V2.2 2026-09-30

Residential Smart Inverter

ET G2 6.0-15.0kW

· Lynx Home F G2
· Lynx Home F
· Lynx Home F Plus+
· Lynx Home D
· Lynx D G2

Solutions Manual

GOODWE

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NOTICE

Due to product version upgrades or other reasons, the contents of this document will be updated from time to time. Unless otherwise specified, the contents of this document do not replace the safety notices on the product labels. All descriptions in this document are for guidance only.

Preface

Overview

This document mainly introduces the product information, installation and wiring, configuration and commissioning, troubleshooting, and maintenance of an energy storage system composed of an inverter, battery system, and smart meter. Before installing and using the product, read this manual carefully to understand the 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

The energy storage system includes the following products:

Product type	Product information	Description
Inverter	ET G2 6-15kW	Rated output power6kWto 15kW。
Battery system	Lynx Home F G2	Energy storage capacity per cluster9.6kWhto28.8kWh。 Maximum energy storage capacity of parallel clusters can reach230.4kWh
	Lynx Home F、Lynx Home F Plus+	Energy storage capacity per cluster6.6kWhto16.38kWh。 Maximum energy storage capacity of parallel clusters can reach131.04kWh。
	Lynx D	Energy storage capacity per cluster5kWh。 Maximum energy storage capacity of parallel clusters can reach40kWh。

Product type	Product information	Description
	Lynx D G2	Energy storage capacity per cluster 5.12-9kWh. Maximum energy storage capacity of parallel clusters can reach108kWh。
Electricity meter	GM3000	The monitoring module in the energy storage system can detect information such as operating voltage and current in the system.
	GM330	
Communication module	WiFi/LAN Kit-20	It can useWiFiorLANsignals to upload system operation information to the monitoring platform.
	LS4G Kit-CN、4G Kit-CN、4G Kit-CN-G20or4G Kit-CN-G21(China only)	It can use4Gsignals to upload system operation information to the monitoring platform.
	Ezlink3000	In parallel operation scenarios, it is connected to the master inverter. It can useWiFiorLANsignals to upload system operation information to the monitoring platform.

Symbol Definitions

⚠DANGER
Indicates a highly hazardous situation that, if not avoided, will result in death or serious injury.
⚠WARNING
Indicates a medium-level potential hazard that, if not avoided, could result in death or serious injury to personnel.
⚠CAUTION
Indicates a low-level potential hazard that, if not avoided, may result in moderate or minor injury to personnel.

NOTICE
Emphasis and supplement to the content; it may also provide tips or tricks for optimized product use, helping you solve a problem or save time.

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1 Safety Precautions

Always comply with the safety precautions contained in this document when operating the equipment.

⚠WARNING
The equipment has been designed and tested in strict accordance with safety regulations. However, as electrical equipment, relevant safety instructions must be observed before performing any operation on the equipment; improper operation may result in serious injury or property damage.

1.1 General Safety

NOTICE

- Due to product version upgrades or other reasons, the contents of this document will be updated from time to time. Unless otherwise specified, the contents of this document do not replace the safety notices on the product labels. All descriptions in this document are for guidance only.
- Before installing the equipment, read this document carefully to understand the product and precautions.
- All operations on the equipment must be performed by professional and qualified electrical technicians, who 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 ESD gloves, ESD wrist straps, anti-static clothing, etc., to provide Protection of the equipment from electrostatic damage.
- Unauthorized disassembly or modification may cause equipment damage, which is not covered by the warranty.
- Equipment damage or personal injury caused by failure to install, use, or configure the equipment in accordance with this document or the corresponding user manual is not within the scope of the equipment manufacturer's responsibility.
- For more product warranty information, please visit the official website:https://en.goodwe.com/warranty。

1.2 Personnel Requirements

NOTICE

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

1. Professional or qualified personnel include:
   - Personnel who have mastered the equipment working principles, system structure, and related knowledge of risks and hazards, and have received professional operation training or possess extensive practical experience.
   - Personnel who have received relevant technical and safety training, possess certain operating experience, are able to recognize the dangers that specific operations may cause 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.
   - Possess a degree in electrical engineering / an advanced diploma or equivalent qualification in an electrical discipline / professional qualifications in the electrical field, and have at least 2/3/4 years of experience in testing and supervisory work using electrical equipment safety standards.
2. Personnel involved in special tasks such as electrical work, work at heights, 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

⚠DANGER

- Before performing electrical connections, disconnect all upstream switches of the equipment and ensure that the equipment is de-energized. Live working is strictly prohibited; otherwise, hazards such as electric shock may occur.
- For devices supporting PV string connection, the PV input terminals have weak

surge current withstand capability. It is strictly prohibited to use a DC voltage source to directly energize through the PV port. If energizing from the PV port is required, follow the steps below. If the equipment is damaged due to non-compliant operation, it will be deemed human-caused damage and will not be covered by product warranty.

1. First, limit the output current of the DC voltage source to within the Max. Current from Grid allowed by the PV port
2. Then close the DC Switch of the inverter
3. Finally, slowly increase the output voltage of the DC source from zero to the target value at a rate of ≤50 V/s

- To prevent personal injury or equipment damage caused by live working, a circuit breaker must be added on the voltage input side of the equipment.
- During all work such as transportation, storage, installation, operation, use, and maintenance, applicable laws, regulations, standards, and specifications shall be complied with.
- The specifications of cables and components used for electrical connections shall comply with local laws, regulations, standards, and specifications.
- Use the cable connectors delivered with the equipment to connect the equipment cables. If connectors of other models are used, any resulting equipment damage is not within the responsibility of the equipment manufacturer.
- Ensure that all equipment cables are correctly connected, tightened, and free from looseness. Improper wiring may cause poor contact or damage to the equipment.
- The equipment's Protection ground wire must be securely connected.
- To provide Protection for the equipment and its components against damage during transportation, ensure that transportation personnel have received professional training. Record the operation steps during transportation and keep the equipment balanced to avoid the equipment falling.
- The equipment is heavy. Allocate corresponding personnel according to the equipment Weight to prevent the equipment from exceeding the Weight range that can be carried by personnel and causing crushing injuries.
- Ensure that the equipment is placed stably and is not tilted. Tipping over of the equipment may cause equipment damage and personal injury.

⚠WARNING

- During equipment installation, avoid making the wiring terminals bear weight; otherwise, terminal damage may occur.
- Avoid cables being subjected to excessive pulling force; otherwise, poor connections may occur. When wiring, reserve an appropriate cable length to avoid the cables being in a taut state.
- Correctly secure and support cables to prevent cable self-weight, pulling force, bending force, torsion, or other external mechanical stress from acting on terminals or connectors for a long time.
- Ensure that the Protection grounding conductor is reliably connected and reserve appropriate slack. When subjected to external mechanical stress such as unexpected pulling force, ensure that the Protection grounding conductor does not break before other conductors.
- Cables of the same type should be bundled together. Cables of different types should be routed at least 30 mm apart. Intertwining or cross-routing is prohibited.
- Using cables in high-temperature environments may cause the insulation layer to age or become damaged. The distance between cables and heat-generating components or the outer periphery of heat source areas must be at least 30 mm.

1.3.1 PV String Safety

DANGER

- Use the DC wiring terminals delivered with the equipment to connect the inverter DC cables. Using DC wiring terminals of other models may cause serious consequences; therefore, any resulting equipment damage is not within the responsibility of the equipment manufacturer.

⚠WARNING

- Ensure that module frames and mounting bracket systems are properly grounded.
- After the DC cables are connected, ensure that the cable connections are tightened and free from looseness.
- Use a multimeter to measure the positive and negative poles of the DC cables to ensure that the positive and negative poles are correct and not reversed; and that the voltage is within the permitted range.
- Do not connect the same PV string to multiple inverters; otherwise, it may cause inverter damage.

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 specifications of the Protection devices must be greater than 1.25 times the inverter's AC output Max. Current.
- If the inverter triggers an Arc Failure alarm less than 5 times within 24 hours, the alarm can be automatically cleared. After the 5th Arc Failure alarm, the inverter shuts down for Protection. The inverter can operate normally only 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 derating of the inverter output power.

1.3.3 Battery Safety

⚠DANGER

- Before operating equipment in the system, ensure that the equipment has been powered off to avoid electric shock hazards. During equipment operation, strictly comply with all safety precautions in this manual and the safety labels 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 be caused, and any losses caused thereby are not within the responsibility of the equipment manufacturer.
- Do not impact, pull, drag, squeeze, or step on the equipment. Do not place the battery in fire; otherwise, the battery may explode.
- Do not place the battery in a high-temperature environment. Ensure there are no heat sources 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 conditions, do not use it. Battery damage may cause electrolyte leakage.
- Do not move the battery system while the battery is operating. If you need to replace or add batteries, 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.
- The same battery is only allowed to be connected to one energy storage inverter. It is prohibited to directly connect the same battery to multiple energy storage inverters. Multiple inverters sharing one battery may cause abnormal return current or circulating current, and result in GFCI leakage Protection and battery overcurrent, and in severe cases 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 lead to battery current limiting and affect the load-carrying capacity.
- If the battery cannot be started, contact the after-sales service center as soon as possible. Otherwise, the battery may be permanently damaged.
- Carry out regular inspection and maintenance of 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. The electrolyte is corrosive, and contact may cause skin irritation and chemical burns. If you accidentally come into contact with the leaked substance, take 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: Wash the affected area thoroughly with soap and water and seek medical attention immediately.
  - Ingestion: Induce vomiting and seek medical attention immediately.
- Fire
  - When the battery temperature exceeds 150°C, the battery is at risk of catching fire. After the battery catches fire, it may release toxic and harmful gases.
  - To avoid a 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. Firefighting personnel must wear protective clothing and self-contained breathing apparatus.
- Battery Fire Protection Function Triggered
  For batteries with an optional fire protection function, after the fire protection function is triggered, take the following actions:
  - Immediately cut off the main power switch to ensure that no current flows

through the battery system.
- Perform an initial visual inspection of the battery for damage, deformation, leakage, or odor, and inspect the battery enclosure, connectors, and cables.
- Use a temperature sensor to detect the temperature of the battery and its environment to ensure there is no risk of overheating.
- Isolate and mark the damaged battery, and handle it properly in accordance with local regulations.

1.3.4 Meter Safety

⚠WARNING

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

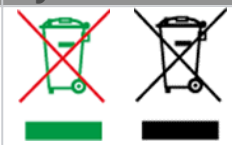
1.4 Description of Safety Symbols and Certification Marks

⚠DANGER

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

No.	Symbol	Meaning
1		Potential hazards exist during equipment operation. When operating the equipment, take proper protective measures.
2		High voltage hazard. High voltage exists during equipment operation. Before operating the equipment, ensure that the equipment is powered off.

No.	Symbol	Meaning
3		The inverter surface becomes hot. Do not touch it while the equipment is running; otherwise, it may cause burns.
4		Use the equipment properly. Using it under extreme conditions may pose an explosion risk.
5		The battery contains flammable materials. Fire hazard.
6		The equipment contains corrosive electrolyte. Avoid contact with leaking electrolyte or vapors.
7		Delayed discharge. After the equipment is powered off, wait 5 minutes until the equipment is fully discharged.
8		Keep the equipment away from open flames or ignition sources.
9		Keep the equipment away from areas accessible to children.
10		Use the equipment properly. Using it under extreme conditions may pose an explosion risk.
11		The battery contains flammable materials. Fire hazard.
12		After the battery system wiring is completed or while the battery system is in operation, do not lift the equipment.
13		Do not extinguish with water.
14		Before operating the equipment, read the product manual carefully.
15		Wear personal protective equipment (PPE) during installation, operation, and maintenance.

No.	Symbol	Meaning
16		The equipment must not be disposed of as household waste. Dispose of the equipment in accordance with local laws and regulations, or return it to the manufacturer.
17		During equipment operation, do not directly disconnect or plug/unplug the DC terminals.
18		Protection earthing conductor connection point.
19		Recycling symbol.
20		CE Certification mark.
21		TUV mark.
22		RCM mark.

1.5 European Declaration of Conformity

1.5.1 Equipment with Wireless Communication Function

Equipment with wireless communication functions that can be sold in the European market complies with 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 Equipment Without Wireless Communication Functions (Excluding Batteries)

Equipment without wireless communication functions that can be sold in the European market complies with 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 in the European market comply with 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)*1
- Regulation (EU) 2023/1542 Article 12 - Safety of stationary battery energy storage systems
- Regulation (EU) 2023/1542 Article 10 - Performance and durability requirements for rechargeable industrial batteries, LMT batteries and electric vehicle batteries
- Regulation (EU) 2023/1542 Article 14 - Information on the state of health and expected lifetime of batteries
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)
  *1: Our battery products comply with the hazardous substance limit requirements specified in this regulation.

More EU Declarations of Conformity can be obtained fromthe official website.

2 System Introduction

2.1 System Overview

The residential smart inverter solution integrates devices such as inverters, batteries, smart meters, and smart communication sticks. In a PV system, it converts solar energy into electrical energy to meet household electricity needs. The energy IoT devices in the system control electrical equipment by identifying the overall power level in the system, thereby intelligently managing power supply to loads, storage in batteries, or export to the grid.

⚠WARNING

- Select the battery model according to the inverter and battery compatibility list. For battery requirements in the same system, such as whether models can be mixed and matched, whether capacities must be consistent, etc., refer to the battery user manual for the corresponding model or contact the battery manufacturer for relevant requirements. Inverter and battery compatibility list:https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_Battery%20Compatibility%20Overview-EN.pdf。
- Due to product version upgrades or other reasons, the document content may be updated periodically. For the compatibility between inverters and IoT products, refer to:https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_Compatibility-list-of-GoodWe-inverters-and-IoT-products-EN.pdf。
- The PV system is not suitable for connecting to equipment that relies on a stable power supply, such as life-sustaining medical equipment. Ensure that a system power outage will not cause personal injury.
- If no battery is configured in the PV system, it is not recommended to useBACK-UPfunction; otherwise, it may cause a risk of system power outage.
- BACK-UPport does not support connection to autotransformers or isolation transformers.
- Battery Current may be affected by factors such as temperature, humidity, weather conditions, etc., which may lead to battery current limiting and affect the load-carrying capacity.

⚠WARNING

- The maximum discharge current and Charging Current of the battery are limited by the inverter connected to it.
- The inverter is equipped withUPSfunction, with a switching time <10ms, ensure thatBACK-UPload capacity < inverter Rated Power. Otherwise, during Grid Power Outage, it may cause theUPSfunction to fail.
- Do not connect the same Battery BANK to multiple inverters; otherwise, it may cause inverter damage.
- When the inverter is in off-grid mode, it can supply ordinary household loads normally. However, the following loads need to be limited, such as:
  - inductive load: inductive load power<the inverter rated output power multiplied by0.4.
  - Capacitive load: total power ≤ 0.66 x inverter rated output power.
  - The inverter does not support half-wave loads. Half-wave loads: some old household appliances or those not compliant withEMCstandards (such as hair dryers, small heaters, etc. using half-wave rectification) may not work properly.
- In a fully off-grid inverter system, if the battery is exposed to low-light or rainy weather for a long time and cannot be recharged in time, it may be over-discharged, causing battery performance degradation or damage. To ensure long-term stable operation of the system, avoid completely draining the battery. Recommended measures are as follows:
  1. During off-grid operation, set the minimumSOCProtection threshold. For the off-grid battery, it is recommended to set theSOClower limit to30%。
  2. WhenSOCapproaches the Protection threshold, the system automatically enters load-limiting or Protection mode.
  3. If there is insufficient sunlight for multiple consecutive days and the batterySOCis too low, promptly replenish the battery using an external energy source (such as a generator or grid-assisted charging).
  4. Regularly check the battery status to ensure it is within the safe operating range.
  5. It is recommended to fully charge and discharge the battery once every six months to calibrateSOCaccuracy.
- For detailed networking and wiring schemes for each scenario, refer to:5.2.Detailed System Wiring Diagram(Page 108)。

Off-grid Load Capacity Description				
Load Type	6-8kW		10-15kW	
	Single-phase	Three-phase	Single-phase	Three-phase
Rated Power of a single inductive load (kVA)	1.1	2.2	1.5	4
Total Rated Power of multiple inductive loads (kVA)	1.1	2.2	1.5	4
Capacitive load (kVA)	0.33Pn/3	0.33Pn	0.33Pn/3	0.33Pn
Half-wave load	Not supported			

Note:

- Pn: Rated output power of the inverter.
- When 2 or more units are connected in parallel, the allowable total inductive load Rated Power = single inductive load Rated Power * number of parallel units * 80%.
- Half-wave load: Some old or non-EMC-compliant home appliances (such as hair dryers, small heaters, etc. using half-wave rectification).
- If the calculated total Rated Power of multiple inductive loads is less than the maximum Rated Power of a single inductive load, the total load Rated Power shall be the Rated Power of that single unit.
- When inductive loads are connected, it is recommended to use a frequency converter.

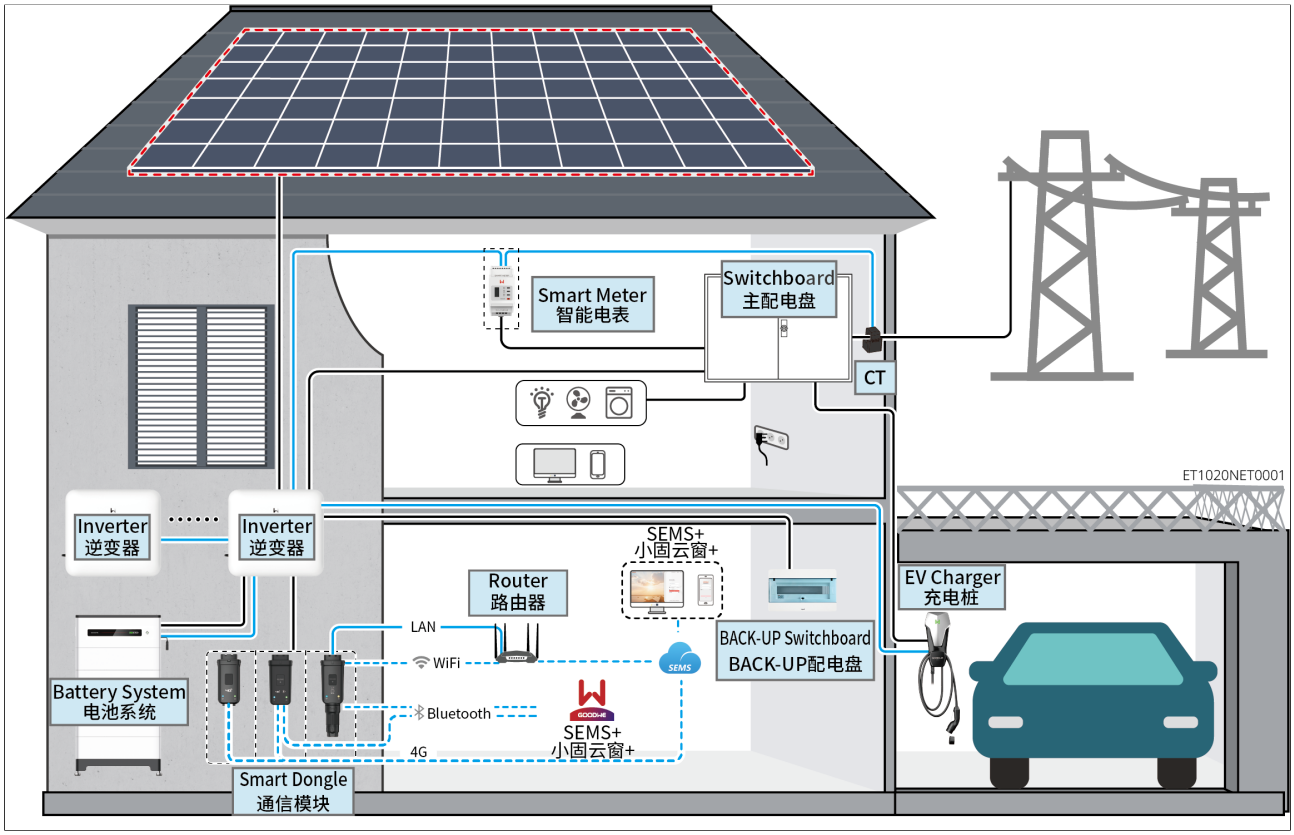


Figure1 System networking diagram

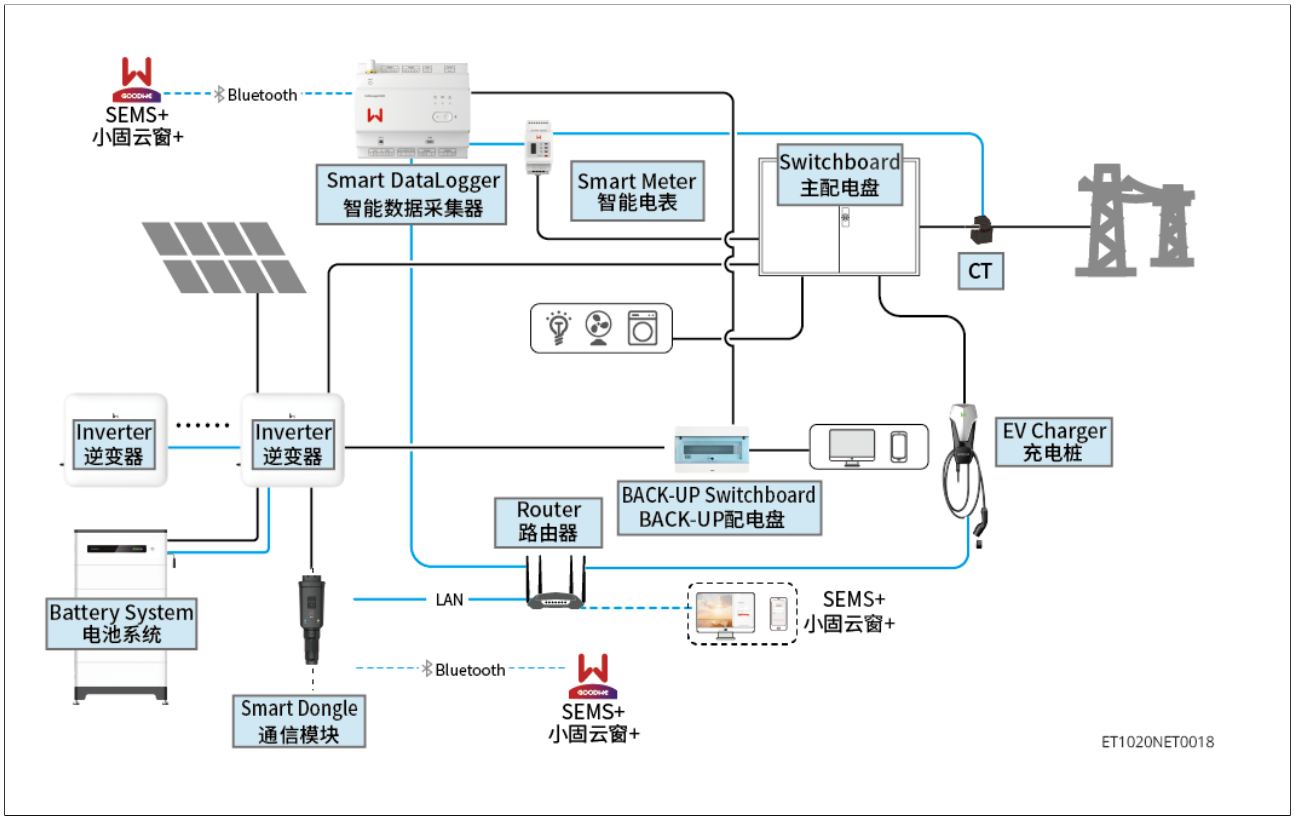


Figure2 Dynamic Power Limit solution networking diagram

Device type	Model	Description
Inverter	GW6000-ET-20 GW8000-ET-20 GW9900-ET-20(Australia only) GW10K-ET-20 GW12K-ET-20 GW15K-ET-20	• Up to4inverters can form a parallel system.Up to4inverters can form a parallel system. Mixed parallel connection of different power ranges is supported. • All inverters in the parallel system must have the same software version. • Inverter software version requirements: ◦ Inverter ARM software version 18.455 or later. ◦ InverterDSP software version 06.6025.

Device type	Model	Description
Battery system	**Lynx Home F G2** LX F9.6-H-20 LX F12.8-H-20 LX F16.0-H-20 LX F19.2-H-20 LX F22.4-H-20 LX F25.6-H-20 LX F28.8-H-20	• Lynx Home Fbattery system does not support parallel cluster use • For Lynx Home Plus+ and Lynx Home F G2 batteries, parallel cluster expansion is temporarily not supported between different models. For the same model, parallel cluster expansion is allowed within one year of purchase and use; after one year, parallel cluster expansion is not allowed. • Lynx Home Plus+ and Lynx Home F G2 battery systems support up to 8 battery clusters in parallel. • Battery systems of different versions cannot be mixed.
	Lynx Home F、Lynx Home Plus+ LX F6.6-H LX F9.8-H LX F13.1-H LX F16.4-H	
	Lynx D LX D5.0-10	• LX D5.0-10 batteries support parallel cluster connection and expansion. • Battery systems support up to 8 battery clusters in parallel.

Device type	Model	Description
	Lynx D G2 GW5.1-BAT-D-G20 GW5.1-BAT-D-G21 GW8.3-BAT-D-G20 GW8.3-BAT-D-G21 GW6.0-BAT-D-G20 GW9.0-BAT-D-G20	• Battery modules of different models can be mixed. • The system supports5-108kWh, meeting different power and energy matching requirements. • The battery heating film is optional. Only models equipped with a heating film can enable the 'Battery Heating' function. Batteries without a heating film should not be used in low-temperature environments; otherwise, the device may fail to operate. • GW5.1-BAT-D-G20, GW8.3-BAT-D-G20, GW5.1-BAT-D-G21, GW8.3-BAT-D-G21, GW6.0-BAT-D-G20 , GW9.0-BAT-D-G20 The battery heating function is unavailable when mixed. • If the system requires mixed battery usage and split-type expansion, ensure that the BMS software version is V06 or later and the DCDC version is V06 or later. • The battery BMS software version must be 07 or later and the DCDC version must be 08 or later for compatibility with this series of inverters.

Device type	Model	Description
Smart Data Logger	EzManager3000	For EzManager3000-related requirements, installation, wiring, and other information, refer to https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_EzManager_User-Manual-EN.pdf Software Version Requirements: • When the inverter is standalone: EzManager3000 software version V00 or later. • When inverters are in parallel operation: EzManager3000 software version V04 or later.
Smart Meter	• GM3000(Purchased from GoodWe) • GM330(Purchased from GoodWe) • GMK330 (Purchased from GoodWe) • Inverter Built-in Meter	• Built-in energy meter: Please use the one shipped with the packageCTto connect to the inverter. ◦ CTratio is 90 A/90 mA. ◦ If the inverter built-in meter does not meet the requirements, you can contact your dealer or other sources to purchaseGM330orGM3000smart meters. • GM3000：CT replacement is not supported,CT ratio:120A：40mA • GM330：CT Can be purchased from GoodWe or by yourself,CT Transformation ratio requirements:nA/5A ◦ nA：CT primary-side input current,n ranges from 200-5000 ◦ 5A：CT secondary-side output current • GM3000：CT replacement is not supported,CT ratio:120A：40mA. Use only with EzManager3000.

Device type	Model	Description
Communication module	• WiFi/LAN Kit-20 • LS4G Kit-CN, 4G Kit-CN, 4G Kit-CN-G20 or 4G Kit-CN-G21 (China only) • Ezlink3000	• For standalone operation, useWiFi/LAN Kit-20、LS4G Kit-CN、4G Kit-CN、4G Kit-CN-G20or4G Kit-CN-G21module. • When using EzManager3000 for networking,WiFi/LAN Kit-20 software version 05 or later. • When usingEzlink3000 inverter Parallel Networking, only the master inverter needs to connect toEzlink3000, and the slave inverter does not need to connect a communication module. • Ezlink3000firmware version is04or later.

2.2 Product Introduction

2.2.1 Inverter

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

NOTICE
The appearance of inverters with different power ratings may vary; please refer to the actual product.

No.	Model	Rated output power	Rated Output Voltage	Number of MPPTs
1	GW6000-ET-20	6kW	400/380, 3L/N/PE	2
2	GW8000-ET-20	8kW		2

No.	Model	Rated output power	Rated Output Voltage	Number of MPPTs
3	GW9900-ET-20(Australia only)	9.9kW		3
4	GW10K-ET-20	10kW		3
5	GW12K-ET-20	12kW		3
6	GW15K-ET-20	15kW		3

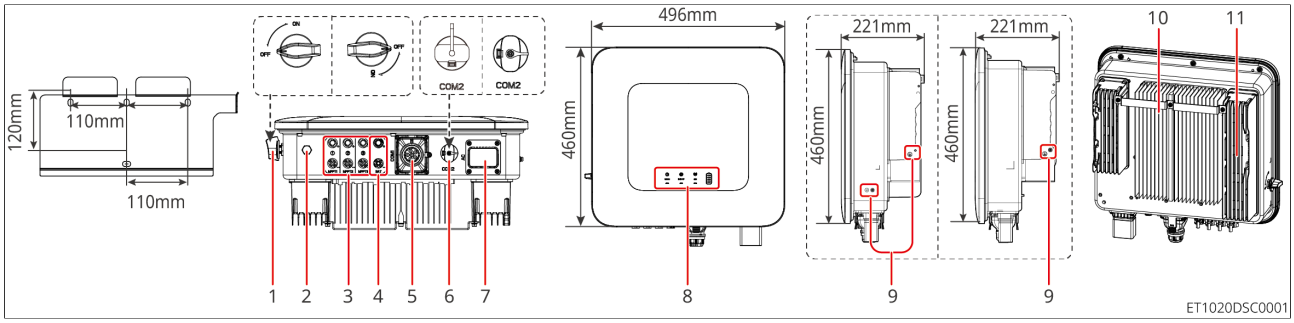


Figure3 Component Introduction

No.	Component	Description
1	DC Switch	Controls the connection or disconnection of the DC input.
2	Vent Valve	-
3	PV DC input port	Can be connected to PV module DC input cables. • GW6000-ET-20 and GW8000-ET-20: MPPT x 2 • GW9900-ET-20、GW10K-ET-20、GW12K-ET-20、GW15K-ET-20：MPPT x 3
4	Battery connection port	Connect battery DC cables.

No.	Component	Description
5	Communication port	Connect the communication cable; supports communication with CT, meter, DRED, Remote Shutdown, Rapid Shutdown, RCR, EMS, generator, and BMS.
6	Communication module port	• Can connect communication modules, supporting 4G, Wi-Fi/LAN modules. • Use a USB flash drive for system software upgrade.
7	AC Port	Connect AC cables.
8	Indicator Light	Indicates the operating status of the inverter.
9	Protection grounding terminal	Connect the enclosure's Protection ground wire.
10	Mounting Bracket	Mount the inverter.
11	Heat sink	Inverter heat dissipation.

2.2.2 Battery

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

2.2.2.1 Lynx Home F、Lynx Home F Plus+

Lynx Home Fseries battery system consists of a main control box and battery modules. The battery system can store and release energy according to the requirements of the PV energy storage system. The input and output ports of the energy storage system are high-voltage DC.

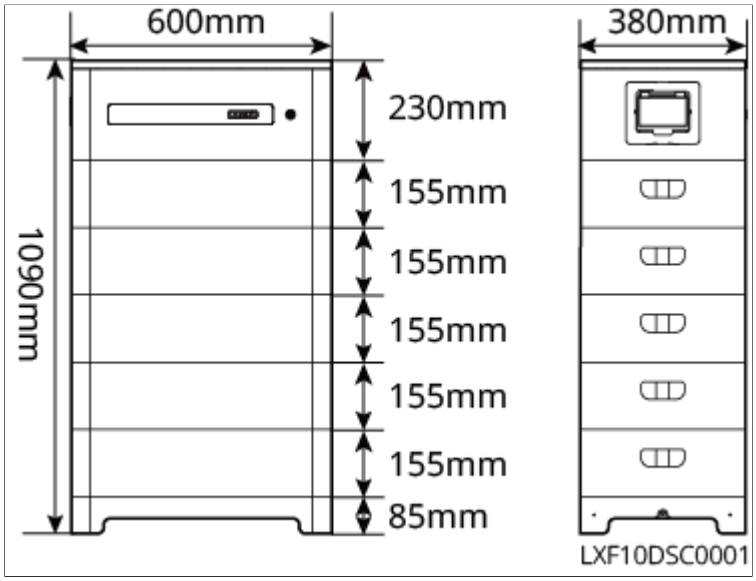
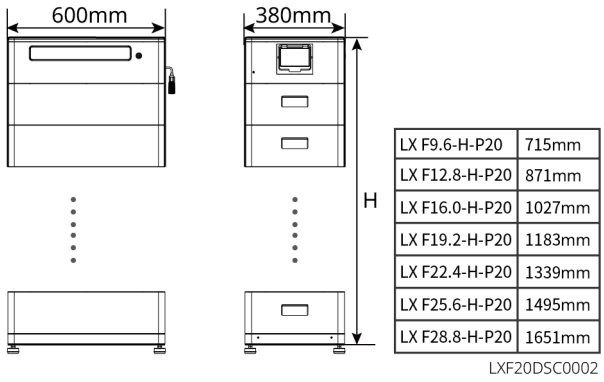


Figure4 Battery dimensions

No.	Model	Number of battery modules	Available energy (kWh)
1	LX F6.6-H	2	6.55kWh
2	LX F9.8-H	3	9.83kWh
3	LX F13.1-H	4	13.1kWh
4	LX F16.4-H	5	16.38kWh

2.2.2.2 Lynx Home F G2



No.	Model	Number of battery modules	Available energy (kWh)
1	LX F9.6-H-20	3	9.6kWh
2	LX F12.8-H-20	4	12.8kWh
3	LX F16.0-H-20	5	16.0kWh

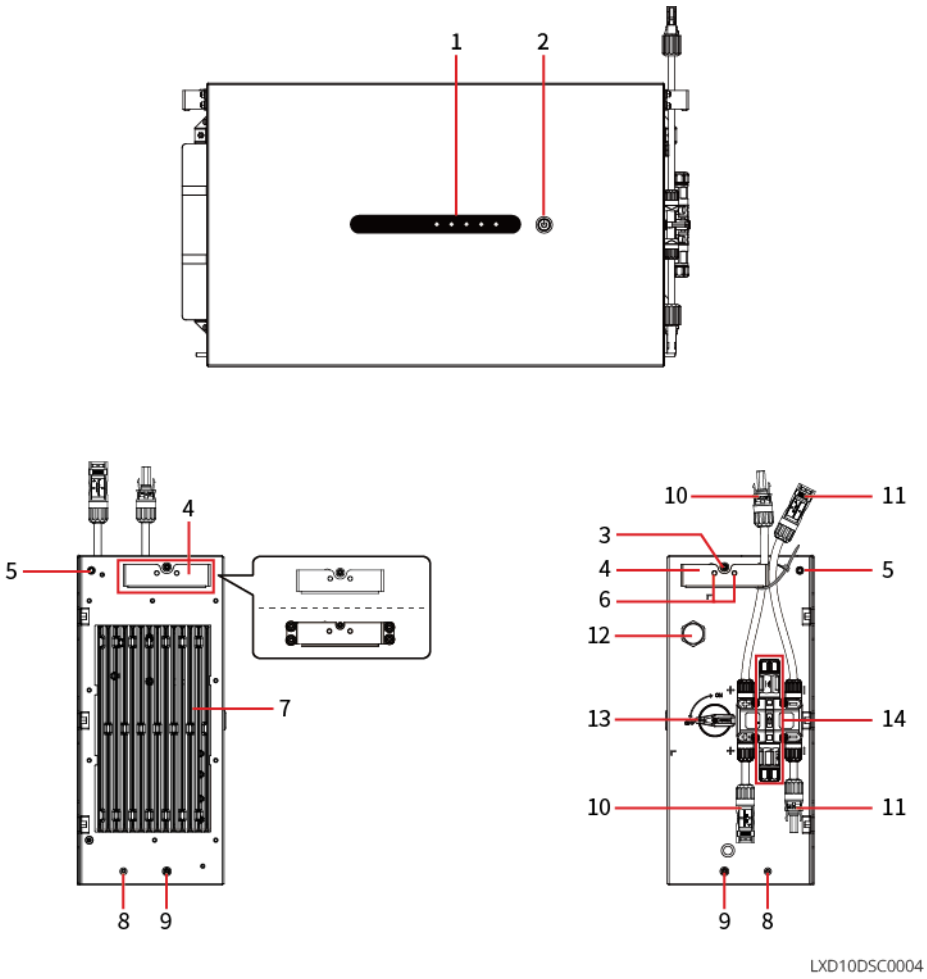
No.	Model	Number of battery modules	Available energy (kWh)
4	LX F19.2-H-20	6	19.2kWh
5	LX F22.4-H-20	7	22.4kWh
6	LX F25.6-H-20	8	25.6kWh
7	LX F28.8-H-20	9	28.8kWh

2.2.2.3 Lynx Home D

In the Lynx Home D battery system, the BMS and battery modules are integrated into one unit.

NOTICE
Optional base or bracket mounting.

Appearance description:

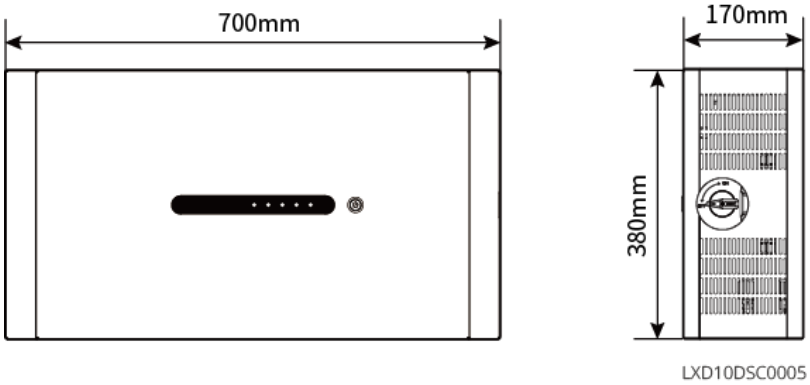


No.	Component	Description
1	Battery SOC indicator	

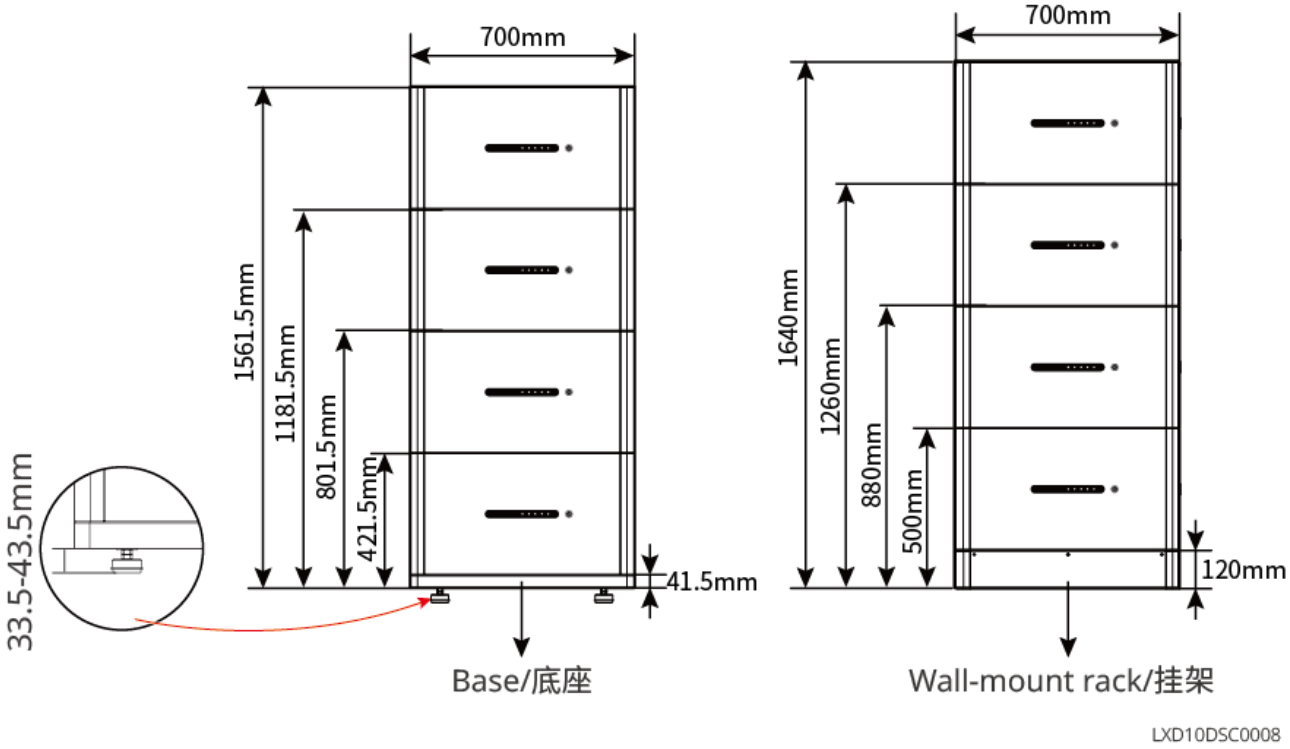
No.	Component	Description
2	Multifunction button indicator	• SOC indicator: displays battery SOC status. • Multi-function button indication ◦ Battery black start function: When the PV system generates no power and the grid is abnormal, if the inverter cannot work normally, you can long press the multifunction button for 2s to start the battery system and start the inverter. The inverter can enter off-grid mode and supply power to the load from the battery. ◦ Long press the multifunction button for >5s to power off the battery system. • When the SOC indicator and multifunction button indicator are displayed in combination, they can show the battery system operating status, alarm status, and fault status.
3	Inter-battery fixing hole or grounding port	Used for fixing between two batteries or for connecting the ground wire.
4	Handle	Used for carrying the battery.
5	Battery-to-wall fixing hole	Used for fixing between the battery and the wall.
6	Side protective cover mounting holes	Used for installing the side protective cover.
7	Heat sink	Used for heat dissipation of the battery system.
8	Side protective cover mounting holes	Used for installing the side protective cover.
9	Battery-to-battery fixing holes	Used for fixing between two batteries.

No.	Component	Description
10	Battery positive connection terminal	Connects to the positive terminal of the battery or inverter.
11	Battery negative connection terminal	Connects to the negative terminal of the battery or inverter.
12	Vent Valve	Used to equalize the internal and external pressure of the battery.
13	Battery power switch	Battery power input/output switch.
14	Communication connection port	Connects the communication cables or termination resistors between the battery and inverter, and between batteries.

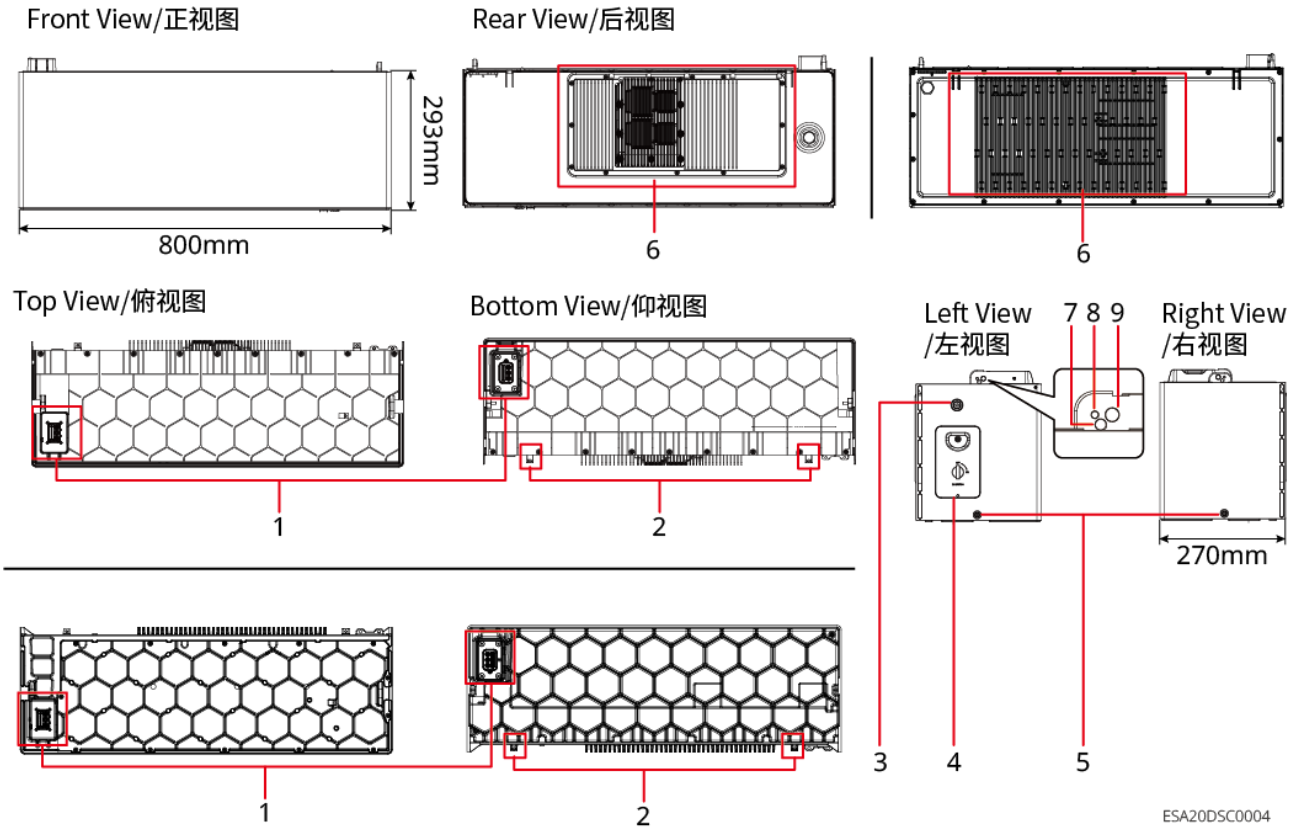
Single battery dimensions introduction:

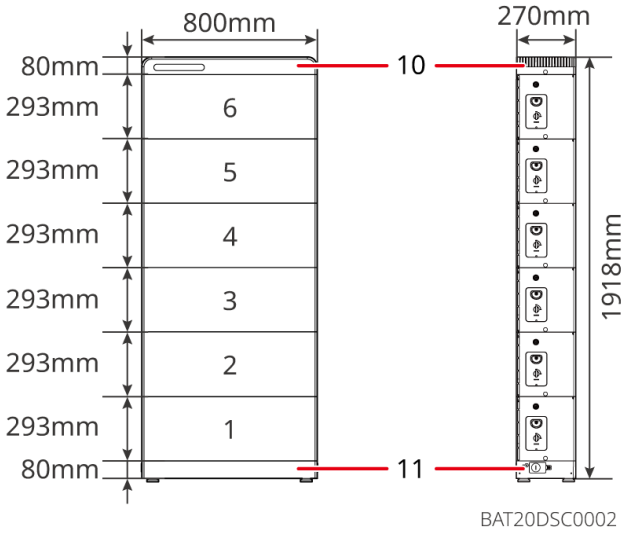


Battery BANK dimensions introduction:



2.2.2.4 Lynx D G2





BAT20DSC0002

No.	Component	Description
1	connector	Power and communication ports for battery-to-battery and battery-to-inverter connections.
2	Anti-tip bracket mounting holes	Used to secure the battery to the wall.
3	Multifunction button indicator	• Indicates the battery operating status. • Battery black start function: When no PV power is generated in the PV system and the grid is abnormal, the inverter cannot operate normally. In this case, press and hold the multi-function button for 2s to start the battery system, activate the inverter, and make the inverter enter off-grid mode, so that the battery discharges to supply power to the loads. • Battery power-off function: Press and hold the multi-function button for >5s to power off the battery system.
4	Battery isolation switch	Battery power input/output switch.
5	Battery-to-battery fixing holes	Used to secure two batteries together.

No.	Component	Description
6	Heat sink	Battery heat dissipation
7	Battery lifting holes	Used for lifting the battery. When more than three batteries are stacked, a lifting tool must be used for hoisting installation.
8	Battery or inverter mounting holes	Used for fixing between batteries or between the inverter and battery.
9	Lifting Handle Mounting Hole	Used to install the lifting handle. Used for manual battery handling.
10	Battery decorative cover	-
11	Base	-

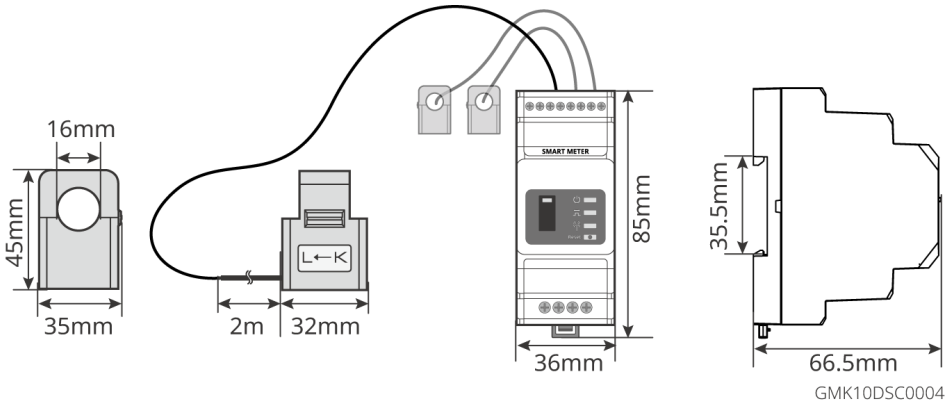
The energy storage system supports battery capacity expansion. The total battery capacity is determined by the number and specifications of battery modules. During configuration, the restrictions specified in this chapter must be strictly observed.
Overall system configuration instructions:
A：GW5.1-BAT-D-G20，GW5.1-BAT-D-G21，GW6.0-BAT-D-G20
B：GW8.3-BAT-D-G20，GW8.3-BAT-D-G21，GW9.0-BAT-D-G20

Mounting Method	Number of expansion groups	Stacking per group	Total number of batteries
Floor-standing installation	≤3groups	≤6units	≤12units
Wall-mounted installation (**A**)	≤3groups	≤3units	≤9units
Wall-mountedinstallation (**A/B/A+B**)	≤3groups	≤2units	≤6units
Note: Expansion group count × stacked quantity per group ≤ total system battery count			

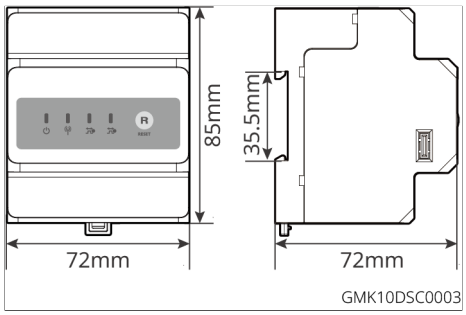
2.2.3 Smart Meter

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

GM3000&CT



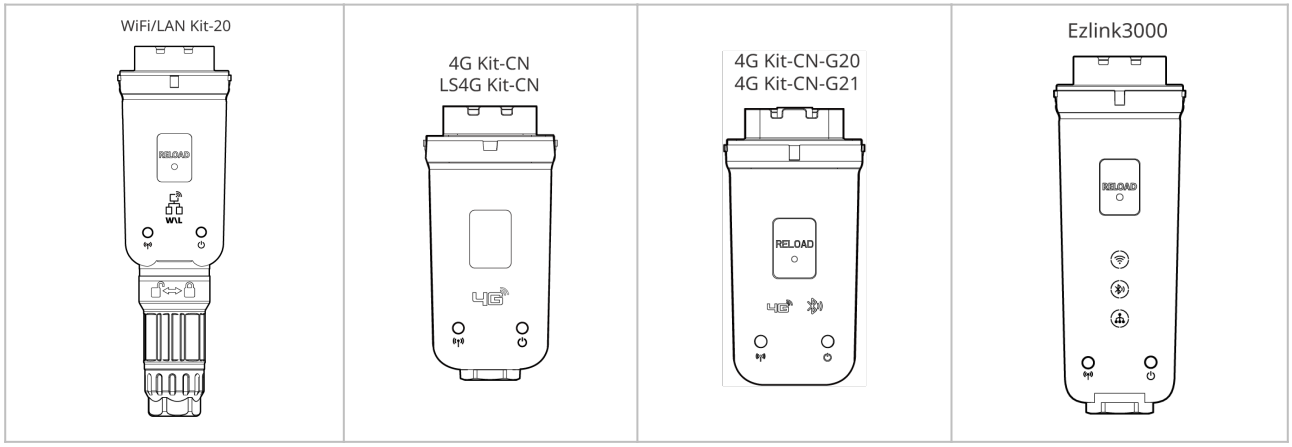
GM330



No.	Model	Application scenarios
1	GM3000	CT replacement is not supported,CT ratio:120A: 40mA
2	GM330	CT Can be purchased from GoodWe or by yourself,CT Transformation ratio requirements:nA: 5A • nA: CT primary-side input current,n ranges from 200-5000 • 5A: CT secondary-side output current

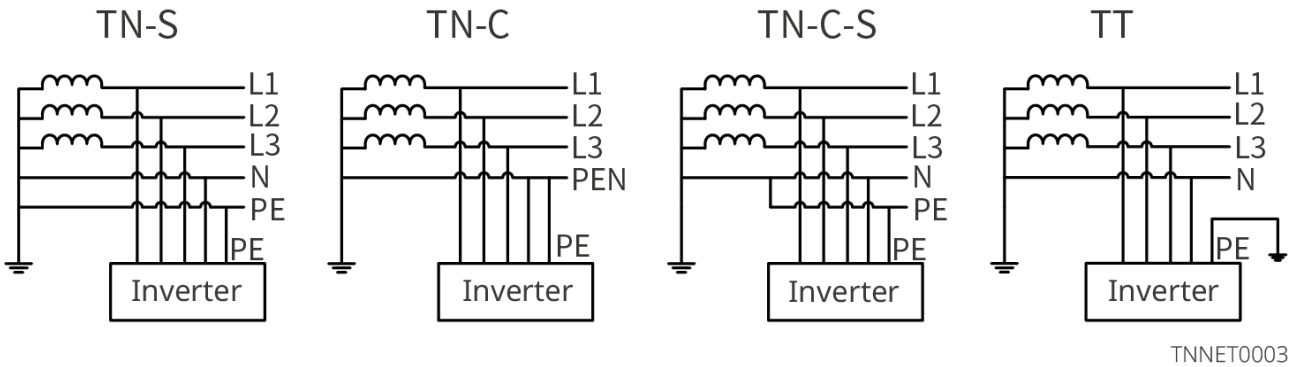
2.2.4 Smart Communication Stick

The Smart Communication Stick is mainly used to transmit various types of inverter power generation data in real time to a remote monitoring platform, and viaAPPconnect the Smart Communication Stick for local device commissioning and testing.



No.	Model	Signal Type	Application scenarios
1	WiFi/LAN Kit-20	WiFi, LAN, Bluetooth	Single-inverter scenario
2	4G Kit-CN LS4G Kit-CN	4G	
3	4G Kit-CN-G20	4G, Bluetooth	
	4G Kit-CN-G21	4G, Bluetooth, GNSS	
4	Ezlink3000	WiFi, LAN, Bluetooth	Master inverter in a multi-inverter scenario

2.3 Supported Grid Types



TNNET0003

2.4 System Mode

NOTICE
To calibrate the battery management system (BMS), after the First-time Installation and commissioning is completed, the system automatically performs a one-time full battery charge. After this process ends, the system operates according to the configured operating mode.

Self-consumption

- Basic mode for system operation.
- PV power preferentially supplies the load; excess power charges the battery, and any remaining power is exported to the grid. When PV generation cannot meet the load demand, the battery supplies the load; when the battery energy also cannot meet the load demand, the grid supplies the load.

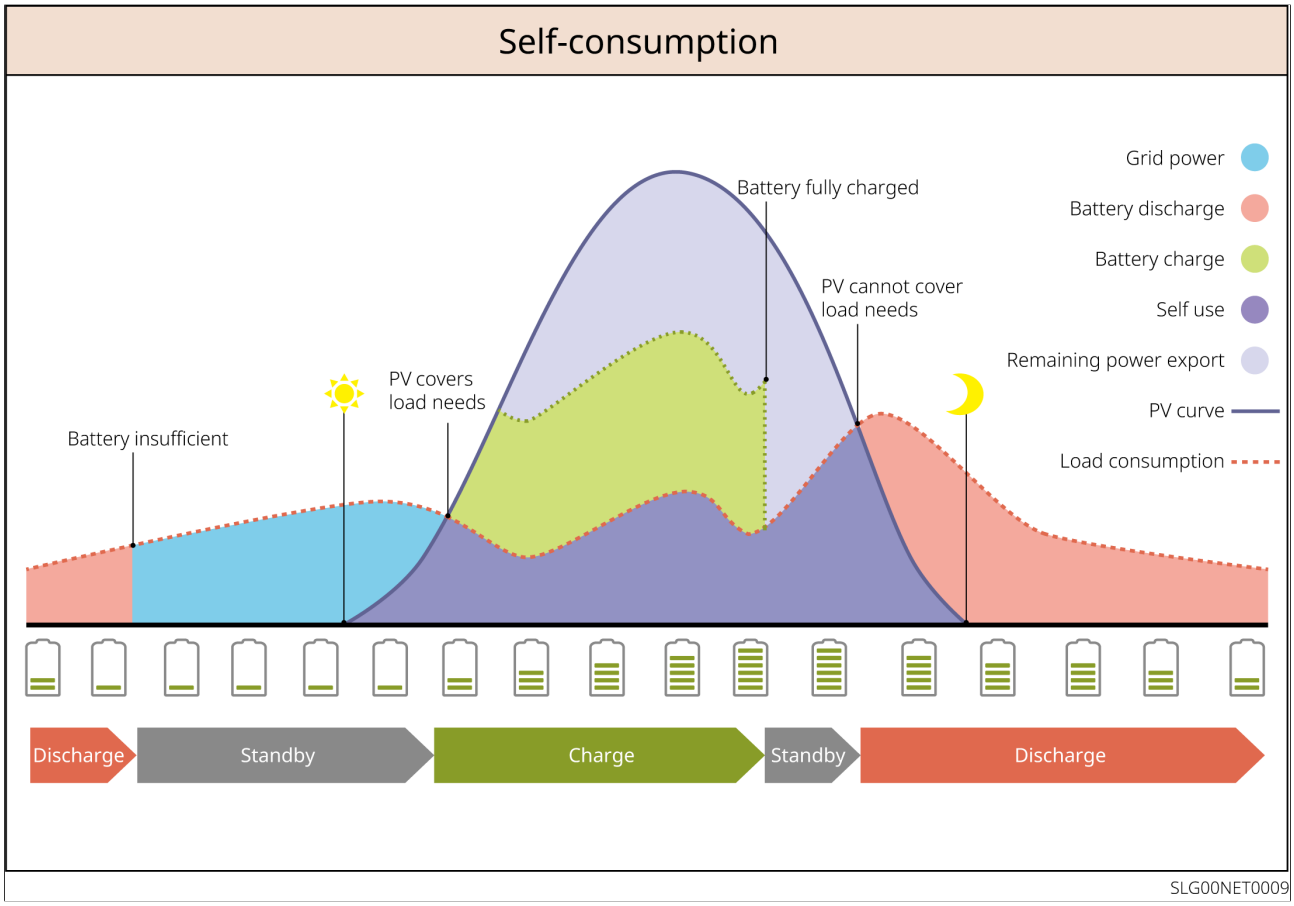


Figure5 Self-consumption

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 the load, ensuring the BACK-UP load remains powered; when the grid is restored, the inverter switches to grid-connected operation.
- To ensure the battery SOC is sufficient to maintain normal system operation during off-grid periods, when the system is grid-connected, the battery will charge using PV or purchased grid electricity to the Backup Power SOC. If the battery needs to be charged by purchasing electricity from the grid, confirm compliance with local grid laws and regulations.

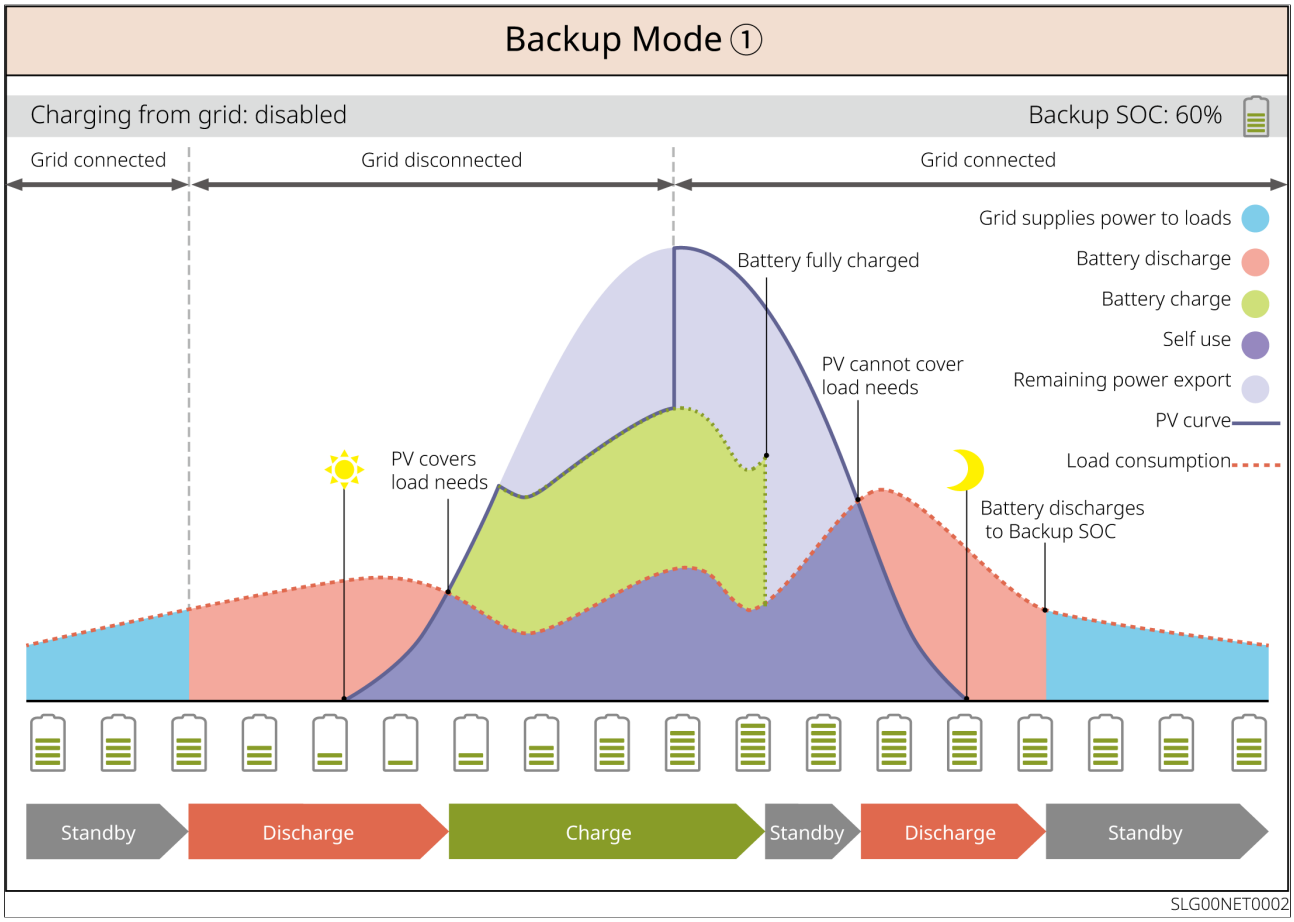


Figure6 Backup Mode 1

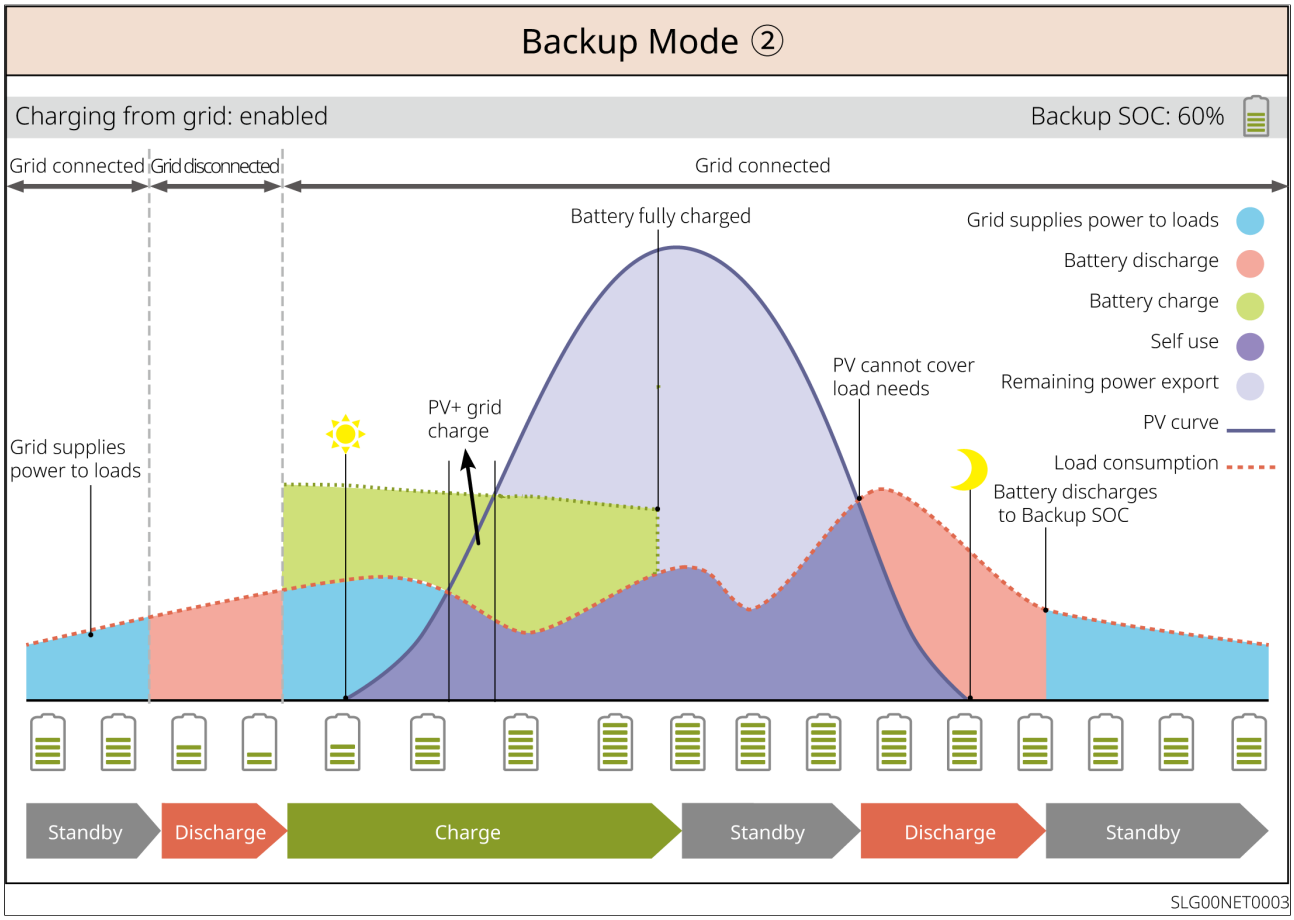


Figure7 Backup Mode 2

TOU Mode

In compliance with local laws and regulations, set different time periods for purchasing electricity and Export Energy based on peak-valley grid 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 the load through the battery.

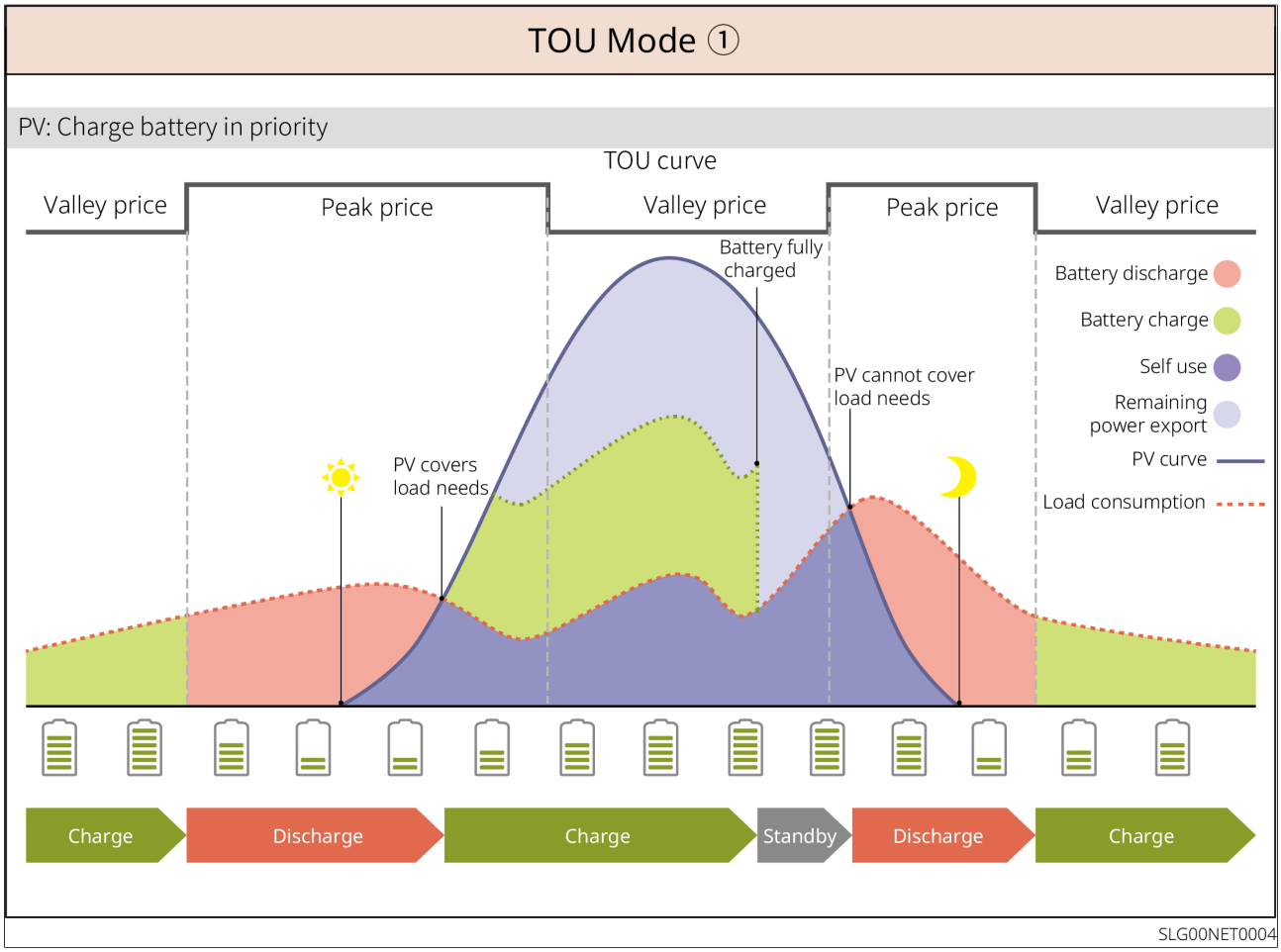


Figure8 TOU Mode 1

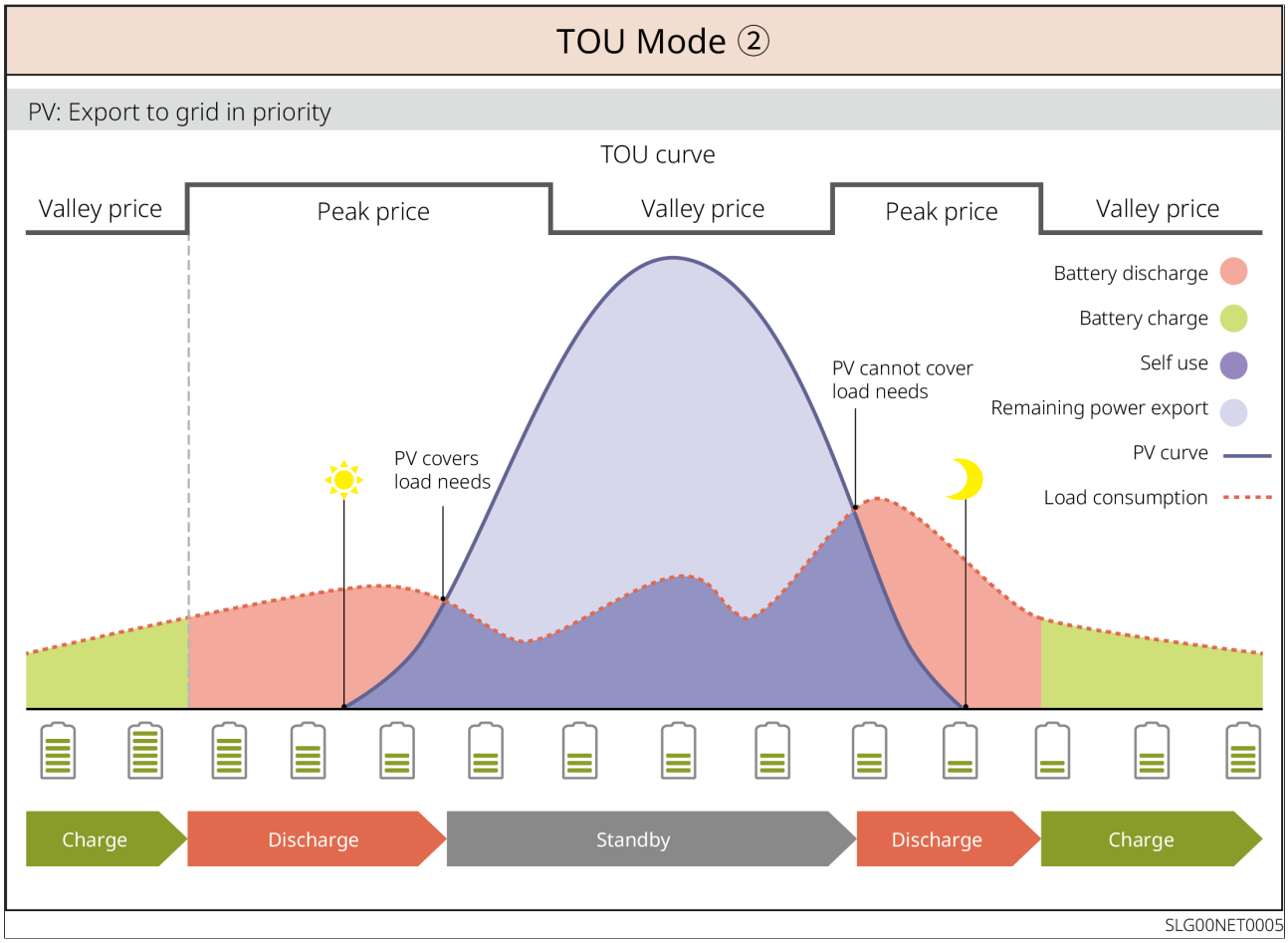


Figure9 TOU Mode 2

Smart Charging (Delayed Charging) Mode

- Applicable to areas with grid-connected power output limits.
- Set a peak power limit to use PV power exceeding the grid-connection limit for battery charging; or set a PV charging period to use PV power to charge the battery during the charging period.

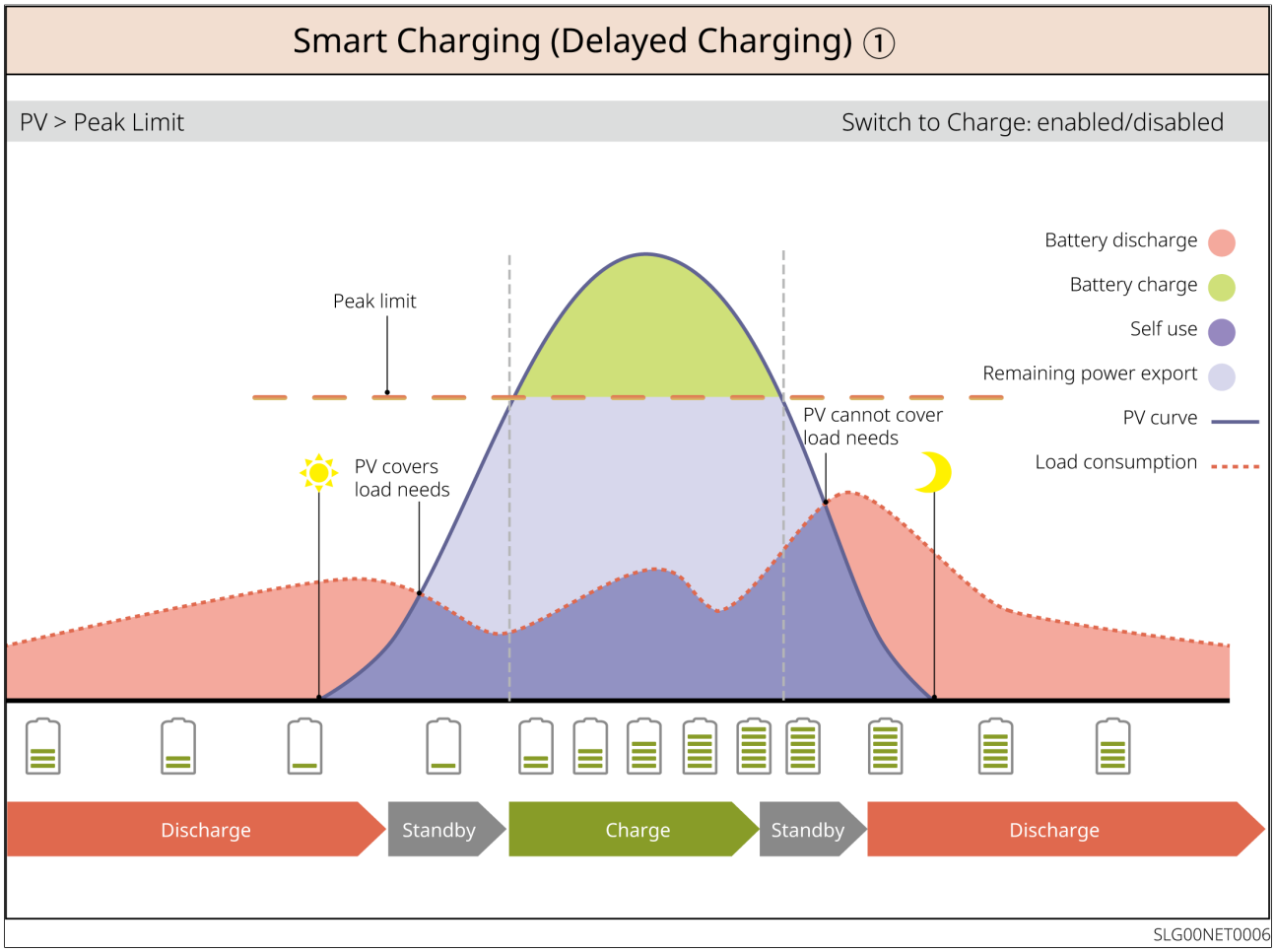


Figure10 Delayed Charging Mode 1

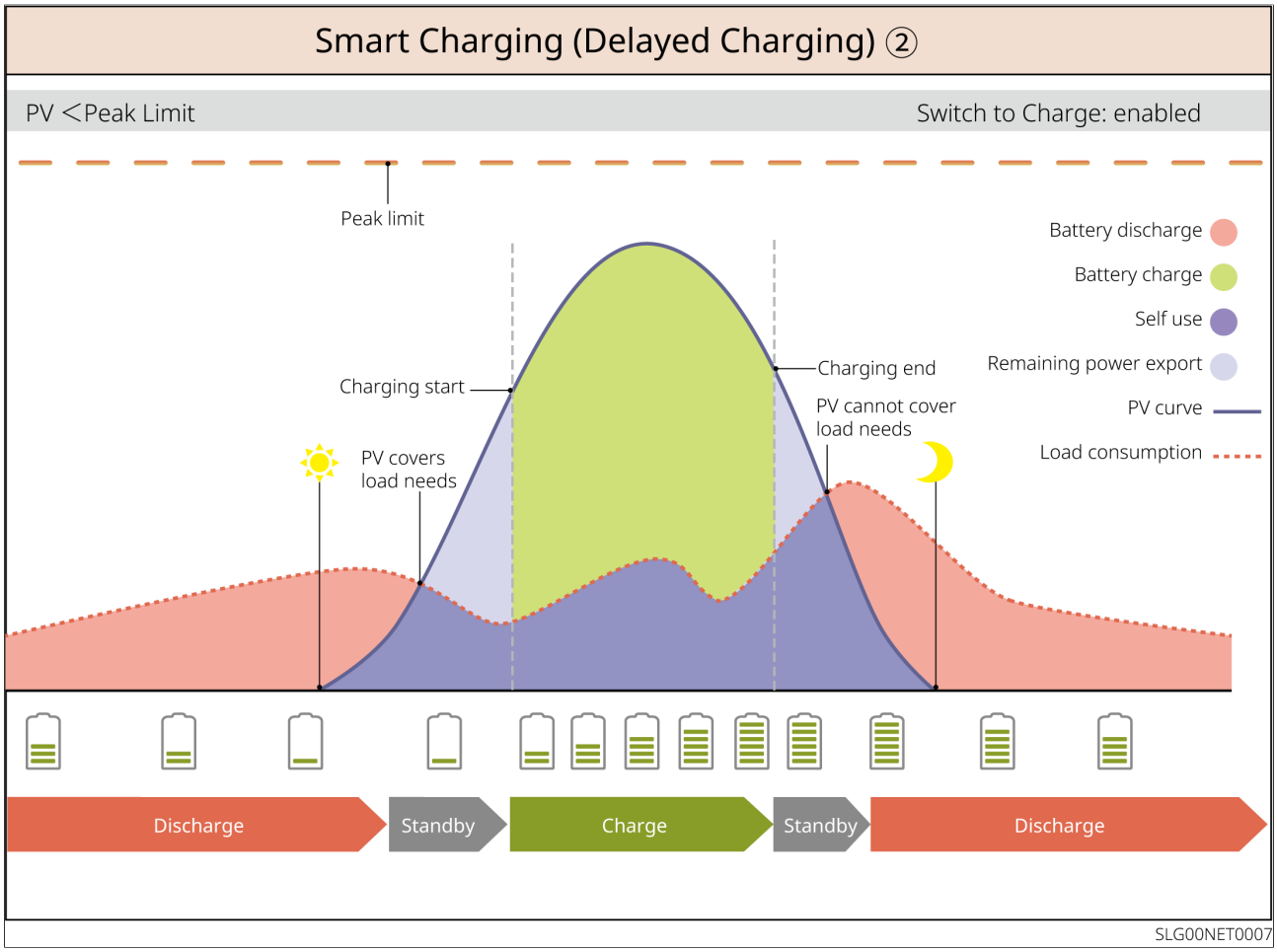


Figure11 Delayed Charging Mode 2

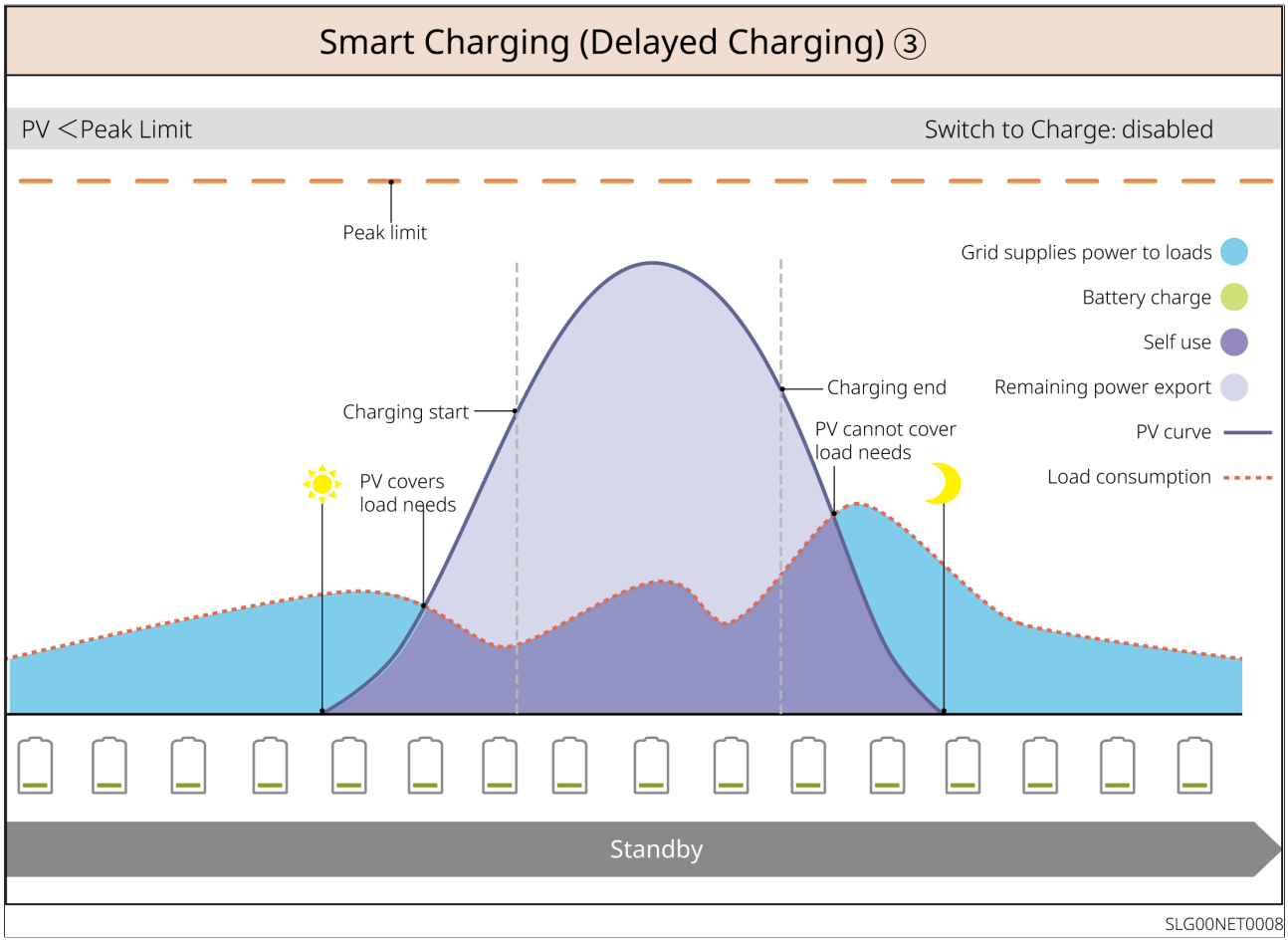


Figure12 Delayed Charging Mode 3

Demand Control Mode

- Mainly applicable to commercial and industrial scenarios.
- When the total load power exceeds the power quota in a short time, battery discharge can be used to reduce the electricity consumption exceeding the quota.
- When all battery SOCs are lower than the reserved SOC for demand control, the system purchases electricity from the grid based on the time period, load consumption, and the grid purchase peak limit.

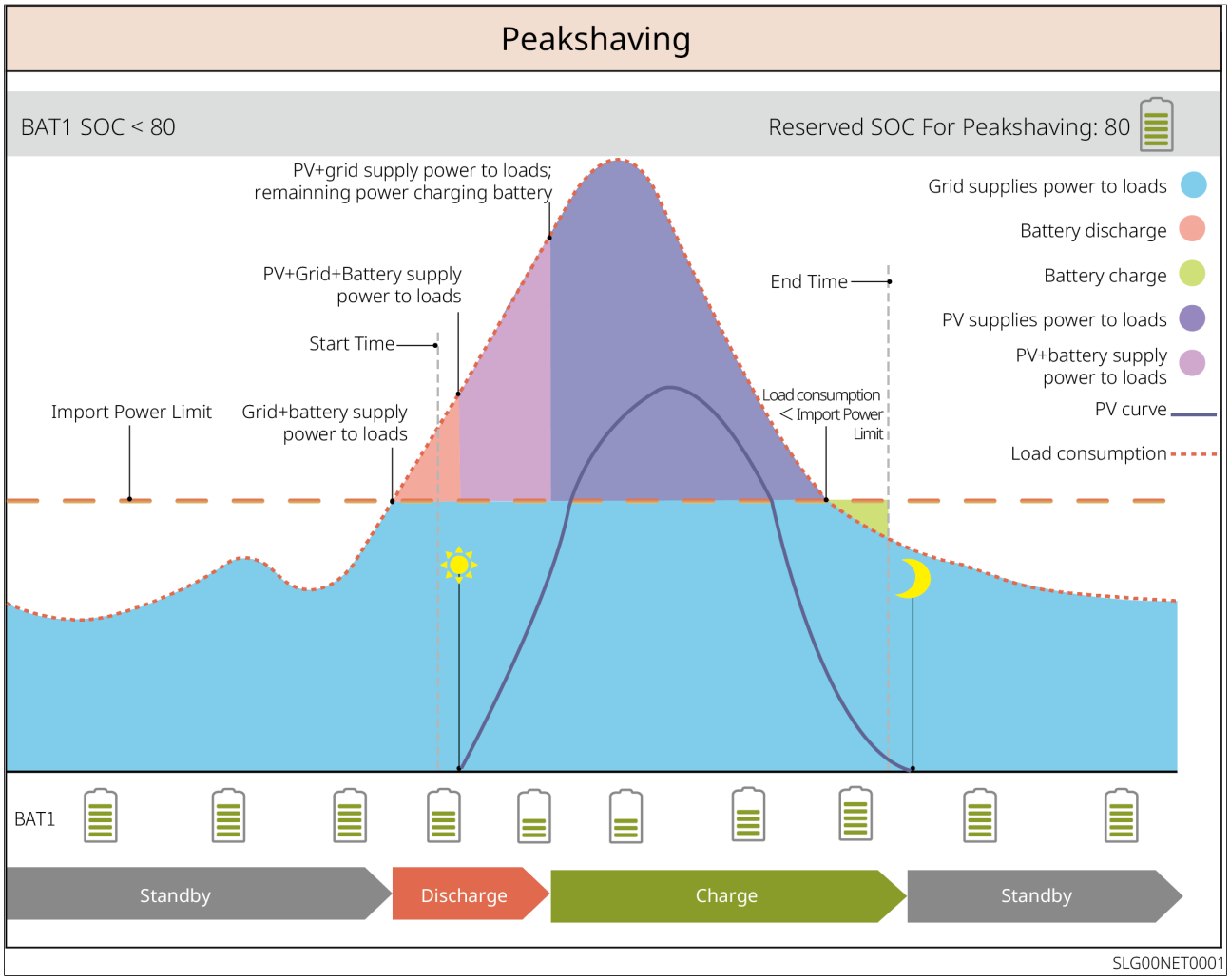


Figure13 Demand Control Mode

Off-Grid Mode

NOTICE
When the inverter is Not Connected to the battery system, 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 power is prioritized to supply the load, and excess power charges the battery.
- At night, the battery discharges to supply the load, ensuring the BACK-UP load is not interrupted.

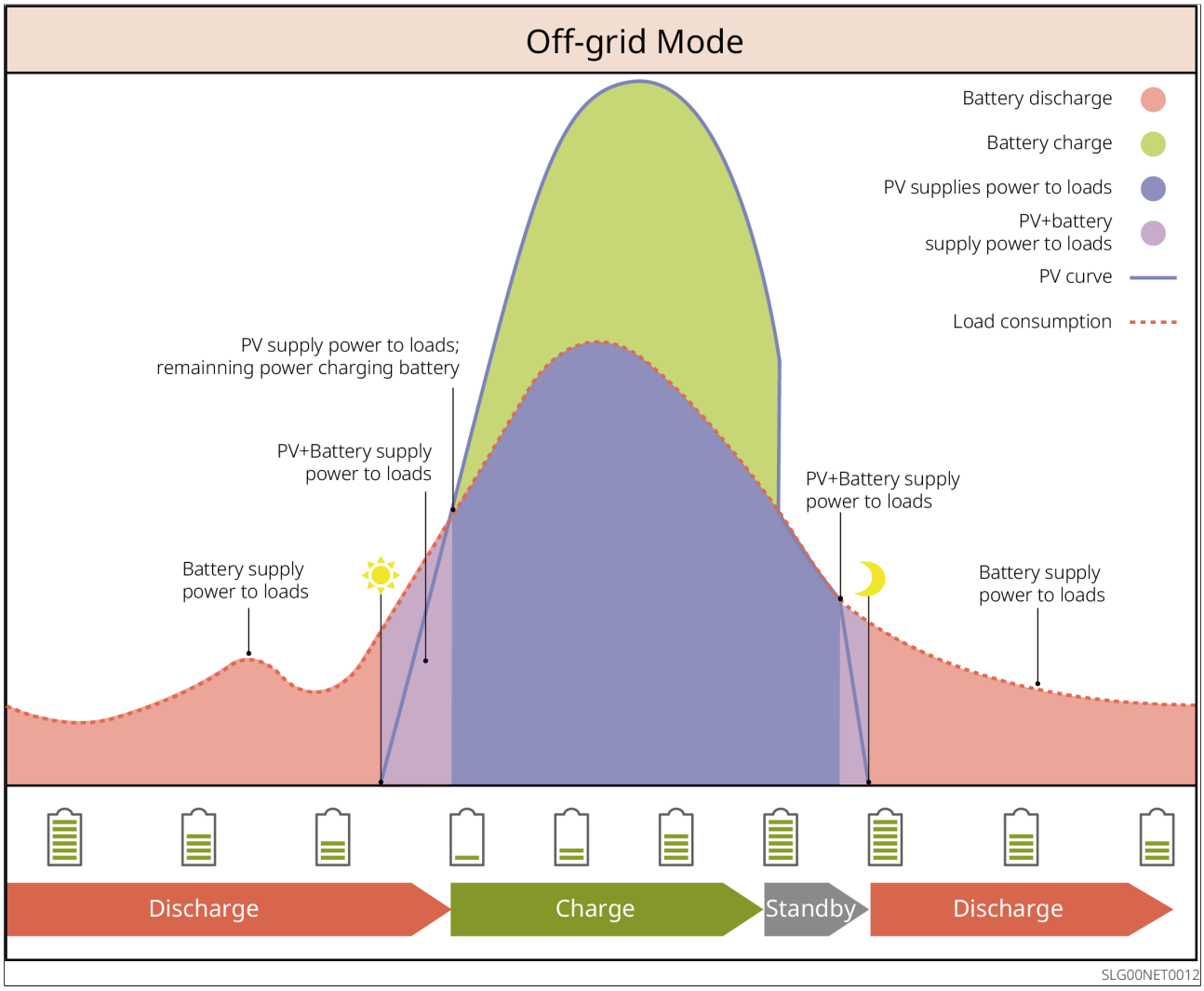


Figure14 Off-Grid Mode

2.5 Features

NOTICE
Specific functions and features are subject to the actual product configuration.

AFCIfunction

The inverter integrates an AFCI Circuit Protection Device to detect Arc Fault (arc fault) and rapidly disconnect the circuit upon detection, thereby preventing electrical fires. Causes of Arcing:

- Connector connections in the PV system or battery system are damaged.
- Cable connection error or damage.
- Connector and cable aging.

Arc Detection Method

- The inverter integratesAFCIfunction, and complies with IEC 63027standard.
- When the inverter detects an arc, it can use theAppto display the fault occurrence time and fault symptoms.
- Inverter TriggerAFCIAfter an alarm, the system will shut down for Protection; after the alarm is cleared, the inverter will automatically reconnect to the grid and resume operation.
  - Automatic reconnection: If the inverter, within24hours, triggersAFCIalarm <5times, the alarm can be automatically cleared after five minutes, and the inverter reconnects to the grid for operation.

Manual reconnection: If the inverter, within24hours, triggers the5 thAFCIalarm; the alarm must be manually cleared before the inverter can reconnect to the grid.

Model	Label	Description
GW6000-ET-20	F-I-AFPE-1-2-1	F: Full coverage I: Integrated AFPE: Detection and interruption capability provided 1: 1 monitored string per input port 2: 2 input ports per channel 1: 1 monitored channel
GW8000-ET-20		
GW9900-ET-20	F-I-AFPE-1-2/1-2	F: Full coverage I: Integrated AFPE: Detection and interruption capability provided 1: 1 monitored string per input port 2/1: 2/1 input ports per channel (AFD1: 2 , AFD2: 1) 2: 2 monitored channels
GW10K-ET-20		
GW12K-ET-20		
GW15K-ET-20		

Three-Phase Unbalanced Output

The inverter grid-connected terminal and theBACK-UPterminal both support three-phase unbalanced output. Each phase can connect loads of different power. The maximum output power per phase for different models is shown in the table below:

No.	Model	Maximum output power per phase
1	GW6000-ET-20	3kW
2	GW8000-ET-20	4kW
3	GW9900-ET-20(Australia only)	5kW
4	GW10K-ET-20	5kW
5	GW12K-ET-20	5kW
6	GW15K-ET-20	5kW

Load Control

The inverter's dry contact control port supports connecting an additional contactor to control load on/off. It supports household loads, heat pumps, etc.
The load control methods are as follows:

- Time control: Set the time to control load on/off. Within the set time period, the load will automatically turn on or off.
- Switch control: When the control mode is selected as ON, the load will be turned on; when the control mode is set to OFF, the load will be turned off.
- BACK-UP Load Control: The inverter has a built-in relay dry contact control port, through which the relay can control whether the load is turned off. In off-grid mode, if an Overload at the BACK-UP terminal is detected or the battery SOC value is lower than the battery off-grid Protection setting, the load connected to the relay port can be turned off.

Rapid Shutdown (RSD) Rapid Shutdown

In a Rapid Shutdown system, the Rapid Shutdown transmitter and receiver are used together to implement system Rapid Shutdown. The receiver maintains module output by receiving signals from the transmitter. The transmitter can be external or built into the inverter. In an emergency, an external trigger device can be enabled to stop the transmitter from working, thereby shutting down the modules.

- External Transmitter
  - Transmitter model: GTP-F2L-20, GTP-F2M-20

https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_RSD-20-Transmitter_1P-Quick-Installation-Guide-POLY.pdf
    - Receiver model: GR-B1F-20, GR-B2F-20
      https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_RSD-20_Quick-Installation-Guide-POLY.pdf
- Built-in Transmitter
    - External trigger device: External switch
    - Receiver model: GR-B1F-20, GR-B2F-20
      https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_RSD-20_Quick-Installation-Guide-POLY.pdf
    - When the inverter cannot be connected to an external synchronization signal and multiple inverters need to be paralleled, ensure that the PV cable routing of different inverters uses independent cable trays, and the cable trays must maintain a spacing of at least 20 cm between them.
    - When the inverter can be connected to an external synchronization signal, ensure that no more than 5 transmitters are connected in the same synchronization group.

3 Equipment Inspection and Storage

3.1 Equipment Inspection

Before accepting the product, carefully check 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 package. If there is any damage, do not open the package and contact your dealer or after-sales service center.
2. Check whether the equipment model is correct. If it does not match, do not open the package and contact your dealer or after-sales service center.
3. Check whether the type and quantity of the delivered items are correct and whether the appearance is damaged. If there is any damage, contact your dealer or after-sales service center.

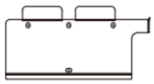
3.2 Delivered Items

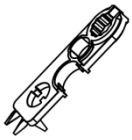
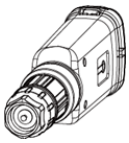
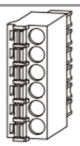
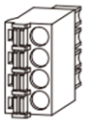
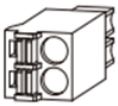
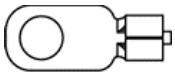
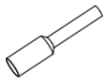
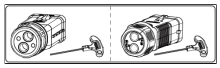
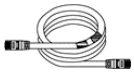
⚠WARNING

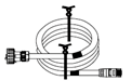
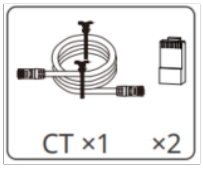
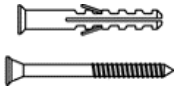
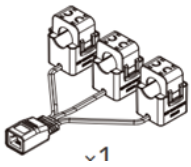
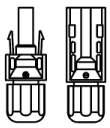
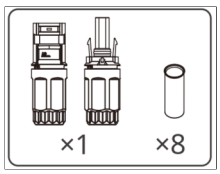
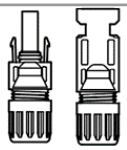
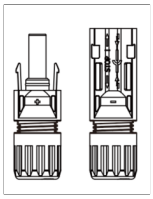
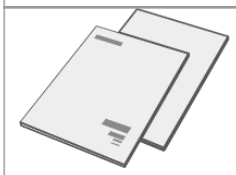
Check whether the type and quantity of the delivered items are correct and whether the appearance is damaged. If there is any damage, contact your dealer. After the delivered items are removed from the packaging, do not place them on rough, uneven, or sharp surfaces to prevent paint peeling.

3.2.1 Inverter Delivered Items

Inverter Delivered Items

Component	Quantity	Component	Quantity
	Inverter x 1		Backplate x 1

Component	Quantity	Component	Quantity
	Back-mounting fastening screws x 1		Screwdriver x 1
or 	Battery connector wiring/unlocking tool x 2		Communication module x 1
	6PINCommunication terminal x 1		4PINCommunication terminal x 3
	2PINCommunication terminal x 1		AC crimp terminal x 12
	Protection grounding terminal x 1		Tubular terminal x 20
or 	AC terminal Protection cover x 1		BMS Communication cablex 1

Component	Quantity	Component	Quantity
	Hex screwdriver x 1	 or 	CT Connection cablex 1
	Expansion screw x 4		CT x 1
 x 2 or 	Battery connector	 or  x 1	PVconnector GW6000-ET-20、GW8000-ET-20：2 GW9900-ET-20、GW10K-ET-20、GW12K-ET-20、GW15K-ET-20：3
	Product documentation x 1	-	-

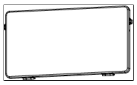
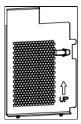
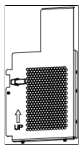
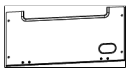
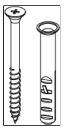
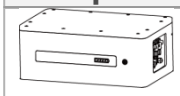
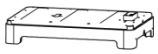
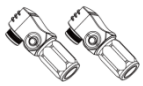
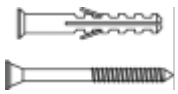
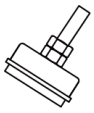
Component	Quantity	Component	Quantity
	Protection cover front cover plate x 1		Protection cover left side plate x 1
	Protection cover right side plate x 1		Protection cover bottom plate x 1
	Expansion screw x 4	-	-

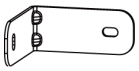
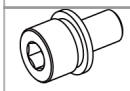
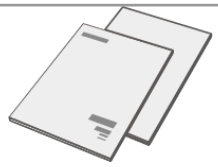
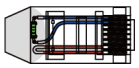
Table39 **Protection cover accessories (Australia only)**

3.2.2 Battery Deliverables

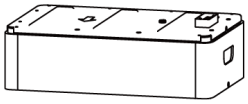
3.2.2.1 Lynx Home F 、Lynx Home F Plus+

- Control box package

Component	Quantity	Component	Quantity
	Main control box x 1		Base x 1
	DC Connector • Lynx Home F x1 • Lynx Home F Plus+ x 2		expansion bolts x 4
Adjustable leveling feet 			

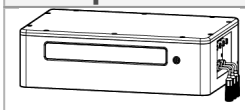
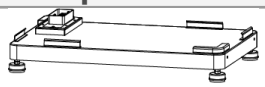
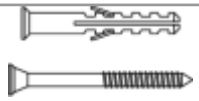
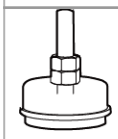
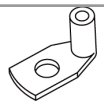
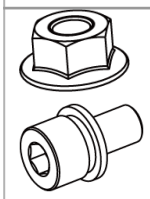
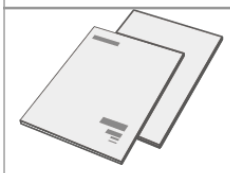
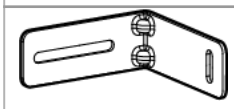
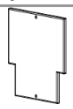
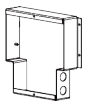
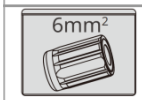
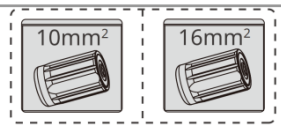
Component	Quantity	Component	Quantity
Foot anti-tip bracket	• Adjustable leveling feet are only provided with theLynx home F Plus+series. • Select adjustable feet; quantity supplied: ◦ Adjustable foot:4pcs ◦ Foot anti-tip bracket:2pcs ◦ Standard anti-tip bracket:2pcs • Adjustable feet not selected; quantity supplied: ◦ Standard anti-tip bracket:4pcs		
Standard anti-tip bracket 			
	M5*12Screw x 4		M5Torx screw x 2
	M6Nut x 2		Protection grounding terminal x 2
	Protective cover x 1		Product documentation x 1
	Terminating resistor x 1	-	-

- Battery module package

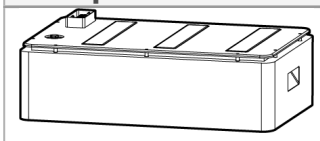
Component	Quantity
	Battery module x 1

3.2.2.2 Lynx Home F G2

- Main control box package

Component	Quantity	Component	Quantity
	Main control box x 1		Base x 1
	DC Connector Positive terminal:x 2 Negative terminal:x 2		expansion bolts x 8
	Adjustable leveling feet x 4		Protection grounding terminal x 2
	• M5*12 screw x N • M6 nut x N N: Quantity depends on product configuration: • M5*12 screw x 8, M6 nut x 2; • M5*12 screw x10, M6 nut x 2; • M5*12 screw x 11, M6 nut x 2; • M5*12 screw x 13, M6 nut x 0; • M5*12 screw x 12, M6 nut x 0;		
	Product documentation x 1	 Protective cover plate	(Optional) Protective cover plate x 1
	L-shaped bracket x 8	 Junction Box Cover  Junction Box	(Optional) Junction Box x 1， Junction Box Cover x 1，
	DC Connector Waterproofing Plugs x 4		DC Connector Waterproofing Plugs x 4

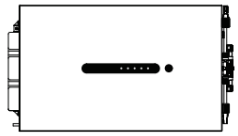
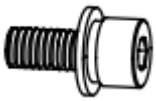
- Battery module package

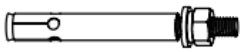
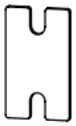
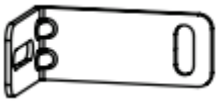
Component	Quantity
	Battery module x 1

3.2.2.3 Battery Delivery Items (Lynx Home D)

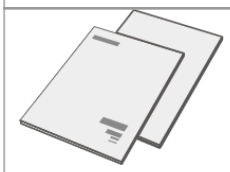
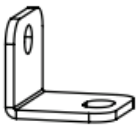
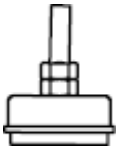
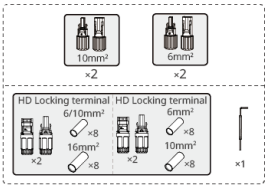
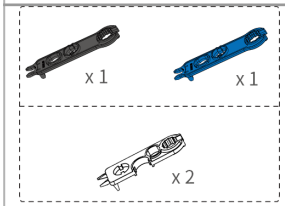
NOTICE
The battery system must be installed on a base or mounting bracket. Please select the base or mounting bracket according to the installation conditions. The specific delivery contents are subject to the actual selected configuration.

- Battery

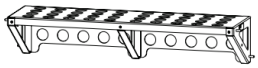
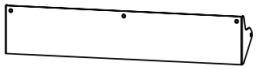
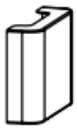
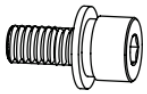
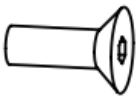
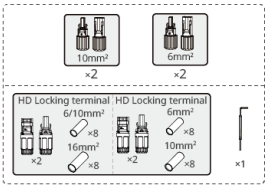
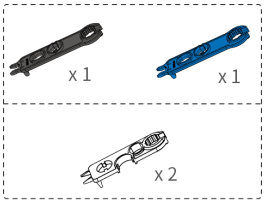
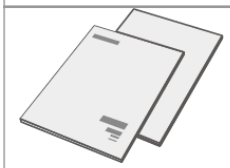
Component	Quantity	Component	Quantity
	Battery x 1		Battery left-side protection cover x 1
	M6screws x 2		Battery right-side protection cover x 1

Component	Quantity	Component	Quantity
	M5screws • When the battery-to-battery fixing bracket accessory is shipped,M5screw quantity is4。 • When the battery-to-battery fixing bracket is installed on the machine at shipment;M5screw quantity is2。		M6expansion bolts x 2
	Battery-to-battery fixing bracket • When the battery-to-battery fixing bracket accessory is shipped, the shipping quantity is2。 • When the battery-to-battery fixing bracket is installed on the machine for shipment, the shipping quantity is0。		Battery-to-battery communication cable x 1
	Anti-tip bracket x 2	-	-

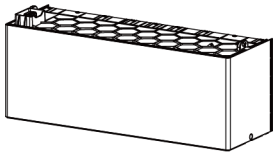
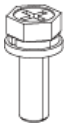
- (Optional) Base

Component	Quantity	Component	Quantity
	Base x 1		M5screwsx 2
	Product documentation x 1		Base-to-battery fixing bracket x 2
	Grounding terminalx 1		Adjustable feet x N The quantity of adjustable feet is subject to actual delivery. If the actual delivered items do not include adjustable feet and they are required, please contact the dealer or after-sales service.
	Power connection terminal (Optional) Hex screwdriver x 1 The hex screwdriver is shipped together with the battery DC terminal on whose self-sealing bag is affixed theHD Locking terminallabel.		Terminating resistor x 1
	Power connection terminal fastening tool	-	-

Mounting bracket (Optional)

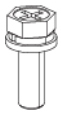
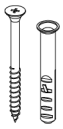
Component	Quantity	Component	Quantity
	Mounting bracket x 1		Front protective cover x 1
	Left protective cover x 1		Right protective cover x 1
	Mounting bracket-to-battery fixing bracket x 2		M5screws x 2
	M12expansion bolts x 4		M4screws x 5
	Grounding terminalx 1		Terminating resistor x 1
	Power connection terminal (Optional) Hex screwdriver x 1 The hex screwdriver is shipped together with the battery DC terminal on whose self-sealing bag is affixed theHD Locking terminallabel.		Power connection terminal fastening tool
	Product documentation x 1	-	-

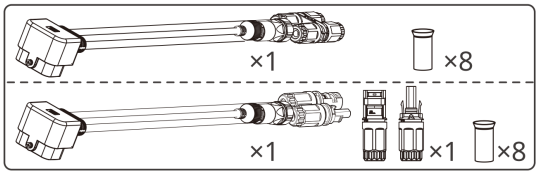
3.2.2.4 Battery Delivered Items (Lynx D G2)

Component	Description	Component	Description
	Battery x 1		M5*16 screws x 2
	Silicone Cap x 2	-	-

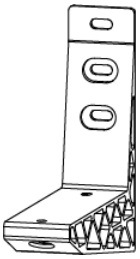
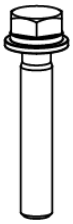
3.2.2.4.1 Base Delivered Items

NOTICE
The system supports 5-108 kWh. Up to 6 batteries can be stacked in a single column. If more energy is required, or in other expansion scenarios such as needing to reduce the stacking height of a single column due to installation conditions, please contact GoodWe or your distributor to purchase a battery expansion kit.

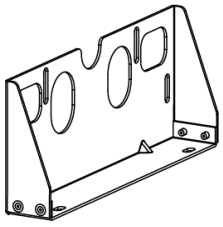
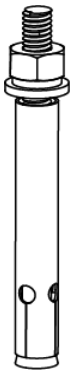
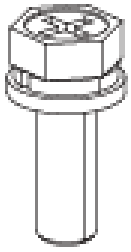
Component	Description	Component	Description
	Base x 1		Anti-tip bracket x 4
	M5 screws x 7		M6 expansion bolt x 4
	Adjustable feet x 4		OT grounding terminal x 1
	Terminating resistor x 1		Battery decorative cover x 1
	Drilling marking paper x 2		Hex key x 1

Component	Description	Component	Description
			Battery cluster expansion harness x 1
	Unlocking tool x N		3 m battery cluster expansion connection positive harness x 1
	3 m battery cluster expansion connection negative harness x 1		Battery cluster expansion network cable x 1
	Silicone cap x 2		Handle x 2
	Product documentation x 1	-	-

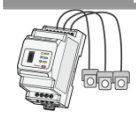
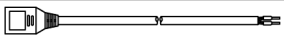
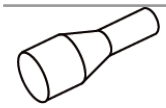
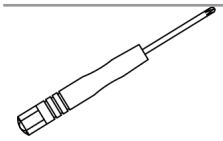
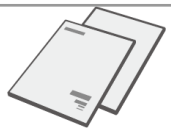
3.2.2.4.2 Battery Mounting Bracket Delivered Items (Optional)

Component	Description	Component	Description
	Mounting bracket x 2		M10 expansion bolts x 6
	M10 screws x 4	-	-

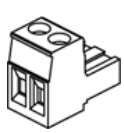
3.2.2.4.3 Wall Spacer Bracket Deliverables (Optional)

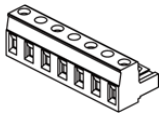
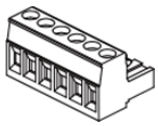
Component	Description	Component	Description
	Wall spacer bracket x 2		M6 expansion bolt x 4
	M5 fixing screws x 4	-	-

3.3 Smart Meter Deliverables (GM3000)

Component	Quantity	Component	Quantity
	Smart meter andCT x 1		2PINterminal andRJ45terminal adapter cable x 1
	Tubular terminal x 3		USBPlugs x 1
	Screwdriver x 1		Product documentation x 1

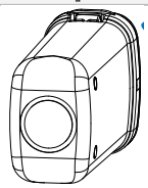
3.4 GM330

Component	Description	Component	Description
	Smart meter andCT x1		2PINCommunication terminal x1

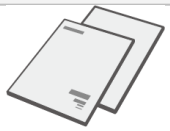
Component	Description	Component	Description
	Tubular terminal x 6		7PINterminal x1
	Screwdriver x1		6PINCommunication terminal x1
	2PINterminal andRJ45terminal adapter cable x 1		Product documentation x 1

3.5 Smart Communication Stick Delivered Items

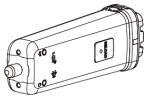
LS4G Kit-CN&4G Kit-CN

Component	Description	Component	Description
	4GCommunication module x1	-	-

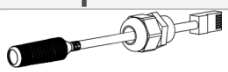
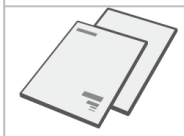
WiFi/LAN Kit-20

Component	Description	Component	Description
	Communication module x1		Product documentation x 1

4G Kit-CN-G20 & 4G Kit-CN-G21

Component	Description	Component	Description
	4G Smart Communication Stick x1		Product Documentation x1

Ezlink3000

Component	Description	Component	Description
	Communication module x1		LANCable Connection Port x1
	Product documentation x1		Unlock Tool x1 Some modules require a tool for removal. If not supplied, they can be unlocked via the button on the module itself.

3.6 Device Storage

NOTICE
[1] The storage time is calculated starting from the SN date on the battery outer packaging. If the storage period is exceeded, charge/discharge maintenance is required. (Battery maintenance time = SN date + charge/discharge maintenance cycle). To check the SN date, refer to:10.3.Meaning of SN code(Page 284)。 [2] After passing charge/discharge maintenance, if a Maintaining Label is affixed to the outer box, please update the maintenance information on the Maintaining Label; if there is no Maintaining Label, please record the maintenance time and battery SOC yourself and keep the data properly to facilitate retention of maintenance records.

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

1. If the inverter has been stored for more than two years or has been non-operational for more than 6 months after installation, it is recommended to have it inspected and tested by professional personnel before putting it into use.
2. To ensure good electrical performance of the electronic components inside the inverter, it is recommended to power it on once every 6 months during storage. If it has not been powered on for more than 6 months, it is recommended to have it inspected and tested by professional personnel before putting it into use.

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. It is recommended to use it promptly. If the battery needs to be stored for a long time, perform maintenance according to the following requirements:

Battery Model	Battery Storage Initial SOC Range	Recommended Storage Temperature	Charge/Discharge Maintenance Cycle[1]	Battery Maintenance Method[2]
LX F6.6-H	30%~50%	0~35℃	-20~0℃, ≤1month 0~35℃, ≤6month 35~45℃, ≤1month	For maintenance methods, please consult your dealer or after-sales service center.
LX F9.8-H				
LX F13.1-H				
LX F16.4-H				
LX F9.6-H-20	30%~40%	0~35℃	-20~0℃, ≤1month 0~35℃, ≤6month 35~45℃, ≤1month	
LX F12.8-H-20				
LX F16.0-H-20				
LX F19.2-H-20				
LX F22.4-H-20				
LX F25.6-H-20				
LX F28.8-H-20				
LX D5.0-10	30%~40%	0~35℃	-20~35℃, ≤12month 35~+45℃, ≤6month	
GW5.1-BAT-D-G20	30~40%	0~35℃	-20~35°C, 12 months 35~45°C, 6 months	For maintenance methods, please consult your dealer or after-sales service center.
GW8.3-BAT-D-G20				
GW5.1-BAT-D-G21				
GW8.3-BAT-D-G21				
GW6.0-BAT-D-G20	30~40%	0~35℃		

Battery Model	Battery Storage Initial SOC Range	Recommended Storage Temperature	Charge/Discharge Maintenance Cycle[1]	Battery Maintenance Method[2]
GW9.0-BAT-D-G20			-20~35°C, 12 months 35~45°C, 6 months 45~55°C, 1 month	

Packaging Requirements:

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

Environmental Requirements:

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

Stacking Requirements:

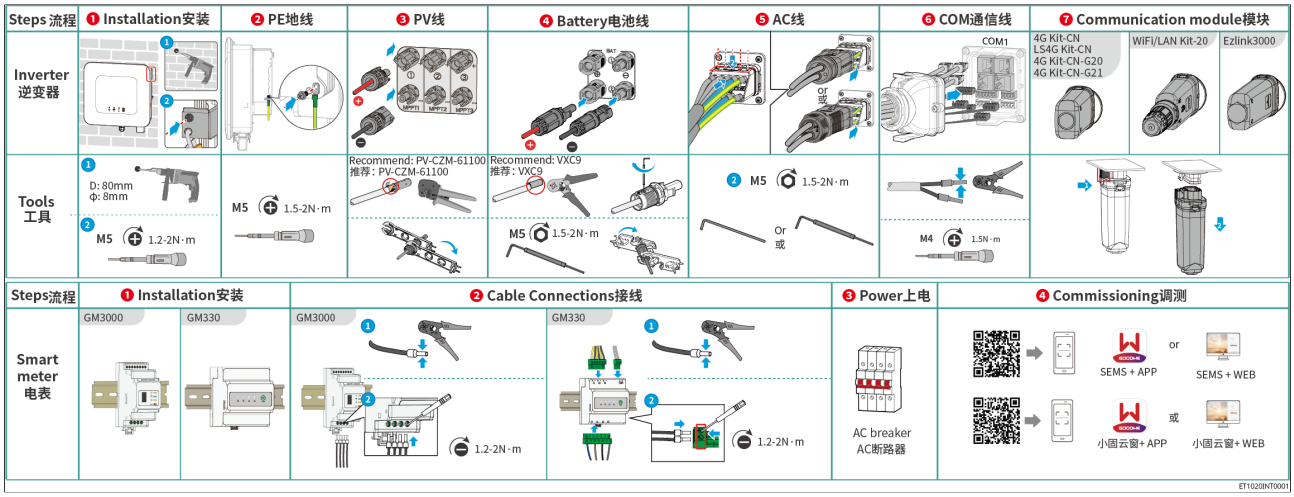
1. Ensure that the inverter stacking height and orientation are arranged according to the requirements indicated on the packaging box label.
2. Ensure that there is no tipping risk after the inverters are stacked.

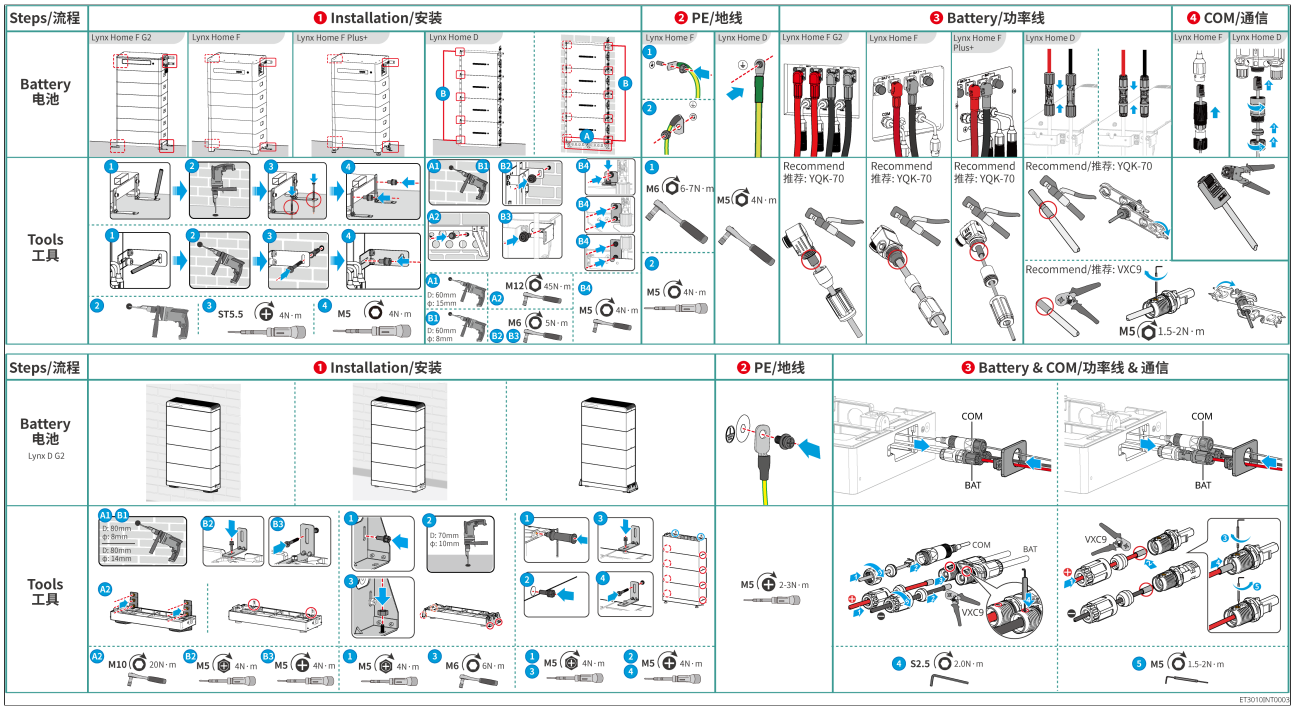
4 Installation

DANGER

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

4.1 System Installation and Commissioning Process





4.2 Installation Requirements

4.2.1 Installation Environment Requirements

NOTICE

Lynx home D:

- The sound source during battery operation mainly comes from the active cooling system, specifically an axial-flow cooling fan with a hydrodynamically optimized design.
- When the battery produces a regular airflow sound of ≤35 dB(A): this phenomenon indicates that the cooling system is in normal operating state and will not have any impact on the equipment's electrical performance, structural safety, or service life. If you are sensitive to Noise Emission, select the installation location appropriately.

1. The device must not be installed in flammable, explosive, or corrosive environments.
2. The temperature and humidity of the device installation environment must be within the appropriate range.
3. The installation location must be out of children's reach and avoid locations where

it can be easily touched.

4. When the inverter is running, the enclosure temperature may exceed 60°C. Do not touch the enclosure before it cools down to prevent burns.
5. It is recommended to keep the equipment away from installation environments such as direct sunlight, rain, and snow accumulation, and to give priority to a sheltered location. If these cannot be completely avoided, ensure that the temperature, humidity, and other conditions of the installation environment always remain within the range allowed by the equipment specifications.
6. Adverse environmental conditions such as direct sunlight and high temperature may cause inverter output power derating.
7. The installation space must meet the device's ventilation and heat dissipation requirements and operation space requirements.
8. The installation environment must meet the equipment's Ingress Protection Rating. The inverter, battery, and smart communication stick are suitable for indoor and outdoor installation; the meter is suitable for indoor installation.
9. The equipment installation and storage location should avoid areas directly exposed to cold air, such as air conditioner vents. Excessive local temperature differences may cause condensation inside the equipment, which may lead to equipment damage.
10. The installation height of the equipment must facilitate 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. Before installing the equipment outdoors in salt-affected areas, consult the equipment manufacturer. Salt-affected areas mainly refer to areas within 500 m of the coast. The affected area is related to sea breeze, precipitation, terrain, and other conditions.
13. The DC cable and communication cable between the battery and inverter must be less than 3 m in length. Ensure that the installation distance between the inverter and battery meets the cable length requirements.
14. Keep away from strong magnetic field environments to avoid electromagnetic interference. If there is a radio station or wireless communication equipment below 30 MHz near the installation location, install the equipment according to the following requirements:

- Inverter: Install 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 exceeds 30 m.

NOTICE

If installed in an environment at0℃or below, the battery will be unable to continue charging and recover energy after being fully discharged, causing Battery Undervoltage.

- Lynx home F、Lynx home F Plus+、Lynx home F G2: Charging temperature range:0<T<50°C; Discharge temperature range:-20<T<50°C。
- Lynx home D: Charging temperature range:0<T<53°C; Discharge temperature range:-20<T<53°C。
- GW5.1-BAT-D-G20, GW8.3-BAT-D-G20: Charging temperature range: -18°C-55°C; Discharge temperature range:-20℃-55°C. If installed at-18℃or below, the battery will be unable to continue charging and recover energy after being fully discharged, causing Battery Undervoltage.
- GW5.1-BAT-D-G21, GW8.3-BAT-D-G21: Charging temperature range: 2°C-55°C; Discharge temperature range:-20℃-55°C. If installed at2℃or below, the battery will be unable to continue charging and recover energy after being fully discharged, causing Battery Undervoltage.
- GW6.0-BAT-D-G20, GW9.0-BAT-D-G20: Charging temperature range: -20°C-55°C; Discharge temperature range:-20℃-55°C. If installed at -20℃or below, the battery will be unable to continue charging and recover energy after being fully discharged, causing Battery Undervoltage.

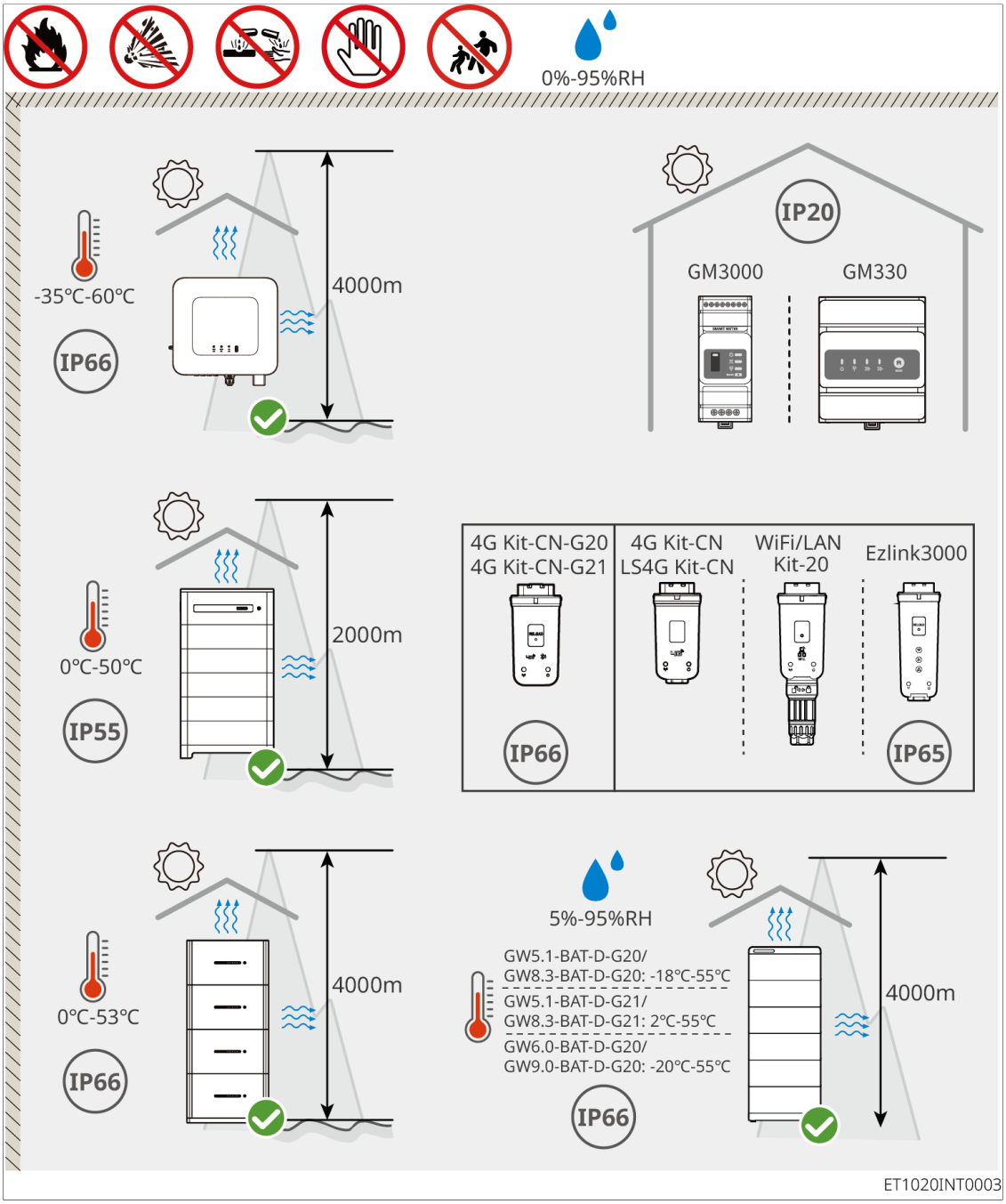


Figure15 Installation

4.2.2 Installation Space Requirements

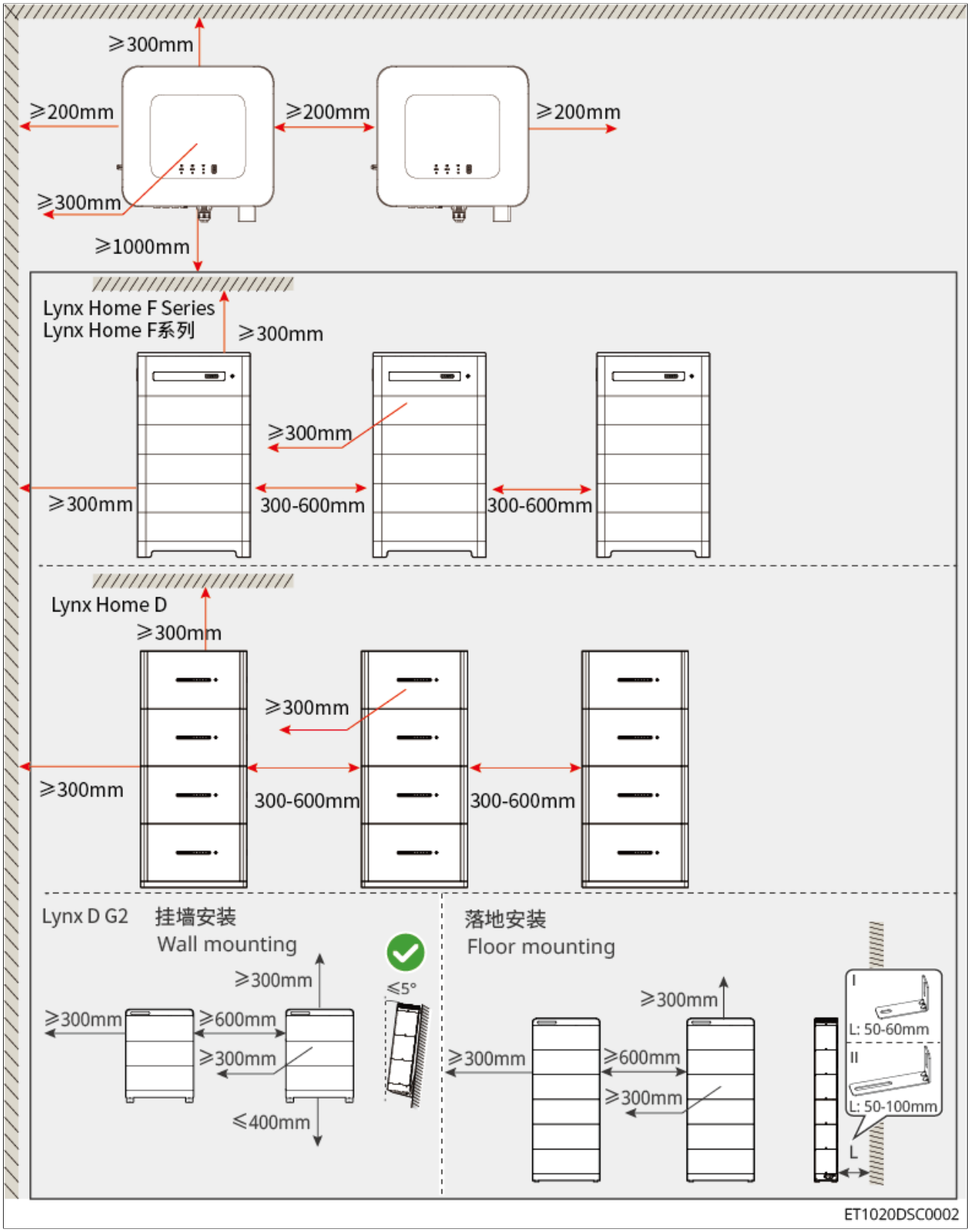
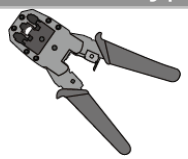
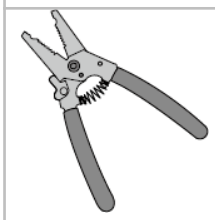
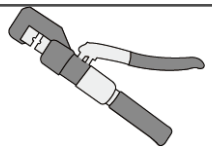
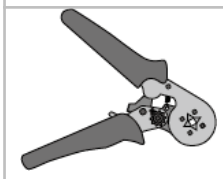
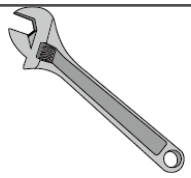
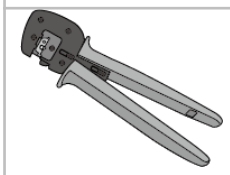
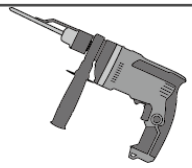
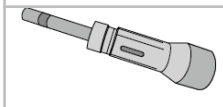
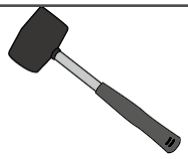
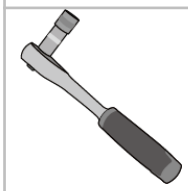
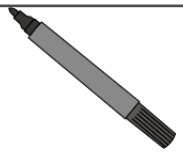


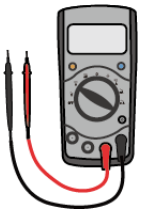
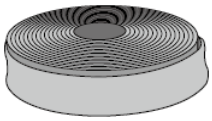
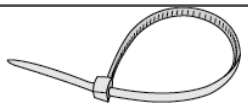
Figure16 Installation Space Requirements

4.2.3 Tool Requirements

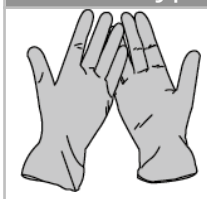
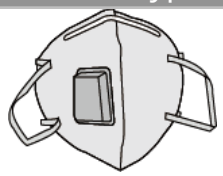
NOTICE
During installation, it is recommended to use the following installation tools. If necessary, other auxiliary tools can be used on site.

Installation tools

Tool type	Description	Tool type	Description
	Diagonal pliers		RJ45Modular Plug Crimping Tool
	Wire stripper		YQK-70Hydraulic Crimping Tool
	VXC9Hydraulic Crimping Tool		Open-end Wrench
	PVTerminal Crimping Tool PV-CZM-61100		Impact Drill (Drill BitΦ8mm)
	Torque Wrench M5、M6、M8		Rubber mallet
	Socket wrench set		Marker

	Multimeter Range≤1100V		Heat-shrink Tubing
	Heat gun		Cable ties
	Vacuum cleaner		Spirit Level

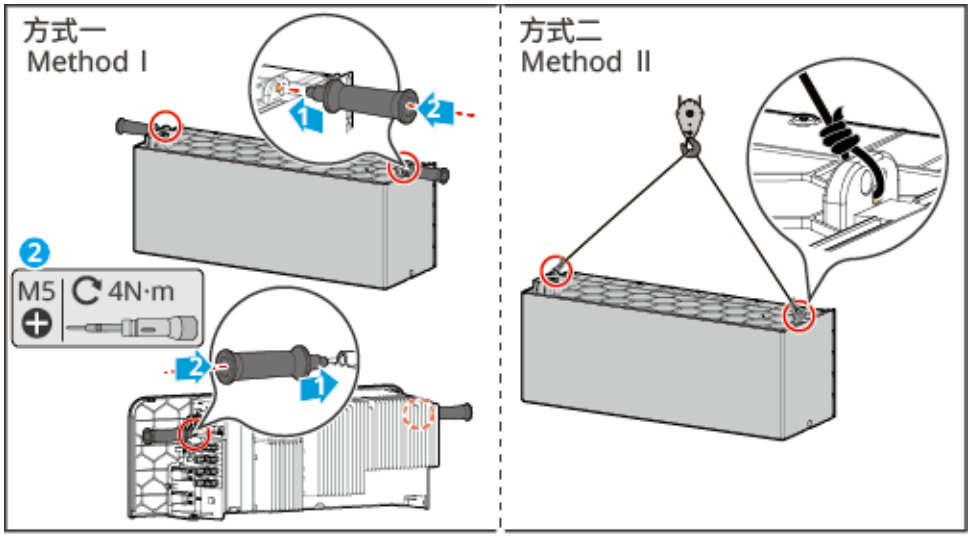
Personal protective equipment

Tool type	Description	Tool type	Description
	Insulating Gloves, Protective Gloves		Dust mask
	Safety goggles		Safety shoes

4.2.4 Equipment Handling

⚠CAUTION

- During transportation, handling, installation, and other operations, the laws, regulations, and relevant standards of the country and region must be complied with.
- 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:
  1. Please assign corresponding personnel according to the equipment Weight, so as to prevent the equipment from exceeding the Weight range that can be carried by a person and causing injury to personnel.
  2. Please wear safety gloves to avoid injury.
  3. Please ensure the equipment remains balanced during transportation to avoid dropping.
  4. The battery system can be transported to the installation site by hoisting or by using a transport trolley.
     a. When using an installation trolley, select a trolley with reference overall dimensions of 850 mm × 700 mm × 1900 mm, a load-bearing capacity of at least 300 kg, and a lifting height of 2 m; for specific usage, follow the trolley manufacturer's instructions. During on-site operation, pay attention to personal safety and comply with local regulatory requirements.
     b. When hoisting the equipment, use flexible slings or straps. The load-bearing capacity of a single strap shall meet the following requirements:
        - GW5.1-BAT-D-G20，GW5.1-BAT-D-G21，GW6.0-BAT-D-G20 ⩾185KG
        - GW8.3-BAT-D-G20，GW8.3-BAT-D-G21，GW9.0-BAT-D-G20 ⩾240KG



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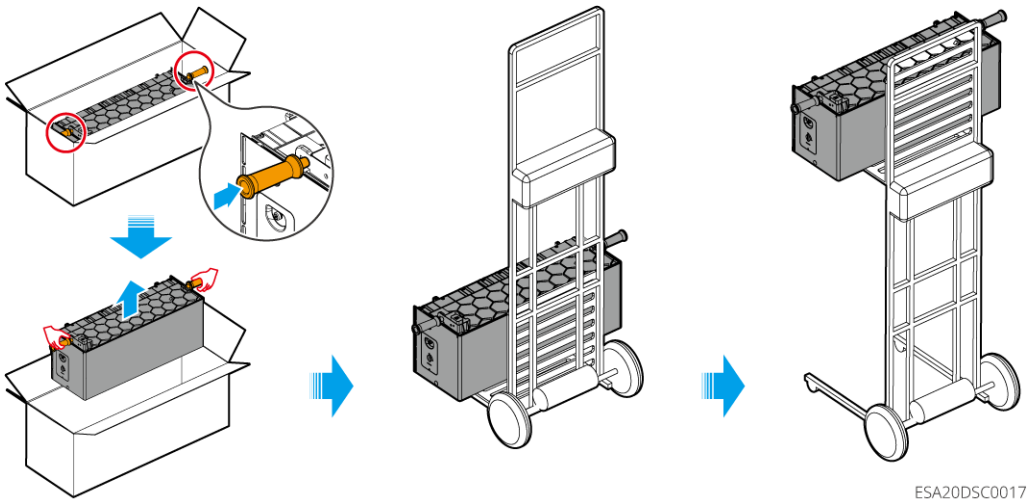
Method 3



ESA20DSC0017

4.3 Installing the Inverter

⚠CAUTION

- When drilling holes, ensure that the drilling positions avoid water pipes, cables, etc. inside the wall to prevent danger.
- When drilling holes, 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 installed to prevent it from falling and injuring personnel.

1. Place the backplate level on the wall and use a marker to mark the drilling positions.
2. Use an impact drill to drill holes.
3. Use expansion screws to secure the inverter backplate bracket to the wall.
4. Use the DC Switch lock to lock the DC Switch in the“OFF”state, mount the inverter on the backplate. (Optional) For Australia only, the DC Switch lock is user-supplied. Ensure that the hole diameter of the DC Switch lock meets the requirements.
5. Use screws to secure the backplate and the inverter, ensuring the inverter is installed securely.

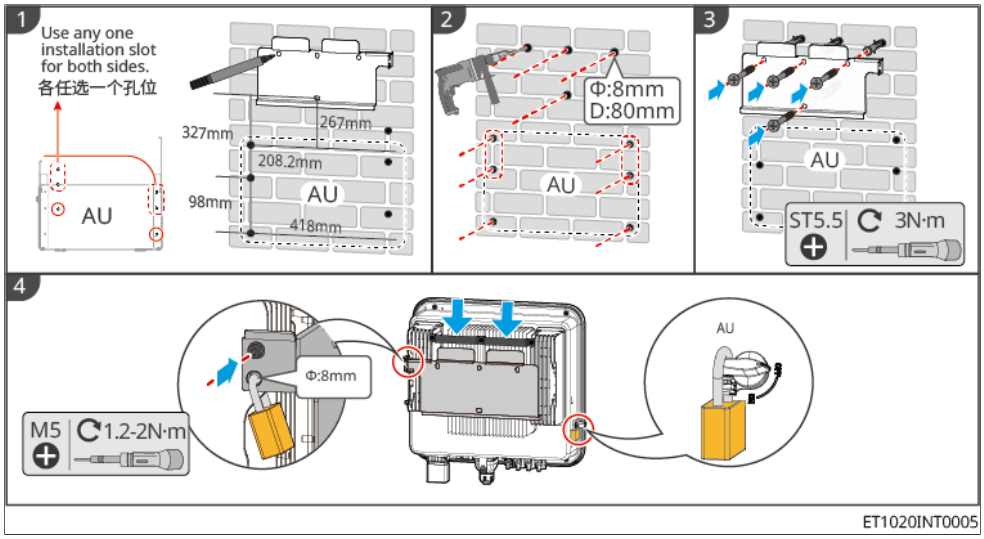


Figure17 Installing the Inverter

Installing the Protection Cover (Australia Only)

1. Assemble the Protection Cover.
2. Install the front cover plate.
3. Secure the Protection Cover to the wall.

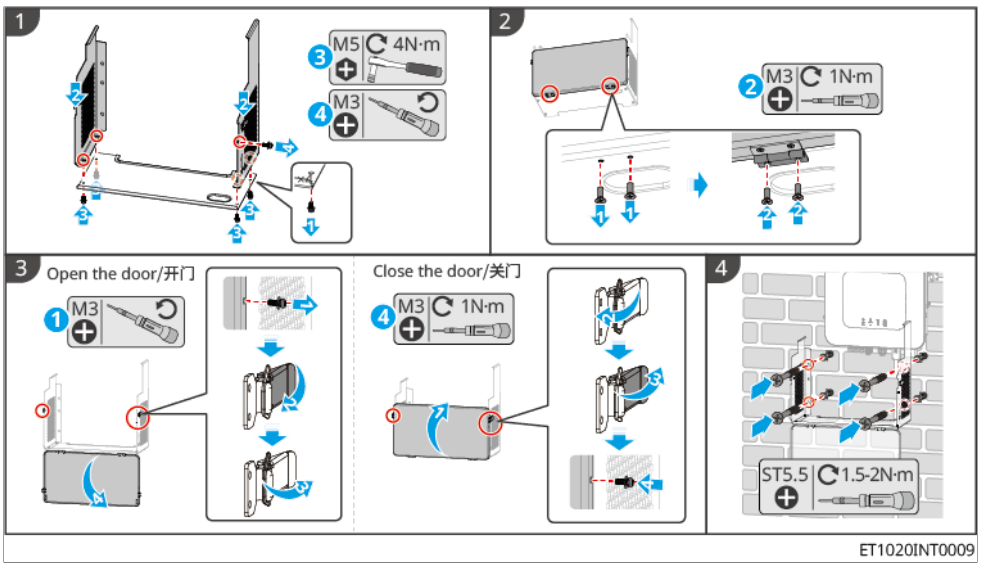


Figure18 Installing the Protection Cover

4.4 Installing the Battery

4.4.1 Install the Lynx Home F Series

WARNING

- Ensure that the control box is installed above the battery. Do not install the battery above the control box.
- During battery system installation, ensure that the installation is level and secure. When placing the battery base, battery, or control box, confirm that the holes of the upper and lower layers are aligned; the anti-tip bracket must be vertically flush against the floor, wall, or battery system surface.
- When drilling with an impact drill, use cardboard or other shielding to cover the battery system to prevent foreign objects from entering the equipment and causing equipment damage.
- Before installing the battery system, remove the Protection board from the battery module wiring terminal port.
- After marking the drilling positions with a marker, remove the control box to prevent equipment damage caused by the impact drill being too close to the control box during drilling.

4.4.1.1 Installing Lynx Home F

1. Install the anti-tip bracket onto the base.
2. Place the base against the wall, use a marker to mark the drilling positions, and remove the base.
3. Use an impact drill to drill holes.
4. Secure the base with expansion bolts, ensuring the base is oriented correctly.
5. Remove the protective cover from the battery connection terminals.
6. Install the battery onto the base, ensuring the battery orientation matches the base orientation; and according to the actually selected battery system type, install the remaining battery modules and control box.
7. Pre-install the control box anti-tip bracket onto the control box.
8. Install the control box above the battery, ensure it is placed securely, use a marker to mark the drilling positions, and remove the control box.
9. Use an impact drill to drill holes.
10. Secure the control box anti-tip bracket to the wall.
11. Secure the anti-tip bracket to the control box.

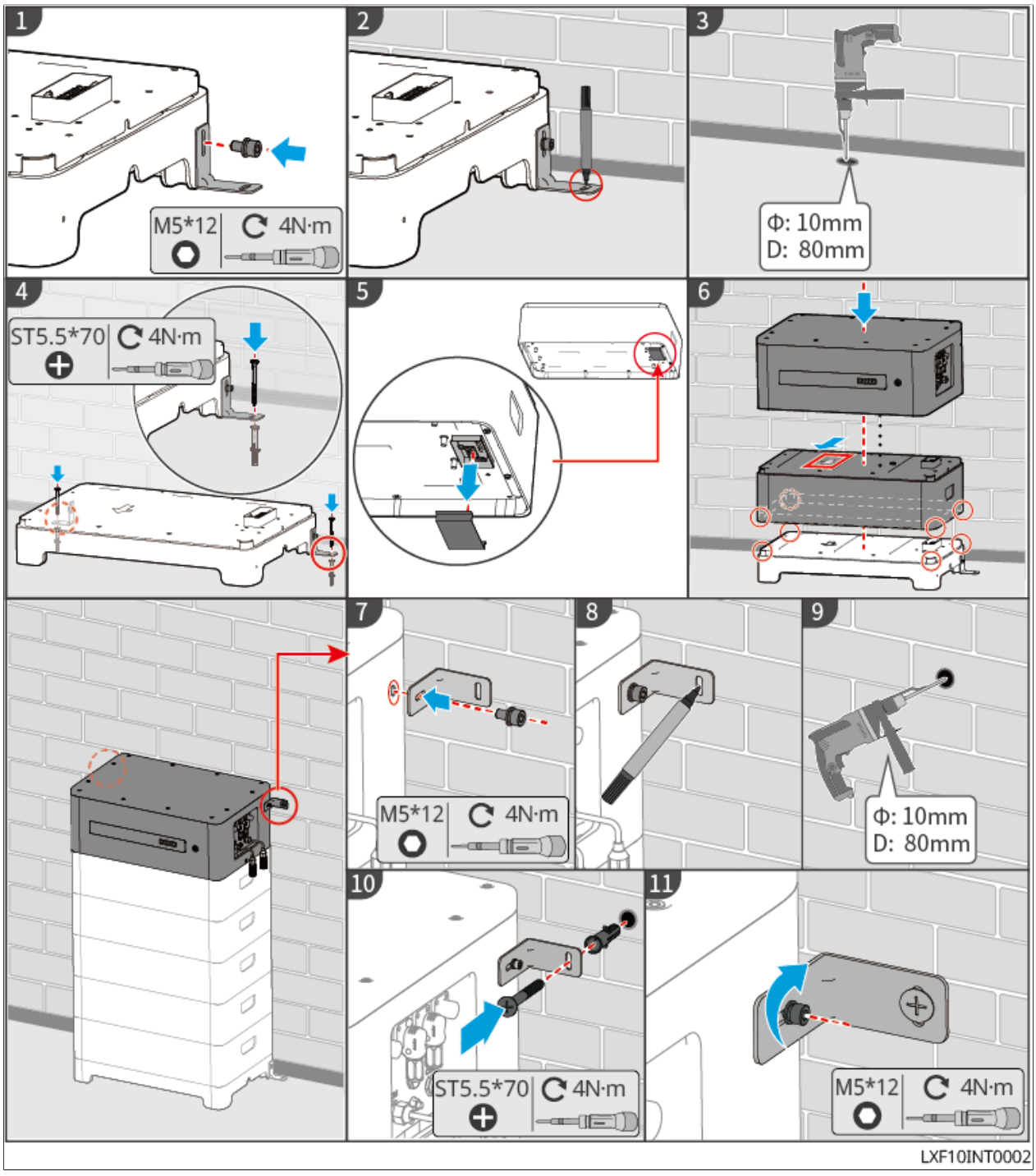


Figure19 Battery Installation

4.4.1.2 Installing Lynx Home F Plus+

1. (Optional) Install the adjustable feet onto the battery base.
2. Install the anti-tip bracket onto the base.
3. Place the base against the wall, use a marker to mark the drilling positions, and remove the base.
4. Use an impact drill to drill holes.
5. Secure the base with expansion bolts, ensuring the base is oriented correctly.
6. Remove the protective cover from the battery connection terminals.
7. Install the battery onto the base, ensuring the battery orientation matches the base orientation; and according to the actually selected battery system type, install the remaining battery modules and control box.
8. Pre-install the control box anti-tip bracket onto the control box.
9. Install the control box above the battery, ensure it is placed securely, use a marker to mark the drilling positions, and remove the control box.
10. Use an impact drill to drill holes.
11. Secure the control box anti-tip bracket to the wall.
12. Secure the anti-tip bracket to the control box.
13. (Optional) After the battery system is installed, check whether it is level and secure. If tilting or shaking occurs, adjust the battery system installation status by rotating the adjustable feet.

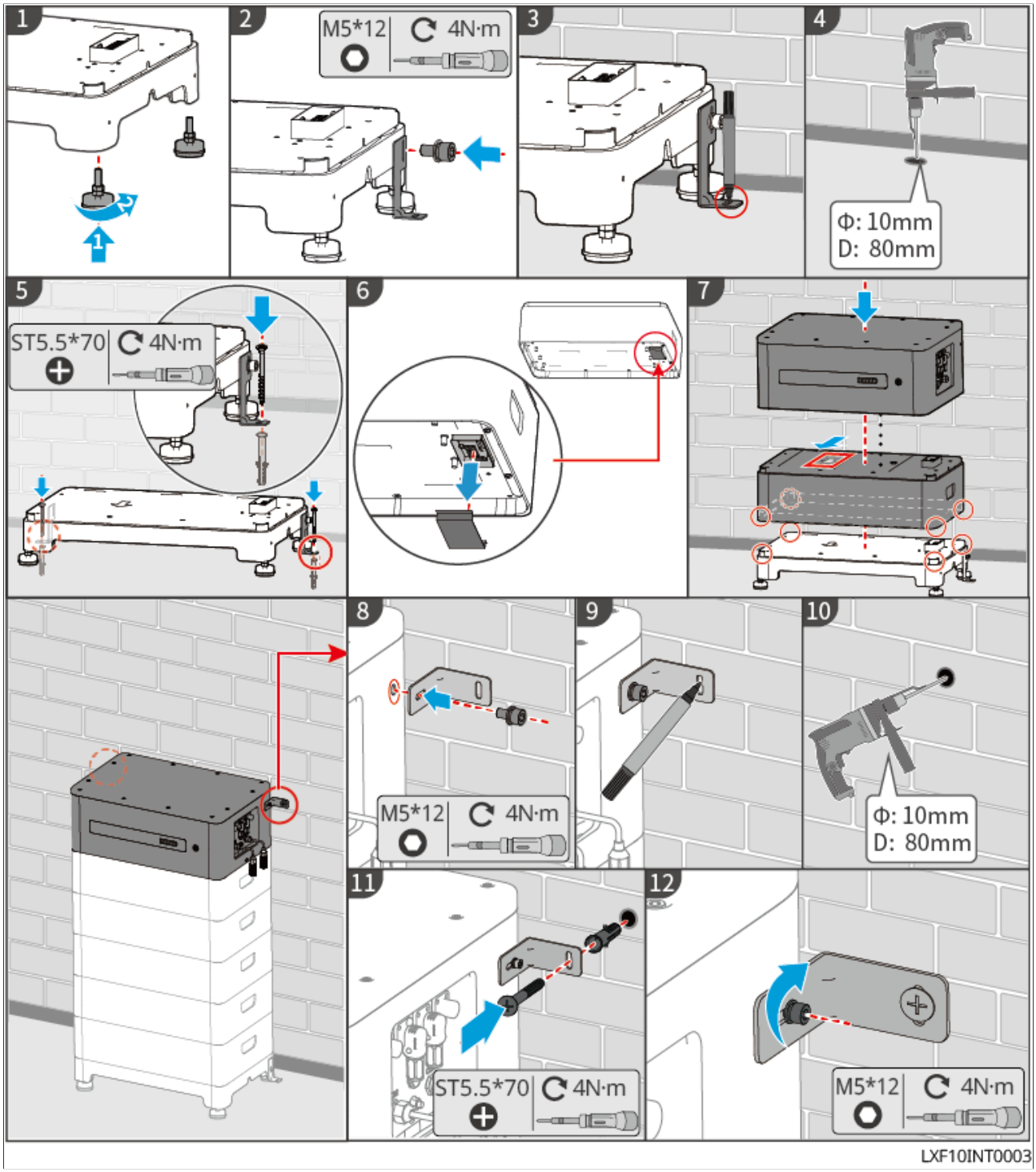


Figure20 Battery Installation

4.4.1.3 Installing Lynx Home F G2

1. (Optional) Install the adjustable feet onto the battery base.

2. Install the anti-tip bracket onto the base.
3. Place the base against the wall, use a marker to mark the drilling positions, and remove the base.
4. Use an impact drill to drill holes.
5. Secure the base with expansion bolts, ensuring the base is oriented correctly.
6. Install the battery onto the base, ensuring the battery orientation matches the base orientation; and according to the actually selected battery system type, install the remaining battery modules and control box.
7. Install the control box anti-tip bracket.
8. Install the control box above the battery, ensure it is placed securely, use a marker to mark the drilling positions, and remove the control box.
9. Use an impact drill to drill holes.
10. Tighten the control box anti-tip bracket.
11. Installing the Anti-Tip Bracket and Junction Box

    - (Optional) Secure the control box anti-tip bracket.
    - (Optional) Install the junction box.

12. (Optional) After the battery system is installed, check whether it is level and secure. If tilting or shaking occurs, adjust the battery system installation status by rotating the adjustable feet.

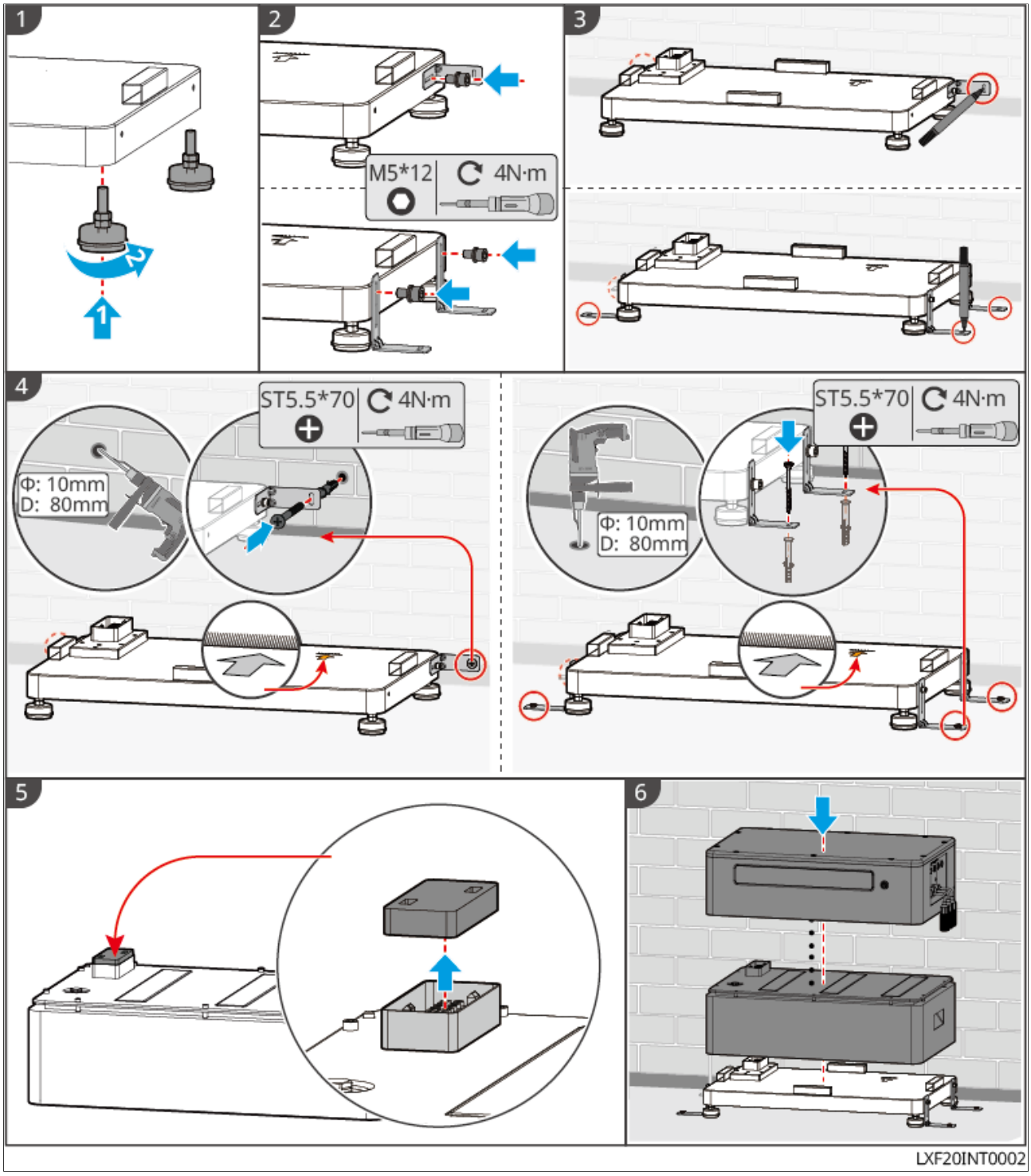


Figure21 Installing the Base and Battery

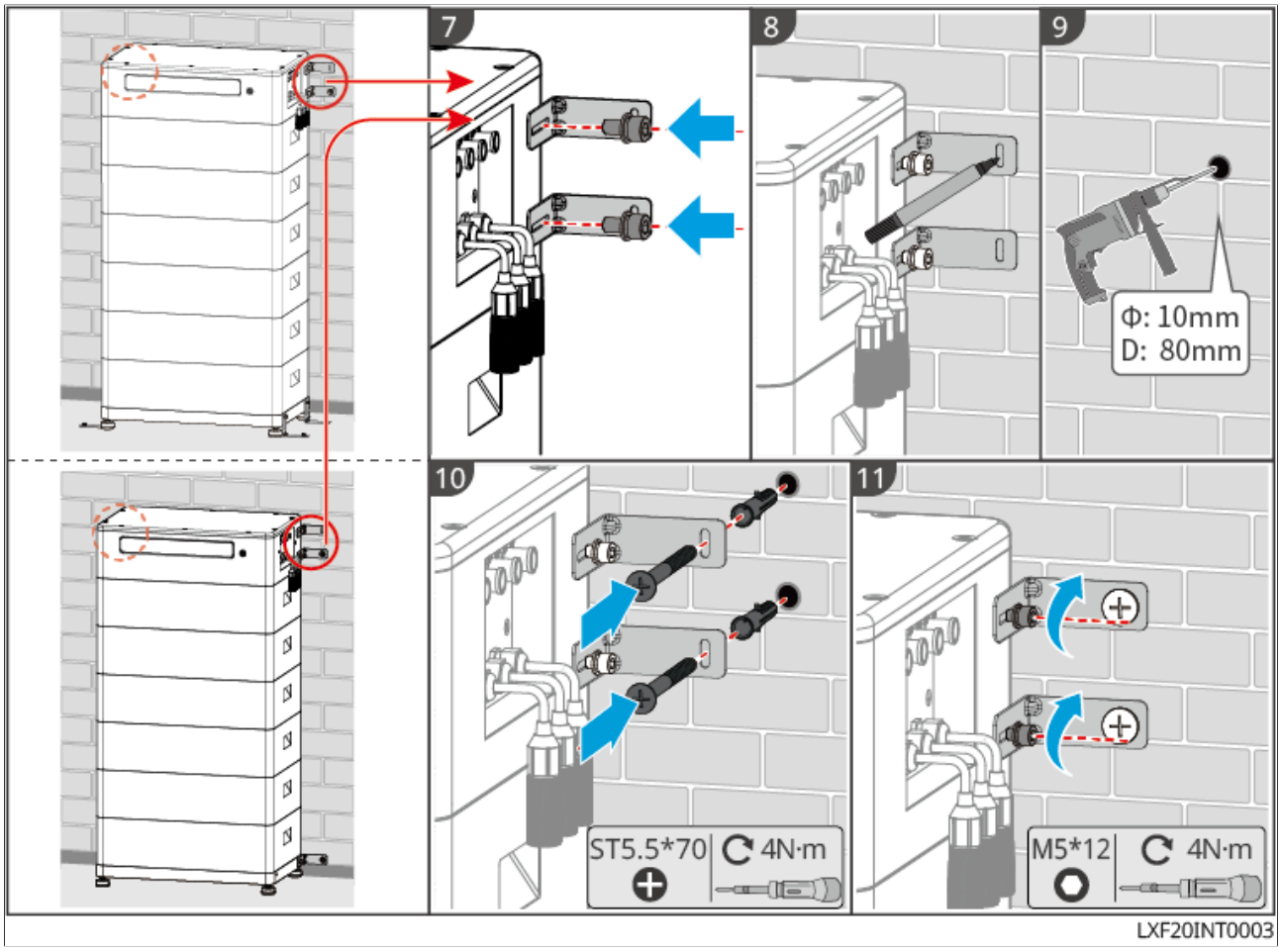


Figure22 Securing the Battery System

4.4.2 Installing Lynx Home D

NOTICE

- The battery system must be installed on a base or mounting bracket.
- During battery stacking, auxiliary tools are required for installation.
- When more than3batteries are stacked in a single group, base installation is recommended.
- Please stack the batteries according to the recommended battery stacking method.

Battery stacking method		
Total number of batteries (pcs)	First stack (pcs)	Second stack (pcs)
8	4	4
7	4	3
6	3	3
5	3	2
4	2	2
3	3	-
2	2	-
1	1	-

Install the mounting bracket (optional)

1. Make the mounting bracket flush against the wall. Ensure the mounting bracket is placed securely, and use a spirit level to check whether the mounting bracket is level.
2. After adjusting the position and levelness of the mounting bracket, use a marker to mark the drilling positions. After marking, remove the mounting bracket.
3. Drill holes and install expansion bolts.
   a. Use an impact drill to drill holes.
   b. Clean the holes.
   c. Use a rubber mallet to install the expansion bolts into the holes.
   d. Use an open-end wrench to tighten the nut clockwise so that the bolt expands.
   e. Rotate the nut counterclockwise to remove it.
4. Use an open-end wrench to secure the wall-mount bracket to the wall.

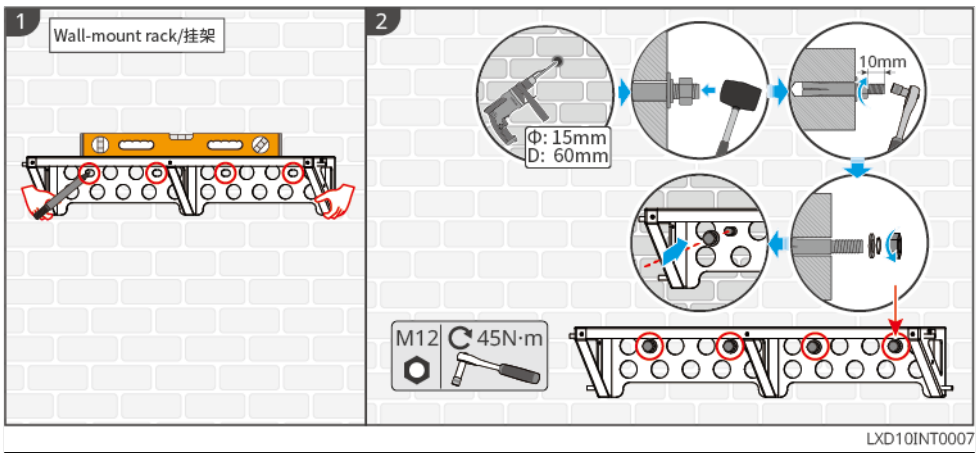


Figure23 Install the mounting bracket

Install the base (optional)

NOTICE

Check whether the accessory package contains adjustable feet. If not and they are needed, contact your dealer or after-sales service to obtain them.

1. Install the adjustable feet on the bottom of the base.
2. Place the base at a distance of15-20mmfrom the wall, keep it parallel to the wall, and ensure the floor is level.
3. When installing batteries on the base, ensure that the left side of the battery is aligned with the base limit block.

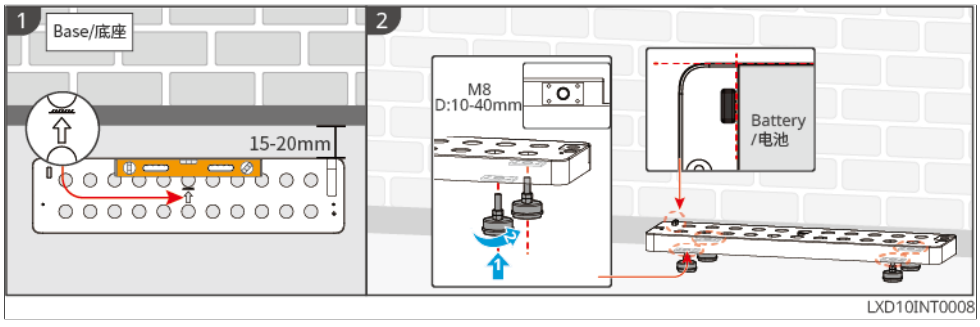


Figure24 Install the base

Installing the Battery

NOTICE

- During floor installation, two base-to-battery fixing brackets are supplied with the unit. To prevent the battery from loosening or shifting, install one fixing bracket on one side of the battery positioning block, and keep the other fixing bracket as a spare.
- For wall-mounted installation, to prevent the battery from loosening or shifting, use the fixing brackets shipped with the unit to secure the battery and both sides of the mounting bracket respectively.

1. Pre-tighten the anti-tip bracket onto the battery.
2. Place the battery on the installed mounting bracket or base. Make the anti-tip bracket flush against the wall, mark the positions for drilling. After marking, remove the battery; or use a spirit level to mark the drilling positions.
3. Install expansion bolts and secure the battery.
   a. Use an impact drill to drill holes.
   b. Clean the holes.
   c. Use a rubber mallet to install the expansion bolts into the holes.
   d. Use an open-end wrench to tighten the nut clockwise so that the bolt expands.
   e. Rotate the nut counterclockwise to remove it.
   f. Reinstall the battery on the base or mounting bracket, and adjust the battery position so that the battery is15-20mm。
   g. Use an open-end wrench to secure the battery to the wall, and use a torque screwdriver to tighten the anti-tip bracket to the battery.
4. Install and tighten the inter-battery fixing brackets.
   If multiple batteries need to be installed, repeat steps1to4to complete the installation of all batteries. The stack in a single battery group must not exceed4units.
5. Install and tighten the fixing brackets between the battery and the base or mounting bracket.

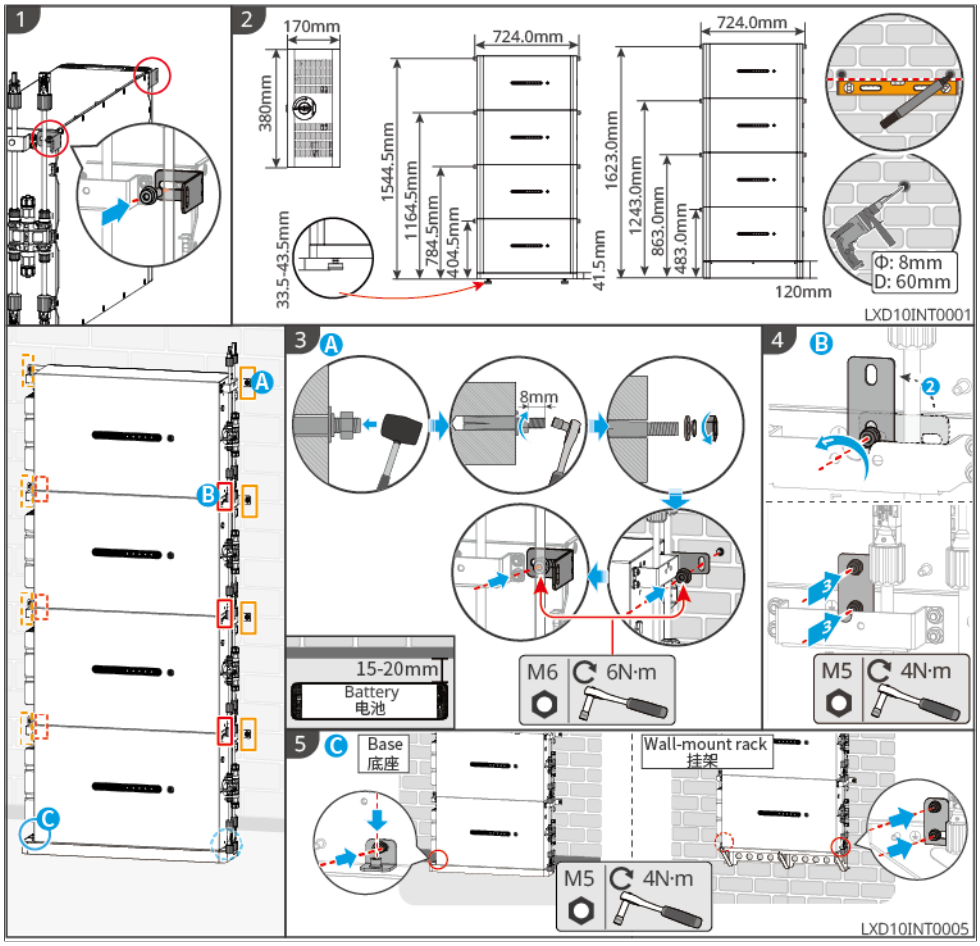


Figure25 Installing the Battery

4.4.3 Install Lynx D G2

⚠CAUTION

- When drilling holes, ensure that the drilling positions avoid water pipes, cables, etc. inside the wall to prevent danger.
- When drilling holes, wear safety goggles and a dust mask to prevent dust from being inhaled into the respiratory tract or entering the eyes.
- When installing the battery system, ensure that the installation is level and secure. When placing the battery base and batteries, confirm that the upper and lower mounting holes are aligned; the anti-tip bracket should be vertically flush against the floor, wall, or battery system surface.
- When drilling with an impact drill, use cardboard or other shielding to cover the battery system to prevent foreign objects from entering the equipment and causing equipment damage.
- For wall-mounted installation, to ensure your personal and property safety, be sure to assess the wall's load-bearing capacity.

NOTICE

- The batteries must be installed on the base. The base can be floor-mounted or mounted on the bracket.
- For floor installation, a maximum of 4 batteries can be stacked away from the wall, and a maximum of 6 batteries can be stacked against the wall.
- The maximum stacking quantity when installed using the mounting bracket is specified as follows:
  - Same-energy stacking:
    - GW5.1-BAT-D-G20，GW5.1-BAT-D-G21: Up to 3 units.
    - GW8.3-BAT-D-G20，GW8.3-BAT-D-G21: Up to 2 units.
    - GW6.0-BAT-D-G20: Up to 3 units.
    - GW9.0-BAT-D-G20: Up to 2 units.
  - Mixed stacking of different energy capacities:
    - When GW5.1-BAT-D-G20, GW5.1-BAT-D-G21 and GW6.0-BAT-D-G20 are mixed-stacked, a single system group supports up to 3 units
    - GW8.3-BAT-D-G20, GW8.3-BAT-D-G21, GW9.0-BAT-D-G20, and models mixed-stacked with them, a single system group supports up to 2 units.
- The base, bracket, and uppermost battery must be secured to the wall using anti-tip brackets.
- When marking the drilling positions for bracket installation, have one person hold the base steady and another person mark the drilling positions with a marker.
- When installing the batteries, remove the protective covers from the blind-mate connectors before stacking.

Wall-mounted base installation

Step 1: Install the base on the bracket.

Step 2: Place the bracket flush against the wall. Ensure the bracket is firmly positioned and observe the bubble level in the middle of the base.

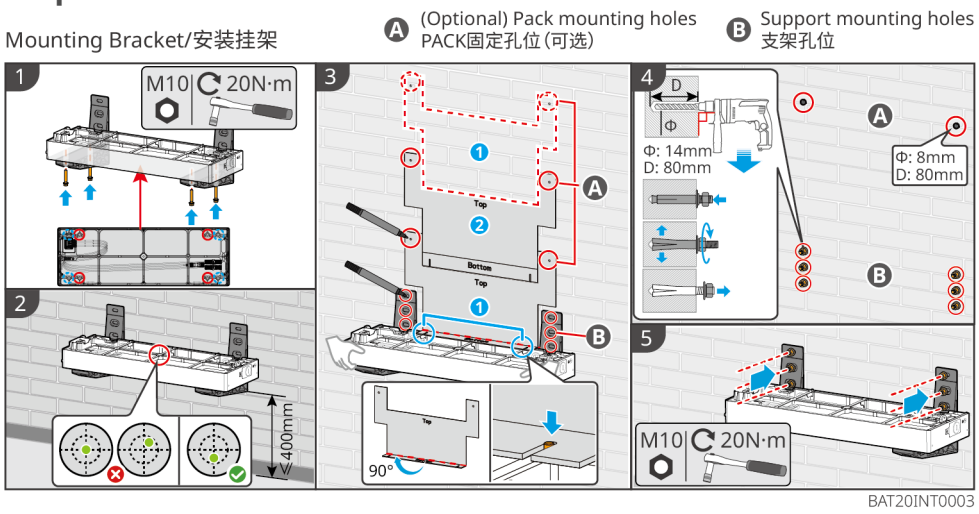
Step 3: After adjusting the position and levelness of the bracket, use a marker to mark the drilling positions. After marking, remove the bracket. (A: PACK fixing holes; B: bracket fixing holes.)

Step 4: Drill holes and install expansion bolts.

1. Use an impact drill to drill holes.

2. Clean the holes.
3. Use a rubber mallet to install the expansion bolts into the holes.
4. Use an open-end wrench to tighten the nut clockwise so that the bolt expands.
5. Rotate the nut counterclockwise to remove it.
6. Use a torque screwdriver to tighten the anti-tip bracket to the wall.

Step 5: Use a hex wrench to secure the bracket to the wall.



Base installation against the wall

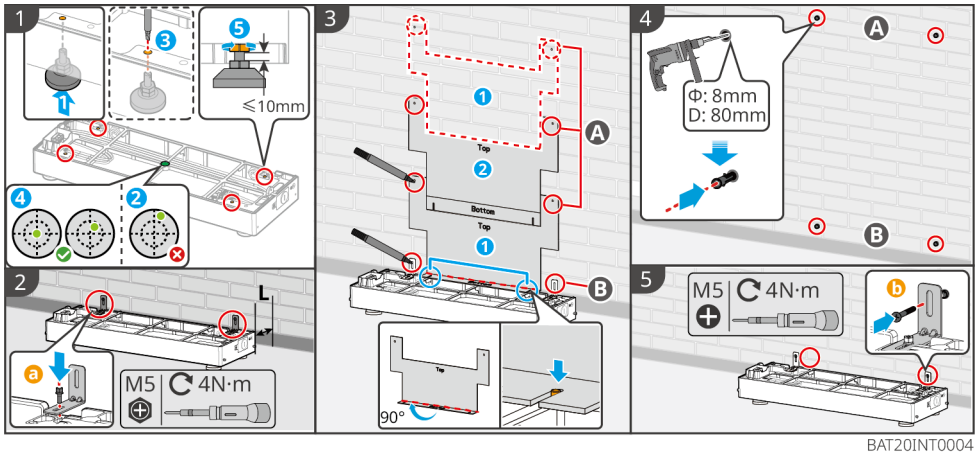
Step 1: Install the adjustable feet on the bottom of the base, and secure the anti-tip bracket to the base.

Step 2: Place the base at a distance of 50-60mmfrom the wall, keeping it parallel to the wall. Observe the bubble level in the middle of the base; if the bubble is not centered, use the adjustable feet to level it.

Step 3: After adjusting the position and levelness of the base, use the drilling template to mark the drilling positions. After marking, remove the base. (A: PACK fixing holes; B: bracket fixing holes.)

Step 4: Use an impact drill to drill holes and clean the holes.

Step 5: Use a Phillips screwdriver to secure the anti-tip bracket to the wall.



Base Installation Away from the Wall

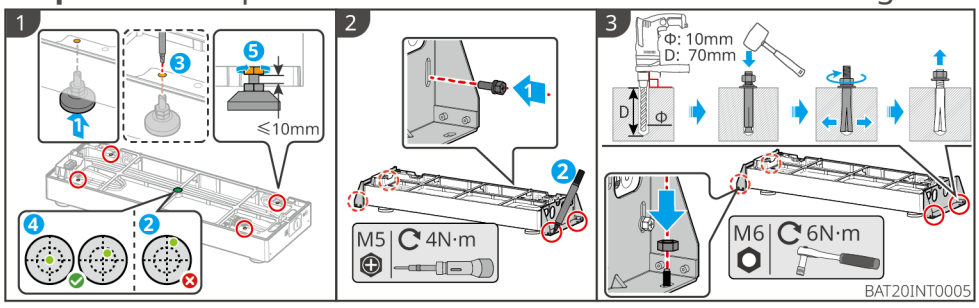
Step 1: Install the adjustable feet on the bottom of the base. Observe the spirit level in the middle of the base; if the bubble is not centered, use the adjustable feet to level it.

Step 2: After adjusting the position and levelness of the base, secure the off-wall bracket to the base. Select an appropriate position to mark the drilling holes; after marking, remove the base.

Step 3: Drill holes and install expansion bolts.

1. Use an impact drill to drill holes.
2. Clean the holes.
3. Use a rubber mallet to install the expansion bolts into the holes.
4. Use an open-end wrench to tighten the nut clockwise so that the bolt expands.
5. Rotate the nut counterclockwise to remove it.
6. Use a torque screwdriver to secure the anti-off-wall bracket to the ground.

Step 4: Use an open-end wrench to secure the base to the ground.



Install the Battery, Terminal Resistor, and Battery Protective Cover

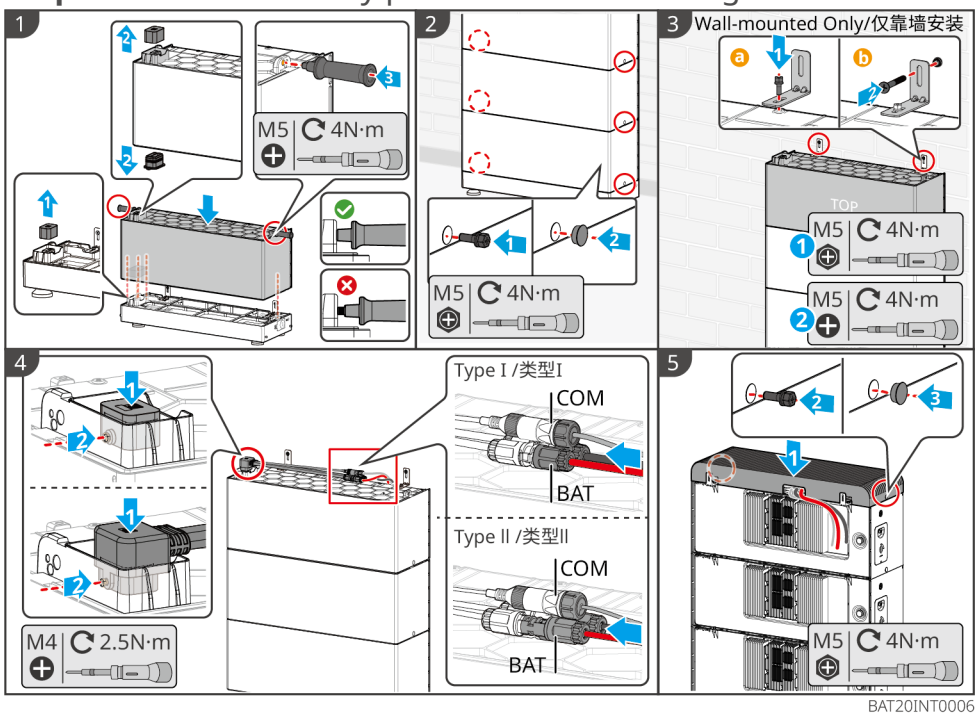
Step 1: Remove the protective cover from the blind-mate connector at the bottom of the battery, install the handle (optional), and stack the battery onto the base.
If installing more than 3 batteries, use a lifting tool.

Step 2: Tighten the screws between the battery and the base or between batteries. If multiple batteries need to be installed, repeat**Step1**、**Step2**to complete the installation of all batteries.

Step 3 (Optional): Secure the topmost battery to the wall using an anti-tip bracket。

Step 4: Install the blind-mate connector or terminal resistor.

Step 5: Install the battery protective cover and tighten the side screws.



BAT20INT0006

4.5 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 conduit, it is recommended to install an external lightning protection device.

GM3000

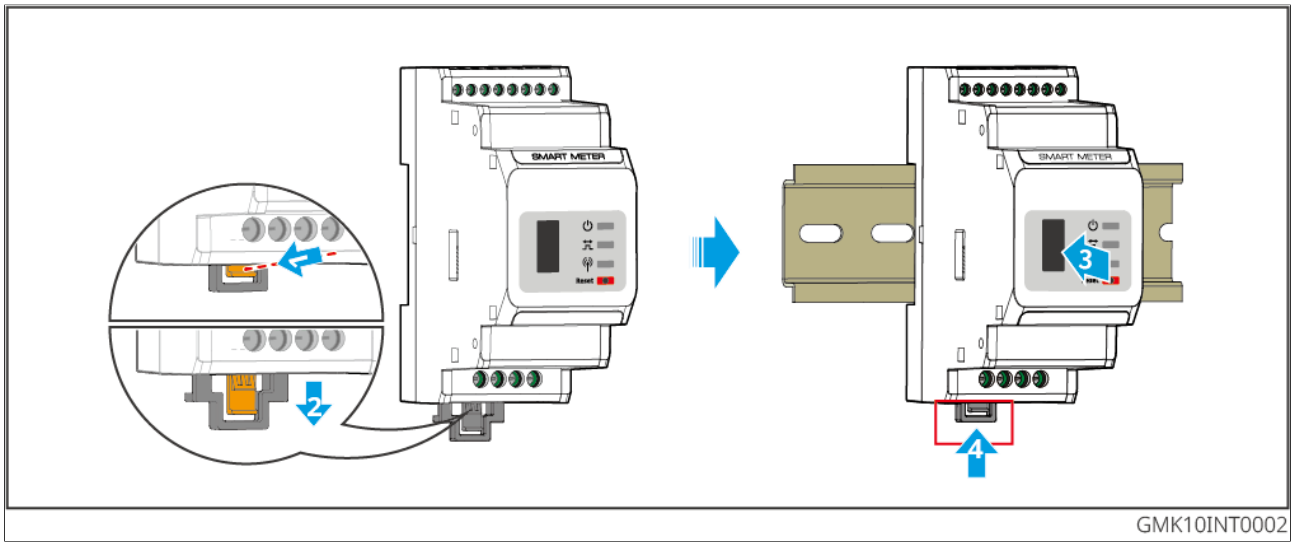


Figure26 Installing GM3000

GM330

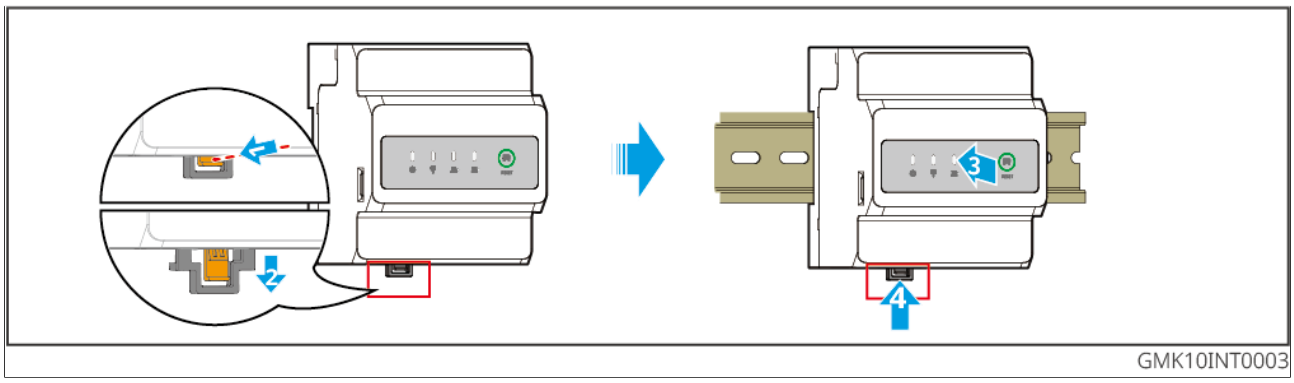


Figure27 Installing GM330

5 System Wiring

⚠DANGER

- All operations during electrical connection and the specifications of cables and components used must comply with local laws and regulations.
- Before performing electrical connections, disconnect the device's DC Switch and AC output switch to ensure the device is de-energized. Live working is strictly prohibited; otherwise, hazards such as electric shock may occur.
- Cables of the same type should be tied together and routed separately from cables of different types. They must not be intertwined or crossed.
- If the cable is subjected to excessive tensile force, it may result in poor connection. When wiring, reserve a certain length of cable before connecting it to the inverter wiring terminals.
- When crimping the cable terminal, ensure that the conductor part of the cable 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 heating and damage to the equipment terminal block, etc.
- For unused cable entry holes and ports (including communication ports), use the dedicated terminals or plugs in the accessories supplied with the box to seal them reliably. Otherwise, the following risks may occur:
  - Electric shock hazard: Open electrical ports may cause personnel to come into direct contact with live parts, resulting in electric shock.
  - Loss of protection: Open ports allow dust, moisture, or foreign objects to enter, which may cause short circuits, fire, or equipment failure.

NOTICE

- During 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.
- For parallel systems, please observe the safety precautions in the user manuals corresponding to the relevant products in the system.

5.1 System Wiring Electrical Block Diagram

NOTICE

- According to the regulatory requirements of different regions, the inverterON-GRIDandBACK-UPports'Nline andPEline wiring methods differ; the specific local regulatory requirements shall prevail.
- The inverter has a built-in meter and can be directly connected toCTfor use.
- CTWhen the connection length to the inverter exceeds25mthe accuracy will decrease. If high accuracy is required, an external smart meter can be connected.
- InverterON-GRIDAC port has a built-in relay. When the inverter is in off-grid mode, the built-inON-GRIDrelay is open; when the inverter is in grid-connected operating mode, the built-inON-GRIDrelay is closed.
- After the inverter is powered on,BACK-UPAC port is live. If maintenance is required on theBACK-UPload, power off the inverter; otherwise, electric shock may result.

N and PE lines are connected together in the distribution box.

NOTICE

- To maintain neutral integrity, the neutral lines on the grid-connected side and the off-grid side must be connected together; otherwise, the off-grid function cannot operate normally.
- The following figure shows a schematic of the power grid system for Australia, New Zealand, and other regions:

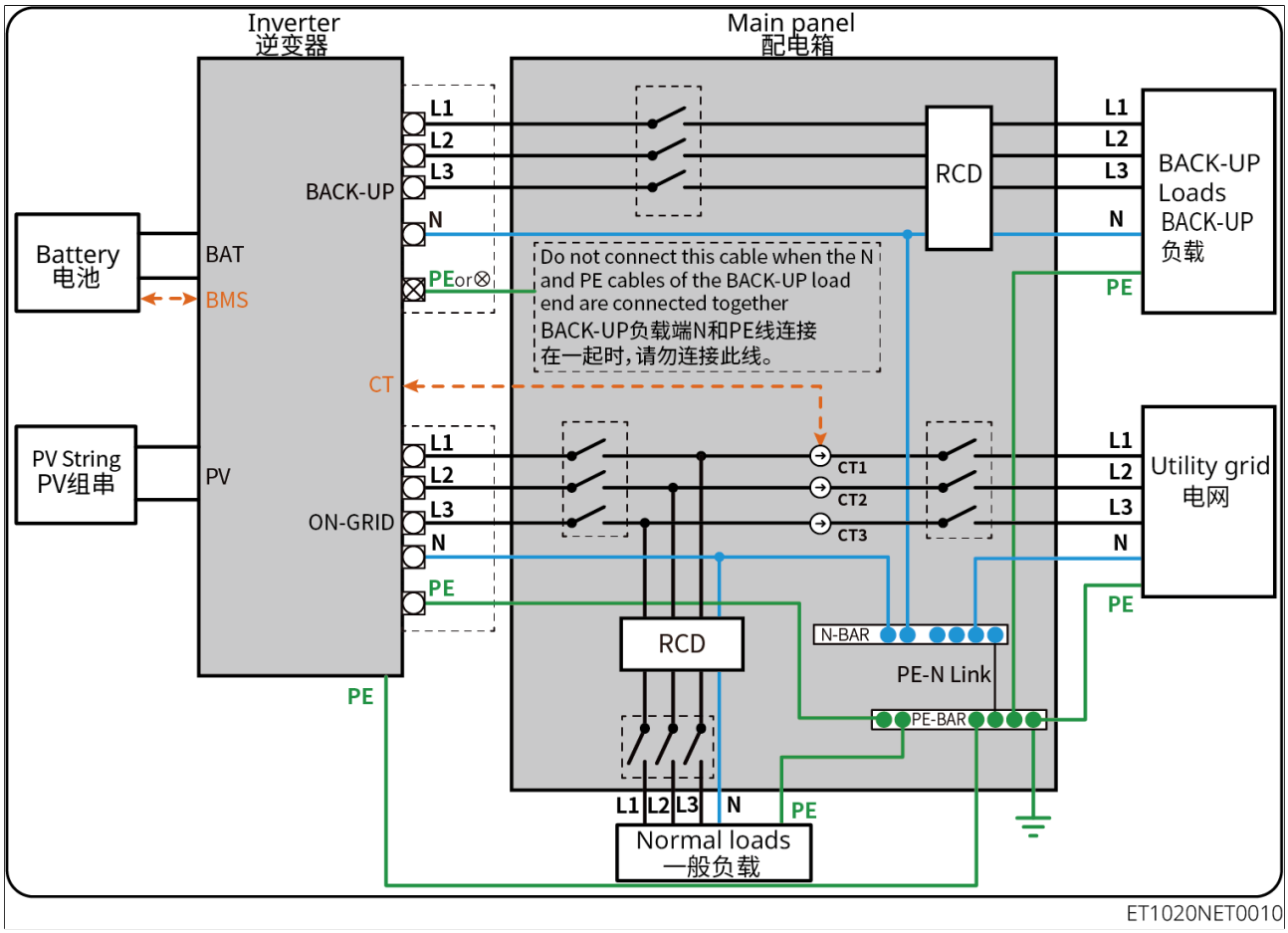


Figure28 Australia, New Zealand, and other regions

NandPElines are wired separately in the distribution box.

NOTICE

- Ensure that the BACK-UP Protection ground wire is correctly and securely connected; otherwise, the BACK-UP function may malfunction when a grid fault occurs.
- The following wiring method applies to regions other than Australia, New Zealand, and other such regions:

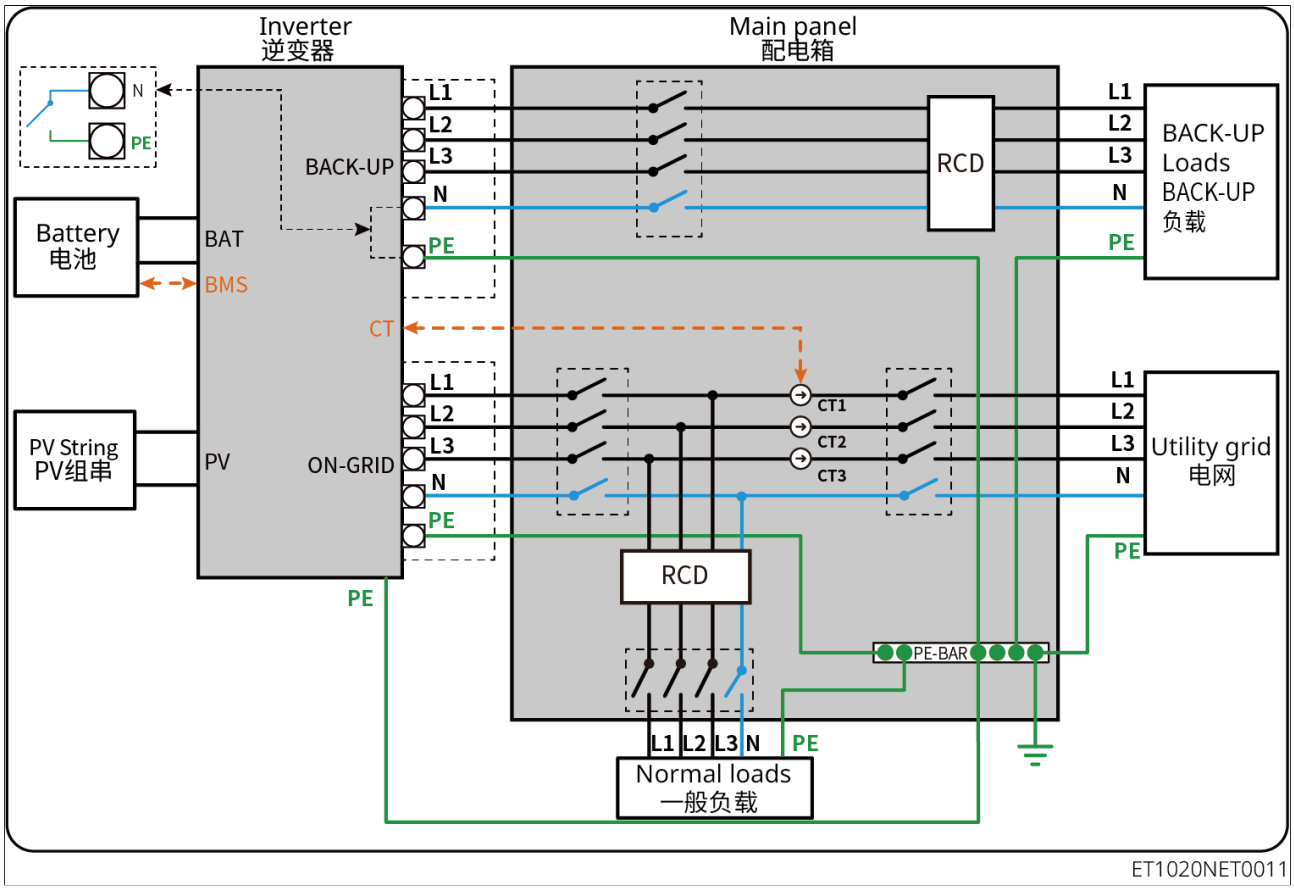


Figure29 Except Australia, New Zealand, and other regions

5.2 Detailed System Wiring Diagram

When all loads in the PV system cannot consume the energy generated by the system, the surplus energy will be fed into the grid. In this case, a smart meter or CT can be used to monitor the system's Energy Generation and control the Energy Generation fed into the grid.

- Connecting a smart meter enables output power limitation and load monitoring functions.
- After connecting the smart meter, enable the "Grid Power Limit" function through the App.

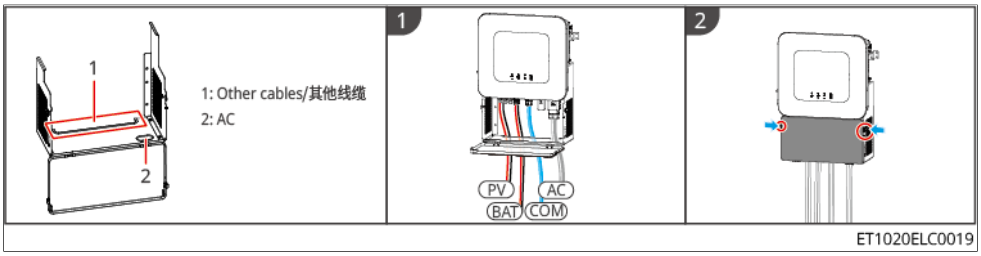
The Detailed System Wiring Diagram only illustrates wiring for some equipment models. Please refer to the corresponding wiring guidance section for the equipment actually used.

NOTICE

- OptionalGM330orGM3000meters are available. If you need to use them, please contact GoodWe to purchase.
- In coupling scenarios, if grid-tied inverter generation monitoring and load monitoring are required, dual-meter networking is needed.
  - Electricity meter1or the built-in meter is used to monitor the system's grid-connected power.
  - Electricity meter2is used to monitor the power generation of the grid-connected inverter.
  - By integrating the data of meter1and meter2, the monitoring platform can realize real-time monitoring of load power consumption.
- If the grid-tied inverter needs to limit output power, please connect a meter or devices such asCTseparately.

Dual-meter configuration scenario	
Electricity meter1(Grid side)	Electricity meter2(AC side of grid-tied inverter)
Built-in meter	GM3000
Built-in meter	GM330
GM3000	GM3000
GM3000	GM330
GM330	GM330
GM330	GM3000

Wiring diagram with Protection cover (optional)



5.2.1 Detailed Wiring Diagram of Single-Unit System

Scenario with Built-in Meter

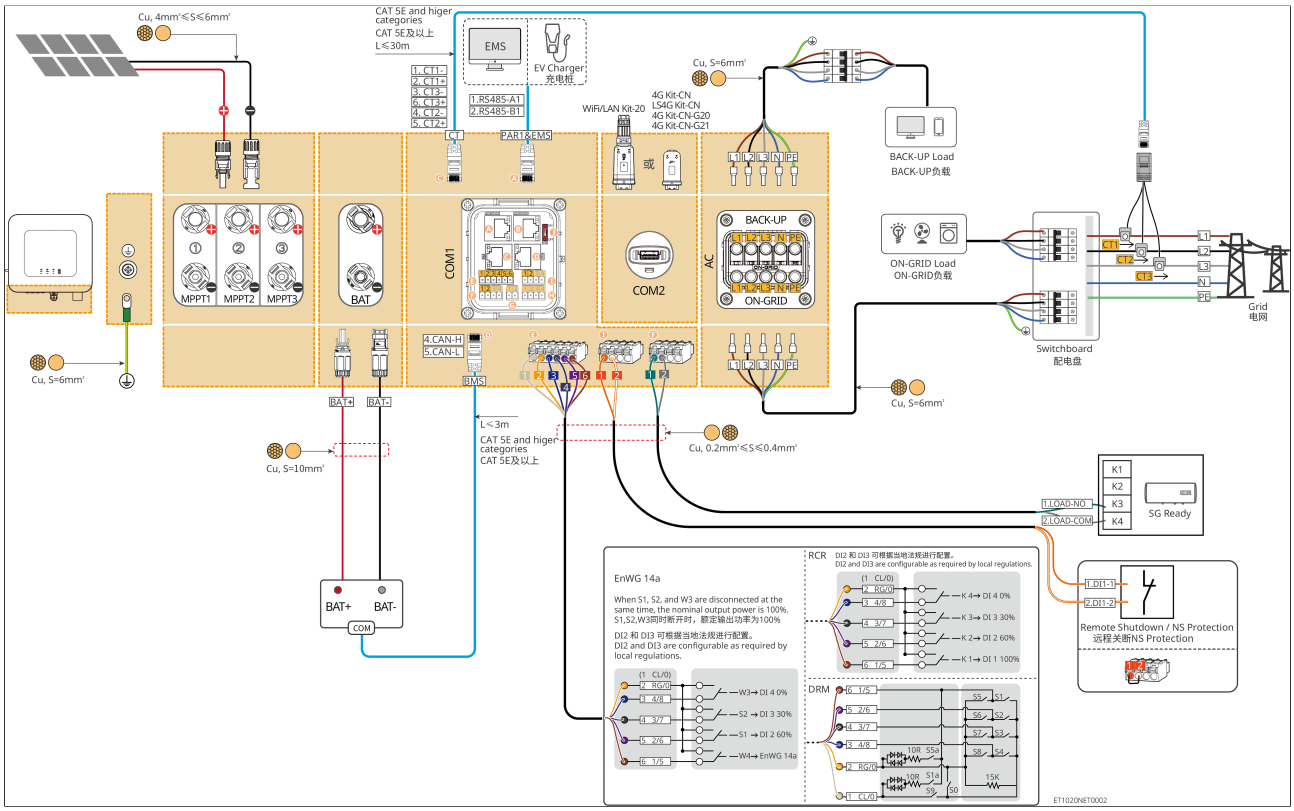


Figure30 Scenario with Built-in Meter

Scenario with GM3000

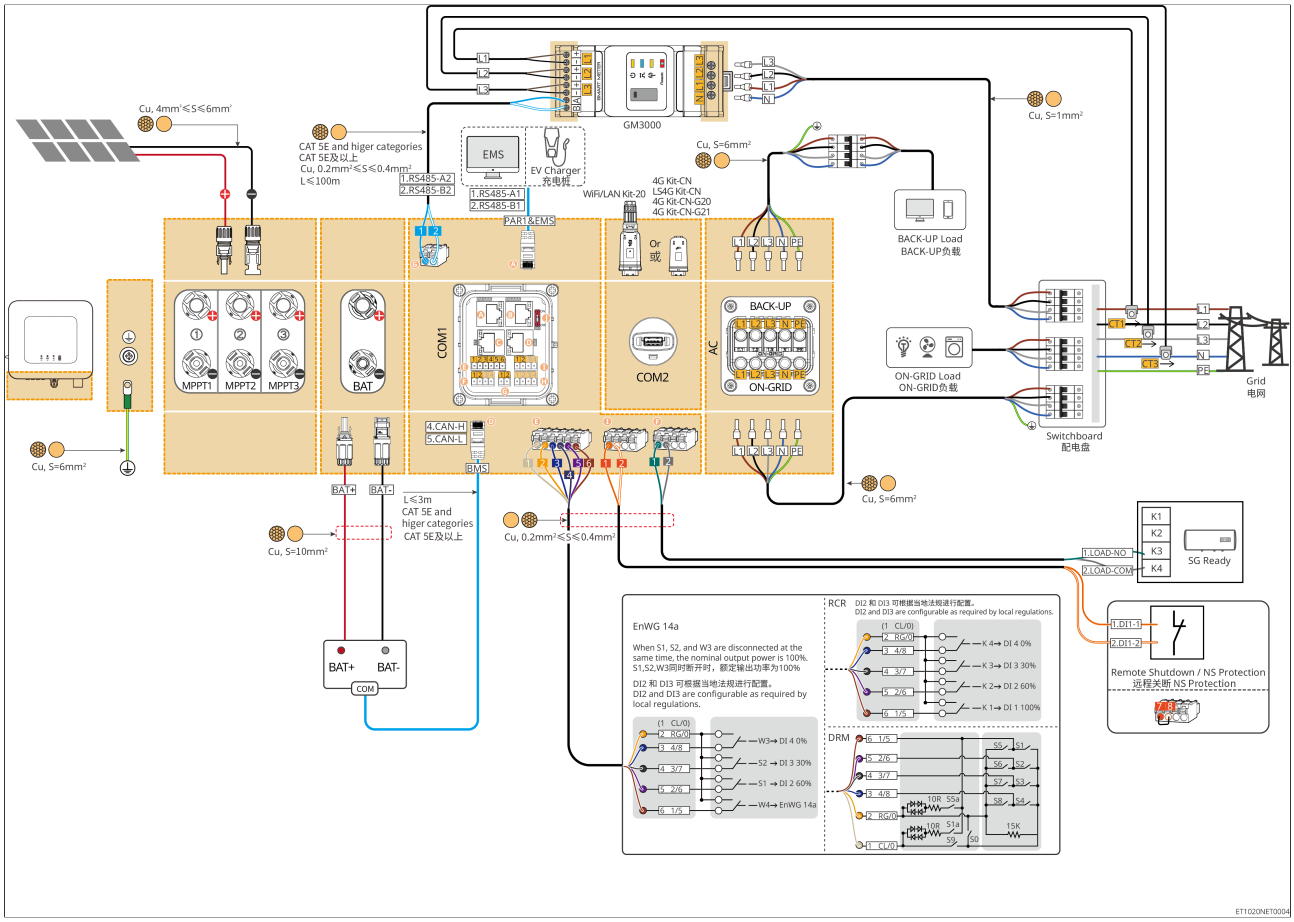


Figure31 Scenario with GM3000

Scenario with GM330

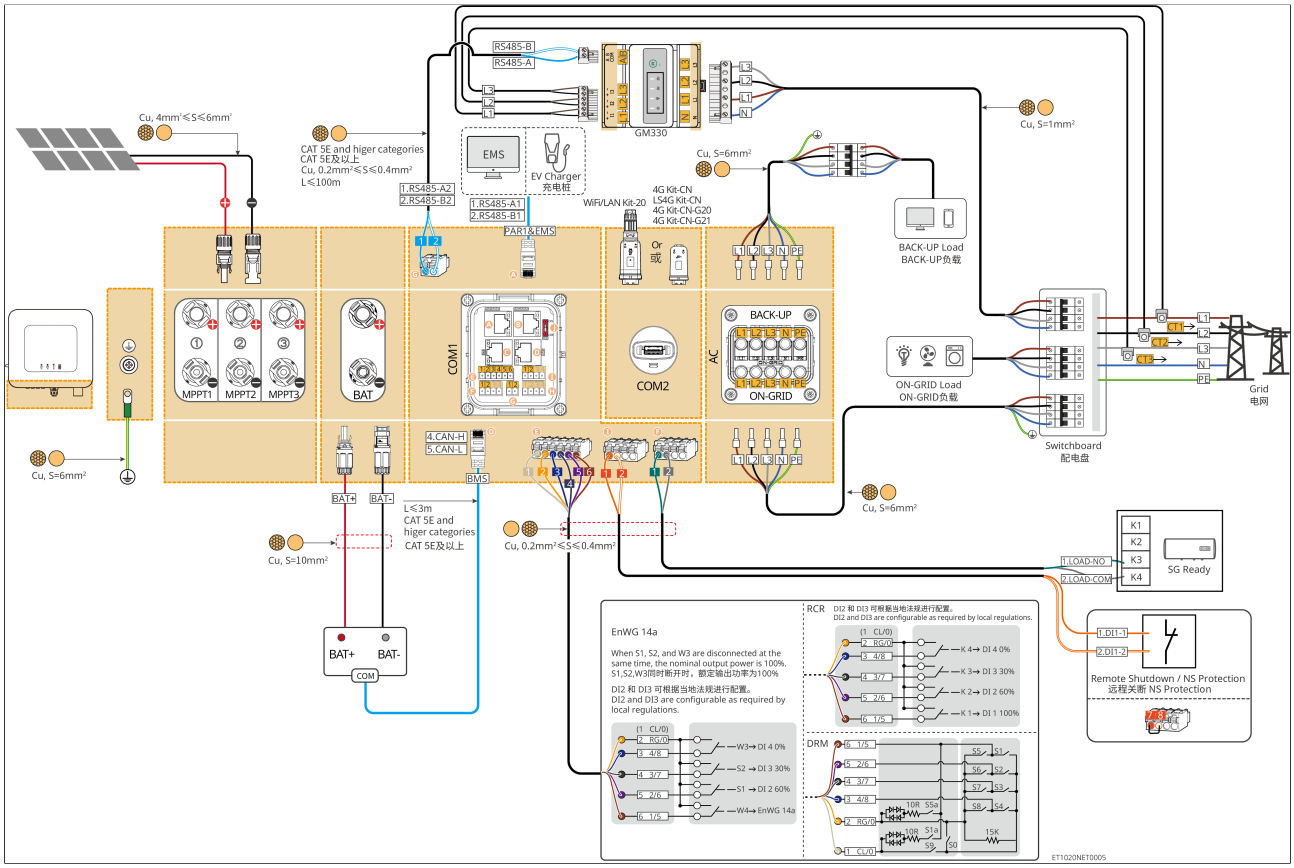


Figure32 Scenario with GM330

Networking Solution for Coupled Scenario Load Monitoring and Grid-tied Inverter Generation Monitoring

With Built-in Meter+GM330Networking

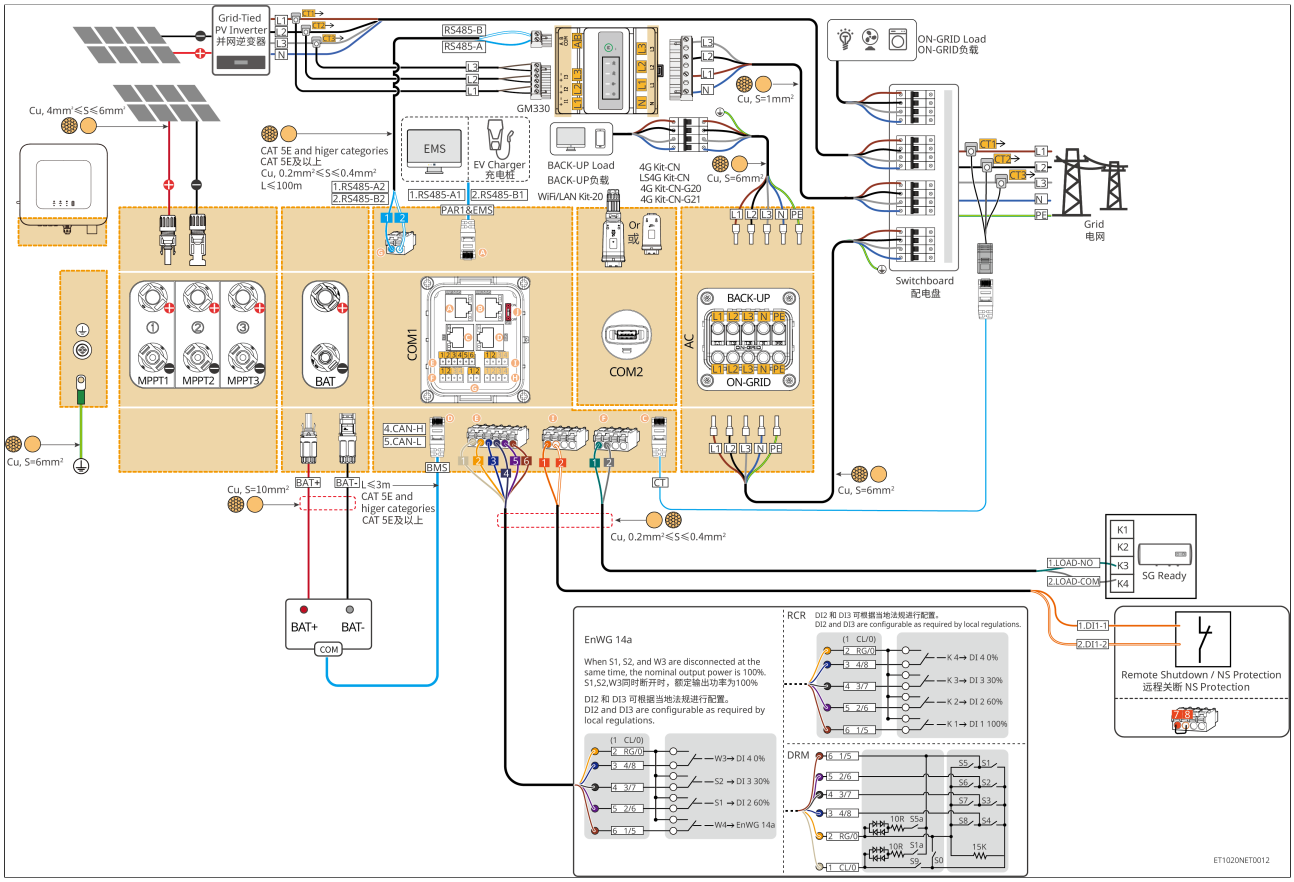


Figure33 With Built-in Meter+GM330Networking

WithGM330+GM330Networking

If the grid-tied inverter needs to limit output power, please connect a meter or devices such asCTseparately.

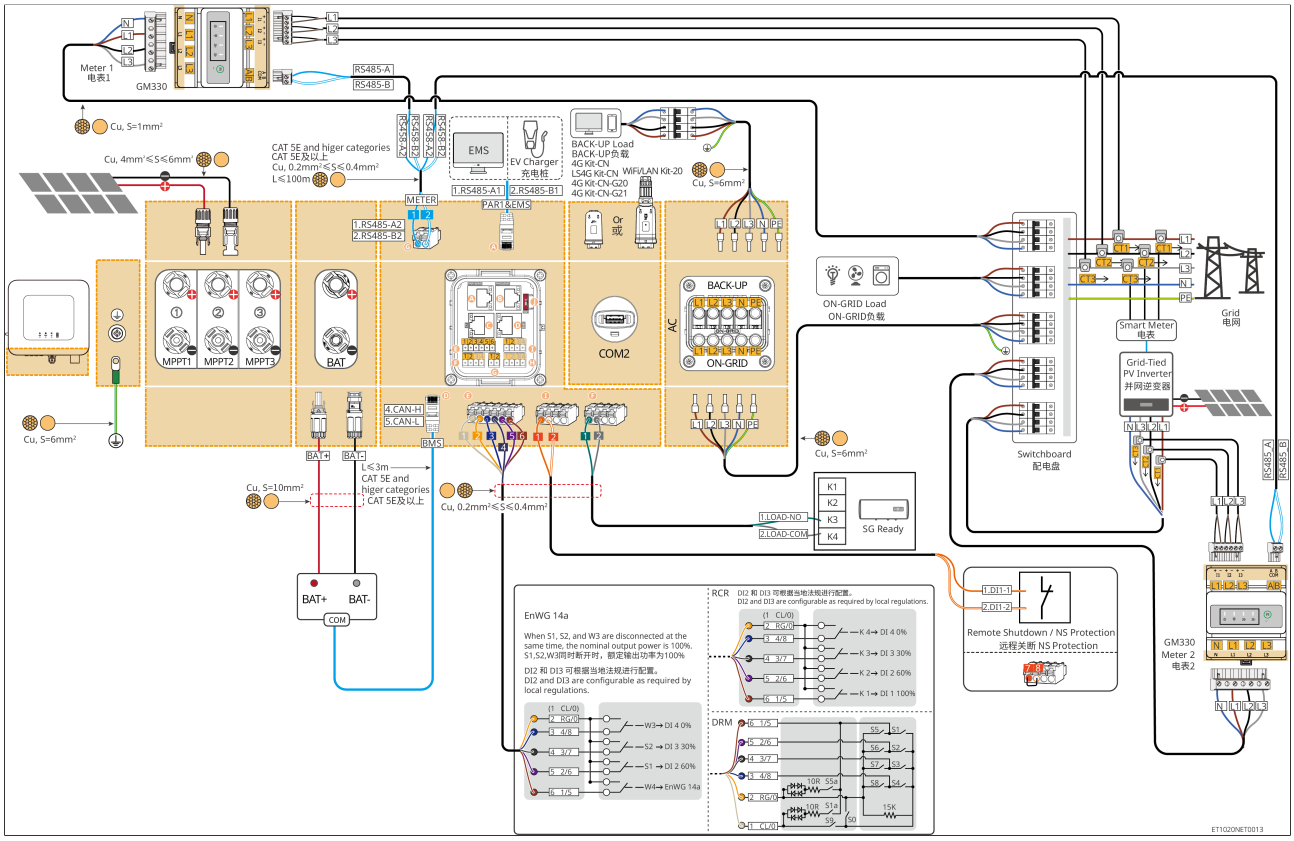


Figure34 WithGM330+GM330Networking

Dynamic Power LimitNetworking Solution

With EzManager3000+GM330 or GMK330Networking

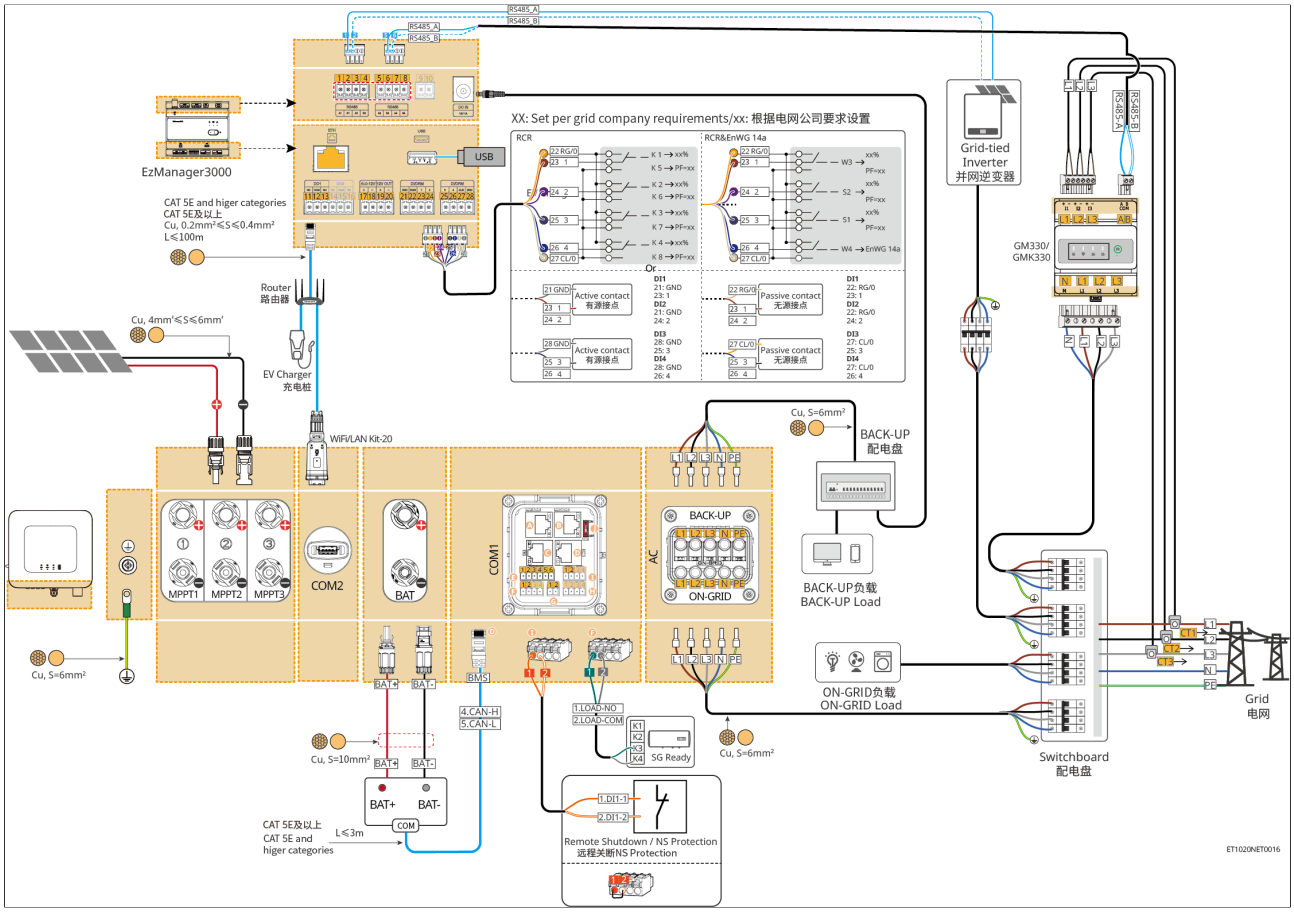


Figure35 Dynamic Power Limit Networking Solution

5.2.2 Detailed Wiring Diagram of Parallel System

- When usingEzlink3000Parallel Operation Scenario:
  - The inverter connected toEzlink3000smart communication stick and connected to the meter is the master inverter, and the others are slave inverters.
  - In the system, do not connect the smart communication stick to slave inverters.
  - If you need to connectDREDdevice,RCRdevice, Remote Shutdown device,NS Protection、SG Readyheat pump, etc., please connect to the master inverter.
- Parallel Operation Scenario Using EzManager3000:
  - Each inverter must use WiFi/LAN Kit-20 to connect to the router, and the router then connects to EzManager3000.
  - If you need to connectRCRdevice to EzManager3000; Remote Shutdown device,NS Protection、SG Readyheat pump need to be connected to each inverter.
- The following figures focus on the wiring related to parallel operation. For wiring requirements of other ports, refer to the single-unit system.

Scenario with Built-in Meter

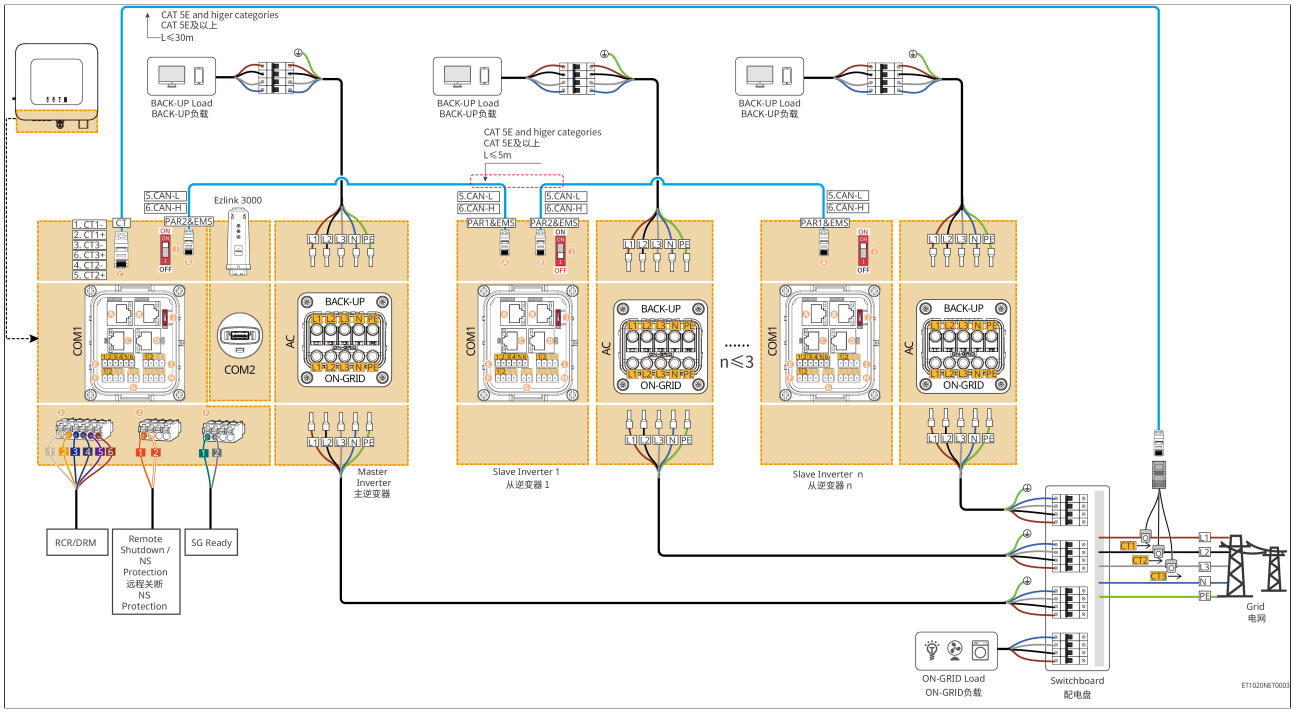


Figure36 Scenario with Built-in Meter

WithGM3000scenario

The wiring method for the inverter parallel system withGM3000is similar to that for the scenario withGM330; only the meter connection method is different. You can refer to the single-unit system**WithGM3000scenario**and the parallel system**WithGM330scenario**for wiring.

WithGM330scenario

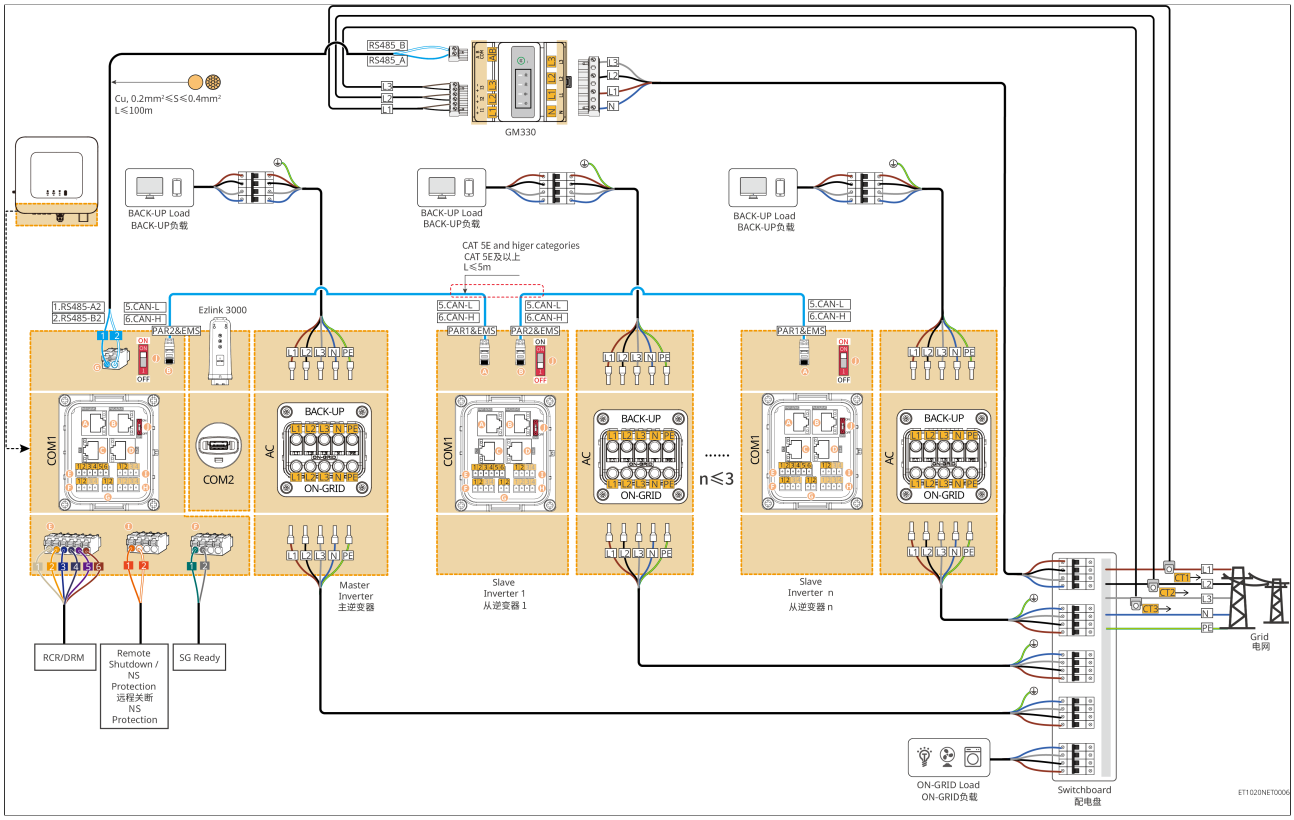


Figure37 WithGM330scenario

Networking Solution for Coupled Scenario Load Monitoring and Grid-tied Inverter Generation Monitoring

GMK330Electricity meter+GMK330Electricity meter

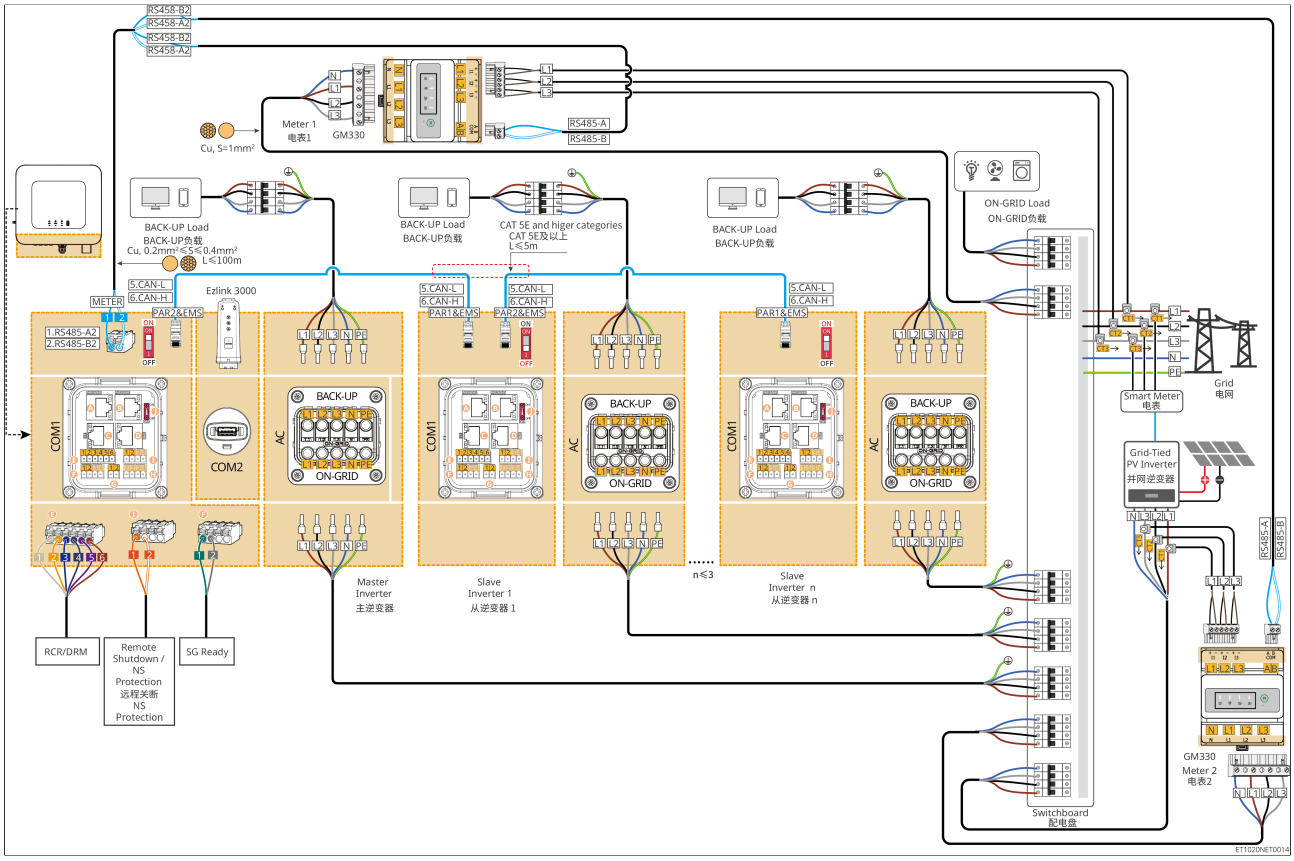


Figure38 GMK330Electricity meter+GMK330Electricity meter

Dynamic Power LimitNetworking Solution

With EzManager3000+GM330 or GMK330Networking

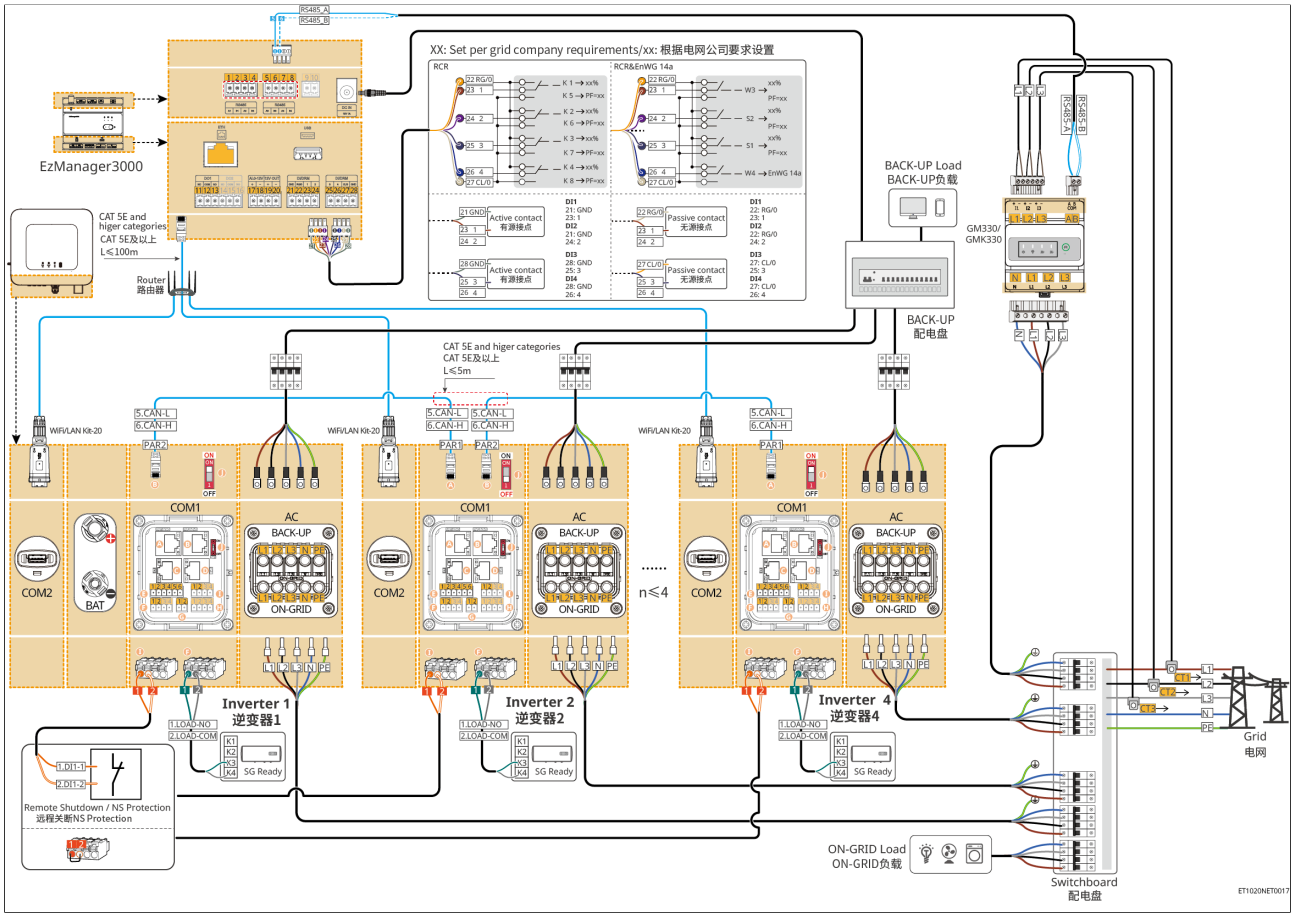


Figure39 Dynamic Power Limit Networking Solution

5.3 Material Preparation

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 one AC circuit breaker at the same time.
- To ensure that the inverter can be safely disconnected from the 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 according to local regulations.
- After the inverter is powered on,BACK-UPAC port is live. If maintenance is required on theBACK-UPload, power off the inverter; otherwise, electric shock may result.

5.3.1 Switch Preparation

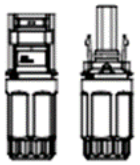
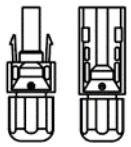
No.	Circuit Breaker	Recommended Specifications	How to Obtain	Note
1	ON-GRIDCircuit Breaker	BACK-UPport is loaded, the Nominal Voltage≥230V, and the Rated Current requirements are as follows: • GW6000-ET-20: Rated Current≥20A • GW8000-ET-20: Rated Current≥25A • GW9900-ET-20、GW10K-ET-20、GW12K-ET-20andGW15K-ET-20: Rated Current≥32A	Self-provided	If the inverterBACK-UPport is not used, according to theAC Max. Current to Grid, select an appropriate circuit breaker.
		BACK-UPport is not loaded, the Nominal Voltage≥230V, and the Rated Current requirements are as follows: • GW6000-ET-20、GW8000-ET-20: Rated Current≥16A • GW9900-ET-20、GW10K-ET-20: Rated Current≥20A • GW12K-ET-20: Rated Current≥25A • GW15K-ET-20: Rated Current≥32A		

No.	Circuit Breaker	Recommended Specifications	How to Obtain	Note
2	BACK-UPCircuit Breaker	Nominal Voltage≥230V, and the Rated Current requirements are as follows: • GW6000-ET-20: Rated Current≥20A • GW8000-ET-20: Rated Current≥25A • Other: Rated Current≥32A, Nominal Voltage≥230V AC	Self-provided	-
3	Battery Switch	Optional according to local laws and regulations • 2PDC Switch • GW6000-ET-20、GW8000-ET-20: Rated Current≥40A, Nominal Voltage≥720VDC • Other: Rated Current≥50A, Nominal Voltage≥720V DC	Self-provided	-
4	Leakage Current Protection Device	Optional according to local laws and regulations • Type Atype • ON-GRIDside[*1]：300mA • BACK-UPside:30mA	Self-provided	-
5	Meter Switch	• Nominal Voltage:380V/400V • Rated Current:0.5A	Self-provided	-

No.	Circuit Breaker	Recommended Specifications	How to Obtain	Note
*1: The inverter has a built-in general-purpose current-sensing residual current monitoring unit. If a leakage current exceeding the limit is detected, the inverter will immediately disconnect from the utility grid. However, if regulations require the installation of an external residual current Protection device (RCD), it is recommended that the RCD have a residual operating current of no less than 300 mA and be Type A (for Apparent Power less than 30 kVA, 300 mA is recommended; for greater than 30 kVA, select according to 10 mA/kVA). An RCD with a residual operating current meeting the requirements may also be selected in accordance with local regulations. For example, in Chile, local regulations require an RCD with a residual operating current not greater than 30 mA to be installed between the inverter and the grid for inverters of 5 kVA and below. However, note that due to the PV panels, an RCD with a smaller residual operating current is more prone to nuisance tripping under adverse environments such as rainy weather.				

5.3.2 Cable Preparation

No.	Cable	Recommended Specifications	How to Obtain
1	Inverter Protection Grounding Cable	• Single-Core Outdoor Copper Cable • Conductor cross-sectional area:S=6mm²	Self-provided
2	Battery Protection Grounding Conductor	• Single-Core Outdoor Copper Cable • Conductor cross-sectional area:6mm²	Self-provided

No.	Cable	Recommended Specifications	How to Obtain
3	PVDC cable	• Industry-standard outdoor PV cable • Conductor cross-sectional area:4mm²-6mm² • Cable outer diameter:5.9mm-8.8mm	Self-provided
4	Battery DC cable	Terminal typeI  • Single-Core Outdoor Copper Cable • Conductor cross-sectional area:10mm² • Cable outer diameter:6.0mm-9.5mm	Customer-supplied or purchased from the distributor
		Terminal Type II  • Single-Core Outdoor Copper Cable • Conductor cross-sectional area:10mm² • Cable outer diameter:5mm-8.5mm	

No.	Cable	Recommended Specifications	How to Obtain
5	AC cable	• Multi-core Outdoor Copper Cable • Conductor cross-sectional area:6mm² • Cable outer diameter:18mm	Self-provided
6	Smart Meter Power Cable	Outdoor Copper Cable Conductor cross-sectional area:1mm²	Self-provided
7	BatteryBMSCommunication cable	Custom communication cable, default length is3m If providing your own, recommended:CAT 5Eor higher standard network cable andRJ45connectors	Included with inverter
8	(Optional) MeterRS485Communication cable	Standard network cable:CAT 5Eor higher standard network cable andRJ45connectors	RJ45-2PINterminal adapter cable and standard network cable: included in the package
9	Battery parallel cluster communication cable	CAT 5Eor higher standard network cable andRJ45connectors	Self-provided
10	Load Control and Diesel Generator ControlDOCommunication cable	• Shielded cable meeting local standards • Conductor cross-sectional area:0.2mm²-0.3mm² • Cable outer diameter:5mm-8mm	Self-provided
11	Remote Shutdown Communication Cable		
12	RCR/DREDsignal cable		

No.	Cable	Recommended Specifications	How to Obtain
13	Inverter parallel communication cable	• RJ45connectors • CAT 5Eor higher specification straight-through network cable Recommended length not exceeding5m	Self-provided
14	EMSCommunication cable/EV charger communication cable	CAT 5Eor higher standard network cable andRJ45connectors	Self-provided
15	CTConnection cable		Self-provided

5.4 Connect the Protection Ground Cable

⚠WARNING

- When installing equipment, the Protection ground cable must be installed first; when removing equipment, the Protection ground cable must be removed last.
- The Protection grounding of the enclosure shell 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 multiple devices are used, ensure equipotential bonding of the Protection grounding points on all equipment chassis enclosures.
- To improve the corrosion resistance of the terminals, after the Protection ground conductor connection and installation are completed, it is recommended to apply silicone sealant or paint to the exterior of the grounding terminal for protection.

5.4.1 Inverter Grounding

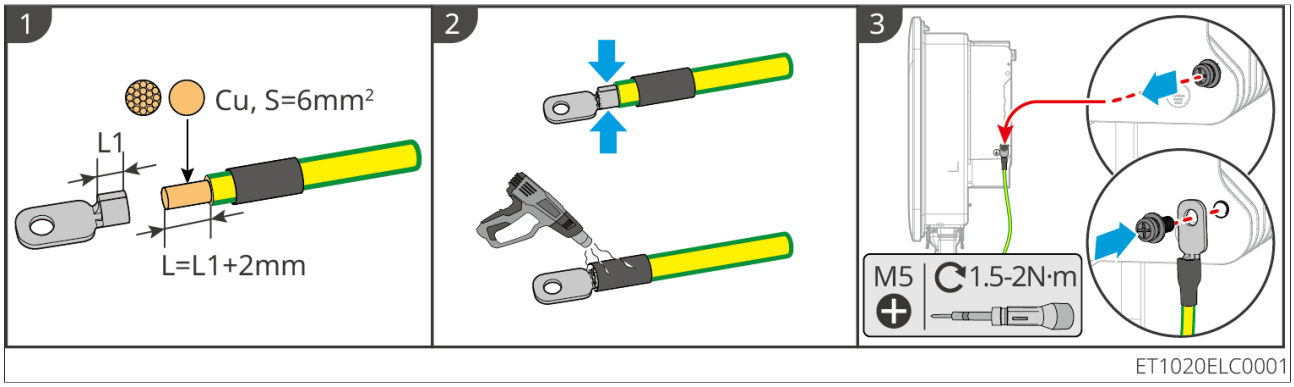


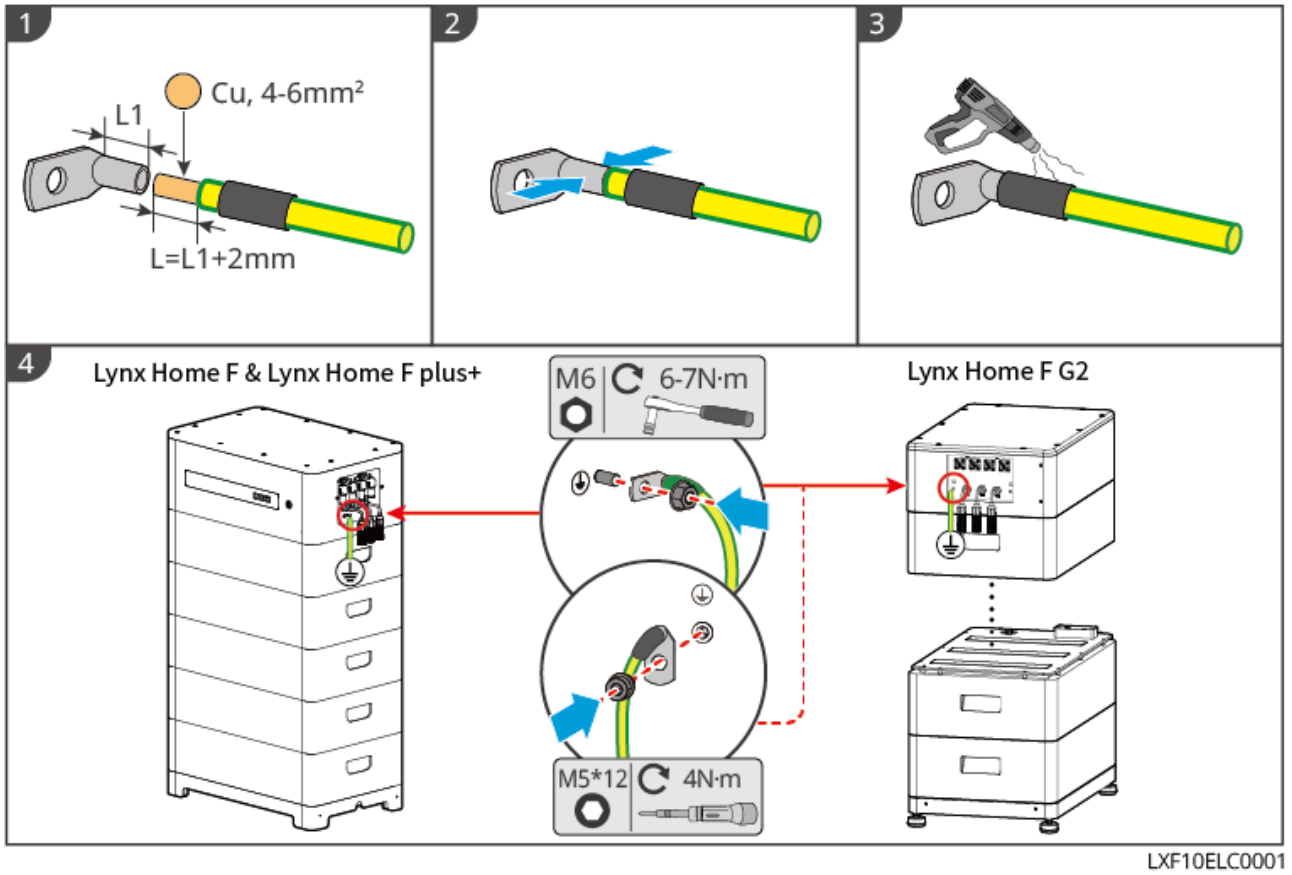
Figure40 ;

5.4.2 Battery System Grounding

NOTICE

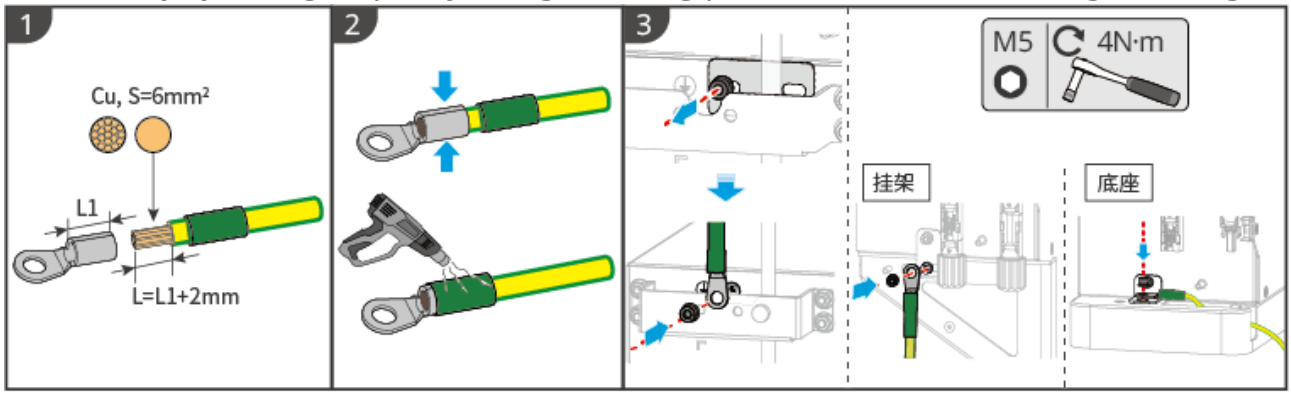
The pull-out force after crimping shall be greater than400N。

Lynx Home FSeries



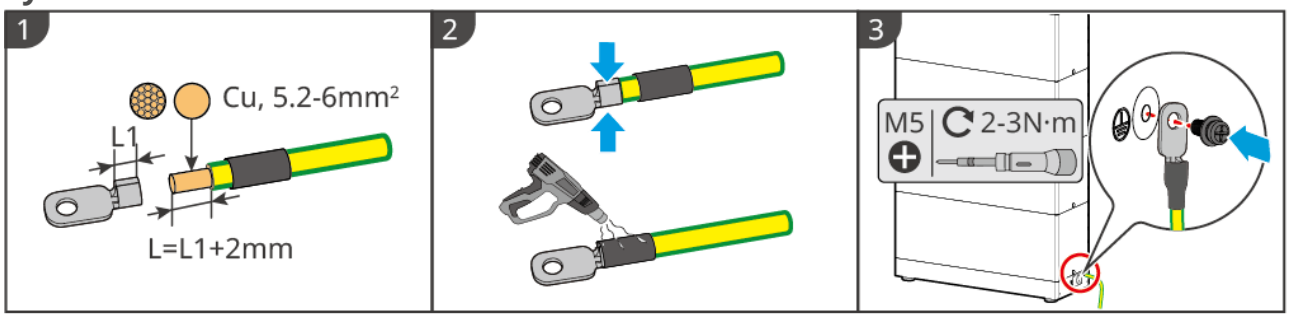
Lynx Home D

In a battery system group, any one grounding point can be selected for grounding.



LXD10ELC0001

Lynx D G2



BAT20ELC0003

5.5 Connect PV Cables

⚠DANGER

- Do not connect the samePVstring to multiple inverters; otherwise, the inverter may be damaged.
- PV strings exposed to sunlight generate high-voltage DC power. Be careful during electrical connections.
- Before connectingPVthe strings to the inverter, please confirm the following information; otherwise, the inverter may be permanently damaged, and in severe cases, a fire may be caused, resulting in personal injury and property loss.
  1. Please ensure that for eachMPPT, the Max. MPPT Short Circuit Current and Max. Input Voltage are within the allowable range of the inverter.
  2. Ensure that thePVstring positive pole is connected to the inverter'sPV+， PVstring negative pole is connected to the inverter'sPV-。

⚠WARNING

- PV string output does not support grounding. Before connecting the PV string to the inverter, ensure that the minimum insulation resistance to ground of the PV string meets the minimum insulation impedance requirement (R = Max. Input Voltage/30 mA).
- After the DC cables are connected, ensure that the cable connections are tightened and free from looseness.
- Use a multimeter to measure the positive and negative poles of the DC cables to ensure that the positive and negative poles are correct and not reversed; and that the voltage is within the permitted range.

NOTICE

The two PV strings connected to each MPPT must use the same model, the same number of panels, the same tilt angle, and the same azimuth to ensure maximum Efficiency.

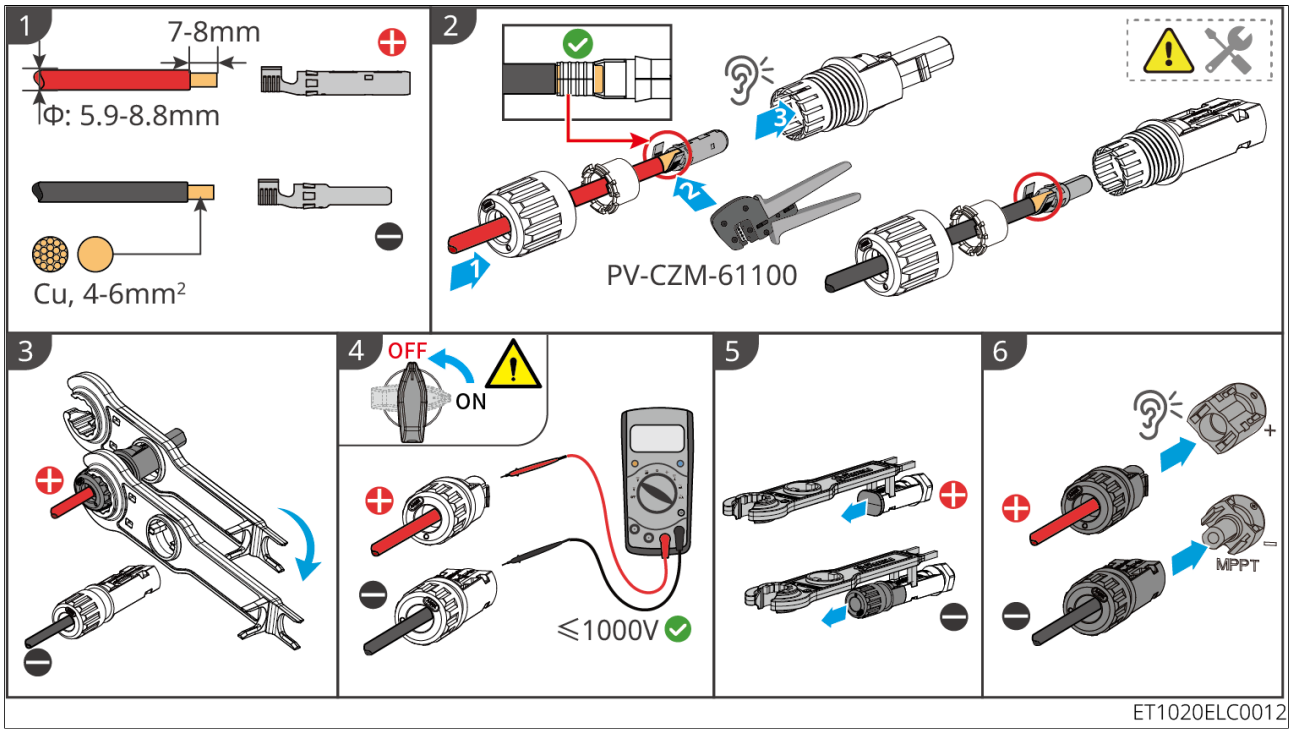


Figure41 Connect PV Cables - Type 1

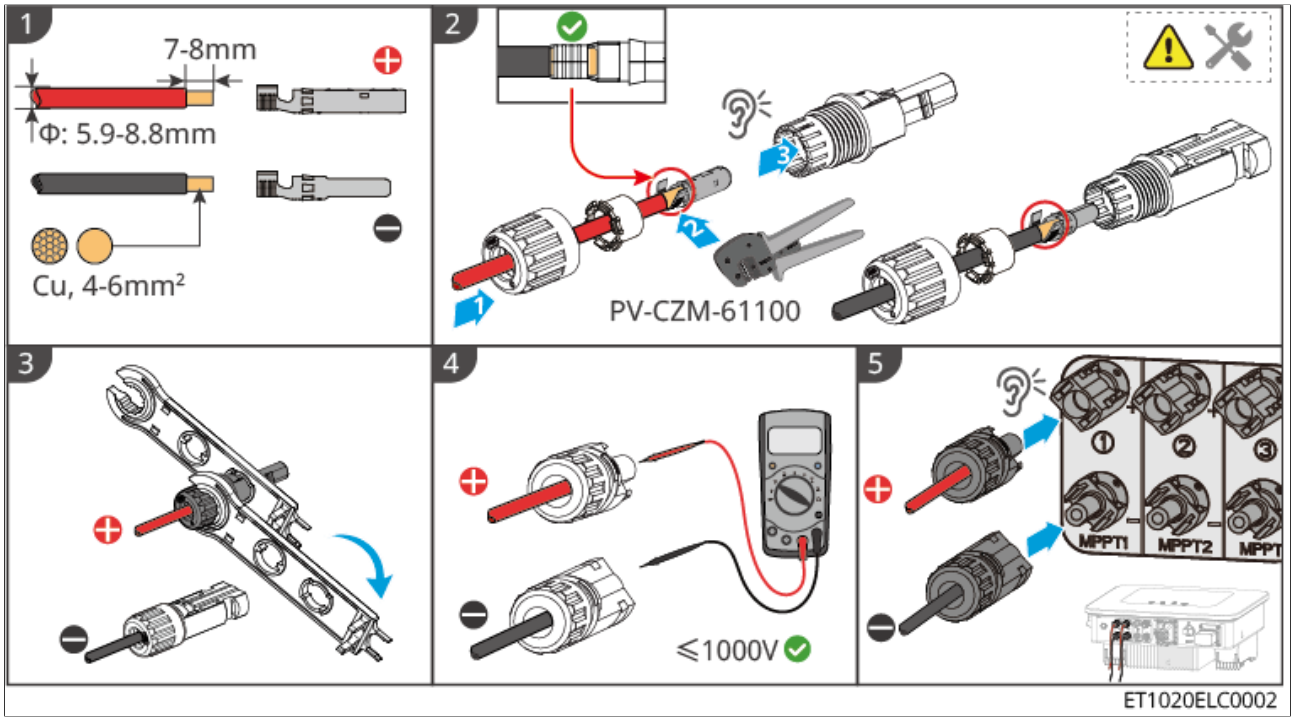


Figure42 Connect PV Cables - Type 2

5.6 Connect AC Cables

WARNING

- The inverter has an integrated Residual Current Monitoring Unit (RCMU), preventing the residual current from exceeding the specified value. When the inverter detects a leakage current greater than the allowed value, it will quickly disconnect from the grid or generator.
- Each inverter must be equipped with an AC output circuit breaker. Multiple inverters must not be connected to one AC circuit breaker at the same time.
- To ensure that the inverter can be safely disconnected from the 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 according to local regulations.
- After the inverter is powered on,BACK-UPAC port is live. If maintenance is required on theBACK-UPload, power off the inverter; otherwise, electric shock may result.
- When wiring, ensure the AC cables match the AC terminals'"L1"、"L2"、"L3"、"N"、"PE"ports exactly. Incorrect cable connections will cause equipment damage.
- Ensure the conductor is fully inserted into the terminal wiring hole and is not exposed.
- Ensure the insulating plate at the AC terminal is securely fastened and not loose.
- Ensure the cables are securely connected; otherwise, overheating of the terminals during equipment operation may cause equipment damage.
- According to local regulations, an externalA-typeRCDcan be connected to the inverter. Recommended specifications:ON-GRIDside:300mA, BACK-UPside:30mA。

There are two types of AC wiring tools; please refer to the actual delivery.

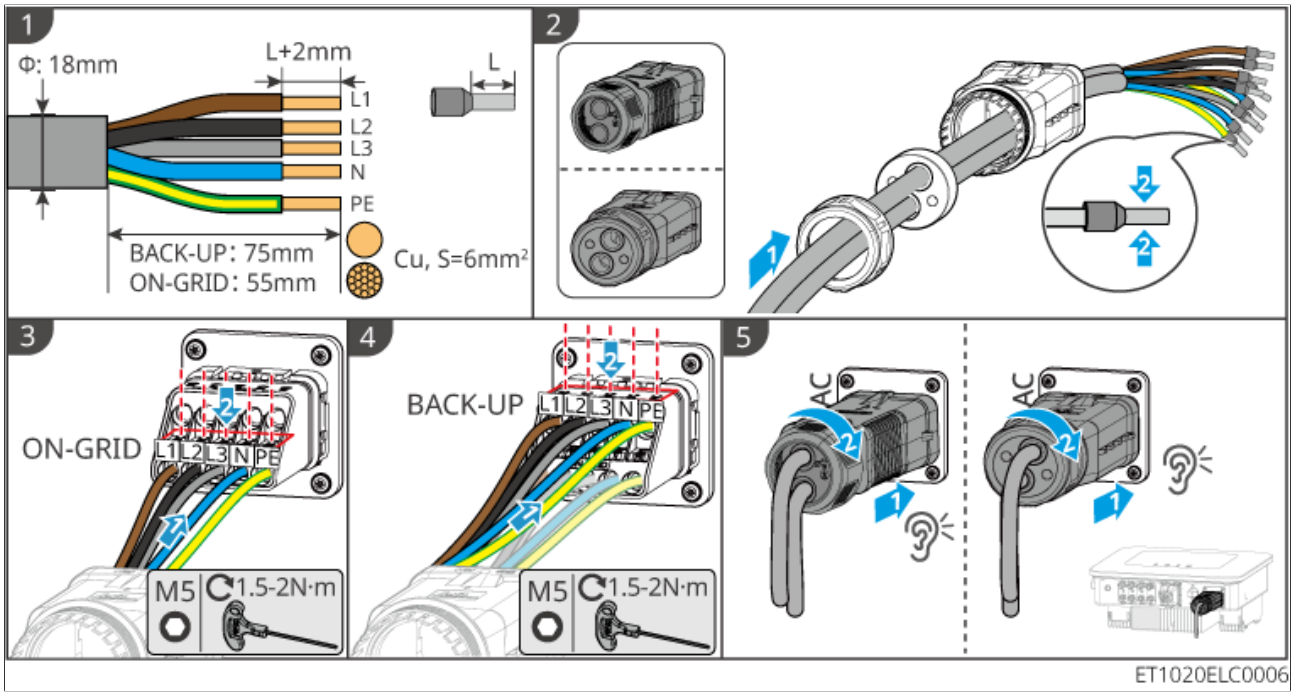


Figure43 Connect AC cable I

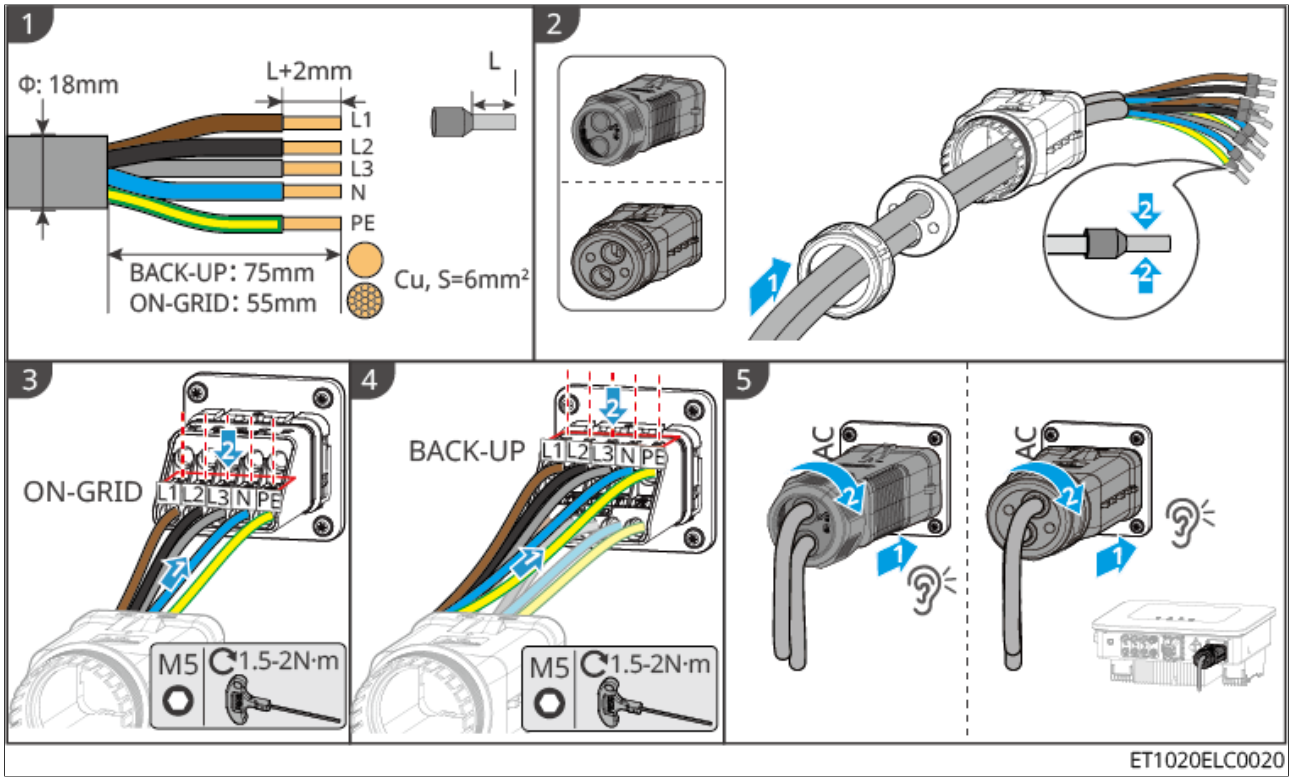


Figure44 Connect AC cable II

5.7 Connect Battery Cables

⚠DANGER

- Do not connect the same Battery BANK to multiple inverters; otherwise, it may cause inverter damage.
- Do not connect loads between the inverter and the battery.
- When connecting battery cables, use insulated tools to prevent accidental electric shock or causing a Battery Short Circuit.
- Ensure that the battery open-circuit voltage is within the allowable range of the inverter.
- Between the inverter and the battery, select whether to configure a DC Switch according to local laws and regulations.

NOTICE

When usingLynx Home Dbattery:

- Select appropriate cable crimp terminals according to the actually connected equipment.
- Please use a suitable hydraulic crimping tool according to the DC Connector model. Recommended specifications:
  - For crimping battery DC terminals whose self-sealing bag in the delivered accessories does not have theHD Locking terminallabel, the recommended tool is aYQK-70hydraulic crimping tool.
  - For crimping battery DC terminals whose self-sealing bag in the delivered accessories is affixed with theHD Locking terminallabel, the recommended tool is aVXC9hydraulic crimping tool.
  - If a hydraulic crimping tool cannot be purchased，select a crimping tool by yourself according to the terminal crimping dimensions，and ensure that the terminal crimping meets the usage requirements.
- Please use the DC Connector and wiring terminals shipped with the package to connect the power cables:
  - If the black power cable of the battery system has the textHDon a label or has a white number tube, mate it with the connector that is affixed with theHD Locking terminallabel in the self-sealing bag in the delivered accessories.
  - If the black power cable of the battery system does not have the textHDon a label or a white number tube, check whether the self-sealing bag containing the power connector in the delivered accessories has theHD Locking terminallabel. If not, mate the male and female connectors to each other; if it has theHD Locking terminallabel, contact the dealer or after-sales service.

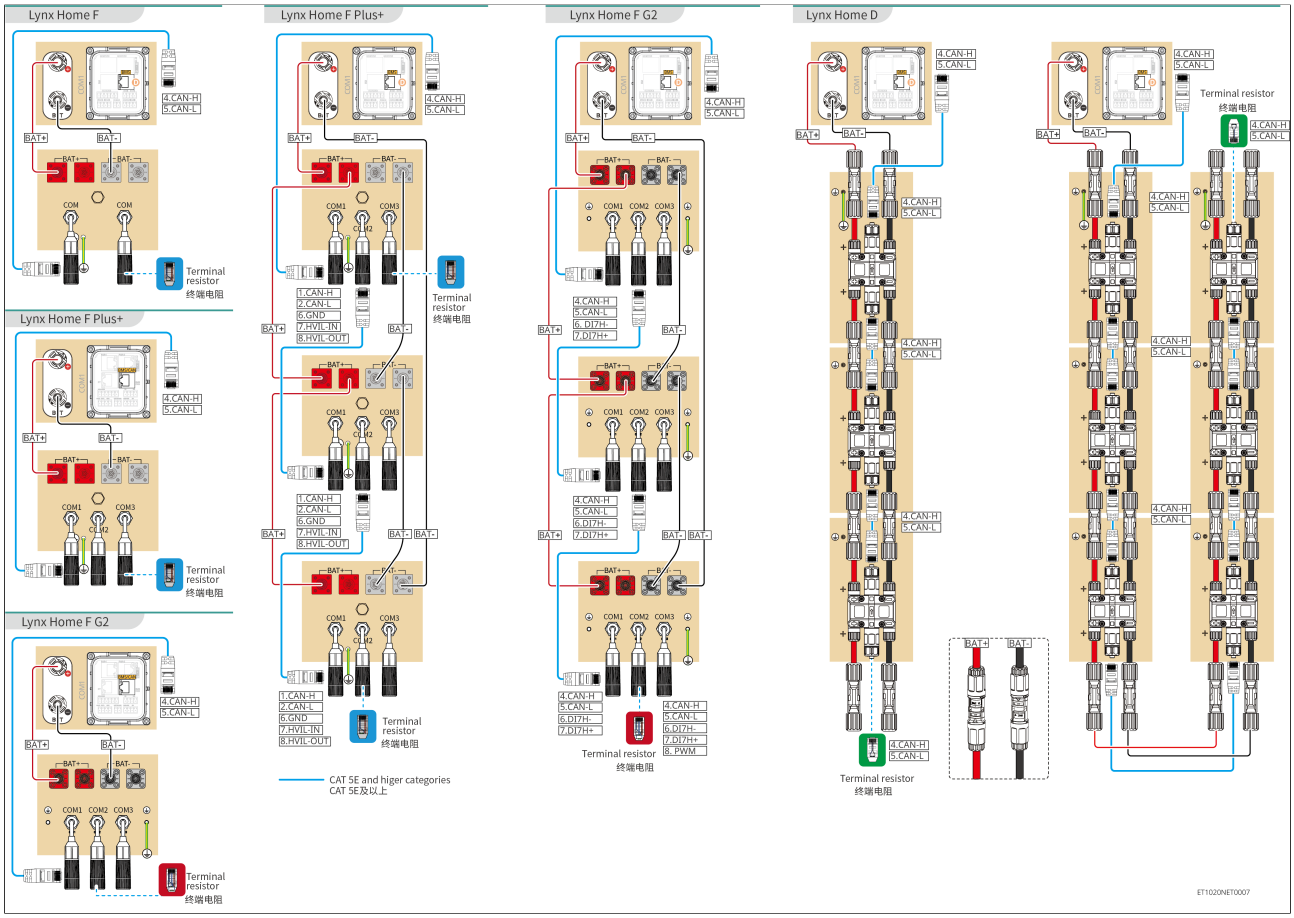


Figure45 Battery System Wiring Diagram 1

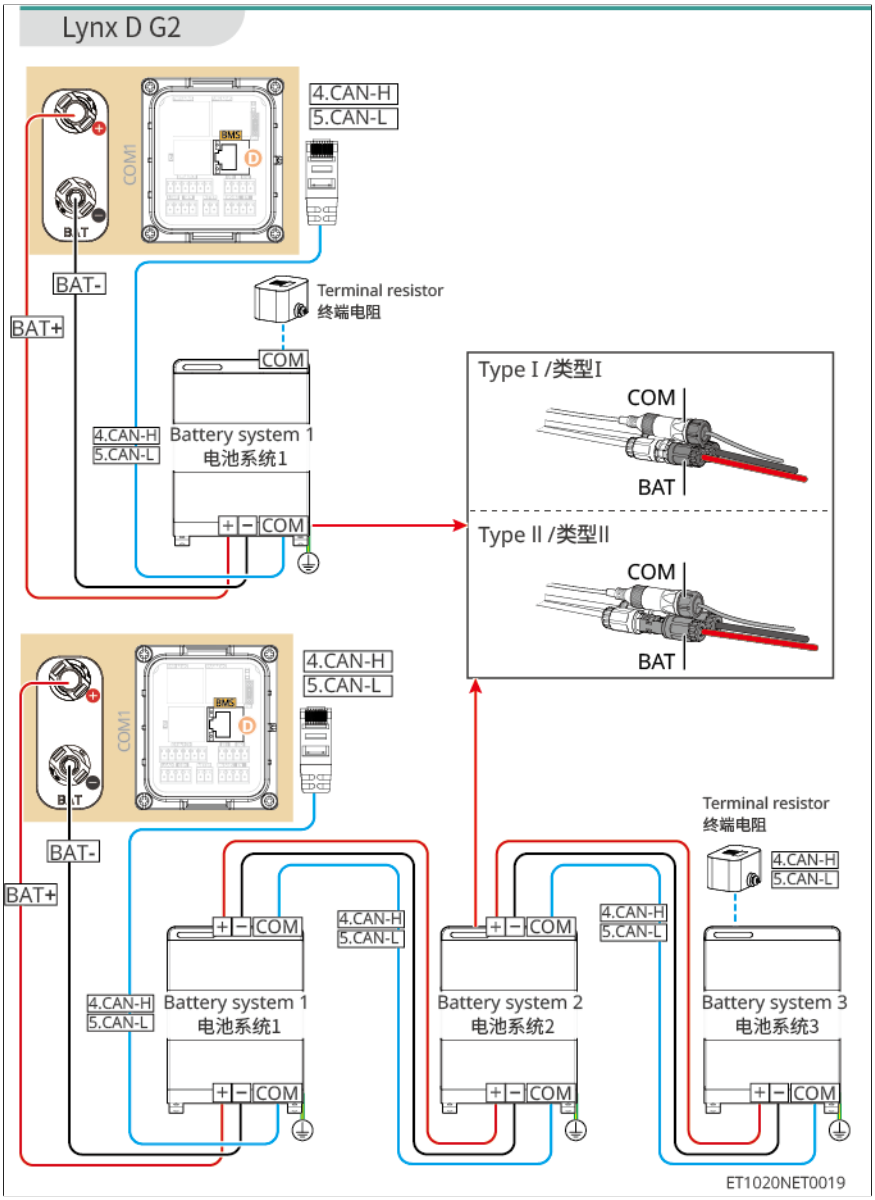


Figure46 Battery System Wiring Diagram 2

Inverter-to-Lynx Home Fseries batteryBMScommunication connection instructions:

Inverter Port	Connect to Battery Port	Port Definition	Description
BMS	COM1/COM2/COM	4：CAN_H 5：CAN_L	The inverter and battery useCANcommunication

Lynx Home F communication port definition:

PIN	COM	Description
4	CAN_H	Connect to the inverterBMScommunication port to communicate with the inverter; or termination resistor.
5	CAN_L	
1、2、3、6、7、8	-	-

Lynx Home F Plus+battery parallel cluster communication connection instructions:

PIN	COM1	COM2	COM3	Description
1	CAN_H	CAN_H	CAN_H	Battery system parallel clusterBMScommunication
2	CAN_L	CAN_L	CAN_L	
3	-	-	-	Reserved
4	CAN_H	-	-	• COM1: Connect to the inverterBMScommunication port to communicate with the inverter • COM2，COM3: Reserved
5	CAN_L	-	-	
6	GND	GND	GND	GroundPINpin
7	HVIL_IN	HVIL_IN	-	• COM1，COM2: Parallel cluster interlock function • COM3: Reserved
8	HVIL_OUT	HVIL_OUT	-	

Lynx Home F G2battery parallel cluster communication connection instructions:

PIN	COM1	COM2	COM3	Description
1	RS485_A1	RS485_A1	Reserved	Connect to externalRS485communication device
2	RS485_B1	RS485_B1		
3	-	-		Reserved
4	CAN_H	CAN_H		Connect to inverter communication or battery parallel cluster communication port
5	CAN_L	CAN_L		
6	DI7H-	DI7H-		

PIN	COM1	COM2	COM3	Description
7	DI7H+	DI7H+		Battery parallel cluster signal detection function
8	-	PWM		Send parallel clusterPWMsignal

Inverter-to-Lynx Home Dbattery communication connection instructions

Inverter Port	Connect to Battery Port	Port Definition	Description
BMS1	COM	4：CAN_H 5：CAN_L	• The inverter and battery useCANcommunication • InverterBMS1port connects to battery communication port

Lynx Home Dbattery communicationPort Definition

PIN	Battery port	Description
1	RS485_A1	Reserved
2	RS485_B1	
4	CAN_H	Connect to inverter communication or battery parallel cluster communication port
5	CAN_L	
3、6、7、8	-	-

Inverter-to-Lynx D G2batteryBMScommunication connection instructions

Inverter Port	Connect to Battery Port	Port Definition	Description
BMS1/BMS2	COM	4：CAN_H 5：CAN_L	• The inverter and battery useCANcommunication • InverterBMS1/BMS2port connects to battery communication port

Lynx D G2 battery parallel cluster communication connection instructions

PIN	Battery port	Description
1	RS485_A1	Reserved
2	RS485_B1	
3	12V	Wake-up signal from the inverter to the battery
4	CAN_H	Connect to inverter communication or battery parallel cluster communication port
5	CAN_L	
6	GND	Wake-up signal from the inverter to the battery
7	CAN_H	DC/DC CAN communication port
8	CAN_L	

5.7.1 Connect the Inverter and Battery Power Cables

⚠WARNING

- Use a multimeter to measure the positive and negative poles of the DC cables to ensure that the positive and negative poles are correct and not reversed; and that the voltage is within the permitted range.
- During wiring, the battery cables must match the battery terminals "BAT+", "BAT-", and grounding port exactly. Incorrect cable connection will cause equipment damage.
- Ensure that the wire core is fully inserted into the terminal wiring hole without exposure.
- Ensure that the cable connections are tight; otherwise, during equipment operation, the terminal may overheat and cause equipment damage.
- Do not connect the same Battery BANK to multiple inverters; otherwise, it may cause inverter damage.

Inverter+ Lynx Home FSeries Battery

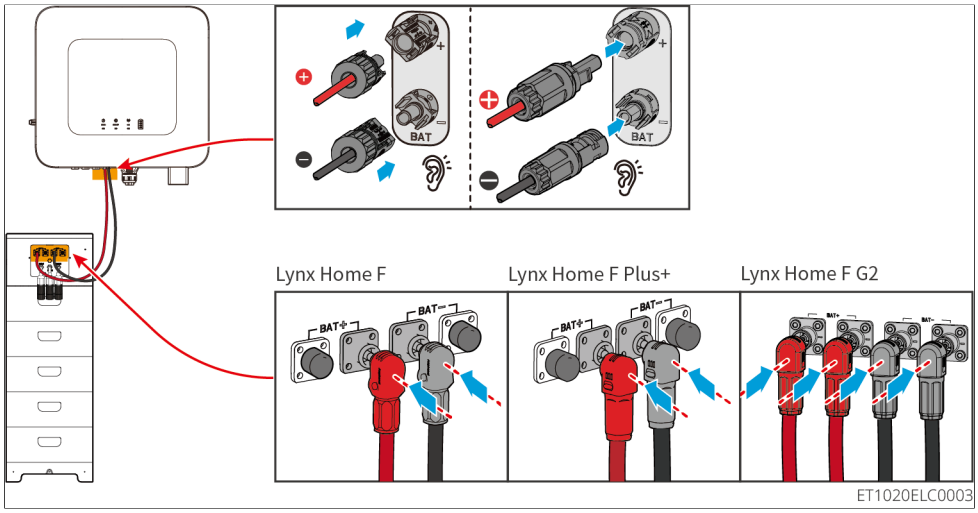


Figure47 Inverter + Lynx Home F Series Battery

Inverter+ Lynx Home DBattery

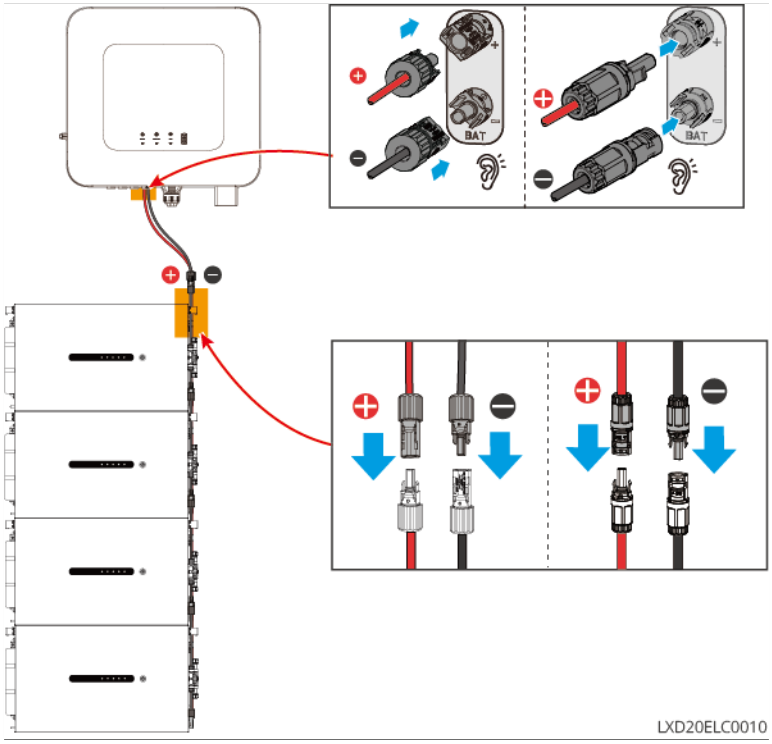


Figure48 Inverter + Lynx Home D Battery

Inverter+ Lynx D G2Battery

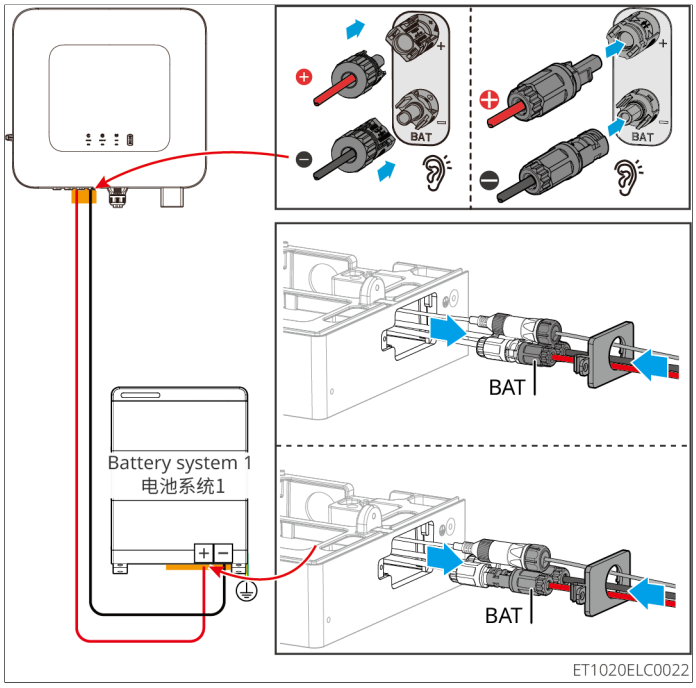


Figure49 Inverter + Lynx D G2 Battery

Inverter-side Cable Fabrication

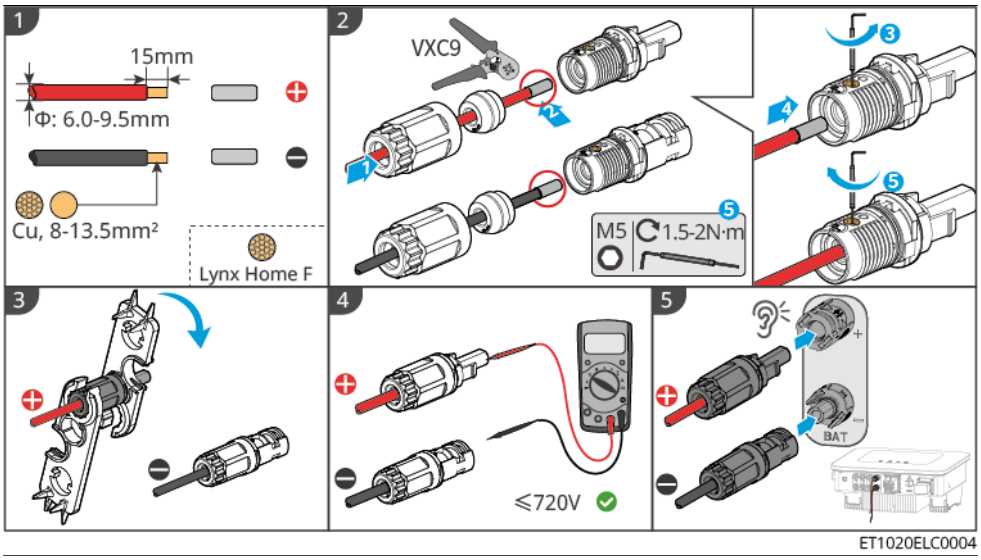


Figure50 Type 1

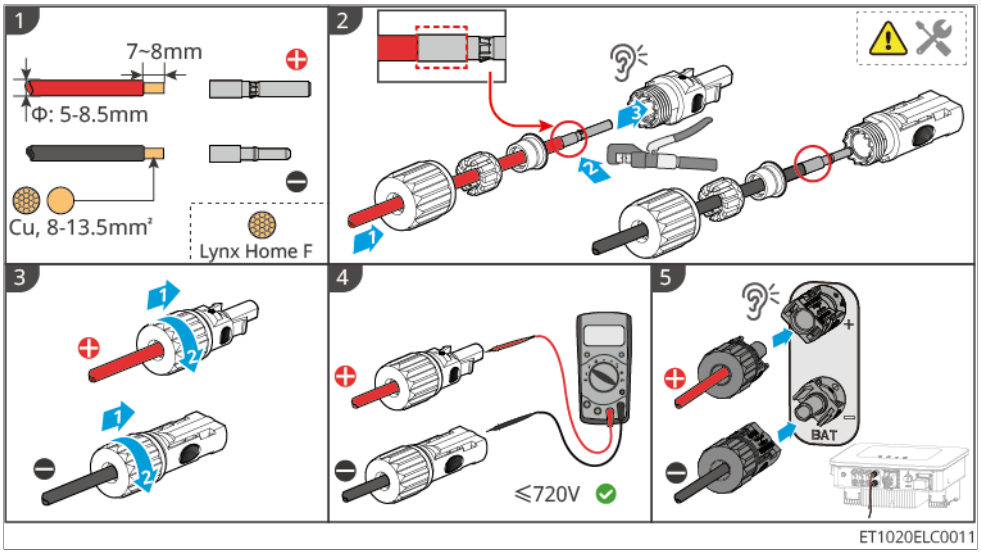


Figure51 Type 2

Battery-side Cable Fabrication Method (Lynx Home F)

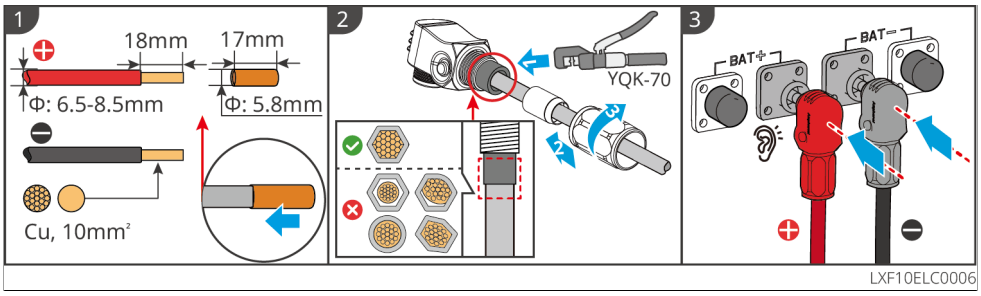


Figure52 Lynx Home F

Battery-side Cable Fabrication Method (Lynx Home F Plus+)

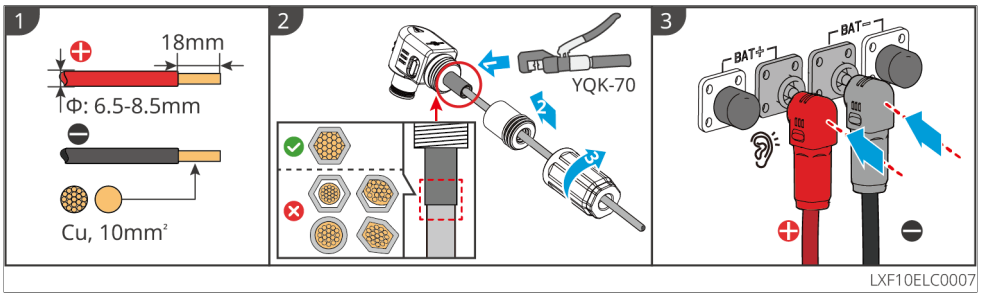


Figure53 Lynx Home F Plus+

Battery-side Cable Fabrication Method (Lynx Home D)

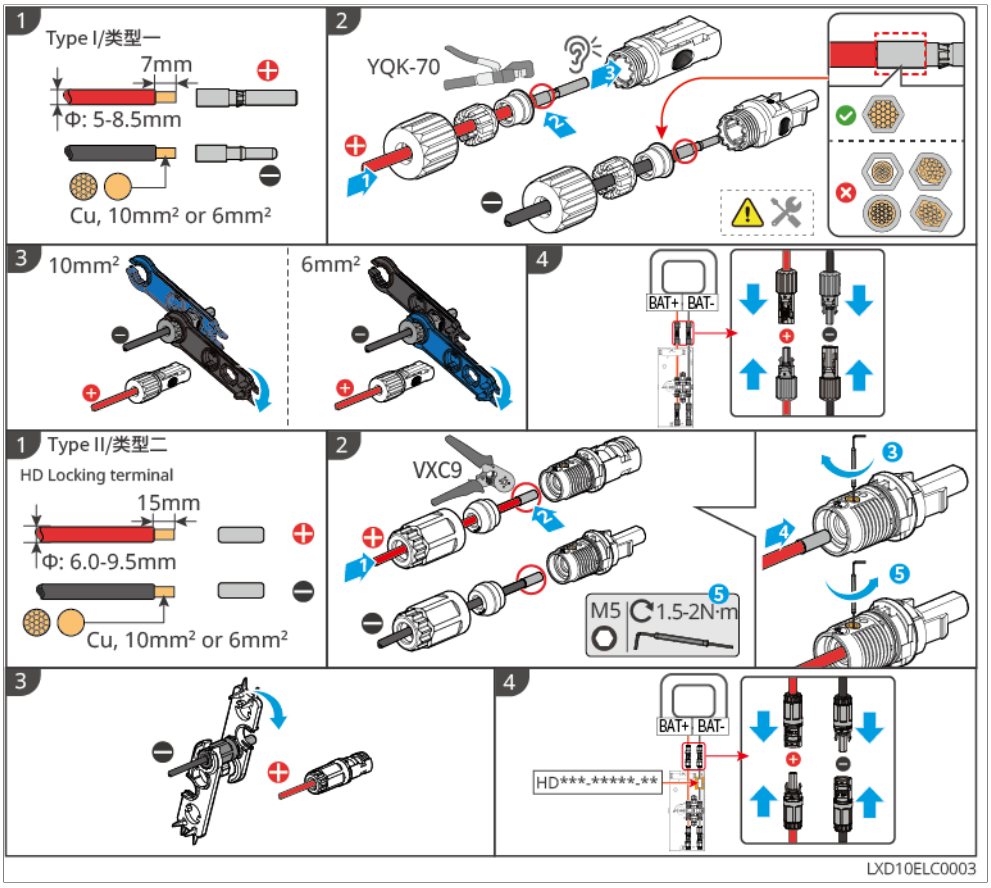


Figure54 Lynx Home D

Battery-side Cable Fabrication Method (Lynx D G2)

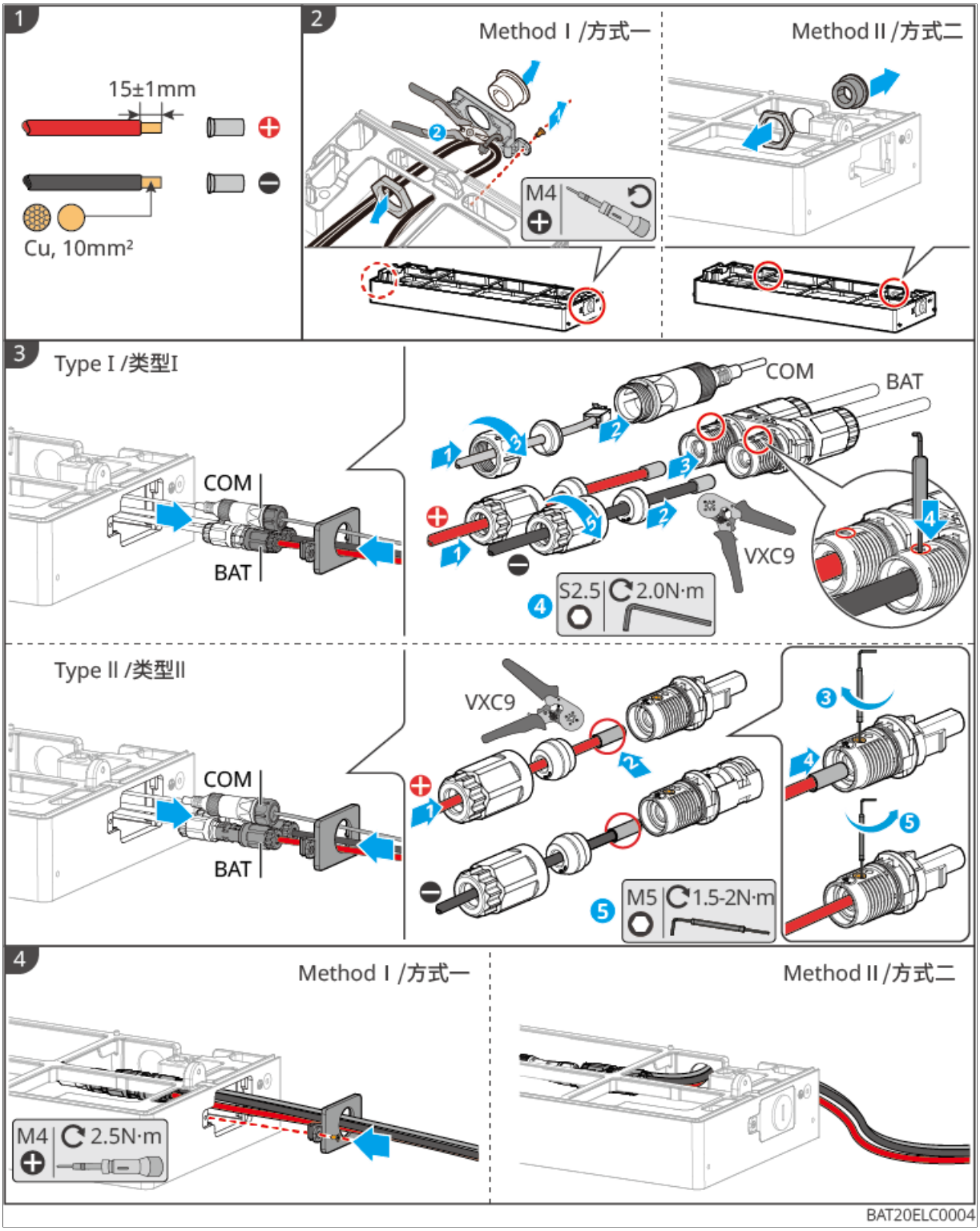


Figure55 Lynx D G2

Energy Storage System Expansion Overview

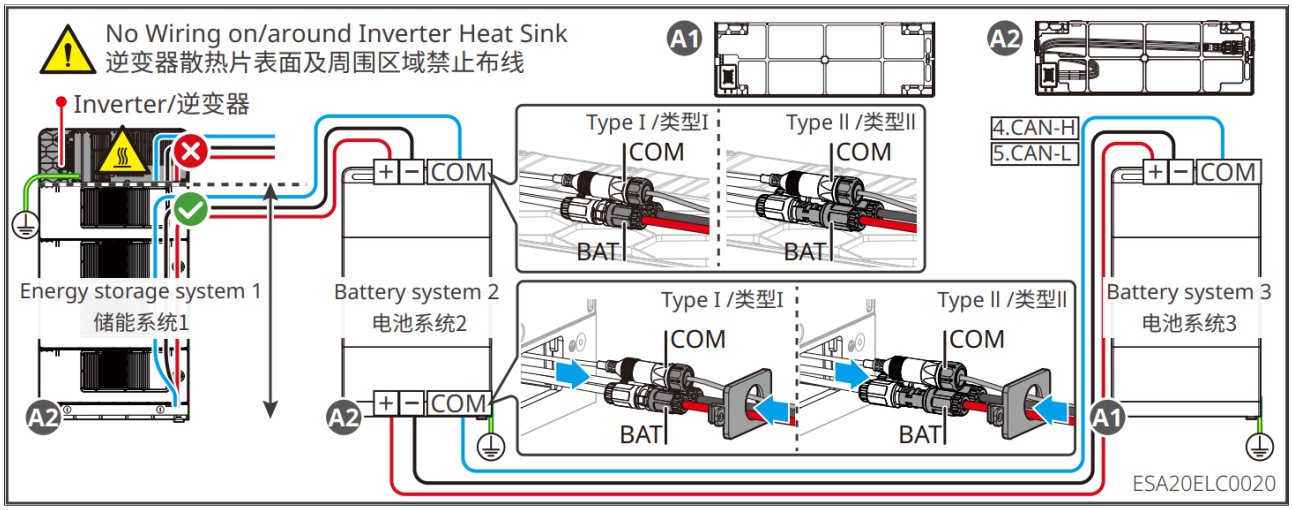


Figure56 Lynx D G2 Expansion

Battery-side Cable Fabrication Method (Lynx Home F G2)

WARNING

- Please prepare your own DC input cables. Recommended specifications:
  - Type: Outdoor single-core copper cable
  - Conductor cross-sectional areaS：6mm^{2}or10mm^2
- When the conductor cross-sectional areaSis6mm^2, use the DC Connector marked6mm^{2}in the packaging bag, and the pull-out force after cable crimping shall be >450N. When using DC cables of this specification, only a single battery system can be connected. Do not connect battery systems in parallel clusters; otherwise, equipment damage may occur.
- When the cable cross-sectional areaSis10mm^2, use the DC Connector marked10mm^{2}in the packaging bag, and the pull-out force after cable crimping shall be >500N。
- It is recommended to use YQK-70 hydraulic crimping tool to crimp the battery DC terminals: When the conductor cross-sectional area is 6mm^2, select the marked "6" crimping die; when the conductor cross-sectional area is 10mm^2, select the marked "10" crimping die.
- Select the tool for crimping battery DC terminals according to actual needs. The tool shown in the figure is for illustration only.
- If the DC port does not need to be connected to a cable, do not remove the protective cover of the DC port; otherwise, the Ingress Protection Rating of the equipment may be affected.

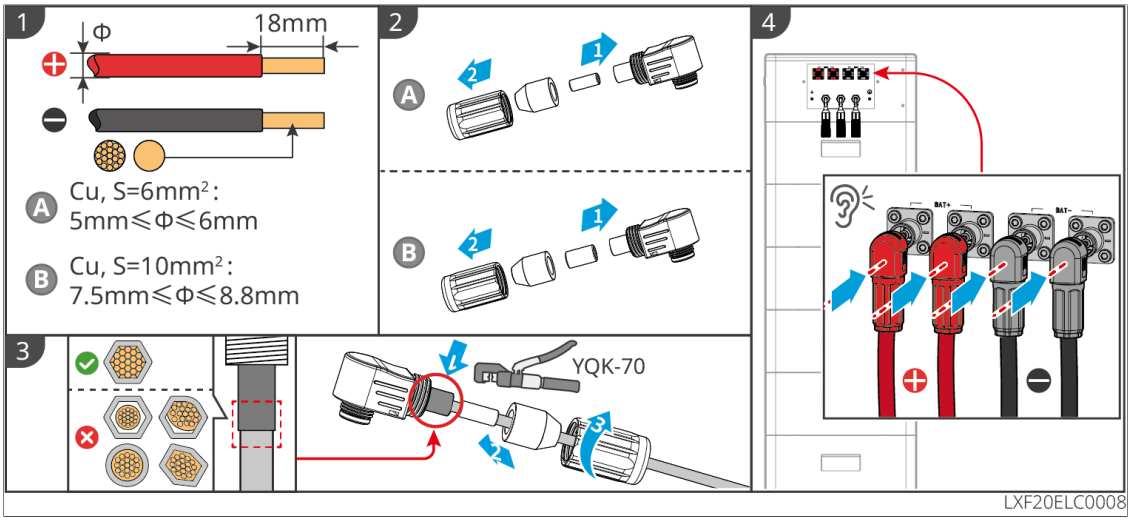


Figure57 Lynx Home F G2

5.7.2 Connect the Inverter and Battery Communication Cable

NOTICE
The inverter is shipped with aBMSbattery communication cable. It is recommended to use the shippedBMSbattery communication cable. If the supplied communication cable cannot meet the requirements, prepare a shielded network cable andRJ45connector.

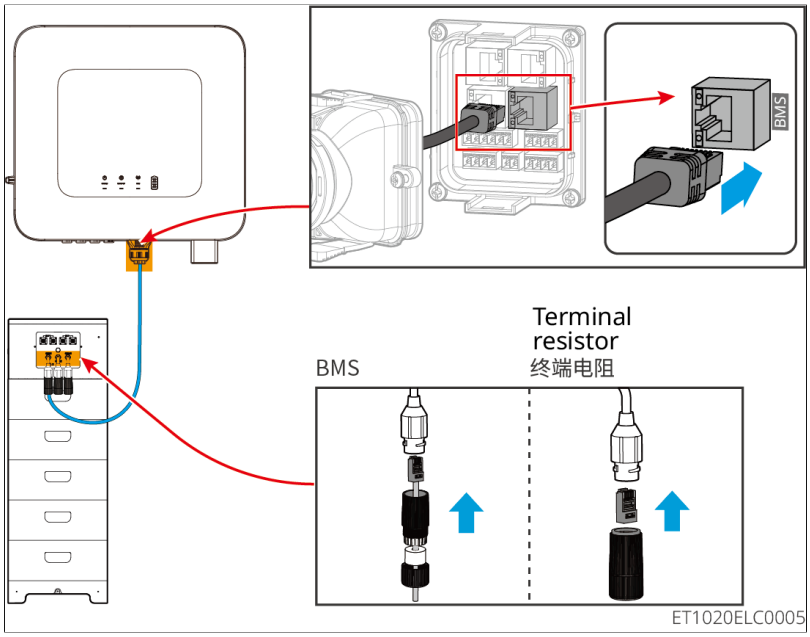


Figure58 Inverter + Lynx Home F Series Battery

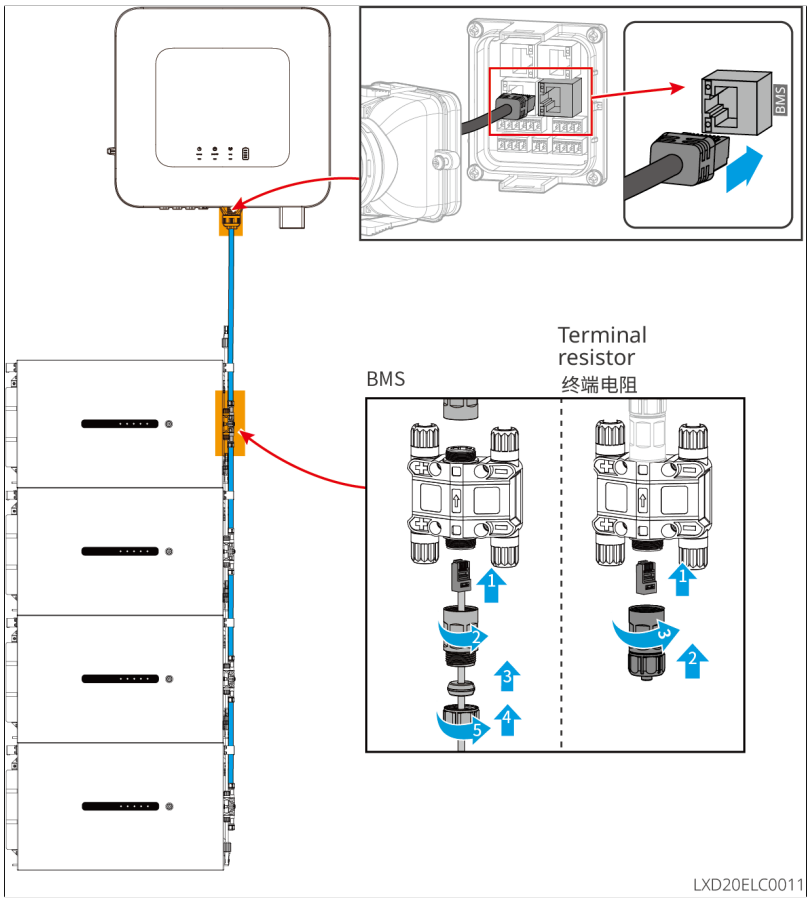


Figure59 Inverter + Lynx Home D Battery

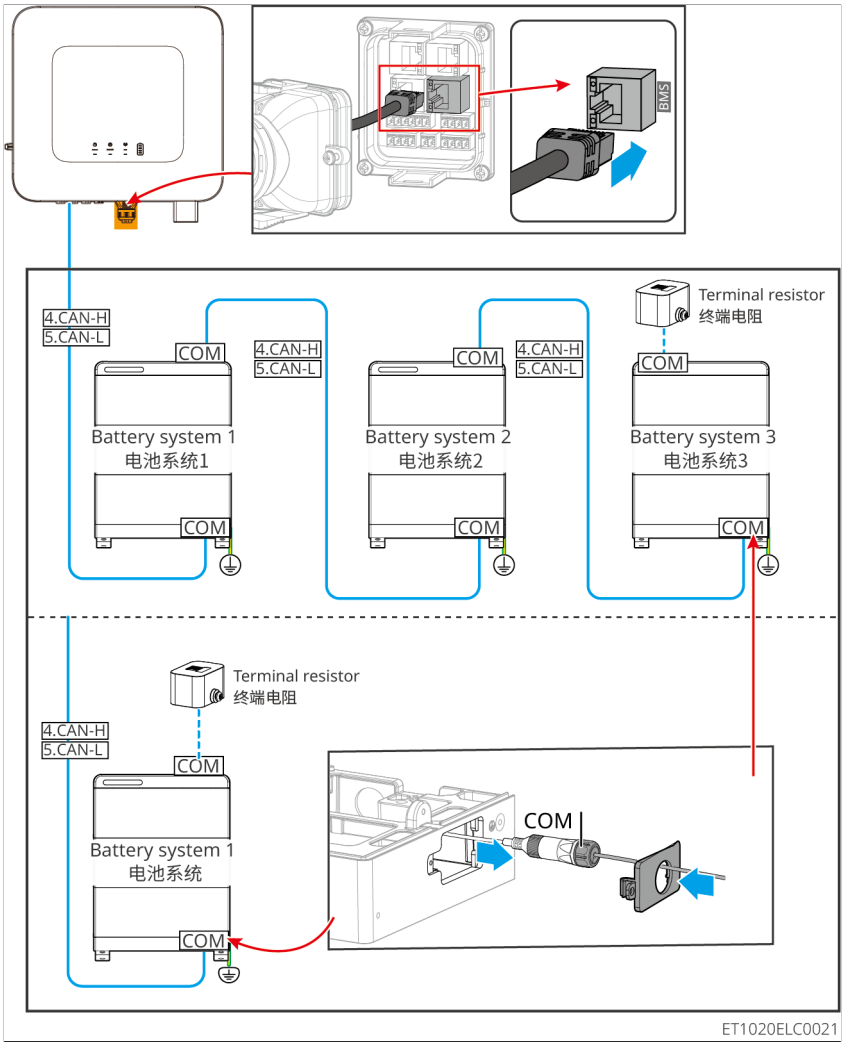


Figure60 Inverter + Lynx D G2 Battery

5.7.3 Connect the Inter-Battery Power Cables for Lynx Home D Batteries

Crimp the power cable

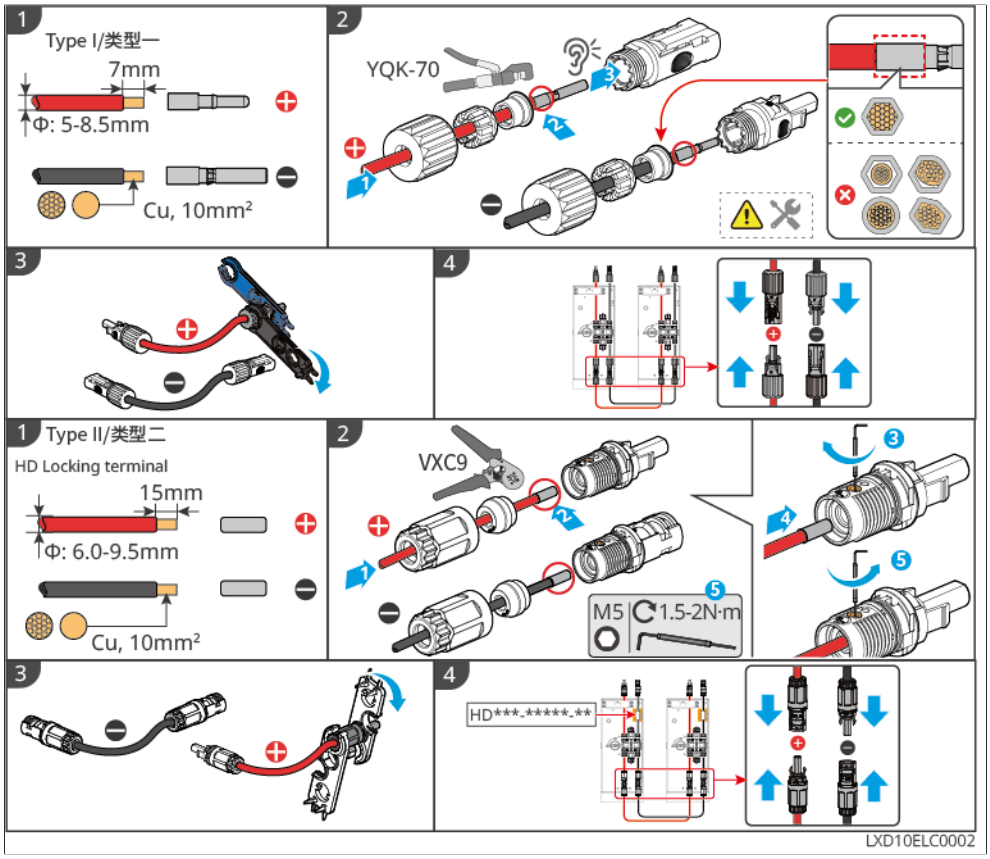


Figure61 Crimp the power cable

Connect the power cable

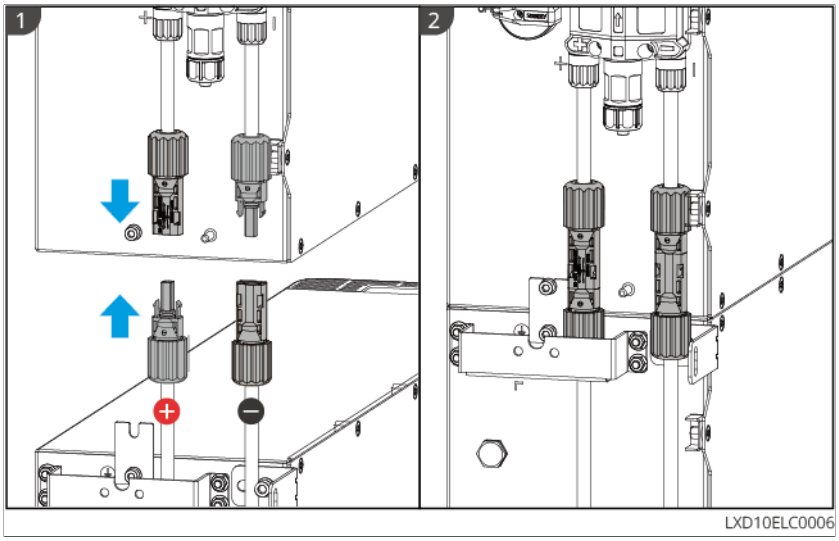


Figure62 Type 1

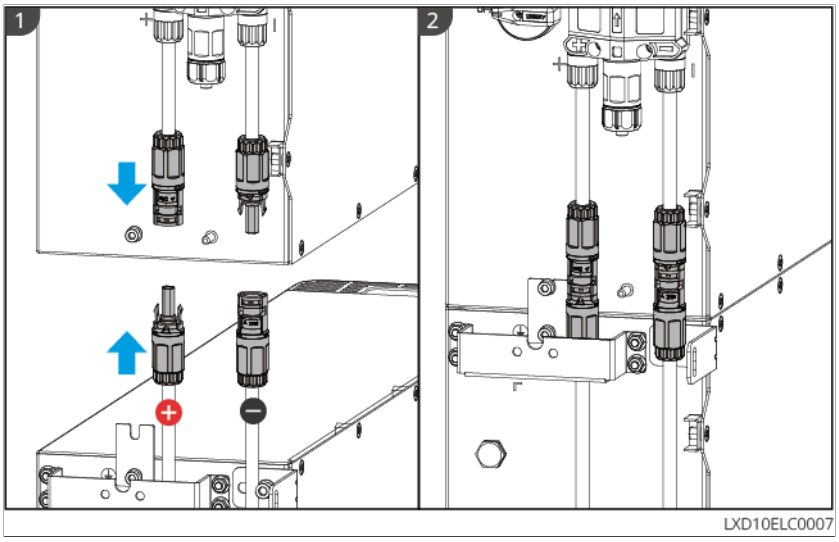


Figure63 Type 2

If the power connector needs to be removed, refer to the following steps and use the tool shipped with the box to remove it.

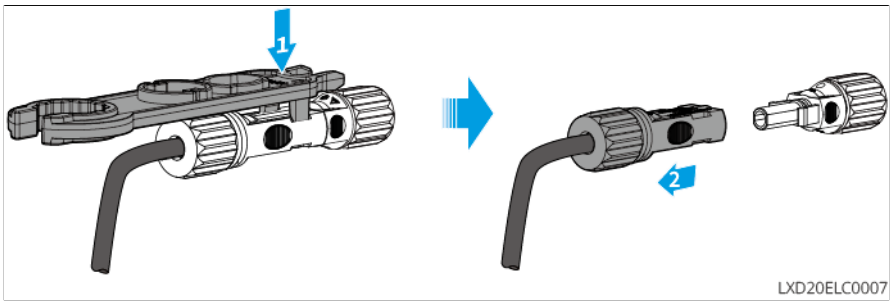


Figure64 Type 1

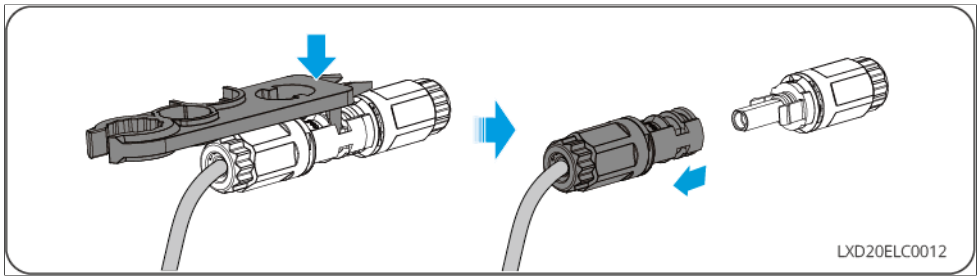


Figure65 Type 2

5.7.4 Connect the Battery Communication Cable and Terminating

Resistor

Use the battery-to-battery communication cable and terminating resistor shipped with the box.

WARNING

- Do not omit the battery system terminating resistor; otherwise, the battery system will not work properly.
- During installation, do not remove the waterproof plug.

Lynx Home DBattery

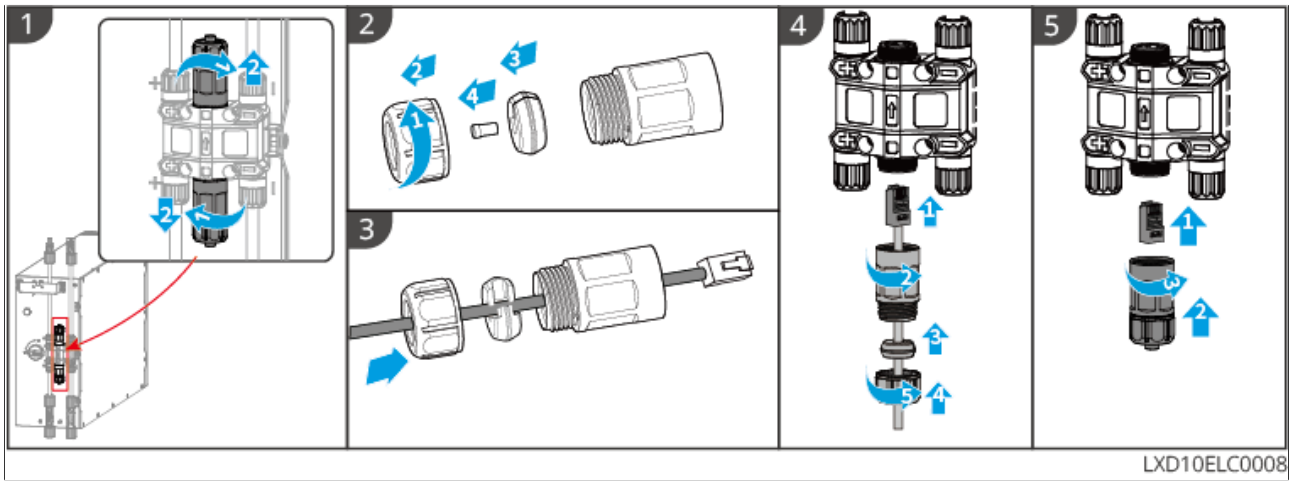


Figure66 Connect the communication cable and terminating resistor

Lynx Home F G2

1. Remove the waterproof assembly.
2. Route the communication cable through the waterproof assembly.
3. Connect the communication cable to the battery, or install the terminating resistor. Tighten the waterproof assembly.

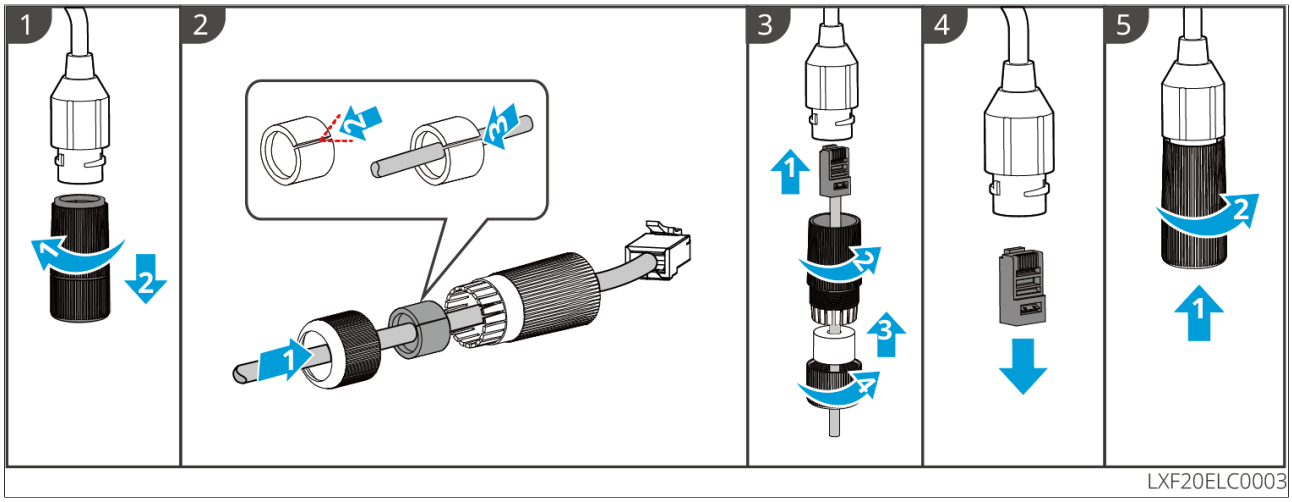


Figure67 Connect the communication cable and terminating resistor

5.7.5 Install the Battery Protective Cover

NOTICE
Before installing the front protective cover of the mounting bracket, please remove the release paper on the back of the protective cover.

Lynx Home DBattery

Step1: (Optional) For base installation scenarios only, when no cabling is required at the bottom, install the base cable outlet hole plug.

Step2: Install the Battery Side baffle.

Step3: (Optional) For bracket installation scenarios only, install the bracket baffle.

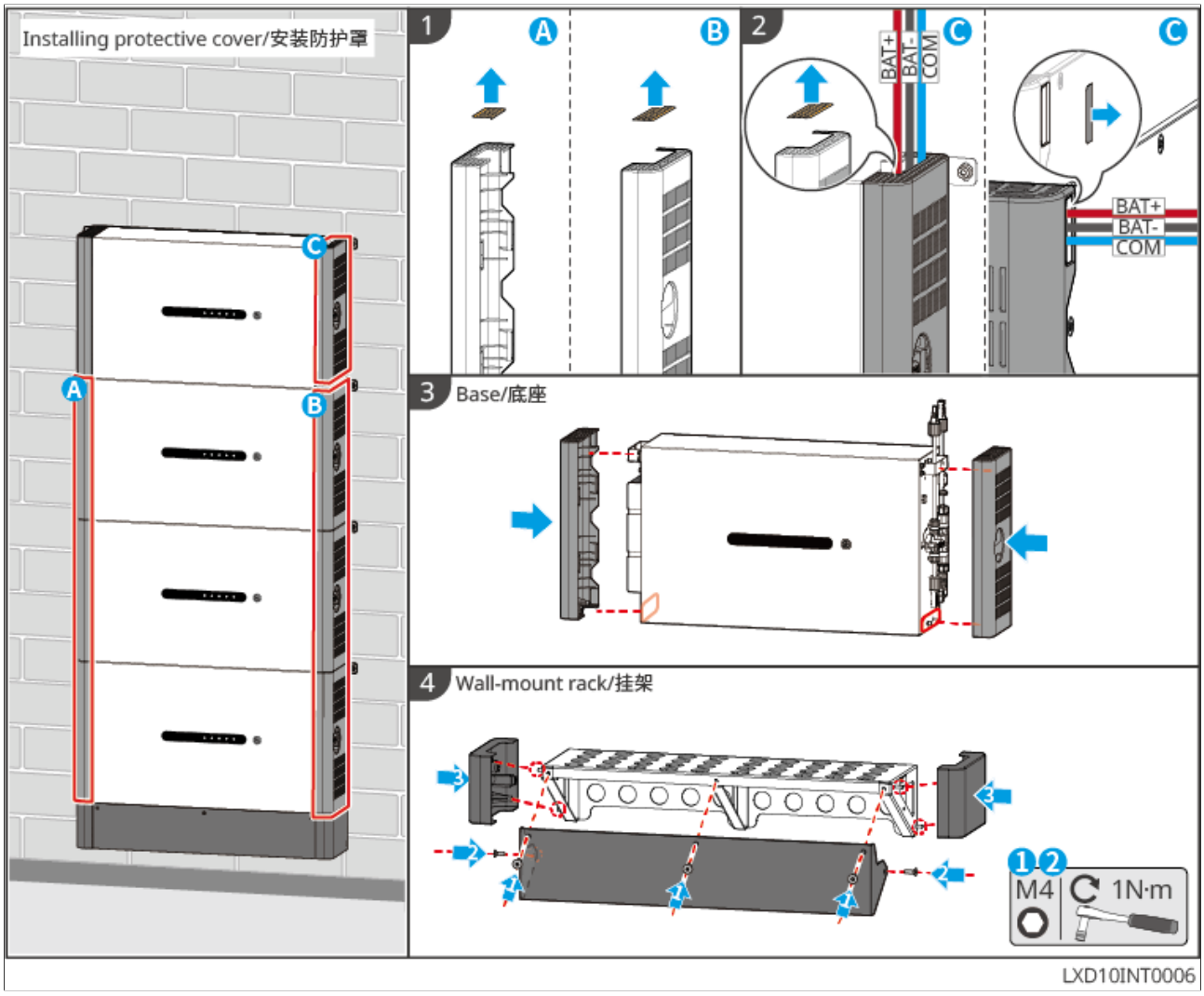


Figure68 Install the Battery Protective Cover

Lynx D G2Battery

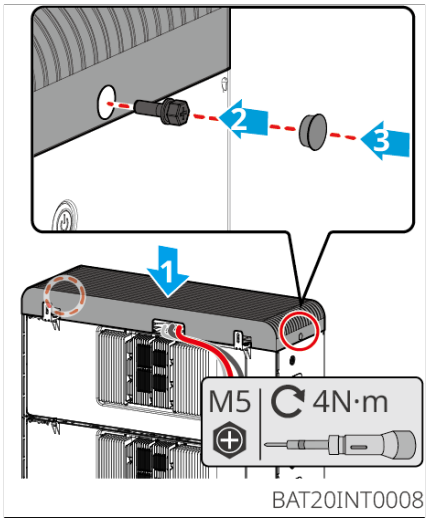


Figure69 Install the Battery Protective Cover

Lynx Home F G2Battery

(Optional) This step is only for some batteries with protective cover mounting holes or junction boxes. The cover plate can only be installed after wiring is completed.

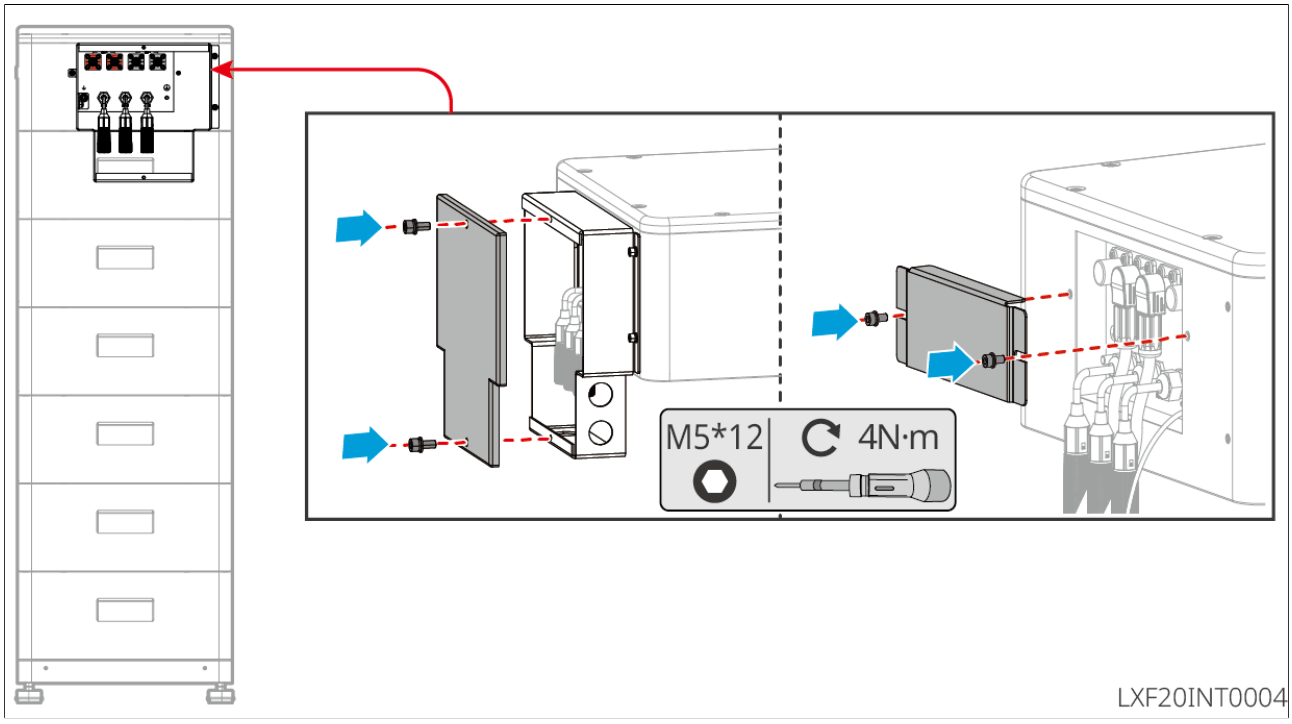


Figure70 Install the cover plate

5.8 Connect the Meter Cable

NOTICE

- The meter shipped with the box is intended for use with only one inverter. Do not connect one meter to multiple inverters. If multiple inverters need to be used, please contact the manufacturer to purchase a separate meter.
- Ensure that theCTconnection direction and phase sequence are correct; otherwise, the monitoring data may be incorrect.
- Ensure that all cables are correctly connected, tightened, and not loose. Improper wiring may cause poor contact or damage the meter.
- In areas at risk of lightning, if the meter cable length exceeds10mand the cable is not routed in a grounded metal conduit, it is recommended to install external lightning protection.

GM3000Meter Wiring

NOTICE

- The outer diameter of the AC power line must be smaller than theCTaperture to ensure that the AC power line can pass through theCT。
- To ensure theCTcurrent measurement accuracy,CTcable length should not exceed30m。
- Do not use a network cable as theCTcable; otherwise, excessive current may damage the meter.
- TheCTs provided by the equipment manufacturer vary slightly in size and appearance depending on the model, but the installation and wiring method is the same.

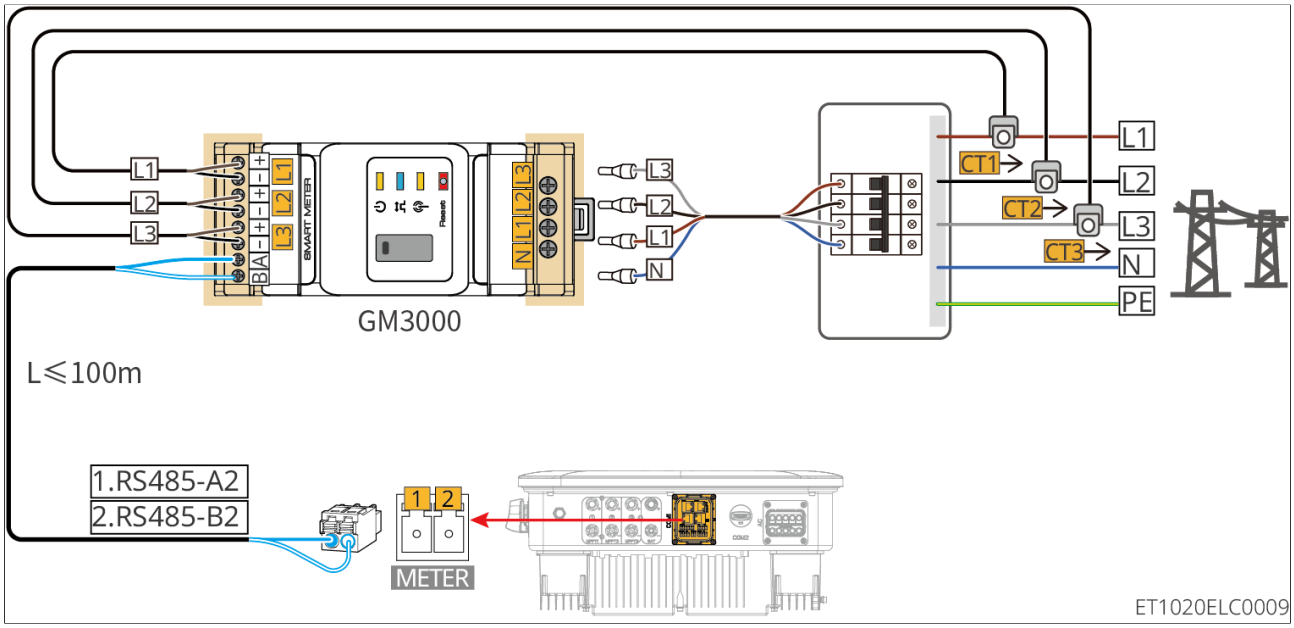


Figure71 GM3000 Meter Wiring Diagram

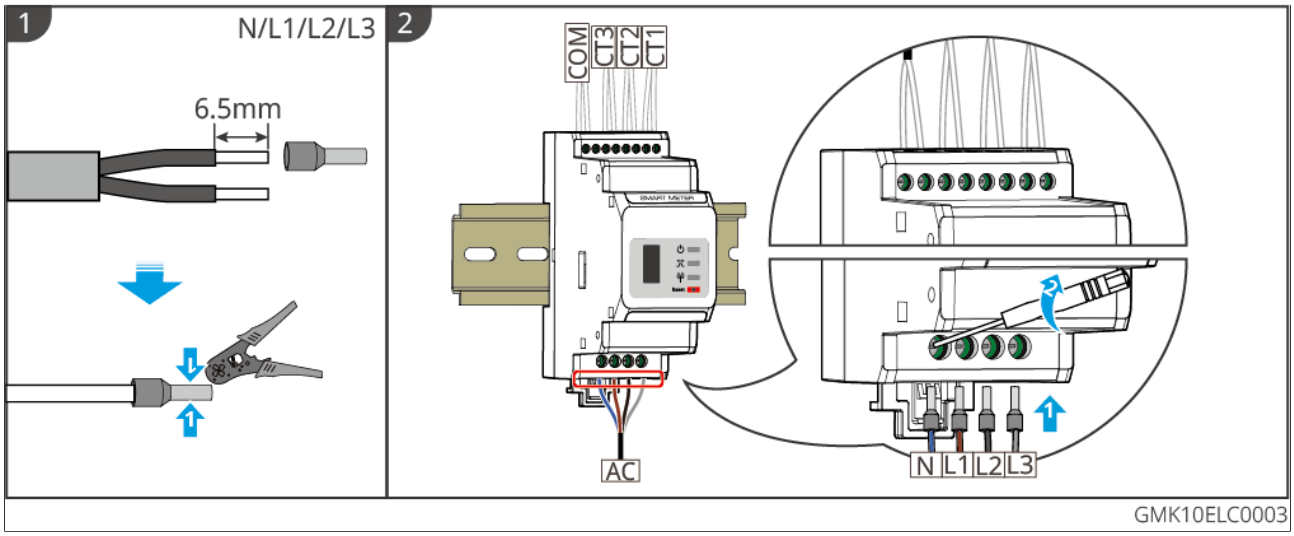


Figure72 Wiring Steps

GM330 Meter Wiring

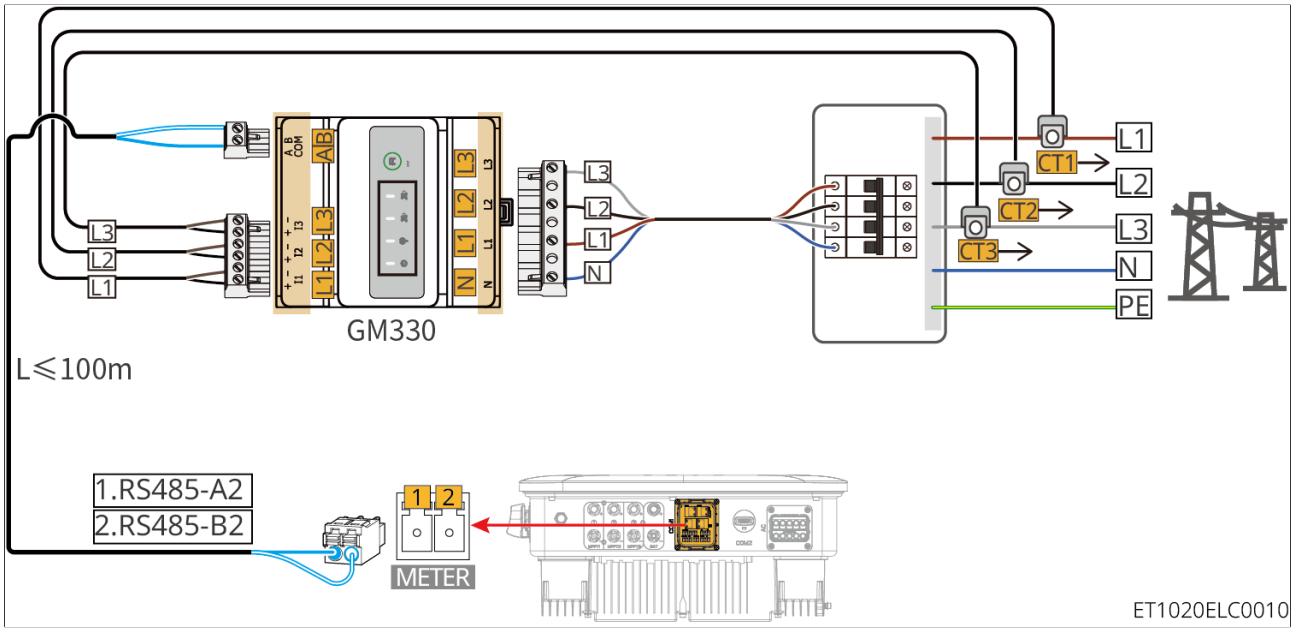


Figure73 GMK330 Meter Wiring Diagram

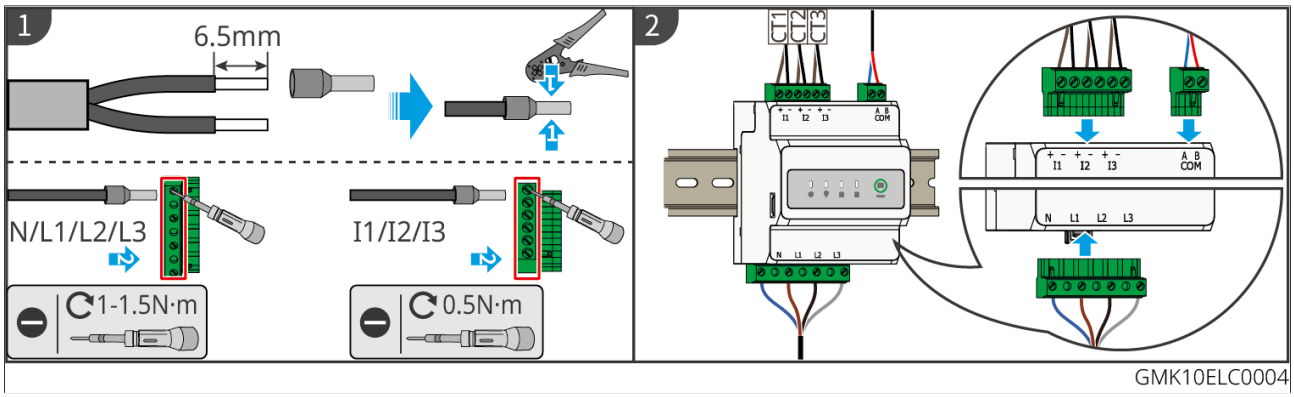


Figure74 Wiring Steps

Install CT

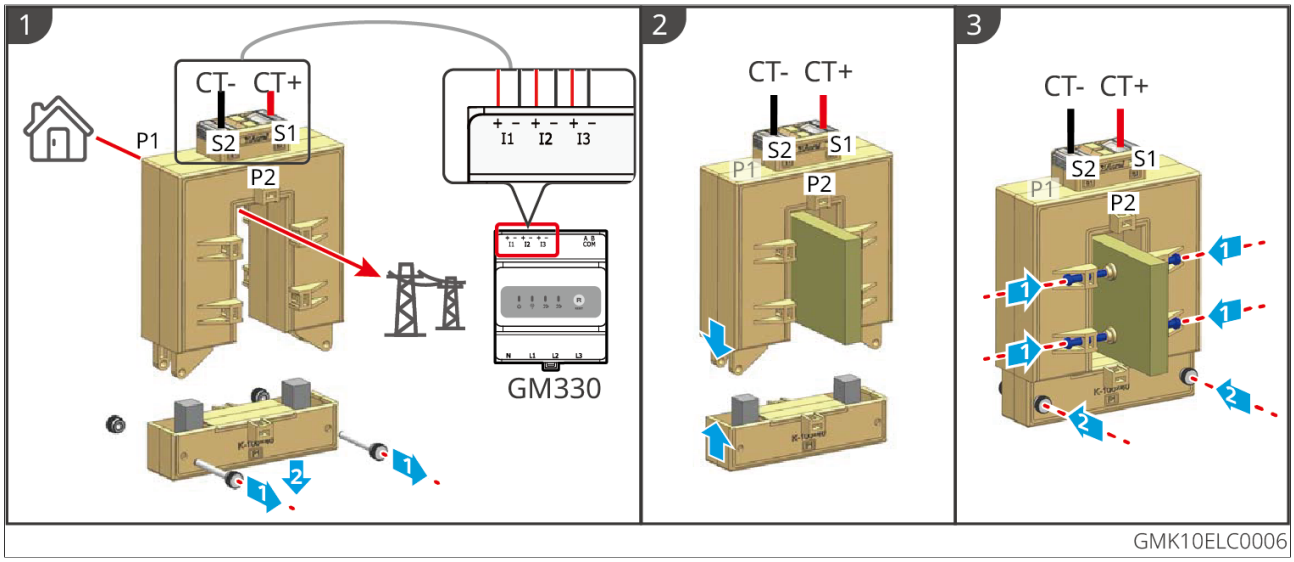


Figure75 Type 1

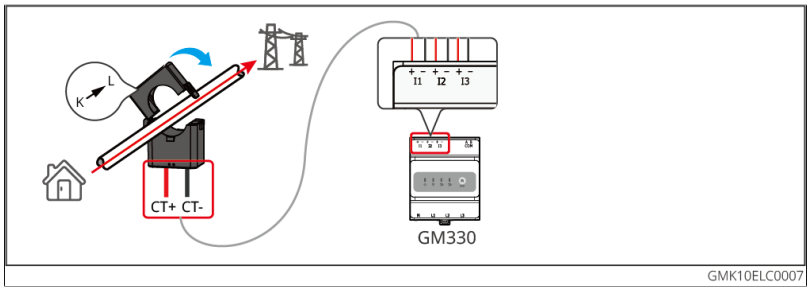


Figure76 Type 2

5.9 Connect the Inverter Communication Cable

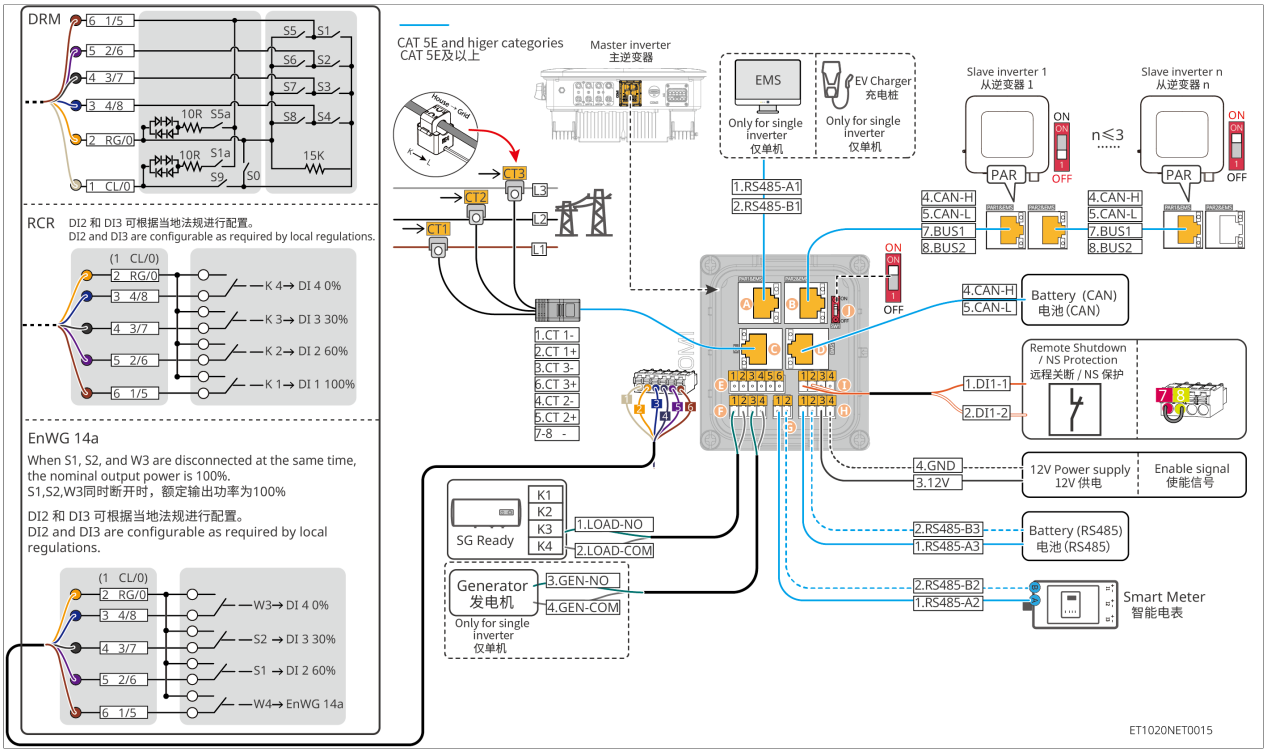
NOTICE

- When using the inverter's built-in meter for networking in a parallel system, only the master inverter needs to connectCT; the slave inverter does not need to connectCT。
- When using the built-in meter, use theCT。
- To ensure the meter and CT can operate normally, please ensure the following:
  - Ensure that the CTs are connected to the corresponding phase lines: CT1 to L1, CT2 to L2, and CT3 to L3.
  - Connect according to the CT direction; otherwise, a CT reverse fault may occur.

NOTICE

  - When replacing or maintaining the CT later, use the 'Meter/CT-Auxiliary Detection' function in the App to allow the inverter to re-adapt to the CT current sampling direction.
- If you need to useDRED、RCRor Remote Shutdown function, after wiring is complete, enable this function in theApp.
- If the inverter is Not Connected to aDREDdevice or Remote Shutdown device, do not enable this function in theApp; otherwise, the inverter cannot operate in grid-connected mode.
- In a parallel system, if you need to implementDRED、RCRfunctions, only connect theDRED、RCRcommunication cables to the master inverter; if you need to implement the Remote Shutdown function, connect the Remote Shutdown communication cable to all inverters.
- InverterDOsignal communication port can be connected to dry contact signals. Specifications:Max≤24Vdc，1A。
- To ensure communication quality, do not connect the parallel communication port of one inverterPAR1and the parallel communication port of another inverterPAR1together; connect the parallel communication port of one inverterPAR1with the parallel communication port of another inverterPAR2.
- For the inverter parallel communication cable, if usingCAT 5EorCAT 6Estandard shielded network cable, recommended length≤5m; if usingCAT 7Estandard shielded network cable, recommended length≤10m; the communication cable must not exceed10m, otherwise communication abnormalities may occur.
- Inverter parallel DIP switch; factory default is set toONposition.
- If dual meters are required to implement grid-tied inverter power generation monitoring and load consumption monitoring, please use RJ45 splitter for connection.RJ45 The splitter should be self-provided or purchased by contacting GoodWe.
- To ensure the inverter's waterproof rating, do not remove the waterproof plugs from unused communication ports on the inverter.
- The inverter communication functions are optional; please select according to the actual application scenario.

Communication Function Description



Silkscreen	function	Description
DRM/RCR / DRED/RCR /EnWG 14a	DRED, RCR, or EnWG 14a function connection port	• RCR (Ripple Control Receiver): Provides an RCR signal control port to meet grid dispatch requirements in Germany and other regions. • DRED (Demand Response Enabling Device): Provides a DRED signal control port to meet DERD Certification requirements in Australia and other regions. • EnWG (Energy Industry Act) 14a: All controllable loads must accept emergency dimming from the grid. The grid operator can temporarily reduce the maximum grid import power of controllable loads to 4.2kW.

Silkscreen	function	Description
DI1 / RSD	Remote Shutdown/NS Protection	Provides a signal control port to control the device for Remote Shutdown or implement the NS Protection Function. Remote Shutdown Function: • When an emergency occurs, the device can be controlled to stop operating. • The Remote Shutdown device must be a normally closed switch. • When the inverter uses the RCR or DRED function, ensure that the Remote Shutdown device is connected, or the Remote Shutdown port is short-circuited.
DI2	Reserved	-
DO1 / LOAD CNTL	Load Control	• Supports connection of dry contact signals to implement functions such as load control. The DO contact rating is 24V DC@1A, NO/COM normally open contact. • Supports SG Ready heat pump connection, controlling the heat pump via dry contact signals. • Supported Operating Modes: ◦ Operating Mode 2 (signal: 0:0): Energy-saving Mode. In this mode, the heat pump operates in Energy-saving Mode. ◦ Operating Mode 3 (signal: 0:1): Switch-on recommendation. In this mode, the heat pump maintains its current operation while increasing hot water reserves to store heat.

Silkscreen	function	Description
DO2 / GEN	Generator Start/Stop Control Port	• Supports connection to a Diesel Generator Control signal. • Do not connect the generator power line to the inverter AC port.
METER / Meter	Meter Connection Port	Use RS485 communication to connect an external smart meter.
BMS485 / BMS	Battery RS485 Communication Port	Battery System RS485 Signal Communication Port
EN	Battery Enable Communication Port or 12V Power Supply Port	Outputs battery enable signal or provides 12V DC power to external fans.
PAR1&EMS& PAR2&EMS / PAR-1&PAR-2	• EMS Communication or Charging Pile Communication Port • Parallel Communication Port	• CAN and BUS Port: Parallel communication port; in Parallel Networking, CAN communication is used to connect other inverters; the BUS is used to control the On/Off-grid status of each inverter in the parallel system • RS485 Port: Used to connect third-party EMS devices and charging piles. In parallel scenarios, connecting third-party EMS devices and charging piles is not supported.
BMS / BMS CAN	Battery CAN Communication Port	Battery System CAN Signal Communication Port
CT	CT Connection Port	Connect the CT communication cable only when using the inverter's built-in meter.

Silkscreen	function	Description
SW1	Parallel DIP Switch	• Inverter parallel DIP switch; factory default is set to ON position. • In multi-inverter parallel scenarios, the parallel DIP switches of the first and last inverters must be set to ON, and other inverters to position 1.

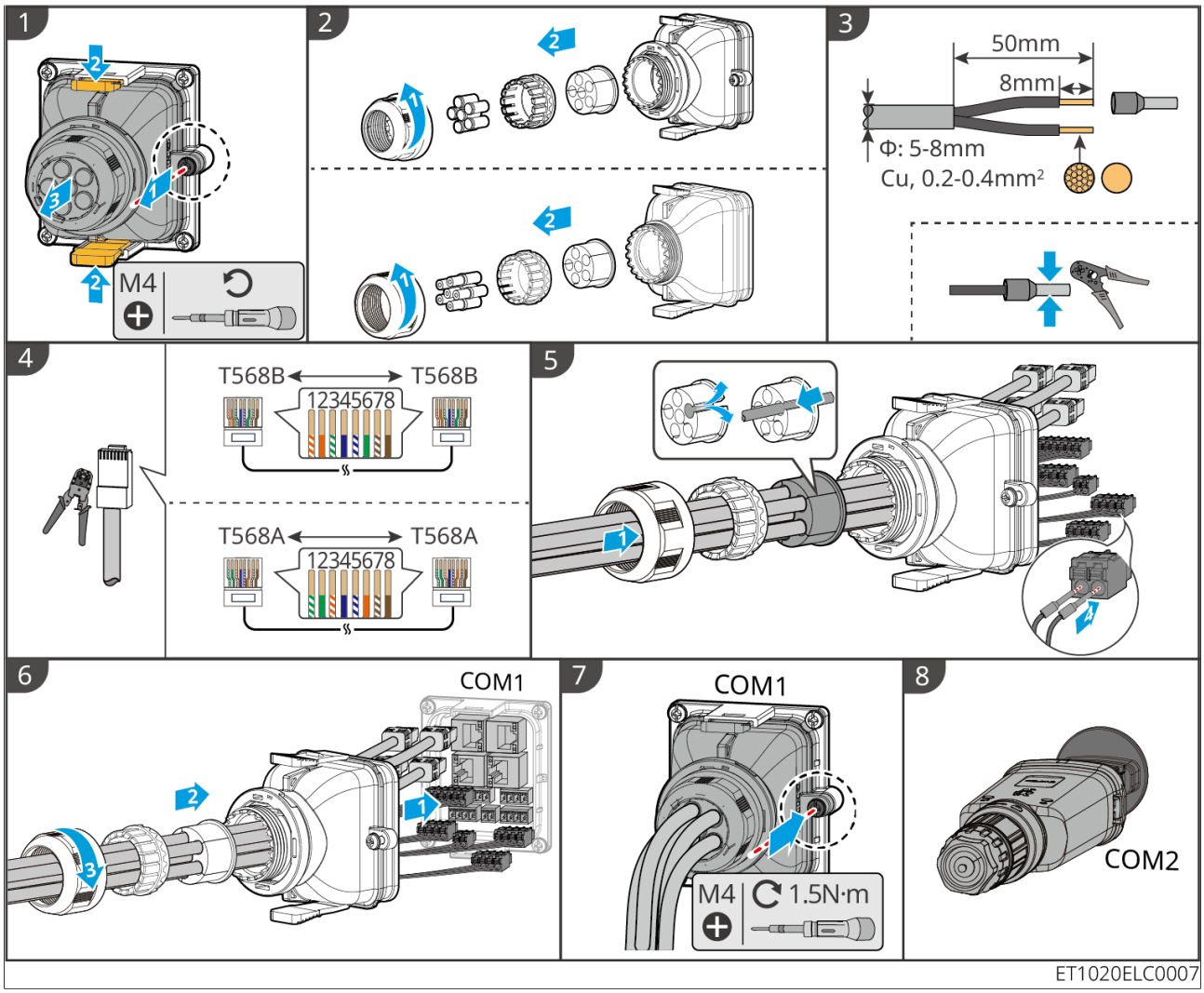


Figure77 Connect Communication Cable

5.10 Connect the Smart Dongle

NOTICE

- The inverter supports, through Bluetooth,4G、WiFi、LANSmart Dongle connection to a mobile phone orWEBinterface to set device-related parameters, view device operating information and error information, and stay informed of the system status.
- When the system includes multiple inverters in Parallel Networking, the master inverter needs to be equipped withEzlink3000smart communication stick for networking.
- When the energy storage system has only one inverter, you can useWiFi/LAN Kit-20or4Gsmart communication stick.
- When usingWiFiorLANcommunication to connect the inverter to a router, you can installWiFi/LAN Kit-20orEzlink3000smart communication stick.
- When using4Gcommunication to upload the energy storage system operating information to the monitoring platform, you can installLS4G Kit-CN、4G Kit-CN、4G Kit-CN-G20or4G Kit-CN-G21communication modules. WhenLS4G Kit-CNor4G Kit-CNis selected, use the smart communication stick shipped with the inverter to configure the parameters of the energy storage system. After configuration is complete, replace it withLS4G Kit-CNor4G Kit-CNfor data transmission. When4G Kit-CN-G20or4G Kit-CN-G21is selected, use the Bluetooth signal emitted by the module for near-end device configuration.
- 4G module is anLTEsingle-antenna device，suitable for application scenarios with low data transmission rate requirements.
- 4G module has a built-inSIMcard that is a China Mobile communication card. Please confirm whether the device is installed in an area covered by China Mobile4Gsignal coverage;
- 4G Kit-CN-G20or4G Kit-CN-G21communication stick. After installation, please 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, please contact the after-sales service center to unbind it first.
- To ensure the4Gsignal communication quality, do not install the device indoors or in areas with metal signal interference.

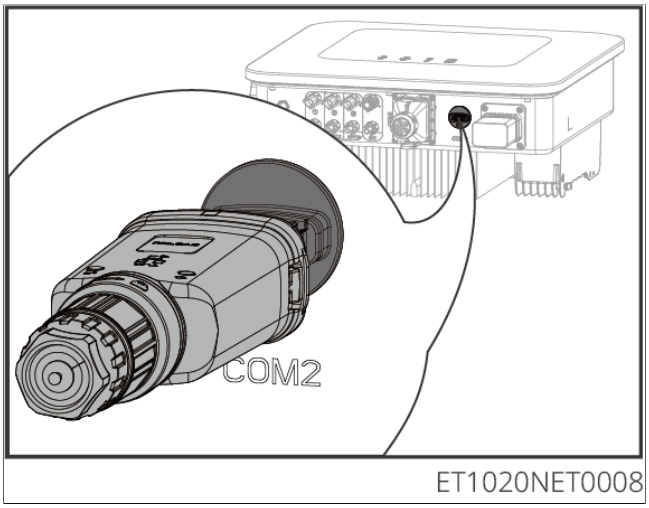


Figure78 Connect the communication stick

6 System Trial Run

6.1 System Pre-Power-on Check

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

6.2 System Power-On

⚠WARNING

When powering on the parallel system, ensure that all slave inverters' AC sides are powered on within one minute after the master inverter's AC side is powered on.

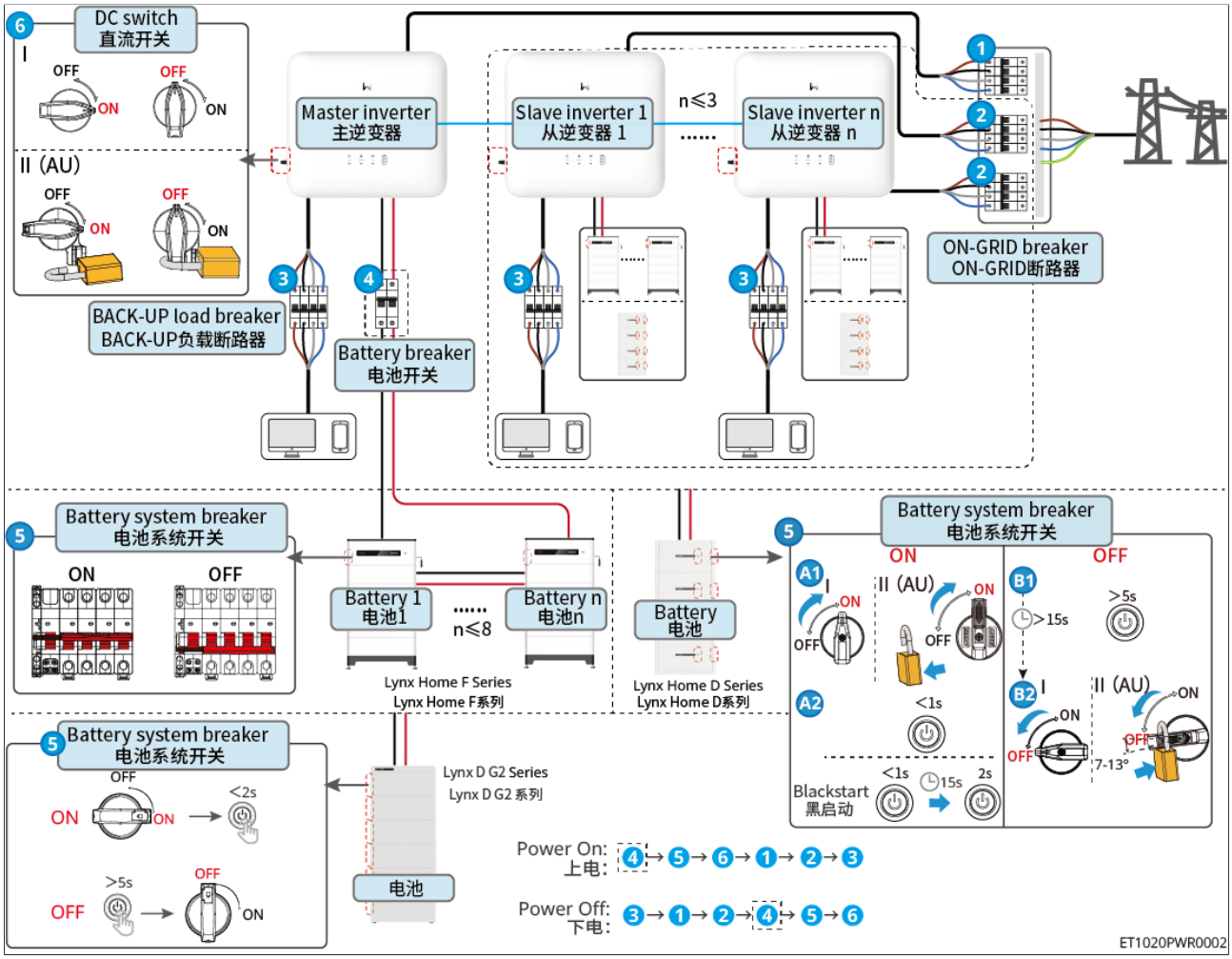


Figure79 System Power-On

1. (Select according to local regulations) Close the switch between the inverter and the battery.
2. Start the battery system.
   - Normal Battery Startup
     - Lynx Home F series: Close the battery system switch.
     - Lynx Home D: Turn the battery power switch to ON and briefly press the battery multifunction button. All batteries need to be powered on separately.
     - Lynx D G2: Close the battery power switch and short-press the battery multifunction button. When there are multiple batteries in the system, the power switches of all batteries must be closed. Short-pressing the multifunction button on any battery will start all batteries.
   - Battery Black Start
     - Lynx Home F series: Close the battery system switch, and long-press the control box multifunction button for 5s-10s to start the battery system. For a

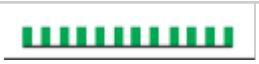
parallel cluster system, long-press the multifunction buttons of all battery systems in sequence.

- Lynx Home D: Turn the battery power switch to ON and short-press the battery multifunction button; all batteries need to be powered on separately; after all batteries are powered on separately, wait for 15 seconds, and press the battery multifunction button on any battery for 2s.
- Lynx D G2: When there are multiple batteries in the system, the power switches of all batteries must be closed. After all batteries are powered on separately, wait for 15 seconds, and press the multifunction button on any battery for 2 seconds; the battery forcibly discharges to activate the inverter.

3. Close the inverter's DC Switch.
4. Close the inverter's ON-GRID circuit breaker.
5. Close the BACK-UP circuit breaker.

6.3 Indicator Light Introduction

6.3.1 Inverter Indicator Lights

Indicator Light	Status	Description
		The inverter is powered on and in standby mode.
		The inverter is starting and in self-check 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 abnormal, and the inverter BACK-UP port is supplying power normally.
		Grid normal, and the inverter BACK-UP port is supplying power normally.
		No power supply at the BACK-UP port.
		The inverter monitoring module is resetting.

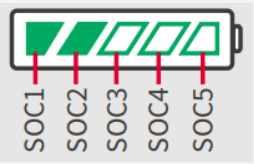
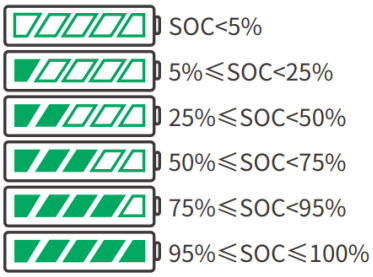
Indicator Light	Status	Description
		The inverter has not established a connection with the communication terminal.
		Communication fault between the communication terminal and the cloud server.
		Inverter monitoring is normal.
		The inverter monitoring module is not started.

6.3.2 Battery Indicator Lights

6.3.2.1 Lynx Home F Series

Normal status

SOCIndicator Light	Button indicator	Battery system status
	Green flashing1th/s	The battery system is in standby state
	Green flashing2th/s	The battery system is in idle state

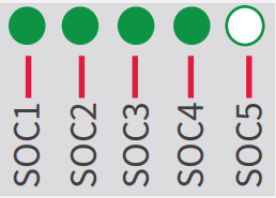
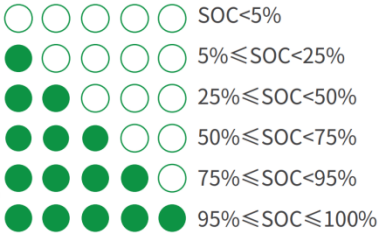
SOCIndicator Light 	Button indicator	Battery system status
SOCindicator indicates the battery system state of charge 	Solid green	The battery system is in charging state. Note: When the batterySOCreaches the charge cut-offSOC, charging of the battery will stop.
HighestSOCindicator flashes1th/s • When5%≤SOC<25%,SOC 1Flashing • When25%≤SOC<50%,SO C2Flashing • When50%≤SOC<75%,SO C3Flashing • When75%≤SOC<95%,SO C4Flashing • When95%≤SOC≤100%,S OC5Flashing	Solid green	The battery system is in discharging state. Note: When the system does not need to supply power to the load or the battery SOCis lower than the set depth of discharge, the battery will no longer discharge.

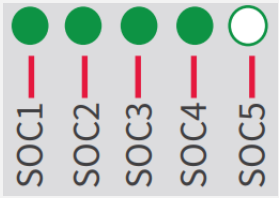
Abnormal state

Button indicator	Battery system status	Description
Red flashes1th/s	The battery system generates an alarm.	After the battery system generates an alarm, the battery system will perform a self-check. Wait until the battery system self-check is complete; the battery system enters normal operating state or fault state.
Red steady on	The battery system has a fault.	Based on theSOCindicator display pattern, determine the type of fault that has occurred and handle it according to the methods recommended in the troubleshooting chapter.

6.3.2.2 Lynx Home D

Normal status

SOCIndicator Light 	Button indicator	Battery system status
SOCindicator indicates the battery system state of charge 	Green flashing	The battery system is in standby state
	Solid green	The battery system is in charging state. Note: When the batterySOCreaches the charge cut-offSOC, charging of the battery will stop.

SOCIndicator Light 	Button indicator	Battery system status
HighestSOCindicator flashes1th/s • When5%≤SOC<25%,SOC1Flashing • When25%≤SOC<50%,SOC2Flashing • When50%≤SOC<75%,SOC3Flashing • When75%≤SOC<95%,SOC4Flashing • When95%≤SOC≤100%,SOC5Flashing	Solid green	The battery system is in discharging state. Note: When the system does not need to supply power to the load or the battery SOCis lower than the set depth of discharge, the battery will no longer discharge.

Abnormal state

Button indicator	Battery system status	Description
Red flashes	The battery system generates an alarm.	After the battery system generates an alarm, the battery system will perform a self-check. Wait until the battery system self-check is complete; the battery system enters normal operating state or fault state. It can useAppto view alarm information.
Red steady on	The battery system has a fault.	You can use theSOCindicator display pattern to determine the type of fault that has occurred, or use theAppto view fault information and handle it according to the methods recommended in the troubleshooting chapter.

6.3.2.3 Lynx D G2

No.	Green LED	Red LED	Battery system status	Description
1	Steady On	--	System operating normally	Run
2	Flashing1 th/S		System ready	Standby
	Flashing3 th/S	--	PCSComm Loss	--
3	Flashing1 th/2S	--	System alarm	including those in the fault list2level fault, among which the undervoltage fault is2、3、4level, when
4	--	Steady On	System Fault.	Faults in the fault list at level3and above (undervoltage fault is level5, steady on)

6.3.3 Smart Meter Indicator Lights

GM3000

type	Status	Description
Power Indicator Light	Steady On	Meter powered on
	Off	Meter powered off
Import/Export Energy Indicator	Steady On	Import Energy from Grid
	Flashing	Export Energy to Grid
	Flashing	Communication Normal

Communication Indicator	Flashes continuously5th	• PressResetbutton<3s: Meter reset • PressResetbutton5s: Meter parameters restored to factory settings • PressResetbutton>10s: Meter parameters restored to factory settings, energy data cleared
	Off	No Meter Communication

GM330

type	Status	Description
Power Indicator Light	Steady On	Meter powered on, no RS485 communication
	Flashing	Meter powered on, RS485 communication normal
	Off	Meter powered off
Communication Indicator	Off	Reserved
	Flashing	Press Reset button ≥5s, power indicator and Import/Export Energy indicator flash: Meter reset
Import/Export Energy Indicator	Steady On	Import Energy from Grid
	Flashing	Export Energy to Grid
	Off	No Import Energy, No Export Energy
	Reserved	

6.3.4 Smart Communication Stick Indicator

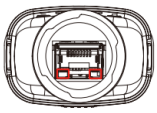
- **WiFi/LAN Kit-20**

NOTICE

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

Indicator Light	Status	Description
Power Indicator Light		Steady on: Smart Communication Stick is powered on.
		Off: Smart Communication Stick is not powered on.
Communication Indicator		Steady on: Communication is normal in Wi-Fi mode or LAN mode.
		Single flash: Smart Communication Stick Bluetooth signal is enabled, waiting for App connection.
		Two flashes: Smart Communication Stick is Not Connected to the router.
		Four flashes: Smart Communication Stick communicates normally with the router, but is Not Connected to the server.
		Six flashes: Smart Communication Stick is identifying connected devices.
		Off: Smart Communication Stick is in software reset or not powered on.

Indicator Light	Color	Status	Description
	Green	Steady On	100 Mbps wired network connection is normal.

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

button	Description
Reload	Press and hold for 0.5–3 seconds, and the Smart Dongle will reset.
	Press and hold for 6–20 seconds, and the Smart Dongle will restore factory settings.
	Quick double-click to enable the Bluetooth signal (lasts only 5 minutes).

- **4G Kit-CN-G20 & 4G Kit-CN-G21**

Indicator Light	Status	Description
		Steady on: Smart Communication Stick is powered on.
		Off: The Smart Dongle is not powered on.
		Steady On: The Smart Dongle is connected to the server, and communication is normal.
		Double Flash: The Smart Dongle is Not Connected to the communication base station.
		Four Flashes: The Smart Dongle is connected to the communication base station, but Not Connected to the server.
		Six Flashes: Communication between the Smart Dongle and the inverter is disconnected.

Indicator Light	Status	Description
	—	Off: Smart Communication Stick is in software reset or not powered on.

button	Description
RELOAD	Press and hold for 0.5–3 seconds, and the Smart Dongle will restart.
	Press and hold for 6–20 seconds, and the Smart Dongle will restore factory settings.

- **LS4G Kit-CN、4G Kit-CN**

Indicator Light	Color	Status	Description
Power Indicator Light	Green	On	Module is secured and powered on
		Off	Module is not secured or not powered on
Communication Indicator	Blue	Slow flash (0.2on,1.8soff)	• Inverter communication indicator2flashes: Dialing, network searching • Inverter communication indicator4flashes: Cloud connection failed due to no traffic
		Slow flash (1.8son,0.2soff)	• Inverter communication indicator2flashes: Dial-up successful • Inverter communication indicator steady on: Cloud connection successful • Inverter communication indicator4flashes: Cloud connection failed due to no traffic

		Fast flashing (0.125son,0.125soff)	The inverter is communicating with the cloud through the module
		0.2son,8sOff	Not installedSIMcard orSIMcard poor contact

- **Ezlink3000**

Indicator Light/Silkscreen	Color	Status	Description
Power Indicator Light	Blue		Flashing: The communication stick is operating normally.
			Off: The communication stick is powered off.
Communication Indicator	Green		Steady on: The communication stick is connected to the server.
			Double flash: The communication stick is Not Connected to the router.
			Four flashes: The communication stick is connected to the router but Not Connected to the server.
RELOAD	-	-	Short press for1-3seconds to restart the communication stick. Long press for6-10seconds to restore factory settings. Double-click quickly to enable the Bluetooth signal (lasts for only5minutes).

7 System Commissioning and Plant Monitoring

7.1 Perform Device Commissioning and Plant Monitoring Through the SEMS+ App

The SEMS+ App is a software application for remote plant monitoring or local device commissioning. It supports installers or owners:

- Remotely monitor plant operation and set plant and device operating parameters.
- Connect to devices locally to view device operation and set device parameters.

Download and install the SEMS+ App

Mobile phone requirements:

- Mobile phone operating system requirements: Android 7.0 and above, iOS 15.1 and above.
- The mobile phone supports a web browser and can connect to the Internet.
- The mobile phone supports WLAN/Bluetooth.

Download methods:

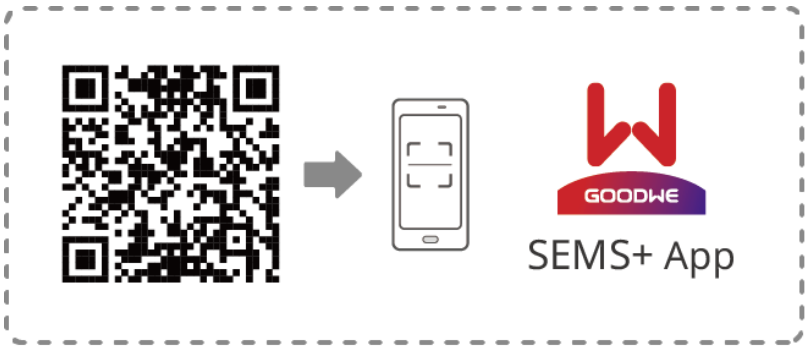
Method 1:

Search for SEMS+ in Google Play, App Store, Huawei, Honor, Xiaomi, OPPO, and vivo app stores to download and install it.

SEMS0163

Method 2:

Scan the QR code below to download and install.



SEMS0164

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

"SEMS+ App User Manual"

7.2 Device Commissioning and Plant Monitoring via SEMS+ WEB

SEMS+ WEB is a monitoring platform that can communicate over WiFi or LAN. The following are common functions of SEMS+ WEB:

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

For detailed functions, seeSEMS+ WEB User Manual。

SEMS+ WEB User Manual

8 System Maintenance

8.1 System Power-Off

⚠DANGER

- When performing operation and maintenance on equipment in the system, de-energize the system. Operating equipment while live may cause equipment damage or electric shock hazards.
- After the equipment is powered off, internal components take a certain amount of time to discharge. Wait according to the time specified on the label until the equipment is completely discharged.
- To restart the battery, use the air switch to power it on.
- When shutting down the battery system, strictly follow the battery system power-off requirements to prevent damage to the battery system.
- When there are multiple batteries in the system, powering off any one battery will power off all batteries.

NOTICE

- Circuit breakers between the inverter and the battery, and between battery systems, must be installed in accordance with local laws and regulations.
- To ensure effective protection of the battery system, keep the cover plate of the battery system switch closed. The protective shield can close automatically after being opened. If the battery system switch is not used for a long time, secure it with screws.

Power-off procedure

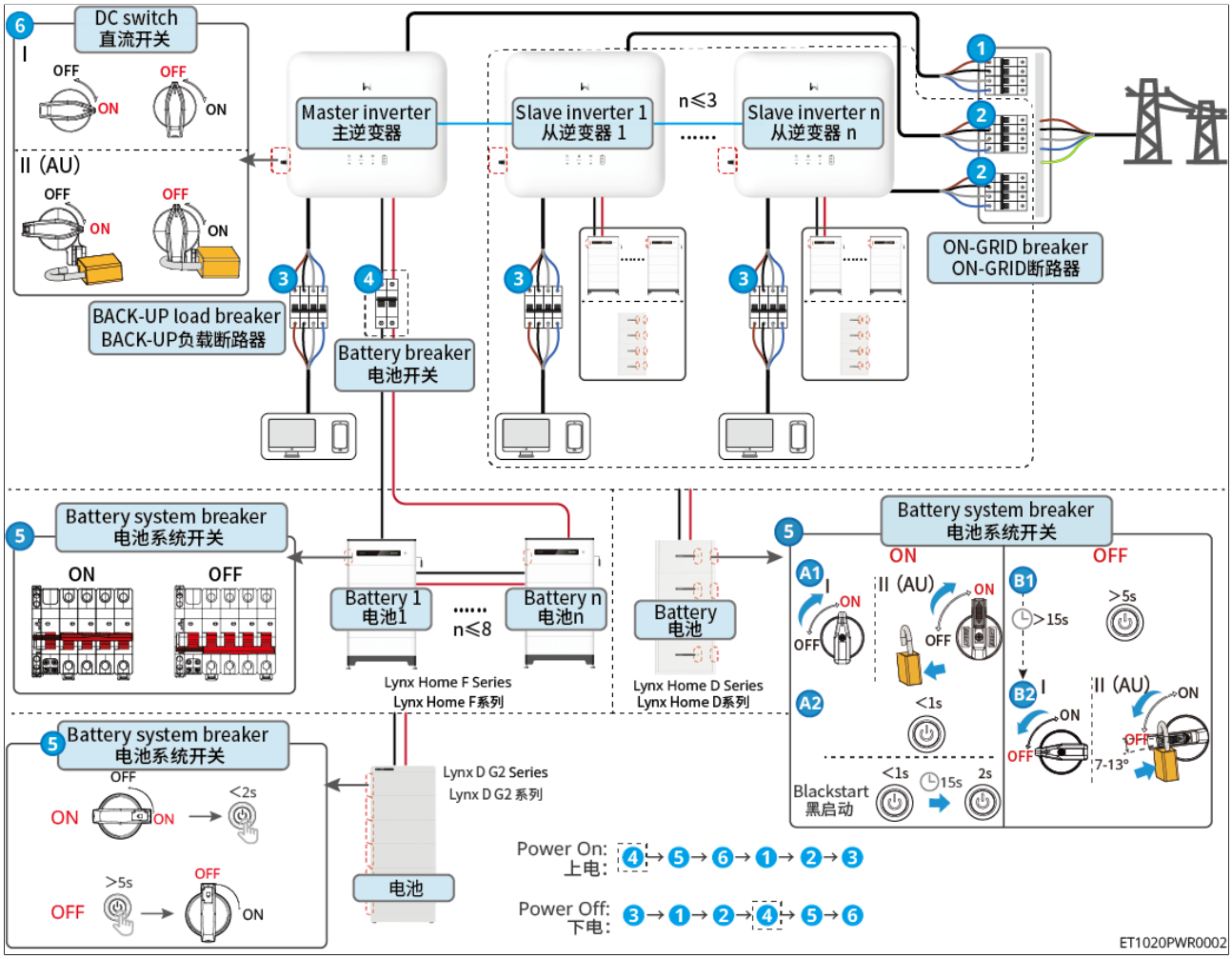


Figure80 System Power-Off

❹ : Optional according to local laws and regulations.

8.2 Equipment Dismantling

DANGER

- Ensure that the equipment is powered off.
- When operating the equipment, wear personal protective equipment.
- When removing terminal blocks, use standard removal tools to avoid damaging the terminals or equipment.
- Unless otherwise specified, the equipment dismantling procedure is the reverse of the installation procedure, and this document will not elaborate further.

1. De-energize the system.
2. Use labels to mark the cable types of the cables connected in the system.
3. Disconnect the connecting cables of the inverter, battery, and smart meter in the system, such as: DC cables, AC cables, communication cables, and Protection grounding conductors.
4. Remove devices such as the smart communication stick, inverter, battery, and smart meter.
5. Store the equipment properly. If it will be put into use later, ensure that the storage conditions meet the requirements.

8.3 Equipment Scrapping

If 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.

8.4 Regular Maintenance

⚠WARNING

- If any problem that may affect the battery or energy storage inverter system is found, please contact after-sales personnel. Unauthorized disassembly is prohibited.
- If the internal copper wire of the conductive wire is exposed, do not touch it. High voltage hazard. Please contact after-sales service personnel. Do not disassemble it without authorization.
- If other emergencies occur, please contact after-sales service personnel immediately, operate under the guidance of after-sales service personnel, or wait for after-sales service personnel to perform on-site operations.

Maintenance content	Maintenance method	Maintenance cycle	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 check whether debris has accumulated around the equipment.	Once every six months	Prevent heat dissipation faults.
System installation	Check whether the equipment is installed securely and whether the fastening screws are loose Check the equipment appearance for damage and deformation.	Once every 6 months to once a year	Confirm that the equipment is installed securely.
Electrical connection	Check whether the electrical connections are loose, the cables are damaged, or exposed copper is present.	Once every 6 months to once a year	Confirm electrical connection reliability.

Maintenance content	Maintenance method	Maintenance cycle	Maintenance purpose
Sealing performance	Check whether the sealing of the equipment cable entry holes meets requirements. If the gaps are too large or the openings are not sealed, reseal them.	Once a year	Confirm that the machine is sealed and its waterproof performance is intact.
Battery Maintenance	If the battery has not been used or fully charged for an extended period, regular charging is recommended.	Once every 15 days	Protection of battery service life.

8.5 Fault

NOTICE
The fault information in this manual is updated from time to time. Faults vary slightly among different models. Please refer to the real-time display on the device.

8.5.1 View Fault/Alarm Details

All detailed fault and alarm information of the energy storage system is displayed in [SEMS+ App] and [SEMS+ WEB]. If your product is abnormal and no relevant fault information is seen in [SEMS+ App] and [SEMS+ WEB], 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 a specific fault name to view the fault occurrence time, possible causes, and solutions.

- SEMS+ WEB

1. Open SEMS+ WEB and log in with any account.
2. On the plant details screen, click [Alarm] to view all alarm information for the

current plant.

8.5.2 Fault Information and Handling Methods

Please troubleshoot the fault according to the following methods. If the troubleshooting methods cannot help you, please contact the after-sales service center.
When contacting the after-sales service center, please collect the following information to help resolve the problem quickly.

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 shaded or have shadows, etc. For the installation environment, it is recommended to provide photos, videos, and other files to assist in problem analysis.
3. Grid conditions.

8.5.2.1 System Fault.

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

No.	Fault	Corrective Measures
1	Unable to find the wireless signal of the smart communication stick	1. Please ensure no other devices are connected to the wireless signal of the smart communication stick. 2. Please ensure the App has been updated to the latest version. 3. Ensure the smart communication stick has a normal power supply and the blue indicator light is flashing or steadily on. 4. Ensure the smart device is within the communication range of the smart communication stick. 5. Refresh the device list in the App again. 6. Restart the inverter.

No.	Fault	Corrective Measures
2	Unable to connect to the wireless signal of the smart communication stick	1. Please ensure no other devices are connected to the wireless signal of the smart communication stick. 2. Restart the inverter or the communication stick, and try to connect to the wireless signal of the smart communication stick again. 3. Ensure Bluetooth encrypted pairing is successful.
3	Unable to find the router SSID	1. Place the router closer 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 closer to the smart communication stick, or add a WiFi repeater to enhance the WiFi signal.
5	After all configurations are complete, the smart communication stick fails to connect to the server.	Restart the router and the inverter.

8.5.2.2 Inverter Fault

8.5.2.2.1 Troubleshooting (Fault Codes F01-F40)

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F01	Grid Power Outage	1. Grid power outage. 2. AC line or AC Switch is disconnected.	1. The alarm automatically clears after grid power supply is restored. 2. Check whether the AC line or AC Switch is disconnected.
F02	Grid Overvoltage Protection	The grid voltage is above the permissible range, or the high-voltage Duration exceeds the high-voltage ride-through setpoint.	1. If it occurs occasionally, it may be caused by 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 voltage is within the permissible range. If not, contact the local electric power operator. If it is, the Grid Overvoltage Protection setpoint also needs to be modified after obtaining the consent of the local electric power operator. 3. If it cannot be restored for a long time, check whether the AC-side circuit breaker and output cables are connected properly.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F03	Grid Undervoltage Protection	The grid voltage is below the permissible range, or the low-voltage Duration exceeds the Low Voltage ride-through setpoint.	1. If it occurs occasionally, it may be caused by 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 voltage is within the permissible range. If not, contact the local electric power operator. If it is, the Grid Undervoltage Protection setpoint also needs to be modified after obtaining the consent of the local electric power operator. 3. If it cannot be restored for a long time, check whether the AC-side circuit breaker and output cables are connected properly.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F04	Grid Rapid Overvoltage Protection	Abnormal grid voltage detection or ultra-high voltage triggers the fault.	1. If it occurs occasionally, it may be caused by 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 voltage is within the permissible range. If not, contact the local electric power operator. If it is, the Grid Undervoltage Protection setpoint also needs to be modified after obtaining the consent of the local electric power operator. 3. If it cannot be restored for a long time, check whether the AC-side circuit breaker and output cables are connected properly.
F05	10minOvervoltage	Within10min, the sliding average value of the grid voltage exceeds the range specified by safety regulations.	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 frequency is within the permissible range. If not, contact the local electric power operator. If yes, after obtaining the consent of the local electric power operator, modify the Grid10minOvervoltage 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 caused by 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 permissible range. If not, contact the local electric power operator. If it is, the Grid Overfrequency setpoint also needs to be modified after obtaining the consent of the local electric power operator.
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 caused by 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 not, contact your local power operator. If yes, the Grid Underfrequency protection point also needs to be modified after obtaining consent from the local power operator.

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 caused by 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 not, contact your local power operator.
F09	Anti-islanding Protection	The grid has been disconnected. The grid voltage is maintained due to the load. According to safety regulation Protection requirements, stop grid connection.	1. If it occurs occasionally, it may be caused by 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 not, contact your local power operator.
F10	LVRT Undervoltage Fault	Grid Abnormal: The duration of Grid Voltage Abnormal exceeds the time specified for high/low voltage ride-through.	1. If it occurs occasionally, it may be caused by 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 voltage and frequency are within the allowable range and stable. If not, contact your local power operator.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F11	HVRT Overvoltage	Grid Abnormal: The duration of Grid Voltage Abnormal exceeds the time specified for high/low voltage ride-through.	1. If it occurs occasionally, it may be caused by 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 voltage and frequency are within the allowable range and stable. If not, contact your local power operator.
F12	30mAGfciProtection	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by a temporary abnormality in the external line. After the fault is cleared, normal operation will resume, and no manual intervention is required. 2. If it occurs frequently or cannot be recovered for a long time, check whether the PV string-to-ground impedance is too low.
F13	60mAGfciProtection	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by a temporary abnormality in the external line. After the fault is cleared, normal operation will resume, and no manual intervention is required. 2. If it occurs frequently or cannot be recovered for a long time, check whether the PV string-to-ground impedance is too low.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F14	150mAGfciProtection	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by a temporary abnormality in the external line. After the fault is cleared, normal operation will resume, and no manual intervention is required. 2. If it occurs frequently or cannot be recovered for a long time, check whether the PV string-to-ground impedance is too low.
F15	GfciGradual Change Protection	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by a temporary abnormality in the external line. After the fault is cleared, normal operation will resume, and no manual intervention is required. 2. If it occurs frequently or cannot be recovered for a long time, check whether the PV string-to-ground impedance is too low.
F16	DCIProtection Level1	The inverter output current has a High DC Component, exceeding the allowable range specified by safety regulations or the machine default.	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, and no manual intervention is required. 2. If this alarm occurs frequently and affects the normal power generation of the plant, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F17	DCIProtection Level2	The inverter output current has a High DC Component, exceeding the allowable range specified by safety regulations or the machine default.	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, and no manual intervention is required. 2. If this alarm occurs frequently and affects the normal power generation of the plant, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F18	Low Insulation Resistance	1. The PV string is short-circuited to Protection ground. 2. The PV string installation environment is humid for a long time, 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. If a short circuit occurs, identify the short-circuit point and rectify it. 2. Check whether the inverter's Protection ground wire is correctly connected. 3. If it is confirmed that this impedance is indeed lower than the default value in rainy weather, please use Appto reset the inverter's“Insulation Impedance Protection Point”。 For inverters in the Australian and New Zealand markets，when an insulation impedance fault occurs, the following alarm methods are also available: 1. The inverter is equipped with a buzzer; when a fault occurs, the buzzer sounds continuously for1minute; if the fault is not resolved, the buzzer sounds again every30minutes. 2. If the inverter is added to a monitoring platform, after the alarm notification method is set, alarm information can be sent to the customer by email.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
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 to the inverter output side
F20	Hard Power 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 disappears, and no manual intervention is required. 2. If this alarm occurs frequently and affects the normal power generation of the plant, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F21	Internal Comm Loss	SlaveDSP1communication timeout-MasterDSP, SlaveDSP2communication timeout-MasterDSP, SlaveDSP2communication timeout-SlaveDSP1, MasterDSPcommunication timeout-SlaveDSP1, MasterDSPcommunication timeout-SlaveDSP2or SlaveDSP1communication timeout-SlaveDSP2: 1. The chip is not powered on 2. Chip program 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 persists, please contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
		MasterDSPcanmodule error, SlaveDSP1canmodule error or SlaveDSP2canmodule error: 1. Frame format error 2. Parity check error 3. can busoffline 4. HardwareCRCcheck error 5. When transmitting (receiving), the control bit is receive (transmit) 6. Transmission to an unauthorized unit	
F22	Generator Waveform Detection Fault	1. This fault will always be displayed when the generator is Not Connected; 2. When the generator is running, failure to meet the generator safety regulations will trigger this fault.	
F23	Generator Abnormal Connection		
F24	Generator Voltage Low		
F25	Generator Voltage High		

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F26	Generator Frequency Low		1. When the generator is not connected, ignore this fault; 2. It is normal for this fault to occur when the generator has a fault. After the generator recovers, wait for a period of time, and the fault will be automatically cleared; 3. This fault will not affect the normal operation of off-grid mode 4. If the generator and the grid are connected at the same time and meet the safety regulation requirements, the grid will be prioritized for grid connection, and the system will operate in grid-connected state.
F27	Generator Frequency High		
F28	ParallelI/OSelf-Check Abnormal	Parallel communication cable is not securely connected or the parallelIOchip is damaged	Check whether the parallel communication cable is securely connected, then check whether theIOchip is damaged; if so, replace theIOchip
F29	Paralell Grid Line Reversed	Grid lines of some machines are reversed relative to others	Reconnect the grid lines
F30	AC HCT check Abnormal	AC HCT has a 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 persists, please contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F31	GFCI HCT Check Abnormal	GFCI HCT has a 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 persists, please contact your dealer or after-sales service center.
F32	Inverter Internal Failure	Inverter has a 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 persists, please contact your dealer or after-sales service center.
F33	FlashR/W Abnormal	Possible causes: flashcontent changed;flashlifespan exhausted;	1. Upgrade to the latest firmware 2. Contact your dealer or after-sales service center
F34	AFCI Check Failure	During the Arc Failure self-check, the Arc Failure module did not detect an Arc 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 persists, please contact your dealer or after-sales service center.

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 operation abnormal.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If ventilation is absent or the Ambient Overtemperature occurs, improve the ventilation and heat dissipation conditions. 3. If ventilation and ambient temperature are normal, contact your distributor or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F36	Bus Overvoltage	BUSovervoltage, possible causes: 1. PVvoltage is too high; 2. InverterBUSvoltage sampling is abnormal; 3. The isolation effect of the dual-split transformer at the inverter rear end is poor, causing two inverters to affect each other when connected to the grid; one of the inverters reports DC overvoltage when connected to the grid;	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 persists, please contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F37	PVInput Overvoltage	PVinput voltage is too high. Possible causes: Incorrect PV array configuration: too many PV modules are connected in series in the 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 string 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 will automatically disappear.
F38	PVContinuous Hardware Overcurrent	1. Improper module configuration 2. Hardware damage	Disconnect the AC output side switch and DC input side switch,5minutes later, close the AC output side switch and DC input side switch. If the fault persists, please contact your dealer or after-sales service center.
F39	PVContinuous Software Overcurrent	1. Improper module configuration 2. Hardware damage	Disconnect the AC output side switch and DC input side switch,5minutes later, close the AC output side switch and DC input side switch. If the fault persists, please contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F40, F98	String Reverse Connection(String1-n) n: Determine according to the inverter's actual Number of Strings.	PVString Reverse Connection	Check whether the string is reversely connected.

8.5.2.2.2 Fault Handling (Fault Codes F41-F80)

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F41	Generator Port Overload	1. The 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.	Check the off-grid side output voltage, current, power, and other data to determine the cause of the problem.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F42, F164,F165	DC Arcing Failure(String1-n) n: Determine according to the inverter's actual Number of Strings.	1. DC side connection terminal is loose; 2. DC side connection terminal has a poor connection; 3. DC cable conductor damage and loose connection	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.
F43	Grid Waveform Abnormal	Grid abnormality: abnormal grid voltage detection triggers a fault.	1. If it occurs occasionally, it may be caused by 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 voltage and frequency are within the allowable range and stable. If not, contact your local power operator.
F44	Grid Phase Loss	Grid abnormality: single-phase voltage sag on the grid.	1. If it occurs occasionally, it may be caused by 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 voltage and frequency are within the allowable range and stable. If not, contact your local power operator.

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 caused by 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 voltage and frequency are within the allowable range and stable. If not, contact your local power operator.
F46	Grid Phase Sequence Failure	Abnormal connection between inverter and grid: wiring is not in positive phase sequence	1. Check whether the inverter and grid wiring is in positive phase sequence. After the wiring is correct (e.g., swap any two live wires), the fault disappears automatically. 2. If the wiring is correct but the fault persists, please contact the distributor or after-sales service center.
F47	Grid Rapid Shutdown Protection	After detecting a Grid Power Outage condition, rapidly shut down the output	The fault automatically disappears after grid power supply is restored
F48	Grid Neutral Wire Loss (SplitGrid)	Split-phase Grid Neutral Wire Loss	1. The alarm automatically clears after grid power supply is restored. 2. Check whether the AC line or AC Switch is disconnected.
F49	L-PE Short Circuit	Output phase line toPEimpedance is low or short-circuited	Detect the output phase line toPEimpedance, find the location with low impedance and repair it.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F50	DCVProtection Level1	Abnormal Load Fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, and no manual intervention is required. 2. If this alarm occurs frequently and affects the normal power generation of the plant, please contact your distributor or after-sales service center.
F51	DCVProtection Level2	Abnormal Load Fluctuation	
F52	Leakage Current (GFCI) Multiple Fault Shutdown	North American safety regulations require that after multiple faults, automatic recovery is not allowed; manual reset is required or wait24hbefore recovery	Please check whether the PV string-to-ground impedance is too low.
F53	DC Arc Failure (AFCI) Multiple Fault Shutdown	North American safety regulations require that after multiple faults, automatic recovery is not allowed; manual reset is required or wait24hbefore 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.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F54	External Communication Link Disconnection	Inverter external device communication loss may be caused by external device power supply issues, mismatched Communication Protocols, or no corresponding external device configured, etc.	The determination is made based on the actual model and detection enable bit; peripherals not supported by some models will not be detected.
F55	Back-upOutput Overload	Prevent continuous Overload output of the inverter.	Turn off some off-grid loads to reduce the inverter's off-grid output power.
F56	Back-upOutput Overvoltage	Prevent load damage caused by inverter output overvoltage.	1. If it occurs occasionally, it may be caused by load switching and requires no manual intervention. 2. If it occurs frequently, please contact your dealer or after-sales service center.
F57	ExternalBox Fault	During Switch On-Grid to Off-Grid, the waiting time forBoxrelay switching is too long	1. Check whetherBoxis working properly; 2. Check whetherBoxcommunication wiring is correct;
F58	CTLoss	CTconnection cable disconnected (Japanese safety standard requirement)	Check whetherCTwiring is correct;
F59	ParallelCAN Comm Abnormal	Parallel communication cable is not securely connected, or a machine is offline.	Check whether all machines are powered on and whether the parallel communication cable is securely connected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F60	ParallelBack-upLine Reversed	On some machines, thebackupline is reversed with others	Reconnect thebackupline.
F61	Inverter Soft Start Failure	Inverter Soft Start Failure during off-grid cold start	Check whether the machine's inverter module is damaged.
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 persists, please 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 persists, please contact your dealer or after-sales service center.
F64	Inverter Internal Failure	Inverter has a 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 persists, please contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F65	AC Terminal Overtemperature	AC Terminal Overtemperature. Possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan operation abnormal.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If ventilation is absent or the Ambient Overtemperature occurs, improve the ventilation and heat dissipation conditions. 3. If ventilation and ambient temperature are normal, contact your distributor 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 operation abnormal.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If ventilation is absent or the Ambient Overtemperature occurs, improve the ventilation and heat dissipation conditions. 3. If ventilation and ambient temperature are normal, contact your distributor or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F67	BoostModule Overtemperature	BoostModule Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan operation abnormal.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If ventilation is absent or the Ambient Overtemperature occurs, improve the ventilation and heat dissipation conditions. 3. If ventilation and ambient temperature are normal, contact your distributor or after-sales service center.
F68	AC Capacitor Overtemperature	Output filter capacitor overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan operation abnormal.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If ventilation is absent or the Ambient Overtemperature occurs, improve the ventilation and heat dissipation conditions. 3. If ventilation and ambient temperature are normal, contact your distributor or after-sales service center.
F69	PV IGBT Short Circuit Fault	Possible causes: 1. IGBTShort Circuit 2. Inverter sampling circuit 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 persists, please contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F70	PV IGBTOpen Circuit	1. No PWM output due to software issue: 2. Drive circuit abnormal: 3. IGBTOpen Circuit	
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 persists, please 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 persists, please 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 persists, please contact your dealer or after-sales service center.
F74	Microelectronic 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 persists, please 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 persists, please contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F76	1.5VRef 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 persists, please contact your dealer or after-sales service center.
F77	0.3VRef 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 persists, please contact your dealer or after-sales service center.
F79	CPLDComm Failure	CPLDandDSPcommunication content 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 persists, please contact your dealer or after-sales service center.
F80	Model identification fault	Fault related to 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 persists, please contact your dealer or after-sales service center.

8.5.2.2.3 Fault Handling (Fault Codes F81-F121)

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F81	P-Bus Overvoltage	BUSovervoltage, possible causes: 1. PVvoltage is too high; 2. InverterBUSvoltage sampling is abnormal; 3. The isolation effect of the dual-split transformer at the inverter rear end is poor, causing two inverters to affect each other when connected to the grid; one of the inverters reports DC overvoltage when connected to the grid;	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 persists, please contact your dealer or after-sales service center.
F82	N-Bus Overvoltage		
F83	Bus Overvoltage (AuxiliaryCPU1)		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 persists, please contact your dealer or after-sales service center.
F84	P-Bus Overvoltage (AuxiliaryCPU1)		

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F85	N-Bus Overvoltage (AuxiliaryCPU1)	BUSovervoltage, possible causes: 1. PVvoltage is too high; 2. InverterBUSvoltage sampling is abnormal; 3. The isolation effect of the dual-split transformer at the inverter rear end is poor, causing two inverters to affect each other when connected to the grid; one of the inverters reports DC overvoltage when connected to the grid;	
F86	Bus Overvoltage (AuxiliaryCPU2)		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 persists, please contact your dealer or after-sales service center.
F87	P-Bus Overvoltage (AuxiliaryCPU2)		

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F88	N-Bus Overvoltage (AuxiliaryCPU2)	BUSovervoltage, possible causes: 1. PVvoltage is too high; 2. InverterBUSvoltage sampling is abnormal; 3. The isolation effect of the dual-split transformer at the inverter rear end is poor, causing two inverters to affect each other when connected to the grid; one of the inverters reports DC overvoltage when connected to the grid;	
F89	P-Bus Overvoltage(CPLD)		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 persists, please contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F90	N-Bus Overvoltage(CPLD)	BUSovervoltage, possible causes: 1. PVvoltage is too high; 2. InverterBUSvoltage sampling is abnormal; 3. The isolation effect of the dual-split transformer at the inverter rear end is poor, causing two inverters to affect each other when connected to the grid; one of the inverters reports DC overvoltage when connected to the grid;	
F91	FlyCap Software Overvoltage	FlyCap Overvoltage, possible causes: 1. PVvoltage is too high; 2. Inverter flying capacitor voltage sampling abnormal;	Disconnect the AC output side switch and DC input side switch,5minutes later, close the AC output side switch and DC input side switch. If the fault persists, please contact your dealer or after-sales service center.
F92	FlyCap Hardware Overvoltage		

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F93	FlyCap Undervoltage	FlyCap Undervoltage, possible causes: 1. PVenergy insufficient; 2. Inverter flying capacitor voltage sampling abnormal;	Disconnect the AC output side switch and DC input side switch,5minutes later, close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F94	FlyCap Precharge Failure	FlyCap Precharge Failure, possible causes: 1. PVenergy insufficient; 2. Inverter flying capacitor voltage sampling abnormal;	Disconnect the AC output side switch and DC input side switch,5minutes later, close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F95	FlyCap Precharge Abnormal	1. Control loop parameters are unreasonable 2. Hardware damage	Disconnect the AC output side switch and DC input side switch,5minutes later, close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F96, F97	String Overcurrent(String1-n) n: Determine according to the inverter's actual Number of Strings.	Possible causes: 1. String overcurrent; 2. String current sensor abnormal	Disconnect the AC output side switch and DC input side switch,5minutes later, close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F99, F100	String Loss(String1-n) n: Determine according to the inverter's actual Number of Strings.	String fuse open (if applicable)	Check whether the fuse is open.
F101	Battery1Precharge Failure	Battery1Precharge Circuit Failure (precharge resistor burnt out, etc.)	Check whether the precharge circuit is in good condition. After only the battery is powered on, check whether the Battery Voltage and bus voltage are consistent. If they are not consistent, contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F102	Battery1Relay Failure	Battery1relay fails to 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, contact your dealer or after-sales service center.
F103	Battery1Overvoltage	Battery1input voltage exceeds the machine's rated range.	Confirm whether the Battery Voltage is within the rated range of the machine.
F104	Battery2Precharge Failure	Battery2Precharge Circuit Failure (precharge resistor burnt out, etc.)	Check whether the precharge circuit is in good condition. After only the battery is powered on, check whether the Battery Voltage and bus voltage are consistent. If they are not consistent, contact your dealer or after-sales service center.
F105	Battery2Relay Failure	Battery2relay fails to 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, contact your dealer or after-sales service center.
F106	Battery2Overvoltage	Battery2input voltage exceeds the machine's rated range.	Confirm whether the Battery Voltage is within the rated range of the machine.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F107	On-grid PWM Sync Failure	Abnormality occurred during carrier synchronization and grid connection.	1. Check whether the synchronization cable is connected properly 2. Check whether the master-slave settings are normal; 3. 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.
F108	DSPCommunication Failure	-	-
F109	ExternalSTSFault	Inverter andSTSconnecting cable is abnormal.	Check whether the inverter andSTSare connected with the harness in one-to-one sequential correspondence.
F110	Export Limit Protection	1. Inverter reports an error and disconnects from the grid 2. metercommunication is unstable 3. Reverse power flow condition occurs	1. Check whether the inverter has other error messages. If so, take targeted measures; 2. Check whethermeterconnection is reliable; 3. If this alarm occurs frequently and affects the normal power generation of the plant, please contact your distributor or after-sales service center.
F111	BypassOverload	-	-
F112	Black Start Failure	-	-

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F113	Offgrid AC Ins Volt High	-	-
F114	Relay Failure2	Relay abnormality, cause: 1. Relay abnormality (relay short circuit) 2. Relay sampling circuit abnormality. 3. AC side wiring abnormality (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 persists, please contact your dealer or after-sales service center.
F115	SVGPrecharge Disabled	SVGPrecharge Hardware Failure	Contact the distributor or after-sales service center.
F116	SVG ModeSVG PIDPrevention Failure	PIDHardware Abnormality	
F117	DSPVersion Error	DSPSoftware Version Identification 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 persists, please contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F118	MOSContinuous Overvoltage	1. Software issue causes the inverter drive to be disabled earlier than the flyback drive: 2. Inverter drive circuit abnormality causes failure to turn on: 3. PVvoltage is too high; 4. Mosvoltage sampling 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 persists, please contact your dealer or after-sales service center.
F119	Bus short circuit fault	Hardware damage	If aBUSshort circuit fault occurs and the inverter remains disconnected from the grid, 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 persists, please contact your dealer or after-sales service center.
F121	DCSample Abnormal	1. BUSVoltage sampling hardware fault 2. Battery Voltage sampling hardware fault 3. DcrlyRelay 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 persists, please contact your dealer or after-sales service center.

8.5.2.2.4 Troubleshooting (Fault Codes F122-F171)

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F122	PVInput Mode Error	PVAccess Mode has three modes, taking four-channelMPPTas an example: 1. Parallel Mode: i.e.,AAAAmode(same-source mode），PV1-PV4are from the same source,4-channelPVconnect to the same PV panel 2. Partially Parallel Mode: i.e.,AACCmode,PV1andPV2are connected to the same source,PV3andPV4are connected to the same source 3. Independent Mode: i.e.,ABCDmode(non-common-source），PV1、PV2、PV3、PV4are connected independently,4-channelPVeach connected to a separate PV panel	Check whetherPVAccess Mode is set correctly (ABCD、AACC、AAAA), then re-set thePVAccess Mode 1. Confirm whether eachPVchannel is correctly connected; 2. IfPVis correctly connected, check viaAPPor the screen whether the currently set "PVAccess Mode" matches the actual Access Mode; 3. If the currently set "PVAccess Mode" does not match the actual Access Mode, you need to useAPPor the screen to set the "PVAccess Mode" to a mode consistent with the actual situation. After setting, disconnectPVandACpower and restart; 4. After setting, if the currently set "PVAccess Mode" matches the actual Access Mode, but this fault is still reported, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
		If the actualPVAccess Mode does not match thePVAccess Mode set on the device, this fault will be reported.	
F123	Multi-channelPVPhase Error	PVInput Mode Setting Error	Check whetherPVAccess Mode is set correctly (ABCD、AACC、AAAA), then re-set thePVAccess Mode 1. Confirm whether eachPVchannel is correctly connected; 2. IfPVis correctly connected, check viaAPPor the screen whether the currently set "PVAccess Mode" matches the actual Access Mode; 3. If the currently set "PVAccess Mode" does not match the actual Access Mode, you need to useAPPor the screen to set the "PVAccess Mode" to a mode consistent with the actual situation. After setting, disconnectPVandACpower and restart; 4. After setting, if the currently set "PVAccess Mode" matches the actual Access Mode, but this fault is still reported, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
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 properly.
F127	BAT Overtemperature	Battery overtemperature. Possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan operation 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 persists, please contact your dealer or after-sales service center.
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 persists, please contact your dealer or after-sales service center.
F129	Cabinet Under Temperature	Cabinet Under Temperature. Possible cause: ambient temperature too low.	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 persists, please contact your dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F130	ACsideSPDFault	ACside SPD failure	ReplaceACside SPD.
F131	DCsideSPDFault	DCside SPD failure	ReplaceDCside SPD.
F132	Internal Fan Abnormal	Internal Fan Abnormal, possible causes: 1. Abnormal fan power supply; 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 persists, please contact your dealer or after-sales service center.
F133	External Fan Abnormal	External Fan Abnormal, possible causes: 1. Abnormal fan power supply; 2. Mechanical fault(locked rotor）; 3. Fan aging damage.	
F134	PIDAbnormal	PIDhardware fault orPVovervoltage causesPIDpause	PVovervoltage-inducedPIDpause warning requires no action,PIDhardware fault can be cleared by turning offPIDswitch and turning it on again to clear thePIDfault; replace thePIDdevice.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F135	Trip-Switch Trip Warning	Possible causes: Overcurrent orPVreverse connection caused the trip switch to open;	Contact the dealer or after-sales service center; the cause of tripping is the occurrence ofPVshort circuit or reverse connection; it is necessary to check whether there are historicalPVshort-circuit warnings or historicalPVreverse-connection warnings. If any exist, maintenance personnel need to check the correspondingPVconditions. After inspection finds no fault, the trip switch can be manually closed, and the warning can be cleared through theAPPinterface's clear historical fault operation.
F136	HistoricalPV IGBT short-circuit warning	Possible causes: Overcurrent caused the trip switch to open;	Contact the dealer or after-sales service center; maintenance personnel should refer to the historicalPVshort-circuit warning subcode to check whether theBoosthardware and external strings where the short circuit occurred are faulty; after inspection finds no fault, the warning can be cleared through theAPPinterface's clear historical fault operation.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F137, F138	HistoricalPVreverse-connection warning(String1-n) (n: determined according to the actual Number of Strings of the inverter)	Possible causes: Occurrence ofPVreverse connection caused the trip switch to open;	Contact the dealer or after-sales service center; maintenance personnel should refer to the historicalPVreverse-connection warning subcode and check whether the corresponding string has reverse connection; check whether thePVpanel configuration has a voltage difference; after inspection finds no fault, the warning can be cleared through theAPPinterface's clear historical fault operation.
F139	FlashR/W Error	Possible causes: 1. Flashcontent changed; 2. Flashlifespan exhausted;	1. Upgrade to the latest firmware; 2. Contact the distributor 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. Incorrect wiring of the communication cable between the meter and inverter.	Check the meter wiring and ensure the meter is connected correctly. If the fault persists after checking, 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 the distributor or after-sales service center.
F142	PV String Mismatch	PVString Mismatch, under the sameMPPT, the two strings have different open-circuit voltage configurations	Check the open-circuit voltages of the two PV strings. Configure PV strings with the same open-circuit voltage under the sameMPPT. Long-term PV String Mismatch poses a safety hazard.
F143	CTNot Connected	CTNot Connected	Check whetherCTwiring.
F144	CTReversed	CTReversed	Check whetherCTwiring.
F145	PE Loss	PE Not Connected	Check the PE cable.
F146	PV String Terminal Overtemperature(String 1~8)	37176register:PVterminal temperature alarm subcode1is set.	-
F147	PV String Terminal Overtemperature(String 9~16)	37177register:PVterminal temperature alarm subcode2is set.	-
F148	PV String Terminal Overtemperature(String 17~20)	37178register:PVterminal 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;	Contact the dealer or after-sales service center; maintenance personnel should refer to the historicalPVreverse-connection warning subcode and check whether the corresponding string has reverse connection; check whether thePVpanel configuration has a voltage difference; after inspection finds no fault, the warning can be cleared through theAPPinterface's clear historical fault operation.
F150	Battery1Voltage Low	Battery Voltage is below the set value.	-
F151	Battery2Voltage Low	Battery Voltage is below the set value.	-
F152	Low Voltage of Battery Power	Battery is not in charging mode, and the voltage is lower than the shutdown voltage.	-
F153	Battery1Voltage High	-	-
F154	Battery2Voltage 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 PV string installation environment is humid for a long time, and the line-to-ground insulation is poor.	1. Check the impedance of the PV strings 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, please reconfigure the "Insulation Impedance Protection Point".
F156	Micro-grid Overload Warning	backupterminal input current too high	Occasional occurrence requires no action; if this alarm occurs frequently, please contact your dealer or after-sales service center.
F157	Manual Reset	-	-
F158	Generator Phase Sequence Abnormal	-	-
F159	Multiplexed Port Configuration Abnormal	Multiplexed(generator）port is configured as Micro-grid or large load, but a generator is actually connected	When usingAPPto change the multiplexed(generator）port configuration.
F160	EMSForced Off-grid	EMSissues a forced off-grid command, but the off-grid function is not enabled	Enable the off-grid function.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F161	Passive Anti-islanding Protection	-	-
F162	Grid Type Fault	Actual Type of Electrical Supply System(two-phase or split-phase） does not match the configured safety standard	Switch to the corresponding safety standard according to the actual Type of Electrical Supply System.
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 caused by 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 not, contact your local power operator.
F166	PV Terminal Overtemperature	PV Terminal Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan operation abnormal.	

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F167	AC Terminal Overtemperature Warning	AC Terminal Overtemperature. Possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan operation abnormal.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If ventilation is absent or the Ambient Overtemperature occurs, improve the ventilation and heat dissipation conditions. 3. If ventilation and ambient temperature are normal, please contact the dealer or after-sales service center.
F168	Bat Terminal Overtemperature	Bat Terminal Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature.	
F169	Bat Terminal Overtemperature Warning	Bat Terminal Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature.	

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F170	STS Overtemperature	STS Overtemperature, possible causes: 1. The STS is installed in a location without ventilation. 2. Ambient Overtemperature.	
F171	Inverter and Battery Wiring Abnormal	Abnormal power line connection between the battery and inverter	Check whether the power line connection between the battery and inverter is normal.

8.5.2.2.5 Fault Symptom Handling

Fault Name	Fault Cause	Troubleshooting Suggestions
Generator Failure	1. When the generator is Not Connected, this fault will be displayed continuously 2. When the generator is running, failure to meet generator safety requirements will trigger this fault	1. When the generator is not connected, ignore this fault; 2. If this fault occurs when the generator is faulty, it is normal. After the generator recovers, wait for a period of time and 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 at the same time and meet safety requirements, the grid will be prioritized for grid connection, and the system will operate in grid-connected state.

Fault Name	Fault Cause	Troubleshooting Suggestions
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.
Ambient Overtemperature	1. Poor ventilation of the machine 2. Hot air flows back to the ambient temperature sampling point	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.
PV Terminal Overtemperature	PV Terminal Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan operating abnormally.	1. Check whether ventilation at the inverter installation location is good and whether the ambient temperature exceeds the maximum allowed ambient temperature range. 2. If there is no ventilation or Ambient Overtemperature occurs, improve ventilation and heat dissipation conditions. 3. If ventilation and ambient temperature are normal, contact your dealer or after-sales service center.
Bat Terminal Overtemperature	Bat Terminal Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature.	1. Check whether ventilation at the inverter installation location is good and whether the ambient temperature exceeds the maximum allowed ambient temperature range. 2. If there is no ventilation or Ambient Overtemperature occurs, improve ventilation and heat dissipation conditions. 3. If ventilation and ambient temperature are normal, contact your dealer or after-sales service center.

Fault Name	Fault Cause	Troubleshooting Suggestions
AC Terminal Overtemperature Warning	AC Terminal Overtemperature. Possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. Internal fan operating abnormally.	
Bat Terminal Overtemperature Warning	Bat Terminal Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature.	1. Check whether ventilation at the inverter installation location is good and whether the ambient temperature exceeds the maximum allowed ambient temperature range. 2. If there is no ventilation or Ambient Overtemperature occurs, improve ventilation and heat dissipation conditions. 3. If ventilation and ambient temperature are normal, contact your dealer or after-sales service center.
Three-phase on-grid fault	Three-phase external wiring error	Reconnect the wiring.
External STS Failure	Abnormal connection cable between the inverter and STS	Check whether the wire harness connection sequence between the inverter and STS corresponds one-to-one in order.

Fault Name	Fault Cause	Troubleshooting Suggestions
Parallel Comm Timeout Shutdown	In parallel operation, if the slave exceeds400seconds without communication to the master	Check whether the parallel communication harness is reliably connected, and check whether the slave addresses are duplicated.
Three-phase off-grid phase loss fault	Three-phase system phase loss	1. Check whether all inverters are powered on; 2. Check whether each phase of the three-phase system is connected to an inverter;
EPO	External trigger of the hardware EPO button or remote trigger of the EPO command	1. If Remote Shutdown is actively triggered, it can be ignored; 2. If there is no active trigger,please contact your distributor or after-sales service center.

Fault Name	Fault Cause	Troubleshooting Suggestions
High Combustible Gas Concentration	The combustible gas device automatically triggers when it detects a concentration of 20% LEL or above	1. After a fault occurs, the machine will automatically open the air valve to exhaust gas and reduce the concentration. When the concentration drops below 5% LEL and remains so for 15 minutes, the fault will be automatically cleared. 2. After a fault occurs, if a cluster-level Fire Fighting Failure is triggered, the air valve will be automatically closed, and the air valve status will be confirmed within 30s to ensure that cluster-level fire fighting Protection is executed in an enclosed space. 3. Please contact your distributor or after-sales service center.
The air valve open command from the combustible gas device is inconsistent with the feedback signal	The control signal for opening the air valve is inconsistent with the feedback signal	1. Check that the wiring harness signal connection is normal. 2. Please contact your distributor or after-sales service center.
One-click Shutdown Stop	Check via the App whether the one-click shutdown function is enabled	Disable one-click shutdown.
Offline Shutdown	-	-

Fault Name	Fault Cause	Troubleshooting Suggestions
Remote Shutdown	-	-
On-Grid SPD Fault	-	1. Try restarting the machine and observe whether the fault is cleared; 2. If the fault cannot be cleared after restarting, please contact your distributor or after-sales service center.
Off-Grid SPD Fault	-	1. Try restarting the machine and observe whether the fault is cleared; 2. If the fault cannot be cleared after restarting, please contact your distributor or after-sales service center.
Child Node Communication Failure	Internal Comm Abnormal	1. Try restarting the machine and observe whether the fault is cleared; 2. If the fault cannot be cleared after restarting, please contact your distributor or after-sales service center.
Dehumidifier Communication Failure	Abnormal communication link between the dehumidifier and the LC control box	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 restarting, please contact your distributor or after-sales service center.

Fault Name	Fault Cause	Troubleshooting Suggestions
Combustible Gas Detection Device Communication Failure	1. The combustible gas device was not properly configured with RS-485 address 2 at the factory. 2. Abnormal communication link between the combustible gas device and the LC control box	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. Use the method provided by the combustible gas manufacturer to check whether the address of the combustible gas device is 2. If not, modify it; 4. If the fault cannot be cleared after restarting, please contact your distributor or after-sales service center.
DG Communication Failure	Abnormal communication link 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, please contact your dealer or after-sales service center.
Battery Over Voltage	1. Single cell voltage is too high 2. Voltage sampling line abnormal	Record the fault symptom, 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.
	1. Battery total voltage is too high 2. Voltage sampling line abnormal	
Battery Undervoltage	1. Single cell voltage is too low 2. Voltage sampling line abnormal	

Fault Name	Fault Cause	Troubleshooting Suggestions
	1. Battery total voltage is too low 2. Voltage sampling line abnormal	
Battery Overcurrent	1. Charging Current is too high, battery current limiting is abnormal: sudden changes in temperature and voltage values 2. Inverter response abnormal	
	Battery discharge current is too high	
Battery Overtemperature	1. Ambient Overtemperature 2. Temperature sensor abnormal	
Battery Undertemperature	1. Ambient temperature is too low 2. Temperature sensor abnormal	
Battery Terminal Overtemperature	Terminal temperature is too high	

Fault Name	Fault Cause	Troubleshooting Suggestions
Battery Imbalance	1. At different stages, if the temperature difference is too large, the battery will limit battery power, i.e., limit the charge and discharge current. Therefore, this problem is generally unlikely to occur. 2. Cell capacity degradation leads to excessive internal resistance; under Overcurrent, the temperature rise is large, resulting in a large temperature difference. 3. Poor welding of cell tabs causes the cell temperature to rise too quickly under Overcurrent. 4. Temperature sampling issue; 5. Power line connection loose	

Fault Name	Fault Cause	Troubleshooting Suggestions
	1. Inconsistent degree of cell aging 2. Slave board chip issues can also cause excessive cell voltage difference; 3. Slave board balancing issues can also cause excessive cell voltage difference 4. Caused by wiring harness issues	
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 both ends of the pre-charging MOS always exceeds the specified threshold. After shutdown and restart, observe whether the fault persists, and check whether the wiring is correct and whether the pre-charging MOS is damaged.
Sampling line fault	Battery sampling line has poor contact or is disconnected	Check the wiring and restart the battery. If the problem persists after restart, contact the after-sales service center.
	Cell voltage sampling line has poor contact or is disconnected	Check the wiring and restart the battery. If the problem persists after restart, contact the after-sales service center.

Fault Name	Fault Cause	Troubleshooting Suggestions
	Cell temperature sampling line has poor contact or is disconnected	
	Dual-channel current comparison error is too large, or the current sampling line circuit is abnormal	
	Dual-channel voltage comparison error is too large, or the voltage comparison error between MCU and AFE is too large, or the voltage sampling line circuit is abnormal	
	Temperature sampling line circuit is abnormal or has poor contact or is disconnected	
	Overvoltage level 5 or overtemperature level 5, three-terminal fuse blown	Three-stage 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. Power off and let it stand for 2 h until the temperature recovers.

Fault Name	Fault Cause	Troubleshooting Suggestions
Shunt overtemperature	Shunt overtemperature	This fault indicates that the shunt temperature exceeds the specified threshold. Power off and let it stand for 2 h until the temperature recovers.
BMS1 Other Fault 1 (Household Energy Storage Type)	Relay or MOS open circuit	1. Upgrade the software, power off and let it 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, power off and let it stand for 5 minutes; after restart, check whether the fault persists; 2. If it persists, replace the battery pack
	Abnormal communication between the master 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 cable connection to the master unit is normal 2. Upgrade the software
	The battery system return line harness is abnormal, causing the interlock signal not to form a loop	Check whether the termination resistor is installed correctly
	Abnormal communication between BMS and PCS	1. Confirm whether the communication cable interface definition between the battery and the inverter is correct; 2. Please contact the after-sales service center, check the backend data, and observe whether the inverter and battery software match correctly.

Fault Name	Fault Cause	Troubleshooting Suggestions
	Abnormal communication harness between the BMS master control and slave control	1. Check the wiring and restart the battery; 2. Upgrade the battery. If the problem persists after restart, contact the after-sales service center.
	Loss of communication between main negative chips	
	Circuit breaker and shunt trip abnormality	1. Power off and let stand for 5 minutes; after restart, check whether the fault persists; 2. Observe the blind-mate connectors at the bottom of the PACK and PCU, and check whether the communication pins are loose or skewed;
	MCU self-test failure	Upgrade the 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 BMS board is damaged 2. The number of inverters in parallel is large, causing excessive inrush during battery pre-charging	1. Upgrade the software and observe whether the fault persists 2. If operating in parallel, black-start the battery first, then start the inverters

Fault Name	Fault Cause	Troubleshooting Suggestions
	MCU internal fault	Upgrade the software and restart the battery. This is generally caused by a damaged MCU or external component. If the problem persists after restart, please contact the after-sales service center.
	Total control current exceeds the specified threshold	1. Power off and let stand for 5 minutes; after restart, check whether the fault persists; 2. Check whether the inverter power is set too high, causing the bus load to be exceeded;
	Cell inconsistency in parallel battery clusters	Check whether the cells of the parallel battery clusters are consistent
	Reverse polarity connection of parallel battery clusters	Check whether the positive and negative terminals of the parallel battery clusters are reversed
	Severe over-temperature, over-voltage, etc. triggering the fire protection system	Contact the after-sales service center.
Air Conditioner Failure	Air conditioner abnormal failure	Try restarting the system. If the fault is not cleared, please contact the after-sales service center.
	Cabinet door not closed	Check whether the cabinet door is properly closed
	Supply voltage too high	

Fault Name	Fault Cause	Troubleshooting Suggestions
	Insufficient supply voltage	Confirm whether the supply voltage meets the air conditioner input voltage requirements. After confirming it meets the requirements, power on again.
	No voltage input	
	Unstable supply voltage	
	Unstable compressor voltage	Try restarting the system. If the fault is not cleared, please contact the after-sales service center.
	Sensor poor contact or damage	
	Air conditioner fan fault	
BMS1 Other Fault 2 (Residential ESS)	Abnormal voltage or current inside DCDC	Refer to the specific DC Failure details.
	DCDC Overload or excessively high heat sink temperature, etc.	
	Cell sampling abnormality or inconsistent aging levels	Please contact the after-sales service center.
	Fan action not executed normally	Please contact the after-sales service center.
	Output port screws loose or poor contact	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.

Fault Name	Fault Cause	Troubleshooting Suggestions
	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 BMS board is damaged 2. The number of inverters in parallel is large, causing excessive inrush during battery pre-charging	1. Upgrade the software and observe whether the fault persists. 2. If operating in parallel, black-start the battery first, then start the inverter.
	Heating film damaged	Please contact the after-sales service center.
	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, cell type, and hardware model are consistent. If inconsistent, please contact the after-sales service center.
	Thermal management board communication disconnected	1. Power off and let stand 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 triggered	

Fault Name	Fault Cause	Troubleshooting Suggestions
DCDC Failure	Output port overvoltage	Check the output port voltage. If the output port voltage is normal and the fault still cannot clear by itself 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 let it stand for 2 h. If ineffective and the fault still exists after restart, please contact the after-sales service center.
	Heat sink temperature too high	Let the battery stand for 1 h until the heat sink temperature drops. If ineffective and the fault still exists after restart, please contact the after-sales service center.
	Battery discharge current is too high	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 still exists 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 battery cluster or PCS	Turn off the battery manual switch, check whether the output port wiring is correct, and restart the battery.

Fault Name	Fault Cause	Troubleshooting Suggestions
	Output power relay cannot close	Check whether the output port wiring is correct and whether a short circuit exists. If it is ineffective and the fault still exists after restarting, please contact the after-sales service center.
	Power device overtemperature	Let the battery rest for 1 h until the temperature of the power devices inside the battery drops. If it is ineffective and the fault still exists after restarting, please contact the after-sales service center.
	Relay sticking	If the fault still exists after restarting, please contact the after-sales service center.
Battery Rack Circulating Current Failure	1. Cell imbalance 2. First power-on without full-charge calibration	Record the fault symptom, 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.
BMS1 Other Fault 3 (Large-scale Energy Storage Type)	Abnormal communication with Linux module	1. Check whether the communication cable connection is normal 2. Upgrade the software, restart the battery to observe whether the fault persists; if it persists, please contact the after-sales service center.
	Excessive cell temperature rise	Abnormal cell; contact after-sales to replace the pack.
	SOC below 10%	Charge the battery.
	SN writing does not comply with the rules	Check whether the number of SN digits is normal; if abnormal, please contact the after-sales service center.

Fault Name	Fault Cause	Troubleshooting Suggestions
	1. Abnormal daisy-chain communication within the battery cluster 2. Inconsistent cell aging levels between battery clusters	1. Check the contact condition of the packs in the single battery cluster 2. Confirm the usage of each battery cluster, such as cumulative charge/discharge capacity and cycle count, etc. 3. Please contact the after-sales service center.
	Excessive humidity inside the pack	-
	Fuse open	Contact after-sales to replace the pack.
	Low battery level	Charge the battery.
BMS1 Other Fault 4 (Large-scale Energy Storage Type)	Air circuit breaker abnormality	Contact after-sales to replace the pack.
	External device abnormality	Contact after-sales to replace the pack.
Contactor Failure 1	-	-
Contactor Failure 2	-	-
Overload Protection (Ksic)	Continuous Overload (exceeding 690 kVA) for 10s	Please contact the after-sales service center.
Overload Protection (Smart Port	Continuous Overload (exceeding 690 kVA) for 10s	Please contact the after-sales service center.

Fault Name	Fault Cause	Troubleshooting Suggestions
Overcurrent Protection (Ksic)	-	-
Overcurrent Protection (Smart Port)	-	-
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	Set the device connected to the meter as the master
Slave AC On Timeout with Master	1. Incorrect slave address setting 2. Slave communication cable is loose	1. Check whether the slave address is duplicated 2. Check whether the parallel communication cable is loose

9 Technical Specifications

9.1 Inverter Parameters

Technical Data	GW6000-ET-20	GW8000-ET-20	GW9900-ET-20	GW10K-ET-20	GW12K-ET-20	GW15K-ET-20
Battery Input Data						
Battery Type	Li-Ion	Li-Ion	Li-Ion	Li-Ion	Li-Ion	Li-Ion
Nominal Battery Voltage (V)	500	500	500	500	500	500
Battery Voltage Range (V)	150~720	150~720	150~720	150~720	150~720	150~720
Start-up Voltage (V)	150	150	150	150	150	150
Number of Battery Input	1	1	1	1	1	1
Max. Continuous Charging Current (A)	30	30	40	40	40	40
Max. Continuous Discharging Current (A)	30	30	40	40	40	40
Max. Charge Power (W)	9000	12000	15000	15000	18000	24000
Max. Discharge Power (W)	6600	8800	11000	11000	13200	16500
PV String Input Data						
Max. Input Power (W) *2	9600	12800	16000	16000	19200	24000
Max. Input Voltage (V) *3*4	1000	1000	1000	1000	1000	1000

MPPT Operating Voltage Range (V) *5	120~850	120~850	120~850	120~850	120~850	120~850
MPPT Voltage Range at Nominal Power (V)	220~850	285~850	260~850	260~850	285~850	380~850
Start-up Voltage (V)	150	150	150	150	150	150
Nominal Input Voltage (V)	620	620	620	620	620	620
Max. Input Current per MPPT (A)	16	16	16	16	16	16
Max. Short Circuit Current per MPPT (A)	24	24	24	24	24	24
Max. Backfeed Current to The Array (A)	0	0	0	0	0	0
Number of MPP Trackers	2	2	3	3	3	3
Number of Strings per MPPT	1	1	1	1	1	1
AC Output Data (On-grid)						
Nominal Output Power (W)	6000	8000	9990	10000	12000	15000
Max. Output Power (W)	6000	8000	9990	10000	12000	15000
Nominal Apparent Power Output to Utility Grid (VA)	6000	8000	9990	10000	12000	15000
Max. Apparent Power Output to Utility Grid (VA) *6	6000	8000	9990	10000	12000	15000

Nominal Apparent Power from Utility Grid (VA)	6000	8000	10000	10000	12000	15000
Max. Apparent Power from Utility Grid (VA)	12000	16000	20000	20000	20000	20000
Nominal Output Voltage (V)	400/380, 3L/N/PE	400/380, 3L/N/PE	400/380, 3L/N/PE	400/380, 3L/N/PE	400/380, 3L/N/PE	400/380, 3L/N/PE
Output Voltage Range (V) *7	170~290	170~290	170~290	170~290	170~290	170~290
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~65	45~65	45~65	45~65	45~65	45~65
Max. AC Current Output to Utility Grid (A) *8	8.7	11.6	14.5	14.5	17.4	21.7
Max. AC Current From Utility Grid (A)	15.7	21	26.1	26.1	26.1	26.1
Max. Output Fault Current (Peak and Duration) (A)	200Aat 1ms	200Aat1 ms	200Aat 1ms	200Aat 1ms	200Aat 1ms	200Aat1 ms
Inrush Current (Peak and Duration) (A)	150Aat 1ms	150Aat1 ms	150Aat 1ms	150Aat 1ms	150Aat 1ms	150Aat1 ms
Nominal Output Current (A)	8.7	11.6	14.3	14.5	17.4	21.7
Power Factor	0.8 leading ~0.8 lagging	0.8 leading ~0.8 lagging	0.8 leading ~0.8 lagging	0.8 leading ~0.8 lagging	0.8 leading ~0.8 lagging	0.8 leading~ 0.8 lagging

Max. Total Harmonic Distortion	<3%	<3%	<3%	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	56	56	56	56	56	56
AC Output Data (Back-up)						
Back-up Nominal Apparent Power (VA)	6000	8000	10000	10000	12000	15000
Max. Output Apparent Power (VA) ·*9	6000 (12,000 at60sec)	8000 (16,000 at60sec)	10000 (18000 at60sec)	10000 (18000 at60sec)	12000 (18000 at60sec)	15000 (18000 at60sec)
Max. Output Apparent Power with Grid (VA)	6000	8000	10000	10000	12000	15000
Nominal Output Current (A)	8.7	11.6	14.5	14.5	17.4	21.7
Max. Output Current (A)	13 (17.4at 60sec)	17.4 (23.3at60sec)	21.7 (26.1at 60sec)	21.7 (26.1at60sec)	21.7 (26.1at60sec)	21.7 (26.1at60sec)
Max. Output Fault Current (Peak and Duration) (A)	56at3us	56at3us	56at3us	56at3us	56at3us	56at3us
Inrush Current (Peak and Duration) (A)	150Aat 1ms	150Aat1ms	150Aat 1ms	150Aat 1ms	150Aat 1ms	150Aat1ms
Maximum Output Overcurrent Protection (A)	56	56	56	56	56	56
Nominal Output Voltage (V)	400/380	400/380	400/380	400/380	400/380	400/380

Nominal Output Frequency (Hz)	50/60	50/60	50/60	50/60	50/60	50/60
Output THDv (@Linear Load)	<3%	<3%	<3%	<3%	<3%	<3%
Efficiency						
Max. Efficiency	98.0%	98.0%	98.2%	98.2%	98.2%	98.2%
European Efficiency	97.2%	97.2%	97.5%	97.5%	97.5%	97.5%
Max. Battery to AC Efficiency	97.2%	97.5%	97.5%	97.5%	97.5%	97.5%
MPPT Efficiency	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%
Protection						
PV Insulation Resistance Detection	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
PV AFCI3.0	Optional	Optional	Optional	Optional	Optional	Optional
Residual Current Monitoring	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
Battery Reverse Polarity Protection	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated

AC Overvoltage Protection	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
DC Surge Protection	Type II	Type II	Type II	Type II	Type II	Type II
AC Surge Protection	Type II	Type II	Type II	Type II	Type II	Type II
Remote Shutdown	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
General Data						
Operating Temperature Range (℃)	-35~+60	-35~+60	-35~+60	-35~+60	-35~+60	-35~+60
Storage Temperature (℃)	-40~+85	-40~+85	-40~+85	-40~+85	-40~+85	-40~+85
Relative Humidity	0~100%	0~100%	0~100%	0~100%	0~100%	0~100%
Operating Environment	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor	Outdoor
Max. Operating Altitude (m)	4000	4000	4000	4000	4000	4000
Cooling Method	Natural Convection	Natural Convection	Natural Convection	Natural Convection	Natural Convection	Natural Convection
User Interface	LED, WLAN+APP	LED, WLAN+APP	LED, WLAN+APP	LED, WLAN+APP	LED, WLAN+APP	LED, WLAN+APP
Communication with BMS	RS485, CAN	RS485, CAN	RS485, CAN	RS485, CAN	RS485, CAN	RS485, CAN
Communication with Meter	RS485	RS485	RS485	RS485	RS485	RS485

Communication with Portal	WiFi+LAN+Bluetooth	WiFi+LAN+Bluetooth	WiFi+LAN+Bluetooth	WiFi+LAN+Bluetooth	WiFi+LAN+Bluetooth	WiFi+LAN+Blueto oth
Weight (kg)	23	23	25	25	25	25
Dimension (W×H×D mm)	496*460*221	496*460*221	496*460*221	496*460*221	496*460*221	496*460*221
Noise Emission (dB)	<30	<30	<30	<30	<45	<45
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W) *10	<15	<15	<15	<15	<15	<15
Ingress Protection Rating	IP66	IP66	IP66	IP66	IP66	IP66
DC Connector	MC4 (4~6mm^2)	MC4 (4~6mm^2)	MC4 (4~6mm^2)	MC4 (4~6mm^2)	MC4 (4~6mm^2)	MC4 (4~6mm^2)
AC Connector	Feed-Through Terminal Blocks UW10	Feed-Through Terminal Blocks UW10	Feed-Through Terminal Blocks UW10	Feed-Through Terminal Blocks UW10	Feed-Through Terminal Blocks UW10	Feed-Through Terminal Blocks UW10
Environmental Category	4K4H	4K4H	4K4H	4K4H	4K4H	4K4H
Pollution Degree	III	III	III	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I	I	I	I

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	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	Wall Mounted	Wall Mounted
Active Anti-islanding Method	AFDPF + AQDPF*11	AFDPF + AQDPF*11	AFDPF + AQDPF*11	AFDPF + AQDPF*11	AFDPF + AQDPF*11	AFDPF + AQDPF*11
Type of Electrical Supply System	Three phase Grid	Three phase Grid	Three phase Grid	Three phase Grid	Three phase Grid	Three phase Grid
Country of Manufacture	China	China	China	China	China	China
Certification*12						
Grid Standards	VDE-AR-N 4105，EN50549-1					
Safety Regulation	IEC62109-1&2					
EMC	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4					

*2: Max. input power, not continuous for 1.6*normal power. Besides, in Australia, for most of the PV modules, the max. input power can reach 2*Pn, for example, the max. input power of GW6000-ET-20 can reach 12000W.

*3: For 1000V system，the maximum operating voltage is 950V.

*4: When the input voltage ranges from 950V to 1000V, the inverter will enter the standby mode. When the input voltage returns to the MPPT operating voltage range, the inverter will resume normal operating mode.

*5: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

*6: According to the local grid regulation.

*7: Output Voltage Range: phase voltage.

*8: When the three-unbalance function is activated, the Max. AC Current Output to the on-grid load can reach 13A, 17.4A, 21.7A, 21.7A and 21.7A respectively.
*9: Can be reached only if PV and battery power is enough.
*10: No Back-up Output.
*11: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.
*12: Not all certifications & standards are listed, check the official website for details.

9.2 Battery Parameters

9.2.1 Lynx home F

Technical parameters	LX F6.6-H	LX F9.8-H	LX F13.1-H	LX F16.4-H
Usable Energy(kWh)*1	6.55	9.83	13.1	16.38
Battery Module	LX F3.3-H: 38.4V 3.27kWh			
Number of Modules	2	3	4	5
Cell Type	LFP（$LiFePO_4$）			
Cell Configuration	64S1P	96S1P	128S1P	160S1P
Nominal Voltage (V)	204.8	307.2	409.6	512
Operating Voltage Range (V)	182.4~230.4	273.6~345.6	364.8~460.8	456~576
Nominal Dis-/Charge Current(A)*2	25			
Nominal Power (kW)*2	5.12	7.68	10.24	12.8
Operating Temperature (℃)	Charge: 0 ~ +50; Discharge: -20 ~ +50			
Relative Humidity	0~95%			

Technical parameters		LX F6.6-H	LX F9.8-H	LX F13.1-H	LX F16.4-H
Max. Operating Altitude (m)		2000			
Communication		CAN			
Weight (kg)		115	158	201	244
Dimensions (W×H×D mm)		600*625*380	600*780*380	600*935*380	600*1090*380
Enclosure Type		IP55			
Installation Location		Grounded			
Standard and Certification	Safety	IEC62619, IEC62040, CEC			
	EMC	CE，RCM			
	Transportation	UN38.3			
*1: Test conditions, 100% DOD, 0.2℃ charge & discharge at +25±2 °C for battery system at beginning life. System Usable Energy may vary with different Inverter. *2: Nominal Dis-/Charge Current and power derating will occur related to Temperature and SOC.					

9.2.2 Lynx home F Plus+

Technical parameters	LX F6.6-H	LX F9.8-H	LX F13.1-H	LX F16.4-H
Usable Energy(kWh)*1	6.55	9.83	13.10	16.38
Battery Module	LX F3.3-H: 38.4V 3.27kWh			
Number of Modules	2	3	4	5
Cell Type	LFP（$LiFePO_4$）			
Cell Configuration	64S1P	96S1P	128S1P	160S1P

Technical parameters		LX F6.6-H	LX F9.8-H	LX F13.1-H	LX F16.4-H
Nominal Voltage (V)		204.8	307.2	409.6	512
Operating Voltage Range (V)		182.4~230.4	273.6~345.6	364.8~460.8	456~576
Nominal Dis-/Charge Current (A)*2		25			
Nominal Power (kW)*2		5.12	7.68	10.24	12.8
Operating Temperature (℃)		Charge: 0 ~ +50; Discharge: -20 ~ +50			
Relative Humidity		0~95%			
Max. Operating Altitude (m)		2000			
Communication		CAN			
Weight (kg)		115	158	201	244
Dimensions (W×H×D mm)		600*610*380	600*765*380	600*920*380	600*1075*380
Enclosure Type		IP55			
Storage Temperature (°C)		-20 ~ +45 (≤ One Month); 0 ~ +35 (< One Year)			
Mounting Method		Grounded			
Round-trip Efficiency		96.4%			
Cycle Life		≥ 3500 @1C/1C			
Standard and Certification	Safety	IEC62619, IEC 62040, VDE2510-50, CEC			
	EMC	CE，RCM			
	Transportation	UN38.3			

Technical parameters	LX F6.6-H	LX F9.8-H	LX F13.1-H	LX F16.4-H
*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 Dis-/Charge Current and power derating will occurrelated to Temperature and SOC. *3 : Based on 2.5~3.65V voltage rang @25+2°C of Cell under 11C/1C test condition and 80% EOL.				

9.2.3 Lynx home F G2

Technical Data	LX F6.4-H-20	LX F9.6-H-20	LX F12.8-H-20	LX F16.0-H-20	LX F19.2-H-20	LX F22.4-H-20	LX F25.6-H-20	LX F28.8-H-20
Usable Energy (kWh)*1	6.4	9.6	12.8	16.0	19.2*2	22.4*2	25.6	28.8
Battery Module	LX F3.2-20：64V 3.2kWh							
Number of Modules	2	3	4	5	6	7	8	9
Cell Type	LFP ($LiFePO_4$)							
Cell Configuration	(20S)2 S1P	(20S)3 S1P	(20S)4 S1P	(20S)5 S1P	(20S)6 S1P	(20S)7 S1P	(20S)8 S1P	(20S)9 S1P
Nominal Voltage (V)	128	192	256	320	384	448	512	576
Operating Voltage Range (V)	114.8 ~144. 4	172.2 ~216. 6	229.6~ 288.8	287~3 61	344.4~ 433.2	401.8~ 505.4	459.2~ 577.6	516.6~ 649.8
Nominal Dis-/Charge Current (A)*3	35							

Technical Data	LX F6.4-H-20	LX F9.6-H-20	LX F12.8-H-20	LX F16.0-H-20	LX F19.2-H-20	LX F22.4-H-20	LX F25.6-H-20	LX F28.8-H-20
Max. Continuous Dis-/Charge Current (A)	35							
Nominal Power (kW)*3	4.48	6.72	8.96	11.2	13.44	15.68	17.92	20.16
Operating Temperature Range (℃)*4	-20~+50							
Relative Humidity	0 ~ 95%							
Max. Operating Altitude (m)	3000							
Communication	CAN							
Weight (kg)	86	120	154	188	222	256	290	324
Dimensions (W×H×D mm)	600×559×380	600×715×380	600×871×380	600×1027×380	600×1183×380	600×1339×380	600×1495×380	600×1651×380
Ingress Protection Rating	IP55							
Storage Temperature (℃)	-20~+45(≤One Month) ; 0~+35(≤One Year)							
Mounting Method	Grounded							

Technical Data		LX F6.4-H-20	LX F9.6-H-20	LX F12.8-H-20	LX F16.0-H-20	LX F19.2-H-20	LX F22.4-H-20	LX F25.6-H-20	LX F28.8-H-20
Round-trip Efficiency		94%							
Cycle Life*5		> 4000							
Standard and Certification	Safety	IEC62619、IEC62040-1、IEC63056、VDE2510、 CE							
	EMC	CE, RCM							
	Transportation	UN38.3							

9.2.4 Lynx home D

Technical parameters	LX D5.0-10
Usable energy (kWh)*1	5
Cell Type	LFP (LiFePO4)
Cell Configuration	16S1P
Nominal Voltage (V)	Charge: 435V; Discharge: 380V
Operating Voltage Range (V)	320~480V
Nominal Charge/Discharge Power (kW)	3
Peak Power	5KW, 10s
Operating Temperature Range (℃)	Charge: 0~+53; Discharge: -20~+53
Relative Humidity	0~95%
Max. Operating Altitude (m)	4000
Communication	CAN
Weight (kg)	52
Dimension (W×H×D mm)	700×380×170
Ingress Protection Rating	IP66
Storage Temperature (℃)	-20~0 (≤ One Months), 0~+35 (≤ One Year)
Mounting Method	Floor stacked, Wall Mounted

Technical parameters		LX D5.0-10
Cycle Life *2		4500
Standard and Certification	Safety	IEC62619、IEC60730、VDE2510-50、 CE 、CEC
	EMC	CE, RCM
	Transportation	UN38.3
*1: Test conditions, 100% DOD, 0.2C charge & discharge at +25±3 °C for battery system at beginning life. Usable energy may vary with different inverter. *2: Based on 2.87~3.59V voltage rang @25+2 °C of Cell under 0.6C/0.6C test condition and 80% EOL		

9.2.5 Lynx D G2

Technical Data	GW5.1-BAT-D-G20	GW8.3-BAT-D-G20	GW5.1-BAT-D-G21	GW8.3-BAT-D-G21
Rated Energy (kWh)	5.12	8.32	5.12	8.32
Usable Energy (kWh)*1	5	8	5	8
Battery Type	LFP ($LiFePO_4$)			
Operating Voltage Range (V) (single phase system)	350~550			
Operating Voltage Range (V) (three phase system)	700~950			
Max. Input Current (System) (A)	12	19	12	19
Max. Output Current (System) (A)	13.2	21	13.2	21
Max. Input Power (System) (kW)*2	5	8	5	8
Max. Output Power (System) (kW)*2	5	8	5	8

Technical Data	GW5.1-BAT-D-G20	GW8.3-BAT-D-G20	GW5.1-BAT-D-G21	GW8.3-BAT-D-G21
Peak.Output Power (System) (kW)*2	7.5 @10s	12 @10s	7.5 @10s	12 @10s
Charging Temperature Range (°C)	-18~55		2~55	
Discharging Temperature Range (°C)	-20~55		-20~55	
Relative Humidity	5-95%			
Max. Operating Altitude (m)	4000			
Noise Emission (dB)	≤29			
Communication	CAN			
Weight (kg)	57.5±1	79±1	57.5±1	79±1
Dimensions (W×H×D mm)	800*326*270			
Optional Function Configuration	heating		/	
Ingress Protection	IP66			
Storage Temperature (℃)	-20 ~55			
Max. Storage time	12 months (-20℃~35℃)			
	6 months (35℃~45℃)			
Scalability	6 pcs			
Mounting Method	Floor stacked / Wall-mounted			
Cycle Life	≥6000 (25±2℃, 0.5C, 90%DOD, 70%EOL)			
Country of Manufacture	China			

Technical Data		GW5.1-BAT-D-G20	GW8.3-BAT-D-G20	GW5.1-BAT-D-G21	GW8.3-BAT-D-G21
Standard and Certification	Safety	IEC62619, IEC60730, EN62477，IEC63056，IEC62040，CE, CEC, VDE2510			
	EMC	CE, RCM			
	Transportation	UN38.3 ADR			

Technical Data	GW6.0-BAT-D-G20	GW9.0-BAT-D-G20
Battery Type	LFP (LiFePO4)	
Rated Capacity (Ah)	314Ah	
Rated Energy (kWh)	6	9
Usable Energy (kWh)*1	5.9	8.85
Nominal Voltage(V) (Battery)	19.2	28.8
Voltage Range(V) (Battery)	16.2~21.9	24.3~32.8
Operating Voltage Range (V) (single phase system)	350~550	
Operating Voltage Range (V) (three phase system)	700~950	
Max. Input Current (System) (A)	7.1	10.7
Max. Output Current (System) (A)	7.9	11.8
Max. Input Power (System) (kW)*2	3	4.5
Max. Output Power (System) (kW)*2	3	4.5
Peak Output Power (System) (kW)*2	4.5 (10s)	6.75 (10s)
Charging Temperature Range(℃)	-20~55	

Technical Data		GW6.0-BAT-D-G20	GW9.0-BAT-D-G20
Discharging Temperature Range (℃)		-20~55	
Relative Humidity		4-100%	
Max. Operating Altitude (m)		4000	
Noise Emission (dB)		≤27	
Communication		CAN&485	
Weight (kg)		61±1kg	77±1kg
Useable Extinguishing Agent		CO2, H2O	
Crucial Material		LiFePO4, C, Cu, LiPF6, Al, (C3H6)n	
Ingress Protection		IP66	
Protective Class		Ⅰ	
Dimensions (W×H×D mm)		800*326*270	
Function Configuration		Heating (Integrated); Aerosol fire extinguishing (Integrated)	
Storage Temperature (℃)		-20 ~55	
Max. Storage time		12 months (-20℃~35℃) 6 months (35℃~45℃)	
Scalability*3		12P	
Mounting Method		Floor stacked / Wall-mounted / Grounded	
Cycle Life		≥6000 （25±2℃ 0.5C 90%DOD 70%EOL）	
Country of Manufacture		China	
Standard and Certification	Safety	IEC62619, IEC60730, EN62477, IEC63056, IEC62040, CE, CEC, Regulation 2023/1542 , VDE2510-50	
	EMC	CE, RCM	
	Transportation	UN38.3 ADR	

*1: Test conditions, 100% DOD (cell 2.85~3.6V voltage range), 0.2P charge & discharge at 25±2 °C for battery system at the beginning of life. Usable energy is defined by its initial design value. Actual available energy may vary depending on charge/discharge rate, environmental conditions (e.g. temperature), transport and storage factors.

*2: Max. Input Power /Max. Output Power/Peak.Output Power derating will occur

related to Temperature and SOC.
*3 For single-column stacked installations, the maximum number of parallel units is 6.

9.3 Smart Meter Technical Specifications

9.3.1 GM330

Model	GM330
Measurement Range	
Supported Type of Electrical Supply System	1P2W/3P3W/3P4W
Operating Voltage (Vac)*	3P4W:100~472 L-N 3P3W:100~472 L-L
Frequency (Hz)	50/60
CT Ratio	nA: 5A
Accuracy Parameters	
Voltage/Current	Class 0.5
Active Energy	Class 0.5
Reactive Energy	Class 1
Communication Parameters	
Communication Method	RS485
Communication Distance (m)	1000
General Parameters	
Dimensions (W*H*D mm)	72*85*72
Housing	4 modules

Model	GM330
Weight (g)	240
Mounting Method	DIN rail
User Interface	4 LEDs, reset button
Power consumption (W)	< 5
Environmental Parameters	
IP Rating	IP20
Operating Temperature Range (℃)	-30-+70
Storage Temperature Range (°C)	-30-+70
Relative Humidity (non-condensing)	0-95%
Max. Operating Altitude (m)	3000

*Supports 1.1× voltage input.

9.3.2 GM3000

Technical Specifications		GM3000
Application		Three-phase
Voltage	Nominal Voltage	3L+N/400V
	Voltage Range	100V~240V
	Frequency	50Hz/60Hz
Current	Rated Current	CT in: 120A/40mA;
	Current Range	0.48A~120A
Power Consumption		<3W
Data Monitoring		Voltage/Current/Active Power/Reactive Power/Power Factor/Frequency
Energy Calculation		Active Power/Reactive Power

Accuracy	Voltage/Current	Class I
	Active Power	Class I
	Reactive Energy	Class II
communication		RS485 (Maximum Rate9600/ModBusProtocol/Maximum Communication Cable Length100m)
Display		LED、USB、ResetButton
Device	Dimensions (Length x Width x Heightmm)	36 x 85 x 66.5
	Weight (g)	450
	Ingress Protection Rating	IP20(Indoor)
	Mounting Method	Backplate Mounting
Operating Temperature		-25 ~ +60° C
Storage Temperature		-25 ~ +60° C
Humidity		<95% Non-condensing
Operating Altitude(m)		< 2000m
Safe Service Life (years)		≥25

9.4 Smart Communication Stick Technical Specifications

9.4.1 WiFi/LAN Kit-20

Technical Specifications		WiFi/LAN Kit-20
Output voltage (V)		5
Power consumption (W)		≤2
Communication interface		USB
Communication parameters	Ethernet	10M/100Mbps adaptive
	Wireless	IEEE 802.11 b/g/n @2.4 GHz
	Bluetooth	Bluetooth V4.2 BR/EDR and Bluetooth LE standard
	Dimensions (W×H×D mm)	48.3*159.5*32.1

Technical Specifications		WiFi/LAN Kit-20
Mechanical Parameters	Weight (g)	82
	Ingress Protection Rating	IP65
	Mounting Method	USB Port Plug/Unplug
Operating Temperature Range (℃)		-30~+60
Storage Temperature Range (℃)		-40~+70
Relative Humidity		0-95%
Max. Operating Altitude (m)		4000

9.4.2 4G Kit-CN-G20

Product Model	4G Kit-CN-G20
Device Management	
Maximum Number of Supported Inverters	1
Power Supply Parameters	
Input Voltage (V)	5
Power Consumption (W)	≤4
Interface Type	USB
Communication Parameters	
4G/3G/2G	LTE-FDD：B1/B3/B5/B8 LTE-TDD：B34/B39/B40/B41
GNSS Positioning	/
Bluetooth	Bluetooth V5.0
Mechanical Parameters	
Dimensions (W×H×D mm)	48.3*95.5*32.1
Weight (g)	87
Indicator Light	LED* 2
Mounting Method	Plug and Play
SIM Card Size	Micro sim, 15mm*12mm
Environmental Parameters	

Product Model	4G Kit-CN-G20
Operating Temperature Range (℃)	-30~+65
Storage Temperature Range (℃)	-40~+70
Relative Humidity	0-100%
IP Rating	IP66
Max. Operating Altitude (m)	4000
Compliant Standards	
Certification	SRRC、CTA

9.4.3 4G Kit-CN-G21

Product Model	4G Kit-CN-G21
Device Management	
Maximum Number of Supported Inverters	1
Power Supply Parameters	
Input Voltage (V)	5
Power Consumption (W)	≤4
Interface Type	USB
Communication Parameters	
4G/3G/2G	LTE-FDD：B1/B3/B5/B8 LTE-TDD：B34/B39/B40/B41
GNSS Positioning	BeiDou, GPS
Bluetooth	Bluetooth V5.0
Mechanical Parameters	
Dimensions (W×H×D mm)	48.3*95.5*32.1
Weight (g)	87
Indicator Light	LED* 2
Mounting Method	Plug and Play

Product Model	4G Kit-CN-G21
SIM Card Size	Micro sim, 15mm*12mm
Environmental Parameters	
Operating Temperature Range (℃)	-30~+65
Storage Temperature Range (℃)	-40~+70
Relative Humidity	0-100%
IP Rating	IP66
Max. Operating Altitude (m)	4000
Compliant Standards	
Certification	SRRC、CTA

9.4.4 Ezlink3000

Model	Ezlink3000
General Parameters	
Connection Interface	USB
Ethernet Interface (Optional)	10/100 Mbps auto-adaptive, communication distance ≤100 m
Mounting Method	Plug and Play
Indicator Light	LED Indicator
Dimensions (W x H x D mm)	49x153x32
Weight (g)	130
Power consumption (W)	≤2 (typical value)
Wireless Parameters	
Bluetooth Communication	Bluetooth 5.1
Wi-Fi Communication	802.11 b/g/n(2.412GHz-2.484GHz)

Model	Ezlink3000
Operating Mode	STA
Environmental Parameters	
Operating Temperature Range (℃)	-30 ~ +60
Storage Temperature Range (°C)	-30 ~ +70
Relative Humidity	0-100% (non-condensing)
Ingress Protection Rating	IP65
Maximum Operating Altitude (m)	4000

9.4.5 LS4G Kit-CN

Technical Specifications	LS4G Kit-CN
General Data	
Maximum Number of Supported Inverters	1
Interface Type	USB
Mounting Method	Plug and Play
Indicator Light	LEDIndicator Light
Dimensions (Width×Height×D mm)	49*96*32
SIMCard Dimensions (mm)	15*12
IPRating	IP65
Power Consumption (W)	<4
Operating Ambient Temperature (℃)	-30~60℃
Storage Ambient Temperature (℃)	-40~70℃

Technical Specifications	LS4G Kit-CN
Relative Humidity	0-100% (non-condensing)
Max. Operating Altitude (m)	4000
Wireless Parameters	
LTE-FDD	B1/B3/B5/B8
LTE-TDD	B34/B38/B39/B40/B41
GSM/GPRS	B3/B8
Safe Service Life (years)	≥25

9.4.6 4G Kit-CN

Technical Specifications	4G Kit-CN
General Data	
Maximum Number of Supported Inverters	1
Interface Type	USB
Mounting Method	Plug and Play
Indicator Light	LEDIndicator Light
Dimensions (Width×Height×D mm)	49*96*32
SIMCard Dimensions (mm)	15*12
IPRating	IP65
Power Consumption (W)	<4
Operating Ambient Temperature (℃)	-30~60℃
Storage Ambient Temperature (℃)	-40~70℃
Relative Humidity	0-100% (non-condensing)
Max. Operating Altitude (m)	4000
Wireless Parameters	
LTE-FDD	B1/B3/B5/B8

Technical Specifications	4G Kit-CN
LTE-TDD	B34/B38/B39/B40/B41
GSM/GPRS	B3/B8
Safe Service Life (years)	≥25

10 Appendix

10.1 FAQ

10.1.1 How to Upgrade the Device Version

Through the firmware information, you can view or upgrade:
The inverter's DSP version, ARM version, communication module software version, battery BMS version, DCDC version, etc.

- **Upgrade Prompt:**

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

- **Regular Upgrade:**

Go to**[Home]** > **[Settings]** > **[Firmware Info]**to enter the firmware information viewing screen.
Tap Check for Updates. If there is a new version, follow the on-screen prompts to complete the upgrade.

- **Forced Upgrade:**

The App pushes an upgrade notification. Users need to upgrade as prompted; otherwise, they cannot use the App. Follow the on-screen prompts to complete the upgrade.

Inverter Software Version Upgrade

- The inverter supports upgrading software throughUSB flash drive.
- When usingUSB flash drive to upgrade the device, please contact the after-sales service center to obtain the software upgrade package and upgrade method.

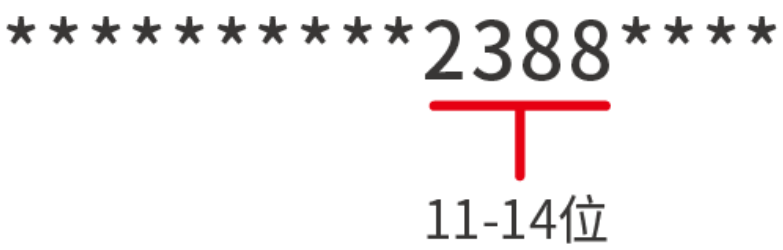
10.2 Terminology Explanation

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

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

- **Environmental Category Explanation:**
  - **Outdoor-type inverter**: Ambient air temperature range is -25 to +60°C, suitable for Pollution Degree 3 environments;
  - **Indoor Type II inverter**: Ambient air temperature range is -25 to +40°C, suitable for Pollution Degree 3 environments;
  - **Indoor Type I inverter**: Ambient air temperature range is 0 to +40°C, suitable for Pollution Degree 2 environments;
- **Pollution Degree Category Explanation**
  - **Pollution Degree 1**: No pollution or only dry, non-conductive pollution;
  - **Pollution Degree 2**: Normally, only non-conductive pollution occurs. However, occasional temporary conductive pollution caused by condensation must be considered;
  - **Pollution Degree 3**: Conductive pollution occurs, or non-conductive pollution becomes conductive due to condensation;
  - **Pollution Degree 4**: Persistent conductive pollution, such as pollution caused by conductive dust, rain, or snow.

10.3 Battery SN Code Meaning



LXD10DSC0002

The 11th to 14th digits of the product SN code are the production time code.
The production date in the above figure is 2023-08-08.

- The 11th and 12th digits are the last two digits of the production year; for example, 2023 is represented as 23;
- The 13th digit is the production month; for example, August is represented as 8; The details are as follows:

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

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

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

Production Day	10	11	12	13	14	15	16	17	18
Code	A	B	C	D	E	F	G	H	J

Production Day	21	22	23	24	25	26	27	28	29

Code	M	N	P	Q	R	S	T	U	V

11 Contact Details

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