Residential Smart Inverter

ES Uniq 3.0-6.0kW

· LX A5.0-10
· LX A5.0-30
· LX U5.0-30
· GW14.3-BAT-LV-G10
· GW16.1-BAT-LV-G10

Solutions Manual

GOODWE

Copyright Statement

NOTICE

The information in this user manual is subject to change due to product updates or other reasons. This manual cannot replace the product safety labels unless otherwise specified. All descriptions in the manual are for guidance only.

About This Manual

Overview

This document primarily introduces the product information, Installation wiring, configuration of Commissioning, fault troubleshooting, and maintenance content in the energy storage system composed of Inverter, Battery system, and Smart Meter. Before Installation or using the product, please read this manual carefully to understand the product safety information and familiarize yourself with the product's functions and features. The document may be updated periodically; please obtain the latest version and more product information from the official website.

Applicable Model

Energy Storage System includes the following products:

Product Type	Product Information	Description
Inverter	GW3000-ES-C10	Nominal output power: 3.0kW
	GW3600-ES-C10	Nominal output power: 3.6kW
	GW5000-ES-C10	Nominal output power: 5.0kW
	GW6000-ES-C10	Nominal output power: 6.0kW
Battery system	LX A5.0-10	Rated capacity 5.0kWh, maximum support for 15 parallel clusters
	LX A5.0-30	Rated capacity 5.12kWh, maximum support for 30 parallel clusters
	LX U5.0-30	Rated capacity 5.12kWh, maximum support for 30 parallel clusters
	GW14.3-BAT-LV-G10	Rated capacity 14.3kWh, maximum support for 30 parallel clusters
	GW16.1-BAT-LV-G10	Rated capacity 16.1kWh, maximum support for 30 parallel clusters
Smart Meter	GMK110	

Product Type	Product Information	Description
	GM330	Monitoring module in the energy storage system, capable of detecting operating voltage, current, and other information in the system
Smart dongle	WiFi/LAN Kit-20	In standalone scenarios, system operating information can be uploaded to the monitoring platform via WiFi or LAN signals
	4G Kit-CN-G20 4G Kit-CN-G21	In standalone scenarios, system operating information can be uploaded to the monitoring platform via 4G signals
	Ezlink3000	In parallel scenarios, connected to the main inverter, system operating information is uploaded to the monitoring platform via WiFi or LAN signals

Symbol Definition

⚠DANGER
Indicates a highly potential DANGER, which, if not avoided, will result in death or serious injury.
⚠WARNING
Indicates a moderate potential for DANGER, which, if not avoided, could result in death or serious injury.
⚠CAUTION
Indicates a low potential for DANGER, which, if not avoided, could result in moderate or minor injury to personnel.
NOTICE

Emphasis and supplementation of content may also provide tips or tricks for optimizing product use, helping you solve a problem or save time.

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1 Safety Precautions

The Safety Precautions information contained in this document must always be followed when operating the equipment.

⚠WARNING

The equipment has been strictly designed in accordance with safety regulations and has passed all required tests. However, as electrical apparatus, all operations must comply with relevant safety instructions prior to any intervention. Improper operation may result in severe personal injury or property damage.

1.1 General Safety

NOTICE

- Due to product version upgrades or other reasons, the content of the document may 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.
- Please read this document carefully before Installation the equipment to understand the product and NOTICE precautions.
- All operations of the equipment must be performed by professional and qualified electrical technicians who are thoroughly familiar with the relevant standards and safety regulations of the project location.
- When operating equipment, use insulated tools and wear personal protective equipment to ensure personal safety. When handling electronic components, wear anti-static gloves, wrist straps, and clothing to prevent Protection from electrostatic damage.
- Unauthorized disassembly or modification may cause equipment damage, which is not covered under warranty.
- Damage to equipment or personal injury caused by failure to install, use, or configure the device in accordance with this document or the applicable user manual is not covered by the warranty. For more product warranty information, please visit the official website:https://www.goodwe.com/warrantyrelated.html.

1.2 personnel requirements

NOTICE

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

1. Qualified personnel or professionals include:
   - Personnel who have mastered the equipment's working principles, system structure, knowledge of risks and hazards, and have received professional operational training or possess extensive practical experience.
   - Personnel who have received relevant technical and safety training, possess certain operational experience, are aware of the potential DANGER that specific tasks may pose to themselves, and can take protective measures to minimize risks to themselves and others.
   - Qualified electrical technician compliant with the regulations of the respective country/region.
   - Hold a degree in Electrical Engineering/Advanced Diploma in Electrical Discipline or equivalent/Professional qualification in the electrical field, with at least 2/3/4 years of experience in testing and regulatory work using electrical equipment safety standards.
2. Personnel involved in special tasks such as electrical work, work at heights, and operation of special equipment must hold valid qualification certificates as required by the equipment location.
3. Operation of medium-voltage equipment must be performed by certified high-voltage electricians.
4. Equipment and component replacement shall only be performed by authorized personnel.

1.3 System Safety

⚠DANGER

- Before performing electrical connections, disconnect all upstream switch of the equipment and ensure the device is POWER OFF. Live operation is strictly prohibited to avoid potential hazards such as electric shock or other DANGER.
- To prevent personal DANGER or equipment damage caused by live operations, a breaker must be added to the input side of the equipment voltage.
- During transportation, storage, installation, operation, use, maintenance, and all other operations, applicable laws, regulations, standards, and specification requirements must be complied with.
- The specifications of cables and components used for electrical connections shall comply with local laws, regulations, standards, and code requirements.
- Please use the cable connectors provided in the package to connect the equipment cables. If other model connectors are used, any resulting equipment damage will not be covered by the manufacturer's warranty.
- Ensure all cables of the equipment are correctly connected, securely fastened, and free from looseness. Improper wiring may cause poor contact or damage the equipment.
- The PE cable of the equipment must be securely connected.
- To ensure that Protection equipment and its components are not damaged during transportation, please ensure that the transport personnel are professionally trained. Record the operational steps during transportation and maintain the balance of the equipment to prevent it from falling.
- The equipment is heavy. Please assign personnel according to the equipment's Weight to prevent it from exceeding the human Weight lifting capacity and causing injury.
- Ensure the equipment is placed securely and not tilted, as tipping may cause equipment damage and personal injury.

⚠WARNING

- During the Installation process of the equipment, avoid subjecting the wiring terminal to load-bearing, as this may result in terminal damage.
- 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 equipment terminal port.
- Cables of the same type should be bundled together, while different types of cables must be spaced at least 30mm apart during installation. Intertwining or cross-laying of cables is strictly prohibited.
- The use of cables in high-temperature environments may cause insulation aging and damage. The distance between the cables and heat-generating components or the periphery of heat source areas should be at least 30mm.

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 the voltage is within the allowable range.
- Use a multimeter to measure the DC cable, ensuring correct polarity and no reverse connection. The voltage should be lower than the maximum DC input voltage. Damage caused by reverse connection or over-voltage is not covered by the manufacturer's warranty.
- The PV string output does not support grounding. Before connecting the PV string to Inverter, ensure that the the minimum insulation resistance of the PV string meets the minimum insulation resistance requirement (R=Max.Input Voltage (V)/30mA).
- Do not connect the same PV string to multiple Inverter, as this may cause damage to the Inverter.
- The PV modules used in conjunction with Inverter must comply with IEC 61730 Class A standards.
- 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 specifications of the Protection device should be greater than 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

- Keep Power Off before any operations to avoid danger of electric shock. Strictly follow all safety precautions outlined in this manual and safety labels on the equipment during the operation.
- Do not disassemble, modify, or replace any part of the battery or the power control unit without official authorization from the manufacturer. Otherwise, it will cause electrical shock or damages to the equipment, which shall not be borne by the manufacturer.
- Do not hit, pull, drag, squeeze or step on the equipment or put the battery into fire. Otherwise, the battery may explode.
- Do not place the battery in a high temperature environment. Make sure that there is no direct sunlight and no heat source near the battery. When the ambient temperature exceeds 60 ℃, it will cause fire.
- Do not use the battery or the power control unit if it is defective, broken, or damaged. Damaged battery may leak electrolyte.
- Do not move the battery system while it is working. Contact after-sales service if the battery shall be replaced or added.
- A short circuit in the battery may cause personal injury. The instantaneous high current caused by a short circuit can release a large amount of energy and may cause a fire.
- The DC breaker for battery shall meet the requirements according to AS/NZS 5139.

⚠WARNING

- Factors such as temperature, humidity, weather conditions, etc. may limit the battery's current and affect its load.
- Contact after-sale service immediately if the battery is not able to be started. Otherwise, the battery might be damaged permanently.
- Inspect and maintain the battery regularly according to the maintenance requirements of the battery.

Emergency Measures

- Battery Electrolyte Leakage
  If the battery module leaks electrolyte, avoid contact with the leaking liquid or gas. The electrolyte is corrosive. It will cause skin irritation or chemical burn to the operator. Anyone contact the leaked substance accidentally has to act/respond as following:
  - Breath in the leaked substance: Evacuate from the polluted area, and seek immediate medical assistance.
  - Eye contact: Rinse your eyes for at least 15 minutes with clean water and seek immediate medical assistance.
  - Skin contact: Thoroughly wash the touch area with soap and clean water, and seek immediate medical assistance.
  - Ingestion: Induce vomiting, and seek immediate medical assistance.
- Fire
  - The battery may burn when the ambient temperature exceeds 150℃. Poisonous and hazardous gas may be released if the battery is on fire.
  - In the event of a fire, please make sure that the carbon dioxide extinguisher or Novec1230 or FM-200 is nearby.
  - The fire cannot be put out by ABC dry powder extinguisher. Firefighters are required to wear full protective clothing and self-contained breathing apparatus.
- Battery triggers fire protection
  For batteries with fire protection functions, perform the following operations after the fire protection function is triggered:
  - Immediately cut off the main power switch to ensure that no current passes through the battery system.
  - Conduct a preliminary inspection of the appearance of the battery to determine if there is any damage, deformation, leakage, or odor. Check the battery casing, connectors, and cables.
  - Use temperature sensors to detect the temperature of the battery and its environment, ensuring there is no risk of overheating.
  - Isolate and label damaged batteries, and handle them 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.

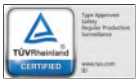
1.4 Safety Symbols and Certification Marks

⚠DANGER

- After Installation of the equipment, the labels and warning signs on the enclosure must remain clearly visible. Obscuring, 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 necessary protective measures when operating the device.
2		High voltage DANGER. High voltage is present during equipment operation. Ensure the equipment is POWER OFF before performing any operations.
3		Inverter surface 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 vapor.
7		delayed discharge. After the equipment is power off, please wait for 5 minutes until the device is completely 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 the equipment in accordance with local laws and regulations or return it to the manufacturer.
14		grounding point.
15		Recycling symbol.

No.	Symbol	Meaning
16		CE Marking.
17		TUV Mark.
18		RCM mark.

1.5 EU Declaration of Conformity

1.5.1 Equipment with Wireless Communication Modules

The Equipment with Wireless Communication Modules that can be sold in the European market meets the following directive requirements:

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

1.5.2 No Equipment with Wireless Communication Modules (except Battery)

Can be sold in the European market without Equipment with Wireless Communication Modules meeting the following directive requirements:

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

1907/2006 (REACH)

1.5.3 Battery

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

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)*1
- Regulation (EU) 2023/1542 Article 12 - Safety of stationary battery energy storage systems
- Regulation (EU) 2023/1542 Article 10 - Performance and durability requirements for rechargeable industrial batteries, LMT batteries and electric vehicle batteries
- Regulation (EU) 2023/1542 Article 14 - Information on the state of health and expected lifetime of batteries
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)
  *1: Our company's battery products meet the hazardous substance limit requirements stipulated by this regulation.

For more EU Declarations of Conformity, please visit the official website.

2 System Introduction

2.1 System Overview

The Residential Smart Inverter Solution integrates devices such as inverters, Battery, Smart Meter, and smart communication sticks. It converts solar energy into electrical power within the photovoltaic system to meet household electricity demands. The energy IoT devices in the system manage electrical appliances by identifying the overall power situation in the system, thereby achieving intelligent management of electricity for supplying loads, storing to the Battery, or exporting to the grid.

⚠WARNING

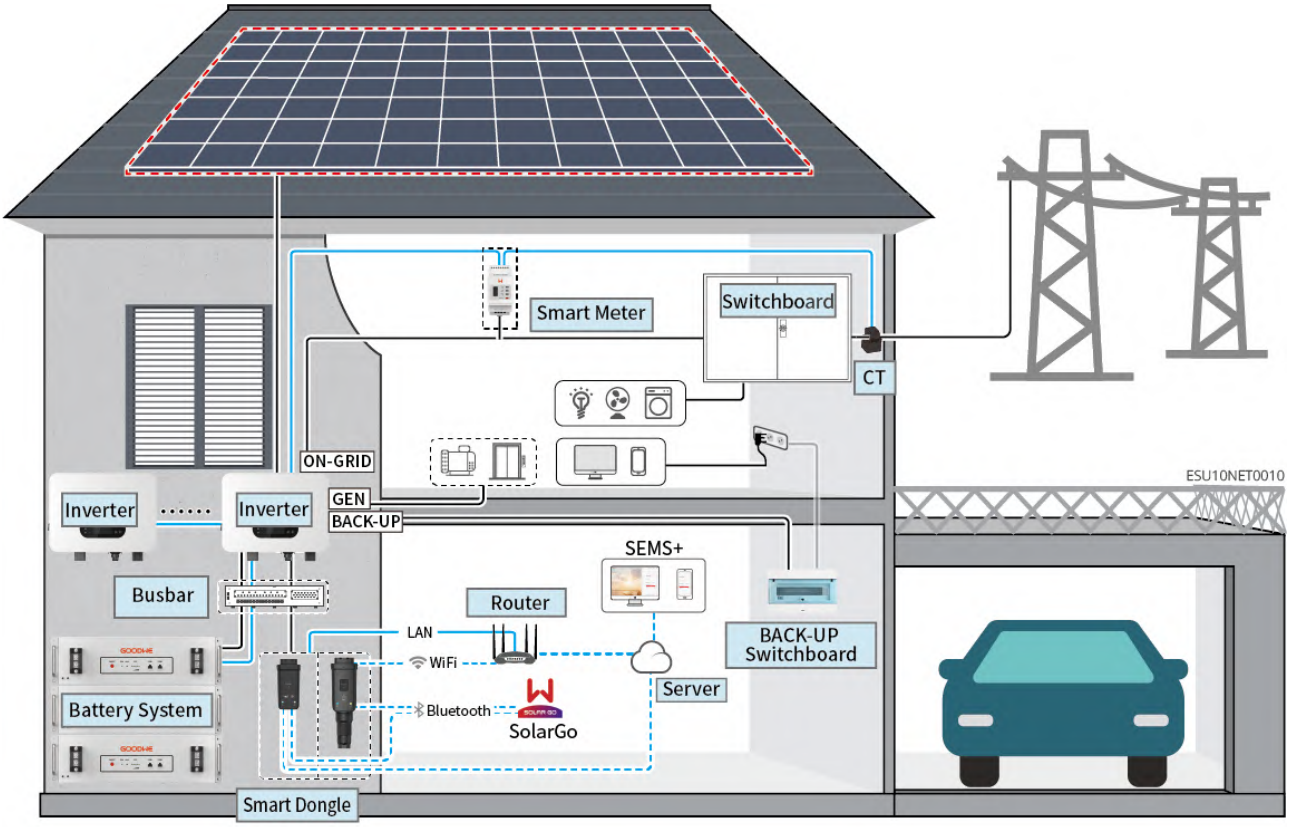
- Battery model selection should be based on the inverter and battery compatibility list. Requirements for batteries used in the same system, such as whether models can be mixed and whether capacities should be consistent, please refer to the user manual of the corresponding battery model or contact the battery manufacturer for relevant requirements. Inverter and battery compatibility list: https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_Battery%20Compatibility%20Overview-EN.pdf
- Due to product version upgrades or other reasons, document content is updated periodically. The compatibility between inverters and IoT products can be referenced: 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 for various scenarios, please refer to: 5.2.Detailed System Wiring Diagram(Page 96)
- The energy storage system is not suitable for connecting devices that rely on stable power supply, such as life-supporting medical equipment, etc. Please ensure that a system power failure will not cause personal injury.
- In a system where the inverter operates completely off-grid, if the battery is in low sunlight or rainy weather for an extended period and cannot be recharged in time, it may lead to over-discharge, causing battery performance degradation or damage. To ensure long-term stable system operation, avoid completely draining the battery. Recommended measures are as follows:
  1. When operating off-grid, set the minimum SOC protection threshold. It is recommended to set the off-grid battery SOC lower limit to 30%.
  2. When the SOC approaches the protection threshold, the system will automatically enter load limiting or protection mode.
  3. If there is insufficient sunlight for several consecutive days and the battery SOC is too low, promptly replenish the battery using external energy sources (such as a generator or grid-assisted charging).
  4. Regularly check the battery status to ensure it is within the safe operating range.
  5. It is recommended to fully charge and discharge the battery once every six months to calibrate SOC accuracy.

Off-grid Load Capacity Specifications		
Inverter Model	GW3000-ES-C10 GW3600-ES-C10	GW5000-ES-C10 GW6000-ES-C10
Single Motor Load Rated Power (kVA)	0.55	1.1
Total Motor Load Rated Power (kVA)	0.75*Pn	0.75*Pn
Capacitive Load (kVA)	0.33*Pn	0.33*Pn
Half-wave Load (kW)	0.5*Pn	0.5*Pn

Note:

- Pn: Inverter rated output power.
- If the rated power of a single motor load is greater than or equal to the nominal value in the table above, a VFD/VSD must be configured.
- For 2 or more units in parallel, the allowed total motor load rated power = Single motor load rated power * Number of parallel units * 80%.
- Half-wave load: Refers to some older or non-EMC compliant household appliances (e.g., hair dryers, small heaters using half-wave rectification).

General Scenario



Device Type	model	Description
Inverter	GW3000-ES-C10 GW3600-ES-C10 GW5000-ES-C10 GW6000-ES-C10	• When only one inverter is used in the system, it supports connecting a generator or large load. • When multiple inverters are used in the system, it does not support connecting a generator or large load; up to 6 inverters can form a parallel system, and parallel connection requires Ezlink3000. • When setting up a parallel network, meet the following version requirements: ◦ All inverters in the parallel system must have the same software version. ◦ All inverters in the parallel system must have the same model. ◦ The inverter ARM software version must be 15.493 or above. ◦ The inverter DSP software version must be 02.10 or above.

Device Type	model	Description
Battery system	LX A5.0-10 LX A5.0-30	• Battery systems of different models cannot be mixed and used together. Parallel cluster expansion is temporarily not supported between different models. For the same model, parallel cluster expansion is allowed within one year of purchase and use by the customer, and is not allowed after one year. • LX A5.0-10: Supports up to 15 units in parallel cluster in the same system. • LX A5.0-30: Supports up to 30 units in parallel cluster in the same system.
	LX U5.0-30	• Supports up to 30 units in parallel cluster in the same system. • Parallel cluster expansion is temporarily not supported between different models. For the same model, parallel cluster expansion is allowed within one year of purchase and use by the customer, and is not allowed after one year.

Device Type	model	Description
	GW14.3-BAT-LV-G10	• Parallel cluster expansion is temporarily not supported between different models. For the same model, parallel cluster expansion is allowed within one year of purchase and use by the customer, and is not allowed after one year. • Supports up to 30 units in parallel cluster in the same system: ◦ Products with SN code 25C and later default to supporting 30 units in parallel cluster. ◦ For products before 25C, if 30 units parallel cluster is required, please contact GoodWe after-sales service center to upgrade the firmware version. ◦ To view the product SN code, refer to 11.4.SN Code Meaning(Page 384).
	GW16.1-BAT-LV-G10	• Supports up to 30 units in parallel cluster in the same system. • Parallel cluster expansion is temporarily not supported between different models. For the same model, parallel cluster expansion is allowed within one year of purchase and use by the customer, and is not allowed after one year.
	Lead-acid battery	• Supports connecting AGM, GEL, and Flooded types of lead-acid batteries. • Calculate the number of batteries that can be connected in series based on the lead-acid battery voltage. The total voltage of series-connected batteries must not exceed 60V.

Device Type	model	Description
Combiner box	BCB-11-WW-0 BCB-22-WW-0 BCB-32-WW-0 BCB-33-WW-0 (Purchased from GoodWe)	Please select the combiner box based on the inverter's charge/discharge capability, load size, and battery charge/discharge capability in the system. • BCB-11-WW-0: ◦ When used with LX A5.0-10, the battery system supports up to 360A working current, 18kW working power, maximum connection of 3 inverters, and 6 batteries. • BCB-22-WW-0: ◦ When used with LX A5.0-10, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 12 batteries. ◦ When used with LX A5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 6 batteries. ◦ When used with LX U5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 6 batteries. • BCB-32-WW-0: ◦ When used with LX A5.0-10, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 15 batteries. ◦ When used with LX A5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 15 batteries. ◦ When used with LX U5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 8 batteries. ◦ When used with GW14.3-BAT-LV-G10, the battery

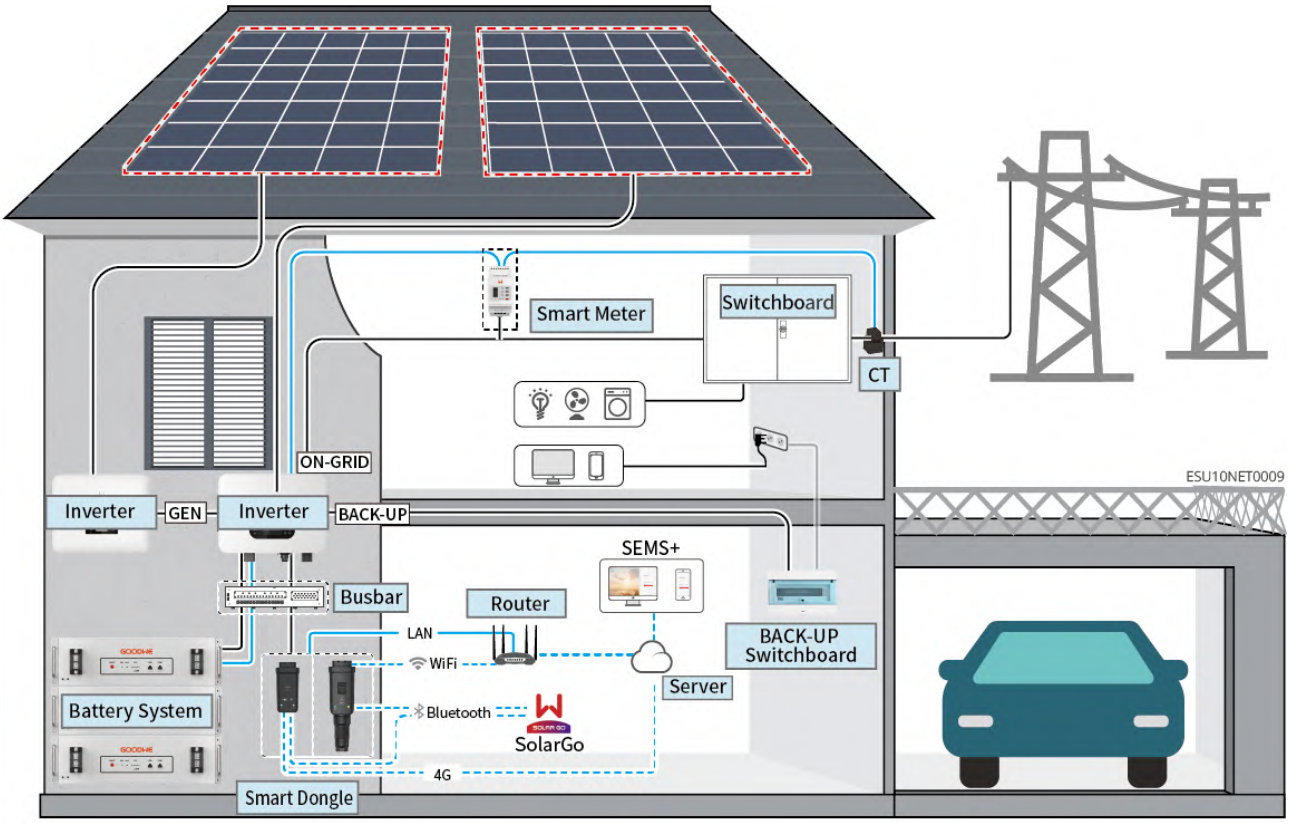
Device Type	model	Description
		system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 15 batteries. ◦ When used with GW16.1-BAT-LV-G10, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 15 batteries. • BCB-33-WW-0: ◦ When used with LX U5.0-30, the battery system supports up to 720A working current, 36kW working power, maximum connection of 6 inverters, and 15 batteries. When the number of batteries exceeds 8, two fuses with a specification of 600A need to be connected in parallel. • Others: Please configure based on system power and current.
Smart Meter	• Built-in meter (standard-equipped) • GMK110 (Purchased from GoodWe) • GM330 (Purchased from GoodWe)	• Built-in meter: Please use the CT shipped with the box to connect to the inverter. The CT ratio is 120A:40mA. • GMK110: When the built-in CT cable length of the inverter is insufficient to connect to the distribution board, it can be extended by externally connecting the GMK110 meter. CT cannot be replaced; CT ratio: 120A/40mA. • GM330: CT can be purchased from GoodWe or independently. CT ratio requirement: nA/5A ◦ nA: CT primary side input current, n ranges from 200 to 5000. ◦ 5A: CT secondary side output current.

Device Type	model	Description
Communication module	• WiFi/LAN Kit-20 (standard-equipped) • 4G Kit-CN-G20 (China only) • 4G Kit-CN-G21 (China only) • Ezlink3000 (Purchased from GoodWe)	• For single unit, please use WiFi/LAN Kit-20, 4G Kit-CN-G20, 4G Kit-CN-G21 modules. • For parallel connection, only the master inverter needs to be connected to Ezlink3000, and slave inverters do not need communication modules. Ezlink3000 firmware version must be 05 or above.
Large load	-	Supports SG Ready. Large load specifications require: 1. Total power of large load < GEN port maximum output power. 2. Large load power + BACK-UP power < AC maximum input power (Utility grid).
Generator	-	Generator rated voltage must meet the inverter GEN port rated voltage.

Microgrid Scenario

WARNING

- In microgrid scenarios, it is not recommended for the PV open-circuit voltage of the PV-storage hybrid inverter to be ≥500V, to avoid triggering overvoltage protection due to excessively high system voltage under harsh operating conditions.
- In microgrid systems, the inverter does not support parallel operation; only one inverter is supported in the system.
- If the system is in a high-temperature or BMS current-limiting condition, it may lead to restricted battery charging power, thereby causing the system voltage to be too high and triggering overvoltage protection.
- In microgrid scenarios, ensure that the over-frequency load shedding point of the grid-connected inverter is consistent with that of the PV-storage hybrid inverter.
- Ensure that the over-frequency load shedding curve of the grid-connected inverter is set as follows:
  - Set the end power to 0% Pn
  - Set the silence time to 0
  - Set the power response mode to off



Device Type	model	Description
Hybrid Inverter	GW3000-ES-C10 GW3600-ES-C10 GW5000-ES-C10 GW6000-ES-C10	• In a microgrid system, the inverter does not support parallel operation; only one inverter is supported in the system. • Inverter version requirements: ◦ Inverter ARM software version must be 15.493 or above. ◦ Inverter DSP software version must be 02.10 or above.
Battery system	LX A5.0-10	• Battery systems of different models cannot be mixed. Parallel cluster expansion is not supported between different models. For the same model, parallel cluster expansion is allowed within one year of purchase and use by the customer; it is not allowed after one year. • LX A5.0-10: Supports a maximum of 15 units in parallel clusters in the same system. • LX A5.0-30: Supports a maximum of 30 units in parallel clusters in the same system.
	LX A5.0-30	
	LX U5.0-30	• Supports a maximum of 30 units in parallel clusters in the same system. • Parallel cluster expansion is not supported between different models. For the same model, parallel cluster expansion is allowed within one year of purchase and use by the customer; it is not allowed after one year.

Device Type	model	Description
	GW14.3-BAT-LV-G10	• Parallel cluster expansion is not supported between different models. For the same model, parallel cluster expansion is allowed within one year of purchase and use by the customer; it is not allowed after one year. • Supports a maximum of 30 units in parallel clusters in the same system: ◦ Products with SN code 25C and later default to supporting 30 units in parallel clusters. ◦ For products before 25C that need to support 30 units in parallel clusters, please contact GoodWe after-sales service center to upgrade the firmware version. ◦ To view the product SN code, refer to 11.4.SN Code Meaning(Page 384).
	GW16.1-BAT-LV-G10	• Supports a maximum of 30 units in parallel clusters in the same system. • Parallel cluster expansion is not supported between different models. For the same model, parallel cluster expansion is allowed within one year of purchase and use by the customer; it is not allowed after one year.
	Lead-acid battery	• Supports connecting AGM, GEL, and Flooded types of lead-acid batteries. • Calculate the number of batteries that can be connected in series based on the lead-acid battery voltage. The total voltage of series-connected batteries must not exceed 60V.

Device Type	model	Description
Junction Box	BCB-11-WW-0 BCB-22-WW-0 BCB.32-WW-0 BCB-33-WW-0 (Purchased from GoodWe)	Please select the junction box based on the inverter's charge/discharge capability, load size, and battery charge/discharge capability in the system. • BCB-11-WW-0: ◦ When used with LX A5.0-10, the battery system supports a maximum working current of 360A, working power of 18kW, maximum connection of 3 inverters, and 6 batteries. • BCB-22-WW-0: ◦ When used with LX A5.0-10, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 12 batteries. ◦ When used with LX A5.0-30, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 6 batteries. ◦ When used with LX U5.0-30, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 6 batteries. • BCB-32-WW-0: ◦ When used with LX A5.0-10, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 15 batteries. ◦ When used with LX A5.0-30, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 15 batteries. ◦ When used with LX U5.0-30, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 6 batteries. ◦ When used with GW14.3-BAT-LV-G10, the battery

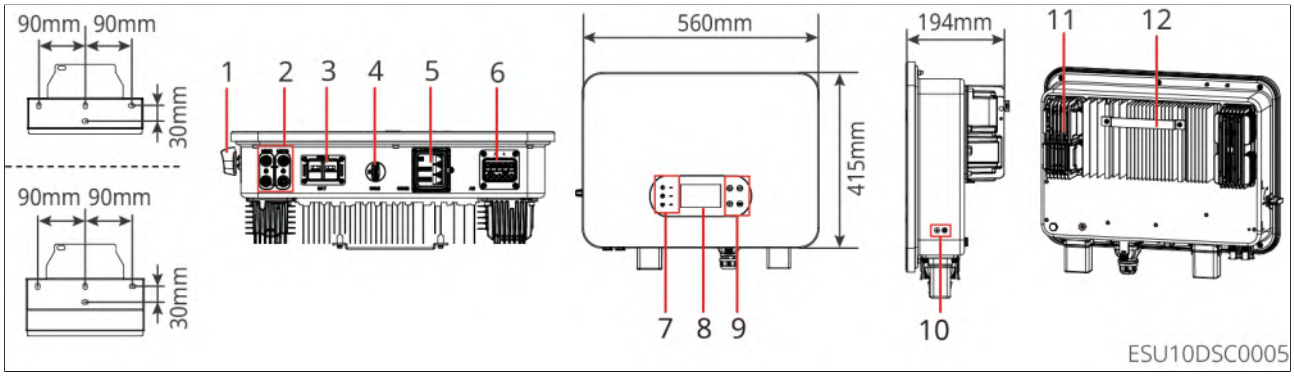
Device Type	model	Description
		system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 15 batteries. ◦ When used with GW16.1-BAT-LV-G10, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 15 batteries. • BCB-33-WW-0: ◦ When used with LX U5.0-30, the battery system supports a maximum working current of 720A, working power of 36kW, maximum connection of 6 inverters, and 15 batteries. When the number of batteries exceeds 8, two fuses with a specification of 600A need to be connected in parallel. • Others: Please configure based on system power and current.
Smart Meter	• Built-in meter (standard-equipped) • GMK110 (purchased from GoodWe) • GM330 (purchased from GoodWe)	• Built-in meter: Please use the CT shipped with the box to connect to the inverter. The CT ratio is 120A:40mA. • GMK110: When the length of the built-in CT cable of the inverter is insufficient to connect to the distribution board, it can be extended by externally connecting the GMK110 meter. CT cannot be replaced; CT ratio: 120A/40mA. • GM330: CT can be purchased from GoodWe or independently. CT ratio requirement: nA/5A. ◦ nA: CT primary side input current, where n ranges from 200 to 5000. ◦ 5A: CT secondary side output current.

Device Type	model	Description
Communication Stick	• WiFi/LAN Kit-20 (standard-equipped) • 4G Kit-CN-G20 (China only) • 4G Kit-CN-G21 (China only)	For standalone use, please use the WiFi/LAN Kit-20, 4G Kit-CN-G20, or 4G Kit-CN-G21 module.
grid-tied PV inverter	-	• It is recommended to use GoodWe brand grid-tied PV inverters; third-party grid-tied PV inverters are supported. • In a microgrid system, ensure that the rated output power of the grid-tied PV inverter is ≤ the rated output power of the hybrid inverter. • When the microgrid system is in grid-connected state, if power limitation is required, ensure that: ◦ The hybrid inverter should be set via the Export power limit interface in the SolarGo APP. For the grid-tied PV inverter, set it according to the actual tool used. ◦ To ensure that the grid-tied PV inverter can continue to generate power, adjust the output power of the hybrid inverter via the Microgrid Mode interface in the SolarGo APP. Note: The output power control accuracy of different grid-tied PV inverters varies; set the export power limit parameter value based on 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 supplied to loads, stored in Battery, or exported to Utility grid.



No.	model	Nominal output power	Nominal output voltage
1	GW3000-ES-C10	3000W	220/230/240
3	GW3600-ES-C10	3600W	220/230/240
4	GW5000-ES-C10	5000W	220/230/240
5	GW6000-ES-C10	6000W	220/230/240

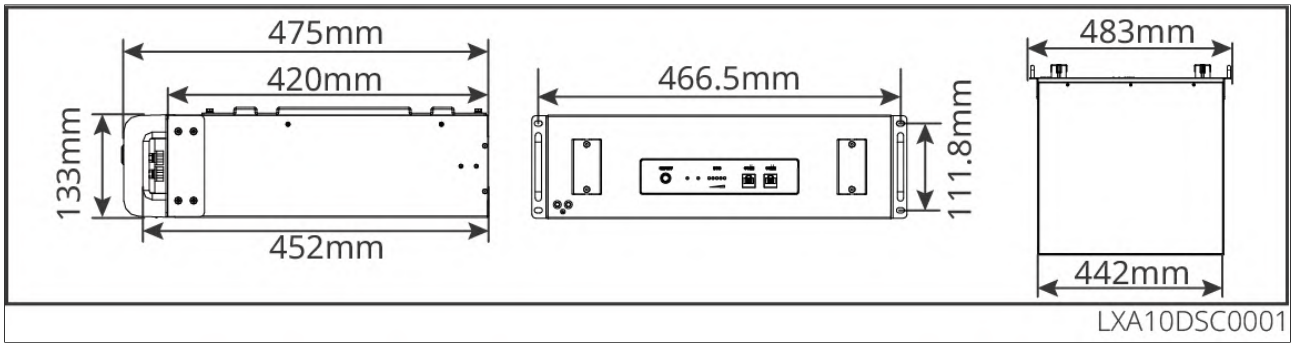
No.	Component/Silkscreen	Description
1	DC switch	Control the connection or disconnection of DC input.
2	PV Input terminal	Can connect to DC input lines of PV modules.
3	Battery input terminal	Can connect Battery DC input line.
4	smart dongle port	Can be connected to smart dongle, please select the module type according to actual requirements.
5	Communication Port	Can be connected to load control,CT、RS485remote shutdown/Rapid ShutdownDRED(Australia)/RCR(Europe) and other Communication cable.
6	AC output	Connect the AC output cable, connecting Inverter to Utility grid.
7	indicator	Indicates the operating status of Inverter.
8	Display screen	View data related to Inverter.
9	button	Operate the Inverter in conjunction with the display screen.
10	Grounding terminal	Connecting the PE cable
11	heat sink	Provide heat dissipation for Inverter.

12	Mounting bracket	Can be mounted with Inverter.

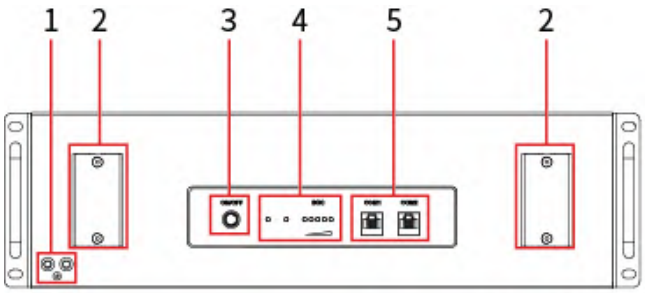
2.2.2 Battery

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



LXA10DSC0001

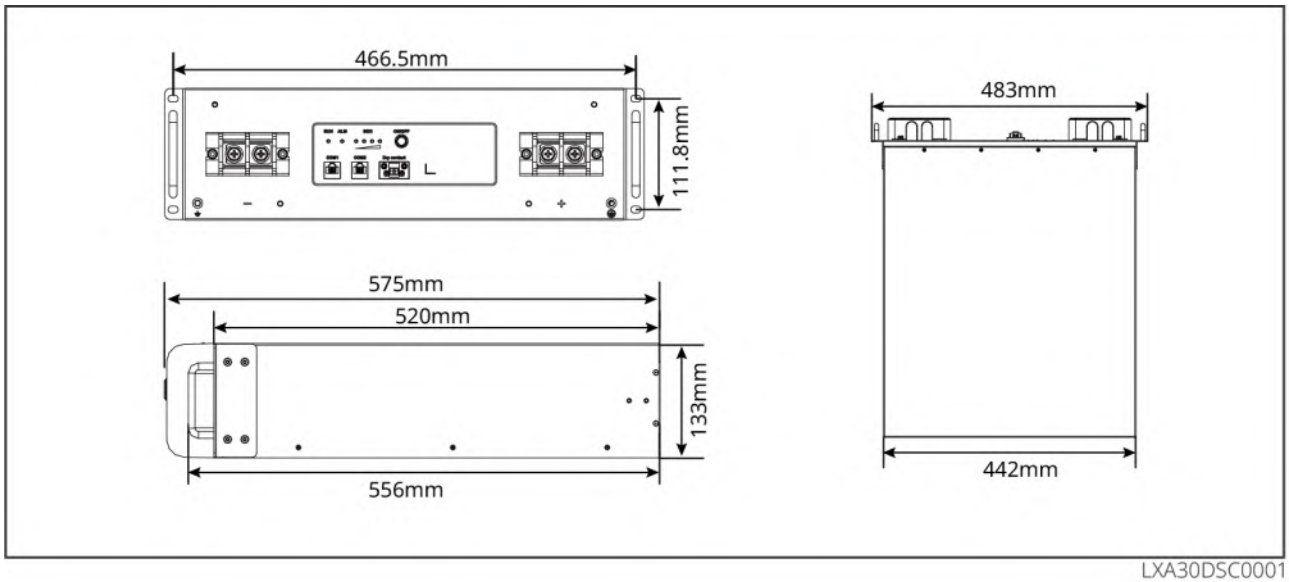


LXA10DSC0002

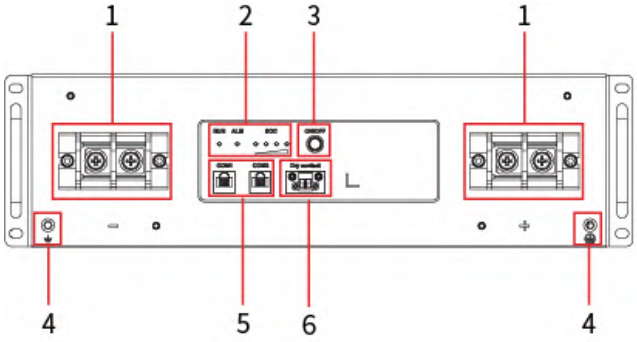
No.	Part/Silkscreen	Description
1	Grounding terminal	Connect the chassis ground wire.
2	Battery DC port	Connect the battery DC input cable.
3	Battery system button	Used for battery power on/off and black start.
4	indicator	Indicates the working status of the battery.

No.	Part/Silkscreen	Description
5	Communication Port	Connect the battery communication cable.

2.2.2.2 LX A5.0-30



LXA30DSC0001

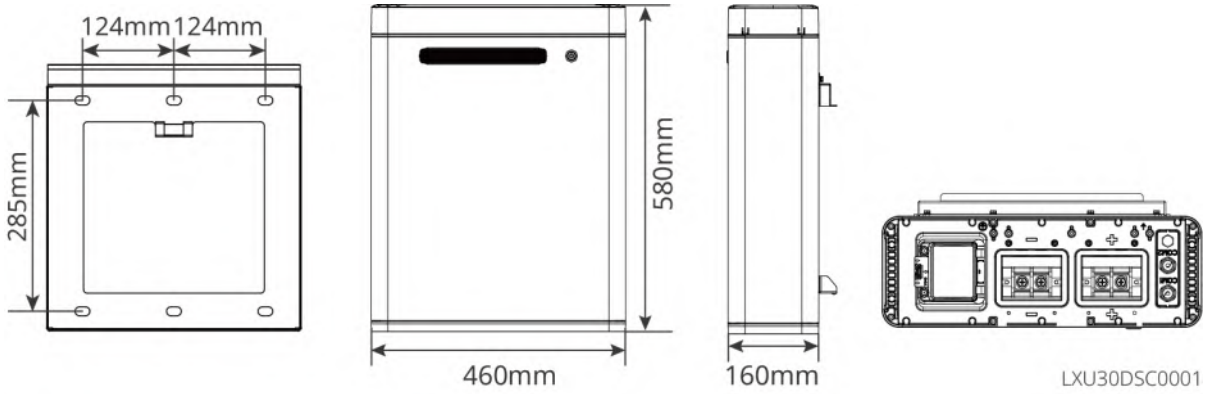


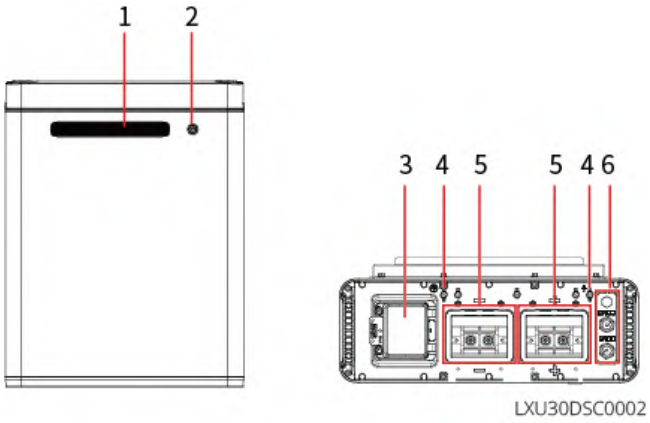
LXA30DSC0002

No.	Component/Silk screen	Description
1	Battery DC Port	Connect battery DC input cable.
2	indicator	Indicates the operating status of the battery.
3	Battery System Button	Used for battery power on/off and black start.

No.	Component/Silk screen	Description
4	Grounding terminal	Connect the chassis protective grounding wire.
5	Communication Port	Connect battery communication cable.
6	Dry Contact	Reserved.

2.2.2.3 LX U5.0-30

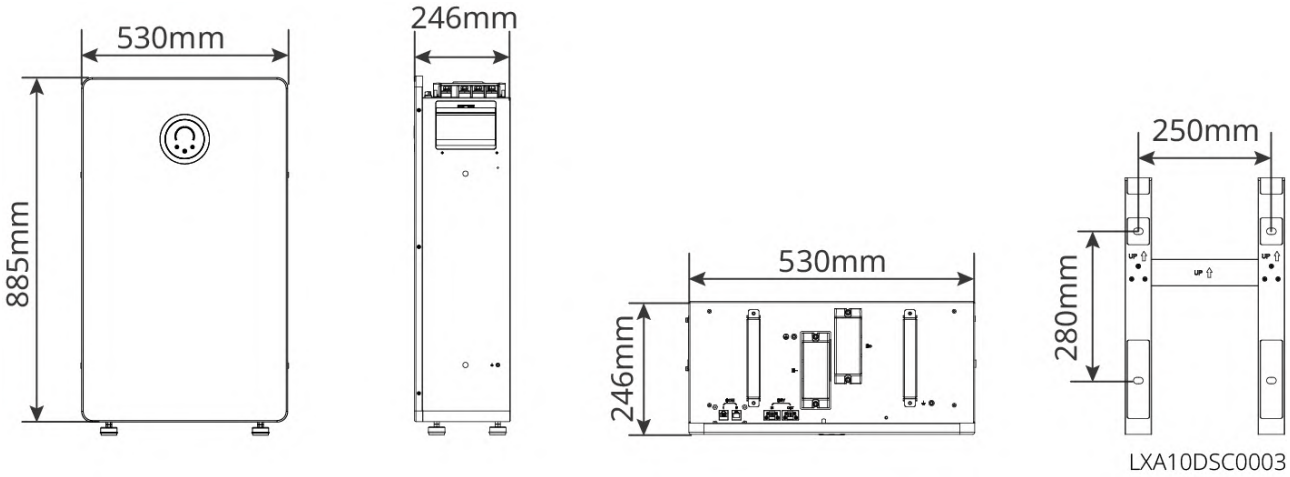


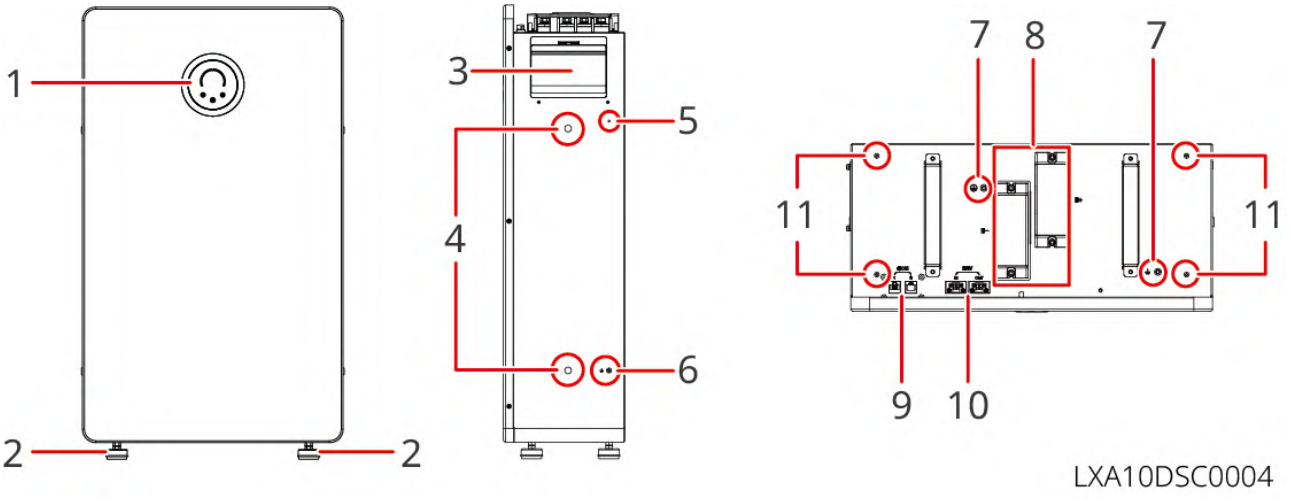


No.	Component/Silk Screen	Description
1	indicator	Indicates the operating status of the battery.
2	Battery System Button	Used for battery power on/off and black start.
3	Battery Circuit Breaker	Used for battery power on/off.

No.	Component/Silk Screen	Description
4	Grounding terminal	Connect the protective ground wire to the enclosure.
5	Battery DC Port	Connect the battery DC input cable.
6	Communication Port	Connect the battery communication cable.

2.2.2.4 GW14.3-BAT-LV-G10

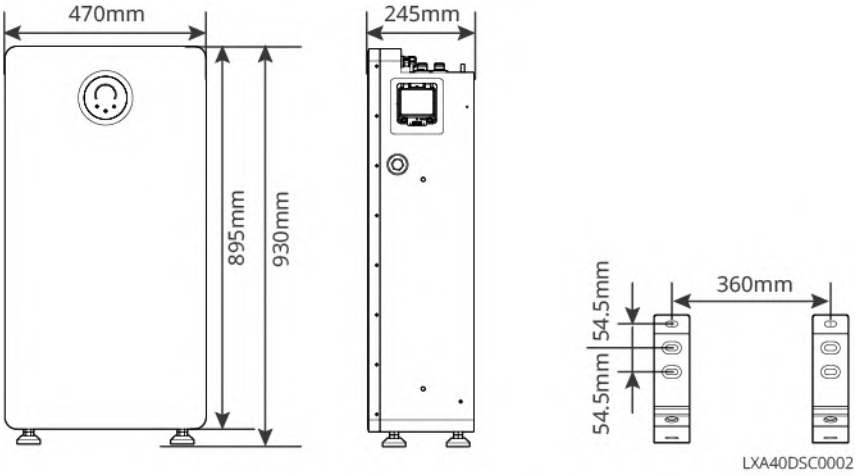


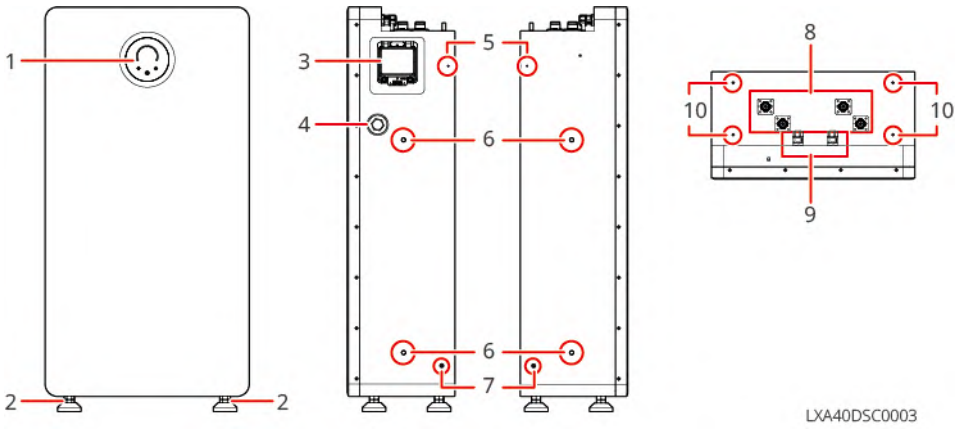


No.	Component/Marking	Description
1	indicator	Indicates the operating status of the battery.

No.	Component/Marking	Description
2	Foot	Supports the battery.
3	Battery circuit breaker	Used for turning the battery on and off.
4	Lifting rod installation hole	Used for installing the lifting rod. Used when manually transporting the battery.
5	L-shaped bracket fixing hole	Used for fixing the battery to the wall.
6	Grounding terminal	Connects to the chassis protective ground wire, reserved.
7	Grounding terminal	Connects to the battery system protective ground wire.
8	Battery DC port	Connects to the battery DC input cable.
9	Communication Port	Connects to the battery communication cable.
10	Dry contact	Reserved.
11	Decorative cover installation hole	Used for fixing the battery decorative cover.

2.2.2.5 GW16.1-BAT-LV-G10

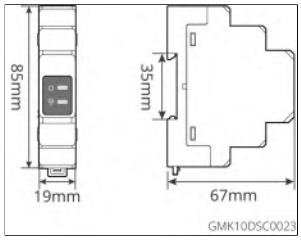
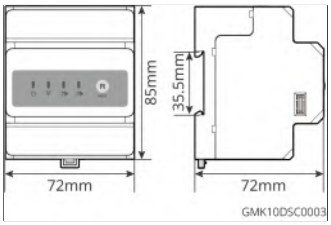
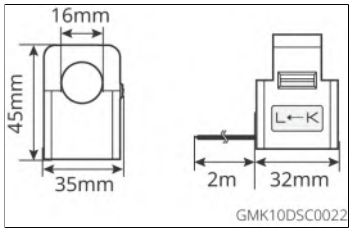




No.	Component/Silk Screen	Description
1	indicator	Indicates the operating status of the battery.
2	Foot	Supports the battery.
3	Battery circuit breaker	Used for powering the battery on and off.
4	Explosion-proof vent valve	The explosion-proof vent valve balances internal and external air pressure and provides explosion protection.
5	Anti-tip bracket mounting hole	Used for securing the battery to the wall.
6	Carrying handle mounting hole	Used for installing the carrying handle. Used during manual battery handling.
7	Grounding terminal	Connects the protective ground wire of the enclosure.
8	Battery DC port	Connects the battery DC input cable.
9	Communication Port	Connects the battery communication cable.
10	Decorative cover mounting hole	Used for securing the battery decorative cover.

2.2.3 Smart Meter

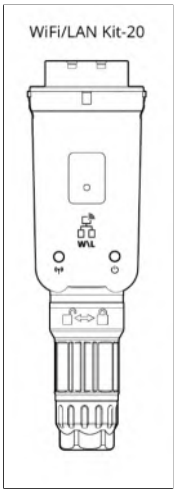
Smart Meter can measure and monitor electrical data in photovoltaic energy storage system, such as: voltage, current, Frequency, Output Power Factor, Power, etc.

GMK110	GM330	CT
		

No.	model	Applicable scenarios
1	GMK110	CT cannot be replaced, CT ratio: 120A: 40mA
2	GM330	CT supports purchase from GoodWe or self-procurement, CT ratio requirement: nA: 5A • nA: CT primary side input current, n range is 200-5000 • 5A: CT secondary side output current

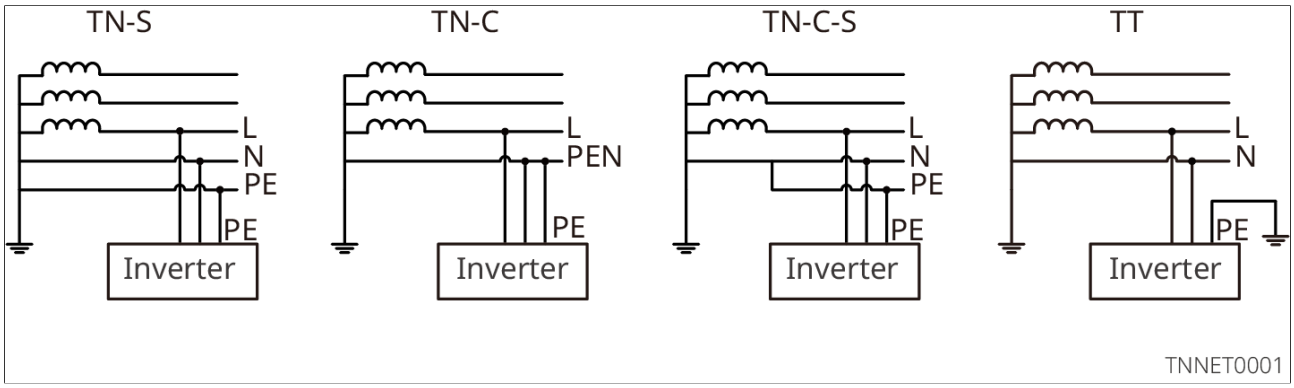
2.2.4 smart dongle

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	Applicable scenarios
1	WiFi/LAN Kit-20	Bluetooth, WiFi, LAN	Inverter Standalone scenario application
2	4G Kit-CN-G20	Bluetooth, 4G	
3	4G Kit-CN-G21	4G, Bluetooth, GNSS	
4	Ezlink3000	Bluetooth, WiFi, LAN	host in a parallel system

2.3 Supported Grid Types

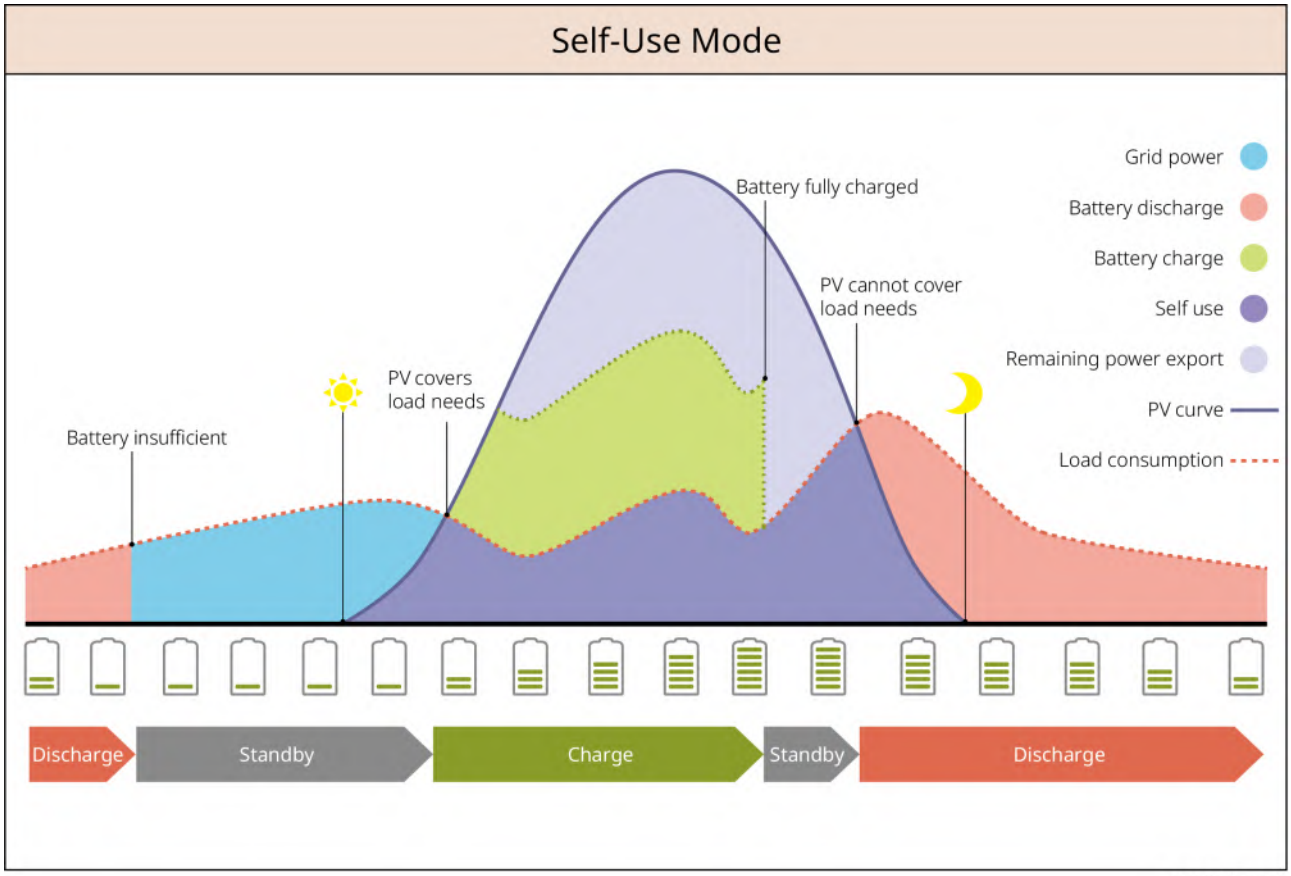


2.4 System Working Mode

NOTICE
After the initial installation of the GW14.3-BAT-LV-G10 and GW16.1-BAT-LV-G10 battery systems, an automatic full battery charge will be performed. Upon completion, the system will switch to operate in the set working mode.

Self-Use Mode

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



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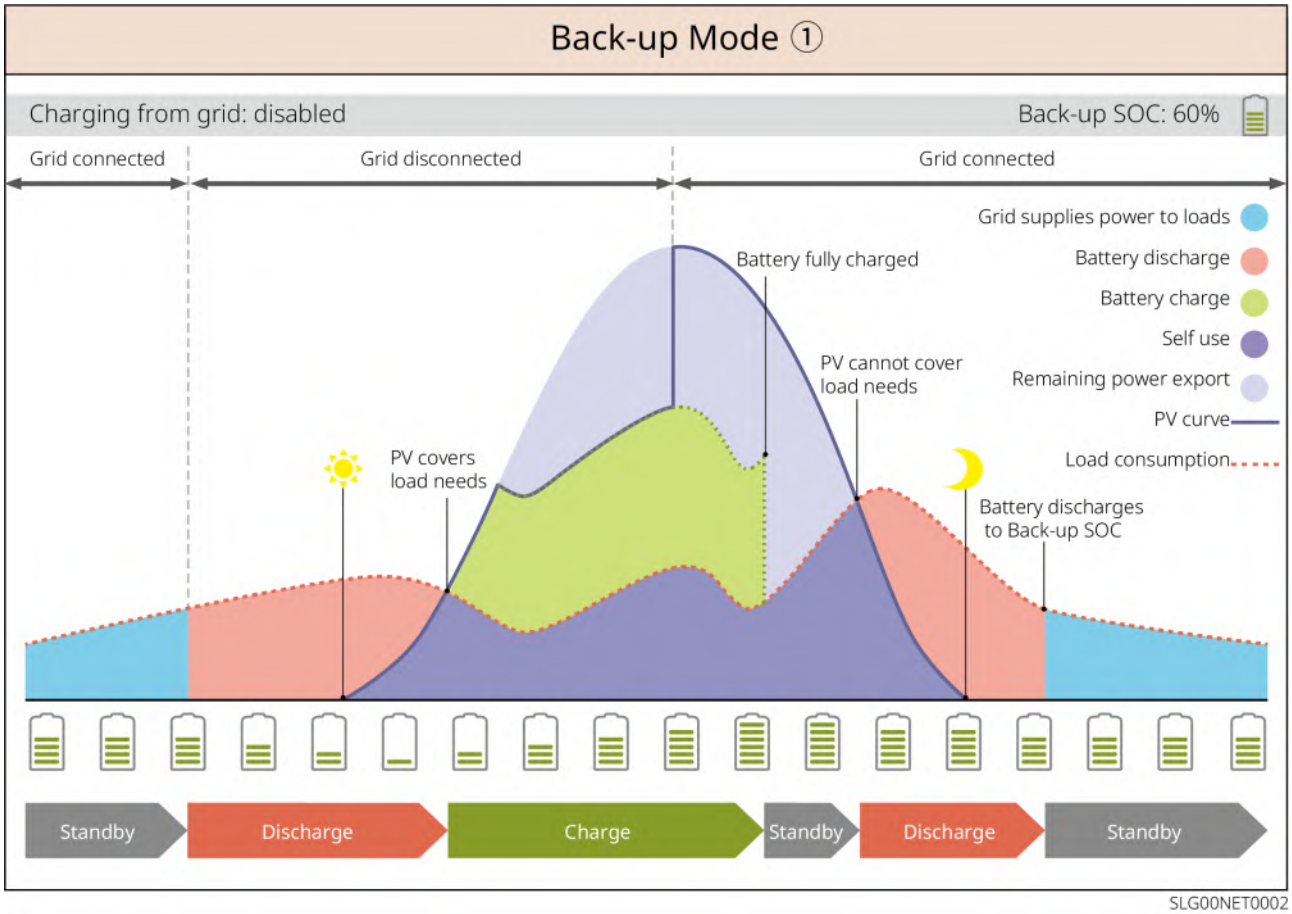
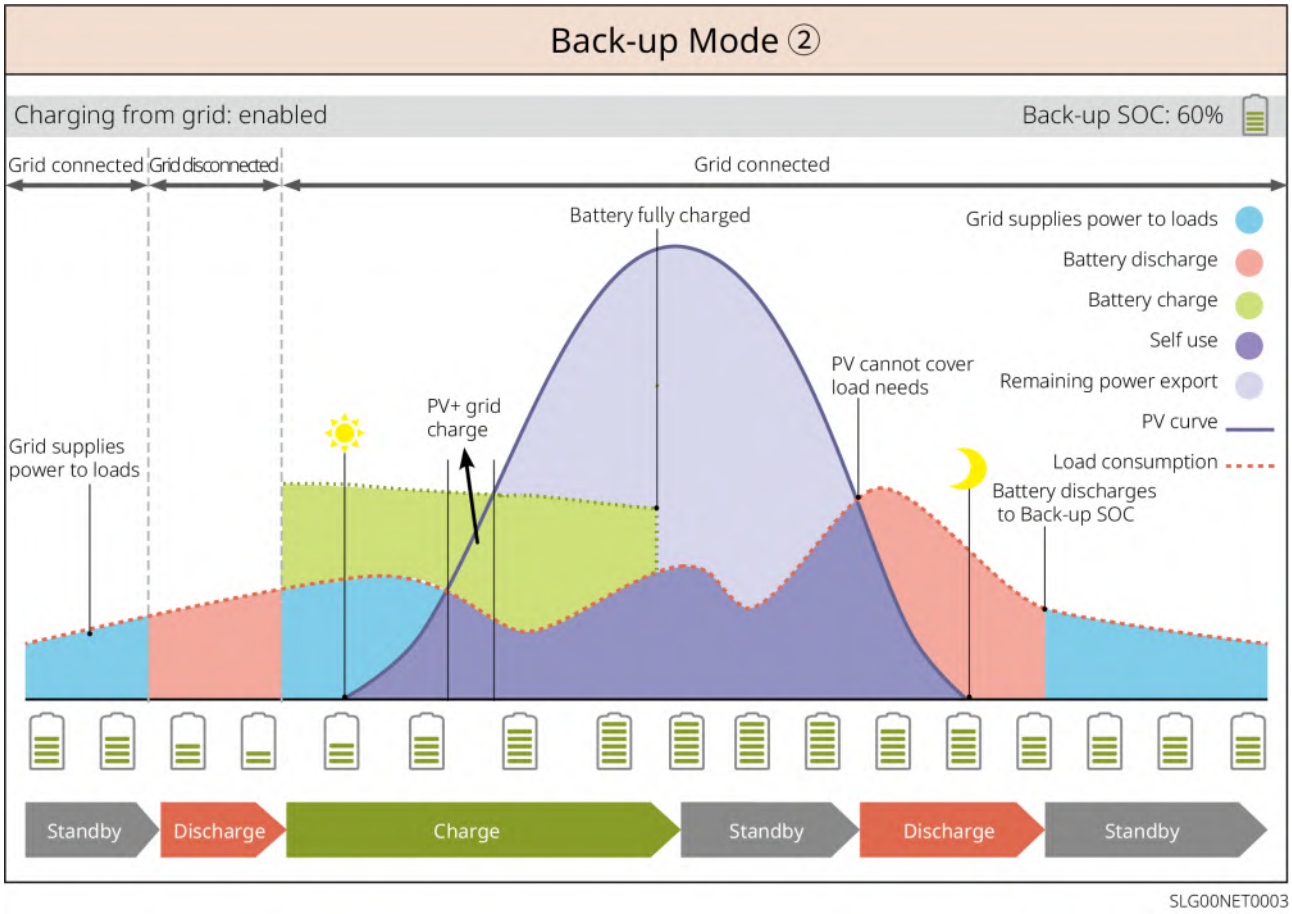
Backup Mode

- Recommended for use in areas with unstable grid.
- When the grid power is out, the inverter switches to off-grid working mode, and the battery discharges to supply power to the loads, ensuring that the BACK-UP Loads do not lose power; when the grid is restored, the inverter working mode switches to grid-connected operation.
- To ensure that the battery SOC is sufficient to maintain normal operation when the system is off-grid, during grid-connected operation, the battery will use PV or grid-purchased electricity to charge to the backup power SOC. If it is necessary to purchase electricity from the grid to charge the battery, please confirm that it meets the local grid laws and regulations requirements.

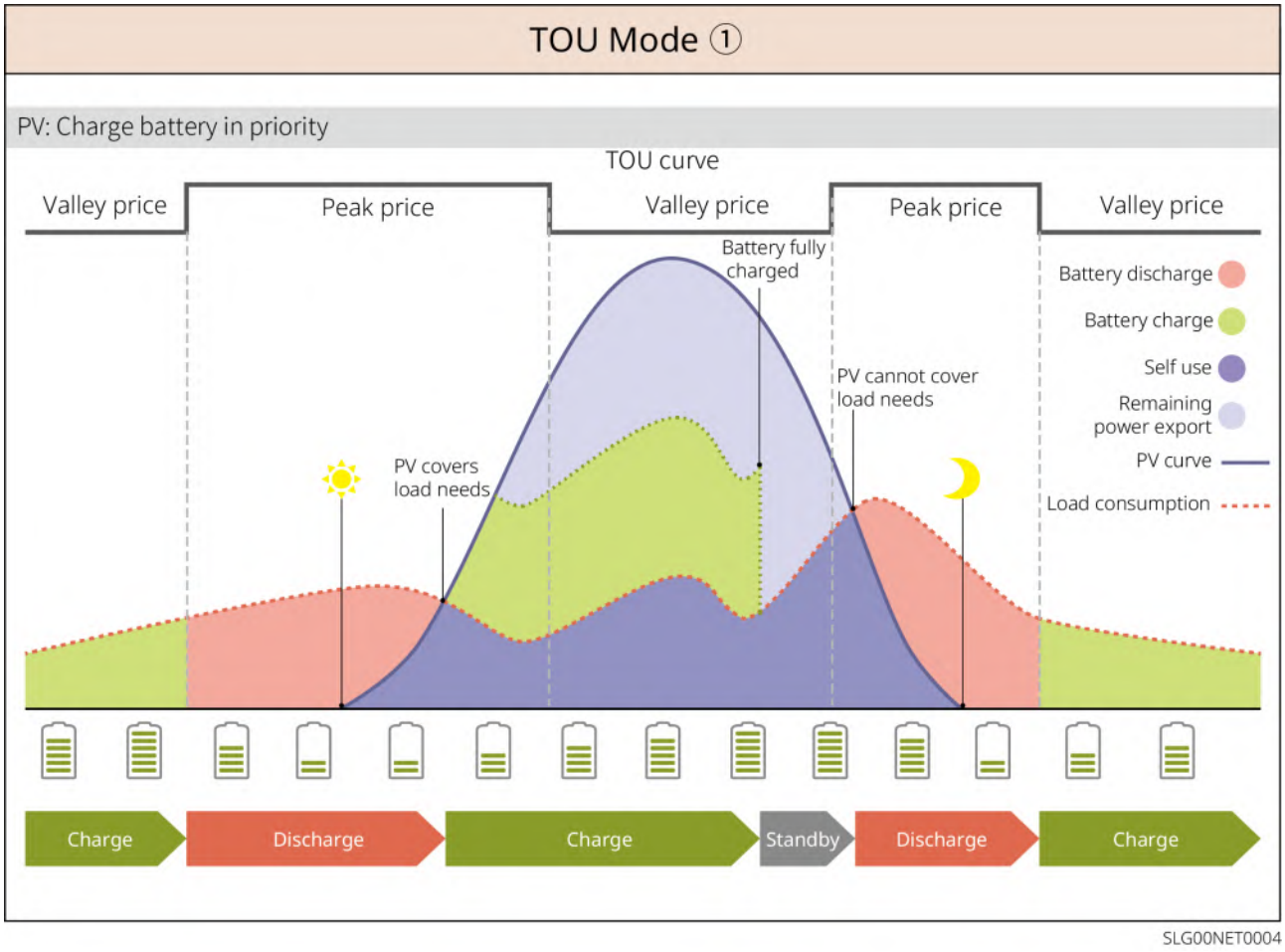

Back-up Mode ①
Charging from grid: disabled
Back-up SOC: 60%
Grid connected
Grid disconnected
Grid connected
Grid supplies power to loads
Battery discharge
Battery charge
Self use
Remaining power export
PV curve
Load consumption
Battery fully charged
PV cannot cover load needs
PV covers load needs
Battery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

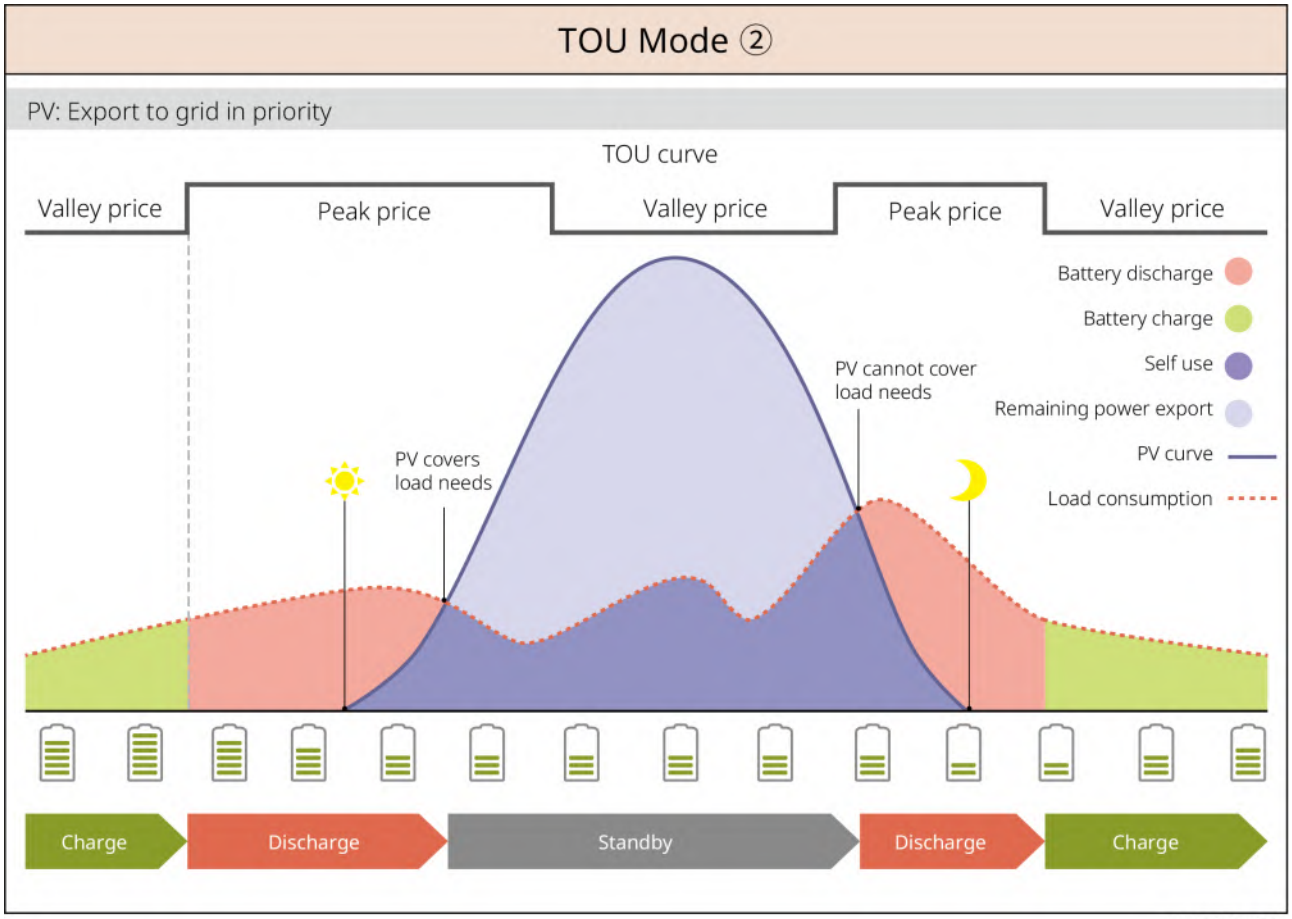


TOU Mode

Under the condition of meeting local laws and regulations, based on the difference between peak and valley electricity prices of the grid, set different time periods for buying and selling electricity.

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


TOU Mode ①
PV: Charge battery in priority
TOU curve
Valley price
Peak price
Valley price
Peak price
Valley price
Battery fully charged
PV cannot cover load needs
PV covers load needs
Battery discharge
Battery charge
Self use
Remaining power export
PV curve
Load consumption
Charge
Discharge
Charge
Standby
Discharge
Charge
SLG00NET0004

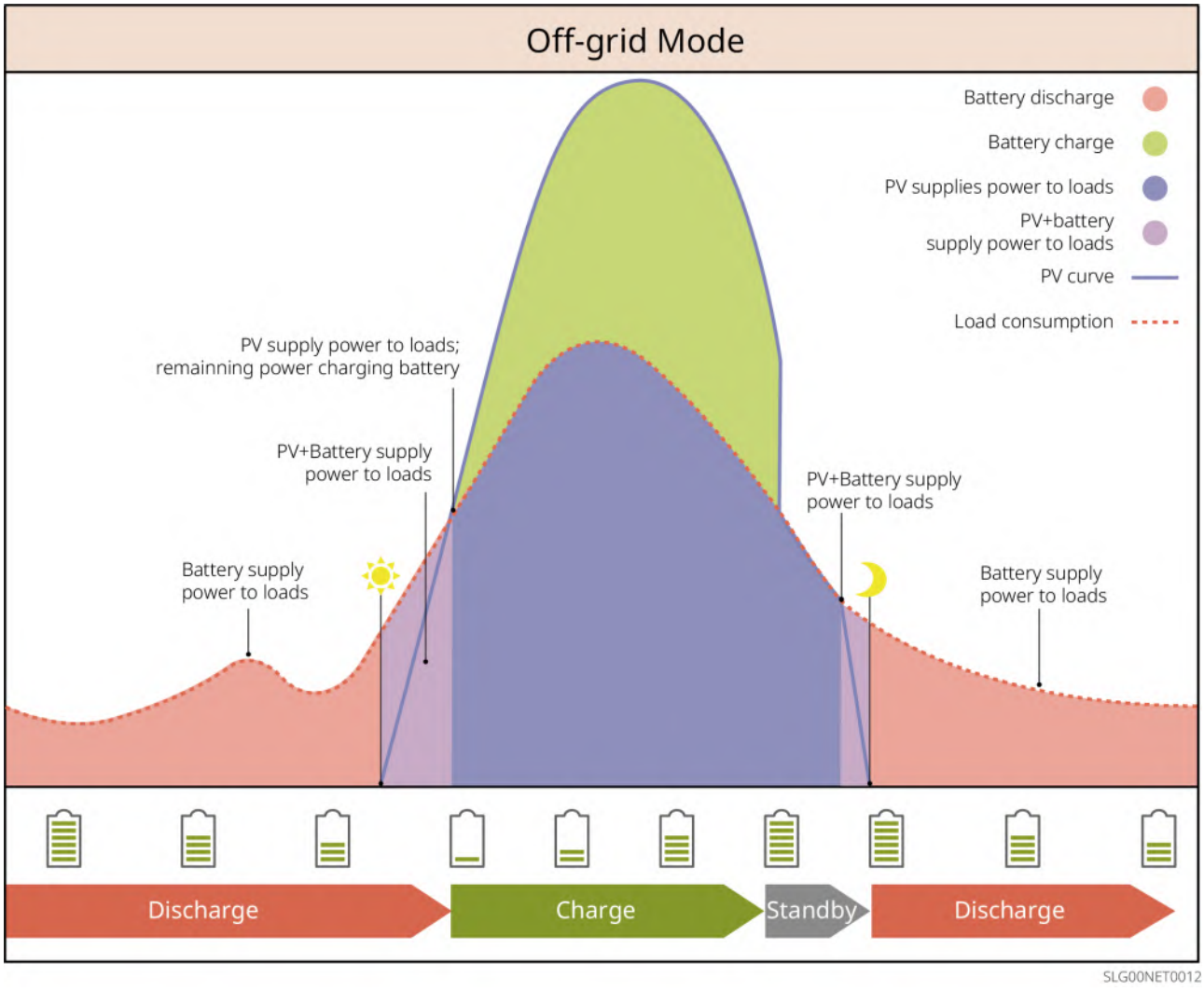


SLG00NET0005

Off-Grid Mode

When the grid power is out, the inverter switches to off-grid working mode.

- During the day, PV generation prioritizes supplying power to the loads, and excess electricity charges the battery.
- At night, the battery discharges to supply power to the loads, ensuring that the BACK-UP Loads do not lose power.
- Off-grid SOC recovery: after the system operates off-grid, the battery gradually recovers to the minimum power SOC through photovoltaic 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 PV system are damaged.
- Incorrect or damaged cable connection.
- Connector and cable aging.

Troubleshooting method:

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

App.
2. If the fault is triggered fewer 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 switch on or off during the preset 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
  - Transmitter model: GTP-F2L-20, GTP-F2M-20 https://www.goodwe.com/Ftp/Installation-instructions/RSD2.0-transmitter.pdf
  - Receiver model: GR-B1F-20, GR-B2F-20 https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_RSD-20_Quick-Installation-Guide-POLY.pdf
- Built-in transmitter
  - External 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:

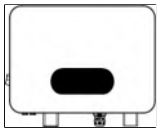
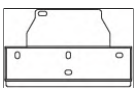
1. Check the outer packaging for any damage, such as deformation, holes, cracks, or other signs that could cause damage to the equipment inside the box. If damaged, do not open the packaging and contact your distributor.
2. When removing the GW14.3-BAT-LV-G10 and GW16.1-BAT-LV-G10 batteries, ensure the cardboard packaging box remains intact. If the packaging is accidentally damaged and a return or exchange is required due to product quality issues, contact GoodWe after-sales service or your distributor to obtain a dedicated packaging box.
3. Check if the device model is correct. If it does not match, do not open the packaging and contact your distributor.

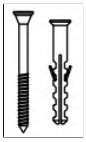
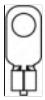
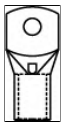
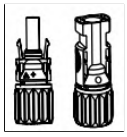
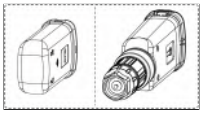
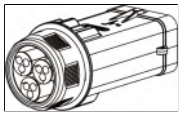
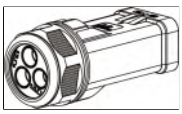
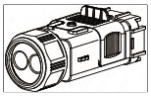
3.2 deliverables

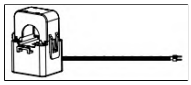
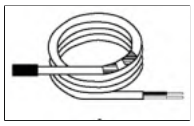
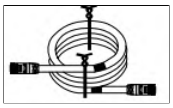
⚠WARNING

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

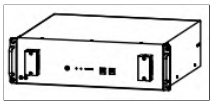
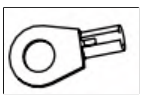
Component	Description	Component	Description
	Inverter x1		mounting plate x1

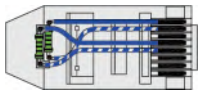
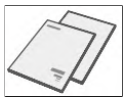
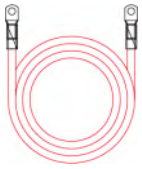
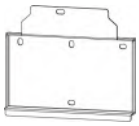
Component	Description	Component	Description
	Expansion screw x4		Grounding screw x1
	Grounding terminal x 1		Battery Power connection terminal x 2
	PV DC wiring terminal • GW3000-ES-C10、GW3000-ES-C11 x 1 • Others x 2		smart dongle x1
	2PIN communication terminal x 1		6PIN communication terminal x 2
 	AC combiner box ×1 provided on an actual basis.		Battery connectorx1
	Communication PIN terminal x 20		ACPIN terminal x 10

Component	Description	Component	Description
	CT x 1		Product Documentation x 1
	Lead-acid Battery temperature sensor cable fixing adhesive tape • China x 0 • Other regions x 2		Single screwdriver x 1
	Lead-acid Battery temperature sensor wire • China x 0 • Other regions x 1		BMSCommunication cable x 1
	AC unlocking tool x 1		PV terminal Unlocking Tool • China x 0 • Other regions x 1

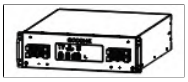
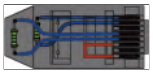
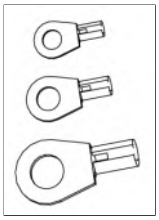
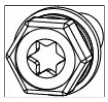
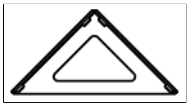
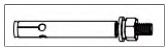
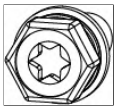
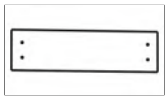
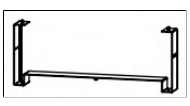
3.2.2 Batteries Deliverables

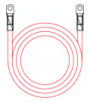
3.2.2.1 LX A5.0-10

Component	Description	Component	Description
	Battery module x 1		(25-8) OT terminal x 4 (5.5-5) OT terminal x 2

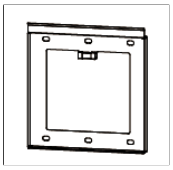
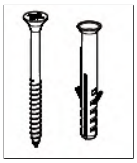
Component	Description	Component	Description
	M5PE screw x 2		Warning Label x 1
	Terminal resistor x 1		Electrical label x 1
	M4*8 screw x 8 (optional) Select the bracket Mounting method for distribution		Bracket x 2 (optional) Select the bracket Mounting method for distribution
	Product Documentation x 1		Negative power cable (optional) x 1
	Positive terminal (optional) x 1		Grounding wire (optional) x 1
	Communication cable (optional) x 1		Decorative Cover (Optional) x 1
	Rear Bracket Expansion screw (Optional) x 4		Rear mounting (optional) x 1
	Bracket (optional) x 1		Bracket screw (optional) x 4

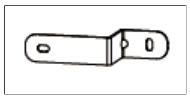
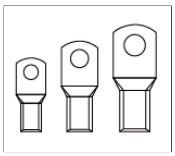
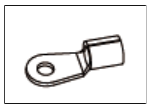
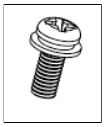
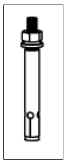
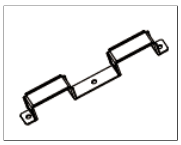
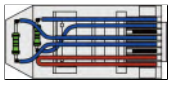
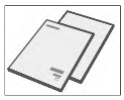
3.2.2.2 LX A5.0-30

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.
	• M5 OT terminal x 2: Recommended connection 10mm^{2}cable • M8 OT terminal x 4: Recommended connection 50mm^{2}cable • M10 OT terminal x 2: Recommended connection 70mm^{2}cable		M5*12PE screw x 2
	Bracket x 2 Wall-mounted Mounting method with accessories		M6*70Expansion bolt x 4 Wall-mounted when selected Mounting method is issued
	M5*12PE screw x 2 Wall-mounted when selected Mounting method is issued		Marking Template x 1 Wall-mounted Mounting method with accessories
	Bracket x 2 (optional) Select stack Mounting method for distribution		M4*8 screw x 8 Select stack Mounting method for distribution

Component	Description	Component	Description
	Product Documentation x 1		Negative power cable (optional) x 1
	Positive terminal (optional) x 1		Grounding wire (optional) x 1
	Communication cable (optional) x 1		Decorative Cover (Optional) x 1

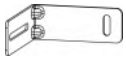
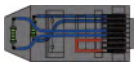
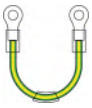
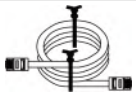
3.2.2.3 Batteries Deliverables(LX U5.0-30)

Component	Description	Component	Description
	Battery x 1		Plastic top cover x 1
	Wall-mounted x 1		Expansion screwx 2

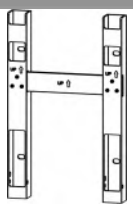
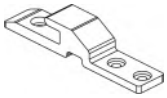
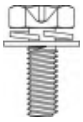
Component	Description	Component	Description
	locking bracket x 2		• 35-8 OT terminal x 4: It is recommended to connect 25mm² or 35mm² cables. • 50-8 OT terminal x 4: Recommended to connect 50mm² cable • 70-10 OT terminal x 2: Recommended to connect 70mm² cable
	14-5Grounding terminal x 2		M5 x 7
	M10 x 6		Harness fixing plate x 1
	Terminal resistor x 1		Product Documentation x 1

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

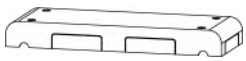
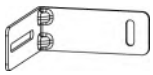
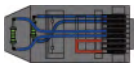
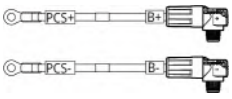
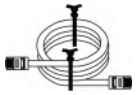
Component	Description	Component	Description
	Battery x 1		Wire cover x 1

	Lifting rod x 2 (Shipped with the box after October 2025)		Expansion screw x 2
	M5*16 internal cross external hexagon screw x 7		Wall-mounted anti-tipping bracket x 2
	Terminal resistor x 1		Grounding OT terminal x 1 (Shipped with the box before October 2025)
	DC OT terminal x 6 (Shipped with the box before October 2025)		Grounding wire x 1 (Shipped with the box after October 2025)
	Positive power cable x 1 (Shipped with the box after October 2025)		Negative power cable x 1 (Shipped with the box after October 2025)
	Communication cable x 1		Product documentation x 1

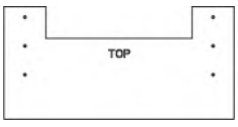
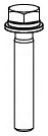
Optional accessories

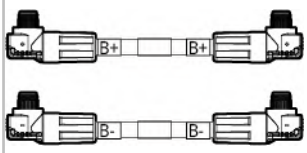
Component	Description	Component	Description
	Wall Mount Bracket x 1		Hook x 4
	M5*16 Internal Cross External Hex x 12		M10 Expansion Bolt x 4

3.2.2.5 Batteries Deliverables (GW16.1-BAT-LV-G10)

Component	Description	Component	Description
	Battery x 1		Decorative cover x 1
	Lifting rod x 2		Expansion screw x 2
	M5*12 hex socket screw x 7		Wall-mounted anti-tipping bracket x 2
	Terminal resistor x 1		Ground wire x 1
	Positive power cable x 1 Negative power cable x 1		Decorative cover plug x 4
	Communication cable x 1		Product documentation x 1
	Quick-connect terminal unlocking tool x 1		

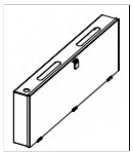
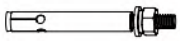
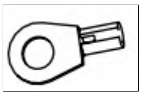
Optional accessories

Component	Description	Component	Description
	Wall mount bracket x 2		Positioning cardboard x 1
	M10 expansion screw x 6		M10*60 bolt x 2

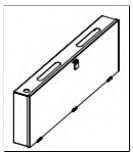
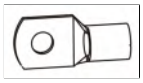
Component	Description	Component	Description
	Inter-battery parallel cluster positive power cable x 1 Inter-battery parallel cluster negative power cable x 1		

3.2.3 Combiner Box Deliverables

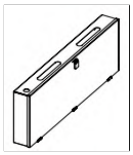
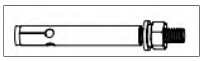
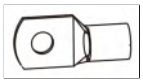
3.2.3.1 BCB-11-WW-0 (Optional)

Part	Description	Part	Description
	BCB-11-WW-0 Busbar Box x 1		M6 expansion bolt x 4
	(25-8) OT terminal x 18 (70-10) OT terminal x 2	-	-

3.2.3.2 BCB-22-WW-0

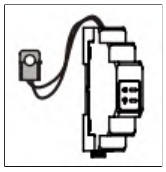
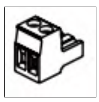
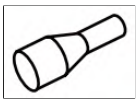
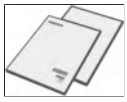
Part	Description	Part	Description
	BCB-22-WW-0 junction box x 1		M6 expansion bolt x 4
	(25-8) OT terminal x 36 (70-10) OT terminal x 6	-	-

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

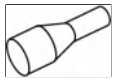
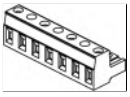
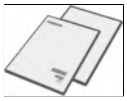
Part	Description	Part	Description
	BCB-32-WW-0, BCB-33-WW-0 junction box x 1		M6 expansion bolt x 4
	(50-8) OT terminal x 30 (70-10) OT terminal x 6	-	-

3.2.4 Smart Meter Deliverables

3.2.4.1 GMK110

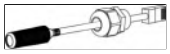
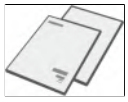
Component	Description	component	Description
	Smart Meter and CT x 1		RS485communication terminal x 1
	voltage Input side wiring terminal x 1		PIN terminal x 4
	screwdriver x1		Product Documentation x 1

3.2.4.2 GM330

Component	Description	Component	Description
	Smart Meterx1		2PIN connector x1
	PIN terminal x 6		7PINcommunication terminal 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 device is not put into use immediately, store it according to the following requirements. After long-term storage, the device must be inspected and confirmed by qualified personnel before it can be used again.

1. If the inverter is stored for more than two years or remains idle for more than 6

months after installation, it is recommended to have it inspected and tested by qualified personnel before putting it into use.

2. To ensure the good electrical performance of the inverter's internal electronic components, it is recommended to power it on every 6 months during storage. If it has not been powered on for over 6 months, it is recommended to have it inspected and tested by qualified personnel before use.
3. To ensure battery performance and service life, it is recommended to avoid long-term idle storage. Prolonged storage may cause deep discharge of the battery, leading to irreversible chemical degradation, capacity衰减, or even complete failure. It is recommended to use the battery promptly. If the battery requires long-term storage, maintain it according to the following requirements:

Battery Model	Initial SOC Range for Storage	Recommended Storage Temperature	Charge/Discharge Maintenance Cycle[1]	Battery Maintenance Method[2]
LX A5.0-10 n*LX A5.0-10	30%~40%	0~35℃	-20~0℃, ≤1 month 0~35℃, ≤6 months	Please consult the dealer or after-sales service center for the maintenance method.
LX A5.0-30	30%~40%	0~35℃	-20~45℃, ≤6 months	
LX U5.0-30	30%~40%	0~35℃	-20~35℃, ≤12 months 35~45℃, ≤6 months	
GW14.3-BAT-LV-G10 GW16.1-BAT-LV-G10)	30%~40%	0~35℃	-20~35℃, ≤12 months 35~45℃, ≤6 months	

NOTICE

[1] The storage time is calculated from the SN date on the battery's outer packaging. After exceeding the storage period, charge-discharge maintenance is required. (Battery maintenance time = SN date + charge-discharge maintenance cycle). For the method to view the SN date, refer to: SN Code Meaning.
[2] After passing the charge-discharge maintenance, if a Maintaining Label is attached to the outer box, please update the maintenance information on the Maintaining Label. If there is no Maintaining Label, please record the maintenance time and battery SOC yourself and keep the data properly for maintaining maintenance records.

Packaging Requirements:

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

Environmental Requirements:

1. Ensure the device is stored in a cool place, avoiding direct sunlight.
2. Ensure the storage environment is clean, with appropriate temperature and humidity ranges, and free from condensation. If condensation is present on the device ports, do not install the device.
3. Ensure the device is stored away from flammable, explosive, corrosive, and other hazardous materials.

Stacking Requirements:

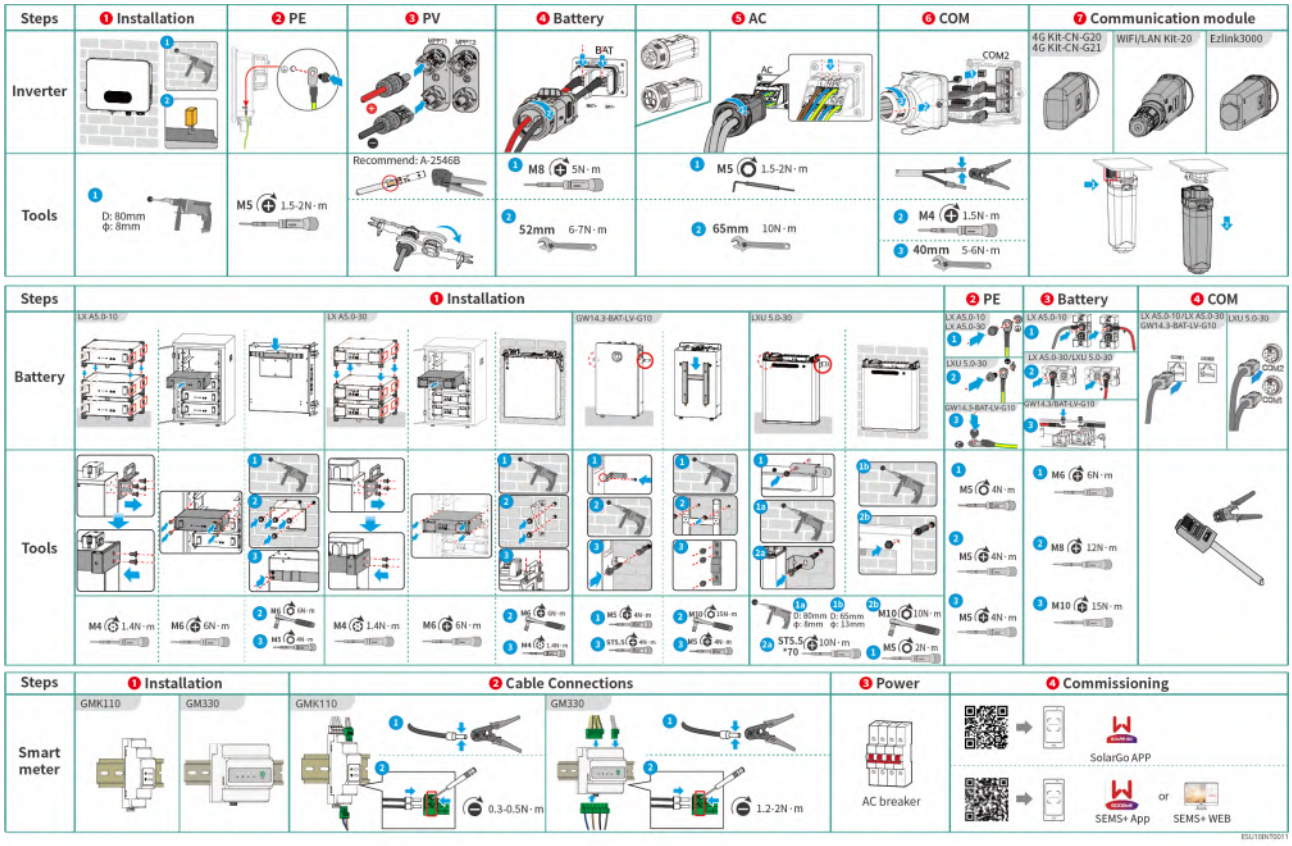
1. Ensure the inverter stacking height and orientation comply with the instructions on the packaging box label.
2. Ensure there is no risk of the stacked inverters tipping over.

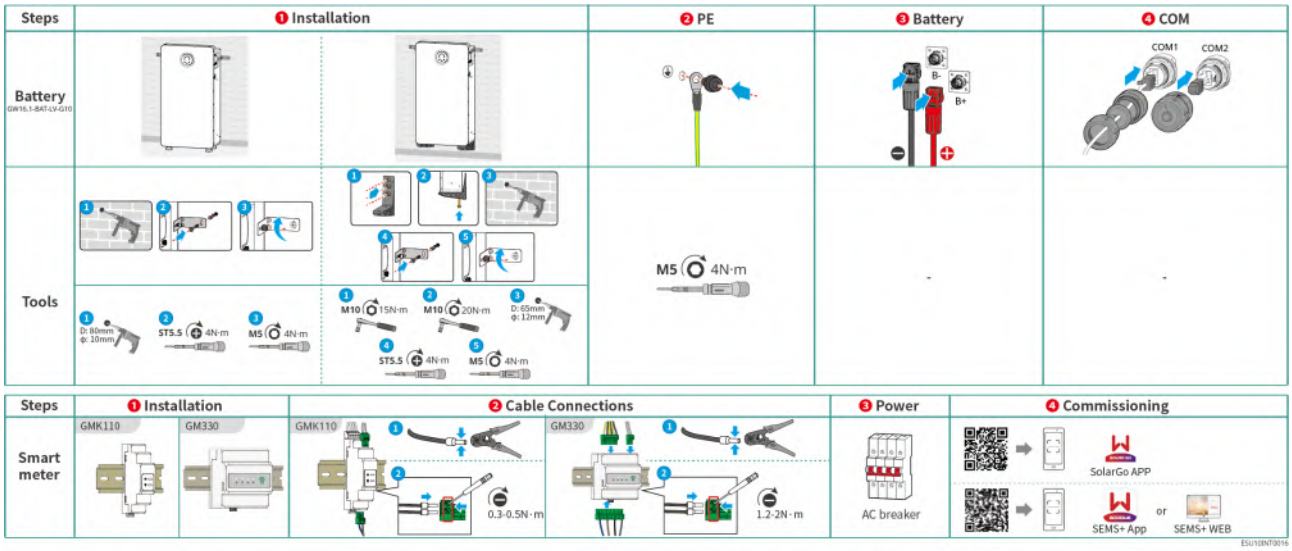
4 Installation

DANGER

Please use the deliverables included in the shipment for equipment Installation and electrical connections. Damage caused by not using the provided components will not be covered under warranty.

4.1 System Installation and Commissioning Procedure





4.2 Installation Requirements

4.2.1 Installation Environment Requirements

1. The device must not be installed in flammable, explosive, corrosive, or similar environments.
2. The temperature and humidity of the installation environment must be within a suitable range.
3. The installation location must be out of reach of children and avoid easily accessible positions.
4. During operation, the Inverter enclosure temperature may exceed 60°C. Do not touch the enclosure before it cools down to prevent burns.
5. The device should be installed away from direct sunlight, rain, snow accumulation, etc. It is recommended to install it in a sheltered location; a sunshade can be built if necessary.
6. The installation space must meet the device's ventilation, heat dissipation, and operational space requirements.
7. The installation environment must satisfy the device's protection rating. The Inverter, battery, and smart communication stick are suitable for indoor and outdoor installation; the meter is suitable for indoor installation.
8. The device installation height should facilitate operation and maintenance, ensuring device indicators, all labels are easily visible, and wiring terminals are easily accessible.
9. The installation altitude must be lower than the maximum operating altitude.
10. For outdoor installation in salt damage areas, consult the device manufacturer. Salt

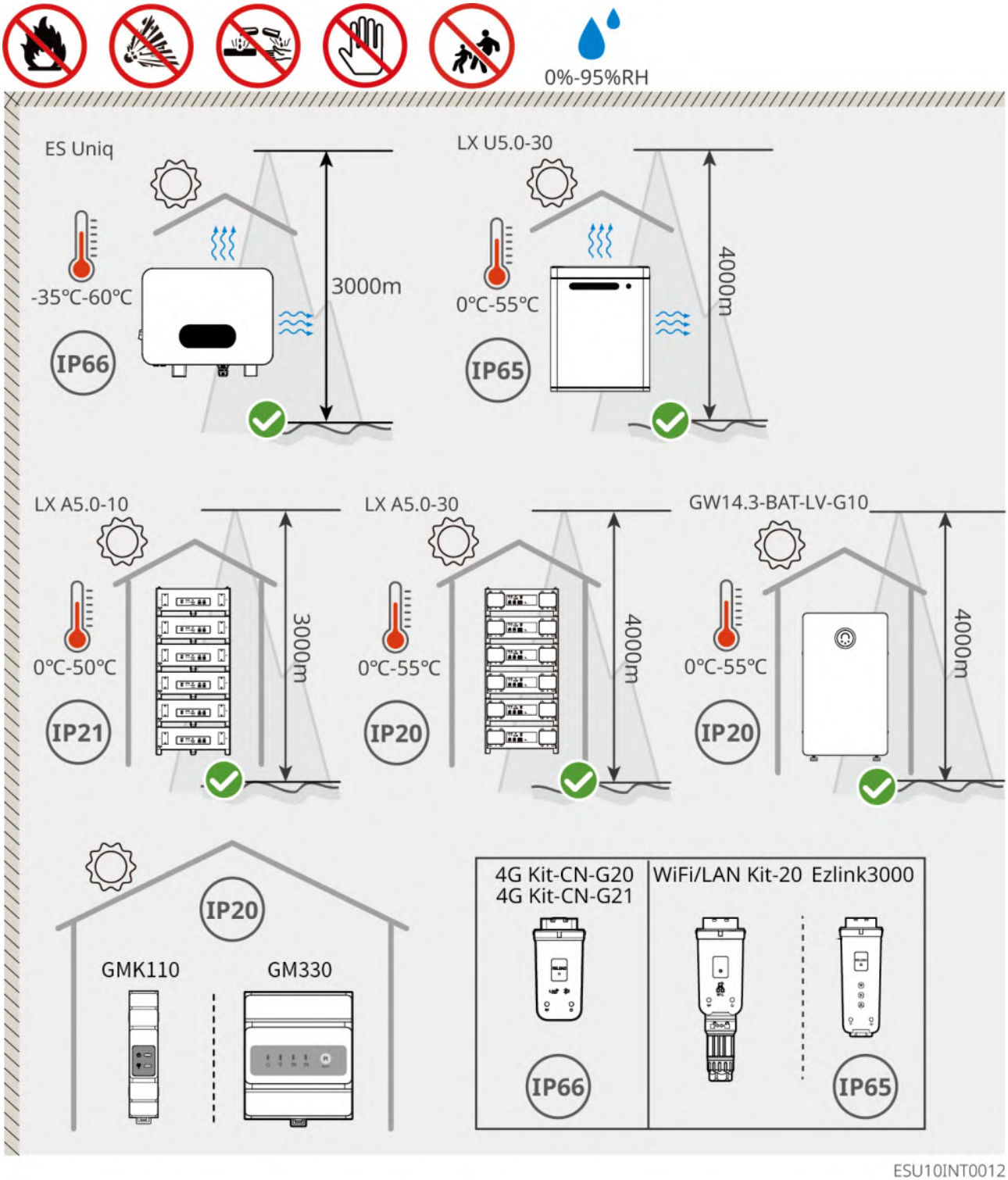
damage areas mainly refer to regions within 500m of the coast. The affected area is related to sea wind, precipitation, terrain, etc.

11. Keep away from strong magnetic field environments to avoid electromagnetic interference. If there is a radio station or wireless communication equipment below 30MHz near the installation location, install the device according to the following requirements:
    - Inverter: Add a ferrite core with multiple windings at the Inverter's DC input or AC output lines, or add a low-pass EMI filter; or maintain a distance of over 30m between the Inverter and the wireless electromagnetic interference device.
    - Other devices: Maintain a distance of over 30m between the device and the wireless electromagnetic interference device.
12. The length of DC and communication cables between the battery and the Inverter must be less than 3m. Ensure the installation distance between the Inverter and the battery meets the cable length requirement.

NOTICE

If installed in an environment below 0°C, the battery will be unable to recharge and restore energy after being depleted, resulting in under-voltage protection.

- LX A5.0-30, LX U5.0-30, GW14.3-BAT-LV-G10, GW16.1-BAT-LV-G10: Charging temperature range: 0 < T ≤ 55°C; Discharging temperature range: -20 < T ≤ 55°C
- LX A5.0-10: Charging temperature range: 0<T ≤ 50°C; Discharging temperature range: -10<T ≤ 50°C
- For batteries equipped with an optional heating film:
    - LX U5.0-30: Charging temperature range: -20 < T ≤ 55°C; Discharging temperature range: -20 < T ≤ 55°C

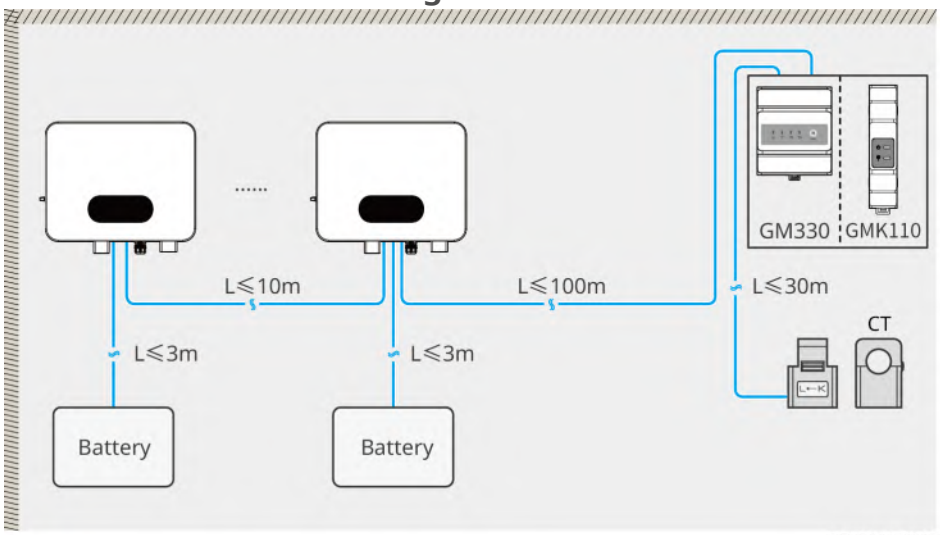


4.2.2 Installation Space Requirements

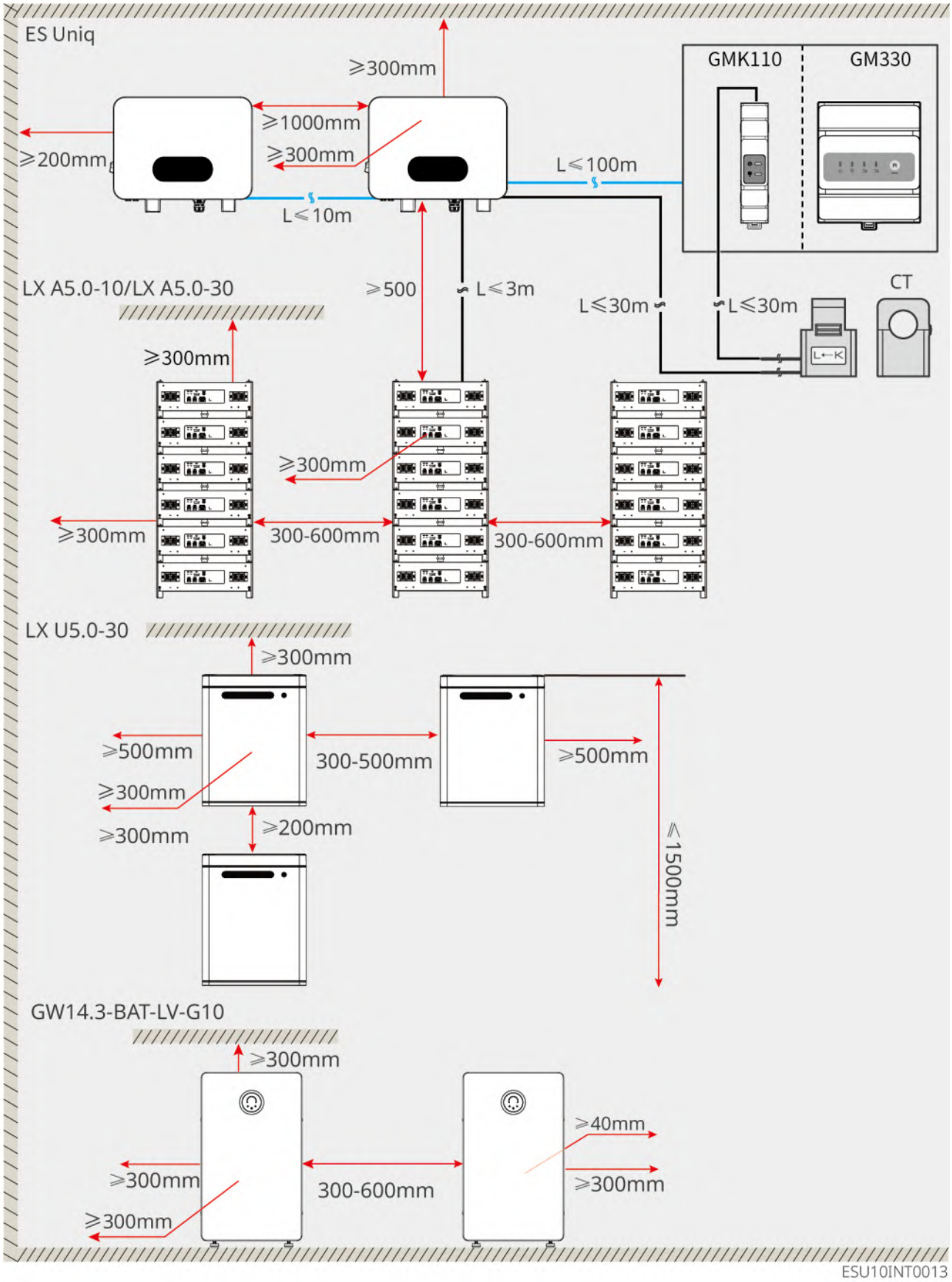
When installing devices in the system, sufficient space should be reserved around the devices to ensure adequate installation and heat dissipation space.

- When using CAT7E communication cables between inverters, the cable distance should not exceed 10 meters; when using CAT5E or CAT6E communication cables, the cable distance should not exceed 5 meters. Do not exceed 10m for communication cables, otherwise it may cause communication abnormalities.
- For installing CTs, use CAT5E or higher shielded network cables, with a cable distance not exceeding 30 meters.
- The RS485 twisted-pair shielded cable for communication between the inverter and the meter should not exceed 100 meters in length.

Communication Cable Length



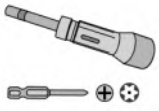
Installation Space


ES Uniq
≥300mm
≥1000mm
≥300mm
≥200mm
L≤10m
L≤100m
GMK110
GM330
CT
L←K
LX A5.0-10/LX A5.0-30
≥500
L≤3m
L≤30m
L≤30m
≥300mm
≥300mm
≥300mm
300-600mm
300-600mm
LX U5.0-30
≥300mm
≥500mm
≥300mm
≥300mm
300-500mm
≥500mm
≥200mm
≤1500mm
GW14.3-BAT-LV-G10
≥300mm
≥300mm
≥300mm
300-600mm
≥40mm
≥300mm
ESU10INT0013

4.2.3 Tool Requirements

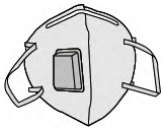
NOTICE
When Installation, it is recommended to use the following Installation tools. If necessary, other auxiliary tools can be used on-site.

Installation tool

Tool type	Description	Tool Type	Description
	diagonal plier		RJ45
	wire stripper		Level bar
	open-end wrench		PVterminalcrimp Tool A-2546B
	hammer drill(Drill bit Φ8mm)		torque wrench M4、M5、M8
	rubber hammer		socket wrench
	Marker pen		multimeter Range ≤600V
	Heat shrink tubing		Hot air gun

Tool type	Description	Tool Type	Description
	cable tie		Vacuum cleaner

personal protective equipment

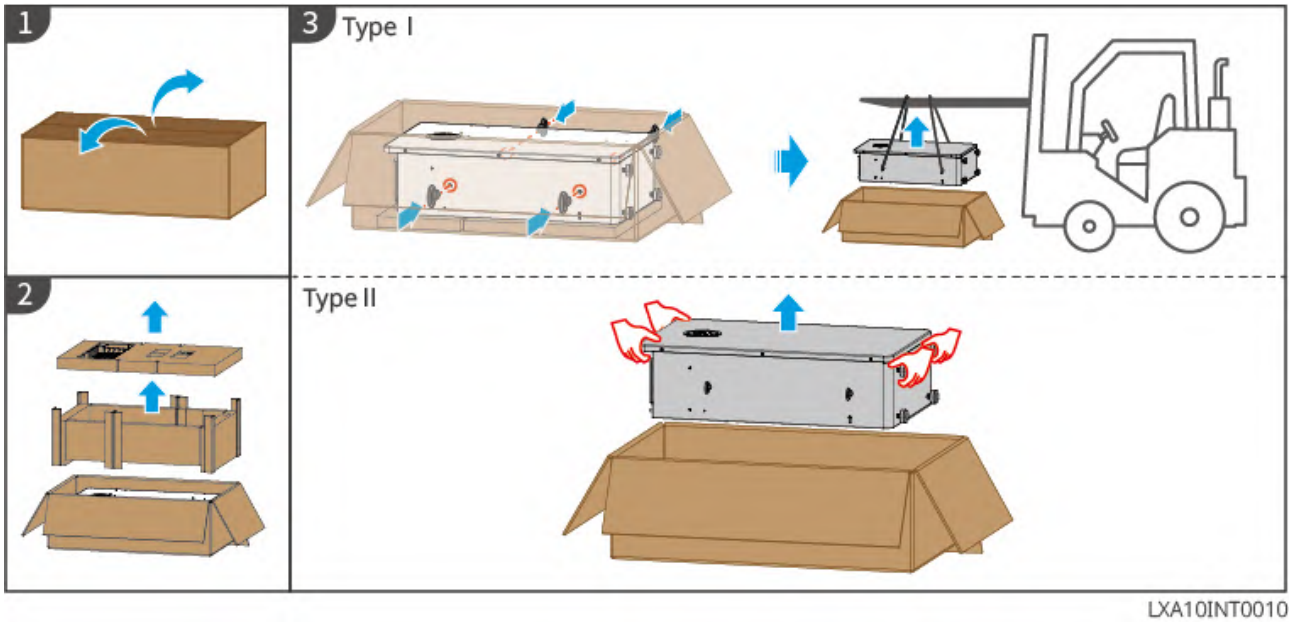
Tool type	Description	Tool type	Description
	Insulated gloves, protective gloves		Dust mask
	goggle		Safety shoes

4.3 Equipment Handling

⚠CAUTION

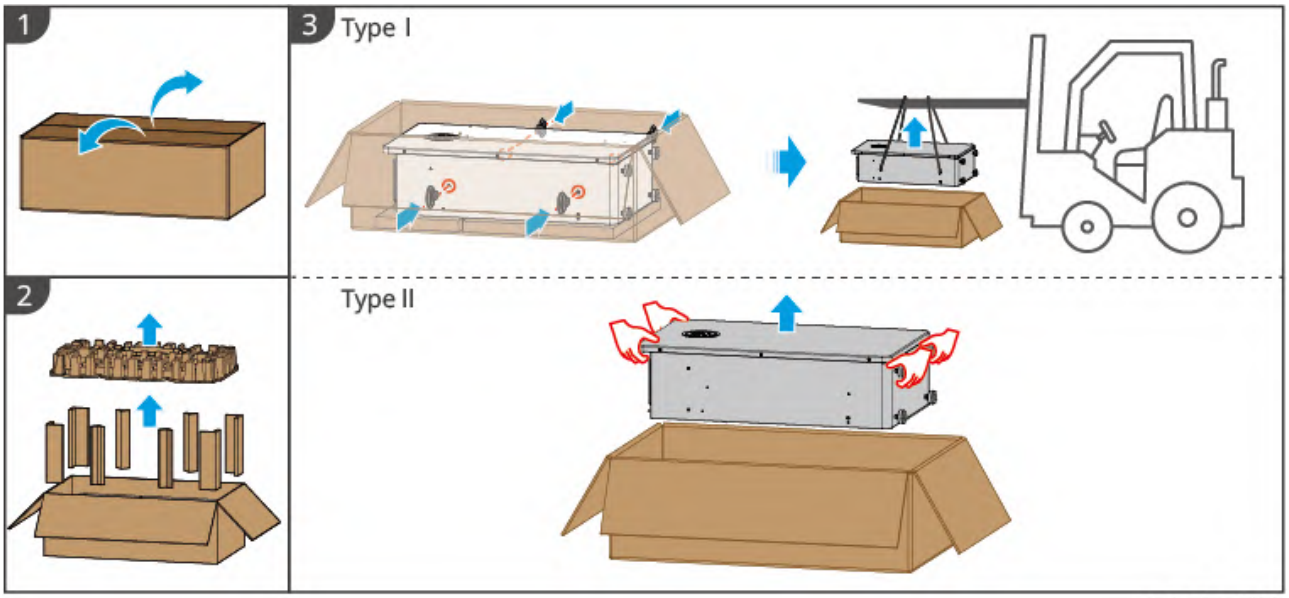
1. During operations such as transportation, handling, and installation, the laws, regulations, and relevant standard requirements of the country or region must be met.
2. Before installation, the equipment needs to be moved to the installation site. To avoid personal injury or equipment damage during the moving process, please note the following:
3. Assign personnel according to the equipment weight to prevent the equipment from exceeding the weight limit for manual handling, which could cause injury from dropping.
4. Please wear safety gloves to avoid injury.
5. Ensure the equipment remains balanced during movement to prevent it from falling.
6. The battery system can be removed from the packaging and transported to the installation site using a crane or hoisting method.
   - Crane requirements (for GW14.3-BAT-LV-G10, GW16.1-BAT-LV-G10): Lifting capacity ≥ 180kg
7. When using hoisting to move the equipment, please use flexible slings or straps. Requirements for the lifting lugs and slings of GW14.3-BAT-LV-G10 and GW16.1-BAT-LV-G10:
   - Lifting lugs: 4 x M10 lifting lugs, each with a load capacity ≥ 260 kg
   - Lifting sling: 1 piece, rope length ≥ 2.5m, sling load capacity ≥ 600kg

GW14.3-BAT-LV-G10:



LXA10INT0010

GW16.1-BAT-LV-G10:

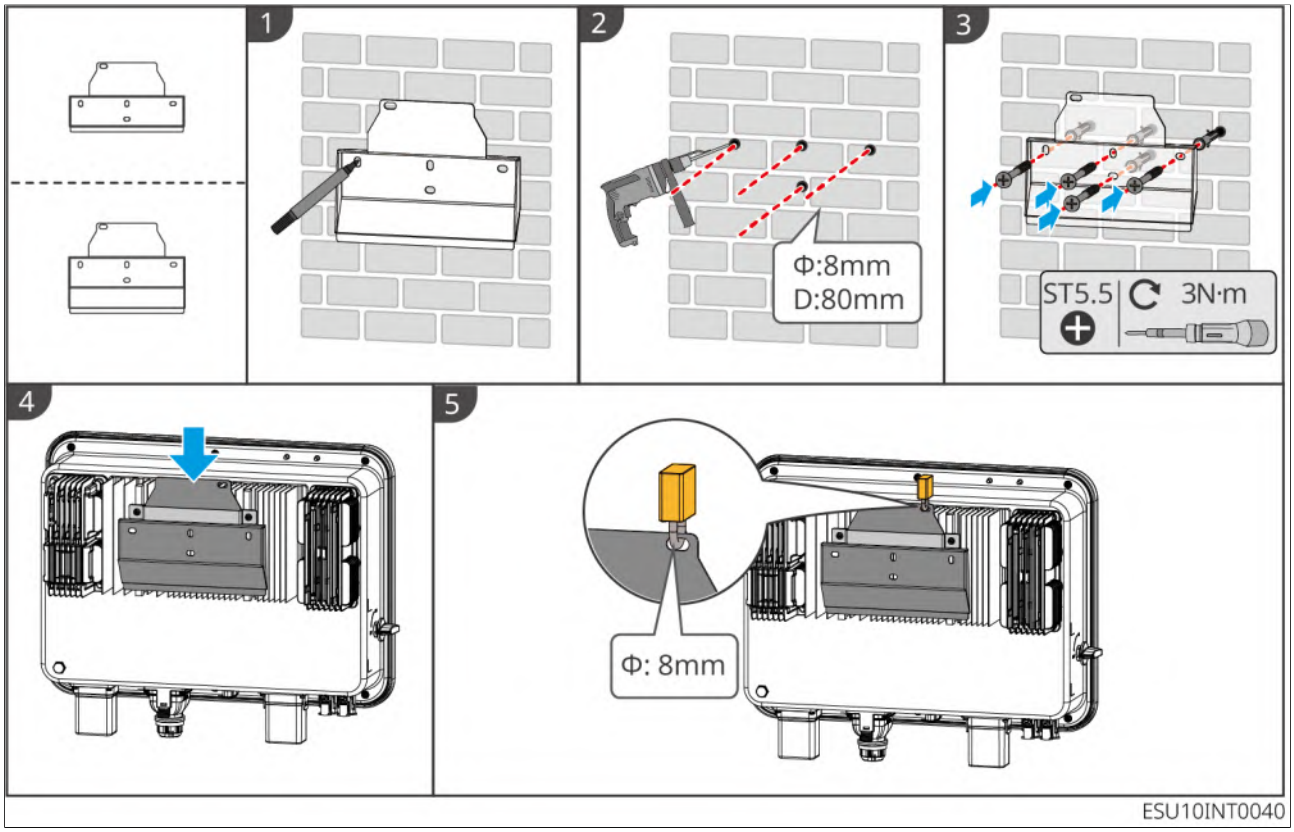


4.4 Installing the Inverter

⚠CAUTION

- When drilling, ensure the hole 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 the Inverter Installation is securely fastened to prevent falling and injuring personnel.

1. Place the mounting plate horizontally on the wall and mark the drilling positions with a marker pen.
2. Use hammer drill for punching holes.
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.



4.5 Installing the Battery System

⚠WARNING

- When Battery system Installation, ensure that the Installation is level and secure. When using the locking bracket, the locking bracket should be vertically flush against the wall and the surface of the Battery system.
- When using hammer drill for punching, use cardboard or other barriers to cover Battery system to prevent foreign objects from entering the equipment and causing damage.
- After marking the drilling position with a marker pen, the Battery system must be moved away to prevent damage to the equipment caused by the hammer drill being too close to the Battery system position when drilling with the hammer drill.

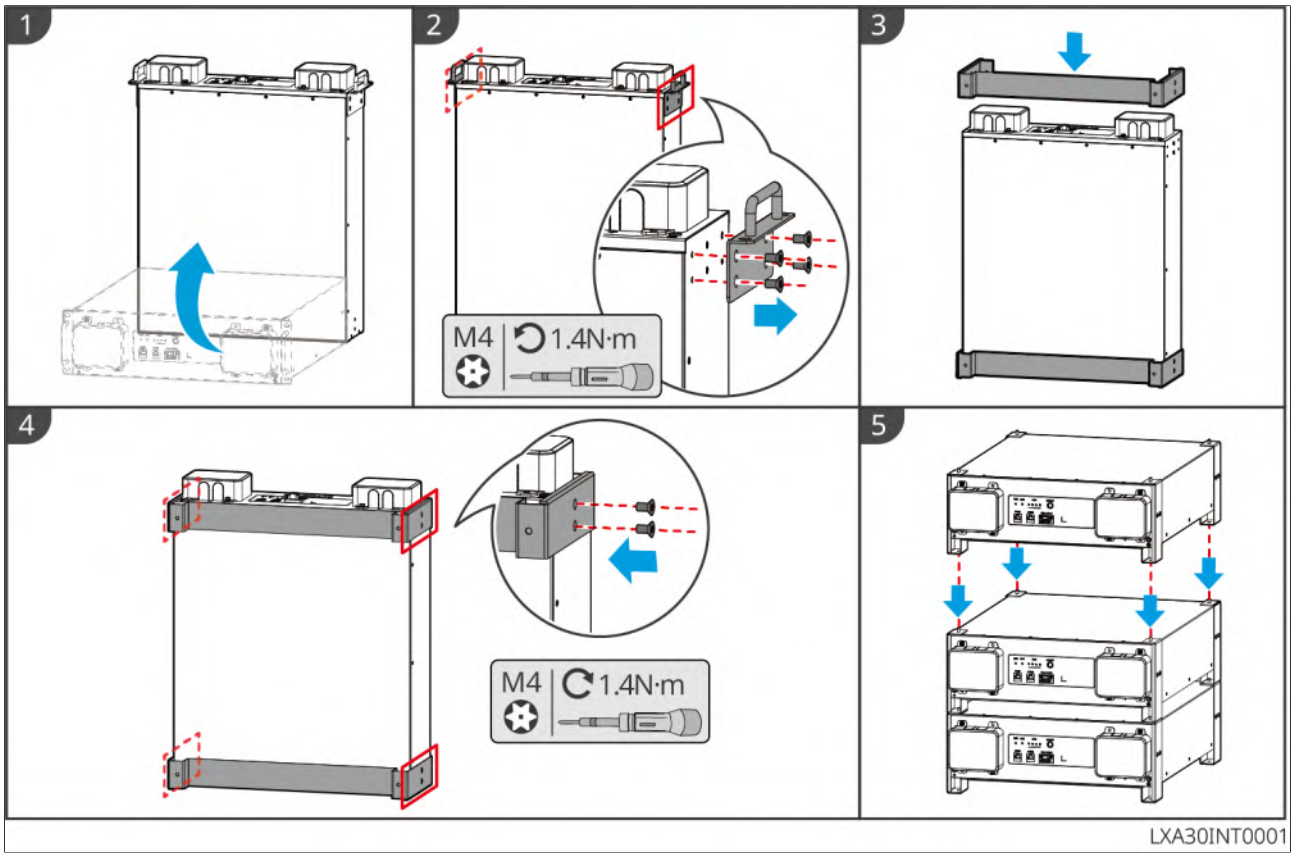
4.5.1 LX A5.0-30

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.

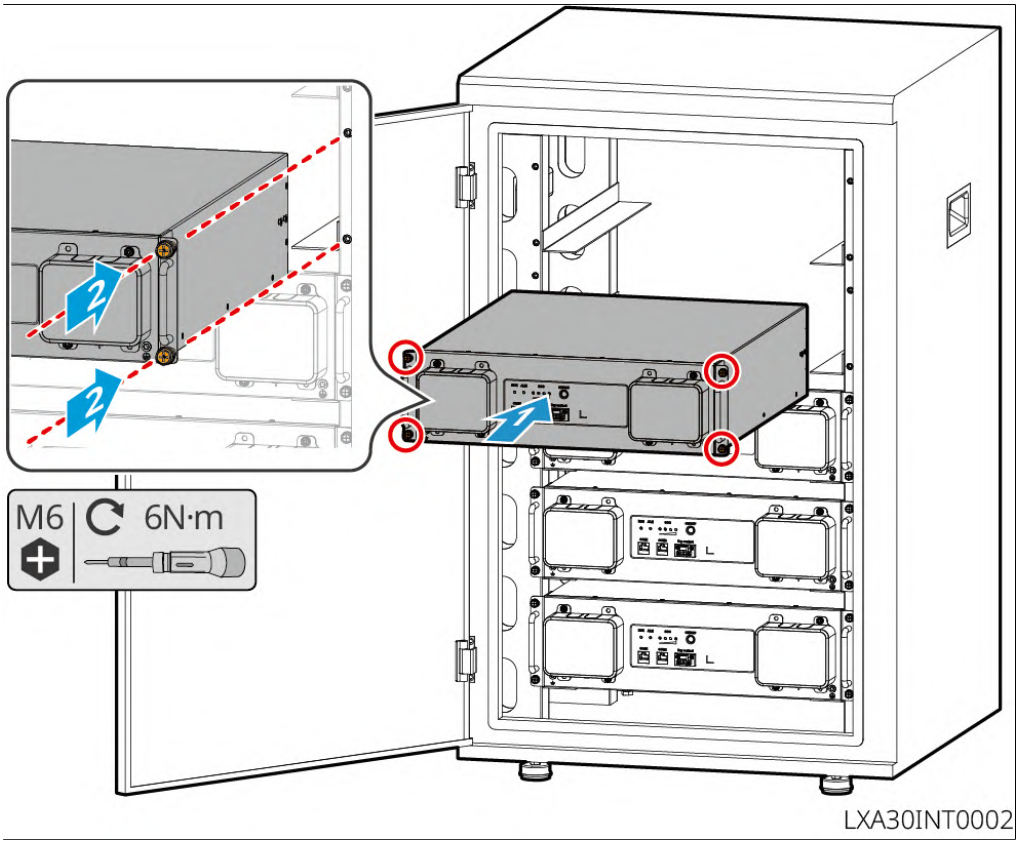


LX A5.0-30: Cabinet Installation

NOTICE

- It is recommended to install Installation in a standard 19-inch 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 (this label is additionally shipped as an accessory) on the front panel of any Battery.

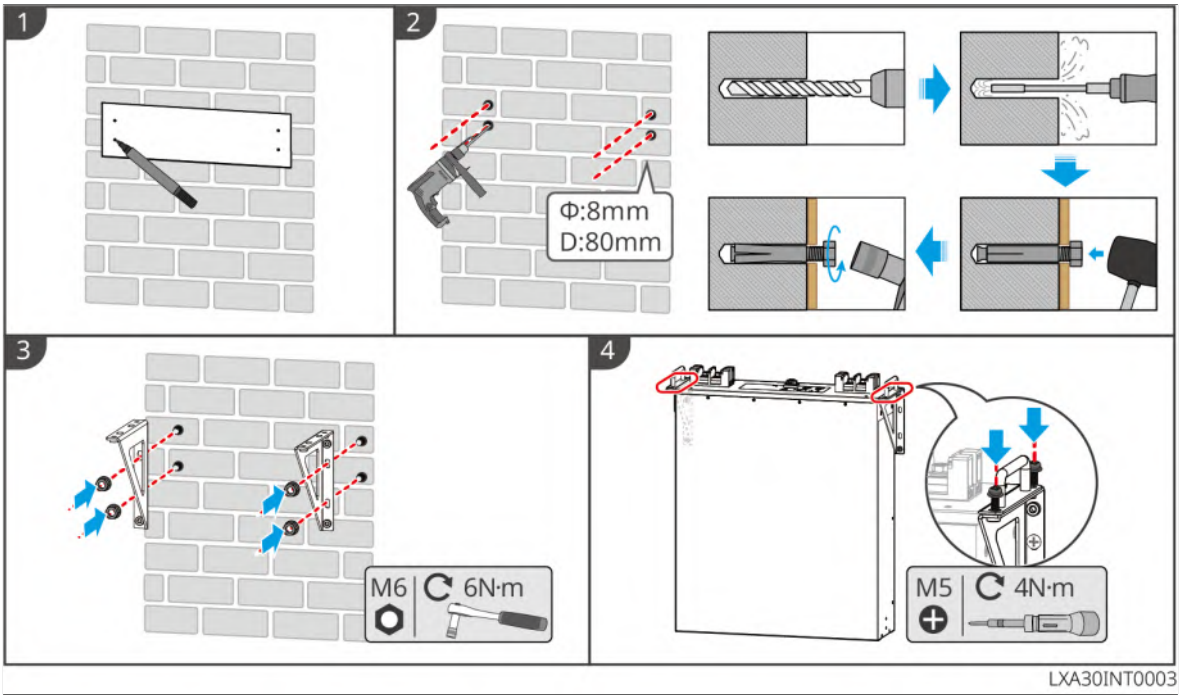
1. Place the Battery onto the guide rails of the cabinet, and secure the Battery to the cabinet using the screw from the Handle.



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. Bracket.
4. Mount the Battery Installation on the bracket, and secure the Battery to the

bracket using screw.

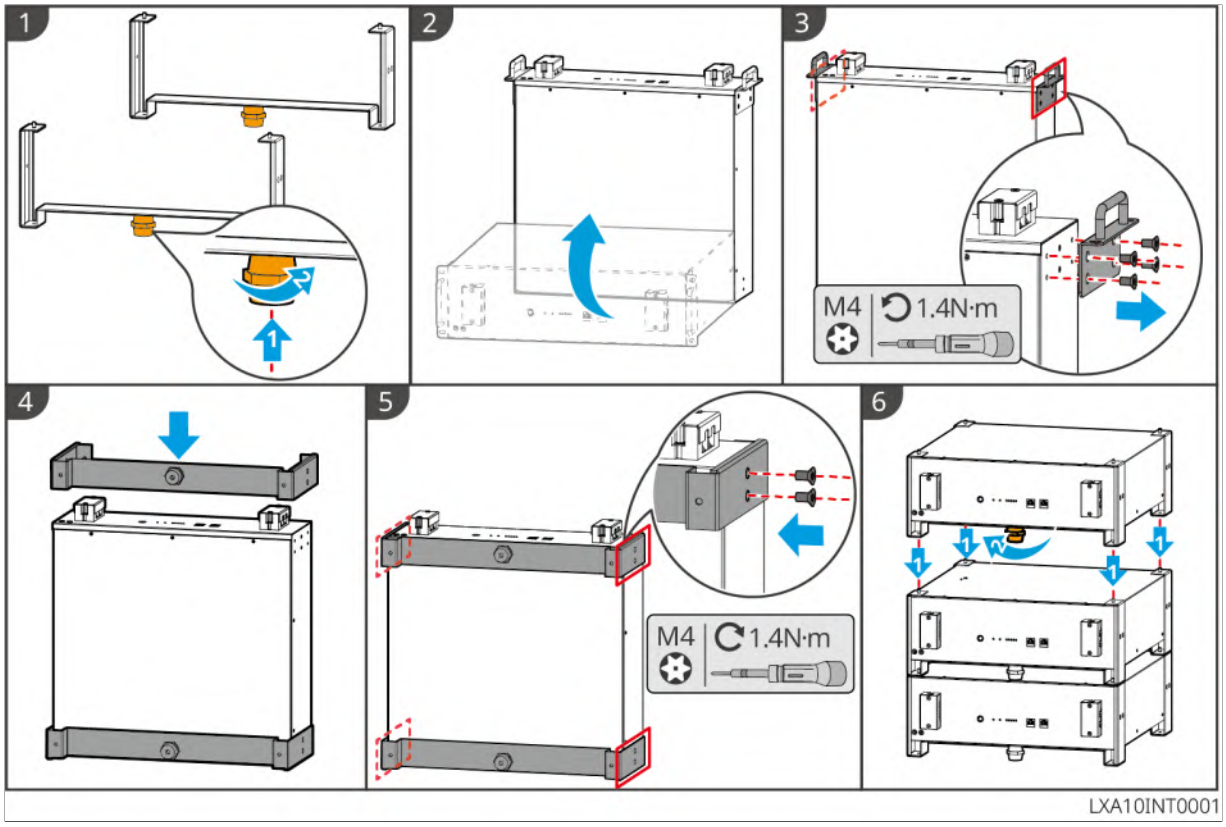


4.5.2 LX A5.0-10

LX A5.0-10: Ground Stacking

NOTICE
A maximum of 6 Battery can be stacked vertically.

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.

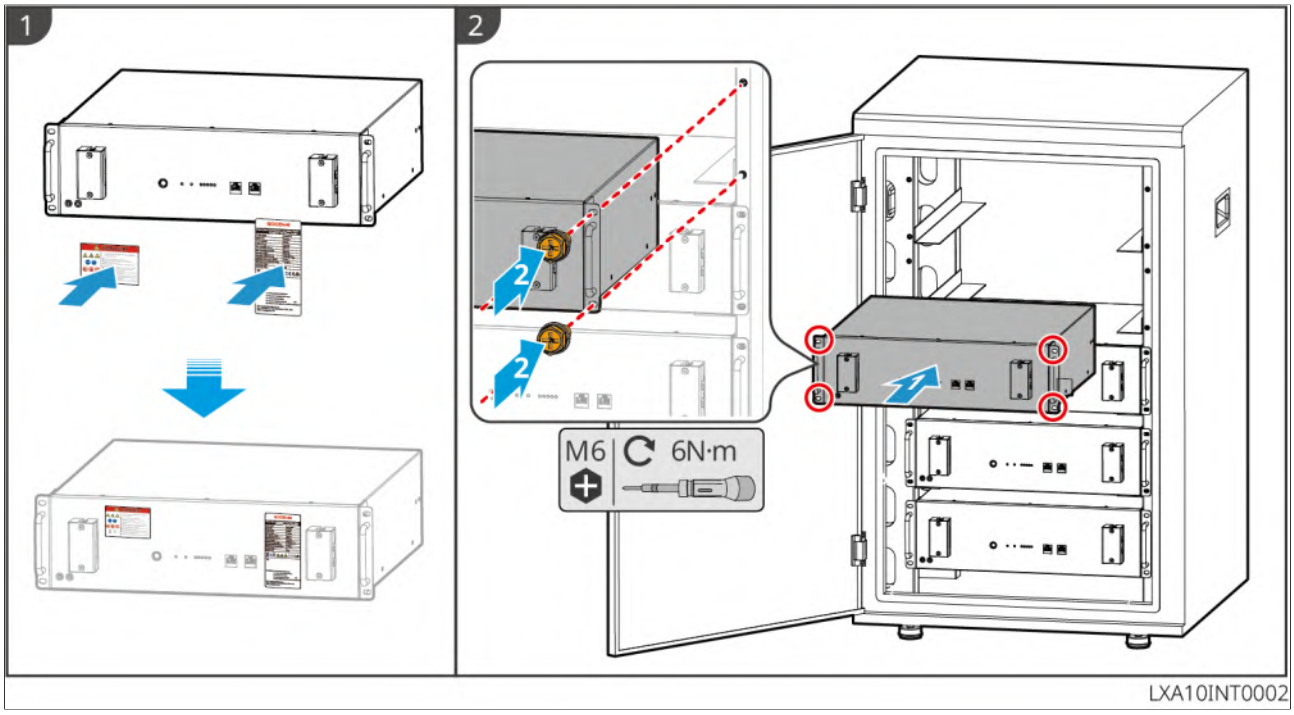


LX A5.0-10: Cabinet Installation

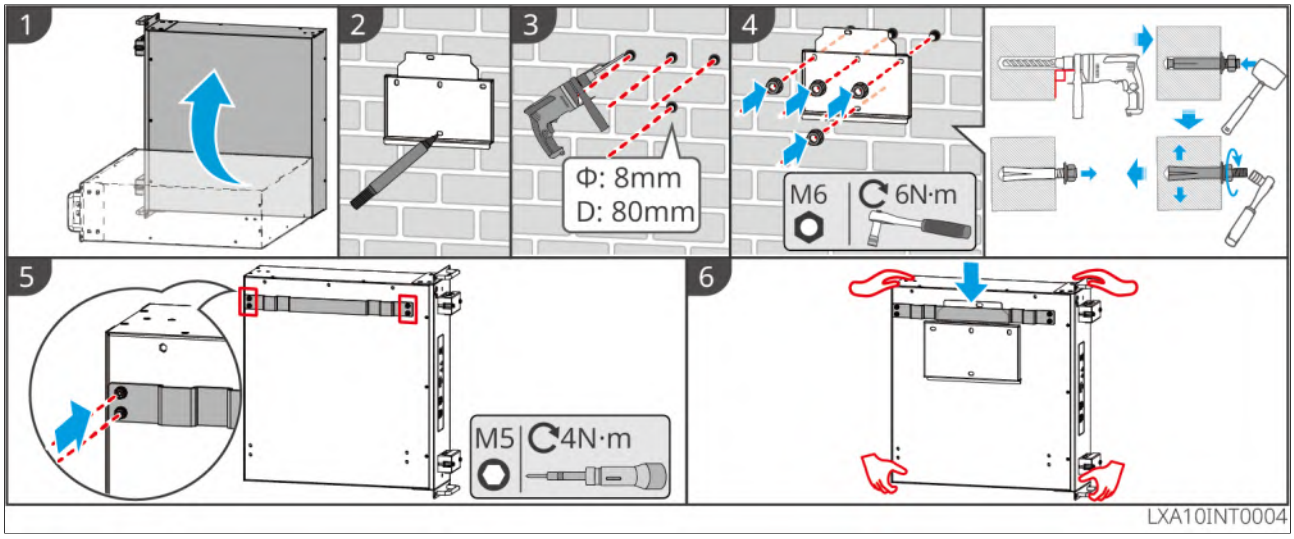
NOTICE

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

1. Attach the electrical label and warning label 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.

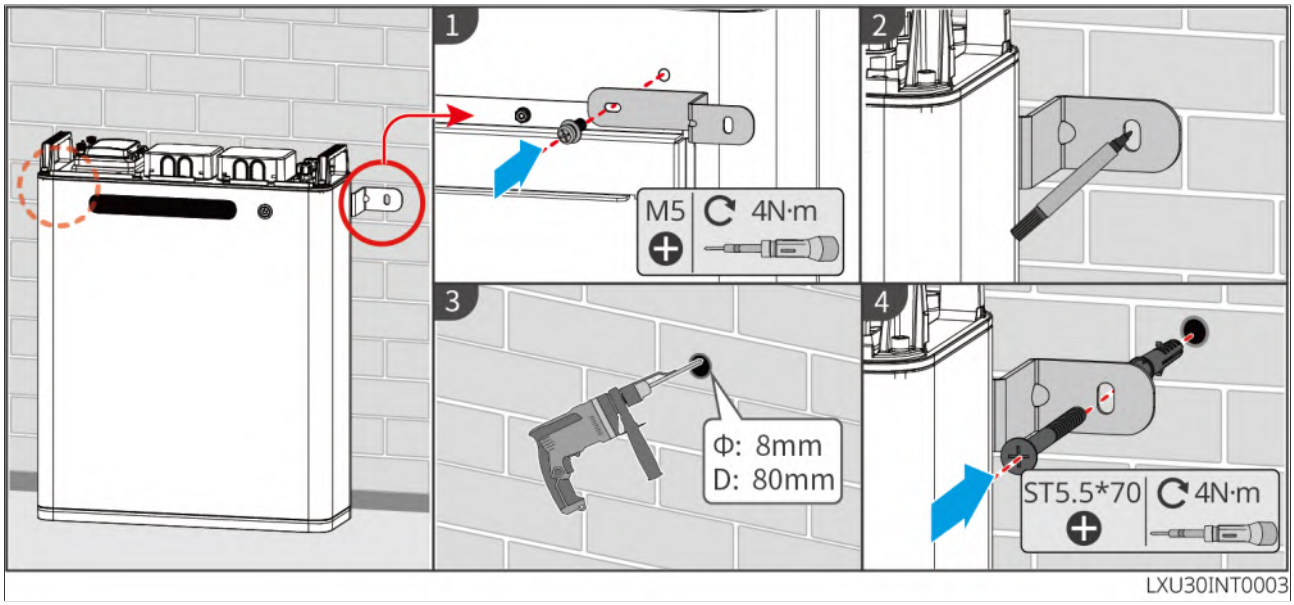


LX A5.0-10: Wall-mounted Installation

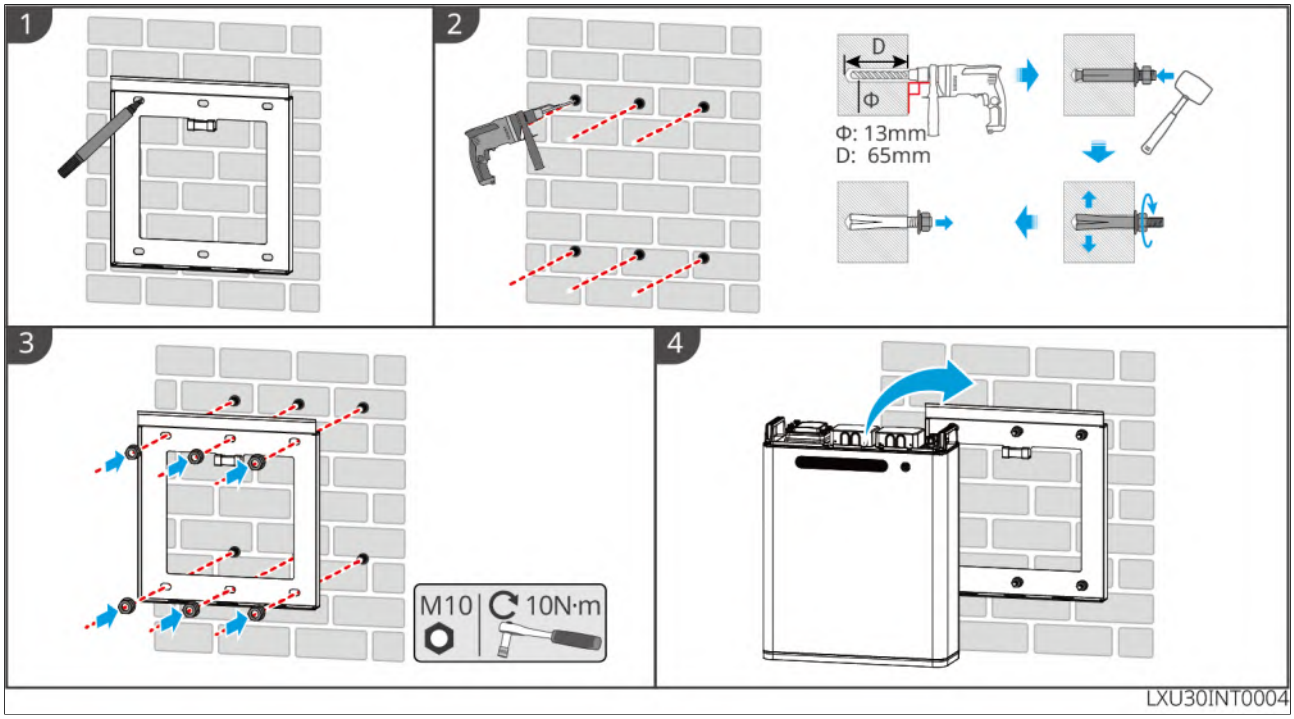


4.5.3 LX U5.0-30

LX U5.0-30: Floor-mounted Installation



LX U5.0-30: Wall-mounted Installation

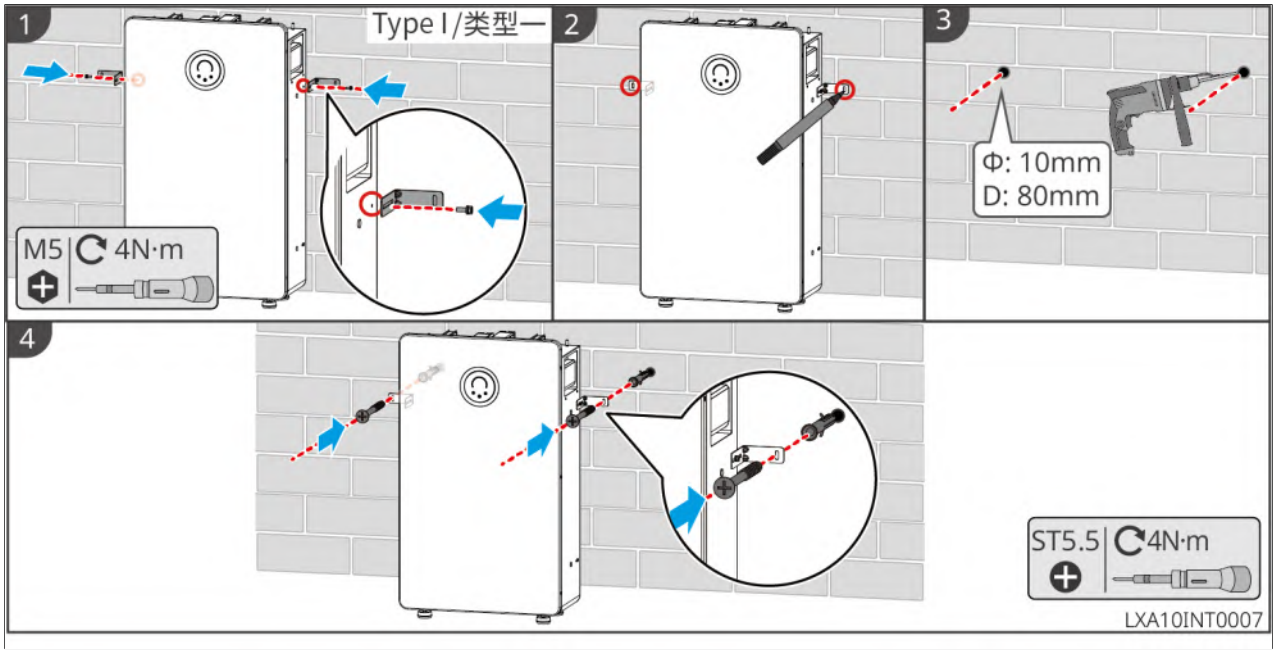


4.5.4 GW14.3-BAT-LV-G10

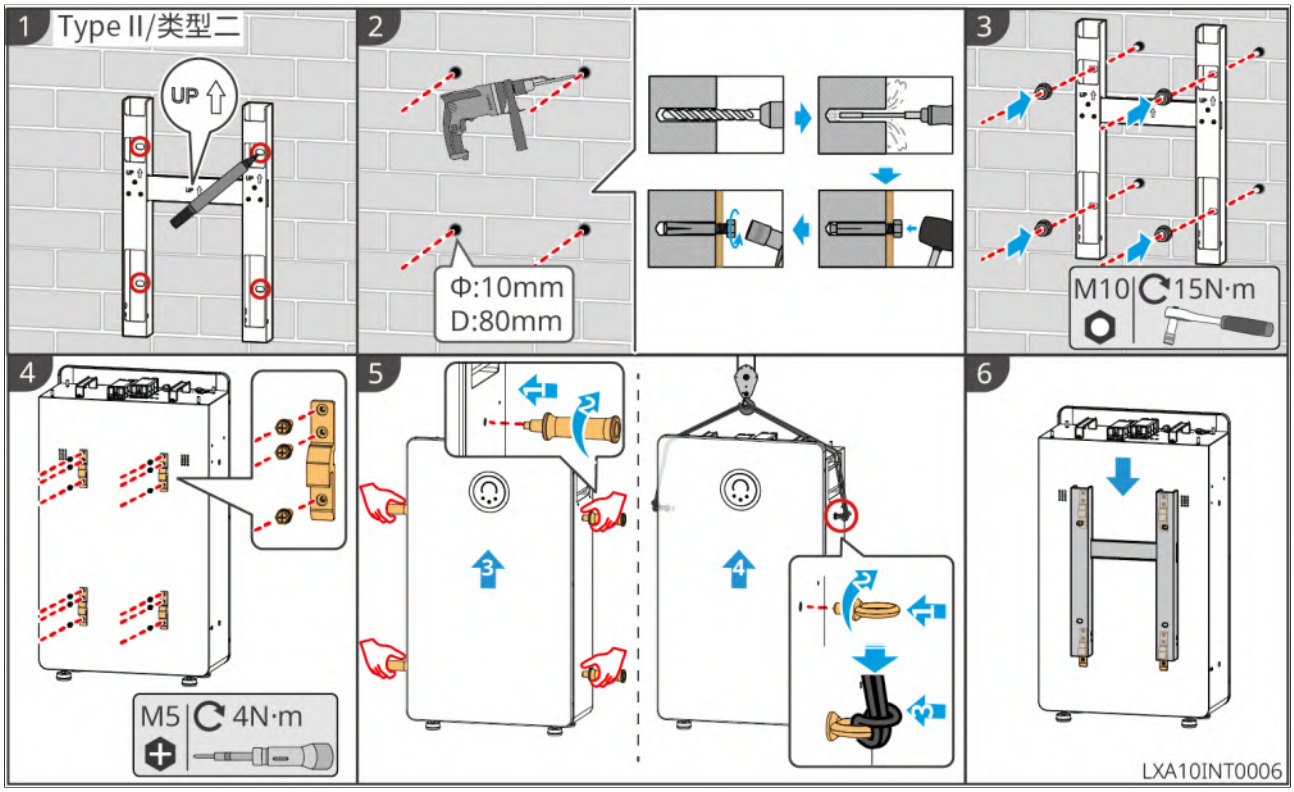
NOTICE

- Wall mounting requires two people Installation.

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



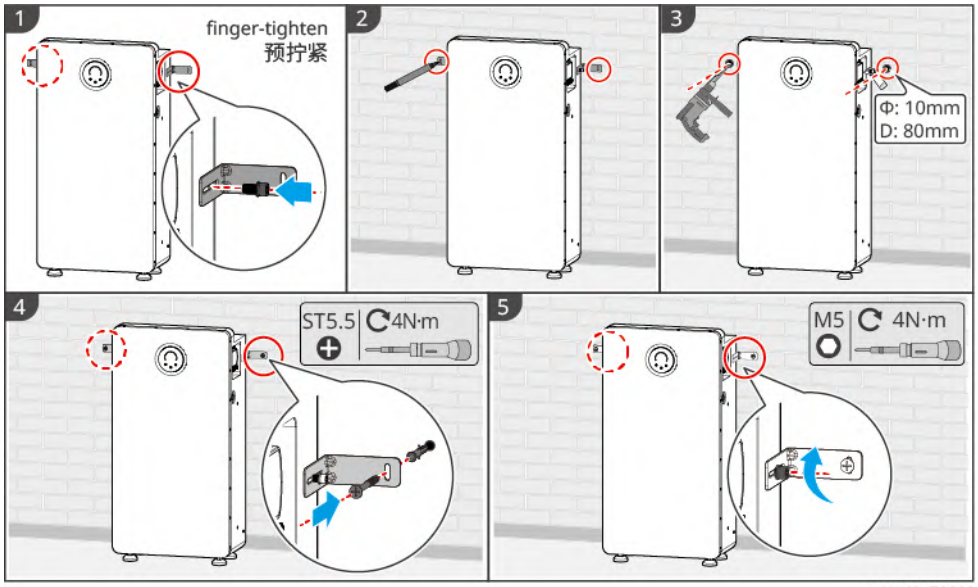
GW14.3-BAT-LV-G10: Wall-mounted Installation



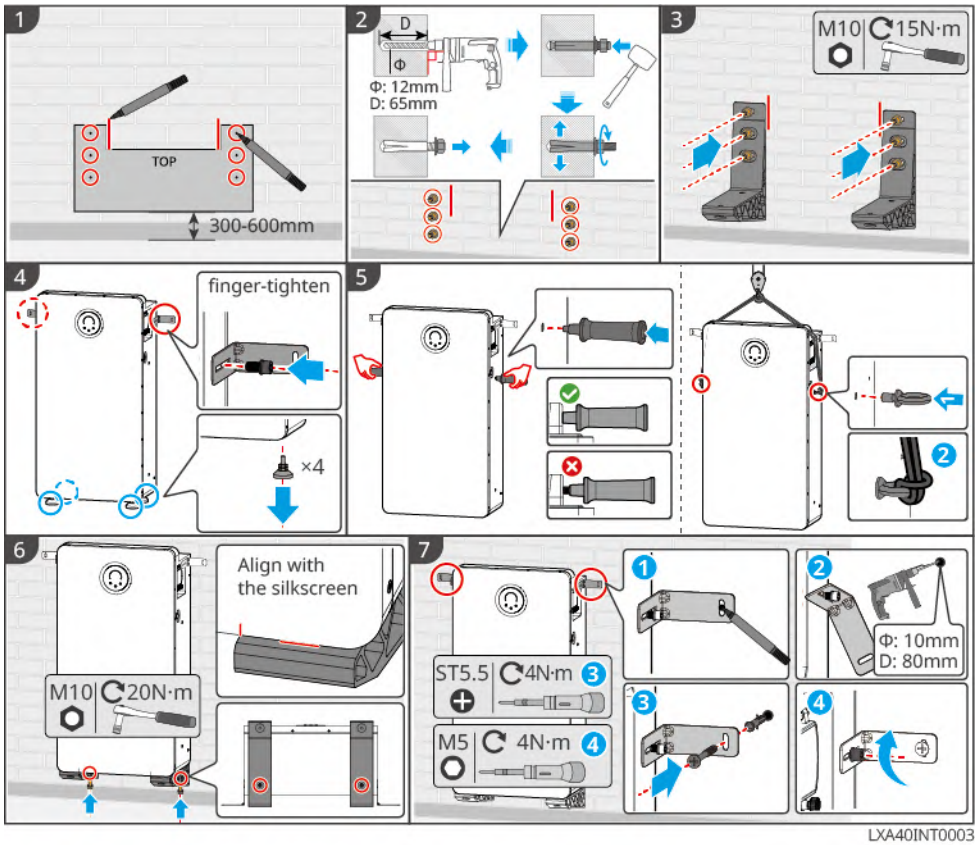
4.5.5 GW16.1-BAT-LV-G10

NOTICE
• Wall mounting requires two-person installation.

Floor-mounted installation



Wall-mounted installation

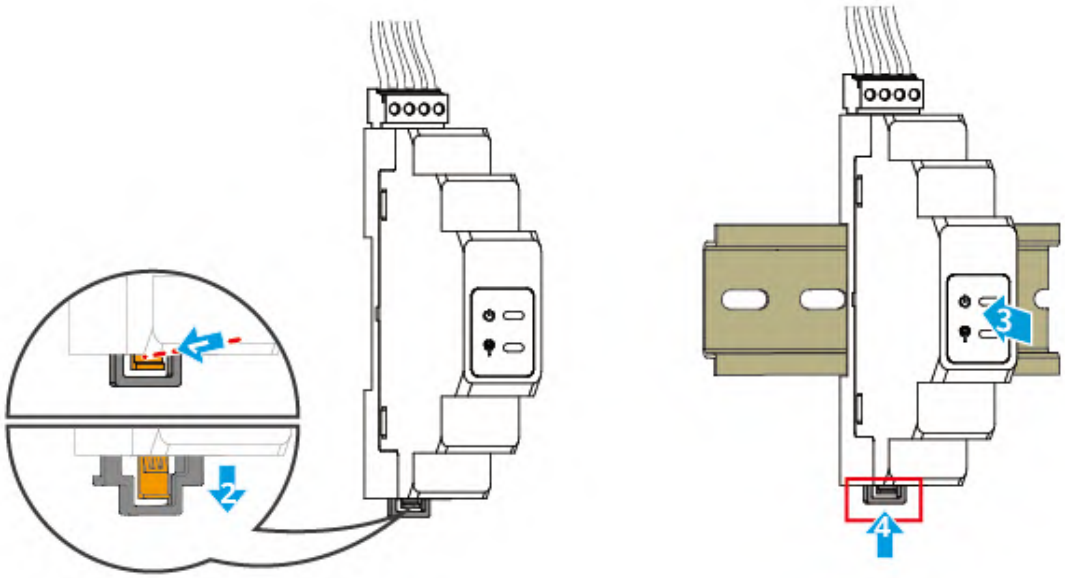


4.6 Installing the Smart Meter

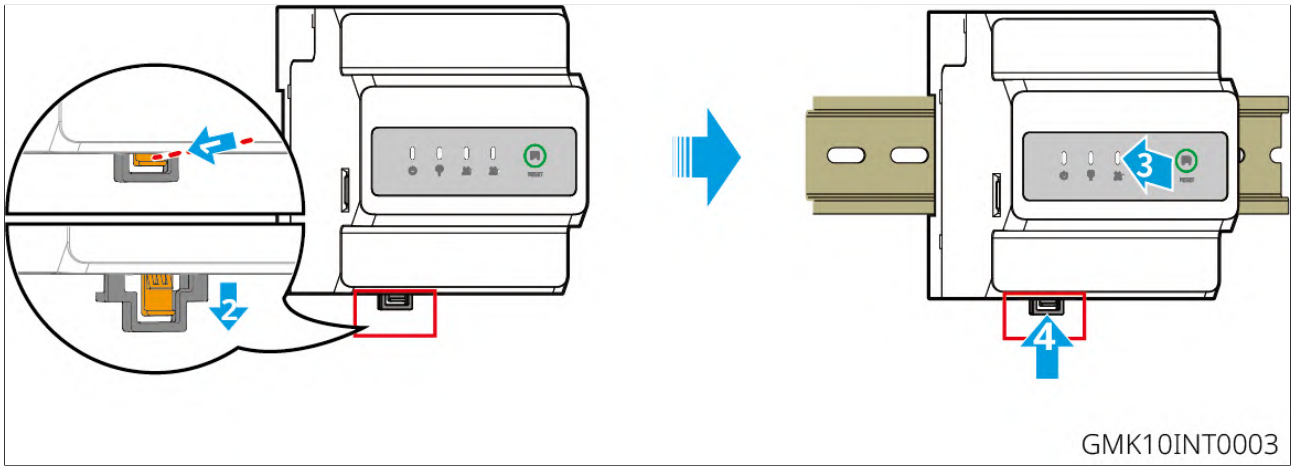
⚠WARNING

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 external lightning protection devices.

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 makes full contact with the wiring terminal. Do not crimp the cable insulation together with the wiring terminal, as this may cause the equipment to fail to operate or result in unreliable connections leading to overheating, which could damage the Inverter terminal busbar.

NOTICE

- When performing electrical connections, wear safety shoes, protective gloves, 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 Safety Precautions corresponding to the relevant products in the system.

5.1 System Wiring Electrical Block Diagram

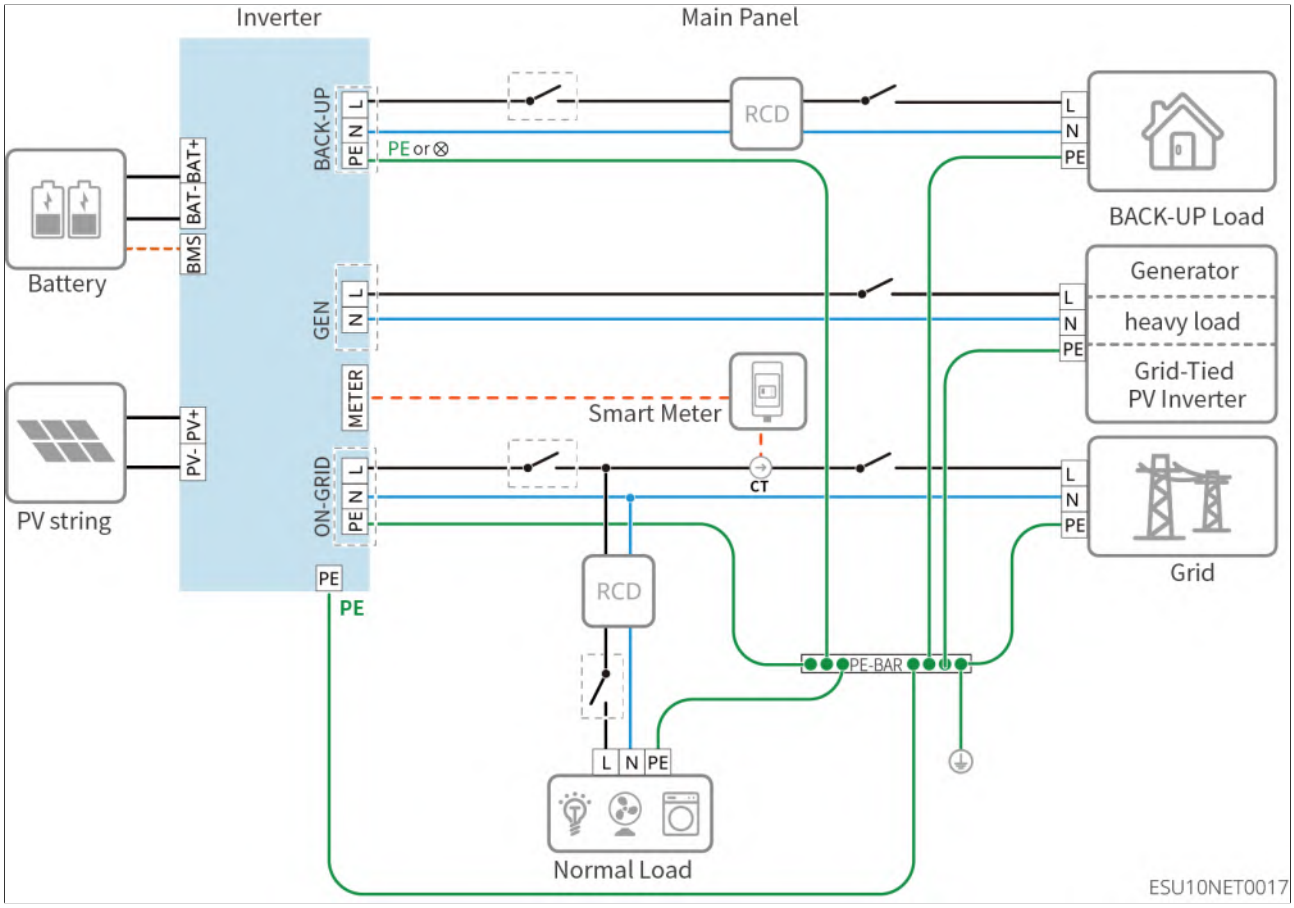
NOTICE

- According to the regulatory requirements of different regions, the wiring methods for the N and PE lines in Inverter ON-GRID and BACK-UP port systems 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 remains in the open state; when the Inverter operates in on-grid 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, otherwise electric shock may occur.

N and PE wires are separately connected in distribution box.

NOTICE

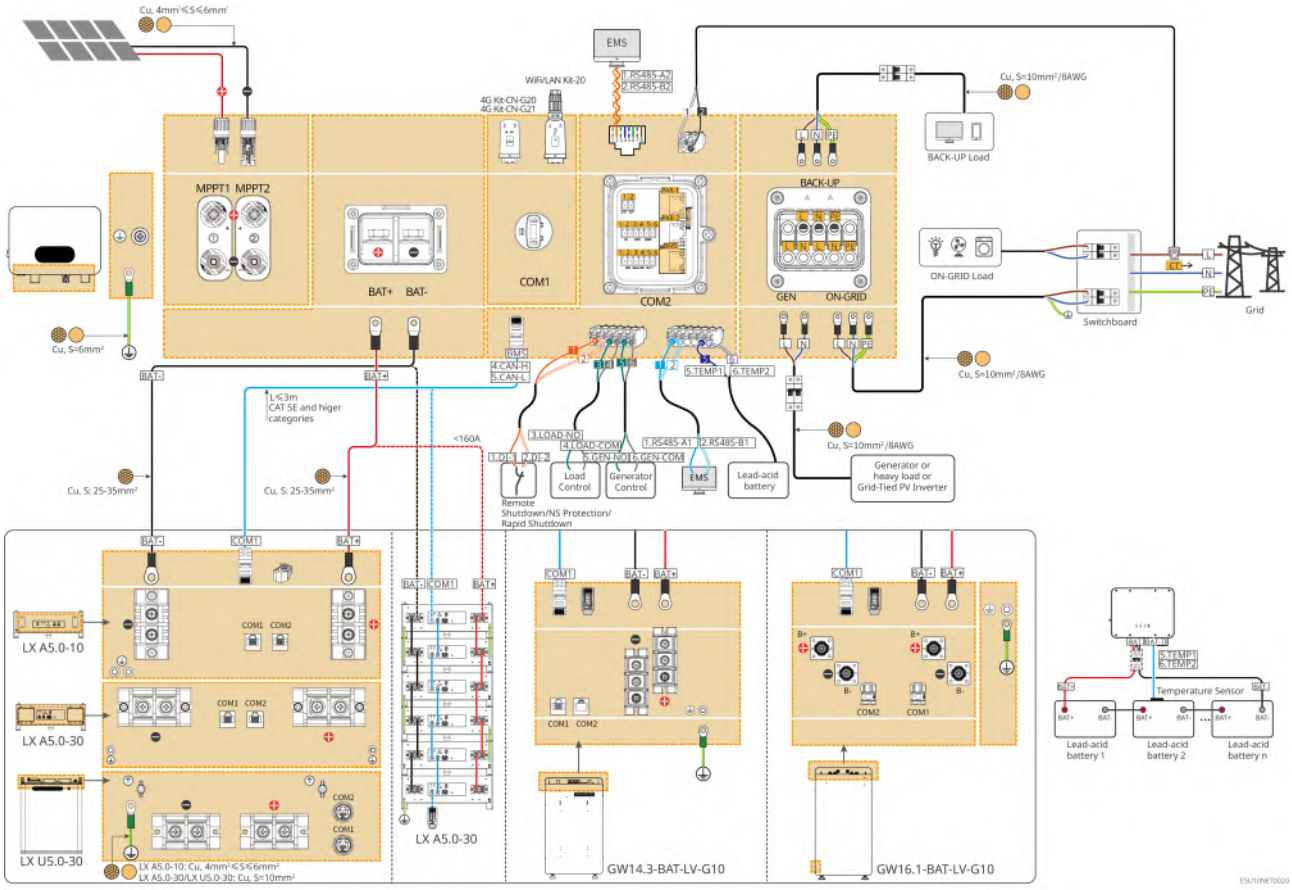
- Please ensure that the PE cable connection of the BACK-UP is correct and secure, otherwise the BACK-UP function may malfunction when Utility grid fault occurs.
- The following wiring methods apply to regions other than Australia, New Zealand, etc.:



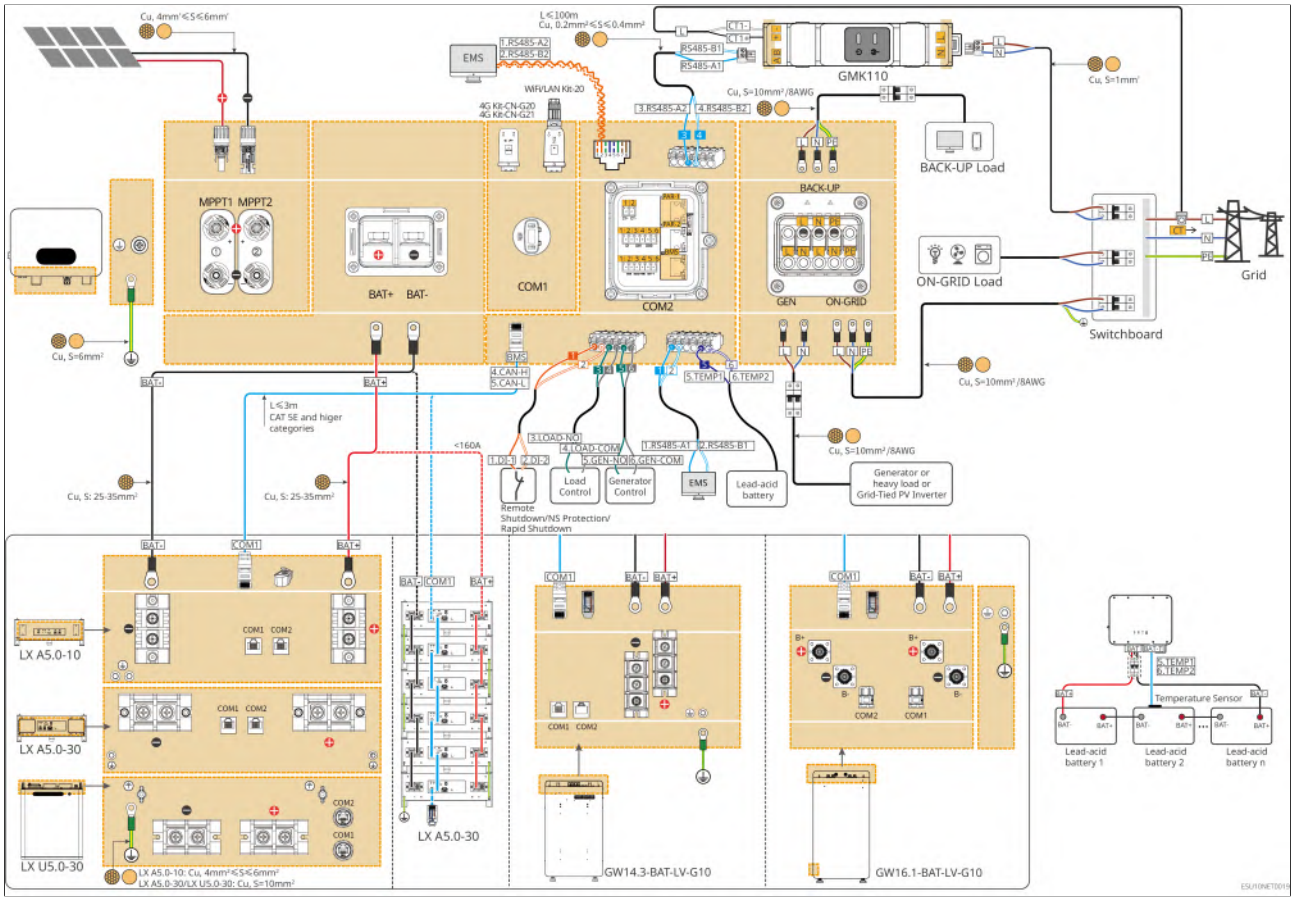
5.2 Detailed System Wiring Diagram

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 scenario



Matching GMK110 scenario



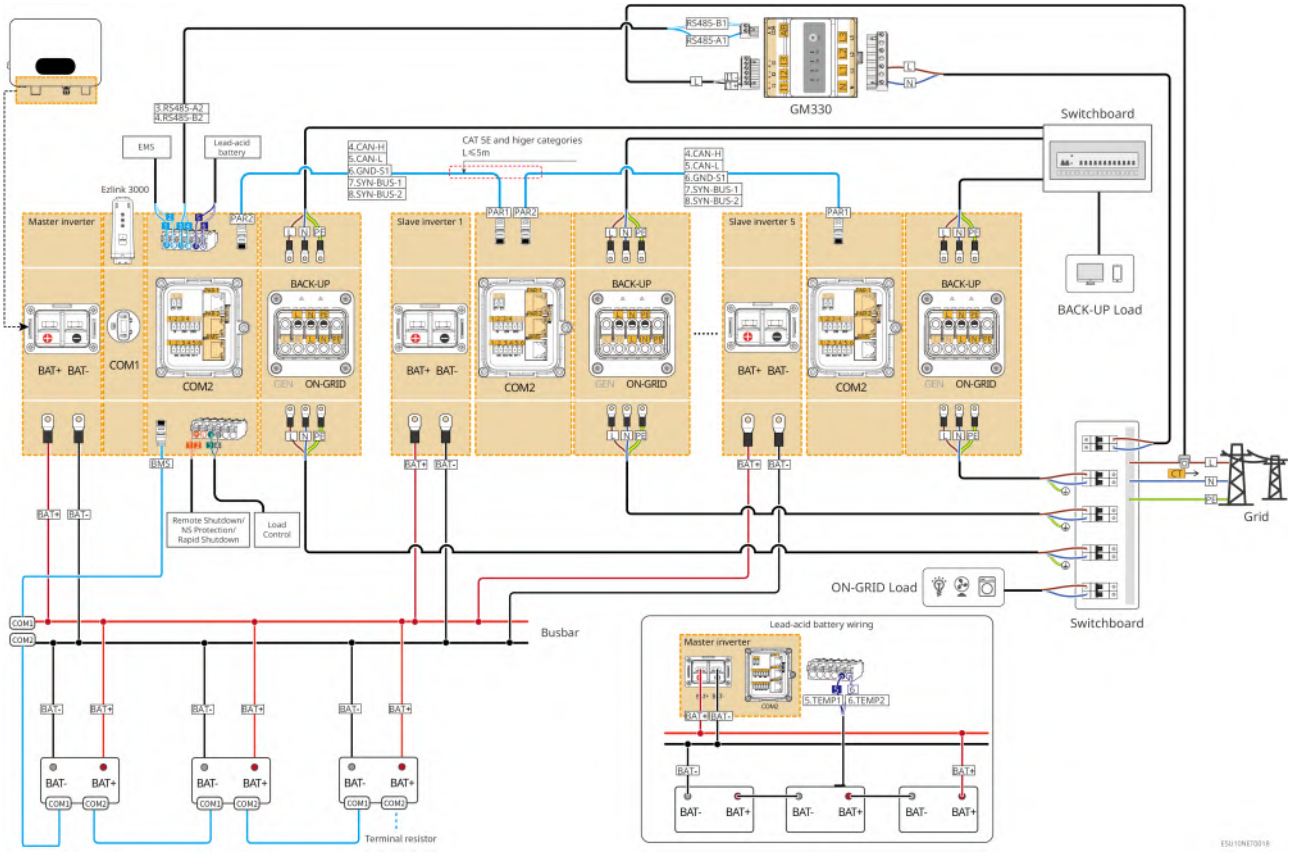
5.2.2 Detailed System Wiring Diagram for Parallel System

NOTICE

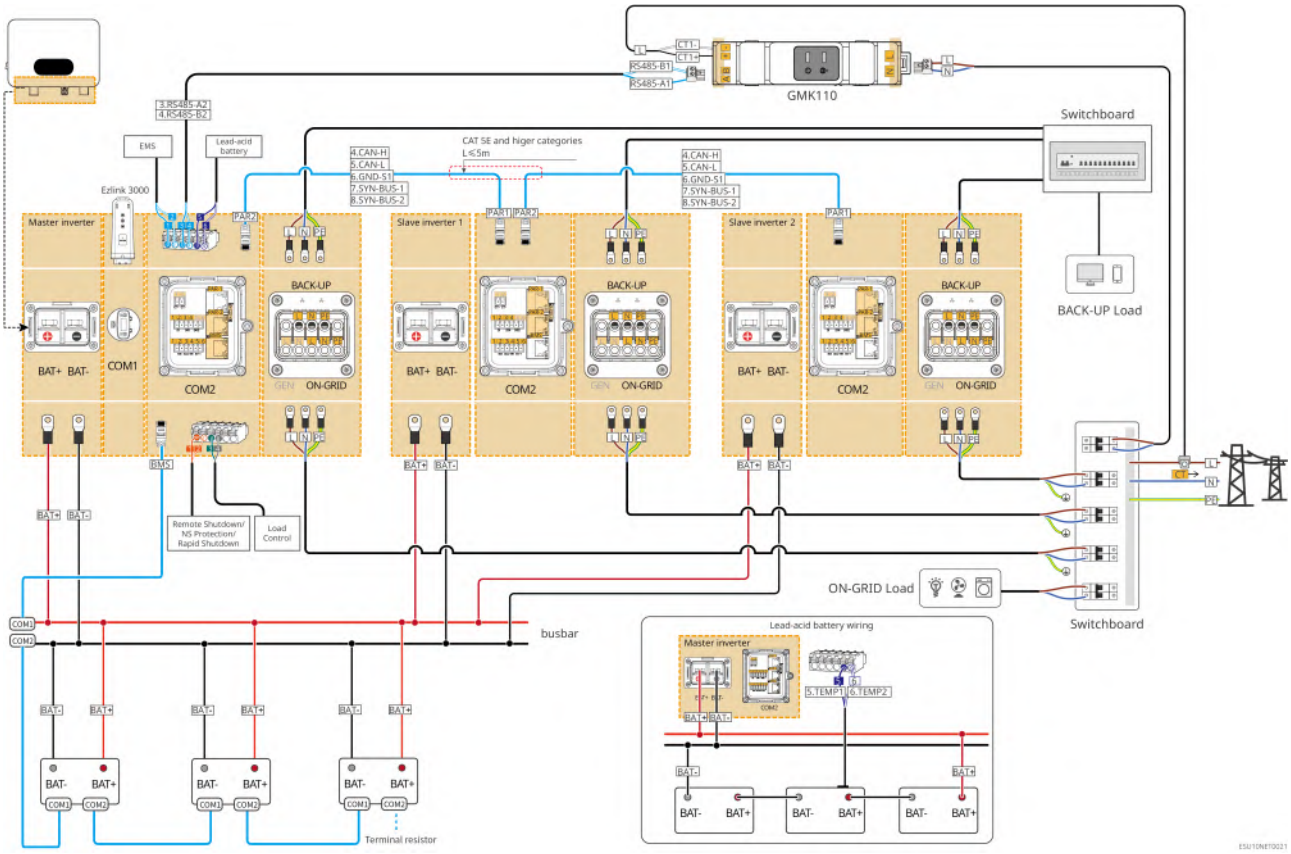
- In a parallel system, the inverter connected to both the Ezlink3000 Smart Communication Stick and the meter is the master inverter, while the others are slave inverters. Do not connect the Smart Communication Stick to slave inverters in the system.
- Parallel systems do not support connection to generators, large loads, or grid-tied PV inverters.
- The following diagrams focus on wiring related to parallel connection. For wiring requirements of other ports, please refer to the single-unit system.
- In a parallel system, when inverters are not in converged mode, each inverter can connect to batteries of different models. For specific wiring methods, refer to 5.7.Connecting the Battery Cable(Page 115).

Battery Bus Connection Mode during Inverter Parallel Operation

With GM330 Scenario

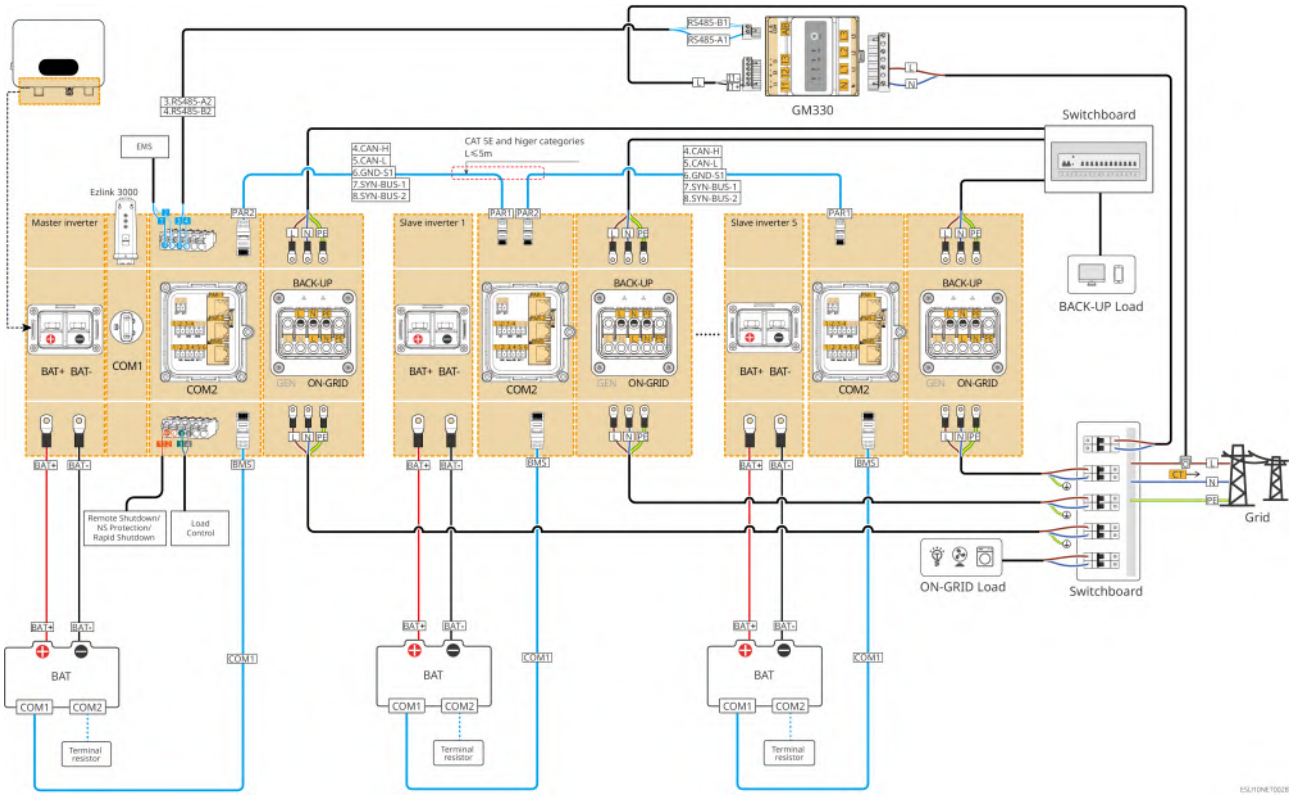


With GMK110 Scenario

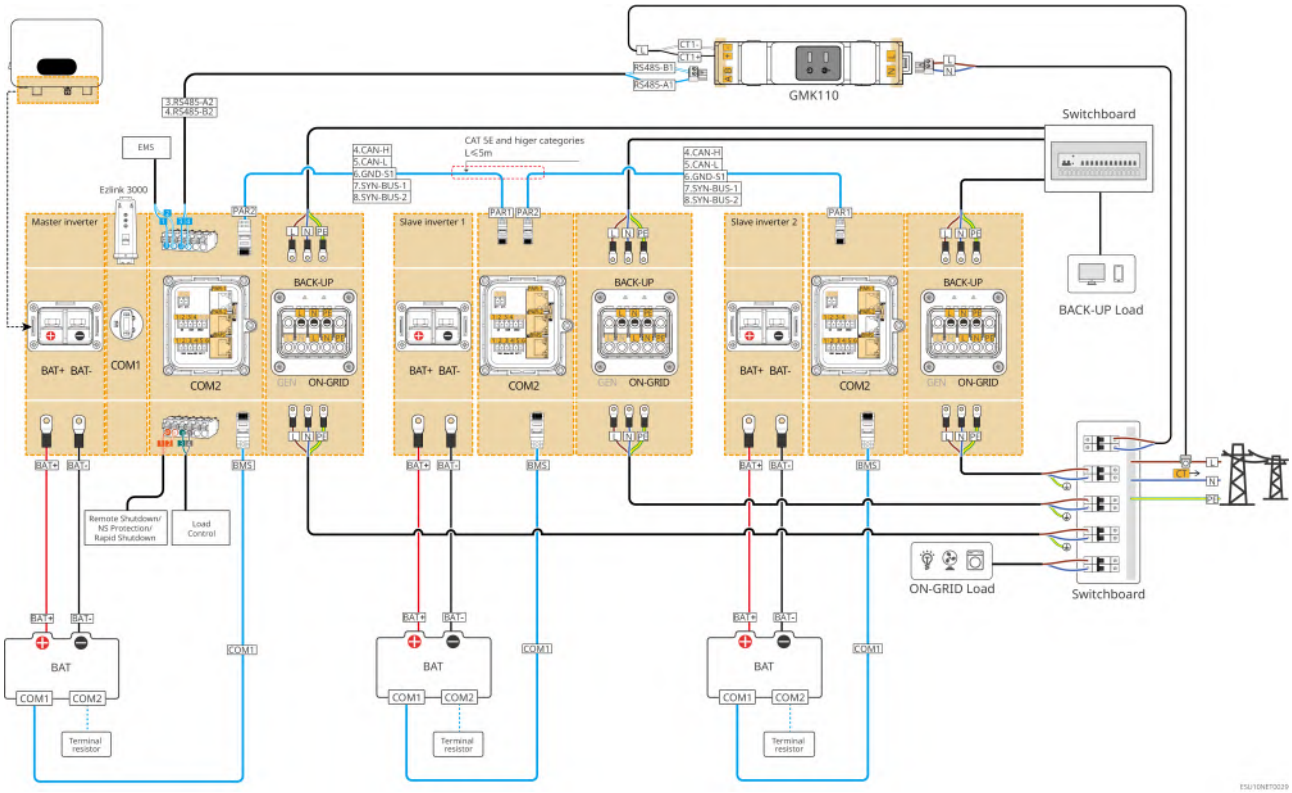


Battery Non-Bus Connection Mode during Inverter Parallel Operation

With GM330 Scenario



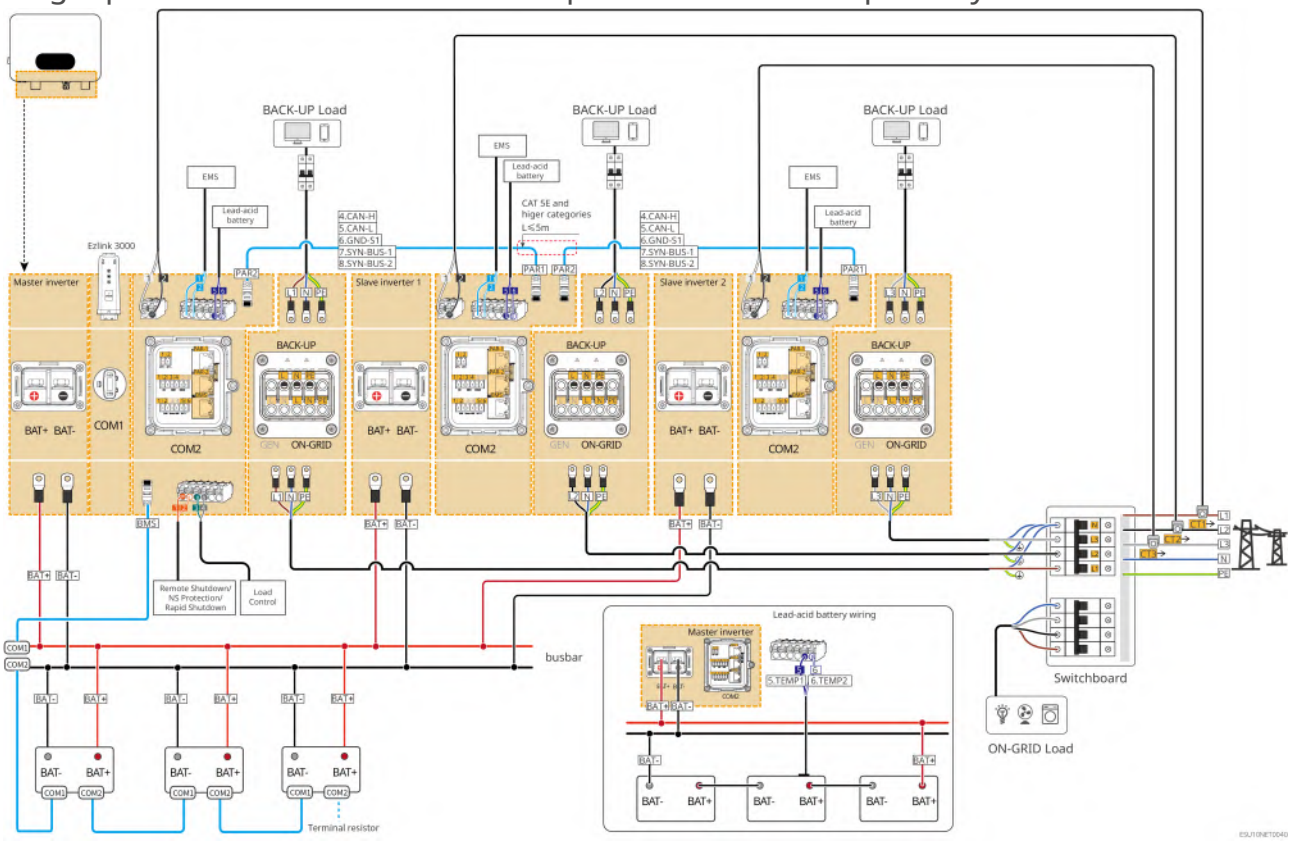
With GMK110 Scenario



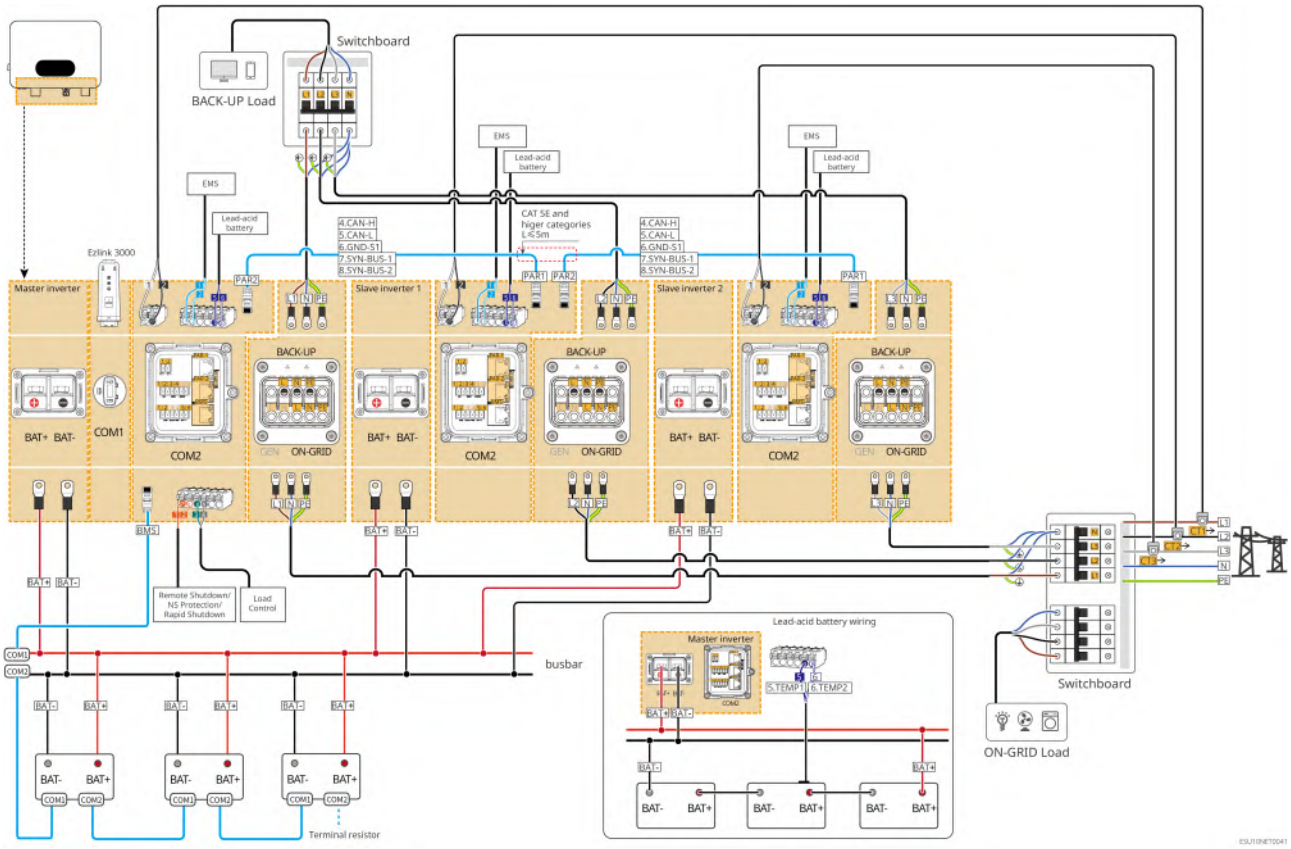
5.2.3 Single-phase to three-phase Detailed System Wiring Diagram

Built-in meter scenario

Single-phase load scenario with each phase connected separately

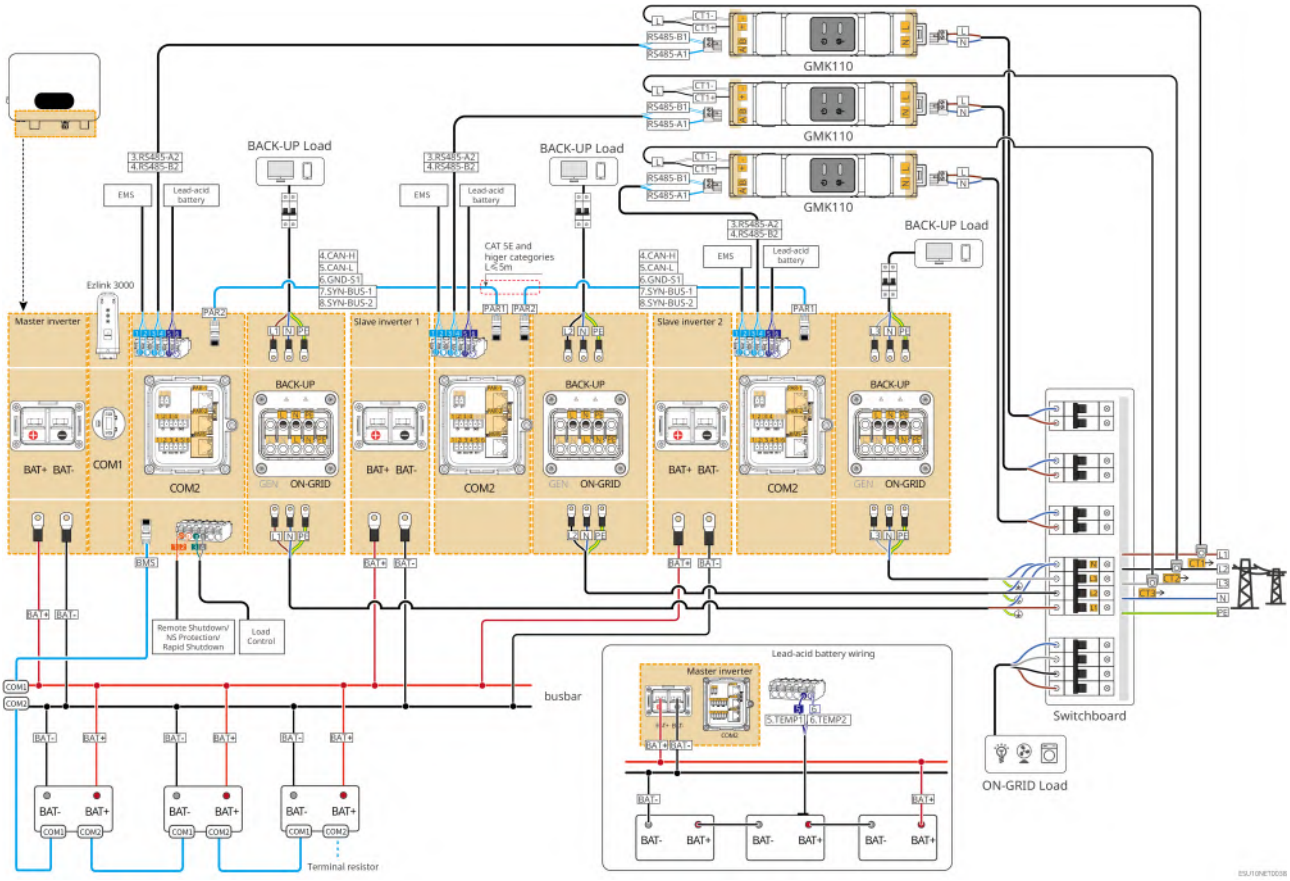


Three-phase load connection scenario

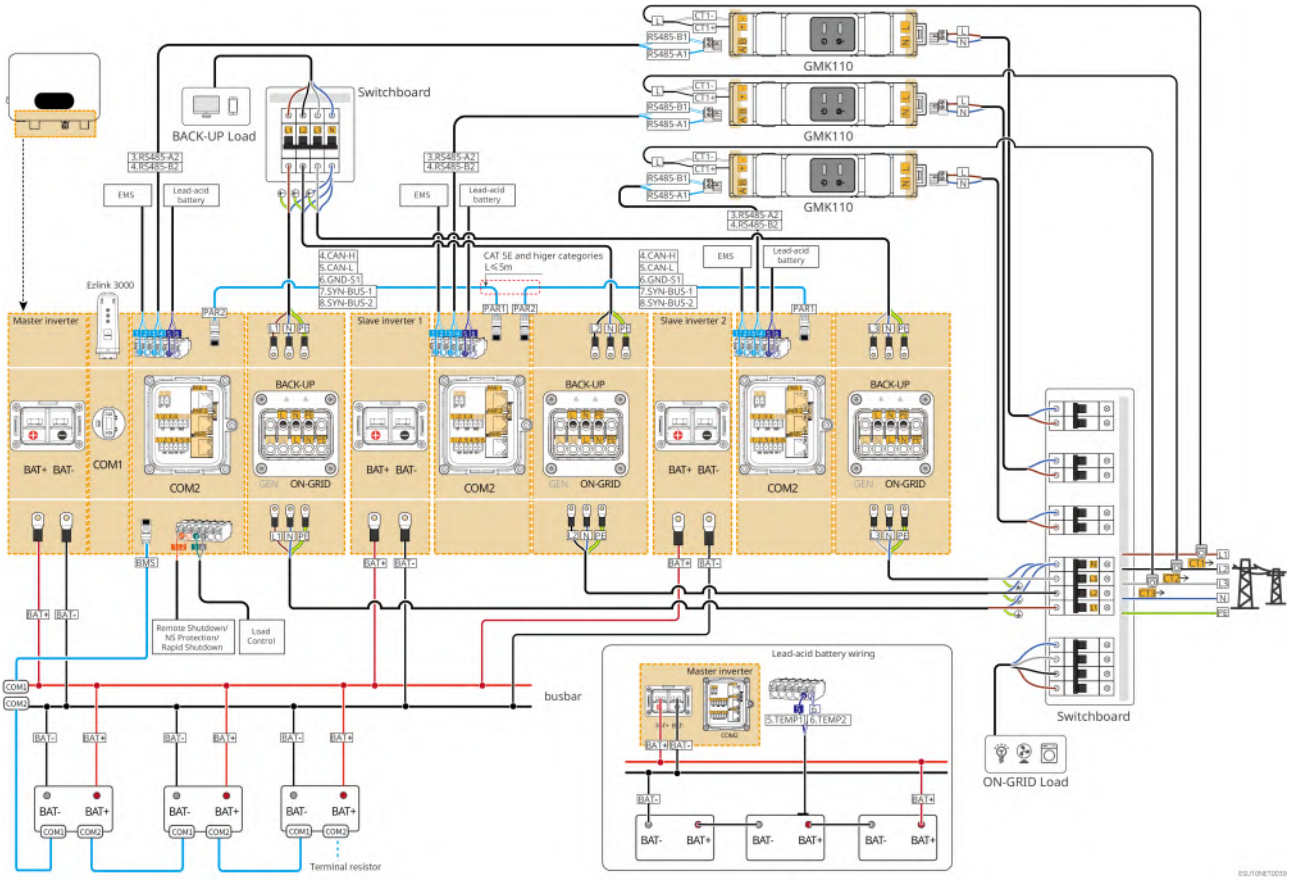


Matching GMK110 scenario

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 a single AC breaker simultaneously.
- To ensure that the Inverter can be safely disconnected from the Utility grid in case of an abnormal situation, please connect a AC breaker on the AC side of the Inverter. Select an appropriate AC breaker according to local regulations.
- When the Inverter power on is completed, the BACK-UP AC port becomes live. If maintenance is required on the BACK-UP Loads, please Inverter the power off to avoid the risk of electric shock.
- For cables used in the same system, it is recommended that the conductor material, cross-sectional area, length, etc., be consistent.
  - The BACK-UP AC line of each Inverter
  - The AC line of each Inverter connected to the grid
  - Inverter-Battery power cable cable
  - power cable cable between Battery and Battery
  - Inverter to busbar power cable cable
  - power cable cable between Battery and the busbar

5.3.1 Preparing Breakers

No.	breaker	Recommended Specifications	Remarks
1	• ON-GRID breaker • BACK-UP Loads breaker • GEN breaker	• GW3000-ES-C10, GW3600-ES-C10: Rated Current ≥40A, Nominal Voltage ≥230V • GW5000-ES-C10, GW6000-ES-C10: Rated Current ≥50A, Nominal Voltage ≥230V	User-provided

No.	breaker	Recommended Specifications	Remarks
2	Battery switch	Select according to local laws and regulations • GW3000-ES-C10, GW3600-ES-C10: Rated Current ≥100A, Nominal Voltage ≥60V • GW5000-ES-C10: Rated Current ≥125A, Nominal Voltage ≥60V • GW6000-ES-C10: Rated Current ≥160A, Nominal Voltage ≥60V	User-provided
3	RCD	Select according to local laws and regulations • Type A • ON-GRID side: 300mA • BACK-UP side: 30mA	User-provided

5.3.2 Preparing Cables

No.	Cable	Recommended Specification	Acquisition Method
1	Inverter Protective Grounding Cable	• Single-core outdoor copper cable • Conductor cross-sectional area: S=6mm²	Customer-provided
2	Battery Protective Grounding Cable	• Single-core outdoor copper cable • Conductor cross-sectional area: • LX A5.0-10: 4-6mm² • LX A5.0-30: 10mm² • LX U5.0-30: 10mm² • GW14.3-BAT-LV-G10: 10mm² • GW16.1-BAT-LV-G10: 10mm²	• Customer-provided • 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 accessories • GW16.1-BAT-LV-G10: standard-equipped

No.	Cable	Recommended Specification	Acquisition Method
3	PV DC Cable	• Industry-standard outdoor PV cable • Conductor cross-sectional area: 4-6mm² • Cable outer diameter: 4.8mm-6.3mm	Customer-provided
4	Battery DC Cable	• Single-core outdoor copper cable • Inverter battery terminal wiring requirements: ◦ Conductor cross-sectional area: 25-35mm² ◦ Cable outer diameter: 8-13mm • Cable requirements between battery and busbar: ◦ 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 ◦ GW16.1-BAT-LV-G10, conductor cross-sectional area: 50mm² • Cable requirements between battery and battery: ◦ 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 ◦ GW16.1-BAT-LV-G10, conductor cross-sectional area: 50mm²	• Customer-provided • 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: For some machines, battery DC cables are shipped with the battery accessories • GW16.1-BAT-LV-G10: ◦ DC cable between inverter and battery: standard-equipped ◦ Inter-battery DC cable: Available for purchase from GoodWe

No.	Cable	Recommended Specification	Acquisition Method
5	AC Cable	• Inverter AC input/output cable (BACKUP/GRID): ◦ Conductor cross-sectional area: 10mm²/8AWG ◦ Multi-core outdoor copper cable outer diameter: 15-18mm ◦ Single-core outdoor copper cable outer diameter: 5.5mm-7mm • Generator power cable (GEN): ◦ Conductor cross-sectional area: 10mm²/8AWG ◦ Multi-core outdoor copper cable outer diameter: 14mm-17mm ◦ Single-core outdoor copper cable outer diameter: 5.5mm-7mm	Customer-provided
6	Smart Meter Power Cable	• Outdoor copper cable • Conductor cross-sectional area: 1mm²	Customer-provided

No.	Cable	Recommended Specification	Acquisition Method
7	Battery Communication Cable	Communication between the combiner box and the battery, and between batteries requires the use of CAT 5E or higher standard shielded Ethernet cable and shielded RJ45 connectors.	• Customer-provided • LX A5.0-10, LX A5.0-30: Accessory acquisition (optional) • GW14.3-BAT-LV-G10: ◦ Communication cable between inverter and battery: Partially standard-equipped ◦ Inter-battery communication cable: Customer-provided, cable length ≤2m • GW16.1-BAT-LV-G10: ◦ Communication cable between inverter and battery: standard-equipped ◦ Inter-battery communication cable: Customer-provided, cable length ≤1m
8	Meter RS485 Communication Cable	• Shielded twisted pair cable • Conductor cross-sectional area: 0.2mm²-0.4mm²	Customer-provided

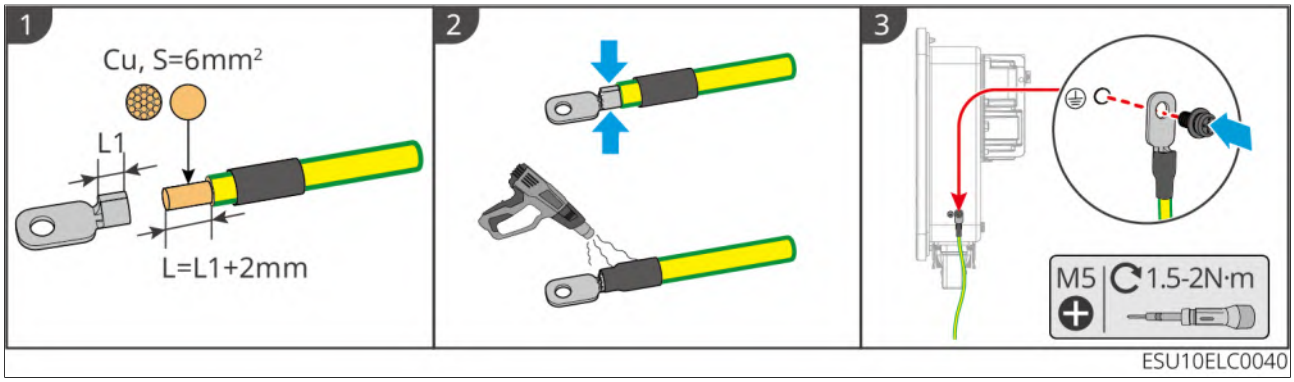
No.	Cable	Recommended Specification	Acquisition Method
9	Inverter Parallel Communication Cable WiFi/LAN Kit-20 Communication Cable	CAT 5E or higher standard shielded Ethernet cable and shielded RJ45 connectors	Customer-provided
10	Remote Shutdown/ Rapid Shutdown/ NS Protection Communication Cable	• Copper twisted pair cable • Conductor cross-sectional area: 0.2mm²-0.4mm²	Customer-provided

5.4 Connecting the PE cable

⚠WARNING

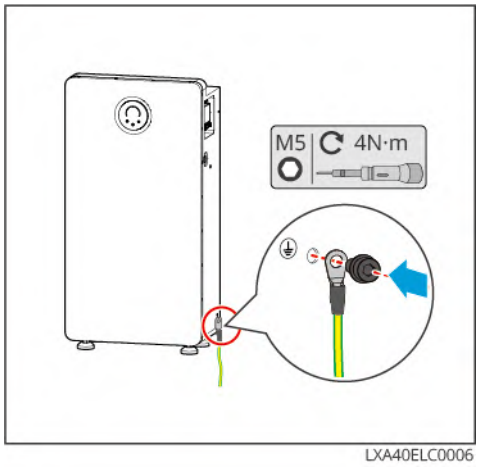
- The protective grounding of the chassis cannot replace the protective ground wire of the AC output port. When wiring, ensure that the protective ground wires at both locations are reliably connected.
- For multiple devices, ensure that the protective grounding points of all device chassis are equipotentially connected.
- To improve the corrosion resistance of the terminals, it is recommended to apply silicone or paint on the exterior of the grounding terminals for protection after the protective ground wire connection is installed.
- When installing the device, the protective ground wire must be installed first; when removing the device, the protective ground wire must be removed last.

Inverter



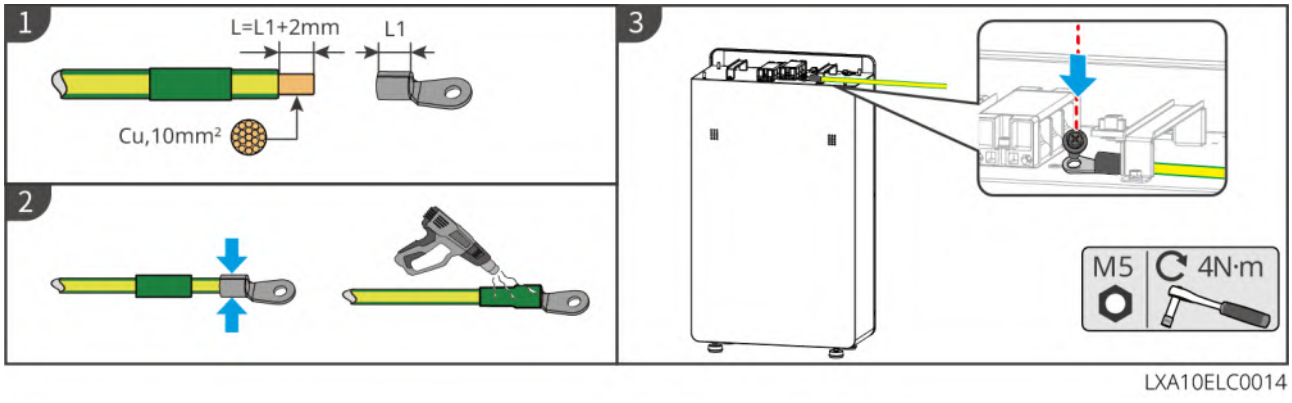
Battery

GW16.1-BAT-LV-G10

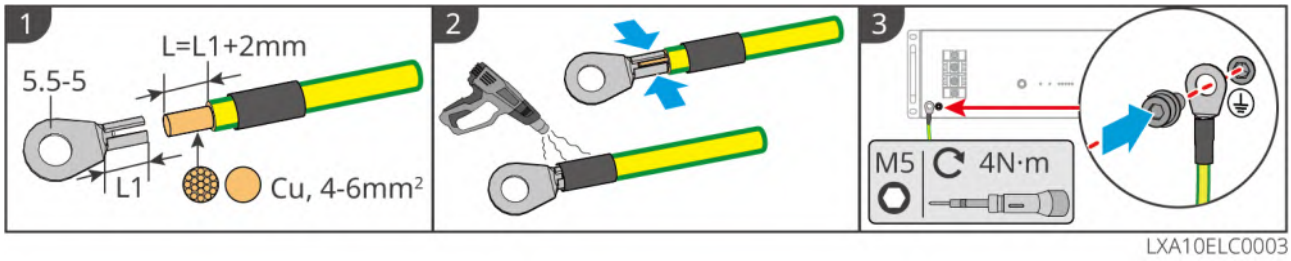


GW14.3-BAT-LV-G10

- GW14.3-BAT-LV-G10: If the grounding cable is shipped with the Battery accessories, please use the shipped cable, and no crimping is required.

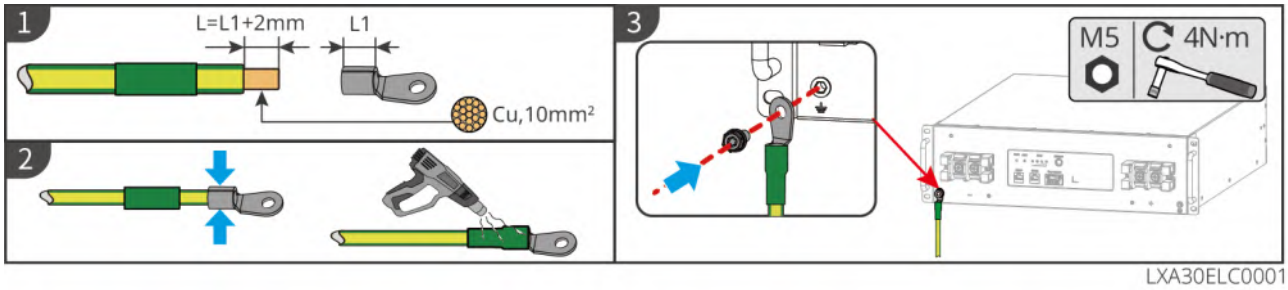


LX A5.0-10



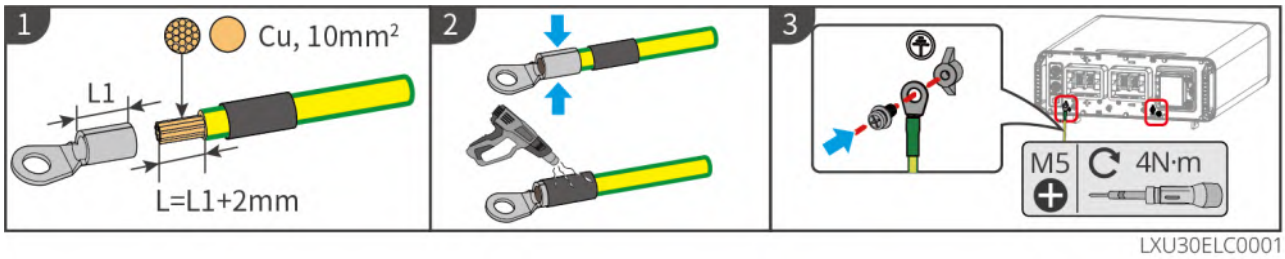
LXA10ELC0003

LX A5.0-30



LXA30ELC0001

LX U5.0-30



LXU30ELC0001

5.5 Connecting the PV Cable

⚠DANGER

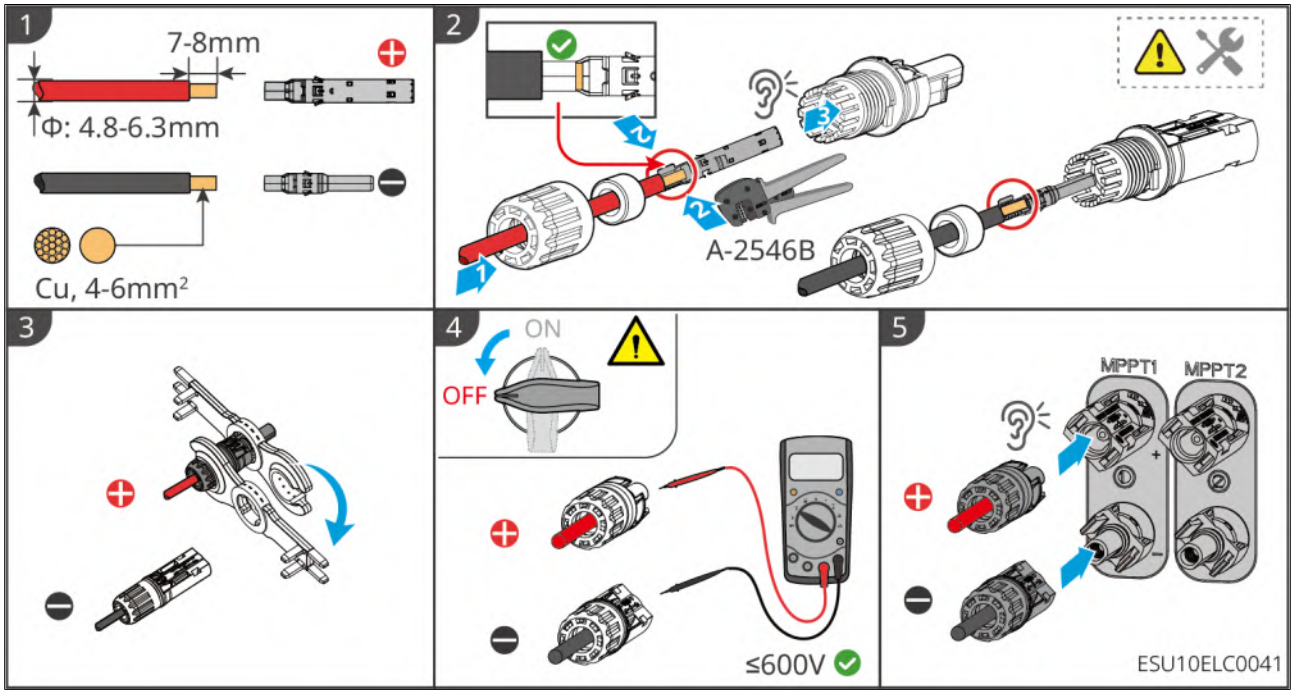
- Do not connect the same PV string to multiple Inverter, as this may cause damage to the Inverter.
- Before connecting the PV string to the Inverter, please verify the following information. Failure to do so may result in permanent damage to the Inverter and, in severe cases, could lead to fire, causing personal injury or property damage.
  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 the PV+ of Inverter, and the negative terminal of the PV string is connected to the PV- of Inverter.

⚠WARNING

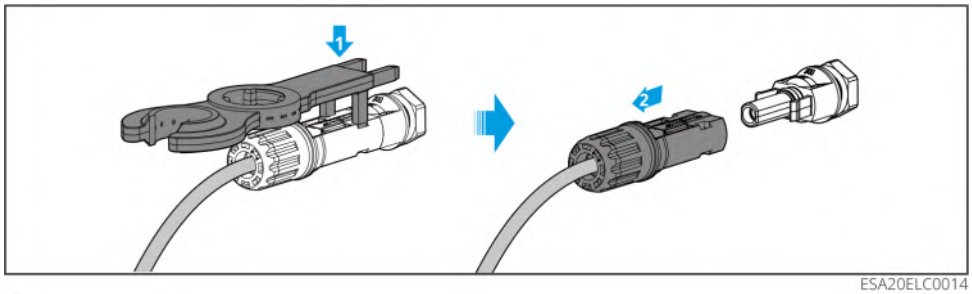
- The PV string output does not support grounding. Before connecting the PV string to Inverter, ensure that the the minimum insulation resistance of the PV string meets the minimum insulation resistance requirement (R=Max.Input Voltage/30mA).
- After the connection is completed, ensure that the cables are securely fastened and free from looseness.
- Use a multimeter to measure the positive and negative 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 have the same model, the same number of Battery panels, the same tilt angle and azimuth angle to ensure the maximization of Efficiency.



To disassemble the PV module, please refer to the following steps:



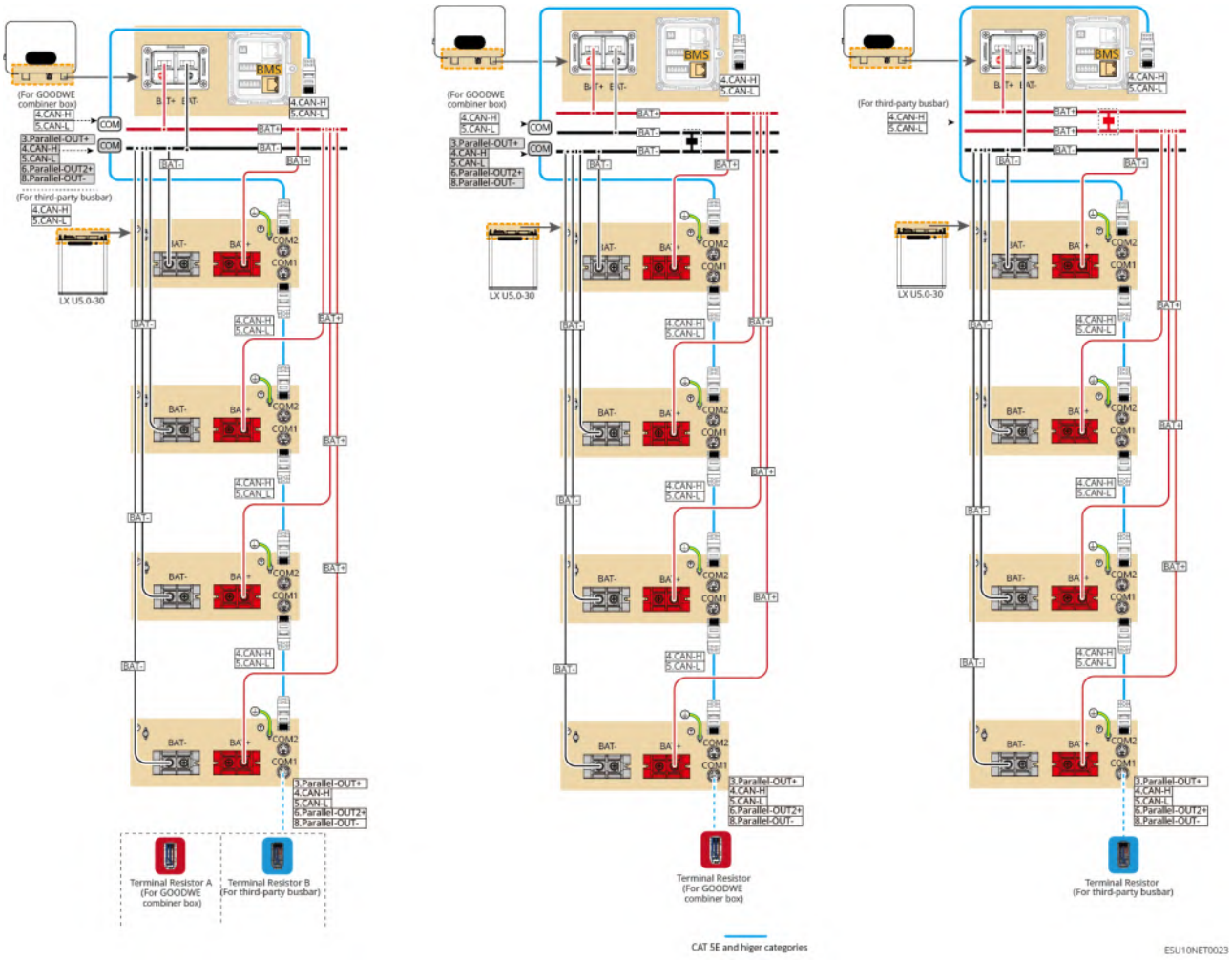
ESA20ELC0014

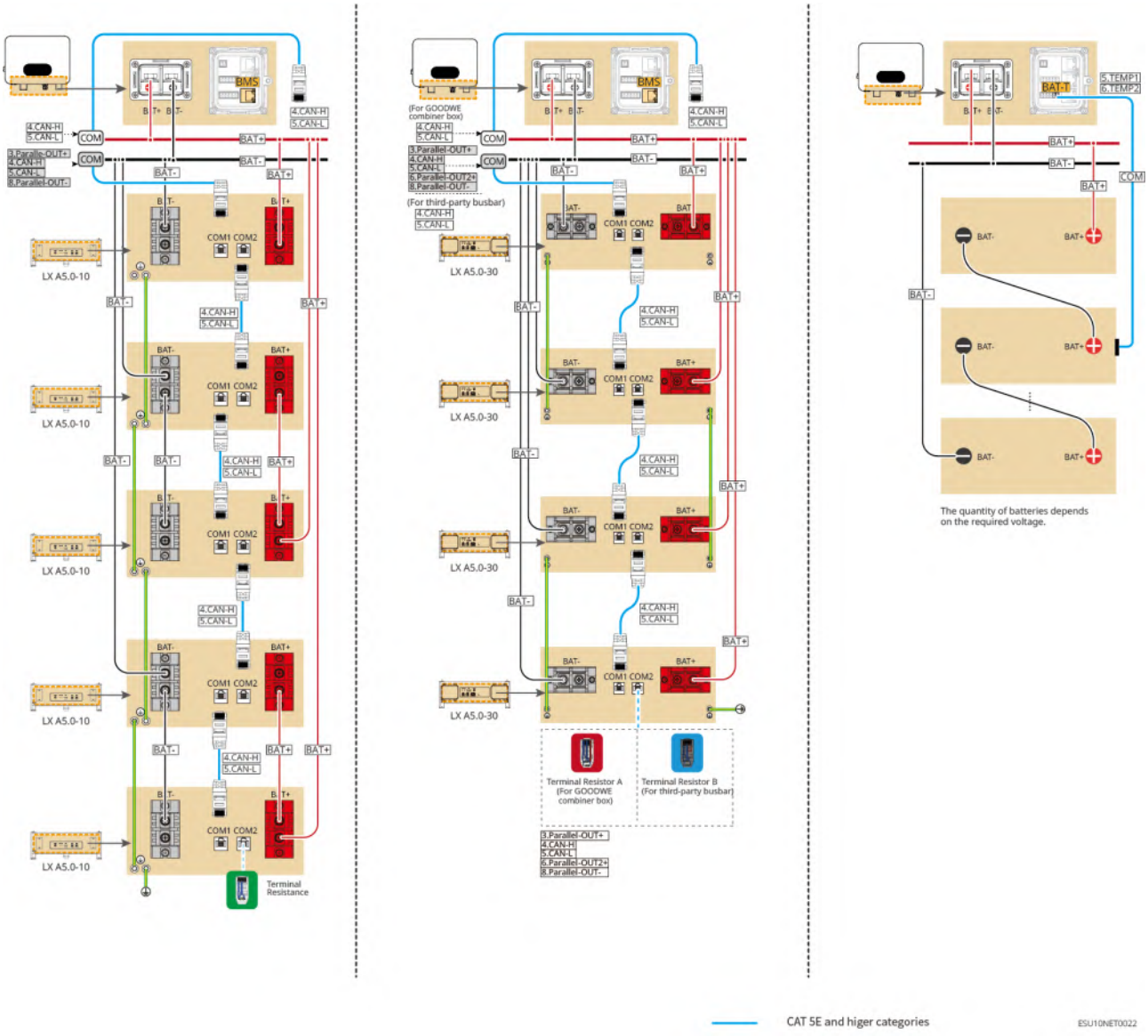
5.6 Connecting the Battery Cable

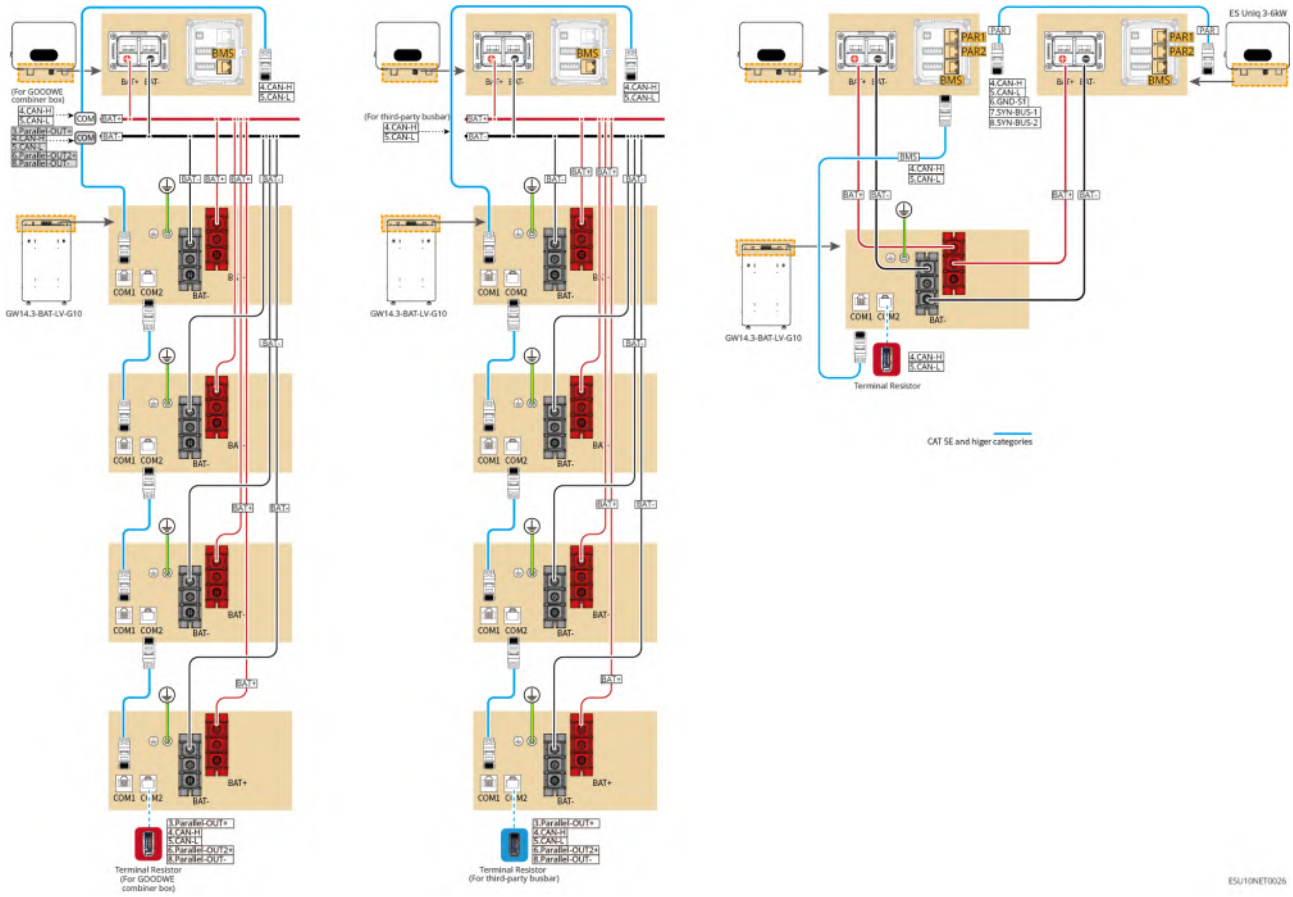
DANGER

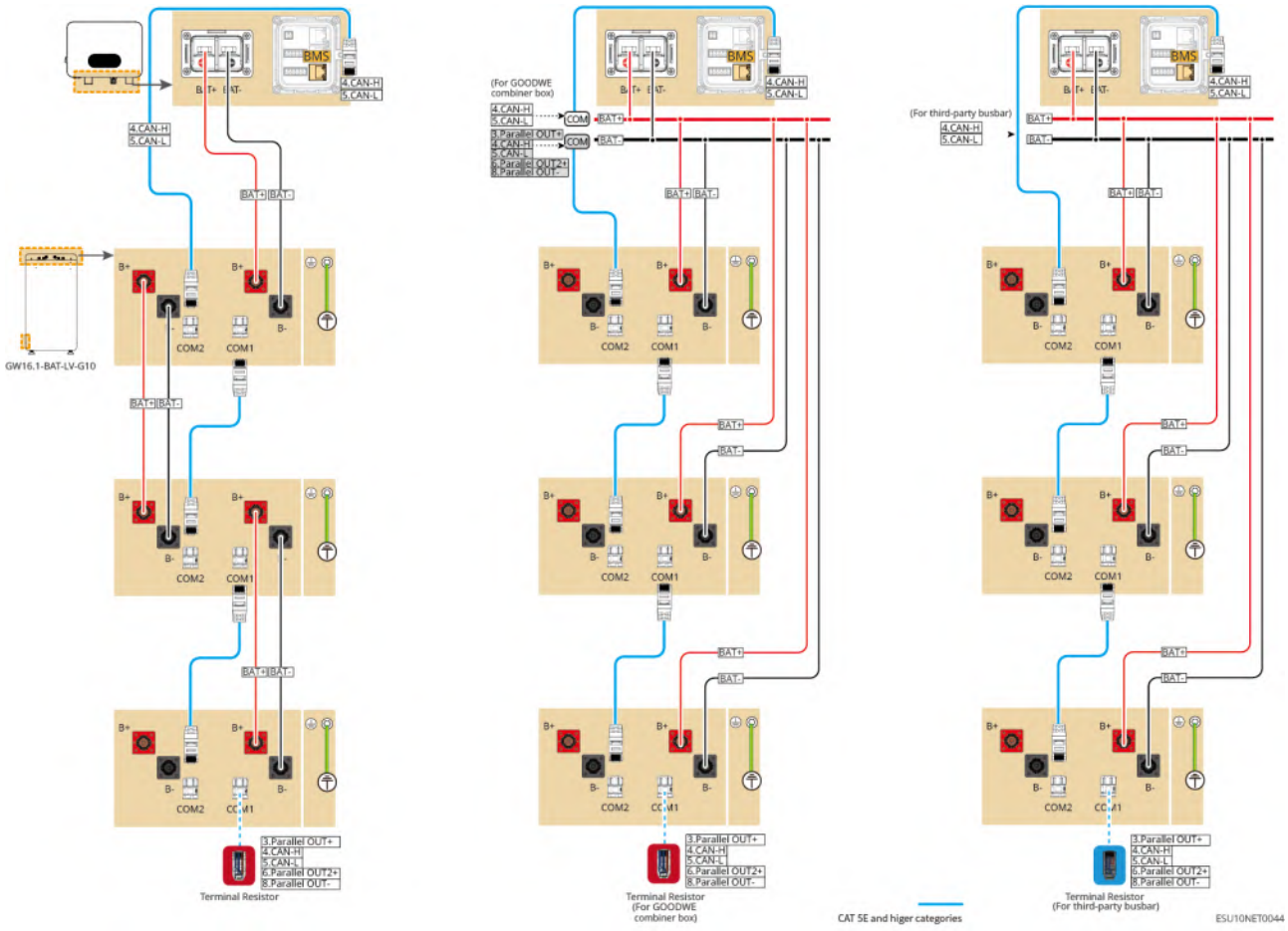
- In a single-unit system, do not connect the same battery pack to multiple inverters, as this may cause inverter damage.
- Do not connect any load between the inverter and the battery.
- When connecting battery cables, use insulated tools to prevent accidental electric shock or battery short circuit.
- Ensure the battery open-circuit voltage is within the inverter's allowable range.
- For the connection between the inverter and the battery, decide whether to install a DC switch according to local laws and regulations.

Battery system wiring diagram


(For GOODWE combiner box)
4.CAN-H
5.CAN-L
COM
3.Parallel-OUT+
4.CAN-H
5.CAN-L
6.Parallel-OUT2+
8.Parallel-OUT-
(For third-party busbar)
4.CAN-H
5.CAN-L
BMS
B+ B-
4.CAN-H
5.CAN-L
BAT+
BAT-
LX U5.0-30
BAT-
BA+
COM2
COM1
4.CAN-H
5.CAN-L
3.Parallel-OUT+
4.CAN-H
5.CAN-L
6.Parallel-OUT2+
8.Parallel-OUT-
Terminal Resistor A
(For GOODWE combiner box)
Terminal Resistor B
(For third-party busbar)
Terminal Resistor
(For GOODWE combiner box)
Terminal Resistor
(For third-party busbar)
CAT 5E and higer categories
ESU10NET0023

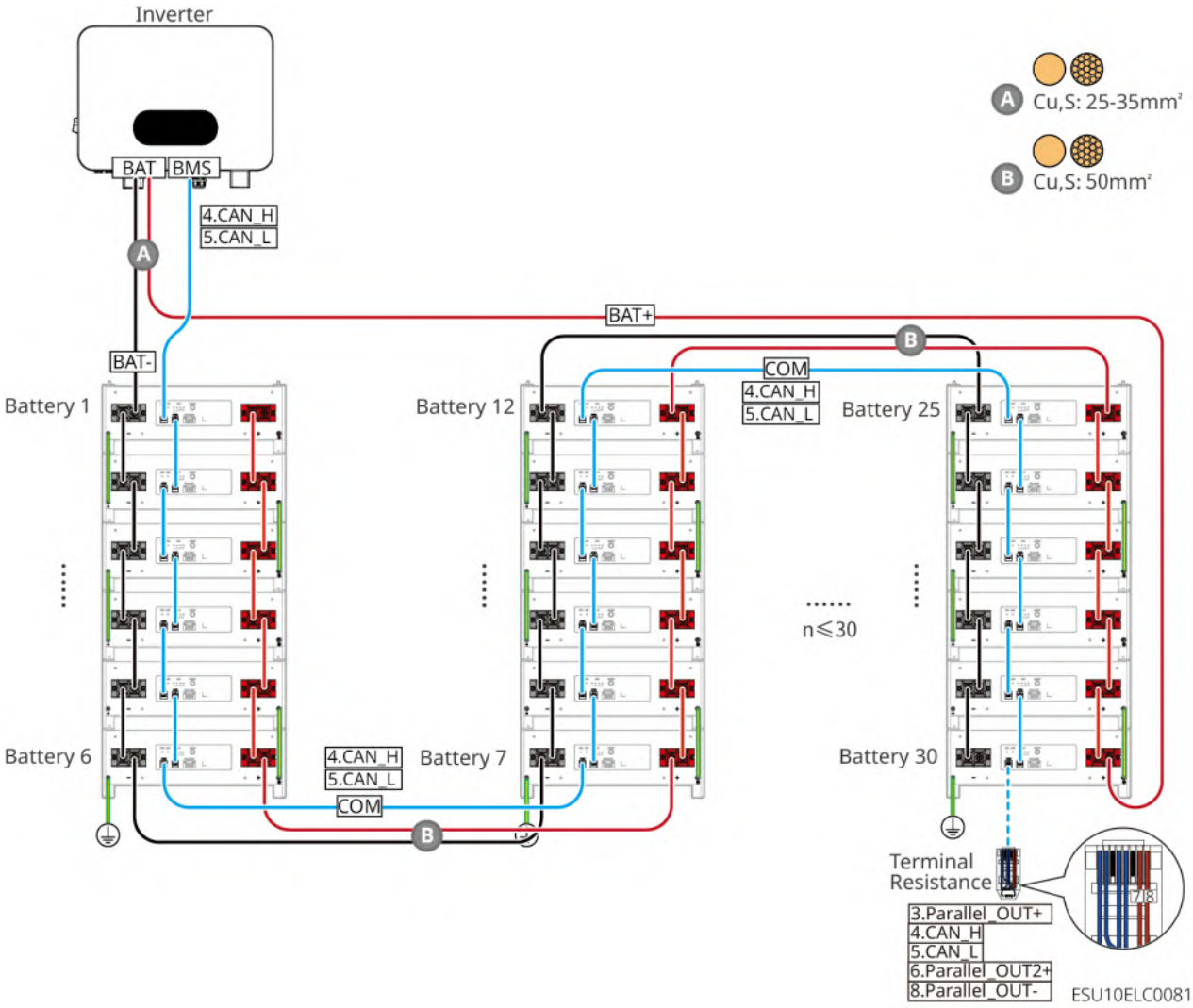

BMS
4.CAN-H
5.CAN-L
COM
BAT+
BAT-
LX A5.0-10
COM1 COM2
Terminal Resistance
(For GOODWE combiner box)
(For third-party busbar)
3.Parallel-OUT+
4.CAN-H
5.CAN-L
6.Parallel-OUT2+
8.Parallel-OUT-
LX A5.0-30
Terminal Resistor A (For GOODWE combiner box)
Terminal Resistor B (For third-party busbar)
5.TEMP1
6.TEMP2
The quantity of batteries depends on the required voltage.
CAT 5E and higer categories
ESU10NET0022


(For GOODWE combiner box)
BMS
GW14.3-BAT-LV-G10
Terminal Resistor (For GOODWE combiner box)
(For third-party busbar)
Terminal Resistor (For third-party busbar)
ES Uniq 3-6kW
PAR1
PAR2
Terminal Resistor
CAT 5E and higer categories
ESU10NET0026



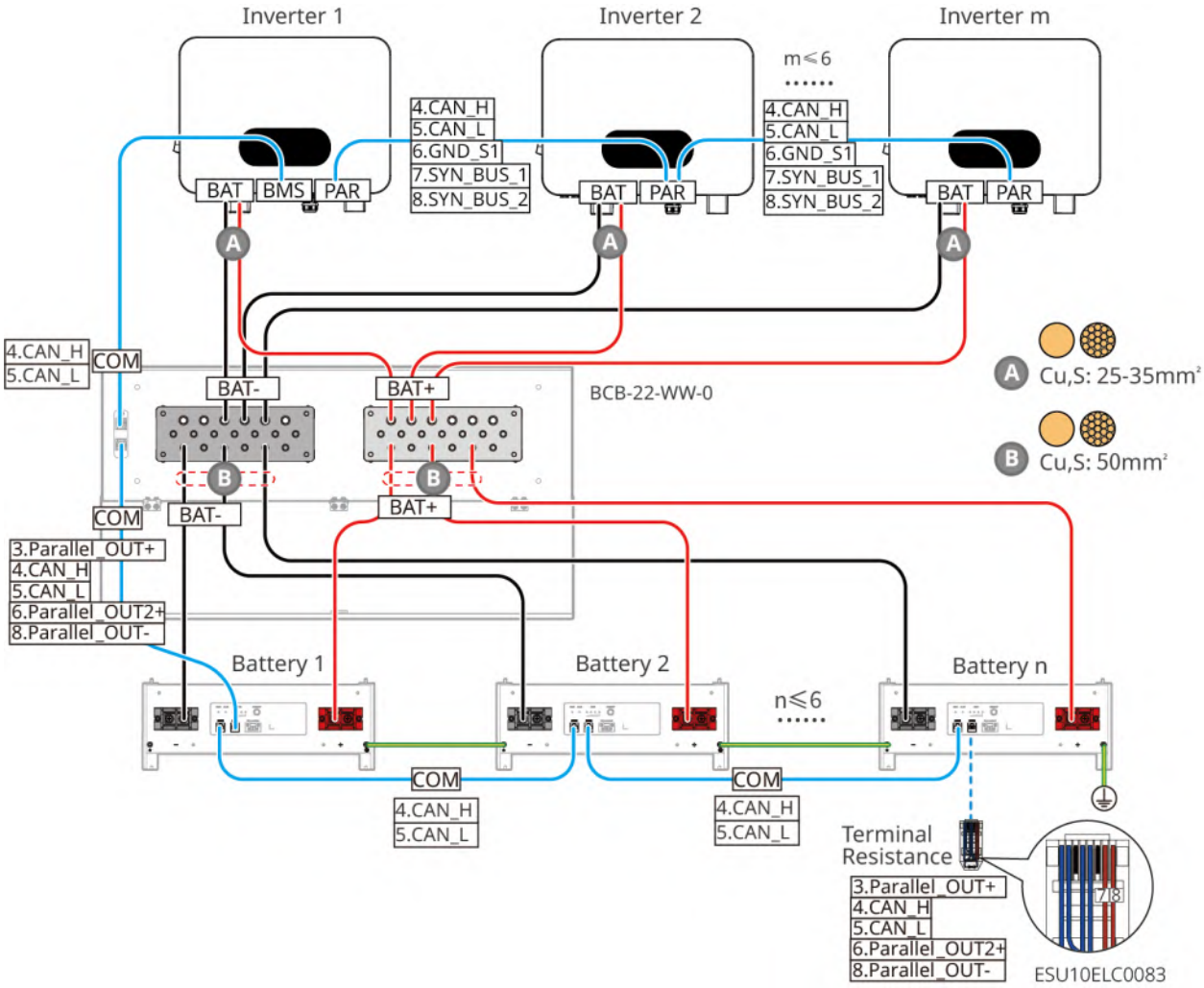
LX A5.0-30: Daisy-chain connection method

- The battery system supports up to 160A operating current, 8kW operating power, maximum connection of 1 inverter, and 30 batteries.



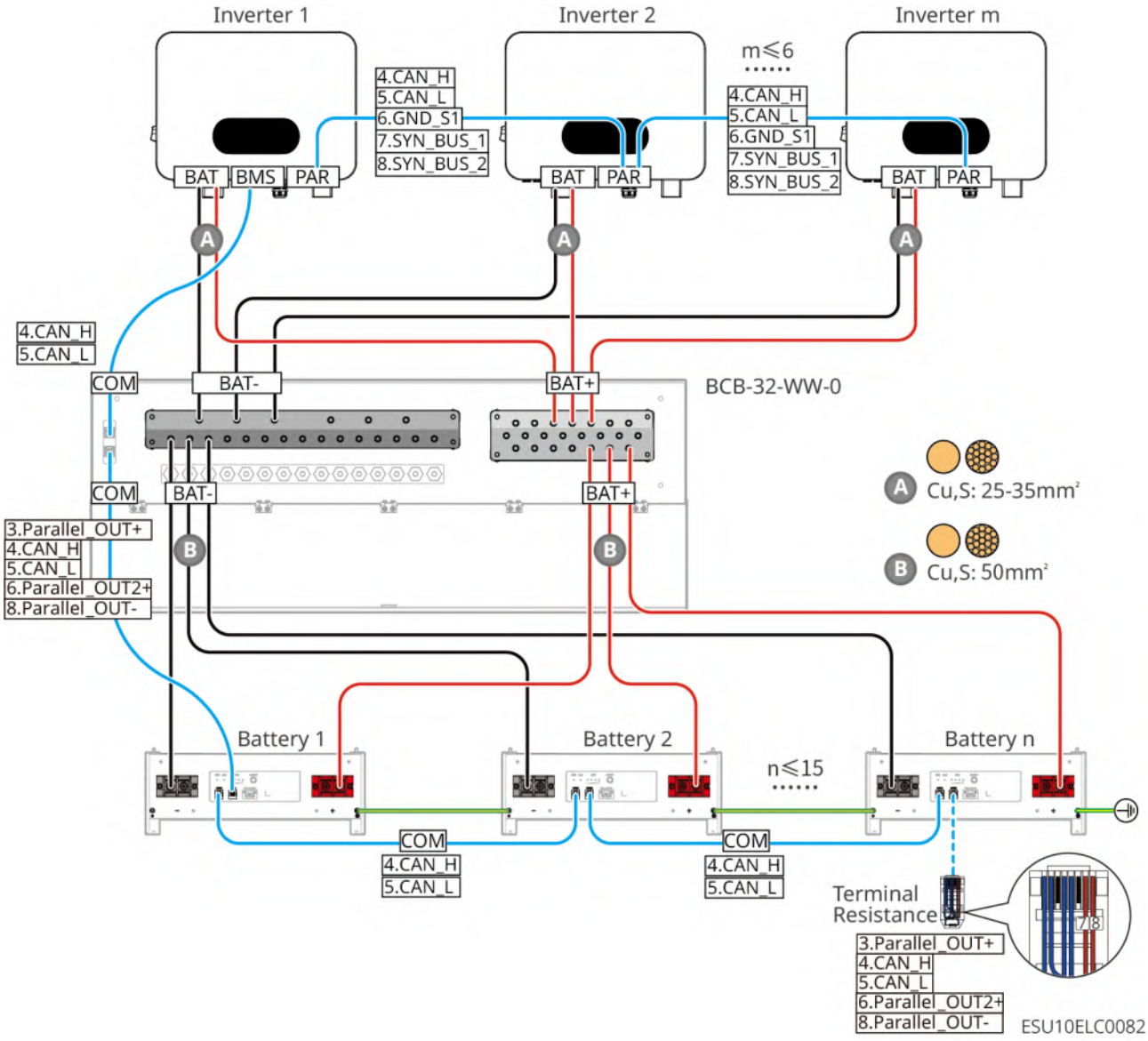
LX A5.0-30: Connection method with bus bar box BCB-22-WW-0

- The battery system supports up to 720A operating current, 36kW operating power, maximum connection of 6 inverters, and 6 batteries.



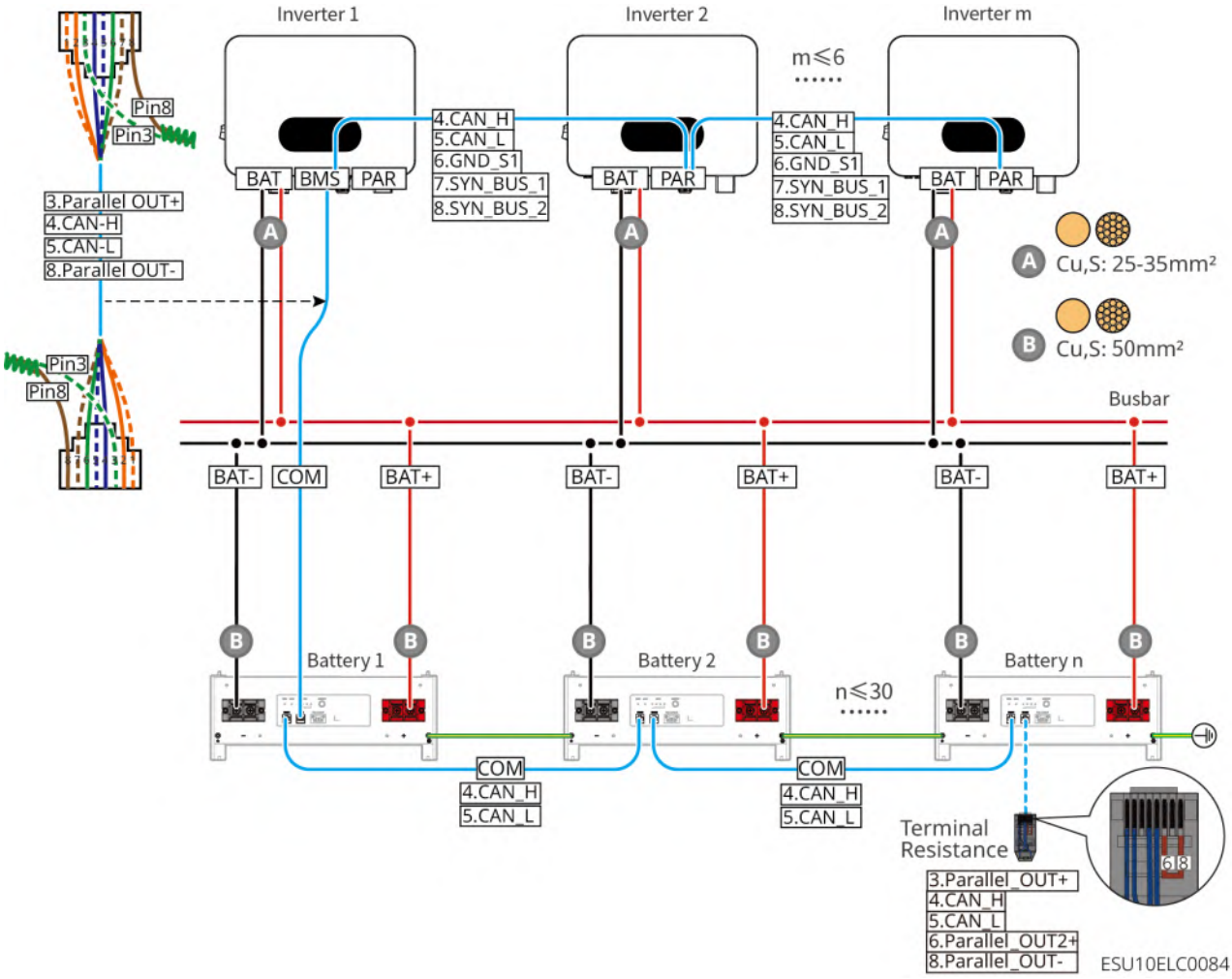
LX A5.0-30: Connection method with bus bar box BCB-32-WW-0

- The battery system supports up to 720A operating current, 36kW operating power, maximum connection of 6 inverters, and 15 batteries.



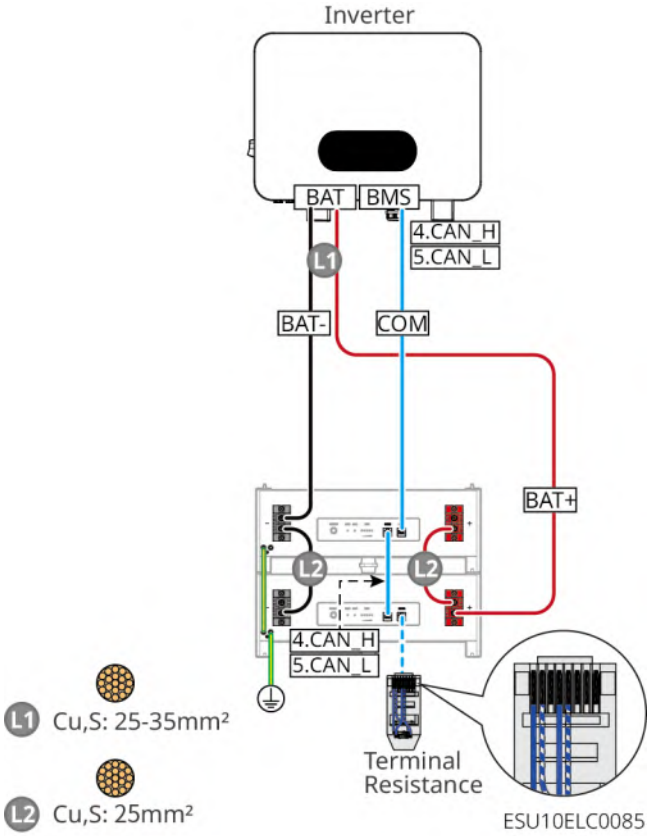
LX A5.0-30: Connection method with third-party bus bar

- Single battery rated charge current is 60A; rated discharge current is 100A; maximum charge current is 90A; maximum discharge current is 150A, supports up to 30 units in parallel in the same system.



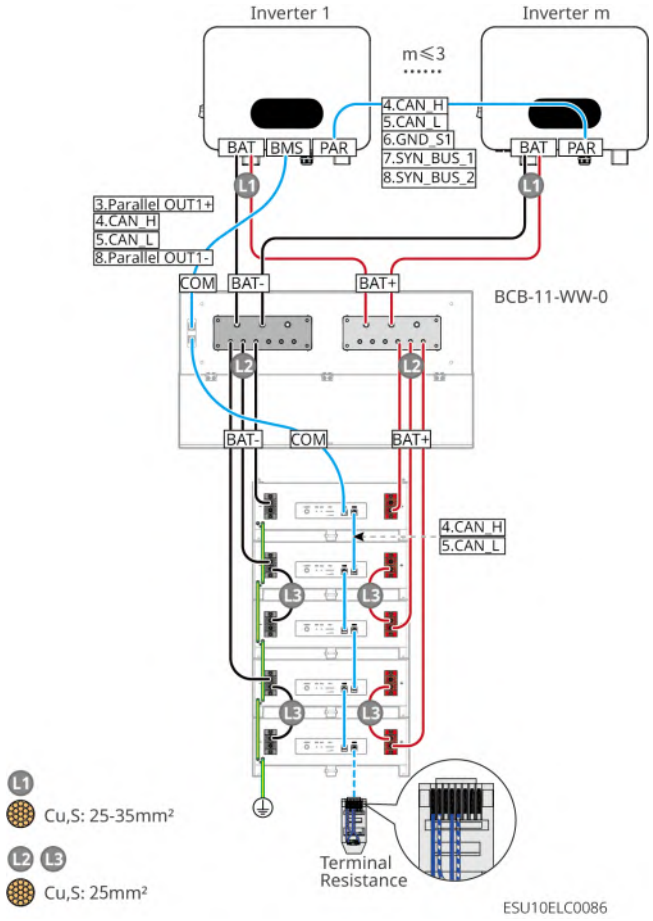
LX A5.0-10: Daisy-chain connection method

- Single battery rated charge/discharge current is 60A
- The battery system supports up to 120A operating current, 6kW operating power, maximum connection of 1 inverter, and 2 batteries.



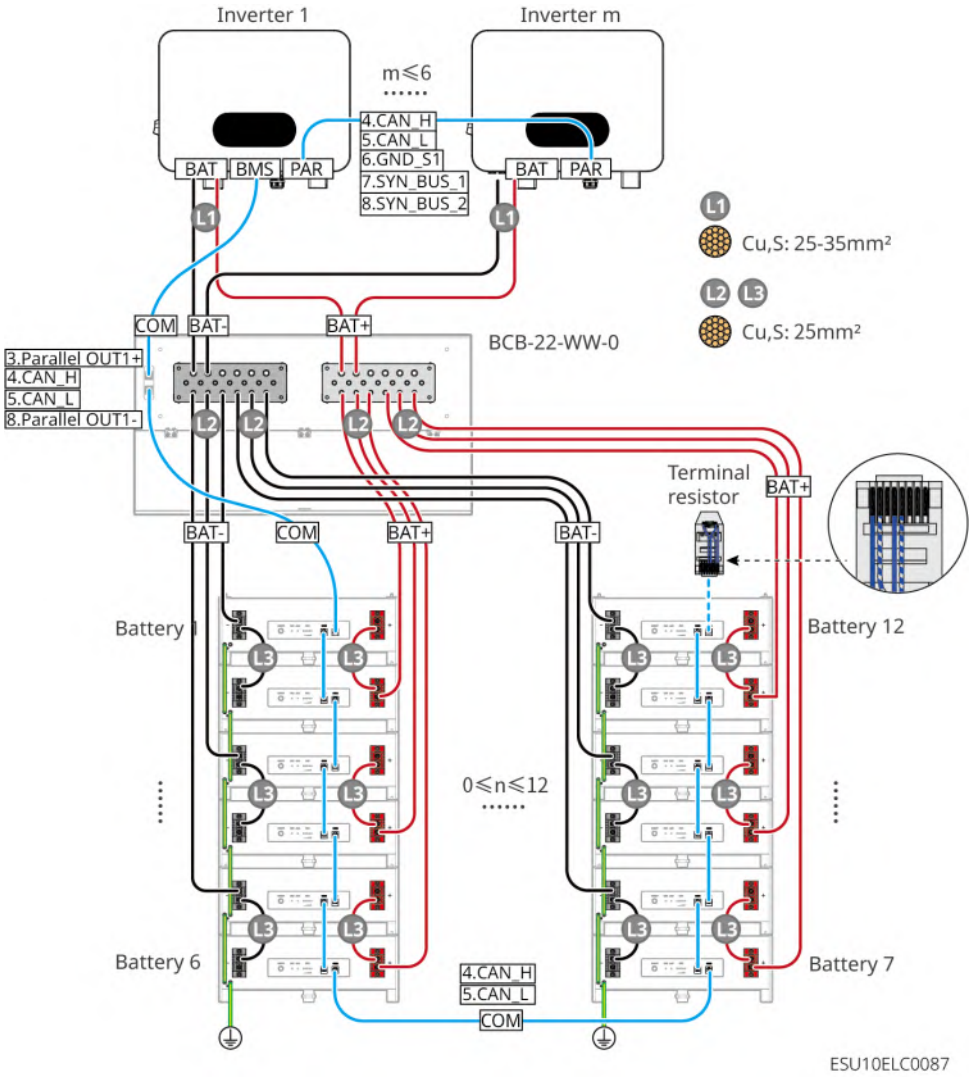
LX A5.0-10: Battery connection method with bus bar box BCB-11-WW-0

- Single battery rated charge/discharge current is 60A
- The battery system supports up to 360A operating current, 18kW operating power, maximum connection of 3 inverters, and 6 batteries.



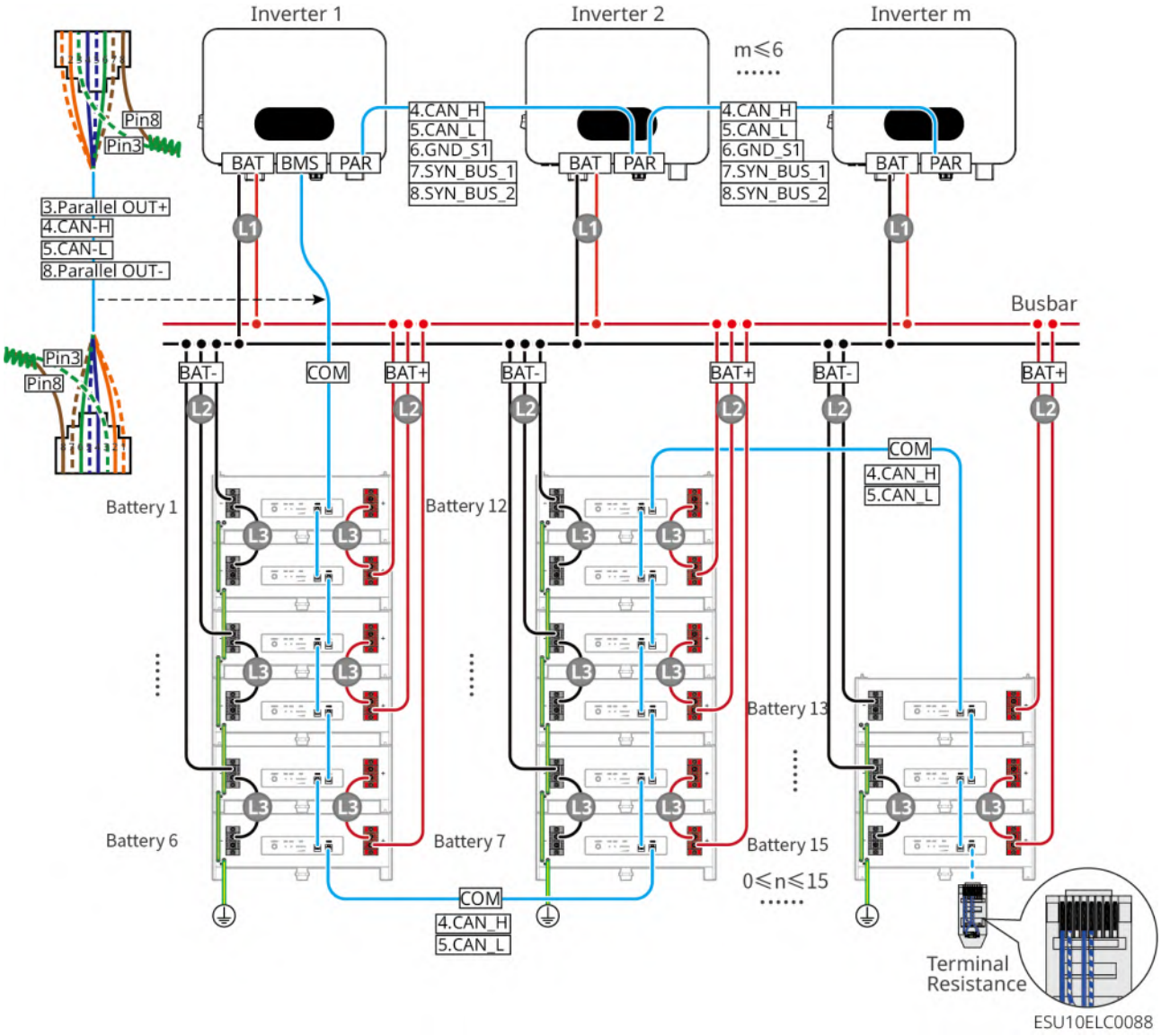
LX A5.0-10: Battery connection method with bus bar box BCB-22-WW-0

- Single battery rated charge/discharge current is 60A
- The battery system supports up to 720A operating current, 36kW operating power, maximum connection of 6 inverters, and 12 batteries.

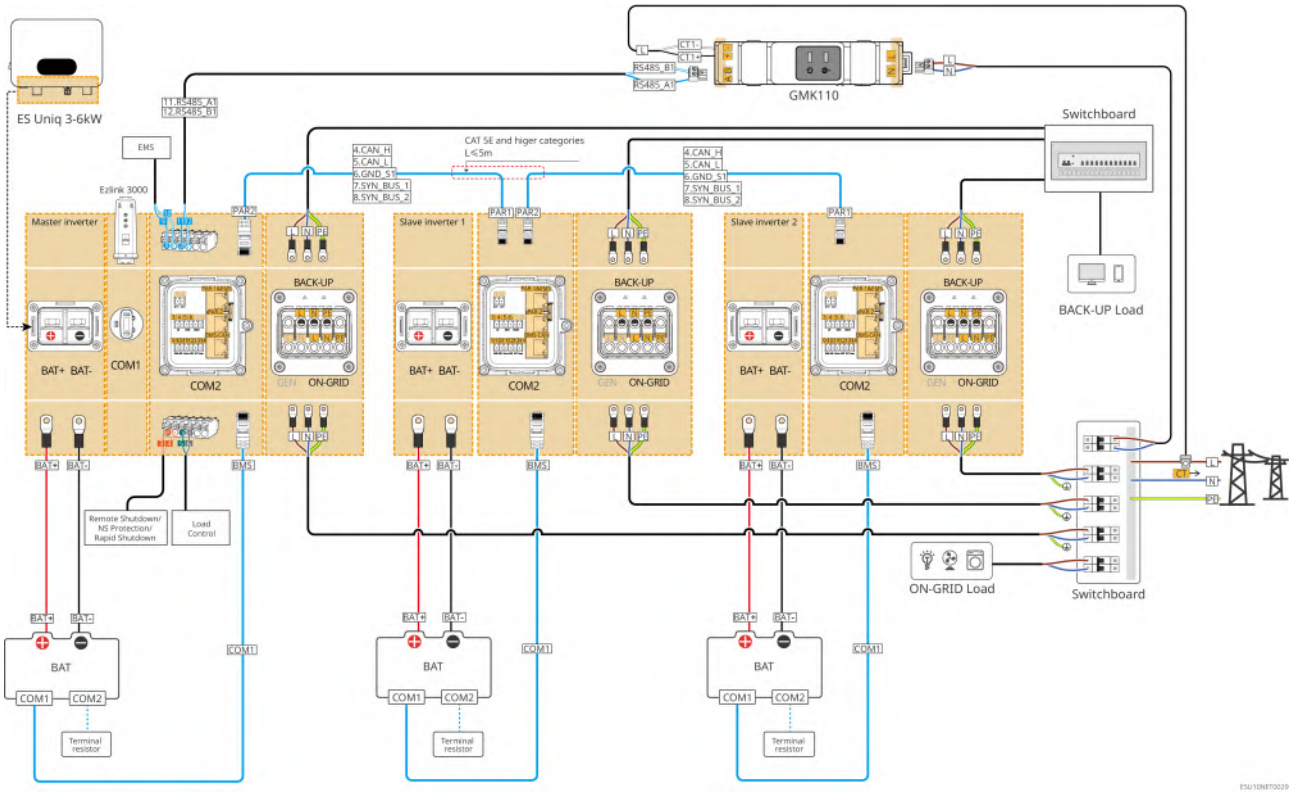


LX A5.0-10: Battery connection method with third-party bus bar

- Single battery rated charge/discharge current is 60A
- The battery system supports up to 900A operating current, 45kW operating power, and 15 batteries.

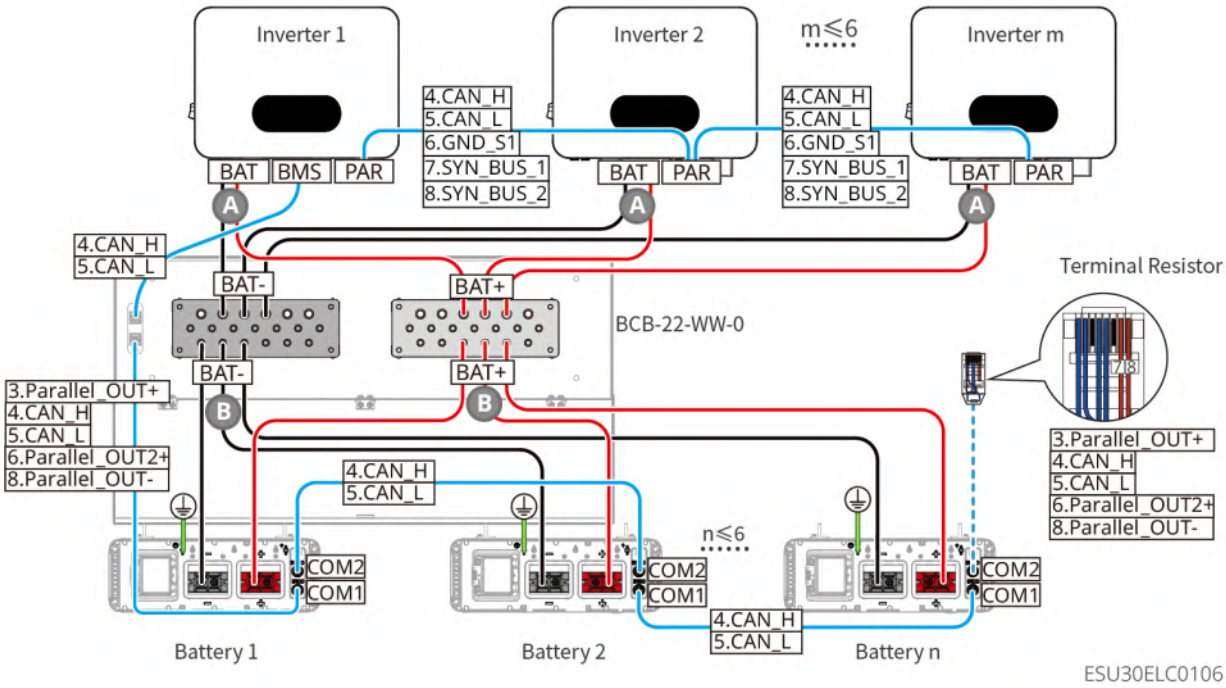


LX U5.0-30: Daisy-chain connection method

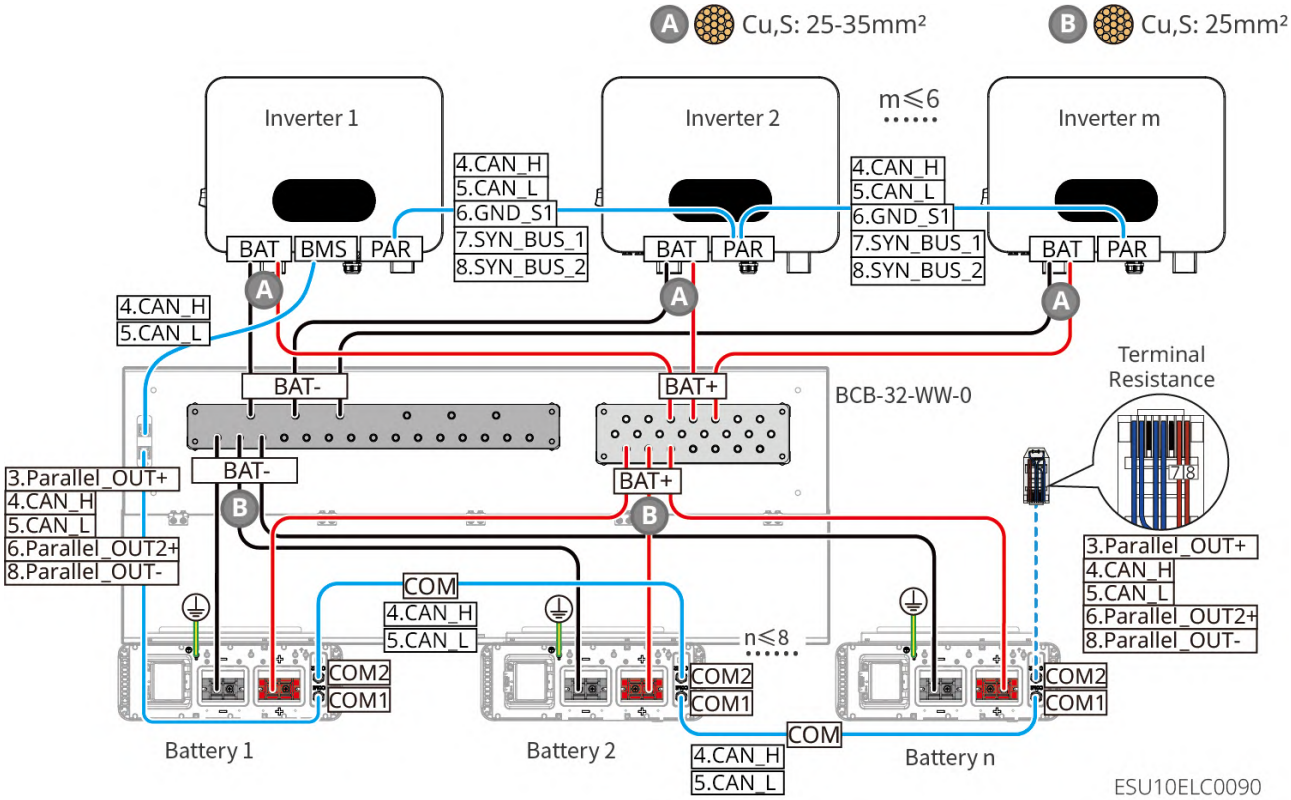


LX U5.0-30: When the number of batteries ≤6, battery connection method with BCB-22-WW-0

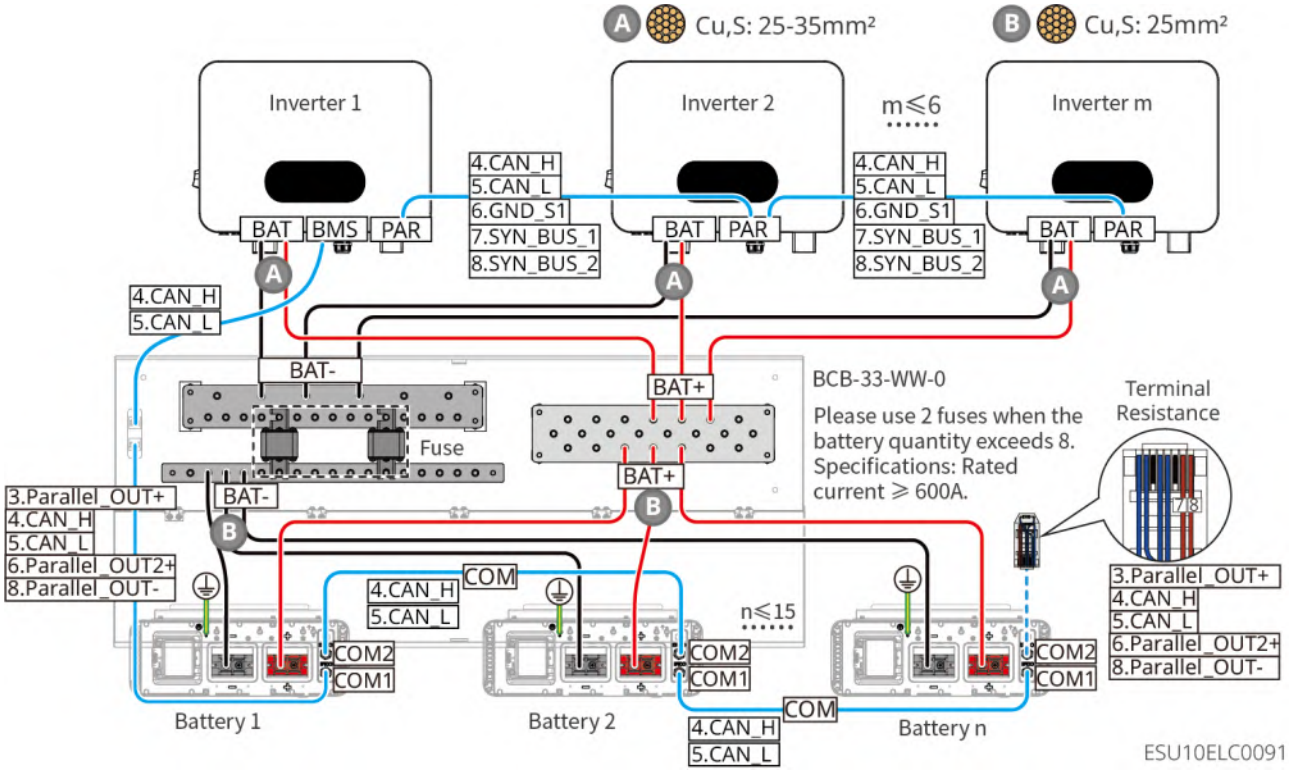
A Cu,S: 25-35mm² B Cu,S=25mm²



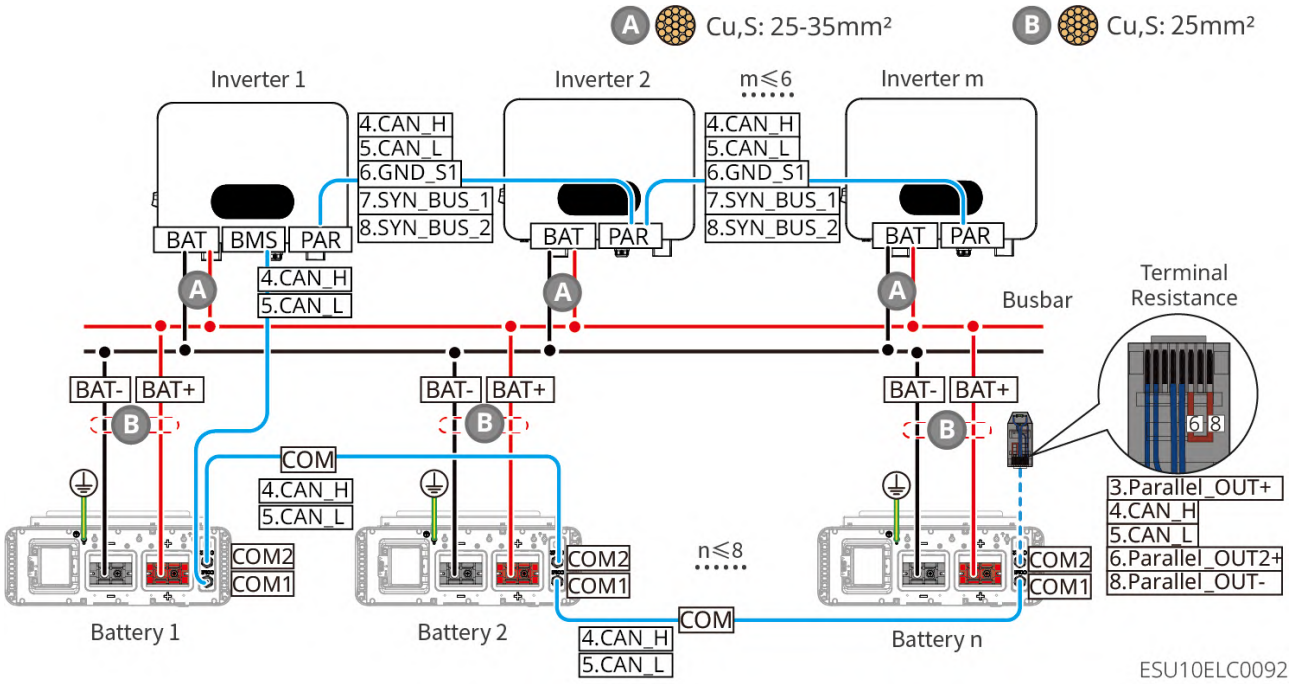
LX U5.0-30: When the number of batteries ≤8, battery connection method with BCB-32-WW-0



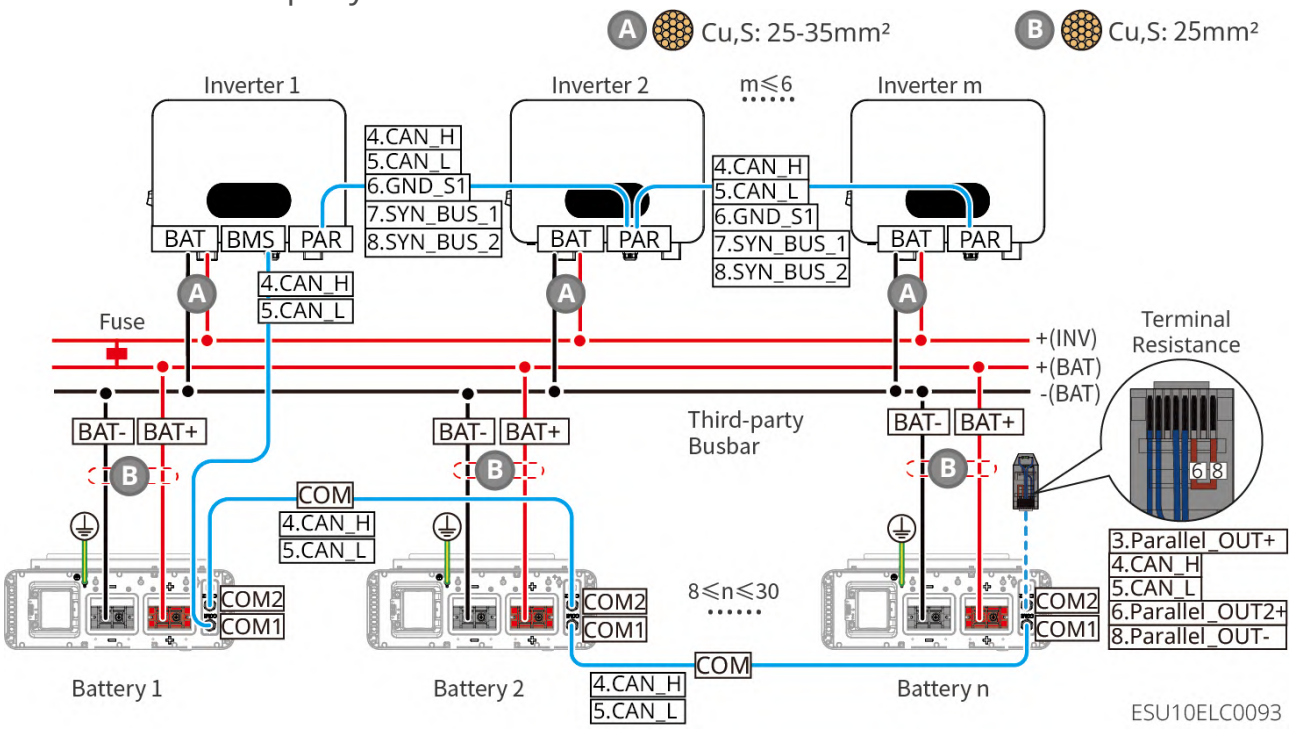
LX U5.0-30: When the number of batteries ≤15, battery connection method with bus bar box BCB-33-WW-0



LX U5.0-30: When the number of batteries ≤8, battery connection method with third-party bus bar

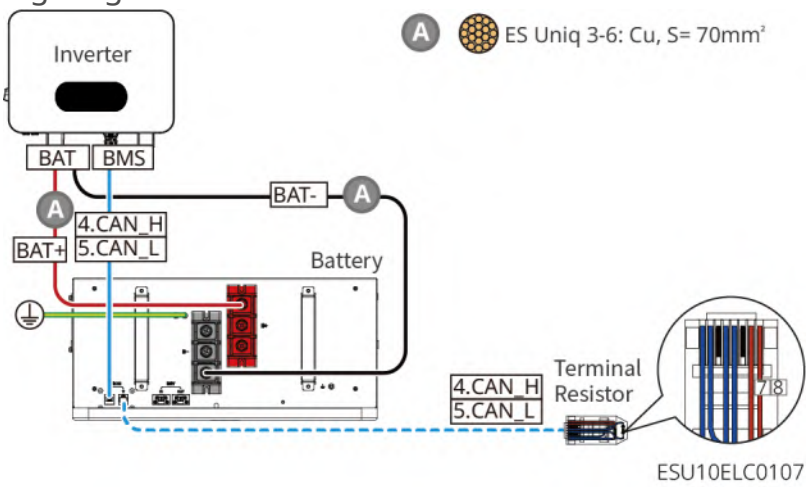


LX U5.0-30: When the number of batteries is greater than 8, battery connection method with third-party bus bar

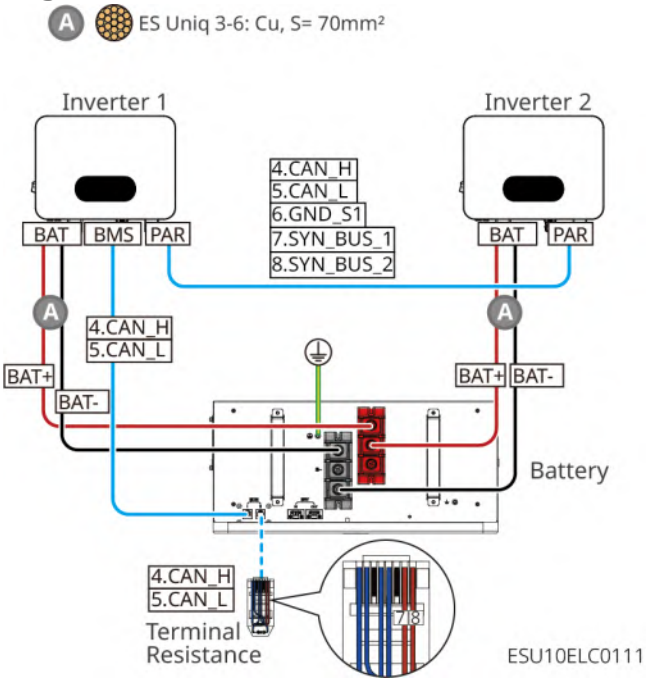


GW14.3-BAT-LV-G10: When the battery is directly connected to a single 1-output

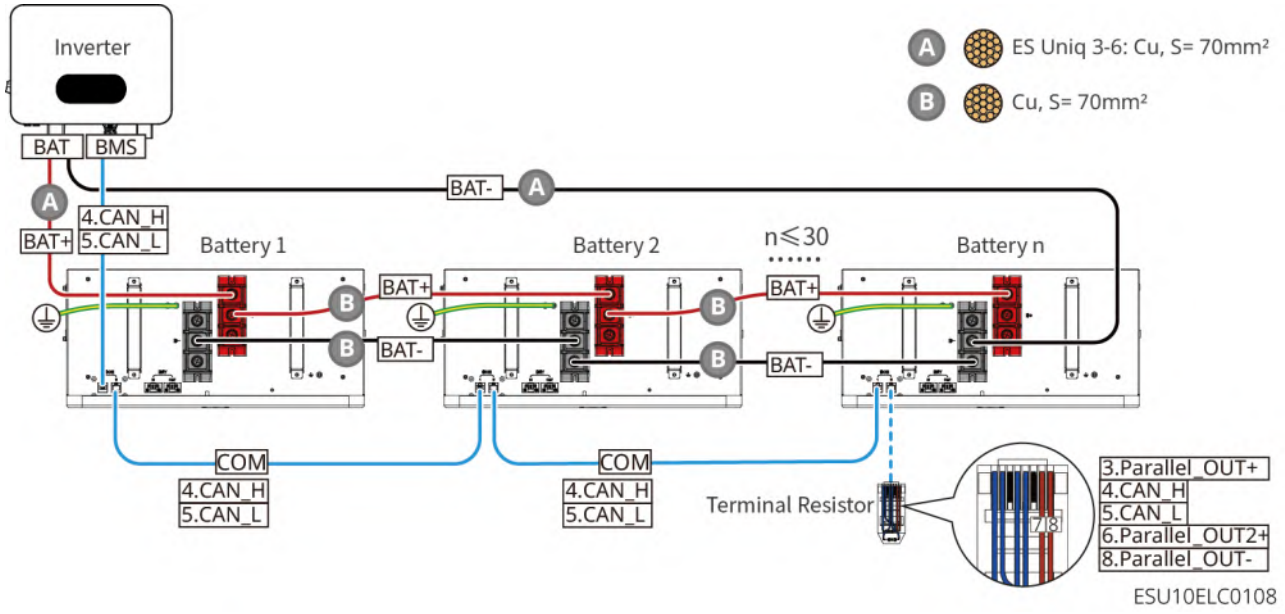
inverter, the wiring diagram is as follows:



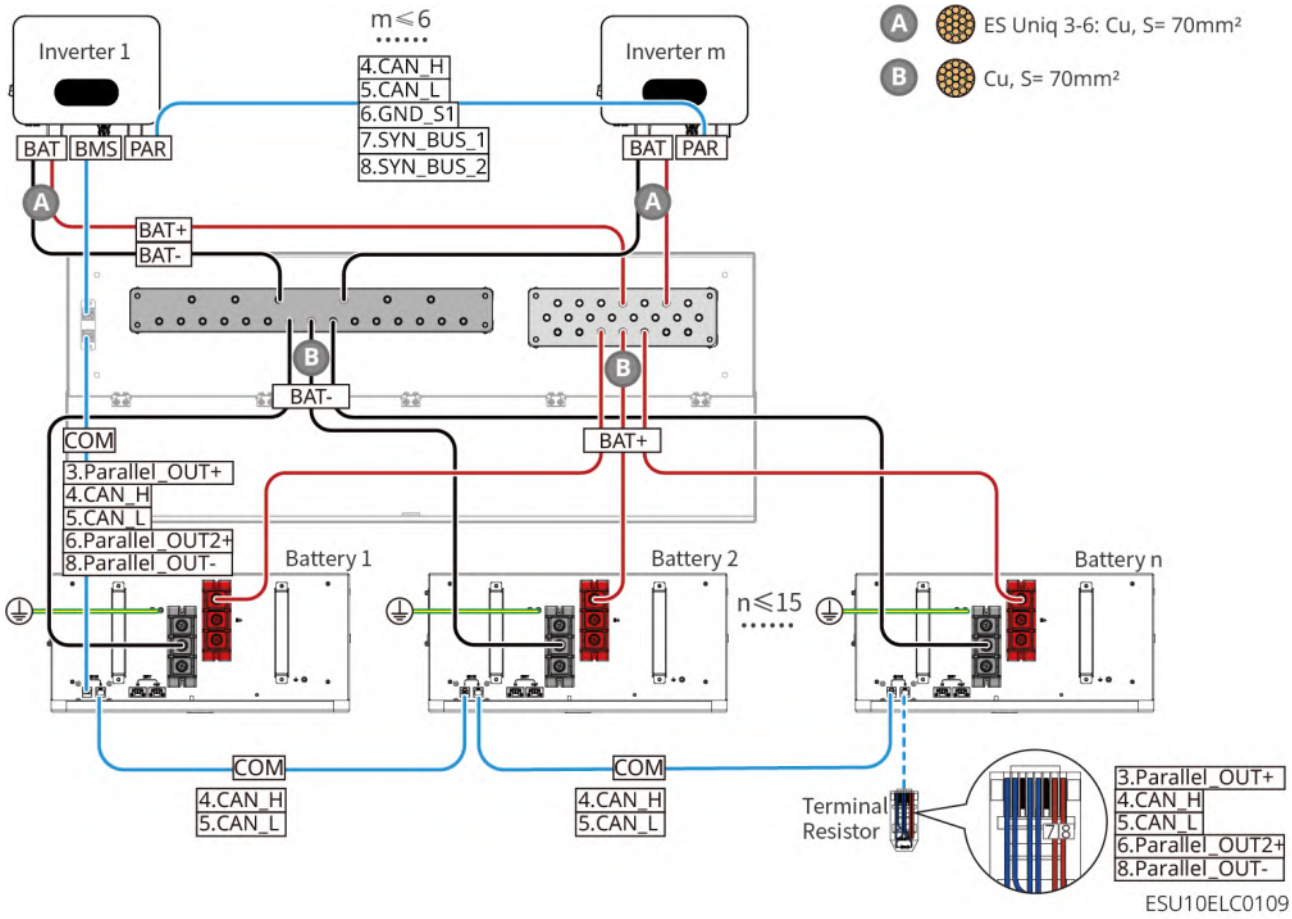
GW14.3-BAT-LV-G10: When the battery is directly connected to 2 units of 1-output inverters, the wiring diagram is as follows:



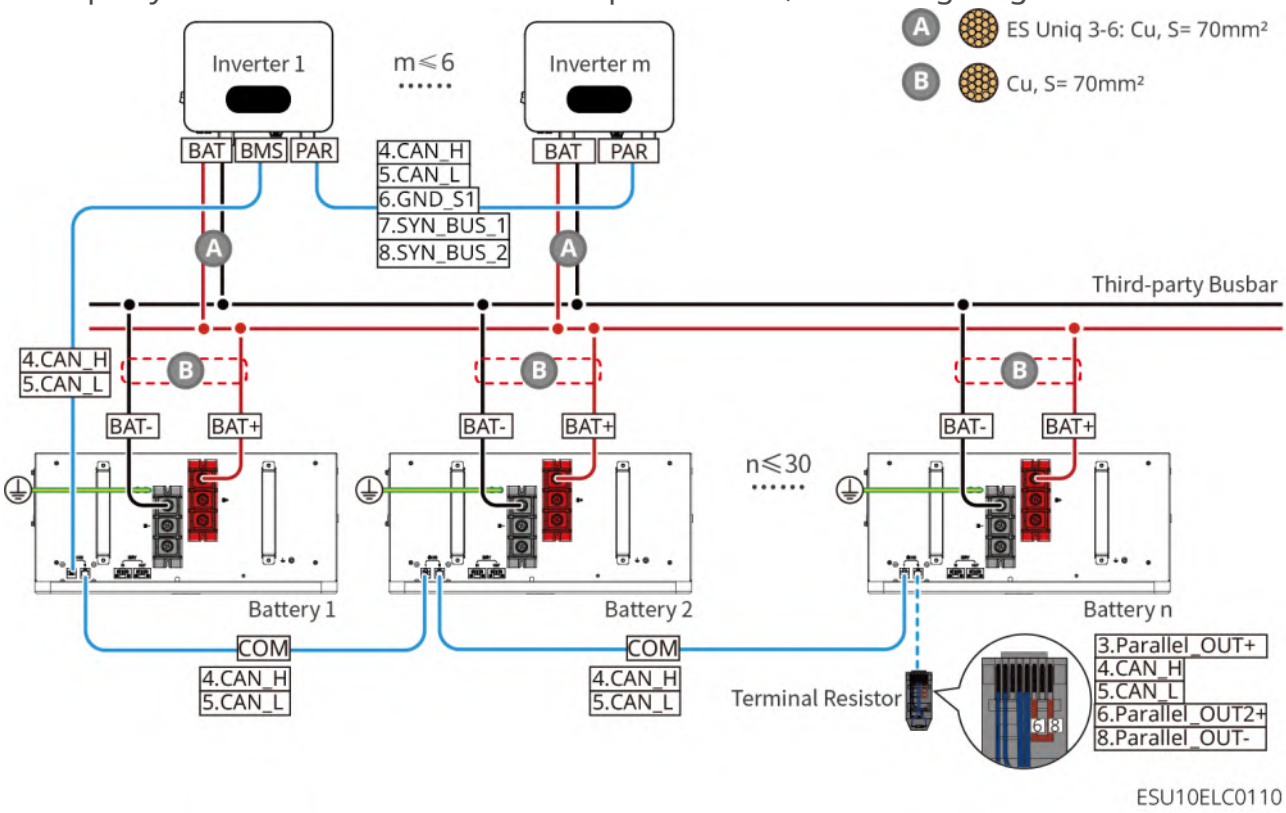
GW14.3-BAT-LV-G10: When the battery is daisy-chain connected to a single 1-output inverter, the wiring diagram is as follows:



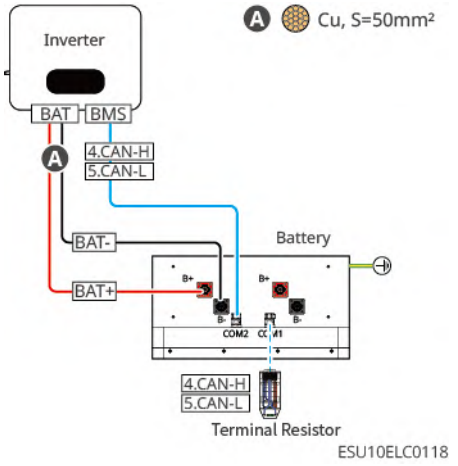
GW14.3-BAT-LV-G10: When the number of batteries is less than or equal to 15, using bus bar box (BCB-32-WW-0, current ≤720A) to connect to a 1-output inverter, the wiring diagram is as follows:



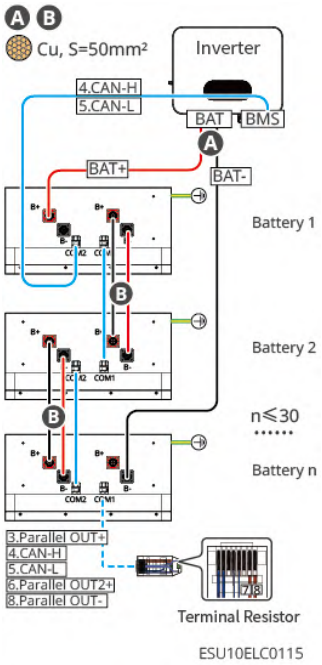
GW14.3-BAT-LV-G10: When the number of batteries is less than or equal to 30, using third-party bus bar to connect to a 1-output inverter, the wiring diagram is as follows:



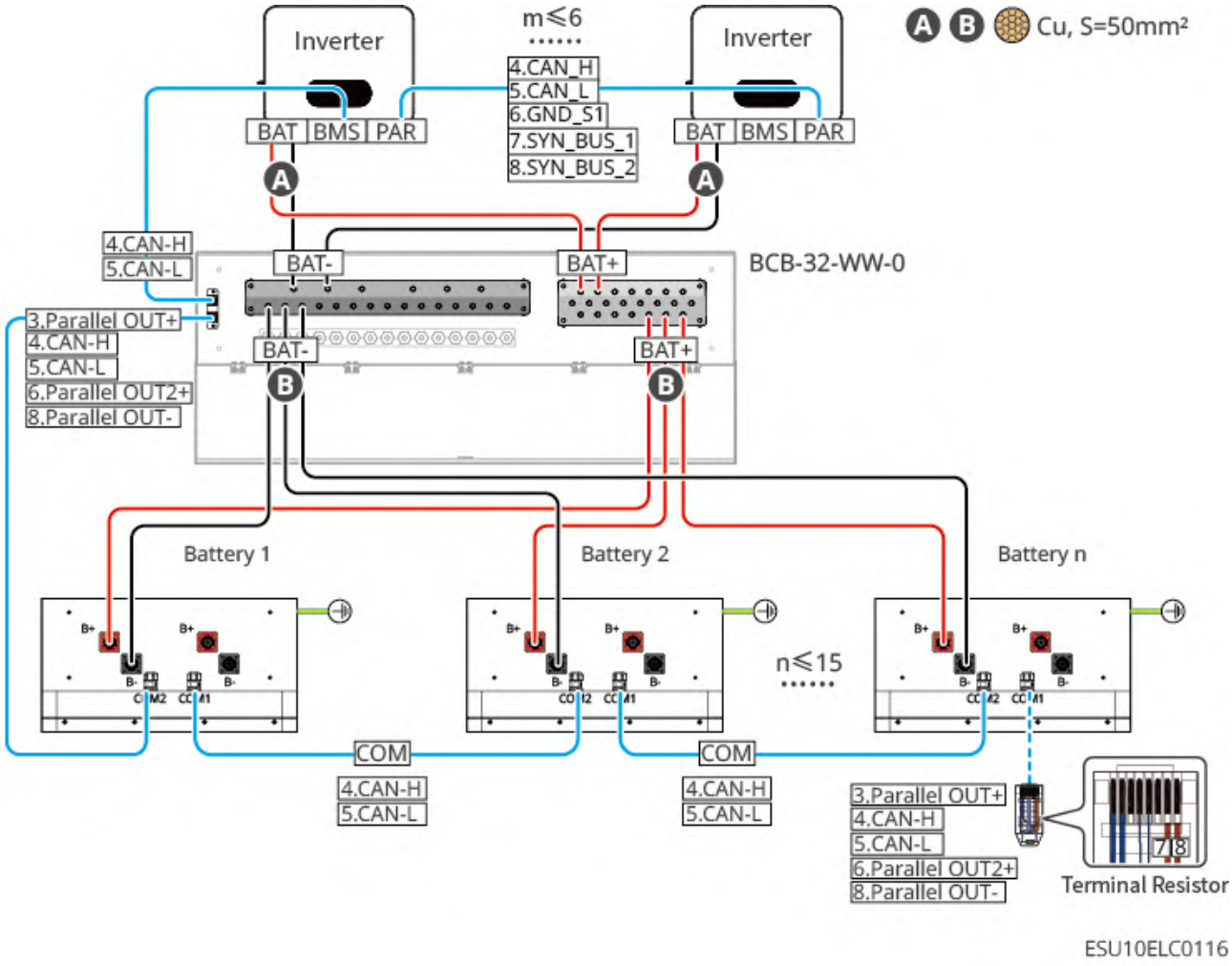
GW16.1-BAT-LV-G10: Battery connected to a single inverter:



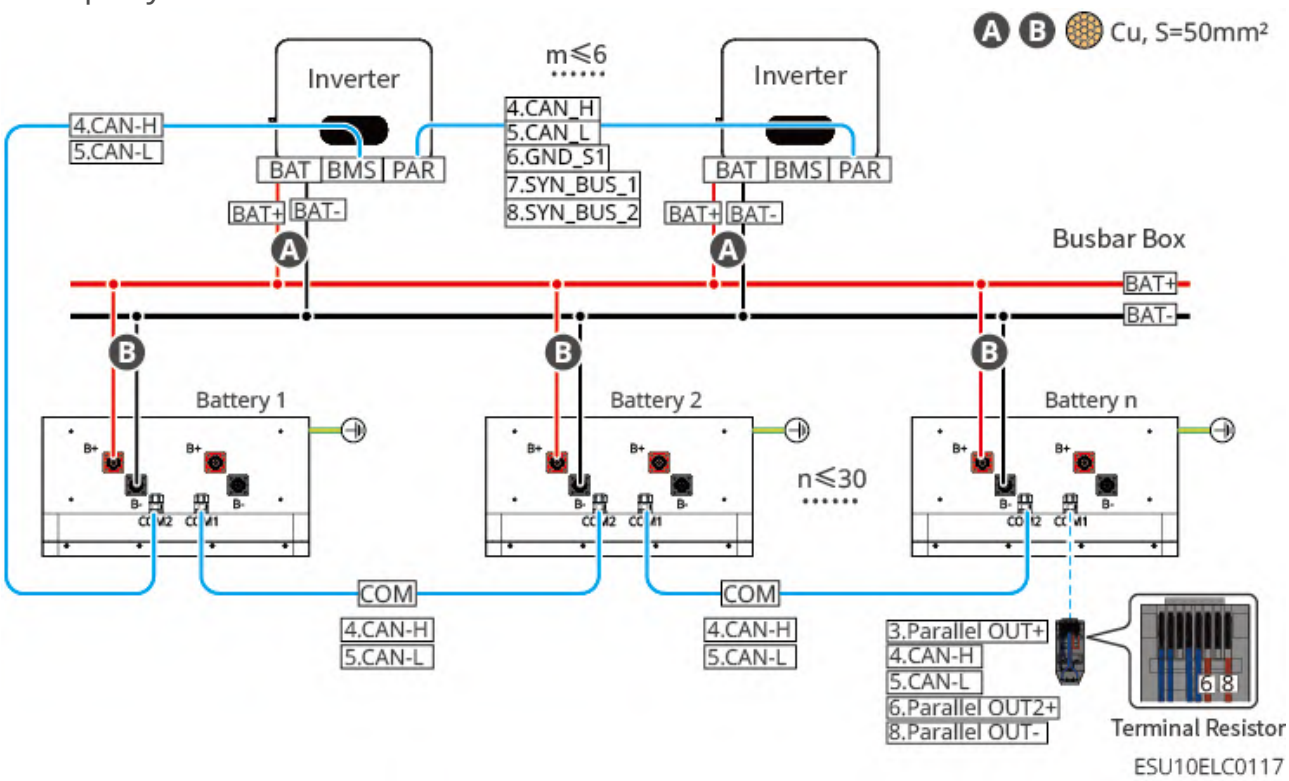
GW16.1-BAT-LV-G10: Battery daisy-chain connected to inverter:



GW16.1-BAT-LV-G10: When the number of batteries is less than or equal to 15, using bus bar box (BCB-32-WW-0, current ≤720A) to connect to inverter:



GW16.1-BAT-LV-G10: When the number of batteries is less than or equal to 30, using third-party bus bar to connect to inverter:



LX A5.0-30 communication port definitions

PIN	COM1	COM2	Description
1	-	-	Reserved
2	-	-	
3	Parallel OUT+	Parallel OUT+	Parallel Communication Port
4	CAN_1H	CAN_1H	Connects to Inverter Communication or Battery Cluster Parallel Communication Port
5	CAN_1L	CAN_1L	
6	Parallel OUT2+	Parallel OUT2+	Parallel Interlock Communication Port
7	-	-	Reserved
8	Parallel OUT-	Parallel OUT-	Parallel Communication Port

LX A5.0-10 communication port definitions

PIN	COM1	COM2	Description
1	-	-	Reserved
2	-	-	
3	Parallel OUT+	Parallel OUT+	Parallel communication port
4	CAN_1H	CAN_1H	Connect to inverter communication or battery cluster parallel communication port
5	CAN_1L	CAN_1L	
6	-	-	Reserved
7	-	-	
8	Parallel OUT-	Parallel OUT-	Parallel communication port

LX U5.0-30, GW14.3-BAT-LV-G10, GW16.1-BAT-LV-G10 communication port definitions

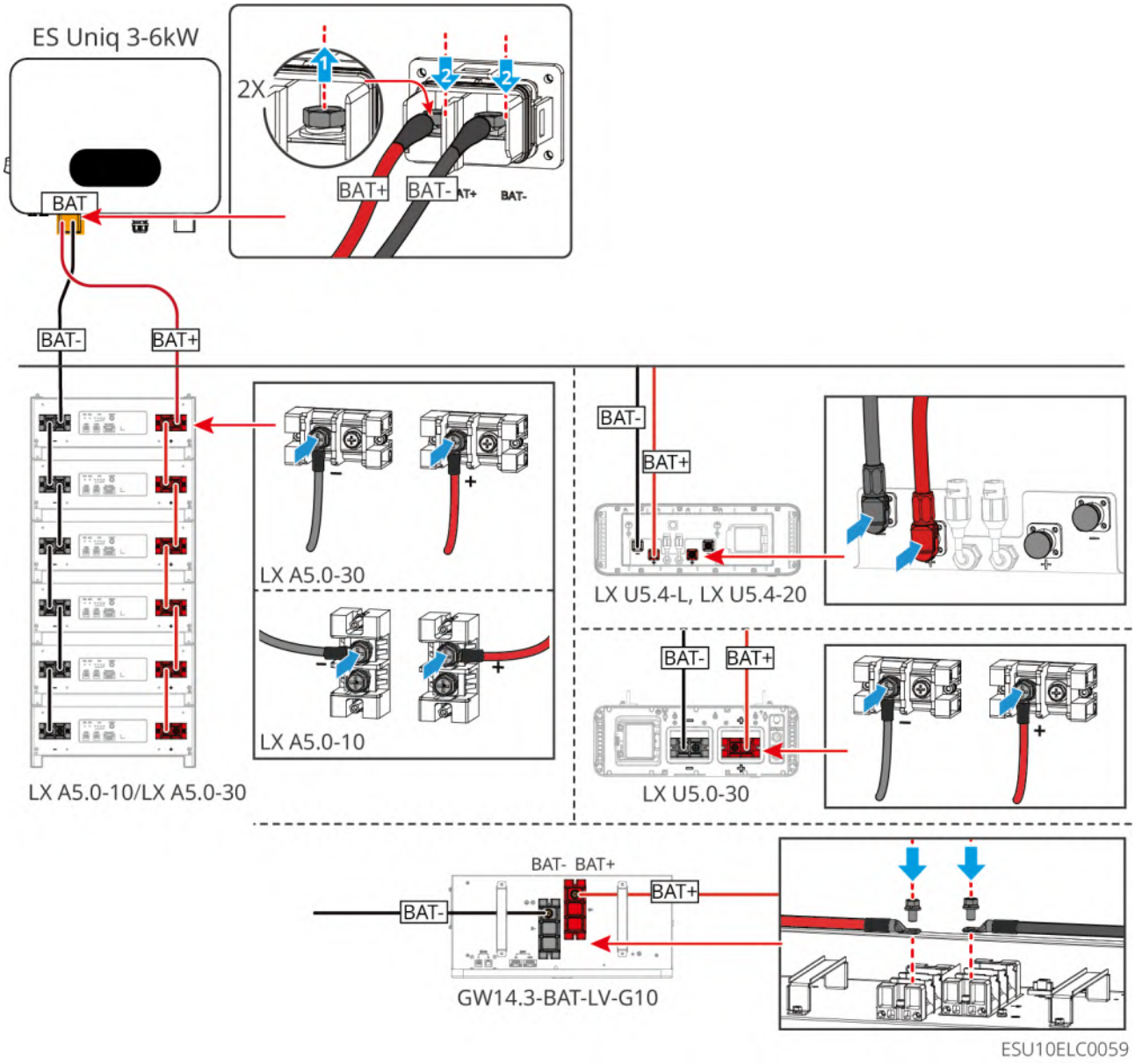
PIN	COM1	COM2	Description
1	RS485A	RS485A	Reserved
2	RS485B-	RS485B-	
3	Parallel OUT+	Parallel OUT+	Parallel Communication Port
4	CAN_H	CAN_H	Connects to inverter communication or battery cluster parallel communication port
5	CAN_L	CAN_L	
6	Parallel OUT2+	Parallel OUT2+	Parallel Communication Port
7	-	-	Reserved
8	Parallel OUT-	Parallel OUT-	Parallel Communication Port

5.6.1 Connecting the Power Cable between the Inverter and Battery

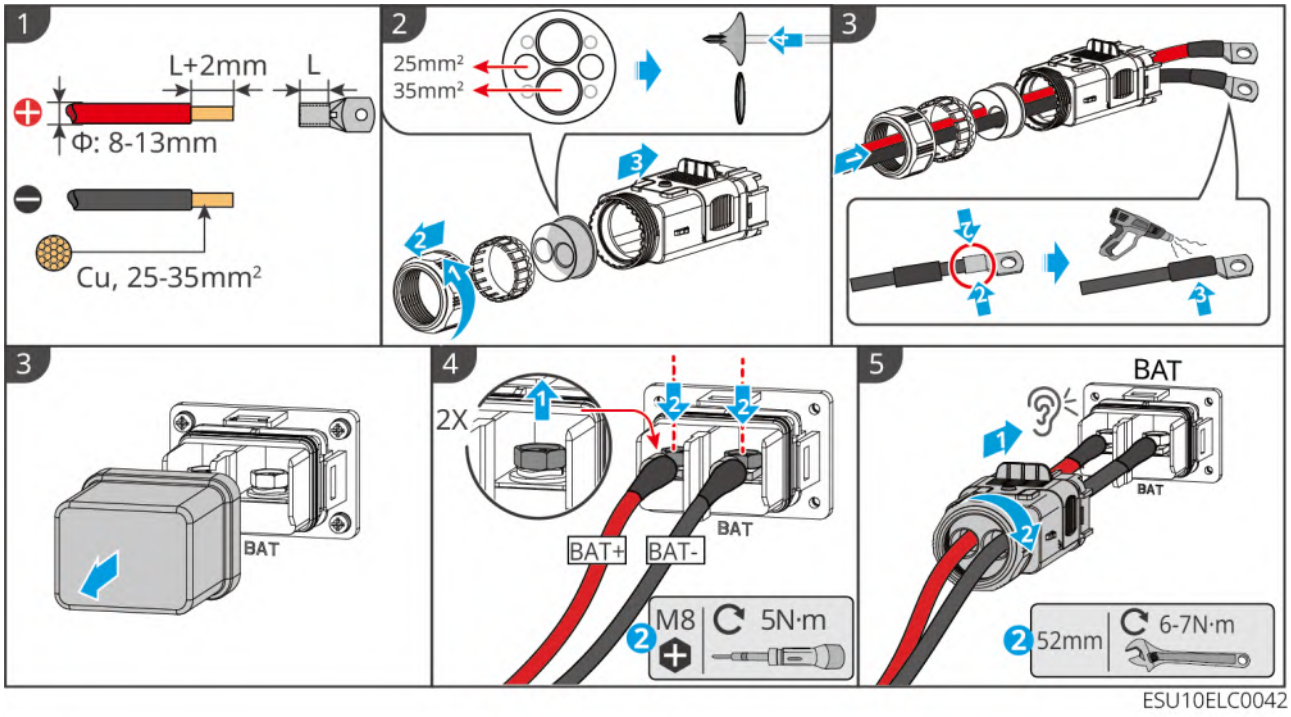
⚠WARNING

- Use a multimeter to measure the positive and negative terminals of the DC cables to ensure correct polarity and no reverse connection; and that the voltage is within the allowable range.
- When wiring, ensure the battery cables match the "BAT+", "BAT-", and ground ports on the battery terminals exactly. Incorrect cable connection will cause equipment damage.
- Ensure the wire cores are fully inserted into the terminal connection holes with no exposed parts.
- Ensure the cable connections are tight, otherwise loose connections may cause terminal overheating and equipment damage during operation.
- Do not connect the same battery bank to multiple inverters, as this may cause inverter damage.

Overview of Inverter and Battery Power Cables

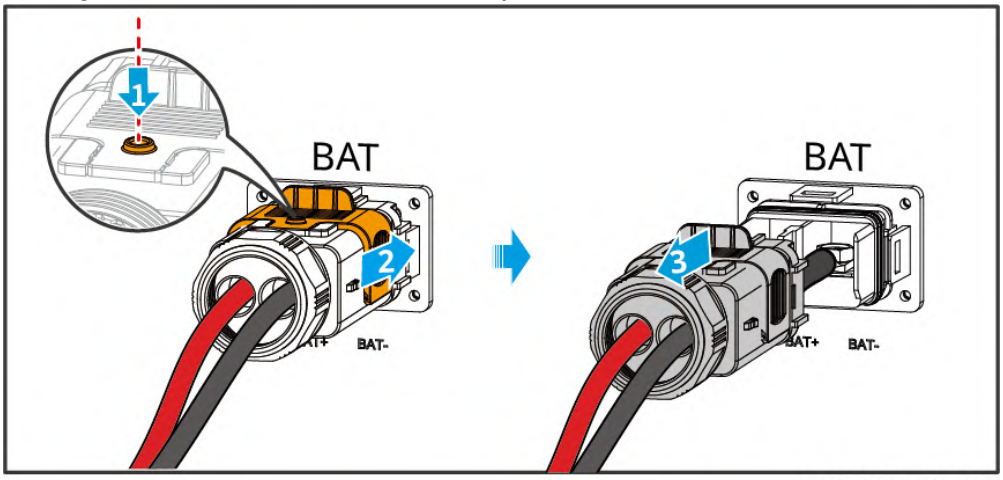


Inverter-Side Cable Preparation



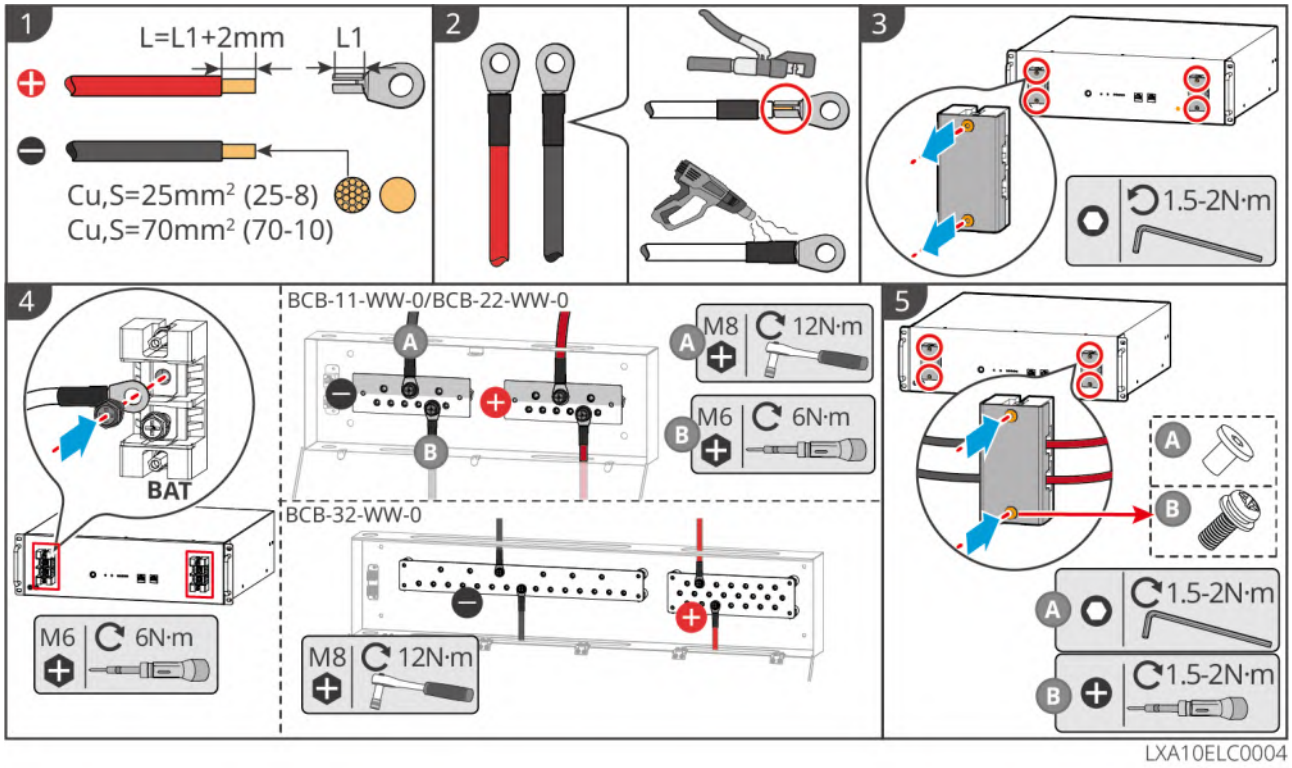
ESU10ELC0042

Inverter Battery Cover Removal Method (Optional)

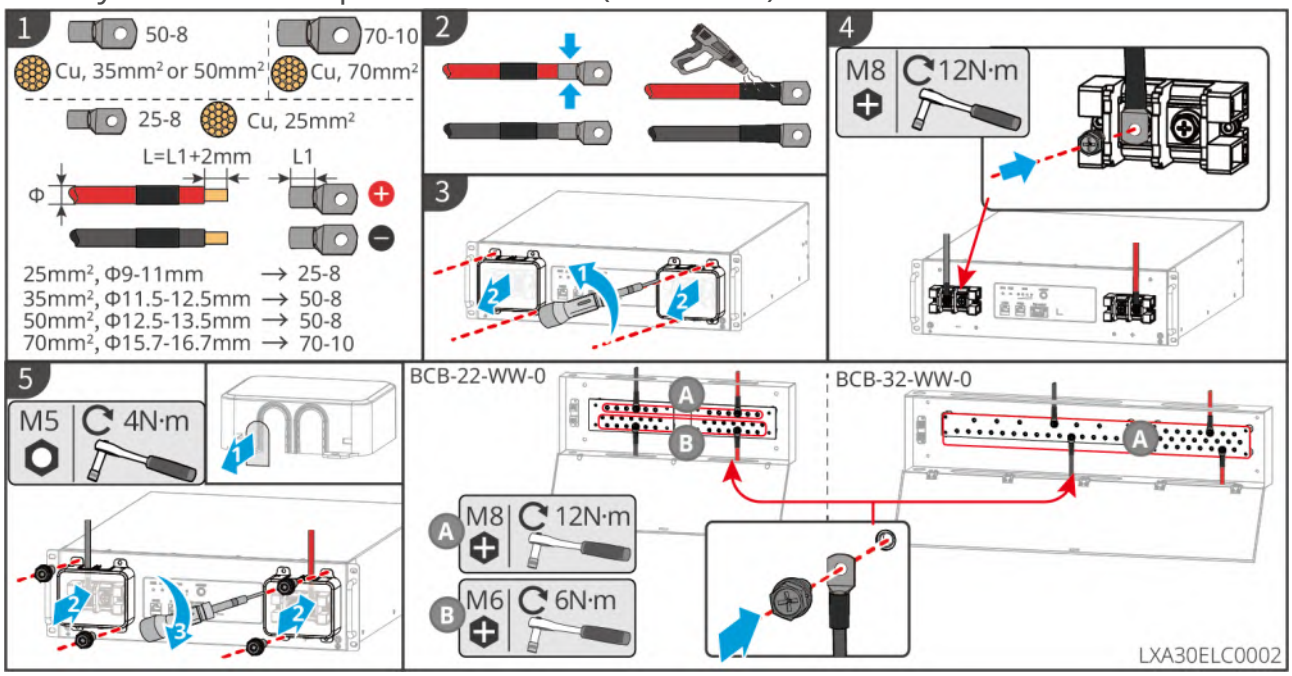


ESU10ELC0095

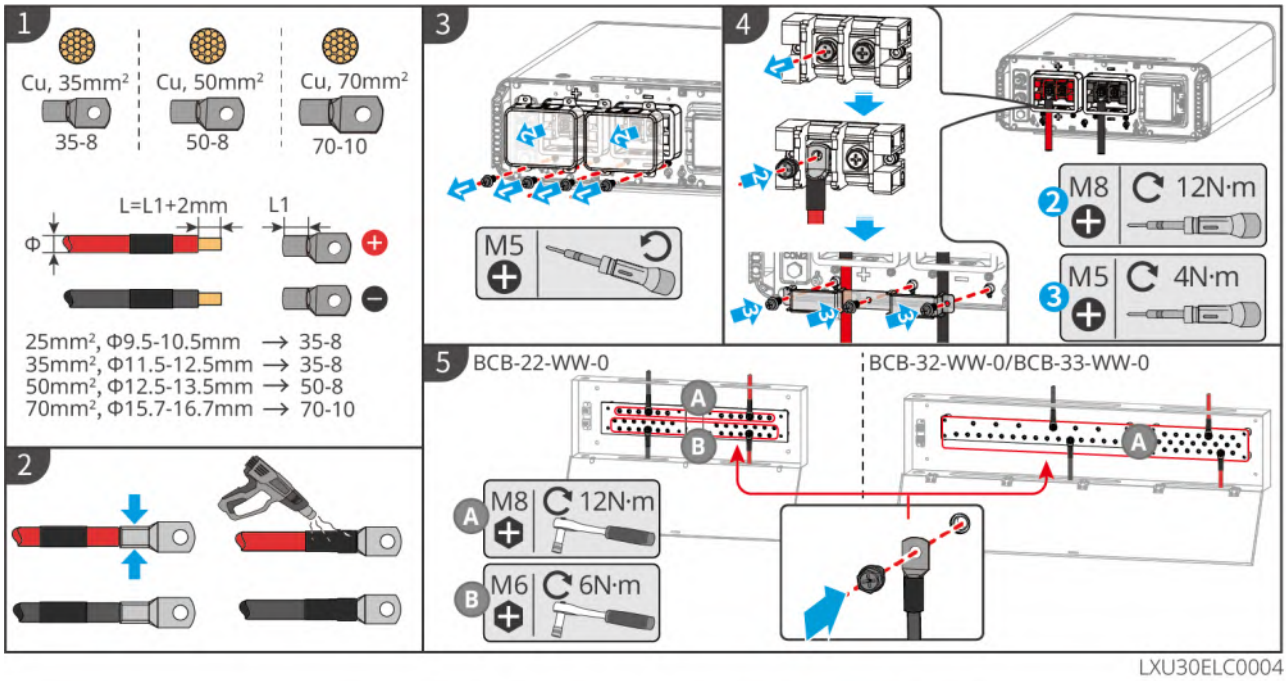
Battery-Side Cable Preparation Method (LX A5.0-10)



Battery-Side Cable Preparation Method (LX A5.0-30)

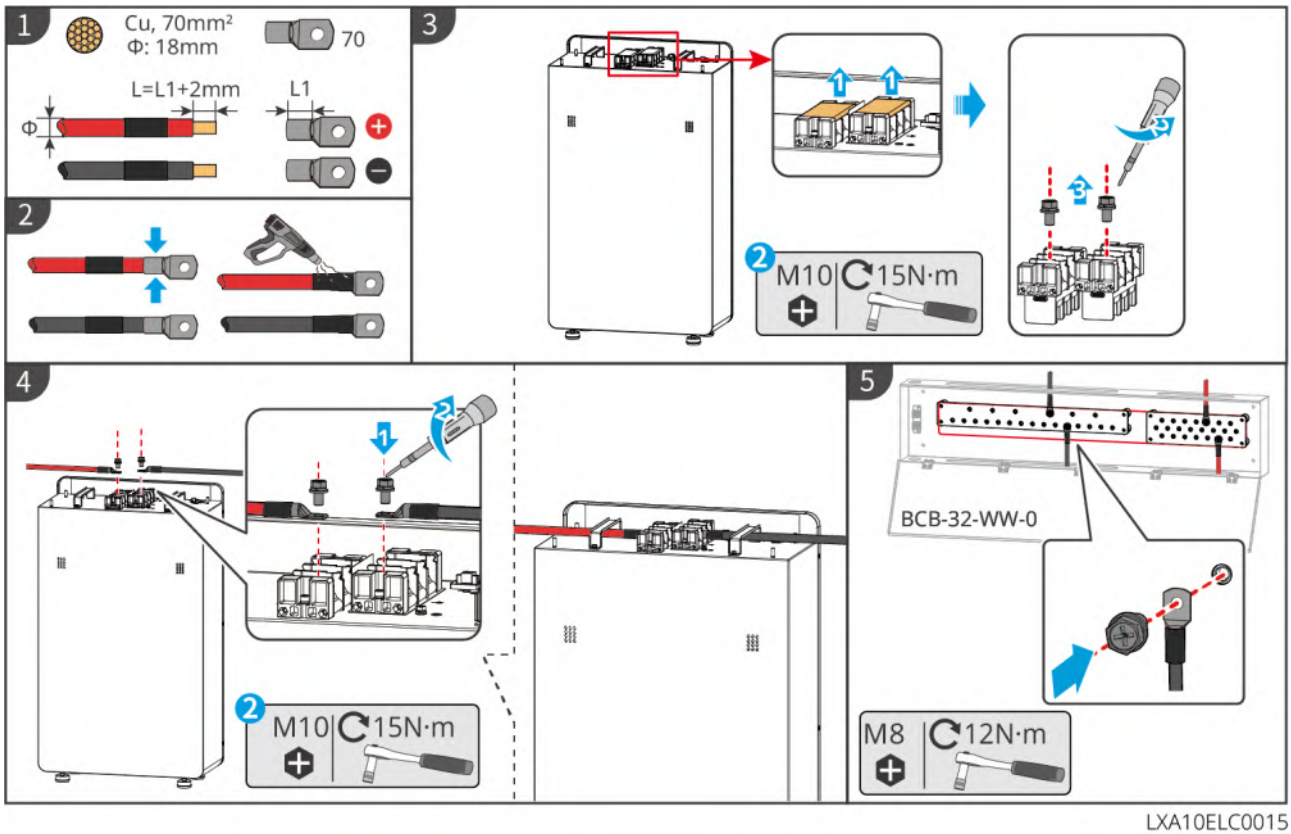


Battery-Side Cable Preparation Method (LX U5.0-30)

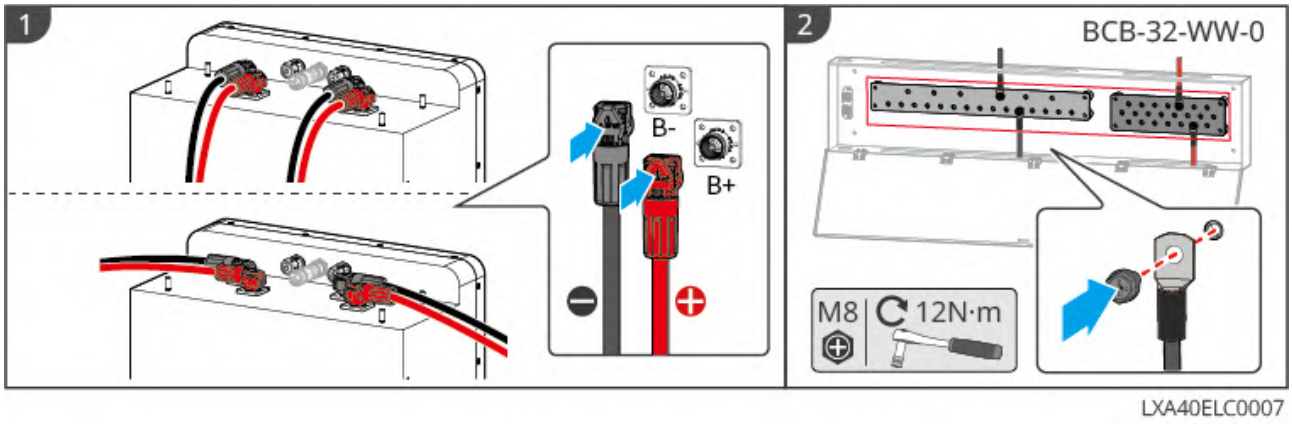


Battery-Side Cable Preparation Method (GW14.3-BAT-LV-G10)

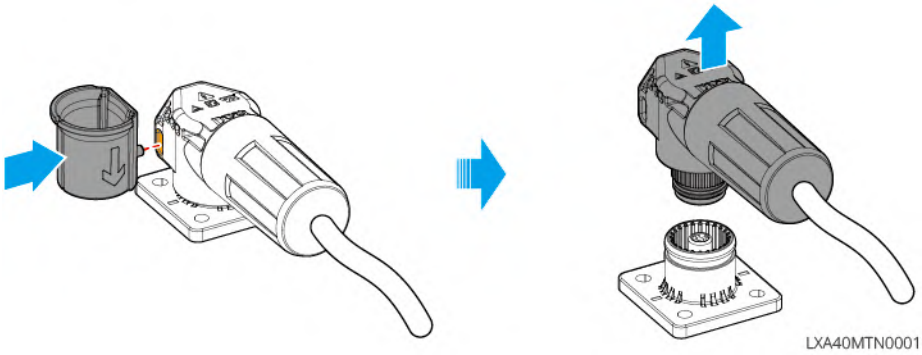
- GW14.3-BAT-LV-G10: If the power cable is shipped with the battery accessories, please use the shipped cable; no crimping is required.



Battery-Side Cable Preparation Method (GW16.1-BAT-LV-G10)



Battery DC Quick-Connect Terminal Unlocking Method (Optional)

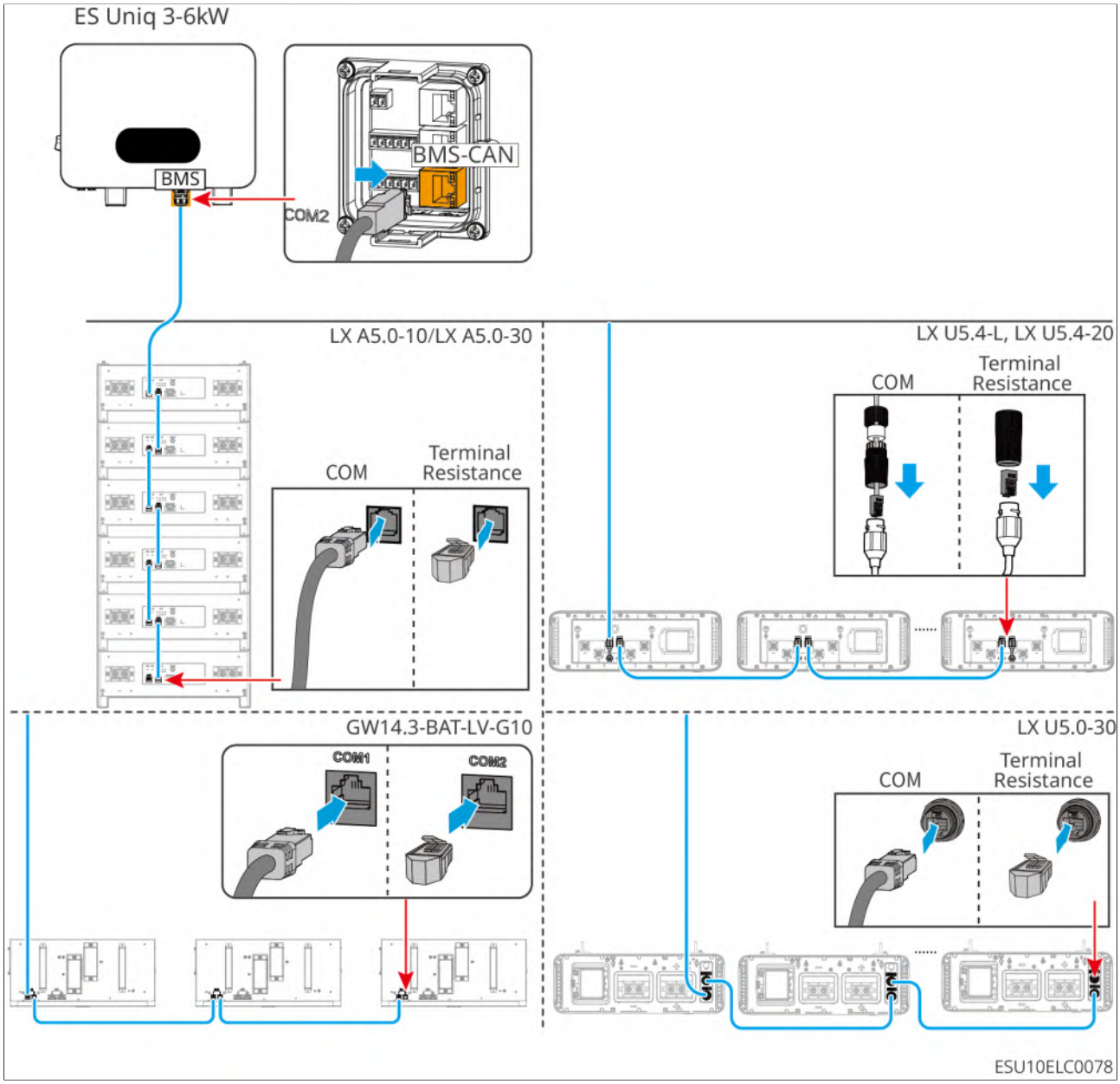


5.6.2 Connecting the Communication Cable between the Inverter and Battery

NOTICE
The BMS is included in the package with the box. It is recommended to use the BMS provided with the box. If the included BMS does not meet the requirements, please prepare your own BMS and shielded RJ45 cables. When crimping the wires, only connect PIN4 and PIN5 of the BMS; otherwise, communication may fail.

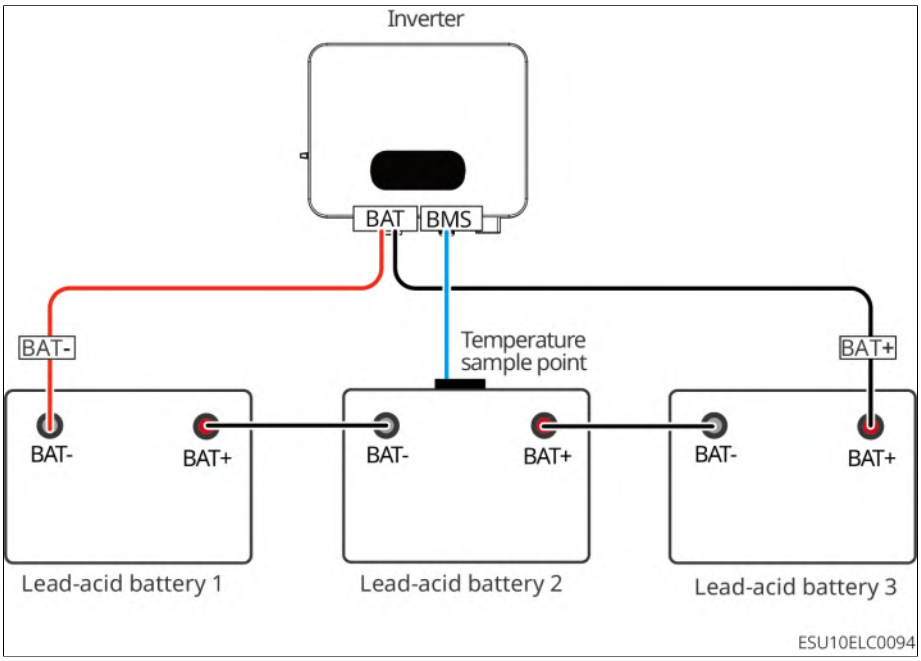
Connection Instructions for BMS Communication Between Inverter and Battery:

Inverter port	Connected to Battery port	port definition	Description
BMS(CAN)	COM1	4: CAN_H 5: CAN_L	• Inverter and Battery communicate via CAN bus. • InverterBMSport is connected to BatteryCOM1port


ES Uniq 3-6kW
BMS
COM2
BMS-CAN
LX A5.0-10/LX A5.0-30
COM
Terminal Resistance
LX U5.4-L, LX U5.4-20
COM
Terminal Resistance
GW14.3-BAT-LV-G10
COM1
COM2
LX U5.0-30
COM
Terminal Resistance
ESU10ELC0078

NOTICE

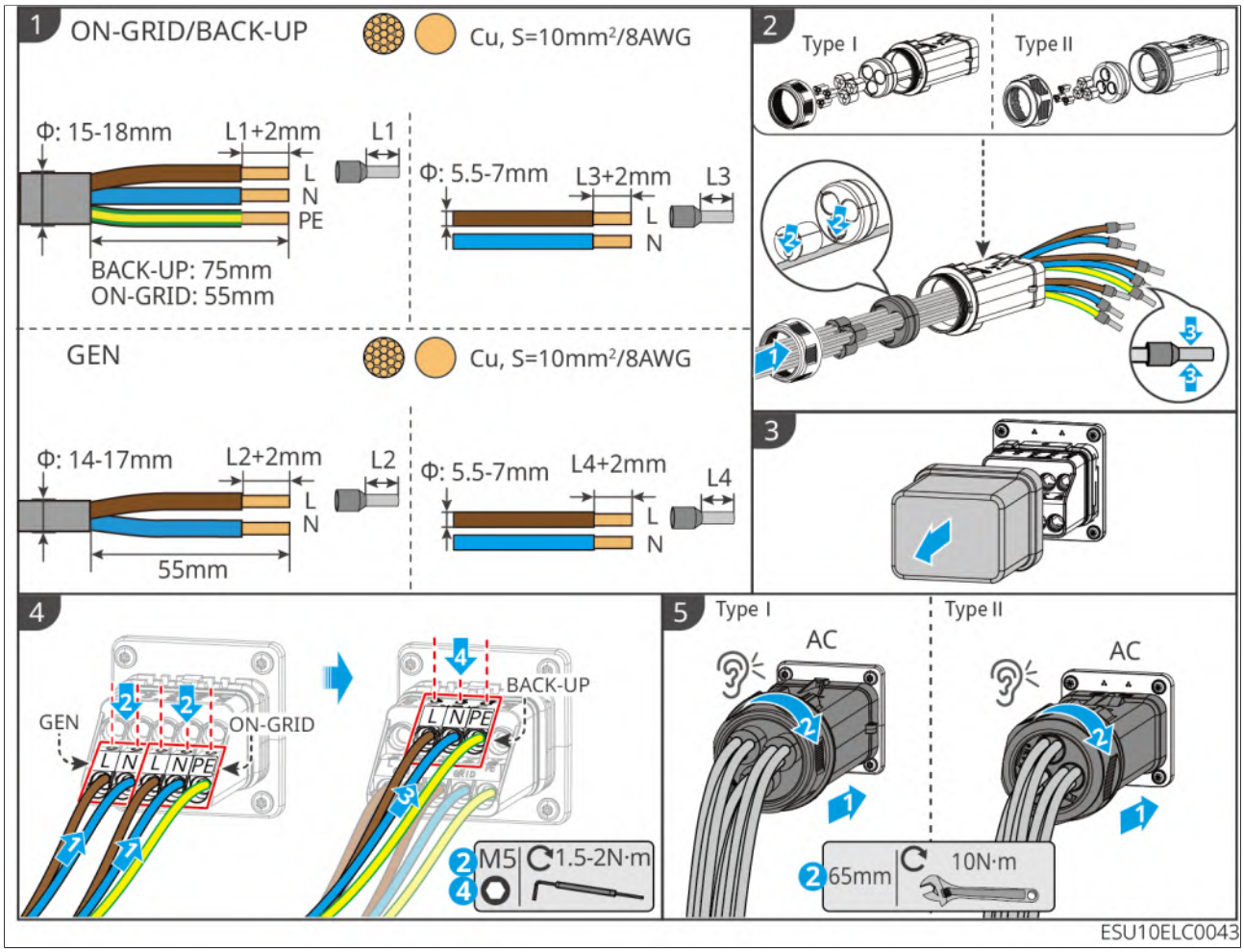
- When connecting the lead-acid Battery temperature sensor cable, it is recommended to attach the sensor cable to a location with poor heat dissipation. For example: when lead-acid Battery are placed side by side, fix the sensor on the middle lead-acid Battery.
- To better Protection the battery cell,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



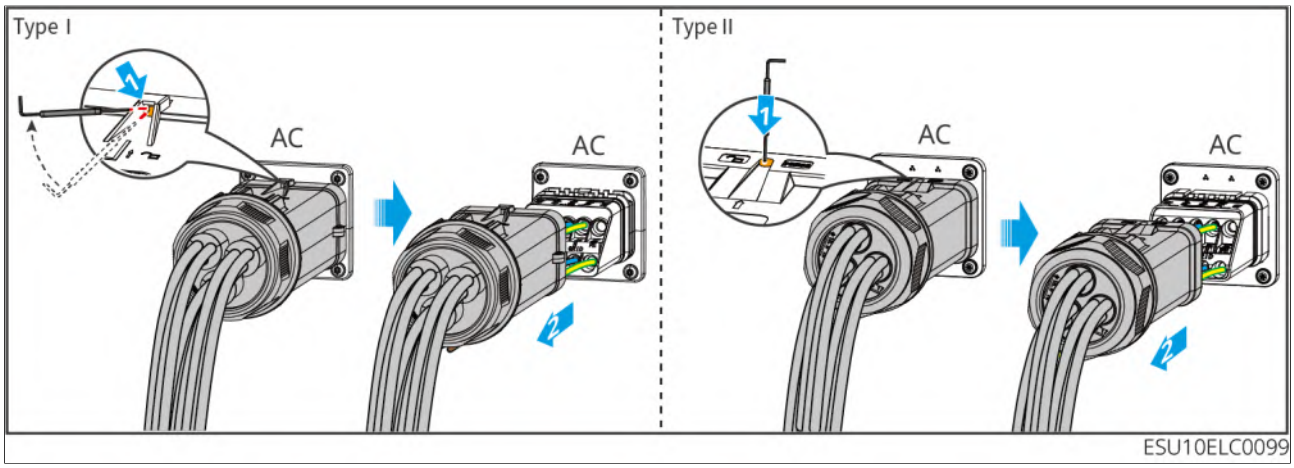
5.7 Connecting the AC Cable

⚠WARNING

- The Inverter integrates an internal residual current monitoring unit (RCMU) to prevent residual current from exceeding the specified limit. When a leakage current greater than the permissible value is detected, the Inverter will promptly 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 with no exposed part.
- 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 at the terminal terminals may occur during equipment operation, leading to device damage.



Inverter AC Cover Removal Method (Optional)



5.8 Connecting the Meter Cable

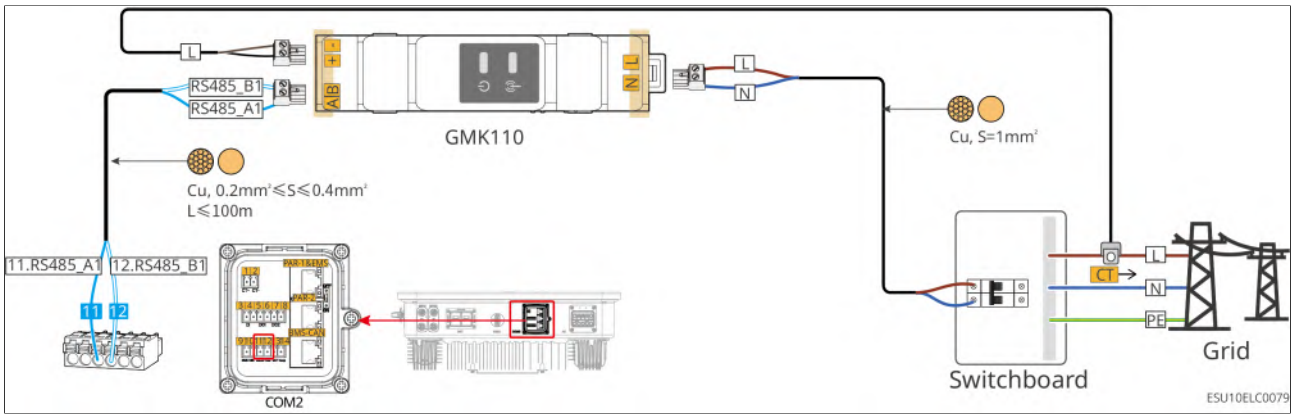
NOTICE

- If multiple Inverter units are required, please consult the manufacturer to purchase additional meters separately.
- Please ensure the correct connection direction of the CT and the correct phase, otherwise it may lead to inaccurate 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 external lightning protection devices.

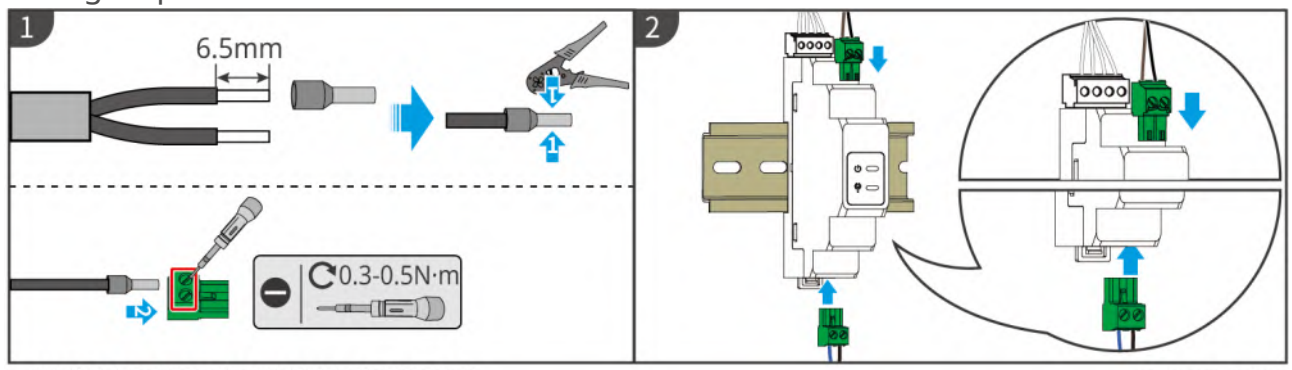
GMK110 meter wiring

NOTICE

- The outer diameter of the AC power line must be smaller than the CT aperture 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.



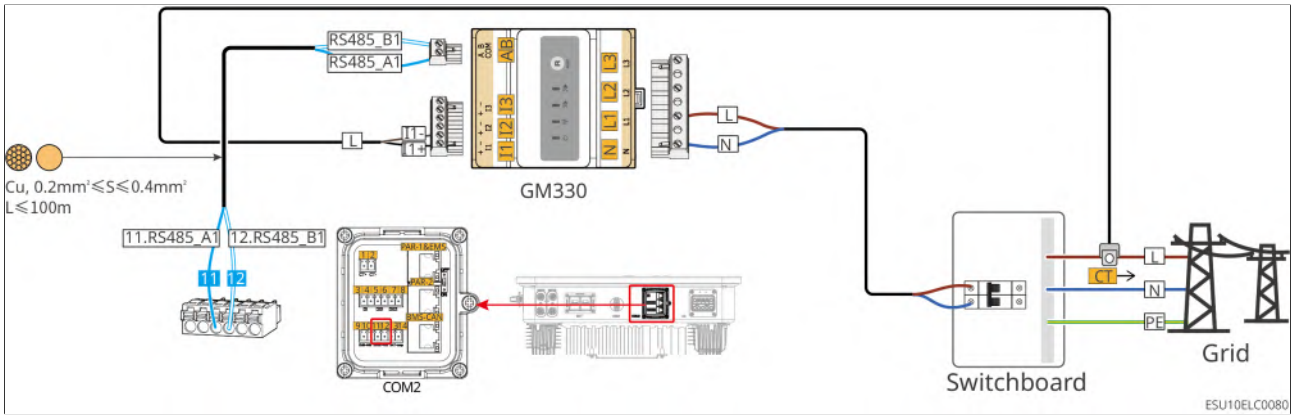
Wiring steps



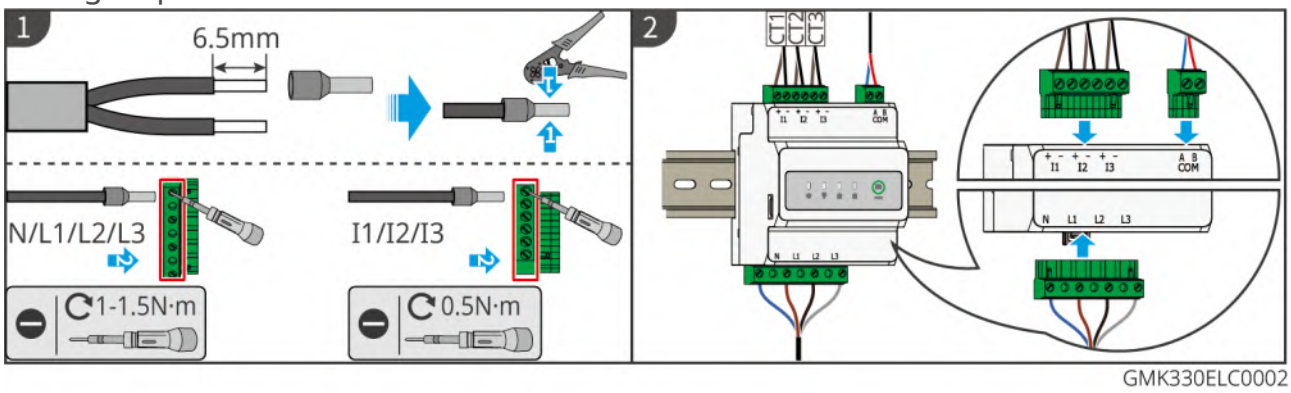
▶ GMK110: CT x 1; GMK110D: CT x 2

GMK10ELC0002

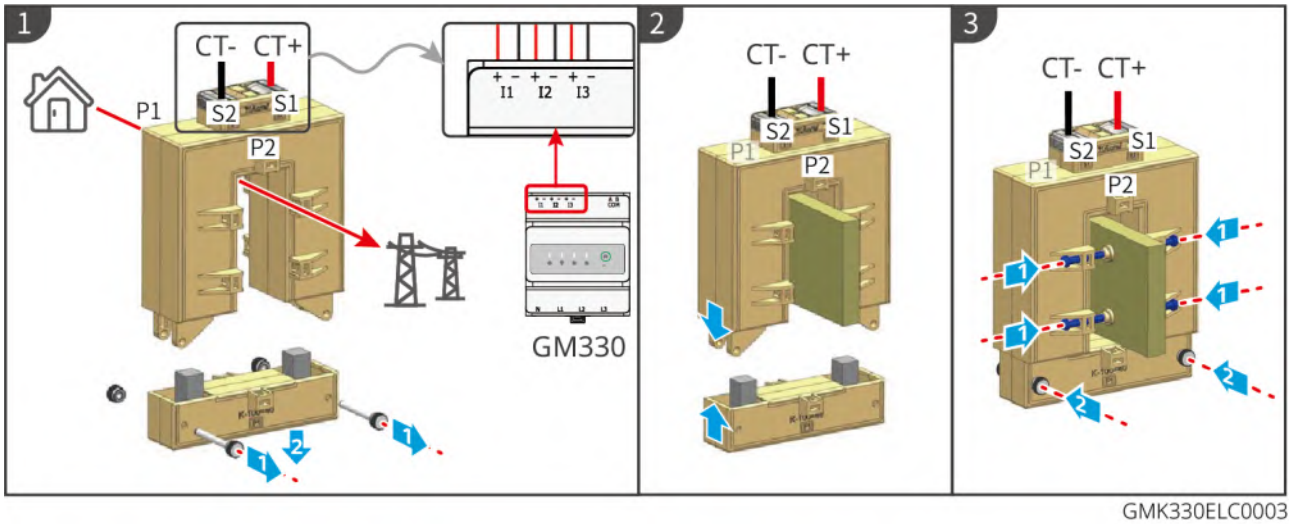
GM330 meter wiring



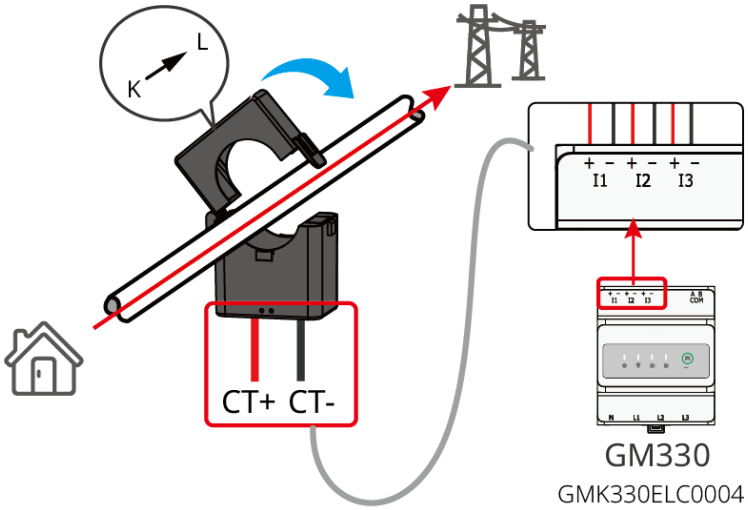
Wiring steps



InstallationCT (Type I)



Installation CT (Type II)



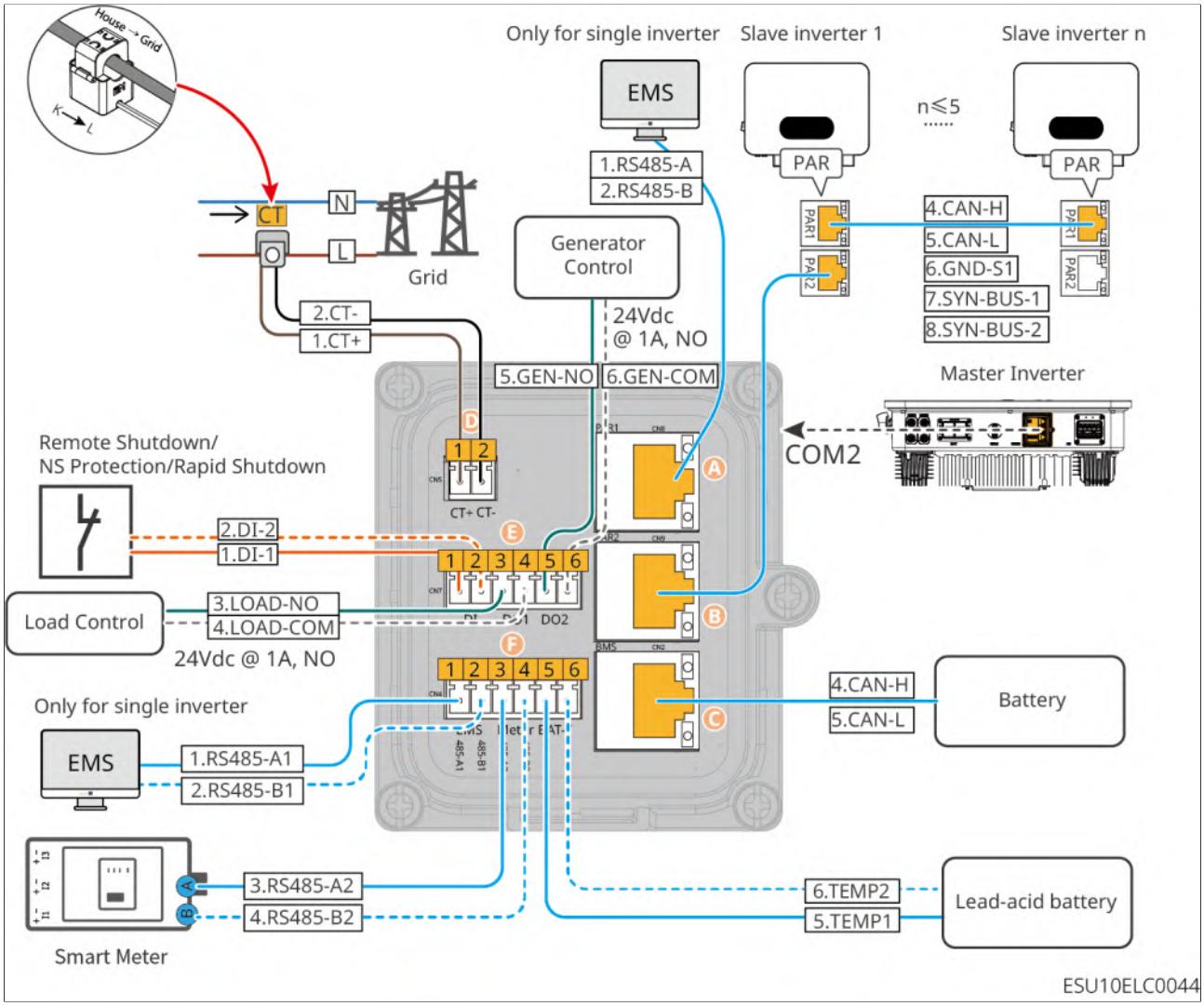
5.9 Connecting the Inverter Communication Cable

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-related parameters, view device operation information and error messages, and promptly understand system status.
- In a single-unit system, InstallationWiFi/LAN Kit-20, 4G Kit-CN-G20, 4G Kit-CN-G21smart dongle are included. When the system consists of multiple Inverter units operating in parallel for networking, the Master inverter requires the InstallationEzlink3000 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 Communication cable to Master inverter; otherwise, the function will not take effect.

Communication Function Description

Type I

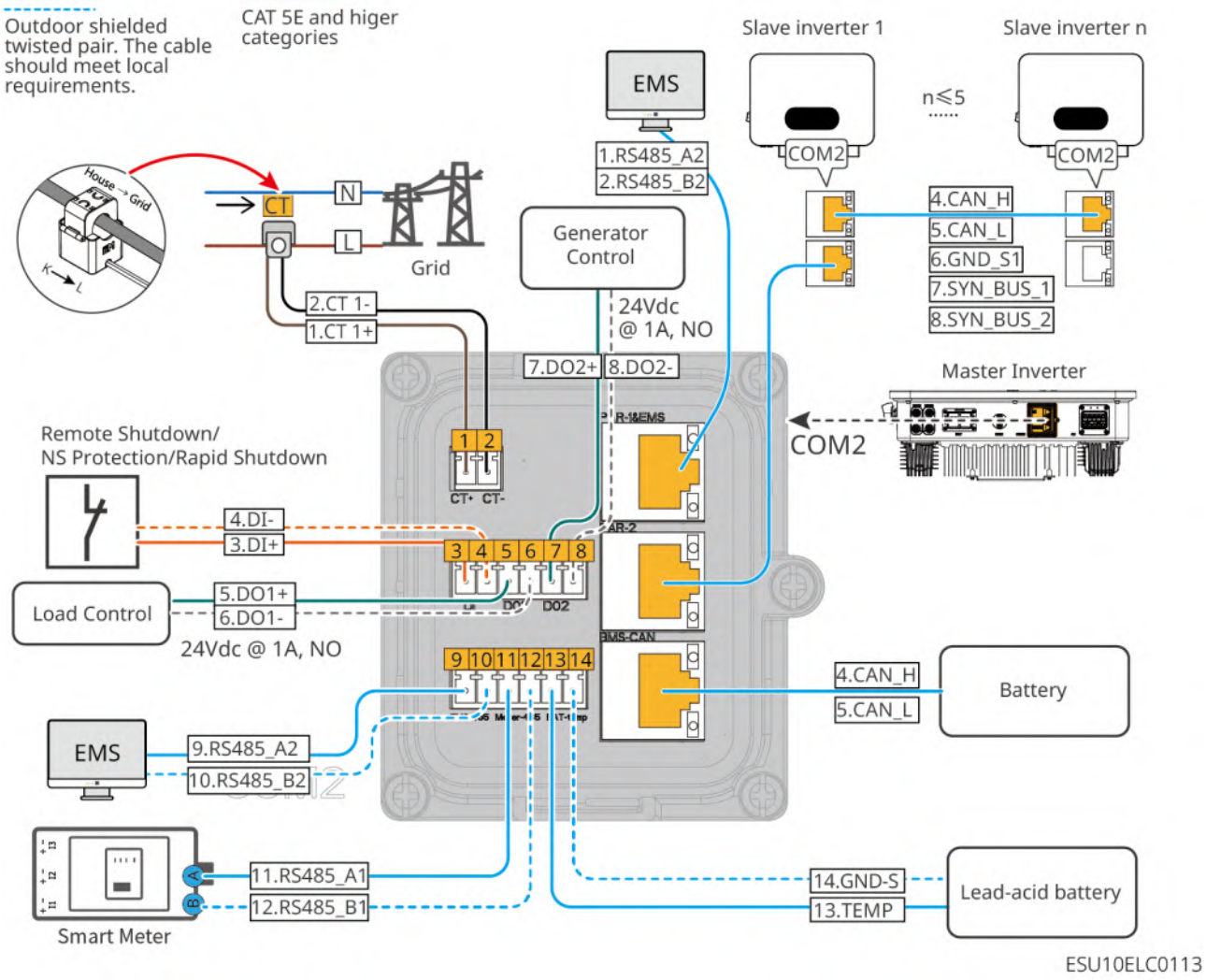


port(Silkscreen)		function	Description
A	PAR1	Parallel Connection Communication Port1 Energy Management System (EMS) （PAR-1&EMS）	• CAN and BUS: Parallel operation Communication Port, CAN communication is used to connect other Inverter in parallel operation networking; BUS is used to control the grid-connected and off-grid status of each Inverter in parallel operation. • RS485: When used to connect third-party EMS devices that support RS485 communication. parallel system does not support connecting third-party EMS devices.

port(Silkscreen)		function	Description
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-tied and off-grid status of each Inverter in parallel operation.
C	BMS	BMS Communication	When connecting a 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/Rapid Shutdown/NS Protection	• Provide signal control port, control equipment remote shutdown, or achieve NS Protection • Rapid Shutdown: ◦ 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. • remote shutdown function: ◦ In case of an accident, the equipment can be controlled to stop working. ◦ The remote shutdown equipment must be a normally closed switch.

port(Silkscreen)		function	Description
	LOAD	load control	• 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 for heat pump operation • Supported operating modes: ◦ Operating Mode 2 (Signal: 0:0): Energy-saving mode. In this mode, the heat pump operates in energy-saving mode. ◦ Operating Mode 3 (Signal: 0:1): Activation Recommendation. In this mode, the heat pump maintains its current operation while increasing hot water storage to accumulate additional thermal energy.
	GEN	Generator start-stop control Manufacturing port	Supports the connection of generator control signals DO contact capacity: 24Vdc @1A, NO/COM normally open contact
F	EMS485	Energy Management System (EMS)	When used to connect third-party EMS devices, RS485 communication is supported, parallel system does not support connecting third-party EMS devices. Note: The EMS in PAR-1 & EMS port is on the same line.
	Meter	Electric meter communication	Supports RS485 communication for external Smart Meter connection
	BAT-T	Lead-acid temperature measurement port	Temperature sensing wire for connecting lead-acid temperature measurement

Type II



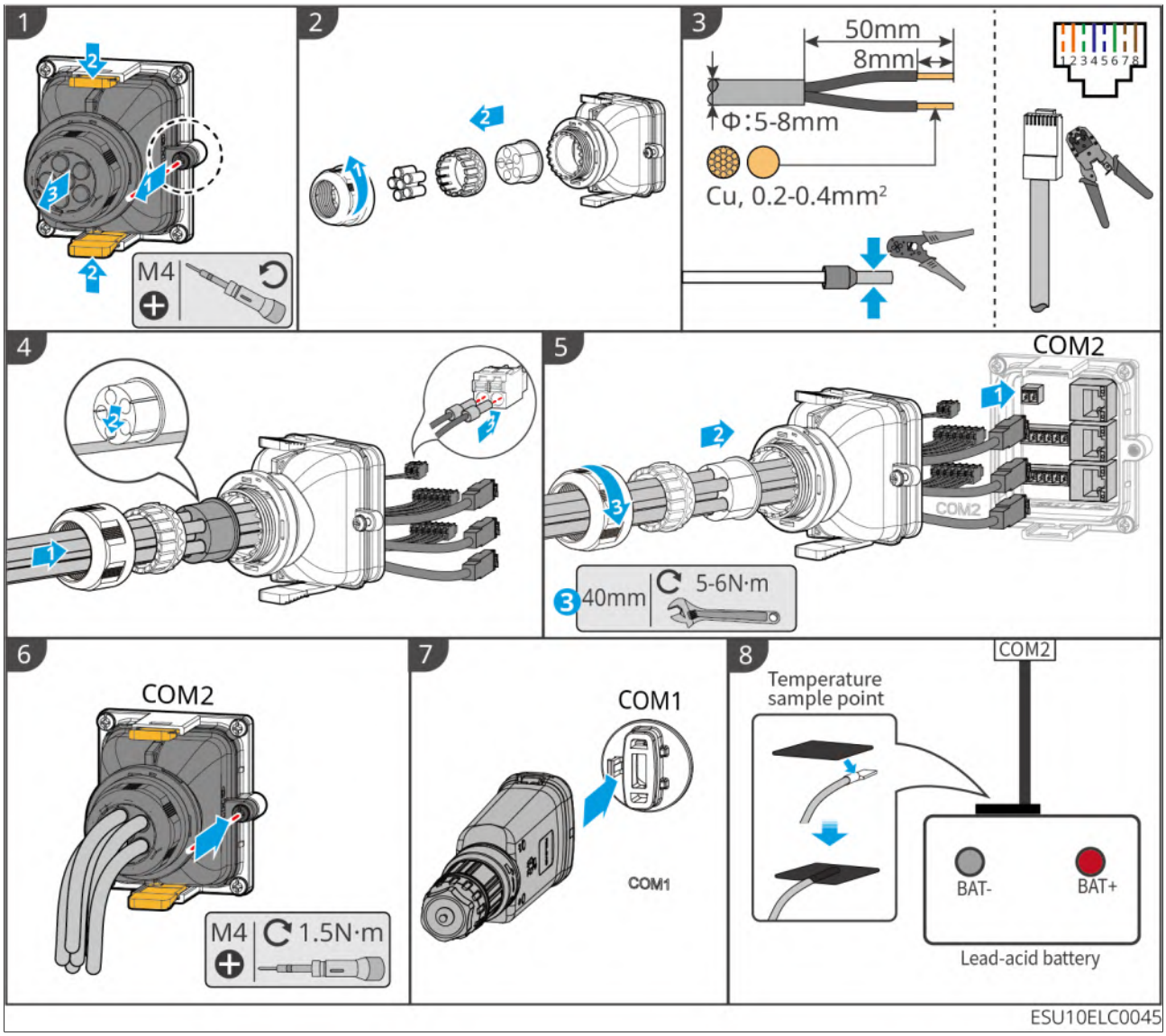
port	function	Description
1-2	CT connection	Connect the CT cable.

port	function	Description
3-4	remote shutdown/Rapid Shutdown/NS Protection	• Provide signal control port, control equipment remote shutdown, or achieve NS Protection • Rapid Shutdown: ◦ 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. • remote shutdown function: ◦ In case of an accident, the equipment can be controlled to stop working. ◦ The remote shutdown equipment must be a normally closed switch.
5-6	load control	• 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 for heat pump operation • Supported operating modes: ◦ Operating Mode 2 (Signal: 0:0): Energy-saving mode. In this mode, the heat pump operates in energy-saving mode. ◦ Operating Mode 3 (Signal: 0:1): Activation Recommendation. In this mode, the heat pump maintains its current operation while increasing hot water storage to accumulate additional thermal energy.

port	function	Description
7-8	Generator start-stop control Manufacturing port	Supports the connection of generator control signals DO contact capacity: 24Vdc @1A, NO/COM normally open contact
9-10	Energy Management System (EMS)	When used to connect third-party EMS devices, RS485 communication is supported, but parallel system does not support connecting to third-party EMS devices. Note: The EMS in PAR-1 & EMS port is on the same line.
11-12	Electricity meter communication	Supports RS485 communication for external Smart Meter connection
13-14	Lead-acid temperature measurement port	Temperature sensing wire for connecting lead-acid temperature measurement
PAR-1 &EMS	Parallel Connection Communication Port1 Energy Management System (EMS) (PAR-1&EMS)	• CAN and BUS: Parallel operation Communication Port, CAN communication is used to connect other Inverter in parallel operation networking; BUS is used to control the grid-connected and off-grid status of each Inverter in parallel operation. • RS485: When used to connect third-party EMS devices that support RS485 communication. parallel system does not support connecting third-party EMS devices.
PAR-2	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-tied and off-grid status of each Inverter in parallel operation.

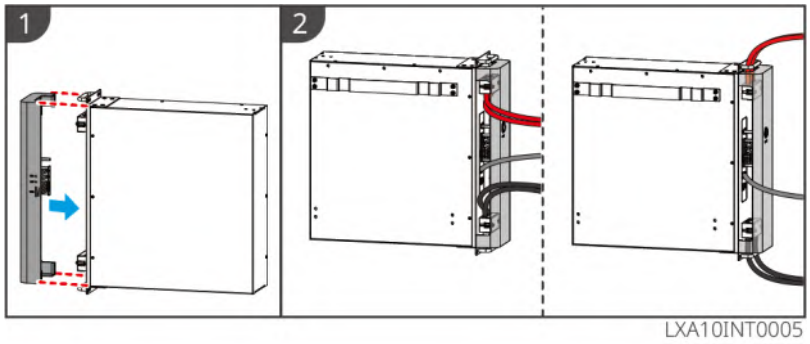
port	function	Description
BMS-CAN	BMS Communication	When connecting a lithium-ion Battery, it is used to connect the Battery system BMS Communication cable, supporting communication via CAN signals.

Connection Communication cable method

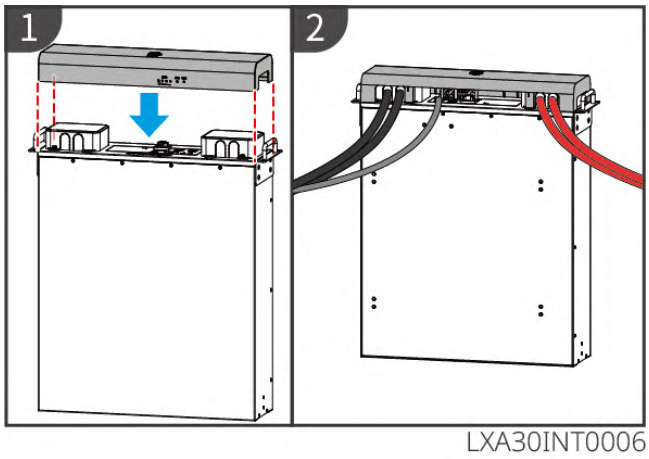


5.10 Installing the Battery SystemProtection Cover

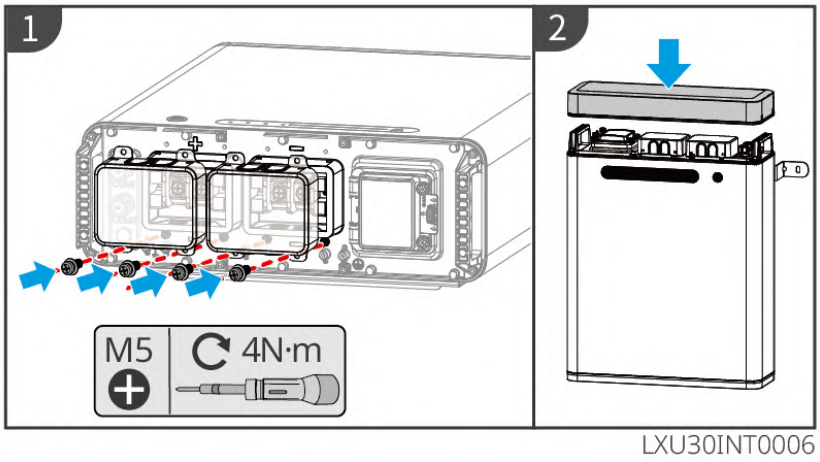
5.10.1 LX A5.0-10



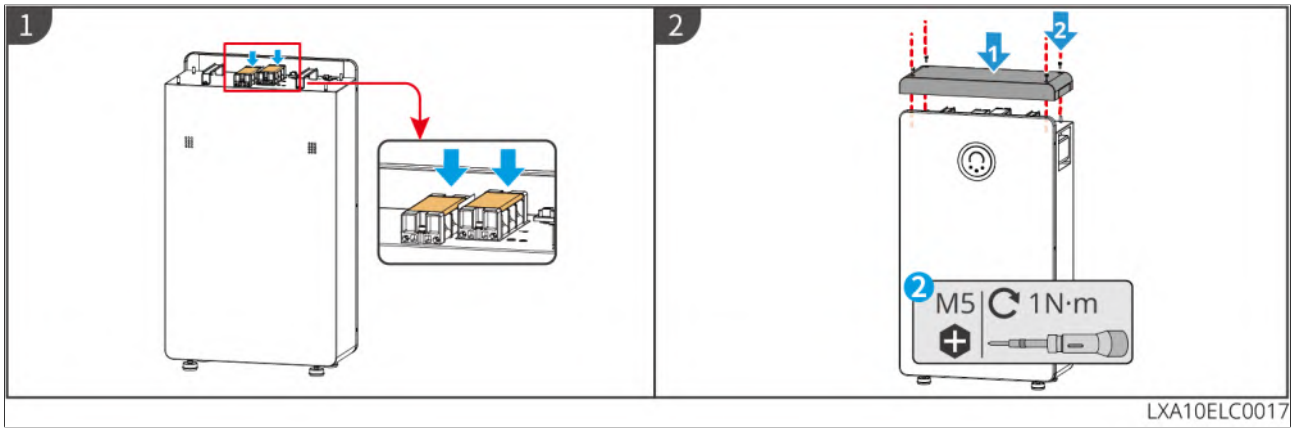
5.10.2 LX A5.0-30



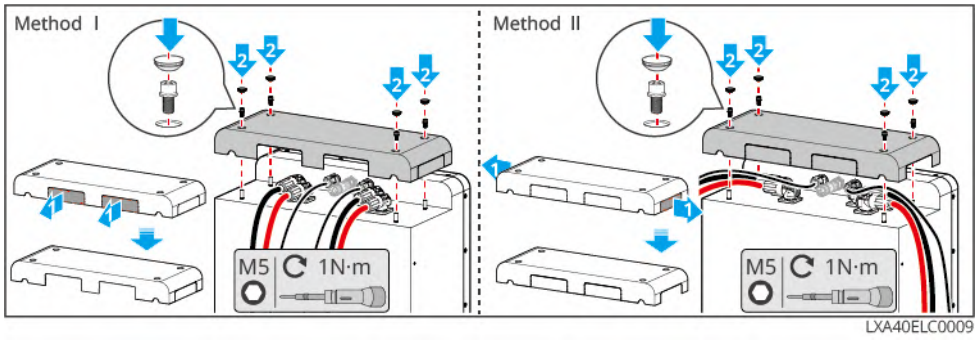
5.10.3 LX U5.0-30



5.10.4 GW14.3-BAT-LV-G10



5.10.5 GW16.1-BAT-LV-G10



6 System Commissioning

6.1 Check Before Power ON

No.	Inspection Item
1	The equipment is installed securely. The installation location facilitates operation and maintenance. The installation space allows for ventilation and heat dissipation. The installation environment is clean and tidy.
2	The PE cable, DC cable, AC cable, Communication cable, and terminal resistor are connected correctly and securely.
3	Cable bundling meets cabling requirements, is reasonably distributed, and shows no damage.
4	For unused cable entry holes and ports, ensure they are reliably connected using the terminals provided in the accessories and have been properly sealed.
5	Ensure that used cable entry holes have been sealed.
6	The voltage and frequency at the inverter grid connection point meet the grid connection requirements.

6.2 Power ON

WARNING

- When there are multiple inverters in the system, ensure that the AC side power-on of all slave inverters is completed within one minute after the AC side power-on of the master inverter.
- Battery black start usage scenarios:
  - Inverters need to be activated via the battery.
  - Battery charge/discharge management is required without an inverter present.
- After the battery system starts up, ensure that communication between the inverter and the battery system is normal within 15 minutes. If normal communication cannot be established, the battery system switch will automatically open, powering down the battery system.
- When multiple battery clusters are connected in parallel in the system, starting any one battery will start all batteries.
  - GW14.3-BAT-LV-G10: After the battery is powered down and then powered up again, you need to restart each battery one by one, or wait for 15 minutes and then start any one battery to start all batteries.

Power ON Procedure

1. (Select according to local regulations) Close the switch between the inverter and the battery.
2. Start the battery system.
   a. LX A5.0-10, LX A5.0-30: Short press the battery system switch for ≤ 2s.
   b. LX U5.0-30, GW14.3-BAT-LV-G10, GW16.1-BAT-LV-G10: Close the battery system integrated circuit breaker, then short press the battery system button.
3. Close the inverter's DC switch.
   a. (Select according to local regulations) Close the circuit breaker between the PV modules and the inverter.
4. Close the GRID circuit breaker.
5. Close the BACK-UP circuit breaker.
6. (Optional) Close the GEN circuit breaker.
7. (Screenless model only) Close the inverter's off-grid control switch.

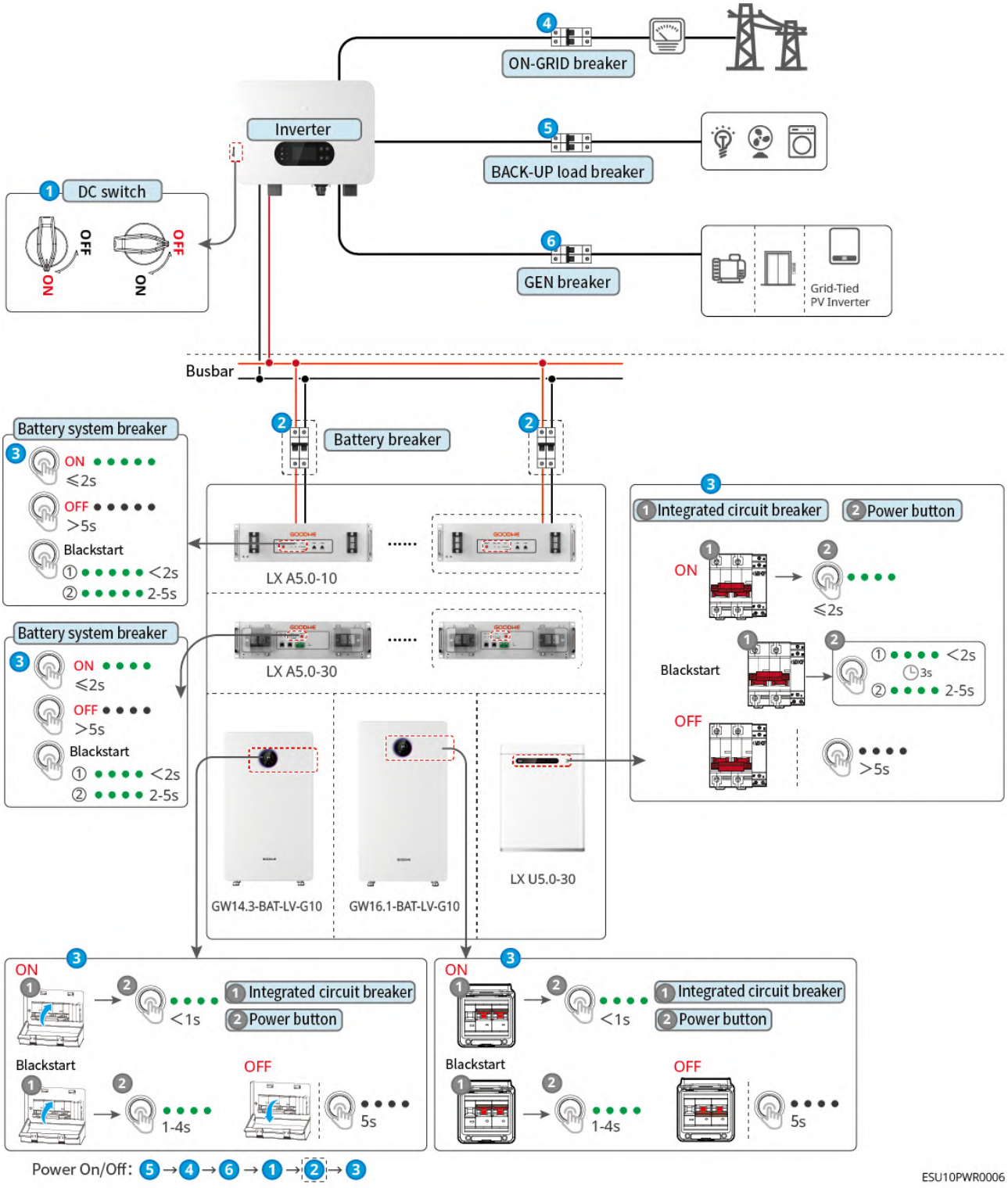
Battery Black Start

1. Close the battery system switch.
2. Start the battery:

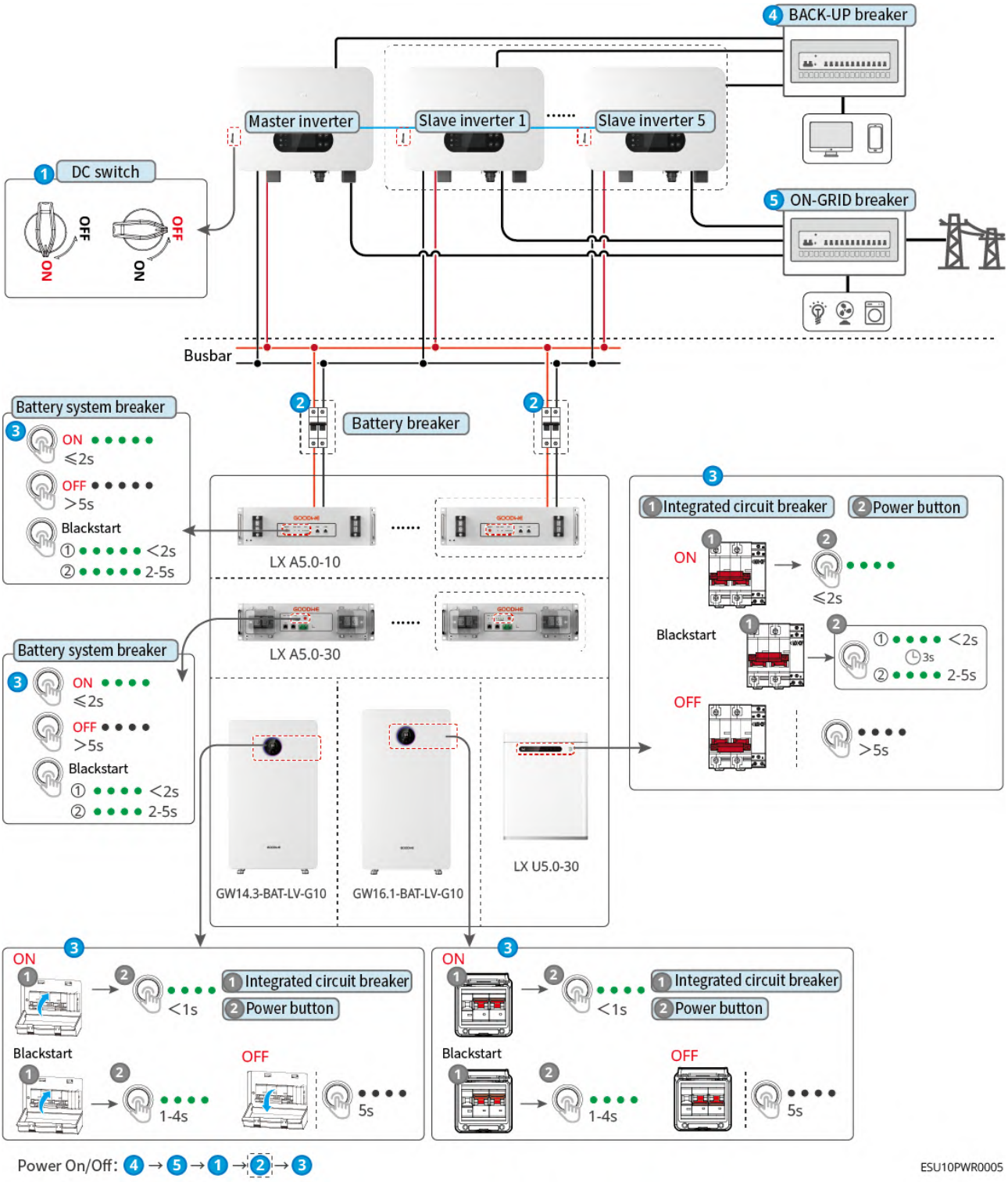
a. LX A5.0-10, LX A5.0-30, LX U5.0-30: Short press the battery multi-function button for <2 seconds, then long press for 2-5 seconds to start the battery system. The battery forces discharge to activate the inverter.
b. GW14.3-BAT-LV-G10, GW16.1-BAT-LV-G10: Long press the battery multi-function button for 1-4 seconds to start the battery system. The battery forces discharge to activate the inverter.

3. Close the inverter's DC switch.
4. (Select according to local regulations) Close the circuit breaker between the PV modules and the inverter.
5. Close the GRID circuit breaker.
6. Close the BACK-UP circuit breaker.
7. (Optional) Close the GEN circuit breaker.

Single-unit System

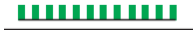


Parallel System



6.3 Indicators

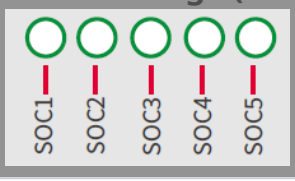
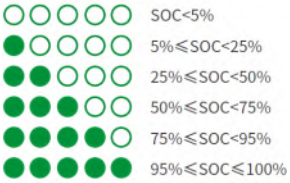
6.3.1 Inverter Indicators

indicator	Status	Description
		Inverter is starting up, in self-test mode.
		Inverter is operating normally in grid-tied power generation or off-grid mode.
		BACK-UP output overload.
		System fault.
		LCD ON: Inverter is powered on and in standby mode. LCD OFF: Inverter is powered off.
		Grid abnormal, inverter BACK-UP port power supply normal.
		Grid normal, inverter BACK-UP port power supply normal.
		No power supply at BACK-UP port.
		Inverter monitoring module is resetting.
		No connection established between inverter and communication terminal.
		Communication failure between communication terminal and cloud server.
		Inverter monitoring is normal.
		Inverter monitoring module is not started.

6.3.2 Battery Indicators

6.3.2.1 LX A5.0-10

Normal state

State of Charge (SOC) 	RUN indicator 	Battery system status
SOC represents the state of charge. 	Green flashing once per second	Battery system is in Standby status
	Green flashes 2 times/s	Battery system is in idle state
	Green steady on	Battery system is in the Charge state
Maximum SOCindicator flashes once per second • 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.	Green steady on	Battery system is in the Discharge state

abnormal state

ALM light 	Battery system status	Description
Red flashes once per second	Battery system alarm occurred	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.

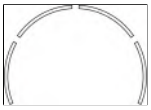
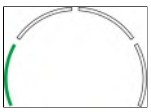
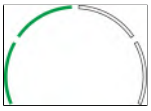
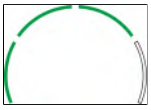
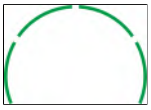
ALM light	Battery system status	Description
Red steady on	Battery system occurs fault	Determine the type of fault that occurred based on the SOCindicator display format, and handle it according to the methods recommended in the Troubleshooting section.

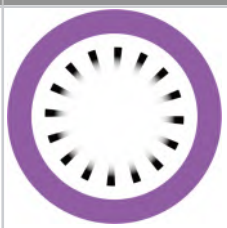
6.3.2.2 LX A5.0-30、LX U5.0-30

indicator		System Status
○○○○	SOCindicator no green display	SOC=0%
●○○○	The first SOCindicator is displayed in green.	0% < SOC≤25%
●●○○	The second SOCindicator is displayed in green.	25% < SOC≤50%
●●●○	The third SOC displays green.	50% < SOC≤75%
●●●●	The fourth SOC indicator is displayed in green.	75% < SOC≤100%
RUN light	Green steady on	Battery system is operating normally
	Green flashing once per second	Battery system is in the Standby state
	Green flashing 3 times/s	PCS communication loss
	slow blinking	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 mode or fault status.
ALM indicator	Red steady on	Determine the type of fault that occurred based on the SOCindicator display format, and handle it according to the methods recommended in the Troubleshooting section.

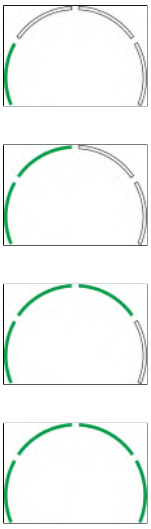
6.3.2.3 GW14.3-BAT-LV-G10

Normal state

indicator name	indicator status		Corresponding to other light status	System Status
State of Charge (SOC)	    	SOCindicator Green Steady On	/	SOC=0% 0% < SOC≤25% 25% < SOC≤50% 50% < SOC≤75% 75% < SOC≤100%
		SOCindicator green flashing		Battery system is in the Discharge state

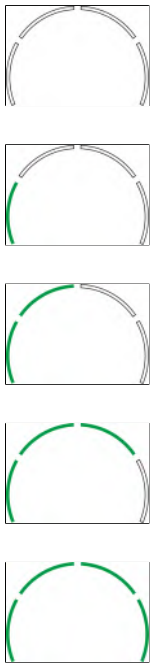
indicator name	indicator status		Corresponding to other light status	System Status
Operation indicator + Touch Button		White steady on	 Blue-purple breathing light	System operating normally
		white flicker	 Blue-purple running light	System preparing
Communication light		White steady on	/	PCS communication normal

abnormal state

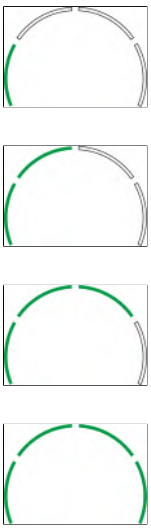
indicator name	indicator status		Corresponding to other light status	System Status
State of Charge (SOC)		SOCindicator Green Steady On	 Red flashing  extinguish  Red steady on	Determine the type of fault that occurred based on the SOCindicator display format, and handle it according to the methods recommended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

6.3.2.4 GW16.1-BAT-LV-G10

Normal Status

Indicator Name	Indicator Status		Corresponding Other Light Status	System Status
SOC Indicator		SOC indicator solid green	/	SOC=0% 0% < SOC≤25% 25% < SOC≤50% 50% < SOC≤75% 75% < SOC≤100%
		SOC indicator blinking green		Battery system is discharging
Operation Indicator + Touch Button		Solid white	 Blue-purple breathing light	System operating normally
		Blinking white	 Blue-purple chasing light	System preparing
Communication Light		Solid white	/	PCS communication normal

Abnormal Status

Indicator Name	Indicator State		Corresponding Other Light States	System Status
SOC Indicator		SOC indicator green steady on	 red flashing  off  red steady on	Determine the fault type based on the SOC indicator display pattern, and handle it using the methods recommended in the Fault Handling section.
Communication Light		Off	/	PCS Comm Loss
System Alarm Light		White steady on	/	System alarm and undervoltage fault levels 2, 3, 4

6.3.3 Smart Meter Indicator

6.3.3.1 GMK110

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

6.3.3.2 GM330

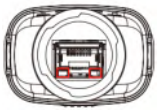
Type	Status	Description
Power LED	Always On	The meter has been power on, with no RS485 communication.
	flicker	The electricity meter has been power on, and RS485 communication is normal.
	Extinguish	The electricity meter has been power off.
communication light	Extinguish	Reserved
	flicker	Press the Reset 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	Selling 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 Light: Smart dongle has been power on.
		Extinguish: Smart dongle Not power on

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

indicator	color	Status	Description
LAN communication indicator 	green	Always On	100Mbps wired network connection is normal.
		Extinguish	• Network cable not connected. • 100Mbps wired network connection anomaly. • 10Mbps wired network connection is normal.
	Yellow	Always On	10/100Mbps wired network connection is normal, with no communication data transmission or reception.
		flicker	Communication data transmitting/receiving.
		Extinguish	Network cable not connected.

Button	Description
Reload	Press and 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		Normal: Smart dongle is connected to Server, communication is normal.
		Double flashing: Smart dongle not connected to the base station.
		Quadruple flashing: Smart dongle is connected to the base station but not to Server.
		Six flashes: Smart dongle communication with Inverter is disconnected.
		Extinguished: Smart dongle Software reset in progress or not power on.

button	Description
Reload	Hold for 0.5~3 seconds, Smart dongle will restart.
	Press and 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 is not connected to Router.
			Four flashes = Communication stick is connected to Router, but not connected to Server.

indicator /screen printing	color	Status	Description
RELOAD	-	-	• Press and hold for 1-3 seconds to restart the communication stick. • Press and hold for 6-10 seconds to restore factory settings. Quick double-click to activate Bluetooth signal (maintained for 5 minutes only).

7 System Commissioning

7.1 Commissioning Method Overview

For frameless Inverter, users need to useSoSet parameters using the larGo APP. For the Inverter with a screen, users canSThe SolarGo APP can also be used for parameter configuration.LCD screen setting parameters.

7.2 Configuration via LCD

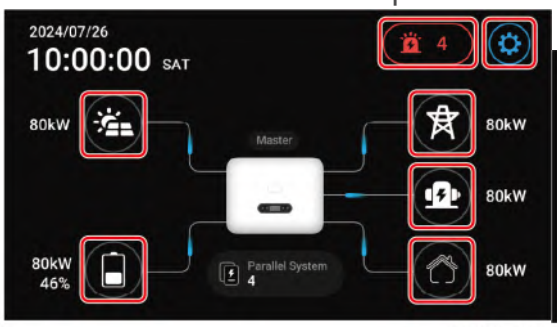
7.2.1 LCD Overview

Through the LCD screen, users can:

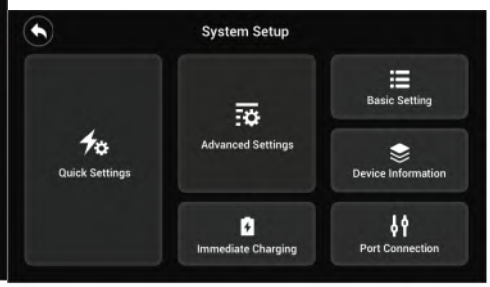
1. View the device's operational data, software version, alarm information, etc.
2. Set parameters, safety regulation regions, power limit, etc.

Introduction to LCD Interface

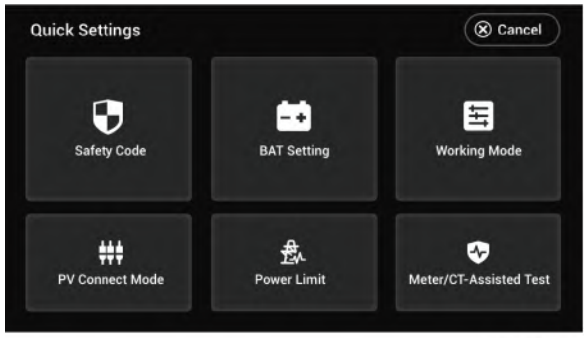
The LCD supports both touch and button operation.



ESU10DSC0006



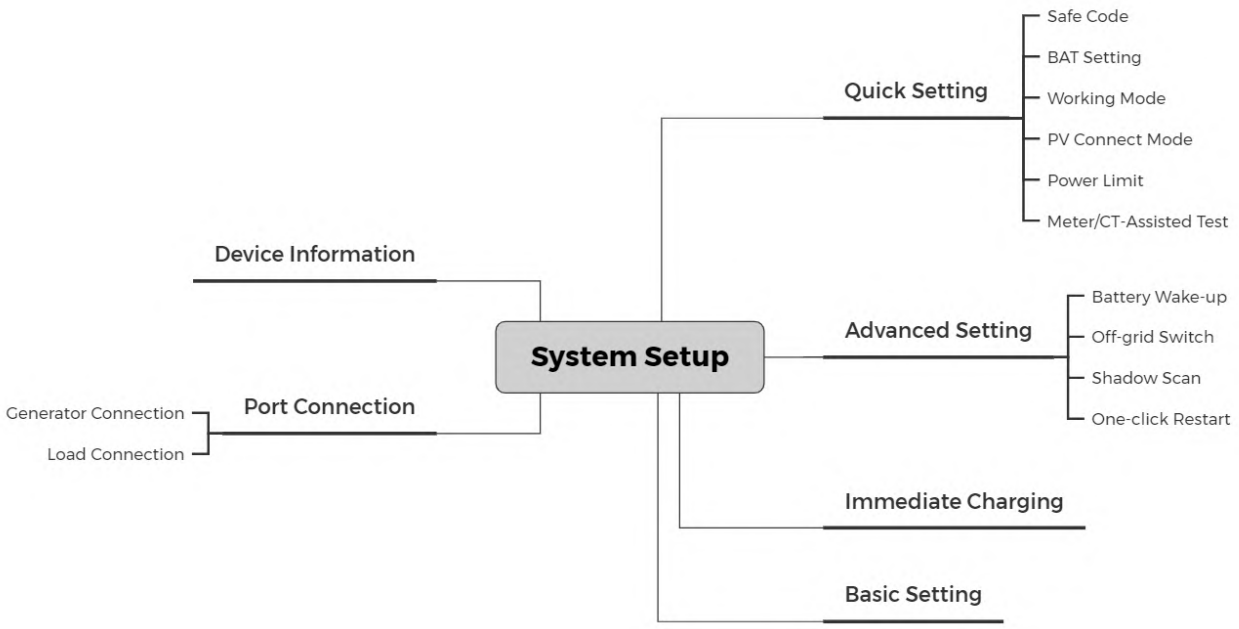
ESU10CON0007



ESU10CON0008

Name/Icon	Description
	Upward
	Downward
	Confirm
	• Short press: Exit page •  and  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 access the settings interface of Inverter
	Used to view the status information of Utility grid
	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

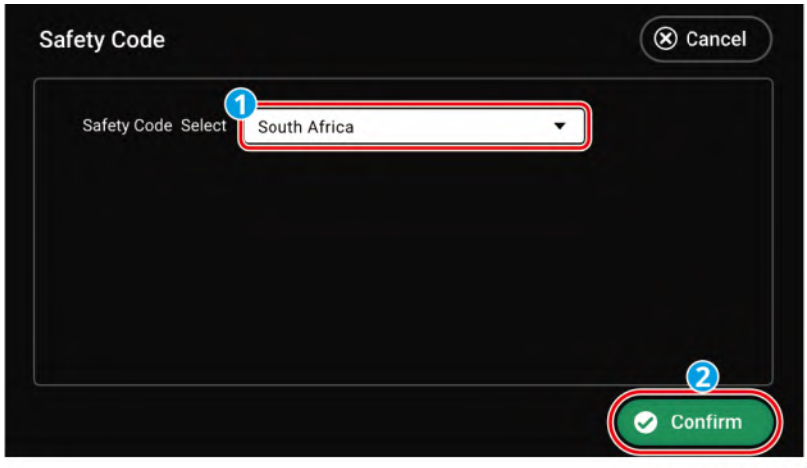
LCD setting interface structure



7.2.2 Quick Settings

Set Safety Code

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



ESU10CON0009

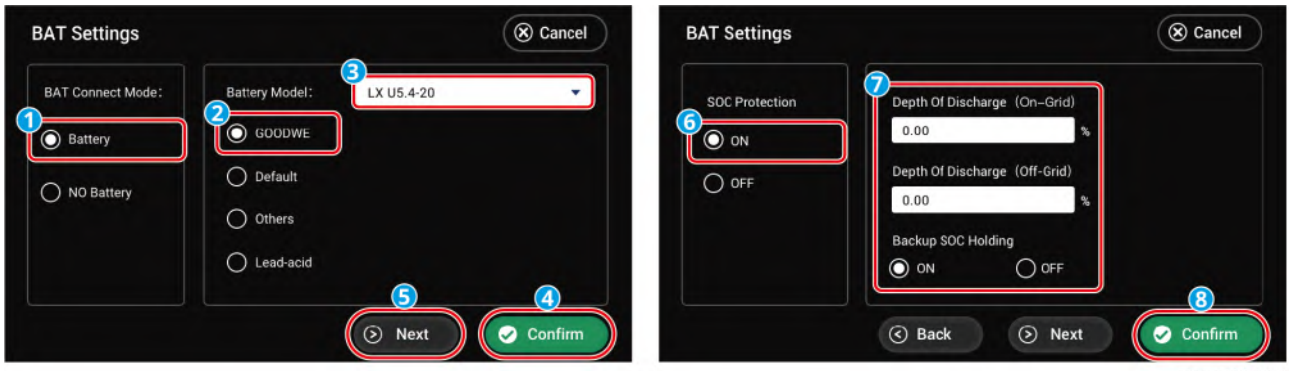
Parameter Name	safety code	Description

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

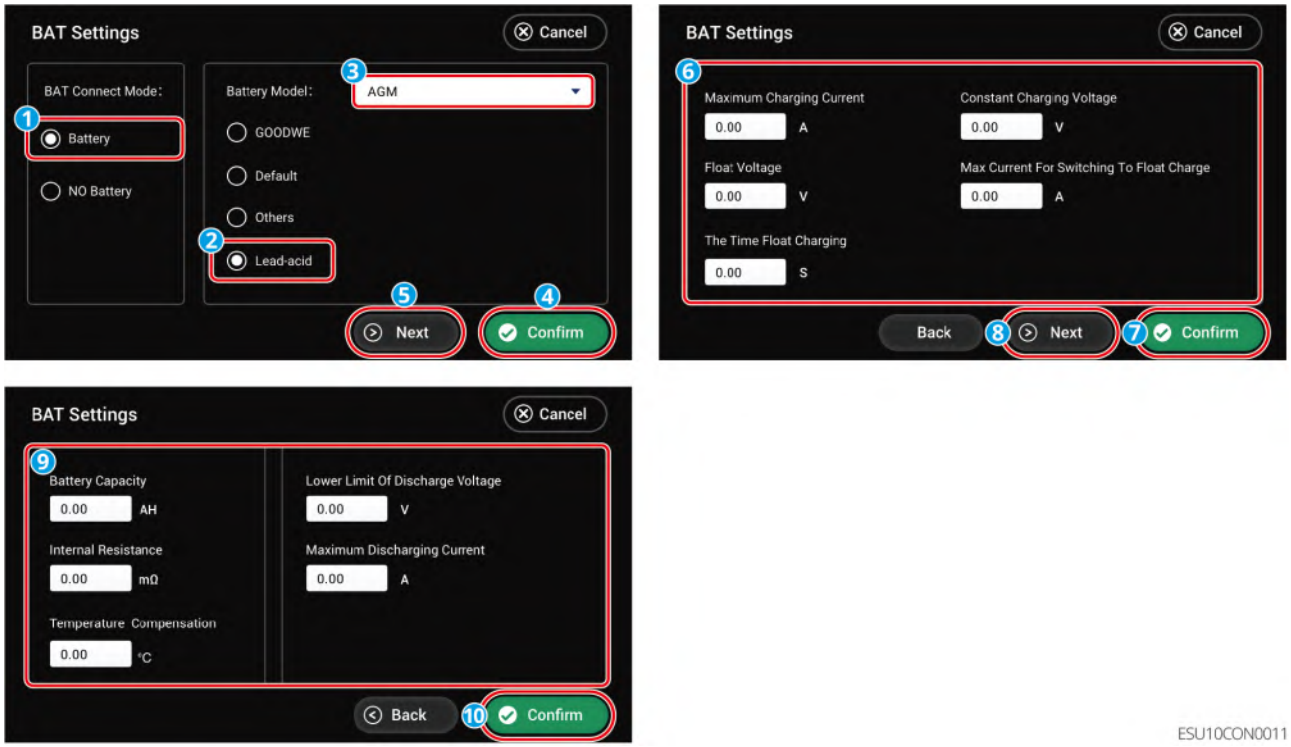
Set Battery Parameters

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

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



ESU10CON0010



Basic Parameter Settings

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

	Lead acid	If the battery connected in the system is a lead-acid battery, select Lead acid and choose the correct lead-acid type. Currently supported are GEL, AGM, Flooded.
No Battery	No battery is connected in the system.	
BAT Setting	Set according to the actual battery connected in the system.	

Lithium Battery Parameter Settings

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

Lead-Acid Battery Parameter Settings

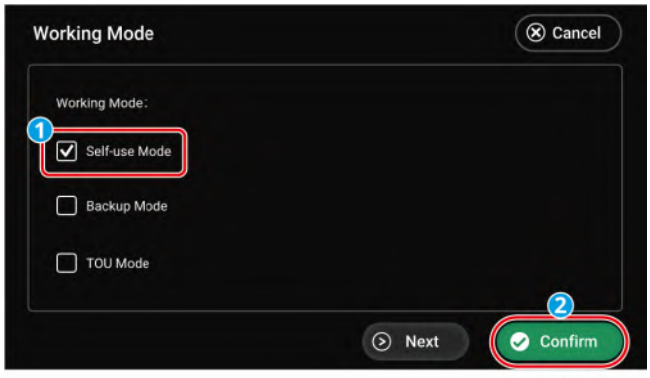
Parameter Name	Description
Maximum Charging Current	Battery charging defaults to constant current mode; The maximum charging voltage and maximum charging current in this mode need to be set; please configure according to the battery technical specifications.
Constant Charging Voltage	
Float Voltage	When the battery charging current is less than the Maximum Current For Switch To Float Charge and this condition persists for the duration of The Time Float Charging, the battery charging status switches from constant current mode to float charging mode. Float Voltage is the maximum charging voltage of the battery in float charging mode. Please configure according to the battery technical specifications.
The Time Float Charging	
Maximum Current For Switch To Float Charge	
Battery Capacity	Set the battery capacity according to the parameters of the actually connected battery.

Internal Resistance	The resistance inherent within the battery. Please configure according to the battery technical specifications.
Temperature Compensation	By default, when the temperature exceeds 25°C, the upper limit of the charging voltage decreases by 3mV for every 1°C increase. Please configure the actual settings according to the battery technical specifications.
Lower Limit Of Discharge Voltage	Please configure according to the battery technical specifications.
Maximum Discharging Current	Please configure according to the battery technical specifications. A larger discharge current results in shorter battery operating time.

Set Working Mode

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

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



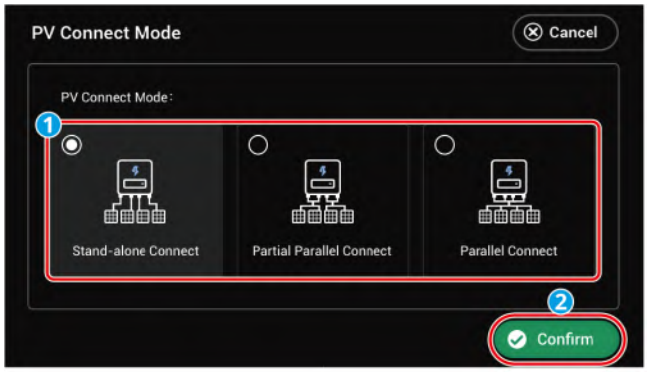
ESU10CON0012

Parameter Name	Description

Self-use Mode		When the working mode is set to Self-use Mode, Back-up Mode and TOU Mode can be enabled simultaneously. Please select according to the actual situation. Operational priority of working modes: Back-up Mode > TOU Mode > Self-use Mode.
Back-up Mode	Charging From Grid	Enable this function to allow the system to purchase electricity from the grid.
	Rated Power	The percentage of power purchased from the grid relative to the inverter's rated power.
TOU Mode	Time	Within the start and end time, the battery charges or discharges according to the set charge/discharge mode and rated power.
	Charge/Discharge	Set to charge or discharge based on actual requirements.
	Power (%)	The percentage of charging or discharging power relative to the inverter's rated power.
	Bat (%)	Charging stops when the battery level reaches the set SOC. To set the stop SOC for battery discharge, please refer to the section 9.2.2.2 Setting Battery Parameters and configure Depth of Discharge (On-Grid) and Depth of Discharge (Off-Grid) via the LCD screen.

Set PV Connection Mode

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

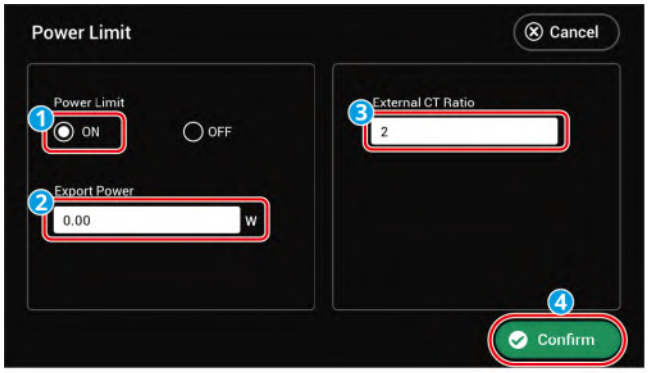


ESU10CON0015

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

Set Grid Power Limit

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



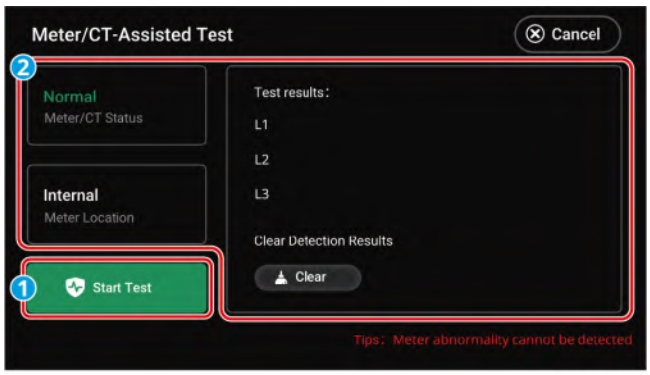
ESU10CON0016

Parameter Name	Description

Power Limit	Enable this function when required by grid standards in certain countries or regions to limit output power.
Export Power	Set based on the actual maximum power that can be fed into the grid.
External CT Ratio	Set to the ratio of the primary side current to the secondary side current of the external CT. • Built-in meter or GMK110: No need to set the CT ratio. The default CT ratio is 120A/40mA. • GM330: The CT can be sourced from GoodWe or purchased separately. CT ratio requirement: nA/5A • nA: CT primary side input current, where n ranges from 200 to 5000. • 5A: CT secondary side output current.

Meter/CT Auxiliary Detection

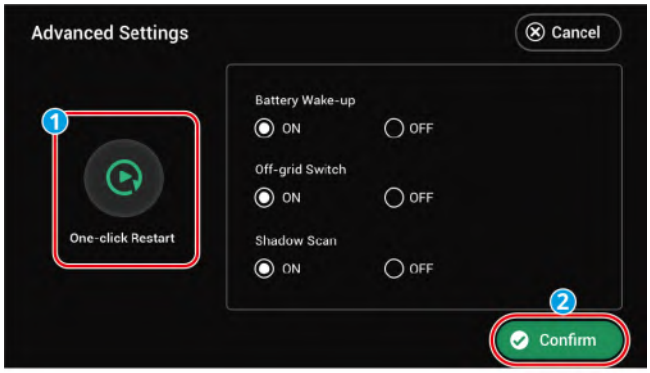
1. From the main interface, click > Quick Settings > Meter/CT Assisted Test to enter the parameter setting interface.
2. Click Start Test to begin detection. After the detection is complete, determine the result based on the interface prompt.



ESU10CON0026

7.2.3 Setting Advanced Parameters

1. From the main interface, click > Advanced Settings to enter the parameter setting interface. Enter the initial password: 1111.
2. Set the parameters as needed.
3. After setting is complete, click Confirm. When the interface prompts Confirm OK, the parameter setting is successful.

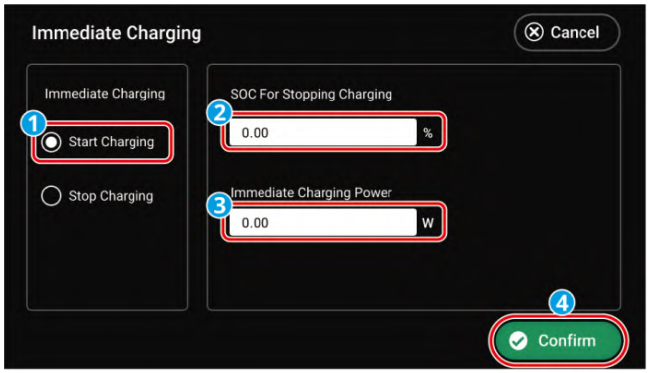


ESU10CON0020

Parameter Name	Description
One-click restart	Using this function allows for quick restart of the inverter.
Battery Wake-up	When enabled, it can wake up the battery after it shuts down due to under-voltage protection. If there is a circuit breaker between the lithium battery and the inverter, ensure the circuit breaker is closed. After enabling, the output voltage at the battery port is approximately 60V.
Off-grid Switch	In off-grid mode, the off-grid control switch controls the enabling and disabling of the inverter's off-grid function. This function is not effective in on-grid mode. The switch is initially in the ON state, enabling the off-grid function. After the inverter is powered on, it activates the off-grid output function. In off-grid state, turning the off-grid switch OFF and then ON again can clear the off-grid overload timer and restart the off-grid output.
Shadow Scan	When PV panels are severely shaded, enabling the shadow scan function can optimize the inverter's power generation efficiency.

7.2.4 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 the parameters have been successfully configured.

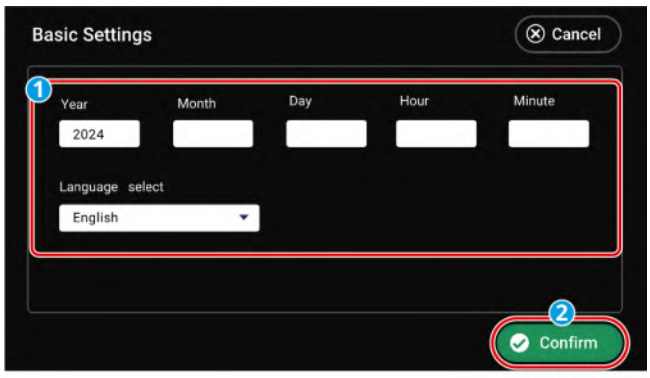


ESU10CON0021

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, 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.

7.2.5 Setting the Basic Information

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

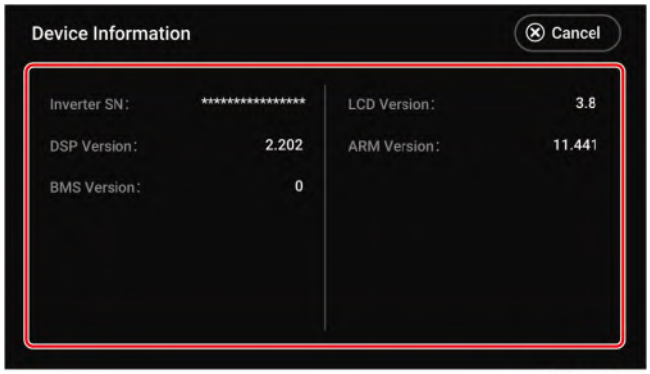


ESU10CON0027

7.2.6 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.



ESU10CON0028

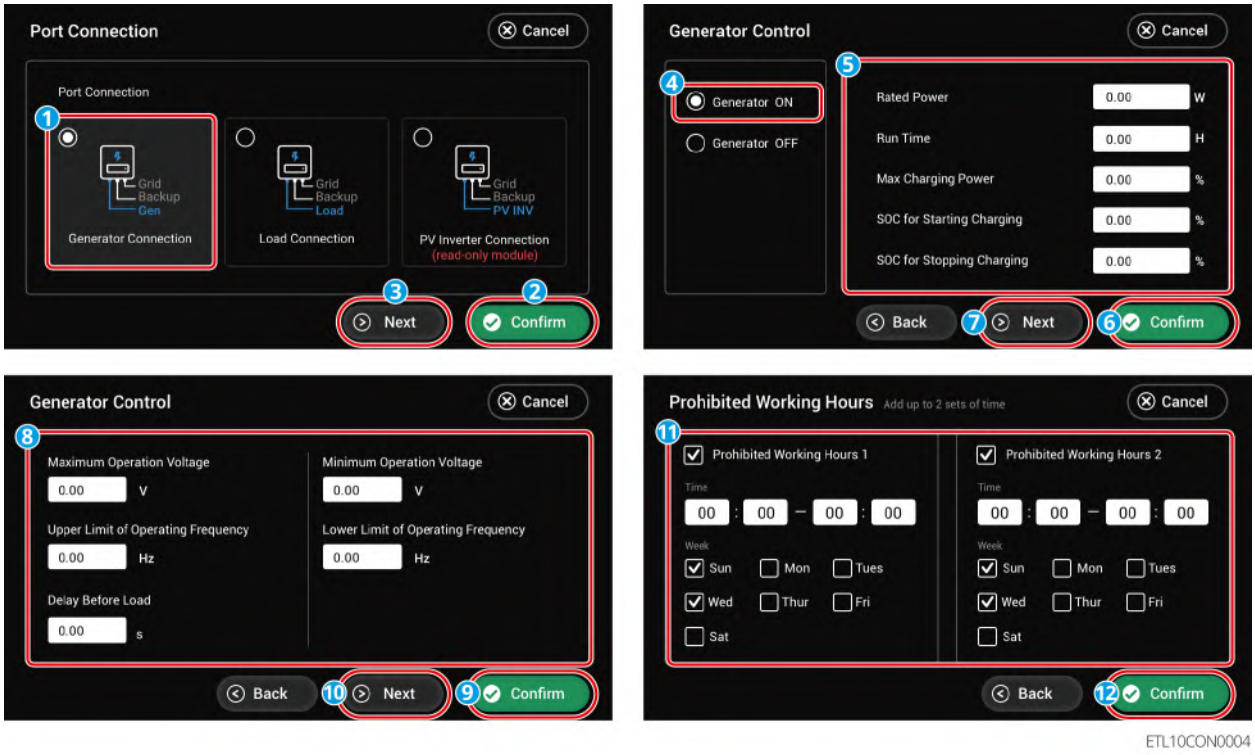
7.2.7 Setting Port Connection

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" 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.



ETL10CON0004

No.	Parameter Name	Description
1	Generator ON/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 charge Battery charge.
6	SOC for Stopping Charging	Set the generator to stop charging Battery charge at the specified SOC. When the SOC of Battery reaches the set value, the generator will cease charging Battery charge.
7	Maximum Operation Voltage	Set the operational voltage upper limit for the generator.

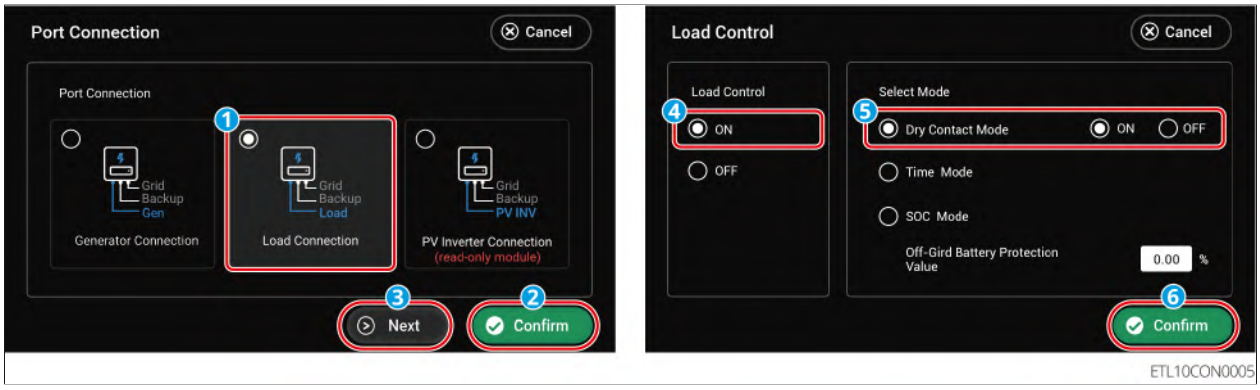
8	Minimum Operation Voltage	Set the lower limit of the generator's operating voltage.
9	Upper Limit Of Operating Frequency	Set the operating Frequency upper limit of the generator.
10	Lower Limit Of Operating Frequency	Set the lower limit of the generator's operating Frequency.
11	Delay Before Load	No-load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

Setting Port Connection load control

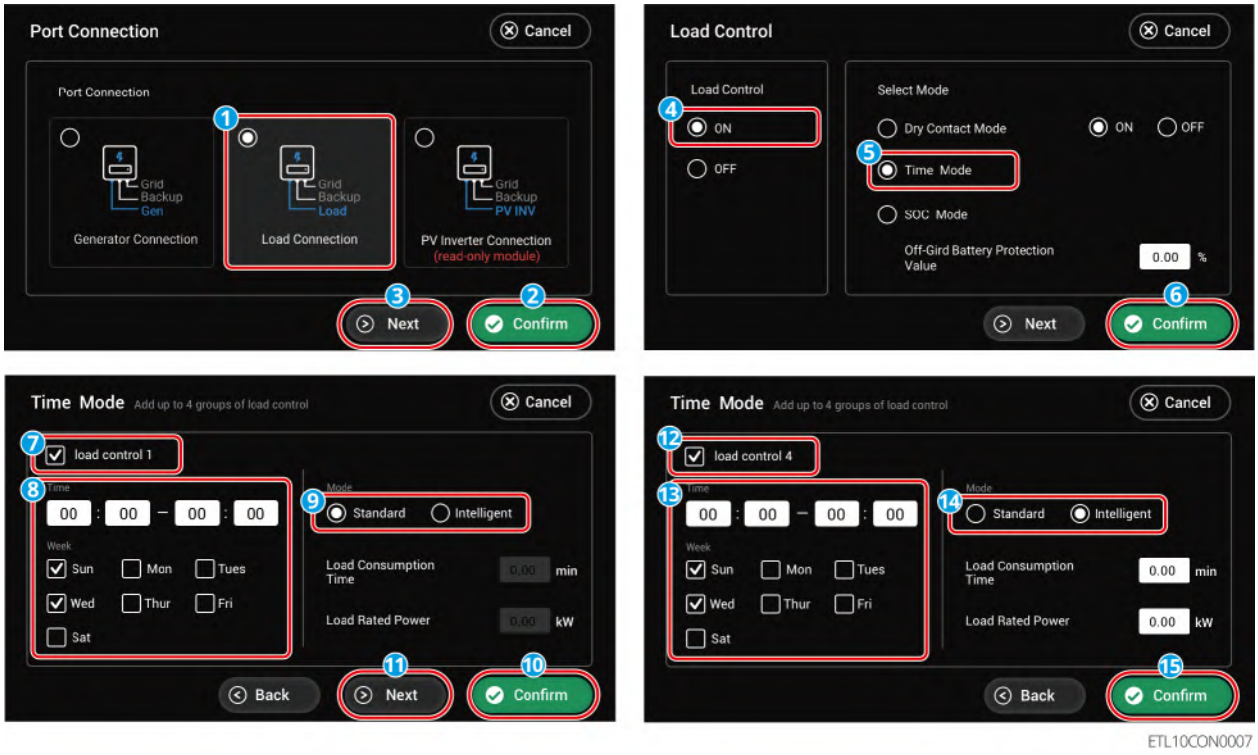
1. Through the main interface, click> Port Connection, enter the parameter setting interface.
2. Please set the parameters according to the actual situation.
3. After completing the settings, click "Confirm". The interface will display "Confirm OK" to indicate successful parameter configuration.

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

Dry contact mode

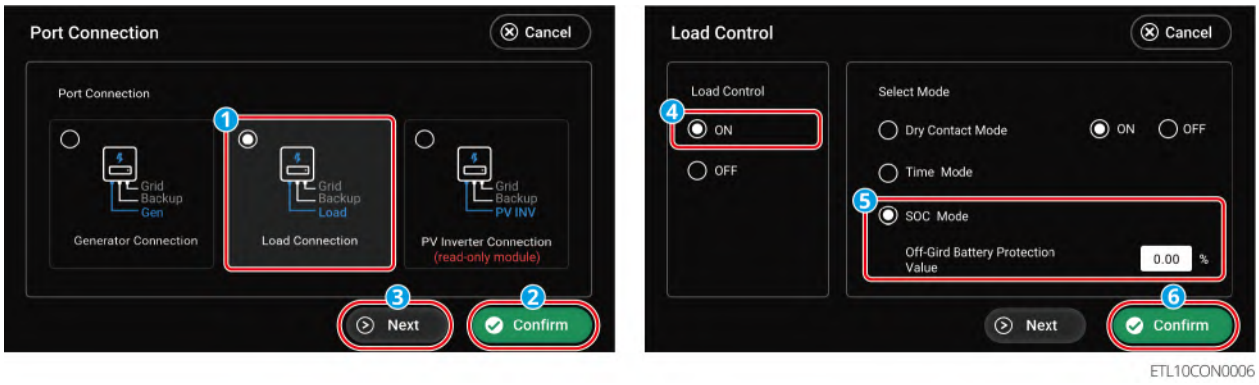


Time mode



ETL10CON0007

SOC mode



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: Power will be supplied to the load during the set time period. Smart Mode: During the set time period, when the remaining energy generated by photovoltaics exceeds the preset load Nominal power, it starts supplying power to the load.
6	Load Consumption Time	Minimum operating time after load is turned on to prevent frequent switching due to energy fluctuations. Only applicable in smart mode.
7	Load Rated Power	When the surplus energy generated by the PV exceeds this load Nominal power, it starts supplying power to the load. This applies only to smart mode.
8	SOC Mode	Inverter has built-in relay dry contact control port, which can control whether to supply power to the load through the relay.
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 setpoint, power supply to the load connected to the relay port can be terminated. Please configure the off-grid BatteryProtection value according to actual requirements.

7.3 Configured via SolarGo APP

7.3.1 App Introduction

NOTICE

- The interface graphics or terms used in this article are based on SolarGo App V6.8.0. App version upgrades may lead to interface changes, and the data shown in the images is for reference only. Please refer to the actual content for specifics.
- The model of the equipment varies, and the displayed parameters will differ based on the configured safety regulation country. Please refer to the actual interface for specific parameters.
- Before setting the parameters, please carefully read this manual and the corresponding product user manual of the model to familiarize yourself with the product's functions and features. Incorrect Utility grid parameter settings may result in the Inverter being unable to on-grid or not operating in accordance with the Utility grid requirements, affecting the Inverter power generation.

The SolarGo App is a mobile application software that can communicate with Inverter or Charge piles via Bluetooth, WiFi, 4G, or GPRS. Below are the common features:

- View the device's operational data, software version, alarm information, etc.
- Set the safety regulation country, Utility grid parameters, Power limits, communication parameters, etc. for Inverter.
- Set the Charge pile Charge mode, etc.
- Maintenance equipment.

7.3.1.1 Download and install the Installation 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 SolarGo App is Installation, subsequent version updates will automatically prompt for software upgrades.

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

and install.

SolarGo App
SLG00CON0135

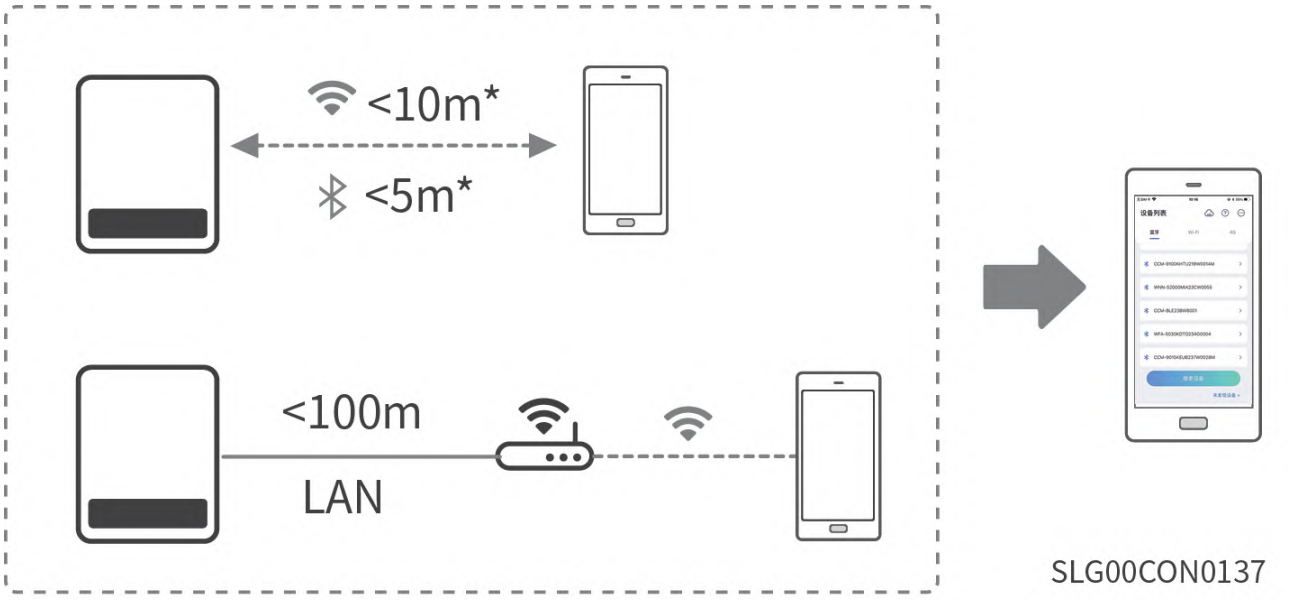
Option 2: Scan the QR code below to download and Installation.

SolarGo App
SLG00CON0136

7.3.1.2 Connection method

After the device power on is installed, it can be connected to the App via the following methods:

NOTICE
smart dongle may vary, and the specific connection distance could differ. Please refer to the actual smart dongle in use.



SLG00CON0137

7.3.1.3 Login Interface Introduction

No.	Name/Icon	Description
1	SEMS	Click the icon to jump to the download interface of Xiaogu Cloud Window.
2	?	View the device connection guide.
	No equipment found	
3	...	• View information, such as App version and contact details. • Other settings, such as updating data, switching languages, setting temperature display units, etc.
4	Bluetooth/WiFi/4G	Select according to the actual communication method of the equipment. If in doubt, please click. ? or**No equipment found**View more detailed instructions.

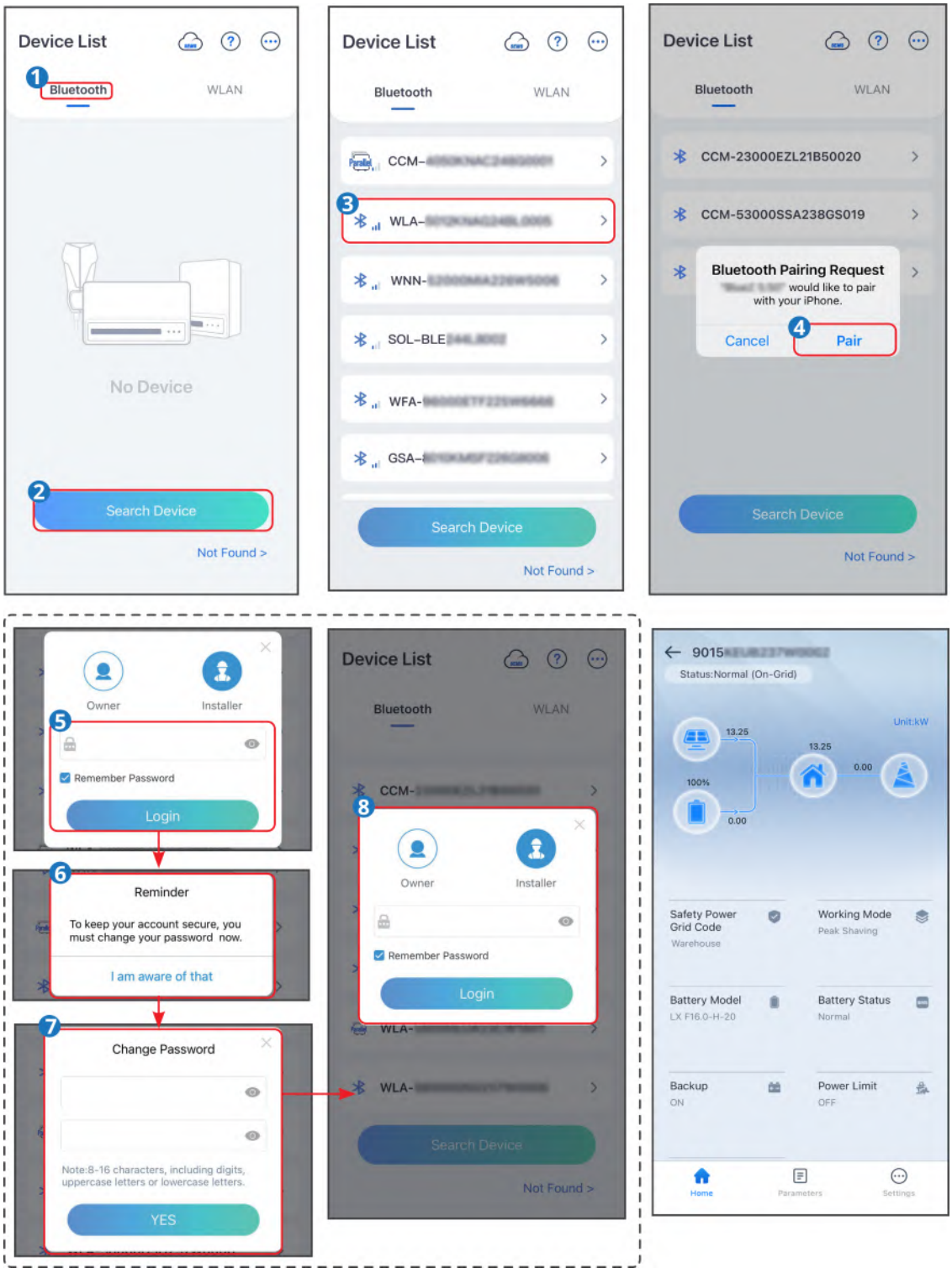
No.	Name/Icon	Description
5	Equipment List	• Display the list of connectable devices. The device name corresponds to the device serial number. Please select the appropriate device based on the device serial number. • When multiple Inverter units form a parallel system, select the corresponding equipment based on the Master inverter serial number. • When the device model or communication stick model is different, the displayed device name varies: ◦ Wi-Fi/LAN Kit; Wi-Fi Kit; Wi-Fi Box：Solar-WiFi*** ◦ Bluetooth module or Inverter built-in Bluetooth module: SOL-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：LGA-*** ◦ Microinverter: WNN*** ◦ Charge pile:*** • Except for Solar-WiFi***, which is a WiFi signal, all other signals are Bluetooth signals.
6	Search equipment	When no corresponding device is found in the device list, click Search Device.

7.3.2 Connection hybrid inverter

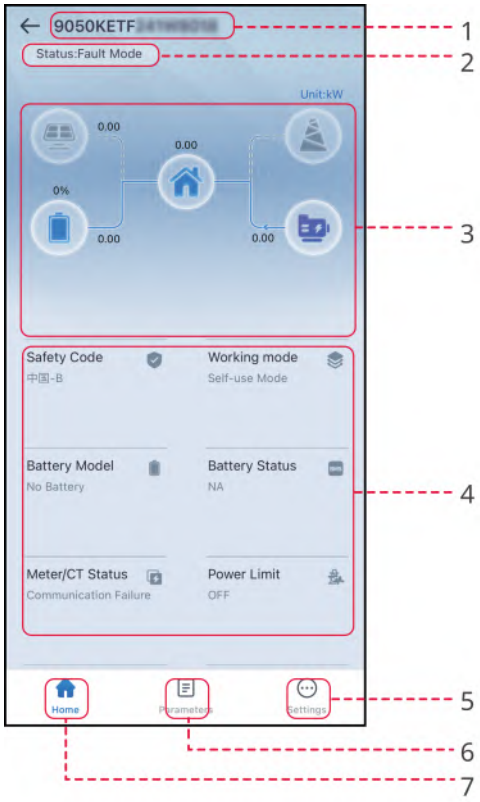
7.3.2.1 Connect hybrid inverter (Bluetooth)

Step 1 Confirm that the Inverter is already power on, and both the smart dongle and Inverter are operating normally.
Step 2 Based on the smart dongle type, select the Bluetooth tab on the SolarGo App home screen.
Step 3 Pull down or click the search device to refresh the device list. Confirm the Inverter signal name based on Inverter serial number, then click the Inverter signal

name to enter the login interface. When multiple Inverter units form a parallel system, select the corresponding device according to Master inverter serial number.
Step 4 When connecting to the device via Bluetooth for the first time, a Bluetooth pairing prompt will appear on the interface. Please click "Pair" to continue the connection and proceed to the login screen.
Step 5 Log in to the App according to your actual role, and follow the on-screen instructions to change your login password. The initial login password is 1234. After changing the password, log in again and enter the device details page.
Step 6(Optional): If connecting to Inverter via WLA-*** or WFA-***, after entering the device details page, please enable Bluetooth to remain on as prompted by the interface. Otherwise, the Bluetooth signal will be turned off after the current connection ends.



7.3.3 hybrid inverter Interface Introduction



No.	Name/Icon	Description
1	Equipment serial number	Connected device serial number.
2	Equipment status	Display the Inverter status, such as running, fault, etc.
3	power diagram	Display the power diagram of the PV system. The interface display is subject to the actual situation.
4	Parallel system	• When the system is a parallel system, it displays the total number of parallel units, parallel status, etc. • For certain models, click to view the SN numbers of each device in the parallel system. Clicking on a device's SN number will take you to the single Inverter configuration interface.

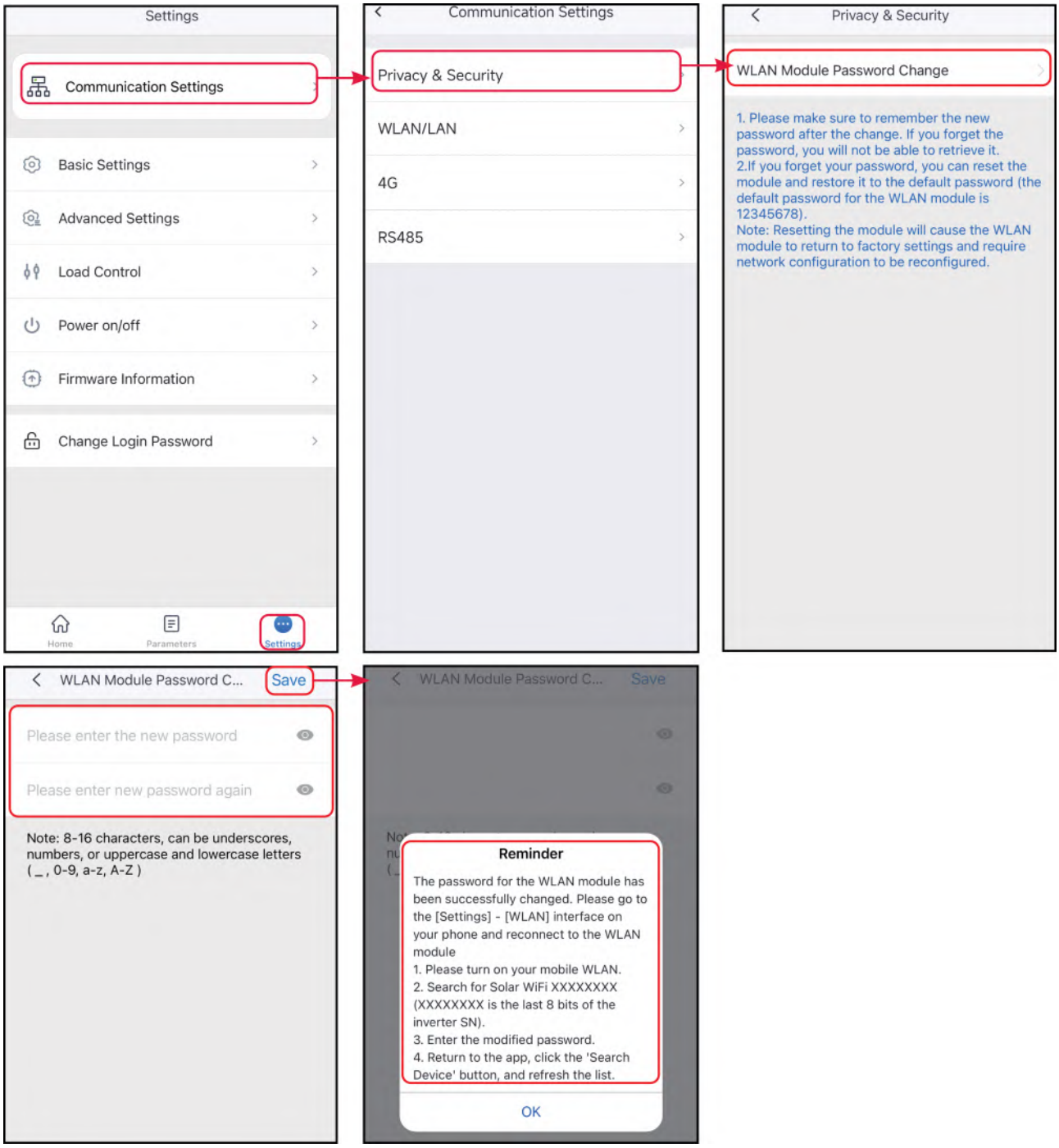
No.	Name/Icon	Description
5	System Operation Status	Display the current system operating status, such as safety compliance zones, operating mode, Battery model, Battery status, power limit, three-phase imbalance, etc.
6		Home page interface. Click to view device serial number, operating status, power diagram, system operation status, and other information.
7		Parameter interface. Click to view the Inverter operating parameters.
8		• Settings Interface. Click to perform Quick Settings, basic settings, advanced settings, etc., on Inverter. • Access to Quick Settings and advanced settings requires login. Please contact the supplier or after-sales service to obtain the password. The password is for use by professional technical personnel only.

7.3.4 Set communication parameters

NOTICE
The communication configuration interface may vary depending on the communication method used or the smart dongle connected to Inverter. Please refer to the actual interface.

7.3.4.1 Configure privacy and security parameters

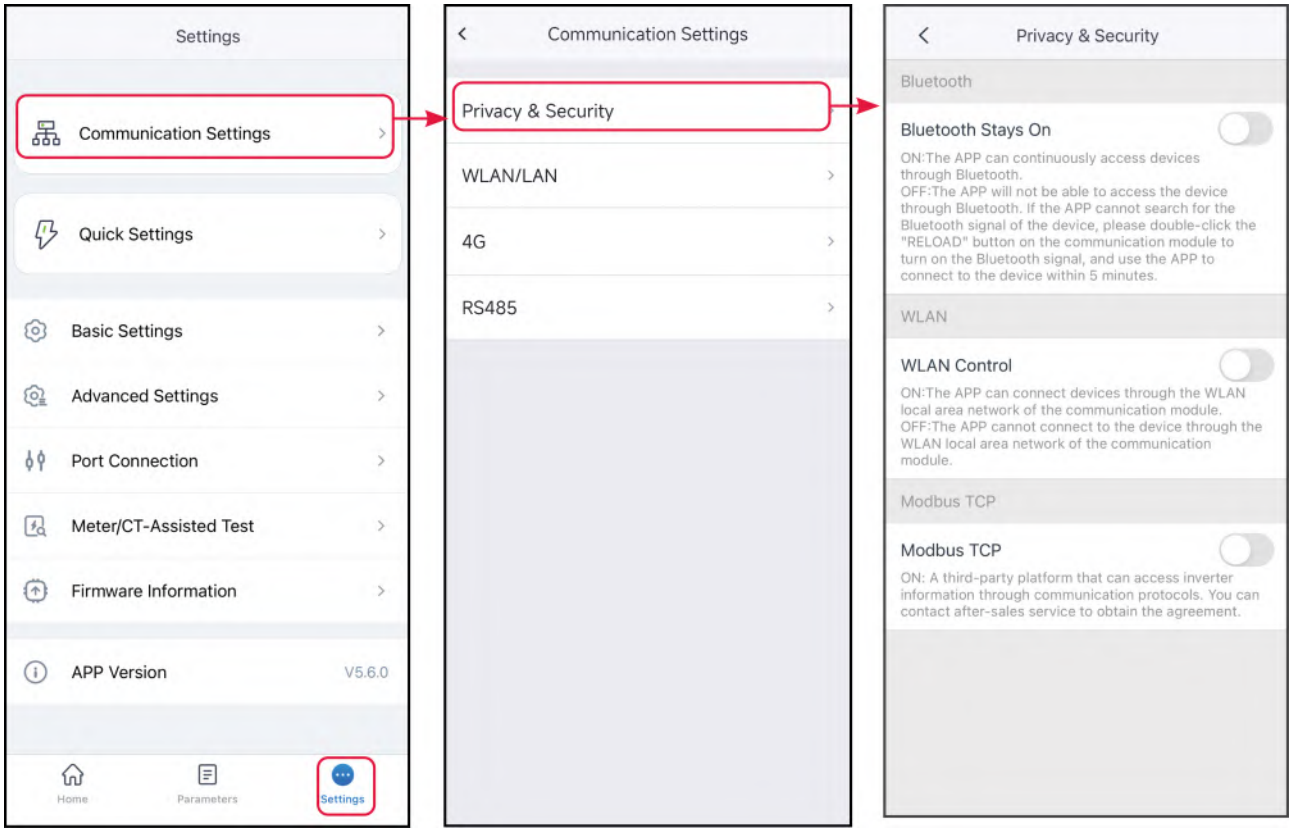
Type I
Step 1 Through**Home > Settings > Communication Configuration > Privacy & Security > WLAN Module Password Modification**Enter the settings page.
Step 2 Set a new smart dongleWiFi hotspot password according to actual needs, and click**Save**Setup completed.
Step 3 Open the WiFi settings on your phone and connect to the Inverter WiFi signal using the new password.



Type II

Step 1 Through**Home > Settings > Communication Configuration > Privacy & Security**Enter the settings page.

Step 2 Enable the corresponding function based on actual requirements.

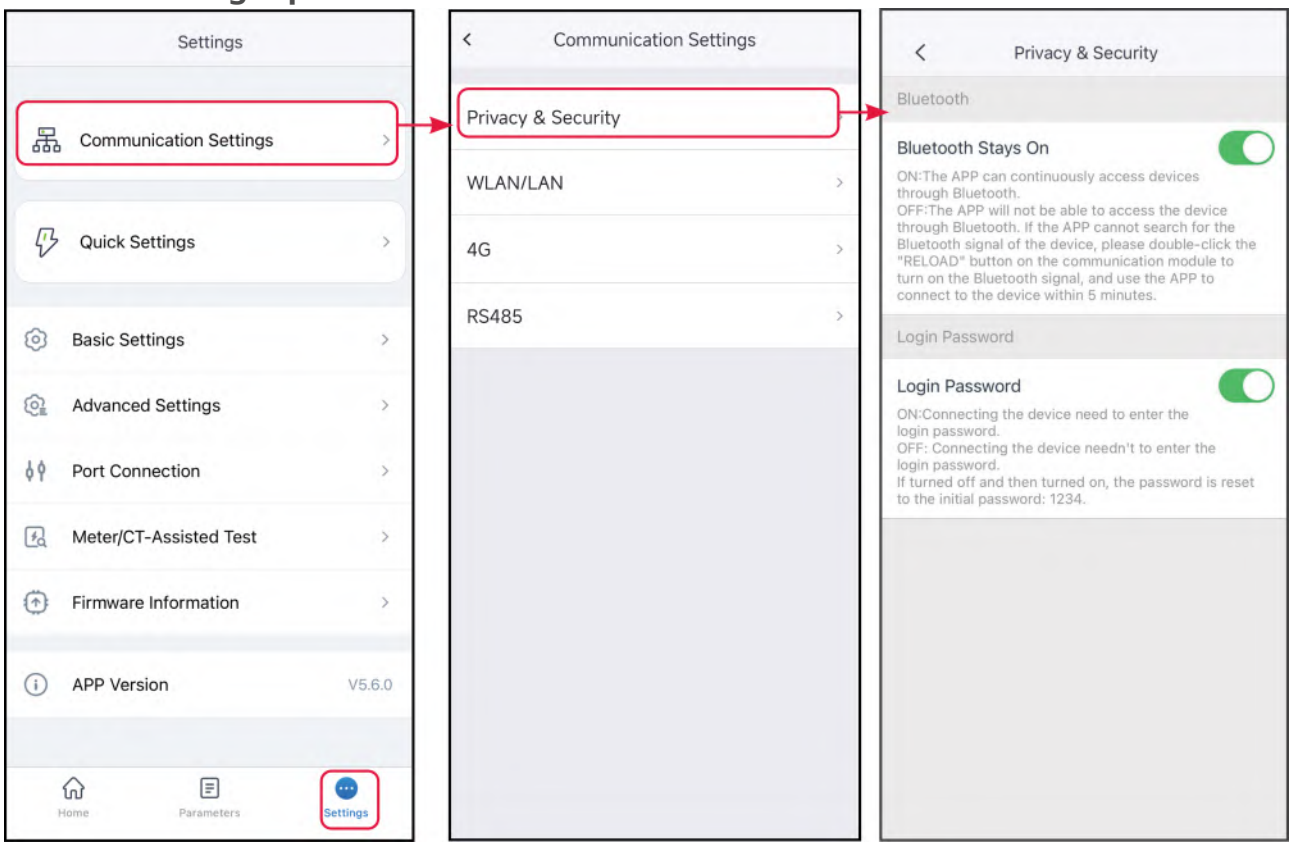


No.	Parameter Name	Description
1	Bluetooth continuously enabled	Default off. When enabled, the device's Bluetooth remains continuously active, maintaining the connection with SolarGo. Otherwise, the device's Bluetooth will turn off after 5 minutes, disconnecting from SolarGo.
2	WLANControl	Disabled by default. When enabled, SolarGo can connect to the device via WLAN if they are on the same local network; otherwise, connection will not be possible even within the same LAN.
3	Modbus-TCP	When this function is enabled, third-party platforms can access the Inverter via the Modbus TCP protocol to achieve monitoring capabilities.
4	SSH control Ezlink	When this function is enabled, third-party platforms can connect to and control the Linux system of EzLink.

Type III

Step 1 Through**Home > Settings > Communication Configuration > Privacy & Security**Enter the settings page.

Step 2 Enable according to actual requirements**Bluetooth continuously enabled**and**Login password**Function.



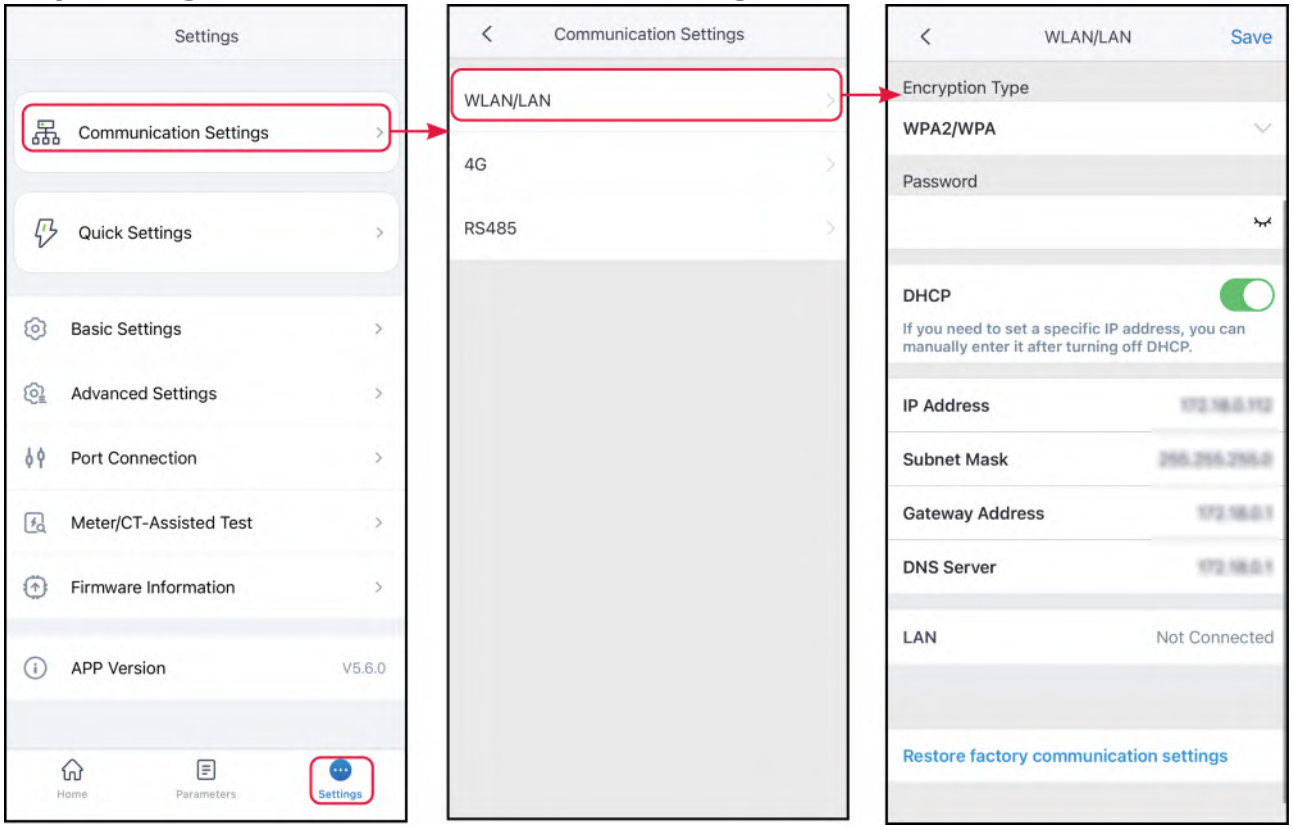
No.	Parameter Name	Description
1	Bluetooth continuously enabled	Default off. When enabled, the device's Bluetooth remains continuously active, maintaining the connection with SolarGo. Otherwise, the device's Bluetooth will turn off after 5 minutes, disconnecting from SolarGo.
2	Login password	Default off. When enabled, the device will prompt for a login password when connecting to SolarGo. For the first-time use of the login password, please use the initial password and follow the on-screen instructions to change it.

7.3.4.2 Configure WLAN/LAN parameters

NOTICE
When the Inverter-connected smart dongle differs, the communication configuration interface may vary. Please refer to the actual interface.

Step 1 Through**Home > Settings > Communication Configuration > WLAN/LAN**Enter the settings page.

Step 2 Configure WLAN or LAN network according to actual conditions.



No.	Parameter Name	Description
1	Network Name	Suitable for WLAN. Please select the corresponding network based on actual requirements to enable communication between the device and the Router or switch.
2	Password	Suitable for WLAN. Enter the password of the actually selected network.

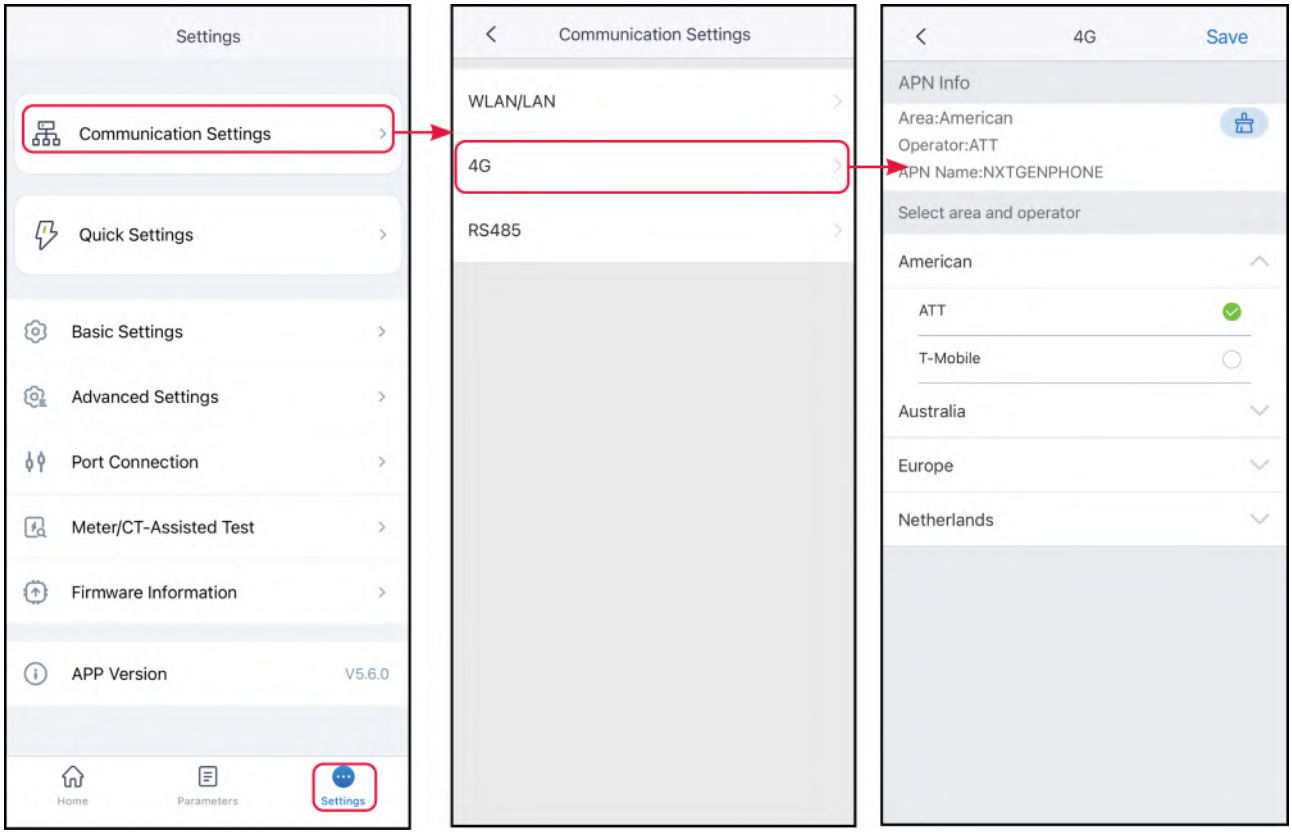
No.	Parameter Name	Description
3	DHCP	When Router employs dynamicIPIn mode, turn onDHCPFunction. When using Router as staticIPMode or when using a switch, turn offDHCPFunction.
4	IPAddress	WhenDHCPThis parameter does not need to be configured when turned on. whenDHCPWhen closing, configure this parameter according to Router or switch information.
5	Subnet Mask	
6	Gateway Address	
7	DNSServer	

7.3.4.3 Configure APN parameters

NOTICE

- APN settings are only applicable for configuring SIM card information of 4G communication devices.
- If the 4G module does not provide Bluetooth signals, first configure the APN parameters via the Bluetooth module or WiFi module to enable 4G communication.

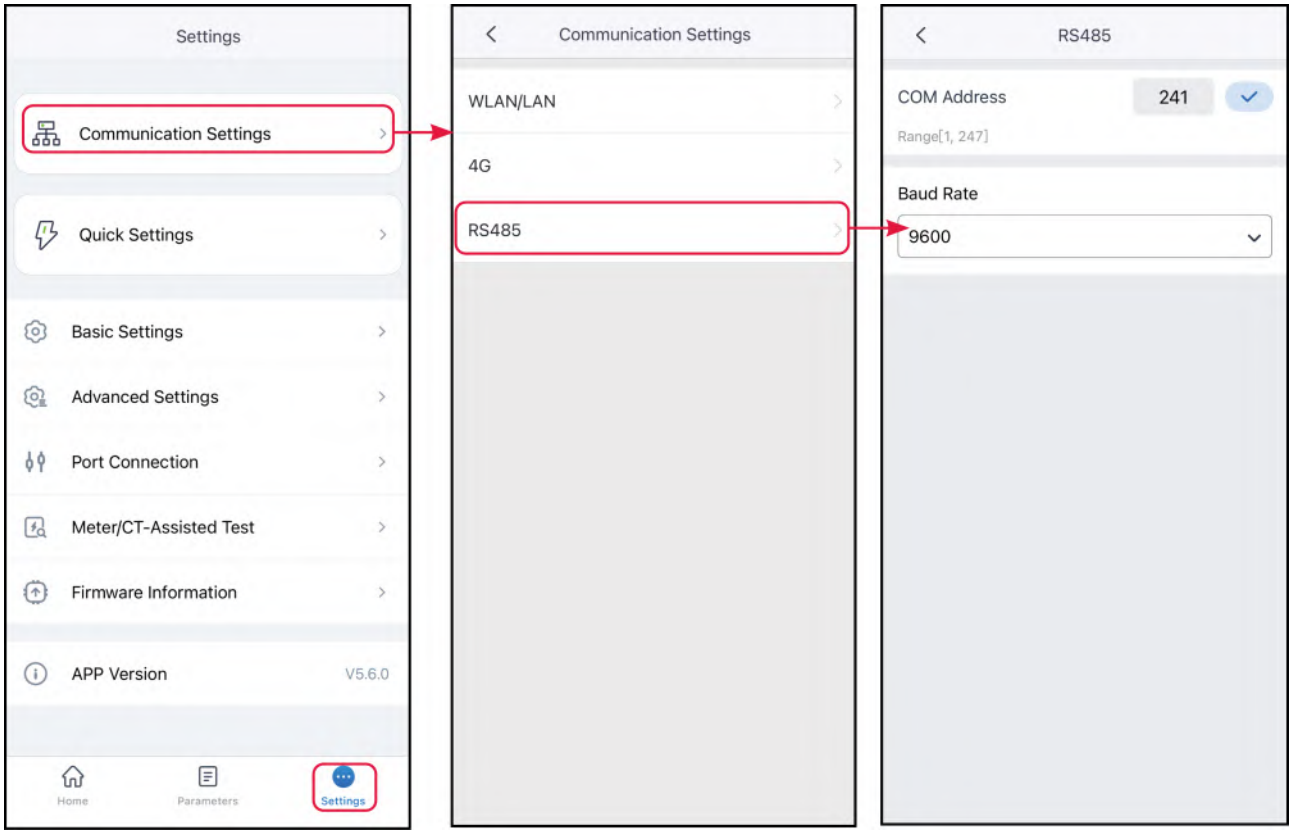
Step 1: Pass through**Home > Settings > Communication Configuration > 4G**Enter the settings page.
Step 2: Select the region and operator based on actual conditions, and configure the network.



7.3.4.4 Set RS485 communication parameters

NOTICE
Set the host communication address for Inverter. For a single Inverter, set the communication address according to the actual situation. When multiple Inverter are connected, the address of each Inverter must be different, and none of the Inverter should have their communication address set to 247.

Step 1 Through**Home > Settings > Communication Configuration > RS485**Enter the settings page.
Step 2 Configure the communication address and baud rate according to the actual situation.



7.3.5 System Quick Settings

NOTICE

- When Inverter and model differ, the interface display and parameter settings may vary. Please refer to the actual situation.
- When selecting the safety regulation country/region, the system will automatically configure over/under voltage Protection, over/under frequency Protection, Inverteron-gridvoltage/Frequency, connection slope, Cosφ curve, Q(U) curve, P(U) curve, PF curve, high/low voltage ride-through, etc., according to the safety requirements of different regions. For specific parameter values, please navigate to Home > Settings > Advanced Settings > Safety Regulation Parameter Settings after configuring the safety regulation region.
- The power generation Efficiency of Inverter varies under different operating modes. Please configure it according to the actual local electricity usage.
  - Self-Use Mode: The basic operating mode of the system. PV generation prioritizes supplying power to the load, with excess electricity directed to the Battery charge. Any remaining electricity is then sold to the Utility grid. When

NOTICE

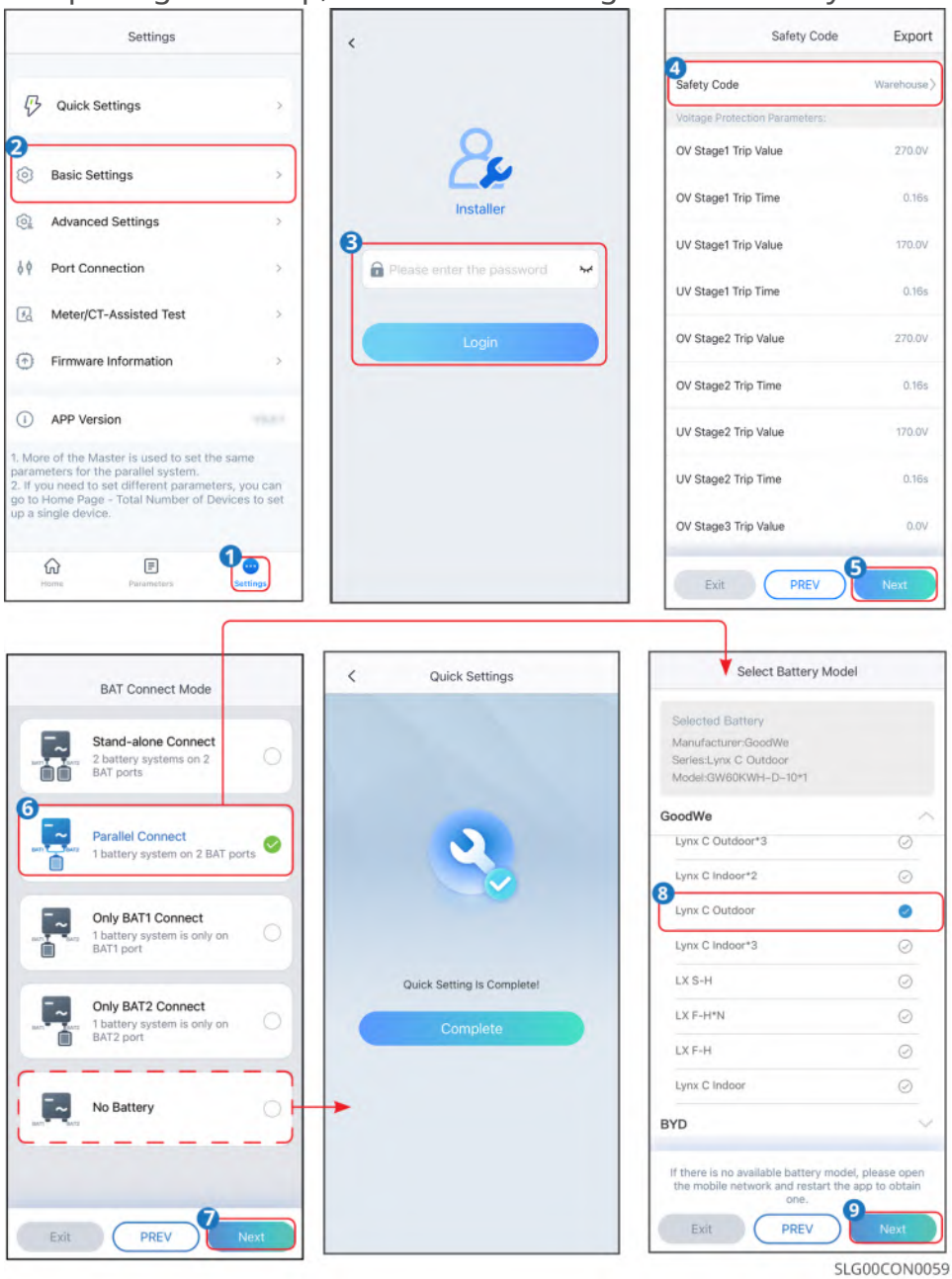
PV generation does not meet the Load consumption demand, the Battery supplies power to the load. If the Battery capacity also fails to meet the Load consumption demand, the Utility grid supplies power to the load.

- Back-up Mode: Recommended for use in unstable Utility grid areas. When Grid disconnected occurs, the Inverter switches to off-grid operation mode, and the Battery discharge supplies power to the load to ensure the BACKUP load does not POWER OFF. When Utility grid is restored, the Inverter operation mode switches back to on-grid operation.
- TOU Mode: In compliance with local laws and regulations, electricity trading is scheduled at different time periods based on the peak and valley price differences of Utility grid. According to actual demand, during the valley price period, Battery can be set to Charge mode, buy power from the gridCharge; during the peak price period, Battery can be set to Discharge mode, supplying power to the load via Battery.
- Off-grid mode: Suitable for areas without Utility grid. PV and Battery form a pure off-grid system, where PV generation supplies power to the load, and excess electricity charges the Battery charge. When PV generation cannot meet the Load consumption demand, the Battery supplies power to the load.
- Delay Charge: Applicable to areas with on-grid Power output restrictions. By setting peak Power limits and Charge time periods, excess photovoltaic generation beyond the on-grid limit can be used to charge the Battery charge, reducing photovoltaic waste.
- Peakshaving: Mainly applicable to scenarios with peak Power purchase restrictions. When the total Power of Load consumption exceeds the electricity quota within a short period, Battery discharge can be utilized to reduce the portion of electricity consumption that exceeds the quota.

7.3.5.1 System Quick Settings (Type III)

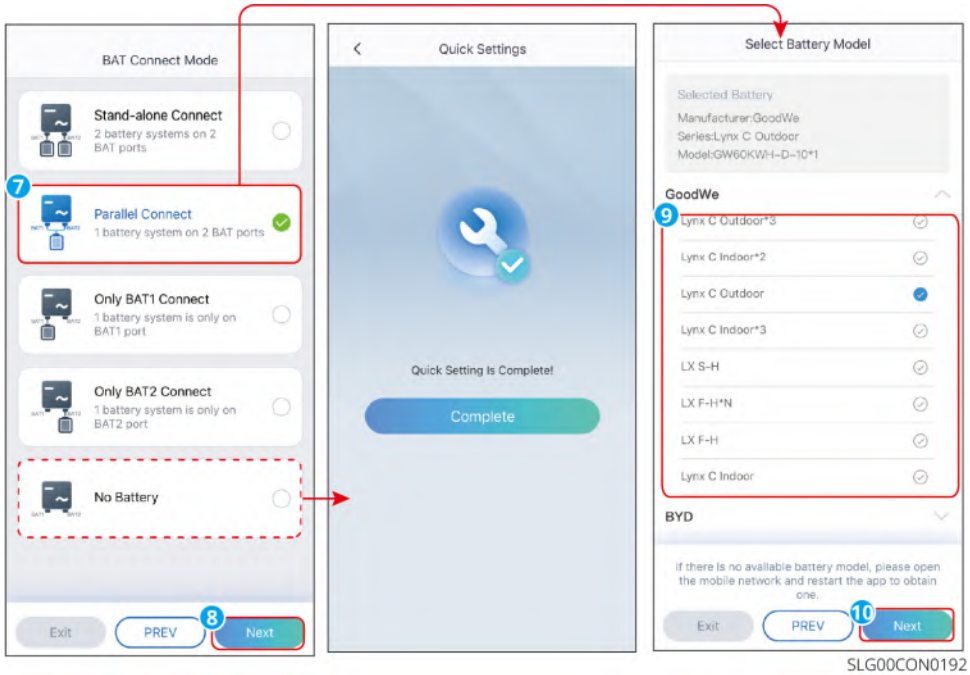
Step 1 Through**Home > Settings > Quick Configuration**Enter the parameter settings page.
Step 2 Enter the login password to access the safety regulation settings interface. Only authorized vendors are allowed to configure.
Step 3 Select the safety standard country based on the country or region where Inverter is located. After completing the setup, please click**Next step**Set the Battery access mode or configure the number of Inverter parallel units.

Step 4 Only parallel system. Set the number of Inverter parallel units. After completing the setup, click Next to configure the Battery access mode.



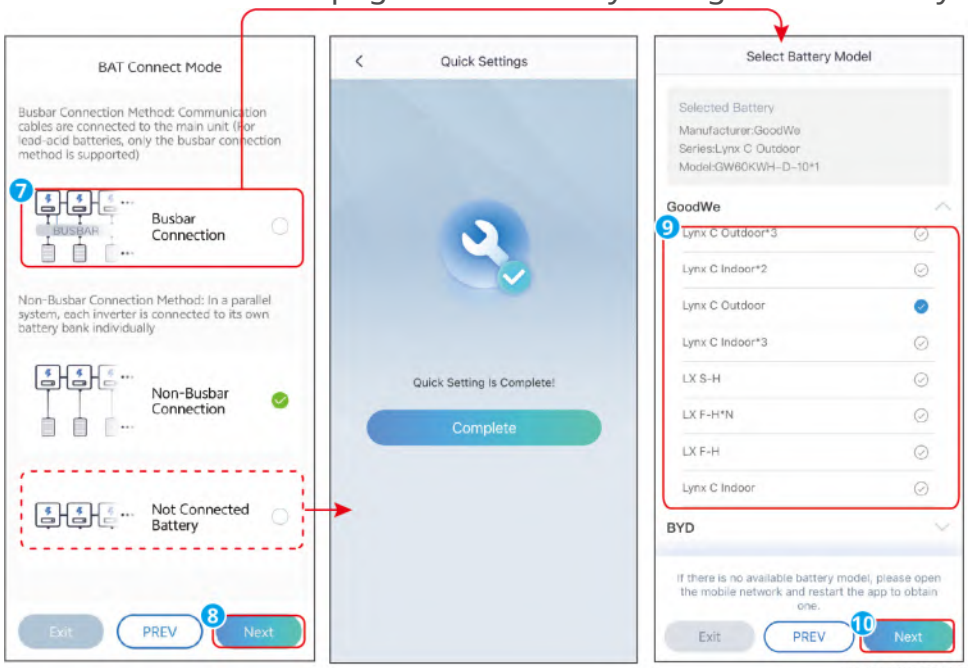
Step 5 Based on the actual situation of Battery connection, select the Battery connection mode. If there is no Battery connection, the basic parameter settings end here. If there is Battery connection, please click after completing the settings.**Next step**Set Batterymodel.

Step 6 Based on the actual connection of Battery, select Battery model. After completing the settings, please click**Next step**Set working mode.



SLG00CON0192

For certain models, when paralleling with Ezlink3000, please configure the Battery connection mode as either busbar mode or non-busbar mode based on actual conditions and select the Batterymodel. After the master unit is configured, the slave units will automatically synchronize the Battery settings. If the Battery connected to the slave unit differs from the master unit, access the Quick Settings interface via the slave SN on the homepage to individually configure the Batterymodel.



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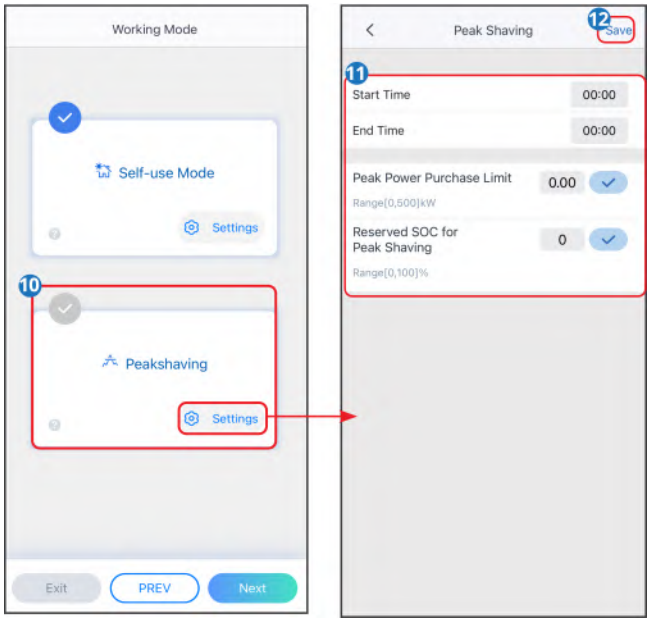
Step 7 Set the working mode according to actual requirements. After setting, please click**Next step**Entering device self-check.

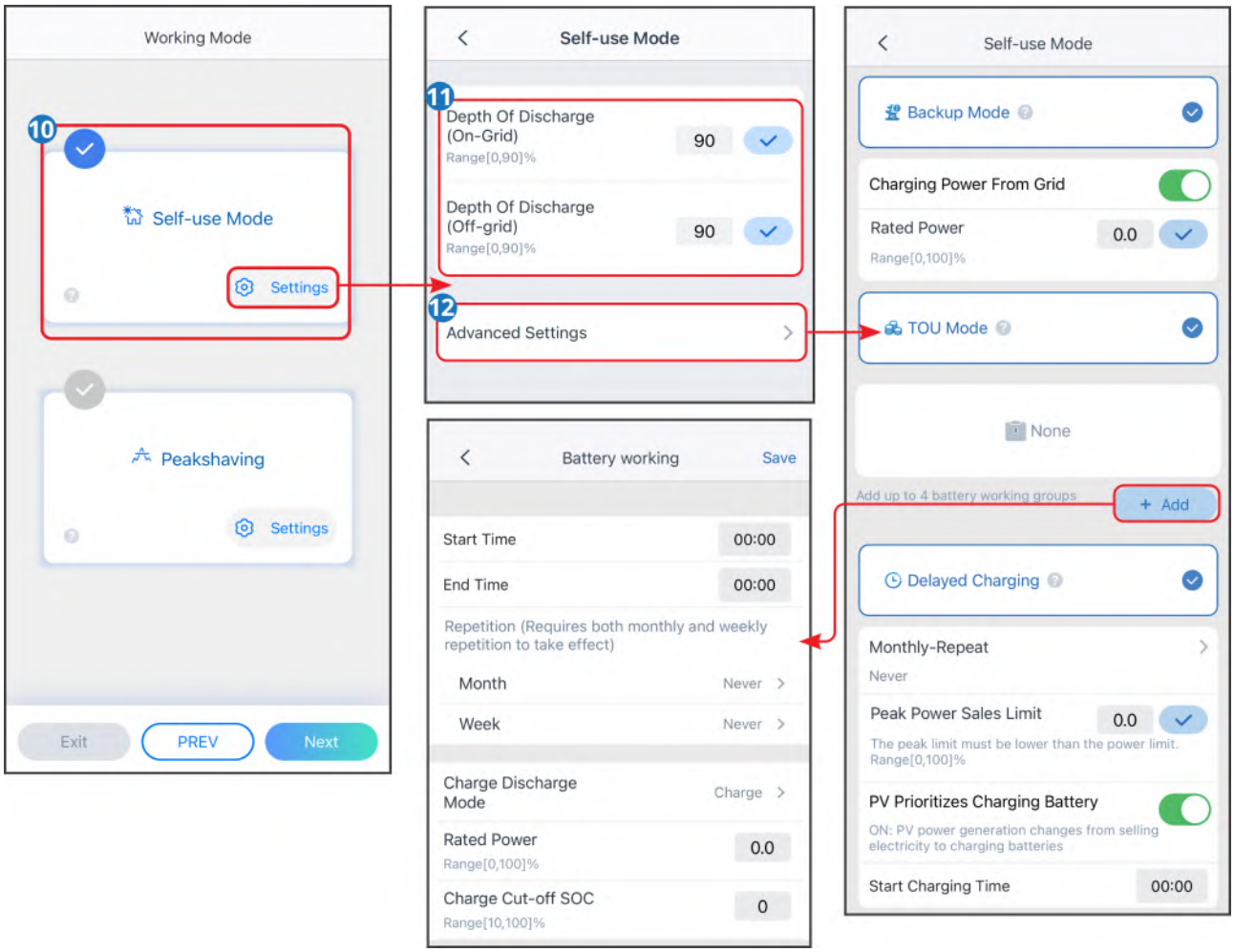
- When selecting the peak shaving mode, click Settings to enter the parameter configuration interface and set the Peakshaving related parameters.



No.	Parameter Name	Description
peak shaving		
1	Start Time	Within the start time and End Time, when Load consumption does not exceed the electricity purchase quota, Battery charge can be supplied via Utility grid. Outside the time range, only photovoltaic-generated Power can be used to supply Battery charge.
2	End Time	
3	Peak power purchase limit	Set the maximum Power limit allowed for buy power from the grid. When the load consumption Power exceeds the sum of the electricity generated by the PV system and this limit, the excess Power will be supplemented by Battery discharge.
4	Reserved SOC for Peakshaving	In Peakshaving mode, the Battery SOC is lower than the reserved SOC for Peakshaving. When the Battery SOC is higher than the reserved SOC for Peakshaving, the Peakshaving function is disabled.

- When selecting the self-use mode, click Settings to enter the self-use mode settings

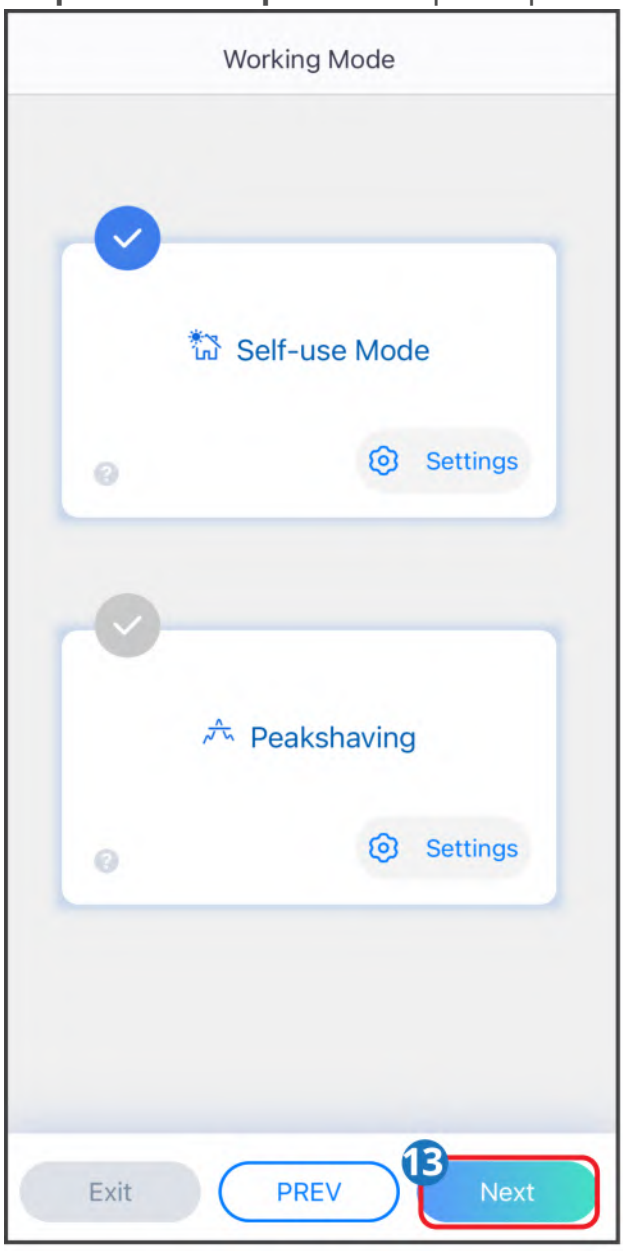
interface, and configure the on-grid depth of discharge and off-grid depth of discharge under the self-use mode. Then click Advanced Settings to configure Back-up Mode, TOU mode, or delayed Charge according to actual needs. If TOU mode is selected, click Add to set the working hours and mode of the Battery task group.

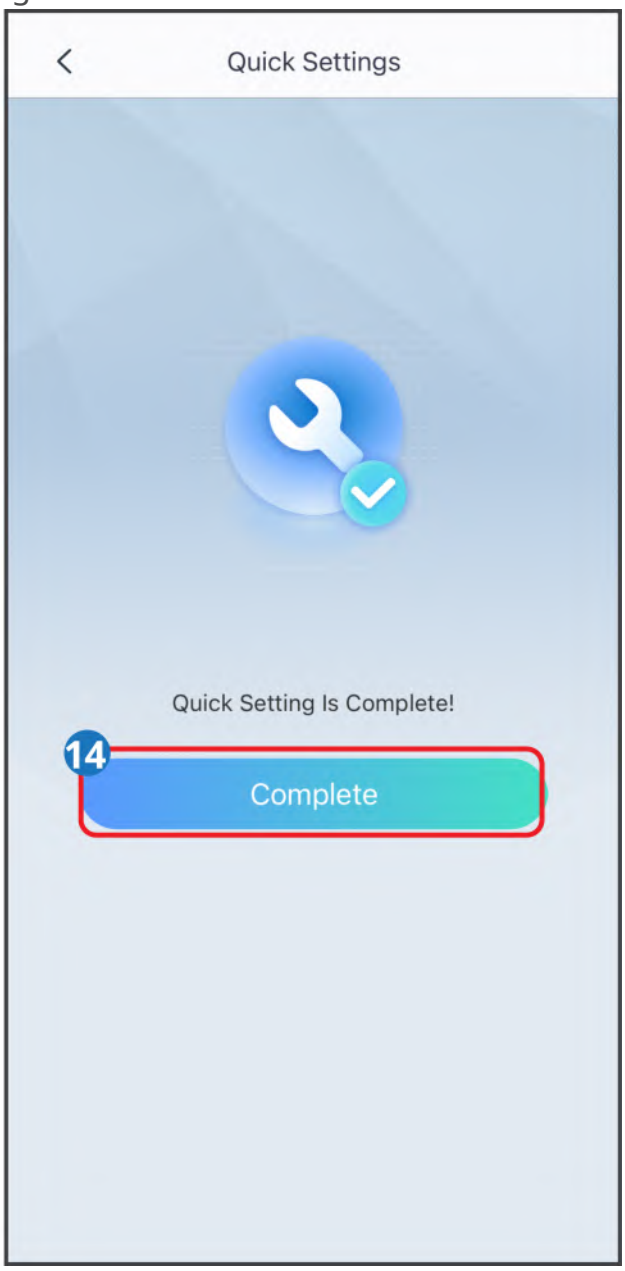


No.	Parameter Name	Description
Self-consumption mode		
1	on-grid depth of discharge	During the operation of on-grid, the maximum depth of discharge Protection point of Battery.
2	Off-grid depth of discharge	During off-grid operation, the maximum depth of discharge Protection point of Battery.

No.	Parameter Name	Description
Back-up Mode		
3	Utility grid Purchase of electricity Charge	Enable this function to allow the system to buy power from the grid.
4	Nominal power	The percentage of Power to InverterNominal power when purchasing electricity.
TOU mode		
5	Start Time	Within the Start Time and End Time, the Battery performs Charge or Discharge based on the set charging Discharge mode and Nominal power.
6	End Time	
7	Charging Discharge mode	Set to Charge or Discharge based on actual requirements.
8	Inverter Nominal power	The percentage of Power to Inverter Nominal power during Charge or Discharge.
9	Cut-off SOC	When the Battery reaches the set SOC, the Charge is stopped.
Delay Charge Mode		
10	Monthly repetition	Set the delay Charge months according to actual needs, and multiple months can be selected.
11	Peak power selling limit	Set the peak Power limit according to the Utility grid standard requirements of certain countries or regions. The peak Power limit value must be lower than the local specified output Power limit value.
12	PV prioritizes supplying power to Battery charge	Within the Charge timeframe, photovoltaic power generation is prioritized for supplying Battery charge.
13	Charge time	

Step 8 Perform device self-check or skip it based on actual requirements.
Step 9 Click according to actual needs**Retest**or**Next step**Testing completed. To export the test results, please click Export.
Step 10 Click**Completed**Complete quick configuration.





7.3.6 Setting the Basic Information

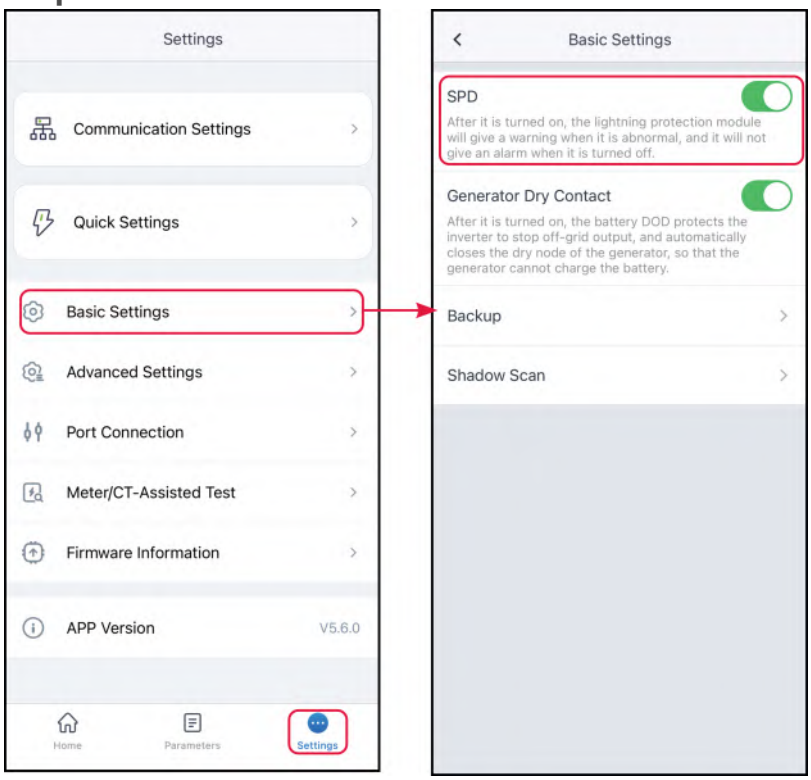
7.3.6.1 Set up lightning protection alarm function

After enabling the SPD secondary lightning protection alarm function, an alarm will be triggered to indicate an abnormality when the lightning protection module

malfunctions.

Step 1 Through**Home > Settings > Basic Settings > Lightning Protection Alarm**Set up lightning protection alarm.

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

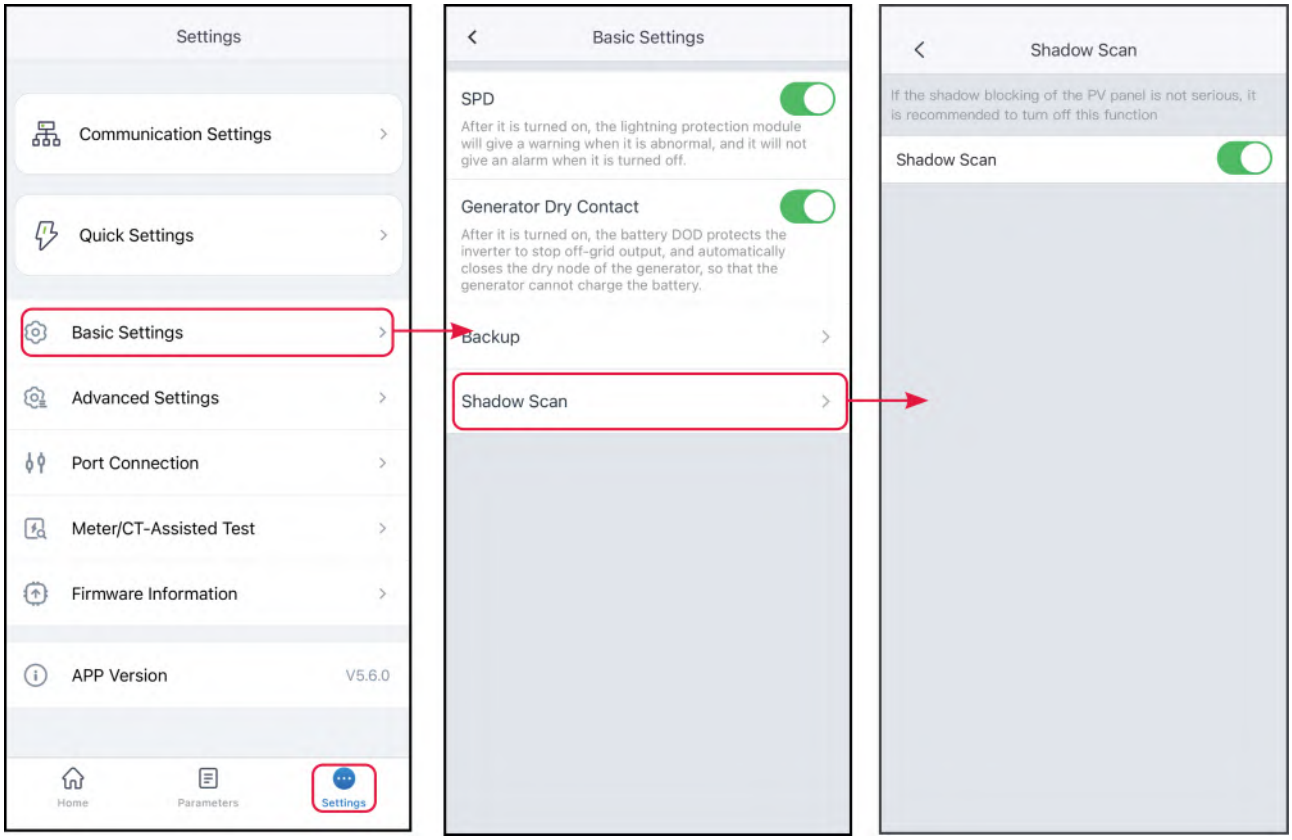


7.3.6.2 Enable shadow scan function

When the photovoltaic panels are severely shaded, enabling the shadow scan function can optimize Inverter power generation Efficiency.

Step 1 Through**Home > Settings > Basic Settings > shadow scan**Enter the settings page.

Step 2 Enable or disable this function based on actual needs. Some models support setting the scan interval time, MPPTshadow scan, etc. Please configure according to the actual interface.

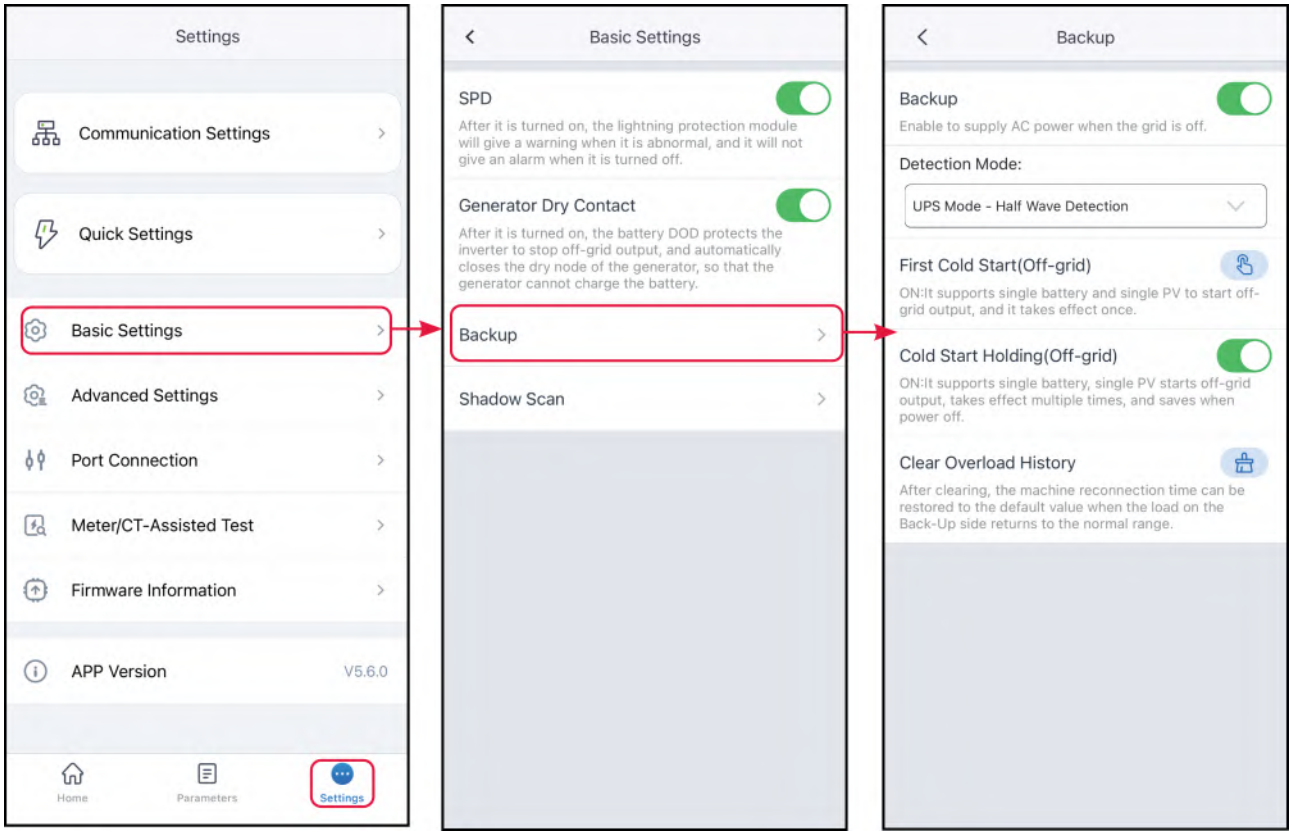


7.3.6.3 Set backup power supply parameters

After enabling the backup power function, when Grid disconnected occurs, the load connected to Inverter BACK-UP port can be powered by Battery, ensuring uninterrupted power supply to the load.

Step 1 Through**Home > Settings > Basic Settings > Backup Power**Enter the settings page.

Step 2 Set the backup power function according to actual needs.



No.	Parameter Name	Description
1	UPSMode-full-wave detection	Check if Utility gridvoltage is too high or too low.
2	UPSMode-Half-wave detection	Check if Utility gridvoltage is too low.
3	EPSMode-Supports low voltage ride-through (LVRT)	Disable the Utility gridvoltage detection function.
4	Off-grid first cold start	Only valid for a single activation. When this function is enabled, Battery or the PV system can output backup power in off-grid mode.
5	Off-grid Cold Start Retention	Multiple activations. When this function is enabled, the Battery or PV can output backup power in off-grid mode.

No.	Parameter Name	Description
6	Clear overload	When InverterBACK-UPWhen the Power connected to port exceeds the rated load Power, the Inverter will restart and detect the load Power again. If not addressed promptly, the Inverter will restart multiple times for load detection, with progressively longer intervals between each restart.BACK-UPWhen the port load is reduced within the Nominal power range, you can click this switch to clear the Inverter restart interval and Inverter restart immediately.

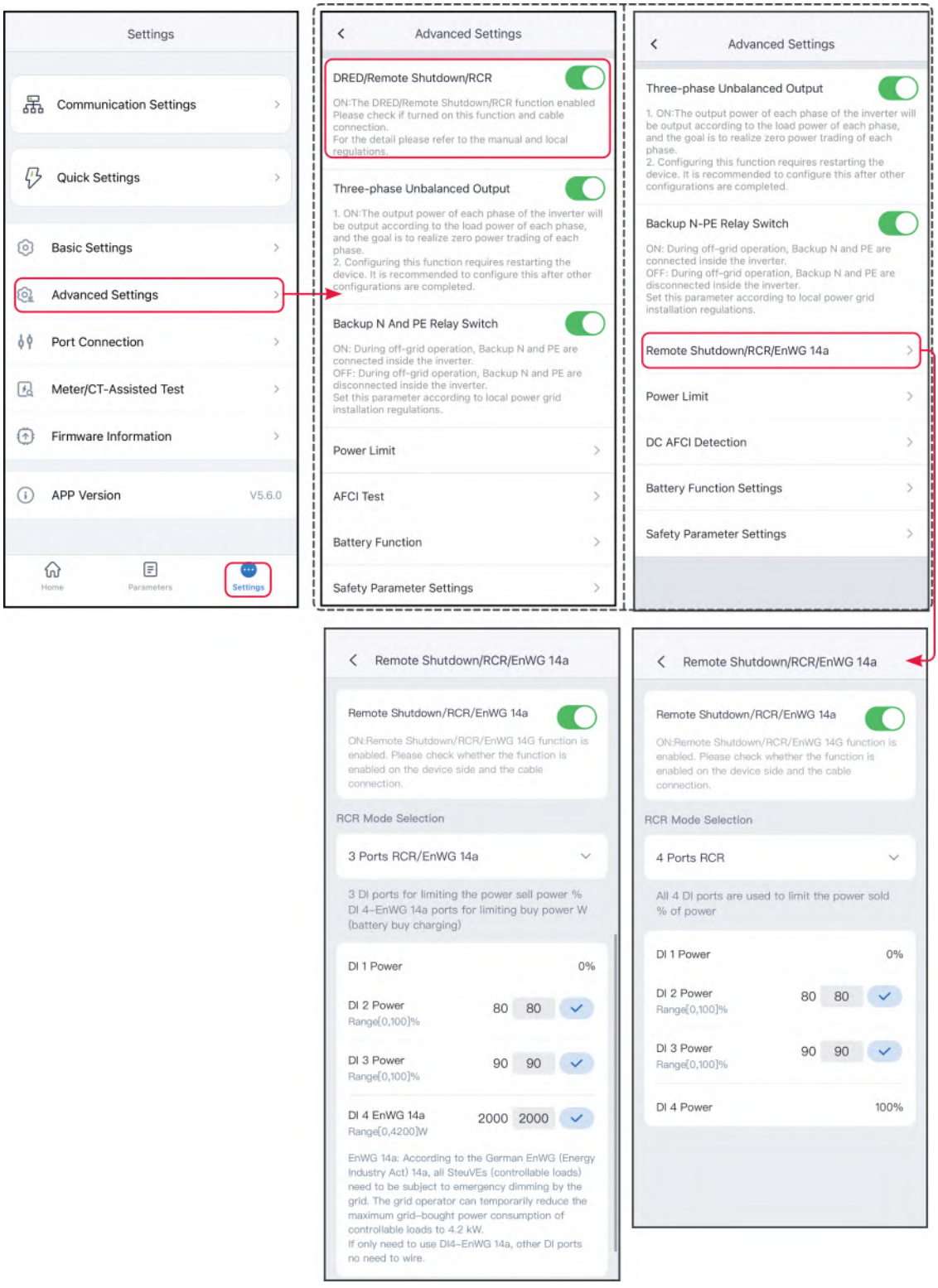
7.3.7 Setting Advanced Parameters

NOTICE

- When logged in as a "Installation merchant", you can Setting Advanced Parameters.
- When entering the advanced settings page, the password required is: 1111 or goodwe2010.

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

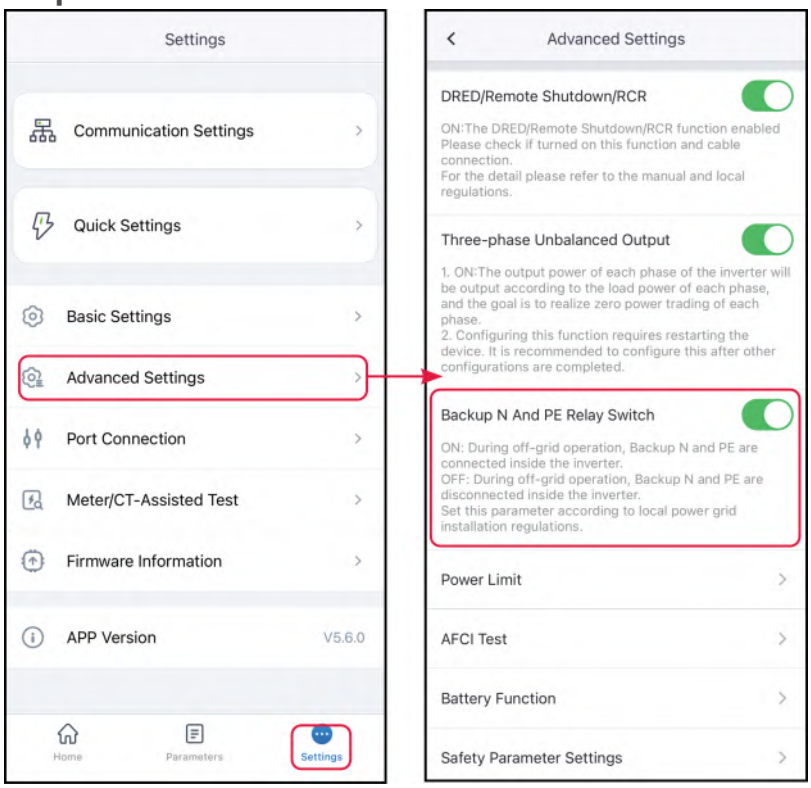
According to the Utility grid standard requirements of certain countries or regions, when it is necessary to connect third-party DRED/Remote Shutdown/RCR/EnWG 14a devices for signal control, please enable the DRED/Remote Shutdown/RCR/EnWG 14a function.
Step 1 Through**Home > Settings > Advanced Settings > DRED/Remote Shutdown/RCR/EnWG 14a**Set this function.
Step 2 Enable or disable this function based on actual requirements.
Step 3 For regions subject to the EnWG 14a regulation, when enabling the RCR function, it is necessary to select the RCR mode based on the actual type of connected equipment and set the DIportPower percentage value.



7.3.7.2 Set the BACK-UP N and PE relay switch

According to the Utility grid standard requirements in certain countries or regions, it is necessary to ensure that the internal relay of the BACK-UP port remains closed

during off-grid operation, thereby connecting the N and PE lines.
Step 1 Through**Home > Settings > Advanced Settings > Backup Power N and PE Relay Switch**Enter the parameter settings page.
Step 2 Enable or disable this function based on actual requirements.

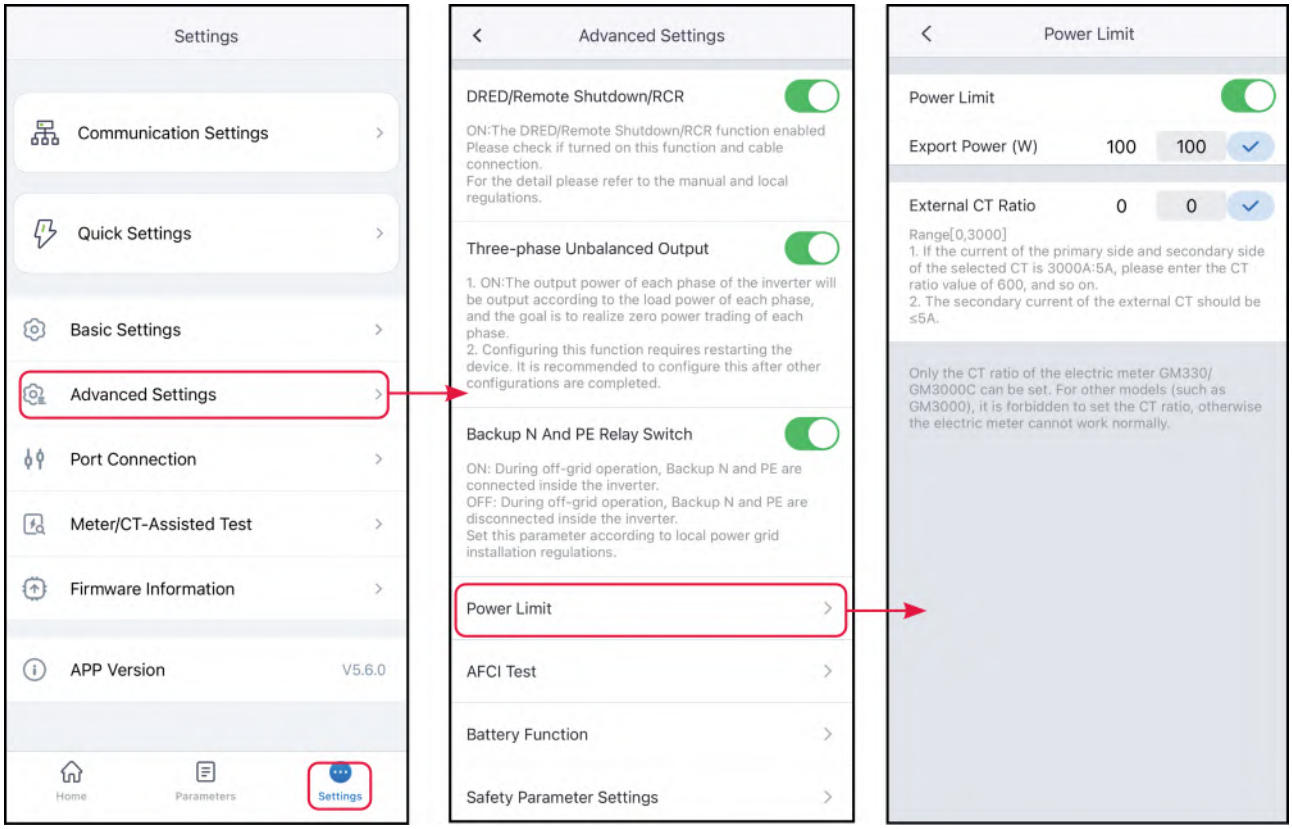


7.3.7.3 Set Export power limit parameters

NOTICE
When binding dual meters in a photovoltaic system, it is necessary to separately configure the Export power limit parameters for both meters.

Step 1 Through**Home > Settings > Advanced Settings > Export power limit**Enter the parameter settings page.
Step 2 Turn the power limit function on or off based on actual needs.
Step 3 After enabling the power limit function, input the parameter values as needed and click "√" to confirm the parameter settings.

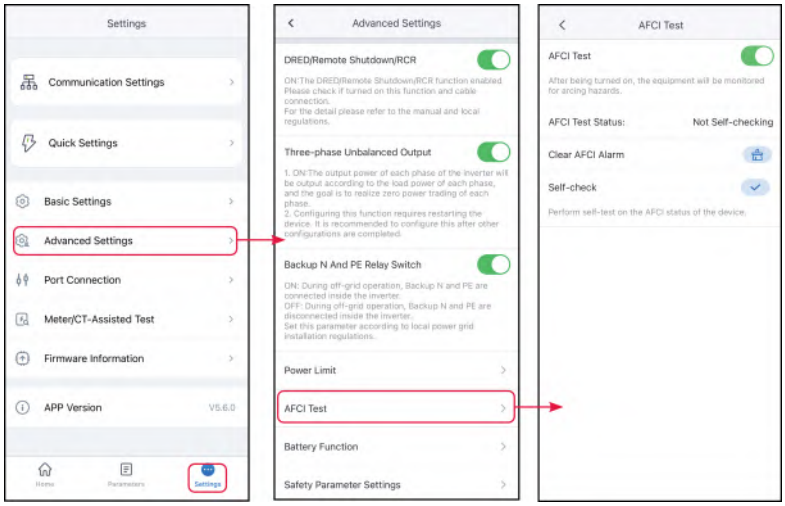
7.3.7.3.1 Set Export power limit parameters (General)



No.	Parameter Name	Description
1	Export 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.
2	Power limit	Set according to the maximum Power that can actually be input to Utility grid.
3	External Meter CT Ratio	Set to external connectionCTThe ratio of the primary side to the secondary side current.

7.3.7.4 Enable arc detection function

Step 1 Through**Home > Settings > Advanced Settings > DC Arc Detection**Enter the settings page to configure the AFCI detection function.
Step 2 Detect arc, clear fault alarms, or perform self-tests on the AFCI as needed.



No.	Parameter Name	Description
1	arc detection	Please enable or disable the Inverterarc function as needed.
2	arc detection status	Display detection status, such as undetected, detection failed, etc.
3	ClearAFCIfault Alarm	Clear arc fault alarm records.
4	Self-check	Click Settings to check if the arc module function of the detectable device is normal.

7.3.7.5 Enable Battery function

NOTICE

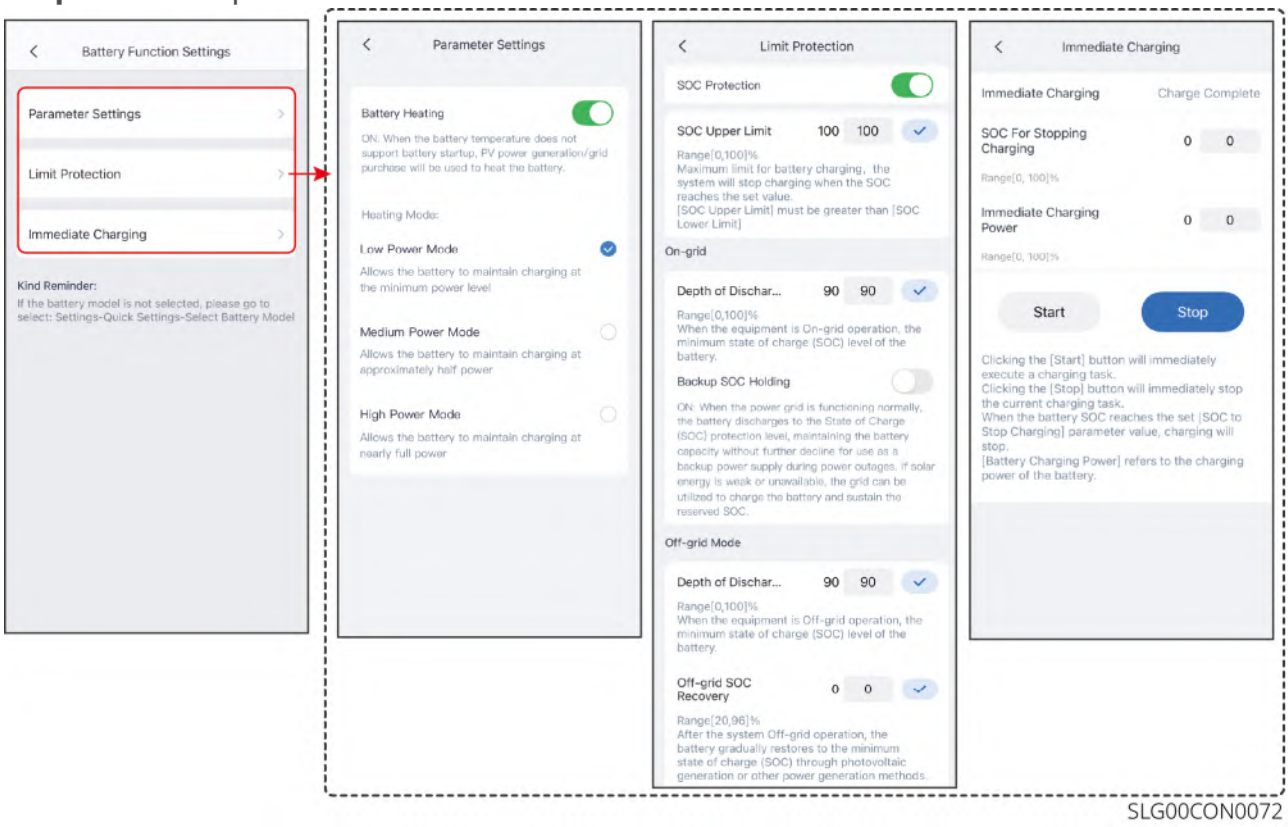
When the PV-storage system is a parallel system:

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

7.3.7.5.1 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.

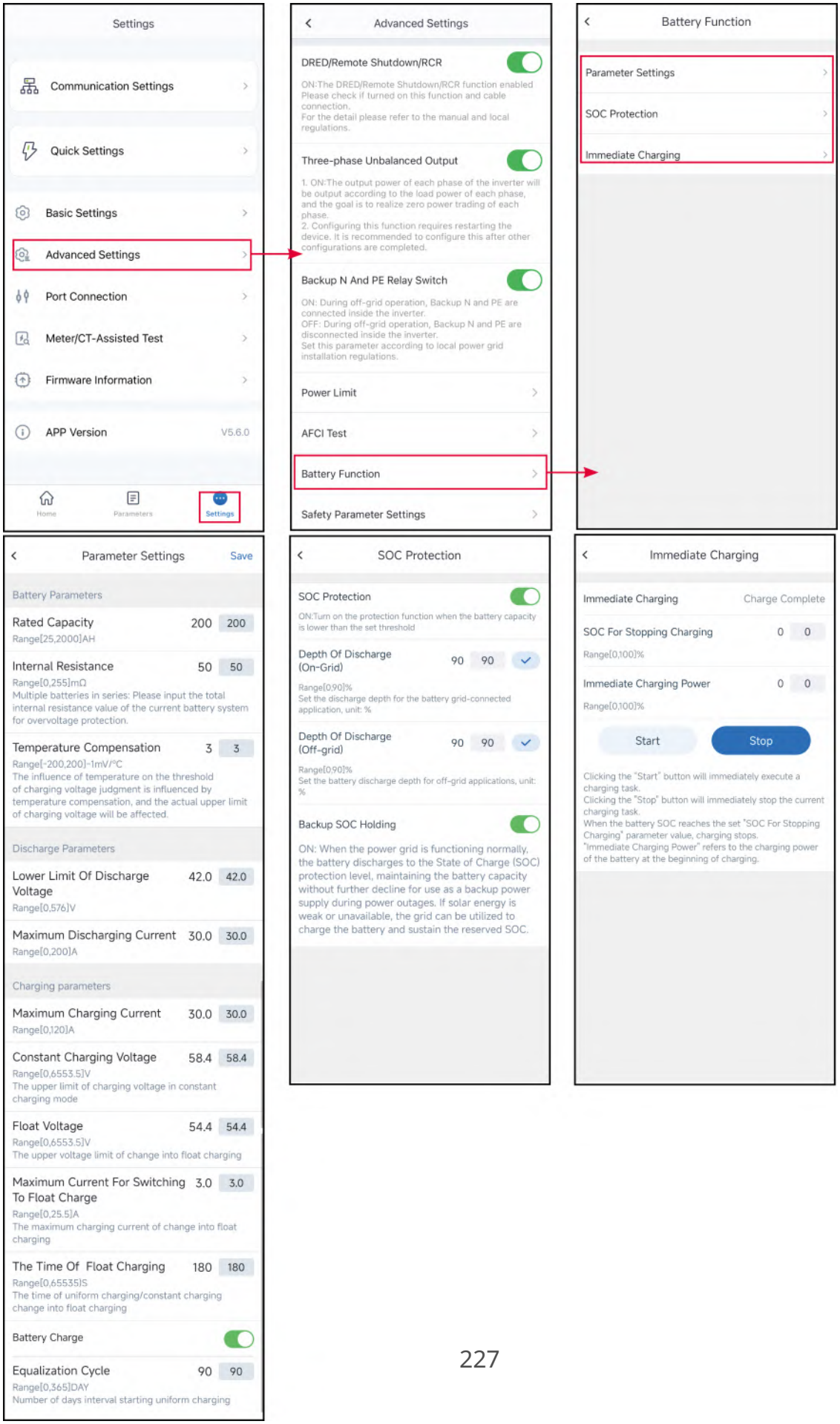
No.	Parameter	Description
3	Battery Heating	Optional. This option is displayed on the interface when a battery that supports heating is connected. After the battery heating function is turned on, when the temperature is below the value that starts up the battery, PV power or electricity from the grid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

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

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

7.3.7.5.2 Set lead-acid Battery parameters

Step 1 Through**Home > Settings > Battery Function Settings**Enter the parameter setting interface.
Step 2 Enter parameter values as required.



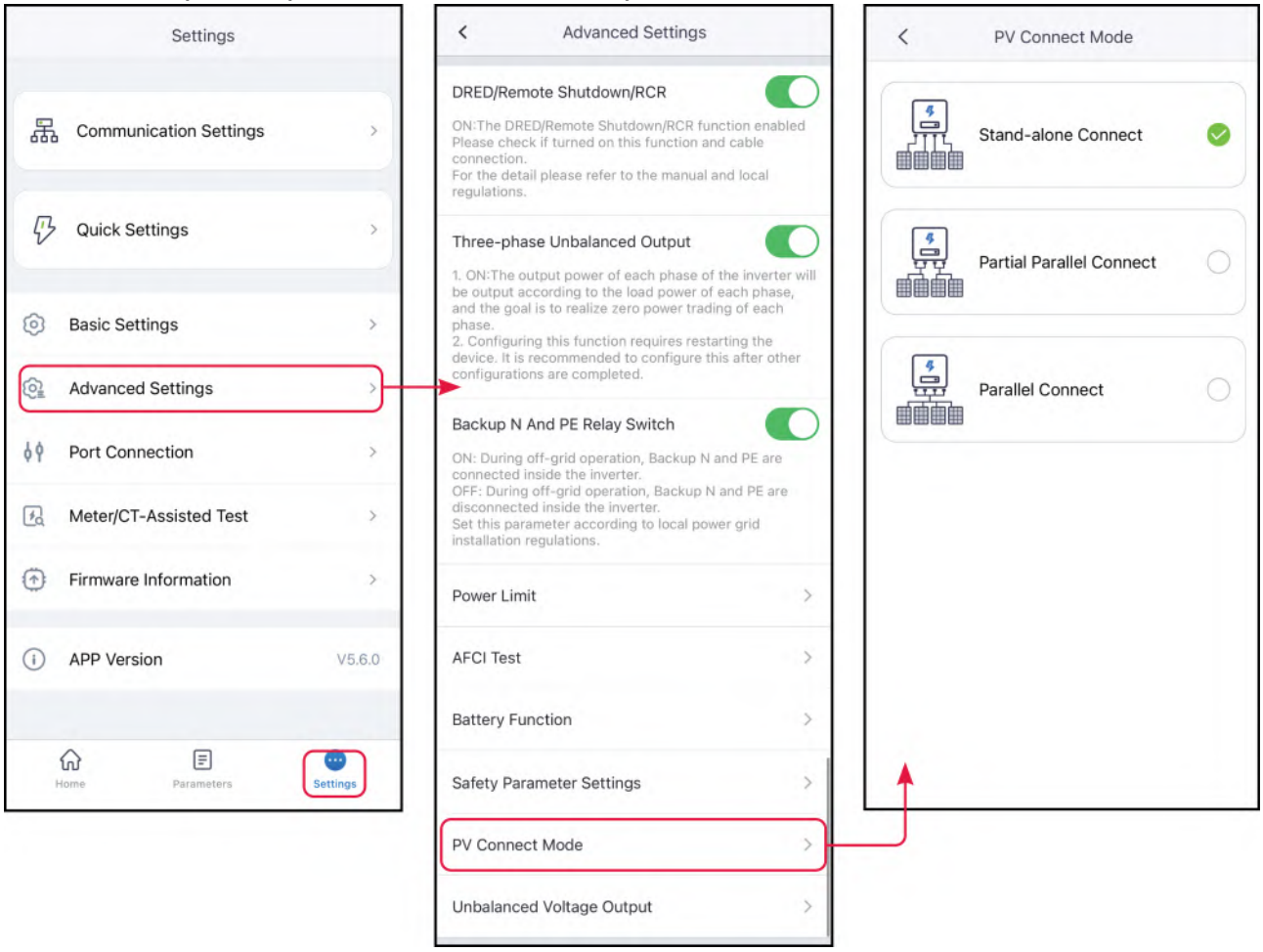
No.		Description

No.	Parameter Name	Description
1	Rated capacity	Set the Battery capacity based on actual parameters.
2	internal resistance	Set the internal resistance of Battery according to actual parameters.
3	Temperature compensation	When the temperature changes, the Battery charge voltage is affected. Taking 25°C as the reference, for every degree of temperature change in Battery, the upper limit of Charge voltage is adjusted according to the set value. For example, if the Charge temperature influence coefficient is set to 10, when the Battery temperature rises to 26 degrees, the Charge voltage upper limit will decrease by 10mV.
4	Lower limit	Set the minimum voltage when configuring Battery discharge based on actual requirements.
5	Maximum Discharge current	Set the maximum Discharge current according to actual needs when configuring Battery discharge.
6	Maximum Charge current	Set the maximum Charge current for Battery charge according to actual requirements.
7	Constant Charge voltage	Set the voltage value for Battery constant charging according to actual requirements.
8	floating Charge voltage	Set the voltage value for Battery floating charge according to actual requirements.
9	Switch to floating Charge maximum current	The maximum Charge current after switching from constant/equalizing charge to float charge in Battery charge mode.
10	Time to switch to float charge	Duration required for the Battery charge mode to switch from constant/equalizing charge to float charge.

No.	Parameter Name	Description
11	Equalization charging cycle	Set the interval days for Battery equalization charging.
Limit Protection		
12	SOCProtection	When enabled, the Protection function can be activated for Battery if the Battery capacity falls below the set depth of discharge.
13	SOCLower Limit (on-grid)	Inverter During operation, on-grid requires maintaining a minimum charge level.
14	Back-up SOC retention	To ensure the Battery SOC is sufficient to maintain normal system operation when off-grid, during on-grid operation, the Battery will purchase electricity through the Utility grid to charge up to the set SOC Protection value.
15	SOCLower limit (off-grid)	During off-grid operation, Inverter requires the minimum power level that Battery needs to maintain.
16	Off-grid recoverySOC	During off-grid operation, if the Battery SOC drops to the lower limit, the Inverter stops output and is only used to supply power to the Battery charge until the Battery SOC recovers to the off-grid recovery SOC value. If the lower SOC limit is higher than the off-grid recovery SOC value, the Charge will increase to the lower SOC limit +10%.
Battery charge on demand		
17	Stop ChargeSOC	Battery When charging is enabled, when BatterySOCReach the Charge cut-offSOCWhen Battery charge is detected, the system will stop supplying power to it.
18	Battery charge immediately Power	When Battery is enabled, the percentage of Charge Power to Inverter Nominal power. For example, for a Nominal power of10kWInverter, set to60At the time, Charge Power was6kW.
19	Start	Start immediately.
20	Stop	Immediately stop the current Charge task.

7.3.7.6 Set PV connection mode

For certain models, the InverterMPPTport PV Stringconnection method can be manually configured to prevent misidentification of string connection modes.
Step 1 Through**Home > Settings > Advanced Settings > PV Connection Mode**Enter the settings page.
Step 2 Based on the actual connection method of PV String, set it to independent connection, partial parallel connection, or parallel connection.

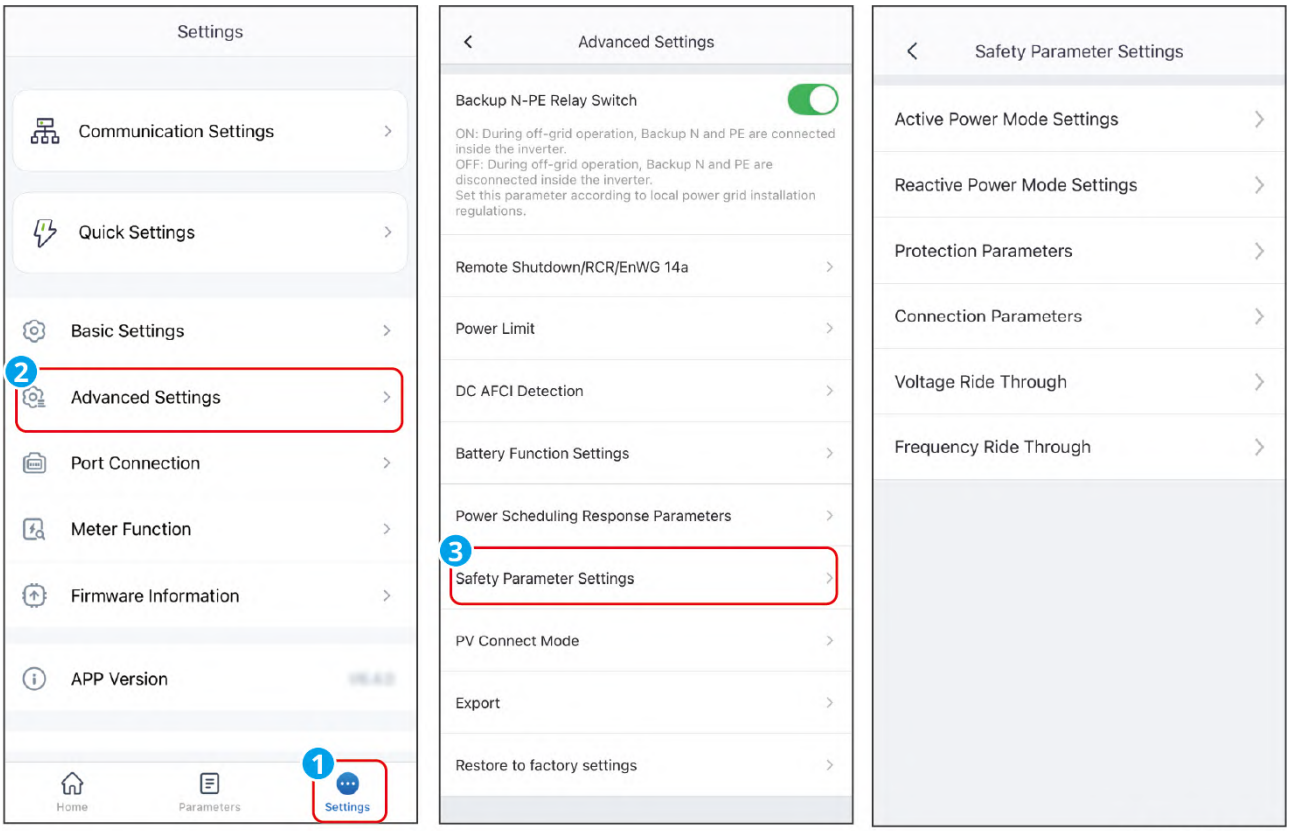


No.	Parameter Name	Description
1	stand-alone connection	The external PV String is connected one-to-one with the Inverter side photovoltaic input port.

No.	Parameter Name	Description
2	Partial parallel connection	When a string of PV String is connected to one MPPT port on the Inverter side, other PV modules are simultaneously connected to other MPPTs port on the Inverter side.
3	parallel connection	When the external PV String is connected to the Inverter-side PV input port, one PV String is connected to multiple PV inputs port.

7.3.8 Set custom safety parameters

NOTICE
Safety parameters shall be set according to the requirements of Utility grid company. Any modifications require prior approval from Utility grid company.



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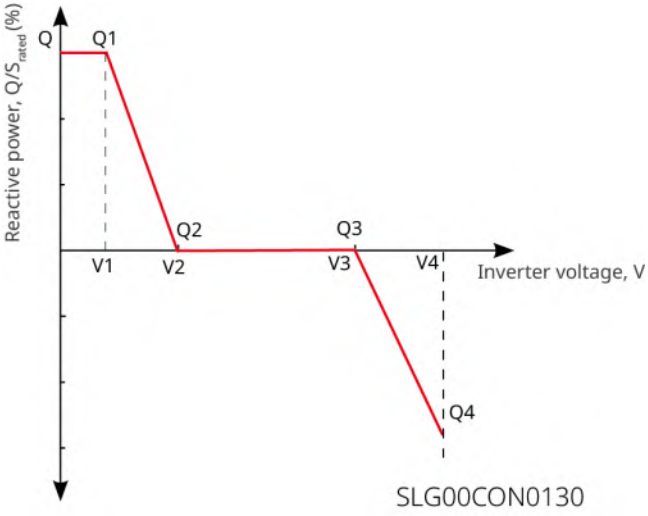
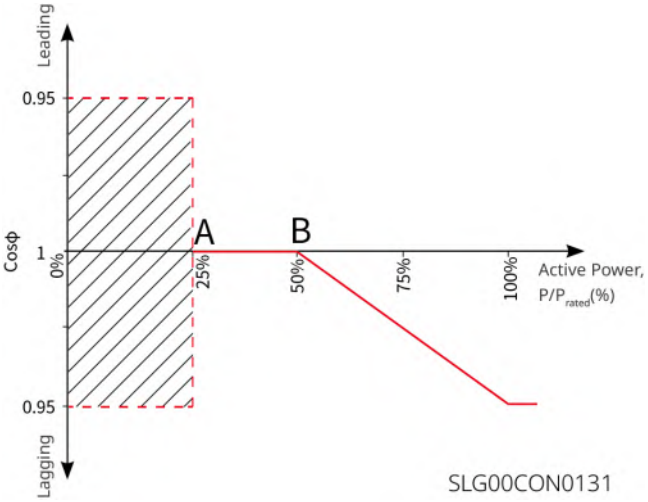
7.3.8.1 Set reactive power mode

Step 1 Through**Home > Settings > Advanced Settings > Safety Parameter Settings > Reactive Power Mode Settings**Enter the parameter settings page.
Step 2 Enter parameters as required.
Q(U) curve



Cosφ curve



No.	Parameter Name	Description
Fixed PF		

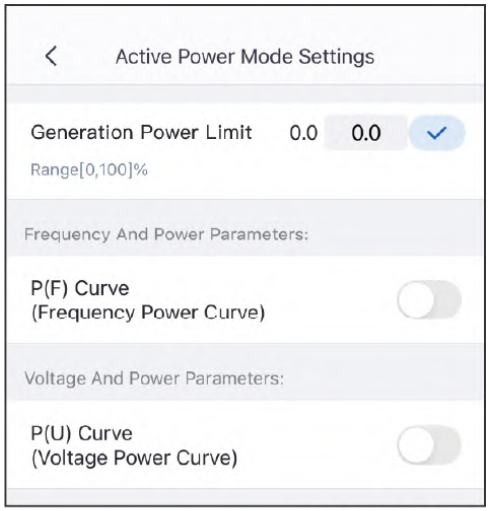
No.	Parameter Name	Description
1	Fixed PF	According to the Utility grid standard requirements of certain countries or regions, when a fixed PF value is required, enable this function. After the parameter is successfully set, the Output Power Factor remains unchanged during the operation of the Inverter.
2	under-excitation	Set the Output Power Factor to a positive or negative value based on the Utility grid standard requirements of the country or region and actual usage needs.
3	overexcitation	
4	Output Power Factor	Set the Output Power Factor according to actual needs, with a range of -1 to -0.8 and +0.8 to +1.
Fixed Q		
1	Fixed Q	According to the Utility grid standard requirements of certain countries or regions, this function should be enabled when fixed reactive Power is required.
2	Over-excited/Under-excited	Set the reactive Power to inductive or capacitive reactive power according to the Utility grid standard requirements of the country or region and actual usage needs.
3	Reactive Power	Set the ratio of reactive Power to apparent Power.
Q(U) curve		
1	Q(U) curve	When the Q(U) curve needs to be set according to the Utility grid standard requirements of certain countries or regions, enable this function.
2	Mode selection	Set Q(U) curve mode, supporting basic mode and slope mode.
3	Vn	The ratio of the actual value of Vn point to the rated value, where n=1, 2, 3, 4. For example: when set to 90, it means: V/Vrated%=90%.

No.	Parameter Name	Description
4	Vn reactive power	The ratio of reactive power Power to apparent power Power at the Vn point Inverter output, where n=1, 2, 3, 4. For example: when set to 48.5, it means: Q/Srated% = 48.5%.
5	dead-time width	When the Q(U) curve mode is set to slope mode, set the voltage deadband. Within the deadband range, there is no requirement for reactive power output.
6	Over-excitation slope	When the Q(U) curve mode is set to slope mode, configure the Power variation slope as a positive or negative number.
7	Under-excitation slope	
8	Vn reactive power	The ratio of reactive power Power to apparent power Power at the Vn point Inverter output, where n=1, 2, 3, 4. For example: when set to 48.5, it means: Q/Srated% = 48.5%.
9	Q(U) curve response time constant	Power must reach 95% within 3 response time constants following a first-order low-pass curve.
10	Extended Function Enable	Enable extended functions and set corresponding parameters.
11	Entering curve Power	When the ratio of the reactive Inverter output to Nominal power falls between the entry curve Power and the exit curve Power, it meets the Q(U) curve requirements.
12	Exit curve	
cosφ(P) curve		
1	cosφ(P) curve	When setting the Cosφ curve is required according to the Utility grid standard of certain countries or regions, select this function.
2	Mode selection	Set the cosφ(P) curve mode, supporting basic mode and slope mode.

No.	Parameter Name	Description
3	N-point Power	N-point Inverter active power output Power/Nominal power percentage. N=A, B, C, D, E.
4	N-point cosφ value	N-point Output Power Factor. N = A, B, C, D, E.
5	Over-excitation slope	When the cosφ(P) curve mode is set to slope mode, configure the Power variation slope as a positive or negative number.
6	Under-excitation slope	
7	n-point Power	N-point Inverter active power output Power/Nominal power percentage. N=A, B, C.
8	n-point cosφ value	N-point Output Power Factor. N = A, B, C.
9	cosφ(P) curve response time constant	Power must reach 95% within 3 response time constants following a first-order low-pass curve.
10	Extended Function Enable	Enable extended functions and set corresponding parameters.
11	Enter curve voltage	When the Utility gridvoltage is between the entry curve voltage and the exit curve voltage, the voltage meets the Cosφ curve requirements.
12	Exit Curve	
Q(P) curve		
1	Q(P) curve enable	When setting the Q(P) curve is required according to the Utility grid standards of certain countries or regions, enable this function.
2	Mode selection	Set Q(P) curve mode, supporting basic mode and slope mode.
3	Pn point	The ratio of reactive power at Pn point to Nominal power, where n=1, 2, 3, 4, 5, 6. For example: when set to 90, it means: Q/Prated% = 90%.

No.	Parameter Name	Description
4	Reactive power at Pn point	The ratio of active Power to Nominal power at Pn point, where n=1, 2, 3, 4, 5, 6. For example: when set to 90, it means: P/Prated% = 90%.
5	Over-excitation slope	When the Q(P) curve mode is set to slope mode, configure the Power variation slope as a positive or negative value.
6	Under-excitation slope	
7	Pn point	The ratio of reactive power at point Pn to Nominal power, where n=1, 2, 3. For example: when set to 90, it means: Q/Prated% = 90%.
8	Reactive power at Pn point	The ratio of active Power to Nominal power at point Pn, where n=1, 2, 3. For example: when set to 90, it means: P/Prated% = 90%.
9	response time constant	Power must reach 95% within 3 response time constants following a first-order low-pass curve.

7.3.8.2 Set active power mode



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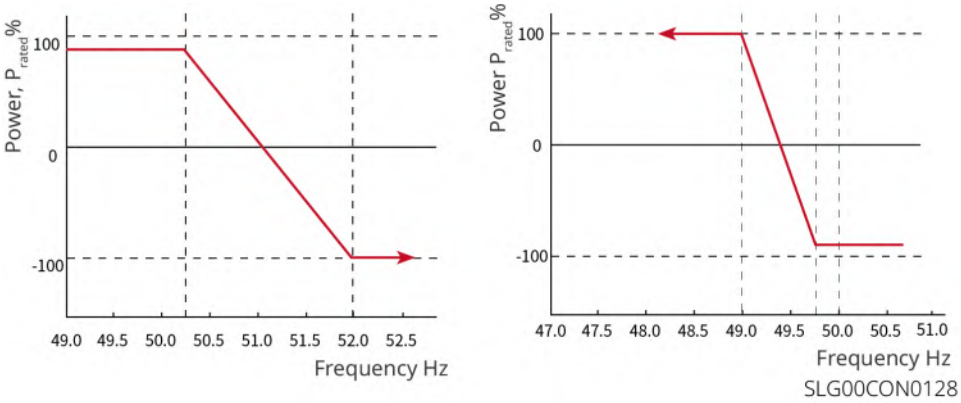
Step 1 Through**Home > Settings > Advanced Settings > Safety Regulation Parameter Settings > Active Power Mode Settings**Enter the parameter settings

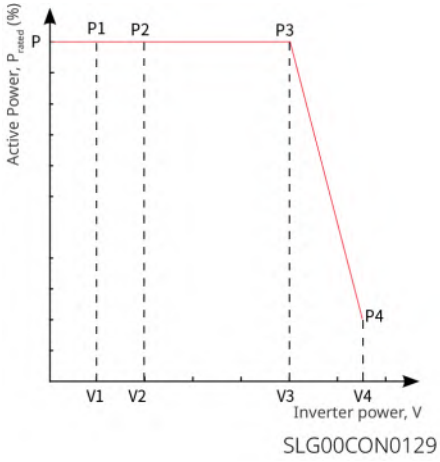
page.

Step 2 Enter parameters as required.

P(F) curve



P(U) curve



No.	Parameter Name	Description
1	Active power output setting	Set the Inverter output Power limit value.
2	variation gradient	Set the rate of change for active power output when it increases or decreases.
Over-frequency load shedding		
1	P(Fcurve	According to the Utility grid standard requirements of certain countries or regions, it is necessary to installP(F)Enable this function when drawing curves.

No.	Parameter Name	Description
2	Over-frequency load shedding mode	Set the over-frequency load shedding mode according to actual requirements. • SlopeMode: Based on over-frequency point and derating slope adjustment Power. • StopMode: Adjust Power based on the over-frequency start point and over-frequency end point.
3	Overfrequency starting point	When the Utility grid Frequency is too high, the Inverter reduces its active power output Power. When the Utility grid Frequency exceeds this value, the Inverter begins to decrease its output Power.
4	Electricity Trading Conversion Frequency	When the set Frequency value is reached, the system switches from selling electricity to buying electricity.
5	Overfrequency endpoint	When the Utility grid Frequency is too high, the Inverter reduces its active Power output. If the Utility grid Frequency exceeds this value, the Inverter output Power will not decrease further.
6	Overfrequency Power slope reference Power	Adjust the active power output of the Inverter based on Nominal power, current Power, apparent Power, or maximum active Power.
7	Overfrequency Power slope	When the Utility grid Frequency is above the over-frequency point, the Inverter output Power reduces the output Power according to the slope.
8	Tentional Delay Ta	When the frequency is above the over-frequency point, the Inverter output Power change delay response time.
9	Hysteresis Function enable	Enable Hysteresis Function.

No.	Parameter Name	Description
10	hysteresis point	During the over-frequency load shedding process, if Frequency decreases, Power outputs Power according to the lowest point of the load shedding Power until Frequency is less than the hysteresis point, and Power is restored.
11	Hysteresis waiting time	For over-frequency load shedding and Frequency reduction, when Frequency is less than the hysteresis point, the recovery waiting time for Power is required, meaning a certain period must elapse before Power can be restored.
12	Hysteresis Power recovery slope reference Power	For over-frequency derating and Frequency reduction, when Frequency is less than the hysteresis point, the reference for Power recovery is based on the recovery slope.*The rate of change of the reference Power is restored to Power. Support:PnNominal power、PsApparent Power,PmCurrent Power,PmaxMaximum Power, Power difference (△P).
13	Hysteresis recovery slope	For over-frequency derating and Frequency reduction, when Frequency is less than the hysteresis point, the slope of Power change during Power recovery.
Underfrequency load shedding		
1	P(Fcurve	According to the Utility grid standard requirements of certain countries or regions, it is necessary to installP(F)Enable this function when drawing curves.
2	Underfrequency Load Shedding Mode	Set the under-frequency load shedding mode according to actual requirements. • SlopeMode: Based on under-frequency point and load slope regulation Power. • StopMode: Adjust Power based on underfrequency start point and underfrequency end point.
3	Underfrequency starting point	When the Utility grid Frequency is too low, the active Power output of the Inverter increases. When the Utility grid Frequency is less than this value, the Inverter output Power begins to rise.

No.	Parameter Name	Description
4	Electricity Trading Conversion Frequency	When the set Frequency value is reached, the system switches from selling electricity to buying electricity.
5	Underfrequency endpoint	When the Utility grid Frequency is too low, the active Power output of the Inverter increases. When the Utility grid Frequency is less than this value, the Power output of the Inverter does not continue to rise.
6	Overfrequency Power slope reference Power	Adjust the active power output of the Inverter based on Nominal power, current Power, apparent Power, or maximum active Power.
7	Underfrequency Power slope	When the Utility grid and Frequency are too low, the active Power output of the Inverter increases. The slope when the Power output of the Inverter rises.
8	Tentional Delay Ta	When the frequency is below the under-frequency point, the Inverter output Power change delay response time.
9	Hysteresis Function enable	Enable Hysteresis Function.
10	hysteresis point	During the under-frequency load shedding process, if Frequency increases, Power outputs Power according to the lowest point of the load shedding Power until Frequency exceeds the hysteresis point, and Power is restored.
11	Hysteresis waiting time	For under-frequency load shedding, when the Frequency increases and the Frequency exceeds the hysteresis point, the recovery waiting time of the Power must elapse before the Power can be restored.

No.	Parameter Name	Description
12	Hysteresis Power Slope Compensation Reference Power	For under-frequency load shedding, when the Frequency increases and the Frequency exceeds the hysteresis point, the reference for Power recovery is determined based on the recovery slope.*The rate of change of the reference Power is restored to Power. Support:PnNominal power、PsApparent Power,PmCurrent Power,PmaxMaximum Power, Power difference (△P).
13	Hysteresis recovery slope	For under-frequency load shedding, when the Frequency increases and the Frequency exceeds the hysteresis point, the slope of the Power change during Power recovery.
14	P(UCurve Enable	According to the Utility grid standard requirements of certain countries or regions, it is necessary to installP(U)Enable this function when drawing curves.
15	Vnvoltage	VnThe ratio of the actual value of voltage to the rated voltage.n=1,2,3,4. For example: set to90When, it indicates:V/Vrated%=90%.
16	Vnactive power	VnThe ratio of active Power to apparent Power at the output of Inverter.n=1,2,3,4. For example: set to48.5When, it indicates: P/Prated%=48.5%.
17	Output Response Mode	Set active power Output Response Mode. Support: • First-order low-pass filtering, within the response time constant, achieves output regulation according to the first-order low-pass curve. • Slope scheduling, achieving output regulation based on the set Power change slope.
18	variation gradient	When Output Response Mode is set to slope scheduling, active power dispatch is implemented according to the variation gradient of Power.
19	PT-1 Behavior Tau	When Output Response Mode is set as a first-order low-pass filter, the time constant for the active Power to change according to the first-order low-pass filter curve.

No.	Parameter Name	Description
20	Overload function switch	After activation, the maximum active Power output is 1.1 times the Nominal power value; otherwise, the maximum active Power output aligns with the Nominal power value.

7.3.8.3 Set Utility grid Protection parameters

Step 1 Through**Home > Settings > Advanced Settings > Safety Regulation Settings > Utility gridProtection Parameters**Enter the parameter settings page.
Step 2 Enter parameter values as required.

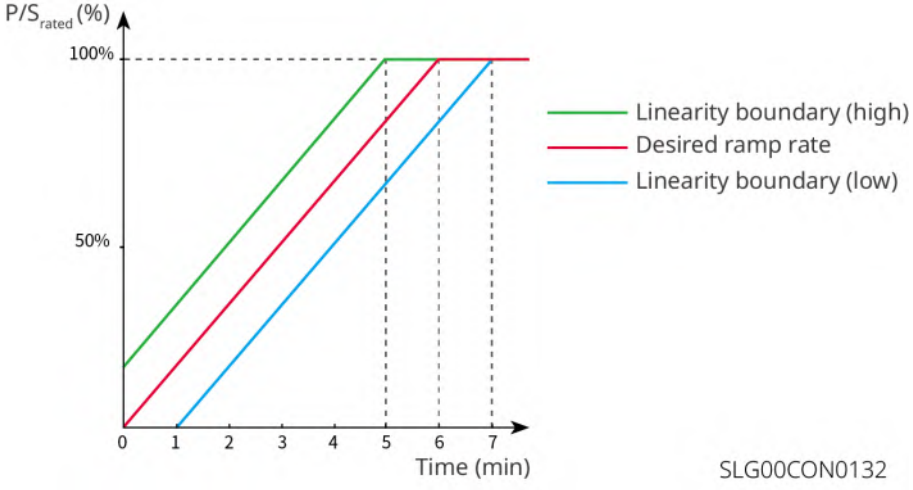
No.	Parameter Name	Description
1	Overvoltage triggeringnthreshold value	Set Utility grid overvoltage trigger n-th Protection point, n=1,2,3,4.
2	Overvoltage triggeringnStep-out time	Set Utility grid overvoltage triggernStep trip timen=1,2,3,4.
3	Undervoltage triggernthreshold value	Set Utility grid undervoltage triggernStep Protection point,n=1,2,3,4.
4	Undervoltage triggernStep-out time	Set Utility grid undervoltage triggernStep trip time,n=1,2,3,4.
5	10minOvervoltage trigger value	Setting10minOvervoltage trigger value.
6	10minOvervoltage trip time	Setting10minOvervoltage trip time.
7	Over-frequency triggeringnthreshold value	Set Utility grid over-frequency triggernStep Protection point,n=1,2,3,4.
8	Over-frequency triggeringnStep-out time	Set Utility grid over-frequency triggernStep trip time,n=1,2,3,4.

No.	Parameter Name	Description
9	Underfrequency triggernthreshold value	Set Utility grid underfrequency triggernStep Protection point,n=1,2,3,4.
10	Underfrequency triggernStep-out time	Set Utility grid underfrequency triggernStep trip time,n=1,2,3,4.

7.3.8.4 Set Utility grid connection parameters

Step 1 Through**Home > Settings > Advanced Settings > Safety Regulation Parameter Settings > Utility grid Connection Parameters**Enter the parameter settings page.

Step 2 Enter the parameter values as required.



No.	Parameter Name	Description
Start-up		
1	Connection voltage upper limit	When Inverter is first connected to Utility grid, if the Utility grid voltage exceeds this value, Inverter will be unable to connect to Utility grid.
2	Lower connection limit	When Inverter is first connected to Utility grid, if the Utility grid voltage is below this value, Inverter will not be able to connect to Utility grid.

No.	Parameter Name	Description
3	Connection Frequency upper limit	When Inverter is first connected to Utility grid, if the Frequency of Utility grid is higher than this value, Inverter will not be able to connect to Utility grid.
4	Connection lower limit	When Inverter is first connected to Utility grid, if the Frequency of Utility grid is below this value, Inverter will not be able to connect to Utility grid.
5	on-grid waiting time	When Inverter is first connected to Utility grid, the Utility grid voltage and Frequency must meet the on-grid requirements before waiting for connection time with Utility grid.
6	Startup loading slope enable	Enable the startup slope function.
7	Startup loading slope	According to certain national or regional standard requirements, the incremental percentage of Power that can be output per minute during the initial startup of Inverter.
Reconnection		
8	Connection voltage upper limit	When Inverter reconnects with Utility grid after a fault occurs, if the Utility grid voltage exceeds this value, Inverter will be unable to connect with Utility grid.
9	Connection voltage lower limit	When Inverter reconnects with Utility grid after fault occurs, if the Utility grid voltage is below this value, Inverter will be unable to connect with Utility grid.
10	Connection Frequency upper limit	When Inverter reconnects with Utility grid after a fault, if the Utility grid Frequency exceeds this value, Inverter will be unable to connect with Utility grid.
11	Connection lower limit	When Inverter reconnects with Utility grid after fault occurs, if the Utility grid Frequency is below this value, Inverter will be unable to connect with Utility grid.
12	on-grid waiting time	After a Inverter occurs and reconnects with Utility grid, the Utility grid voltage and Frequency wait for the connection time with Utility grid after meeting the on-grid requirements.

No.	Parameter Name	Description
13	Reconnection load slope enable	Enable the startup slope function.
14	Reconnection load ramp rate	According to the standards and requirements of certain countries or regions, the incremental percentage of Power that can be output per minute during on-grid when it is not the first time Inverter. For example: set to10When it indicates that the reconnection load slope is:10%P/Srated/min.

7.3.8.5 Set voltagefault ride-through parameters

Step 1 Through**Home > Settings > Advanced Settings > Safety Parameter Settings > voltagefault Ride-Through**Enter the parameter settings page.
Step 2 Enter parameter values as required.

No.	Parameter Name	Description
Low Voltage Ride Through (LVRT)		
1	UVnvoltage	The ratio of the ride-through voltage at the low-voltage ride-through characteristic point to the rated voltage. n=1,2,3,4,5,6,7.
2	UVnPoint time	The crossing time of the low voltage ride-through characteristic points during the LVRT process.n=1,2,3,4,5,6,7
3	Entering low voltage ride-through threshold	When Utility grid and voltage are between the low-voltage ride-through (LVRT) entry threshold and exit threshold, Inverter does not immediately disconnect from Grid disconnected.
4	Low voltage ride-through (LVRT) exit threshold	

No.	Parameter Name	Description
5	slopeK1	During the low voltage ride-through process, reactive power Power supportKCoefficient of value.
6	Zero-sequence mode enable	After enabling, the system outputs zero current during the low voltage ride-through process.
7	Entry threshold	Threshold for entering zero-sequence mode.
High Voltage Ride Through (HVRT)		
1	OVnvoltage	The ratio of the crossing voltage at the high-voltage ride-through characteristic point to the rated voltage during the high-voltage ride-through process. n=1,2,3,4,5,6,7.
2	OVnPoint time	The crossing time of high voltage ride-through characteristic points during the HVRT process.n=1,2,3,4,5,6,7.
3	Entering high voltage ride-through threshold	When Utility grid and voltage are between the high-voltage ride-through entry threshold and the exit threshold, Inverter does not immediately disconnect from Grid disconnected.
4	Exit high ride-through threshold	
5	slopeK2	During the high voltage ride-through process, reactive power Power support isKCoefficient of value.
6	Zero-sequence mode enable	During the high voltage ride-through process, the system outputs zero current.
7	Entry threshold	Threshold for entering zero-sequence mode.

7.3.8.6 Set Frequencyfault ride-through parameters

Step 1 Through**Home > Settings > Advanced Settings > Safety Parameter Settings > Frequencyfault Ride-Through**Enter the parameter settings page.
Step 2 Enter parameter values as required.

No.	Parameter Name	Description
1	ride-through enable	Enable Frequency ride-through function.
2	UFnpoint Frequency	Set underfrequencynFrequency of the pointn=1,2,3.
3	UFnPoint time	Set underfrequencynUnderfrequency time of the point.n=1,2,3.
4	OFnpoint Frequency	Set overfrequencynFrequency of the pointn=1,2,3.
5	OFnPoint time	Set over-frequencynOver-frequency time of the point.n=1,2,3.

7.3.9 Set generator/load control parameters

7.3.9.1 Set load control parameters

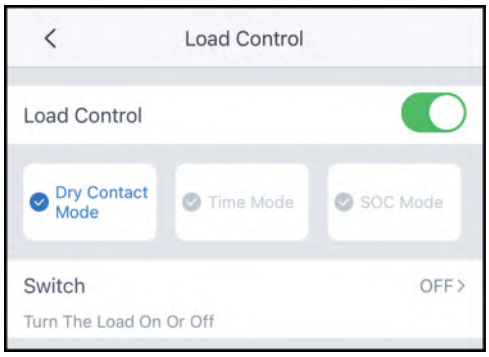
NOTICE

- When Inverter supports the load control function, the load can be controlled via the SolarGo App.
- For the ET40-50kW series Inverter, the load control function is only supported when the Inverter is paired with STS. The Inverter supports load control for GENERATOR port or load control for BACKUP LOAD port.
- For the ET50-100kW series Inverter, the load control function is only supported when the Inverter is paired with STS. Inverter supports SMART PORT port load control.

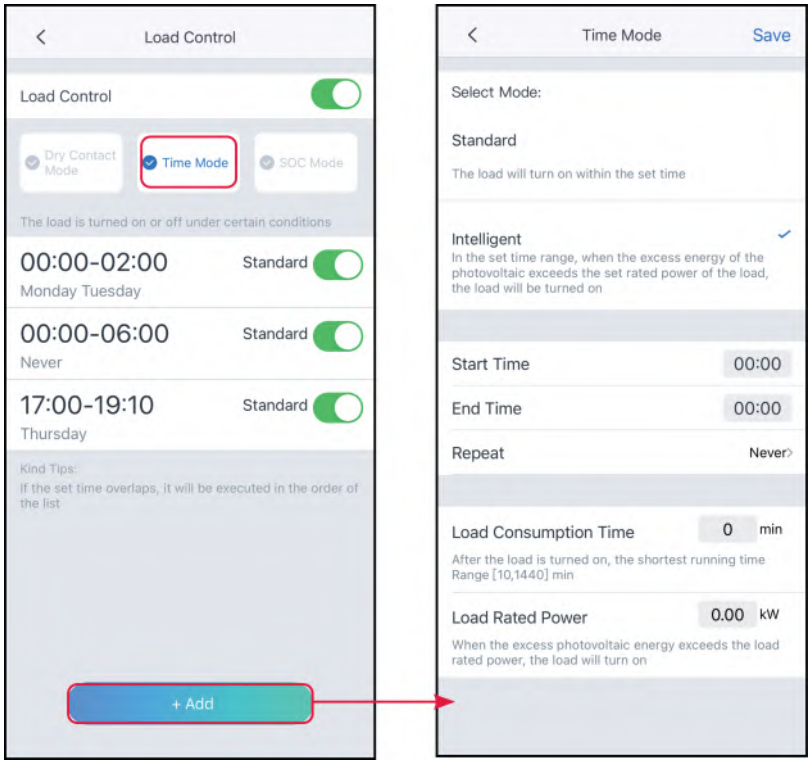
Step 1 Through**Home > Settings > port Connection**Enter the settings page.

Step 2 Based on the actual interface, select**load control**Enter the load control interface to set the control mode.

- Dry contact mode: When the switch status is set to ON, power supply to the load begins; when the switch status is set to OFF, power supply to the load stops. Please set the switch status to ON or OFF as required.



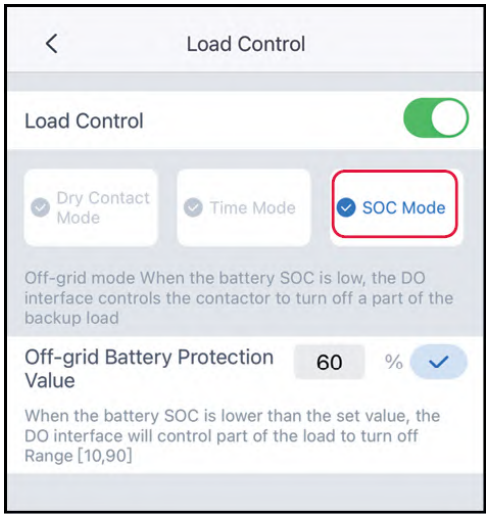
- Time Mode: Within the set time period, the load will automatically supply power to the load or POWER OFF. Standard mode or smart mode can be selected.



No.	Parameter Name	Description
1	Standard mode	It will supply power to the load during the set time period.

No.	Parameter Name	Description
2	Smart Mode	During the set time period, when the surplus energy generated by the photovoltaic system exceeds the preset load Nominal power, it begins to supply power to the load.
3	Turn-on time	The time mode will be activated during the period between the start time and the stop time.
4	Turn-off time	
5	Repeat	Set repeat Frequency.
6	Minimum load operation time	Minimum operating time after load is turned on to prevent frequent switching due to energy fluctuations. Only applicable in smart mode.
7	load Nominal power	When the surplus energy generated by the PV exceeds this load Nominal power, it starts supplying power to the load. This applies only to smart mode.

- SOC Mode: The Inverter built-in relay dry contact controls the port, enabling or disabling power supply to the load. In off-grid mode, if overload is detected at the BACK-UP or GENERATOR terminals, or if the Battery SOC Protection function is triggered, power supply to the load connected to the port can be stopped.



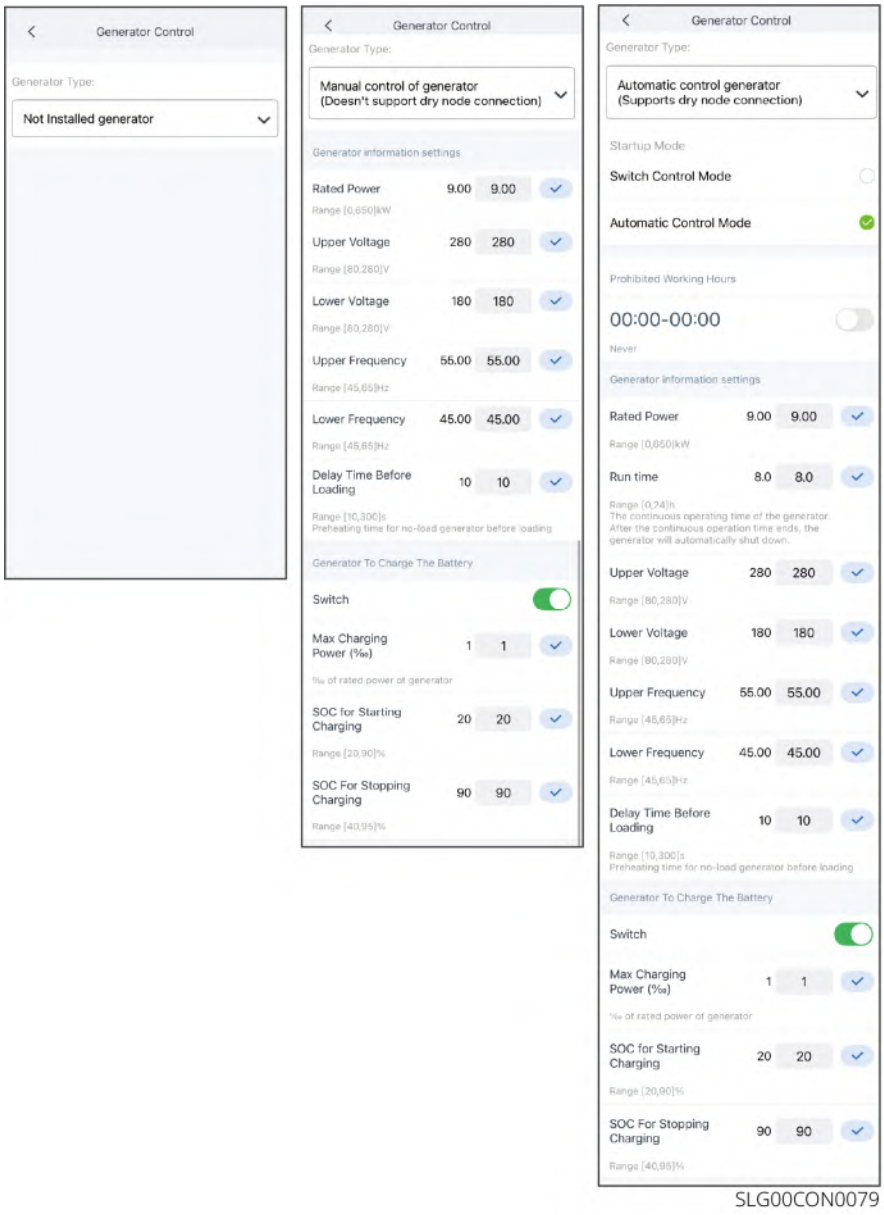
7.3.9.2 Set generator parameters

NOTICE

- When the Inverter supports generator control function, the generator can be controlled via the SolarGo App.
- For the ET40-50kW series Inverter, generator connection and control are only supported when the Inverter is used in conjunction with an STS.
- For the ET50-100kW series Inverter, generator access and control are only supported when the Inverter is paired with an STS.

Step 1 Through**Home > Settings > port Connection**Enter the settings page.
Step 2 Based on the actual interface prompts, enter the generator control interface and set the generator parameters according to specific requirements.
Step 3 When setting the generator control function, please select the generator type based on the actual connection situation. Currently supported:**Generator not connected, manual start/stop generator, automatic start/stop generator**And set the corresponding parameters according to the selected generator type.

- Generator not connected: Select "Generator not connected" when no generator is connected to energy storage system.
- Manual control of generator (dry contact connection not supported): Manual control is required for generator start/stop, Inverter cannot control generator start/stop.
- Automatic Control Generator (Supports Dry Contact Connection): When the generator has a dry contact control port and is connected to Inverter, the generator control mode in the SolarGo App should be set to switch control mode or automatic control mode for Inverter.
  - Switch control mode: When the switch status is on, the generator operates; the generator can automatically stop working after reaching the set operating time.
  - Automatic control mode: The generator is prohibited from operating during the set prohibited working time period and operates during the set operating time period.



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No.	Parameter Name	Description
1	Dry contact control method	Switch control mode/Automatic control mode.
Switch control mode		
2	Generator dry contact switch	Only applicable to switch control mode.
3	Operating time	Generator continuous operation time, the generator stops running after reaching the time.

No.	Parameter Name	Description
Automatic control mode		
4	No working during operation	Set the prohibited generator operation time period.
5	Operating time	After the generator starts and operates, it continues to run for the specified duration. Once the duration is reached, the generator stops operating. If the generator's operating period includes prohibited working hours, the generator will cease operation during that time. After the prohibited working hours, the generator resumes operation and the timing restarts.

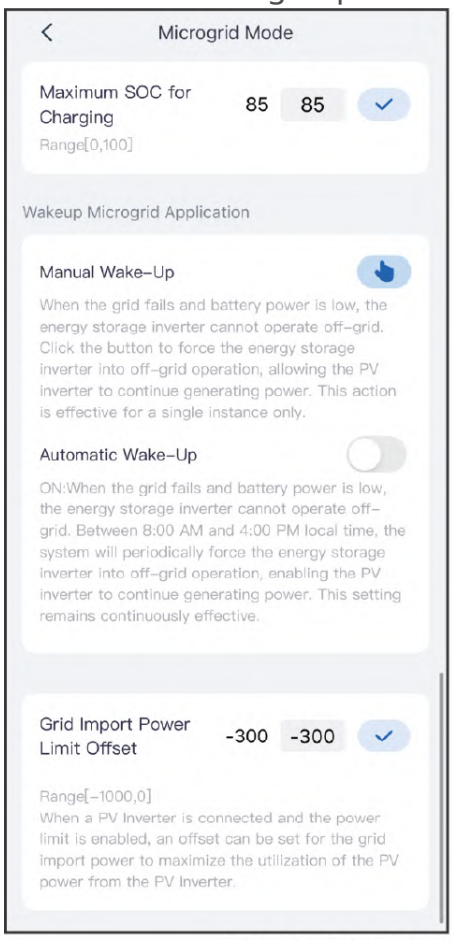
No.	Parameter Name	Description
Generator Information Settings		
1	Nominal power	Set the Nominal power for generator operation.
2	Operating time	Set the continuous operation time of the generator. The generator will be shut down once the continuous operation time is reached.
3	upper limit	Set the voltage range for generator operation.
4	lower limit	
5	upper limit	Set the AC Grid Frequency Range for generator operation.
6	Lower limit	
7	Preheating time	Set generator no-load warm-up time.
Generator parameter settings for Battery charge		
8	Switch	Choose whether to use the generator to supply power to Battery charge.
9	Max charge power(‰)	Generator power generation to Battery charge when the Charge Power.

No.	Parameter Name	Description
10	Start Charge SOC	When the Battery SOC is below this value, the generator supplies power to the Battery charge.
11	Stop Charge SOC	When the Battery SOC is higher than this value, stop charging the Battery charge.

7.3.9.3 Set microgrid parameters

NOTICE
When Inverter supports microgrid functionality, microgrid parameters can be configured via the SolarGo App.

Step 1 Through**Home > Settings > port Connection**Enter the settings page.
Step 2 Based on the actual interface prompts, enter the microgrid control interface and set the microgrid parameters according to actual requirements.



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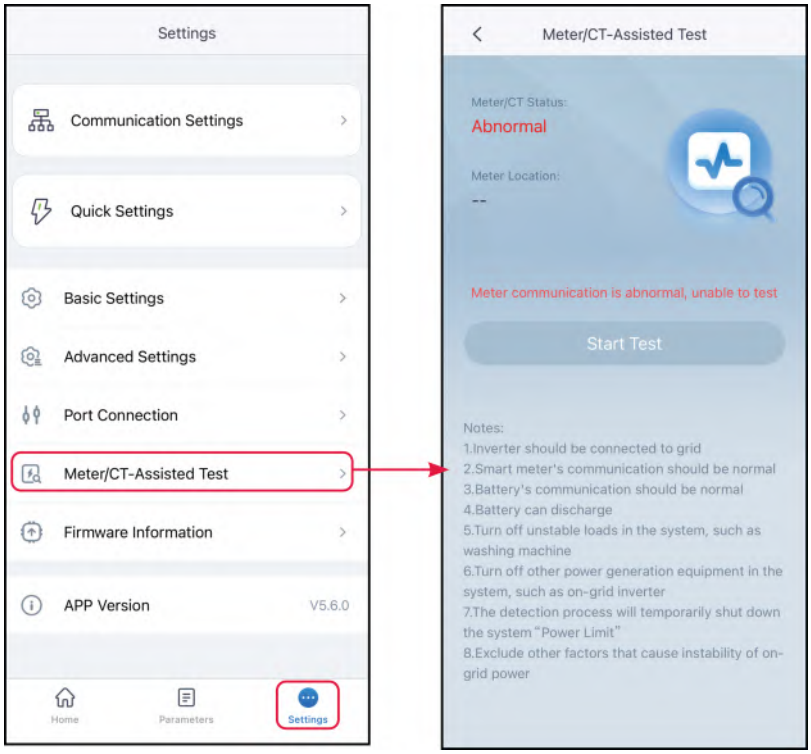
No.	Parameter Name	Description
1	Maximum SOC	Set the Charge SOC upper limit, and stop Charge once the upper limit is reached.
2	Manual wake-up	• When the Utility grid fault, if the Battery power level is too low to support the hybrid inverter off-grid operation, click this button to forcibly activate the hybrid inverter to output voltage to the grid-tied PV inverter, thereby starting the grid-tied PV inverter. • Single activation.
3	Auto wake-up	• Utility gridfault, if the Battery battery level is too low to support hybrid inverter off-grid operation. When this function is enabled, the system will forcibly activate the hybrid inverter to output voltage to the grid-tied PV inverter at a fixed time, thereby starting the grid-tied PV inverter. • Multiple activations.
4	Utility grid Power Purchase Power Bias Limitation	Set the adjustable range for the maximum Power that the equipment can actually purchase from Utility grid.

7.3.10 Set meter parameters

7.3.10.1 Electric Meter/CT Auxiliary Testing

Use the meter detection function to check whether the CT of the meter is correctly connected and its current operating status.
Step 1 Through**Homepage** > **Setting** > **Meter function** > **Electric Meter/CT Auxiliary Testing**Enter the detection page.
Step 2 Click**Start detection**After the test is completed, check the test results.



7.3.11 Equipment maintenance

7.3.11.1 View Firmware Information/Firmware Upgrade

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

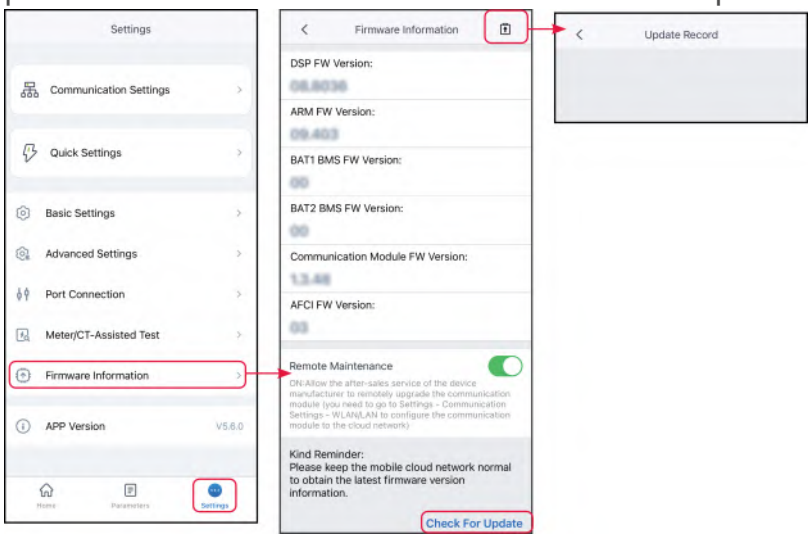
NOTICE
After logging in, if a firmware upgrade dialog box pops up, clicking on "Firmware Upgrade" will directly navigate you to the firmware information viewing interface.

7.3.11.1.1 Regular firmware upgrade

NOTICE

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

Step 1 Through**Home > Settings > Device Information**Enter the device information interface.
Step 2 When the device information indicates that a version update is available, please follow the on-screen instructions to complete the update.

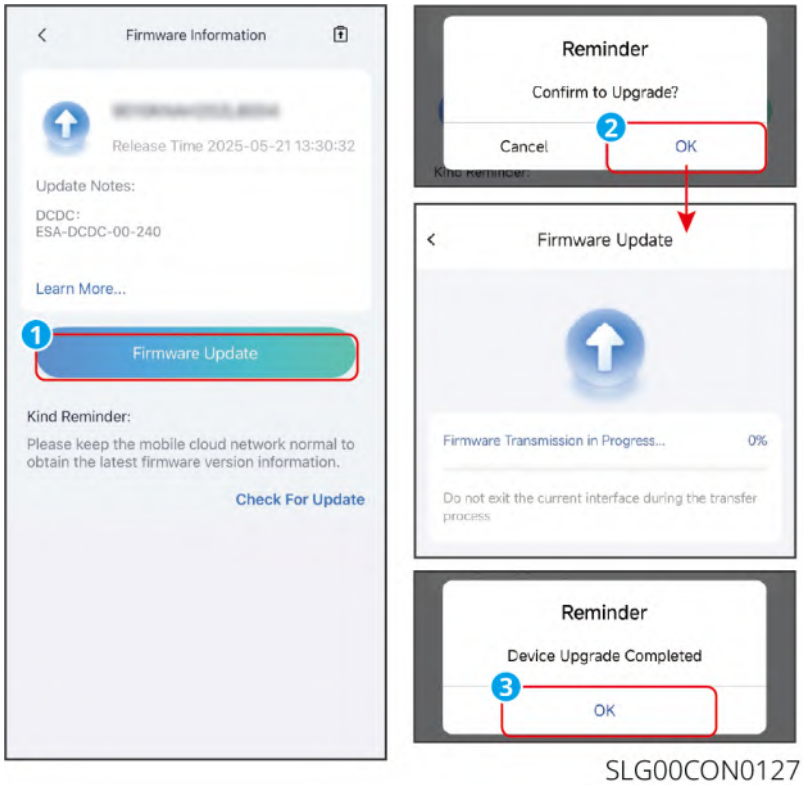


7.3.11.1.2 One-click firmware upgrade

NOTICE

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

Step 1 Through**Home > Settings > Device Information**Enter the device information interface.
Step 2 Complete the upgrade according to the interface prompts.



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7.3.11.1.3 Automatic firmware upgrade

NOTICE

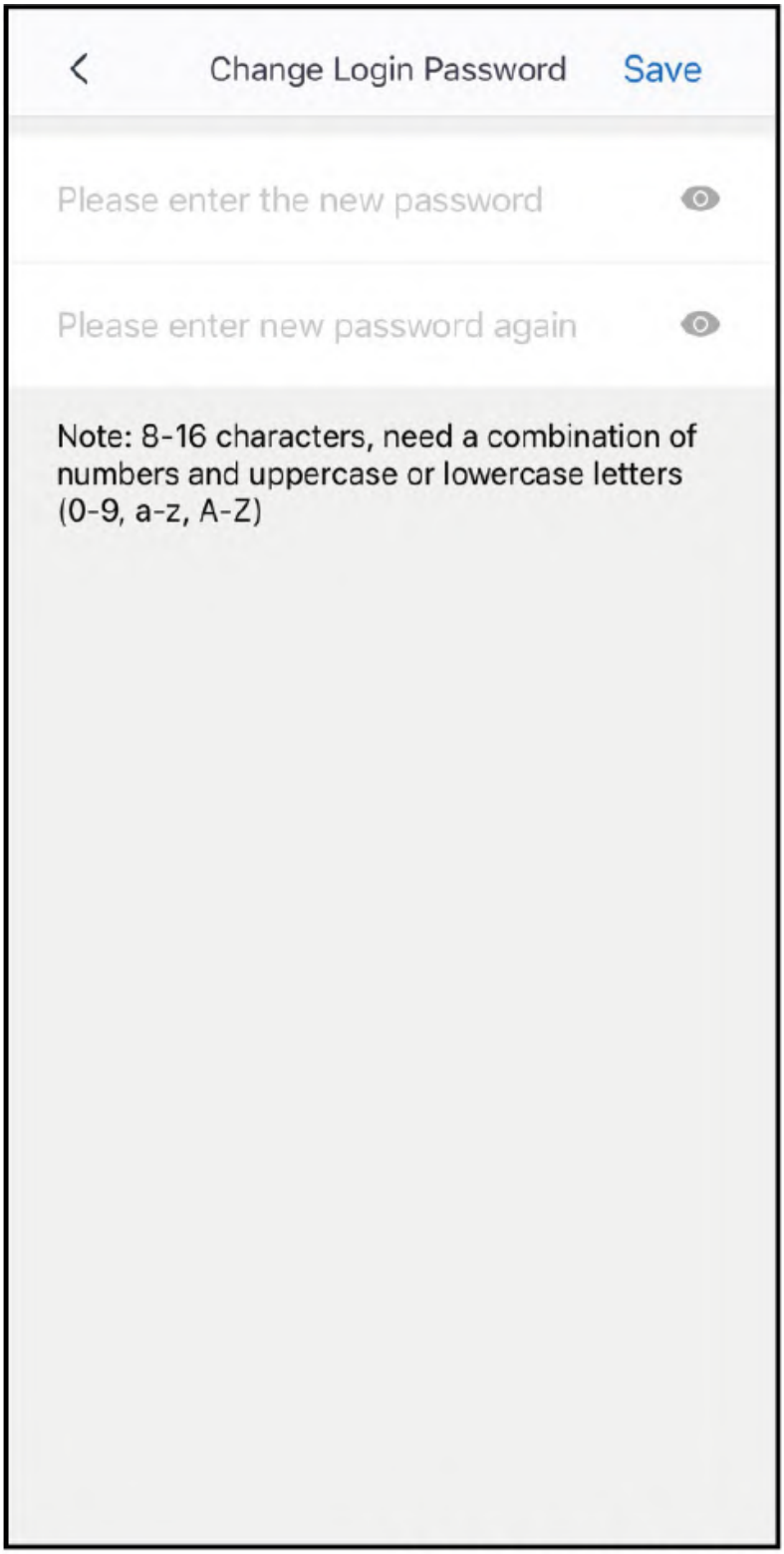
- When using the WiFi/LAN Kit-20 or WiFi Kit-20 module for communication, and the module firmware version is V2.0.1 or above, the device auto-upgrade function can be enabled.
- After enabling the automatic device upgrade feature, if there is a module version update and the device is already connected to the network, the corresponding firmware version will be automatically upgraded.

Step 1 Through**Home > Settings > Firmware Information**Enter the firmware information viewing interface.
Step 2 Enable or disable the automatic upgrade function of the equipment based on actual requirements.

7.3.11.2 Change login password

NOTICE
The login password for connecting the SolarGo App to Inverter can be modified. After changing the password, please remember it. If you forget the password, contact the after-sales service center for assistance.

Step 1 Through**Home > Settings > Change Login Password**Enter the settings page.
Step 2 Modify the password according to the actual situation.



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8 System Commissioning and Power Plant Monitoring

8.1 Setting Inverter Parameters via App

SEMS+ App is a software used for remote power station monitoring or local device debugging. It supports installers or owners:

- Remotely monitor the operation of the power station and set parameters for the station and equipment.
- Locally connect to devices, view device operation status, and set device parameters.

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

SEMS+ App User Manual

8.1.1 Download and Install SEMS+ App

Phone Requirements:

- Operating System: Android 7.0 or above, iOS 15.1 or above.
- Phone must have a web browser and be connected to the Internet.
- Phone must support WLAN/Bluetooth functionality.

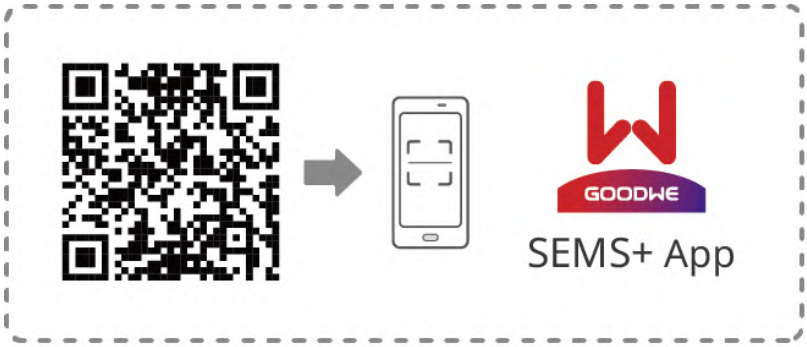
Download Methods:
Method 1:
Search for "SEMS+" in Google Play, App Store, Huawei, Honor, Xiaomi, OPPO, or vivo

app stores to download and install.

SEMS0163

Method 2:

Scan the QR code below to download and install.



SEMS0164

8.2 Power Plant Monitoring via SEMS+ WEB

SEMS+ WEB is a monitoring platform that communicates via WiFi or LAN. The following are the common functions of SEMS+ WEB:

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

For detailed functions, please refer to the "SEMS+ WEB User Manual".

"SEMS+ WEB User Manual"

9 Maintenance

9.1 Power OFF the System

⚠DANGER

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

NOTICE

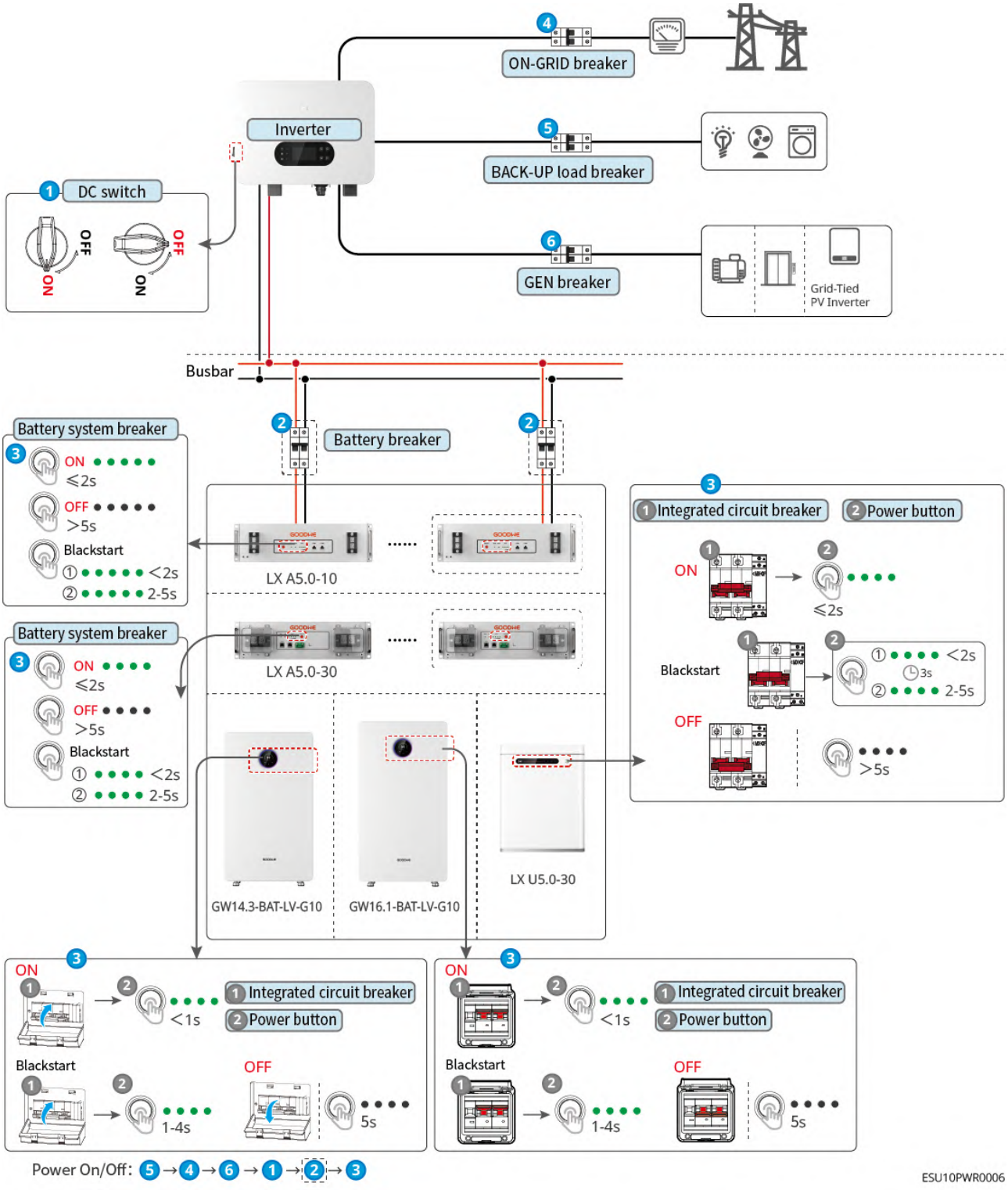
- The circuit breakers between the inverter and the battery, and between battery systems, must be installed according to local laws and regulations.
- To ensure effective protection of the battery system, keep the cover of the battery system switch closed. The protective cover should automatically close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

Power **OFF Process**

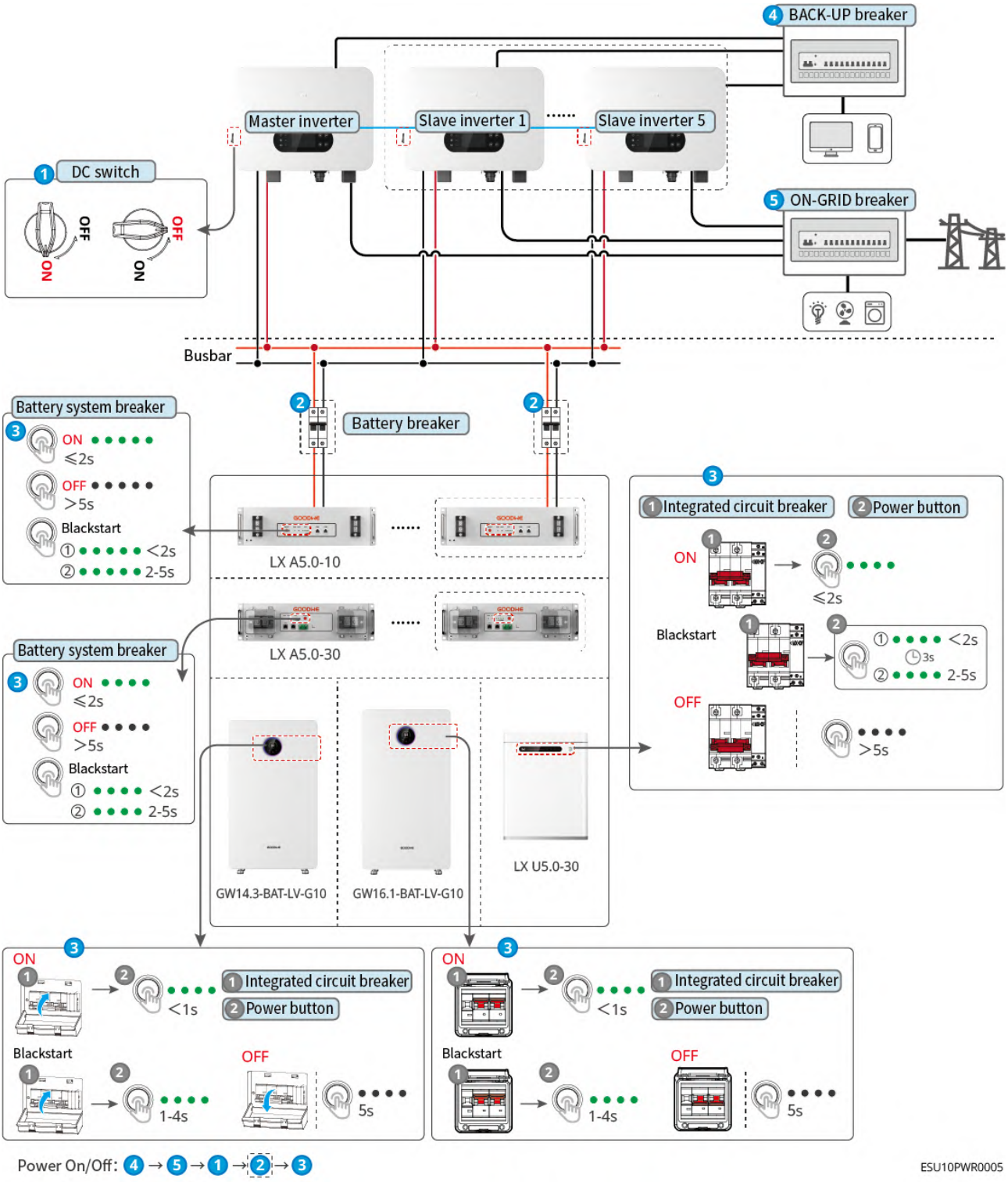
1. Disconnect the ON-GRID circuit breaker.
2. Disconnect the BACK-UP circuit breaker.
3. (Optional) Disconnect the GEN circuit breaker.
4. (Select according to local regulations) Disconnect the switch between the inverter and the battery.

5. Power OFF the battery system:
   a. LX A5.0-10, LX A5.0-30: Press and hold the battery multifunction button for more than 5 seconds.
   b. LX U5.0-30, GW14.3-BAT-LV-G10, GW16.1-BAT-LV-G10: Close the battery system integrated circuit breaker or press and hold the battery system button for 5 seconds or more, and the battery system integrated circuit breaker will automatically disconnect.
6. (Select according to local regulations) Disconnect the circuit breaker between the PV components and the inverter. Disconnect the DC switch of the inverter.

Single-unit System



Parallel System



9.2 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 the 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 again, ensure that the storage conditions meet the requirements.

9.3 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.

9.4 Routine Maintenance

⚠WARNING

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

Maintenance content	Maintenance Method	Maintenance cycle	Maintenance purpose
System Cleaning	Check for any foreign objects or dust in the heat sink, fan, and air inlet/outlet. Check if the Installation space meets the requirements, and inspect whether there is debris accumulation around the equipment.	Once every six months	Prevent heat dissipation.
System Installation	Check whether the equipment Installation is secure and whether the fasteners screw are loose. Check the equipment for any damage or deformation on the exterior.	Once every six months to once a year	Verify the stability of the equipment Installation.
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.
Sealing	Check whether the cable entry hole Sealing of the equipment meets the requirements. If the gap is too large or unsealed, reseal it.	Once per year	Confirm that the machine's sealing and waterproof performance are intact.

Maintenance content	Maintenance Method	Maintenance cycle	Maintenance purpose
Battery maintenance	If the Battery has not been used or fully charged for an extended period, it is recommended to perform regular Charge on the Battery.	Once/15 days	ProtectionBattery service life.

9.5 fault

9.5.1 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.

- **Option 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**

pass 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. pass 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.

9.5.2 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 files to assist in problem analysis.
3. Utility grid situation.

9.5.2.1 System Malfunction

If a problem not listed occurs with the system, or if following the instructions does not stop the problem or abnormality, immediately stop operating the system and contact your dealer at once.

No.	fault	Resolution
1	Unable to search for the Smart Communication Stick wireless signal	1. Ensure no other devices are connected to the Smart Communication Stick wireless signal. 2. Ensure the App has been upgraded to the latest version. 3. Ensure the Smart Communication Stick is powered normally, with the blue signal light blinking or solid on. 4. Ensure the smart device is within the communication range of the Smart Communication Stick. 5. Refresh the App device list. 6. Restart the inverter.
2	Unable to connect to the Smart Communication Stick wireless signal	1. Ensure no other devices are connected to the Smart Communication Stick wireless signal. 2. Restart the inverter or communication stick, then try connecting to the Smart Communication Stick wireless signal again. 3. Ensure Bluetooth pairing is successful and encrypted.

No.	fault	Resolution
3	 Ezlink indicator flashes twice	1. Ensure the router is powered on. 2. When using LAN communication, ensure the LAN cable connection is normal and communication configuration is correct. Enable or disable the DHCP function based on the actual situation. 3. When using WiFi communication, ensure the wireless network connection is normal and the wireless signal strength meets requirements. Enable or disable the DHCP function based on the actual situation.
4	 Ezlink indicator flashes four times	1. Ensure the communication stick is properly connected to the router via WiFi or LAN, and the router has normal internet access. 2. If the issue persists, contact the after-sales service center.
5	 Ezlink indicator is off	Ensure the inverter is powered on. If the issue persists, contact the after-sales service center.
6	 Ezlink indicator is off	Ensure the inverter is powered on.
7	Unable to find the router SSID	1. Place the router closer to the Smart Communication Stick, or add a WiFi repeater to enhance the WiFi signal. 2. Reduce the number of devices connected to the router.

No.	fault	Resolution
8	After all configurations are completed, the Smart Communication Stick fails to connect to the router	1. Restart the inverter. 2. Check if the network name, encryption method, and password in the WiFi configuration match those of the router. 3. Restart the router. 4. Place the router closer to the Smart Communication Stick, or add a WiFi repeater to enhance the WiFi signal.
9	After all configurations are completed, the Smart Communication Stick fails to connect to the server	Restart the router and the inverter.

9.5.2.2 Inverter Troubleshooting

Code	Fault	Causes	Troubleshooting Suggestions
F01	Utility Grid Power Off	1. Utility grid power fails. 2. The AC circuit or the AC breaker is disconnected.	1. The alarm is automatically cleared after the grid power supply is restored. 2. Check whether the AC cable is connected and the AC breaker is on.

Code	Fault	Causes	Troubleshooting Suggestions
F02	Grid Overvoltage Protection	The grid voltage is higher than the permissible range or the high voltage duration exceeds the high voltage ride through setting.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If it occurs frequently, please check if the grid voltage is within the allowable range. • Contact the local power company if the grid voltage exceeds the permissible range. • Modify the overvoltage protection threshold, HVRT or disable the overvoltage protection function after obtaining the consent of the local power company if the grid frequency is within the permissible range. 3. Check whether the AC breaker and the output cables are connected securely and correctly if the problem persists.

Code	Fault	Causes	Troubleshooting Suggestions
F03	Grid Undervoltage Protection	The grid voltage is lower than the permissible range, or the duration of low voltage exceeds the requirement of LVRT.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If it occurs frequently, please check if the grid voltage is within the allowable range. • Contact the local power company if the grid voltage exceeds the permissible range. • Modify the undervoltage protection threshold, LVRT or disable the undervoltage protection function after obtaining the consent of the local power company if the grid frequency is within the permissible range. 3. Check whether the AC breaker and the output cables are connected securely and correctly if the problem persists.

Code	Fault	Causes	Troubleshooting Suggestions
F04	Grid Rapid Overvoltage Protection	The fault is triggered when the grid voltage is detected to be abnormal or ultrahigh.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If it occurs frequently, please check if the grid voltage is within the allowable range. • Contact the local power company if the grid voltage exceeds the permissible range. • Modify the undervoltage protection threshold, LVRT or disable the undervoltage protection function after obtaining the consent of the local power company if the grid frequency is within the permissible range. 3. Check whether the AC breaker and the output cables are connected securely and correctly if the problem persists.

Code	Fault	Causes	Troubleshooting Suggestions
F05	10min Overvoltage Protection	The moving average of grid voltage in 10min exceeds the range of safety requirements.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting the grid is normal. 2. Check if the grid voltage is running at a high voltage for a long time. If it occurs frequently, please check if the grid voltage is within the allowable range. • Contact the local power company if the grid voltage exceeds the permissible range. • If the grid voltage is within the allowable range, please modify the 10min overvoltage protection value with the consent of the local power operator.

Code	Fault	Causes	Troubleshooting Suggestions
F06	Grid Overfrequency Protection	Utility grid exception. The actual grid frequency exceeds the requirement of the local grid standard.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If the problem occurs frequently, check whether the grid frequency is within the permissible range. • Contact the local power company if the grid frequency exceeds the permissible range. • Modify the grid overfrequency protection threshold after obtaining the consent of the local power company if the grid frequency is within the permissible range.

Code	Fault	Causes	Troubleshooting Suggestions
F07	Grid Underfrequency Protection	Utility grid exception. The actual grid frequency is lower than the requirement of the local grid standard.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If the problem occurs frequently, check whether the grid frequency is within the permissible range. • Contact the local power company if the grid frequency exceeds the permissible range. • Modify the grid overfrequency protection threshold after obtaining the consent of the local power company if the grid frequency is within the permissible range.

Code	Fault	Causes	Troubleshooting Suggestions
F08	Grid Frequency Shift Protection	Utility grid exception. The actual grid frequency change rate does not meet the requirement of the local grid standard.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If the problem occurs frequently, check whether the grid frequency is within the permissible range. • Contact the local power company if the grid frequency exceeds the permissible range. • Contact the dealer or the after-sales service if the grid frequency is within the permissible range.

Code	Fault	Causes	Troubleshooting Suggestions
F163	Grid Phase Shift Protection	Utility grid exception. Grid voltage phase change rates do not meet local grid standards.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If the problem occurs frequently, check whether the grid frequency is within the permissible range. • Contact the local power company if the grid frequency exceeds the permissible range. • Contact the dealer or the after-sales service if the grid frequency is within the permissible range.

Code	Fault	Causes	Troubleshooting Suggestions
F09	Anti-islanding	The utility grid is disconnected. The utility grid is disconnected according to the safety regulations, but the grid voltage is maintained due to the loads.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If the problem occurs frequently, check whether the grid frequency is within the permissible range. • Contact the local power company if the grid frequency exceeds the permissible range. • Contact the dealer or the after-sales service if the grid frequency is within the permissible range.
F10	VRT Undervoltage Fault	Utility grid exception. The duration of the grid voltage abnormality exceeds the time specified for high and low penetration.	

Code	Fault	Causes	Troubleshooting Suggestions
F11	VRT Overvoltage Fault	Utility grid exception. The duration of the grid voltage abnormality exceeds the time specified for high and low penetration.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If the problem occurs frequently, check whether the voltage and frequency of the power grid are within the permissible range and stable. If no, contact the local power operator; If yes, please contact the local service center.
F43	Voltage Waveform Detection Fault	Utility grid exception. Abnormal grid voltage detection triggers a fault.	
F44	Grid Phase Loss Protection	Utility grid exception. There is a single phase drop in the grid voltage.	

Code	Fault	Causes	Troubleshooting Suggestions
F45	Grid Voltage Unbalance	Excessive differences in grid phase voltages.	1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal. 2. If it occurs frequently, please check whether the voltage and frequency of the power grid are within the permissible range and stable, if not, please contact your local power operator; if yes, please contact your dealer or after-sales service center.
F46	Grid Phase Sequence Fault	Inverter-Grid Connection Abnormality: Incorrect Phase Sequence Wiring	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 phase wires), the fault will automatically disappear. 2. If the wiring is correct and fault persists, please contact the dealer or GoodWe Customer Service Center.

Code	Fault	Causes	Troubleshooting Suggestions
F47	Grid Rapid Overvoltage Protection	Quickly shut down the output upon detecting the grid disconnected operating condition.	1. The fault automatically disappears after the grid power supply is restored.
F48	Utility grid neutral line loss	Neutral Loss in Split-Phase Power Grid	1. The alarm is automatically cleared after the grid power supply is restored. 2. Check whether the AC cable is connected and the AC breaker is on.
F160	EMS/Forced Off-Grid	EMSIssue a forced off-grid command, but the off-grid function is not enabled.	Enable off-grid function
F161	Passive Anti-islanding	-	-
F162	Grid Type Fault	Actual grid type (two-phase or split-phase) and safety regulations settings do not match.	Switch to the corresponding safety regulations according to the actual power grid type.

Code	Fault	Causes	Troubleshooting Suggestions
F12	30mAGfci Protection	The input insulation impedance to the ground becomes low when the inverter is working.	1. If occurs occasionally, it may be caused by a cable exception. The inverter will recover automatically after the problem is solved. 2. Check whether the impedance between the PV string and PE is too low if the problem occurs frequently or persists.
F13	60mAGfci Protection	The input insulation impedance to the ground becomes low when the inverter is working.	1. If occurs occasionally, it may be caused by a cable exception. The inverter will recover automatically after the problem is solved. 2. Check whether the impedance between the PV string and PE is too low if the problem occurs frequently or persists.
F14	150mAGfci Protection	The input insulation impedance to the ground becomes low when the inverter is working.	1. If occurs occasionally, it may be caused by a cable exception. The inverter will recover automatically after the problem is solved. 2. Check whether the impedance between the PV string and PE is too low if the problem occurs frequently or persists.

Code	Fault	Causes	Troubleshooting Suggestions
F15	Gfci Slow Change Protection	The input insulation impedance to the ground becomes low when the inverter is working.	1. If occurs occasionally, it may be caused by a cable exception. The inverter will recover automatically after the problem is solved. 2. Check whether the impedance between the PV string and PE is too low if the problem occurs frequently or persists.
F16	DCI Protection L1 Protection	The DC component of the output current exceeds the safety range or default range.	1. If the exception is caused by an external fault, the inverter will recover automatically after solving the problem. 2. If the problem occurs frequently and the PV station cannot work properly, contact the dealer or the after-sales service.
F17	DCI Protection L2 Protection	The DC component of the output current exceeds the safety range or default range.	1. If the exception is caused by an external fault, the inverter will recover automatically after solving the problem. 2. If the problem occurs frequently and the PV station cannot work properly, contact the dealer or the after-sales service.

Code	Fault	Causes	Troubleshooting Suggestions
F18	Low Insulation Resistance	1. The PV string is short-circuited to PE. 2. The installation environment of PV strings is relatively humid for a long time and the insulation of PE cable is poor. 3. The battery port circuit has low insulation resistance to ground.	1. Check whether the resistance of the PV string to PE exceeds 50kΩ. If no, check and rectify the short circuit point. 2. Check whether the PE cable is connected correctly. 3. If you confirm that the impedance is indeed lower than the default value in rainy weather conditions, please reset the inverter's “insulation impedance protection point” via the SolarGo APP. Inverters for the Australian and New Zealand markets can also be alerted in the following ways in the event of insulation impedance failure: 1. The inverter is equipped with the buzzer: the buzzer sounds continuously for 1 minute in case of failure; If the fault is not resolved, the buzzer sounds every 30 minutes. 2. Add the inverter to the monitoring platform, and set the alarm reminder, the alarm information can be sent to the customer by

Code	Fault	Causes	Troubleshooting Suggestions
			emails.
F19	System Grounding Abnormality	1. The PE cable of the inverter is not connected. 2. When the output of the PV string is grounded, the output side of inverter is not connected to an isolation transformer.	1. Please confirm if the PE cable of the inverter is properly connected. 2. In the scenario where the output of PV String is grounded, please confirm whether an isolation transformer is connected on the output side of Inverter.
F49	L-PE Short Circuit	Low resistance or short circuit between the output phase cable and PE.	Detect output phase line to PE impedance, identify locations with low impedance and repair them.
F50	DCV Protection L1 Protection	Abnormal fluctuation of load	1. If the exception is caused by an external fault, the inverter will recover automatically after solving the problem. 2. If this alarm occurs frequently and the PV station cannot work properly, contact the dealer or the after-sales service.

Code	Fault	Causes	Troubleshooting Suggestions
F51	DCV Protection L2 Protection	Abnormal fluctuation of load	1. If the exception is caused by an external fault, the inverter will recover automatically after solving the problem. 2. If this alarm occurs frequently and the PV station cannot work properly, contact the dealer or the after-sales service.
F20	Anti Reverse Power Failure	Abnormal fluctuation of load	1. If the exception is caused by an external fault, the inverter will recover automatically after solving the problem. 2. If this alarm occurs frequently and the PV station cannot work properly, contact the dealer or the after-sales service.
F21	Internal Comm Loss	Reference specific subcode reasons	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F52	Multiple Fault Shutdowns Due to Leakage Current (GFCI)	North American safety regulations require multiple failures can not be automatically recovered, you need to manually or wait for 24h recovery.	1. Check if the PV String to ground impedance is too low.
F53	Multiple Fault Shutdowns Due to DC Arc Fault (AFCI)	North American safety regulations require multiple failures can not be automatically recovered, you need to manually or wait for 24h recovery.	1.After the machine is re-on grid, check whether the voltage current of each circuit is abnormally reduced to zero; 2.Check whether the DC side terminal is securely connected.
F54	Extern Comm Loss	Inverter external device communication loss, may be peripheral power supply problems, communication protocol mismatch, not configure the appropriate peripheral, etc.	Judgment is based on the actual model and the detection enable bit, some models do not support the peripheral will not be detected.
F55	Back-up Port Overload Fault	1. Prevent the Inverter from continuous overload output.	1. Disconnect some off-grid loads to reduce the off-grid output power of the inverter.

Code	Fault	Causes	Troubleshooting Suggestions
F56	Back-up Port 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 the problem occurs frequently, contact the dealer or the after-sales service.
F107	On-grid PWM Sync Fault	Abnormal occurrence in carrier synchronization on-grid	1. Check if the synchronization line connection is normal. 2. Check whether the master-slave settings are normal; 3. Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F57	External Box Fault	Excessive waiting time for Box cut relay when switching on-grid to off-grid	1. Check whether the Box is working properly; 2. Check whether the Box communication wiring is correct;

Code	Fault	Causes	Troubleshooting Suggestions
-	Generator Fault	1. 1. This fault will always be displayed when the generator is not connected. 2. During generator operation, failure to meet generator safety regulations will trigger this fault.	1. 1. Ignore the fault when the generator is not connected. 2. The occurrence of fault in the generator under fault conditions is normal. After the generator recovers, wait for a period of time, and the fault will automatically clear. 3. The fault will not affect the normal operation of the off-grid mode. 4. The generator and Utility grid are connected simultaneously and meet the safety requirements, with utility grid taking priority for on-grid, operating in the Utility grid on-grid state.
F22	Voltage Waveform Detection Fault		
F23	Generator abnormal connection		
F24	Generator Low Voltage		
F25	Generator High Voltage		
F26	Generator Low Frequency		
F27	Generator		
F109	External STS Failure	Inverter and STS connection cable abnormality	Check that the harness connection wire sequence between the inverter and STScorresponds in one-to one sequence.
F58	CT Loss Fault	CT connecting wire disconnection (required by Japanese safety regulations)	1. Check whether the CT wiring is correct.

Code	Fault	Causes	Troubleshooting Suggestions
F110	Anti Reverse Power Failure	1. Inverter fault reporting and grid disconnection. 2. Meter communication instability 3. Reverse flow conditions occur	1. Check if there are any other error messages in inverter. If so, perform targeted troubleshooting. 2. Check if meter connection is normal. 3. If the problem occurs frequently and the PV station cannot work properly, contact the dealer or the after-sales service.
F111	Bypass Overload	-	-
F112	Black Start Failure	-	-
F28	Parallel IO check fail	The parallel communication cable is not firmly connected or the parallel IO chip is damaged.	Check if the parallel communication cable is firmly connected, then inspect whether the IO chip is damaged; if so, replace the IO chip.
F59	CAN Communication of parallel inverters in error	Parallel communication cable is not securely connected or some units are not online.	Check whether the parallel communication cable is connected correctly and firmly.
F29	Parallel Grid Line Reversed	Some machines have grid wires reversed from others.	Rewire the grid.

Code	Fault	Causes	Troubleshooting Suggestions
F60	ParallelBack-upConnection Reversed	Some machines have backup wires reversed from others.	Reconnect the backup Cable.
F61	Inverter Soft Start Failure	Inverter Soft Start Failure During Off-Grid Cold Start	Check if the inverter module of the equipment is damaged.
F113	Off-Grid Output Transient Overvoltage Fault	-	-
F30	AC HCT Check Abnormality	The sampling of the AC HCT is abnormal.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F62	AC Current Sensor Fault	The sampling of HCT is abnormal.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F31	GFCI HCT Check Abnormality	The sampling of the GFCI HCT is abnormal.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on 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	Leakage Current Sensor Fault	GFCI HCT is abnormal.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F32	Relay Check Abnormality	Relay abnormal, reasons are as follows: 1. Relay abnormality (short-circuited) 2. The relay sampling circuit is abnormal. 3. The AC cable is connected improperly, like a virtual connection or short circuit.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F64	Relay Fault	1. Relay abnormality (short-circuited) 2. The relay sampling circuit is abnormal. 3. The AC cable is connected improperly, like a virtual connection or short circuit.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on 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 (String17~32)	1. The DC side connection terminal is loose; 2. The DC side connection terminals are falsely connected; 3. The DC cable core breakage and false connection.	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.
F165	DC Arc Fault (String33~48)	1. The DC side connection terminal is loose; 2. The DC side connection terminals are falsely connected; 3. The DC cable core breakage and false connection.	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.

Code	Fault	Causes	Troubleshooting Suggestions
F33	Flash Read/Write Fault	Causes are possibly as follows: Flash content has changed; flash life is exhausted;	1. Upgrade the latest version of the program. 2. Contact the dealer or the after-sales service.
F42	DC Arc Fault (String1~16)	1. The DC side connection terminal is loose; 2. The DC side connection terminals are falsely connected; 3. The DC cable core breakage and false connection.	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.
F34	AFCI Self-test Fault	The arc-pulling module does not detect an arc-pulling fault during the arc pulling self-test.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F65	AC terminal temperature is too high, causes are possibly as follows:	AC terminal temperature is too high, causes are possibly as follows: 1. The inverter is installed in a place with poor ventilation. 2. The ambient temperature is too high. 3. A fault occurs in the internal fan of the inverter.	1. Check whether the installation location of the inverter has good ventilation and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If there is poor ventilation or the ambient temperature is too high, please improve its ventilation and heat dissipation conditions. 3. If both the ventilation and the ambient temperature are proper, please contact the dealer or after-sales service.
F35	Cavity Overtemperature	Cavity temperature is too high, causes are possibly as follows: 1. The inverter is installed in a place with poor ventilation. 2. The ambient temperature is too high. 3. A fault occurs in the internal fan of the inverter.	

Code	Fault	Causes	Troubleshooting Suggestions
F66	INV Module Over-temperature	Inverter module temperature is too high, causes are possibly as follows: 1. The inverter is installed in a place with poor ventilation. 2. The ambient temperature is too high. 3. A fault occurs in the internal fan of the inverter.	
F67	Boost Module Over-temperature	Boost module temperature is too high, causes are possibly as follows: 1. The inverter is installed in a place with poor ventilation. 2. The ambient temperature is too high. 3. A fault occurs in the internal fan of the inverter.	

Code	Fault	Causes	Troubleshooting Suggestions
F68	Output Filter Capacitor Over-temperature	Output filter capacitor temperature is too high, causes are possibly as follows: 1. The inverter is installed in a place with poor ventilation. 2. The ambient temperature is too high. 3. A fault occurs in the internal fan of the inverter.	
F114	Relay Fault 2	Relay abnormal, reasons are as follows: 1. Relay abnormality (short-circuited) 2. The relay sampling circuit is abnormal. 3. The AC cable is connected improperly, like a virtual connection or short circuit.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F69	PV IGBT Short-Circuit Fault	Causes are possibly as follows: 1. IGBT short circuit 2. The inverter sampling circuit is abnormal.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F70	3.IGBT open circuit Fault	1. A software problem caused the wave not to be sent. 2. The drive circuit is abnormal. 3.IGBT open circuit	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on 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	NTC Abnormal l	Abnormal NTC temperature sensor	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F72	Waveform Generation Abnormality Fault	Abnormal waveform appears in PWM	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F73	CPU Interruption anomaly occurred	CPU Interruption anomaly occurred	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on 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 Fault	Functional safety detects an anomaly.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F75	PV HCT Fault	Abnormal boost current sensor	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on 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 Ref Abnormality	The reference circuit is abnormal.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F77	0. 3V Ref Abnormality	The reference circuit is abnormal.	
F78	CPLD version identification error	CPLD version identification error	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F79	CPLD Communication Fault	CPLD and DSP communication content error or timeout	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F80	Troubleshooting model recognition error	Troubleshooting about model recognition error	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on 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	SVG precharge hardware failure	SVG precharge hardware failure	Contact the dealer or the after-sales service.
F116		PID prevent hardware anomaly	Contact the dealer or the after-sales service.
F117	DSP version identification error	DSP version identification error	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F36	BUS Overvoltage	Causes are possibly as follows: 1. The PV voltage is too high; 2. Inverter BUS Voltage Sampling Abnormality; 3. The isolation of the transformer of the inverter is poor, so two inverters influence each other when connected to the grid. One of the inverters reports DC overvoltage;	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on 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	BUS Overvoltage (Slave CPU 1)		
F84	P-BUS Overvoltage (Slave CPU 1)		
F85	N-BUS Overvoltage (Slave CPU 1)		
F86	BUS Overvoltage (Slave CPU 1)		
F87	P-BUS Overvoltage (Slave CPU 1)		
F88	N-BUS Overvoltage (Slave CPU 1)		
F89	P-BUS Overvoltage(CPLD)		
F90	N-BUS Overvoltage(CPLD)		

Code	Fault	Causes	Troubleshooting Suggestions
F118	MOS Continuous Overvoltage	1. Software issue causes the inverter drive to shut down earlier than the flyback drive; 2. Inverter drive circuit abnormality causes failure to turn on; 3. PV voltage is too high; 4. Mos voltage sampling anomaly.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F119	BUS Short-Circuit Fault	1. The hardware is damaged.	If the inverter continues to be off-grid after a BUS short-circuit fault occurs, please contact your dealer or after-sales service center.
F120	Busbar Sampling Abnormality	1. Bus voltage sampling hardware failure.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F121	DC Side Sampling Abnormality	1. Bus voltage sampling hardware failure 2. Battery voltage sampling hardware failure 3. Dcrly relay failure	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F37	PV Input Overvoltage	The PV input voltage is too high. Causes are possibly as follows: Incorrect photovoltaic array configuration, with too many PV Battery panels connected in series in the string, causing the string's open-circuit voltage to exceed the maximum operating voltage of the Inverter.	Check the serial connection of the PV array. Make sure that the open circuit voltage of the PV string is not higher than the maximum operating voltage of the inverter. The inverter alarm disappears automatically when the PV array is configured correctly.
F38	PV Continuous Hardware Overcurrent	1. The PV configuration is not proper. 2. The hardware is damaged.	

Code	Fault	Causes	Troubleshooting Suggestions
F39	PV Continuous Software Overcurrent	1. The PV configuration is not proper. 2. The hardware is damaged.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F91	FlyCap Software Overvoltage	FlyCap overvoltage. Causes are possibly as follows: 1. The PV voltage is too high; 2. Inverter BUS Voltage Sampling Abnormality	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, close the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F92	FlyCap Hardware Overvoltage	FlyCap overvoltage. Causes are possibly as follows: 1. The PV voltage is too high; 2. Inverter BUS Voltage Sampling Abnormality	
F93	FlyCap undervoltage.	FlyCap undervoltage. Causes are possibly as follows: 1. PV Energy deficit; 2. Inverter BUS Voltage Sampling Abnormality	

Code	Fault	Causes	Troubleshooting Suggestions
F94	FlyCap pre-charge failure.	FlyCap pre-charge failure. Causes are possibly as follows: 1. PV Energy deficit; 2. Inverter BUS Voltage Sampling Abnormality	
F95	FlyCap pre-charge failure.	1. Unreasonable control loop parameters 2. The hardware is damaged.	
F96	PV String Lost (String 1~ 16)	Causes are possibly as follows: 1. String overcurrent. 2. String current sensor abnormality.	
F97	PV String Lost (String 17~ 32)		
F40	String Reversed (String 1~ 16)	The PV strings are connected reversely.	Check whether PV strings are connected reversely.

Code	Fault	Causes	Troubleshooting Suggestions
F98	String Reversed (String 17~ 32)	The PV strings are connected reversely.	Check whether PV strings are connected reversely.
F99	PV String Lost (String 1~ 16)	String fuse disconnected (if applicable).	Check if the fuse is disconnected.
F100	PV String Lost (String 17~ 32)	String fuse disconnected (if applicable).	Check if the fuse is disconnected.
F122	Incorrect PV Access Mode Setting	There are three modes of PV access modes, taking the four-way MPPT as an example: 1. Parallel mode: i.e.AAAAmode(homogenous mode)，PV1-PV4homogenous4 wayPVconnected to the same PV panel. 2. Partial parallel mode: i.e.AACCmode, PV1andPV2are	Check that the PV access mode is set correctly (ABCD, AACC, AAAA) and reset the PV access mode in the correct way. 1. Confirm that the actual access to each PV is properly connected. 2. If the PV has been connected correctly, check whether the currently set “PV Access Mode” corresponds to the actual access mode through APP or screen. 3. If the currently set “PV

Code	Fault	Causes	Troubleshooting Suggestions
		connected in the same source,PV3andPV4 are connected in the same source. 3. Independent mode: i.e.ABCDmode(non homologous)，PV1、PV2、PV3、PV4are connected independently, and each of the four-way PV is connected to a photovoltaic panel. This fault is reported if the actual access mode of the PV does not match the PV access mode set by the device.	access mode” does not match the actual access mode, you need to set the “PV access mode” to a mode that matches the actual situation through APP or screen, and then disconnect the PV and AC power supply and restart after the setup is completed. 4. After the setting is completed, if the current "PV access mode" is consistent with the actual access mode, but this fault is still reported, please contact the dealer or after-sales service center.
-	String Reversed (String 33~ 48)	The PV strings are connected reversely.	Check whether PV strings are connected reversely.

Code	Fault	Causes	Troubleshooting Suggestions
-	PV String Lost (String 33~ 48)	String fuse disconnected (if applicable).	Check if the fuse is disconnected.
-	PV String Lost (String 33~ 48)	Causes are possibly as follows: 1. String overcurrent. 2. String current sensor abnormality.	

Code	Fault	Causes	Troubleshooting Suggestions
F123	Multi-channel PV Phase Error	Incorrect PV Input Mode Setting	Verify that the PV connection mode is correctly set (ABCD, AACC, AAAA), and reconfigure the PV connection mode according to the correct settings. 1. Confirm that all PV connections are properly connected. 2. If the PV connections are correct, use the app or screen to verify that the currently set “PV connection mode” matches the actual connection mode. 3. If the currently set “PV connection mode” does not match the actual connection mode, use the app or screen to set the “PV connection mode” to match the actual situation. After setting, disconnect the PV from AC power and restart. 4. After setting, if the current “PV connection mode” matches the actual connection mode but the fault persists, please contact the dealer or GoodWe After-Sales Service Center.

Code	Fault	Causes	Troubleshooting Suggestions
F101	Battery 1 Pre-charging Fault	Battery 1 precharge circuit failure (burnt precharge resistor, etc.)	Check whether the pre-charging circuit is good, whether the battery voltage and bus voltage are consistent after powering up the battery only, if not, please contact the dealer or GoodWe after-sales service center.
F102	Battery 1 Relay Fault	Battery 1 relay does not operate properly.	After the battery is powered up, check if the battery relay works and if you hear a closing sound, if it does not work, please contact your dealer or GoodWe after sales service center.
F103	Battery1 Connection Overvoltage	Battery 1 access voltage exceeds the rated range of the machine.	Verify that the battery voltage is within the rated range of the machine.
F104	Battery 2 Pre-charging Fault	Battery 2 precharge circuit failure (burnt precharge resistor, etc.)	Check whether the pre-charging circuit is good, whether the battery voltage and bus voltage are consistent after powering up the battery only, if not, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F105	Battery 2 Relay Fault	Battery 2 relay does not operate properly.	After the battery is powered up, check if the battery relay works and if you hear a closing sound, if it does not work, please contact your dealer or GoodWe after sales service center.
F106	Battery2 Connection Overvoltage	Battery 2 access voltage exceeds the rated range of the machine.	Verify that the battery voltage is within the rated range of the machine.
F124	Battery1 Reverse Connection Fault	Battery 1 positive and negative are connected reversely.	Check the battery and machine terminals for positive and negative consistency.
F125	Battery2 Reverse Connection Fault	Battery 2 positive and negative are connected reversely.	Check the battery and machine terminals for positive and negative consistency.
F126	Battery abnormal connection	Battery abnormal connection	Check whether the battery is working properly.
-	BMS Status Bit Fault	BMS Module Fault	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.

Code	Fault	Causes	Troubleshooting Suggestions
F127	Battery Heat Exchanger Overtemperature	Battery temperature is too high. Causes are possibly as follows: 1. The inverter is installed in a place with poor ventilation. 2. The ambient temperature is too high. 3. A fault occurs in the internal fan of the inverter.	
F128	Reference Voltage Abnormality	The reference circuit is abnormal.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F129	The cavity temperature is too low.	Cavity temperature is too low, causes are possibly as follows: 1. The ambient temperature is too low.	
F130	AC Side SPD Fault	AC side lightning protection device failure.	Replace AC side lightning protection devices.
F131	DC Side SPD Fault	DC side lightning protection device failure.	Replace DC side lightning protection devices.

Code	Fault	Causes	Troubleshooting Suggestions
F132	Internal Fan Abnormality	Internal fan abnormality. Causes are possibly as follows: 1. Abnormal fan power supply; 2. Mechanical Fault (blocking); 3. Fan aging damage.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If fault persists, please contact the dealer or GoodWe after-sales service center.
F133	External Fan Abnormality	External fan abnormality. Causes are possibly as follows: 1. Abnormal fan power supply; 2. Mechanical exception (blocking); 3. Fan aging damage.	
F134	PID Diagnosis Abnormality	PID hardware failure or high PV voltage PID pause	PID pause warning caused by high PV voltage does not need to be dealt with, PID hardware failure can be cleared by turning the PID switch off and on again to clear the PID fault, replace the PID unit.

Code	Fault	Causes	Troubleshooting Suggestions
F135	Trip Switch Tripping Warning	Causes are possibly as follows: An overcurrent or PV reversal has occurred causing the disconnect switch to trip;	Contact the dealer or the after-sales service. The reason for disconnection, for the occurrence of PV short circuit or reverse connection, it is necessary to check whether there is a historical PV short circuit warning or historical PV reverse connection warning, and if there is, it is necessary for the maintenance personnel to check the corresponding PV situation. After checking that there are no faults you can manually close the disconnect switch and clear this warning via the APP interface clear history faults operation.
F136	Historical PV IGBT Short Circuit Warning	Causes are possibly as follows: An overcurrent occurs causing the disconnect switch to trip;	Contact the dealer or the after-sales service. Maintenance personnel need to follow the historical PV short circuit warning sub-code to check whether there is any fault in the short-circuited Boost hardware and external strings; after checking there is no fault, the warning can be cleared by clearing the historical fault operation through the APP interface.

Code	Fault	Causes	Troubleshooting Suggestions
F137	Historical PV Reverse Connection Warning (Strings 1~16)	Causes are possibly as follows: The PV reverse connection has occurred causing the disconnecting switch to trip;	Contact the dealer or the after-sales service. Maintenance personnel need to follow the historical PV reverse connection warning subcode to check whether the corresponding string is reverse connected and whether there is pressure difference in the PV panel configuration; after the check is complete and there is no fault, the warning can be cleared by clearing the historical fault operation through the APP interface.
F138	Historical PV Reverse Connection Warning (Strings 17~32)	Causes are possibly as follows: The PV reverse connection has occurred causing the disconnecting switch to trip;	Contact the dealer or the after-sales service. Maintenance personnel need to follow the historical PV reverse connection warning subcode to check whether the corresponding string is reverse connected and whether there is pressure difference in the PV panel configuration; after the check is complete and there is no fault, the warning can be cleared by clearing the historical fault operation through the APP interface.

Code	Fault	Causes	Troubleshooting Suggestions
F139	Flash R/W Error	Causes are possibly as follows: Flash content has changed; flash life is exhausted;	1. Upgrade the latest version of the program. 2. Contact the dealer or the after-sales service.
F140	Meter Communication Normal Alarm.	This warning may be reported after enabling the anti-backflow function. Possible causes: 1. Meter not connected; 2. The communication wire connecting the meter to the inverter is wired incorrectly.	Check the wiring of the meter and connect the meter correctly, if the fault still exists after checking, contact the dealer or the after-sales service.
F141	PV Panel Type Recognition Failure	PV panel recognizes hardware anomaly	Contact the dealer or the after-sales service.
F142	String Mismatch	PV string mismatches. Two sets of string open-circuit voltages under the same MPPT have different configurations.	Check the open-circuit voltage of the two strings, and configure the strings with the same open-circuit voltage under the same MPPT, as long time string mismatch is a potential safety hazard.
F143	CT Loss	CT Loss	Check whether the CT wiring is correct.
F144	CT Reversed	CT Reversed	Check whether the CT wiring is correct.

Code	Fault	Causes	Troubleshooting Suggestions
F145	PE Loss Alarm PE Loss	Ground wire not connected.	Check the ground wire.
F146	String Terminals Overtemperature (String 1~ 8)	37176 Register PV Terminal Temperature Alarm Subcode 1 has a set position.	-
F147	String Terminals Overtemperature (String 9~ 16)	37177 Register PV Terminal Temperature Alarm Subcode 2 has a set position.	-
F148	String Terminals Overtemperature (String 17~ 20)	37178 Register PV Terminal Temperature Alarm Subcode 3 has a set position.	-
F149	Historical PV Reverse Connection Warning (Strings 33~48)	Causes are possibly as follows: The PV reverse connection has occurred causing the disconnecting switch to trip;	Contact the distributor or after-sales service center; Maintenance personnel need to follow the historical PV reverse connection warning subcode to check whether the corresponding string is reverse connected and whether there is pressure difference in the PV panel configuration; after the check is complete and there is no fault, the warning can be cleared by clearing the historical fault operation through the APP interface.

Code	Fault	Causes	Troubleshooting Suggestions
F150	Battery 1 low voltage	Battery voltage below set value.	-
F151	Battery 2 low voltage	Battery voltage below set value.	-
F152	Low battery supply voltage.	Battery not charging, voltage below shutdown voltage	-
F153	Battery 1 High voltage	-	-
F154	Battery 2 High voltage	-	-
F155	On-line Insulation Resistance Low	1. The PV string is short-circuited to PE. 2. The installation environment of PV strings is relatively humid for a long time and the insulation of PE cable is poor.	1. Check the impedance of the PV string to the ground. If there is a short circuit phenomenon, please check the short circuit point and rectify it. 2. Check whether the PE cable is connected correctly. 3. If it is confirmed that the impedance is indeed lower than the default value in cloudy and rainy days, please reset the "insulation impedance protection value".

Code	Fault	Causes	Troubleshooting Suggestions
F156	Microgrid Overload Warning	Excessive input current at the backup end.	If the problem occurs occasionally, ignore it. If the problem occurs frequently, contact the dealer or the after-sales service.
F157	Manual Reset	-	-
F158	Generator Phase Sequence Abnormality	-	-
F159	Port reuse configuration error	The reuse (generator) port is configured for a microgrid or large load, but is actually connected to a generator.	Use the APP to change the reuse (generator) port configuration..
F41	Generator Port Overload	1. Off-grid Side Output Exceeds Specification Requirements 2. Off-grid Side Short Circuit 3. Off-grid Terminal Undervoltage 4. When used as a Heavy Load Port, the Heavy Load Exceeds Specification Requirements	Confirm the off-grid side output voltage, current, power and other data through data to identify the cause of the problem

Code	Fault	Causes	Troubleshooting Suggestions
F108	DSP Communication Fault	-	-

Fault	Causes	Troubleshooting Suggestions
Parallel Communication Timeout Shutdown	-	-
One-key Shutdown	-	-
Offline Shutdown	-	-
Remote Shutdown	-	-
Slave Node Communication Fault	-	-
Diesel Generator Communication Fault	Abnormal communication link between the control panel and the diesel generator.	1. Inspect the link communication wiring harness and check if the fault is resolved; 2. Try restarting the machine and check if the fault is eliminated; 3. If the fault persists after restart, please contact GoodWe After-sales Service Center.

Fault	Causes	Troubleshooting Suggestions
Battery Overvoltage Protection	1. Excessively high voltage of a single-core 2. Voltage collection line abnormality	-
	1. Excessively high total battery voltage 2. Voltage collection line abnormality	-
Battery Undervoltage Protection	1. Excessively low voltage of a single-core 2. Voltage collection line abnormality	-
	1. Excessively low total battery voltage 2. Voltage collection line abnormality	
Battery Overcurrent Protection	1. Excessively high charging current, abnormal battery current limiting: sudden changes in temperature and voltage values 2. Abnormal inverter response	-
	Excessively high battery discharge current	
Battery Over temperature protection	1. Excessively high ambient temperature 2. Abnormality of temperature sensor	-
	1. Excessively high ambient temperature 2. Abnormality of temperature sensor	
Low temperature protection	1. Excessively high ambient temperature 2. Abnormality of temperature sensor	-
	1. Excessively high ambient temperature 2. Abnormality of temperature sensor	

Fault	Causes	Troubleshooting Suggestions
Over temperature protection	Excessive pole temperature	-
Battery Unbalancing Fault	When the temperature difference is excessively large at different stages, the battery will limit its power output, i.e., restrict the charging and discharging current. Therefore, this problem is generally difficult to occur. The capacity degradation of battery cores leads to excessively high internal resistance; when an overcurrent occurs, the temperature rise becomes significant, which in turn results in a large temperature difference. Poor welding of the battery core tabs causes the cell to heat up too quickly when an overcurrent passes through. 4. Temperature sampling issue; 5. Loose connection of power cables	-
	1. Inconsistent aging degrees of battery cores 2. Malfunctions of the slave board chip can also lead to excessive voltage difference between cores; 3. Balancing problems of the slave board can also result in excessive voltage difference between cells; 4. Caused by wiring harness issues	

Fault	Causes	Troubleshooting Suggestions
	1. Inconsistent aging degrees of battery cores 2. Malfunctions of the slave board chip can also lead to excessive voltage difference between cores; 3. Balancing problems of the slave board can also result in excessive voltage difference between cells; 4. Caused by wiring harness issues	
Insulation Resistance Protection	Insulation Resistance Damage	Check if the ground wire is properly connected, then restart the battery. If the problem persists after the restart, please contact the GoodWe after-sales service center.
Precharge Failure Fault	PreCharge Failure	It indicates that during the pre-charging process, the voltage across the pre-charging MOS has consistently exceeded the specified threshold. After shutting down and restarting the device, observe whether the fault persists, and check if the wiring is correct and if the pre-charging MOS is damaged.

Fault	Causes	Troubleshooting Suggestions
Sampling Cables Fault	Poor contact or disconnection of battery collection cables.	Check the wiring and restart the battery. If the problem persists after restarting, please contact the GoodWe after-sales service center.
	Poor contact or disconnection of single voltage sampling cables.	Check the wiring and restart the battery. If the problem persists after restarting, please contact the GoodWe after-Sales service center.
	Poor contact or disconnection of single voltage sampling cables.	
	Excessively large error in dual-channel current comparison, or abnormality in the current collection line loop	
	Excessively large error in dual-channel voltage comparison, excessively large error in voltage comparison between MCU and AFE, or abnormality in the voltage collection line loop	
	Abnormality in the temperature collection line loop, or poor contact or disconnection	
	Overvoltage level 5 or overtemperature level 5, causing the three-terminal fuse to be blown	If the three-terminal fuse are blown; please contact GoodWe after-sales service center to replace the main control board.

Fault	Causes	Troubleshooting Suggestions
Relay or MOS Over Temperature	Relay or MOS Over Temperature	This fault indicates that the MOS temperature exceeds the specified threshold; shut down the device and let it stand for 2 hours to allow the temperature to recover.
Diverter over temperature	Diverter over temperature	This fault indicates that the shunt tube temperature exceeds the specified threshold; shut down the device and let it stand for 2 hours to allow the temperature to recover.
BMS1 Other Fault 1 (Residential Energy Storage Type)	Relay or MOS Short Circuit	1. Update the software, turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. If the fault persists, replace the battery pack.
	Relay or MOS Over Temperature	1. Update the software, turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. If the fault persists, replace the battery pack.

Fault	Causes	Troubleshooting Suggestions
	Communication abnormalities between the master cluster and slave cluster, or inconsistencies between the cells of different clusters.	1. Check the slave unit's battery information, software version, and whether the communication line connection with the master unit is normal. 2. Upgrade Device software
	The wiring harness of the battery system loop is abnormal, resulting in the failure of the interlock signal to form a loop.	Check whether the terminal resistor is installed correctly.
	BMS and PCS Communication Abnormality	1. Confirm whether the definition of the communication line interface between the battery connected to the inverter is correct; 2. Please contact GoodWe After-sales Service Center to check the background data and verify whether the inverter and battery software are correctly matched.
	BMS Master-Slave Communication Wiring Harness Abnormality	

Fault	Causes	Troubleshooting Suggestions
	Communication Loss between Master and Slave Chips	1. Check the wiring and restart the battery; 2. Update the battery software. If the problem persists after restart, please contact GoodWe After-sales Service Center.
	Air Switch and Shunt Trip Abnormality	1. Shut down the device and let it stand for 5 minutes, then restart to check if the fault persists; 2. Inspect the blind mating connectors at the bottom of the PACK and PCU to see if the communication pins are loose or skewed.
	MCU Self-check Failure	Check the wiring and restart the battery. If the problem persists after restarting, please contact the GoodWe after-Sales service center.
	1. Software version is too low or BMS board is damaged. 2. There are too many inverters connected in parallel, causing excessive impact on the battery during pre-charging.	1. Update the software and observe whether the fault persists. 2. In the case of parallel operation, first black-start the battery and then start the inverter.

Fault	Causes	Troubleshooting Suggestions
	Internal MCU failure	Upgrade the software and restart the battery. If the problem persists after restarting, please contact the GoodWe after-Sales service center.
	Master Control Current Exceeds the Specified Threshold.	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. Check if the inverter is set to excessive power, resulting in exceeding the battery's rated operating current.
	Batteries Inconsistency of battery cells	Confirm whether the cells of the parallel cluster batteries are consistent.
	Batteries positive and negative are connected reversely.	Batteries positive and negative are connected reversely.
	Severe over-temperature, overvoltage, etc., trigger the fire protection system.	Contact GoodWe After-sales Service Center.
System Air Conditioner Fault	Abnormal failure of the air conditioner.	Try to restart the system. If the fault is not resolved, please contact GoodWe After-sales Service Center.

Fault	Causes	Troubleshooting Suggestions
	Cabinet door not closed.	Check whether the battery is working properly.
	The PV voltage is too high.	Confirm whether the power supply voltage meets the air conditioner's input voltage requirements; re-power on after confirmation.
	Insufficient power supply voltage.	
	No voltage input.	
	Unstable power supply voltage.	
	Unstable compressor voltage.	Try to restart the system. If the fault is not resolved, please contact GoodWe After-sales Service Center.
	Poor contact or damage of the sensor.	
	Abnormal operation of the air conditioner fan.	
BMS1 Other Fault 2 (Residential Energy Storage Type)	Abnormal voltage or current inside the DCDC.	Check the specific DC fault details for reference.
	DCDC overload or excessive heat sink temperature, etc.	
	Cell Acquisition Abnormality or Inconsistent Aging Degree	Please contact the after-sales service center.
	Fan operation not performed normally.	Please contact the after-sales service center.

Fault	Causes	Troubleshooting Suggestions
	Loose screws or poor contact at the output port.	1. Shut down the battery and check the wiring and the condition of the output port screws. 2. Restart the battery after confirmation and observe whether the fault persists. If it persists, please contact GoodWe After-sales Service Center.
	The battery has been used for too long or the battery cell is severely damaged.	Please contact 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 parallel inverters is large, resulting in excessive impact on the battery during pre-charging.	1. Update the software and observe whether the fault persists. 2. In the case of parallel operation, first black-start the battery and then start the inverter.
	Heating Film Damage.	Please contact GoodWe After-sales Service Center.
	The three-terminal fuse of the heating film is disconnected, making the heating function unavailable.	Please contact GoodWe After-sales Service Center.

Fault	Causes	Troubleshooting Suggestions
	Mismatch between Software Model, Cell Type, and Hardware Model.	Check whether the software model, SN number, cell type, and hardware model are consistent. If not, please contact GoodWe After-sales Service Center.
	Thermal Management Board Communication Disconnection.	1. Shut down the device and let it stand for 5 minutes, then restart to check if the fault persists; 2. If the fault is not recovered, contact GoodWe After-sales Service Center to replace the PACK.
	Thermal Management Board Communication Disconnection.	1. Shut down the device and let it stand for 5 minutes, then restart to check if the fault persists; 2. If the fault is not recovered, contact GoodWe After-sales Service Center to replace the PACK.

Fault	Causes	Troubleshooting Suggestions
	Thermal Management Board Communication Disconnection.	1. Shut down the device and let it stand for 5 minutes, then restart to check if the fault persists; 2. If the fault is not recovered, contact GoodWe After-sales Service Center to replace the PACK.
	PACK Fan Fault Signal Triggered.	1. Shut down the device and let it stand for 5 minutes, then restart to check if the fault persists; 2. If the fault is not recovered, contact GoodWe After-sales Service Center to replace the PACK.
DCDC Fault	Output Port Overvoltage	Check the output port voltage. If the output port voltage is normal and the fault cannot be eliminated automatically after restarting the battery, please contact GoodWe After-sales Service Center.

Fault	Causes	Troubleshooting Suggestions
	The DCDC module detects that the battery voltage exceeds the maximum charging voltage	Stop charging, discharge the battery to a SOC below 90% or let it stand for 2 hours. If ineffective and the fault persists after restart, please contact GoodWe After-sales Service Center.
	Heat Exchanger Temperature	Let the battery stand for 1 hour to allow the radiator temperature to drop. If ineffective and the fault persists after restart, please contact GoodWe After-sales Service Center.
	Excessively high battery discharge current	Check if the load exceeds the battery's discharge capacity. Turn off the load or stop the PCS for 60 seconds. If ineffective and the fault persists after restart, please contact GoodWe After-sales Service Center.
	Reverse Connection of Positive and Negative Poles of the Power Wiring Harness at the Output Port with Parallel Cluster Batteries or PCS	Turn off the battery manual switch, check whether the output port wiring is correct, and restart the battery.

Fault	Causes	Troubleshooting Suggestions
	Output Power Relay Failure to Close	Check whether the output port wiring is correct and if there is a short circuit. If ineffective and the fault persists after restart, please contact GoodWe After-sales Service Center.
	Power Device Over Temperature	Let the battery stand for 1 hour to allow the temperature of the internal power devices to drop. If ineffective and the fault persists after restart, please contact GoodWe After-sales Service Center.
	Relay Sticking	If the fault persists after restart, please contact GoodWe After-sales Service Center.
Inter-cluster Circulation Fault	1. Cell Imbalance 2. Incomplete Charging Calibration During First Power-on	-

Fault	Causes	Troubleshooting Suggestions
BMS1 Other Fault 3 (Large-scale Energy Storage Type)	Communication Abnormality with Linux Module	1. Check whether the communication line connection is normal. 2. Update the software, restart the battery and observe whether the fault persists. If it does, please contact GoodWe After-sales Service Center.
	Cell Temperature Rise Too Fast	Abnormal cell; contact GoodWe After-sales Service Center to replace the PACK.
	SOC Below 10%	Charge the battery.
	SN Writing Does Not Comply with Rules	Check whether the SN length is normal. If abnormal, please contact GoodWe After-sales Service Center.
	1. Daisy Chain Communication Abnormality Within the Battery Cluster 2. Inconsistent Aging Degree of Cells Between Battery Clusters	1. Check the contact condition of the single-cluster battery PACK. 2. Confirm the usage status of each cluster battery, such as cumulative charge-discharge capacity, cycle count, etc. 3. Please contact GoodWe After-sales Service Center.

Fault	Causes	Troubleshooting Suggestions
	Excessively High Humidity Inside the PACK.	-
	Fuse Disconnection	Contact GoodWe After-sales Service Center to replace the PACK.
	Low Battery Power.	Charge the battery.
BMS1 Other Fault 4 (Large-scale Energy Storage Type)	Air Switch Abnormality	Contact GoodWe After-sales Service Center to replace the PACK.
	External Fan Abnormality	Contact GoodWe After-sales Service Center to replace the PACK.
Contactor Fault 1	-	-
Contactor Fault 2	-	-
Overload Protection (Jinggui)	Continuous overload (exceeding 690 KVA) for 10 seconds.	Please contact GoodWe After-sales Service Center.
Overload Protection (Intelligent Port)	Continuous overload (exceeding 690 KVA) for 10 seconds.	Please contact GoodWe After-sales Service Center.
Communication Abnormality Between Host AC Power-on and Smart Meter	1. The smart meter may not be connected to the host. 2. The smart meter communication cable may be loose.	1. Check whether the smart meter is connected to the host. 2. Check whether the smart meter communication cable is loose.

Fault	Causes	Troubleshooting Suggestions
Slave Unit with Smart Meter Abnormality in Parallel Operation System	The smart meter is connected to the slave unit.	Set the unit connected to the smart meter as the host.
Communication Timeout Abnormality Between Slave Unit and Host After AC Power-on for More Than 10 Minutes	1. Incorrect slave unit address setting. 2. Loose slave unit communication cable.	1. Check whether the slave unit addresses are duplicated. 2. Check whether the parallel communication cable is loose.

9.5.2.3 Batteryfault(LX A5.0-10)

🔴When the BatteryALMindicator indicator turns red, troubleshoot by cross-referencing the SOCindicator display status for fault localizationfault.

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

No.	State of Charge (SOC)	fault name	Solution measures
5	○○●○●	Discharge 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 issue 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 issue persists after restarting, please contact the after-sales service center.
10	○●○●●	Excessive single-cell voltage difference	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 the Battery. If the problem persists after restarting, please contact the after-sales service center.
13	○●●●○	MOS cannot close	Restart Battery. If the issue persists after restarting, please contact the after-sales service center.
14	○●●●●	MOS cannot close	Restart Battery. If the issue persists after restarting, please contact the after-sales service center.
15	●○○○○	Cluster merging	Please check whether Batterymodel match. If not, please contact the after-sales service center.

No.	State of Charge (SOC)	fault name	Solution measures
16	●○○○●	interlocking signal fault	Check if the Terminal resistorInstallation 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	Restart Battery. If the problem persists after restarting, please contact the after-sales service center.
21	●○●●○	MOS Over-temperature	Power off and let it stand for 2 hours. If the issue 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 issue persists after restarting, please contact the after-sales service center.
23	●●○○○	Reverse connection	Please contact the after-sales service center.
24	●●●●●	Microelectronics fault	Please contact the after-sales service center.

9.5.2.4 Battery Fault (LX A5.0-30, LX U5.0-30)

Alarm Status

🔴When the battery ALM indicator shows red, troubleshoot the fault by combining it with the status indicated by the SOC indicator.

No.	SOC Indicator Light	Fault Name	Resolution
1	○○○●	Battery Over Voltage Battery Undervoltage	1. Check via the APP whether the inverter's charging current limit is 0. If it is 0, confirm that the communication cable connection between the battery and the inverter is reliable and communication is normal. 2. Power off and let it stand for 5 minutes. After restarting, confirm if the fault persists. 3. If the fault is not resolved, please contact the after-sales service center.
2	○○●●	Battery Overcurrent	1. Check via the APP if the battery model is correct. Confirm if the battery's real-time current is greater than the charging current limit or discharge current limit. If so, please contact the after-sales service center. 2. If it is less, power off the battery or upgrade the software. Restart and confirm if the fault continues to occur. 3. If the fault is not resolved, please contact after-sales.
3	○○●○	Battery Overtemperature Battery Undertemperature Battery Terminal Overtemperature	Power off and let it stand for 60 minutes, wait for the temperature to recover. After restarting, if the problem persists, please contact the after-sales service center.

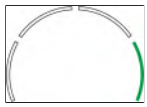
No.	SOC Indicator Light	Fault Name	Resolution
4	○●○○	Battery Imbalance	Power off and let it stand for 30 minutes. After restarting, if the problem persists, please contact the after-sales service center.
		SOH Too Low Fault	
5	●○●●	Pre-charge Failure Fault	1. Confirm whether the battery output terminals are connected in reverse to the inverter. 2. Power off and let it stand for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.
6	○●○●	Collection Line Fault	Confirm whether the battery switch is closed. If the battery switch is closed and the problem persists, please contact the after-sales service center.
7	●●○○	Relay or MOS Overtemperature Shunt Overtemperature	Power off and let it stand for 30 minutes. After restarting, if the problem persists, please contact the after-sales service center.
		BMS Other Fault: Output Port Overtemperature Fault	1. Check if the battery power cable is tightened. Power off and let it stand for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.
8	○●●○	Other Protection: MOS Unable to Close	Power off and let it stand for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.
9	○●●●	Other Protection: MOS Sticking	

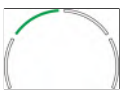
No.	SOC Indicator Light	Fault Name	Resolution
10	●○○○	Other Protection: Parallel Cluster Fault	1. Confirm the type and installation location of the terminal resistor used are correct. 2. Confirm that the communication cable connections between batteries, and between the battery and inverter, are reliable and communication is normal. 3. If the fault is not resolved, please contact the after-sales service center.
11	○○○○	Other Protection: Communication Loss with Inverter	1. Confirm that the communication cable connections between batteries, and between the battery and inverter, are reliable and communication is normal. 2. If the fault is not resolved, please contact the after-sales service center.
12	●○○●	Other Protection: BMU Communication Fault	1. Confirm the type and installation location of the terminal resistor used are correct. 2. Confirm that the communication cable connections between batteries, and between the battery and inverter, are reliable and communication is normal. 3. Power off and let it stand for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.
13	●○●○	Other Protection: Circuit Breaker Sticking Fault	Power off and let it stand for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.
14	●●○●	Other Protection: Software Failure	Restart the battery. After restarting, if the problem persists, please contact the after-sales service center.

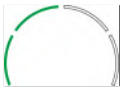
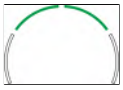
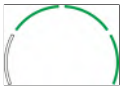
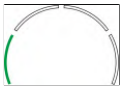
No.	SOC Indicator Light	Fault Name	Resolution
15	●●●○	Other Protection: Hardware Overcurrent Fault	
16	●●●●	Other Protection: Microelectronics Fault	
		Heating Film Three-Terminal Anomaly	1. Upgrade the software. 2. Power off and let it stand for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.

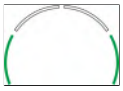
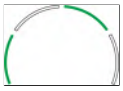
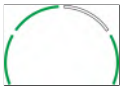
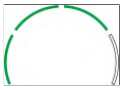
9.5.2.5 Battery Fault (GW14.3-BAT-LV-G10)

When the battery alarm indicator shows red  , the outer ring chase light shows red flashing  , and the operation light is off, troubleshoot the fault by referring to the status displayed by the SOC indicator light.

No.	SOC Indicator Light	Fault Name	Resolution
1		Battery Over Voltage	

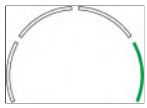
		Battery Undervoltage	1. Check via the App if the inverter's charging current limit is 0. If it is 0, confirm that the communication cable connection between the battery and the inverter is reliable and communication is normal. 2. Power off and leave it idle for 5 minutes. After restarting, confirm if the fault persists. 3. If the fault is not resolved, please contact the after-sales service center.
2		Battery Overcurrent	1. Check via the App if the battery model is correct. Confirm if the battery's real-time current is greater than the charging current limit or discharging current limit value. Please contact the after-sales service center. 2. If it is less, power off the battery or upgrade the firmware, then restart to confirm if the fault continues to occur. 3. If the fault is not resolved, please contact after-sales.
3		Battery Overtemperature	Power off and leave it idle for 60 minutes to allow the temperature to recover. If the problem still exists after restarting, please contact the after-sales service center.
		Battery Undertemperature	
		Battery Terminal Overtemperature	
4		Battery Imbalance	Power off and leave it idle for 30 minutes. If the problem still exists after restarting, please contact the after-sales service center.
		SOH Too Low Fault	

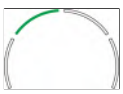
5		Precharge Failure Fault	1. Confirm if the battery output terminals are connected in reverse to the inverter. 2. Power off and leave it idle for 5 minutes. If the problem still exists after restarting, please contact the after-sales service center.
6		Acquisition Line Fault	Confirm if the battery circuit breaker is closed. If the battery circuit breaker is closed and the problem still exists, please contact the after-sales service center.
7		Relay or MOS Overtemperature	Power off and leave it idle for 30 minutes. If the problem still exists after restarting, please contact the after-sales service center.
		Output Port Overtemperature	1. Check if the battery power cables are securely tightened. 2. Power off and leave it idle for 5 minutes. If the problem still exists after restarting, please contact the after-sales service center.
8		MOS Cannot Close	Power off and leave it idle for 5 minutes. If the problem still exists after restarting, please contact the after-sales service center.
9		MOS Sticking	
10		Parallel Cluster Fault	1. Confirm the type and installation position of the terminal resistor used are correct. 2. Confirm the communication cable connections between batteries, and between the battery and the inverter are reliable and communication is normal. 3. If the fault is not resolved, please contact the after-sales service center.
11		Software/Hardware Version Mismatch	Restart the battery. If the problem still exists after restarting, please contact the after-sales service center.

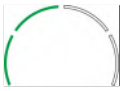
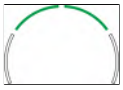
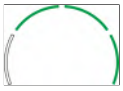
12		BMU Communication Fault	
13		Circuit Breaker Sticking Fault	Power off and leave it idle for 5 minutes. If the problem still exists after restarting, please contact the after-sales service center.
14		Software Failure	Restart the battery. If the problem still exists after restarting, please contact the after-sales service center.
15		Hardware Overcurrent Fault	
16		Microelectronics Fault	
		Heating Film Three-Terminal Abnormal	1. Upgrade the software. 2. Power off and leave it idle for 5 minutes. If the problem still exists after restarting, please contact the after-sales service center.

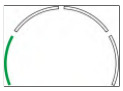
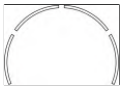
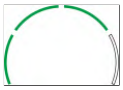
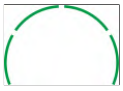
9.5.2.6 Battery Fault (GW16.1-BAT-LV-G10)

When the battery alarm indicator shows red  , the outer ring marquee lights show red flashing  , and the operation light is off, locate and troubleshoot the fault based on the status indicated by the SOC indicator.

No.	SOC Indicator Light	Fault Name	Resolution
1		Battery Over Voltage	

		Battery Undervoltage	1. Check via the App if the inverter's charging current limit is 0. If it is 0, verify that the communication cable connection between the battery and the inverter is reliable and communication is normal. 2. Power off and let the system rest for 5 minutes. After restarting, confirm if the fault persists. 3. If the fault is not resolved, please contact the after-sales service center.
2		Battery Overcurrent	1. Check via the App if the battery model is correct. Confirm if the real-time battery current exceeds the charging current limit or the discharging current limit value. Please contact the after-sales service center. 2. If it is lower, power off the battery or upgrade the software. After restarting, confirm if the fault continues to occur. 3. If the fault is not resolved, please contact after-sales.
3		Battery Overtemperature	Power off and let the system rest for 60 minutes to allow the temperature to recover. After restarting, if the problem persists, please contact the after-sales service center.
		Battery Undertemperature	
		Battery Terminal Overtemperature	
4		Battery Imbalance	Power off and let the system rest for 30 minutes. After restarting, if the problem persists, please contact the after-sales service center.
		SOH Too Low Fault	

5		Precharge Failure Fault	1. Confirm if the battery output terminals and the inverter are connected in reverse. 2. Power off and let the system rest for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.
6		Acquisition Line Fault	Confirm if the battery circuit breaker is closed. If the battery circuit breaker is closed and the problem persists, please contact the after-sales service center.
7		Relay or MOS Overtemperature	Power off and let the system rest for 30 minutes. After restarting, if the problem persists, please contact the after-sales service center.
		Output Port Overtemperature	1. Check if the battery power cables are securely fastened. 2. Power off and let the system rest for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.
8		MOS Cannot Close	Power off and let the system rest for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.
9		MOS Sticking	

10		Parallel Cluster Fault	1. Confirm the type and installation position of the terminal resistor used are correct. 2. Confirm that the communication cable connections between batteries, and between the battery and the inverter, are reliable and communication is normal. 3. Use the battery SN code to confirm if the cells in the parallel cluster batteries are consistent. 4. If the fault is not resolved, please contact the after-sales service center.
11		Software/Hardware Version Mismatch	Restart the battery. After restarting, if the problem persists, please contact the after-sales service center.
12		BMU Communication Fault	
13		Circuit Breaker Sticking Fault	Power off and let the system rest for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.
14		Software Failure	Restart the battery. After restarting, if the problem persists, please contact the after-sales service center.
15		Hardware Overcurrent Fault	
16		Microelectronics Fault	
		Heating Pad Three-Terminal Abnormality	1. Upgrade the software. 2. Power off and let the system rest for 5 minutes. After restarting, if the problem persists, please contact the after-sales service center.

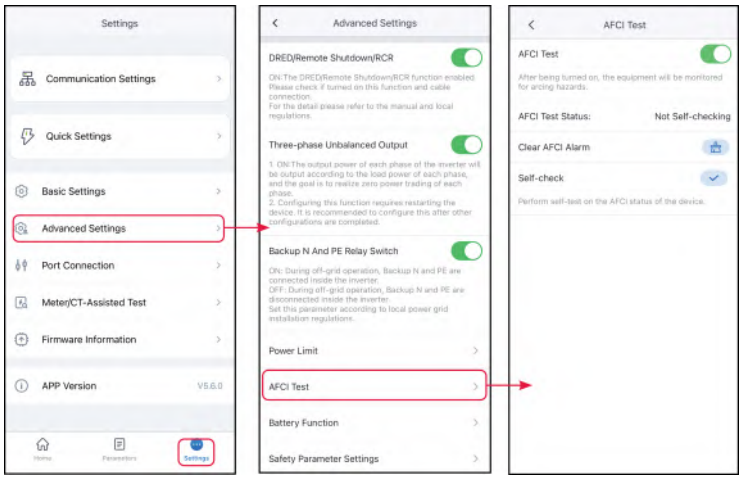
9.5.3 Clear post-processing

In energy storage system, after some Troubleshooting are completed, the system needs to be processed before it can resume normal operation.

9.5.3.1 Clear AFCIfaultWARNING

[Software Used]: SolarGo App
[Clearance Method]:

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



10 technical parameter

10.1 逆变器技术参数

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
Battery Input Data				
Battery Type*1	Li-Ion/Lead-acid	Li-Ion/Lead-acid	Li-Ion/Lead-acid	Li-Ion/Lead-acid
Nominal Battery Voltage (V)	48	48	48	48
Battery Voltage Range (V)	40~60	40~60	40~60	40~60
Start-up Voltage (V)	44.2	44.2	44.2	44.2
Number of Battery Input	1	1	1	1
Max. Continuous Charging Current (A)	70	90	120	140
Max. Continuous Discharging Current (A)	70	90	120	140
Max. Charge Power (kW)	3.0*2	3.6*2	5.0*2	6.0*2
Max. Discharge Power (kW)	3.3*2	3.96*2	5.5*2	6.6*2
PV String Input Data				

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
Max. Input Power (kW)	6.0	7.2	10.0	12.0
Max. Input Voltage (V)*4	600	600	600	600
MPPT Operating Voltage Range (V)*5	60~550	60~550	60~550	60~550
MPPT Voltage Range at Nominal Power (V)	180~500	120~500	150~500	180~500
Start-up Voltage (V)	58	58	58	58
Nominal Input Voltage (V)	360	360	360	360
Max. Input Current per MPPT (A)	20	20	20	20
Max. Short Circuit Current per MPPT (A)	26	26	26	26
Max. Backfeed Current to The Array (A)	0	0	0	0
Number of MPPT Trackers	1	2	2	2
Number of Strings per MPPT	1	1	1	1

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
AC Output Data (On-grid)				
Nominal Output Power (kW)	3.0	3.6	5.0	6.0
Nominal Apparent Power Output to Utility Grid (kVA)	3.0	3.6	5.0	6.0
Max. AC Active Power (kW)*7*8	3.3	3.96*9	5.5	6.6
Max. Apparent Power Output to Utility Grid (kVA)*7*8	3.3	3.96*9	5.5	6.6
Nominal Power at 40℃ (kW)	3.0	3.6	5.0	6.0
Max. Power at 40℃ (Including AC Overload) (kW)*8	3.0	3.6	5.0	6.0
Nominal Apparent Power from Utility Grid (kVA)	3.0	3.6	5.0	6.0
Max. Apparent Power from Utility Grid (kVA)	7.04	7.04	8.8	8.8
Nominal Power at 40℃ (kW)	3.0	3.6	5.0	6.0

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
Max. Power at 40℃ (Including AC Overload) (kW)	3.0	3.6	5.0	6.0
Nominal Output Voltage (V)	220/230/240	220/230/240	220/230/240	220/230/240
Output Voltage Range (V)	170~280	170~280	170~280	170~280
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~55/55~65	45~55/55~65	45~55/55~65	45~55/55~65
Max. AC Current Output to Utility Grid (A)	15.0	18.0*10	25.0	30.0
Max. AC Current From Utility Grid (A)	32.0	32.0	40.0	40.0
Nominal AC Current From Utility Grid (A)	13.7 at 220V 13.1 at 230V 12.5 at 240V	16.4 at 220V 15.7 at 230V 15.0 at 240V	22.8 at 220V 21.8 at 230V 20.9 at 240V	27.3 at 220V 26.1 at 230V 25.0 at 240V
Max. Output Fault Current (Peak and Duration) (A)	96A, 3μs	96A, 3μs	96A, 3μs	96A, 3μs
Inrush Current (Peak and Duration) (A)	96A, 3μs	96A, 3μs	96A, 3μs	96A, 3μs

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
Nominal Output Current (A)	13.7 at 220V 13.1 at 230V 12.5 at 240V	16.4 at 220V 15.7 at 230V 15.0 at 240V	22.8 at 220V 21.8 at 230V 20.9 at 240V	27.3 at 220V 26.1 at 230V 25.0 at 240V
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	53	53	88	88
Type of Voltage (a.c. or d.c.)	a.c.	a.c.	a.c.	a.c.
AC Output Data (Back-up)				
Back-up Nominal Apparent Power (kVA)	3.0	3.6	5.0	6.0
Max. Output Apparent Power without Grid (kVA)	3.3(6.0, 10s)	3.96(7.2, 10s)	5.5(10.0, 10s)	6.6(12.0, 10s)
Max. Output Apparent Power with Grid (kVA)	7.04	7.04	8.8	8.8

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
Nominal Output Current (A)	13.7 at 220V 13.1 at 230V 12.5 at 240V	16.4 at 220V 15.7 at 230V 15.0 at 240V	22.8 at 220V 21.8 at 230V 20.9 at 240V	27.3 at 220V 26.1 at 230V 25.0 at 240V
Max. Output Current without Grid (A)	15	18	25	30
Max. Output Current with Grid (A)	32	32	40	40
Max. Output Fault Current (Peak and Duration) (A)	96A, 3μs	96A, 3μs	96A, 3μs	96A, 3μs
Inrush Current (Peak and Duration) (A)	96A, 3μs	96A, 3μs	96A, 3μs	96A, 3μs
Maximum Output Overcurrent Protection (A)	53	53	88	88
Nominal Output Voltage (V)	220/230/240	220/230/240	220/230/240	220/230/240
Nominal Output Frequency (Hz)	50/60	50/60	50/60	50/60
Output THDv (@Linear Load)	<3%	<3%	<3%	<3%

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
Switching from Grid Connected Mode to Standalone Mode	<10ms	<10ms	<10ms	<10ms
Switching from standalone mode to Grid connected mode	<10ms	<10ms	<10ms	<10ms
AC Data (Generator)				
Nominal Apparent Power from AC generator (kVA)	3.0	3.6	5.0	6.0
Max. Apparent Power from AC generator (kVA)	3.3	3.96	5.5	6.6
Nominal Intput Voltage (V)	220/230/240	220/230/240	220/230/240	220/230/240
Input Voltage Range (V)	170~280	170~280	170~280	170~280
Nominal AC generator Frequency (Hz)	50/60	50/60	50/60	50/60
AC generator Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
Max. AC Current From AC generator (A)	32.0	32.0	40.0	40.0
Nominal AC Current From AC generator (A)	13.7 at 220V 13.1 at 230V 12.5 at 240V	16.4 at 220V 15.7 at 230V 15.0 at 240V	22.8 at 220V 21.8 at 230V 20.9 at 240V	27.3 at 220V 26.1 at 230V 25.0 at 240V
Efficiency				
Max. Efficiency	97.6%	97.6%	97.6%	97.6%
European Efficiency	96.2%	96.2%	96.2%	96.2%
CEC Efficiency	96.2%	96.2%	96.2%	96.2%
Max. Battery to AC Efficiency	95.5%	95.5%	95.5%	95.5%
MPPT Efficiency	99.9%	99.9%	99.9%	99.9%
Protection				
PV String Current Monitoring	Integrated	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated	Integrated

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
Anti-islanding Protection	Integrated	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated	Integrated
DC Surge Protection	Type III	Type III	Type III	Type III
AC Surge Protection	Type III	Type III	Type III	Type III
AFCI	Optional	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated	Integrated
General Data				
Operating Temperature Range (℃)	-35~+60	-35~+60	-35~+60	-35~+60
Operating Environment	Outdoor	Outdoor	Outdoor	Outdoor
Storage Temperature (℃)	-40~+85	-40~+85	-40~+85	-40~+85
Relative Humidity	0~95%	0~95%	0~95%	0~95%

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
Max. Operating Altitude (m)	3000	3000	3000	3000
Cooling Method	Natural Convection	Natural Convection	Natural Convection	Natural Convection
User Interface	LCD, WLAN+APP	LCD, WLAN+APP	LCD, WLAN+APP	LCD, WLAN+APP
Communication with BMS	CAN	CAN	CAN	CAN
Communication	RS485, WiFI+LAN+Bluetooth	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	Modbus-RTU、Modbus-TCP
Weight (kg)	14.5	15.5	15.5	15.5
Dimension (W×H×D mm)	560*415*204	560*415*204	560*415*204	560*415*204
Noise Emission (dB)	<30	<30	<30	<30
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<10	<10	<10	<10
Ingress Protection Rating	IP66	IP66	IP66	IP66

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
DC Connector	PV: jinko ((4~6 mm²) BAT: OT (Max.35mm²)	PV: jinko ((4~6 mm²) BAT: OT (Max.35mm²)	PV: jinko ((4~6 mm²) BAT: OT (Max.35mm²)	PV: jinko ((4~6 mm²) BAT: OT (Max.35mm²)
AC Connector	Tubulose (Max.10mm²)	Tubulose (Max.10mm²)	Tubulose (Max.10mm²)	Tubulose (Max.10mm²)
Environmental Category	4K4H	4K4H	4K4H	4K4H
Pollution Degree	III	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	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	Battery: A PV: C AC: C Com: A
Mounting Method	Wall Mounted	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	SMS(Slip-mode frequency) +AFD
Type of Electrical Supply System	single phase	single phase	single phase	single phase
Country of Manufacture	China	China	China	China

Technical Data	GW3000-ES-C10	GW3600-ES-C10	GW5000-ES-C10	GW6000-ES-C10
Certification				
Grid Standards	NRS 097-2-1, IEC 62116, IEC 61727			
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 battery.

*2: When the PV input voltage is higher than 500V, 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 3.0kW for GW3000-ES-C10, 3.6kW for GW3600-ES-C10, 5.0kW for GW5000-ES-C10, 6.0kW for GW6000-ES-C10.

*9: For Jordan, Max. AC Current Output to Utility Grid is 15.7A for GW3600-ES-C10.

*10: For Jordan, Max. AC Active Power and Max. Apparent Power Output to Utility Grid are both 3.6kW/kVA for GW3600-ES-C10.

10.2 Battery Technical Data

10.2.1 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）		
Nominal 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
Nominal Charge/Discharge Power (kW)*2		3	6	n×3*3
Operating Temperature Range (℃)		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 (℃)		0 ~ +40 (≤1 year); -20 ~ 0 (≤1 month); -40 ~ 45 (≤1 month)		
Mounting Method		Cabinet mounting/Floor stacking/Wall mounting		
round-trip efficiency*4		95%		
Cycle Life*5		≥5000		
Standards & Certifications	Safety	IEC62619, IEC 63056, IEC62040-1, INmetro		
	EMC	EN IEC61000-6-1, EN IEC61000-6-2, EN IEC61000-6-3, EN IEC61000-6-4		
	Transport	UN38.3, ADR		

technical parameter	LX A5.0-10	2*LX A5.0-10	n*LX A5.0-10
*1: Measured under 100% depth of discharge for new batteries, at 25±2℃, under 0.2C charge/discharge conditions; usable energy may vary with different inverters. *2: The nominal charging and discharging current and power are affected by temperature and SOC status. *3: Under the condition of using a busbar box mounting accessory to achieve battery parallel connection. *4: New battery, measured within 2.5~3.65V range, at 25±2℃, under 0.2C/0.2C charge/discharge conditions. Cell efficiency is 94%~95% under 0.6C/0.6C charge/discharge conditions. *5: Cell, measured within 2.87~3.59V range, at 25±2°C, under 0.6C/0.6C charge/discharge conditions, reaching 70% EOL. n: Maximum 15.			

10.2.2 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
Rated Capacity (Ah)	100
Nominal Charge Current (A) *2	60
Max. Continuous Charge Current (A) *2*3	90
Nominal Discharge Current (A) *2	100

Technical Parameters	LX A5.0-30
Max. Continuous Discharge Current (A) *2*3	150
Max. Pulse Discharge Current (A)*2*3	<200A（30s）
Max. Continuous Discharge Power (W)	7200
Communication	CAN
Operating Temperature Range (℃)	Charge: 0＜T≤55 Discharge: -20＜T≤55
Maximum Operating Altitude (m)	4000
Weight (Kg)	44
Dimensions (W x H x D mm)	442*133*520 (Excluding hanger) 483*133*559 (Including hanger)
Ingress Protection Rating	IP20
Application Method	On-grid/On-grid + Backup/ off Grid
Scalability	Max. 30 in Parallel (150kWh) (Hand to hand /Combiner box /Busbar)
Mounting Method	19-inch standard rack, Floor-mounted, Wall-Mounted
Round-trip Efficiency*1	≥96%
Safety	IEC62619、IEC63056、N140
EMC	EN IEC61000-6-1、EN IEC61000-6-2、EN IEC61000-6-3、EN IEC61000-6-4
Transportation	UN38.3、ADR
Environment	ROHS

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

10.2.3 LX U5.0-30

Technical Parameters	LX U5.0-30
Nominal Battery Energy (kWh)	5.12
Usable Energy (kWh)*1	5
Cell Type	LiFePO4
Nominal Voltage (V)	51.2
Operating Voltage Range (V)	43.2~58.24
Rated Capacity (Ah)	100
Nominal Charge Current (A)	60
Max Charge Current (A)*2*3	90
Nominal Discharge Current (A)*4	100
Max Discharge Current (A)*2*3	100
Pulse Discharging current (A)*2*3	< 200A（30S）
Max. Charging/Discharging Power (kW)	4.95
Communication	CAN
TChg (Charging Temperature Range) (℃)	0<T≤55
TDsch (Discharging Temperature Range) (℃)	-20<T≤55
Ambient Temperature（℃）	0 < T≤40（Recommend 10 < T≤30）
	Optional heating：-20 < T≤40（Recommend 10 < T≤30）
Relative Humidity	5~95%
Maximum Storage Time	12 Months（maintenance-free）

Technical Parameters	LX U5.0-30
Max. Operating Altitude (m)	4000
Heating	Optional
Fire Suppression	Optional, Aerosol
Unit Weight (kg)	50
Unit Dimensions（W*H*D mm）	460*580*160
Enclosure Protection Rating	IP65
Applications	On Grid / On Grid + Backup / off Grid
Scalability	30P
Mounting Method	Wall Mounted / Grounded
Round-trip Efficiency*1	≥96%
Cycle Life	> 6000 @25±2℃ 0.5C 70%SOH 90%DOD
Safety	VDE2510-50、IEC62619、IEC62040、N140、IEC63056
EMC	EN IEC61000-6-1, EN IEC61000-6-2, EN IEC61000-6-3, EN IEC61000-6-4
Transportation	UN38.3、ADR
Environment	ROHS
*1 Test conditions: 100% DOD, 0.2C charge & discharge at 25°C±2℃, 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 values may be variant with different inverter models.	

10.2.4 GW14.3-BAT-LV-G10

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

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

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

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

10.2.5 GW16.1-BAT-LV-G10

Technical Data	GW16.1-BAT-LV-G10
Battery Type	LFP (LiFePO4)
Rated Capacity (Ah)	314
Rated Energy (kWh)	16.1

Technical Data	GW16.1-BAT-LV-G10
Usable Energy (kWh)*1	≥14.9
Nominal Voltage(V)	51.2
Voltage Range(V)	45.92~57.76
Max. Continuous Charging Current (System) (A)	157
Max. Continuous Discharging Current (System) (A)	200
Max. Input.Power (kW)*2	8
Max. Output.Power (kW)*2	10
Peak Output Power (System)(kW)*2	16 (15s)
Charging Temperature Range(°C)	0~55
Discharging Temperature Range (°C)	-20~55
Relative Humidity	5-95%
Max. Operating Altitude (m)	4000
Communication	CAN
Weight (kg)	≤122
Useable Extinguishing Agent	CO2, H2O
Crucial Material	$LiFePO_4$, C, Cu, $LiPF_6$, Al, $(C_3H_6)n$
Ingress Protection	IP65
Protective Class	Ⅰ
Dimensions (W×H×D mm)	≤470*895*245 (No base)
Optional Function Configuration	Regulating wheel (Optional); Aerosol fire extinguishing (Optional)

Technical Data		GW16.1-BAT-LV-G10
Storage Temperature (°C)		-20 ~45
Max. Storage time		-20-35°C≤12months
		35-45°C≤ 6 months
Scalability		30P
Mounting Method		Wall-Mounted, Floor-Mounted
Cycle Life		≥6000 （25±2°C 0.5C 90%DOD 70% SOH ）
Country of Manufacture		China
Standard and Certification	Safety	IEC62619, IEC60730，IEC63056，CE
	EMC	CE
	Transportation	UN38.3, MSDS

*1: Test conditions: 100% DOD (cell voltage range 2.87V~3.61V), 0.2P charge & discharge at 25±2℃ for the battery system at 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), and transport/storage factors.
*2: Max. Input Power / Max. Output Power / Peak Output Power derating will occur related to Temperature and SOC.
*3: This refers to the Cycle Life of the battery cell.

10.3 Smart Meter Technical Data

10.3.1 GMK110

technical parameter			GMK110
	Application		Single-phase
	voltage	Rated voltage (V)	220
		Range (V)	85~288

technical parameter			GMK110
Input parameters		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 (condensation-free)		0~95%
	Max. Operating Altitude(m)		3000

10.3.2 GM330

technical parameter		GM330
Measurement range	Support Grid type	Three-phase, split-phase, single-phase
	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
	Communication distance (m/ft)	1000/3280
Accuracy parameter	voltage/current	Class 0.5
	Active energy	Class 0.5

technical parameter		GM330
	Reactive energy	Class 1
General Parameters	Dimensions (WxHxD mm/in)	72x85x72/2.83x3.35×2.83
	Housing	4-module
	Weight (g/Ib)	240/0.53
	Mounting method	DIN rail
	User Interface	4 LED, Reset Button
	Power consumption (W)	≤5
Environmental parameters	IP rating	IP20
	Operating Temperature Range (℃/°F)	-30~+70/-22~+158
	Storage Temperature Range (°C/°F)	-30~70/-22~+158
	Relative Humidity (No Condensation)	0~95%
	Max. Operating Altitude (meters/feet)	3000/9842
Certification parameter	Certificate	UL1741/ANSI

10.4 Smart Dongle Technical Data

10.4.1 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
	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

technical parameter		WiFi/LAN Kit-20
	Ingress Protection Rating	IP65
	Mounting method	plug and pull
Operating Temperature Range (°C)		-30~+60
Storage Temperature Range (℃)		-40~+70
Relative Humidity		0-95%
Max. Operating Altitude (m)		4000

10.4.2 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 pull
Operating Temperature Range (°C)		-30~+60
Storage Temperature Range (℃)		-40~+70
Relative Humidity		0-95%
Max. Operating Altitude (m)		4000

10.4.3 Ezlink3000

technical parameter	Ezlink3000
General Parameters	
Connection interface	USB
Ethernet interface (optional)	10/100Mbps auto-adaptive, communication distance ≤100m
Mounting method	Plug and Play

technical parameter	Ezlink3000
indicator	LED driver
Dimensions (Width * Height * Thickness mm)	49*153*32
gram (g)	130
Ingress Protection Rating	IP65
Power Consumption (W)	≤2W (typical value)
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 (℃)	-30 ~ +70
Relative Humidity	0-100% (No condensation)
Maximum operating altitude (m)	4000

11 Appendix

11.1 FAQ

11.1.1 How to perform meter/CT auxiliary testing?

The meter detection function can verify whether the CT of the meter is correctly connected and check the current operating status of both the meter and the CT.

- Mode 1:

1. Through**[Home]**> **[Settings]** > **[Meter/CT Auxiliary Detection]**Enter the detection page.
2. Click 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 Detection, wait for the detection to complete, and then view the detection results.

11.1.2 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 models 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. The user can choose whether to upgrade. If they opt to upgrade, they can complete the process 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 will be unusable. The upgrade can be completed by following the on-screen instructions.

11.2 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 grid Max. 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
Sr	Back-up Nominal apparent power	Off-grid rated apparent Power
Smax	Max. Output Apparent Power (VA) Max. Output Apparent Power without Grid	Max. Output Apparent Power
IAC,max	Max. Output Current	Max. Output Current
UAC,r	Nominal Output Voltage	Maximum Output Power
fAC,r	Nominal Output Freqency	Nominal output voltage Frequency
Toperating	Operating Temperature Range	Operating Temperature Range
IDC,max	Max. Input Current	Max. AC Current From Utility Grid
UDC	Input Voltage	voltage
UDC,r	DC Power Supply	DC input
UAC	Power Supply/AC Power Supply	Input voltage range/AC input
UAC,r	Power Supply/Input Voltage Range	AC input range
Toperating	Operating Temperature Range	Operating Temperature Range
Pmax	Max Output Power	Maximum Power
PRF	TX Power	emitter 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 (SCR)
UPS	Uninterruptable Power Supply	uninterruptible power source
ECO mode	Economical Mode	Economic Mode
TOU	Time of Use	Operating Time
ESS	Energy Stroage System	energy storage system
PCS	Power Conversion System	Power Conversion System
RSD	Rapid shutdown	Rapid Shutdown
EPO	Emergency Power Off	Emergency Poweroff
SPD	Surge Protection Device	Lightning Protection
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 Monitioring Unit	Residual Current Monitoring Device
FRT	Fault Ride Through	ride-through
HVRT	High Voltage Ride Through	High voltage ride-through
LVRT	Low Voltage Ride Through	low voltage ride-through (LVRT)
EMS	Energy Management System	Energy Management System
BMS	Battery Management System	Battery Management System
BMU	Battery Measure Unit	Battery Acquisition Unit
BCU	Battery Control Unit	Battery control unit
SOC	State of Charge	State of Charge (SOC) of Battery
SOH	State of Health	Battery health status
SOE	State Of Energy	Battery residual energy
SOP	State Of Power	Battery charging Discharge capability
SOF	State Of Function	Functional status of Battery
SOS	State Of Safety	safe state
DOD	Depth of discharge	depth of discharge

11.3 Explanation of Terms

- **Over voltage category interpretation**
  - **Category I overvoltage**Equipment connected to circuits with measures to limit transient overvoltage to a relatively low level.
  - **Category II overvoltage**Energy-consuming equipment powered by fixed electrical distribution installations. Such equipment includes appliances, portable tools, and other household and similar loads. If special requirements for reliability and suitability apply to such equipment, then voltage Category III is adopted.
  - **Overvoltage category III**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.
- **Definition of Wet Location Categories**

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

- **Explanation of Environmental Categories:**
    - **Outdoor type 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 is present, or non-conductive contamination becomes conductive due to condensation.
    - **Pollution Degree4**Persistent conductive contamination, such as that caused by conductive dust or rain and snow.

11.4 BatterySN code meaning

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 represented as 23;
- The 13th digit represents the production month, e.g., August is denoted as 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 as the priority representation, such as 1~9 for the 1st to 9th day, and A for the 10th day, and so on. Among them, the letters I and O are not used to avoid confusion. The 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

12 Contact Details

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