

Residential Smart Inverter

ES Uniq 8.0-12kW

- LX A5.0-10
- LX A5.0-30
- LX U5.4-L
- LX U5.4-20
- LX U5.0-30
- GW14.3-BAT-LV-G10

Solutions Manual

Copyright Statement

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NOTICE

Due to product version upgrades or other reasons, the content of the document will be updated periodically. Unless otherwise agreed, the content of the document cannot replace the Safety Precautions in the product label. All descriptions in the document are provided 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

energy storage system includes the following products:

Product Type	Product Information	Description
Inverter	ES Uniq Series	Nominal output power: 8kW-12kW
	LX A5.0-10	Rated capacity 5.0kWh, supports up to 15 clusters in parallel
	LX A5.0-30	Rated capacity 5.12kWh, supports up to 30 clusters in parallel
	LX U5.4-L	Rated capacity 5.4kWh, supports up to 6 parallel clusters
	LX U5.4-20	Rated capacity 5.12kWh, supports up to 30 clusters in parallel
	LX U5.0-30	
	GW14.3-BAT-LV-G10	Rated capacity 14.3kWh, supports up to 30 parallel clusters
Battery system	GMK110	
	GM330	
electricity meter		The monitoring module in energy storage system can detect information such as voltage and current during system operation.

Product Type	Product Information	Description
smart dongle	WiFi/LAN Kit-20	In a standalone scenario, the system operation information can be uploaded to the monitoring platform via WiFi or LAN signals.
	4G Kit-CN-G20、4G Kit-CN-G21	The system operation information can be uploaded to the monitoring platform via 4G signal.
	Ezlink3000	When parallel system, it is connected to Master inverter and uploads system operation information to the monitoring platform via WiFi or LAN signals.

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.

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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



- 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 ($R = \text{Max. Input Voltage (V)} / 30\text{mA}$).
- 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 that the device is POWER OFF to prevent electric shock DANGER. During equipment operation, strictly adhere to all Safety Precautions in this manual and the safety labels on the devices.
- Do not disassemble, modify, or repair Battery or control unit without official authorization from the equipment manufacturer, as it may result in electric shock DANGER or equipment damage. beyond the manufacturer's liability shall be liable for any losses incurred.
- 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 explosion for the Battery.
- Do not place the Battery in a high-temperature environment. Ensure there are no heat sources near the Battery and that it is not exposed to direct sunlight. A fire may occur if the ambient temperature exceeds 60°C.
- Do not use if Battery or control unit has obvious defects, cracks, damage, or other conditions. Damage to Battery may result in electrolyte leakage.
- Do not move the Battery system while the Battery is in operation. If you need to replace the Battery or add Battery, please contact the after-sales service center.
- A short circuit may cause personal injury. The instantaneous high current generated by a short circuit can release a large amount of energy, potentially leading to a fire.

WARNING

- Battery current may be affected by factors such as temperature, Humidity, and weather conditions, which could lead to Battery current limiting and impact load capacity.
- If the Battery fails to start, please contact the after-sales service center as soon as possible. Otherwise, the Battery may be permanently damaged.
- Please perform regular inspection and maintenance on the Battery in accordance with the maintenance requirements of Battery.

Emergency response measures for emergencies

- **Battery electrolyte leakage**

If the Battery module leaks electrolyte, avoid contact with the leaked liquid or gas. The electrolyte is corrosive and contact may cause skin irritation and chemical burn. If accidental contact with the leaked substance occurs, please follow these steps:

- inhalation: Evacuate the contaminated area and seek immediate medical assistance.
- Eye contact: Rinse with clean water for at least 15 minutes and seek immediate medical assistance.
- Skin contact: Wash the affected area thoroughly with soap and water, and seek medical attention immediately.
- Ingestion: Induce vomiting and seek immediate medical attention.

- **fire**

- When the Battery temperature exceeds 150°C, there is a risk of fire in the Battery, and toxic or harmful gases may be released after the Battery catches fire.
- To prevent fire hazards, ensure that carbon dioxide, Novec 1230, or FM-200 fire extinguishers are available near the equipment.
- Do not use ABC dry powder fire extinguishers for firefighting. Firefighters must wear protective clothing and self-contained breathing apparatus.

- **Battery triggers fire protection**

For Battery equipped with fire protection function, the following actions shall be executed after the fire protection function is triggered:

- Immediately disconnect the main power switch to ensure no current passes through Battery system.
- Conduct a preliminary visual inspection of the Battery for any signs of damage, deformation, leakage, or unusual odors. Inspect the housing, connectors, and cables of the Battery.
- Use temperature sensors to monitor the Battery and its ambient temperature, ensuring there is no risk of overheating.
- Isolate and label the damaged Battery, and dispose of it properly in accordance with local regulations.

1.3.4 Smart Meter Safety

⚠️WARNING

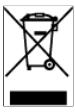
If the Utility gridvoltage voltage fluctuation exceeds 265V, prolonged overvoltage operation may damage the meter. It is recommended to install a fuse with a rated current of 0.5A on the voltage input side of the meter to Protection it.

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	 TÜV Rheinland Certified logo	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

Residential smart Inverter solution integrates Inverter, Battery, Smart Meter, and smart dongle devices. In the photovoltaic system, solar energy is converted into electricity to meet household power demands. Energy IoT devices in the system manage electrical appliances by monitoring the overall power status, enabling intelligent control of electricity for loads, storage in Battery, or export to Utility grid.

 **WARNING**

- Battery and model shall be selected according to the matching list of Inverter and Battery. For requirements regarding the use of Battery in the same system, such as whether model can be mixed or whether capacities need to be consistent, please refer to the corresponding Battery user manual of the 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](https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_Battery%20Compatibility%20Overview-EN.pdf)
- Due to product version upgrades or other reasons, the document content will be updated periodically. The matching relationship between Inverter and IoT products can be referenced as follows: https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_Compatibility-list-of-GoodWe-inverters-and-IoT-products-EN.pdf
- For detailed networking and wiring schemes of each scenario, please refer to: [5.2.Detailed System Wiring Diagram\(Page 103\)](#)
- In a fully off-grid Inverter system, if the Battery experiences prolonged periods of low sunlight or rainy weather and fails to replenish Charge in time, it may lead to excessive Discharge, resulting in performance degradation or damage to the Battery. To ensure long-term stable operation of the system, avoid allowing the Battery to be completely discharged. Recommended measures are as follows:
 1. During off-grid operation, set the minimum SOC threshold. It is recommended to set the off-grid 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 is insufficient sunlight for several consecutive days and the Battery SOC is too low, external energy sources (such as a generator or Utility grid auxiliary Charge) should be used promptly to replenish the Battery.
 4. Regularly check the Battery status to ensure it operates within safe working parameters.
 5. It is recommended to perform a full charge and discharge every six months to calibrate the SOC accuracy.

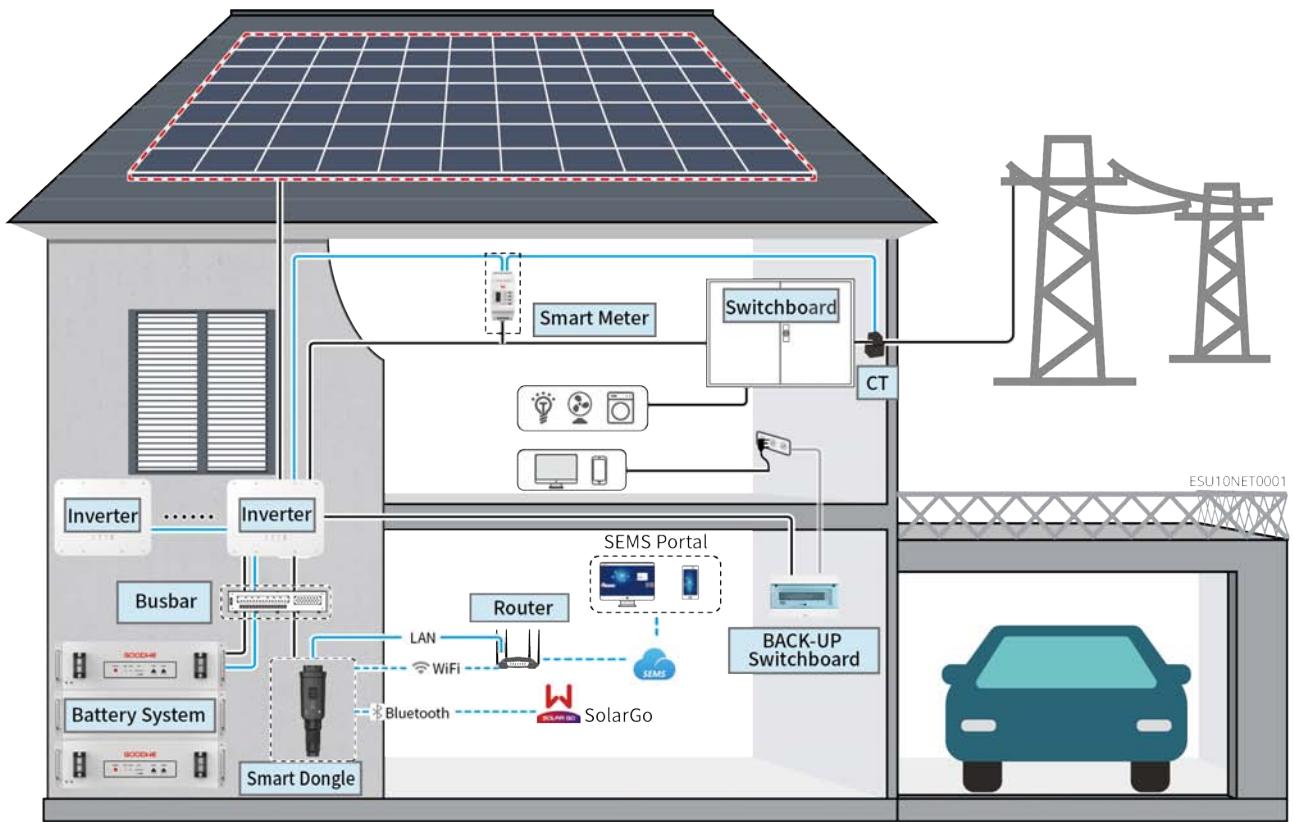
energy storage system operates in off-grid mode and can normally power the following loads:

Off-grid load capacity description	
Inverter model	GW8000-ES-C10 GW10K-ES-C10 GW12K-ES-C10
Single motor load Nominal power (kVA)	2.2
Total Motor Load Nominal power (kVA)	0.75*Pn
Capacitive Load (kVA)	0.33*Pn
Half-wave load (kVA)	0.5Pn

Note:

- Pn: InverterNominal output power.
- If the load Nominal power of a single motor is greater than or equal to the nominal value in the table above, a VFD/VSD must be configured.
- For 2 or more units in parallel operation, the permissible total motor load Nominal power = single motor load Nominal power * number of parallel units * 80%.

General scenario



Equipment Type	model	Description
Inverter	GW8000-ES-C10 GW10K-ES-C10 GW12K-ES-C10	<ul style="list-style-type: none"> When only one Inverter is used in the system, it supports the connection of generators or large loads. When multiple Inverter units are used in the system, connecting generators or large loads is not supported. A maximum of 6 Inverter units can form a parallel system, and Ezlink3000 is required for parallel operation. When connecting to the grid in parallel, the following version requirements must be met: <ul style="list-style-type: none"> All Inverter software versions in the parallel system are consistent. Inverter ARM software version is 15.493 or above The DSP software version is 05.13 or above. All Invertermodel in the parallel system are consistent, with uniform appearance and ports.
Battery system	LX A5.0-10	Different model Battery system cannot be mixed and matched for use.
	LX A5.0-30	<ul style="list-style-type: none"> LX A5.0-10: Single Battery The nominal charging and discharging current rated at 60A; supports up to 15 parallel clusters in the same system. LX A5.0-30: 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 paralleled in the same system.
	LX U5.4-L	The maximum Discharge current of a single Battery is 50A; a maximum of 6 units can be clustered in parallel within the same system.
	LX U5.4-20	

Equipment Type	model	Description
	LX U5.0-30	The rated Battery current current of a single unit is 60A, and the rated Discharge current current is 100A; the maximum Charge current current is 90A, and the maximum Discharge current current is 100A; a maximum of 30 units can be clustered in parallel within the same system.
	GW14.3-BAT-LV-G10	<ul style="list-style-type: none"> The single Battery The nominal charging and discharging current is 140A; the maximum Charge current is 224A, and the maximum Discharge current is 260A. Supports a maximum of 30 clusters in parallel within the same system. <ul style="list-style-type: none"> Products with SN codes 25C and later default to supporting 30 units in a cluster. For products before 25C that need to support 30 units in a cluster, please contact GoodWe Customer Service Center to upgrade the firmware version. View product SN code 12.4.SN code meaning(Page 466).
	lead-acid battery	<ul style="list-style-type: none"> Supports connection to AGM, GEL, and Flooded types of lead-acid Battery Calculate the number of can be connected in seriesBattery based on the lead-acid Battery voltage. The total voltage of the series-connected Battery must not exceed 60V.
Busbar	BCB-11-WW-0 BCB-22-WW-0 BCB-32-WW-0 BCB-33-WW-0 (Purchased from GoodWe)	<p>Please select the busbar based on the system's Inverter charging Discharge capacity, load size, and Battery charging Discharge capacity.</p> <ul style="list-style-type: none"> BCB-11-WW-0: <ul style="list-style-type: none"> Compatible with LX A5.0-10, Battery system

Equipment Type	model	Description
		<p>supports a maximum working current of 360A, working Power of 18kW, with a maximum connection of 3 Inverter and 6 Battery.</p> <ul style="list-style-type: none"> • BCB-22-WW-0: <ul style="list-style-type: none"> ◦ When paired with the LX A5.0-10, the Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter units and 12 Battery units. ◦ When paired with the LX A5.0-30, Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter and 6 Battery. ◦ When paired with the LX U5.0-30, the 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. • BCB-32-WW-0: <ul style="list-style-type: none"> ◦ When paired with the LX A5.0-10, the Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter units and 15 Battery units. ◦ When paired with the LX A5.0-30, the Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter units and 15 Battery units. ◦ When paired with the LX U5.0-30, Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter units and 8 Battery units. ◦ When paired with the GW14.3-BAT-LV-G10, the Battery system supports a maximum operating current of 720A, an operating Power of 36kW, and can connect up to 6 Inverter units and 30 Battery units. • BCB-33-WW-0:

Equipment Type	model	Description
		<ul style="list-style-type: none"> Compatible with LX U5.0-30, the Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter units and 15 Battery units. When the number of Battery units exceeds 8, two fuses with a rating of 600A must be connected in parallel. Others: Please configure according to system Power and current independently.
Smart Meter	<ul style="list-style-type: none"> Built-in energy meter (standard-equipped) GMK110 (purchased from GoodWe) GM330 (purchased from GoodWe) 	<ul style="list-style-type: none"> Built-in meter: When the number of Inverter parallel units is ≤ 2 and the CT cable length is ≤ 10 meters, the built-in meter can be used. The built-in meter uses a 10-meter CT cable, with a default CT ratio of 120A/40mA. GMK110: When the built-in CT cable length of Inverter is insufficient to connect to Main panel, it can be extended using an external GMK110 meter. CT replacement is not supported, and the CT ratio is 120A/40mA. GM330: CT can be purchased from GoodWe or self-procured, with CT ratio requirement: nA/5A. <ul style="list-style-type: none"> nA: CT primary side input current, range of n is 200-5000 5A: CT secondary side output current

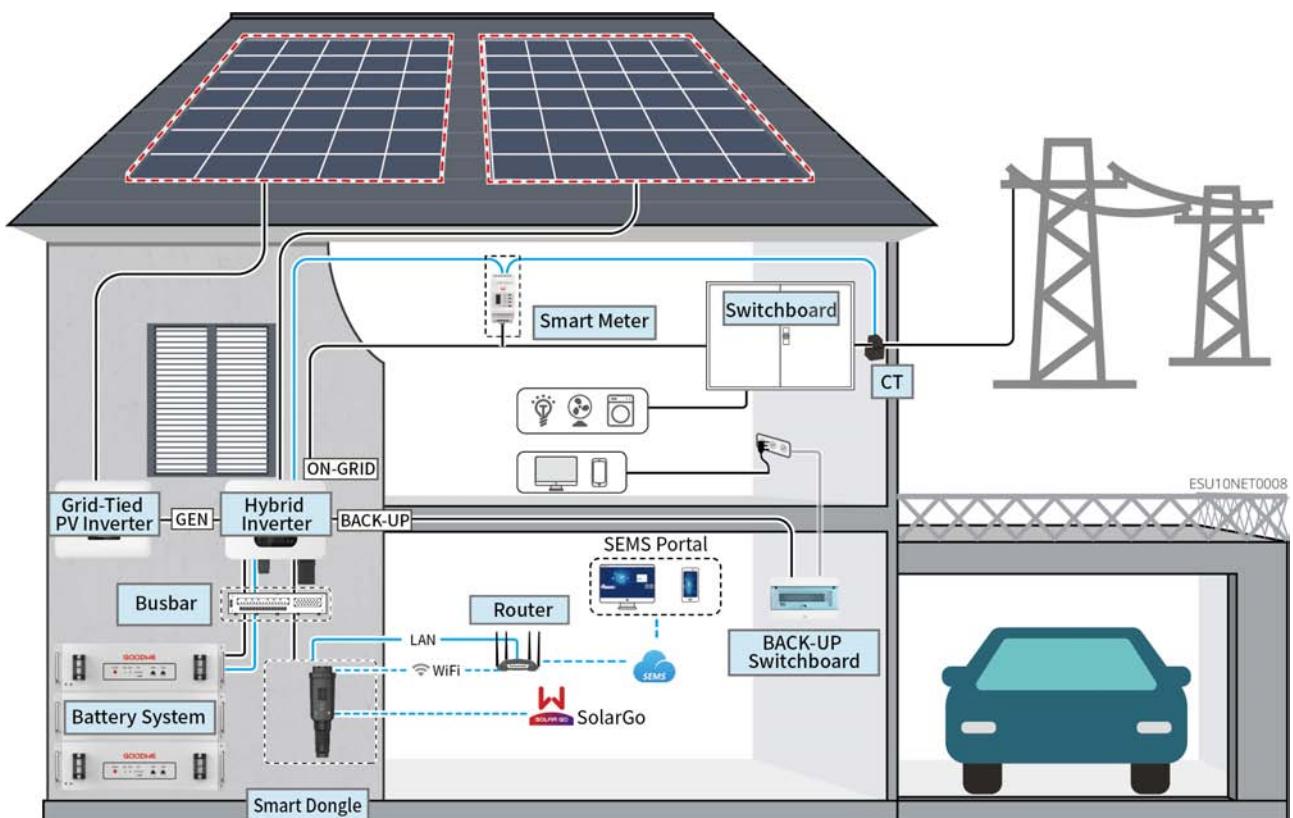
Equipment Type	model	Description
smart dongle	<ul style="list-style-type: none"> • WiFi/LAN Kit-20 (standard-equipped) • 4G Kit-CN-G20 (China Only) • 4G Kit-CN-G21 (China Only) • Ezlink3000 (purchased from GoodWe) 	<ul style="list-style-type: none"> • For single unit operation, please use the WiFi/LAN Kit-20, 4G Kit-CN-G20, or 4G Kit-CN-G21 module. • During parallel operation, only Master inverter needs to be connected to Ezlink3000, while Slave inverter does not require connection to smart dongle. The firmware version of Ezlink3000 should be 05 or above.
heavy load	-	<p>Supports SG Ready, high load capacity requirements:</p> <ol style="list-style-type: none"> 1. Total large load Power < GENport Maximum output Power 2. Large Load Power + BACK-UP Power < AC Max.Input Power (Utility grid)
Generator	-	Generator rated voltage meets Inverter GEN port rated voltage

Microgrid scenario



WARNING

- In microgrid scenarios, the PV Hybrid Inverter open-circuit voltage is not recommended to be $\geq 500V$ to avoid excessive system voltage under harsh operating conditions, which could trigger overvoltage Protection.
- In microgrid systems, Inverter does not support parallel operation, and only one Inverter is allowed in the system.
- When the system is in a high-temperature condition or under BMS current limiting, it may result in restricted Battery chargePower, leading to excessive system voltage that triggers overvoltage Protection.
- In the microgrid scenario, ensure that the over-frequency load shedding point of grid-tied PV inverter matches that of Hybrid Inverter.
- Please ensure that the over-frequency load shedding curve of grid-tied PV inverter is configured as follows:
 - end power is set to 0%Pn
 - Tentional Delay Ta is set to 0
 - Set the Power response mode to off.



Equipment Type	model	Description
Hybrid Inverter	GW8000-ES-C10 GW10K-ES-C10 GW12K-ES-C10	<ul style="list-style-type: none"> In the microgrid system, Inverter does not support parallel operation, and only one Inverter is allowed in the system. Inverter version requirements: <ul style="list-style-type: none"> Inverter ARM software version is 15.493 or above The DSP software version is 05.13 or above. Some models do not support microgrid functionality.
Battery system	LX A5.0-10	<p>Different model Battery system cannot be mixed and matched for use.</p> <ul style="list-style-type: none"> LX A5.0-10: Single Battery The nominal charging and discharging current rated at 60A; supports up to 15 parallel clusters in the same system. LX A5.0-30: 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 paralleled in the same system.
	LX U5.4-L	The maximum Discharge current of a single Battery is 50A; a maximum of 6 units can be clustered in parallel within the same system.
	LX U5.4-20	
	LX U5.0-30	The rated Battery current current is 60A; the rated Discharge current current is 100A; the maximum Charge current current is 90A; the maximum Discharge current current is 100A, supporting a maximum of 30 units in parallel in the same system.

Equipment Type	model	Description
	GW14.3-BAT-LV-G10	<ul style="list-style-type: none"> The single Battery The nominal charging and discharging current is 140A; the maximum Charge current is 224A, and the maximum Discharge current is 260A. Supports a maximum of 30 clusters in parallel within the same system. <ul style="list-style-type: none"> Products with SN codes 25C and later default to supporting 30 units in a cluster. For products before 25C that need to support 30 units in a cluster, please contact GoodWe Customer Service Center to upgrade the firmware version. View product SN code 12.4.SN code meaning(Page 466).
	lead-acid battery	<ul style="list-style-type: none"> Supports connection to AGM, GEL, and Flooded types of lead-acid Battery Calculate the number of can be connected in seriesBattery based on the lead-acid Battery voltage. The total voltage of the series-connected Battery must not exceed 60V.
Busbar	BCB-11-WW-0 BCB-22-WW-0 BCB-32-WW-0 BCB-33-WW-0 (Purchased from GoodWe)	<p>Please select the busbar based on the system's Inverter charging Discharge capacity, load size, and Battery charging Discharge capacity.</p> <ul style="list-style-type: none"> BCB-11-WW-0: <ul style="list-style-type: none"> Compatible with LX A5.0-10, Battery system supports a maximum working current of 360A, working Power of 18kW, with a maximum connection of 3 Inverter and 6 Battery. BCB-22-WW-0: <ul style="list-style-type: none"> When paired with the LX A5.0-10, the Battery system supports a maximum working current of

Equipment Type	model	Description
		<p>720A, a working Power of 36kW, and can connect up to 6 Inverter units and 12 Battery units.</p> <ul style="list-style-type: none"> When paired with the LX A5.0-30, Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter and 6 Battery. When paired with the LX U5.0-30, the 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. BCB-32-WW-0: <ul style="list-style-type: none"> When paired with the LX A5.0-10, the Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter units and 15 Battery units. When paired with the LX A5.0-30, the Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter units and 15 Battery units. When paired with the LX U5.0-30, Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter units and 8 Battery units. When paired with the GW14.3-BAT-LV-G10, the Battery system supports a maximum operating current of 720A, an operating Power of 36kW, and can connect up to 6 Inverter units and 30 Battery units. BCB-33-WW-0: <ul style="list-style-type: none"> Compatible with LX U5.0-30, the Battery system supports a maximum working current of 720A, a working Power of 36kW, and can connect up to 6 Inverter units and 15 Battery units. When the number of Battery units exceeds 8, two fuses with a rating of 600A must be connected in parallel.

Equipment Type	model	Description
		<ul style="list-style-type: none"> Others: Please configure according to system Power and current independently.
Smart Meter	<ul style="list-style-type: none"> Built-in energy meter (standard-equipped) GMK110 (purchased from GoodWe) GM330 (purchased from GoodWe) 	<ul style="list-style-type: none"> Built-in meter: When the number of Inverter parallel units is ≤ 2 and the CT cable length is ≤ 10 meters, the built-in meter can be used. The built-in meter uses a 10-meter CT cable, with a default CT ratio of 120A/40mA. GMK110: When the built-in CT cable length of Inverter is insufficient to connect to Main panel, it can be extended using an external GMK110 meter. CT replacement is not supported, and the CT ratio is 120A/40mA. GM330: CT can be purchased from GoodWe or self-procured, with CT ratio requirement: nA/5A. nA: CT primary side input current, range of n is 200-5000 5A: CT secondary side output current
smart dongle	<ul style="list-style-type: none"> WiFi/LAN Kit-20 (standard-equipped) 4G Kit-CN-G20 (China Only) 4G Kit-CN-G21 (China Only) 	For single unit operation, please use the WiFi/LAN Kit-20, 4G Kit-CN-G20, or 4G Kit-CN-G21 module.

Equipment Type	model	Description
grid-tied PV inverter	-	<ul style="list-style-type: none"> It is recommended to use GoodWe brand grid-tied PV inverter, and third-party grid-tied PV inverter is supported. In the microgrid system, ensure that grid-tied PV inverterNominal output power ≤ hybrid InverterNominal output power. When the microgrid system is in the on-grid state, if Power limitation is required, please ensure: <ul style="list-style-type: none"> Hybrid Inverter needs to pass through SolarGo APP Export power limit Set in the interface, grid-tied PV inverter please configure according to the actual tools used. To ensure the grid-tied PV inverter can operate continuously for power generation, it is necessary to use the SolarGo APP. Microgrid mode The interface adjusts the output Power of the hybrid Inverter. Note: The output Power control accuracy varies with different grid-tied PV inverter. Please set the Export power limit parameter value according to actual conditions.

2.2 Product Overview

2.2.1 Inverter

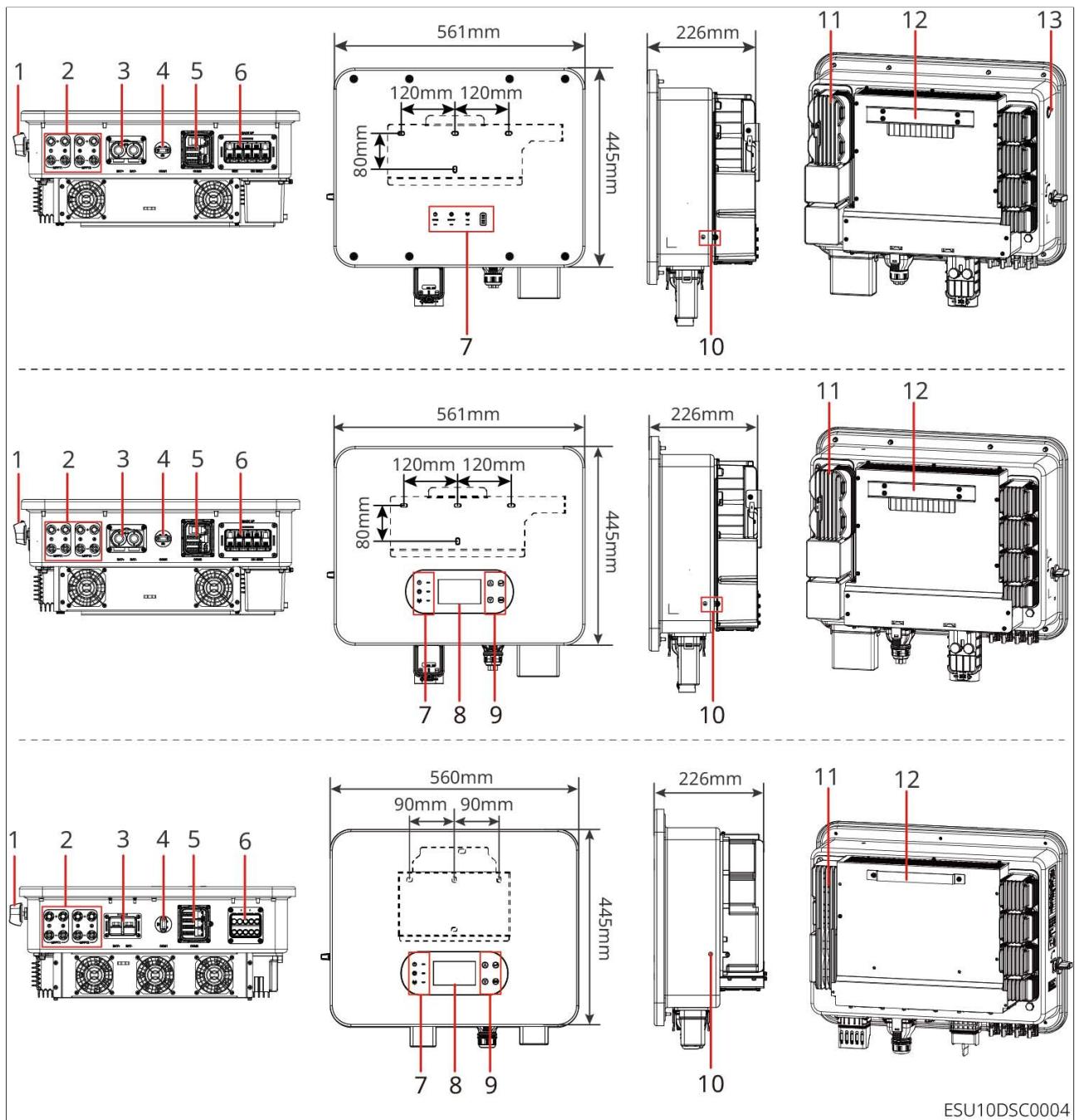
Inverter controls and optimizes power through an integrated energy management system in photovoltaic systems. The electricity generated by the photovoltaic system can be used to power loads, stored in Battery, or exported to Utility grid.

No.	model	Nominal output power	Nominal output voltage
1	GW8000-ES-C10	8kW	220/230/240
2	GW10K-ES-C10	10kW	220/230/240

No.	model	Nominal output power	Nominal output voltage
3	GW12K-ES-C10	12kW	220/230/240

NOTICE

- The ES UNIQ 8-12kW series Inverter comes in different appearance types, with variations in product appearance and components as follows.



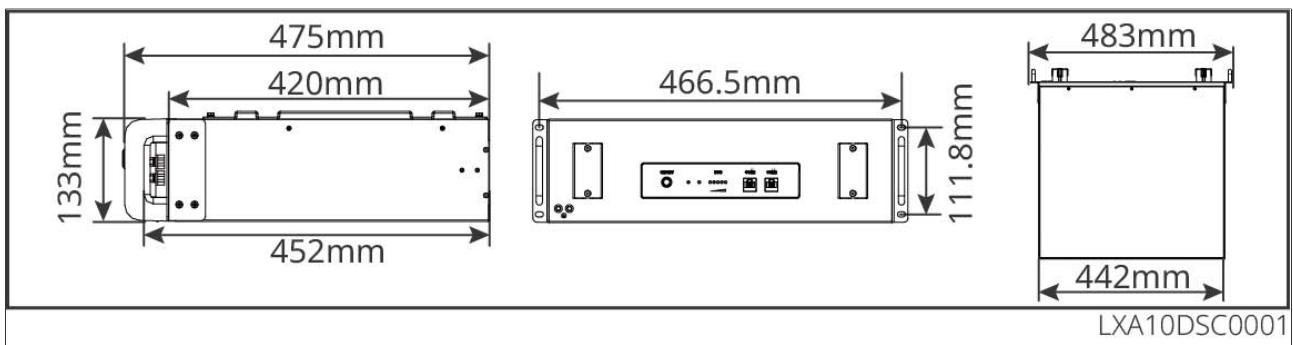
No.	Component/Silkscreen	Description
1	DC switch	Control the connection or disconnection of DC input.
2	PV Input terminal	Can connect DC input lines of PV modules.
3	Battery input terminal	Can connect Battery DC input line.

4	smart dongleport	Can be connected to smart dongle, please select the module type according to actual requirements.
5	Communication Port	Can be connected to load control, CT、RS485 remote shutdown/Rapid Shutdown DRED(Australia)/RCR(Europe) etc.
6	AC Output	Connect the AC output cable, connecting Inverter to Utility grid.
7	indicator	Indicates the working status of Inverter.
8	Display (optional)	View data related to Inverter.
9	Button (optional)	Cooperate with the display screen to operate the Inverter.
10	Grounding terminal	Connecting the PE cable.
11	heat sink	Provide heat dissipation for Inverter.
12	Mounting bracket	Can be mounted with Inverter.
13	Off-grid control switch (screenless version only)	<p>Control Inverter whether it supports off-grid operation mode.</p> <ul style="list-style-type: none"> • Press the switch: Inverter supports off-grid operation mode. • Switch not pressed: Inverter does not support off-grid operation mode.

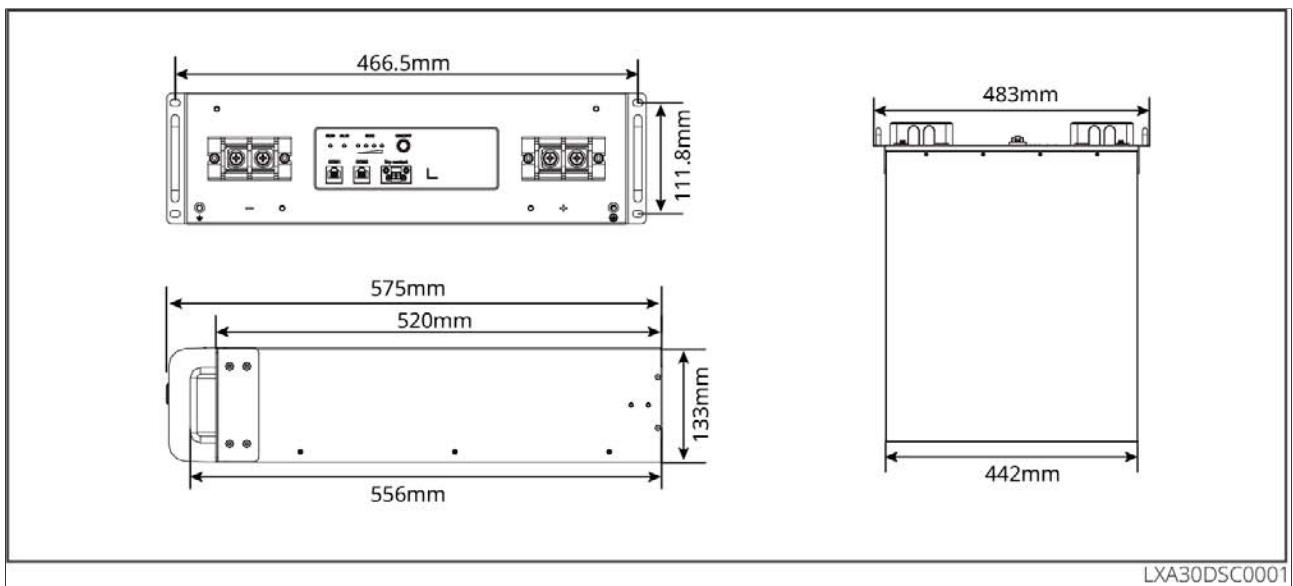
2.2.2 Battery

The Battery system can store and release electrical energy according to the requirements of the photovoltaic energy storage system. The input and output port of this energy storage system are both high-voltage direct current. ES Uniq Inverter supports the use of lead-acid Battery. For related product information on lead-acid Battery, please obtain it from the lead-acid Battery manufacturer.

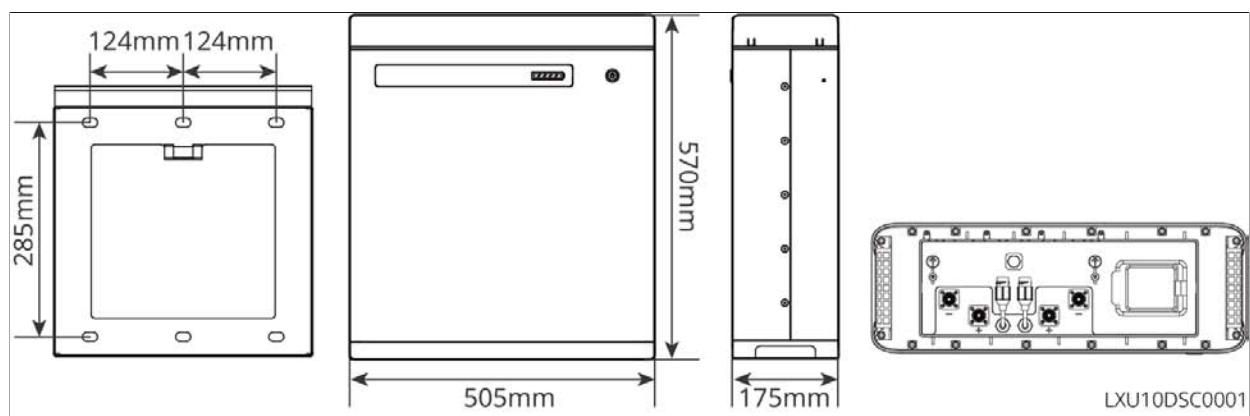
2.2.2.1 LX A5.0-10



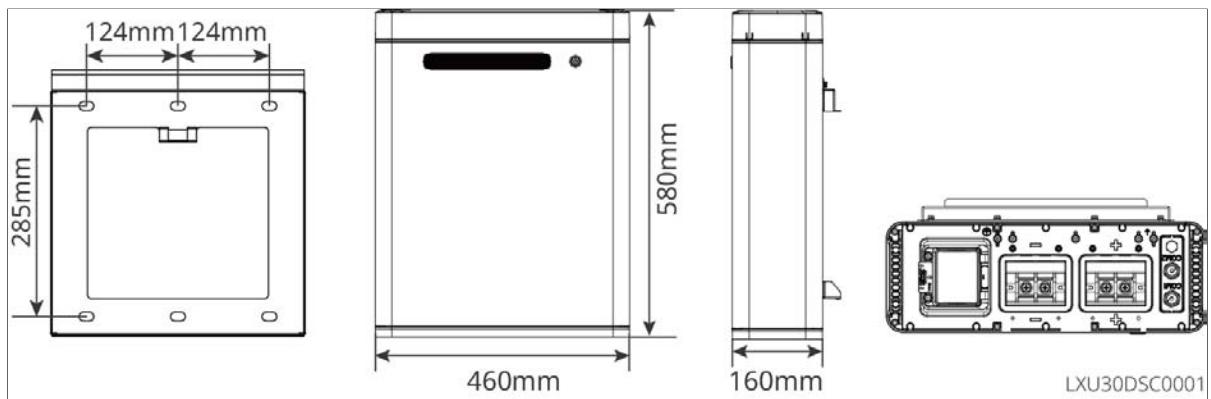
2.2.2.2 LX A5.0-30



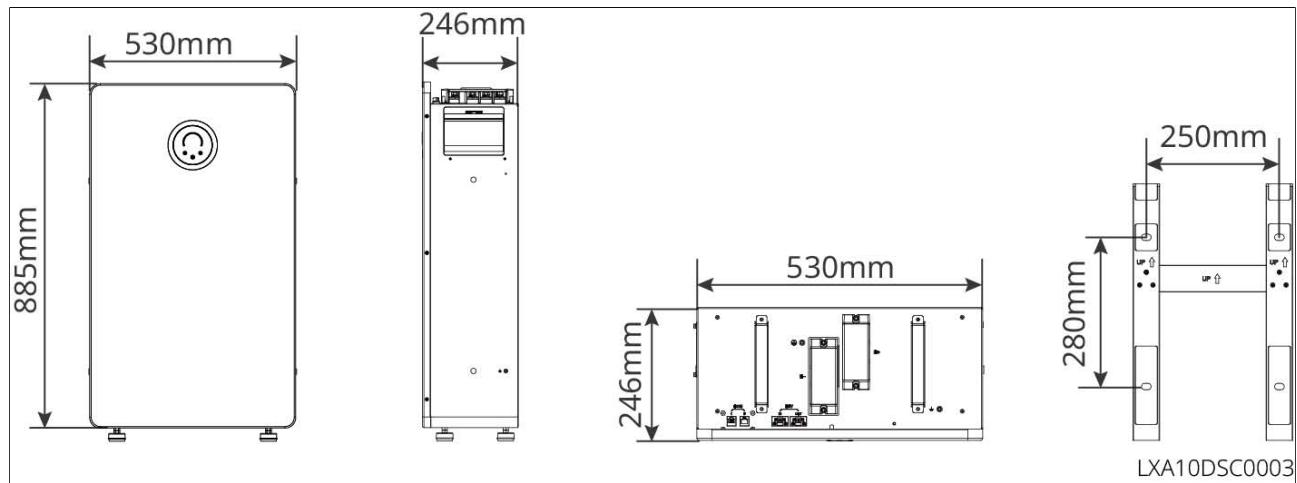
2.2.2.3 LX U5.4-L、LX U5.4-20



2.2.2.4 LX U5.0-30

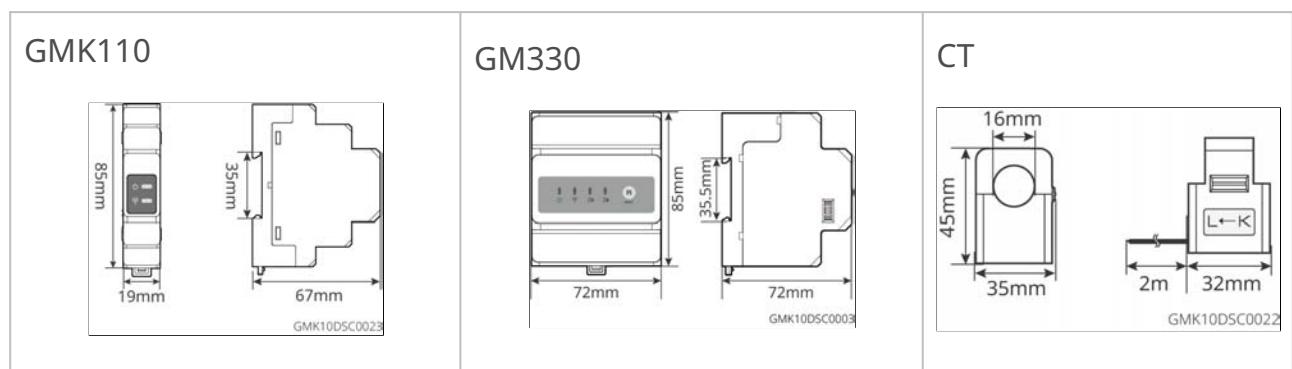


2.2.2.5 GW14.3-BAT-LV-G10



2.2.3 Smart Meter

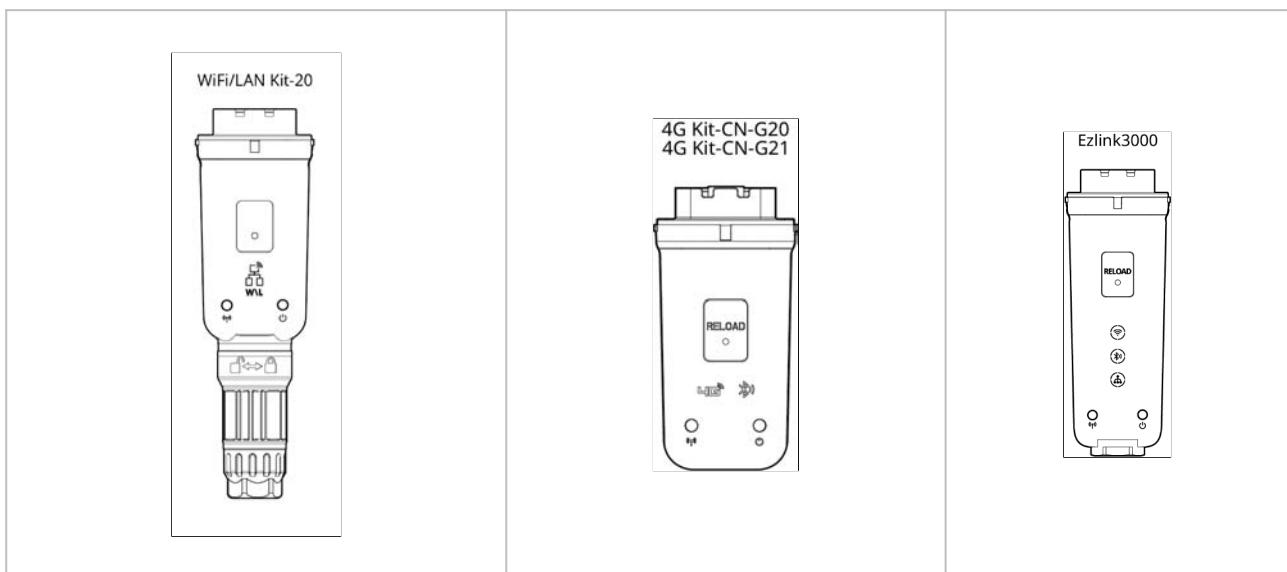
Smart Meter can measure and monitor electrical data in photovoltaic energy storage system, such as: voltage, current, Frequency, Output Power Factor, Power, etc.



No.	model	Application scenarios
1	GMK110	CT replacement is not supported, CT ratio: 120A: 40mA
2	GM330	<p>CT can be purchased from GoodWe or independently. CT ratio requirement: nA: 5A</p> <ul style="list-style-type: none"> • nA: CT primary side input current, range of n is 200-5000 • 5A: CT secondary side output current

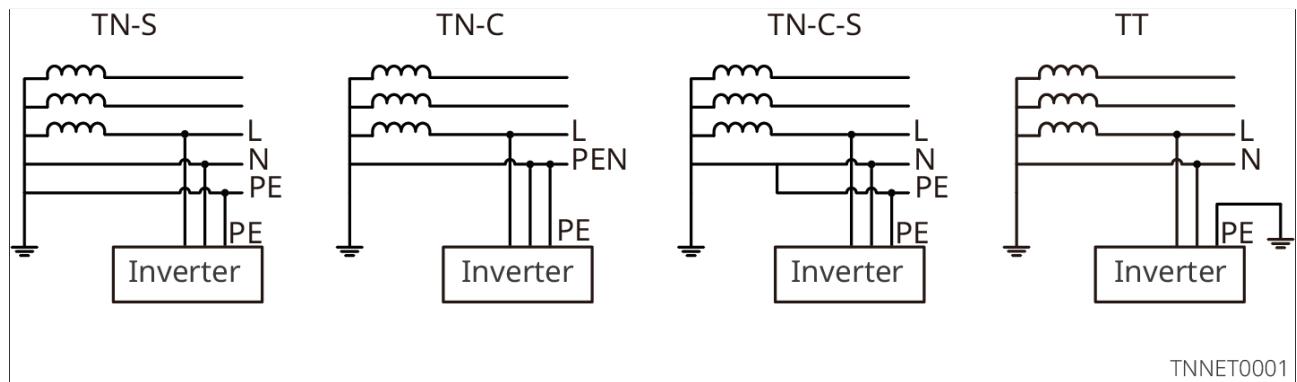
2.2.4 smart dongle

smart dongle is primarily used for real-time transmission of various power generation data from Inverter to the SEMS Portal remote monitoring platform, and for local device Commissioning via SolarGo APP connected to smart dongle.



No.	model	Signal type	Application scenarios
1	WiFi/LAN Kit-20	Bluetooth, WiFi, LAN	
2	4G Kit-CN-G20	Bluetooth, 4G	Inverter Standalone scenario application
3	4G Kit-CN-G21	4G, Bluetooth, GNSS	
4	Ezlink3000	Bluetooth, WiFi, LAN	Host in a parallel system

2.3 Supported Grid Types



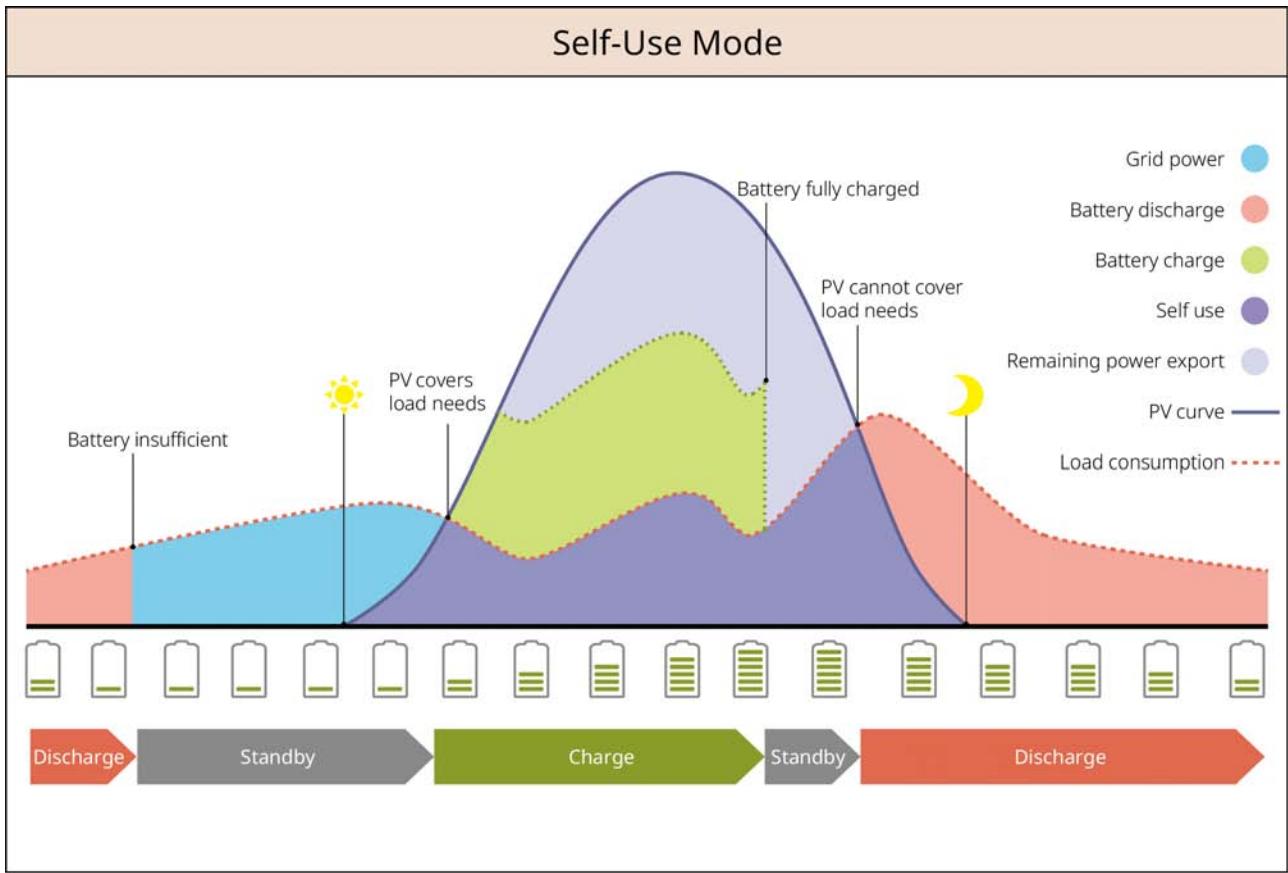
2.4 System Working Mode

NOTICE

GW14.3-BAT-LV-G10Battery system After the first Installation, a full Battery charge will be automatically executed. Upon completion, the system will switch to the configured operating mode.

Self-consumption mode

- Basic operating mode of the system.
- PV generation prioritizes supplying power to the load, with excess electricity directed to Battery charge. Any remaining surplus is sold to Utility grid. When PV generation cannot meet the Load consumption demand, Battery supplies power to the load. If the Battery capacity is also insufficient to meet the Load consumption demand, Utility grid provides power to the load.

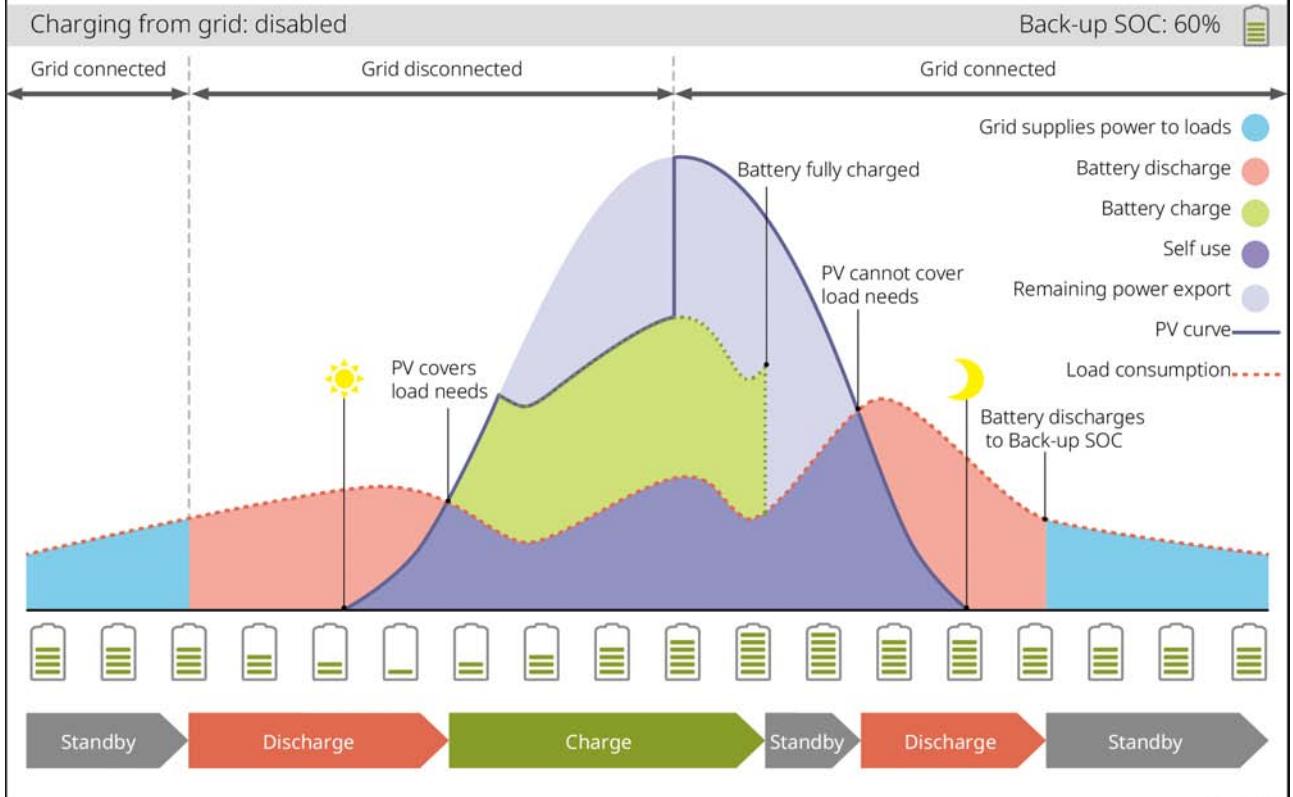


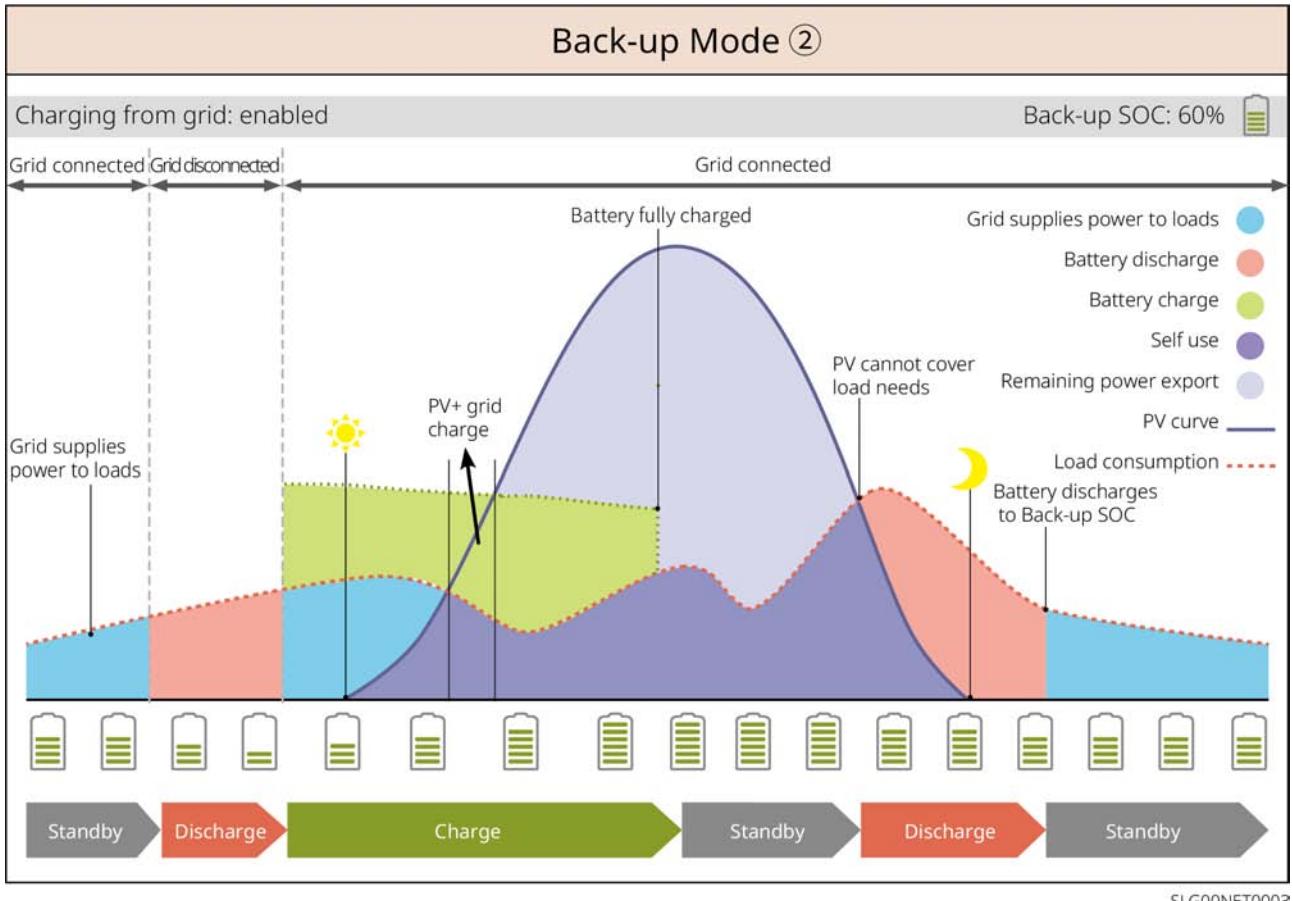
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Back-up Mode

- Recommended for use in Utility grid unstable areas.
- When Grid disconnected occurs, Inverter switches to off-grid operation mode, and Battery discharge supplies power to the load to ensure BACK-UP Loads does not POWER OFF. When Utility grid is restored, Inverter operation mode switches back to on-grid operation.
- To ensure the Battery SOC is sufficient to maintain normal system operation when off-grid, during system on-grid operation, Battery will utilize PV or Utility grid to purchase electricity Charge to Back-up SOC. If purchasing electricity for Battery charge via Utility grid is required, please confirm compliance with local Utility grid laws and regulations.

Back-up Mode ①





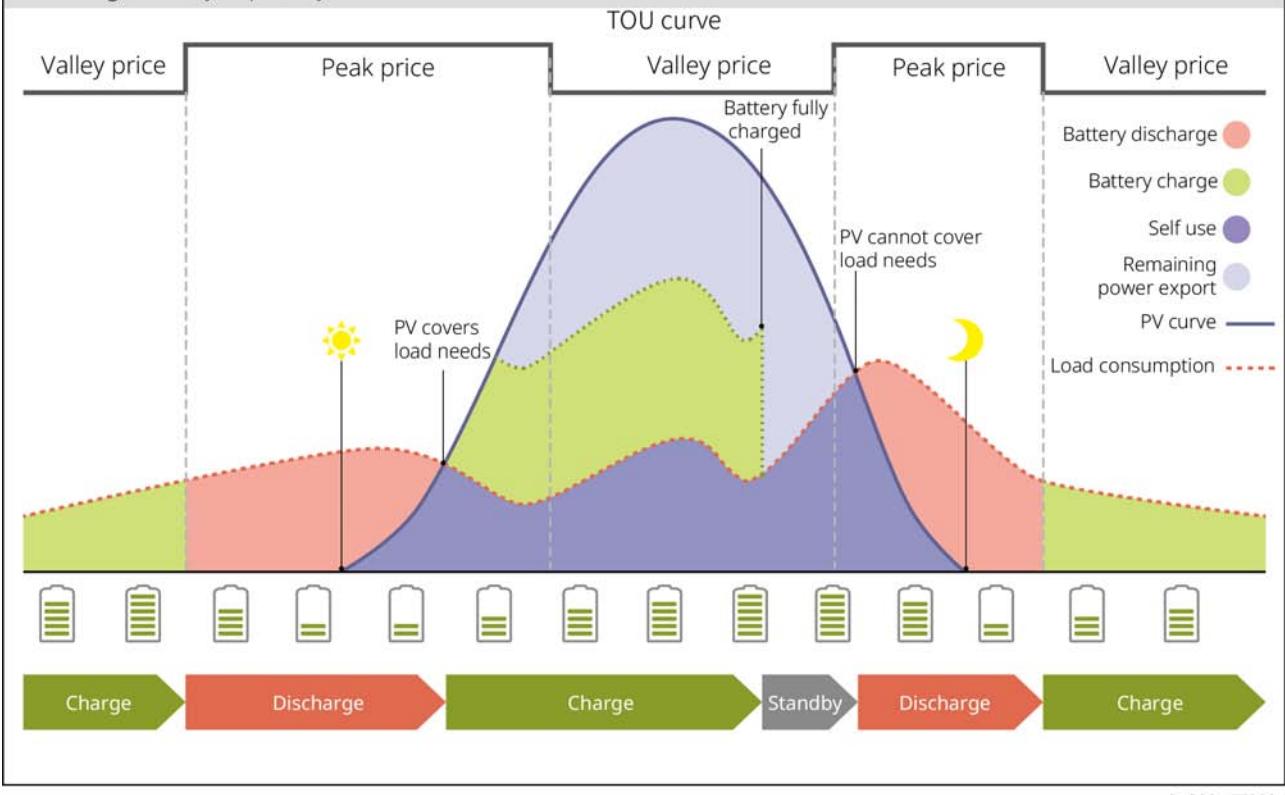
TOU mode

In compliance with local laws and regulations, set different time periods for buying and selling electricity based on the peak-valley tariff difference of Utility grid.

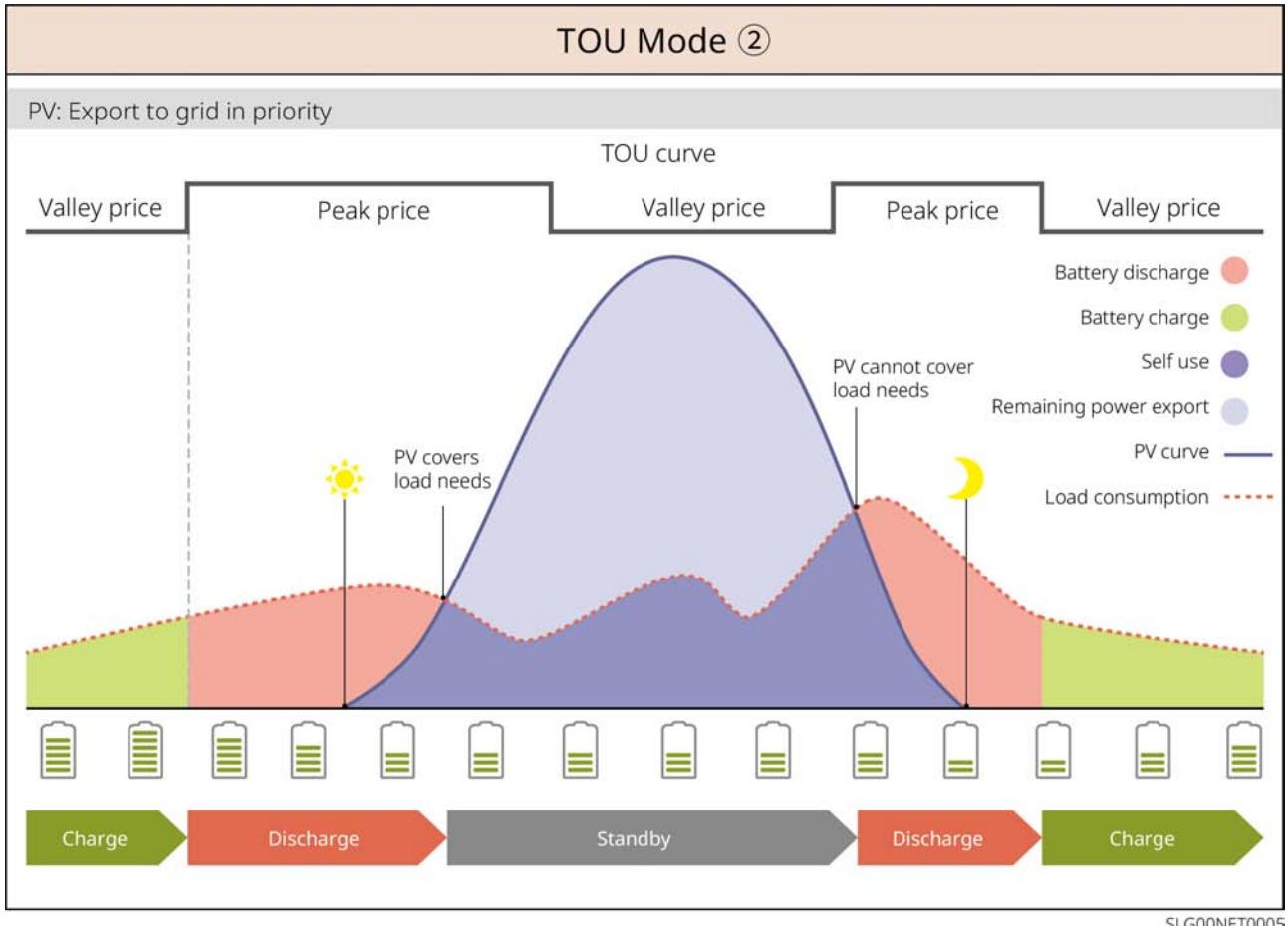
For example: during the off-peak electricity price period, set the Battery to Charge mode, and buy power from the grid Charge; during the peak electricity price period, set the Battery to Discharge mode, and supply power to the load through Battery.

TOU Mode ①

PV: Charge battery in priority



SLG00NET0004



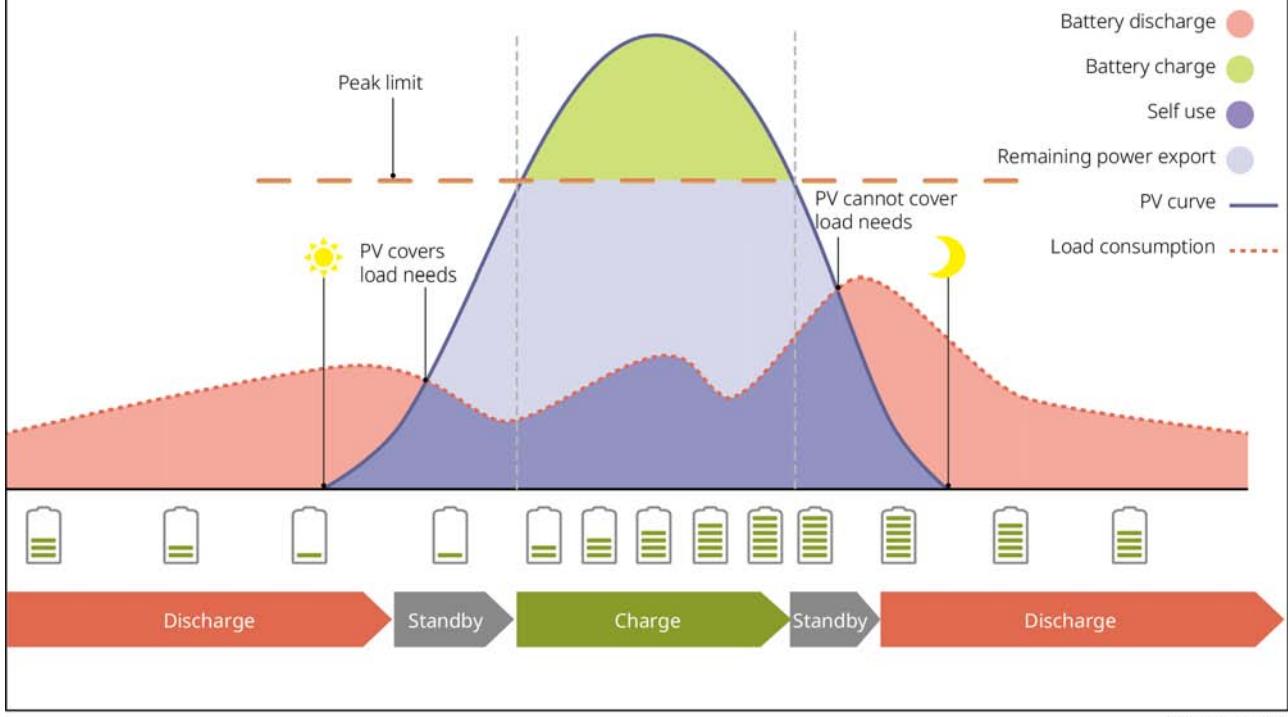
Delay Charge Mode

- Suitable for areas with on-grid Power output restrictions.
- Setting the peak Power limit allows excess photovoltaic power beyond the on-grid limit to be used for charging Battery charge; or configuring PV Charge periods enables the utilization of photovoltaic power to charge Battery charge during Charge periods.

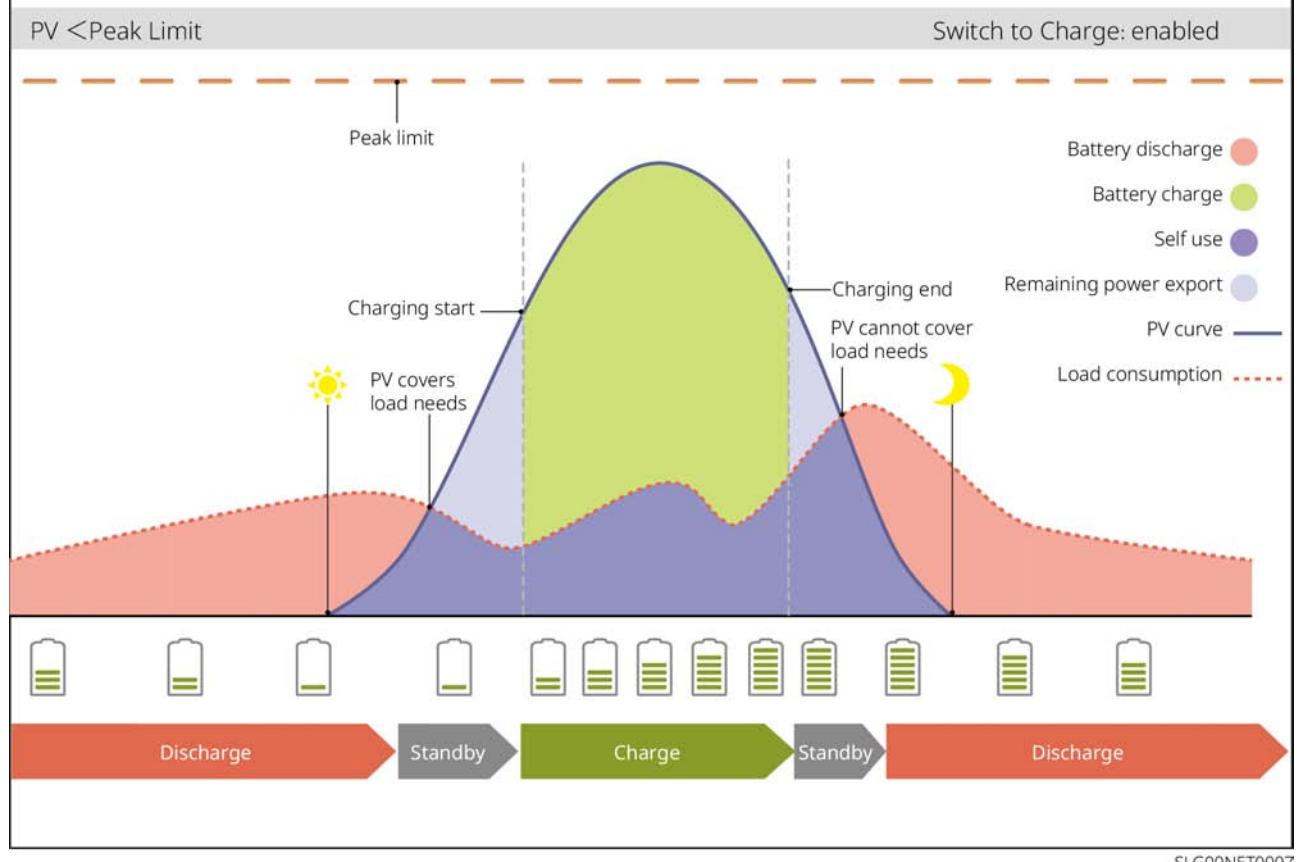
Smart Charging ①

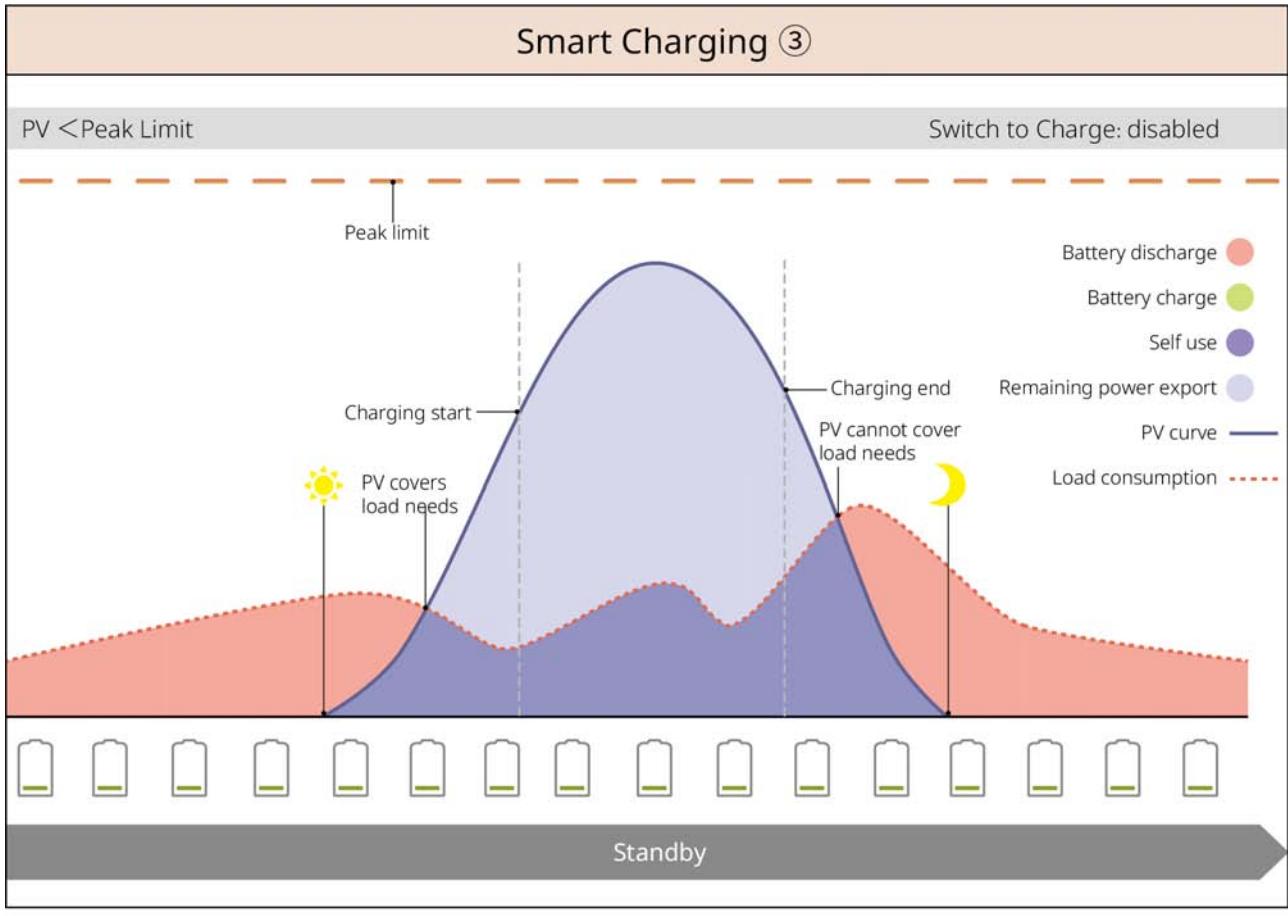
PV > Peak Limit

Switch to Charge: enabled/disabled



Smart Charging ②

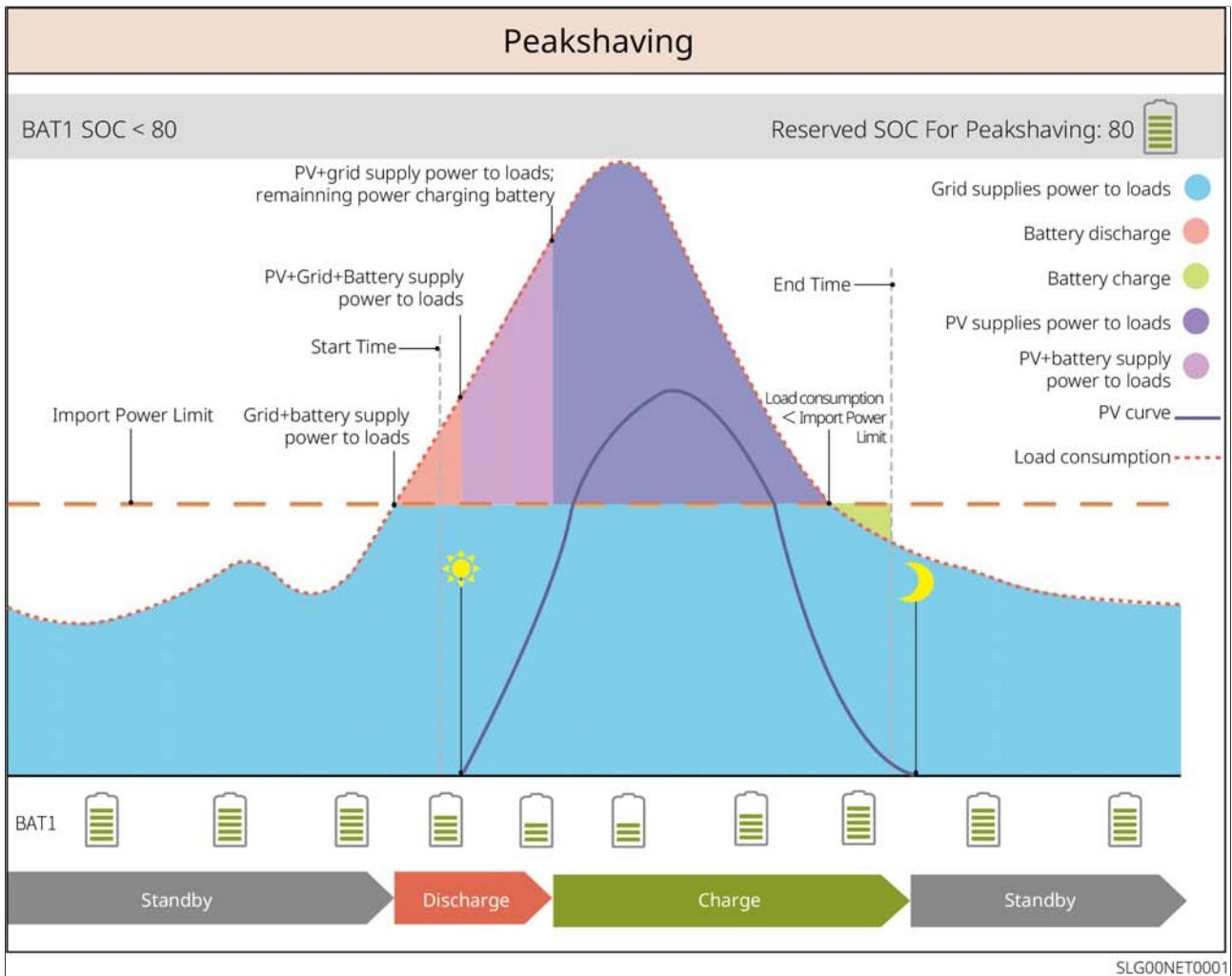




SLG00NET0008

Peakshaving mode

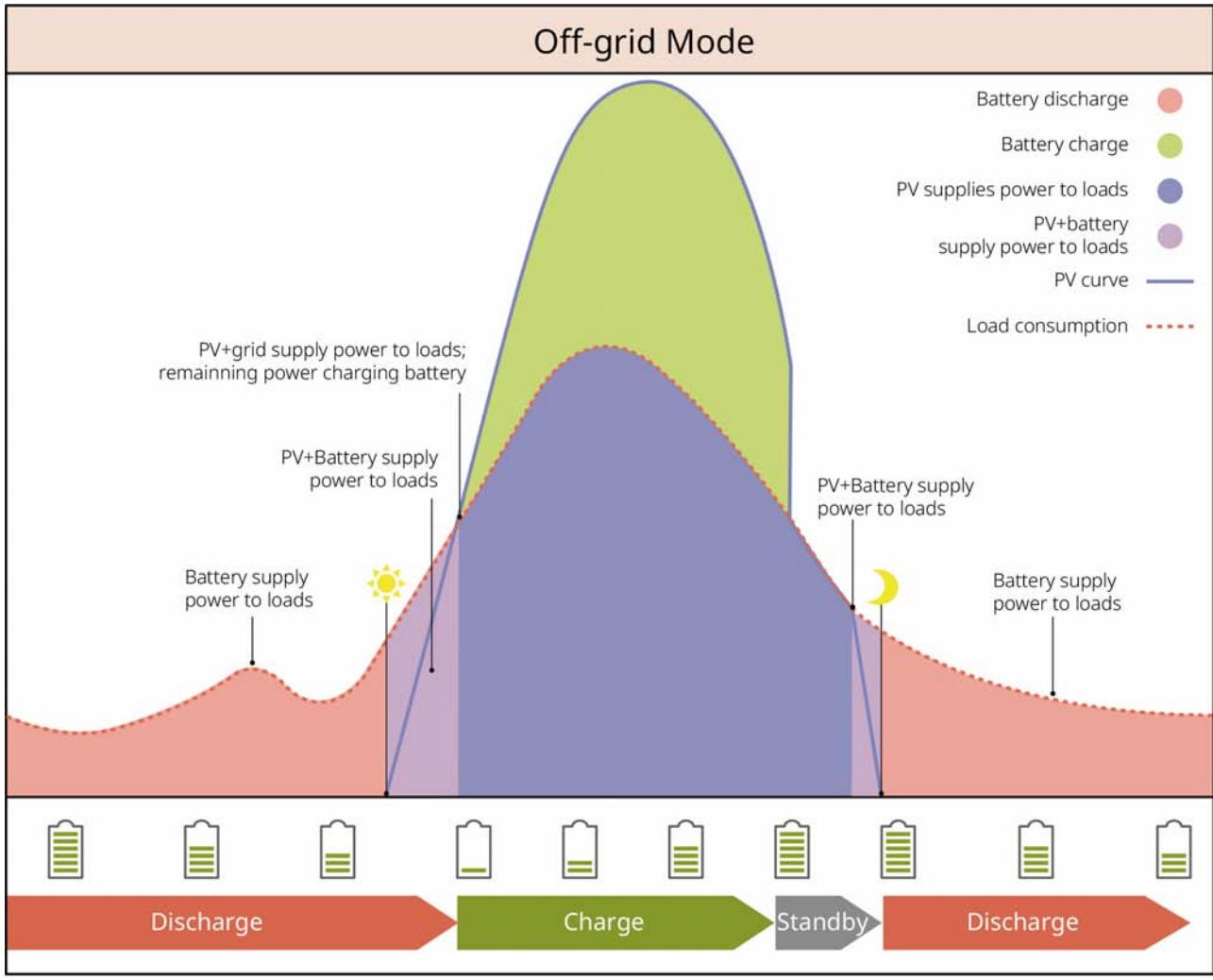
- Primarily suitable for industrial and commercial scenarios.
- When the total Load consumption Power exceeds the electricity quota in a short period, the Battery discharge can be utilized to reduce the portion of electricity consumption that exceeds the quota.
- When Inverter two BatterySOCAll are below the reserved value.SOCFor Peakshaving, the system determines buy power from the grid based on time periods, Load consumption quantity, and peak power purchase limits; when Inverter has only one Battery.SOCAll are below the reserved value.SOCFor Peakshaving, the system determines the buy power from the grid based on the Load consumption quantity and the peak electricity purchase limit.



Off-grid mode

When Grid disconnected, Inverter switches to off-grid operation mode.

- During the day, PV generation preferentially supplies power to the load, with excess electricity directed to the Battery charge.
- At night, the Battery discharge supplies power to the load to ensure that the BACK-UP Loads does not POWER OFF.
- Off-grid SOC recovery: After the system operates off-grid, Battery gradually restores to the minimum SOC level through photovoltaic power generation or other generation methods.



2.5 Features

AFCI

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

Causes of arc generation:

- Connectors in the photovoltaic system are damaged.
- Incorrect or damaged cable connection.
- Connector and cable aging.

Troubleshooting method:

1. When an arc is detected by Inverter, the fault type can be viewed on the Inverter

display or via the App.

2. If the fault is triggered less than 5 times within 24 hours, the machine will automatically restore on-grid operation after a 5-minute wait. After the 5th arc fault, the fault must be cleared before the Inverter can resume normal operation. For detailed instructions, please refer to the <SolarGo APP User Manual>.

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 load control 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. The relay can be used 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)快速关断

In a Rapid Shutdown system, the Rapid Shutdown transmitter works in conjunction with the receiver to achieve 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 emitter
 - Emitter 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 triggering device: AC side breaker
 - 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

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

1. Check the outer packaging for any damage, such as deformation, holes, cracks, or other signs that may cause harm to the equipment inside the box. If damage is found, do not open the packaging and contact your distributor.
2. When removing the GW14.3-BAT-LV-G10Battery, ensure the packaging carton remains intact. If accidental damage occurs to the packaging and product quality issues necessitate return or exchange, contact GoodWe after-sales service or authorized dealers to obtain a dedicated replacement carton.
3. Check if the equipment model is correct. If not, do not open the package and contact your distributor.

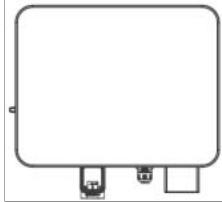
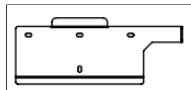
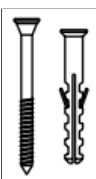
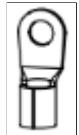
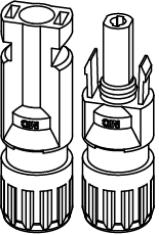
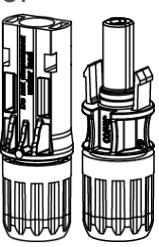
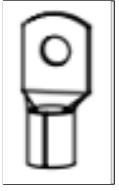
3.2 deliverables

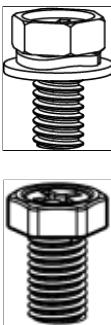
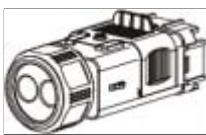
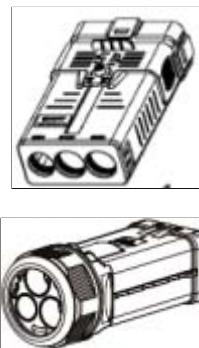
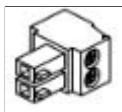
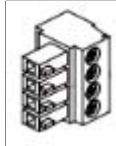
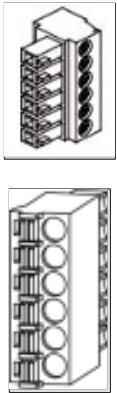
WARNING

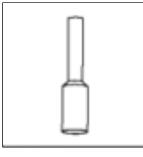
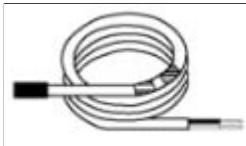
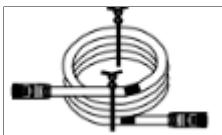
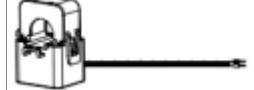
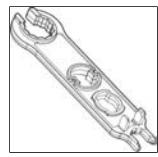
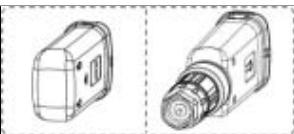
Check whether the deliverables type and quantity are correct and whether there is any damage to the appearance. If damaged, please contact your distributor.

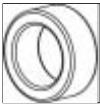
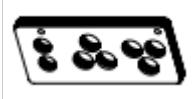
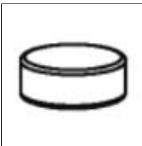
After removing deliverables from the packaging, do not place it on rough, uneven, or sharp surfaces to avoid paint chipping.

3.2.1 Inverter Deliverables

Component	Description	Component	Description
	Inverter x1 provided on an actual basis.		mounting plate x1 provided on an actual basis.
	Expansion screw x4		Grounding terminal:1 or 3 provided on an actual basis.
 or 	PV DC wiring <ul style="list-style-type: none"> • GW8000-ES-C10 x 3 • GW10K-ES-C10、 GW12K-ES-C10 x 4 		MC4 PV Anti- Tamper Cover (Europe Only) x 1
	BatteryPower connection terminal x 2 Some models use		AC wiring: 2 or 6 provided on an actual basis.

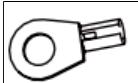
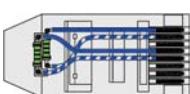
Component	Description	Component	Description
	Battery screw x 2 provided on an actual basis.		Grounding screw x1 Some models use
	nut x8 Some models use		Battery connector x1 Some models use
	AC protection cover x1 provided on an actual basis.		2PIN communication terminal x 2 According to the hardware board communication port, some models use
	4PIN communication terminal x 1 According to the hardware board communication port, some models use		6PIN communication terminal: 2 or 3 or 4 Allocate according to the actual communication status of the hardware board port.

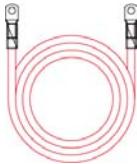
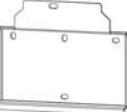
Component	Description	Component	Description
	AC combiner box x10 Some models use		Communication PIN terminal: 14 or 18 or 24 provided on an actual basis.
	AC combiner box cover unlocking tool x1 Some models use		Lead-acid battery temperature sensor cable x 1
	BMSCommunication cable x 1		Lead-acid Battery temperature sensor cable fixing adhesive tape x 2
	CT connecting cable x 1		PV Array Unlocking Tool <ul style="list-style-type: none"> • China x 0 • Europe x 0 • Other regions x 1
	PV Array Unlocking Tool (Europe Only) x 1		Product Documentation x 1
	smart dongle x1 provided on an actual basis.		Magnetic ring fixing cable tie x 2 Models with magnetic rings are issued.

Component	Description	Component	Description
	Magnetic Ring x 1 Some models use		Waterproof gasket x 1 Some models use
	Magnet x 1 Some models use		

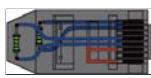
3.2.2 Batteries Deliverables

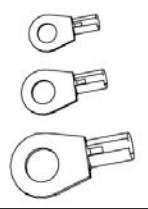
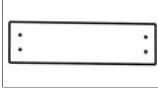
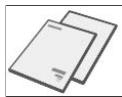
3.2.2.1 LX A5.0-10

Component	Description	Component	Description
	Battery module x 1		(25-8) OT terminal x 4 (5.5-5) OT terminal x 2
	M5PE screw x 2		Warning Label x 1
	Terminal resistor x 1		Electrical Label x 1
	M4*8 screw x 8 (optional) Select the bracket Mounting method for distribution		Battery Bracket x 2 (Optional) Select the bracket Mounting method for distribution

Component	Description	Component	Description
	Product Documentation x 1		Negative power cable (optional) x 1
	Positive Pole power cable (Optional) x 1		Grounding wire (optional) x 1
	Communication cable (optional) x 1		Decorative Cover (Optional) x 1
	Rear Mounting Bracket (Optional) x 4		Rear mounting (optional) x 1
	Bracket (optional) x 1		Bracket screw (optional) x 4

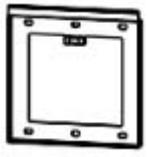
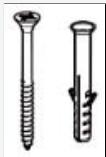
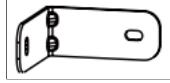
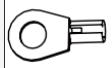
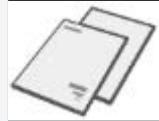
3.2.2.2 LX A5.0-30

Component	Description	Component	Description
	Battery module x 1		Terminal resistor x 1 When connecting to a third-party busbar, Battery must Installation this Terminal resistor.

Component	Description	Component	Description
	<ul style="list-style-type: none"> • M5 OT terminal x 2: Recommended connection 10mm²cable • M8 OT terminal x 4: Recommended connection 50mm²cable • M10 OT terminal x 2: Recommended connection 70mm²cable 		M5*12PE screw x 2
	Bracket x 2 Wall-mounted selection Mounting method with accessories		M6*70Expansion bolt x 4 Wall-mounted selection Mounting method with accessories
	M5*12PE screw x 2 Wall-mounted selection Mounting method with accessories		Marking Template x 1 Wall-mounted selection Mounting method with accessories
	Battery Bracket x 2 (Optional) Select stack Mounting method for distribution		M4*8 screw x 8 Select stack Mounting method for allocation
	Product Documentation x 1		Negative power cable (optional) x 1
	Positive terminal (optional) x 1		Grounding wire (optional) x 1

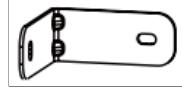
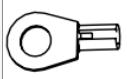
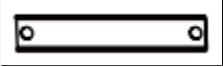
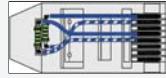
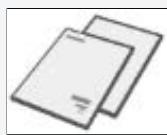
Component	Description	Component	Description
	Communication cable (optional) x 1		Decorative Cover (Optional) x 1

3.2.2.3 Batteries Deliverables(LX U5.4-L)

Component	Description	Component	Description
	Battery x 1		Plastic cover x 1
	Wall mounting bracket x 1		Expansion screwx 2
	locking bracket x 2		Connector x 2
	Grounding terminal x 4		M5 x 8
	M10 x 6		Wire harness fixing plate x 2
	Terminal resistor x 1		Product Documentation x 1

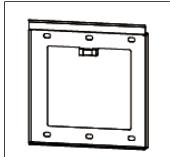
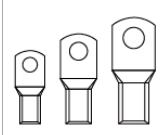
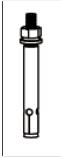
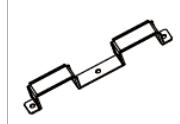
3.2.2.4 Batteries Deliverables(LX U5.4-20)

Component	Description	Component	Description
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	Battery x 1		Plastic cover x 1
	Wall-mounted bracket x 1		Expansion screwx 2
	locking bracket x 2		Connector x 2
	Grounding terminal x 4		M5 x 8
	M10 x 6		Wire harness fixing plate x 2
	Terminal resistor x 1		Product Documentation x 1

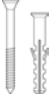
3.2.2.5 Batteries Deliverables(LX U5.0-30)

Component	Description	Component	Description
	Battery x 1		Plastic cover x 1

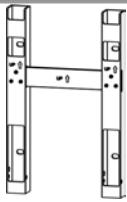
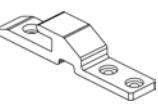
Component	Description	Component	Description
	Wall-mounted x 1		Expansion screwx 2
	locking bracket x 2		<ul style="list-style-type: none"> 35-8 OT terminal x 4: Recommended to connect 25mm² or 35mm² cables 50-8 OT terminal x 4: Recommended to connect 50mm² cable 70-10 OT terminal x 2: Recommended connection with 70mm² cable
	14-5Grounding terminal x 2		M5 x 7
	M10 x 6		Wire harness fixing plate x 1
	Terminal resistor x 1		Product Documentation x 1

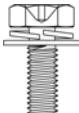
3.2.2.6 Batteries Deliverables(GW14.3-BAT-LV-G10)

Component	Description	Component	Description
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	Battery x 1		Wire Cover x 1
	Lifting rod x 1 (Shipped with the box after October 2025)		Expansion screw x 2
	M5*16 Internal Cross External Hexagon screw x 7		Lock wall locking bracket x 2
	Terminal resistor x 1		Grounding x 1 (To be shipped with the package before October 2025)
	DC OT terminal x 6 (To be shipped with the package before October 2025)		Grounding wire x 1 (Shipped with the box after October 2025)
	Positive terminal power cable x 1 (Shipped with the box after October 2025)		Negative electrode power cable x 1 (Shipped with the box after October 2025)
	Communication cable x 1		Product Documentation x 1

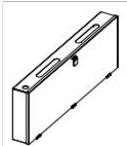
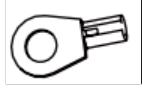
Optional accessories

Component	Description	Component	Description
	Wall bracket x 1		Hook x 4

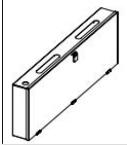
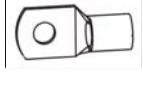
	M5*16 Internal Hexagon External Hexagon x 12		M10 x 4
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3.2.3 Busbar Deliverables

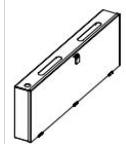
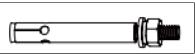
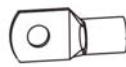
3.2.3.1 BCB-11-WW-0 (optional)

Component	Description	Component	Description
	360A combiner box x 1		M6 x 4
	(25-8) OT terminal x 18 (70-10) OT terminal x 2	-	-

3.2.3.2 BCB-22-WW-0 (optional)

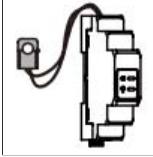
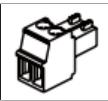
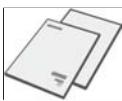
Component	Description	Component	Description
	720A Combiner Box x 1		M6 x 4
	(25-8) OT terminal x 36 (70-10) OT terminal x 6	-	-

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

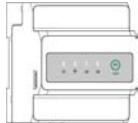
Component	Description	Component	Description
	720A Combiner Box x 1		M6 x 4
	(50-8) OT terminal x 30 (70-10) OT terminal x 6	-	-

3.2.4 Smart Meter Deliverables

3.2.4.1 GMK110

Component	Description	component	Description
	Smart Meter and CT x 1		RS485 communication terminal x 1
	voltage Input side wiring terminal x 1		PIN terminal x 4
	screwdriver x1		Product Documentation x 1

3.2.4.2 GM330

Component	Description	Component	Description
	Smart Meterx1		2PIN connector x1

Component	Description	Component	Description
	PIN terminal x 6		7PIN connector x1
	screwdriver x1		Product Documentation x 1

3.2.5 Smart dongle

3.2.5.1 Ezlink3000

component	Description	component	Description
	smart dongle x1		LAN cable connection port x1
	Product Documentation x1		Unlocking tool x1 Some modules require tools for disassembly. If tools are not provided, they can be unlocked using the buttons on the module body.

3.3 Storage

If the equipment is not put into use immediately, please store it according to the following requirements. After long-term storage, the equipment must be inspected and confirmed by professionals 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 use.
2. To ensure the good electrical performance of the internal electronic components of the Inverter, 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 recommended before putting it into operation.

3. To ensure the performance and service life of Battery, it is recommended to avoid long-term idle storage. Prolonged storage may lead to deep Discharge of the Battery, causing irreversible chemical degradation, capacity decay, or even complete failure. It is advisable to use it promptly. If Battery requires long-term storage, please follow the maintenance requirements below:

Battery model	Initial SOC range for storage	Recommended Storage Temperature	Charging Discharge maintenance cycle ^[1]	Battery maintenance method ^[2]
LX A5.0-10	30%~40%	0~35°C	-20~0°C, ≤1 month 0~35°C, ≤6 months	For maintenance methods, please consult the dealer or after-sales service center.
n*LX A5.0-10				
LX A5.0-30	30%~40%	0~35°C	-20~45°C, ≤6 months	
LX U5.4-L	30%~40%	0~35°C	-20~0°C, ≤1 month 0~35°C, ≤6 months 35~40°C, ≤1 month	For maintenance methods, please consult the dealer or after-sales service center.
LX U5.4-20				
n*LX U5.4-20				
LX U5.0-30				
GW14.3-BAT-LV-G10	30%~40%	0~35°C	-20~35°C, ≤12 months 35~45°C, ≤6 months	

NOTICE

[1] The storage time is calculated from the SN date on the Battery outer 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\(Page 466\)](#).

[2] After the charging maintenance is qualified, if there is a Maintaining Label on the outer box, please update the maintenance information on the Maintaining Label. If there is no Maintaining Label, please record the maintenance time and battery SOC by yourself and keep the data properly for easy maintenance record storage.

Packaging requirements:

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

Environmental requirements:

1. Ensure the 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 operate 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 Inverterstack.

4 Installation

⚠ DANGER

Please use the deliverables included in the shipment for equipment Installation and electrical connections. Otherwise, any resulting equipment damage will not be covered under warranty.

4.1 System Installation and Commissioning Procedure

⚠ DANGER

Please use the deliverables included in the package for equipment Installation and electrical connections. Otherwise, any resulting equipment damage will not be covered under warranty.

Steps	① Installation	② PE	③ PV	④ Battery	⑤ AC	⑥ COM	⑦ Communication module		
Inverter							4G Kit-CN-G20 4G Kit-CN-G21 WiFi/LAN Kit-20 Ezlink3000		
Tools	 		Recommend: PV-C2M-61100	 					
Steps	① Installation						② PE	③ Battery	④ COM
Battery									
Tools	 	 	 	 	 	 	 	 	
Steps	① Installation	② Cable Connections	③ Power	④ Commissioning					
Smart meter						 	 		

Steps	① Installation	② PE	③ PV	④ Battery	⑤ AC	⑥ COM	⑦ Communication module
Inverter							
Tools	 M5 1.5-2N·m	 Recommend: A-2546B	 Recommend: PV-CZM-61100	 M8 5.5-6.6N·m	 M5 2.4-2.6N·m	 52mm 6-7N·m	 71mm 4N·m
① Installation							
Battery							
Tools	 M4 1.4N·m	 M6 6N·m	 M4 1.4N·m	 M6 6N·m	 M6 6N·m	 M6 6N·m	 M6 6N·m
② PE							
③ Battery							
④ COM							
⑤ Power							
⑥ Commissioning							
Smart meter							 SolarGo APP
E50100001							

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 should be within the appropriate range.
3. Installation Location should be kept out of reach of children, and avoid placing 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. If necessary, a sunshade canopy can be constructed.
6. The space must meet the ventilation and heat dissipation requirements of the equipment as well as the operational space requirements.
7. The environment must meet the equipment's Ingress Protection Rating, Inverter, Battery, and smart dongle requirements for both indoor and outdoor Installation;

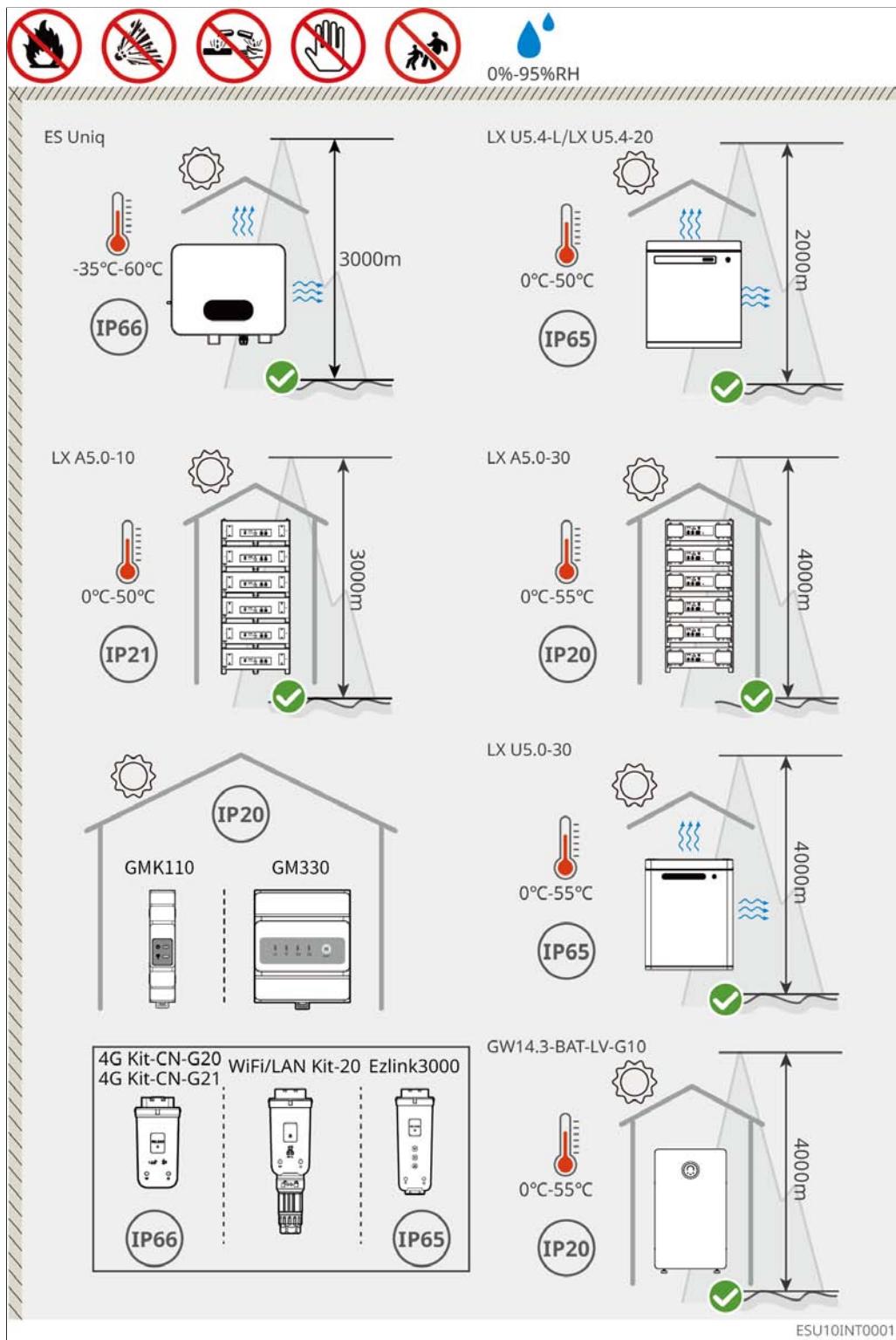
the electric meter must comply with indoor Installation.

8. 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.
9. Equipment Installation Altitude is below Max. Operating Altitude.
10. 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.
11. 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 DC input or AC output lines of Inverter, or incorporate low-pass EMI Filter; or ensure the distance between Inverter and wireless electromagnetic interference devices exceeds 30m.
 - Other Equipment: The distance between the equipment and the radio frequency interference device exceeds 30m.
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.

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 undervoltage Protection.

- LX A5.0-30, LX U5.0-30, GW14.3-BAT-LV-G10: Charge Temperature range: $0 < T \leq 55^{\circ}\text{C}$; Discharge Temperature range: $-20 < T \leq 55^{\circ}\text{C}$
- LX A5.0-10, LX U5.4-L, LX U5.4-20: Charge Temperature range: $0 < T \leq 50^{\circ}\text{C}$; Discharge Temperature range: $-10 < T \leq 50^{\circ}\text{C}$

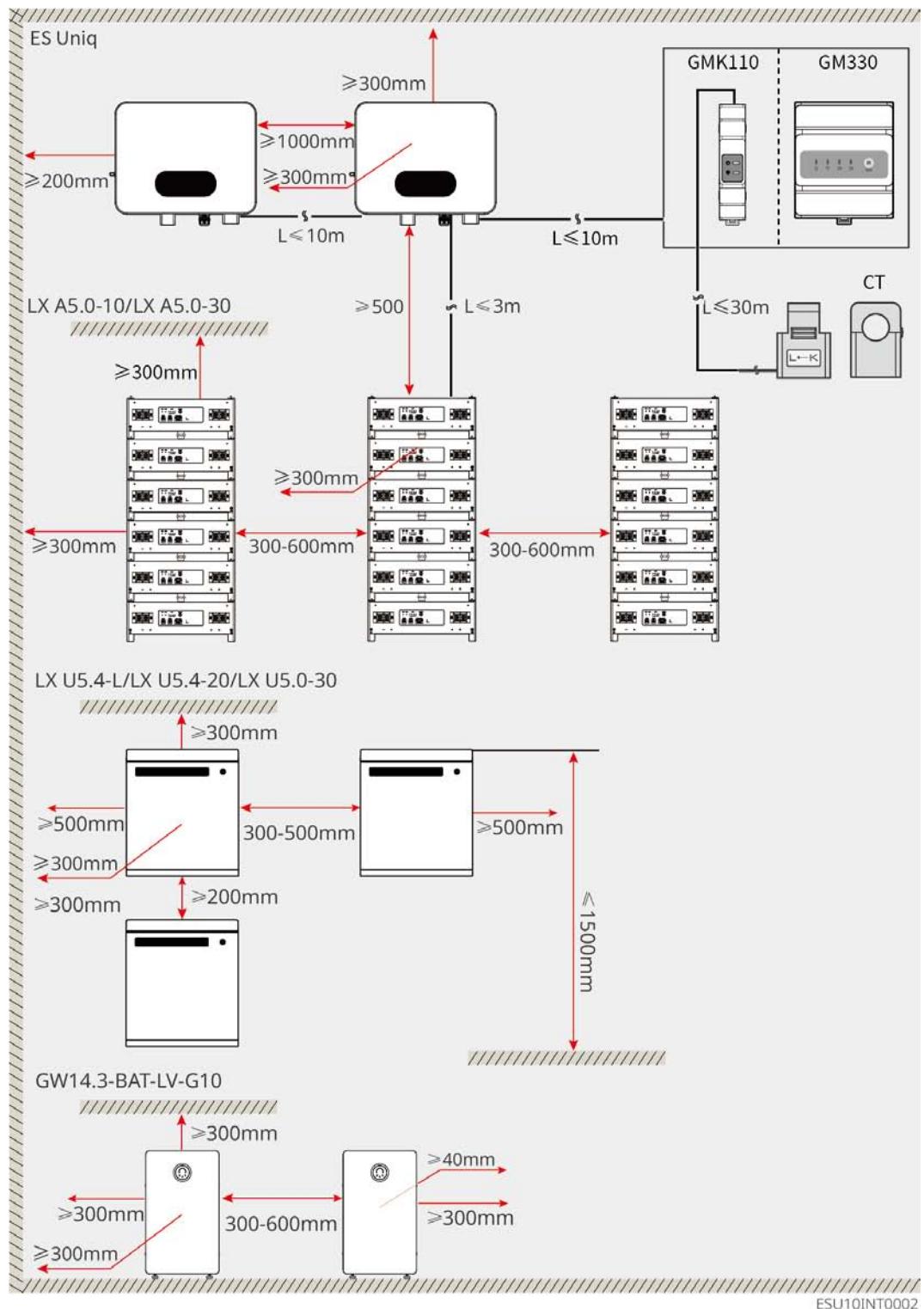


4.2.2 Installation Space Requirements

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 CAT7E Communication cable between Inverter, the cable distance should not exceed 10 meters; when using CAT5E or CAT6E Communication cable, the cable distance should not exceed 5 meters. Communication cable should not exceed 10m, otherwise it may cause communication abnormalities.
- Installation CT requires the use of CAT5E or higher shielded network cable, with a cable distance not exceeding 30 meters.
- The RS485 twisted-pair shielded cable for communication between Inverter and the meter should not exceed 100 meters in length.

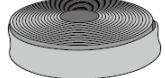


4.2.3 Tool Requirements

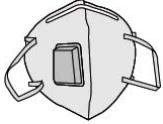
NOTICE

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	Description
	diagonal plier		RJ45
	wire stripper		Level bar
	open-end wrench		PVterminalcrimp tool PV-CZM-61100、A-2546B
	hammer drill (Drill bit $\Phi 8\text{mm}$)		torque wrench M4、M5、M6、M8
	rubber hammer		socket wrench
	Marker pen		multimeter Range $\leq 600\text{V}$
	Heat shrink tubing		Hot Air Gun
	cable tie		Vacuum cleaner

personal protective equipment

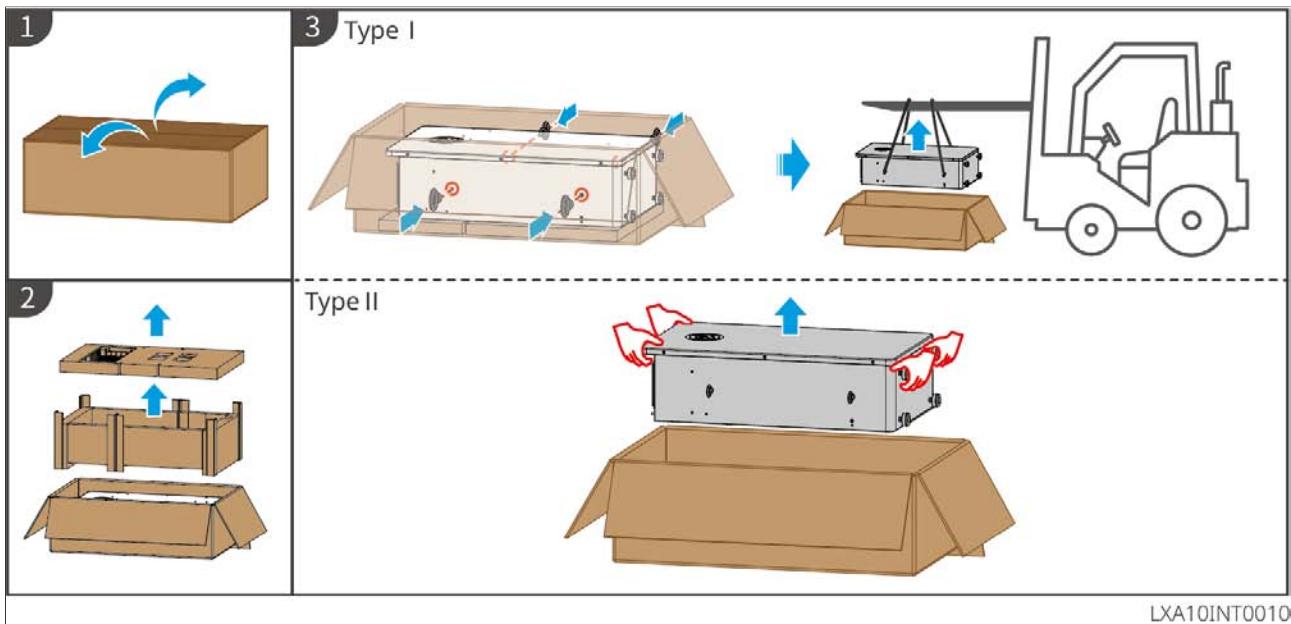
Tool type	Description	Tool type	Description
	Insulated gloves, protective gloves		Dust mask
	goggle		Safety shoes

4.3 Equipment Handling

⚠ CAUTION

1. During transportation, handling, and Installation operations, it is necessary to comply with the laws, regulations, and relevant standards of the country or region where the operations are conducted.
2. Before Installation, it is necessary to move Equipment Handling to the Installation location. To prevent personal injury or equipment damage during the handling process, please NOTICE the following matters:
3. Please equip the corresponding personnel according to the device Weight to prevent the device from exceeding the Weight range that the human body can handle, thereby avoiding injury to personnel.
4. Please wear safety gloves to avoid injury.
5. Please ensure the equipment remains balanced during handling to avoid dropping.
6. The Battery system can be removed from the packaging using a crane or hoisting method and transported to the Installation location.
 - Crane requirements (GW14.3-BAT-LV-G10): Load capacity $\geq 180\text{kg}$
7. When lifting and moving equipment, please use flexible slings or straps. The lifting lugs and ropes for GW14.3-BAT-LV-G10 must meet the following requirements:
 - Lifting rings: 4 M10 lifting rings, load-bearing capacity $\geq 260\text{ kg}$
 - Lifting rope: 1 piece, rope length $\geq 2.5\text{m}$, load-bearing capacity $\geq 600\text{kg}$

GW14.3-BAT-LV-G10:



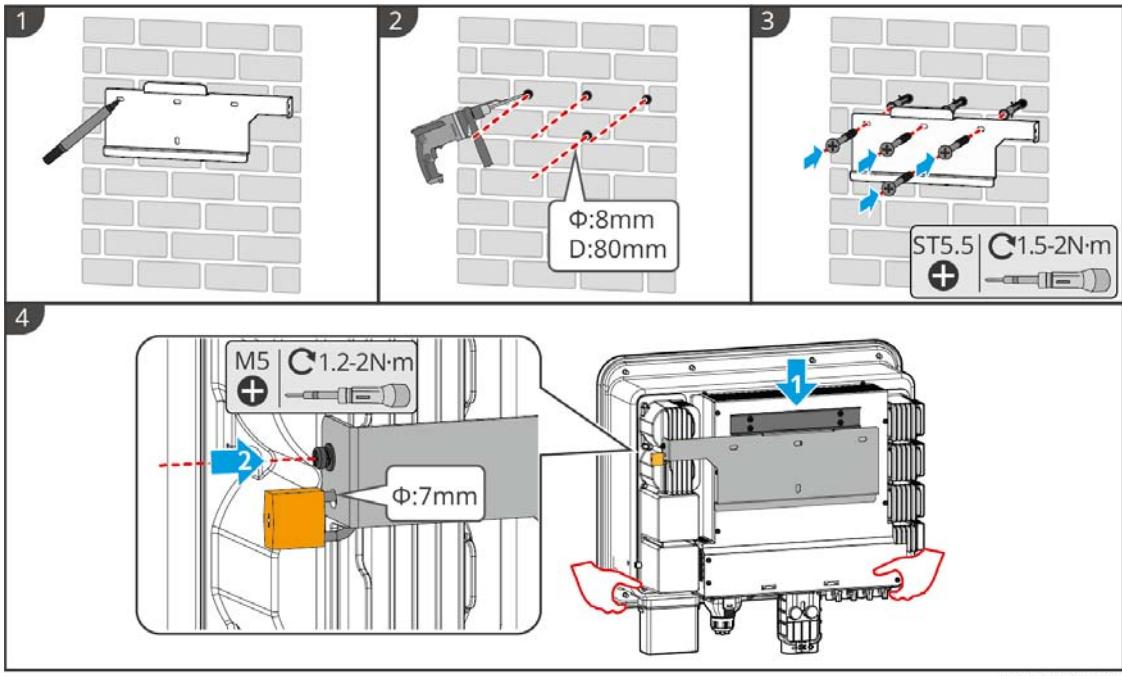
LXA10INT0010

4.4 Installing the Inverter

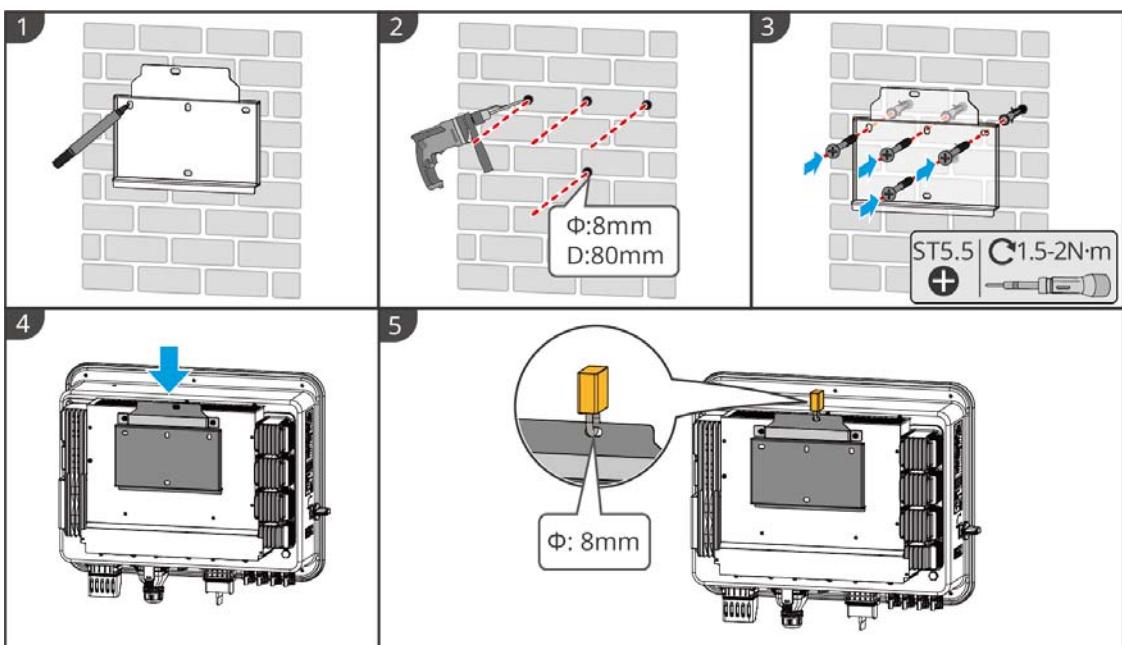
⚠ CAUTION

- When drilling, ensure the drilling position avoids water pipes, cables, etc. inside the wall to prevent DANGER.
- When drilling, wear goggle and a dust mask to prevent dust from inhalation entering the respiratory tract or falling into the eyes.
- Ensure that Inverter Installation is securely fastened to prevent falling and injuring personnel.

1. Place the mounting plate horizontally on the wall and use a marker to mark the drilling positions.
2. Use hammer drill for punching.
3. Use expansion bolt to secure the Inverter mounting plate bracket to the wall.
4. Mount the Inverter onto the backplate. After mounting, secure the backplate and Inverter using screw to ensure the Inverter Installation is stable.



ESU10INT0005



ESU10INT0007

4.5 Installing the Battery System

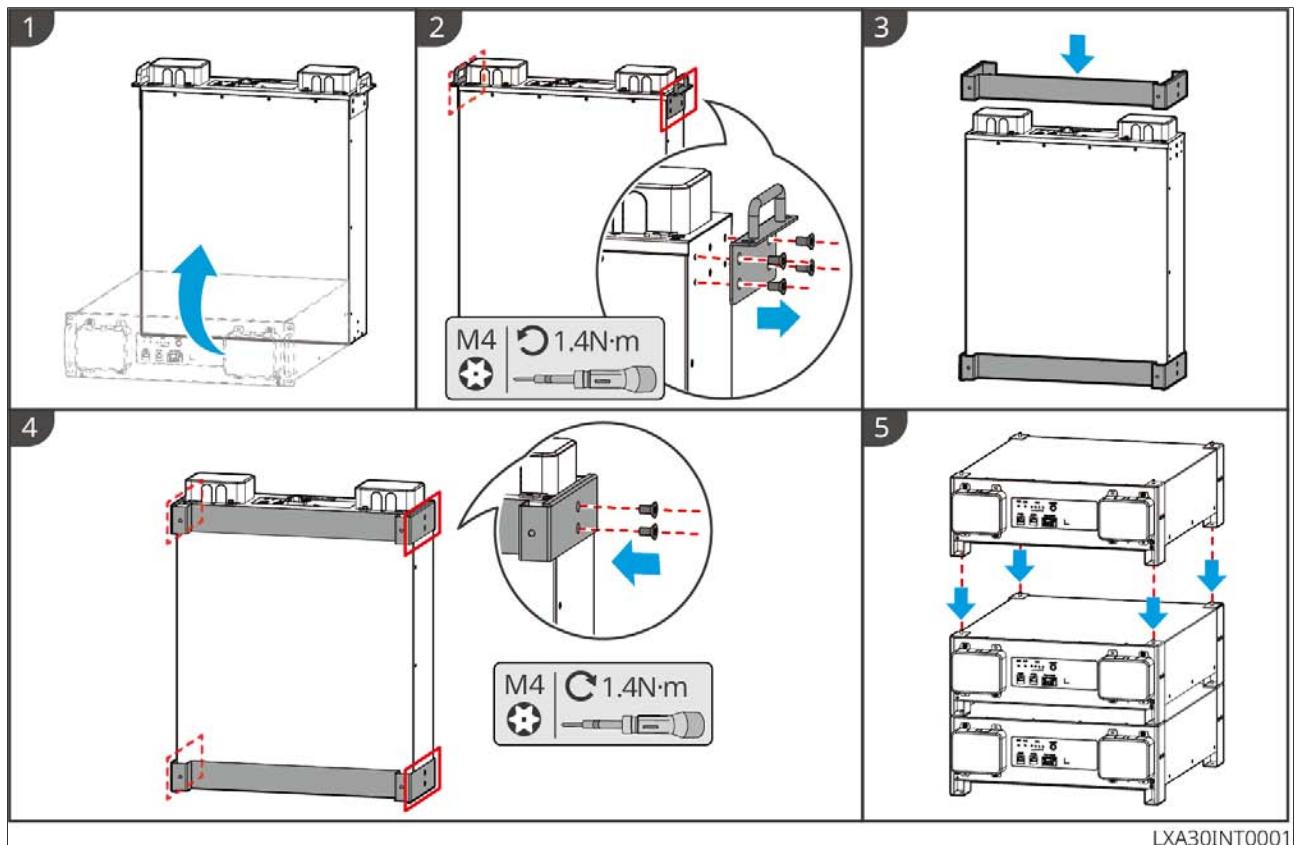
4.5.1 LX A5.0-30

LX A5.0-30: Ground Stacking

NOTICE

The maximum stacking height for floor stacking is 6 Battery units.

1. Place the Battery vertically and remove the Battery Handle.
2. Mount the bracket Installation onto the Battery and secure it with screw.
3. Lay flat Battery, stack multiple Battery Installation. Ensure to insert locating pin into the positioning hole.

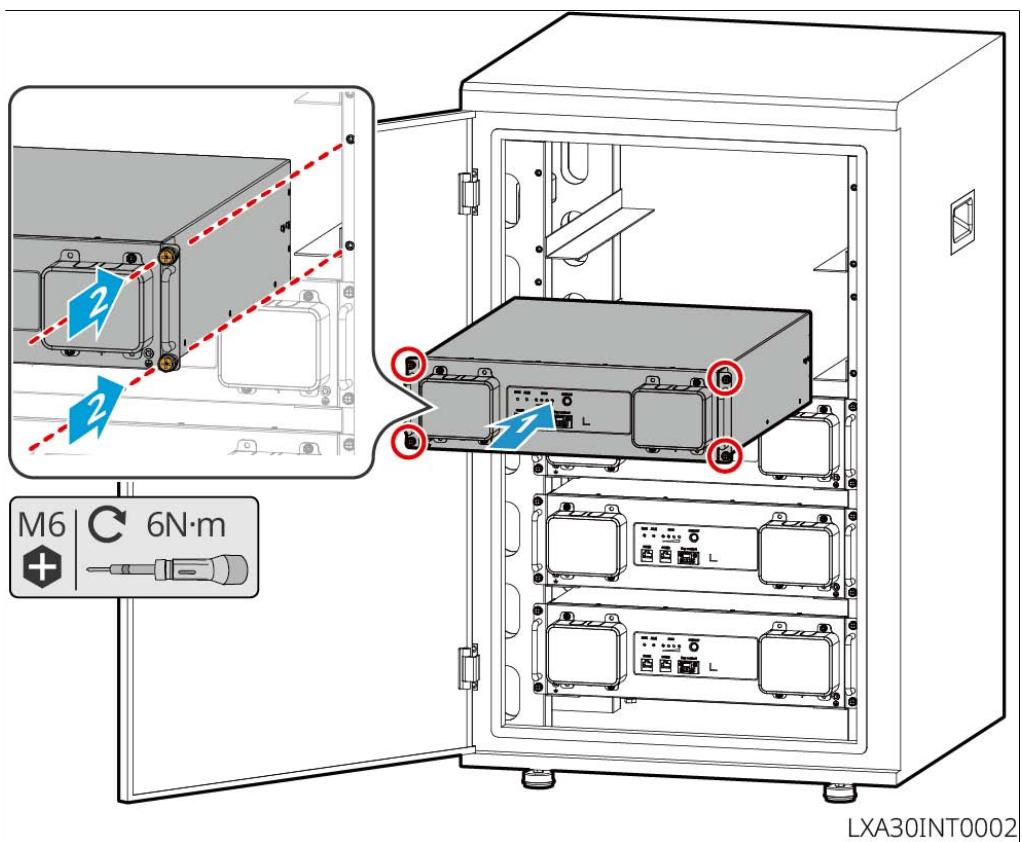


LX A5.0-30: Cabinet Installation

NOTICE

- It is recommended to install Installation in a 19-inch standard cabinet with dimensions of length*width: 600*800mm or larger, and height: selected based on the thickness of Battery (133mm) or greater.
- For cabinet installation, it is necessary to affix electrical labels and warning labels on the front panel of any Battery (these labels are additionally shipped as accessories).

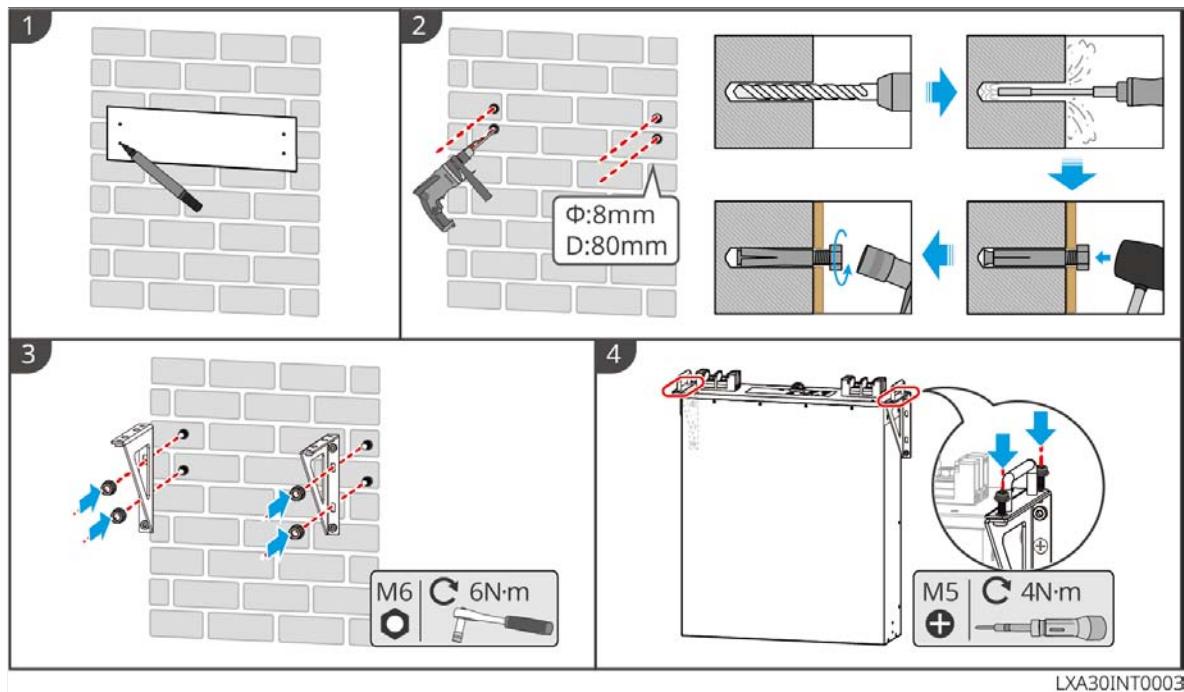
1. Place the Battery onto the guide rails of the cabinet, and use the screw to fasten the Battery to the cabinet from the Handle.



LX A5.0-30: Wall-mounted Installation

1. Determine the punching position according to the marked template, and mark the punching position with a marker pen.
2. Use hammer drill for punching.
3. Installing the Battery System mounting bracket
4. Mount the Battery Installation on the bracket, and secure the Battery to the

bracket using screw.



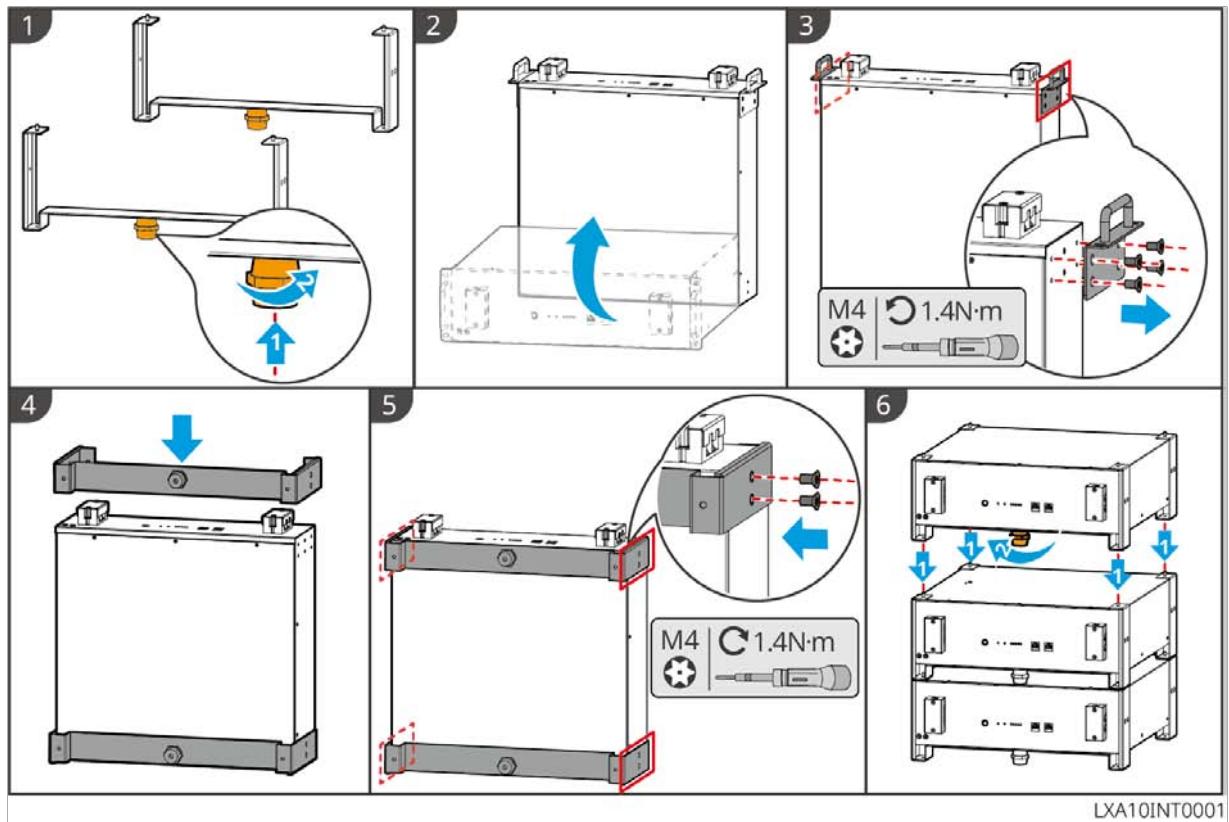
4.5.2 LX A5.0-10

LX A5.0-10: Ground Stacking

NOTICE

A maximum of 6 Battery can be stacked on the ground.

1. Place the Battery vertically.
2. Place the bracket onto the Battery and remove the Handle from the Battery.
3. Place another bracket onto the Battery.
4. Fix the bracket to the Battery using screw, and lay the Battery flat.
5. Stack multiple Battery Installation.
 - Align the locating pin on the lower Battery bracket with the positioning holes on the upper Battery bracket, and insert the locating pin into the positioning holes.

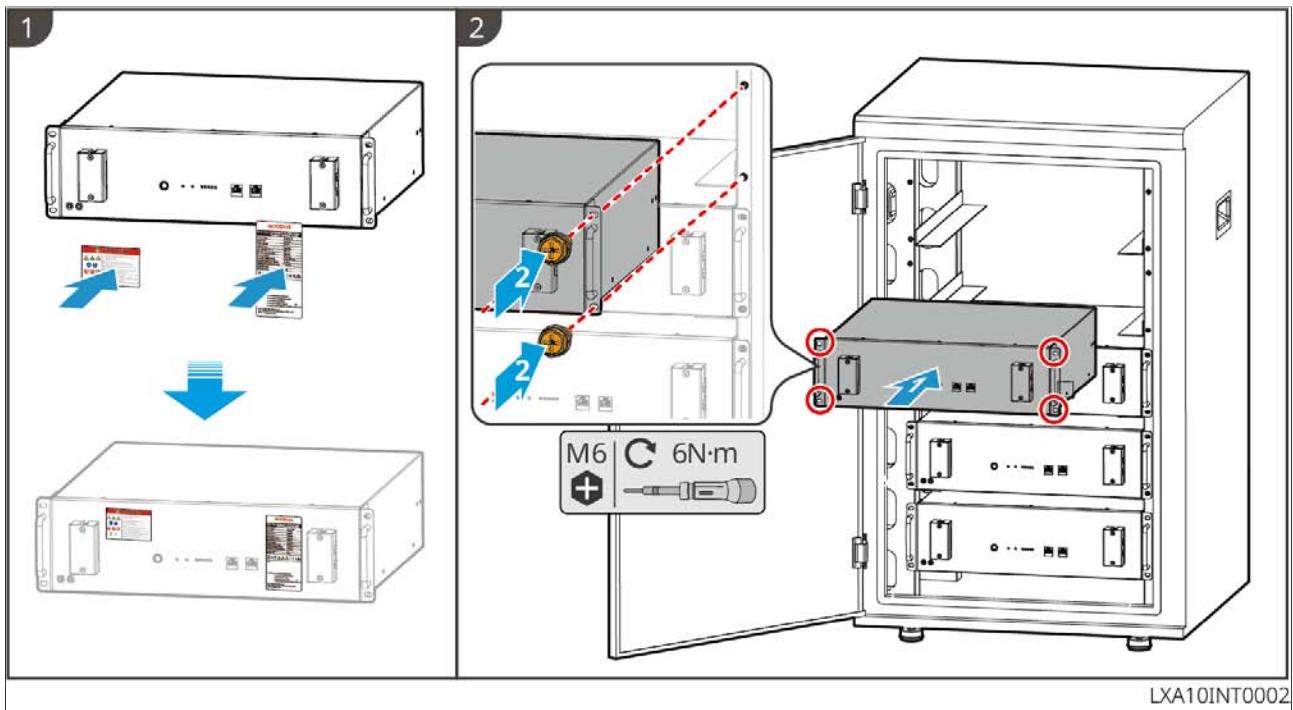


LX A5.0-10: Cabinet Installation

NOTICE

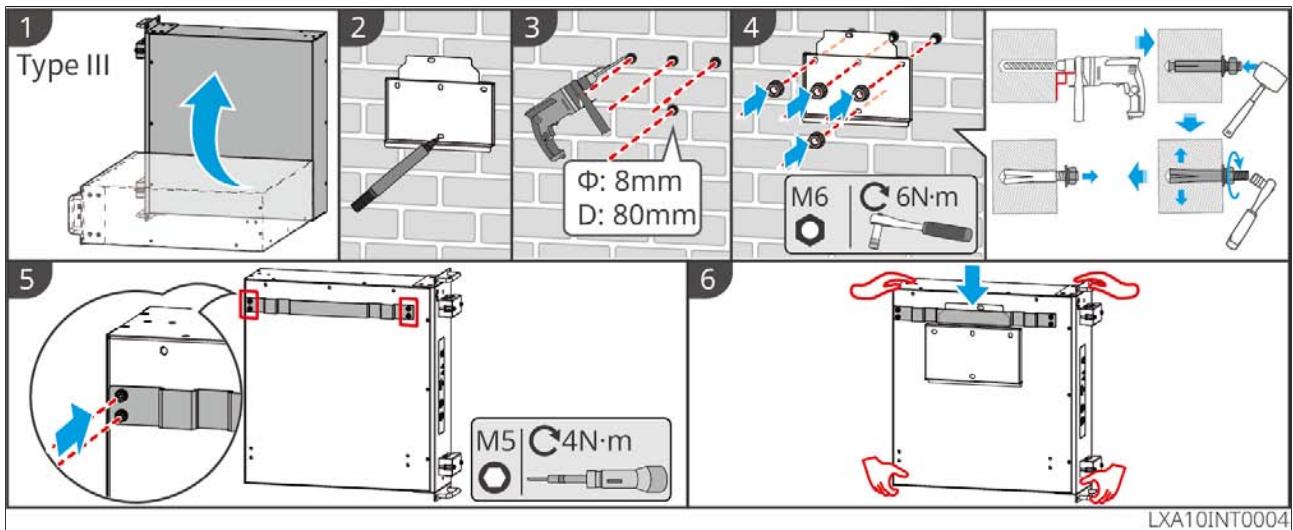
- A standard 19-inch cabinet is recommended, with physical dimensions of 600*800mm or larger in length and width, and height selectable based on the number of Battery connected in parallel.
- For cabinet installation, it is necessary to affix electrical labels and warning labels on the front panel of any Battery (these labels are additionally shipped as accessories).

1. Attach the electrical labels and warning labels to any front panel position of the Battery.
2. Place the Battery onto the guide rails of the cabinet, and use the screw to fasten the Battery to the cabinet from the Handle.



LXA10INT0002

LX A5.0-10: Wall-mounted Installation



LXA10INT0004

4.5.3 LX U5.4-L

LX U5.4-L: Floor-mounted Installation

NOTICE

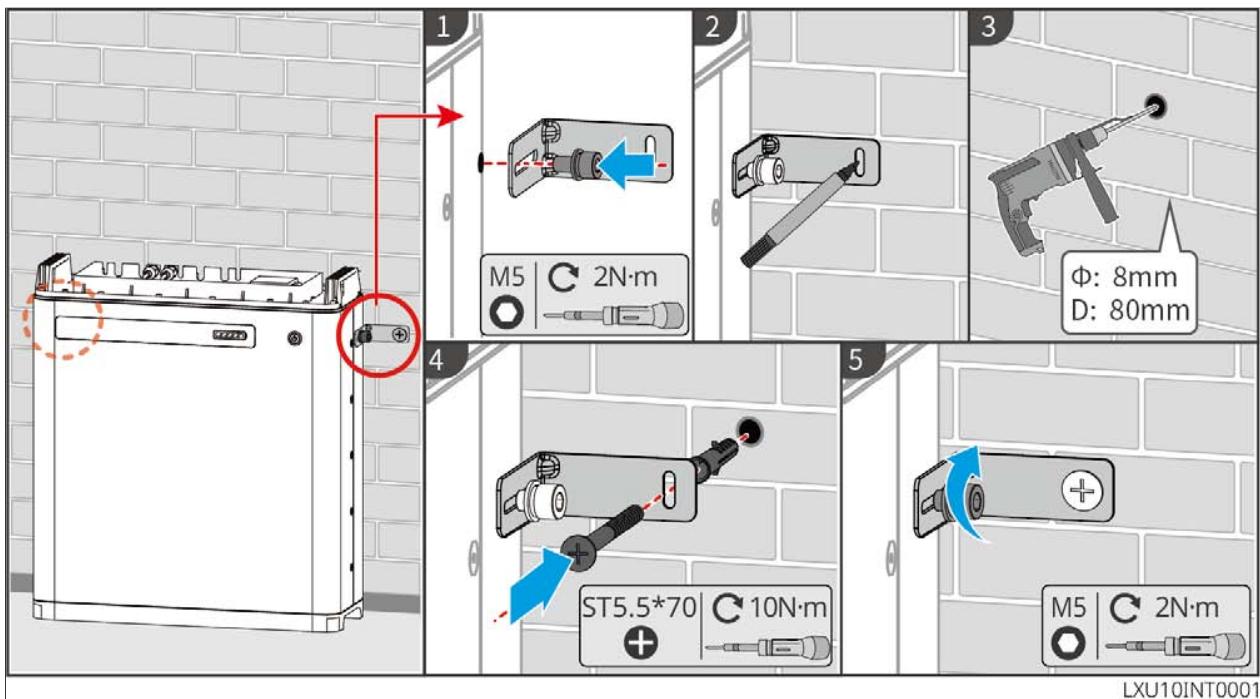
If parallel operation is required, check and select Battery with similar production dates and identical gear numbers for use together.

Step 1: Fasten the locking bracket to the Battery.

Step 2: Keep the Battery parallel to the wall, ensuring the locking bracket is flush against the wall. Verify secure placement, mark the drilling positions with a marker, and then remove the Battery.

Step 3: Use hammer drill to drill holes in the wall (aperture: 10mm, depth: 80mm).

Step 4: Tighten the expansion bolt with a torque requirement of 10 N·m.



LX U5.4-L: Wall-mounted Installation

NOTICE

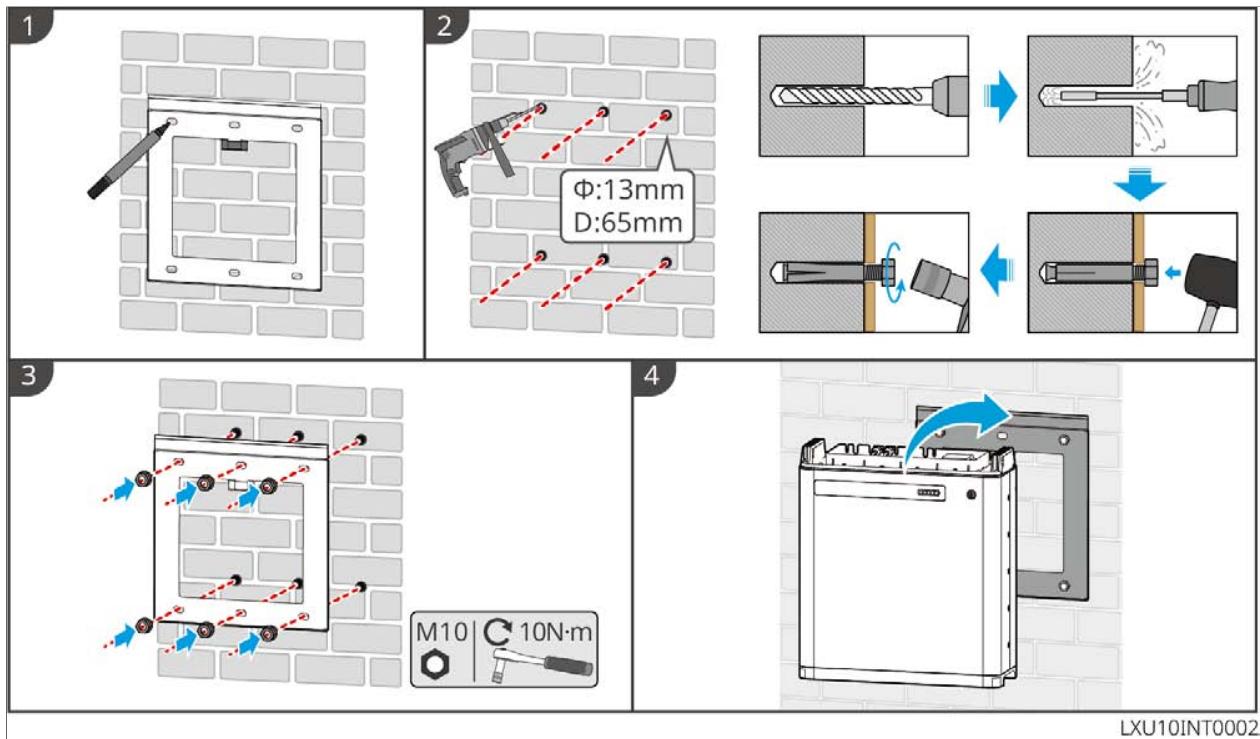
Wall-mounted installation requires two people.

Step 1: Press the wall bracket firmly against the wall. Ensure it is securely positioned, mark the drilling holes with a marker, then remove the wall bracket.

Step 2: Use hammer drill to drill holes in the wall (aperture: 13mm, depth: 65mm).

Step 3: Tighten the M10 Expansion bolt with a torque requirement of 10 N·m.

Step 4: Connect the Battery Installation to the mounting plate.



4.5.4 LX U5.4-20

LX U5.4-20: Floor-mounted Installation

NOTICE

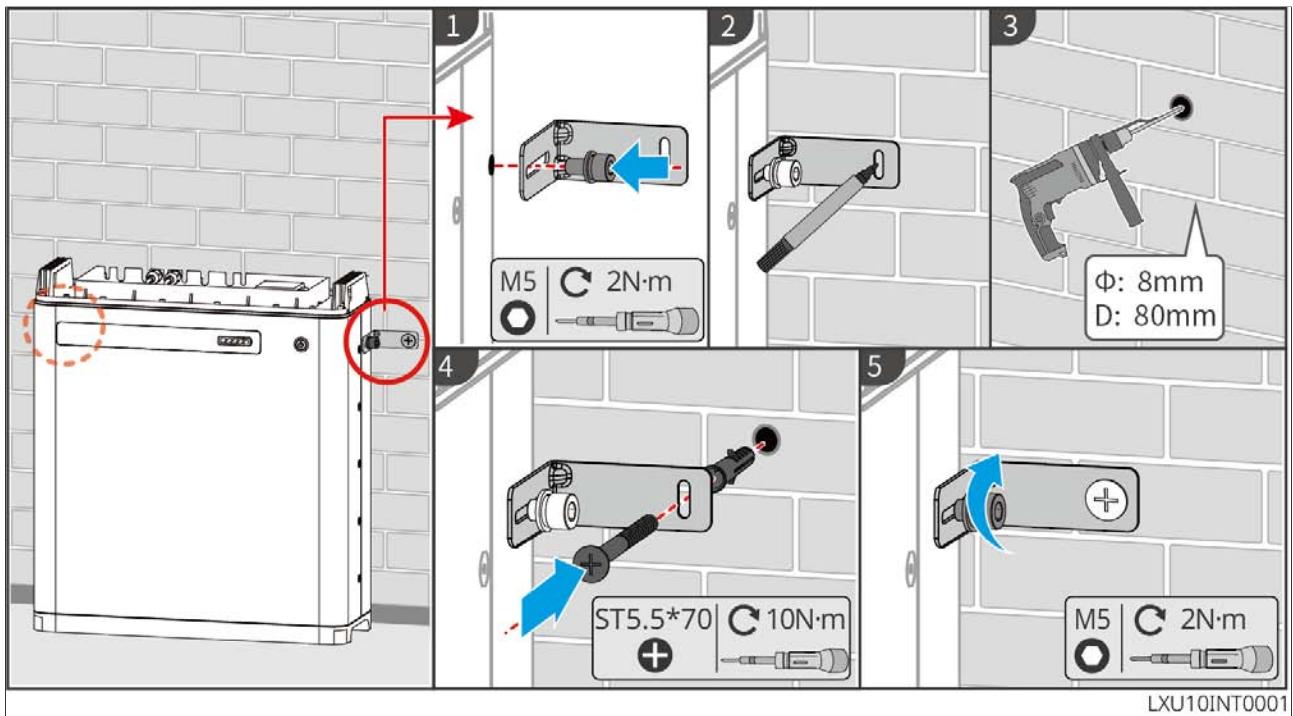
If parallel operation is required, check and select Battery with similar production dates and the same gear number for use together.

Step 1: Fasten the locking bracket to the Battery.

Step 2: Keep the Battery parallel to the wall, ensuring the locking bracket is flush against the wall. Confirm secure placement, mark the drilling positions with a marker, and then remove the Battery.

Step 3: Drill holes in the wall using hammer drill.

Step 4: Tighten the expansion bolt.



LX U5.4-20: Wall-mounted Installation

NOTICE

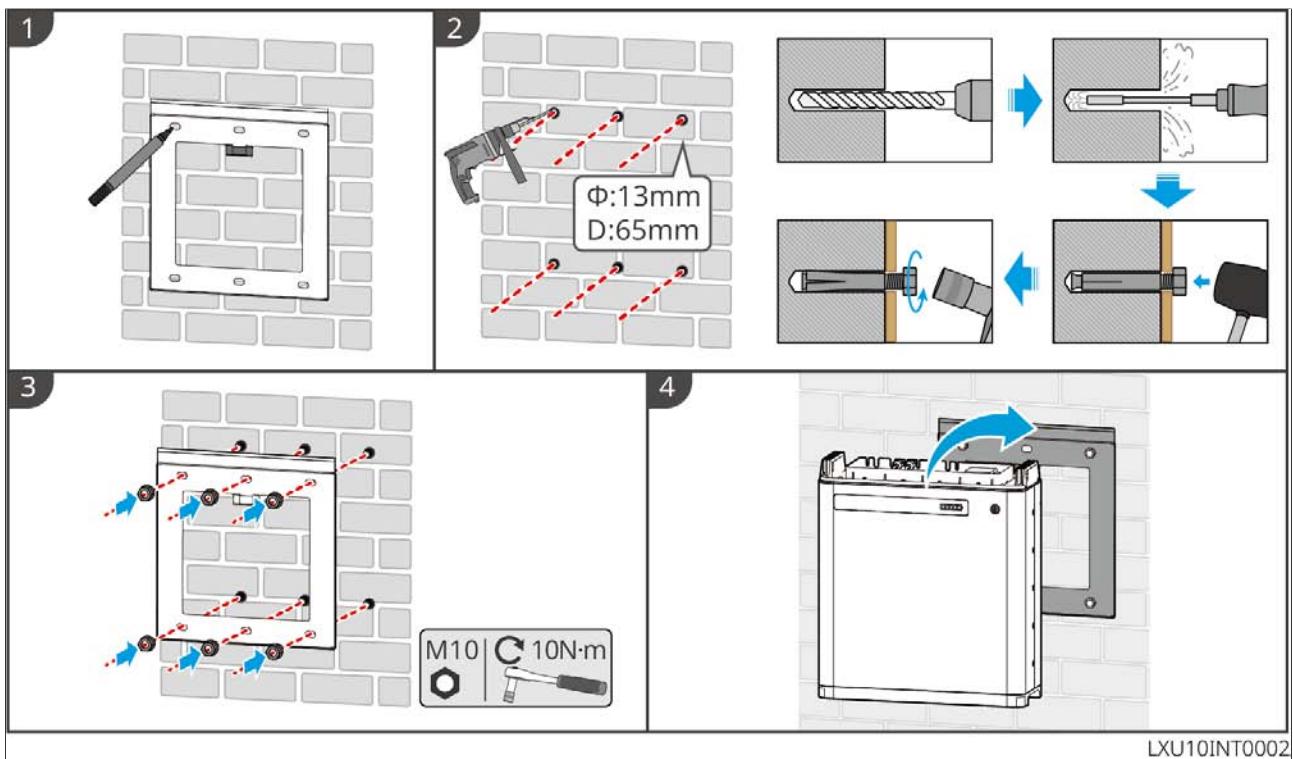
Wall-mounted installation requires two people.

Step 1: Align the wall-mounted bracket flush against the wall surface, then use a marker pen to indicate the drilling positions.

Step 2: Use hammer drill to drill holes in the wall.

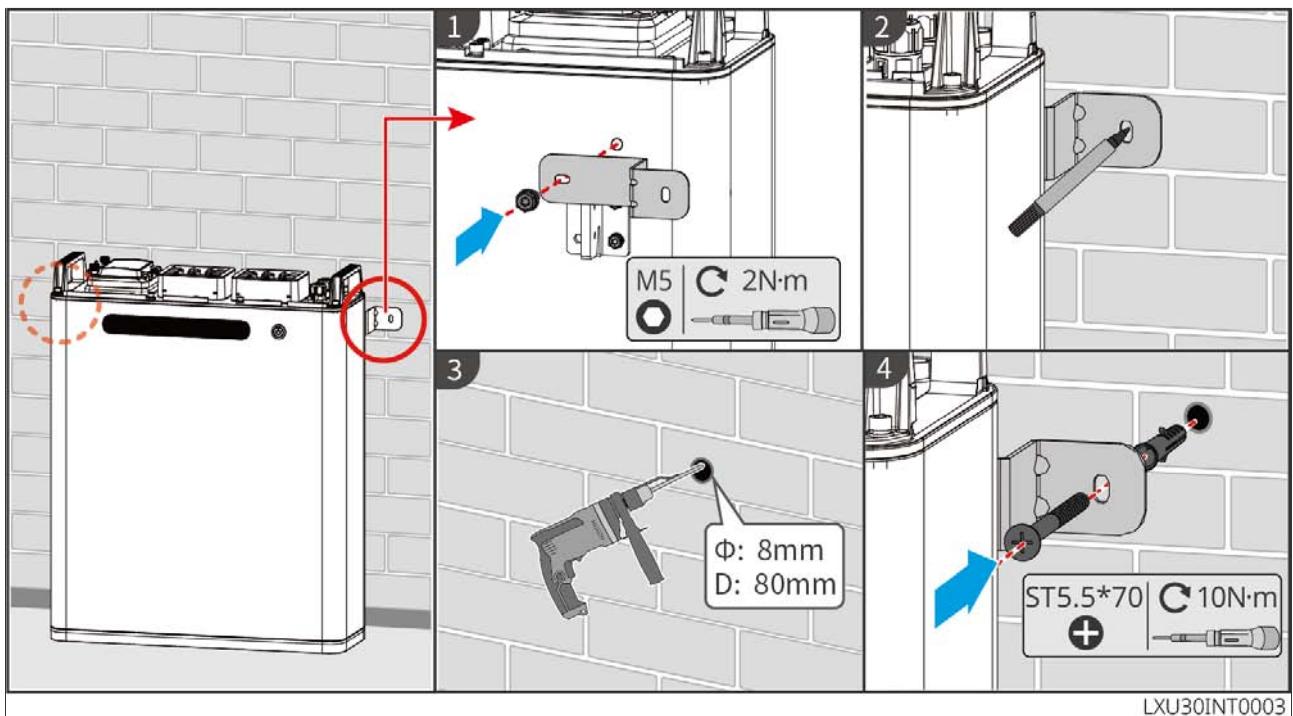
Step 3: Tighten the mounting plate.

Step 4: Connect the Battery Installation to the mounting plate.

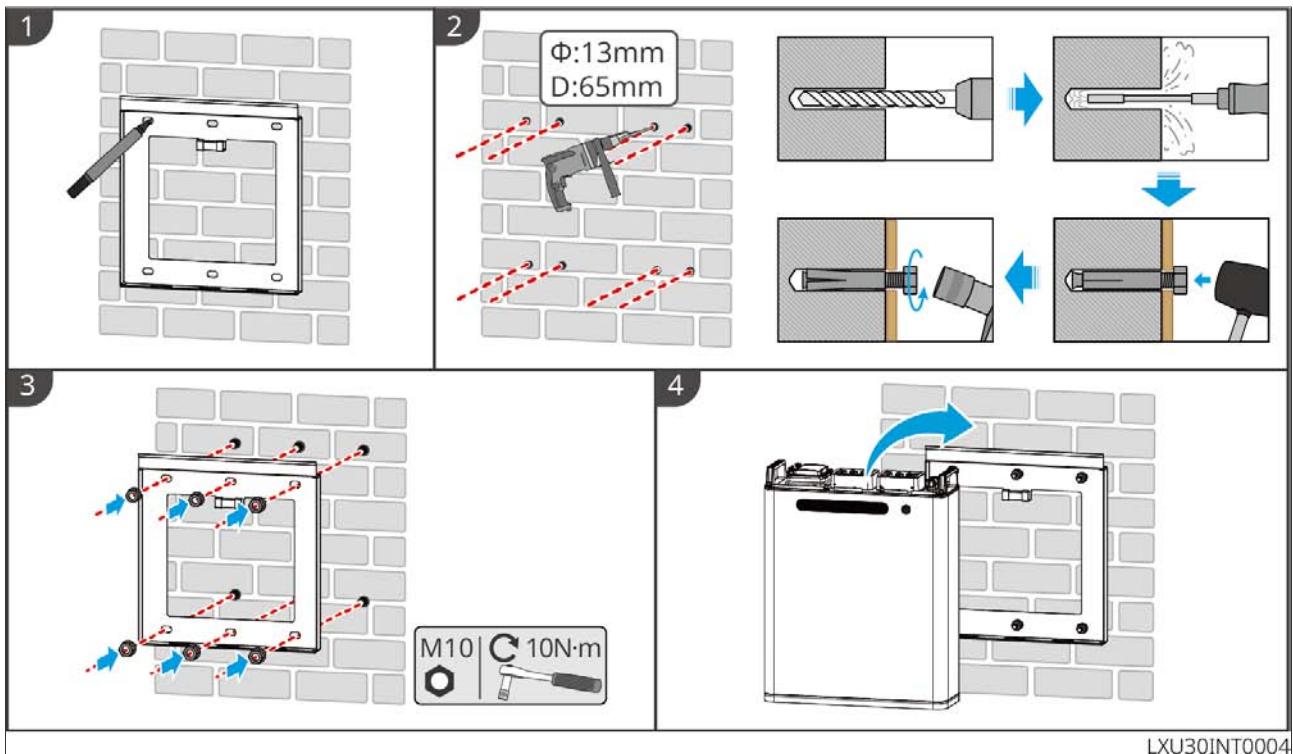


4.5.5 LX U5.0-30

LX U5.0-30: Floor-mounted Installation



LX U5.0-30: Wall-mounted Installation

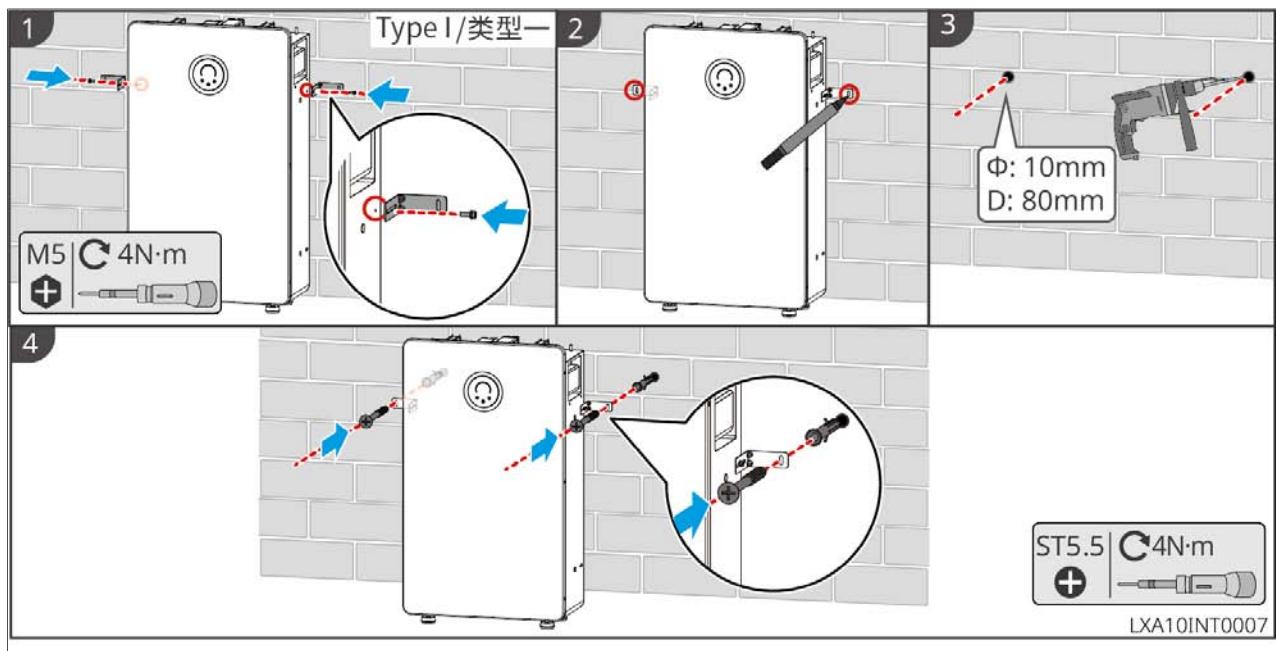


4.5.6 GW14.3-BAT-LV-G10

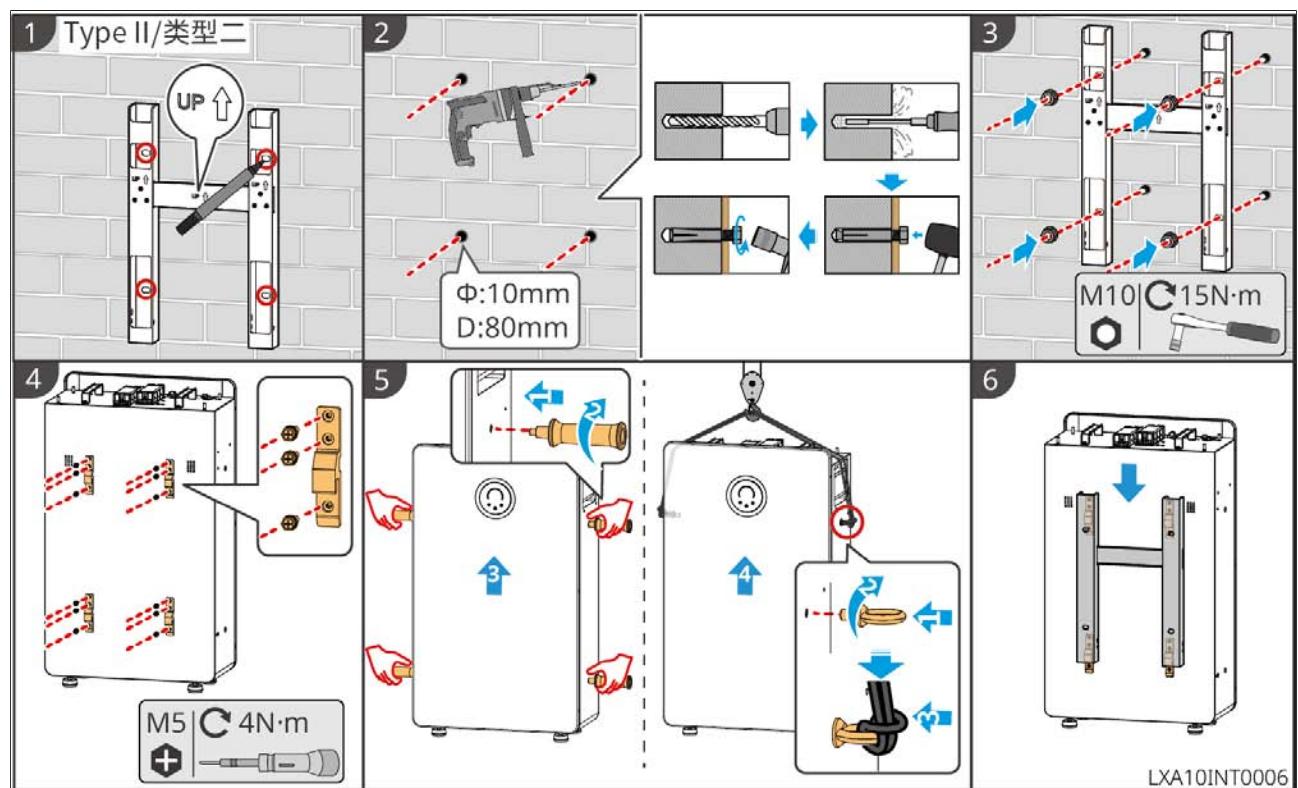
NOTICE

- Wall mounting requires two people.

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



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

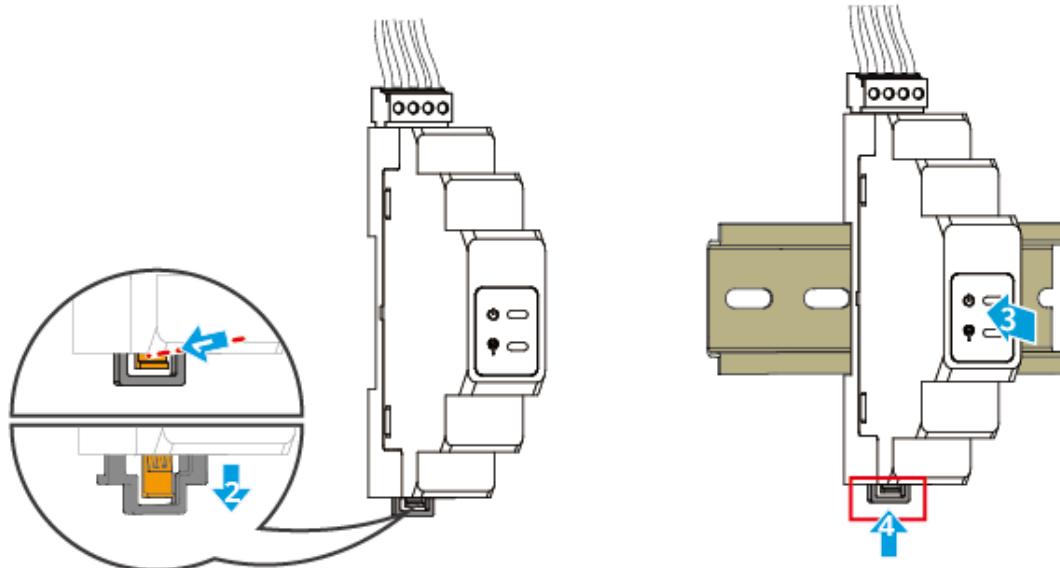


4.6 Installing the Smart Meter

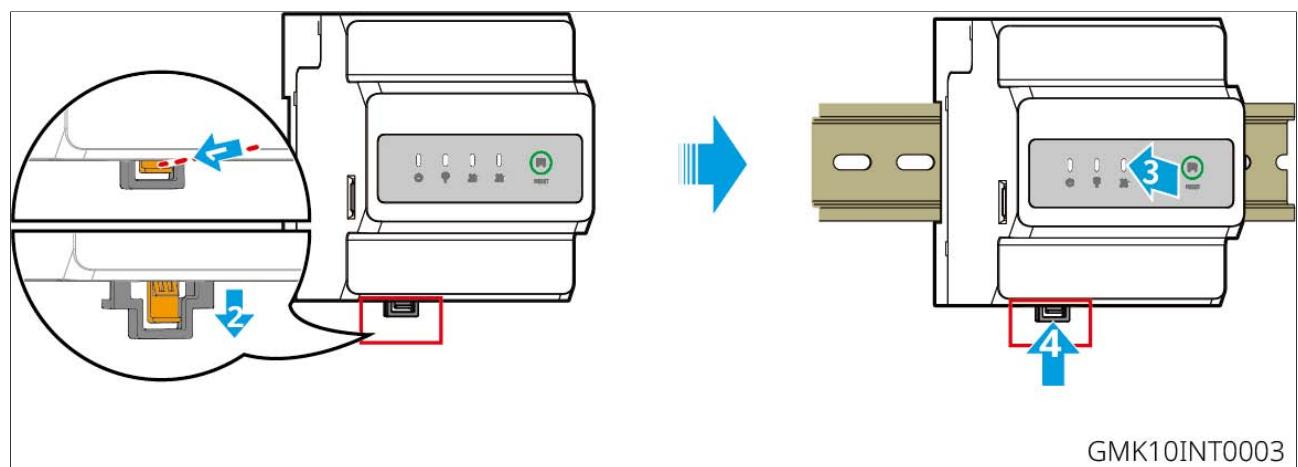
⚠️WARNING

In areas with lightning DANGER, if the meter cable length exceeds 10m and the cable is not installed with grounded Steel conduit wiring, it is recommended to install an external lightning protection system.

GMK110



GM330



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 cables and components used, must comply with local laws and regulations.
- Before performing electrical connections, 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 routed separately from different types of cables. Intertwining or cross-routing 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 crimp wiring terminal, ensure that the conductor part of the cable is in full contact with the terminal terminal. Do not crimp the cable insulation together with the terminal terminal, as this may cause the equipment to malfunction or lead to unreliable connections, resulting in overheating and subsequent damage to the Inverter terminal busbar.

NOTICE

- When performing electrical connections, wear safety shoes, protective gloves, insulating 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

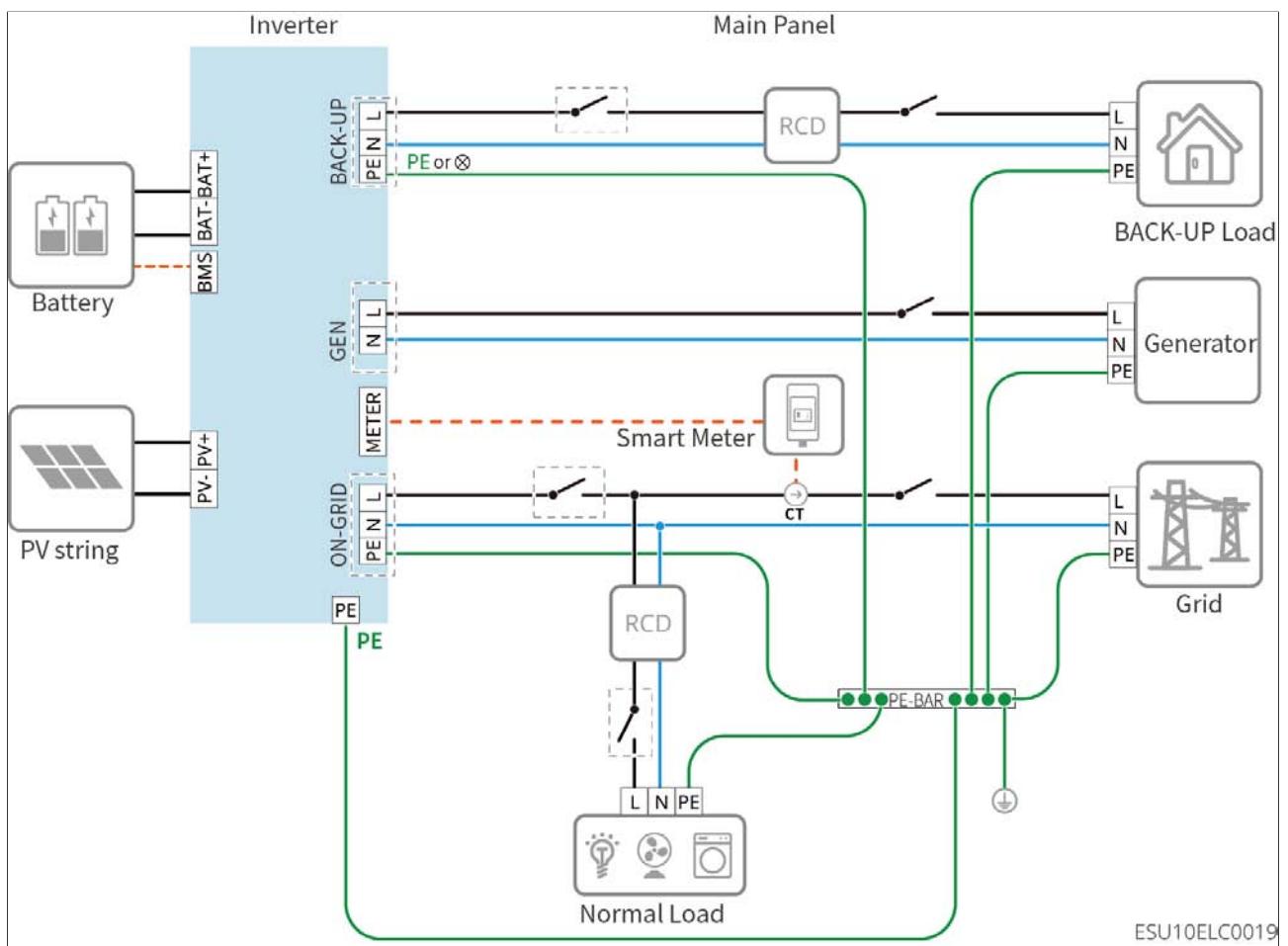
- According to the regulatory requirements of different regions, the wiring methods of the N line and PE line for Inverter ON-GRID and BACK-UP port vary. Specific configurations should comply with local regulations.
- ON-GRID AC built-in relay. When the Inverter is in off-grid mode, the built-in ON-GRID relay is in the open state; when the Inverter is in on-grid operation mode, the built-in ON-GRID relay is in the closed state.
- When the Inverter power on, the BACK-UP AC port is live. If maintenance is required on the BACK-UP Loads, please Inverter the power off to avoid electric shock.

The N and PE wires are separately connected in the distribution box.

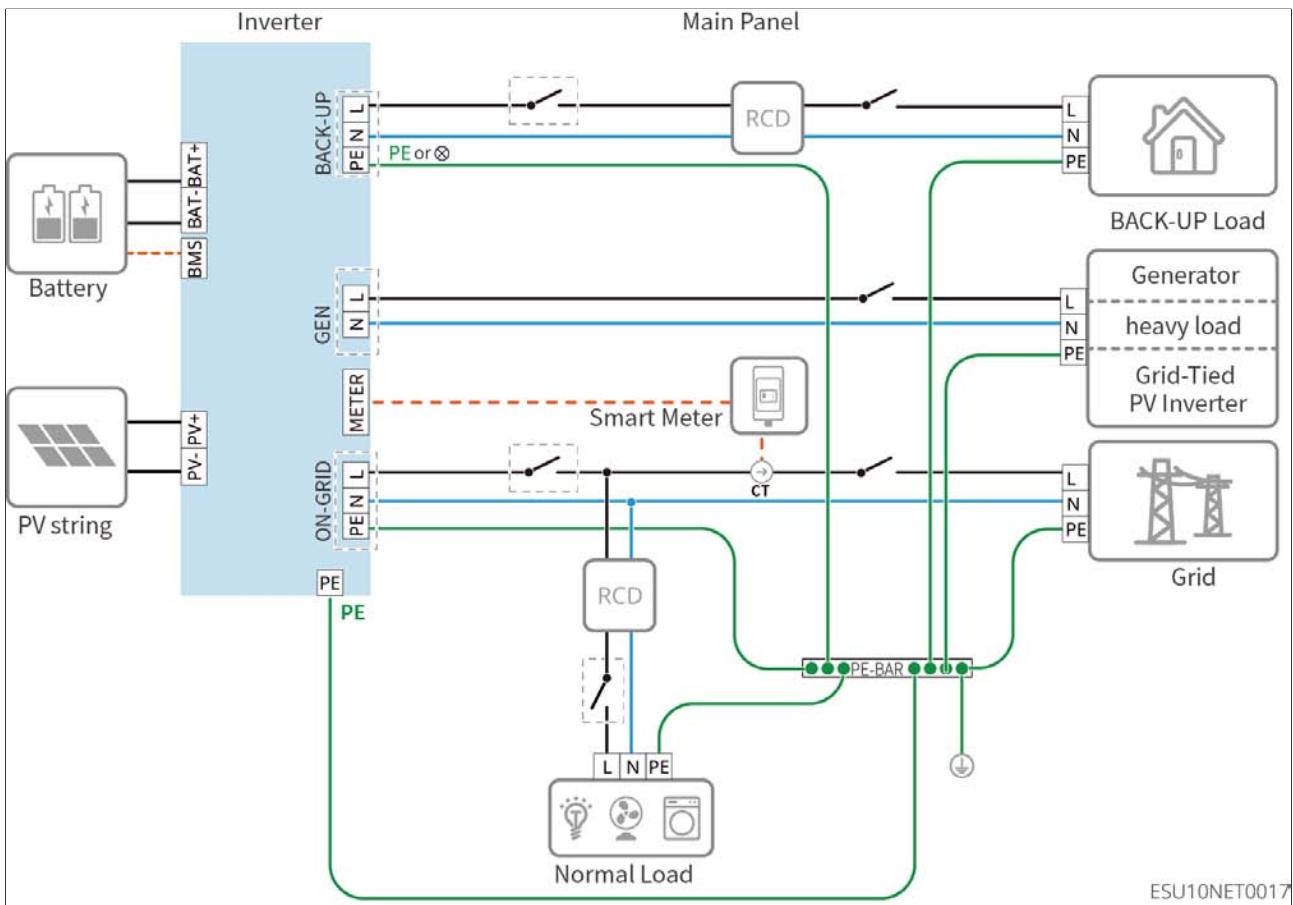
NOTICE

- Please ensure that the PE cable connection of the BACK-UP is correct and secure. Otherwise, the BACK-UP function may malfunction when Utility grid fault occurs.
- The following wiring methods apply to regions other than Australia, New Zealand, etc.:

General scenario



Microgrid scenario

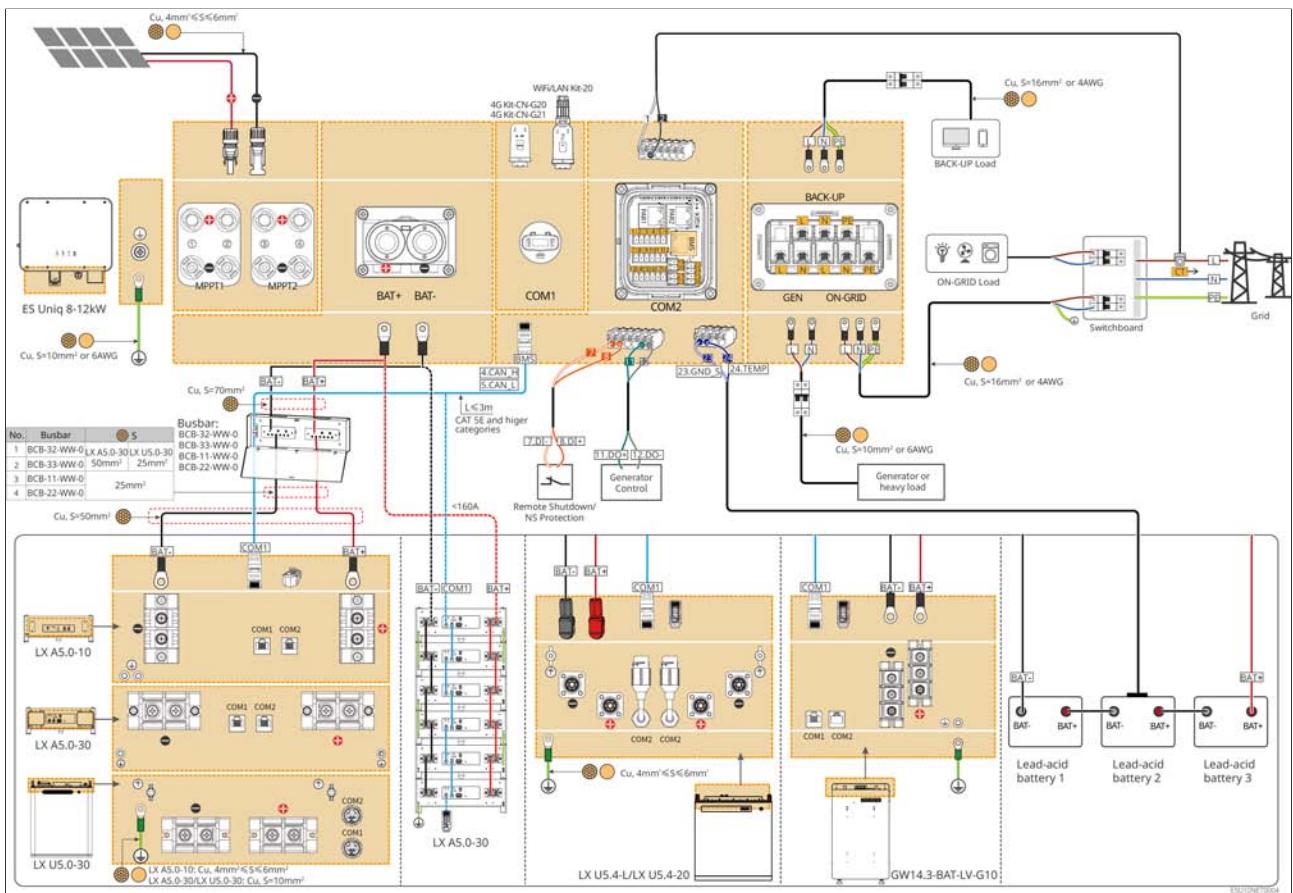


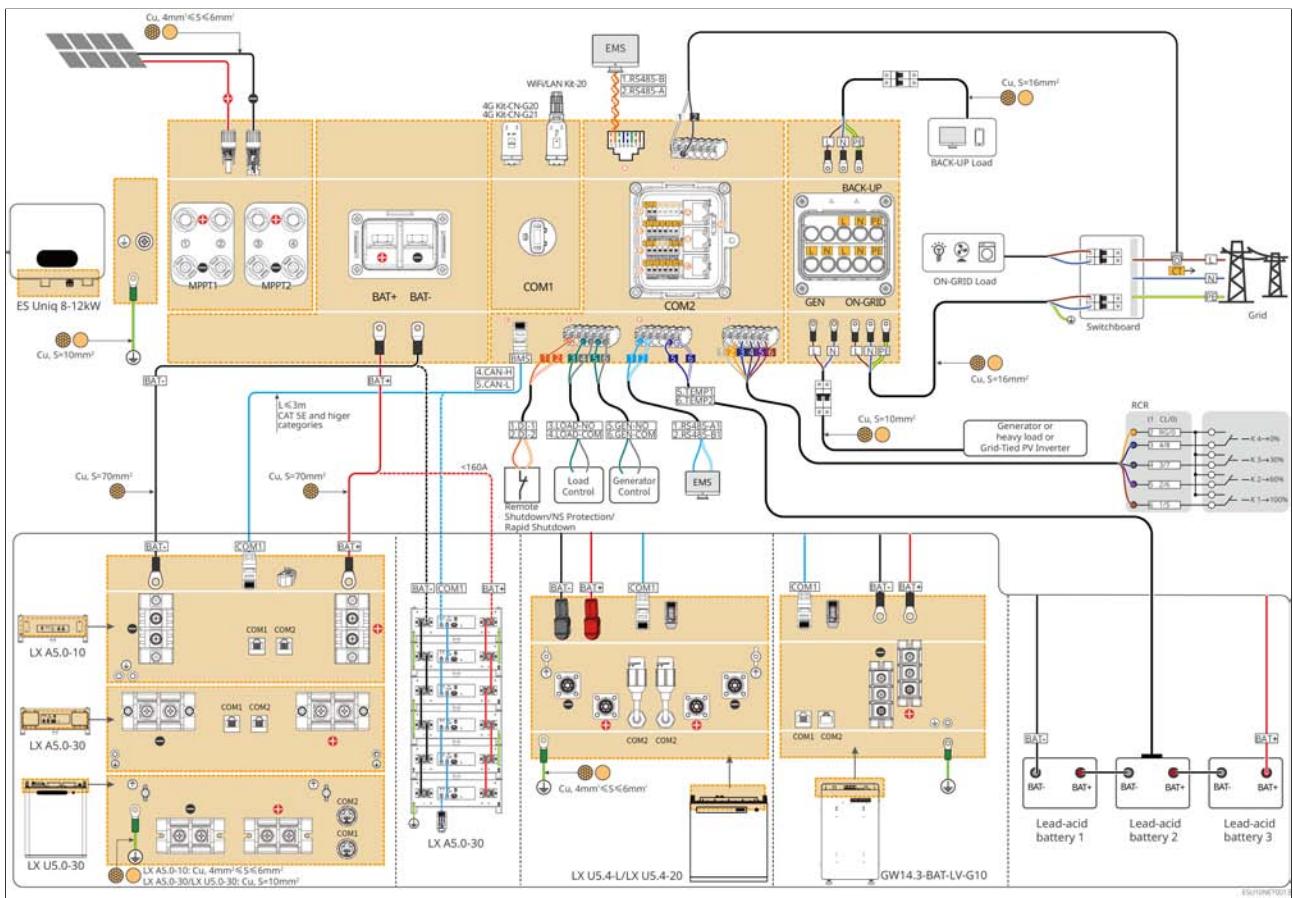
5.2 Detailed System Wiring Diagram

5.2.1 Detailed System Wiring Diagram for Single Inverter

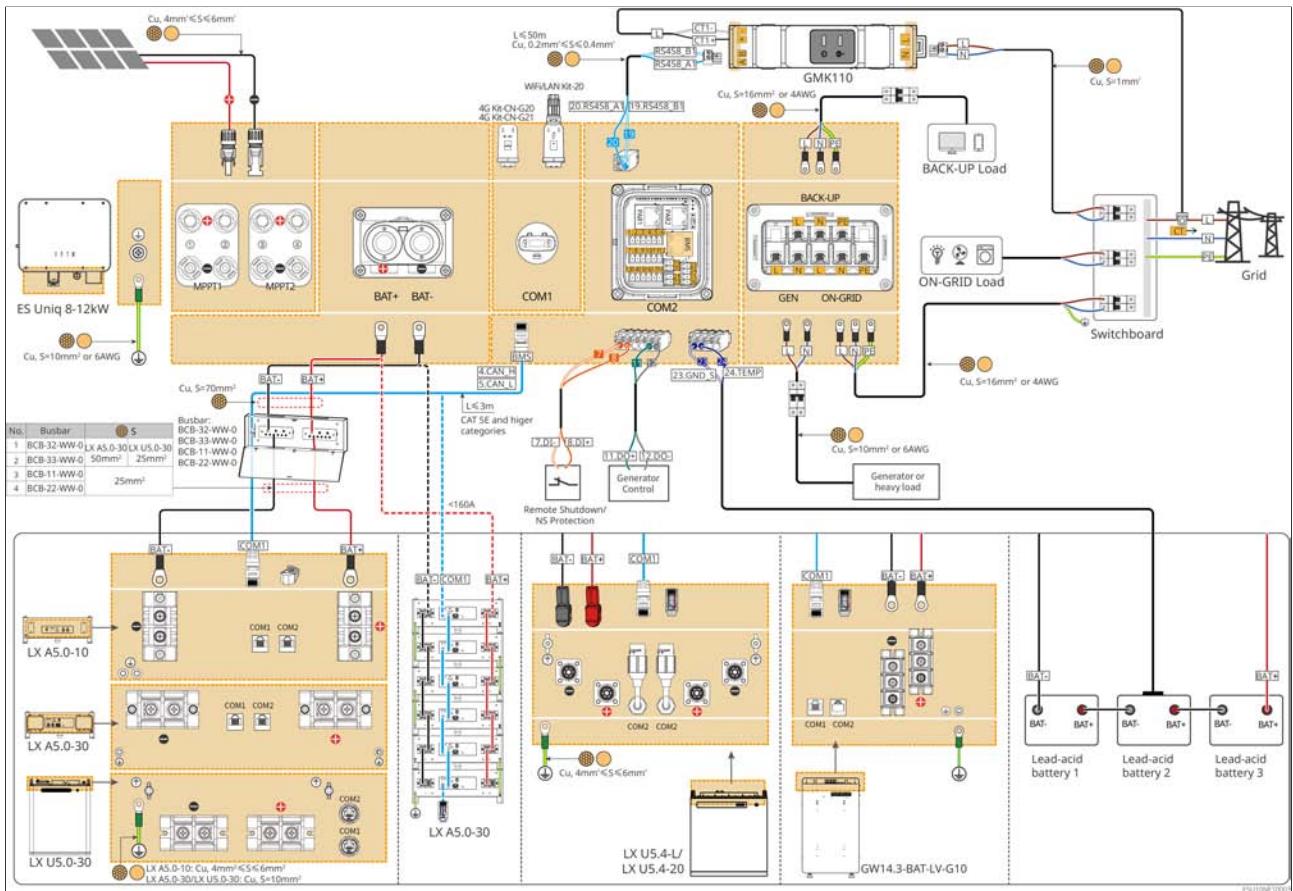
In single-unit scenarios, other specifications such as the GM330 can also be used to meet the requirements. Only the recommended types are displayed here.

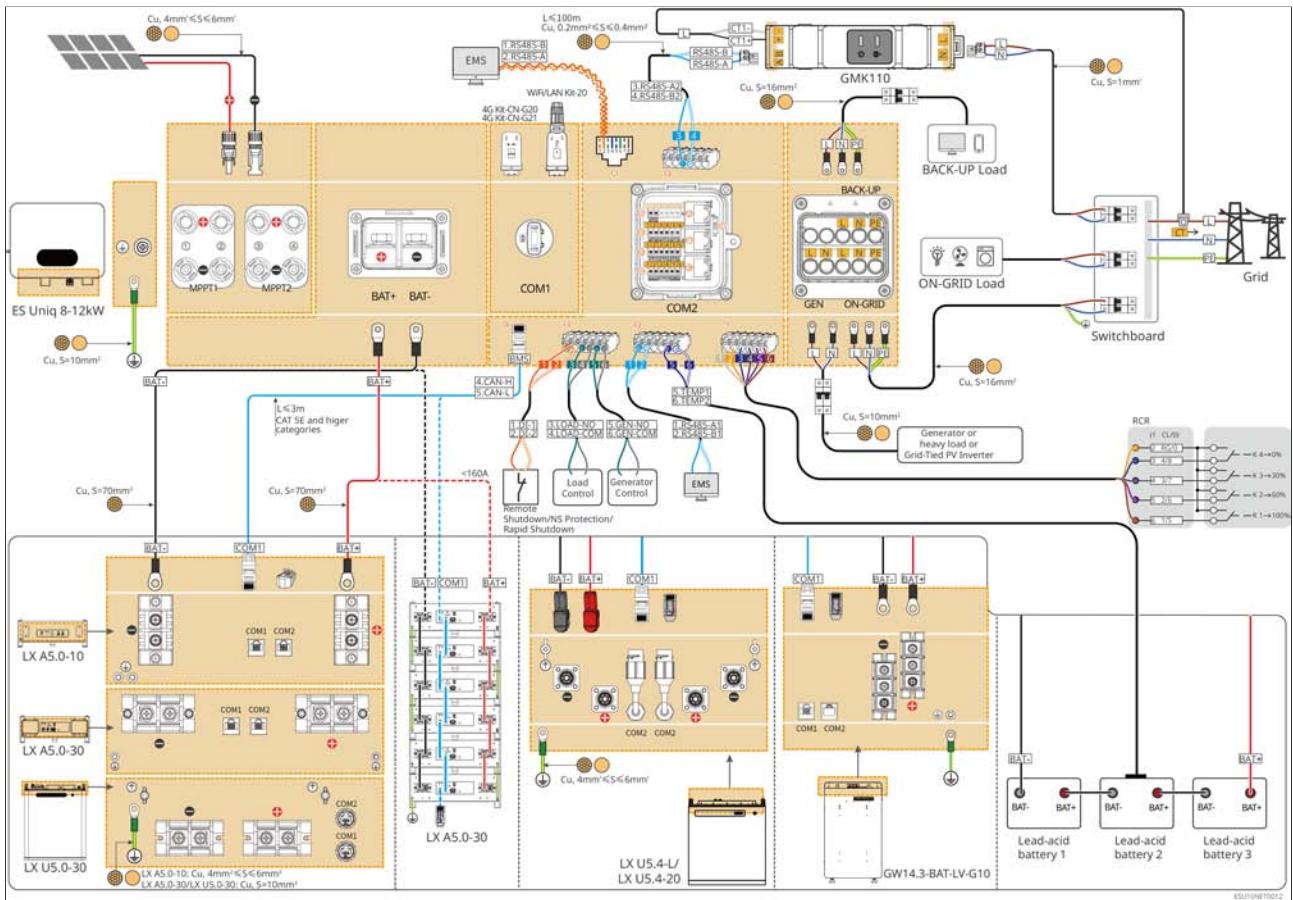
Built-in meter matching scenario





Matching GMK110 scenario





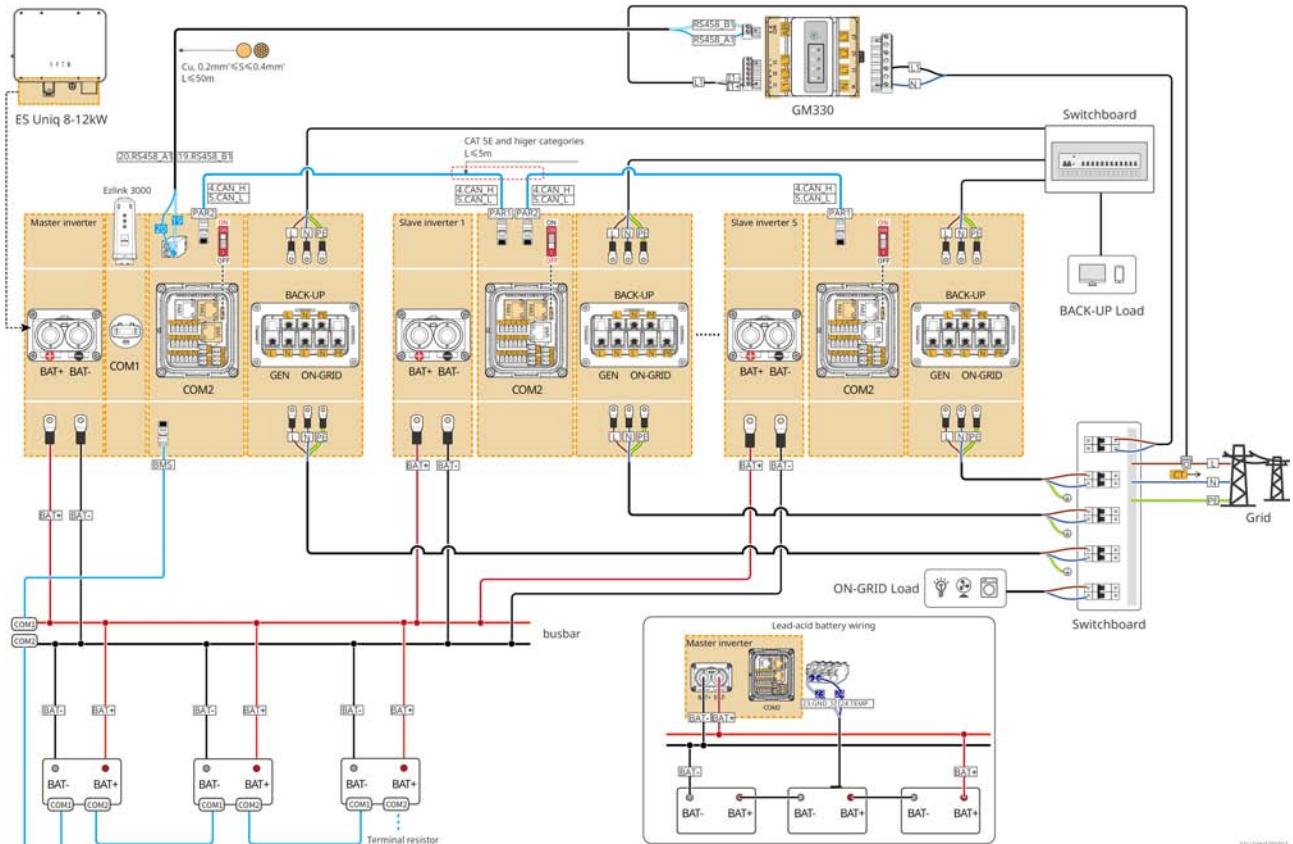
5.2.2 Detailed System Wiring Diagram for Parallel System

NOTICE

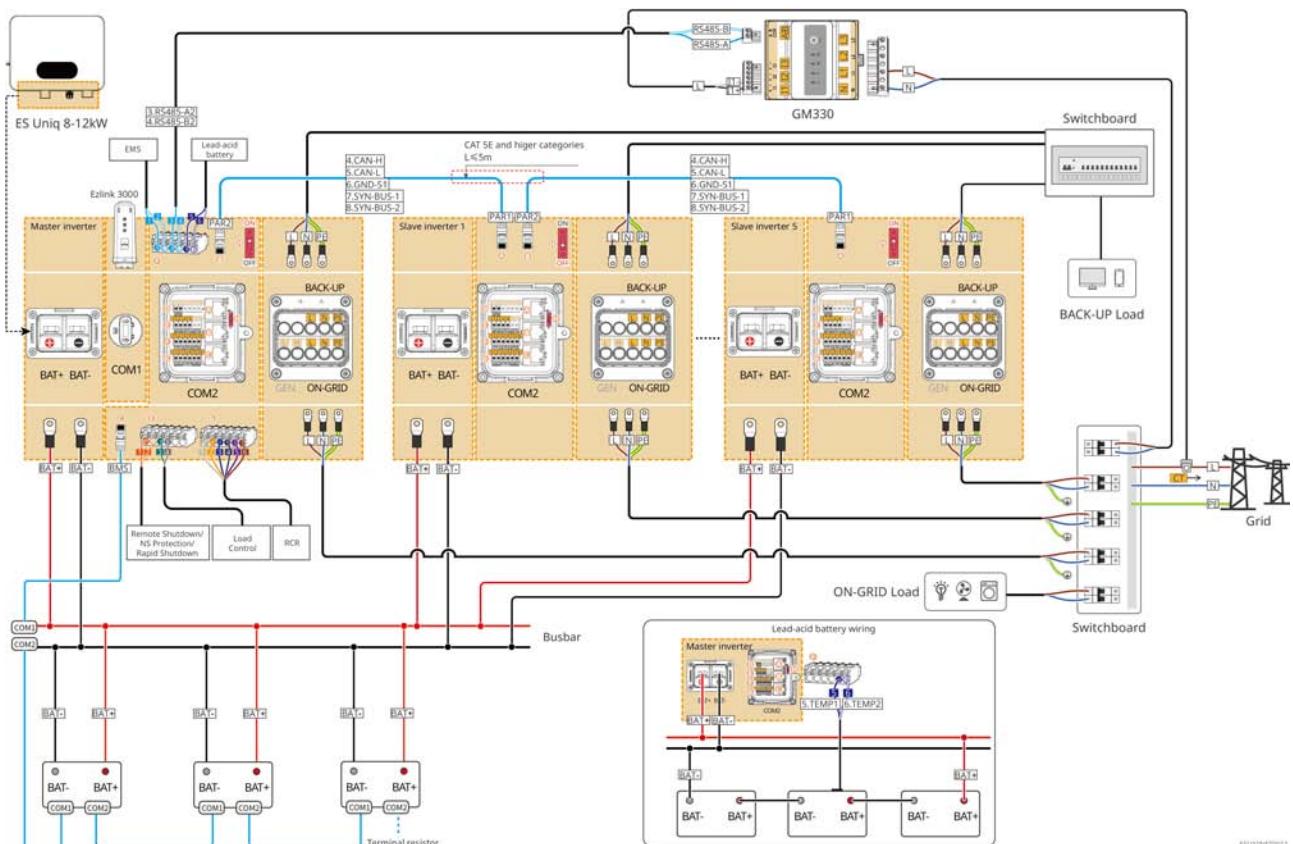
- In the parallel system, the Inverter connecting the Ezlink3000 smart dongle and the meter is Master inverter, while others are Slave inverter. Do not connect smart dongle to the Slave inverter in the system.
- The parallel system does not support the connection of generators, large loads, or grid-tied PV inverter.
- 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, under the non-convergence mode of Inverter, each Inverter can be connected to Battery from different model. For specific wiring methods, please refer to [5.6.Connecting the Battery Cable\(Page 126\)](#).

During parallel operation, the Battery busbar connection mode is adopted.

Matching GM330 scenario

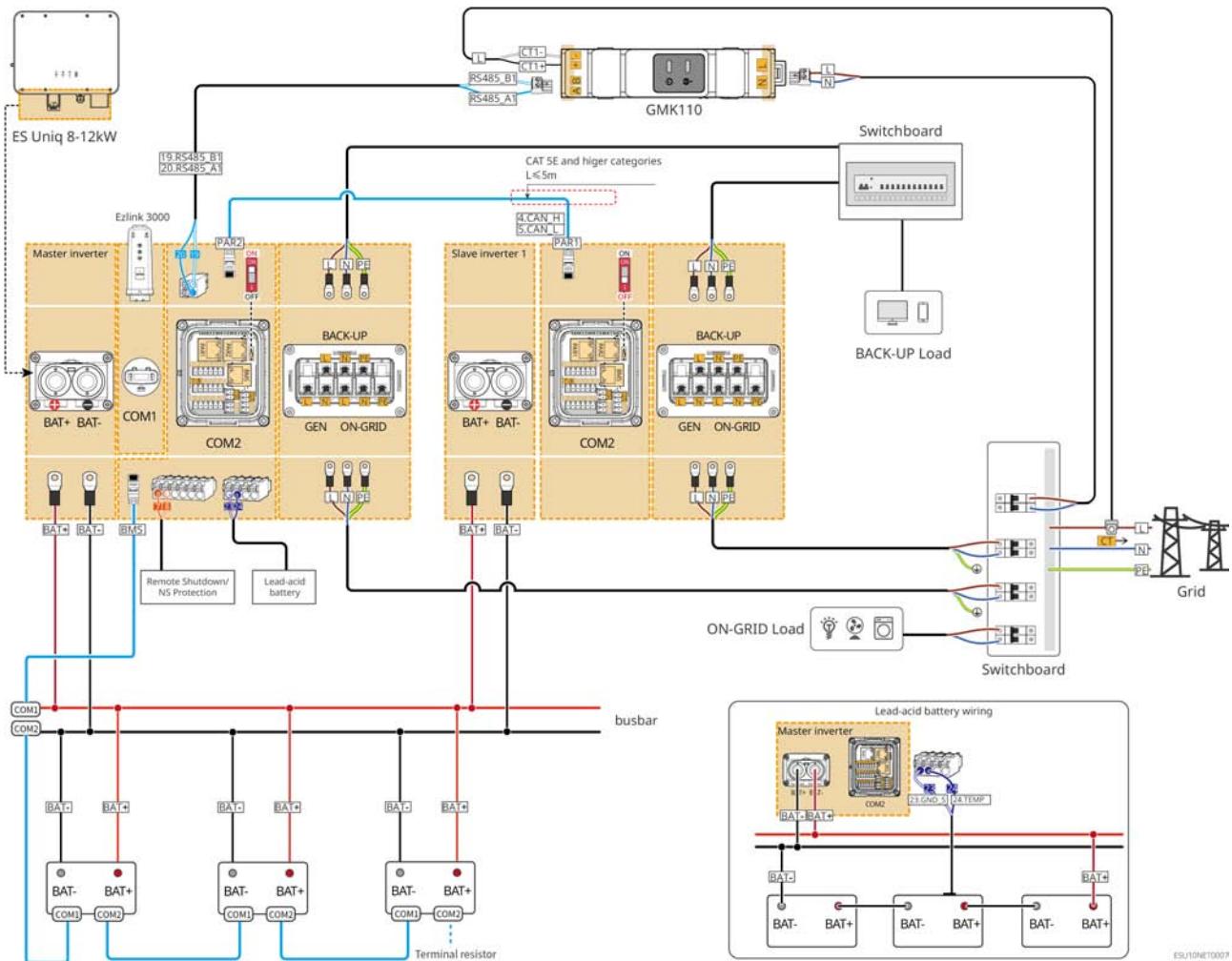


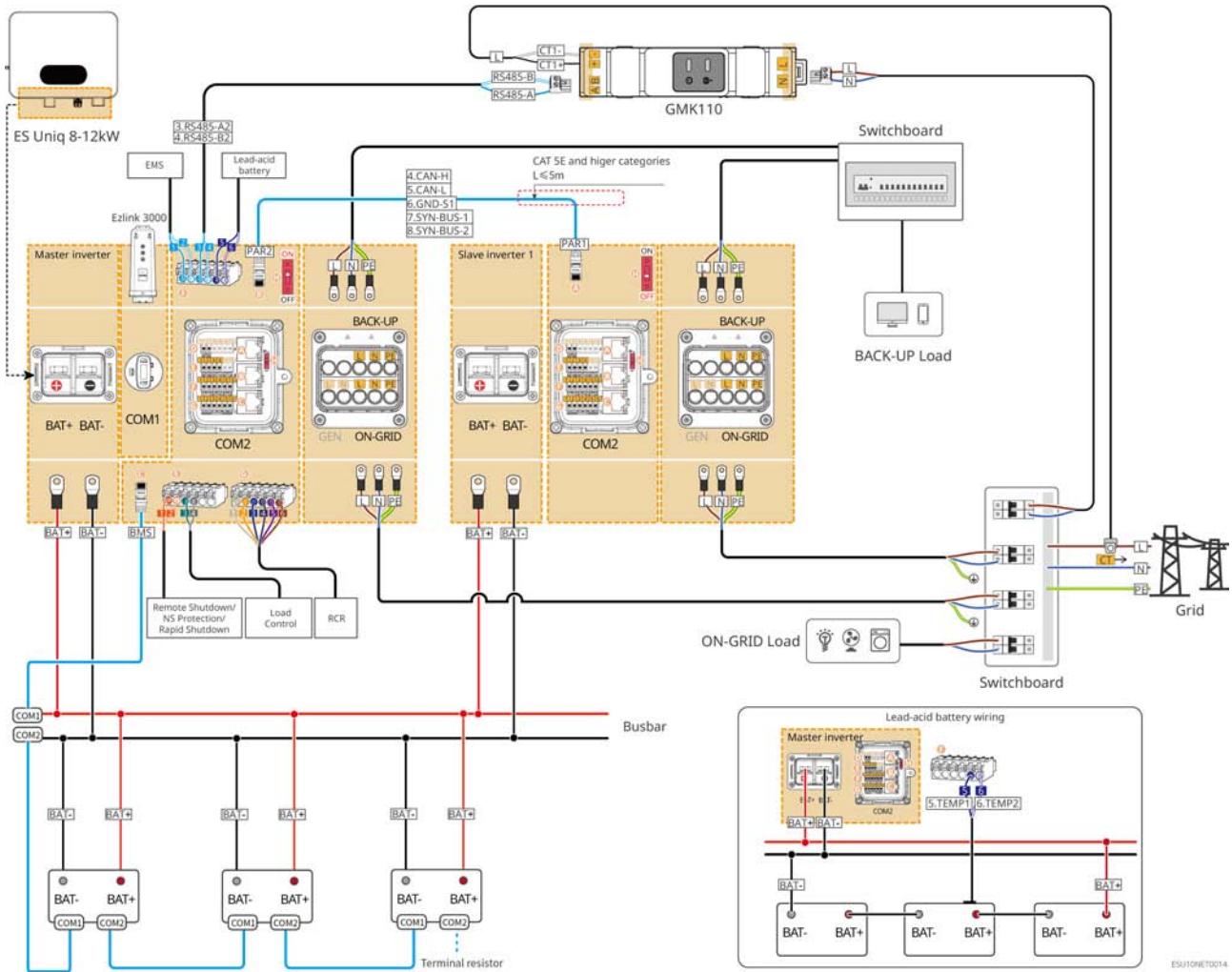
ESU10N470002



ESU10N470001

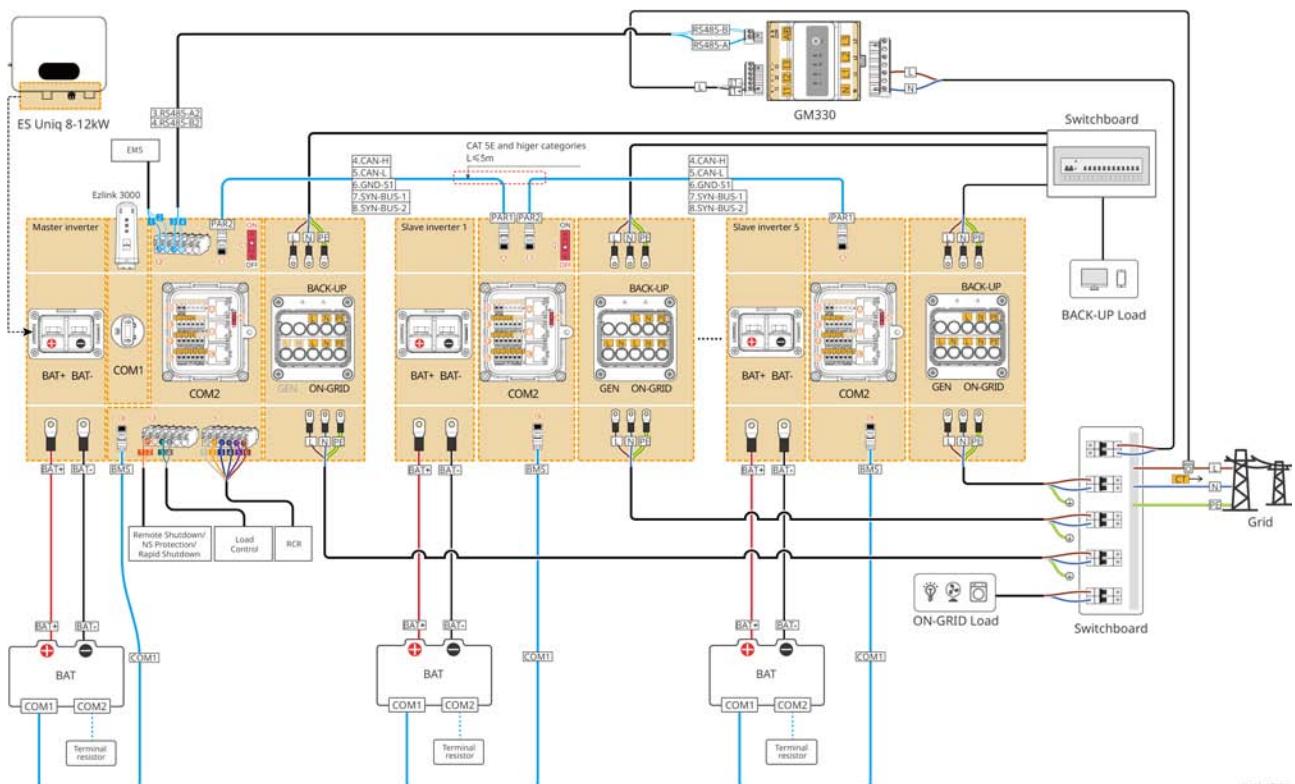
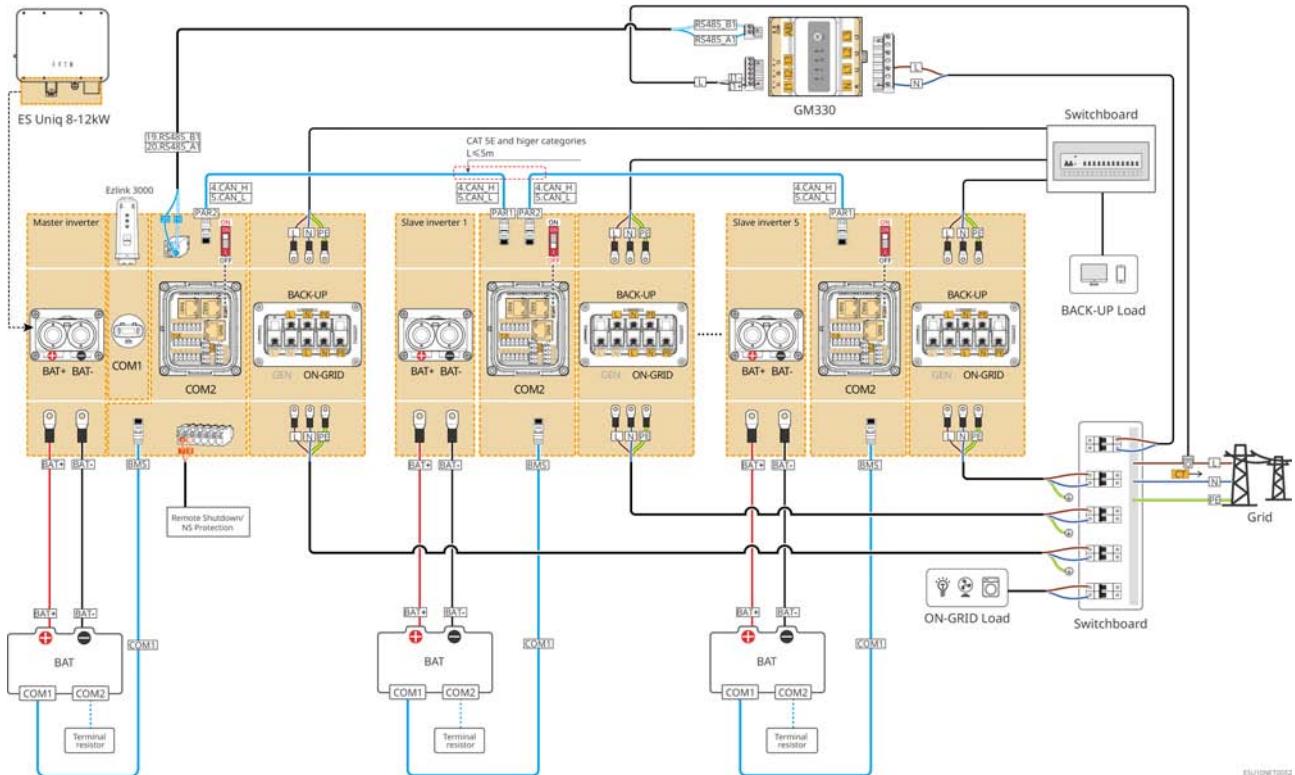
Matching GMK110 scenario



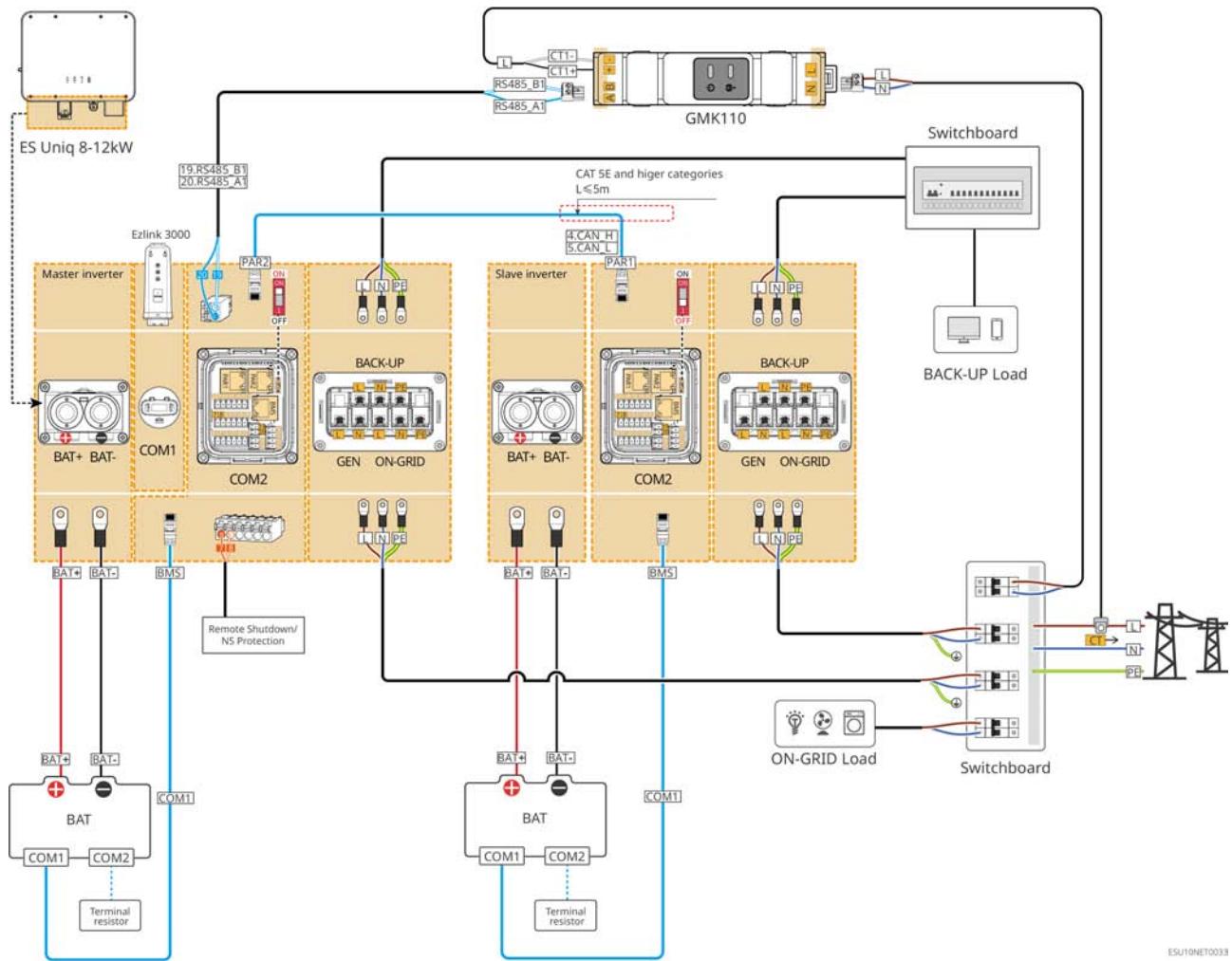


Inverter parallel operation, Battery non-busbar connection mode

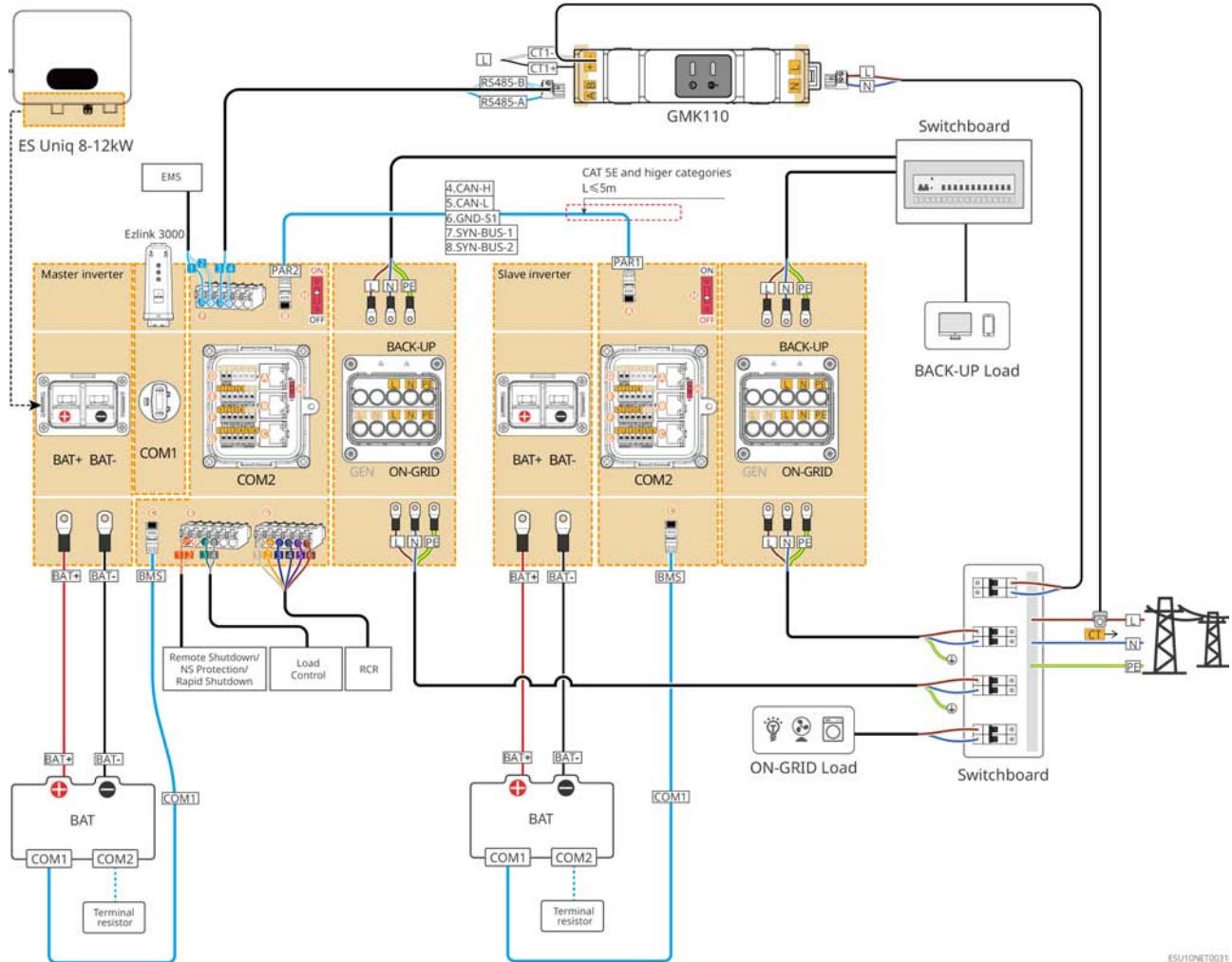
Matching with GM330 scenario



Matching GMK110 scenario



ESU10NET0033



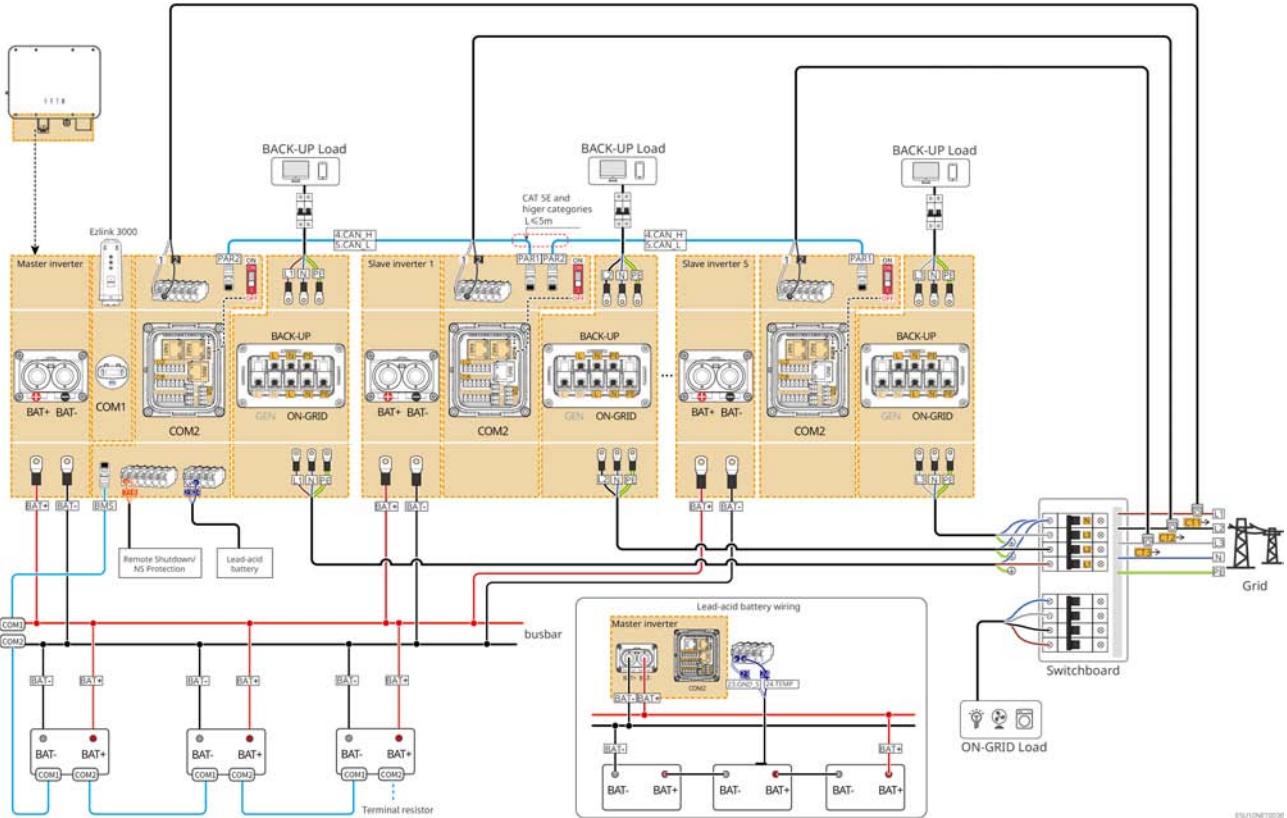
5.2.3 Single-phase to three-phase Detailed System Wiring Diagram

NOTICE

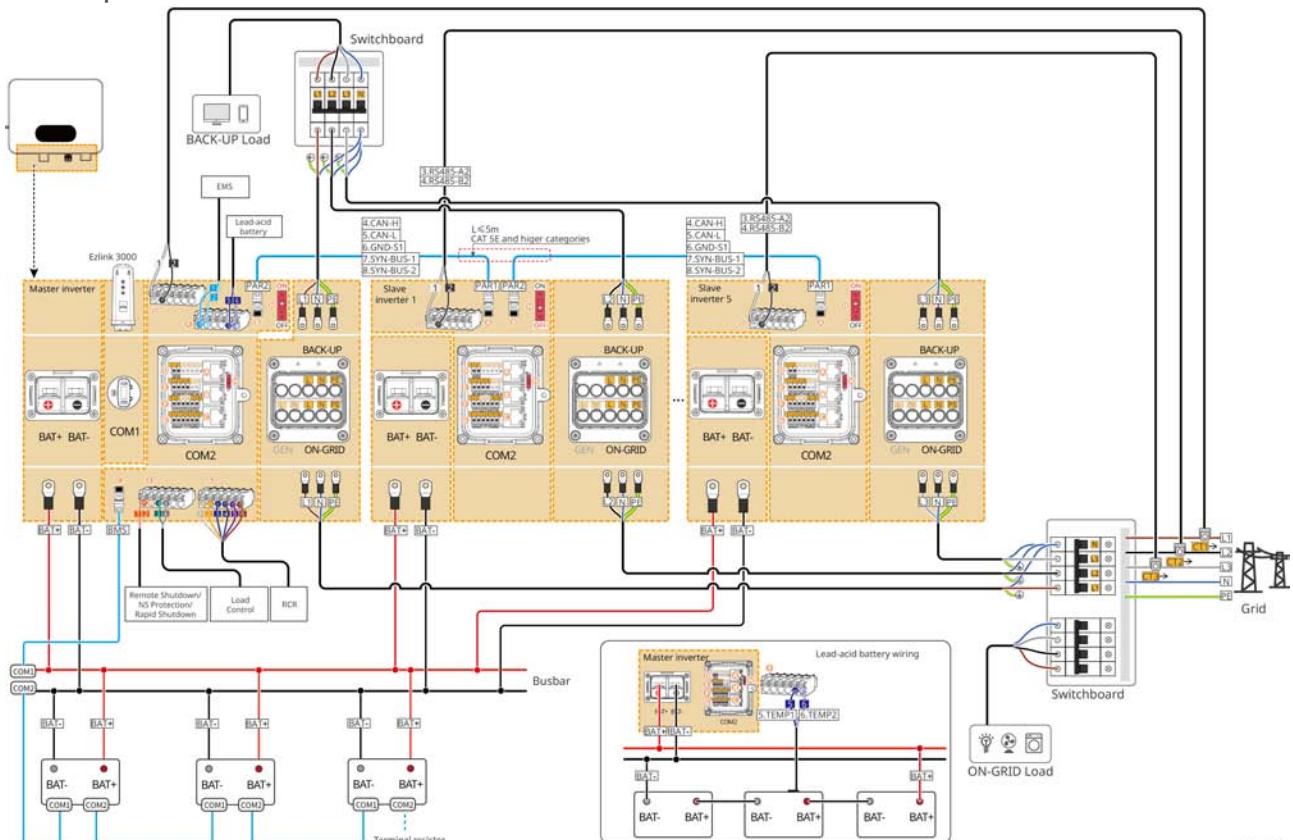
- The ES UNIQ 8-12kW series Inverter comes in various appearance types, all supporting single-phase to three-phase networking with built-in meters or GMK110 meters. Each model is compatible with scenarios where single-phase loads are connected individually or only three-phase loads are connected.
- The following scenario of connecting a built-in energy meter with a single-phase load is illustrated using only one type of machine as an example. For configurations involving the GMK110 or three-phase loads, please refer to other wiring and networking diagrams.

Built-in meter matching scenario

Single-phase load scenario with each phase connected separately

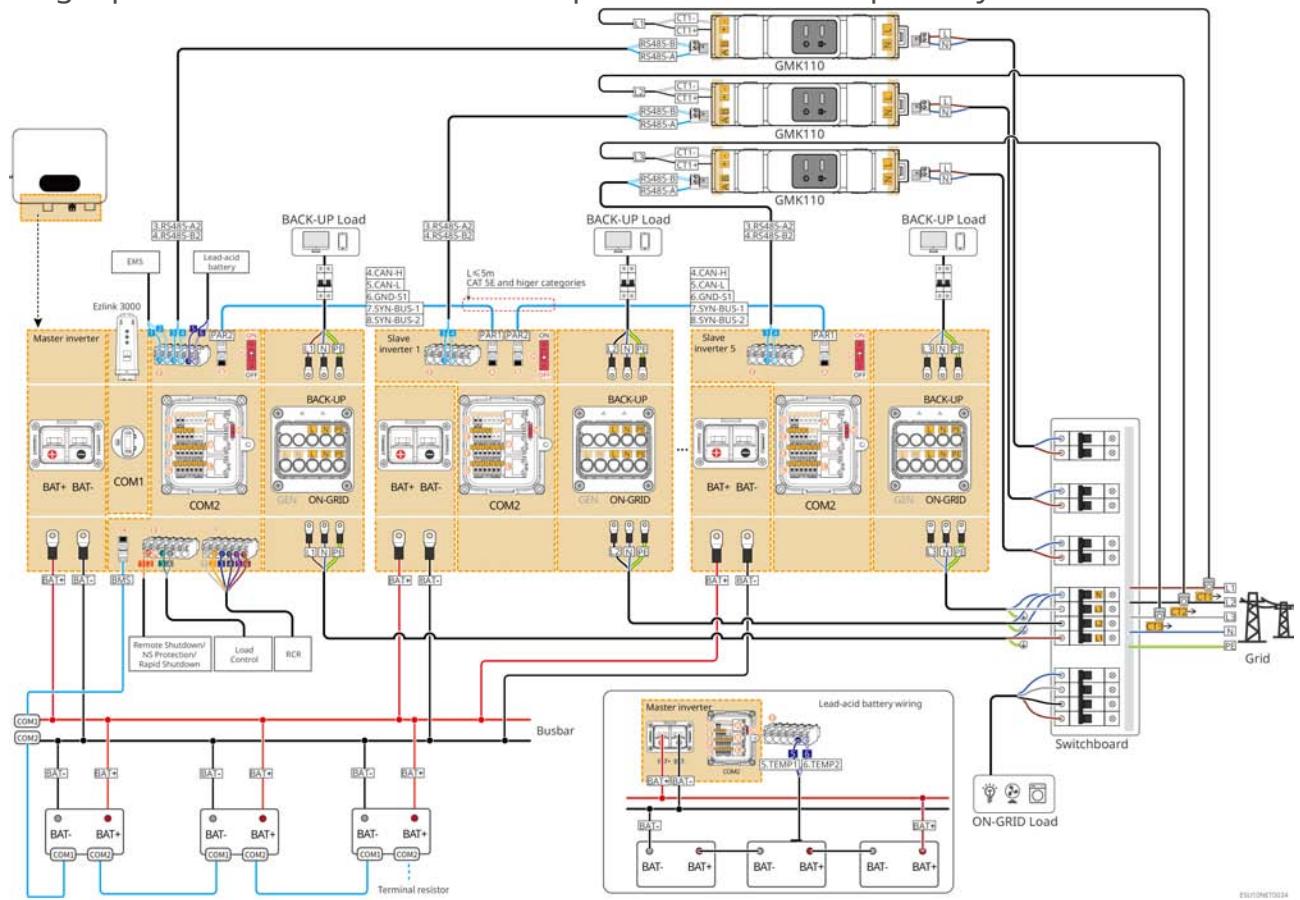


Three-phase load connection scenario

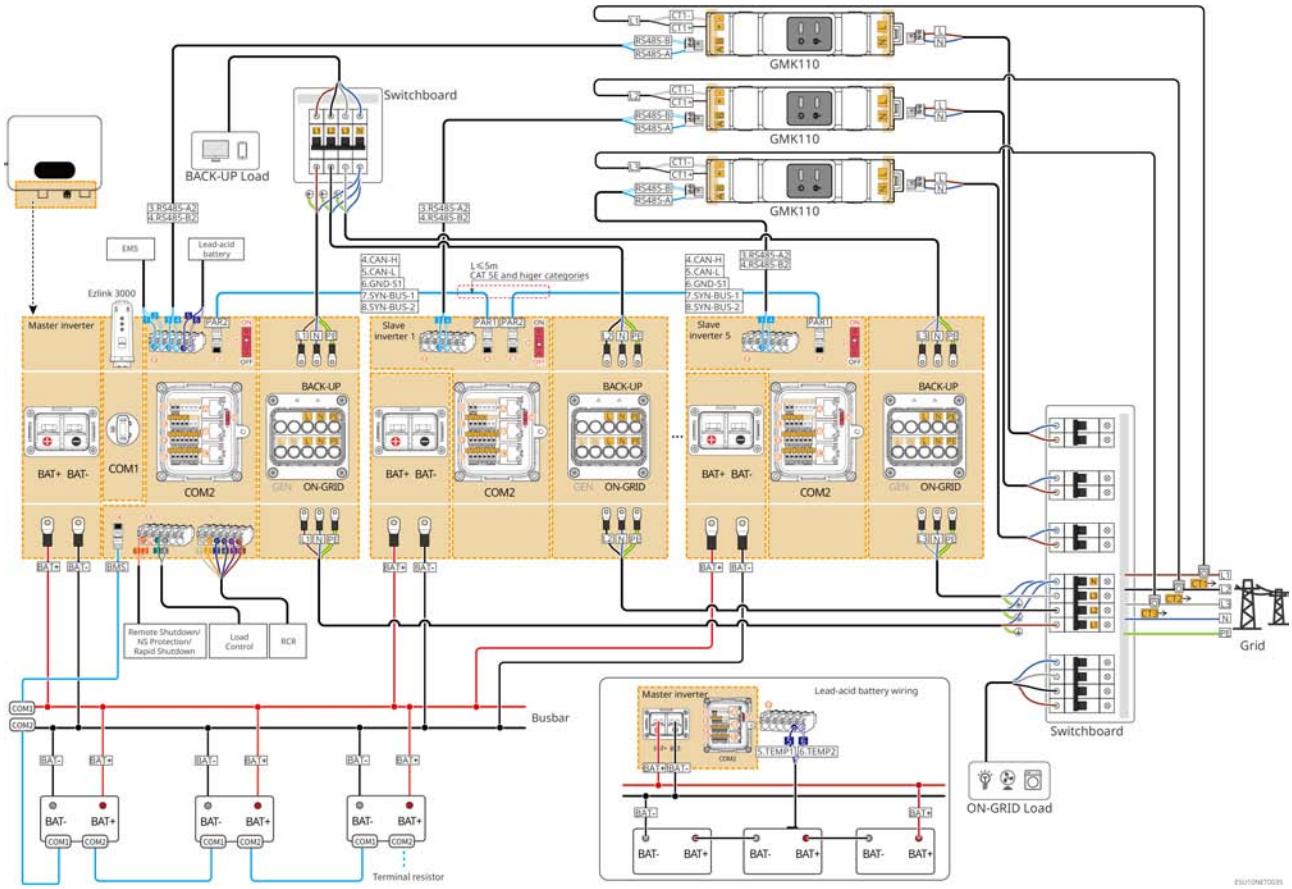


Matching GMK110 scenario

Single-phase load scenario with each phase connected separately



Three-phase load connection scenario



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 Inverter can safely disconnect from the Utility grid in case of an abnormal situation, connect a AC breaker to the AC side of the Inverter. Select an appropriate AC breaker according to local regulations.
- When the Inverter power on, the BACK-UP AC port is live. If maintenance is required on the BACK-UP Loads, please Inverter the power off to avoid 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 ON-GRID AC line of each Inverter
 - power cable cable between Inverter and Battery
 - power cable cable between Battery and Battery
 - Inverter to busbar power cable cable
 - Battery to busbar power cable cable

5.3.1 Preparing Breakers

No.	breaker	Recommended Specifications	Remarks
1	Grid-Tied	Rated current $\geq 90A$, Rated voltage $\geq 230V$	self-supply
2	Battery switch	<p>Select according to local laws and regulations.</p> <ul style="list-style-type: none"> • GW8000-ES-C10: Rated current $\geq 200A$, Rated voltage $\geq 60V$ • GW10K-ES-C10: Rated current $\geq 250A$, Rated voltage $\geq 60V$ • GW12K-ES-C10: Rated current $\geq 300A$, Rated voltage $\geq 60V$ 	self-supply

No.	breaker	Recommended Specifications	Remarks
3	Generator	<ul style="list-style-type: none"> • GW8000-ES-C10: Rated current $\geq 63A$, Rated voltage $\geq 230V$ • GW10K-ES-C10, GW12K-ES-C10: Rated current $\geq 75A$, Rated voltage $\geq 230V$ 	self-supply
4	BACK-UP Loads breaker	Rated current $\geq 90A$, Rated voltage $\geq 230V$	self-supply
5	RCD	<p>Select according to local laws and regulations.</p> <ul style="list-style-type: none"> • Type A • ON-GRID side: 300mA • BACK-UP side: 30mA 	Self-supply

5.3.2 Preparing Cables

No.	cable	Recommended Specifications	Acquisition method
1	Inverter PE cable	<ul style="list-style-type: none"> • single core Outdoor copper cable • conductor cross-sectional area: $S=10mm^2$ 	Self-supply
2	Battery PE cable	<ul style="list-style-type: none"> • single core Outdoor copper cable • conductor cross-sectional area: $S=10mm^2$ • LX A5.0-10: $4mm^2-6mm^2$ • LX A5.0-30: $10mm^2$ • LX U5.4-L: $4mm^2-6mm^2$ • LX U5.4-20: $4mm^2-6mm^2$ • LX U5.0-30: $10mm^2$ • GW14.3-BAT-LV-G10: $10mm^2$ 	<ul style="list-style-type: none"> • self-supply • LX A5.0-30, LX A5.0-10: Accessory Acquisition (Optional) • GW14.3-BAT-LV-G10: For some machines, the grounding cable is shipped with the Battery accessory.

No.	cable	Recommended Specifications	Acquisition method
3	PV DC line	<ul style="list-style-type: none"> Industry-standard outdoor photovoltaic cables conductor cross-sectional area: 4mm²-6mm² Cable outer diameter: 5.9mm-8.8mm 	Self-supply
4	DC line	<ul style="list-style-type: none"> single core Outdoor copper cable InverterBatteryport Wiring requirements: <ul style="list-style-type: none"> conductor cross-sectional area: 70mm² Cable outer diameter: 15.7mm-16.7mm The cable requirements between Battery and the busbar: <ul style="list-style-type: none"> LX A5.0-30, conductor cross-sectional area: 50mm² LX A5.0-10, LX U5.0-30, conductor cross-sectional area: 25mm² GW14.3-BAT-LV-G10, conductor cross-sectional area: 70mm² Cable requirements between Battery and Battery: <ul style="list-style-type: none"> LX A5.0-30, conductor cross-sectional area: 50mm² LX A5.0-10, LX A5.4-20, LX U5.0-30, conductor cross-sectional area: 25mm² GW14.3-BAT-LV-G10, conductor cross-sectional area: 70mm² 	<ul style="list-style-type: none"> Self-supply LX U5.0-30: Available for purchase from GoodWe LX A5.0-30, LX A5.0-10: Accessory Acquisition (Optional) GW14.3-BAT-LV-G10: Some machines, Battery DC cable, are shipped with Battery accessories.

No.	cable	Recommended Specifications	Acquisition method
5	AC line	<ul style="list-style-type: none"> • AC input/output cable (BACKUP/GRID) <ul style="list-style-type: none"> ◦ conductor cross-sectional area: 16mm² or 4AWG ◦ multi-core Outdoor copper cable outer diameter: 23.6mm-24.8mm ◦ single core Outdoor copper cable outer diameter: 9.5mm-9.9mm • Generator power cable (GEN): <ul style="list-style-type: none"> ◦ conductor cross-sectional area: 10mm² or 6AWG ◦ Outdoor copper cable outer diameter: 20mm-21mm ◦ single core Outdoor copper cable outer diameter: 8.3mm-8.7mm 	Self-supply
6	Smart Meter power cable	<ul style="list-style-type: none"> • outdoor copper cable • conductor cross-sectional area: 1mm² 	Self-supply

No.	cable	Recommended Specifications	Acquisition method
7	Battery Communication cable	Communication between the combiner box and Battery, as well as between Battery, requires the use of CAT 5E or higher standard shielded network cable and RJ45 shielded RJ45 connector.	<ul style="list-style-type: none"> • Self-supply • LX A5.0-10, LX A5.0-30: Accessory Acquisition (Optional) • GW14.3-BAT-LV-G10: <ul style="list-style-type: none"> ◦ Inverter and Battery Communication cable: Partial standard-equipped ◦ Battery Communication cable: Self-provided, cable length ≤2m
8	Electric Meter RS485 Communication cable	<ul style="list-style-type: none"> • Shielded Twisted Pair (STP) • conductor cross-sectional area: 0.2mm²-0.4mm² 	Self-supply
9	Parallel operation	CAT 5E and above standard shielded network cables and RJ45 shielded RJ45 connector	Self-supply
10	remote shutdown Pass/NS Protection	<ul style="list-style-type: none"> • Copper-core twisted pair • conductor cross-sectional area: 0.2mm²-0.4mm² 	Self-supply

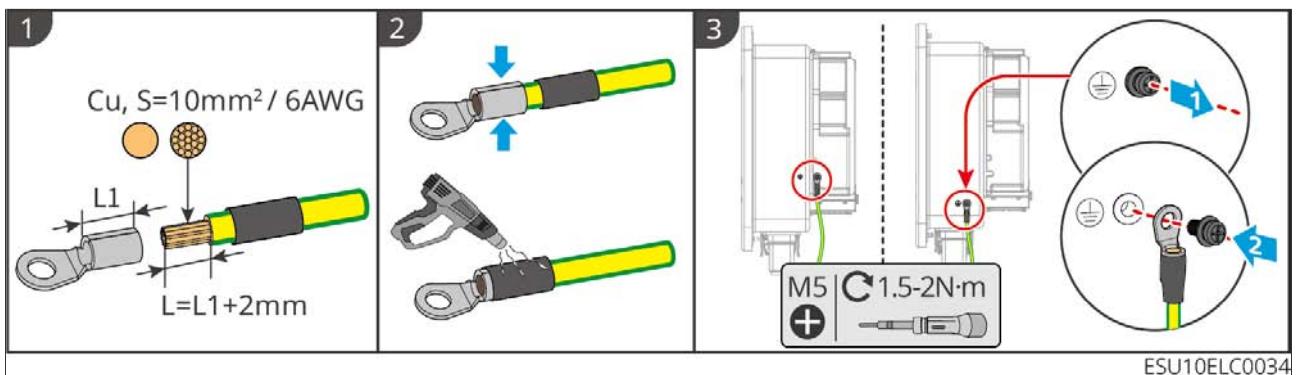
5.4 Connecting the PE cable



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.
- For multiple devices, ensure equipotential bonding of all device chassis enclosures, such as Protection Grounding point.
- To improve the corrosion resistance of terminal, it is recommended to apply silica gel or paint for protection on the exterior of Grounding terminal after completing the connection of Installation to PE cable.
- When Installation equipment, the Installation PE cable must be performed first; when dismantle equipment, the dismantle PE cable must be performed last.

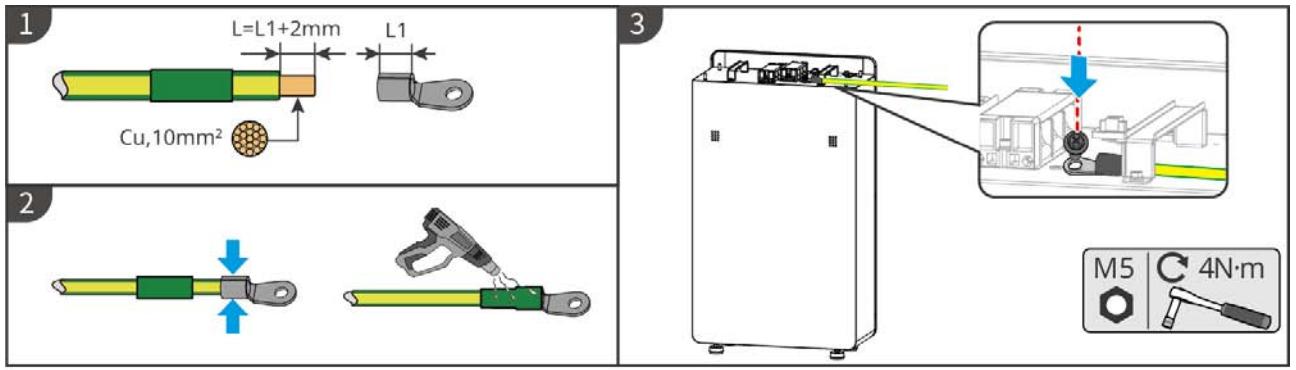
Inverter

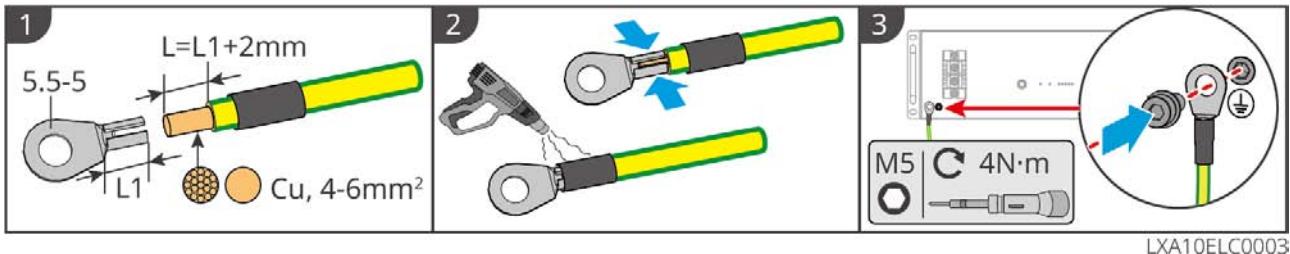


Battery

GW14.3-BAT-LV-G10

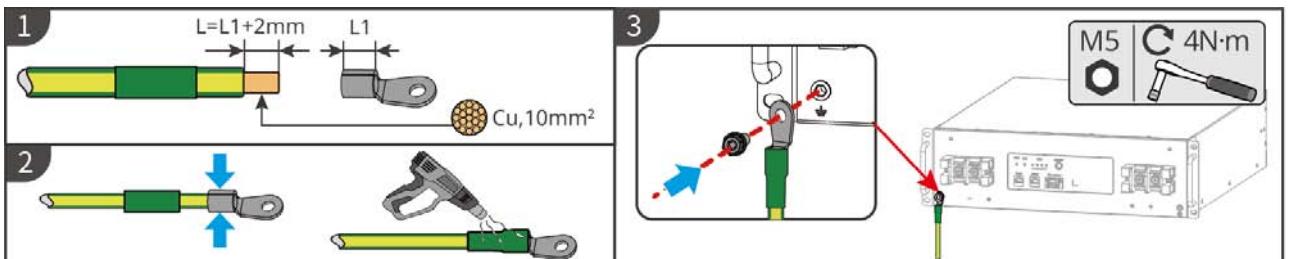
- GW14.3-BAT-LV-G10: If the grounding cable is shipped with the Battery accessory, please use the shipped cable without performing crimp.





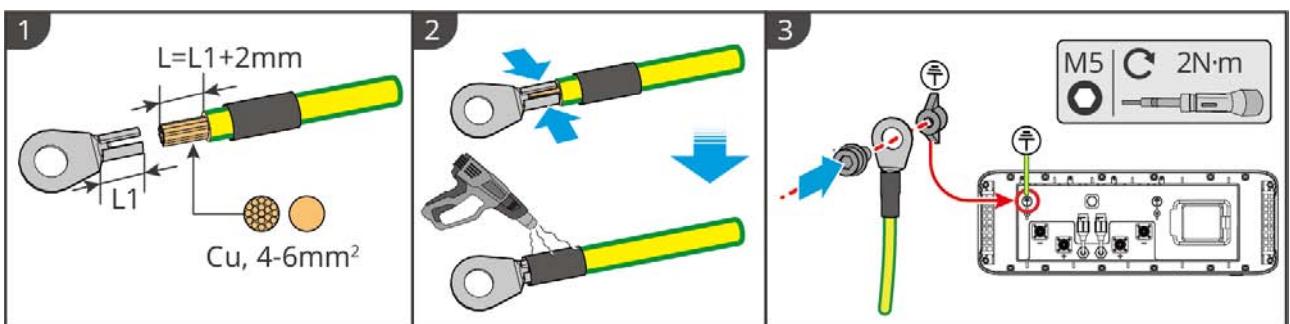
LXA10ELC0003

LX A5.0-30



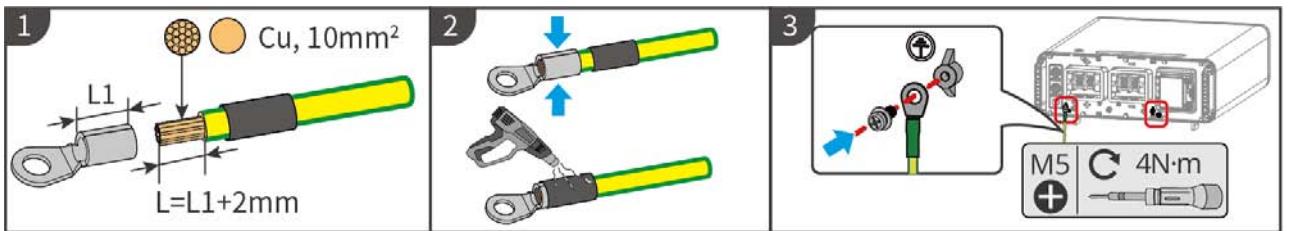
LXA30ELC0001

LX U5.4-L、LX U5.4-20



LXU10ELC0005

LX U5.0-30



LXU30ELC0001

5.5 Connecting the PV Cable

DANGER

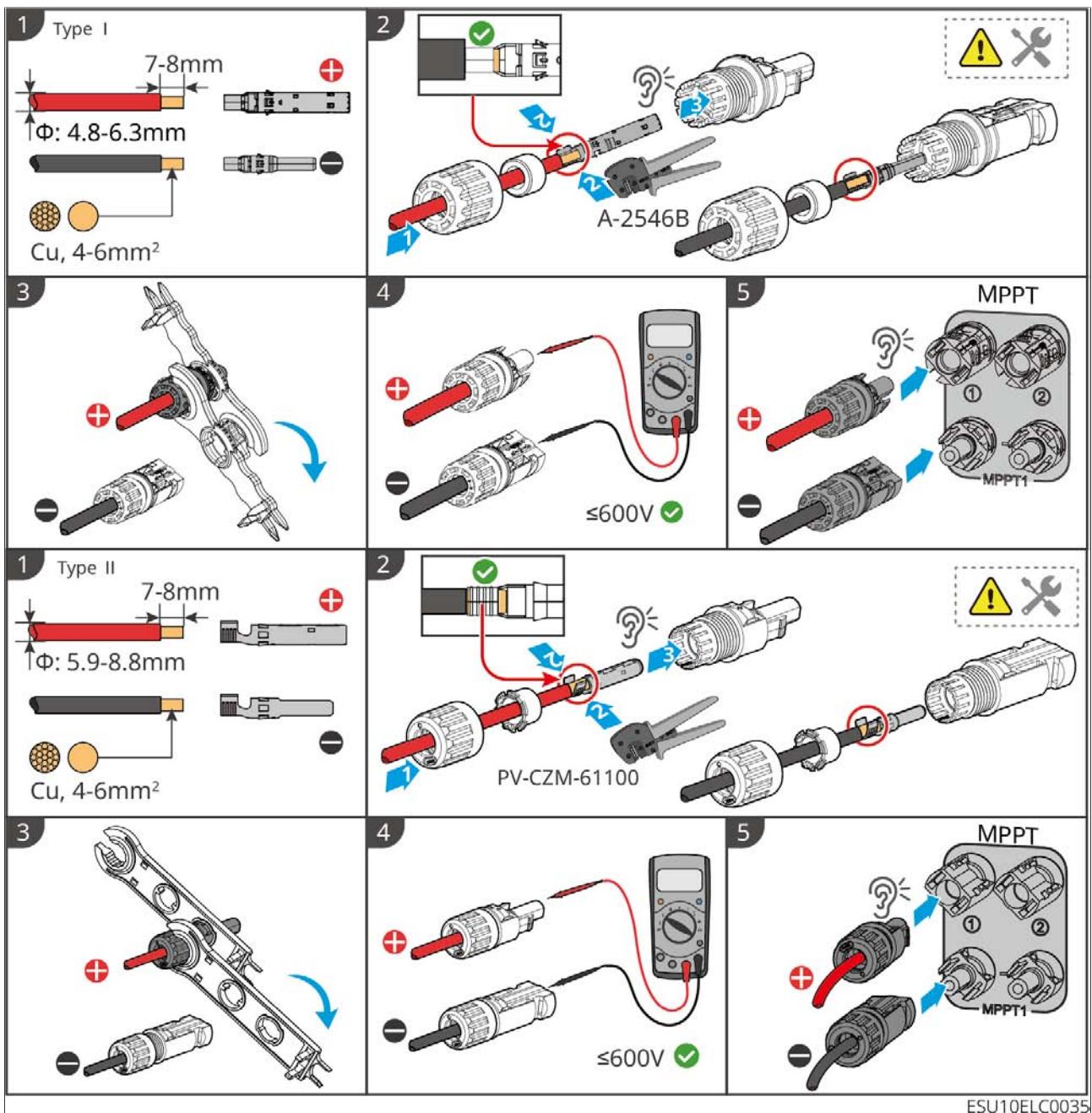
- Do not connect the same PV string to multiple Inverters, as this may cause damage to the Inverter.
- Before connecting the PV string to the Inverter, please confirm the following information. Otherwise, it may cause permanent damage to the Inverter and, in severe cases, lead to fire, resulting in personal injury and property loss.
 1. Please ensure that both Max. Short Circuit Current per MPPT and Max.Input Voltage are within the allowable range of Inverter.
 2. Please ensure that the positive terminal of the PV string is connected to PV+ of Inverter, and the negative terminal of the PV string is connected to 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 connecting the DC cable, ensure the cable connection is secure and free from looseness.
- Use a multimeter to measure the positive and negative poles of the DC cable, ensuring correct polarity without reverse connection; and confirm the voltage is within the allowable range.

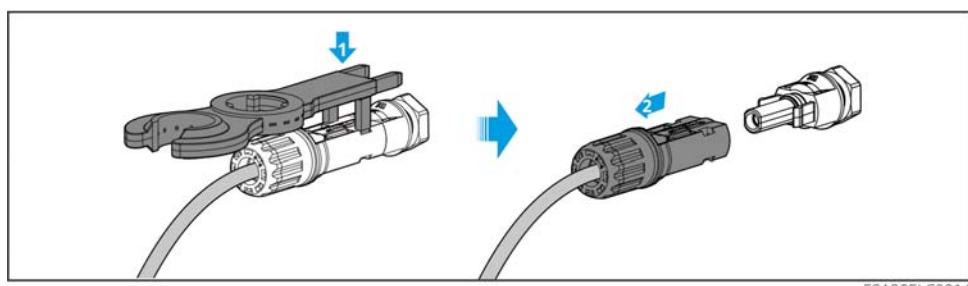
NOTICE

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 angle to ensure the maximization of Efficiency.



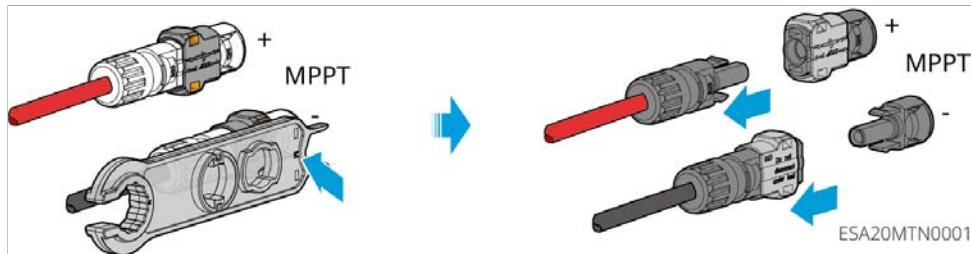
To disassemble the PV module, please follow the steps below:

Type I:



ESA20ELC0014

Type II:

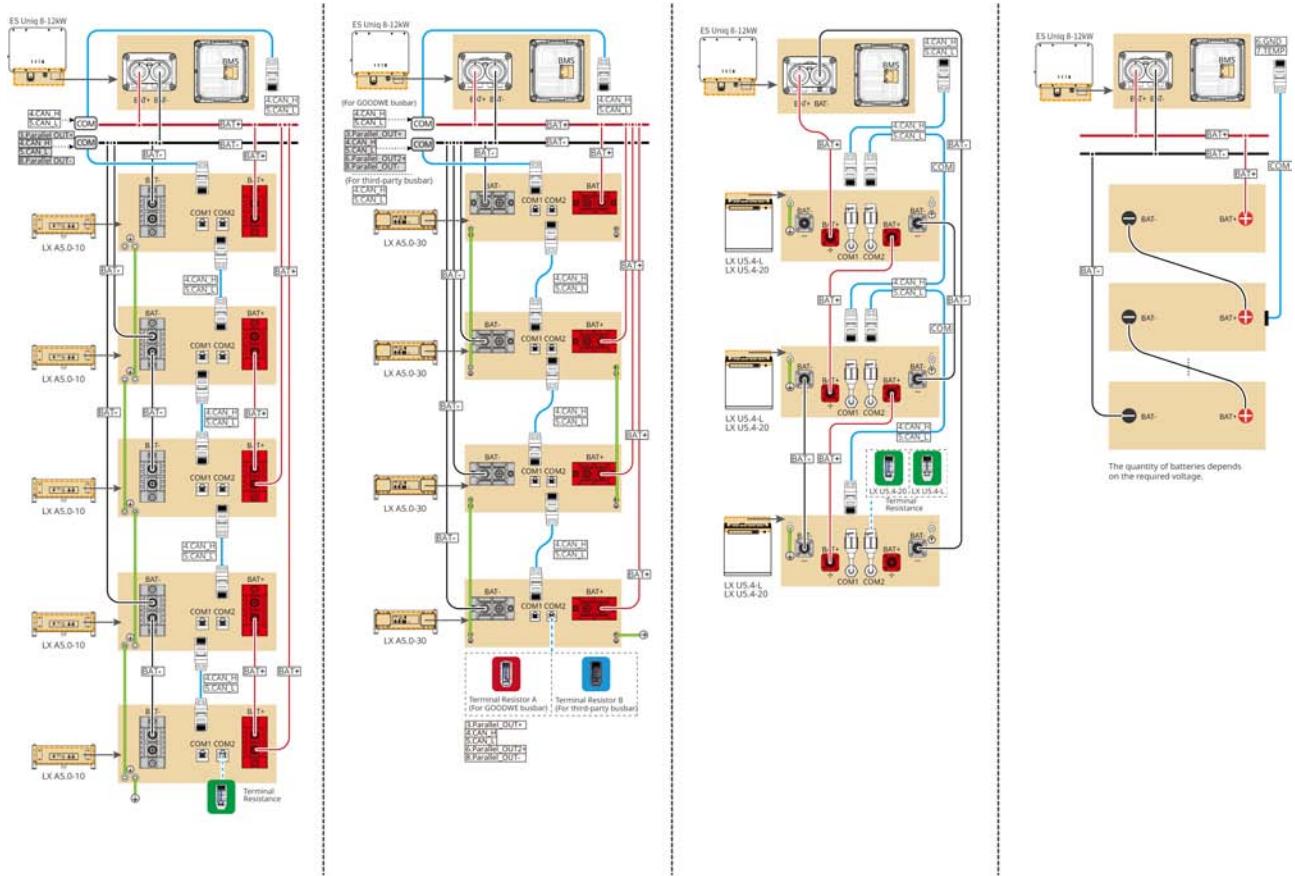


5.6 Connecting the Battery Cable

DANGER

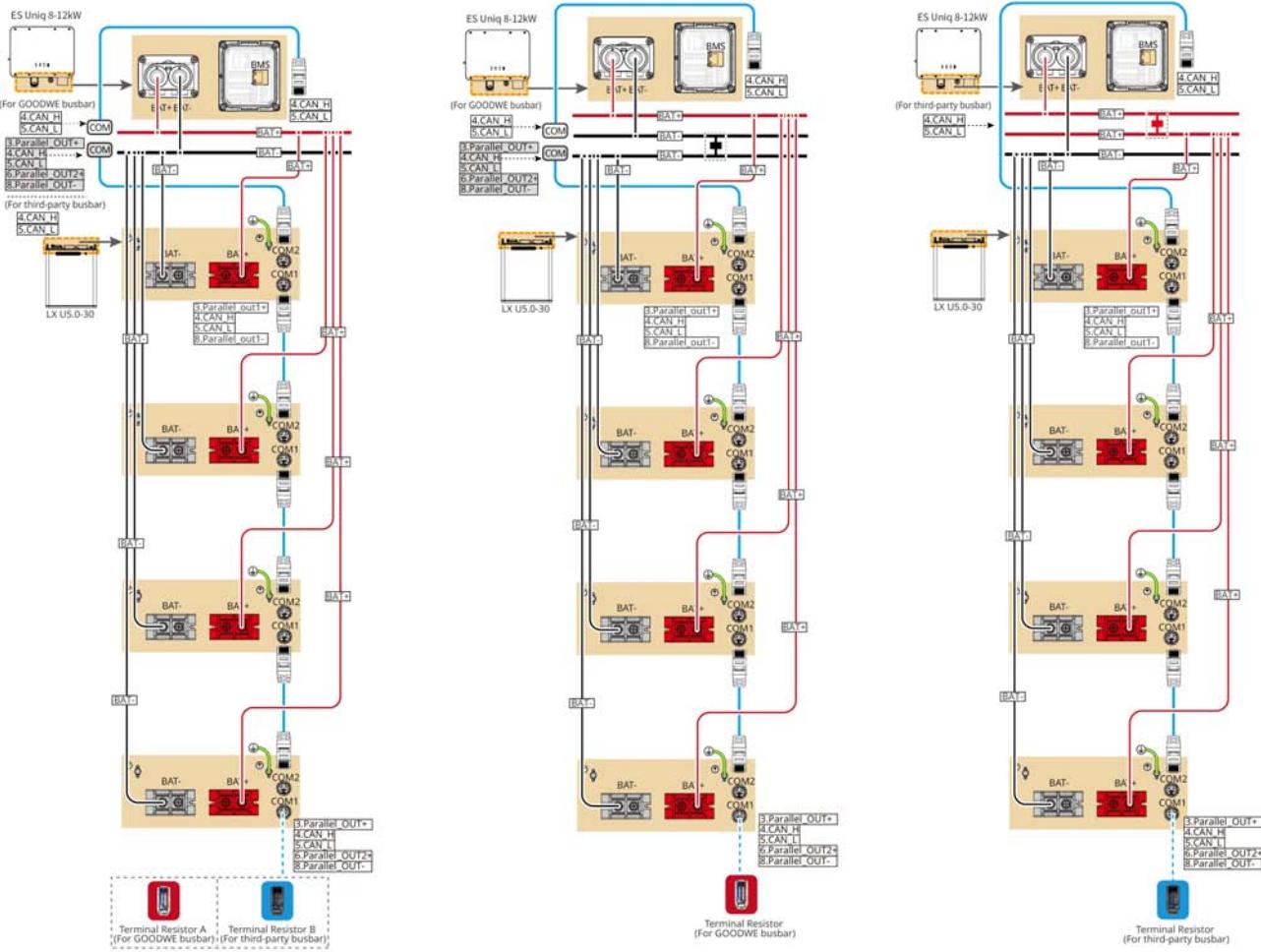
- In a single-unit system, do not connect the same Battery group to multiple Inverters, as this may cause damage to the Inverter.
- Do not connect any load between Inverter and Battery.
- When Connecting the Battery Cable, use insulated tools to prevent accidental electric shock or Battery short circuit.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

Battery system wiring diagram



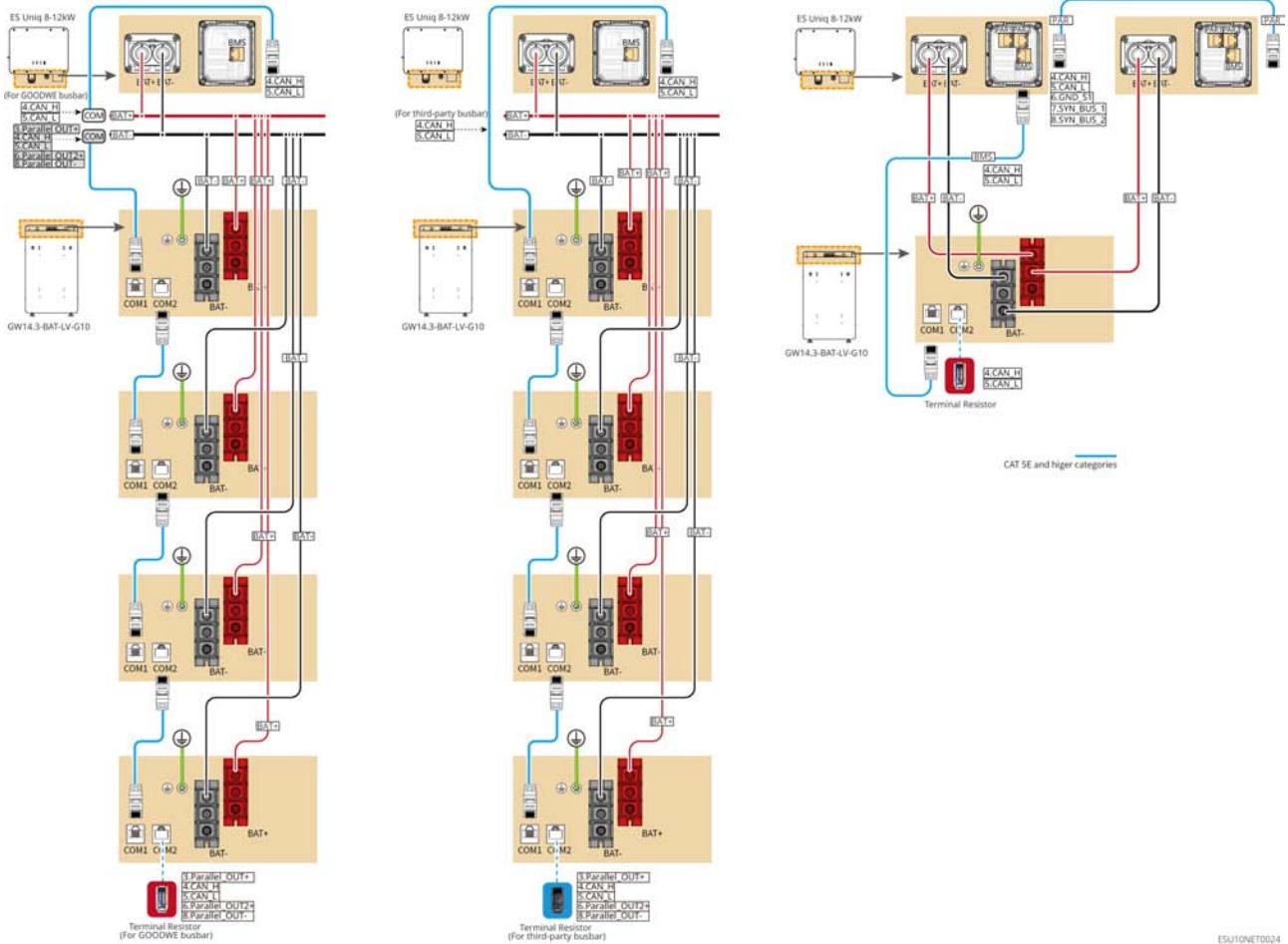
CAT 5E and higher categories

ESU/NET0005

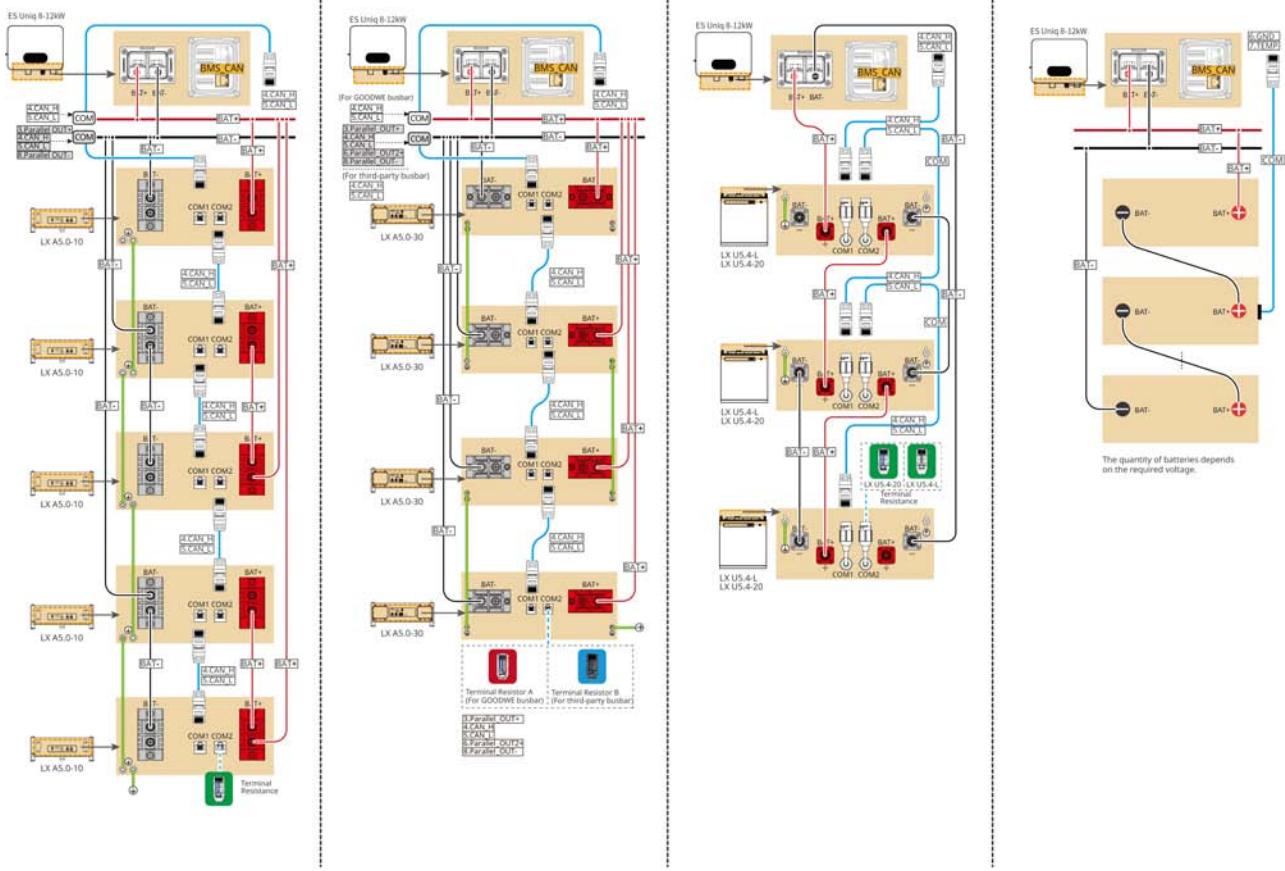


CAT 5E and higher categories

ESU10NET0006



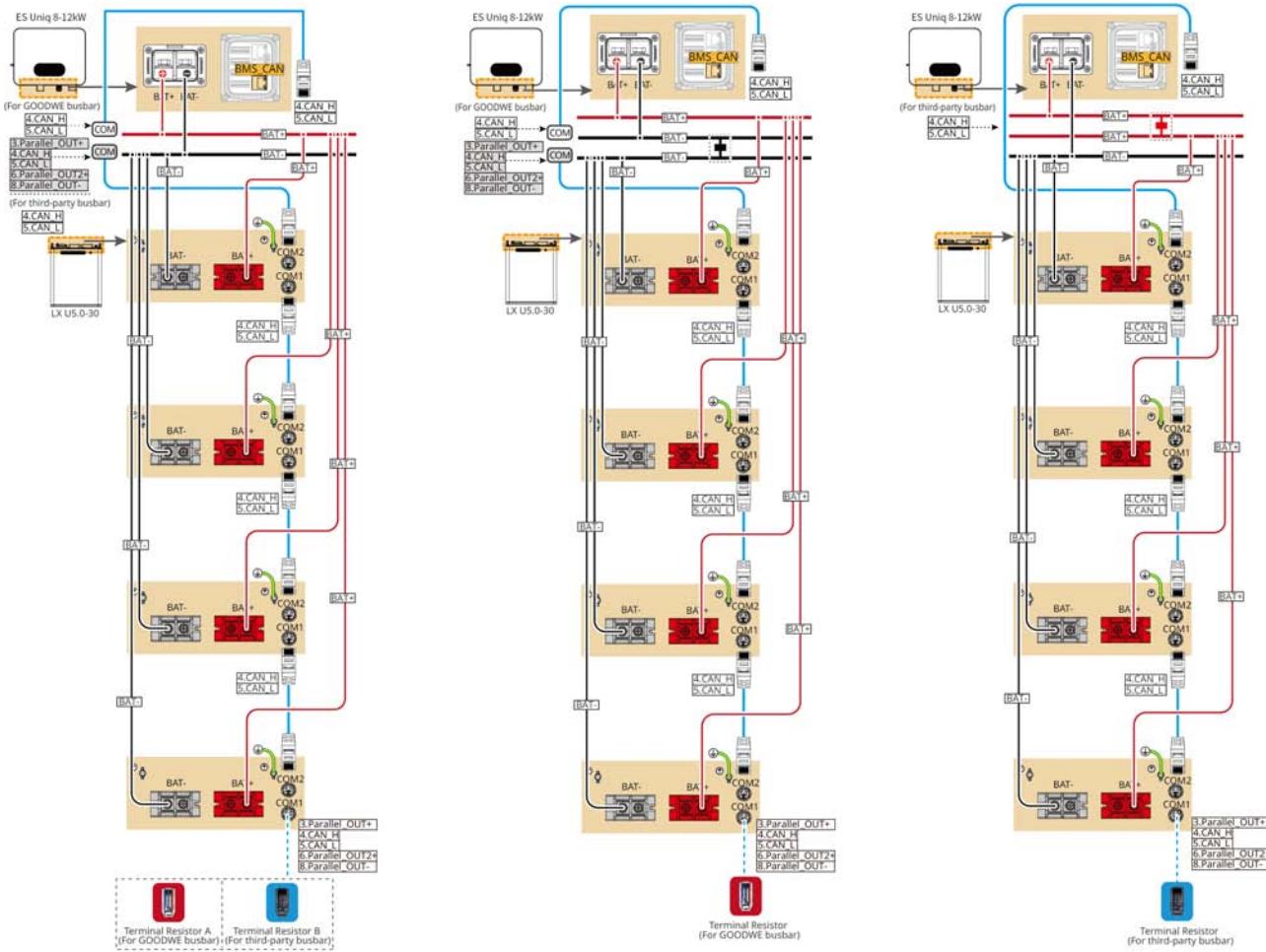
ES1010NET0024



The quantity of batteries depends on the required voltage.

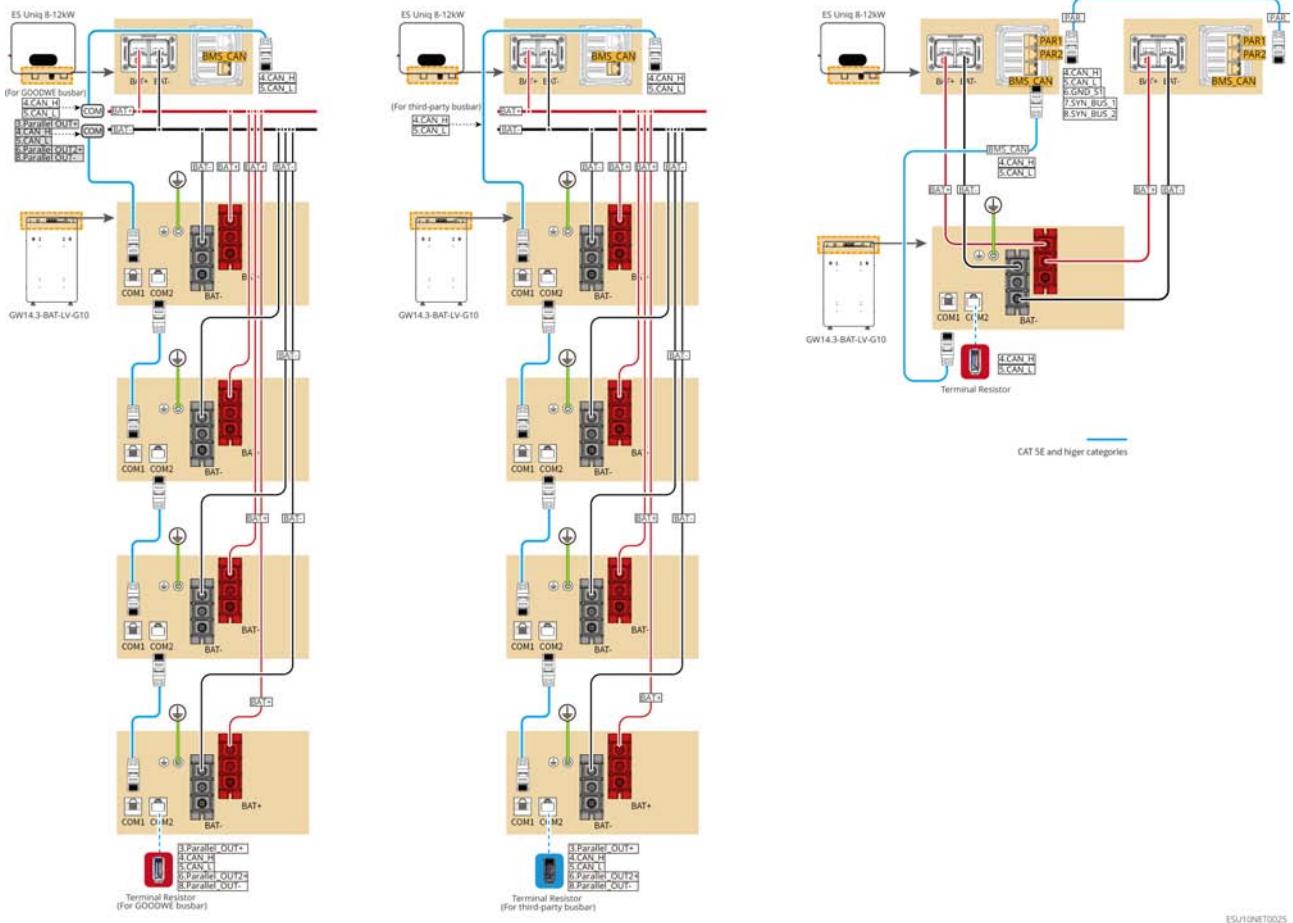
CAT 5E and higher categories

EDU110NET0015



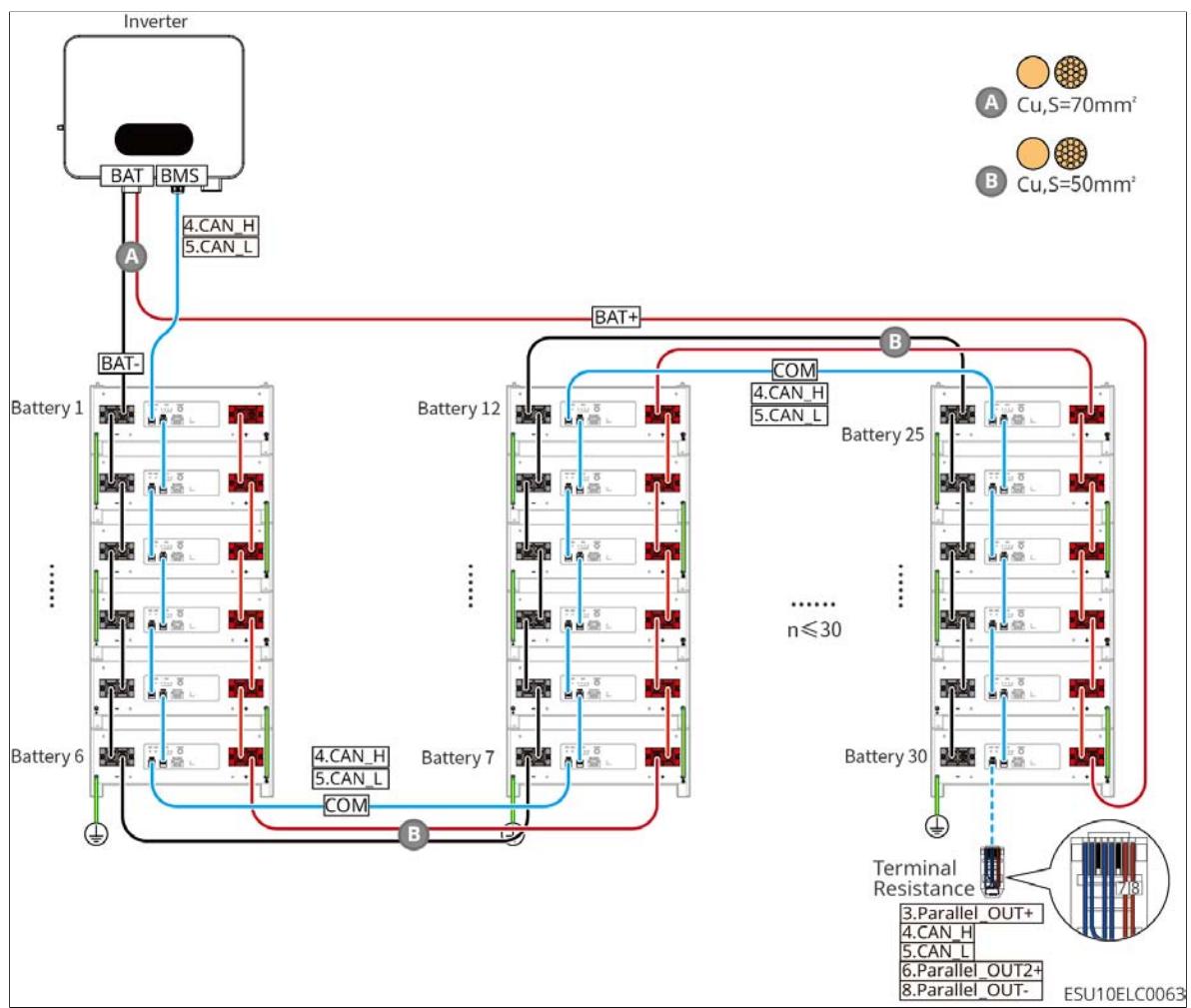
CAT 5E and higher categories

ESU10NET0016



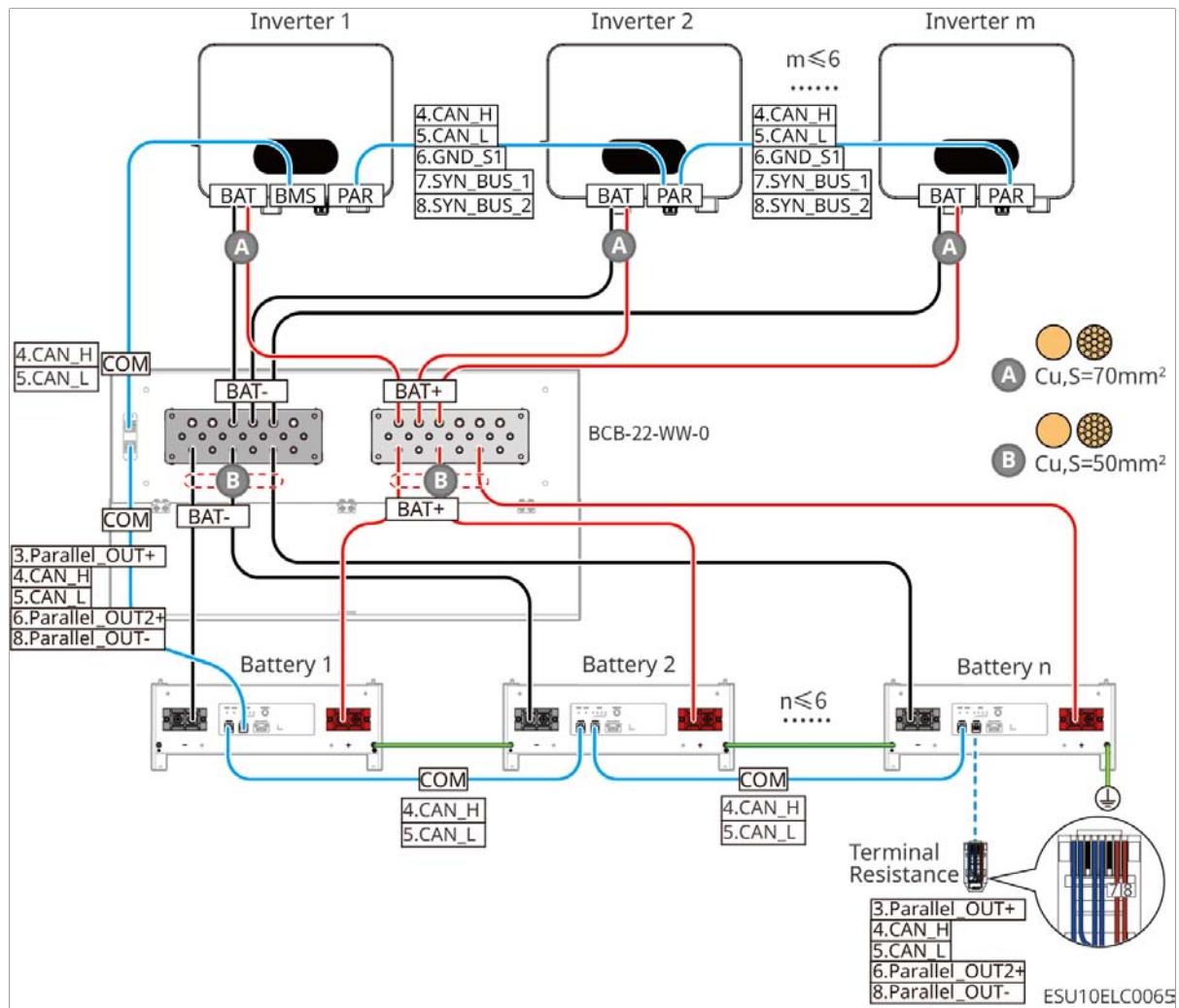
LXA5.0-30: Daisy-chain connection method

- Maximum support for 160A operation current, 8kW operation Power, maximum connection of 1 Inverter, and 30 Battery.



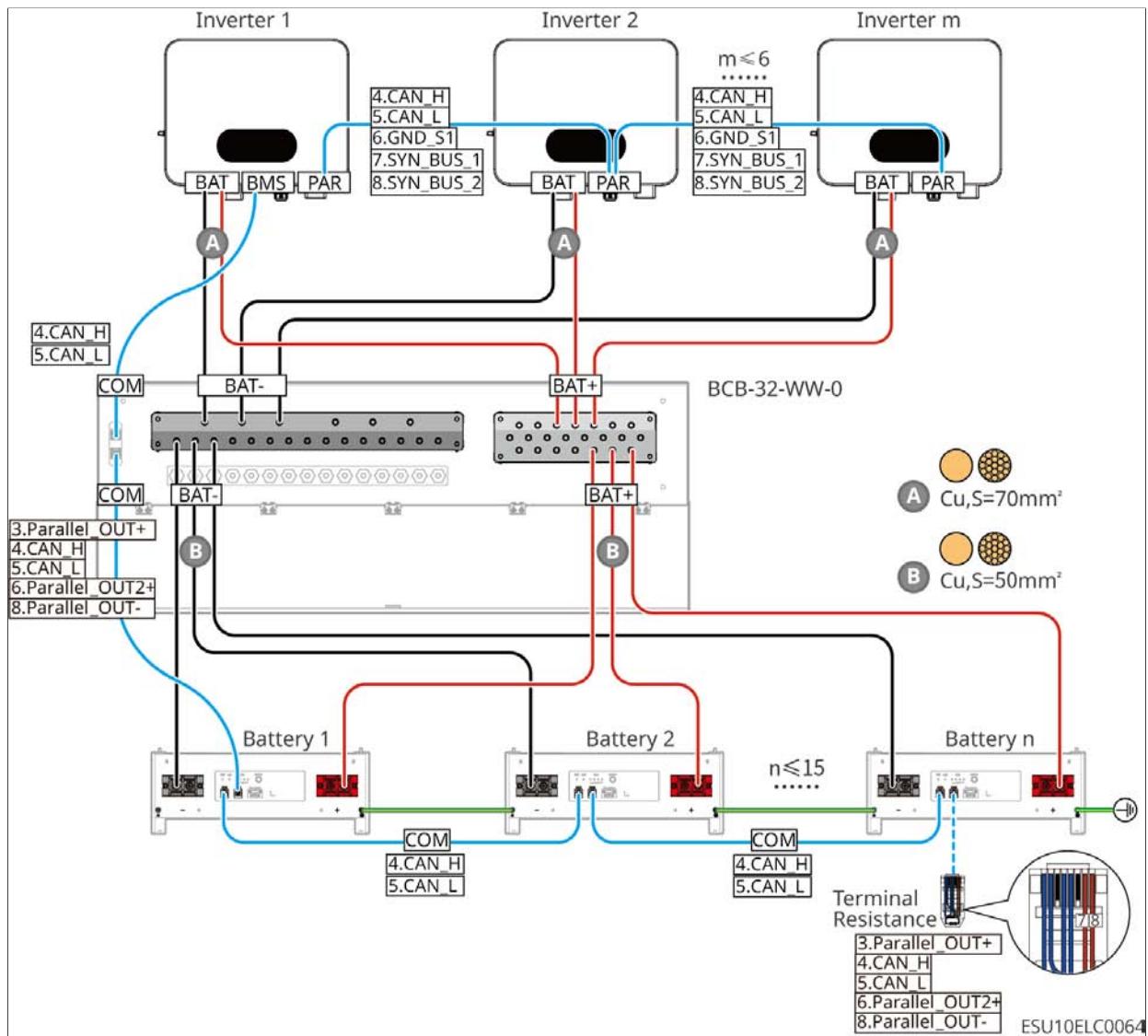
LXA5.0-30: Compatible with busbar BCB-22-WW-0 connection method

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



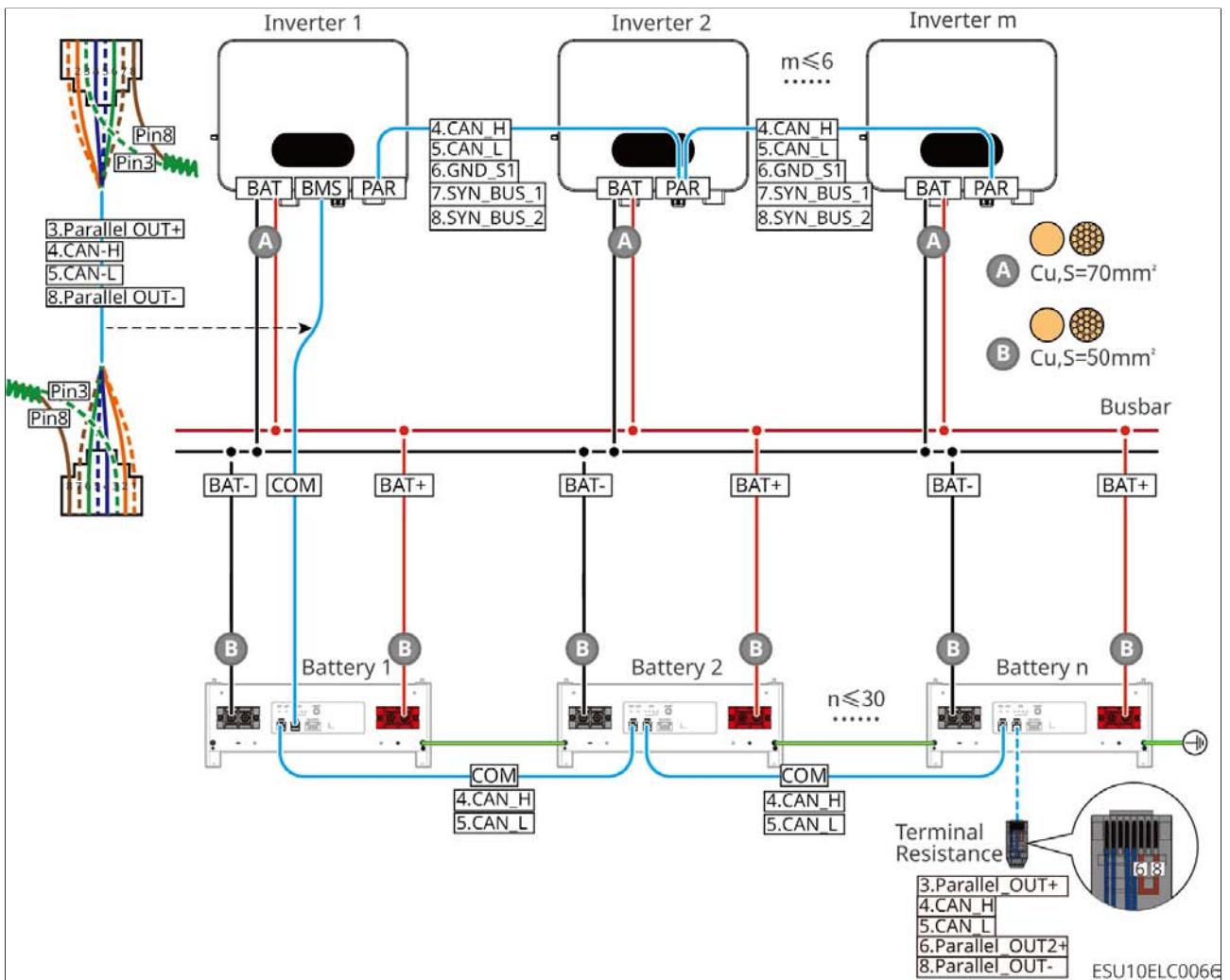
LXA5.0-30: Compatible with busbar BCB-32-WW-0 connection method

- 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.



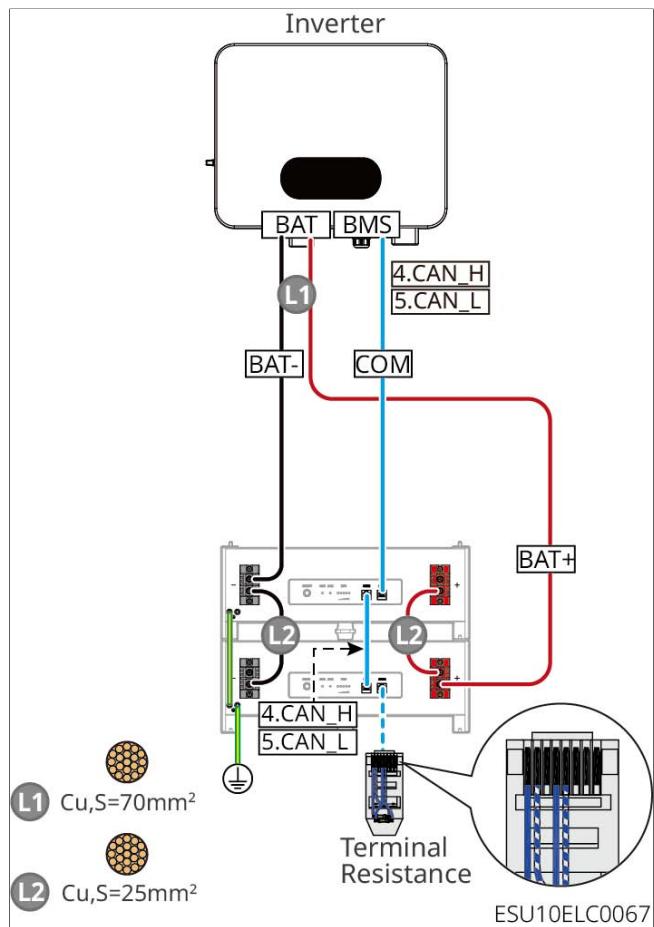
LXA5.0-30: Compatible with third-party busbar connection method

- 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 single system supports a maximum of 30 units in parallel.



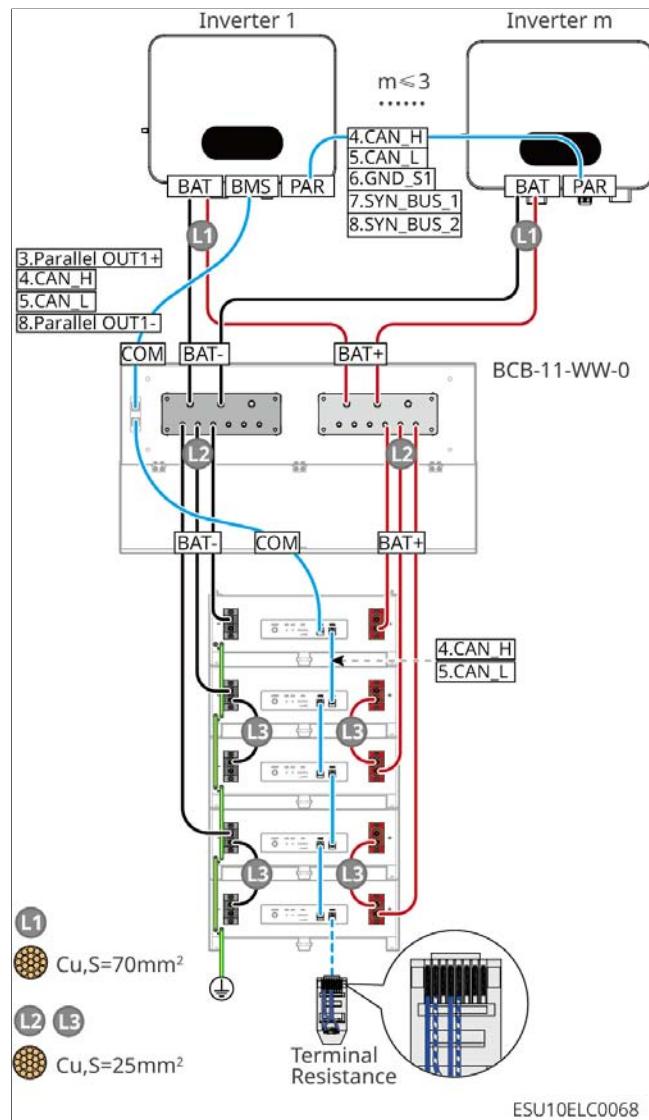
LX A5.0-10: Daisy-chain connection method

- The rated current of a single Battery The nominal charging and discharging current is 60A.
- Maximum support for 120A operation current, 6kW operation Power, maximum connection of 1 Inverter, 2 Battery



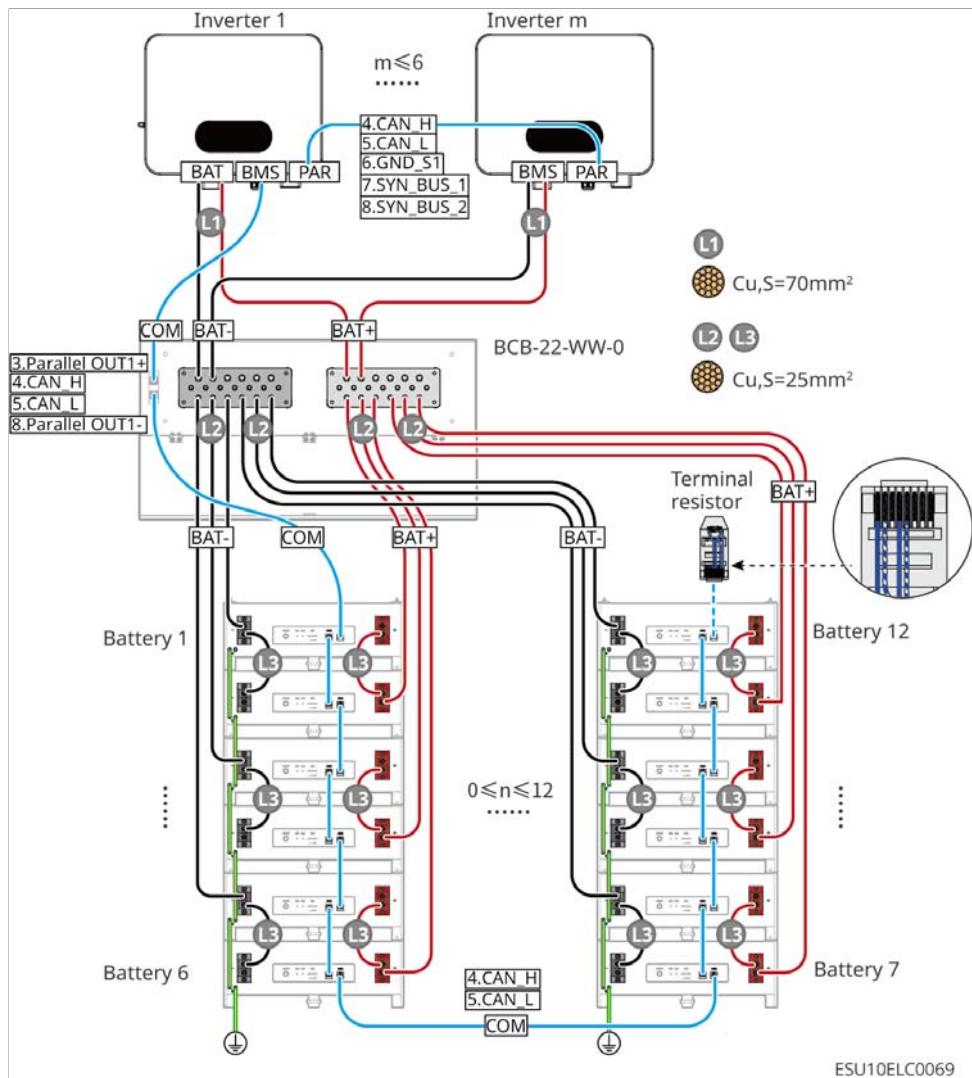
LX A5.0-10: Battery in conjunction with busbar BCB-11-WW-0 connection method

- The rated current of a single Battery The nominal charging and discharging current is 60A.
- Battery system Maximum support Battery system up to 360A operation current, 18kW operation Power, maximum connection of 3 Inverter units, 6 Battery units



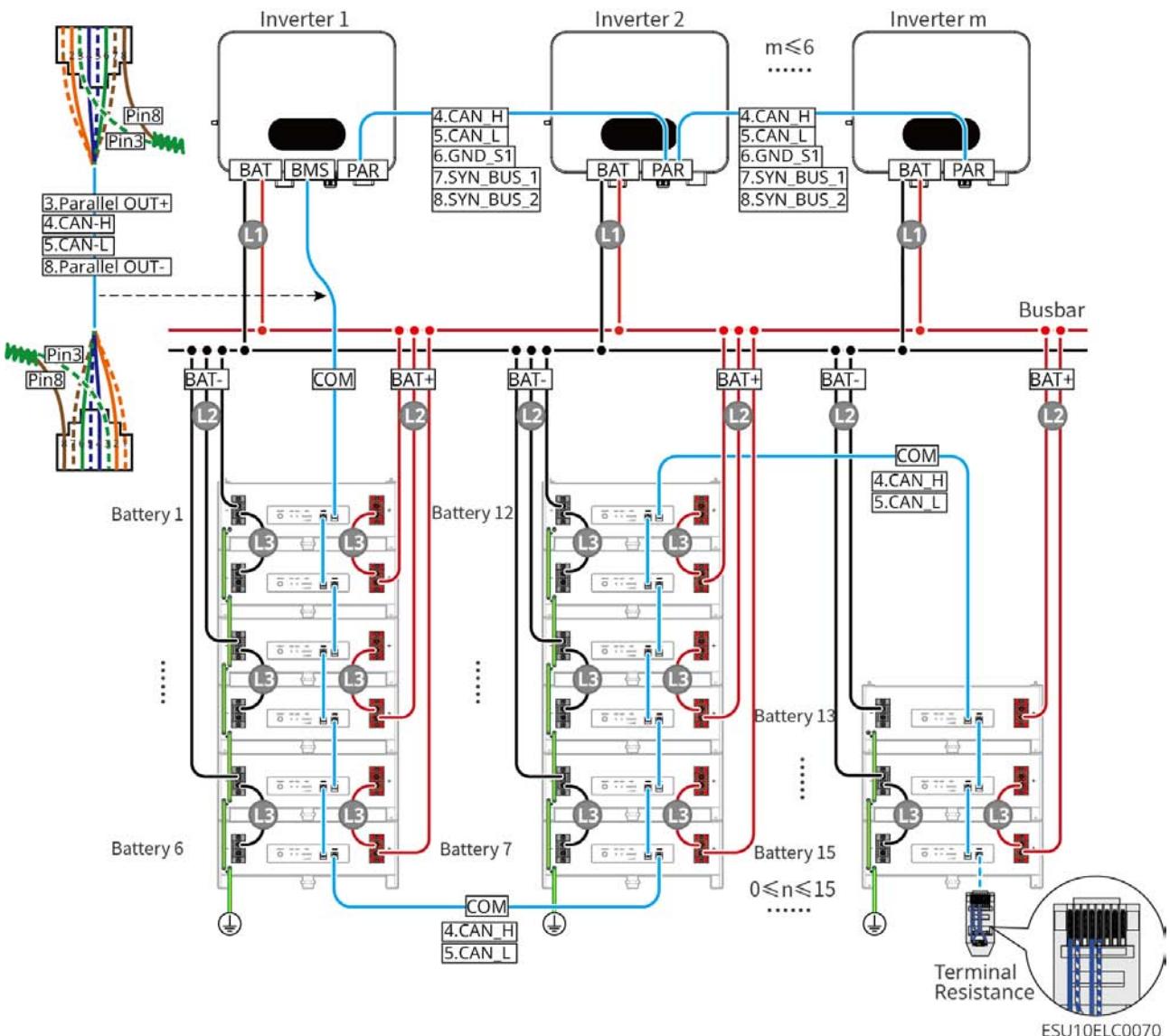
LX A5.0-10: Battery compatible with busbar BCB-22-WW-0 connection method

- The single Battery The nominal charging and discharging current is 60A.
- Battery system supports a maximum working current of 720A current, a working power of 36kW Power, and can connect up to 6 Inverter units and 12 Battery units.

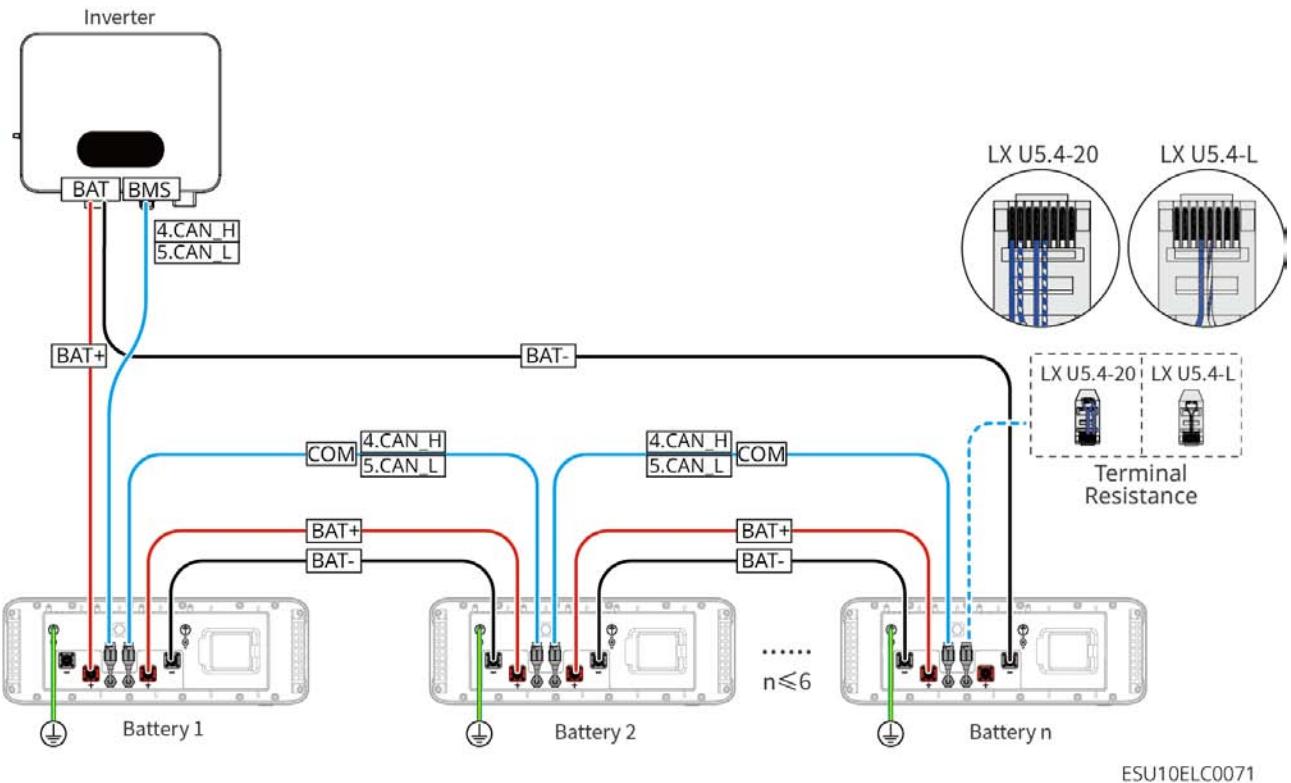


LX A5.0-10: Battery in conjunction with third-party busbar connection method

- The rated current of a single Battery The nominal charging and discharging current is 60A.
- The complexity of the parallel system increases with the number of Inverter parallel units. When the number of Inverter parallel units in the system is ≥ 6 , please contact the after-sales service center to confirm the Inverter Installation application environment to ensure stable system operation.
- Maximum support for 900A operation current, 45kW operation Power, and 15 units Battery

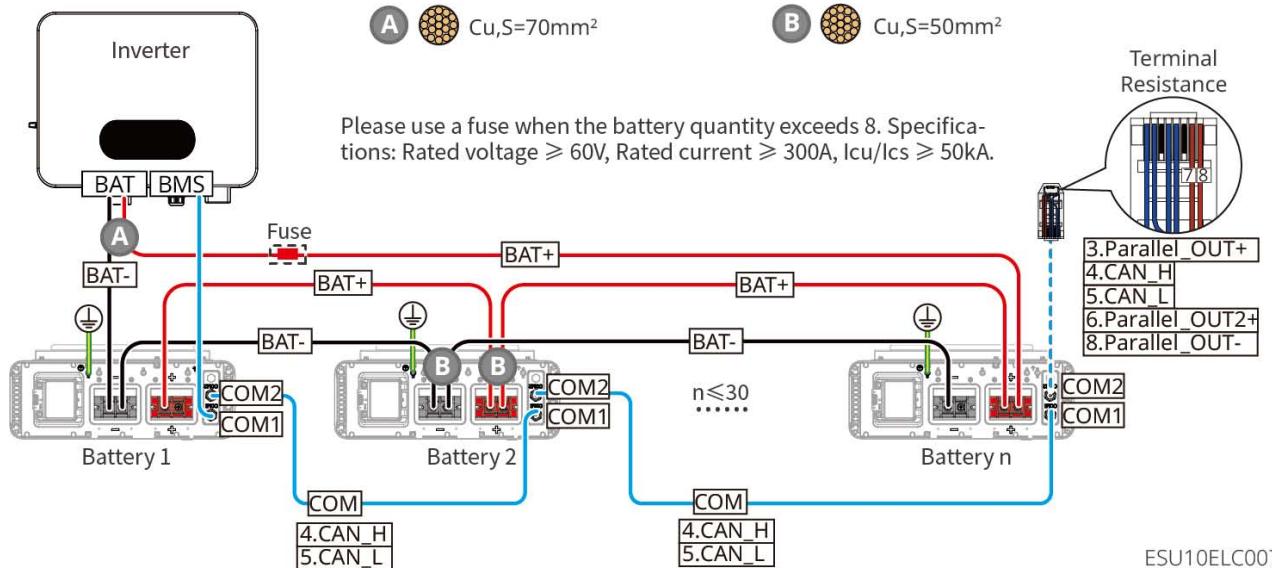


LX U5.4-L, LX U5.4-20: Daisy-chain connection method



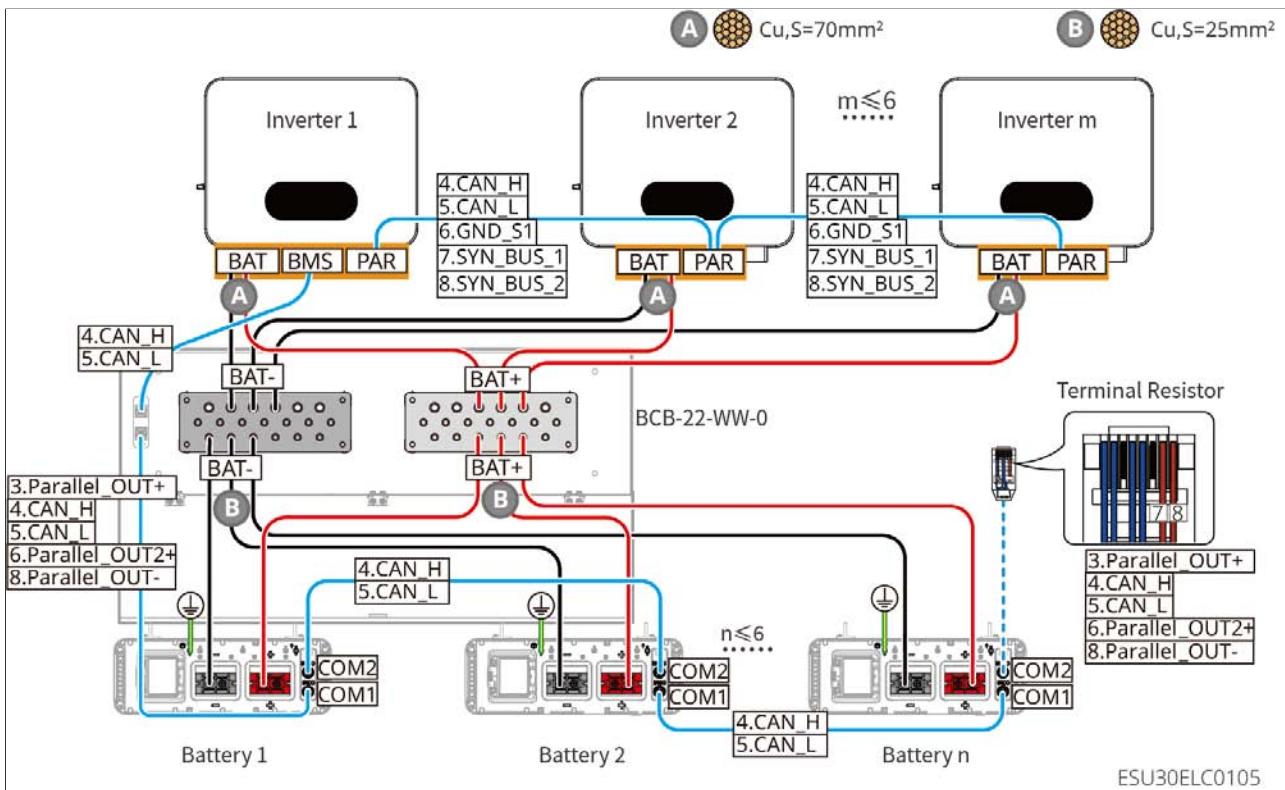
ESU10ELC0071

LX U5.0-30: Daisy-chain connection method

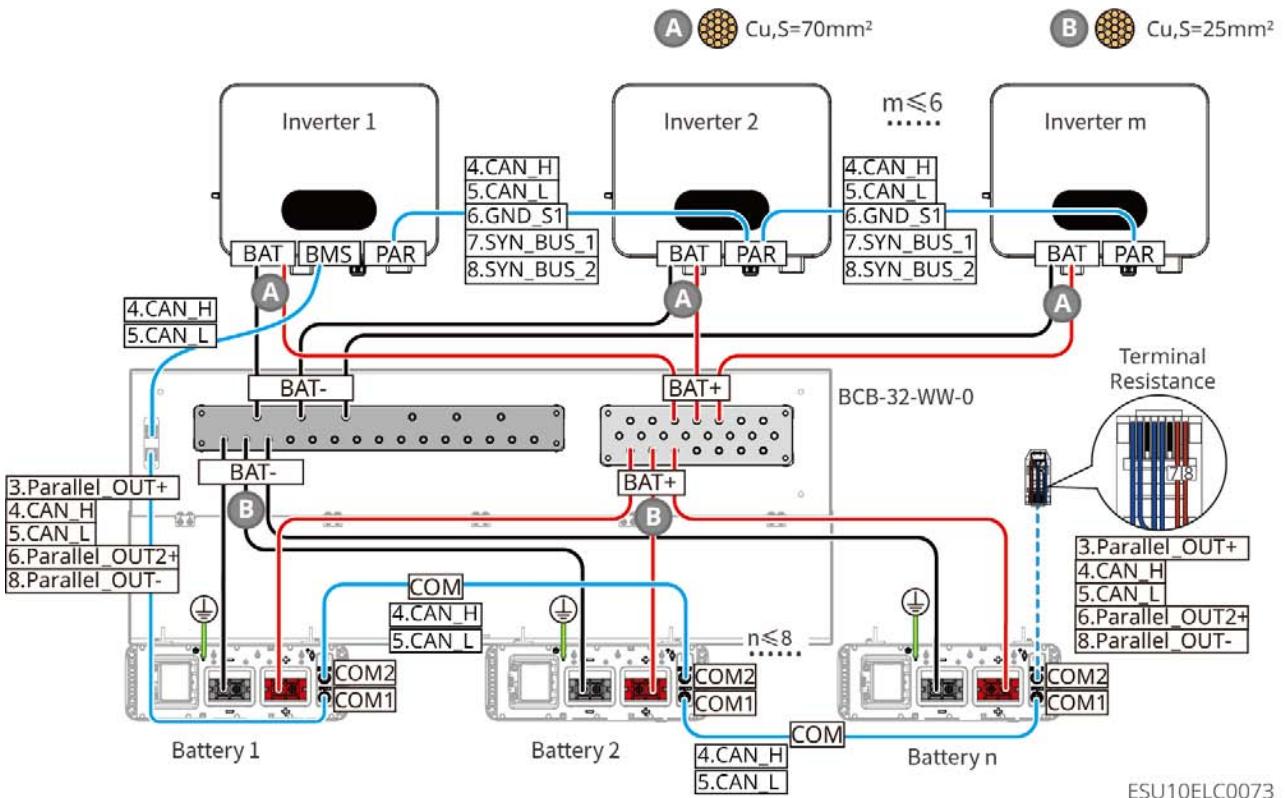


ESU10ELC0072

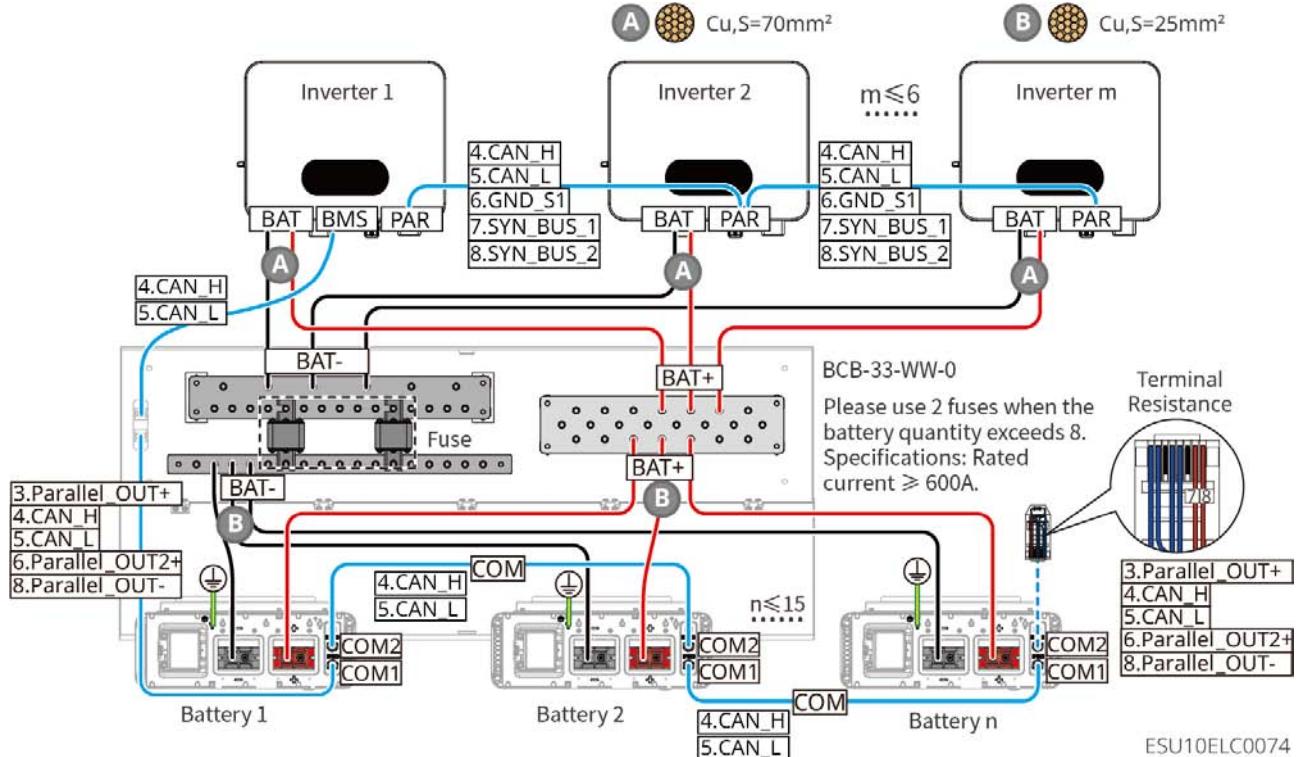
LX U5.0-30: When the number of Battery is ≤ 6 , Battery is paired with the BCB-22-WW-0 connection method.



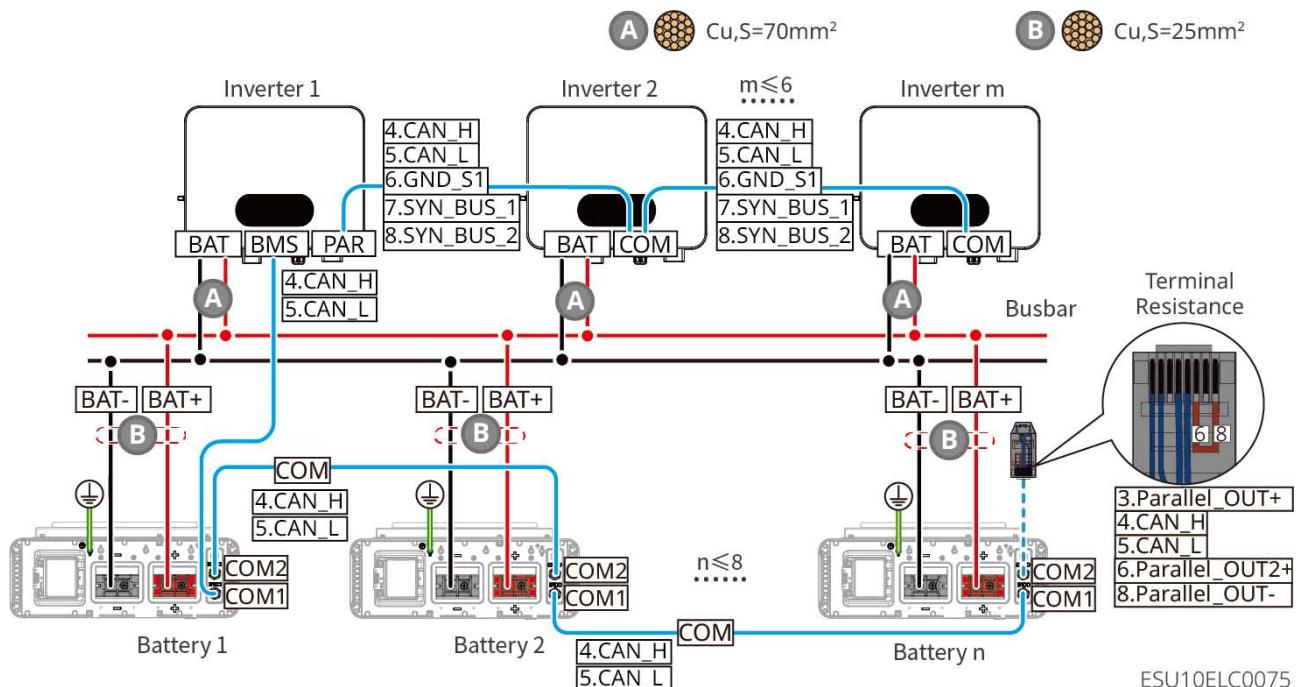
LX U5.0-30: When the number of Battery is ≤ 8 , Battery is paired with BCB-32-WW-0 connection method.



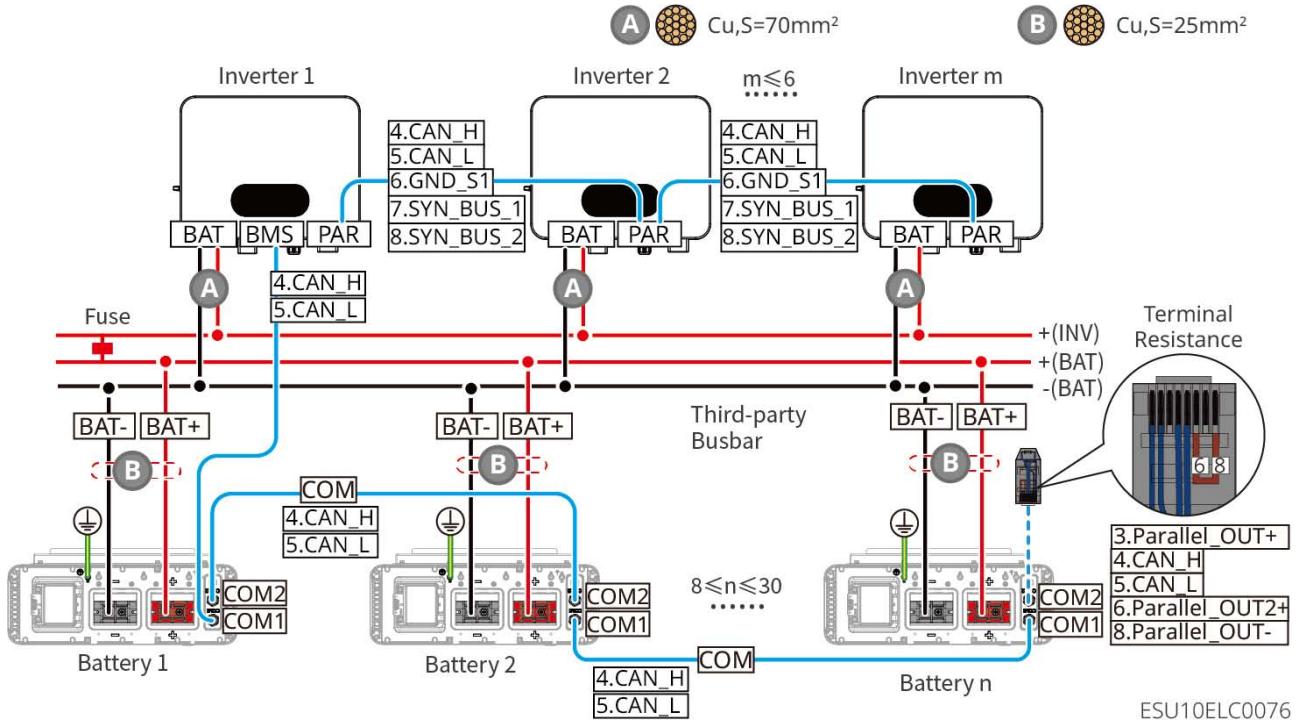
LX U5.0-30: When the number of Battery is ≤ 15 , Battery is connected using the busbar BCB-33-
WW-0.



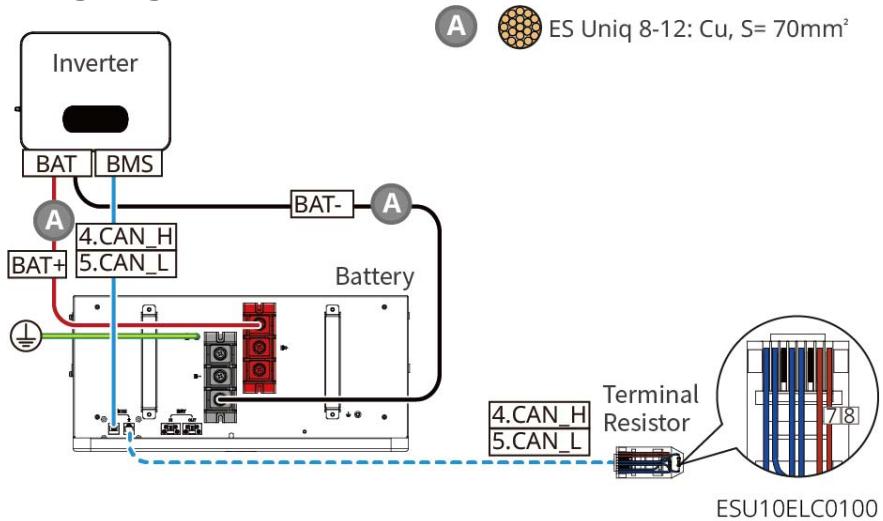
LX U5.0-30: When the number of Battery is ≤8, Battery adopts a third-party combiner box connection method.



LX U5.0-30: When the number of Battery exceeds 8 units, Battery shall be connected via a third-party busbar.

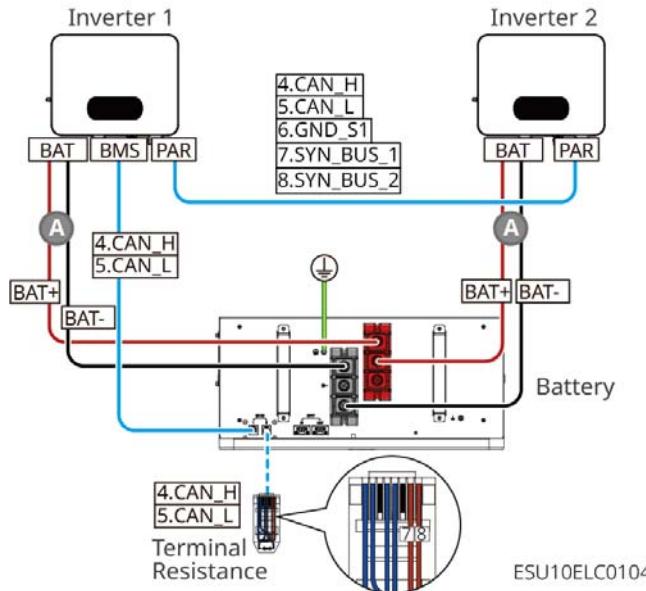


GW14.3-BAT-LV-G10: When Battery is directly connected to a single 1-channel output Inverter, the wiring diagram is as follows:

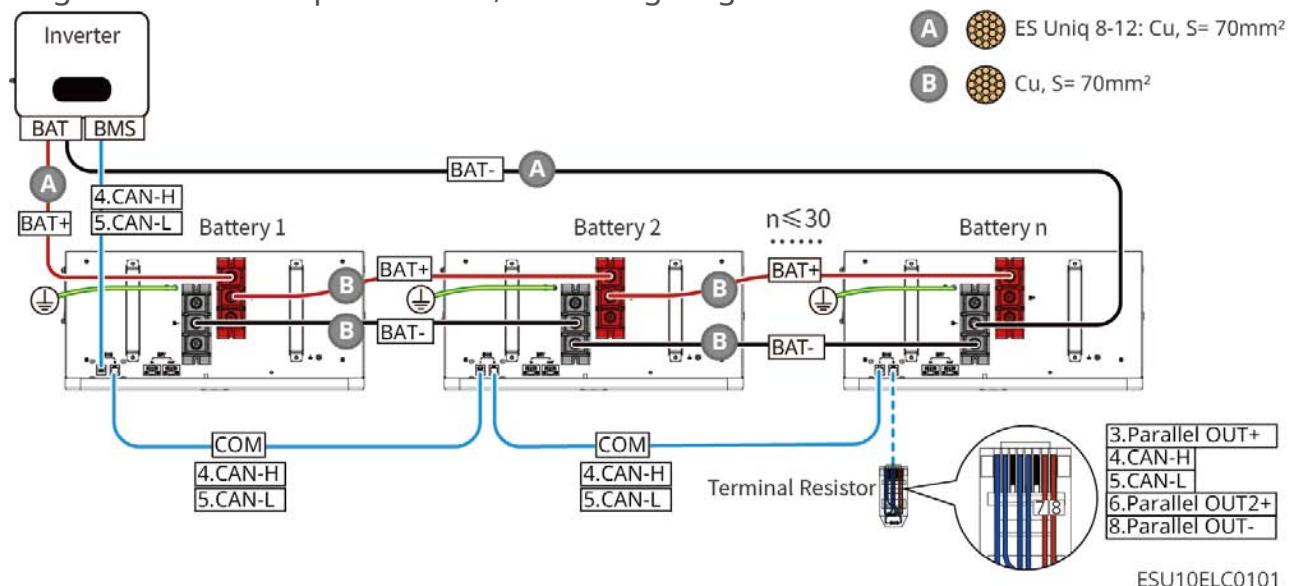


GW14.3-BAT-LV-G10: When Battery is directly connected to two single-output Inverter units, the wiring diagram is as follows:

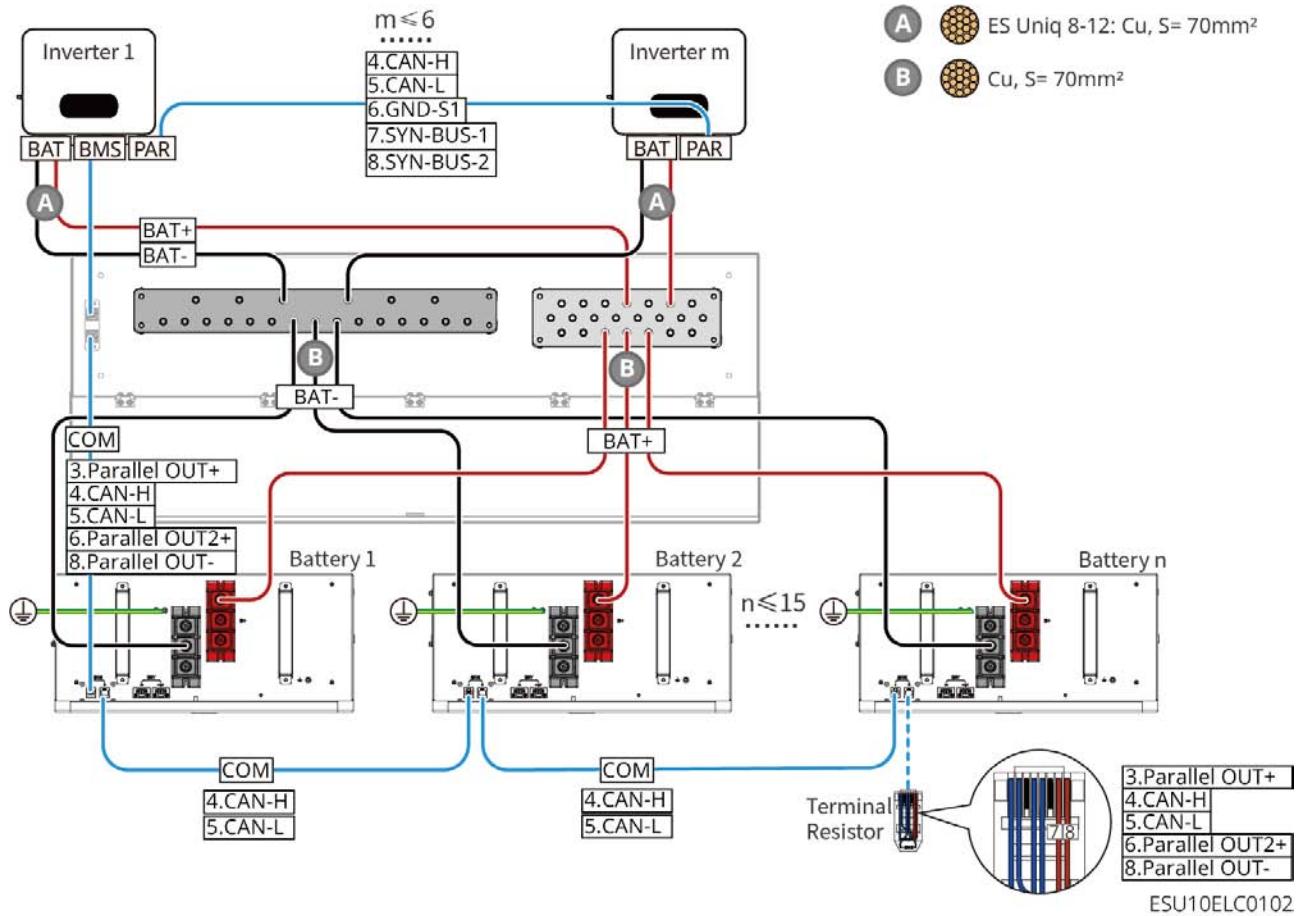
(A) ES Uniq 8-12: Cu, S= 70mm²



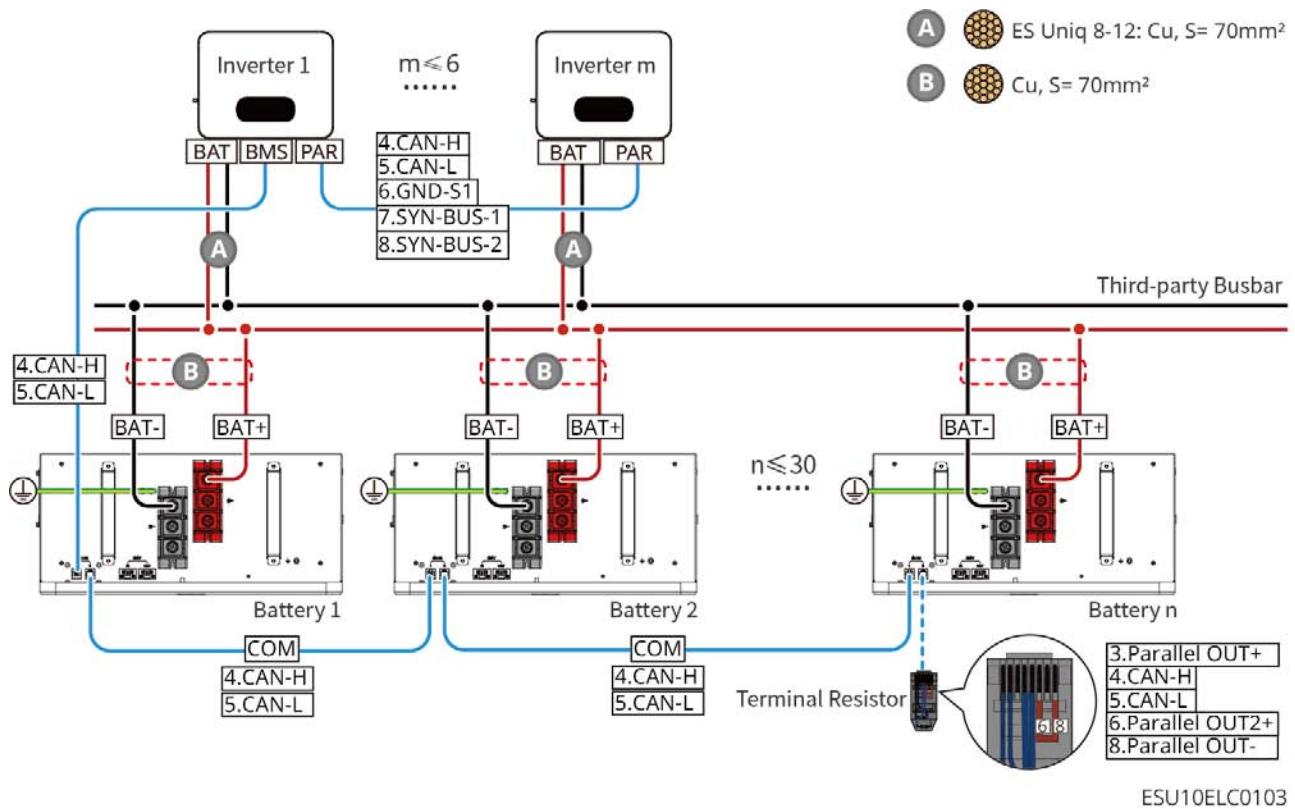
GW14.3-BAT-LV-G10: When Battery is connected in a daisy-chain configuration with a single 1-channel output Inverter, the wiring diagram is as follows:



GW14.3-BAT-LV-G10: When the number of Battery is less than or equal to 15, and a busbar (BCB-32-WW-0, current <720A) is used to connect one output Inverter, the wiring diagram is as follows:



GW14.3-BAT-LV-G10: When the quantity of Battery is less than or equal to 30, and a third-party busbar is used to connect one output Inverter, the wiring diagram is as follows:



LX A5.0-30 Communication Port Definition

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

LX A5.0-10 Communication Port Definition

PIN	COM1	COM2	Description
1	-	-	Reserved
2	-	-	
3	Parallel OUT+	Parallel OUT+	Parallel connection Communication Port
4	CAN_1H	CAN_1H	

PIN	COM1	COM2	Description
5	CAN_1L	CAN_1L	Connect Inverter communication or Battery cluster Communication Port
6	-	-	Reserved
7	-	-	
8	Parallel OUT-	Parallel OUT-	Parallel operation

LX U5.4-L, LX U5.4-20 Communication Port Definition

PIN	COM1	COM2	Description
1	RS485A	RS485A	RS485 communication
2	RS485B-	RS485B-	
3	CAN_H	CAN_H	Parallel operation
4	CAN_L	CAN_L	Connect Inverter communication or Battery and cluster Communication Port
5	-	-	Reserved
6	-	-	Reserved
7	-	-	Reserved
8	-	-	Reserved

LX U5.0-30 Communication Port Definition

PIN	COM1	COM2	Description
1	RS485A	RS485A	Reserved
2	RS485B-	RS485B-	
3	Parallel OUT+	Parallel OUT+	Parallel operation
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
7	-	-	Reserved
8	Parallel OUT-	Parallel OUT-	Parallel operation

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

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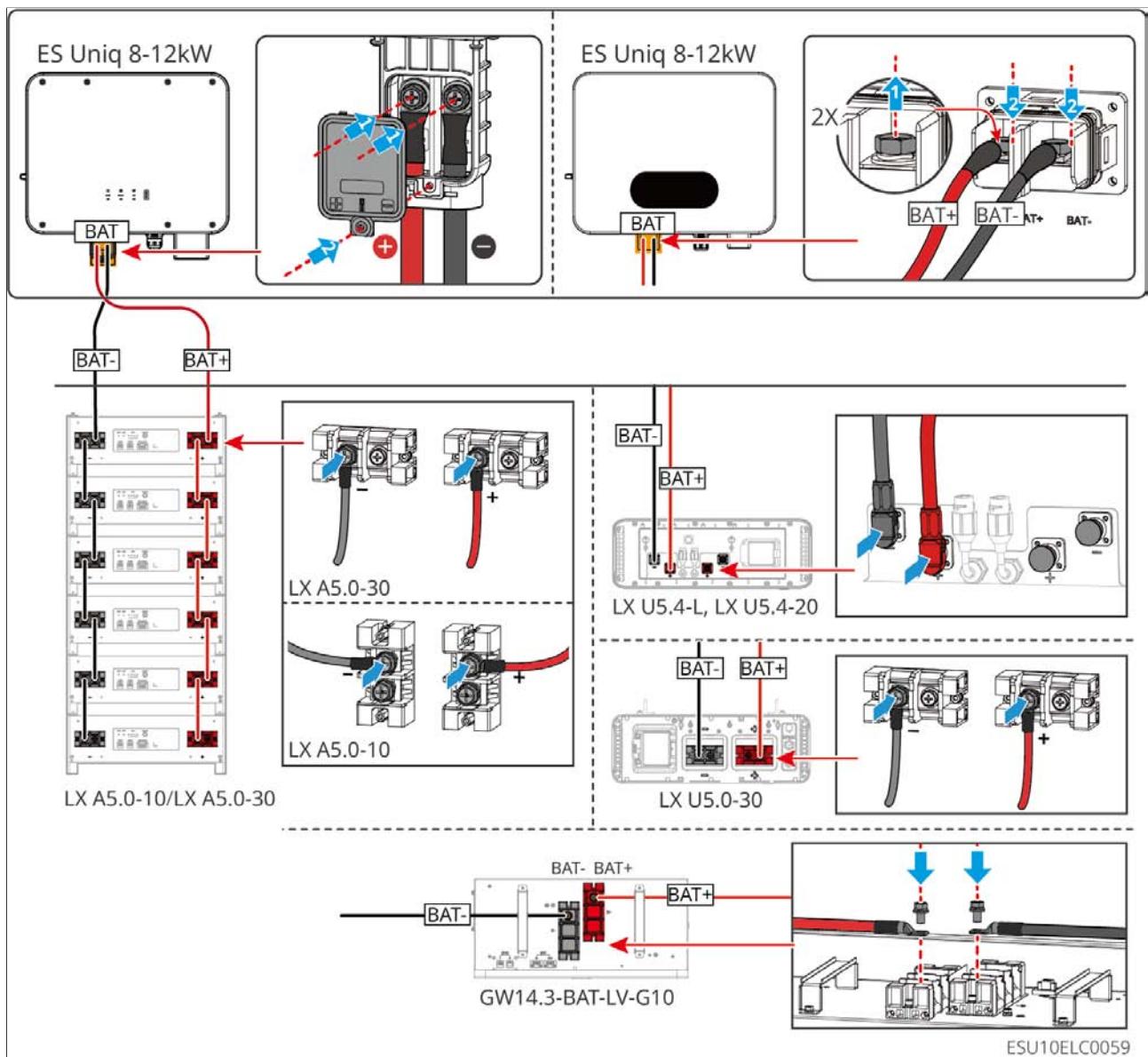
1	RS485A	RS485A	Reserved
2	RS485B-	RS485B-	
3	Parallel OUT+	Parallel OUT+	Parallel operation
4	CAN_H	CAN_H	Connect Inverter communication or
5	CAN_L	CAN_L	Battery and cluster Communication Port
6	Parallel OUT2+	Parallel OUT2+	Parallel operation
7	-	-	Reserved
8	Parallel OUT-	Parallel OUT-	Parallel operation

5.6.1 Connecting the Power Cable between the Inverter and Battery

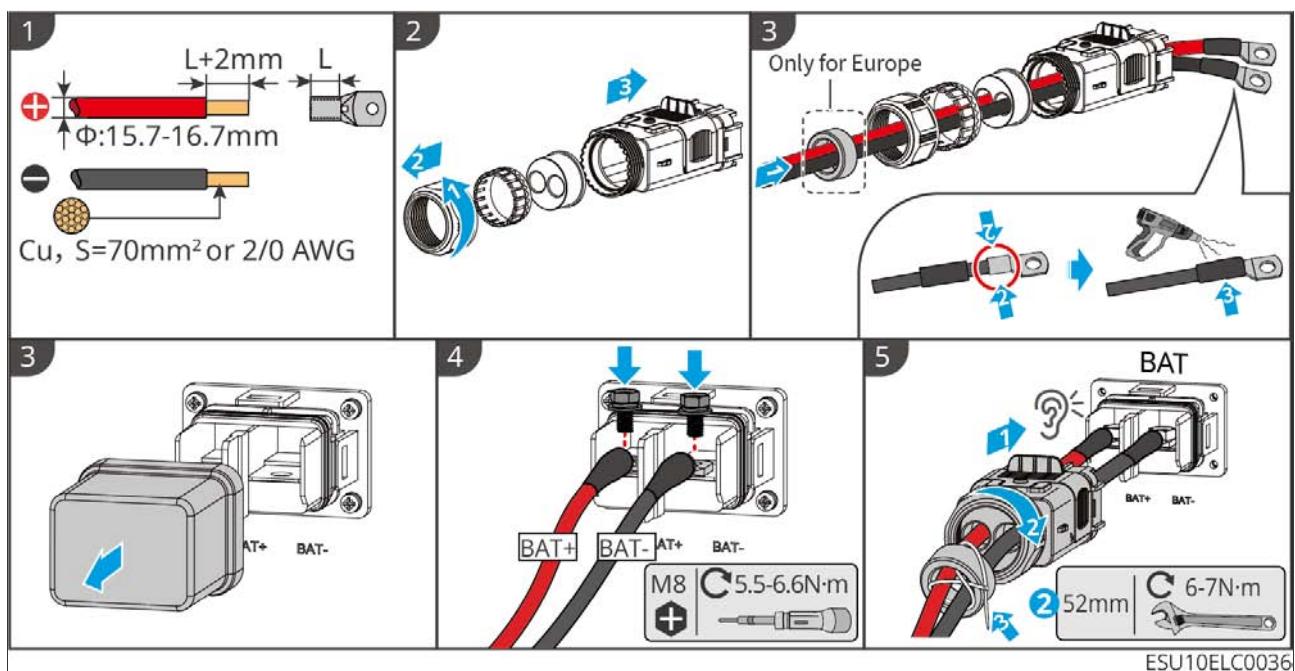
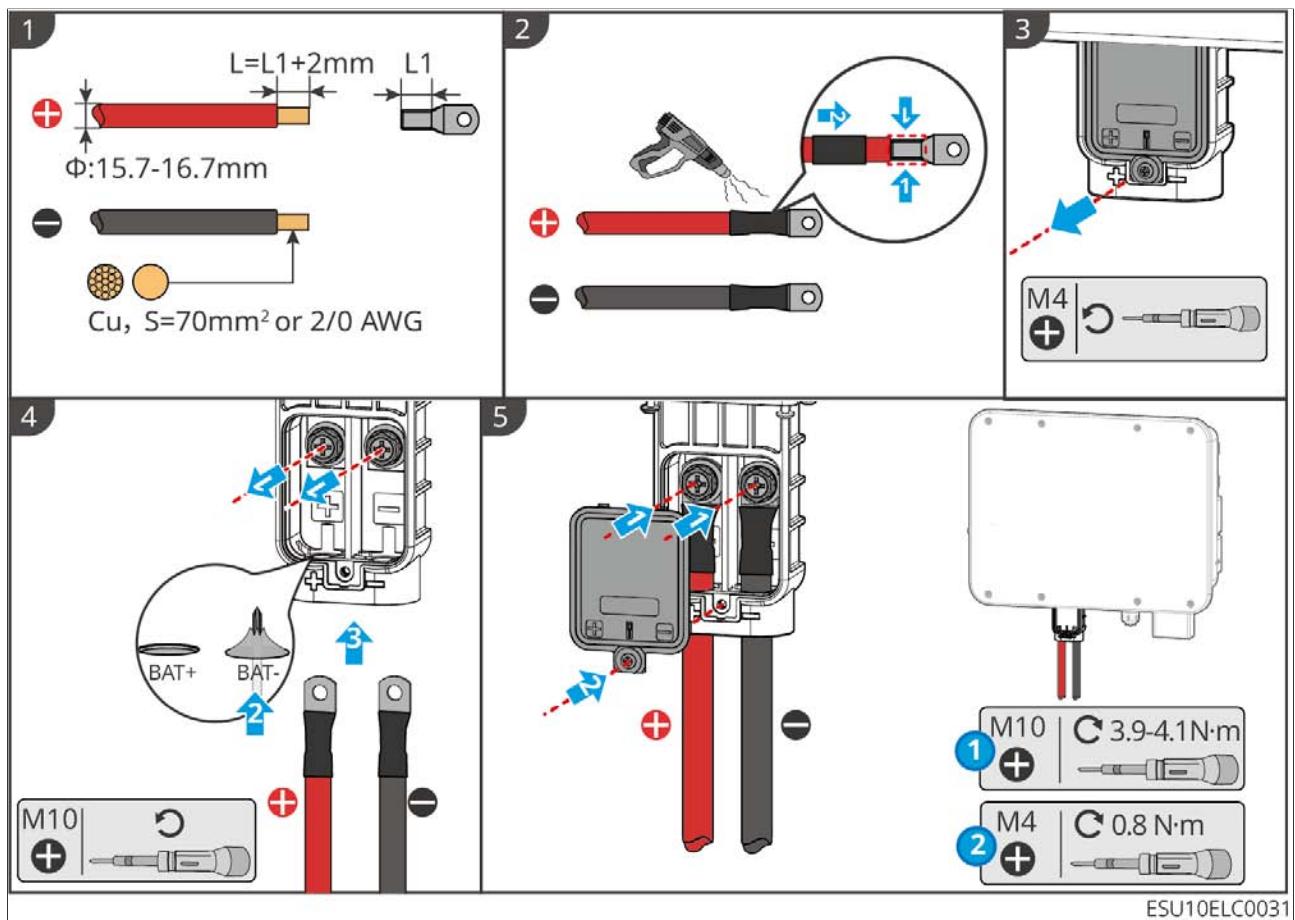
 **WARNING**

- Use a multimeter to measure the positive and negative poles of the DC cable, ensuring correct polarity without reverse connection; and confirm the voltage is within the allowable range.
- During wiring, ensure that the Battery wire fully matches the "BAT+", "BAT-", and grounding port 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 damage.
- Do not connect the same Battery group to multiple Inverters, as this may cause damage to the Inverter.

Overview of Inverter and Battery power cable



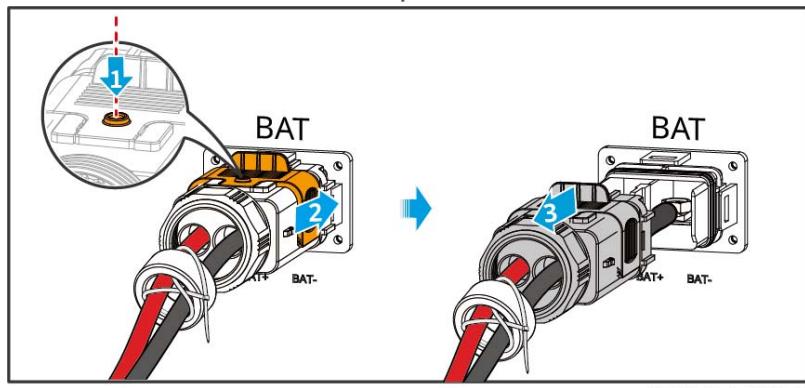
Terminal cable fabrication



- For some models, the Battery terminal screw is shipped locked to the Battery

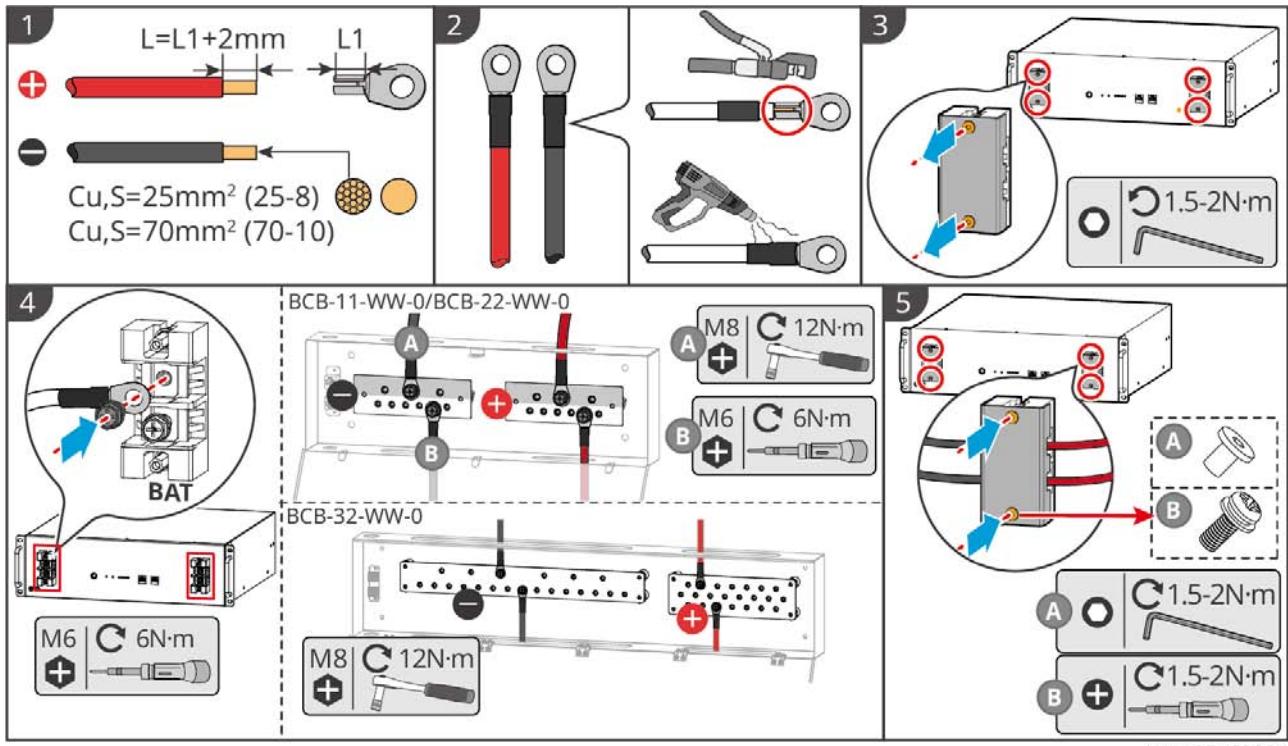
terminal. Please determine whether it is necessary to unscrew the screw based on actual conditions.

InverterBattery Cover Removal Method (Optional)



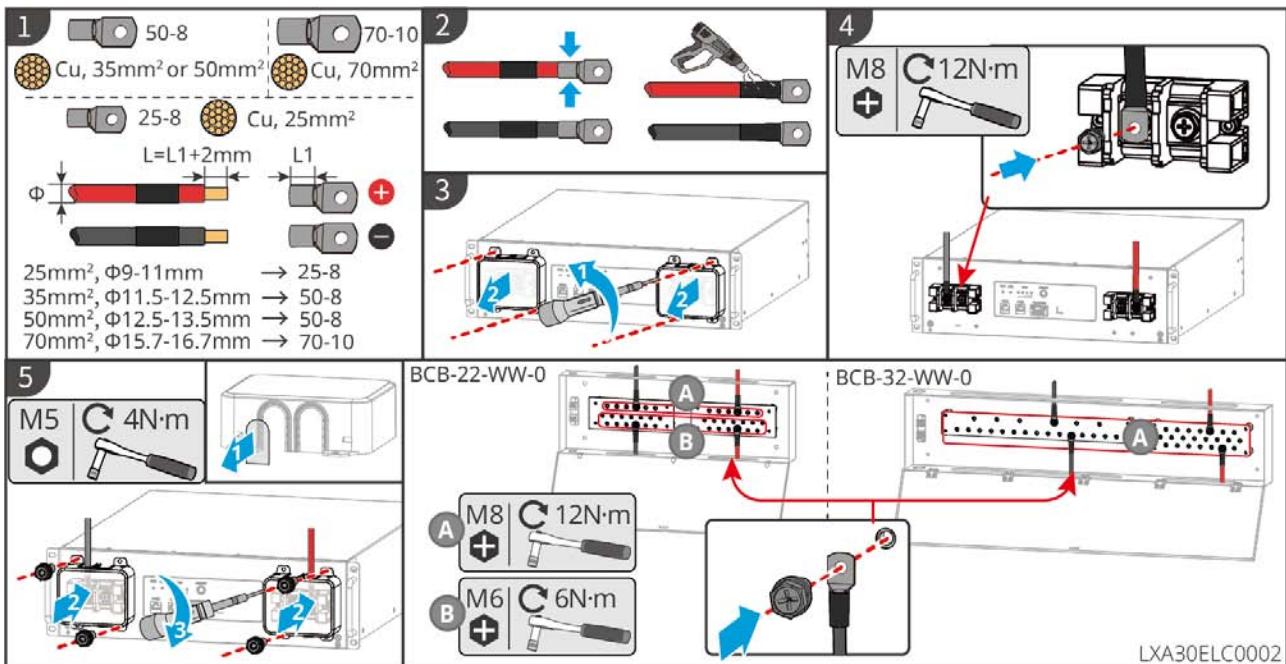
ESU10ELC0098

Terminal cable fabrication method (LX A5.0-10)

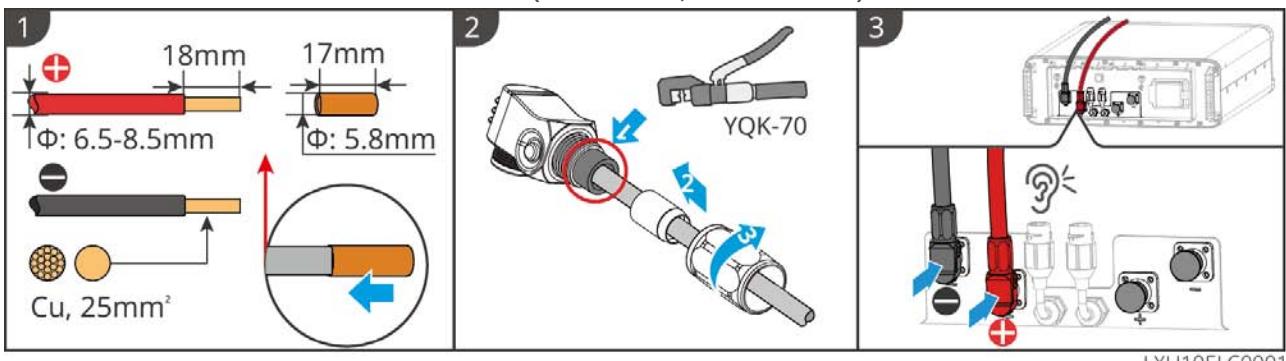


LXA10ELC0004

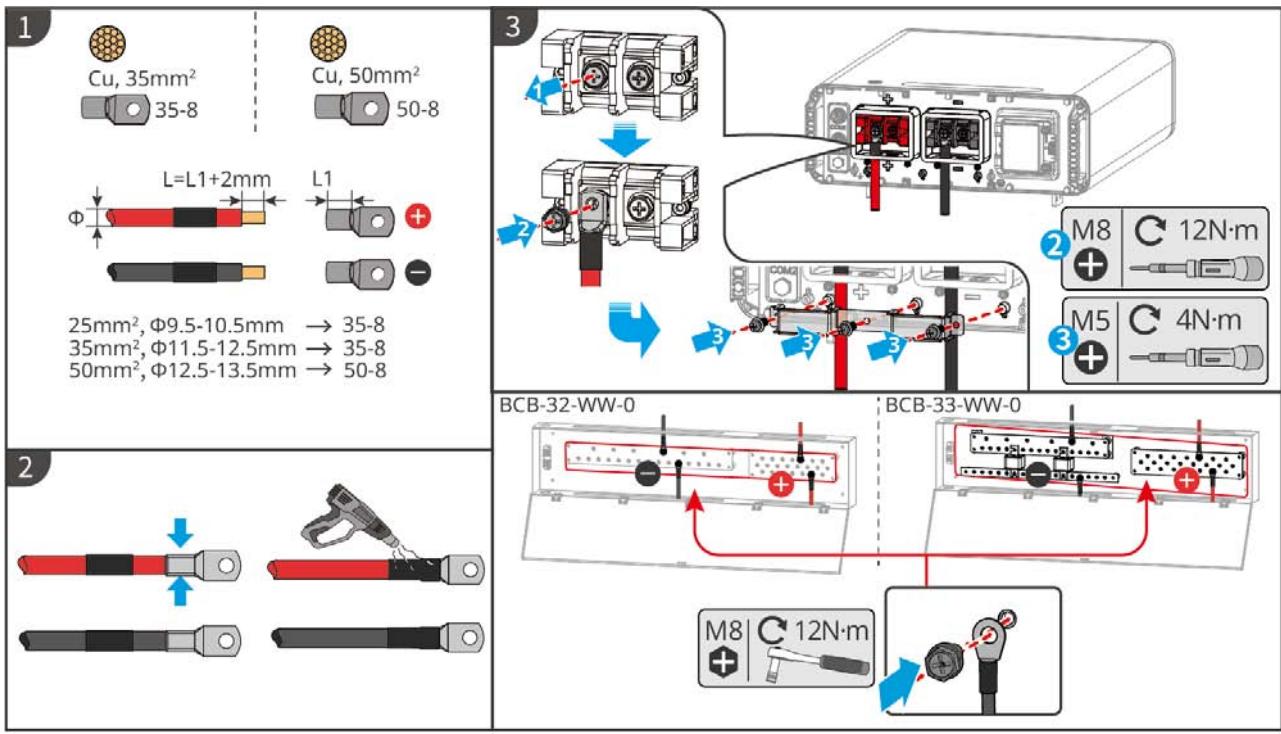
Cable termination method for Battery end (LX A5.0-30)



Terminal cable fabrication method (LX U5.4-L, LX U5.4-20)

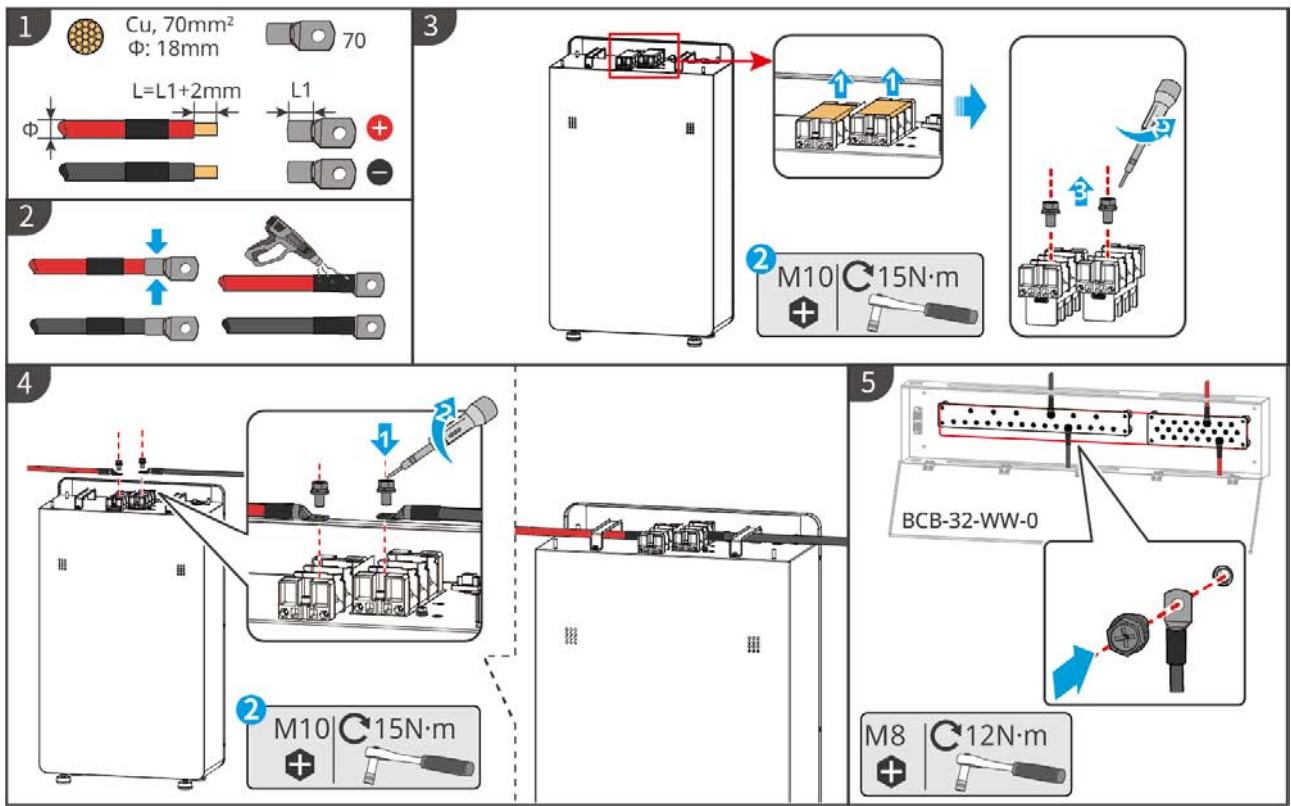


Terminal Cable Fabrication Method (LX U 5.0-30)



Cable termination method for Battery end (GW14.3-BAT-LV-G10)

- GW14.3-BAT-LV-G10: If the power cable cable is shipped with the Battery accessory, please use the shipped cable without crimp.



LXA10ELC0015

5.6.2 Connecting the Communication Cable between the Inverter and Battery

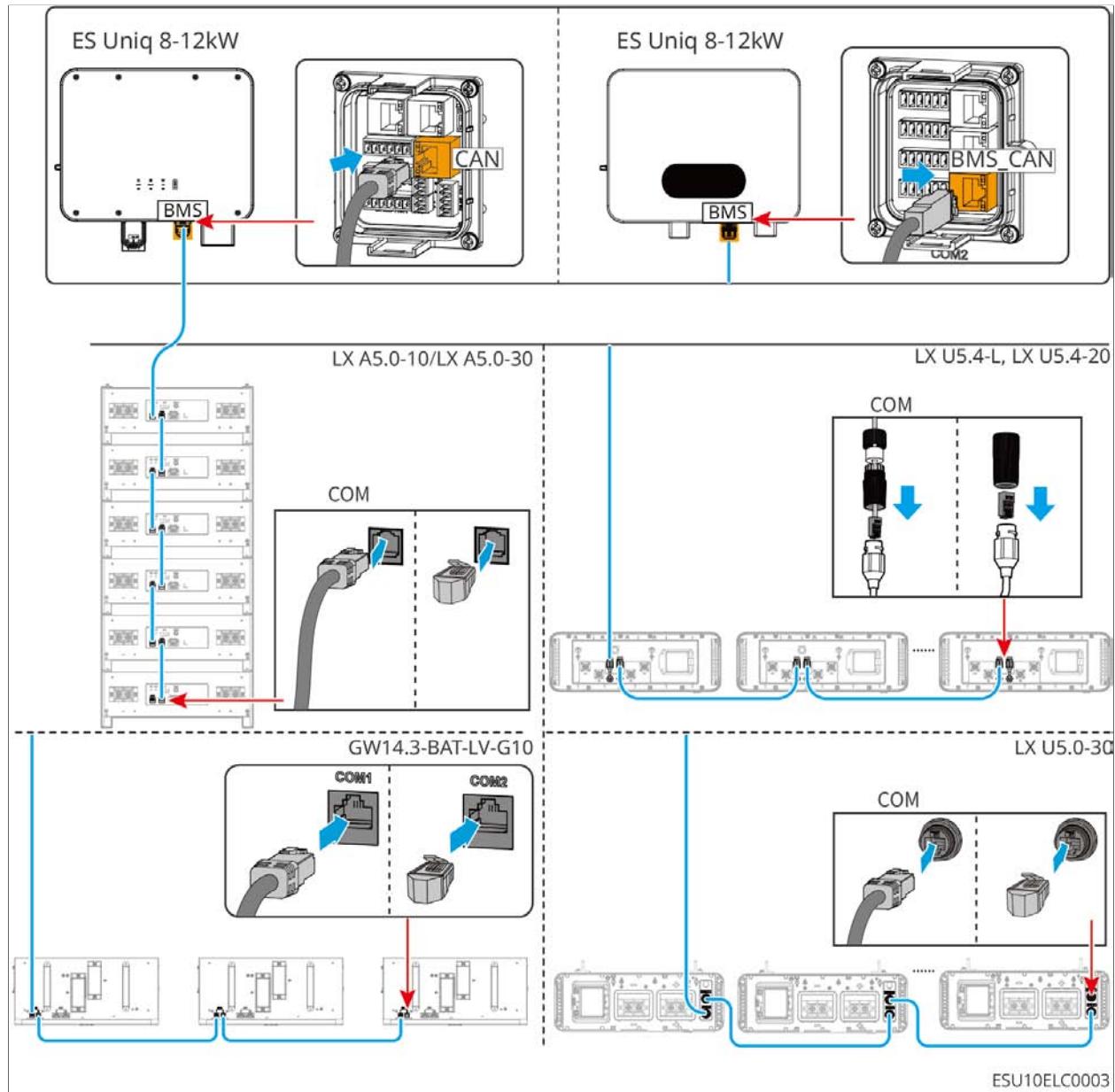
NOTICE

The BMSBatteryCommunication cable is included in the package. It is recommended to use the BMSBatteryCommunication cable provided with the package. If the included Communication cable does not meet the requirements, please prepare your own shielded network cable and shielded RJ45RJ45 connector. When crimping, only connect PIN4 and PIN5 of crimpRJ45 connector, otherwise communication failure may occur.

Description of BMS Communication Connection Between Inverter and Battery:

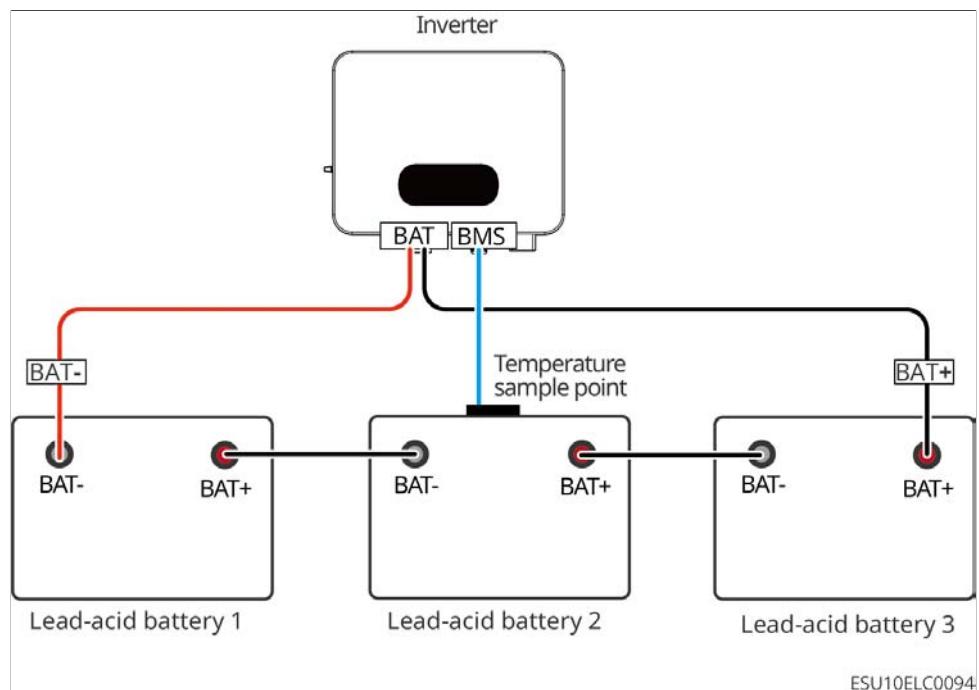
Inverter port	Connected to Battery port	port Definition	Description
---------------	---------------------------	-----------------	-------------

BMS(CAN)	COM1	4: CAN_H 5: CAN_L	<ul style="list-style-type: none"> • Inverter and Battery communicate via CAN bus. • InverterBMSport is connected to BatteryCOM1port
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NOTICE

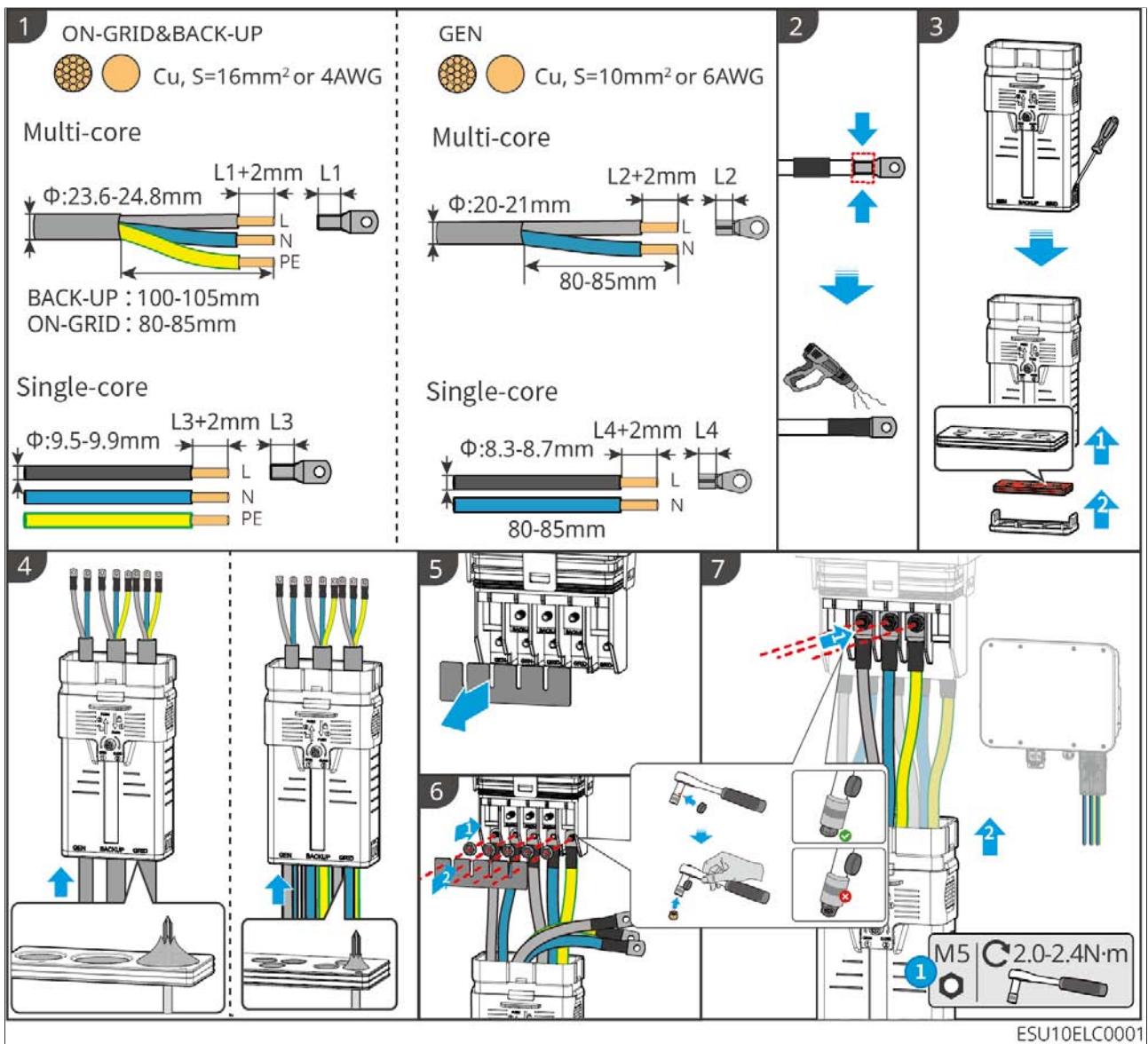
- When connecting the lead-acid battery temperature sensor cable, it is recommended to attach the sensor cable to a location with poor heat dissipation. For example: when lead-acid batteries are placed side by side, fix the sensor on the battery located in the middle.
- To better Protection the battery cell, it is necessary to Installation the temperature sampling line, and it is recommended to place the Battery in an environment with good heat dissipation.

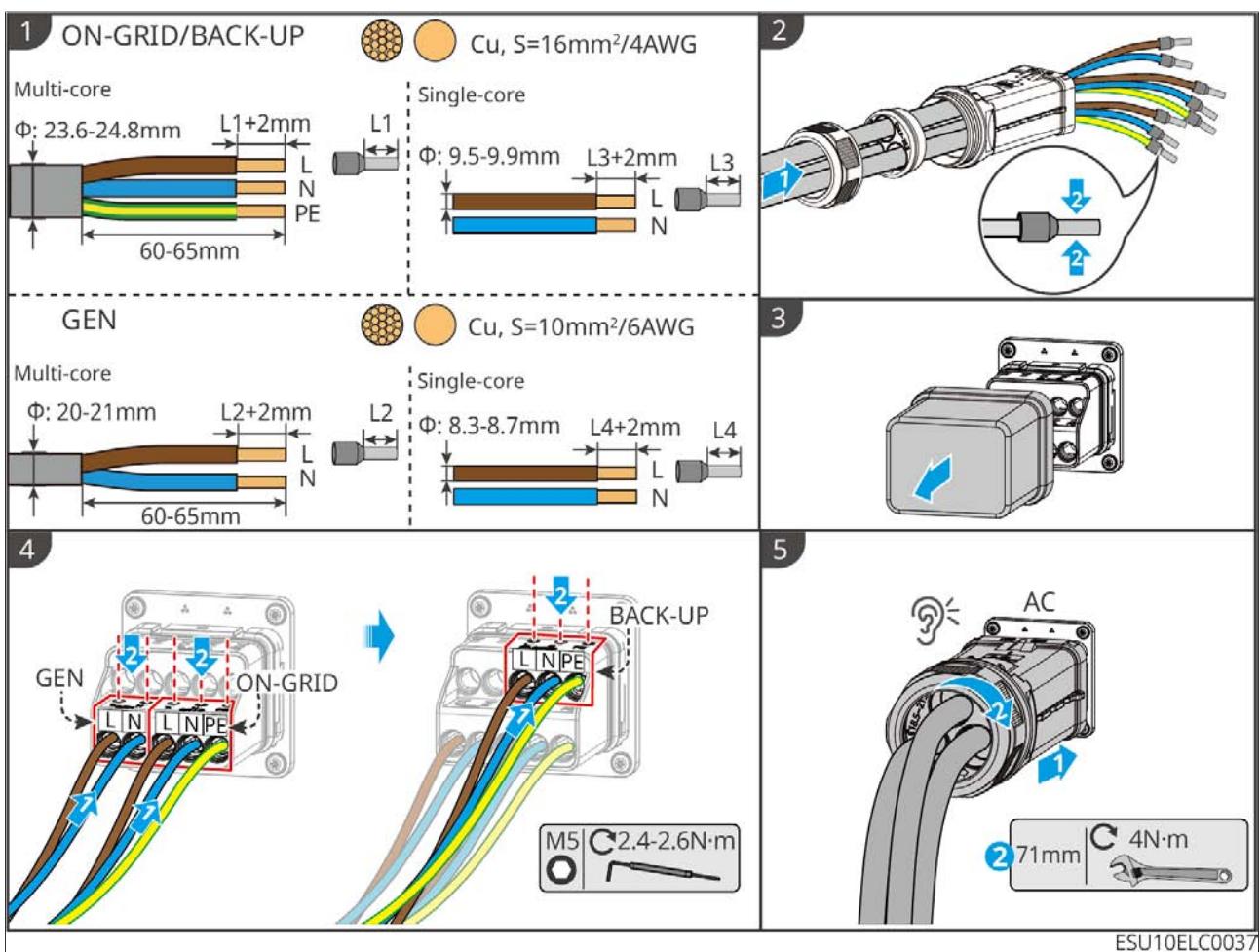


5.7 Connecting the AC Cable

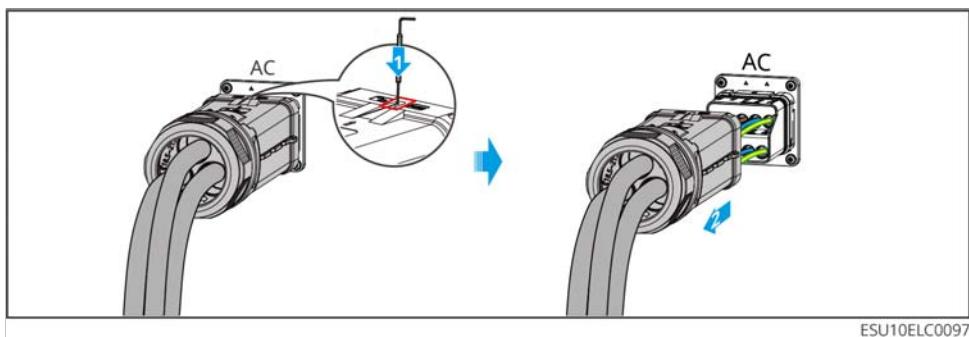
⚠️WARNING

- The Inverter internally integrates a residual current monitoring unit (RCMU) to prevent residual current from exceeding the specified value. When the Inverter detects a leakage current greater than the permissible value, it will quickly disconnect from the Utility grid.
- During wiring, ensure the AC cables are correctly matched with the "BACKUP", "ON-GRID", "GEN", and grounding terminals of the AC 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 that the insulating plate at the AC terminal is securely fastened and free from looseness.
- Ensure the cable connections are securely fastened; otherwise, overheating of the terminal terminals may occur during equipment operation, leading to device damage.





Inverter AC Cover Removal Method (Optional)



5.8 Connecting the Meter Cable

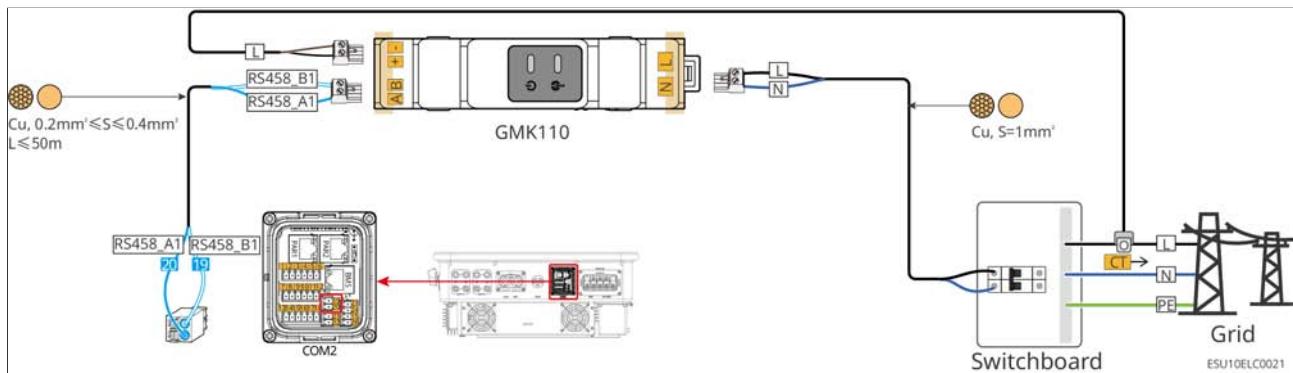
NOTICE

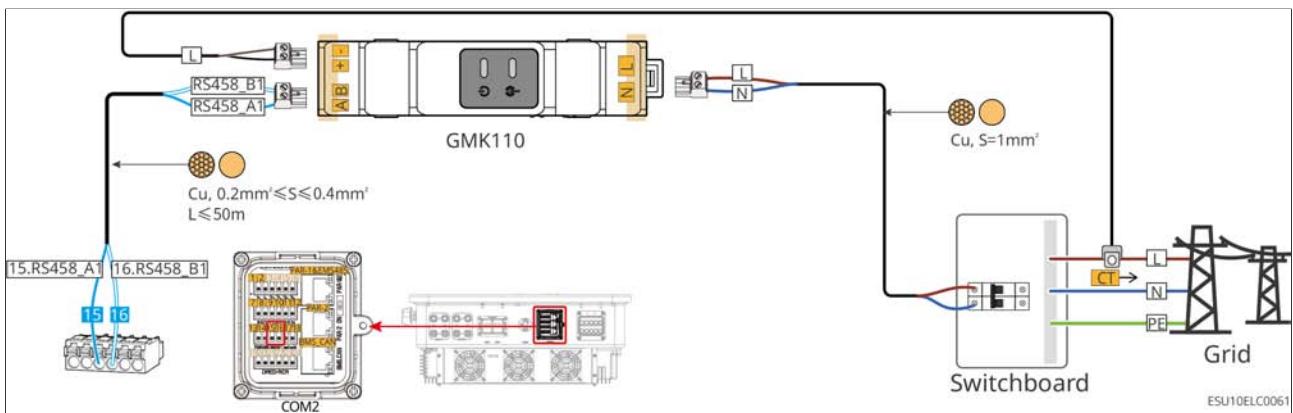
- If multiple Inverter units are required, please consult the manufacturer to purchase additional meters separately.
- Please ensure the CT connection direction is correct and the phase is accurate, otherwise it may lead to incorrect monitoring data.
- Ensure all cable connections are correct, secure, and free from looseness. Improper wiring may cause poor contact or damage to the meter.
- In areas with lightning DANGER, if the meter cable length exceeds 10m and the cable is not installed with grounded Steel conduit wiring, it is recommended to install an external lightning protection system.

GMK110 meter wiring

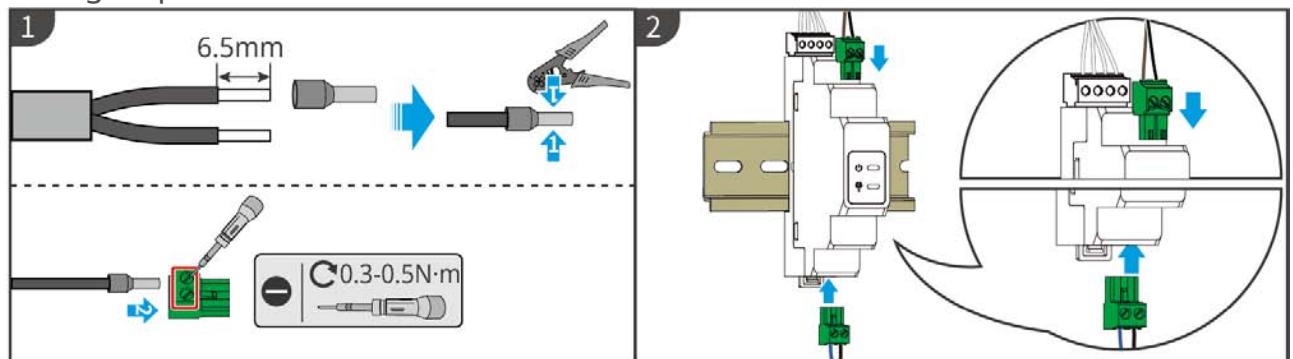
NOTICE

- The outer diameter of the AC power line must be smaller than the aperture of the CT to ensure the AC power line can pass through the CT.
- To ensure the current monitoring accuracy of the CT, the recommended length of the CT cable should not exceed 30m.
- Do not use network cables as CT cables, otherwise the meter may be damaged due to excessive current.
- The CTs provided by equipment manufacturers may vary slightly in size and appearance depending on the model, but the Installation wiring method remains consistent.



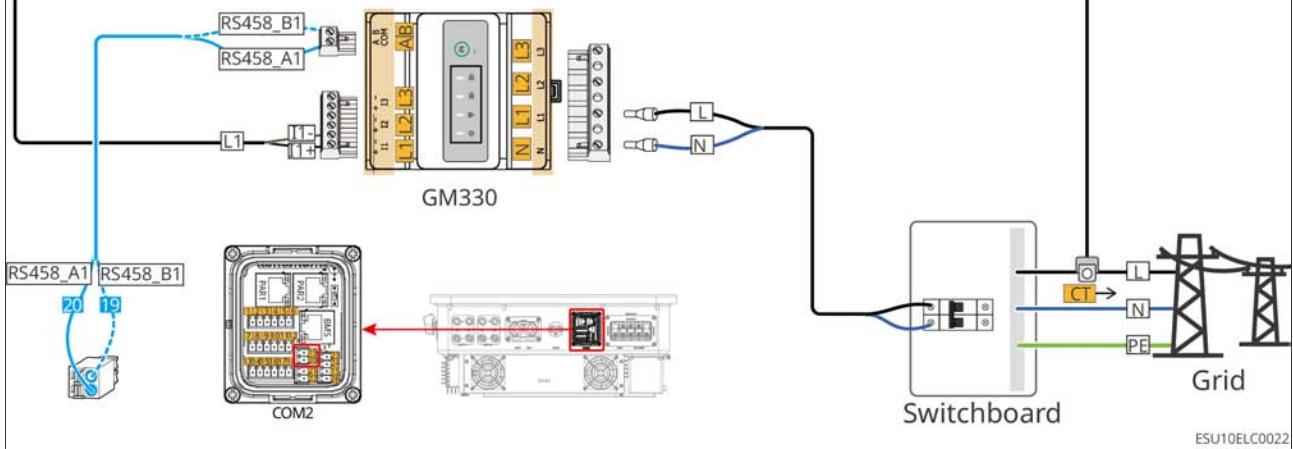


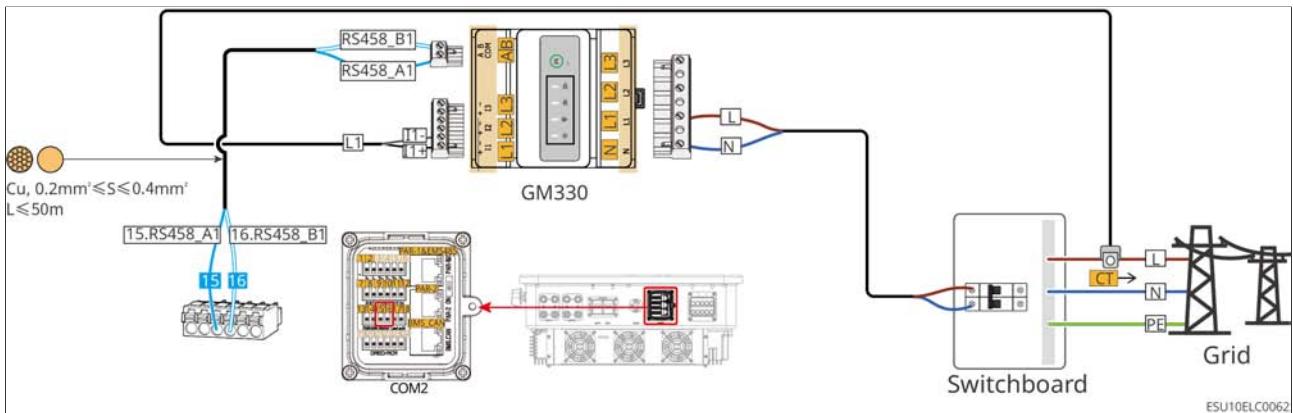
Wiring steps



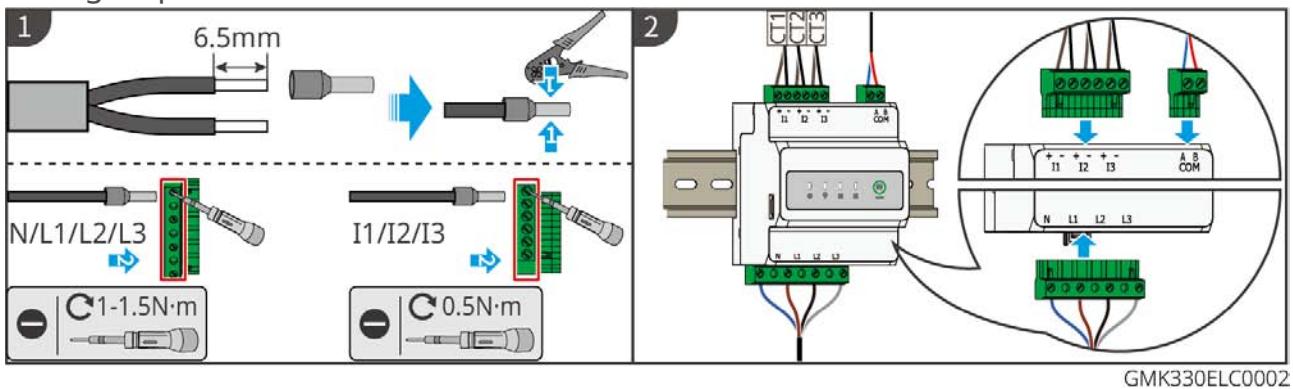
► GMK110: CT x 1; GMK110D: CT x 2

GM330 meter wiring

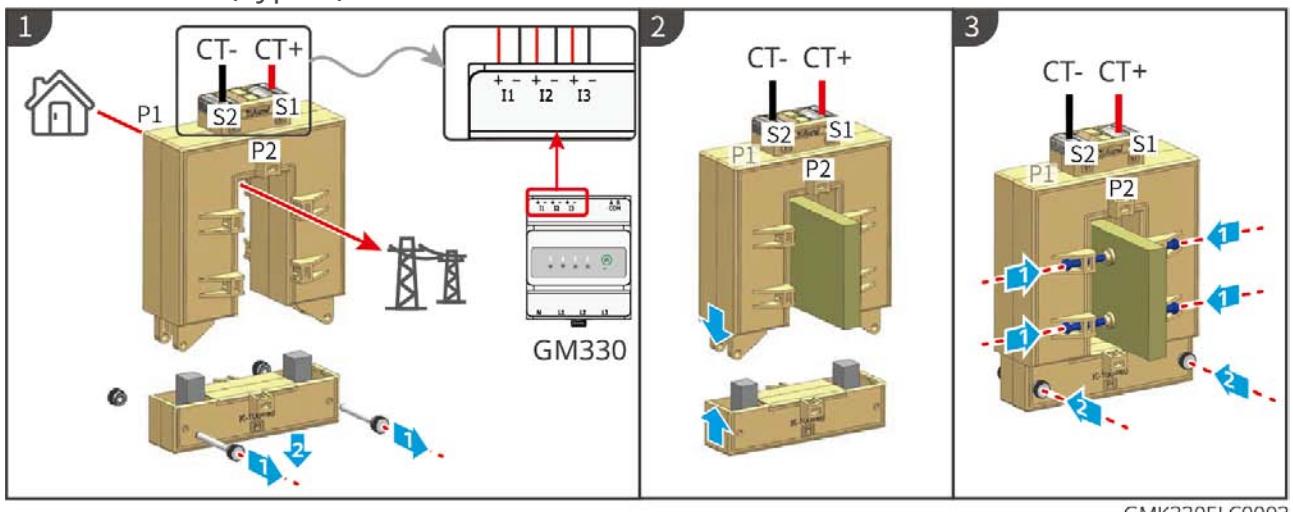




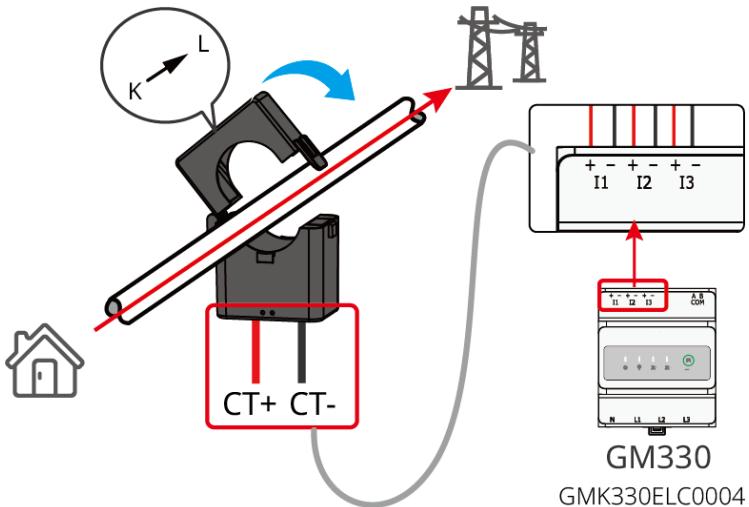
Wiring steps



Installation CT (Type 1)



Installation CT (Type II)



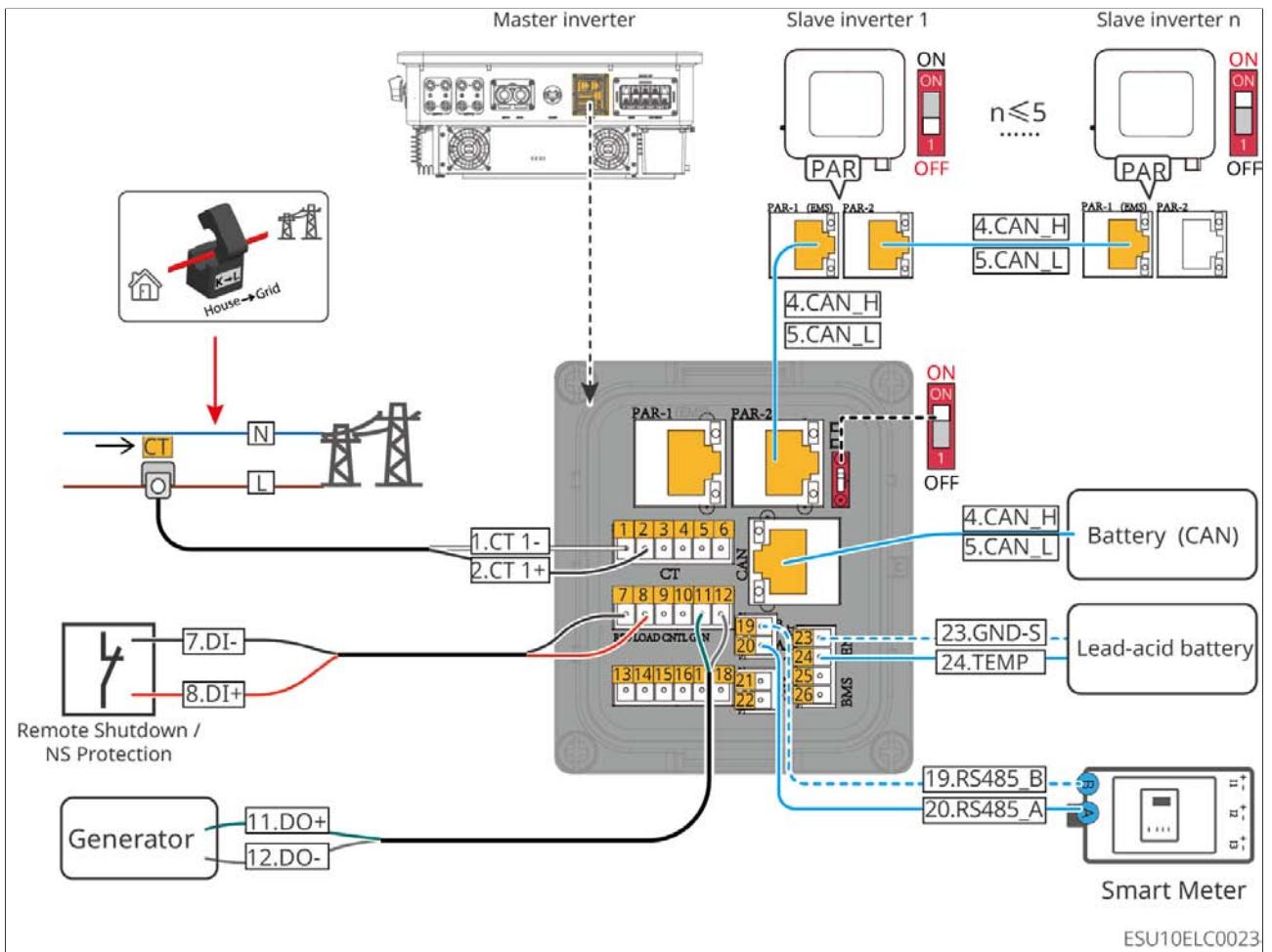
5.9 Connecting the Inverter Communication Cable

NOTICE

- Inverter communication function is optional, please select according to actual usage scenarios.
- Inverter supports connecting to mobile phones or WEB interfaces via Bluetooth, WiFi, LAN, and 4G communication methods to set device parameters, view operational information and error messages, and promptly monitor system status.
- In a single-unit system, Installation WiFi/LAN Kit-20, 4G Kit-CN-G20, and 4G Kit-CN-G21 smart dongle are included. When the system involves multiple Inverter units operating in parallel for networking, Master inverter requires the Installation Ezlink3000 module for networking.
- To use the remote shutdown function, please enable it in the SolarGo App after completing the wiring.
- Do not enable this function in the SolarGo App if the remote shutdown device is not connected, otherwise the Inverter will fail to on-grid operate.
- In a parallel system, to enable the remote shutdown function, connect the Communication cable to the Master inverter; otherwise, the function will not take effect.

Communication Function Description

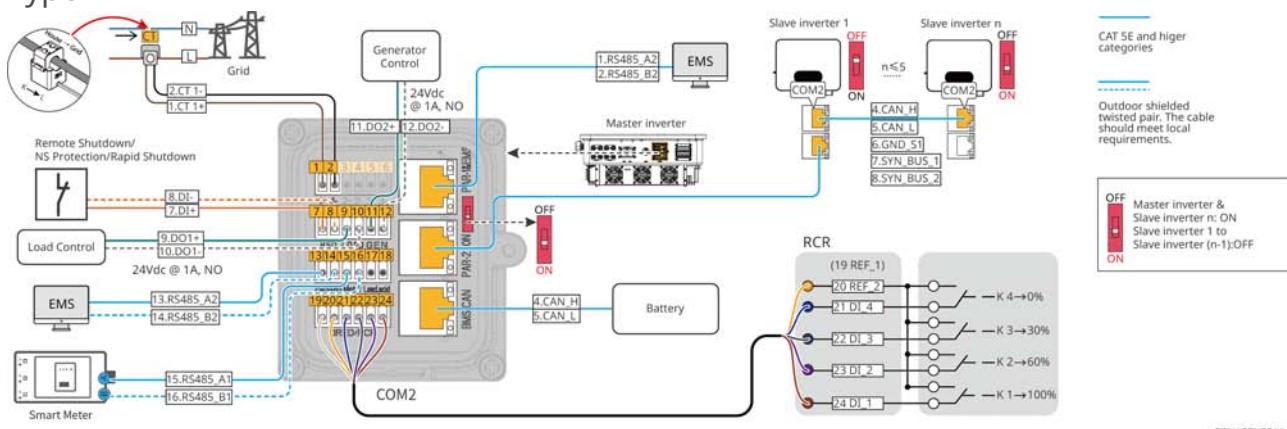
Type I



port	Function	Description
1-2	CT	Connect the CT cable.
7-8	remote shutdown/NS Protection	Provide signal control port, control equipment remote shutdown, or implement NS Protection functionality.
9-10	Reserved	-
11-12	Generator	Used to control the generator. Only applicable in single Inverter scenarios.
13-18	Reserved	-
19-20	Electric meter communication	Supports RS485 communication for external Smart Meter connection
23-24	Lead-acid temperature measurement port	Temperature sensing wire for connecting lead-acid temperature measurement.

port	Function	Description
PAR-1	Parallel Connection Communication Port1	Reserved
PAR-2	Parallel Connection Communication Port 2	When used for parallel communication, it supports the use of CAN communication to connect other Inverter; it uses BUS bus control to manage the grid-connected and off-grid status of each Inverter in parallel operation.
CAN	BMS communication	When connecting lithium-ion Battery, it is used to connect the Battery system BMS Communication cable, supporting communication via CAN signals.

Type II



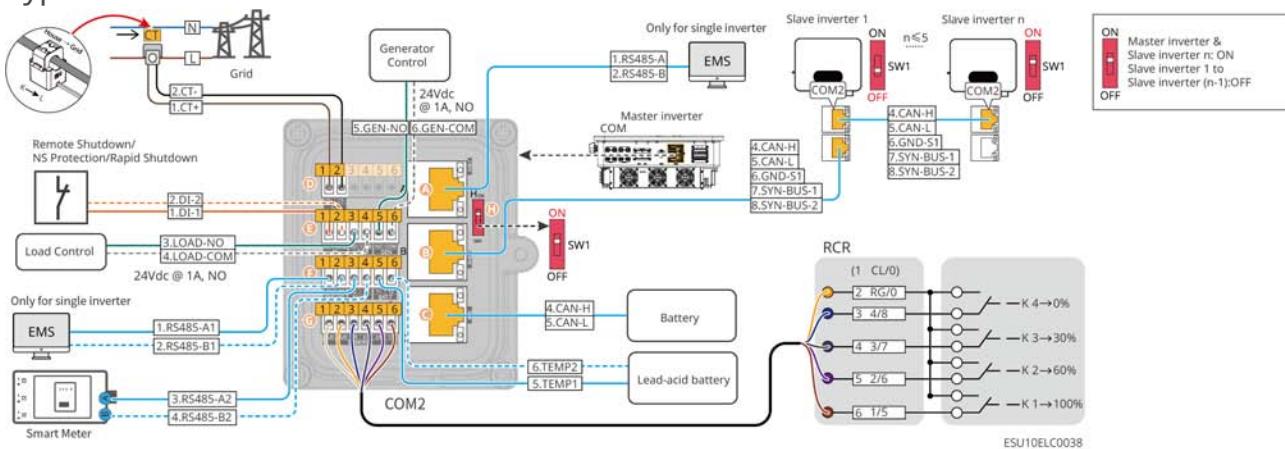
ESU10ELC0114

port	Function	Description
1-2	CT connection	Connect the CT cable.
3-6	Reserved	-
7-8	remote shutdown/NS Protection	<p>Provide signal control port, control equipment remote shutdown, or achieve NS Protection remote shutdown function:</p> <ul style="list-style-type: none"> In case of an accident, the equipment can be controlled to stop operation. The remote shutdown equipment must be a normally closed switch.

port	Function	Description
9-10	load control	<ul style="list-style-type: none"> Supports dry contact signal connection to enable functions such as load control. The DO contact rating is 24Vdc @1A, with NO/COM normally open contacts. Supports SG Ready heat pump connection, controls the heat pump via dry contact signals. Supported operating modes: <ul style="list-style-type: none"> Operating Mode 2 (Signal:0:0): Energy-saving mode, where the heat pump operates in an energy-efficient manner. Operating Mode 3 (Signal: 0:1): Activation Recommendation. In this mode, the heat pump maintains its current operation while increasing hot water storage to accumulate thermal energy.
11-12	Generator start-stop control Manufacturing port	<p>Supports the connection of generator control signals</p> <p>DO contact rating is 24Vdc @1A, NO/COM normally open contact</p>
13-14	Energy Management System (EMS)	<p>When used to connect to third-party EMS devices, it supports RS485 communication, but parallel system does not support connecting to third-party EMS devices.</p> <p>Note: The EMS in PAR-1 & EMS port is on the same line.</p>
15-16	Electric meter communication	Supports RS485 communication for external Smart Meter connection
17-18	Lead-acid temperature measurement port	Temperature sensing wire for connecting lead-acid temperature measurement

port	Function	Description
19-24	RCR	RCR (Ripple Control Receiver): Provides RCR signal control port, meeting the Utility grid dispatching requirements in Europe and other regions.
PAR-1 & EMS	PAR1	Parallel Connection Communication Port1 Energy Management System (EMS) (PAR-1&EMS)
PAR-2	PAR2	Parallel Connection Communication Port 2 (PAR-2)
BMS-CAN	BMS	BMS communication
-	Parallel DIP switch	In a multi-unit parallel scenario, the parallel DIP switches of the first and last Inverter units should be set to the ON position, while the switches of other Inverter units should be set to the OFF position.

Type III



port(Screen Printing)		Function	Description
A	PAR1	Parallel Connection Communication Port1 Energy Management System (EMS) (PAR-1&EMS)	<ul style="list-style-type: none"> • CAN and BUS: Parallel unit Communication Port, CAN communication is used in parallel unit networking to connect other Inverter; BUS is used to control the grid-connected and off-grid status of each Inverter in the parallel unit. • RS485: When used to connect third-party EMS devices that support RS485 communication. parallel system does not support connecting third-party EMS devices.
B	PAR2	Parallel Connection Communication Port 2 (PAR-2)	When used for parallel communication, it supports the use of CAN communication to connect other Inverter; it uses BUS bus control to manage the grid-connected and off-grid status of each Inverter in parallel operation.
C	BMS	BMS communication	When connecting lithium-ion Battery, it is used to connect the Battery system BMS Communication cable, supporting communication via CAN signals.
D	CT	CT connection	Connect the CT cable.
E	DI	remote shutdown/NS Protection	<p>Provide signal control port, control equipment remote shutdown, or achieve NS Protection remote shutdown function:</p> <ul style="list-style-type: none"> • In case of an accident, the equipment can be controlled to stop operation. • The remote shutdown equipment must be a normally closed switch.

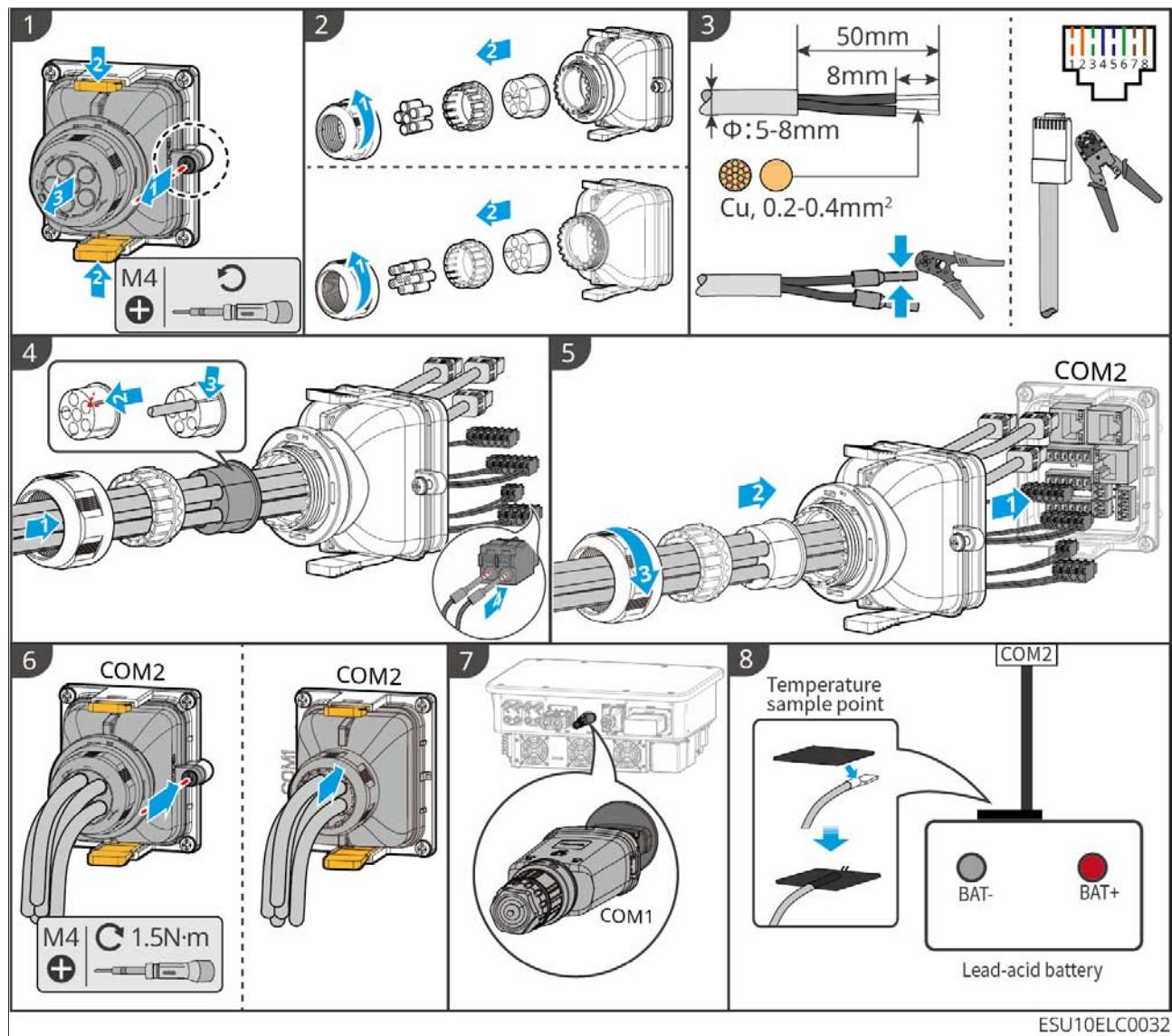
port(Screen Printing)	Function	Description
	LOAD	<p>load control</p> <ul style="list-style-type: none"> Supports dry contact signal connection to enable functions such as load control. The DO contact rating is 24Vdc @1A, with NO/COM normally open contacts. Supports SG Ready heat pump connection, controls the heat pump via dry contact signals. Supported operating modes: <ul style="list-style-type: none"> Operating Mode 2 (Signal:0:0): Energy-saving mode, where the heat pump operates in an energy-efficient manner. Operating Mode 3 (Signal: 0:1): Activation Recommendation. In this mode, the heat pump maintains its current operation while increasing hot water storage to accumulate thermal energy.
	GEN	<p>Generator start-stop control</p> <p>Manufacturing port</p> <p>Supports the connection of generator control signals</p> <p>DO contact rating is 24Vdc @1A, NO/COM normally open contact</p>
F	EMS485	<p>Energy Management System (EMS)</p> <p>When used to connect to third-party EMS devices, it supports RS485 communication, but parallel system does not support connecting to third-party EMS devices.</p> <p>Note: The EMS in PAR-1 & EMS port is on the same line.</p>
	Meter	<p>Electric meter communication</p> <p>Supports RS485 communication for external Smart Meter connection</p>
	BAT-T	<p>Lead-acid temperature measurement port</p> <p>Temperature sensing wire for connecting lead-acid temperature measurement</p>

port(Screen Printing)		Function	Description
G	DRM/R CR	RCR	RCR (Ripple Control Receiver): Provides RCR signal control port, meeting the Utility grid dispatching requirements in Europe and other regions.
H	SW1	Parallel DIP switch	In a multi-unit parallel scenario, the parallel DIP switches of the first and last Inverter units should be set to the ON position, while those of the other Inverter units should be set to the OFF position.

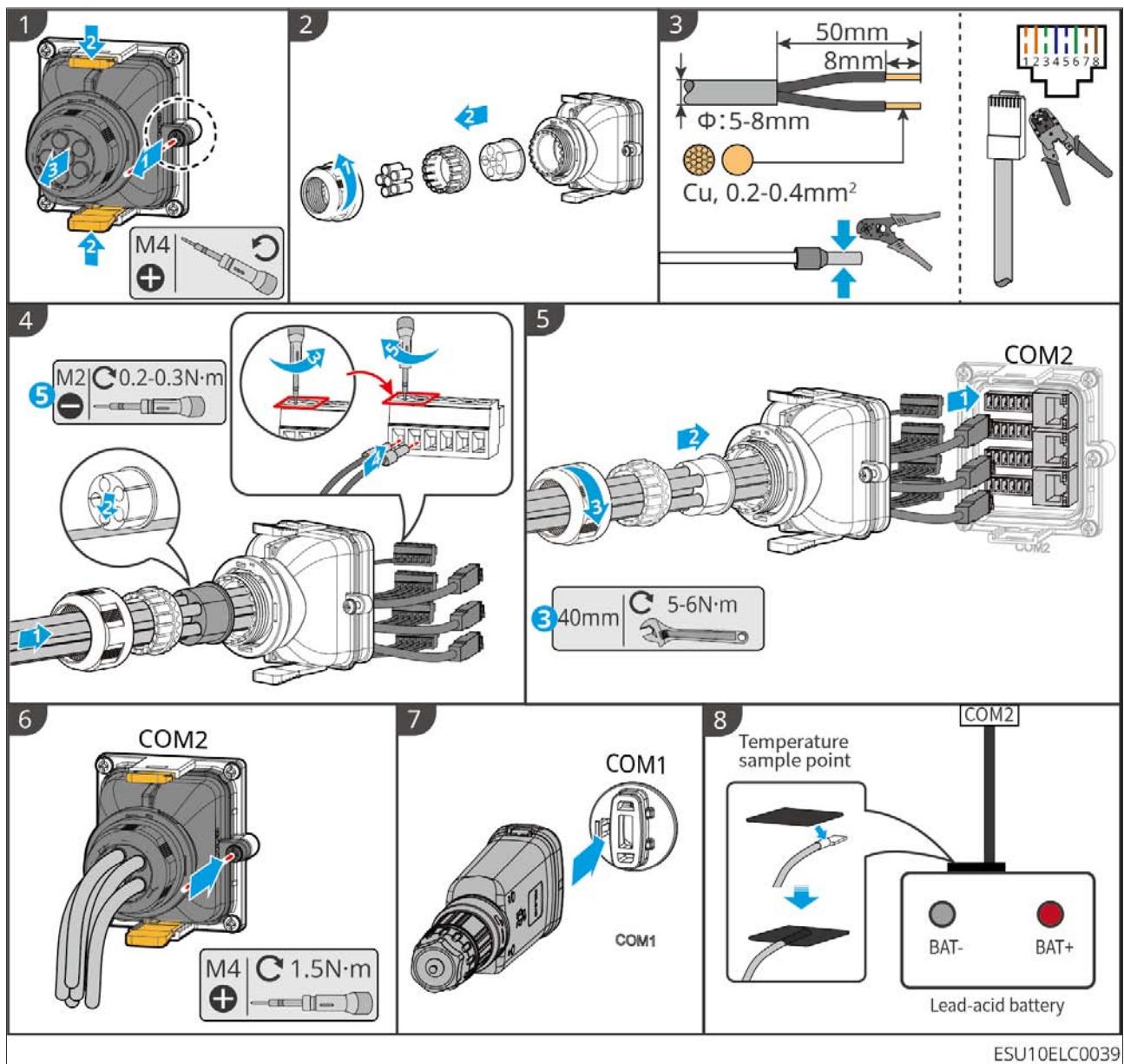
Connection method for Communication cable

NOTICE

- Inverter supports connecting to mobile phones or WEB interfaces via Bluetooth, WiFi, LAN, or 4G smart dongle (China version) to set device-related parameters, view operational information and error messages, and promptly monitor system status.
- In a single-unit system, the WiFi/LAN Kit-20 and 4G Kit-CN-G20 are included. When the system involves multiple units connected in parallel to form a network, the Ezlink3000 module is required for networking.

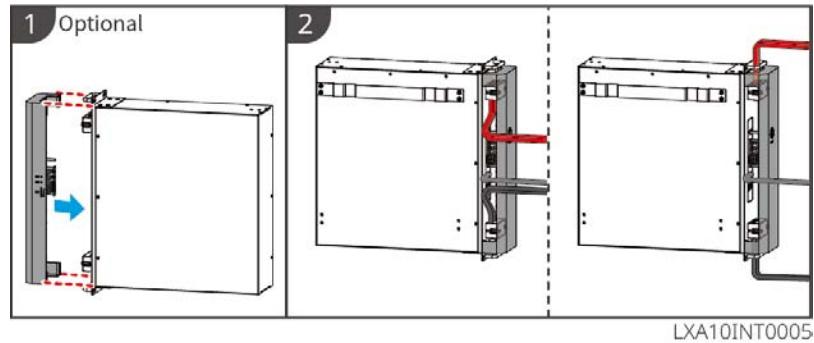


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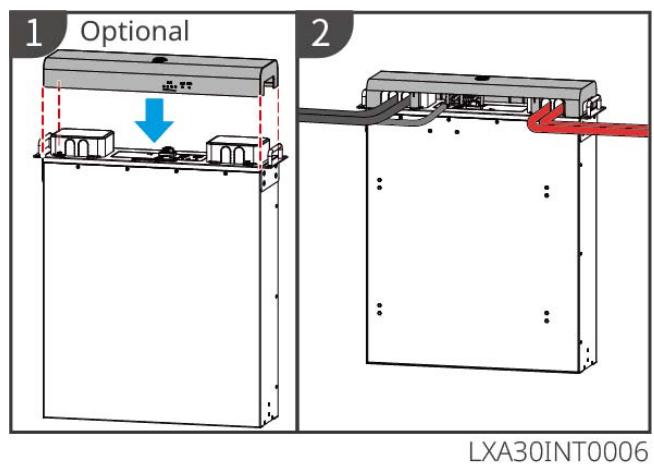


5.10 Installing the Battery System Protection Cover

5.10.1 LX A5.0-10

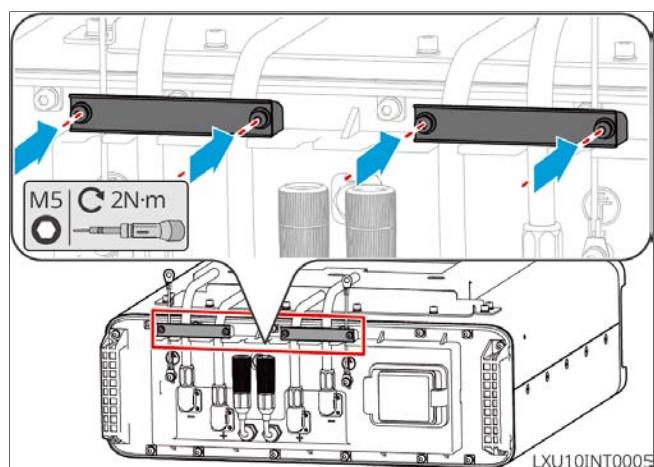


5.10.2 LX A5.0-30

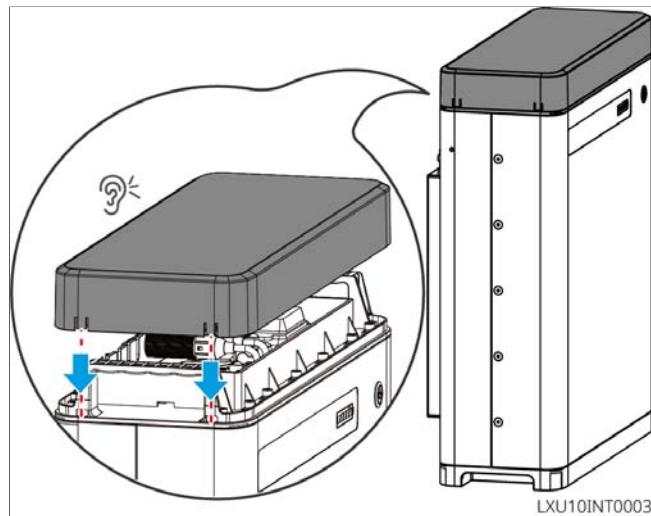


5.10.3 LX U5.4-L、LX U5.4-20

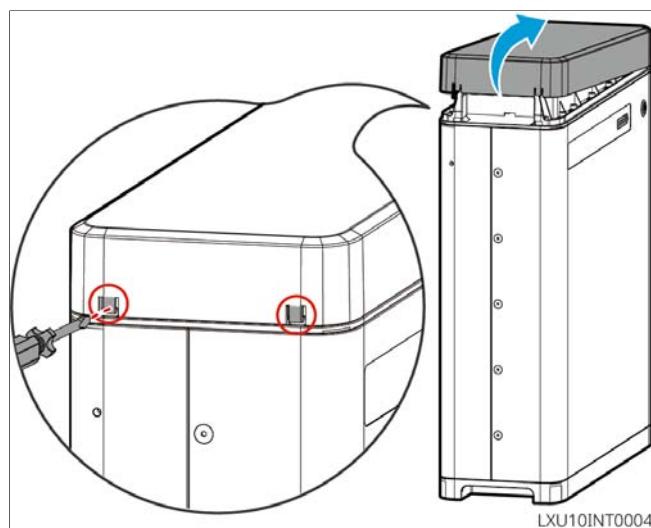
Step 1: Installation wiring harness fixing plate



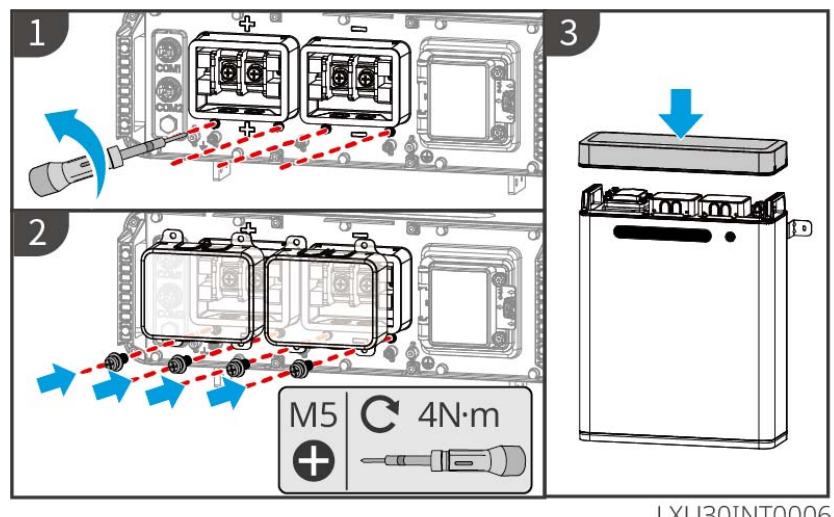
Step 2: Installation Plastic Upper Cover



- To remove the top cover, use a flathead screwdriver to gently pry open the two clips on one side, then detach the plastic top cover.

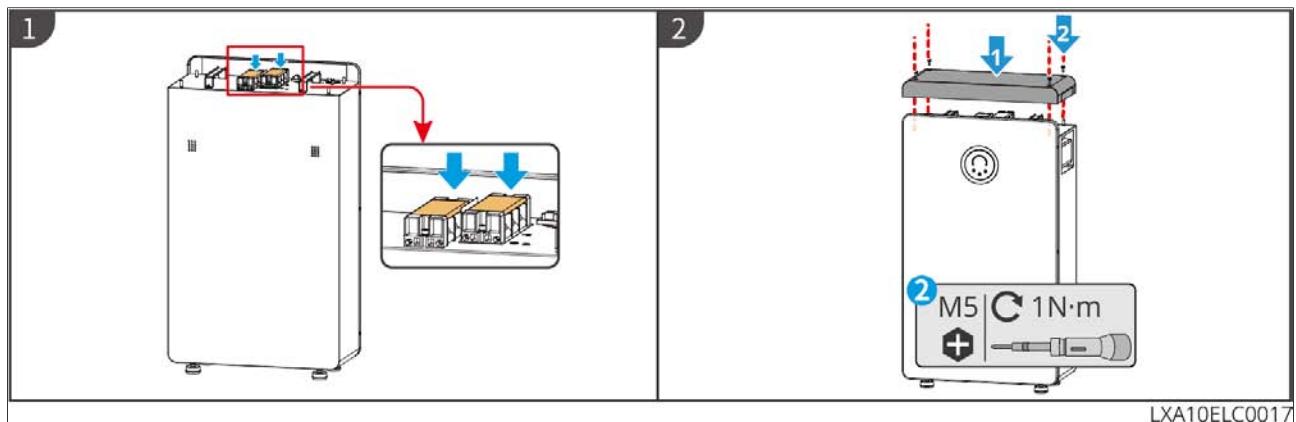


5.10.4 LX U5.0-30



LXU30INT0006

5.10.5 GW14.3-BAT-LV-G10



LXA10ELC0017

6 System Commissioning

6.1 Check Before Power ON

No.	Inspection items
1	The equipment is securely installed, easy to operate and maintain, with sufficient space for ventilation and heat dissipation, and the environment is clean and tidy.
2	DC cables, AC cables, 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	For unused feed-through holes and port, please use the provided terminal for reliable connection, and ensure they are properly sealed.
5	Ensure that all used wire feed-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

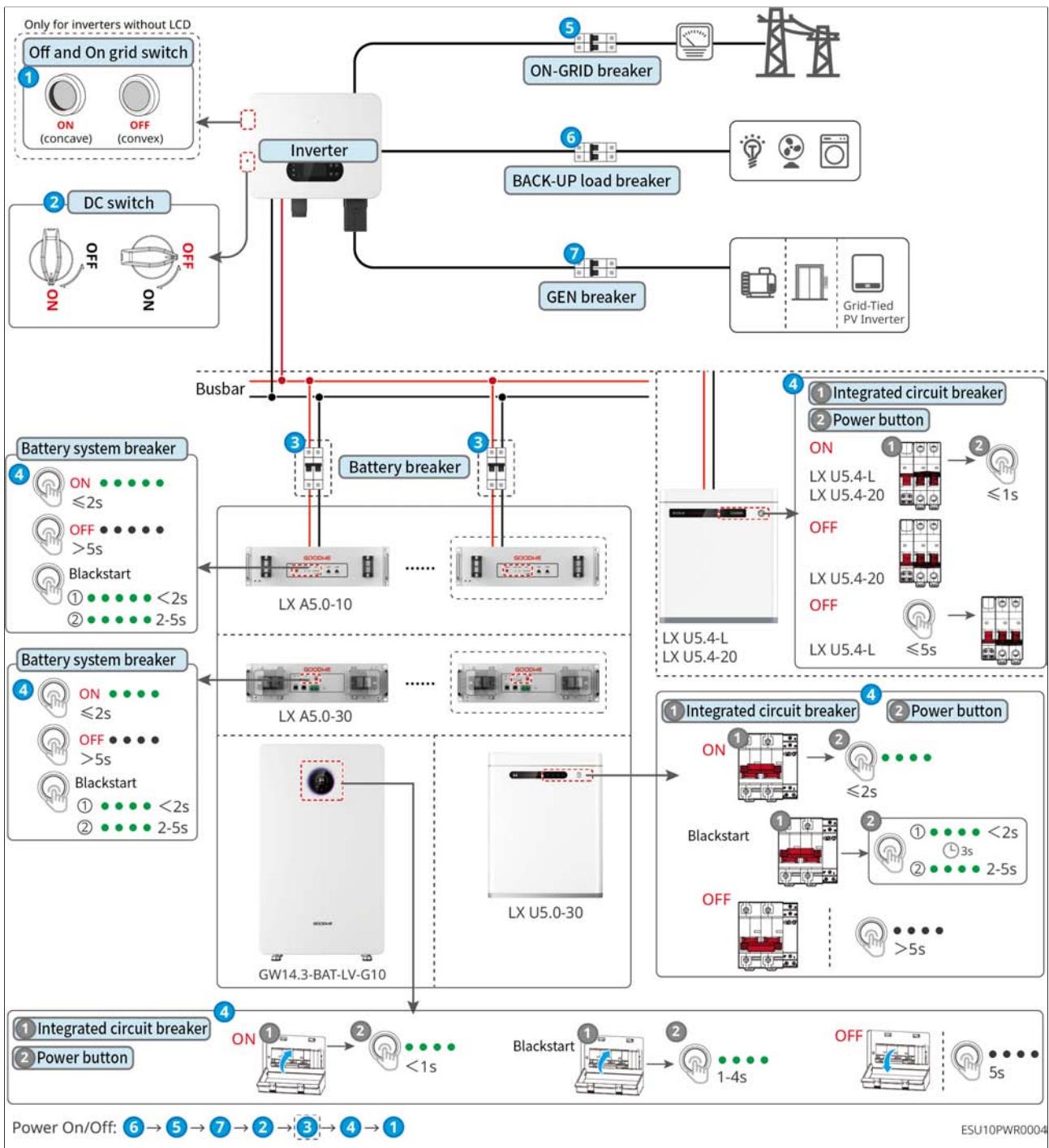


- When there are multiple Inverter in the system, ensure that all Slave inverter AC-side power on are completed within one minute after the Master inverter AC-side power on.
- Battery Black start application scenario:
 - Inverter needs to be activated via Battery.
 - In the absence of Inverter, it is necessary to perform Battery charging and Discharge management.
- After Battery system is started, ensure that Inverter and Battery system communicate normally within 15 minutes. If Inverter and Battery system fail to communicate properly, the Battery system switch will automatically disconnect, and Battery system will undergo POWER OFF.
- When multiple Battery are connected in a cluster within the system, starting any single Battery will initiate all Battery.
 - GW14.3-BAT-LV-G10: After Battery and power off, if power on occurs again, it is necessary to restart each Battery individually or wait for 15 minutes before starting any one Battery, which will then enable the activation of all Battery.

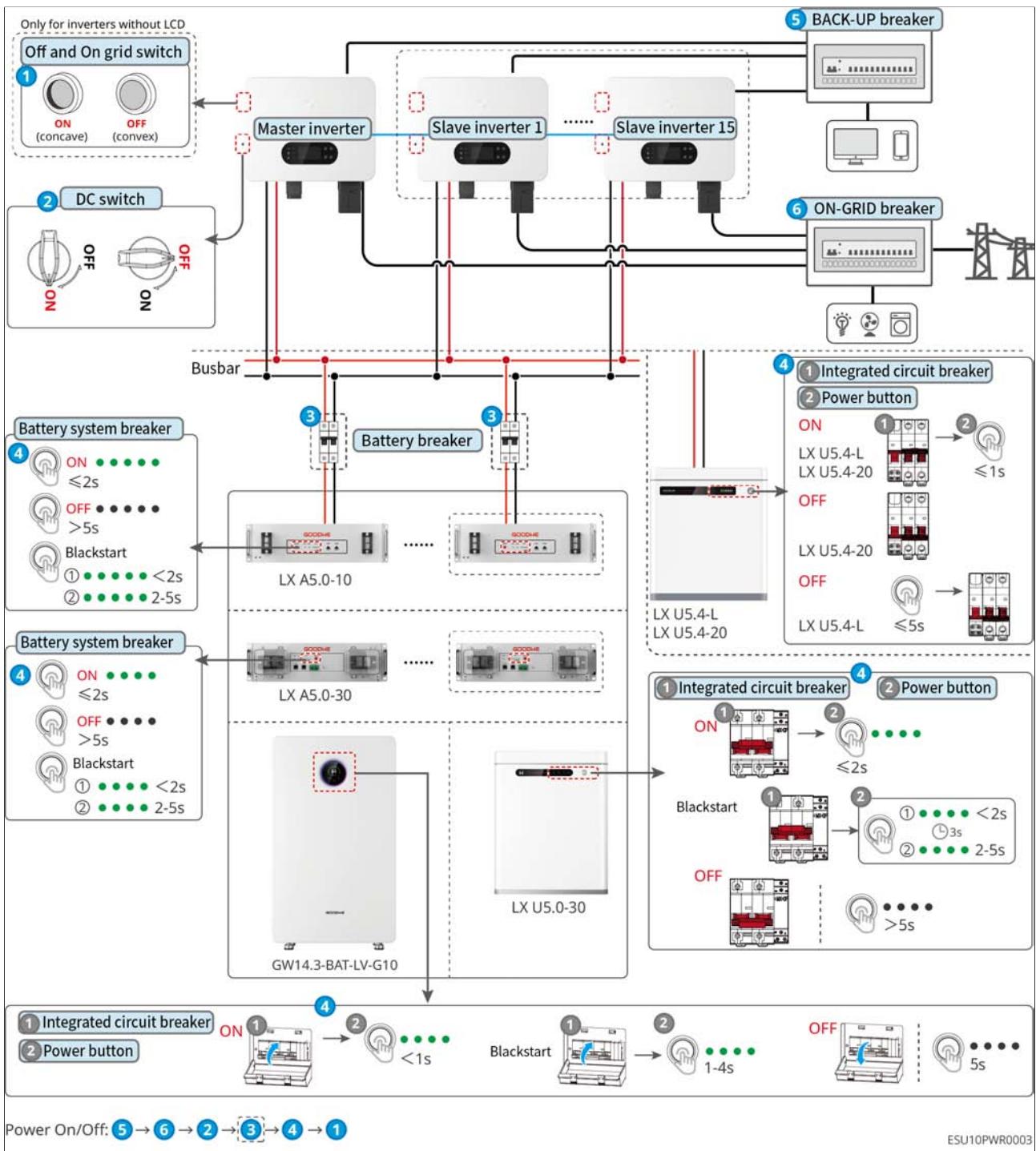
Upper current process

1. Close the BACK-UP breaker.
2. Close the ON-GRID circuit breaker.
3. (Optional) Close GENbreaker.
4. (Select according to local regulations) Close the breaker between the PV modules and the Inverter.
5. Close the DC switch of Inverter.
6. (Select according to local regulations) Close the switch between Inverter and Battery.
7. Close the Battery switch.
8. Close the Battery system switch (LX A5.0-10, LX A5.0-30). Close the Battery system integrated breaker (LX U5.4-L, LX U5.4-20, LX U5.0-30, GW14.3-BAT-LV-G10).
9. (Only for LX U5.4-L, LX U5.4-20, LX U5.0-30, GW14.3-BAT-LV-G10) Press the Battery system button.
10. (Only for screenless models) Close the off-grid control switch of the Inverter.

Stand-alone system



Parallel system



6.3 Indicators

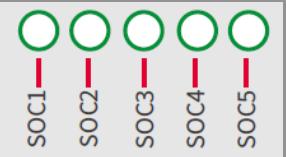
6.3.1 Inverter Indicators

Indicator	Status	Description
		Inverter starting up, in self-test mode
		Inverter Normal on-grid power generation or off-grid operation mode
		BACK-UP output overload
		System fault
	_____	LCD ON: Inverter is power on, operating in Standby mode LCD OFF: Inverter has been POWER OFF
		Utility grid abnormal, Inverter BACK-UP port power supply normal
		Utility grid Normal, Inverter BACK-UP port Power Supply Normal
	_____	BACK-UPportNo Power Supply
		Monitoring module reset in progress
		Inverter not connected to communication terminal
		Communication terminal and cloud Server communication fault
		Inverter monitoring normal
	_____	Inverter monitoring module not started

6.3.2 Battery Indicators

6.3.2.1 LX A5.0-10

Normal state

State of Charge (SOC)	RUN light	Battery system status												
 <p>SOC represents the remaining battery capacity.</p> <table border="0"> <tr> <td></td> <td>SOC<5%</td> </tr> <tr> <td></td> <td>5%<=SOC<25%</td> </tr> <tr> <td></td> <td>25%<=SOC<50%</td> </tr> <tr> <td></td> <td>50%<=SOC<75%</td> </tr> <tr> <td></td> <td>75%<=SOC<95%</td> </tr> <tr> <td></td> <td>95%<=SOC<100%</td> </tr> </table>		SOC<5%		5%<=SOC<25%		25%<=SOC<50%		50%<=SOC<75%		75%<=SOC<95%		95%<=SOC<100%		Battery system is in the Standby state
	SOC<5%													
	5%<=SOC<25%													
	25%<=SOC<50%													
	50%<=SOC<75%													
	75%<=SOC<95%													
	95%<=SOC<100%													
		Battery system is in idle state												
		Battery system is in the Charge state												
<p>Maximum SOC indicator flashes once per second</p> <ul style="list-style-type: none"> When 5% ≤ SOC < 25%, SOC1 flashes. When 25% ≤ SOC < 50%, SOC2 flashes. When 50% ≤ SOC < 75%, SOC3 flashes. When 75% ≤ SOC < 95%, SOC4 flashes. When 95% ≤ SOC ≤ 100%, SOC5 flashes. 		Battery system is in Discharge state												

abnormal state

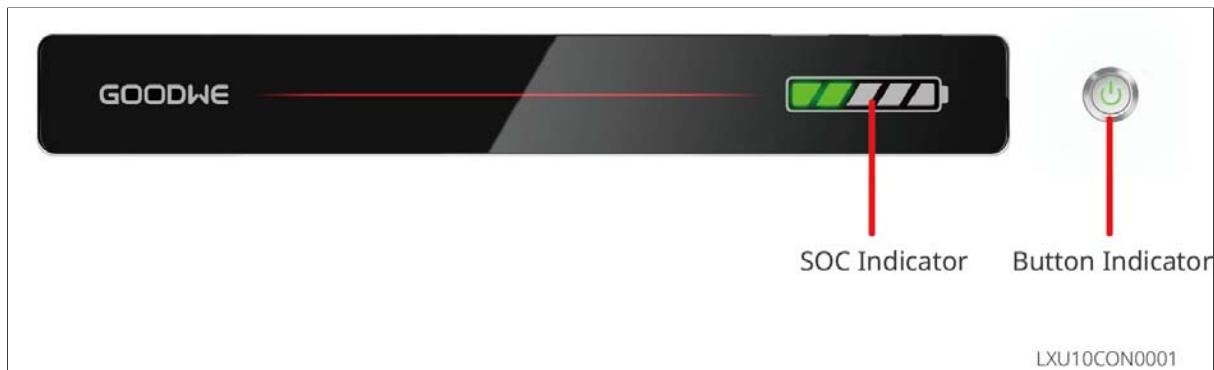
ALM light	Battery system status	Description
	<p>Red flashes once per second</p>	<p>Battery system alarm occurred</p> <p>After the Battery system alarm occurs, the Battery system will perform a self-check. Wait for the Battery system self-check to complete, and the Battery system will enter normal operation or the fault state.</p>

ALM light	Battery system status	Description
	Battery system experiences fault	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.

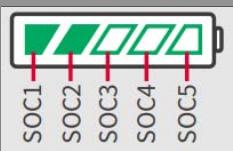
6.3.2.2 LX A5.0-30、LX U5.0-30

indicator		System Status
	SOCindicator no green display	SOC=0%
	The first SOC indicator is displayed in green.	0% < SOC ≤ 25%
	The second SOC indicator is displayed in green.	25% < SOC ≤ 50%
	The third SOC indicator displays green.	50% < SOC ≤ 75%
	The fourth SOC indicator is displayed in green.	75% < SOC ≤ 100%
	Green steady on	Battery system operating normally
	Green flashing once per second	Battery system is in the Standby state
	Green flashes 3 times/s	PCS communication loss
	slow blinking	When Battery system triggers an alarm, it will perform a self-check. After the self-check is completed, it will transition to either normal operation or fault status.
	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 LX U5.4-L



Normal state

State of Charge (SOC)	Button	Battery system status
 SOC represents the state of charge.		Green flashing once per second Battery system is in the Standby state

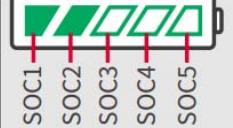
<p>Maximum SOC indicator flashes once per second, other green lights remain steady on.</p> <ul style="list-style-type: none"> • When $5\% \leq \text{SOC} < 25\%$, SOC1 flashes. • When $25\% \leq \text{SOC} < 50\%$, SOC2 flashes. • When $50\% \leq \text{SOC} < 75\%$, SOC3 flashes. • When $75\% \leq \text{SOC} < 95\%$, SOC4 flashes. • When $95\% \leq \text{SOC} \leq 100\%$, SOC5 flashes. 	<p>Green steady on</p>	<p>Battery system operating normally</p>
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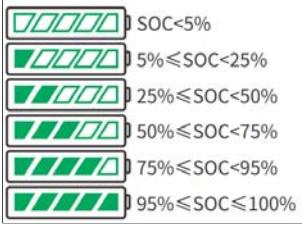
6.3.2.4 LX U5.4-20



LXU10CON0001

Normal state

<p>State of Charge (SOC)</p>  <p>SOC1 SOC2 SOC3 SOC4 SOC5</p>	<p>Button</p> 	<p>Battery system status</p>
--	---	------------------------------

<p>SOC represents the state of charge.</p> 	<p>Green flashing once per second</p>	<p>Battery system is in the Standby state</p>
<p>Maximum SOC indicator flashes once per second, other green lights remain steady on.</p> <ul style="list-style-type: none"> When $5\% \leq SOC < 25\%$, SOC1 flashes. When $25\% \leq SOC < 50\%$, SOC2 flashes. When $50\% \leq SOC < 75\%$, SOC3 flashes. When $75\% \leq SOC < 95\%$, SOC4 flashes. When $95\% \leq SOC \leq 100\%$, SOC5 flashes. 	<p>Green steady on</p>	<p>Battery system operating normally</p>

abnormal state

Button	Battery system status	Description
 <p>Red light flashes once per second</p>	<p>Battery system alarm occurred</p>	<p>Determine the type of fault that occurred based on the SOC indicator display format, and handle it according to the recommended methods in the Troubleshooting section.</p>

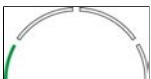
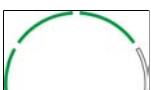
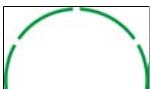
Red steady on	Battery system experiences fault	Determine the type of fault that occurred based on the SOC indicator display format, and handle it according to the recommended methods in the Troubleshooting section.
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6.3.2.5 GW14.3-BAT-LV-G10

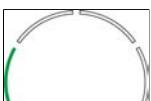
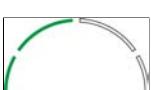


Normal state

indicator name	indicator status	Corresponding to other light status	System Status
State of Charge (SOC)	SOC indicator Green steady on	/	SOC=0% 0% < SOC ≤ 25% 25% < SOC ≤ 50% 50% < SOC ≤ 75% 75% < SOC ≤ 100%

indicator or name	indicator status	Corresponding to other light status	System Status
	    	SOC indicator Green Flashing	Battery system is in Discharge state
Operation indicator + Touch Button		White constant light  Blue-purple breathing light	The system is operating normally.
		white flicker  Blue-purple running light	System preparing
Communication light		White steady light	/
			PCS communication normal

abnormal state

indicator or name	indicator status	Corresponding to other light status	System Status	
State of Charge (SOC)	   	SOC indicator Green steady on	 Red flashing  extinguish  Red steady on	Determine the type of fault that occurred based on the SOC indicator display format, and handle it according to the recommended methods in the Troubleshooting section.
communication light		extinguish	/	PCS communication loss
System Alarm Light		White constant light	/	System Alarm and under-voltage fault levels 2, 3, 4

6.3.3 Smart Meter Indicator

6.3.3.1 GMK110

Type	Status	Description
	Always On	The electricity meter has been power on
	Extinguish	The electricity meter has been power off.
	flicker	Meter communication normal
	Extinguish	Meter communication abnormal or no communication

6.3.3.2 GM330

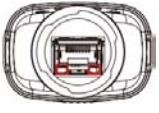
Type	Status	Description
Power LED 	Always On	The meter has been power on, with no RS485 communication.
	flicker	The meter has been power on, and RS485 communication is functioning normally.
	Extinguish	The electricity meter has been power off
Communication light 	Extinguish	Reserved
	flicker	Press and hold the Reset button for ≥5s, the power light and buy/sell light flash: the meter resets.
Buying and selling electric lights 	Always On	buy power from the grid
	flicker	Sell electricity to Utility grid
	Extinguish	No purchase, no sale of electricity
	Reserved	

6.3.4 Smart Dongle Indicator

6.3.4.1 WiFi/LAN Kit-20

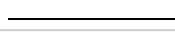
Indicator	Status	Description
Power LED 		Constant On: Smart dongle has been power on.
		Extinguish: Smart dongle Not power on
communication light 		Always On: WiFi mode or LAN mode communication is normal.
		Single flash: Smart dongle Bluetooth signal is on, waiting to connect to SolarGo app.
		Double flash: Smart dongle not connected to Router.
		Four flickers: Smart dongle communicates normally with Router, but fails to connect to Server.
		Six flashes: Smart dongle is identifying connected devices.

indicator	Status	Description
	_____	Extinguished: Smart dongle Software reset in progress or not power on.

indicator	Color	Status	Description
 LAN port communication light	 green	Always On	100Mbps wired network connection is normal.
		Extinguish	<ul style="list-style-type: none"> • Network cable not connected. • 100Mbps wired network connection anomaly. • 10Mbps wired network connection is normal.
	 Yellow	Always On	10/100Mbps wired network connection is normal, with no communication data transmission or reception.
		flicker	Communication data transmitting and receiving.
		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.

6.3.4.2 4G Kit-CN-G20 & 4G Kit-CN-G21

indicator	Status	Description
 Power LED	 	Constant On: Smart dongle has been power on. Extinguish: Smart dongle not power on.
 Communication light	   	Constant On: Smart dongle is connected to Server, communication is normal. Double flashing: Smart dongle not connected to the base station. Four flashes: Smart dongle is connected to the base station but not connected to Server. Six flashes: Smart dongle communication with Inverter is disconnected.

Indicator	Status	Description
	_____	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.

6.3.4.3 Ezlink3000

Indicator /Screen Printing	color	Status	Description
Power LED 	blue		Flicker = Communication stick is operating normally.
		_____	Extinguish = Communication stick has power off.
Communication light 	green		Always On = Communication Stick is connected to Server.
			Double flash = Communication stick not connected to Router.
			Four flashes = Communication stick is connected to Router, but not connected to Server.
RELOAD	-	-	<ul style="list-style-type: none"> Press and hold for 1-3 seconds to restart the communication stick. Press and hold for 6-10 seconds to restore factory settings. <p>Quick double-click to activate Bluetooth signal (maintained for 5 minutes only).</p>

7 System rapid configuration

7.1 Downloading the App

7.1.1 Download SolarGo 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 connecting to the Internet.
- The phone supports WLAN/Bluetooth functionality.

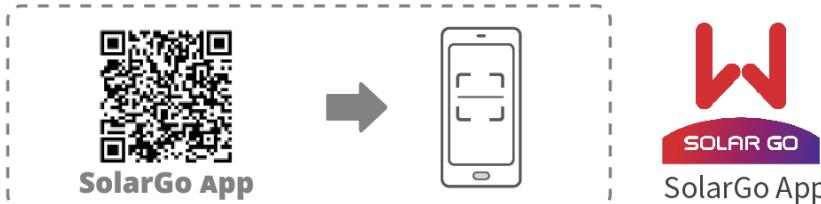
NOTICE

After the completion of the SolarGo App, 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 install.



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



7.1.2 Download the Xiaogu Cloud Window App

Mobile phone requirements:

- Mobile operating system requirements: Android 4.3 and above, iOS 9.0 and above.

- The phone supports a web browser for Internet access.
- The phone supports WLAN/Bluetooth functionality.

Method 1: Search for SEMS Portal in Google Play (Android) or App Store (iOS), then download and Installation.



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



7.1.3 Download SEMS+ APP

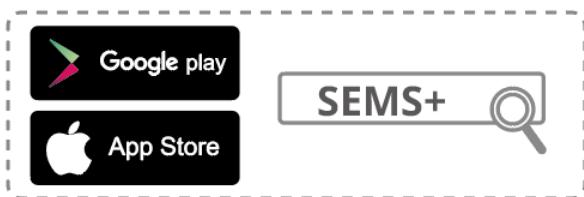
Mobile phone requirements:

- Mobile operating system requirements: Android 6.0 and above, iOS 13.0 and above.
- The phone supports a web browser for Internet access.
- The phone supports WLAN/Bluetooth functionality.

Download method:

Mode 1:

Search for SEMS+ in Google Play (Android) or App Store (iOS) to download and Installation.



Mode 2:

Scan the QR code below to download and Installation.



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.

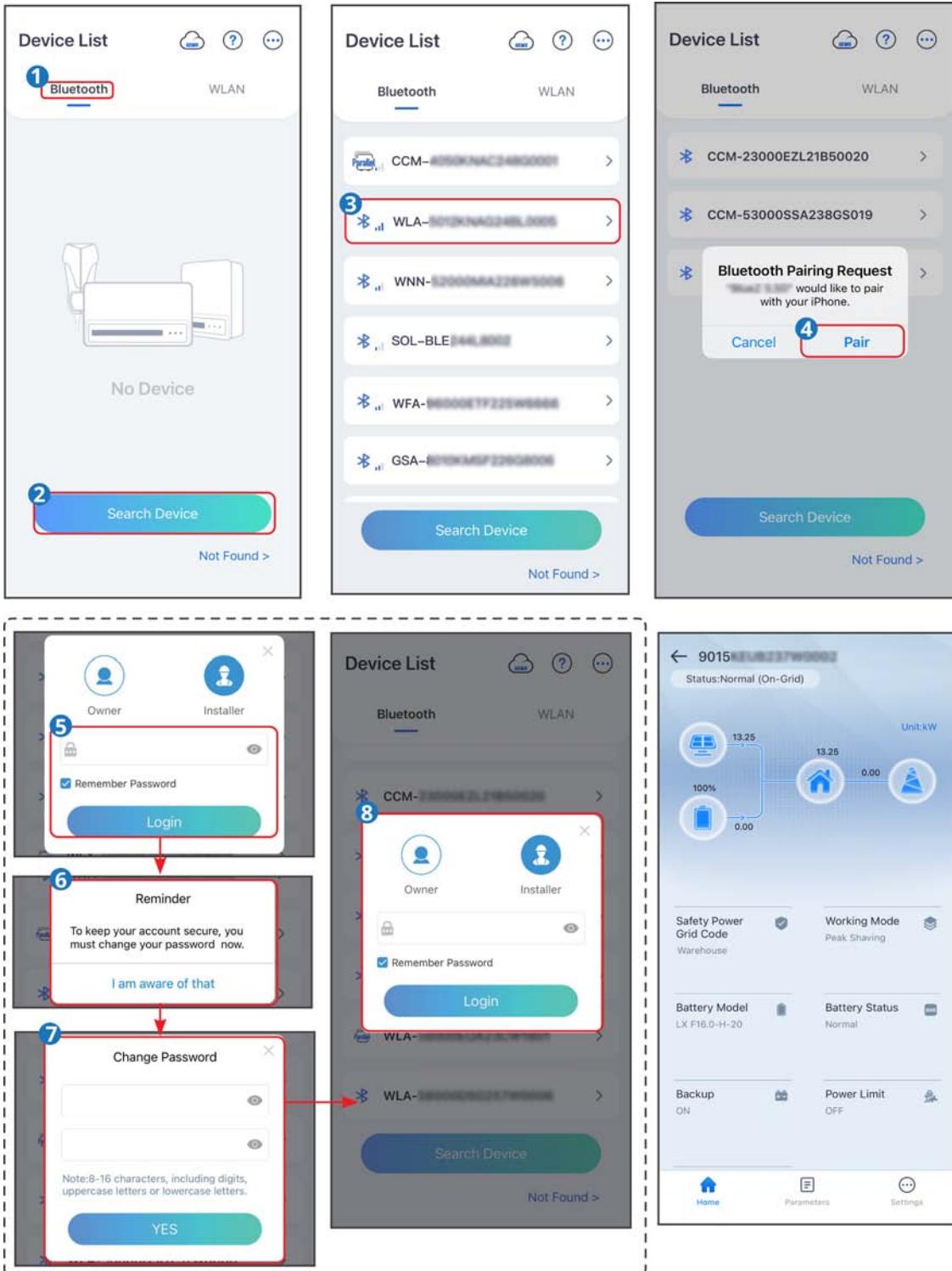
Step 2 Select **Bluetooth** tab on the SolarGo app homepage.

Step 3 Pull down or tap **Search Device** to refresh the device list. Find the device by 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.

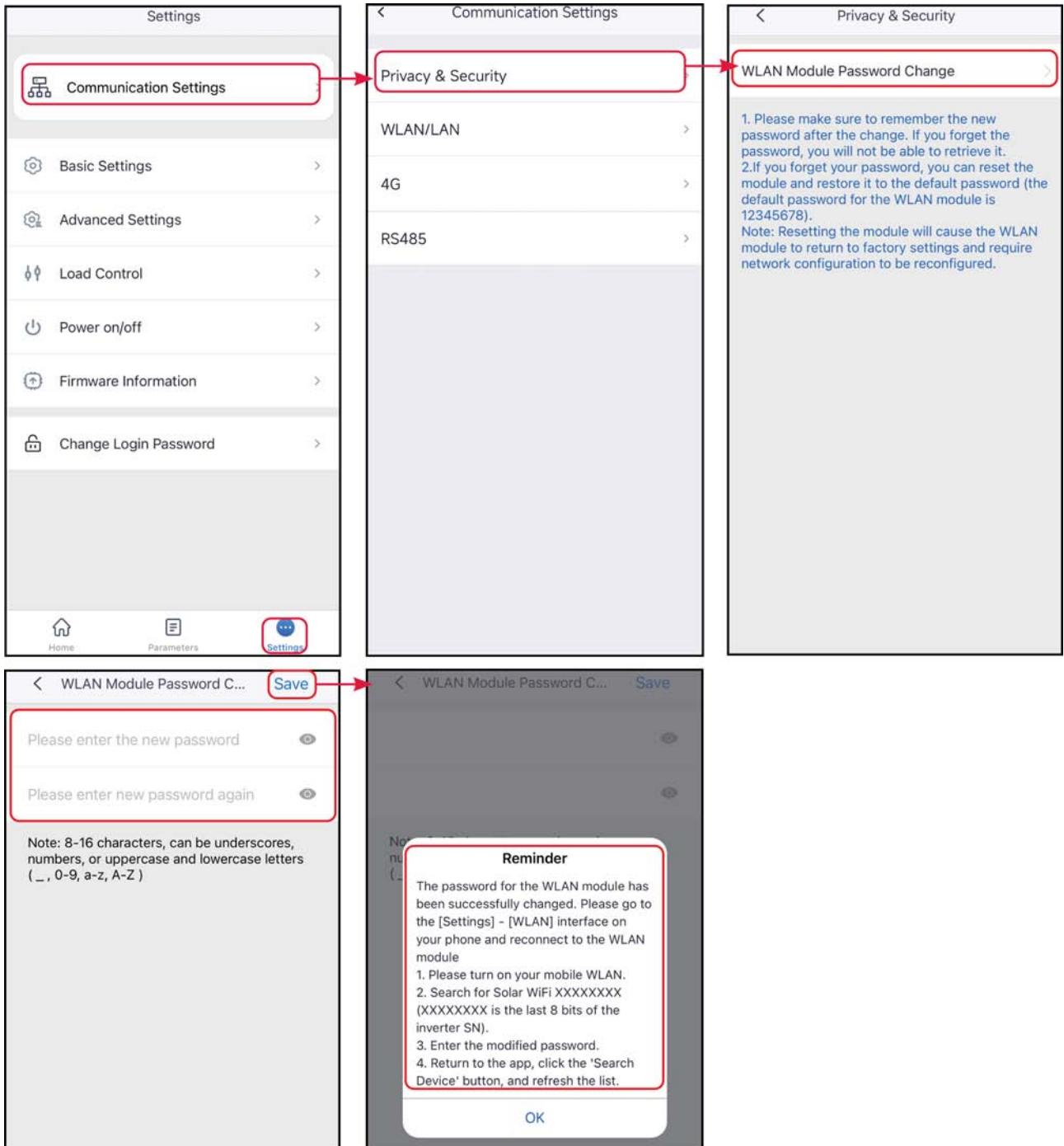
7.3.1 Setting Privacy and Security Parameters

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**.

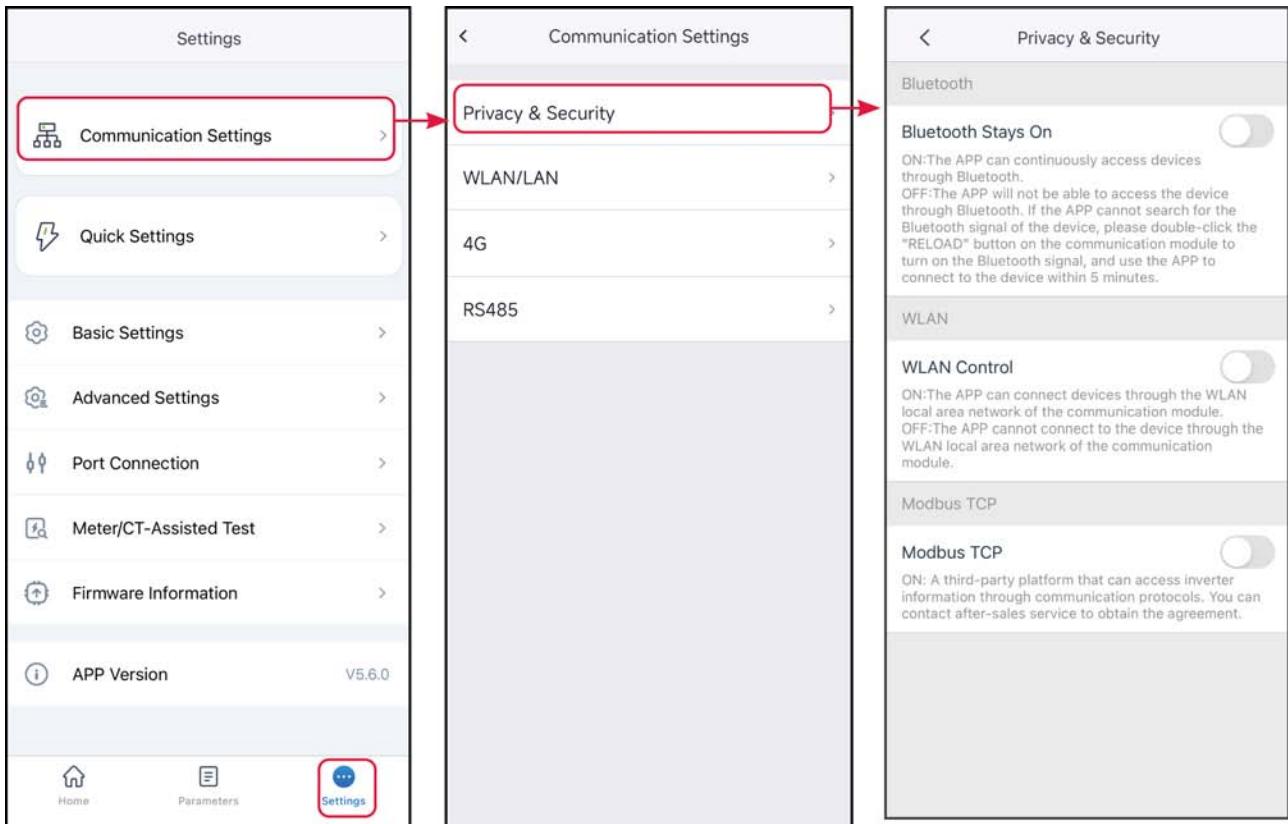
Step 3 Open the WiFi settings of your phone and connect to the inverter's WiFi signal (Solar WiFi***) with the new password.



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.



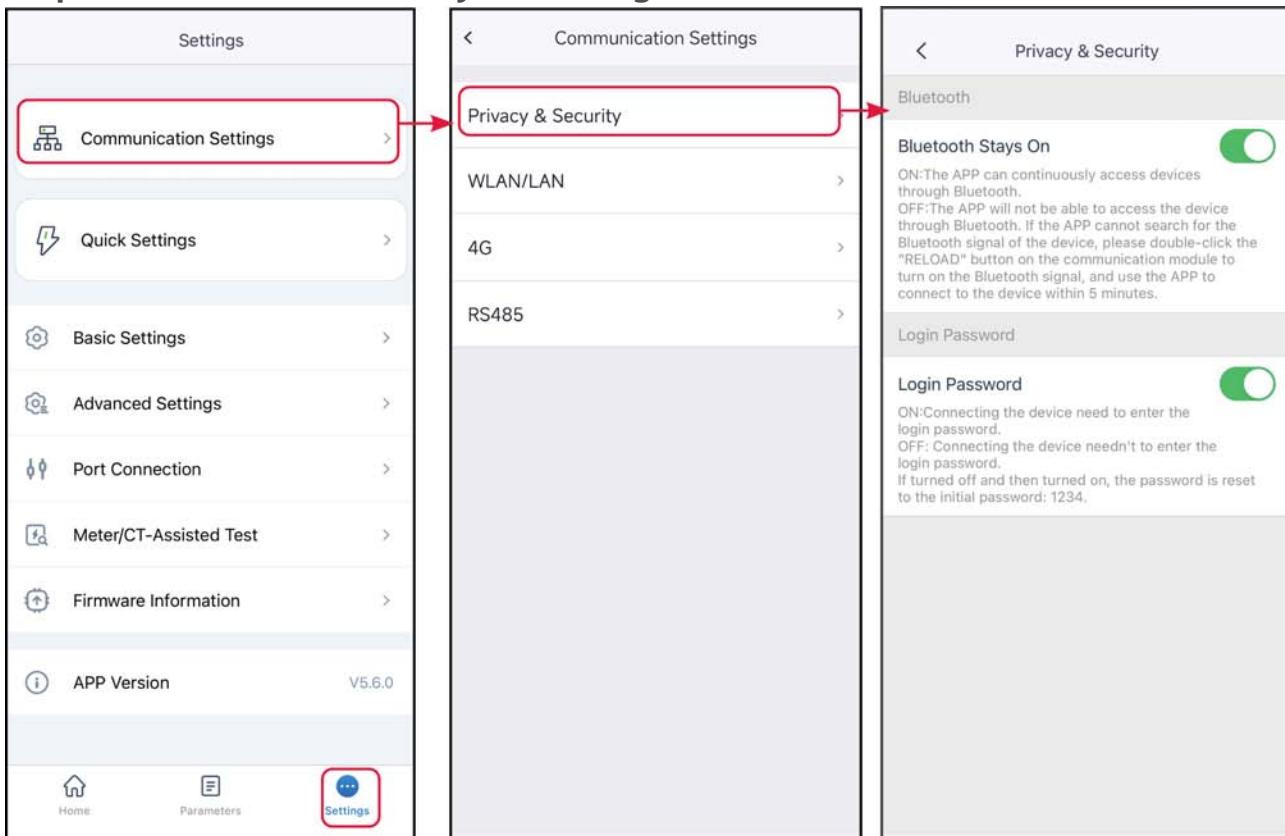
No.	Parameters	Description
1	Bluetooth Stays On	Disabled by default. Enable the function, the bluetooth of the device will be contentious on to keep connected to SolarGo. Otherwise, the bluetooth will be off in 5 minutes, and the device will be disconnected from SolarGo.
2	WLAN Control	Disabled by default. 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.

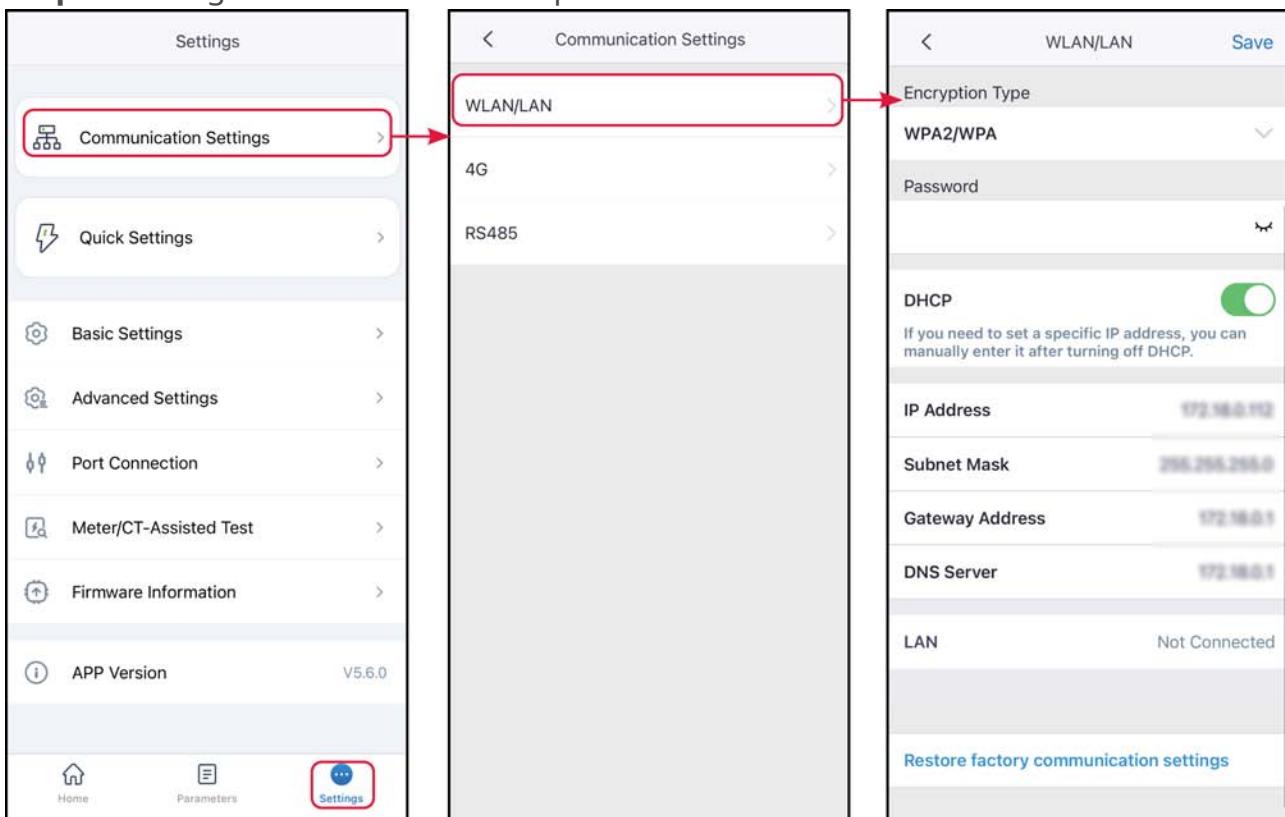
7.3.2 Setting WLAN/LAN Parameters

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.
5	Subnet Mask	
6	Gateway Address	Configure the parameters according to the router or switch information when DHCP is disabled.
7	DNS Server	

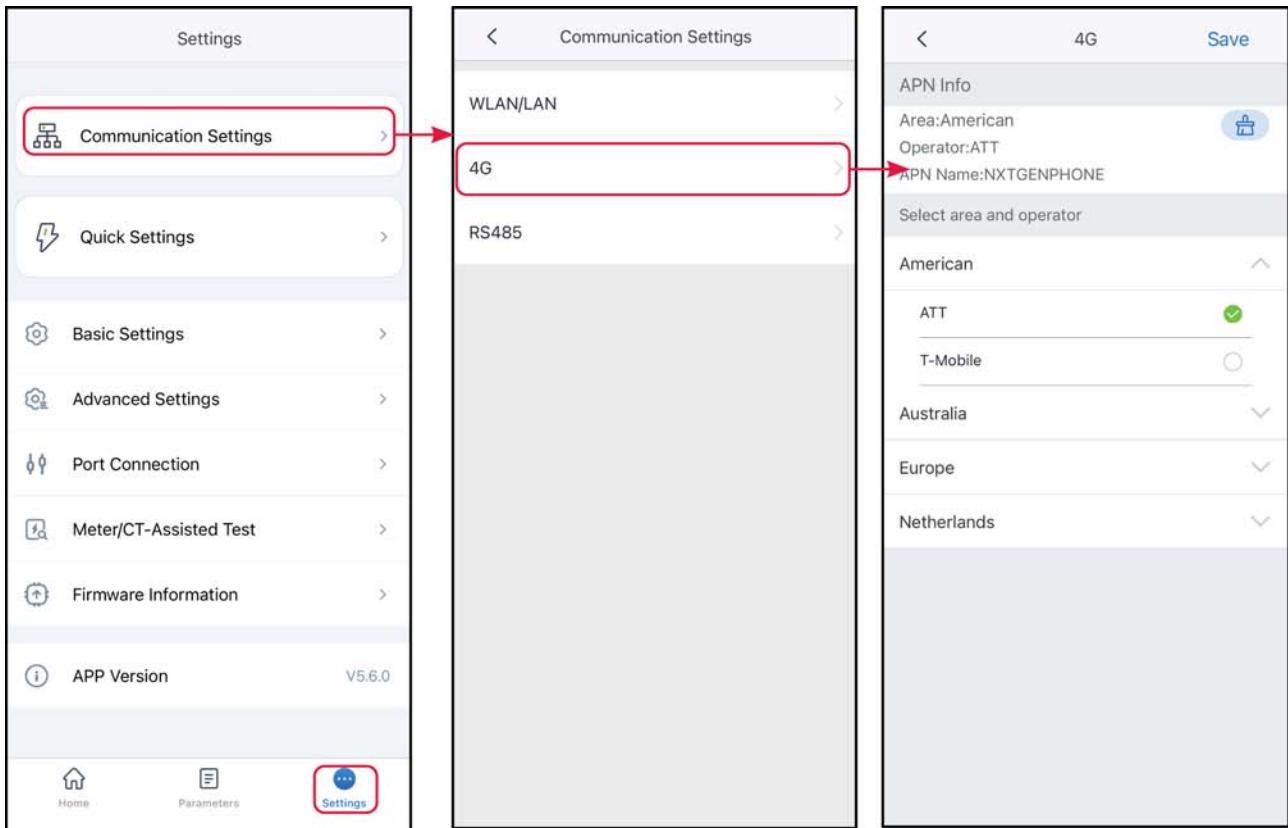
7.3.3 Configuring APN Parameters

NOTICE

- Configure the SIM card information of 4G communication device.
- If the 4G module does not offer bluetooth signal, please configure the APN parameters through the Bluetooth module or WiFi module first to achieve 4G communication.

Step 1: Tap **Home > Settings > Communication Settings > 4G** to set the parameters.

Step 2: Set the region and operator based on actual needs.



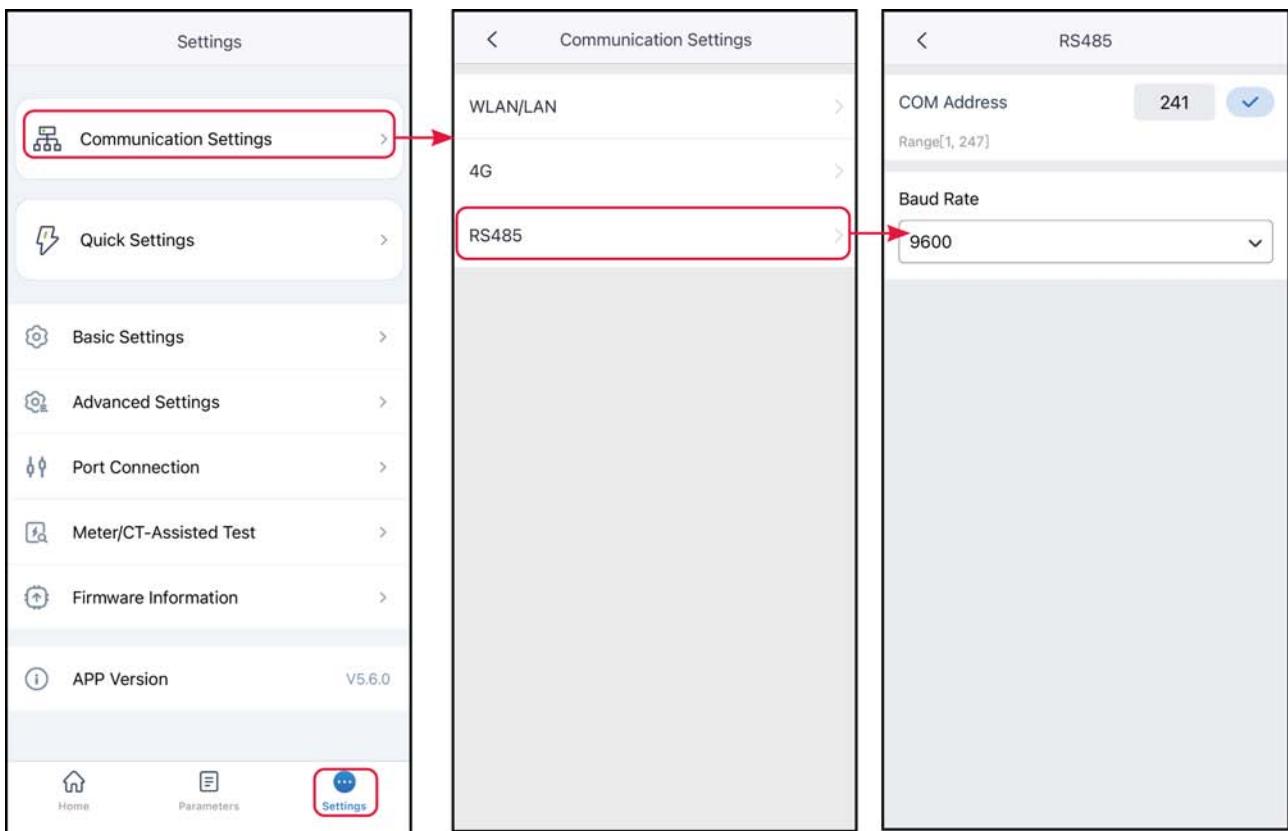
7.3.4 Configuring RS485 Parameters

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, $\cos\phi$ 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.

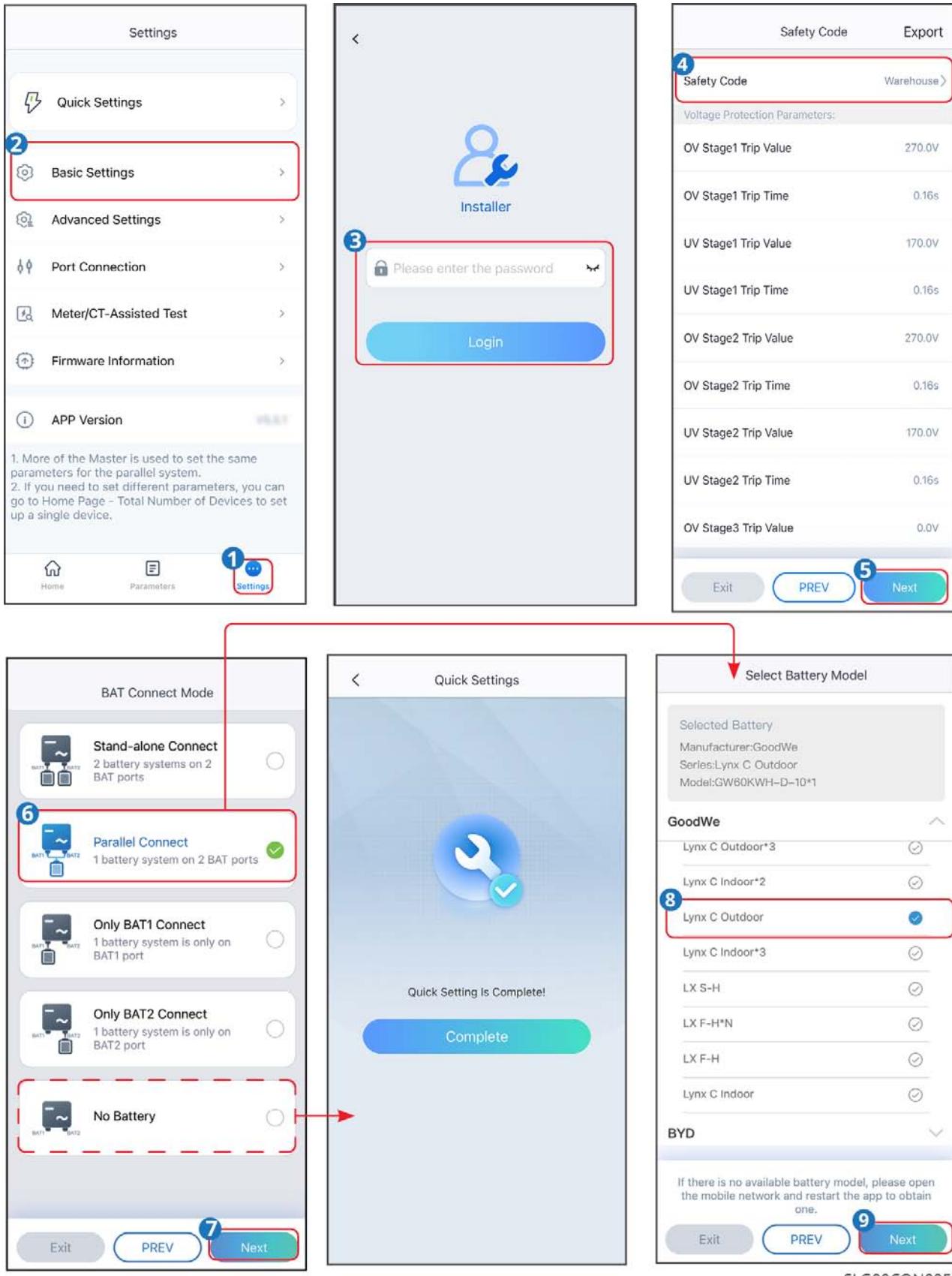
7.4.1 Quick System Setup (Type III)

Step 1: Go to the parameter settings page via **Home > Settings > Quick Configuration.**

Step 2: Enter your login password to access the safety settings interface. Contact the dealer or the after-sales service. The password is for professional technicians only.

Step 3: Select the safety standard country based on the country or region where the inverter is located. After completing the settings, click **Next** to set the battery connection mode.

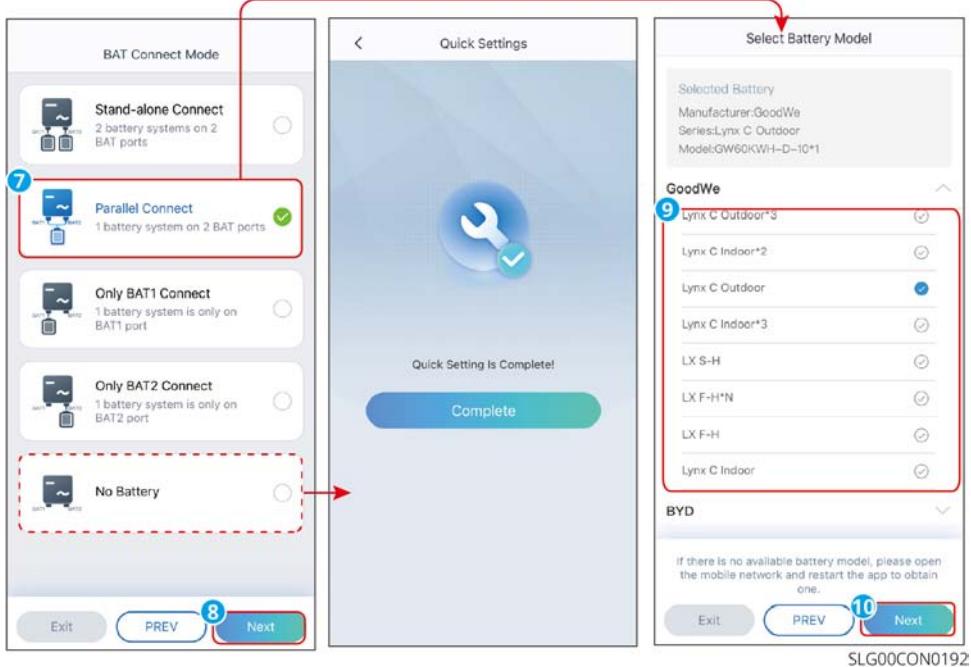
Step 4: Only for parallel scenarios. Setting On-grid Inverter Parameters. After completing the settings, click Next to set the battery connection mode.



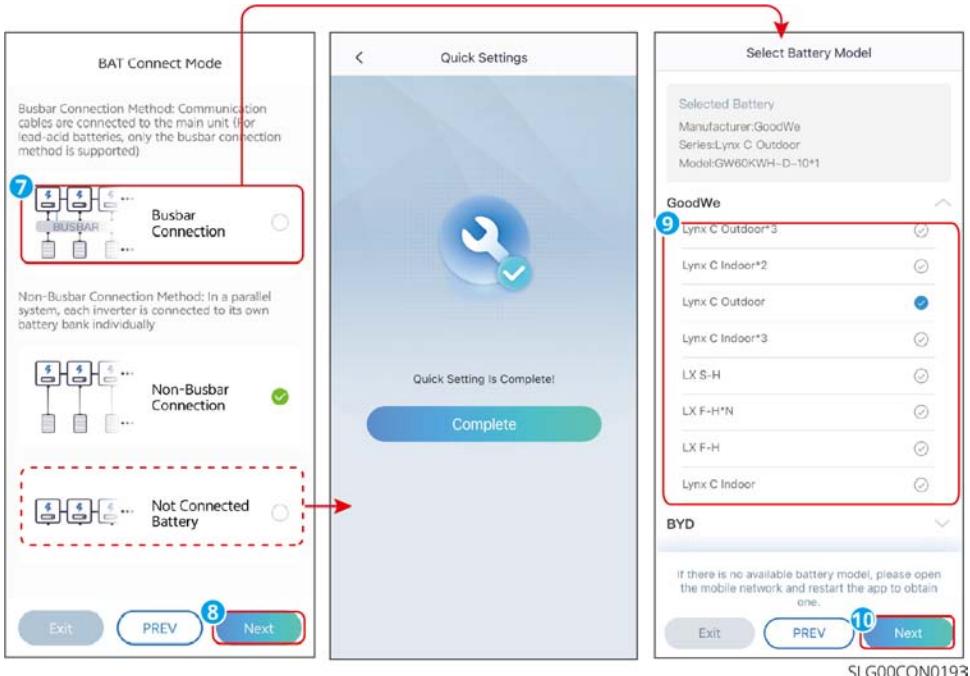
Step 5: Select the battery connection mode based on the actual battery connection

situation. If no battery is connected, the basic parameter settings are complete. If a battery is connected, click **Next** after completing the settings to set the battery type.

Step 6: Select the battery model based on the actual battery connection. After completing the settings click **Next** to set the working mode.



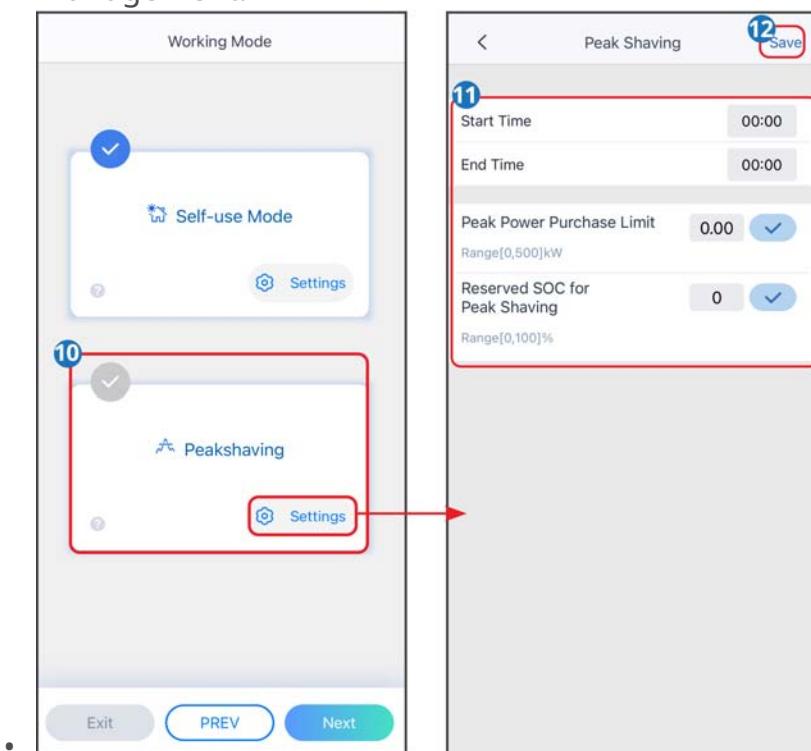
For certain models, when the inverter is paralleled via Ezlink3000, please set the battery connection mode to either busbar mode or non-busbar mode and select the battery model based on actual conditions. After the master unit settings are completed, the slave units will automatically synchronize the battery settings. If the battery connected to a slave unit is inconsistent with that of the master unit, please access the Quick Settings interface via the slave unit's SN on the homepage and set the battery model individually.



SLG00CON0193

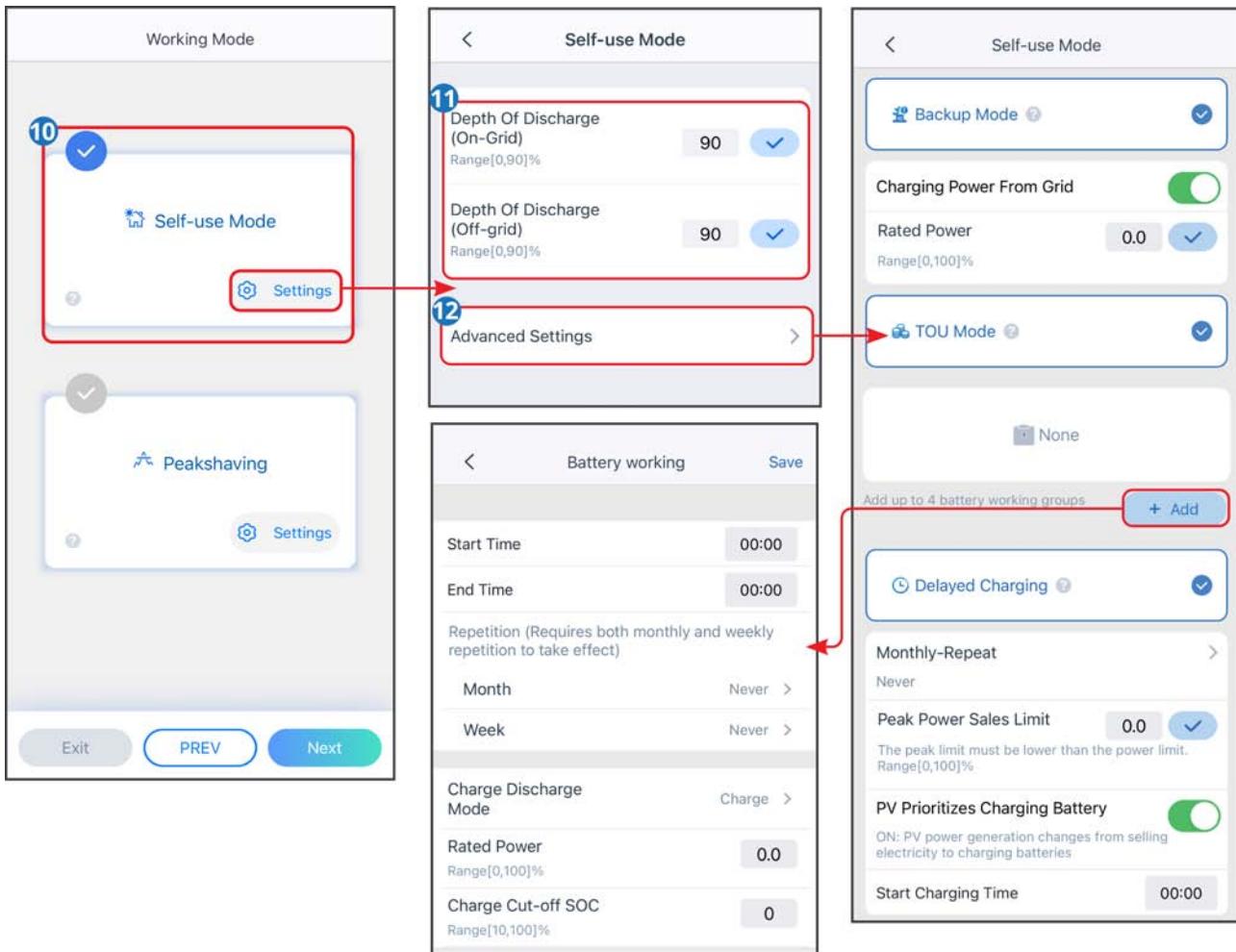
Step 7: Set the working mode according to actual needs. After completing the settings click **Next** to set the working mode.

- When selecting the Peakshaving mode, please click "Settings" to enter the parameter settings interface and configure the parameters related to demand management.



No.	Parameters	Description
Peakshaving		
1	Start Time	During the period when electricity is purchased for charging, if the load power consumption does not exceed the purchased electricity quota, the battery can be charged through the power grid. Otherwise, only PV power can be used to charge the battery.
2	End Time	
3	Peak Power Purchase Limit	Set the maximum power limit allowed for purchasing electricity from the grid. When the power consumed by the load exceeds the sum of the electricity generated by the photovoltaic system and this limit, the excess power will be supplemented by battery discharge.
4	Reserved SOC For Peakshaving	In the Peakshaving mode, when the battery SOC is lower than the reserved SOC for demand management, the function remains active. When the battery SOC is higher than the reserved SOC for demand management, the demand management function becomes invalid.

- When selecting the self-use mode, please click "Settings" to enter the self-use mode settings interface, and set the on-grid discharge depth and off-grid discharge depth under the self-use mode. Then click "Advanced Settings" and set the backup mode, TOU mode, or delayed charging according to actual needs. If TOU mode is selected, you need to click "Add" to set the working hours and working mode of the battery workgroup.



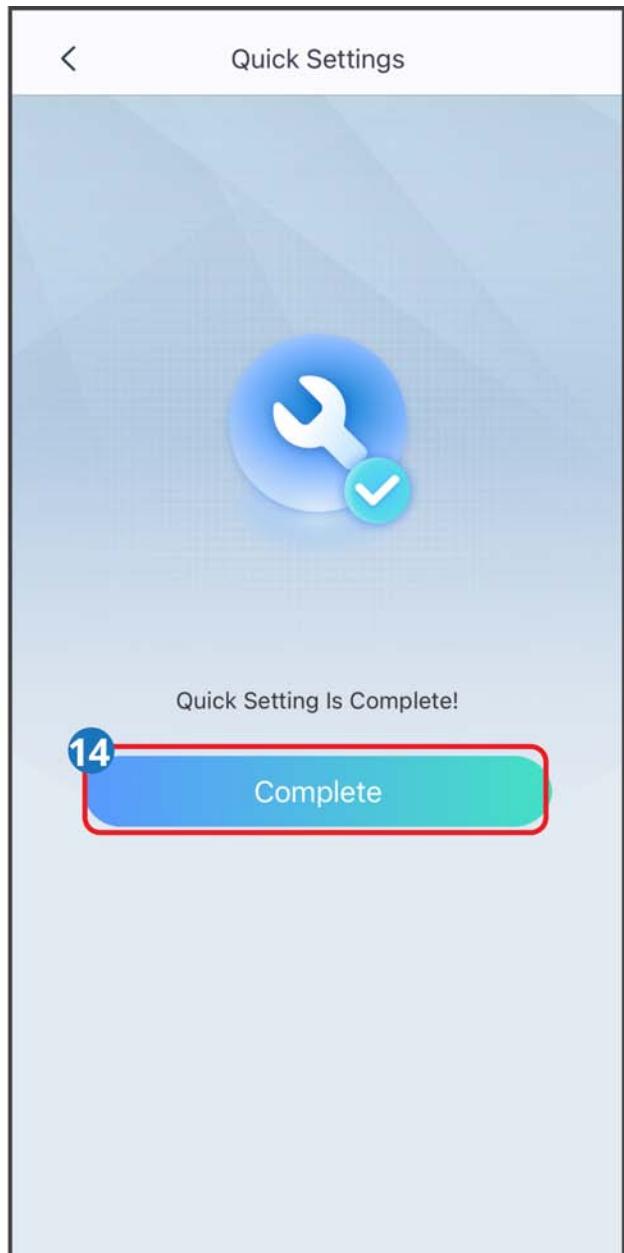
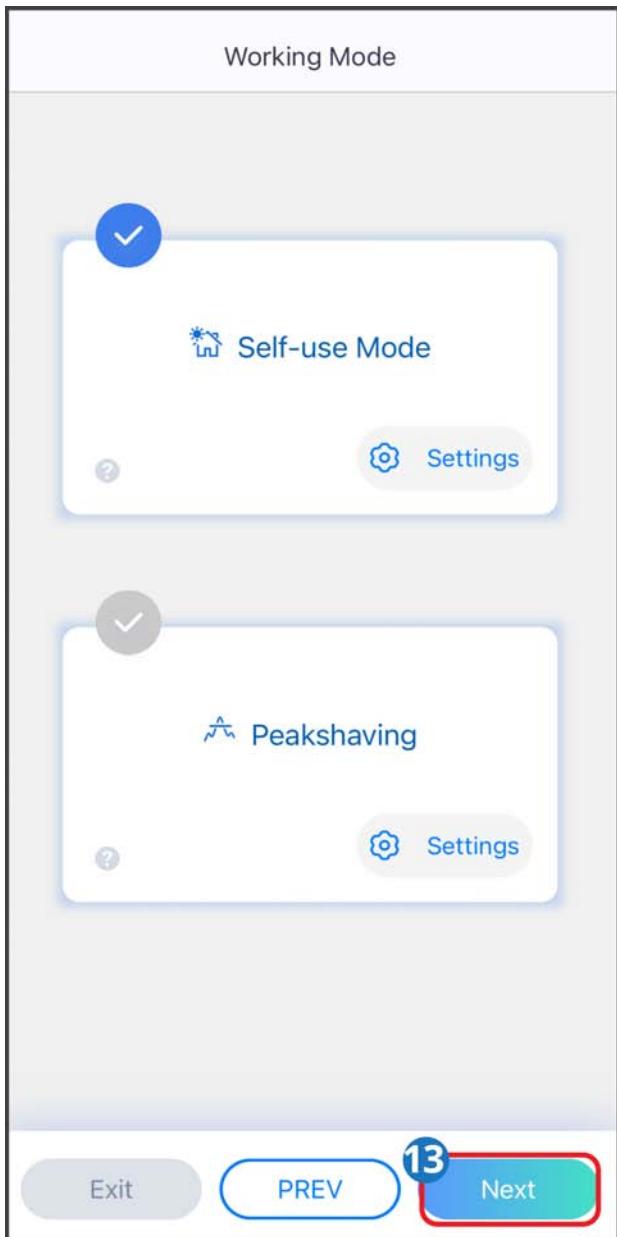
No.	Parameters	Description
Self-use Mode		
1	Depth Of Discharge (On-Grid)	The maximum depth of discharge of the battery when the system is working on-grid.
2	Depth of Discharge (Off-Grid)	The maximum depth of discharge of the battery when the system is working off-grid.
Back-up Mode		
3	Charging from Grid	Use this function, enable the system to purchase power from the utility grid.
4	Nominal Power	The percentage of power purchased compare to the rated power of the inverter.

No.	Parameters	Description
TOU mode		
5	Start Time	During the period between the start time and end time, the battery will charge or discharge in accordance with the set charge-discharge mode and its rated power.
6	End Time	
7	Charge and discharge mode	Set Charge and discharge mode according to actual needs.
8	Nominal Power	The percentage of power during charging or discharging compared to the rated power of the inverter.
9	Charge Cut-off SOC	The battery stop charging once the battery SOC reaches Charge Cut-off SOC.
Delayed Charging Mode		
10	Monthly Repetition	Set the months for delayed charging according to actual needs; multiple months can be selected.
11	Peak Power Selling Limit	Set peak power limits in accordance with grid standards in certain countries or regions. The peak power limit must be lower than the local specified output power limit.
12	PV Prioritizes Battery Charging	Within the charging time range, photovoltaic power generation is prioritized for charging the battery.
13	Charging Time	

Step 8: Perform device self-inspection or skip it as per actual requirements.

Step 9: Click "**Re-detect**" or "**Next**" to complete the inspection based on actual needs. If you need to export the inspection results, click "**Export**".

Step 10: Click "**Finish**" to complete the quick configuration.



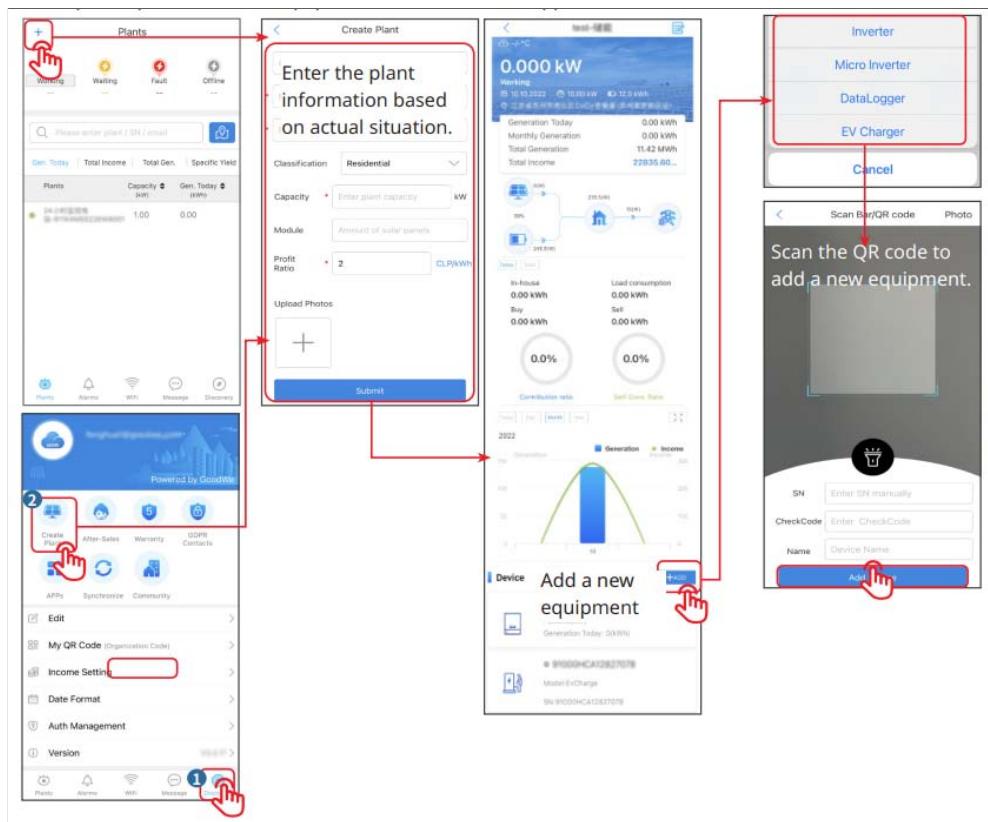
7.5 Power Plant Creation

NOTICE

Before Power Plant Creation, please log in to the Xiaogu Cloud Window app using your account credentials. For any questions, refer to the Power Plant Monitoring section.

1. Enter the Power Plant Creation interface.

2. Carefully read the interface prompts and fill in the power station information according to the actual situation. (* indicates required fields)
3. Add devices according to the interface prompts to complete Power Plant Creation.



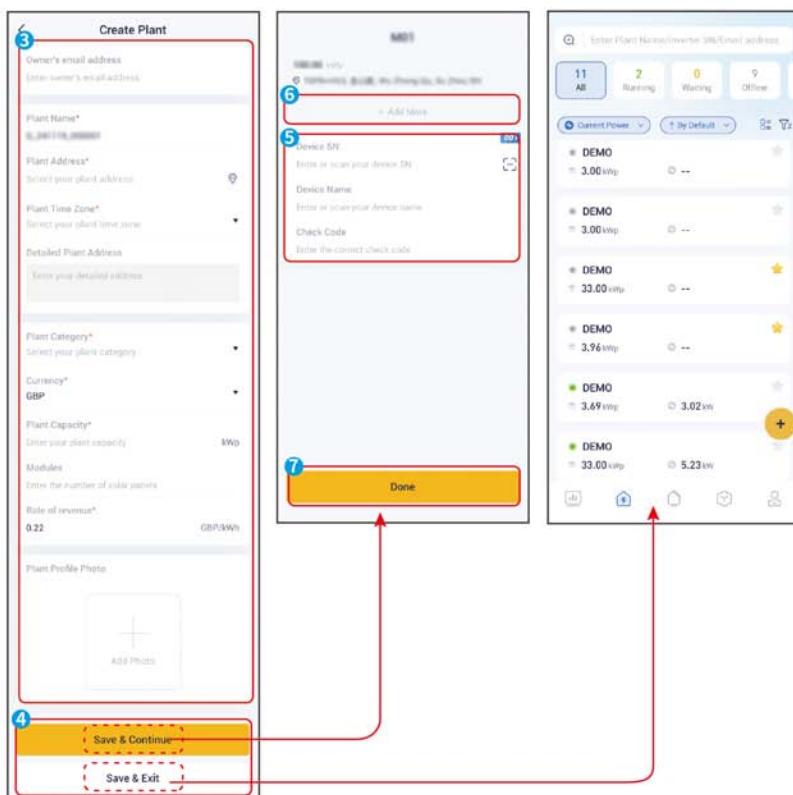
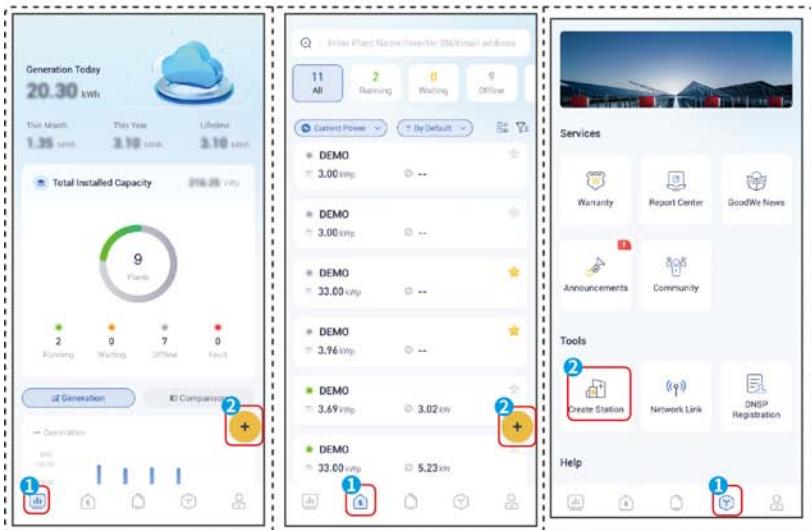
7.6 Creating a Station

Step 1: Tap  on overview or station page, or tap **Create Station** on service page.

Step 2: Enter station information on the **Create 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



8 System Commissioning

8.1 Commissioning Method Overview

For frameless Inverter, users need to use `SoConfigure` parameters using the `IarGo` APP.

For the Inverter with a screen, users can `SSet` parameters via the `solarGo` APP, or alternatively through LCD screen setting parameters.

8.2 Configuration via LCD

8.2.1 LCD Overview

Through the LCD screen, users can:

1. View the device's operational data, software version, alarm information, etc.
2. Set parameters, safety regulation regions, power limit, etc.

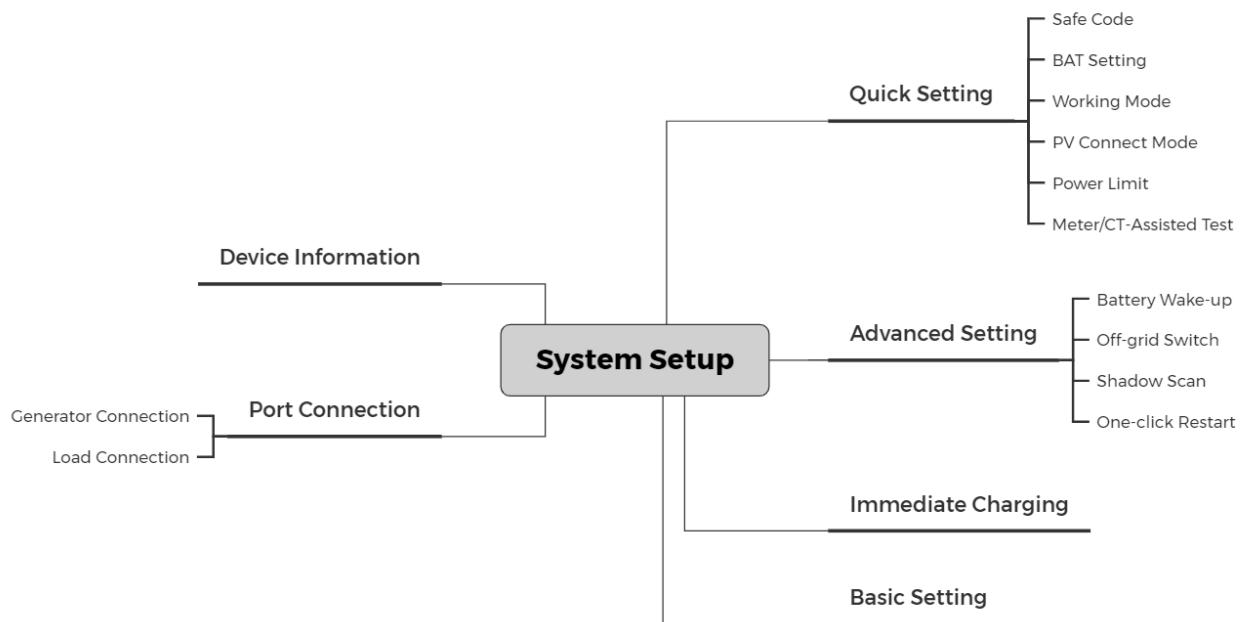
Introduction to LCD Interface

The LCD supports both touch and button operation.



Name/Icon	Description
	Upward
	Downward
	Confirmation
	<ul style="list-style-type: none"> Short press: Exit page  Press and hold for 5 seconds simultaneously: Restart the device
	Used to view PV current, voltage, and power generation information.
	Used to view Battery model, status, and other information.
	Used to view the alarms and fault information of Inverter.
	Used to enter the setup interface of Inverter
	Used to view Utility grid status information
	To view the status of the generator
	To view the load information of Inverter
	Return to the main interface
Cancel	Return to the previous menu
Next	Proceed to the next setup page
Back	Return to the previous settings page

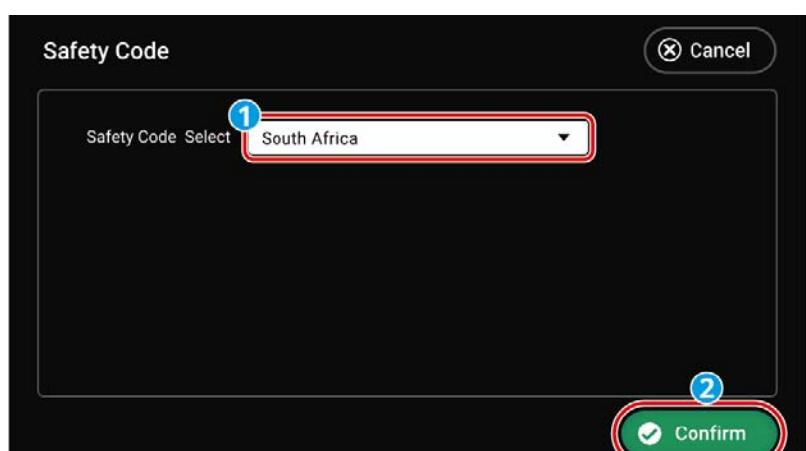
LCD Setting Interface Structure



8.2.2 Quick Settings

Set safety regulations

1. Through the main interface, click > Quick Settings > Safe Code, 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" indicating the parameters have been successfully set.



Parameter Name	safety code	Description
----------------	-------------	-------------

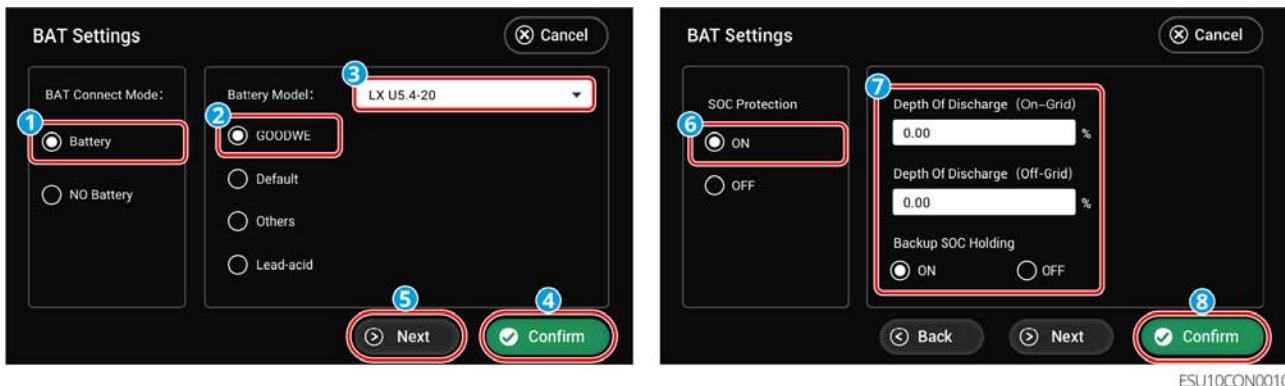
Safety Code select	South Africa	Select the corresponding safety code based on the country or region where the equipment is located.
	Pakistan	
	Argentina	
	Philippines	
	60Hz Default	
	50Hz Default	
	IEC61727 60Hz	

Set Battery parameters

1. Through the main interface, click > Quick Settings > BAT Setting, 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.

NOTICE

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



ESU10CON0010

BAT Settings

BAT Connect Mode: 1. Battery (selected) 2. NO Battery

Battery Model: 3. AGM (selected) 4. GOODWE 5. Default 6. Others 7. Lead-acid

Next 8. Back **Confirm**

BAT Settings

Maximum Charging Current: 0.00 A **Constant Charging Voltage:** 0.00 V

Float Voltage: 0.00 V **Max Current For Switching To Float Charge:** 0.00 A

The Time Float Charging: 0.00 S

Back 9. Next 10. Confirm

BAT Settings

Battery Capacity: 9. 0.00 AH **Lower Limit Of Discharge Voltage:** 0.00 V

Internal Resistance: 0.00 mΩ **Maximum Discharging Current:** 0.00 A

Temperature Compensation: 0.00 °C

Back 10. Confirm

ESU10CON0011

Basic parameter settings

BAT Connection Mode	Type	Description
Battery	GOODWE	If the system is connected to a GoodWe brand lithium Battery, select GOODWE and choose the correct model.
	Default	If the third-party lithium Battery model connected in the system is not listed here, please select based on the actual situation: <ul style="list-style-type: none"> Lithium 50Ah Lithium 100Ah
	Others	If the third-party lithium Battery model connected in the system is included in this list, please select the correct model based on the actual situation.
	Lead acid	If the system is connected to a lead-acid Battery, select "Lead acid" and choose the correct lead-acid type. Currently supported types are GEL, AGM, and Flooded.
NO Battery		No Battery is connected to the system

BAT Setting	Set according to the actual connected Battery in the system.
-------------	--

Lithium Battery parameter settings

Parameter Name	Description
SOC Protection	Enable or disable the SOCProtection function.
Depth Of Discharge (On-Grid)	During Inverter on-grid operation, the maximum depth of discharge Protection point of Battery.
Depth Of Discharge (Off-Grid)	During off-grid operation, the maximum depth of discharge Protection point of Battery.
Backup SOC Holding	To ensure the Battery SOC is sufficient to maintain normal system operation when off-grid, during on-grid operation, the Battery will charge via Utility grid or PV Charge until reaching the preset SOC Protection value.

Lead-acid Battery parameter settings

Parameter Name	Description
Maximum Charging Current	Battery charge defaults to constant charging mode; The maximum Charge voltage and maximum Charge current in this mode need to be set; please configure according to Battery Technical Data.
Constant Charging Voltage	
Float Voltage	
The Time Float Charging	
Maximum Current For Switch To Float Charge	When Battery charge current is less than the Maximum Current For Switch To Float Charge and the duration reaches The Time Float Charging, the Battery charge status transitions from constant charging mode to float charging mode. Float voltage is the maximum Battery Charge voltage in float charging mode. Please set it according to Battery Technical Data.
Battery Capacity	Set the Battery capacity according to the actual connected Battery parameters.
Internal Resistance	The internal resistance present in Battery should be set according to Battery Technical Data.

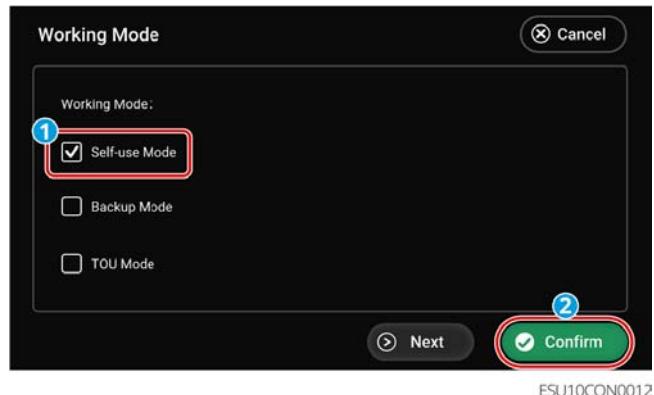
Temperature Compensation	When the default temperature exceeds 25°C, the upper limit of Charge voltage decreases by 3mV for every 1°C increase. Please adjust the settings based on the actual Battery Technical Data.
Lower Limit Of Discharge Voltage	Please set according to Battery Technical Data.
Maximum Discharging Current	Please configure according to Battery Technical Data. The larger the Dischargecurrent, the shorter the working time of Battery.

Set working mode

1. Through the main interface, click > Quick Settings > Working Mode, enter the parameter setting interface.
2. Please set the parameters according to the actual situation.
3. After completing the settings, click "Confirm." The interface will display "Confirm OK," indicating that the parameter configuration is successful.

NOTICE

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

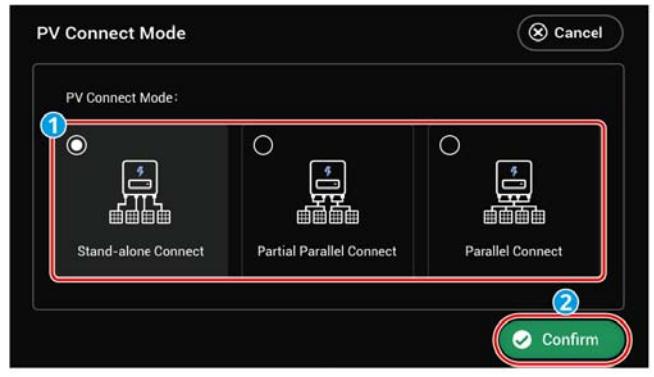


Parameter Name	Description

Self-use Mode		When the working mode is set to Self-use Mode, both Back-up Mode and TOU Mode can be enabled simultaneously. Please select according to actual conditions. The operational priority of working modes is: Back-up Mode > TOU Mode > Self-use Mode.
Back-up Mode	Charging From Grid	Enable this function to allow the system to buy power from the grid.
	Rated Power	The percentage of Power to Inverter Nominal power when purchasing electricity.
TOU Mode	Time	Within the Start Time and End Time, the Battery performs Charge or Discharge based on the configured charging Discharge mode and Nominal power.
	Charge/Discharge	Set to Charge or Discharge based on actual requirements.
	Power (%)	The percentage of Power to Inverter Nominal power during Charge or Discharge.
	Bat (%)	When the Battery power reaches the set SOC, stop Charge. To set the stop SOC for Battery discharge, please refer to 9.2.2.2 Set Battery parameters Chapter, set the Depth of Discharge (On-Grid) and Depth of Discharge (Off-Grid) via the LCD screen.

Set PV connection mode

1. Through the main interface, click  > Quick Settings > PV Connect Mode, enter the parameter setting interface.
2. Please set the parameters according to the actual situation.
3. After completing the settings, click "Confirm." The interface will display "Confirm OK," indicating that the parameter configuration is successful.



ESU10CON0015

Parameter Name	Description
Stand-alone Connect	The PV String is connected in a one-to-one correspondence with the MPPT port on the Inverter side.
Partial Parallel Connect	When a string of PV String is connected to the multi-channel MPPT port on the Inverter side, other PV modules are simultaneously connected to other MPPT port on the Inverter side.
Parallel Connect	When the external PV String is connected to the Inverter side photovoltaic input port, one PV String is connected to multiple photovoltaic inputs port.

Set Export power limit

1. Through the main interface, click > Quick Settings > Power Limit, enter the parameter setting interface.
2. Please set the parameters according to the actual situation.
3. After completing the settings, click "Confirm." The interface will display "Confirm OK," indicating that the parameter configuration is successful.



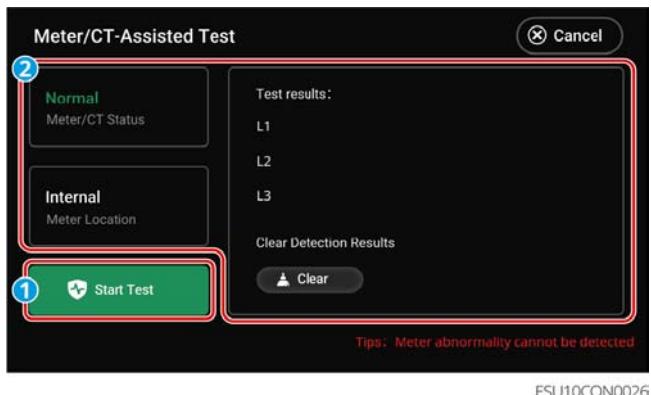
ESU10CON0016

Parameter Name	Description
----------------	-------------

Power Limit	According to the Utility grid standard requirements of certain countries or regions, this function should be enabled when it is necessary to limit the output Power.
Export Power	Set according to the maximum Power that can actually be input to Utility grid.
External CT Ratio	<p>Set as the ratio of the primary side to the secondary side current of the external CT.</p> <ul style="list-style-type: none"> • Built-in meter or GMK110: No setup required. Default CT ratio is 120A/40mA. • GM330: CT can be purchased from GoodWe or self-procured, with CT ratio requirement: nA/5A. • nA: CT primary side input current, n ranges from 200-5000. • 5A: CT secondary output current.

Electric Meter/CT Auxiliary Testing

1. Through the main interface, click > Quick Settings > Meter/CT Assisted Test, enter the parameter configuration interface.
2. Click Start Test to begin the detection. After completion, determine the test result based on the interface prompts.

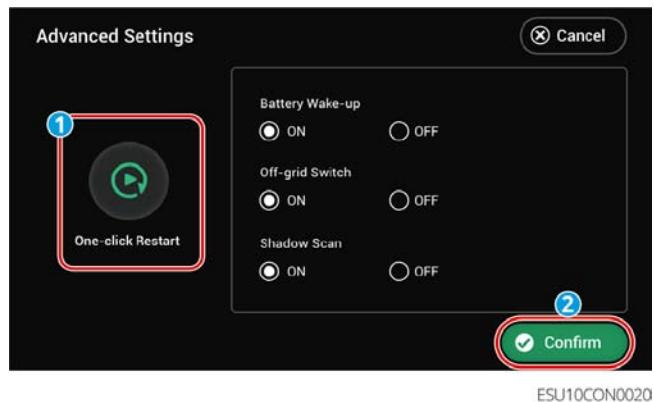


ESU10CON0026

8.2.3 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"

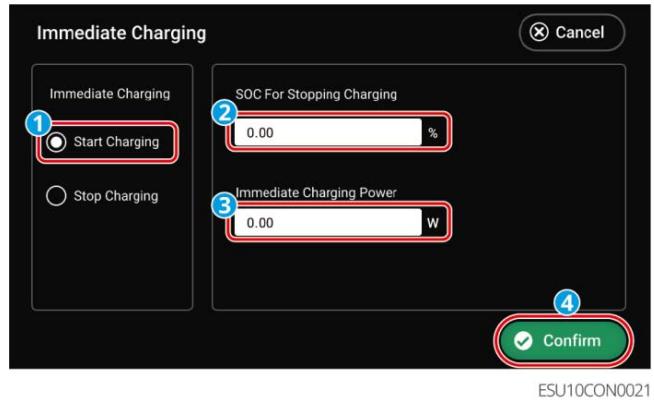
"OK" indicating the parameters have been successfully configured.



Parameter Name	Description
One-click restart	Using this function, you can quickly restart the Inverter.
Battery Wake-up	When enabled, it can wake up Battery after Battery shuts down due to undervoltage Protection. Only applicable to lithium breaker without Battery. After activation, the output voltage of Battery port 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 initially in the ON state, enabling the off-grid function. After Inverter power on, Inverter activates the off-grid output function. In the off-grid state, turning the off-grid switch off and then on again clears the off-grid overload time and restarts the off-grid output.
Shadow Scan	When the photovoltaic panels are severely shaded, enabling the shadow scan function can optimize Inverter power generation Efficiency.

8.2.4 Setting Immediate Charging

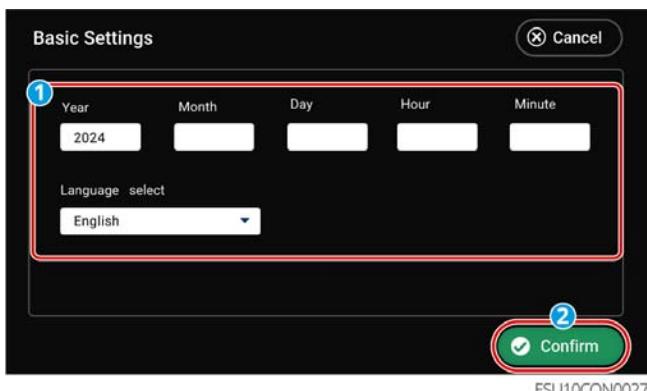
1. Through the main interface, click Immediate Charging, enter the parameter setting interface.
2. Please set the parameters according to the actual situation.
3. After completing the settings, click "Confirm." The interface will display "Confirm OK," indicating that the parameter configuration is successful.



Parameter Name	Description
Immediate Charging	After activation, Utility grid will immediately supply power to Battery charge. This effect is only triggered once. Please enable or disable it as needed.
SOC For Stopping Charging	When Battery (immediate charging) is enabled, charging to Battery charge will stop once the Battery SOC reaches the Charge cutoff SOC.
Immediate Charging Power	When Battery is enabled for charging, the percentage of Charge Power to Inverter Nominal power. For example, for a Nominal power with a capacity of 10kW, when set to 60, the Charge Power is 6kW.

8.2.5 Setting the Basic Information

1. Through the main interface, click > Basic Settings, enter the parameter setting interface.
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 configured.

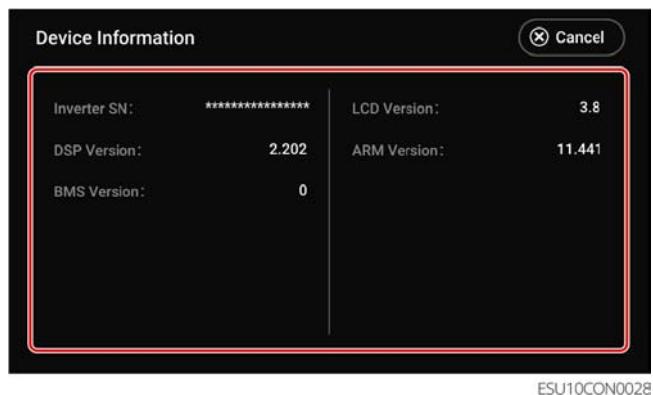


8.2.6 Viewing Device Information

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

NOTICE

You can query the Inverter, serial number, DSP version, BMS version, LCD version, and ARM version.



8.2.7 Setting Port Connection

NOTICE

To set the relevant parameters of grid-tied PV inverter in microgrid mode, please connect SolarGo APP for configuration.

Setting Port Connection generator

1. Through the main interface, click  Port Connection, enter the parameter setting interface.
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 configured.

NOTICE

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

Port Connection

1 Port Connection

Generator Connection (radio button)

Load Connection (radio button)

PV Inverter Connection (radio button)

(read-only module)

3 Next 2 Confirm

Generator Control

4 Generator ON (radio button)

5 Generator OFF (radio button)

Rated Power: 0.00 W

Run Time: 0.00 H

Max Charging Power: 0.00 %

SOC for Starting Charging: 0.00 %

SOC for Stopping Charging: 0.00 %

Back 7 Next 6 Confirm

Generator Control

8 Maximum Operation Voltage: 0.00 V

Minimum Operation Voltage: 0.00 V

Upper Limit of Operating Frequency: 0.00 Hz

Lower Limit of Operating Frequency: 0.00 Hz

Delay Before Load: 0.00 s

9 Next 10 Back 11 Confirm

Prohibited Working Hours Add up to 2 sets of time

11 Prohibited Working Hours 1

Time: 00 : 00 - 00 : 00

Week: Sun (checked), Mon, Tues, Wed (checked), Thurs, Fri, Sat

Prohibited Working Hours 2

Time: 00 : 00 - 00 : 00

Week: Sun (checked), Mon, Tues, Wed (checked), Thurs, Fri, Sat

12 Back 13 Confirm

ETL10CON0004

No.	Parameter Name	Description
1	Generator ON/F OFF	Control the start and stop of the generator. Only applicable to generators supporting dry contacts.
2	Rated Power	Generator's Nominal power.
3	Run Time	The continuous operation time of the generator. After exceeding the set operation time, the generator will automatically shut down. This function is only effective for generators that support dry contact connections.
4	Max Charging Power	Set as Max charge power with generator as Battery charge.
5	SOC for Starting Charging	Set the generator to start at Battery charge SOC. When the SOC of Battery falls below the set value, the generator will activate for Battery charge.
6	SOC for Stopping Charging	Set the generator to stop charging the Battery charge at the specified SOC. When the SOC of Battery reaches the set value, the generator will cease charging the Battery charge.
7	Maximum Operation Voltage	Set the operating voltage upper limit of the generator.

8	Minimum Operation Voltage	Set the lower limit of the generator's operating voltage.
9	Upper Limit Of Operating Frequency	Set the operating Frequency upper limit of the generator.
10	Lower Limit Of Operating Frequency	Set the lower limit of the generator's operating Frequency.
11	Delay Before Load	No-load preheating time of the generator before loading.
12	Prohibited Working Hours	Please set the prohibited operating time for the generator according to actual conditions.

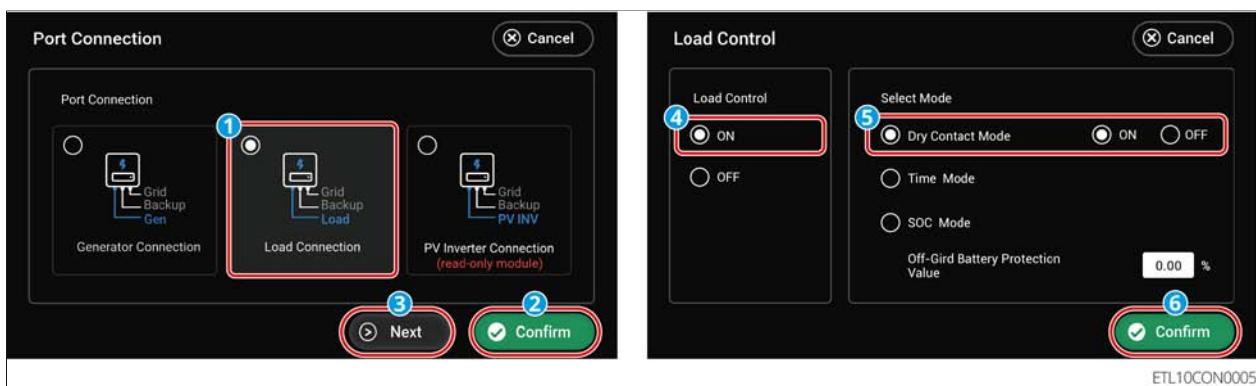
Setting Port Connectionload control

1. Through the main interface, click Port Connection, enter the parameter setting interface.
2. Please set the parameters according to the actual situation.
3. After completing the settings, click "Confirm." The interface will display "Confirm OK," indicating that the parameter configuration is successful.

NOTICE

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

Dry contact mode



Time mode

Port Connection

1. Load Connection selected. 2. Confirm button highlighted. 3. Next button highlighted.

Load Control

4. ON selected. 5. Time Mode selected. 6. Confirm button highlighted.

Time Mode Add up to 4 groups of load control

Load Control 1

7. Load control 1 selected. 8. Time: 00:00 - 00:00. 9. Mode: Standard selected. 10. Confirm button highlighted. 11. Next button highlighted.

Load Control 4

12. Load control 4 selected. 13. Time: 00:00 - 00:00. 14. Mode: Intelligent selected. 15. Confirm button highlighted. 16. Back button highlighted.

ETL10CON0007

SOC Mode

Port Connection

1. Load Connection selected. 2. Confirm button highlighted. 3. Next button highlighted.

Load Control

4. ON selected. 5. SOC Mode selected. 6. Confirm button highlighted.

ETL10CON0006

No.	Parameter Name	Description
1	Load Control ON/OFF	Enable/disable load control function
2	Dry Contact Mode	ON: When the switch status is set to ON, power supply to the load begins. OFF: When the switch status is set to OFF, power supply to the load is terminated.
3	Time Mode	Within the set time period, the load will automatically supply power to the load or POWER OFF. Standard mode or smart mode can be selected.

4	Load Control 1	Set the 1st group load control time, up to 4 groups can be set.
5	Mode: Standard/Intelligent	Standard Mode: Supplies power to the load during the set time period. Smart Mode: Within the set time period, when the remaining energy generated by photovoltaics exceeds the preset load Nominal power, power supply to the load begins.
6	Load Consumption Time	Minimum operating time after the load is turned on, to prevent frequent switching of the load due to energy fluctuations. Only applicable in smart mode.
7	Load Rated Power	When the surplus energy generated by photovoltaics exceeds this load Nominal power, it begins to supply power to the load. Applicable only in smart mode.
8	SOC Mode	Inverter features built-in relay dry contact control for port, enabling power supply management to the load via relay switching.
9	Off-Grid Battery Protection Value	In off-grid mode, if an overload is detected at the BACK-UP terminal or the BatterySOC value falls below the off-grid BatteryProtection setting, the power supply to the load connected to the relay port can be stopped. Please set the off-grid BatteryProtection value according to actual requirements.

8.3 Configured via 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 Downloading and Installing the App

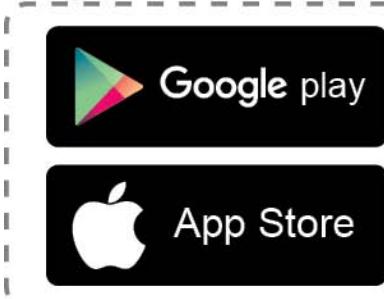
Make sure that the mobile phone meets the following requirements:

- 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

After installing the app, it can automatically prompt users to update the app version.

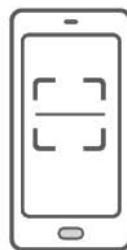
Method 1: Search SolarGo in Google Play (Android) or App Store (iOS) to download and install the app.



SolarGo App

SLG00CON0135

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



SolarGo App

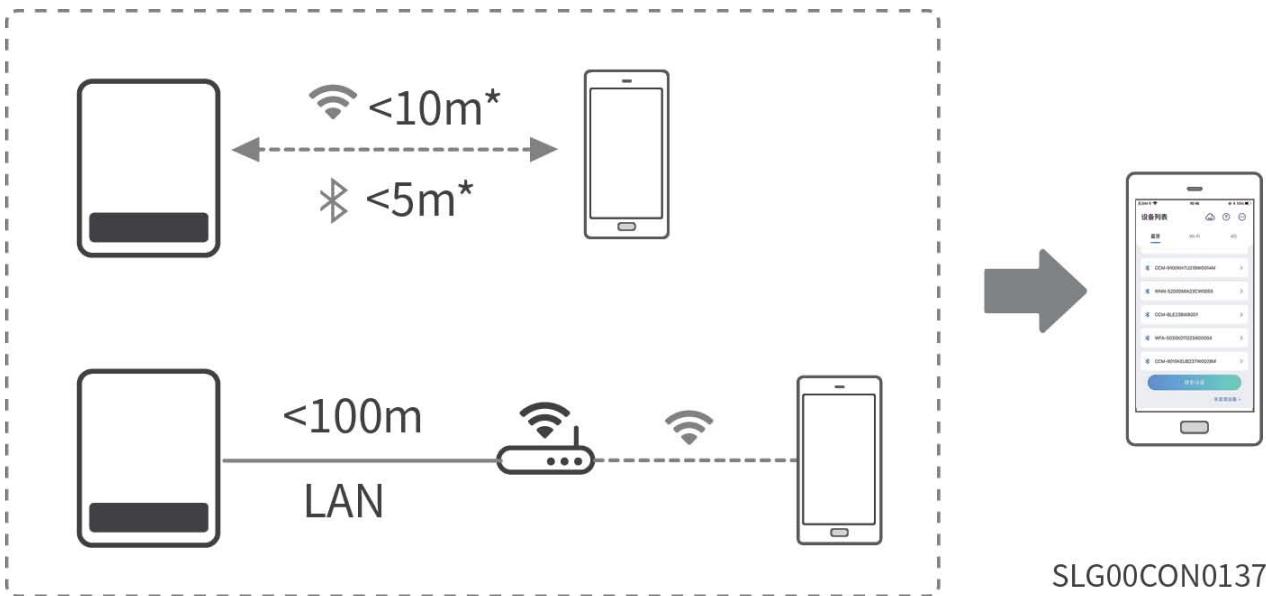
SLG00CON0136

8.3.1.2 App Connection

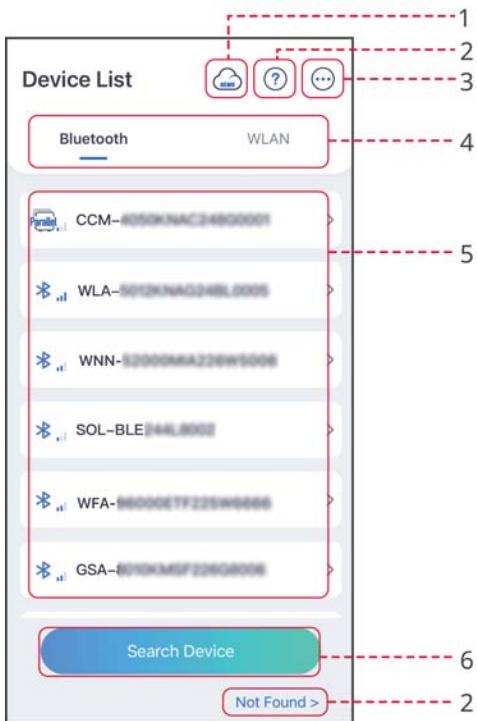
Connect as the following shows after powering on the equipment.

NOTICE

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



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.

No.	Name/Icon	Description
2		Tap to read the connection guide.
	Not found	
3		<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> Wi-Fi/LAN Kit, Wi-Fi Kit, Wi-Fi Box: Solar-WiFi*** External or integrated bluetooth module: 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

8.3.2.1 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 homepage.

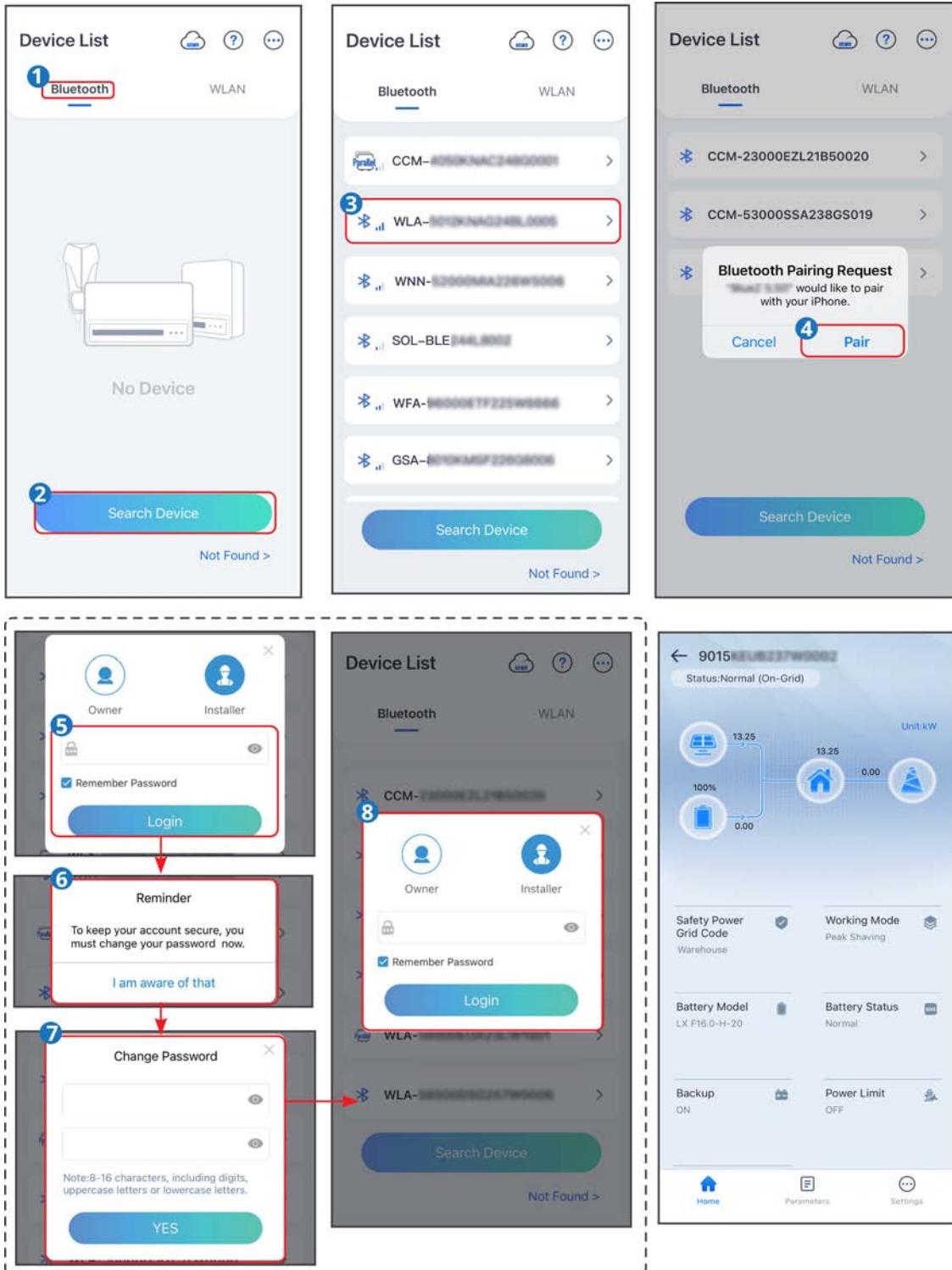
Step 3 Pull down or tap **Search Device** to refresh the device list. Find the device by the inverter serial number. Tap the device name to log into the **Home** page.

Select the device by checking the serial number of the master inverter when multi inverters are parallel connected.

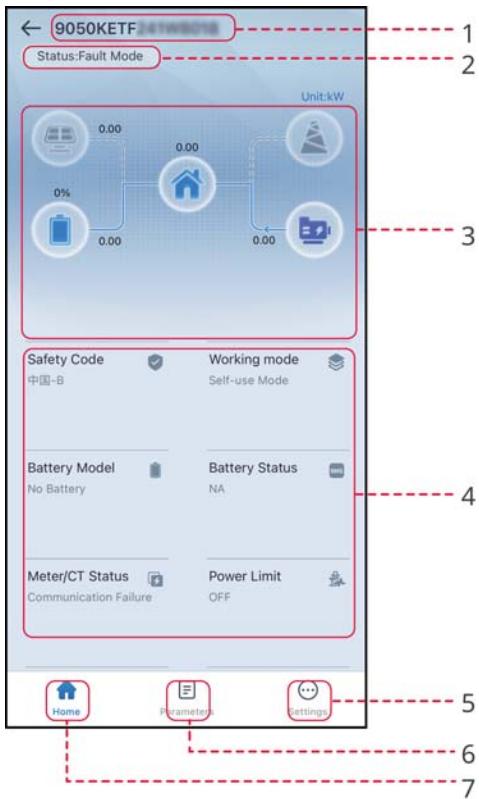
Step 4 For first connection with the equipment via Bluetooth, there will be a Bluetooth pairing prompt, tap **Pair** to continue the connection.

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 check Serial Number, Device Status, Energy Flow Chart, System Status, etc.
6		Parameters. Tap Parameters to check the inverter Data.

No.	Name/Icon	Description
7		<ul style="list-style-type: none"> Settings Tap to perform quick settings, basic settings, advanced settings, etc. on the inverter. Login required to access Quick Setup and Advanced Setup interfaces Initial password: goodwe2010 or 1111.

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.

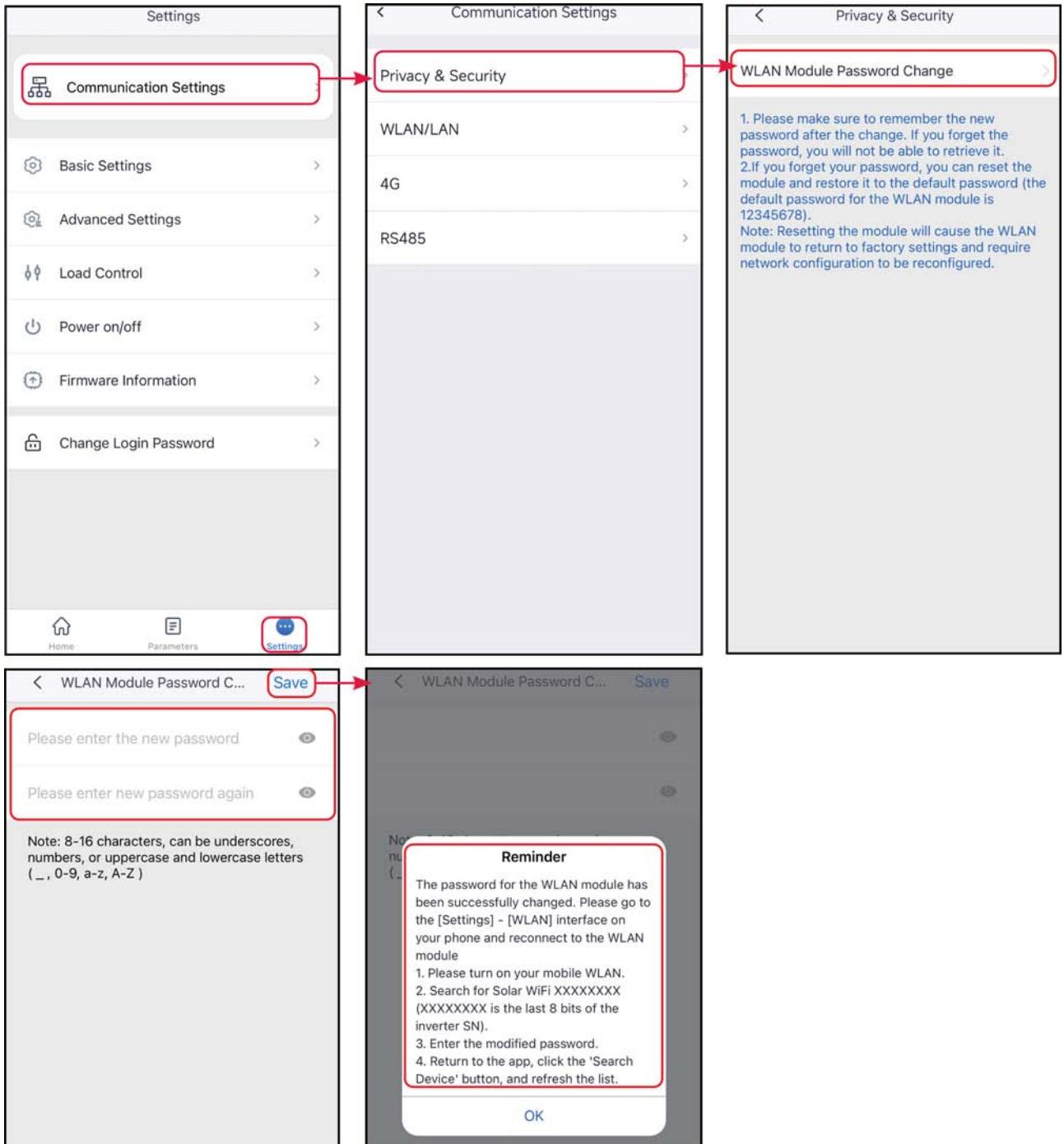
8.3.4.1 Setting Privacy and Security Parameters

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**.

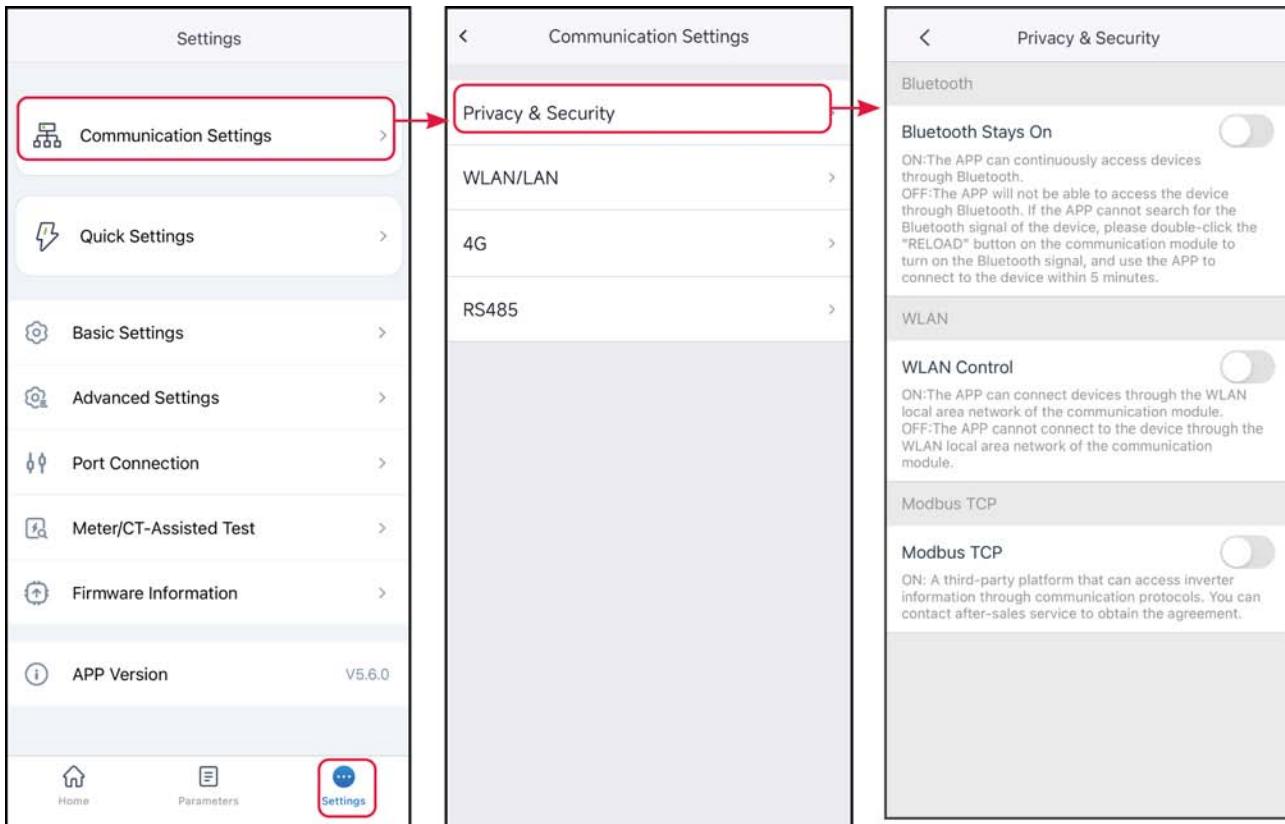
Step 3 Open the WiFi settings of your phone and connect to the inverter's WiFi signal (Solar WiFi***) with the new password.



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.



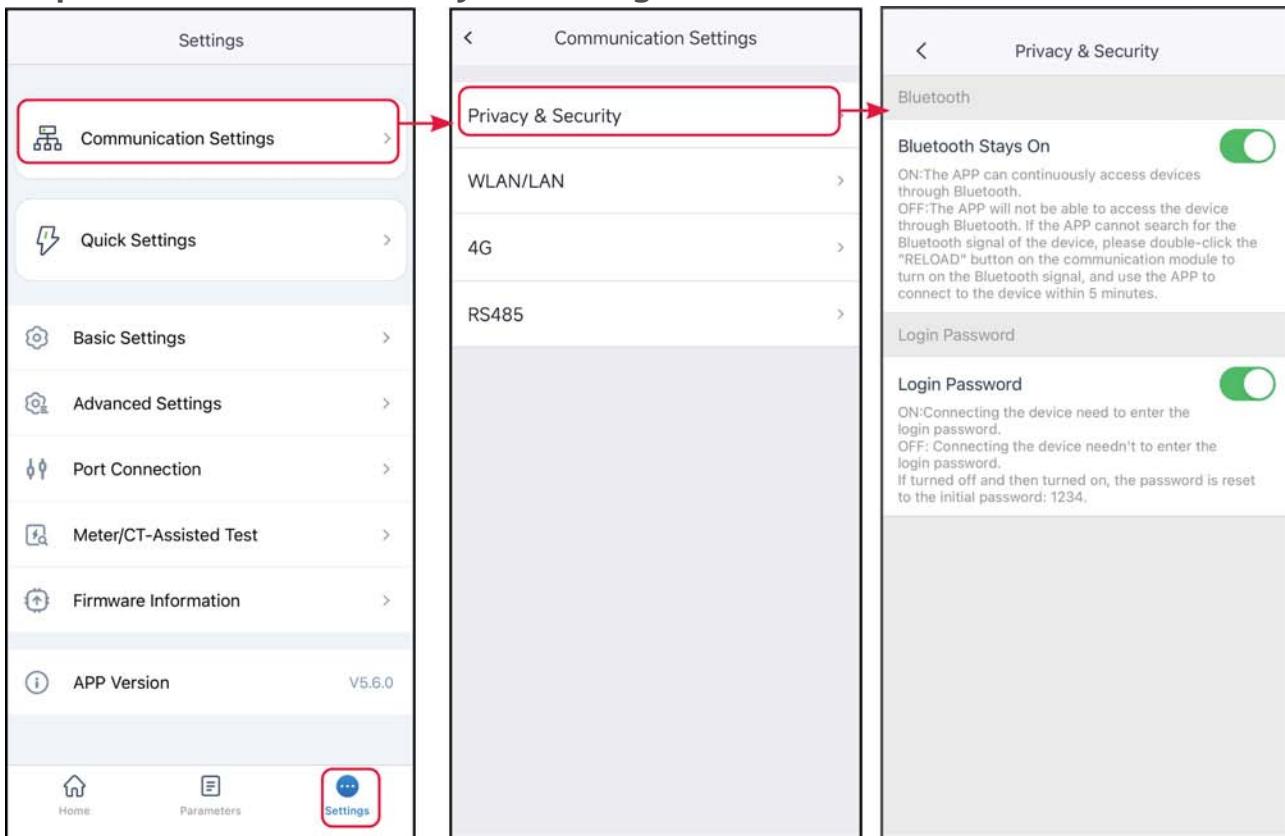
No.	Parameters	Description
1	Bluetooth Stays On	Disabled by default. Enable the function, the bluetooth of the device will be contentious on to keep connected to SolarGo. Otherwise, the bluetooth will be off in 5 minutes, and the device will be disconnected from SolarGo.
2	WLAN Control	Disabled by default. 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.

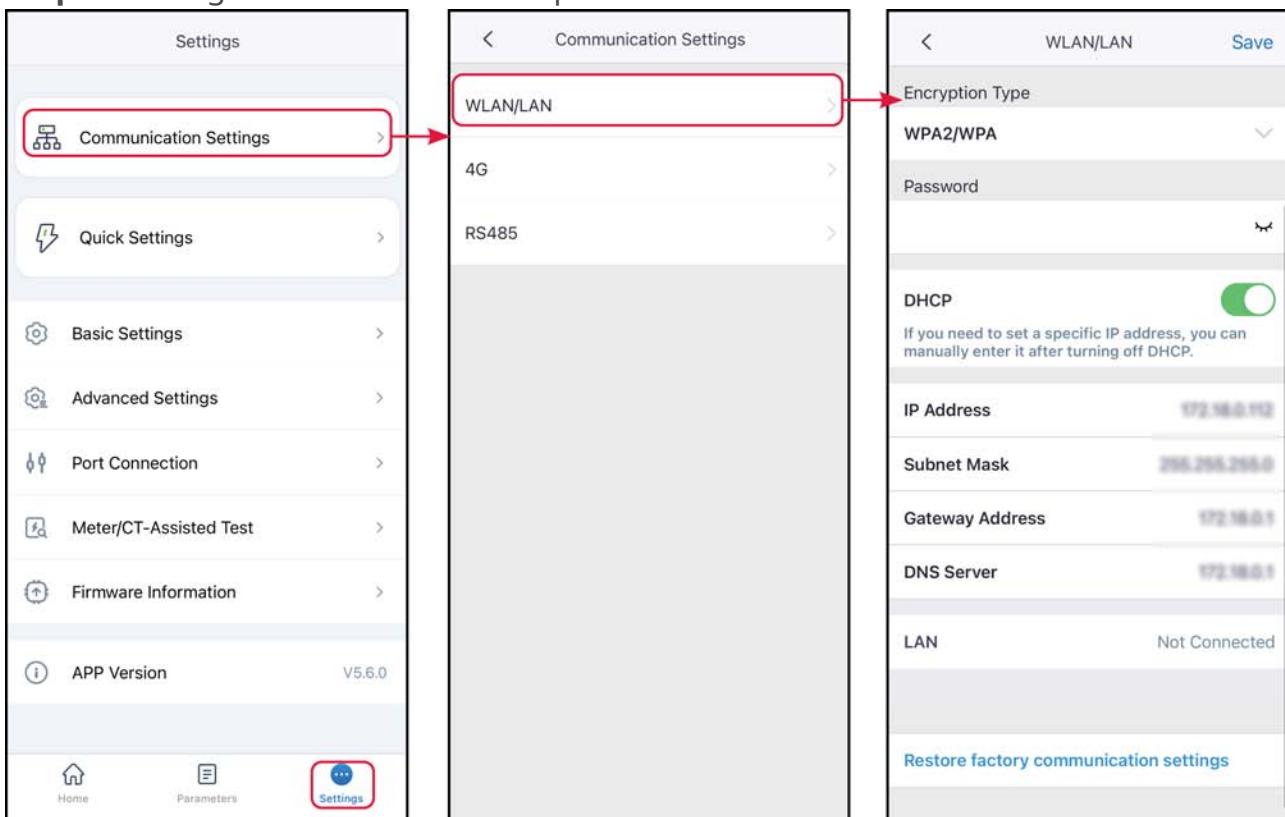
8.3.4.2 Setting WLAN/LAN Parameters

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.
5	Subnet Mask	
6	Gateway Address	Configure the parameters according to the router or switch information when DHCP is disabled.
7	DNS Server	

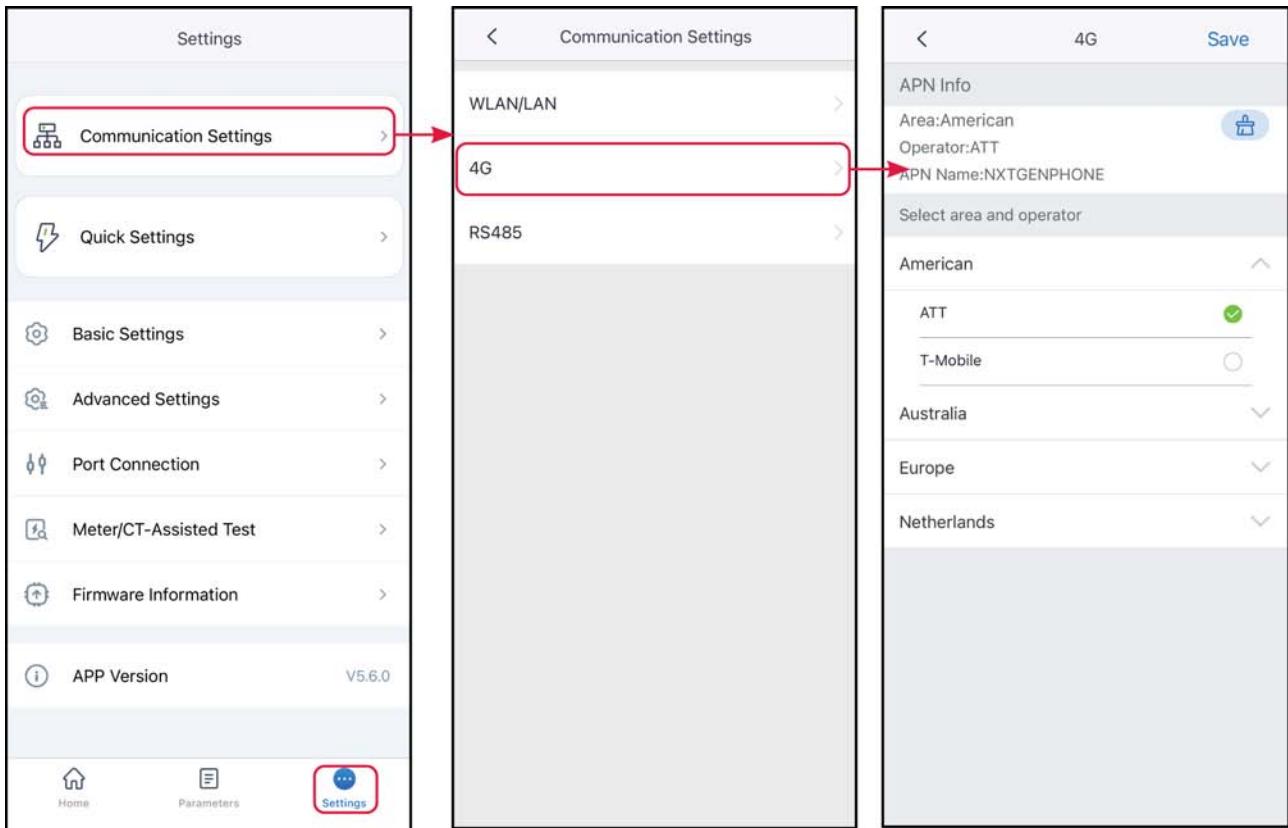
8.3.4.3 Configuring APN Parameters

NOTICE

- Configure the SIM card information of 4G communication device.
- If the 4G module does not offer bluetooth signal, please configure the APN parameters through the Bluetooth module or WiFi module first to achieve 4G communication.

Step 1: Tap **Home > Settings > Communication Settings > 4G** to set the parameters.

Step 2: Set the region and operator based on actual needs.



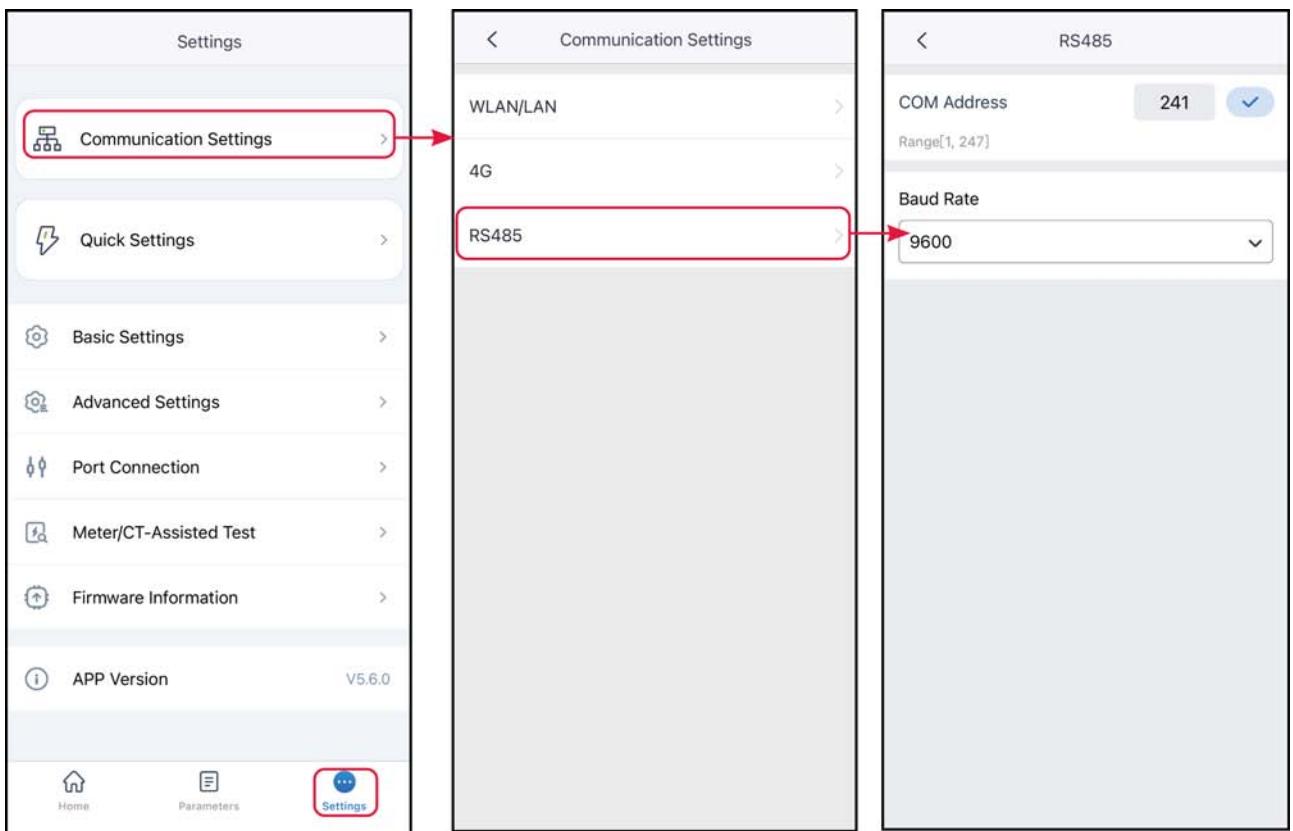
8.3.4.4 Configuring RS485 Parameters

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.



8.3.5 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, $\cos\phi$ 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.

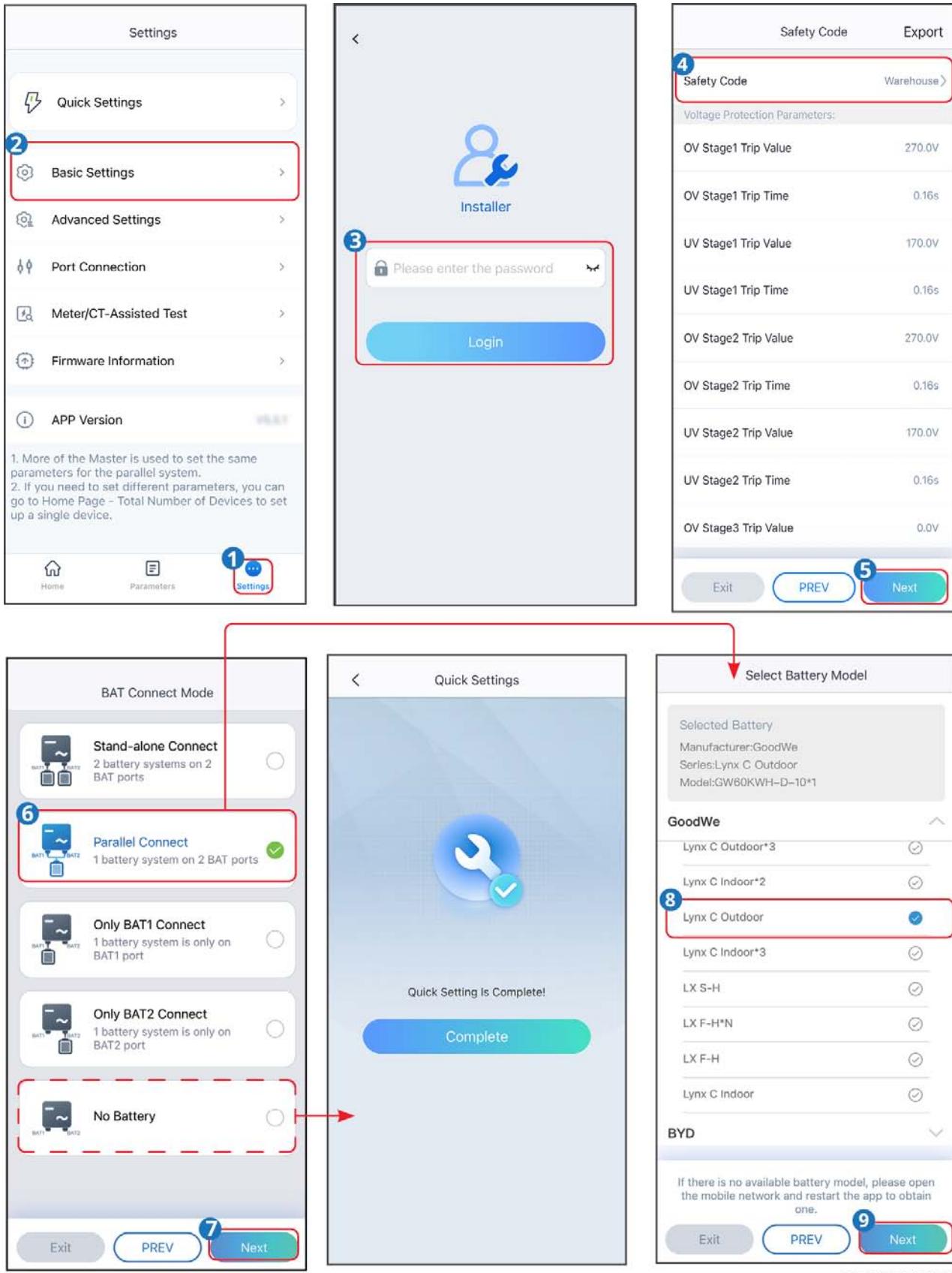
8.3.5.1 Quick System Setup (Type III)

Step 1: Go to the parameter settings page via **Home > Settings > Quick Configuration.**

Step 2: Enter your login password to access the safety settings interface. Contact the dealer or the after-sales service. The password is for professional technicians only.

Step 3: Select the safety standard country based on the country or region where the inverter is located. After completing the settings, click **Next** to set the battery connection mode.

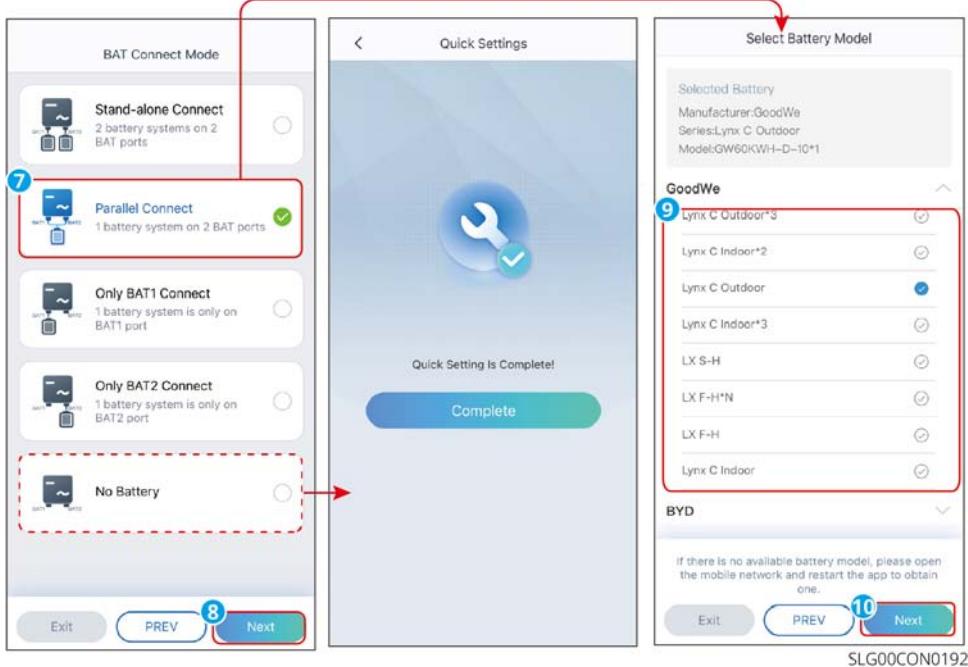
Step 4: Only for parallel scenarios. Setting On-grid Inverter Parameters. After completing the settings, click Next to set the battery connection mode.



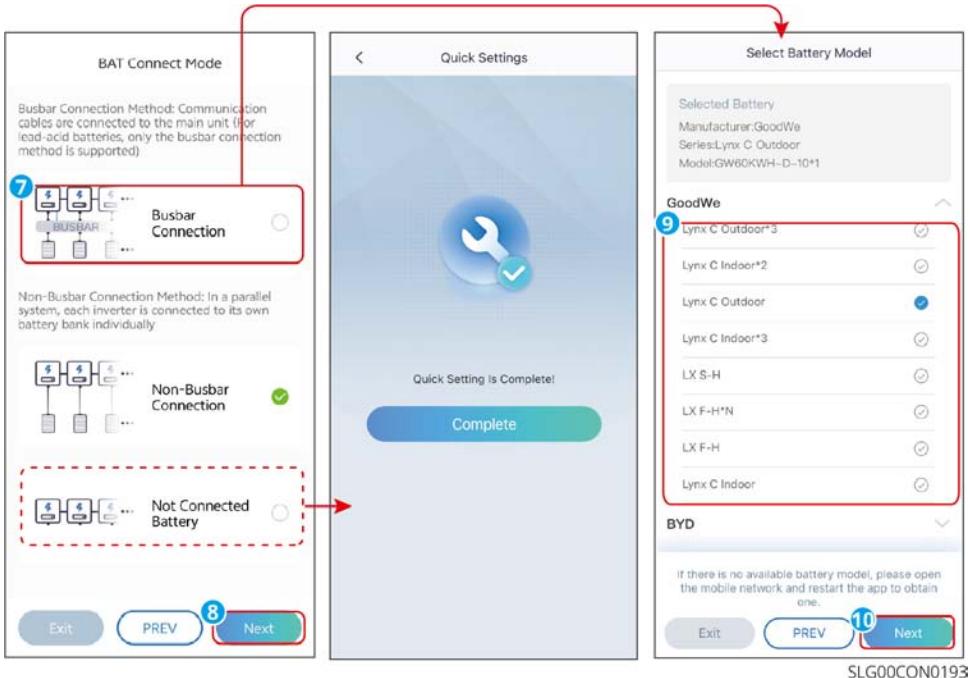
Step 5: Select the battery connection mode based on the actual battery connection

situation. If no battery is connected, the basic parameter settings are complete. If a battery is connected, click **Next** after completing the settings to set the battery type.

Step 6: Select the battery model based on the actual battery connection. After completing the settings click **Next** to set the working mode.



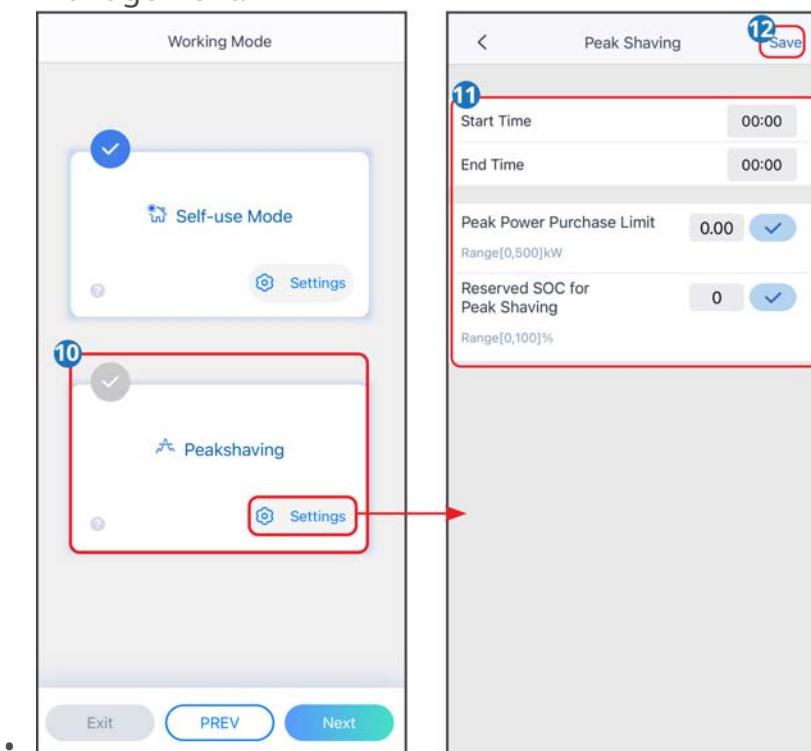
For certain models, when the inverter is paralleled via Ezlink3000, please set the battery connection mode to either busbar mode or non-busbar mode and select the battery model based on actual conditions. After the master unit settings are completed, the slave units will automatically synchronize the battery settings. If the battery connected to a slave unit is inconsistent with that of the master unit, please access the Quick Settings interface via the slave unit's SN on the homepage and set the battery model individually.



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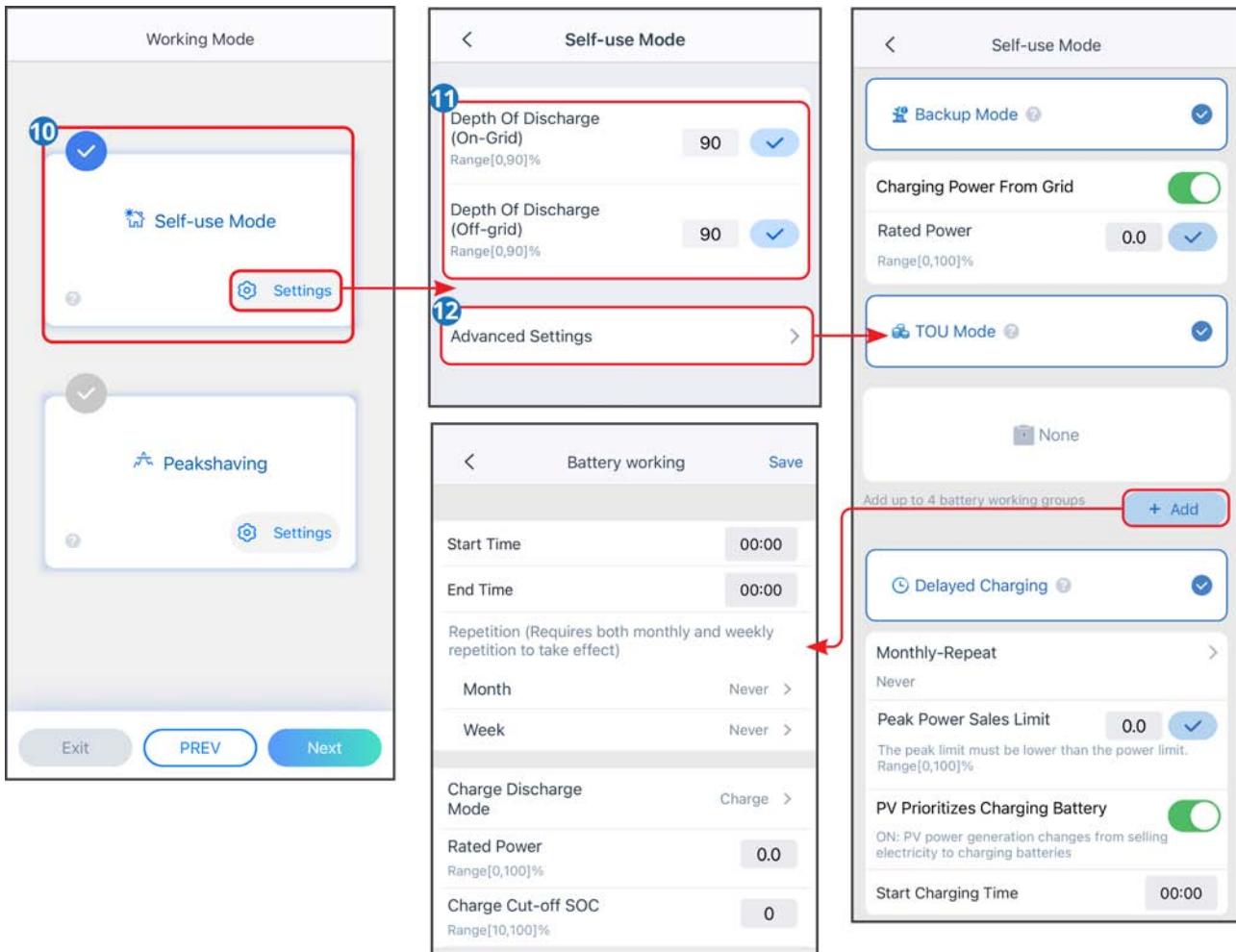
Step 7: Set the working mode according to actual needs. After completing the settings click **Next** to set the working mode.

- When selecting the Peakshaving mode, please click "Settings" to enter the parameter settings interface and configure the parameters related to demand management.



No.	Parameters	Description
Peakshaving		
1	Start Time	During the period when electricity is purchased for charging, if the load power consumption does not exceed the purchased electricity quota, the battery can be charged through the power grid. Otherwise, only PV power can be used to charge the battery.
2	End Time	
3	Peak Power Purchase Limit	Set the maximum power limit allowed for purchasing electricity from the grid. When the power consumed by the load exceeds the sum of the electricity generated by the photovoltaic system and this limit, the excess power will be supplemented by battery discharge.
4	Reserved SOC For Peakshaving	In the Peakshaving mode, when the battery SOC is lower than the reserved SOC for demand management, the function remains active. When the battery SOC is higher than the reserved SOC for demand management, the demand management function becomes invalid.

- When selecting the self-use mode, please click "Settings" to enter the self-use mode settings interface, and set the on-grid discharge depth and off-grid discharge depth under the self-use mode. Then click "Advanced Settings" and set the backup mode, TOU mode, or delayed charging according to actual needs. If TOU mode is selected, you need to click "Add" to set the working hours and working mode of the battery workgroup.



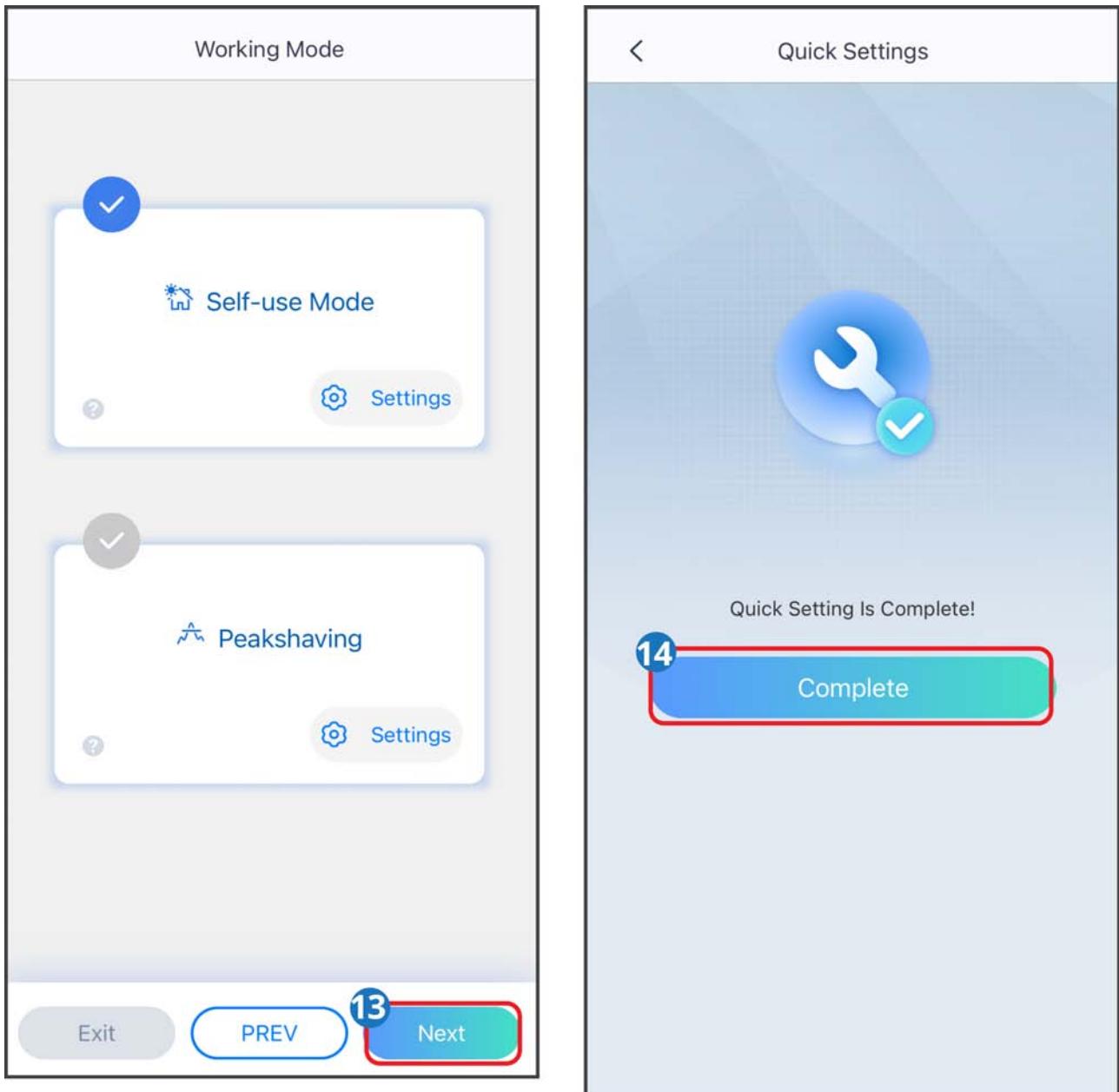
No.	Parameters	Description
Self-use Mode		
1	Depth Of Discharge (On-Grid)	The maximum depth of discharge of the battery when the system is working on-grid.
2	Depth of Discharge (Off-Grid)	The maximum depth of discharge of the battery when the system is working off-grid.
Back-up Mode		
3	Charging from Grid	Use this function, enable the system to purchase power from the utility grid.
4	Nominal Power	The percentage of power purchased compare to the rated power of the inverter.

No.	Parameters	Description
TOU mode		
5	Start Time	During the period between the start time and end time, the battery will charge or discharge in accordance with the set charge-discharge mode and its rated power.
6	End Time	
7	Charge and discharge mode	Set Charge and discharge mode according to actual needs.
8	Nominal Power	The percentage of power during charging or discharging compared to the rated power of the inverter.
9	Charge Cut-off SOC	The battery stop charging once the battery SOC reaches Charge Cut-off SOC.
Delayed Charging Mode		
10	Monthly Repetition	Set the months for delayed charging according to actual needs; multiple months can be selected.
11	Peak Power Selling Limit	Set peak power limits in accordance with grid standards in certain countries or regions. The peak power limit must be lower than the local specified output power limit.
12	PV Prioritizes Battery Charging	Within the charging time range, photovoltaic power generation is prioritized for charging the battery.
13	Charging Time	

Step 8: Perform device self-inspection or skip it as per actual requirements.

Step 9: Click "**Re-detect**" or "**Next**" to complete the inspection based on actual needs. If you need to export the inspection results, click "**Export**".

Step 10: Click "**Finish**" to complete the quick configuration.



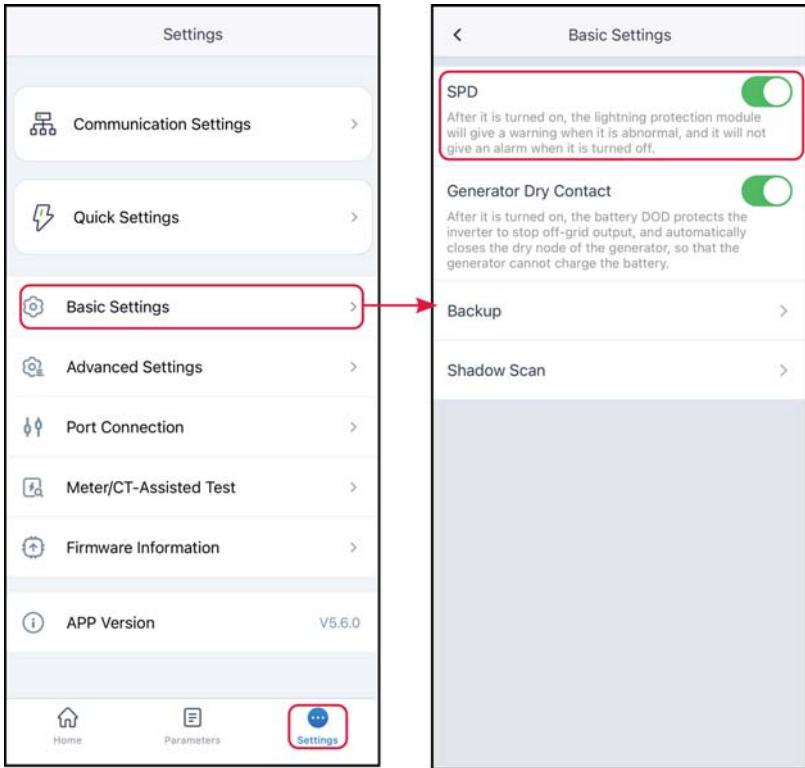
8.3.6 Setting the Basic Information

8.3.6.1 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.

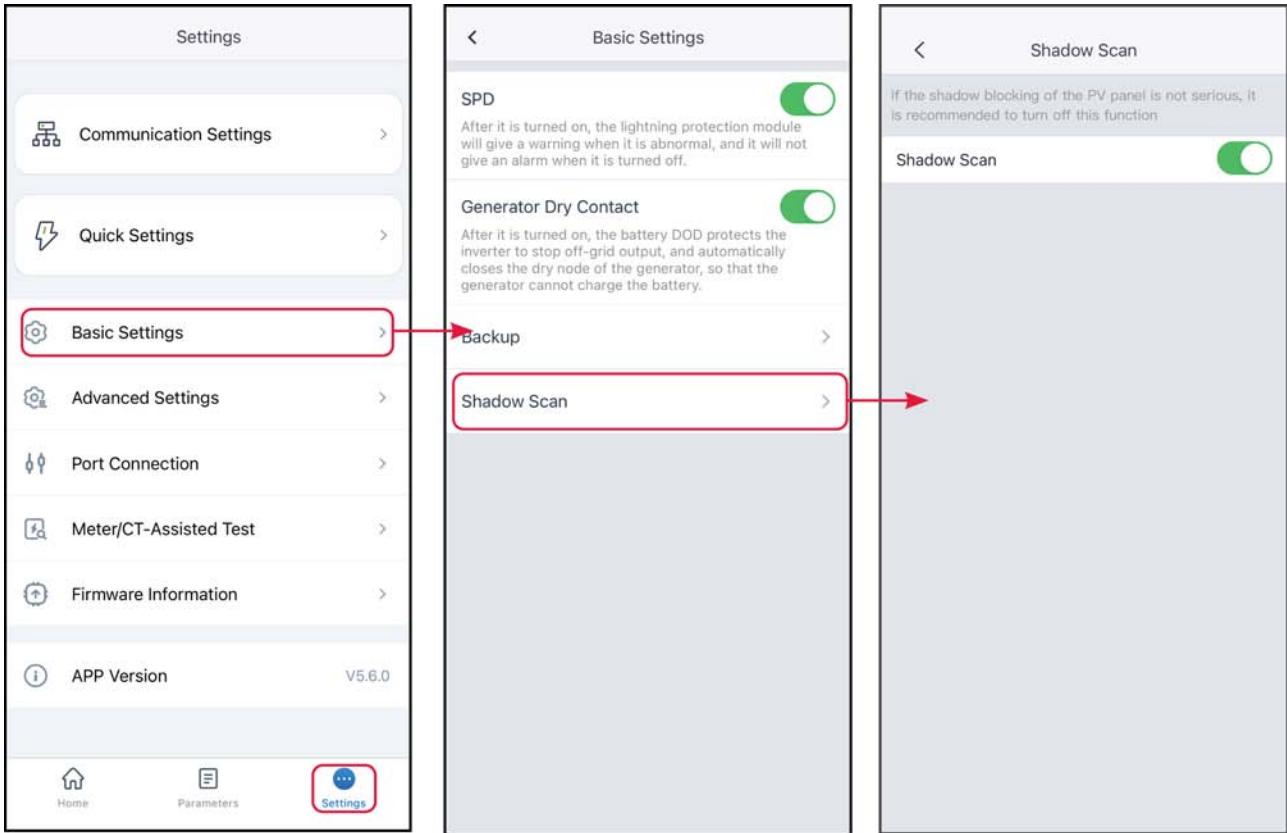


8.3.6.2 Setting the Shadow Scan

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.

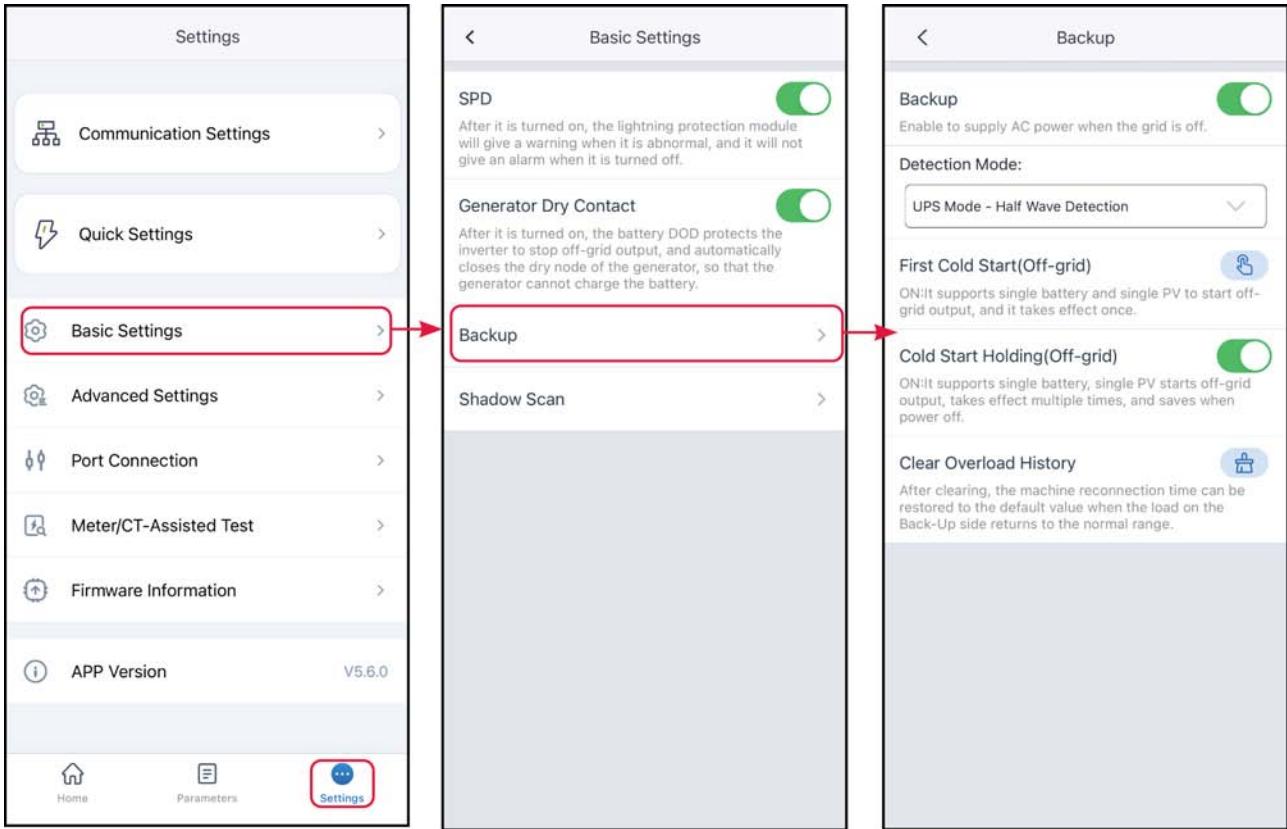


8.3.6.3 Setting the Back-up Power Parameters

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.
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.

No.	Parameters	Description
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 Setting Advanced Parameters

NOTICE

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

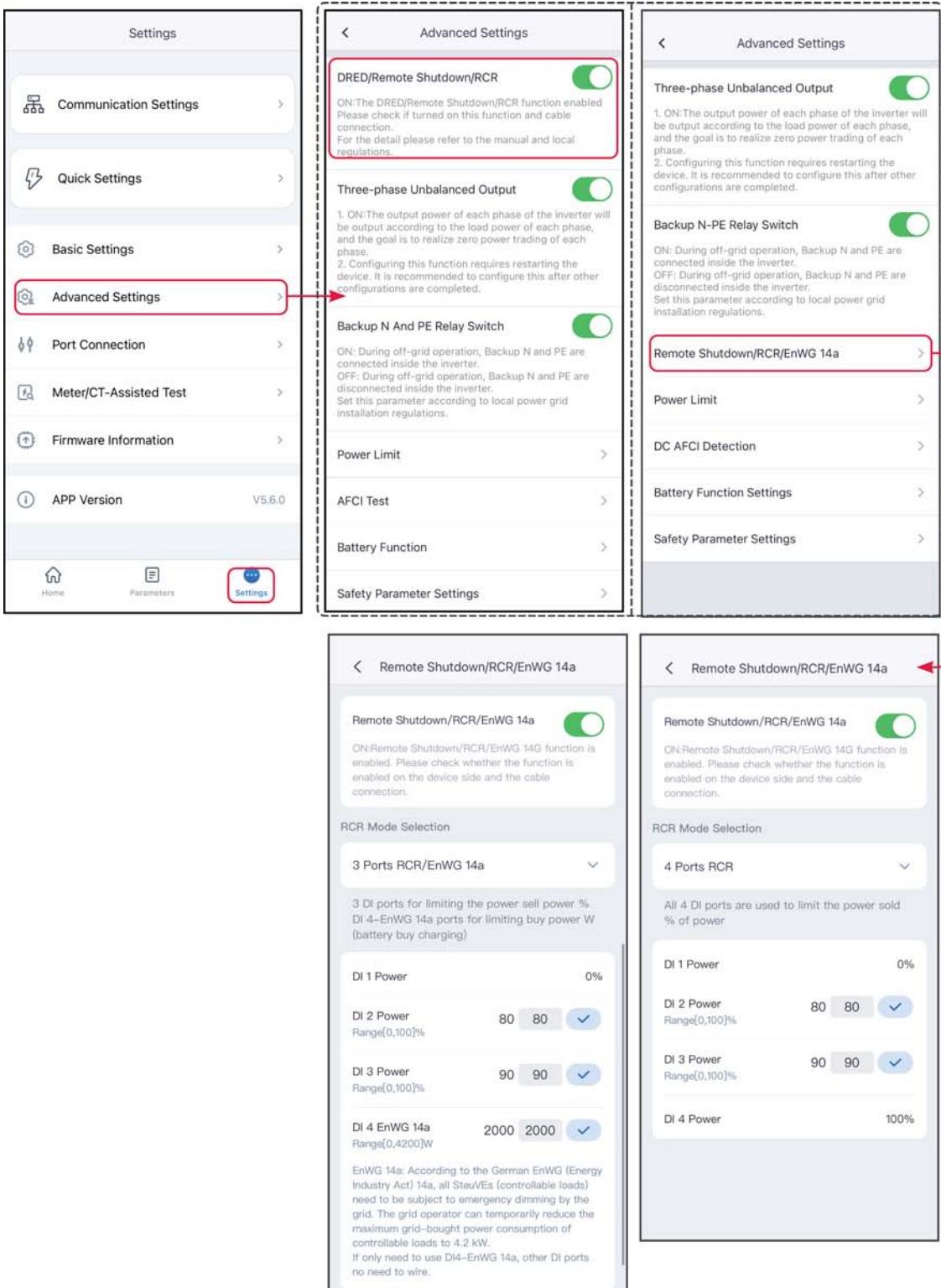
8.3.7.1 Setting DRED/Remote Shutdown/RCR/EnWG 14a

Enable DRED/Remote Shutdown/RCR before connecting the third party DRED, remote shutdown, or RCR device to comply with local laws and regulations.

Step 1 : Tap **Home > Settings > Advanced Settings > DRED/Remote Shutdown/RCR** to set the parameters.

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

Step 3 : For areas where the EnWG 14a regulation applies, when enabling the RCR function, you need to select the RCR mode according to the actual device type and set the DI port power.



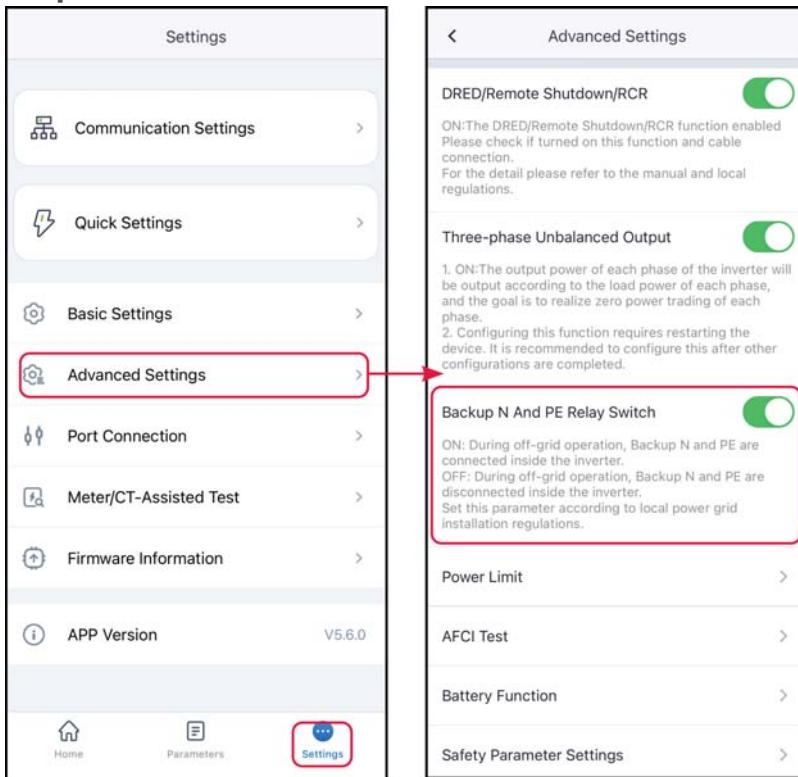
8.3.7.2 Setting the Backup N and PE Relay Switch

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.



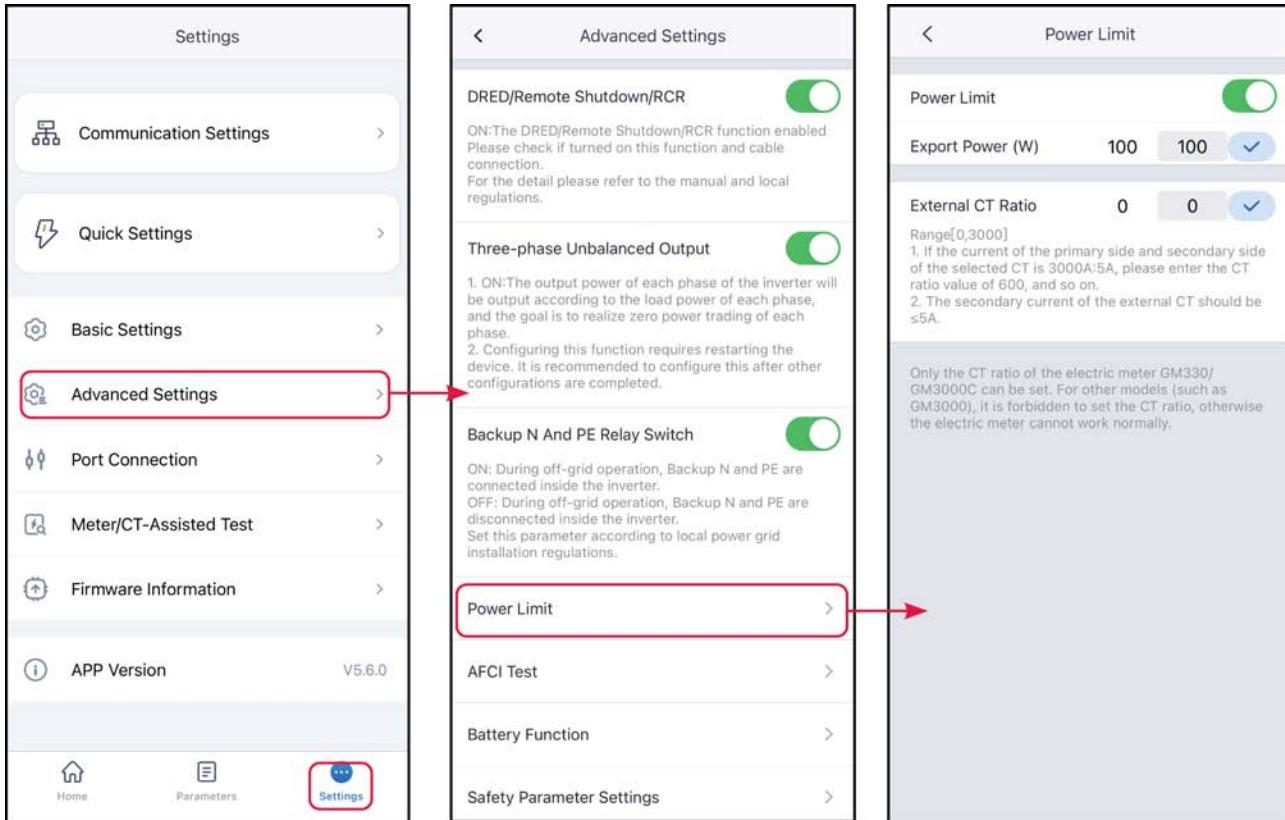
8.3.7.3 Setting the Power Limit Parameters

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 "V" to successfully set the parameter.

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

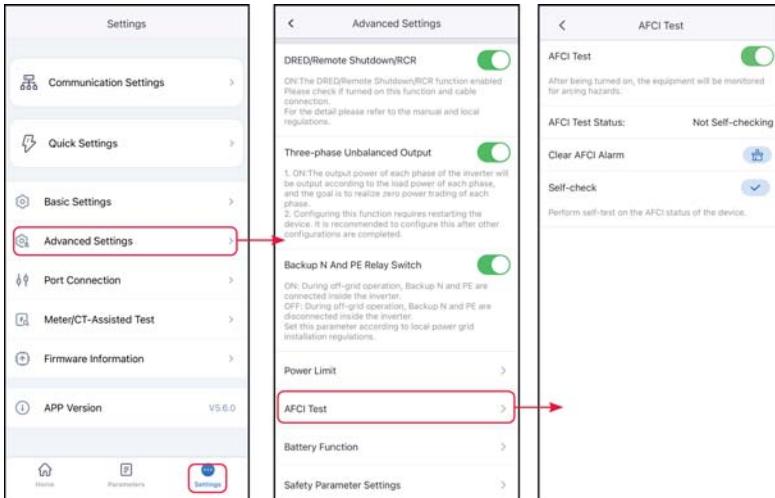


No.	Parameters	Description
1	Power Limit	Turn on this function when output power needs to be limited according to the grid standards of some countries or regions.
2	Export Power	Set according to the maximum power that can be input to the grid.
3	External Meter CT ratio	Set the ratio of the primary current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

8.3.7.4 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.



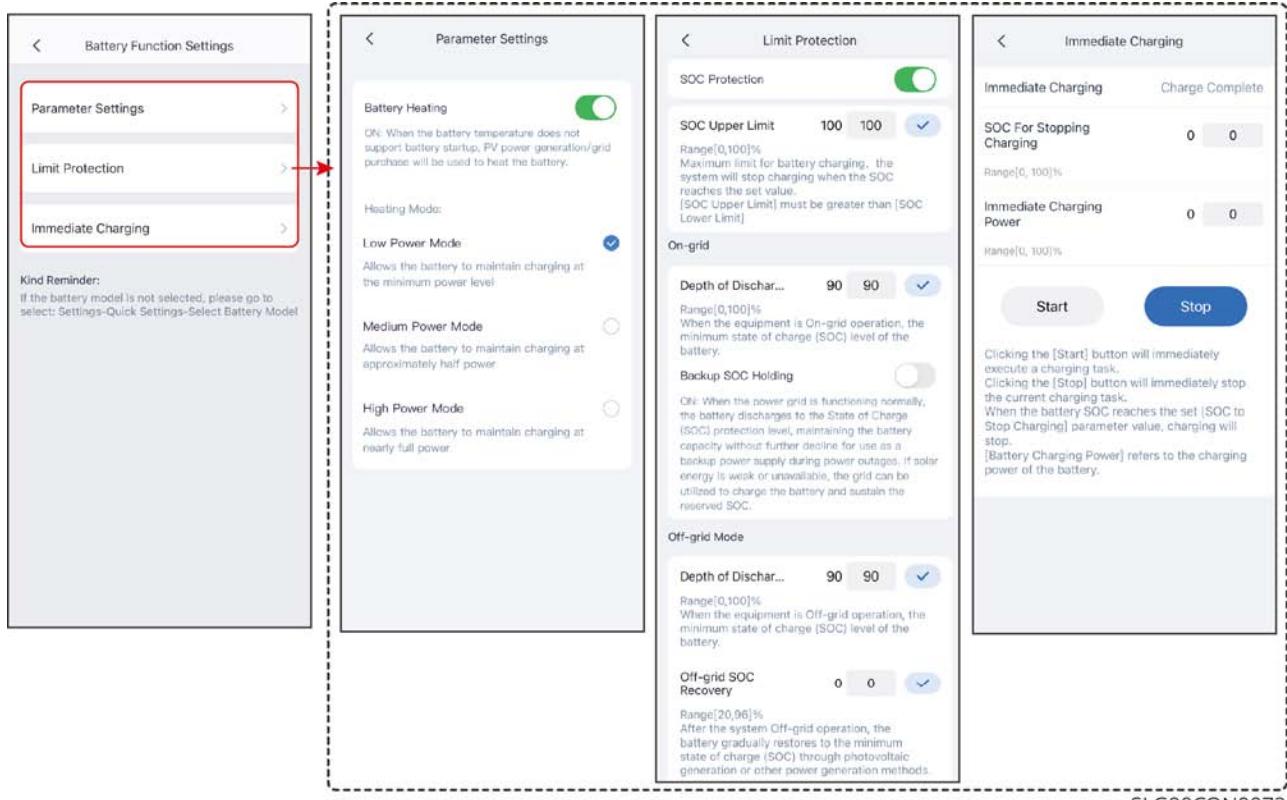
No.	Parameters	Description
1	AFCI Test	Enable or disable AFCI accordingly.
2	AFCI Test Status	The detection status like Not Self-checking.
3	Clear AFCI Alarm	Clear ARC Faulty alarm records.
4	Self-check	Tap to check whether the AFCI function works normally.

8.3.7.5 Setting the Battery

8.3.7.5.1 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	<p>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.</p> <p>Heating Mode:</p> <ul style="list-style-type: none"> • GW5.1-BAT-D-G20/GW8.3-BAT-D-G20 <ul style="list-style-type: none"> ◦ Low Power Mode: Maintains minimum battery power input capacity, turns on when the temperature is below -9°C, and turns off when the temperature is above or equal to -7°C. ◦ 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°C, and turned off when it is greater than or equal to 8°C. ◦ 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°C, and turned off when it is greater than or equal to 13°C. • GW14.3-BAT-LV-G10 <ul style="list-style-type: none"> ◦ Low Power Mode: Maintains minimum battery power input capacity, turns on when the temperature is below 5°C, and turns off when the temperature is above or equal to 7°C. ◦ 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°C, and turned off when it is greater than or equal to 12°C. ◦ 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°C, and turned off when it is greater than or equal to 22°C.

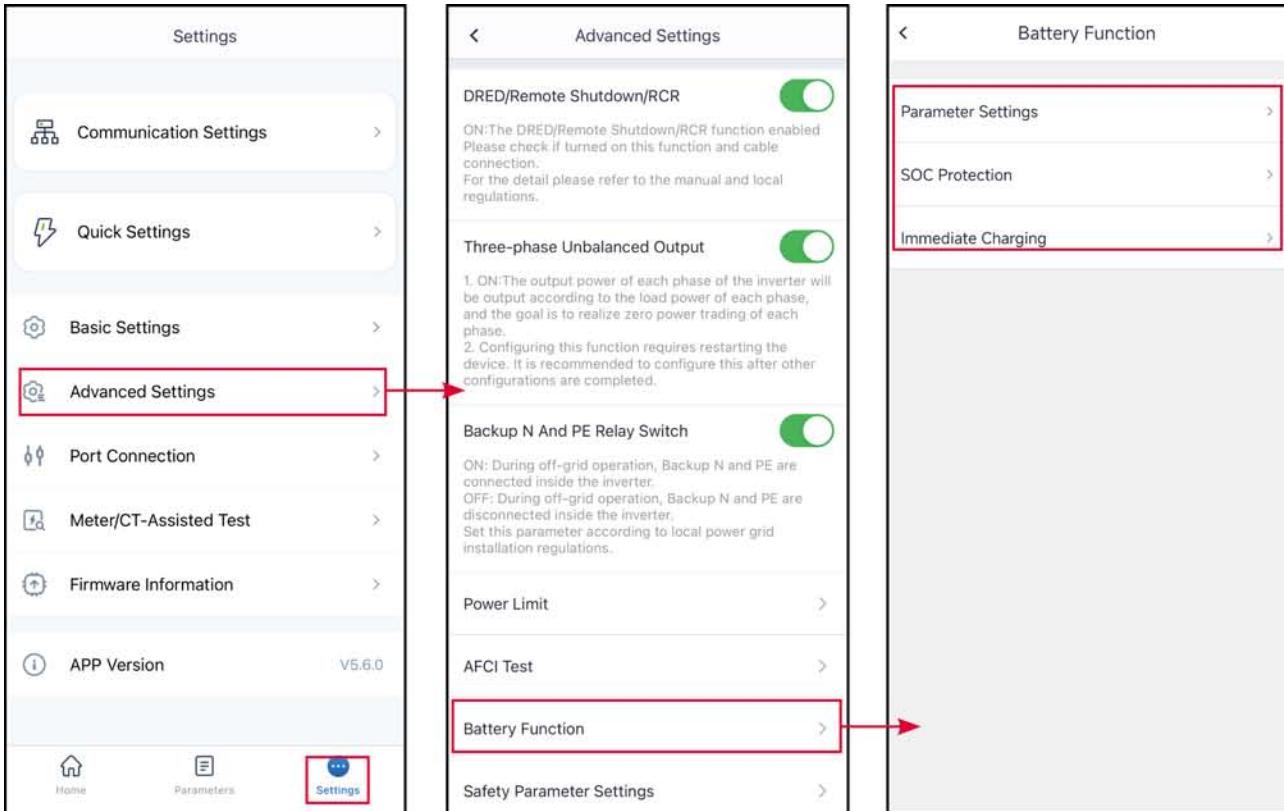
No.	Parameter	Description
4	Battery Wake-up	<ul style="list-style-type: none"> After being turned on, the battery can be awakened when it shuts down due to undervoltage protection. Only applicable to lithium batteries without circuit breakers. After being turned on, the output voltage of the battery 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.

8.3.7.5.2 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.



Parameter Settings

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	<p>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.</p> <p>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.</p>
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.

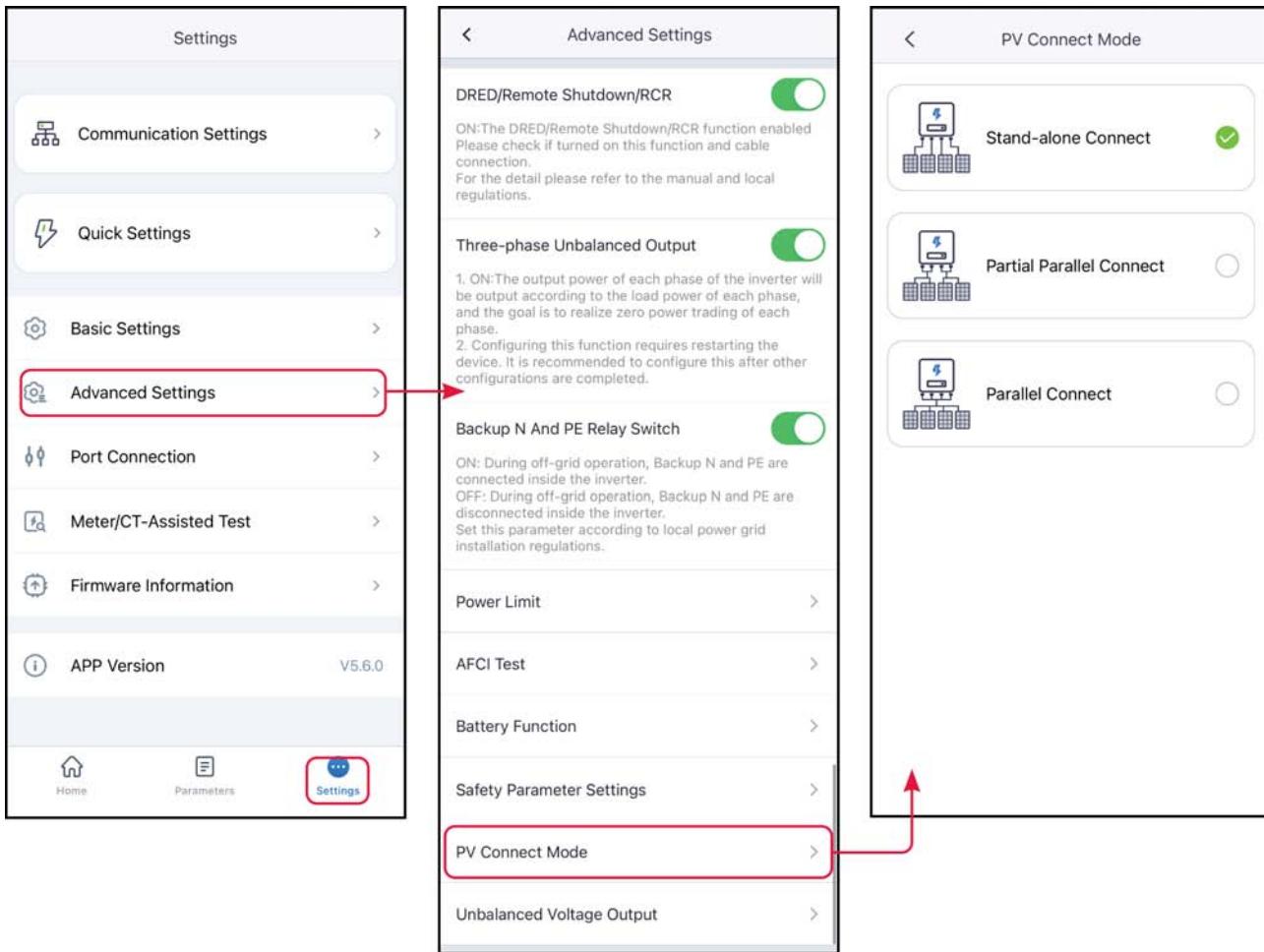
No.	Parameter	Description
18	Immediate Charging Power	Indicates the percentage of the charging power to the inverter rated power when enabling Immediate Charging. For example, for an inverter with a rated power of 10kW, when set to 60, the charging power is 6kW.
19	Start	Start charging immediately.
20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

8.3.7.6 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.

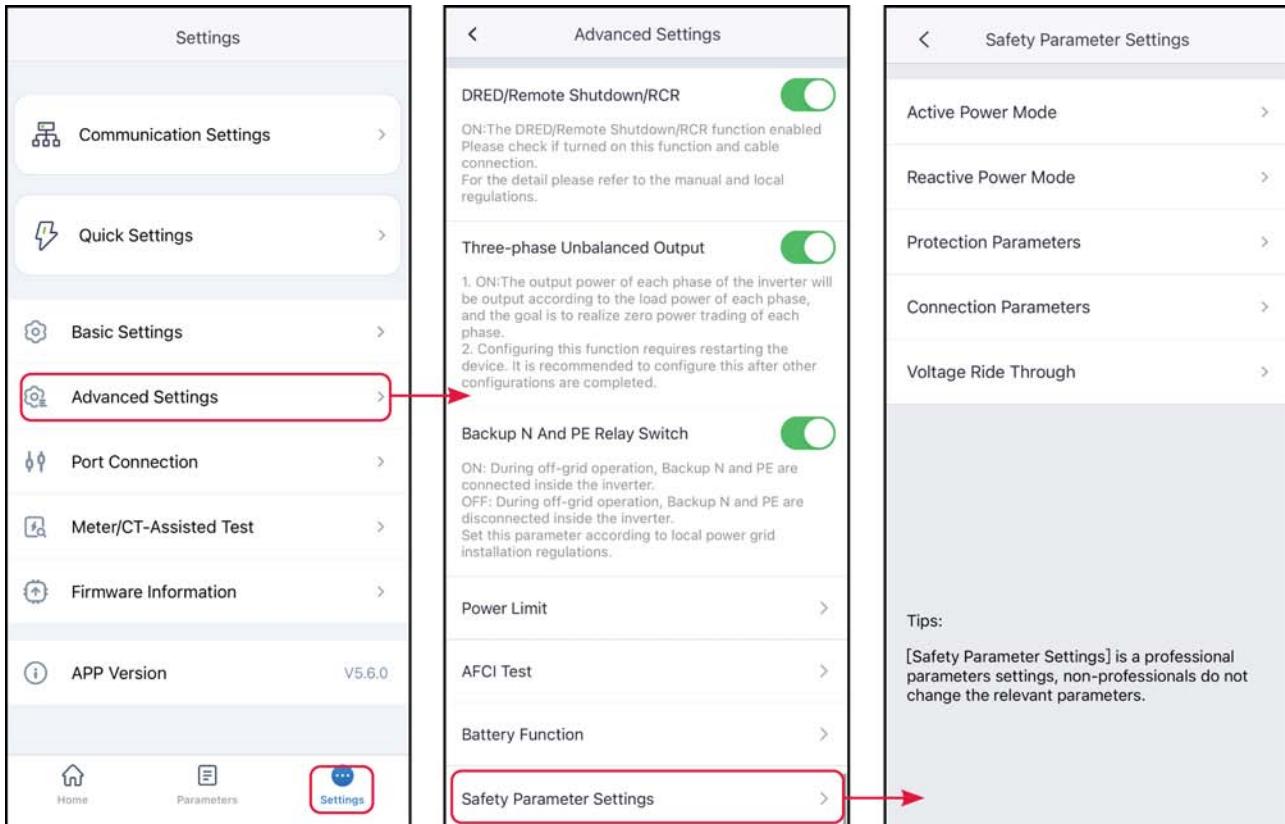


No.	Parameters	Description
1	Stand-alone Connect	The external PV string is connected to multi MPPT terminals of the inverter.
2	Partial Parallel Connect	The PV strings are connected to the inverter in both stand-alone and parallel connection. For example, one PV string connect to MPPT1 ad MPPT2, another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

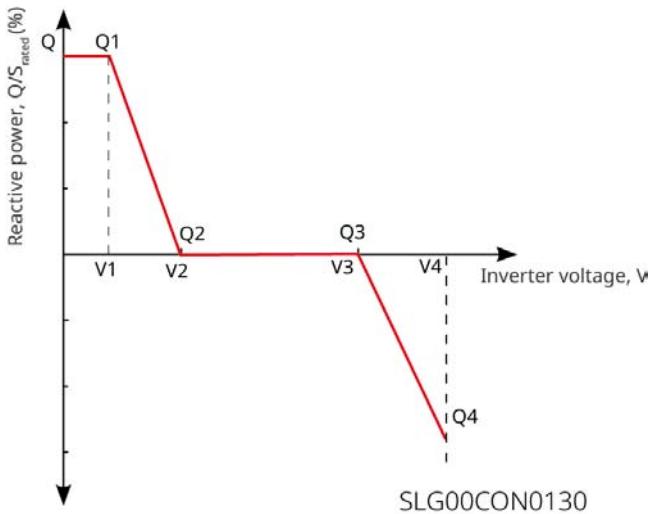


8.3.8.1 Setting the Reactive Power Mode

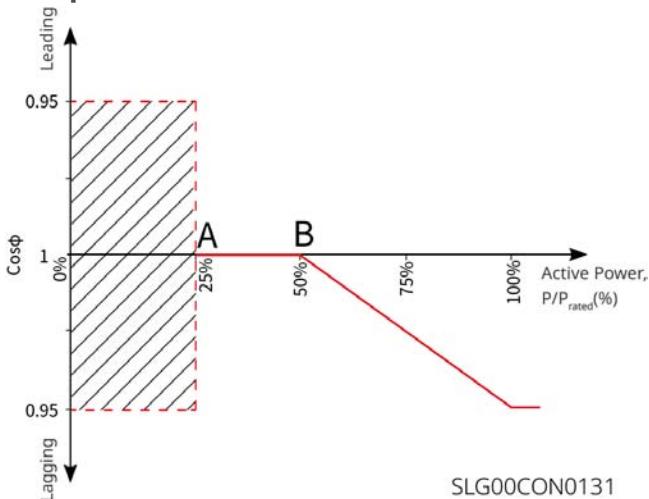
Step 1 : Tap Home > Settings > Advanced Settings > Safety Parameter Setting > Reactive Power Mode Settings to set the parameters.

Step 2 : Set the parameters based on actual needs.

Q(U) Curve



Cosφ Curve



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		

No.	Parameters	Description
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.
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: $V/V_{rated\%} = 90\%$.
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 $Q/S_{rated\%}=48.5\%$.
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 $Q/S_{rated\%}=48.5\%$.

No.	Parameters	Description
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		
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.

No.	Parameters	Description
11	Lock-in Voltage	When the grid voltage is between Lock-in Voltage and Lock-out Voltage, the voltage meets $\text{Cos}\varphi$ 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.
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 $Q/\text{Prated\%}=90\%$.
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: $P/\text{Prated\%} = 90\%$.
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 $Q/\text{Prated\%}=90\%$.
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: $P/\text{Prated\%} = 90\%$.
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.

8.3.8.2 Setting the Active Power Mode

< Active Power Mode Settings

Generation Power Limit 0.0 0.0

Range[0,100]%

Frequency And Power Parameters:

P(F) Curve (Frequency Power Curve)

Voltage And Power Parameters:

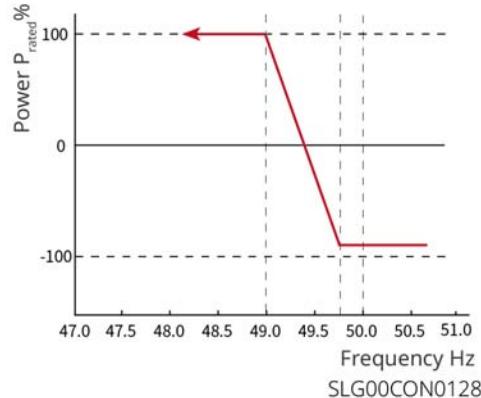
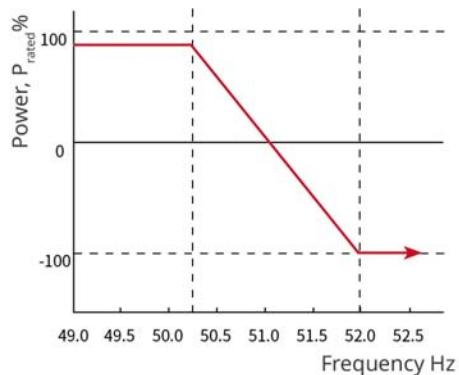
P(U) Curve (Voltage Power Curve)

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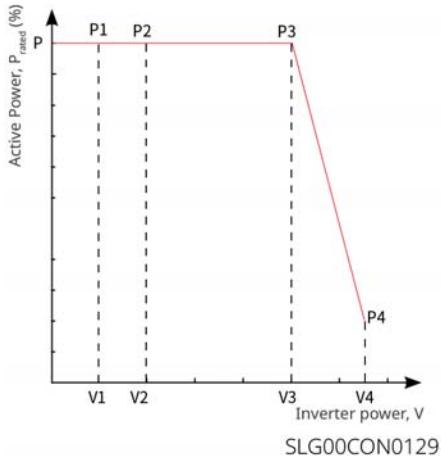
Step 1: Tap Home > Settings > Advanced Settings > Safety Parameter Settings > Active Power Mode Settings to set the parameters.

Step 2: Set the parameters based on actual needs.

P(F) Curve



P(U) Curve



No.	Parameter S	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	<p>Set the overfrequency unloading mode based on actual needs.</p> <ul style="list-style-type: none"> 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 .

No.	Parameters	Explanation
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 .
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.

No.	Parameters	Explanation
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 (ΔP).
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	<p>Set the underfrequency unloading mode based on actual needs.</p> <ul style="list-style-type: none"> • 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.

No.	Parameter s	Explanation
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 .
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.

No.	Parameters	Explanation
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 (ΔP).
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: <ul style="list-style-type: none">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.

No.	Parameters	Explanation
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.

8.3.8.3 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.

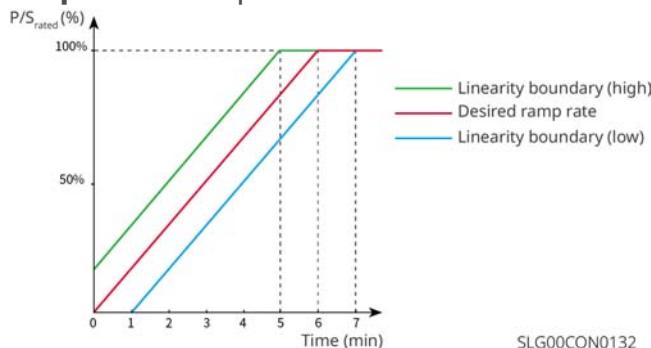
No.	Parameters	Description
1	OV Stage n Trip Value	Set the grid overvoltage protection threshold value, n=1,2,3,4.
2	OV Stage n Trip Time	Set the grid overvoltage protection tripping time, n=1,2,3,4.
3	UV Stage n Trip Value	Set the grid undervoltage protection threshold value, n=1,2,3,4.
4	UV Stage n 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.

No.	Parameters	Description
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.

8.3.8.4 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 .

No.	Parameters	Description
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		
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.

No.	Parameters	Description
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.

8.3.8.5 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		

No.	Parameters	Description
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	
4	Exit 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.
5	Slope K2	K-factor for reactive power during HVRT.
6	Zero Current Mode	The system outputs zero current during HVRT.
7	Entry Threshold	Set the entry threshold of zero current mode.

8.3.8.6 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.

No.	Parameters	Description
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.

8.3.9 Setting Generator/Load Control

8.3.9.1 Setting Load Control

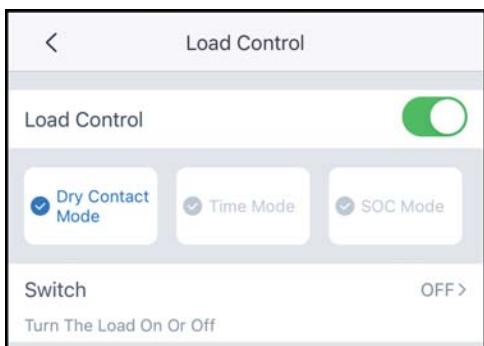
NOTICE

- 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.

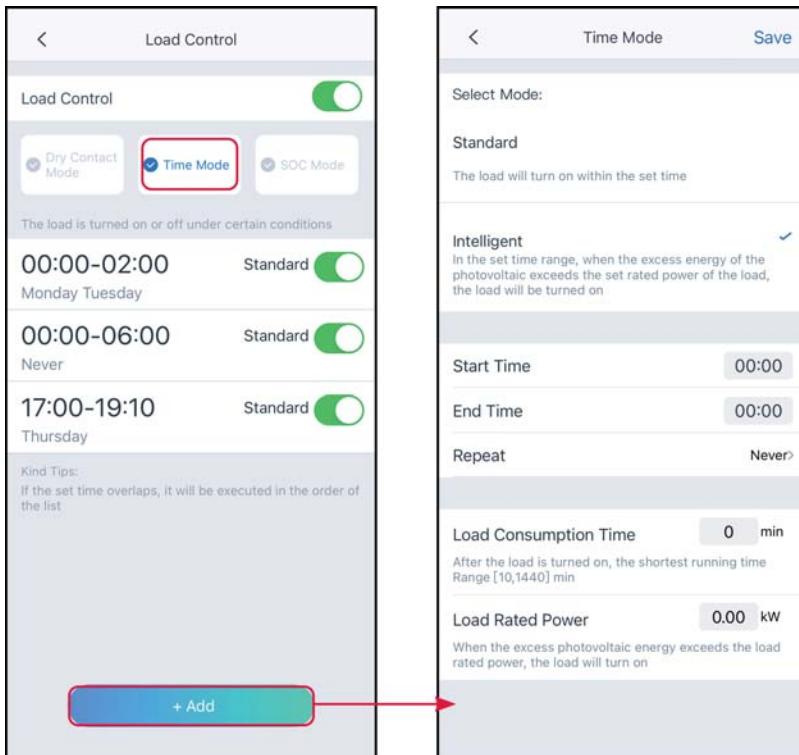
Step 1: Tap **Home > Settings > Port Connection** to set the parameters.

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.



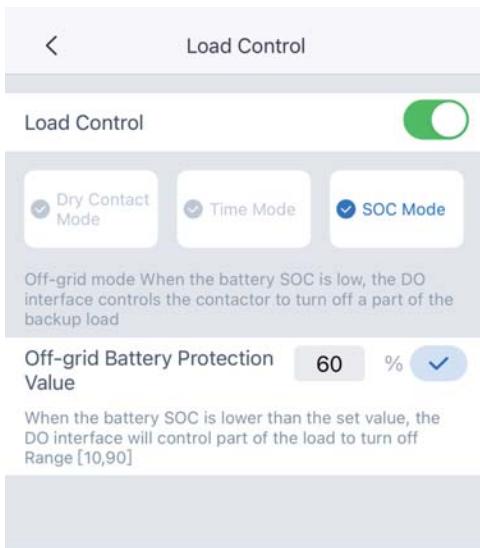
- Time Mode: set the time to enable the load, and the load will be powered automatically within the setting time period. Select standard mode or intelligent mode.



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.

No.	Parameters	Description
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.



8.3.9.2 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 automatically after reaching Run Time.
 - Automatic Control Mode: The generator will work during Run Time, but stop working during Prohibited Working Hours.

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

No.	Parameters	Description
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.
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.

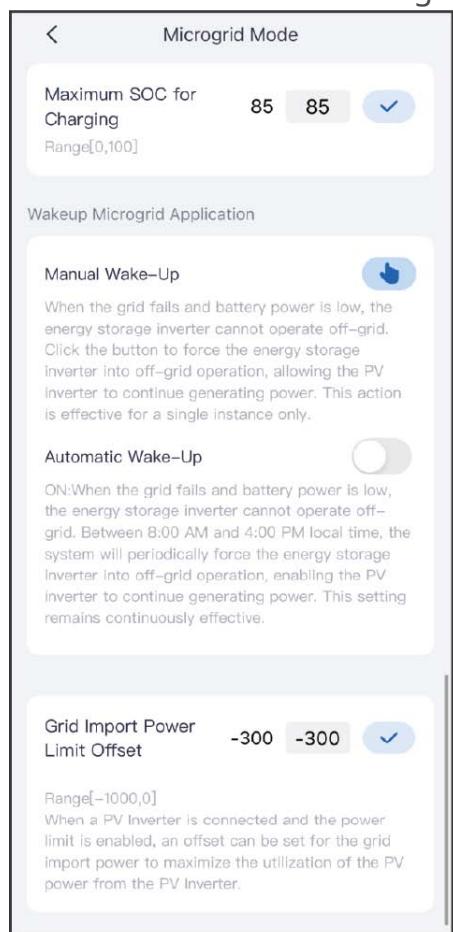
8.3.9.3 Setting Microgrid Parameters

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.



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No.	Parameters	Description
1	Maximum SOC for Charging	Set the upper limit of charging SOC, and stop charging when the upper limit is reached.

No.	Parameters	Description
2	Manual wake-up	<ul style="list-style-type: none"> 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.
3	Automatic wake-up	<ul style="list-style-type: none"> 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.

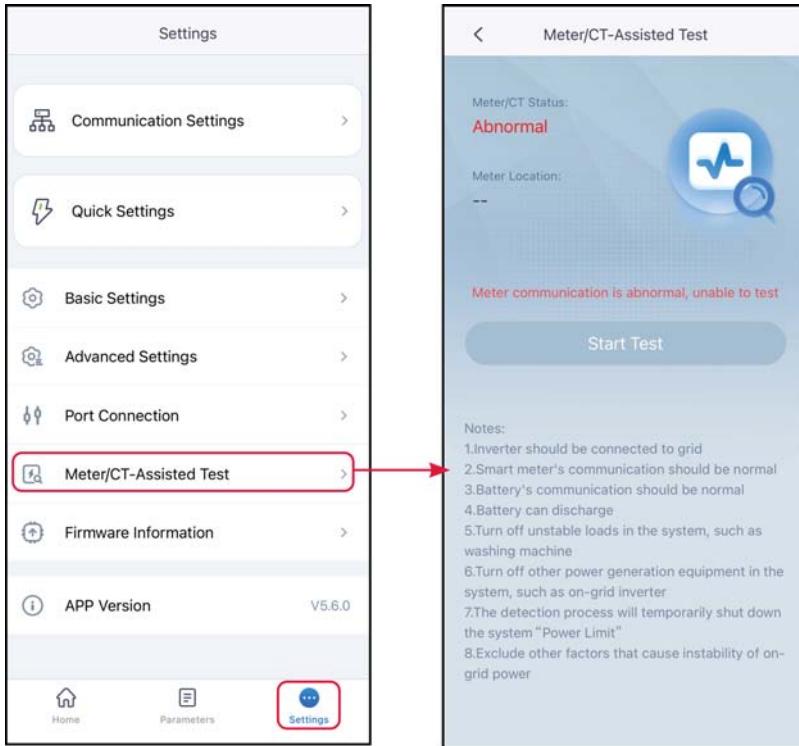
8.3.10 Setting the Meter Parameters

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 Equipment Maintenance

8.3.11.1 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.

8.3.11.1.1 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.

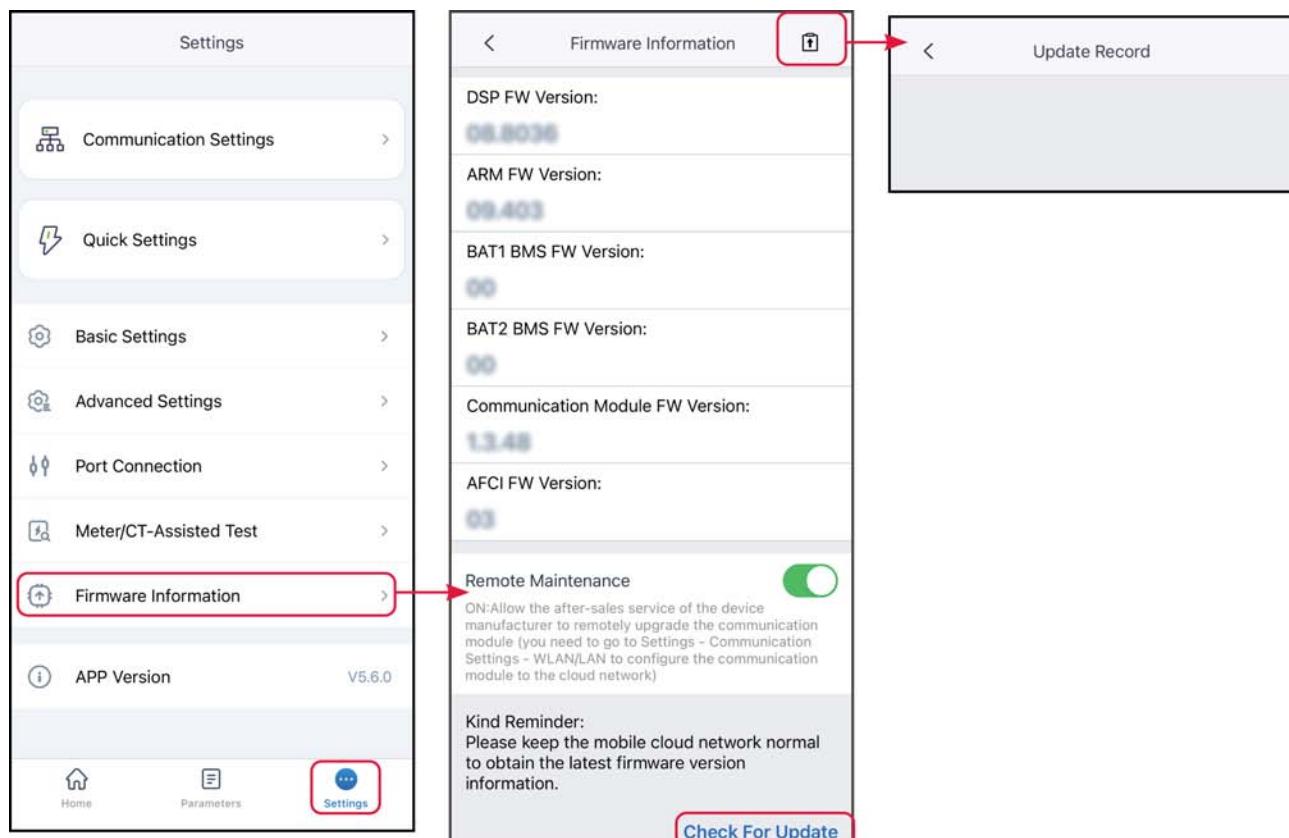
Step 1 : Tap **Home > Settings > Firmware Information** to check the firmware version. If the firmware upgrade dialog box pops up, tap **Firmware Upgrade** and turn to the upgrade interface.

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.



8.3.11.1.2 One-click Upgrade

NOTICE

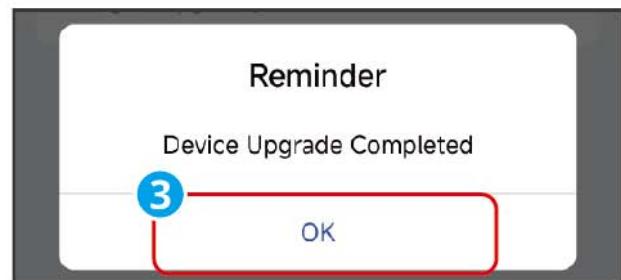
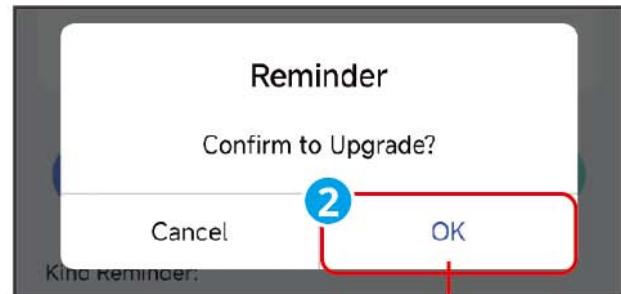
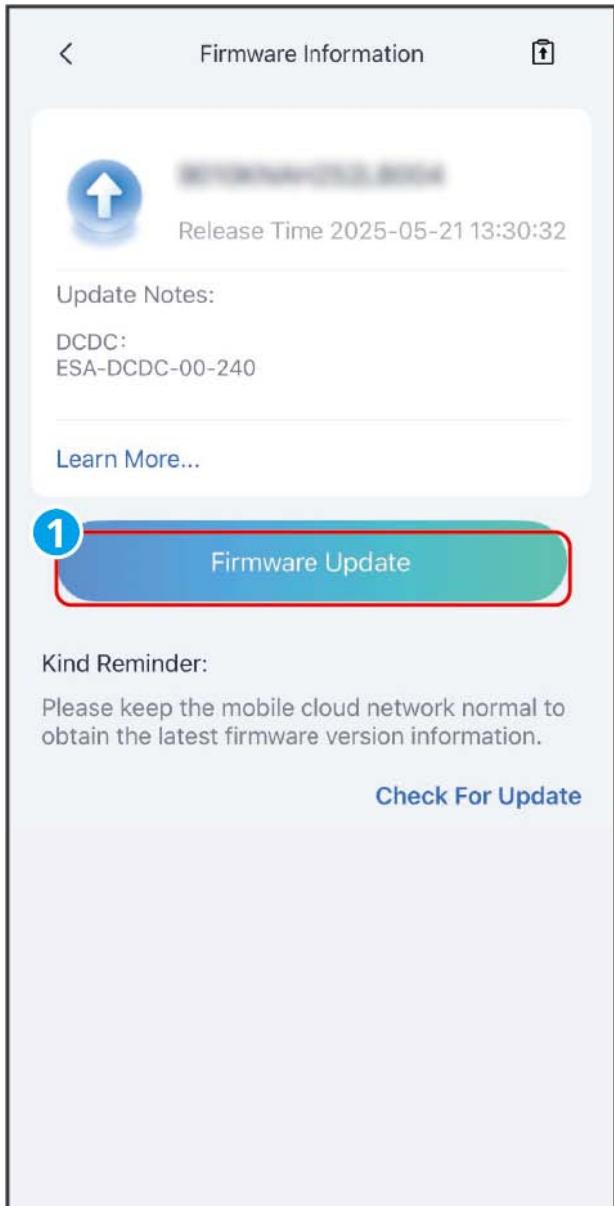
- When there is a red dot on the right side of the firmware information, please click to view the firmware update information.
- During the upgrade process, please ensure that the network is stable and the device is connected to SolarGo, otherwise the upgrade may fail.

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

8.3.11.1.3 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.

8.3.11.2 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.



Change Login Password

Save

Please enter the new password



Please enter new password again



Note: 8-16 characters, need a combination of
numbers and uppercase or lowercase letters
(0-9, a-z, A-Z)

SLG00CON0088

9 Power Plant Monitoring

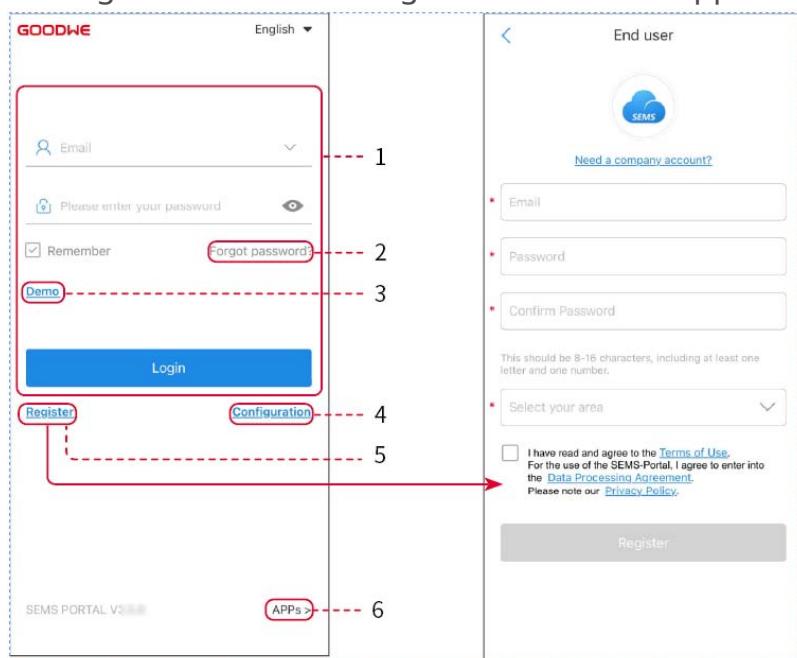
9.1 Xiaogu Cloud Window

9.1.1 SEMS Portal Overview

Xiaogu Cloud Window is a Power Plant Monitoring platform. Common features:

1. Manage organizations or user information, etc.
2. Add, monitor power station information, etc.
3. Maintenance equipment.

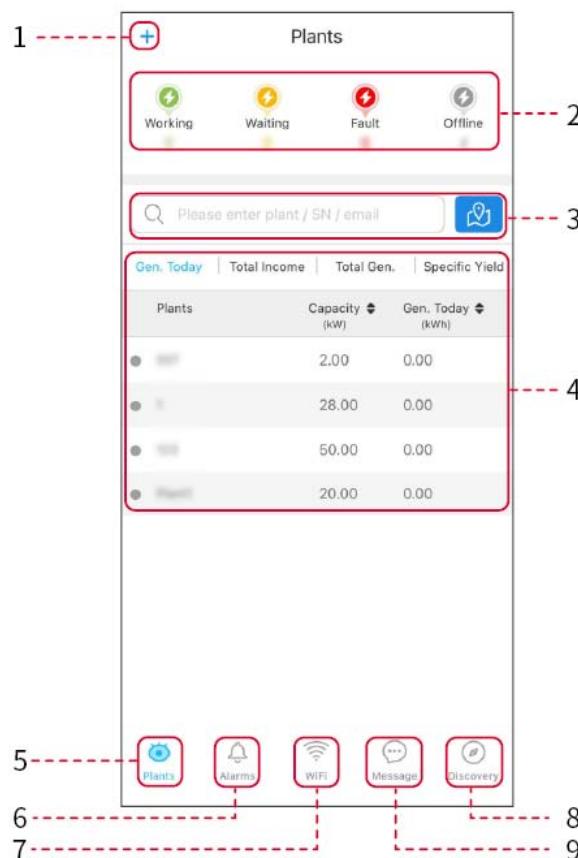
Introduction to the Login Interface of Xiaogu Cloud Window App



No.	name	Description
1	Account Login Area	Enter the login username and password to access the account.
2	Forgot password	Click to enter the settings interface and retrieve the password through account verification.

3	Registration	Click to register a terminal user account. If you need to register a Installation merchant account, please follow the interface prompts to contact the Inverter supplier or apply to the company to activate the account.
4	More Applications	Click to get the SolarGo download path.
5	WiFi configuration	Configure WiFi communication parameters to establish a connection between Inverter and the cloud, enabling remote monitoring or management of the device.
6	Example	Click to enter the power station interface. The interface displays content based on the viewer's account permissions, and the page is for reference only.

Introduction to the Homepage Interface of the SolaCloud Window App



No.	name	Description
-----	------	-------------

1		Click to view current weather and forecast for the coming days.
2		Used to scan Inverter QR codes or barcodes.
3		Click to view the system announcement.
4	Power Generation Statistics	Click to toggle between viewing today's power generation, this month's power generation, cumulative power generation, and cumulative earnings.
5	power station operation status	Display the current operating status of the power station.
6	Power Generation Details	Display this week's power generation in a bar chart. Click for more details to view graphical representations of monthly, yearly, and historical power generation data.
7	Quick Tool	Click to quickly jump to the corresponding function. Currently supported: Create new power station, WiFi settings, mobile operation and maintenance, power station range, empty power station, warranty inquiry, after-sales information, and other functions.
8		Home. Used to view basic device information and Quick Settings basic functions.
9		Monitoring. Used to view detailed monitoring information of power station.
10		fault is used to view all fault, unresolved fault, and restored fault.
11		Message. Set and view system messages.
12		My. Used for editing account information, generating my QR code, setting power generation yield, configuring weather information, viewing platform service agreements, and privacy statements, etc.

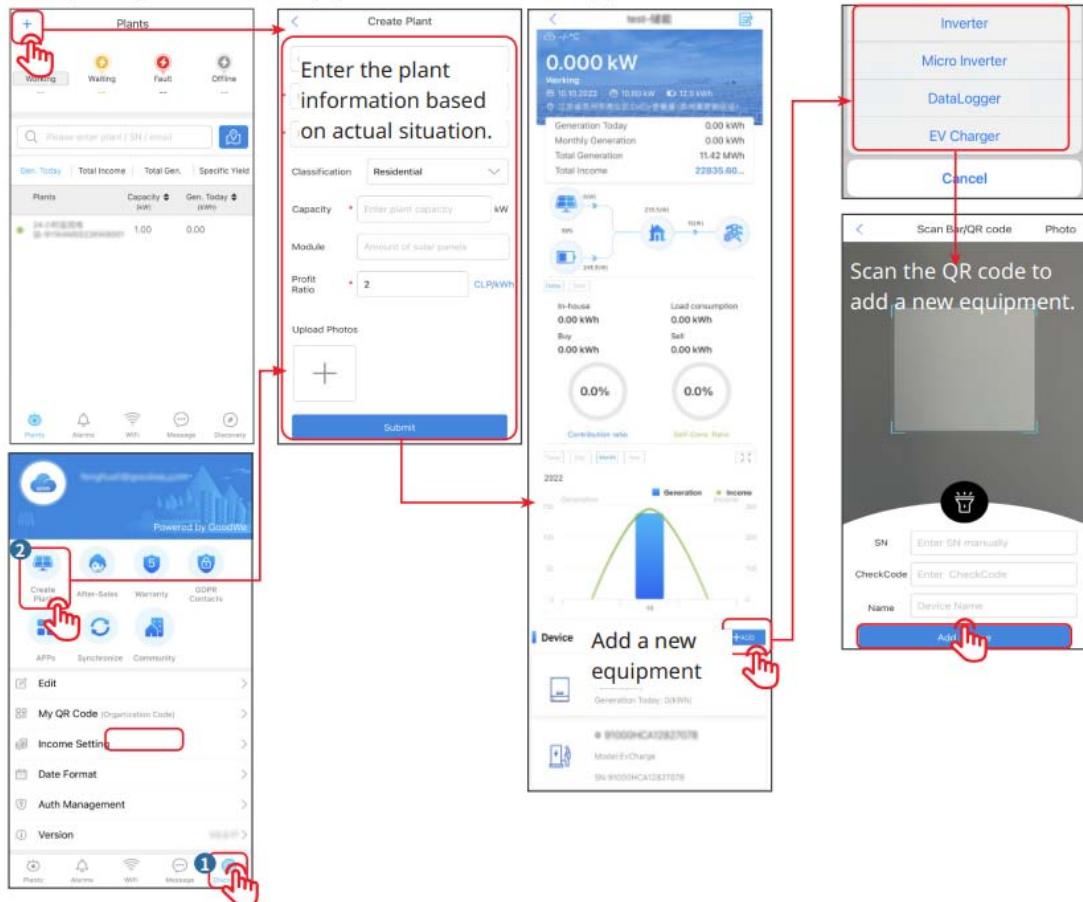
9.1.2 Manage Power Plant or Equipment

9.1.2.1 Power Plant Creation

Step 1: Access the Power Plant Creation interface.

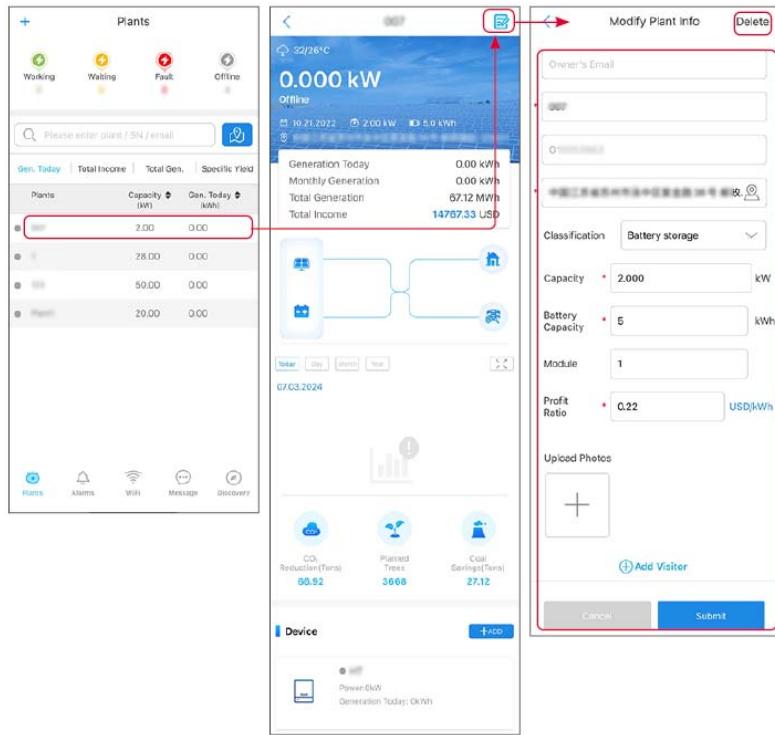
Step 2: Carefully read the interface prompts and fill in the power station information according to the actual situation. (* indicates required fields)

Step 3: Add the device according to the interface prompts to complete the Power Plant Creation.



9.1.2.2 Power Plant Management

Step 1: Access the power station monitoring page, and delete or modify power station information as needed.



9.1.2.3 Managing the Equipment in the Power Plant

Step 1: Click power station on the power station monitoring interface to enter the power station details page.

Step 2: Click on the device serial number to enter the device details page, where you can add, delete, or replace devices as needed.



9.1.3 Power Plant Monitoring

9.1.3.1 Viewing Power Plant Information

After logging into the Xiaogu Cloud Window App using your account credentials, you

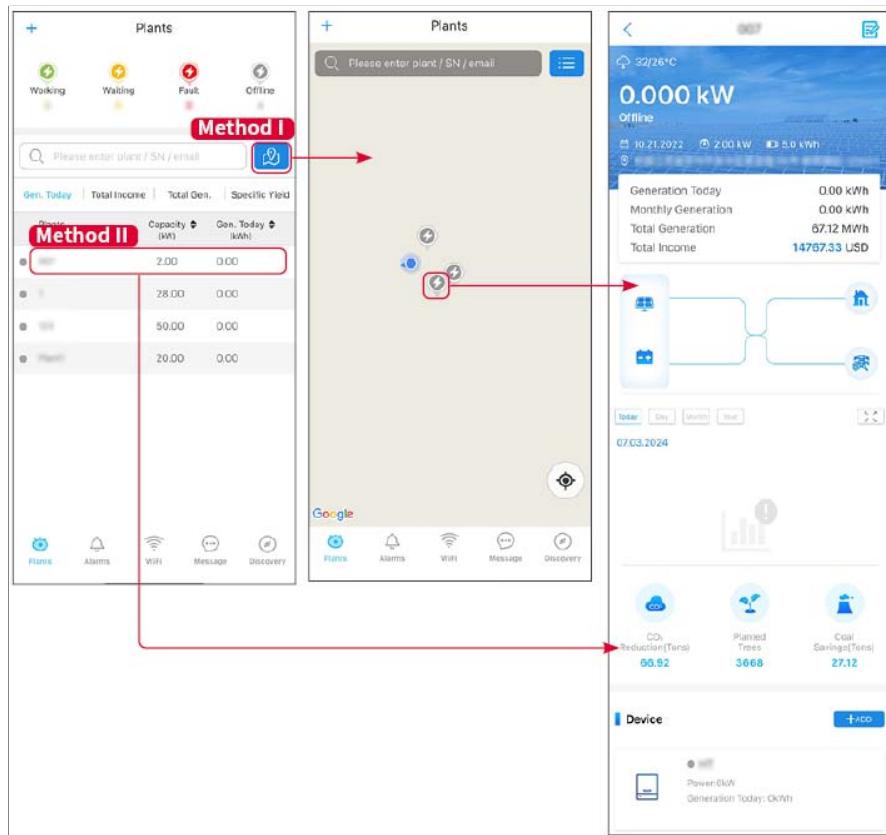
will be directed to the power station homepage, which displays the overall operational status of all power station under the account. Click on "Monitoring" to enter the Power Plant Monitoring interface and view all power station information. The content displayed on different interfaces of the power station equipment may vary. Please refer to the actual display.

Step 1: (Optional) If there are multiple power station, you can quickly locate the station by searching for the power station name, Inverter SN, or owner's phone number.

Station, or click on the map marker to search for power station information for quick positioning power station.

Step 2: Click on the power station name in the power station list or the power station icon on the map to view detailed information about the power station.

Step 3: On the power station details interface, follow the prompts to view Viewing Power Plant Information, power generation details, equipment information, fault, and other relevant data.



9.1.3.2 Viewing Alarm Information

Step 1: Click the fault tab to enter the alarm query page.

Step 2: (Optional) Enter the power station name, Inverter SN number, or owner's mobile number in the search box to quickly locate.

to the specific power station where this alarm occurred.

Step 3: Click on the alarm name to view detailed alarm information.

The image shows two screenshots of the SEMS+ app. The left screenshot is the 'Alarms' screen, which displays a list of alarms categorized by status: All, Happening, and Recovered. A red box highlights the 'Happening' tab, and a red arrow points to the 'Utility Loss' alarm in the list, which is also highlighted with a red box. The right screenshot is the 'Alarm Details' screen for the 'WAARE SOLAR' power station. It shows the following details for the 'Utility Loss' alarm:

Owner	--
Device	INVERTER
SN	██████████
Alarm	Utility Loss
Status	Happening
Occurrence	07.03.2024 07:23:01
Recovery	--

The 'Possible Reasons' section lists:

1. Grid power fails.
2. AC connection is not good.
3. AC breaker fails
4. Grid is not connected.

The 'Troubleshooting' section provides steps:

1. Make sure grid power is available.
2. Check (use multimeter) if AC side has voltage.
3. Check if breaker is good.
4. Check AC side connection is right or not (Make sure L/N cable are connected in the right place).
5. Make sure grid is connected and AC breaker turned ON.
6. If all is well, please try to turn off AC breaker and turn on again after 5 mins.

9.2 SEMS+

9.2.1 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.

9.2.1.1 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.

9.2.1.2 Downloading and Installing the App

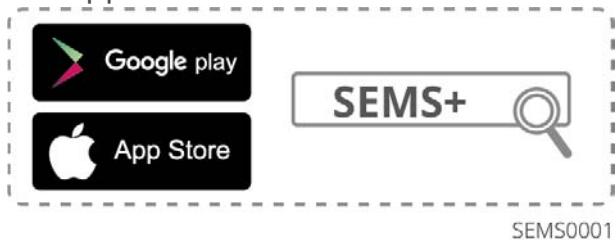
Make sure that the mobile phone meets the following requirements:

- 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.

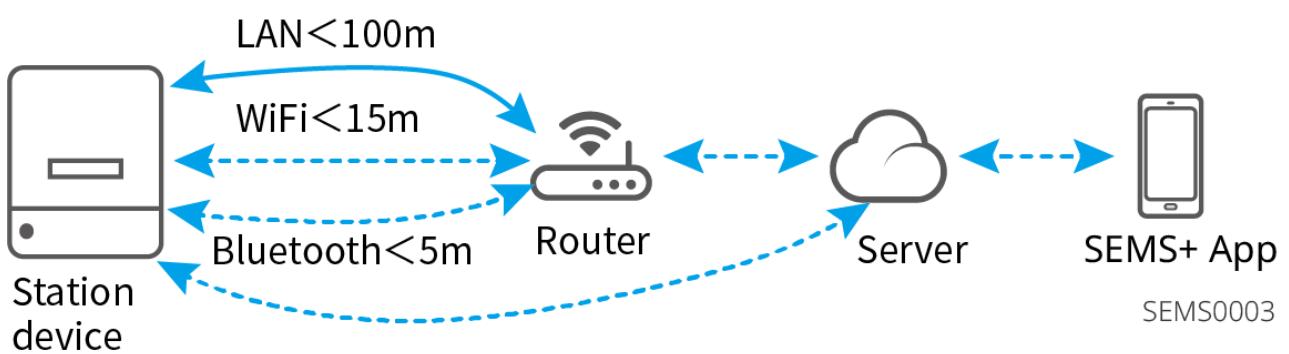


Method II

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



9.2.1.3 App Connection



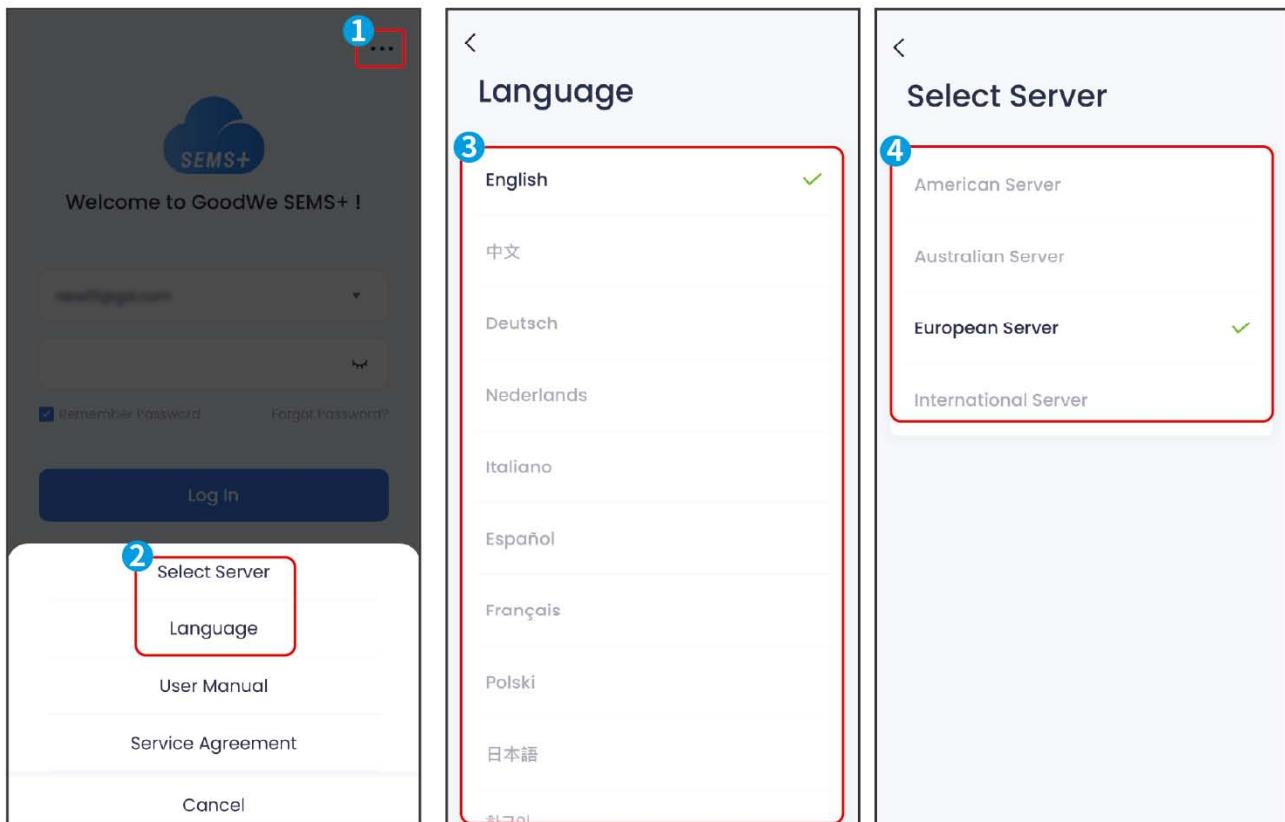
9.2.1.4 Setting Language and Server

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



9.2.1.5 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:***

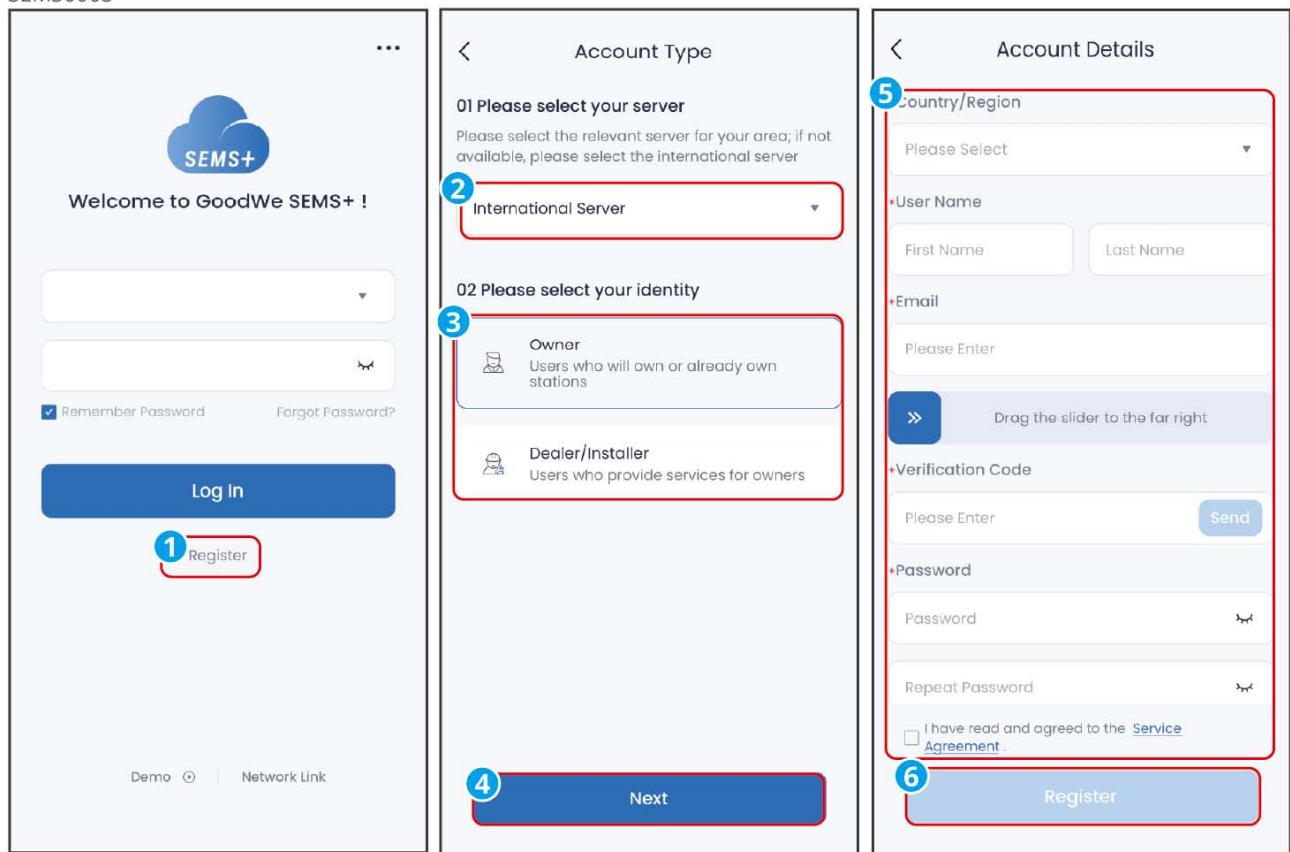
9.2.2 Managing the Account

9.2.2.1 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.



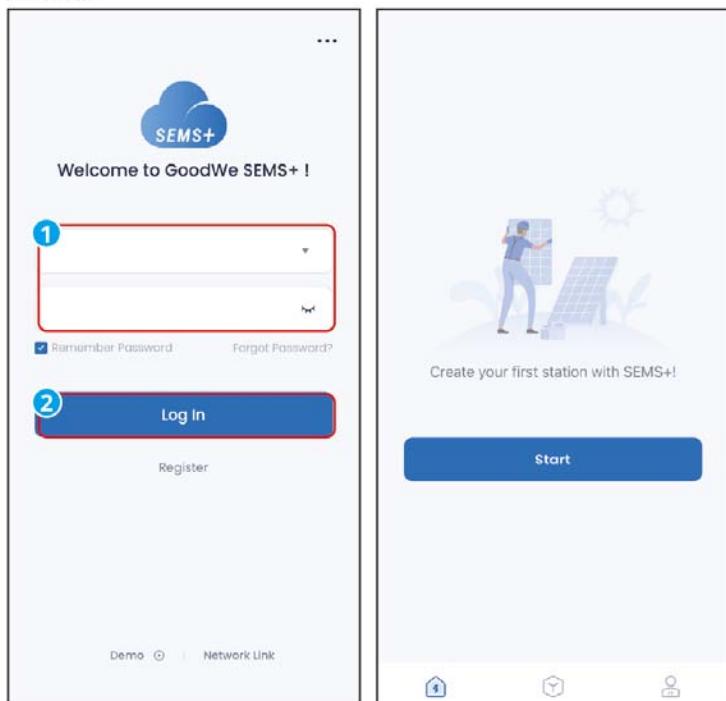
9.2.2.2 Logging in to the App

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

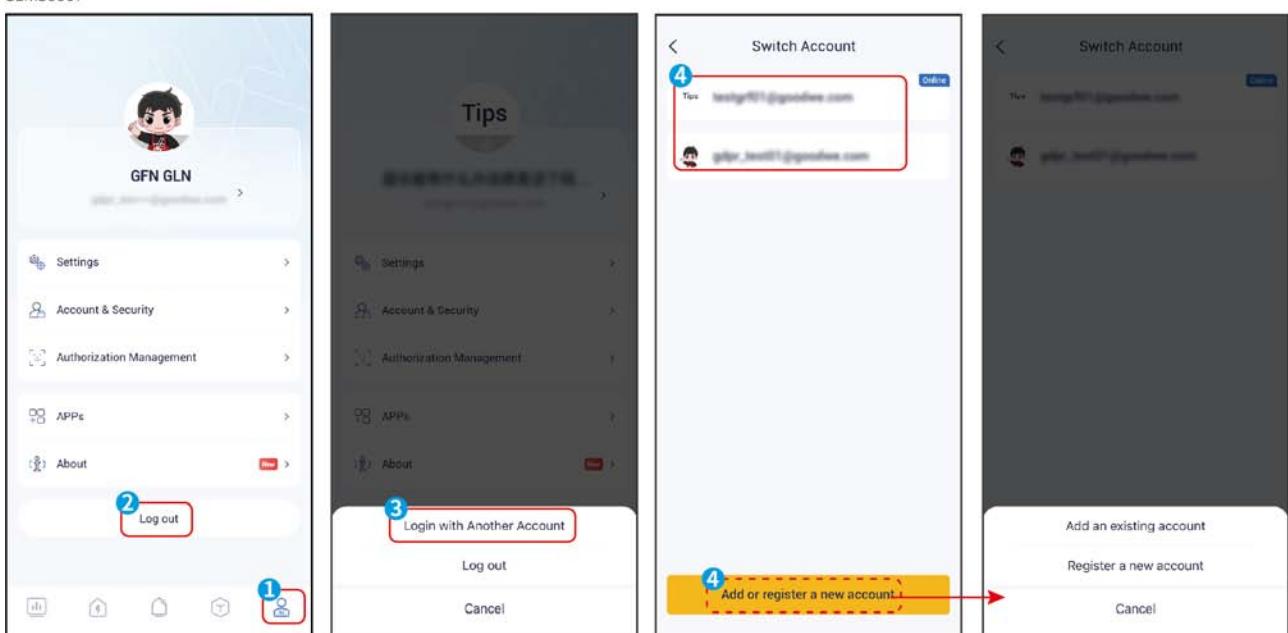


9.2.2.3 Switching Accounts

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

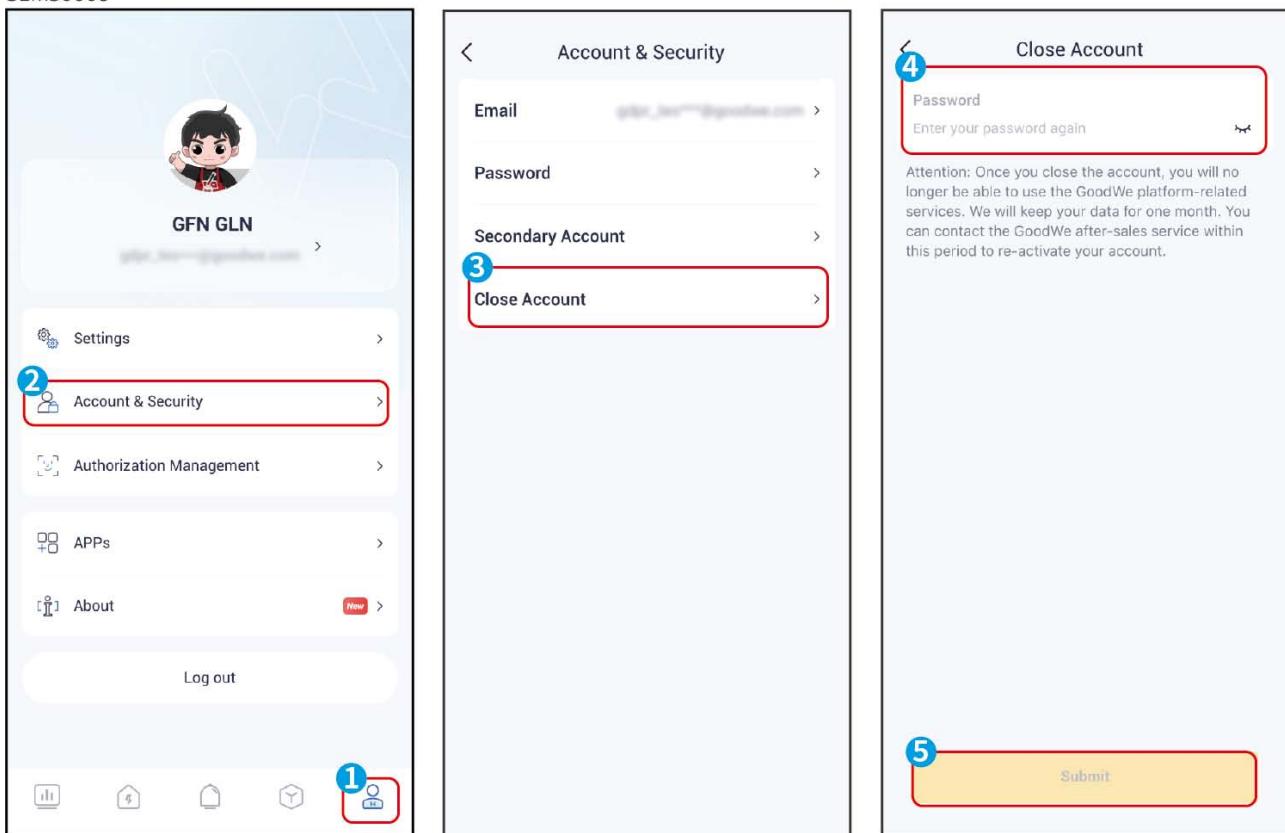


9.2.2.4 Deleting an Account

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

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

SEMS0008



9.2.2.5 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	-	-	-	Administrator, Technician, Browser, End User, Visitor
	Information	-	-	-	Administrator, Technician, Browser, End User, Visitor
	Create Station	-	-	-	Administrator,

					Technician, End User and Visitor
	Station List	-	-	-	Administrator, Technician, Browser, End User, Visitor
Station	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	
			-	Administrator,	

		Station		Technician, End User
		Replacement History	-	Administrator, 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
Services	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
	User Profile	-	-	Administrator, Technician, Browser, End User, Visitor
	User Information	-	-	Administrator, Technician, Browser, End User, Visitor
	Setting	-	-	Administrator, Technician, Browser, End User, Visitor
My	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	-	-	-
Logout	Logout	-	-	Administrator, Technician, Browser, End User, Visitor
	Login another Account	-	-	Administrator, Technician, Browser, End User, Visitor

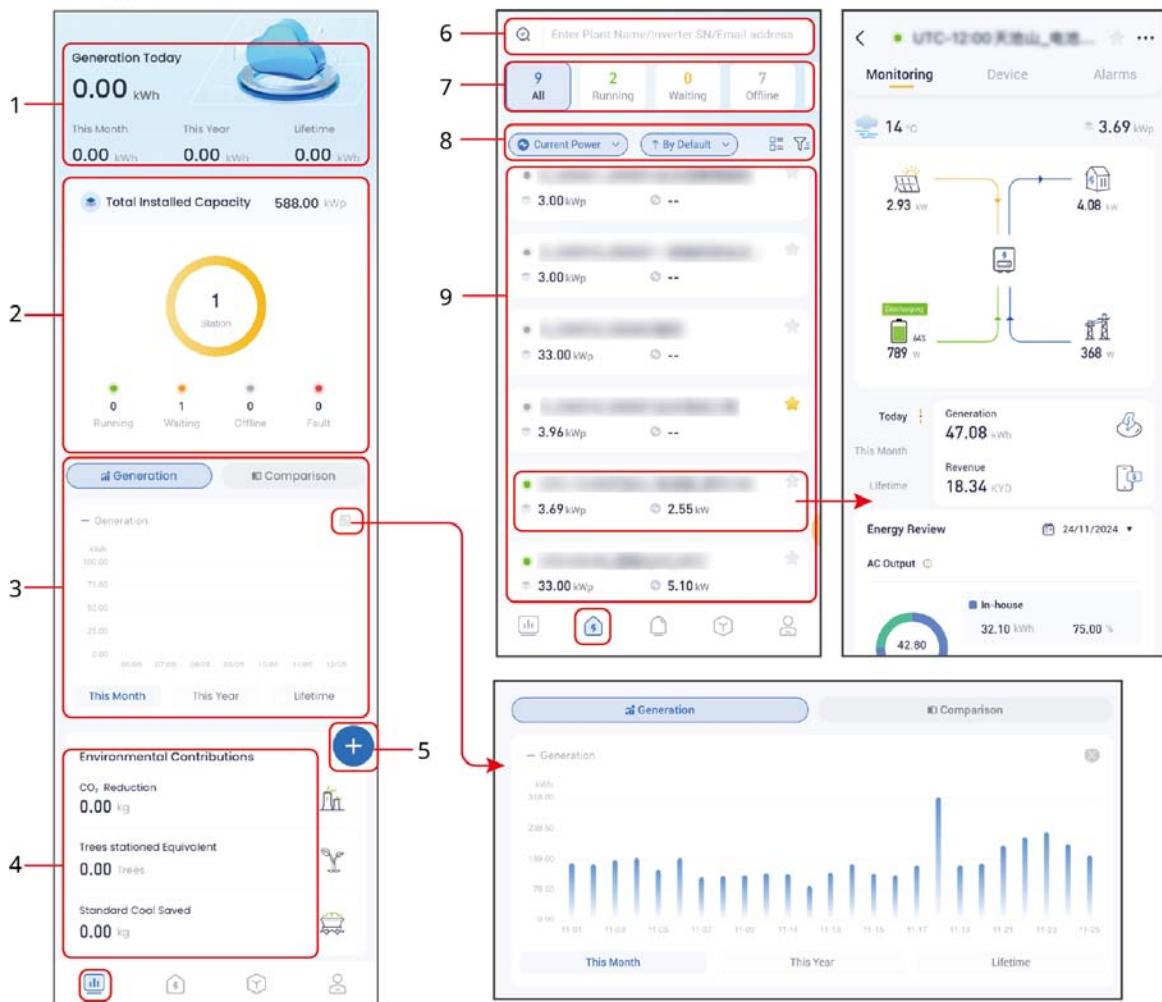
9.2.3 Checking Station Information

9.2.3.1 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 CO₂ 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	<ul style="list-style-type: none"> 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

9.2.3.2 Checking Detailed Information of Single Station

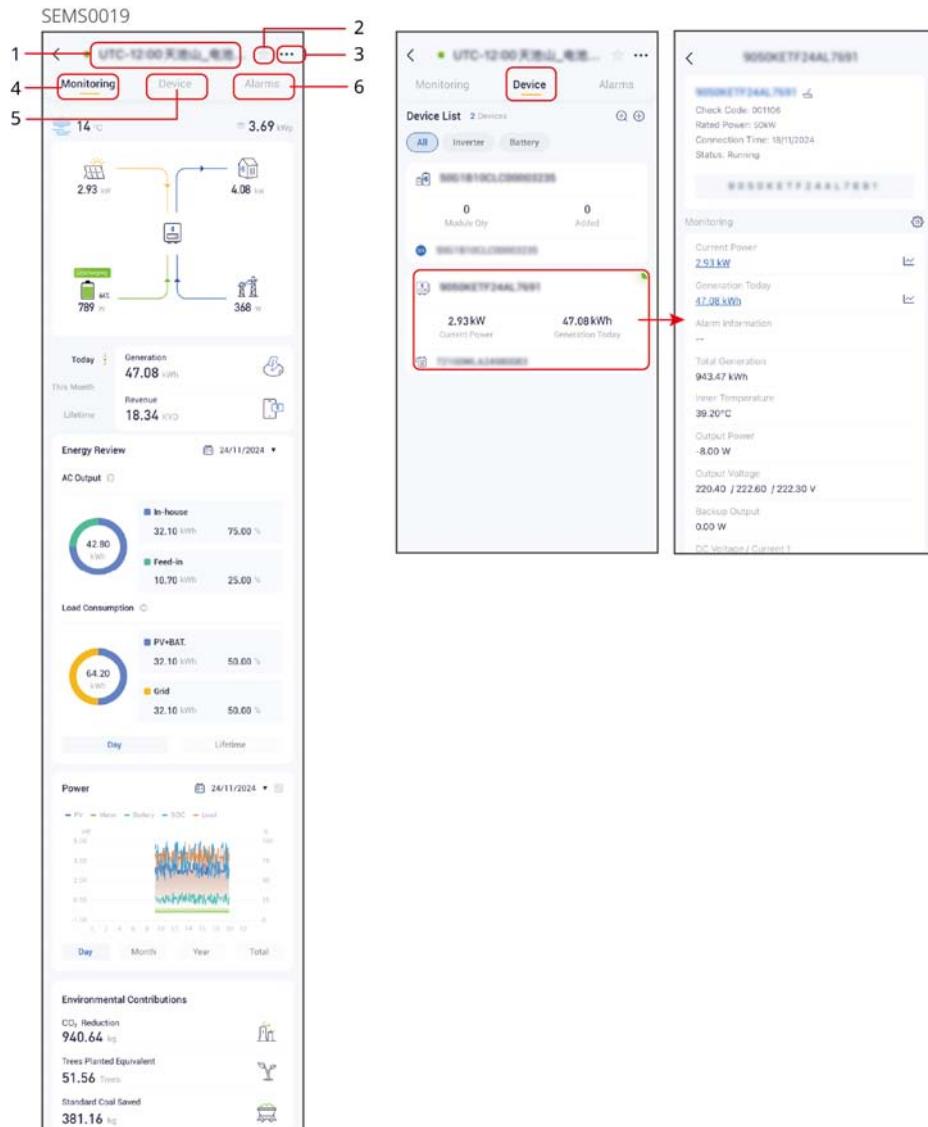
Step 1: Enter the device SN, power station name or email address to quickly search for the corresponding power station.

Step 2: Tap the power station name to enter the power station details page.

SEMS0052



9.2.3.2.1 Checking Detailed Information of Power Station (Traditional Mode)



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.

No.	Description
5	<ul style="list-style-type: none"> 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.

9.2.4 Checking Alarm Information

9.2.4.1 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



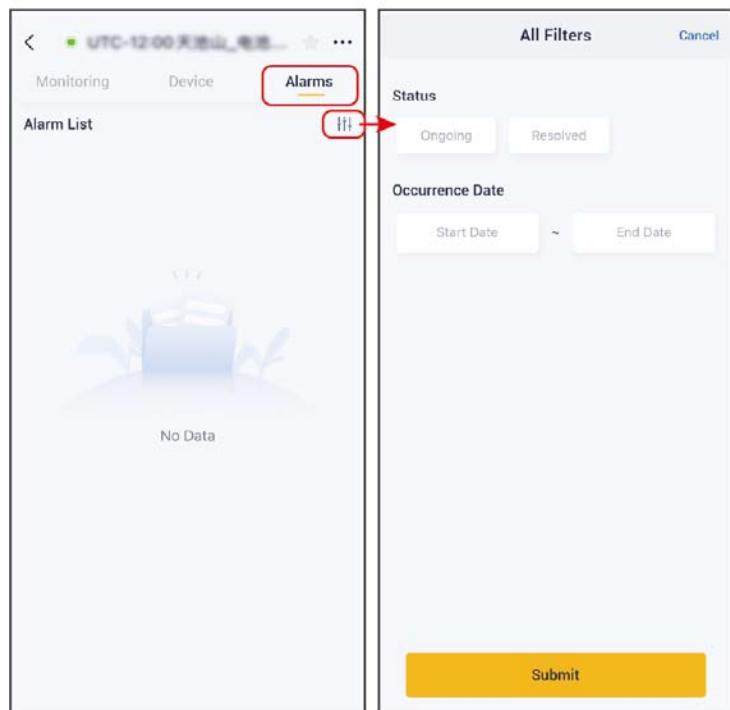
9.2.4.2 Checking Alarm Information of Current Stations

9.2.4.2.1 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

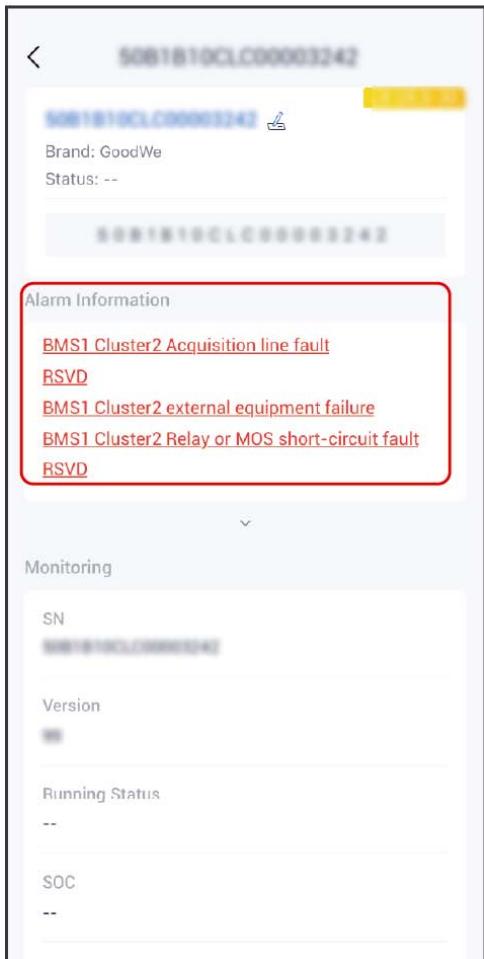


9.2.4.3 Checking Alarm Information of Current Devices

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



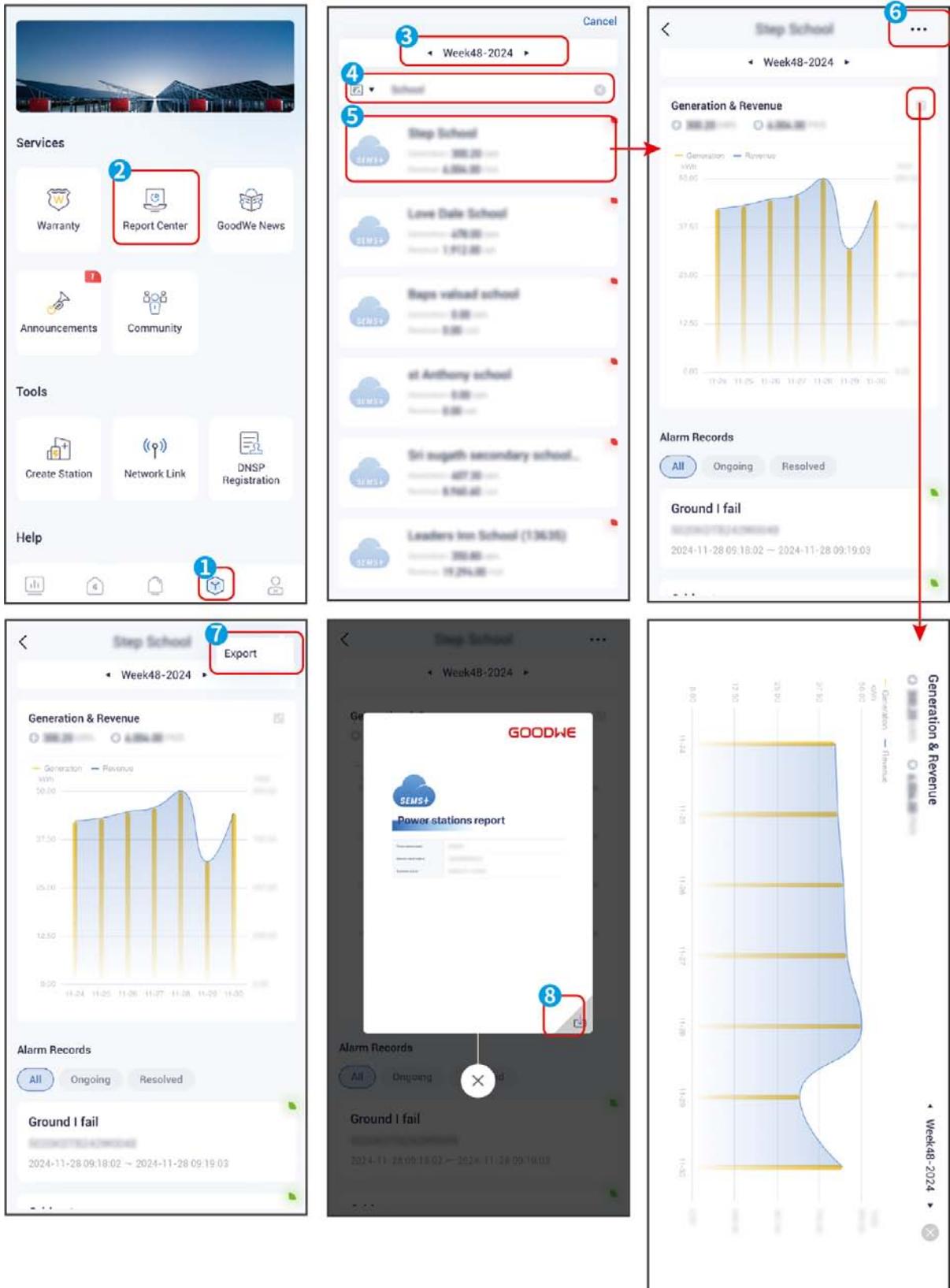
9.2.5 Checking Station Reports

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.

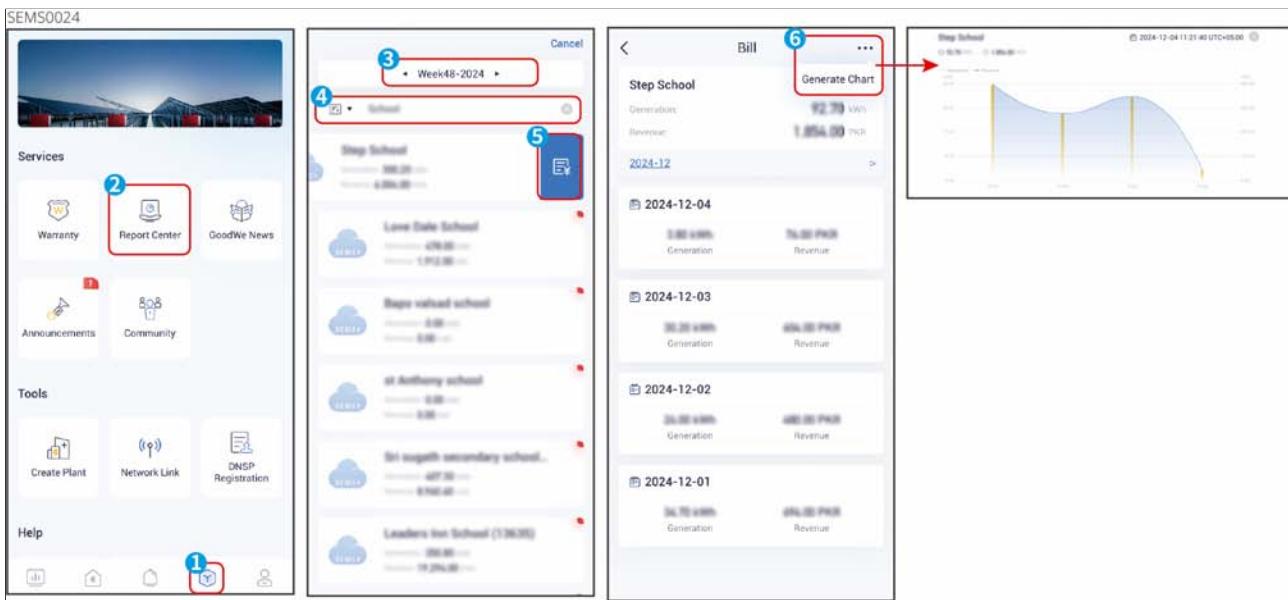
SEMS0023



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.



9.2.6 Managing Stations

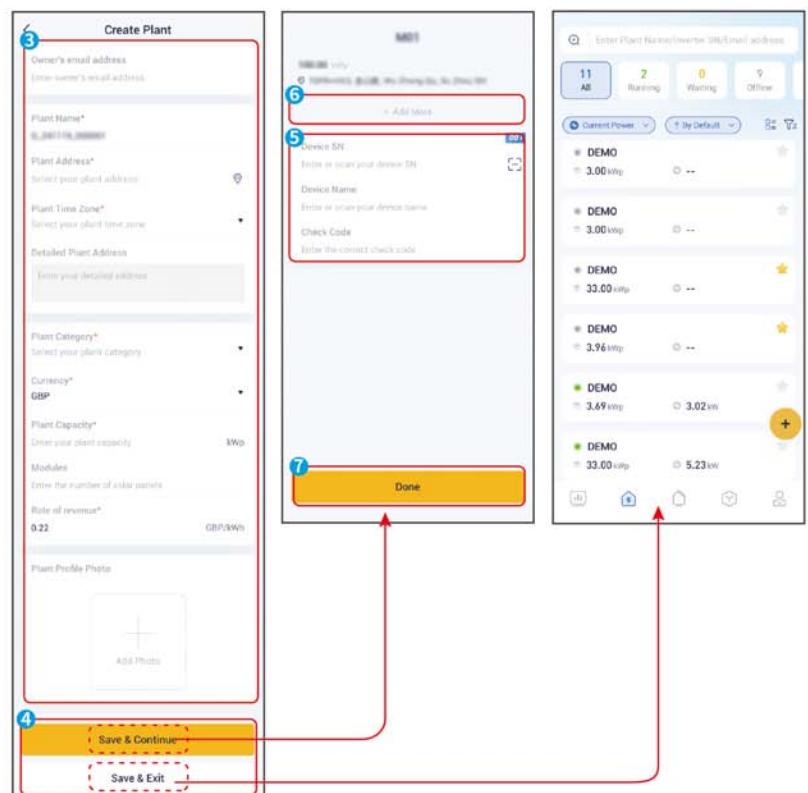
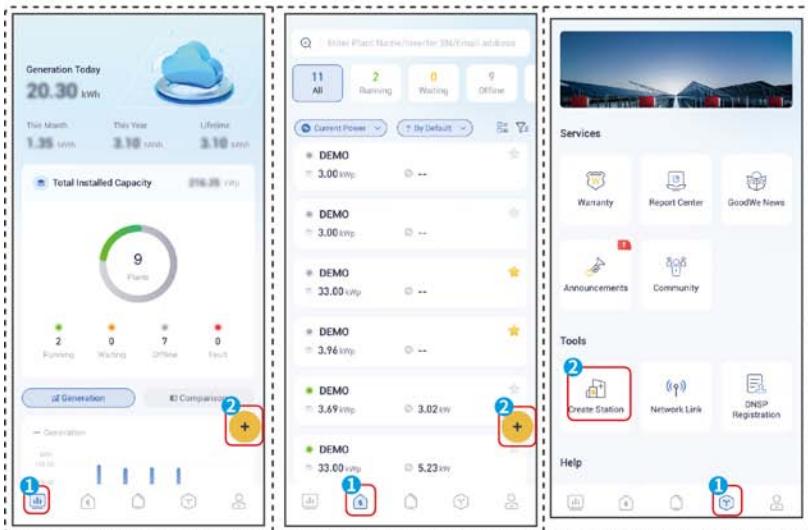
9.2.6.1 Creating a Station

Step 1: Tap  on overview or station page, or tap **Create Station** on service page.

Step 2: Enter station information on the **Create 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



9.2.6.2 Configuring Station Information

NOTICE

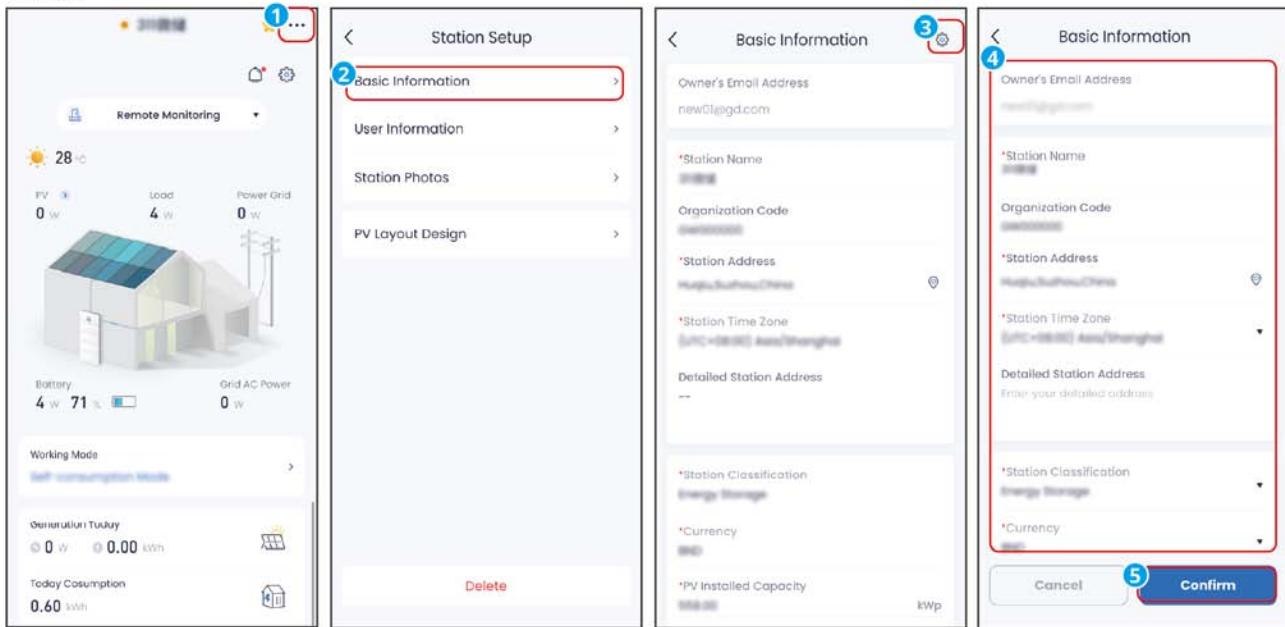
The configuration information of the station can be updated as needed. When the information filled in is inconsistent with the actual situation of the power station, the actual situation of the power station shall prevail.

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



9.2.6.3 Managing Station Visitors

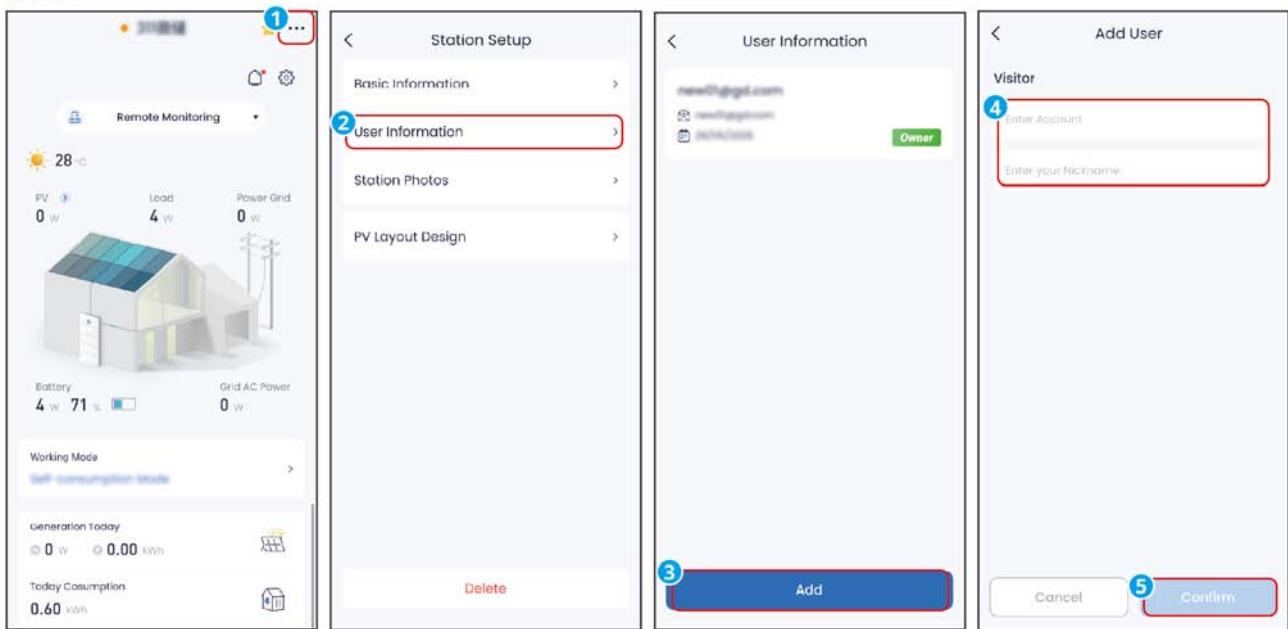
SEMS+ App allows users to add visitors to the power station and view basic information. Visitors have limited access and cannot view all information.

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



9.2.6.4 Managing Station Photos

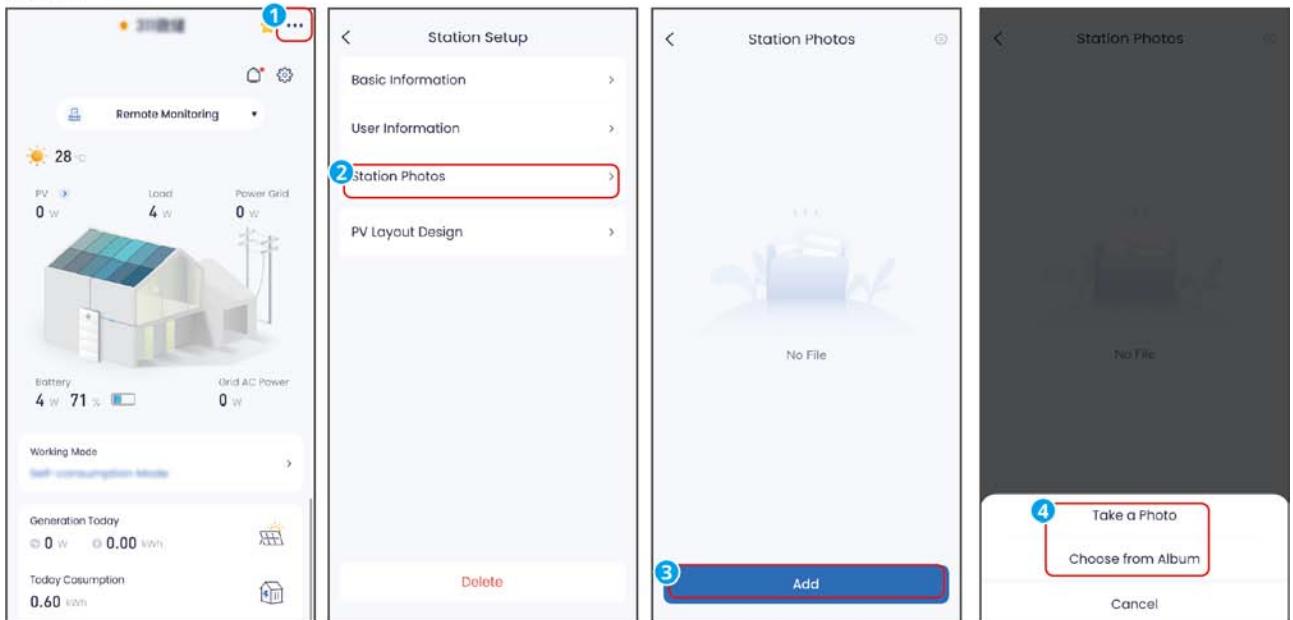
Adding photos to a station helps users find what they need faster.

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

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

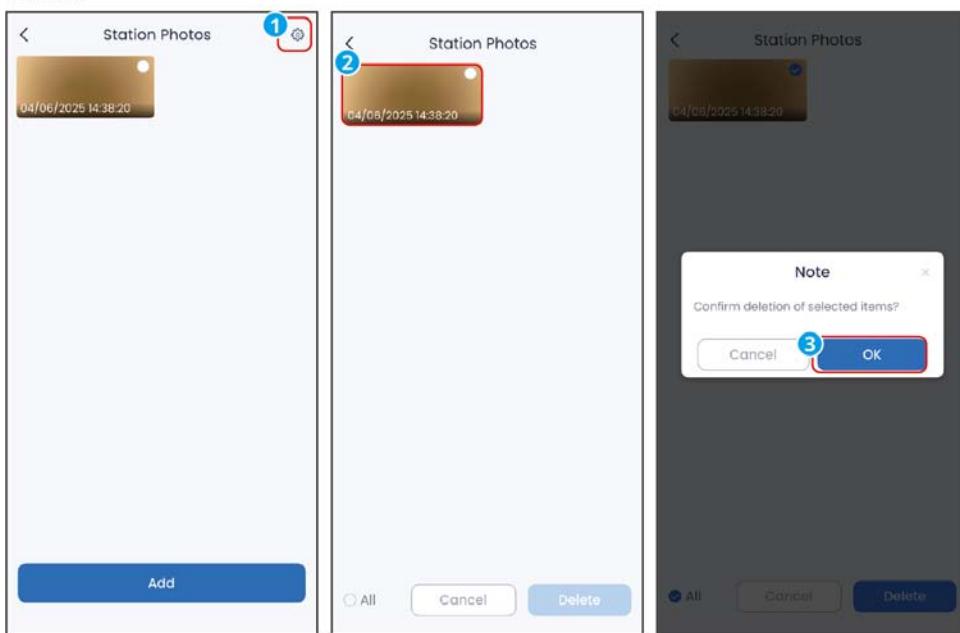
Step 3: Follow the prompts to add photos by **Take a Photo** or **Choose from Album**.

SEMS0014



To delete a photo, follow the steps below.

SEMS0055



9.2.6.5 Set PV Module Layout

Set the PV Layout Design parameters based on the actual conditions of PV modules. The information here is only for recording the PV layout and will not change the actual PV layout.

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

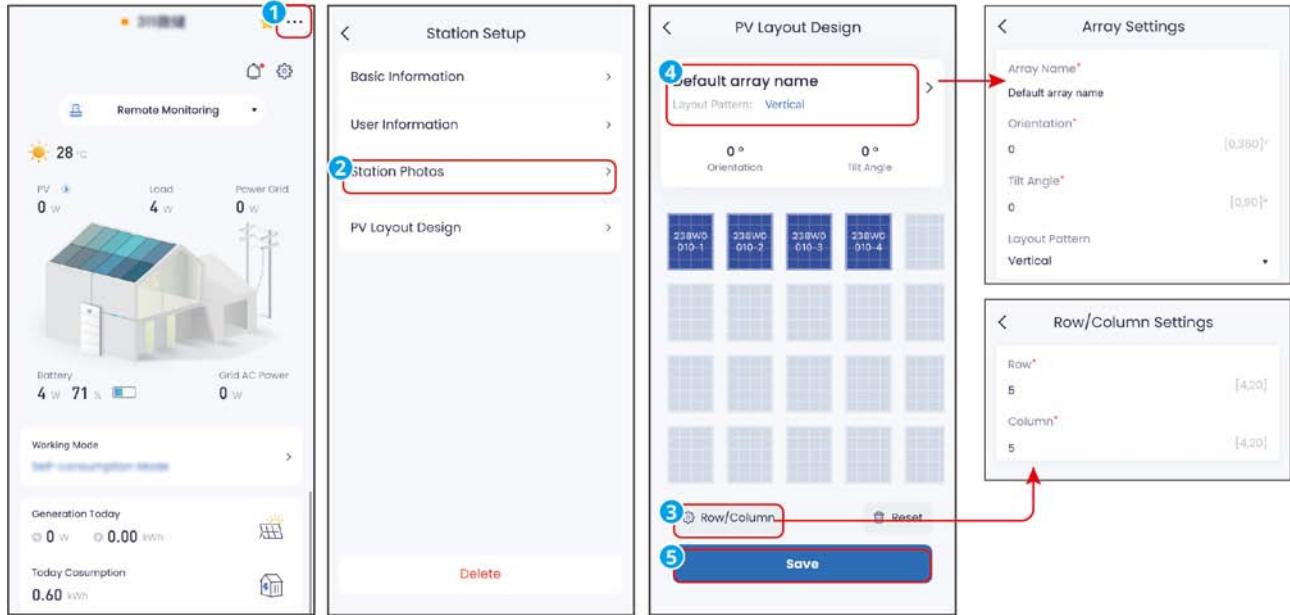
Step 2: Tap **••• > PV Layout Design** to enter the interface.

Step 3: Tap **Row/Column**, 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



9.2.6.6 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.

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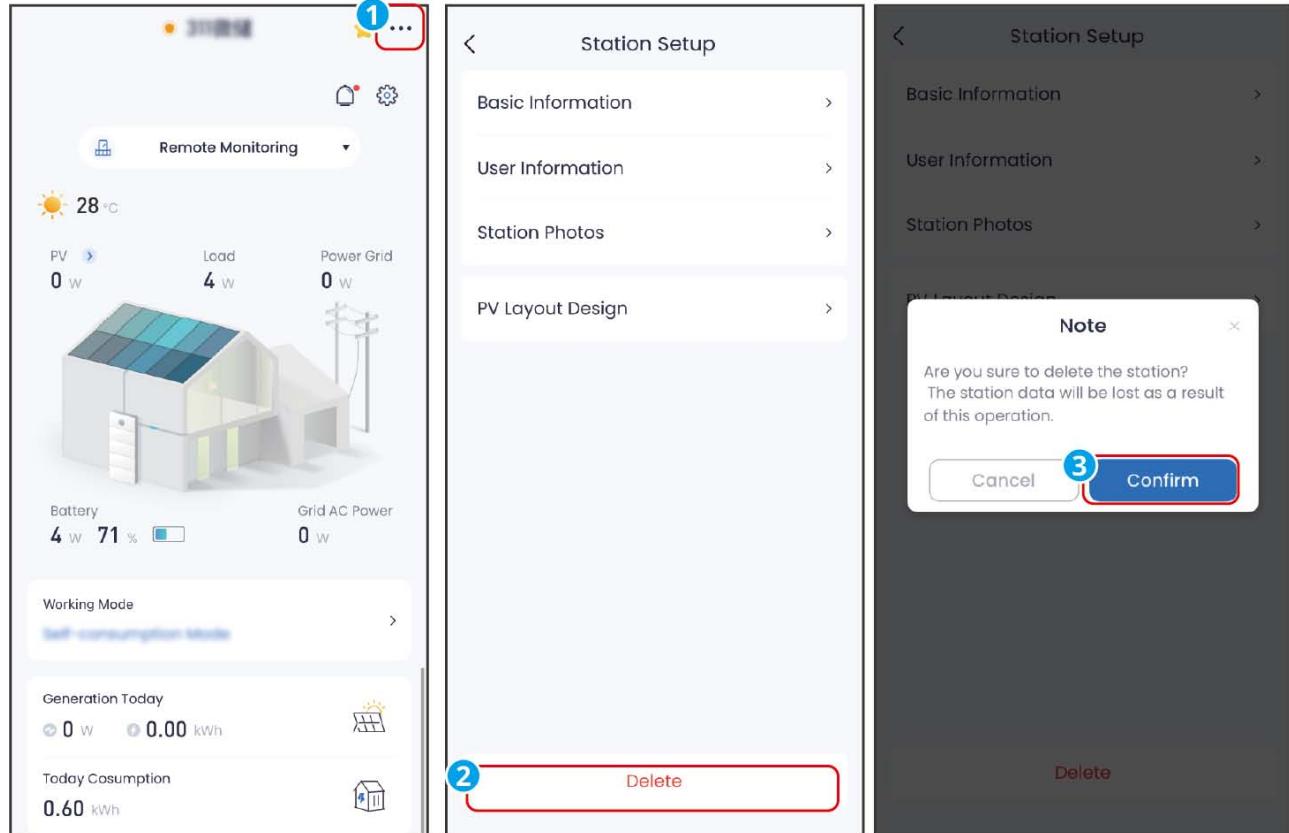
9.2.6.7 Deleting a Station

(Optional) If there are multiple power stations, tap the 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.

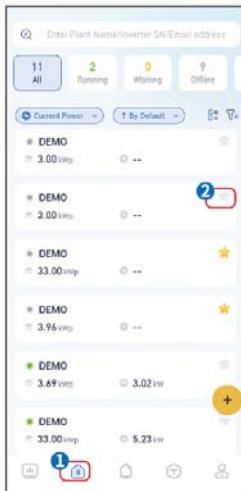
SEMS0016



9.2.6.8 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.



9.2.7 Managing Devices

9.2.7.1 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

1 Home

2 Device

3 Monitoring

4 Alarms

5 Device List

6 Add Device

7 Submit

8 Next

9 All

10 Running

11 Waiting

12 Offline

13 Current Power

14 By Default

15 Filter

16 Sort

17 Star

18 Module Qty

19 Added

20 Current Power

21 Generation Today

22 Inverter

23 Smart Meter

24 Datalogger

25 EV Charger

26 Environmental Monitor

27 Micro Inverter

28 Battery RACK

29 Battery BANK

30 Check Code

31 Submit

32 Cancel

33 Next

34 Check

35 Check

36 Check

37 Check

38 Check

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9.2.7.2 Editing Device Information

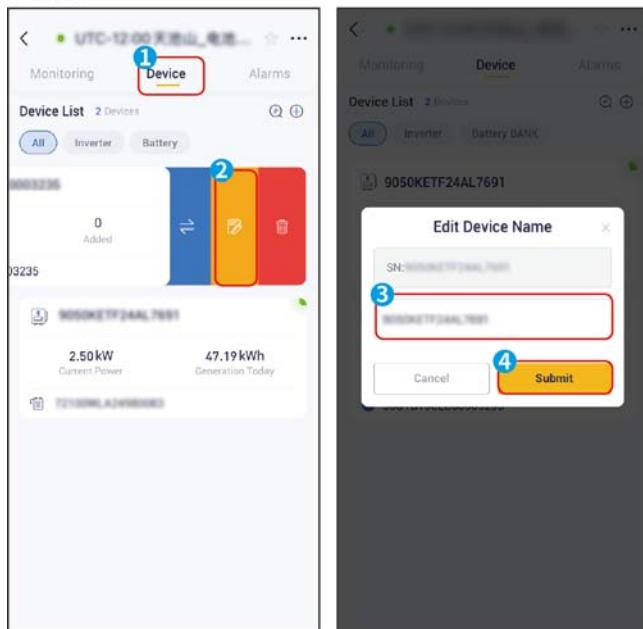
The device name can be modified.

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



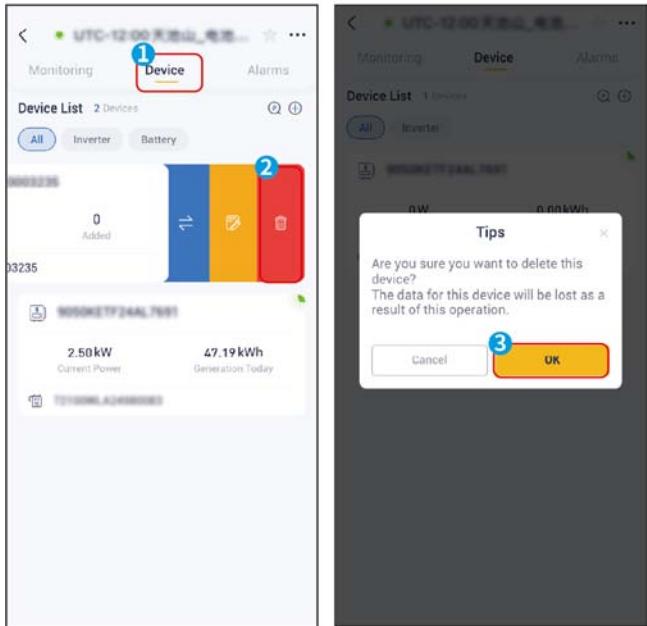
9.2.7.3 Deleting a Device

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



9.2.7.4 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

The image shows a mobile application interface for SEMS0029. It consists of five panels:

- Device List:** Shows a list of 2 devices. A specific device (3) is highlighted with a red box and labeled with a red number 2. Another device (4) is also highlighted with a red box and labeled with a red number 3.
- Device Details (3):** Shows monitoring data for device 3. It includes:
 - Current Power: 2.93kW
 - Generation Today: 47.08 kWh
 - Inner Temperature: 39.20°C
 - Output Power: -8.00 W
 - Output Voltage: 220.40 / 222.60 / 222.30 V
 - Backup Output: 0.00 W
 - DC Voltage / Current: 1
- Firmware Version (4):** Shows the current and latest versions for various components:
 - ARM: Current Version 2.93kW, Latest Version 47.08 kWh
 - DSP: Current Version 39.20°C, Latest Version -8.00 W
 - BAT BMS: Current Version 220.40 / 222.60 / 222.30 V, Latest Version 0.00 W
 - BMS-F25: Current Version 1, Latest Version 1
 - BMS-F450: Current Version 1, Latest Version 1
 - BMS-F2/U2: Current Version 1, Latest Version 1

Tips: Ensure both your inverter and mobile phone networks are functioning properly to receive the latest updates.
- Firmware Upgrade (5):** Shows the upgrade process for the ARM component:
 - Current Version: 2.93kW
 - New Version: 47.08 kWh
 - Instruction of New Version: --

Reminder:

 - Firmware transfer successful, device internal upgrade in progress...
 - It will take about 15 minutes for the internal upgrade of the device to be completed.
 - During the internal upgrade process of the device, do not set other functions of the device. You can return to browse other data.

9.2.8 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.
- Only 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.

9.2.8.1 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

The screenshot displays the SEMS0031 interface with several sections:

- Device List:** Shows 2 devices. A red box highlights the "Device" tab (3).
- Monitoring:** Shows real-time data for an inverter. A red box highlights the "Monitoring" tab (4).
- Device Remote Control:**
 - Disclaimer:** A red box highlights the "Safety" tab (5).
 - Safety:** A red box highlights the "Safety" tab (6).
 - Select Safety Code:** Lists regions with their counts: Europe (26), Oceania (3), America (8), Asia (12), Africa (1), Others (1).
 - Others:** Buttons for Safety (7), Battery (8), Mode (9), and Others (10).
- Battery:** Settings for battery model, capacity, voltage, current, and depth of discharge.
- Mode:** Working mode selection (Self-use mode, On-Grid Power Limitation, Power Factor, Q(U), Cos φ(P)).
- Others:** Backup Supply and Shadow Scan settings.

No.	Parameters	Description
1	Safety	Set the safety country in compliance with local grid standards and application scenario of the inverter.
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	<p>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.</p> <p>Heating modes:</p> <ul style="list-style-type: none"> • GW5.1-BAT-D-G20/GW8.3-BAT-D-G20 <ul style="list-style-type: none"> ◦ Low-power mode: Maintain the minimum power input capability of the battery. It turns on when the temperature is below -9°C and turns off when the temperature is -7°C or higher. ◦ Medium-power mode: Maintain moderate power input capability of the battery. It turns on when the temperature is below 6°C and turns off when the temperature is 8°C or higher. ◦ High-power mode: Maintain high power input capability of the battery. It turns on when the temperature is below 11°C and turns off when the temperature is 13°C or higher. • GW14.3-BAT-LV-G10 <ul style="list-style-type: none"> ◦ Low-power mode: Maintain the minimum power input capability of the battery. It turns on when the temperature is below 5°C and turns off when the temperature is 7°C or higher. ◦ Medium-power mode: Maintain moderate power input capability of the battery. It turns on when the temperature is below 10°C and turns off when the temperature is 12°C or higher. ◦ High-power mode: Maintain high power input capability of the battery. It turns on when the temperature is below 20°C and turns off when the temperature is 22°C 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	<ul style="list-style-type: none"> 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	<p>Set the working mode based on actual needs.</p> <ul style="list-style-type: none"> Self-use mode: <ul style="list-style-type: none"> 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 Valley 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 Cos φ 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 and maintenance on equipment in the system, please ensure the Power OFF the System is properly handled. Operating live equipment may cause equipment damage or electric shock DANGER.
- After the equipment is POWER OFF, the internal components Discharge require a certain amount of time. Please wait until the equipment is fully Discharge according to the time specified on the label.
- Restarting Battery should be performed using the circuit breaker power on method.
- When closing Battery system, strictly adhere to the Battery system power off requirements to prevent damage to Battery system.
- When there are multiple Battery in the system, power off any one Battery can power off all Battery.

NOTICE

- The breaker between Inverter and Battery, and the breaker between Battery system shall be Installation in accordance with local laws and regulations.
- To ensure effective protection of Battery system, the cover plate of the Battery system switch must remain closed, and the Protective coverP should automatically close after being opened. If the Battery system switch is not in use for an extended period, it should be secured with screw.

Next current process

1. Disconnect the BACK-UP breaker.
2. Disconnect the ON-GRID breaker.
3. (Optional) Disconnect the GEN breaker.
4. (Select according to local regulations) Disconnect the breaker between the PV

modules and the Inverter.

5. Disconnect the DC switch of Inverter.

6. (According to local regulations) Disconnect the switch between Inverter and Battery.

7. Disconnect the Battery switch.

8. Disconnect the Battery system switch (LX A5.0-10, LX A5.0-30). Close the Battery system integrated breaker or press and hold the Battery system button for ≥ 5 seconds, and the Battery system integrated breaker will automatically disconnect (only applicable to LX U5.4-L, LX U5.4-20, LX U5.0-30, GW14.3-BAT-LV-G10).

9. (Only for screenless models) Disconnect the off-grid control switch of the Inverter.

10.2 Removing the Equipment

DANGER

- Ensure the equipment is POWER OFF.
- When operating the equipment, please wear personal protective equipment.
- When connecting dismantle, use standard disassembly tools to avoid damaging terminal or equipment.
- Unless otherwise specified, the disassembly method of the equipment is the reverse sequence of the Installation method, and this document will not elaborate further.

1. Perform power off on the system.

2. Label the connected cables in the system to indicate their types.

3. Disconnect the cables in the system, such as DC cables, AC cables, Communication cable, and PE cable, from Inverter, Battery, and Smart Meter.

4. dismantle, smart dongle, Inverter, Battery, Smart Meter, and other equipment.

5. Store the equipment properly. If it is to be put into use later, ensure that the storage conditions meet the requirements.

10.3 Disposing of the Equipment

When the equipment can no longer be used and requires scrapping, it must be disposed of in accordance with the electrical waste disposal regulations of the country/region where the equipment is located. The equipment must not be treated

as general 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 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 case of any other emergencies, please contact the after-sales personnel immediately and follow their instructions, or wait for on-site assistance from the after-sales team.

Maintenance Content	Maintenance method	Maintenance cycle	Maintenance purpose
System cleaning	<p>Check for any foreign objects or dust on the heat sink, fan, and air inlet/outlet.</p> <p>Check if the Installation space meets the requirements, and inspect whether there is any debris accumulation around the equipment.</p>	Once every six months	Prevent heat dissipation.
System Installation	<p>Check if the equipment Installation is secure and whether the fastenings screw are loose.</p> <p>Inspect the equipment for any damage or deformation to the exterior.</p>	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, and exposed copper conductors.	Once every six months to once a year	Verify the reliability of electrical connections.

Maintenance Content	Maintenance method	Maintenance cycle	Maintenance purpose
Sealing	Check whether the cable entry hole Sealing of the equipment meets the requirements. If the gap is too large or unsealed, resealing is required.	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 a long time, 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**]、 [**SEMS Portal App**] And in the LCD display, if your product malfunctions and is not covered in [**SolarGo App**]、 [**SEMS Portal App**] Or if you see relevant fault information on the LCD display, please contact the after-sales service center.

- **Mode 1: LCD screen**

Click or select the fault information icon on the screen  Check the energy storage system alarm or fault information.

- **Option 2: SolarGo App**

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

- **Option 3: SEMS Portal App**

1. Open the SEMS Portal App and log in with any account.
2. Through [**power station**] >[**Alarm**] You can view all power station fault 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

Please troubleshoot according to the following method for fault. If the troubleshooting method does not help, please contact the after-sales service center. When contacting the after-sales service center, please collect the following information to facilitate a quick resolution.

1. Product information, such as: serial number, software version, device Installation time, fault occurrence time, fault occurrence Frequency, etc.
2. Equipment Installation environment, such as weather conditions, whether the modules are shaded, have shadows, etc. Installation environment recommendations can provide photos, videos, and other documents to assist in problem analysis.
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 resolve the problem or abnormality, immediately cease system operation and contact your distributor without delay.

No.	fault	Solution measures
1	Unable to detect the smart dongle wireless signal	<ol style="list-style-type: none">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 on 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 device list of the App.6. Restart Inverter

No.	fault	Solution measures
2	Unable to connect to smart dongle wireless signal	<ol style="list-style-type: none"> 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.
3	 Ezlink indicator flashes twice	<ol style="list-style-type: none"> 1. Please ensure that Router is turned on. 2. When using LAN communication, ensure that the LAN cable is properly connected and the communication configuration is correct. Enable or disable the DHCP function based on actual conditions. 3. When using WiFi communication, ensure that the wireless network connection is stable and the wireless signal strength meets the requirements. Enable or disable the DHCP function based on actual conditions.
4	 Ezlink indicator flashes four times	<ol style="list-style-type: none"> 1. Please ensure the communication stick is properly connected to the Router via WiFi or LAN, and that the Router has normal internet access. 2. If the problem is not resolved, please contact the after-sales service center.
5	 Ezlink indicator extinguishing	Please ensure that Inverter has been power on. If the issue persists, please contact the after-sales service center.
6	 Ezlink indicator extinguishing	Please ensure that Inverter has been power on.
7	Unable to find Router SSID	<ol style="list-style-type: none"> 1. Place the Router close to the Smart dongle, or add a WiFi repeater to enhance the WiFi signal. 2. Reduce the number of devices connected to the Router.

No.	fault	Solution measures
8	After all configurations are completed, the Smart dongle fails to connect with the Router.	<ol style="list-style-type: none"> 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.
9	After all configurations are completed, Smart dongle fails to connect with Server.	Restart Router and Inverter.

10.5.2.2 Inverterfault

fault code	fault name	fault cause	Troubleshooting recommendation
F01	Grid disconnected	<ol style="list-style-type: none"> 1. Utility grid power outage. 2. AC line or AC Switch disconnected. 	<ol style="list-style-type: none"> 1. The alarm automatically disappears after Grid connected recovery. 2. Check whether the AC line or AC Switch is disconnected.
F02	Grid Overvoltage	Utility grid voltage exceeds the allowable range, or the duration of overvoltage surpasses the high voltage ride-through setting.	<ol style="list-style-type: none"> 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,

fault code	fault name	fault cause	Troubleshooting recommendation
			<p>check whether Utility gridvoltage is within the allowable range.</p> <ul style="list-style-type: none"> • 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. <p>3. If the issue persists for an extended period, please check whether the AC-side breaker and output cables are properly connected.</p>
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

fault code	fault name	fault cause	Troubleshooting recommendation
			<p>intervention.</p> <p>2. If it occurs frequently, check whether Utility grid voltage is within the allowable range.</p> <ul style="list-style-type: none"> • 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. <p>3. If the issue persists for an extended period, please check whether the AC-side breaker and output cables are properly connected.</p>
F04	Grid Rapid Overvoltage	Abnormal detection of Utility gridvoltage or ultra-high voltage triggers fault.	<p>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</p>

fault code	fault name	fault cause	Troubleshooting recommendation
			<p>requiring manual intervention.</p> <p>2. If it occurs frequently, check whether Utility grid voltage is within the allowable range.</p> <ul style="list-style-type: none"> • If Utility grid voltage exceeds the permissible range, please contact the local power operator. • If the Utility grid voltage 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. <p>3. If the issue persists for an extended period, please check whether the breaker on the AC side and the output cables are properly connected.</p>

fault code	fault name	fault cause	Troubleshooting recommendation
F05	10minOvervoltage Protection	In 10min, the sliding average of Utility grid voltage exceeds the safety regulation range.	<ol style="list-style-type: none"> 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 grid voltage has been operating at a high voltage for an extended period. If this occurs frequently, verify whether Utility grid voltage is within the allowable range. <ul style="list-style-type: none"> • If the Utility grid voltage exceeds the permissible range, please contact the local power operator. • If the Utility grid voltage 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	<p>Utility grid anomaly: Utility grid actual Frequency exceeds local Utility grid standard requirements.</p>	<ol style="list-style-type: none"> 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. <ul style="list-style-type: none"> • 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.	<p>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.</p> <p>2. If it occurs frequently, please check whether Utility grid and Frequency are within the allowable range.</p> <ul style="list-style-type: none"> • 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.	<p>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.</p> <p>2. If it occurs frequently, check whether Utility grid and Frequency are within the allowable range.</p> <ul style="list-style-type: none"> • 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.	<p>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.</p> <p>2. If it occurs frequently, check whether Utility grid and Frequency are within the allowable range.</p> <ul style="list-style-type: none"> • 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	<p>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.</p>	<p>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.</p> <p>2. If it occurs frequently, check whether Utility grid and Frequency are within the allowable range.</p> <ul style="list-style-type: none"> • 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	<p>Utility grid anomaly: Utility grid voltage duration exceeds the specified high-low transition time limit.</p>	

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.	<p>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.</p> <p>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.</p>
F43	Grid Waveform Abnormal	Utility grid anomaly: Utility grid voltage detection triggered fault due to abnormality.	
F44	Grid Phase Loss	Utility grid anomaly: Utility grid voltage 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.	<p>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.</p> <p>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.</p>
F46	Grid Phase Sequence Failure	Inverter and Utility grid wiring abnormality: wiring is not in positive sequence	<p>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.</p> <p>2. If the wiring is correct and fault persists, please contact the dealer or GoodWe Customer Service Center.</p>

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.	<p>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.</p> <p>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.</p>
F13	60mAGfciProtection	During operation, the input-to-ground insulation resistance becomes low.	<p>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.</p> <p>2. If the issue occurs frequently or persists for an extended period, please check whether the PV String ground impedance is too low.</p>

fault code	fault name	fault cause	Troubleshooting recommendation
F14	150mAGfcProtection	During operation, the input-to-ground insulation resistance becomes low.	<p>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.</p> <p>2. If the issue occurs frequently or persists for an extended period, please check whether the PV String ground impedance is too low.</p>
F15	Gfcislowly varying Protection	During the operation of Inverter, the input-to-ground insulation resistance becomes low.	<p>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.</p> <p>2. If the issue occurs frequently or persists for an extended period, please check whether the PV String ground impedance is too low.</p>

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.	<p>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.</p> <p>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.</p>
F17	DCISecondary Protection	The DC component of the inverter output current exceeds the safety regulations or the default allowable range of the machine.	<p>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.</p> <p>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.</p>

fault code	fault name	fault cause	Troubleshooting recommendation
F18	Low Insulation Resistance	<p>1. PV String is short-circuited to ground with Protection.</p> <p>2. The environment of PV String Installation is consistently humid, and the line-to-ground insulation is poor.</p> <p>3. Battery port line-to-ground Low Insulation Resistance.</p>	<p>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.</p> <p>2. Check whether the PE cable of the Inverter is properly connected.</p> <p>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.</p> <p>Australia and New Zealand markets Inverter. In the event of insulation resistance fault, alarms can also be triggered through the following methods:</p> <p>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</p>

fault code	fault name	fault cause	Troubleshooting recommendation
			<p>minutes.</p> <p>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.</p>
F19	Grounding Abnormal	<p>1. The PE cable of Inverter is not connected.</p> <p>2. When the output of PV String is grounded, the output side of Inverter is not connected to an isolation transformer.</p>	<p>1. Please confirm whether the Inverter of PE cable is not connected properly.</p> <p>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.</p>
F49	L-PE Short Circuit	Output phase line toPELow impedance or short circuit	<p>Detect output phase line toPELow impedance, find out Locations with low impedance and repair them.</p>

fault code	fault name	fault cause	Troubleshooting recommendation
F50	DCVPrimary Protection	Abnormal load fluctuation	<p>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.</p> <p>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.</p>
F51	DCVSecondary Protection	Abnormal load fluctuation	<p>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.</p> <p>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.</p>

fault code	fault name	fault cause	Troubleshooting recommendation
F20	Hardware power limit Protection	Abnormal load fluctuation	<p>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.</p> <p>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.</p>
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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. InspectionBoxIs it functioning properly; 2. InspectionBoxIs the communication wiring correct?
-	Generator Failure		<ol style="list-style-type: none"> 1. When the generator is not connected, ignore this fault;
F22	Generator Waveform Detection Fault		<ol style="list-style-type: none"> 1. This fault will always be displayed when the generator is not connected.
F23	Generator Abnormal Connection		<ol style="list-style-type: none"> 2. When the generator is in operation, failure to meet the generator safety regulations will trigger this fault.
F24	Generator Low Voltage		<ol style="list-style-type: none"> 2. When the generator is in operation, failure to meet the generator safety regulations will trigger this fault.
F25	Generator High Voltage		<ol style="list-style-type: none"> 2. When the generator is in operation, failure to meet the generator safety regulations will trigger this fault.
F26	Generator Low Frequency		<ol style="list-style-type: none"> 2. When the generator is in operation, failure to meet the generator safety regulations will trigger this fault.
F27	Generator High Frequency		<ol style="list-style-type: none"> 2. When the generator is in operation, failure to meet the generator safety regulations will trigger this fault.
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 machines backup Line reversed with other connections	reconnection backupLine.
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.
F35	Cabinet Overtemperature	Cabinet Overtemperature, Possible causes: 1InverterInstallation Location non-ventilated. 2Ambient temperature is too high. 3Internal fan operation abnormal.	3If ventilation and ambient temperature are normal, please contact the dealer or GoodWe after-sales service center.

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

fault code	fault name	fault cause	Troubleshooting recommendation
F68	AC Capacitor Overtemperature	<p>Output filter capacitor temperature is too high, possible causes:</p> <p>1InverterInstallation Location non-ventilated.</p> <p>2Ambient temperature is too high.</p> <p>3Internal fan operation abnormal.</p>	
F114	Relay Failure2	<p>Relay abnormality, reason:</p> <p>1Relay abnormality (relay short circuit)</p> <p>2Relay sampling circuit abnormality.</p> <p>3Abnormal AC side wiring (possible loose connection or short circuit)</p>	<p>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.</p>
F69	PV IGBT Short circuit	<p>Possible causes:</p> <p>1. IGBT short circuit</p> <p>2Abnormal sampling circuit</p>	<p>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.</p>

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	NTCabnормall	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	CPU Interruption exception	CPU Interruption 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 HCT fault	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. 5V Baseline 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	CPLDCommunication fault	CPLDandDSPCommunication 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	
F85	DeputyCPU1)	2InverterBUSSampling anomaly; 3The poor isolation effect of the rear-end double-split Inverter causes mutual interference	
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 occurrence BUSA After 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	Disconnect the AC output side switch and DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
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. PV voltage too high 2 Flying 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. PV Energy deficit; 2 Flying capacitor sampling anomaly	
F94	FlyCap Precharge Failure	FlyCap Precharge Failure, Possible causes: 1. PV Energy deficiency; 2 Flying 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(String1 7~32)		

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
		<p>ogous mode),PV1-PV4homologous4RoadPVConnect the same photovoltaic panel</p> <p>2. Partial Parallel Mode: That isAACCMODE,PV1andPV2homologous connection,PV3andPV4homologous connection</p> <p>3. Stand-alone mode: i.e.ABCDMode(non-homologous),PV1、PV2、PV3、PV4Independent connection,4RoadPVEach connected to a photovoltaic panel</p> <p>IfPVThe actual connection mode and equipment configurationPVThis fault will be reported if the access mode does not match.</p>	<p>connection correct.</p> <p>2. IfPVCorrectly connected, passedAppor screen check the current settingsPVDoes the "connection mode" correspond to the actual connection mode?</p> <p>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.</p> <p>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.</p>

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(String33~48)	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
			<p>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.</p> <p>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.</p>
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	
F127	BAT Overtemperature	<p>Battery temperature is too high, possible causes:</p> <p>1InverterInstallation Location is not ventilated.</p> <p>2Ambient temperature is too high.</p> <p>3Internal fan operation abnormal.</p>	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.
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 or PVReverse 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 history PVReverse connection of WARNING. If present, maintenance personnel should inspect the corresponding issue. PV Situation. After confirming there is no fault, the trip switch can be manually closed, and then pass through AppInterface 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, inspectPVIIs 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	<p>This alarm may only be reported after enabling the power limit function. Possible causes:</p> <ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 exceeds 400 No 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	<ol style="list-style-type: none"> 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	
Battery Under Voltage	1. Single cell voltage too low 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 total pressure is too low 2. voltage collection line anomaly	
Battery Over Current	1. Charge current is too large, Battery current limiting is abnormal: sudden changes in temperature and voltage value 2. Inverter response anomaly	
	Battery discharge current 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	<p>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.</p> <p>2. The cell capacity degrades, leading to excessive internal resistance, which causes significant temperature rise and large temperature differences during current.</p> <p>3. Poor welding of battery cell tabs, leading to excessive current and rapid temperature rise in the cell.</p> <p>4. Temperature sampling issue;</p> <p>5. power cable loose connection</p>	
	<p>1. Inconsistent aging levels of battery cells</p> <p>2. Issues with the board chips can also lead to excessive voltage differences in the battery cells.</p> <p>3. Imbalance issues in the battery pack can also lead to excessive voltage differences between cells.</p> <p>4. Wiring harness issues leading to</p>	
	<p>1. Inconsistent aging levels of battery cells</p> <p>2. Issues with the board chip can also lead to excessive voltage differences between battery cells.</p> <p>3. Imbalance issues in the battery pack can also lead to excessive voltage differences between cells.</p> <p>4. Wiring harness issues lead to</p>	

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
	<p>Dual-channel current comparison error is too large, or current acquisition line circuit is abnormal.</p> <p>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.</p> <p>Temperature acquisition line circuit abnormal or poor contact, disconnected</p>	<p>Check the wiring and restart the Battery. If the issue persists after restarting, please contact GoodWe's after-sales service center.</p>
	<p>Overvoltage level 5 or overtemperature level 5, fuse the three-terminal fuse</p>	<p>To replace the three-section fuse, please contact the GoodWe after-sales service center to replace the main control board.</p>
Relay or MOS Over Temperature	Relay or MOS Over Temperature	<p>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.</p>
Shunt Over Temperature	Shunt Over Temperature	<p>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.</p>

fault name	fault cause	Troubleshooting recommendation
BMS1 Other Failure 1 (RES)	Relay or MOS open circuit	<p>Upgrade the software, power off and let it sit for 5 minutes, then check if fault persists after restarting.</p> <p>2. If the problem persists, replace the Battery package.</p>
	Relay or MOS short circuit	<p>1. Upgrade the software, power off and let it sit for 5 minutes, then restart to check if fault persists.</p> <p>2. If the issue persists, replace the Battery package.</p>
	Communication abnormality between the master cluster and slave cluster, or inconsistency of battery cells among clusters.	<p>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.</p> <p>2. Upgrade the software</p>
	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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Check the wiring and restart the Battery; 2. Upgrade the Battery.
	Communication loss between main and negative chips	<ol style="list-style-type: none"> If the issue persists after restarting, please contact GoodWe's after-sales service center.
	Circuit breaker, shunt trip abnormality	<ol style="list-style-type: none"> 1. 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. Battery Shut down, check wiring and output port screw 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	<p>Let the device stand powered off for 5 minutes, then restart to check if fault persists.</p> <p>2. If the fault is not restored, contact GoodWe after-sales service to replace the pack.</p>
	pack fan fault signal trigger	<p>Let the device stand powered off for 5 minutes, then restart to check if fault persists.</p> <p>2. If the fault is not restored, contact GoodWe after-sales service to replace the pack.</p>
DCDC Failure	Output portvoltage too high	<p>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.</p>

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 Batteryfault(LX A5.0-10)

When the BatteryALMindicator indicator is red, troubleshoot by checking the fault status in conjunction with the SOCindicator display.

No.	State of Charge (SOC)	fault name	Solution measures
1	oooo●	overvoltage	Power off and let it stand for 2 hours. If the issue persists after restarting, please contact the after-sales service center.
2	ooo●○	Battery undervoltage	Please contact the after-sales service center.
3	ooo●●	High cell temperature	Power off and let it stand for 2 hours. If the problem persists after restarting, please contact the after-sales service center.
4	○○●○○	low temperature	Shutdown and wait for temperature recovery. If the issue persists after restart, please contact the after-sales service center.

No.	State of Charge (SOC)	fault name	Solution measures
5	○○●○●	low temperature	Shutdown and wait for temperature recovery. If the issue persists after restarting, please contact the after-sales service center.
6	○○●●○	overcurrent	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
7	○○●●●	overcurrent	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
8	○●○○○	Insulation resistance too low	Please contact the after-sales service center.
9	○●○○●	Excessive temperature difference	Power off and let it stand for 2 hours. If the problem persists after restarting, please contact the after-sales service center.
10	○●○○●	Excessive single-cell voltage deviation	After restarting the Battery, let it stand for 12 hours. If the issue persists, please contact the after-sales service center.
11	○●●○○	Cell inconsistency	Please contact the after-sales service center.
12	○●●○●	Harness abnormality	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
13	○●●●○	MOS cannot close	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
14	○●●●●	MOS cannot close	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
15	●○○○○	Cluster connection	Please check whether Battery and model match. If they do not match, please contact the after-sales service center.

No.	State of Charge (SOC)	fault name	Solution measures
16	●○○○●	interlocking signal fault	Check if the Terminal resistor Installation is correct. If the problem persists after restarting, please contact the after-sales service center.
17	●○○●○	BMU Communication fault	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
18	●○○●●	MCU internal communication fault	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
19	●○●○○	Circuit breaker sticking	Please contact the after-sales service center.
20	●○●○●	Precharge failure fault	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
21	●○●●○	MOS Overtemperature fault	Power off and let it stand for 2 hours. If the problem persists after restarting, please contact the after-sales service center.
22	●○●●●	Shunt Over-temperature fault	Power off and let it stand for 2 hours. If the problem persists after restarting, please contact the after-sales service center.
23	●●○○○	Reverse connection fault	Please contact the after-sales service center.
24	●●●●●	Microelectronics	Please contact the after-sales service center.

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

Alarm status

- When BatteryALM indicator displays in red, locate and troubleshoot the issue by combining the SOC indicator display status.

No.	SOC (State of Charge)	fault name	Solution measures
1	○○○●	overvoltage Undervoltage	<ol style="list-style-type: none"> 1. Check whether the limit of InverterChargecurrent is 0 via SolarGo. If it is 0, please verify whether the Communication cable connection between Battery and Inverter is reliable and the communication is normal. 2. Power off and let it sit for 5 minutes, then restart to confirm if fault persists. 3. If the fault does not recover, please contact the after-sales service center.
2	○○●●	overcurrent	<ol style="list-style-type: none"> 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 it is less than, shut down the Battery or upgrade the program, and restart to confirm whether the fault persists. 3. If fault does not respond, please contact after-sales service.
3	○○●○	Over-temperature protection Battery low temperature Protection Pole Over-temperature Alarm	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	○●○○	imbalance Low SOHfault	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		Precharge failure fault	1. Verify whether the output terminal of Battery is incorrectly connected to Inverter. 2. Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
6		Harvesting line	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 MOSFET overtemperature	Power off and let it stand for 30 minutes. If the problem persists after restarting, please contact the after-sales service center.
		Shunt Over-temperature	
8		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.
		Other Protection: MOS cannot close	Power off and let it stand for 5 minutes. If the issue persists after restarting, please contact the after-sales service center.
9		Other Protection: MOS adhesion	

No.	SOC (State of Charge)	fault name	Solution measures
10		Other Protection: Cluster fault	<ol style="list-style-type: none"> 1. Verify the type of Terminal resistor used and whether the Installation Location is correct 2. Verify whether the Communication cable between Battery and Battery, and the Communication cable between Battery and Inverter are reliably connected and communicating properly. 3. If the fault does not recover, please contact the after-sales service center.
11		Other Protection: Communication lost with Inverter	<ol style="list-style-type: none"> 1. Verify whether the Communication cable connection between Battery and Battery, and the Communication cable connection between Battery and Inverter are reliable and communicating properly. 2. If the fault does not recover, please contact the after-sales service center.
12		Others Protection: BMU Communication fault	<ol style="list-style-type: none"> 1. Verify the type of Terminal resistor used and whether Installation Location is correct 2. Verify whether the Communication cable connection between Battery and Battery, as well as the Communication cable connection between Battery and Inverter, is reliable and communication is normal. 3. Power off and let it stand for 5 minutes. If the issue persists after restarting, please contact the after-sales service center.
13		Others Protection: Circuit Breaker Sticking fault	<p>Power off and let it stand for 5 minutes. If the issue persists after restarting, please contact the after-sales service center.</p>

No.	SOC (State of Charge)	fault name	Solution measures
14		OthersProtection: Softwarefault	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
15		Other Protection: Hardware Overcurrent fault	
		Other Protection: Microelectronics fault	
16		Three-terminal abnormality in heating film	<ol style="list-style-type: none"> 1. Upgrade software 2. Power off and let it stand for 5 minutes. If the issue persists after restarting, please contact the after-sales service center.

10.5.2.5 Batteryfault(LX U5.4-L)



State of Charge (SOC)	fault name	Solution measures
	Temperature difference anomaly	Shutdown waiting 2 hours. If the problem is not resolved, please contact the after-sales service center.
	high temperature	
	Low-temperature Discharge	Shutdown, wait for temperature to rise, then restart Battery. If the issue persists, please contact the after-sales service center.
	overcurrent	Restart Battery. If the problem persists, please contact the after-sales service center.
	overcurrent	

	overvoltage	
	Battery undervoltage	Under the condition of Charge, Press the button switch 5 times consecutively within 10 seconds to Battery charge, wait for voltage to rise before returning to normal.
	Low-temperature Charge	Shutdown, wait for temperature to rise, then restart Battery. If the issue persists, please contact the after-sales service center.
	Excessive voltage difference between individual cells	Shutdown waiting 2 hours, restart Battery. If the problem persists, please contact the after-sales service center.

fault status



State of Charge (SOC)	fault name	Solution measures
	Temperature sensor failure	Restart Battery. If the problem persists, please contact the after-sales service center.
	MOSFET fault	
	Circuit breaker trip error	Reclose the circuit breaker. If the issue persists, please contact the after-sales service center.
	Slave communication loss	Shut down, check Communication cable, and restart Battery. If the issue persists, please contact the after-sales service center.
	NoneSN error	Please contact the after-sales service center.
	Host communication lost	Power off, check the Inverter Communication cable connection, and restart the Battery. If the issue persists, please contact the after-sales service center.
	Software version mismatch	Please contact the after-sales service center.
	Multi-host error	After shutdownStart all Battery within 30 seconds

	MOS over-temperature error	Shutdown waiting 2 hours. If the problem is not resolved, please contact the after-sales service center.
	Communication with Inverter interrupted	Power off, check the Communication cable connection, and restart the Battery. If the issue persists, please contact the after-sales service center.

10.5.2.6 Batteryfault(LX U5.4-20)

Alarm status



When the Battery button indicator displays red and flashes once per second, combine the SOC indicator display status to locate and troubleshoot the alarm.

No.	State of Charge (SOC)	Description
1		
2		
3		
4		
5		
6		

fault status



When the Battery button indicator displays a steady red light, locate and troubleshoot fault based on the SOC indicator status.

Button	State of Charge (SOC)	fault name	Solution measures
Steady red		overvoltage	Shutdown and Standby 2h, restart Battery. If the issue persists, please contact the after-sales service center.

Red light flashing1 second 1 time		Battery undervoltage	Please contact the after-sales service center.
Steady red		High cell temperature	Shutdown and Standby2h, restart Battery. If the issue persists, please contact the after-sales service center.
		low temperature	Shutdown and wait for temperature recovery Restart Battery. If the problem persists, Please contact the after-sales service center.
		low temperature	
		overcurrent	Restart Battery. If the issue persists, please contact the after-sales service center.
		overcurrent	
		Excessive temperature difference	Shutdown and Standby2h, restart Battery. If the issue persists, please contact the after-sales service center.
		Excessive single-cell voltage deviation	Restart Battery and let it stand12h, if the problem is not resolved, please contact the after-sales service center.
		Harness abnormality	
		MOS cannot close	Restart Battery. If the issue persists, please contact the after-sales service center.
		MOSFET adhesion	
		Cluster connection	Please check whether Battery and model match. If they do not match, please contact the after-sales service center.
		BMU Communication fault	
		MCU internal communication fault	Restart Battery. If the problem persists, please contact the after-sales service center.

	Circuit breaker sticking	Please contact the after-sales service center.
	Precharge failure fault	Restart Battery. If the problem persists, please contact the after-sales service center.
	MOSFET overtemperature protection	Shutdown and Standby2h, restart Battery. If the issue persists, please contact the after-sales service center.
	Shunt Over-temperature fault	Shutdown and Standby2h, restart Battery. If the issue persists, please contact the after-sales service center.
	Microelectronics	Please contact the after-sales service center.

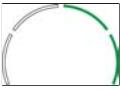
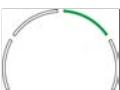
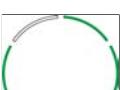
10.5.2.7 Batteryfault(GW14.3-BAT-LV-G10)

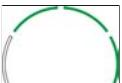
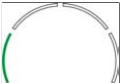
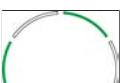
When the Battery alarm indicator displays red The outer ring running light

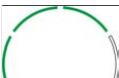


displays a red flashing. When the operation light is off, locate and troubleshoot based on the SOC display status.

No.	State of Charge (SOC)	fault name	Solution measures
1		overvoltage Undervoltage	<p>1. Check whether the Inverter, Charge, and current limits are 0 via SolarGo. If they are 0, verify that the Communication cable connection between Battery and Inverter is reliable and communication is normal.</p> <p>2. Power off and let it stand for 5 minutes. After restarting, confirm whether fault persists.</p> <p>3. If the fault is not restored, please contact the after-sales service center.</p>

2		overcurrent	<p>1. Check whether the Battery model is correct via SolarGo, and confirm whether the real-time Battery current exceeds the Charge current limit or the Discharge current limit value. If so, please contact the after-sales service center.</p> <p>2. If it is less than, shut down Battery or upgrade the program, then restart to confirm whether fault continues to occur.</p> <p>3. If the fault is not restored, please contact after-sales service.</p>
3		Over-temperature protection	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.
		Battery low temperature Protection	
		Pole Over-temperature Alarm	
4		imbalance	Power off and let it stand for 30 minutes. If the problem persists after restarting, please contact the after-sales service center.
		Low SOH fault	
5		Precharge failure fault	<p>1. Verify whether the output terminal of Battery is incorrectly connected to Inverter.</p> <p>2. Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.</p>
6		Harvesting line	Check if the Battery circuit breaker is closed. If the Battery circuit breaker is already closed and the issue persists, please contact the after-sales service center.

7		Relay or MOSFET overtemperature	Power off and let it stand for 30 minutes. If the problem persists after restarting, please contact the after-sales service center.
		Output port Over-temperature	1. Check if the Battery power line is securely fastened. 2. Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
8		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		MOSFET adhesion	Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.
10		Cluster connection	1. Confirm whether the type of Terminal resistor used and the Installation Location are correct. 2. Verify the reliability of the Communication cable connection between Battery and Battery, and ensure the Communication cable connection between Battery and Inverter is secure with normal communication. 3. If the fault is not restored, please contact the after-sales service center.
11		Inconsistent hardware and software versions	Restart the Battery. If the problem persists after restarting, please contact the after-sales service center.
12		BMU Communication fault	
13		Circuit breaker sticking	Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.

14		Software fault	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
15		Hardware Overcurrent Protection	
		Microelectronics	
16		Three-terminal abnormality in heating film	1. Upgrade the software 2. Power off and let it stand for 5 minutes. If the problem persists after restarting, please contact the after-sales service center.

10.5.3 Clear post-processing

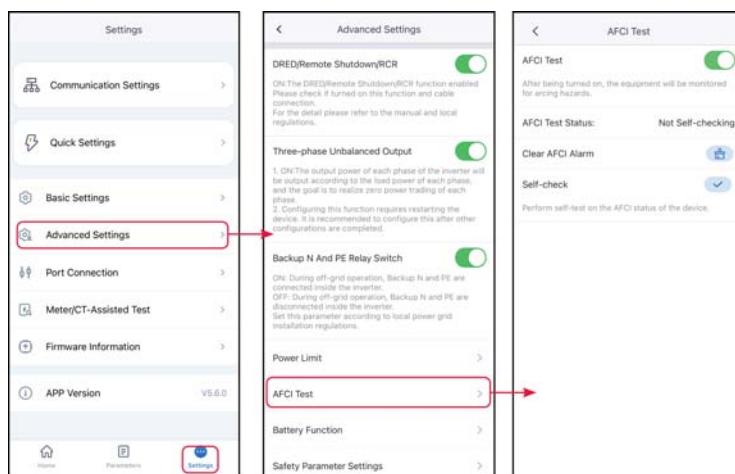
In energy storage system, after the completion of certain Troubleshooting, the system needs to be processed before it can resume normal operation.

10.5.3.1 Clear AFCIfaultWARNING

[Software Used]: SolarGo App

[Clearance method]:

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



11 technical parameter

11.1 Inverter Parameters

Technical Data	GW8000-ES-C10	GW10K-ES-C10	GW12K-ES-C10
Battery Input Data			
Battery Type ^{*1}	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)	44.2	44.2	44.2
Number of Battery Input	1	1	1
Max. Continuous Charging Current (A)	160	200	240
Max. Continuous Discharging Current (A)	160	200	240
Max. Charge Power (kW)	8.0 ^{*3}	10.0 ^{*3}	12.0 ^{*3}
Max. Discharge Power (kW)	8.8 ^{*3}	11.0 ^{*3}	13.2 ^{*3}
PV String Input Data			
Max. Input Power (kW)	16.0	20.0	24.0
Max. Input Voltage (V) ^{*4}	600	600	600
MPPT Operating Voltage Range (V) ^{*5}	60~550	60~550	60~550
MPPT Voltage Range at Nominal Power (V)	180~500	170~500	200~500

Technical Data	GW8000-ES-C10	GW10K-ES-C10	GW12K-ES-C10
Start-up Voltage (V)	58	58	58
Nominal Input Voltage (V)	360	360	360
Max. Input Current per MPPT (A)	32/16 ^{*6}	32/32 ^{*6}	32/32 ^{*6}
Max. Short Circuit Current per MPPT (A)	48/24	48/48	48/48
Max. Backfeed Current to The Array (A)	0	0	0
Number of MPPT Trackers	2	2	2
Number of Strings per MPPT	2/1	2/2	2/2
AC Output Data (On-grid)			
Nominal Output Power (kW)	8.0	10.0	12.0
Nominal Apparent Power Output to Utility Grid (VA)	8.0	10.0	12.0
Max. AC Active Power (W) ^{*7*8}	8.8	11.0	13.2
Max. Apparent Power Output to Utility Grid (VA) ^{*7*8}	8.8	11.0	13.2
Nominal Power at 40°C (W)	8.0	10.0	12.0
Max. Power at 40°C (Including AC Overload) (W) ^{*8}	8.0	10.0	12.0
Nominal Apparent Power from Utility Grid (VA)	8.0	10.0	12.0

Technical Data	GW8000-ES-C10	GW10K-ES-C10	GW12K-ES-C10
Max. Apparent Power from Utility Grid (kVA)	16.5	16.5	16.5
Nominal Power at 40°C (kW)	8.0	10.0	12.0
Max. Power at 40°C (Including AC Overload) (kW)	8.0	10.0	12.0
Nominal Output Voltage (V)	220/230/240	220/230/240	220/230/240
Output Voltage Range (V)	170~280	170~280	170~280
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65
Max. AC Current Output to Utility Grid (A)	40.0	50.0	60.0
Max. AC Current From Utility Grid (A)	75.0	75.0	75.0
Nominal AC Current From Utility Grid (A)	36.4 at 220V 34.8 at 230V 33.3 at 240V	45.5 at 220V 43.5 at 230V 41.7 at 240V	54.5 at 220V 52.2 at 230V 50.0 at 240V
Max. Output Fault Current (Peak and Duration) (A)	105A,3us	145A,3us	145A,3us
Inrush Current (Peak and Duration) (A)	105A,3us	145A,3us	145A,3us
Nominal Output Current (A)	36.4 at 220V 34.8 at 230V 33.3 at 240V	45.5 at 220V 43.5 at 230V 41.7 at 240V	54.5 at 220V 52.2 at 230V 50.0 at 240V

Technical Data	GW8000-ES-C10	GW10K-ES-C10	GW12K-ES-C10
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	105	145	145
Type of Voltage (a.c. or d.c.)	a.c.	a.c.	a.c.
AC Output Data (Back-up)			
Back-up Nominal Apparent Power (kVA)	8.0	10.0	12.0
Max. Output Apparent Power without Grid(kVA)	8.8(16000, 10s)	1.1(20000, 10s)	1.32(24000, 10s)
Max. Output Apparent Power with Grid (kVA)	16.5	16.5	16.5
Nominal Output Current (A)	36.4/34.8/33.3	45.5/43.5/41.7	54.5/52.2/50.0
Max. Output Current without Grid(A)	40	50	60
Max. Output Current with Grid(A)	75	75	75
Max. Output Fault Current (Peak and Duration) (A)	105A, 3us	145A, 3us	145A, 3us
Inrush Current (Peak and Duration) (A)	105A, 3us	145A, 3us	145A, 3us

Technical Data	GW8000-ES-C10	GW10K-ES-C10	GW12K-ES-C10
Maximum Output Overcurrent Protection (A)	105	145	145
Nominal Output Voltage (V)	220/230/240	220/230/240	220/230/240
Nominal Output Frequency (Hz)	50/60	50/60	50/60
Output THDv (@Linear Load)	<3%	<3%	<3%
Switching from Grid Connected Mode to Standalone Mode	<10ms	<10ms	<10ms
Switching from standalone mode to Grid connected mode	<10ms	<10ms	<10ms
AC Data (Generator)			
Nominal Apparent Power from AC generator (kVA)	8.0	10.0	12.0
Max. Apparent Power from AC generator (VA)	8.8	11.0	13.2
Nominal Input Voltage (V)	220/230/240	220/230/240	220/230/240
Input Voltage Range (V)	170~280	170~280	170~280
Nominal AC generator Frequency (Hz)	50/60	50/60	50/60
AC generator Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65
Max. AC Current From AC generator (A)	50.0	54.5	54.5

Technical Data	GW8000-ES-C10	GW10K-ES-C10	GW12K-ES-C10
Nominal AC Current From AC generator (A)	36.4 at 220V 34.8 at 230V 33.3 at 240V	45.5 at 220V 43.5 at 230V 41.7 at 240V	54.5 at 220V 52.2 at 230V 50.0 at 240V
Efficiency			
Max. Efficiency	97.6%	97.6%	97.6%
European Efficiency	96.2%	96.2%	96.2%
CEC Efficiency	96.2%	96.2%	96.2%
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
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
DC Surge Protection	Type III	Type III	Type III
AC Surge Protection	Type III	Type III	Type III
AFCI	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional

Technical Data	GW8000-ES-C10	GW10K-ES-C10	GW12K-ES-C10
Remote Shutdown	Integrated	Integrated	Integrated
General Data			
Operating Temperature Range (°C)	-35~+60	-35~+60	-35~+60
Operating Environment	Outdoor	Outdoor	Outdoor
Storage Temperature (°C)	-40~+85	-40~+85	-40~+85
Relative Humidity	0~95%	0~95%	0~95%
Max. Operating Altitude (m)	3000	3000	3000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LCD, WLAN+APP	LCD, WLAN+APP	LCD, WLAN+APP
Communication with BMS	CAN	CAN	CAN
Communication	RS485, WiFi+LAN+Bluetooth	RS485, WiFi+LAN+Bluetooth	RS485, WiFi+LAN+Bluetooth
Communication Protocols	Modbus-RTU、Modbus-TCP	Modbus-RTU、Modbus-TCP	Modbus-RTU、Modbus-TCP
Weight (kg)	27.0	29.0	29.0
Dimension (W×H×D mm)	560*444.5*226	560*444.5*226	560*444.5*226
Noise Emission (dB)	<45	<45	<45
Topology	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<10	<10	<10
Ingress Protection Rating	IP66	IP66	IP66
DC Connector	MC4, OT Terminal	MC4, OT Terminal	MC4, OT Terminal
AC Connector	OT Terminal	OT Terminal	OT Terminal
Environmental Category	4K4H	4K4H	4K4H

Technical Data	GW8000-ES-C10	GW10K-ES-C10	GW12K-ES-C10
Pollution Degree	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I
The Decisive Voltage Class (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	SMS(Slip-mode frequency) +AFD	SMS(Slip-mode frequency) +AFD	SMS(Slip-mode frequency) +AFD
Type of Electrical Supply System	single phase	single phase	single phase
Country of Manufacture	China	China	China
Certification			
Grid Standards	EN 50549-1&-10, NTS TYPE A, UNE 217001, UNE 217002, IEC 61727, IEC 62116, NRS 097-2-1:2017 Ed 2.1, ANRE 208, G99, G100		
Safety Regulation	IEC 62109-1, IEC 62109-2		
EMC	IEC 62920, IEC 61000, EN 300328, EN 301489, EN IEC 62311, EN 62479		

*1: The Li-Ion battery usually contain two mainstream type: LFP and Ternary Lithium battery.

*3: When the PV input voltage is higher than 490V, the battery charging and discharging power will be gradually limited, and the power limitation will be lifted after the input voltage is lowered.

*4: When the input voltage is 580V-600V, the inverter will enter standby mode, and the voltage returns to 580V to enter the normal operation state.

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

*6: The maximum input current per string is 16A. Or For the MPPT with two strings, the current of each string is 16A.

*7: For Sri Lanka, Max. Output Power (kW) is 8.0kW for GW8000-ES-C10, 10.0kW for GW10K-ES-C10, and 12.0kW for GW12K-ES-C10.

*8: For Brazil and Chile, the max. AC output power is Pn, such as the max. AC output

power of GW8000-ES-C10 is 8000W(VA).

11.2 Battery Technical Data

11.2.1 LX A5.0-10

technical parameter	LX A5.0-10	2*LX A5.0-10	n*LX A5.0-10
usable energy(kWh)*1	5	10	n×5
battery module	LX A5.0-10: 51.2V 5.0kWh		
Number of Modules	1	2	n
Cell Type	LFP (LiFePO4)		
Rated voltage (V)	51.2		
Operating Voltage range(V)	47.5~57.6		
The nominal charging and discharging current(A)*2	60	120	n×60*3
Rated charging Discharge Power (kW)*2	3	6	n×3*3
Operating Temperature Range(°C)	Charge: 0 ~ +50; Discharge: -10 ~ +50		
Relative Humidity	0~95%		
Max. Operating Altitude (m)	3000		
Communication	CAN		
Weight(kg)	40	80	n×40
Dimensions (W × H × D mm)	Single LX A5.0-10 module: 442×133×420 (excluding Handle); 483×133×452 (including Handle)		
Ingress Protection Rating	IP21		
Storage Temperature(°C)	0 to +40 (≤1 year); -20 to 0 (≤1 month); -40 to 45 (≤1 month)		
Mounting method	Cabinet Installation/Floor Stacking		
round-trip efficiency*4	95%		
Cycle count *5	≥5000		
Safety	IEC62619, IEC 63056, IEC62040-1, INmetro		

technical parameter	LX A5.0-10	2*LX A5.0-10	n*LX A5.0-10
Standards and Certification	EMC Transportation	EN IEC61000-6-1, EN IEC61000-6-2, EN IEC61000-6-3, EN IEC61000-6-4 UN38.3, ADR	
		*1: The new Battery is measured under 100% depth of discharge, within a temperature range of 25±2°C, and at a 0.2C charge Discharge condition; usable energy may vary depending on the Inverter. *2: The nominal charging and discharging current and Power are affected by temperature and SOC status. *3: Under the condition of using the combiner box Installation accessory to achieve parallel connection of Battery. *4: New Battery, within the range of 2.5~3.65V, at a temperature range of 25±2°C, under 0.2C/0.2C charge Discharge conditions. The cell achieves 94%~95% under 0.6C/0.6C charge Discharge conditions. *5: Cell, within the range of 2.87~3.59V, at a temperature range of 25±2°C, achieves 70% EOL under 0.6C/0.6C chargeDischarge conditions. n: Maximum 15.	

11.2.2 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

Technical Parameters	LX A5.0-30
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 (°C)	Charge: $0 < T \leq 55$ Discharge: $-20 < T \leq 55$
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

Technical Parameters	LX A5.0-30
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.

11.2.3 LX U5.4-L

technical parameter	LX U5.4-L	2*LX U5.4-L	3*LX U5.4-L	4*LX U5.4-L	5*LX U5.4-L	6*LX U5.4-L					
Rated capacity (kWh)*1	5.4	10.8	16.2	21.6	27	32.4					
Usable Energy(kWh)*2	4.8	9.6	14.4	19.2	24	28.8					
Cell Type	LFP (LiFePO4)										
Cell Configuration	16S1P	16S2P	16S3P	16S4P	16S4P	16S4P					
Rated voltage (V)	51.2										
Operating Voltage range(V)	48~57.6										
Max. continuous Discharging Current(A)*3	50	100									
Max discharge power(kW)*3	2.88	5.76									
short circuit	2.323kA@1.0ms										
Communication	CAN										
Weight(kg)	57	114	171	228	285	342					

Dimensions (Width × Thickness × Height mm)	505×570×175 (LX U5.4-L)				
Operating Temperature(°C)	Charge: 0 ~ +50 / Discharge: -10 ~ +50				
Storage temperature(°C)	-20~+40 (≤1 month) / 0~+35 (≤1 year)				
Humidity	0~95%				
Altitude (m)	2000				
Ingress Protection Rating	IP65				
Mounting method	Wall-mounted or floor-mounted Installation				
round-trip efficiency	93.0%				
Cycle count *4	≥4000 @0.5/0.5C				
Standar ds and Certific ation	Safety	IEC62619, IEC 62040, CEC			
	EMC	CE, RCM			
	Transpo rtation	UN38.3			
Safe service life (years)	≥25				
<p>*1: Test conditions, cell voltage 2.5~3.65V, new battery charged and discharged at +25±2 °C, 0.5C, performance may vary due to different battery models.</p> <p>*2: Test conditions, 0.5C charge/discharge at 90% DOD under +25±2 °C temperature;</p> <p>*3: The nominal charging and discharging current and Power are affected by temperature and SOC state;</p> <p>*4: Based on 0.5C@25±2°C charge/discharge of the cell, EOL reaches 80%.</p>					

11.2.4 LX U5.4-20

technical parameter	LX U5.4- 20	2*LX U5.4-20	3*LX U5.4-20	4*LX U5.4-20	5*LX U5.4-20	6*LX U5.4-20
Rated capacity (kWh)*1	5.4	10.8	16.2	21.6	27	32.4
Cell Type	LFP (LiFePO4)					

Cell Configuration	16S1P	16S2P	16S3P	16S4P	16S5P	16S6P
Rated voltage (V)				51.2		
Operating Voltage range(V)				47.5~57.6		
Max. continuous Discharging Current(A)*2	50			100		
Max discharge power(kW)*2	2.56			5.12		
short circuit			2.323kA@1.0ms			
Communication			CAN, RS485			
Weight(kg)	57	114	171	228	285	342
Dimensions (Width × Thickness × Height mm)			505×570×175 (LX U5.4-20)			
Operating Temperature(°C)		Charge: 0 ~ +50 / Discharge: -10 ~ +50				
Storage temperature(°C)		-20~+40 (≤1 month) / 0~+35 (≤1 year)				
Humidity		0~95%				
Altitude (m)		2000				
Ingress Protection Rating		IP65				
Mounting method		Wall-mounted or floor-standing Installation				
round-trip efficiency		95.0%				
Cycle count *3		≥4000 @0.5/0.5C				
Standards and Certification	Safety	IEC62619, IEC 63056, IEC 62040, CEC				
	EMC	CE, RCM				
	Transportation	UN38.3				
Safe service life (years)		≥25				

*1: Test conditions, cell voltage 2.5~3.65V, new battery at +25±2 °C, charge and discharge at 0.5C, performance may vary due to different conditions.

*2: The nominal charging and discharging current and Power are affected by temperature and SOC status.

*3: Based on 0.5C@25±2°C charge/discharge of the cell, EOL reaches 80%.

11.2.5 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 Charge current (A)	60
Maximum Continuous Charge current (A) *2*3	90
Rated Discharge current (A)	100
Maximum continuous Discharge current (A)*2*3	100
Pulse Discharge current(A)*2*3	< 200A (30S)
Maximum Continuous Charge/Discharge Power (kW)	4.95
Communication	CAN
Charge Temperature Range (°C)	0<T≤55
Temperature Range (°C)	-20<T≤55

Technical Data	LX U5.0-30
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
Fire protection function	Optional, aerosol
Unit Weight (kg)	50
Unit dimensions (W × H × D 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°C 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: Under the factory default state of Battery, the test conditions are 100% DOD, 0.2C, and charging/discharging is performed at 25°C ± 2°C.	
*2: The system's operating current and Power values are related to temperature and SOC.	
*3: The maximum charge/discharge current value may vary depending on the specifications of different battery models.	

11.2.6 GW14.3-BAT-LV-G10

Technical Data	GW14.3-BAT-LV-G10
Rated Energy (kWh)	14.3

Technical Data	GW14.3-BAT-LV-G10
Usable Energy (kWh) ^{*1}	≥13.8
Battery Type	LFP (LiFePO ₄)
Nominal Voltage (V)	51.2
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 (°C)	-20~45

Technical Data		GW14.3-BAT-LV-G10
Ambient Temperature (°C)		0~45 (Standard configuration) 10~35 (Recommend) -20~45 (Optional)
Max. Storage time		12 months (-20°C~35°C) 6 months (35°C~45°C)
Scalability		30 pcs
Mounting Method		Floor-Mounted, Wall-Mounted
Cycle Life		≥6500 (25±2°C, 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 GMK110

technical parameter		GMK110
	Application	Single-phase
Input parameters	voltage	Rated voltage (V) 220
		voltage Range (V) 85~288
		Rated voltage Frequency (Hz) 50/60
	current	CT ratio 120A/40mA Number of CTs 1
Communication		RS485
Communication distance (m)		1000
User Interface		2LED
Accuracy	voltage/current	Class I
	active energy	Class I
	Reactive energy	Class II
Power Consumption (W)		< 5
Mechanical Parameters	Dimensions (W x H x D mm)	19*85*67
	Weight(g)	50
	Mounting method	Guide rail
Environmental parameters	IP rating	IP20
	Operating Temperature Range(°C)	-30 ~ 60
	Storage Temperature range (°C)	-30 ~ 60
	Relative Humidity (No Condensation)	0~95%
	Max. Operating Altitude(m)	3000

11.3.2 GM330

technical parameter		GM330
Measurement range	Support Grid type	Three-phase, split-phase, single-phase
	voltage range L-L (Vac)	172~817
	Range L-N (Vac)	100~472
	Rated frequency (Hz)	50/60
	CT ratio	nA:5A
Communication parameters	Communication method	RS485

technical parameter		GM330
	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)	72x85x72/2.83x3.35x2.83
	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 (°C/°F)	-30~+70/-22~+158
	Storage Temperature Range (°C/°F)	-30~70/-22~+158
	Relative Humidity (No Condensation)	0~95%
	Max. Operating Altitude (m/ft)	3000/9842
Certification parameters	Certificate	UL1741/ANSI

11.4 Smart Dongle Technical Data

11.4.1 WiFi/LAN Kit-20

technical parameter		WiFi/LAN Kit-20
Output voltage (V)		5
Power Consumption (W)		≤2
Communication interface		USB
Communication parameters	Ethernet	10M/100Mbps auto-negotiation
	wireless	IEEE 802.11 b/g/n @2.4 GHz

technical parameter		WiFi/LAN Kit-20
	Bluetooth	Bluetooth V4.2 BR/EDR and Bluetooth LE standards
Mechanical Parameters	Dimensions (W × H × D mm)	48.3*159.5*32.1
	Weight (g)	82
	Ingress Protection Rating	IP65
	Mounting method	plug and pull
Operating Temperature Range (°C)		-30~+60
Storage Temperature range (°C)		-40~+70
Relative Humidity		0-95%
Max. Operating Altitude (m)		4000

11.4.2 4G Kit-CN-G20、4G Kit-CN-G21

technical parameter		WiFi/LAN Kit-20
Output voltage (V)		5
Power Consumption (W)		≤2
Communication interface		USB
Communication parameters	Ethernet	10M/100Mbps auto-negotiation
	wireless	IEEE 802.11 b/g/n @2.4 GHz
	Bluetooth	Bluetooth V4.2 BR/EDR and Bluetooth LE standards
Mechanical Parameters	Dimensions (W × H × D mm)	48.3*159.5*32.1
	Weight (g)	82
	Ingress Protection Rating	IP65
	Mounting method	plug and unplug
Operating Temperature Range (°C)		-30~+60
Storage Temperature range (°C)		-40~+70
Relative Humidity		0-95%
Max. Operating Altitude (m)		4000

11.4.3 Ezlink3000

technical parameter		Ezlink3000
General Parameters		
Connection interface		USB
Ethernet interface (optional)		10/100Mbps auto-adaptive, communication distance ≤100m
Mounting method indicator		Plug and Play LED indicator
Dimensions (Width * Height * Thickness mm)		49*153*32
gram (g)		130
Ingress Protection Rating		IP65
Power Consumption (W)		≤2W (typical)
Operating mode		STA
wireless parameters		
Bluetooth communication		Bluetooth 5.1
WiFi communication		802.11 b/g/n (2.412GHz-2.484GHz)
Environmental parameters		
Operating Temperature Range (°C)		-30 ~ +60
Storage Temperature range (°C)		-30 ~ +70
Relative Humidity		0-100% (No condensation)
Maximum operating altitude (m)		4000

12 Appendix

12.1 FAQ

12.1.1 How to perform meter/CT auxiliary testing?

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

- Option 1:

1. Through **[Home] > [Settings] > [Electric meter/CT auxiliary detection]** Enter the detection page.
2. Click to start detection, wait for the detection to complete, and then view the detection results.

- Option 2:

1. Click  > **[System Setup] > [Quick Setting] > [Meter/CT Assisted Test]** Enter the detection page.
2. Click Start Test, wait for the test to complete, and then view the test results.

12.1.2 How to Upgrade the Device Version

Through the firmware information, you can view or upgrade the DSP version, ARM version, BMS version, and communication module software version of the Inverter. Some smart dongle do not support software version upgrades via the SolarGo App; please refer to the actual situation.

- **Prompt Upgrade:**

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

- **Routine upgrade**

pass 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 cannot be used. The upgrade can be completed by following the on-screen 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 current
EC,R	Rated Energy	Rated energy
UDCmax	Max.Input Voltage	Max.Input Voltage
UMPP	MPPT Operating Voltage Range	MPPT voltage range
IDC,max	Max. Input Current per MPPT	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
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

Abbreviation	English description	Chinese description
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
S _r	Back-up Nominal apparent power	Off-grid rated apparent Power
S _{max}	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 Frequency	Nominal output voltage Frequency
T _{operating}	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	AC input range
UAC,r	Power Supply/Input Voltage Range	Input voltage range/AC input
T _{operating}	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
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

Abbreviation	English description	Chinese description
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	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
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
ARC	zero injection/zero export Power Limit / Export Power Limit	power limit
DRED	Demand Response Enabling Device	Command Response Device

Abbreviation	English description	Chinese description
RCR	Ripple Control Receiver	-
AFCI	AFCI	AFCI (Arc Fault Circuit Interrupter)
GFCI	Ground Fault Circuit Interrupter	Grounding Disconnector
RCMU	Residual Current Monitoring 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	Safety status
DOD	Depth of discharge	depth of discharge

12.3 Explanation of Terms

- **Over voltage category definition**
 - **Overvoltage Category I** Equipment connected to circuits with measures to limit transient overvoltages to a relatively low level.
 - **Overvoltage Category II** Energy-consuming equipment powered by a fixed electrical installation. Such equipment includes appliances, portable tools, and other household and similar loads. If there are special requirements for the reliability and suitability of such equipment, then voltage Category III is adopted.
 - **Category III overvoltage** The equipment in fixed electrical installations must meet special requirements for reliability and suitability. This includes switchgear in fixed electrical installations and industrial equipment permanently connected

to fixed electrical installations.

- **Overvoltage category IV** The upper equipment used in the power supply of distribution devices includes measuring instruments and prefixed overcurrent protection devices, among others.
- **Definition of Wet Location Categories**

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

- **Explanation of Environmental Categories:**

- **Outdoor Inverter** The ambient air temperature range is -25 to +60°C, suitable for Pollution Degree3 environments.
- **Indoor Type II Inverter** The ambient air temperature range is -25 to +40°C, suitable for Pollution Degree3 environments;
- **Indoor Type I Inverter** The ambient air temperature range is 0 to +40°C, suitable for Pollution Degree2 environments;

- **Pollution Degree category definition**

- **Pollution Degree1** No pollution or only dry non-conductive pollution;
- **Pollution Degree2** Generally, there is only non-conductive pollution, but occasional temporary conductive pollution due to condensation must be considered.
- **Pollution Degree3** Conductive contamination exists, or non-conductive contamination becomes conductive due to condensation;
- **Pollution Degree4** Persistent conductive contamination, such as that caused by conductive dust or rain/snow.

12.4 Battery SN code meaning

*****2388*****


The 11th-14th digits

LXD10DSC0002

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

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

The details are as follows:

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

- The 14th digit represents the production date, e.g., the 8th is denoted as 8; Use numbers for priority representation, such as 1~9 for the 1st~9th day, and A for the 10th day, and so on. The letters I and O are not used to avoid confusion. Details are as follows:

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

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

Production Day	21st	22nd	23rd	24th	25th	26th	27th	28th	29th	30th	31st

code	M	N	P	Q	R	S	T	U	V	W	X
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13 Contact Information

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