V1.4 2026-01-12

Residential Smart Inverter

ET LV 5.0-20kW

LX A5.0-30
GW14.3-BAT-LV-G10
LXU5.0-30

Solutions Manual

GOODWE

Copyright Statement

Copyright Statement

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NOTICE

Due to product version upgrades or other reasons, the document content will be updated periodically. Unless otherwise agreed, the document content cannot replace the safety precautions on product labels. All descriptions in the document are for guidance only.

About This Manual

Overview

The energy storage system consists of inverter, battery system, and smart meter. This manual describes the product information, installation, electrical connection, commissioning, troubleshooting and maintenance of the system. Read through this manual before installing and operating the products to understand product safety information and familiarize yourself with functions and features of the product. This manual is subject to update without notice. For more product details and latest documents, visit https://en.goodwe.com/.

Applicable Model

The energy storage system includes the following products:

Product Type	Product Information	Description
Inverter	GW5K-ET-L-G10	Nominal output power: 5.0kW
	GW6K-ET-L-G10	Nominal output power: 6.0kW
	GW8K-ET-L-G10	Nominal output power: 8.0kW
	GW10K-ET-L-G10	Nominal output power: 10kW
	GW12K-ET-L-G10	Nominal output power: 12kW
	GW15K-ET-L-G10	Nominal output power: 15kW
	GW20K-ET-L-G10	Nominal output power: 20kW
	GW12K-ET-LL-G10	Nominal output power: 12kW
	LX A5.0-30	Rated energy 5.12kWh, maximum support for 30 clusters in parallel
	GW14.3-BAT-LV-G10	Rated energy 14.3kWh, maximum support for 30 clusters in parallel

Product Type	Product Information	Description
Battery system	LX U5.0-30	Rated energy 5.12kWh, maximum support for 30 clusters in parallel
Smart Meter	GM330	Monitoring module in the energy storage system, capable of detecting operational voltage, current, and other information within the system.
Smart dongle	WiFi/LAN Kit-20	Can upload system operation information to the monitoring platform via WiFi or LAN signals.
	4G Kit-CN-G20 (China only)	Can upload system operation information to the monitoring platform via 4G.

Symbol Definition

⚠DANGER
Indicates a high-level hazard that, if not avoided, will result in death or serious injury.
⚠WARNING
Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.
⚠CAUTION
Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.
NOTICE

Highlights key information and supplements the texts. Or some skills and methods to solve product-related problems to save time.

Table of Contents

1 Safety Precautions

Please strictly follow these safety instructions in the user manual during the operation.

⚠WARNING

The products are designed and tested strictly to comply with related safety rules. Follow all the safety instructions and cautions before any operations. Improper operation might cause personal injury or property damage as the products are electrical equipment.

1.1 General Safety

NOTICE

- The information in this document is subject to change due to product updates or other reasons. This document cannot replace the product labels or the safety precautions unless otherwise specified. All descriptions in the manual are for guidance only.
- Before installations, read through the user manual to learn about the product and the precautions.
- All operations should be performed by trained and knowledgeable technicians who are familiar with local standards and safety regulations.
- Use insulating tools and wear personal protective equipment when operating the equipment to ensure personal safety. Wear anti-static gloves, wrist strips, and cloths when touching electronic devices to protect the equipment from damage.
- Unauthorized dismantling or modification may damage the equipment, and the damage is not covered under the warranty.
- Strictly follow the installation, operation, and configuration instructions in this manual or the user manual. The manufacturer shall not be liable for equipment damage or personal injury if you do not follow the instructions. For more warranty details, please visit https://www.goodwe.com/warrantyrelated.html.

1.2 personnel requirements

NOTICE

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

1. Professionals or qualified personnel include:
   - Personnel who have mastered the equipment's working principles, system structure, and knowledge of relevant risks and hazards, and have received professional operation training or possess rich practical experience.
   - Personnel who have received relevant technical and safety training, have certain operational experience, can be aware of potential dangers that specific operations may pose to themselves, and are able to take protective measures to minimize risks to themselves and others.
   - Qualified electrical technicians who meet the regulatory requirements of the country/region where they are located.
   - Personnel who hold a degree in electrical engineering/an advanced diploma in an electrical discipline or equivalent qualification/a professional qualification in the electrical field, and have at least 2/3/4 years of experience in testing and supervising in accordance with electrical equipment safety standards.
2. Personnel engaged in special tasks such as electrical operations, working at heights, and operation of special equipment must hold valid qualification certificates as required by the location of the equipment.
3. Operation of medium-voltage equipment must be performed by certified high-voltage electricians.
4. Replacement of the equipment and its components is only permitted to be carried out by authorized personnel.

1.3 System Safety

⚠DANGER

- Disconnect the upstream switches to power off the equipment before any electrical connections. Do not work with power on. Otherwise, an electric shock may occur.
- Install a breaker at the voltage input side of the equipment to prevent personal injury or equipment damage caused by energized electrical work.
- All operations such as transportation, storage, installation, use and maintenance shall comply with applicable laws, regulations, standards and specifications.
- Perform electrical connections in compliance with local laws, regulations, standards and specifications, including cables and component specifications.
- Use the connectors included in the package to connect cables. The manufacturer shall not be liable for the equipment damage if connectors of other models are used.
- Ensure all cables are connected correctly, tightly, and securely. Inappropriate wiring may cause poor connection and damage the equipment.
- The PE cables must be connected and secured properly.
- To protect the equipment and components from damage during transportation, ensure that the transportation personnel are professionally trained. All operations during the transportation have to be recorded. The equipment shall be kept in balance to avoid falling down.
- The equipment is heavy. Please equip the corresponding personnel according to its weight, so that the equipment does not exceed the maximum weight that the personnel can carry to avoid personnel injuries.
- Keep the equipment stable to avoid dumping, which can result in equipment damage and personal injuries.

⚠WARNING

- Do not apply mechanical load to terminals, otherwise the terminals may be damaged.
- If the cable bears too much tension, the connection may be poor. Reserve a certain length of the cable before connecting it to corresponding ports.
- Tie the cables of the same type together, and place cables of different types at least 30mm apart. Do not place the cables entangled or crossed.
- Place the cables at least 30mm away from the heating components or heat sources, otherwise the insulation layer of the cables may be aging or broken due to high temperature.

1.3.1 PV String Safety

⚠WARNING

- Ensure the module frame and mounting system are properly grounded.
- After the connection is completed, ensure that the cables are securely fastened and free from looseness. Improper wiring may result in poor contact or high impedance, and damage the Inverter.
- Use a multimeter to measure the positive and negative poles of the DC cable, ensuring correct polarity without reverse connection; and confirm that the voltage is within the allowable range.
- Use a multimeter to measure the DC cable, ensuring the positive and negative poles are correctly connected without reverse polarity. The voltage should be lower than the maximum DC input voltage. Damage caused by reverse polarity or over-voltage is not covered under the manufacturer's warranty.
- The PV string output does not support grounding. Before connecting the PV string to Inverter, ensure that the the minimum insulation resistance of the PV string meets the minimum insulation resistance requirement (R=Max.Input Voltage (V)/30mA).
- Do not connect the same PV string to multiple Inverter, as this may cause damage to the Inverter.
- The photovoltaic modules used in conjunction with Inverter must comply with the IEC 61730 Class A standard.
- When the input PV String value is high or the input current value is high, it may cause Inverter output derating.

1.3.2 Inverter Safety

⚠WARNING

- Ensure the voltage and Frequency at the on-grid access point comply with Inverter on-grid requirements.
- It is recommended to add breaker or fuses as Protection devices on the AC side. The rating of the Protection device should be at least 1.25 times the maximum current of the AC output of Inverter.
- If the arc alarm is triggered less than 5 times within 24 hours, it can be automatically cleared. After the 5th arc alarm, the Inverter will shut down Protection, and the Inverter can only resume normal operation after the fault is cleared.
- In photovoltaic systems, if a Battery is not configured, it is not recommended to use the BACK-UP function, as it may lead to system POWER OFF risks.
- When Utility grid, voltage, and Frequency change, it may lead to Inverter output derating.

1.3.3 Battery Safety

⚠DANGER

- Before operating any equipment in the system, ensure the equipment is powered off to avoid the risk of electric shock. Strictly adhere to all safety precautions in this manual and the safety labels on the equipment during operation.
- Do not disassemble, modify, or repair the battery or control box without official authorization from the manufacturer, otherwise it may pose an electric shock hazard or cause equipment damage. Any resulting losses are beyond the manufacturer's liability.
- Do not impact, pull, drag, squeeze, or step on the equipment, and do not place the battery in fire, otherwise there is a risk of battery explosion.
- Do not place the battery in high-temperature environments. Ensure there are no heat sources near the battery and it is not exposed to direct sunlight. A fire may occur if the ambient temperature exceeds 60°C.
- Do not use the battery or control box if there are obvious defects, cracks, damage, or other abnormalities. Battery damage may cause electrolyte leakage.
- Do not move the battery system while it is operating. If battery replacement or addition is required, please contact the after-sales service center.
- Battery short circuits may cause personal injury. The instantaneous high current from a short circuit can release a large amount of energy, potentially causing a fire.
- The battery DC circuit breaker should comply with the requirements of AS/NZS 5139 standard.

⚠WARNING

- Battery current may be affected by some factors, such as: temperature, humidity, weather conditions, etc., which may cause battery current limiting and affect load capacity.
- If the battery cannot start, please contact the after-sales service center as soon as possible. Otherwise, the battery may be permanently damaged.
- Please regularly inspect and maintain the battery according to its maintenance requirements.

Emergency Response Measures

- Battery electrolyte leakage
  If the battery module leaks electrolyte, avoid contact with the leaked liquid or gas. Electrolyte is corrosive, and contact may cause skin irritation and chemical burns. If you accidentally come into contact with the leaked substance, perform the following actions:
  - Inhalation: Evacuate from the contaminated area and seek medical help immediately.
  - Eye contact: Rinse with clean water for at least 15 minutes and seek medical help immediately.
  - Skin contact: Thoroughly wash the affected area with soap and water and seek medical help immediately.
  - Ingestion: Induce vomiting and seek medical assistance immediately.
- Fire
  - When the battery temperature exceeds 150°C, there is a risk of fire, and the battery may release toxic and harmful gases after catching fire.
  - To prevent fires, ensure that carbon dioxide, Novec1230, or FM-200 fire extinguishers are available near the equipment.
  - When extinguishing fires, do not use ABC dry powder fire extinguishers. Firefighters must wear protective clothing and self-contained breathing apparatus.
- Battery triggers fire protection
  For batteries equipped with fire protection function, after the fire protection function is triggered, perform the following actions:
  - Immediately cut off the main power switch to ensure no current flows through the battery system.
  - Conduct a preliminary inspection of the battery appearance for any damage, deformation, leakage, or unusual odor. Check the battery casing, connectors, and cables.
  - Use temperature sensors to detect the battery and its ambient temperature to ensure there is no risk of overheating.
  - Isolate and label the damaged battery, and dispose of it properly according to local regulations.

1.3.4 Smart Meter Safety

⚠WARNING

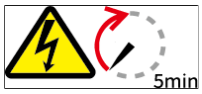
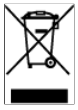
If the Utility gridvoltage voltage fluctuation exceeds 265V, prolonged overvoltage operation may damage the meter. It is recommended to install a fuse with a rated current of 0.5A on the voltage input side of the meter to Protection it.

1.4 Safety Symbols and Certification Marks

⚠DANGER

- After the equipment Installation, the labels and warning signs on the enclosure must remain clearly visible. Blocking, altering, or damaging them is prohibited.
- The following warning labels on the enclosure are for reference only. Please refer to the actual labels on the equipment.

No.	Symbol	Meaning
1		Potential DANGER exists during equipment operation. Please take protective measures when operating the equipment.
2		High voltage DANGER. High voltage is present during equipment operation. Ensure the equipment is POWER OFF before performing any operations.
3		The surface of Inverter is at high temperature. Do not touch during operation to avoid burns.
4		Please use the equipment properly. In extreme conditions, there is a risk of explosion.
5		Battery contains flammable materials, beware of fire.

No.	Symbol	Meaning
6		The equipment contains corrosive electrolyte. Avoid contact with leaked electrolyte or vaporized gases.
7		After the equipment is power off, please wait for 5 minutes until it is fully Discharge.
8		The equipment should be kept away from open flames or ignition sources.
9		The equipment shall be Keep away from children accessible areas.
10		Do not extinguish with water.
11		Before operating the equipment, please read the product manual carefully.
12		Wear personal protective equipment during Installation, operation, and maintenance.
13		The equipment must not be disposed of as household waste. Please handle it in accordance with local laws and regulations or return it to the equipment manufacturer.
14		grounding point
15		Recycling symbol.
16		CE marking

No.	Symbol	Meaning
17		TUV Mark.
18		RCM mark.

1.5 EU Declaration of Conformity

1.5.1 Equipment with Wireless Communication Modules

The equipment with wireless communication modules sold in the European market meets the requirements of the following directives:

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

1.5.2 Equipment without Wireless Communication Modules (Except Battery)

The equipment without wireless communication modules sold in the European market meets the requirements of the following directives:

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

1.5.3 Battery

The batteries sold in the European market meets the requirements of the following directives:

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)
- Battery Directive 2006/66/EC and Amending Directive 2013/56/EU
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

You can download the EU Declaration of Conformity from our official website at: https://en.goodwe.com.

2 System Introduction

2.1 System Overview

The Residential Smart Inverter Solution integrates inverters, batteries, Smart Meters, smart communication sticks, and other devices. In a photovoltaic system, it converts solar energy into electrical energy to meet household electricity demands. Energy IoT devices in the system control electrical equipment by identifying the overall power situation, thus achieving intelligent management of power for load usage, storage to batteries, or export to the grid.

⚠WARNING

- The energy storage system is not suitable for connecting devices that rely on stable power supply, such as life-sustaining medical equipment. Please ensure that a system power failure does not lead to personal injury.
- Select the battery model according to the inverter and battery compatibility list. For requirements regarding batteries used in the same system, such as whether models can be mixed and whether capacities must be consistent, please refer to the user manual of the corresponding battery 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, document content is updated periodically. For the compatibility relationship between inverters and IoT products, please refer to: https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_Compatibility-list-of-GoodWe-inverters-and-IoT-products-EN.pdf.
- In a system where the inverter operates completely off-grid, if the battery experiences prolonged low sunlight or rainy weather and cannot be recharged in time, it may lead to over-discharge, causing battery performance degradation or damage. To ensure long-term stable system operation, avoid completely draining the battery. Recommended measures are as follows:
  1. During off-grid operation, set the minimum SOC protection threshold. It is recommended to set the off-grid battery SOC lower limit to 30%.
  2. When the SOC approaches the protection threshold, the system will automatically enter load limiting or protection mode.
  3. If there are consecutive days of insufficient sunlight and the battery SOC is 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 operates within a safe range.
  5. It is recommended to perform a full charge and discharge cycle every six months to calibrate the SOC accuracy.
- For detailed networking and wiring schemes for each scenario, please refer to: 5.2.Detailed System Wiring Diagram(Page 100).

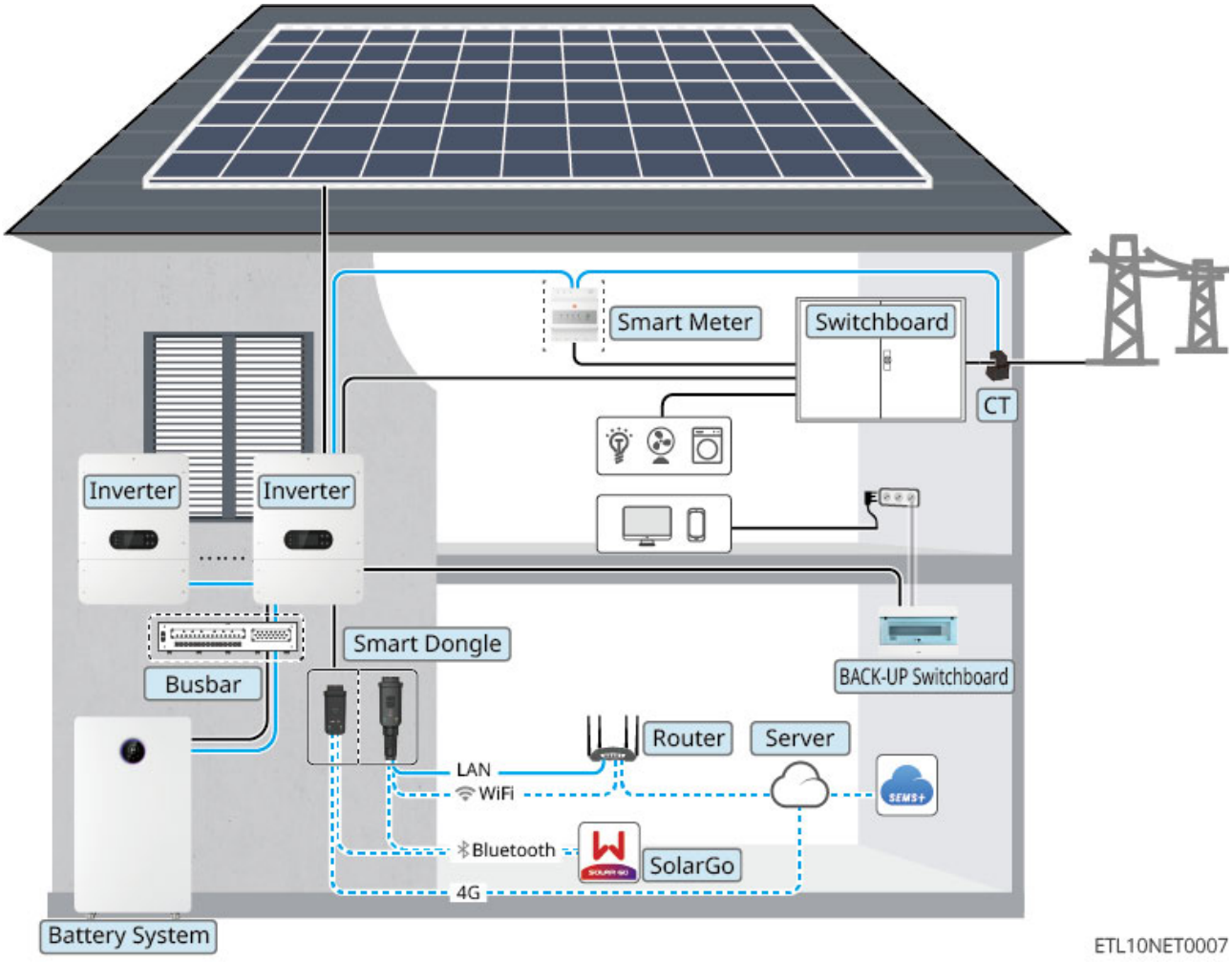
When the energy storage system is in off-grid state, it can normally supply the following loads:

BACK-UP Port Off-Grid Load Capacity Specification				
Inverter Model	GW5K-ET-L-G10 GW6K-ET-L-G10 GW8K-ET-L-G10 GW10K-ET-L-G10 GW12K-ET-L-G10 GW12K-ET-LL-G10		GW15K-ET-L-G10 GW20K-ET-L-G10	
Load Type	Single-phase	Three-phase	Single-phase	Three-phase
Single Motor Load Rated Power (kVA)	1.1	3.3	2.2	6.6
Total Rated Power of Multiple Motor Loads (kVA)	0.4*Pn/3	0.4*Pn	0.5*Pn/3	0.5*Pn
Capacitive Load (kVA)	0.33Pn/3	0.33Pn	0.33Pn/3	0.33Pn
Half-wave Load (kW)	3	-	3	-

Note:

- Pn: Inverter rated output power.
- For 2 or more units in parallel, the allowed total motor load rated power = Single motor load rated power * Number of parallel units * 80%.
- Half-wave Load: Some old or non-EMC compliant household appliances (e.g., hair dryers, small heaters using half-wave rectification).
- If the calculated total power of multiple motor loads based on rated power is less than the single motor load rated power, then the Total Rated Power of Multiple Motor Loads = Single Motor Load Rated Power.

General Scenario


Smart Meter
Switchboard
CT
Inverter
Inverter
Busbar
Smart Dongle
BACK-UP Switchboard
Router
Server
LAN
WiFi
Bluetooth
SolarGo
4G
Battery System
ETL10NET0007

Device Type	model	Description
Inverter	GW5K-ET-L-G10 GW6K-ET-L-G10 GW8K-ET-L-G10 GW10K-ET-L-G10 GW12K-ET-L-G10 GW15K-ET-L-G10 GW20K-ET-L-G10 GW12K-ET-LL-G10	• The inverter supports connection to a generator or large loads. • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10, GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 only support connection to a single battery string. • GW15K-ET-L-G10, GW20K-ET-L-G10 support connection to dual battery strings. • The system supports up to 10 inverters to form a parallel system, supporting mixed parallel connection of inverters with different power ratings in grid-tied and off-grid modes; microgrid function is not supported in parallel mode. • In a parallel system, if models with different power ratings are mixed, set the higher-power model as the master inverter. • If parallel networking is required, use the GM330 Smart Meter. • In a parallel system, each inverter must be installed with WiFi/LAN Kit-20, and the software version must be V2.5 or above. • The following version requirements must be met for parallel networking: ◦ All inverters must have the same software version. ◦ The inverter ARM software version must be 02.108 or above. ◦ The inverter DSP software version must be 03.3015 or above. ◦ The SolarGo software version must be 6.9.0 or above.
	LX A5.0-30	Supports up to 30 batteries in parallel in the same system.

Device Type	model	Description
Battery system	GW14.3-BAT-LV-G10	• The rated charge/discharge current per battery is 140A; maximum charge current is 224A, maximum discharge current is 260A • Supports up to 30 batteries in parallel in the same system: ◦ Products with SN code 25C and later default support 30 batteries in parallel ◦ For products before 25C that require 30 batteries in parallel, contact GoodWe after-sales service center to upgrade the firmware version ◦ Refer to 12.4.SN Code Meaning(Page 471) for viewing product SN codes.
	LX U5.0-30	Supports up to 30 batteries in parallel in the same system.
	Lead-acid battery	• Supports connection to AGM, GEL, and Flooded type lead-acid batteries • Calculate the number of batteries that can be connected in series based on the lead-acid battery voltage; the total voltage of series-connected batteries must not exceed 60V.

Device Type	model	Description
Busbar	BCB-22-WW-0 BCB-32-WW-0 BCB-33-WW-0 (purchased from GoodWe)	Select the busbar based on the inverter's charge/discharge capability, load size, and battery charge/discharge capability in the system • BCB-22-WW-0: ◦ When used with LX A5.0-30, the battery system supports up to 720A working current, 36kW working power, and 6 batteries. ◦ When used with LX U5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 6 batteries. • BCB-32-WW-0: ◦ When used with LX A5.0-30, the battery system supports up to 720A working current, 36kW working power, and 15 batteries. ◦ When used with GW14.3-BAT-LV-G10, the battery system supports up to 720A working current, 36kW working power, and 15 batteries. ◦ When used with LX U5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 8 batteries. • BCB-33-WW-0: ◦ When used with LX U5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 15 batteries. When the number of batteries exceeds 8, two fuses with a rating of 600A need to be connected in parallel. • Others: Configure according to system power and current

Device Type	model	Description
Smart Meter	• Built-in meter (shipped with the inverter) • GM330 (purchased from GoodWe)	• Built-in meter: Use the CT shipped with the box to connect to the inverter. ◦ CT ratio is 120A:40mA. ◦ When the built-in meter of the inverter does not meet the requirements, contact dealers to purchase the GM330 Smart Meter. • GM330: CT can be purchased from GoodWe or independently; CT ratio requirement: nA/5A ◦ nA: CT primary side input current, where n ranges from 200 to 5000 ◦ 5A: CT secondary side output current
Smart dongle	WiFi/LAN Kit-20	• Applicable for single-inverter networking and parallel inverter networking scenarios. • Use Bluetooth signals for local configuration of device parameters and viewing device operation information; upload system operation information to the monitoring platform via WiFi or LAN. • If the inverter needs to use functions such as one-click upgrade and operation log export, ensure that the WiFi/LAN Kit-20 software version is V2.3 or above.

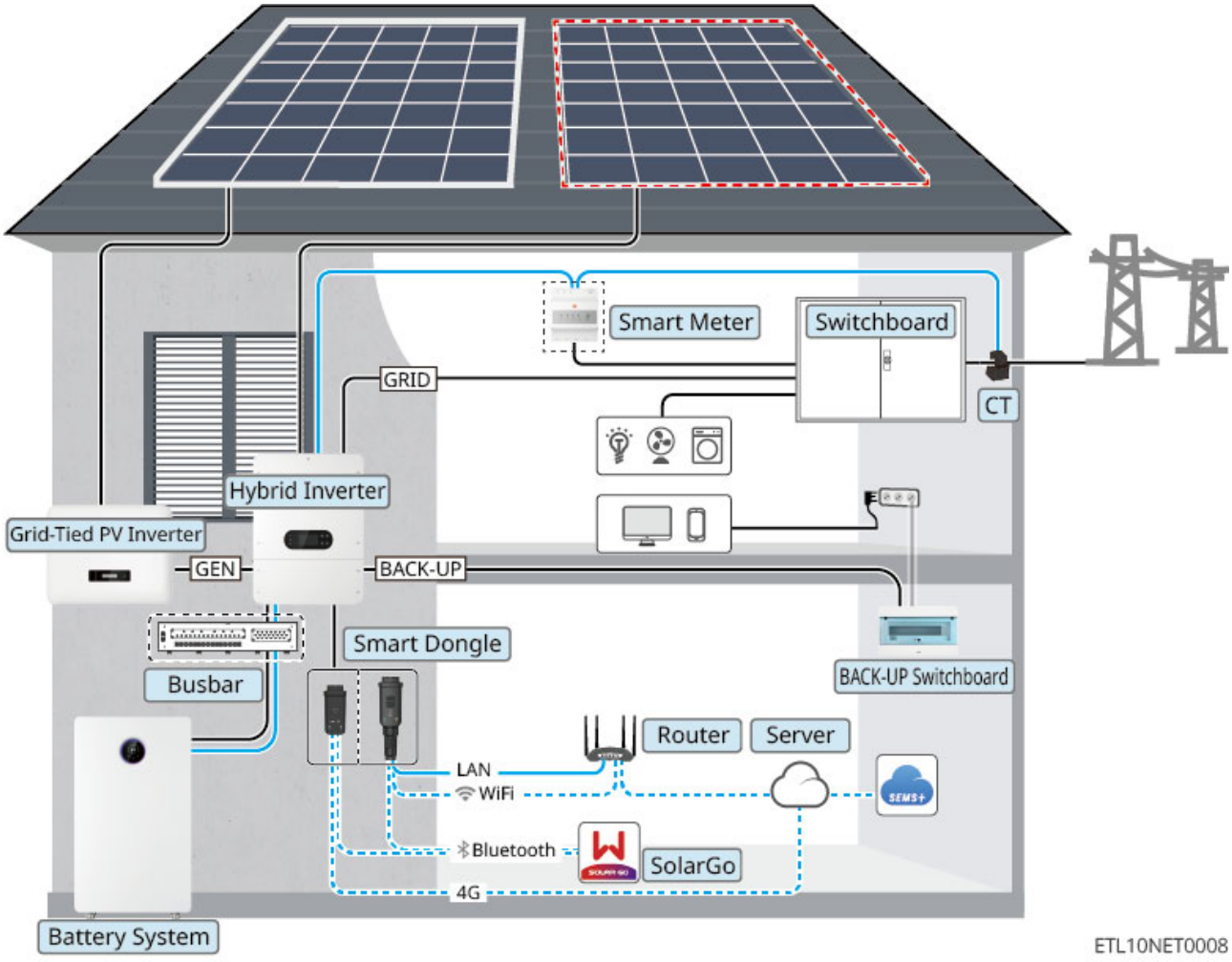
Device Type	model	Description
	4G Kit-CN-G20 (China only)	• Only applicable for single-inverter networking scenarios. • Use Bluetooth signals for local configuration of device parameters and viewing device operation information; upload system operation information to the monitoring platform via 4G. • If the inverter needs to use functions such as one-click upgrade and operation log export, ensure that the 4G Kit-CN-G20 version is version 05 or above.
Large loads	-	Only in single-inverter scenarios, SG Ready heat pump connection is supported, controlled via dry contact signals 1. Total power of large loads < GEN port maximum output power 2. Large load power + BACK-UP power < AC maximum input power (Utility grid)
Generator	-	Generator power must be greater than the total power of all loads on the BACKUP port.

⚠WARNING

- In Microgrid Scenario, the PV open-circuit voltage of the hybrid PV-storage inverter is recommended to be < 0.85*PV maximum input voltage, to avoid system voltage being too high and triggering overvoltage protection under severe working conditions.
- If the system is in high temperature or BMS current limiting condition, it may cause battery charging power to be limited, thereby causing system voltage to be too high and triggering overvoltage protection.
- In Microgrid Scenario, please ensure that the over-frequency power reduction point of the grid-tied inverter is consistent with that of the hybrid PV-storage inverter.
- If the grid-tied inverter needs to limit output power, please connect meters or CTs separately.
- Please ensure that the over-frequency power reduction curve of the grid-tied inverter is set as follows:
  - Set the end power to 0%Pn
  - Set the response delay time to 0
  - Set the hysteresis function enable to off

Microgrid Scenario

When the grid-tied inverter is connected to the hybrid inverter's GEN port, it is a microgrid scenario.



Device Type	model	Description
Hybrid Inverter	GW5K-ET-L-G10 GW6K-ET-L-G10 GW8K-ET-L-G10 GW10K-ET-L-G10 GW12K-ET-L-G10 GW15K-ET-L-G10 GW20K-ET-L-G10 GW12K-ET-LL-G10	• In a microgrid scenario, only one hybrid inverter is supported in the system. • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10, GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 only support single battery string connection. • GW15K-ET-L-G10 and GW20K-ET-L-G10 support dual battery string connection. • In a microgrid scenario, generator connection is not supported. • When in parallel operation, microgrid function is not supported.

Device Type	model	Description
Battery system	LX A5.0-30	In the same system, up to 30 battery clusters are supported.
	GW14.3-BAT-LV-G10	• The rated charge/discharge current per battery is 140A; maximum charge current is 224A, maximum discharge current is 260A. • In the same system, up to 30 clusters are supported: ◦ Products with SN code 25C and later default support 30 clusters. ◦ For products before 25C that require 30 clusters, please contact GoodWe after-sales service center to upgrade the firmware version. ◦ To view the product SN code, refer to 12.4.SN Code Meaning(Page 471).
	LX U5.0-30	In the same system, up to 30 battery clusters are supported.
	Lead-acid battery	• Supports connection of AGM, GEL, and Flooded type lead-acid batteries. • Calculate the number of batteries that can be connected in series based on the lead-acid battery voltage; the total voltage of series-connected batteries must not exceed 60V.

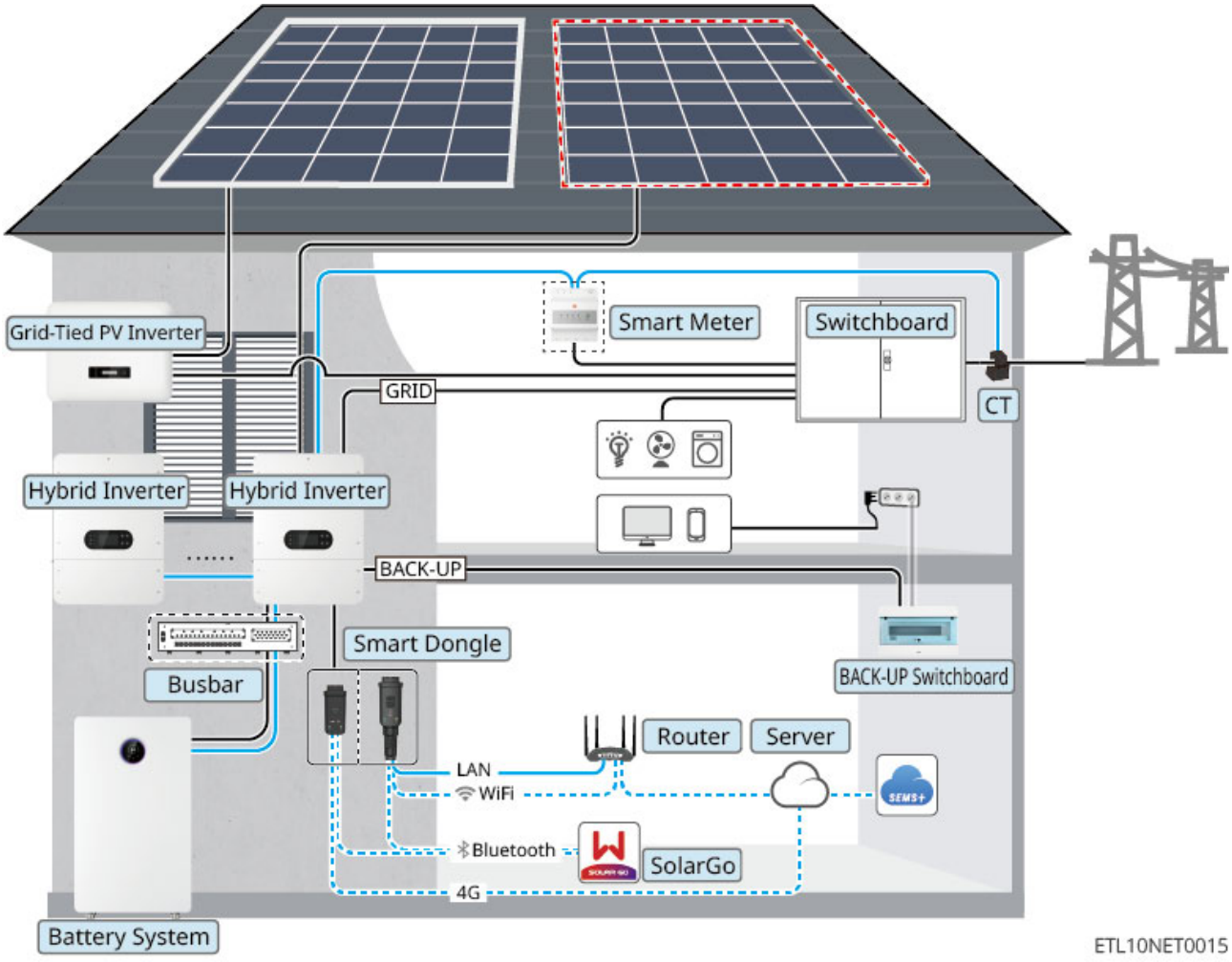
Device Type	model	Description
Busbar	BCB-22-WW-0 BCB-32-WW-0 BCB-33-WW-0 (Purchased from GoodWe)	Please select the busbar based on the inverter's charge/discharge capability, load size, and battery charge/discharge capability in the system. • BCB-22-WW-0: ◦ When used with LX A5.0-30, the battery system supports up to 720A working current, 36kW working power, and 6 batteries. ◦ When used with LX U5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 6 batteries. • BCB-32-WW-0: ◦ When used with LX A5.0-30, the battery system supports up to 720A working current, 36kW working power, and 15 batteries. ◦ When used with GW14.3-BAT-LV-G10, the battery system supports up to 720A working current, 36kW working power, and 15 batteries. ◦ When used with LX U5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 8 batteries. • BCB-33-WW-0: ◦ When used with LX U5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 15 batteries. When the number of batteries exceeds 8, two fuses with a specification of 600A need to be connected in parallel. • Others: Please configure based on system power and current.

Device Type	model	Description
Smart Meter	• Built-in meter (shipped with the inverter) • GM330 (purchased from GoodWe)	• Built-in meter: Please use the CT shipped with the box to connect to the inverter. ◦ CT ratio is 120A:40mA. ◦ When the built-in meter of the inverter does not meet the requirements, you can contact dealers to purchase the GM330 Smart Meter. • GM330: CT can be purchased from GoodWe or independently; CT ratio requirement: nA/5A ◦ nA: CT primary side input current, n ranges from 200 to 5000. ◦ 5A: CT secondary side output current.
Smart dongle	WiFi/LAN Kit-20	• Use Bluetooth signal for local configuration of device parameters and viewing device operation information; upload system operation information to the monitoring platform via WiFi or LAN. • If the inverter needs to use functions such as one-click upgrade and operation log export, ensure that the WiFi/LAN Kit-20 software version is V2.3 or above.
	4G Kit-CN-G20 (China only)	• Only applicable to single inverter networking scenarios. • Use Bluetooth signal for local configuration of device parameters and viewing device operation information; upload system operation information to the monitoring platform via 4G. • If the inverter needs to use functions such as one-click upgrade and operation log export, ensure that the 4G Kit-CN-G20 version is version 05 or above.

Device Type	model	Description
grid-tied PV inverter	-	• It is recommended to use GoodWe brand grid-tied PV inverters; third-party grid-tied PV inverters are supported. • In a microgrid system, ensure that the rated output power of the grid-tied PV inverter ≤ the rated output power of the hybrid inverter. • When the microgrid system is in grid-connected state, if power limitation is required, ensure that: ◦ The hybrid inverter needs to be set via the SolarGo APP **Export power limit** interface; for the grid-tied PV inverter, set according to the actual tools used. ◦ To ensure that the grid-tied PV inverter can continue to generate power, adjust the output power of the hybrid inverter via the SolarGo APP **Microgrid Mode** interface. Note: The output power control accuracy of different grid-tied PV inverters varies; set the export power limit parameter value according to the actual situation.

Coupling Scenario

When the grid-tied inverter is connected to the hybrid inverter's ON-GRID port, it is a coupling scenario.


Grid-Tied PV Inverter
Smart Meter
Switchboard
GRID
CT
Hybrid Inverter
Hybrid Inverter
BACK-UP
Busbar
Smart Dongle
BACK-UP Switchboard
Router
Server
LAN
WiFi
Bluetooth
SolarGo
4G
Battery System
ETL10NET0015

Device Type	model	Description
Hybrid Inverter	GW5K-ET-L-G10 GW6K-ET-L-G10 GW8K-ET-L-G10 GW10K-ET-L-G10 GW12K-ET-L-G10 GW15K-ET-L-G10 GW20K-ET-L-G10 GW12K-ET-LL-G10	• The Inverter supports connecting to a generator or large load. • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10, GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 only support connecting to a single battery string. • GW15K-ET-L-G10, GW20K-ET-L-G10 support connecting to dual battery strings. • The system supports a maximum of 10 inverters to form a parallel system, supporting hybrid parallel connection of on-grid and off-grid inverters across different power ranges. • In a parallel system, if models with different power ratings are mixed, set the higher-power model as the master inverter. • For parallel system networking, please use the GM330 Smart Meter. • In a parallel system, each inverter requires the installation of a WiFi/LAN Kit-20, with software version V2.5 or above. • The following version requirements must be met for parallel system networking: ◦ All inverter software versions are consistent. ◦ Inverter ARM software version is 02.108 or above. ◦ Inverter DSP software version is 03.3015 or above. ◦ SolarGo software version is 6.9.0 or above.
	LX A5.0-30	Supports up to 30 batteries in parallel clusters within the same system.

Device Type	model	Description
Battery system	GW14.3-BAT-LV-G10	• Single battery rated charge/discharge current is 140A; maximum charge current is 224A, maximum discharge current is 260A. • Supports a maximum of 30 parallel clusters within the same system: ◦ Products with SN code 25C and later default to supporting 30 parallel clusters. ◦ For products before 25C to support 30 parallel clusters, please contact GoodWe After-sales Service Center to upgrade the firmware version. ◦ Refer to 12.SN Code Meaning(Page 466) to view product SN code.
	LX U5.0-30	Supports up to 30 batteries in parallel clusters within the same system.
	Lead-acid battery	• Supports connecting AGM, GEL, and Flooded types of lead-acid batteries. • Calculate the number of batteries that can be connected in series based on the lead-acid battery voltage. The total voltage of series-connected batteries must not exceed 60V.

Device Type	model	Description
Busbar	BCB-22-WW-0 BCB-32-WW-0 BCB-33-WW-0 (Purchased from GoodWe)	Select the busbar according to the inverter charge/discharge capability, load size, and battery charge/discharge capability in the system. • BCB-22-WW-0: ◦ When used with LX A5.0-30, the battery system supports a maximum working current of 720A, working power of 36kW, and 6 batteries. ◦ When used with LX U5.0-30, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 6 batteries. • BCB-32-WW-0: ◦ When used with LX A5.0-30, the battery system supports a maximum working current of 720A, working power of 36kW, and 15 batteries. ◦ When used with GW14.3-BAT-LV-G10, the battery system supports a maximum working current of 720A, working power of 36kW, and 15 batteries. ◦ When used with LX U5.0-30, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 8 batteries. • BCB-33-WW-0: ◦ When used with LX U5.0-30, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 15 batteries. When the number of batteries exceeds 8, two fuses rated at 600A need to be connected in parallel. • Others: Please configure according to the system power and current.

Device Type	model	Description
Smart Meter	• Built-in meter (shipped with the inverter) • GM330 (Purchased from GoodWe)	• Built-in meter: Please use the CT shipped with the inverter to connect to the inverter. ◦ CT ratio is 120A:40mA. ◦ If the built-in meter of the inverter does not meet the usage requirements, you can contact dealers to purchase the GM330 Smart Meter. • GM330: CT can be purchased from GoodWe or self-procured. CT ratio requirement: nA/5A ◦ nA: CT primary side input current, where n ranges from 200 to 5000. ◦ 5A: CT secondary side output current.
Smart dongle	WiFi/LAN Kit-20	• Applicable to single-inverter and parallel-inverter networking scenarios. • Uses Bluetooth signal for local configuration of device parameters and viewing device operation information. Uploads system operation information to the monitoring platform via WiFi or LAN. • To use features like one-click upgrade and operation log export on the inverter, ensure the WiFi/LAN Kit-20 software version is V2.3 or above.

Device Type	model	Description
	4G Kit-CN-G20 (China only)	• Only applicable to single-inverter networking scenarios. • Uses Bluetooth signal for local configuration of device parameters and viewing device operation information. Uploads system operation information to the monitoring platform via 4G. • To use features like one-click upgrade and operation log export on the inverter, ensure the 4G Kit-CN-G20 version is version 05 or above.
grid-tied PV inverter	-	• GoodWe brand grid-tied inverters are recommended. Third-party grid-tied inverters are supported. • In coupling scenarios, ensure the rated output power of the grid-tied inverter ≤ the rated output power of the hybrid inverter. • When the coupling system is in grid-connected mode, if power limitation is required, ensure: ◦ The hybrid inverter needs to be configured in the SolarGo APP **Export power limit** interface; configure the grid-tied inverter according to the actual tool used. Note: Different grid-tied inverters have different output power control accuracies. Set the export power limit parameter value according to the actual situation.
Large load	-	Only single-unit scenarios support SG Ready heat pump connection, controlling the heat pump via dry contact signal. 1. Total large load power < GEN port maximum output power. 2. Large load power + BACK-UP power < AC maximum input power (Utility grid).

Device Type	model	Description
Generator	-	Generator power must be greater than the total power of all loads on the BACKUP port.

2.2 Product Overview

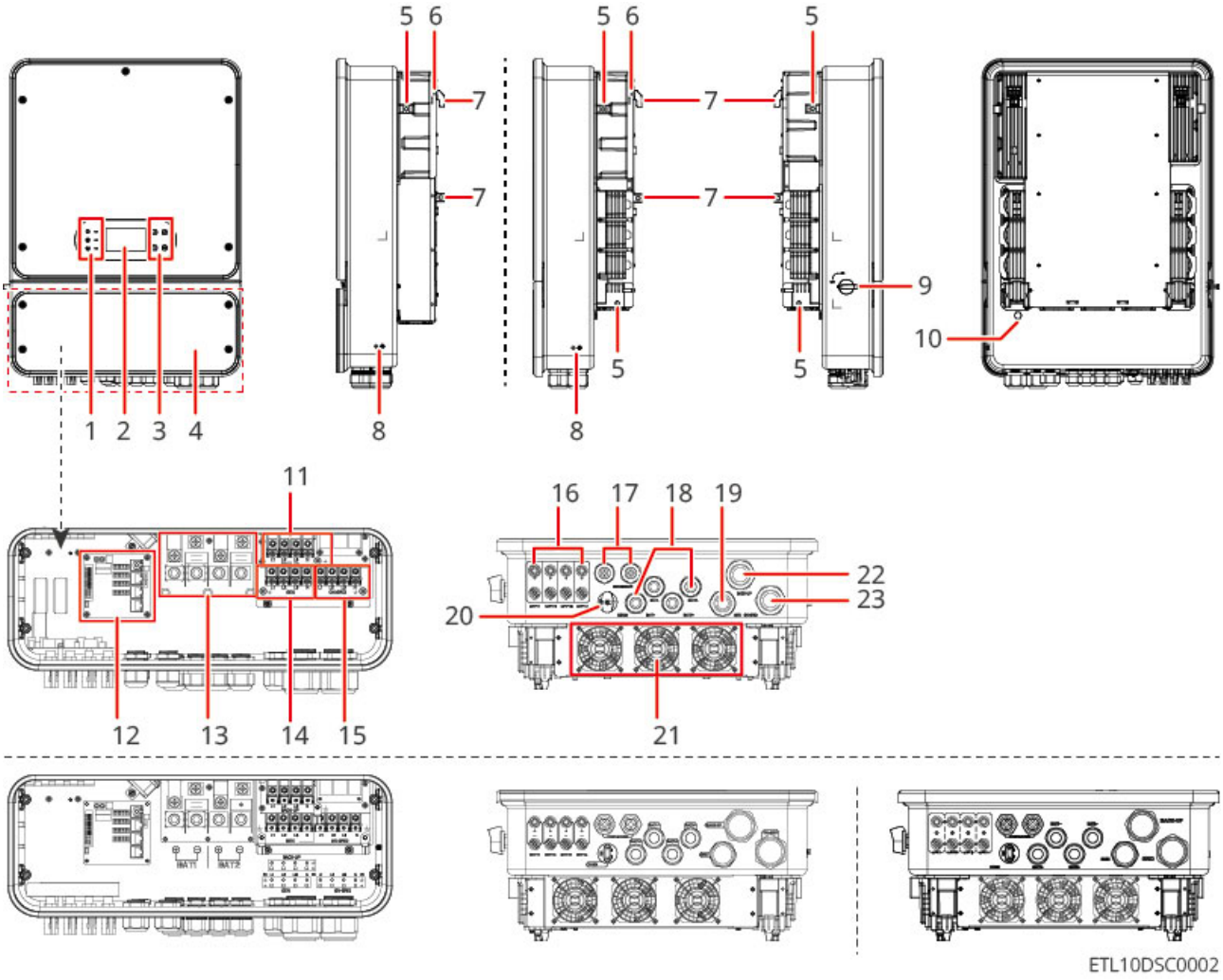
2.2.1 Inverter

The Inverter controls and optimizes the energy flow in a photovoltaic system through an integrated energy management system. It can supply the electricity generated by the PV system to loads, store it in batteries, or feed it into the grid.

NOTICE
The appearance of inverters varies across different power ranges. Please refer to the actual product.

No.	model	Nominal output power	Nominal output voltage
1	GW5K-ET-L-G10	5kW	400/380, 3L/N/PE
2	GW6K-ET-L-G10	6kW	400/380, 3L/N/PE
3	GW8K-ET-L-G10	8kW	400/380, 3L/N/PE
4	GW10K-ET-L-G10	10kW	400/380, 3L/N/PE
5	GW12K-ET-L-G10	12kW	400/380, 3L/N/PE
6	GW15K-ET-L-G10	15kW	400/380, 3L/N/PE
7	GW20K-ET-L-G10	20kW	400/380, 3L/N/PE

No.	model	Nominal output power	Nominal output voltage
8	GW12K-ET-LL-G10	12kW	220, 3L/N/PE



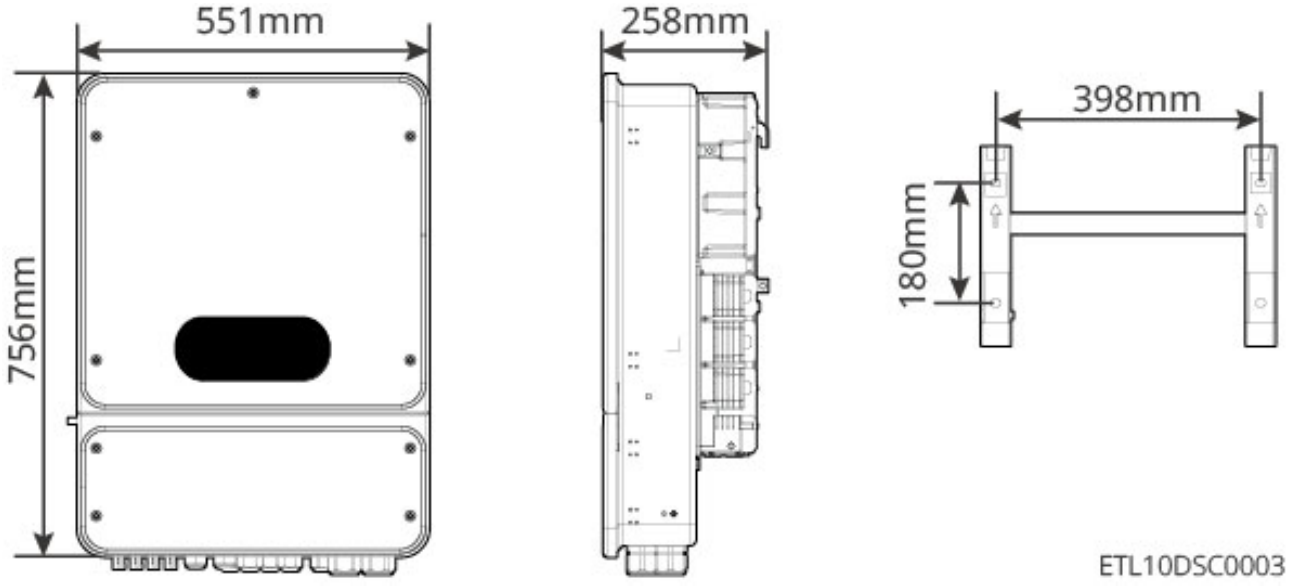
Component Introduction

No.	Component/Silkscreen	Description
1	indicator	Indicates the working status of the inverter.
2	Display screen	View inverter-related data.
3	Buttons	Used in conjunction with the display screen to perform settings operations on the inverter.

No.	Component/Silkscreen	Description
4	Inverter lower case cover	-
5	Inverter carrying handle mounting holes	(Optional) Used for installing the carrying handle. • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10, GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 x 3 • GW15K-ET-L-G10, GW20K-ET-L-G10 x 4
6	Anti-theft lock mounting holes	(Optional) Used for installing the anti-theft lock between the bracket and the inverter.
7	Inverter mounting slots	Used for installing the inverter for wall mounting.
8	Grounding terminal	Connecting the PE cable.
9	DC Switch	Controls the connection or disconnection of the DC input.
10	Pressure relief valve	-
11, 22	BACK-UP port	Connect AC cables to connect critical loads to the inverter.
12, 17	Communication Port	Can connect communication cables for load control, CT, RS485, Remote Shutdown/Rapid Shutdown, DRED (Australia)/RCR (Europe), etc.
13, 18	Battery input port	Can connect battery DC input cables. • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10, GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 x 1 • GW15K-ET-L-G10, GW20K-ET-L-G10 x 2

No.	Component/Silkscreen	Description
14, 19	GEN port	Used for connecting a generator, large loads, or a grid-tie inverter.
15, 23	GRID port	Connect AC cables to connect the inverter to the grid.
16	PV input terminals	Can connect PV module DC input cables. • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10 x 2 • GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 x 3 • GW15K-ET-L-G10, GW20K-ET-L-G10 x 4
20	smart dongle port	• Can connect communication modules, such as WiFi/LAN smart dongle. • Supports connecting a U disk for local inverter software version upgrade. • In the Brazilian market, can connect a USB-RS485 adapter cable.
21	Cooling fan	Used for inverter heat dissipation

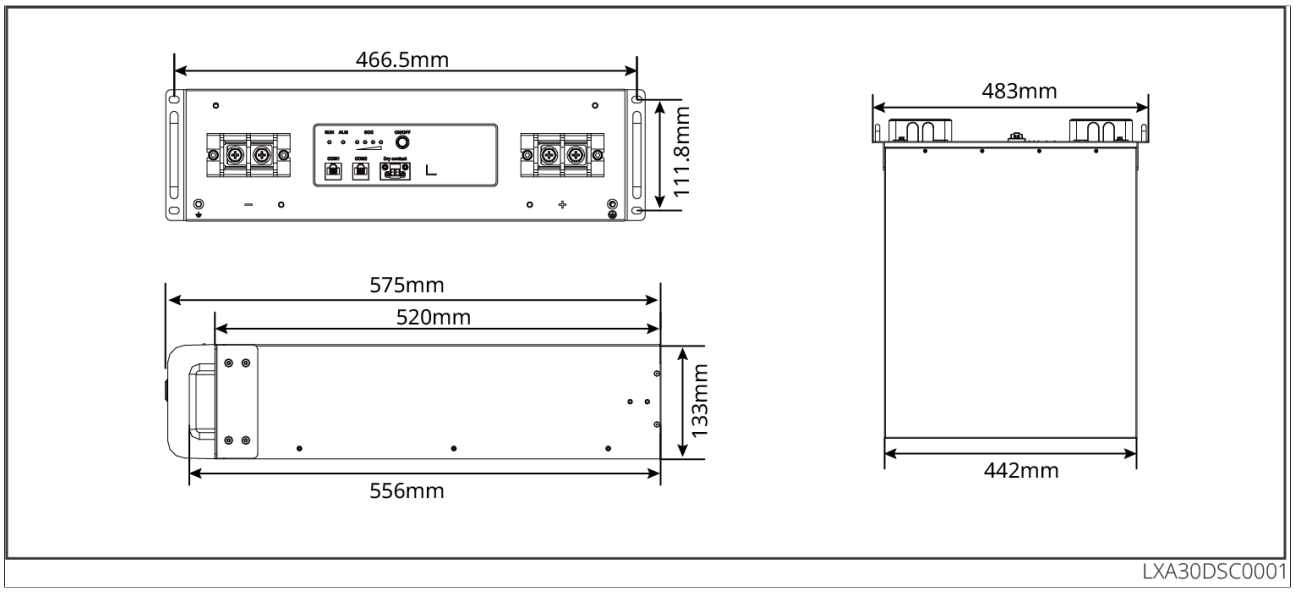
Dimension Introduction



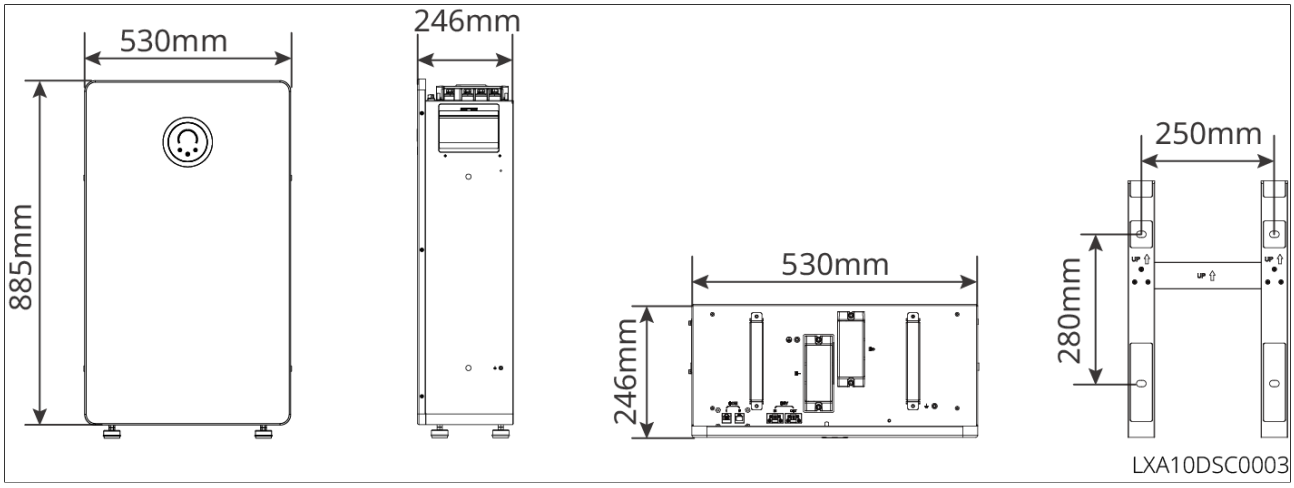
2.2.2 Battery

The battery system stores and releases electricity based on the requirements of a PV energy storage system. The input and output ports of the energy storage system are both high-voltage direct current. The ET LV inverter supports connecting lead-acid batteries, and the product material of the battery can be obtained from the battery manufacturer.

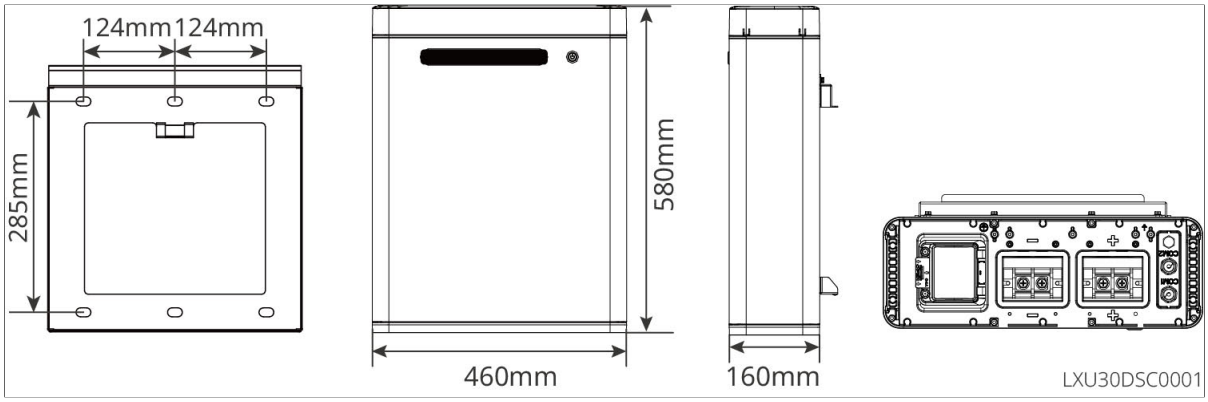
2.2.2.1 LX A5.0-30



2.2.2.2 GW14.3-BAT-LV-G10

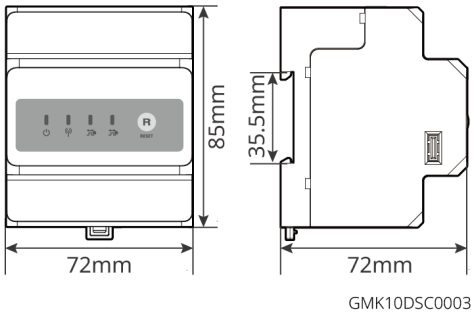


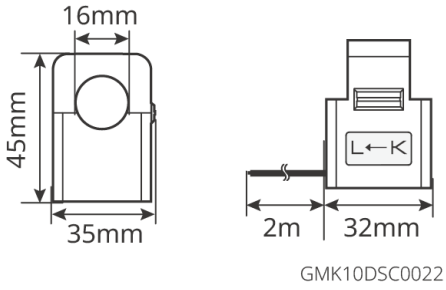
2.2.2.3 LX U5.0-30



2.2.3 Smart Meter

Smart Meter can measure and monitor electrical data in photovoltaic energy storage system, such as: voltage, current, Frequency, Output Power Factor, Power, etc.



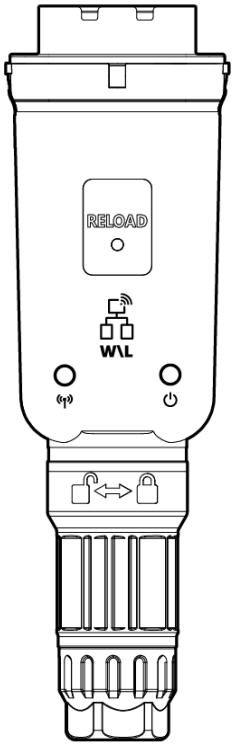


No.	model	Application scenarios
1	GM330	CT can be supplied by GoodWe or purchased separately. CT ratio requirement: nA: 5A • nA: Primary side input of CT current, with n ranging from 200-5000 • 5A: CT secondary side output current

2.2.4 smart dongle

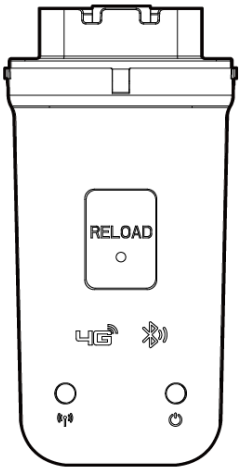
smart dongle is primarily used for real-time transmission of various Inverter power generation data to remote monitoring platforms, and for local device Commissioning via SolarGo APP connection to smart dongle.

WiFi/LAN Kit-20



Smart dongle 0006

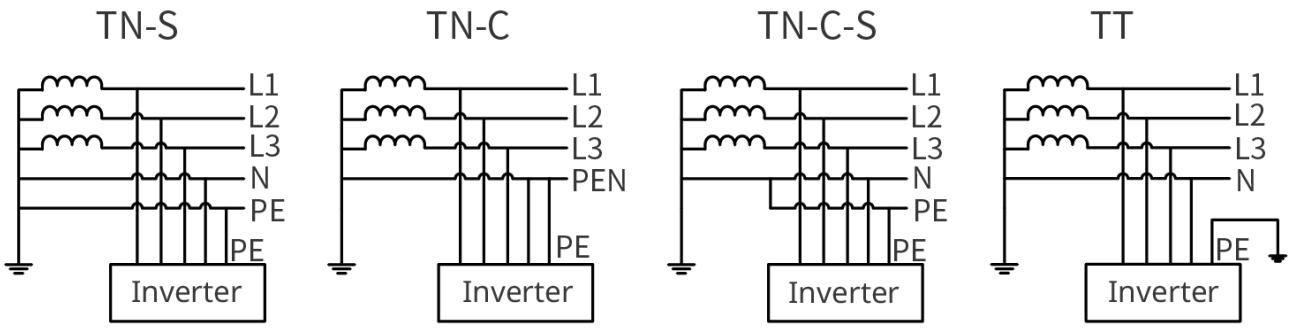
4G Kit-CN-G20



Smart dongle 0010

No.	model	Signal type	Application scenarios
1	WiFi/LAN Kit-20	WiFi, LAN, Bluetooth	InverterSingle unit,Multi-machine scenario
2	4G Kit-CN-G20 (China Only)	4G, Bluetooth	Inverter Standalone Scenario

2.3 Supported Grid Types



TNNET0003

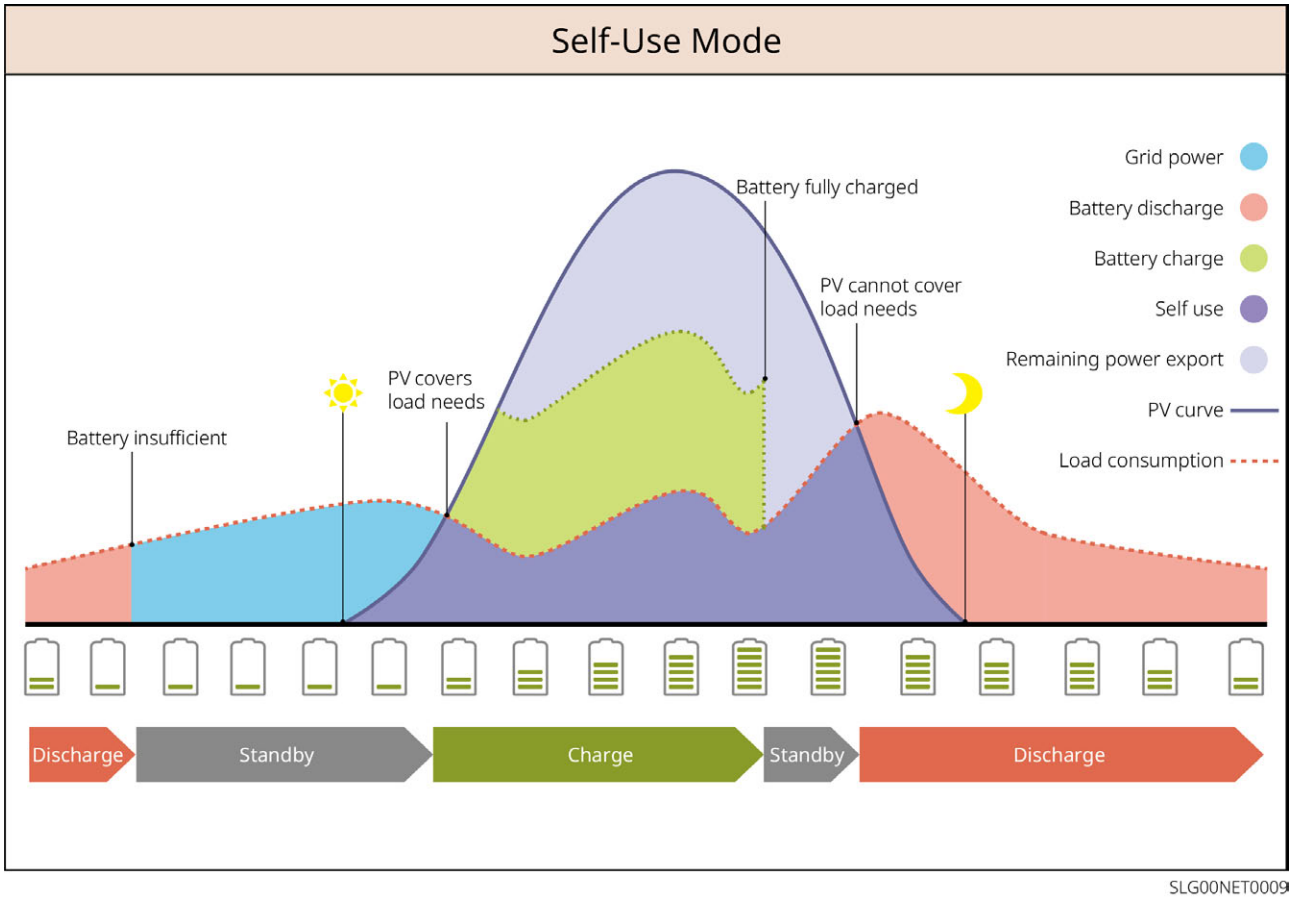
2.4 System Working Mode

NOTICE

After the initial installation of the GW14.3-BAT-LV-G10 battery system, it will automatically perform one full battery charge. Upon completion, it will switch to operate in the set working mode.

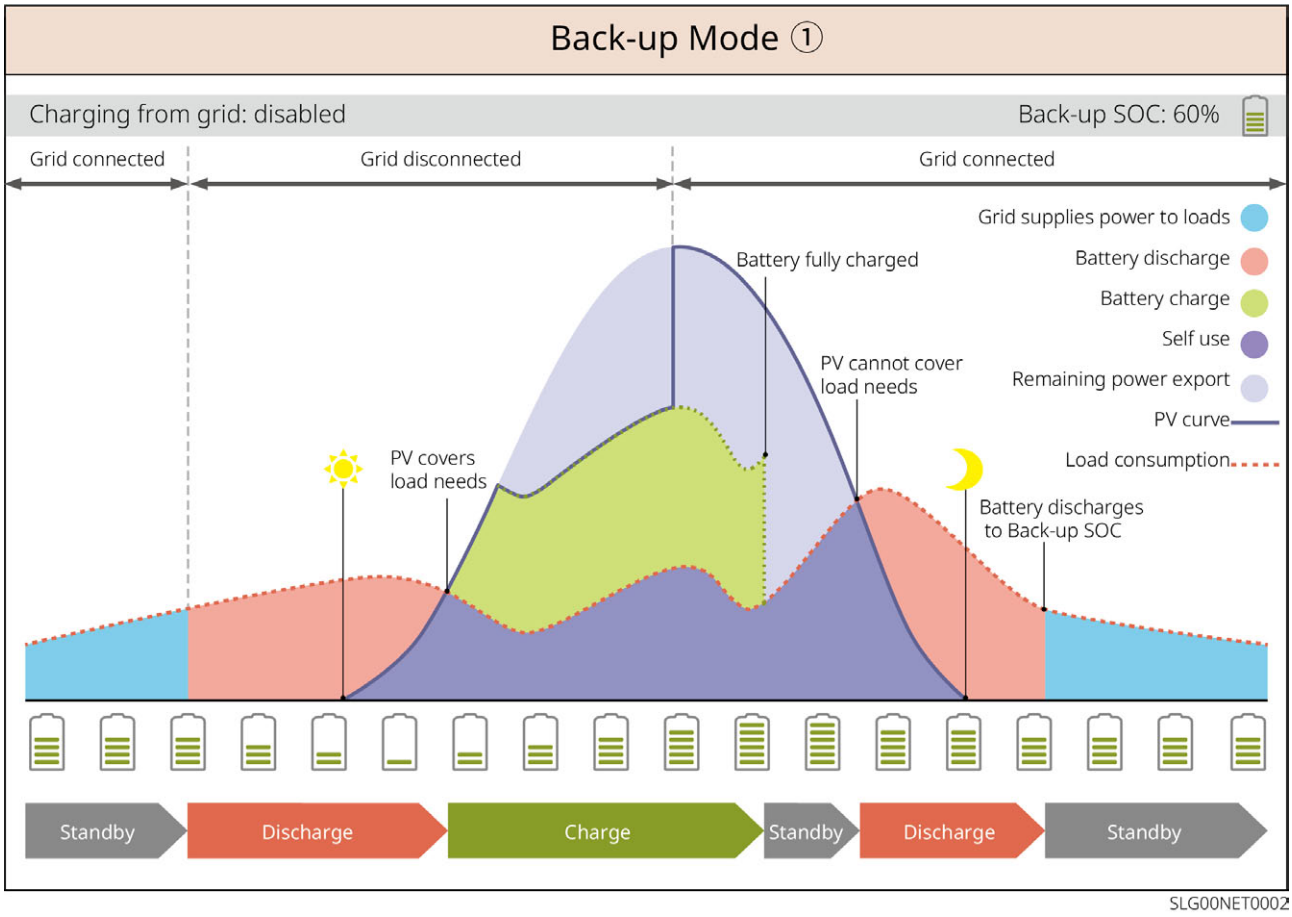
Self-Use Mode

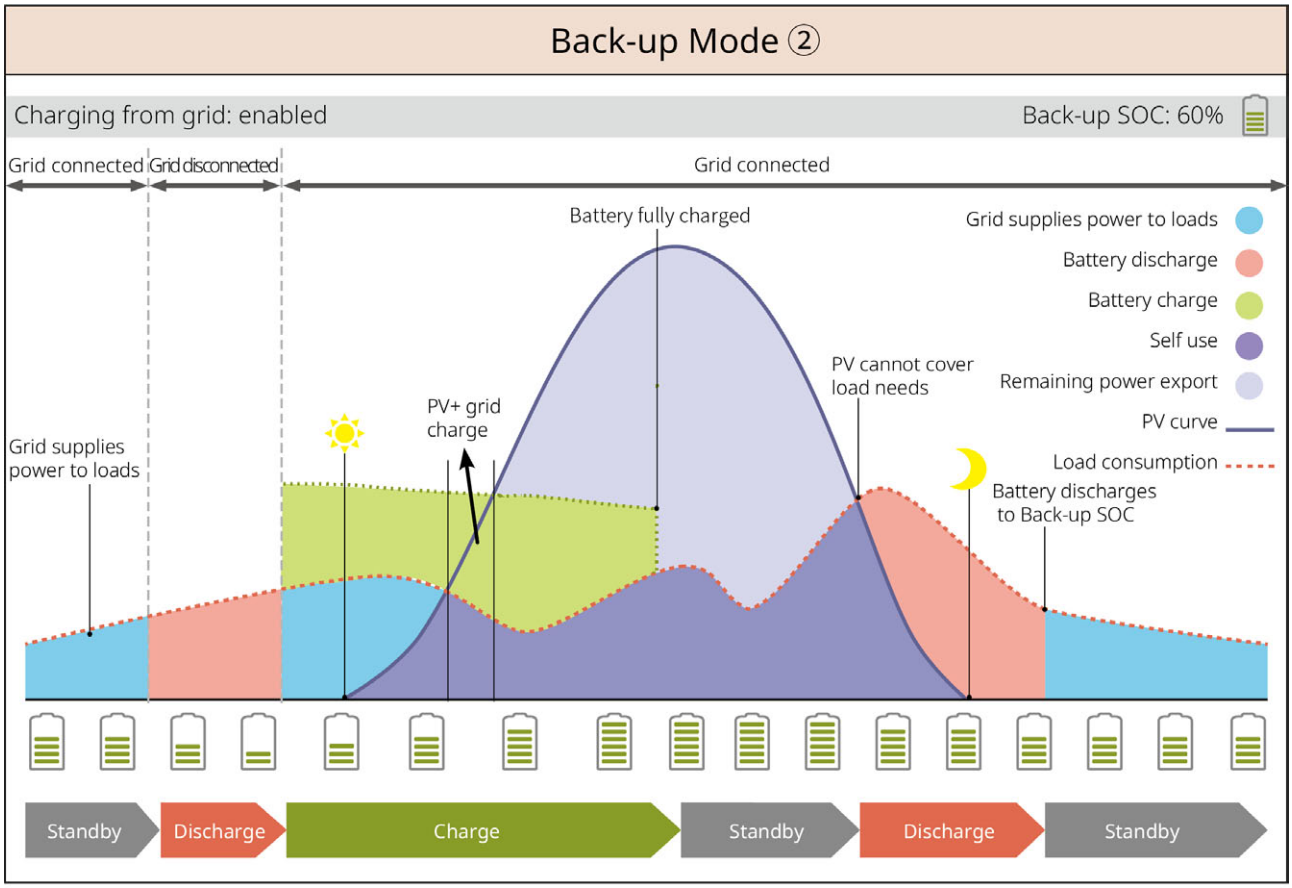
- The basic operating mode of the system.
- PV generation prioritizes supplying power to the loads, excess power charges the battery, and any remaining power is sold to the grid. When PV generation does not meet the load demand, the battery supplies power to the loads; when the battery power is also insufficient, the grid supplies power to the loads.



Backup Mode

- Recommended for areas with unstable grid.
- When the grid fails, the inverter switches to off-grid operation mode, and the battery discharges to supply power to the loads, ensuring uninterrupted power for BACK-UP Loads; when the grid is restored, the inverter switches back to grid-connected operation.
- To ensure the battery SOC is sufficient to maintain normal system operation when off-grid, during grid-connected operation, the battery will be charged using PV or grid-purchased electricity to the backup power SOC. If charging the battery via grid-purchased electricity is required, please confirm compliance with local grid laws and regulations.


Back-up Mode ①
Charging from grid: disabled
Back-up SOC: 60%
Grid connected
Grid disconnected
Grid connected
Grid supplies power to loads
Battery discharge
Battery charge
Self use
Remaining power export
PV curve
Load consumption
Battery fully charged
PV cannot cover load needs
PV covers load needs
Battery discharges to Back-up SOC
Standby
Discharge
Charge
Standby
Discharge
Standby
SLG00NET0002



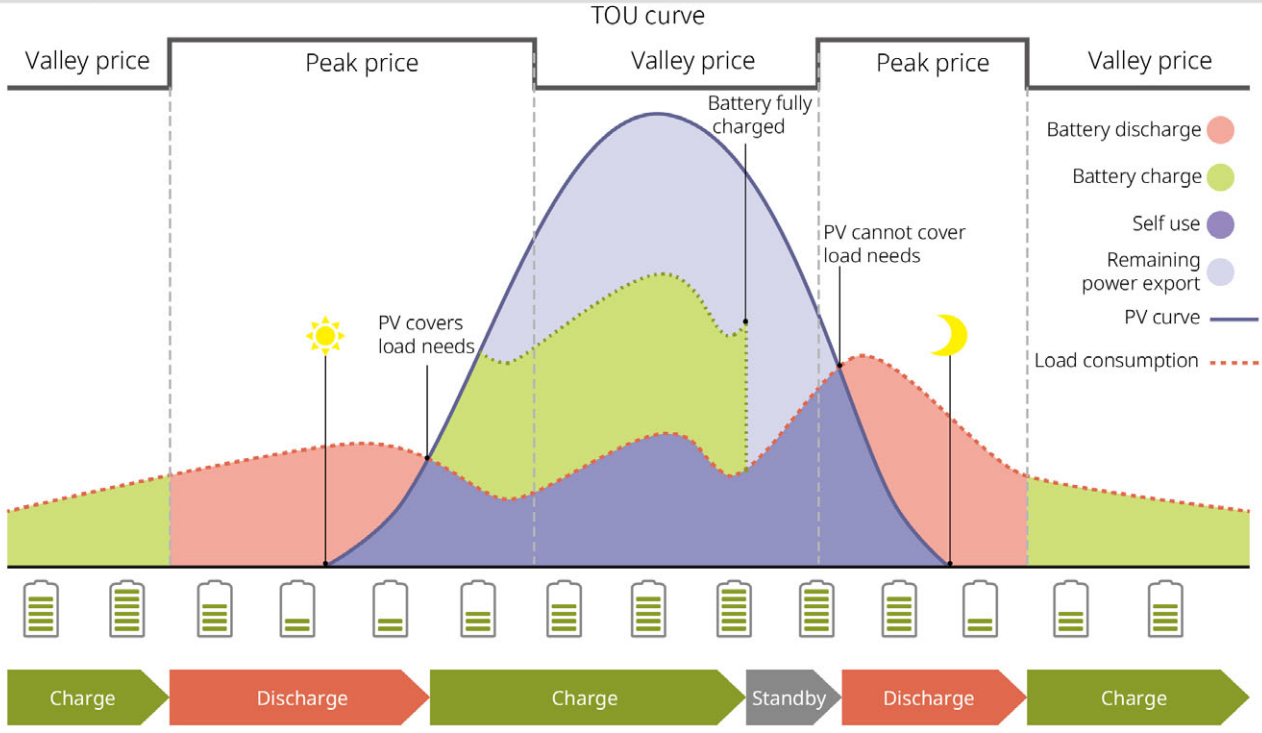
TOU Mode

Under compliance with local laws and regulations, set different time periods for buying and selling electricity based on peak and valley grid electricity price differences.

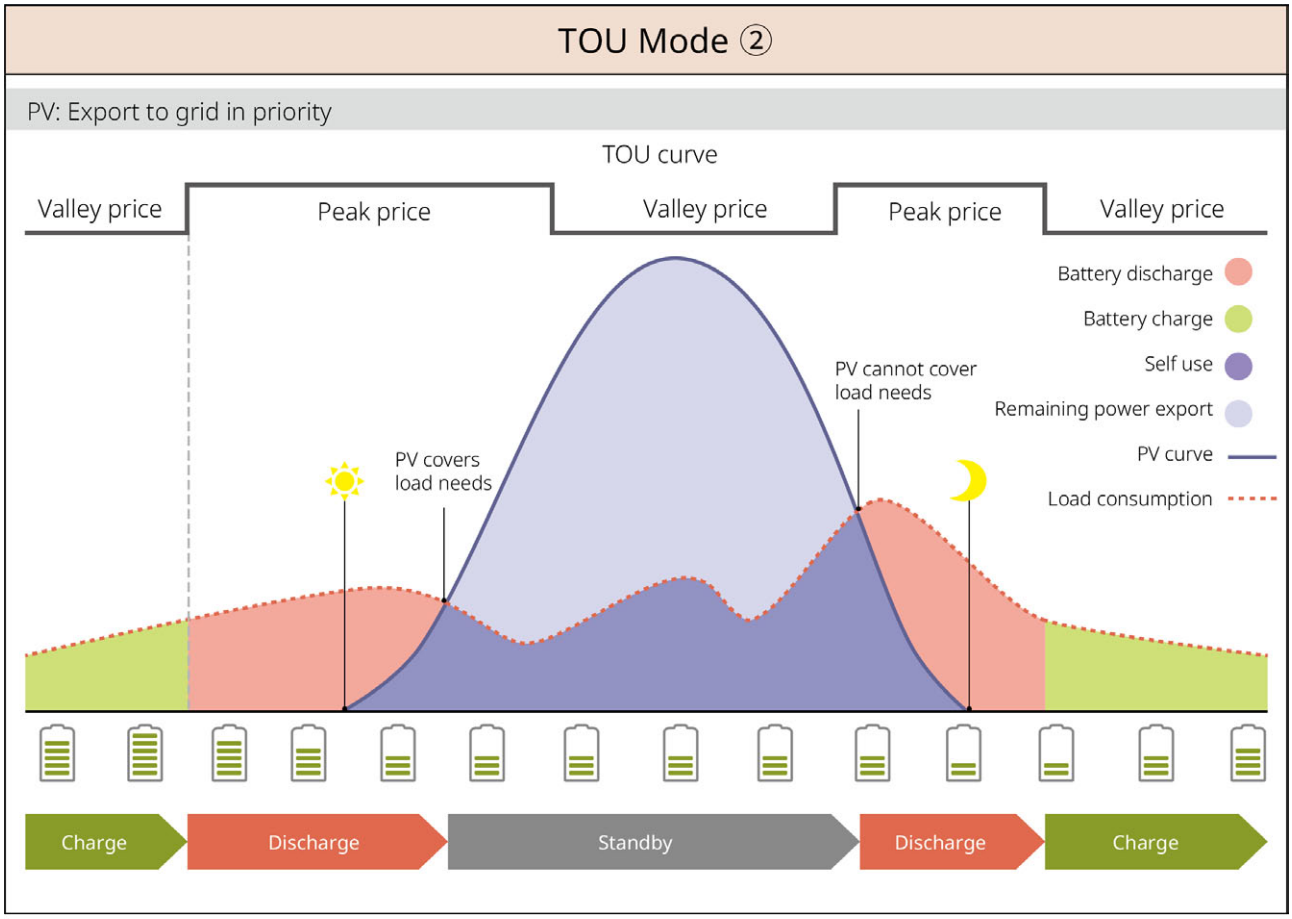
For example: during valley price periods, set the battery to charging mode, purchasing electricity from the grid to charge; during peak price periods, set the battery to discharging mode, supplying power to the loads via the battery.

TOU Mode ①

PV: Charge battery in priority



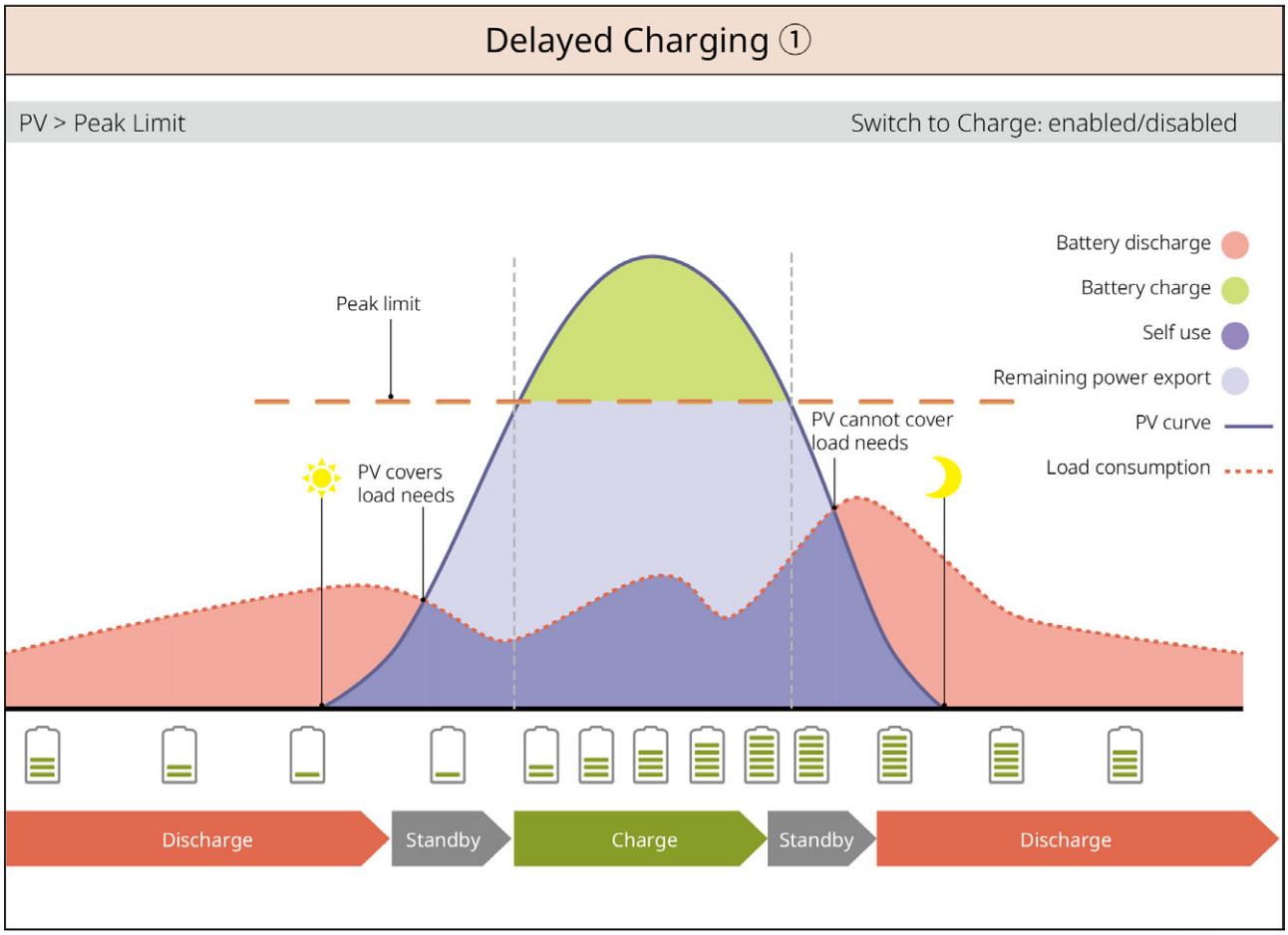
SLG00NET0004

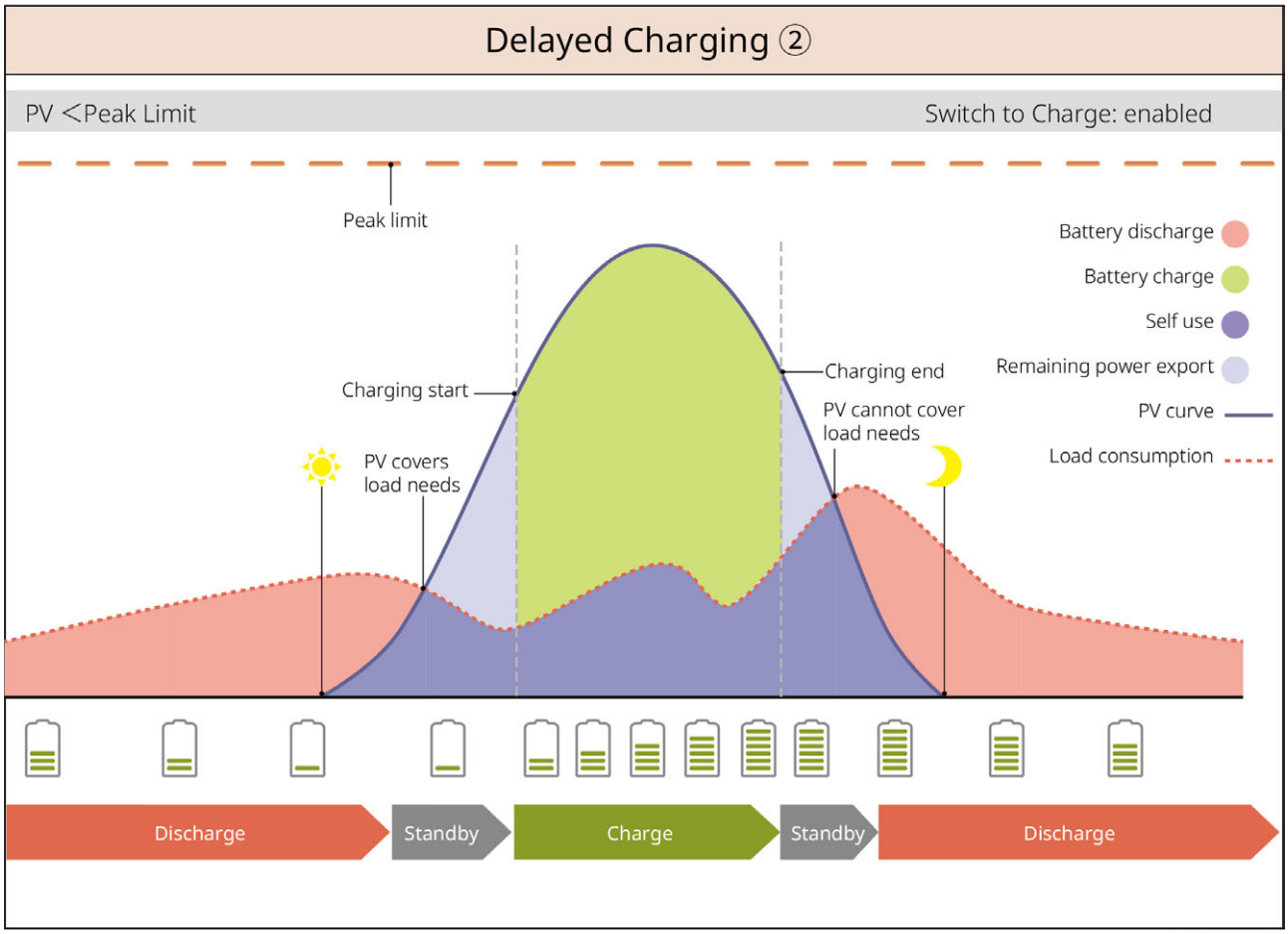


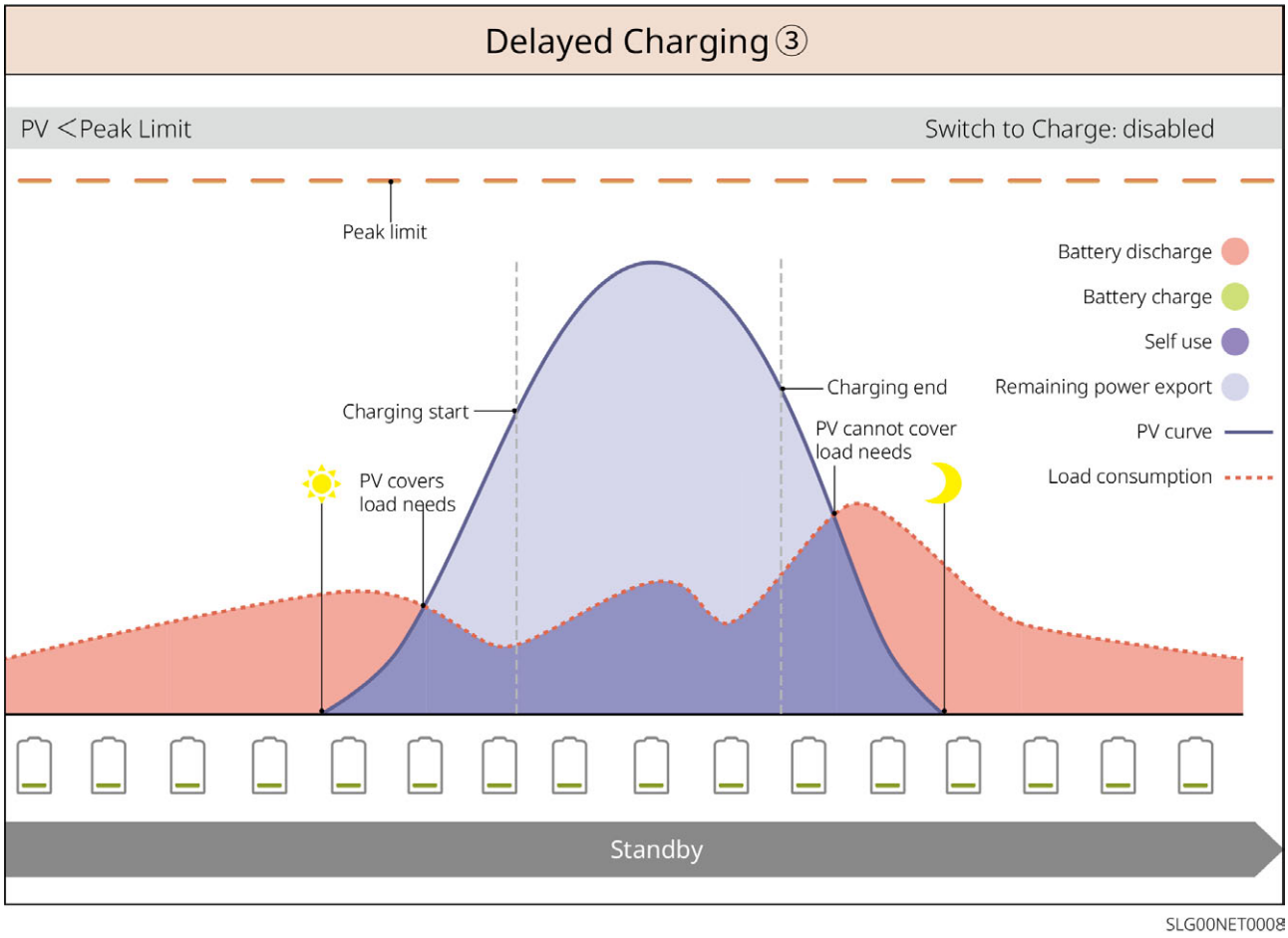
SLG00NET0005

Delayed Charging Mode

- Suitable for areas with grid-connected power output limits.
- Setting a peak power limit can use PV generation exceeding the grid connection limit to charge the battery; or set PV charging periods to utilize PV generation for battery charging during those periods.

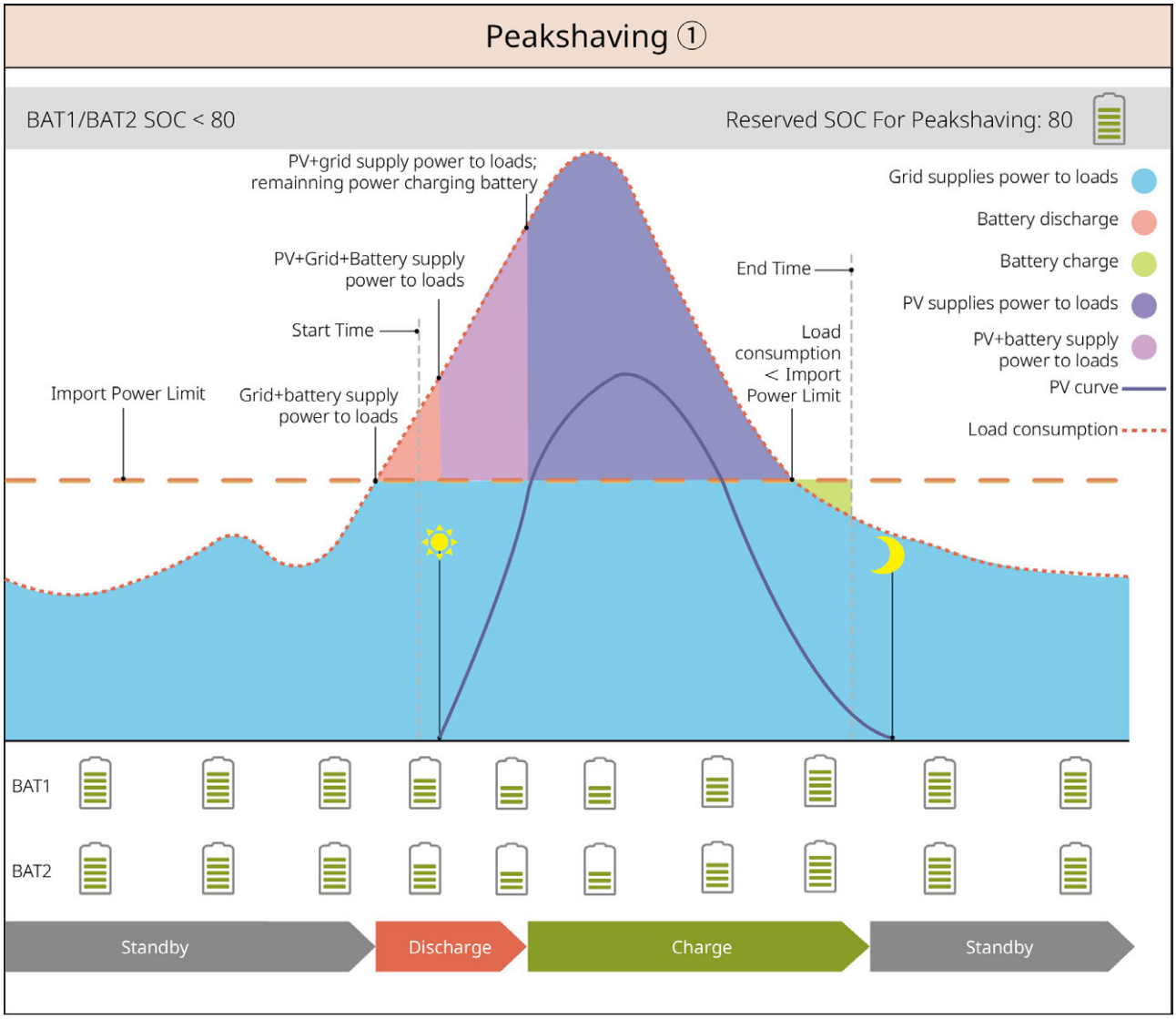

Delayed Charging ①
PV > Peak Limit
Switch to Charge: enabled/disabled
Peak limit
PV covers load needs
PV cannot cover load needs
Battery discharge
Battery charge
Self use
Remaining power export
PV curve
Load consumption
Discharge
Standby
Charge
Standby
Discharge
SLG00NET000E


Delayed Charging ②
PV ＜Peak Limit
Switch to Charge: enabled
Peak limit
Battery discharge
Battery charge
Self use
Remaining power export
PV curve
Load consumption
Charging start
Charging end
PV cannot cover load needs
PV covers load needs
Discharge
Standby
Charge
Standby
Discharge
SLG00NET0007



Demand Control Mode

- Primarily suitable for industrial and commercial scenarios.
- When the total load power consumption exceeds the electricity quota in a short time, battery discharge can be used to reduce the portion exceeding the quota.
- When both battery SOCs of the inverter are below the reserved SOC for demand control, the system purchases electricity from the grid based on time periods, load consumption, and peak purchase limit; when only one battery SOC of the inverter is below the reserved SOC for demand control, the system purchases electricity from the grid based on load consumption and peak purchase limit.



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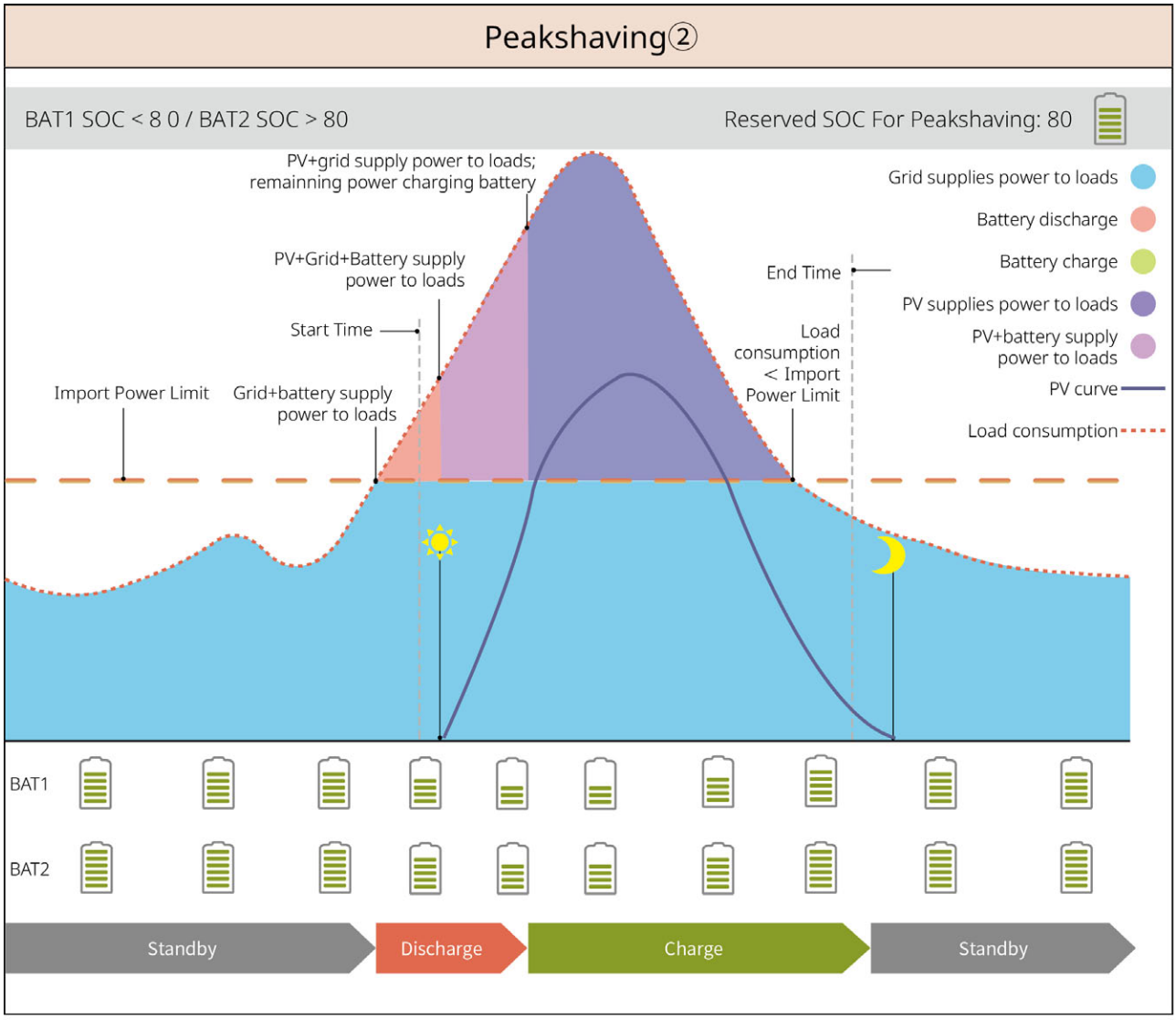


SLG00NET0011

Off-Grid Mode

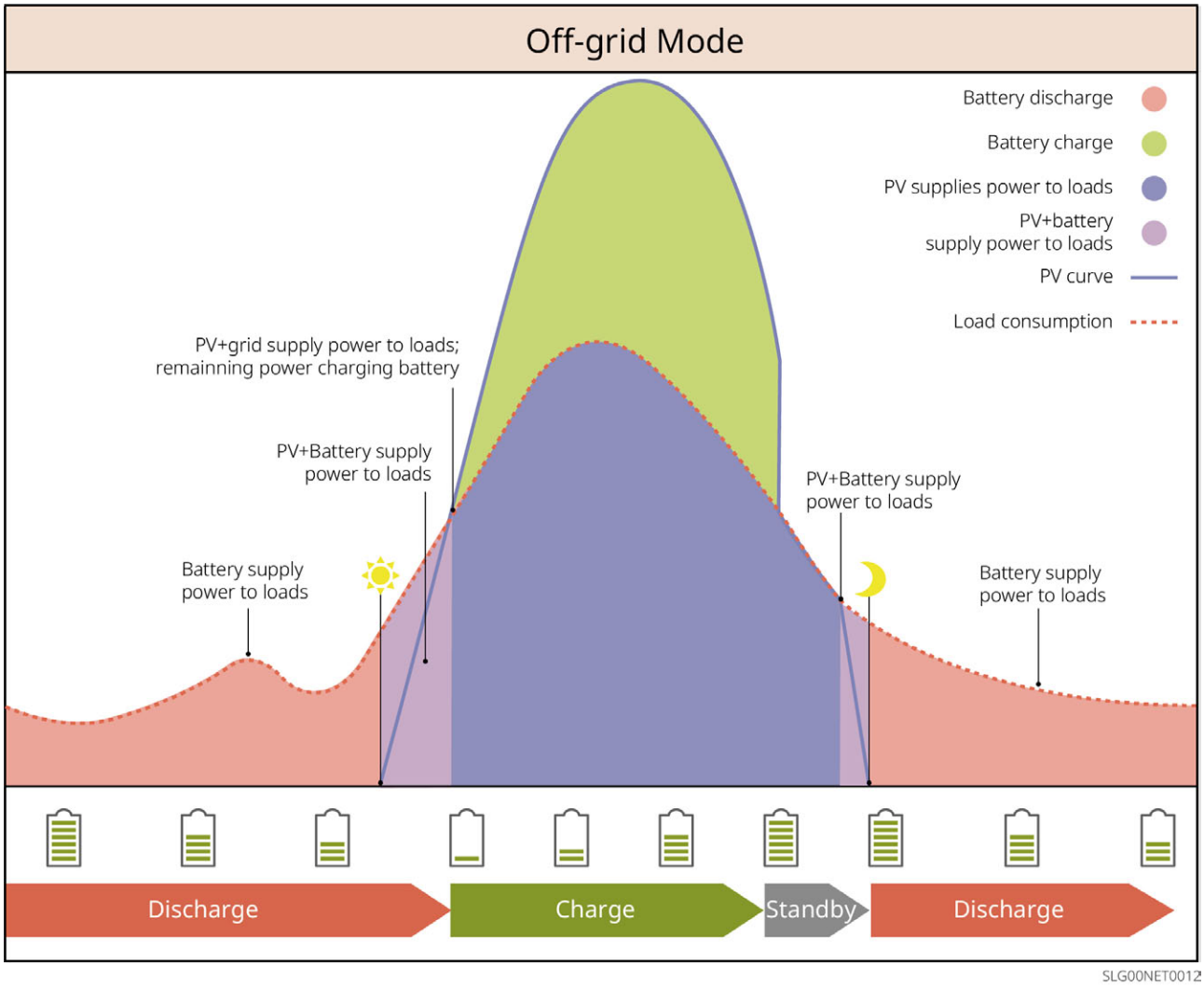
NOTICE

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

When the grid fails, the inverter switches to off-grid operation mode.

- During the day, PV generation prioritizes supplying power to the loads, and excess power charges the battery.
- At night, the battery discharges to supply power to the loads, ensuring uninterrupted power for BACK-UP Loads.
- Off-grid SOC recovery: After the system operates off-grid, the battery gradually

recovers to the minimum SOC through PV generation or other generation methods.



2.5 Features

NOTICE
For specific Features, please refer to the actual product configuration.

AFCI

Integrated AFCI circuit device, used to detect arc faults and quickly disconnect the circuit upon detection, thereby preventing electrical fires.

Causes of arc generation:

- Connectors in the photovoltaic system are damaged.
- Cable connection error or damage.
- Connector and cable aging.

Troubleshooting method:

1. When an arc is detected, the fault type can be viewed on the Inverter display or via the App.
2. If the fault is triggered fewer than 5 times within 24 hours, the machine will automatically restore the on-grid Protection after a 5-minute wait. After the 5th arc fault, the fault must be cleared for the Inverter to resume normal operation. For detailed instructions, please refer to the "SolarGo APP User Manual."

model	label	Instructions
GW5K-ET-L-G10 GW6K-ET-L-G10 GW8K-ET-L-G10	AFCI：F-I-AFPE-1-2-1	F (Full coverage): Full coverage Inverter PV input port I(Integrated): Integrated within the Inverter AFPE (Arc Fault Protection Equipment): Combines the detection functions of both AFD and AFI. 1: A pair of PV inputs port (PV+, PV-) is connected to a string of PV input arrays. 2A arc detection sensor detects the number of PV input port. 1: Number of detection sensors for arc

model	label	Instructions
GW10K-ET-L-G10 GW12K-ET-L-G10 GW12K-ET-LL-G10	AFCI：F-I-AFPE-1-2/1-2	F (Full coverage): Full coverage Inverter PV input port I(Integrated): Integrated within the Inverter AFPE (Arc Fault Protection Equipment): Combines the detection functions of both AFD and AFI. 1: A pair of PV inputs port (PV+, PV-) is connected to a string of PV input arrays. 2/1A arc detection sensor detects the number of PV input port. 2: Number of arc detection sensors
GW15K-ET-L-G10 GW20K-ET-L-G10	AFCI：F-I-AFPE-1-2-2	F (Full coverage): Full coverage Inverter PV input port I(Integrated): Integrated within the Inverter AFPE (Arc Fault Protection Equipment): Combines the detection functions of both AFD and AFI. 1: A pair of PV inputs port (PV+, PV-) is connected to a string of PV input arrays. 2A arc detection sensor detects the number of PV input port. 2: Number of sensors for arc detection

Three-phase unbalanced output

Inverter on-grid terminal andBACK-UPBoth ends support three-phase unbalanced output, and each phase can be connected to different Power loads. The maximum output Power for each phase under different model conditions is shown in the following table:

No.	model	Single-phase maximum output power
1	GW5K-ET-L-G10	4kW
2	GW6K-ET-L-G10	4kW
3	GW8K-ET-L-G10	4kW
4	GW10K-ET-L-G10	6kW
5	GW12K-ET-L-G10	6kW
6	GW15K-ET-L-G10	10kW
7	GW20K-ET-L-G10	10kW
8	GW12K-ET-LL-G10	6kW

load control

Inverter Dry contact control port, supports connection of additional contactors for controlling load switching on/off. Compatible with household loads, heat pumps, etc. The method is as follows:

- Time Control: Set the time for turning the load on or off. The load will automatically turn on or off within the set time period.
- Switch control: When the control mode is set to ON, the load will be turned on; when the control mode is set to OFF, the load will be turned off.
- BACK-UP Loads Control: Inverter Built-in relay dry contact control port allows the relay to control whether the load is turned off. In off-grid mode, if an overload is detected at the BACK-UP terminal Battery and the SOC value is below the Battery off-grid Protection setpoint, the load connected to the relay port can be turned off.

Rapid Shutdown(RSD)

In a Rapid Shutdown system, the Rapid Shutdown transmitter works in conjunction with the receiver to enable system Rapid Shutdown. The receiver maintains module output by receiving signals from the transmitter. The transmitter can be externally mounted or integrated into the Inverter. In emergency situations, the transmitter can be deactivated by enabling an external trigger device, thereby shutting down the module.

- External transmitter

- Transmitter model: GTP-F2L-20, GTP-F2M-20
  https://www.goodwe.com/Ftp/Installation-instructions/RSD2.0-transmitter.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

3 Check and Storage

3.1 Check Before Receiving

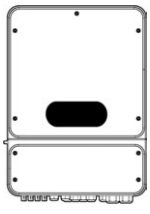
Check the following items before accept.

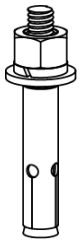
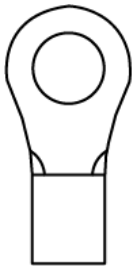
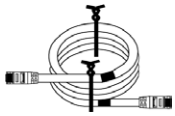
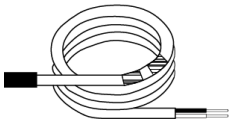
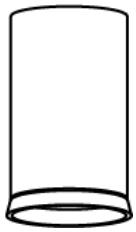
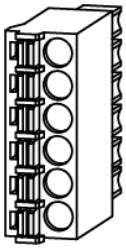
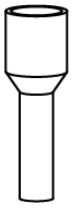
1. Check the outer packing box for damage, such as holes, cracks, deformation, and other signs of equipment damage. Do not unpack the package and contact the supplier as soon as possible if any damage is found.
2. When removing the GW14.3-BAT-LV-G10 battery, make sure that the packaging carton is intact. If the packaging is damaged and you need to return or exchange the product due to quality issues, please contact GoodWe after-sales service or your dealer to obtain a special packaging box.
3. Check the product model. If the product model is not what you requested, do not unpack the product and contact the supplier.

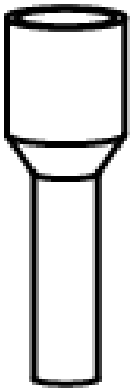
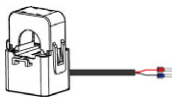
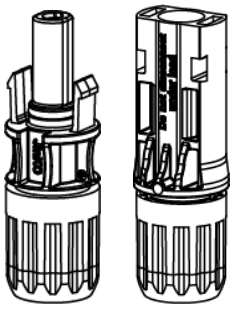
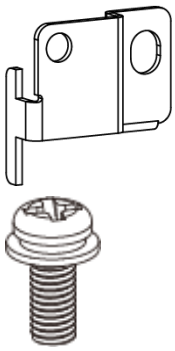
3.2 deliverables

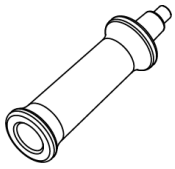
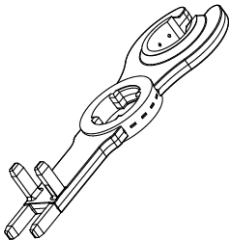
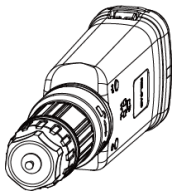
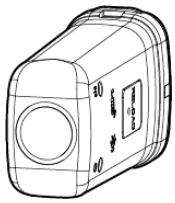
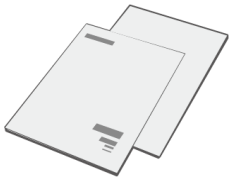
⚠WARNING
Check whether the deliverables type and quantity are correct and whether there is any damage to the appearance. If damaged, please contact your distributor. After removing deliverables from the packaging, do not place it on rough, uneven, or sharp surfaces to avoid paint chipping.

3.2.1 Inverter Deliverables

Component	Description	Component	Description
	Inverter x1		mounting plate x1

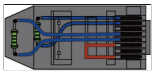
Component	Description	Component	Description
	Expansion screw x4		Grounding terminal x4
	BMS Ethernet cable • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10, GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 x 1 • GW15K-ET-L-G10, GW20K-ET-L-G10 x 2		Lead-acid battery temperature sensor wire x N N: China region x 0; Other regions x 1.
	Lead-acid Battery temperature sensor cable fixing adhesive tape x N N: China region x 0; Other regions x 2.		Battery power line tubular terminal • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10, GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 x 2 • GW15K-ET-L-G10, GW20K-ET-L-G10 x 4
	6Pin communication terminal x 4		Signal line tubular terminals x 28

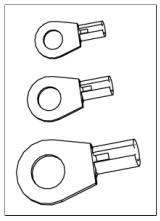
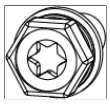
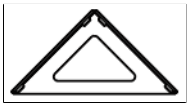
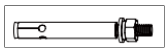
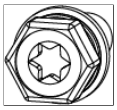
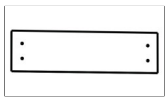
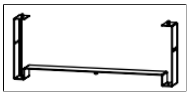
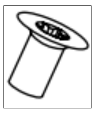
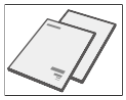
Component	Description	Component	Description
	GEN tubular terminal x 4		BACK-UP and ON-GRID tubular terminals x 8
	CT x 3		PV DC terminal • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10 x 2 • GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 x 3 • GW15K-ET-L-G10, GW20K-ET-L-G10 x 4
	(Optional) • Anti-theft lock fixing sheet metal x 1 • M5 screw x 1 Note: If an Installation anti-theft lock is required, please contact GoodWe to purchase the anti-theft lock fixing sheet metal.		M6 Allen Wrench x 1

Component	Description	Component	Description
	Lifting rod x 1		PV unlocking tool x N N: China region x 0; Other regions x 1.
 or 	smart dongle x1		Product Documentation x 1

3.2.2 Batteries Deliverables

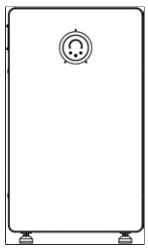
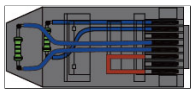
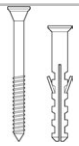
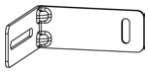
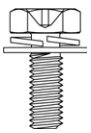
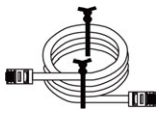
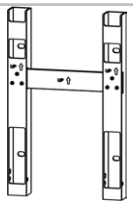
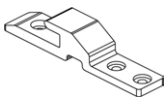
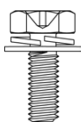
3.2.2.1 LX A5.0-30

Component	Description	Component	Description
	Battery module x1		Terminal resistor x 1 When connecting to a third-party busbar, this terminal resistor needs to be installed.

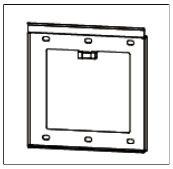
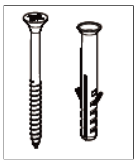
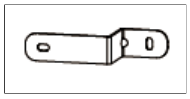
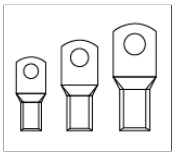
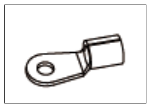
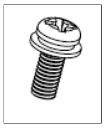
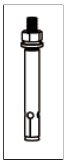
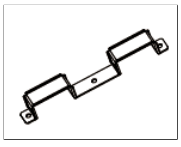
Component	Description	Component	Description
	• M5 OT terminal x 2: Recommended for connecting 10mm^2 cable • M8 OT terminal x 4: Recommended for connecting 50mm^2 cable • M10 OT terminal x 2: Recommended for connecting 70mm^2 cable		M5*12 grounding screw x 2
	Bracket x 2 For wall-mounted installation		M6* 70 Expansion bolts x 4 For wall-mounted installation
	M5*12 grounding screw x 2 For wall-mounted installation		Line drawing template x 1 For wall-mounted installation
	Battery bracket x 2 (optional) For floor-mounted installation		M4*8 screw x 8 For floor-mounted installation
	Documents x 1		Negative power line (optional) x 1
	Positive power line (optional) x 1		Grounding cable (optional) x 1

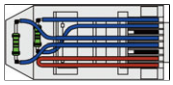
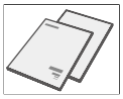
Component	Description	Component	Description
	Communication cable (optional) x 1		Decorative cover (optional) x 1

3.2.2.2 Battery Deliverables (GW14.3- BAT-LV-G10)

Component	Description	Component	Description
	Battery module x1		Wire cover x 1
	Terminal resistor x 1		Documents x 1
	Expansion bolt x 2		Wall locking anti-tip bracket x 2
	Grounding OT terminal x 1		DC OT connector x 6
	M5*16 internal cross external hexagon screw x 7		Communication cable x 1
	Wall mount bracket (optional) x 1		Hooks (optional) x 4
	M5*16 internal cross external hexagon (optional) x 12		M10 Expansion bolts (optional) x 4

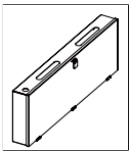
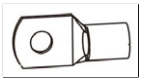
3.2.2.3 Batteries Deliverables(LX U5.0-30)

Component	Description	Component	Description
	Battery x 1		Plastic cover x 1
	Wall-mounted x 1		Expansion screwx 2
	locking bracket x 2		• 35-8 OT terminal x 4: Recommended connection with 25mm² or 35mm² cables • 50-8 OT terminal x 4: Recommended to connect 50mm² cable • 70-10 OT terminal x 2: Recommended to connect 70mm² cable
	14-5Grounding terminal x 2		M5 x 7
	M10 x 6		Wire harness fixing plate x 1

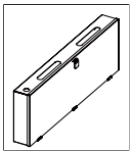
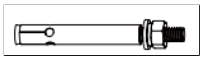
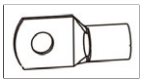
Component	Description	Component	Description
	Terminal resistor x 1		Product Documentation x 1

3.2.3 Busbar Deliverables

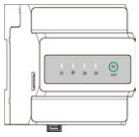
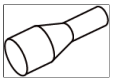
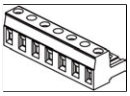
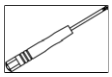
3.2.3.1 BCB-22-WW-0 (Optional)

Component	Description	Component	Description
	360A Manifold box x 1		M6 Expansion bolts x 4
	(25--8) OT terminal x 36 (70--10) OT terminal x 6	-	-

3.2.3.2 BCB-32-WW-0, BCB-33-WW-0 (optional)

Component	Description	Component	Instructions
	720A Combiner Box x 1		M6 x 4
	(50-8) OT terminal x 30 (70-10) OT terminal x 6	-	-

3.2.4 GM330

Component	Description	Component	Description
	Smart meter x1		2 PIN terminal x1
	PIN terminal x 6		7 PIN terminal x1
	Screw driver x 1		Documents x 1

3.3 Storage

NOTICE
[1] The storage time is calculated from the SN date on the Battery packaging. After exceeding the storage period, charging Discharge maintenance is required. (Battery maintenance time = SN date + charging Discharge maintenance cycle). For the method to check the SN date, refer to:12.4.SN code meaning(Page 471). [2] After passing the charging maintenance inspection, if the exterior case is affixed with a Maintaining Label, please update the maintenance information on the Maintaining Label. If there is no Maintaining Label, record the maintenance time and Battery SOC independently, and securely store the data to facilitate the preservation of maintenance records.

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

1. If the storage time of Inverter exceeds two years or the non-operational period after Installation exceeds six months, it is recommended to undergo inspection and testing by professionals before being put into service.
2. To ensure the electrical performance of the internal electronic components of the Inverter remains optimal, it is recommended to power it on every 6 months during storage. If it has not been powered on for more than 6 months, a professional inspection and testing are advised before putting it into operation.

3. To ensure the performance and service life of Battery, it is recommended to avoid prolonged idle storage. Long-term storage may lead to deep Discharge of Battery, causing irreversible chemical degradation, capacity decay, or even complete failure. Timely usage is advised. If Battery requires long-term storage, please perform maintenance according to the following requirements:

Battery model	Initial SOC range for storage	Recommended Storage Temperature	Charging Discharge Maintenance Cycle[1]	Battery maintenance method[2]
LX A5.0-30	30%~40%	0~35℃	-20~45℃, ≤6 months	For maintenance methods, please consult the dealer or after-sales service center.
GW14.3-BAT-LV-G10	30%~40%	0~35℃	-20~35℃, ≤12 months 35~45℃, ≤6 months	
LX U5.0-30	30%~40%	0~35℃	-20~0℃, ≤1 month 0~35℃, ≤6 months 35~40℃, ≤1 month	

Packaging requirements:

Ensure the outer packaging box is not dismantle, and the desiccant inside the box is not missing.

Environmental requirements:

1. Ensure that Storage is placed in a shaded area and avoid direct sunlight.
2. Ensure the storage environment is clean, with an appropriate temperature range and no condensation. If condensation is observed on the equipment, do not power on the device.
3. Ensure that Storage is kept away from flammable, explosive, and corrosive materials.

stack requirements:

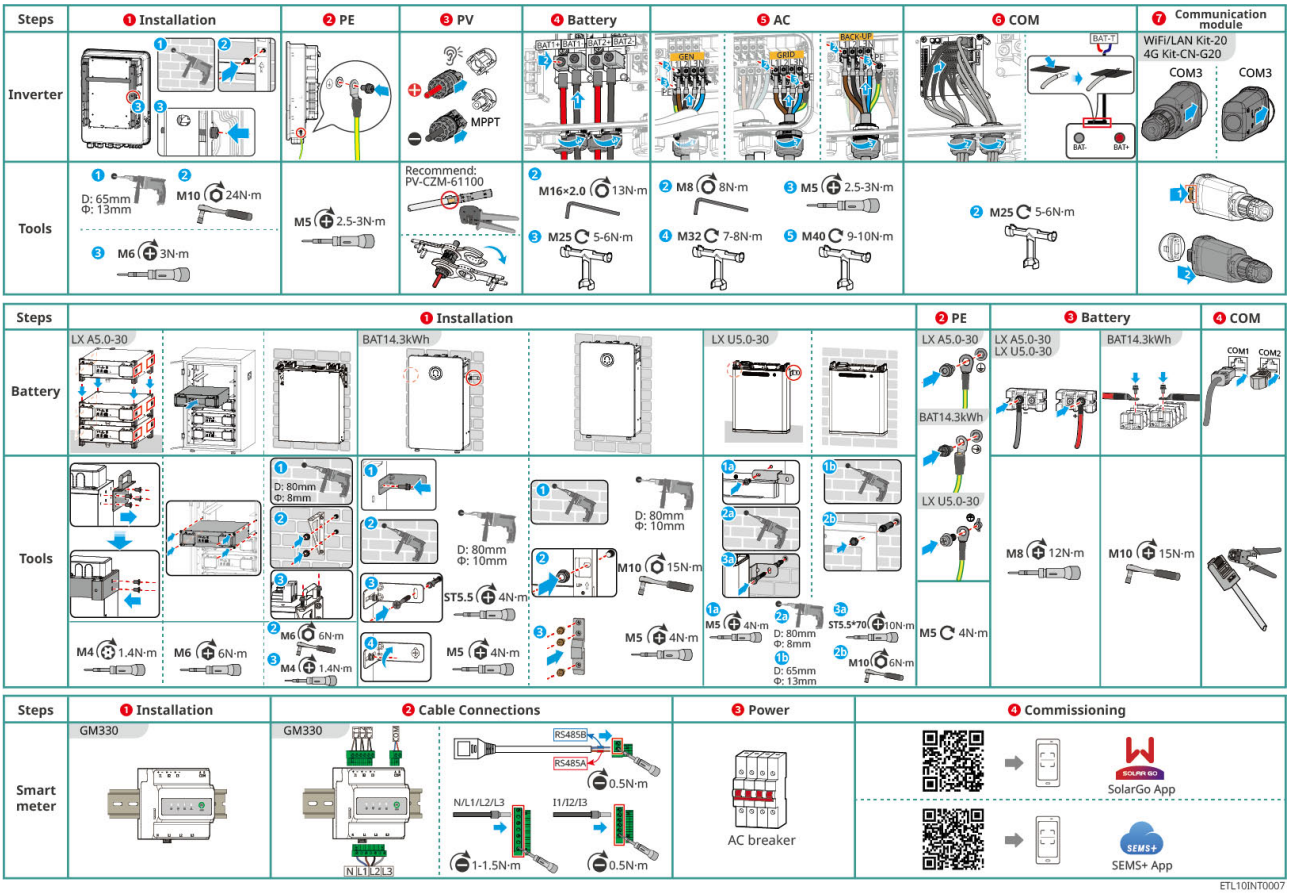
1. Ensure the Inverter stack height and orientation are positioned according to the label instructions on the packaging box.
2. Ensure there is no risk of tipping after Inverter stack.

4 Installation

DANGER

Install and connect the equipment with the deliverables included in the package. Otherwise, the manufacturer shall not be liable for the damage.

4.1 System Installation and Commissioning Procedure



4.2 Installation Requirements

4.2.1 Installation Environment Requirements

1. The equipment must not be operated in flammable, explosive, or corrosive

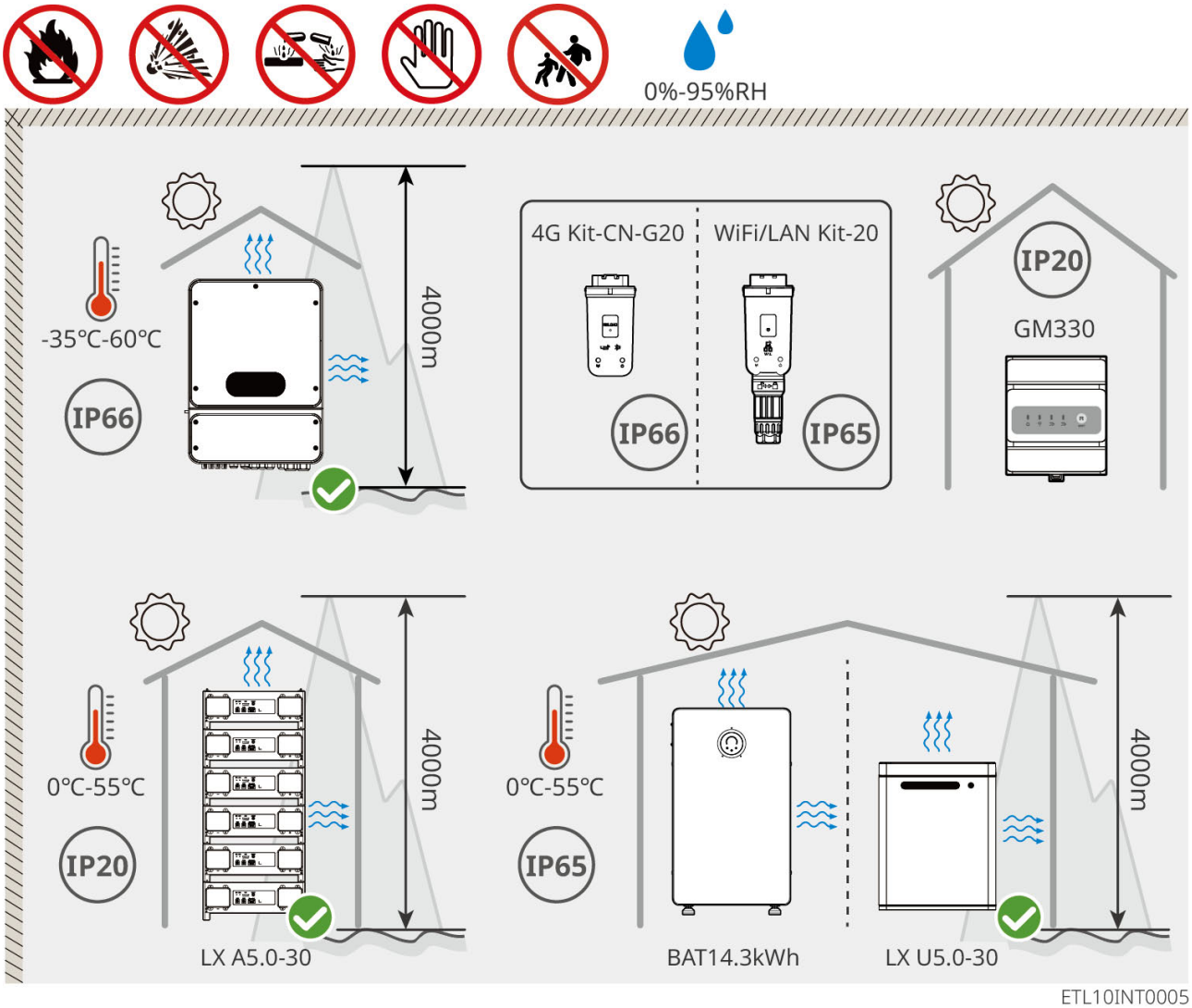
environments.

2. The ambient temperature of the equipment Installation must be within the appropriate range.
3. Installation Location should be kept out of reach of children and avoid Installation in easily accessible locations.
4. Inverter The enclosure temperature may exceed 60°C during operation. Do not touch the enclosure before it cools down to prevent burns.
5. The equipment should be protected from exposure to sunlight, rain, snow, and other Installation conditions. It is recommended to Installation in a shaded Installation Location, and if necessary, a sunshade can be constructed.
6. Direct sunlight, high temperatures, and other adverse environmental conditions may lead to Inverteroutput derating.
7. The Installation space must meet the ventilation and heat dissipation requirements of the equipment as well as the operational space requirements.
8. The environment must meet the equipment's Ingress Protection Rating, Inverter, Battery, and smart dongle requirements for both indoor and outdoor Installation; the electric meter must comply with indoor Installation.
9. The height of the equipment Installation should facilitate operation and maintenance, ensuring that the equipment indicator and all labels are easily visible, and the wiring terminal is easy to operate.
10. Equipment Installation Altitude is below Max. Operating Altitude.
11. Before installing salt affected area outdoor Installation equipment, consult the manufacturer. salt affected area mainly refers to areas within 500m of the coast. The affected zone is related to factors such as sea breeze, precipitation, and terrain.
12. The DC line between Battery and Inverter, as well as the Communication cable line length, must be less than 3m. Please ensure that the Installation distance between Inverter and Battery meets the cable length requirement.
13. Keep away from strong magnetic fields to avoid electromagnetic interference. If there are radio stations or wireless communication devices operating below 30MHz near the Installation Location, please Installation the equipment according to the following requirements:

- Inverter: Add ferrite cores with multiple turns on the Inverter DC input or AC output lines, or incorporate low-pass EMI Filter; or maintain a distance of over 30m between the Inverter and radio frequency interference equipment.
- Other equipment: The distance between the equipment and the wireless electromagnetic interference device exceeds 30m.

NOTICE

- If the Installation is in an environment below 0°C, the Battery will be unable to continue Charge energy recovery after being emptied, resulting in Battery Under Voltage.
- LX A5.0-30, GW14.3-BAT-LV-G10, LX U5.0-30: Charge Temperature range: 0 < T ≤ 55°C; Discharge Temperature range: -20 < T ≤ 55°C



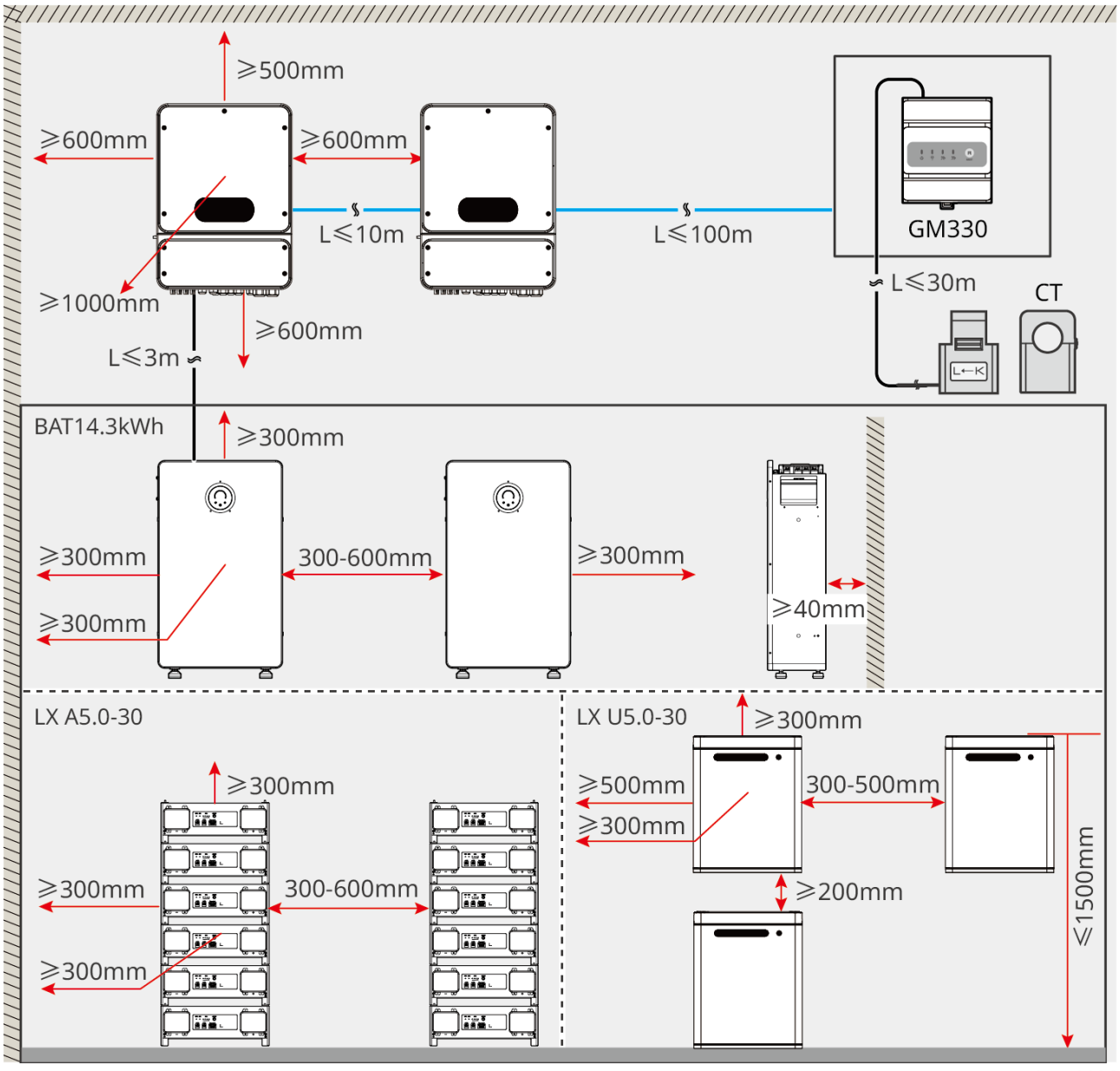
ETL10INT0005

4.2.2 Installation Space Requirements

When working on equipment in the Installation system, sufficient space should be reserved around the equipment to ensure adequate Installation and heat dissipation

space.

- When using CAT 7E Communication cable between Inverter, the cable distance should not exceed 10 meters; when using CAT 5E or CAT 6E Communication cable, the cable distance should not exceed 5 meters. Communication cable must not exceed 10m, otherwise communication abnormalities may occur.
- Installation CTs shall use CAT 5E or higher shielded network cable, with cable length not exceeding 30 meters.
- The RS485 twisted-pair shielded cable for communication between Inverter and the electric meter, with a cable distance not exceeding 100 meters.

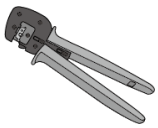
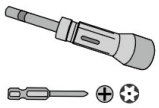
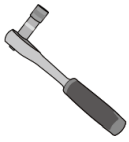
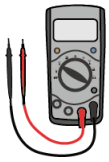
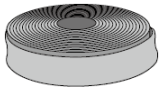


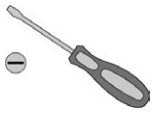
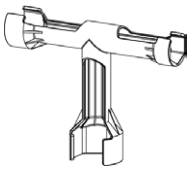
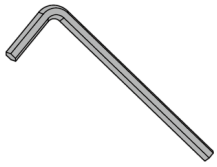
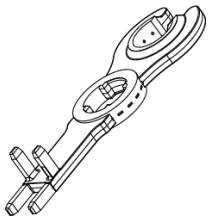
ETL10INT0006

4.2.3 Tool Requirements

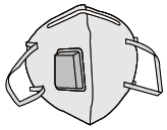
NOTICE
When Installation, it is recommended to use the following Installation tools. If necessary, other auxiliary tools can be used on-site.

Installation tool

Tool type	Description	Tool type	Instructions
	diagonal plier		RJ45
	wire stripper		Level bar
	open-end wrench		PVterminalcrimp tool A-2546B
	hammer drill (Drill bit Φ13mm)		torque wrench M4、M5、M6、M8
	rubber hammer		socket wrench
	Marker pen		multimeter Range ≤1000V
	Heat shrink tubing		Hot air gun

Tool type	Description	Tool type	Instructions
	cable tie		Vacuum cleaner
	single-axis		Cable gland unlocking tool Note: Please contact your distributor or GoodWe for purchase if needed.
	Inverter Battery cable crimp tool HS-95WF		Hex key wrench M16、M8
	(China Only) PV Unlocking Tool	-	-

personal protective equipment

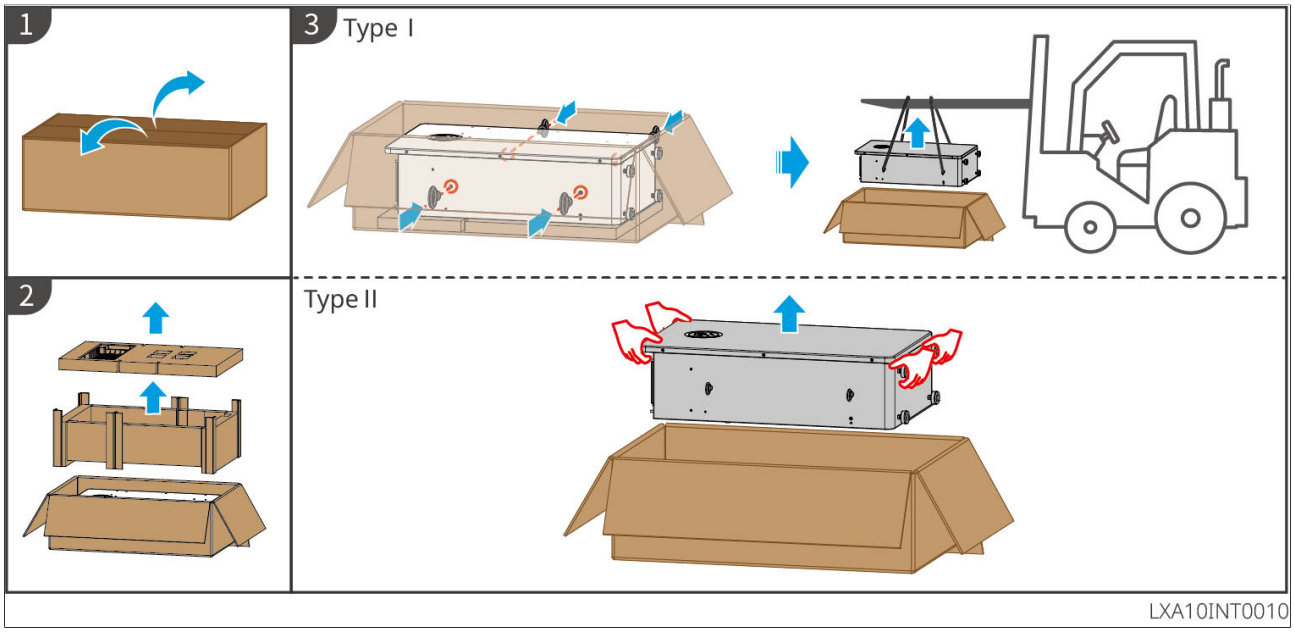
Tool Type	Description	Tool type	Description
	Insulating gloves, protective gloves		Dust mask
	goggle		safety shoes

4.3 Equipment Handling

⚠CAUTION

1. Operations such as transportation, turnover, installation and so on must meet the requirements of the laws and regulations of the country or region where inverters are installed.
2. Move the equipment to the site before installation. Follow the instructions below to avoid personal injury or equipment damage.
3. Please equip the corresponding personnel according to its weight, so that the equipment does not exceed the maximum weight that the personnel can carry to avoid personnel injuries.
4. Wear safety gloves to avoid personal injury.
5. Keep balance to avoid falling down when moving the equipment.
6. The battery system can be removed from the packaging box using a crane or hoist and transported to the installation site.
   - Crane requirements (GW14.3-BAT-LV-G10): Load capacity ≥ 180 kg
7. When moving equipment using a hoisting method, please use flexible slings or straps. The lifting rings and ropes for GW14.3-BAT-LV-G10 must meet the following requirements:
   - Suspension Ring: 4 M10 suspension rings, load capacity ≥ 260 kg
   - Suspension Rope: 1 suspension rope, rope length ≥ 2.5 m, suspension rope load capacity ≥ 600 kg

GW14.3-BAT-LV-G10:

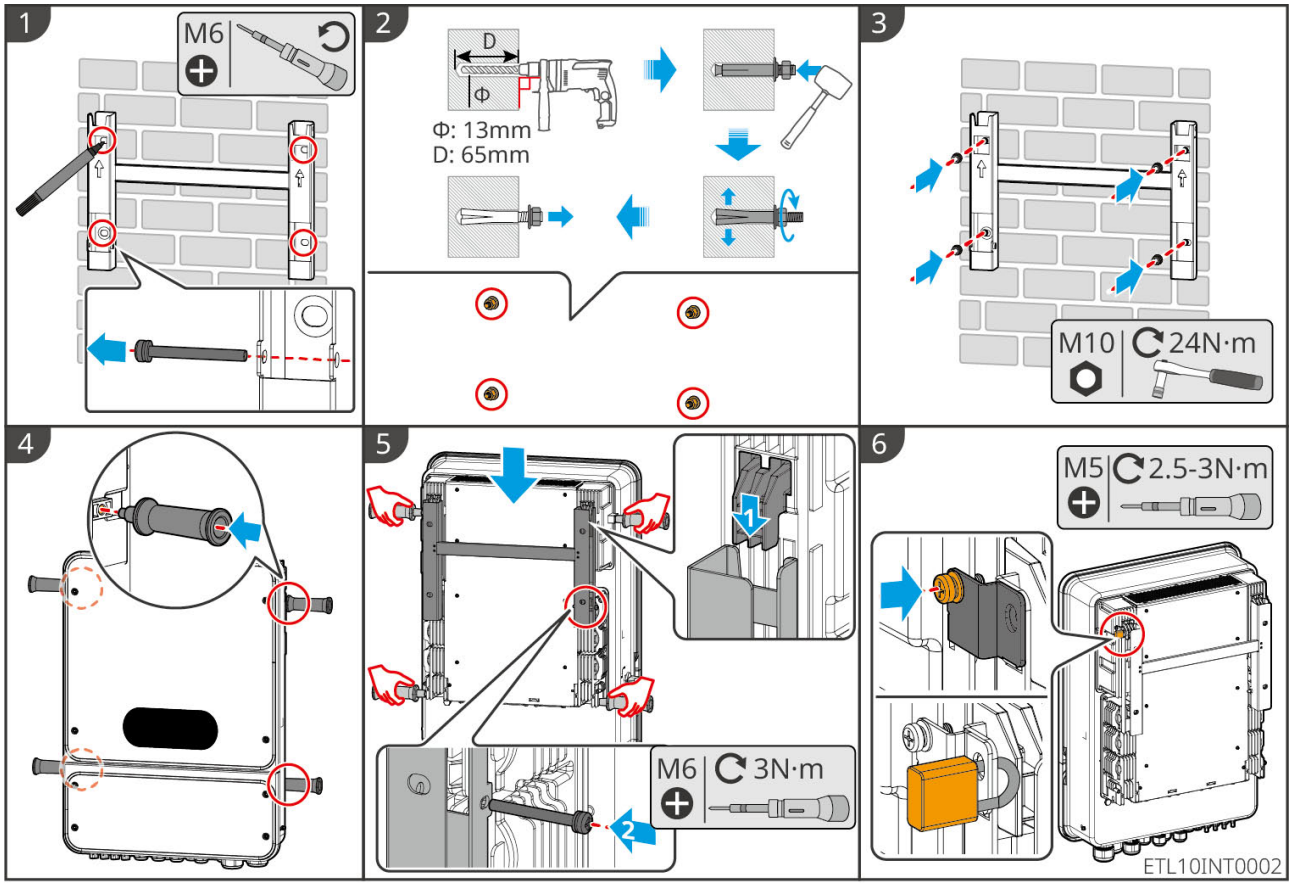


4.4 Installing the Inverter

⚠CAUTION

- Avoid the water pipes and cables buried in the wall when drilling holes.
- Wear goggles and a dust mask to prevent the dust from being inhaled or contacting eyes when drilling holes.
- Make sure the inverter is firmly installed in case of falling down.

1. Put the mounting plate on the wall horizontally and mark positions for drilling holes.
2. Drill holes with hammer drill.
3. Use expansion bolts to fix the mounting plate on the wall.
4. (Optional) Install the lifting handle on the inverter.
5. Install the inverter on the mounting plate. Tighten the nuts to secure the mounting plate and the inverter.
6. (Optional) Install a security lock.



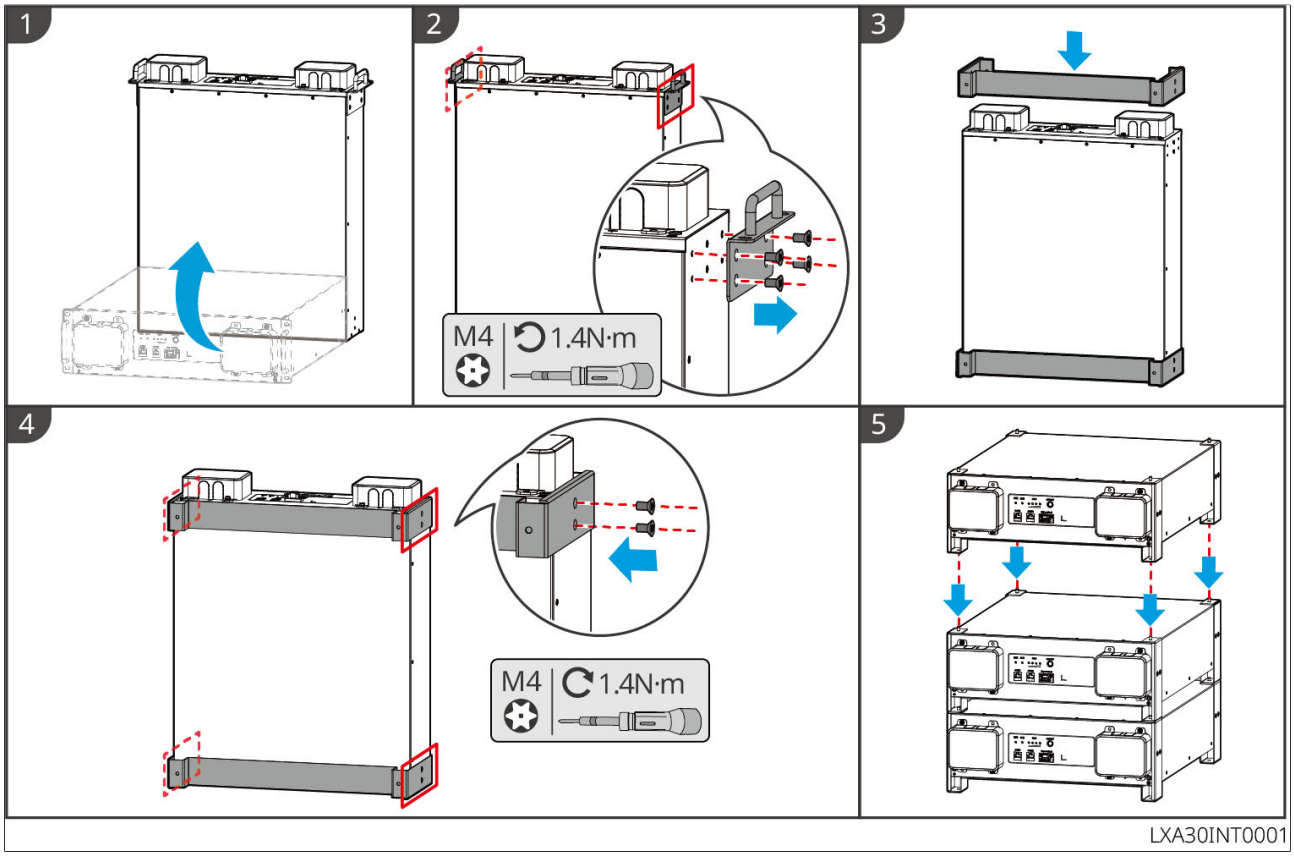
4.5 Installing the Battery System

4.5.1 LX A5.0-30

LX A5.0-30: Stacking installation

NOTICE
Up to 6 batteries can be stacked.

1. Place the battery vertically, and remove the battery handles.
2. Install brackets on the battery, and secure them with screws.
3. Place the battery flat and stack multiple batteries. Ensure that the locating pin is inserted into the locating hole.

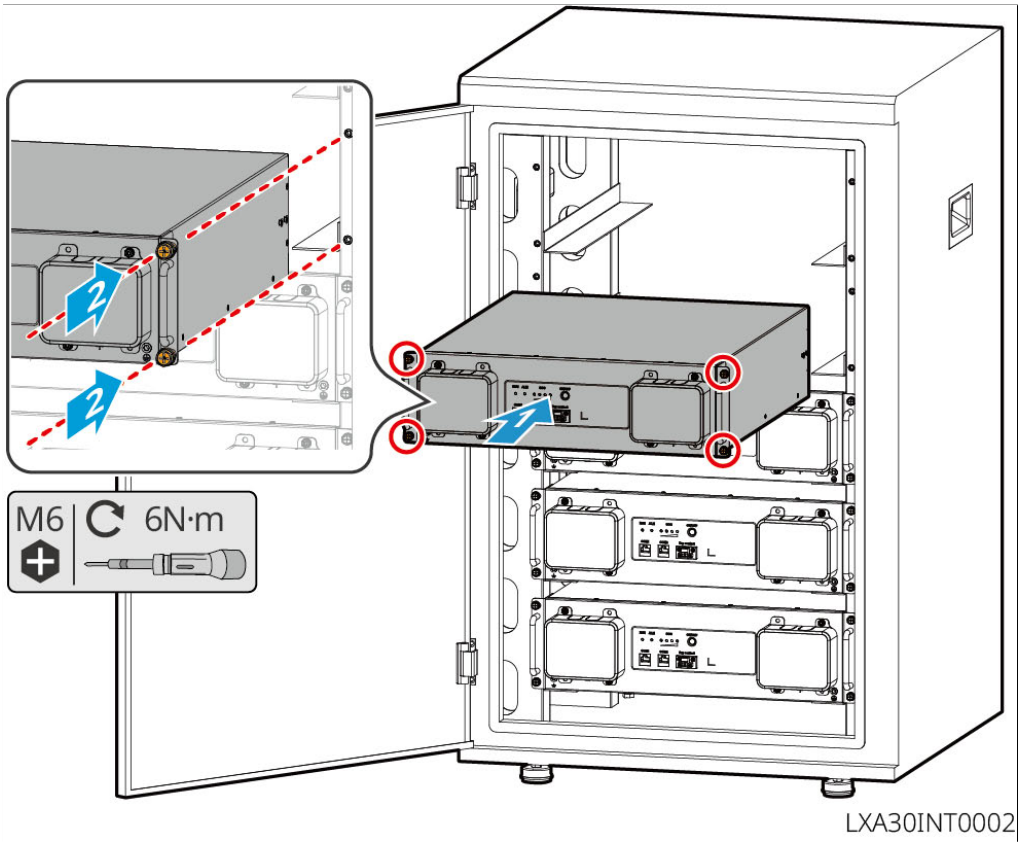


LX A5.0-30: Cabinet Installation

NOTICE

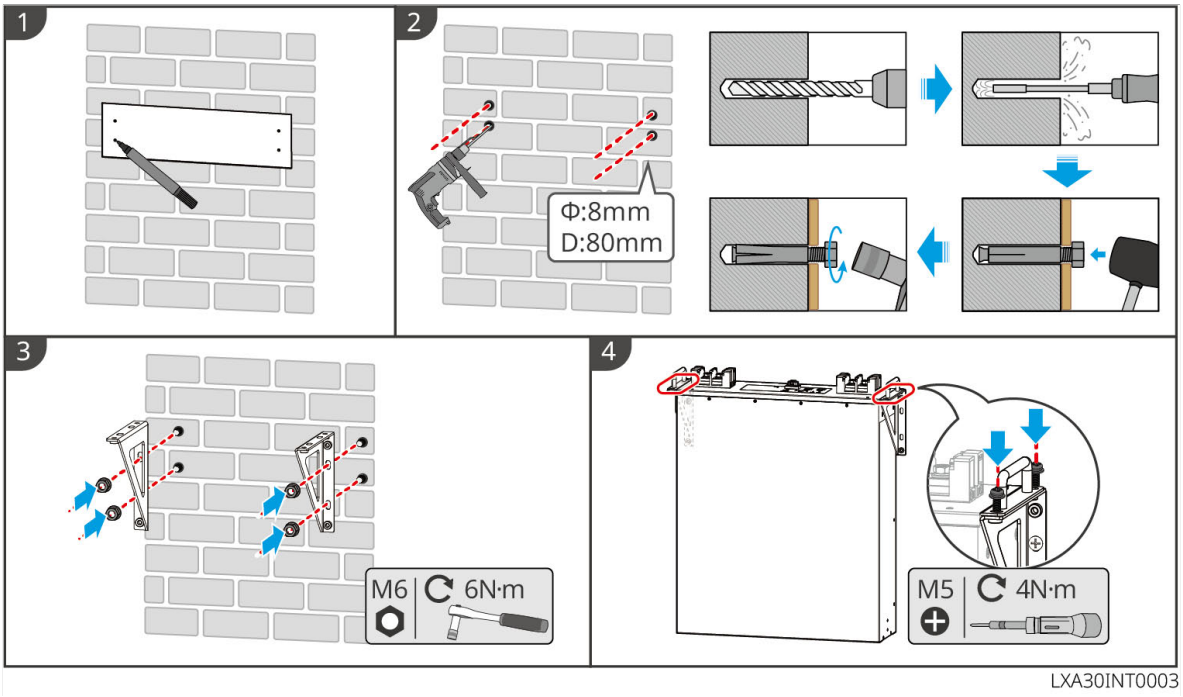
- It is recommended to install it in a 19-inch standard cabinet with a length * width of 600*800mm and above, and the height should be determined based on the thickness of the battery (133mm) and above.
- For cabinet installation, electrical labels and warning labels need to be attached to any position of the front panel of the battery (these labels are shipped as additional accessories).

1. Place the battery on the guide rail of the rack and secure the battery to the rack with screws from the handle.



LX A5.0-30: Wall-mounted Installation

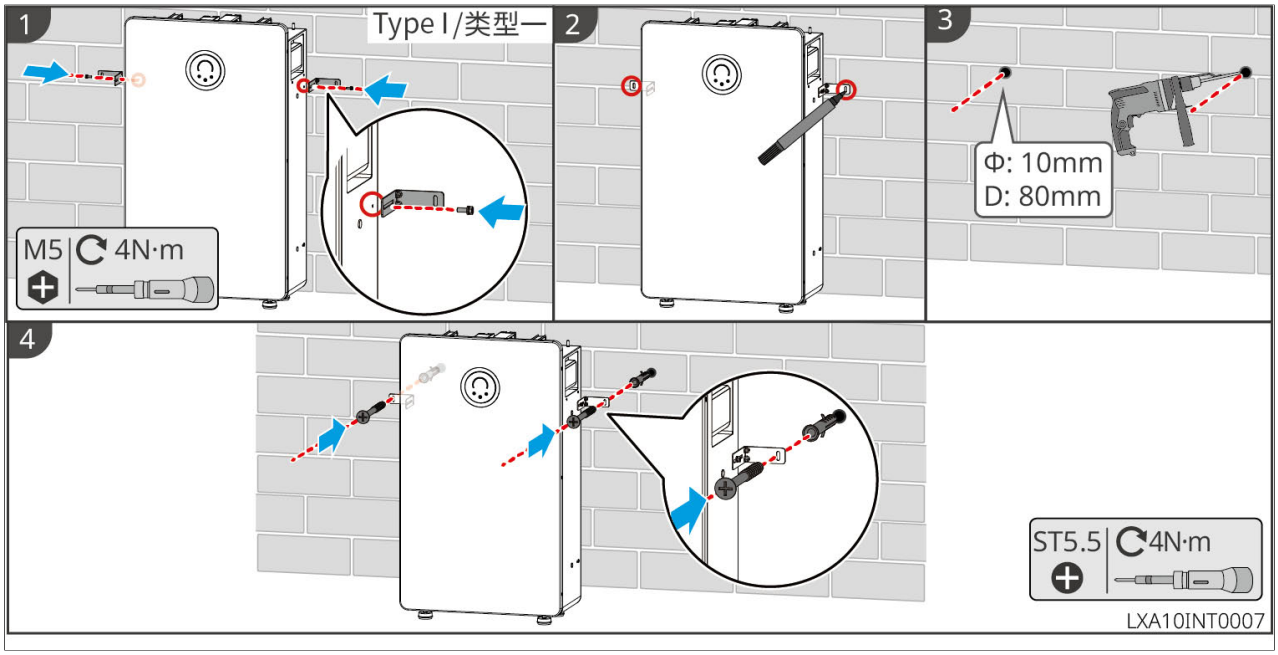
1. Determine the drilling position with installation positioning cardboard and marker pen.
2. Use an impact drill to drill holes.
3. Install the battery brackets.
4. Install the battery on the brackets and use screws to secure the battery.



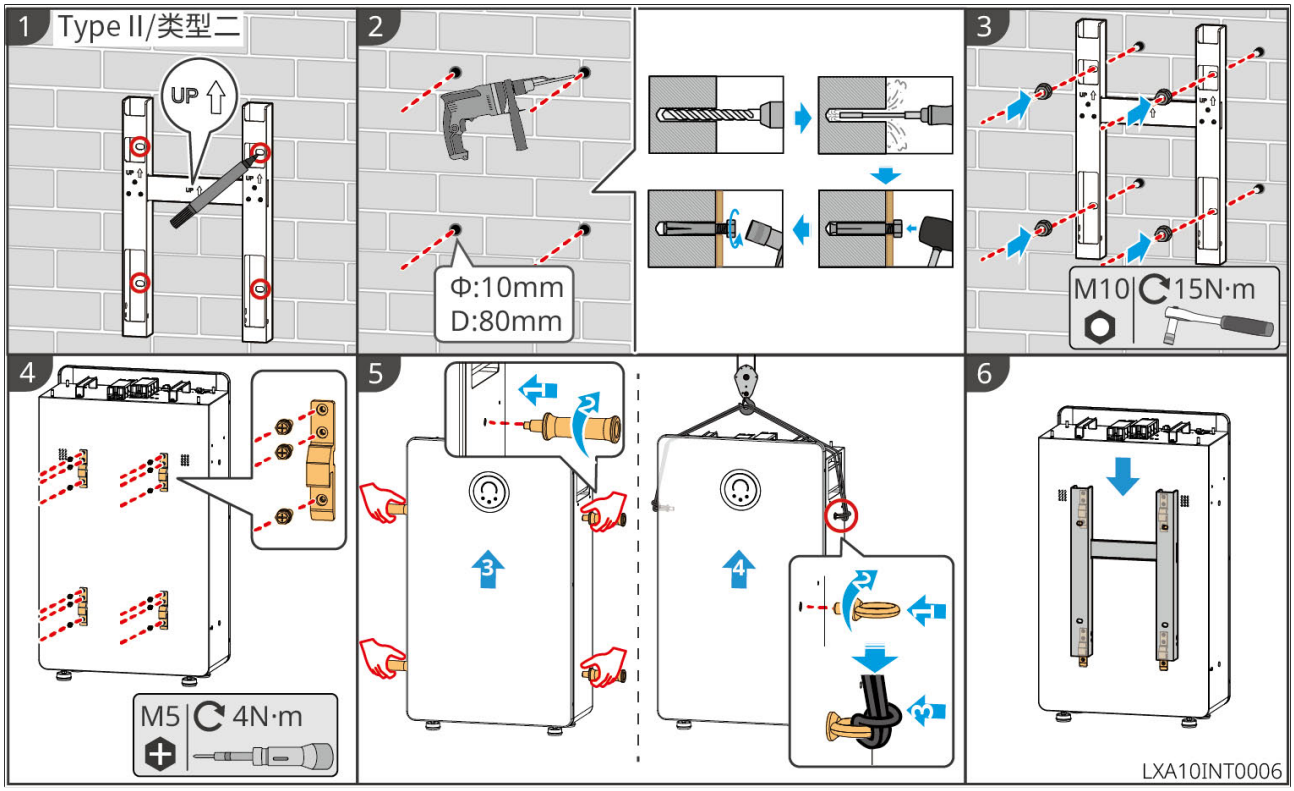
4.5.2 GW14.3-BAT-LV-G10

NOTICE
• Wall mounting requires two people.

GW14.3-BAT-LV-G10: Floor-mounted installation

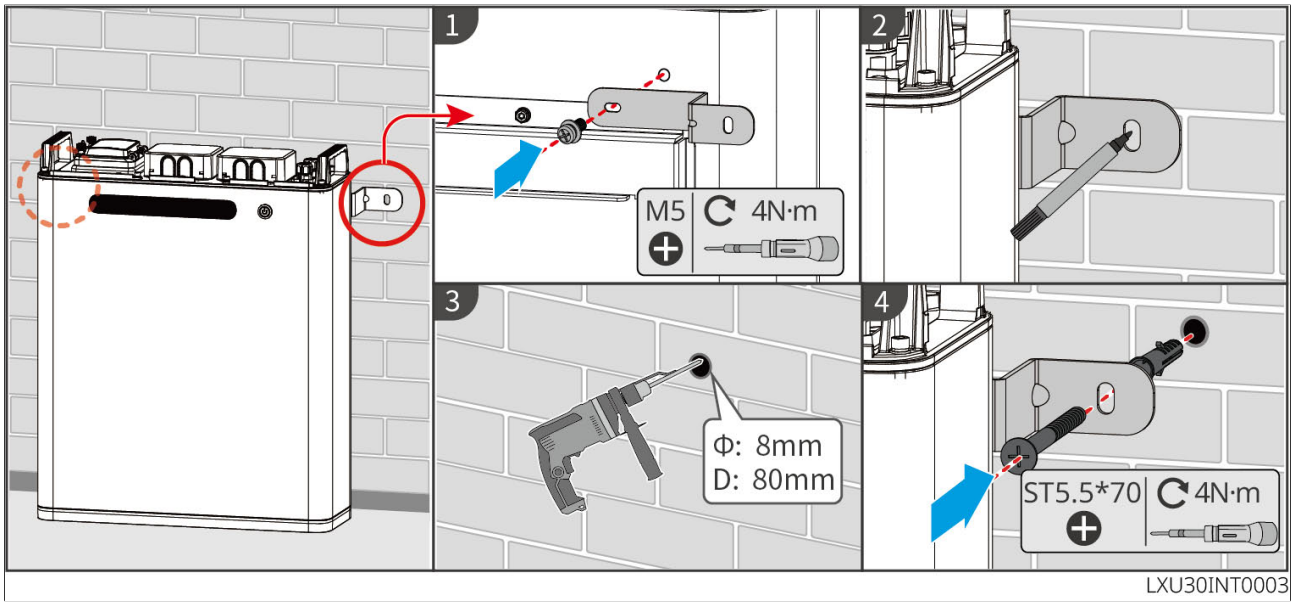


GW14.3-BAT-LV-G10: Wall-mounted Installation

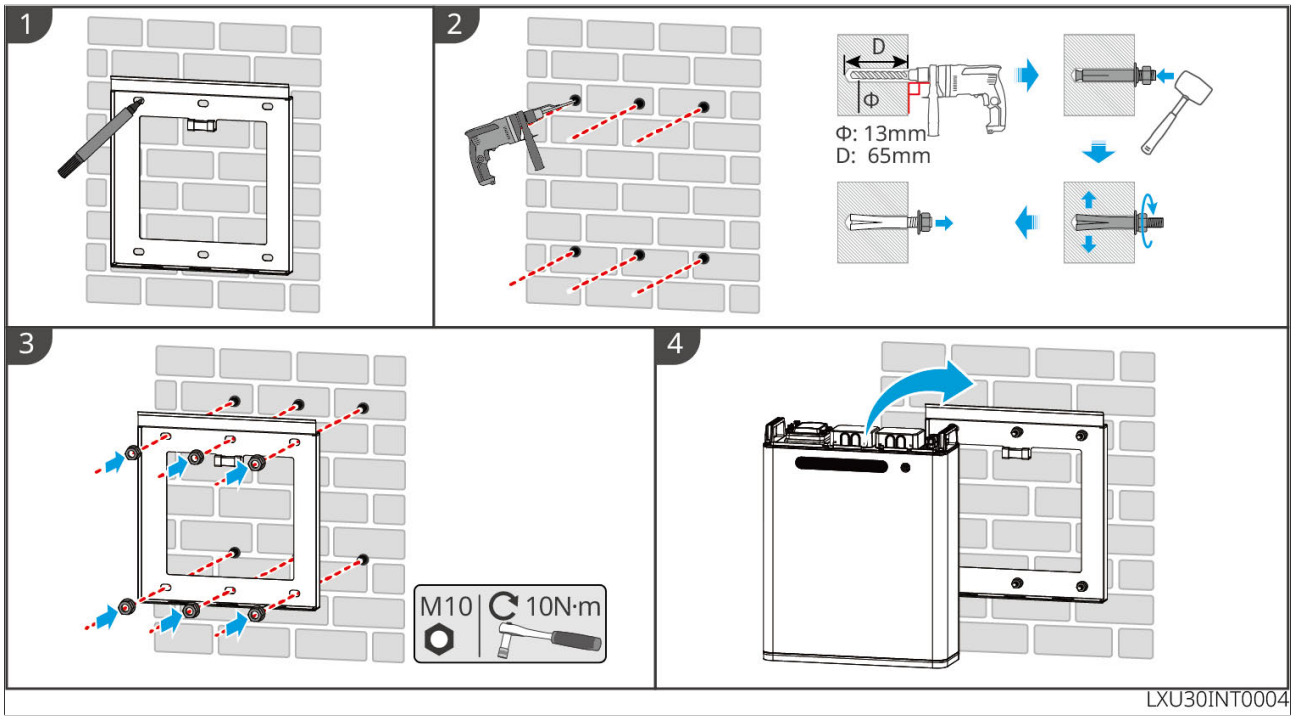


4.5.3 LX U5.0-30

LX U5.0-30: Floor-mounted Installation



LX U5.0-30: Wall-mounted Installation

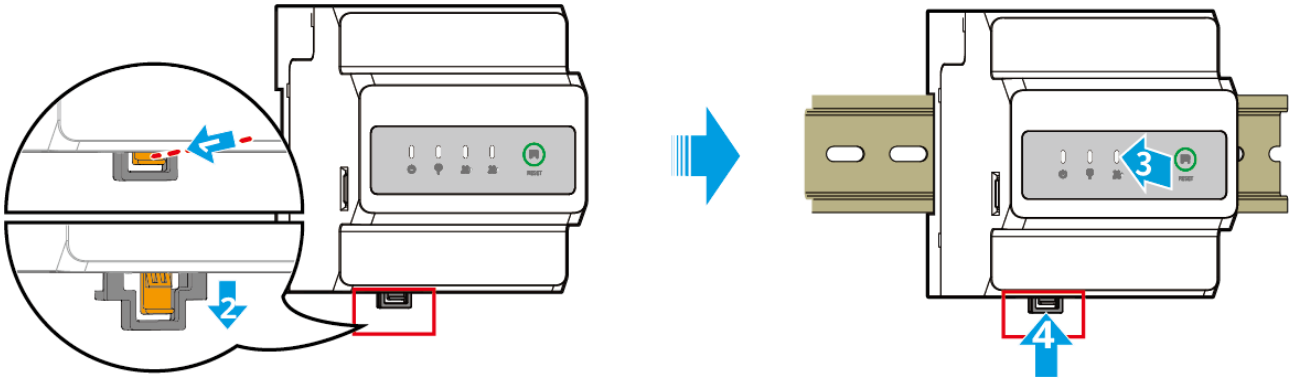


4.6 Installing the Smart Meter

⚠WARNING

In areas with lightning DANGER, if the meter cable length exceeds 10m and the cable is not routed with grounding Steel conduit, it is recommended to install external lightning protection devices.

GM330



GMK10INT0003

5 System Wirings

DANGER

- The installation, routing, and connection of cables must comply with local laws, regulations, and standard requirements.
- All operations during the electrical connection process, as well as the specifications of the cables and components used, must comply with local laws and regulations.
- Before performing electrical connections, please disconnect the DC switch and AC output switch of the equipment to ensure it is POWER OFF. Live operation is strictly prohibited, as it may lead to electric shock or other DANGER.
- Cables of the same type should be bundled together and arranged separately from different types of cables. Intertwining or cross-arrangement is strictly prohibited.
- If the cable is subjected to excessive tension, it may result in poor connections. When wiring, ensure to leave a certain length of slack in the cable before connecting it to the Inverter terminal port.
- When wiring the crimp, ensure that the conductor part of the cable makes full contact with the terminal. Do not crimp the cable insulation together with the terminal, as this may cause the equipment to fail to operate or result in unreliable connections leading to overheating, which could damage the Inverter terminal busbar.

NOTICE

- When performing electrical connections, wear safety shoes, protective gloves, insulated gloves, etc. as required.
- Only qualified personnel are permitted to perform electrical connection operations.
- The cable colors in the diagrams of this document are for reference only. The actual cable specifications must comply with local regulatory requirements.
- For parallel systems, please NOTICE comply with the user manuals corresponding to the relevant products in the system Safety Precautions.

5.1 System Wiring Electrical Block Diagram

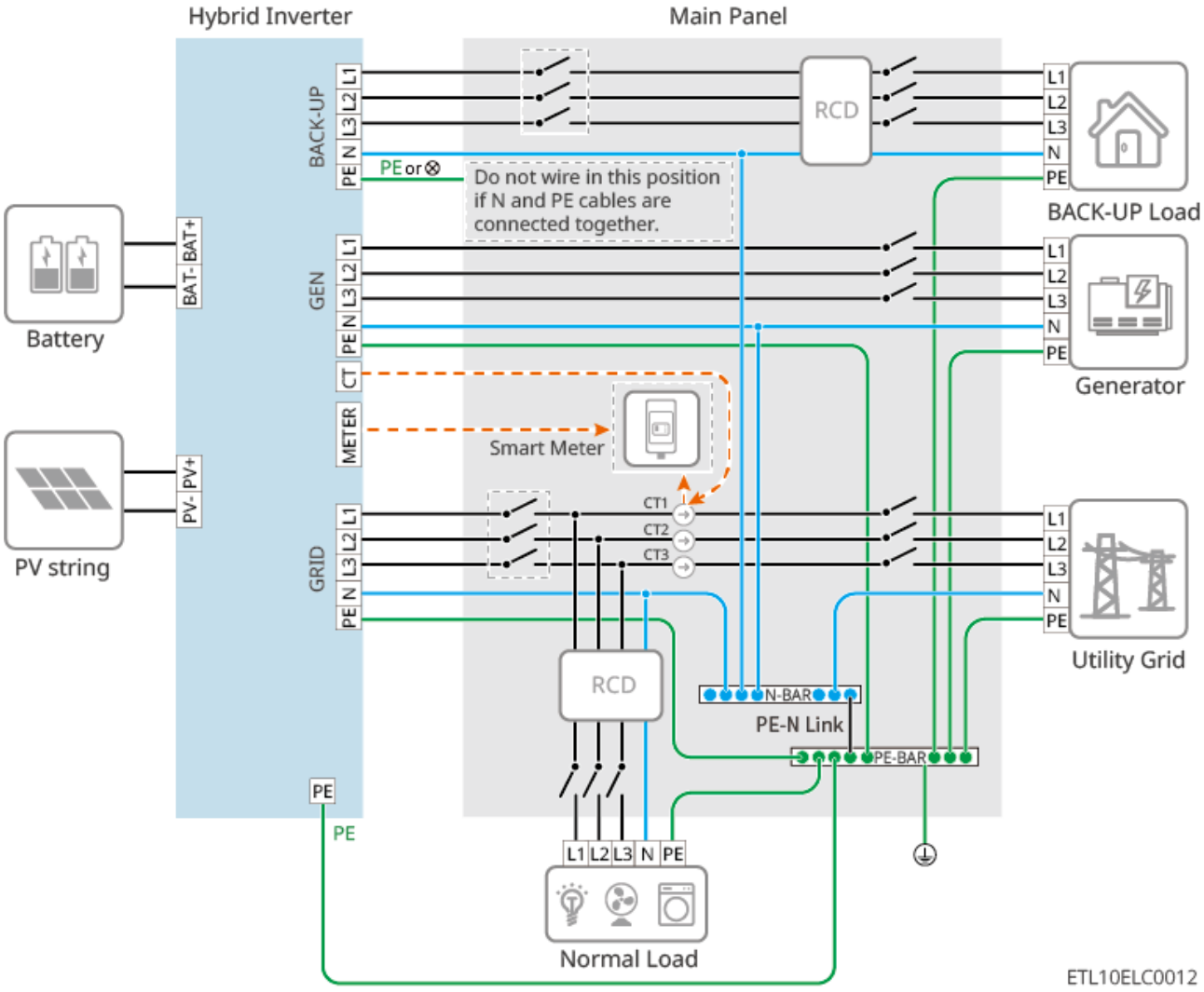
NOTICE

- N and PE wiring of ON-GRID and BACK-UP ports of the inverter are different according to the regulation requirements of different regions.Refer to the specific requirements of local regulations.
- The inverter has a built-in electric meter that can be directly connected to a CT for use.The CT cable supplied with the box is 10 meters long.If a longer cable is required, a shielded cable that complies with local regulations can be used to extend the cable to 30 meters.
- When the length of the connection between the CT and the inverter exceeds 30 m, accuracy will decrease.If high accuracy is required, an external smart meter can be connected.
- The ON-GRID and GEN AC ports of the inverter have built-in relays.When the inverter is in off-grid mode, the built-in ON_GRID state relay is disconnected; when the inverter is in on-grid operation mode, the built-in ON-GRID relay is connected.
- When the inverter is powered on, the BACK-UP AC port is energized.Power off the inverter first if maintenance is required on the BACK-UP loads.Otherwise, it may cause electric shock.

N and PE cables are connected together in the Main Panel

NOTICE

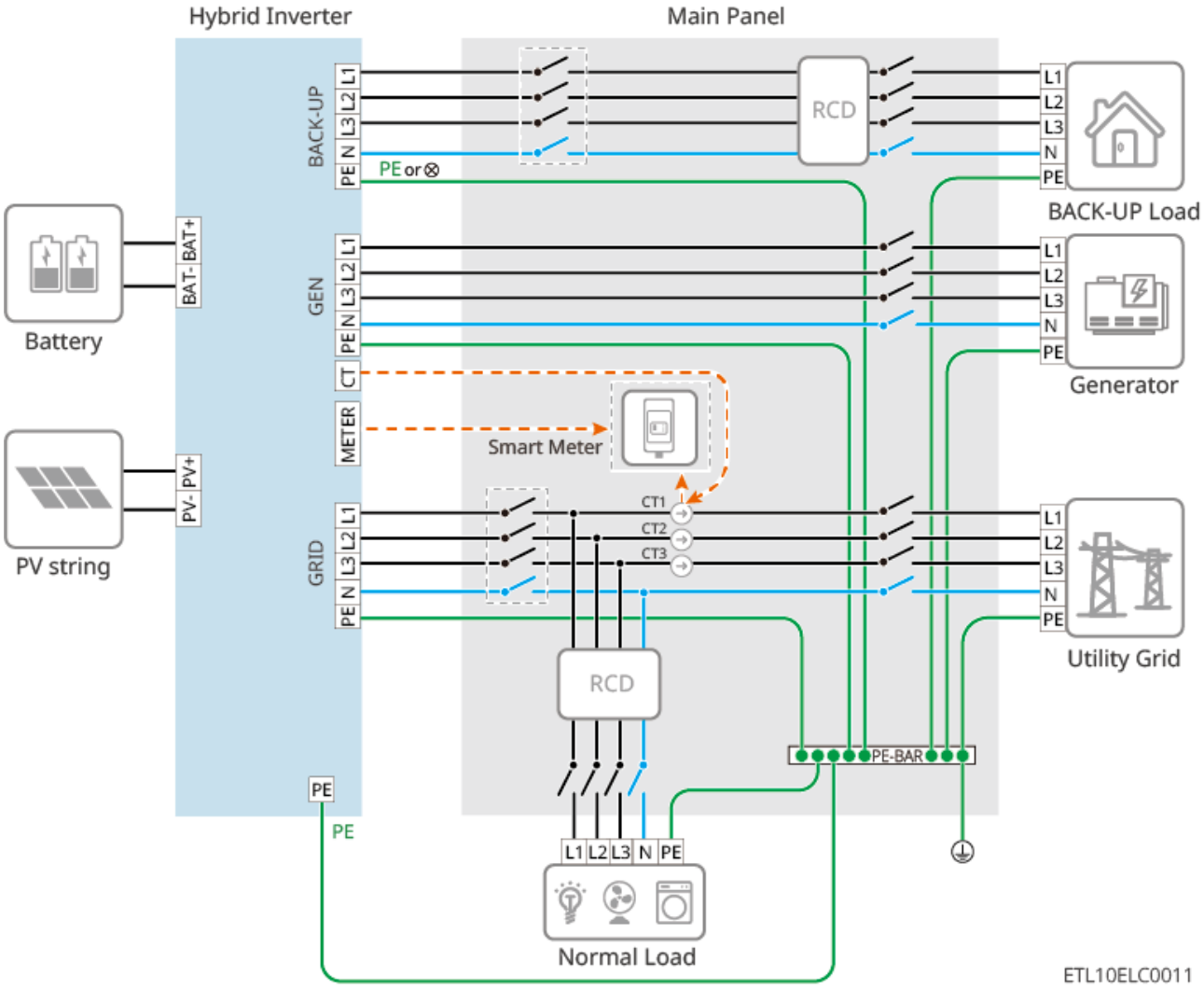
- To maintain neutral integrity, the neutral lines on the grid-connected side and the off-grid side must be connected together, otherwise the off-grid function will not work properly.
- The figure below shows a schematic diagram of the power grid systems in Australia, New Zealand, and other regions:



N and PE cables are separately wired in the Main Panel

NOTICE

- Ensure that the grounding of BACK-UP is correctly tightened.Otherwise, the BACK-UP function may be abnormal in case of grid failure.
- The following diagram is applicable to areas except Australia or New Zealand:



5.2 Detailed System Wiring Diagram

When all the loads in the photovoltaic system cannot consume the electricity generated by the system, the surplus power will be fed back into the Utility grid. In this case, it can be paired with a Smart Meter or CT monitoring system to measure the power generation and control the amount of electricity fed into the Utility grid.

- Connecting Smart Meter enables output Power limitation and load monitoring functions.
- After connecting the Smart Meter, please enable the "Export power limit" function via the SolarGo App.

Detailed System Wiring Diagram only shows wiring connections for some model equipment. Please refer to the corresponding wiring guidance chapter for the actual

equipment used during installation.

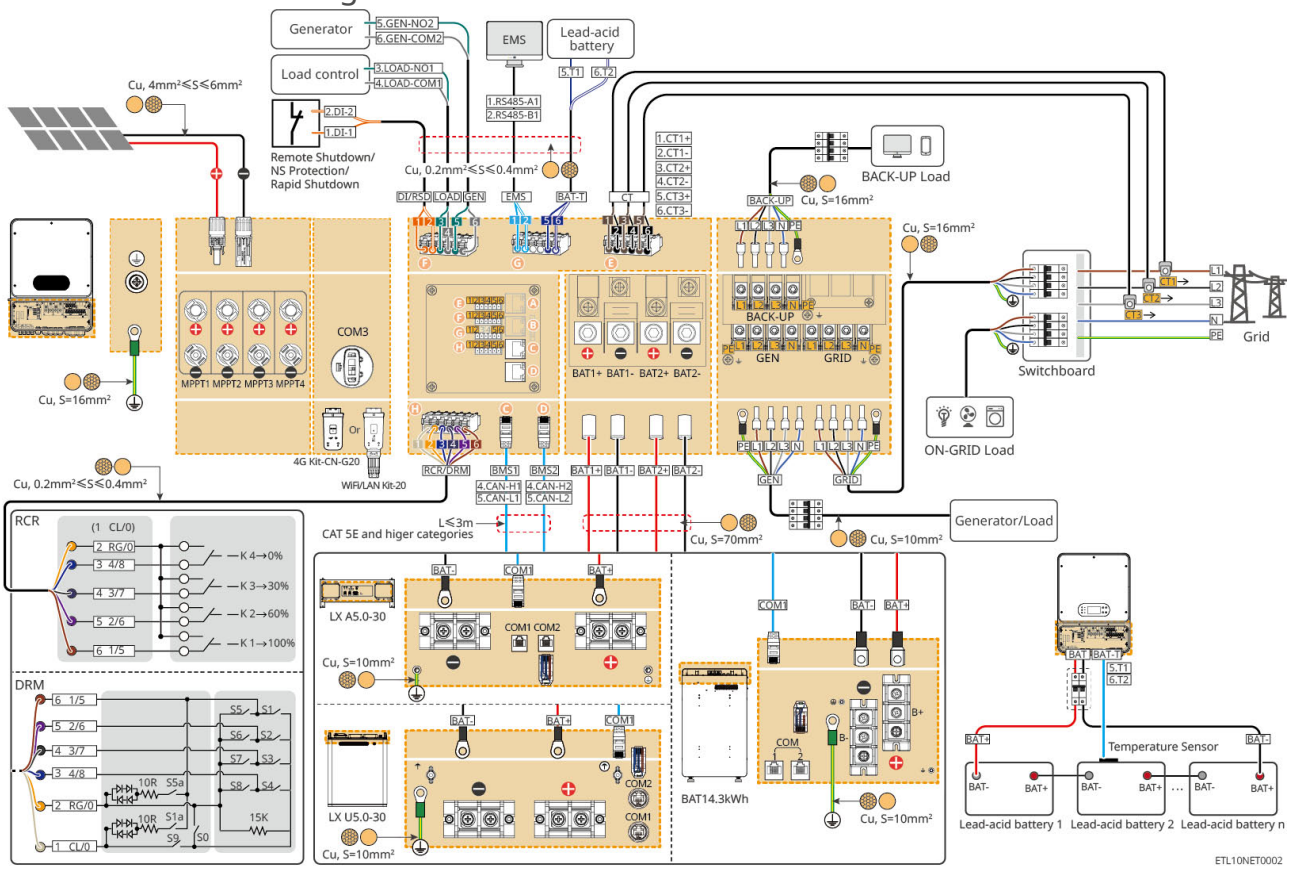
NOTICE

- Optional GM330 meter. Please contact the distributor or GoodWe for purchase if needed.
- The microgrid scenario does not support hybrid inverter parallel operation.
- grid-tied PV inverter If output Power limitation is required, please connect a separate meter or CT (Current Transformer) device.
- When the built-in meter of Inverter is not used, do not connect the CT port of Inverter.

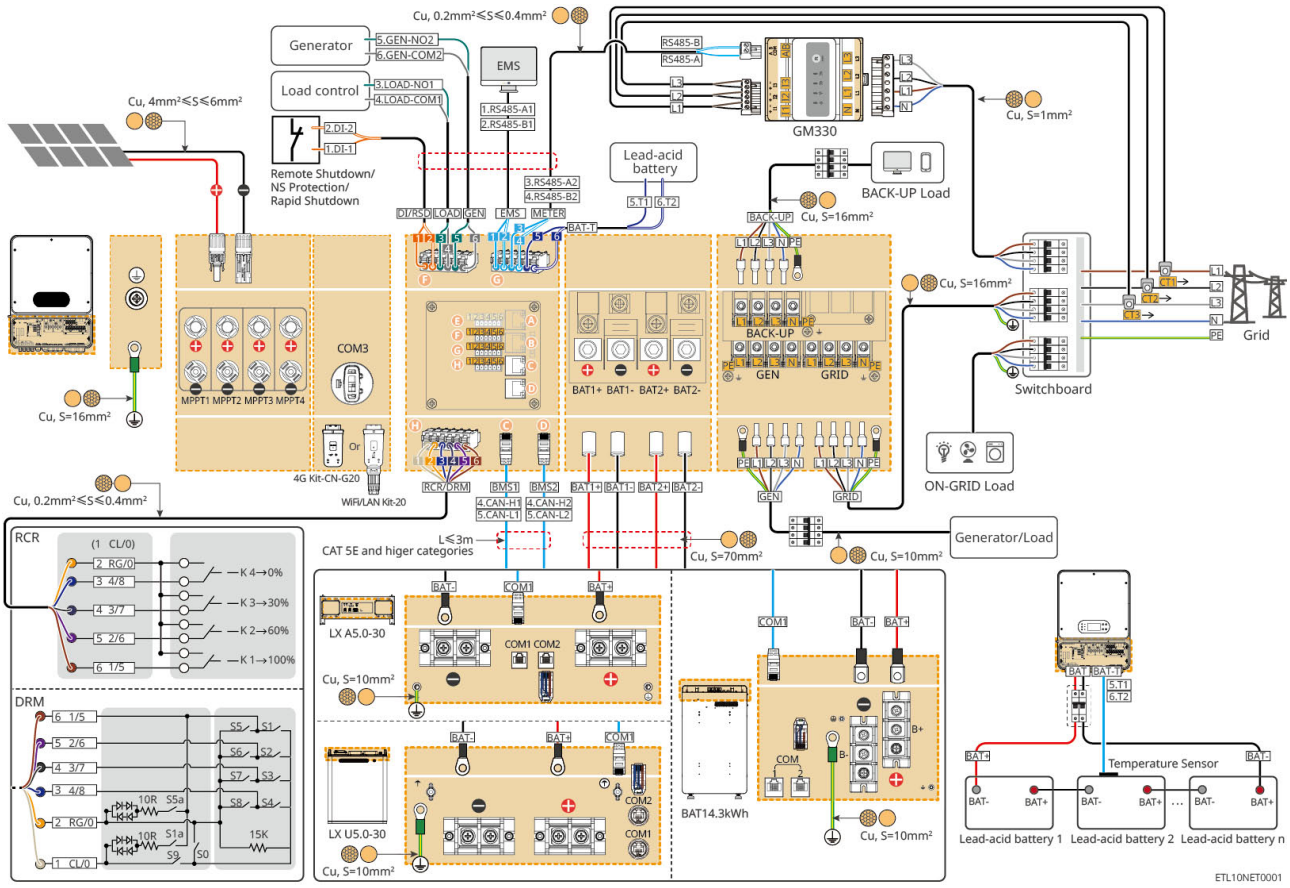
5.2.1 Detailed System Wiring Diagram for Single Inverter

General scenario

Built-in meter matching scenario



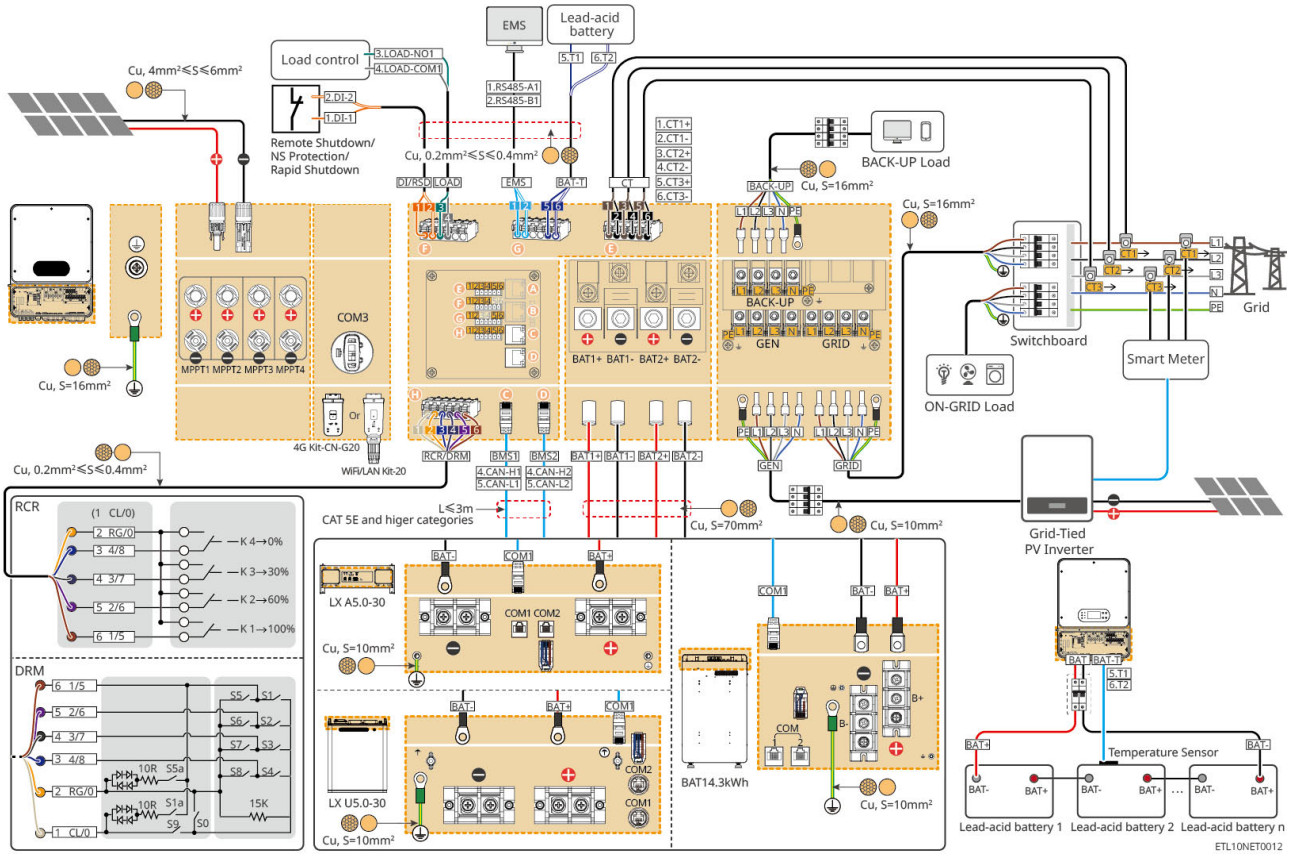
Matching GM330 scenario



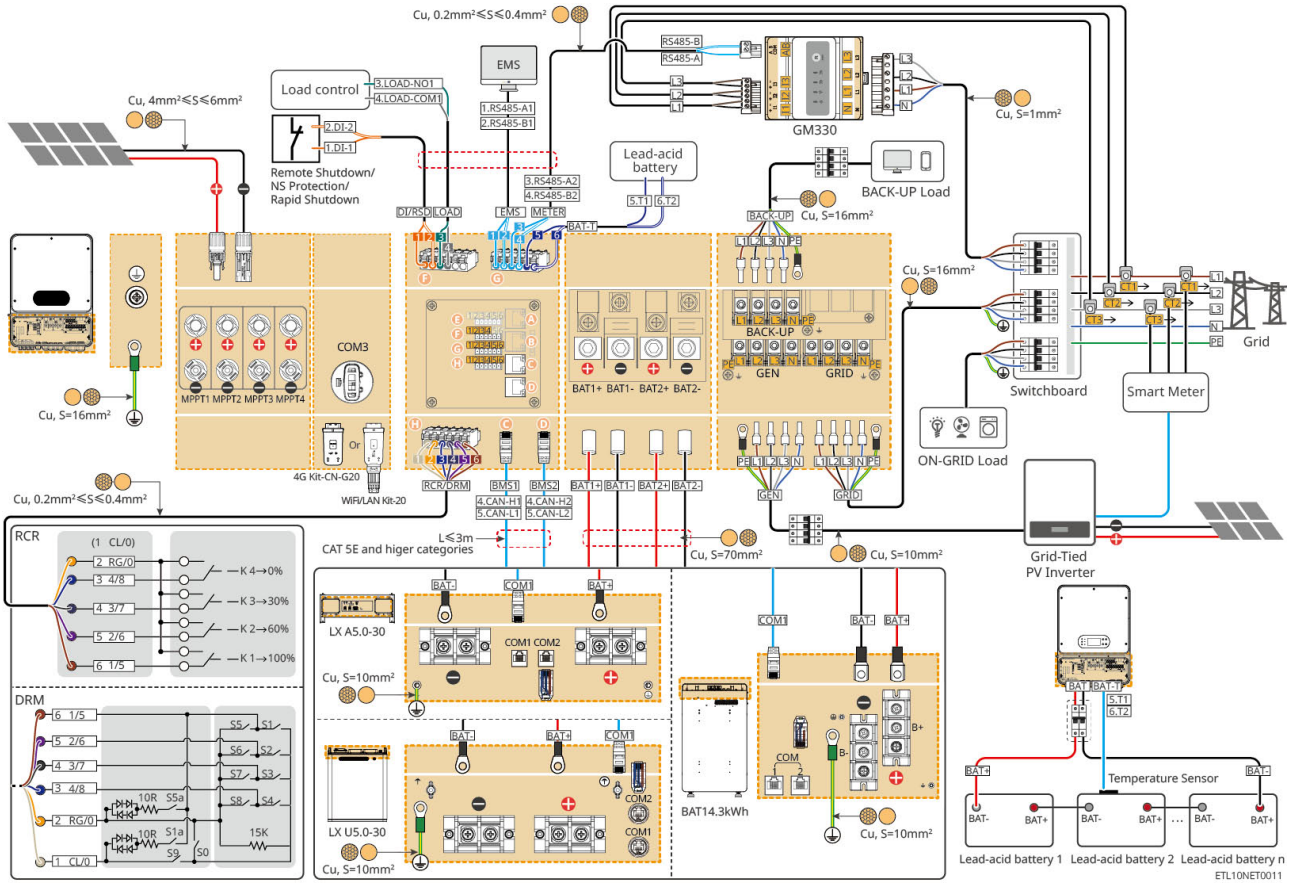
Microgrid scenario

In microgrid scenarios, if output grid-tied PV inverter needs to be limited, please connect a separate meter or CT (Current Transformer) device.

Built-in meter matching scenario



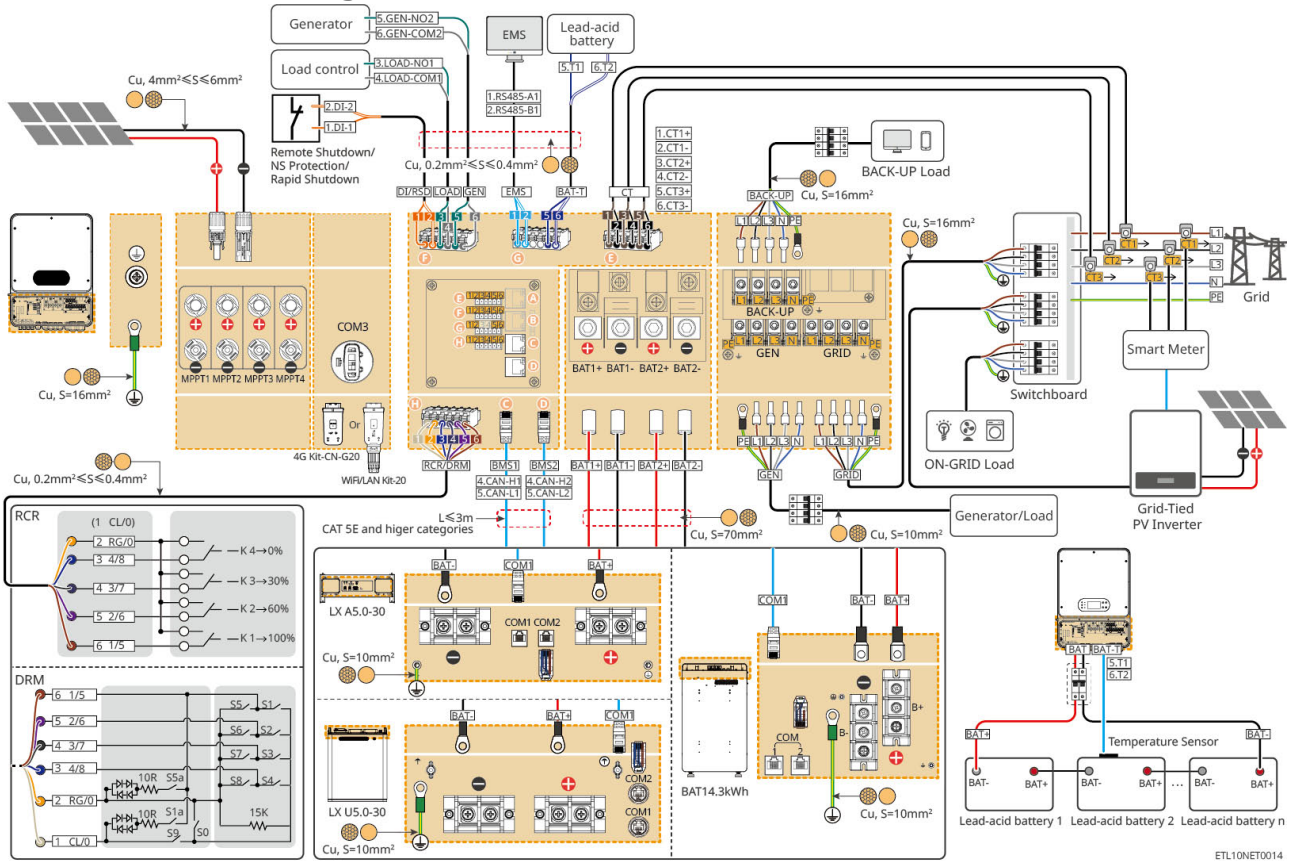
Matching with GM330 meter scenario



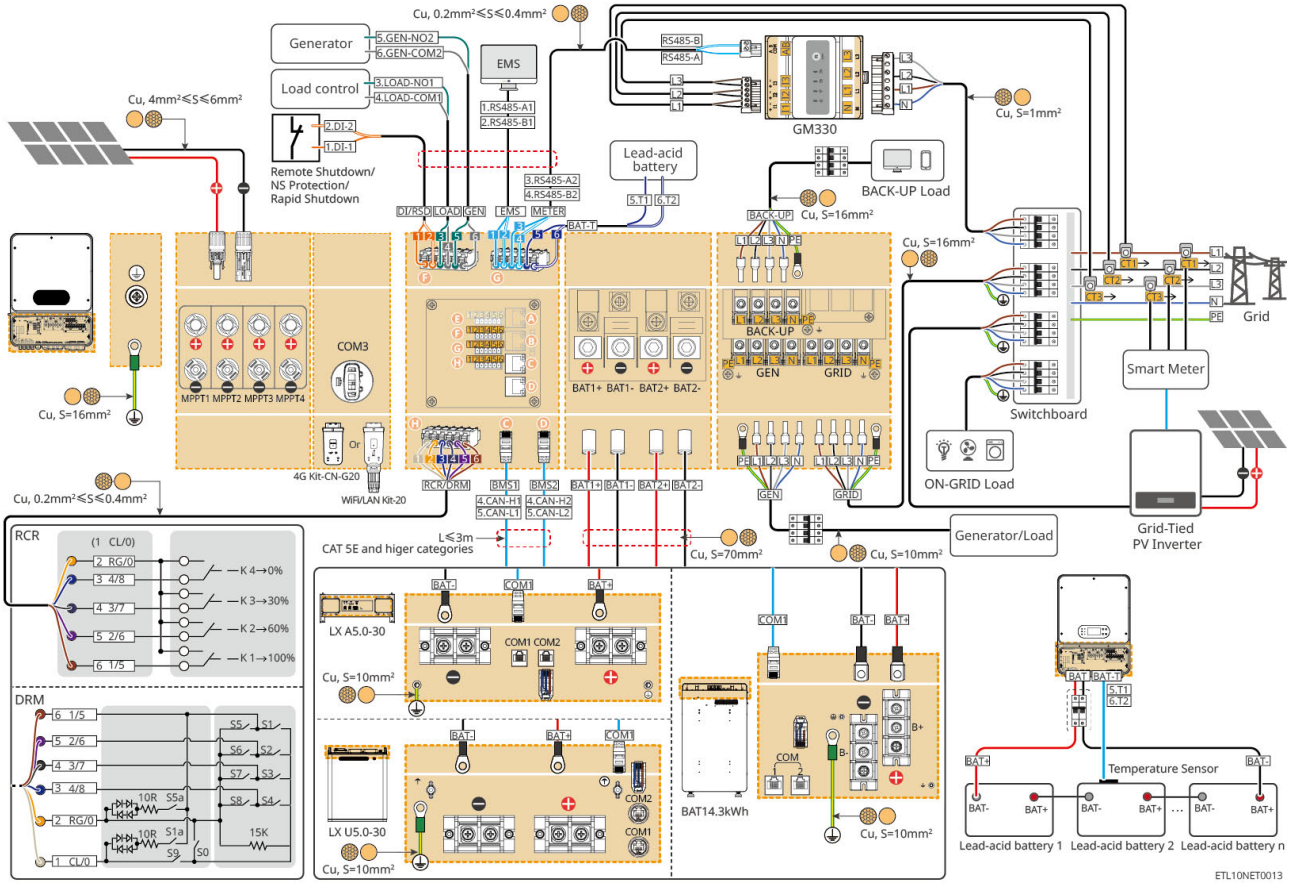
Coupling scenario

When coupling scenarios, if output Power limitation is required, please connect a separate meter or CT device.

Built-in meter matching scenario



Matching with GM330 meter scenario



5.2.2 Detailed System Wiring Diagram for Parallel System

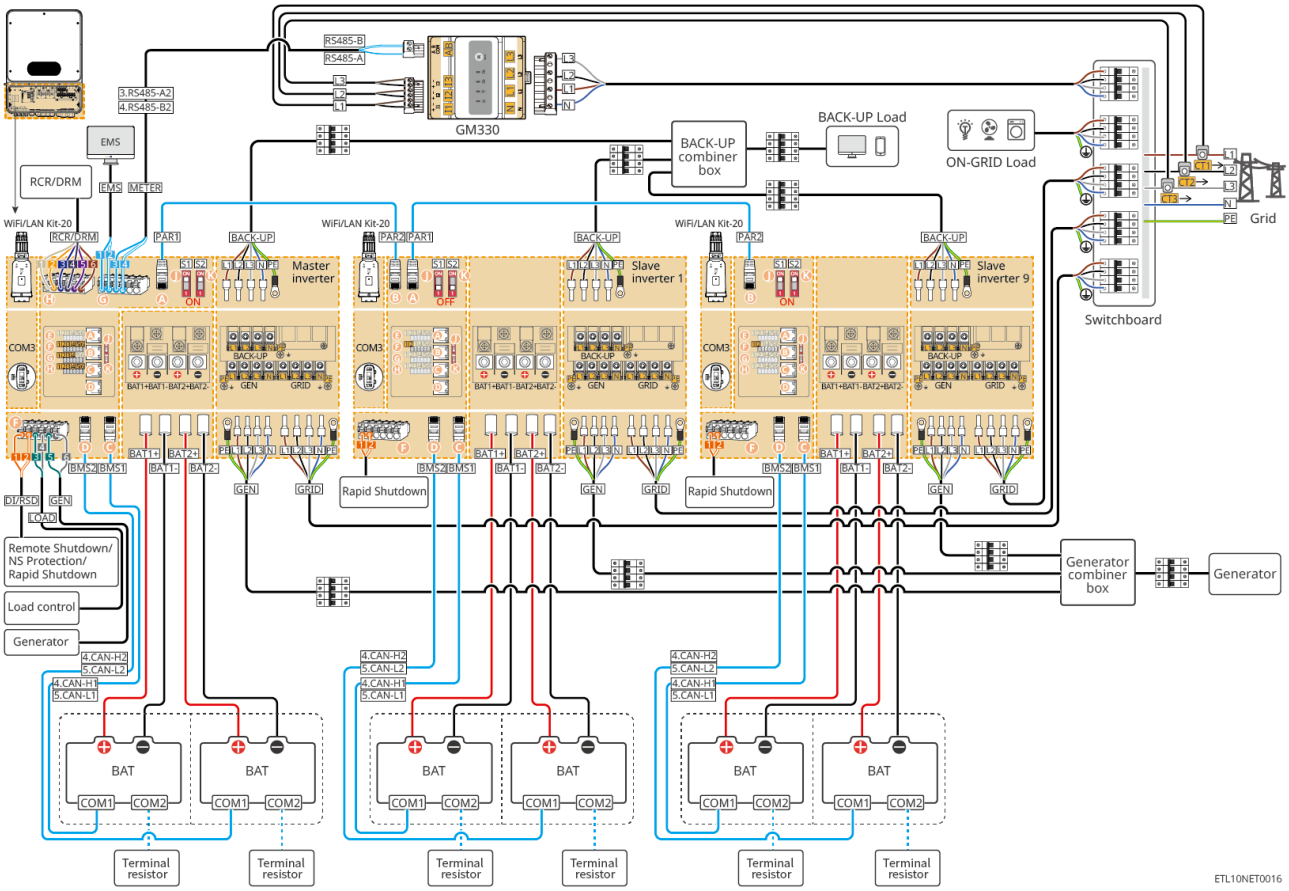
NOTICE

- If it is necessary to connect DRED devices, RCR devices, remote shutdown devices, NS Protection, SG Ready heat pumps, generators, etc. in the system, please connect them to Master inverter.
- remote shutdown/NS Protection Function: Please connect Communication cable to Master inverter. Rapid Shutdown (RSD: Rapid Shutdown) Function: Please connect Communication cable to each Inverter individually. If both Rapid Shutdown and remote shutdown/NS Protection functions are required simultaneously, please contact the after-sales service center.
- In a parallel system, if it is necessary to disconnect any port breaker of a Inverter, please simultaneously disconnect the other port breaker of this Inverter; otherwise, it may cause abnormal system operation.
- When the Battery non-busbar connection mode is used in a parallel system:
  - Inverter "BAT access mode" only supports "stand-alone access".
  - Each Battery interface of every Inverter must be connected to a Battery system.
  - Compatible with different model of GoodWe Battery. For the relevant wiring methods, please refer to "5.8.Connecting the Battery Cable(Page 123)Chapter.
- If the parallel system contains GoodWe inverters of different model, it is necessary to configure the corresponding Battery parameters for each Inverter separately through SolarGo APP. For detailed setup steps, please refer to "8.3.9.Enable Battery function(Page 277)Chapter.
- The following diagram highlights the wiring related to parallel operation. For other port wiring requirements, please refer to the single-unit system.

In parallel system, the Inverter connected to the meter is Master inverter, while the others are Slave inverter.

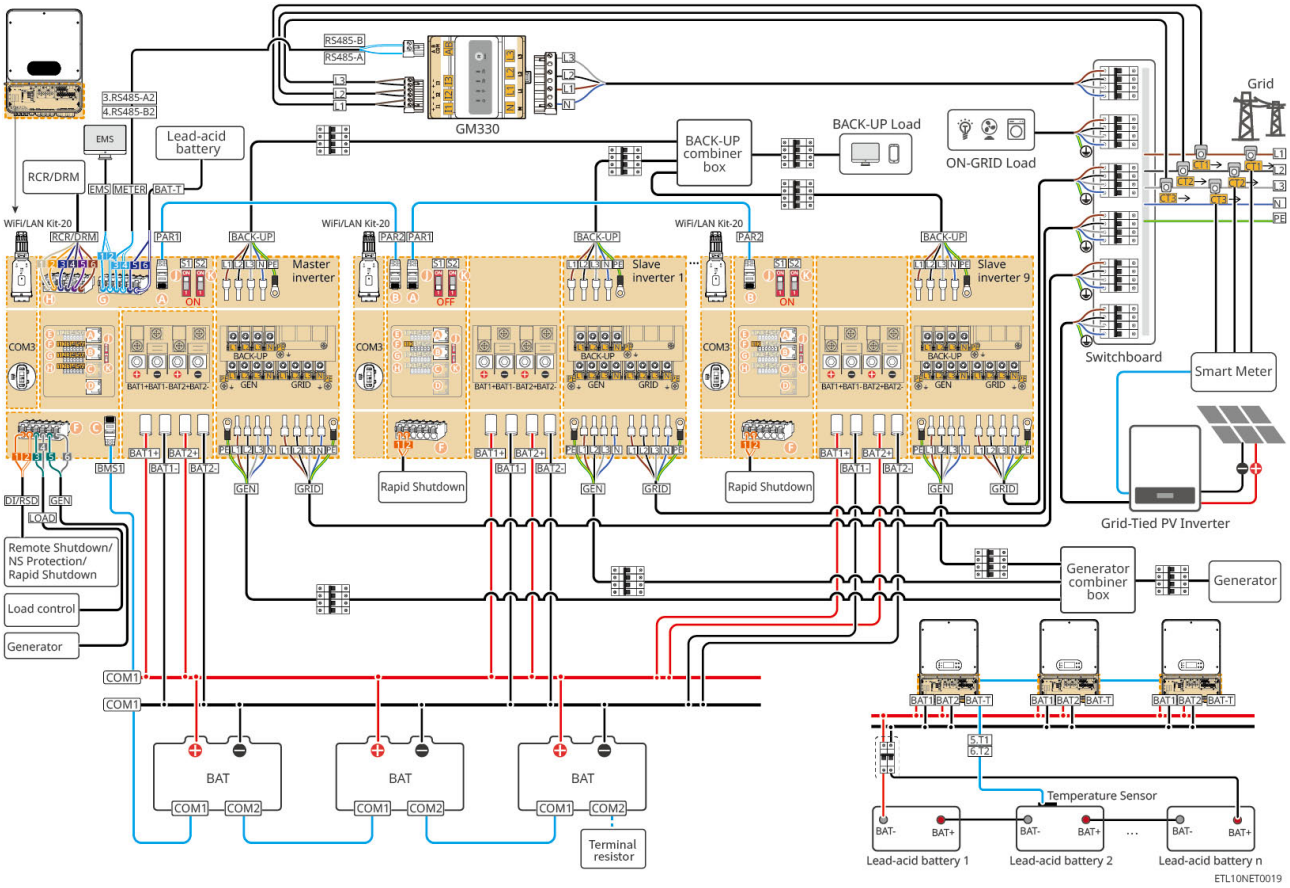
Master inverter must be set as the master unit through the "Parallel System Settings" in the SolarGo App..For specific settings, please refer to8.3.5.Configure RS485 parallel system(Page 233).

General scenario



In general parallel scenarios, the Battery busbar wiring method can be referenced to the Battery busbar wiring method in the coupling scenario.

Coupling scenario



In the parallel coupling scenario, the Battery hand-in-hand wiring method can be referenced to the general scenario Battery hand-in-hand wiring method.

5.3 Preparing Materials

⚠WARNING

- It is prohibited to connect any load between the Inverter and the AC Switch directly connected to the Inverter.
- Each Inverter must be equipped with an AC output breaker. Multiple Inverter units cannot be connected to the same AC breaker simultaneously.
- To ensure the safe disconnection of Inverter from Utility grid in case of abnormal conditions, please connect AC breaker to the AC side of Inverter. Select the appropriate AC breaker according to local regulations.
- When the Inverter power on is activated, the BACK-UP AC port becomes live. If maintenance is required on the BACK-UP Loads, please Inverter the power off to avoid the risk of electric shock.
- For cables used in the same system, it is recommended that the conductor material, cross-sectional area, length, etc., be consistent.
  - The BACK-UP AC line of each Inverter
  - The AC line of each Inverter ON-GRID
  - Inverter to Battery power cable cable
  - power cable cable between Battery and Battery
  - Inverter to busbar power cable cable
  - power cable cable between Battery and busbar

5.3.1 Preparing Breakers

No.	Circuit breaker	Recommended specifications	Acquisition method	Comment
1	• ON-GRID Circuit Breaker • BACK-UP Load Breaker	Some recommended backup power scenarios are as follows: • Rated voltage≥230Vac. The rated current requirements are as follows: ◦ GW5K-ET-L-G10, GW6K-ET-L-G10: nominal current ≥20A ◦ GW8K-ET-L-G10, GW10K-ET-L-G10: nominal current ≥32A ◦ GW12K-ET-L-G10, GW15K-ET-L-G10, GW20K-ET-L-G10: nominal current ≥63A • Rated voltage≥127Vac. The rated current requirements are as follows: ◦ GW12K-ET-L-G10: Nominal Current≥63A	Prepared by customers	When selecting a circuit breaker, you can also choose one that meets local installation regulations based on the actual working current.
2	• ON-GRID Circuit Breaker • BACK-UP Load Breaker	The following are recommended scenarios for whole-house backup power supply: • Rated voltage≥230Vac. The rated current requirements are as follows: ◦ GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10, GW10K-ET-L-G10, GW12K-ET-L-G10, GW15K-ET-L-G10, GW20K-ET-L-G10: nominal current ≥100A • Rated voltage≥127Vac. The rated current requirements are as follows: ◦ GW12K-ET-L-G10: Nominal Current≥100A	Prepared by customers.	

No.	Circuit breaker	Recommended specifications	Acquisition method	Comment
3	GEN Breaker	Nominal Voltage≥230Vac The rated current requirements are as follows: 63A for all power segments.	Prepared by customers.	
4	Battery Breaker	Optional in compliance with local laws and regulations • Rated voltage≥60Vdc. The rated current requirements are as follows: ◦ GW5K-ET-L-G10: Nominal Current≥200A ◦ GW6K-ET-L-G10: Nominal Current≥200A ◦ GW8K-ET-L-G10: Nominal Current≥200A ◦ GW10K-ET-L-G10: Nominal Current≥250A ◦ GW12K-ET-L-G10: Nominal Current≥300A ◦ GW15K-ET-L-G10: Nominal Current≥200A× 2 ◦ GW20K-ET-L-G10: Nominal Current≥300A× 2 • Rated voltage≥60Vdc. The rated current requirements are as follows: ◦ GW12K-ET-LL-G10: Nominal Current≥300A	Prepared by customers.	
5	RCD	Optional in compliance with local laws and regulations • Type A • ON-GRID RCD: 300mA • BACK-UP RCD: 30mA	Prepared by customers.	-

5.3.2 Preparing Cables

No.	cable	Recommended Specifications	Acquisition method	Remarks
1	InverterPE cable	• single core Outdoor copper cable • conductorcross-sectional area: S=16mm² • Cable outer diameter: 7.5mm-9.0mm	self-owned	-
2	Battery PE cable	• single core Outdoor copper cable • conductor cross-sectional area: • LX A5.0-30：10mm² • GW14.3-BAT-LV-G10：10mm² • LX U5.0-30：10mm²	• self-supply • LX A5.0-30: Accessory Acquisition (Optional) • GW14.3-BAT-LV-G10: For some machines, the grounding cable is shipped with the Battery accessory.	-
3	PV DC line	• Industry-standard outdoor photovoltaic cables • conductorcross-sectional area: 4-6mm² • Cable outer diameter: 5.9mm-8.8mm	self-owned	-

No.	cable	Recommended Specifications	Acquisition method	Remarks
4	Battery DC line	• single core Outdoor copper cable • InverterBatteryport Wiring Requirements: ◦ conductorcross-sectional area: 70mm² • The cable requirements between Battery and the busbar: ◦ LX A5.0-30, conductorcross-sectional area: 50mm² ◦ GW14.3-BAT-LV-G10, conductor cross-sectional area: 70mm² ◦ LX U5.0-30, conductor cross-sectional area: 25mm² • Cable requirements between Battery and Battery: ◦ LX A5.0-30, conductorcross-sectional area: 50mm² ◦ GW14.3-BAT-LV-G10, conductor cross-sectional area: 70mm² ◦ LX U5.0-30, conductor cross-sectional area: 25mm²	• self-supply • LX U5.0-30: Available for purchase from GoodWe • LX A5.0-30: Accessory Acquisition (Optional) • GW14.3-BAT-LV-G10: Some machines, Battery DC cable, are shipped with Battery accessories.	-

No.	cable	Recommended Specifications	Acquisition method	Remarks
5	AC line	• AC input/output cable (BACK-UP/ON-GRID) ◦ conductorcross-sectional area: 16mm² ◦ multi-core Outdoor copper cable outer diameter: 25-32mm • Generator power cable (GEN): ◦ conductorcross-sectional area:10mm² ◦ multi-core Outdoor copper cable outer diameter: 18mm-22mm	Self-supply	When selecting the wire diameter, you can also choose a wire diameter that complies with local electrical regulations based on the actual working current.
6	Power cable	• Outdoor copper cable • conductorcross-sectional area: 1mm²	self-supply	-
7	BatteryBMSCommunication cable	Customized Communication cable, default length is3m	Shipped with Inverter	Self-recommendation if needed:CAT 5Eand above specifications standard network cable andRJ45RJ45 connector

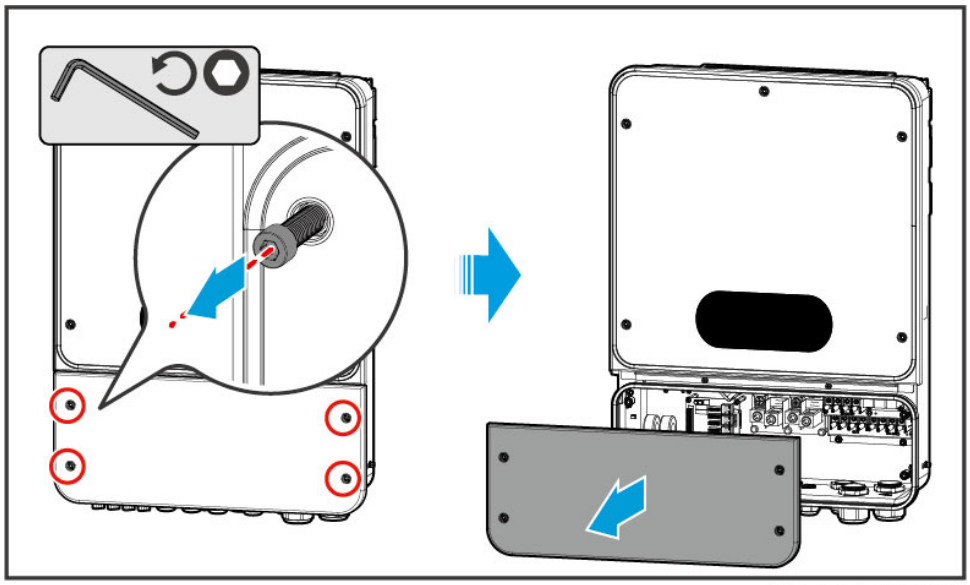
No.	cable	Recommended Specifications	Acquisition method	Remarks
8	Battery Communication cable	Communication between the combiner box and Battery, as well as between Battery, requires the use of CAT 5E or higher specification standard shielded network cable and RJ45 shielded RJ45 connector.	• self-supply • LX A5.0-10, LX A5.0-30: Accessory Acquisition (Optional) • GW14.3-BAT-LV-G10: ◦ Inverter and Battery between Communication cable: partial standard-equipped ◦ Battery Communication cable: Self-provided, cable length ≤2m	-
9	WiFi/LAN Kit-20Communication cable	CAT 5E and above standard shielded network cables and RJ45 shielded RJ45 connector	self-owned	-

No.	cable	Recommended Specifications	Acquisition method	Remarks
10	CTCommunication cable	• Shielded wire compliant with local standards • conductor cross-sectional area:0.2mm²-0.4mm² • Cable outer diameter:5mm-8mm	self-supply	-
11	EMS RS485	• Shielded Twisted Pair (STP) • conductor cross-sectional area:0.2mm²-0.4mm²	self-supply	-
12	Electric meter RS485Communication cable			
13	load control and generator control Communication cable	• Shielded wire compliant with local standards • conductor cross-sectional area:0.2mm²-0.4mm² • Cable outer diameter:5mm-8mm	self-owned	-
14	remote shutdownCommunication cable Rapid ShutdownCommunication cable NS Protection			-
15	RCR/DREDSignal line			-
16	Lead-acid Battery temperature sensor wire		self-owned	China only

No.	cable	Recommended Specifications	Acquisition method	Remarks
16	Parallel operation of inverters	• RJ45 RJ45 connector • CAT 5E or higher specification straight-through Ethernet cable ◦ The recommended length for CAT 5E or CAT 6E should not exceed 5 meters. ◦ The recommended length for CAT 7E should not exceed 10 meters.	self-owned	-

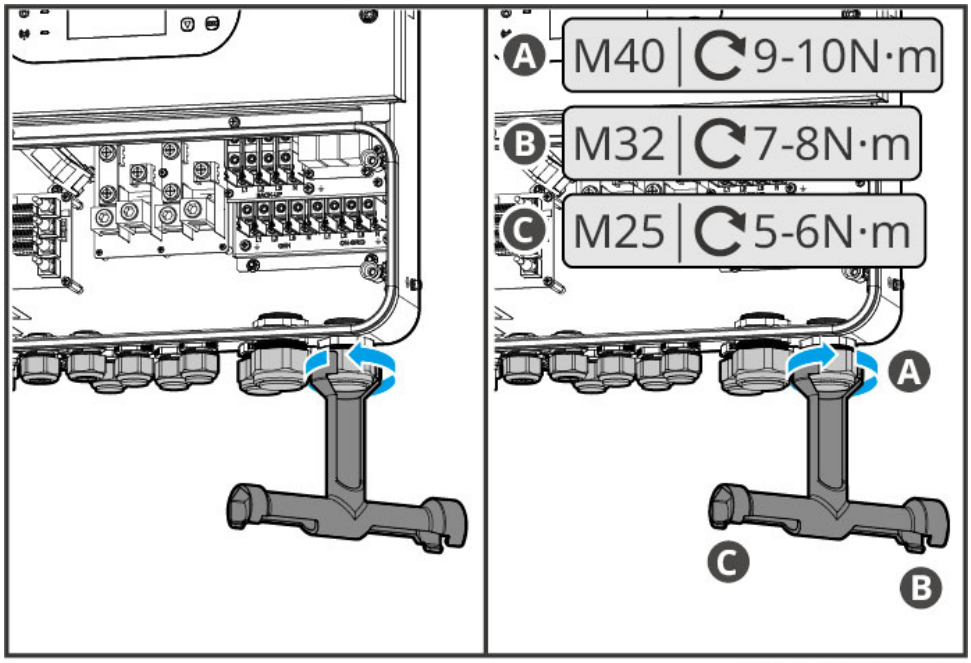
5.4 dismantleInverter Bottom Cover

dismantleInverter Bottom Cover of the Enclosure:



ETL10INT0003

(Optional) Use of gland unlocking tool:



ETL10INT0008

5.5 Connecting the PE cable

⚠WARNING

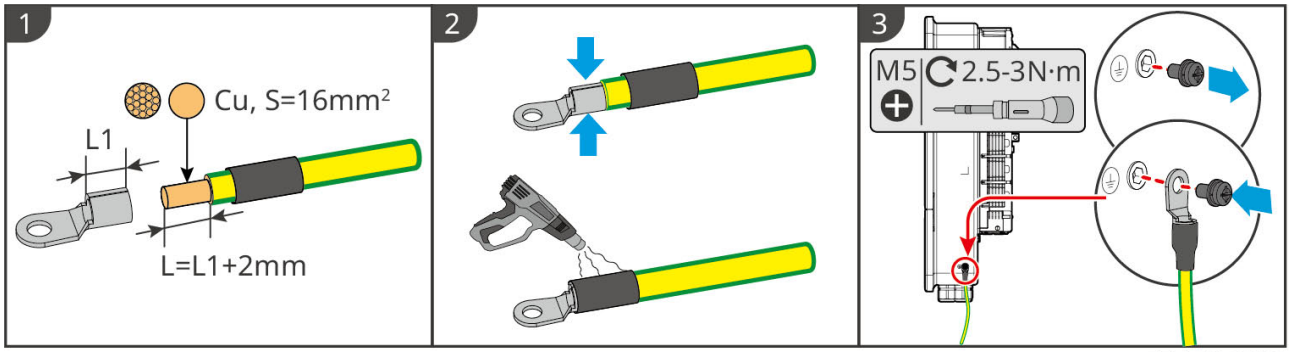
- The Protection grounding of the chassis enclosure cannot replace the PE cable of the AC output port. When wiring, ensure that the PE cable at both locations is reliably connected.
- To improve the corrosion resistance of terminal, it is recommended to apply silica gel or paint on the exterior of Grounding terminal for protection after completing the connection of Installation to PE cable.
- When Installation equipment, the PE cable must be Installation first; when dismantle equipment, the PE cable must be dismantle last.

NOTICE

GW14.3-BAT-LV-G10:

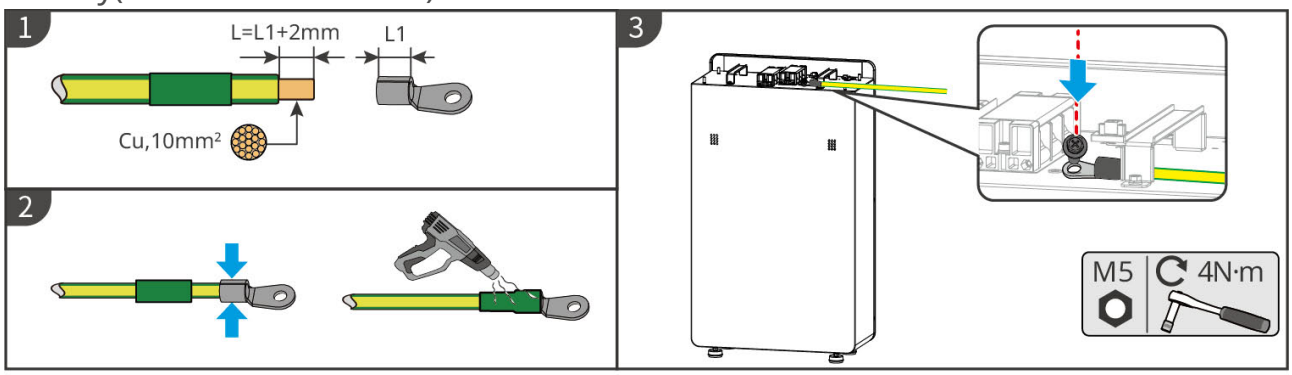
- If the Battery grounding cable is already provided inside the packaging box, please use this cable directly without performing the crimp operation.
- If the Battery grounding cable is not provided in the packaging box, please follow the steps below to make the cable.

Inverter



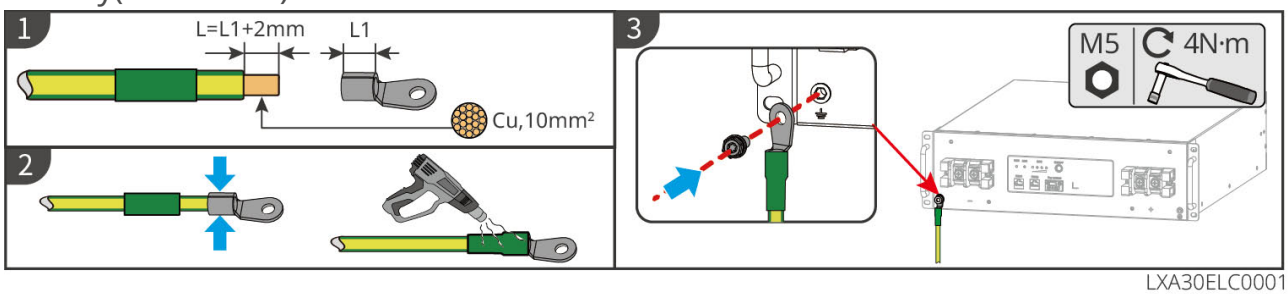
ETL10ELC0001

Battery(GW14.3-BAT-LV-G10)



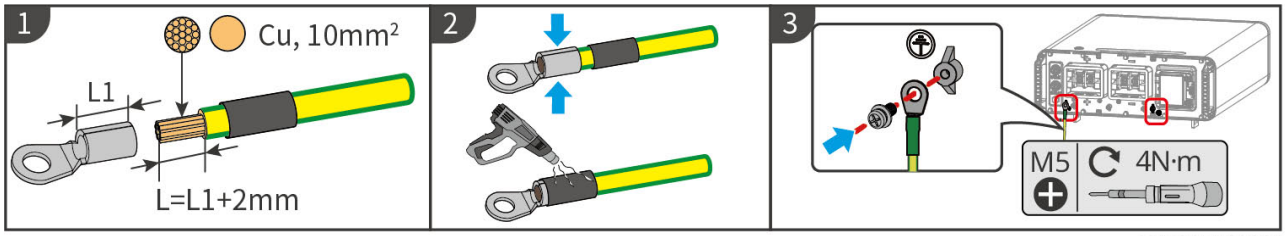
LXA10ELC0014

Battery(LX A5.0-30)



LXA30ELC0001

Battery(LX U5.0-30)

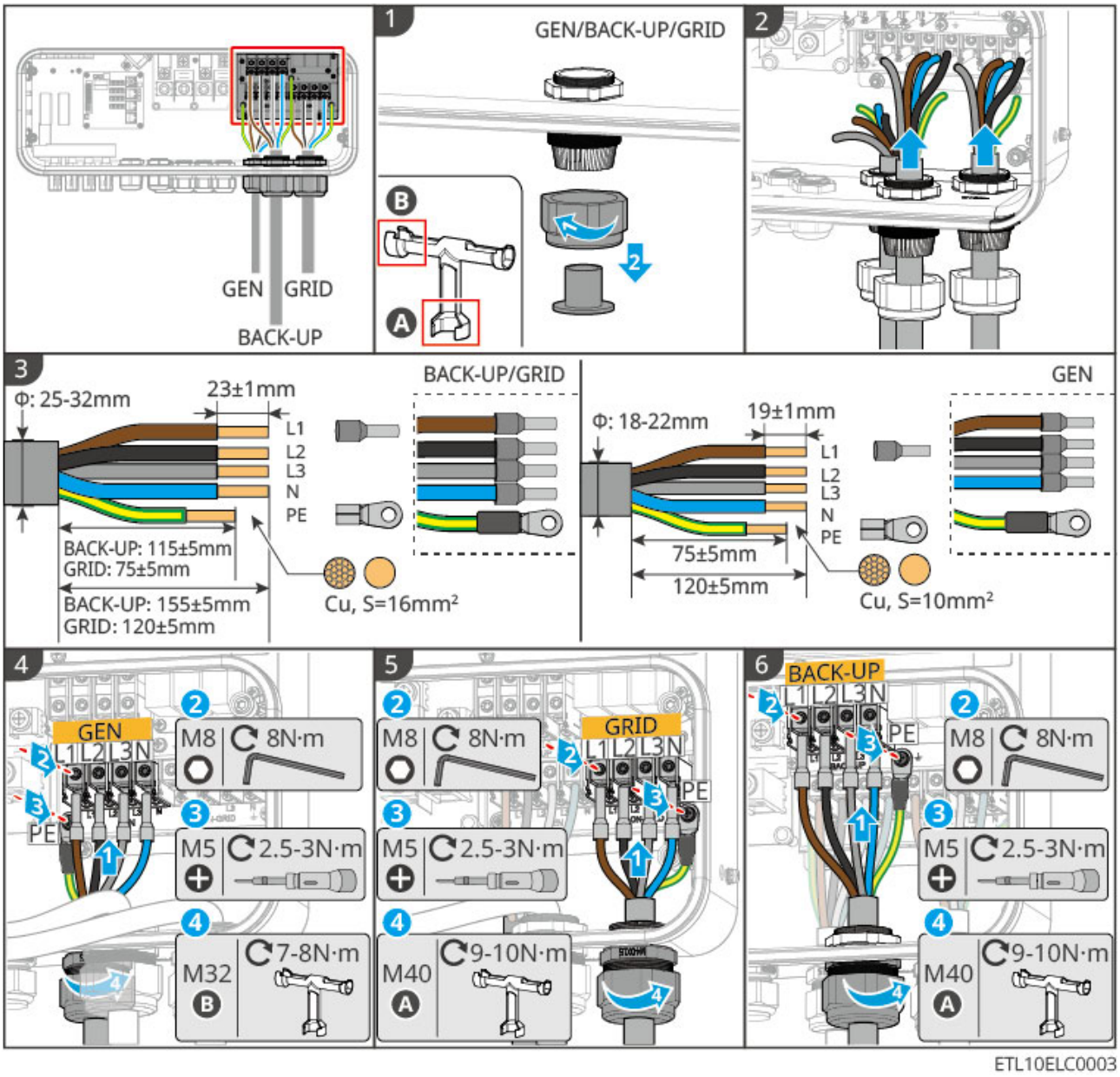


LXU30ELC0001

5.6 Connecting the AC Cable

⚠WARNING

- The residual current monitoring unit (RCMU) is integrated into the inverter to avoid that the residual current exceeds the limit. The inverter will disconnect with the utility grid quickly once it found the residual current exceeds the limit.
- When connecting the wires, make sure that the AC wires are connected to the AC terminals labeled “BACK-UP,” “GRID,” “GEN,” and the ground port. Incorrect cable connections will damage the equipment.
- Ensure that the whole cable cores are inserted into the terminal holes, and no part of the cable core can be exposed.
- Ensure that the insulation board is inserted into the AC terminal tightly.
- Ensure that the cables are connected securely. Otherwise it will cause damage to the inverter due to overheat during its operation.



5.7 Connecting the PV Cable

⚠DANGER

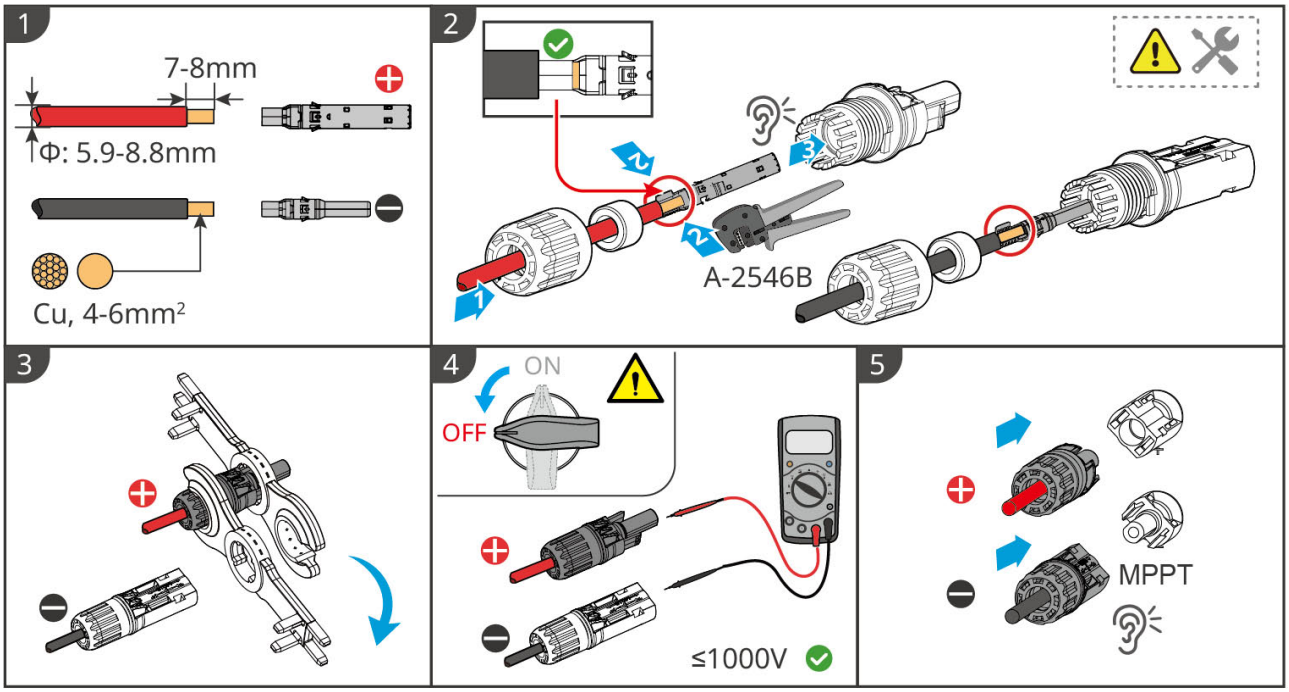
- Do not connect the same PV string to multiple Inverter, as this may cause damage to the Inverter.
- Before connecting the PV string to the Inverter, please confirm the following information. Otherwise, it may cause permanent damage to the Inverter, and in severe cases, it may lead to a fire, resulting in personal injury and property loss.
  1. Please ensure that both Max. Short Circuit Current per MPPT and Max.Input Voltage are within the permissible range of Inverter.
  2. Please ensure that the positive terminal of the PV string is connected to the PV+ of Inverter, and the negative terminal of the PV string is connected to the PV- of Inverter.

⚠WARNING

- The PV string output does not support grounding. Before connecting the PV string to Inverter, ensure that the the minimum insulation resistance of the PV string meets the minimum insulation resistance requirement (R=Max.Input Voltage/30mA).
- After the connection is completed, ensure that the cables are securely fastened and free from looseness.
- Use a multimeter to measure the positive and negative terminals of the DC cable, ensuring correct polarity without reverse connection; and verify that the voltage is within the allowable range.

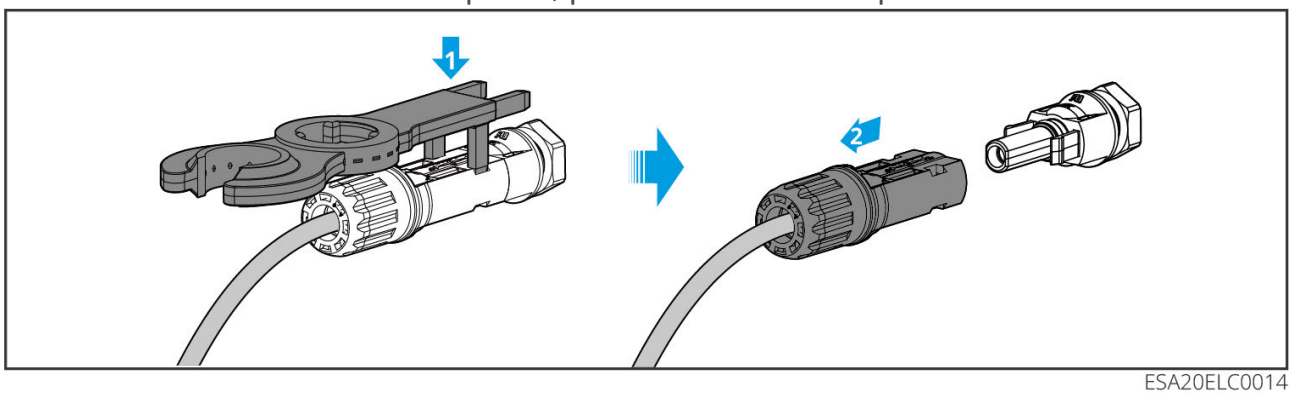
NOTICE

The two sets of PV String in each MPPT channel must adopt the same model, the same number of Battery panels, the same tilt angle, and the same azimuth to ensure the maximization of Efficiency.



ETL10ELC0002

If dismantlePV connector is required, please follow the steps below for dismantle.



ESA20ELC0014

5.8 Connecting the Battery Cable

DANGER

- In a single-unit system, do not connect the same Battery group to multiple Inverter units, as this may cause damage to the Inverter.
- Do not connect any load between the Inverter and Battery.
- When Connecting the Battery Cable, use insulated tools to prevent accidental electric shock or Battery short circuit.
- Please ensure that Batteryopen-circuit voltage is within the allowable range of Inverter.
- Between Inverter and Battery, please decide whether to configure DC switch based on local laws and regulations.

NOTICE

- The wiring diagram only shows partial model equipment for illustration. Please refer to the corresponding wiring guidance section based on the actual equipment used for wiring.
- GW15K-ET-L-G10 and GW20K-ET-L-G10 support two-way Battery connection to port, allowing the integration of different model lithium Battery; however, they do not support separate connections to lithium Battery and lead-acid Battery. When Battery are connected in parallel to Inverter, ensure the Battery management system (BMS) Communication cable is connected to the BMS1 interface of Inverter.
- When using the Battery busbar connection mode in a parallel system, please connect the Battery management system (BMS) Communication cable to the BMS1 interface of the Master inverter.
- In a parallel system using the Battery non-busbar access mode, the Inverter supports a maximum of 15 Battery clusters per string for parallel connection. If more Battery clusters are required, please contact GoodWe's after-sales service center.
- Battery supports connection to GoodWe busbars and third-party busbars. If third-party busbars are to be used, please replace Terminal resistor with the black Terminal resistor provided in the package.

Description of BMS Communication Connection Between Inverter and Battery:

Inverterport	Connected to Batteryport	port Definition	Instructions
BMS1/BMS2	COM1	4：CAN_H 5：CAN_L	• Inverter and Battery communicate via CAN bus. • InverterBMSport is connected to BatteryCOM1port

LX A5.0-30 Communication Port Definition

PIN	COM1	COM2	Instructions
1	-	-	Reserved
2	-	-	
3	Parallel OUT+	Parallel OUT+	Parallel operation Communication Port
4	CAN_1H	CAN_1H	Connect Inverter communication or Battery and cluster Communication Port
5	CAN_1L	CAN_1L	
6	Parallel OUT2+	Parallel OUT2+	Parallel Interlock
7	-	-	Reserved
8	Parallel OUT-	Parallel OUT-	Parallel operation Communication Port

GW14.3-BAT-LV-G10 Communication port Definition

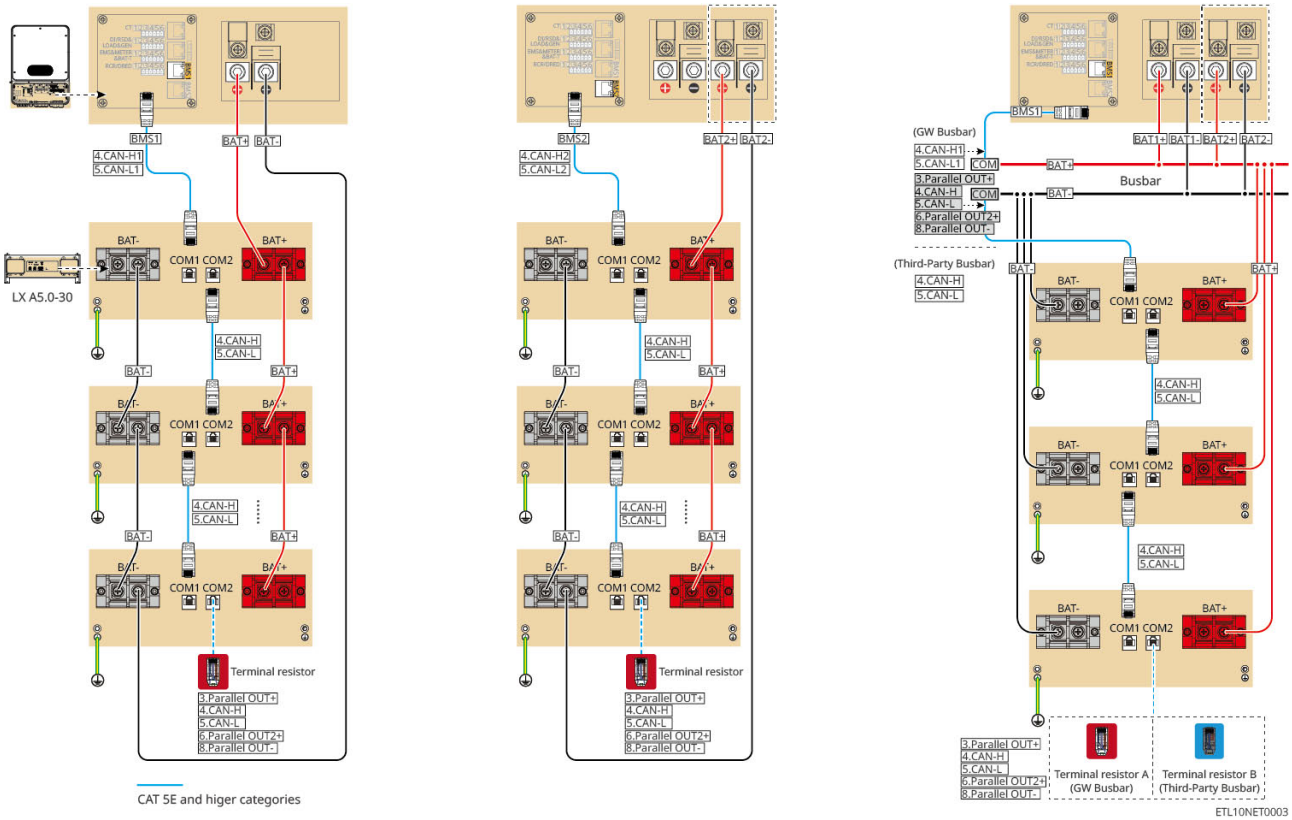
PIN	COM1	COM2	Instructions
1	RS485A	RS485A	Reserved
2	RS485B-	RS485B-	
3	Parallel OUT+	Parallel OUT+	Parallel operation Communication Port
4	CAN_H	CAN_H	Connect Inverter communication or Battery and cluster Communication Port
5	CAN_L	CAN_L	
6	Parallel OUT2+	Parallel OUT2+	Parallel operation Communication Port
7	-	-	Reserved
8	Parallel OUT-	Parallel OUT-	Parallel operation Communication Port

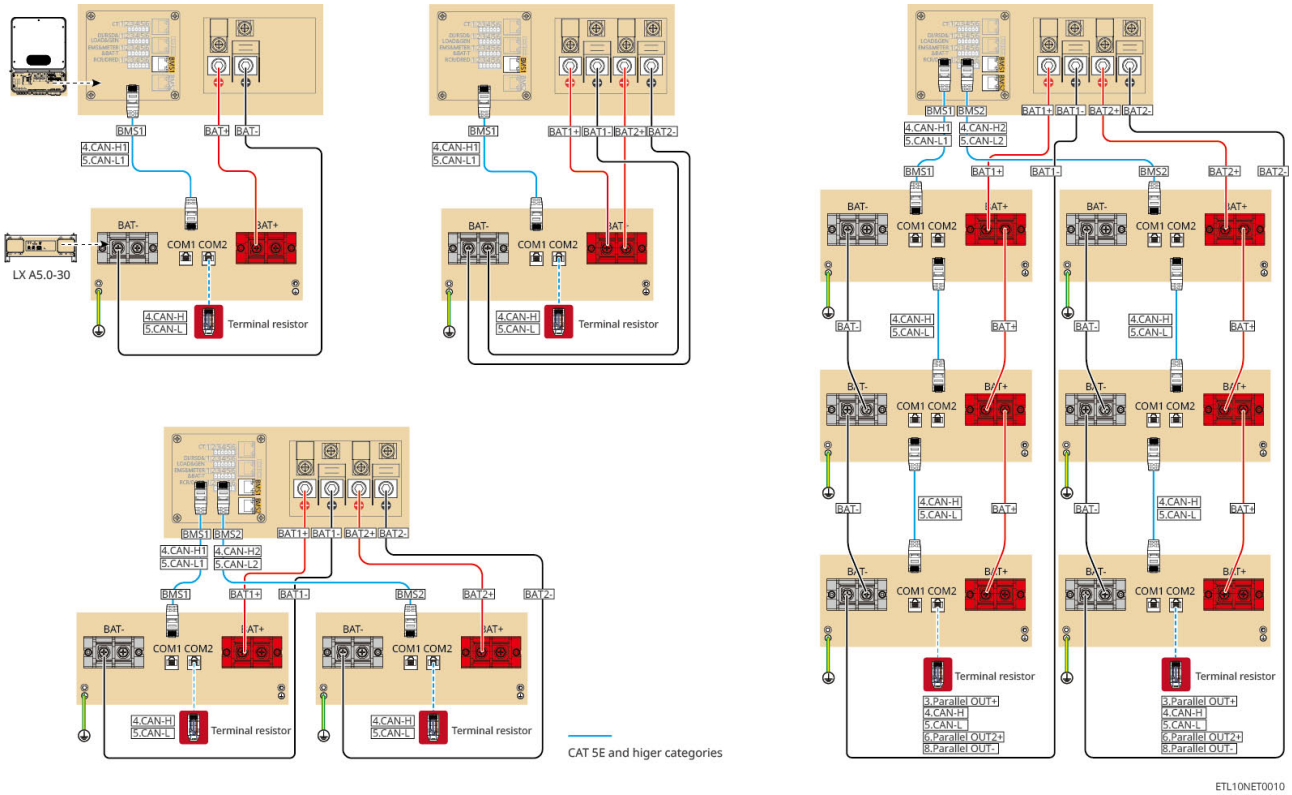
LX U5.0-30Communication Port Definition

PIN	COM1	COM2	Description
1	RS485A	RS485A	Reserved
2	RS485B-	RS485B-	
3	Parallel OUT+	Parallel OUT+	Parallel operation Communication Port
4	CAN_H	CAN_H	Connect Inverter communication or Battery and cluster Communication Port
5	CAN_L	CAN_L	
6	Parallel OUT2+	Parallel OUT2+	Parallel operation Communication Port
7	-	-	Reserved
8	Parallel OUT-	Parallel OUT-	Parallel operation Communication Port

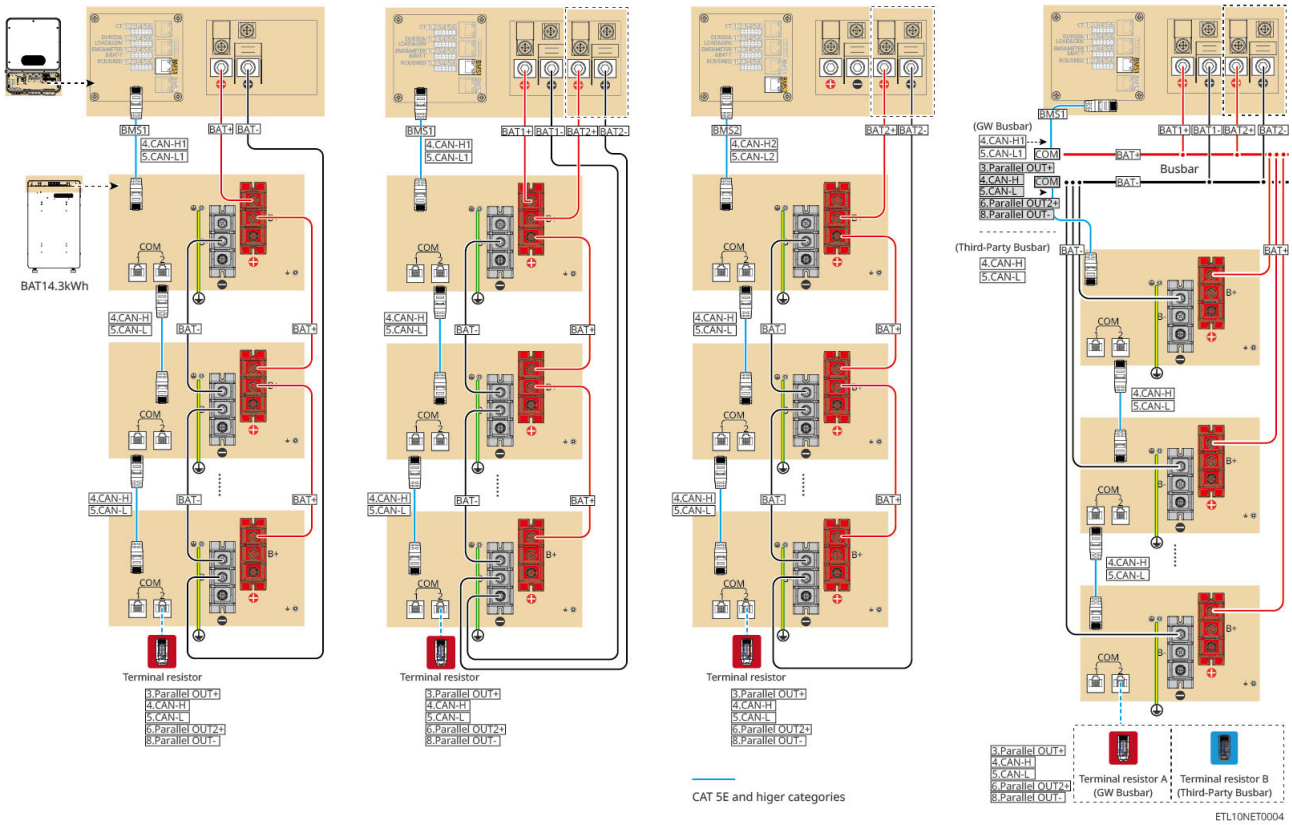
Battery system wiring diagram

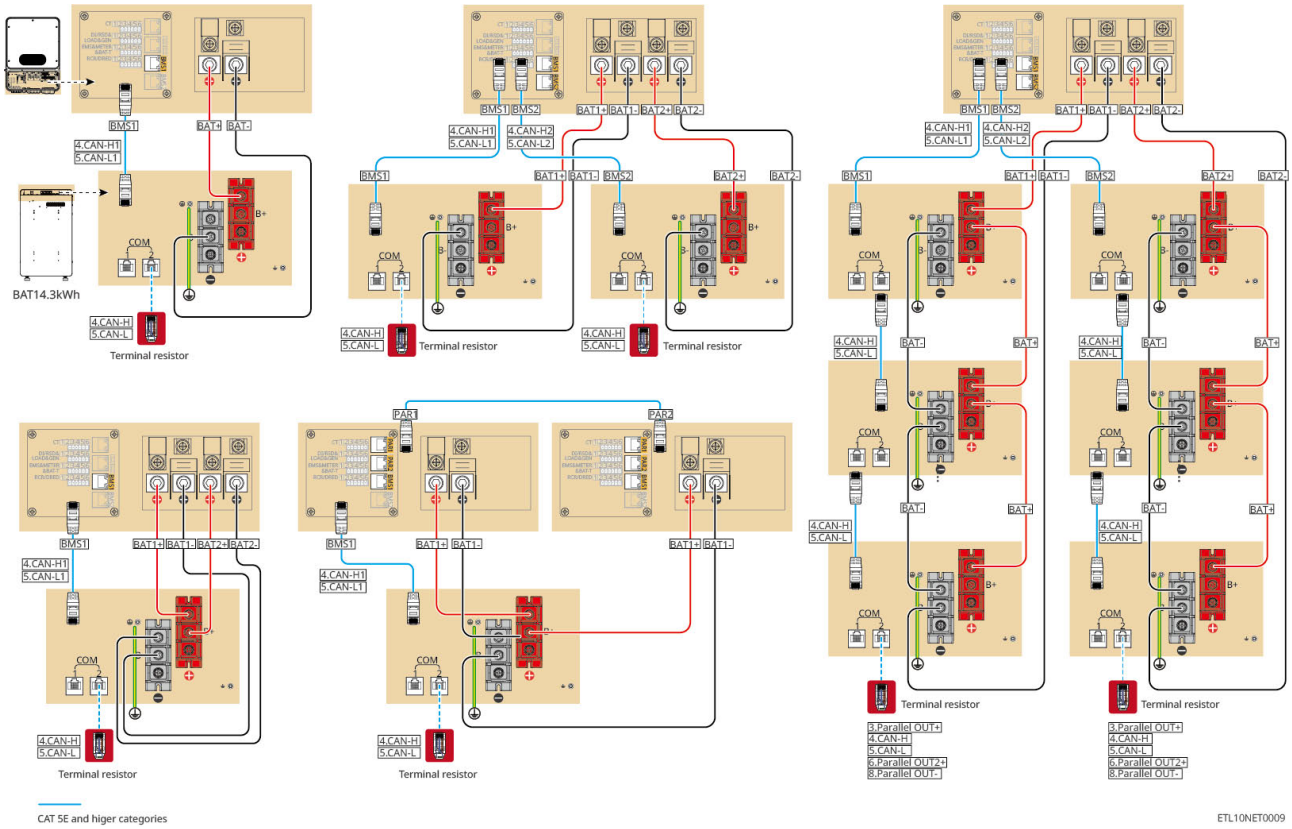
LX A5.0-30：



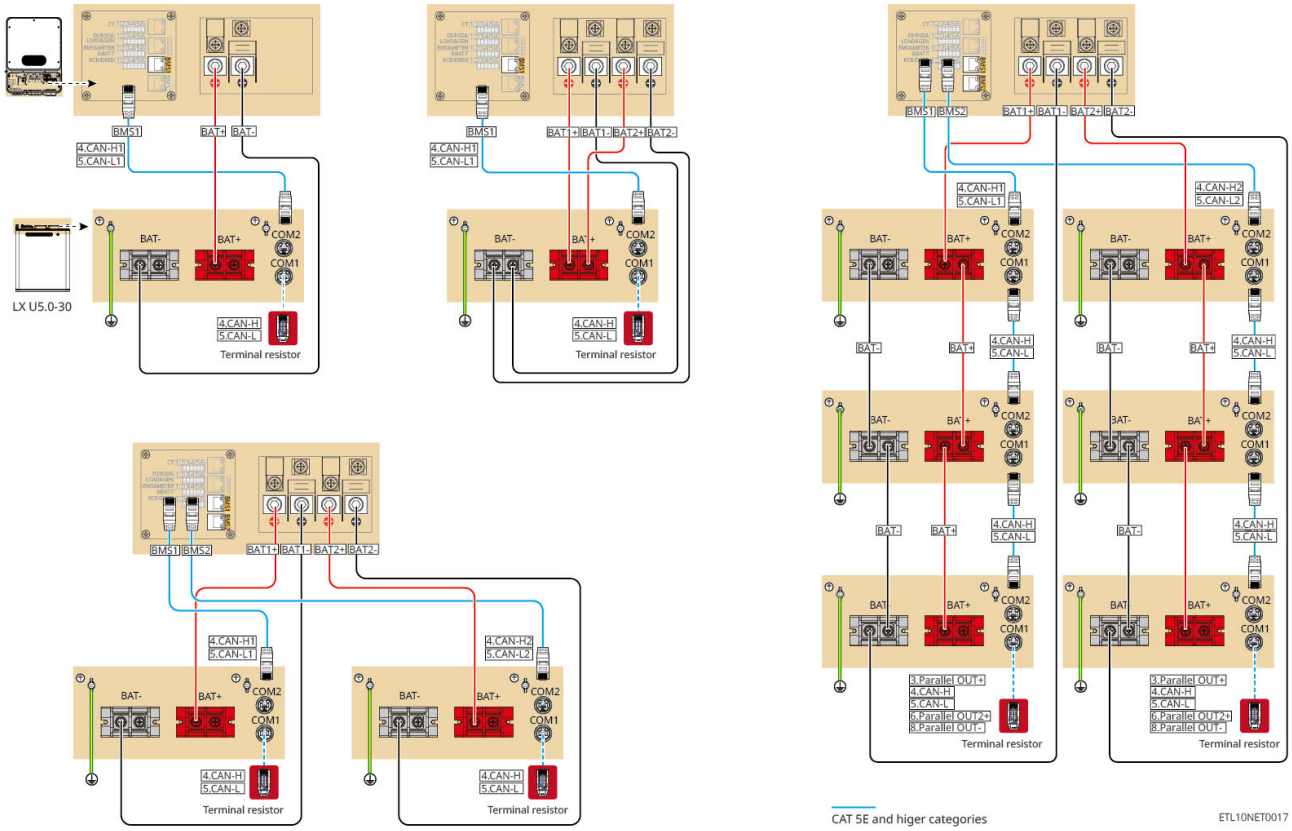


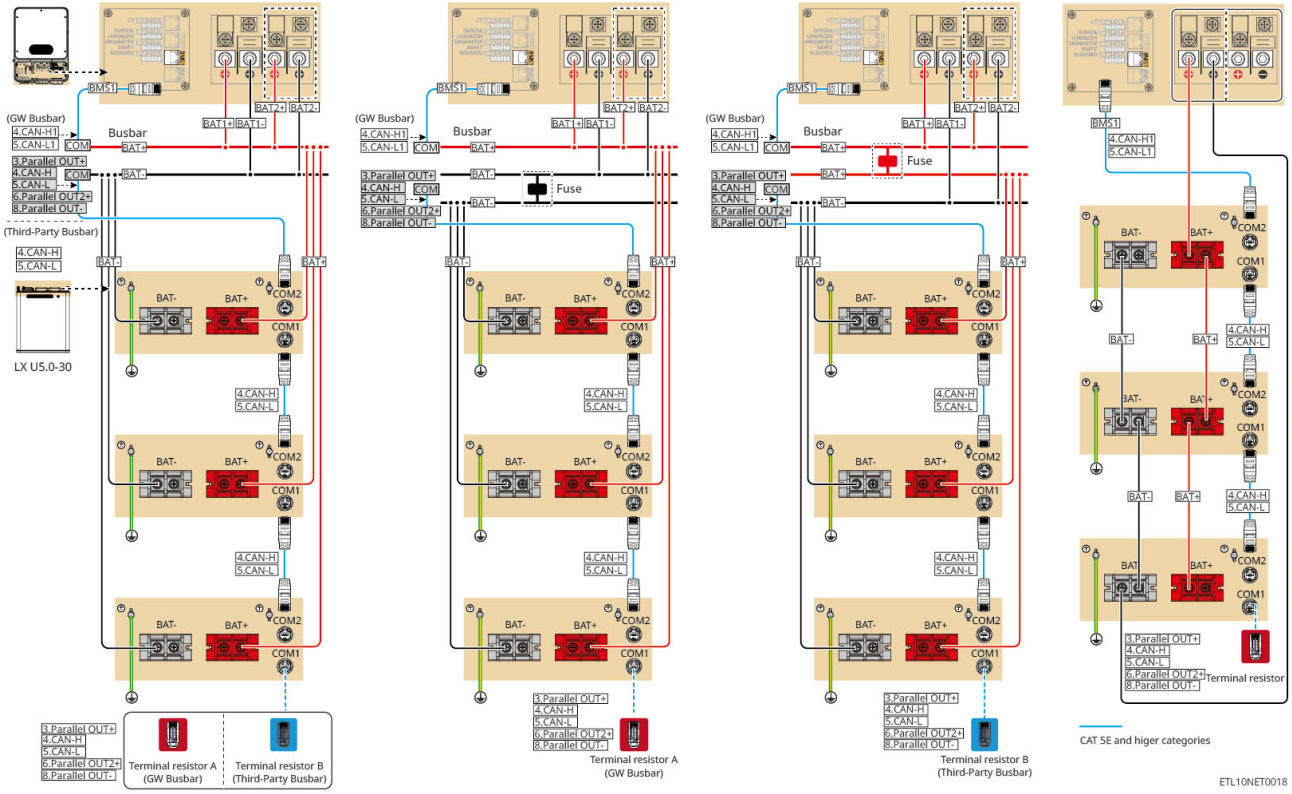
GW14.3-BAT-LV-G10：

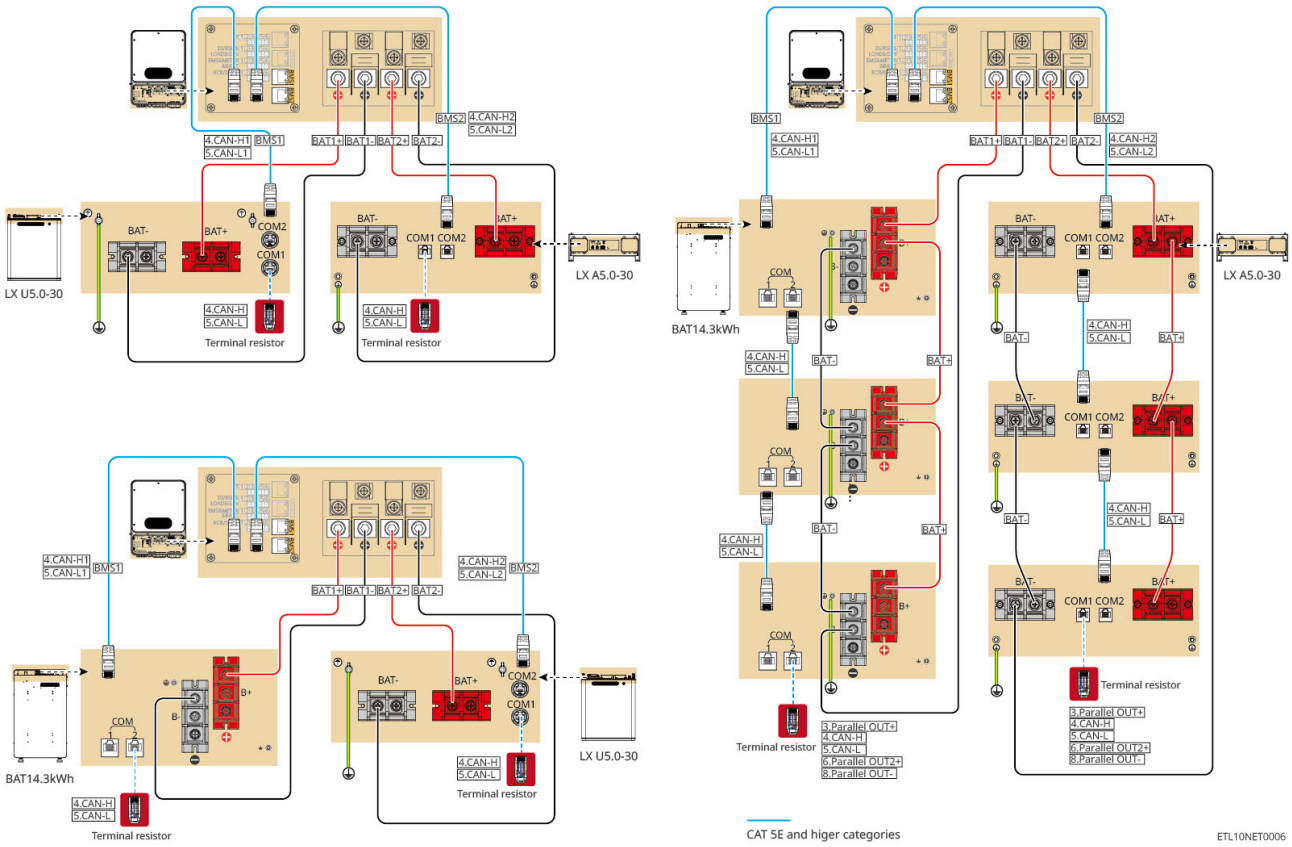



BMS1
BAT+
BAT-
4.CAN-H1
5.CAN-L1
BAT14.3kWh
COM
B+
4.CAN-H
5.CAN-L
Terminal resistor
BMS2
4.CAN-H2
5.CAN-L2
BAT1+
BAT1-
BAT2+
BAT2-
PAR1
PAR2
3.Parallel OUT+
4.CAN-H
5.CAN-L
6.Parallel OUT2+
8.Parallel OUT-
CAT 5E and higer categories
ETL10NET0009

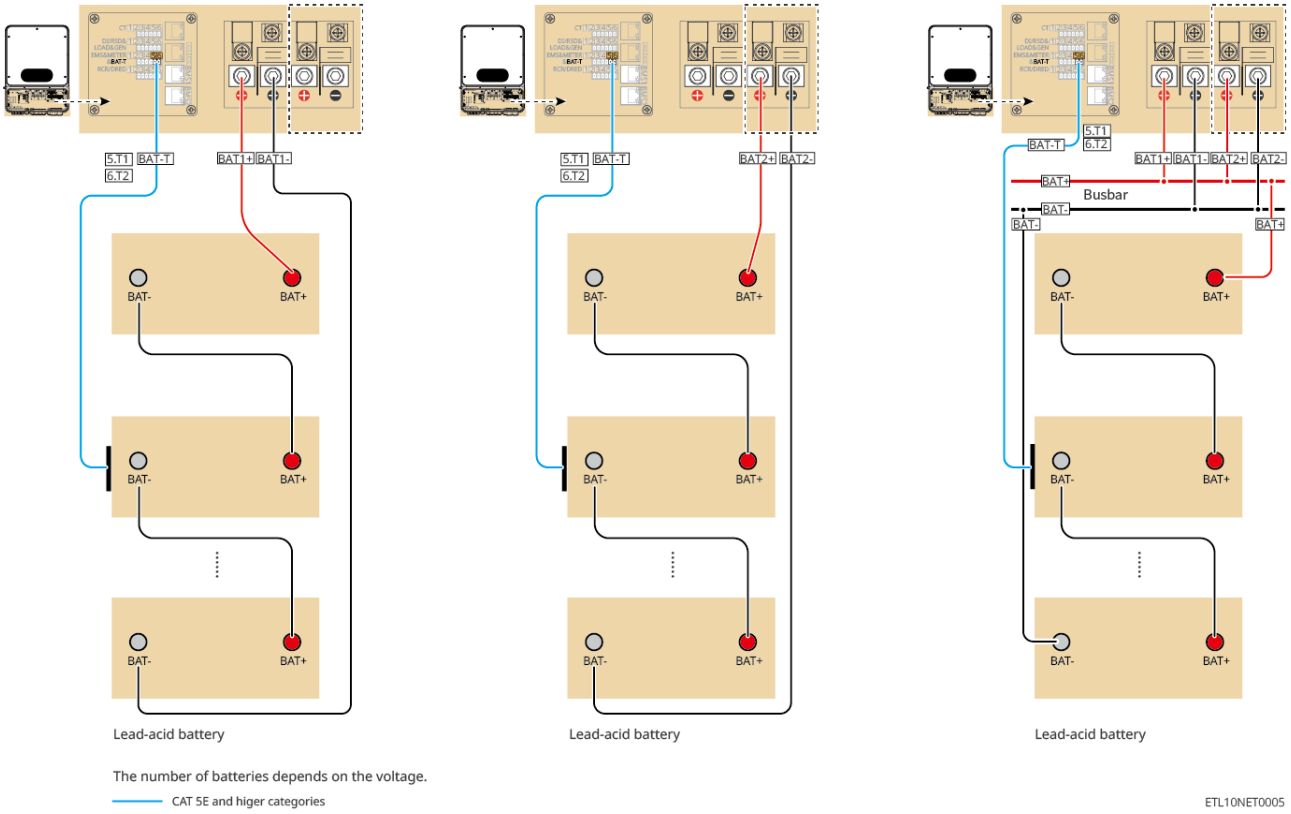
LX U5.0-30：


BMS1
BAT+
BAT-
4.CAN-H1
5.CAN-L1
LX U5.0-30
COM2
COM1
4.CAN-H
5.CAN-L
Terminal resistor
BMS2
4.CAN-H2
5.CAN-L2
BAT1+
BAT1-
BAT2+
BAT2-
3.Parallel OUT+
4.CAN-H
5.CAN-L
6.Parallel OUT2+
8.Parallel OUT-
CAT 5E and higer categories
ETL10NET0017





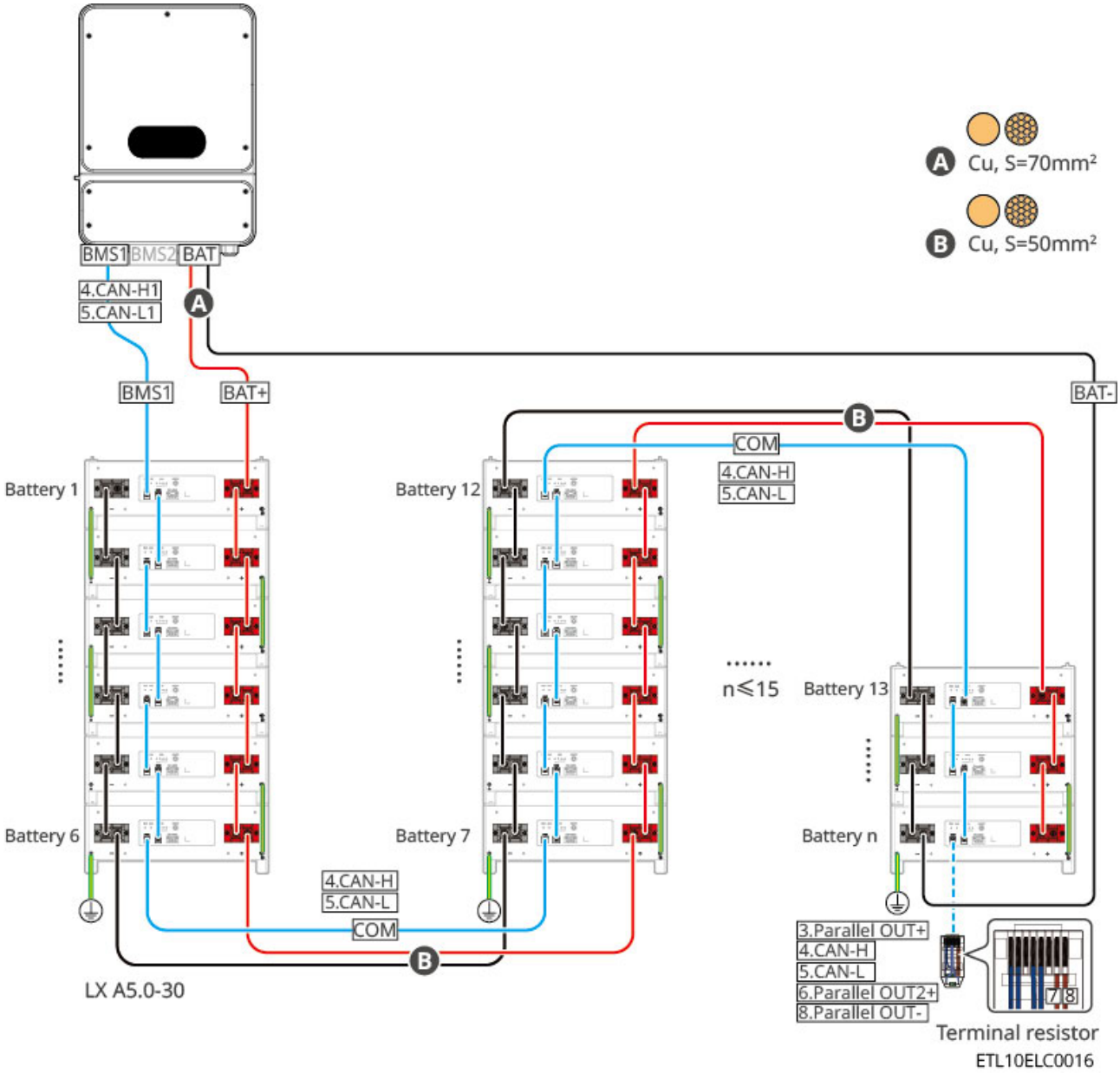
Lead-acid battery



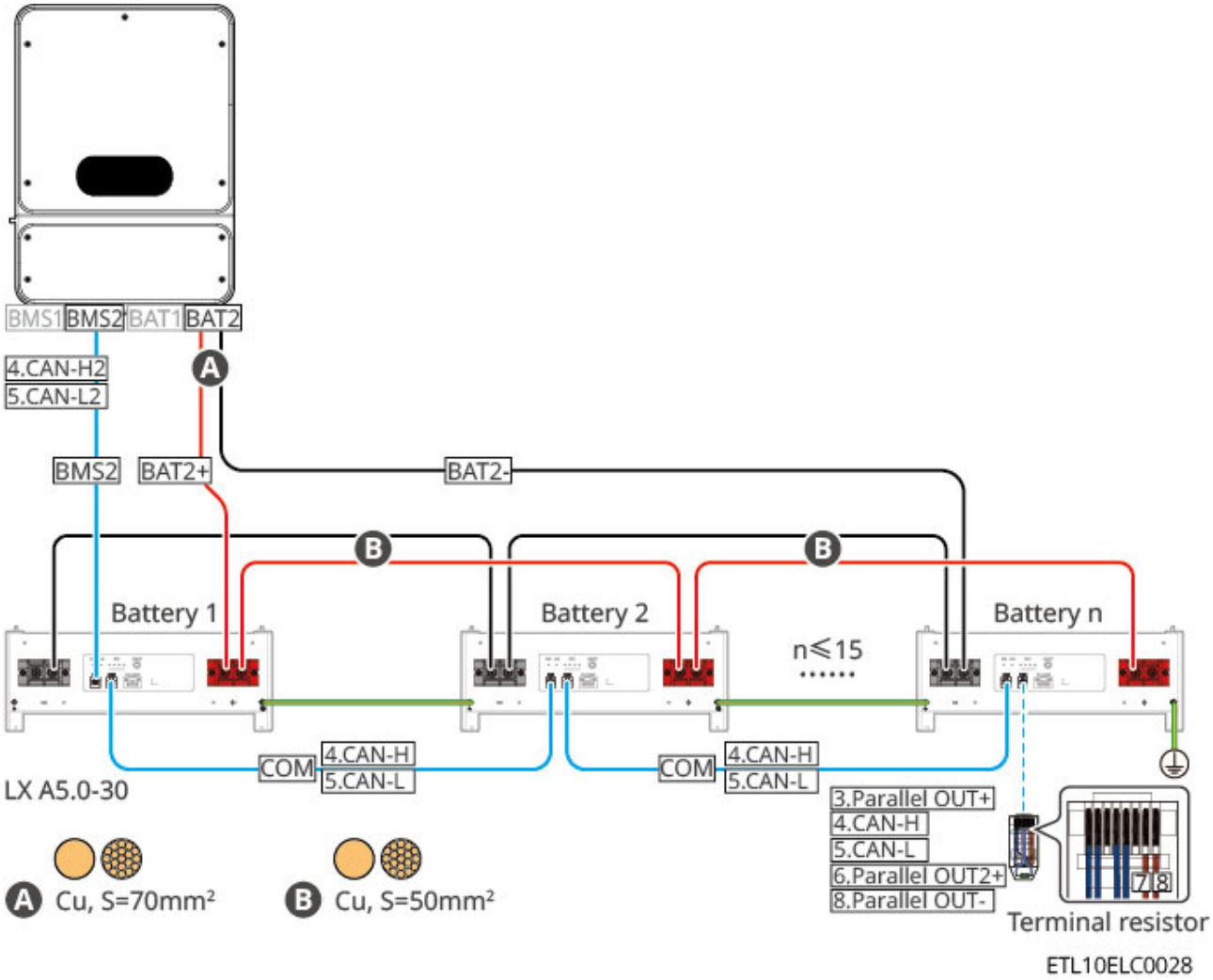
LX A5.0-30: Daisy-chain connection method

Battery is connected to a single 1-channel output Inverter

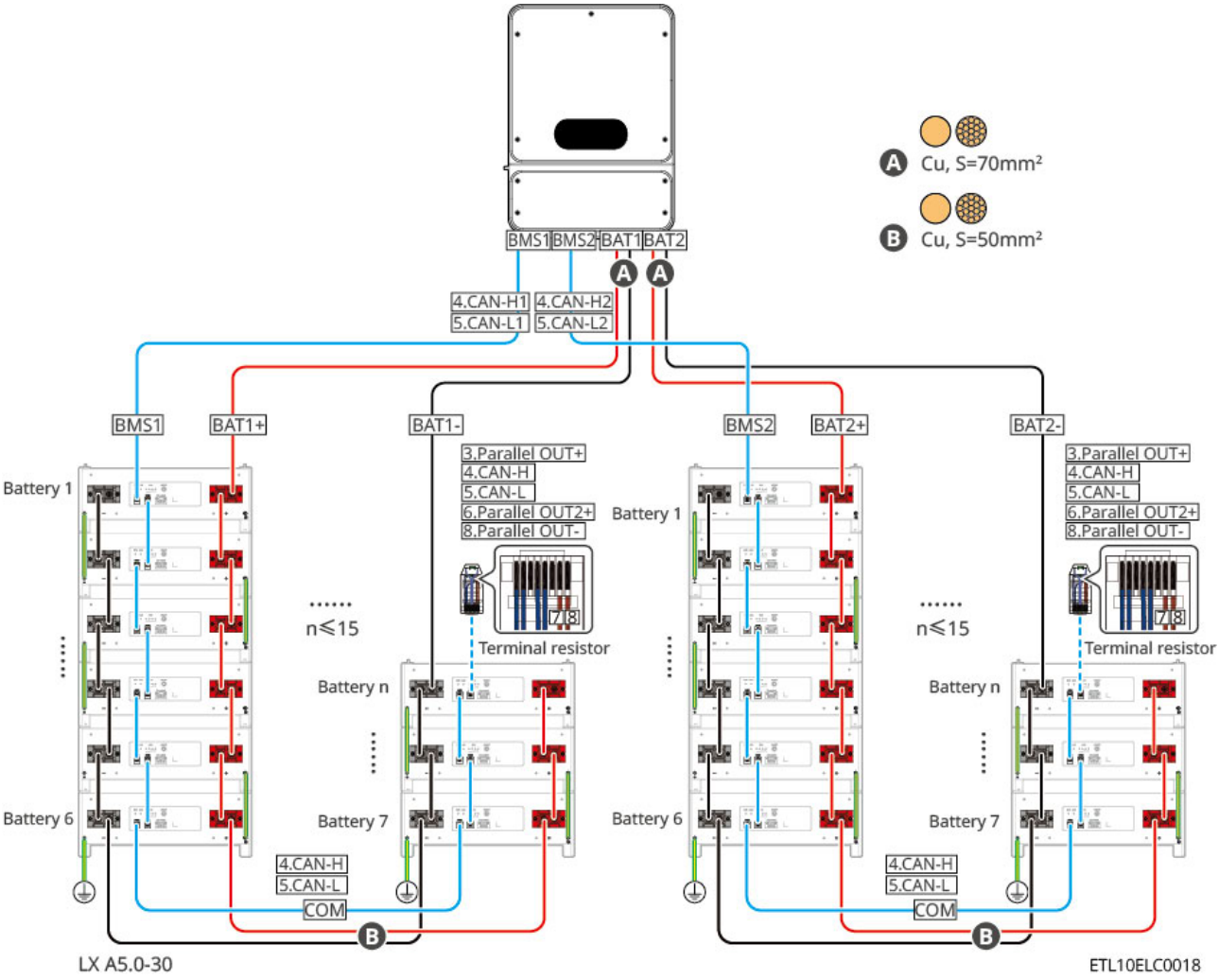
Type 1:


A Cu, S=70mm²
B Cu, S=50mm²
BMS1
BMS2
BAT
4.CAN-H1
5.CAN-L1
A
BMS1
BAT+
BAT-
B
COM
4.CAN-H
5.CAN-L
Battery 1
Battery 12
n≤15
Battery 13
Battery 6
Battery 7
Battery n
4.CAN-H
5.CAN-L
COM
B
3.Parallel OUT+
4.CAN-H
5.CAN-L
6.Parallel OUT2+
8.Parallel OUT-
7
8
LX A5.0-30
Terminal resistor
ETL10ELC0016

Type II:

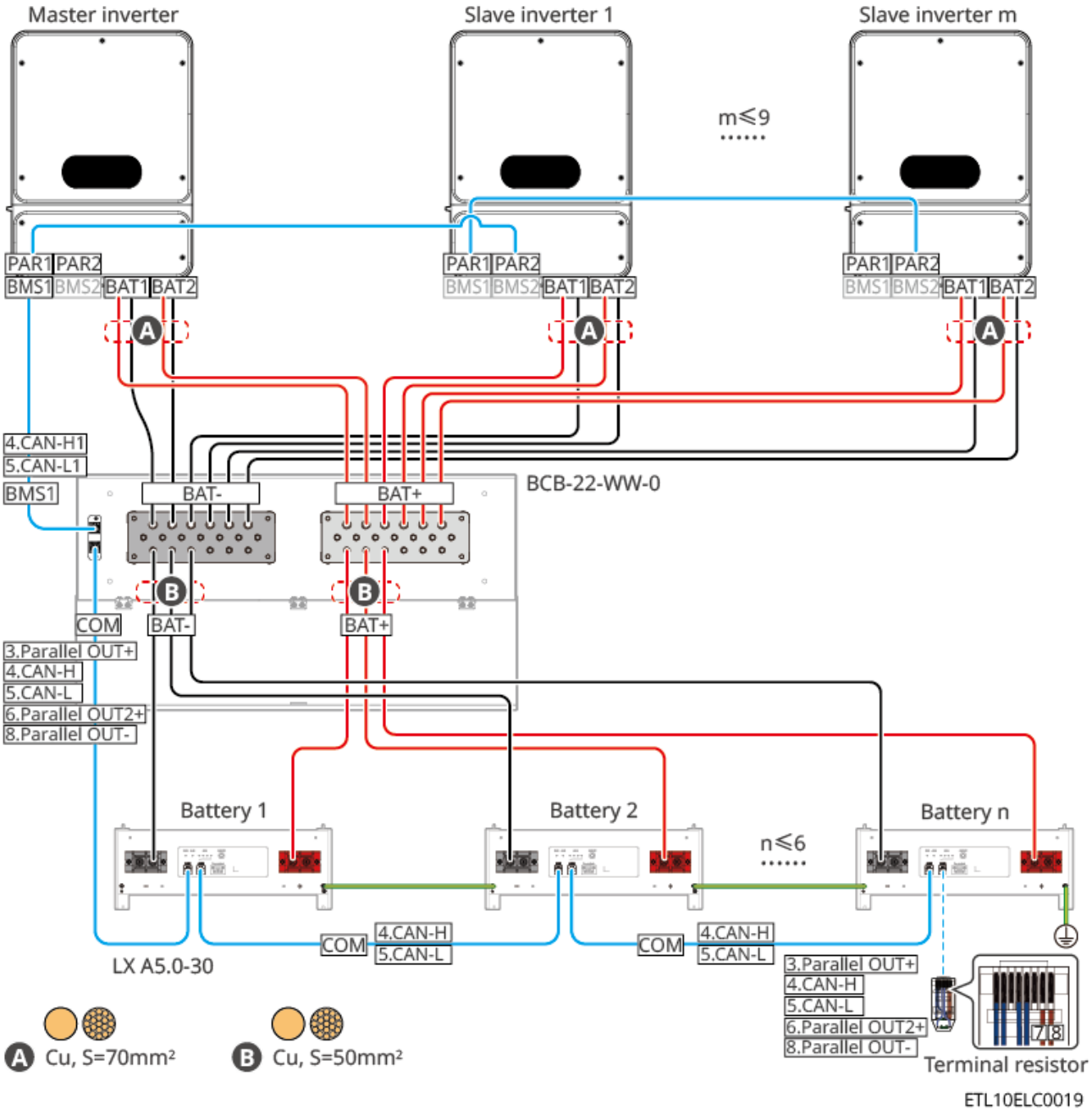


LX A5.0-30: When connecting two Battery to a single 2-output Inverter, the wiring diagram is as follows:



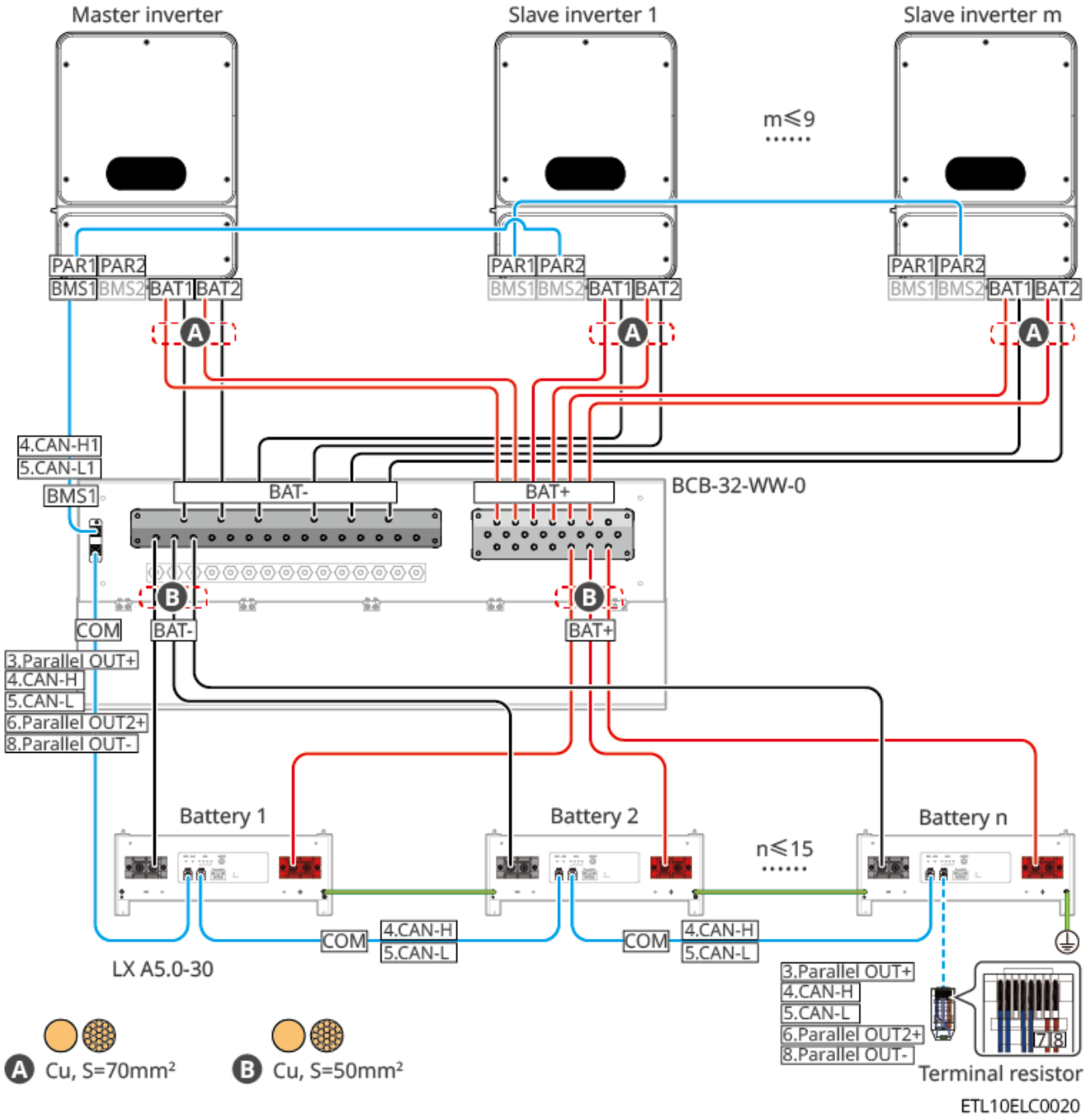
LXA5.0-30: Compatible with busbar BCB-22-WW-0 connection method, wiring diagram as follows:

Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter units and 6 Battery units.



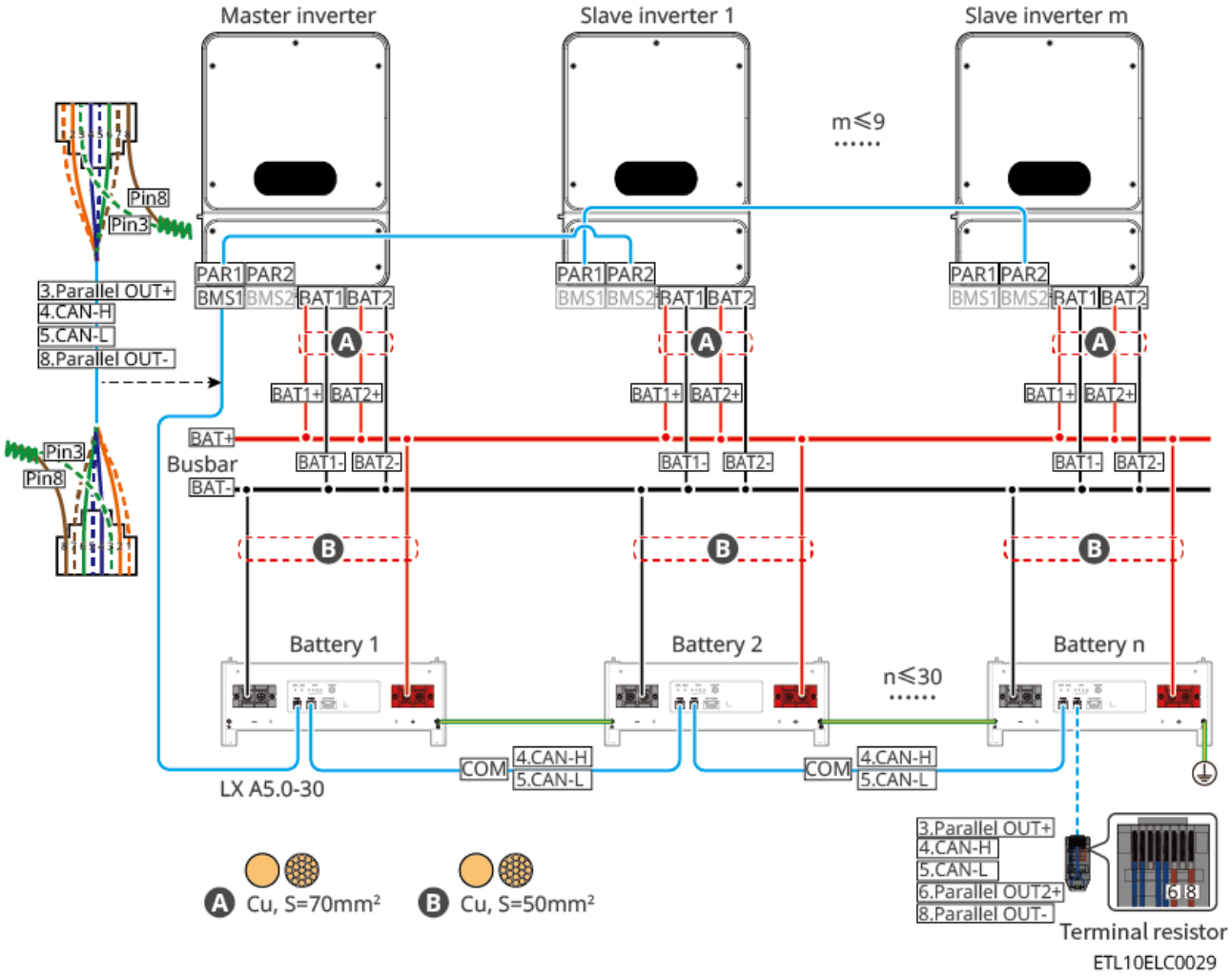
LX A5.0-30: Compatible with busbar BCB-32-WW-0 connection method, wiring diagram as follows:

Battery system supports a maximum working current of 720A current, a working power of 36kW Power, with a maximum connection capacity of 6 Inverter units and 15 Battery units.



LXA5.0-30: Compatible with third-party busbar connection method, wiring diagram as follows:

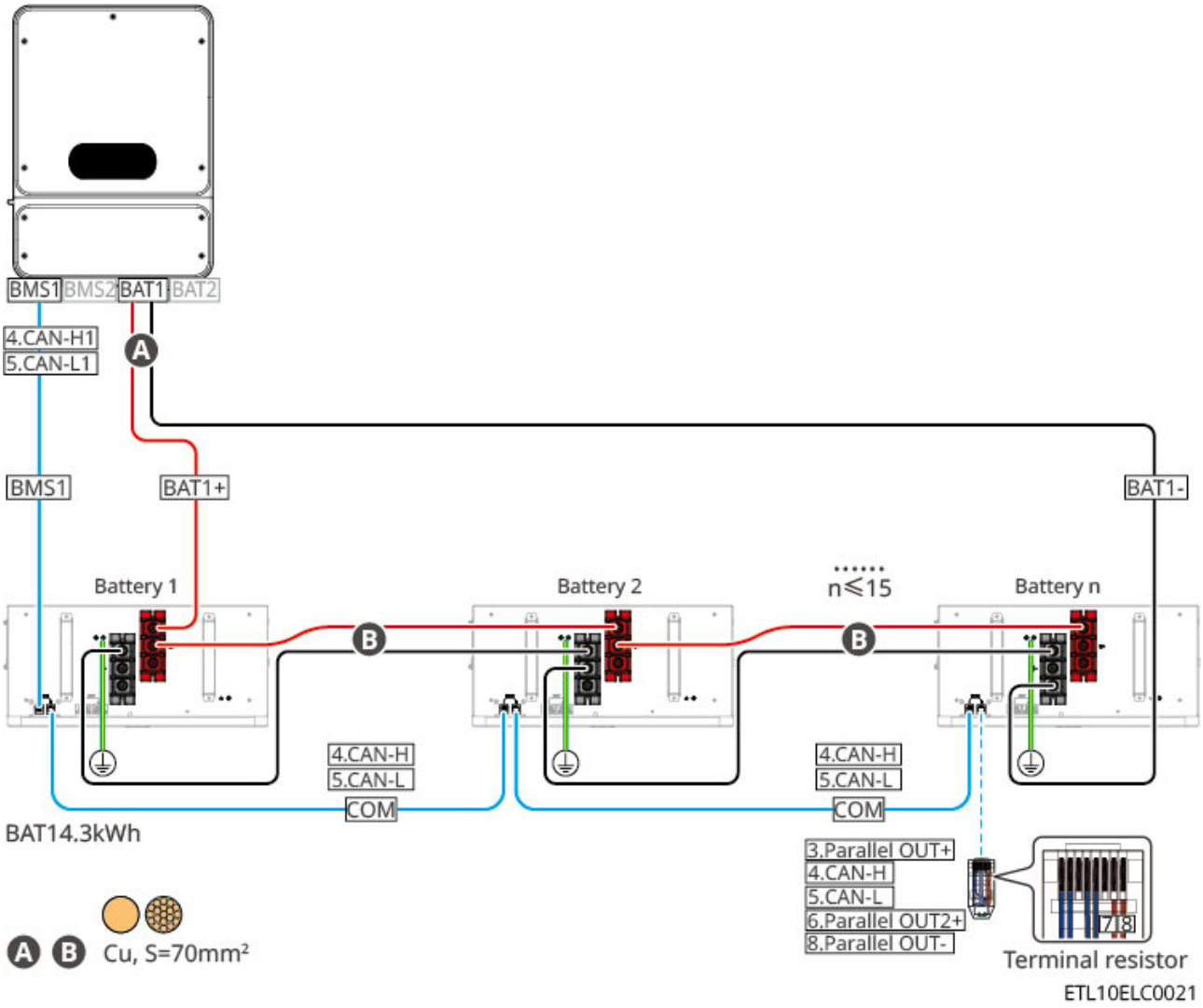
The rated Charge current of a single Battery is 60A; the rated Discharge current is 100A; the maximum Charge current is 90A; the maximum Discharge current is 150A. A maximum of 30 units can be clustered in parallel within the same system.



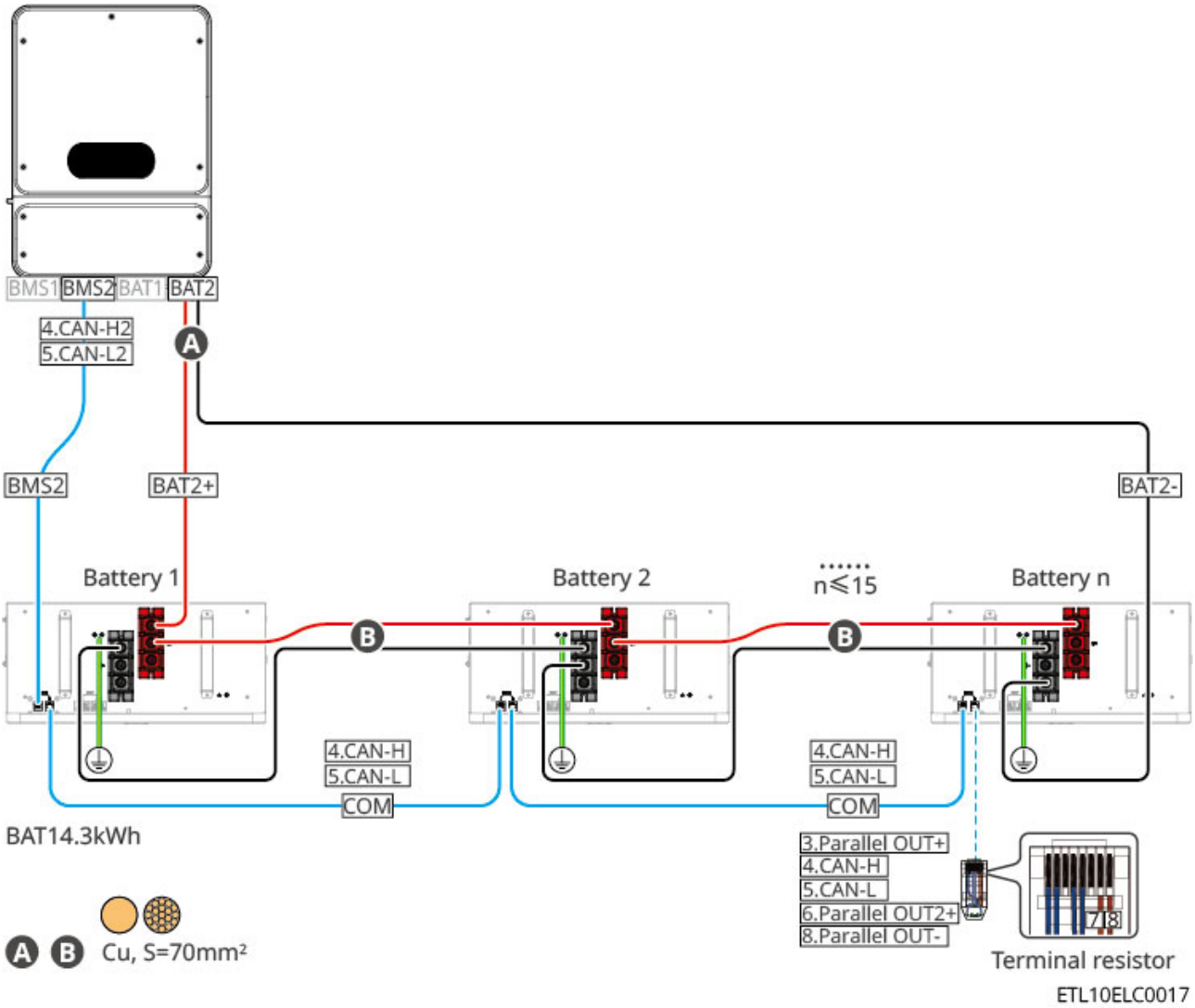
GW14.3-BAT-LV-G10: Daisy-chain connection method

Connecting a single 1-channel output Inverter to Battery

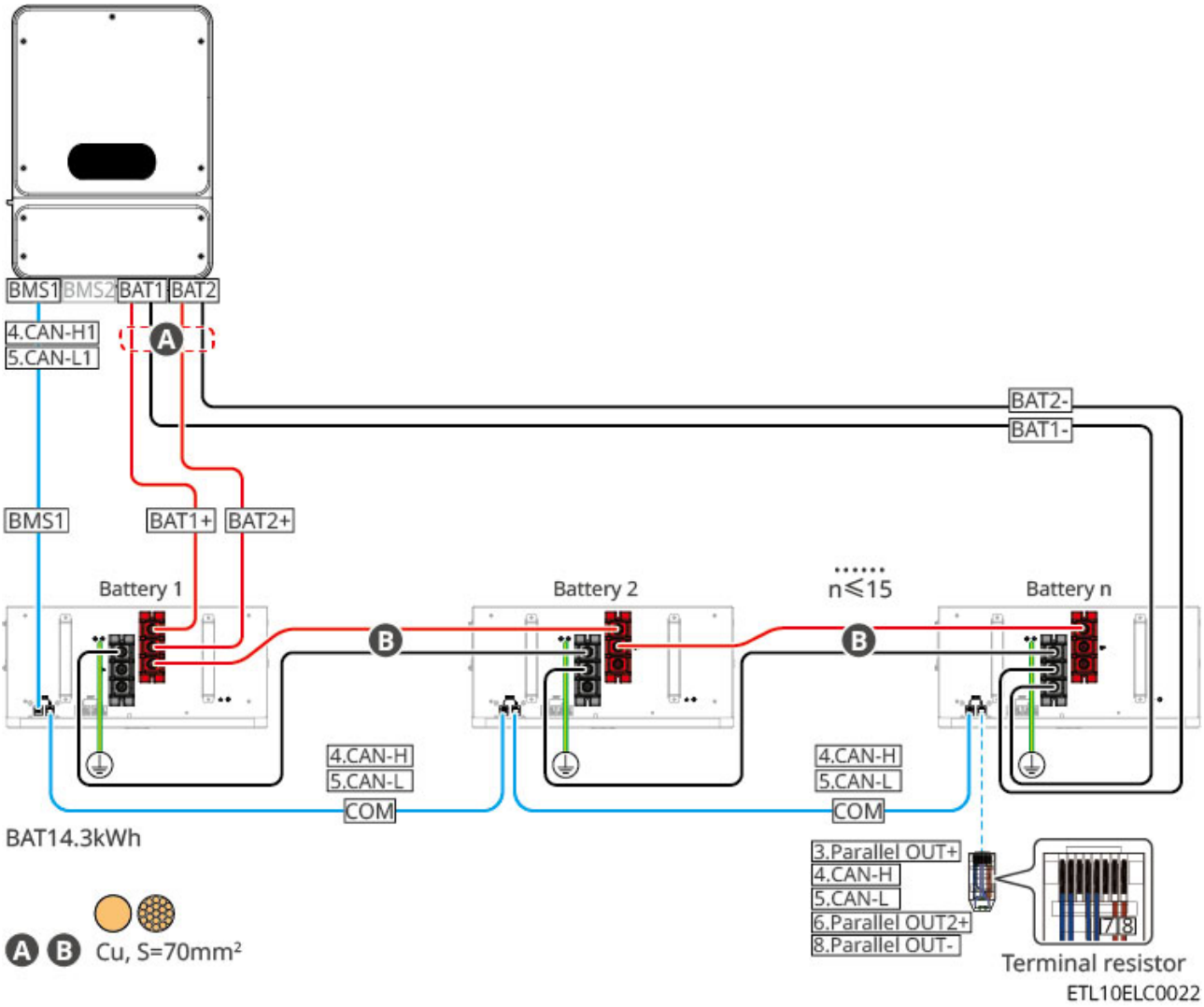
Type 1:


BMS1
BMS2
BAT1
BAT2
4.CAN-H1
5.CAN-L1
A
BMS1
BAT1+
BAT1-
Battery 1
Battery 2
n≤15
Battery n
B
B
4.CAN-H
5.CAN-L
COM
4.CAN-H
5.CAN-L
COM
BAT14.3kWh
3.Parallel OUT+
4.CAN-H
5.CAN-L
6.Parallel OUT2+
8.Parallel OUT-
1
8
Terminal resistor
A
B
Cu, S=70mm²
ETL10ELC0021

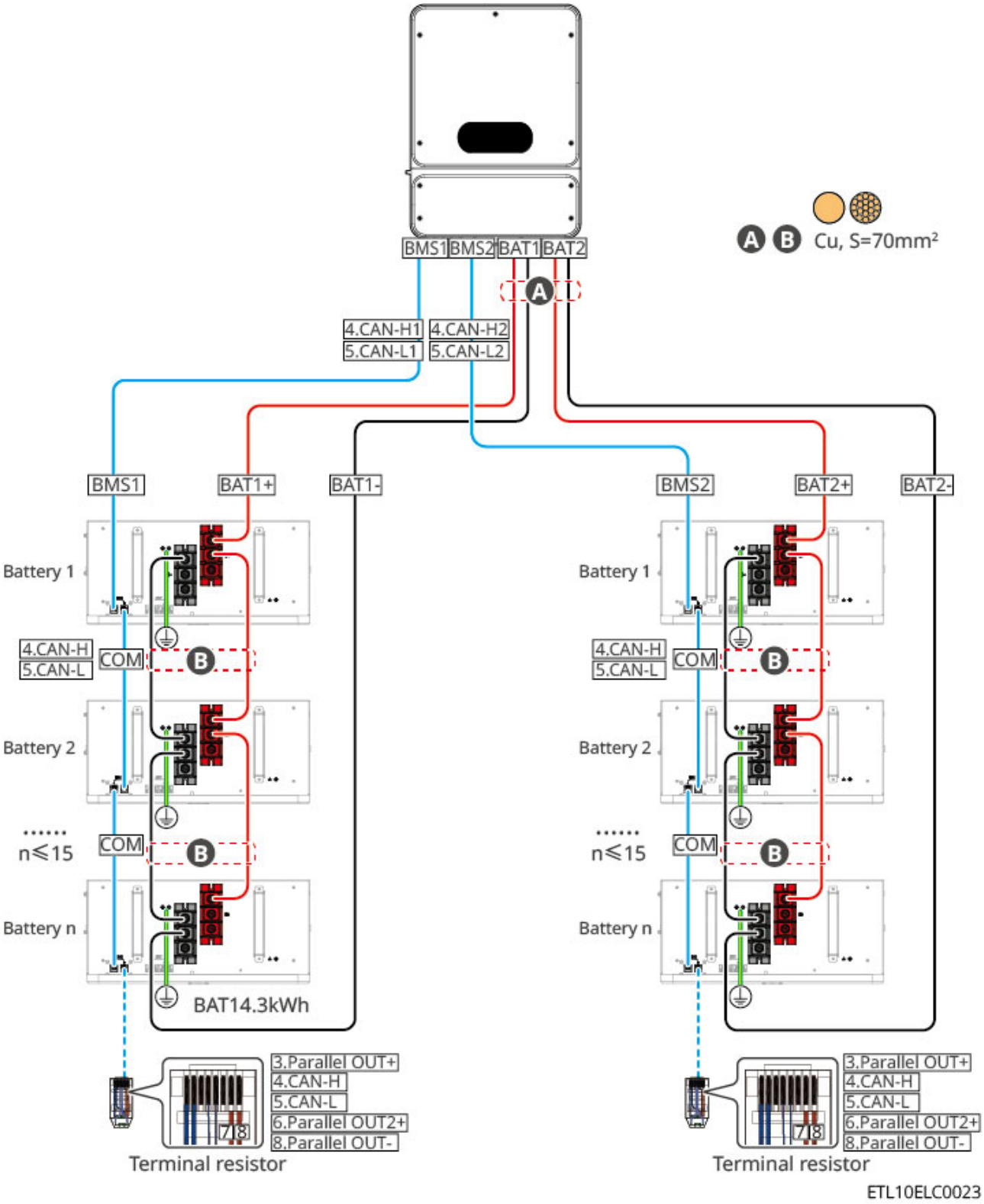
Type II:



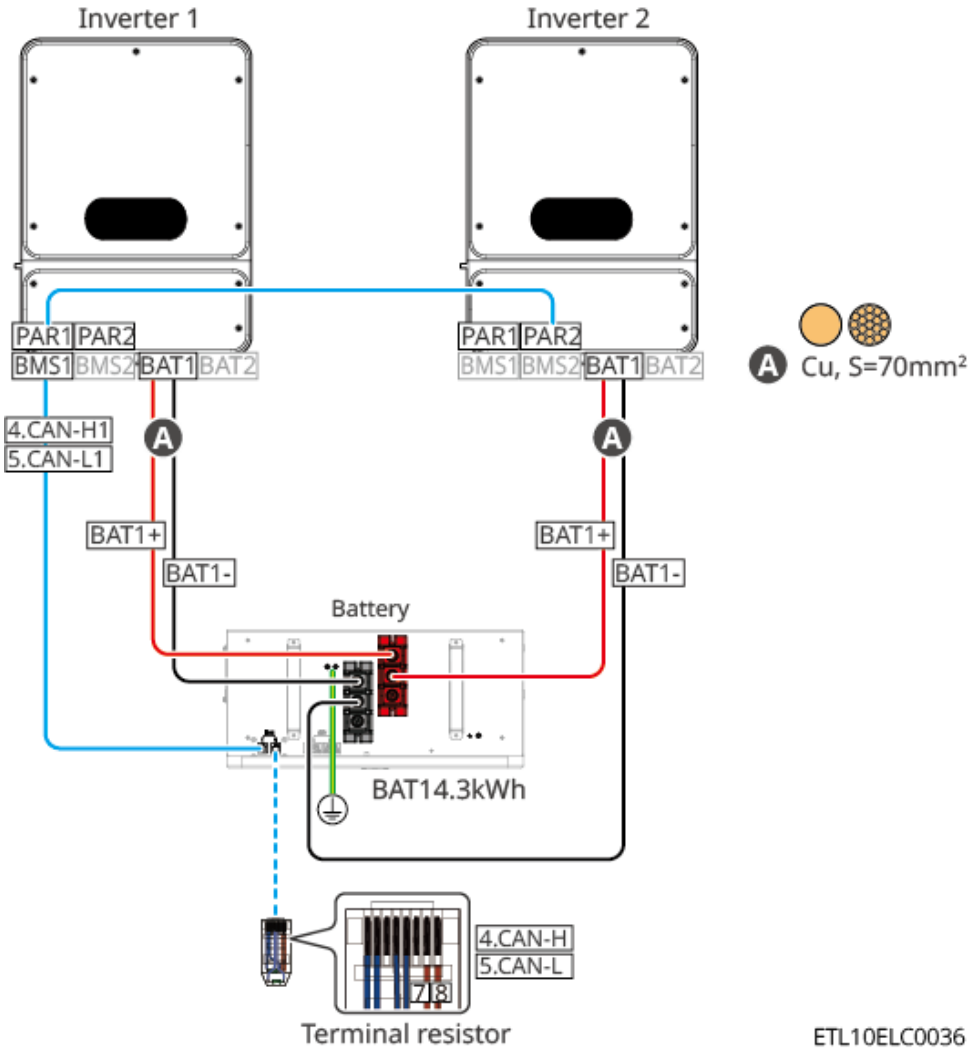
GW14.3-BAT-LV-G10: Single Battery connected to a single 2-output Inverter Type 1:



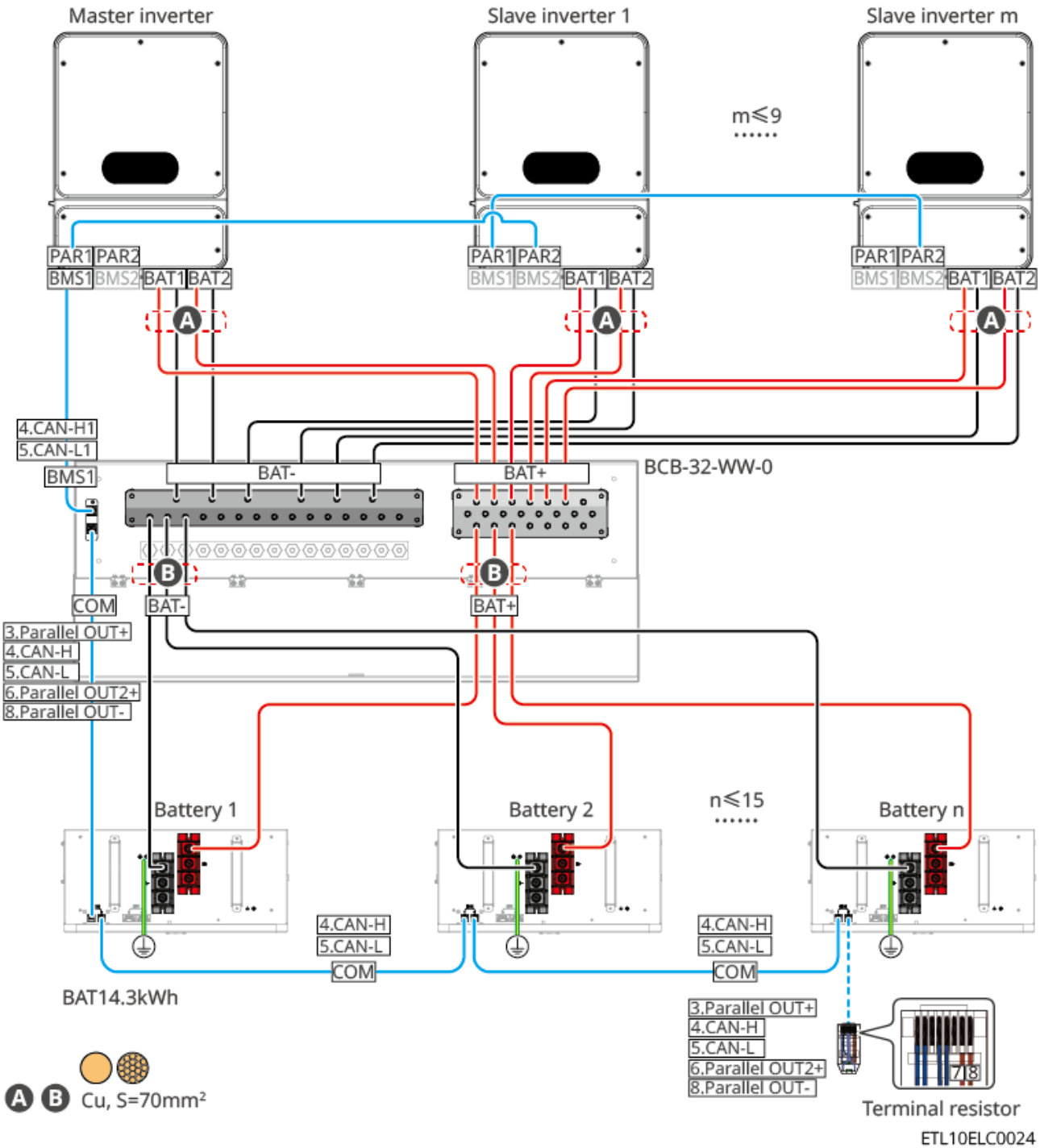
GW14.3-BAT-LV-G10: Dual Battery connection to a single 2-channel output Inverter



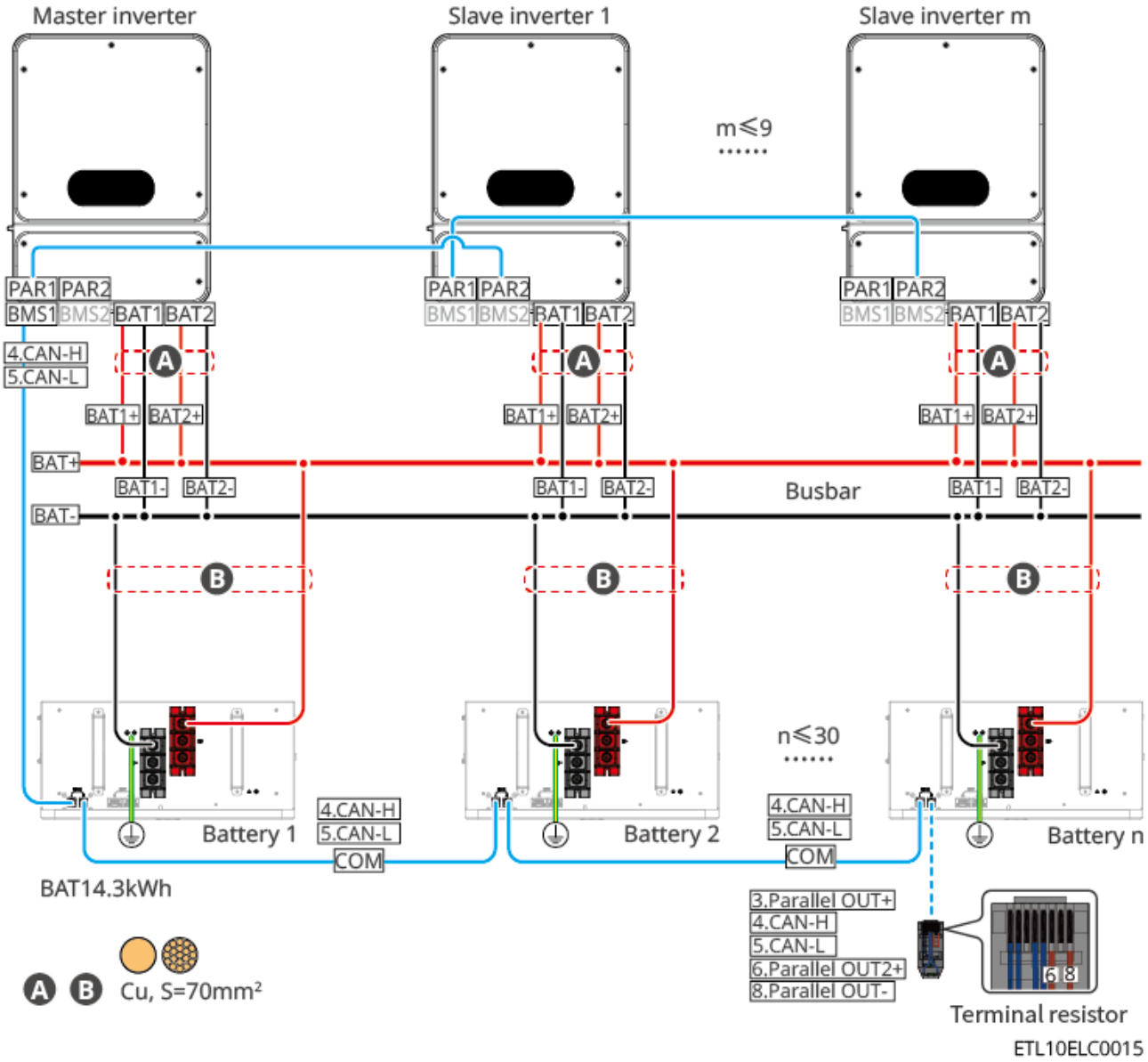
GW14.3-BAT-LV-G10: When directly connecting two single-output Inverter, please use SolarGo APP to set the Battery connection mode to "parallel connection".



GW14.3-BAT-LV-G10: When the number of Battery is less than or equal to 15, use a busbar (BCB-32-WW-0, current ≤ 720A) to connect the Inverter.



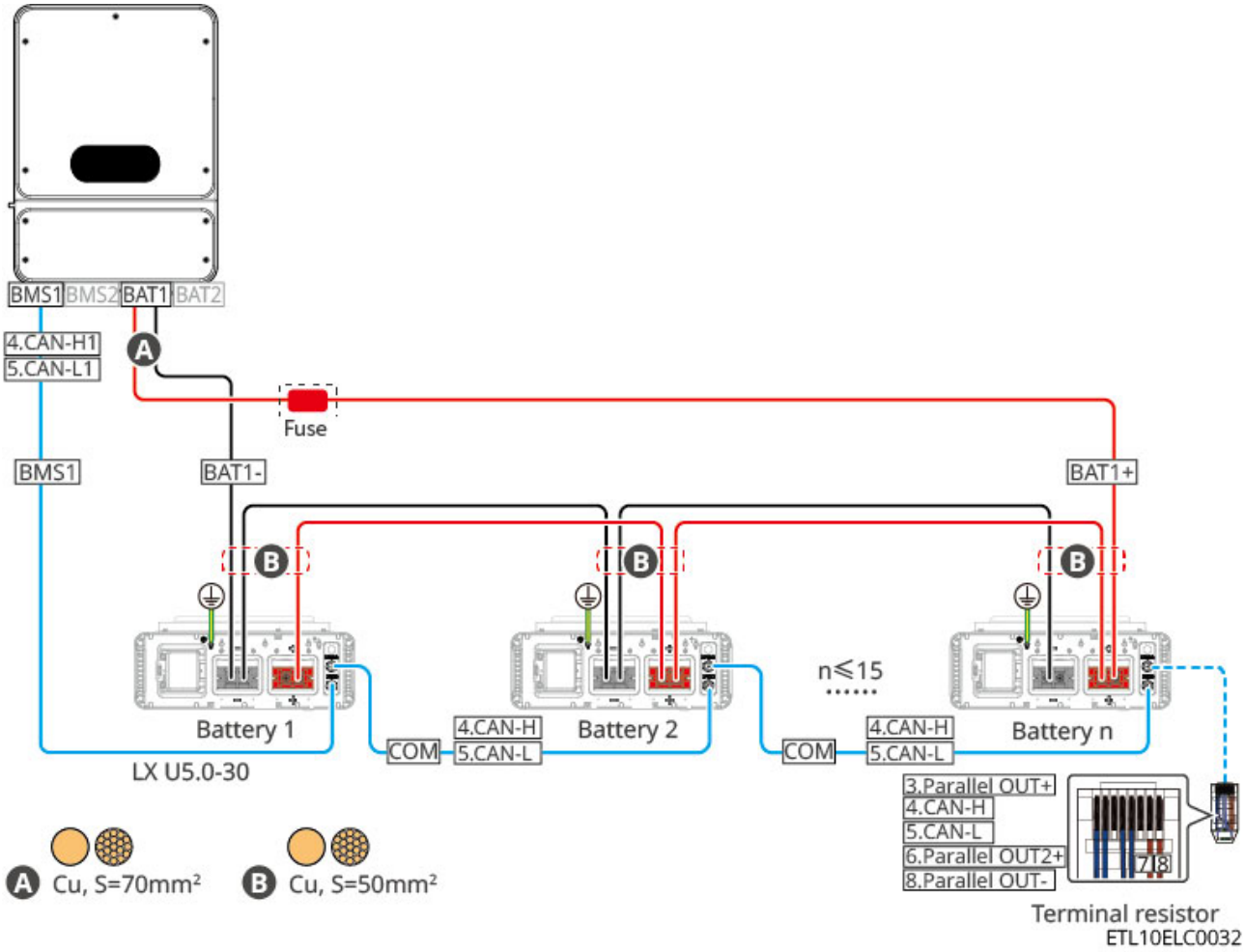
GW14.3-BAT-LV-G10: Compatible with third-party busbar connection method



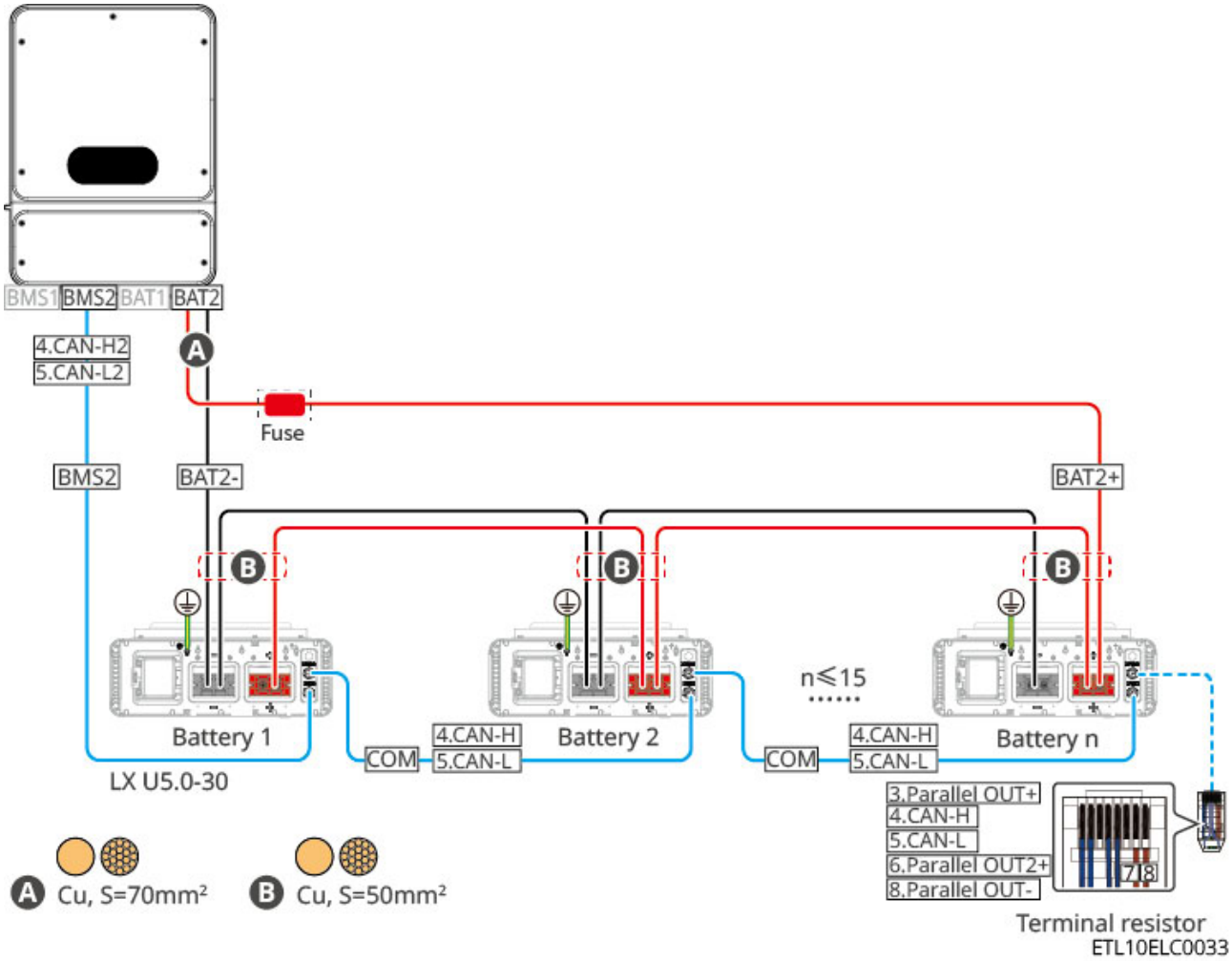
LX U5.0-30: Daisy-chain connection method. When Battery is connected to a single-channel output Inverter:

When the number of Battery n > 8, fuses must be added. Recommended specifications: rated voltage ≥ 60V, rated current ≥ 300A, ultimate/operational breaking capacity ≥ 50kA.

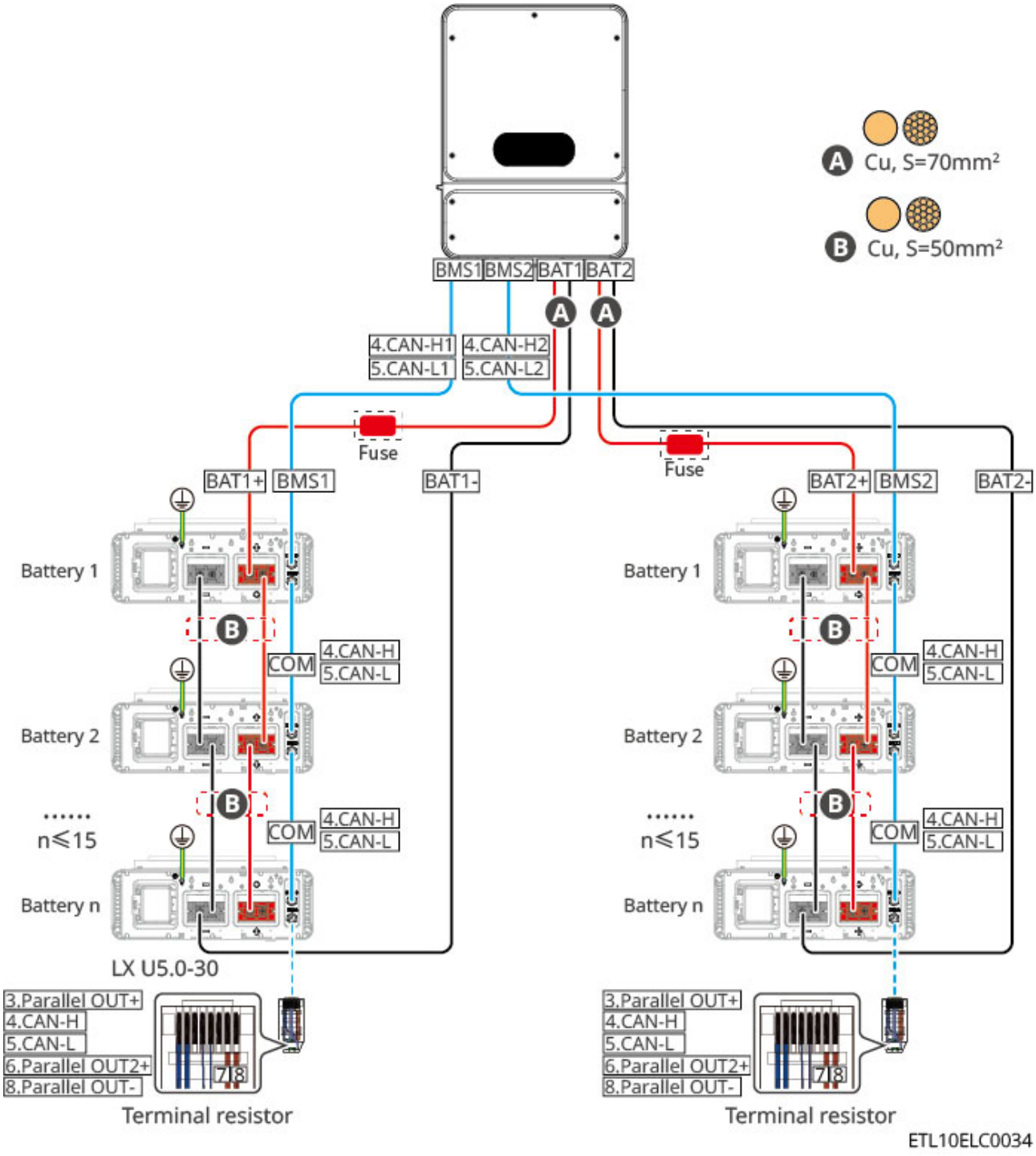
Type 1:


BMS1
BMS2
BAT1
BAT2
4.CAN-H1
5.CAN-L1
A
Fuse
BMS1
BAT1-
BAT1+
B
B
B
Battery 1
Battery 2
Battery n
n≤15
COM
4.CAN-H
5.CAN-L
COM
4.CAN-H
5.CAN-L
LX U5.0-30
3.Parallel OUT+
4.CAN-H
5.CAN-L
6.Parallel OUT2+
8.Parallel OUT-
Terminal resistor
ETL10ELC0032
A Cu, S=70mm²
B Cu, S=50mm²

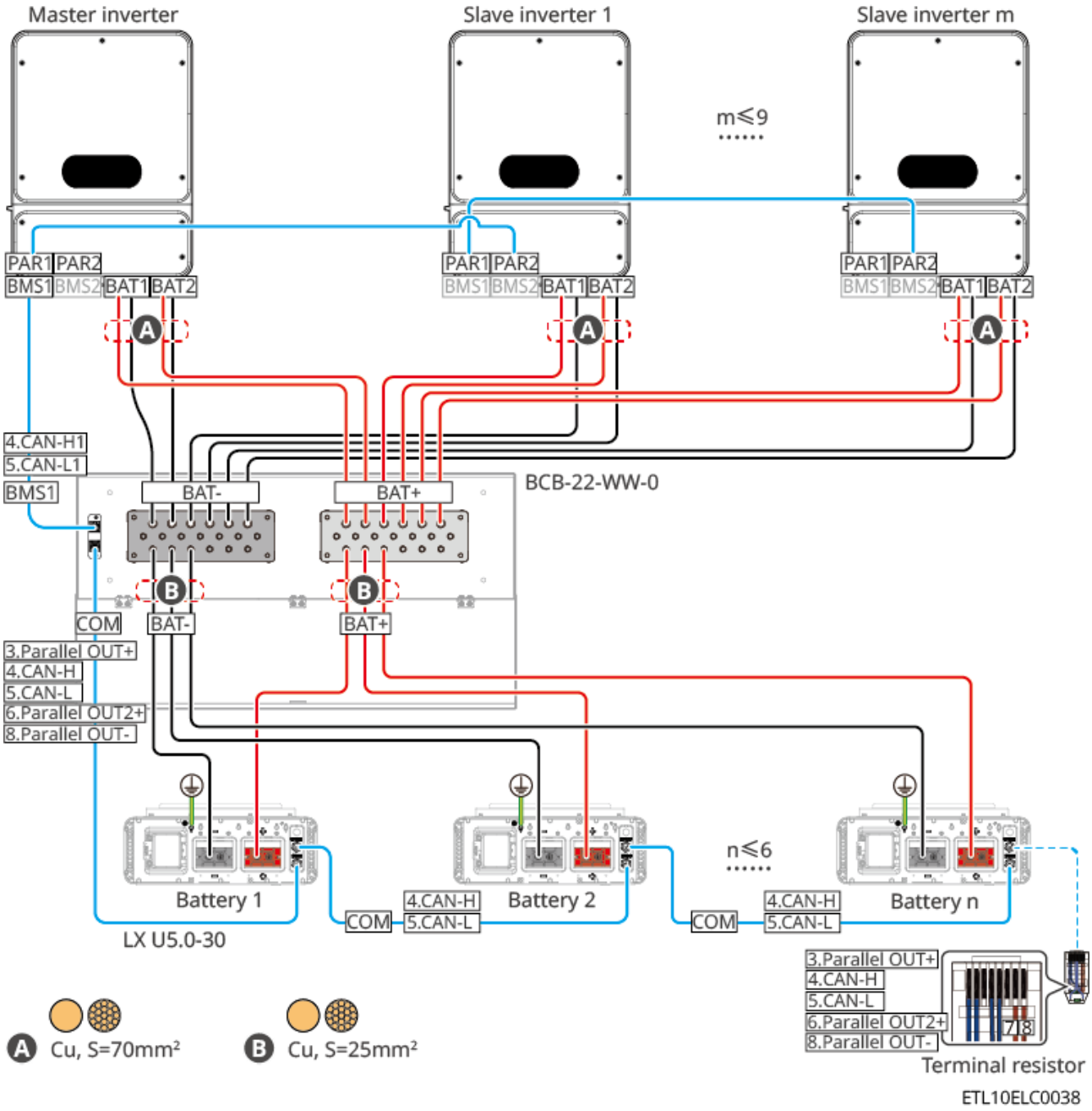
Type II:



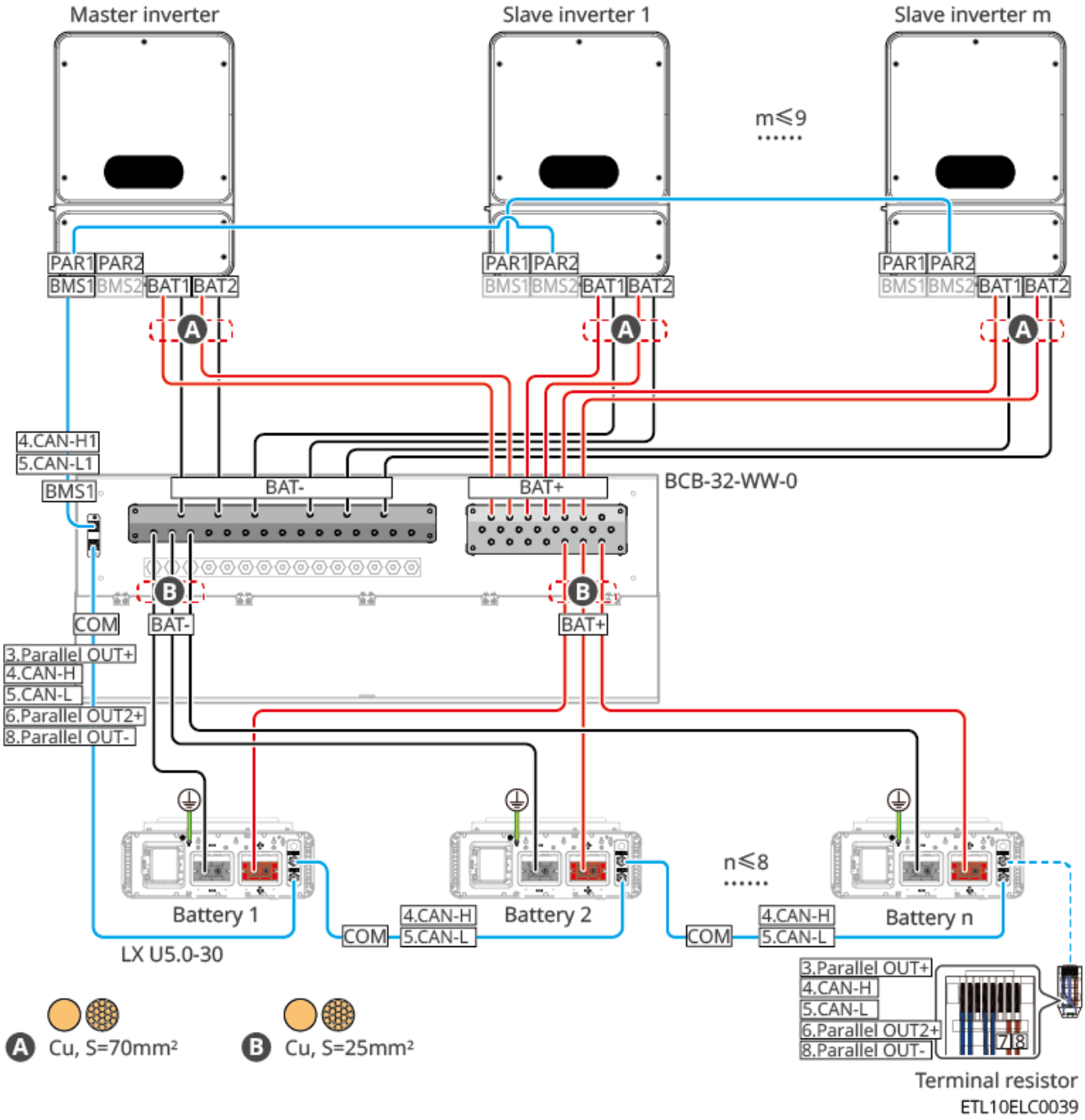
LX U5.0-30: Dual-channel Battery connection to a single 2-channel output Inverter



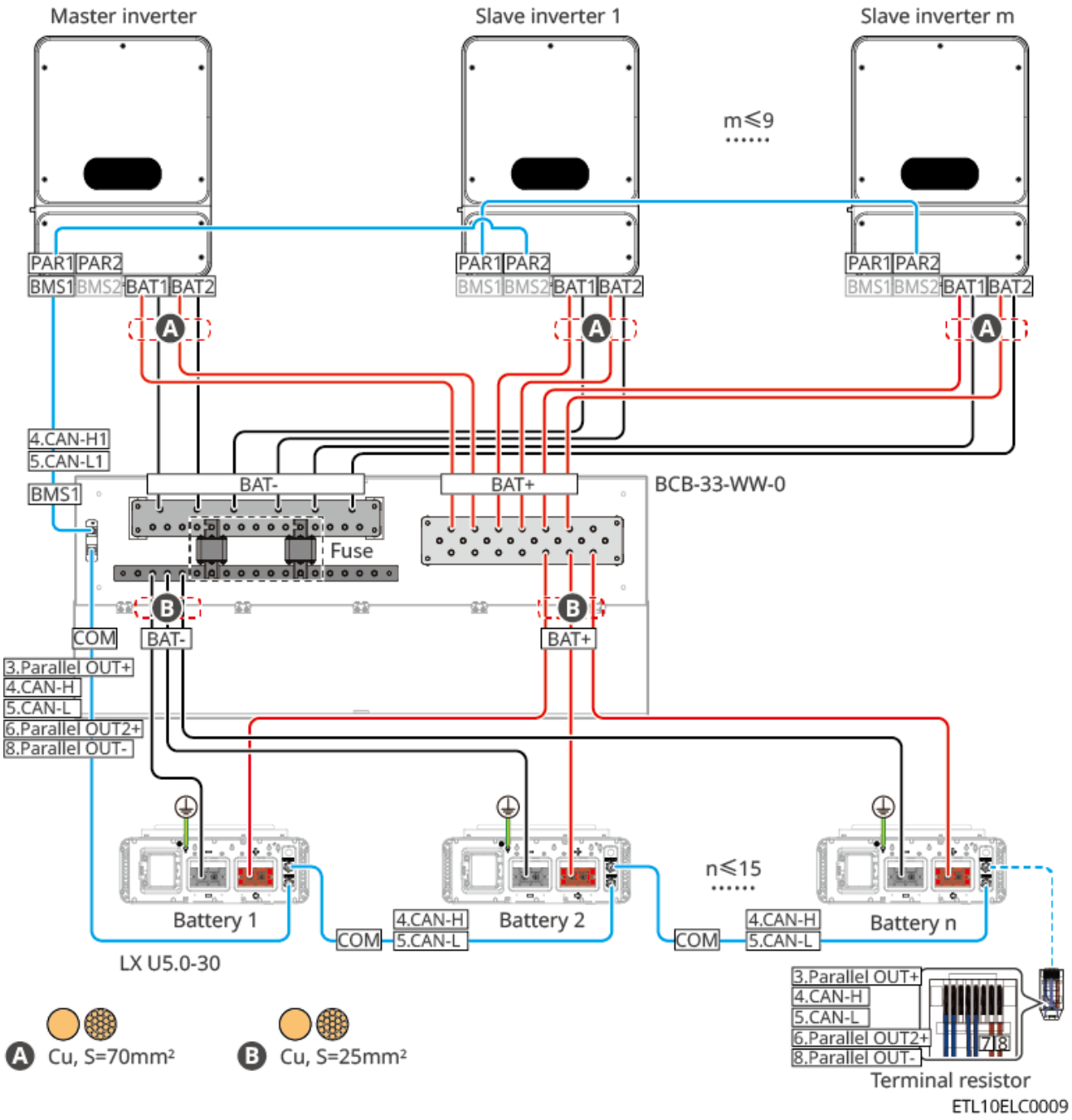
LX U5.0-30: When the number of Battery units is ≤6, Battery is connected in a BCB-22-WW-0 configuration.



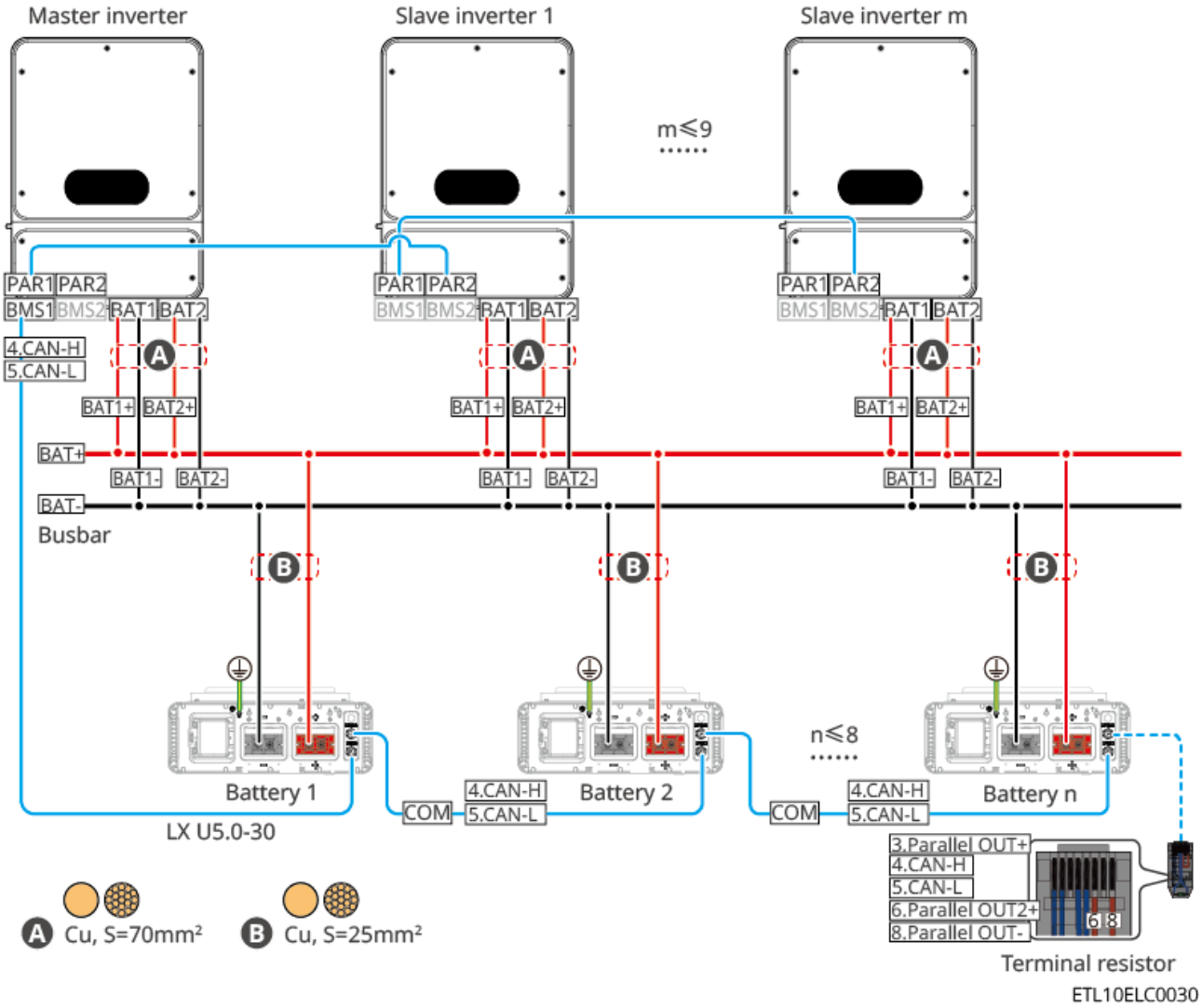
LX U5.0-30: When the number of Battery is ≤8, Battery is paired with the BCB-32-WW-0 connection method.



LX U5.0-30: When the number of Battery is ≤15, Battery is connected using the busbar BCB-33-WW-0.

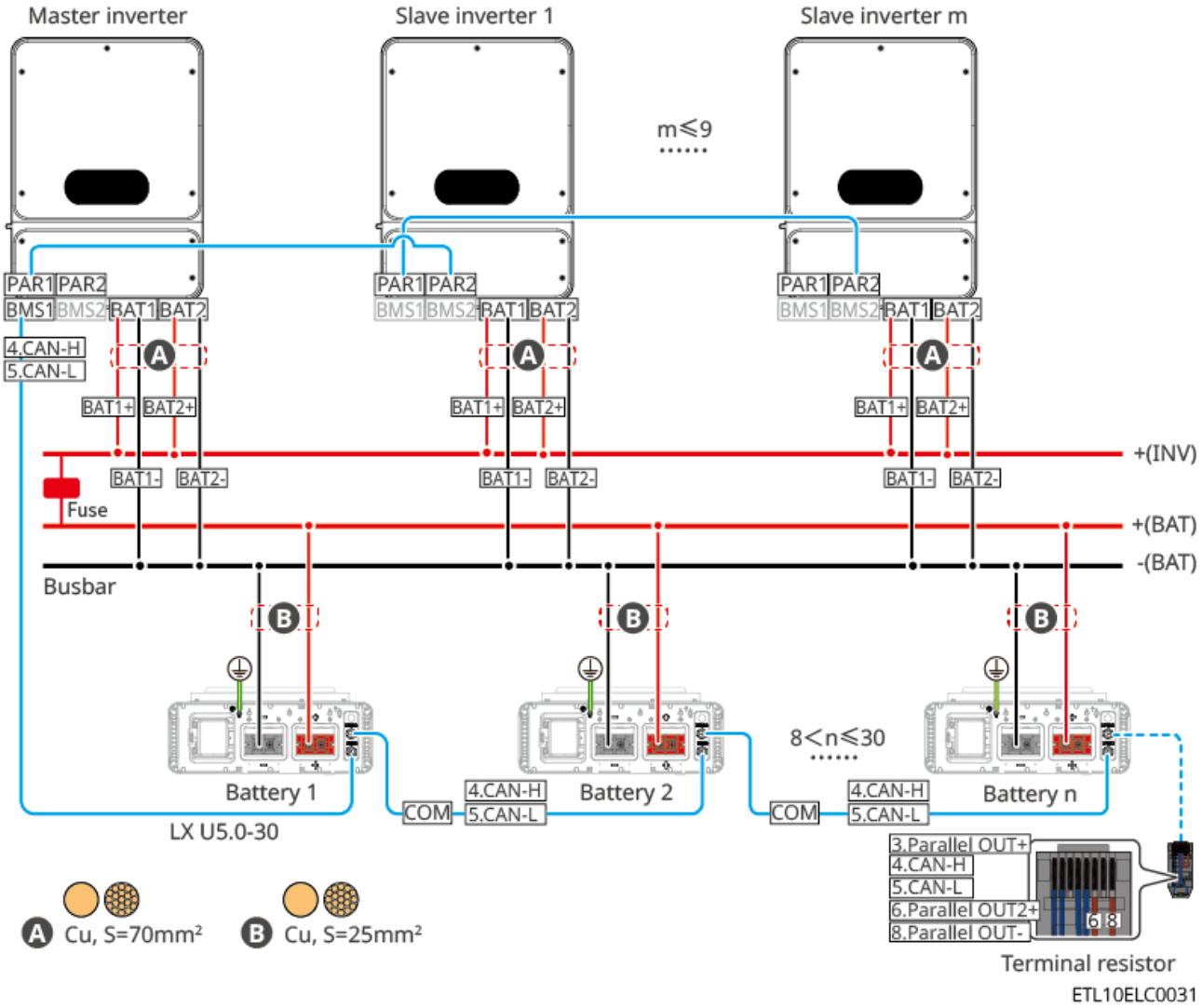


LX U5.0-30: When the number of Battery is ≤8, Battery adopts a third-party busbar connection method.



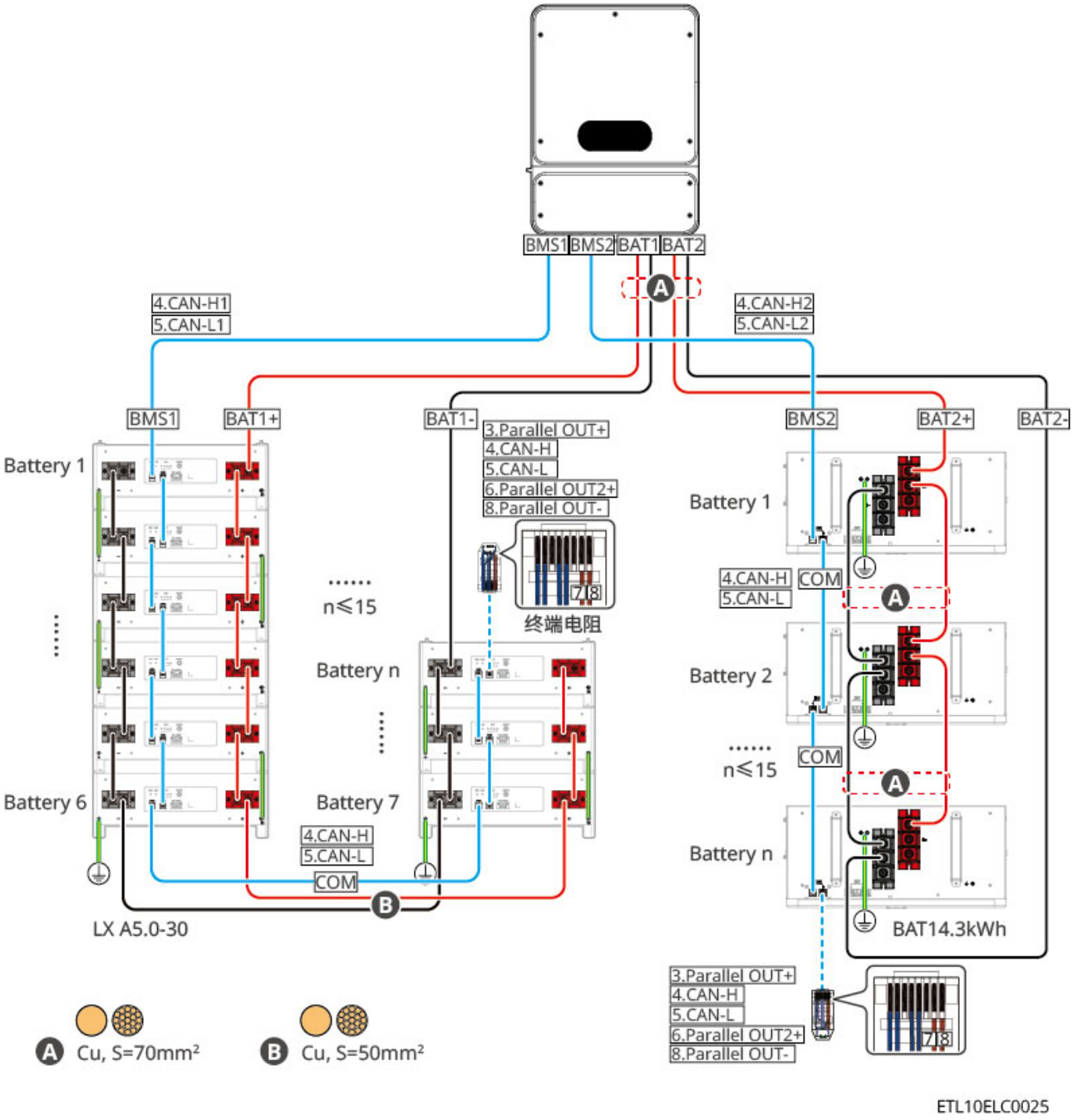
LX U5.0-30: When the number of Battery exceeds 8 units, Battery adopts a third-party busbar connection method.

When the number of Battery n > 8, fuses must be used. Recommended specifications: rated voltage ≥ 80V, rated current ≥ 1.6 times the system rated current, ultimate/operational breaking capacity ≥ 50kA.

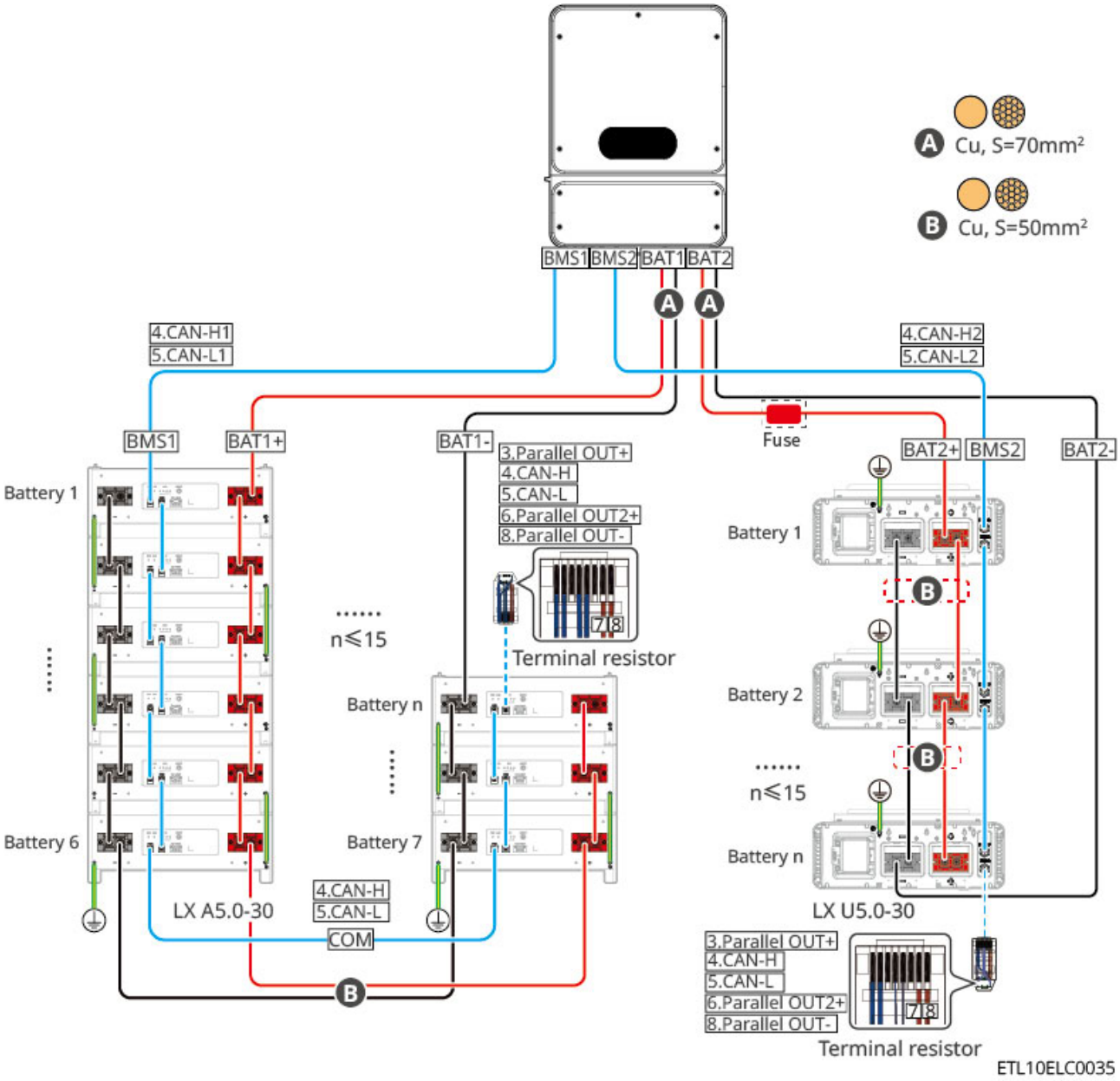


Battery connects to a single 2-channel output Inverter:

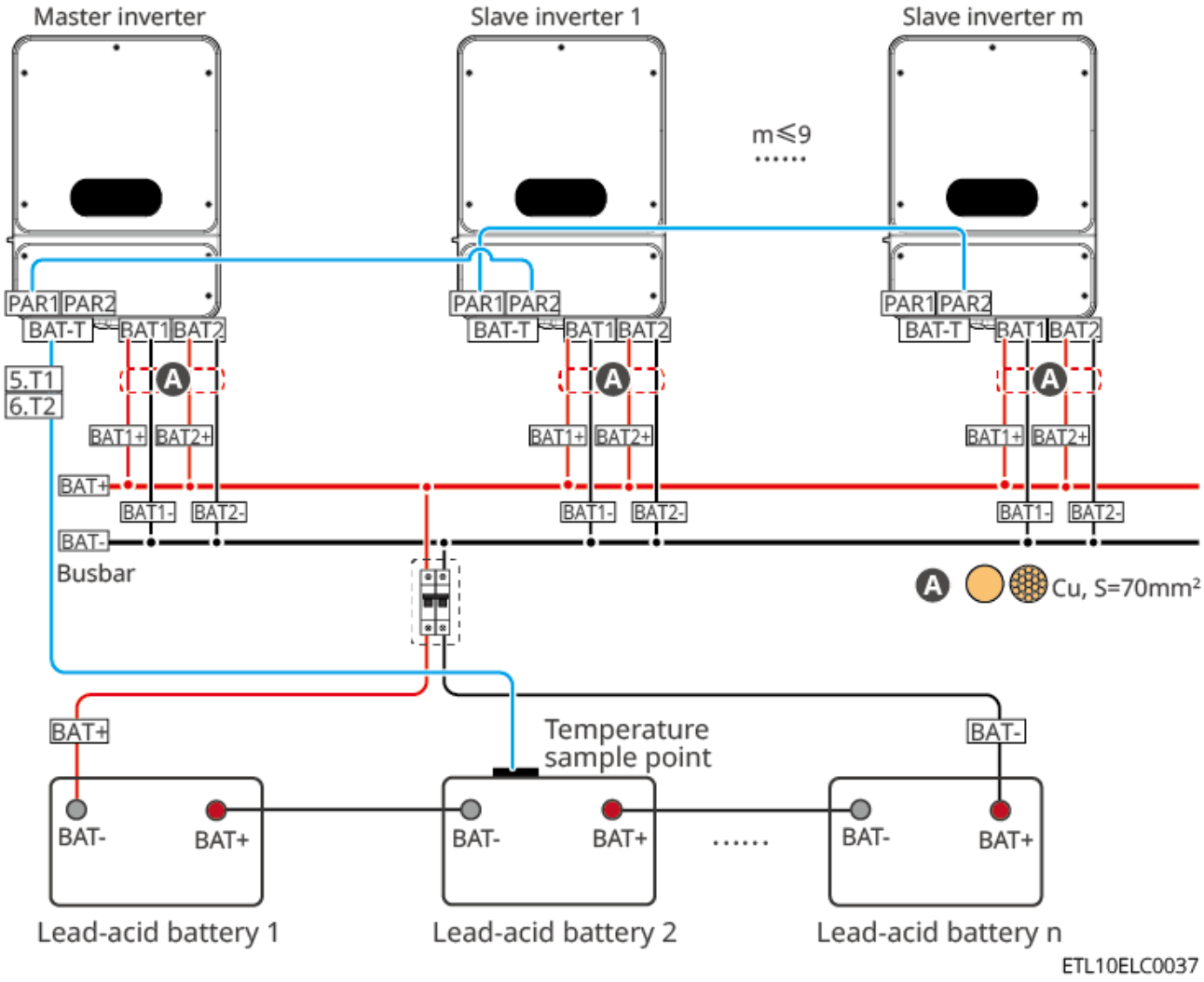
Type 1:


BMS1
BMS2
BAT1
BAT2
A
4.CAN-H1
5.CAN-L1
4.CAN-H2
5.CAN-L2
BMS1
BAT1+
BAT1-
3.Parallel OUT+
4.CAN-H
5.CAN-L
6.Parallel OUT2+
8.Parallel OUT-
BMS2
BAT2+
BAT2-
Battery 1
n≤15
终端电阻
Battery n
Battery 6
Battery 7
4.CAN-H
5.CAN-L
COM
B
LX A5.0-30
Battery 1
4.CAN-H
5.CAN-L
COM
A
Battery 2
n≤15
COM
A
Battery n
BAT14.3kWh
3.Parallel OUT+
4.CAN-H
5.CAN-L
6.Parallel OUT2+
8.Parallel OUT-
A Cu, S=70mm²
B Cu, S=50mm²
ETL10ELC0025

Type II:



Lead-acid Battery with busbar connection method



5.8.1 Connecting the Power Cable between the Inverter and Battery

⚠WARNING

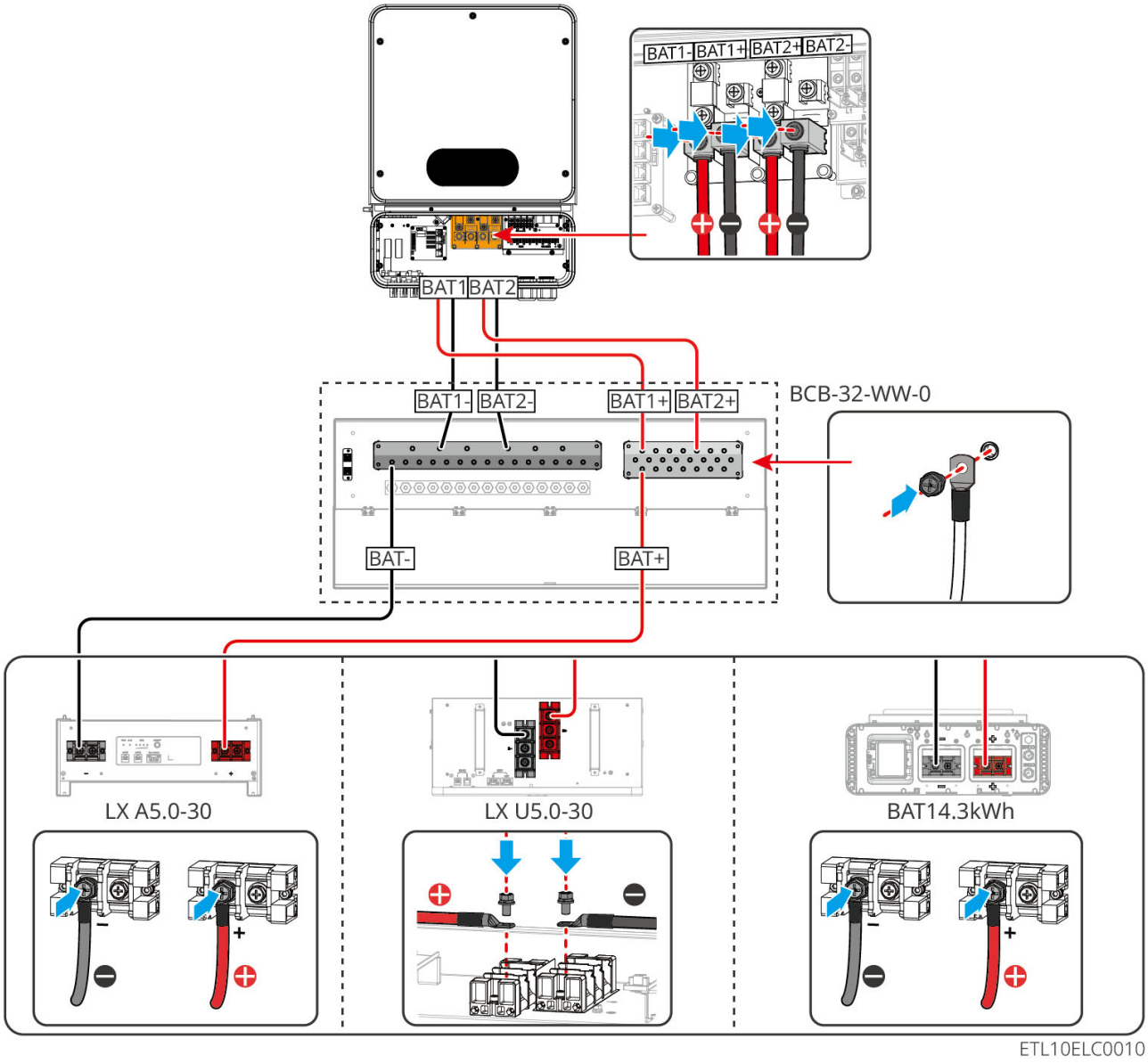
- Use a multimeter to measure the positive and negative terminals of the DC cable, ensuring correct polarity without reverse connection; and verify that the voltage is within the allowable range.
- During wiring, ensure that the Battery wire fully matches the "BAT+", "BAT-", and grounding port terminals of the Battery terminal. Incorrect cable connections may result in equipment damage.
- Ensure the conductor is fully inserted into the terminal terminal hole without any exposure.
- Please ensure the cable connections are securely fastened, otherwise loose connections may cause overheating during equipment operation, leading to device damage.
- Do not connect the same Battery group to multiple Inverters, as this may cause damage to the Inverter.

NOTICE

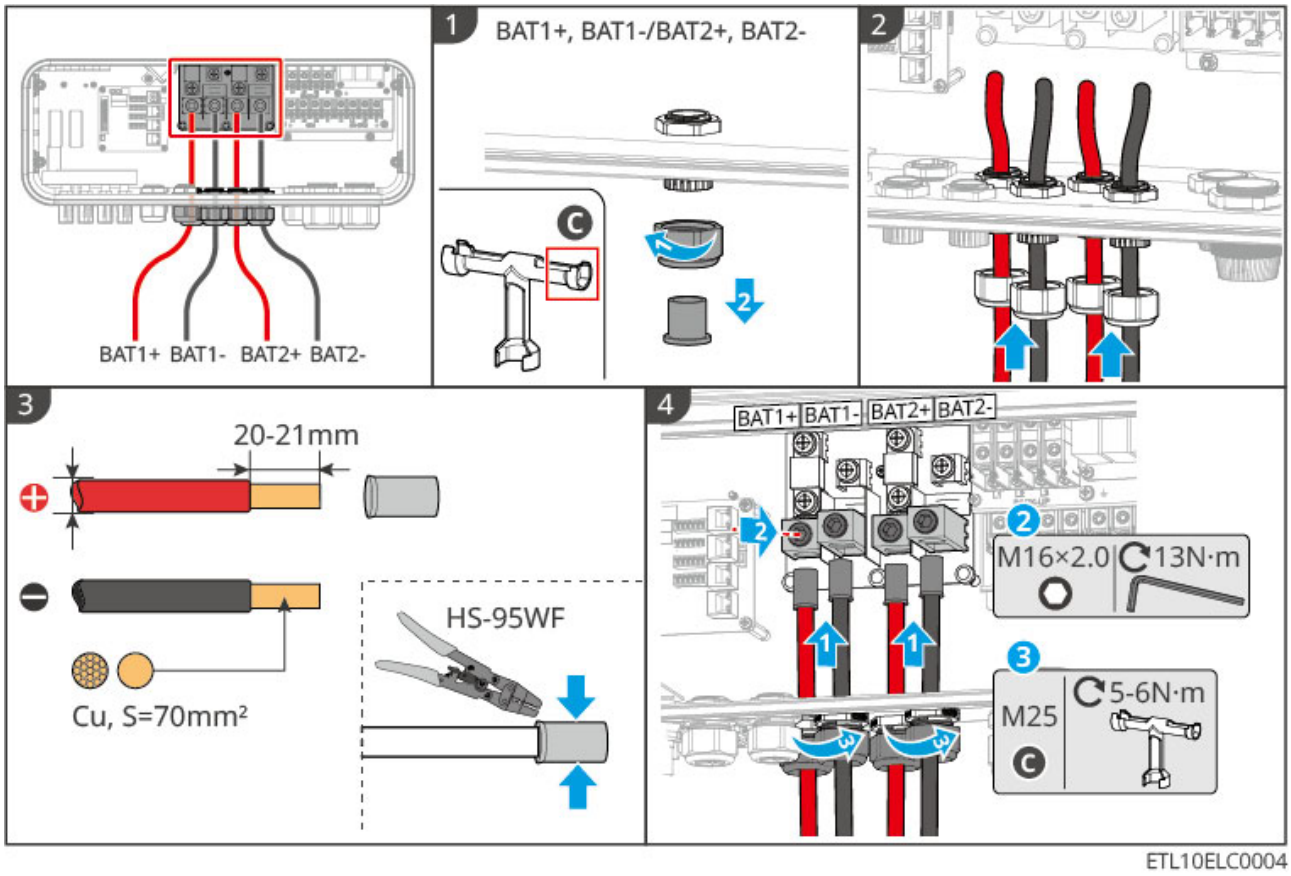
GW14.3-BAT-LV-G10：

- If the Batterypower cable cable is already provided inside the packaging box, please use this cable directly without performing the crimp operation.
- If the Batterypower cable cable is not provided in the packaging box, please follow the steps below to make the cable.

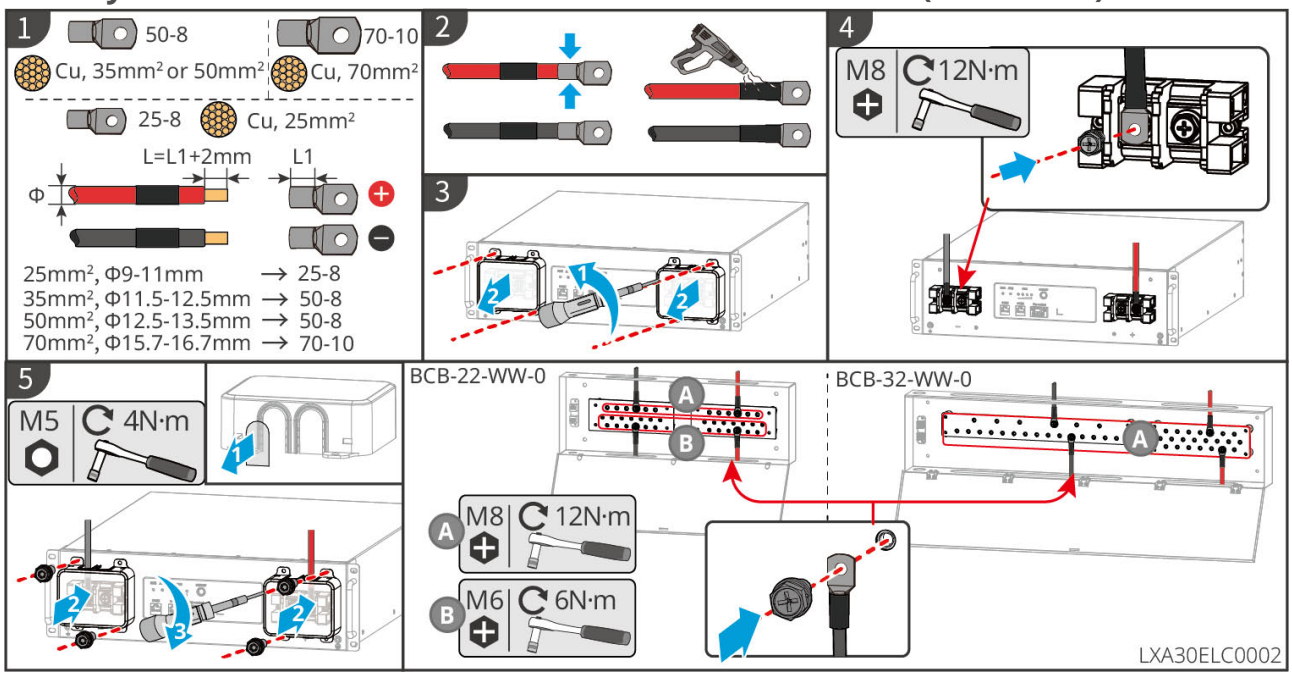
Overview of Inverter and Battery power cable



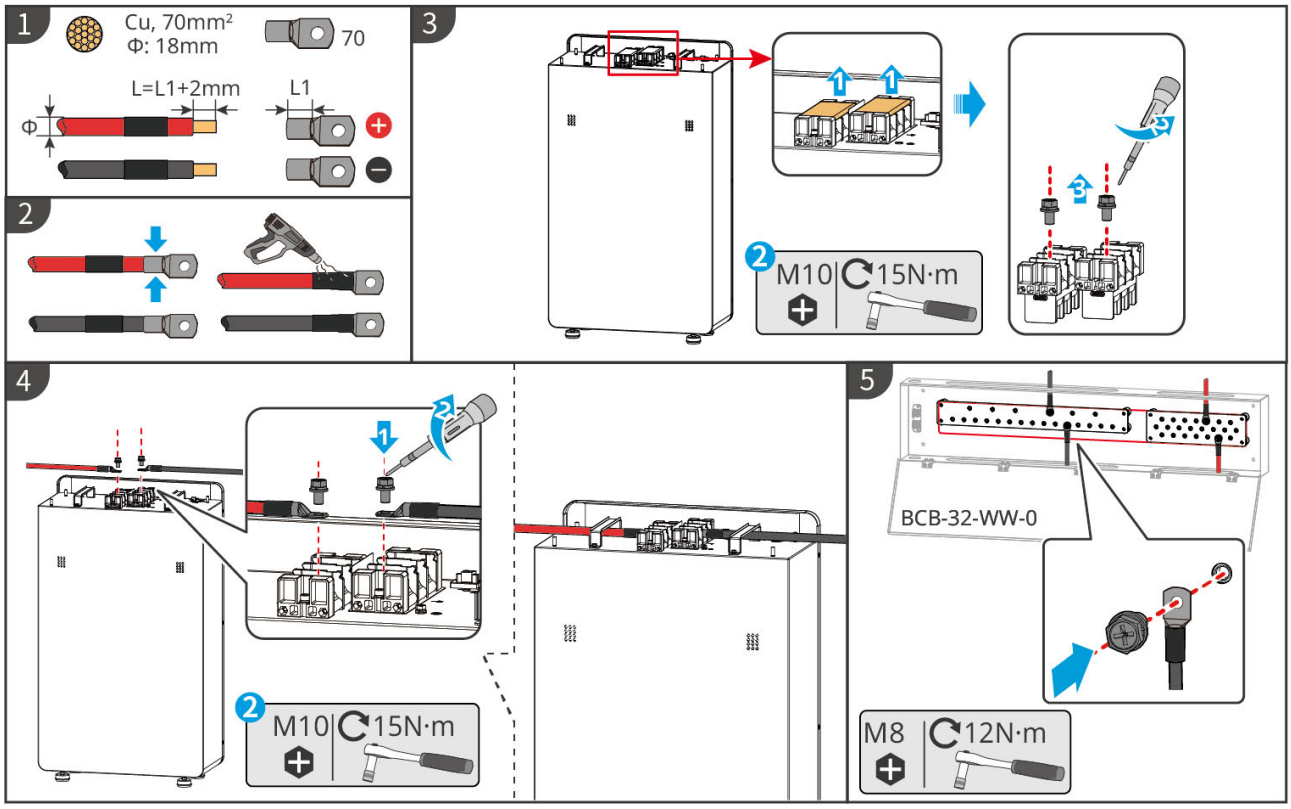
Inverter end cable fabrication



Battery and Combiner Box End Cable Fabrication Method (LX A5.0-30)

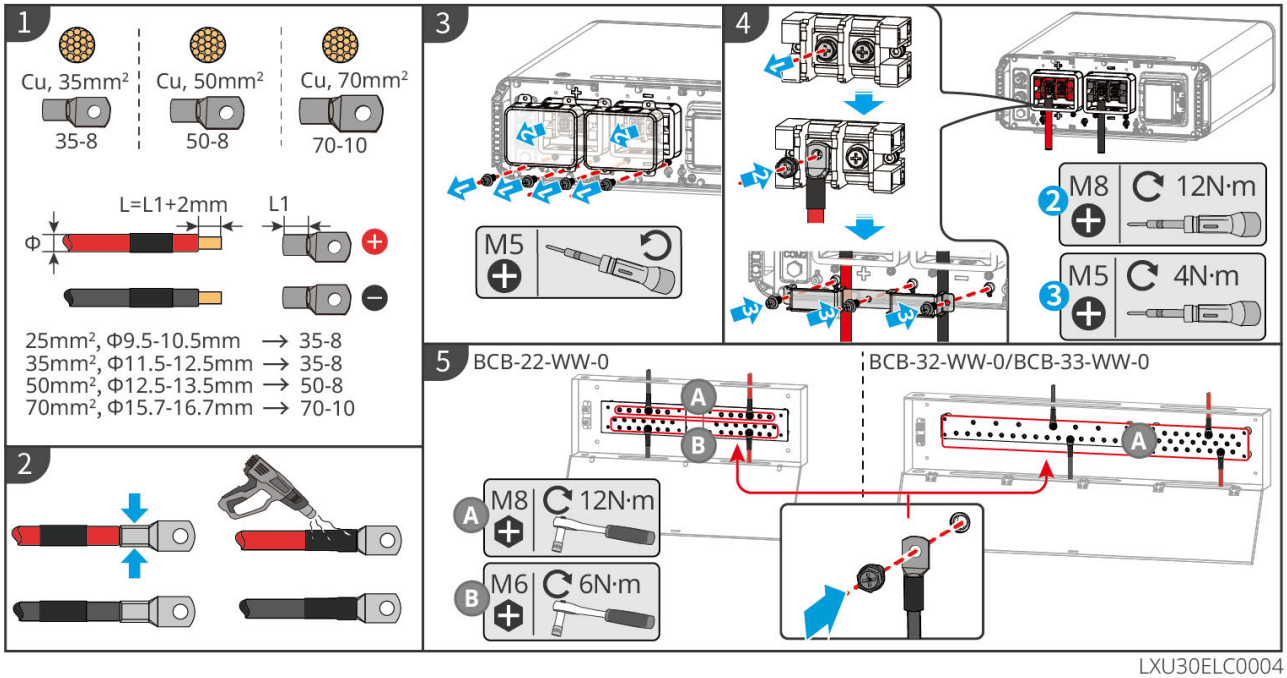


Battery and Combiner Box End Cable Fabrication Method (GW14.3-BAT-LV-G10)



LXA10ELC0015

Battery and Combiner Box End Cable Fabrication Method (LX U5.0-30)



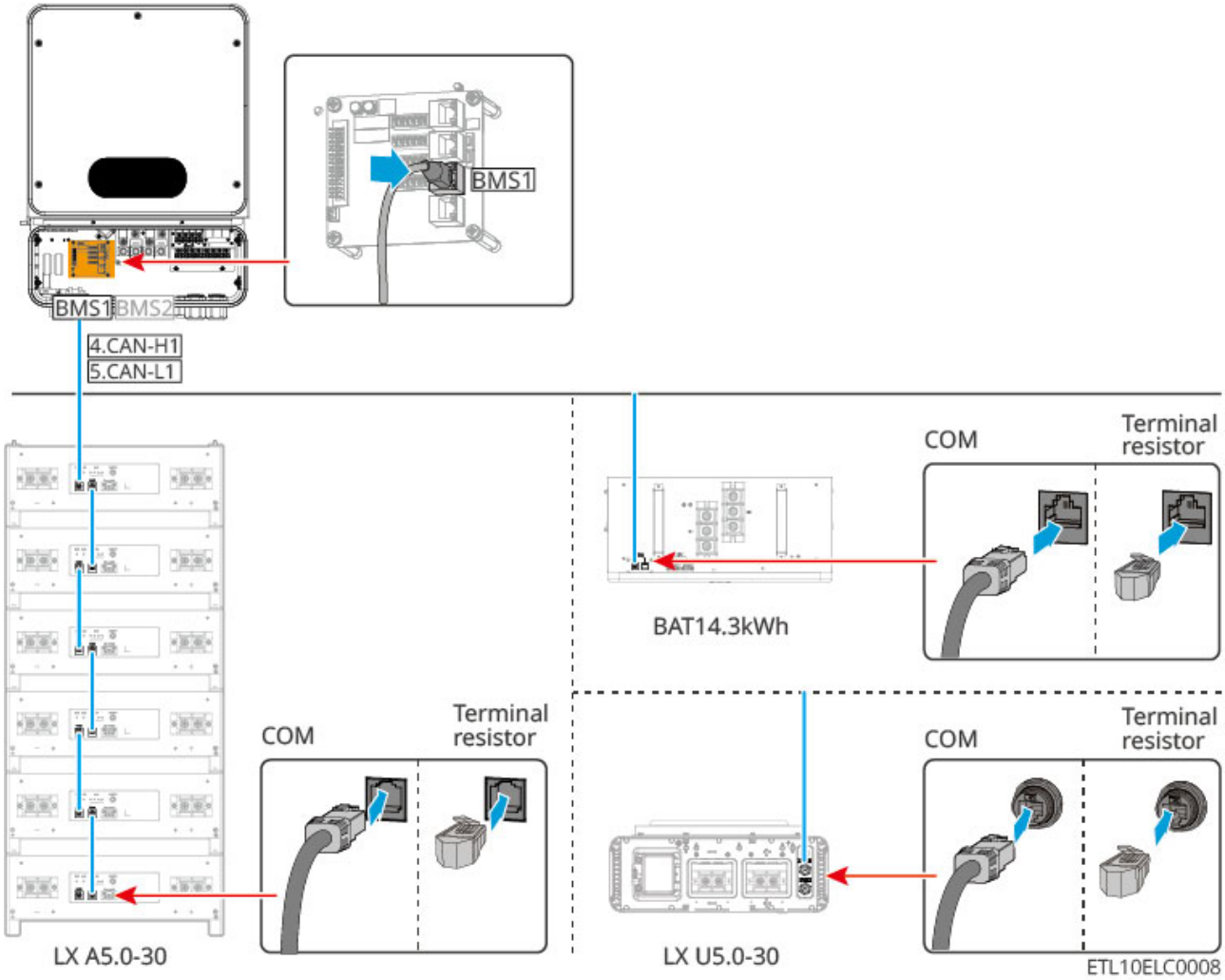
LXU30ELC0004

5.8.2 Connecting the Communication Cable between the Inverter and Battery

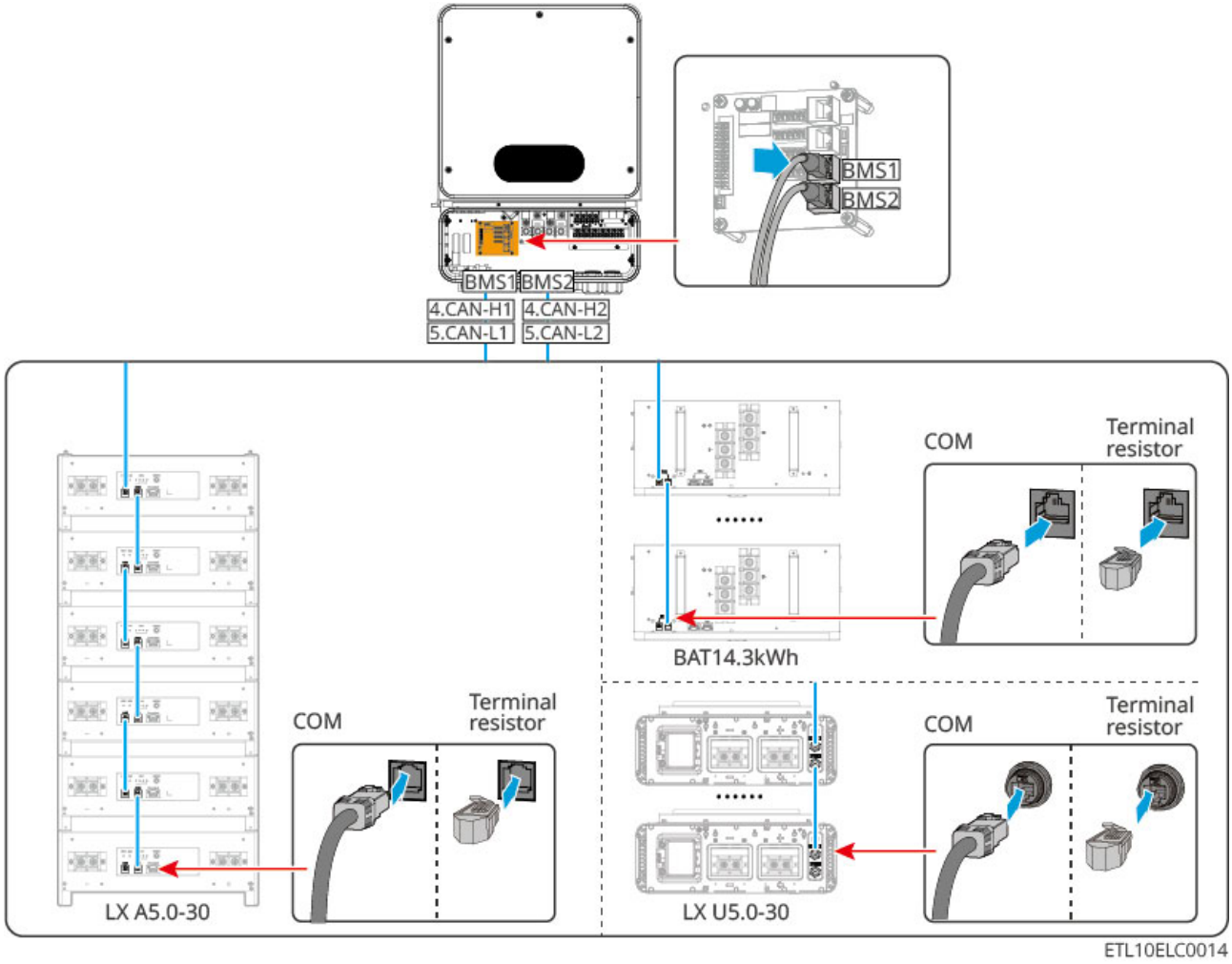
NOTICE

It is recommended to use the included BMS communication cable in the package of the inverter. If the included communication cables do not meet the requirement, prepare shielded network cables and RJ connectors by yourself to make the cable. Only crimp PIN4 and PIN5 of the connector when making the cable, otherwise the communication may fail.

Connection diagram for inverter BMS1 communication:



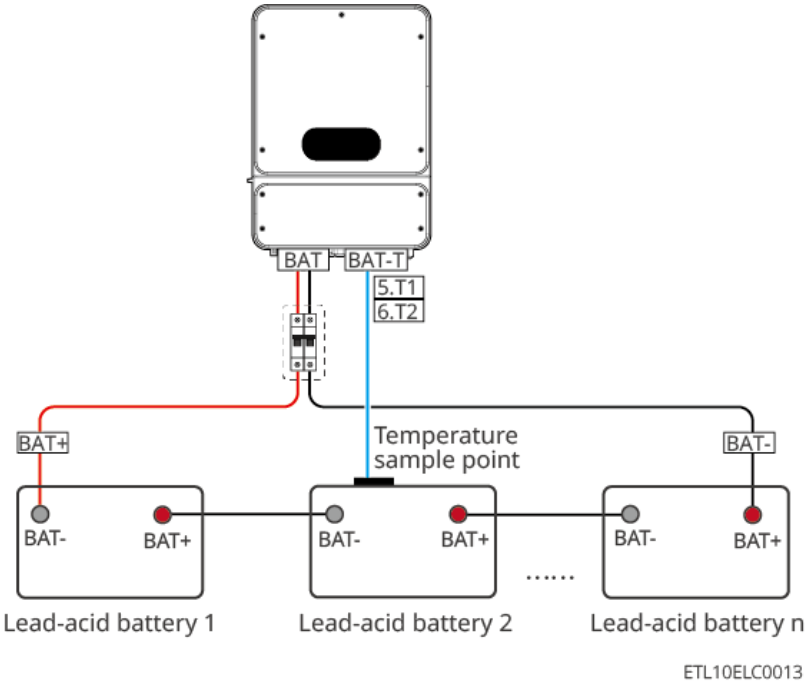
Inverters BMS1 and BMS2 are both connected for communication, as shown in the diagram:



NOTICE

- When connecting the lead-acid battery temperature sensor cable, it is recommended to connect the temperature sensor cable at a location with poor heat dissipation. For example, when lead-acid batteries are placed side by side, the sensor should be fixed on the lead-acid battery located in the middle.
- To better protect the battery cell, a temperature sampling cable must be installed, and it is recommended to place the battery in a well-ventilated environment.

Lead-acid battery communication diagram:

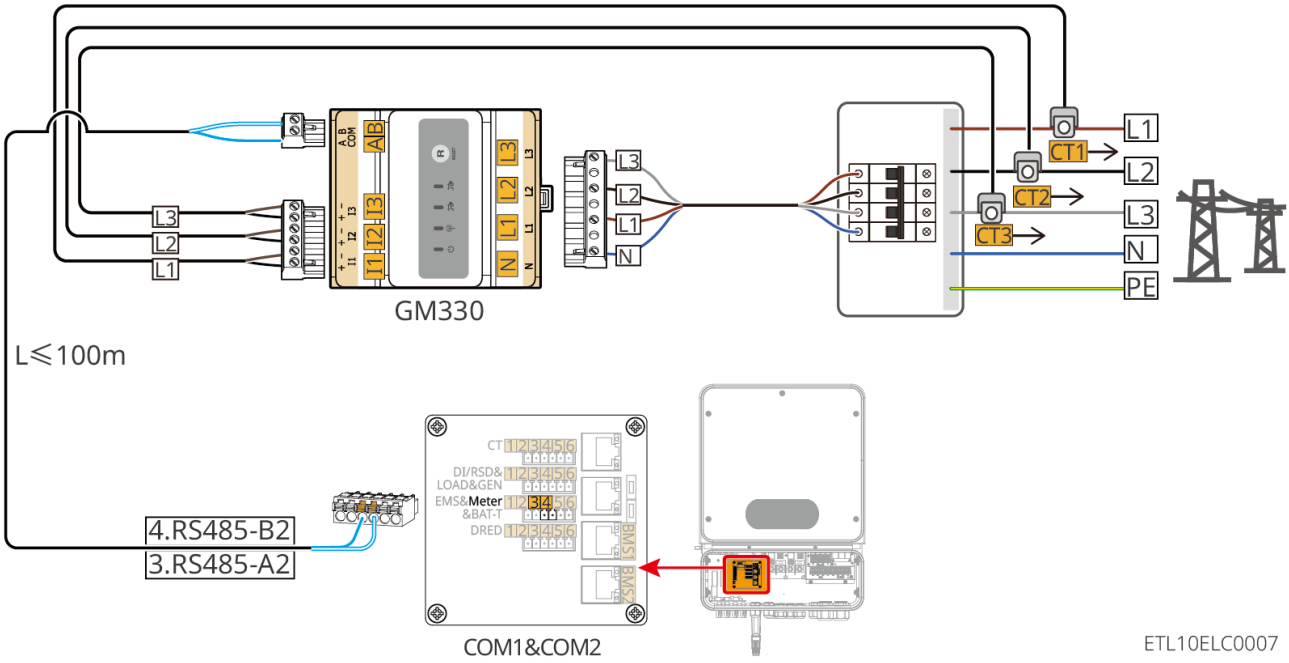


5.9 Connecting the Meter Cable

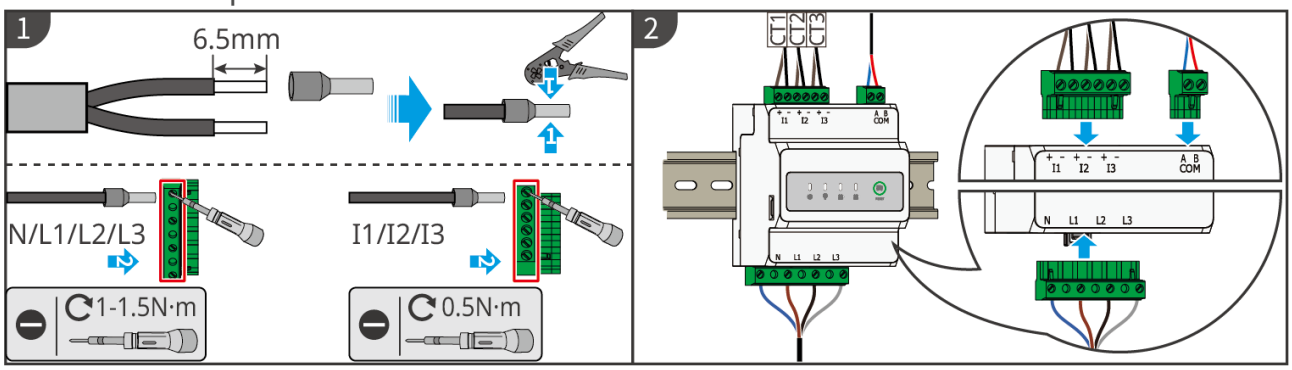
NOTICE

- Ensure that the CT is connected in the correct direction and phase sequences, otherwise the monitoring data will be incorrect.
- Ensure all cables are connected correctly, tightly, and securely. Inappropriate wiring may cause poor contacts and damage the equipment.
- In areas at risk of lightning, if the meter cable exceeds 10m and the cables are not wired with grounded metal conduits, you are recommended to use an external lightning protection device.
- Outer diameter of the AC cable should be smaller than the holes diameter of the CT, so that the AC cable can be threaded through the CT.
- To ensure accurate current detection, the CT cable is recommended to be shorter than 30m.
- Do not use network cable as the CT cable, otherwise the smart meter may be damaged due to high current.
- The CTs vary slightly in dimensions and appearance among different models, but they are installed and connected in the same way.

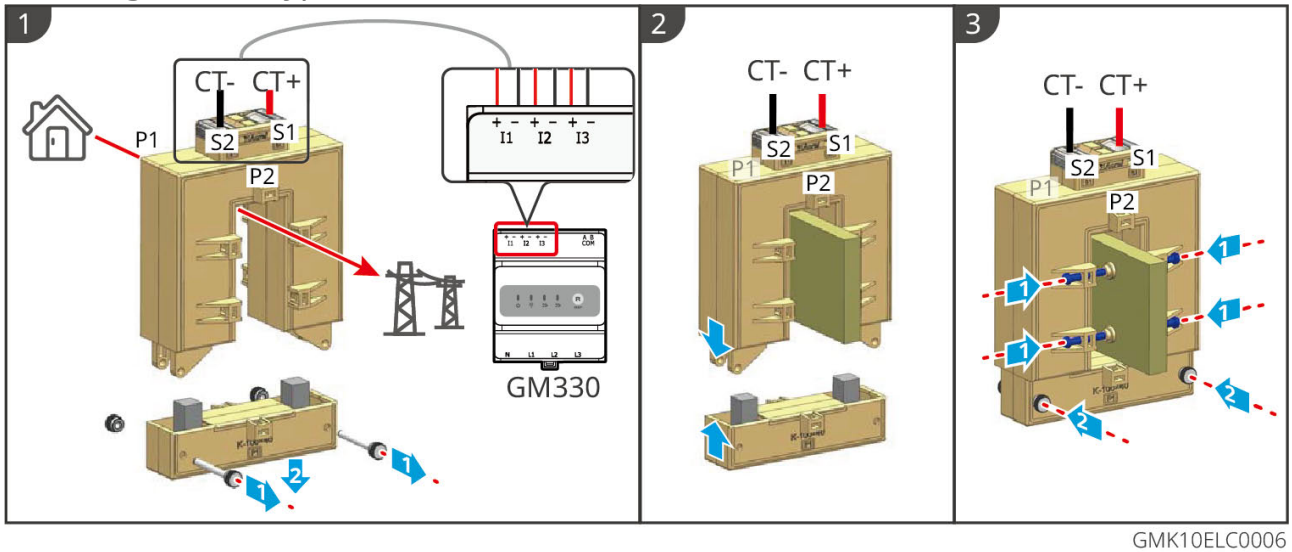
Wiring of GMK110



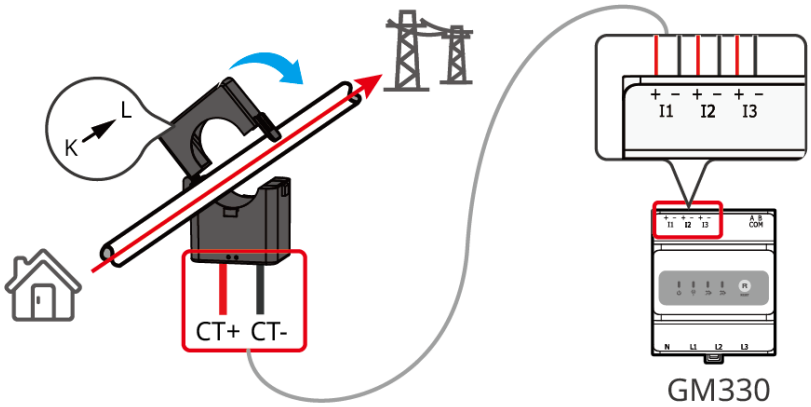
Connection steps



Installing the CT (Type I)



Installing the CT (Type II)



GMK10ELC0007

5.10 Connecting the Inverter Communication Cable

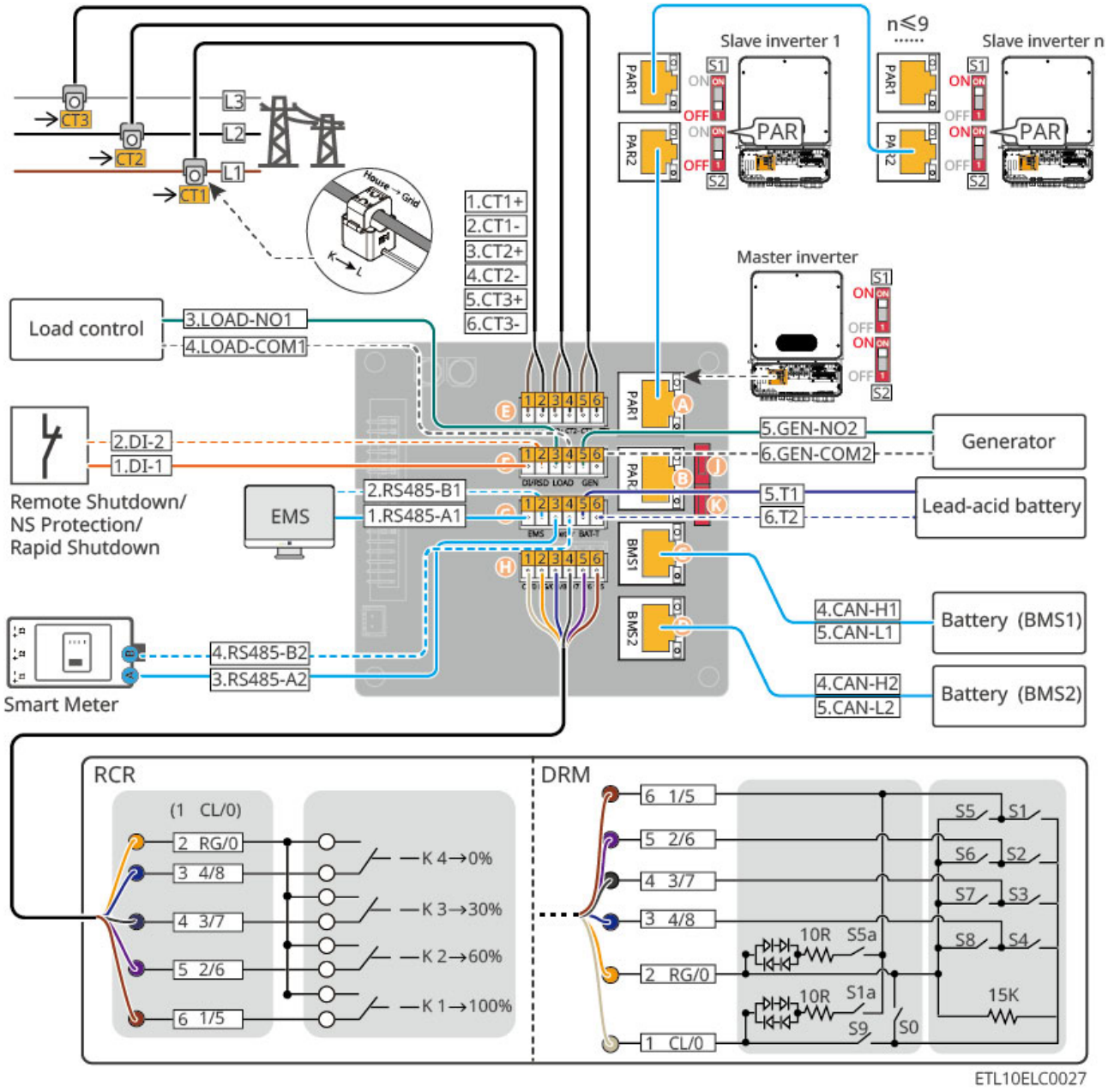
NOTICE

- To ensure the meter and CT can function normally, please ensure the following:
  - Ensure the CT is connected matching the phase line: CT1 to L1, CT2 to L2, CT3 to L3.
  - Connect the CT according to the direction indicated on the meter. If reversed, it may cause a CT reverse fault.
  - When replacing or maintaining the CT later, use the "Meter/CT Auxiliary Detection" function on the SolarGo APP to allow the Inverter to readapt to the CT sampling current direction.
- When using the built-in meter, please use the CT shipped with the box.
- If the Inverter is not connected to a DRED device or remote shutdown device, do not enable this function in the SolarGo APP, otherwise the Inverter will not be able to connect to the grid.
- In a parallel system, to implement DRED or RCR functions, only connect the DRED/RCR communication cable to the master Inverter.
- To maintain the Inverter's waterproof rating, do not remove the waterproof plugs from unused communication ports on the Inverter.
- Dry contact signal specifications for the Inverter's DO signal communication port: Max≤24Vdc, 1A.
- The Inverter's communication functions are optional; please select according to the actual usage scenario.
- The Inverter supports connecting via 4G, Bluetooth, WiFi, or LAN to a mobile phone or WEB interface to set device parameters, view device operation

NOTICE

information and error messages, and stay informed of system status.

- In a single-unit system, installation of a WiFi/LAN Kit-20 or 4G Kit-CN-G20 smart communication stick is supported.
- In a parallel system, both master and slave Inverters need to install the WiFi/LAN Kit-20 smart communication stick for networking.
- When using the 4G Kit-CN-G20:
  - If parallel system networking is required, please contact GoodWe to purchase the WiFi/LAN Kit-20.
  - In China, a standard Micro-SIM card is included, with China Mobile as the carrier. Please confirm the device is installed in an area with carrier signal coverage. If local China Mobile signal is not covered, contact the carrier to optimize the signal.
  - Supports connection to third-party monitoring platforms via the MQTT communication protocol.
- The 4G Kit-CN-G20 is an LTE single-antenna device, suitable for application scenarios with lower requirements for data transmission rates.



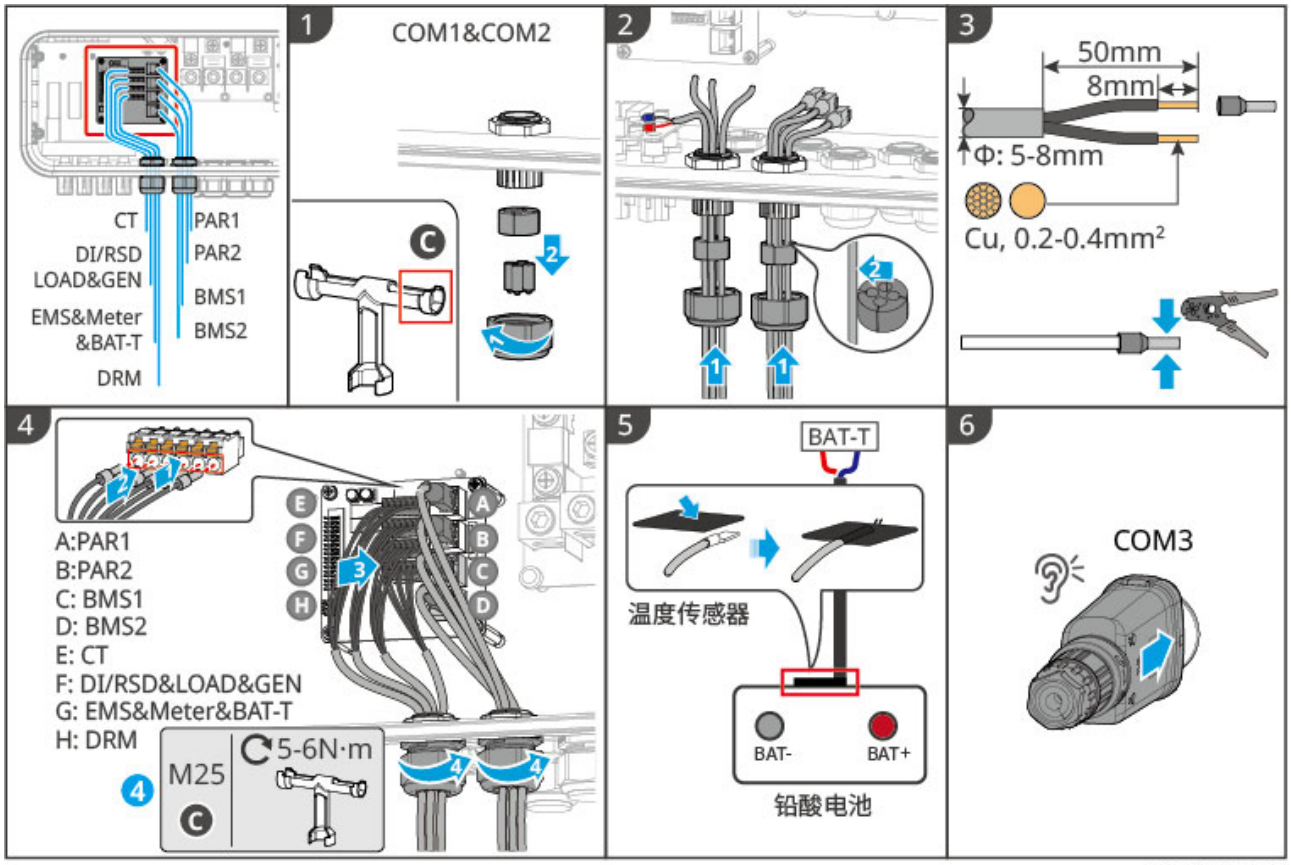
Communication Function Description B

Port (Silkscreen)		Function	Description
A	PAR1	Parallel Communication Port 1	Parallel communication port. Please use CAT 5E or higher standard network cable and RJ45 connector.

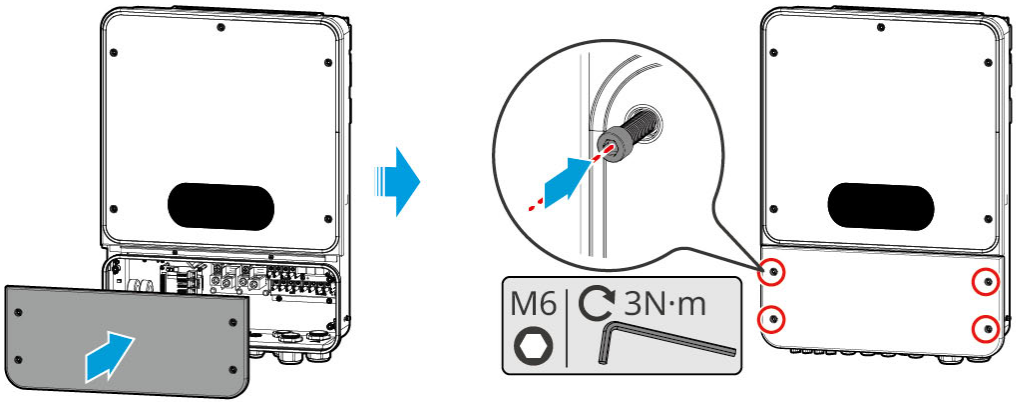
Port (Silkscreen)		Function	Description
B	PAR2	Parallel Communication Port 2	
C	BMS 1	Battery BMS Communication	When connecting lithium-ion batteries, used to connect the battery system BMS communication line, supports using CAN signal communication.
D	BMS 2		
E	CT	CT Connection Port	CT communication cable needs to be connected only when using the inverter's built-in meter.
F	DI	Remote Shutdown/NS protection/Rapid Shutdown	• External remote shutdown or local NS protection device, default is off. • In a rapid shutdown system, the rapid shutdown transmitter and receiver work together to achieve rapid system shutdown. The receiver maintains component output by receiving signals from the transmitter. The transmitter can be external or built into the inverter. In an emergency, by enabling an external trigger device, the transmitter can be stopped, thereby shutting down the components.
	LOAD	load control	• Supports connecting dry contact signals to achieve load control and other functions. DO contact capacity is 24V DC@1A, NO/COM normally open contacts. • Supports SG Ready heat pump connection, controlling the heat pump via dry contact signals.

Port (Silkscreen)		Function	Description
	GEN	Generator control port	Supports connecting generator control signals to control generator start/stop. Generator connection is not supported in microgrid scenarios.
G	EMS	EMS	Connect third-party EMS devices for energy control.
	METER	Meter connection port	Use RS485 communication to connect external smart meters.
	BAT-T	Lead-acid temperature sampling port	Used to connect temperature sensing lines for lead-acid temperature measurement.
H	DRED	RCR or DRED function connection port	• RCR (Ripple Control Receiver): Provides RCR signal control port to meet European grid dispatch requirements. • DRED (Demand Response Enabling Device): Provides DRED signal control port to meet certification requirements in regions like Australia.
J	SW1	Parallel DIP Switch	In multi-unit parallel scenarios, set the parallel DIP switches of the first and last inverters to ON, and other inverters to OFF.
K	SW2		

Method for Connecting Communication Cable

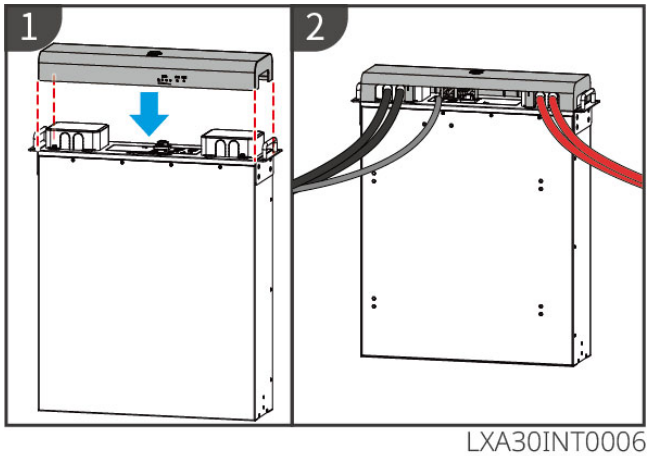


5.11 Installing Inverter Box Bottom Cover

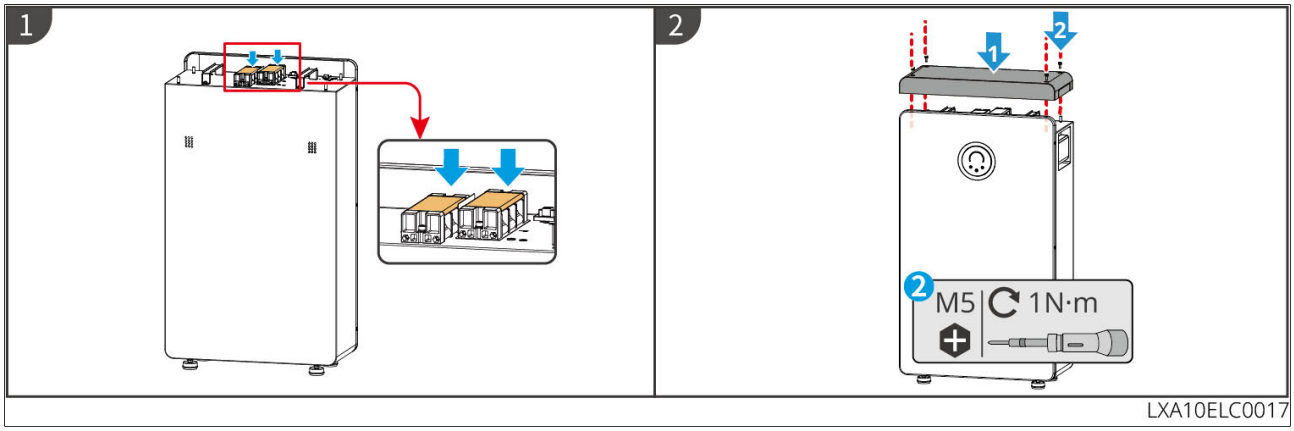


5.12 Installing the Battery Cover

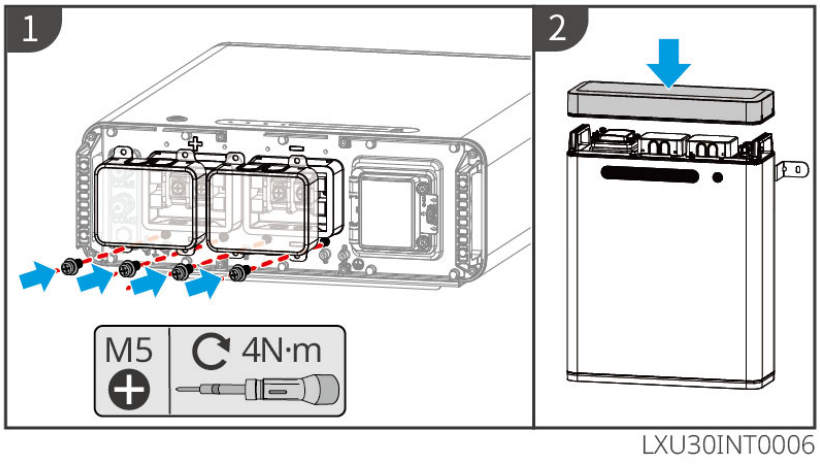
5.12.1 LX A5.0-30



5.12.2 GW14.3-BAT-LV-G10



5.12.3 LX U5.0-30



6 System Commissioning

6.1 Check Before Power ON

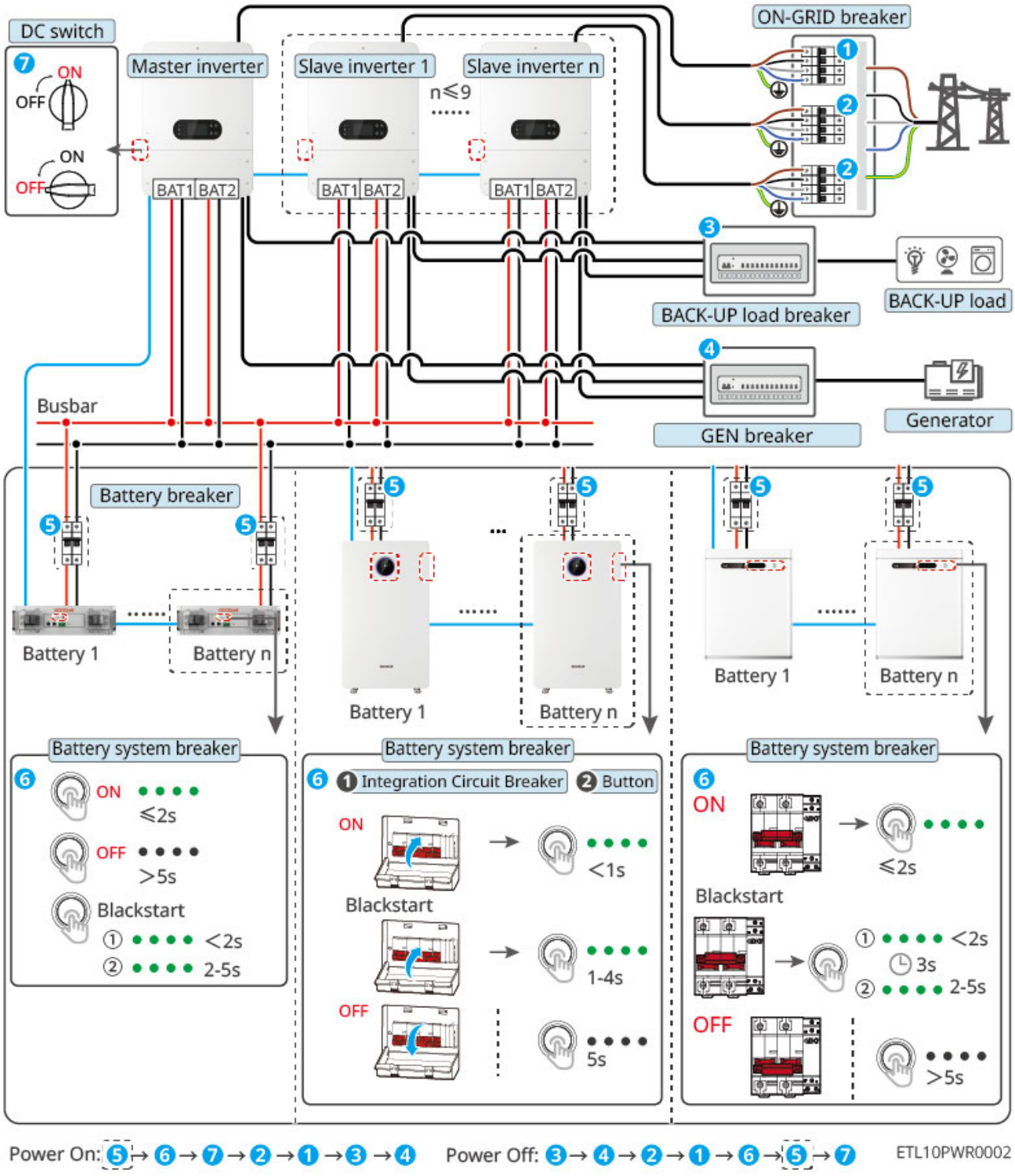
No.	Inspection items
1	The equipment is firmly installed, easy to operate and maintain, with sufficient space for ventilation and heat dissipation, and the environment is clean and tidy.
2	DC line, AC line, Communication cable, and Terminal resistor are correctly and securely connected.
3	The cable ties meet the wiring requirements, are reasonably distributed, and show no signs of damage.
4	Unused through-holes and port should be reliably connected using the provided terminal accessories and properly sealed.
5	Ensure that all used cable pass-through holes are properly sealed.
6	The Inverter and Frequency of the on-grid access point comply with the on-grid requirements.

6.2 Power ON

⚠WARNING

- Battery black start function: When there is no PV power generation in the photovoltaic system and the grid is abnormal, if the inverter cannot work normally, the battery black start function can be used to force the battery to discharge and start the inverter. The inverter can enter off-grid mode operation, and the battery supplies power to the load.
- After the battery system is started, please ensure that the communication between the inverter and the battery system is normal within 15 minutes. If the inverter and the battery system cannot communicate normally, the battery system switch will automatically disconnect, and the battery system will be powered off.
- When multiple batteries are connected in parallel in the system, starting any one battery can start all batteries.
  - GW14.3-BAT-LV-G10: After the battery is powered off and then powered on again, it is necessary to restart each battery one by one or wait for 15 minutes and then start any one battery to start all batteries.

power on



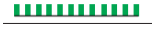
1. (Select according to local regulations) Close the switch between the inverter and the battery.
2. Start the battery system.
   a. GW14.3-BAT-LV-G10, LX U5.0-30: Close the battery system integrated circuit breaker and briefly press the multifunction button for less than 1s.

b. LX A5.0-30: Press the battery system switch for less than or equal to 2s.

3. Close the DC switch of the inverter.
4. (Optional) Close the slave inverter ON-GRID circuit breaker.
5. Close the main inverter ON-GRID circuit breaker.
6. Close the BACK-UP circuit breaker.
7. (Optional) Close the GEN circuit breaker.

6.3 Indicators

6.3.1 Inverter Indicators

Indicator	Status	Description
		The inverter is starting up and in the self-check mode.
		The inverter is powered on and in the standby mode.
		BACK-UP output overload.
		System failure.
		LCD ON: The inverter is powered on and in the standby mode. LCD OFF: The inverter is powered off.
		The grid is abnormal, and the power supply to the BACK-UP port of the inverter is normal.
		The grid is normal, and the power supply to the BACK-UP port of the inverter is normal.
		The BACK-UP port has no power supply.
		The monitoring module of the inverter is resetting.
		The inverter fails to connect with the communication termination.
		Communication fault between the communication termination and server.

Indicator	Status	Description
		The monitoring of the inverter operates well.
		The monitoring module of the inverter has not been started yet.

6.3.2 Battery Indicators

6.3.2.1 LX A5.0-30

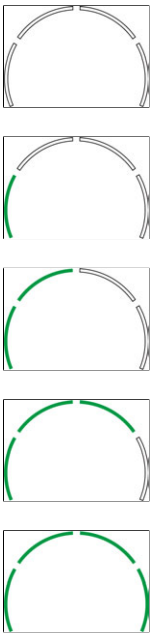
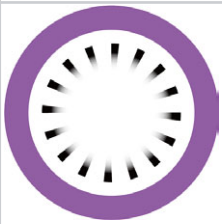
Indicator		System Status
○○○○	No SOC indicator shows green.	SOC=0%
●○○○	The first SOC indicator shows green.	0% < SOC≤25%
●●○○	The first two SOC indicators are green.	0% < SOC≤25%
●●●○	The first three SOC indicators are green.	0% < SOC≤25%
●●●●	All SOC indicators are green.	0% < SOC≤25%
RUN light	Green light is on.	The battery system is working normally.
	Green light flashes 1 time/s.	The battery system is in the standby mode.
	Green light flashes 3 time/s.	The PCS communication is lost.
	Green flashes slowly.	The battery system gives an alarm, and conducts a self-check. After the self-checking is over, it will change to normal working status or fault status.
ALM Light	Red light is on.	Check the SOC indicator status to identify the fault type and handle the problem as recommended in the Troubleshooting section.

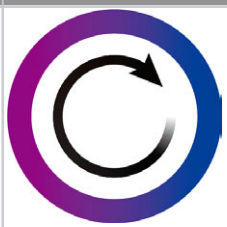
6.3.2.2 LX A5.0-30、LX U5.0-30

indicator		System Status
○○○○	SOCindicator no green display	SOC=0%
●○○○	The first SOCindicator is displayed in green.	0% < SOC≤25%
●●○○	The second SOCindicator is displayed in green.	25% < SOC≤50%
●●●○	The third SOCindicator is displayed in green.	50% < SOC≤75%
●●●●	The fourth SOCindicator displays green.	75% < SOC≤100%
RUN light	Green steady on	Battery system is operating normally
	Green flashing once per second	Battery system is in the Standby state
	Green flashing 3 times/s	PCS communication loss
	slow blinking	After an Battery system alarm occurs, a self-check will be performed. Wait for the self-check to complete, then transition to normal operation or fault status.
ALM light	Red steady on	Determine the type of fault that occurred based on the SOCindicator display format, and handle it according to the recommended methods in the Troubleshooting section.

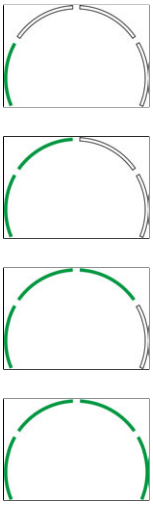
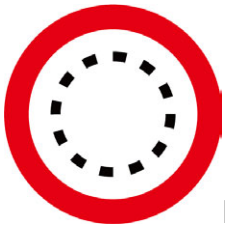
6.3.2.3 GW14.3-BAT-LV-G10

Normal status

Indicator Name	Indicator Status		Corresponding to Other Light Statuses	System Status
SOC Indicator		SOC indicator shows green.	/	SOC=0% 0% < SOC≤25% 0% < SOC≤25% 0% < SOC≤25% 0% < SOC≤25%
		SOC indicator shows green.		The battery system is in discharging status.
Operation Indicator Light + Touch Button		White light is on.	 Blue-purple breathing light	The system is working normally.

Indicator Name	Indicator Status		Corresponding to Other Light Statuses	System Status
		White light flashes.	 Blue-purple marquee	The system is preparing.
Communication Light		White light is on.	/	PCS communication normal

Abnormal status

Indicator name	Indicator status		Corresponding to other light statuses	System Status
SOC Indicator		SOC indicator shows green.	 Red light flashes.  Power Off  Red light is on.	Check the SOC indicator status to identify the fault type and handle the problem as recommended in the Troubleshooting section.
Communication Light		Power Off	/	The PCS communication is lost.

Indicator name	Indicator status		Corresponding to other light statuses	System Status
System Alarm Light		White light is on.	/	System alarms. Undervoltage faults 2, 3, and 4

6.3.3 Smart Meter Indicator

GM330

Type	Status	Description
Power light 	On	Power on, no RS485 communication.
	Blinks.	Power on, RS485 communication works properly.
	Off	The smart meter has been powered off.
Communication indicator 	Off	Reserved
	Blinks.	Press the Reset button for more than 5 seconds, power light, buying or selling electricity indicator light flash: Reset the meter.
Importing or exporting indicator 	On	Importing from the grid.
	Blinks.	Exporting to the grid.
	Off	Do not import from and export to the grid.
	Reserved	

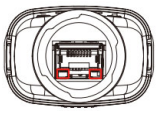
6.3.4 Smart Dongle Indicator

- **WiFi/LAN Kit-20**

NOTICE

- Double-click the Reload button to enable Bluetooth, and the communication indicator will switch to a single-flash state. Please connect to the SolarGo app within 5 minutes, otherwise Bluetooth will automatically turn off.
- Communication indicator The single flash status only occurs after double-clicking the Reload button to enable Bluetooth.

indicator	Status	Instructions
Power LED		Always On: Smart dongle is power on.
		Extinguish: Smart dongle Not power on
communication light		Always On: WiFi mode or LAN mode communication is normal.
		Single flash: Smart dongle Bluetooth signal is on, waiting to connect to SolarGo app.
		Double flash: Smart dongle not connected to Router.
		Four flashes: Smart dongle communicates normally with Router, but fails to connect to Server.
		Six flashes: Smart dongle is identifying connected devices.
		Extinguished: Smart dongle Software reset in progress or not power on.

indicator	color	Status	Instructions
LAN communication indicator 	green	Always On	100Mbps wired network connection is normal.
		Extinguish	• Network cable not connected. • 100Mbps wired network connection anomaly. • 10Mbps wired network connection is normal.

indicator	color	Status	Instructions
	Yellow	Constant On	10/100Mbps wired network connection is normal, with no communication data transmission or reception.
		flicker	Communication data transceiving.
		Extinguish	Network cable not connected.

Button	Description
Reload	Hold for 0.5~3 seconds, Smart dongle will be reset.
	Hold for 6~20 seconds, Smart dongle will restore factory settings.
	Double-click quickly to enable Bluetooth signal (only lasts for 5 minutes).

- **4G Kit-CN-G20**

indicator	Status	Description
		Constant On: Smart dongle has been power on.
		Off: Smart dongle not power on.
		Constant On: Smart dongle is connected to Server, communication is normal.
		Double flash: Smart dongle not connected to the communication base station.
		Four flashes: Smart dongle is connected to the communication base station but not connected to Server.
		Six flashes: Communication between Smart dongle and Inverter is disconnected.
		Extinguished: Smart dongle Software reset in progress or not power on.

button	Description
RELOAD	Hold for 0.5~3 seconds, Smart dongle will restart.
	Hold for 6~20 seconds, Smart dongle will restore factory settings.

7 Rapid System Configuration

7.1 Downloading the App

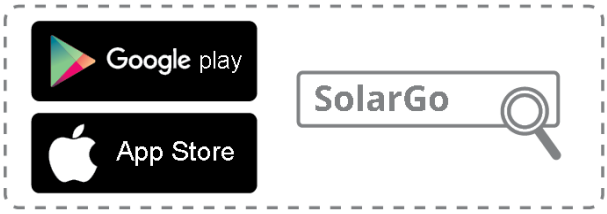
7.1.1 Downloading SolarGo App

Make sure that the mobile phone meets the following requirements:

- Mobile phone operating system: Android 5.0 or later, iOS 13.0 or later.
- The mobile phone can access the Internet.
- The mobile phone supports WLAN or Bluetooth.

NOTICE
Once the SolarGo App has been installed, you will receive automatic notifications when updates are available.

Method 1: Search SolarGo in Google Play (Android) or App Store (iOS) to download and install the app.



SolarGo App

Method 2: Scan the QR code below to download and install the App.

SolarGo App

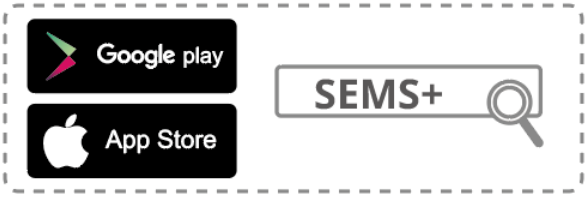
7.1.2 Downloading SEMS+ APP

Make sure that the mobile phone meets the following requirements:

- Mobile phone operating system: Android 6.0 or later, iOS 13.0 or later.
- The mobile phone can access the Internet.

- The mobile phone supports WLAN or Bluetooth.

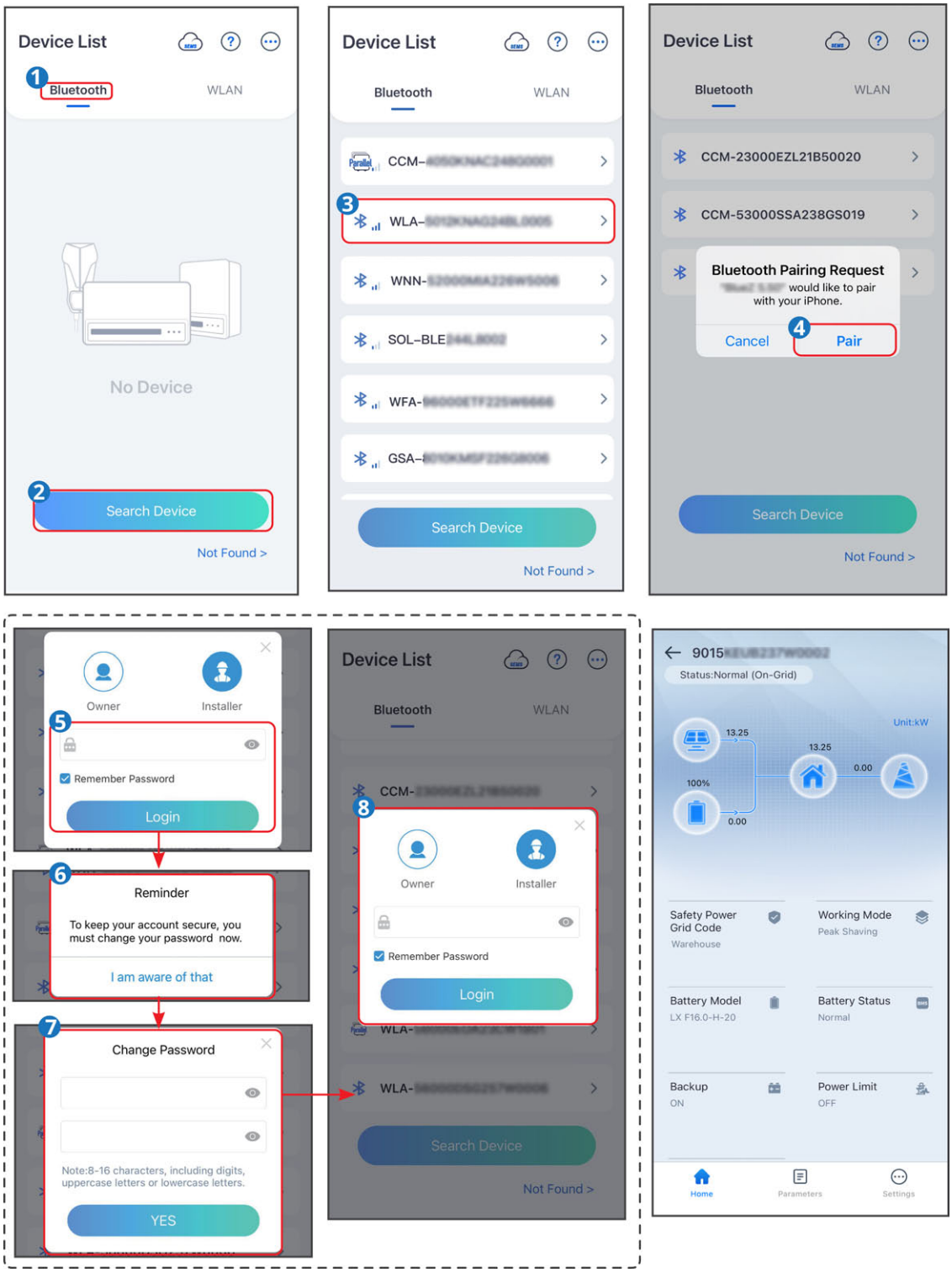
Download Method:
Method 1:
Search SEMS+ in Google Play (Android) or App Store (iOS) to download and install the App.



Method 2:
Scan the QR code below to download and install the App.

7.2 Connecting the Hybrid Inverter (Bluetooth)

Step 1 Ensure that the inverter is power on, both the inverter and the communication module are working properly.
Step 2 Select **Bluetooth** tab on the SolarGo app hompage.
Step 3 Pull down or tap **Search Device** to refresh the device list. Find the device by the the inverter serial number. Tap the device name to log into the **Home** page. Select the device by checking the serial number of the master inverter when multi inverters are parallel connected.
Step 4 For first connection with the equipment via Bluetooth, there will be a Bluetooth pairing prompt, tap **Pair** to continue the connection.
Step 5 Log in as an Owner or an Installer. Initial password: 1234. Default password: 1234.
Step 6 (Optional): If connecting via WLA-*** or WFA-***, enable Bluetooth Stays On following the prompts as entering the device details page. Otherwise, the bluetooth signal of the device will be off after disconnection.



7.3 Setting Communication Parameters

NOTICE
The communication configuration interface may be different if the inverter uses different communication modes or connects different communication modules. Please refer to the actual interface.

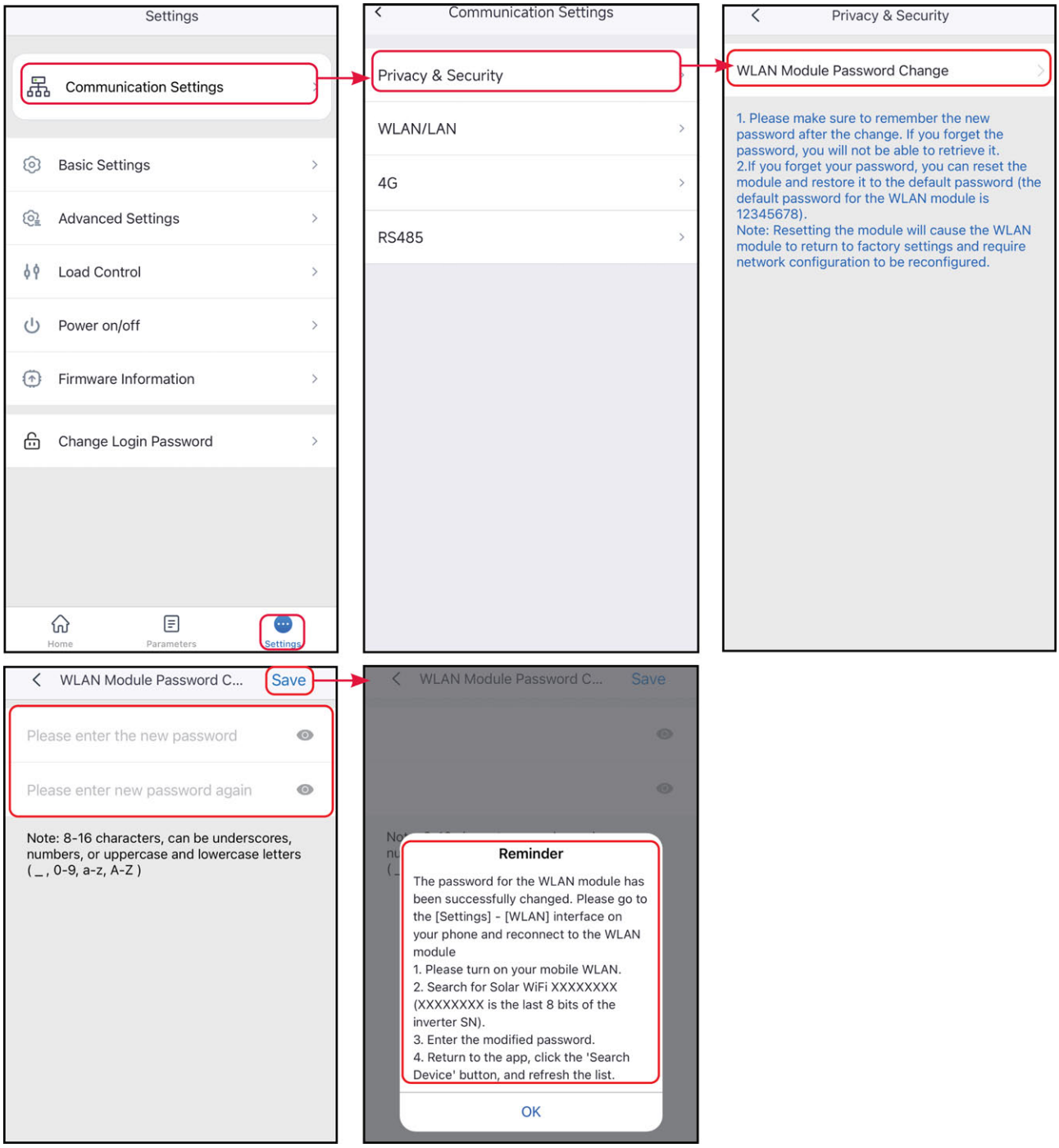
7.3.1 Setting Privacy and Security Parameters

Type I

Step 1 : Tap **Home > Settings > Communication Setting > Privacy & Security** to set the parameters.

Step 2 : Set the new password for the WiFi hotspot of the communication module, and tap **Save**.

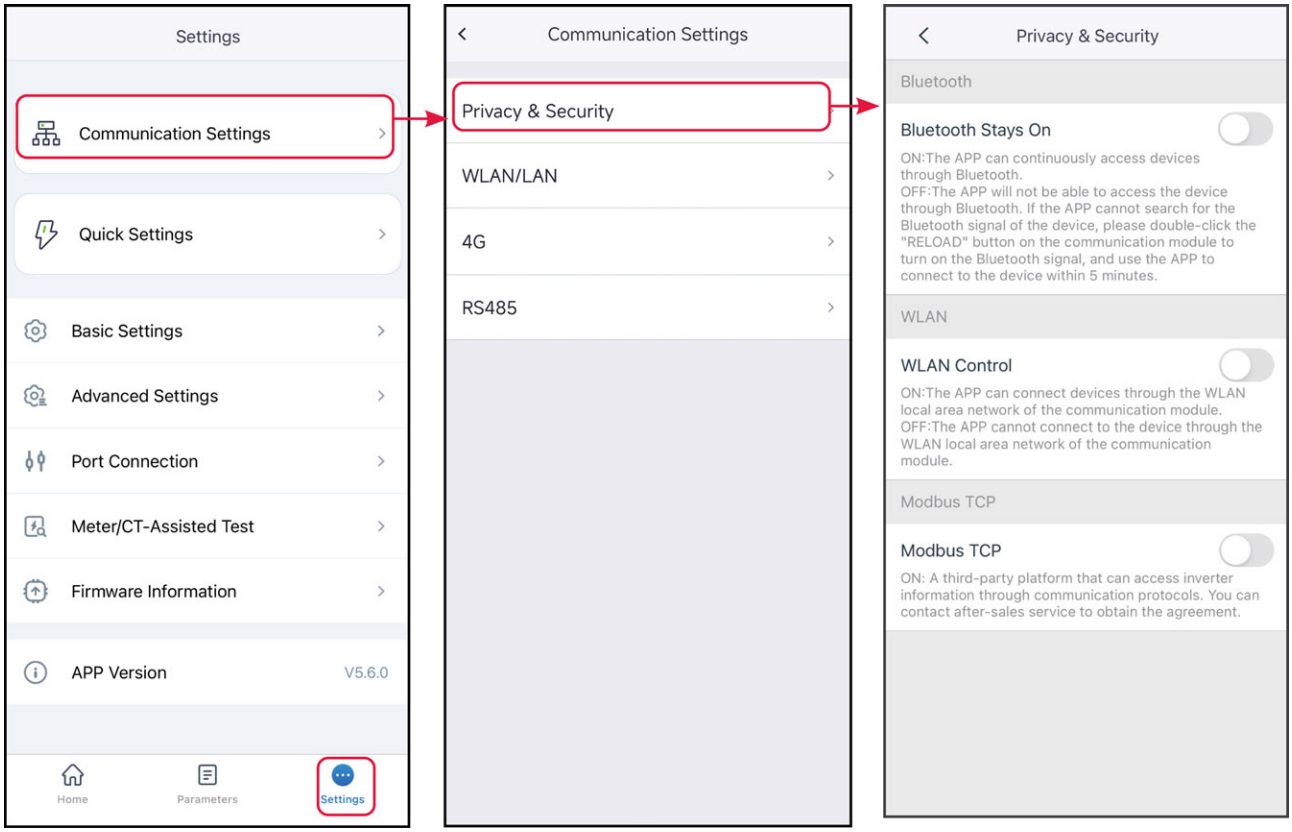
Step 3 Open the WiFi settings of your phone and connect to the inverter's WiFi signal (Solar WiFi***) with the new password.



Type II

Step 1 : Tap **Home > Settings > Communication Setting > Privacy & Security** to set the parameters.

Step 2 Enable Bluetooth Stays On or WLAN Control based on actual needs.



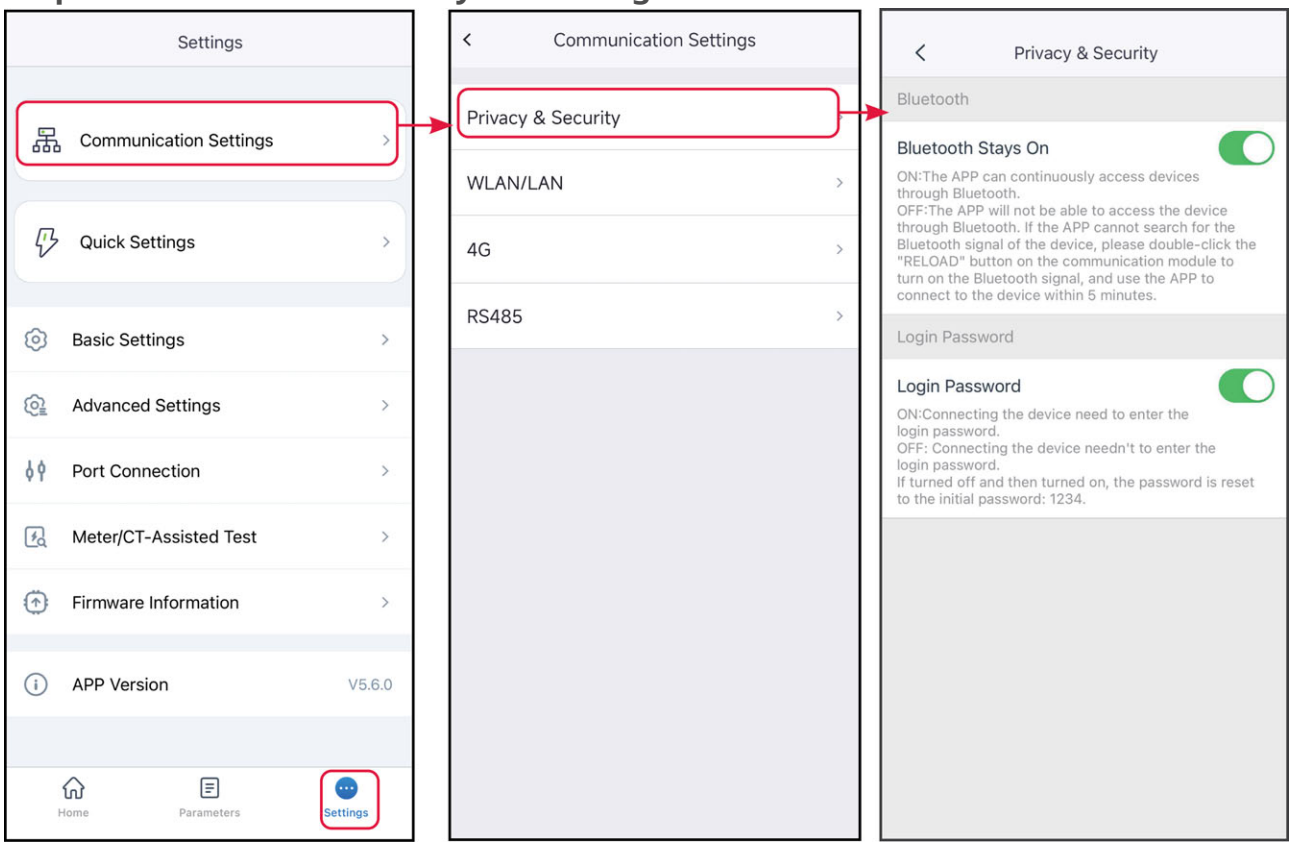
No.	Parameters	Description
1	Bluetooth Stays On	Disabled by default. Enable the function, the bluetooth of the device will be contentious on to keep connected to SolarGo. Otherwise, the bluetooth will be off in 5 minutes, and the device will be disconnected from SolarGo.
2	WLAN Control	Disabled by default. Enable the function, the device and the SolarGo can be connected through the WLAN when they are on the same LAN. Otherwise, they cannot be connected even if they are on the same LAN.
3	Modbus-TCP	Enable the function, the third party monitoring platform can access inverter through Modbus-TCP communication protocol.
4	SSH control Ezlink	After enabling this function, third-party platforms can connect to and control EzLink's Linux system.

Type III

Step 1 : Tap **Home > Settings > Communication Setting > Privacy & Security** to set

the parameters.

Step 2 : Enable **Bluetooth Stays On** or **Login Password** based on actual needs.



No.	Parameters	Description
1	Bluetooth Stays On	Disabled by default. Enable the function, the bluetooth of the device will be contentious on to keep connected to SolarGo. Otherwise, the bluetooth will be off in 5 minutes, and the device will be disconnected from SolarGo.
2	Password	Disabled by default. Enable the function, you will be prompted to enter the login password when connecting the device to SolarGo. Use the initial password and change it at the first login prompt.

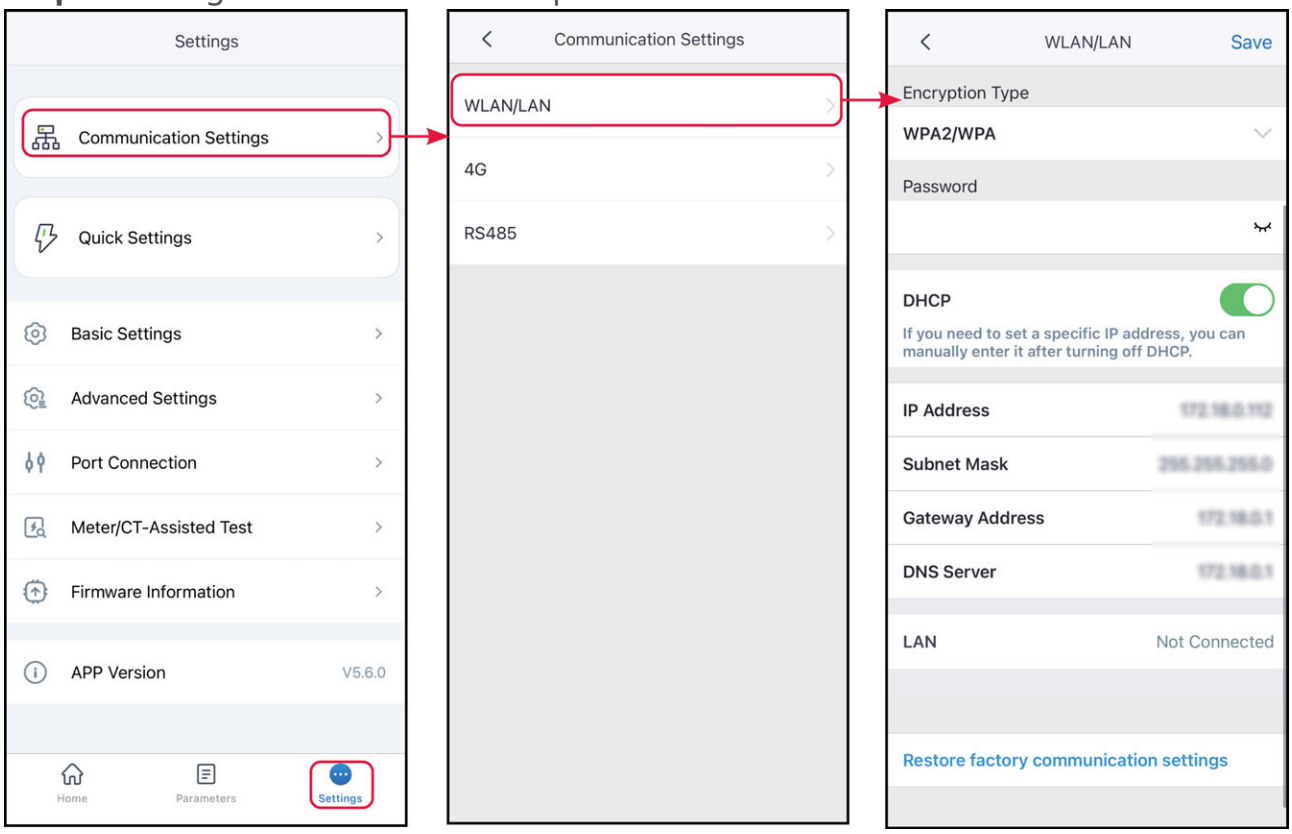
7.3.2 Setting WLAN/LAN Parameters

NOTICE

When the inverter is connected to different communication modules, the communication configuration interface may be different. Please refer to the actual interface.

Step 1 : Tap **Home > Settings > Communication Setting > WLAN/LAN** to set the parameters.

Step 2 : Configure the WLAN or LAN parameters based on actual needs.



No.	Parameters	Description
1	Network Name	Only for WLAN. Select WiFi based on the actual connecting.
2	Password	Only for WLAN. WiFi password for the actual connected network.
3	DHCP	Enable DHCP when the router is in dynamic IP mode. Disable DHCP when a switch is used or the router is in static IP mode.

No.	Parameters	Description
4	IP Address	Do not configure the parameters when DHCP is enabled. Configure the parameters according to the router or switch information when DHCP is disabled.
5	Subnet Mask	
6	Gateway Address	
7	DNS Server	

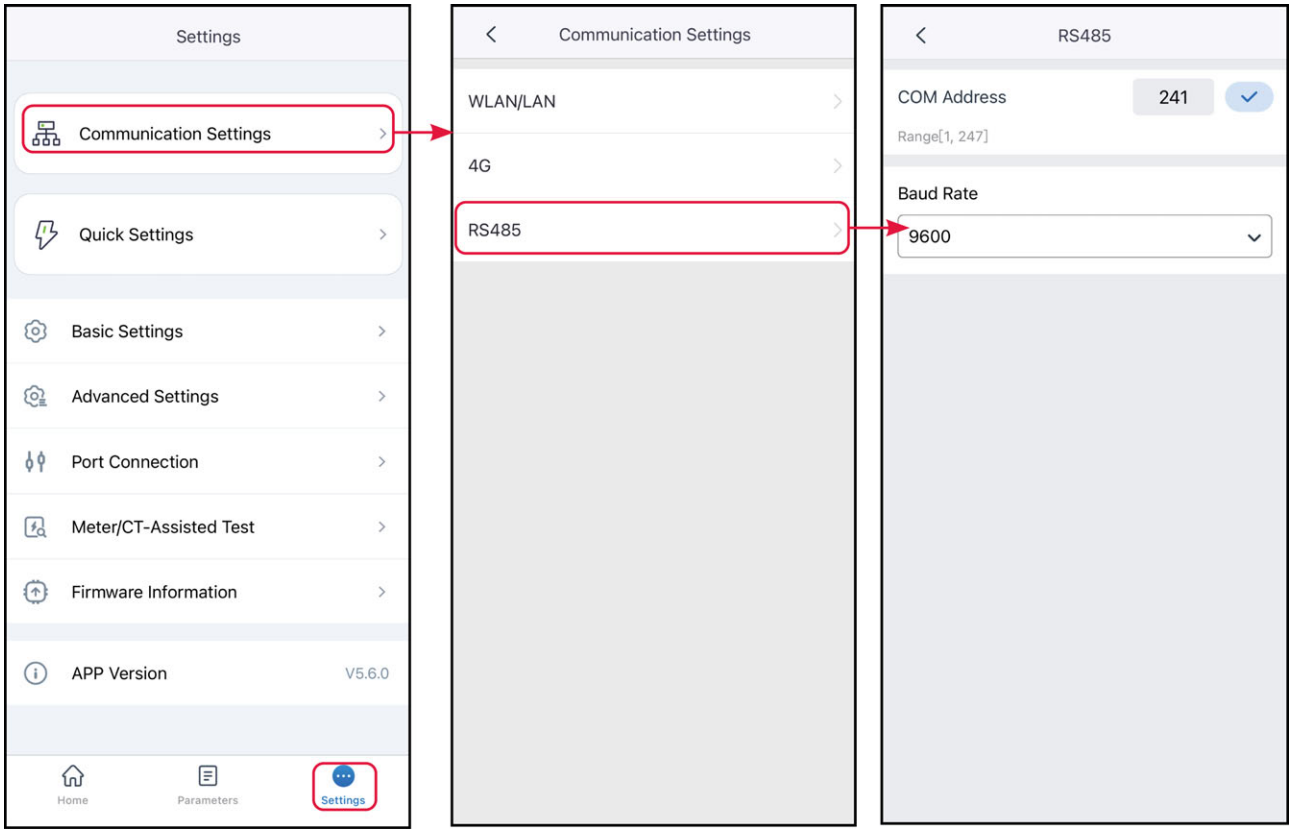
7.3.3 Configuring RS485 Parameters

NOTICE

Set the communication address of the inverter. For a single inverter, the address is set based on actual needs. For multi connected inverters, the address of each inverter should be different while cannot be 247.

Step 1: Tap **Home > Settings > Communication Settings > RS485** to set the parameters.

Step 2 : Set the Modbus Address And Baud Rate base on actual situation.



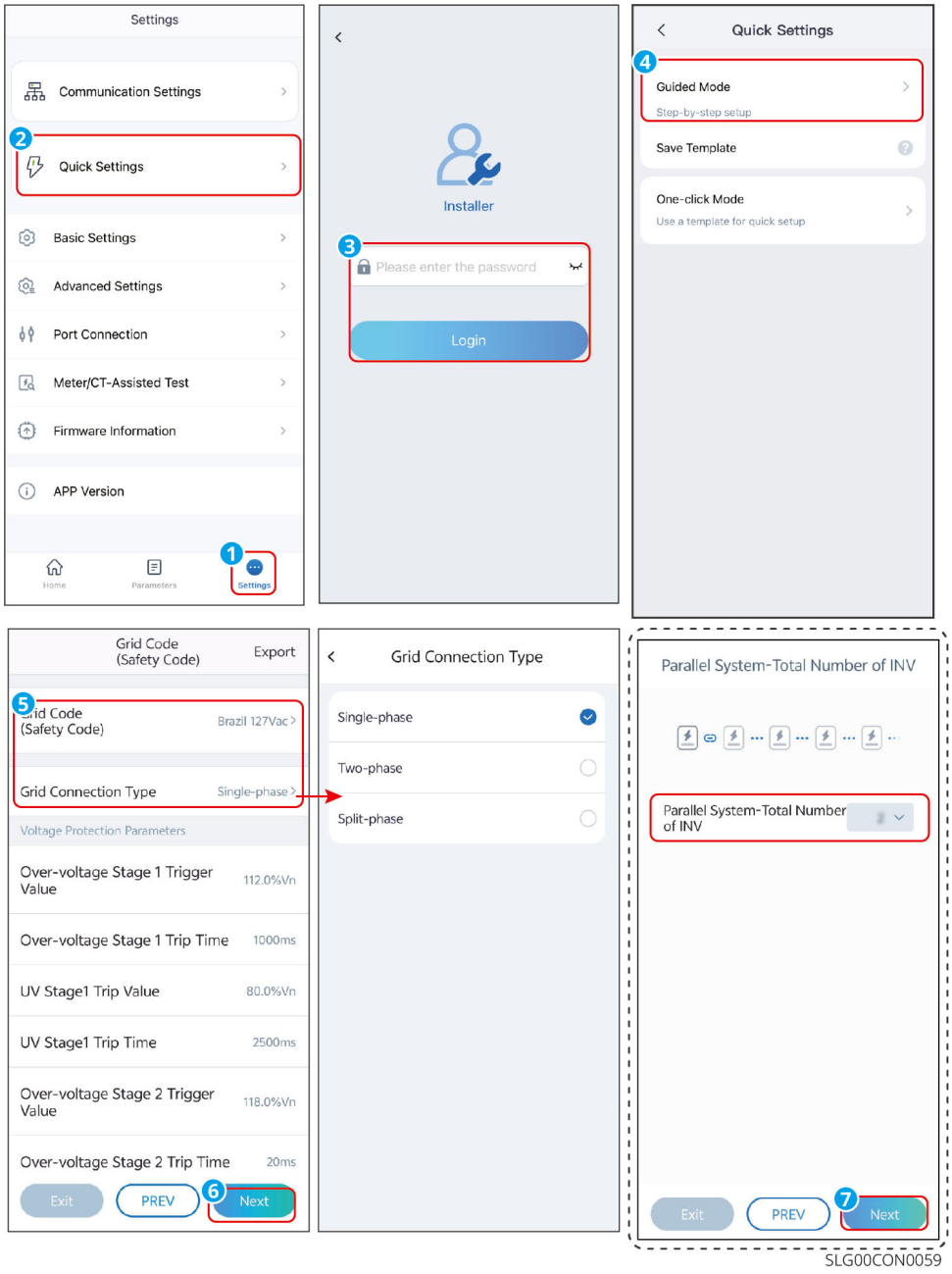
7.4 Quick Setting the Basic Information

NOTICE

- The setting page varies depending on inverter model.
- The parameters will be configured automatically after selecting the safety country/region, including overvoltage protection, undervoltage protection, overfrequency protection, underfrequency protection, voltage/frequency connection protection, cosφ curve, Q(U) curve, P(U) curve, FP curve, HVRT, LVRT, etc. Tap Home > Settings > Advanced Settings > Safety Parameters to check the parameters after selecting the safety country.
- The power generation efficiency is different in different working modes. Set the working mode according to the local requirements and situation.
  - Self-use mode: The basic working mode of the system. PV power generation is used to supply power to the load first, the excess power is used to charge the battery, and the remaining power is sold to the grid. When PV power generation cannot meet the load's power demand, the battery will supply power to the load; when the battery power also cannot meet the load's power demand, the grid will supply power to the load.
  - Back-up mode: The back-up mode is mainly applied to the scenario where the grid is unstable. When the grid is disconnected, the inverter turns to off-grid mode and the battery will supply power to the load; when the grid is restored, the inverter switches to grid-tied mode.
  - Economic mode: It is recommended to use economic mode in scenarios when the peak-valley electricity price varies a lot. Select Economic mode only when it meets the local laws and regulations. Set the battery to charge mode during Vally period to charge battery with grid power. And set the battery to discharge mode during Peak period to power the load with the battery.
  - Off-grid mode: suitable for areas without power grid. PV and batteries form a pure off-grid system. PV generates electricity to power the load and excess electricity charges the battery. When PV power generation cannot meet the power demand of the load, the battery will supply power to the load.
  - Smart charging: In some countries/regions, the PV power feed into the utility grid is limited. Select Smart Charging to charge the battery using the surplus power to minimize PV power waste.
  - Peak shaving mode: Peak shaving mode is mainly applicable to peak power limited scenarios. When the total power consumption of the load exceeds the power consumption quota in a short period of time, battery discharge can be used to reduce the power exceeding the quota.

7.4.1 System Quick Settings (Type II)

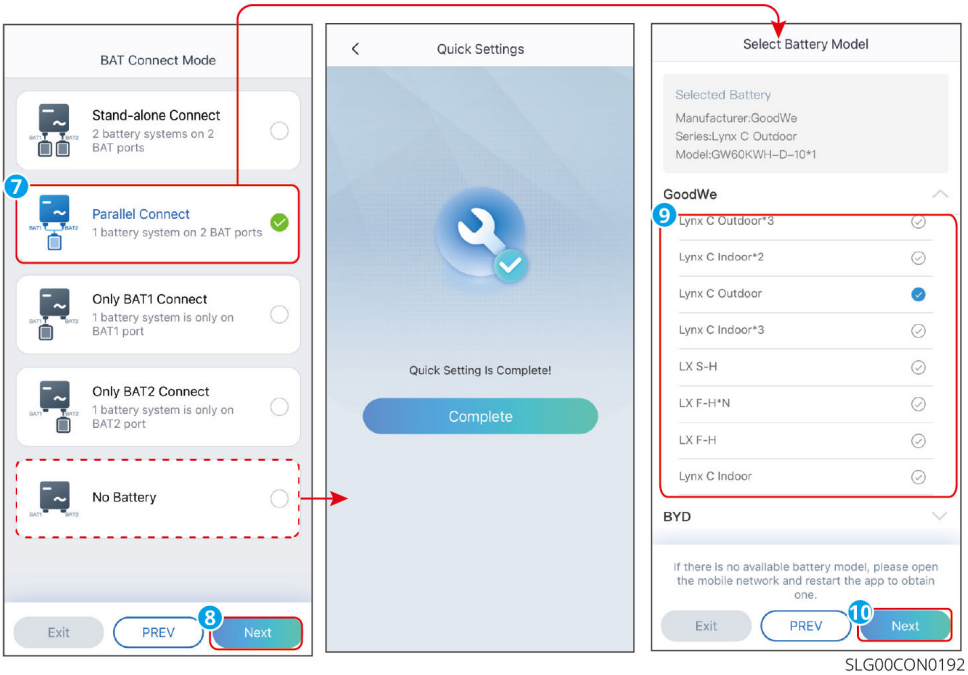
Step 1 Through**Home > Settings > Quick Configuration**Enter the parameter settings page.
Step 2 Enter login password.
Step 3 Some models support one-click configuration, select**Configuration Guide Mode**Rapid configuration system.
Step 4 Select the safety standard country based on the country or region where Inverter is located. Additionally, for certain models, it is necessary to choose Grid type according to the actual connected Utility grid configuration. After completing the settings, please click**Next step**Set the Battery access mode or the number of Inverter parallel units. The Utility grid standard code is only configurable by Installation vendors.
Step 5 Only parallel system. Set the number of Inverter parallel units. After completing the setup, please click Next to configure the Battery access mode.



SLG00CON0059

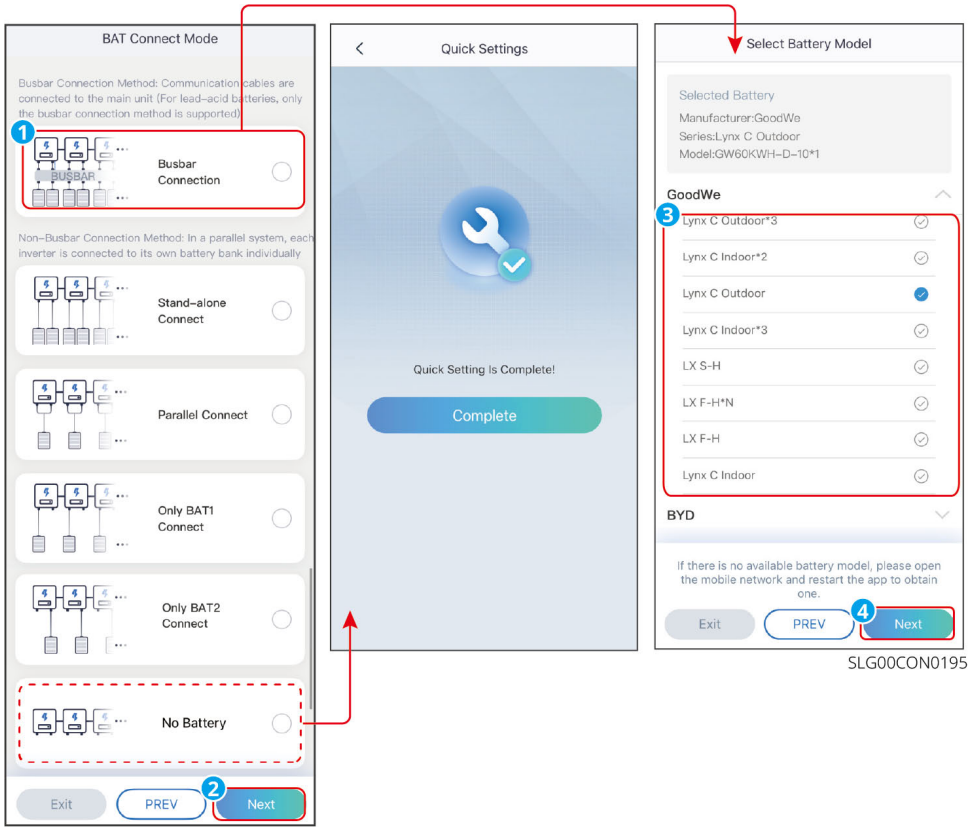
Step 6 Based on the actual situation of Battery connection, select the Battery connection mode. If there is no Battery connection, the basic parameter settings end here. If there is Battery connection, please click after completing the settings.**Next step**Set Batterymodel.

Step 7 Based on the actual connection status of Battery, select Batterymodel. After completing the settings, please click**Next step**Set working mode.



SLG00CON0192

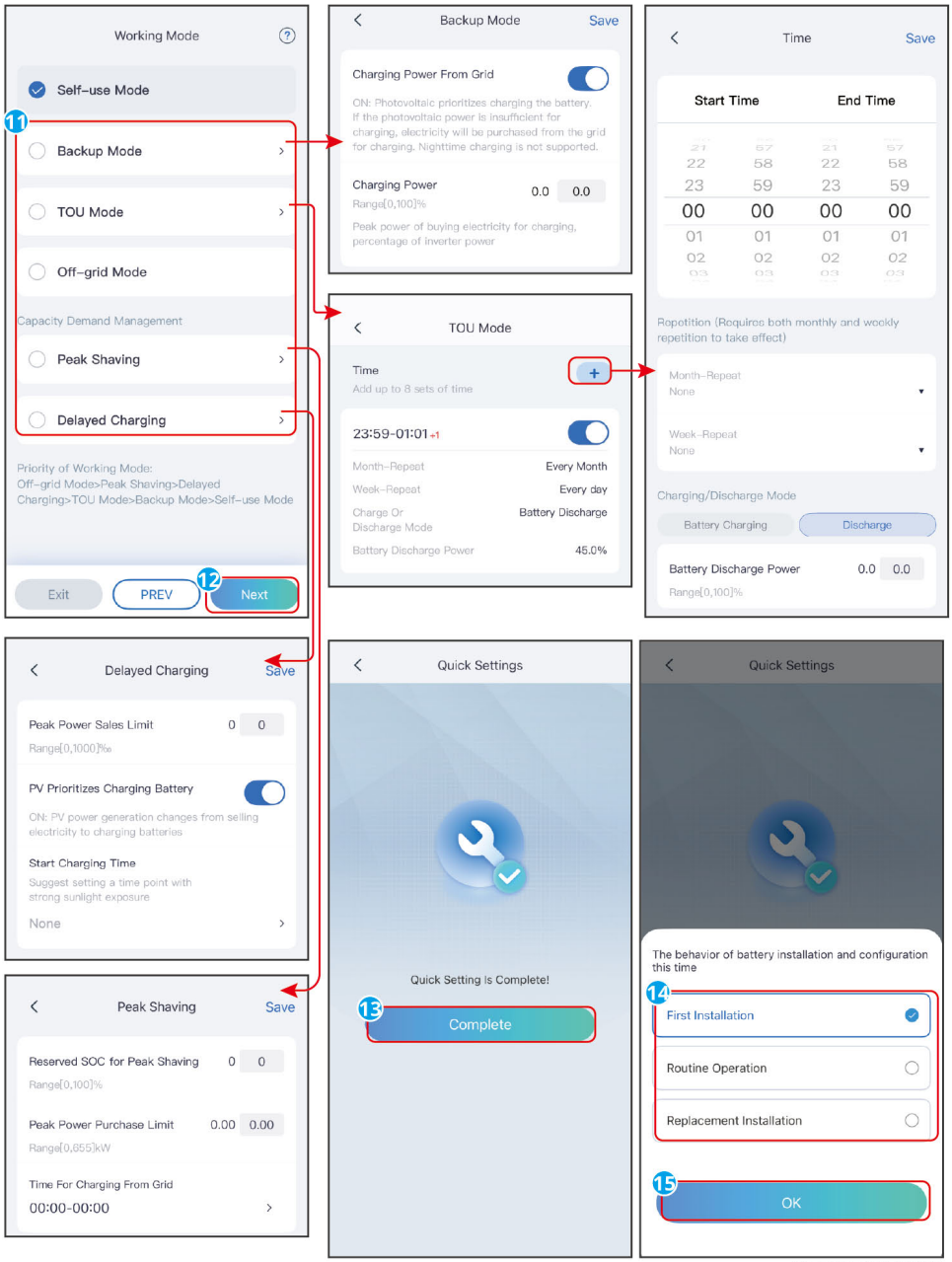
For certain models, when paralleling Inverter via RS485, please set the Battery access mode to either busbar mode or non-busbar mode based on actual conditions, and select the Battery model. Once the master unit is configured, the slave units will automatically synchronize the Battery settings. If the Battery connected to the slave unit does not match the master unit, please access the Quick Settings interface via the slave SN on the homepage and configure the Battery model separately.



SLG00CON0195

Step 8 Set the working mode according to actual needs. After setting, please click.**Next step**,Work mode configuration completed. For certain models, after the work mode configuration is completed, the system automatically enters the CT/meter self-test state. During this process, Inverter will temporarily disconnect from the grid and then automatically reconnect.

Step 9 Select the Battery based on actual conditions.**First Installation, routine operation**or**Changeover machine**.



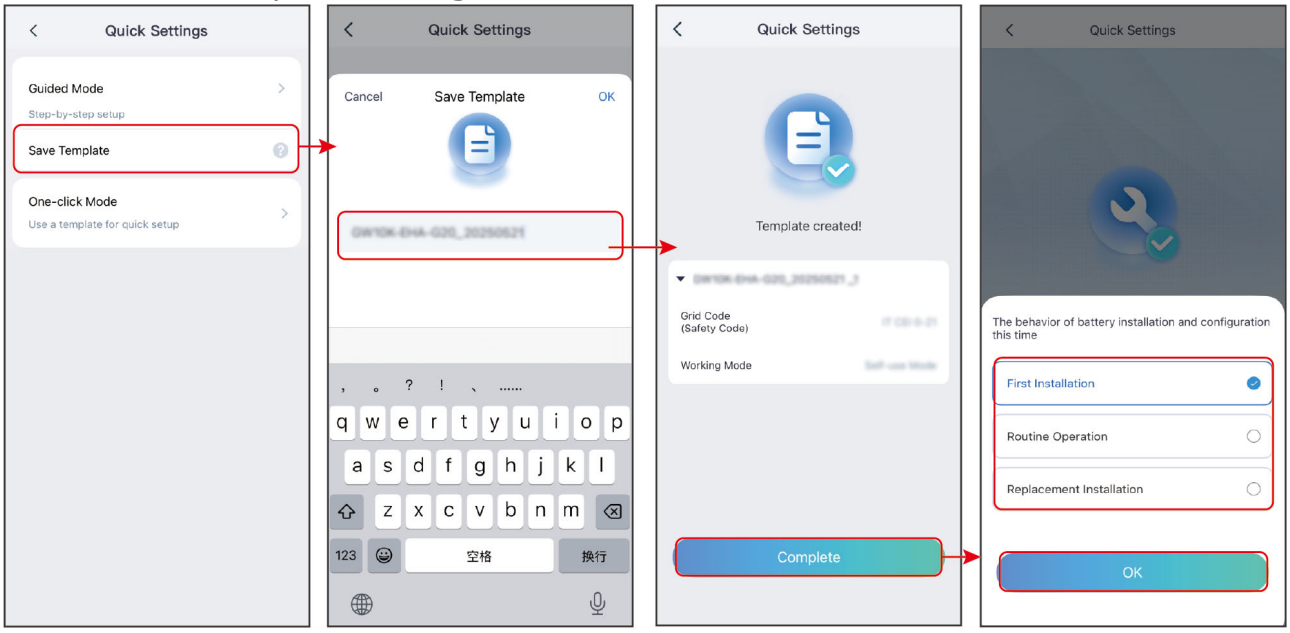
SLG00CON0060

No.	Parameter Name	Description
Back-up Mode		
1	Utility grid Purchase of Electricity Charge	Enable this function to allow the system to buy power from the grid.

No.	Parameter Name	Description
2	Charge Power	The percentage of Power to Inverter Nominal power when purchasing electricity.
TOU mode		
3	Start Time	Within the Start Time and End Time, the Battery performs Charge or Discharge based on the set charging Discharge mode and Nominal power.
4	End Time	
5	Charge Discharge mode	Set to Charge or Discharge based on actual requirements.
6	InverterNominal power	The percentage of Power to InverterNominal power during Charge or Discharge.
7	Cut-off SOC	When the Battery power reaches the set SOC, stop Charge.
peak shaving		
8	Reserved SOC for Peakshaving	In Peakshaving mode, the Battery SOC is lower than the reserved SOC for Peakshaving. When the Battery SOC is higher than the reserved SOC for Peakshaving, the Peakshaving function is disabled.
9	Peak power purchase limit	Set the maximum Power limit allowed for buy power from the grid. When the load consumption Power exceeds the sum of the electricity generated by the PV system and this limit, the excess Power is supplemented by Battery discharge.
10	Time period for purchasing electricity Charge	During the period of purchasing electricity Charge, when Load consumption does not exceed the purchase quota, it can be supplied to Battery charge via Utility grid. Outside this time range, only photovoltaic power generation Power can be utilized to supply Battery charge.
Time Delay Charge Mode		

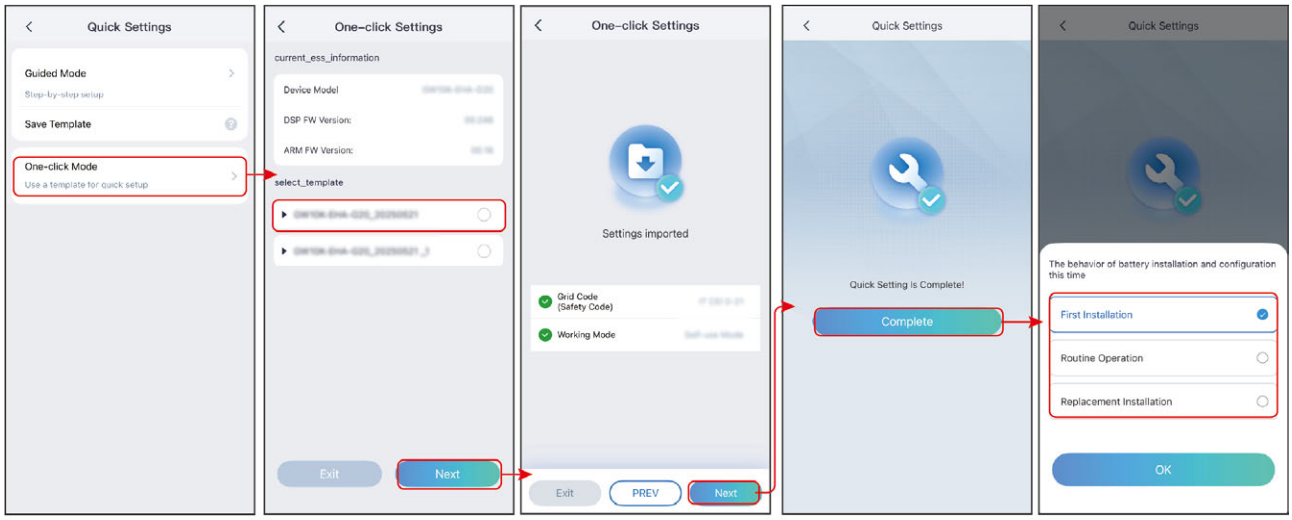
No.	Parameter Name	Description
11	Peak power selling limit	Set the peak Power limit according to the Utility grid standard requirements of certain countries or regions. The peak Power limit value must be lower than the local specified output Power limit value.
12	PV prioritizes supplying power to Battery charge	Within the Charge timeframe, photovoltaic power generation is prioritized for supplying Battery charge.
13	Startup time	

Step 10 For devices that support one-click configuration, a template can be generated based on the completed configuration.



SLG00CON0119

Step 11 If there is a one-click configuration template available, you can use the existing template to directly import the mode and quickly complete the configuration.

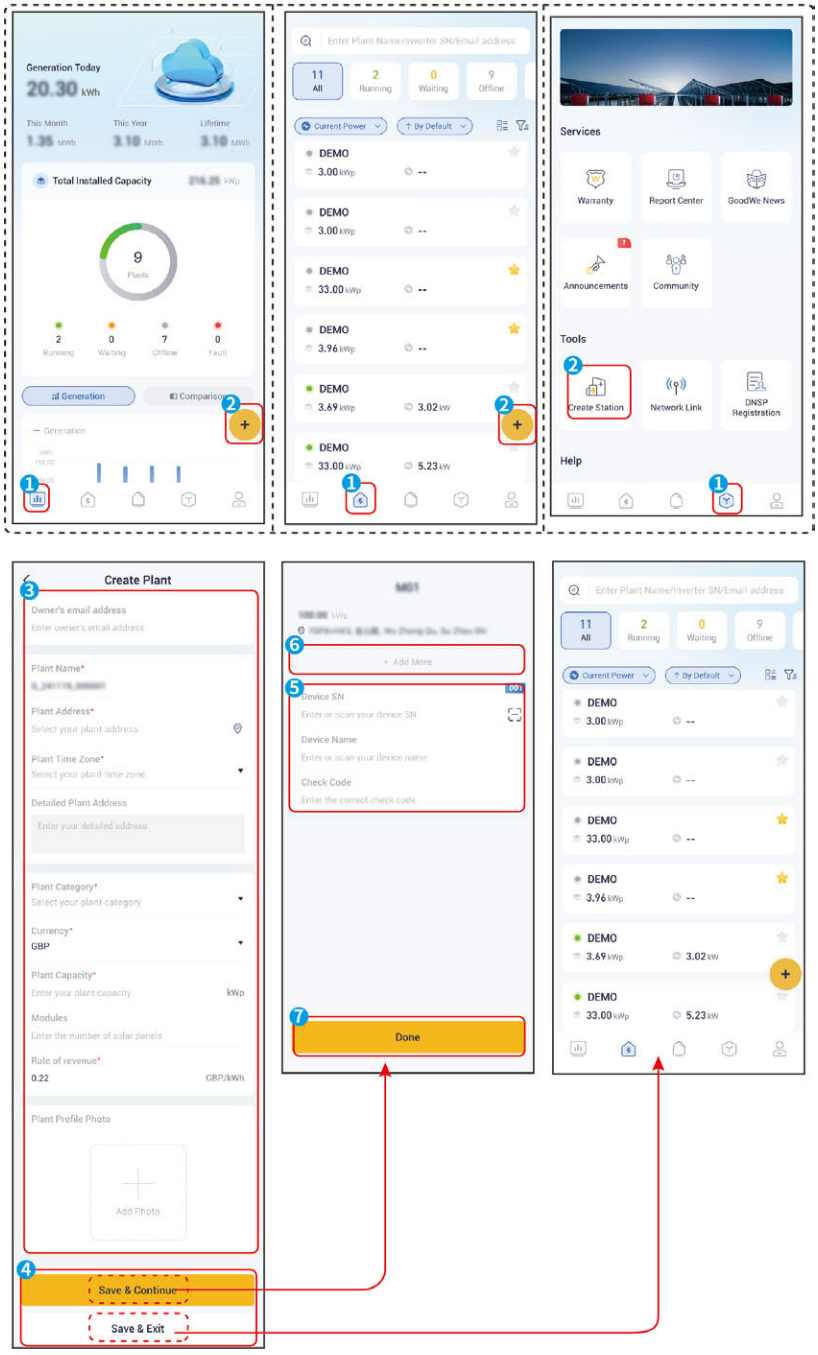


SLG00CON0120

7.5 Creating a Station

Step 1: Tap + on overview or station page, or tap **Create Station** on service page.
Step 2: Enter station information on the**Creat Station** page.
Step 3: Tap **Save&Exit** to complete creating a station, without devices added. Or tap **Save&Continue** to add devices. Support adding multiple devices.

SEMS0011


Generation Today
20.30 kWh
Total Installed Capacity
Create Plant
Owner's email address
Plant Name*
Plant Address*
Plant Time Zone*
Detailed Plant Address
Plant Category*
Currency*
GBP
Plant Capacity*
Modules
Rate of revenue*
0.22
GBP/kWh
Plant Profile Photo
Add Photo
Save & Continue
Save & Exit
Device SN
Device Name
Check Code
Done
Services
Warranty
Report Center
GoodWe News
Announcements
Community
Tools
Create Station
Network Link
DNSP Registration
Help

8 System Commissioning

8.1 Commissioning Method Overview

The inverter without LCD screen only supports setting the inverter through the SolarGo APP.
The inverter with LCD screen supports setting the inverter through LCD screen and the SolarGo APP.

8.2 Configuration via LCD

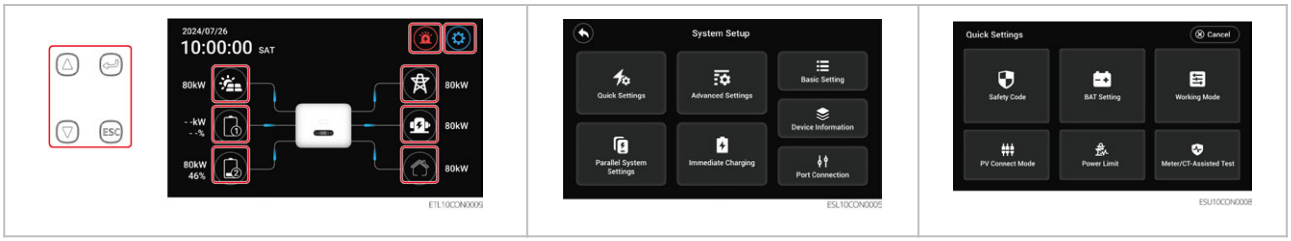
8.2.1 LCD Overview

Through the LCD screen, users can:

1. View device operating data, software version, alarm information, etc.
2. Set parameters, safety regulations region, anti-reverse flow, etc.

NOTICE
The LCD screen interface may vary depending on the device model and the set safety regulation country. Please refer to the actual interface display.

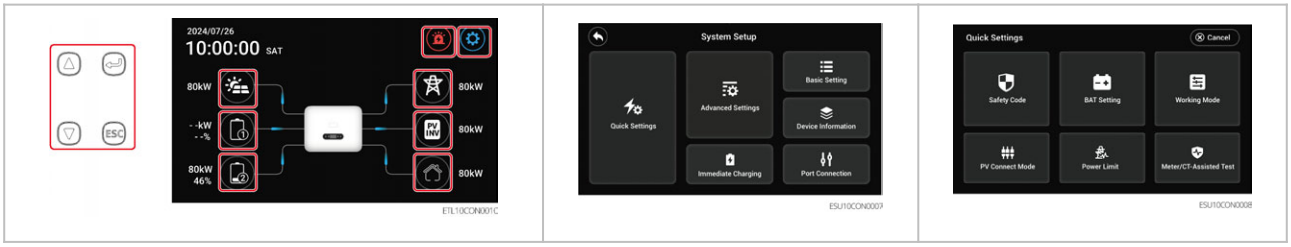
LCD Interface Introduction
LCD supports both touch and button operation methods.
General Status



Name/Icon	Description
△	Up

Name/Icon	Description
	Down
	Confirm
	• Short press: Exit page • Press  and  simultaneously for 5s: Restart device
	Used to view PV current, voltage, power generation, and other information
	Used to view battery model, status, and other information • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10, GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 display one battery string • GW15K-ET-L-G10, GW20K-ET-L-G10 display two battery strings
	Used to view the inverter's fault codes
	Used to enter the inverter's settings interface
	Used to view grid status information
	Used to view generator status
	Used to view the inverter's load information
	Return to main interface
Cancel	Return to previous menu
Next	Enter next settings page
Back	Return to previous settings page

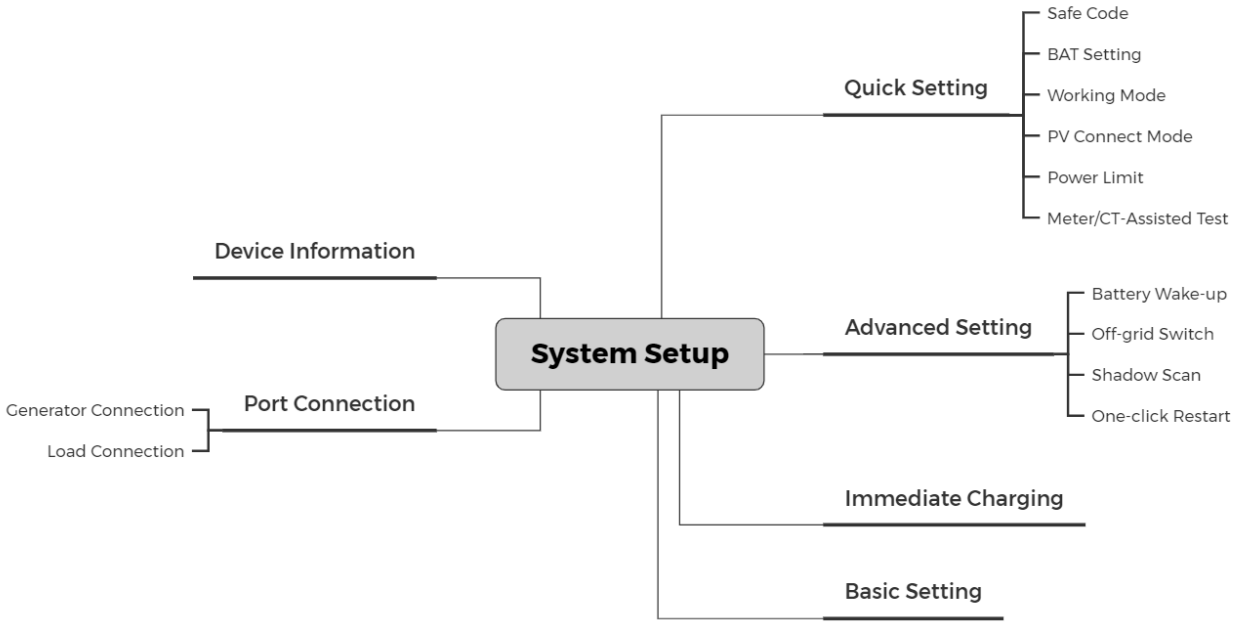
Microgrid Status



Name/Icon	Description
	Up
	Down
	Confirm
	• Short press: Exit page • Simultaneously press  and  for 5 seconds: Restart device
	Used to view PV current, voltage, power generation, and other information
	Used to view battery model, status, and other information • GW5K-ET-L-G10, GW6K-ET-L-G10, GW8K-ET-L-G10, GW10K-ET-L-G10, GW12K-ET-L-G10, GW12K-ET-LL-G10 display one battery string • GW15K-ET-L-G10, GW20K-ET-L-G10 display two battery strings
	Used to view the inverter's fault codes
	Used to enter the inverter's settings interface
	Used to view grid status information
	Used to display the status of the grid-tied inverter

Name/Icon	Description
	Used to view the inverter's load information
	Return to main interface
Cancel	Return to previous menu
Next	Enter next settings page
Back	Return to previous settings page

LCD Settings Interface Structure

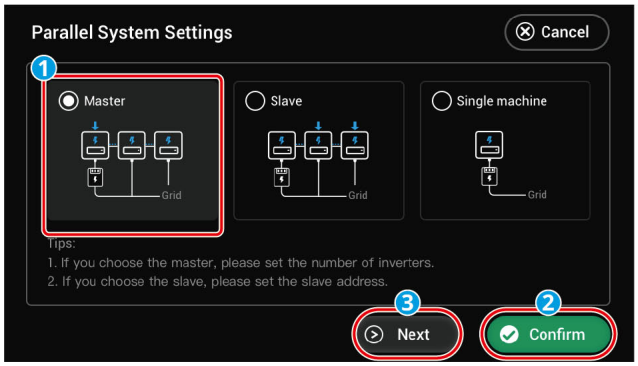


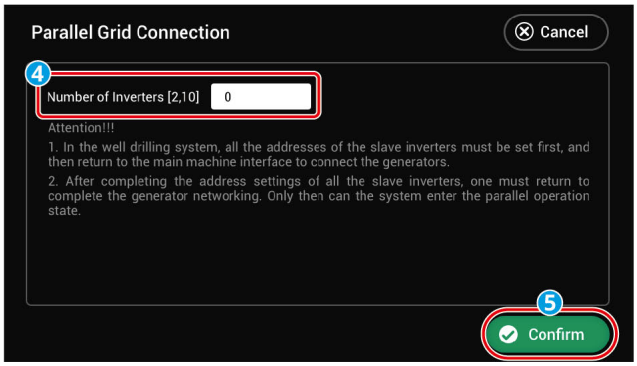
8.2.2 Parallel system configuration

1. Through the main interface, click>Parallel System Settings, enter the parameter configuration interface.
2. Based on the actual wiring of Inverter, set it as master, slave, or standalone.
3. After completing the settings, click "Confirm". The interface will display "Confirm OK" indicating the parameters have been successfully set.

NOTICE
Please ensure to click "Confirm" on each page to validate the parameters; otherwise, the system will operate with default settings.

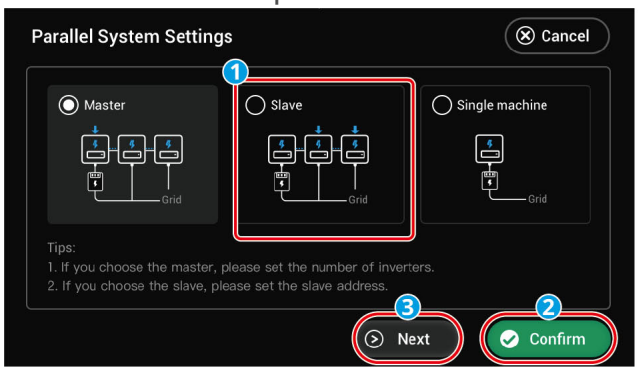
Set Master inverter parameters

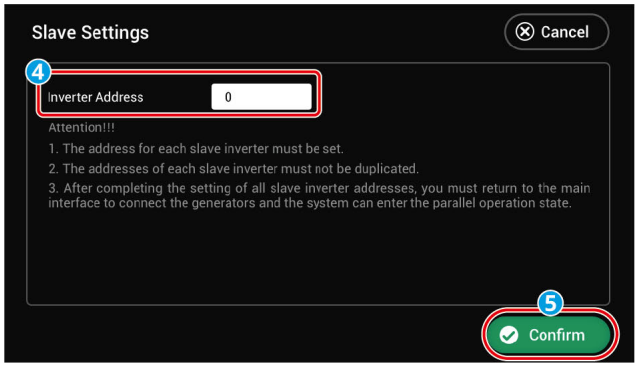




ESL10CON0006

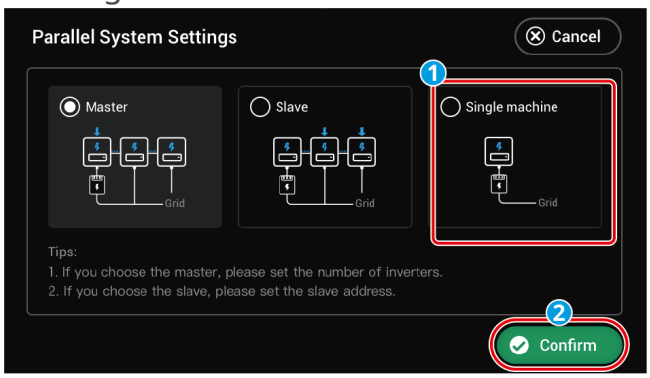
Set Slave inverter parameters





ESL10CON0007

Set single unit



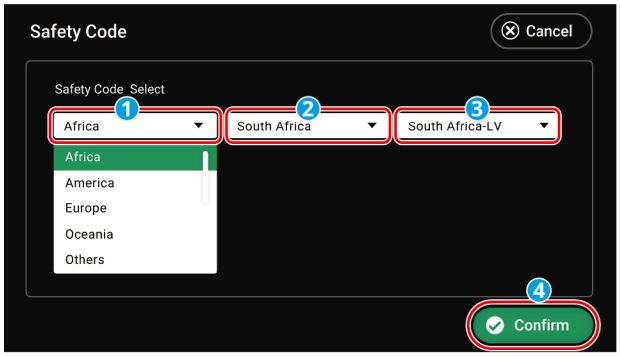
ESL10CON0008

8.2.3 Quick Settings

Set Safety Code

1. Through the main interface, click ⚙ > Quick Settings > Safe Code to enter the parameter setting interface.
2. Please select the corresponding safety code based on the country or region where the device is located.
3. After setting is completed, click Confirm. When the interface prompts Confirm OK,

the parameter setting is successful.

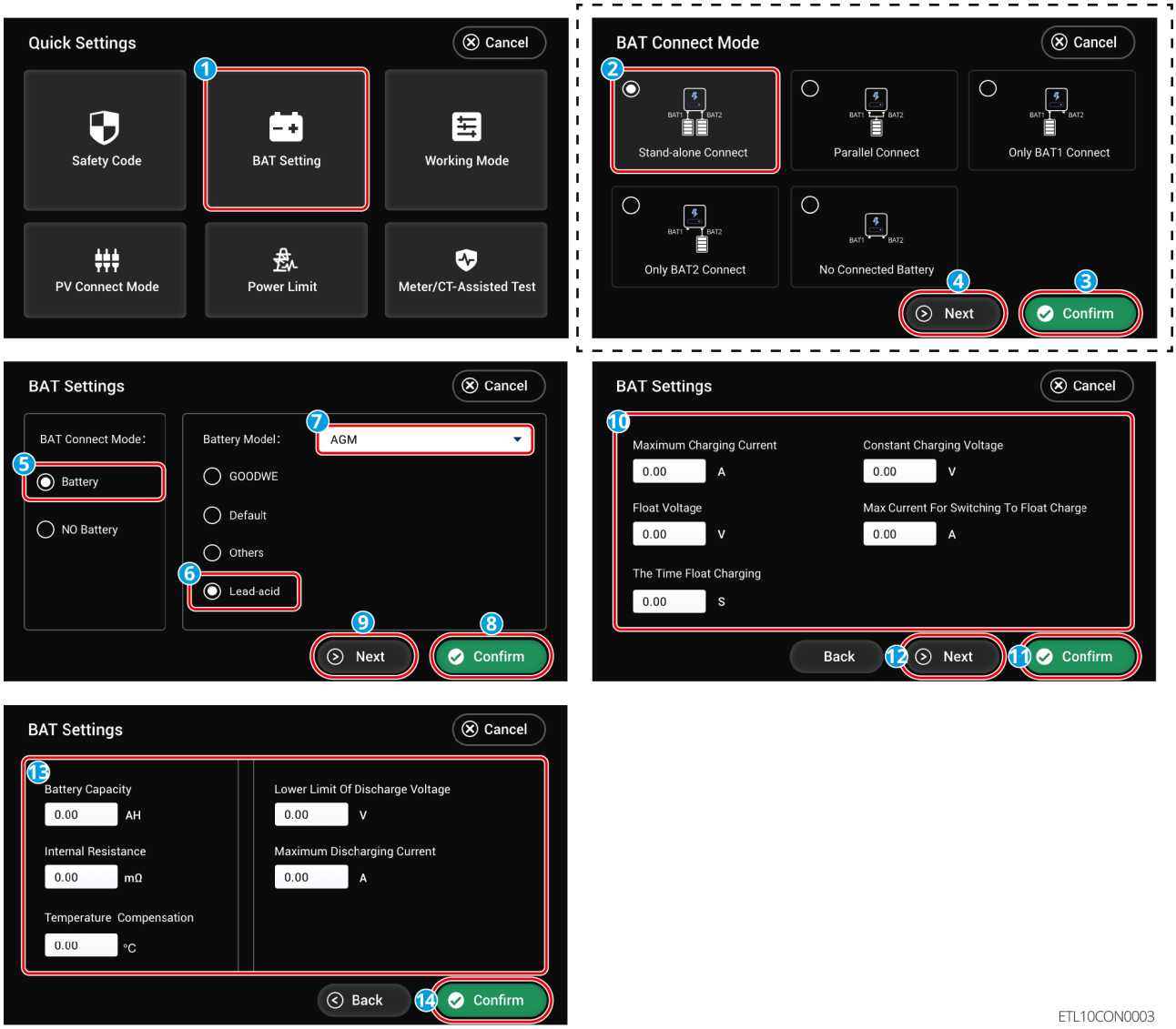


ETL10CON0002

Set Battery Parameters

1. Through the main interface, click ⚙ > Quick Settings > BAT Setting to enter the parameter setting interface.
2. Please set the parameters according to the actual situation.
3. After setting is completed, click Confirm. When the interface prompts Confirm OK, the parameter setting is successful.

NOTICE
Please ensure to click Confirm on each page to make the parameters take effect; otherwise, the system will run with default parameters.



Basic Parameter Settings

BAT Connection Mode	Type	Description
Battery	GOODWE	If the lithium battery connected in the system is a GOODWE brand, select GOODWE and choose the correct model.
	Default	If the third-party lithium battery model connected in the system is not in this list, please select according to the actual situation: • Lithium 50Ah • Lithium 100Ah

	Others	If the third-party lithium battery model connected in the system is in this list, please select the correct model according to the actual situation.
	Lead acid	If a lead-acid battery is connected in the system, select Lead acid and choose the correct lead-acid type. Currently supported types are GEL, AGM, Flooded.
NO Battery	No battery is connected in the system.	
BAT Setting	Configure according to the actual battery connected in the system.	

Lithium Battery Parameter Settings

Parameter Name	Description
SOC Protection	Enable or disable the SOC protection function.
Depth Of Discharge (On-Grid)	The maximum depth of discharge protection point for the battery when the inverter operates in on-grid mode.
Depth Of Discharge (Off-Grid)	The maximum depth of discharge protection point for the battery when the inverter operates in off-grid mode.
Backup SOC Holding	To ensure the battery SOC is sufficient to maintain normal system operation during off-grid periods, the battery will be charged via the grid or PV to the set SOC protection value when the system operates in on-grid mode.

Lead-Acid Battery Parameter Settings

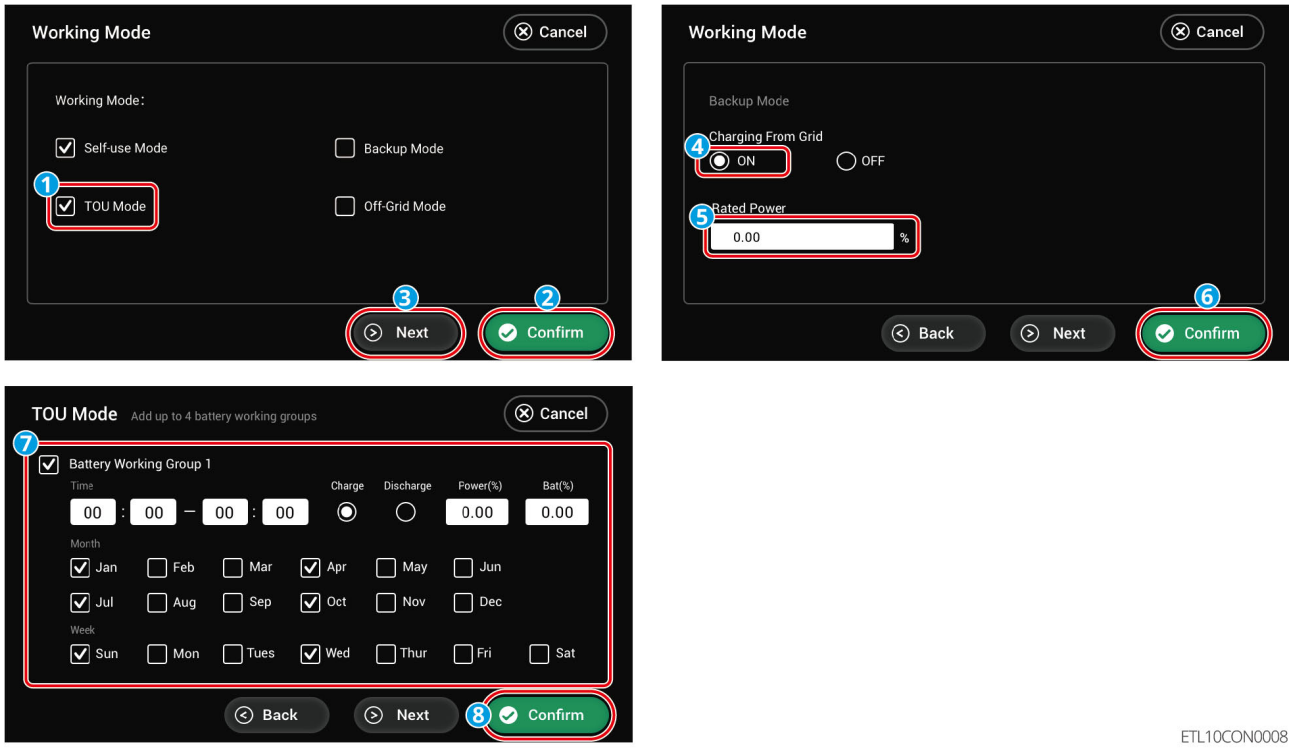
Parameter Name	Description
Maximum Charging Current	Battery charging defaults to constant current mode; The maximum charging voltage and maximum charging current in this mode need to be set; please configure according to the battery technical specifications.
Constant Charging Voltage	
Float Voltage	
The Time Float Charging	

Maximum Current For Switch To Float Charge	When the battery charging current is less than the Maximum Current For Switch To Float Charge and this condition persists for the duration specified by The Time Float Charging, the battery charging status switches from constant current mode to float charge mode. Float Voltage is the maximum charging voltage for the battery in float charge mode. Please configure according to the battery technical specifications.
Battery Capacity	Set the battery capacity according to the parameters of the actually connected battery.
Internal Resistance	The internal resistance present within the battery. Please configure according to the battery technical specifications.
Temperature Compensation	By default, when the temperature exceeds 25°C, for every 1°C increase, the upper limit of the charging voltage decreases by 3mV. Please configure according to the actual battery technical specifications.
Lower Limit Of Discharge Voltage	Please configure according to the battery technical specifications.
Maximum Discharging Current	Please configure according to the battery technical specifications. The larger the discharge current, the shorter the battery operating time.

Set Working Mode

1. Through the main interface, click  > Quick Settings > Working Mode to enter the parameter setting interface.
2. Please set the parameters according to the actual situation.
3. After setting is completed, click Confirm. When the interface prompts Confirm OK, the parameter setting is successful.

NOTICE
Please ensure to click Confirm on each page to make the parameters take effect; otherwise, the system will run with default parameters.

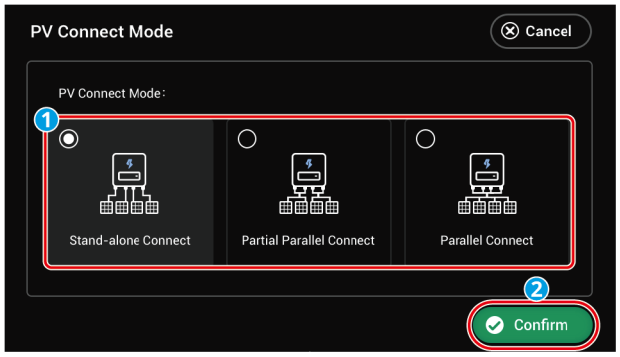


Parameter Name		Description
Self-use Mode		When the working mode is set to Self-use Mode, the Back-up Mode, TOU Mode, and Off-Grid Mode can be enabled simultaneously. Please select according to the actual situation. The operational priority of working modes is: Off-Grid Mode>Back-up Mode>TOU Mode >Self-use Mode.
Back-up Mode	Charging From Grid	Enabling this function allows the system to purchase electricity from the grid.
	Rated Power	The percentage of the power when purchasing electricity relative to the inverter's rated power.
TOU Mode	Time	Within the start and end times, the battery charges or discharges according to the set charging/discharging mode and rated power.
	Charge/Discharge	Set to charge or discharge based on actual requirements.
	Power (%)	The percentage of the power during charging or discharging relative to the inverter's rated power.

	Bat (%)	Charging stops when the battery's state of charge (SOC) reaches the set value. To set the stop SOC for battery discharge, please refer to the 8.3.9.9.2.2.2 Setting Battery Parameters(Page 277) section and configure the Depth of Discharge (On-Grid) and Depth of Discharge (Off-Grid) via the LCD screen.
Off-Grid Mode		In Off-Grid Mode, the inverter disconnects from the grid. The output supplies power only to BACK-UP Loads, with excess energy used to charge the battery.

Set PV Connection Mode

1. Through the main interface, click ⚙ > Quick Settings > PV Connect Mode to enter the parameter setting interface.
2. Please set the parameters according to the actual situation.
3. After setting is completed, click Confirm. When the interface prompts Confirm OK, the parameter setting is successful.



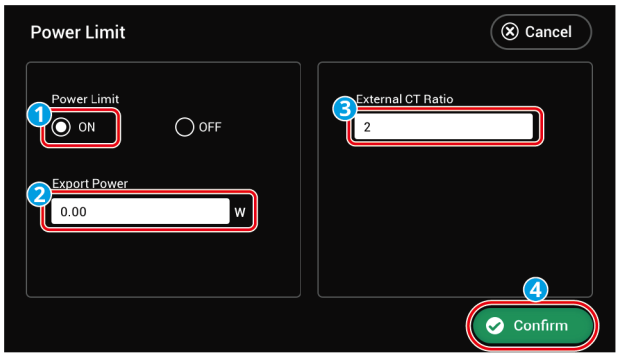
ESU10CON0015

Parameter Name	Description
Stand-alone Connect	Each PV string is connected one-to-one with an MPPT port on the inverter side.
Partial Parallel Connect	When one PV string is connected to multiple MPPT ports on the inverter side, other PV modules are simultaneously connected to other MPPT ports on the inverter side.

Parallel Connect	When external PV strings are connected to the PV input ports on the inverter side, one PV string is connected to multiple PV input ports.

Set Grid-Connected Power Limit

1. Through the main interface, click ⚙ > Quick Settings > Power Limit to enter the parameter setting interface.
2. Please set the parameters according to the actual situation.
3. After setting is completed, click Confirm. When the interface prompts Confirm OK, the parameter setting is successful.

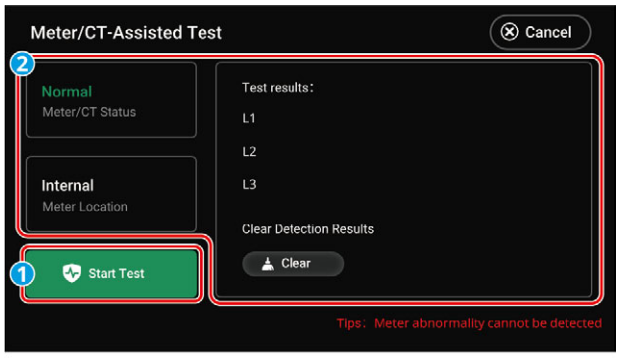


ESU10CON0016

Parameter Name	Description
Power Limit	Enable this function when output power needs to be limited according to grid standards requirements in certain countries or regions.
Export Power	Set based on the actual maximum power that can be fed into the grid.
External CT Ratio	Set to the ratio of primary to secondary current of the external CT. • Built-in meter: No need to set the CT ratio. Default CT ratio is 120A/40mA. • GM330: The CT can be purchased from GoodWe or elsewhere. CT ratio requirement: nA/5A ◦ nA: CT primary input current, where n ranges from 200 to 5000. ◦ 5A: CT secondary output current.

Meter/CT Auxiliary Detection

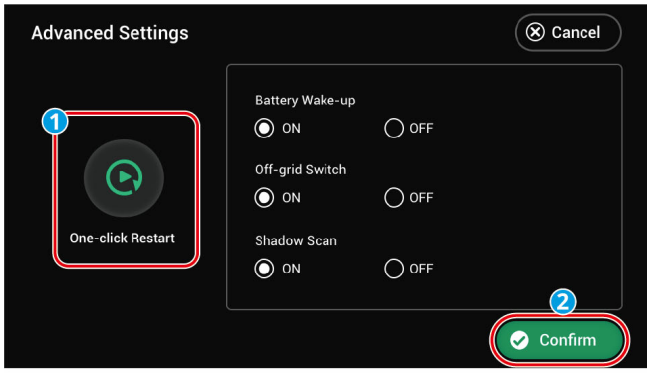
1. Through the main interface, click > Quick Settings > Meter/CT Assisted Test to enter the parameter setting interface.
2. Click Start Test to begin detection. After detection is completed, judge the detection result based on the interface prompts.



ESU10CON0026

8.2.4 Setting Advanced Parameters

1. Through the main interface, click> Advanced Settings, enter the parameter configuration interface. Input the initial password: 1111.
2. Please set the parameters according to the actual situation.
3. After completing the settings, click "Confirm". The interface will display "Confirm OK" indicating the parameters have been successfully set.



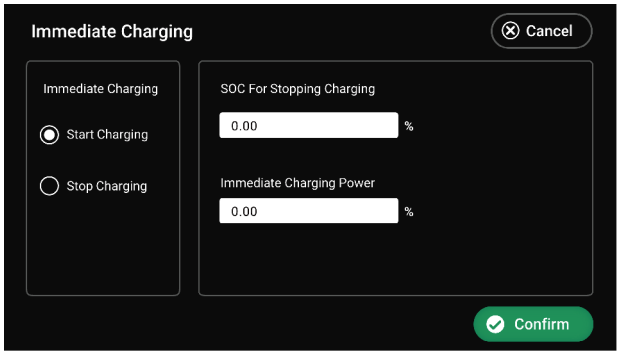
ESU10CON0020

Parameter Name	Instructions
One-click restart	Using this function, you can quickly restart the Inverter.

Battery Wake-up	After activation, when Battery shuts down due to undervoltage Protection, it can wake up Battery. Only applicable to lithium Battery without breaker. After activation, the output voltage of Batteryport is approximately 60V.
Off-grid Switch	In off-grid mode, the off-grid control switch controls the activation and deactivation of the Inverter off-grid function. Under On-grid mode, this function is not effective. The switch is in the ON state by default, enabling the off-grid function. After Inverterpower on, Inverter activates the off-grid output function. In off-grid mode, turning the off-grid switch off and on again clears the off-grid overload timer and restarts the off-grid output.
Shadow Scan	When the photovoltaic panel is severely shaded, enabling the shadow scan function can optimize Inverter power generation Efficiency.

8.2.5 Setting Immediate Charging

1. From the main interface, click ⚙ > Immediate Charging to enter the parameter setting interface.
2. Please set the parameters according to your actual needs.
3. After completing the settings, click Confirm. The interface will prompt 'Confirm OK' indicating the parameters have been set successfully.



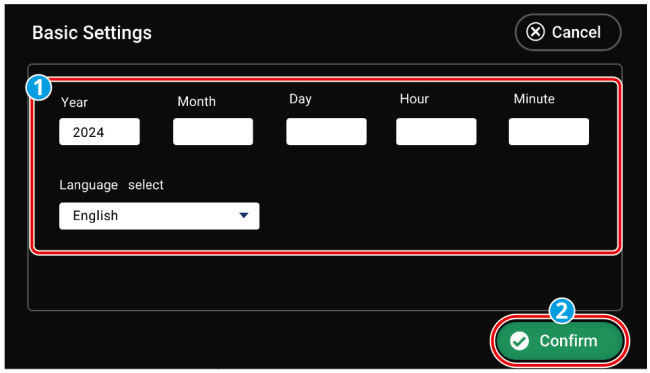
ETL10CON0012

Parameter Name	Description

Immediate Charging	When enabled, the battery will be charged immediately from the grid. This setting takes effect only once. Please enable or stop it based on actual needs.
SOC For Stopping Charging	When Immediate Charging is enabled, battery charging will stop once the battery SOC reaches the charging cutoff SOC.
Immediate Charging Power	The charging power as a percentage of the inverter's rated power when Immediate Charging is enabled. For example, for an inverter with a rated power of 10kW, setting this to 60 results in a charging power of 6kW.

8.2.6 Setting the Basic Information

1. Through the main interface, click> Basic Settings, enter the parameter configuration interface.
2. Please set the parameters according to the actual situation.
3. After completing the settings, click Confirm. The interface will display "Confirm OK" to indicate successful parameter configuration.



ESU10CON0027

8.2.7 Setting Port Connection

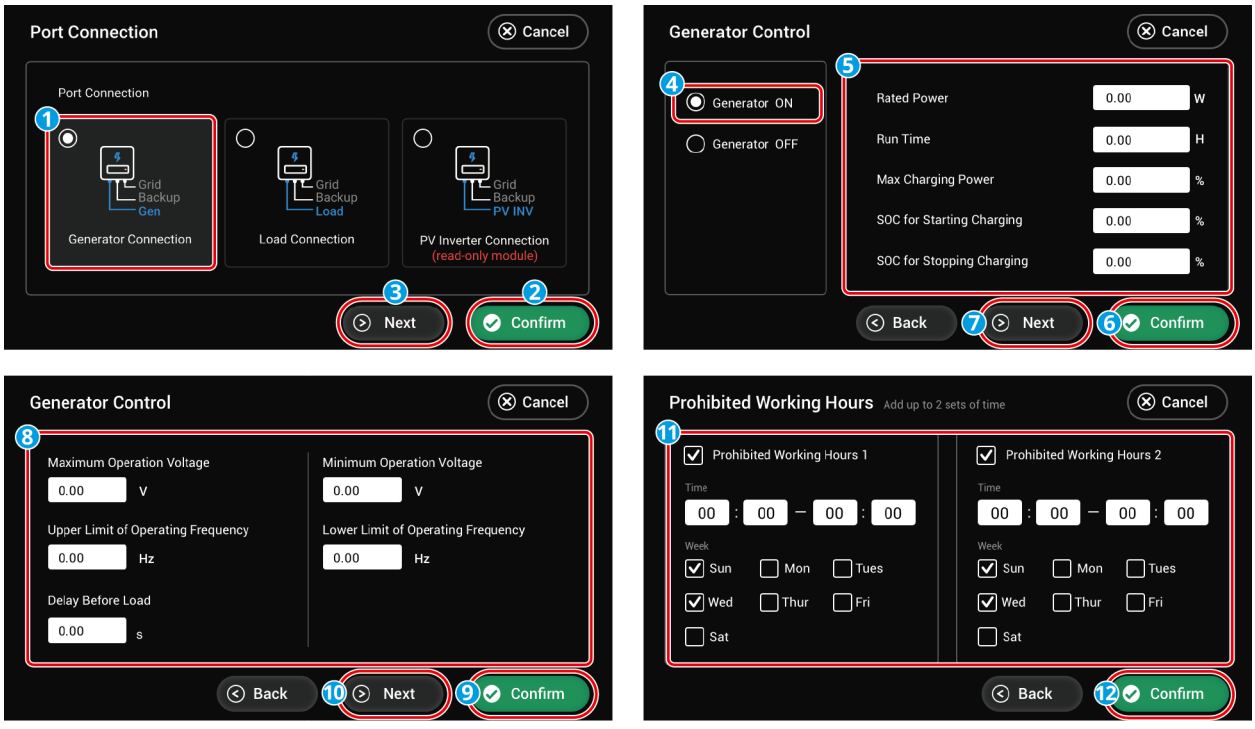
NOTICE
To set relevant parameters for the grid-tied inverter in microgrid mode, please connect to the APP for configuration.

Setting Port Connection for Generator

1. From the main interface, click ⚙ > Port Connection to enter the parameter setting interface.
2. Set parameters according to the actual situation.
3. After completing the settings, click Confirm. The parameter setting is successful when the interface prompts Confirm OK.

NOTICE

Please ensure you click Confirm on each page to make the parameters take effect; otherwise, the system will run with default parameters.



ETL10CON0004

No.	Parameter Name	Description
1	Generator ON/OFF	Controls the generator's start/stop. Only applicable to generators supporting dry contact.
2	Rated Power	The rated power of the generator.
3	Run Time	The continuous operation time of the generator. The generator will automatically shut down after exceeding the set runtime. This function only takes effect for generators supporting dry contact connection.

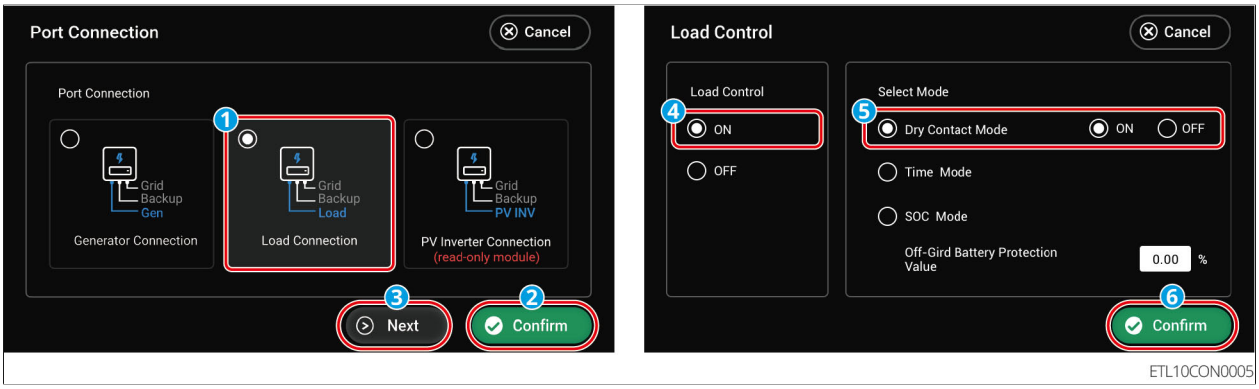
4	Max Charging Power	Sets the maximum charging power for the generator to charge the battery.
5	SOC for Starting Charging	Sets the start SOC for the generator to charge the battery. When the battery's SOC falls below the set value, the generator will charge the battery.
6	SOC for Stopping Charging	Sets the SOC for the generator to stop charging the battery. When the battery's SOC reaches the set value, the generator will stop charging the battery.
7	Maximum Operation Voltage	Sets the upper limit of the generator's operating voltage.
8	Minimum Operation Voltage	Sets the lower limit of the generator's operating voltage.
9	Upper Limit Of Operating Frequency	Sets the upper limit of the generator's operating frequency.
10	Lower Limit Of Operating Frequency	Sets the lower limit of the generator's operating frequency.
11	Delay Before Load	The no-load warm-up time before the generator takes on load.
12	Prohibited Working Hours	Please set the generator's prohibited working hours according to the actual situation.

Setting Port Connection for Load Control

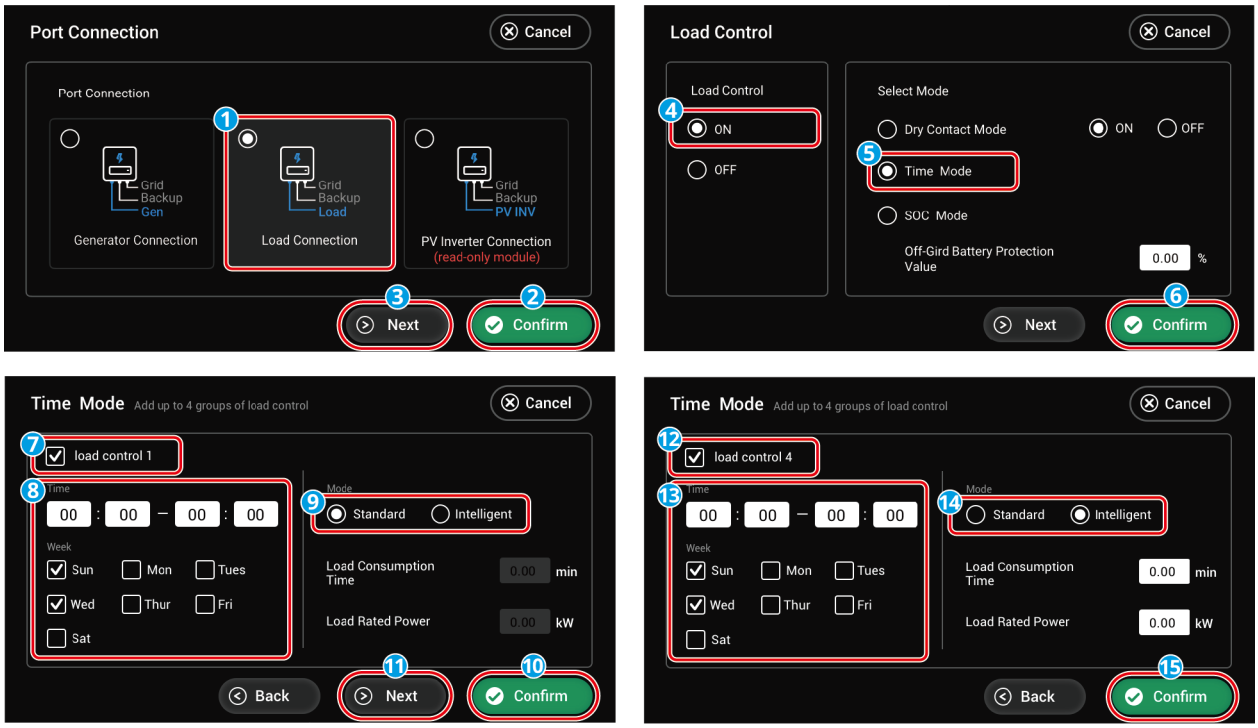
1. From the main interface, click > Port Connection to enter the parameter setting interface.
2. Set parameters according to the actual situation.
3. After completing the settings, click Confirm. The parameter setting is successful when the interface prompts Confirm OK.

NOTICE
Please ensure to click Confirm on each page to make the parameters take effect; otherwise, the system will run with default parameters.

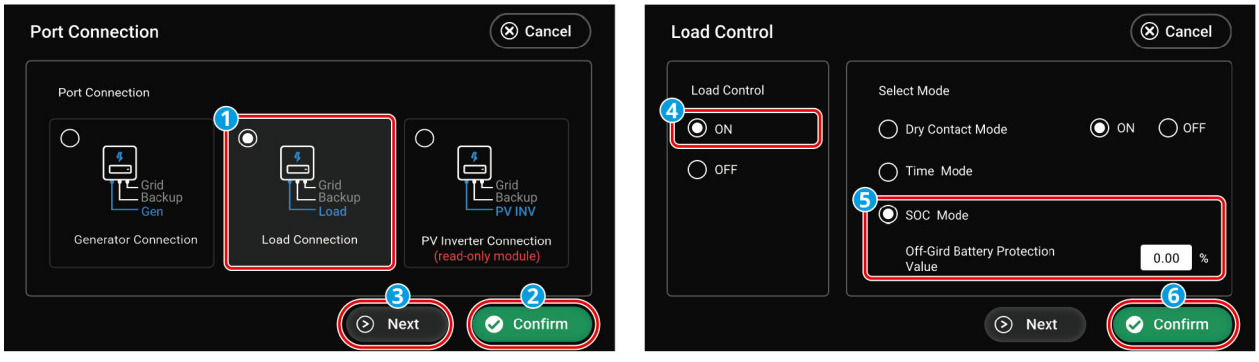
Dry Contact Mode



Time Mode



SOC Mode



No.	Parameter Name	Description

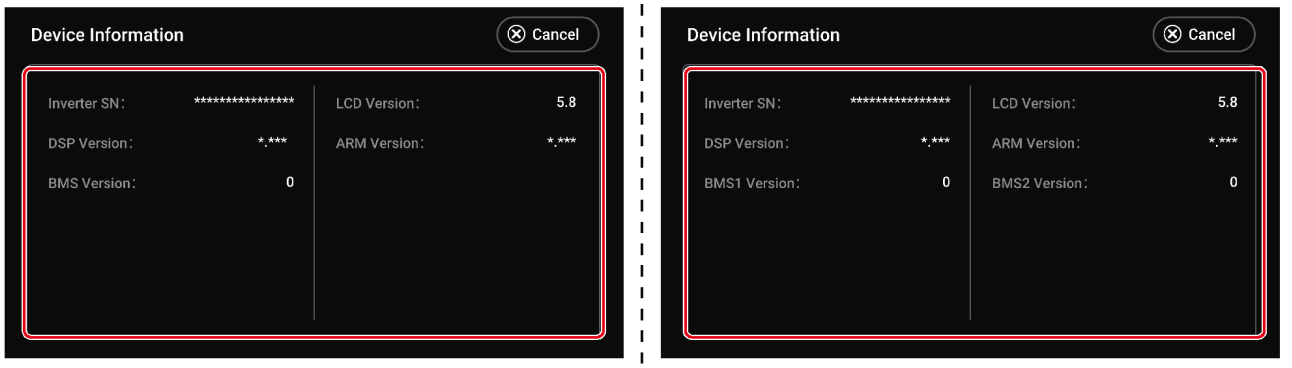
1	Load Control ON/OFF	Set the load control function ON/OFF
2	Dry Contact Mode	ON: Starts supplying power to the load when the switch status is selected as ON. OFF: Stops supplying power to the load when the switch status is set to OFF.
3	Time Mode	Within the set time period, the load will automatically be powered on or off. You can choose Standard Mode or Smart Mode.
4	Load Control 1	Set the time for the first group of load control. A total of 4 groups can be set.
5	Mode: Standard/Intelligent	Standard Mode: Will supply power to the load within the set time period. Smart Mode: Within the set time period, starts supplying power to the load when the surplus energy generated by PV exceeds the preset load rated power.
6	Load Consumption Time	The minimum running time after the load is turned on, to avoid frequent switching of the load due to energy fluctuations. Only applicable to Smart Mode.
7	Load Rated Power	When the surplus energy generated by PV exceeds this load rated power, it starts supplying power to the load. Only applicable to Smart Mode.
8	SOC Mode	The inverter has a built-in relay dry contact control port, which can control whether to supply power to the load via the relay.
9	Off-Grid Battery Protection Value	In off-grid mode, if overload at the BACK-UP end is detected or the battery SOC value is lower than the off-grid battery protection setting value, the power supply to the load connected to the relay port can be stopped. Please set the off-grid battery protection value according to actual needs.

8.2.8 Viewing Device Information

1. From the main interface, click > Device Information to enter the parameter query interface.

NOTICE

Allows querying of inverter serial number, DSP version, BMS version, LCD version, and ARM version.



ETL10CON0011

8.3 SolarGo APP

8.3.1 Product Introduction

NOTICE

- All the user interface (UI) screenshots or words in this document are based on **SolarGo app V6.6.0**. The UI may be different due to the version upgrade. The screenshots, words or data are for reference only.
- The method to set parameters is the same for all inverters. But the parameters displayed varies based on the equipment model and safety code. Refer to the actual interface display for specific parameters.
- Before setting any parameters, read through user manual of the App and the inverter or charger to learn the product functions and features. When the inverter parameters are set improperly, the inverter may fail to connect to the utility grid or fail to connect to the utility grid in compliance with related requirements and damage the battery, which will affect the inverter's power generation.

SolarGo App is a mobile application that communicates with the inverter via Bluetooth, WIFi, 4G, or GPRS. Commonly used functions are as follows:

- Check the operating data, software version, alarms of the inverter, etc.
- Set grid parameters and communication parameters of the inverter.
- Set charging mode of the charger.
- Maintain the equipment.

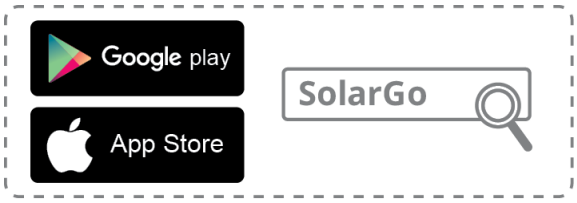
8.3.1.1 Download the InstallationSolarGo App

Mobile phone requirements:

- Mobile operating system requirements: Android 5.0 and above, iOS 13.0 and above.
- The phone supports a web browser for Internet connectivity.
- The phone supports WLAN/Bluetooth functionality.

NOTICE
After the SolarGo App is completed, subsequent version updates will automatically prompt for software updates.

Option 1: Search for SolarGo on Google Play (Android) or App Store (iOS) to download and Installation.



SolarGo App
SLG00CON0135

Option 2: Scan the QR code below to download and Installation.

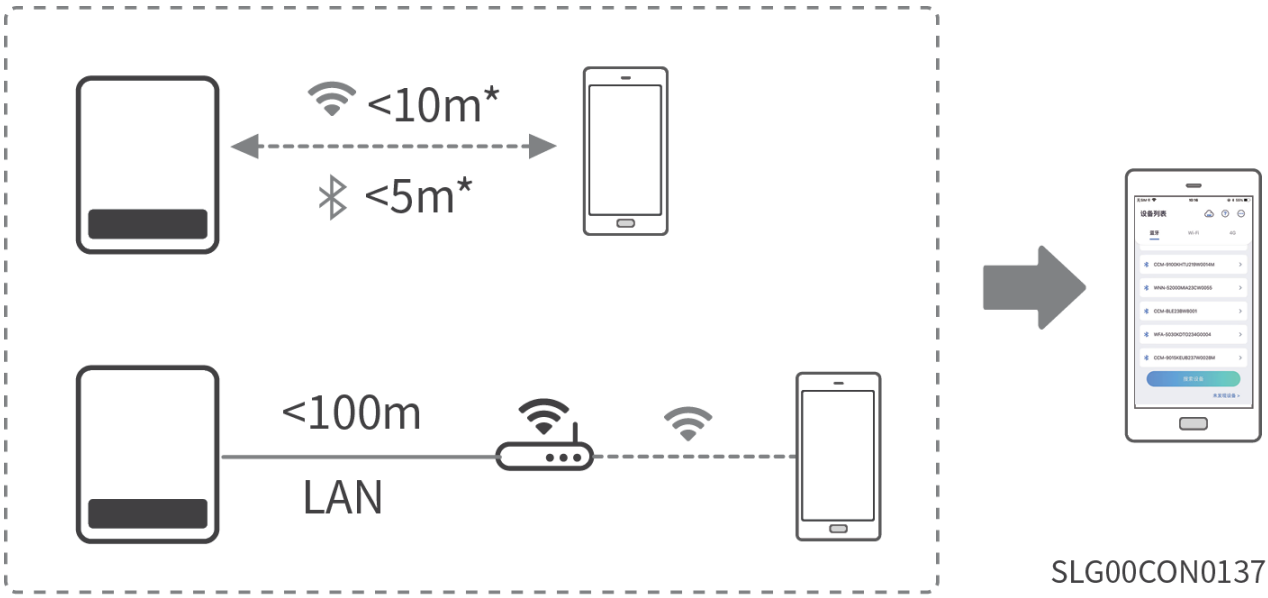
SolarGo App
SLG00CON0136

8.3.1.2 App Connection

Connect as the following shows after powering on the equipment.

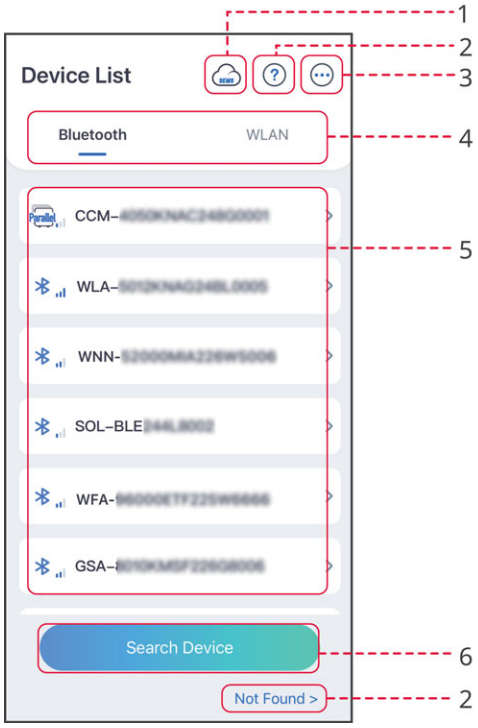
NOTICE

The connection distance varies depending on smart dongles. Refer to the actual used smart dongles.



SLG00CON0137

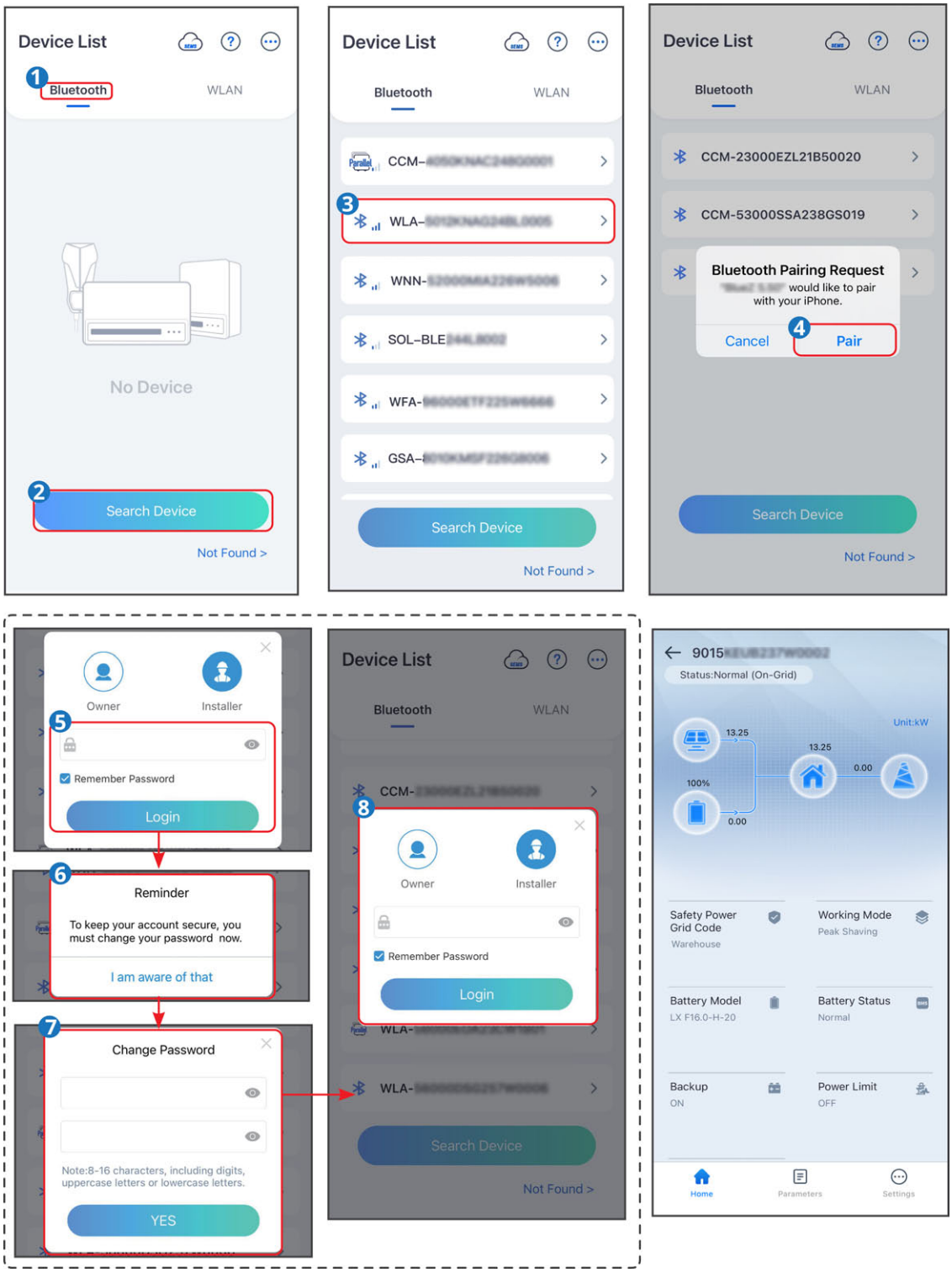
8.3.1.3 GUI Introductions to Login Page



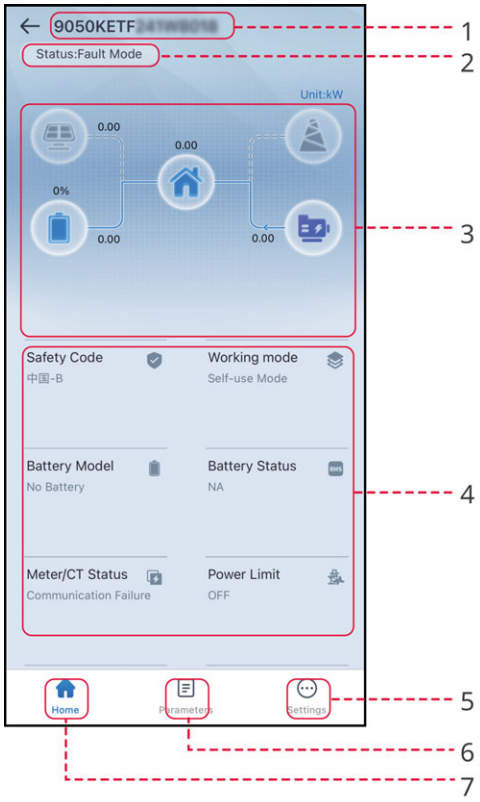
No.	Name/Icon	Description
1		Tap the icon to open the page downloading the SEMS Portal app.
2	 Not found	Tap to read the connection guide.
3		• Check information such as app version, local contacts, etc. • Other settings, such as update date, switch language, set temperature unit, etc.
4	Bluetooth/WiFi/4G	Select based on actual communication method. If you have any problems, tap  or **NOT Found** to read the connection guides.
5	Device List	• The list of all devices. The last digits of the device name are normally the serial number of the device. • Select the device by checking the serial number of the master inverter when multi inverters are parallel connected. • The device name varies depending on the inverter model or smart dongle model: ◦ Wi-Fi/LAN Kit, Wi-Fi Kit, Wi-Fi Box: Solar-WiFi*** ◦ External or integrated bluetooth mudule:Solar-BLE*** ◦ WiFi/LAN Kit-20: WLA-*** ◦ WiFi Kit-20: WFA-*** ◦ Ezlink3000：CCM-BLE***；CCM-***；*** ◦ 4G Kit-CN-G20/4G Kit-CN-G21: GSA-***; GSB-*** ◦ 4G Kit-G20：GSC-*** ◦ Micro inverter: WNN*** ◦ AC Charger: ***
6	Search Device	Tap **Search Device** if the device is not found.

8.3.2 Connecting the Hybrid Inverter (Bluetooth)

Step 1 Ensure that the inverter is power on, both the inverter and the communication module are working properly.
Step 2 Select **Bluetooth** tab on the SolarGo app hompage.
Step 3 Pull down or tap **Search Device** to refresh the device list. Find the device by the the inverter serial number. Tap the device name to log into the **Home** page. Select the device by checking the serial number of the master inverter when multi inverters are parallel connected.
Step 4 For first connection with the equipment via Bluetooth, there will be a Bluetooth pairing prompt, tap **Pair** to continue the connection.
Step 5 Log in as an Owner or an Installer. Initial password: 1234. Default password: 1234.
Step 6 (Optional): If connecting via WLA-*** or WFA-***, enable Bluetooth Stays On following the prompts as entering the device details page. Otherwise, the bluetooth signal of the device will be off after disconnection.



8.3.3 GUI Introductions to Hybrid Inverters



No.	Name/Icon	Description
1	Serial Number	Serial number of the connected inverter.
2	Device Status	Indicates the status of the inverter, such as Working,Fault, etc.
3	Energy Flow Chart	Indicates the energy flow chart of the PV system. The actual page prevails.
4	System Status	Indicates the system status, such as Safety Code, Working Mode, Battery Model, Battery Status, Power Limit, Three-Phase Unbalanced Output, etc..
5		Home. Tap Home to checkSerial Number, Device Status, Energy Flow Chart, System Status, etc.
6		Parameters. Tap Parameters to check the inverter Data.

No.	Name/Icon	Description
7		• Settings Tap to perform quick settings, basic settings, advanced settings, etc. on the inverter. • Login required to access Quick Setup and Advanced Setting. Contact the supplier or after sales service for password. Password for professional technicians only.

8.3.4 Setting Communication Parameters

NOTICE
The communication configuration interface may be different if the inverter uses different communication modes or connects different communication modules. Please refer to the actual interface.

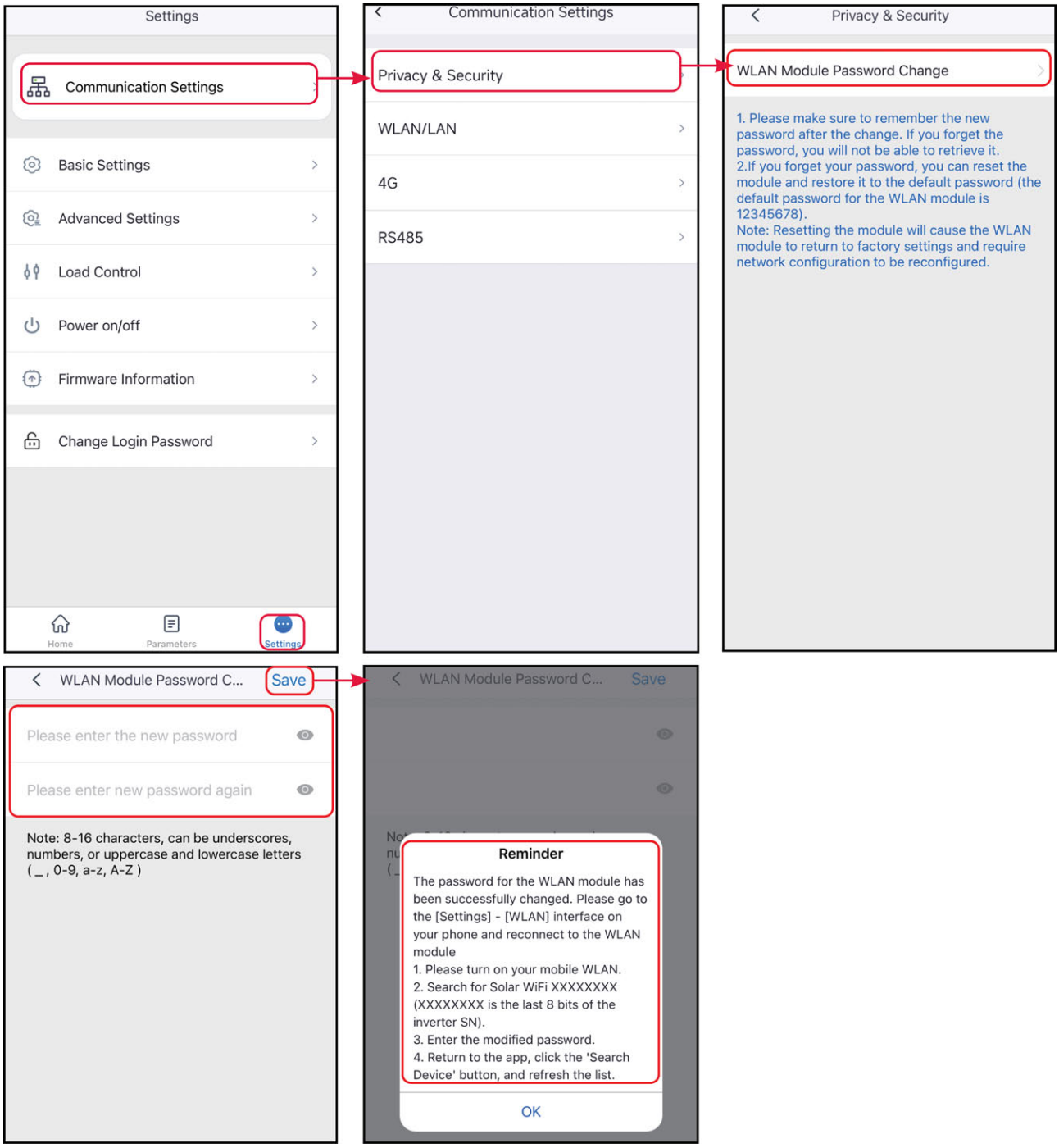
8.3.4.1 Setting Privacy and Security Parameters

Type I

Step 1 : Tap **Home > Settings > Communication Setting > Privacy & Security** to set the parameters.

Step 2 : Set the new password for the WiFi hotspot of the communication module, and tap **Save**.

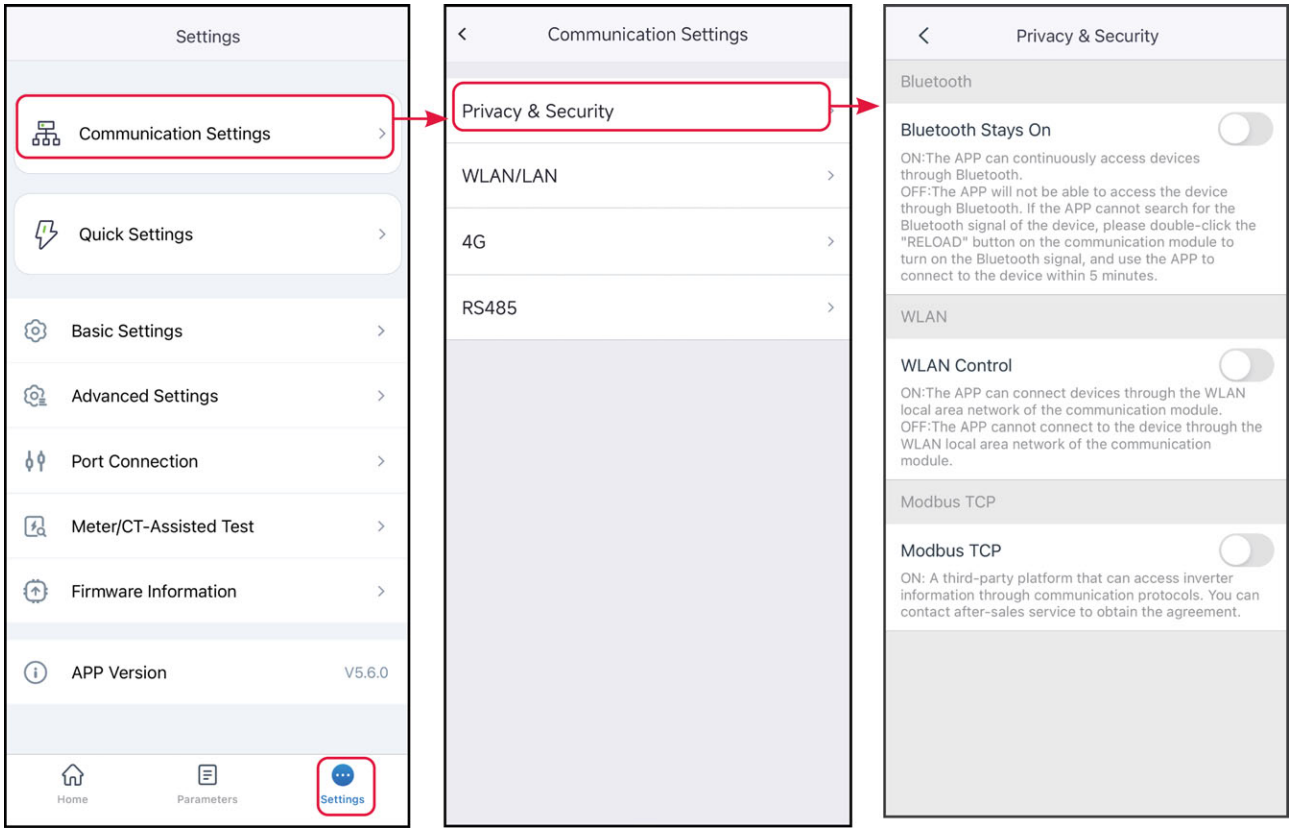
Step 3 Open the WiFi settings of your phone and connect to the inverter's WiFi signal (Solar WiFi***) with the new password.



Type II

Step 1 : Tap **Home > Settings > Communication Setting > Privacy & Security** to set the parameters.

Step 2 Enable Bluetooth Stays On or WLAN Control based on actual needs.



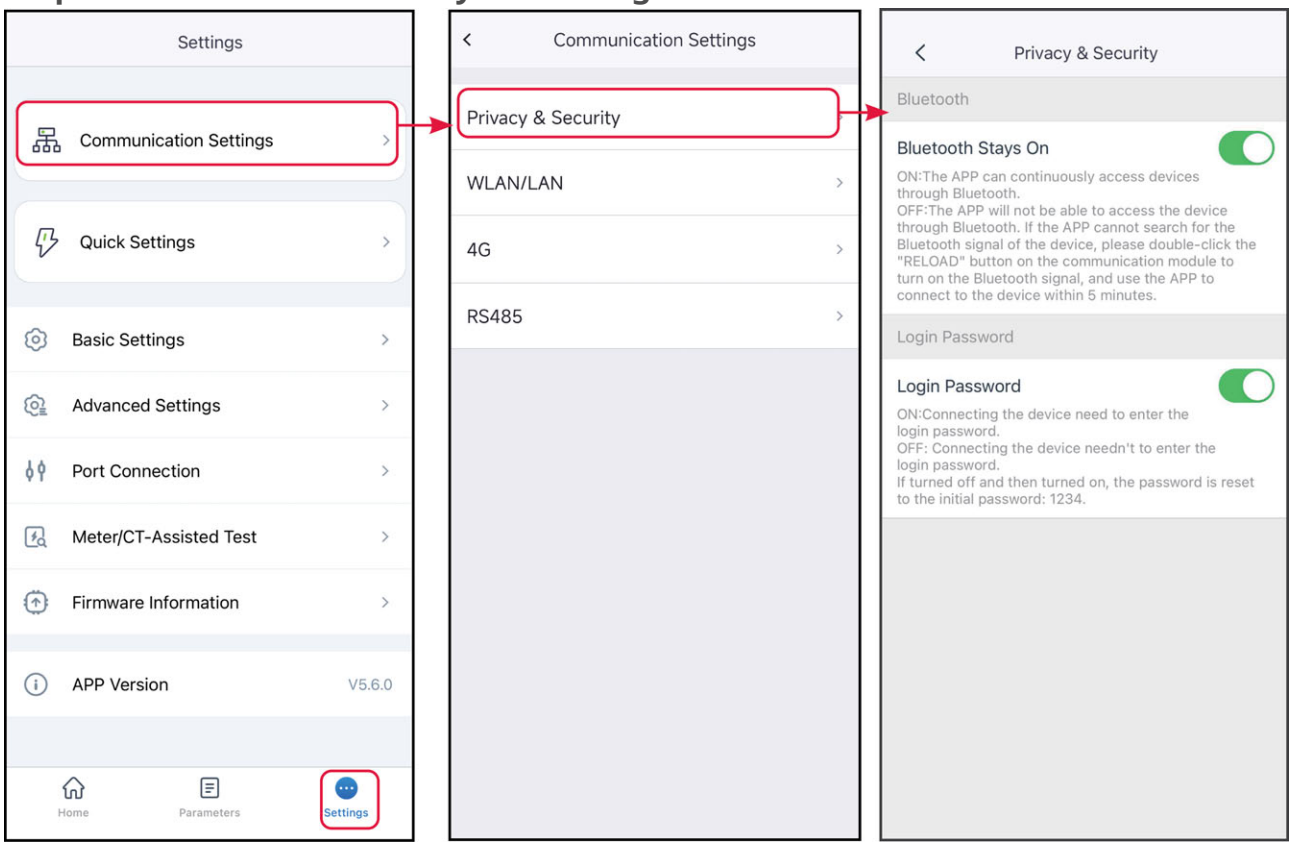
No.	Parameters	Description
1	Bluetooth Stays On	Disabled by default. Enable the function, the bluetooth of the device will be contentious on to keep connected to SolarGo. Otherwise, the bluetooth will be off in 5 minutes, and the device will be disconnected from SolarGo.
2	WLAN Control	Disabled by default. Enable the function, the device and the SolarGo can be connected through the WLAN when they are on the same LAN. Otherwise, they cannot be connected even if they are on the same LAN.
3	Modbus-TCP	Enable the function, the third party monitoring platform can access inverter through Modbus-TCP communication protocol.
4	SSH control Ezlink	After enabling this function, third-party platforms can connect to and control EzLink's Linux system.

Type III

Step 1 : Tap **Home > Settings > Communication Setting > Privacy & Security** to set

the parameters.

Step 2 : Enable **Bluetooth Stays On** or **Login Password** based on actual needs.



No.	Parameters	Description
1	Bluetooth Stays On	Disabled by default. Enable the function, the bluetooth of the device will be contentious on to keep connected to SolarGo. Otherwise, the bluetooth will be off in 5 minutes, and the device will be disconnected from SolarGo.
2	Password	Disabled by default. Enable the function, you will be prompted to enter the login password when connecting the device to SolarGo. Use the initial password and change it at the first login prompt.

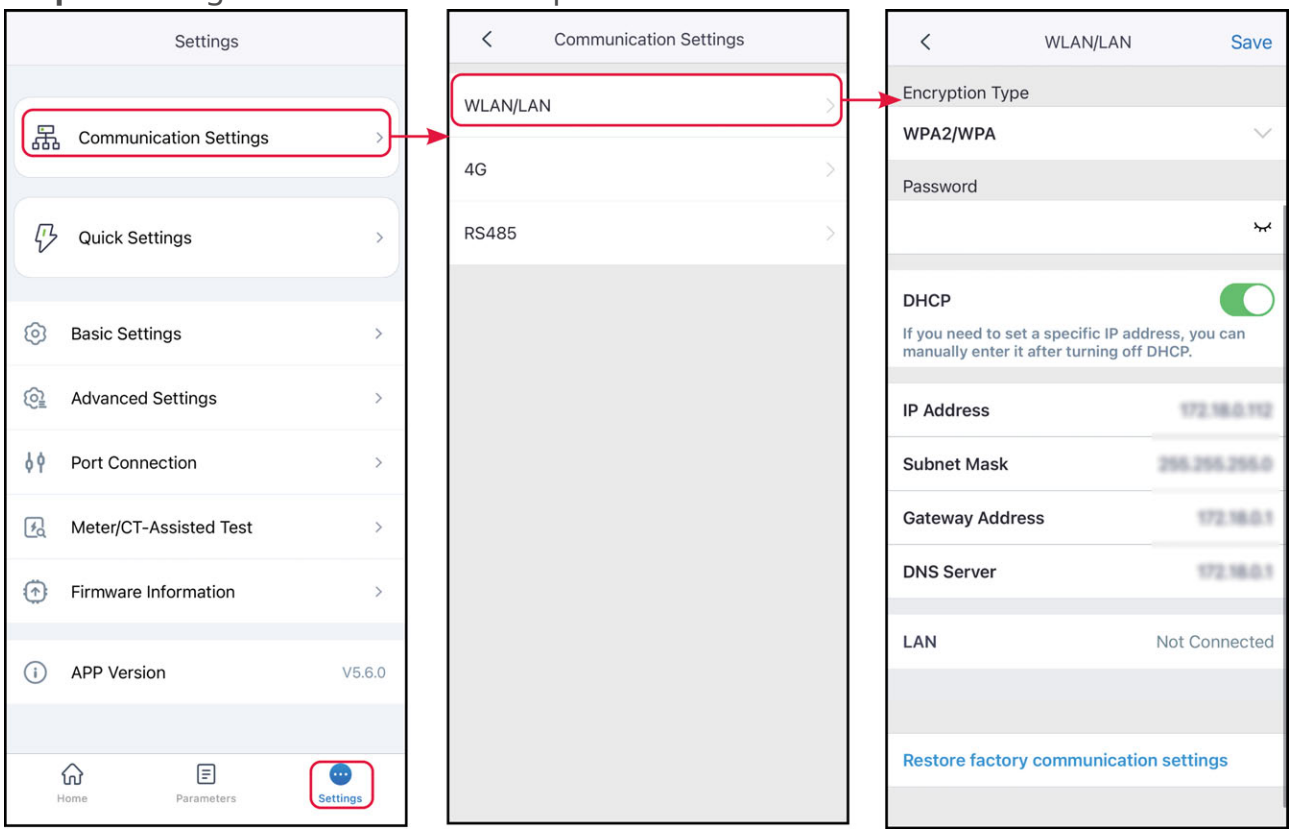
8.3.4.2 Setting WLAN/LAN Parameters

NOTICE

When the inverter is connected to different communication modules, the communication configuration interface may be different. Please refer to the actual interface.

Step 1 : Tap **Home > Settings > Communication Setting > WLAN/LAN** to set the parameters.

Step 2 : Configure the WLAN or LAN parameters based on actual needs.



No.	Parameters	Description
1	Network Name	Only for WLAN. Select WiFi based on the actual connecting.
2	Password	Only for WLAN. WiFi password for the actual connected network.
3	DHCP	Enable DHCP when the router is in dynamic IP mode. Disable DHCP when a switch is used or the router is in static IP mode.

No.	Parameters	Description
4	IP Address	Do not configure the parameters when DHCP is enabled. Configure the parameters according to the router or switch information when DHCP is disabled.
5	Subnet Mask	
6	Gateway Address	
7	DNS Server	

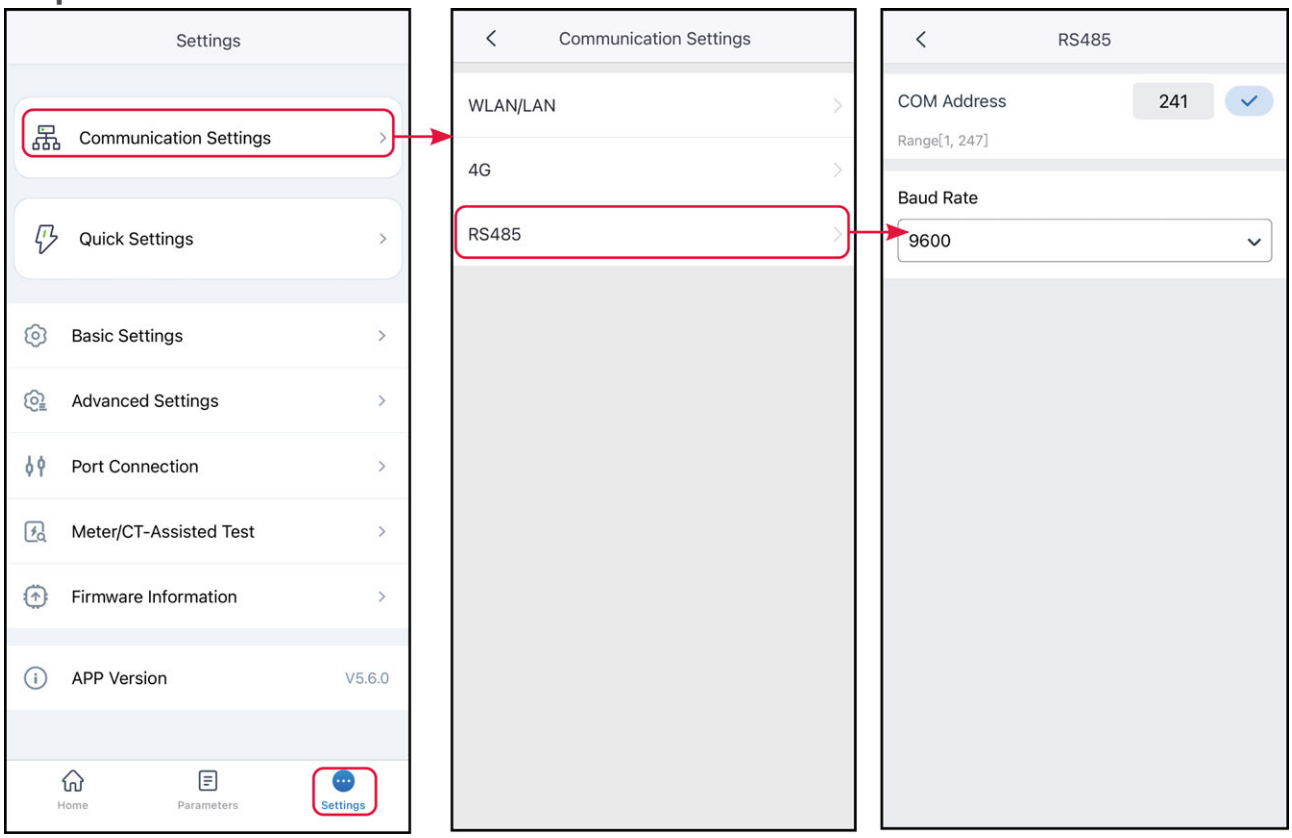
8.3.4.3 Configuring RS485 Parameters

NOTICE

Set the communication address of the inverter. For a single inverter, the address is set based on actual needs. For multi connected inverters, the address of each inverter should be different while cannot be 247.

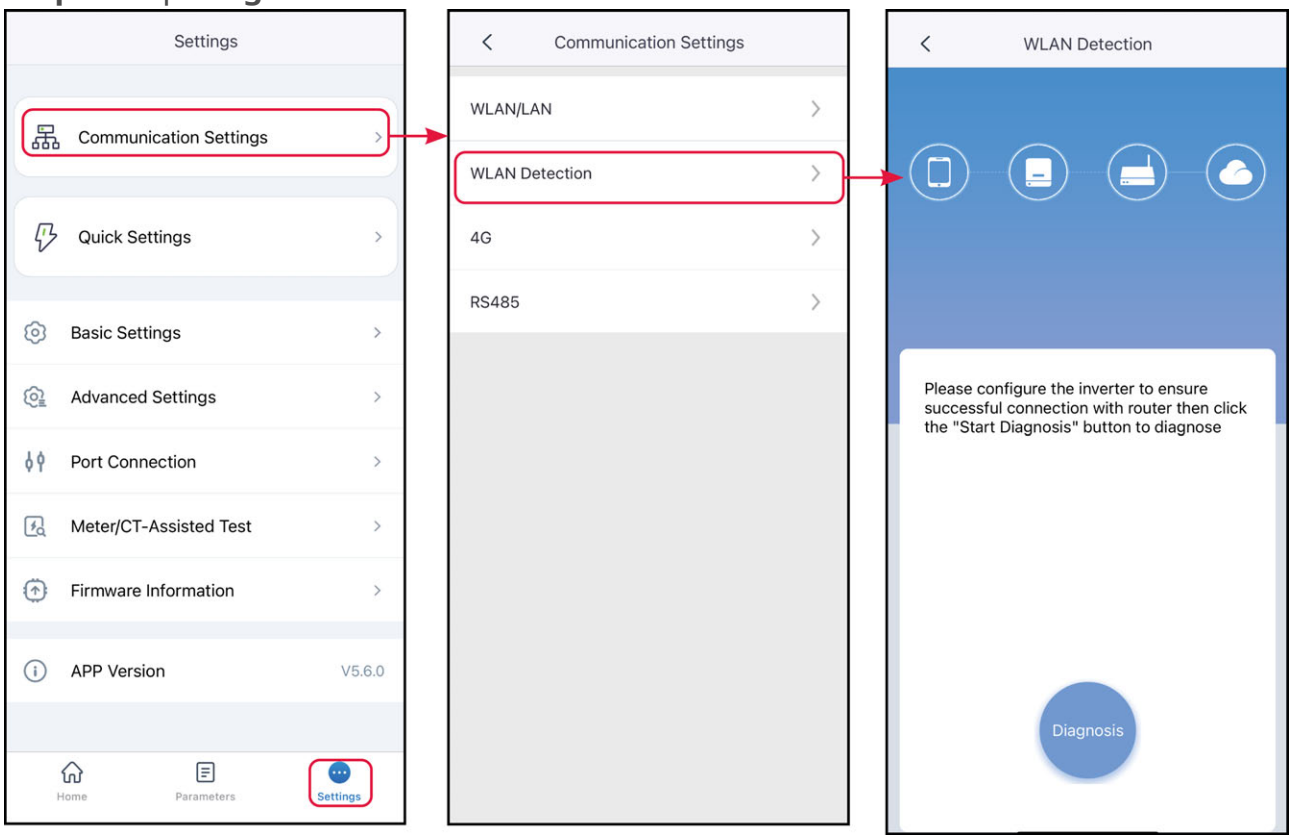
Step 1: Tap **Home > Settings > Communication Settings > RS485** to set the parameters.

Step 2 : Set the Modbus Address And Baud Rate base on actual situation.



8.3.4.4 WLAN Detection

Step 1 : Tap **Home > Settings > Communication Settings > WLAN Detection.**.
Step 2 : Tap **Diagnosis** to check the network connection status.



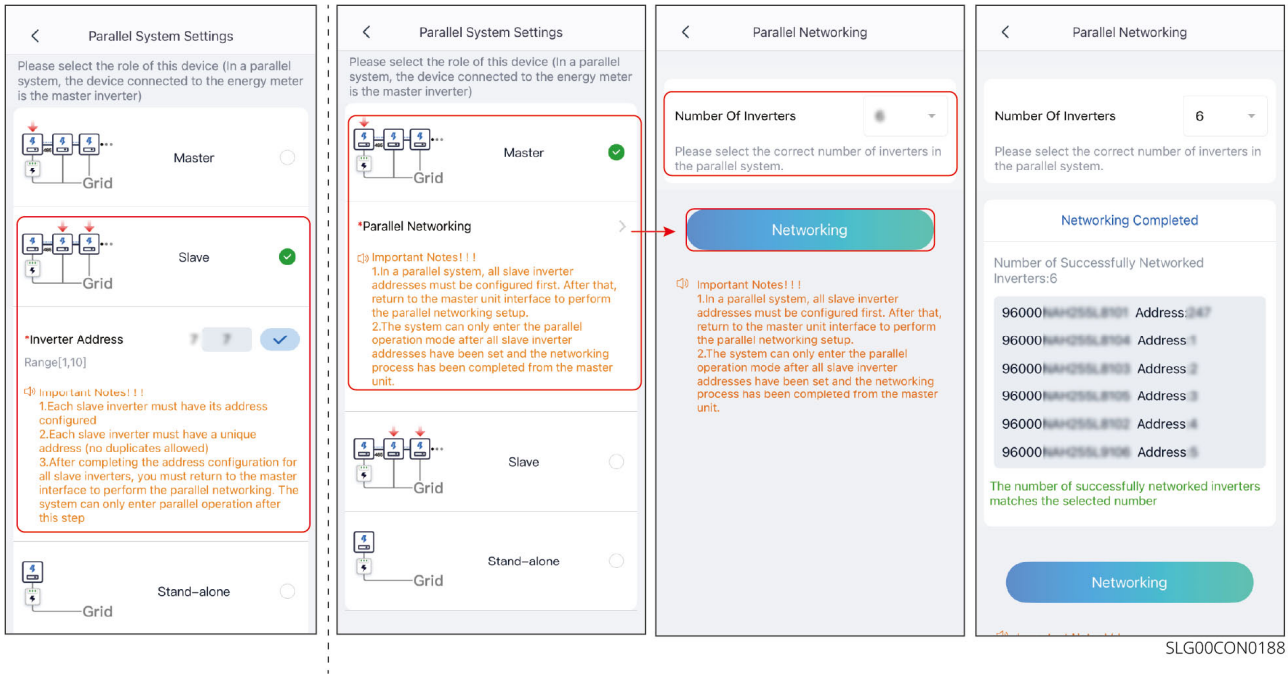
8.3.5 Setting Up the RS485 Parallel System

NOTICE

- When paralleling hybrid inverters via RS485, you must set each inverter as the master or slave inverter individually using the SolarGo App.
- When an inverter in a parallel system needs to be used as a single unit, it must be set to standalone inverter via the SolarGo App.
- Please set the inverter connected to the meter as the master.
- Please first set the slave inverter address, then set the parallel network through the master.

Step 1: Go to the settings interface via **Settings > Parallel System Settings** .
Step 2: Set the inverter to Master, Slave, or Stand-alone based on its actual wiring.

- If the inverter is the master, set it to Master and then exit the connection. After setting the slave inverter address, return to this interface, click **Parallel Networking**, set the number of inverters in the parallel system, and then click **Network**.
- If the inverter is the slave, set the **Inverter Address** and click √.



SLG00CON0188

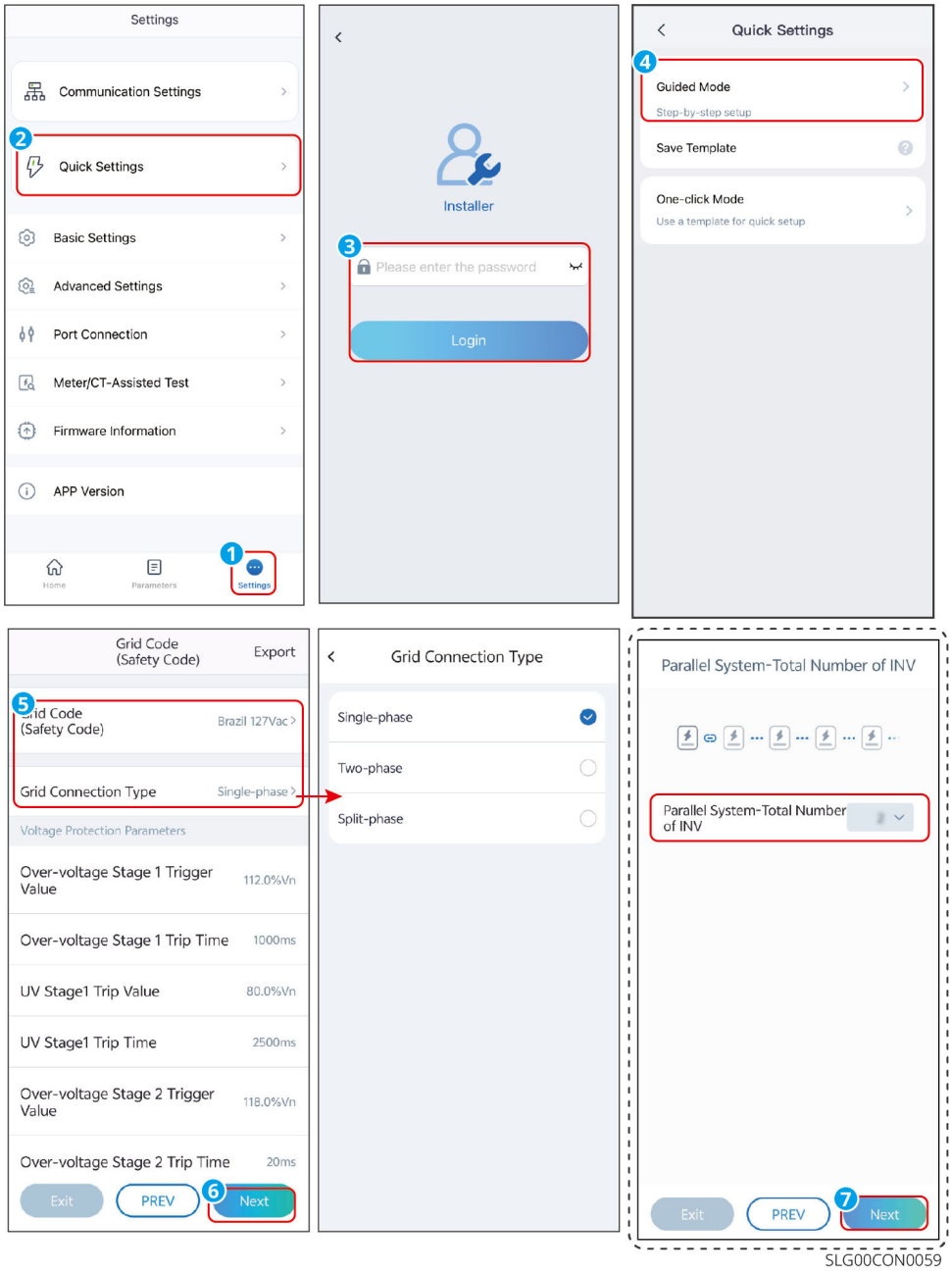
8.3.6 Quick Setting the Basic Information

NOTICE

- The setting page varies depending on inverter model.
- The parameters will be configured automatically after selecting the safety country/region, including overvoltage protection, undervoltage protection, overfrequency protection, underfrequency protection, voltage/frequency connection protection, cosφ curve, Q(U) curve, P(U) curve, FP curve, HVRT, LVRT, etc. Tap Home > Settings > Advanced Settings > Safety Parameters to check the parameters after selecting the safety country.
- The power generation efficiency is different in different working modes. Set the working mode according to the local requirements and situation.
  - Self-use mode: The basic working mode of the system. PV power generation is used to supply power to the load first, the excess power is used to charge the battery, and the remaining power is sold to the grid. When PV power generation cannot meet the load's power demand, the battery will supply power to the load; when the battery power also cannot meet the load's power demand, the grid will supply power to the load.
  - Back-up mode: The back-up mode is mainly applied to the scenario where the grid is unstable. When the grid is disconnected, the inverter turns to off-grid mode and the battery will supply power to the load; when the grid is restored, the inverter switches to grid-tied mode.
  - Economic mode: It is recommended to use economic mode in scenarios when the peak-valley electricity price varies a lot. Select Economic mode only when it meets the local laws and regulations. Set the battery to charge mode during Vally period to charge battery with grid power. And set the battery to discharge mode during Peak period to power the load with the battery.
  - Off-grid mode: suitable for areas without power grid. PV and batteries form a pure off-grid system. PV generates electricity to power the load and excess electricity charges the battery. When PV power generation cannot meet the power demand of the load, the battery will supply power to the load.
  - Smart charging: In some countries/regions, the PV power feed into the utility grid is limited. Select Smart Charging to charge the battery using the surplus power to minimize PV power waste.
  - Peak shaving mode: Peak shaving mode is mainly applicable to peak power limited scenarios. When the total power consumption of the load exceeds the power consumption quota in a short period of time, battery discharge can be used to reduce the power exceeding the quota.

8.3.6.1 System Quick Settings (Type II)

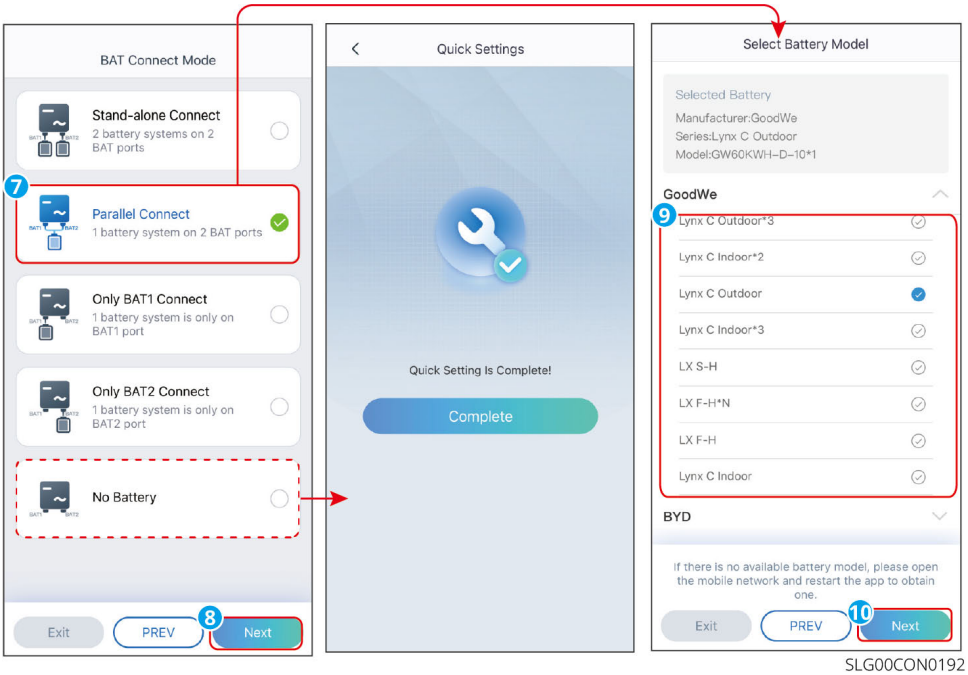
Step 1 Through**Home > Settings > Quick Configuration**Enter the parameter settings page.
Step 2 Enter login password.
Step 3 Some models support one-click configuration, select**Configuration Guide Mode**Rapid configuration system.
Step 4 Select the safety standard country based on the country or region where Inverter is located. Additionally, for certain models, it is necessary to choose Grid type according to the actual connected Utility grid configuration. After completing the settings, please click**Next step**Set the Battery access mode or the number of Inverter parallel units. The Utility grid standard code is only configurable by Installation vendors.
Step 5 Only parallel system. Set the number of Inverter parallel units. After completing the setup, please click Next to configure the Battery access mode.



SLG00CON0059

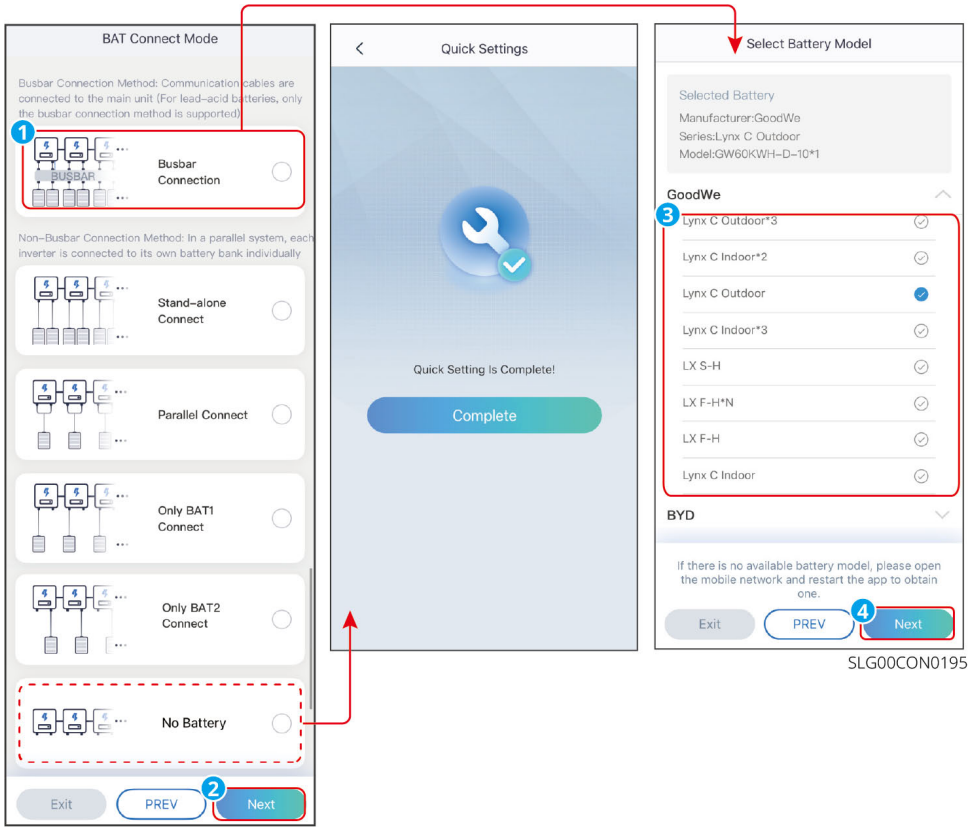
Step 6 Based on the actual situation of Battery connection, select the Battery connection mode. If there is no Battery connection, the basic parameter settings end here. If there is Battery connection, please click after completing the settings.**Next step**Set Batterymodel.

Step 7 Based on the actual connection status of Battery, select Batterymodel. After completing the settings, please click**Next step**Set working mode.



SLG00CON0192

For certain models, when paralleling Inverter via RS485, please set the Battery access mode to either busbar mode or non-busbar mode based on actual conditions, and select the Battery model. Once the master unit is configured, the slave units will automatically synchronize the Battery settings. If the Battery connected to the slave unit does not match the master unit, please access the Quick Settings interface via the slave SN on the homepage and configure the Battery model separately.



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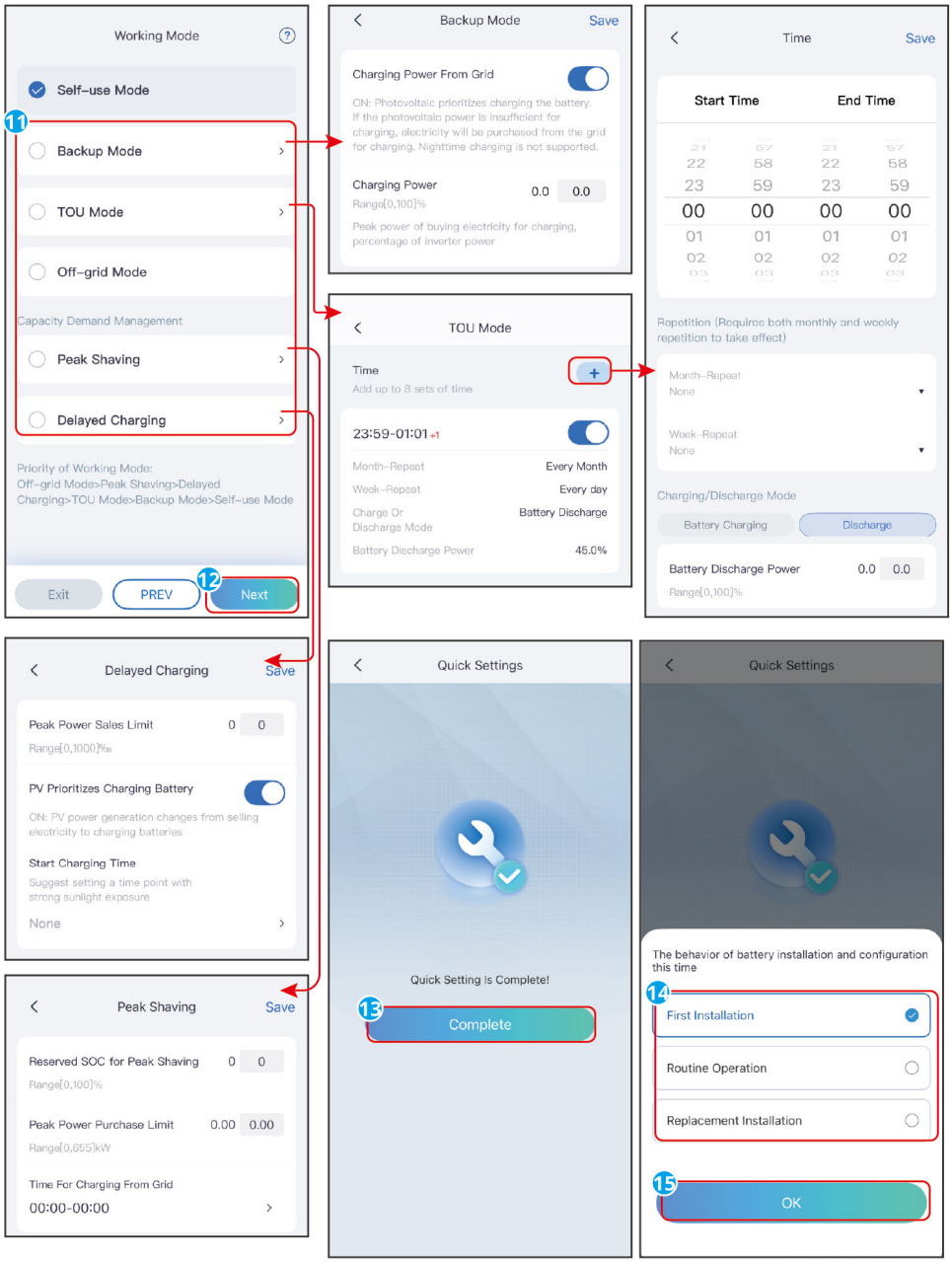
Step 8 Set the working mode according to actual needs. After setting, please click.**Next step**,Work mode configuration completed. For certain models, after the work mode configuration is completed, the system automatically enters the CT/meter self-test state. During this process, Inverter will temporarily disconnect from the grid and then automatically reconnect.

Step 9 Select the Battery based on actual conditions.**First Installation, routine operation**or**Changeover machine**.



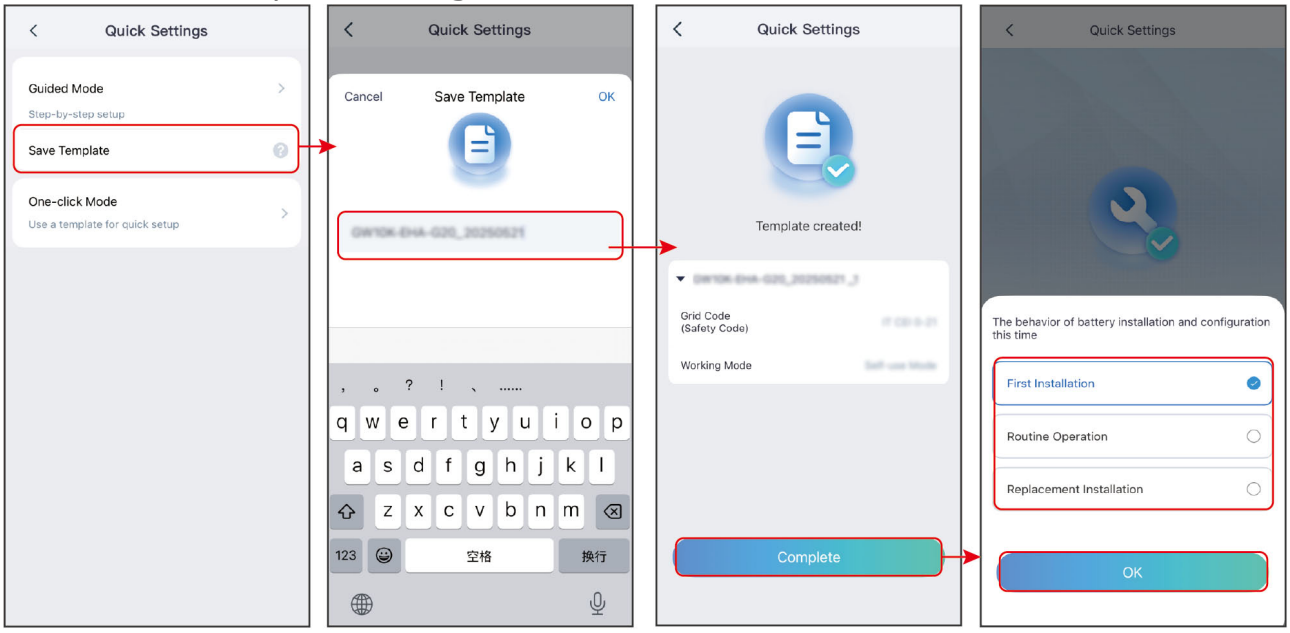
SLG00CON0060

No.	Parameter Name	Description
Back-up Mode		
1	Utility grid Purchase of Electricity Charge	Enable this function to allow the system to buy power from the grid.

No.	Parameter Name	Description
2	Charge Power	The percentage of Power to Inverter Nominal power when purchasing electricity.
TOU mode		
3	Start Time	Within the Start Time and End Time, the Battery performs Charge or Discharge based on the set charging Discharge mode and Nominal power.
4	End Time	
5	Charge Discharge mode	Set to Charge or Discharge based on actual requirements.
6	InverterNominal power	The percentage of Power to InverterNominal power during Charge or Discharge.
7	Cut-off SOC	When the Battery power reaches the set SOC, stop Charge.
peak shaving		
8	Reserved SOC for Peakshaving	In Peakshaving mode, the Battery SOC is lower than the reserved SOC for Peakshaving. When the Battery SOC is higher than the reserved SOC for Peakshaving, the Peakshaving function is disabled.
9	Peak power purchase limit	Set the maximum Power limit allowed for buy power from the grid. When the load consumption Power exceeds the sum of the electricity generated by the PV system and this limit, the excess Power is supplemented by Battery discharge.
10	Time period for purchasing electricity Charge	During the period of purchasing electricity Charge, when Load consumption does not exceed the purchase quota, it can be supplied to Battery charge via Utility grid. Outside this time range, only photovoltaic power generation Power can be utilized to supply Battery charge.
Time Delay Charge Mode		

No.	Parameter Name	Description
11	Peak power selling limit	Set the peak Power limit according to the Utility grid standard requirements of certain countries or regions. The peak Power limit value must be lower than the local specified output Power limit value.
12	PV prioritizes supplying power to Battery charge	Within the Charge timeframe, photovoltaic power generation is prioritized for supplying Battery charge.
13	Startup time	

Step 10 For devices that support one-click configuration, a template can be generated based on the completed configuration.



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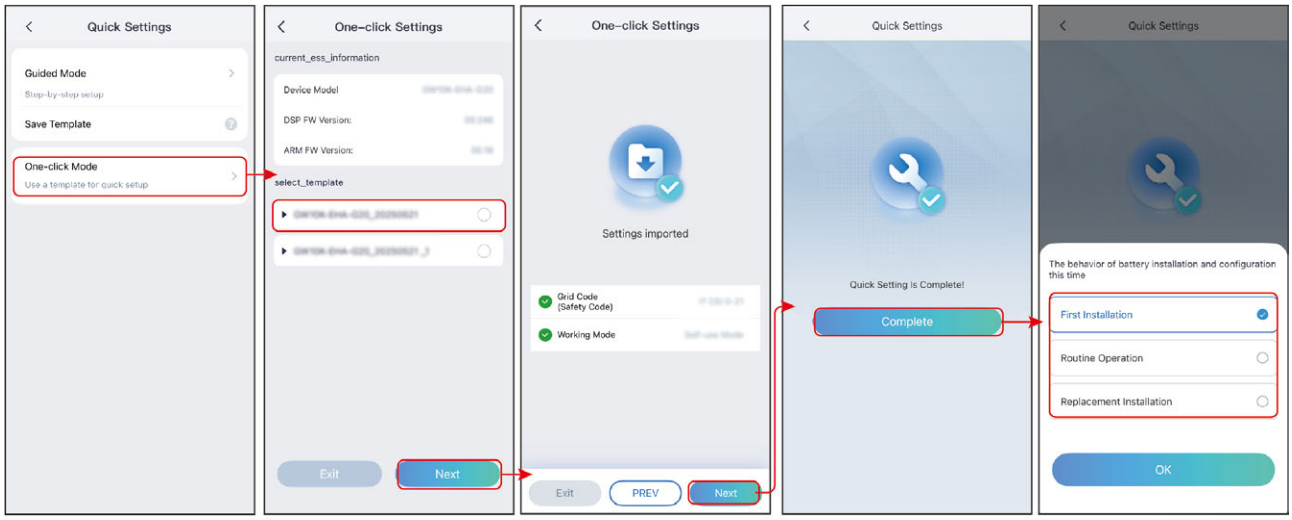
Step 11 If there is a one-click configuration template available, you can use the existing template to directly import the mode and quickly complete the configuration.



SLG00CON0120

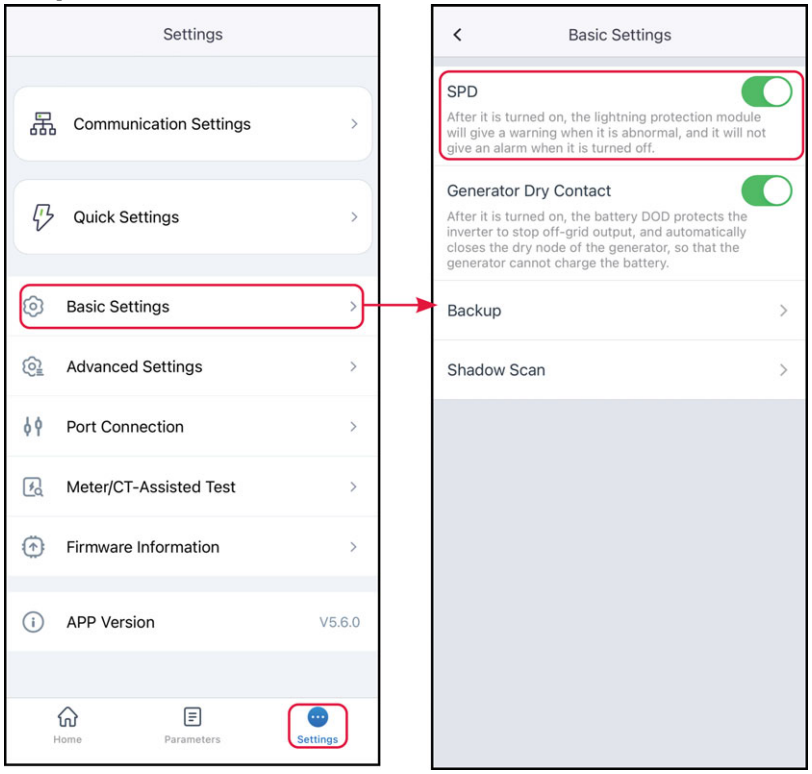
8.3.7 Setting the Basic Information

8.3.7.1 Setting the SPD

After enabling SPD, when the SPD module is abnormal, there will be SPD module abnormal alarm prompt.

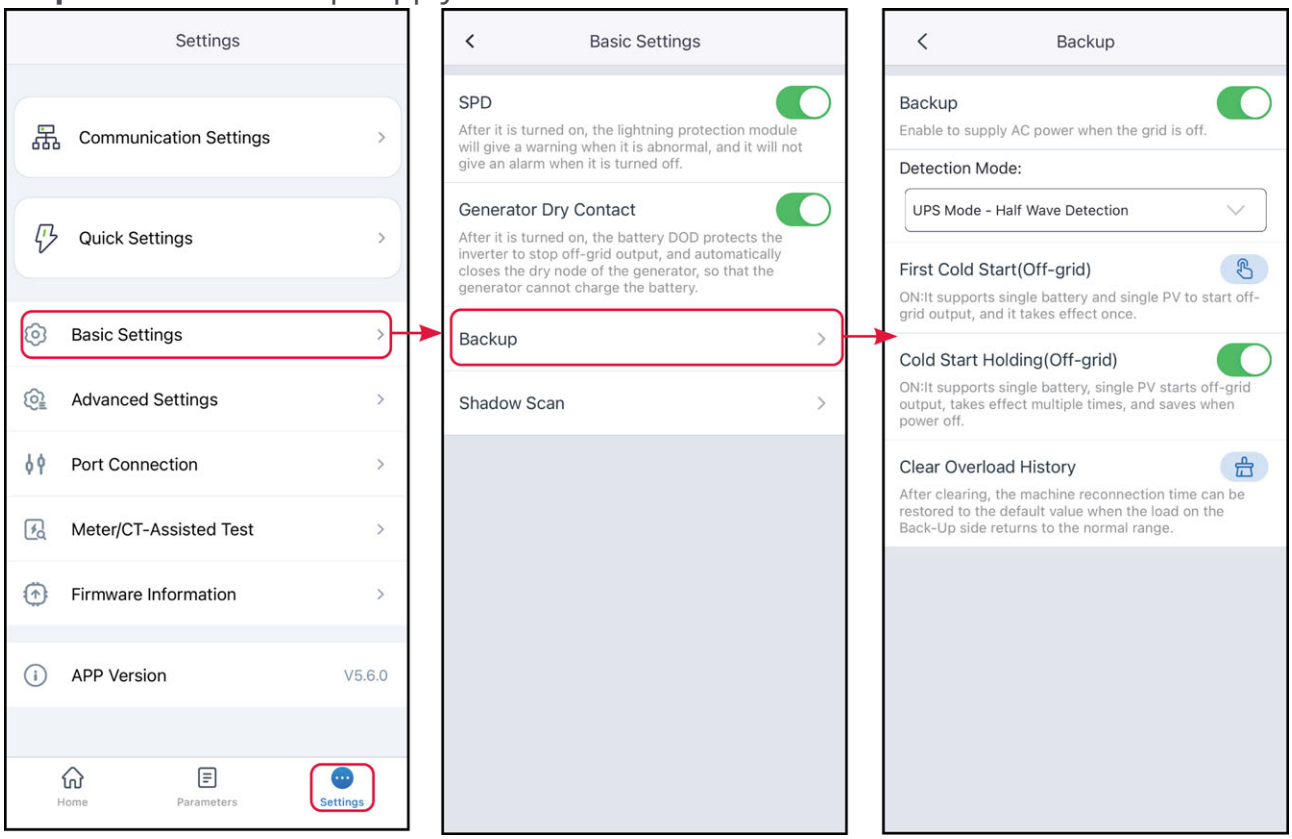
Step 1 : Tap **Home > Settings > Basic Settings > SPD**, to set the parameters.

Step 2 : enable or disable the function based on actual needs.



8.3.7.2 Setting the Back-up Power Parameters

After enabling Backup, the battery will power the load connected to the backup port of the inverter to ensure Uninterrupted Power Supply when the power grid fails.
Step 1 : Tap **Home > Settings > Basic Settings > Backup**, to set the parameters.
Step 2 : Set the backup supply function based on actual needs.

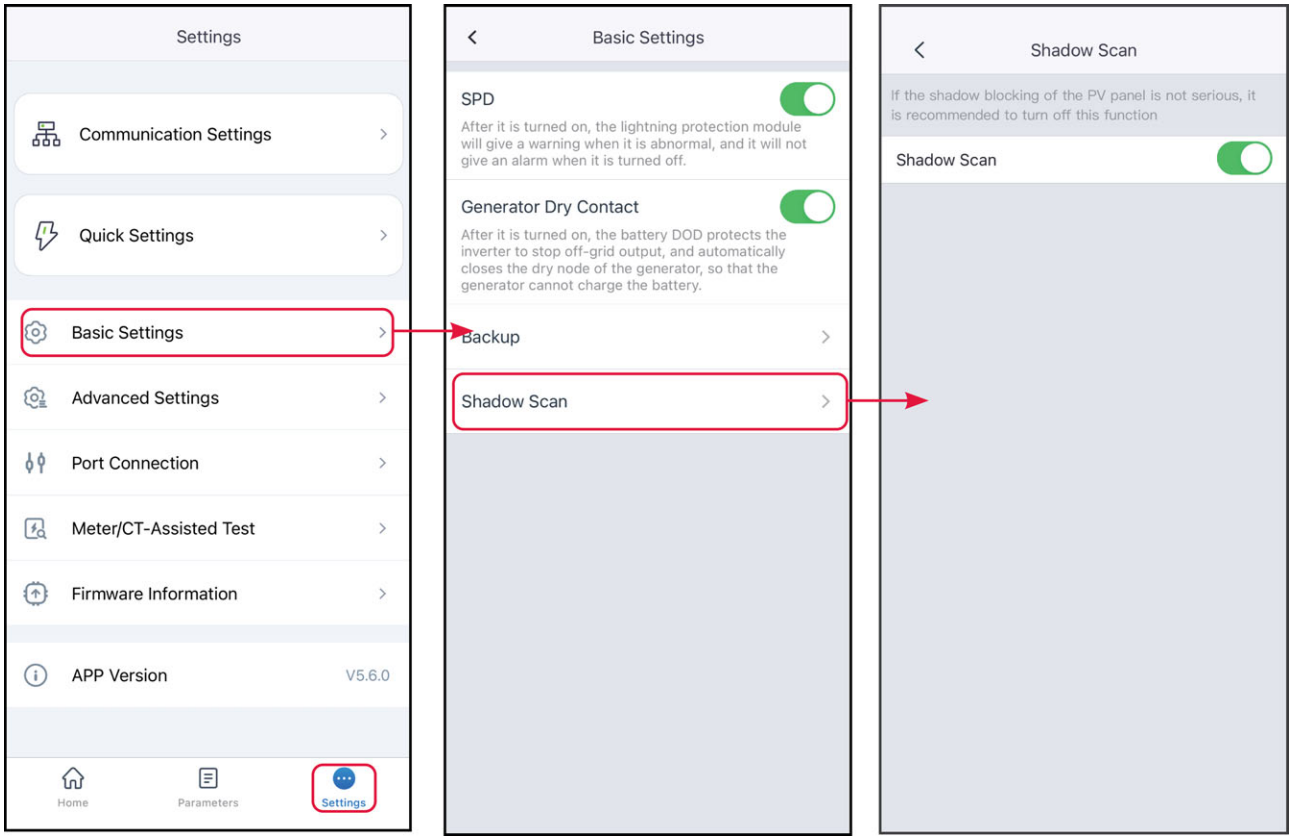


No.	Parameters	Description
1	UPS Mode- Full Wave Detection	Check whether the utility grid voltage is too high or too low.
2	UPS Mode- Half Wave Detection	Check whether the utility grid voltage is too low.
3	EPSmode-with LVRT support.	Stop detecting utility grid voltage.
4	First Cold Start (Off-grid)	It will only take effect once. In off-grid mode, enable First Cold Start (Off-grid) to output backup supply with battery or PV.

No.	Parameters	Description
5	Cold Start Holding (Off-grid)	Take effect multiple times. In off-grid mode, enable First Cold Start (Off-grid) to output backup supply with battery or PV.
6	Clear Overload History	Once the power of loads connected to the inverter BACK-UP ports exceeds the rated load power, the inverter will restart and detect the power again. The inverter will perform restart and detection several times until the overloading problem is solved. Tap Clear Overload History to reset the restart time interval after the power of the loads connected to the BACK-UP ports meets the requirements. The inverter will restart immediately.

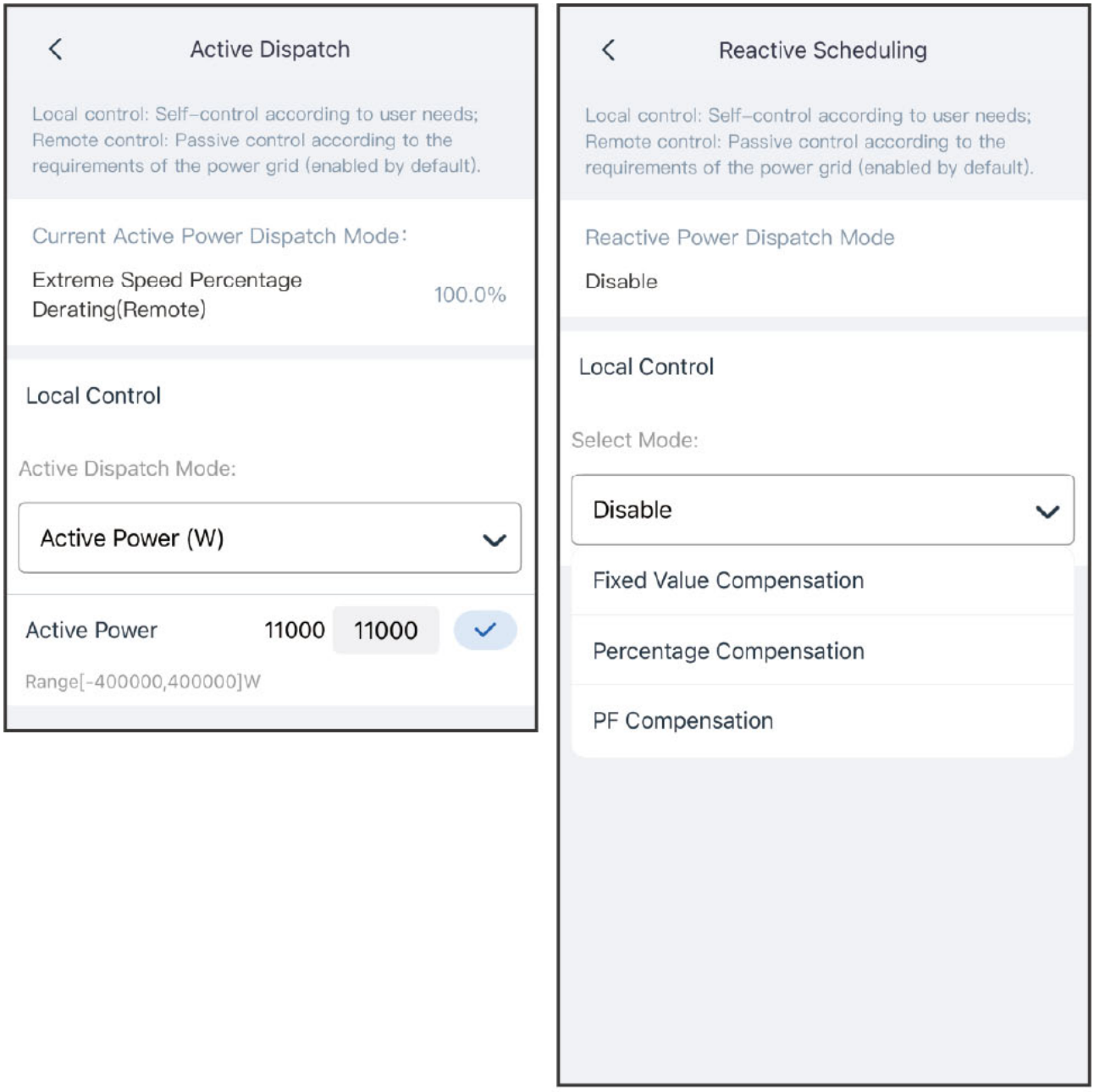
8.3.7.3 Setting the Shadow Scan

Enable Shadow Scan when the PV panels are severely shadowed to optimize the power generation efficiency.
Step 1 : Tap **Home > Settings > Basic Settings> Shadow Scan**, to set the parameters.
Step 2: Enable or disable the function based on actual needs. Set the Shadow Scan interval and MPPT shadow scan if the inverter supports.



8.3.7.4 Setting Power Adjustment Parameters

Step 1: Go to the settings interface via **Home > Settings > Basic Settings > Power Scheduling**.
Step 2: Set the active power dispatch or reactive power dispatch parameters according to the actual situation.



SLG00CON0124

No.	Parameter	Description
Active Scheduling		

No.	Parameter	Description
1	Active Scheduling Mode	According to the requirements of the power grid company in the country/region where the inverter is located, control the active power according to the selected dispatch mode. Supports: • Disabled: Disables active scheduling. • Fixed value reduction: Dispatch according to a fixed value. • Percentage reduction: Dispatch based on a percentage of the rated power.
2	Active Power	• When the active power dispatch mode is set to fixed value derating, the active power is set to a fixed value. • When the active power dispatch mode is set to percentage derating, the active power is set as a percentage of the rated power. 比。
Reactive Scheduling		
3	Reactive Scheduling Mode	According to the requirements of the power grid company in the country/region where the inverter is located, control the reactive power according to the selected dispatch mode. Supports: • Disabled: Disables reactive scheduling. • Fixed value compensation: Dispatch according to a fixed value. • Percentage compensation: Dispatch based on a percentage of the rated power. • PF compensation.
4	Status	Set the power factor as lagging or leading based on actual needs and local grid standards and requirements.

No.	Parameter	Description
5	Reactive Power	• When the reactive power dispatch mode is set to fixed value derating, the reactive power is set to a fixed value. • When the reactive power dispatch mode is set to percentage derating, the reactive power is set as a percentage of the rated power.
6	Power Factor	When the reactive power dispatch mode is set to PF compensation, set the power factor.

8.3.8 Setting Advanced Parameters

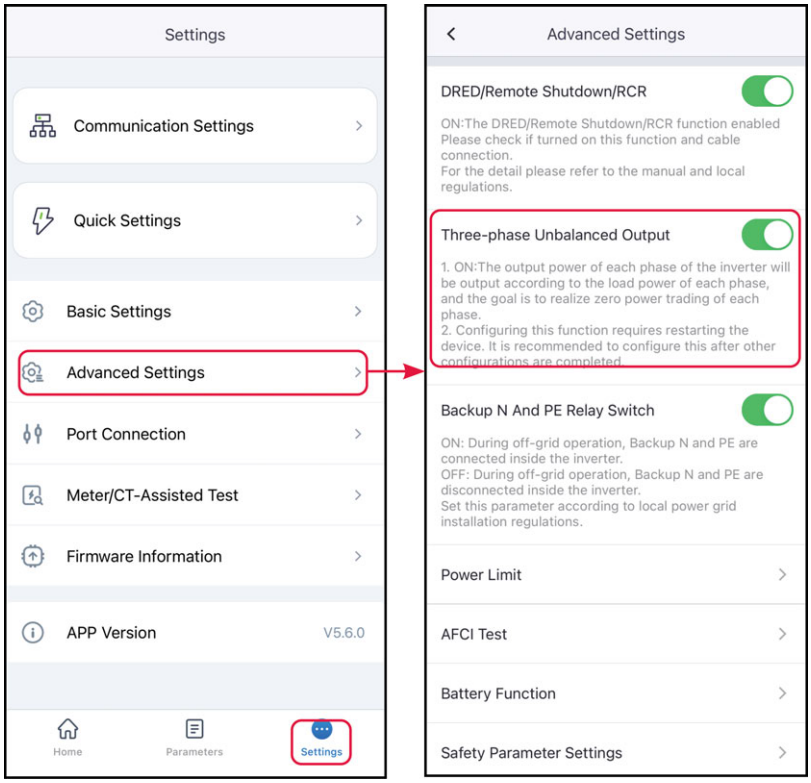
NOTICE
Contact the supplier or after sales service for Advanced Setting password. Password for professional technicians only.

8.3.8.1 Setting Three-phase Unbalanced Output

Enable the Three-phase unbalanced output when connecting unbalanced loads, which means L1, L2, L3 of the inverter respectively connected to loads with different power. Only for three phase inverters.

Step 1 : Tap **Home > Settings > Advanced Settings > Three-phase Unbalanced Output** to set the parameters.

Step 2 : Enable or disable the function based on actual needs.

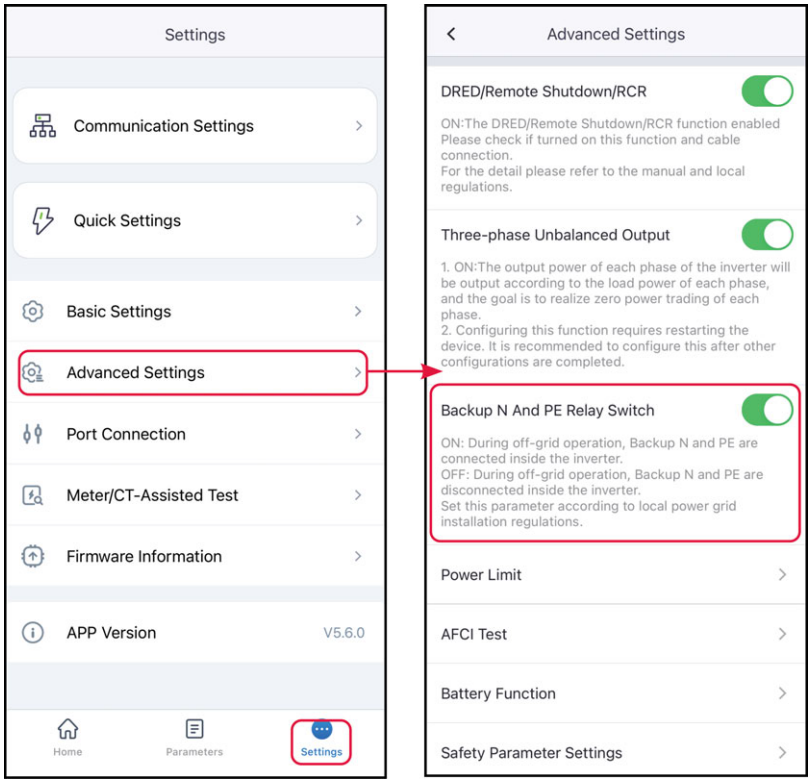


8.3.8.2 Setting the Backup N and PE Relay Switch

To comply with local laws and regulations, ensure that the relay inside the back-up port remains closed and the N and PE wires are connected when the inverter is working off-grid.

Step 1 : Tap **Home > Settings > Advanced Settings > Backup N and PE Relay Switch** to set the parameters.

Step 2 : Enable or disable the function based on actual needs.



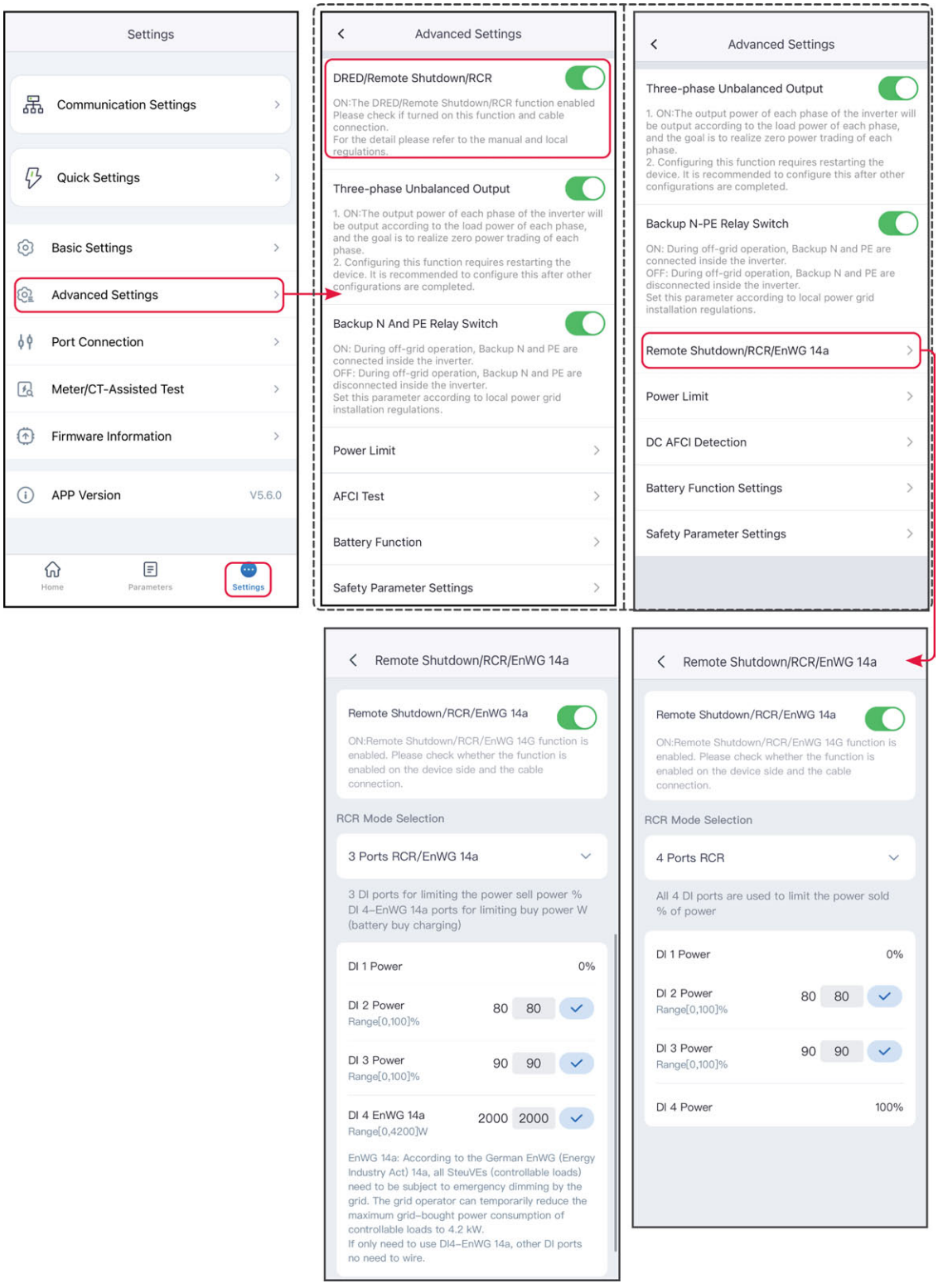
8.3.8.3 Configure DRED/Remote Shutdown/RCR/EnWG 14a functions

According to the Utility grid standard requirements in certain countries or regions, when it is necessary to connect third-party DRED/Remote Shutdown/RCR/EnWG 14a devices for signal control, please enable the DRED/Remote Shutdown/RCR/EnWG 14a function.

Step 1 Pass through**Home > Settings > Advanced Settings > DRED/Remote Shutdown/RCR/EnWG 14a**, set this function.

Step 2 Enable or disable this function based on actual requirements.

Step 3 For regions subject to the EnWG 14a regulation, when enabling the RCR function, it is necessary to select the RCR mode based on the actual type of connected equipment and set the DIportPower percentage value.



8.3.8.4 Setting the Power Limit Parameters

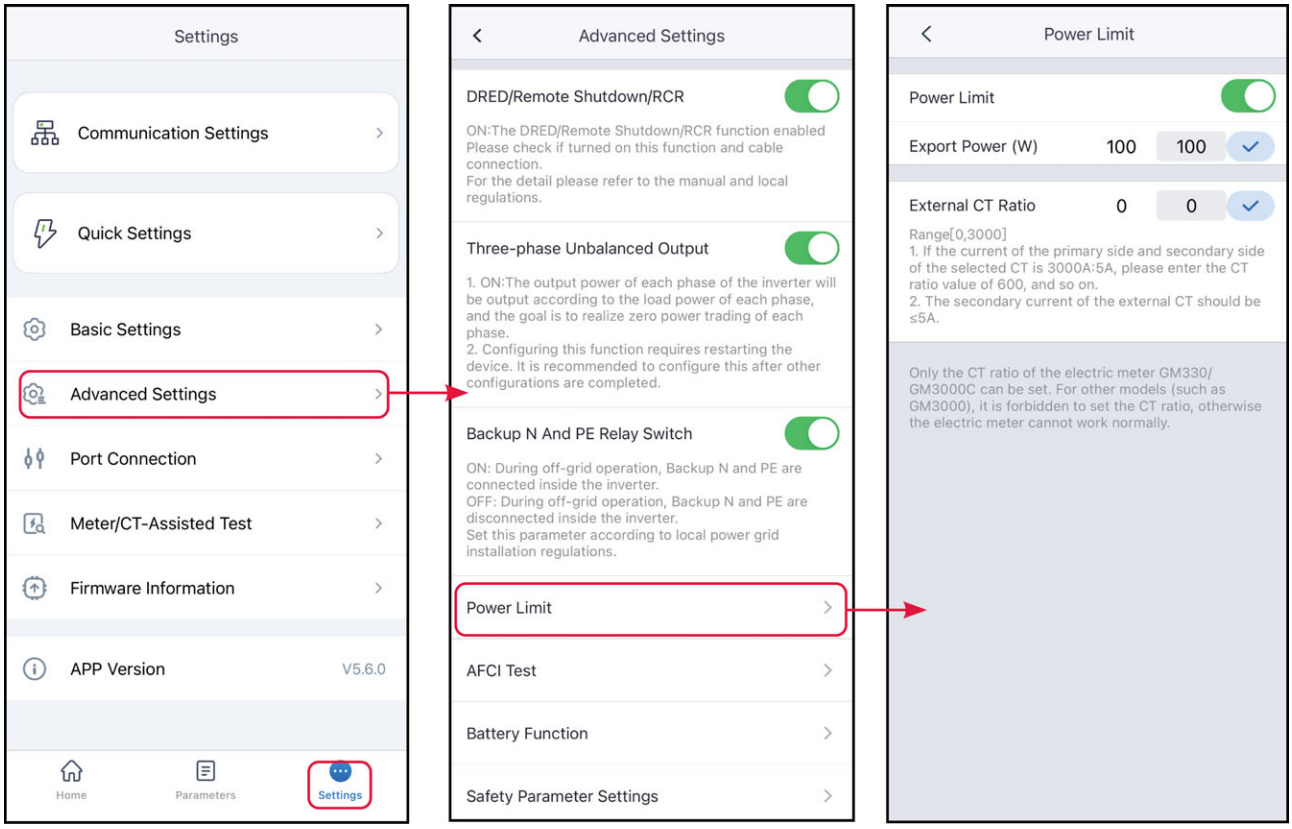
Step 1: Tap **Home > Settings > Advanced Settings > Power Limit** to set the

parameters.

Step 2 : Turn on or off the power limit function according to actual needs.

Step 3 : After turning on the function, enter the parameter value according to actual needs and tap "√" to successfully set the parameter.

8.3.8.4.1 Set the grid-connected power limit parameters (general)

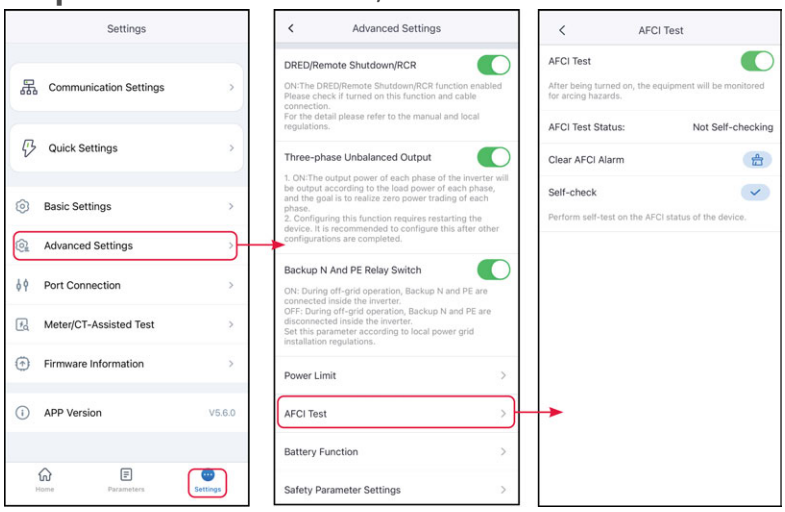


No.	Parameters	Description
1	Power Limit	Turn on this function when output power needs to be limited according to the grid standards of some countries or regions.
2	Export Power	Set according to the maximum power that can be input to the grid.
3	External Meter CT ratio	Set the ratio of the primary current to the secondary current of the external CT.

8.3.8.5 Setting the AFCI Detection

Step 1 : Tap **Home > Settings > Advanced Settings > AFCI Test** to set the parameters.

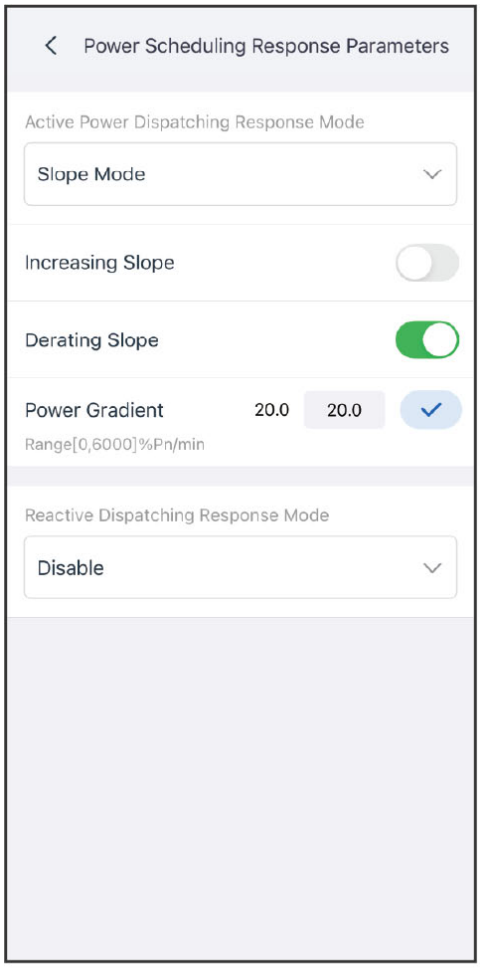
Step 2 : Enable AFCI Test, Clear AFCI Alarm and Self-Check based on actual needs.



No.	Parameters	Description
1	AFCI Test	Enable or disable AFCI accordingly.
2	AFCI Test Status	The detection status like Not Self-checking.
3	Clear AFCI Alarm	Clear ARC Faulty alarm records.
4	Self-check	Tap to check whether the AFCI function works normally.

8.3.8.6 Setting Power Adjustment Response Parameters

Step 1: Go to the parameter settings page via **Home > Settings > Advanced Settings > Power Adjustment Response Parameters**.
Step 2: Based on actual requirements, select **Disable, Slope Adjustment**, or **First-Order Low-Pass Filter** Mode from the Active Power Adjustment drop-down menu. If you select slope adjustment, enter the power change gradient value; if you select first-order low-pass filter mode, enter the first-order low-pass filter time parameter value.
Step 3: Based on actual requirements, select **Disable, Slope Adjustment**, or **First-Order Low-Pass Filter** Mode from the Reactive Power Adjustment drop-down menu. If you select slope adjustment, enter the power change gradient value; if you select first-order low-pass filter mode, enter the first-order low-pass filter time parameter value.
Step 4: Click √ to save the settings.



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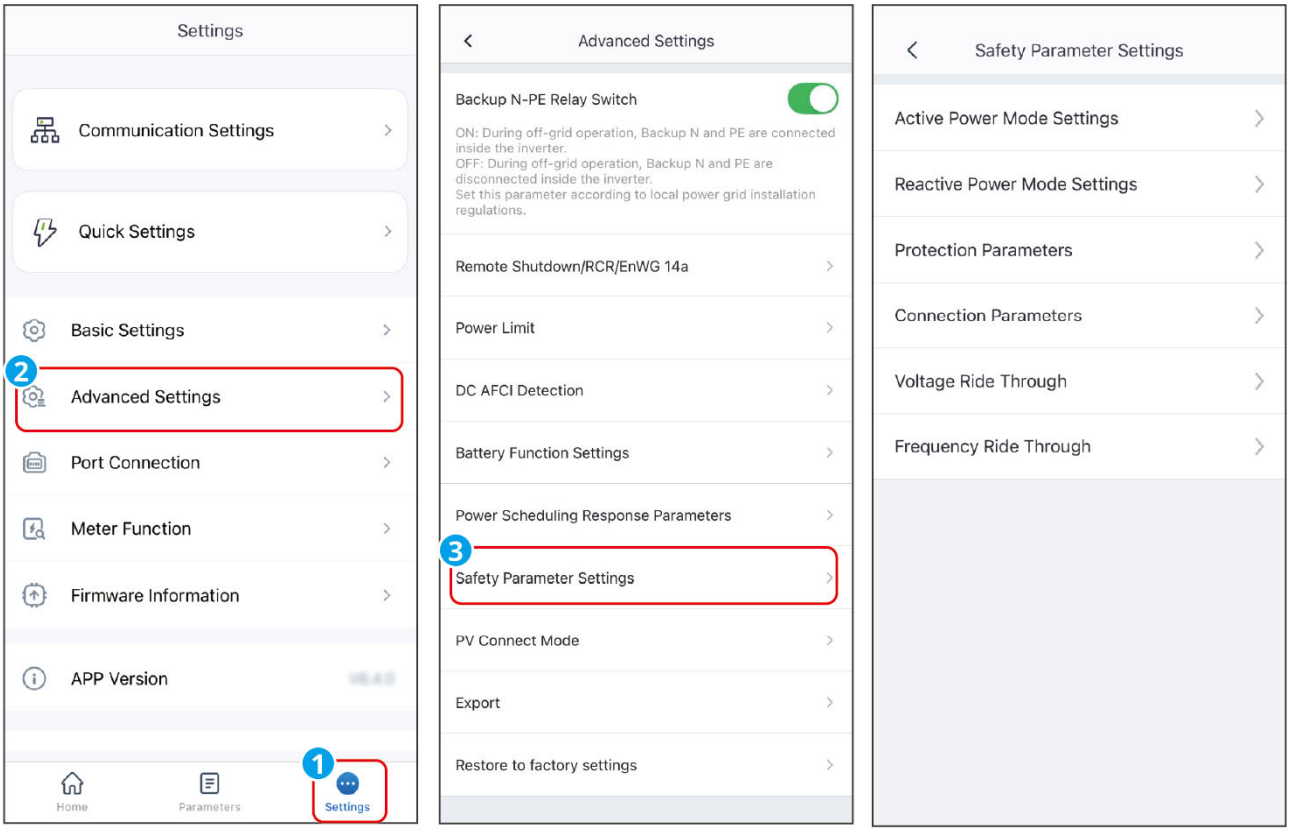
No.	Parameter	Description
Active Adjustment Response Mode		
1	First-order Low-pass Filter	Within the response time constant, active adjustment is implemented according to a first-order low-pass curve.
2	First-order Low-pass Filter Time Parameter	Set the time constant within which the active power changes based on the first order LPF curve.
3	Slope Adjustment	Implement active power dispatch based on the power change slope.
4	Power Change Gradient	Set the slope of active power adjustment changes.
Reactive Adjustment Response Mode		

No.	Parameter	Description
5	First-order Low-pass Filter	Within the response time constant, reactive adjustment is implemented according to a first-order low-pass curve.
6	First-order Low-pass Filter Time Parameter	Set the time constant within which the reactive power changes based on the first order LPF curve.
7	Slope Adjustment	Implement reactive power dispatch based on the power change slope.
8	Power Change Gradient	Set the slope of reactive power adjustment changes.

8.3.8.7 Setting Safety Parameters

NOTICE
Set the custom safety parameters in compliance with local requirements. Do not change the parameters without the prior consent of the grid company.



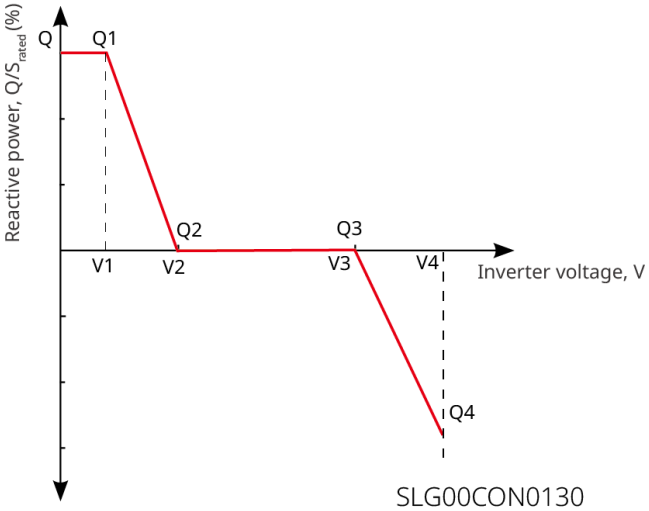
SLG00CON0076

8.3.8.7.1 Setting the Reactive Power Mode

Step 1 : Tap **Home > Settings > Advanced Settings > Safety Parameter Setting > Reactive Power Mode Settings** to set the parameters.

Step 2 :Set the parameters based on actual needs.

Q(U) Curve



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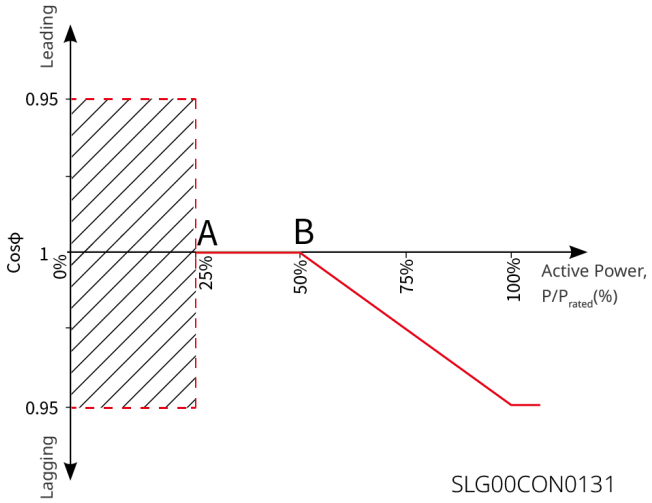
Cosφ Curve



SLG00CON0131

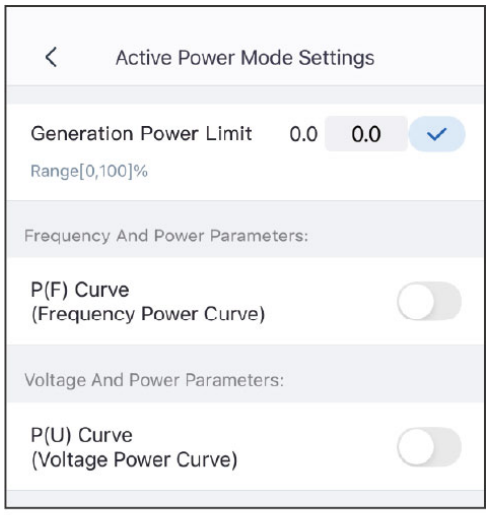
No.	Parameters	Description
Fix PF		
1	Fix PF	Enable Fix PF when it is required by local grid standards and requirements. After the parameters are set successfully, the power factor remains unchanged during the operation of the inverter.
2	Under-excited	Set the power factor as lagging or leading based on actual needs and local grid standards and requirements.
3	Over-excited	
4	Power Factor	Set the power factor based on actual needs. Range: 0-~-0.8, or +0.8~+1.
Fix Q		
1	Fix Q	Enable Fix Q when it is required by local grid standards and requirements.
2	Over-excited/Under-excited	Set the reactive power as inductive or capacitive reactive power based on actual needs and local grid standards and requirements.
3	Reactive Power	Set the ratio of reactive power to apparent power.
Q(U) Curve		
1	Q(U) Curve	Enable Q(U) Curve when it is required by local grid standards and requirements.

No.	Parameters	Description
2	Mode Selection	Set Q(U) curve mode, supporting basic mode and slope mode.
3	Vn Voltage	The percentage of actual voltage to the rated voltage at Vn point, n=1, 2, 3, 4. When set to 90, it means: V/Vrated% = 90%.
4	Vn Reactive Power	The percentage of the reactive output power to the apparent power at Vn point, n=1, 2, 3, 4. For example, setting **Vn Reactive Power** to 48.5 means Q/Srated%=48.5%。
5	Voltage Deadband Width	When Q(U) curve mode is set to slope mode, this parameter defines the voltage deadband range where no reactive power output is required.
6	Over-excitation Slope	(In Q(U) slope mode) Sets the positive or negative slope for reactive power variation during over-voltage conditions.
7	Under-excitation Slope	
8	Vn Reactive Power	The percentage of the reactive output power to the apparent power at Vn point, n=1, 2, 3, 4. For example, setting **Vn Reactive Power** to 48.5 means Q/Srated%=48.5%。
9	Q(U) Curve Response Time Constant	The reactive power must reach 95% of the target value within 3 time constants, following a first-order low-pass filter curve.
10	Extended Function	Enable the extended function and configure the corresponding parameters.
11	Lock-In Power	When the inverter output reactive power to the rated power ratio is between the Lock-in power and Lock-out power, the ratio meets Q(U) curve requirements.
12	Lock-out Power	
Cosφ(P) Curve		

No.	Parameters	Description
1	Cosφ(P) Curve	Enable Cosφ Curve when it is required by local grid standards and requirements.
2	Mode Selection	Set cosφ(P) Curve Mode and support basic mode and slope mode configurations.
3	N-point Power	The percentage of inverter output active power relative to rated power at the N-point. N=A, B, C, D, E。
4	N-point cosφ Value	N-point Power Factor N=A, B, C, D, E。
5	Over-excitation Slope	When cosφ(P) curve mode is set to slope mode, configures the power variation slope as either positive or negative.
6	Under-excitation Slope	
7	N-point Power	The percentage of inverter output active power relative to rated power at the N-point. N=A, B, C。
8	N-point cosφ Value	N-point Power Factor N=A, B, C。
9	cosφ(P) Curve Response Time Constant	The reactive power must reach 95% of the target value within 3 time constants, following a first-order low-pass filter curve.
10	Extended Function	Enable the extended function and configure the corresponding parameters.
11	Lock-in Voltage	When the grid voltage is between Lock-in Voltage and Lock-out Voltage, the voltage meets Cosφ curve requirements.
12	Lock-out Voltage	
Q(P) Curve		
1	Q(P) Curve Function	Enable Q(P) Curve when it is required by local grid standards and requirements.
2	Mode Selection	Set Q(P) curve mode, supporting basic mode and slope mode.

No.	Parameters	Description
3	Pn-point Power	The percentage of the output reactive power to the rated power at Pn point, n=1, 2, 3, 4, 5, 6. For example, setting to 90 means Q/Prated%=90%.
4	Pn-point Reactive Power	The percentage of the output active power to the rated power at Pn point, n=1, 2, 3, 4, 5, 6. For example, When set to 90, it means: P/Prated% = 90%.
5	Over-excitation Slope	When the Q(P) curve mode is set to slope mode, configure the power variation slope as either a positive or negative value.
6	Under-excitation Slope	
7	Pn-point Power	Ratio of reactive power to rated power at Pn points (n=1, 2, 3). For example, setting to 90 means Q/Prated%=90%.
8	Pn-point Reactive Power	Ratio of active power to rated power at Pn points (n=1, 2, 3). For example, When set to 90, it means: P/Prated% = 90%.
9	Time Constant	The reactive power must reach 95% of the target value within 3 time constants, following a first-order low-pass filter curve.

8.3.8.7.2 Setting the Active Power Mode



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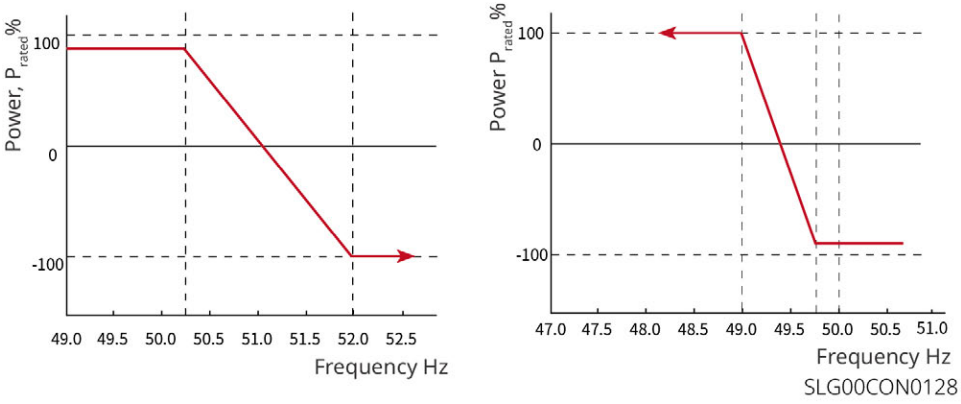
Step 1: Tap **Home > Settings > Advanced Settings > Safety Parameter Settings > Active Power Mode Settings** to set the parameters.

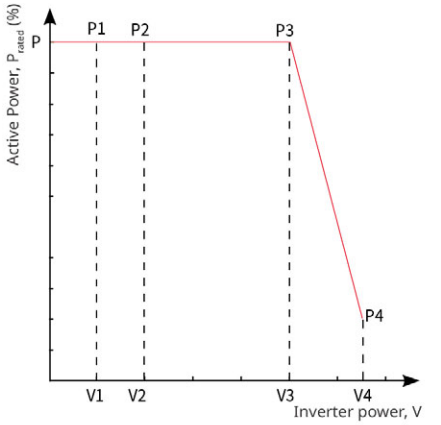
Step 2: Set the parameters based on actual needs.

P(F) Curve



SLG00CON0128

P(U) Curve



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No.	Parameters	Explanation
1	Generation Power Limit	Set the change slope when the active output power increases or decreases.
2	Power Gradient	Set the active power change slope.
Overfrequency Unloading		
1	P(F) Curve	Enable P(F) Curve when it is required by local grid standards and requirements.
2	Over-Frequency Load Shedding Mode	Set the overfrequency unloading mode based on actual needs. • Slope mode: adjusts power based on the over frequency point and load reduction slope. • Stop mode: adjusts the power based on the over-frequency start point and over-frequency end point.
3	Overfrequency Threshold	The inverter output active power will decrease when the utility grid frequency is too high. The inverter output power will decrease when the utility grid frequency is higher than **Overfrequency Threshold**.
4	Import/Export Electricity Conversion Frequency	When the set frequency value is reached, the system switches from selling electricity to buying electricity.
5	Overfrequency Endpoint	The inverter output active power will decrease when the utility grid frequency is too high. The inverter output power will stop decreasing when the utility grid frequency is higher than **Overfrequency Endpoint**.

No.	Parameters	Explanation
6	Over-Frequency Power Slope Reference Power	Adjust the inverter output power based on Apparent Active Power, Rated Active Power, Momentary Active Power, Or Max. Active Power.
7	Power response to overfrequency gradient	The inverter output active power will increase when the utility grid frequency is too high. Indicates the slope when the inverter output power decreases.
8	Tentional Delay Ta	Indicates the delayed response time when the inverter output power is higher than the **Overfrequency Threshold**.
9	Hysteretic Function	Enable the hysteretic function.
10	Frequency Hysteresis Point	During over-frequency load reduction, if the frequency decreases, the power output is based on the lowest point of the load reduction power until the frequency is less than the hysteresis point and the power is restored.
11	Hysteresis Waiting Time	For over-frequency load reduction and frequency decrease, when the frequency is less than the hysteresis point, the power recovery waiting time, that is, it takes a certain amount of time to recover the power.
12	Hysteresis Power Recovery Slope Reference Power	For over-frequency load reduction and frequency decrease, when the frequency is less than the hysteresis point, the power recovery benchmark, that is, the power recovery is based on the recovery slope * the rate of change of the reference power. Support: Pn rated power, Ps apparent power, Pm current power, Pmax maximum power, power difference (△P).

No.	Parameters	Explanation
13	Hysteretic Power Recovery Slope	For over-frequency load reduction and frequency reduction, when the frequency is less than the hysteresis point, the power change slope when the power is restored.
Underfrequency Loading		
1	P(F) Curve	Enable P(F) Curve when it is required by local grid standards and requirements.
2	Underfrequency Load Mode	Set the underfrequency unloading mode based on actual needs. • Slope mode: adjusts power based on the underfrequency point and load increase slope. • Stop mode: adjusts the power based on the underfrequency start point and underfrequency end point.
3	Underfrequency Threshold	The inverter output active power will increase when the utility grid frequency is too low. The inverter output power will increase when the utility grid frequency is lower than **Underfrequency Threshold**.
4	Import/Export Electricity Conversion Frequency	When the set frequency value is reached, the system switches from selling electricity to buying electricity.
5	Underfrequency Endpoint	The inverter output active power will increase when the utility grid frequency is too low. The inverter output power will stop increasing when the utility grid frequency is lower than **Underfrequency Endpoint**.

No.	Parameters	Explanation
6	Over-Frequency Power Slope Reference Power	Adjust the inverter output power based on Apparent Active Power, Rated Active Power, Momentary Active Power, Or Max. Active Power.
7	Under-Frequency Power Slope	The inverter output active power will increase when the utility grid frequency is too low. The slope of the inverter output power when it rises.
8	Tentional Delay Ta	Indicates the delayed response time when the inverter output power is lower than the **Underfrequency Threshold**.
9	Hysteretic Function	Enable the hysteretic function.
10	Frequency Hysteresis Point	During underfrequency loading, if the frequency increases, the power is output according to the lowest point of the loaded power until the frequency is higher than the hysteresis point and the power is restored.
11	Hysteresis Waiting Time	For underfrequency loading, the frequency increases, when the frequency is higher than the hysteresis point, the waiting time for power recovery, that is, it takes a certain amount of time to recover the power.
12	Hysteresis Power Recovery Slope Reference Power	For underfrequency loading, the frequency increases, when the frequency is higher than the hysteresis point, the benchmark for power recovery, that is, the power recovery is carried out according to the recovery slope * the rate of change of the benchmark power. Support: Pn rated power, Ps apparent power, Pm current power, Pmax maximum power, power difference (△P).

No.	Parameters	Explanation
13	Hysteretic Power Recovery Slope	For under-frequency loading, frequency increase, when the frequency is higher than the hysteresis point, the power change slope when power is restored.
14	P(U) Curve	Enable P(U) Curve when it is required by local grid standards and requirements.
15	Vn Voltage	The percentage of actual voltage to the rated voltage at Vn point, n= 1, 2, 3, 4. For example, setting Vn Voltage to 90 means V/Vrated%=90%.
16	Vn Active Power	The percentage of the output active power to the apparent power at Vn point, (n= 1, 2, 3, 4). For example, setting **Vn Reactive Power** to 48.5 means P/Prated%=48.5%.
17	Output Response Mode	Set the active power output response mode. Supports: • PT-1 Behavior, realize active scheduling based on the first-order LPF curve within the response time constant. • Gradient Control, realize active scheduling based on the power change slope.
18	Power Gradient	When the output response mode is set to Gradient Control, active power scheduling is achieved according to the power change gradient.
19	First-order Low-pass Filter Time Parameter	Set the time constant within which the active power changes based on the first order LPF curve when the Output Response Mode is set to be First-order Low-pass Filter Time Parameter.
20	Overload Function Switch	When enabled, the maximum active power output is 1.1 times the rated power; otherwise, the maximum active power output is consistent with the rated power value.

8.3.8.7.3 Setting Protection Parameters

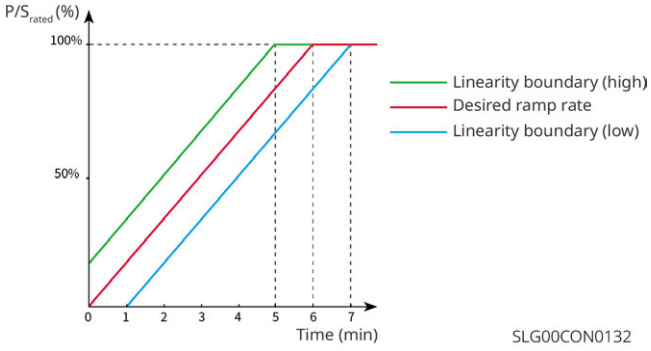
Step 1 : Tap **Home > Settings > Advanced Settings > Safety Parameter Settings >**

Protection Parameters to set the parameters.
Step 2: Set the parameters based on actual needs.

No.	Parameters	Description
1	OV Stage n Trip Value	Set the grid overvoltage protection threshold value, n=1,2,3,4.
2	OV Stage n Trip Time	Set the grid overvoltage protection tripping time, n=1,2,3,4.
3	UV Stage n Trip Value	Set the grid undervoltage protection threshold value, n=1,2,3,4.
4	UV Stage n Trip Time	Set the grid undervoltage protection tripping time.
5	10min Overvoltage Trip Threshold	Set the 10min overvoltage protection threshold value.
6	10min Overvoltage Trip Time	Set the 10min overvoltage protection tripping time.
7	OF Stage n Trip Value	Set the grid overfrequency triggering n-th order protection point, n=1,2,3,4.
8	OF Stage n Trip Time	Set the grid overfrequency trigger n-th order trip time, n=1,2,3,4.
9	UF Stage n Trip Value	Set the grid underfrequency triggering n-th order protection point, n=1,2,3,4.
10	UF Stage n Trip Time	Set the grid underfrequency trigger n-th order trip time, n=1,2,3,4.

8.3.8.7.4 Setting Connection Parameters

Step 1 : Tap **Home > Settings > Advanced Settings > Safety Parameter Settings > Protection Parameters** to set the parameters.
Step 2: Set the parameters based on actual needs.



No.	Parameters	Description
Ramp Up		
1	Upper Voltage	The inverter cannot connect to the grid if it is powered on for the first connection and the grid voltage is higher than the **Upper Voltage**.
2	Lower Voltage	The inverter cannot connect to the grid if it is powered on for the first connection and the grid voltage is lower than the **Lower Voltage**.
3	Upper Frequency	The inverter cannot connect to the grid if it is powered on for the first connection and the grid frequency is higher than the **Upper Frequency**.
4	Lower Frequency	The inverter cannot connect to the grid if it is powered on for the first connection and the grid frequency is lower than the **Lower Frequency**.
5	Observation Time	The waiting time for connecting the inverter to the grid when meeting the following requirements. 1. The inverter is powered on for the first connection. 2. The utility grid voltage and frequency meet certain requirements.
6	Soft Ramp Up Gradient	Enable the start up power slope.
7	Soft Ramp Up Gradient	Indicates the percentage of incremental output power per minute based on the local requirements when the inverter is powered on for the first time.
Reconnection		

No.	Parameters	Description
8	Upper Voltage	The inverter cannot connect to the grid if it is reconnecting due to a fault and the grid voltage is higher than the **Upper Voltage**.
9	Lower Voltage	The inverter cannot connect to the grid if it is reconnecting due to a fault and the grid voltage is lower than the **Lower Voltage**.
10	Upper Frequency	The inverter cannot connect to the grid if it is reconnecting due to a fault and the grid frequency is higher than the **Upper Frequency**.
11	Lower Frequency	The inverter cannot connect to the grid if it is reconnecting due to a fault and the grid frequency is lower than the **Lower Frequency**.
12	Observation Time	The waiting time for connecting the inverter to the grid when meeting the following requirements. 1. The inverter is reconnecting to the grid due to a fault. 2. The utility grid voltage and frequency meet certain requirements.
13	Reconnection Gradient	Enable the start up power slope.
14	Reconnection Gradient	Indicates the percentage of incremental output power per minute based on the local requirements when the inverter is powered on for the first time. For example, setting Reconnection Gradient to 10 means the reconnect slope is 10%P/Srated/min.

8.3.8.7.5 Setting Voltage Ride Through Parameters

Step 1 : Tap **Home > Settings > Advanced Settings > Safety Parameter Settings > Voltage Ride Through** to set the parameters.
Step 2 : Set the parameters based on actual needs.

No.	Parameters	Description
LVRT		
1	UVn Voltage	The ratio of the ride through voltage to the rated voltage at UVn point during LVRT. n=1,2,3,4,5,6,7。
2	UVn Time	The ride through time at UVn point during LVRT. n=1,2,3,4,5,6,7
3	Enter Into LVRT Threshold	The inverter will not be disconnected from the utility grid immediately when the grid voltage is between Enter Into LVRT Threshold and Exit LVRT Endpoint.
4	Exit LVRT Endpoint	
5	Slope K2	K-factor for reactive power during LVRT.
6	Zero Current Mode	The system outputs zero current during LVRT.
7	Entry Threshold	Set the entry threshold of zero current mode.
HVRT		
1	OVn Voltage	The ratio of the ride through voltage to the rated voltage at OVn point during HVRT. n=1,2,3,4,5,6,7。
2	OVn Time	The ride through time at OVn point during HVRT. n=1,2,3,4,5,6,7。
3	Enter High Crossing Threshold	The inverter will not be disconnected from the utility grid immediately when the grid voltage is between Enter High Crossing Threshold and Exit High Crossing Threshold.
4	Exit High Crossing Threshold	
5	Slope K2	K-factor for reactive power during HVRT.

No.	Parameters	Description
6	Zero Current Mode	The system outputs zero current during HVRT.
7	Entry Threshold	Set the entry threshold of zero current mode.

8.3.8.7.6 Setting Frequency Ride Through Parameters

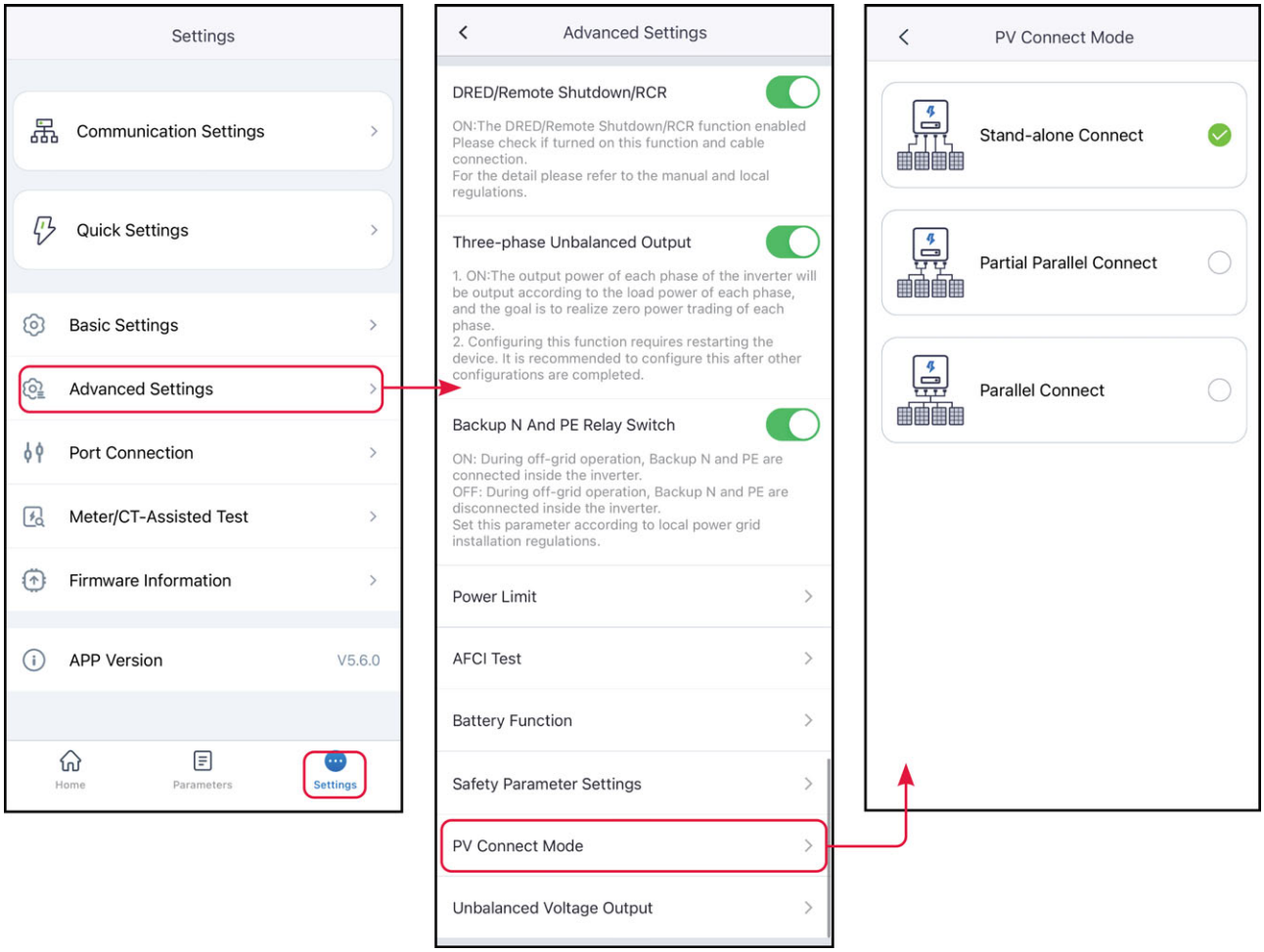
Step 1 : Tap **Home > Settings > Advanced Settings > Safety Parameter Settings > Frequency Ride Through** to set the parameters.
Step 2 : Set the parameters based on actual needs.

No.	Parameters	Description
1	UFn Frequency	The frequency at the UFn point during frequency ride through.
2	UFn Frequency	The frequency at the UFn point during frequency ride through. n=1,2,3。
3	UFn Time	The ride through duration at the UFn point during frequency ride through. n=1,2,3。
4	OFn Frequency	The frequency at the OFn point during frequency ride through. n=1,2,3。
5	OFn Time	The ride through duration at the OFn point during frequency ride through. n=1,2,3。

8.3.8.8 Setting PV Connect Mode

Select the PV connect mode based on the actual connections between the PV strings and MPPT ports of the inverter.
Step 1 : Tap **Home > Settings > Advanced Settings > PV Connect Mode** to set the parameters.

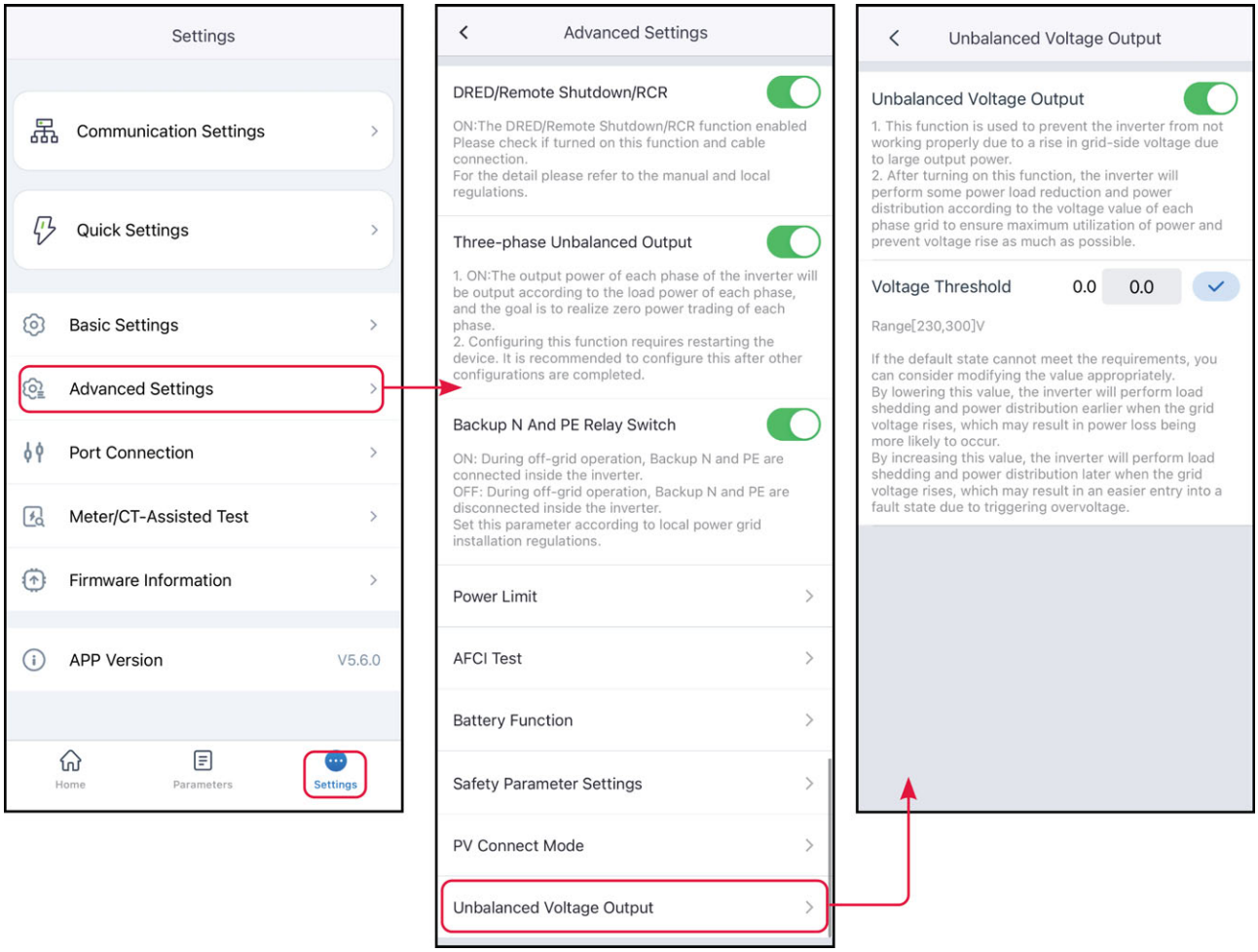
Step 2 : Set the connect mode to Independent Access, Partial Parallel Connect or Parallel Connection based on actual connections.



No.	Parameters	Description
1	Stand-alone Connect	The external PV string is connected to multi MPPT terminals of the inverter.
2	Partial Parallel Connect	The PV strings are connected to the inverter in both stand-alone and parallel connection. For example, one PV string connect to MPPT1 ad MPPT2, another PV string connect to MPPT3.
3	Parallel Connect	When an external PV string is connected to the PV input port on the inverter side, one PV string is connected to multiple PV input ports.

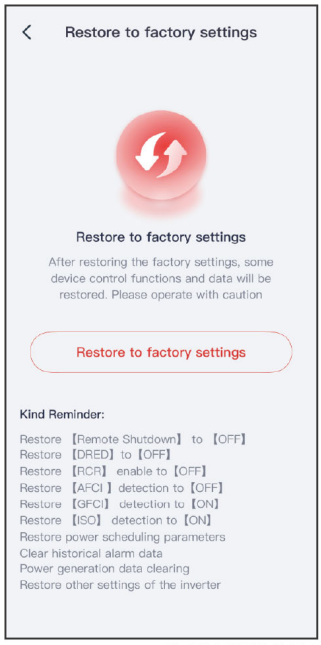
8.3.8.9 Setting the Unbalanced Voltage Output

Step 1 : Tap **Home > Settings > Advanced Settings > Unbalanced Voltage Output** to se the parameters.
Step 2 : Enable or disable the function based on actual needs.
Step 3 : After enabling the Unbalance Voltage Function, set parameters based on actual needs. And tap 'v'. The parameters are set successfully.



8.3.8.10 Restore Factory Settings

To restore the device to its factory default settings, perform the following steps.
Step 1: Go to the settings page by selecting **Home > Settings > Advanced Settings > Restore Factory Settings**.
Step 2: Tap **Restore Factory Settings** to restore the interface prompt section to factory settings.



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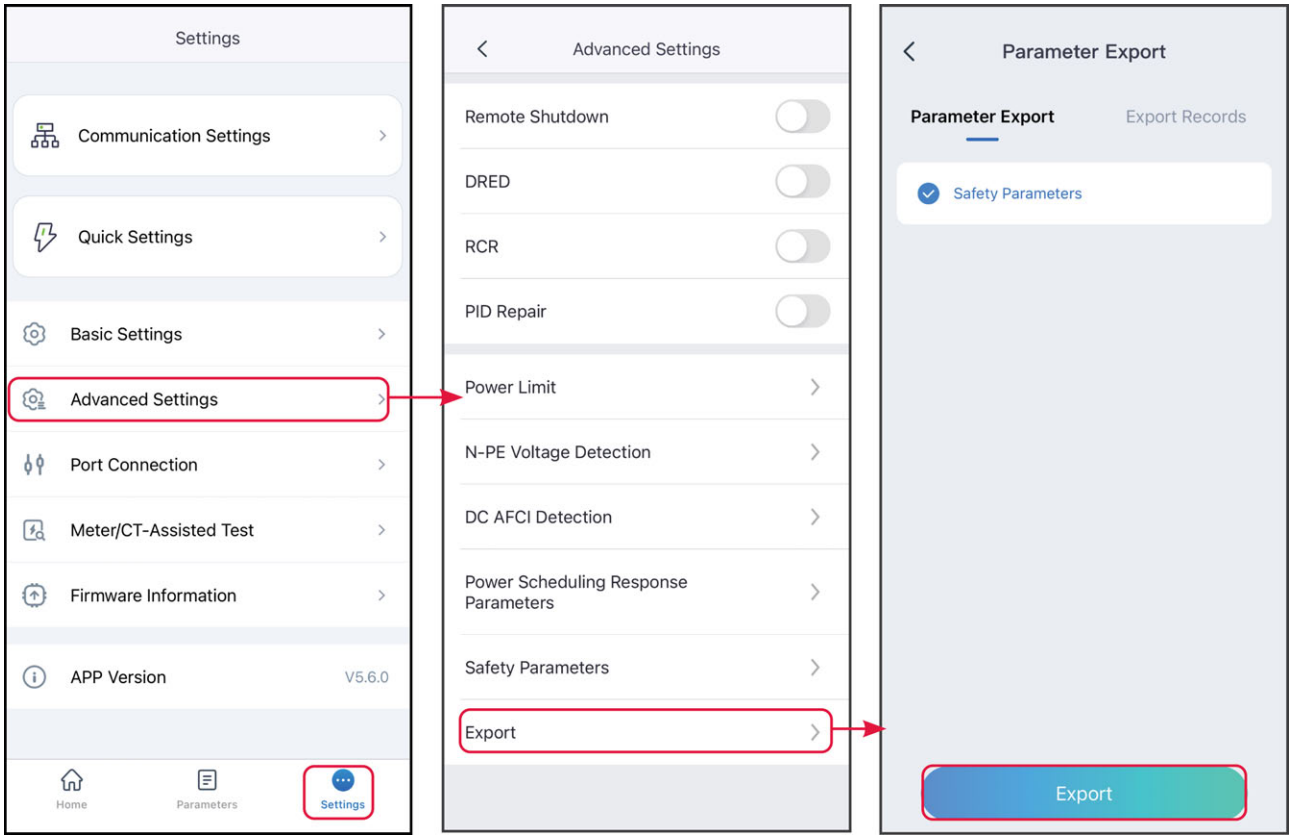
8.3.8.11 Exporting Parameters

8.3.8.11.1 Exporting Safety Parameters

After selecting the safety code, some models support exporting safety parameter files.

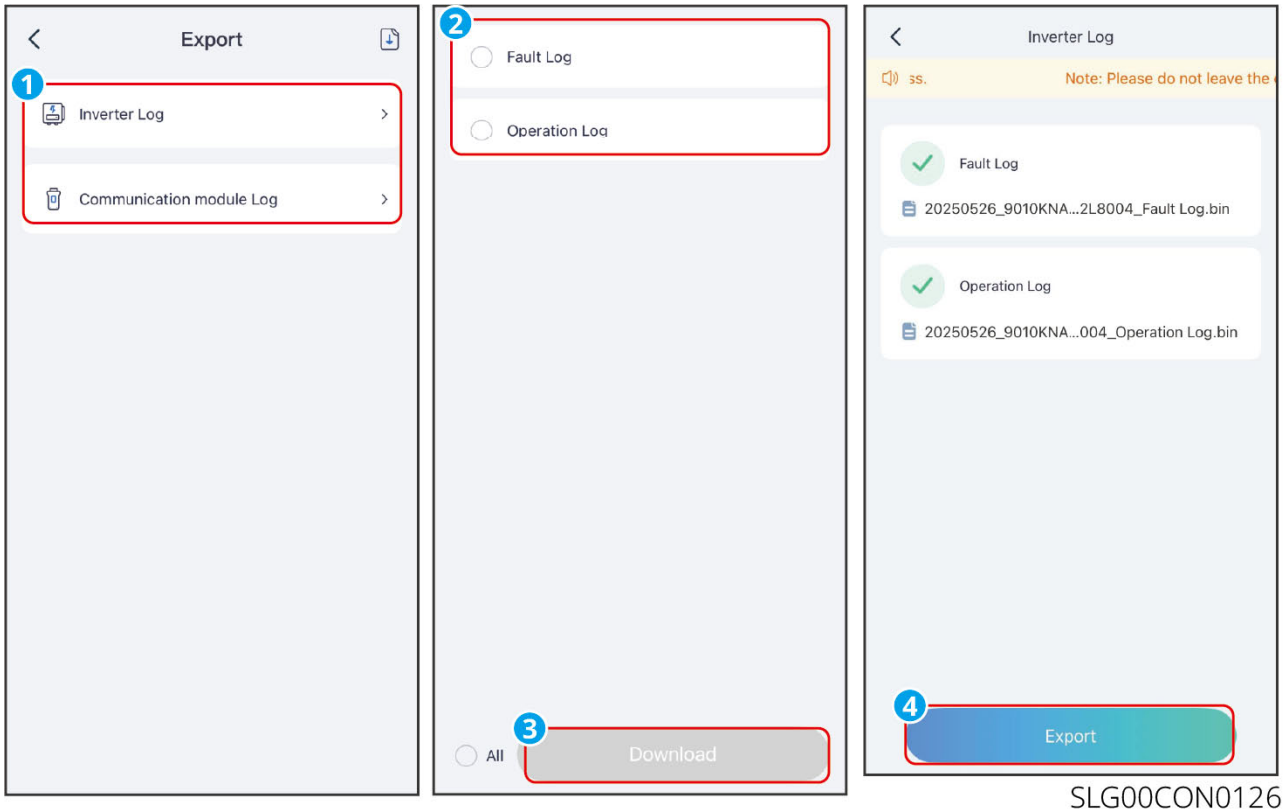
Step 1 : Tap **Home > Settings > Advanced Settings > Export** to export the parameters.

Step 2 : Select Safety Parameters, and tap **Export** to start downloading the current safety parameter file. When the export is complete, tap **Share** and choose how you want to open the exported file.



8.3.8.11.2 Exporting Log Parameters

Step 1 : Tap **Home > Settings > Advanced Settings > Export**.
Step 2 : Select the device type to export logs, such as inverter logs, communication module logs, etc.
Step 3: Select the log type to export, download and export the log file. After the export is complete, tap **Share** and choose how to open the exported file according to actual needs.



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8.3.9 Enable Battery function

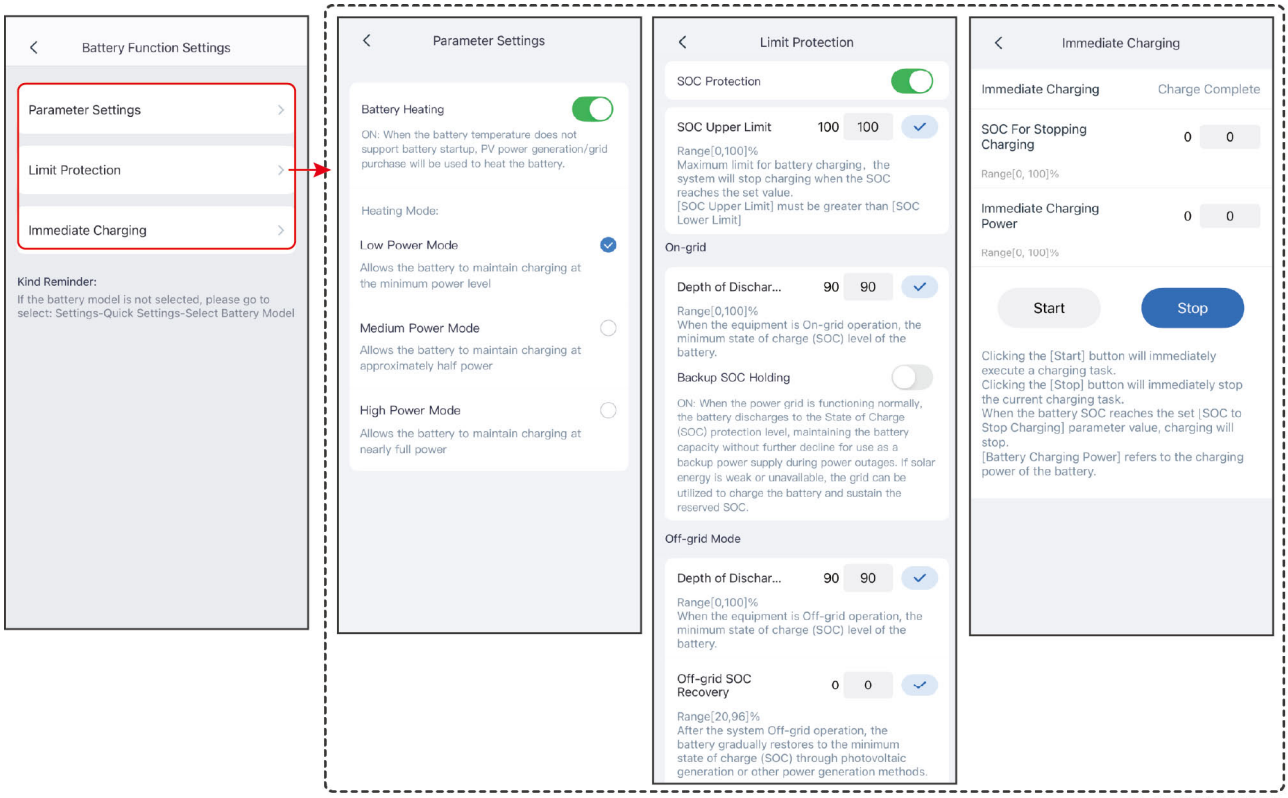
NOTICE

When the photovoltaic storage system is a parallel system:

- If connected via RS485 parallel operation, it supports selecting whether to synchronize the master/slave Battery settings in the "Battery Function" interface.
- If parallel operation is performed through other methods, the master-slave Battery settings will be automatically synchronized. To modify the slave Battery settings, please enter the configuration interface separately via the slave SN on the homepage.

8.3.9.1 Set Parameters for Lithium Battery

Step 1: Tap **Home > Settings> Advanced Settings > Battery Function Settings** to set the parameters.
Step 2: Set the parameters based on actual needs.



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No.	Parameter	Description
Parameter Settings		
1	Max. Charging Current	Only applicable to certain models. Set the maximum charging current based on actual needs.
2	Max. Discharging Current	Only applicable to certain models. Set the maximum discharging current based on actual needs.

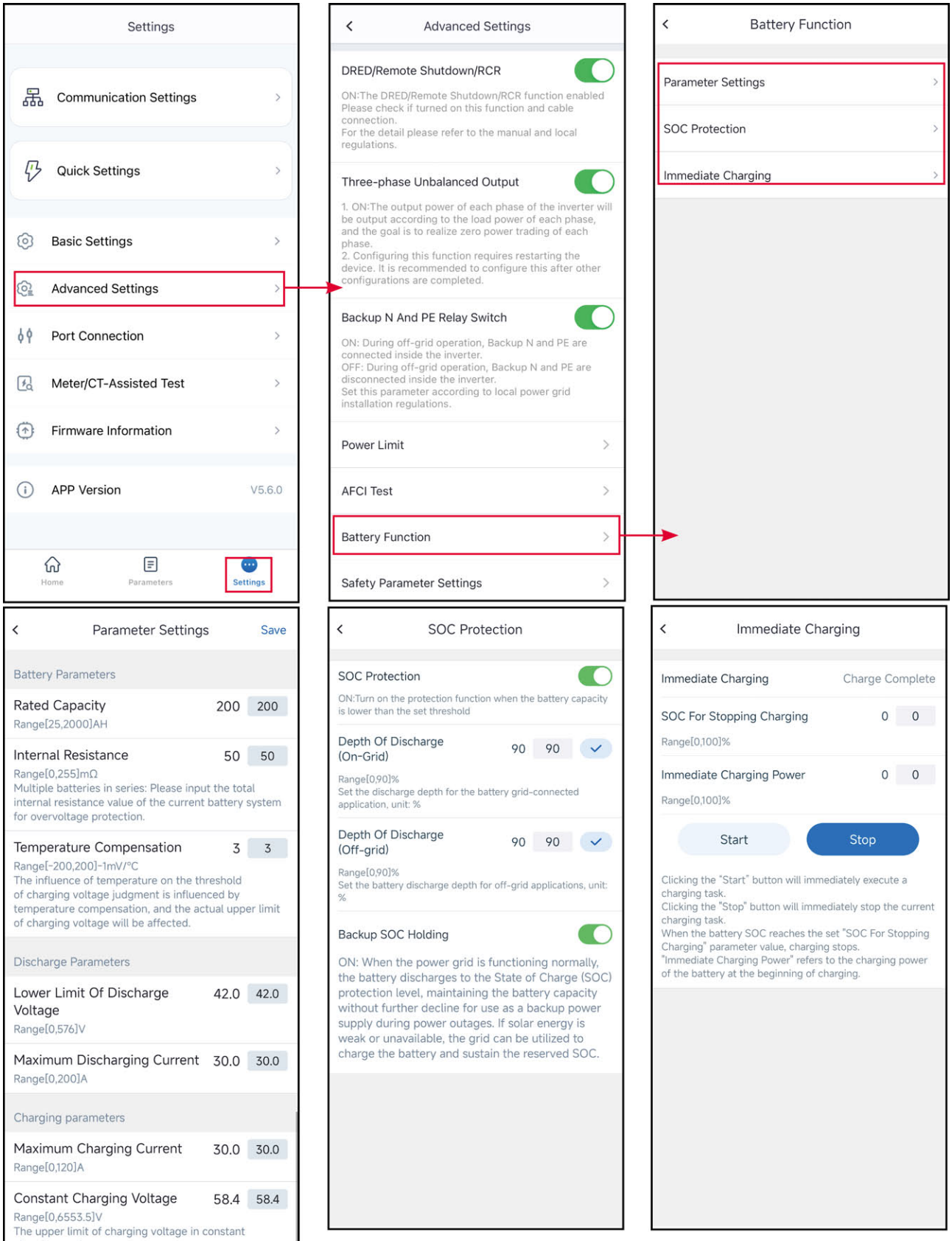
No.	Parameter	Description
3	Battery Heating	Optional. This option is displayed on the interface when a battery that supports heating is connected. After the battery heating function is turned on, when the temperature is below the value that starts up the battery, PV power or electricity from the grid will be used to heat the battery. Heating Mode: • GW5.1-BAT-D-G20/GW8.3-BAT-D-G20 ◦ Low Power Mode: Maintains minimum battery power input capacity, turns on when the temperature is below -9℃, and turns off when the temperature is above or equal to -7℃. ◦ Medium Power Mode: to maintain the moderate power input capacity of the battery. It will be turned on when the temperature is less than 6℃, and turned off when it is greater than or equal to 8℃. ◦ High Power Mode: to maintain the higher power input capacity of the battery. It will be turned on when the temperature is less than 11℃, and turned off when it is greater than or equal to 13℃. • GW14.3-BAT-LV-G10 ◦ Low Power Mode: Maintains minimum battery power input capacity, turns on when the temperature is below 5℃, and turns off when the temperature is above or equal to 7℃. ◦ Medium Power Mode: to maintain the moderate power input capacity of the battery. It will be turned on when the temperature is less than 10℃, and turned off when it is greater than or equal to 12℃. ◦ High Power Mode: to maintain the higher power input capacity of the battery. It will be turned on when the temperature is less than 20℃, and turned off when it is greater than or equal to 22℃.

No.	Parameter	Description
4	Battery Wake-up	• After being turned on, the battery can be awakened when it shuts down due to undervoltage protection. • Only applicable to lithium batteries without circuit breakers. After being turned on, the output voltage of the battery port is about 60V.
Limit Protection		
5	SOC Protection	Start battery protection when the battery capacity is lower than the Depth of Discharge.
6	SOC Limit	The upper limit value for battery charging. Charging stops when the battery SOC reaches the SOC upper limit.
7	Discharge Depth (On-grid)	The maximum discharge value allowed for the battery when the inverter is in the on-grid scenario.
8	Backup Power SOC Maintenance	To ensure that the battery SOC is sufficient to maintain normal operation when the system is off-grid, the battery will purchase electricity from the grid and charge to the set SOC protection value when the system is connected to the grid.
9	Discharge Depth (Off-grid)	The maximum discharge value allowed for the battery when the inverter is in the off-grid scenario.
10	Off-grid SOC Recovery	When the inverter is operating off-grid, if the battery SOC drops below the lower limit, the inverter stops outputting power and only charges the battery until the battery SOC returns to the off-grid recovery SOC value. If the SOC lower limit value is higher than the off-grid recovery SOC value, charge to SOC lower limit +10%.
Immediate Charging		
11	Immediate Charging	Enable to charge the battery by the grid immediately. This takes effect once. Enable or Disable based on actual needs.

No.	Parameter	Description
12	SOC for Stopping Charging	Stop charging the battery once the battery SOC reaches SOC For Stopping Charging.
13	Immediate Charging Power	Indicates the percentage of the charging power to the inverter rated power when enabling Immediate Charging. For example, for an inverter with a rated power of 10kW, when set to 60, the charging power is 6kW.
14	Start	Start charging immediately.
15	Stop	Immediately stop the current charging task.

8.3.9.2 Setting Lead-acid Battery Parameter

Step 1: Tap **Home > Settings> Advanced Settings > Battery Function Settings** to set the parameters.
Step 2: Set the parameters based on actual needs.


Settings
Communication Settings
Quick Settings
Basic Settings
Advanced Settings
Port Connection
Meter/CT-Assisted Test
Firmware Information
APP Version
V5.6.0
Home
Parameters
Settings
Advanced Settings
DRED/Remote Shutdown/RCR
ON:The DRED/Remote Shutdown/RCR function enabled Please check if turned on this function and cable connection.
For the detail please refer to the manual and local regulations.
Three-phase Unbalanced Output
1. ON:The output power of each phase of the inverter will be output according to the load power of each phase, and the goal is to realize zero power trading of each phase.
2. Configuring this function requires restarting the device. It is recommended to configure this after other configurations are completed.
Backup N And PE Relay Switch
ON: During off-grid operation, Backup N and PE are connected inside the inverter.
OFF: During off-grid operation, Backup N and PE are disconnected inside the inverter.
Set this parameter according to local power grid installation regulations.
Power Limit
AFCI Test
Battery Function
Safety Parameter Settings
Battery Function
Parameter Settings
SOC Protection
Immediate Charging
Parameter Settings
Save
Battery Parameters
Rated Capacity
200
200
Range[25,2000]AH
Internal Resistance
50
50
Range[0,255]mΩ
Multiple batteries in series: Please input the total internal resistance value of the current battery system for overvoltage protection.
Temperature Compensation
3
3
Range[-200,200]-1mV/°C
The influence of temperature on the threshold of charging voltage judgment is influenced by temperature compensation, and the actual upper limit of charging voltage will be affected.
Discharge Parameters
Lower Limit Of Discharge Voltage
42.0
42.0
Range[0,576]V
Maximum Discharging Current
30.0
30.0
Range[0,200]A
Charging parameters
Maximum Charging Current
30.0
30.0
Range[0,120]A
Constant Charging Voltage
58.4
58.4
Range[0,6553.5]V
The upper limit of charging voltage in constant charging mode
Float Voltage
54.4
54.4
Range[0,6553.5]V
The upper voltage limit of change into float charging
Maximum Current For Switching To Float Charge
3.0
3.0
Range[0,25.5]A
The maximum charging current of change into float charging
The Time Of Float Charging
180
180
Range[0,65535)S
The time of uniform charging/constant charging change into float charging
SOC Protection
SOC Protection
ON:Turn on the protection function when the battery capacity is lower than the set threshold
Depth Of Discharge (On-Grid)
90
90
Range[0,90]%
Set the discharge depth for the battery grid-connected application, unit: %
Depth Of Discharge (Off-grid)
90
90
Range[0,90]%
Set the battery discharge depth for off-grid applications, unit: %
Backup SOC Holding
ON: When the power grid is functioning normally, the battery discharges to the State of Charge (SOC) protection level, maintaining the battery capacity without further decline for use as a backup power supply during power outages. If solar energy is weak or unavailable, the grid can be utilized to charge the battery and sustain the reserved SOC.
Immediate Charging
Immediate Charging
Charge Complete
SOC For Stopping Charging
0
0
Range[0,100]%
Immediate Charging Power
0
0
Range[0,100]%
Start
Stop
Clicking the "Start" button will immediately execute a charging task.
Clicking the "Stop" button will immediately stop the current charging task.
When the battery SOC reaches the set "SOC For Stopping Charging" parameter value, charging stops.
"Immediate Charging Power" refers to the charging power of the battery at the beginning of charging.

No.	Parameter	Description
1	Nominal Capacity	Set the battery capacity according to the actual parameters.
2	Battery Internal Resistance	Set the battery internal resistance according to the actual parameters.
3	Temperature Compensation	When the battery temperature changes, the battery charging voltage will be affected. Based on 25°C, the charging voltage upper limit is adjusted according to the set value for every degree change in battery temperature. For example, if the charging temperature influence coefficient is set to 10, when the battery temperature rises to 26 degrees, the charging voltage upper limit decreases by 10 mV.
4	Lower Discharge Voltage	Set the minimum voltage during battery discharge according to actual requirements.
5	Max. Discharging Current	Set the maximum discharging current based on actual needs.
6	Max. Charging Current	Set the maximum charging current based on actual needs.
7	Constant Charging Voltage	Set the voltage value for constant charging of the battery according to actual requirements.
8	Floating Voltage	Set the voltage value for battery float charging according to actual requirements.
9	Maximum Current When Switching to Floating Charge	The maximum charging current after switching the battery charging mode from constant charging/equal charging to float charging.

No.	Parameter	Description
10	Time to Switch to Float Charging Mode	The time required to switch the battery charging mode from constant charging/equal charging to float charging.
11	Equalization Charging Cycle	Set the interval days for battery equalization charging.
Restriction protection.		
12	SOC Protection	Start battery protection when the battery capacity is lower than the Depth of Discharge.
13	SOC Lower Limit (Grid Connection)	The minimum battery charge that must be maintained when the inverter is connected to the grid.
14	Backup Power SOC Maintenance	To ensure that the battery SOC is sufficient to maintain normal operation when the system is off-grid, the battery will purchase electricity from the grid and charge to the set SOC protection value when the system is connected to the grid.
15	SOC Lower Limit (Off-Grid)	The minimum battery charge that must be maintained when the inverter is operating off-grid.
16	Off-grid SOC Recovery	When the inverter is operating off-grid, if the battery SOC drops below the lower limit, the inverter stops outputting power and only charges the battery until the battery SOC returns to the off-grid recovery SOC value. If the SOC lower limit value is higher than the off-grid recovery SOC value, charge to SOC lower limit +10%.
Immediate Charging		
17	SOC for Stopping Charging	Stop charging the battery once the battery SOC reaches SOC For Stopping Charging.

No.	Parameter	Description
18	Immediate Charging Power	Indicates the percentage of the charging power to the inverter rated power when enabling Immediate Charging. For example, for an inverter with a rated power of 10kW, when set to 60, the charging power is 6kW.
19	Start	Start charging immediately.
20	Stop	Immediately stop the current charging task.

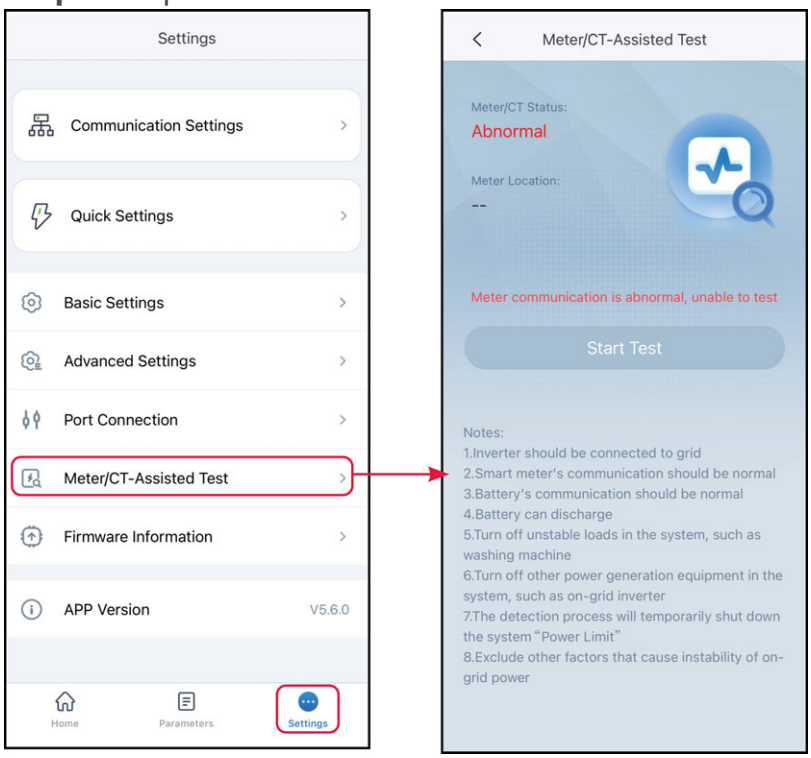
8.3.10 Setting the Meter Parameters

8.3.10.1 Meter/CT-Assisted Test

Meter/CT-Assisted Test is used to auto-check if the Smart Meter and CT are connected in the right way and their working status.

Step 1 : Tap **Home > Settings > Meter/CT Assisted Test** to set the function.

Step 2 : Tap **Start Test** to start test. Check Test Result after test.



8.3.11 Setting Generator/Load Control

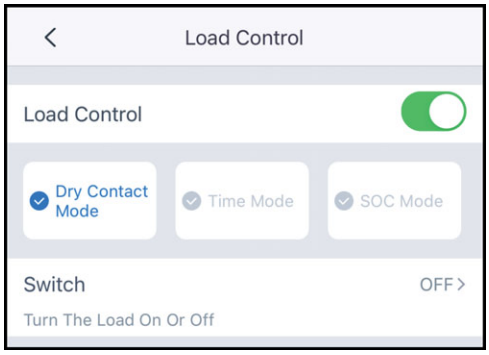
8.3.11.1 Setting Load Control

NOTICE

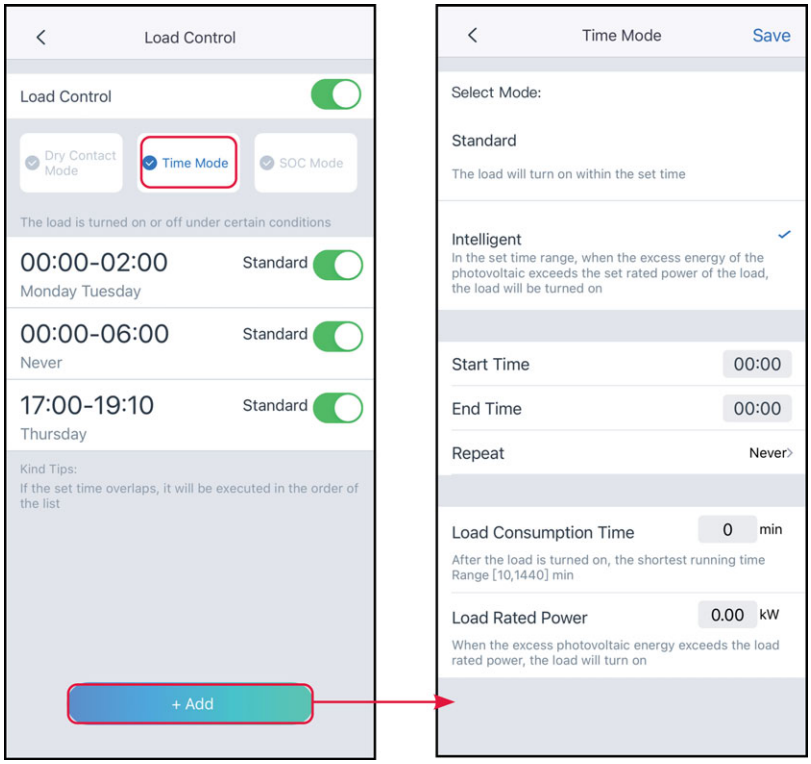
- Loads and generators can be controlled by SolarGo app when the inverter supports load control function.
- For ET40-50kW series inverters, the load control function is supported only when the inverter is used with STS. The inverter supports load control of the GENERATOR port or the BACKUP LOAD port.

Step 1: Tap **Home > Settings > Port Connection** to set the parameters.
Step 2: Select **Generator Control** or **Load Control** based on actual needs.

- Dry Contact Mode: when the switch is ON, the loads will be powered; when the switch is OFF, the power will be cut off. Turn on or off the switch based on actual needs.



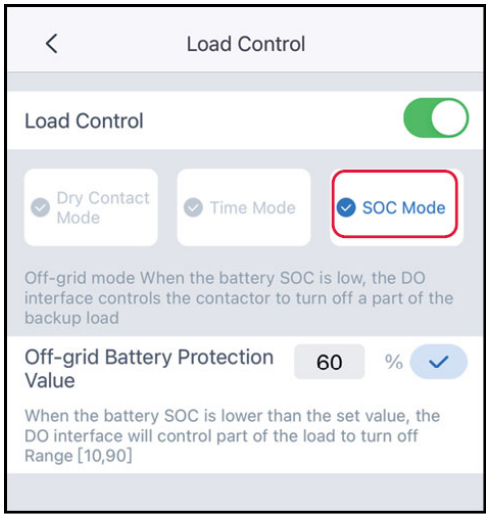
- Time Mode: set the time to enable the load, and the load will be powered automatically within the setting time period. Select standard mode or intelligent mode.



No.	Parameters	Description
1	Standard	The loads will be powered within the setting time period.
2	Intelligent	Once the excess energy of the photovoltaic exceeds the load nominal power within the time period, the loads will be powered.
3	Start Time	The time mode will be on between the Start Time and End Time.
4	End Time	
5	Repeat	The repeat days.
6	Load Consumption Time	The shortest load working time after the loads been powered. The time is set to prevent the loads be turned on and off frequently when the PV power fluctuates greatly. Only for Intelligent mode.
7	Load Rated Power	The loads will be powered when the excess energy of the photovoltaic exceeds the nominal power of load. Only for Intelligent mode.

- SOC Mode: the inverter has integrated dry contact controlling port, which can control whether the load is powered or not by contactor. In off-grid mode, the load connected to the port will not be powered if the BACKUP overload is detected or

the battery SOC value is lower than the Off-grid battery protection value. Set Off-grid Battery Protection Value based on actual needs.



8.3.11.2 Setting the Generator Parameters

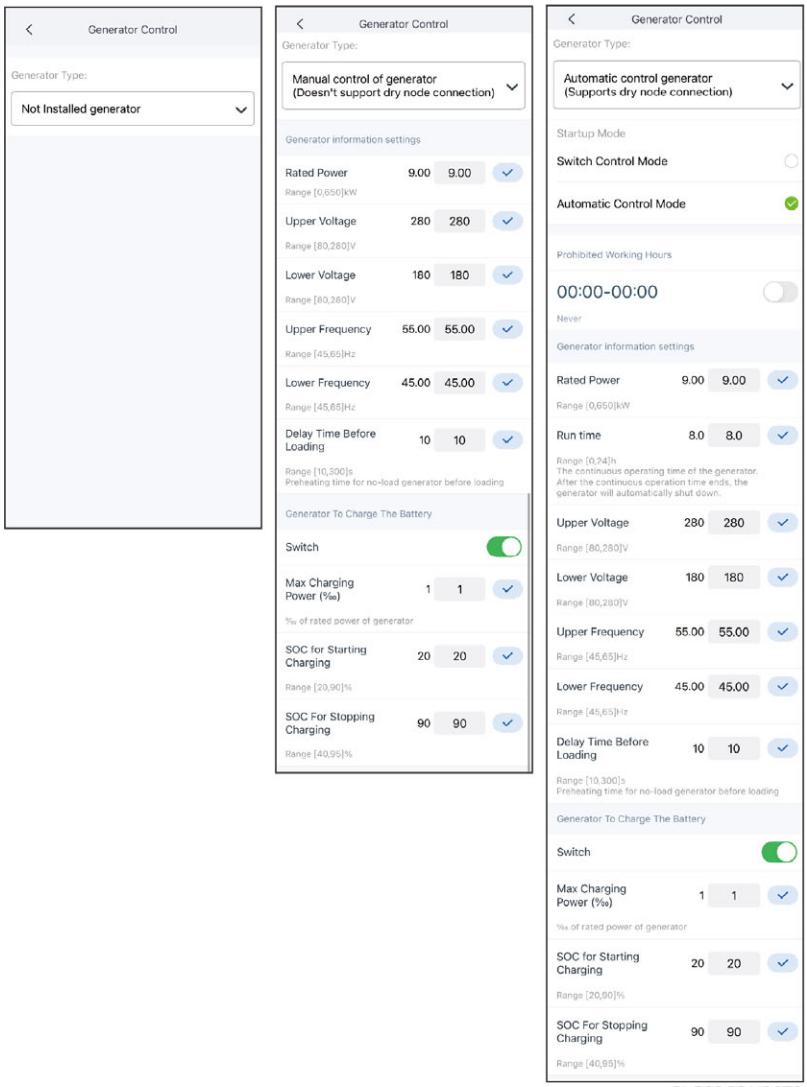
NOTICE

- When the inverter supports the generator control function, the generator can be controlled through the SolarGo App.
- For ET40-50kW series inverters, the generator can be connected and controlled only when the inverter is used with STS.

Step 1 : Tap **Home > Settings > Port Connection** to set the parameters.
Step 2: Select Generator Connection or Load Connection based on actual needs.
Step 3 : When setting the generator control function, select the generator type according to the actual access situation. Currently supported:**Not Installed, Manual Control Of Generator** or **Automatic Control Generator.** And set the parameters according to the selected generator type.

- Not Installed: If no generator is connected in the system, select Not Installed.
- Manual Control Of Generator(Doesn't Support Dry Node Connection): Start or stop the generator manually. The inverter cannot control the generator when Manual Control Of Generator(Doesn't Support Dry Node Connection) is selected.

- Automatic control generator (Supports dry node connection): If the generator has dry contact port and is connected to the inverter, set the generator control mode to Switch Control Mode or Automatic Control Mode based on actual needs.
  - Switch Control Mode: The generator will start working when the Generator Dry Node Switch is on, and stop automaticallly after reaching Run Time.
  - Automatic Control Mode: The generator will work during Run Time, but stop working during Prohibited Working Hours.



SLG00CON0079

No.	Parameters	Description
1	Startup Mode	Switch Control Mode/Automatic Control Mode
Switch Control Mode		

No.	Parameters	Description
2	Generator Dry Node Switch	Only for Switch Control Mode.
3	Run Time	Set the generator’s continuous runtime, after which the generator will be turned off.
Automatic Control Mode		
4	Prohibited Working Hours	Set the time period during which the generator cannot work.
5	Run Time	Set the generator’s continuous runtime, after which the generator will be turned off. If the generator start-up operation time includes prohibited working time, the generator will stop running during this time period; after the prohibited working time, the generator will restart running and timing.

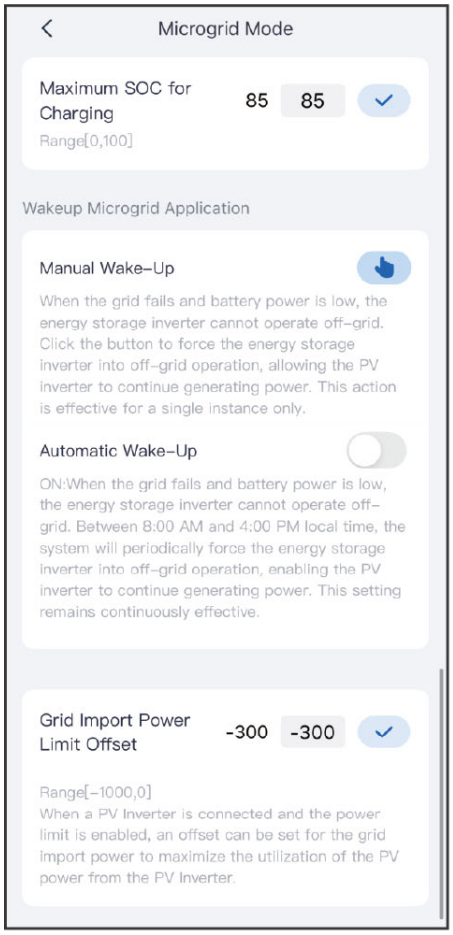
No.	Parameters	Description
Generator Information Settings		
1	Rated Power	Set the rated power of the generator.
2	Run Time	Set the continuous running time of the generator. The generator will be shut down after the continuous running time ends.
3	Upper Voltage	Set the operation voltage range of the generator.
4	Lower Voltage	
5	Frequency Cap	Set the operation frequency range of the generator.
6	Lower Frequency	
7	Preheating time	Set the generator no-load preheating time.
Parameter settings for generator charging batteries		
8	Switch	Select whether to use the generator to generate electricity to charge the battery.

No.	Parameters	Description
9	Max.charging power (‰)	The charging power when the generator generates electricity to charge the battery.
10	Start charging SOC	When the battery SOC is lower than this value, the generator generates electricity to charge the battery.
11	Stop charging SOC	When the battery SOC is higher than this value, stop charging the battery.

8.3.11.3 Setting Microgrid Parameters

NOTICE
When the inverter supports microgrid function, you can set microgrid parameters through SolarGo App.

Step 1 : Tap **Home > Settings > Port Connection** to set the parameters.
Step 2 : According to the actual interface prompts, enter the microgrid control interface and set the microgrid parameters according to actual needs.



SLG00CON0078

No.	Parameters	Description
1	Maximum SOC for Charging	Set the upper limit of charging SOC, and stop charging when the upper limit is reached.
2	Manual wake-up	• When the grid fails, if the battery power is low, the energy storage inverter cannot be supported to work off the grid. Click this button to force the energy storage inverter to output voltage to the grid-connected inverter, thereby starting the grid-connected inverter. • Single effect.

No.	Parameters	Description
3	Automatic wake-up	• When the grid fails, if the battery power is low, the energy storage inverter cannot be supported to work off the grid. After enabling this function, the system will force the energy storage inverter to output voltage to the grid-connected inverter at a fixed time, thereby starting the grid-connected inverter. • Multiple effect.
4	Grid Import Power Limit Offset	Set the adjustable range of the maximum power that the device can actually buy from the grid.

8.3.12 Equipment Maintenance

8.3.12.1 Checking Firmware Information/Upgrading Firmware Version

Upgrade the DSP version, ARM version, BMS version, AFCI version, or STS version of the inverter, or firmware version of the communication module. Some devices do not support upgrading the firmware version through SolarGo app.

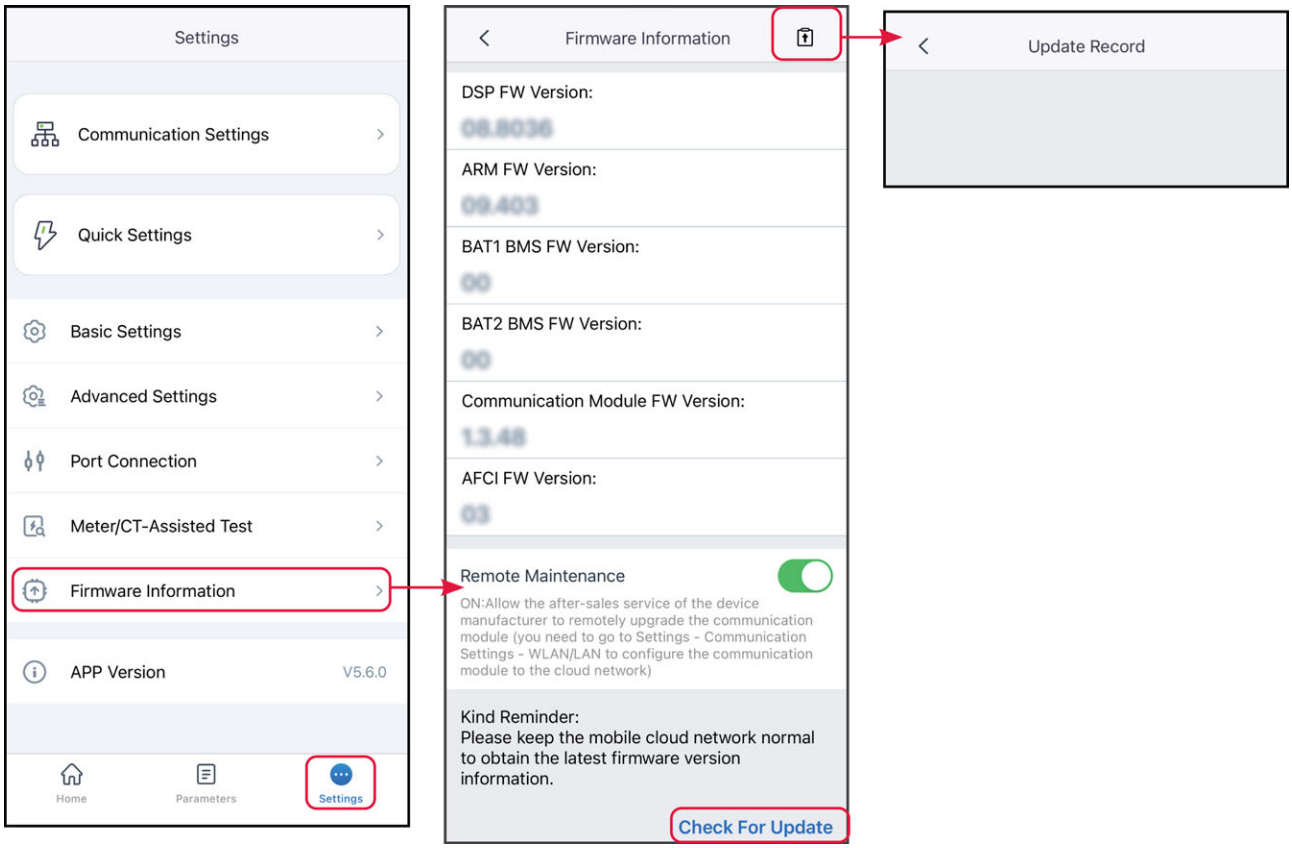
NOTICE
If the Firmware Upgrade dialog box pops up once logging into the app, click Firmware Upgrade to directly go to the firmware information page.

8.3.12.1.1 Regular Upgrade

NOTICE

- When there is a red dot on the right side of the firmware information, please click to view the firmware update information.
- During the upgrade process, please ensure that the network is stable and the device is connected to SolarGo, otherwise the upgrade may fail.

Step 1 : Tap **Home > Settings > Firmware Information** to check the firmware version. If the firmware upgrade dialog box pops up, tap **Firmware Upgrade** and turn to the upgrade interface.
Step 2 : (Optional) Tap **Check For Update** to confirm whether the latest firmware version is available for updating.
Step 3: Tap **Firmware Upgrade** to enter the firmware upgrade interface.
Step 4 : (Optional) Tap **Learn More** to view firmware-related information, such as the current version, the latest version, firmware update records, etc.
Step 5 : Tap **Upgrade** and complete the upgrade according to the prompts on the interface.

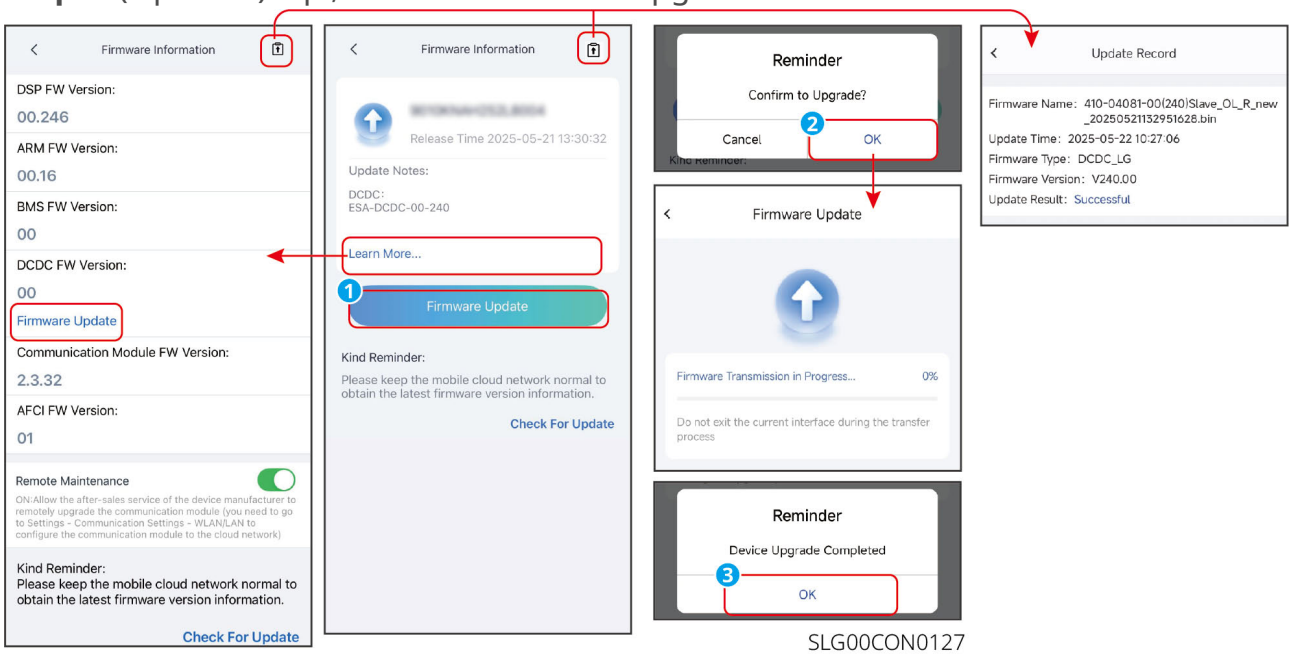


8.3.12.1.2 One-click Upgrade

NOTICE

- When there is a red dot on the right side of the firmware information, please click to view the firmware update information.
- During the upgrade process, please ensure that the network is stable and the device is connected to SolarGo, otherwise the upgrade may fail.

Step 1 : Tap **Home > Settings > Firmware Information**. Tap **Firmware Information** as prompted to enter the firmware upgrade page.
Step 2 : Tap **Upgrade** and follow the prompts to complete the upgrading. If you only need to upgrade a specific firmware version, tap **Learn More** to check the firmware related information and tap **Firmware Upgrade** below the firmware version you want to upgrade, and follow the on-screen prompts to complete the operation.
Step 3 : Tap **Learn More** to view all current firmware version information.
Step 4: (Optional)Tap ,to view the version upgrade record.



SLG00CON0127

8.3.12.1.3 Automatic Upgrade

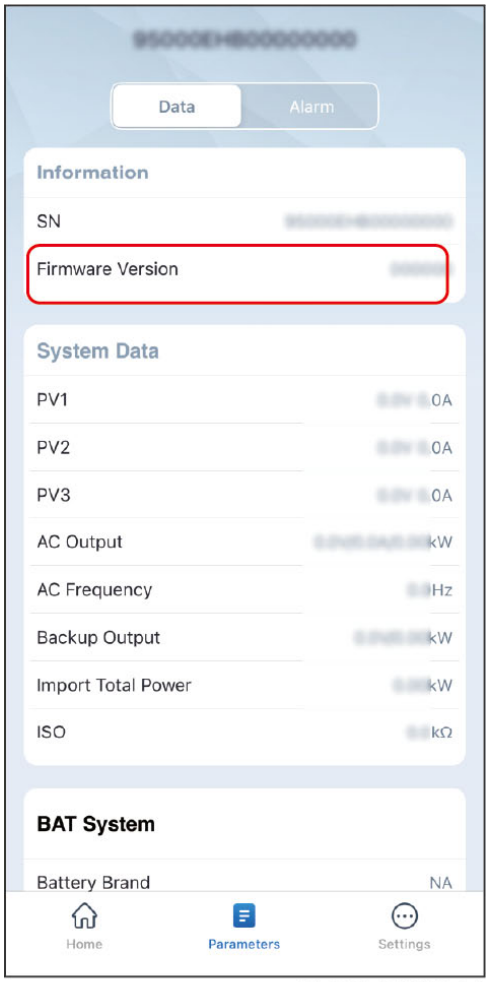
NOTICE

- When using WiFi/LAN Kit-20 or WiFi Kit-20 module communication and the module firmware version is V2.0.1 or above, the device automatic upgrade function can be enabled.
- After the device automatic upgrade function is enabled, if the module version is updated and the device has been connected to the network, the corresponding firmware version can be automatically upgraded.

Step 1 : Tap **Home > Settings > Firmware Information**.
Step 2 : Enable or disable the automatic device upgrade function according to actual needs.

8.3.12.1.4 Checking Firmware Information

Step 1: Tap **Parameters** > **Firmware Version** to check the version information.

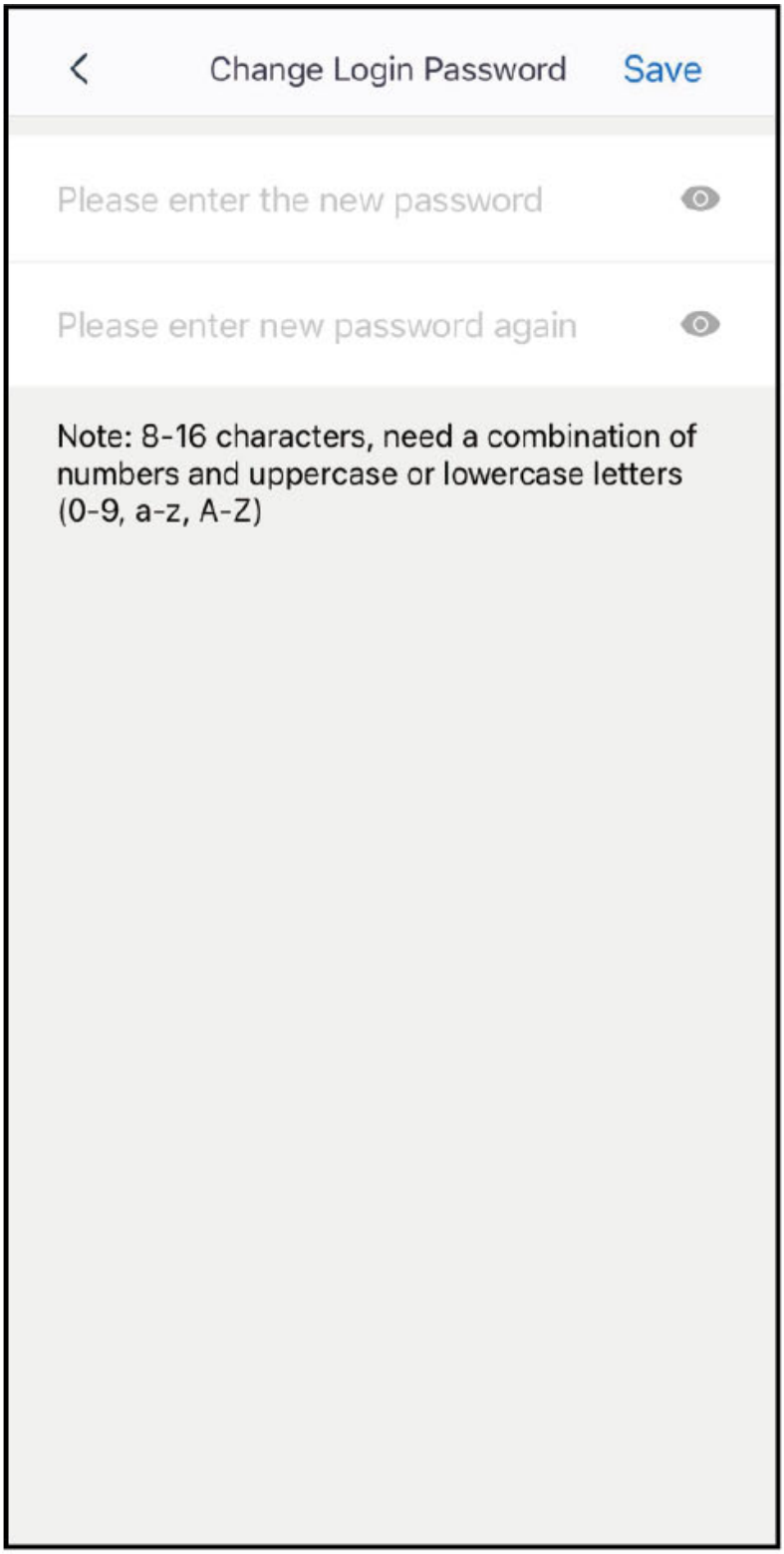


SLG00CON0191

8.3.12.2 Change the Login Password

NOTICE
The login password can be changed. Keep the changed password in mind after changing it. Contact the after-sales service if you forget the password.

Step 1 : Tap **Home > Settings > Change Login Password** to change the password.
Step 2 : Change the password based on actual needs.



SLG00CON0088

9 Station Monitoring

NOTICE
The parameters may vary depending on the account type or power station type. The actual interface takes precedence.

9.1 Product Introduction

SEMS+ App is a monitoring platform to manage power plants and devices, and check the operating data and alarming information of the power plant.

9.1.1 Applicable Product Model

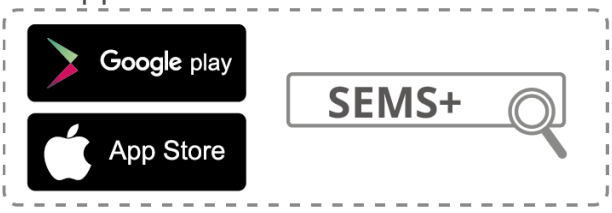
SEMS+ App can be used to monitor and manage GoodWe products, such as inverters, smart meters, smart loggers,chargers, batteries and so on.

9.1.2 Downloading and Installing the App

Make sure that the mobile phone meets the following requirements:

- Operating system: Android 6.0 or later, iOS 13.0 or later.
- Internet connection via browser.
- WLAN/Bluetooth capabilities.

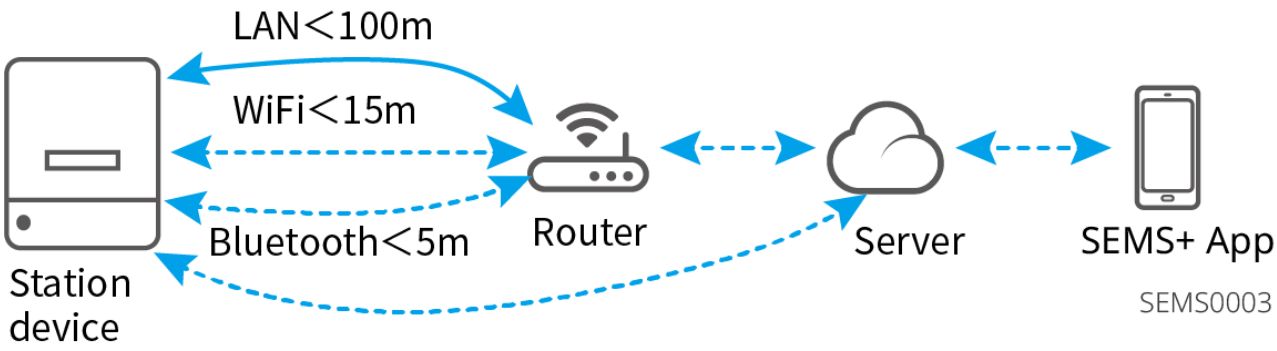
Download Methods:
Method I
Search SEMS+ on Google Play (Android) or App Store (iOS) to download and install the App.



SEMS0001

Method II
Scan the QR code below to download and install the App.

9.1.3 App Connection

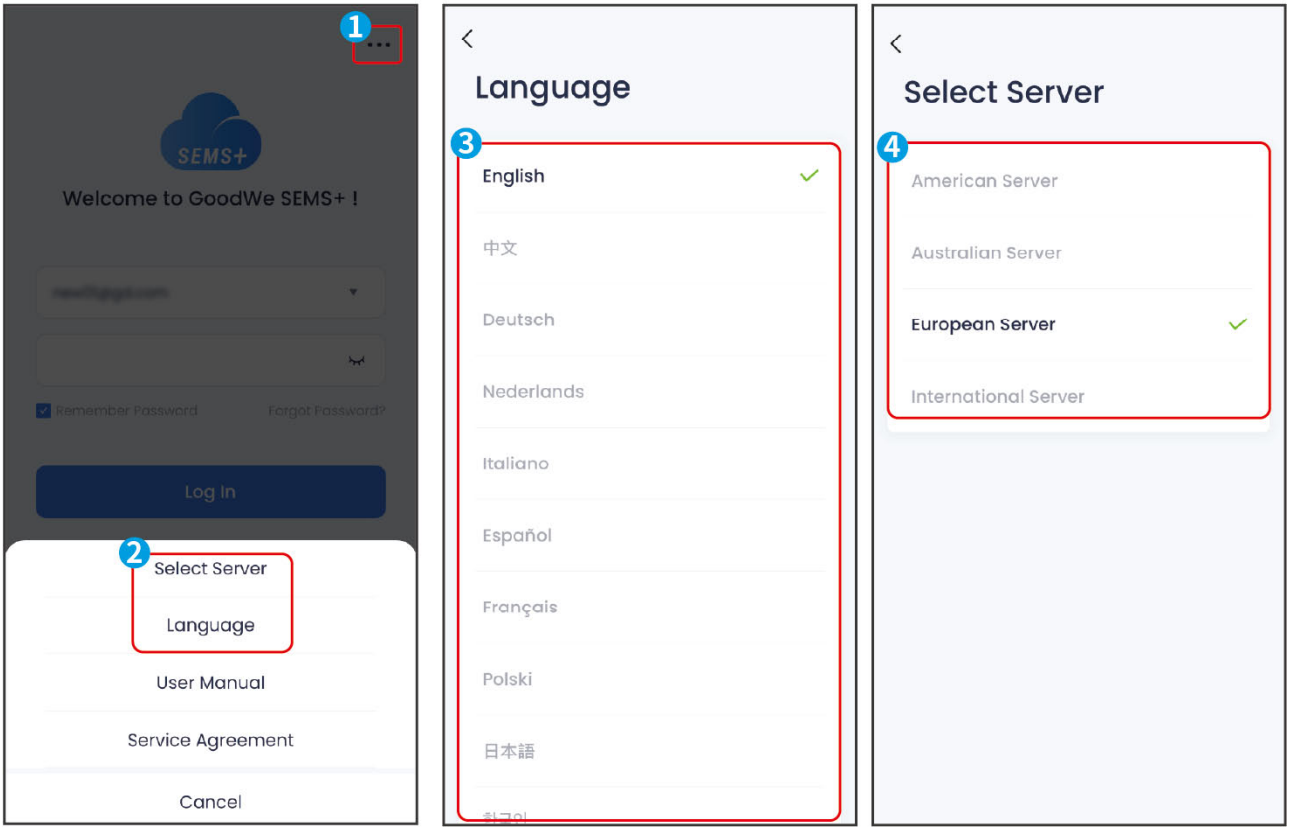


9.1.4 Setting Language and Server

NOTICE
The server is automatically matched based on login account information. To set it manually, ensure that the selected region matches the region of the account. Otherwise, login may fail.

Select the language and the server based on the actual situation.

SEMS0004

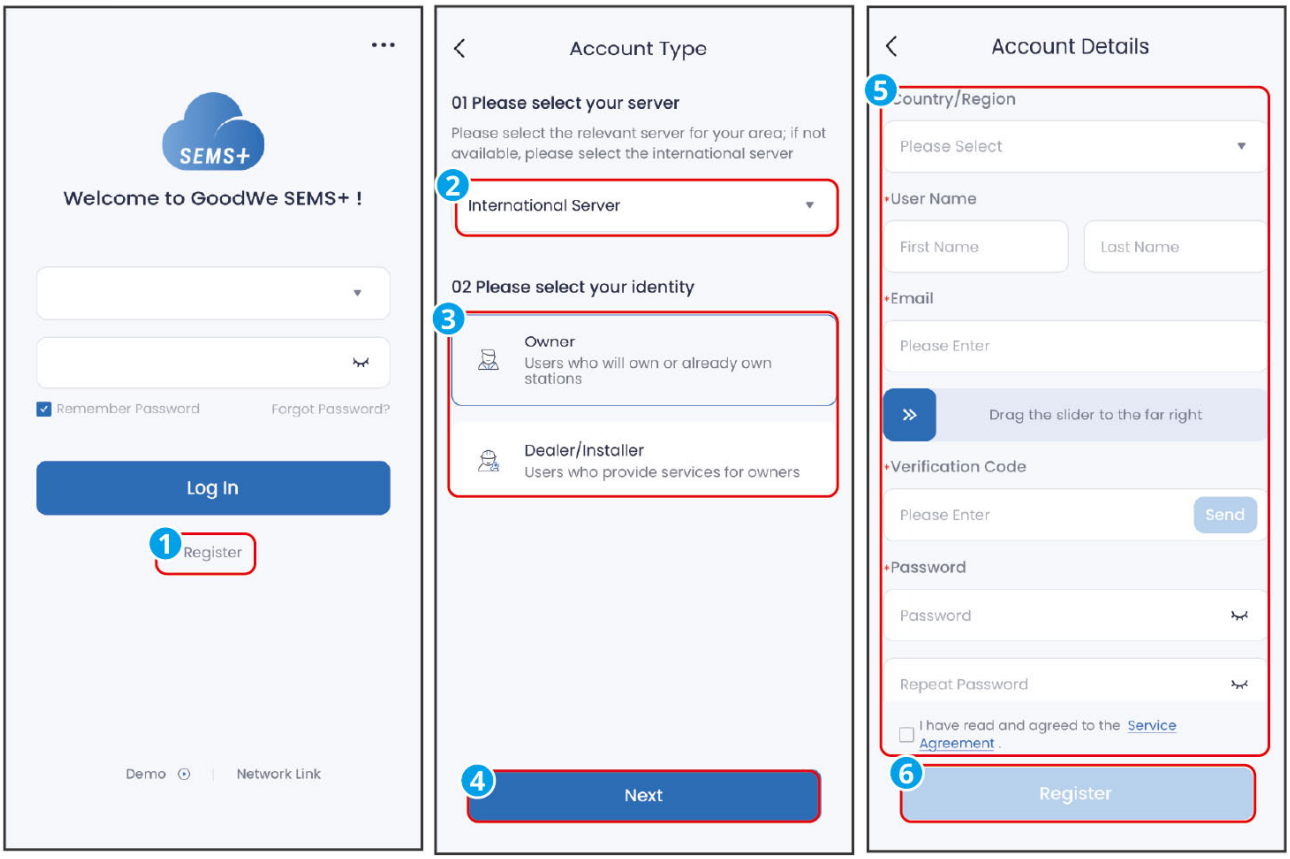


9.2 Managing the Account

9.2.1 Registering an Account

Step 1: Tap **Register** to enter the account registration interface.
Step 2: Select the account type based on your actual needs and tap **Next**.
Step 3: Enter your account information based on the actual situation and tap **Register** to complete the registration.

SEMS0005



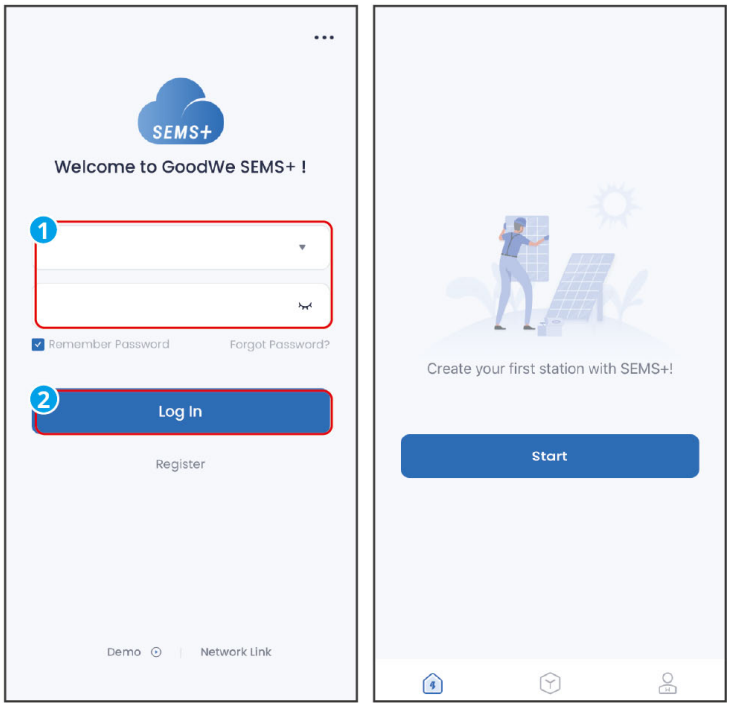
9.2.2 Logging in to the App

NOTICE

- Register an account or obtain an account from your dealer before logging in.
- Check and manage power station after logging in. The actual interface takes precedence.

Step 1: Enter the username and password, read, and agree to the login agreement. Tap **Log In**.

SEMS0006

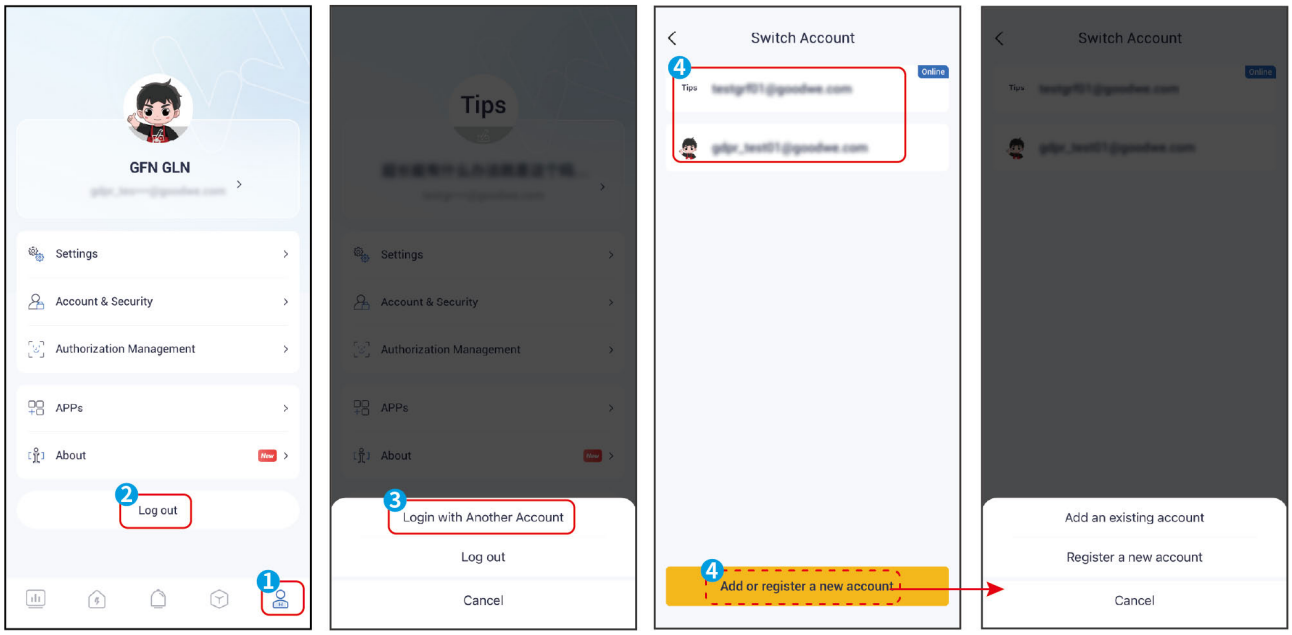


9.2.3 Switching Accounts

Step 1: Go to **My** tab, and tap **Log Out > Log with Another Account**.

Step 2: Select an already added account or add a new account based on actual needs.

SEMS0007

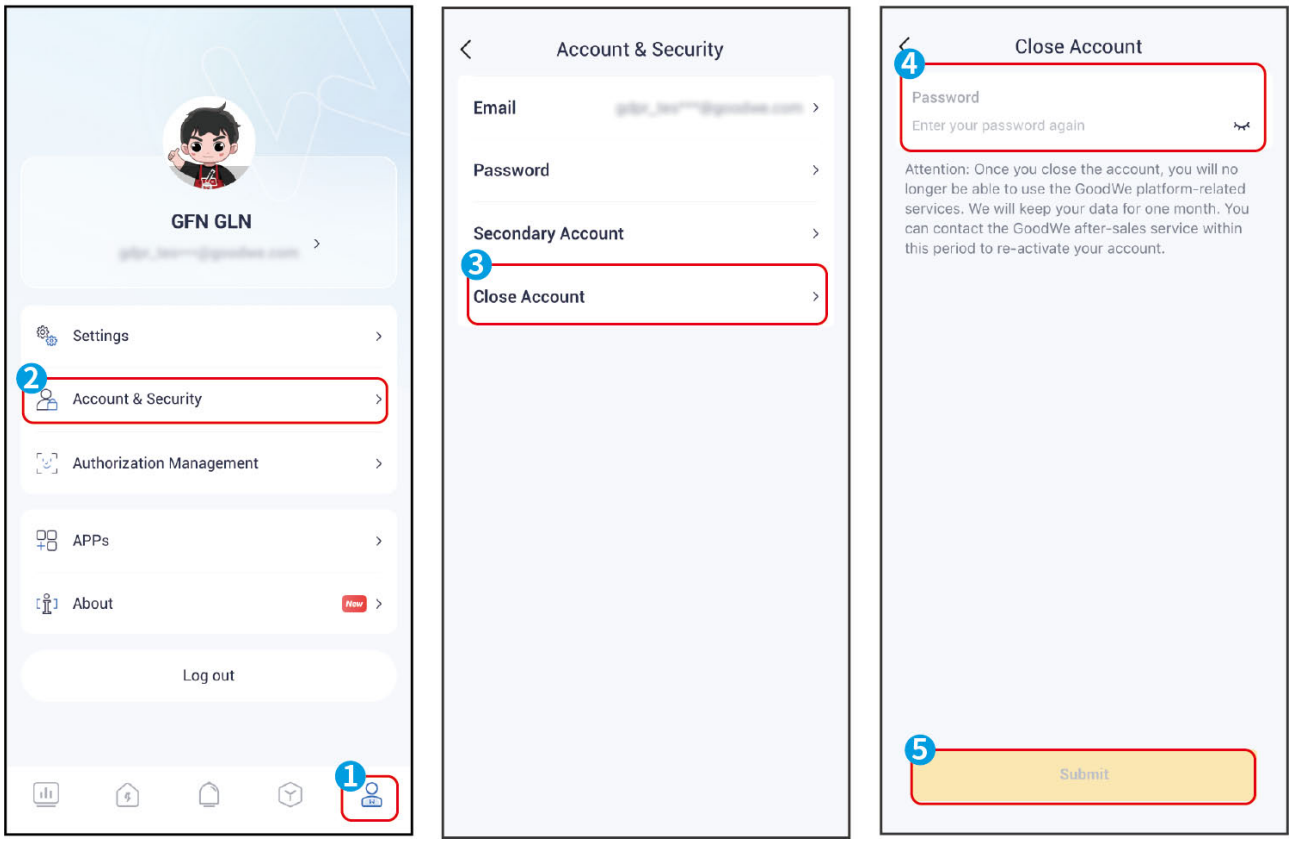


9.2.4 Deleting an Account

Step 1: Go to **My** tab and tap **Account&Security**.

Step 2: Tap **Close Account**, input the account password, and **Submit.**

SEMS0008



9.2.5 Account Permission Descriptions

The SEMS+ App supports various types of accounts with different permissions. Refer to the table below for details.

Primary menu	Submenu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Permissions
Login & Register	-	-	-	-	Administrator, Technician, Browser, End User, Visitor
Overview	Monitoring Information	-	-	-	Administrator, Technician, Browser, End User, Visitor
	Create Station	-	-	-	Administrator, Technician, End User and Visitor

Station	Station List	-	-	-	Administrator, Technician, Browser, End User, Visitor
	Station Details	Monitoring	-	-	Administrator, Technician, Browser, End User, Visitor
		Device	Add Device	-	Administrator, Technician, End User
			Device List	Search Device	Administrator, Technician, Browser, End User, Visitor
				Replace Device	Administrator, Technician, End User
				Edit Device	Administrator, Technician, End User
				Delete Device	Administrator, Technician, End User
			Device Details	Device Monitoring Info	Administrator, Technician, Browser, End User, Visitor
				Device Remote Control	Administrator, Technician, End User
				Device Remote Upgrade	Administrator, Technician
		Alarms	-	-	Administrator, Technician, Browser, End User, Visitor
		Station Configuration	Edit Station	-	Administrator, Technician, End User
			Delete Station	-	Administrator, Technician, End User
			Replacement	-	Administrator,

			History		Technician, Browser, End User
			User Information	-	Administrator, Technician, End User
			Home Configuration	-	Administrator, Technician, Browser, End User, Visitor
	Create Station	-	-	-	Administrator, Technician, End User and Visitor
Alarm	-	-	-	-	Administrator, Technician, Browser
Services	Services	Warranty	-	-	Administrator, Technician, Browser, End User, Visitor
		Report Center	-	-	Administrator, Technician, Browser, End User
		GoodWe News	-	-	Administrator, Technician, Browser, End User, Visitor
		Announcements	-	-	Administrator, Technician, Browser, End User, Visitor
		Community	-	-	Administrator, Technician, Browser, End User, Visitor
	Tools	Create Station	-	-	Administrator, Technician, End User and Visitor
		Network Link	-	-	Administrator, Technician, Browser, End User, Visitor
		DNSP	-	-	Administrator,

					Technician, Browser, End User, Visitor
	Help	-	-	-	Administrator, Technician, Browser, End User, Visitor
My	User Profile	-	-	-	Administrator, Technician, Browser, End User, Visitor
	User Information	-	-	-	Administrator, Technician, Browser, End User, Visitor
	Setting	-	-	-	Administrator, Technician, Browser, End User, Visitor
	Account Security	Email	-	-	Administrator, Technician, Browser, End User, Visitor
		Password	-	-	Administrator, Technician, Browser, End User, Visitor
		Secondary Account	-	-	Administrator, Technician, Browser
		Close Account	-	-	Administrator, Technician, Browser, End User, Visitor
	Auth Management	Remote Control Auth	-	-	Administrator, Technician, Browser, End User, Visitor
		Monitoring Auth	-	-	End User
	Apps	-	-	-	Administrator, Technician, Browser, End User, Visitor
	About	-	-	-	Administrator,

					Technician, Browser, End User, Visitor
	Logout	Logout	-	-	Administrator, Technician, Browser, End User, Visitor
		Login anther Account	-	-	Administrator, Technician, Browser, End User, Visitor

9.3 Setting the Network Information

The SEMS+ App allows connecting devices via Bluetooth or WiFi and configuring network parameters to realize remote monitoring or management.

NOTICE

The device name varies depending on the inverter model or smart dongle model.

- Wi-Fi/LAN Kit, Wi-Fi Kit, Wi-Fi Box: Solar-WiFi***
- WiFi/LAN Kit-20: WLA-***
- WiFi Kit-20: WFA-***
- Ezlink3000: CCM-BLE***, CCM-***, ***
- 4G Kit-CN-G20/4G Kit-CN-G21: GSA-***; GSB-***
- AC Charger:***

9.3.1 Connecting via Bluetooth

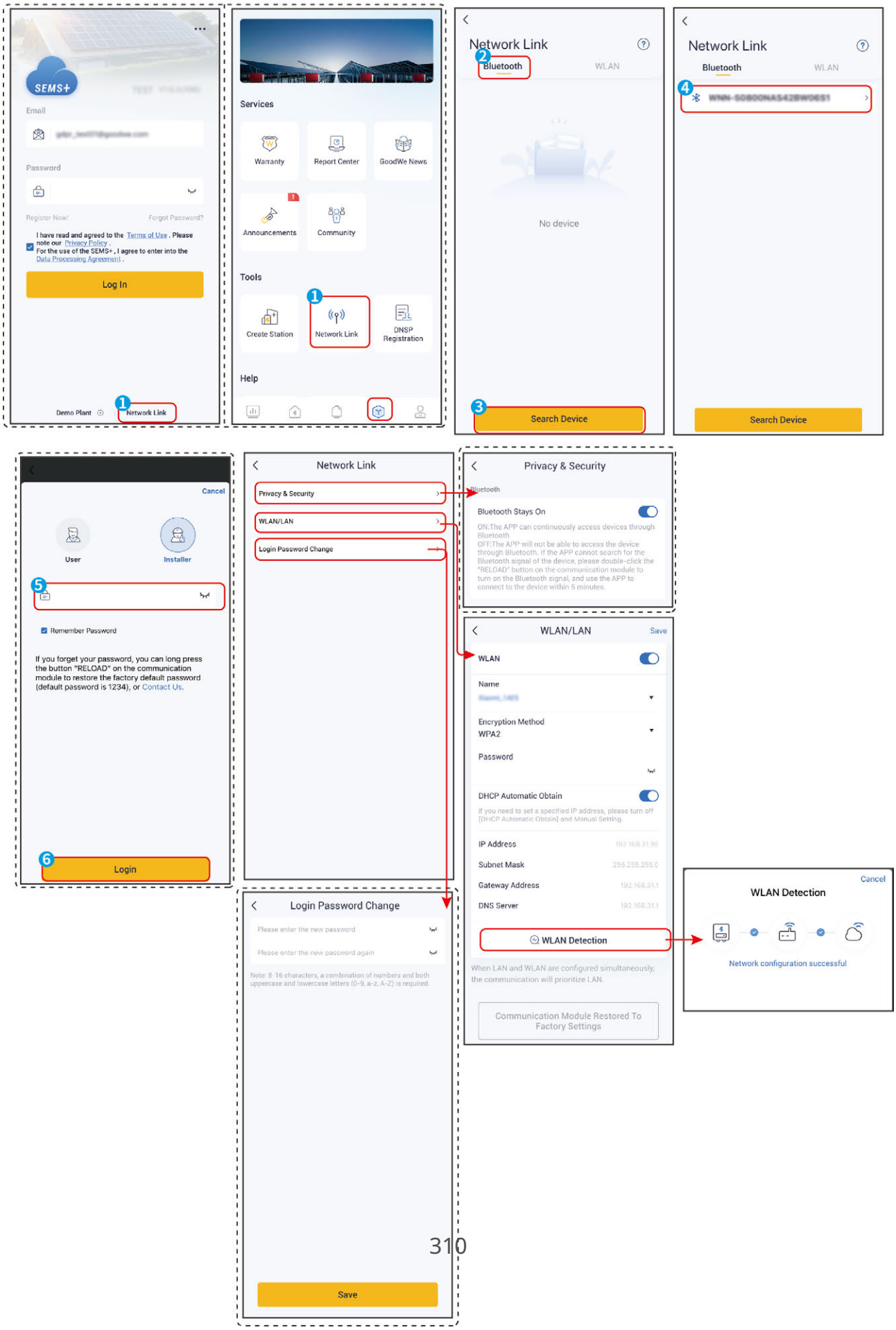
NOTICE

- Before connecting, ensure: Your phone's Bluetooth is enabled. The device is powered on and communicating properly.
- The App interface and parameters may vary depending the device type or smart dongle model. The actual interface takes precedence.

Step 1: Open the app and select **Network Link** on the homepage or in the **Service** interface.

Step 2: Tap **Bluetooth** and select the device by the serial number.
Step 3 : If prompted, log into the App according to your role and enter the password. Default password: 1234. If no login prompt appears, you will directly enter the communication settings interface.
Step 4: (Optional) Enable **Bluetooth Stays ON** if required. Otherwise, the Bluetooth signal will turn off after the connection.
Step 5: Set the **WLAN** or **LAN** parameters based on actual situation. Tap **Save** to complete the settings. Tap **WLAN Detetion** to check the communication status.
Step 6: (Optional) Tap **Login Password Change** to input a new password, and **Save.**

SEMS0009



No.	Parameters	Description

No.	Parameters	Description
1	Bluetooth Stays ON	Enable the function, the bluetooth of the device will be contentious on to keep connected to SEMS+. Otherwise, the bluetooth will be off in 5 minutes.
WLAN/LAN		
2	WLAN	Enable or disable WLAN.
3	Name	Select the name of the router network to be used.
4	Encryption Method	
5	Password	
6	DHCP Automatic Obtain	Enable DHCP when the router is in dynamic IP mode. Disable DHCP when a switch is used or the router is in static IP mode.
7	IP Address	Do not configure the parameters when DHCP is enabled. Configure the parameters according to the router or switch information when DHCP is disabled.
8	Subnet Mask	
9	Gateway Address	
10	DNS Server	

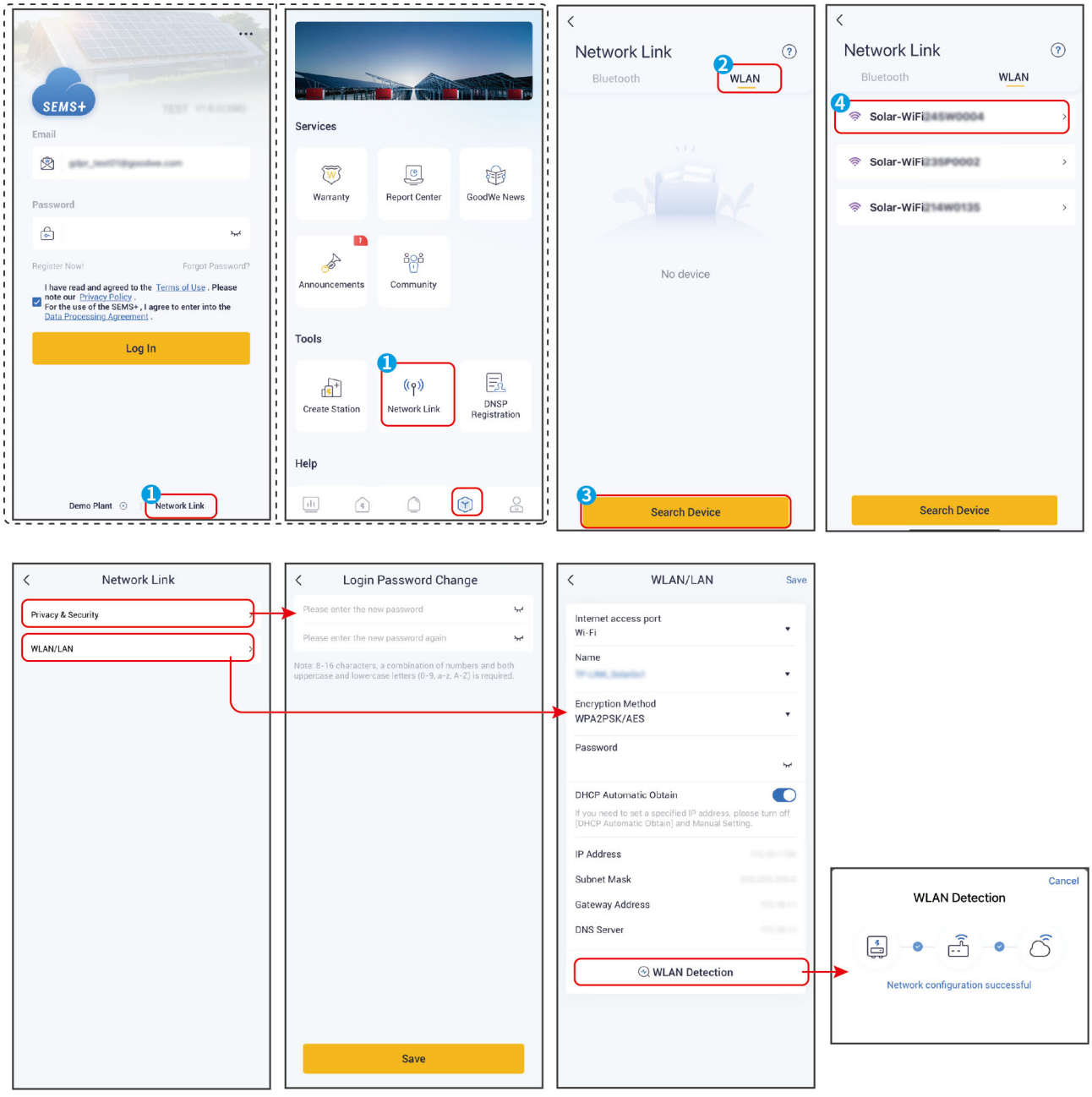
9.3.2 Connecting via WiFi

NOTICE

- Before connecting, ensure: Your phone's Bluetooth is enabled. The device is powered on and communicating properly.
- The App interface and parameters may vary depending the device type or smart dongle model. The actual interface takes precedence.

Step 1: Open the WiFi setting on the phone and connect to the inverter's WiFi signal (Solar-WiFi***). Default password: 12345678
Step 2: Open the app and select **Network Link** on the homepage or in the **Service** interface.
Step 3: Tap **WLAN** and select the device by the serial number.
Step 4: Modify the WiFi hotspot password if needed. If changed, reconnect to the inverter's WiFi signal using the new password.
Step 5: Set the **WLAN** or **LAN** parameters based on actual situation. Tap **Save** to complete the settings. Tap **WLAN Detetion** to check the communication status.

SEMS0010



No.	Parameters	Description
Privacy&Security		
1	Login Password Change	Modify the WiFi hotspot password if needed. If changed, reconnect to the inverter's WiFi signal using the new password.
WLAN/LAN		
2	Internet Access Port	Set the communication mode as **Wi-Fi** or **LAN** based on actual needs.

No.	Parameters	Description
3	Name	Select the name of the router network to be used.
4	Encryption Method	
5	Password	
6	DHCP Automatic Obtain	Enable DHCP when the router is in dynamic IP mode. Disable DHCP when a switch is used or the router is in static IP mode.
7	IP Address	Do not configure the parameters when DHCP is enabled. Configure the parameters according to the router or switch information when DHCP is disabled.
8	Subnet Mask	
9	Gateway Address	
10	DNS Server	

9.4 Station Monitoring

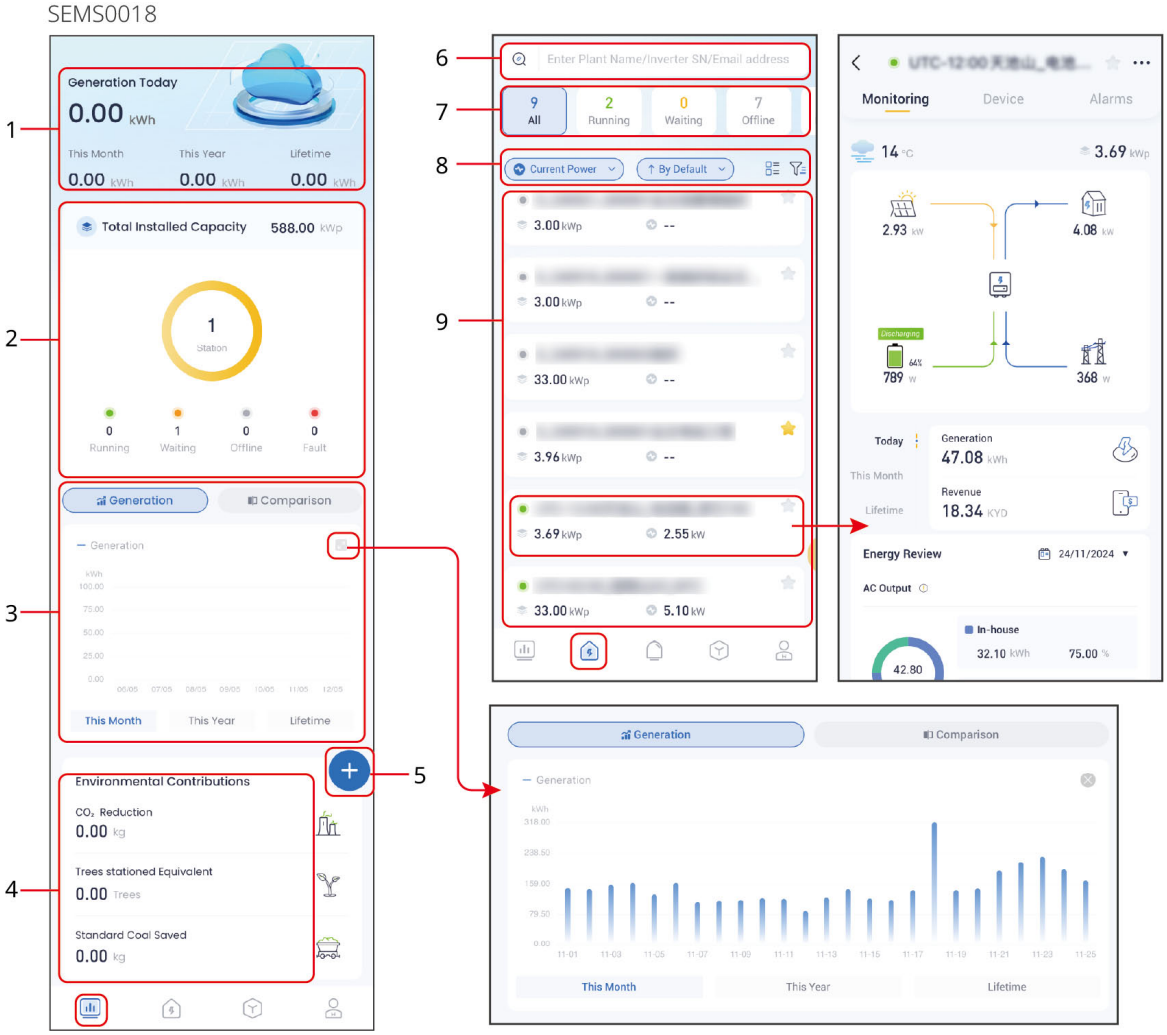
NOTICE
The parameters may vary depending on the account type or power station type. The actual interface takes precedence.

9.4.1 Checking Station Information

9.4.1.1 Checking Overview Information of All Stations

After logging in, you can view an overview of all stations linked to your account from the homepage.
Or sort the list of all power stations through different sorting and filtering conditions on the power station page to view the detailed information of the power stations.

SEMS0018



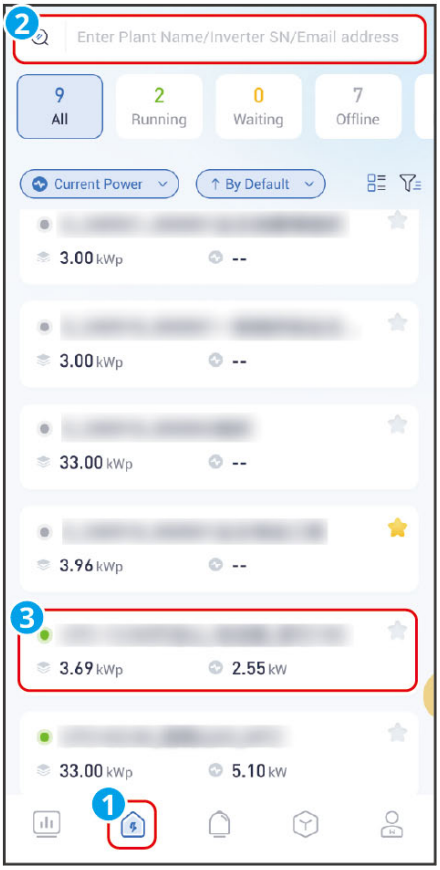
No.	Description
1	Displays the overall generation information of all stations, including: Generation Today, Generation This Month, Generation This Year, and Generation Lifetime. Generation This Year will not be displayed if the station amount exceeds 10.
2	Displays the total installed capacity and the working status of the stations. Working status: Running, Waiting, Offline, and Faulted. The stations status is running only when all the devices of the station are working properly.
3	Displays statistical chart of Generation Today, This Year, and Lifetime.Or displays comparison chart comparing current and past generation. Tap to expand the chart.
4	Displays environmental contributions like **CO_2 Reduction**, **Trees Stationed Equivalent**, and **Standard Coal Saved**.
5	Creating a New Station

No.	Description
6	Searching Stations Enter the device SN, power station name or email address to quickly search for the corresponding power station.
7	Power station operation status. Display the current operation status of power stations and the number of power stations operating in each status. Tap the operation status to filter power stations in the corresponding operation status.
8	• Set KPI indicators displayed in the power station list: Current Power, Rev. Today, Rev. Total, Gen. Today, Gen. Total • Set the sorting method of the power station list: By Default, By Capacity • Set the display mode of the power station list: Station Card, Station List • Set the filtering conditions for the power station list: Scope, Category, Capacity
9	Power station list. Tap the power station name to view the detailed information of the power station. The displayed content varies depending on the station type. The actual interface takes precedence

9.4.1.2 Checking Detailed Information of Single Station

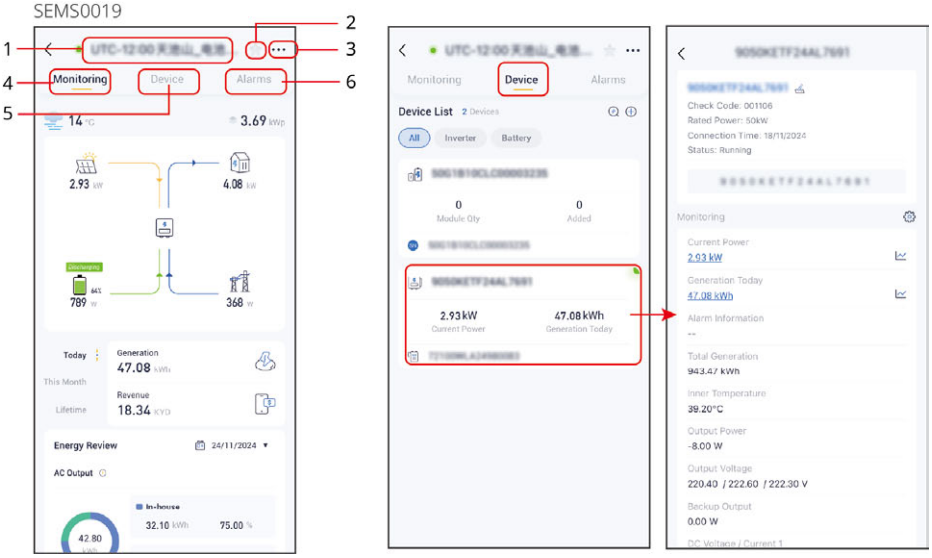
Step 1: Enter the device SN, power station name or email address to quickly search for the corresponding power station.
Step 2: Tap the power station name to enter the power station details page.

SEMS0052



9.4.1.2.1 Checking Detailed Information of Power Station (Traditional Mode)

SEMS0019



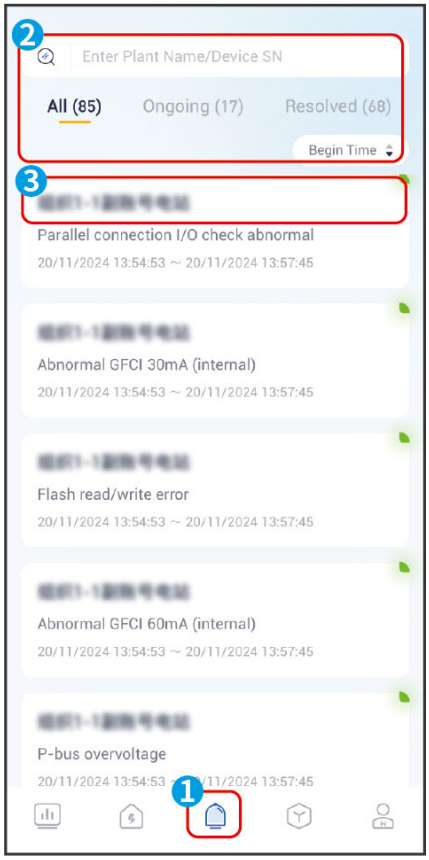
No.	Description
1	The current name of the power station.
2	Favoriting a Station
3	Configuring Station Information. Supported functions: Configure basic information of the power station, modify user information, add power station photos, set PV module layout, etc.
4	Displays current power station operation information in chart form, such as energy flow diagrams, power generation, load power consumption, AC output, and other information.
5	• Device List Displays devices in the current power station, such as inverters, batteries, data collectors, charging piles, etc. • Tap the device card to view detailed device information.
6	Alarm information.

9.4.1.3 Checking Alarm Information

9.4.1.3.1 Checking Alarm Information of All Power Stations

Step 1 Tap **Alarms** tab to enter the alarm page.
Step 2 (optional) Use the search bar to locate alarms by station name or device serial number.
Step 3 Select the alarm to view detailed information.

SEMS0020

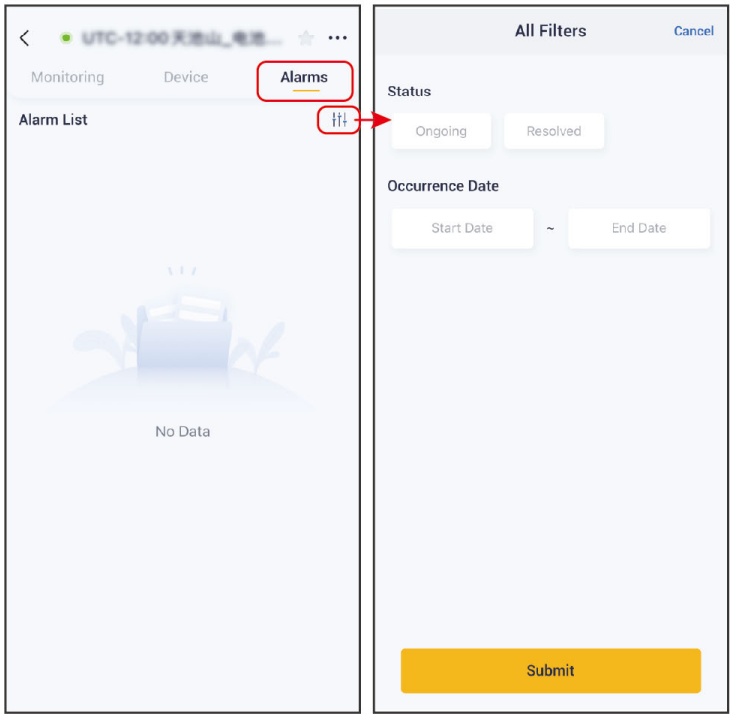


9.4.1.3.2 Checking Detailed Information of Current Power Station (Traditional Mode)

Step 1: If there are multiple power stations, tap the power station name to enter the power station details page.

Step 2: Tap **Alarms** to enter the alarm page to view alarm details. Tap to filter alarm information based on actual needs.

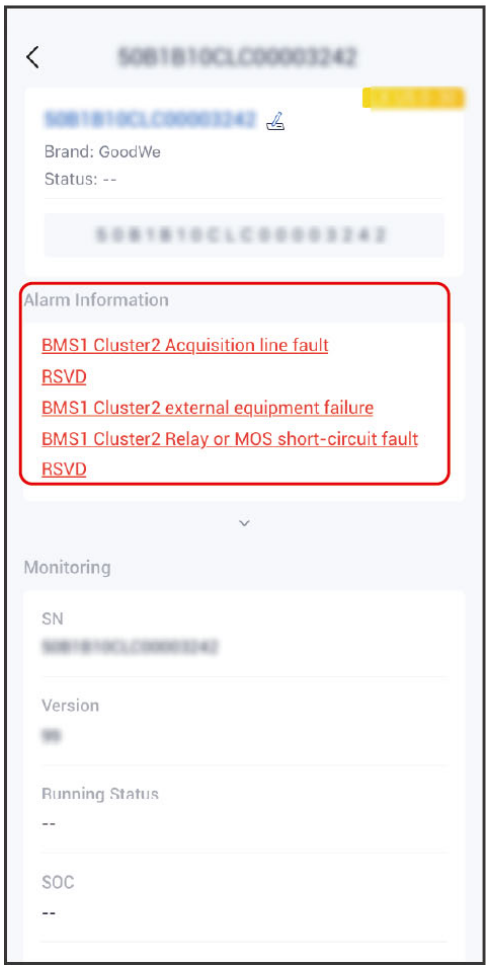
SEMS0021



9.4.1.3.3 Checking Alarm Information of Current Devices

Step 1: If there are multiple power stations, tap the power station name to enter the power station details page.
Step 2: Select a device from the device list and enter the device details page. If there are alarms, the device details page allows direct viewing of the 10 latest ongoing alarms.

SEMS0022



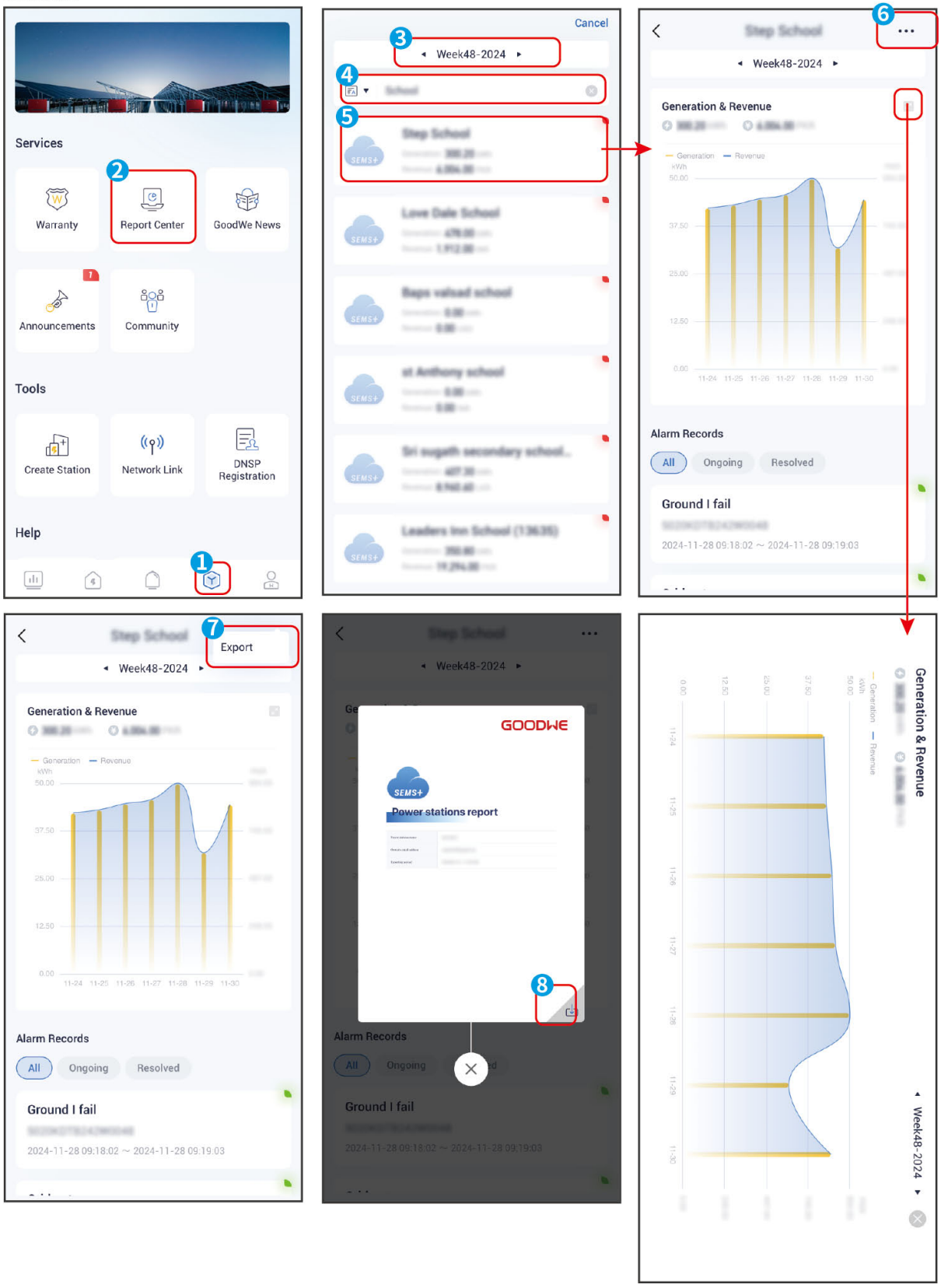
9.4.1.4 Checking Station Reports

Viewing Reports

Step 1: Tap **Service > Report Center**.

Step 2: Select a time period, search for the desired station, and tap the station name to view the report center. Tap ••• > **Export** to download the report if needed.

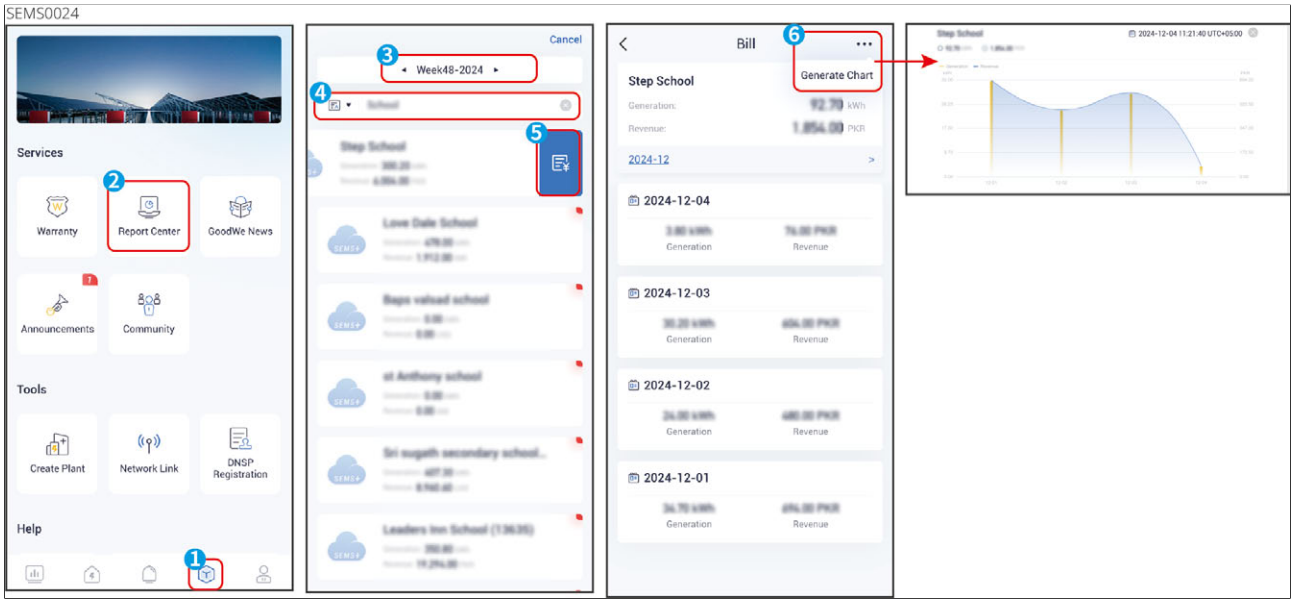
SEMS0023



Viewing Bills

Step 1: Tap **Service > Report Center**.

Step 2: Search for the desired station. Find the station, swipe left and tap to view billing details of the month.

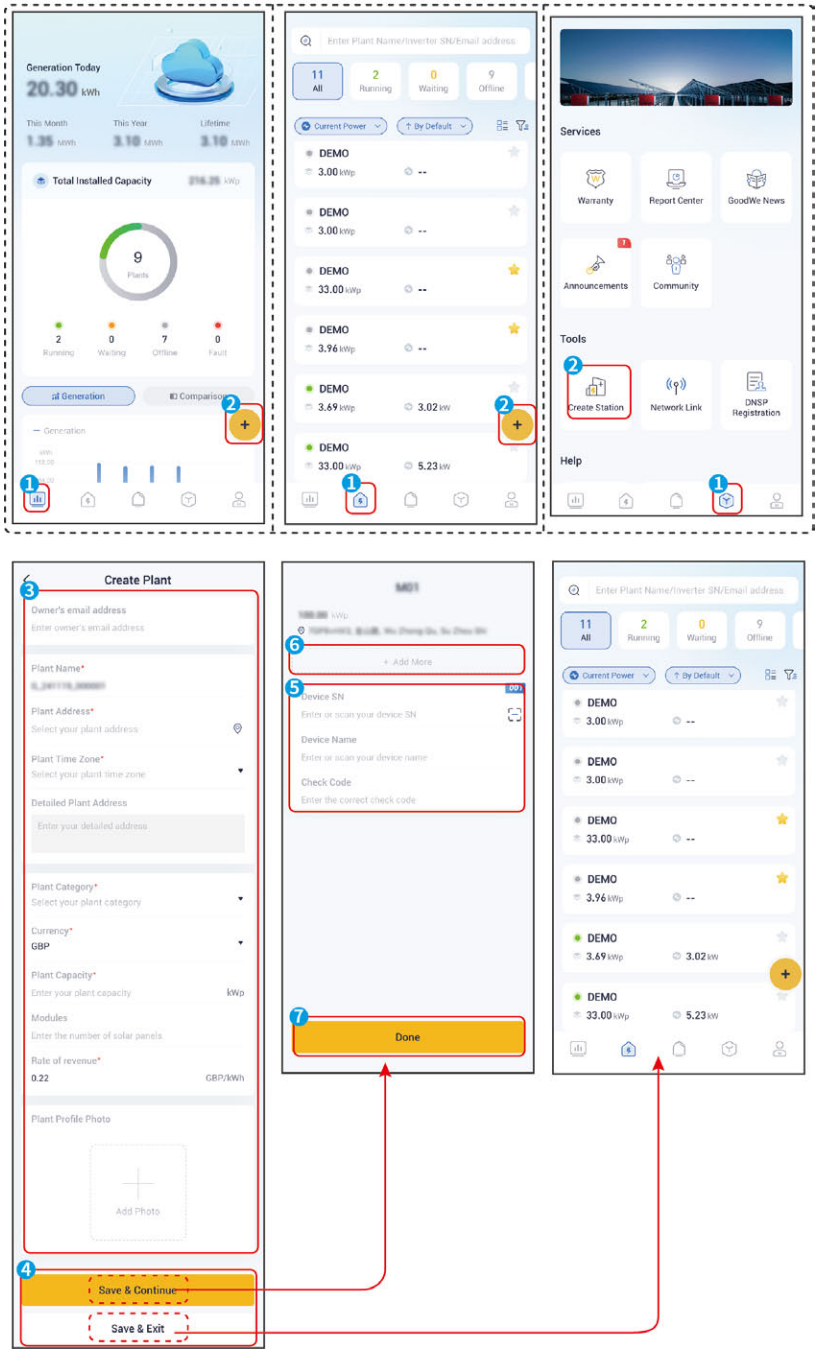


9.4.2 Managing Stations

9.4.2.1 Creating a Station

Step 1: Tap on overview or station page, or tap **Create Station** on service page.
Step 2: Enter station information on the**Creat Station** page.
Step 3: Tap **Save&Exit** to complete creating a station, without devices added. Or tap **Save&Continue** to add devices. Support adding multiple devices.

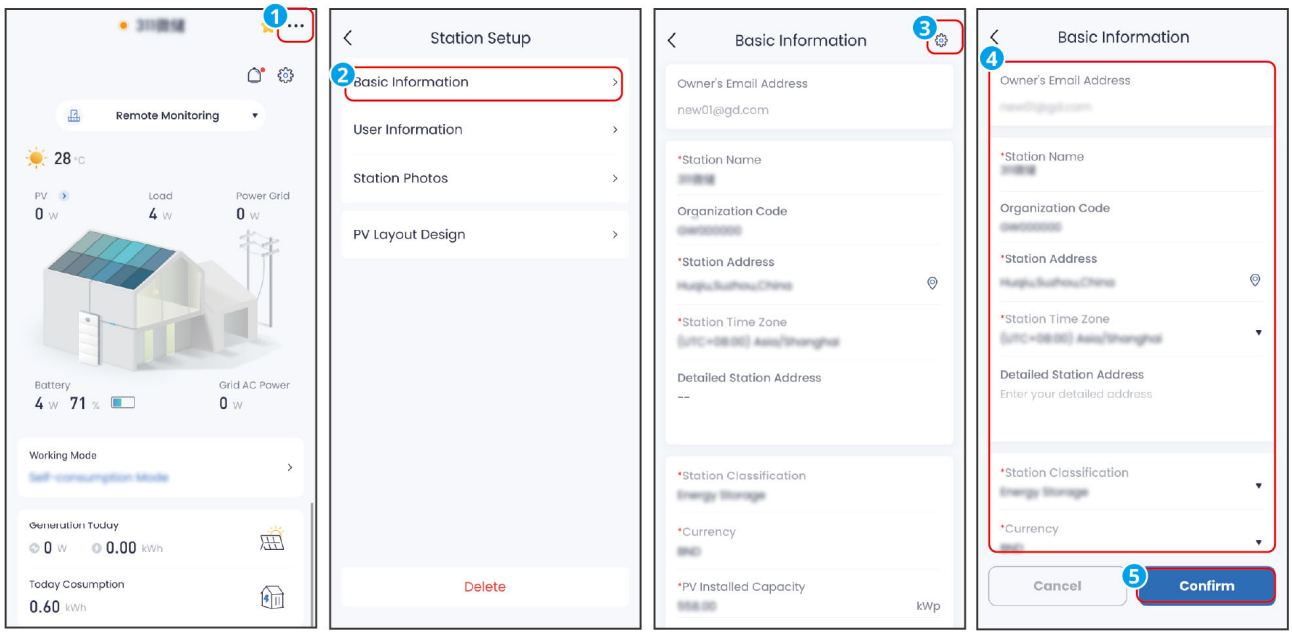
SEMS0011



9.4.2.2 Configuring Station Information

NOTICE
The configuration information of the station can be updated as needed. When the information filled in is inconsistent with the actual situation of the power station, the actual situation of the power station shall prevail.

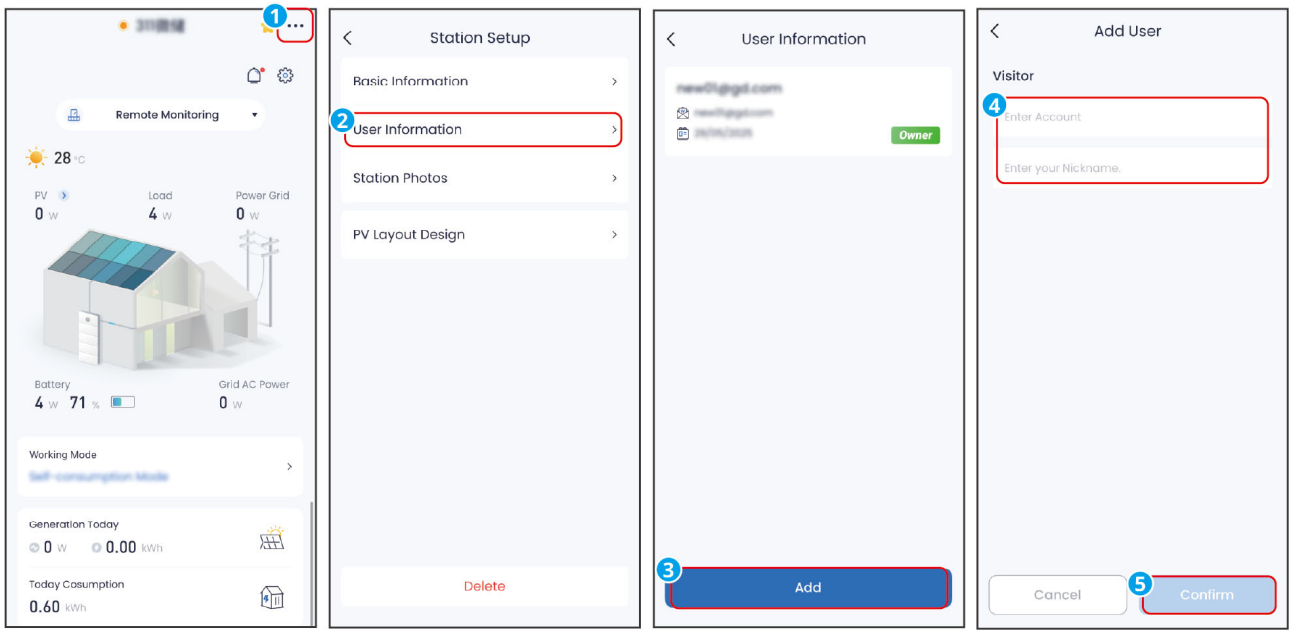
Step 1: (Optional) Select the station to be updated from the station list.
Step 2: Tap ••• > **Basic Information** to check the basic information.
Step 3: Tap ⚙ to modify the information, and tap Confirm **to save the changes.**
SEMS0012



9.4.2.3 Managing Station Visitors

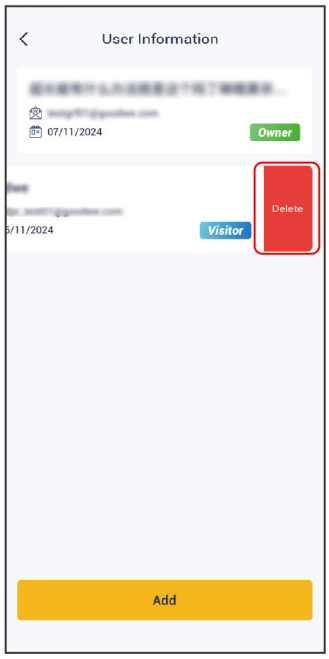
SEMS+ App allows users to add visitors to the power station and view basic information. Visitors have limited access and cannot view all information.
Step 1: (Optional) Select the station to be updated from the station list.
Step 2: Tap ••• > **User Information** > **Add**.
Step 3: Input the visitor's information and tap **Confirm**.

SEMS0013



To delete a visitor, go to the User Information page, select the visitor, and tap **Delete**.

SEMS0054



9.4.2.4 Managing Station Photos

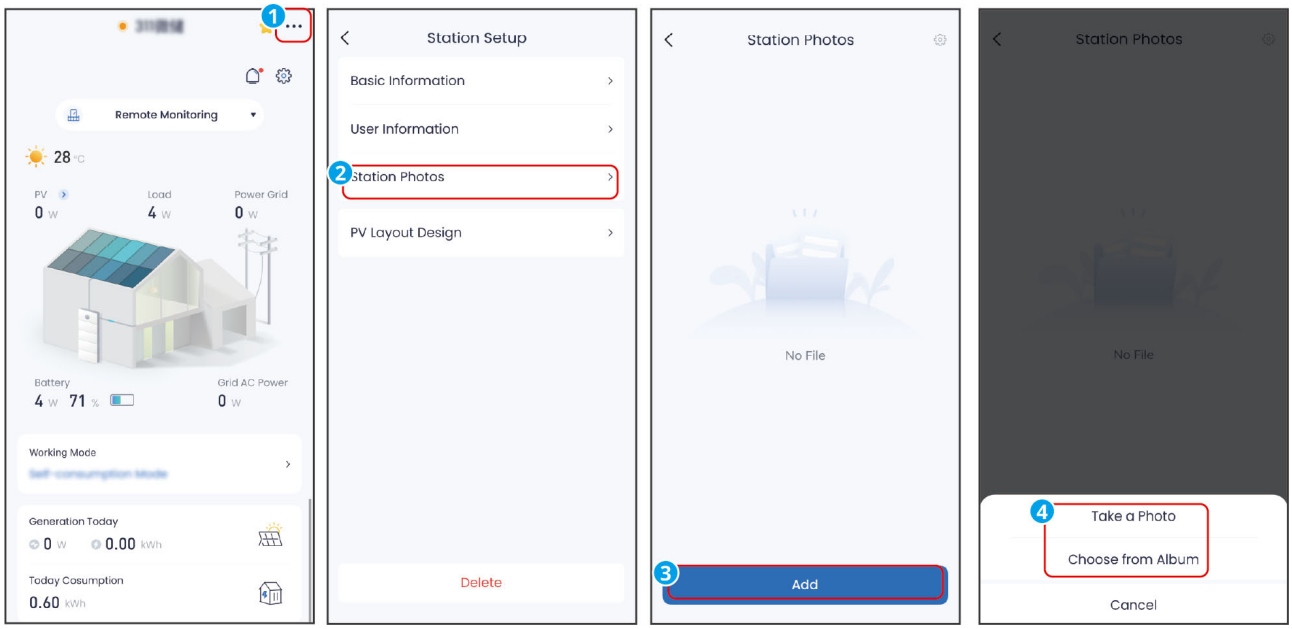
Adding photos to a station helps users find what they need faster.

Step 1: (Optional) Select the station to be updated from the station list.

Step 2: Tap ••• > **Station Photos** > **Add**.

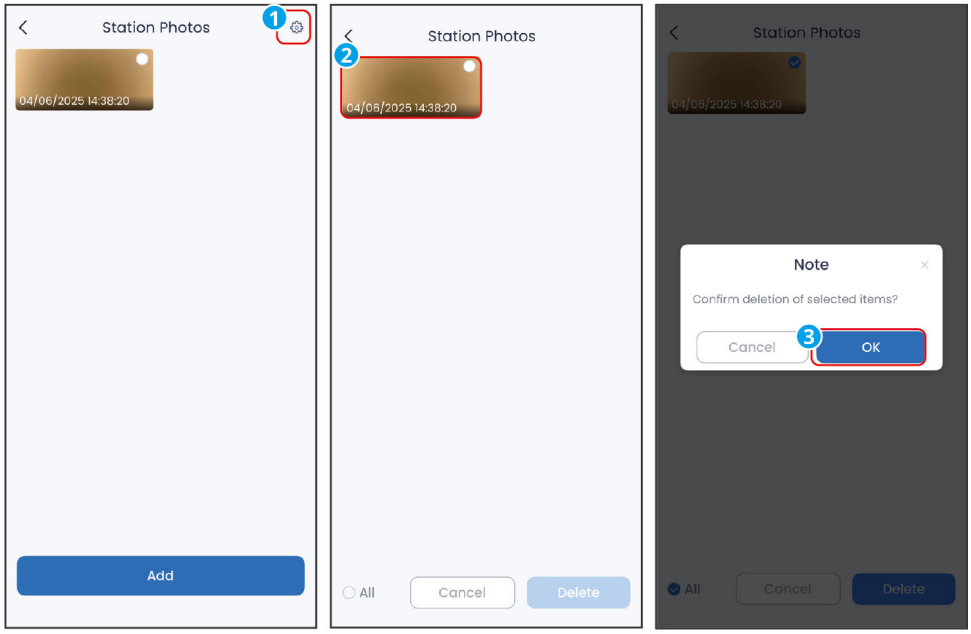
Step 3: Follow the prompts to add photos by **Take a Photo** or **Choose from Album**.

SEMS0014



To delete a photo, follow the steps below.

SEMS0055



9.4.2.5 Configuring the Page Information

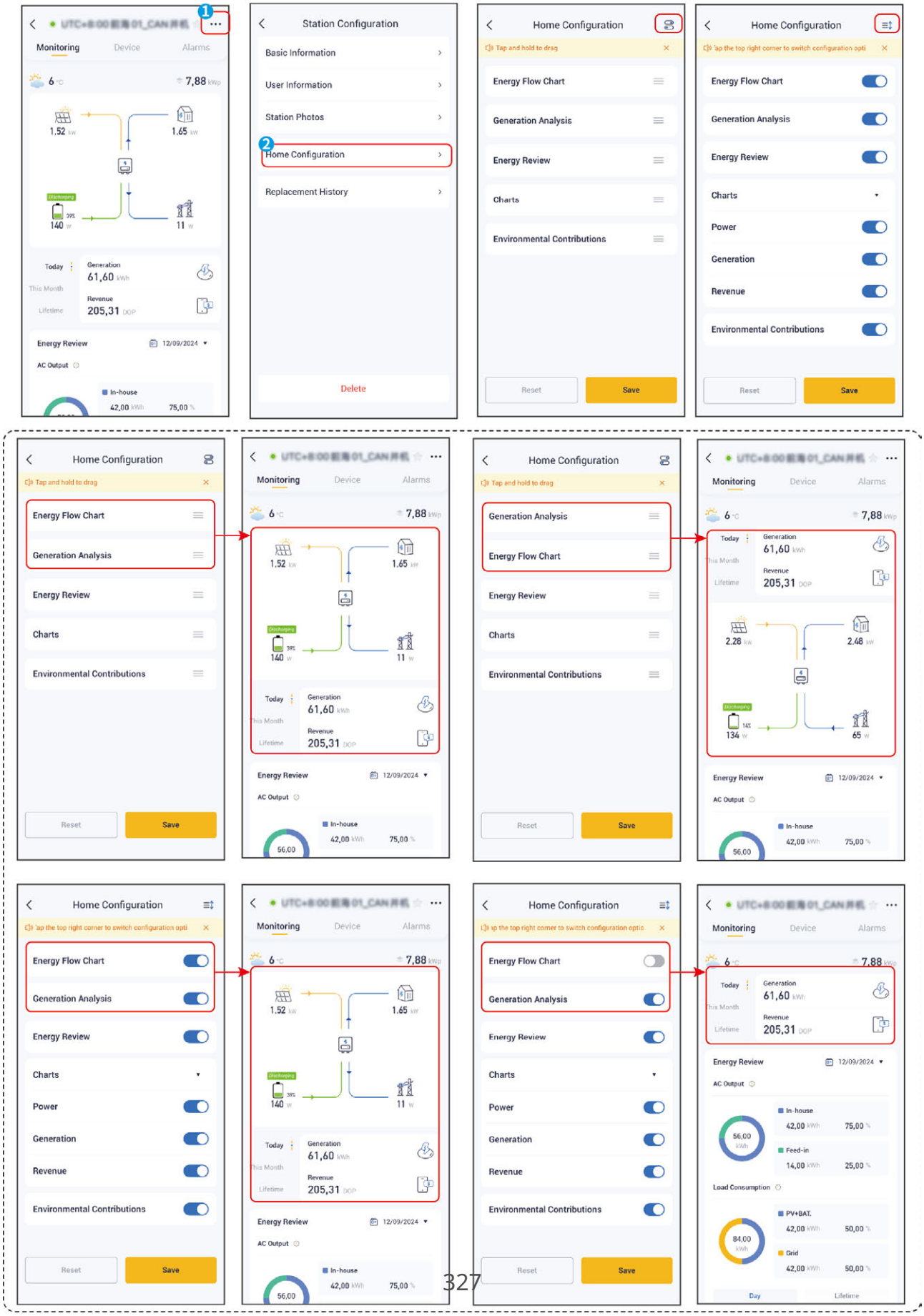
Change what's shown on the station details page, such as showing, hiding, or repositioning the Energy Flow Chart.

Step 1: (Optional) Select the station to be updated from the station list.

Step 2: Tap ••• > **Home Configuration** on the station page.

Step 3: Refer to the on-screen prompts to select the information content to be displayed, or adjust the display order of various information based on actual needs.

SEMS0015



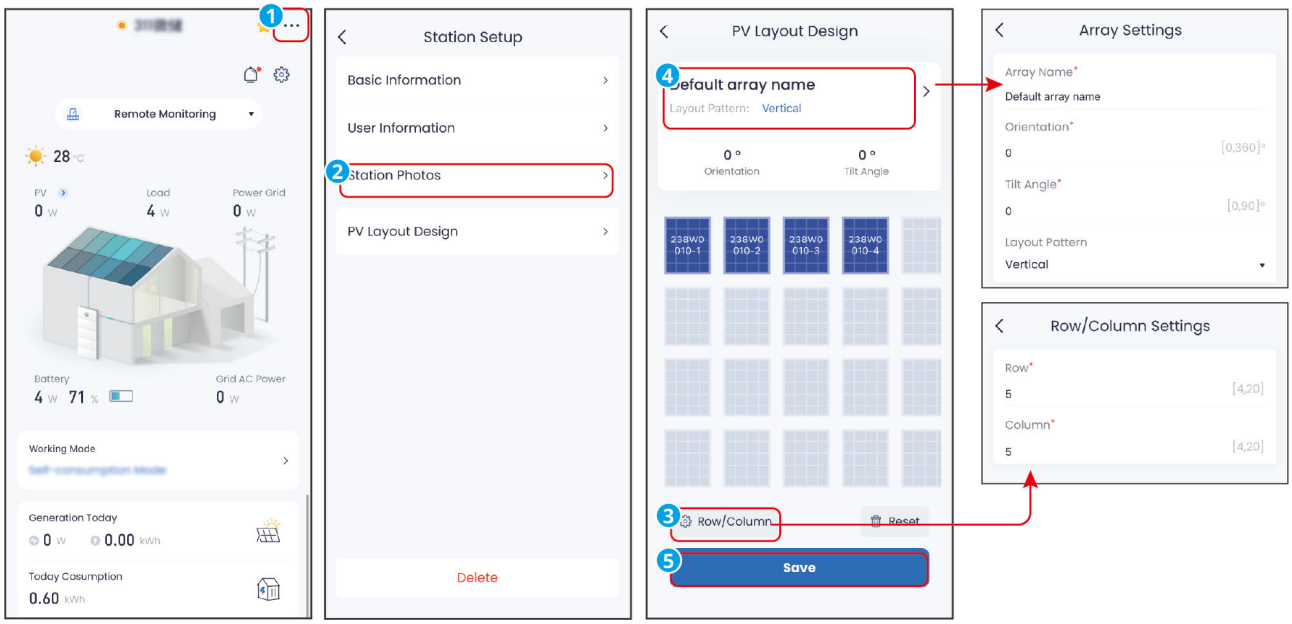
9.4.2.6 Set PV Module Layout

Set the PV Layout Design parameters based on the actual conditions of PV modules.

,and set the arrangement of modules in each row and each column based on the actual installation of PV modules.

Step 4: Tap **Array Name** to enter the **Array Settings** interface, and set the name, angle, and orientation information of the PV array based on the actual situation.

SEMS0056



9.4.2.7 Deleting a Station

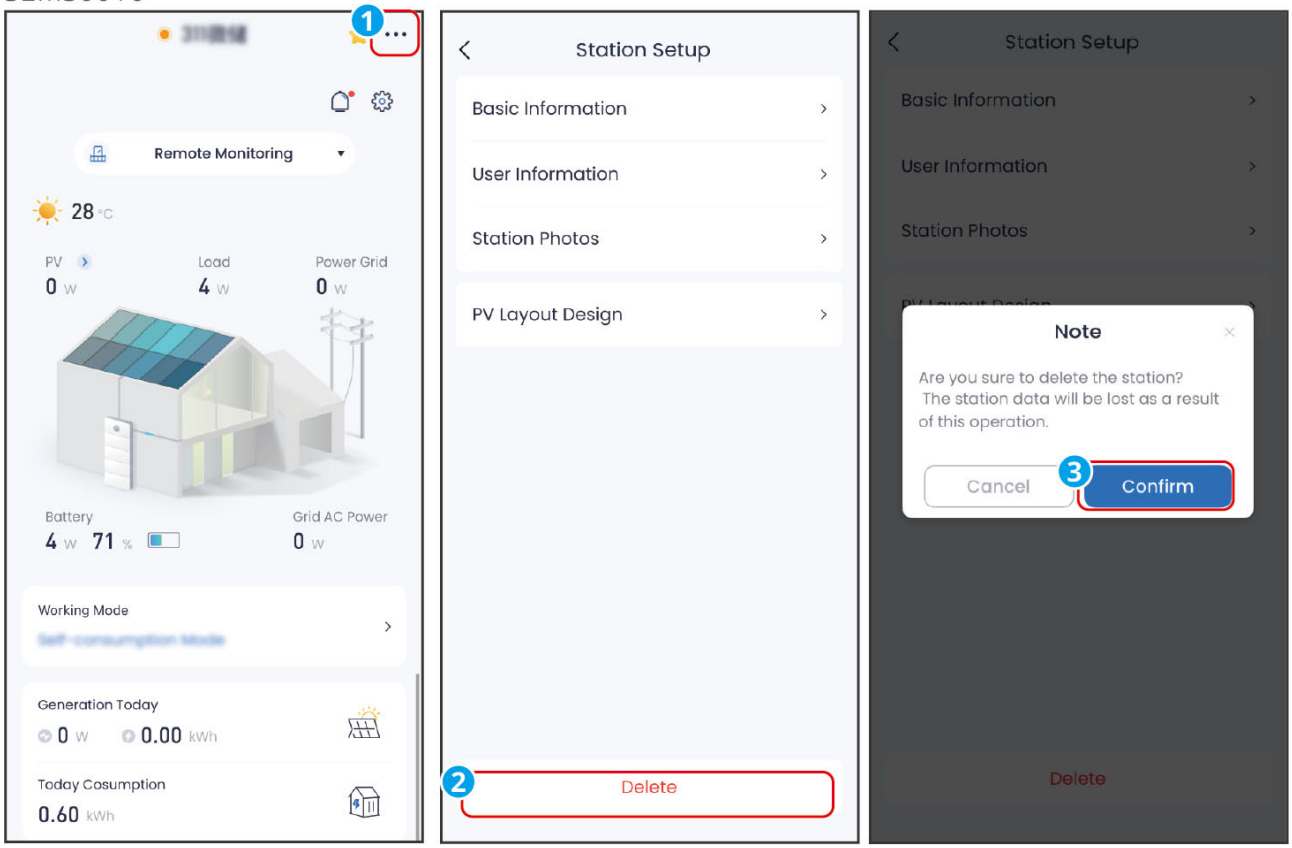
NOTICE
For station visitors, deleting a station means unbinding it from their account.

Step 1:(Optional) If there are multiple power stations, tap he power station name to enter the power station details page.

Step 2: Tap ••• on the station page.

Step 3: Tap**Delete** and **Confirm** to delete the station.

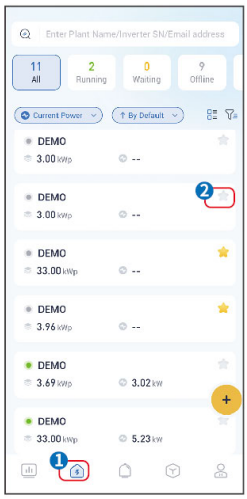
SEMS0016



9.4.2.8 Favoriting a Station

To favorite a station, tap the star icon next to the station name. Tap the icon again to unfavorite it.

Tap and Select Favorited in the filtering Scope to display all the favorited power stations.



9.4.3 Managing Devices

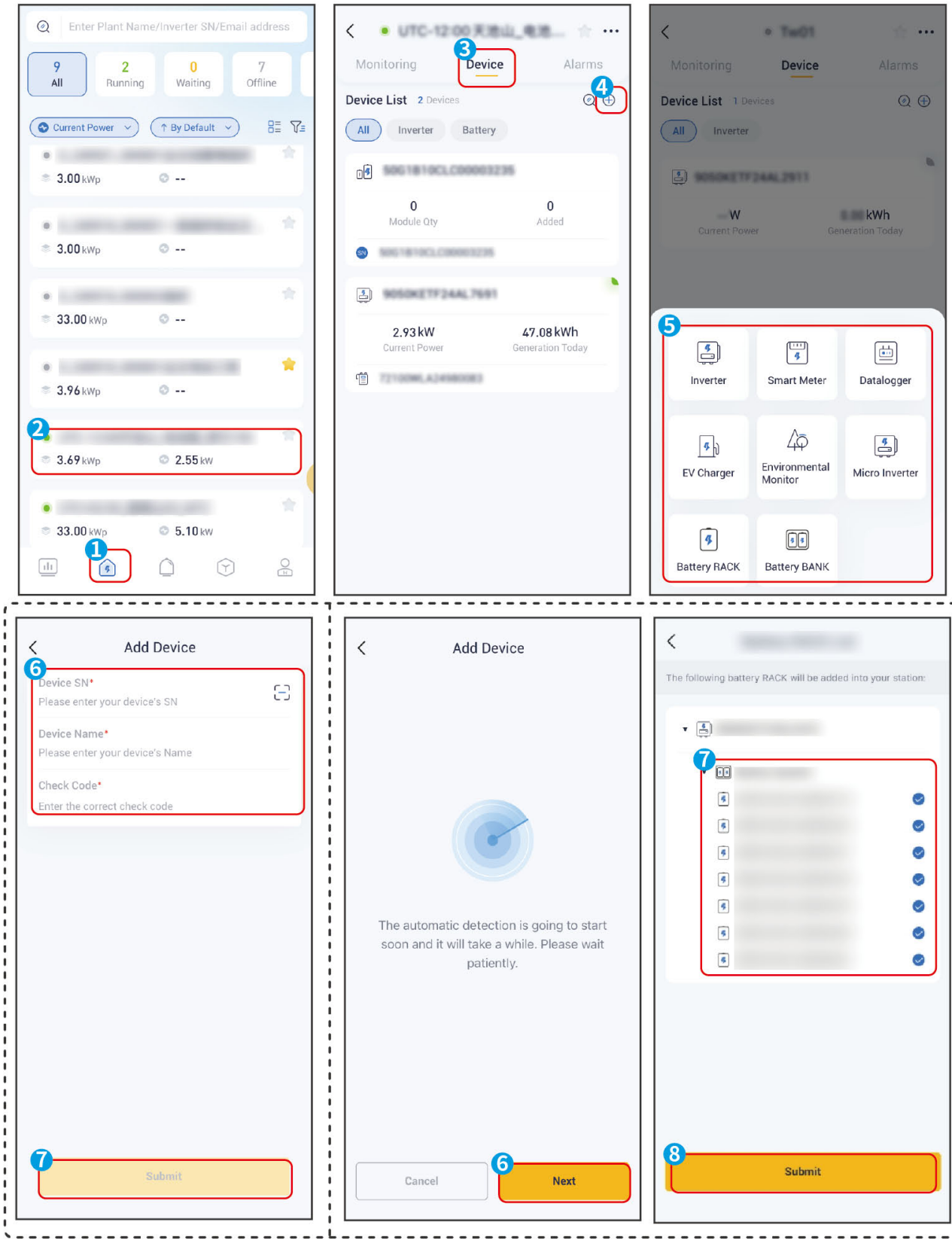
9.4.3.1 Adding a Device

NOTICE

- Supported device types may vary based on the station type.
- If the environmental monitor is connected to a smart logger, add the environmental monitor to the station and view the its data.

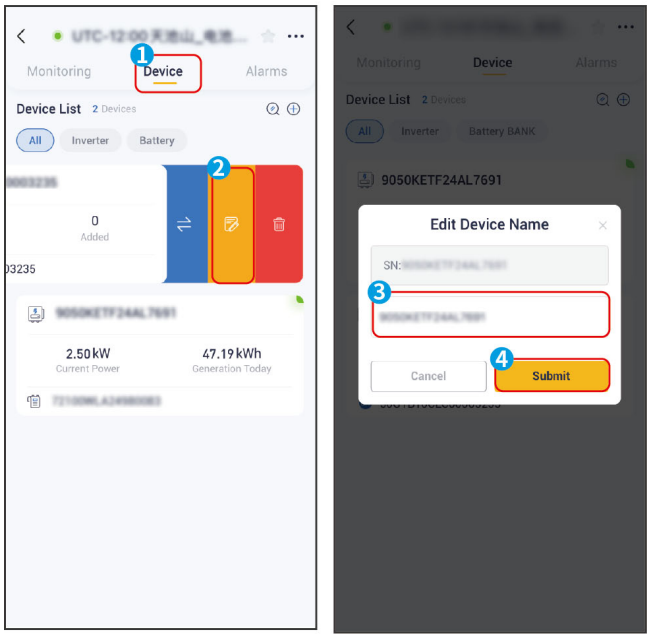
Step 1: Select a station from the station list.
Step 2: Tap **Device** > ⊕ to enter the device addition interface.
Step 3:Select the type of device to add.
Step 4: Follow the instructions to scan or manually input device information. To add the scanned devices, choose devices from the scanned device list. To manually add a device, scan the device SN code or input required device information. To add multiple devices, repeat the steps as needed.
Step 5: When manually adding devices, if you need to add multiple devices, return to the power station details page and repeat steps 3 and 4.

SEMS0025


Enter Plant Name/Inverter SN/Email address
9 All
2 Running
0 Waiting
7 Offline
Current Power
By Default
3.00 kWp --
3.00 kWp --
33.00 kWp --
3.96 kWp --
3.69 kWp 2.55 kW
33.00 kWp 5.10 kW
1
2
Monitoring
Device
Alarms
3
4
Device List 2 Devices
All
Inverter
Battery
0 Module Qty
0 Added
2.93 kW Current Power
47.08 kWh Generation Today
Monitoring
Device
Alarms
Device List 1 Devices
All
Inverter
W Current Power
kWh Generation Today
5
Inverter
Smart Meter
Datalogger
EV Charger
Environmental Monitor
Micro Inverter
Battery RACK
Battery BANK
Add Device
6
Device SN*
Please enter your device's SN
Device Name*
Please enter your device's Name
Check Code*
Enter the correct check code
7
Submit
Add Device
The automatic detection is going to start soon and it will take a while. Please wait patiently.
Cancel
6
Next
The following battery RACK will be added into your station:
7
8
Submit

9.4.3.2 Editing Device Information

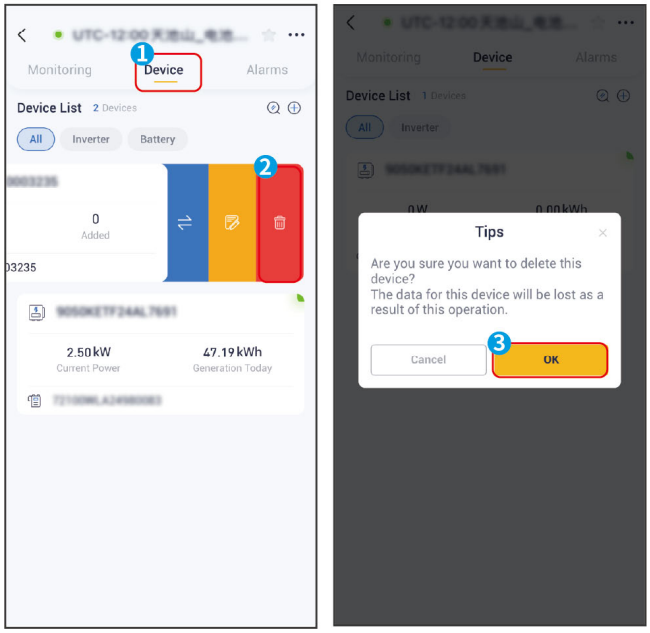
The device name can be modified.
Step 1:(Optional) If there are multiple power stations, tap he power station name to enter the power station details page.
Step 2: Tap **Device** to enter the device page. Select the device and swipe left, tap .
Step 3: Input new device name and tap **Submit**.
SEMS0027



9.4.3.3 Deleting a Device

Step 1:(Optional) If there are multiple power stations, tap he power station name to enter the power station details page.
Step 2: Tap **Device** to enter the device page. Select the device and swipe left, tap .
Step 3:: Read the prompt and tap **OK** to delete the device.

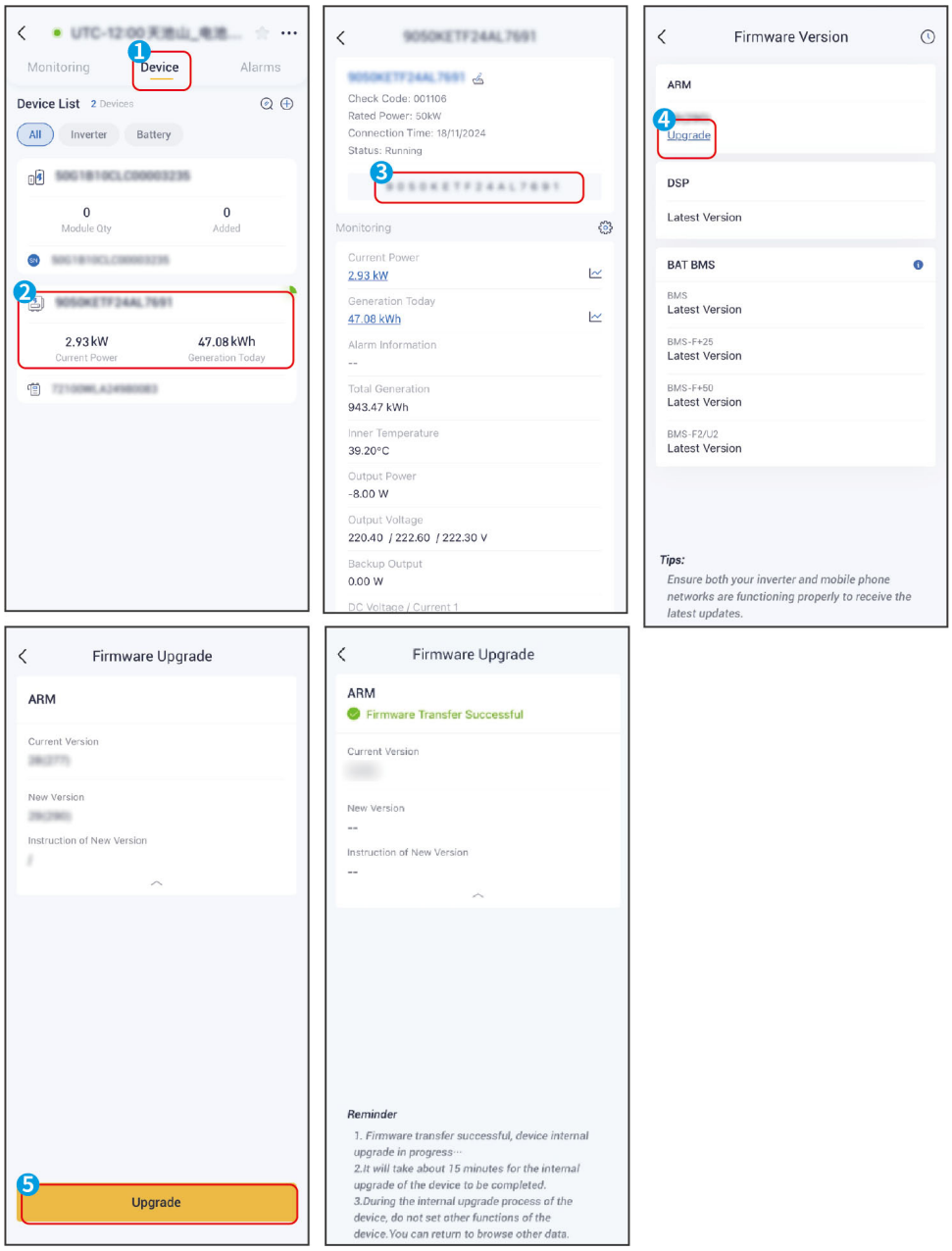
SEMS0028



9.4.3.4 Upgrade the Firmware

Step 1: (Optional) Select the station to be updated from the station list.
Step 2: Tap **Device** to open the device details page and select the device to be upgraded.
Step 3: Tap the device serial number to enter the **Firmware Version** page. If the upgrade is available, tap **Upgrade** and follow the instructions. Tap to find the upgrade history.

SEMS0029



9.4.4 Managing Device Remotely

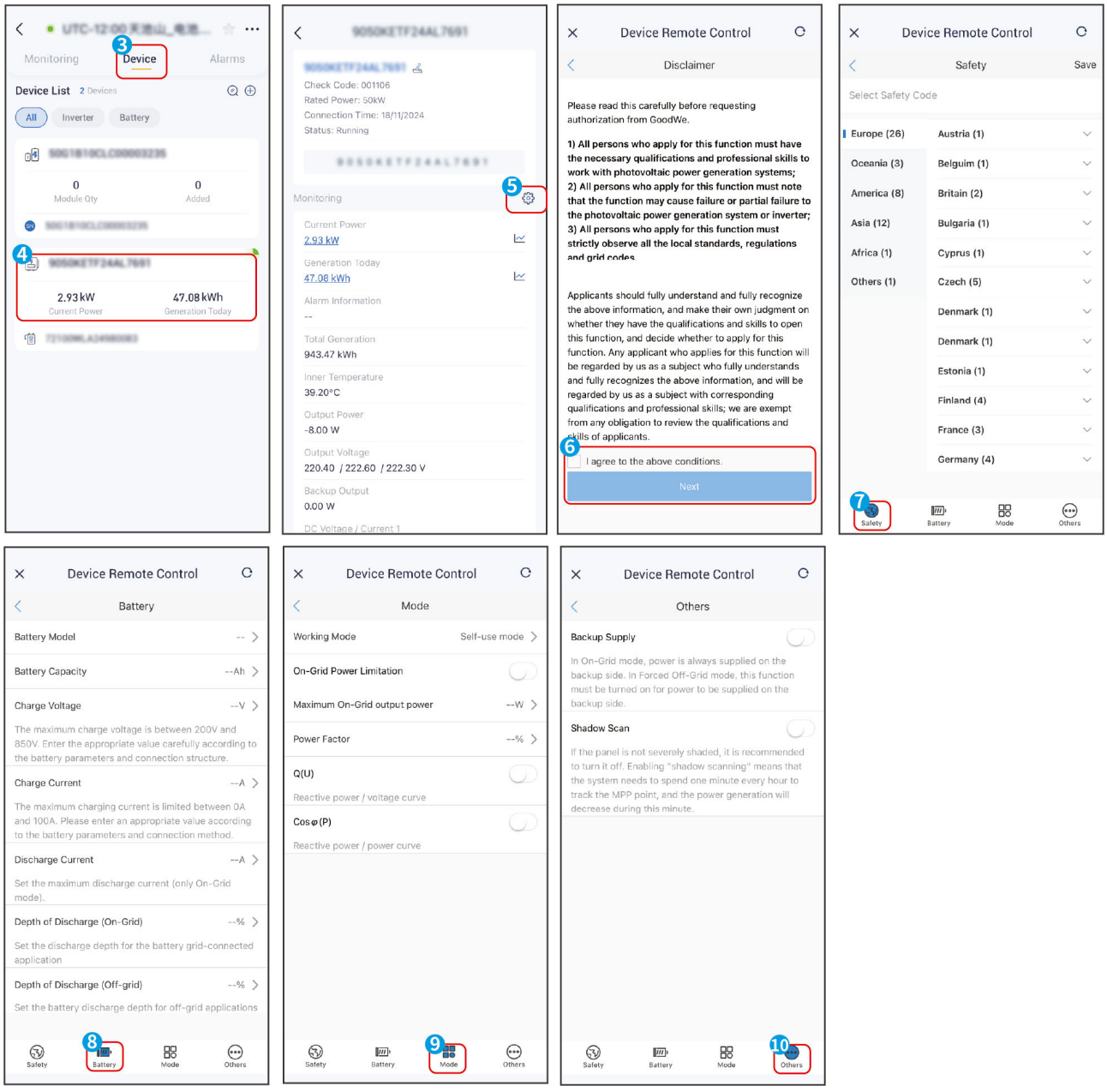
NOTICE

- Set the device parameters via SEMS+ App after creating a plant and adding devices to it.
- Before setting any parameters, read through user manual of the App and the inverter or charger to learn the product functions and features. Incorrectly configured parameters, such as grid settings or start/stop commands, may result in devices failing to connect to the grid, potentially affecting power generation.
- λOnly trained professionals familiar with local regulations and electrical systems should perform parameter settings.
- Different account permissions allow for remote setting of different parameters. The interface will be displayed based on the actual account in use, and please refer to the actual interface.
- The setting page varies depending on accounts type and device model.

9.4.4.1 Configuring Hybrid Inverter Parameters

Step 1: (Optional) Select the station to be updated from the station list.
Step 2: Tap **Device** to enter the device page and choose the device to be configured.
Step 3: Tap , read the prompts and set parameters as needed.

SEMS0031



No.	Parameters	Description
1	Safety	Set the safety country in compliance with local grid standards and application scenario of the inverter.
Battery		
2	Battery Model	Set the model of the connected battery.
3	Depth of Discharge (On-Grid)	The maximum depth of discharge of the battery when the system is working on-grid.

No.	Parameters	Description
4	Depth of Discharge (Off-Grid)	The maximum depth of discharge of the battery when the system is working off-grid.
5	Backup SOC Holding	The battery will be charged to preset SOC protection value by utility grid or PV when the system is running on-grid. So that the battery SOC is sufficient to maintain normal working when the system is off-grid.
6	SOC Protection	Start battery protection when the battery capacity is lower than the Depth of Discharge.

No.	Parameters	Description
7	Battery Heating	When a battery with heating function is connected, this option will be displayed on the interface. After enabling the battery heating function, when the battery temperature does not support battery startup, PV power generation or purchased electricity will be used to heat the battery. Heating modes: • GW5.1-BAT-D-G20/GW8.3-BAT-D-G20 ◦ Low-power mode: Maintain the minimum power input capability of the battery. It turns on when the temperature is below -9℃ and turns off when the temperature is -7℃ or higher. ◦ Medium-power mode: Maintain moderate power input capability of the battery. It turns on when the temperature is below 6℃ and turns off when the temperature is 8℃ or higher. ◦ High-power mode: Maintain high power input capability of the battery. It turns on when the temperature is below 11℃ and turns off when the temperature is 13℃ or higher. • GW14.3-BAT-LV-G10 ◦ Low-power mode: Maintain the minimum power input capability of the battery. It turns on when the temperature is below 5℃ and turns off when the temperature is 7℃ or higher. ◦ Medium-power mode: Maintain moderate power input capability of the battery. It turns on when the temperature is below 10℃ and turns off when the temperature is 12℃ or higher. ◦ High-power mode: Maintain high power input capability of the battery. It turns on when the temperature is below 20℃ and turns off when the temperature is 22℃ or higher.
8	Daily Heating Period	Set the battery heating time period based on actual needs.

No.	Parameters	Description
9	Battery Wake-up	After being enabled, the battery can be woken up when it shuts down due to undervoltage protection.
10	Battery Breathing Light	• Only applicable to the ESA 3-10kW inverter series. Set the blinking duration of the device's breathing light. Options available: Always on, Always off, 3min. • The default mode is to stay on for three minutes after power-on and then turn off automatically.
Mode		
11	Working Mode	Set the working mode based on actual needs. • Self-use mode: ◦ Back-up mode: The back-up mode is mainly applied to the scenario where the grid is unstable ¡When the grid is disconnected, the inverter turns to off-grid mode and the battery will supply power to the load; when the grid is restored, the inverter switches to on-grid mode. ◦ Eco mode: It is recommended to use economic mode in scenarios when the peak-valley electricity price varies a lot. Select Economic mode only when it meets the local laws and regulations. Set the battery to charge mode during Vally period to charge battery with grid power. And set the battery to discharge mode during Peak period to power the load with the battery. • Smart charging: In some countries/regions, the PV power feed into the utility grid is limited. Select Smart Charging to charge the battery using the surplus power to minimize PV power waste. • Peak shaving mode:Peak shaving mode is mainly applicable to peak power limited scenarios. When the total power consumption of the load exceeds the power consumption quota in a short period of time, battery discharge can be used to reduce the power exceeding the quota.

No.	Parameters	Description
12	On-Grid Power Limitation	Enable On-Grid Power Limitation when power limiting is required by local grid standards and requirements.
13	Maximum On-Grid Output Power	Set the value based on the actual maximum power feed into the utility grid.
14	Power Factor	Set the power factor based on actual needs.
15	Q(U)	Enable Q(U) Curve when it is required by local grid standards and requirements.
16	COS(φ)	Enable Cosφ Curve when it is required by local grid standards and requirements.
17	P(F)	Enable P(F) Curve when it is required by local grid standards and requirements.
Others		
18	Backup Supply	After enabling Backup Supply, the battery will power the load connected to the BACK-UP port of the inverter to ensure Uninterrupted Power Supply when the power grid fails.
19	Shadow Scan	Enable Shadow Scan when the PV panels are severely shadowed to optimize the power generation efficiency.

10 Maintenance

10.1 Power OFF the System

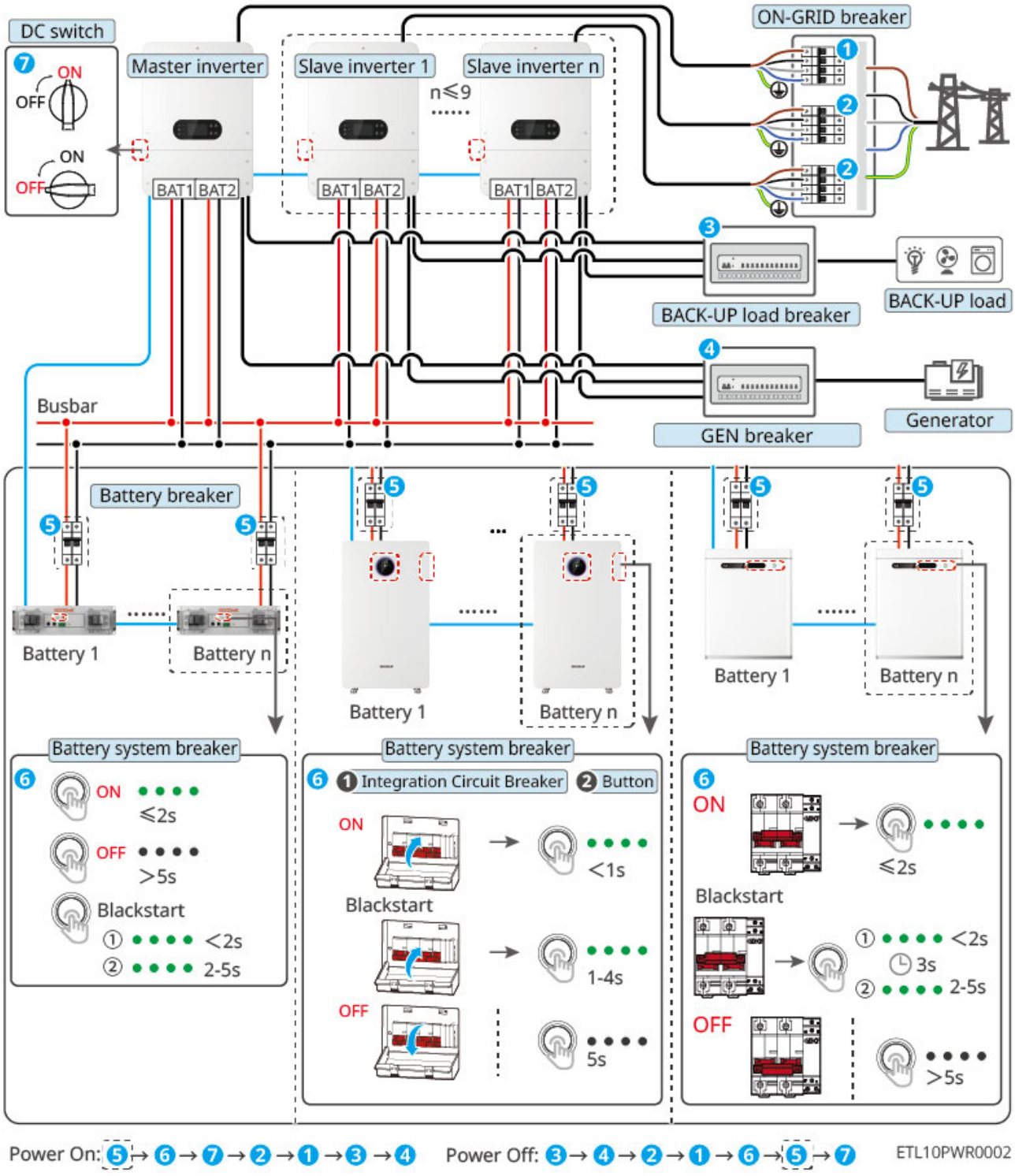
⚠DANGER

- When performing operation or maintenance on equipment within the system, please power down the system first. Operating equipment while energized may cause equipment damage or risk of electric shock.
- After the equipment is powered off, internal components require a certain amount of time to discharge. Please wait according to the time specified on the label until the equipment is completely discharged.
- Restarting the battery should be performed using the air switch power-on method.
- When shutting down the battery system, please strictly adhere to the battery system power-down requirements to prevent damage to the battery system.
- When multiple batteries are present in the system, powering down any one battery will power down all batteries.

NOTICE

- The circuit breakers between the inverter and the battery, and between battery systems, must be installed according to local laws and regulations.
- To ensure effective protection of the battery system, the cover plate of the battery system switch should remain closed, and the protective cover should automatically close after being opened. If the battery system switch is not used for a long time, it needs to be secured with screws.

Power OFF Procedure



1. Disconnect the BACK-UP circuit breaker.
2. (Optional) Disconnect the GEN circuit breaker.
3. Disconnect the main inverter ON-GRID circuit breaker.
4. (Optional) Disconnect the slave inverter ON-GRID circuit breaker.

5. Disconnect the battery system switch.
   a. LX A5.0-30: Disconnect the battery system switch.
   b. LX U5.0-30, GW14.3-BAT-LV-G10: Close the battery system integrated circuit breaker or press and hold the battery system button for ≥5 seconds, and the battery system integrated circuit breaker will automatically disconnect.
6. (Select according to local regulations) Disconnect the switch between the inverter and the battery.
7. Disconnect the DC switch of the inverter.

10.2 Removing the Equipment

⚠DANGER

- Make sure that the equipment is powered off.
- Wear proper PPE during operations.
- Please use standard disassembly tools when removing wiring terminals to avoid damaging the terminals or equipment.
- Unless otherwise specified, the dismantling process of the equipment is in reverse order to the installation process, and it will not be further elaborated in this document.

1. Power off the System.
2. Label the cables connected in the system with tags indicating the cable type.
3. Disconnect the connecting cables of the inverter, battery, and smart meter in the system, such as DC cables, AC cables, communication cables, and PE cables.
4. Remove equipment such as the smart dongle, inverter, battery, and smart meter.
5. Properly store the equipment and ensure that the storage conditions meet the requirements if it needs to be put into use later.

10.3 Disposing of the Equipment

If the equipment cannot work anymore, dispose of it according to the local disposal requirements for electrical equipment waste. The equipment cannot be disposed of together with household waste.

10.4 Routine Maintenance

⚠WARNING

- If any issues that may affect the Battery or hybrid inverter system are detected, please contact after-sales personnel. Unauthorized disassembly is strictly prohibited.
- If exposed copper wires are found inside the conductive line, do not touch them. High voltage DANGER, please contact after-sales personnel. Disassembly by unauthorized personnel is prohibited.
- In the event of any other emergencies, please contact the after-sales personnel immediately. Follow their instructions for operation or wait for on-site assistance from the after-sales team.

Maintenance content	Maintenance method	Maintenance cycle	Maintenance purpose
System cleaning	Check for any foreign objects or dust on the heat sink, fan, and air inlet/outlet. Check if the Installation space meets the requirements, and inspect whether there is any debris accumulation around the equipment.	Once every six months	Prevent heat dissipation.
System Installation	Check whether the equipment Installation is stable and whether the fastening screw is loose. Check the equipment for any damage or deformation in appearance.	Once every six months to once a year	Verify the stability of the Installation equipment.
Electrical connection	Check for loose electrical connections, damaged cable insulation, or exposed copper conductors.	1 time/half year ~ 1 time/year	Verify the reliability of electrical connections.

Maintenance content	Maintenance method	Maintenance cycle	Maintenance purpose
Sealing	Check whether the equipment inlet hole Sealing meets the requirements. If the gap is too large or unsealed, reseal it.	Once per year	Verify that the machine's sealing and waterproof performance are intact.
Battery maintenance	If the Battery has not been used or fully charged for an extended period, it is recommended to perform regular Charge on the Battery.	Once/15 days	ProtectionBattery service life.

10.5 Fault

10.5.1 Viewing Fault/Alarms Information

All energy storage system and alarm details are displayed on**[SolarGo App]**and**[SEMS+ APP]**If your product exhibits abnormalities and is not covered under**[SolarGo App]**and**[SEMS+ APP]**If you see any fault information, please contact the after-sales service center.

- **SolarGo App**

Through**[Home]**>**[Parameter]**> **[Alarm]**Check the energy storage system alarm information.

- **SEMS+ APP**

1. Open the SEMS+ App and log in with any account.
2. Through**[power station]** >**[Alarm]**You can view all power stationfault information.
3. Click on the specific fault name to view the detailed occurrence time, possible causes, and solutions of the fault.

10.5.2 Fault Information and Troubleshooting

Perform troubleshooting according to the following methods. Contact the after-sales service if these methods do not work.
Collect the information below before contacting the after-sales service, so that the

problems can be solved quickly.

1. Product information like serial number, software version, installation date, fault time, fault frequency, etc.
2. Installation environment, including weather conditions, whether the PV modules are sheltered or shadowed, etc. It is recommended to provide some photos and videos to assist in analyzing the problem.
3. Utility grid situation.

10.5.2.1 System fault

If the system encounters an issue not listed, or if following the instructions fails to prevent the problem or abnormality, immediately cease system operation and contact your distributor without delay.

No.	fault	Solution measures
1	Unable to detect smart dongle wireless signal	1. Please ensure that no other devices are connected to the smart dongle wireless signal. 2. Please ensure the SolarGo app is updated to the latest version. 3. Ensure the intelligent communication stick is powered normally, with the blue signal light flashing or steadily lit. 4. Ensure the smart device is within the communication range of the smart dongle. 5. Refresh the App device list. 6. Restart Inverter.
2	Unable to connect to smart dongle wireless signal	1. Please ensure that no other devices are connected to the smart dongle wireless signal. 2. Restart the Inverter or communication stick, and attempt to reconnect to the smart dongle wireless signal. 3. Ensure that Bluetooth is successfully encrypted and paired.

No.	fault	Solution measures
3	Unable to find Router SSID	1. Place the Router close to the Smart dongle, or add WiFi repeater devices to enhance the WiFi signal. 2. Reduce the number of devices connected to the Router.
4	After all configurations are completed, the connection between Smart dongle and Router fails.	1. Restart Inverter. 2. Check whether the network name, encryption method, and password in the WiFi configuration are the same as those in Router. 3. Restart Router. 4. Place the Router close to the Smart dongle, or add WiFi repeater devices to enhance the WiFi signal.
5	After all configurations are completed, Smart dongle fails to connect to Server.	Restart Router and Inverter.

10.5.2.2 Inverterfault

fault code	fault name	fault cause	Troubleshooting recommendation
F01	Grid disconnected	1. Utility grid power outage. 2. AC line or AC Switch disconnected.	1. The alarm automatically disappears after Grid connected recovery. 2. Check whether the AC line or AC Switch is disconnected.

fault code	fault name	fault cause	Troubleshooting recommendation
F02	Grid Overvoltage	Utility gridvoltage exceeds the allowable range, or the duration of overvoltage surpasses the high voltage ride-through setting.	1. If it occurs occasionally, it may be due to a temporary abnormality in Utility grid. Inverter will resume normal operation after detecting that Utility grid is functioning properly, without requiring manual intervention. 2. If it occurs frequently, check whether Utility gridvoltage is within the allowable range. • If the Utility gridvoltage exceeds the permissible range, please contact the local power operator. • If the Utility gridvoltage is within the allowable range, it is necessary to modify the InverterGrid Overvoltage point after obtaining approval from the local power operator.HVRTEnable or disable the Grid Overvoltage function. 3. If the issue persists for an extended period, please check whether the AC-side breaker and output cables are properly

fault code	fault name	fault cause	Troubleshooting recommendation
			connected.
F03	Grid Undervoltage	Utility gridvoltage is below the permissible range, or the duration of low voltage exceeds the low voltage ride-through setting value.	1. If it occurs occasionally, it may be due to a temporary anomaly in Utility grid. The Inverter will resume normal operation after detecting that Utility grid is functioning properly, without requiring manual intervention. 2. If it occurs frequently, check whether Utility grid voltage is within the allowable range. • If Utility gridvoltage exceeds the permissible range, please contact the local power operator. • If the Utility gridvoltage is within the allowable range, it is necessary to modify the InverterGrid Undervoltage point after obtaining consent from the local power operator.LVRTEnable or disable the Grid Undervoltage function. 3. If the issue persists for an extended period, please check whether the

fault code	fault name	fault cause	Troubleshooting recommendation
			AC-side breaker and output cables are properly connected.
F04	Grid Rapid Overvoltage	Abnormal detection of Utility gridvoltage or ultra-high voltage triggers fault.	1. If it occurs occasionally, it may be due to a temporary abnormality in Utility grid. Inverter will resume normal operation after detecting that Utility grid is normal, without requiring manual intervention. 2. If it occurs frequently, check whether Utility grid voltage is within the allowable range. • If Utility gridvoltage exceeds the permissible range, please contact the local power operator. • If the Utility gridvoltage is within the allowable range, it is necessary to modify the InverterGrid Undervoltage point after obtaining consent from the local power operator.LVRTEnable or disable the Grid Undervoltage function. 3. If the issue persists for an extended period,

fault code	fault name	fault cause	Troubleshooting recommendation
			please check whether the breaker on the AC side and the output cables are properly connected.

fault code	fault name	fault cause	Troubleshooting recommendation
F05	10minOvervoltage Protection	In10minThe sliding average of Utility gridvoltage exceeds the safety regulation range.	1. If it occurs occasionally, it may be due to a temporary abnormality in Utility grid. Inverter will resume normal operation after detecting that Utility grid is functioning properly, without requiring manual intervention. 2. Check whether Utility gridvoltage has been operating at a high voltage for an extended period. If this occurs frequently, verify whether Utility gridvoltage is within the allowable range. • If the Utility gridvoltage exceeds the permissible range, please contact the local power operator. • If the Utility gridvoltage is within the allowable range, the Utility grid must be modified with the consent of the local power operator.10minOvervoltage Protection point.

fault code	fault name	fault cause	Troubleshooting recommendation
F06	Grid Overfrequency	Utility grid anomaly: Utility grid actual Frequency exceeds local Utility grid standard requirements.	1. If it occurs occasionally, it may be due to a temporary anomaly in Utility grid. The Inverter will resume normal operation after detecting that Utility grid is functioning properly, without requiring manual intervention. 2. If frequent occurrences, check whether Utility grid Frequency is within the allowable range. • If Utility gridFrequency exceeds the permissible range, please contact the local power operator. • If Utility gridFrequency is within the allowable range, the Grid Overfrequency point needs to be modified after obtaining consent from the local power operator.

fault code	fault name	fault cause	Troubleshooting recommendation
F07	Grid Underfrequency	Utility grid anomaly: Utility grid actual Frequency is below the local Utility grid standard requirement.	1. If it occurs occasionally, it may be due to a temporary anomaly in Utility grid. The Inverter will resume normal operation after detecting that Utility grid is functioning properly, without requiring manual intervention. 2. If it occurs frequently, please check whether Utility grid and Frequency are within the allowable range. • If Utility gridFrequency exceeds the permissible range, please contact the local power operator. • If the Utility gridFrequency is within the allowable range, the Grid Overfrequency point needs to be modified after obtaining consent from the local power operator.

fault code	fault name	fault cause	Troubleshooting recommendation
F08	Grid Frequency Instability	Utility grid anomaly: Utility grid actual Frequency variation rate does not comply with local Utility grid standard.	1. If it occurs occasionally, it may be due to a temporary abnormality in Utility grid. Inverter will resume normal operation after detecting that Utility grid is normal, without requiring manual intervention. 2. If it occurs frequently, check whether Utility grid and Frequency are within the allowable range. • If Utility gridFrequency exceeds the permissible range, please contact the local power operator. • If Utility gridFrequency is within the allowable range, please contact your dealer or after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F163	Grid Phase Instability	Utility grid anomaly: Utility grid voltage phase variation rate does not comply with local Utility grid standard.	1. If it occurs occasionally, it may be due to a temporary abnormality in Utility grid. Inverter will resume normal operation after detecting that Utility grid is normal, without requiring manual intervention. 2. If it occurs frequently, check whether Utility grid and Frequency are within the allowable range. • If Utility gridFrequency exceeds the permissible range, please contact the local power operator. • If Utility gridFrequency is within the allowable range, please contact your dealer or after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F09	Anti-islanding Protection	Utility grid has been disconnected, maintaining Utility grid voltage due to the presence of load. According to safety regulation Protection, on-grid has been stopped.	1. If it occurs occasionally, it may be due to a temporary abnormality in Utility grid. Inverter will resume normal operation after detecting that Utility grid is normal, without requiring manual intervention. 2. If it occurs frequently, check whether Utility grid and Frequency are within the allowable range. • If Utility gridFrequency exceeds the permissible range, please contact the local power operator. • If the Utility gridFrequency is within the allowable range, please contact your dealer or after-sales service center.
F10	LVRT Undervoltage	Utility grid anomaly: Utility grid voltage duration exceeds the specified high-low transition time limit.	

fault code	fault name	fault cause	Troubleshooting recommendation
F11	HVRT Overvoltage	Utility grid anomaly: Utility grid voltage duration exceeds the specified high-low transition time.	1. If it occurs occasionally, it may be due to a temporary abnormality in Utility grid. Inverter will resume normal operation after detecting that Utility grid is normal, without requiring manual intervention. 2. If this occurs frequently, please check whether Utility grid, voltage, and Frequency are within the allowable range and stable. If not, contact the local power operator; if yes, contact your dealer or after-sales service center.
F43	Grid Waveform Abnormal	Utility grid anomaly: Utility grid voltage detection triggered fault due to abnormality.	
F44	Grid Phase Loss	Utility grid anomaly: Utility gridvoltage has a single-phase voltage dip.	

fault code	fault name	fault cause	Troubleshooting recommendation
F45	Grid Voltage Imbalance	Utility grid phase voltage difference is too large.	1. If it occurs occasionally, it may be due to a temporary abnormality in Utility grid. Inverter will resume normal operation after detecting that Utility grid is normal, without requiring manual intervention. 2. If it occurs frequently, please check whether Utility grid, voltage, and Frequency are within the allowable range and stable. If not, contact the local power operator; if yes, contact your dealer or after-sales service center.
F46	Grid Phase Sequence Failure	Inverter and Utility grid wiring abnormality: wiring is not in positive sequence	1. Check whether the wiring of Inverter and Utility grid is in positive sequence. After the wiring is corrected (e.g., by swapping any two live wires), fault will automatically disappear. 2. If the wiring is correct and fault persists, please contact the dealer or GoodWe Customer Service Center.

fault code	fault name	fault cause	Troubleshooting recommendation
F47	Grid Rapid Shutdown Protection	Quickly shut down the output upon detecting the Grid disconnected operating condition.	1. The Grid connected automatically disappears after recovery.
F48	Utility grid neutral line loss	Split-phase Utility grid neutral loss	1. The alarm automatically disappears after Grid connected recovery. 2. Check whether the AC line or AC Switch is disconnected.
F160	EMS/Forced off-grid	EMSIssue forced off-grid command, but the off-grid function is not enabled.	Enable off-grid function
F161	Passive Anti-islanding Protection	-	-
F162	Grid Type Fault	Actual Grid type (two-phase or split-phase) does not match the set safety regulations.	Switch the corresponding safety regulations according to the actual Grid type.

fault code	fault name	fault cause	Troubleshooting recommendation
F12	30mAGfciProtection	During operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by temporary abnormalities in the external circuit. The fault will clear automatically and resume normal operation without manual intervention. 2. If the issue occurs frequently or persists for an extended period without recovery, please check whether the PV String ground impedance is too low.
F13	60mAGfciProtection	During operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by temporary abnormalities in the external circuit. After the fault is cleared, normal operation will resume without manual intervention. 2. If the issue occurs frequently or persists for an extended period, please check whether the PV String ground impedance is too low.

fault code	fault name	fault cause	Troubleshooting recommendation
F14	150mAGfciProtection	During operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by temporary abnormalities in the external circuit. The fault will clear automatically and resume normal operation without manual intervention. 2. If the issue occurs frequently or persists for an extended period, please check whether the PV String ground impedance is too low.
F15	Gfcislowly varying Protection	During the operation of Inverter, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by temporary abnormalities in the external circuit. It will return to normal operation after fault is cleared, without requiring manual intervention. 2. If the issue occurs frequently or persists for an extended period, please check whether the PV String ground impedance is too low.

fault code	fault name	fault cause	Troubleshooting recommendation
F16	DCIPrimary Protection	The DC component of the inverter output current exceeds the safety regulations or the default allowable range of the equipment.	1. If the abnormality is caused by an external fault, the Inverter will automatically resume normal operation after the fault disappears, without requiring manual intervention. 2. If this alarm occurs frequently and affects the normal power generation of the power station, please contact the distributor or GoodWe after-sales service center.
F17	DCISecondary Protection	The DC component of the inverter output current exceeds the safety regulations or the default allowable range of the machine.	1. If the abnormality is caused by an external fault, the Inverter will automatically resume normal operation after the fault disappears, without requiring manual intervention. 2. If this alarm occurs frequently and affects the normal power generation of the power station, please contact the distributor or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F18	Low Insulation Resistance	1. PV String is short-circuited to ground with Protection. 2. The environment of PV StringInstallation is consistently humid, and the line-to-ground insulation is poor. 3. Battery port line-to-ground Low Insulation Resistance.	1. Check the impedance between PV String/Battery port and ground Protection. A resistance greater than 80kΩ is normal. If the measured resistance is less than 80kΩ, locate and rectify the short circuit point. 2. Check whether the PE cable of the Inverter is properly connected. 3. If it is confirmed that the impedance is indeed lower than the default value in rainy weather, please reset the "Inverter" "insulation resistanceProtection point" via the App. Australia and New Zealand markets Inverter. In the event of insulation resistance fault, alarms can also be triggered through the following methods: 1. Inverter is equipped with a buzzer, which will sound continuously for 1 minute when a fault occurs; if the fault is not resolved, the buzzer will sound again every 30

fault code	fault name	fault cause	Troubleshooting recommendation
			minutes. 2. If Inverter is added to the monitoring platform and the alarm notification method is configured, alarm information can be sent to customers via email.
F19	Grounding Abnormal	1. The PE cable of Inverter is not connected. 2. When the output of PV String is grounded, the output side of Inverter is not connected to an isolation transformer.	1. Please confirm whether the Inverter of PE cable is not connected properly. 2. In the scenario where the output of PV String is grounded, please confirm whether the output side of Inverter is connected to an isolation transformer.
F49	L-PE Short Circuit	Output phase line toPELow impedance or short circuit	Detect output phase line toPEImpedance, find out Locations with low impedance and repair them.

fault code	fault name	fault cause	Troubleshooting recommendation
F50	DCVPrimary 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, without requiring manual intervention. 2. If this alarm occurs frequently and affects the normal power generation of the power station, please contact the distributor or GoodWe after-sales service center.
F51	DCVSecondary 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, without requiring manual intervention. 2. If this alarm occurs frequently and affects the normal power generation of the power station, please contact the distributor or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F20	Hardware 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, without requiring manual intervention. 2. If this alarm occurs frequently and affects the normal power generation of the power station, please contact the distributor or GoodWe after-sales service center.
F21	Internal Comm Loss	Reference specific subcode reason	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F52	Leakage currentGFCIMultiple fault shutdowns	North American safety regulations require that after multiple fault, the system must not automatically recover and requires manual intervention or waiting.24hPost-recovery	1. Please check if the PV String ground impedance is too low.
F53	DC arcAFCIMultiple fault shutdowns	North American safety regulations require that after multiple fault, the system must not automatically recover and requires manual intervention or waiting.24hpost-recovery	1. After the machine is re-on-grid, check whether the voltage current of each circuit is abnormally reduced to zero. 2. Check whether the DC-side terminal is securely connected.
F54	External Comm Loss	Inverter external device communication lost, possibly due to peripheral power supply issues, Communication Protocols mismatch, or unconfigured corresponding peripherals.	Judgment is made based on the actual model and detection enable bits. Peripherals not supported by certain models will not be detected.

fault code	fault name	fault cause	Troubleshooting recommendation
F55	Back-upport overload fault	1. Prevent Inverter from continuous overload output.	1. Disconnect some off-grid loads to reduce the off-grid output power of the inverter.
F56	Back-upport overvoltage fault	2. Prevent damage to the load caused by Inverter output overvoltage.	1. If it occurs occasionally, it may be caused by load switching and does not require manual intervention. 2. If it occurs frequently, please contact the dealer or GoodWe after-sales service center.
F107	On-grid PWM Sync Failure	Abnormal occurrence in carrier synchronization on-grid	1Check if the synchronization line connection is normal. 2Check if the master-slave configuration is normal. 3Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F57	External connectionBoxfault	Waiting for grid disconnectionBoxExcessive relay switching time	1. InspectionBoxIs it functioning properly; 2. InspectionBoxIs the communication wiring correct?
-	Generator Failure	1. This fault will always be displayed when the generator is not connected. 2. When the generator is in operation, failure to meet the generator safety regulations will trigger this fault.	1. When the generator is not connected, ignore this fault; 2. The occurrence of this fault when the generator experiences fault is a normal situation. After the generator recovers, wait for a period of time, and the fault will be automatically cleared. 3. The fault will not affect the normal operation of the off-grid mode. 4. The generator and Utility grid are connected simultaneously and meet safety requirements. Utility grid prioritizes on-grid and operates in the Utility grid on-grid state.
F22	Generator Waveform Detection Fault		
F23	Generator Abnormal Connection		
F24	Generator Low Voltage		
F25	Generator High Voltage		
F26	Generator Low Frequency		
F27	Generator High Frequency		
F109	External connectionSTSfault	Inverter andSTSAbnormal connection cable	Check the Inverter andSTSIs the wiring sequence of the harness connection one-to-one corresponding in order.

fault code	fault name	fault cause	Troubleshooting recommendation
F58	CTMissing fault	CTConnection line disconnected (Japanese safety regulation requirement)	InspectionCTWhether the wiring is correct.
F110	Export Limit Protection	1. Fault reporting and grid disconnection 2. meterUnstable communication 3. Reverse power flow condition occurs	1. Check if there are any other error messages in Inverter. If so, perform targeted troubleshooting. 2. InspectionmeterIs the connection reliable? 3. If this alarm occurs frequently and affects the normal power generation of the power station, please contact the distributor or GoodWe after-sales service center.
F111	Bypassoverload	-	-
F112	Black Start Failure	-	-
F28	Parallel operationIOSelf-check abnormality	Parallel communication cable is not securely connected or parallel operation failed.IOChip damage	Check if the parallel communication cable is securely connected, and then inspect again.IOIs the chip damaged? If so, replace it.IOChip.

fault code	fault name	fault cause	Troubleshooting recommendation
F59	Parallel operationCANCommunication anomaly	Parallel communication line is not securely connected or some machines are offline.	Check whether all machines are power on and ensure the parallel communication cables are securely connected.
F29	Parallel Grid Line Reversed	Some machines have the Utility grid line connected in reverse with others.	Reconnect the Utility grid line.
F60	Parallel operationBack-upreverse connection	Partial machinesbackupLine reversed with other connections	reconnectionbackupLine.
F61	INV Soft Start Failure	Off-grid cold start INV Soft Start Failure	Check whether the inverter module of the machine is damaged.
F113	Offgrid AC Ins Volt High	-	-
F30	AC HCT Check Abnormal	AC sensor sampling anomaly	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F62	AC HCT Failure	HCTSensor abnormality detected	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F31	GFCI HCT Check Abnormal	Leakage current sensor sampling anomaly detected	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F63	GFCI HCT Failure	Leakage current sensor anomaly detected	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F32	Relay Check Abnormal	Relay abnormality, reason: 1Relay abnormality (relay short circuit) 2Relay sampling circuit abnormality. 3Abnormal AC side wiring (possible loose connection or short circuit)	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F64	Relay Failure	1Relay abnormality (relay short circuit) 2Relay sampling circuit abnormality. 3Abnormal AC measurement wiring (possible loose connection or short circuit)	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F164	DC arc fault (string)17~32)	1DC side connection terminal loose; 2DC side connection terminal loose contact; 3Core damage and poor contact	1After the machine is re-on-grid, check whether the voltage current of each circuit is abnormally reduced to zero. 2Check if the DC-side terminal is securely connected.

fault code	fault name	fault cause	Troubleshooting recommendation
F165	DC arc fault (string)33~48)	1DC side connection terminal loose; 2DC side connection terminal loose contact; 3Core damage and poor contact	1After the machine is re-on-grid, check whether the voltage current of each circuit is abnormally reduced to zero. 2Check if the DC-side terminal is securely connected.
F33	FlashRead/Write Error	Possible causes: flashContent has been modified;flashEnd of life;	1. Upgrade to the latest version of the program 2. Contact the distributor or GoodWe after-sales service center.
F42	DC arc fault (string)1~16)	1DC side connection terminal loose; 2DC side connection terminal loose contact; 3Core damage and poor contact	1After the machine is re-on-grid, check whether the voltage current of each circuit is abnormally reduced to zero. 2Check if the DC side terminal is securely connected.
F34	AFCI Check Failure	During the arc self-test process, the arc module failed to detect the arc fault.	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F65	AC Terminal Overtemperature	AC Terminal Overtemperature, possible causes: 1InverterInstallation Location non-ventilated. 2Ambient temperature is too high. 3Internal fan operation abnormal.	1Check if the ventilation of InverterInstallation Location is adequate and if the ambient temperature exceeds the maximum allowable range. 2If there is no ventilation or the ambient temperature is too high, please improve its ventilation and heat dissipation conditions. 3If ventilation and ambient temperature are normal, please contact the dealer or GoodWe after-sales service center.
F35	Cabinet Overtemperature	Cabinet Overtemperature, Possible causes: 1InverterInstallation Location non-ventilated. 2Ambient temperature is too high. 3Internal fan operation abnormal.	

fault code	fault name	fault cause	Troubleshooting recommendation
F66	INVModule temperature too high	Inverter module temperature too high, possible causes: 1InverterInstallation Location is not ventilated. 2Ambient temperature is too high. 3Internal fan operation abnormal.	
F67	BoostModule temperature too high	BoostModule temperature too high, possible causes: 1InverterInstallation Location non-ventilated. 2Ambient temperature is too high. 3Internal fan operation abnormal.	

fault code	fault name	fault cause	Troubleshooting recommendation
F68	AC Capacitor Overtemperature	Output filter capacitor temperature is too high, possible causes: 1InverterInstallation Location non-ventilated. 2Ambient temperature is too high. 3Internal fan operation abnormal.	
F114	Relay Failure2	Relay abnormality, reason: 1Relay abnormality (relay short circuit) 2Relay sampling circuit abnormality. 3Abnormal AC side wiring (possible loose connection or short circuit)	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F69	PV IGBT Short circuit	Possible causes: 1. IGBTshort circuit 2Abnormal sampling circuit	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F70	PV IGBTOpen-circuit voltage	1. Software issue causing failure to send waves. 2. Drive circuit abnormality 3. IGBTOpen circuit	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F71	NTCabnormall	NTCTemperature sensor abnormality detected	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F72	PWM Abnormal	PWMAbnormal waveform detected	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F73	CPUInterruption exception	CPUInterruption anomaly occurred	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F74	Microelectronic Failure	Functional safety detects an anomaly	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F75	PV HCTfault	boostcurrent sensor abnormality	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F76	1. 5VBaseline anomaly	Reference Circuit	

fault code	fault name	fault cause	Troubleshooting recommendation
F77	0. 3VBaseline anomaly	Reference Circuit	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F78	CPLDVersion identification error	CPLDVersion identification error	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F79	CPLDCommunicatio n fault	CPLDandDSPComm unication content error or timeout	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F80	Model Type Error	Regarding the model identification error fault	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F115	SVGPrecharge failure	SVGPrecharge hardware failure	Contact the distributor or GoodWe after-sales service center.
F116	nightSVG PIDPrevention of fault	PIDPrevent hardware anomalies	Contact the distributor or GoodWe after-sales service center.
F117	DSPVersion identification error	DSPSoftware version identification error	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F36	Bus Overvoltage		Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F81	P-Bus Overvoltage		
F82	N-Bus Overvoltage		
F83	DeputyCPU1)		

fault code	fault name	fault cause	Troubleshooting recommendation
F84	DeputyCPU1)	BUSOvervoltage, possible causes: 1. PVvoltage too high 2InverterBUSSampling anomaly; 3The poor isolation effect of the rear-end double-split Inverter causes mutual interference between the two Inverter on-grid, resulting in DC overvoltage alarms from one Inverter on-grid.	
F85	DeputyCPU1)		
F86	Bus Overvoltage(Deputy CPU2)		
F87	DeputyCPU2)		
F88	DeputyCPU2)		
F89	P-Bus Overvoltage(CPLD)		
F90	N-Bus Overvoltage (CPLD)		
F118	MOSContinuous Overvoltage	1. Software issue causes the inverter drive to shut down earlier than the flyback drive. 2. Inverter drive circuit abnormality prevents turn-on. 3. PVvoltage too high 4. MosSampling anomaly;	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F119	Bus Short Circuit	1. Hardware damage	In case of occurrenceBUSAfter the fault short circuit, the Inverter remains in an off-grid state. Please contact the dealer or GoodWe after-sales service center.
F120	Bus Sample Abnormal	1. BusSampling hardware	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F121	DCLateral Sampling Anomaly	1. Bus sampling hardware 2. Batteryvoltage Sampling Hardware fault 3. DcrlyRelay Failure (Note: The term "Dcrly" appears to be a placeholder or code that cannot be directly translated without additional context. If it refers to a specific technical term in the photovoltaic or electrical field, please provide further details for accurate translation.)	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F37	PVInput overvoltage	PVvoltage input is too high, possible causes: Incorrect PV array configuration, with too many PV Battery panels connected in series, causing the open-circuit voltage of the string to exceed the maximum operating voltage of the Inverter.	Check the series configuration of the corresponding PV array strings to ensure that the open-circuit voltage of the strings does not exceed the maximum working voltage of the Inverter. Once the PV array is correctly configured, the Inverter alarm will automatically disappear.
F38	PVContinuous hardware overcurrent	1. Unreasonable module configuration 2. Hardware damage	Disconnect the AC output side switch and DC input side switch,5After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F39	PVContinuous software overcurrent	1. Unreasonable module configuration 2. Hardware damage	
F91	FlyCap Software Overvoltage	Flying capacitor overvoltage, possible causes: 1. PVvoltage too high 2Flying capacitor sampling anomaly	

fault code	fault name	fault cause	Troubleshooting recommendation
F92	FlyCap Hardware Overvoltage	Flying capacitor overvoltage, possible causes: 1. PVvoltage too high 2Flying capacitor sampling anomaly	Disconnect the AC output side switch and DC input side switch,5After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F93	FlyCap Undervoltage	FlyCap Undervoltage, Possible causes: 1. PVEnergy deficit; 2Flying capacitor sampling anomaly	
F94	FlyCap Precharge Failure	FlyCap Precharge Failure, Possible causes: 1. PVEnergy deficiency; 2Flying capacitor sampling anomaly	
F95	FlyCap Precharge Abnormal	1. Unreasonable control loop parameters 2. Hardware damage	
F96	String overcurrent(String1~16)	Possible causes: 1. String Overcurrent 2. String current sensor anomaly	
F97	String overcurrent(String17~32)		

fault code	fault name	fault cause	Troubleshooting recommendation
F40	String reverse connection(String1~16)	PVString reverse connection	Check if the string is reverse-connected.
F98	String reverse connection(String17~32)	PVString reverse connection	Check if the strings are reverse connected.
F99	String loss(String1~16)	String fuse disconnected (if applicable)	Check if the fuse is blown.
F100	String loss(String17~32)	String fuse disconnected (if applicable)	Check if the fuse is blown.
F122	PVIncorrect access mode setting	PVThere are three access modes in total, with four channels.MPPTFor example: 1. Parallel mode: that isAAAAMode(homol	InspectionPVIs the access mode correctly set?ABCD、AACC、AAAA), reset in the correct mannerPVConnection mode. 1. Confirm the actual connected circuitsPVIs the

fault code	fault name	fault cause	Troubleshooting recommendation
		ogous mode),PV1-PV4homologous4RoadPVConnect the same photovoltaic panel 2. Partial Parallel Mode: That isAACCMode,PV1andPV2homologous connection,PV3and PV4homologous connection 3. Stand-alone mode: i.e.ABCDMode(non-homologous),PV1、PV2、PV3、PV4Independent connection,4RoadPVEach connected to a photovoltaic panel IfPVThe actual connection mode and equipment configurationPVThis fault will be reported if the access mode does not match.	connection correct. 2. IfPVCorrectly connected, passedAppor screen check the current settingsPVDoes the "connection mode" correspond to the actual connection mode? 3. If the currently setPVThe "access mode" does not match the actual access mode and needs to be adjusted.Appor screen willPVSet the "Access Mode" to the mode consistent with the actual situation. After setting is completed,PVandACPower supply disconnect and restart. 4. After the settings are completed, if the currentPVThe access mode is consistent with the actual access mode, but this fault is still reported. Please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
-	String reverse connection(String33 ~48)	PVString reverse connection	Check if the strings are reverse connected.
-	String loss(String33~48)	String fuse disconnected (if applicable)	Check if the fuse is blown.
-	String overcurrent(String3 3~48)	Possible causes: 1. String Overcurrent 2. String current sensor anomaly	
F123	Multi-string PV Phase Mismatch Failure	PV input mode setting error	Check whether the PV connection mode is correctly set (ABCD, AACC, AAAA) and reset it to the correct PV connection mode. 1. Verify that all connected PV strings are correctly wired. 2. If the PV is correctly connected, check whether the currently set "PV connection mode" corresponds to the actual connection mode via the App or screen. 3. If the currently set "PV

fault code	fault name	fault cause	Troubleshooting recommendation
			Connection Mode" does not match the actual connection mode, it is necessary to set the "PV Connection Mode" to the mode consistent with the actual situation via the App or screen. After completing the setting, disconnect the PV and AC power supply and restart. 4. After completing the settings, if the current "PV Connection Mode" matches the actual connection mode but this fault still appears, please contact the dealer or GoodWe after-sales service center.
F101	Battery1Precharge fault	Battery1Pre-Charge circuit fault (such as pre-Charge resistor burnout, etc.)	Check whether the pre-Charge circuit is in good condition. Only after Battery power on, verify whether the Battery voltage matches the busbar voltage. If they do not match, please contact the distributor or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F102	Battery1Relay Failure	Battery1The relay fails to operate normally.	After Batterypower on, check whether the Battery relay operates and if a closing sound is heard. If it does not function, please contact the dealer or GoodWe after-sales service center.
F103	Battery1overvoltage at connection point	Battery1The input voltage exceeds the rated range of the machine.	Verify if Batteryvoltage is within the machine's rated range.
F104	Battery2Precharge fault	Battery2Pre-Charge circuit fault (pre-Charge resistance burnout, etc.)	Check whether the pre-Charge circuit is in good condition. Only after Battery power on, verify whether the Battery voltage matches the busbar voltage. If they do not match, please contact the distributor or GoodWe after-sales service center.
F105	Battery2Relay Failure	Battery2The relay fails to operate normally.	After Batterypower on, check whether the Battery relay operates and if a closing sound is heard. If it does not function, please contact the distributor or GoodWe after-sales service center.
F106	Battery2overvoltage at connection point	Battery2The input voltage exceeds the rated range of the machine.	Verify if Battery voltage is within the machine's rated range.

fault code	fault name	fault cause	Troubleshooting recommendation
F124	Battery1Reverse connection	Battery1Reverse polarity of positive and negative terminals	Check whether the polarity of Battery and the machine terminals is consistent.
F125	Battery2Reverse polarity fault	Battery2Reverse polarity of positive and negative terminals	Check whether the polarity of Battery and the machine's wiring terminals is consistent.
F126	BAT Connection Abnormal	BAT Connection Abnormal	Check if the Battery is functioning properly.
-	BMS Status Bit Error	BMS Module fault	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F127	BAT Overtemperature	Battery temperature is too high, possible causes: 1InverterInstallation Location is not ventilated. 2Ambient temperature is too high. 3Internal fan operation abnormal.	
F128	Ref Voltage Abnormal	Reference Circuit	

fault code	fault name	fault cause	Troubleshooting recommendation
F129	Cabinet Under Temperature	Cabinet Under Temperature, Possible causes: 1. The ambient temperature is too low.	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F130	ACsideSPDfault	ACFailure of lateral lightning protection device	ReplacementACSide lightning protection device.
F131	DCsideSPDfault	DCFailure of lateral lightning protection device	ReplacementDCLateral lightning protection device.
F132	Internal Fan Abnormal	Internal Fan Abnormal, Possible causes: 1Abnormal fan power supply; 2mechanical interlock(Locked rotor); 3Fan aging and damage.	Disconnect the AC output side switch and DC input side switch,5 After a few minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F133	External Fan Abnormal	External Fan Abnormal, Possible causes: 1Abnormal fan power supply; 2Mechanical fault(Locked rotor); 3Fan aging and damage.	
F134	PIDDiagnosis of abnormalities	PIDHardware fault orPVvoltage too highPIDPause	PVExcessive voltagePIDSuspend WARNING without processing,PIDHardware fault can be turned off by closingPIDSwitch Reclosing ClearancePIDfault, replacementPIDdevice

fault code	fault name	fault cause	Troubleshooting recommendation
F135	Trip-Switch Trip Warning	Possible causes: Overcurrent orPVReverse connection causes the trip switch to trip.	Please contact the dealer or GoodWe after-sales service center. The reason for disconnection is due to an occurrence.PVShort circuit or reverse connection, need to check for any historical issues.PVShort circuit or historyPVReverse connection of WARNING. If present, maintenance personnel should inspect the corresponding issue.PVSituation. After confirming there is no fault, the trip switch can be manually closed, and then pass throughAppInterface Clear History fault Operation Clears This WARNING.

fault code	fault name	fault cause	Troubleshooting recommendation
F136	HistoryPV IGBT Short Circuit	Possible causes: Overcurrent caused the trip switch to open.	Please contact the distributor or GoodWe after-sales service center. Maintenance personnel should follow the historicalPVShort circuit WARNING subcode, check for short circuit occurrenceBoostCheck whether there is any fault in the hardware and external string; After confirming there is no fault, it can pass.AppInterface Clear History fault Operation Clears This WARNING.
F137	HistoryPVReverse polarity WARNING(String1~16)	Possible causes: OccurrencePVReverse connection causes the trip switch to trip.	Contact the distributor or GoodWe after-sales service center. The maintenance personnel must follow the historicalPVReverse connection WARNING subcode, check whether the corresponding string has a reverse connection, inspectPVIs there a voltage difference in the panel configuration? After checking, if there is no fault, it can be passed.AppInterface Clear History fault operation clears this WARNING.

fault code	fault name	fault cause	Troubleshooting recommendation
F138	historyPVReverse polarity WARNING(String17~32)	Possible causes: OccurrencePVReverse connection causes the trip switch to trip.	Contact the distributor or GoodWe after-sales service center. Maintenance personnel must follow the historicalPVReverse connection WARNING subcode, check whether the corresponding string has a reverse connection, inspectPVIs there a voltage difference in the panel configuration? After the inspection is completed and no fault is found, it can be passed.AppInterface Clear History fault Operation Clears This WARNING.
F139	FlashRead/Write Error	Possible causes: flashContent has been modified;flashEnd of life;	1. Upgrade to the latest version of the program. 2. Contact the distributor or GoodWe after-sales service center.

fault code	fault name	fault cause	Troubleshooting recommendation
F140	Meter Comm Loss	This alarm may only be reported after enabling the power limit function. Possible causes: 1. Meter not connected; 2. The communication line connection between the meter and Inverter is incorrect.	Check the meter wiring and ensure the meter is correctly connected. If fault persists after inspection, please contact the distributor or GoodWe after-sales service center.
F141	PVPanel type identification failed	PVPanel identification hardware anomaly	Contact the distributor or GoodWe after-sales service center.
F142	PV String Mismatch	PVPV String Mismatch, same circuitMPPTThe configurations of the next two strings are different.	Check the two strings of open-circuit voltage, and configure the strings with the same open-circuit voltage to the same circuit.MPPTProlonged PV String Mismatch poses safety hazards.
F143	CTNot connected	CTNot connected	InspectionCTWiring.
F144	CTReverse connection	CTreverse connection	InspectionCTWiring.
F145	PE Loss/PE Loss	Ground wire not connected	Check the ground wire.

fault code	fault name	fault cause	Troubleshooting recommendation
F146	String terminal temperature high(String1~8)	37176RegisterPVterminal temperature alarm subcode1Set	-
F147	String terminal temperature high(String9~16)	37177RegisterPVterminal Temperature Alarm Subcode2Set position	-
F148	String terminal temperature high(String17~20)	37178registerPVterminal temperature alarm subcode3Set position	-
F149	historyPVReverse polarity WARNING(String33~48)	Possible causes: OccurrencePVReverse connection causes the trip switch to trip.	Please contact the dealer or GoodWe after-sales service center; maintenance personnel should follow the history.PVReverse connection WARNING subcode, check whether the corresponding string has a reverse connection, inspectPVIs there a voltage difference in the panel configuration? After the inspection is completed and no fault is found, it can be passed.AppInterface Clear History fault operation clears this WARNING.
F150	Battery1voltage low	Batteryvoltage is below the set value	-
F151	Battery2voltage low	Batteryvoltage is below the set value	-

fault code	fault name	fault cause	Troubleshooting recommendation
F152	Low Voltage of BAT Power	Battery non-Charge mode, voltage below shutdown voltage	-
F153	BAT1 Voltage High	-	-
F154	BAT2 Voltage High	-	-
F155	On Line Low Insulation Resistance	PV String is short-circuited to the Protection ground. 2. The environment of PV StringInstallation is consistently humid, and the line-to-ground insulation is poor.	1. Check the impedance between PV String and Protection to ground. If a short circuit is found, rectify the short circuit point. 2. Check whether the PE cable of the Inverter is properly connected. 3. If it is confirmed that the impedance is indeed lower than the default value under rainy or cloudy conditions, please reconfigure the "insulation resistanceProtection point."
F156	Micro-grid Overload Warning	Excessive input at the backup terminal	Occasional occurrences do not require action; if this alarm appears frequently, please contact the dealer or GoodWe after-sales service center.
F157	Manual Reset	-	-

fault code	fault name	fault cause	Troubleshooting recommendation
F158	Generator Phase Sequence Abnormal	-	-
F159	Multiplexed Port Configuration Abnormal	Reuse (Generator) port configured for microgrid or large load, but actually connected to a generator.	Use the App to change the reuse (generator) port configuration.
F41	Generator Port Overload	1. Off-grid side output exceeds the specifications stated in the technical documentation. 2. Off-grid side short circuit 3. Off-grid terminal voltage too low 4. When used as a high-power load port, the load exceeds the specifications stated in the datasheet.	Confirm the off-grid side output voltage, current, Power, and other data to identify the cause of the issue.
F108	DSP Communication Fail	-	-

fault name	fault cause	Troubleshooting recommendation
Parallel Comm Timeout Shutdown	In parallel operation, if the slave unit exceeds400No communication with the host within seconds	Check whether the parallel communication harness is securely connected and verify that there are no duplicate slave addresses.
One-click Remote Shutdown	Check via the App whether the one-touch shutdown function is enabled.	Deactivate one-touch shutdown.
Offline Shutdown	-	-
Remote Shutdown	-	-
Child Node Communication Failure	Internal communication exception	Restart the machine and observe whether the fault is eliminated.
DG Communication Failure	Abnormal communication link between the control board and the diesel generator	1. Check the link communication harness and observe whether fault is eliminated; 2. Attempt to restart the machine and observe whether the fault is eliminated; 3. If the fault persists after restarting, please contact GoodWe's after-sales service center.
Battery Over Voltage	1. The voltage of a single cell is too high. 2. voltage collection line anomaly	

fault name	fault cause	Troubleshooting recommendation
	1. Battery total pressure too high 2. Abnormal voltage collection line	Record the fault phenomenon, restart the Battery, wait for a few minutes, and confirm whether the fault disappears. If the problem persists after restarting, please contact the GoodWe after-sales service center.
Battery Under Voltage	1. Single cell voltage too low 2. Abnormal voltage collection line	
	Battery total pressure is too low 2. voltage collection line anomaly	
Battery Over Current	1. Chargecurrent is too large, Battery current limiting is abnormal: sudden changes in temperature and voltage value 2. Inverter response anomaly	
	Battery dischargecurrent is too large	
Battery Over Temperature	1. Ambient temperature too high 2. Temperature sensor abnormality	
	1. Ambient temperature is too high 2. Temperature sensor abnormality	
Battery Under Temperature	1. Ambient temperature is too low 2. Temperature sensor abnormality	
	1. Ambient temperature is too low 2. Temperature sensor abnormality	
Battery Pole Over Temperature	Pole temperature too high	

fault name	fault cause	Troubleshooting recommendation
Battery Imbalance	1. Excessive temperature difference in different stages. Battery will impose restrictions on BatteryPower, that is, limit the charging Dischargecurrent. Therefore, this issue is generally unlikely to occur. 2. The cell capacity degrades, leading to excessive internal resistance, which causes significant temperature rise and large temperature differences during current. 3. Poor welding of battery cell tabs, leading to excessive current and rapid temperature rise in the cell. 4. Temperature sampling issue; 5. power cable loose connection	
	1. Inconsistent aging levels of battery cells 2. Issues with the board chips can also lead to excessive voltage differences in the battery cells. 3. Imbalance issues in the battery pack can also lead to excessive voltage differences between cells. 4. Wiring harness issues leading to	
	1. Inconsistent aging levels of battery cells 2. Issues with the board chip can also lead to excessive voltage differences between battery cells. 3. Imbalance issues in the battery pack can also lead to excessive voltage differences between cells. 4. Wiring harness issues lead to	

fault name	fault cause	Troubleshooting recommendation
Insulation Resistance	Insulation resistance failure	Check if the ground wire is properly connected and restart the Battery. If the issue persists after restarting, please contact GoodWe after-sales service center.
Pre-charge Failure	Precharge failure	It indicates that during the precharge process, the voltage across the precharge MOS consistently exceeds the specified threshold. After restarting the system, observe whether this fault persists, and check if the wiring is correct and if the precharge MOS is damaged.
Collection Line Failure	Collection line poor contact or disconnect	Check the wiring and restart the Battery. If the issue persists after restarting, please contact the GoodWe after-sales service center.
	Single PV module voltage collection line poor contact or disconnected	
	Monomer temperature acquisition line poor contact or disconnected	

fault name	fault cause	Troubleshooting recommendation
	Dual-channel current comparison error is too large, or current acquisition line circuit is abnormal.	Check the wiring and restart the Battery. If the issue persists after restarting, please contact GoodWe's after-sales service center.
	Dual-channel voltage comparison error is too large, or the comparison error between MCU and AFE voltage is too large, or the voltage acquisition line loop is abnormal.	
	Temperature acquisition line circuit abnormal or poor contact, disconnected	
	Overvoltage level 5 or overtemperature level 5, fuse the three-terminal fuse	To replace the three-section fuse, please contact the GoodWe after-sales service center to replace the main control board.
Relay or MOS Over Temperature	Relay or MOS Over Temperature	The fault indicates that the MOSFET temperature has exceeded the specified threshold. Power off and let it stand for 2 hours to allow temperature recovery.
Shunt Over Temperature	Shunt Over Temperature	The fault indicates that the shunt tube temperature has exceeded the specified threshold. Power off and allow it to stand for 2 hours to wait for temperature recovery.

fault name	fault cause	Troubleshooting recommendation
BMS1 Other Failure 1 (RES)	Relay or MOS open circuit	Upgrade the software, power off and let it sit for 5 minutes, then check if fault persists after restarting. 2. If the problem persists, replace the Battery package.
	Relay or MOS short circuit	1. Upgrade the software, power off and let it sit for 5 minutes, then restart to check if fault persists. 2. If the issue persists, replace the Battery package.
	Communication abnormality between the master cluster and slave cluster, or inconsistency of battery cells among clusters.	1. Check the Battery information and software version of the slave unit, as well as whether the communication line connection with the master unit is normal. 2. Upgrade the software
	Abnormal circuit harness in Battery system, resulting in no loop formation in interlocking signal	Check if the Terminal resistorInstallation is correct

fault name	fault cause	Troubleshooting recommendation
	Abnormal communication between BMS and PCS	1. Verify that the interface definition of the communication line between Inverter and Battery is correct. 2. Please contact GoodWe's after-sales service center to check the backend data and verify whether the Inverter and Battery software are correctly matched.
	Abnormal communication harness between BMS master and slave control	1. Check the wiring and restart the Battery; 2. Upgrade the Battery. If the issue persists after restarting, please contact GoodWe's after-sales service center.
	Communication loss between main and negative chips	
	Circuit breaker, shunt trip abnormality	Let the device stand powered off for 5 minutes, then restart to check if fault persists. 2. Check for any looseness or misalignment in the blind-mating connectors and communication pins at the bottom of the PACK and PCU.

fault name	fault cause	Troubleshooting recommendation
	MCU self-test failed	Upgrade the software and restart the Battery. If the issue persists after restarting, please contact the GoodWe after-sales service center.
	1. The software version is too low or the BMS board is damaged. 2. The number of Inverter parallel units is large, and the Battery experiences excessive impact during pre-charging.	1. Upgrade the software and observe whether fault persists. 2. In the case of parallel operation, perform a black start on Battery first, then start Inverter.
	Internal fault of MCU	Upgrade the software and restart the Battery. Typically, this is to detect damage to the MCU or external components. If the issue persists after restarting, please contact the GoodWe after-sales service center.
	Total control current exceeds the specified threshold	1. Let the system stand idle for 5 minutes, then restart and check if fault persists. 2. Check if the Inverter is set with Power too high, causing it to exceed the bus load.

fault name	fault cause	Troubleshooting recommendation
	Cell inconsistency in parallel clusters	Confirm whether the cells in the cluster Battery are consistent.
	Cluster Battery reverse polarity of positive and negative terminals	Check whether the positive and negative poles of the string combiner box are reversed.
	Severe overheating or overvoltage triggering the fire protection system	Contact GoodWe After-Sales Service Center.
Air Conditioner Failure	Air conditioning abnormal failure	Try restarting the system. If the fault persists, please contact GoodWe After-Sales Service Center.
	Cabinet door not closed	Check if the cabinet door is properly closed.
	Power supply voltage too high	Verify that the power supply voltage value meets the air conditioning input voltage requirements, and proceed with re-power on only after confirmation.
	Power supply shortage	
	No voltage input	
	Unstable power supply	
	Compressor voltage instability	Try restarting the system. If the fault persists, please contact GoodWe after-sales service center.
	Sensor poor contactor damaged	
	Abnormal air conditioning fan	
	There is an abnormality in the voltage or current inside the DCDC.	

fault name	fault cause	Troubleshooting recommendation
BMS2 Other Failure 2 (RES)	DCDC overload or heat sink temperature too high	Refer to the specific DCfault content for details.
	Abnormal cell acquisition or inconsistent aging levels	Please contact GoodWe After-Sales Service Center.
	Fan operation not executed properly	Please contact GoodWe after-sales service center.
	Output port screw loose or poor contact	1. BatteryShut down, check wiring and output portscrew status 2. After confirmation, restart the Battery and observe whether the fault persists. If it does, please contact the GoodWe after-sales service center.
	Battery has been used for too long or the battery cell is severely damaged.	Please contact the GoodWe after-sales service center to replace the pack.
	1. The software version is too low or the BMS board is damaged. 2. The number of Inverter parallel units is large, and the Battery experiences excessive impact during pre-charging.	Upgrade the software and observe whether fault persists. 2. In the case of parallel operation, perform a black start on Battery first, then start Inverter.
	Heating film damaged	Please contact GoodWe After-Sales Service Center.

fault name	fault cause	Troubleshooting recommendation
	The three-terminal fuse of the heating film is blown, rendering the heating function unusable.	Please contact GoodWe after-sales service center.
	Software model, Cell Type, and hardware model mismatch	Check whether the software model, serial number (SN), Cell Type, and hardware model match. If they do not match, please contact GoodWe's after-sales service center.
	Thermal management board communication disconnection	Let the device stand powered off for 5 minutes, then restart to check if fault persists. 2. If the fault is not restored, contact GoodWe after-sales service to replace the pack.
	Thermal management board communication disconnection	Let the device stand powered off for 5 minutes, then restart to check if fault persists. 2. If the fault is not restored, contact GoodWe after-sales service to replace the pack.

fault name	fault cause	Troubleshooting recommendation
	Thermal management board communication disconnection	Let the device stand powered off for 5 minutes, then restart to check if fault persists. 2. If the fault is not restored, contact GoodWe after-sales service to replace the pack.
	pack fan fault signal trigger	Let the device stand powered off for 5 minutes, then restart to check if fault persists. 2. If the fault is not restored, contact GoodWe after-sales service to replace the pack.
DCDC Failure	Output portvoltage too high	Check the output portvoltage. If the output portvoltage is normal and the fault still cannot be resolved after restarting Battery, please contact GoodWe after-sales service center.

fault name	fault cause	Troubleshooting recommendation
	The DCDC module detected that the Battery voltage exceeded the maximum Charge voltage.	Stop Charge and Discharge until SOC drops below 90% or remains idle for 2 hours. If the issue persists and restarting fault does not resolve it, please contact GoodWe After-Sales Service Center.
	Radiator temperature too high	Let the radiator stand for 1 hour to allow the temperature to drop. If the issue persists and restarting the fault does not resolve it, please contact GoodWe's after-sales service center.
	Battery dischargecurrent is too large	Check if the load exceeds the Battery's Discharge capacity. Turn off the load or stop the PCS for 60 seconds. If the issue persists after restarting the fault, please contact GoodWe's after-sales service center.
	Output port power harness positive and negative poles are reversed with the combiner box Battery or PCS.	Turn off the Battery manual switch, check if the output port wiring is correct, and restart the Battery.

fault name	fault cause	Troubleshooting recommendation
	The output Power relay cannot close.	Check whether the output port wiring is correct and if there is a short circuit. If the issue persists after restarting fault, please contact GoodWe after-sales service center.
	Power device temperature too high	Let the Battery stand for 1 hour to allow the temperature of internal Power components to decrease. If the issue persists and restarting the fault does not resolve it, please contact GoodWe's after-sales service center.
	Relay sticking	Restart fault still exists. Please contact GoodWe after-sales service center.
Battery Rack Circulating Current Failure	1. Cell imbalance 2. First power on incomplete charge correction	-

fault name	fault cause	Troubleshooting recommendation
BMS2 Other Failure 3 (LES)	Communication exception with Linux module	1. Check if the communication link is functioning properly. 2. Upgrade the software, restart the Battery, and observe whether the fault persists. If it does, please contact GoodWe's after-sales service center.
	Excessive temperature rise of the battery cell	Abnormal battery cell, contact GoodWe after-sales service to replace the pack.
	SOC below 10%	Perform Charge on Battery.
	SN writing does not comply with the rules	Check if the SN digits are normal. If abnormal, please contact GoodWe after-sales service center.
	1. Battery Cluster Daisy Chain Communication Exception 2. Inconsistent aging levels of battery cells within Battery clusters	1. Check the contact condition of a single cluster Battery pack. 2. Verify the usage of each cluster Battery, such as cumulative charge Discharge capacity, cycle count, etc. 3. Please contact GoodWe after-sales service center.

fault name	fault cause	Troubleshooting recommendation
	Excessive Humidity within the pack	-
	Fuse tripped	Contact GoodWe after-sales service to replace the pack.
	Low battery level	Perform Charge on Battery.
BMS2 Other Failure 4 (LES)	Circuit breaker anomaly	Contact GoodWe after-sales service to replace the pack.
	External device abnormality	Contact GoodWe after-sales service to replace the pack.
Contactor Fault 1	-	-
Contactor Fault 2	-	-
Overload Protection (Jinggui)	Continuous overload (exceeding 690kVA) for 10s	Please contact GoodWe after-sales service center.
Overload (Smart Inverter)	Continuous overload (exceeding 690kVA) for 10s	Please contact GoodWe after-sales service center.
Communication Abnormality Between Host and Meter When AC is Powered On in Parallel System	1. The meter may not be connected to the host. 2. The meter communication cable may be loose.	1. Check if the meter is connected to the host. 2. Check if the meter communication cable is loose.

fault name	fault cause	Troubleshooting recommendation
Slave Power Meter in Parallel System is Abnormal	The meter is connected to the slave unit.	Set the meter connection machine as the master.
Slave Device in Parallel System Communication Timeout with Master After AC Power-On for More Than 10 Minutes	1. Incorrect slave address setting 2. Slave communication line is loose	1. Check whether the slave address is duplicated. 2. Check if the parallel communication cable is loose.

10.5.2.3 Battery Fault (LX A5.0-30)

Alarm state

🔴When the battery ALM indicator turns red, troubleshoot the issue by referring to the SOC indicator's display status.

No.	SOC Indicator	Fault	Solutions/measures to address the issue
1	○○○●	Battery overvoltage protection Battery undervoltage protection	1. Check whether the Charging Current Limit of the inverter is 0 through SolarGo. If yes, please confirm whether the communication cable connection between the battery and the inverter is reliable and the communication is normal. 2. Power off and wait for 5 minutes, then restart to confirm if the fault persists. 3. If the fault is not restored, please contact the after-sales service center.

No.	SOC Indicator	Fault	Solutions/measures to address the issue
2	○○●●	Overcurrent protection	1. Check if the battery model is correct through SolarGo and confirm if the real-time current of the battery is greater than the Charging/Discharging Current Limit. Please contact the after-sales service center. 2. When it is less than the Charging/Discharging Current Limit., turn off the battery or upgrade the program, restart to confirm whether the fault persists. 3. If the fault is not restored, please contact the after-sales service center.
3	○○●○	Over temperature protection Low temperature protection Pole over temperature protection	Power off and wait for 60 minutes, wait for the temperature to recover. If the problem persists after restarting, please contact the after-sales service center.
4	○●○○	Balancing fault Low SOH fault	Power off and wait for 30 minutes. If the problem persists after restarting, please contact the after-sales service center.
5	●○●●	Precharge failure	1. Confirm if the battery output terminal is connected in reverse to the inverter. 2. Power off and wait for 30 minutes. If the problem persists after restarting, please contact the after-sales service center.
6	○●○●	Wire harness exception	Confirm if the battery switch is closed. If the battery switch is closed and the problem still exists. Please contact the after-sales service center.

No.	SOC Indicator	Fault	Solutions/measures to address the issue
7	●●○○	Relay or MOS over temperature Diverter over temperature	Power off and wait for 30 minutes. If the problem persists after restarting, please contact the after-sales service center.
		Other BMS faults: output port over temperature fault	1. Check if the battery power cable is connected tightly. Power off and wait for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
8	○●●○	Other protections: MOS cannot be closed	Power off and wait for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
9	○●●●	Other protections: MOS adhesion	
10	●○○○	Other protections: Cluster Fault	1. Confirm whether the type and installation position of the terminal resistor used are correct. 2. Confirm whether the communication cable between batteries, the cable between batteries and inverters are reliable and the communication is normal. 3. If the fault is not restored, please contact the after-sales service center.
11	○○○○	Other protections: Communication loss with inverter	1. Confirm whether the communication cable between batteries, the cable between batteries and inverters are reliable and the communication is normal. 2. If the fault is not restored, please contact the after-sales service center.

No.	SOC Indicator	Fault	Solutions/measures to address the issue
12	●○○●	Other protections: BMU communication failure	1. Confirm whether the type and installation position of the terminal resistor used are correct. 2. Confirm whether the communication cable between batteries, the cable between batteries and inverters are reliable and the communication is normal. 3. Power off and wait for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
13	●○●○	Other protections: Air switch adhesion fault	Power off and wait for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
14	●●○●	Other protections: software fault	Restart the battery. If the problem persists after restarting, please contact the after-sales service center.
15	●●●○	Other protections: Hardware overcurrent fault	
16	●●●●	Other protections: Microelectronics fault	
		Heating film abnormal	1. Upgrade software 2. Power off and wait for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.

10.5.2.4 Batteryfault(LX A5.0-30, LX U5.0-30)

Alarm status

🔴When the BatteryALMindicator displays red, locate and troubleshoot based on the SOCindicator status indication.

No.	SOC (State of Charge)	fault name	Solution measures
1	○○○●	Battery Over Voltage Battery Under Voltage	1. Check via SolarGo whether the Inverter Charge current limit is 0. If it is 0, verify that the Communication cable connection between Battery and Inverter is reliable and communication is normal. 2. Power off and let it stand for 5 minutes. After restarting, confirm whether fault persists. 3. If fault is not restored, please contact the after-sales service center.
2	○○●●	Battery Over Current	1. Check via SolarGo whether Batterymodel is correct, confirm if the real-time current of Battery exceeds the Chargecurrent limit or the Dischargecurrent limit value, and contact the after-sales service center. 2. When the value is less than the threshold, shut down the Battery or upgrade the program, then restart to confirm whether the fault persists. 3. If fault does not respond, please contact after-sales service.
3	○○●○	Battery Over Temperature Battery Under Temperature Battery Pole Over Temperature	Power off and let it stand for 60 minutes to allow the temperature to recover. If the issue persists after restarting, please contact the after-sales service center.
4	○●○○	Battery Imbalance Low SOH fault	Power off and let it stand for 30 minutes. If the problem persists after restarting, please contact the after-sales service center.

No.	SOC (State of Charge)	fault name	Solution measures
5	●○●●	Pre-charge Failure	1. Verify whether the output terminals of Battery and Inverter are connected in reverse. 2. Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
6	○●○●	Collection Line Failure	Check if the Battery switch is closed. If the Battery switch is already closed and the issue persists, please contact the after-sales service center.
7	●●○○	Relay or MOS Over Temperature Shunt Over Temperature	Power off and let it stand for 30 minutes. If the problem persists after restarting, please contact the after-sales service center.
		BMS Other fault: Output port Overtemperature fault	1. Check if the Battery power line is securely fastened. Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
8	○●●○	Others Protection: MOS cannot close	Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
9	○●●●	Others Protection: MOS adhesion	

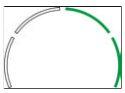
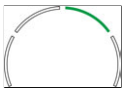
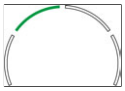
No.	SOC (State of Charge)	fault name	Solution measures
10	●○○○	Others Protection: Cluster Parallel fault	1. Verify whether the type of Terminal resistor used and the Installation Location are correct 2. Verify whether the connections between Battery and Battery (Communication cable), and between Battery and Inverter (Communication cable) are reliable and communication is normal. 3. If the fault is not restored, please contact the after-sales service center.
11	○○○○	Other Protection: Communication lost with Inverter	1. Verify whether the connections between Battery and Battery (Communication cable), and between Battery and Inverter (Communication cable) are reliable and communication is normal. 2. If the fault is not restored, please contact the after-sales service center.
12	●○○●	Other Protection: BMU communication fault	1. Verify whether the type of Terminal resistor used and the Installation Location are correct 2. Verify whether the connections between Battery and Battery, as well as between Battery and Inverter, are reliable and communication is normal. 3. Power off and wait for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
13	●○●○	Other Protection: Circuit breaker adhesion fault	Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.

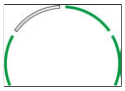
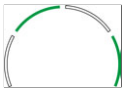
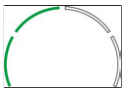
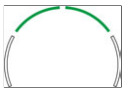
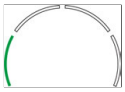
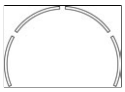
No.	SOC (State of Charge)	fault name	Solution measures
14	●●○●	Other Protection: Software fault	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
15	●●●○	Other Protection: Hardware Overcurrent fault	
16	●●●●	Other Protection: Microelectronic Failure	
		Abnormal three-terminal heating film	1. Upgrade software 2. Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.

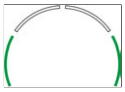
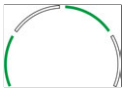
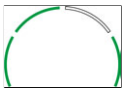
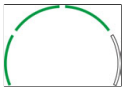
10.5.2.5 Battery Fault (GW14.3-BAT-LV-G10)

When the battery alarm indicator light turns red  , the outer marquee flashes 
red, and the operation light turns off, combine the SOC indicator light display status to locate and troubleshoot the fault.

No.	SOC Indicator	Fault	Solutions/measures to address the issue
1		Battery overvoltage protection	

		Battery undervoltage protection	1. Check whether the inverter charging current limit is 0 via SolarGo. If it is 0, confirm that the communication line between the battery and the inverter is connected reliably and that communication is normal. 2. Shut down and leave for 5 minutes, then restart and confirm whether the fault persists. 3. If the fault is not restored, please contact the after-sales service center.
2		Overcurrent protection	1. Check the battery model through SolarGo to confirm whether the real-time current of the battery is greater than the charging current limit or discharge current limit value. If so, please contact the after-sales service center. 2. If the current is less than the limit, shut down the battery or upgrade the program, then restart to confirm whether the fault persists. 3. If the fault is not resolved, please contact after-sales service.
3		Over temperature protection	Power off and wait for 60 minutes, wait for the temperature to recover. If the problem persists after restarting, please contact the after-sales service center.
		Low temperature protection	
		Pole over temperature protection	
4		Balancing fault	Power off and wait for 30 minutes. If the problem persists after restarting, please contact the after-sales service center.
		Low SOH fault	

5		Precharge failure	1. Check whether the battery output terminal is connected to the inverter in reverse. 2. Shut down and wait for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
6		Wire harness exception	Check whether the battery circuit breaker is closed. If the battery circuit breaker is closed and the problem persists, please contact the after-sales service center.
7		Relay or MOS over temperature	Power off and wait for 30 minutes. If the problem persists after restarting, please contact the after-sales service center.
		Output port overheating	1. Check whether the battery power cord is securely connected. 2. Turn off the device and leave it for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
8		MOS Open-Circuit Fault	Power off and wait for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
9		MOS adhesion	
10		Cluster Fault	1. Confirm that the type and installation location of the terminal resistor are correct. 2. Confirm that the communication lines between batteries and between batteries and inverters are connected reliably and that communication is normal. 3. If the fault persists, please contact the after-sales service center.
11		Inconsistent software and hardware versions	Restart the battery. If the problem persists after restarting, please contact the after-sales service center.

12		BMU communication fault	
13		Open contact sticking fault	Power off and wait for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
14		Software fault	Restart the battery. If the problem persists after restarting, please contact the after-sales service center.
15		Hardware overcurrent fault	
16		Microelectronic Fault	
		Heating film abnormal	1. Upgrade the software. 2. Shut down the computer and leave it idle for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.

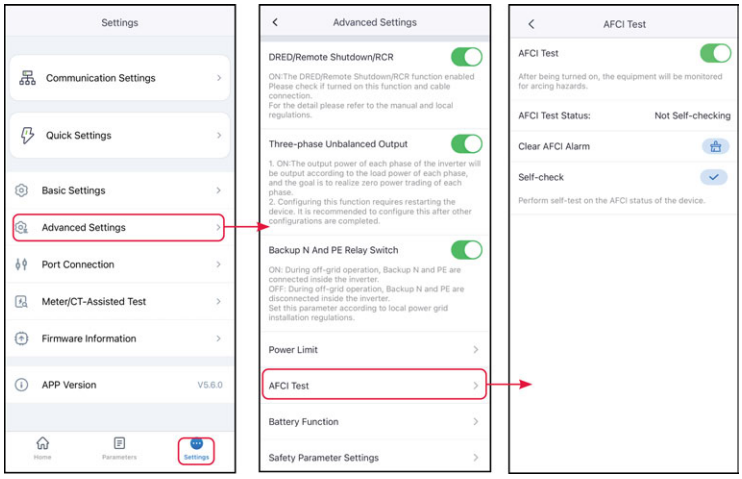
10.5.3 Operation After Fault Clearance

In the energy conservation system, after some fault clearances complete, further operations are needed for the system to restore normal work.

10.5.3.1 Clear AFCIfaultWARNING

[Software Used]: SolarGo App
[Clearing method]:

1. Through**[Home]** >**[Settings]** >**[Advanced Settings]** >**[DC Arc Detection]**.
2. Click**[Clear AFCIfault Alarm]**Button.


Settings
Communication Settings
Quick Settings
Basic Settings
Advanced Settings
Port Connection
Meter/CT-Assisted Test
Firmware Information
APP Version
V5.6.0
Home
Parameters
Settings
Advanced Settings
DRED/Remote Shutdown/RCR
ON:The DRED/Remote Shutdown/RCR function enabled
Please check if turned on this function and cable connection.
For the detail please refer to the manual and local regulations.
Three-phase Unbalanced Output
1. ON:The output power of each phase of the inverter will be output according to the load power of each phase, and the goal is to realize zero power trading of each phase.
2. Configuring this function requires restarting the device. It is recommended to configure this after other configurations are completed.
Backup N And PE Relay Switch
ON: During off-grid operation, Backup N and PE are connected inside the inverter.
OFF: During off-grid operation, Backup N and PE are disconnected inside the inverter.
Set this parameter according to local power grid installation regulations.
Power Limit
AFCI Test
Battery Function
Safety Parameter Settings
AFCI Test
AFCI Test
After being turned on, the equipment will be monitored for arcing hazards.
AFCI Test Status:
Not Self-checking
Clear AFCI Alarm
Self-check
Perform self-test on the AFCI status of the device.

11 Technical Parameters

11.1 Inverter Parameters

Technical Data	GW5K-ET-L-G10 *8	GW6K-ET-L-G10	GW8K-ET-L-G10
Battery Side			
Battery Type	Li-Ion/Lead-acid	Li-Ion/Lead-acid	Li-Ion/Lead-acid
Nominal Battery Voltage (V)	48	48	48
Battery voltage range (V)	40~60	40~60	40~60
Start-up Voltage(V)	30	30	30
Number of Battery Input	1	1	1
Max. Continuous Charging Current (A)	125	135	175
Max. Continuous Discharging Current (A)	125	135	175
Max Charging Power (kW)	5	6	8
Max Discharging Power (kW)	5.5	6.6	8.8
PV Side			
Max. Input Power (kW)	10	12	16

Technical Data	GW5K-ET-L-G10 *8	GW6K-ET-L-G10	GW8K-ET-L-G10
Max. Input Voltage (V) *1	1000	1000	1000
MPPT Operating Voltage Range (V) *2	150-850	150-850	150-850
MPPT Operating Voltage Range at Nominal Power (V)	300~850	300~850	300~850
Start-up Voltage (V)	180	180	180
Nominal Input Voltage (V)	620	620	620
Max. MPPT Current (A)	20/20	20/20	20/20
Max. MPPT Short Circuit Current(A)	26/26	26/26	26/26
Number of MPPTs	2	2	2
Number of Strings per MPPT	1/1	1/1	1/1
AC Side (On-grid)			
Nominal Power (kW)	5.0	6.0	8.0
Max. Power (kW)	5.5	6.6	8.8
Nominal Power at 40 ℃ (kW)	5.0	6.0	8.0

Technical Data	GW5K-ET-L-G10 *8	GW6K-ET-L-G10	GW8K-ET-L-G10
Max. Power at 40 ℃ (kW)	5.0	6.0	8.0
Nominal Apparent Power Output to Grid (kVA)	5.0	6.0	8.0
Max. Apparent Power to Utility Grid (kVA)*9	5.5	6.6	8.8
Nominal Apparent Power from Grid(kVA)	5.0	6.0	8.0
Max. Apparent Power from Grid (kVA)	48.3	48.3	48.3
Nominal Voltage (V)	400/380, 3L/N/PE	400/380, 3L/N/PE	400/380, 3L/N/PE
Voltage Range (V)	170~290	170~290	170~290
Nominal Frequency (Hz)	50/60	50/60	50/60
Frequency Range (Hz)	45~65	45~65	45~65
Max. Current to Grid (A)	7.9@230V 8.3@220V	9.6@230V 10@220V	12.8@230V 13.4@220V
Max. Current From Grid (A)	70	70	70
Nominal Current From Grid (A)	7.5@220V 7.2@230V	9.1@220V 8.7@230V	12.1@220V 11.6@230V

Technical Data	GW5K-ET-L-G10 *8	GW6K-ET-L-G10	GW8K-ET-L-G10
Max. Output Fault Current (Peak and Duration) (A)	99	99	99
Inrush Current (Peak and Duration) (A)	300A/2ms	300A/2ms	300A/2ms
Nominal Current to Grid (A)	7.5@220V 7.2@230V	9.1@220V 8.7@230V	12.1@220V 11.6@230V
Power Factor	~1 (Adjustable from0.8 leading~0.8 lagging)	~1 (Adjustable from0.8 leading~0.8 lagging)	~1 (Adjustable from0.8 leading~0.8 lagging)
THDI	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	70	70	70
Type of voltage	a.c.	a.c.	a.c.
Back-up Side			
Nominal Output Apparent Power (kVA)	5.0	6.0	8.0
Max. Output Apparent Power(kVA)	5.5 (10.0, 10s)	6.6 (12.0, 10s)	8.8 (16.0, 10s)
Max. Output Apparent Power with Grid (kVA)	48.3	48.3	48.3

Technical Data	GW5K-ET-L-G10 *8	GW6K-ET-L-G10	GW8K-ET-L-G10
Nominal Output Current (A)	7.5@220V 7.2@230V	9.1@220V 8.7@230V	12.1@220V 11.6@230V
Max Output Current(Bypass)	70	70	70
Max. Fault Current (Peak and Duration) (A)	99 @100ms	99 @100ms	99 @100ms
Inrush Current (Peak and Duration) (A)	300 @2ms	300 @2ms	300 @2ms
Maximum Overcurrent Protection (A)	70	70	70
Nominal Output Voltage (V)	400/380, 3L/N/PE	400/380, 3L/N/PE	400/380, 3L/N/PE
Nominal Output Frequency (Hz)	50/60	50/60	50/60
Generator Side			
Nominal Apparent Power (kVA)	20.0	20.0	20.0
Max. Apparent Power (kVA)	20.0	20.0	20.0
Nominal Voltage (V)	400/380	400/380	400/380
Input Voltage Range (V)	170~290	170~290	170~290
Nominal Frequency (Hz)	50/60	50/60	50/60

Technical Data	GW5K-ET-L-G10 *8	GW6K-ET-L-G10	GW8K-ET-L-G10
Frequency Range (Hz)	45~55/55~65	45~55/55~65	45~55/55~65
Max. Current (A)	30.3	30.3	30.3
Efficiency			
Max. Efficiency	97.8%	97.8%	97.8%
European Efficiency	97.0%	97.0%	97.1%
Max. Battery to AC Efficiency	95.5%	95.5%	95.5%
MPPT Efficiency	99.9%	99.9%	99.9%
Protection			
PV String Current Monitoring	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated
Battery Reverse Polarity Protection	Optional	Optional	Optional
Anti-islanding Protection	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated

Technical Data	GW5K-ET-L-G10 *8	GW6K-ET-L-G10	GW8K-ET-L-G10
AC Overvoltage Protection	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated
AC Switch	NA	NA	NA
DC Surge Protection	Type II	Type II	Type II
AC Surge Protection	Type II	Type II	Type II
AFCI *6	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated
General Data			
Operating Temperature Range (℃)	-35~+60	-35~+60	-35~+60
Operating Environment	Outdoor	Outdoor	Outdoor
Relative Humidity	0 ~ 95%	0 ~ 95%	0 ~ 95%
Max. Operating Altitude (m)	4000	4000	4000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LCD	LCD	LCD
Communication with BMS	CAN	CAN	CAN
Communication	WIFI+LAN+Bluetooth, 4G, RS485, CAN	WIFI+LAN+Bluetooth, 4G, RS485, CAN	WIFI+LAN+Bluetooth, 4G, RS485, CAN

Technical Data	GW5K-ET-L-G10 *8	GW6K-ET-L-G10	GW8K-ET-L-G10
Communication Ptotocols	Modbus RTU(RS485), Modbus TCP/IP(Ethernet), Sunspec Modbus RTU	Modbus RTU(RS485), Modbus TCP/IP(Ethernet), Sunspec Modbus RTU	Modbus RTU(RS485), Modbus TCP/IP(Ethernet), Sunspec Modbus RTU
Weight (kg)	42.2	42.2	42.2
Dimension（W×H×D mm）	551*756*258	551*756*258	551*756*258
Noise Emission (dB)	<45	<45	<45
Topology	Non-isolated	Non-isolated	Non-isolated
Power Self-consumption at Night (W)	<15	<15	<15
Ingress Protection Rating	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4
DC Connector	MC4	MC4	MC4
AC Connector	Tube Terminal	Tube Terminal	Tube Terminal
Environmental Category	4K4H	4K4H	4K4H
Pollution Degree	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I
Storage Temperature (℃)	-40~70	-40~70	-40~70

Technical Data	GW5K-ET-L-G10 *8	GW6K-ET-L-G10	GW8K-ET-L-G10
Decisive Voltage Classification (DVC)	Battery：A PV：C AC：C Com：A	Battery：A PV：C AC：C Com：A	Battery：A PV：C AC：C Com：A
Mounting Method	Wall Mounted	Wall Mounted	Wall Mounted
Active Anti-islanding Method	AFDPF + AQDPF *7	AFDPF + AQDPF *7	AFDPF + AQDPF *7
Type of Electrical Supply System	Three phase Grid	Three phase Grid	Three phase Grid
Country of Manufacture	China	China	China
Certification			
Grid Standards	NRS 097-2-1, IEC 62116, IEC 61727, IEC 61683, IEC 62891, IEC 60068, EN50530		
Safety Regulation	IEC 62109-1, IEC 62109-2		
EMC	IEC 62920, IEC 61000, EN300328, EN 301489, EN IEC 62311, EN 62479		

Technical Data	GW10K-ET-L-G10	GW12K-ET-L-G10	GW15K-ET-L-G10
Battery Side			
Battery Type	Li-Ion/Lead-acid	Li-Ion/Lead-acid	Li-Ion/Lead-acid
Nominal Battery Voltage (V)	48	48	48
Battery voltage range (V)	40~60	40~60	40~60
Start-up Voltage(V)	30	30	30

Technical Data	GW10K-ET-L-G10	GW12K-ET-L-G10	GW15K-ET-L-G10
Number of Battery Input	1	1	2
Max. Continuous Charging Current (A)	220	250	165/165
Max. Continuous Discharging Current (A)	220	250	165/165
Max Charging Power (kW)	10	12	15
Max Discharging Power (kW)	11	13.2	16.5
PV Side			
Max. Input Power (kW)	20	24	30
Max. Input Voltage (V) *1	1000	1000	1000
MPPT Operating Voltage Range (V) *2	150-850	150-850	150-850
MPPT Operating Voltage Range at Nominal Power (V)	300~850	300~850	350~850
Start-up Voltage (V)	180	180	180
Nominal Input Voltage (V)	620	620	620

Technical Data	GW10K-ET-L-G10	GW12K-ET-L-G10	GW15K-ET-L-G10
Max. MPPT Current (A)	20/20/20	20/20/20	20/20/20/20
Max. MPPT Short Circuit Current(A)	26/26/26	26/26/26	26/26/26/26
Number of MPPTs	3	3	4
Number of Strings per MPPT	1/1/1	1/1/1	1/1/1/1
AC Side (On-grid)			
Nominal Power (kW)	10.0	12.0	15.0
Max. Power (kW)	11.0	13.2*3	16.5*3
Nominal Power at 40 ℃ (kW)	10.0	12.0	15.0
Max. Power at 40 ℃ (kW)	10.0	12.0	15.0
Nominal Apparent Power Output to Grid (kVA)	10.0	12.0	15.0
Max. Apparent Power to Utility Grid (kVA)*9	11.0	13.2	16.5
Nominal Apparent Power from Grid(kVA)	10.0	12.0	15.0
Max. Apparent Power from Grid (kVA)	48.3	48.3	48.3

Technical Data	GW10K-ET-L-G10	GW12K-ET-L-G10	GW15K-ET-L-G10
Nominal Voltage (V)	400/380, 3L/N/PE	400/380, 3L/N/PE	400/380, 3L/N/PE
Voltage Range (V)	170~290	170~290	170~290
Nominal Frequency (Hz)	50/60	50/60	50/60
Frequency Range (Hz)	45~65	45~65	45~65
Max. Current to Grid (A)	15.9@230V 16.7@220V	19.1@230V *4 20@220V	23.9@230V *4 25@220V
Max. Current From Grid (A)	70	70	70
Nominal Current From Grid (A)	15.2@220V 14.5@230V	18.2@220V 17.4@230V	22.7@220V 21.7@230V
Max. Output Fault Current (Peak and Duration) (A)	99	99	99
Inrush Current (Peak and Duration) (A)	300A/2ms	300A/2ms	300A/2ms
Nominal Current to Grid (A)	15.2@220V 14.5@230V	18.2@220V 17.4@230V	22.7@220V 21.7@230V
Power Factor	~1 (Adjustable from0.8 leading~0.8 lagging)	~1 (Adjustable from0.8 leading~0.8 lagging)	~1 (Adjustable from0.8 leading~0.8 lagging)
THDI	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	70	70	70

Technical Data	GW10K-ET-L-G10	GW12K-ET-L-G10	GW15K-ET-L-G10
Type of voltage	a.c.	a.c.	a.c.
Back-up Side			
Nominal Output Apparent Power (kVA)	10.0	12.0	15.0
Max. Output Apparent Power(kVA)	11.0 (20.0, 10s)	13.2 (24.0, 10s)	16.5 (30.0, 10s)
Max. Output Apparent Power with Grid (kVA)	48.3	48.3	48.3
Nominal Output Current (A)	15.2@220V 14.5@230V	18.2@220V 17.4@230V	22.7@220V 21.7@230V
Max Output Current(Bypass)	70	70	70
Max. Fault Current (Peak and Duration) (A)	99 @100ms	99 @100ms	99 @100ms
Inrush Current (Peak and Duration) (A)	300 @2ms	300 @2ms	300 @2ms
Maximum Overcurrent Protection (A)	70	70	70
Nominal Output Voltage (V)	400/380, 3L/N/PE	400/380, 3L/N/PE	400/380, 3L/N/PE

Technical Data	GW10K-ET-L-G10	GW12K-ET-L-G10	GW15K-ET-L-G10
Nominal Output Frequency (Hz)	50/60	50/60	50/60
Generator Side			
Nominal Apparent Power (kVA)	20.0	20.0	20.0
Max. Apparent Power (kVA)	20.0	20.0	20.0
Nominal Voltage (V)	400/380	400/380	400/380
Input Voltage Range (V)	170~290	170~290	170~290
Nominal Frequency (Hz)	50/60	50/60	50/60
Frequency Range (Hz)	45~55/55~65	45~55/55~65	45~55/55~65
Max. Current (A)	30.3	30.3	30.3
Efficiency			
Max. Efficiency	97.8%	97.8%	97.9%
European Efficiency	97.3%	97.3%	97.3%
Max. Battery to AC Efficiency	95.5%	95.5%	95.5%
MPPT Efficiency	99.9%	99.9%	99.9%
Protection			
PV String Current Monitoring	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated

Technical Data	GW10K-ET-L-G10	GW12K-ET-L-G10	GW15K-ET-L-G10
Residual Current Monitoring	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated
Battery Reverse Polarity Protection	Optional	Optional *5	Optional *5
Anti-islanding Protection	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated
AC Switch	NA	NA	NA
DC Surge Protection	Type II	Type II	Type II
AC Surge Protection	Type II	Type II	Type II
AFCI *6	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated
General Data			
Operating Temperature Range (℃)	-35~+60	-35~+60	-35~+60

Technical Data	GW10K-ET-L-G10	GW12K-ET-L-G10	GW15K-ET-L-G10
Operating Environment	Outdoor	Outdoor	Outdoor
Relative Humidity	0 ~ 95%	0 ~ 95%	0 ~ 95%
Max. Operating Altitude (m)	4000	4000	4000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LCD	LCD	LCD
Communication with BMS	CAN	CAN	CAN
Communication	WIFI+LAN+Bluetooth, 4G, RS485, CAN	WIFI+LAN+Bluetooth, 4G, RS485, CAN	WIFI+LAN+Bluetooth, 4G, RS485, CAN
Communication Ptotocols	Modbus RTU(RS485), Modbus TCP/IP(Ethernet), Sunspec Modbus RTU	Modbus RTU(RS485), Modbus TCP/IP(Ethernet), Sunspec Modbus RTU	Modbus RTU(RS485), Modbus TCP/IP(Ethernet), Sunspec Modbus RTU
Weight (kg)	45.3	45.3	49.7
Dimension（W×H×D mm）	551*756*258	551*756*258	551*756*258
Noise Emission (dB)	<45	<45	<45
Topology	Non-isolated	Non-isolated	Non-isolated
Power Self-consumption at Night (W)	<15	<15	<15
Ingress Protection Rating	IP66	IP66	IP66

Technical Data	GW10K-ET-L-G10	GW12K-ET-L-G10	GW15K-ET-L-G10
Anti-corrosion Class	C4	C4	C4
DC Connector	MC4	MC4	MC4
AC Connector	Tube Terminal	Tube Terminal	Tube Terminal
Environmental Category	4K4H	4K4H	4K4H
Pollution Degree	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I
Storage Temperature (℃)	-40~70	-40~70	-40~70
Decisive Voltage Classification (DVC)	Battery：A PV：C AC：C Com：A	Battery：A PV：C AC：C Com：A	Battery：A PV：C AC：C Com：A
Mounting Method	Wall Mounted	Wall Mounted	Wall Mounted
Active Anti-islanding Method	AFDPF + AQDPF *7	AFDPF + AQDPF *7	AFDPF + AQDPF *7
Type of Electrical Supply System	Three phase Grid	Three phase Grid	Three phase Grid
Country of Manufacture	China	China	China
Certification			
Grid Standards	NRS 097-2-1, IEC 62116, IEC 61727, IEC 61683, IEC 62891, IEC 60068, EN50530		
Safety Regulation	IEC 62109-1, IEC 62109-2		

Technical Data	GW10K-ET-L-G10	GW12K-ET-L-G10	GW15K-ET-L-G10
EMC	IEC 62920, IEC 61000, EN300328, EN 301489, EN IEC 62311, EN 62479		

Technical Data	GW20K-ET-L-G10	GW12K-ET-LL-G10 *8
Battery Side		
Battery Type	Li-Ion/Lead-acid	Li-Ion/Lead-acid
Nominal Battery Voltage (V)	48	48
Battery voltage range (V)	40~60	40~60
Start-up Voltage(V)	30	30
Number of Battery Input	2	1
Max. Continuous Charging Current (A)	208/208	250
Max. Continuous Discharging Current (A)	208/208	250
Max Charging Power (kW)	20	12
Max Discharging Power (kW)	22	13.2
PV Side		
Max. Input Power (kW)	40	24

Technical Data	GW20K-ET-L-G10	GW12K-ET-LL-G10 *8
Max. Input Voltage (V) *1	1000	1000
MPPT Operating Voltage Range (V) *2	150-850	150-850
MPPT Operating Voltage Range at Nominal Power (V)	350~850	300~850
Start-up Voltage (V)	180	180
Nominal Input Voltage (V)	620	620
Max. MPPT Current (A)	20/20/20/20	20/20/20
Max. MPPT Short Circuit Current(A)	26/26/26/26	26/26/26
Number of MPPTs	4	3
Number of Strings per MPPT	1/1/1/1	1/1/1
AC Side (On-grid)		
Nominal Power (kW)	20.0	12.0
Max. Power (kW)	22.0*3	12.0
Nominal Power at 40 ℃ (kW)	20.0	12.0

Technical Data	GW20K-ET-L-G10	GW12K-ET-LL-G10 *8
Max. Power at 40 ℃ (kW)	20.0	12.0
Nominal Apparent Power Output to Grid (kVA)	20.0	12.0
Max. Apparent Power to Utility Grid (kVA)*9	22.0	13.2
Nominal Apparent Power from Grid(kVA)	20.0	12.0
Max. Apparent Power from Grid (kVA)	48.3	26.7
Nominal Voltage (V)	400/380, 3L/N/PE	220, 3L/N/PE
Voltage Range (V)	170~290	170~290
Nominal Frequency (Hz)	50/60	60
Frequency Range (Hz)	45~65	55~65
Max. Current to Grid (A)	31.9@230V *4 33.3@220V	31.5@127V
Max. Current From Grid (A)	70	70
Nominal Current From Grid (A)	30.3@220V 29@230V	31.5@127V

Technical Data	GW20K-ET-L-G10	GW12K-ET-LL-G10 *8
Max. Output Fault Current (Peak and Duration) (A)	99	99
Inrush Current (Peak and Duration) (A)	300A/2ms	300A/2ms
Nominal Current to Grid (A)	30.3@220V 29.0@230V	31.5@127V
Power Factor	~1 (Adjustable from0.8 leading~0.8 lagging)	~1 (Adjustable from0.8 leading~0.8 lagging)
THDI	<3%	<3%
Maximum Output Overcurrent Protection (A)	70	70
Type of voltage	a.c.	a.c.
Back-up Side		
Nominal Output Apparent Power (kVA)	20.0	12.0
Max. Output Apparent Power(kVA)	22.0 (40.0, 10s)	13.2 (24.0, 10s)
Max. Output Apparent Power with Grid (kVA)	48.3	26.7

Technical Data	GW20K-ET-L-G10	GW12K-ET-LL-G10 *8
Nominal Output Current (A)	30.3@220V 29@230V	31.5@127V
Max Output Current(Bypass)	70	70
Max. Fault Current (Peak and Duration) (A)	99 @100ms	99 @100ms
Inrush Current (Peak and Duration) (A)	300 @2ms	300 @2ms
Maximum Overcurrent Protection (A)	70	70
Nominal Output Voltage (V)	400/380, 3L/N/PE	220, 3L/N/PE
Nominal Output Frequency (Hz)	50/60	60
Generator Side		
Nominal Apparent Power (kVA)	20.0	12.0
Max. Apparent Power (kVA)	20.0	12.0
Nominal Voltage (V)	400/380	220
Input Voltage Range (V)	170~290	170~290
Nominal Frequency (Hz)	50/60	60

Technical Data	GW20K-ET-L-G10	GW12K-ET-LL-G10 *8
Frequency Range (Hz)	45~55/55~65	55~65
Max. Current (A)	30.3	31.5
Efficiency		
Max. Efficiency	97.8%	97.8%
European Efficiency	97.4%	97.3%
Max. Battery to AC Efficiency	95.5%	95.5%
MPPT Efficiency	99.9%	99.9%
Protection		
PV String Current Monitoring	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated
Battery Reverse Polarity Protection	Optional *5	Integrated
Anti-islanding Protection	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated

Technical Data	GW20K-ET-L-G10	GW12K-ET-LL-G10 *8
AC Overvoltage Protection	Integrated	Integrated
DC Switch	Integrated	Integrated
AC Switch	NA	NA
DC Surge Protection	Type II	Type II
AC Surge Protection	Type II	Type II
AFCI *6	Optional	Integrated
Rapid Shutdown	Optional	Optional
Remote Shutdown	Integrated	Integrated
General Data		
Operating Temperature Range (℃)	-35~+60	-35~+60
Operating Environment	Outdoor	Outdoor
Relative Humidity	0 ~ 95%	0 ~ 95%
Max. Operating Altitude (m)	4000	4000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling
User Interface	LCD	LCD
Communication with BMS	CAN	CAN
Communication	WIFI+LAN+Bluetooth, 4G, RS485, CAN	WIFI+LAN+Bluetooth, 4G, RS485, CAN

Technical Data	GW20K-ET-L-G10	GW12K-ET-LL-G10 *8
Communication Ptotocols	Modbus RTU(RS485), Modbus TCP/IP(Ethernet), Sunspec Modbus RTU	Modbus RTU(RS485), Modbus TCP/IP(Ethernet), Sunspec Modbus RTU
Weight (kg)	51.2	45.1
Dimension（W×H×D mm）	551*756*258	551*756*258
Noise Emission (dB)	<45	<45
Topology	Non-isolated	Non-isolated
Power Self-consumption at Night (W)	<15	<15
Ingress Protection Rating	IP66	IP66
Anti-corrosion Class	C4	C4
DC Connector	MC4	MC4
AC Connector	Tube Terminal	Tube Terminal
Environmental Category	4K4H	4K4H
Pollution Degree	III	III
Overvoltage Category	DC II / AC III	DC II / AC III
Protective Class	I	I
Storage Temperature (℃)	-40~70	-40~70

Technical Data	GW20K-ET-L-G10	GW12K-ET-LL-G10 *8
Decisive Voltage Classification (DVC)	Battery：A PV：C AC：C Com：A	Battery：A PV：C AC：C Com：A
Mounting Method	Wall Mounted	Wall Mounted
Active Anti-islanding Method	AFDPF + AQDPF *7	AFDPF + AQDPF *7
Type of Electrical Supply System	Three phase Grid	Three phase Grid
Country of Manufacture	China	China
Certification		
Grid Standards	NRS 097-2-1, IEC 62116, IEC 61727, IEC 61683, IEC 62891, IEC 60068, EN50530	
Safety Regulation	IEC 62109-1, IEC 62109-2	
EMC	IEC 62920, IEC 61000, EN300328, EN 301489, EN IEC 62311, EN 62479	

*1: When the input voltage is greater than 980V, the inverter will enter standby mode, and when the voltage returns to below 950V the inverter will return to normal operation.
*2: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*3: For Brazil and Chile, the Max. power is the same with the Nominal Power.
*4: For Brazil, for GW12K-ET-L-G10, GW15K-ET-L-G10 and GW20K-ET-L-G10, the Max. Current to Grid is 18.2A@220V, 22.7A@220V and 30.3A@220V respectively.
*5: For Brazil, for GW12K-ET-L-G10, GW15K-ET-L-G10 and GW20K-ET-L-G10, the Battery Reverse Polarity Protection is integrated.
*6: AFCI is integrated in Brazil.
*7: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.
*8: GW5K-ET-L-G10 and GW12K-ET-LL-G10 are expected to be available around

October2025.
*9: For Chile, Max. Apparent Power to Utility Grid is same as Nominal Apparent Power Output to Grid.

11.2 Battery Technical Data

11.2.1 LX A5.0-30

Technical Parameters	LX A5.0-30
Nominal Capacity (kWh)	5.12
Usable energy (kWh) * 1	5
Cell Type	LFP (LiFePO4)
Operating Voltage Range (V)	43.2~58.24
Nominal Charge Current (A) *2	60
Max. Continuous Charge Current (A) *2*3	90
Nominal Discharge Current (A) *2	100
Max. Continuous Discharge Current (A) *2*3	150
Max. Pulse Discharge Current (A)*2*3	<200A（30s）
Max. Continuous Discharge Power (W)	7200
Communication	CAN
Operating Temperature Range (℃)	Charge: 0＜T≤55 Discharge: -20＜T≤55

Technical Parameters	LX A5.0-30
Maximum Operating Altitude (m)	4000
Weight (Kg)	44
Dimensions (W x H x D mm)	442*133*520 (Excluding hanger) 483*133*559 (Including hanger)
Ingress Protection Rating	IP20
Application Method	On-grid/On-grid + Backup/ off Grid
Scalability	Max. 30 in Parallel (150kWh) (Hand to hand /Combiner box /Busbar)
Mounting Method	19-inch standard rack, Floor-mounted, Wall-Mounted
Round-trip Efficiency*1	≥96%
Safety	IEC62619、IEC63056、N140
EMC	EN IEC61000-6-1、EN IEC61000-6-2、EN IEC61000-6-3、EN IEC61000-6-4
Transportation	UN38.3、ADR
Environment	ROHS

*1 Test conditions: 100% DOD, 0.2C charge & discharge at 25°C± 2°C, at the beginning of life.
*2 The system's working current and power values will be related to temperature and State of Charge (SOC)
*3 Max charge / discharge current and power values maybe variant with different inverter models.

11.2.2 LX U5.0-30

Technical Data	LX U5.0-30
Rated Battery Energy (kWh)	5.12
Available Energy (kWh)*1	5
Cell Type	LiFePO4
Rated voltage (V)	51.2
Operating Voltage range(V)	43.2~58.24
Rated Chargecurrent (A)	60
Maximum Continuous Chargecurrent (A) *2*3	90
Rated Discharge current (A)	100
Maximum continuous Dischargecurrent (A)*2*3	100
Pulse Dischargecurrent(A)*2*3	＜200A（30S）
Maximum Continuous Charge/Discharge Power (kW)	4.95
Communication	CAN
Charge Temperature Range (°C)	0<T≤55
Discharge Temperature Range (°C)	-20<T≤55
Ambient Temperature (°C)	0 < T ≤ 40 (Recommended: 10 < T ≤ 30) Optional heating: -20 < T ≤ 40 (Recommended 10 < T ≤ 30)
Relative Humidity	5~95%
Maximum storage time	12 months (maintenance-free)
Max. Operating Altitude(m)	4000
heating	Optional configuration

Technical Data	LX U5.0-30
Fire protection function	Optional, Aerosol
Unit Weight (kg)	50
Unit dimensions (Width × Height × Thickness mm)	460*580*160
Enclosure	IP65
Application	on-grid / on-grid + Backup Power / Off-Grid
Capacity expansion	30P
Mounting method	Ground-mounted/wall-mounted
round-trip efficiency	≥96%
Cycle count	> 6000 @25±2℃ 0.5C 70%SOH 90%DOD
Safety	VDE2510-50、IEC62619、IEC62040、N140、IEC63056
EMC	EN IEC61000-6-1, EN IEC61000-6-2, EN IEC61000-6-3, EN IEC61000-6-4
Transportation	UN38.3、ADR
Environmental regulations	ROHS
Safe service life (years)	≥25
*1: In the factory state of Battery, the test conditions are 100% DOD, 0.2C, and charging Discharge is performed at 25°C ± 2°C. *2: The operating current and Power values of the system are related to temperature and SOC. *3: The maximum charge/discharge current value may vary depending on the specifications of different battery models.	

11.2.3 GW14.3-BAT-LV-G10

Technical Data	GW14.3-BAT-LV-G10
Rated Energy (kWh)	14.3
Usable Energy (kWh)*1	≥13.8
Battery Type	LFP ($LiFePO_4$)
Nominal Voltage (V)	51.2

Technical Data	GW14.3-BAT-LV-G10
Max. Continuous Charging Current (A)	224
Max. Continuous Discharging Current (A)	260
Max. Input Power (System) (kW)*2	12
Max. Output Power (System) (kW)*2	12 (13.2 @10min)
Peak Output Power (System) (kW)*2	20 @15s
Charging Temperature Range (°C)	0~55
Discharging Temperature Range (°C)	-20~55
Relative Humidity	5~85%
Max. Operating Altitude (m)	4000
Noise Emission (dB)	≤35
Communication	CAN, RS485
Weight (kg)	125
Dimensions (W×H×D mm)	530*885*246 (Without the base) 530*918.6*246 (With base included)
Optional Function Configuration	Aerosol
Ingress Protection	IP20
Storage Temperature (℃)	-20~45
Ambient Temperature (℃)	0~45 (Standard configuration) 10~35 (Recommend) -20~45 (Optional)

Technical Data		GW14.3-BAT-LV-G10
Max. Storage time		12 months (-20℃~35℃) 6 months (35℃~45℃)
Scalability		30 pcs
Mounting Method		Floor-Mounted, Wall-Mounted
Cycle Life		≥6500 (25±2℃, 0.5C, 90%DOD, 70%EOL)
Country of Manufacture		China
Standard and Certification	Safety	IEC 62619, IEC 63056, IEC 60730-1
	EMC	EN IEC61000-6-1, EN IEC61000-6-2, EN IEC61000-6-3, EN IEC61000-6-4
	Transportation	UN38.3, ADR, MSDS

*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.

11.3 Smart Meter Technical Data

11.3.1 GM330

technical parameter		GM330
Measurement range	Support Grid type	Three-phase, split-phase, single-phase
	voltage Range L-L (Vac)	172~817
	voltage range L-N (Vac)	100~472
	Rated Frequency (Hz)	50/60
	CT ratio	nA:5A
Communication parameters	Communication method	RS485
	Communication distance (m/ft)	1000/3280
Accuracy parameters	voltage/current	Class 0.5
	active energy	Class 0.5
	Reactive energy	Class 1
General Parameters	Dimensions (WxHxD mm/in)	72x85x72/2.83x3.35×2.83
	Housing	4 modules
	Weight (g/lb)	240/0.53
	Mounting method	DIN rail
	User Interface	4 LEDs, reset button
	Power Consumption (W)	≤5
Environmental parameters	IP rating	IP20
	Operating Temperature Range (℃/°F)	-30~+70/-22~+158
	Storage Temperature Range (°C/°F)	-30~70/-22~+158
	Relative Humidity (Condensation-Free)	0~95%
	Max. Operating Altitude (meters/feet)	3000/9842
Certification parameters	Certificate	UL1741/ANSI

11.4 Smart Dongle Technical Data

11.4.1 WiFi/LAN Kit-20

Technical Parameters		WiFi/LAN Kit-20
Output Voltage (V)		5
Power Consumption (W)		<2
Communication Interface		USB
Communication Parameters	Ethernet	10M/100Mbps Self-adaption
	Wireless	IEEE 802.11 b/g/n @2.4 GHz
	Bluetooth	Bluetooth V4.2 BR/EDR and Bluetooth LE standard
Mechanical Parameters	Dimension (W×H×D mm)	48.3*159.5*32.1
	Weight (g)	82
	Ingress Protection Rating	IP65
	Mounting Method	USB port insertion and removal
Operating Temperature Range (℃)		-30~+60
Storage Temperature Range (℃)		-40~+70
Relative Humidity		0-95%
Max. Working Altitude (m)		4000

11.4.2 4G Kit-CN-G20

Product model	4G Kit-CN-G20
Equipment Management	
Maximum supported Inverter quantity	1
Power supply parameters	
Input voltage (V)	5
Power Consumption (W)	≤4
Interface method	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

Product model	4G Kit-CN-G20
Weight (g)	87
indicator	LED* 2
Mounting method	Plug and Play
SIM card size	Micro sim,15mm*12mm
Environmental parameters	
Operating Temperature Range (°C)	-30~+65
Storage temperature Range (℃)	-40~+70
Relative Humidity	0-100%
IP rating	IP66
Max. Operating Altitude (m)	4000
Safe service life (years)	5

12 Appendix

12.1 FAQ

12.1.1 How to Conduct Auxiliary Detection for Smart Meters/CT?

Meter detection function, which can detect whether the CT of the meter is connected correctly and the current operation status of the meter and CT.

- Approach 1:

1. Access the detection page through **Home** > **Settings** > **Electricity Meter/ CT** Auxiliary Detection.
2. Click "Start Detection" and wait for the detection to complete. Then, view the detection results.

- Approach 2:

1. Access the detection page through > **[System Setup]** > **[Quick Setting]** > **[Meter/CT Assisted Test]**.
2. Click "Start Detection" and wait for the detection to complete. Then, view the detection results.

12.1.2 How to Upgrade the Device Version

Through firmware information, you can view or upgrade:
DSP version and ARM version of Inverter, communication module software version, BMS version and DCDC version of Battery, etc.

- **Upgrade prompt**

When the user opens the app, an upgrade prompt pops up on the homepage, allowing the user to choose whether to upgrade. If they opt to upgrade, they can complete the process by following the on-screen instructions.

- **Routine upgrade:**

Through**[Home]** > **[Settings]** > **[Firmware Information]**Enter the firmware information viewing interface.

Click to check for updates. If a new version is available, follow the on-screen instructions to complete the upgrade.

- **Forced upgrade:**

The app pushes upgrade notifications, and users need to follow the prompts to upgrade; otherwise, the app will be unusable. Simply follow the on-screen instructions to complete the upgrade.

Inverter software version upgrade

- Inverter supports passing throughUPanel upgrade software.
- UseUBefore upgrading the panel equipment, please contact the after-sales service center to obtain the software upgrade package and upgrade instructions.

12.2 Abbreviations

Abbreviation	English description	Chinese description
Ubatt	Battery Voltage Range	Battery voltage range
Ubatt,r	Nominal Battery Voltage	Nominal battery voltage
Ibatt,max (C/D)	Max. Charging Current Max. Discharging Current	Maximum charge/discharge power
EC,R	Rated Energy	Rated energy
UDCmax	Max.Input Voltage	Max.Input Voltage
UMPP	MPPT Operating Voltage Range	MPPT operating range
IDC,max	Max. Input Current per MPPT	Each MPPT Max. AC Current From Utility Grid
ISC PV	Max. Short Circuit Current per MPPT	Maximum short-circuit current per MPPT
PAC,r	Nominal Output Power	Nominal output power
Sr (to grid)	Nominal Apparent Power Output to Utility Grid	Nominal Apparent Power Output to Utility Grid
Smax (to grid)	Max. Apparent Power Output to Utility Grid	Max. Apparent Power Output to Utility Grid
Sr (from grid)	Nominal Apparent Power from Utility Grid	buy power from the grid Nominal Output Apparent Power

Abbreviation	English description	Chinese description
Smax (from grid)	Max. Apparent Power from Utility Grid	buy power from the gridMax. Output Apparent Power
UAC,r	Nominal Output Voltage	Nominal output voltage
fAC,r	Nominal AC Grid Frequency	Nominal AC Grid Frequency
IAC,max(to grid)	Max. AC Current Output to Utility Grid	Max. AC Current Output to Utility Grid
IAC,max(from grid)	Max. AC Current From Utility Grid	Max. AC Current From Utility Grid
P.F.	Power Factor	Output Power Factor
Sr	Back-up Nominal apparent power	Off-grid rated apparent Power
Smax	Max. Output Apparent Power (VA) Max. Output Apparent Power without Grid	Max. Output Apparent Power
IAC,max	Max. Output Current	Max. Output Current
UAC,r	Nominal Output Voltage	Maximum Output Power
fAC,r	Nominal Output Freqency	Nominal output voltage Frequency
Toperating	Operating Temperature Range	Operating Temperature Range
IDC,max	Max. Input Current	Max. AC Current From Utility Grid
UDC	Input Voltage	voltage
UDC,r	DC Power Supply	DC input
UAC	Power Supply/AC Power Supply	Input voltage range / AC input
UAC,r	Power Supply/Input Voltage Range	Input voltage range / AC input
Toperating	Operating Temperature Range	Operating Temperature Range
Pmax	Max Output Power	Maximum Power
PRF	TX Power	Emission Power
PD	Power Consumption	Power consumption
PAC,r	Power Consumption	Power consumption
F (Hz)	Frequency	Frequency

Abbreviation	English description	Chinese description
ISC PV	Max. Input Short Circuit Current	Maximum input short-circuit current
Udcmin-Udcmax	Range of input Operating Voltage	Operating Voltage range
UAC,rang(L-N)	Power Supply Input Voltage	Adapter input voltage range
Usys,max	Max System Voltage	Maximum system voltage
Haltitude,max	Max. Operating Altitude	Max. Operating Altitude height
PF	Power Factor	Output Power Factor
THDi	Total Harmonic Distortion of Current	current harmonic
THDv	Total Harmonic Distortion of Voltage	harmonic
C&I	Commercial & Industrial	Commercial and Industrial
SEMS	Smart Energy Management System	Smart Energy Management System
MPPT	Maximum Power Point Tracking	Maximum Power Point Tracking (MPPT)
PID	Potential-Induced Degradation	Potential Induced Degradation (PID)
Voc	Open-Circuit Voltage	open-circuit voltage
Anti PID	Anti-PID	Anti-PID
PID Recovery	PID Recovery	PID recovery
PLC	Power-line Commucation	Power Line Carrier Communication (PLCC)
Modbus TCP/IP	Modbus Transmission Control / Internet Protocol	Modbus based on TCP/IP layer
Modbus RTU	Modbus Remote Terminal Unit	Modbus based on serial link
SCR	Short-Circuit Ratio	Short Circuit Ratio (SCR)
UPS	Uninterruptable Power Supply	uninterruptible power source
ECO mode	Economical Mode	Economic Mode
TOU	Time of Use	Operating time
ESS	Energy Stroage System	energy storage system
PCS	Power Conversion System	Power Conversion System
RSD	Rapid shutdown	Rapid Shutdown
EPO	Emergency Power Off	Emergency Poweroff
SPD	Surge Protection Device	Lightning Protection

Abbreviation	English description	Chinese description
ARC	zero injection/zero export Power Limit / Export Power Limit	power limit
DRED	Demand Response Enabling Device	Command Response Device
RCR	Ripple Control Receiver	-
AFCI	AFCI	AFCI (Arc Fault Circuit Interrupter)
GFCI	Ground Fault Circuit Interrupter	Grounding Disconnector
RCMU	Residual Current Monitioring Unit	Residual Current Monitoring Device (RCM)
FRT	Fault Ride Through	ride-through
HVRT	High Voltage Ride Through	High voltage ride-through
LVRT	Low Voltage Ride Through	Low voltage ride-through (LVRT)
EMS	Energy Management System	Energy Management System
BMS	Battery Management System	Battery management system
BMU	Battery Measure Unit	Battery Acquisition Unit
BCU	Battery Control Unit	Battery control unit
SOC	State of Charge	State of Charge (SOC) of Battery
SOH	State of Health	Battery health status
SOE	State Of Energy	Battery residual energy
SOP	State Of Power	Battery charging Discharge capability
SOF	State Of Function	Functional status of Battery
SOS	State Of Safety	safe state
DOD	Depth of discharge	depth of discharge

12.3 Explanation of Terms

- **Overvoltage Category Definition**
  - **Category I**: applies to equipment connected to a circuit where measures have been taken to reduce transient overvoltage to a low level.
  - **Category II**: applies to fixed downstream equipment. For example, appliances, portable tools and other plug-connected equipment; Voltage category III is used

if there are special requirements for the reliability and suitability of such equipment.
    - Category II**I:** applies to fixed downstream equipment, including the main distribution board. For example, switchgear and other equipment in an industrial installation
    - Category **IV**: applies to the upstream equipment in the power supply of the distribution device, including measuring instruments and upstream over-current protection devices.
- **Definition of Types of Damp Places**

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

- **Definition of Environmental Category:**
    - **Outdoor Inverter**: The ambient air temperature range is -25 to +60℃, and it is suitable for environments with pollution degree 3.
    - **Indoor Type II Inverter:** The ambient air temperature range is -25 to +40℃, and it is suitable for environments with pollution degree 3.
    - **Indoor Type I Inverter:** The ambient air temperature range is 0 to +40℃, and it is suitable for environments with pollution degree 2.
- **Definition of Pollution Degree Categories:**
    - **Pollution Degree 1**: No pollution or only dry non-conductive pollution.
    - **Pollution Degree 2:** In general, there is only non-conductive pollution, but the transient conductive pollution caused by occasional condensation must be taken into account.
    - **Pollution Degree 3:** There is conductive pollution, or the non-conductive pollution becomes conductive pollution due to condensation.
    - **Pollution Degree 4:** Persistent conductive pollution, such as pollution caused by conductive dust or rain and snow.

12.4 Battery SN Code Meaning

LXD10DSC0002

Bits 11-14 of the product SN code are the production time code.
The above picture has a production date of 2023-08-08

- The 11th and 12th digits represent the last two digits of the year of manufacture, e.g., 2023 is represented by 23.
- The 13th digit is the month of production, e.g., August is represented by 8; as follows:

Month	1~9	10	11	12
Month	1~9	A	B	C

- The 14th digit is the date of production, e.g., the 8th day is indicated by 8; priority is given to the use of numerical representation, e.g., 1~9 indicates the 1st~9th day, A indicates the 10th day, and so on. The letters I and O are not used to avoid confusion. The details are as follows:

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

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

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

12.5 Safety Country

No.	Safety Code	No.	Safety Code
Europe			
1	IT-CEI 0-21	43	CZ-C
2	IT-CEI 0-16	44	CZ-D
3	DE LV with PV	45	RO-A
4	DE LV without PV	46	RO-B
5	DE-MV	47	RO-D
6	ES-A	48	GB-G98
7	ES-B	49	GB-G99-A
8	ES-C	50	GB-G99-B
9	ES-D	51	GB-G99-C
10	ES-island	52	GB-G99-D
11	BE	53	NI-G98
12	FR	54	IE-16/25A
13	FR-island-50Hz	55	IE-72A
14	FR-island-60Hz	56	IE-ESB
15	PL-A	57	IE-EirGrid
16	PL-B	58	PT-D
17	PL-C	59	EE
18	PL-D	60	NO
19	NL-16/20A	61	FI-A
20	NL-A	62	FI-B
21	NL-B	63	FI-C
22	NL-C	64	FI-D
23	NL-D	65	UA-A1
24	SE-A	66	UA-A2
25	SE MV	67	EN 50549-1
26	SK-A	68	EN 50549-2
27	SK-B	69	DK-West-B-MVHV
28	SK-C	70	DK-East-B-MVHV
29	HU	71	DK-West-C-MVHV
30	CH	72	DK-East-C-MVHV

No.	Safety Code	No.	Safety Code
31	CY	73	DK-West-D-MVHV
32	GR	74	DK-East-D-MVHV
33	DK-West-A	75	FR-Reunion
34	DK-East-A	76	BE-LV（>30kVA）
35	DK-West-B	77	BE-HV
36	DK-East-B	78	CH-B
37	AT-A	79	NI-G99-A
38	AT-B	80	NI-G99-B
39	BG	81	NI-G99-C
40	CZ-A-09	82	NI-G99-D
41	CZ-B1-09	83	IE-LV
42	CZ-B2-09	84	IE-MV
Globle			
1	60Hz-Default	5	IEC 61727-50Hz
2	50Hz-Default	6	IEC 61727-60Hz
3	127Vac-60Hz-Default	7	Warehouse
4	127Vac-50Hz-Default		
America			
1	Argtina	30	US-ISO-NE-480Vac
2	US-208Vac	31	US-ISO-NE-208Vac-3P
3	US-240Vac	32	US-ISO-NE-220Vac-3P
4	Mexico-220Vac	33	US-ISO-NE-240Vac-3P
5	Mexico-440Vac	34	PR-208Vac
6	US-480Vac	35	PR-240Vac
7	US-208Vac-3P	36	PR-480 Vac
8	US-220Vac-3P	37	PR-208Vac-3P
9	US-240Vac-3P	38	PR-220Vac-3P
10	US-CA-208Vac	39	PR-240Vac-3P
11	US-CA-240Vac	40	Cayman
12	US-CA-480Vac	41	Brazil-220Vac
13	US-CA-208Vac-3P	42	Brazil-208Vac

No.	Safety Code	No.	Safety Code
14	US-CA-220Vac-3P	43	Brazil-230Vac
15	US-CA-240Vac-3P	44	Brazil-240Vac
16	US-HI-208Vac	45	Brazil-254Vac
17	US-HI-240Vac	46	Brazil-127Vac
18	US-HI-480Vac	47	Brazil-ONS
19	US-HI-208Vac-3P	48	Barbados
20	US-HI-220Vac-3P	49	Chile-BT
21	US-HI-240Vac-3P	50	Chile-MT
22	US-Kauai-208Vac	51	Colombia
23	US-Kauai-240Vac	52	Colombia<0.25MW 1P
24	US-Kauai-480Vac	53	Colombia<0.25MW 3P
25	US-Kauai-208Vac-3P	54	IEEE 1547-208Vac
26	US-Kauai-220Vac-3P	55	IEEE 1547-20Vac
27	US-Kauai-240Vac-3P	56	IEEE 1547-240Vac
28	US-ISO-NE-208Vac	57	IEEE 1547-230/400Vac
29	US-ISO-NE-240Vac		
Oceania			
1	Australia-A	4	Newzealand
2	Australia-B	5	Newzealand:2015
3	Australia-C	6	NZ-GreGrid
Asia			
1	China A	25	JP-420Vac-50Hz
2	China B	26	JP-420Vac-60Hz
3	China's high pressure	27	JP-480Vac-50Hz
4	China's highest pressure	28	JP-480Vac-60Hz
5	China Power Station	29	Sri Lanka
6	China 242 Shandong	30	Singapore
7	China 242 Hebei	31	Israel-OG
8	China PCS	32	Israel-LV
9	Taiwan	33	Israel-MV

No.	Safety Code	No.	Safety Code
10	Hongkong	34	Israel-HV
11	China 242 Northeast	35	Vietnam
12	Thailand-MEA	36	Malaysia-LV
13	Thailand-PEA	37	Malaysia-MV
14	Mauritius	38	DEWA-LV
15	Korea	39	DEWA-MV
16	India	40	Saudi Arabia
17	India-CEA	41	JP-690Vac-50Hz
18	Pakistan	42	JP-690Vac-60Hz
19	Philippines	43	Srilanka
20	Philippines-127Vac	44	IEC 61727-127Vac-50Hz
21	JP-50Hz	45	IEC 61727-127Vac-60Hz
22	JP-60Hz	46	JP-550Vac-50Hz
23	JP-440Vac-50Hz	47	JP-550Vac-60Hz
24	JP-440Vac-60Hz	48	India-Higher
Africa			
1	South Africa-LV	4	Ghana
2	South Africa-B-MV	5	Ghana-HV
3	South Africa-C-MV		

Contact Details

GoodWe Technologies Co., Ltd.
No. 90 Zijin Rd., New District, Suzhou, China
400-998-1212
www.goodwe.com

service@goodwe.com