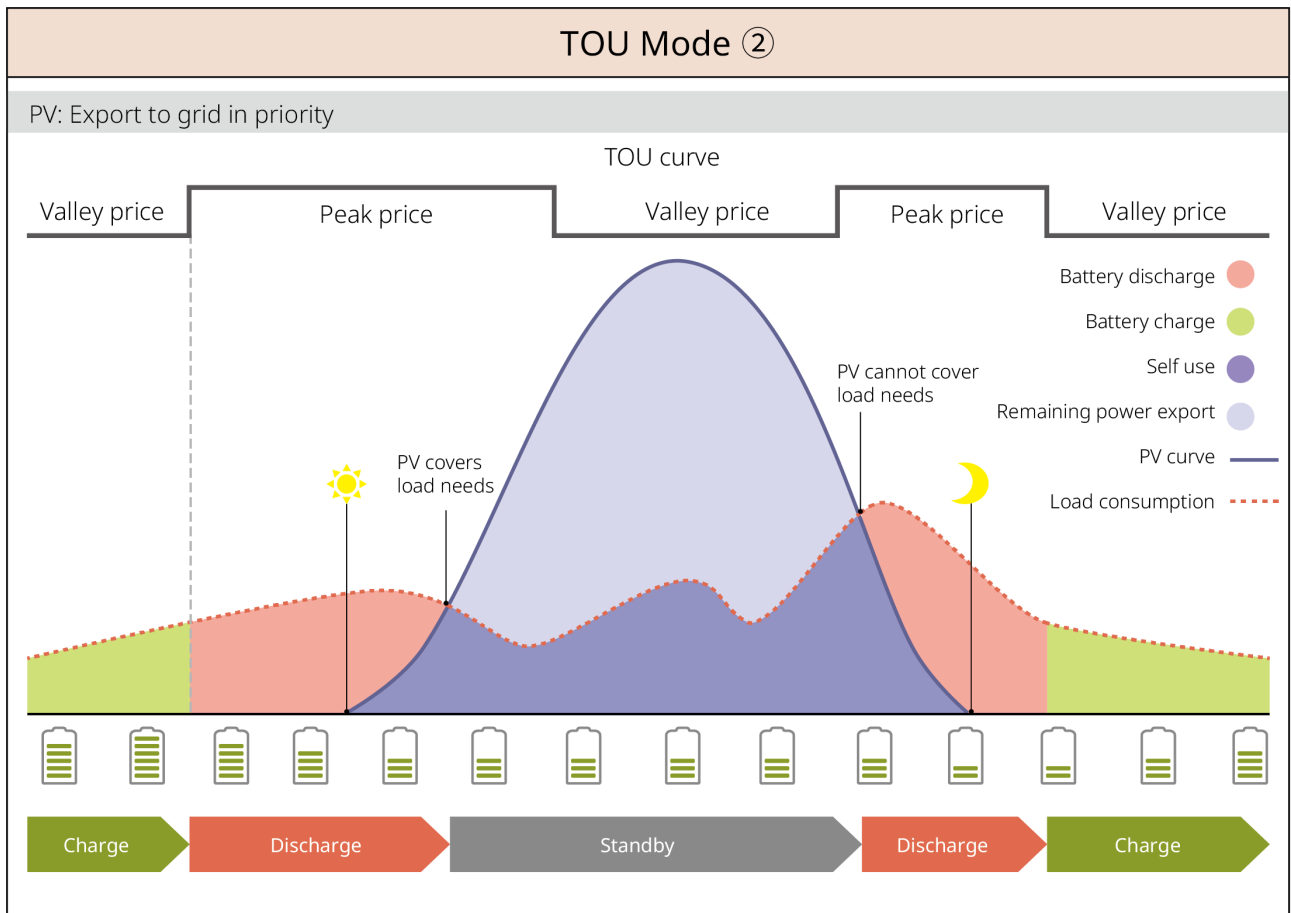
TOU Mode

In compliance with local laws and regulations, set different time periods for purchasing electricity and Export Energy according to grid peak-valley Tariff differences.

For example: during valley-Tariff periods, set the battery to charging mode to purchase electricity from the grid for charging; during peak-Tariff periods, set the battery to discharging mode to supply power to loads via the battery.



SLG00NET0004



SLG00NET0005

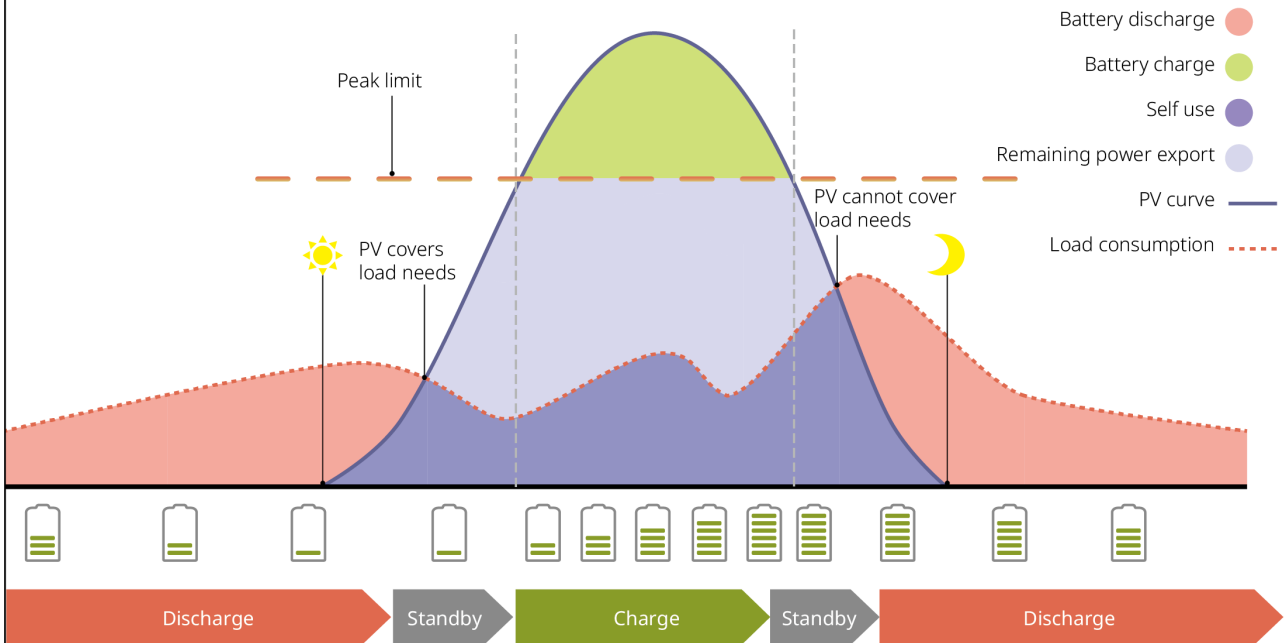
Intelligent Charging (Delayed Charging) Mode

- Applicable to regions with grid-connected power output limits.
- Setting a peak power limit enables PV generation exceeding the grid-connection limit to be used to charge the battery; alternatively, set a PV charging period, during which PV generation is used to charge the battery.

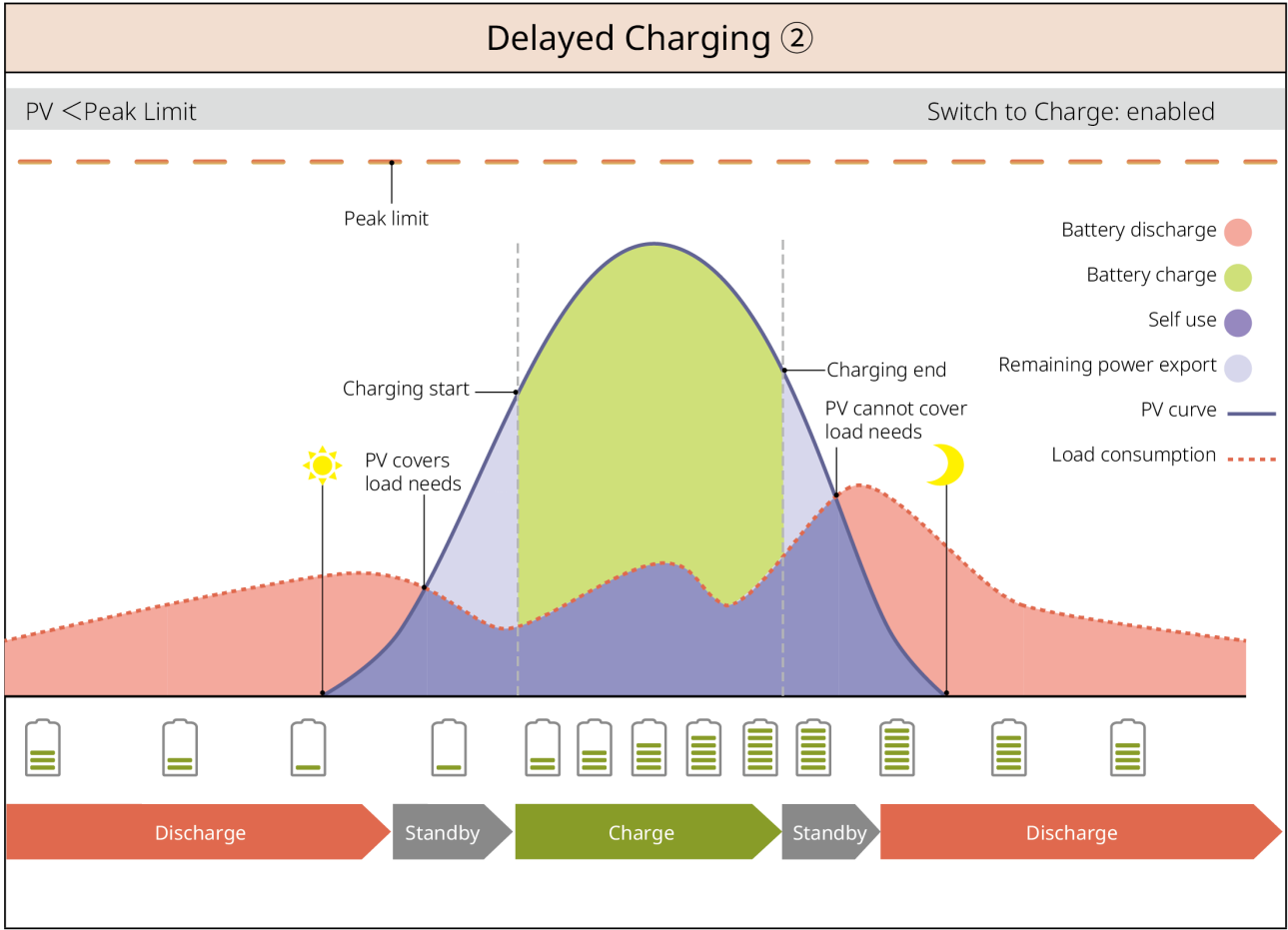
Delayed Charging ①

PV > Peak Limit

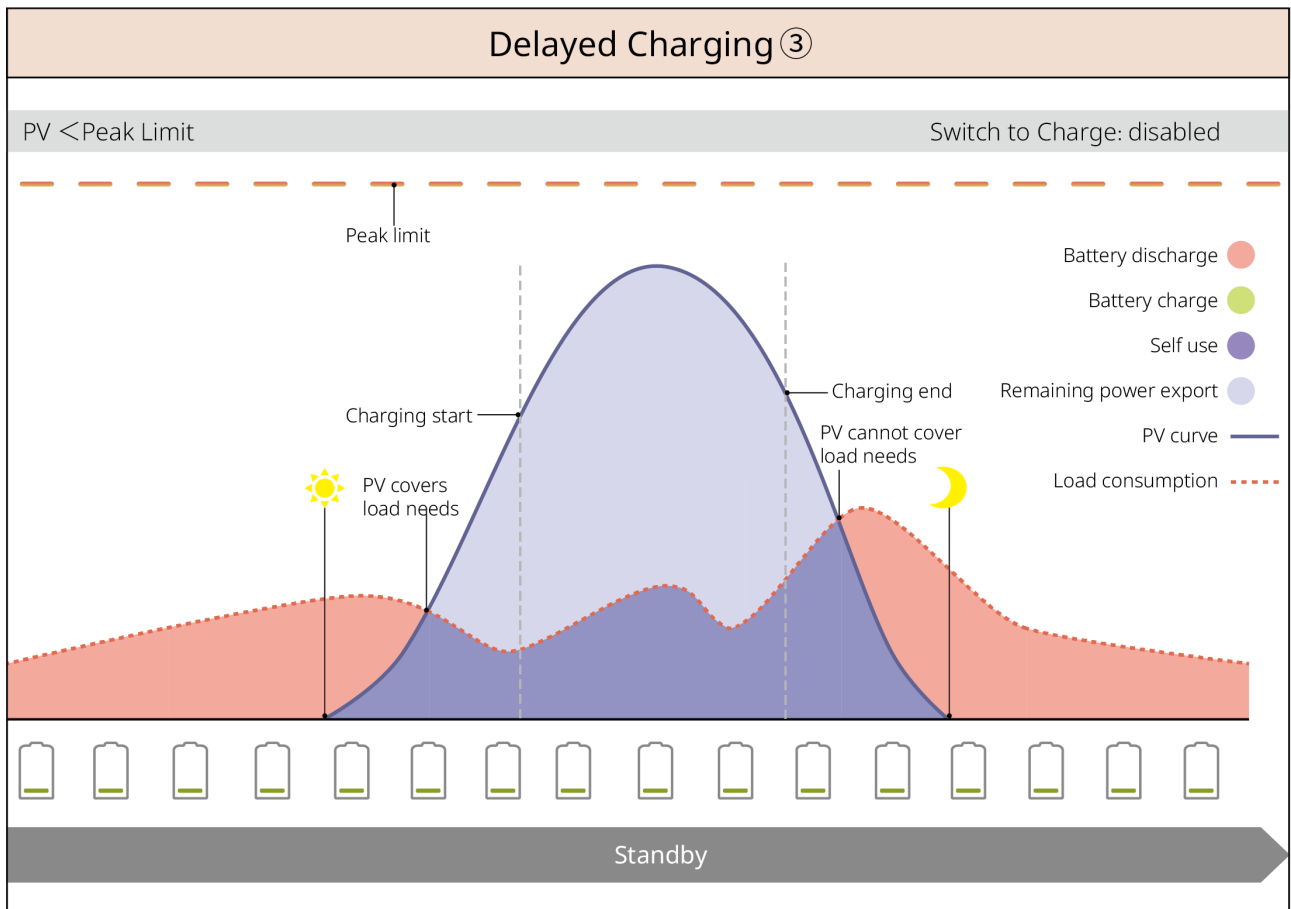
Switch to Charge: enabled/disabled



SLG00NET0006



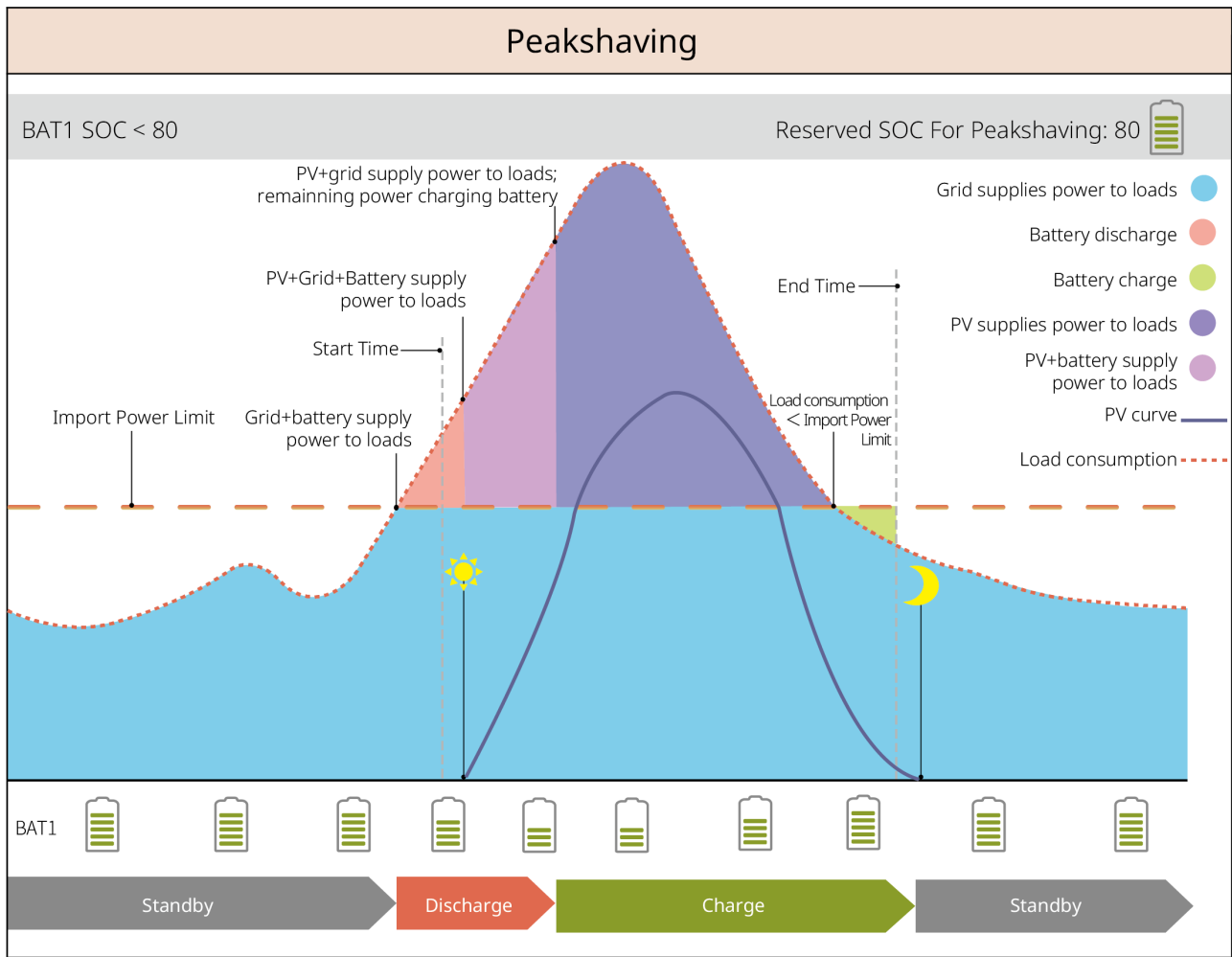
SLG00NET0007



SLG00NET0008

Demand Control Mode

- Mainly applicable to commercial and industrial scenarios.
- When the total load power exceeds the power quota in a short period, battery discharge can be used to reduce the portion of electricity consumption that exceeds the quota.
- When the battery SOC is below the reserved SOC for demand management, the system purchases electricity from the grid according to the time period, load power consumption, and peak power purchase limit.



SLG00NET0001

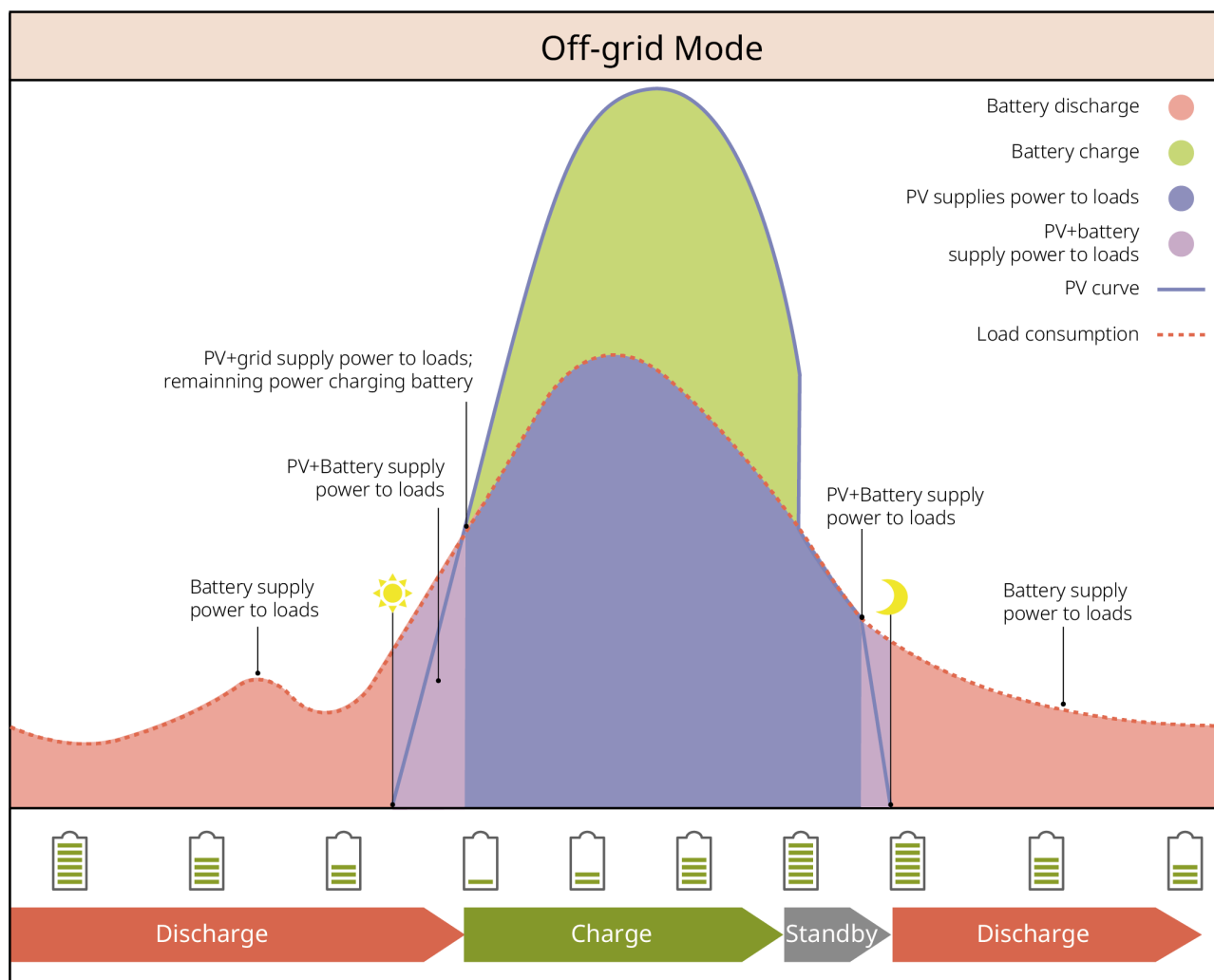
Off-Grid Mode

NOTICE

When the battery system is Not Connected, do not operate in pure off-grid mode.

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

- During the day, PV generation preferentially supplies the loads, and excess power charges the battery.
- At night, the battery discharges to supply power to loads to ensure the BACK-UP loads are not interrupted.



SLG00NET0012

2.5 Features

Three-phase unbalanced output

The inverter grid-connected end and BACK-UP end both support three-phase unbalanced output. Each phase can be connected to loads of different power. The maximum output power per phase for different models is shown in the following table:

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 Equipment Inspection and Storage

3.1 Equipment Inspection

Before signing for receipt of the product, please carefully inspect the following:

1. Check whether the outer packaging is damaged, such as deformation, holes, cracks, or other signs that may cause damage to the equipment in the packaging box. If there is any damage, do not open the packaging and contact your dealer.
2. Check the anti-tipping label on the outer packaging of the battery cabinet. If the circular indicator is white, it indicates no abnormality during transportation; if it is red, it indicates that tipping occurred during transportation. Do not open the packaging and contact your dealer.
3. Check whether 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 anti-tipping labels inside the front door and on the side walls: if the circular indicator is white, it indicates no abnormality during transportation; if it is red, it indicates that tipping occurred during transportation. Do not use this battery and contact the after-sales service center for inspection.

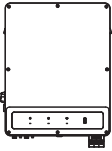
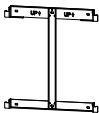
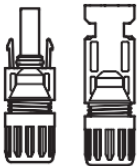
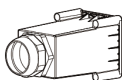
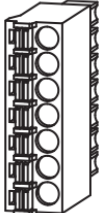
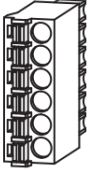
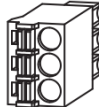
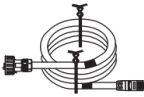
3.2 Delivered Items

WARNING

Check whether the types and quantities of the delivered items are correct and whether there is any external damage. If there is any damage, please contact your dealer.

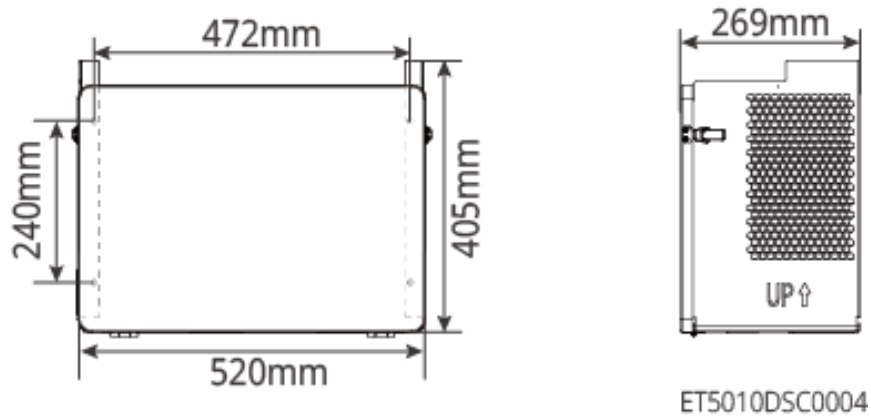
After the delivered items are removed from the packaging, do not place them on rough, uneven, or sharp surfaces to avoid paint peeling.

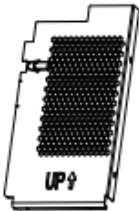
3.2.1 Inverter Delivery Items (ET 25-50Kw)

Component s	Description	Components	Description
	Inverter x 1		Backplate x 1
	Expansion screws x 6		M5 fastening screw x 2
	Protection grounding terminal x 1		Tubular terminals x 25
	PV Connector • GW25K-ET-10 x 6 • GW30K-ET-10 x 6 • GW40K-ET-10 x 6 • GW50K-ET-10 x 8	 or 	AC Terminal Protection Cover x 1
	Communication Module x 1		7PIN Communication Terminal x 1
	6PIN Communication Terminal x 1		3PIN Communication Terminal x 2
	2PIN Communication Terminal x 2		Battery Connector x 2
	Meter Communication Cable x 1		AC OT Terminal x 6

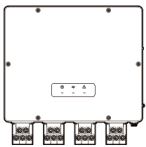
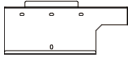
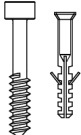
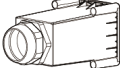
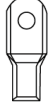
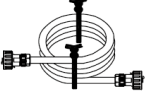
Component s	Description	Components	Description
	PV Wiring Tool x 1		Insulating Sleeve x 6
	Meter and Accessories x 1		Product documents x 1

Protection Cover Deliverables (Optional)



Components	Description	Components	Description
	Protection Cover Front Plate x 1		Protection Cover Bottom Plate x 1
	Protection Cover Right Side Plate x 1		Protection Cover Left Side Plate x 1
	M5 Screw x 10		Expansion screw x 4
	M5 Nut x 5		Cable Tie x 10

3.2.2 STS Deliverables

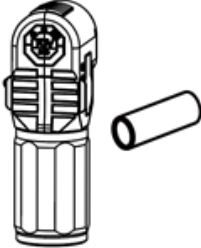
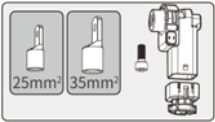
Component s	Description	Components	Description
	STS x 1		Backplate x 1
	Expansion screw x 4		M5 fastening screw x 2
	Protection grounding terminal x 1	 or 	AC line Protection cover x 4
	AC OT terminal x 22 The AC OT terminals shipped with the unit are suitable for use scenarios with a connection current of 90 A. If you need to adapt to a use scenario with a connection current of 200 A, please contact the supplier or after-sales service center to obtain terminals of the corresponding specifications.		Insulating sleeve x 22
	Inverter communication cable x 1 Standard: 10 m; length optional, maximum 100 m.		Product documents x 1

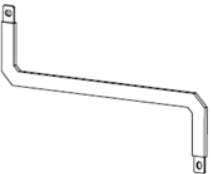
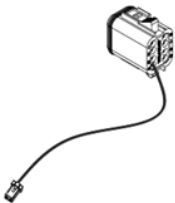
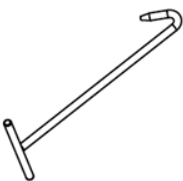
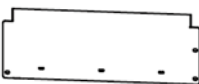
3.2.3 Lynx C Series 101-156Kwh High-Voltage Battery

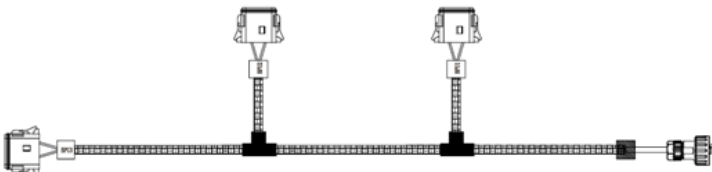
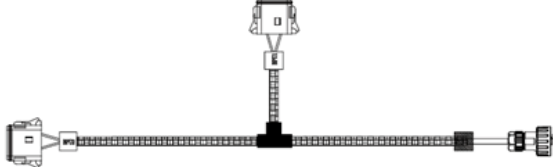
NOTICE

Other accessories except the battery cabinet shall be packed and placed in the battery cabinet.

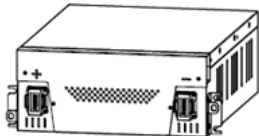
• Battery Cabinet and Accessories

Components	Description	Components	Description
	Battery cabinet x 1		AC connection terminal x 1
 or 	Reducer pipe x 2 & Power connector A x 2 or power connector B x 2		Cable tie x 20
	Battery power connection bar A x 1		Battery power connection bar B x 1

Components	Description	Components	Description
	Battery power connection barC • LX C101-10 x 9 • LX C120-10 x 11 • LX C138-10 x 13 • LX C156-10 x 15		Battery power connection barD x 1
	Communication cable between main control box and battery x 1		Battery internal 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

Components	Description	Components	Description
	Protection grounding terminal x 2		ET 25-50series inverter communication cable x 1
	ETC/BTCseries inverter communication cable x 1		Product documentation x 1
			Communication cable for paralleling three battery clusters x 1(purchased separately)
			Communication cable for paralleling two battery clusters x 1(purchased separately)

• Battery Module Pack

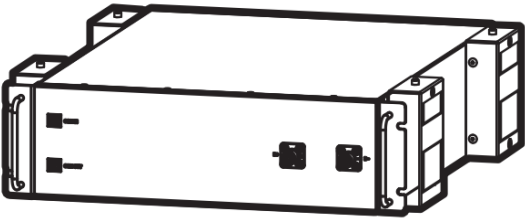
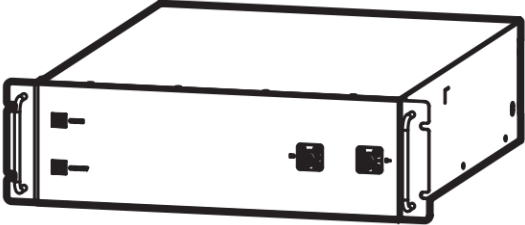
Components	Description
	Battery Module • LX C101-10 x 11 • LX C120-10 x 13 • LX C138-10 x 15 • LX C156-10 x 17

3.2.4 BAT Series 25.6-56.3Kwh High-Voltage Battery

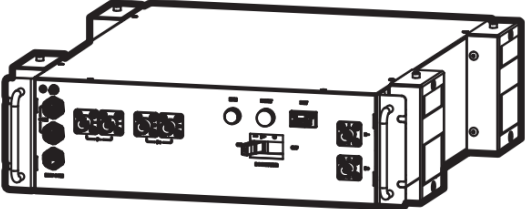
NOTICE

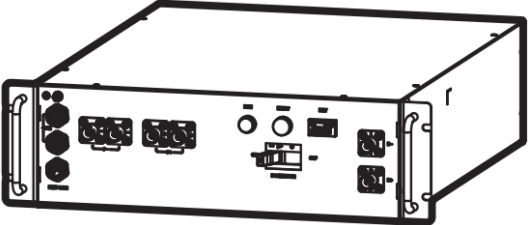
The configurations and installation solutions supported vary by region. Please contact sales for details.

Battery Pack

Components	Description
Stack Installation 	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
Rack Mounting 	

PCU

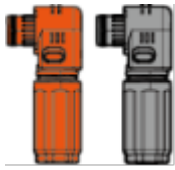
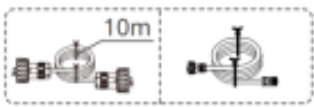
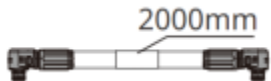
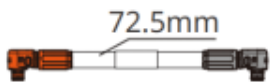
Components	Description
Stack Installation 	PCU × 1

Components	Description
Rack Mounting 	

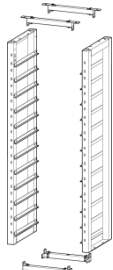
Accessories

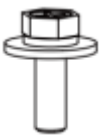
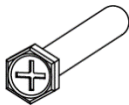
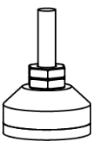
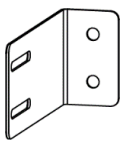
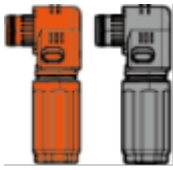
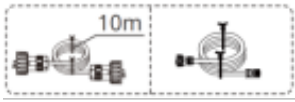
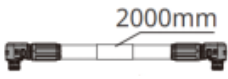
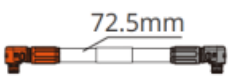
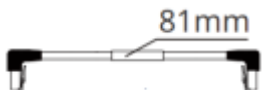
• Stack Installation

Components	Description	Components	Description
	Floor mounting bracket×4		Wall mounting bracket×4
	Equipotential bonding plate×15		M5 screw×N
	Grommet×1		Expansion bolt×8
	Adjustable feet×4		Base×1

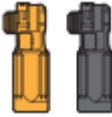
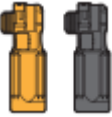
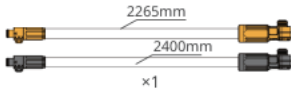
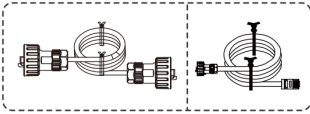
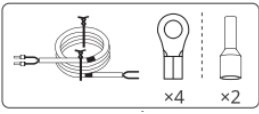
Components	Description	Components	Description
	Power connector×2		Battery-to-inverter communication cable×1
	B- power cable×1		B+ power cable×1
	Battery internal power cable ×N		Battery internal communication cable ×N
	Protection grounding terminal ×2		M12 expansion bolt ×4
	Nameplate×1		Cable tie×10
	Reducer pipe×4 (only included with machines shipped after April 3, 2026)		Product documentation×1

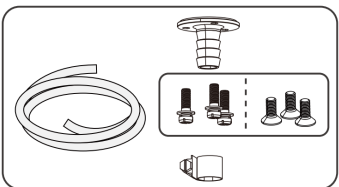
• Rack Mounting

Components	Description	Components	Description
	Battery rack ×1		Rubber pad×4

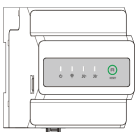
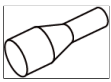
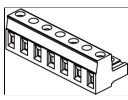
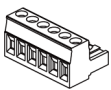
Components	Description	Components	Description
	M5 screw×N		ST6.3screw×4
	Adjustable feet×4		Wall mounting bracket×2
	Power connector×2		Battery-to-inverter communication cable×1
	B- power cable×1		B+ power cable×1
	Battery internal power cable×N		Battery internal communication cable×N
	Protection grounding terminal×2		M12 expansion bolt×4
	Nameplate×1		Cable tie×10
	Reducer pipe×1		Product documentation×1

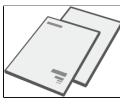
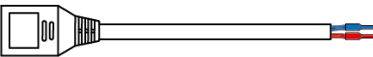
3.2.5 BAT Series 92.1-112.6Kwh Commercial and Industrial Battery System

Components	Description	Components	Description
	Battery cabinet x 1		Expansion screw x 4
	Grounding M5 screw x 3		Grounding terminal x 3
	Inverter battery connection terminal 25mm² x 2		Inter-battery connection terminal 50mm² x 2
	Pack-to-Pack series harness • GW92.1-BAT-AC-G10: x 8 • GW102.4-BAT-AC-G10: x 9 • GW112.6-BAT-AC-G10: x 10		Pack negative to high-voltage box negative harness x 1
	Inverter battery connection (positive) x 1 Inverter battery connection (negative) x 1		Adapter mounting bracket x 2 (Only required for ET100)
	Battery and inverter communication network cable x 1		Air conditioner power supply harness kit x 1

Components	Description	Components	Description
	Firestop putty x 8		Cable tie x 20
	Air conditioner water pipe kit x 1		Lifting ring x 4
	Corrugated conduit connector x 6		25mm ² to 10mm ² round tube terminal x 4
	Product Documentation x 1		

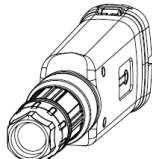
3.2.6 GM330

Components	Description	Components	Description
	Smart meter x1		2PIN communication terminal x1
	Tubular terminal x 6		7PIN communication terminal x1
	6PIN communication terminal x1		RS485 communication terminal x 1

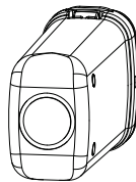
Components	Description	Components	Description
	Screwdriver x1		Product documentation x 1
	2P terminal to RJ45 terminal adapter cable x 1	-	-

3.2.7 Communication Module Deliverables

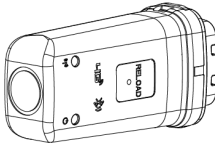
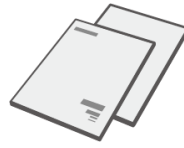
WiFi/LAN Kit-20

Components	Description	Components	Description
	Communication module x1		Product documentation x 1

4G Kit-CN

Components	Description	Components	Description
	4G communication module x1	-	-

4G Kit-CN-G21

Components	Description	Components	Description
	4G communication module x1		Product documentation x1

3.3 Device Storage

If the equipment is not put into use immediately, store it according to the following requirements. After long-term storage, the equipment can only be used again after inspection and confirmation by professional personnel.

1. If the inverter has been stored for more than two years or has not been in operation for more than 6 months after installation, it is recommended to have it inspected and tested by professionals before putting it into use.
2. To ensure good electrical performance of the internal electronic components of the inverter, it is recommended to energize it once every 6 months during storage. If it has not been energized for more than 6 months, it is recommended to have it inspected and tested by professionals before putting it into service.
3. To ensure battery performance and service life, avoid long-term idle storage. Prolonged storage may cause deep discharge of the battery, resulting in irreversible chemical loss, capacity degradation, or even complete failure; timely use is recommended. If the battery needs to be stored for a long time, perform maintenance according to the following requirements:

Battery	Battery storage initial SOC range	Recommended Storage Temperature	Charge/discharge maintenance cycle[1]	Battery maintenance method[2]
Lynx C Series 101-156Kwh High-Voltage Battery	30%~50%	0~35°C	-20°C ≤ T < 0°C (≤1month) 0°C ≤ T ≤ 35°C (≤6month) 35°C < T ≤ 45°C (≤1month)	Please consult your dealer or after-sales service center for maintenance methods.
BAT Series 25.6-56.3kWh High-voltage battery	30%~40%	0~35°C	-20~35°C (≤12month) 35~+45°C (≤6month)	

Battery	Battery storage initial SOC range	Recommended Storage Temperature	Charge/discharge maintenance cycle[1]	Battery maintenance method[2]
BAT Series 92.1-112.6kWh Commercial and Industrial Battery System				

NOTICE

[1] The storage time starts from the SN date on the battery outer packaging. After exceeding the storage period, charge/discharge maintenance is required. (Battery maintenance time = SN date + charge/discharge maintenance period). For the method to check the SN date, refer to: [SN Code Meaning](#).

[2] After charge/discharge maintenance is qualified, if a Maintaining Label is affixed to the outer box, update the maintenance information on the Maintaining Label. If there is no Maintaining Label, record the maintenance time and battery SOC yourself and keep the data properly to facilitate maintenance record retention.

Packaging Requirements:

Ensure that the outer packaging box is not removed and the desiccant inside the box is not lost.

Environmental Requirements:

1. Ensure the equipment is stored in a cool place and away from direct sunlight.
2. Ensure the storage environment is clean, with appropriate temperature and humidity ranges and no condensation. If there is condensation at the equipment ports, do not install the equipment.
3. Ensure the equipment is kept away from flammable, explosive, corrosive, and other such items during storage.

Stacking Requirements:

1. Ensure that the equipment is stacked in accordance with the height and direction

indicated on the packaging box label.

2. Ensure that there is no risk of tipping after the equipment is stacked.

4 Installation



When installing the equipment and making electrical connections, use the delivered components shipped with the equipment; otherwise, equipment damage caused will not be covered by the warranty.

4.1 System Installation and Commissioning Process

Steps	1 Installation	2 PE	3 PV	4 Battery	5 AC	6 COM	7 Communication module
Inverter							
Tools	1 D: 80mm ø: 8mm 2 M5 1.2-2N-m	M5 1.5-2N-m	Recommend: PV-CZM-61100	Recommend: YQK-70	1 M8 6-8N-m 2 M4 1.2N-m	1 M8 8-10N-m 2 M4 0.8N-m M4 1.5N-m	4G Kit-CN LS4G Kit-CN 4G Kit-CN-G21

Steps	1 Installation	2 PE	3 Battery	4 COM	5 Air-conditioner wiring
Battery					
Tools	1 D: 80mm ø: 14mm 2 M12 50N-m	M6 4.5-6N-m	M5 4N-m M8 10N-m	M8 10-12N-m	M4 1.2N-m

Steps	1 Installation	2 PE	3 Battery	4 COM
Battery				
Tools	1 3 M5 4N-m 2A D: 80mm ø: 14mm 2B M5 4N-m ST6.3 10-11N-m	M5 4N-m	1 M5 4N-m 2 D: 60mm ø: 8mm 3 M6 6N-m	M5 4N-m

ETS010R10001

Steps	1 Installation	2 PE	3 AC	4 CT	5 COM	6 ETH	7 4G	8 DO/DI/AI/PT
Controller SEC3000C								
Tools	A: D: 70mm ø: 15mm B: M12 42N·m C: M10 24N·m	M5 1.5-2N·m	M7 2-2.5N·m	0.5N·m				M2 0.5N·m

Steps	1 Installation	2 PE	3 AC	4 COM	Steps	1 Installation	2 Cable Connections	3 Power	4 Commissioning
STS					Smart meter GM330				
Tools	1: D: 80mm ø: 8mm 2: M5 1.2-2N·m	M5 1.5-2N·m	1: M8 6-8N·m 2: M4 1.2N·m	1: M8 8-10N·m 2: M4 0.8N·m			1.2-2N·m	AC breaker	

ETS010NT006

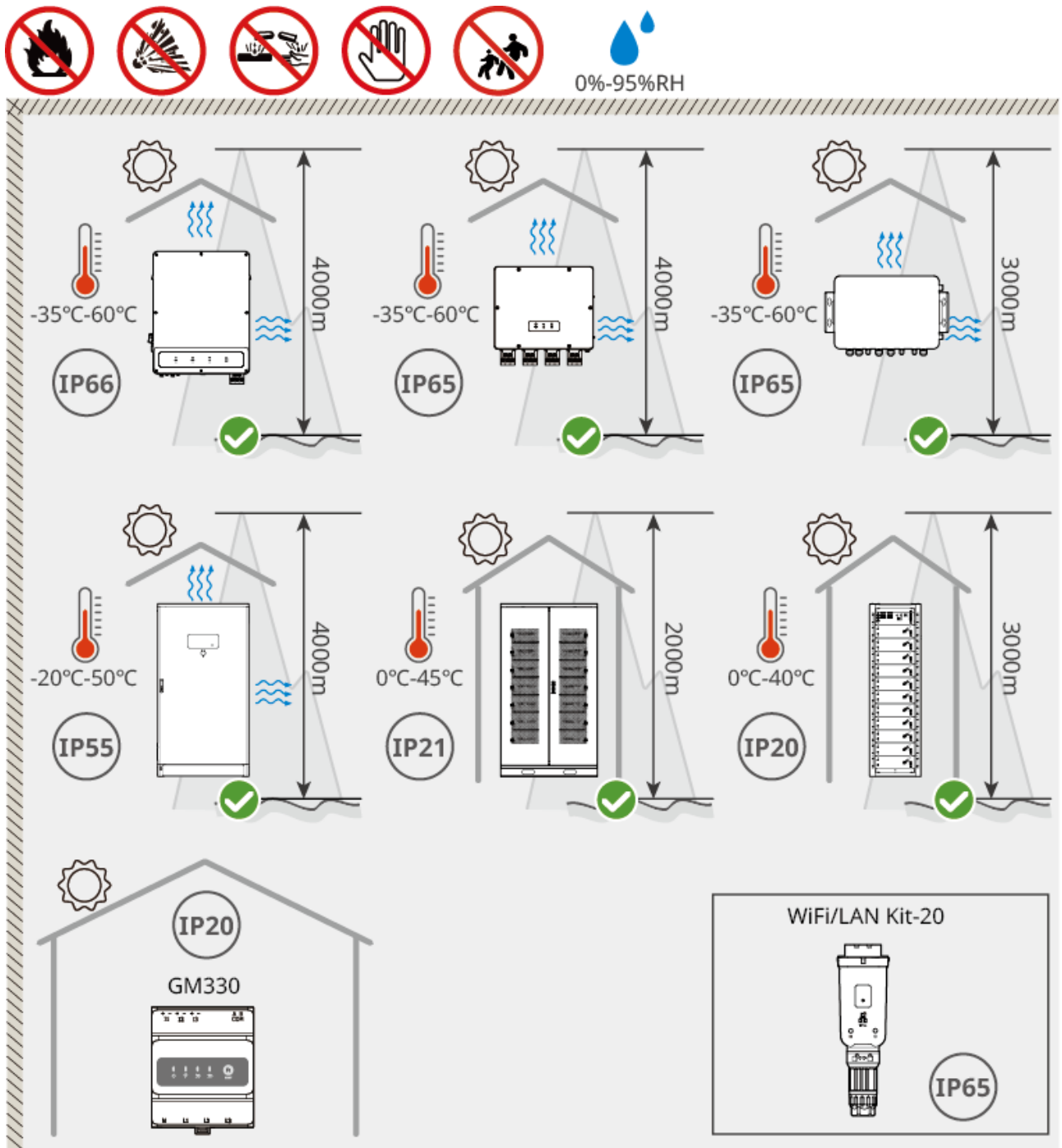
4.2 Installation Requirements

4.2.1 Installation Environment Requirements

1. The installation site must strictly comply with local laws and regulations and relevant industry standards. Do not install in flammable, explosive, corrosive, or other such environments. It should be installed near a fire hydrant.
2. The temperature and humidity of the device installation environment must be within the appropriate range.
3. The installation location must be out of the reach of children and avoid locations that are easily touched.
4. During operation, the enclosure temperature of the inverter may exceed 60°C. Do not touch the enclosure before it cools down to prevent burns.
5. The equipment must avoid installation environments such as direct sunlight, rain, and snow accumulation. It is recommended to install it in a sheltered location; if necessary, a sunshade can be set up.
6. Adverse environmental conditions such as direct sunlight and high temperatures may cause derating of the inverter output power.
7. The installation space must meet the device ventilation and heat dissipation requirements and operation space requirements.
8. The equipment installation site should avoid areas directly exposed to cold air, such as air conditioner outlets. Excessive local temperature differences may cause condensation inside the equipment, thereby damaging the equipment.
9. The installation environment must meet the equipment's Ingress Protection Rating.
 - The inverter, smart communication stick, and smart energy control box support

- indoor and outdoor installation;
 - The meter is suitable for indoor installation;
 - BATSeries 92.1-112.6Kwh commercial and industrial battery system supports indoor and outdoor installation;
 - Lynx C Series 101-156Kwh high-voltage battery andBATSeries 25.6-56.3Kwh high-voltage battery support indoor installation and require adequate ventilation.
10. The equipment must be installed at a height convenient for operation and maintenance, ensuring that the equipment indicators and all labels are easy to view, and the wiring terminals are easy to operate.
 11. The equipment installation altitude must be lower than the Max. Operating Altitude.
 12. The battery system must be installed on a flat, dry ground. It must not be recessed or tilted. Installation on ground prone to water accumulation or subsidence is strictly prohibited. Ensure that the ground can bear the Weight of the battery system.
 13. Before installing the equipment outdoors in salt-damage areas, consult the equipment manufacturer. Salt-damage areas mainly refer to areas within 500 m of the coast. The affected area is related to sea breeze, precipitation, terrain, and other conditions.
 14. Keep away from strong magnetic fields to avoid electromagnetic interference. If there is a radio station or wireless communication equipment operating below 30 MHz near the installation location, install the equipment according to the following requirements:
 - Inverter: Add a multi-turn ferrite core on the inverter's DC input line or AC output line, or add a low-pass EMI filter; or ensure the distance between the inverter and wireless electromagnetic interference equipment exceeds 30 m.
 - Other equipment: The distance between the equipment and wireless electromagnetic interference equipment must exceed 30 m.
 15. Ensure that carbon dioxide, Novec 1230, or FM-200 fire extinguishers are available near the equipment. When extinguishing a fire, use fire extinguishers with the recommended materials; do not use water or ABC dry powder fire extinguishers. Firefighters must wear protective clothing and self-contained breathing apparatus.
 16. The DC cable and communication cable between the battery and the inverter must be less than 3 m in length. Ensure that the installation distance between the inverter and the battery meets the cable length requirements.
 17. The equipment emits Noise Emission during operation. The installation location should be far away from areas highly sensitive to Noise Emission, such as residential areas, schools, hospitals, etc., to prevent the Noise Emission generated during equipment operation from disturbing people living in the nearby

environment.



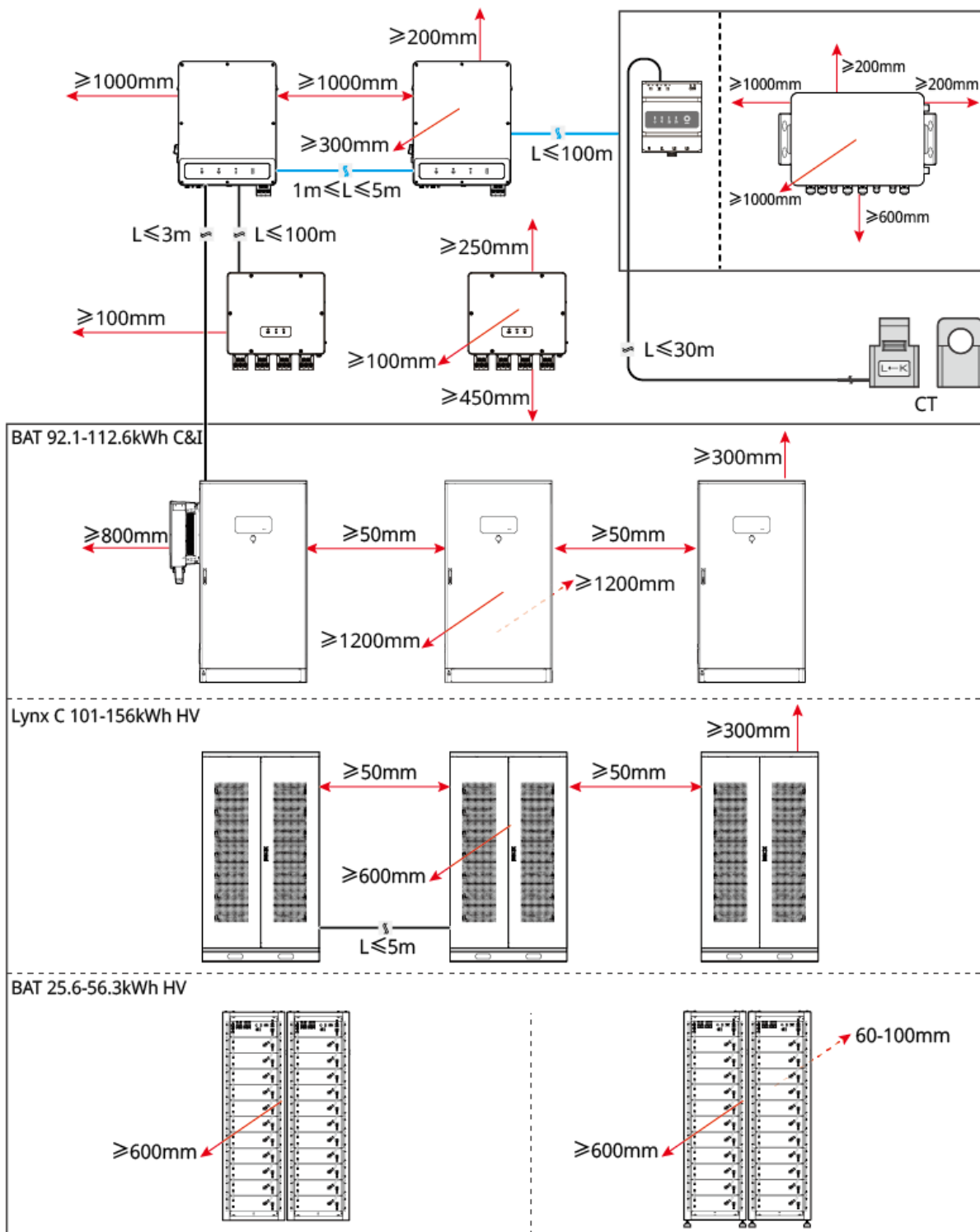
ET5010INT0002

4.2.2 Installation Space Requirements

NOTICE

The specific installation space dimensions for the battery can be adjusted based on the actual installation scenario and local regulations.

When installing devices in the system, reserve a certain amount of space around the devices to ensure sufficient space for installation and heat dissipation.



ET5010INT0003

4.2.3 Foundation Installation Requirements

NOTICE

- The BAT series 92.1-112.6kWh commercial and industrial battery system and the BAT-C series 208.9-261.2kWh commercial and industrial battery system require construction of a foundation.
- The conduit can be replaced on site with an appropriately sized PVC pipe.

1. Foundation material requirements:

- The foundation for the BAT series 92.1-112.6kWh commercial and industrial battery system must be a C25 plain concrete hardened surface or other non-combustible surface.
- The foundation for the BAT-C series 208.9-261.2kWh commercial and industrial battery system must be a C35 plain concrete hardened surface or other non-combustible surface.

2. The foundation must reserve a trench or cable outlet hole to facilitate equipment wiring.

3. Equipment (including height, embedded parts for expansion screws, conduits, etc.) shall be adjusted according to the process and site conditions.

4. The top elevation of the equipment foundation can be adjusted according to the equipment and actual site requirements.

5. Ensure the equipment is installed horizontally and must not be tilted or inverted.

6. Trench requirements:

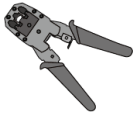
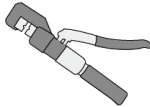
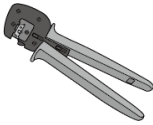
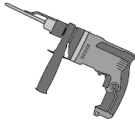
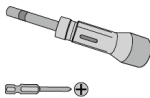
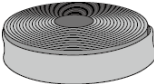
- If the equipment uses bottom cable entry, the trench must have a dust-proof and rat-proof design to prevent foreign objects from entering.
- The trench must have a waterproof and moisture-proof design to prevent cable aging and short circuits that may affect normal operation of the equipment.
- Because the equipment cables are relatively thick, sufficient cable space must be reserved in the trench design to ensure smooth cable connection and prevent abrasion.

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

NOTICE

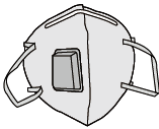
During installation, it is recommended to use the following installation tools. If necessary, other auxiliary tools can be used on site.

Installation Tools

Tool Type	Description	Tool Type	Description
	Diagonal Pliers		RJ45 Crimping Tool
	Wire Stripper		YQK-70 Hydraulic Crimping Tool
	Open-end Wrench		PV Terminal Crimping Tool PV-CZM-61100
	Impact Drill (Φ8 mm Drill Bit)		Torque Wrench
	Rubber Mallet		Socket Wrench Set
	Marker		Multimeter Range ≤1100V
	Heat-shrink tubing		Heat Gun

Tool Type	Description	Tool Type	Description
	Cable Ties		Vacuum Cleaner
	Spirit Level	-	-

Personal Protective Equipment

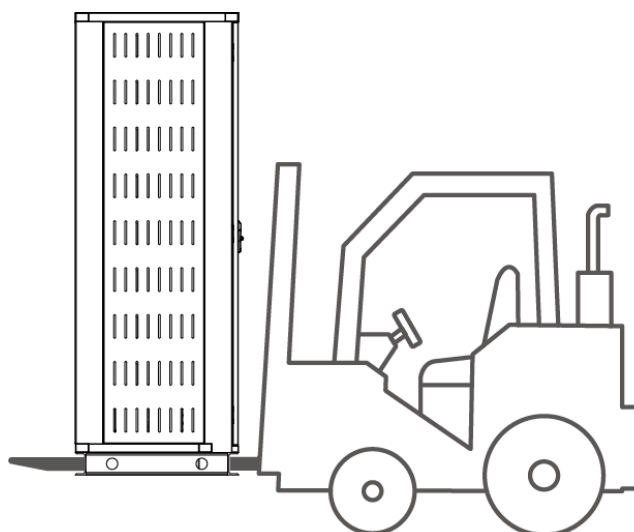
Tool Type	Description	Tool Type	Description
	Insulating gloves, protective gloves		Dust mask
	Safety goggles		Safety Shoes

4.2.5 Handling Requirements

WARNING

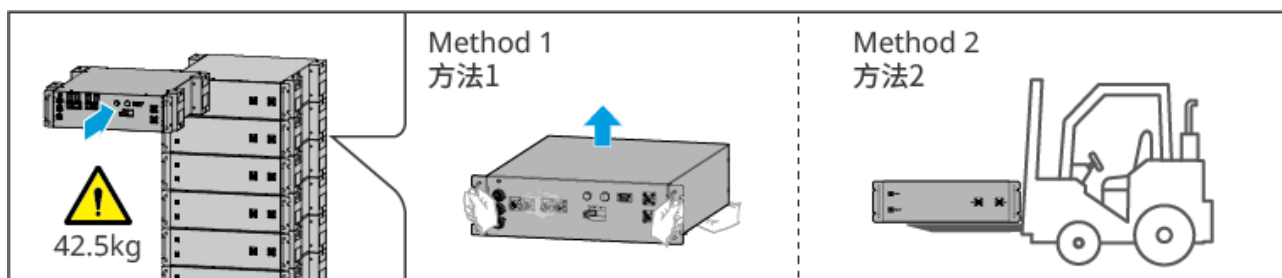
1. During transportation, turnover, installation, and other operations, the laws, regulations, and relevant standard requirements of the country/region must be met.
2. Before installation, the equipment must be transported to the installation site. During transportation, to avoid personal injury or equipment damage, please pay attention to the following:
 - Please assign corresponding personnel according to the equipment Weight to prevent the equipment from exceeding the human-carryable Weight range and causing personal injury.
 - Wear safety gloves to avoid injury.
 - Ensure the equipment remains balanced during handling to avoid dropping.
 - Ensure the cabinet door is securely locked during equipment handling.
3. The energy storage system can be hoisted or transported by forklift to the installation site.
4. When hoisting the equipment, use flexible slings or straps; the load-bearing capacity of a single strap must be ≥ 2 t.
5. When using a forklift to move the equipment, the forklift's load-bearing capacity must be ≥ 2 t.

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



LXC10110INT0001

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

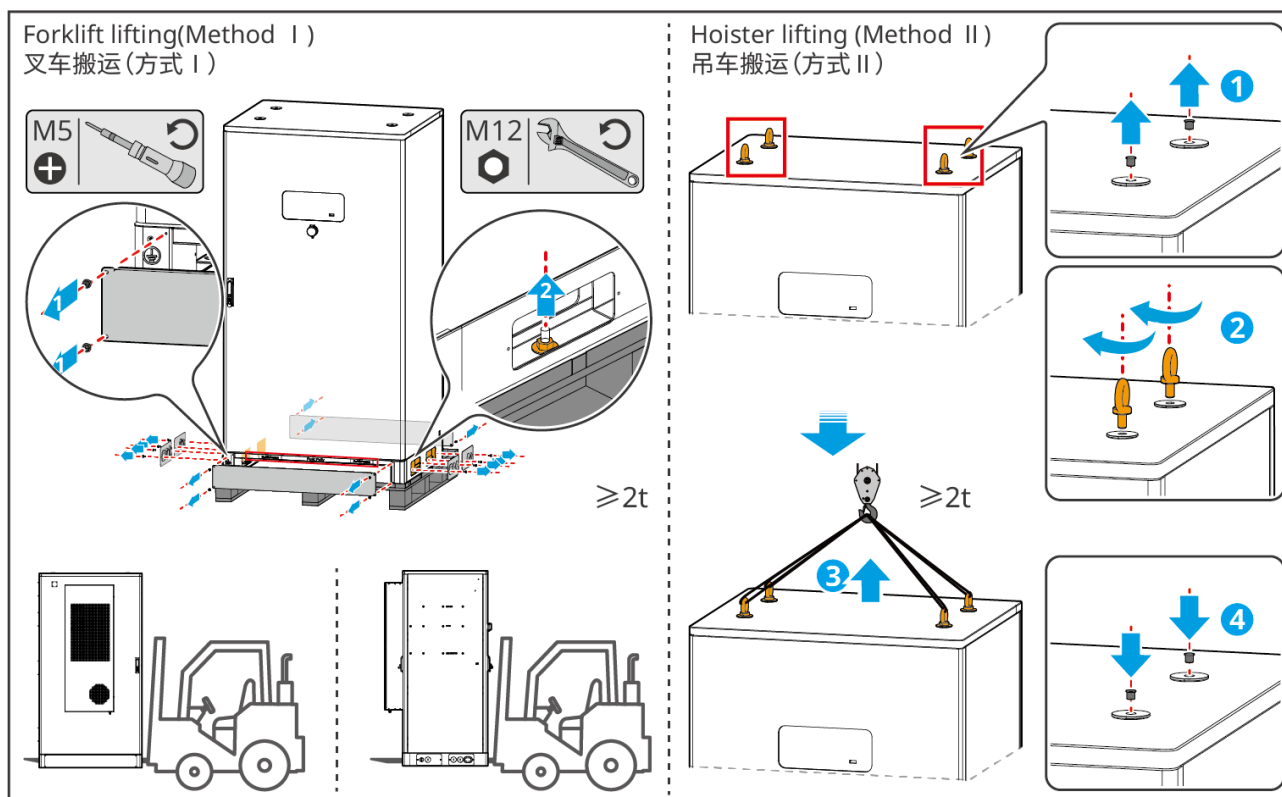


BAT10INT0032

- **BAT Series 92.1-112.6Kwh Commercial and Industrial Battery System**

NOTICE

- Before using a forklift to move the equipment, the baffle plate must be removed.
- When shipped, the battery system is fastened to the pallet with bottom screws. Before installation, remove the pallet first.



BAT10INT0003

4.3 Battery System Installation

WARNING

- Before installation, check that the ground is flat and not inclined.
- Ensure that the energy storage system stands vertically and is flush with the ground, with no risk of tipping over.

4.3.1 Open the Cabinet Door

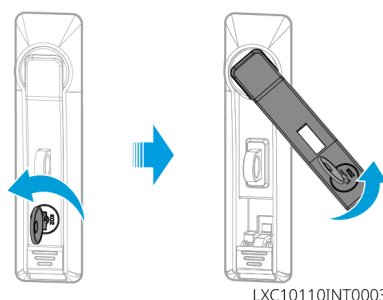
WARNING

- Do not open the cabinet door during equipment handling.
- After equipment installation, wiring, and commissioning are complete, close the cabinet door.

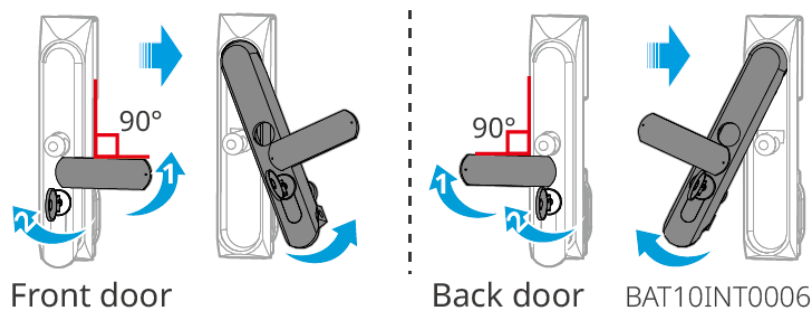
Step 1: Unlock the cabinet door using the key.

Step 2: Rotate the door handle to open the cabinet door.

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



- **BATSeries 92.1-112.6Kwh Commercial and Industrial Battery System**



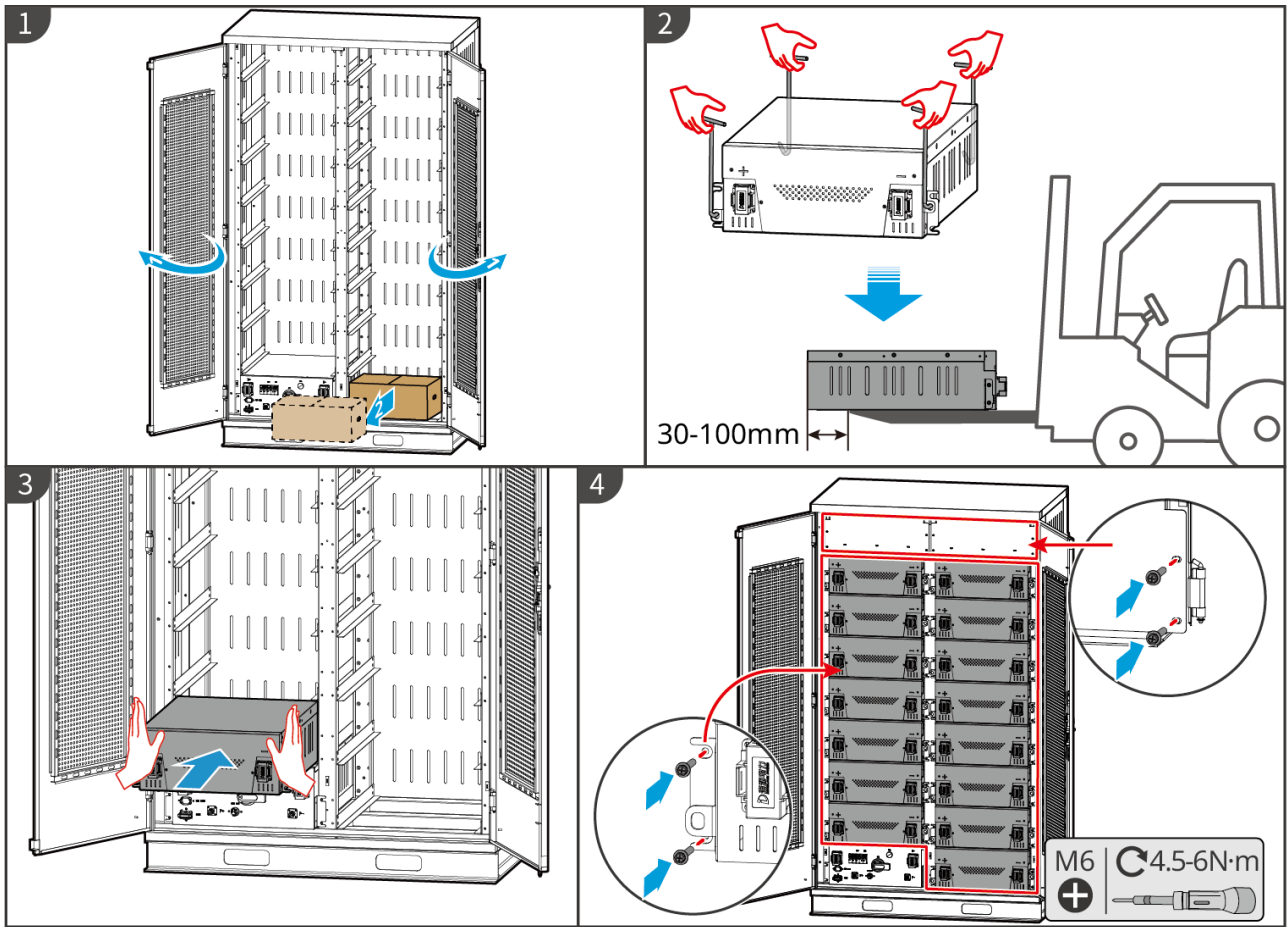
4.3.2 Installing Lynx C Series 101-156Kwh High-Voltage Battery

Step 1: Open the battery cabinet door and take out the accessory package.

Step 2: Use the hook tooling to move the battery PACK onto a forklift or lifting equipment.

Step 3: Use a forklift or lifting equipment to install the battery PACK into the battery cabinet from bottom to top. Do not install batteries in the top layer of LX C 101-10 and LX C138-10 battery cabinets.

Step 4: Tighten the fixing screws of the battery PACK and cover plate (only the top layer of LX C 101-10 and LX C138-10 battery cabinets requires cover plate installation).



LXC10110INT0002

4.3.3 Install BAT Series 25.6-56.3 Kwh High-Voltage Battery

• Stack Installation

Step 1: Install adjustable feet under the base. The height of the adjustable feet can be adjusted within the range of 35-45 mm.

Step 2: Secure the ground-lock bracket to the base.

Step 3: Use a pen to mark the ground drilling positions for expansion bolts.

Step 4: Install expansion bolts.

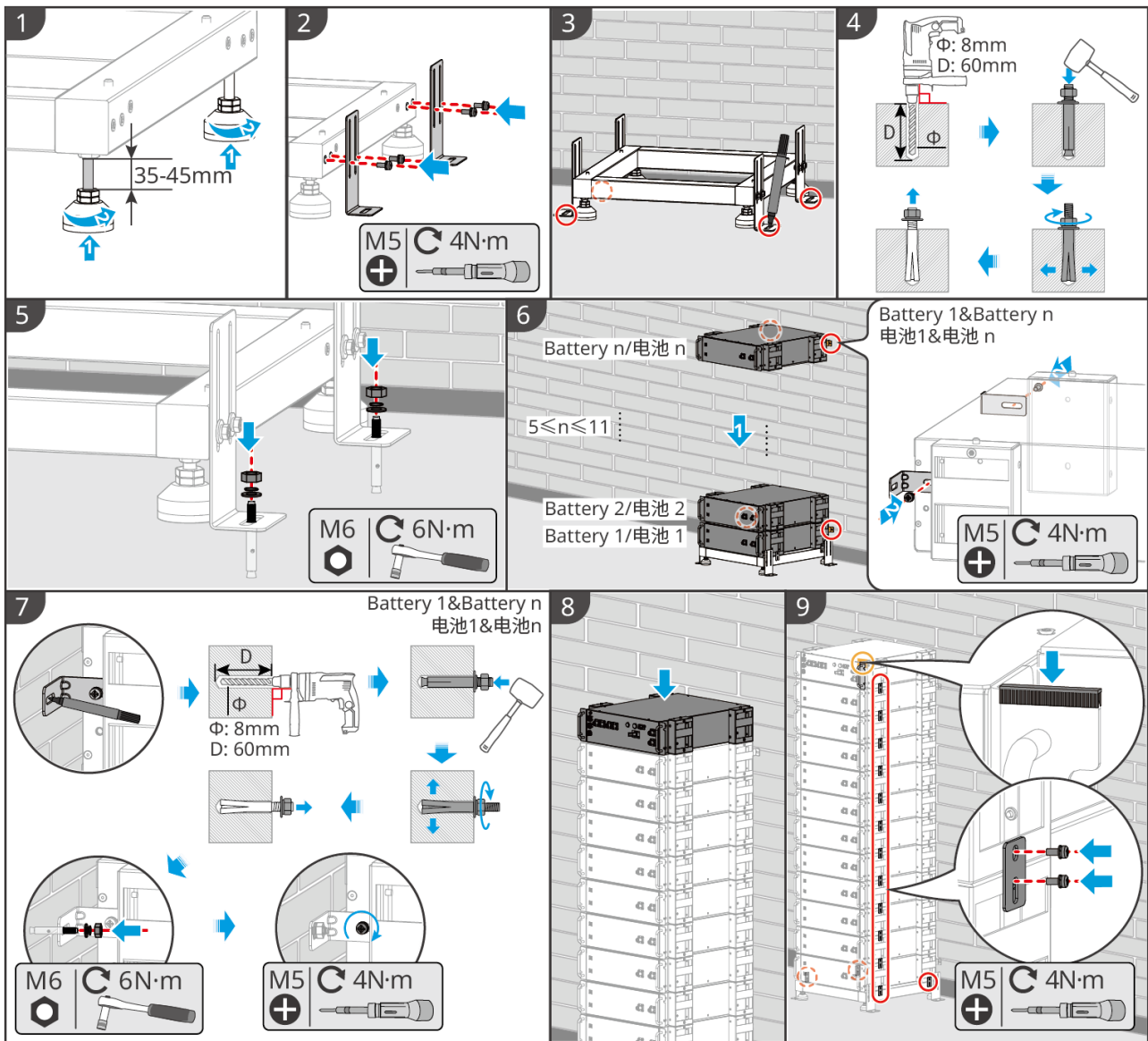
Step 5: Secure the ground-lock bracket to the ground with expansion bolts.

Step 6: Stack the battery PACKs, and pre-tighten the wall-lock brackets on the first and last battery PACKs.

Step 7: Use a pen to mark the wall drilling positions for expansion bolts, fix the wall-lock brackets with expansion bolts, and then tighten the wall-lock brackets on the battery PACKs.

Step 8: Place the high-voltage box.

Step 9: Install the equipotential bonding plate and wire grommet.



BAT10INT0021

• Battery Rack Installation

Install Battery Rack

Step1: Lay the bracket flat, align the holes according to the serial number silk-screen, and use M5 screws to secure.

Step2: Place the rack vertically according to the arrow markings.

Secure the Battery Cabinet

- **Type I**

Step3: Use a marking pen to mark the drilling positions for expansion bolts on the horizontal ground.

Step4: Install expansion bolts, and secure the battery rack to the horizontal ground with expansion bolts.

- **Type II**

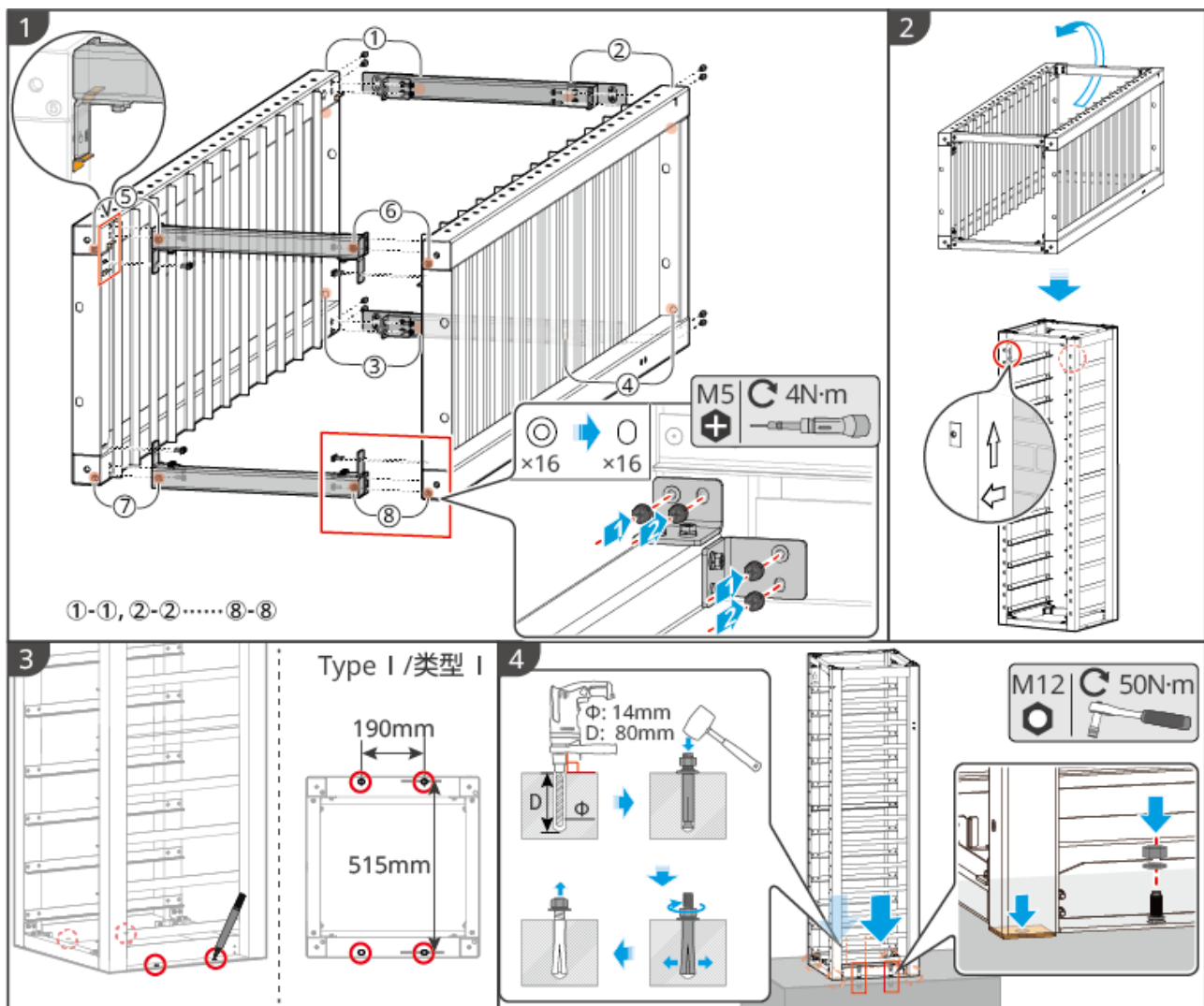
Step3: Lay the rack down horizontally and install adjustable feet at the bottom of the rack.

Step4: Place the rack vertically, and secure the rack to the wall using wall-lock brackets.

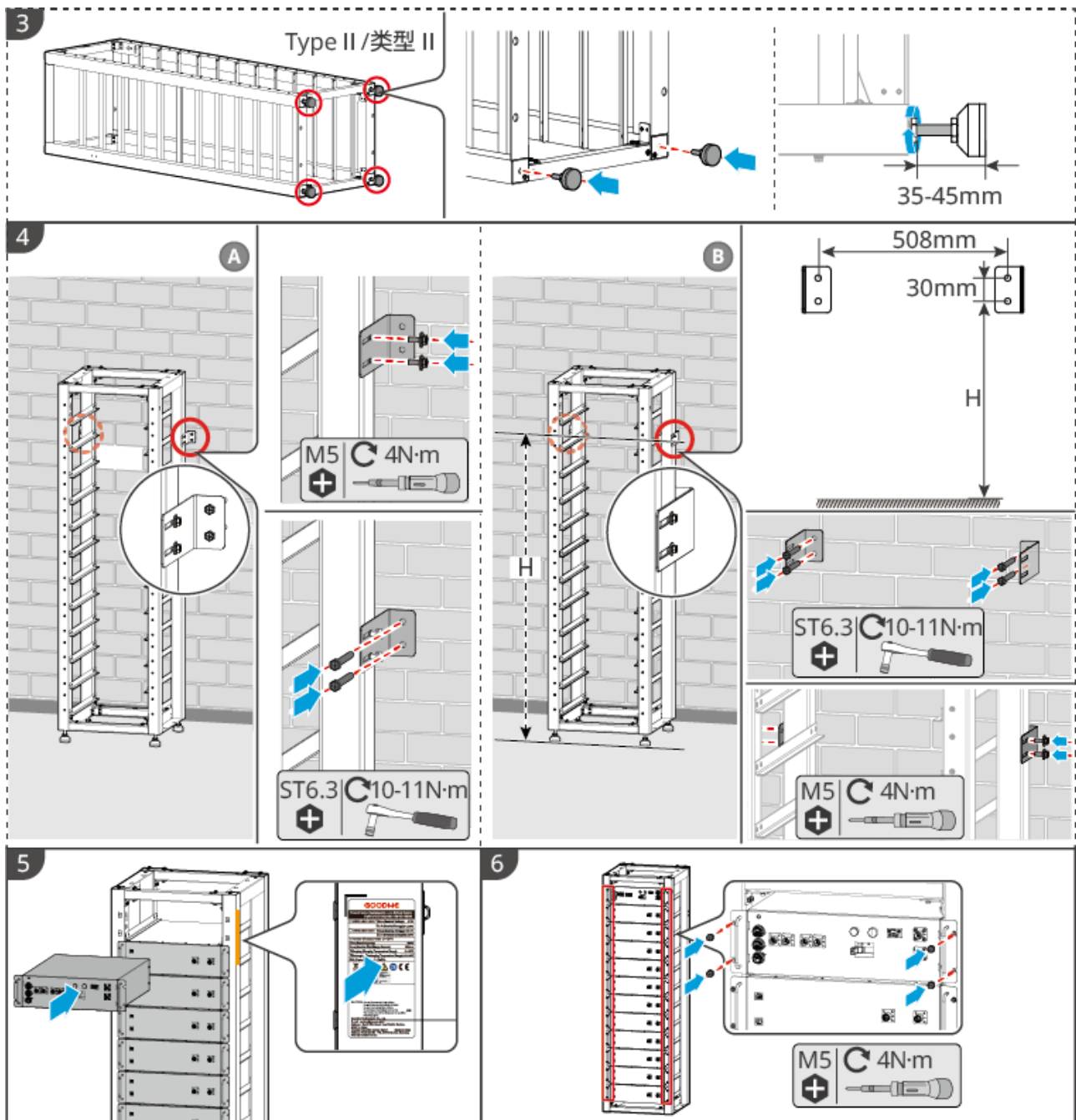
Install High-Voltage Box and Battery PACK

Step5: Push the high-voltage box and batteryPACKs into the rack in sequence, and attach labels on the side of the rack。

Step6: When using theM5screws to secure the high-voltage box and batteryPACK。



BAT10INT0020



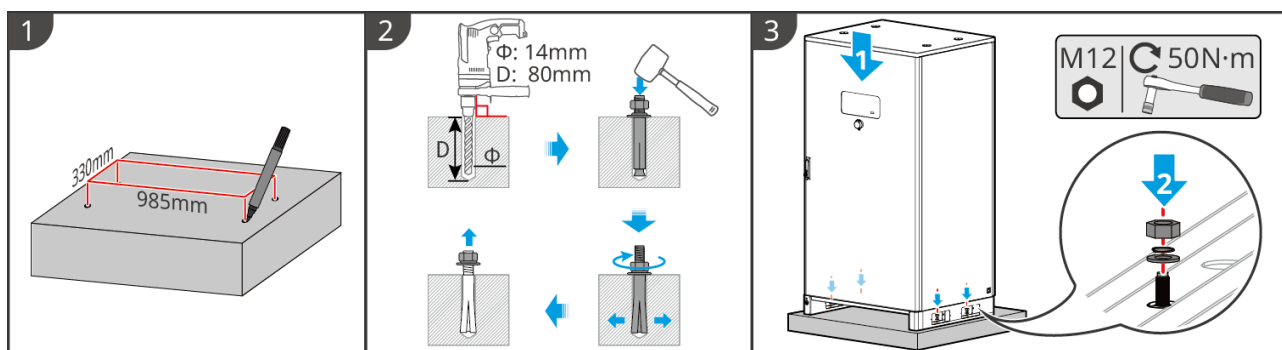
BAT10INT0031

4.3.4 Install BAT Series 92.1-112.6Kwh Commercial and Industrial Battery System

Step 1: Secure the battery system to the foundation.

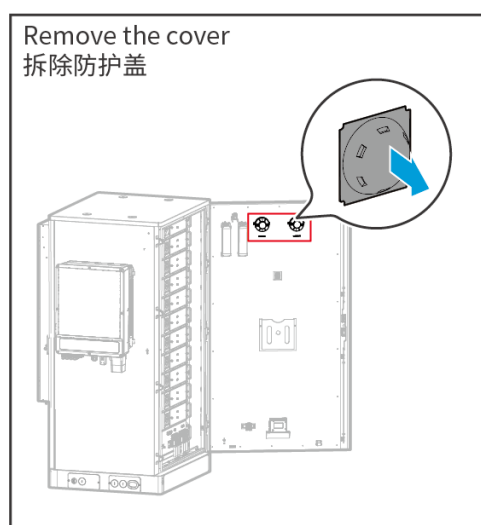
1. Mark the drilling positions according to the dimensions shown in the figure.

2. Use an impact drill to drill holes and install expansion bolts.
3. Move the battery rack to the hole positions, and secure the battery to the foundation with expansion bolts.



BAT10INT0005

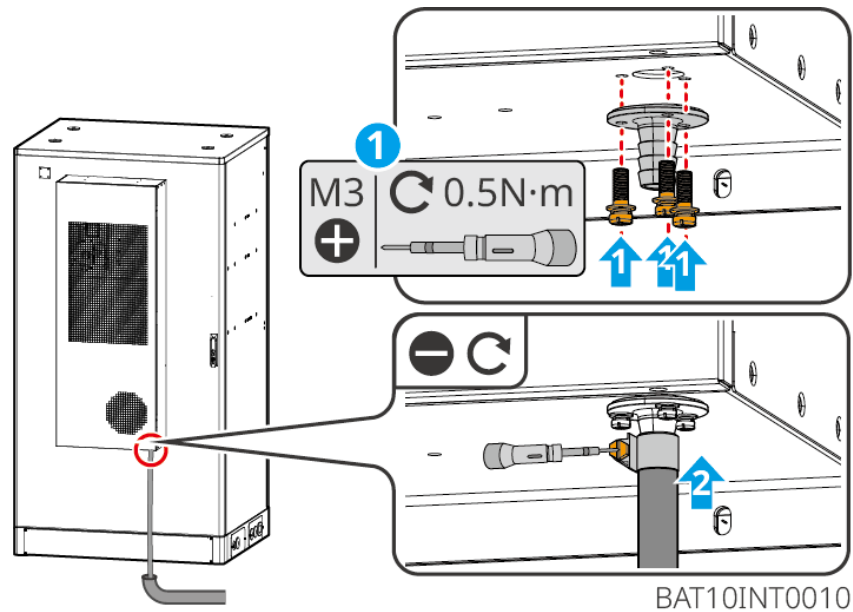
Step 2: Remove the Protection covers of the smoke and temperature alarms. When the battery is shipped, the smoke sensor and temperature sensor alarms have Protection covers; the Protection covers need to be removed for the alarms to work properly.



BAT10INT0016

Step 3: Install the air conditioner drain pipe.

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



4.4 Installing the Inverter

⚠ CAUTION

- When drilling, ensure that the drilling positions avoid water pipes, cables, etc. inside the wall to prevent hazards.
- When drilling, wear safety goggles and a dust mask to prevent dust from being inhaled into the respiratory tract or entering the eyes.
- Ensure the inverter is securely mounted to prevent it from falling and causing personal injury.

• Inverter Installation on the Wall

Step 1: Place the backplate horizontally on the wall and mark the drilling positions with a marking pen.

Step 2: Use an impact drill to drill the holes.

Step 3: Use expansion screws to secure the inverter backplate to the wall.

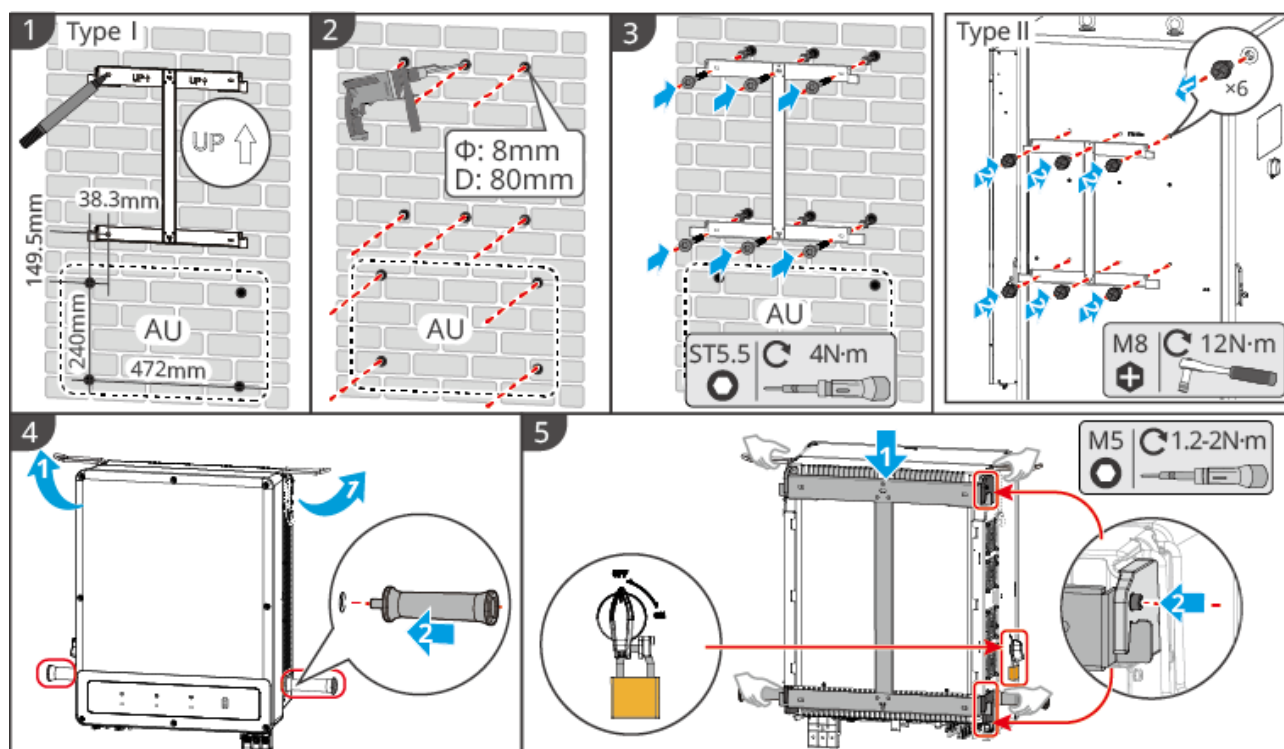
Step 4: Open the inverter handle. If additional lifting handles need to be installed, contact the after-sales service center to obtain them.

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 hole diameter of the DC Switch lock meets the requirements.

2. Hang the inverter on the backplate and tighten the fixing screws (only one side needs to be secured) to ensure the inverter is installed securely.



ET5010INT0005

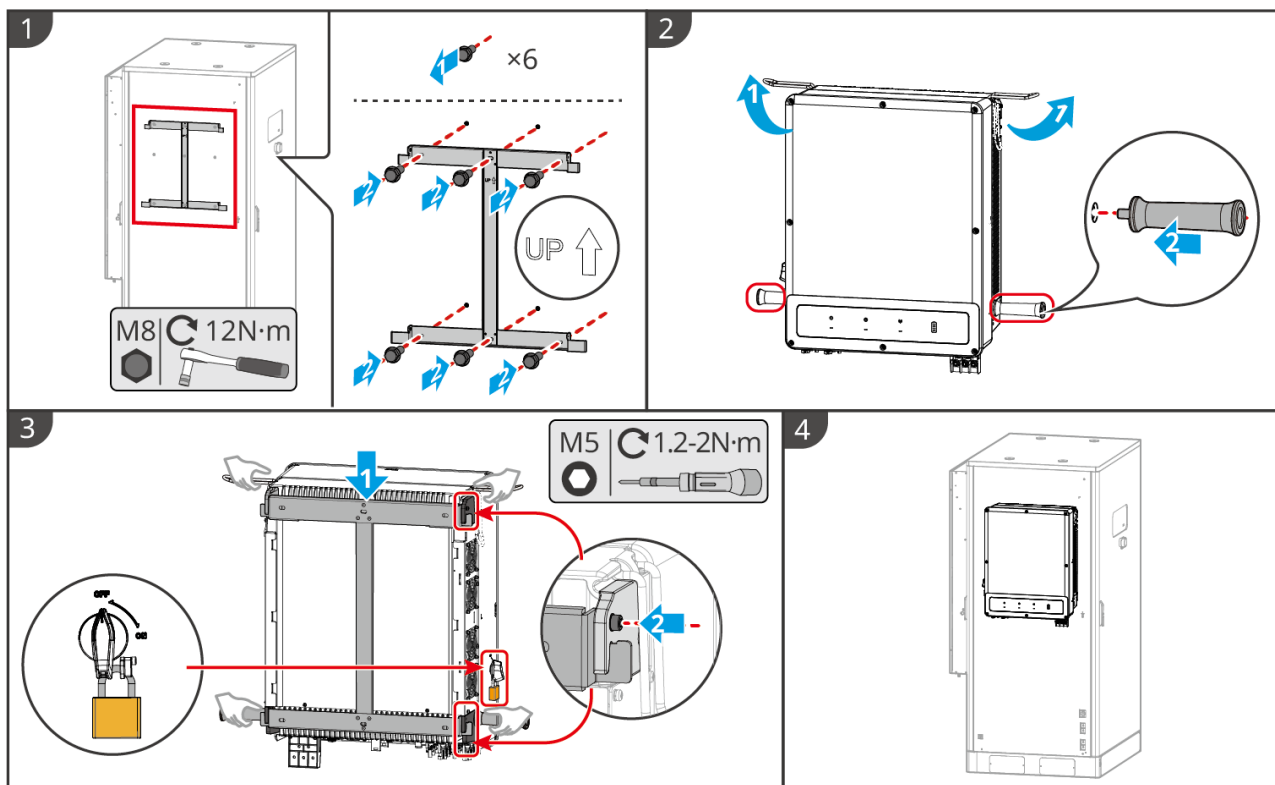
• Inverter Installation on the Battery System Cabinet

Step1: Fix the inverter backplate to the battery cabinet.

Step2: Open the inverter handle. If additional lifting handles need to be installed, contact the after-sales service center to obtain them.

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 hole diameter of the DC Switch lock meets the requirements.
2. Hang the inverter on the backplate and tighten the fixing screws (only one side needs to be secured) to ensure the inverter is installed securely.



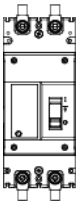
ET5010INT0004

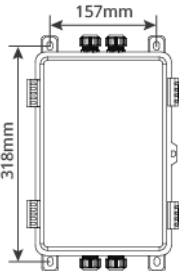
Install Protection Cover (Optional)

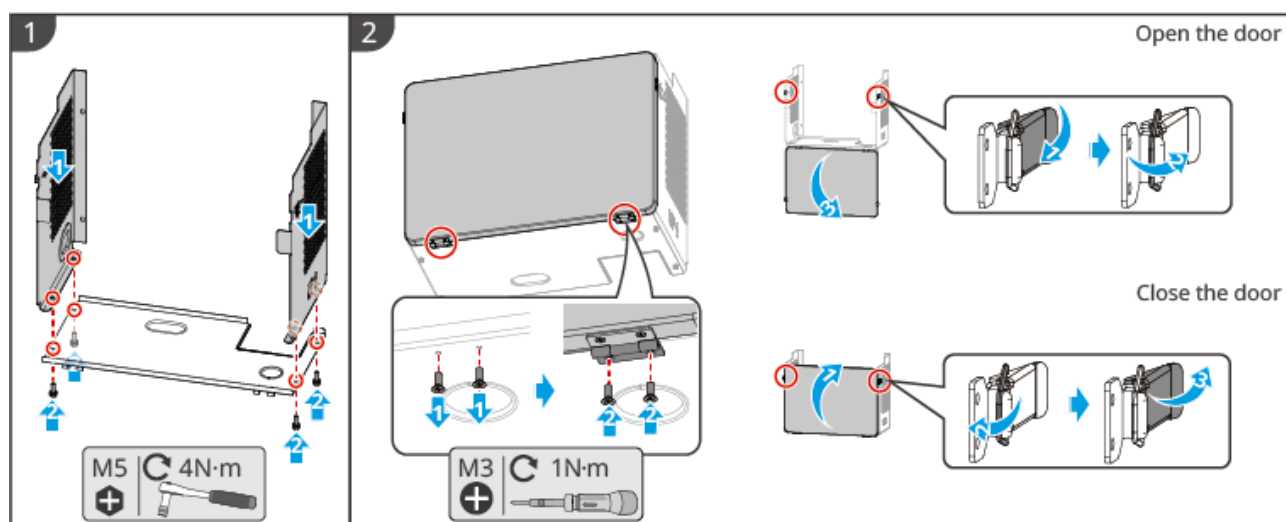
Step1: Assemble the Protection cover.

Step2: Install the front cover.

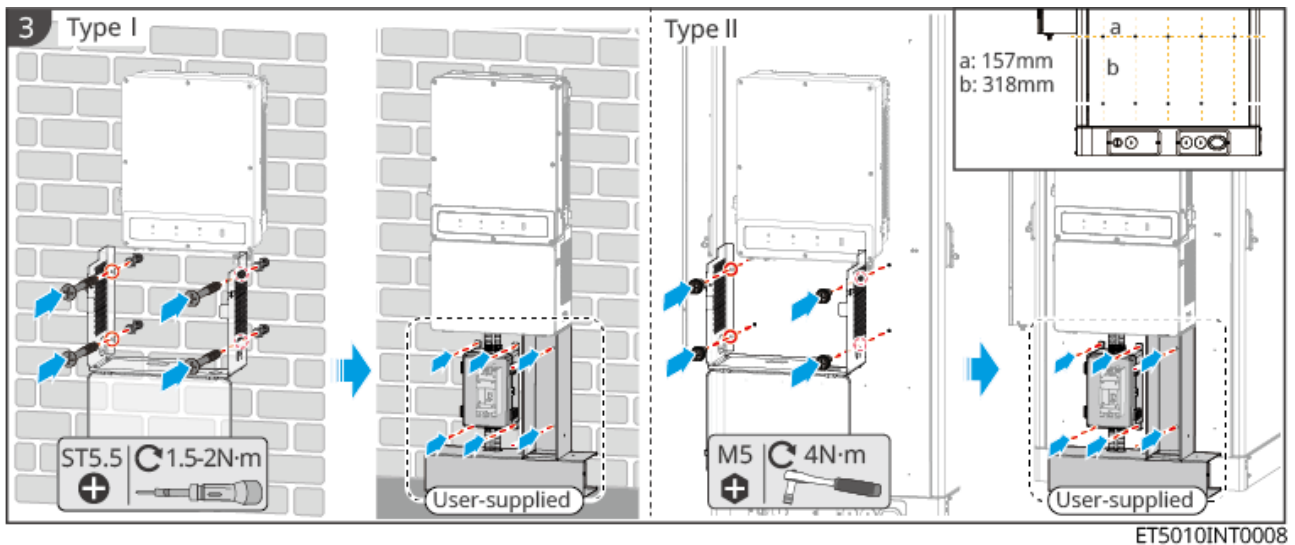
Step3: Secure the Protection cover to the wall/side of the battery cabinet, and install the circuit breaker, waterproof box, and cable tray according to local regulations. Refer to the table below for specific requirements.

Equipment		Recommended Model/Specification	Description
Circuit Breaker		Model: NDM3NZ-320V/23 Specification: 1000V/125A	User-supplied.

Equipment		Recommended Model/Specification	Description
Water proof box		Waterproof rating > IP65 Hole spacing requirements: • Left-right hole spacing: 157 mm • Top-bottom hole spacing: 318 mm Appearance and dimensions are for reference only.	User-supplied. If the hole spacing of the waterproof box does not meet the requirements and it cannot be fixed to the battery cabinet, prepare a mounting plate yourself. First, drill holes in the mounting plate as required and secure it to the battery cabinet, then secure the waterproof box to the mounting plate.
Cable tray		a: 150mm b: 250mm c: Determined by the user based on the actual cable routing. Appearance is for reference only.	User-supplied.



ET5010INT0007



4.5 Installing STS

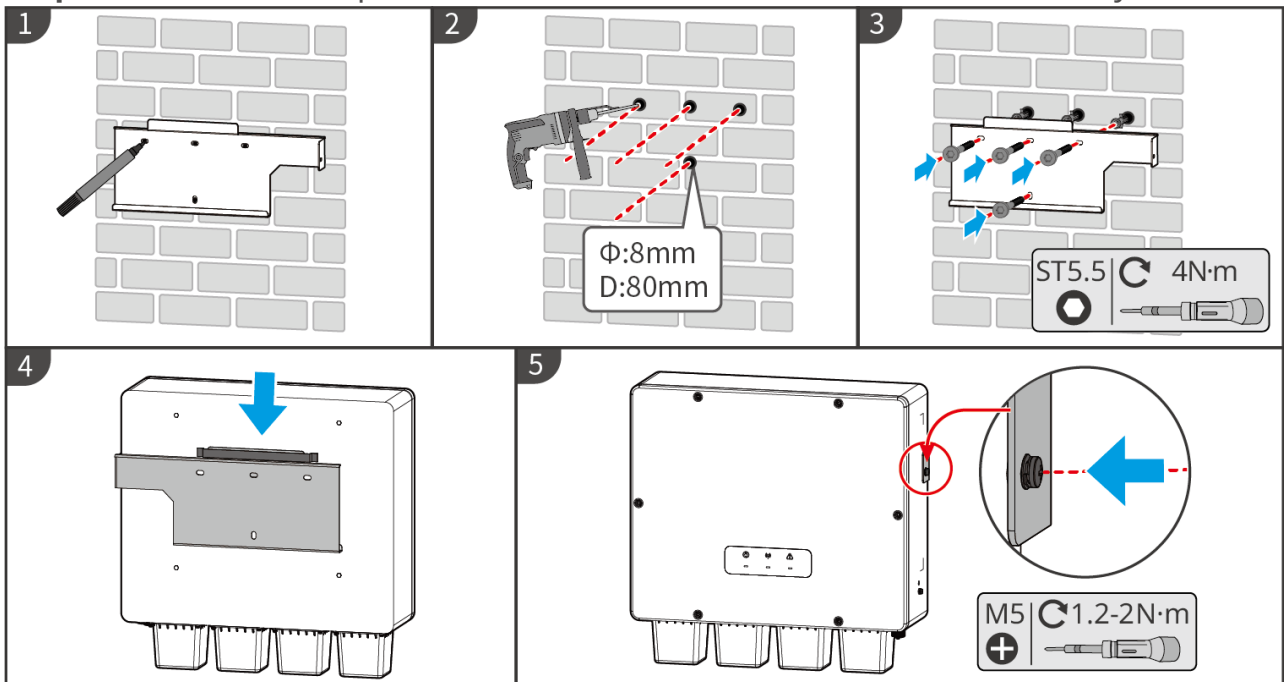
Step 1: Place the backplate horizontally on the wall and mark the drilling positions with a marking pen.

Step 2: Use an impact drill to drill the holes.

Step 3: Use expansion screws to secure the backplate to the wall.

Step 4: Hang the STS on the backplate.

Step 5: Secure the backplate and STS to ensure the STS is installed securely.

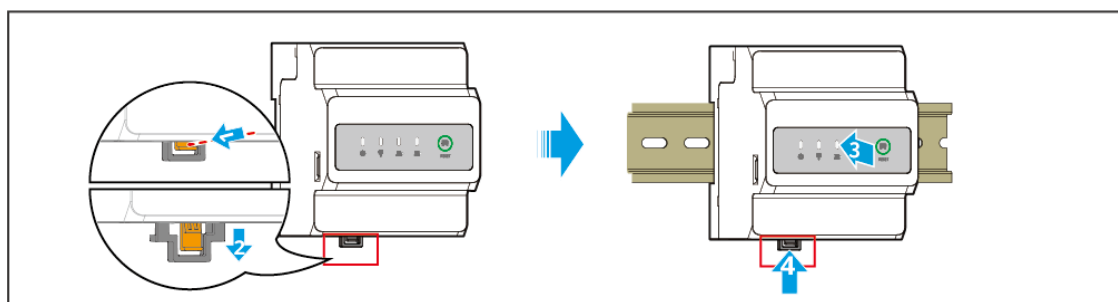


4.6 Installing the Meter

WARNING

In areas with lightning hazards, if the meter cable length exceeds 10 m and the cable is not routed in grounded metal conduits, it is recommended to install external lightning protection devices.

GM330



GMK10INT0003

5 System Wiring

DANGER

- Cable installation, routing, and connection must comply with local laws, regulations, and standards.
- All operations during the electrical connection process and the specifications of the cables and components used must comply with local laws and regulations.
- Before making electrical connections, disconnect the equipment's DC Switch and AC output switch, and ensure that the equipment is powered off. Live operations are strictly prohibited; otherwise, hazards such as electric shock may occur.
- Cables of the same type should be bundled together and routed separately from cables of different types. Do not intertwine or cross-route them.
- If the cable is subjected to excessive tension, it may cause poor connection. During wiring, reserve a certain length of cable before connecting it to the inverter terminals.
- When crimping terminals, ensure that the cable conductor is in full contact with the terminal. Do not crimp the cable insulation together with the terminal; otherwise, the equipment may fail to operate, or after operation, unreliable connections may cause overheating and damage to the inverter terminal block.

WARNING

- Do not connect 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 at the same time.
- To ensure that the inverter can be safely disconnected from the power grid in the event of an abnormality, connect an AC circuit breaker on the AC side of the inverter. Select an appropriate AC circuit breaker in accordance with local regulations.
- The inverter's BACK-UP function must be implemented with an STS static transfer switch cabinet.

NOTICE

- When making electrical connections, wear personal protective equipment such as safety shoes, protective gloves, and insulating gloves as required.
- Only professionals are permitted to perform operations related to electrical connections.
- The cable colors in the figures in this document are for reference only. Specific cable specifications must comply with local regulatory requirements.
- External overcurrent Protection devices for the battery port and AC output port shall be provided during on-site installation and clearly specified in the installation manual.

5.1 System Wiring Electrical Block Diagram

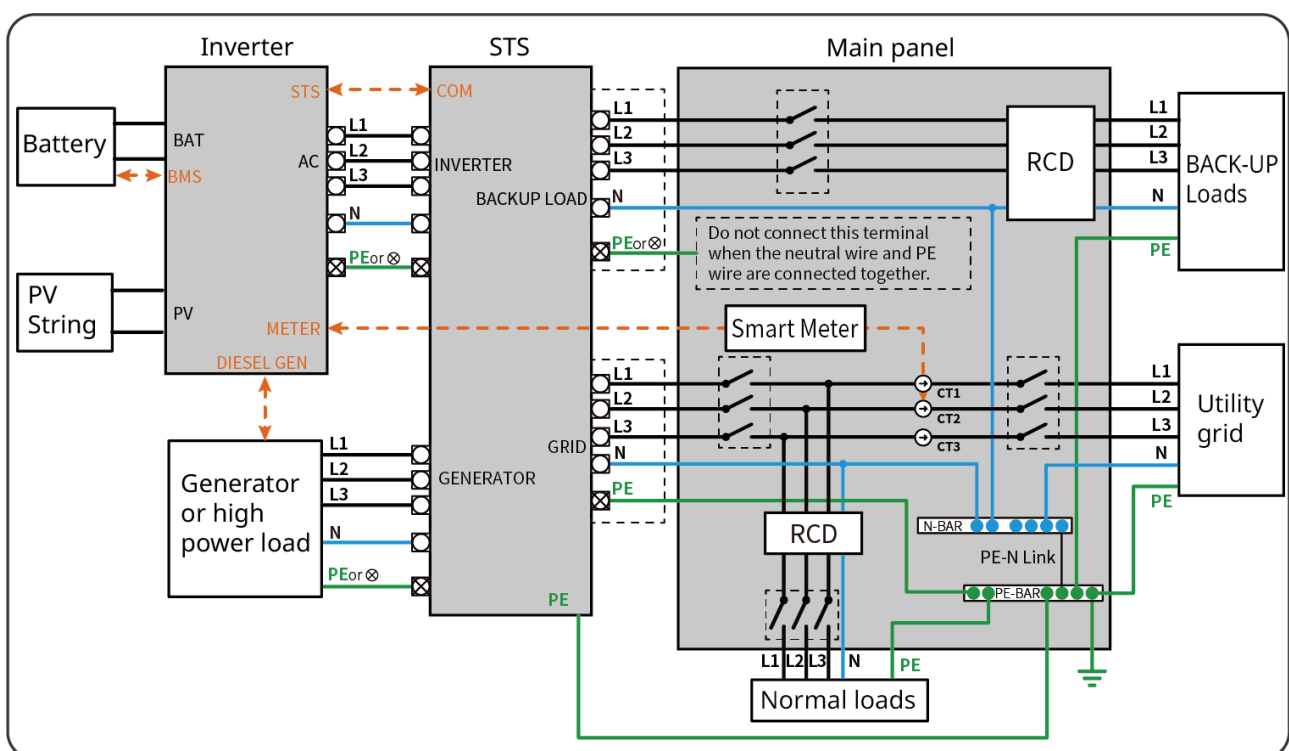
NOTICE

- According to regulatory requirements in different regions, the wiring methods for the N and PE lines of the ON-GRID and BACK-UP ports are different. The specific requirements shall be subject to local regulations.
- The inverter can use the BACK-UP function only when paired with an STS. The ON-GRID and BACK-UP ports are located on the STS device.
- The ON-GRID AC port of the STS has a built-in relay. When the energy storage system is in off-grid mode, the built-in ON-GRID relay is open; when the energy storage system is in grid-connected operation mode, the built-in ON-GRID relay is closed.
- After the energy storage system is powered on, the BACK-UP AC port is live. If maintenance is required for the BACK-UP load, power off the energy storage system; otherwise, electric shock may result.

The N and PE Conductors Are Connected Together in the Distribution Box.

NOTICE

- To maintain neutral integrity, the neutral conductors on the grid-connected side and the off-grid side must be connected together; otherwise, the off-grid function cannot be used normally.
- The figure below is a schematic diagram of the power grid system for Australia, New Zealand, and other regions. The internal N relay is open in the event of a grid fault:



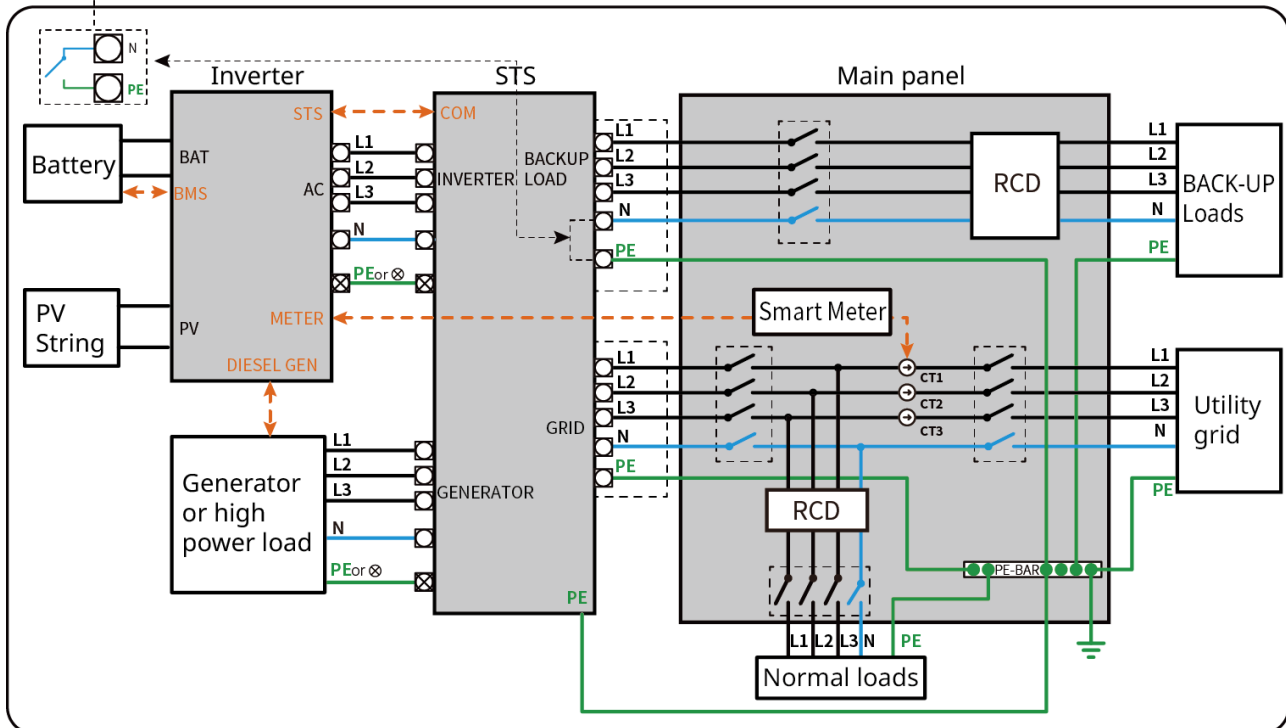
ET5010NET0010

The N and PE Conductors Are Wired Separately in the Distribution Box.

NOTICE

If the N and PE conductors do not need to be connected when the inverter switches to off-grid mode, this function can be set through the "Backup Power N and PE Relay Switch" on the "Advanced Settings" screen of the SolarGo APP. The following wiring method applies to regions other than Australia, New Zealand, etc.:

- 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.



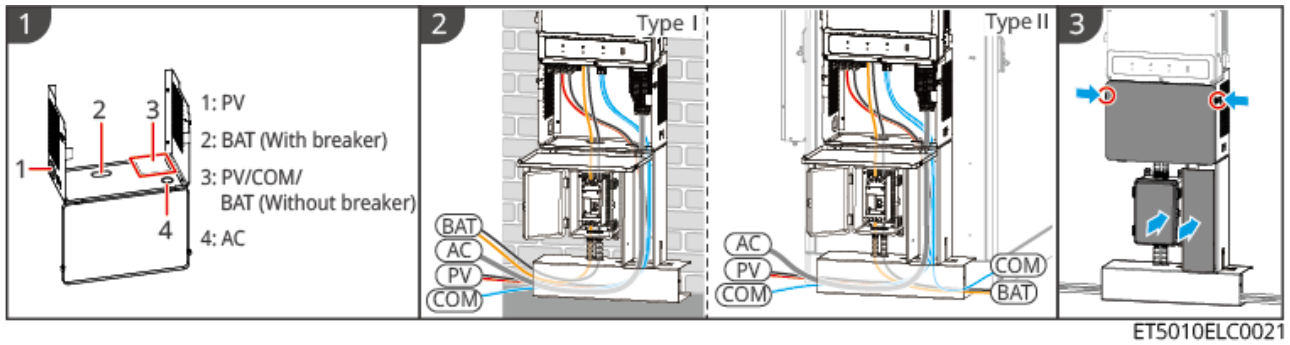
ET5010NET0011

5.2 Detailed System Wiring Diagram

NOTICE

- If the energy storage system needs to use the off-grid function, it must be used with a static transfer switch cabinet.
- No circuit breaker may be connected between the inverter and the static transfer switch cabinet.
- (Optional) During wiring, use a Protection cover, circuit breaker, and cable tray together to ensure that no cables are directly exposed. After wiring is complete, close all covers.

Wiring Diagram with Protection Cover (Optional)



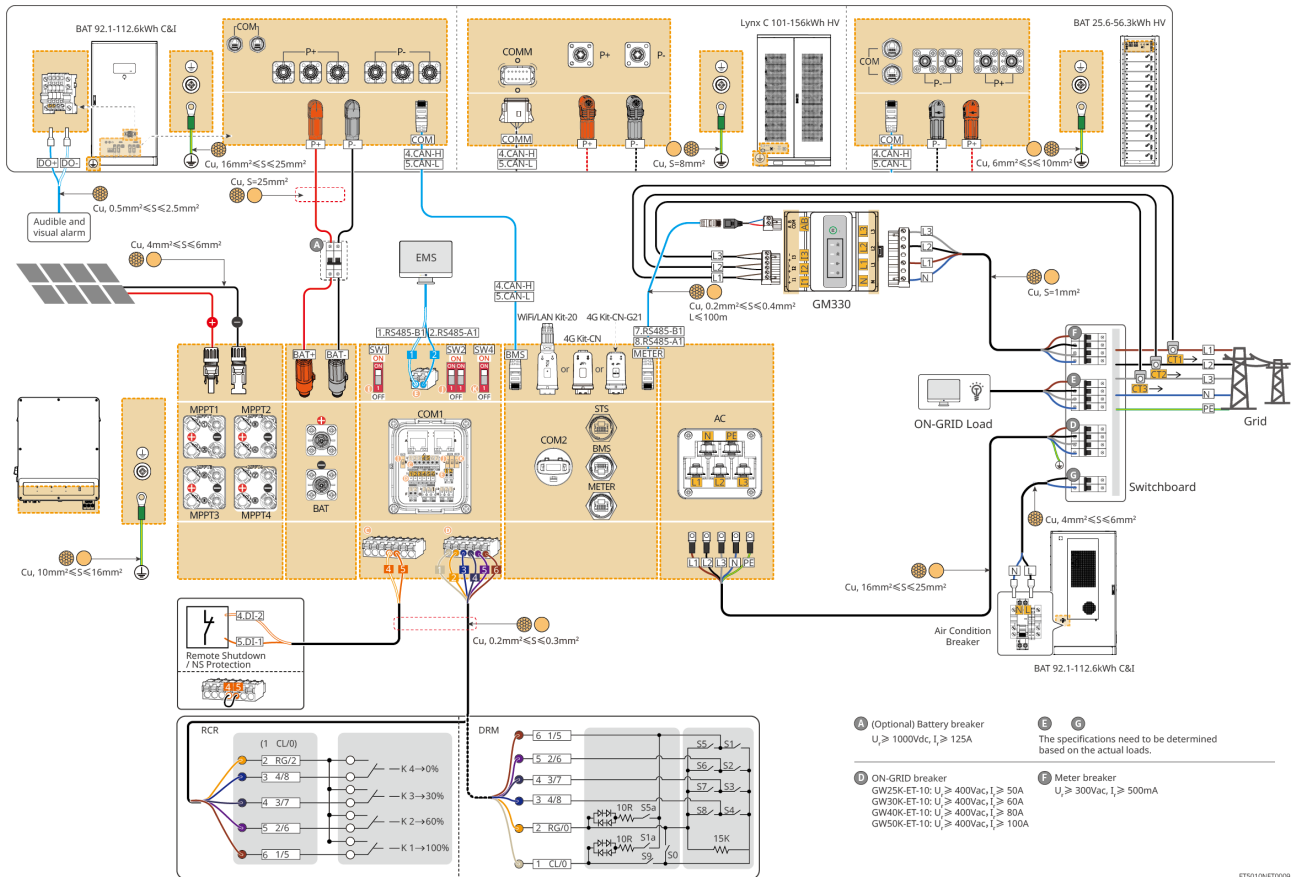
5.2.1 Single-Unit Scenario

5.2.1.1 Single Inverter, No off-Grid Function

This system only supports single-inverter grid-tied operation and has no off-grid function.

- In single-unit scenarios, the inverter uses a WiFi/LAN Kit-20, 4G Kit-CN, or 4G Kit-CN-G21 smart communication stick.
- In single-unit scenarios, a GM330 smart meter is provided as standard.
- DIP switch SW1: ON.

ET50 + Battery + GM330



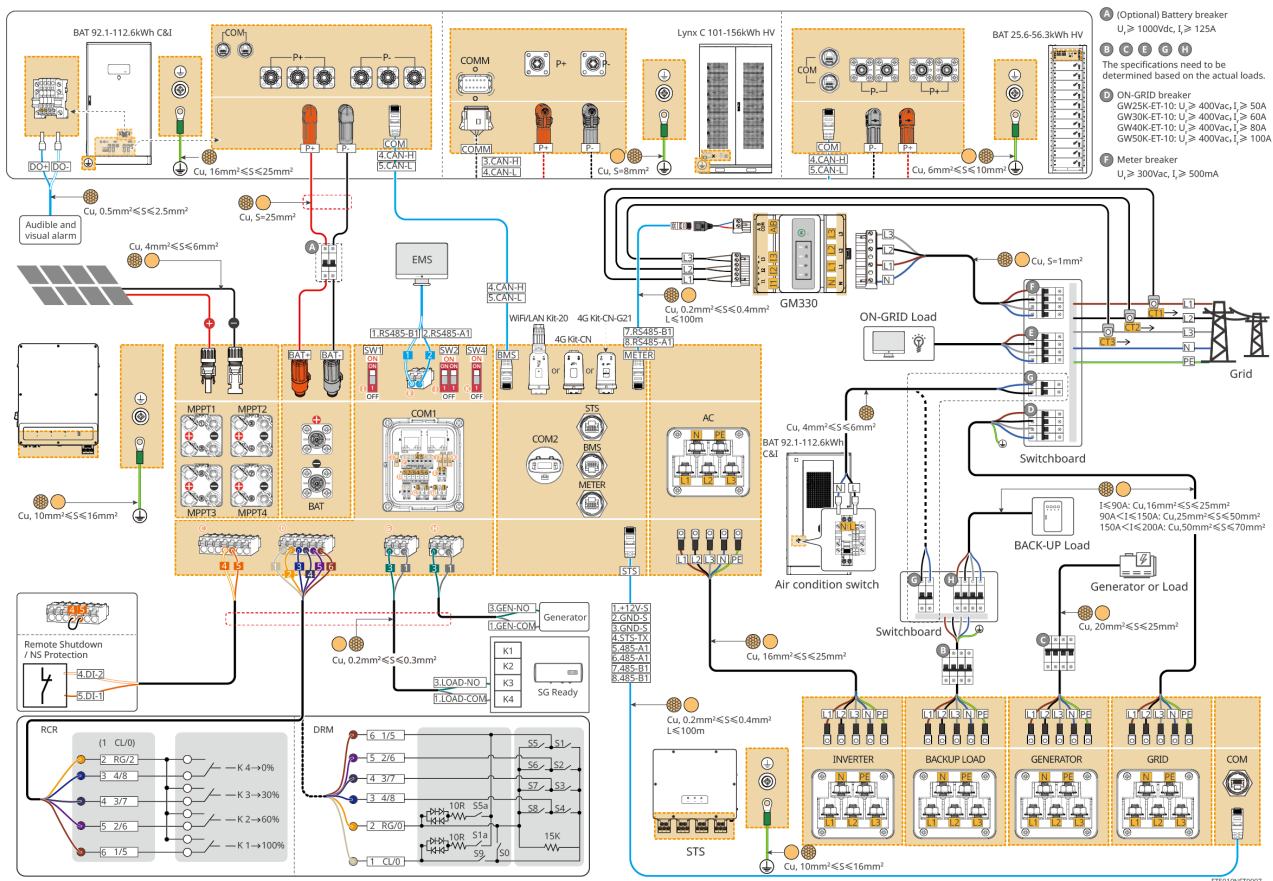
ETS010NET0009

5.2.1.2 Single Inverter, with off-Grid Function

This system is a single-inverter energy storage system that supports grid-tied operation/off-grid operation.

- The inverter with STS provides UPS-level On/Off-grid switching, with a switching 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 with STS can be connected to a generator. The generator power must be $\leq 1.1 \times$ the inverter Rated Power.
- In single-unit scenarios, the inverter uses a WiFi/LAN Kit-20, 4G Kit-CN, or 4G Kit-CN-G21 smart communication stick.
- In single-unit scenarios, a GM330 smart meter is provided as standard.
- DIP switch SW1: ON.

ET + STS + Battery + GM330



5.2.2 Parallel Scenario

5.2.2.1 Multiple Inverters, No off-Grid Function

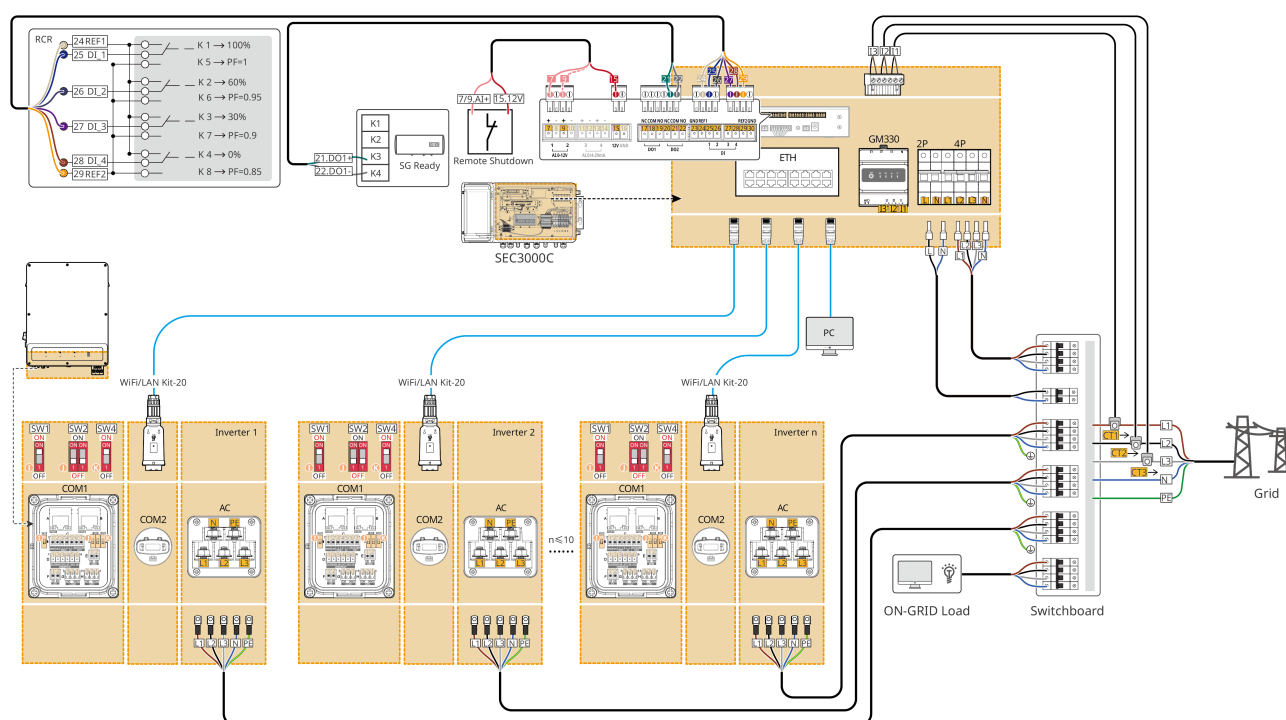
This system is a parallel-inverter energy storage system that only supports grid-tied operation and has no off-grid function.

NOTICE

- The inverter can be paired with the SEC3000C Smart Energy Control Box to achieve Parallel Networking.
- The following figure focuses on the wiring related to parallel operation. For wiring requirements of other ports, refer to the standalone system.

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

- In a parallel system composed of SEC3000C, if functions such as Remote Shutdown, DRED, RCR, load control, and Diesel Generator Control are required, connect the communication cable to the SEC3000C.
- When using SEC3000C to form a parallel system, each inverter must be connected to the SEC3000C using a WiFi/LAN Kit-20.
- DIP switch
 - Inverter1's SW1: ON。
 - Inverter2 to Invertern-1's SW1: ON。
 - Invertern's SW1: ON。



ETS010NET0012

5.2.2.2 Multiple Inverters, off-Grid Parallel Operation

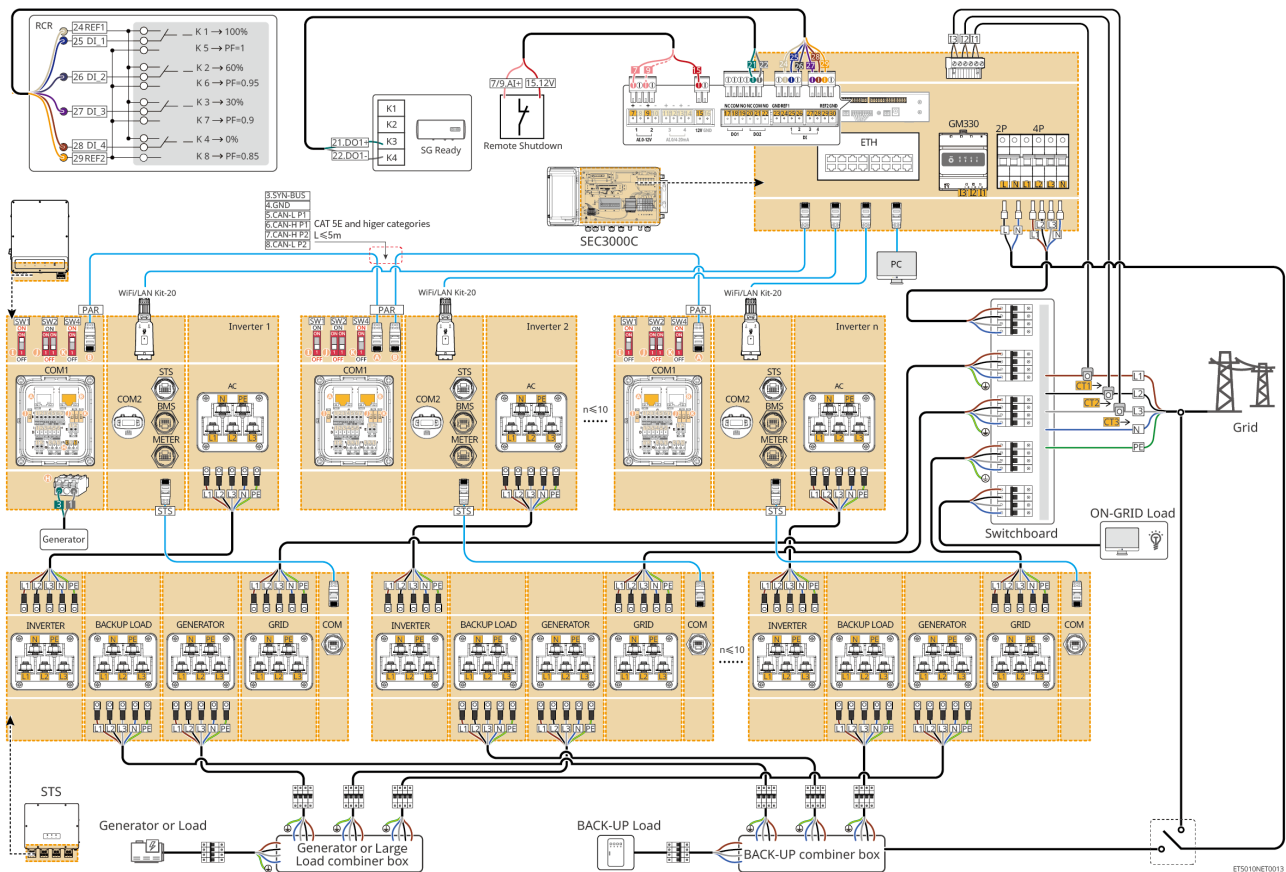
This system is an inverter parallel energy storage system. It supports parallel operation of inverters both when grid-connected and off-grid.

NOTICE

- The inverter supports being paired with the SEC3000C Smart Energy Control Box to achieve Parallel Networking. The SEC3000C supports taking power from the grid or from the BACK UP port.
- The inverter parallel system with STS provides UPS-level On/Off-grid transfer function. The On/Off Grid Transfer Time is less than 20 ms. Ensure that the total BACK-UP load capacity is $< 0.9 \times$ the total Rated Power of the inverters; otherwise, the function may fail during a Grid Power Outage.
- In a parallel system, a generator can be connected when paired with STS. The total power of the connected generator must be $\leq 1.1 \times$ 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 exceeds, it is recommended that the generator be used with an automatic transfer switch (ATS) and grid switching, and the large load be connected to the grid-side load.
- The following figure focuses on the wiring related to parallel operation. For wiring requirements of other ports, refer to the standalone system.

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

- In a parallel system composed of SEC3000C, if functions such as Remote Shutdown, DRED, RCR, load control, and Diesel Generator Control are required, connect the communication cable to the SEC3000C.
- When using SEC3000C to form a parallel system, each inverter must be connected to the SEC3000C using a WiFi/LAN Kit-20.
- DIP switch
 - Inverter1's SW1: ON。
 - Inverter2 to Invertern-1's SW1: OFF。
 - Invertern's SW1: ON。



5.2.2.3 Multiple Inverters, off-Grid Without Parallel Operation

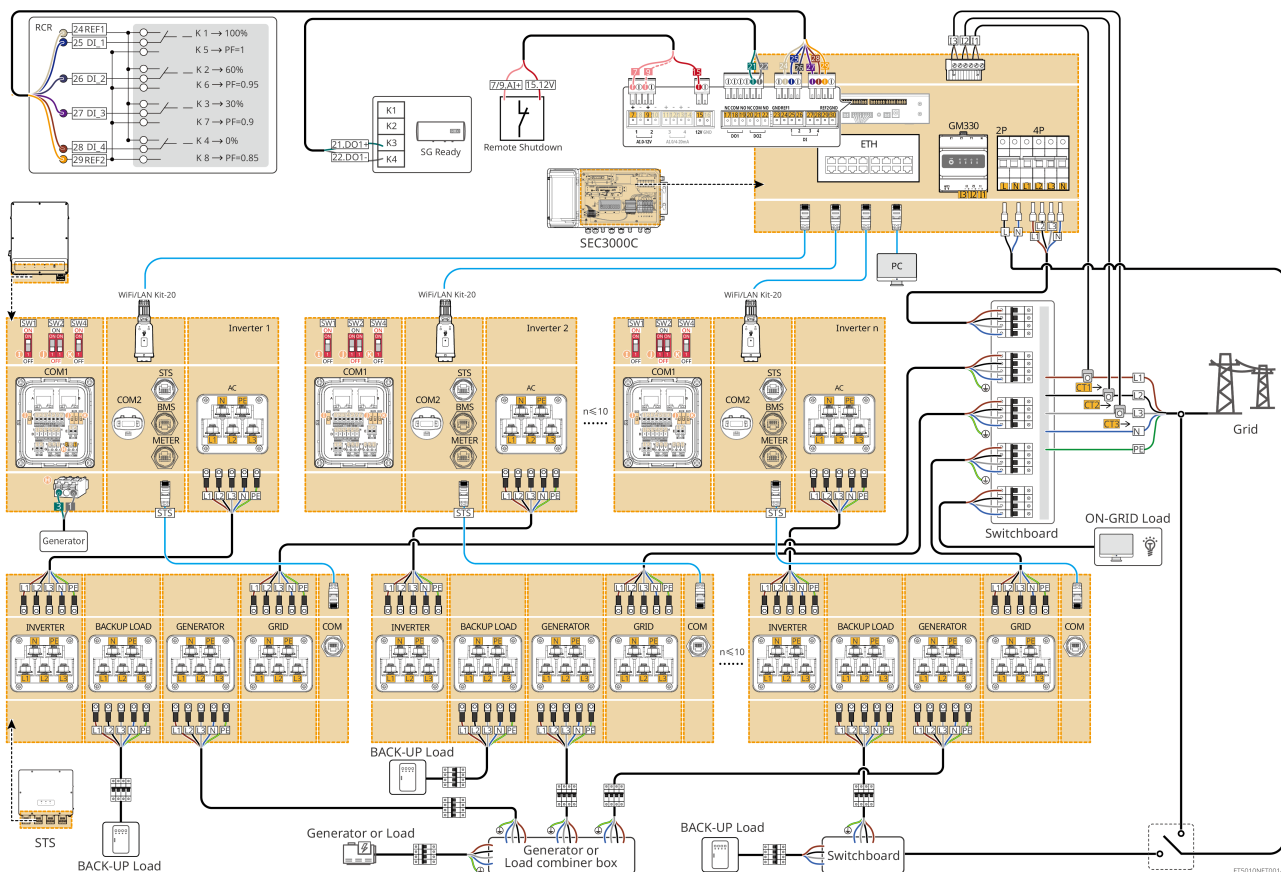
This system is an inverter parallel energy storage system. It only supports parallel operation of inverters when grid-connected; when off-grid, inverters operate in standalone mode.

NOTICE

- The inverter can be paired with the SEC3000C Smart Energy Control Box to achieve Parallel Networking. The SEC3000C supports taking power from the grid or from the BACK UP port.
- The inverter parallel system with STS provides UPS-level On/Off-grid transfer function. The On/Off Grid Transfer Time is less than 10 ms. Ensure that the BACK-UP load capacity connected to each STS is $<$ 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, a generator can be connected when paired with STS. The total power of the connected generator must be $\leq 1.1 \times$ the total Rated Power of the inverters.
- The following figure focuses on the wiring related to parallel operation. For wiring requirements of other ports, refer to the standalone system.

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

- In a parallel system composed of SEC3000C, if functions such as Remote Shutdown, DRED, RCR, load control, and Diesel Generator Control are required, connect the communication cable to the SEC3000C.
- When using SEC3000C to form a parallel system, each inverter must be connected to the SEC3000C using a WiFi/LAN Kit-20.
- DIP switch
 - Inverter1's SW1: ON
 - Inverter2 to Invertern-1's SW1: ON
 - Invertern's SW1: ON



5.3 Material Preparation

5.3.1 Switch Preparation

No.	Circuit Breaker	Recommended Specifications	Acquisition Method
1	ON-GRID Circuit Breaker BACK-UP Circuit Breaker Generator Circuit Breaker	Nominal Voltage $\geq 400\text{V}$, Rated Current requirements are as follows: - GW25K-ET-10: Rated Current $\geq 50\text{A}$ - GW30K-ET-10: Rated Current $\geq 60\text{A}$ - GW40K-ET-10: Rated Current $\geq 80\text{A}$ - GW50K-ET-10: Rated Current $\geq 100\text{A}$	Self-provided

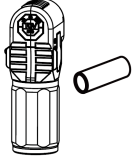
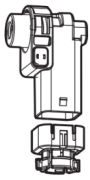
No.	Circuit Breaker	Recommended Specifications	Acquisition Method
2	Battery Switch	Optional according to local laws and regulations • 2P DC Switch • Rated Current $\geq 125\text{A}$ • Nominal Voltage $\geq 1000\text{V}$	Self-provided
3	Leakage Current Protection Device	Optional according to local laws and regulations • Type A • ON-GRID side: 500mA • BACK-UP side: 30mA	Self-provided
4	Meter Switch	• Nominal Voltage: 380V/400V • Rated Current: 0.5A	Self-provided
5	Load Circuit Breaker	Specifications shall be determined based on the actual load	Self-provided

NOTICE

Installation of a Bypass switch is not allowed; otherwise, the user shall be solely responsible for the consequences.

5.3.2 Cable Preparation

No.	Cable	Recommended Specifications	Acquisition Method
1	Inverter, STS Protection Grounding Conductor	- Single-core Outdoor Copper Cable - Conductor cross-sectional area: 10mm²-16mm²	Self-provided
2	Battery Protection Grounding Conductor Lynx C Series 101-156Kwh High-Voltage Battery	- Single-core Outdoor Copper Cable - Conductor cross-sectional area: 8mm²	Self-provided
	Battery Protection Grounding Conductor BAT Series 25.6-56.3Kwh High-Voltage Battery	- Single-core Outdoor Copper Cable - Conductor cross-sectional area: 6-10mm²	Self-provided
	Battery Protection Grounding Conductor BAT Series 92.1-112.6Kwh Commercial and Industrial Battery System	- Single-core Outdoor Copper Cable - Conductor cross-sectional area: 16-25mm²	Self-provided
3	PVDC cable	- Industry-standard outdoor PV cable - Conductor cross-sectional area: 4mm²-6mm² - Cable outer diameter: 5.9mm-8.8mm	Self-provided

No.	Cable	Recommended Specifications	Acquisition Method
4	Battery DC cable: Connection terminal type I 	• Single-core Outdoor Copper Cable • Conductor cross-sectional area:25mm² • Cable outer diameter:9.4mm-10.6mm	Shipped with the unit / Customer-supplied
	Battery DC cable: Connection terminal type II 		
	Battery DC cable (parallel cluster) Lynx C Series 101-156Kwh High-Voltage Battery	• Single-core Outdoor Copper Cable • Conductor cross-sectional area:35mm² • Cable outer diameter:10mm-12mm	Self-provided
	Battery DC cable (parallel cluster) BATSeries 25.6-56.3Kwh High-Voltage Battery	• Single-core Outdoor Copper Cable • Conductor cross-sectional area:25mm² • Cable outer diameter:9mm-11mm	Self-provided

No.	Cable	Recommended Specifications	Acquisition Method
	Battery DC cable (parallel cluster) BATSeries 92.1- 112.6Kwh Commercial and Industrial Battery System	• Single-core Outdoor Copper Cable • Conductor cross-sectional area:50mm² • Cable outer diameter:13mm-14mm	Self-provided
5	Inverter AC Cable Generator AC cable	• Single-core Outdoor Copper Cable • Conductor cross-sectional area:16mm²-25mm² • Cable outer diameter:18-42mm	Self-provided

No.	Cable	Recommended Specifications	Acquisition Method
6	BACK-UPAC cable ON-GRIDAC cable	- Multi-core outdoor copper-core cable, recommended to use YJV or RVV five-core cable* - When BACKUP LOAD the port's output current or GRID the port's input/output current is less than 90A: - Conductor cross-sectional area: 20mm²-25mm² - Cable outer diameter: 18-42mm - When BACKUP LOAD the port's output current or GRID the port's input/output current is greater than 90A and less than or equal to 150A: - Conductor cross-sectional area: 25mm²-50mm² - Cable outer diameter: 18-42mm - When BACKUP LOAD the port's output current or GRID the port's input/output current is greater than 150A and less than or equal to 200A: - Conductor cross-sectional area: 50mm²-70mm² - Cable outer diameter: 32-42mm	Self-provided
7	Smart Meter Power Cable	Outdoor Copper Cable Conductor cross-sectional area: 1mm ²	Self-provided

No.	Cable	Recommended Specifications	Acquisition Method
8	BatteryBMScommunication cable	-	Supplied with the unit
9	Energy meterRS485communication cable	-	RJ45-2PINterminal adapter cable and standard network cable, supplied with the unit
10	Battery parallel cluster communication cable Lynx C Series 101-156Kwh High-Voltage Battery	Custom communication cable	Contact GoodWe to purchase
	Battery parallel cluster communication cable BATSeries 25.6-56.3Kwh High-Voltage Battery	CAT 5Eor higher specification, with RJ45 connectorEIA/TIA 568Bstandard network cable	Self-provided
	Battery parallel cluster communication cable BATSeries 92.1-112.6Kwh Commercial and Industrial Battery System	CAT 5Eor higher specification, with RJ45 connectorEIA/TIA 568Bstandard network cable	Self-provided
11	Load controlDOcommunication cable		Self-provided

No.	Cable	Recommended Specifications	Acquisition Method
12	Diesel Generator Control communication cable	• Shielded cable meeting local standards • Conductor cross-sectional area: 0.2mm²-0.4mm² • Cable outer diameter: 5mm-8mm	
13	Remote Shutdown Communication Cable		
14	RSDcommunication cable		
15	RCR/DREDsignal cable		
16	(Reserved)DODry contact		
17	Inverter parallel communication cable	• CAT 5E with RJ45 connector or higher specification standard network cable, cable length less than 5m。 • CAT 7E with RJ45 connector or higher specification standard network cable, cable length less than 10m。	Self-provided
18	EMS RS485communication cable	• Shielded twisted pair cable meeting local standards • Conductor cross-sectional area: 0.2mm²-0.4mm² • Cable outer diameter: 5mm-8mm	Self-provided
19	(Reserved) Charging pile RS485communication cable		
20	Inverter and STS communication cable	-	Shipped with the box

No.	Cable	Recommended Specifications	Acquisition Method
21	Energy meterCTCable	• Single-core Outdoor Copper Cable • Conductor cross-sectional area:1.3mm²-2.3mm² • Cable outer diameter:1.3-1.7mm	Self-provided
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	Self-provided
23	SEC3000CThree-phase AC cable		Self-provided
24	External deviceRS485communication cable	• Shielded twisted pair cable meeting local standards • Conductor cross-sectional area:0.07mm²-1.3mm² • Cable outer diameter:0.3mm-1.3mm	Self-provided
25	External device network cable	• Standard shielded network cable: withRJ45connector,CAT 5or above standard network cable • Network cable length not exceeding100m	Self-provided

No.	Cable	Recommended Specifications	Acquisition Method
*If BACK-UPAC cable and ON-GRIDAC cables require single-core cables; please use fireproof mud at the AC cable Protection cover connector to ensure the Ingress Protection Rating. *If BACK-UPAC cable and ON-GRIDAC cable diameters are greater than 38mm or the cable is inconvenient to install, it is necessary to strip the wire to 240mm or more, and use fireproof mud to seal the AC cable Protection cover connector.			

5.3.3 Combiner Box Preparation

NOTICE			
• In parallel operation scenarios, the Diesel Generator Connection port of the STS must be connected to the generator using a combiner box. • In on-grid parallel/off-grid parallel operation, the BACK-UP port of the STS must be connected to the BACK-UP load using a combiner box. • When paralleling the battery clusters of LX C101-10, LX C120-10, LX C138-10, and LX C156-10 battery systems, busbars and terminals must be provided by the user.			

No.	Combiner Box	Recommended Specifications	Acquisition Method
1	Generator Combiner Box	$I \geq 90A * N$; N is the number of inverters connected in parallel	Self-provided
2	BACK-UP Load Combiner Box	$I \geq 200A * N$; N is the number of inverters connected in parallel	Self-provided

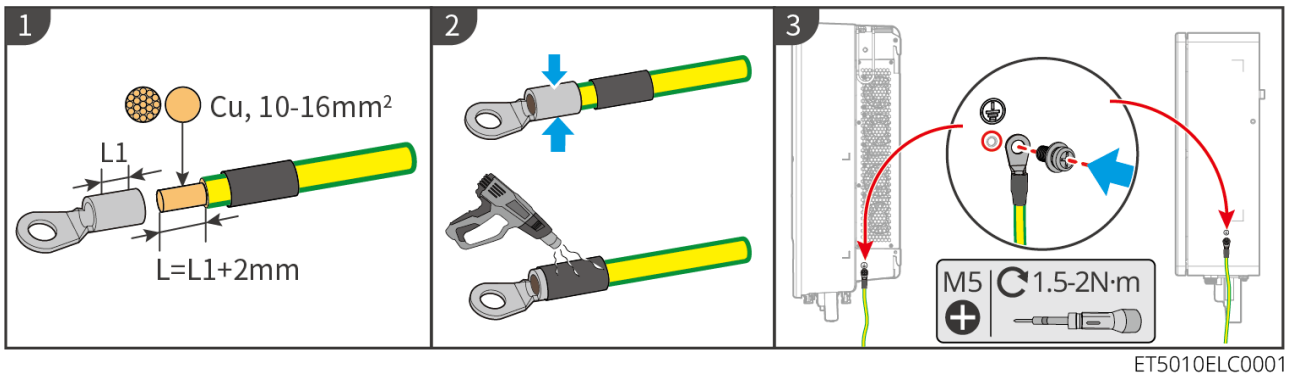
No.	Combiner Box	Recommended Specifications	Acquisition Method
3	Battery Cluster Paralleling Busbars and Terminals	1. Withstand voltage requirements: 3800Va.c./5320Vd.c., 60 s, no breakdown or flashover, leakage current ≤ 2 mA. 2. Maximum current-carrying capacity: ≥ 100A. 3. Insulation resistance: 2500Vd.c., 60 s, insulation resistance value ≥ 500MΩ. 4. Material requirements for busbars and terminals: copper. 5. All materials comply with RoHS. 6. The material and plating of busbars and terminals shall be consistent (T2 copper with tin plating is recommended).	Self-provided

5.4 Connecting the Protection Ground Cable

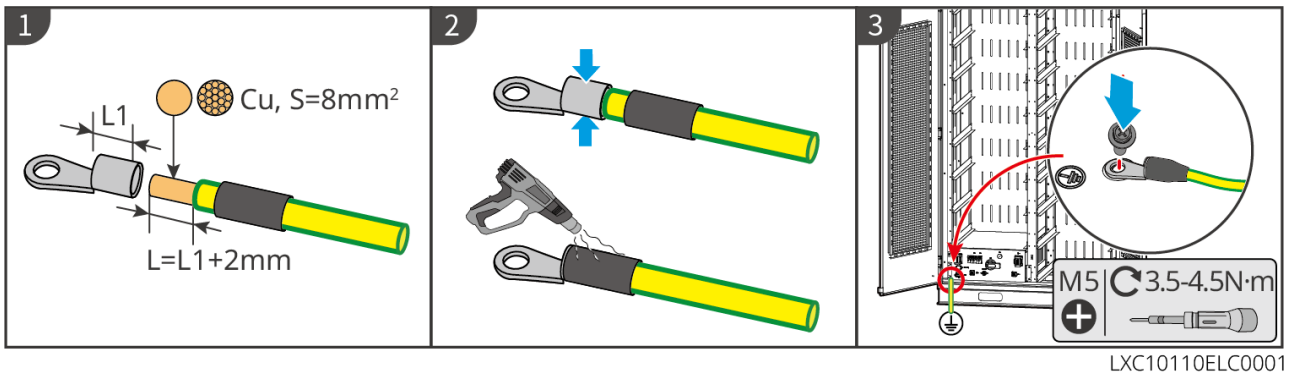
WARNING

- When installing the equipment, the Protection earth conductor must be installed first; when dismantling the equipment, the Protection earth conductor must be removed last.
- The Protection grounding of the enclosure cannot replace the Protection ground cable of the AC output port. When wiring, ensure that the Protection ground cables at both locations are reliably connected.
- When there are multiple devices, ensure the Protection grounding points of all device chassis enclosures are equipotentially bonded.
- To improve the corrosion resistance of the terminals, after the Protection ground cable connection is installed, it is recommended to apply silicone or paint to the exterior of the grounding terminal for protection.
- Please provide your own Protection grounding cable.

Inverter/STS



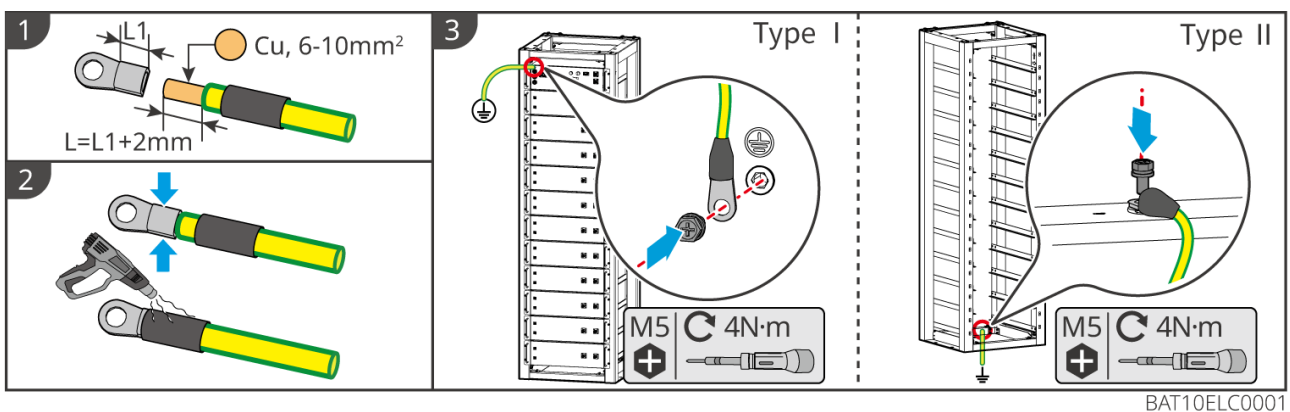
Lynx C Series 101-156Kwh High-Voltage Battery



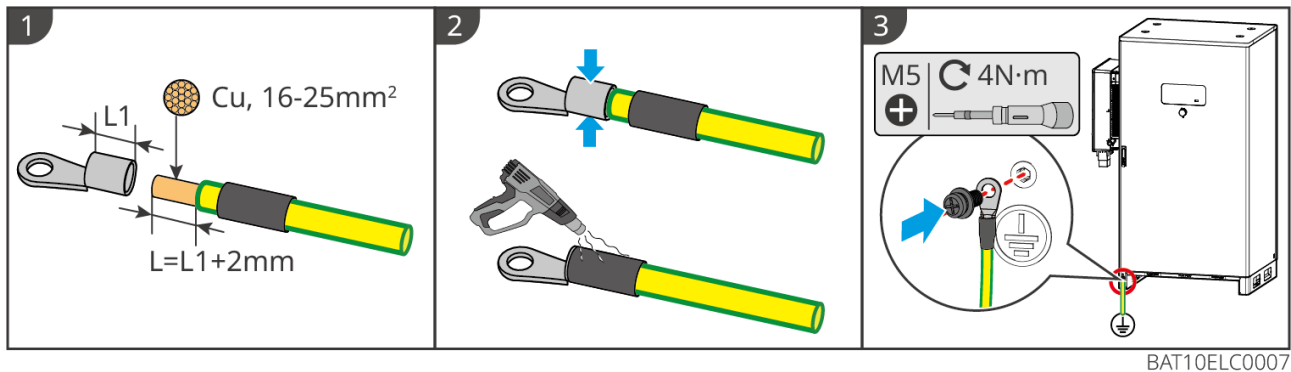
BATSeries 25.6-56.3Kwh High-Voltage Battery

NOTICE

You can select one of the grounding points for grounding according to actual conditions.



BATSeries 92.1-112.6Kwh Commercial and Industrial Battery System



5.5 Connect PV Cables

DANGER

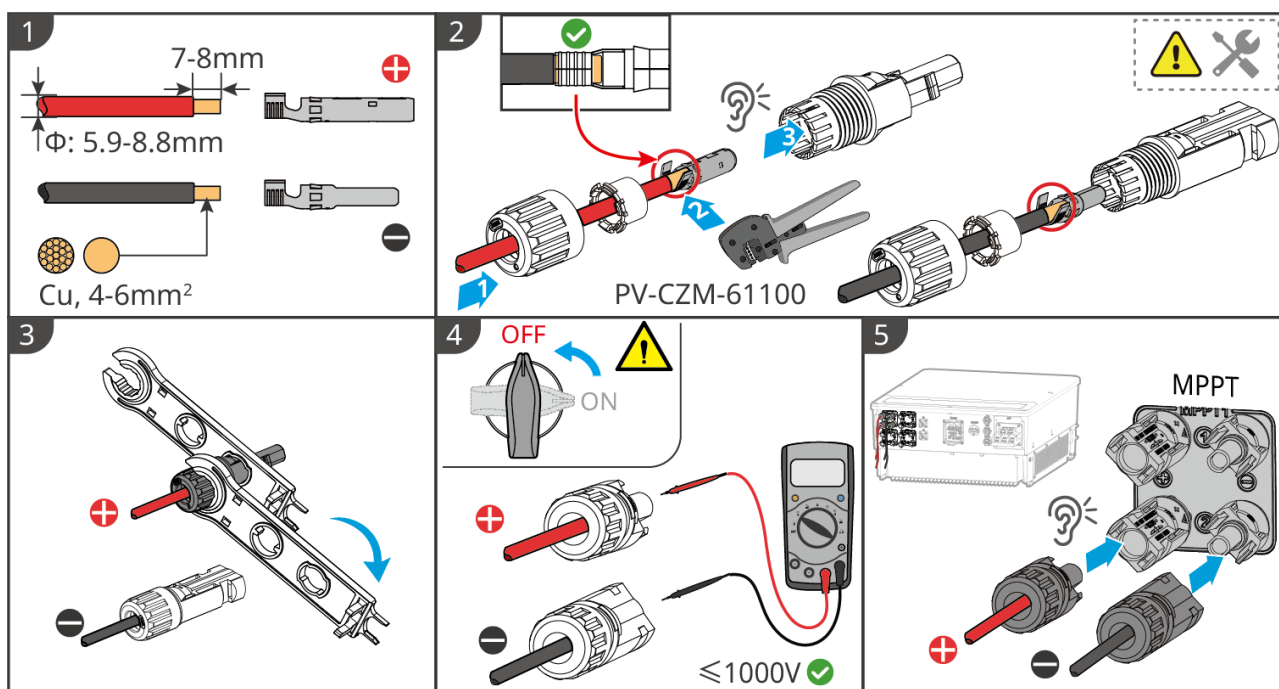
- Do not connect the same PV string to multiple inverters; otherwise, the inverter may be damaged.
 - PV strings exposed to sunlight generate high-voltage DC. Pay attention to safety during electrical connection.
 - Before connecting PV strings to the inverter, confirm the following information; otherwise, the inverter may be permanently damaged, and in severe cases, a fire may occur, causing personal injury and property loss.
1. Ensure that the Max. MPPT Short Circuit Current and Max. Input Voltage of each MPPT are within the allowable range of the inverter.
 2. Ensure that the positive pole of the PV string is connected to the PV+ of the inverter, and the negative pole of the PV string is connected to the PV- of the inverter.

! WARNING

- The PV string output does not support grounding. Before connecting PV strings to the inverter, ensure that the minimum insulation resistance to ground of the PV strings meets the minimum insulation impedance requirement ($R = \text{Max. Input Voltage}/30 \text{ mA}$).
- After the DC cables are connected, ensure that the cable connections are secure and not loose.
- Use a multimeter to measure the positive and negative terminals of the DC cables, and ensure that the positive and negative terminals are correct and not reversed; and that the voltage is within the allowable range.
- Parallel connection of MPPT strings must comply with local laws and regulations.

NOTICE

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



ET5010ELC0002

5.6 Connect Battery Cables

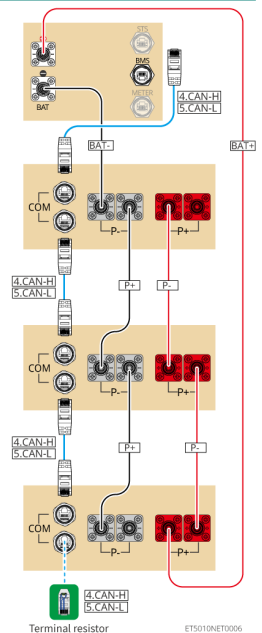
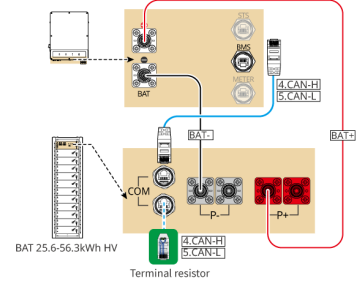
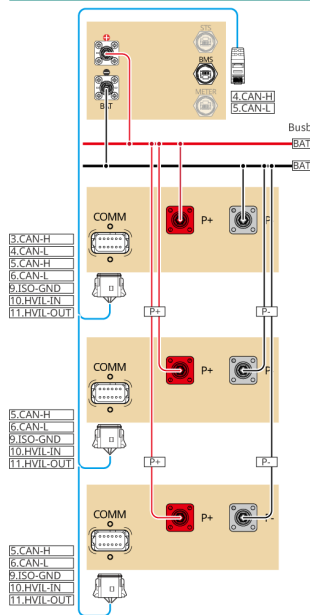
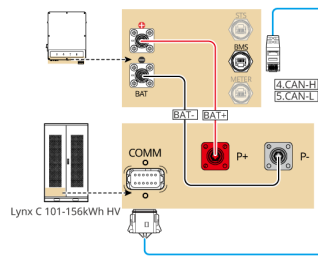
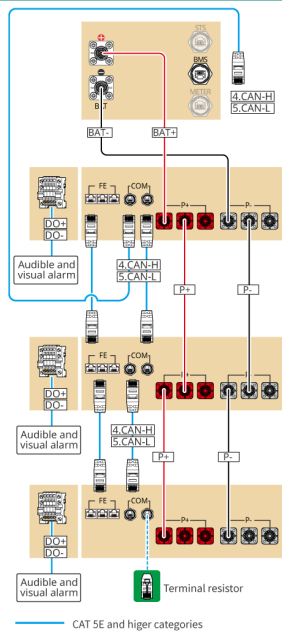
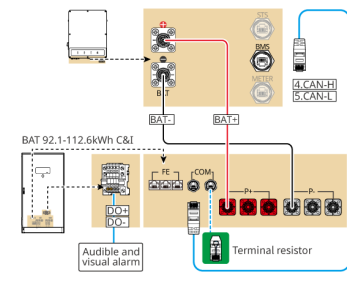
 DANGER

- Do not connect the same Battery BANK to multiple inverters; otherwise, it may cause inverter damage.
- Connecting a load between the inverter and the battery is prohibited.
- When connecting battery cables, use insulated tools to prevent accidental electric shock or a Battery Short Circuit.
- Ensure that the battery open-circuit voltage is within the allowable range of the inverter.
- Whether to install a DC Switch between the inverter and the battery shall be determined according to local laws and regulations.

 WARNING

- Use a multimeter to measure the positive and negative terminals of the DC cables, and ensure that the positive and negative terminals are correct and not reversed; and that the voltage is within the allowable range.
- When wiring, the battery cables must match the "BAT+", "BAT-", and grounding ports on the battery terminals exactly. Incorrect cable connections will cause equipment damage.
- Ensure that the wire core is fully inserted into the terminal wiring hole with no exposed part.
- Ensure that the cables are securely connected; otherwise, during equipment operation, the terminals may overheat and cause equipment damage.

Battery System Wiring Diagram



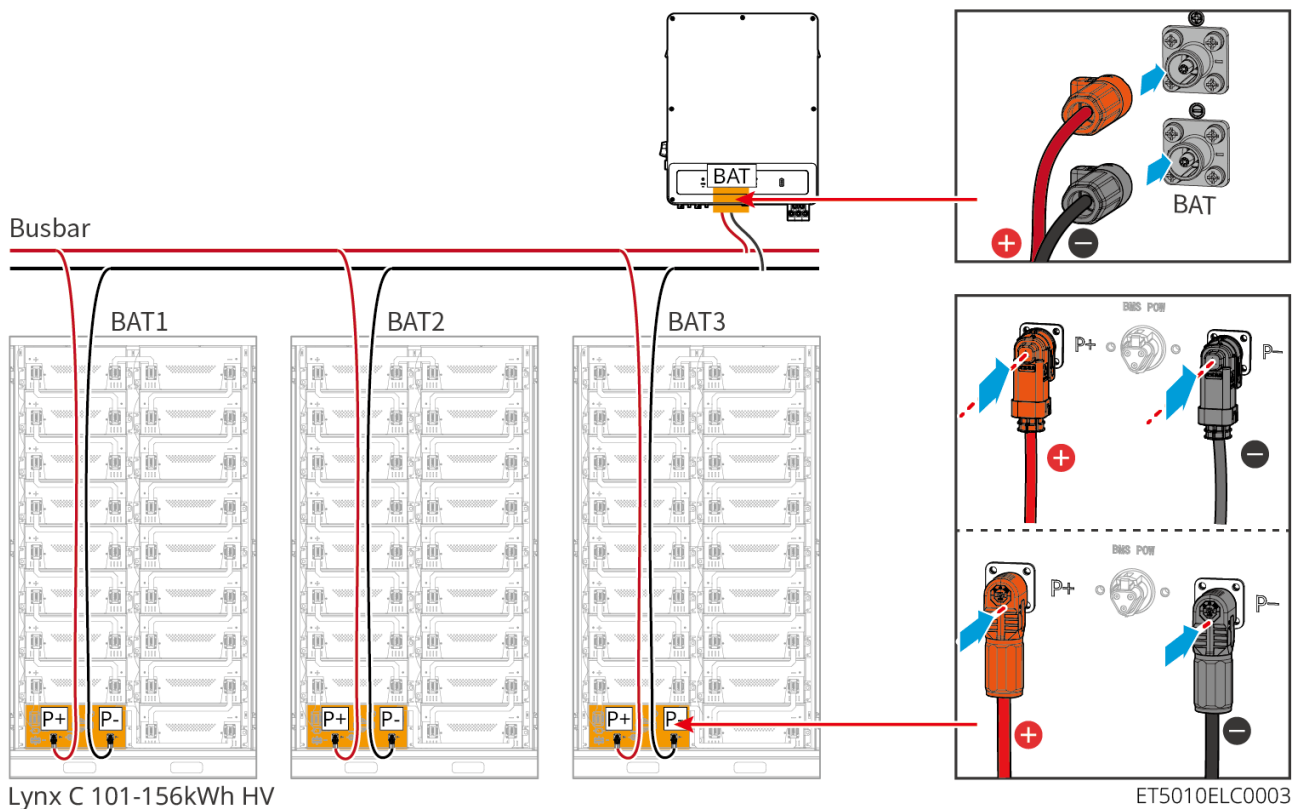
5.6.1 Lynx C Series 101-156Kwh High-Voltage Battery

5.6.1.1 Connect the Inverter and Battery Power Cables

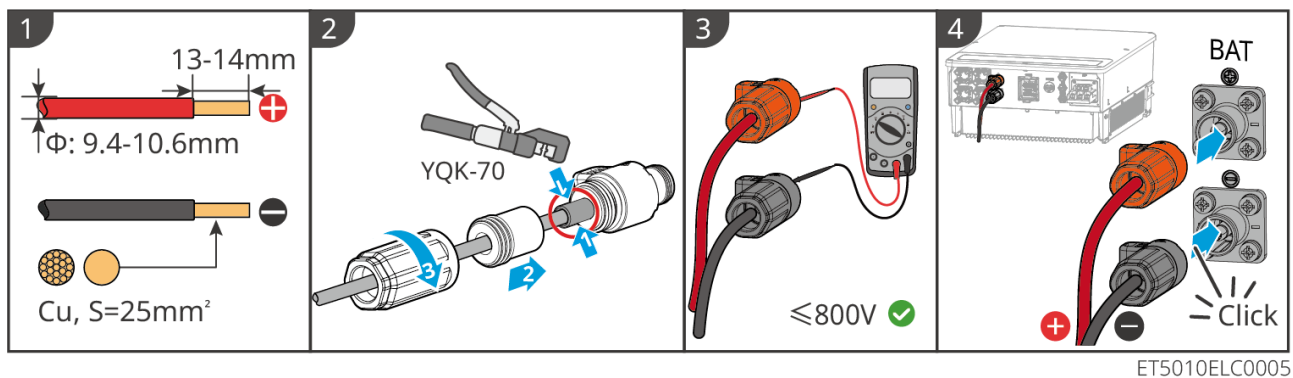
NOTICE

Lynx C series 101-156 kWh high-voltage batteries support up to 3 battery cabinets in parallel cluster.

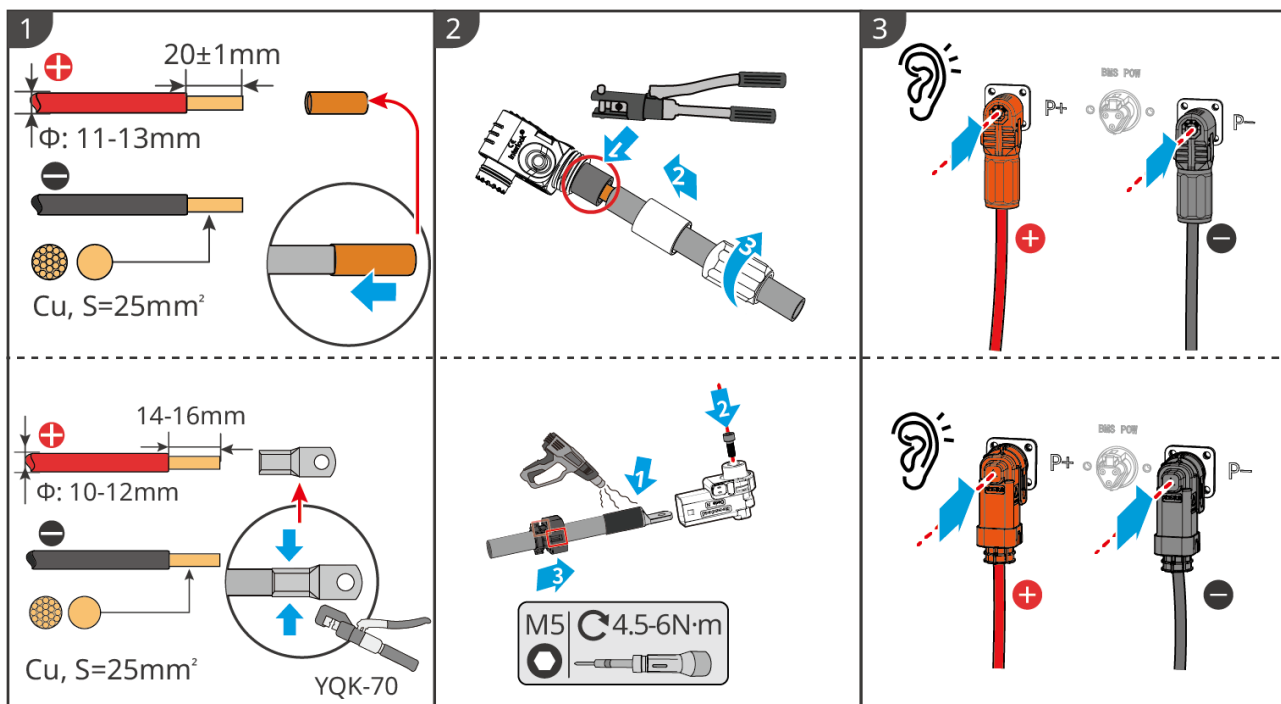
Overview of Power Cable Wiring Between Inverter and Battery



Inverter-Side Cable Fabrication Method

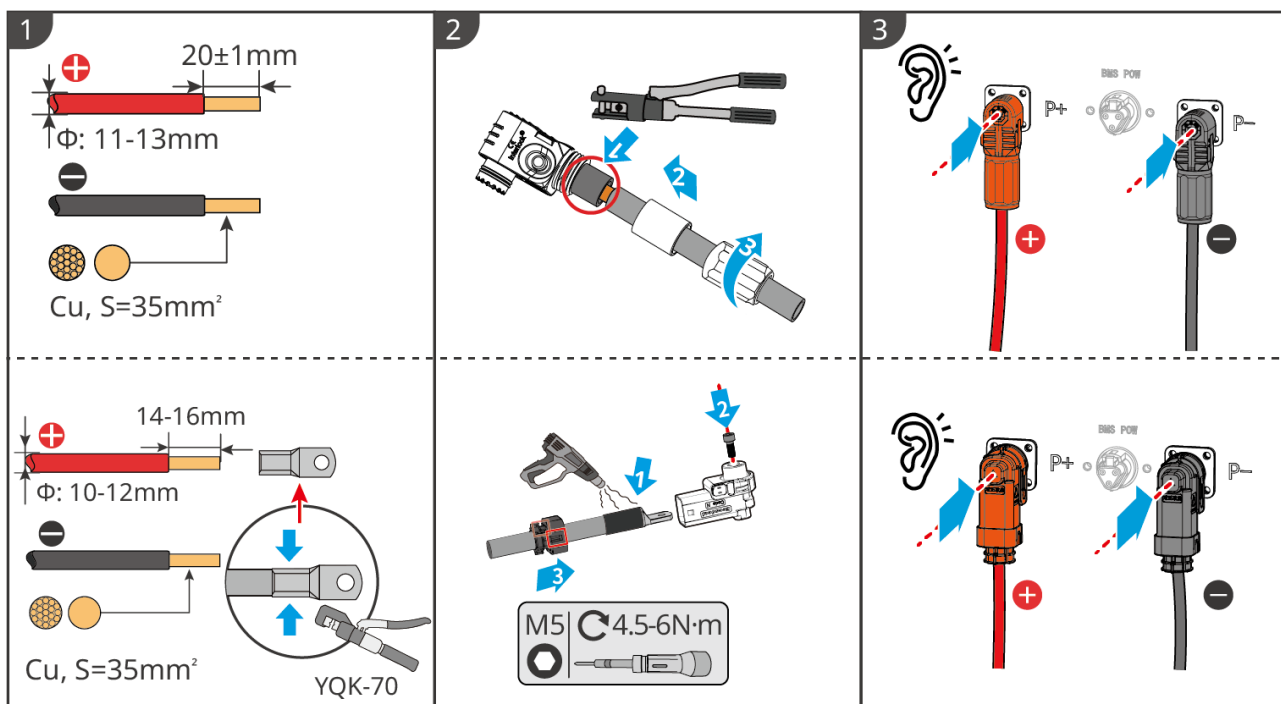


Method for Making Battery-Side Cables



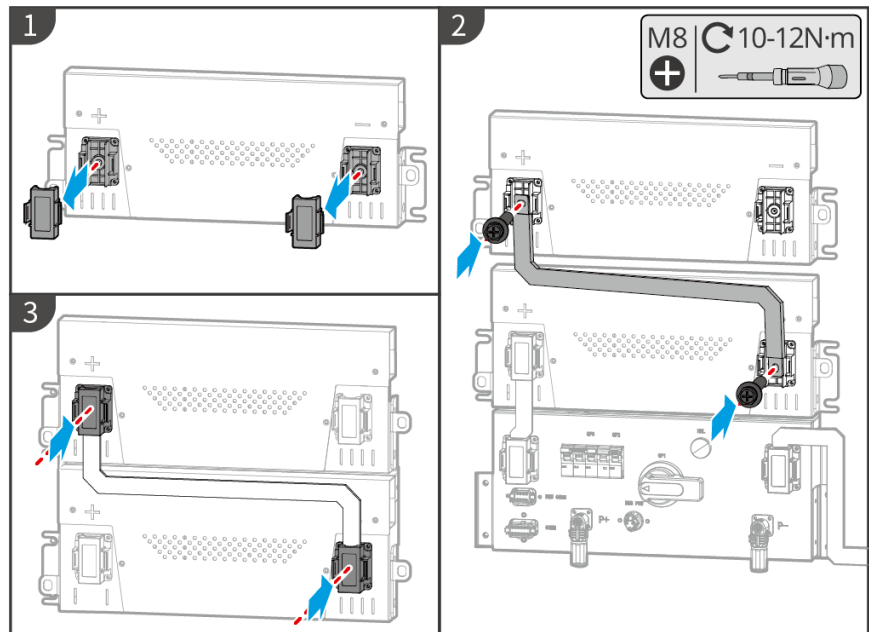
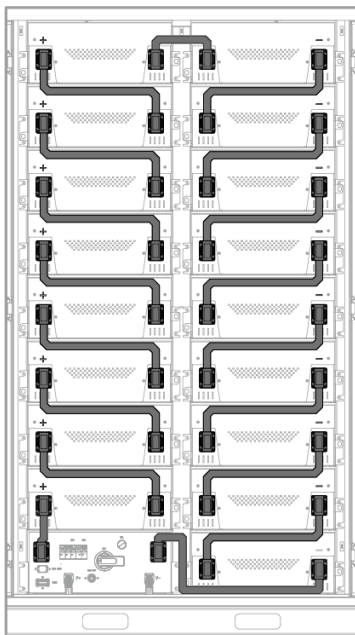
LXC10110ELC0002

Method for Making Battery-Side Parallel-Cluster Cables



LXC10110ELC0006

5.6.1.2 Connect the Internal Power Busbars of the Battery System



LXC10110ELC0003

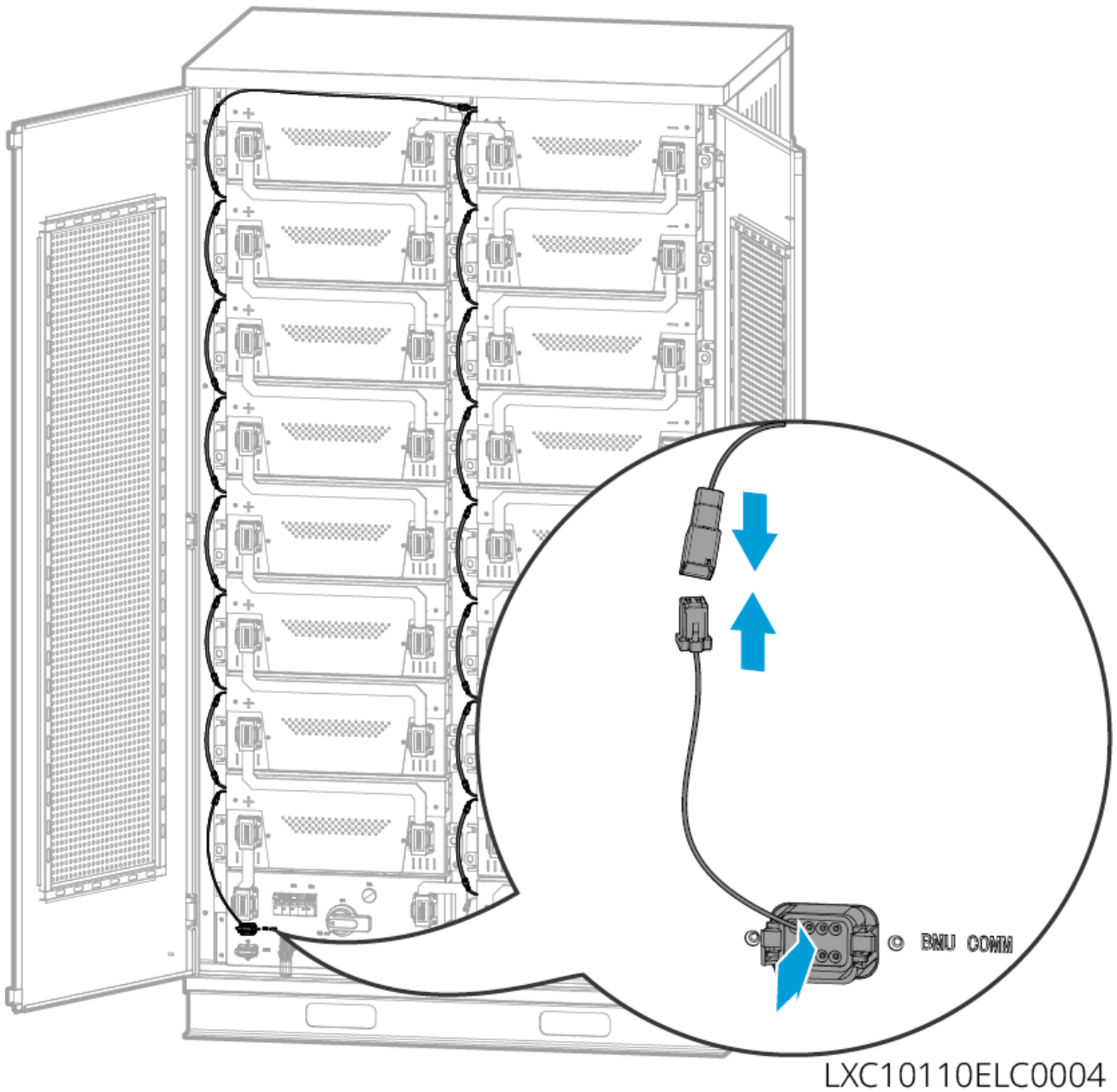
5.6.1.3 Connect Communication Cables

NOTICE

The battery system is shipped with a communication cable. Use the communication cable shipped with the unit.

Communication Port Description:

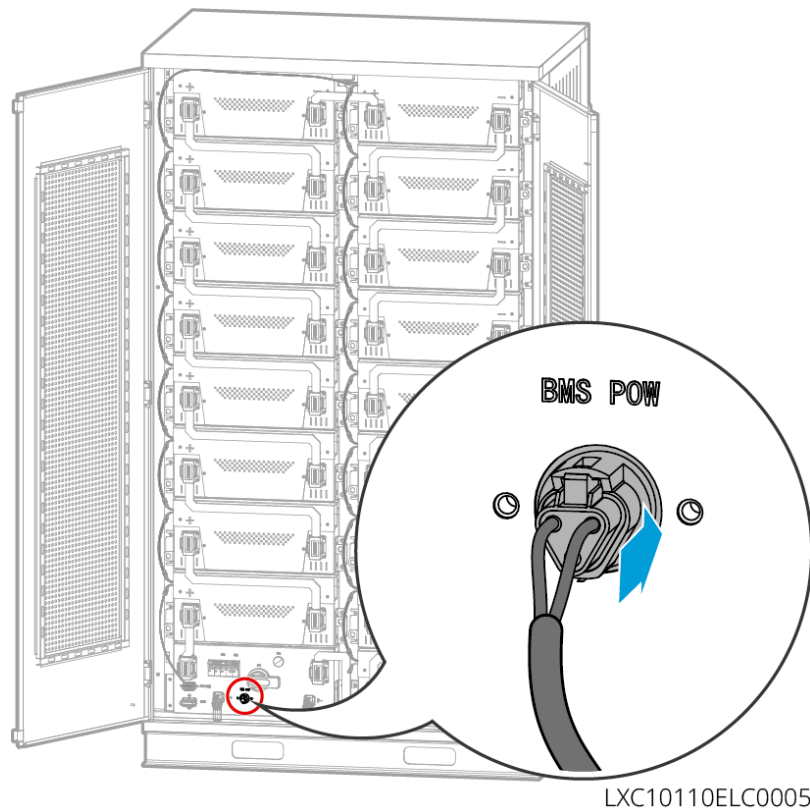
Port	Definition	Description
BMS	4: CANH1 5: CANL1	CAN communication is used between inverter and battery
COM	3: CAN2H 4: CAN2L	Connect an inverter that uses CAN communication
	5: CAN3H 6: CAN3L	CAN communication for parallel clusters between batteries



5.6.1.4 (Optional) Connect the AC Power Supply Cable

NOTICE

- The battery system can supply DC power itself and also supports external single-phase AC power supply. The single-phase AC cable supplies power to the auxiliary power supply. Please select whether to use it according to actual requirements.
- For the single-phase AC power supply, please use an uninterruptible power supply (UPS: Uninterruptible Power Supply).
- Single-phase AC power supply input Voltage Range: 100-240 V; power ≥ 60 W; Frequency Range: 50-60 Hz.
- Single-phase AC terminals and cables are supplied with the unit.



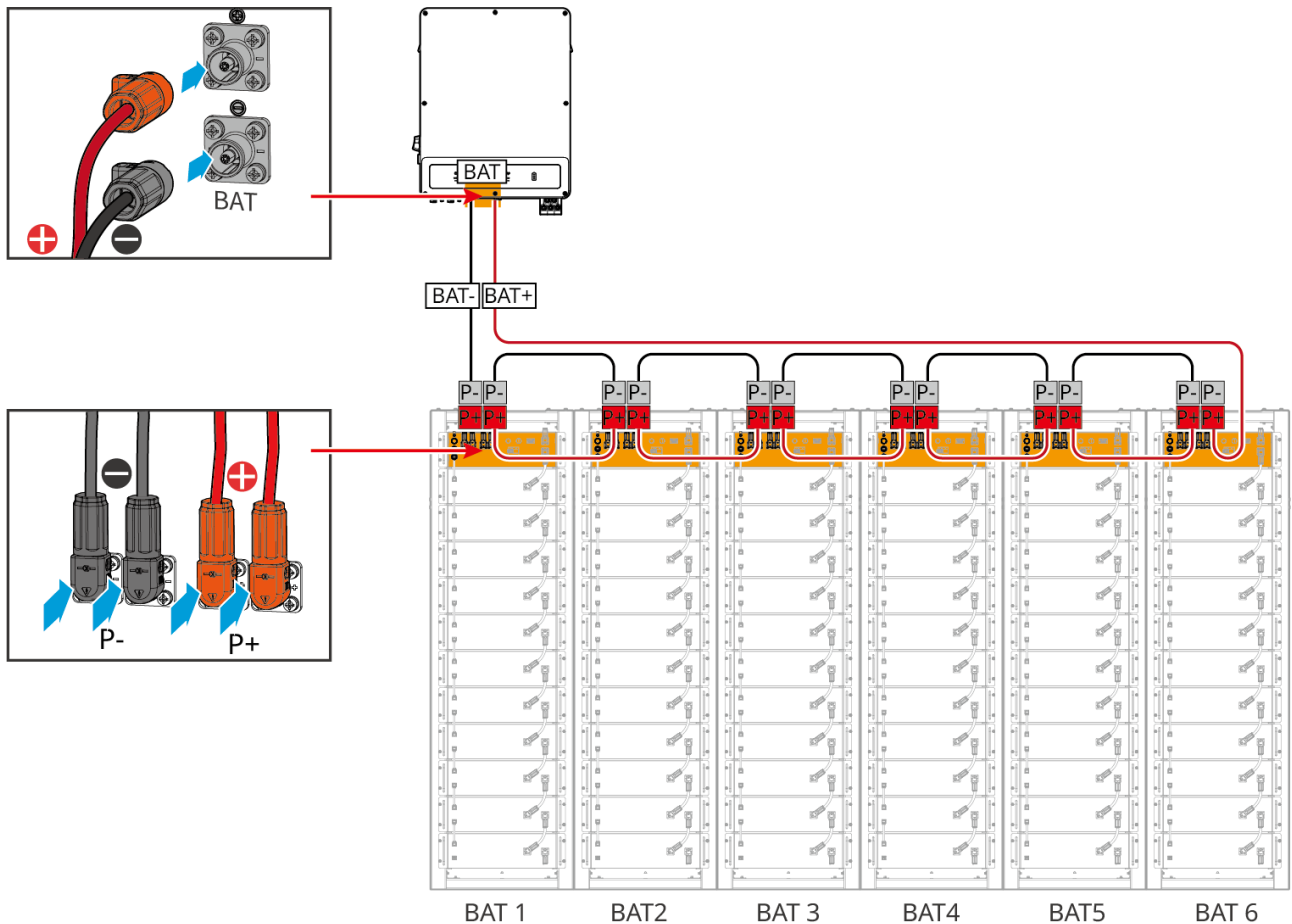
5.6.2 BAT Series 25.6-56.3Kwh High-Voltage Battery

5.6.2.1 Connect the Inverter and Battery Power Cables

NOTICE

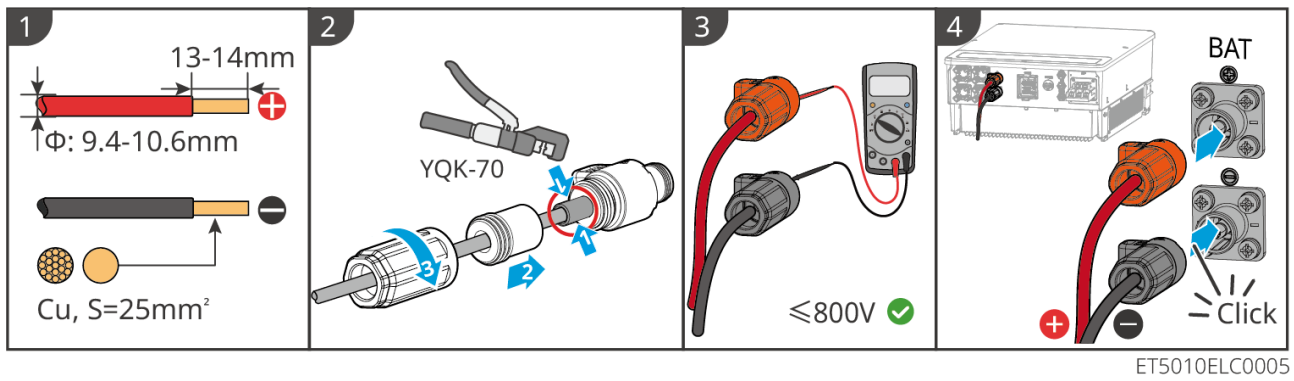
The BAT series 25.6-56.3kWh high-voltage battery supports up to 6 battery cabinets connected in parallel clusters.

Wiring Overview

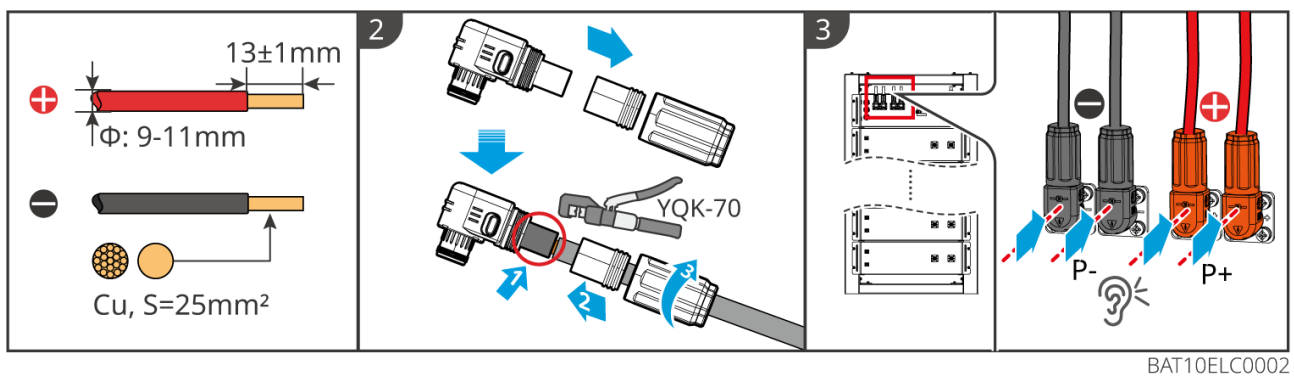


ET5010ELC0015

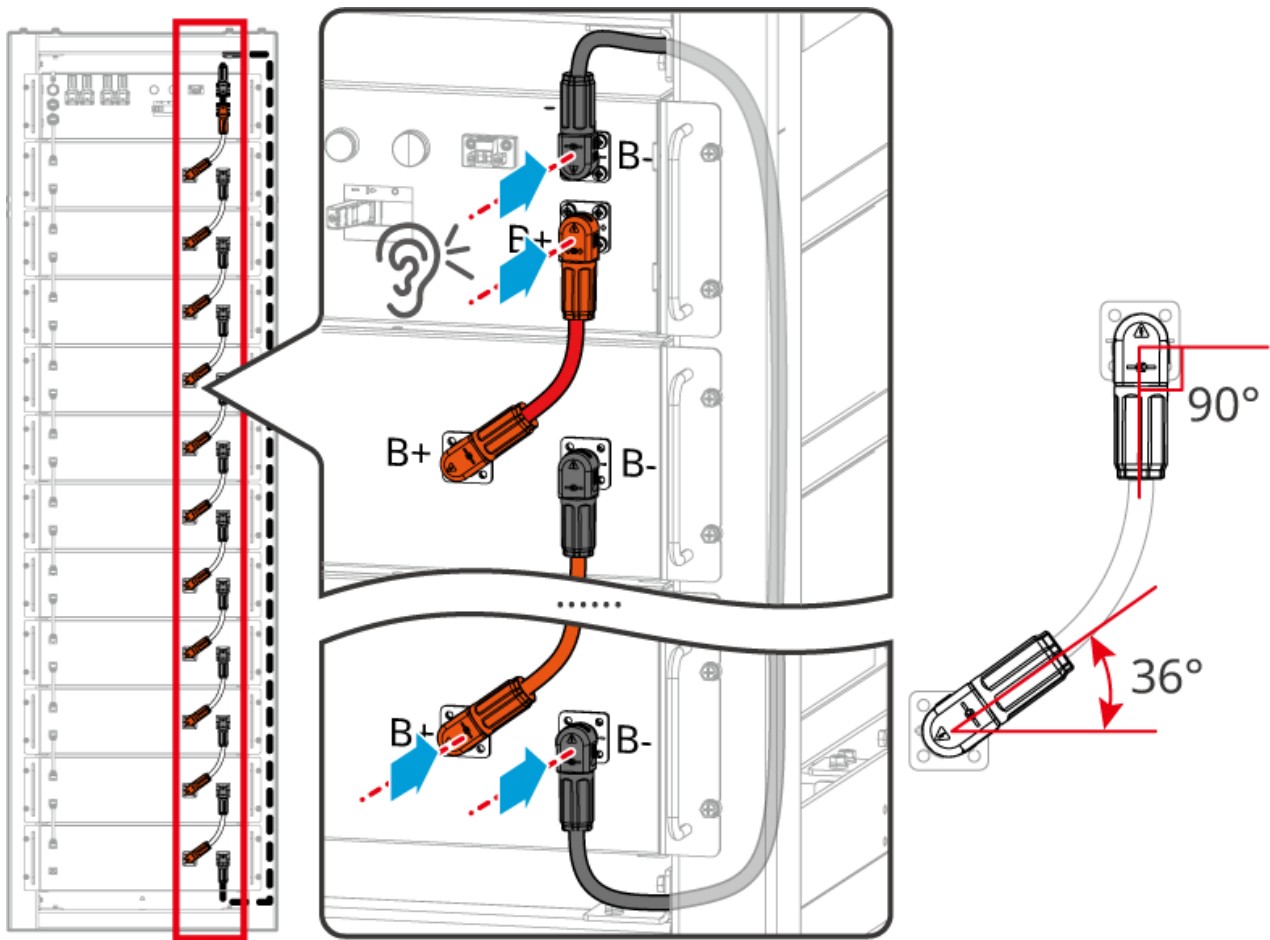
Inverter-Side Cable Fabrication Method



Battery-Side Cable Fabrication Method (Including Parallel Cluster Wiring)



5.6.2.2 Connect Inter-Battery Power Cables



BAT10ELC0003

5.6.2.3 Connect Communication Cables

NOTICE

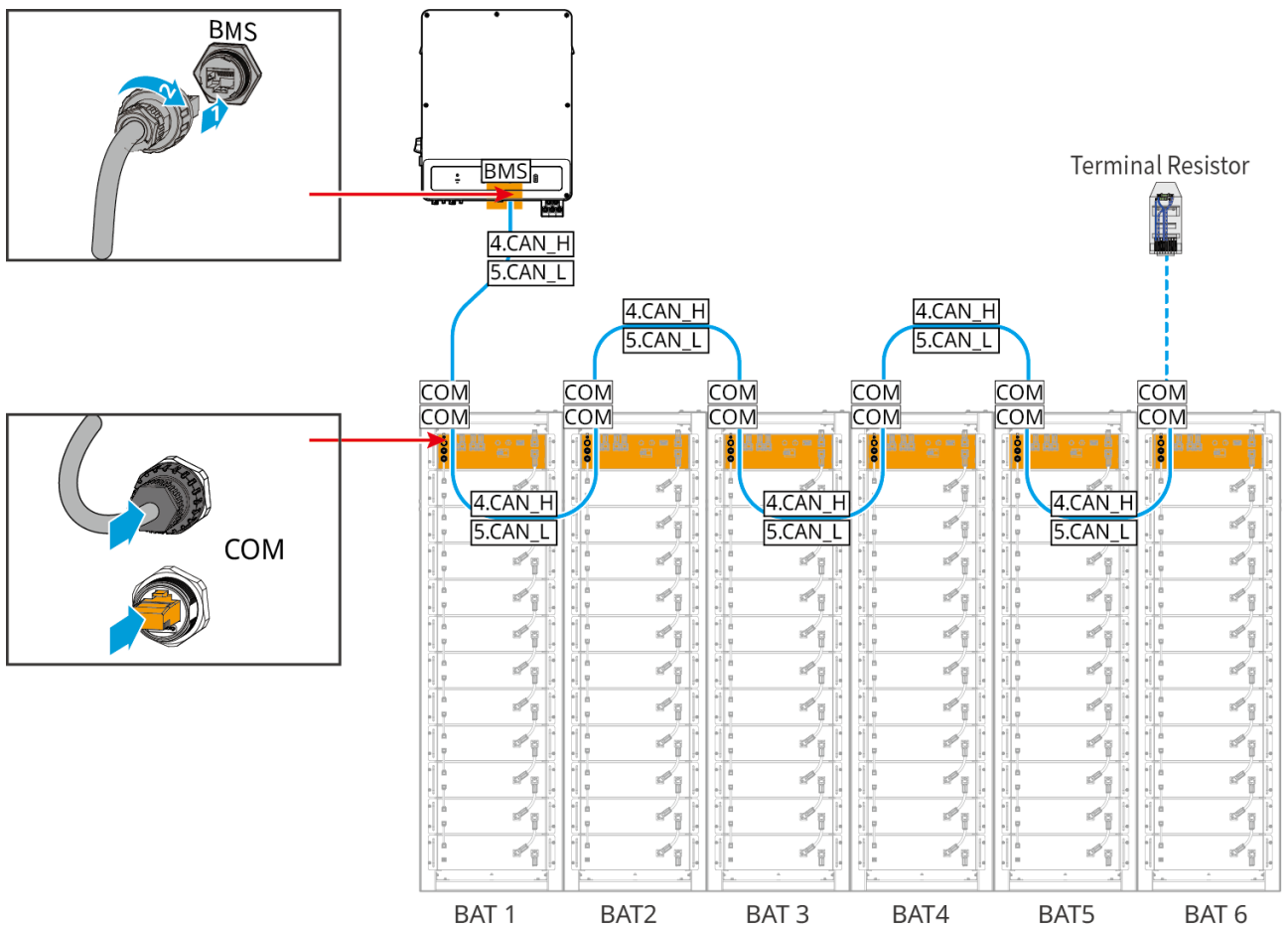
The battery system is shipped with a communication cable. Use the communication cable shipped with the unit.

BMS Communication Connection Instructions Between Inverter and Battery:

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

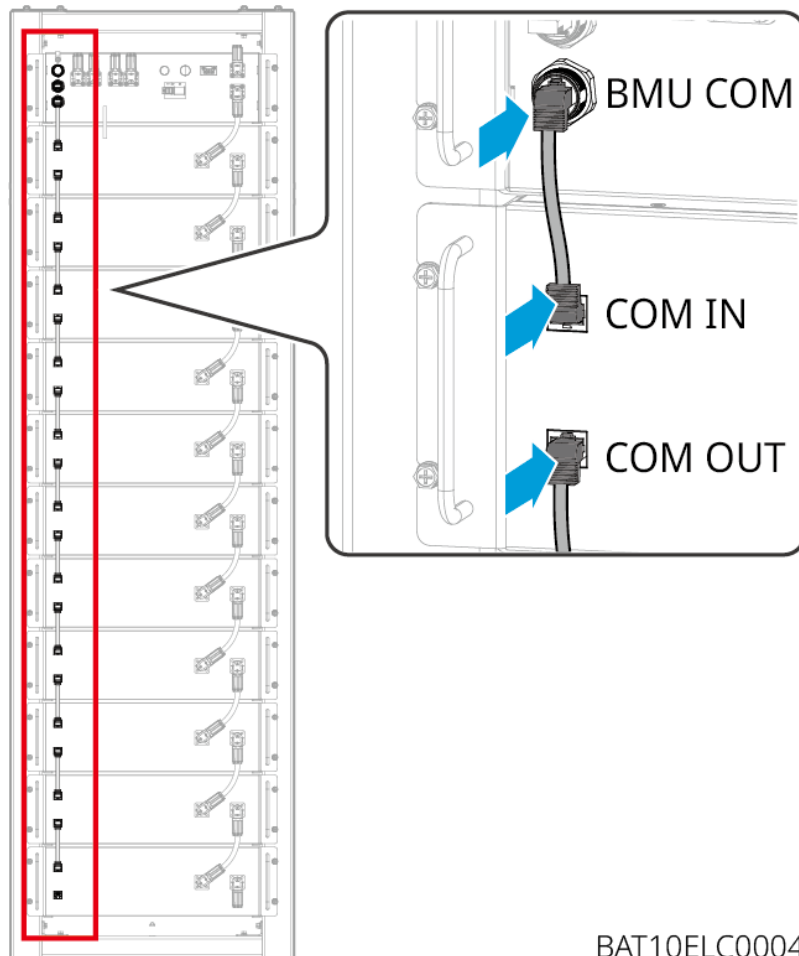
Port	Definition	Description
	4: CAN_H 5: CAN_L	Communication with inverter or parallel cluster communication.

Inverter-to-Battery Communication Wiring



ET5010ELC0016

Communication Wiring Between Battery Packs



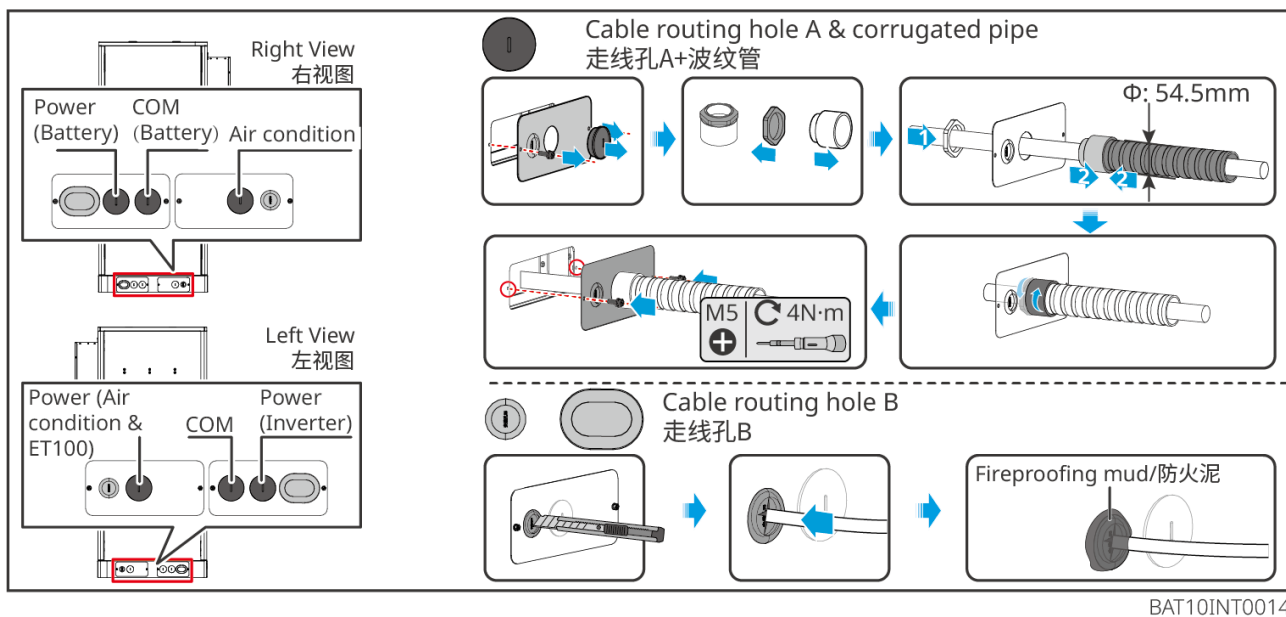
BAT10ELC0004

NOTICE

When connecting the communication cables between battery PACKs, the COM OUT port of the bottommost PACK should not be connected, and no terminating resistor is required!

5.6.3 BAT Series 92.1-112.6Kwh Commercial and Industrial Battery System

5.6.3.1 Introduction to Battery Cable Entry Holes and System Wiring



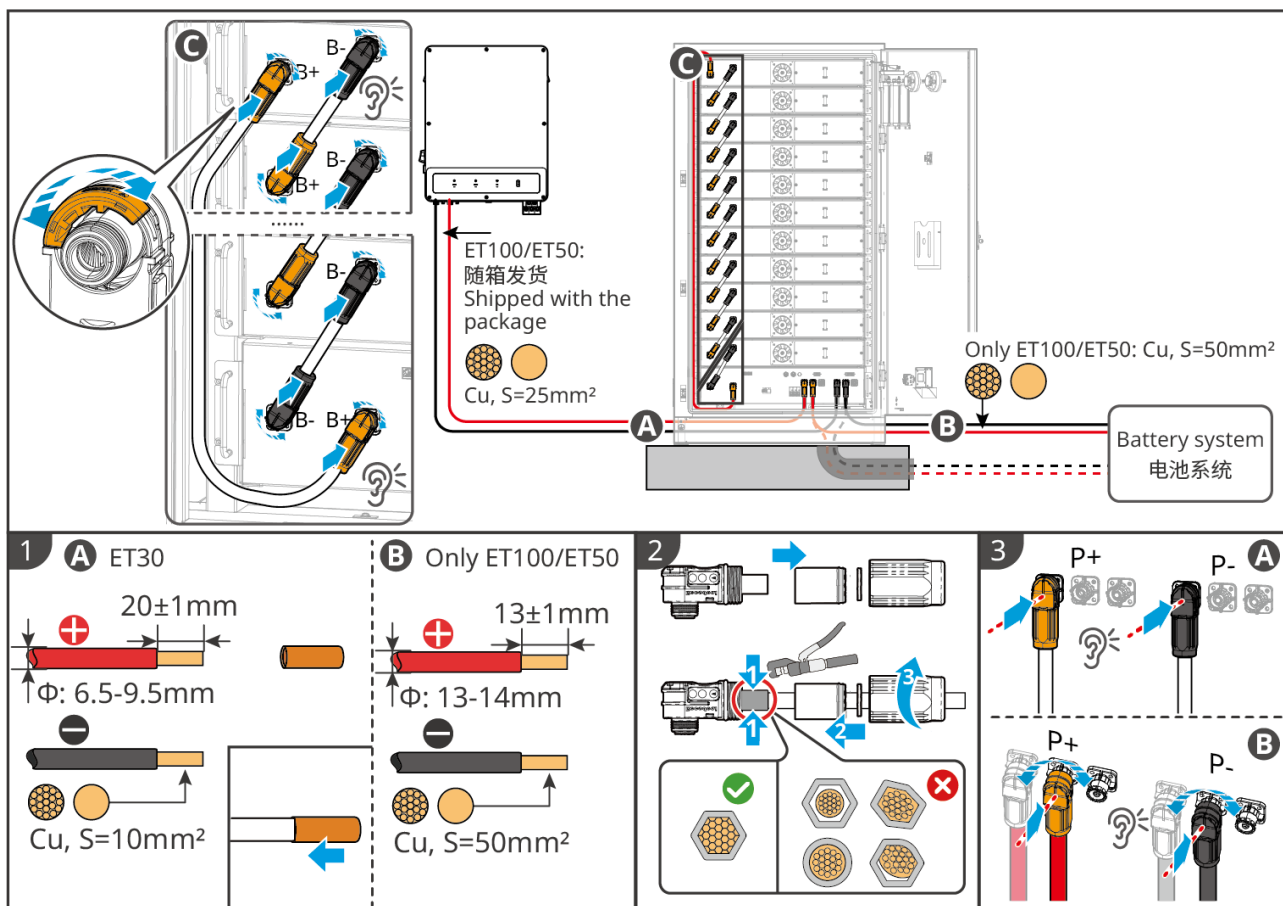
NOTICE

All cut cable routing holes must be sealed with firestop putty.

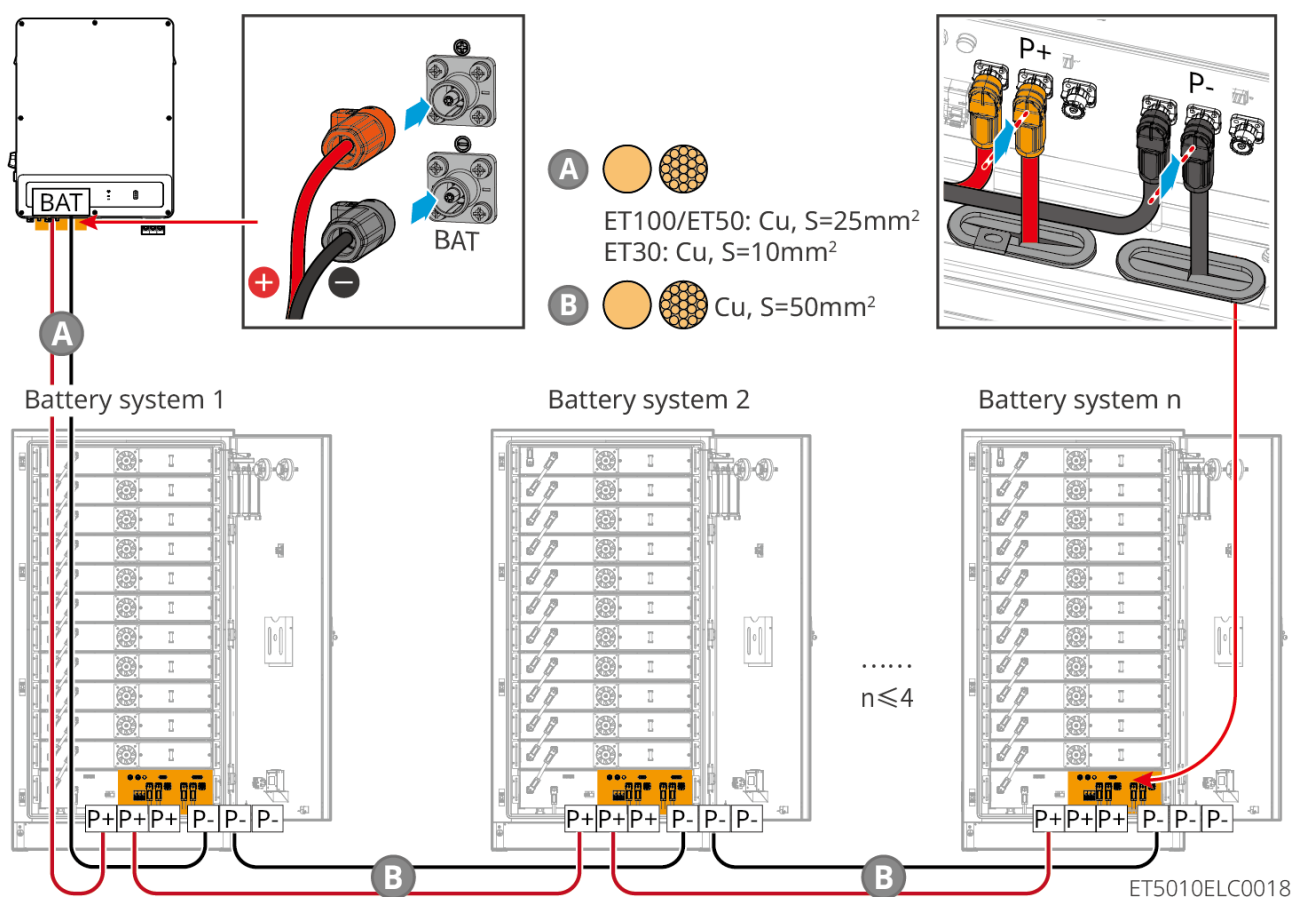
5.6.3.2 Connecting the Inverter-to-Battery Power Cables and Inter-Battery Power Cables

NOTICE

- When connecting the inverter to the battery, use the prefabricated cables shipped with the unit. If the prefabricated cables are not long enough, select compliant cables and fabricate them onsite.
- The BAT series 92.1-112.6 kWh commercial and industrial battery system supports up to 4 battery cabinet clusters in parallel.



BAT10ELC0008



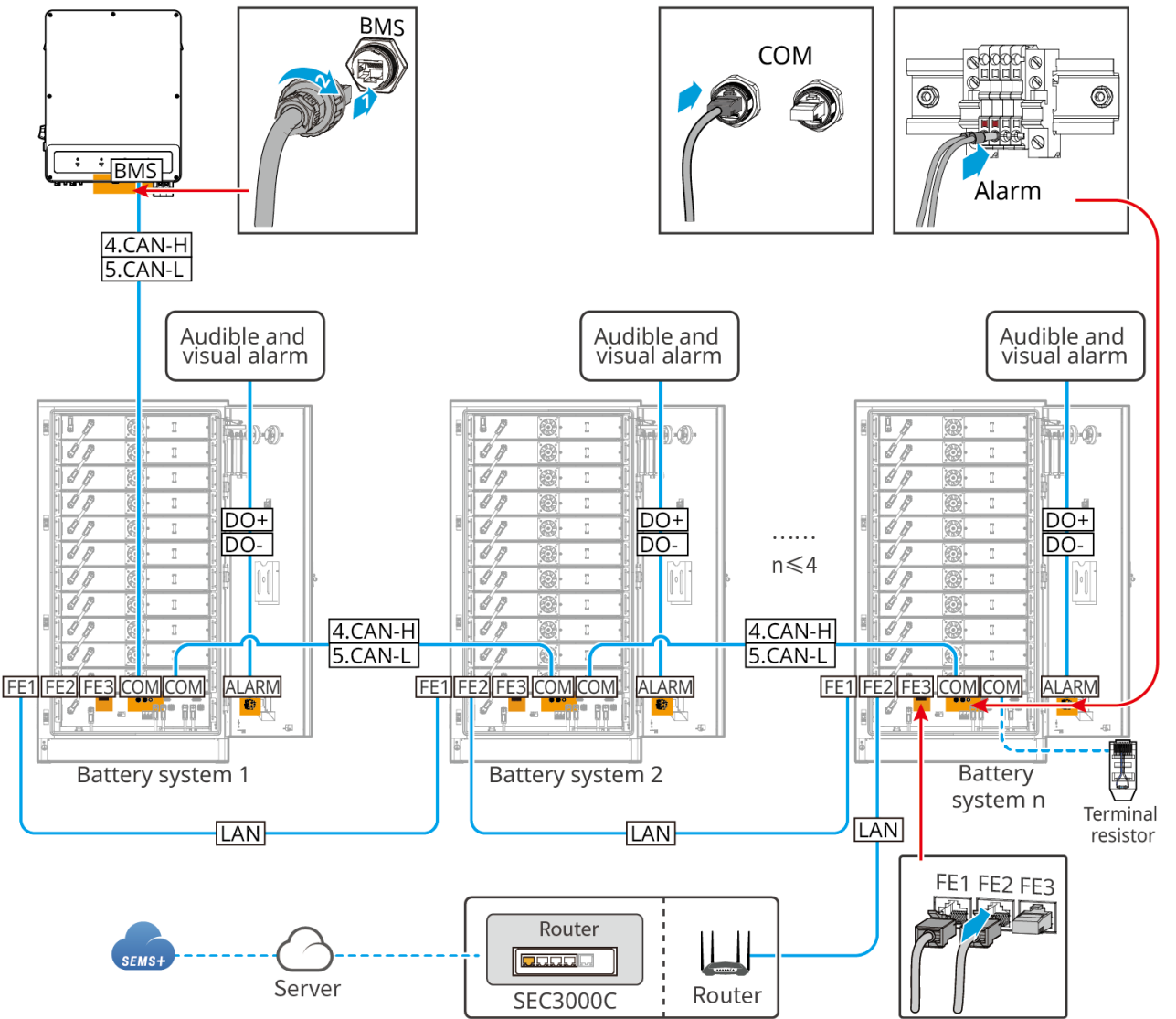
5.6.3.3 Connect Communication Cables

NOTICE

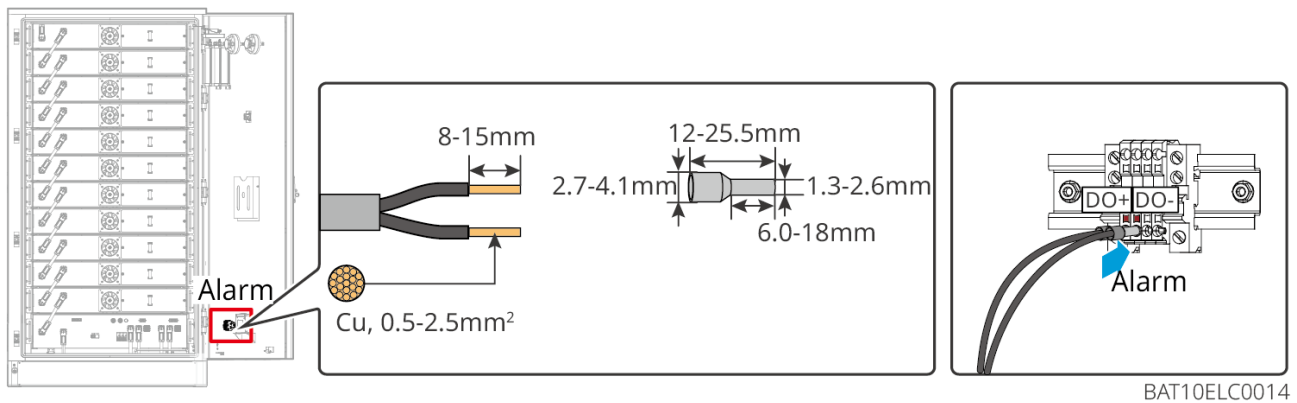
- At the factory, the external communication ports of the battery system already have terminating resistors installed. If you need to connect communication cables, remove the terminating resistors. For ports not connected to communication cables, keep the terminating resistors.
- When battery clusters are connected in parallel, to improve communication quality, the COM port on the battery farthest from the inverter must retain the terminating resistor.
- When battery clusters are connected in parallel, ensure that the distance from the battery farthest from the inverter to the inverter does not exceed 50 m.
- The battery system is shipped with a communication cable. Use the communication cable shipped with the unit.

Inverter-to-Battery BMS Communication

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



ET5010ELC0019

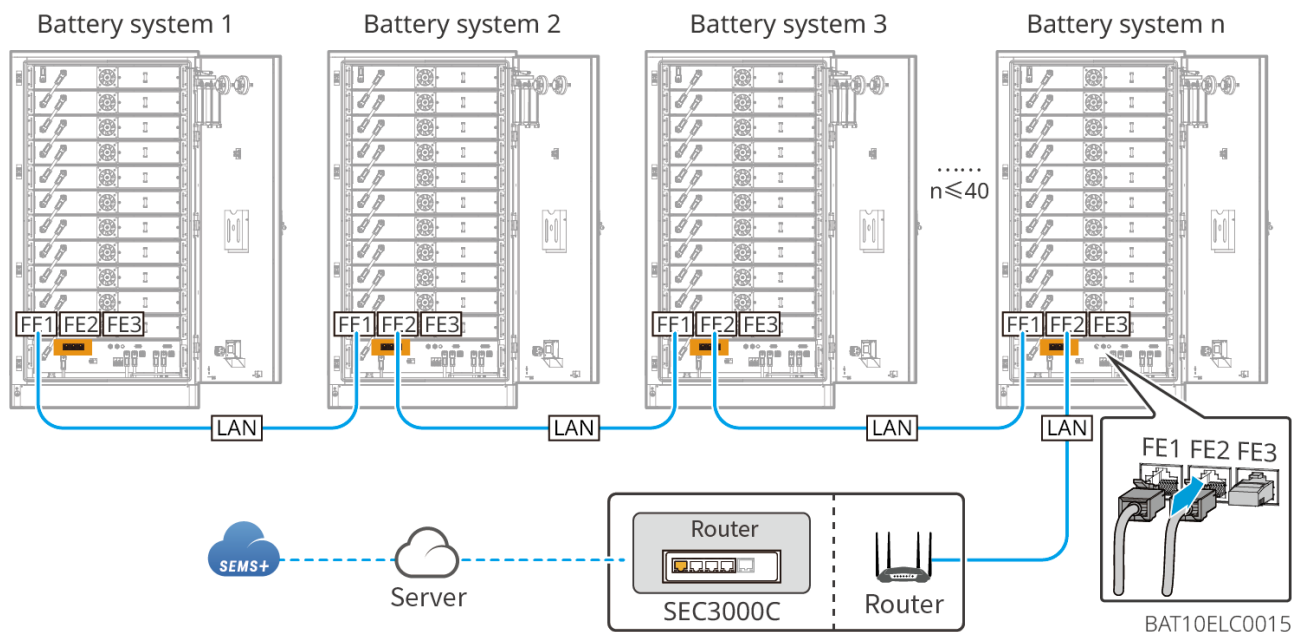


Inter-Battery Cloud Board Communication

NOTICE

- This function is only applicable to BAT series 92.1-112.6 kWh commercial and industrial battery systems with a cloud board.
- Version Requirements:
 - Cloud board firmware: version 01 or later.
 - SEC3000C: version 05 or later.

Inter-battery cloud board communication supports the transmission of cell-level information and supports parallel operation of up to 40 battery systems. For LAN communication, use a shielded network cable, and the connected router must be the router used for inverter network configuration.



5.6.3.4 Connecting the Battery Air Conditioner Cable

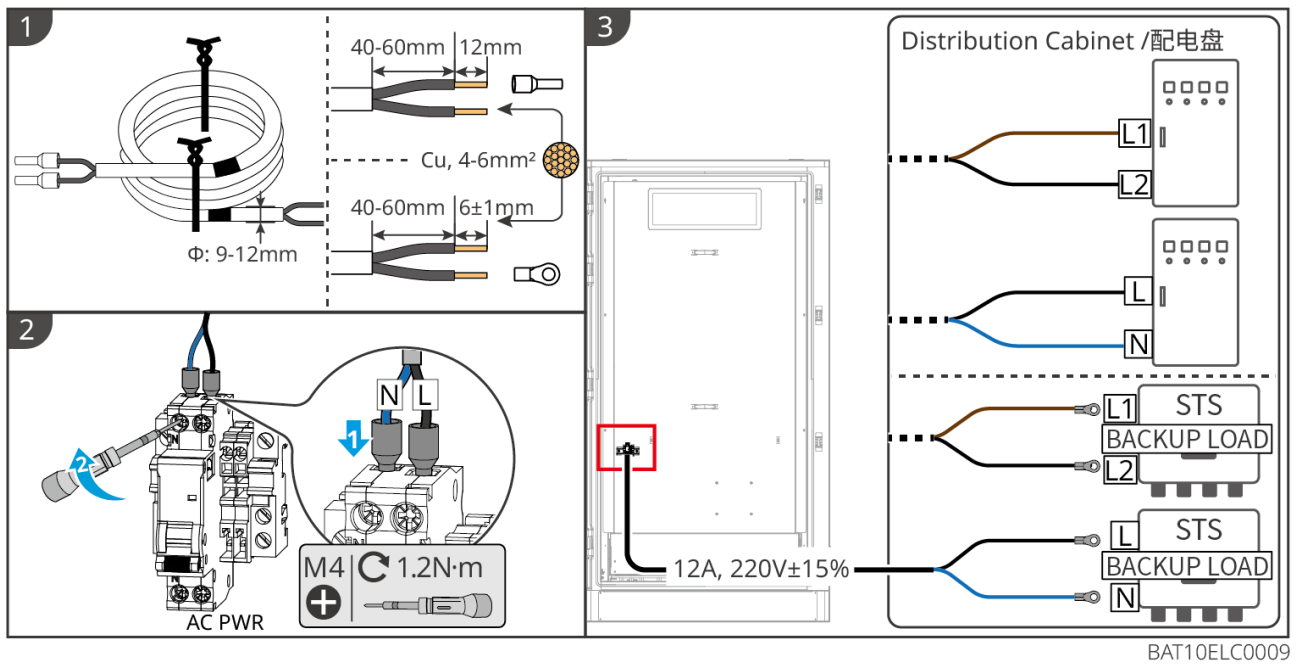
Step 1: Fabricate the air conditioner cable.

Step 2: Connect the cable to the air conditioner switch on the battery.

Step 3: Connect the cable to the distribution panel or to the inverter's BACKUP port via the STS.

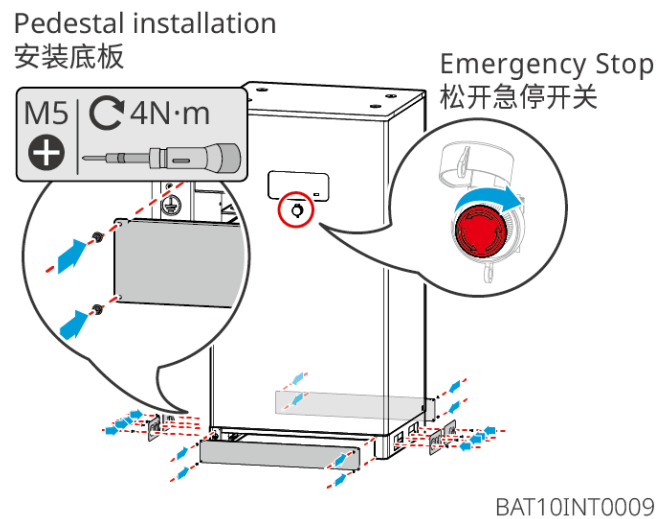
NOTICE

- When battery systems are connected in parallel clusters, route the air conditioner power cables separately.
- Ensure that the voltage of the air conditioner power cable is 220V±15%, and the Rated Current is 12A.



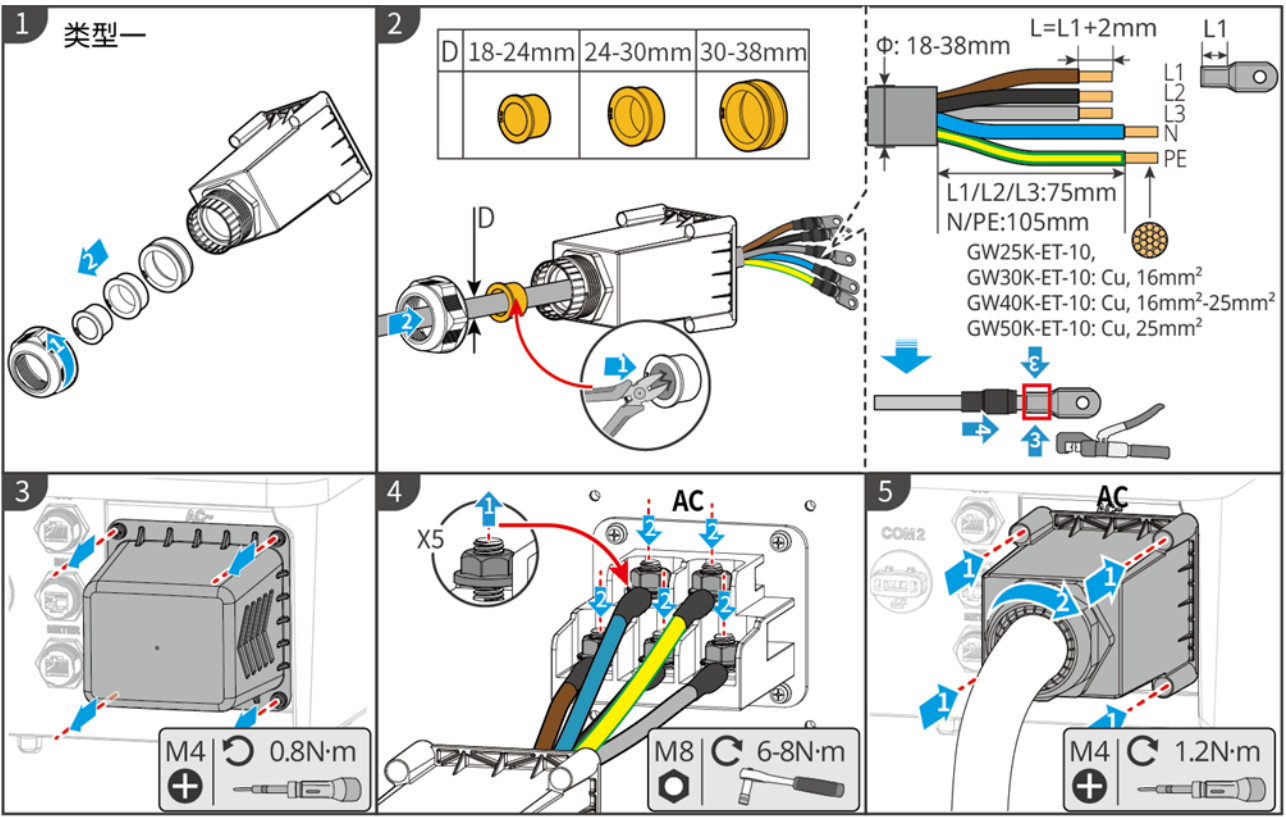
5.6.3.5 Install the Base Plate and Release the EPO Switch

After wiring is complete, reinstall the bottom baffle of the battery onto the battery and turn it clockwise to release the EPO switch.

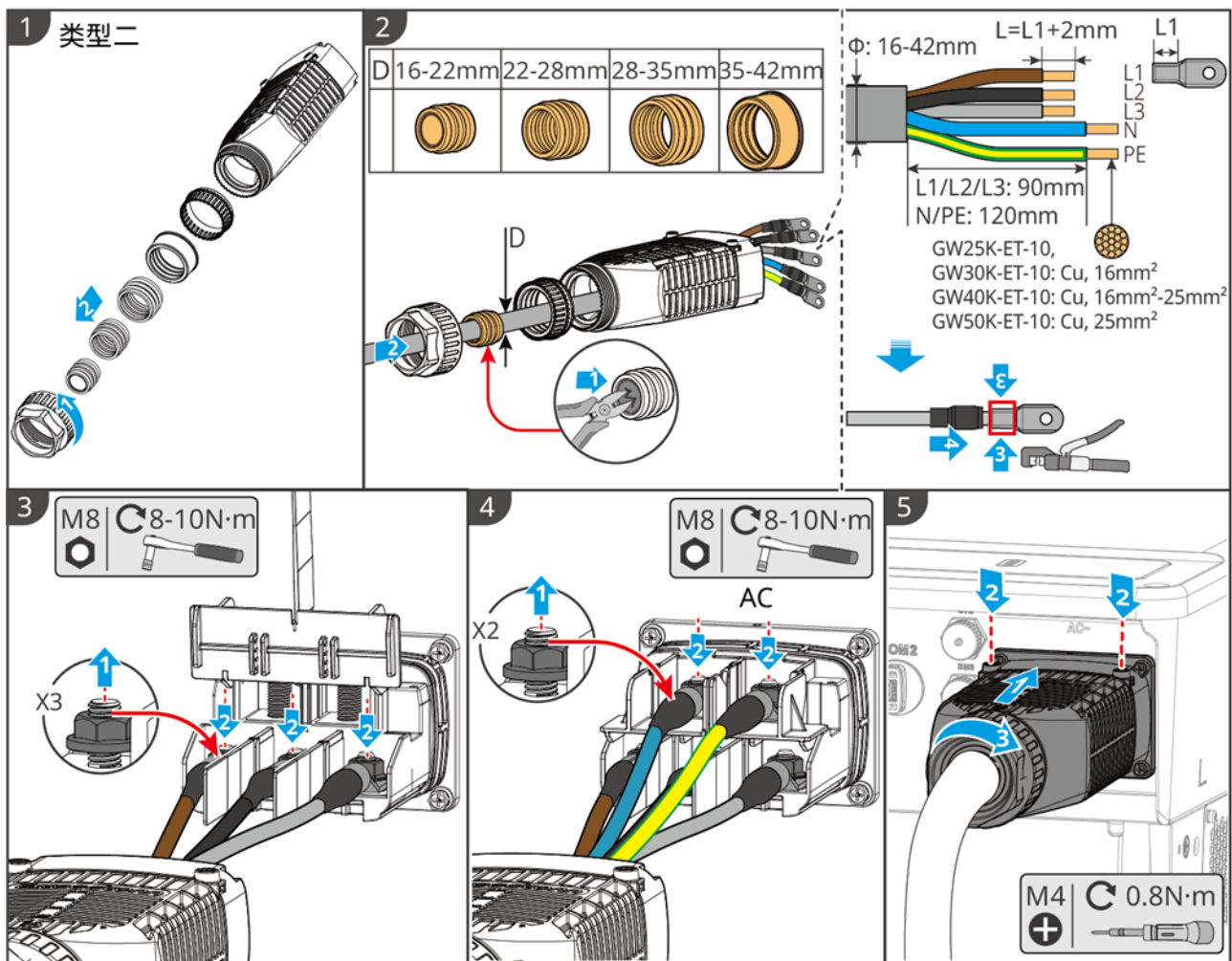


5.7 Connecting AC Cables

5.7.1 Connect Inverter AC Cables

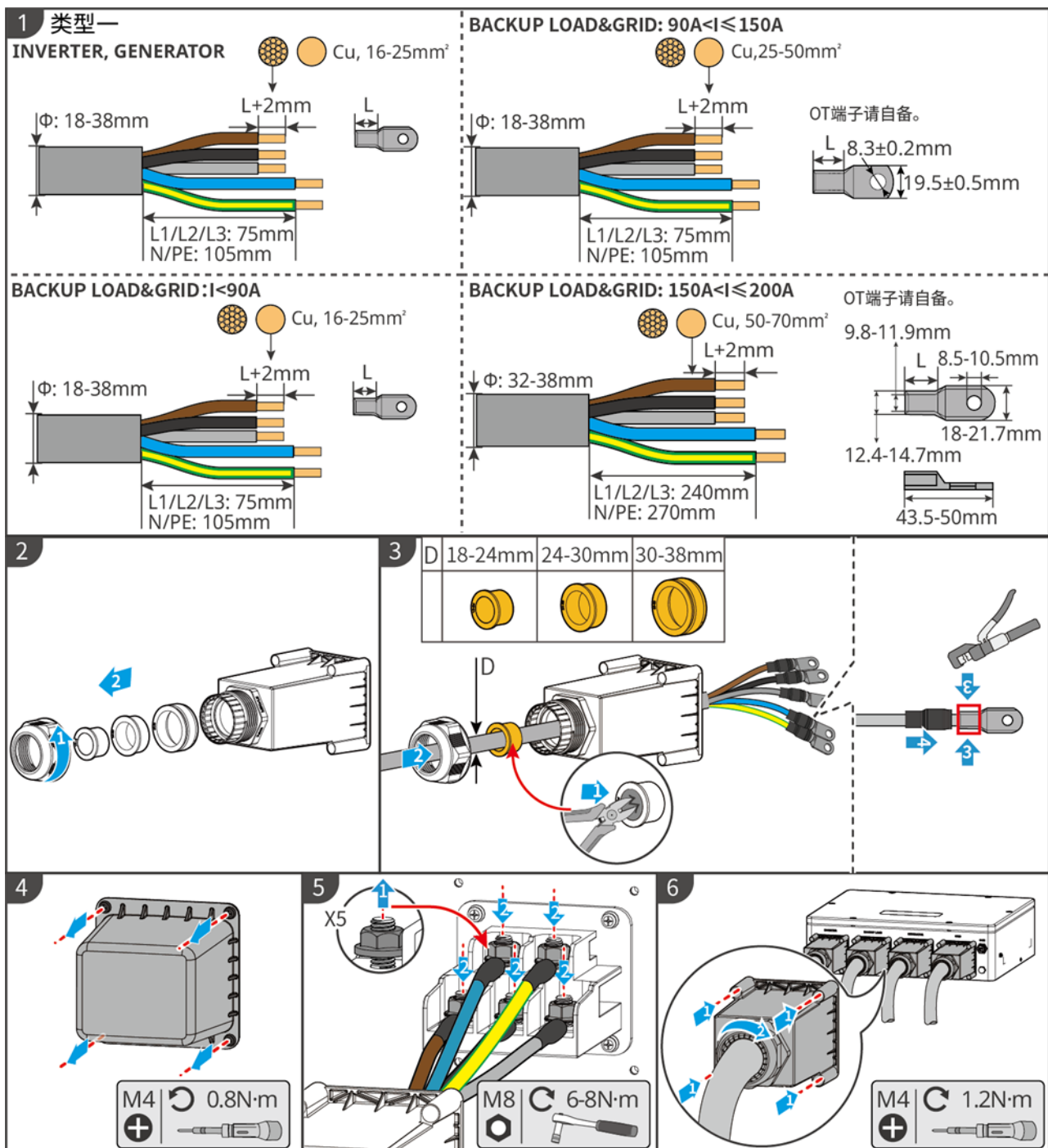


ET5010ELC0008



ET5010ELC0020

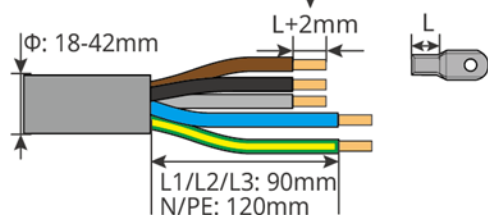
5.7.2 (Optional) Connect STS AC Cables



STS10ELC0001

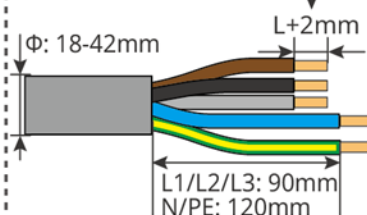
INVERTER, GENERATOR

 Cu, 16-25mm²

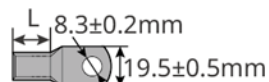


BACKUP LOAD&GRID: $90A < I \leq 150A$

 Cu, 25-50mm²

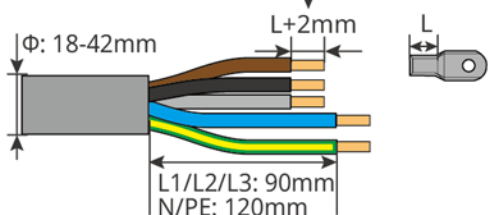


OT端子请自备。



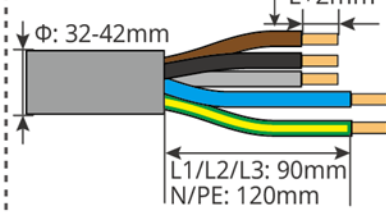
BACKUP LOAD&GRID: I<90A

 Cu, 16-25mm²



BACKUP LOAD&GRID: $150A < I \leq 200A$

 Cu, 50-70mm²



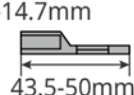
OT端子请自备。

9.8-11.9mm

8.5-10.5mm

Technical drawing of a stepped shaft. The shaft has a total length of 100 mm. It features a central section with a diameter of 10 mm and a length of 20 mm. The two outer sections have a diameter of 12 mm. The transition between the sections is a fillet with a radius of R10. The drawing includes dimension lines and arrows indicating the measurements.

18-21.7mm

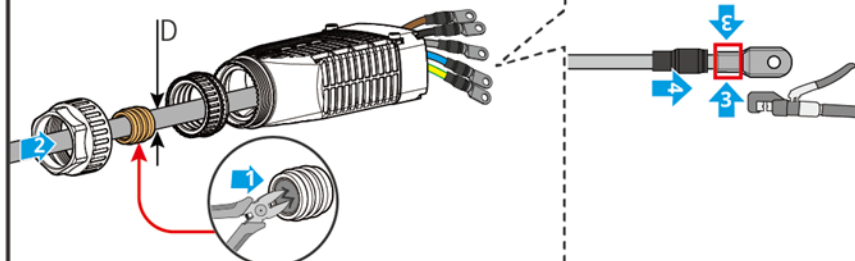


2



3

D	16-22mm	22-28mm	28-35mm	35-42mm
				



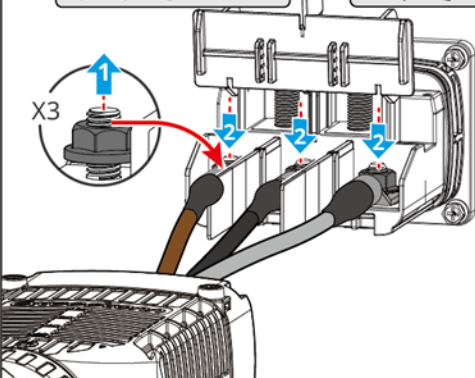
5

BACKUP LOAD&GRID:

INVERTER, GENERATOR:

M10 |  14-16 N·m

M8 |  8-10 N·m



6

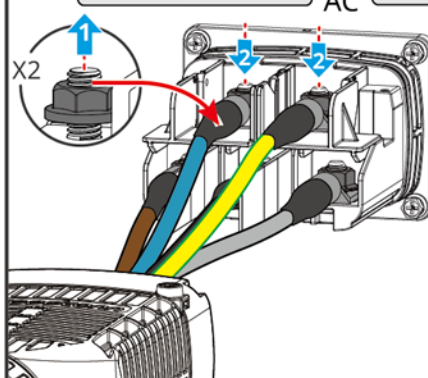
BACKUP LOAD&GRID:

INVERTER, GENERATOR:

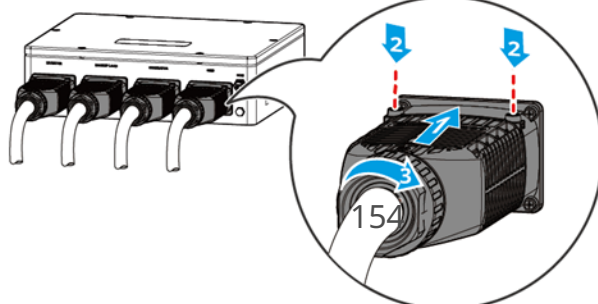
M10 |  14-16 N·m

M8   8-10N·m

AC



7



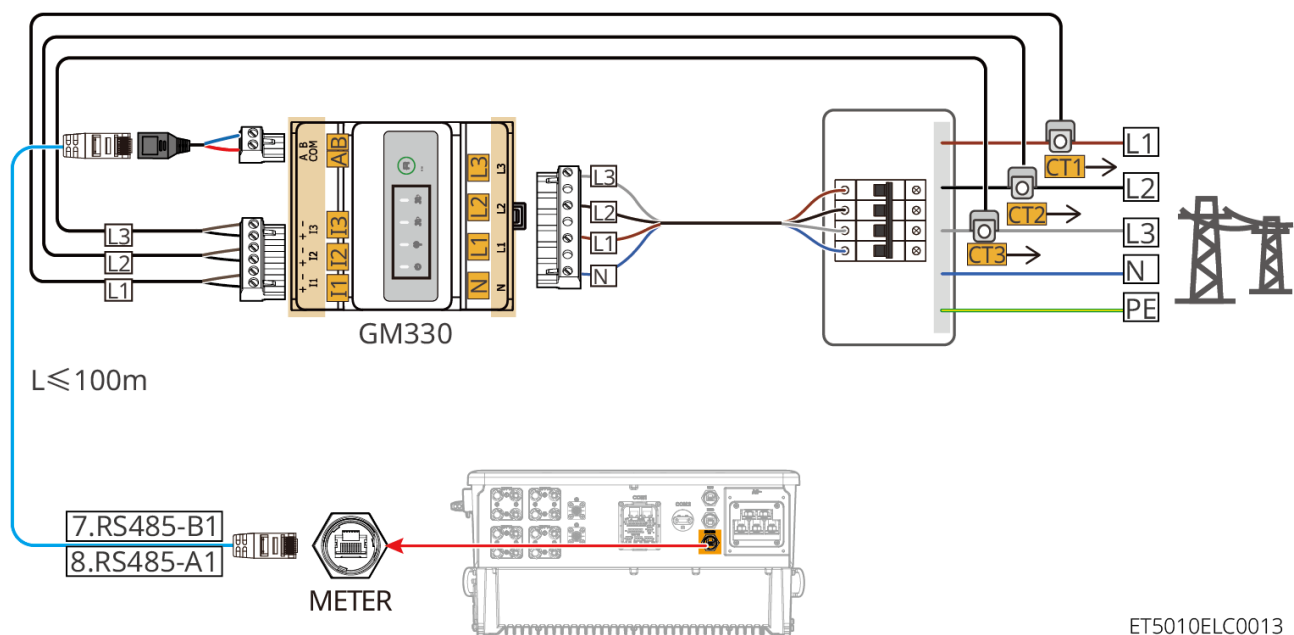
M4 |  0.8N·m

5.8 Connect Meter Cables

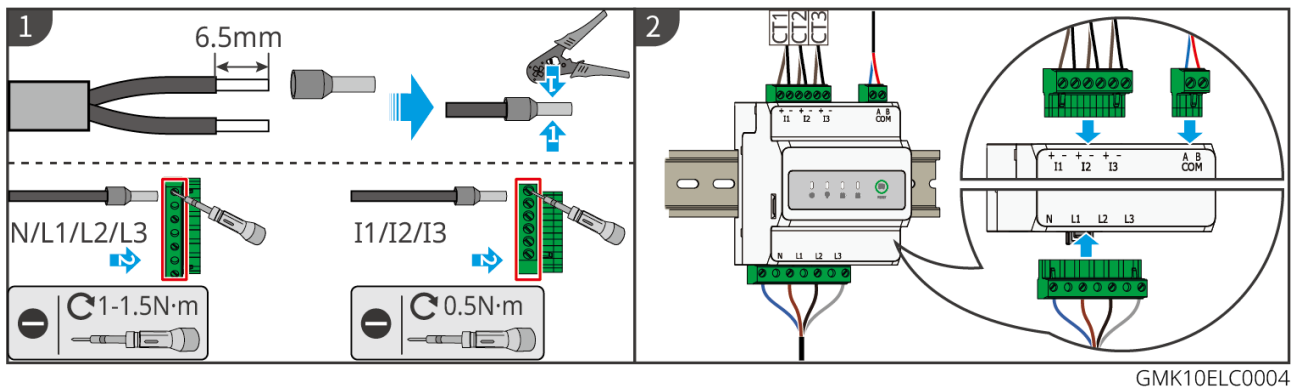
NOTICE

- The meter shipped with the package is for use with only one inverter. Do not connect one meter to multiple inverters. If multiple inverters are required, consult the manufacturer to purchase the meter separately.
- Ensure that the CT connection direction and phase sequence are correct; otherwise, the monitoring data may be incorrect.
- Ensure all cables are correctly connected, securely tightened, and free from looseness. Improper wiring may lead to poor contact or damage to the meter.
- In areas with lightning hazards, if the meter cable length exceeds 10 m and the cable is not routed in grounded metal conduits, it is recommended to install external lightning protection devices.

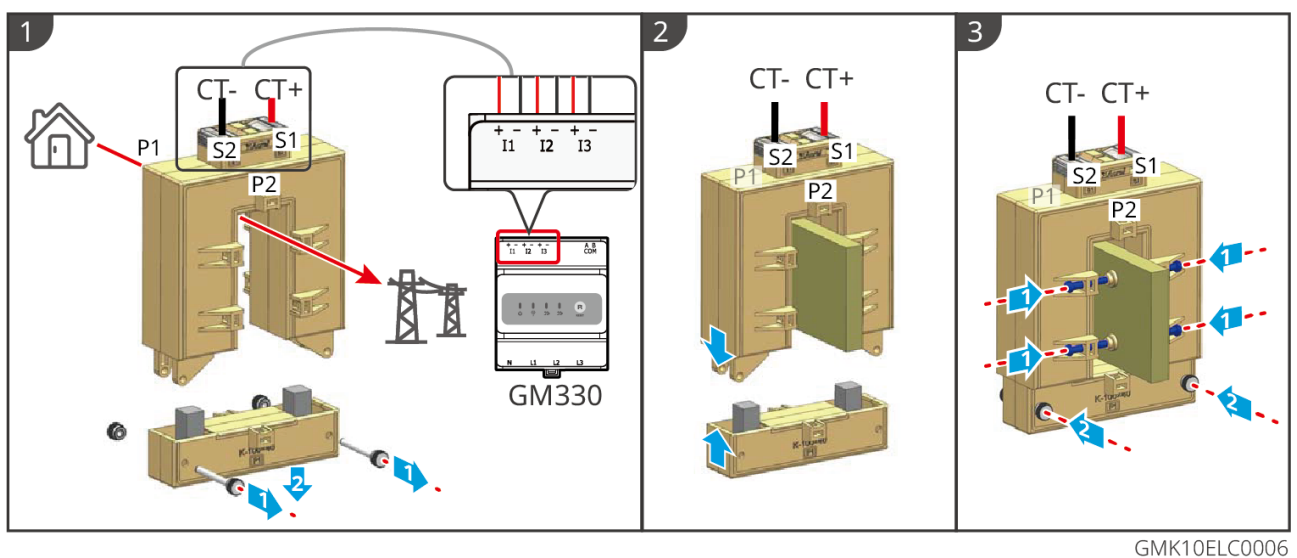
GM330 Meter Wiring



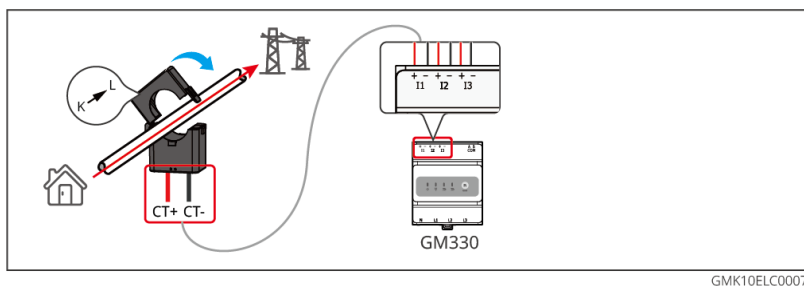
Wiring Steps



Installing CT (Type 1)



Installing CT (Type 2)

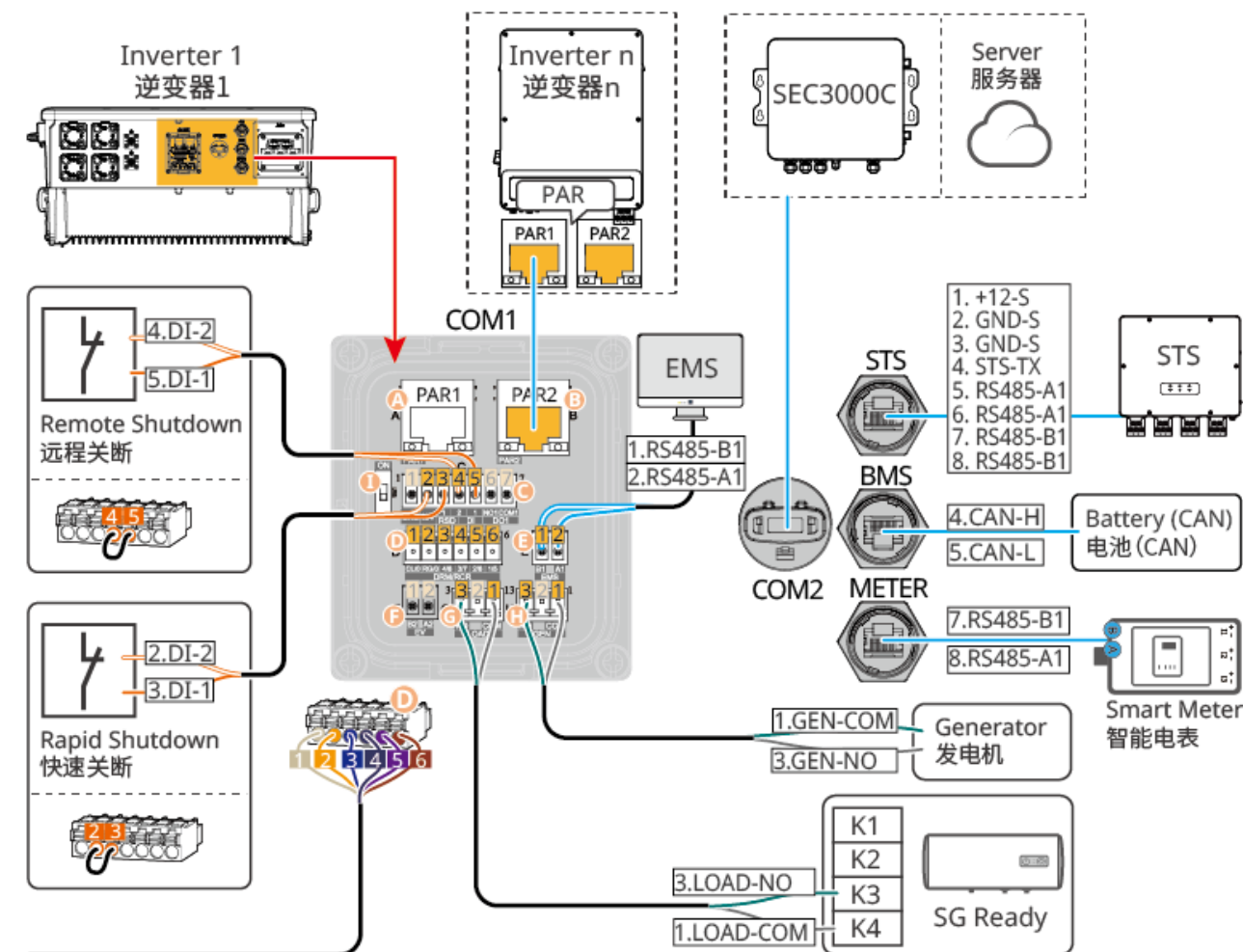


5.9 Connecting the Inverter Communication Cable

NOTICE

- The inverter communication function is optional. Select it according to the actual use scenario.
- If you need to use DRED, RCR, or Remote Shutdown functions, after wiring is completed, enable the function in the SolarGo App or SEC3000C web interface.
- If the inverter is Not Connected to a DRED device or Remote Shutdown device, do not enable this function in the SolarGo App or SEC3000C web interface; otherwise, the inverter cannot operate in grid-tied mode.
- When the inverter communicates using a 4G module, note the following:
 - The 4G module is an LTE single-antenna device and is suitable for application scenarios with low data transmission rate requirements.
 - To ensure 4G signal communication quality, do not install the device indoors or in areas with metal signal interference.
 - 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 of the 4G module is a China Mobile communication card. Please confirm whether the device is installed in an area covered by China Mobile 4G signals.
 - The 4G Kit-CN-G21 communication module supports replacing the carrier communication card. If there is no local China Mobile signal coverage, contact the after-sales service center to replace it with a communication card from another carrier.
 - After the 4G Kit-CN-G21 communication stick is installed, contact the after-sales service center to bind the inverter and the communication stick. After binding, if you need to install the communication stick on another inverter, contact the after-sales service center first to unbind it.

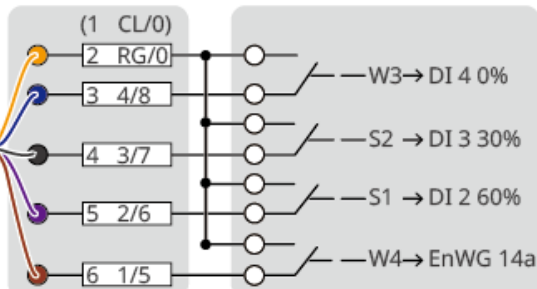
Communication Function Description



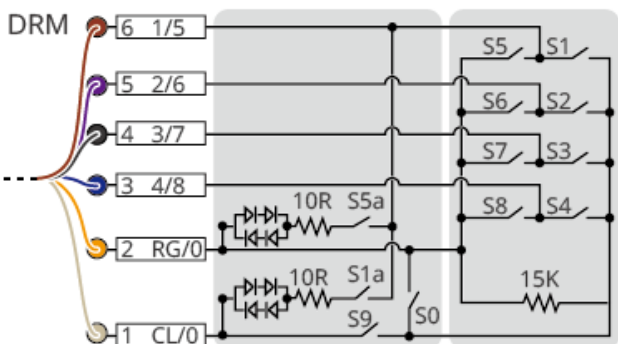
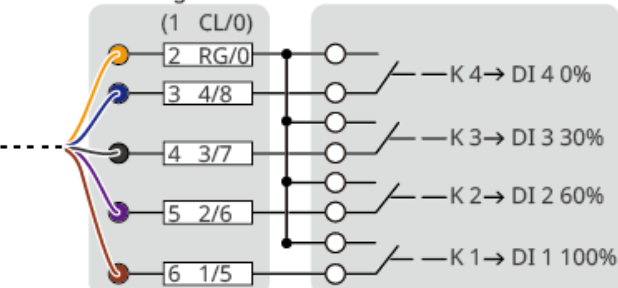
EnWG 14a

When S1, S2, and W3 are disconnected at the same time, the nominal output power is 100%.
S1,S2,W3同时断开时，额定输出功率为100%

DI2 和 DI3 可根据当地法规进行配置。
DI2 and DI3 are configurable as required by local regulations.



DI2 和 DI3 可根据当地法规进行配置。
DI2 and DI3 are configurable as required by local regulations.



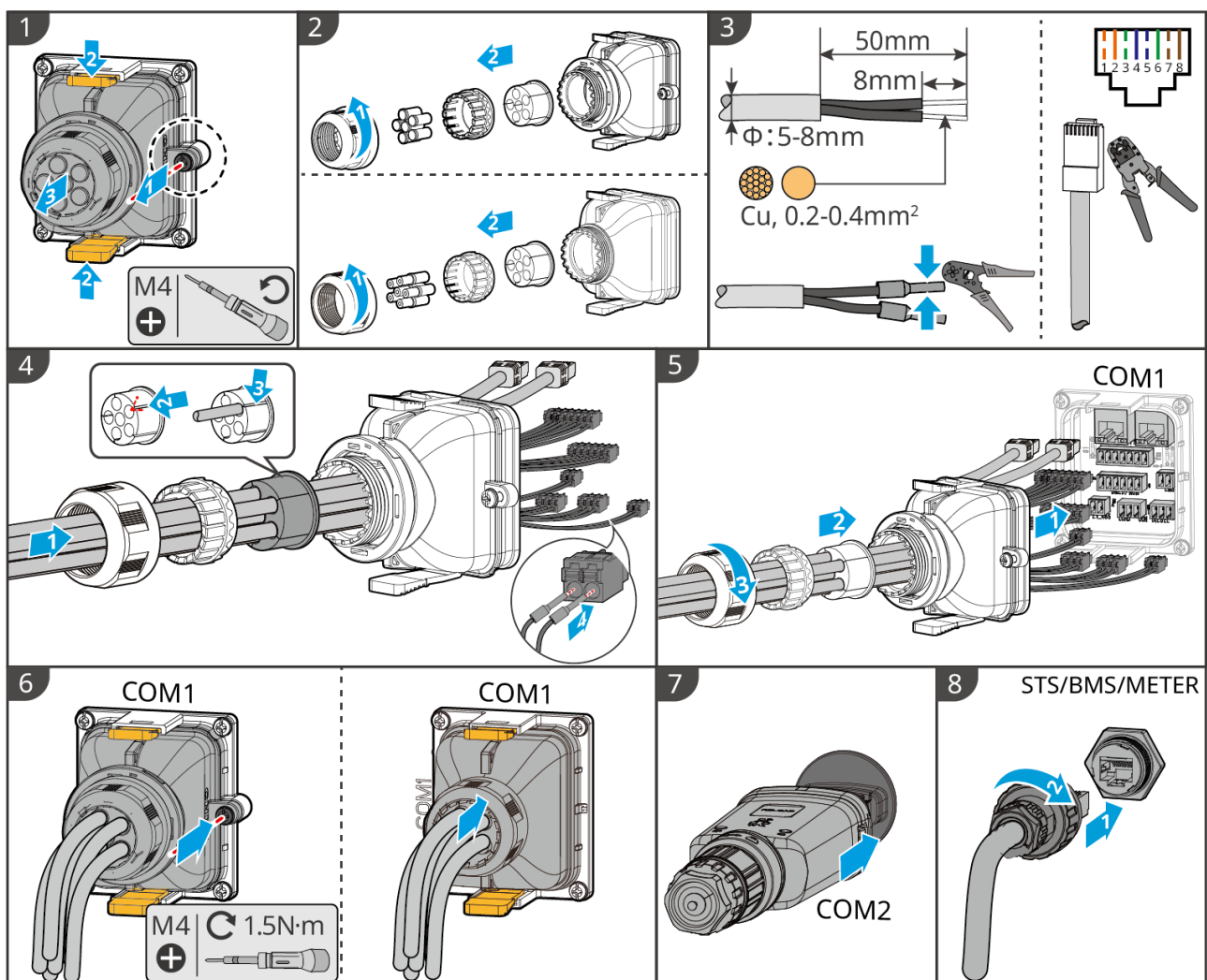
No.	Function	Description
A/B		CANandBUS

No.	Function	Description
C (1-3)	Rapid Shutdown function port (12V AUX RSD Control)	(Optional) Connect a Rapid Shutdown device. In the event of an accident, the device can be controlled to stop operating. • 2 and 3 shorted: The device operates normally • 2 and 3 not shorted: The device stops operating
C (4-5)	Remote Control function port (Remote Control)	• In the event of an accident, the device can be controlled to stop operating. • When the inverter uses RCR or DRED function, short DGND_S and IO1。
D	DRED or RCR function connection port (DRED/RCR)	• DRED (Demand Response Enabling Device) : The inverter complies with Australian DRED Certification requirements and provides DRED signal control port. • RCR (Ripple Control Receiver) : In Germany and some European regions, grid companies use Ripple Control Receiver to convert grid dispatch signals into dry contact outputs, and the power station receives grid dispatch signals through dry contact communication.
F	(Reserved) EV Charger Communication Connection Port (EV_485)	(Reserved) Used to connect the EV charger's RS485 communication cable.

No.	Function	Description
G	Load Control Port (LOAD CON)	The inverter has a dry contact control port and supports the connection of an additional contactor to control load on/off. The Load Control Mode is disabled by default, and the dry contact signal is open circuit; after the Load Control Mode is enabled, the dry contact signal changes to short circuit.
H	Diesel Generator Start/Stop Control Port (DIESEL GEN)	Supports input of Diesel Generator Control signals. Diesel Generator Control Mode is disabled by default, and the dry contact signal is open circuit; after Control Mode is enabled, the dry contact signal changes to short circuit.
E	Energy Management System Connection Port (EMS)	Used to connect to third-party EMS device's RS485 communication port.
I/J/K	DIP switch	When the inverter operates in standalone or parallel mode, to ensure communication quality, please refer to 6.2 System Wiring Details section to perform DIP switch operations according to the actual operating scenario.
STS	STS Communication Connection Port (STS)	Connect the STS communication cable.
BMS	Battery System Communication Connection Port (BMS)	Connect the battery system CAN signal communication port.
METER	Meter Communication Connection Port (METER)	When using the RS485 communication cable to connect the smart meter.

No.	Function	Description
COM2	Smart Dongle Connection Port	The inverter supports connecting, via the Smart Dongle, to a mobile phone or WEB interface to set device parameters, view device operating status, error information, etc., and stay informed of the system status in a timely manner. Supports connection to WiFi/LAN Kit-20、4G Kit-CN、4G Kit-CN-G21 Smart Dongle。

Communication Cable Connection Method



ET5010ELC0009

6 System Trial Run

6.1 Checks Before System Power-On

No.	Check Item
1	The equipment is installed securely; the installation position facilitates operation and maintenance; the installation space facilitates ventilation and heat dissipation; and the installation environment is clean and tidy.
2	The Protection ground wire, DC cables, AC cables, communication cables, and terminal resistor are connected correctly and securely.
3	Cables are bound in accordance with routing requirements, reasonably distributed, and free from damage.
4	For unused cable holes and ports, use the terminals provided with the accessories to connect them securely and seal them.
5	Ensure that used cable holes are sealed.
6	The voltage and frequency at the inverter grid-connection point meet the grid-connection requirements.

6.2 System Power-On

WARNING

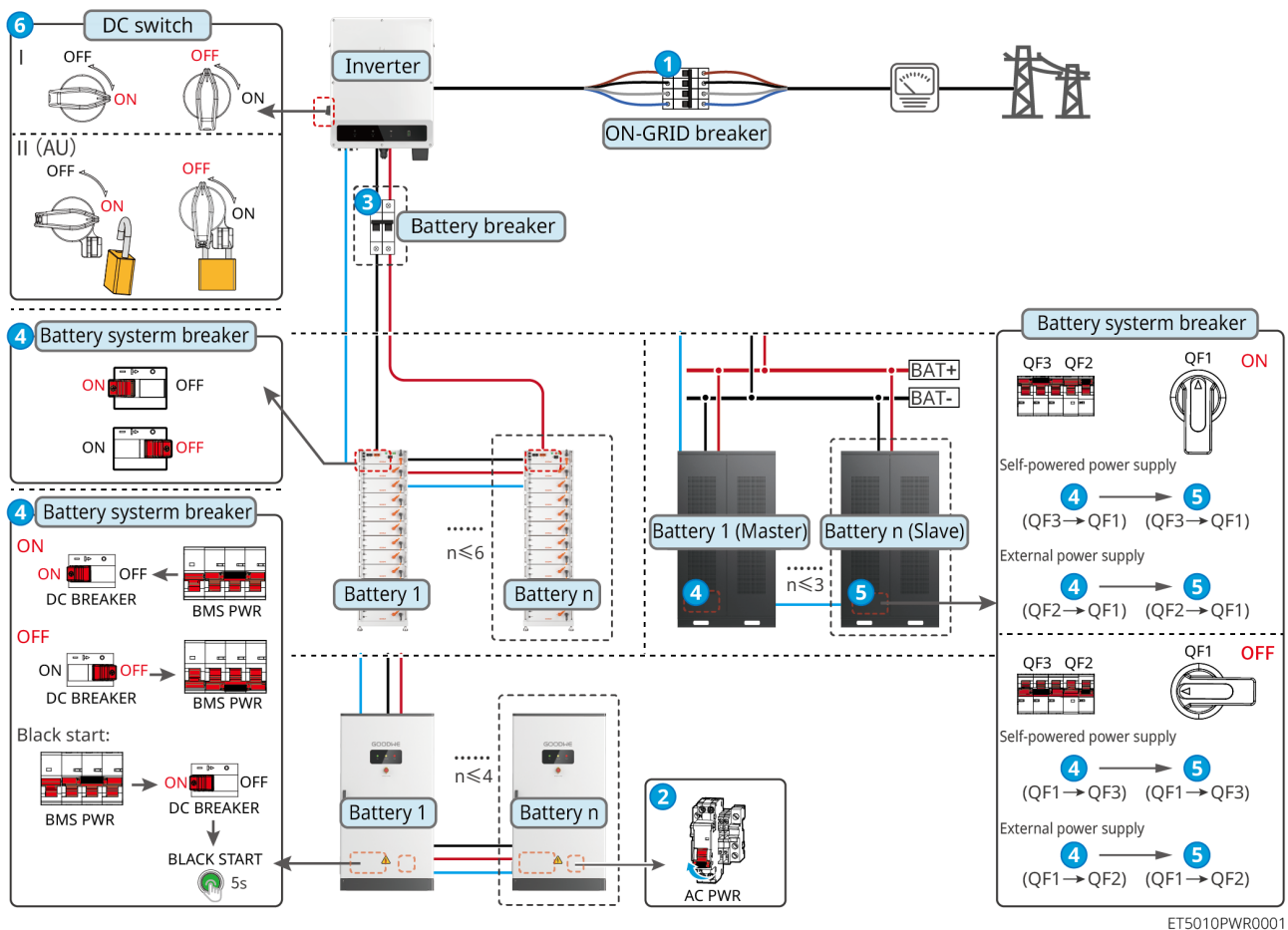
- When there are multiple inverters in the system, ensure that the AC sides of all slave inverters are powered on within one minute after the AC side of the master inverter is powered on.
- Before powering on the BAT series 92.1-112.6kWh commercial and industrial battery system, ensure that the battery's EPO switch is in the released state.

NOTICE

When no PV power is generated in the PV system and the grid is abnormal, if the inverter cannot work normally, the battery black start function can be used to force the battery to discharge and start the inverter. The inverter can enter off-grid mode and supply power to loads from the battery.

- Black start procedure for the BAT series 25.6-56.3kWh high-voltage battery:
 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 the sound of the contactor closing is heard and the RUN indicator turns steady on, the black start is successful; if the RUN indicator keeps flashing and the FAULT indicator remains off, the black start fails.
 3. After a black start failure, press and hold the RUN indicator for 5 seconds to repeat the black start process. If it fails again, contact GoodWe after-sales personnel.
- For the black start process of the BAT series 92.1-112.6 kWh commercial and industrial battery system, refer to the power-on/power-off steps.
- For other batteries, the black start process is the same as the power-on steps.

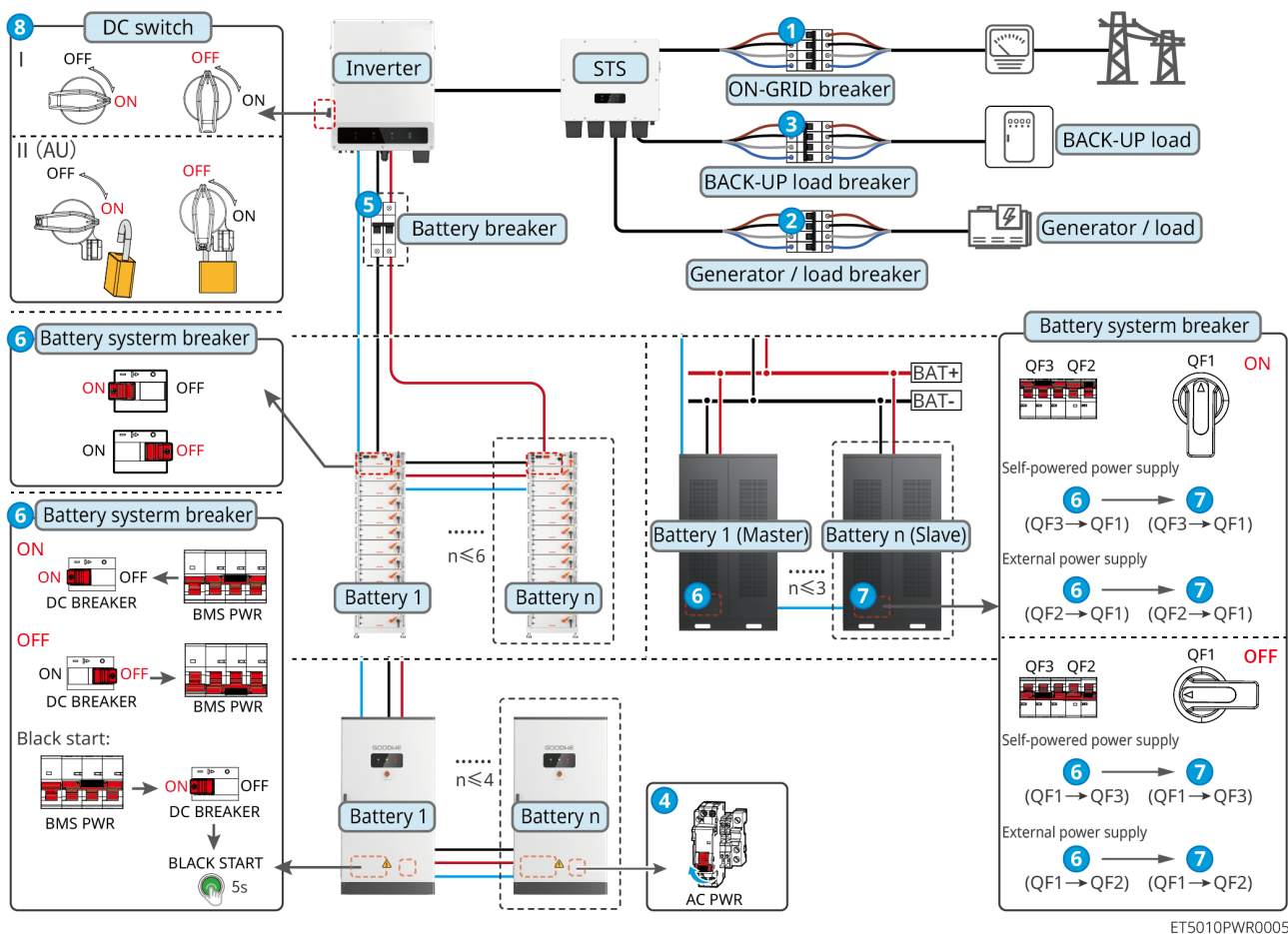
6.2.1 Single Inverter, No off-Grid Function



System Power-On: ① → ② → ③ → ④ → ⑤ → ⑥

③: Optional according to local laws and regulations.

6.2.2 Single Inverter, with off-Grid Function

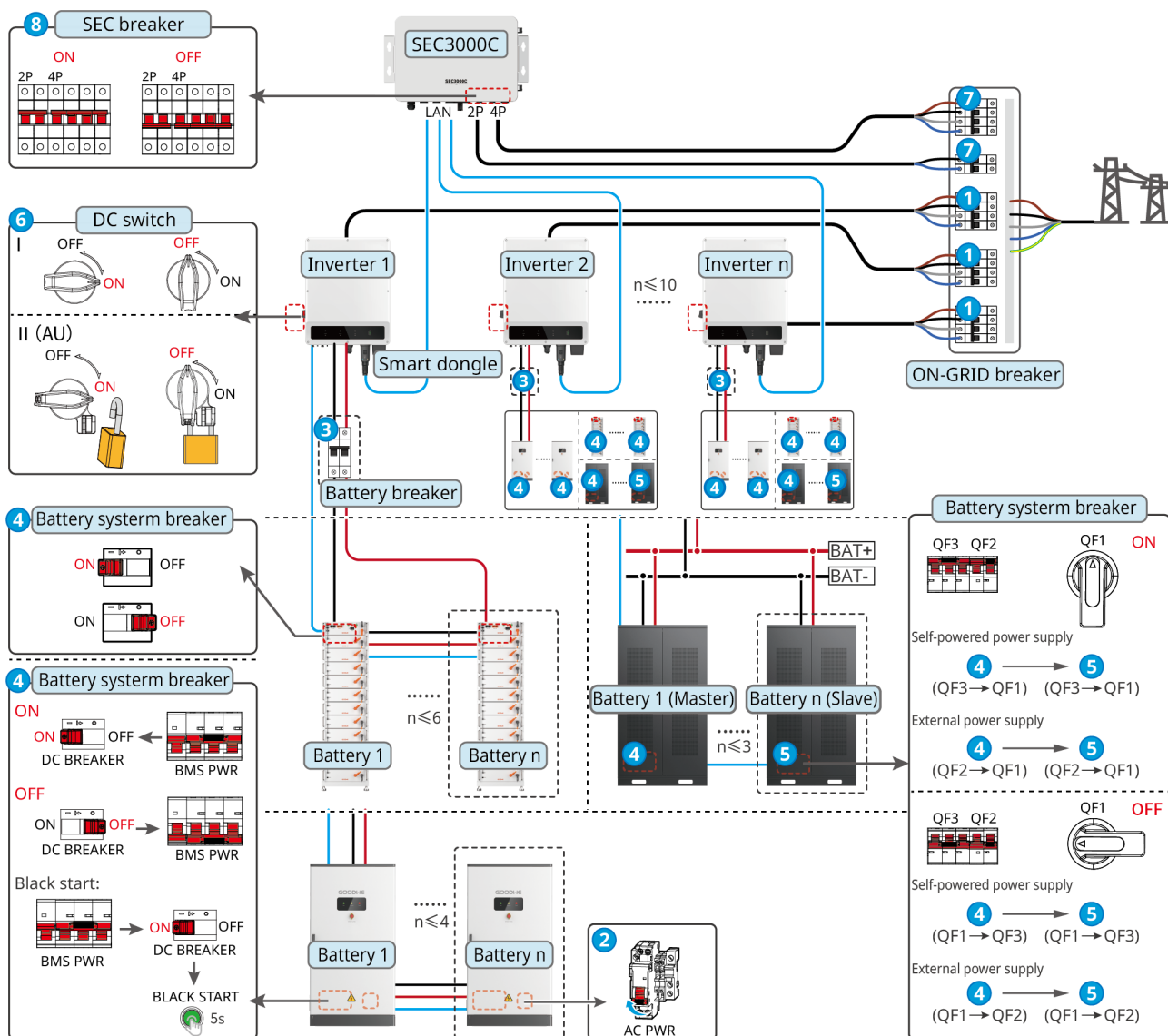


System Power-On: ① → ② → ③ → ④ → ⑤ → ⑥ → ⑦ → ⑧

⑤: Optional according to local laws and regulations.

6.2.3 Multiple Inverters, No off-Grid Function

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



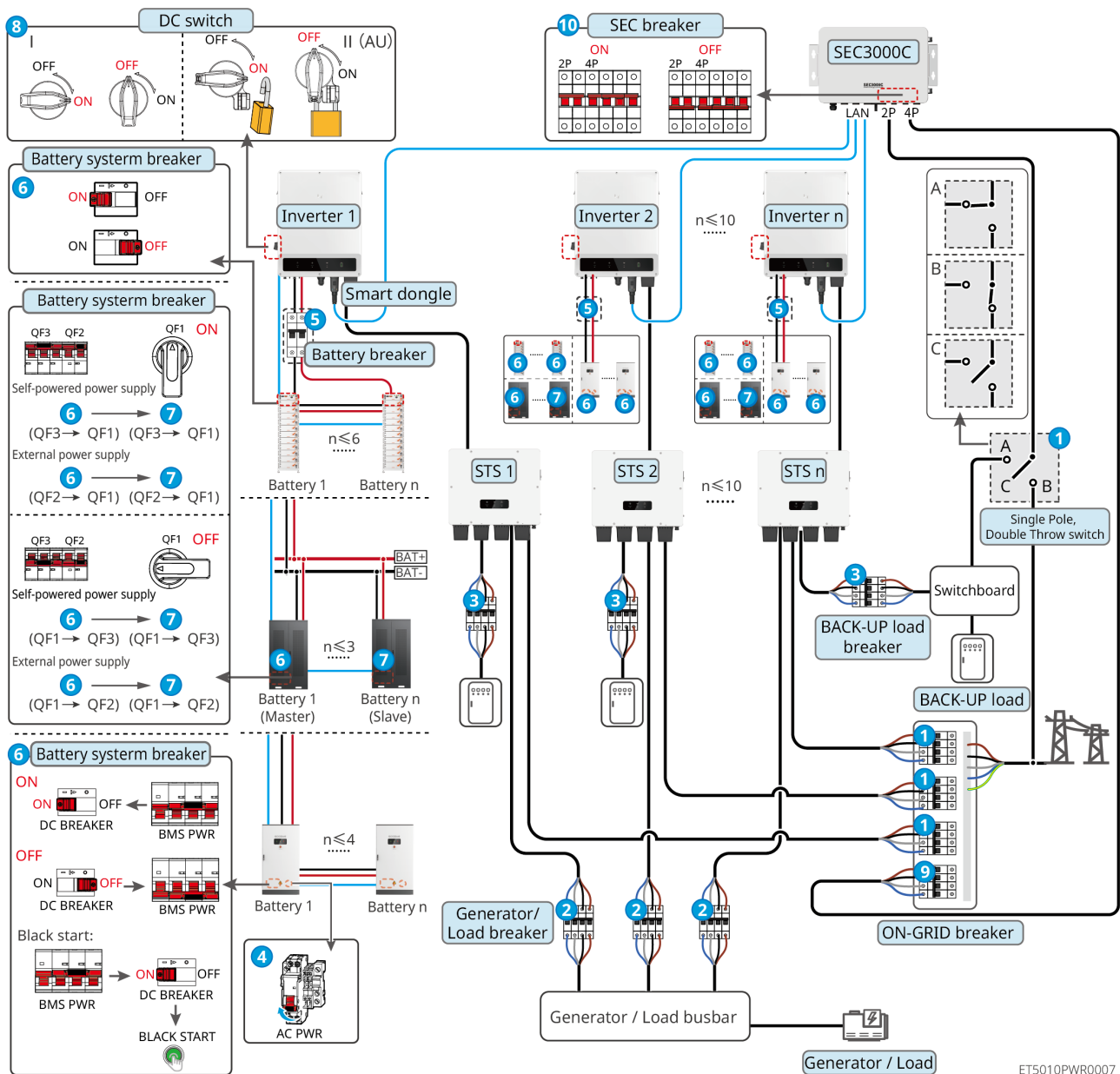
ET5010PWR0006

System power-on: ①→②→③→④→⑤→⑥→⑦→⑧

③: Optional according to local laws and regulations.

6.2.4 Multiple Inverters, off-Grid Without Parallel Operation

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

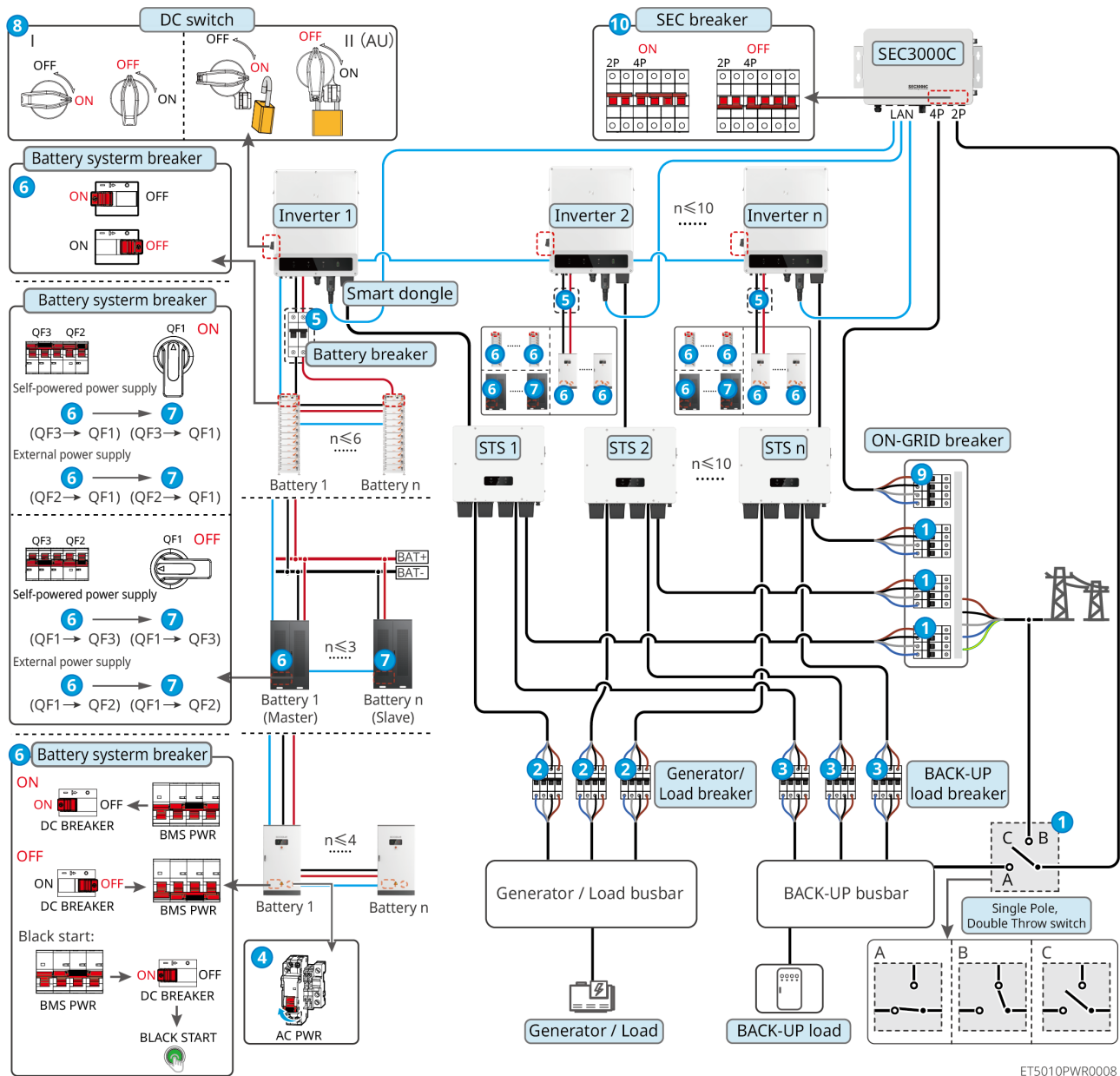


ET5010PWR0007

6.2.5 Multiple Inverters, off-Grid Parallel Operation

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

Units)



ET5010PWR0008

System Power-On: 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 9 → 10

5: Optional according to local laws and regulations.

1 Single-pole double-throw switch: when the energy storage system is powered on, A state; when the energy storage system is powered down for maintenance, B state; SEC3000C when powered down for maintenance, C state.

6.3 Indicator Light Introduction

6.3.1 Inverter Indicator Light

Indicator Light	Status	Description
		The inverter is powered on and in standby mode
		The inverter is starting up and in self-test mode
		The inverter is operating normally in grid-connected power generation or off-grid mode
		BACK-UP output Overload
		System fault
		The inverter is powered off
		Grid abnormality, the inverter BACK-UP port power supply is normal
		Grid normal, the inverter BACK-UP port power supply is normal
		BACK-UP port has no power supply
		Inverter monitoring module is resetting
		The inverter has not established a connection with the communication terminal
		Communication fault between the communication terminal and the cloud server
		Inverter monitoring is normal
		Inverter monitoring module has not started

Indicator Light	Description
	$75\% < \text{SOC} \leq 100\%$
	$50\% < \text{SOC} \leq 75\%$
	$25\% < \text{SOC} \leq 50\%$
	$0\% < \text{SOC} \leq 25\%$
	No battery connected

When the battery is discharging, the indicator light flashes: for example, when the battery SOC is between 25% and 50%, the light at the 50% highest position flashes.

6.3.2 STS Indicator Light

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 state.
 COM		STS power supply is normal, and communication with the inverter is normal.
		STS power supply is normal, and communication with the inverter has failed.
		STS power supply is abnormal, and communication with the inverter has failed.
		System fault

Indicator Light	Status	Description
 FAULT		No system fault

6.3.3 Battery Indicator Light

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



Button indicator light	Battery system status
Green light is constantly on	Battery system operating status is normal
Green LED single flash	Battery system idle status
Green LED double flash	Battery system in standby
Red LED single flash	Battery system minor alarm
Red LED double flash	Battery system moderate alarm
Red LED steady on	Battery system fault

- BATSeries 25.6-56.3Kwh High-Voltage Battery



RUN



FAULT

BAT10DSC0003

Indicator Light	Status	Description
 Run		Green LED steady on: Device operating normally
		Green LED single flash: Battery operating normally, not communicating with inverter
		Green LED double flash: Device in standby
 Fault		Steady on: Device fault
		Red LED single flash: System undervoltage3~4level
		Red LED double flash: SNAbsnormal

• **BATSeries 92.1-112.6Kwh Commercial and Industrial Battery System**



Run



Warning



Fault

LXC10010DSC0002

Indicator Light	Status	Description
 Run		Green LED steady on: Device operating normally
		Green LED single flash: Battery operating normally, not communicating with inverter
		Green LED double flash: Device in standby
		Green LED off, yellow LED steady on: Device alarm
		Green LED off, red LED steady on: Device fault
		Green, yellow, and red LEDs all off: Device not powered on

Indicator Light	Status	Description
 Warning		Steady on: Device alarm
		Off: No device alarm
 Fault		Steady on: Device fault
		Off: No device fault
		Red single flash: Sleep (undervoltage)
		Red LED double flash: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	The meter is powered off.
Communication LED 	Off	Reserved
	Flashing	Press and hold the Reset button for ≥ 5 s; the Power LED and Import/Export Energy LED flash: meter reset.
Import/Export Energy LED 	Steady on	Import Energy from the Grid
	Flashing	Export Energy to the Grid
	Off	No Import Energy, No Export Energy
	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 fastened or not powered
Communication LED 	Blue	Slow flashing (0.2 s on, 1.8 s off)	- Inverter communication LED flashes twice: dialing, network search status - Inverter communication LED flashes four times: cloud connection failed due to no data traffic
		Slow flashing (1.8 s on, 0.2 s off)	- Inverter communication LED flashes twice: dial-up successful - Inverter communication LED steady on: cloud connection successful - Inverter communication LED flashes four times: cloud connection failed due to no data traffic
		Fast flashing (0.125 s on, 0.125 s off)	The inverter is communicating with the cloud through the module
		0.2 s on, 8 s off	SIM card not installed or poor SIM card contact

4G Kit-CN-G21

Indicator Light	Status	Description
		Steady on: The Smart Communication Stick is powered on.

Indicator Light	Status	Description
Power indicator 		Off: The Smart Communication Stick is not powered on.
Communication LED 		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 undergoing a software reset or is not powered on.

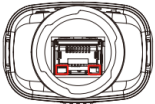
Button	Description
Reload	Press and hold for 0.5-3 s; the Smart Communication Stick will restart.
	Press and hold for 6-20 s; the Smart Communication Stick will restore factory settings.

WiFi/LAN Kit-20

NOTICE

- After double-clicking the Reload button to enable Bluetooth, the communication indicator changes to the single-flash state. Please connect to the SolarGo app within 5 minutes; otherwise, Bluetooth will automatically turn off.
- The single-flash state of the communication indicator appears only after double-clicking the Reload button to enable Bluetooth.

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 LED 		Steady on: Communication is normal in Wi-Fi mode or LAN mode.
		Single flash: The Smart Communication Stick's Bluetooth signal is enabled, waiting to connect to the SolarGo app.
		Two flashes: The Smart Communication Stick is Not Connected to the router.
		Four flashes: The Smart Communication Stick communicates normally with the router but is Not Connected to the server.
		Six flashes: The Smart Communication Stick is identifying connected devices.
		Off: The Smart Communication Stick is undergoing a software reset or is not powered on.

Indicator Light	Color	Status	Description
LAN port communication indicator 	Green	Steady on	100Mbps wired network connection is normal.
		Off	• Network cable Not Connected. • 100Mbps wired network connection is abnormal. • 10Mbps wired network connection is normal.
	Yellow	Steady on	10/100Mbps wired network connection is normal, no communication data transmission/reception.
		Flashing	Communication data transmission/reception in progress.
		Off	Network cable Not Connected.

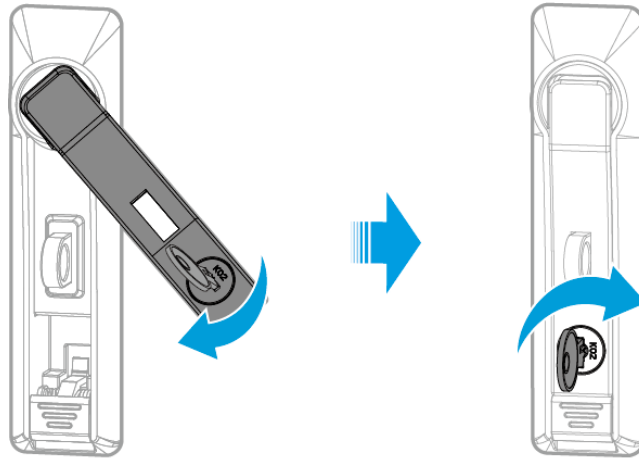
Button	Description
Reload	Press and hold for 0.5~3 seconds, the smart communication stick will reset.
	Press and hold for 6-20 s; the Smart Communication Stick will restore factory settings.
	Quickly double-click to enable Bluetooth signal (maintained for only 5 minutes).

6.4 Close Cabinet Door

NOTICE

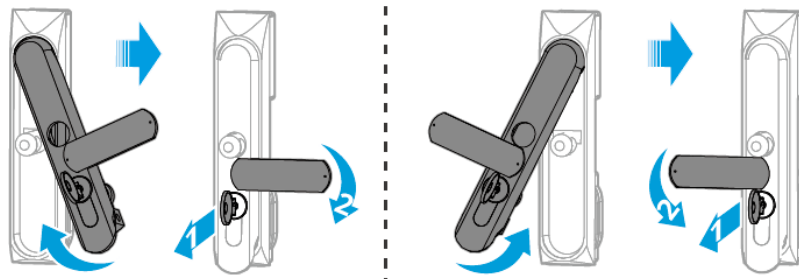
After system power-on is completed, please close the battery cabinet door.

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



LXC10110INT0004

- **BATSeries 92.1-112.6Kwh Commercial and Industrial Battery System**



Front door

Back door

BAT10INT0007

7 System Commissioning

NOTICE

- If the energy storage system has been operated in standalone mode, ensure that all energy storage systems have the same parameter settings before forming a parallel system; otherwise, parameter setting for the parallel system may fail.
- When the energy storage system is paired with SEC3000C in parallel operation, for related parameter settings, refer to [SEC3000C User Manual](#).

7.1 Setting Inverter Parameters via App

SolarGo App is a mobile application that can communicate with the inverter via Bluetooth and Wi-Fi. The common functions are as follows:

1. View the inverter's operating data, software version, alarm information, etc.
2. Set the inverter's grid parameters, communication parameters, etc.
3. Maintain devices.

For detailed functions, refer to the SolarGo App User Manual. The user manual can be obtained from the official website or by scanning the QR code below.



SolarGo App



SolarGo App User Manual

7.2 Device Commissioning via SEC3000C Embedded Web

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

management platform of photovoltaic power generation systems. It can be used to collect data from devices in photovoltaic power generation systems, such as grid-tied inverters, energy storage inverters, meters, etc., store logs, and send data to the monitoring and management platform, enabling centralized monitoring, operation, and maintenance of the photovoltaic system.

For detailed functions, refer to the [SEC3000C User Manual](#).

8 Plant Monitoring via SEMS+

SEMS+ is a monitoring platform that can communicate with devices via WiFi, LAN, or 4G. The following are common functions of SEMS+:

1. Manage organization or user information, etc.
2. Add and monitor plant information, etc.
3. Maintain devices.

For detailed functions, please refer to the SEMS+ User Manual. The user manual can be obtained from the official website or by scanning the following QR code.



9 System Maintenance

9.1 System Power-Off

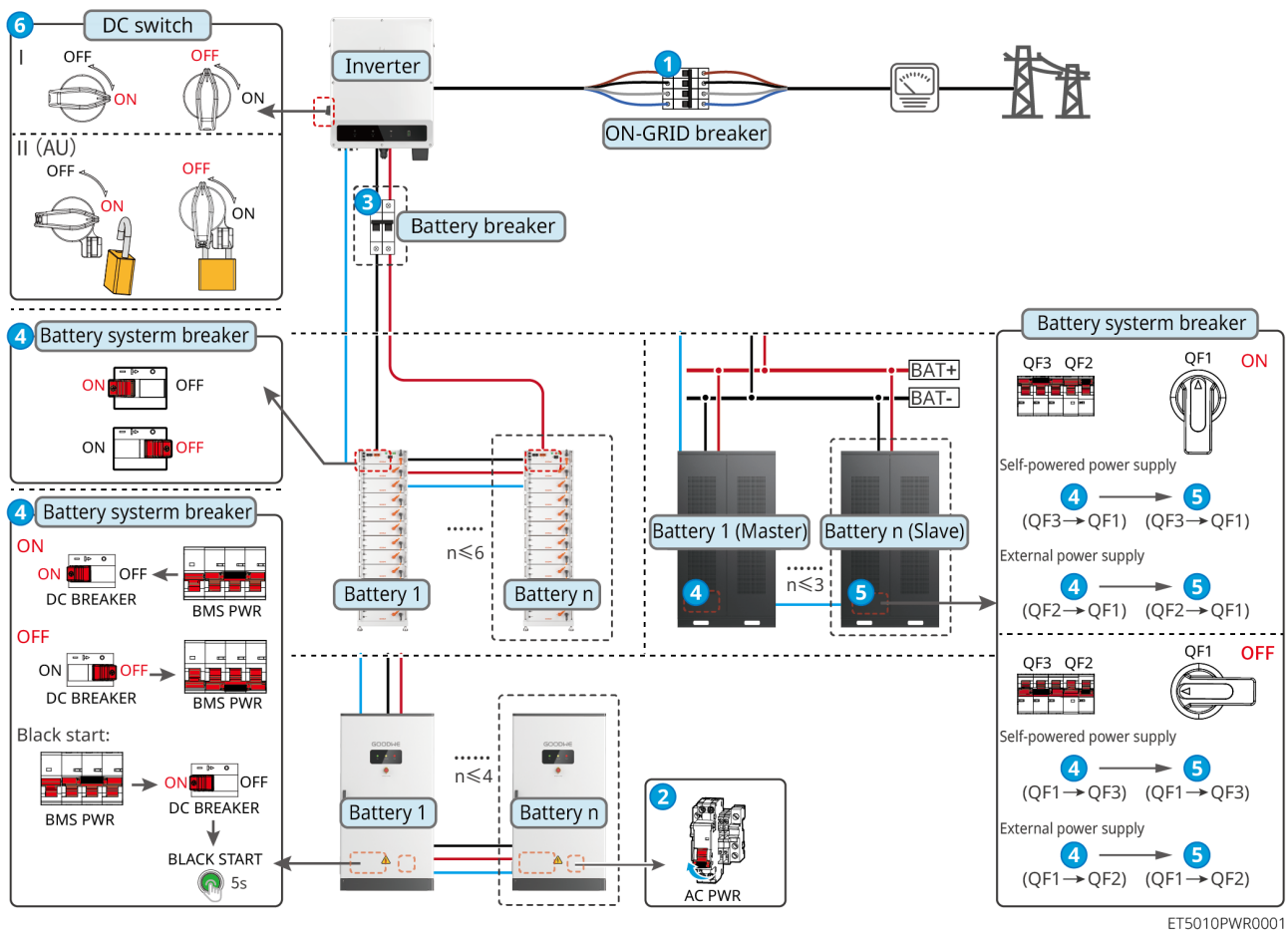
DANGER

- When operating and maintaining devices in the system, power off the system. Operating devices while energized may cause equipment damage or electric shock hazards.
- After the device is powered off, the internal components take some time to discharge. Wait according to the time required on the label until the device is fully discharged.
- When shutting down the battery system, strictly comply with the battery system power-off requirements to prevent damage to the battery system.
- When an emergency occurs and the battery needs to be shut down, press the EPO switch, and the battery will immediately power off.

NOTICE

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

9.1.1 Single Inverter, No off-Grid Function

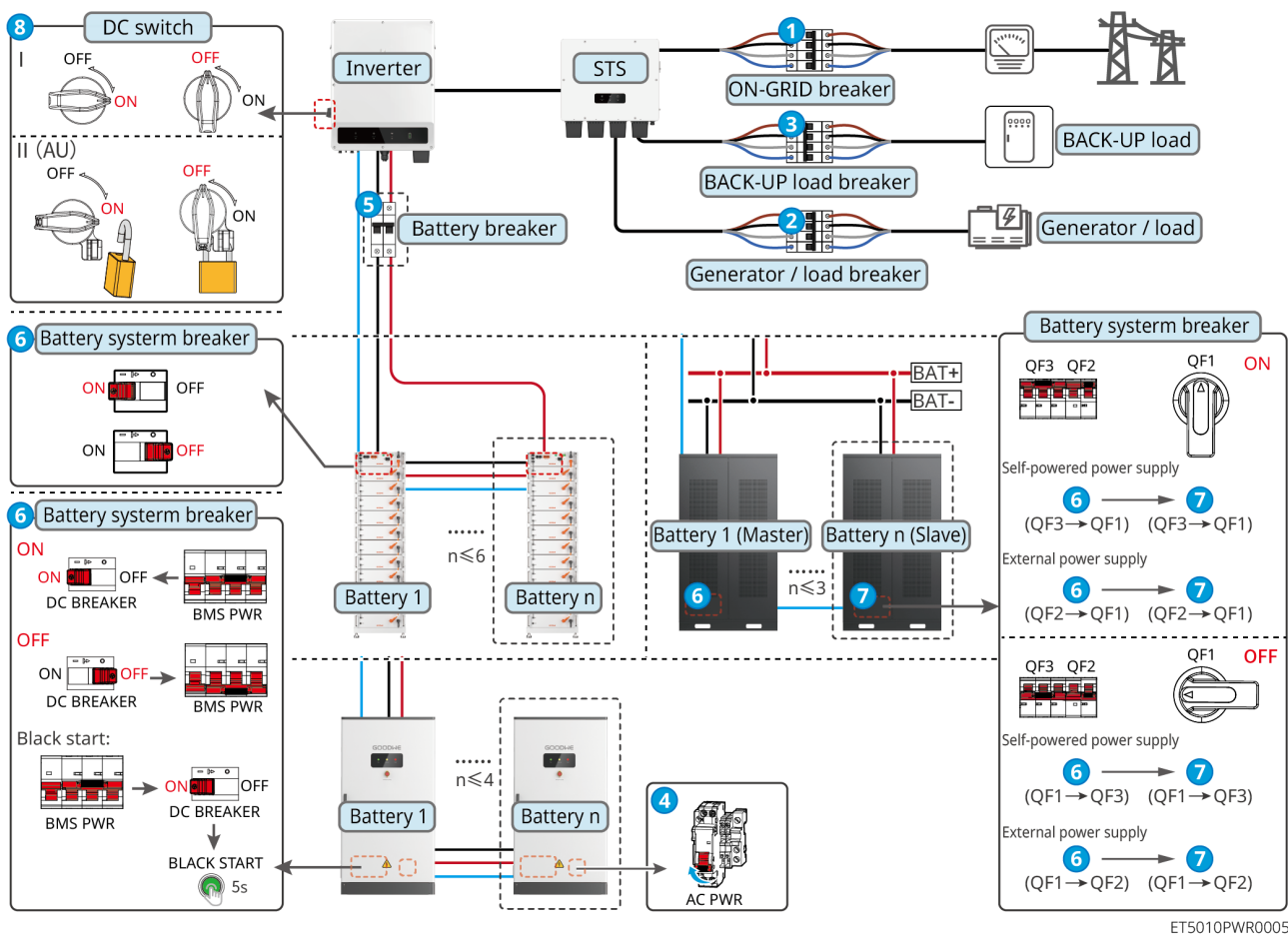


ET5010PWR0001

System power-off: ①→②→③→④→⑤→⑥

③: Optional according to local laws and regulations.

9.1.2 Single Inverter, with off-Grid Function

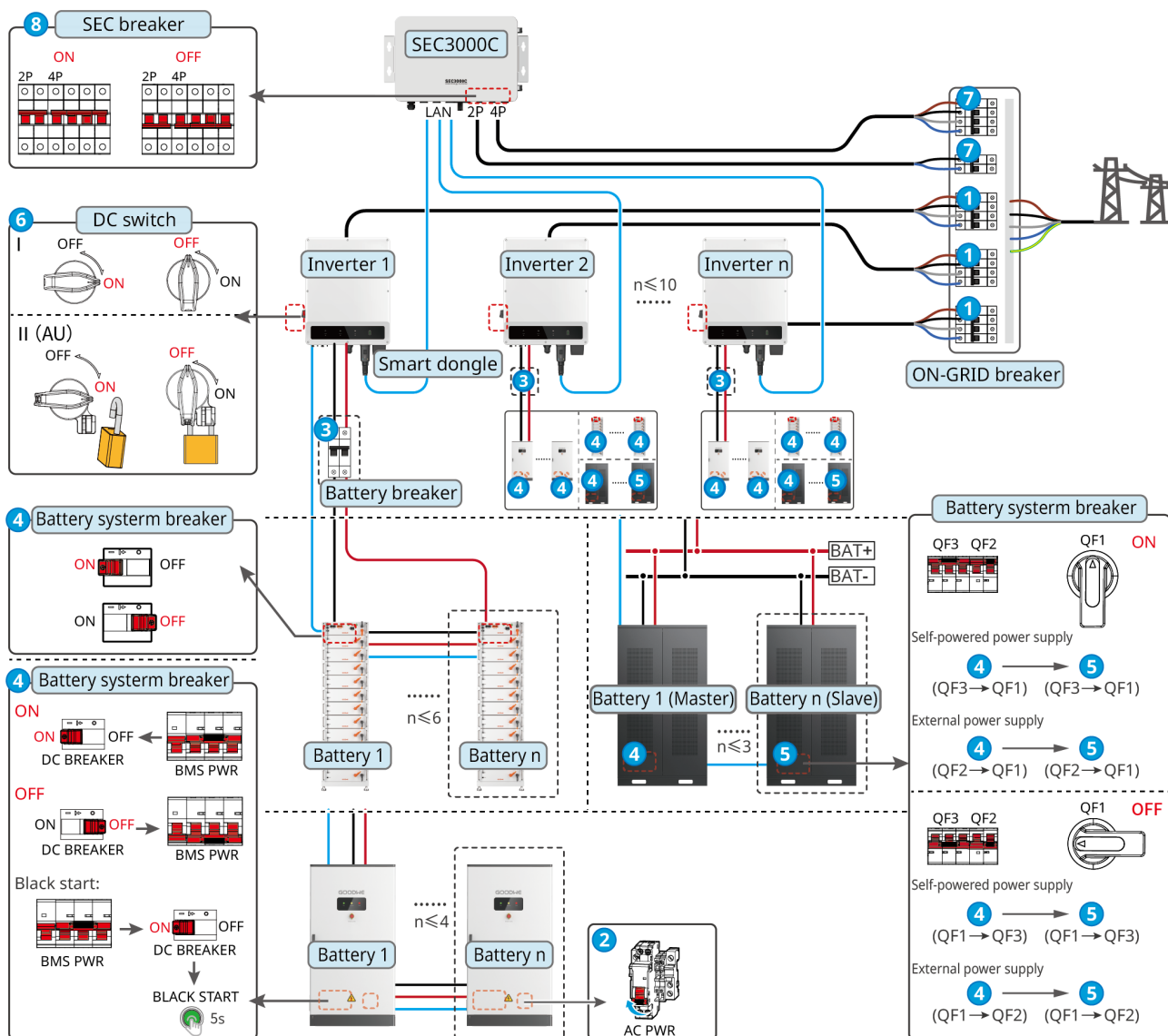


System power-off: ① → ② → ③ → ④ → ⑤ → ⑥ → ⑦ → ⑧

⑤: Optional according to local laws and regulations.

9.1.3 Multiple Inverters, No off-Grid Function

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



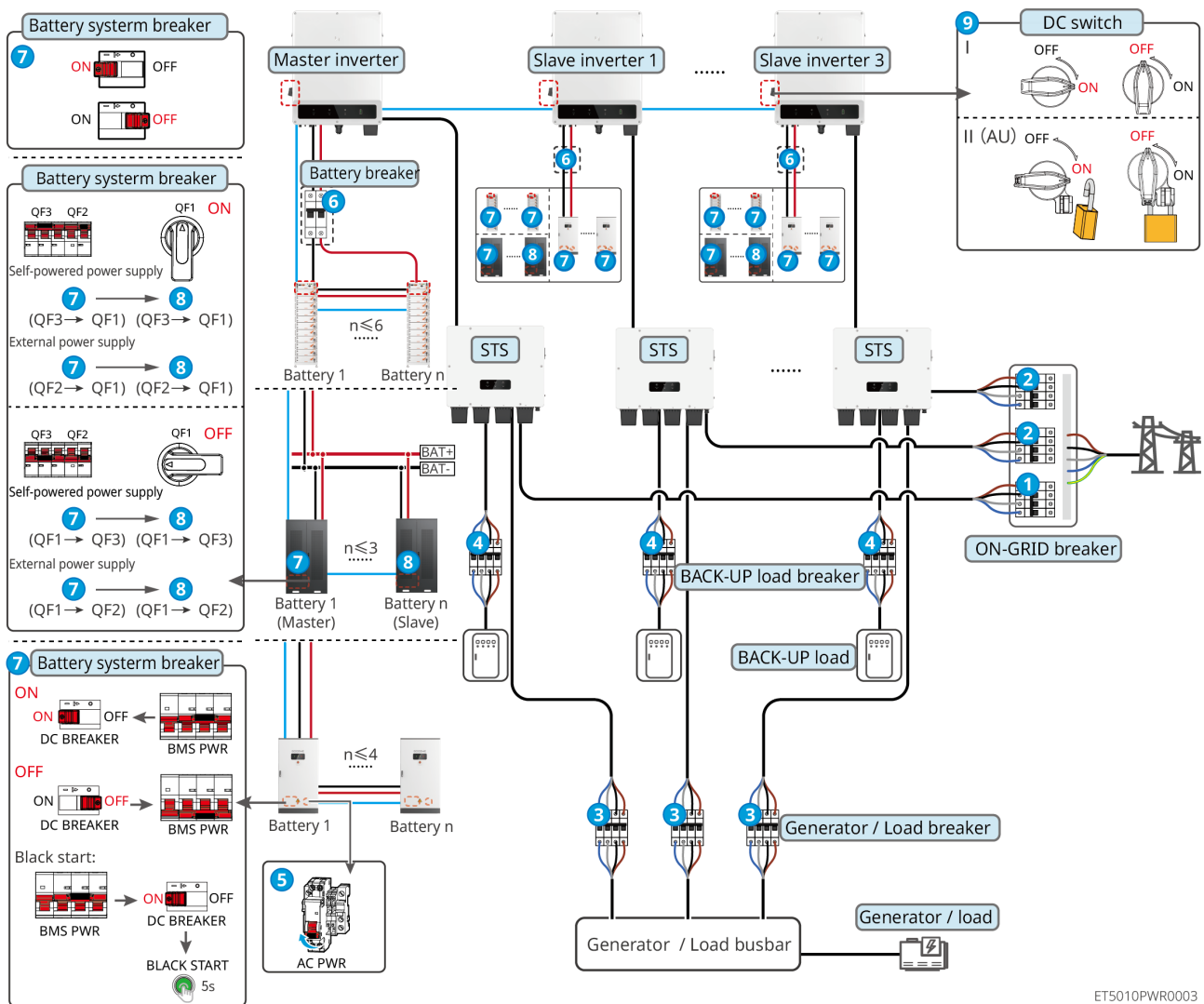
ET5010PWR0006

System power-off: ① → ② → ③ → ④ → ⑤ → ⑥ → ⑦ → ⑧

③: Optional according to local laws and regulations.

9.1.4 Multiple Inverters, off-Grid Without Parallel Operation

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



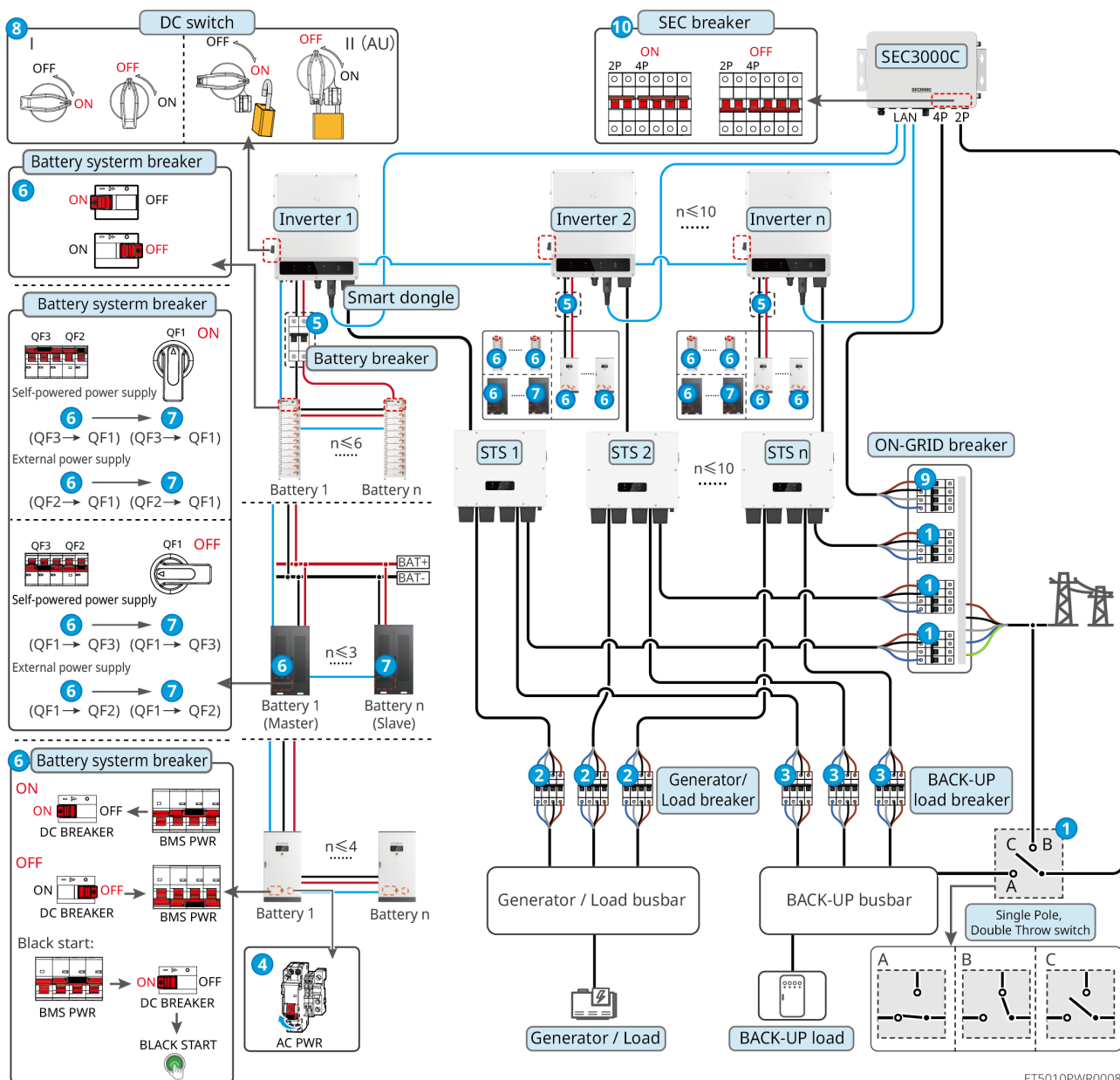
System power-off: ① → ② → ③ → ④ → ⑤ → ⑥ → ⑦ → ⑧ → ⑨ → ⑩

⑤: Optional according to local laws and regulations.

①: Single-pole double-throw switch: when the energy storage system is powered on Astate; when the energy storage system is powered down for maintenance, Bstate; SEC3000C when powered down for maintenance, Cstate.

9.1.5 Multiple Inverters, off-Grid Parallel Operation

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



System power-off: ① → ② → ③ → ④ → ⑤ → ⑥ → ⑦ → ⑧ → ⑨ → ⑩

⑤: Optional according to local laws and regulations.

①: Single-pole double-throw switch: when the energy storage system is powered on A state; when the energy storage system is powered down for maintenance, B state; SEC3000C when powered down for maintenance, C state.

9.2 Equipment Dismantling

DANGER

- Ensure that the device is powered off.
- When operating the equipment, wear personal protective equipment (PPE).
- When removing PV terminals or battery terminals, use the removal tool supplied with the package.

NOTICE

Unless otherwise specified, the equipment removal steps in this document are the reverse of the installation steps.

9.2.1 Removing the Inverter

Step1: Power off the system.

Step2: Use labels to mark the cable types of the cables connected in the system.

Step3: Disconnect the electrical connections of the inverter, STS, battery, BACK-UP Loads in the system.

Step4: Remove the device from the back mounting plate and remove the device backplate.

Step5: Remove the meter and communication module.

Step6: Store the device properly. If it will be put into use later, ensure that the storage conditions meet the requirements.

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

Step 1: Power off the battery.

Step 2: Remove all power cables and communication cables

Step 3: Remove the cover plate and battery PACK.

Step 4: Place the battery and all removed accessories back into the original packaging and store them properly.

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

- **Type I (Rack-mounted)**

Step 1:Power off the battery.

Step 2:Remove the low-voltage communication cable.

Step 3:Remove the power cable.

Step 4:Remove the high-voltage box and battery pack.

Step 5:Remove the wall-lock bracket 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 crossbeams.

Step 7:Place the battery and all removed accessories back into the original packaging and store them properly.

- **Type II (Stack-mounted)**

Step 1:Power off the battery.

Step 2:Remove the low-voltage communication cable.

Step 3:Remove the power cable.

Step 4:Remove the cable protection sleeve and equipotential bonding plate.

Step 5:Remove the wall-lock bracket, and successively take down the high-voltage box and battery pack.

Step 6:Remove the floor-lock bracket and adjustable feet.

Step 7:Place the battery and all removed accessories back into the original packaging and store them properly.

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

Step 1:Power off the system.

Step 2:Remove the air conditioner drain pipe and bottom plate.

Step 3:Remove the communication cable between the battery system and the inverter and the battery system parallel-cluster communication cable; remove the audible and visual alarm signal cable.

Step 4:Install the protective covers for the heat detector and smoke detector.

Step 5:Remove the air conditioner power cable.

Step 6:Remove the power cable between the battery system and the inverter and the battery system parallel-cluster power cable.

Step 7:Remove the battery system grounding cable.

Step 8:Close the cabinet door.

Step 9: Unscrew the bolts securing the battery system to the base.

Step 10: Move the battery system onto the pallet.

Step 11: Tighten the bottom screws to secure the battery system on the pallet, and install the baffle.

Step 12: Place the battery system and all removed accessories back into the original packaging and store them properly.

9.3 Equipment Scrapping

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

9.4 Regular Maintenance

WARNING

- If any issue is found that may affect the battery or energy storage inverter system, contact after-sales personnel. Unauthorized disassembly is prohibited.
- If the copper wire inside the conductive cable is exposed, do not touch it. High voltage danger. Contact after-sales personnel. Unauthorized disassembly is prohibited.
- In case of any other emergency, contact after-sales personnel immediately, operate under the guidance of after-sales personnel, or wait for after-sales personnel to operate on site.

Maintenance item	Maintenance method	Maintenance period	Maintenance purpose
System cleaning	Check the heat sink, fan, and air inlet/outlet for foreign objects and dust. Check whether the installation space meets the requirements and whether debris has accumulated around the equipment.	Once every 6 months (If the equipment is installed in an area with high wind and sand, it is recommended to adjust the maintenance interval to once per month.)	Prevent heat dissipation faults.
System Installation	Check whether the equipment is installed securely and whether the fastening screws are loose. Check the equipment for external damage or deformation.	Once every 6 months to once a year	Confirm the stability of the equipment installation.
Electrical Connection	Check whether the electrical connections are loose, whether the cables are damaged, and whether copper is exposed.	Once every 6 months to once a year	Confirm the reliability of the electrical connections.
Sealing Performance	Check whether the sealing of the equipment cable entry holes meets requirements. If the gaps are too large or the holes are not sealed, reseal them.	Once every year	Confirm that the machine is sealed and its waterproof performance is intact.

Mainten ance item	Maintenance method	Maintenance period	Maintenanc e purpose
Battery maintena nce	If the battery has not been used for a long time or is not fully charged, periodic charging of the battery is recommended.	Once every 15 days	Protection of battery service life.

9.5 Fault

NOTICE

The fault content in this manual is updated from time to time. Faults may vary slightly among different models. Please refer to the real-time display of the device for details.

9.5.1 Fault Information and Handling Methods

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

When contacting the after-sales service center, please collect the following information to facilitate quick problem resolution.

1. Product information, such as: serial number, software version, device installation time, fault occurrence time, fault occurrence frequency, etc.
2. Device installation environment, such as: weather conditions, whether modules are blocked or shaded, etc. For the installation environment, it is recommended to provide photos, videos, and other files to assist in problem analysis.
3. Grid conditions.

If a problem not listed occurs in the system, or if the problem or abnormality cannot be stopped even after following the instructions, immediately stop system operation and contact your dealer immediately.

No.	Fault	Solution
1	Unable to find the smart communication stick's wireless signal	1. Ensure that no other devices are connected to the smart communication stick's wireless signal. 2. Ensure that the App has been updated to the latest version. 3. Ensure that the smart communication stick is powered normally and the blue indicator light is blinking or solid on. 4. Ensure that the smart device is within the 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 wireless signal	1. Ensure that no other devices are connected to the smart communication stick's wireless signal. 2. Restart the inverter or communication stick, and try to connect to the smart communication stick's wireless signal again. 3. Ensure that the Bluetooth encrypted pairing has been successfully established.
3	Unable to find the router SSID	1. Place the router close to the smart communication stick, or add a WiFi repeater to enhance the WiFi signal. 2. Reduce the number of devices connected to the router.
4	After all configurations are complete, the smart communication stick fails to connect to the router.	1. Restart the inverter. 2. Check whether the network name, encryption method, and password in the WiFi configuration are the same as those of the router. 3. Restart the router. 4. Place the router close to the smart communication stick, or add a WiFi repeater to enhance the WiFi signal.

No.	Fault	Solution
5	After all configurations are complete, the smart communication stick fails to connect to the server.	Restart the router and inverter.

9.5.1.1 System Communication Fault

No.	Fault	Solution
1	Unable to find the wireless signal of the Smart Dongle	1. Ensure that the Smart Dongle is properly powered, and the blue LED is blinking or steady on. 2. Ensure that the smart device is within the communication range of the Smart Dongle. 3. Refresh theAppdevice list. 4. Restart the inverter.
2	Unable to connect to the smart communication stick's wireless signal	1. Ensure no other smart device is connected to the inverter'sWiFisignal. 2. Restart the inverter and reconnect to the inverter'sWiFisignal. 3. If connecting via Bluetooth, ensure that Bluetooth pairing is successful.
3	Unable to find the routerSSID	1. Place the router close to the Smart Dongle, or add aWiFirepeater to enhance theWiFisignal. 2. Reduce the number of devices connected to the router. 3. Confirm whether the router is a2.4Grouter.

4	After all configurations are complete, the smart communication stick fails to connect to the router.	1. Restart the inverter. 2. Check whetherWiFiconfiguration's network name, encryption method, and password are the same as those of the router. 3. Restart the router. 4. Place the router close to the Smart Dongle, or add aWiFirepeater to enhance theWiFisignal.
5	After all configurations are complete, the smart communication stick fails to connect to the server.	Restart the router and inverter.
6	When using the4G Kit-CN-G20module, unable to findGSA-***	1. Ensure that the Smart Dongle on the inverter is properly powered, and the blue LED is blinking or steady on. 2. Ensure that the smart device is within the communication range of the Smart Dongle. 3. Refresh theAppdevice list. 4. Restart the inverter.
7	When using the4G Kit-CN-G20module, unable to connect toGSA-***	1. Ensure that Bluetooth pairing is successful. 2. Restart the inverter and reconnect toGSA-***。 3. In the Bluetooth settings of the mobile phone, cancel pairing withGSA-***, and then reconnect through theApp.
8	 When using the4G Kit-CN-G20module, the indicator flashes six times	Ensure that the Smart Dongle is properly connected to the inverter.

9	The inverter cannot recognize the 4G Kit-CN-G20 communication module	Restart the inverter.
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9.5.1.2 Inverter Fault

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F01	Grid Power Outage	1. Grid outage. 2. AC line or AC Switch is disconnected.	1. The alarm automatically clears after the grid power supply is restored. 2. Check whether the AC line or AC Switch is disconnected.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F02	Grid Overvoltage Protection	The grid voltage is above the allowable range, or the high-voltage Duration exceeds the high-voltage ride-through setting.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, please check whether the grid voltage is within the allowable range • If the grid voltage exceeds the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining consent from the local power operator, modify the inverter's Grid Overvoltage Protection point, HVRT or disable the Grid Overvoltage Protection function. 3. If it does not recover for a long time, check whether the AC-side circuit breaker and output cables are properly connected.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F03	Grid Undervoltage Protection	The grid voltage is below the allowable range, or the Low Voltage Duration exceeds the Low Voltage ride-through setting.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, please check whether the grid voltage is within the allowable range • If the grid voltage exceeds the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining consent from the local power operator, modify the inverter's Grid Undervoltage Protection point, LVRT or disable the Grid Undervoltage Protection function. 3. If it does not recover for a long time, check whether the AC-side circuit breaker and output cables are properly connected.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F04	Grid Rapid Overvoltage Protection	Abnormal grid voltage detection or an ultra-high voltage triggers the fault.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, please check whether the grid voltage is within the allowable range • If the grid voltage exceeds the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining consent from the local power operator, modify the inverter's Grid Undervoltage Protection point, LVRT or disable the Grid Undervoltage Protection function. 3. If it does not recover for a long time, check whether the AC-side circuit breaker and output cables are properly connected.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F05	10minOvervoltage	Within 10min, the moving average of the grid voltage exceeds the range specified by safety regulations.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. Check whether the grid voltage has been operating at a relatively high voltage for a long time. If it occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage exceeds the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining consent from the local power operator, modify the Grid 10min Overvoltage protection point.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F06	Grid Overfrequency	Grid abnormality: The actual grid frequency is higher than the local grid standard requirement.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, check whether the grid frequency is within the allowable range • If the grid frequency exceeds the allowable range, please contact the local power operator. • If the grid frequency is within the allowable range, after obtaining consent from the local power operator, modify the Grid Overfrequency protection point.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F07	Grid Underfrequency	Grid Abnormal: The actual grid frequency is lower than the local grid standard requirements.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, check whether the grid frequency is within the allowable range • If the grid frequency exceeds the allowable range, please contact the local power operator. • If the grid frequency is within the allowable range, after obtaining consent from the local power operator, modify the Grid Overfrequency protection point.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F08	Grid Frequency Instability	Grid Abnormal: The actual grid frequency rate of change does not comply with the local grid standard.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency exceeds the allowable range, please contact the local power operator. • If the grid frequency is within the allowable range, please contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F163	Grid Phase Instability	Grid abnormality: the rate of change of grid voltage phase does not comply with local grid standards.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency exceeds the allowable range, please contact the local power operator. • If the grid frequency is within the allowable range, please contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F09	Anti-islanding Protection	The grid has been disconnected; the grid voltage is maintained due to the presence of the load. According to safety Protection requirements, stop grid connection.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency exceeds the allowable range, please contact the local power operator. • If the grid frequency is within the allowable range, please contact your dealer or after-sales service center.
F10	Voltage Ride-Through Undervoltage Fault	Grid Abnormal: The duration of Grid Voltage Abnormal exceeds the time specified for HVRT/LVRT.	

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F11	HVRT Overvoltage	Grid Abnormal: The duration of Grid Voltage Abnormal exceeds the time specified for HVRT/LVRT.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If this fault occurs frequently, check whether the grid voltage and frequency are within the allowable range and stable. If not, contact the local electric utility; if yes, contact your dealer or after-sales service center.
F43	Grid Waveform Abnormal	Grid abnormality: abnormal grid voltage detection triggers a fault.	
F44	Grid Phase Loss	Grid abnormality: single-phase grid voltage sag.	

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F45	Grid Voltage Imbalance	Excessive difference in grid phase voltages.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If this fault occurs frequently, check whether the grid voltage and frequency are within the allowable range and stable. If not, contact the local electric utility; if yes, contact your dealer or after-sales service center.
F46	Grid Phase Sequence Failure	Abnormal wiring between inverter and grid: wiring is not in positive phase sequence.	1. Check whether the inverter-to-grid wiring has a positive phase sequence. Once the wiring is correct (e.g., swap any two live wires), the fault will automatically disappear. 2. If the wiring is correct but the fault still persists, contact your dealer or after-sales service center.
F47	Grid Rapid Shutdown Protection	After detecting a Grid Power Outage condition, quickly shut down the output.	1. The fault will automatically disappear after the grid power supply is restored.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F48	Grid Neutral Wire Loss	Split-phase Grid Neutral Wire Loss	1. The alarm automatically clears after the grid power supply is restored. 2. Check whether the AC line or AC Switch is disconnected.
F160	EMS/Forced Off-Grid	EMS issues a forced off-grid command, but the off-grid function is not enabled	Enable 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 safety standard.	According to the actual Type of Electrical Supply System, switch to the corresponding safety standard.
F12	30mAGfciProtection	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by an accidental external line anomaly. After the fault is cleared, normal operation will resume, and no manual intervention is required. 2. If it occurs frequently or cannot be restored for a long time, check whether the PV string-to-ground impedance is too low.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F13	60mAGfciProtection	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by an accidental external line anomaly. After the fault is cleared, normal operation will resume, and no manual intervention is required. 2. If it occurs frequently or cannot be restored for a long time, check whether the PV string-to-ground impedance is too low.
F14	150mAGfciProtection	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by an accidental external line anomaly. After the fault is cleared, normal operation will resume, and no manual intervention is required. 2. If it occurs frequently or cannot be restored for a long time, check whether the PV string-to-ground impedance is too low.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F15	GfciSlow-Change Protection	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by an accidental external line anomaly. After the fault is cleared, normal operation will resume, and no manual intervention is required. 2. If it occurs frequently or cannot be restored for a long time, check whether the PV string-to-ground impedance is too low.
F16	DCIProtection Level1	The High DC Component of the inverter output current exceeds the safety standard or the inverter's default allowable range.	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault clears and no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation of the PV plant, please contact the distributor or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F17	DCIProtection Level2	The High DC Component of the inverter output current exceeds the safety standard or the inverter's default allowable range.	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault clears and no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation of the PV plant, please contact the distributor or after-sales service center.
F18	Low Insulation Resistance	1. The PV string is short-circuited to Protection ground. 2. The PV string is installed in a long-term humid environment, and the line-to-ground insulation is poor. 3. The battery port line has Low Insulation Resistance to ground.	1. Check the impedance of the PV string/battery port to Protection ground. A resistance greater than 80 kΩ is normal. If the measured resistance is less than 80 kΩ, locate and rectify the short-circuit point. 2. Check whether the inverter's Protection ground wire is correctly connected. 3. If it is confirmed that the impedance is indeed lower than the default value in rainy weather, please reset the inverter's "insulation resistance Protection point" through the App.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
			For inverters in the Australian and New Zealand markets, when an insulation resistance fault occurs, alarms can also be provided in the following ways: 1. The inverter is equipped with a buzzer. When a fault occurs, the buzzer sounds continuously for 1 minute; if the fault is not resolved, the buzzer sounds again every 30 minutes. 2. If the inverter is added to a monitoring platform, after configuring the alarm notification method, alarm information can be sent to the customer by email.
F19	Grounding Abnormal	1. The inverter's Protection ground wire is Not Connected. 2. When the PV string output is grounded, no isolation transformer is connected on the inverter output side.	1. Please confirm whether the inverter's Protection ground wire is Not Connected properly. 2. If the PV string output is grounded, please confirm whether an isolation transformer is connected on the inverter output side.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F49	L-PE Short Circuit	Output phase line to PE impedance is low or short-circuited.	Detect the output phase line to PE impedance and find the location with low impedance and repair it.
F50	DCV Protection Level1	Abnormal Load Fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault clears and no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation of the PV plant, please contact the distributor or after-sales service center.
F51	DCV Protection Level2	Abnormal Load Fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault clears and no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation of the PV plant, please contact the distributor or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F20	Hardware Export Limit Protection	Abnormal Load Fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault clears and no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation of the PV plant, please contact the distributor or after-sales service center.
F21	Internal Comm Loss	Refer to the specific sub-code cause.	Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F52	Leakage current (GFCI) multiple fault shutdowns	North American safety regulations require that after multiple faults automatic recovery is not allowed; manual recovery is required or wait 24h before recovery	1. Please check whether the PV string-to-ground impedance is too low.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F53	DC Arc Failure (AFCI) multiple fault shutdowns	North American safety regulations require that after multiple faults automatic recovery is not allowed; manual recovery is required or wait 24h before recovery	1. After the machine is reconnected to the grid, check whether the voltage and current of each channel abnormally decrease to zero; 2. Check whether the DC side terminals are securely connected.
F54	External communication link disconnected	Communication with the inverter's external devices is lost. Possible causes include peripheral power supply issues, Communication Protocols mismatch, or corresponding peripherals not being configured, etc.	The judgment is based on the actual model and detection enable bit; peripherals not supported by some models will not be detected.
F55	Back-up Output Overload	1. Prevent the inverter from continuous Overload output.	1. Turn off some off-grid loads to reduce the inverter's off-grid output power.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F56	Back-upOutput Overvoltage	2. Prevent inverter output overvoltage from causing load damage.	1. If it occurs occasionally, it may be caused by load switching, and no manual intervention is required. 2. If it occurs frequently, please contact your dealer or after-sales service center.
F107	On-grid PWM Sync Failure	An exception occurs during carrier synchronization and grid connection	1. Check whether the synchronization cable connection is normal 2. Check whether the master-slave settings are normal; 3. Disconnect the AC output side switch and the DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F57	ExternalBoxFault	During Switch On-Grid to Off-Grid, waiting time forBoxto switch relay is too long.	1. Check whetherBoxworks normally; 2. Check whetherBoxcommunicatio n wiring is correct;
-	Generator Failure		

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F22	Generator Waveform Detection Fault	1. When the generator is Not Connected, this fault will be displayed continuously 2. When the generator is operating, failure to meet the generator safety regulations will trigger this fault	1. When the generator is not connected, ignore this fault; 2. When the generator is faulty, the occurrence of this fault is normal. After the generator recovers, wait for a period of time; the fault will be automatically cleared; 3. This fault will not affect the normal operation of off-grid mode; 4. When the generator and the grid are connected simultaneously and safety regulation requirements are met, the grid takes priority for grid connection, and the system will operate in grid-connected state.
F23	Generator Abnormal Connection		
F24	Generator Voltage Low		
F25	Generator Voltage High		
F26	Generator Frequency Low		
F27	Generator Frequency High		
F109	ExternalSTSFault	The inverter andSTSconnection cable is abnormal	Check whether the harness connection sequence between the inverter andSTS corresponds one-to-one in order.
F58	CTLoss	CTconnection line disconnected (Japanese safety standard requirement)	Check whetherCTwiring is correct.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F110	Export Limit Protection	1. Inverter reports an error and disconnects from the grid 2. metercommunication is unstable 3. Reverse current condition occurs	1. Check whether the inverter has any other error messages. If so, handle them accordingly. 2. Check whether meterconnection is reliable 3. If this alarm occurs frequently and affects normal power generation of the PV plant, please contact the distributor or after-sales service center.
F111	BypassOverload	-	-
F112	Black Start Failure	-	-
F28	ParallelIOself-check abnormal	Parallel communication cable not securely connected or parallelIOchip damaged	Check whether the parallel communication cable is securely connected, then check whether theIOchip is damaged; if so, replaceIOchip.
F59	ParallelCANComm Abnormal	The parallel communication cable is not securely connected, or some machines are not online.	Check whether all machines are powered on and whether the parallel communication cables are securely connected.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F29	Paralell Grid Line Reversed	The grid lines of some machines are connected in reverse to others	Reconnect the grid wires.
F60	ParallelBack-upLine Reversed	Some machines'backupline is reversed with others.	Reconnect thebackupline.
F61	Inverter Soft Start Failure	Inverter Soft Start Failure during off-grid cold start	Check whether the inverter module of the machine is damaged.
F113	Offgrid AC Ins Volt High	-	-
F30	AC HCT check Abnormal	AC sensor sampling abnormal	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F62	AC HCT Failure	HCTsensor is abnormal.	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F31	GFCI HCT Check Abnormal	Leakage current sensor sampling abnormal	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F63	GFCI HCT Failure	Leakage current sensor is abnormal.	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F32	Relay Check Abnormal	Relay abnormality, reason: 1. Relay abnormality (relay short circuit) 2. Relay sampling circuit abnormality. 3. Abnormal AC-side wiring (possible loose connection or short circuit)	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F64	Relay Failure	1. Relay abnormality (relay short circuit) 2. Relay sampling circuit abnormality. 3. Abnormal AC-side wiring (possible loose connection or short circuit)	Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F164	DC Arcing Failure (strings 17~32)	1. DC-side connection terminal loose; 2. Poor contact of DC-side connection terminal; 3. DC cable conductor damaged with poor contact	1. After the machine reconnects to the grid, check whether the voltage and current of each channel abnormally decrease to zero; 2. Check whether the DC-side terminals are securely connected.
F165	DC Arcing Failure (strings 33~48)	1. DC-side connection terminal loose; 2. Poor contact of DC-side connection terminal; 3. DC cable conductor damaged with poor contact	1. After the machine reconnects to the grid, check whether the voltage and current of each channel abnormally decrease to zero; 2. Check whether the DC-side terminals are securely connected.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F33	FlashR/W Abnormal	Possible causes: flashcontent has changed;flashservice life exhausted;	1. Upgrade to the latest firmware version 2. Contact your dealer or after-sales service center.
F42	DC Arcing Failure (strings1~16)	1. DC-side connection terminal loose; 2. Poor contact of DC-side connection terminal; 3. DC cable conductor damaged with poor contact	1. After the machine reconnects to the grid, check whether the voltage and current of each channel abnormally decrease to zero; 2. Check whether the DC-side terminals are securely connected.
F34	AFCI Check Failure	During Arc Failure self-check, the Arc Failure module did not detect an Arc Failure as expected	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F65	AC Terminal Overtemperature	AC Terminal Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan is operating abnormally.	

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F35	Cabinet Overtemperature	Cabinet Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan is operating abnormally.	1. Check whether the inverter installation location is well-ventilated and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If it is not ventilated or Ambient Overtemperature occurs, improve its ventilation and heat dissipation. 3. If ventilation and ambient temperature are normal, contact your dealer or after-sales service center.
F66	INVModule Overtemperature	Inverter module overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan is operating abnormally.	
F67	BoostModule Overtemperature	BoostModule Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan is operating abnormally.	

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F68	AC Capacitor Overtemperature	Output filter capacitor overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan is operating abnormally.	
F114	Relay Failure2	Relay abnormality, reason: 1. Relay abnormality (relay short circuit) 2. Relay sampling circuit abnormality. 3. Abnormal AC-side wiring (possible loose connection or short circuit)	Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F69	PV IGBT Short Circuit Fault	Possible causes: 1. IGBT short circuit 2. Inverter sampling circuit is abnormal	Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F70	PV IGBTOpen Circuit	1. Software issue causing no pulse output: 2. Drive circuit abnormal: 3. IGBTOpen Circuit	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F71	NTCAbnormal	NTCtemperature sensor abnormal	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F72	PWM Abnormal	PWMabnormal waveform	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F73	CPUInterrupt Abnormal	CPUInterrupt Abnormal	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F74	Microelectronics Fault	Function Safety abnormality detected	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F75	PV HCTFault	boostcurrent sensor abnormal	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F76	1. 5Vreference abnormal	Reference circuit fault	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F77	0. 3Vreference abnormal	Reference circuit fault	
F78	CPLDVersion Error	CPLDVersion Error	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F79	CPLDComm Failure	CPLDandDSPcommunication data error or timeout	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F80	Model Identification Fault	Fault Regarding Model Recognition Error	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F115	SVGPrecharge Disabled	SVGPrecharge Hardware Failure	Contact your dealer or after-sales service center.
F116	SVG ModeSVG PIDPrevention Failure	PIDHardware Abnormal	Contact your dealer or after-sales service center.
F117	DSPVersion Error	DSPSoftware Version Error	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F36	Bus Overvoltage		

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F81	P-Bus Overvoltage	BUSOvervoltage, possible causes: 1. PVovervoltage; 2. InverterBUSvoltage sampling abnormality; 3. The isolation effect of the inverter rear-end dual-split transformer is poor, causing mutual interference between two inverters during grid connection; one of the inverters reports DC overvoltage during grid connection;	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F82	N-Bus Overvoltage		
F83	Bus Overvoltage (AuxiliaryCPU1)		
F84	P-Bus Overvoltage (AuxiliaryCPU1)		
F85	N-Bus Overvoltage (AuxiliaryCPU1)		
F86	Bus Overvoltage (AuxiliaryCPU2)		
F87	P-Bus Overvoltage (AuxiliaryCPU2)		
F88	N-Bus Overvoltage (AuxiliaryCPU2)		
F89	P-Bus Overvoltage(CPLD)		
F90	N-Bus Overvoltage (CPLD)		

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F118	MOSContinuous Overvoltage	1. Software problem causes the inverter drive to be shut down earlier than the flyback drive: 2. Abnormality in the inverter drive circuit prevents turn-on: 3. PVovervoltage; 4. Mosvoltage sampling abnormality;	Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F119	Bus Short Circuit Fault	1. Hardware damage	If a BUS short circuit fault occurs and the inverter remains disconnected from the grid, please contact the distributor or after-sales service center.
F120	Bus Sampling Abnormal	1. Busvoltage sampling hardware fault	Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F121	DCSample Abnormal	1. Bus voltage sampling hardware fault 2. Battery Voltage sampling hardware fault 3. Dcrly Relay Failure	Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F37	PVInput Overvoltage	PVinput voltage too high, possible causes: Incorrect PV array configuration: too many PV modules are connected in series in a string, causing the string open-circuit voltage to be higher than the inverter's maximum operating voltage	Check the series configuration of the corresponding PV array strings to ensure that the string open-circuit voltage is not higher than the inverter's maximum operating voltage. After the PV array is correctly configured, the inverter alarm automatically disappears.
F38	PVContinuous Hardware Overcurrent	1. Improper module configuration 2. Hardware damage	Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F39	PVContinuous Software Overcurrent	1. Improper module configuration 2. Hardware damage	

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F91	FlyCap Software Overvoltage	FlyCap Overvoltage, possible causes: 1. PVovervoltage; 2. Abnormal inverter flying capacitor voltage sampling;	Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F92	FlyCap Hardware Overvoltage	FlyCap Overvoltage, possible causes: 1. PVovervoltage; 2. Abnormal inverter flying capacitor voltage sampling;	
F93	FlyCap Undervoltage	FlyCap Undervoltage, possible causes: 1. PVenergy insufficient; 2. Abnormal inverter flying capacitor voltage sampling;	

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F94	FlyCap Precharge Failure	FlyCap Precharge Failure, possible causes: 1. PVenergy insufficient; 2. Abnormal inverter flying capacitor voltage sampling;	
F95	FlyCap Precharge Abnormal	1. Improper control loop parameters 2. Hardware damage	
F96	PV String Overcurrent (String 1~16)	Possible causes: 1. PV string overcurrent; 2. Abnormal PV string current sensor	
F97	PV String Overcurrent (String 17~32)		
F40	PV String Reversed (String1~16)	PVPV String Reversed	Check whether the strings are reversely connected.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F98	PV String Reversed (String17~32)	PVPV String Reversed	Check whether the strings are reversely connected.
F99	PV String Loss (String1~16)	String fuse open (if any)	Check whether the fuse is open.
F100	PV String Loss (String17~32)	String fuse open (if any)	Check whether the fuse is open.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F122	PVInput Mode Error	PVAccess Mode has three modes in total, taking four-channelMPPTas an example: 1. Parallel mode: i.e.,AAAAmode (same-source mode) , PV1-PV4are from the same source,4PVPVconnected to the same PV panel 2. Partial parallel mode: i.e.,AACCmode,PV1 andPV2are connected to the same source,PV3andPV4 are connected to the same source 3. Independent mode: i.e.,ABCDmode (not from the same source) , PV1、PV2、PV3、PV4are independently connected,4PVPVeach connected to one PV panel	Check whetherPVAccess Mode is set correctly (ABCD、AACC、AAAA), then re-set correctly thePVAccess Mode. 1. Confirm whether each actually connectedPVis correctly connected. 2. IfPVis correctly connected, useAppor screen to check whether the currently set "PVAccess Mode" corresponds to the actual Access Mode. 3. If the currently set "PVAccess Mode" does not match the actual Access Mode, you need to useAppor screen to set "PVAccess Mode" to a mode consistent with the actual situation; after setting, disconnectPVandACpower supply and restart. 4. After setting, if the current "PVAccess Mode" matches the actual Access Mode, but this fault is still reported, please contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
		If thePVactual Access Mode does not match thePVAccess Mode set on the device, this fault will be reported	
-	PV String Reversed (String33~48)	PVPV String Reversed	Check whether the strings are reversely connected.
-	PV String Loss (String33~48)	String fuse open (if any)	Check whether the fuse is open.
-	PV String Overcurrent (String 33~48)	Possible causes: 1. PV string overcurrent; 2. Abnormal PV string current sensor	

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F123	Multi-channel PV phase error	PV input mode setting error	Check whether PV Access Mode is set correctly (ABCD, AACC, AAAA), then re-set the PV Access Mode correctly 1. Confirm whether each actually connected PV is correctly connected 2. If PV is correctly connected, use App or screen to check whether the currently set "PV Access Mode" corresponds to the actual Access Mode 3. If the currently set "PV Access Mode" does not match the actual Access Mode, you need to use App or screen to set "PV Access Mode" to a mode consistent with the actual situation; after setting, disconnect the PV and AC power supply and restart 4. After setting, if the current "PV Access Mode" matches the actual Access Mode, but this fault is still reported, please contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F101	Battery1Precharge Failure	Battery1precharge circuit fault (precharge resistor burnt out, etc.)	Check whether the precharge circuit is healthy; after only the battery is powered on, check whether the Battery Voltage and bus voltage are consistent. If they are not consistent, please contact your dealer or after-sales service center.
F102	Battery1Relay Failure	Battery1relay cannot operate normally	After the battery is powered on, check whether the battery relay operates and whether a closing sound is heard. If it does not operate, please contact your dealer or after-sales service center.
F103	Battery1Overvoltage	Battery1input voltage exceeds the rated range of the machine	Confirm whether the Battery Voltage is within the rated range of the machine.
F104	Battery2Precharge Failure	Battery2precharge circuit fault (precharge resistor burnt out, etc.)	Check whether the precharge circuit is healthy; after only the battery is powered on, check whether the Battery Voltage and bus voltage are consistent. If they are not consistent, please contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F105	Battery2Relay Failure	Battery2relay cannot operate normally	After the battery is powered on, check whether the battery relay operates and whether a closing sound is heard. If it does not operate, please contact your dealer or after-sales service center.
F106	Battery2Overvoltage	Battery2input voltage exceeds the rated range of the machine	Confirm whether the Battery Voltage is within the rated range of the machine.
F124	Battery1Reversed	Battery1Reverse Polarity	Check whether the positive and negative poles of the battery and the machine wiring terminals are consistent.
F125	Battery2Reversed	Battery2Reverse Polarity	Check whether the positive and negative poles of the battery and the machine wiring terminals are consistent.
F126	Abnormal Battery Connection	Abnormal Battery Connection	Check whether the battery is working normally.
-	BMS Status Bit Error	BMS Module Fault	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, close the AC output side switch and the DC input side switch. If the fault persists, contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F127	BAT Overtemperature	Battery temperature too high, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan is operating abnormally.	
F128	Ref Voltage Abnormal	Reference circuit fault	Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F129	Cabinet Under Temperature	Cabinet Under Temperature, possible causes: 1. Ambient temperature too low.	
F130	ACSideSPDFault	AC-side SPD failed	Replace AC-side SPD.
F131	DCSideSPDFault	DC-side SPD failed	Replace DC-side SPD.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F132	Internal Fan Abnormal	Internal Fan Abnormal, possible causes: 1. Fan power supply abnormal; 2. Mechanical fault (locked rotor) ; 3. Fan aging damage.	Disconnect the AC output side switch and DC input side switch,5 minutes later, close the AC output side switch and DC input side switch. If the fault still exists, contact your dealer or after-sales service center.
F133	External Fan Abnormal	External Fan Abnormal, possible causes: 1. Fan power supply abnormal; 2. Mechanical fault (locked rotor) ; 3. Fan aging damage.	
F134	PIDAbnormal	PIDhardware fault orPVovervoltage,PI Dpaused	PVovervoltage-inducedPIDpause warning requires no action,PIDhardware fault can be cleared by turning off thePIDswitch and then turning it on to clearPIDfault; replacePIDdevice

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F135	Trip-Switch Trip Warning	Possible causes: Overcurrent orPVreverse connection caused the trip switch to open	Please contact the dealer or after-sales service center. The reason for disconnection is the occurrence ofPVshort circuit or reverse connection. It is necessary to check whether there is a historicalPVshort circuit warning or historicalPVreverse connection warning. If it exists, maintenance personnel need to check the correspondingPVsituation. After inspection and no fault is found, the trip switch can be manually closed, and through theAppinterface clear historical fault operation to clear this warning.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F136	HistoricalPV IGBT Short-Circuit Warning	Possible causes: Overcurrent caused the trip switch to open	Please contact the dealer or after-sales service center. Maintenance personnel need to follow the historicalPVshort circuit warning subcode to check the short-circuitedBoosthardware and external strings for faults; after inspection and no fault is found, you can through theAppinterface clear historical fault operation to clear this warning.
F137	HistoricalPVreverse connection warning (String1~16)	Possible causes: Occurrence ofPVreverse connection caused the trip switch to open	Contact the dealer or after-sales service center. Maintenance personnel need to follow the historicalPVreverse connection warning subcode to check whether the corresponding string has reverse connection, and checkPVpanel configuration for voltage difference; after inspection and no fault is found, you can through theAppinterface clear historical fault operation to clear this warning.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F138	HistoricalPVreverse connection warning (String17~32)	Possible causes: Occurrence ofPVreverse connection caused the trip switch to open	Contact the dealer or after-sales service center. Maintenance personnel need to follow the historicalPVreverse connection warning subcode to check whether the corresponding string has reverse connection, and checkPVpanel configuration for voltage difference; after inspection and no fault is found, you can through theAppinterface clear historical fault operation to clear this warning.
F139	FlashR/W Error	Possible causes: flashcontent has changed;flashservice life exhausted;	1. Upgrade to the latest version of the program. 2. Contact your dealer or after-sales service center.
F140	Meter Comm Loss	This warning may only be reported after the Power Limit function is enabled. Possible causes: 1. Meter not connected; 2. The communication cable connecting the meter and the inverter is wired incorrectly.	Check the meter wiring and connect the meter correctly. After checking, if the fault persists, contact your dealer or after-sales service center.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F141	PVType Identification Failure	PVPanel Identification Hardware Abnormality	Contact your dealer or after-sales service center.
F142	PV String Mismatch	PVString Mismatch, for the sameMPPT, the configured open-circuit voltages of the two strings are different	Check the open-circuit voltages of the two strings, and configure strings with the same open-circuit voltage under the sameMPPT; prolonged PV String Mismatch poses a safety hazard.
F143	CTNot Connected	CTNot Connected	Check whetherCTwiring.
F144	CTReversed	CTReversed	Check whetherCTwiring.
F145	PE Loss/PE Loss	PE Not Connected	Check the PE.
F146	PV String Terminal Overtemperature (String1~8)	37176registerPVterminal temperature alarm subcode1is set	-
F147	PV String Terminal Overtemperature (String9~16)	37177registerPVterminal temperature alarm subcode2is set	-
F148	PV String Terminal Overtemperature (String17~20)	37178registerPVterminal temperature alarm subcode3is set	-

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F149	HistoricalPVreverse connection warning (String33~48)	Possible causes: Occurrence ofPVreverse connection caused the trip switch to open	Please contact your dealer or after-sales service center; maintenance personnel should refer to the historicalPVreverse connection warning subcode to check whether the corresponding string has reverse connection, and checkPVpanel configuration for voltage difference; after inspection and no fault is found, you can through theAppinterface clear historical fault operation to clear this warning.
F150	Battery1Voltage Low	Battery Voltage is lower than the set value.	-
F151	Battery2Voltage Low	Battery Voltage is lower than the set value.	-
F152	Low Voltage of Battery Power	Battery not in charging mode; voltage is lower than shutdown voltage.	-
F153	BAT1 Voltage High	-	-
F154	BAT2 Voltage High	-	-

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F155	Online Low Insulation Resistance	1. The PV string is short-circuited to Protection ground. 2. The environment where the PV string is installed is relatively humid for a long time, and the line-to-ground insulation is poor.	1. Check the impedance of the PV string to Protection ground. If a short circuit occurs, rectify the short-circuit point. 2. Check whether the inverter's Protection ground wire is correctly connected. 3. If it is confirmed that the impedance is indeed lower than the default value in rainy weather, reset the "insulation impedance Protection point".
F156	Micro-grid Overload Warning	Backup terminal input overcurrent	If this alarm occurs occasionally, no action is required; if it occurs frequently, contact your dealer or after-sales service center.
F157	Manual Reset	-	-
F158	Generator Phase Sequence Abnormal	-	-
F159	Multiplexed Port Configuration Abnormal	The multiplexed (generator) port is configured as microgrid or large load, but a generator is actually connected.	Use the App to change the multiplexed (generator) port configuration.

Fault code	Fault Name	Fault Cause	Troubleshooting Suggestions
F41	Generator Port Overload	1. Off-grid side output exceeds the requirements specified in the datasheet. 2. Off-grid side short circuit 3. Off-grid terminal voltage too low 4. When used as a large load port, the large load exceeds the requirements specified in the datasheet.	Confirm the off-grid side output voltage, current, power, and other data to determine the cause of the problem.
F108	DSP Communication Failure	-	-

Fault Name	Fault Cause	Troubleshooting Suggestions
Parallel Comm Timeout Shutdown	In parallel operation, if the slave unit exceeds 400 seconds without communicating to the master unit	Check whether the parallel communication wiring harness is securely connected, and check whether the slave addresses are duplicated.
One-key shutdown stop	Check via the App whether the one-key shutdown function is enabled	Disable one-key shutdown.

Fault Name	Fault Cause	Troubleshooting Suggestions
Offline shutdown	-	-
Remote shutdown	-	-
Child Node Communication Failure	Internal Comm Abnormal	Restart the machine and observe whether the fault is cleared.
DG Communication Failure	Communication link abnormality between the control board and the DG	1. Check the link communication harness and observe whether the fault is cleared; 2. Try restarting the machine and observe whether the fault is cleared; 3. If the fault cannot be cleared after restart, contact the after-sales service center.
Battery Over Voltage	1. Single cell voltage too high 2. Voltage sampling line abnormal	
	1. Total battery voltage too high 2. Voltage sampling line abnormal	
Battery Undervoltage	1. Single cell voltage too low 2. Voltage sampling line abnormal	
	1. Total battery voltage too low 2. Voltage sampling line abnormal	

Fault Name	Fault Cause	Troubleshooting Suggestions
Battery Overcurrent	1. Charging Current too high, abnormal battery current limiting: sudden changes in temperature and voltage values 2. Abnormal inverter response	Record the fault phenomenon, restart the battery, wait a few minutes, and confirm whether the fault disappears. If the problem still exists after restart, please contact the after-sales service center.
	Battery discharge current too large	
Battery Overtemperature	1. Ambient Overtemperature 2. Temperature sensor abnormal	
	1. Ambient Overtemperature 2. Temperature sensor abnormal	
Battery Undertemperature	1. Ambient Undertemperature 2. Temperature sensor abnormal	
	1. Ambient Undertemperature 2. Temperature sensor abnormal	
Battery Terminal Overtemperature	Terminal Overtemperature	

Fault Name	Fault Cause	Troubleshooting Suggestions
Battery Imbalance	1. If the temperature difference is too large, in different stages, the battery will limit the battery power, i.e., limit the charging and discharging current. So this problem is generally difficult to occur. 2. Cell capacity degradation leads to excessive internal resistance. When Overcurrent occurs, the temperature rise is large, so the temperature difference becomes large. 3. Poor welding of cell tabs causes the cell to heat up too quickly during Overcurrent. 4. Temperature sampling problem; 5. Loose power line connection	
	1. Inconsistent cell aging degree 2. Slave board chip problems can also cause excessive cell voltage difference; 3. Slave board balancing problems can also cause excessive cell voltage difference 4. Caused by harness problems	
	1. Inconsistent cell aging degree 2. Slave board chip problems can also cause excessive cell voltage difference; 3. Slave board balancing problems can also cause excessive cell voltage difference 4. Caused by harness problems	

Fault Name	Fault Cause	Troubleshooting Suggestions
Insulation Resistance	Insulation resistance damage	Check whether the ground wire is properly connected, restart the battery. If the problem still exists after restart, please contact the after-sales service center.
Pre-charging Failure Fault	Pre-charging Failure	Indicates that during the pre-charging process, the voltage across the pre-charging MOS always exceeds the specified threshold. After shutdown and restart, observe whether the fault persists. Check whether the wiring is correct and whether the pre-charging MOS is damaged.
Sampling line fault	Poor contact or disconnection of battery sampling line	Check the wiring and restart the battery. If the problem persists after restart, please contact the after-sales service center.
	Poor contact or disconnection of cell voltage sampling line	Check the wiring and restart the battery. If the problem persists after restart, please contact the after-sales service center.
	Poor contact or disconnection of cell temperature sampling line	
	Dual-channel current comparison error too large, or abnormal current sampling line circuit	

Fault Name	Fault Cause	Troubleshooting Suggestions
	Dual-channel voltage comparison error too large, or voltage comparison error between MCU and AFE too large, or abnormal voltage sampling line circuit	
	Abnormal temperature sampling line circuit, or poor contact, disconnection	
	Overvoltage level 5 or overtemperature level 5, three-terminal fuse blown	Three-segment fuse blown. Contact the after-sales service center to replace the main control board.
Relay or MOS overtemperature	Relay or MOS overtemperature	This fault indicates that the MOS transistor temperature exceeds the specified threshold. Shut down and let stand for 2 hours to wait for temperature recovery.
Shunt overtemperature	Shunt overtemperature	This fault indicates that the shunt temperature exceeds the specified threshold. Shut down and let stand for 2 hours to wait for temperature recovery.

Fault Name	Fault Cause	Troubleshooting Suggestions
BMS1 other fault 1 (residential energy storage type)	Relay or MOS open circuit	1. Upgrade the software. Shut down and let stand for 5 minutes. After restart, check whether the fault persists; 2. If it persists, replace the battery pack.
	Relay or MOS short circuit	1. Upgrade the software. Shut down and let stand for 5 minutes. After restart, check whether the fault persists; 2. If it persists, replace the battery pack.
	Communication abnormality between main cluster and slave cluster, or cell inconsistency between clusters	1. Check the battery information and software version of the slave unit, and whether the communication line connection with the master unit is normal 2. Upgrade the software
	Abnormal battery system return harness, causing the interlock signal not to form a loop	Check whether the terminal resistor is installed correctly

Fault Name	Fault Cause	Troubleshooting Suggestions
	BMS and PCS communication abnormal	1. Confirm whether the communication line interface definition between the battery and the inverter is correct; 2. Please contact the after-sales service center to check the background data and observe whether the inverter and battery software match correctly.
	BMS main control and slave control communication harness abnormal	1. Check the wiring and restart the battery;
	Main negative inter-chip communication lost	2. Upgrade the battery. If the problem still exists after restart, please contact the after-sales service center.
	Circuit breaker and shunt trip fault	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Inspect the blind-mate connectors at the bottom of the PACK and PCU; check whether the communication pins are loose or skewed;

Fault Name	Fault Cause	Troubleshooting Suggestions
	MCU self-test failure	Upgrade software and restart the battery. If the problem persists after restart, please contact the after-sales service center.
	1. Software version is too low or the BMS board is damaged 2. Many inverters are connected in parallel, and the battery experiences excessive inrush current during pre-charging	1. Upgrade the software and observe whether the fault persists 2. If the system is in parallel operation, black-start the battery first, then start the inverters
	MCU internal fault	Upgrade software and restart the battery. This is generally caused by MCU or external component damage. If the problem persists after restart, please contact the after-sales service center.
	Main control current exceeds the specified threshold	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Check whether the inverter power setting is too high, causing the bus load to be exceeded;

Fault Name	Fault Cause	Troubleshooting Suggestions
	Cell inconsistency in parallel battery clusters	Confirm whether the cells of the parallel battery clusters are consistent
	Reverse connection of positive and negative poles of parallel battery clusters	Check whether the positive and negative poles of the parallel battery clusters are reverse-connected
	Severe over-temperature, over-voltage, etc., triggering the fire protection system	Contact the after-sales service center.
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 whether the cabinet door is properly closed
	Supply voltage too high	Confirm whether the supply voltage meets the air conditioner input voltage requirements; after confirming compliance, power on again.
	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 contact or damage	
	Air conditioner fan fault	

Fault Name	Fault Cause	Troubleshooting Suggestions
BMS1 Other Fault 2 (Residential ESS Type)	Abnormal voltage or current inside DCDC	Refer to the specific DC Failure details.
	DCDC Overload or high heatsink temperature, etc.	
	Cell sampling abnormality or inconsistent aging levels	Please contact the after-sales service center.
	Fan action was not executed normally	Please contact the after-sales service center.
	Loose screws or poor contact at the output port	1. Shut down the battery, and check the wiring and output port screws. 2. After confirmation, restart the battery and observe whether the fault persists. If it persists, please contact the after-sales service center.
	Battery has been in use for too long or cells are severely damaged	Please contact the after-sales service center to replace the pack.
	1. Software version is too low or the BMS board is damaged 2. Large number of parallel inverters; excessive inrush current to the battery during pre-charge	1. Upgrade the software and observe whether the fault persists. 2. If in parallel operation, black-start the battery first and then start the inverter.
	Heating film damaged	Please contact the after-sales service center.

Fault Name	Fault Cause	Troubleshooting Suggestions
	The three-terminal fuse of the heating film is open, so the heating function cannot be used.	Please contact the after-sales service center.
	Software model, cell type, and hardware model do not match	Check whether the software model, SN number, cell type, and hardware model are consistent. If not, please contact the after-sales service center.
	Thermal management board communication is disconnected	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault does not clear, contact after-sales to replace the pack.
	Thermal management board communication is disconnected	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault does not clear, contact after-sales to replace the pack.

Fault Name	Fault Cause	Troubleshooting Suggestions
	Thermal management board communication is disconnected	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault does not clear, contact after-sales to replace the pack.
	Pack fan fault signal is triggered	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault does not clear, contact after-sales to replace the pack.
DCDC Failure	Output port overvoltage	Check the output port voltage. If the output port voltage is normal and the fault still cannot clear automatically after restarting the battery, please contact the after-sales service center.
	The DCDC module detects that the Battery Voltage exceeds the maximum charging voltage.	Stop charging, discharge to below SOC 90% or leave it idle for 2 h. If ineffective and the fault still exists after restart, please contact the after-sales service center.

Fault Name	Fault Cause	Troubleshooting Suggestions
	Heatsink temperature too high	Leave the battery idle for 1 h until the heatsink temperature drops. If ineffective and the fault persists after restart, please contact the after-sales service center.
	Battery discharge current too large	Check whether the load exceeds the battery's discharge capability. Turn off the load or stop PCS operation for 60 s. If ineffective and the fault persists after restart, please contact the after-sales service center.
	The positive and negative poles of the output port power harness are connected in reverse to the parallel-connected battery cluster or PCS.	Turn off the battery manual switch, check whether the output port wiring is correct, and restart the battery.
	Output power relay cannot close	Check whether the output port wiring is correct and whether there is a short circuit. If ineffective and the fault persists after restart, contact the after-sales service center.

Fault Name	Fault Cause	Troubleshooting Suggestions
	Power device temperature too high	Leave the battery standing for 1 h until the temperature of the internal power devices decreases. If ineffective and the fault persists after restart, contact the after-sales service center.
	Relay sticking	If the fault persists after restart, contact the after-sales service center.
Battery Rack Circulating Current Failure	1. Cell imbalance 2. No full charge calibration on first power-on	-
BMS1 Other Fault 3 (Utility-Scale Energy Storage Type)	Abnormal communication with the Linux module	1. Check whether the communication line connection is normal 2. Upgrade the software, restart the battery to observe whether the fault persists. If it persists, contact the after-sales service center.
	Cell temperature rise too fast	Cell abnormal; contact after-sales to replace the pack.
	SOC below 10%	Charge the battery.

Fault Name	Fault Cause	Troubleshooting Suggestions
	SN writing does not comply with the rules	Check whether the number of SN digits is normal. If abnormal, contact the after-sales service center.
	1. Abnormal daisy-chain communication within the battery rack 2. Inconsistent cell aging degree between battery racks	1. Check the contact condition of the battery packs in a single rack 2. Confirm the usage of each battery rack, such as cumulative charge/discharge capacity, cycle count, etc. 3. Contact the after-sales service center.
	High humidity inside the pack	-
	Fuse blown	Contact after-sales to replace the pack.
	Low battery power	Charge the battery.
BMS1 Other Fault 4 (Utility-Scale Energy Storage Type)	Air switch abnormal	Contact after-sales to replace the pack.
	External device abnormal	Contact after-sales to replace the pack.
Contactor Failure 1	-	-
Contactor Failure 2	-	-

Fault Name	Fault Cause	Troubleshooting Suggestions
Overload Protection (Ksic)	Continuous Overload (>690 kVA) 10 s	Please contact the after-sales service center.
Overload Protection (Smart Port)	Continuous Overload (>690 kVA) 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 2. The meter communication cable may be loose	1. Check whether the meter is connected to the master 2. Check whether the meter communication cable is loose
Parallel Slave Meter Error	Meter connected to slave	The device connected to the meter is set as the master
Slave AC On Timeout with Master	1. Slave address setting error 2. Slave communication cable 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 cause	Troubleshooting
1	Charging Overvoltage2	• Cell voltage/total voltage too high • Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault persists, contact GoodWe after-sales.
2	Charging Overvoltage3	• Cell voltage/total voltage too high • Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault persists, contact GoodWe after-sales.
3	Discharge Undervoltage3	• Cell Voltage/Total Voltage Too Low • Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Determine the inverter operating condition and whether the battery is not being charged due to issues such as the operating mode; try charging the battery through the inverter and observe whether the fault clears. 3. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
4	Discharge Undervoltage2	• Cell Voltage/Total Voltage Too Low • Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Determine the inverter operating condition and whether the battery is not being charged due to issues such as the operating mode; try charging the battery through the inverter and observe whether the fault clears. 3. If the fault persists, contact GoodWe after-sales.
5	Cell Overvoltage2	• Cell voltage/total voltage too high • Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; If the fault persists, contact GoodWe after-sales.
6	Cell Undervoltage2	Cell Undervoltage	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Determine the inverter operating condition and whether the battery is not being charged due to issues such as the operating mode; try charging the battery through the inverter and observe whether the fault clears. 3. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
7	Significant Cell Voltage Variation ²	Significant Cell Voltage Variation	1. Restart the battery and wait for 12 hours. 2. If the fault persists, contact GoodWe after-sales.
8	Charging Overcurrent ²	• Charging Current too high, battery current limiting abnormal: sudden changes in temperature and voltage values • Inverter response abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Check whether the inverter power is set too high, causing the battery's rated operating current to be exceeded; 3. If the fault persists, contact GoodWe after-sales.
9	Discharge Overcurrent ²	• Discharge current too high, battery current limiting abnormal: sudden changes in temperature and SOC values • Inverter response abnormal	
10	Battery Cell High Temperature ²	• Cell temperature too high • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
11	Battery Cell Low Temperature2	• Ambient temperature too low • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
12	Charging Overtemperature2	• Cell temperature too high • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
13	Charging Low Temperature2	• Ambient temperature too low • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
14	Discharge Overtemperature2	• Cell temperature too high • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
15	Discharge Low Temperature2	• Ambient temperature too low • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
16	Significant Cell Temperature Variation ²	Significant Cell Temperature Variation	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
17	Precharge Disabled	Precharge MOS closing failure	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault persists, contact GoodWe after-sales.
18	Battery Tripping	Battery Trip	1. Leave for 10 min, then reclose to recover; 2. If the fault persists, contact GoodWe after-sales.
19	Battery and Inverter Comm Failure	Battery and Inverter Comm Failure	1. Verify that the communication cable wiring sequence 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.
20	Specific Failures	Battery Specific Failures	Please contact the after-sales service center.
21	Parallel cluster fault	Slave cluster lost communication Cluster paralleling failure	Check the reliability of the master-slave harness communication connection. Please contact the after-sales service center.

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

No.	Fault Name	Possible cause	Troubleshooting
1	Charging Overvoltage2	- Cell voltage/total voltage too high - Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault persists, contact GoodWe after-sales.
2	Charging Overvoltage3	- Cell voltage/total voltage too high - Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault persists, contact GoodWe after-sales.
3	Discharge Undervoltage3	- Cell Voltage/Total Voltage Too Low - Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Determine the inverter operating condition and whether the battery is not being charged due to issues such as the operating mode; try charging the battery through the inverter and observe whether the fault clears. 3. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
4	Discharge Undervoltage2	• Cell Voltage/Total Voltage Too Low • Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Determine the inverter operating condition and whether the battery is not being charged due to issues such as the operating mode; try charging the battery through the inverter and observe whether the fault clears. 3. If the fault persists, contact GoodWe after-sales.
5	Cell Overvoltage2	• Cell voltage/total voltage too high • Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; If the fault persists, contact GoodWe after-sales.
6	Cell Undervoltage2	Cell Undervoltage	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Determine the inverter operating condition and whether the battery is not being charged due to issues such as the operating mode; try charging the battery through the inverter and observe whether the fault clears. 3. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
7	Significant Cell Voltage Variation ²	Significant Cell Voltage Variation	1. Restart the battery and wait for 12 hours. 2. If the fault persists, contact GoodWe after-sales.
8	Charging Overcurrent ²	• Charging Current too high, battery current limiting abnormal: sudden changes in temperature and voltage values • Inverter response abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Check whether the inverter power is set too high, causing the battery's rated operating current to be exceeded; 3. If the fault persists, contact GoodWe after-sales.
9	Discharge Overcurrent ²	• Discharge current too high, battery current limiting abnormal: sudden changes in temperature and SOC values • Inverter response abnormal	
10	Battery Cell High Temperature ²	• Cell temperature too high • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
11	Battery Cell Low Temperature2	• Ambient temperature too low • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
12	Charging Overtemperature2	• Cell temperature too high • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
13	Charging Low Temperature2	• Ambient temperature too low • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
14	Discharge Overtemperature2	• Cell temperature too high • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
15	Discharge Low Temperature2	• Ambient temperature too low • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
16	Significant Cell Temperature Variation ²	Significant Cell Temperature Variation	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
17	Precharge Disabled	Precharge MOS closing failure	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault persists, contact GoodWe after-sales.
18	Battery Tripping	Battery Trip	1. Leave for 10 min, then reclose to recover; 2. If the fault persists, contact GoodWe after-sales.
19	Battery and Inverter Comm Failure	Battery and Inverter Comm Failure	1. Verify that the communication cable wiring sequence 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.
20	Specific Failures	Battery Specific Failures	Please contact the after-sales service center.
21	Parallel cluster fault	Slave cluster lost communication Cluster paralleling failure	Check the reliability of the master-slave harness communication connection. Please contact the after-sales service center.

No.	Fault Name	Possible cause	Troubleshooting
22	Application Software Failure	Software self-test failure	Please contact the after-sales service center.
23	Microelectronics Fault	Electronic component failure	Please contact the after-sales service center.
24	Main control Overload	Exceeds the current-carrying capacity range of the power line.	Stop charging; if it does not recover automatically, please contact professional technicians to restart the system.
25	SN abnormal	Batteries with the same SN exist	Please contact the after-sales service center.
26	Air switch abnormal	Molded case circuit breaker abnormally disconnected	Replace the molded case circuit breaker

• **BATSeries 92.1-112.6Kwh Commercial and Industrial Battery System**

No.	Fault Name	Possible cause	Troubleshooting
1	Charging Overvoltage2	- Cell voltage/total voltage too high - Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault persists, contact GoodWe after-sales.
2	Charging Overvoltage3	- Cell voltage/total voltage too high - Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
3	Discharge Undervoltage3	• Cell Voltage/Total Voltage Too Low • Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Determine the inverter operating condition and whether the battery is not being charged due to issues such as the operating mode; try charging the battery through the inverter and observe whether the fault clears. 3. If the fault persists, contact GoodWe after-sales.
4	Discharge Undervoltage2	• Cell Voltage/Total Voltage Too Low • Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Determine the inverter operating condition and whether the battery is not being charged due to issues such as the operating mode; try charging the battery through the inverter and observe whether the fault clears. 3. If the fault persists, contact GoodWe after-sales.
5	Cell Overvoltage2	• Cell voltage/total voltage too high • Voltage sampling line abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
6	Cell Undervoltage2	Cell Undervoltage	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Determine the inverter operating condition and whether the battery is not being charged due to issues such as the operating mode; try charging the battery through the inverter and observe whether the fault clears. 3. If the fault persists, contact GoodWe after-sales.
7	Significant Cell Voltage Variation2	Significant Cell Voltage Variation	1. Restart the battery and wait for 12 hours. 2. If the fault persists, contact GoodWe after-sales.
8	Charging Overcurrent2	• Charging Current too high, battery current limiting abnormal: sudden changes in temperature and voltage values • Inverter response abnormal	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. Check whether the inverter power is set too high, causing the battery's rated operating current to be exceeded; 3. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
9	Discharge Overcurrent2	- Discharge current too high, battery current limiting abnormal: sudden changes in temperature and SOC values - Inverter response abnormal	
10	Battery Cell High Temperature2	- Cell temperature too high - Temperature sensor abnormal	- Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; - If the fault persists, contact GoodWe after-sales.
11	Battery Cell Low Temperature2	- Ambient temperature too low - Temperature sensor abnormal	- Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; - If the fault persists, contact GoodWe after-sales.
12	Charging Overtemperature2	- Cell temperature too high - Temperature sensor abnormal	- Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; - If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
13	Charging Low Temperature2	• Ambient temperature too low • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
14	Discharge Overtemperature2	• Cell temperature too high • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
15	Discharge Low Temperature2	• Ambient temperature too low • Temperature sensor abnormal	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
16	Significant Cell Temperature Variation2	Significant Cell Temperature Variation	1. Shut down and leave it standing for 30 minutes; after restarting, check whether the fault still persists; 2. If the fault persists, contact GoodWe after-sales.
17	Precharge Disabled	Precharge MOS closing failure	1. Power off and leave standing for 5 minutes; after restart, check whether the fault persists; 2. If the fault persists, contact GoodWe after-sales.

No.	Fault Name	Possible cause	Troubleshooting
18	Battery Tripping	Battery Trip	1. Leave for 10 min, then reclose to recover; 2. If the fault persists, contact GoodWe after-sales.
19	Battery and Inverter Comm Failure	Battery and Inverter Comm Failure	1. Verify that the communication cable wiring sequence 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.
20	Specific Failures	Battery Specific Failures	Please contact the after-sales service center.
21	Parallel cluster fault	Slave cluster lost communication Cluster paralleling failure	Check the reliability of the master-slave harness communication connection. Please contact the after-sales service center.
22	Application Software Failure	Software self-test failure	Please contact the after-sales service center.
23	Microelectronics Fault	Electronic component failure	Please contact the after-sales service center.
24	Main control Overload	Exceeds the current-carrying capacity range of the power line.	Stop charging; if it does not recover automatically, please contact professional technicians to restart the system.
25	SN abnormal	Batteries with the same SN exist	Please contact the after-sales service center.
26	Air switch abnormal	Molded case circuit breaker abnormally disconnected	Replace the molded case circuit breaker

No.	Fault Name	Possible cause	Troubleshooting
27	Air switch stuck fault	Molded case circuit breaker fault or auxiliary circuit breaker fault	Replace the molded case circuit breaker or replace the auxiliary circuit breaker.
28	Fire protection system triggered	System internal thermal runaway or fire suppression false trigger	Please contact the after-sales service center.
29	Air conditioner fault	Abnormal fault in the air conditioning system	Please contact the after-sales service center.
30	Access control fault	Door abnormally opened or access control sensor damaged	Close the door or replace the access control sensor
31	EPO trigger	EPO pressed or EPO button damaged	Replace EPO button
28	PACK fan fault	PACK fan stalled or not working	Replace the corresponding PACK fan

9.5.1.4 View Fault/Alarm Details

All fault and alarm details of the energy storage system are displayed in [SEMS+ App] and [SEMS+ WEB]. If your product is abnormal and the relevant fault information is not found in [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] > [Alarm] to view fault information for all plants.
3. Click the specific fault name to view the fault details, occurrence time, possible causes, and solutions.

- SEMS+ Web

1. Open SEMS+ Web and log in with any account.
2. On the plant details page, click [Alarm] to view all alarm information for the current 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°C (kW)	25000	30000	40000	50000
Max. Power at 40°C (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 (°C)	-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 (4~6mm ²)	MC4 (4~6mm ²)	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 (°C)	-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 (°F)	-35°C~+60°C
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-grid state, Max.Apparent Power of Inverter Side can be reached 55kW. *2: When the inverter is operating in the off-grid 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 grid 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 Parameters

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 (°C)	• 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 (°C)	• 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°C 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 (°C)		• 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 (°C)		• 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°C 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 (°C)	0~+55						
Discharging Operating Temperature Range (°C)	-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/ Discharge 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°C						
General Data							
Operating Temperatur e Range (°C)	0~40°C						
Storage Temperatur e (°C)	+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 (°C)	-20~+55		
Discharging Operating Temperature Range (°C)	-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 (°C)	-20~+55		
Storage Temperature (°C)	+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/ Discharge 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 (°C)		-30~70
	Storage Temperature Range(°C)		-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 (°C)		-30~60
Storage Temperature Range (°C)		-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 (°C)	-30~60°C
Storage Temperature (°C)	-40~70°C
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 (°C)	-30~+65
Storage Temperature (°C)	-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 check whether the meter CT is connected correctly and the current operating status of the meter and CT.

- Method 1:

1. Go to **[Home]** > **[Settings]** > **[Meter/CT Auxiliary Detection]**, and enter the detection page.
2. Click Start Detection. After the detection is completed, view the detection result.

- Method 2:

1. Click  > **[System Setup]** > **[Quick Setting]** > **[Meter/CT Assisted Test]**, and enter the detection page.
2. Click Start Detection. After the detection is completed, view the detection result.

11.1.2 How to Upgrade the Device Version

Through Firmware Information, you can view or upgrade the inverter's DSP version, ARM version, BMS version, and communication module software version. Some communication modules do not support upgrading the software version via the SolarGo App. Please refer to the actual situation.

- **Upgrade Prompt:**

When the user opens the app, an upgrade prompt pops up on the home page, and the user can choose whether to upgrade. If the user chooses to upgrade, follow the on-screen prompts to complete the upgrade.

- **Regular Upgrade:**

Go to **[Home]** > **[Settings]** > **[Firmware Information]**, and enter the Firmware Information viewing screen.

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

- **Forced Upgrade:**

The app pushes upgrade information. The user must upgrade as prompted; otherwise, the app cannot be used. Follow the on-screen prompts to complete the upgrade.

11.2 Acronyms

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 for Grid Purchase
Smax (from grid)	Max. Apparent Power from Utility Grid	Max. Apparent Power to Grid for Grid Purchase
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	Max. Output Voltage
fAC,r	Nominal Output Frequency	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	Transmit Power
PD	Power Consumption	Power Consumption
PAC,r	Power Consumption	Power Consumption
F (Hz)	Frequency	Frequency
ISC PV	Max. Input Short Circuit Current	Max. 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	Max. 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 & 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 Communication
Modbus TCP/IP	Modbus Transmission Control / Internet Protocol	Modbus TCP/IP
Modbus RTU	Modbus Remote Terminal Unit	Modbus Serial
SCR	Short-Circuit Ratio	Short Circuit Ratio
UPS	Uninterruptable Power Supply	Uninterruptible Power Supply
ECO mode	Economical Mode	Economic 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 AFCI
GFCI	Ground Fault Circuit Interrupter	Grounding Failure Circuit Breaker

Abbreviation	English Description	Chinese Description
RCMU	Residual Current Monitoring 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	Battery Remaining Energy
SOP	State Of Power	Battery Charge and Discharge Capability
SOF	State Of Function	Battery Functional Status
SOS	State Of Safety	Safety Status
DOD	Depth of discharge	Depth of Discharge

11.3 Terminology Explanation

- **Overvoltage Category Explanation**
 - **Overvoltage Category I:** Equipment connected to circuits with measures to limit transient overvoltages to a suitably low level.
 - **Overvoltage Category II:** Energy-consuming equipment supplied from a fixed distribution installation. Such equipment includes appliances, portable tools, and other household and similar loads. If special requirements are imposed on the reliability and availability of such equipment, Overvoltage Category III is used.
 - **Overvoltage Category III:** Equipment in fixed distribution installations, where the reliability and availability of the equipment must meet special requirements. It includes switchgear and industrial equipment permanently connected to fixed distribution installations.
 - **Overvoltage Category IV:** Equipment used upstream in the power supply of the distribution installation, including measuring instruments and primary overcurrent Protection equipment, etc.
- **Definitions of Wet Location Categories**

Environmental Parameters	Level		
	3K3	4K2	4K4H
Temperature Range	0~+40°C	-33~+40°C	-33~+40°C
Humidity Range	5% to 85%	15% to 100%	4% to 100%

- **Environmental Category Explanation:**
 - **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 Explanation**
 - **Pollution Degree 1:** No pollution or only dry, non-conductive pollution;
 - **Pollution Degree 2:** Normally, only non-conductive pollution occurs, but temporary conductive pollution caused by condensation must be taken into account;
 - **Pollution Degree 3:** Conductive pollution occurs, or dry non-conductive pollution becomes conductive due to condensation;
 - **Pollution Degree 4:** Persistent conductive pollution, such as pollution caused by conductive dust, rain, or snow.

11.4 Meaning of Battery SN Code

*****2388*****



The 11th-14th digits

LXD10DSC0002

Digits 11-14 of the product SN code are the production time code.

The production date in the figure above is 2023-08-08

- The 11th and 12th digits are the last two digits of the production year; for example,

2023 is represented by 23;

- The 13th digit is the production month; for example, August is represented by 8; Details are as follows:

Month	January-September	October	November	December
Month code	1~9	A	B	C

- The 14th digit is the production day; for example, the 8th day is represented by 8; Numeric characters are used preferentially; for example, 1-9 represent days 1-9, A represents day 10, and so on. The letters I and O are not used to avoid confusion. Details are as follows:

Production day	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9
Code	1	2	3	4	5	6	7	8	9

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

Production day	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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