

Commercial and Industrial Smart Inverter Solutions

GW50K-ET-L-G10 | GW75K-ET-G10 | GW80K-ET-G10 | GW99.99K-ET-G10 | GW100K-ET-G10
GW51.2-BAT-I-G10 | GW56.3-BAT-I-G10
GW92.1-BAT-AC-G10 | GW102.4-BAT-AC-G10 | GW112.6-BAT-AC-G10

Solution User Manual

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NOTICE

The information in this user manual is subject to change due to product updates or other reasons.

This guide cannot replace the notices and warnings of the device unless otherwise specified. All descriptions in the manual are for guidance only.

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1 About This Manual

1.1 Overview

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

1.2 Applicable Model

The energy storage system consists the following products:

Product Type	Product information	Discription
Inverter	GW50K-ET-L-G10	Nominal Output Power: 50.0kW
	GW75K-ET-G10	Nominal Output Power: 75kW
	GW80K-ET-G10	Nominal Output Power: 80kW
	GW99.99K-ET-G10	Nominal Output Power: 99.99kW
	GW100K-ET-G10	Nominal Output Power: 100kW
Static Transfer Switch	GW125K-STS-G10	Nominal Output Power: 125kW
Battery System	GW25.6-BAT-I-G10	• A maximum of 6 battery systems can be clustered in a system • Battery systems of different models cannot be mixed • Referred to as Batter B hereinafter
	GW30.7-BAT-I-G10	
	GW35.8-BAT-I-G10	
	GW40.9-BAT-I-G10	
	GW46.0-BAT-I-G10	
	GW51.2-BAT-I-G10	

Product Type	Product information	Discription
	GW56.3-BAT-I-G10	- Capacity of single battery system:92.1/102.4/112.6kWh. Max capacity of parallel connected battery systems:368.4/409.6/450.4kWh. - A maximum of 4 battery systems can be clustered in a system - Battery systems of different models cannot be mixed. - Referred to as Batter A hereinafter
	GW92.1-BAT-AC-G10	
	GW102.4-BAT-AC-G10	
	GW112.6-BAT-AC-G10	
Smart Meter	GM330	Monitors and detects running data in the system, such as voltage, current, etc.
Smart Dongle	WiFi/LAN Kit-20	In single inverter scenario, system operation information can be uploaded to monitoring platform through WiFi or LAN signals.
	4G Kit- CN-G20	In single inverter scenario, system operation information can be uploaded to monitoring platform through 4G signals.
	4G Kit- G20	In single inverter scenario, system operation information can be uploaded to monitoring platform through 4G signals.

1.3 Symbol Definition

DANGER
Indicates a high-level hazard that, if not avoided, will result in death or serious injury.
 WARNING

Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.
CAUTION
Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.
NOTICE
Highlights key information and supplements the texts. Or some skills and methods to solve product-related problems to save time.

2 Safety Precautions

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

WARNING

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

2.1 General Safety

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

2.2 Personal Requirements

NOTICE

- Personnel who install or maintain the equipment must be strictly trained, learn about safety precautions and correct operations.
- Only qualified professionals or trained personnel are allowed to install, operate, maintain, and replace the equipment or parts.

2.3 System Safety

DANGER

- Disconnect the upstream and downstream switches to power off the equipment before any electrical connections. Do not work with power on. Otherwise, an electric shock may occur.
- Install a breaker at the voltage input side of the equipment to prevent personal injury or equipment damage caused by energized electrical work.
- All operations such as transportation, storage, installation, use and maintenance shall comply with applicable laws, regulations, standards and specifications.
- Perform electrical connections in compliance with local laws, regulations, standards and specifications. Including operations, cables, and component specifications.
- Connect cables using the connectors included in the package. The manufacturer shall not be liable for equipment damage if other connectors are used.
- Ensure all cables are connected tightly, securely, and correctly. Inappropriate wiring may cause poor contacts or high impedances, and damage the equipment.
- The PE cables must be connected and secured properly before working on the equipment.
- To protect the equipment and components from damage during transportation, ensure that the transportation personnel are professionally trained. All operations during the transportation have to be recorded. The equipment shall be kept in balance, thus avoiding falling down.
- The equipment is heavy. Please equip the corresponding personnel according to its weight, so that the equipment does not exceed the weight range of the human body can carry, and cause personnel injury.
- Keep the equipment stable to avoid dumping, which can result in equipment damage and personal injuries.
- Do not wear any metal thing when moving, installing, or commissioning the equipment. Otherwise, it will cause electrical shock or damages to the equipment.
- Do not put any metal parts on the equipment, otherwise it will cause electrical shock.
- When the device is short circuited, do not approach or touch the device and please turn off the power immediately.

WARNING

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

2.3.1 PV String Safety

WARNING

- Ensure the PV Module frames and the bracket system are securely grounded.
- Ensure the DC cables are connected tightly, securely and correctly. Inappropriate wiring may cause poor contacts or high impedances, and damage the inverter.
- Measure the DC cables using a multimeter to avoid reverse polarity connection. Also, the voltage should be under the permissible range.
- Measure the DC cable using the multimeter to avoid reverse polarity connection. Also, the voltage should be under the max DC input voltage. The manufacturer shall not be liable for the damage caused by reverse connection and overvoltage.
- The PV strings cannot be grounded. Ensure the minimum insulation resistance of the PV string to the ground meets the minimum insulation resistance requirements before connecting the PV string to the inverter ($R = \text{maximum input voltage(V)} / 30\text{mA}$).
- Do not connect one battery to more than one inverter at the same time. Otherwise, it may cause damage to the inverter.
- PV modules used with inverters must comply with IEC 61730 Class A standard.
- The inverter output power may decrease if the PV string inputs high voltage or current.

2.3.2 Inverter Safety

WARNING

- The voltage and frequency at the connecting point should meet the on-grid requirements.
- Additional protective devices like circuit breakers or fuses are recommended on the AC side. Specification of the protective device should be at least 1.25 times the rated AC output rated current.
- The arc fault alarms will be cleared automatically if the alarms are triggered less than 5 times in 24 hours. The inverter will shutdown for protection after the 5th electric arc fault. The inverter can operate normally after the fault is solved.
- BACK-UP is not recommended if the PV system is not configured with batteries. Otherwise, there may be a risk of system power outage.
- The inverter output power may decrease when the grid voltage and frequency changes.

2.3.3 Battery Safety

DANGER

- The battery system exists high voltage during the equipment running. Keep Power Off before any operations to avoid danger. Strictly follow all safety precautions outlined in this manual and safety labels on the equipment during the operation.
- The battery system is a high voltage system. Keep away from it. Only professionals are allowed ! Do not touch or operate without permission. The energy storage system consists of heavy equipment. Please use appropriate tools and take protective measures when installing and maintaining the system. Improper operations will cause personal injuries or equipment damage.
- 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.
- The equipment must be installed on concrete or other non-combustible surfaces, ensuring that the foundation is level, firm, flat, dry, has sufficient load-bearing capacity, and no dents or tilts are allowed.
- Do not hit, pull, drag, squeeze, step on or pierce it shell with sharp object 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 °C, 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.
- Pay attention to the negative and positive during installation to avoid reverse polarity connection. Otherwise the short circuit may cause personal injuries and damage to the equipment.
- It is strictly prohibited to short-circuit the positive and negative terminals of the battery. 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.
- When operating the equipment, ensure that it is not damaged and the system is functioning properly, otherwise there may be a risk of electric shock and fire.
- During the operation of the equipment, do not open the cabinet door or touch any wiring terminals or components. Otherwise, there is a risk of electric shock.
- Do not touch the running equipment to avoid being hurt as its temperature may exceed 60°C. Do not install the equipment at a place within non-professionals' reach.
- Do not pull or plug the terminals and connecting cables during the running of the BMS. Otherwise it may cause dangers to the safety.
- Power off the BMS the moment there is abnormality happening during the running. Contact the related personnel as soon as possible.

WARNING

- Charge the battery promptly after discharging, otherwise it may cause excessive discharge and damage to the battery.
Do not dis-/charge the battery exceeding the nominal dis-/charge current.
- 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.
- Contact After-sales Service if the battery module shall be replaced or added.
- Do not charge the battery at lower temperature. Otherwise it may decrease the capacity of the BMS.
- Do not put unrelated items into any part of the battery system.

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 do 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 explode when the ambient temperature exceeds 150°C. 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.

2.3.4 Smart Meter Safety

WARNING

If the voltage of the power grid fluctuates, resulting in the voltage to exceed 265V, in this case, long-term overvoltage operation may cause damage to the meter. It is recommended to add a fuse with a rated current of 0.5A on the voltage input side of the meter to protect it.

2.4 Safety Symbols and Certification Marks

DANGER

- All labels and warning marks should be visible after the installation. Do not cover, scrawl, or damage any label on the equipment.
- The following descriptions are for reference only. Please refer to the actual label on the device for usage instructions.

No.	Symbol	Model Description
1		Potential risks exist during the operation of the devices. Wear proper PPE before any operations.
2		High voltage hazard. Disconnect all incoming power and turn off the product before working on it.
3		High-temperature hazard. Do not touch the product under operation to avoid being burnt.
4		Operate the equipment properly to avoid explosion.
5		Batteries contain flammable materials, beware of fire.
6		The equipment contains corrosive electrolytes. In case of a leak in the equipment, avoid contact the leaked liquid or gas.
7		Delayed discharge. Wait 5 minutes after power off until the components are completely discharged.
8		Install the equipment away from fire sources.

9		Keep away from children.
10		Read through the user manual before any operations.
11		
12		Wear PPE during installation, operation and maintaining.
13		Do not dispose of the System as household waste. Deal with it in compliance with local laws and regulations, or send it back to the manufacturer.
14		Grounding point.
15		Recycle regeneration mark.
16		CE Mark.
17		TUV Mark.
18		RCM Mark.
19		Keep away from children.
20		Do not lift the equipment.
21		Do not power off under load, as it may cause dangers such as electric shock/fire.
22		Never disassemble this battery unit.

2.5 EU Declaration of Conformity

2.5.1 Equipment with Wireless Communication Modules

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

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

2.5.2 Equipment without Wireless Communication Modules (Except Battery)

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

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

2.5.3 Battery

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

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)
- Battery Directive 2006/66/EC and Amding Directive 2013/56/EU
- Waste Electrical and Electronic Equipmt 2012/19/EU

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

You can download the EU Declaration of Conformity on the official website:<https://en.goodwe.com>.

3 System Introduction

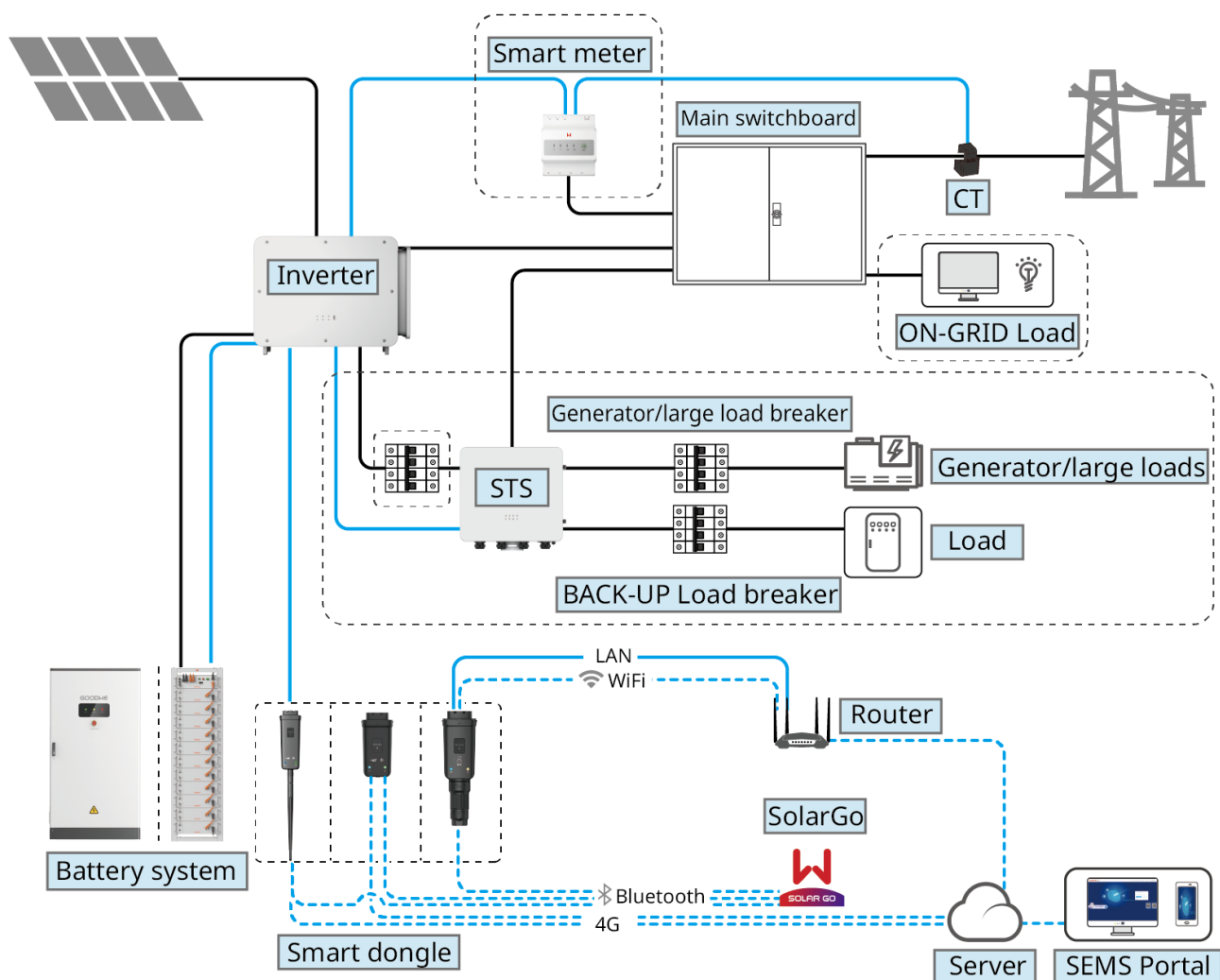
3.1 System Overview

The commercial and industrial smart inverter solution consists of inverter, static transfer switch, battery system, smart meter, smart dongle, etc. In the PV system, solar energy can be convert to electric energy for commercial and industrial needs. The Software & Accessories in the system controls the electrical equipment by recognizing the overall power consumption situation. So that the power will be managed in a smart way, deciding whether the power is to be used by the loads, stored in batteries, or exported to the grid, etc.



- PV system is not suitable to connect equipment that relies on a stable power supply, such as: medical equipment to sustain life. Ensure that no personal injury is occurred when the system is disconnected.
- Avoid loads with high starting current like high-power water pumps in the PV system. Otherwise, the off-grid output may fail due to excessive instantaneous power.
- BACK-UP is not recommended if the PV system is not configured with batteries. Otherwise, there may be a risk of system power failure.
- Factors such as: temperature, humidity, weather conditions, etc. may limit the battery's current and affect its load.
- When single overload protection occurs, the inverter can restart automatically; however, the restarting time will be extended if it happens several times. For a faster restarting, try it via SolarGo App.
- Normal commercial and industrial loads can be supported when the inverter is in off-grid mode. Accepted loads as below:
 - Motor Load:
 - If the power of a single-phase motor is $\geq 6\text{kW}$ or the power of a single three-phase motor is $\geq 15\text{kW}$, a VFD/VSD need to be installed;
 - The Sum of rated power of single-phase motors on any phase should be $\leq 0.5 \cdot P_n / 3$, and the total rated power of motor loads on three phase $\leq 0.5 \cdot P_n$; P_n refers to the Nominal Output Power of the inverter.
 - If other loads exist, motor loads shall be reduced accordingly, based on specific application conditions.
 - capacitive load: Total power $\leq 0.66P_n$ P_n refers to the Rated Output Power of the inverter.
 - The inverter support half-wave load. Half-wave load: Some older or non-EMC-compliant appliances (such as hair dryers or small heaters using half-wave rectification)

General Scenario



ET10010NET0001

Product Type	Product information	Discription
Inverter	GW50K-ET-L-G10	Nominal Output Power: 50.0kW
	GW75K-ET-G10	Nominal Output Power: 75kW
	GW80K-ET-G10	Nominal Output Power: 80kW
	GW99.99K-ET-G10	Nominal Output Power: 99.99kW
	GW100K-ET-G10	Nominal Output Power: 100kW
Static Transfer Switch	GW125K-STS-G10	Nominal Output Power: 125kW
	GW51.2-BAT-I-G10	

Product Type	Product information	Discription
Battery System	GW56.3-BAT-I-G10	• A maximum of 6 battery systems can be paralleled in a system • Battery systems of different models cannot be mixed • Referred to as Batter B hereinafter
	GW92.1-BAT-AC-G10	• A maximum of 4 battery systems can be paralleled in a system • Battery systems of different models cannot be mixed • Referred to as Batter A hereinafter
	GW102.4-BAT-AC-G10	
	GW112.6-BAT-AC-G10	
Smart Meter	GM330	The electric meter is provided along with the inverter, CTs are supported to be sourced either from GoodWe or purchased independently, CT turns ratio requirement: nA/5A. • nA: CT Primary side input current, the range of n is 200-5000. • 5A: CT Secondary side output voltage.
Smart Dongle	WiFi/LAN Kit-20	In single inverter scenario, system operation information can be uploaded to monitoring platform through WiFi or LAN signals.
	4G Kit- CN-G20	In single inverter scenario, system operation information can be uploaded to monitoring platform through 4G signals.

Product Type	Product information	Discription
	4G Kit- G20	In single inverter scenario, system operation information can be uploaded to monitoring platform through 4G signals.

Commercial and industrial loads can be used when the inverter is in off-grid mode. Accepted loads as below: Off-Grid Load-Carrying Capacity of Inverter:

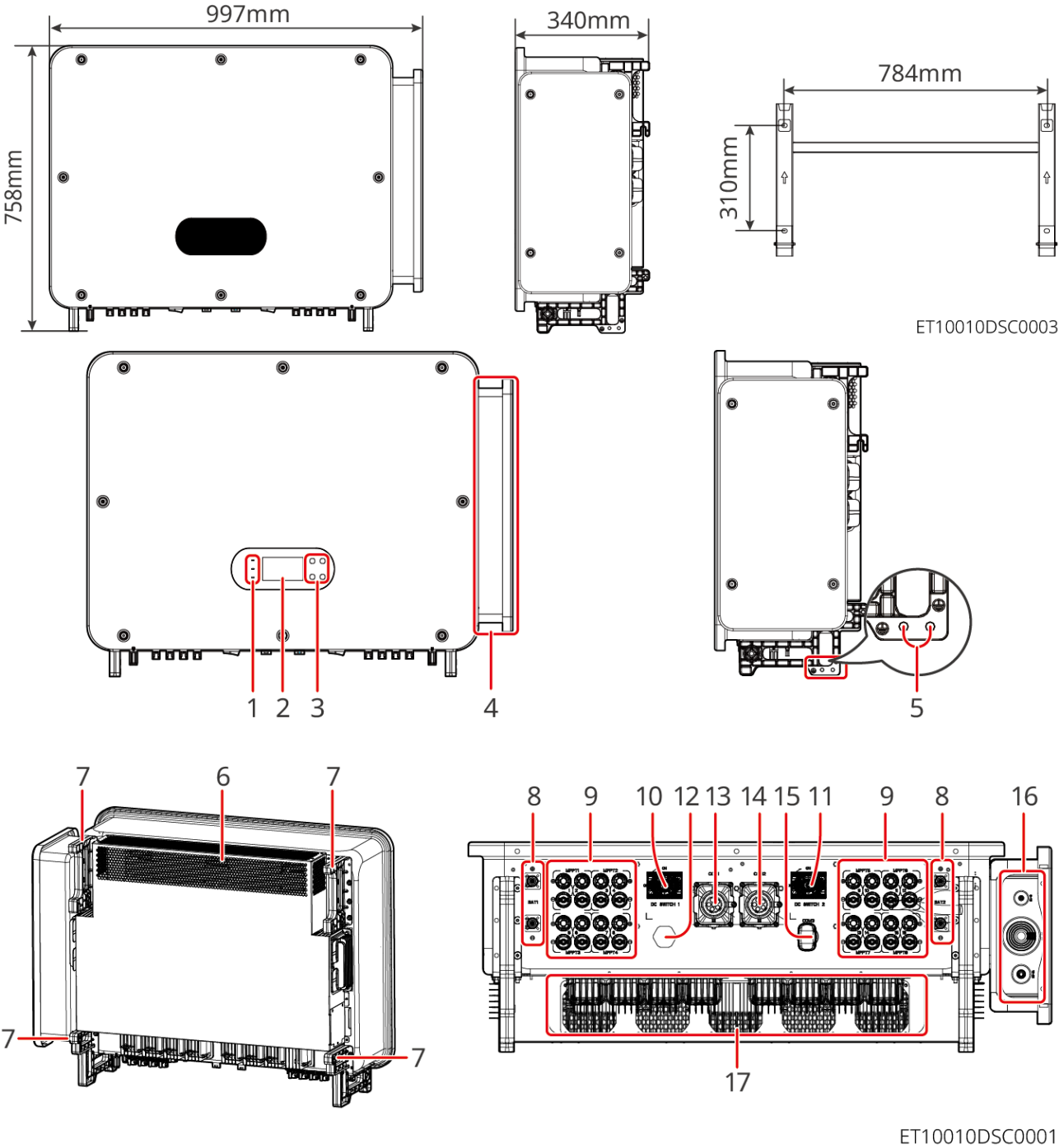
Items	One Phase of the Grid	Three Phase of the Grid
Rated Power of Single Motor Load (kVA)	6	15
Total Rated Power of Motor Loads (kVA)	$0.5 \times P_n / 3$	$0.5 \times P_n$
Capacitive Load (kVA)	$0.33 \times P_n / 3$	$0.33 \times P_n$
Half-wave load(kW)	4	-
Note: 1. P_n: Rated Output Power of the inverter. 2. If the rated power of a single motor load is greater than or equal to the nominal value in the above table, a VFD/VSD shall be configured. 3. For 2 or more inverters operating in parallel, the permissible total motor load power = $P_n \times 50\% \times \text{number of parallel Inverters} \times 80\%$		

3.2 Product Overview

3.2.1 Inverter

Inverters control and optimize the power in PV systems through an integrated

energy management system. The electricity generated in the photovoltaic system can be used for loads, stored in batteries, output to the power grid, etc.



No.	Components / Silk Screen Printing	Description
1	Indicator	Indicating the working status of the inverter.

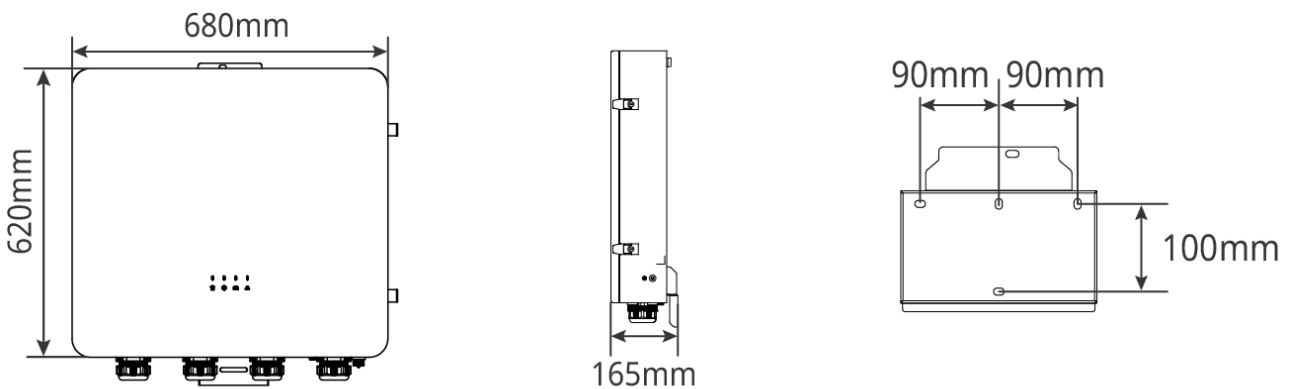
2	LCD (optional)	Used to check the parameters of the inverter with the buttons.
3	Button (optional)	Setting up the inverter in conjunction with the display screen.
4	AC Wiring Module	AC Cable Wiring Area
5	Grounding Terminal	Connecting the PE Cable.
6	Air Outlet	Discharge hot air
7	Handle	Used to move the inverter
8	Battery Input Terminal	Connecting the battery DC input cable.
9	PV Input Terminal	Connecting the DC input cable of the PV module.
10	DC Switch 1	Controlling the connection or disconnection of DC input MPPT1-4.
11	DC Switch 2	Controlling the connection or disconnection of DC input MPPT5-8.
12	Ventilation valve	-
13	Communication Port 1	Connecting communication cables for load control, RS485, remote shutdown/rapid shutdown, DRM (Australia) /RCR (Europe) etc.
14	Communication Port 2	Connecting the communication cables of smart meter、BMS、STS etc.
15	Communication Port 3	Connecting the Smart Dongle, please select the type of the Smart Dongle according to actual needs.
16	AC Cable Hole	Connecting the AC Output Cable
17	External Fan Abnormal	Dissipate heat

3.2.2 STS

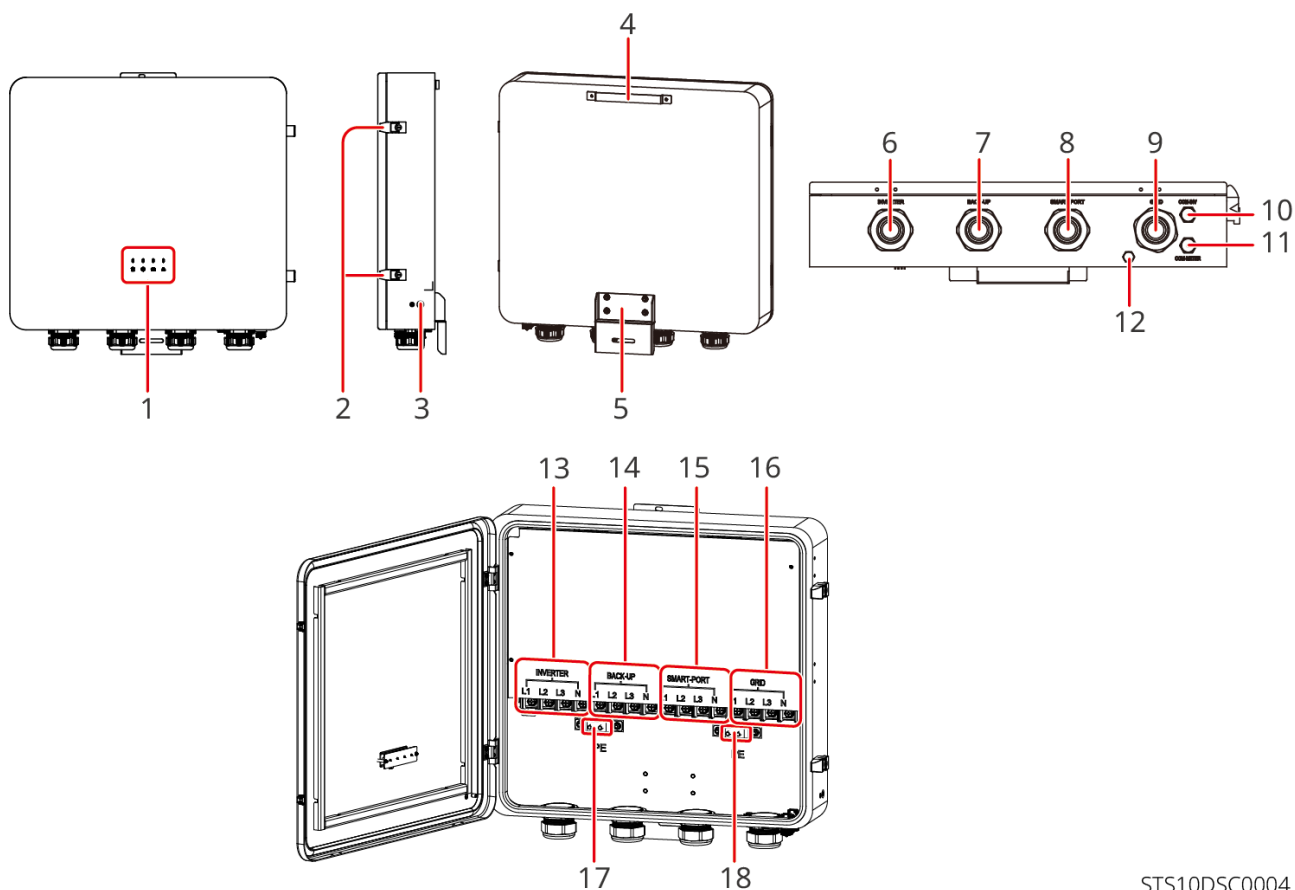
The Static Transfer Switch can be used in a commercial or industrial energy storage system. With the STS, the energy storage system can switch the inverter status between on-grid and off-grid.

Utility grid power fails:

- When the energy storage system is not connected to the generator, the system switches to off-grid operation. PV power generation or battery discharge for load use.
- When the energy storage system is connected to the generator and the PV power generation and battery discharge meet the load requirements, the generator will not start. The system switches to off-grid working state.
- When the energy storage system is connected to the generator and the PV power generation and battery discharge cannot meet the load requirements, the system switches to the grid connected working state of the generator. The generator generates power for load use, the PV and generator generate power to charge the battery.
- When the power grid is restored, the system switches to the grid connected working state.



STS10DSC0005



STS10DSC0004

No.	Name	Description
1	Indicator	Indicator STS work state
2	Locker	Used to open/close STS cover plate
3	Protective Grounding Terminal	Used to connect the PE wire
4	Mountings	Used to install the STS on the mounting plate
5	Fixed Support Bracket	Used to fix the STS on the wall
6	Inverter inlet port	Cable threading port
7	BACK-UP inlet port	
8	Smart Port Inlet	
9	Grid inlet port	

No.	Name	Description
10	Inverter Communication Terminal	Used to connect the inverter, enabling communication between the STS and the inverter.
11	Meter Communication Terminal	For the whole-house backup scenario, it used to connect the meter com port of the inverter to transmits power information to realize the power control function.
12	Ventilation valve	-
13	Inverter Terminal	Used to connect the inverter
14	BACK-UP Terminal	Used to connect the BACK-UP load
15	Smart Terminal	Used to connect the generator or large load
16	Grid Terminal	Used to connect the grid
17	PE Terminal Block	Used to connect the PE wire

3.2.3 Battery

The battery system is composed of PCU and battery modules.

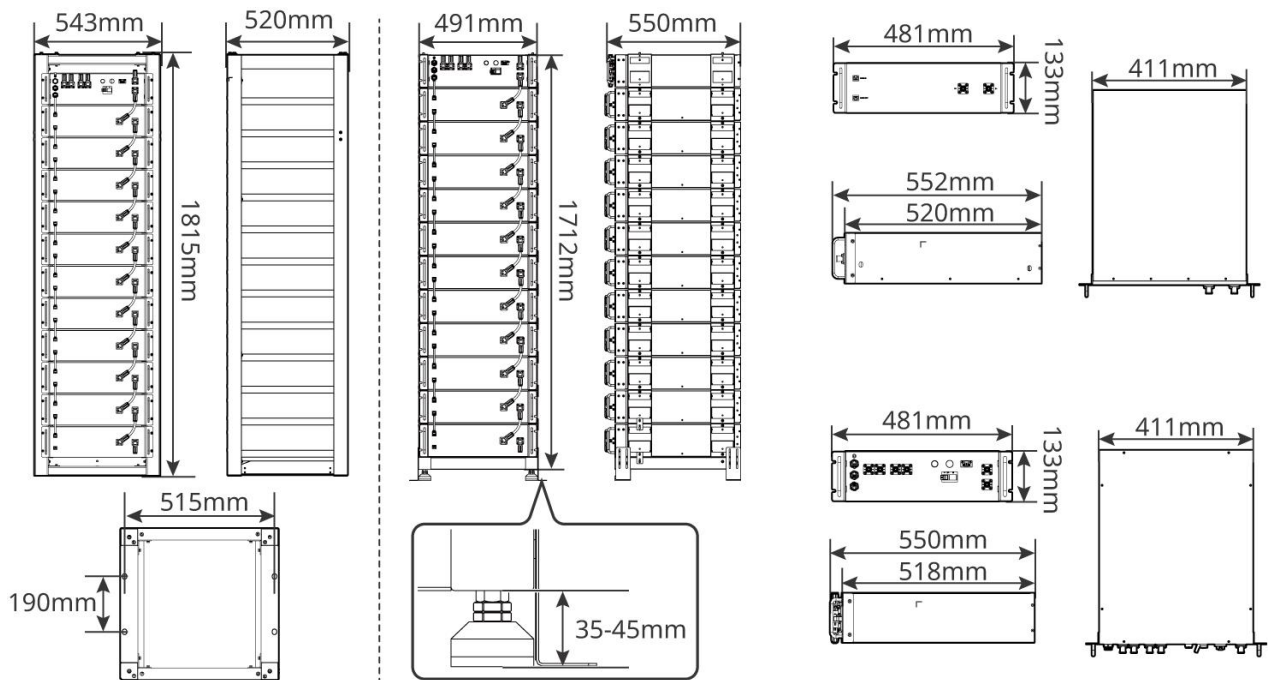
The battery system can store and release electricity according to the requirements of the PV energy storage system, and the input and output ports of the energy storage system are all high-voltage direct current.

NOTICE

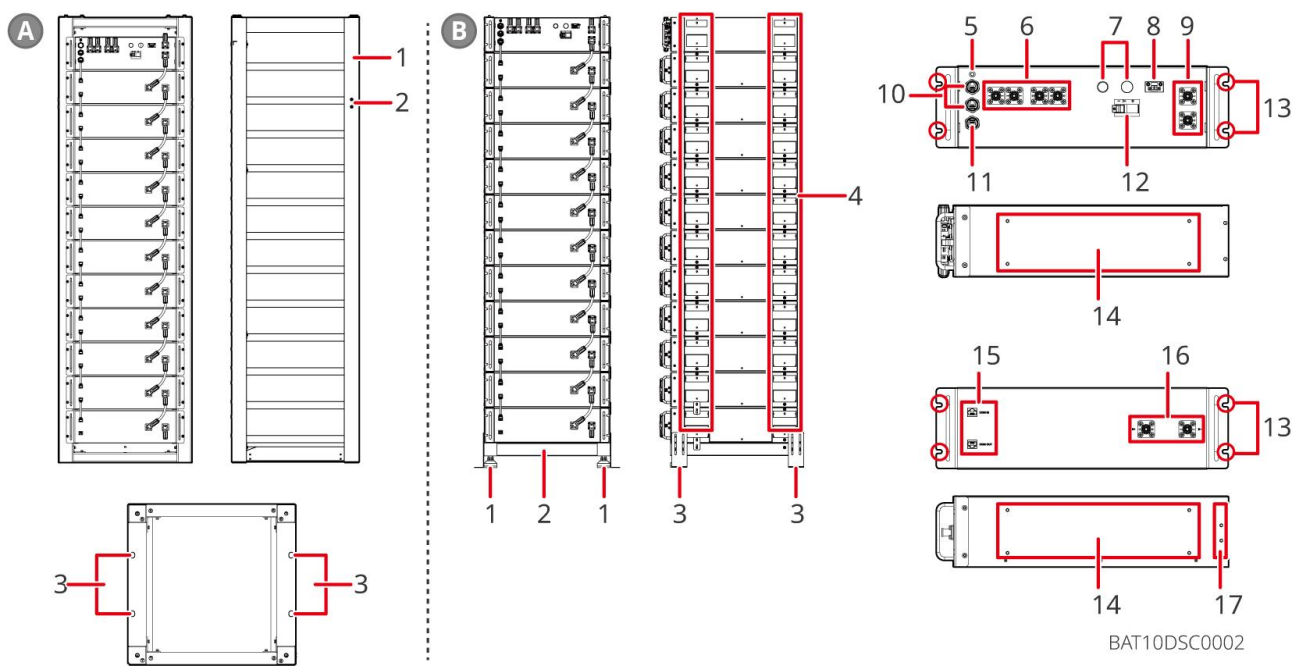
Please do not expand the battery system capacity by adding additional PACKs after the battery system is installed.

- **GW51.2-BAT-I-G10, GW56.3-BAT-I-G10**

No.	Model	Battery Module Quantity	Height of Stacking Installation (excluding Adjustable Feet)	Height of Rack Installation	Usable energy (kWh)
1	GW25.6-BAT-I-G10	5	914 mm	1815 mm	25.6
2	GW30.7-BAT-I-G10	6	1047 mm		30.7
3	GW35.8-BAT-I-G10	7	1180 mm		35.8
4	GW40.9-BAT-I-G10	8	1313 mm		40.9
5	GW46.0-BAT-I-G10	9	1446 mm		46.0
6	GW51.2-BAT-I-G10	10	1579 mm		51.2
7	GW56.3-BAT-I-G10	11	1712 mm		56.3



BAT10DSC0007



BAT10DSC0002

■ Type A

No.	Name	Description
1	Battery Racks	Used for installing batteries
2	Anti-tip Bracket Fixing Hole	Used to fix the battery rack to the wall and prevent tipping

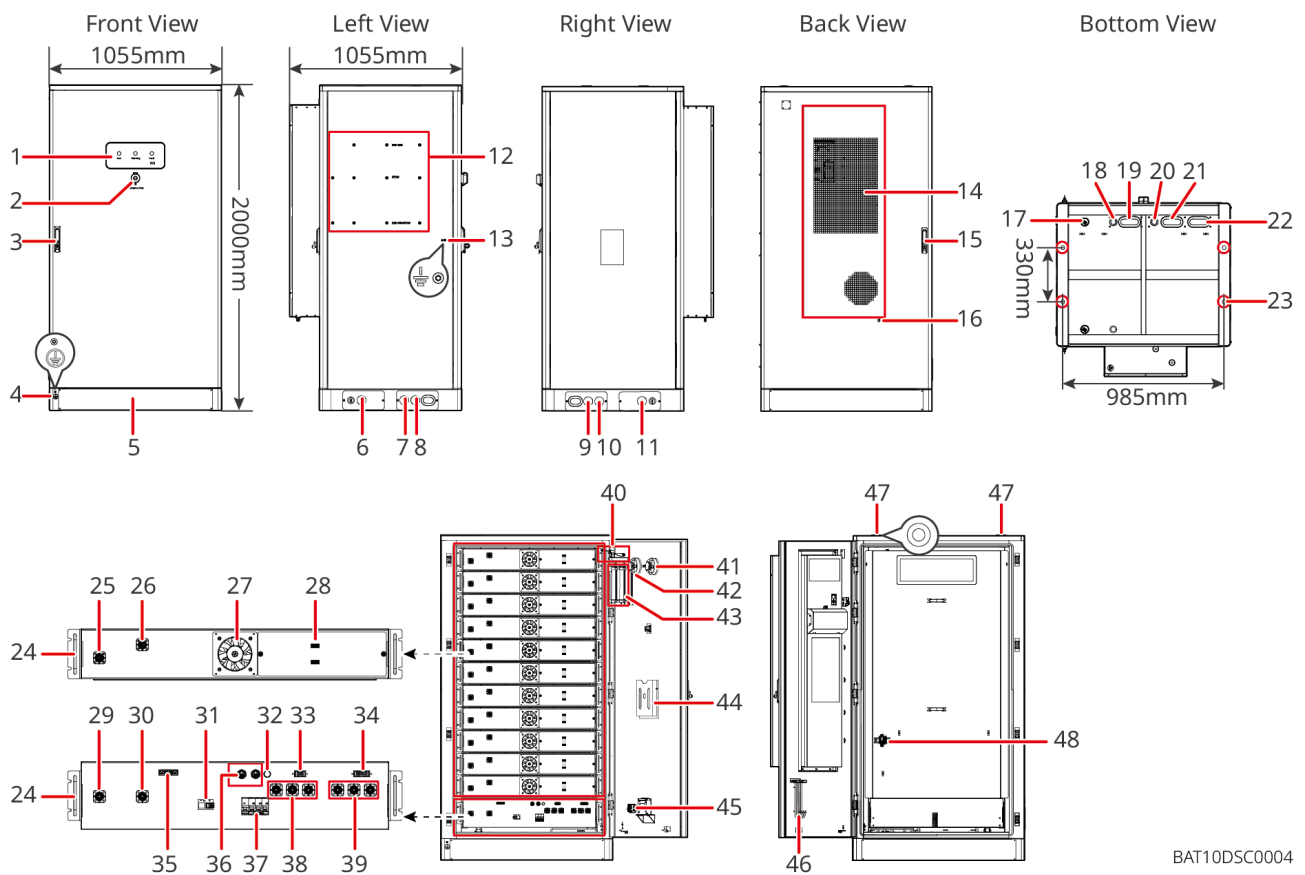
No.	Name	Description
3	Battery rack floor-locking holes	Used to fix the battery rack to the ground

■ Type B

No.	Name	Description
1	Adjustable feet	Used to adjust height and keep the base level
2	Base	The battery system is stacked on the base
3	Anti-tip bracket	Used to fix the base to the ground and prevent tipping
4	Stacking brackets	Fixed on the battery pack for stacked installation of batteries
5	Protective grounding point	Used for connecting ground wires
6	PCU input/output port 1	Connecting the power cable between the high-voltage box and the inverters
7	Battery Indicator	Used to indicate the status of the battery system
8	Dry contact	Contact for external fire protection system activation (under normal conditions, the dry contact remains normally open; the battery system will automatically power off when the dry contact is detected to be closed)
9	PCU power input/output port 2	Connecting the power cable between the high-voltage box and battery modules
10	External communication port	For communication with inverter, placing terminal resistors, and parallel cluster communication of battery systems
11	High-voltage communication port box	For communication with battery modules
12	Battery System Switch	Controlling the start and stop of the battery system
13	High-voltage box/battery pack fixing holes	Used to fix the high-voltage box/battery pack to the battery pack.
14	Stacking bracket mounting holes	Used for installing stacking brackets on the high-voltage box

No.	Name	Description
15	Battery module communication port	For communication between adjacent battery packs and with the high-voltage box
16	Battery module power input/output port	Used to connect the power line between adjacent battery packs
17	Anti-tip Bracket Fixing Hole	Used for installing anti-tip brackets

• **GW92.1-BAT-AC-G10, GW102.4-BAT-AC-G10 , GW112.6-BAT-AC-G10**



No.	Name	Description
1	LED indicator	-
2	Emergency stop button	Press the emergency stop button and the battery system will be powered off
3	Front door lock	-
4	PE port1	Connect the battery grounding cable

5	Bottom panel	-
6	Left cable entry hole1	Air conditioner power cable&ET100 power cable
7	Left cable entry hole2	Inverter Communication Cable
8	Left cable entry hole3	Inverter power cable
9	Right cable entry hole1	Battery power cable
10	Right cable entry hole2	Batteries paralleling communication cable
11	Right cable entry hole3	Air conditioner power cable
12	Mounting plate installation hole	Inverter mounting plate installation hole
13	PE port2	Connect the inverter grounding cable
14	Air conditioner	-
15	Back door lock	-
16	Air conditioner water pipe installation port	-
17	Ventilation valve	-
18	Communication cable inlet and outlet (bottom)	Communication cable between battery and inverter
19	Power cable inlet and outlet (bottom)	The power cable between batteries
20	For power cable between battery and inverter	Battery communication cable inlet and outlet
21	Battery Power Cable Port (Positive)	Parallel Battery Power Cable Port (Positive)
22	Battery Power Cable Port (Negative)	Parallel Battery Power Cable Port (Negative)
23	Foundation fixing hole	Used to fasten the battery system and foundation are together
24	Battery PACK Handle	Used handle on two sides to fasten the BatteryPackto the battery cabinet
25	Battery pack power input/output port (positive)	-

26	Battery pack power input/output port (negative)	-
27	Fan	-
28	Battery module communication port	Communication between neighbouring battery packs, communication with the high-voltage box, power supply for fans
29	High-voltage box power input/output port (negative) ¹	Connecting the power cable between the high-voltage box and battery modules
30	High-voltage box power input/output port (positive) ¹	
31	Molded case circuit breaker	Controlling the high-voltage output of battery system
32	Black start button	Controlling the black start of the battery system
33	Internal communication port ¹	For the battery pack communication and the power supply port ¹ of battery pack fan
34	Internal communication port ²	For the air conditioning communication, power access control switch identification, emergency stop and fire signal communication
35	LAN Communication Port	Reserved
36	External communication port ¹	Communication with inverters/Placement of termination resistors/Battery system parallel connection communication
37	Air Switch	Control the weak power supply of the battery system
38	High-voltage box power input/output port (positive) ²	Connecting the power cable between the high-voltage box and the inverters
39	High-voltage box power input/output port (negative) ²	Connecting the power cable between the high-voltage box and the inverters
40	Power access control switch	It is opened automatically after the door is opened to ensure that the energy storage system is powered off.

41	Temperature alarm	-
42	Smoke alarm	-
43	Aerosol fire extinguishing device	Monitoring the fire signal in the cabinet and implement fire extinguishing.
44	Document rack	-
45	Fire action signal port	Dry contact signal interface, normally inNC(normally closed state) Voltage: 0-24Vdc, Current: 0.3A. Connecting the cables of the sound and light alarm.
46	Maintenance hook rack	To place the maintenance hook which is used to remove the Packs and PCU.
47	Ring mounting hole	-
48	Air conditioning switch	Connecting the air conditioner wiring cable and controlling the air conditioner power supply.

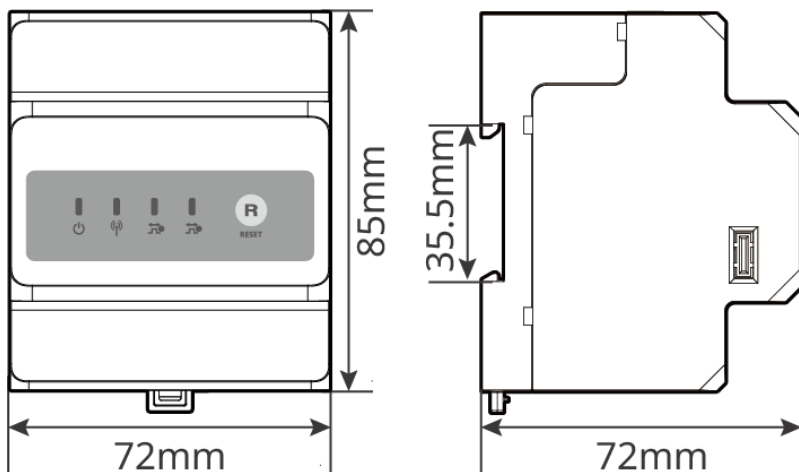
3.2.4 Smart Meter

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

GM330 meter is provided along with the inverter, CTs are supported to be sourced either from GoodWe or purchased independently, CT turns ratio requirement:nA/5A.

- nA: CT Primary side input current, the range of n is 200-5000
- 5A: CT Secondary side output voltage

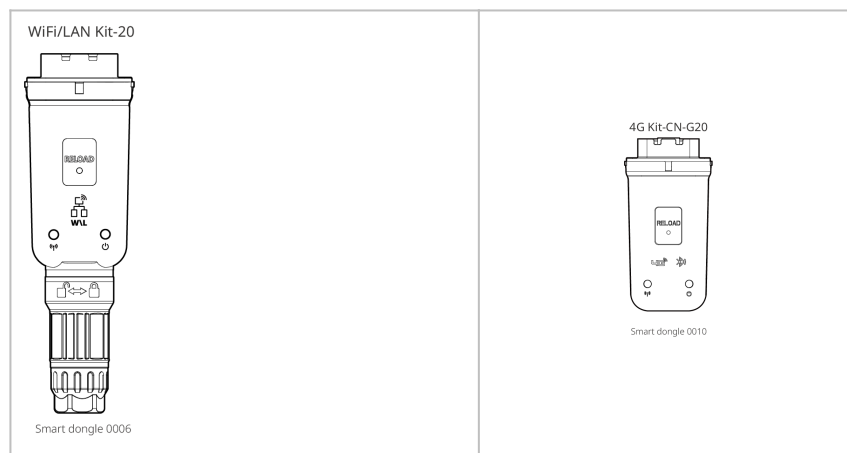
GM330



GMK10DSC0003

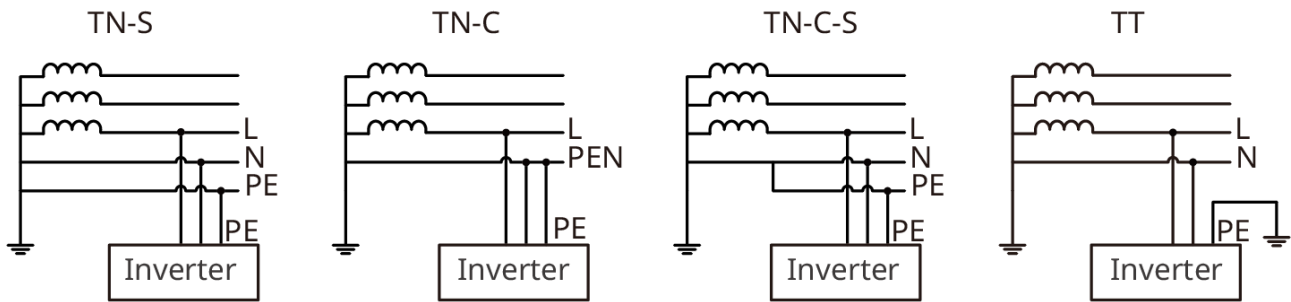
3.2.5 Smart Dongle

The smart dongle can transmit various power generation data to SEMS Portal, the remote monitoring platform, in real time, and can communicate with the SolarGo App to complete the near-end equipment commissioning.



No.	Model	Signal Type	Application Scenario
1	WiFi/LAN Kit-20	Bluetooth, WiFi, LAN	Single inverter scenario
2	4G Kit-CN-G20 4G Kit-G20	Bluetooth, 4G	

3.3 Supported Grid Types

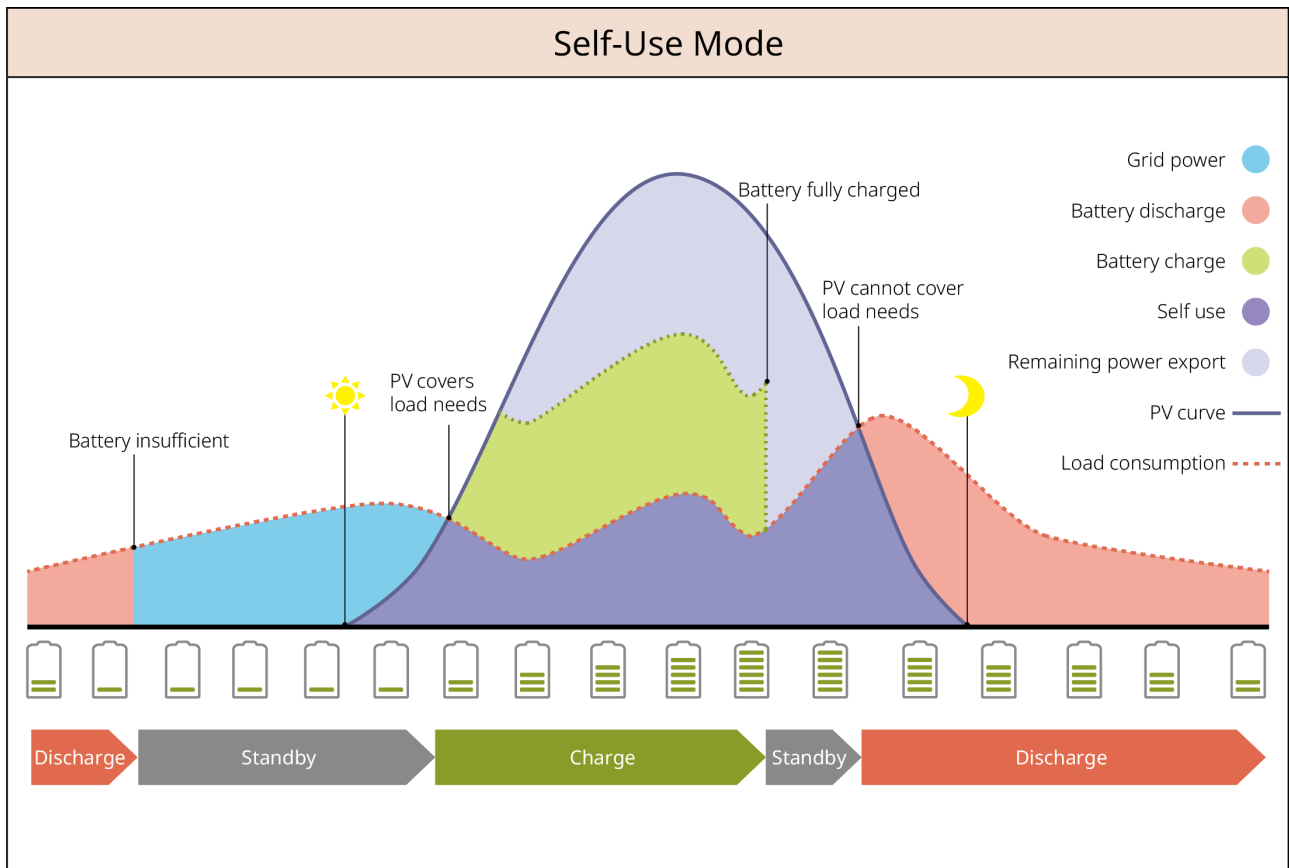


TNNET0001

3.4 System Working Mode

Self-use Mode

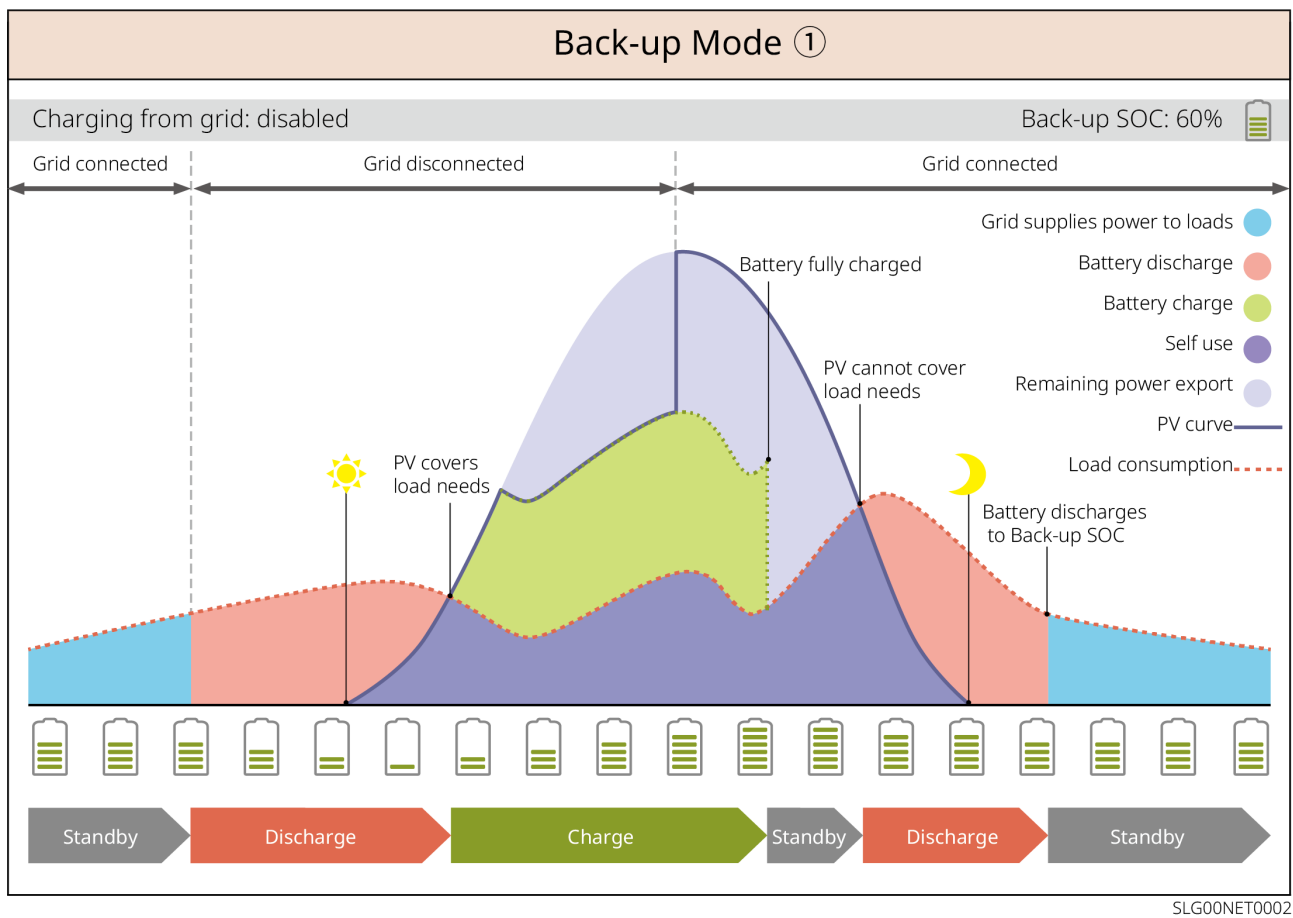
- Basic mode of system operation.
- The power generated by the PV system supply the loads in priority; the excess power will charge the batteries, and then the remaining power will be sold to the utility grid. When the power generated in the PV system is insufficient, the battery will supply the loads in priority. If the battery power is insufficient, the load will be powered by the utility grid.

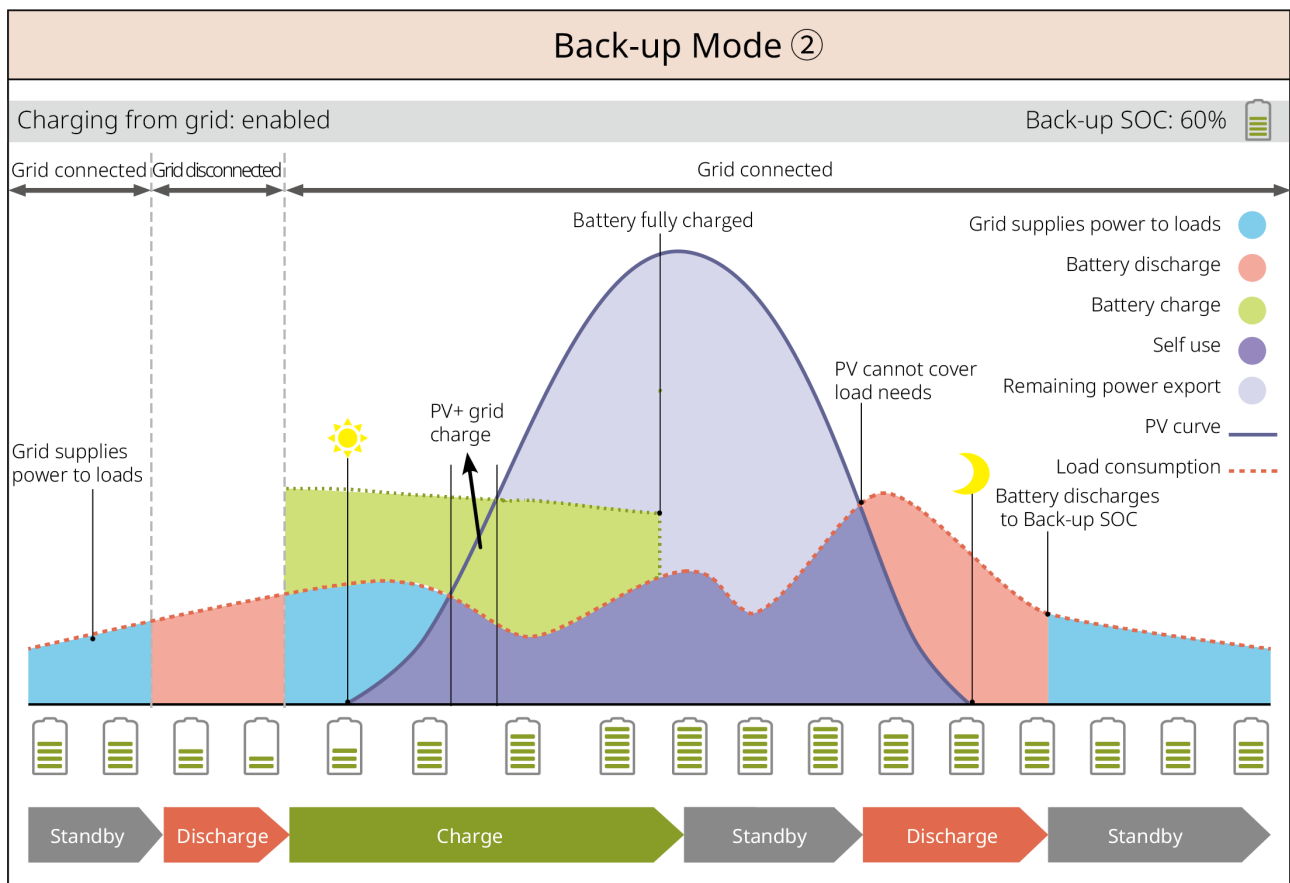


SLG00NET0009

BACK-UP Mode:

- Recommended for use in areas with unstable power grid.
- When the grid is disconnected, the inverter turns to off-grid mode and the battery will supply power to the BACK- UP loads; when the grid is restored, the inverter switches to on-grid mode.
- The battery will be charged to preset SOC protection value by utility grid or PV when the system is running on-grid. So that the battery SOC is sufficient to maintain normal working when the system is off-grid. The purchase of electricity from the power grid to charge the battery must comply with local laws and regulations.

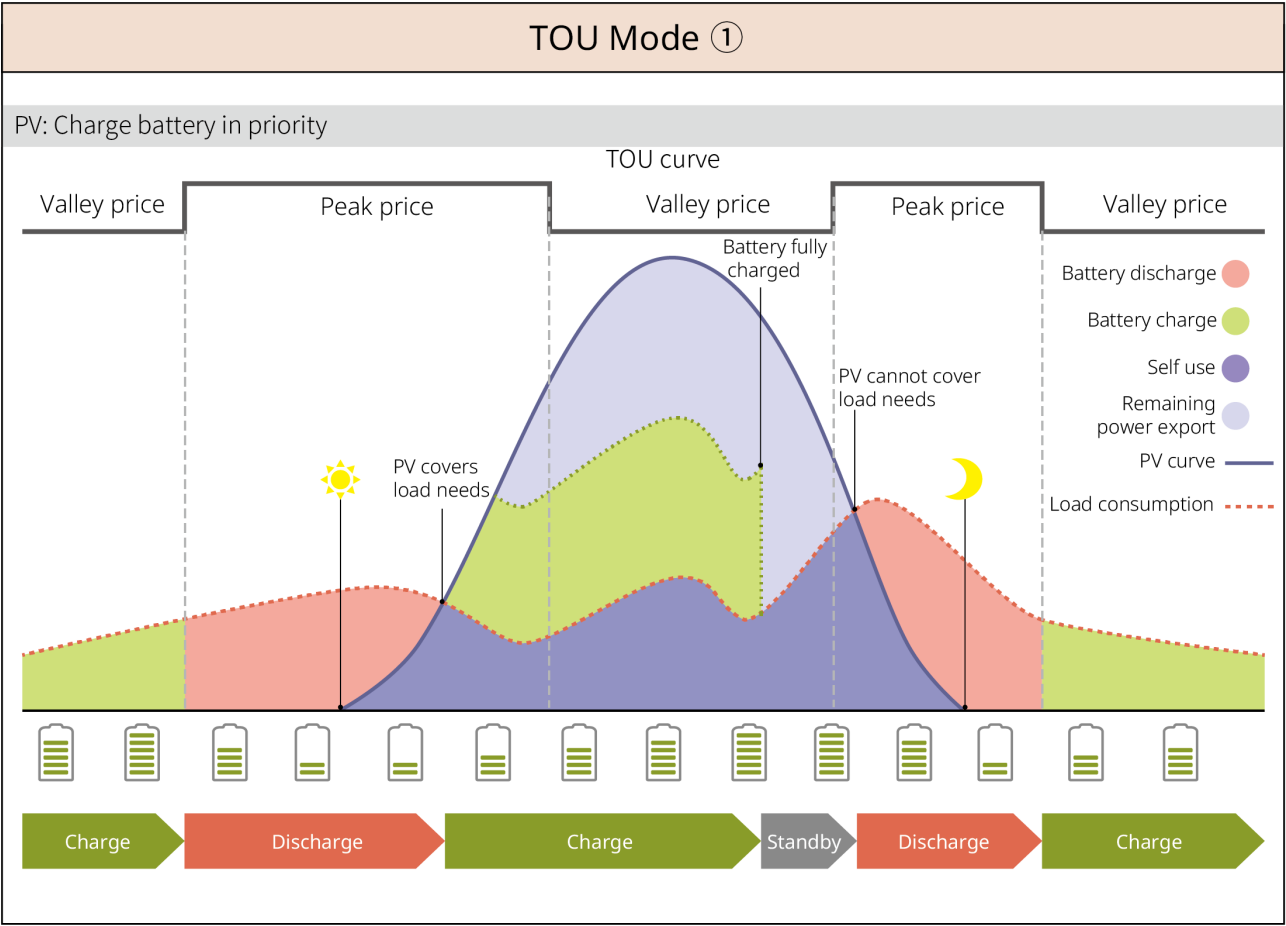




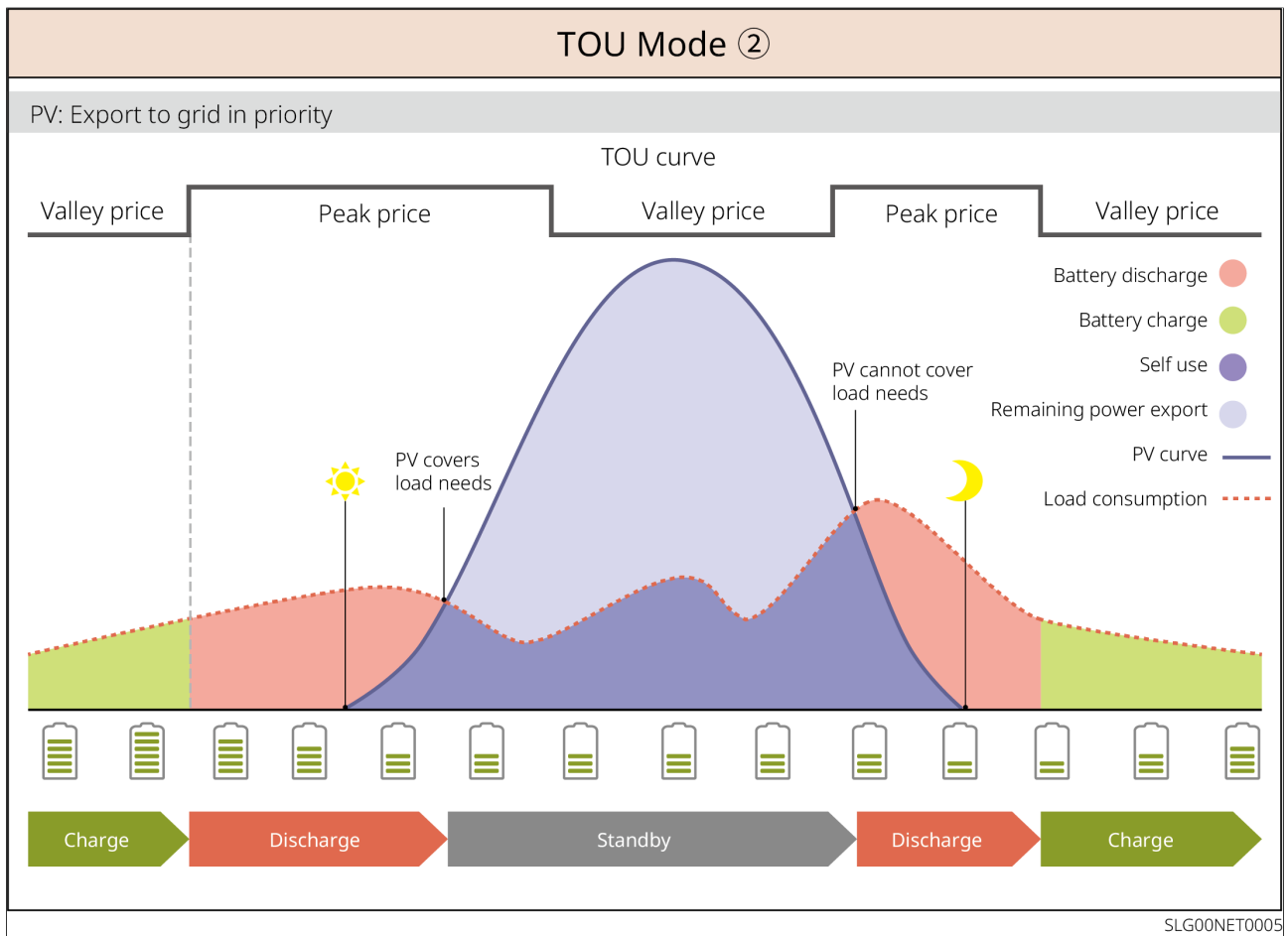
SLG00NET0003

TOU mode

It is recommended to use TOU mode in scenarios when the peak-valley electricity price varies a lot. Select TOU mode only when it meets the local laws and regulations. For example, set the battery to charging mode during Valley period to charge battery with grid power. And set the battery to discharging mode during Peak period to power the load with the battery.



SLG00NET0004



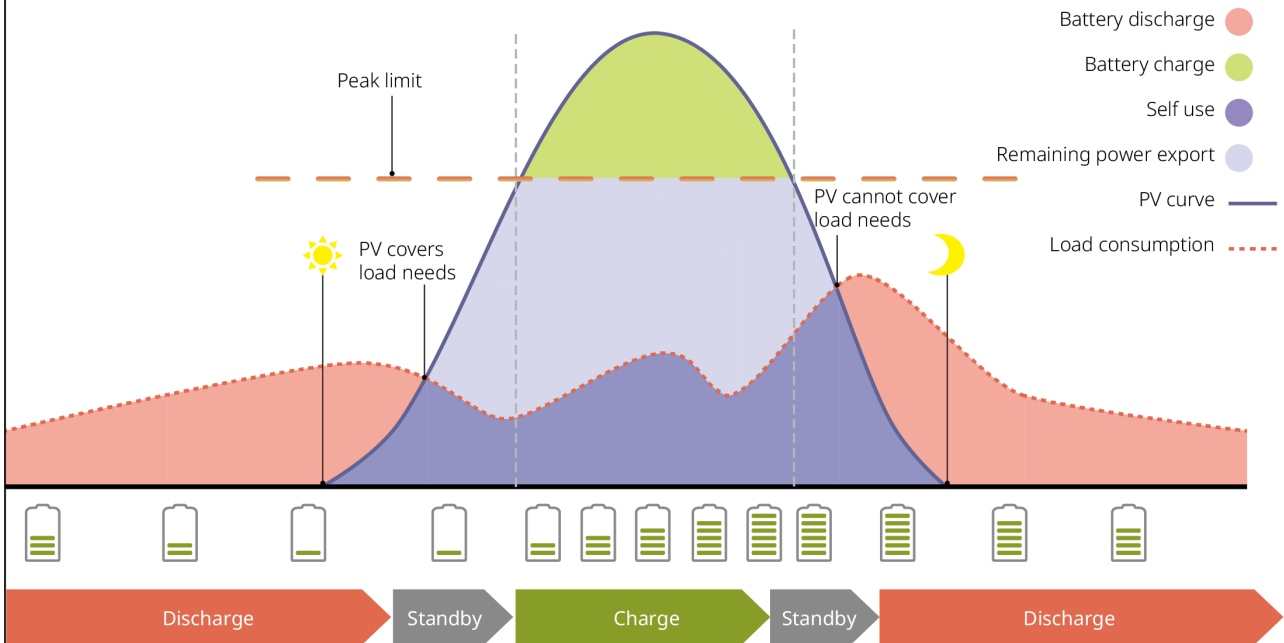
Delayed Charging Mode

- Suitable for areas with export power limit.
- Setting a peak power limit allows the PV power that exceeds the on-grid limit to be used to charge the battery; or setting a PV charging time period, during which the PV power is utilized to charge the battery.

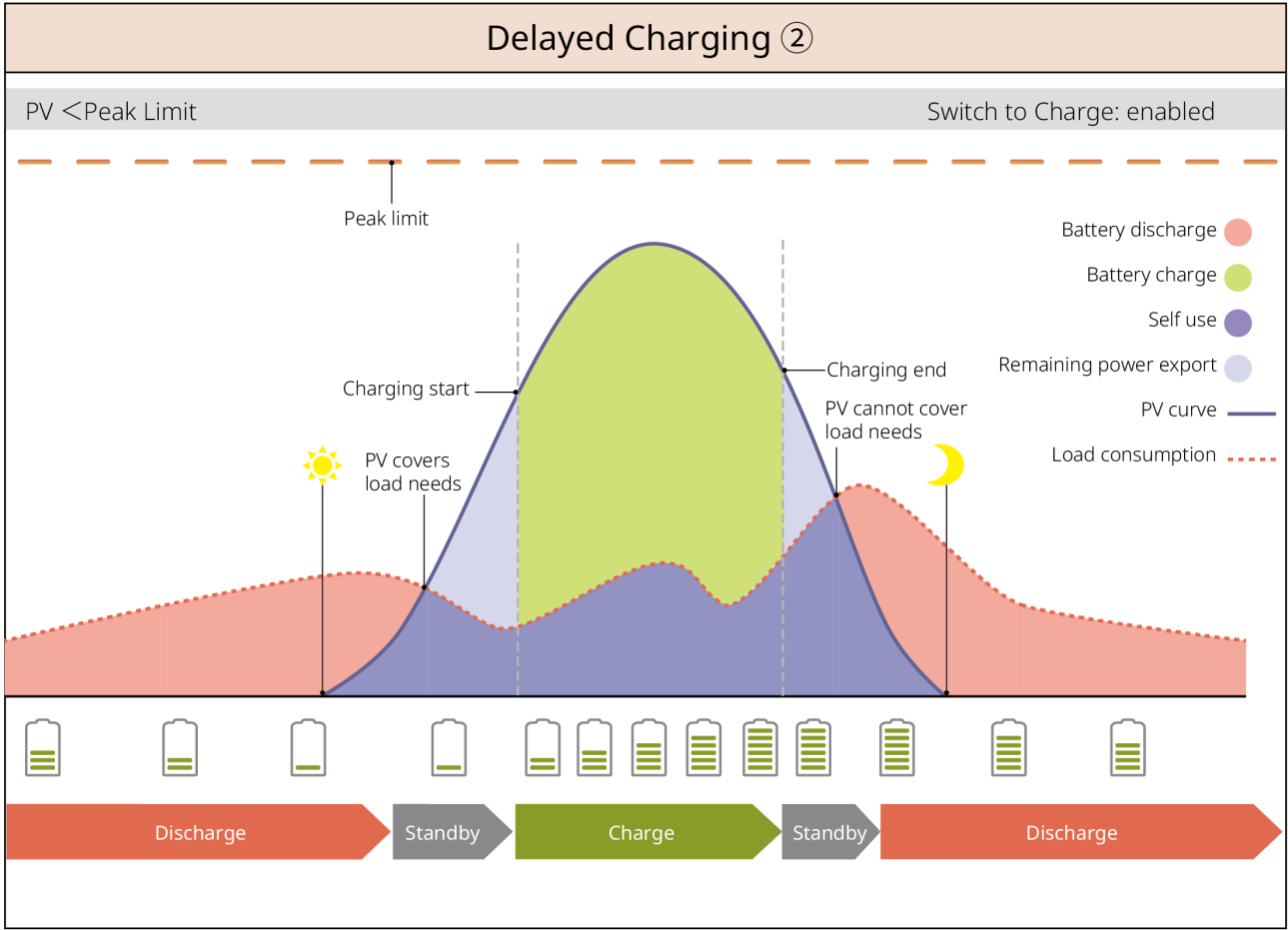
Delayed Charging ①

PV > Peak Limit

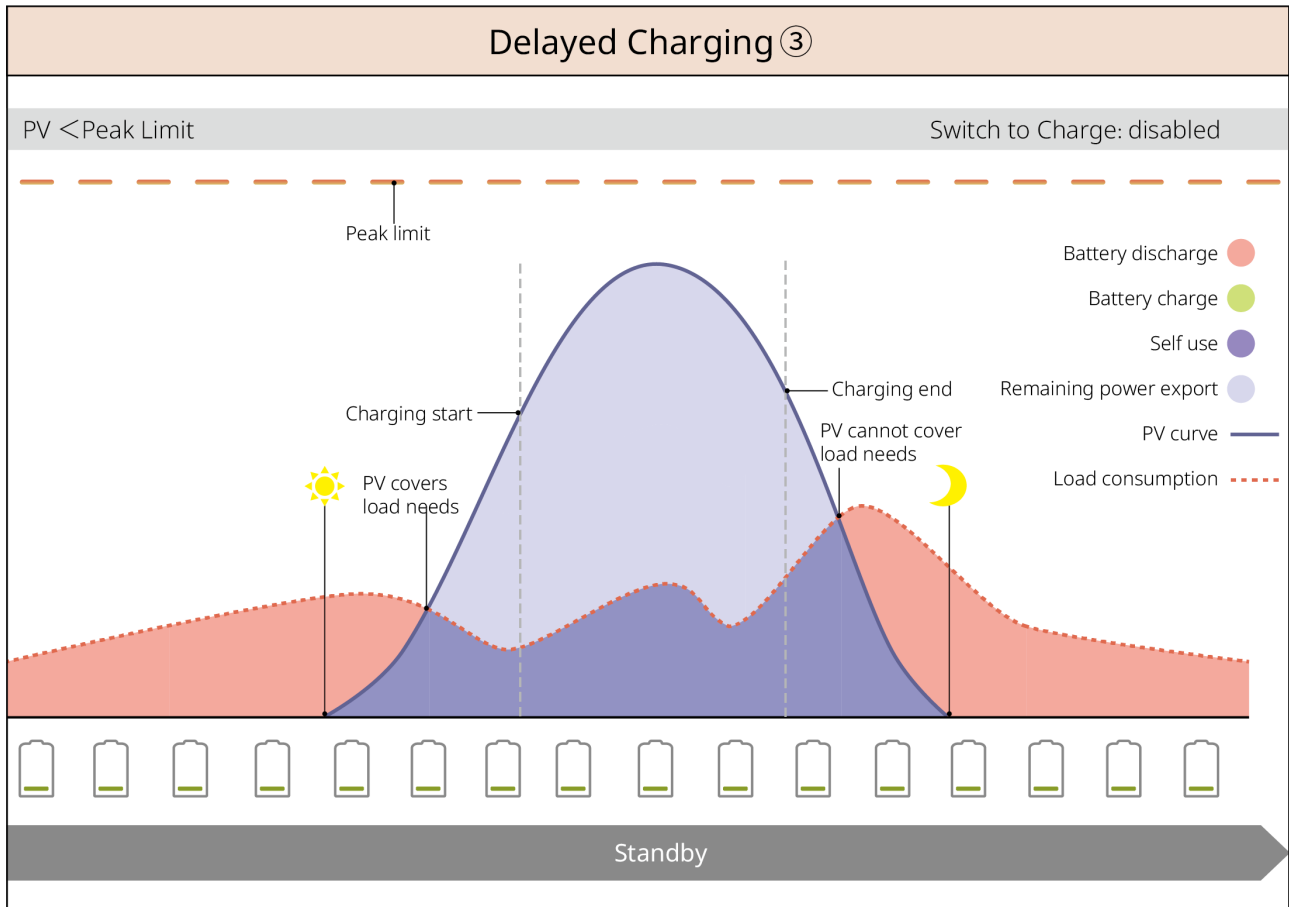
Switch to Charge: enabled/disabled



SLG00NET0006

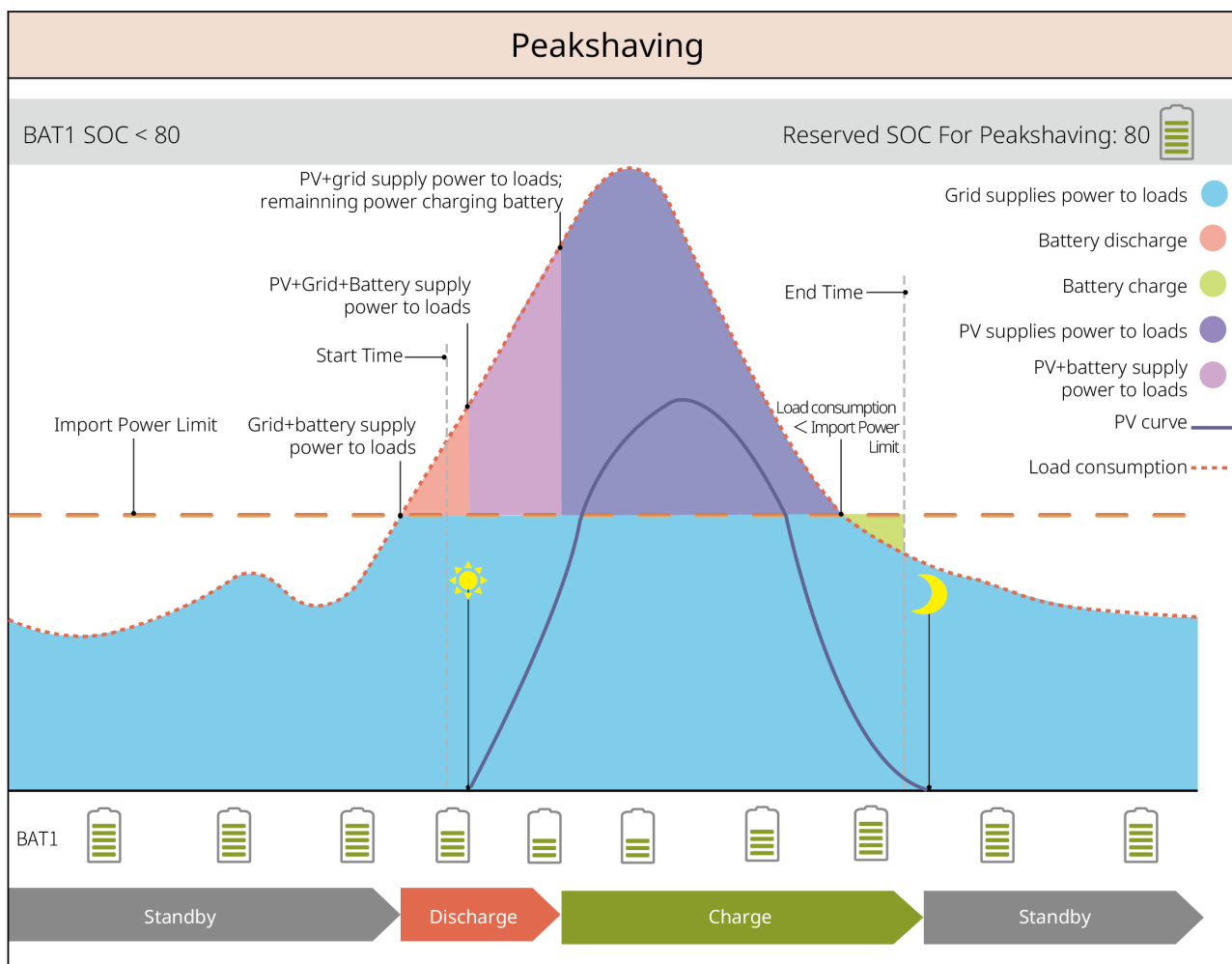


SLG00NET0007



Peakshaving Mode

- Peakshaving mode is mainly applicable to industrial and commercial scenarios.
- When the total power consumption of the load exceeds the power quota within a short period of time, battery discharge can be used to reduce the amount of power consumption exceeding the quota.
- When the battery SOC is below the reserved SOC for Peakshaving, the system will import power from the utility grid according to the set time period, load power, and import power limit.



SLG00NET0001

3.5 Features

Three-phase Unbalanced Output

Both the on-grid and the BACK-UP ports of the inverter support three-phase unbalanced output, and each phase can be connected to loads of different power. The maximum output power per phase for different models is shown in the table below:

The maximum output power per phase for different models is shown in the table below:

Model	Single-phase maximum output power
GW50K-ET-L-G10	1/3 x 50kW
GW75K-ET-G10	1/3 x 75kW

GW80K-ET-G10	1/3 x 88kW
GW99.99K-ET-G10	1/3 x 99.99kW
GW100K-ET-G10	1/3 x 110kW

AFCI

The inverter is integrated with an AFCI (Arc-Fault Circuit Interrupter) protection device used to detect arc faults and rapidly disconnect the circuit to avoid electrical fires.

Reason to occur electric arcs:

- Damaged connectors in PV or battery system.
- Wrong connected or broken cables.
- Aging of connectors and cables.

Troubleshooting:

1. When the inverter detects an arc, the type of fault can be viewed through the App.
2. The alarm can be cleared automatically in 5 minutes if the inverter triggers a fault for less than 5 times within 24 hours. The inverter will shutdown for protection after the 5th electric arc fault. The inverter can operate normally after the fault is solved. For more details, refer to the SolarGo APP User Manual.

Standard for Brazil, optional for other regions.

Model	Label	Description
GW50K-ET-L-G10 GW75K-ET-G10 GW80K-ET-G10 GW99.99K-ET-G10 GW100K-ET-G10	F-I- AFPE-1- 4-4	F (Full coverage): Full coverage inverter PV input port I (Integrated): AFPE (Arc Fault Protection Equipmt) integrated in the inverter: combines two arc detection functions of AFD and AFI 1: A pair of PV input ports (PV+, PV-) connected to a string of PV input strings 4: The number of PV input ports detected by one arc detection sensor 4: The quantity of arc detection sensors.

Load Control (Optional)

The inverter has a dry contact controlling port, which supports connecting additional contactors to enable/disable the load. It supports domestic loads, heat pumps, etc. Load control methods are as follows:

- Time control: Set the time to turn the load on or off, and the load will automatically turn on or off within the set time period.
- Switch control: When the control mode is set to ON, the load turns on; when set to OFF, the load turns off.
- BACK-UP load control: The inverter is equipped with a built-in relay dry contact control port, which enables load on/off control via the relay. In off-grid mode, if the BACK-UP terminal is detected to be overloaded and the battery SOC is lower than the set value for battery off-grid protection, the load connected to the relay port can be turned off.

Rapid shutdown (RSD) (Optional)

In the rapid shutdown system, the receiver and transmitter work together to shutdown the PV system rapidly. The receiver maintains the modules working by continuously receiving a heartbeat signal from a transmitter. The transmitter is integrated into the inverter. In case of an emergency, you can enable the external initiator to shut down the transmitter, by which the RSD will stop working and the modules be shut down.

External Transmitter

- Transmitter Model: GTP-F2L-20, GTP-F2M-20

<https://www.goodwe.com/Ftp/Installation-instructions/RSD2.0-transmitter.pdf>

- Receiver Model: GR-B1F-20, GR-B2F-20

https://.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_RSD-20_Quick-Installation-Guide-POLY.pdf

Built-in Transmitter:

- External triggering device: Switch
- Receiver Model: GR-B1F-20, GR-B2F-20

https://.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_RSD-20_Quick-Installation-Guide-POLY.pdf

4 Check and Storage

4.1 Check Before Receiving

Check the following items before accept.

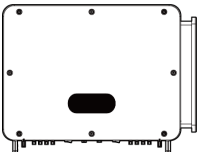
1. Check the outer packing box for damage, such as holes, cracks, deformation, and other signs of equipment damage. Do not unpack the package and contact the supplier as soon as possible if any damage is found.
2. Check the anti-tipping label on the outer package of the battery cabinet. If the circular mark is white, it indicates transportation was normal; if red, then it indicates the package tipped during transit. Do not open the package and contact your dealer.
3. Check the inverter model. If the product model is not what you requested, do not unpack the product and contact the supplier.
4. After unpacking, check the anti-tipping labels of the battery on the inner front door and side walls. If the circular mark is white, it indicates normal transportation; if red, it means the battery tipped during transit. Do not use this battery and contact the after-sales service center for inspection and repair.

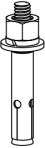
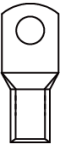
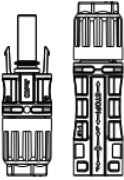
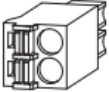
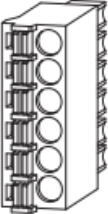
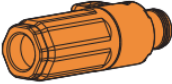
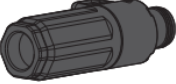
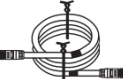
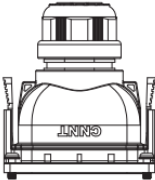
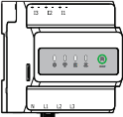
4.2 Deliverables

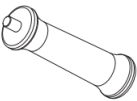
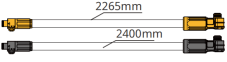
WARNING

Check the deliverables for correct model, complete contents, and intact appearance. Contact the supplier as soon as possible if any damage is found.

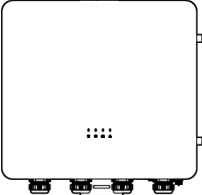
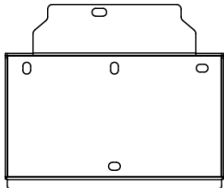
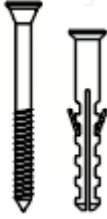
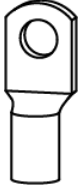
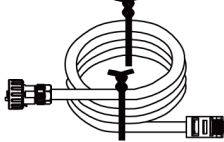
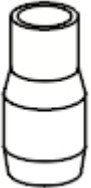
4.2.1 Inverter Deliverables

Component	Description	Component	Description
	Inverter x 1		Mounting plate x1

Component	Description	Component	Description
	Expansion bolts x 4		PE terminal x 2
	PV terminal x 16		PIN terminal x 21
	2 PIN terminal x 2		3 PIN terminal x 2
	6 PIN terminal x 1		7 PIN terminal x 1
	Power connector (Positive) x 2		Power connector (Negative) x 2
	Smart dongle x1		Meter Communication cable x 1
	Communication Connector		Meters and accessories x1

Component	Description	Component	Description
	PV terminal unlocking tool x 1		Inverter handle x 3
	Documents x 1		Beam x 2 ^[1]
	Inverter battery cable x 1 ^[1]		
Note:[1] It is only necessary to use when the inverter is installed on the battery side cabinet. It needs to be ordered separately.			

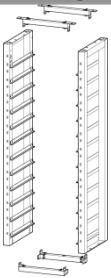
4.2.2 STS Deliverables

Component	Description	Component	Description
	STS x 1		Mounting plate x1
	Expansion bolts x 6		Grounding terminals x 1
	Nut x 4		Inverter and STS communication cable x 1
	AC insulating bushing x 1		Documents x 1

4.2.3 Battery Deliverables

4.2.3.1 Battery Deliverables (GW51.2-BAT-I-G10, GW56.3-BAT-I-G10)

• Battery Racks and Accessories

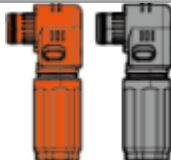
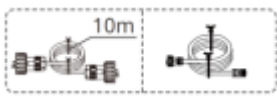
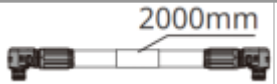
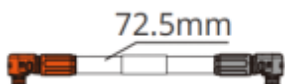
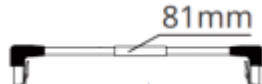
Component	Description	Component	Description
	Battery Racks x 1		Rubber Rat x 4
	M5 screw x N		

• Stacking brackets and accessories

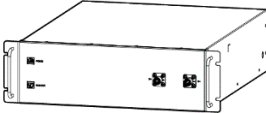
Component	Description	Component	Description
	Stacking brackets x 48		Equipotential connection tab x 15
	Anti-tipping bracket x 4		Wall mounting bracket x 4
	Cable gland x 1		Expansion bolts x 8
	Screws x N		Base x 1

	Adjustable feet x 4		
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• PCU and accessories

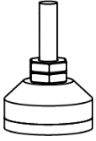
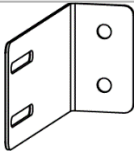
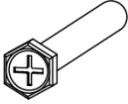
Component	Description	Component	Description
	PCU x 1		Power cable connector x 2
	Communication cable between a battery and an inverter x1		Cable ties x 10
	B-power cable x 1		B+power cable x 1
	Power cable x N		Communication cable between batteries x N
	PE terminal x 2		M12 Expansion bolt x 4
	Name plate x1		Document x 1

• Battery Module

Component	Description
	Battery Module • GW51.2-BAT-I-G10 x 10 • GW56.3-BAT-I-G10 x 11

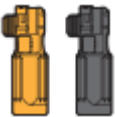
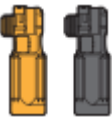
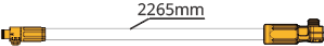
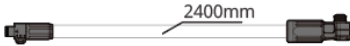
• Other optional components

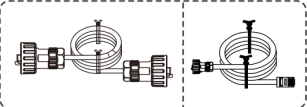
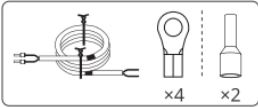
Parts	Description	Component	Description
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	Adjustable feet x 4		Wall locking anti-tip bracket x 2
	ST6.3 screw x 4		M5 screw x 4

4.2.3.2 Battery Deliverables (GW92.1-BAT-AC-G10, GW102.4-BAT-AC-G10, GW112.6-BAT-AC-G10)

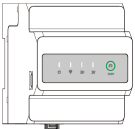
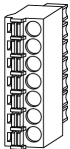
- Battery Racks and Accessories**

Component	Description	Component	Description
	Battery x1		Expansion screws x 3 x 4
	Grounding M5 screw x 3		Grounding terminal x 3
	Inverter batteries connector 25mm ² x 2		Connection terminals between batteries 50mm ² x 2
	Pack series-connected ties x N		Pack negative to the negative wire of the HV box x 1
	Inverter Power connector (Positive) x 1		Inverter batteries connector (Negative) x 1

	Battery and inverter Communication cable x 1		Air conditioner power wiring harness x 1
	Fireproofing mud x 8		Cable ties x 20
	Air conditioner water pipe bundle x 1		Rings x 4
	Bellows connector x N*		25mm ² Switch10mm ² Circular pipe terminal x N*
	Product documents x 1		

Note: *The quantity depends on the product configuration.

4.2.4 Smart Meter Deliverables

Component	Description	Component	Description
	Smart Meter GM330 x 1		2 PIN Communication terminal x 1
	PIN terminal x 6		7 PIN Communication terminal x 1
	Screw x 1		Documents x 1

4.2.5 Smart Dongle

4.2.5.1 WiFi/LAN Kit-20

Component	Description	Component	Description
	Communication module x 1		Documents x 1

4.2.5.2 Communication module delivery component 4G- G20/ 4G Kit- CN-G20)

4G Kit- G20

Component	Description	Component	Description
	Smart Dongle x1		Documents x 1
	Accessories x 1		Tool x 1 or 0

4G Kit- CN-G20

Component	Description	Component	Description
	Smart Dongle x1		Documents x 1

4.3 Storage

If the equipment is not to be installed or used immediately, please ensure that the storage environment meets the following requirements: If the equipment has been stored for a long time, it needs to be checked and confirmed by professionals before being put into use.

1. If the inverter has been stored for more than two years or has not been in operation for more than six months after installation, it is recommended to be inspected and tested by professionals before being put into use.
2. To ensure good electrical performance of the internal electronic components of the inverter, it is recommended to power it on every 6 months during storage. If it

has not been powered on for more than 6 months, it is recommended to be inspected and tested by professionals before being put into use.

3. In order to protect the performance and service life of the battery, it is recommended to avoid idle storage for a long period of time. Prolonged storage may cause deep discharging of the battery, resulting in irreversible chemical loss, leading to capacity degradation or even complete failure, timely use is recommended. If the battery needs to be stored for a long period of time, please maintain it according to the following requirements:

Setting the battery type	Initial SOC Range for Battery Storage	Storage Temperature (°C)	Charging and Discharging Maintaining Period ^[1]	Battery Maintenance Method ^[2]
GW51.2-BAT-I-G10	30%~ 40%	0~35	-20~35°C (≤12months) 35~+45°C (≤6months)	Contact the dealer or the after-sales service for maintenance method.
GW56.3-BAT-I-G10				
GW92.1-BAT-AC-G10				
GW102.4-BAT-AC-G10				
GW112.6-BAT-AC-G10				

Notice

[1] The storage time starts from the SN date on the outer packaging of the battery and requires charging and discharging maintenance after the storage cycle is exceeded. (Battery maintenance time = SN date + charging/discharging maintenance cycle). To view the SN date, please refer to :[the meaning of SN code](#).

[2] After passing the charging/discharging maintenance, if there is a Maintaining Label attached to the outer box, then please update the maintenance information on the Maintaining Label. if there is no Maintaining Label, please record the maintenance time and SOC of the batteries and keep the data to facilitate the keeping of maintenance records.

Packing requirements:

Do not unpack the outer package or throw the desiccant away.

Installation Environment Requirements:

1. Place the equipment in a cool place where away from direct sunlight.
2. Store the equipment in a clean place. Make sure the temperature and humidity are appropriate and no condensation. Do not install the equipment if the ports or terminals are condensed.
3. Keep the equipment away from flammable, explosive, and corrosive matters.

Stacking requirements:

1. The height and direction of the stacking equipment should follow the instructions on the packing box.
2. The equipment must be stacked with caution to prevent them from falling.

5 Installation

DANGER

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

5.1 System Installation and Commissioning Procedure

Steps	1 Installation	2 PE	3 PV	4 Battery	5 AC	6 COM	7 Communication module
Inverter							
Tools							

Steps	1 Installation	2 PE	3 Battery	4 COM	5 Air-conditioner wiring
Battery Battery B					
Tools					

Steps	1 Installation	2 PE	3 Battery	4 COM
Battery Battery A				
Tools				

Steps	1 Installation	2 PE	3 AC	4 COM
STS				
Tools				

Steps	1 Installation	2 Cable Connections	3 Power	4 Commissioning
Smart meter GM330				

ET10010INT0001

ET10010INT0006

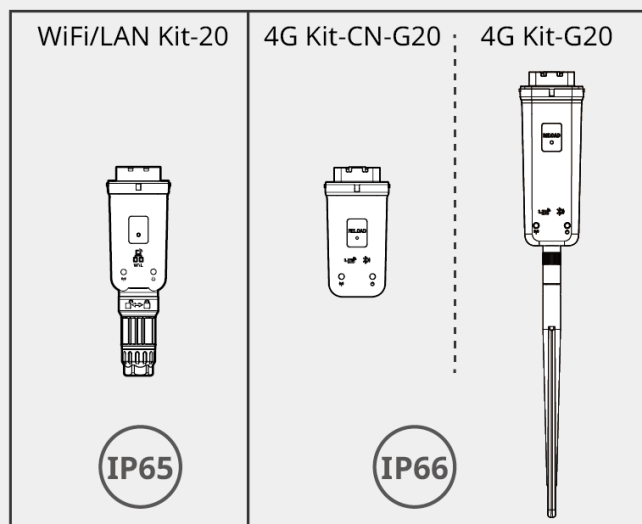
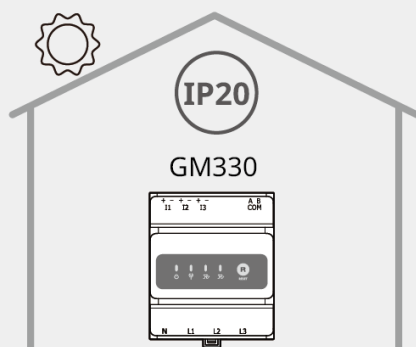
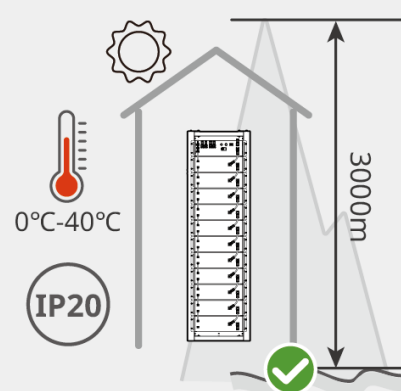
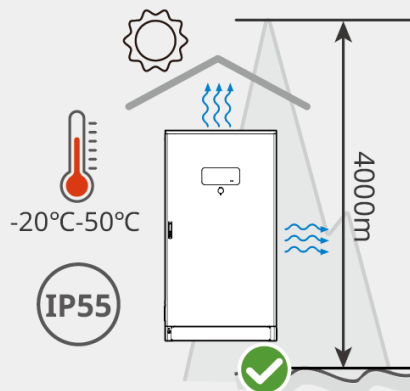
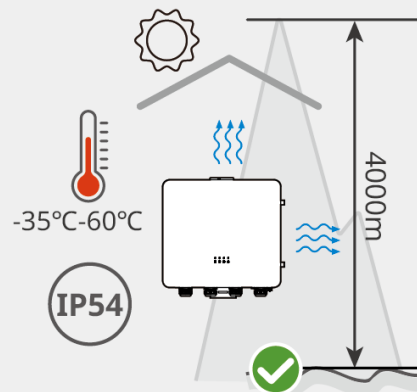
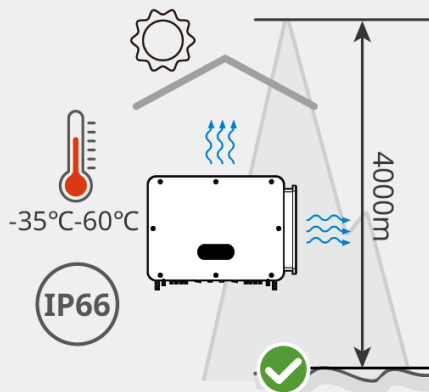
5.2 Installation Requirements

5.2.1 Installation Environment Requirements

1. Do not install the equipment in a place near flammable, explosive, or corrosive materials.
2. The temperature and humidity at the installation site should be kept within the appropriate range.
3. Keep away from children.
4. Do not touch the running equipment to avoid being hurt as its temperature may exceed 60°C.
5. Install the equipment in a sheltered place to avoid direct sunlight, rain, and snow. Build a sunshade if it is needed.
6. The place to install the equipment shall be well-ventilated for heat radiation and large enough for operations.
7. Check the protection rating of the equipment and ensure that the installation environment meets the requirements. The inverter, battery system, and smart dongle can be installed both indoors and outdoors. But the smart meter can only be installed indoors.
8. The installation height of the equipment shall be convenient for operation and maintenance. Ensure that the equipment indicator lights, all labels are easy to view, and the terminal blocks are easy to operate.
9. The altitude to install the equipment shall be lower than the maximum working altitude.
10. Consult the manufacturer before installing the equipment outdoors in salt affected areas. A salt affected area refers to the region within 500 meters offshore , and will be related to the sea wind, precipitation and topography.
11. Install the equipment away from electromagnetic interference. If there is any radio or wireless communication equipment below 30MHz near the equipment, you have to:
 - Inverter: Add a ferrite core with multiple windings or a low-pass EMI filter at the DC input line or AC output line of the inverter; or ensure the distance between the inverter and wireless electromagnetic interference equipment is more than 30 meters.
 - Other equipment: the distance between the equipment and the wireless EMI equipment should be more than 30m.



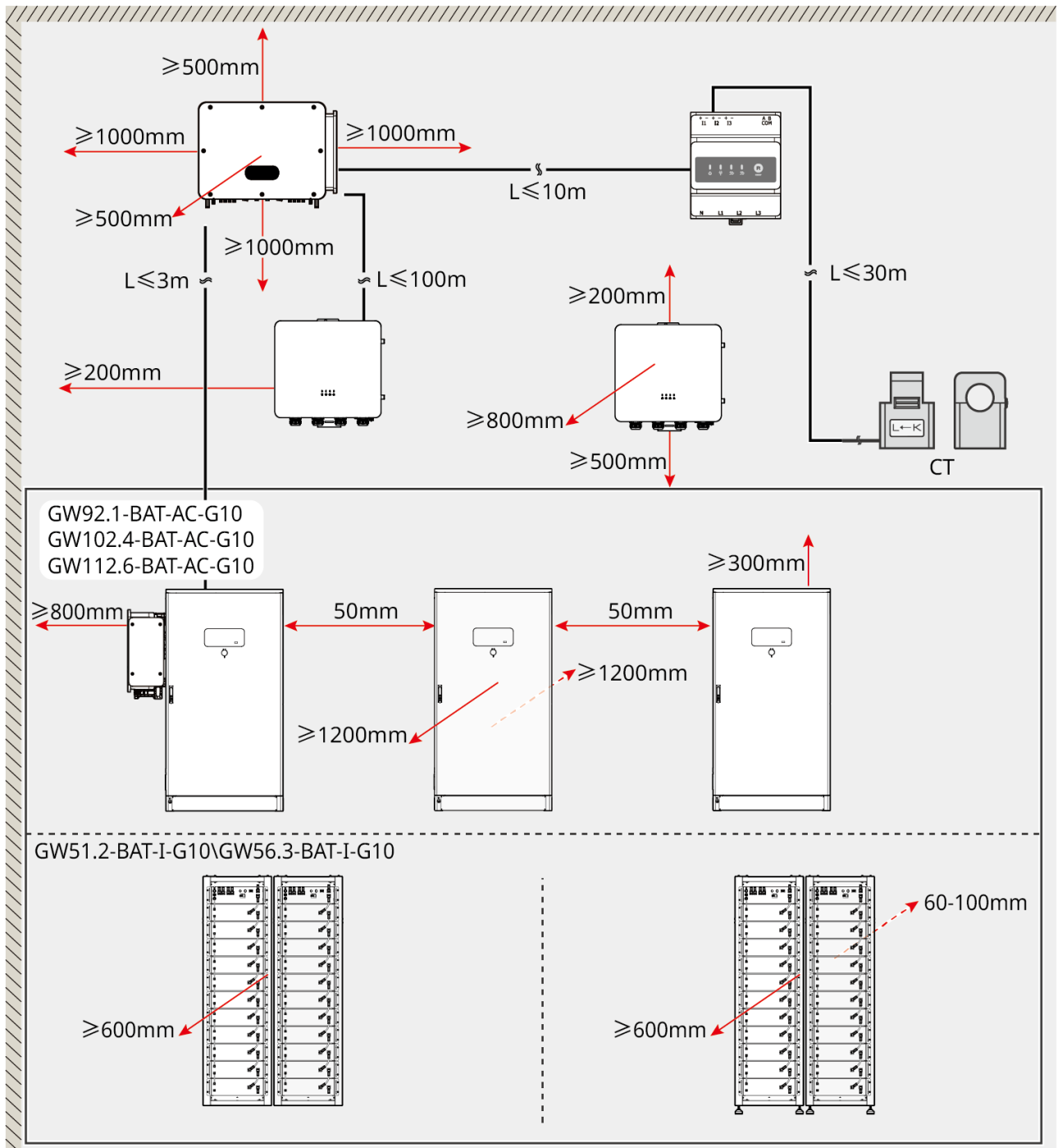
0%-95%RH



ET10010INT0002

5.2.2 Installation Space Requirements

Reserve enough space for operations and heat dissipation when installing the system.



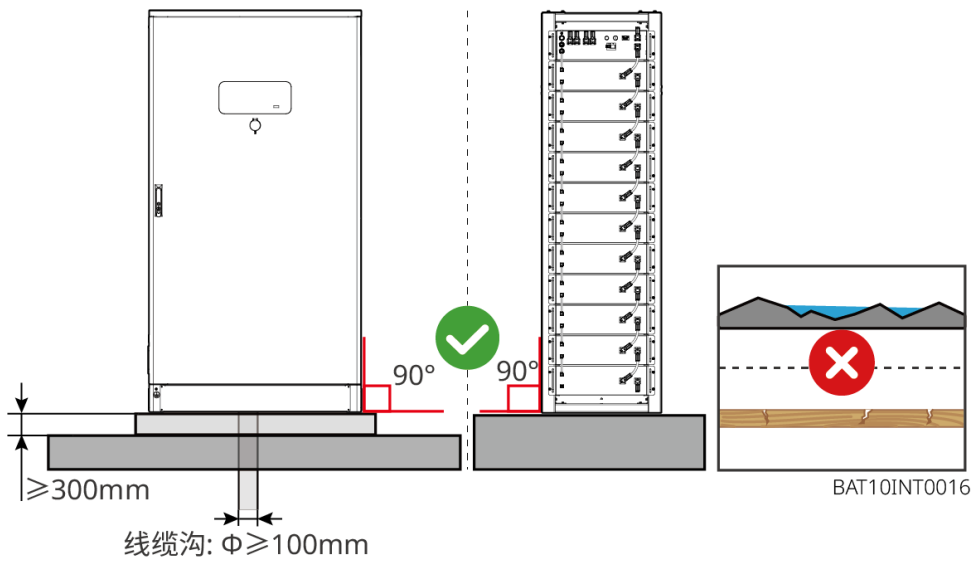
ET10010INT0003

5.2.3 Foundation Requirements

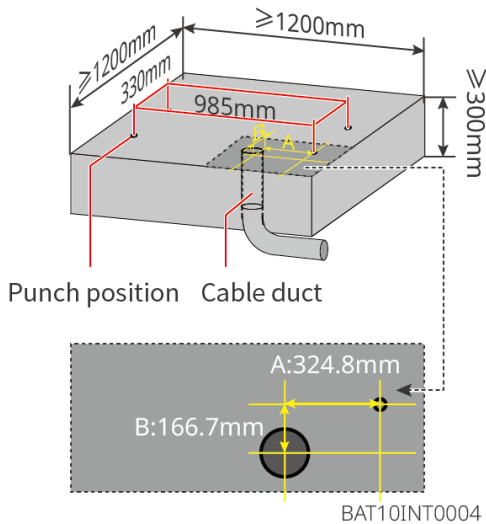
- The installation foundation of the battery system must be flat and dry, without sinking or tilting, and it is strictly prohibited to install it in a water accumulation environment.
- Please ensure that the ground is level and able to support the weight of the battery system.
- The foundation material must be C25 plain concrete hardened ground or other non-combustible surfaces.
- The foundation needs to reserve trenches or outlet holes to facilitate equipment wiring.
- Equipment (including height, pre-embedded expansion screws, conduit, etc.) should be adjusted according to the process and on-site conditions.
- The height of the top mark of the equipment foundation can be adjusted according to the actual needs of the equipment and the site.
- Install the equipment vertically, no tilt or upside down.
- Trench requirement:
 1. If the cable enters to the equipment from bottom, the trench must have dust-proof and rodent proof design to prevent foreign objects from entering.
 2. There must be waterproof and moisture-proof design in the trench to prevent cable aging and short circuit, which may affect the normal operation of equipment.
 3. Due to the thickness of the equipment cables, the trench design needs to fully reserve cable positions to ensure smooth connection and prevent wear and tear.

Notice

The conduit can be replaced with appropriate PVC pipes according to the site requirement.



GW92.1-BAT-AC-G10, GW102.4-BAT-AC-G10, GW112.6- BAT-AC-G10:

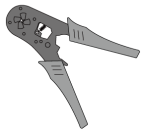
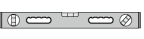
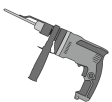
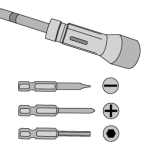
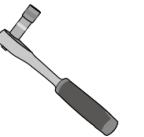
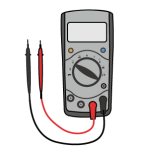
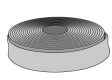
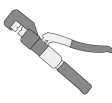


5.2.4 Tool Requirements

Notice

The following tools are recommended when installing the equipment. Use other auxiliary tools on site if necessary.

Installation Tools

Tool Type	Description	Tool Type	Description
	Diagonal pliers		RJ45 crimping tool
	Wire stripper		Level ruler
	Adjustable wrench		PV connector crimping tool A-2546B
	Impact drill (drill bits $\Phi 8\text{mm}$)		Torque wrench M4/M5/M8
	Rubber hammer		Socket wrench set
	Marker		Multimeter Range $\leq 600\text{V}$
	Heat shrink tube		Heat gun
	Cable tie		Vacuum cleaner
	YQK-70 hydraulic pliers		

Personal Protective Equipment

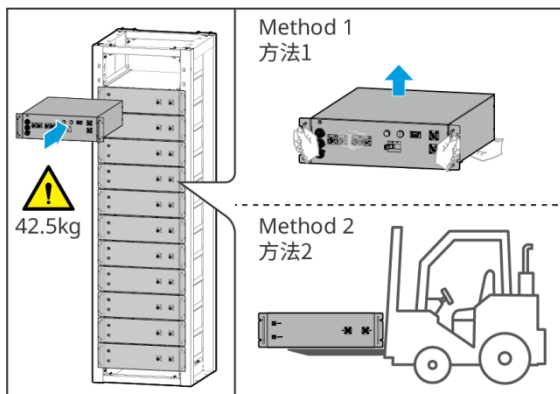
Tool Type	Description	Tool Type	Description
	Insulating gloves, protective gloves		Dust mask
	Goggles		Safety shoes

5.2.5 Transportation Requirements

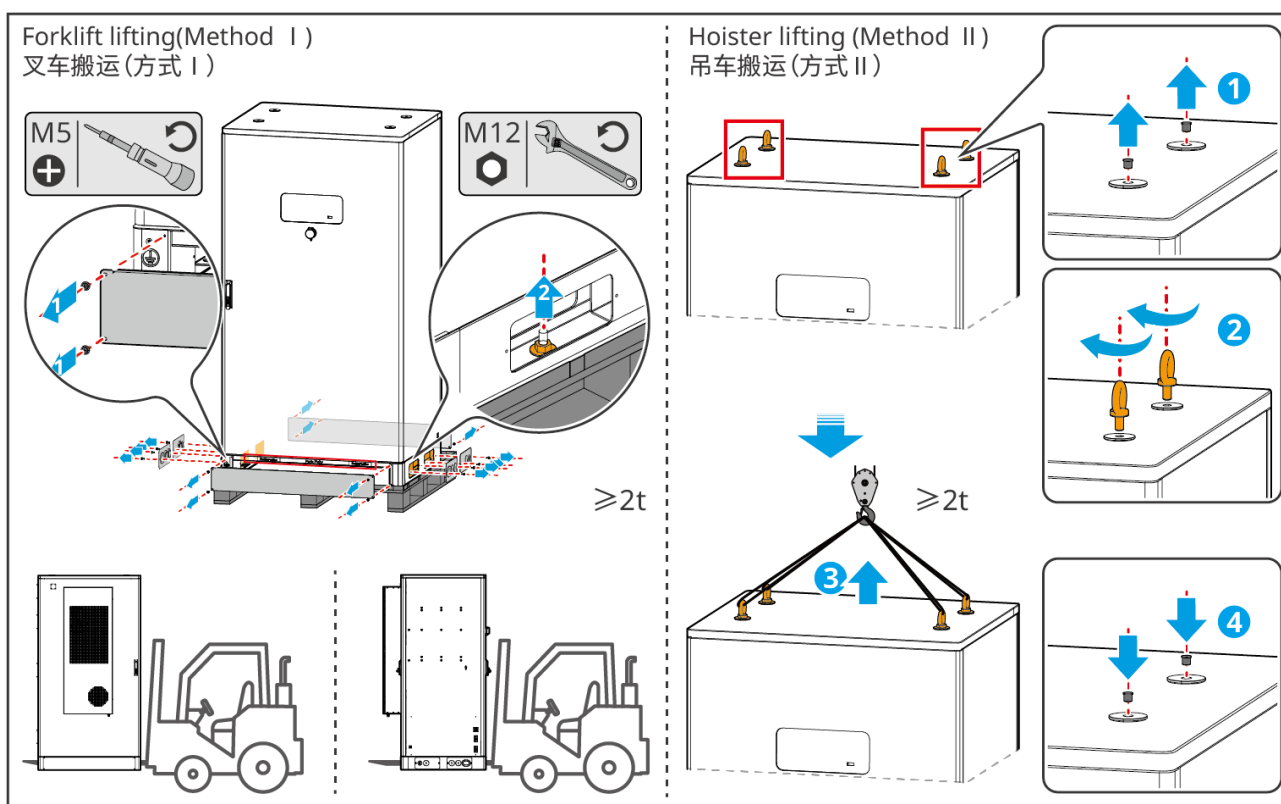
CAUTION

- Operations such as transportation, turnover, installing and so on must meet the requirements of local laws and regulations.
- Move the inverter to the site before installation. Follow the instructions below to avoid personal injury or equipment damage:
 1. Consider the weight of the equipment before moving it. Assign enough personnel to move the equipment to avoid personal injury.
 2. Wear safety gloves to avoid personal injury.
 3. Keep the equipment in balance to avoid its falling down during moving.
 4. Please ensure that the cabinet door is locked during the equipment handling process.
- The energy storage system can be transported to the installation site by lifting or forklift.
- When using lifting methods to transport equipment, please choose flexible slings or straps, and the load-bearing capacity of a single strap should be $\geq 2t$.
- When using forklift to transport equipment, the load-bearing capacity should be $\geq 2t$.

- **GW51.2-BAT-I-G10, GW56.3-BAT-I-G10**



• GW92.1-BAT-AC-G10/GW102.4/BAT-AC-G10/GW112.6- BAT-AC-G10



BAT10INT0003

5.3 Inverter Installation

CAUTION

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

Step1: Put the mounting plate on the wall horizontally and mark positions for drilling holes.

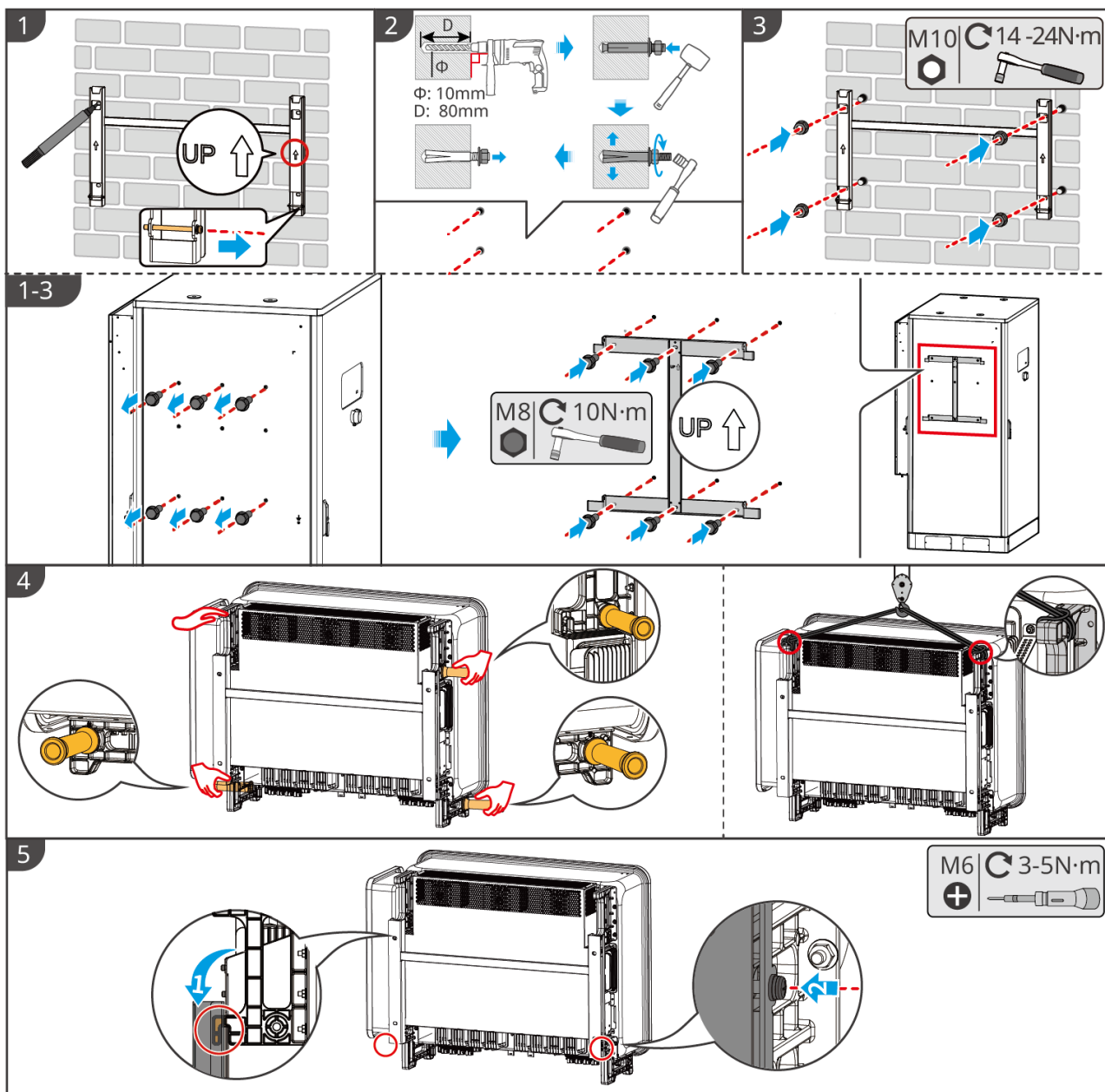
Step2: Drill holes with the impact drill, put the expansion bolts into the holes.

Step3: Screw down the expansion bolts to fix the inverter mounting plate on the wall.

Step4: Move the inverter.

- Manual handling: After installing the inverter handle, hold the handle for carrying. If additional handles need to be installed, please contact the after-sales service center for assistance..
- Hoisting and moving: Securely fasten the sling through the lifting holes, then use a crane for transportation.

Step5: Hang the inverter on the mounting plate, and tighten the inverter on the mounting plate with M6 screws to ensure the inverter is installed securely.



ET10010INT0005

5.4 STS Installation

Step 1: Put the mounting plate on the wall horizontally and mark positions for drilling holes.

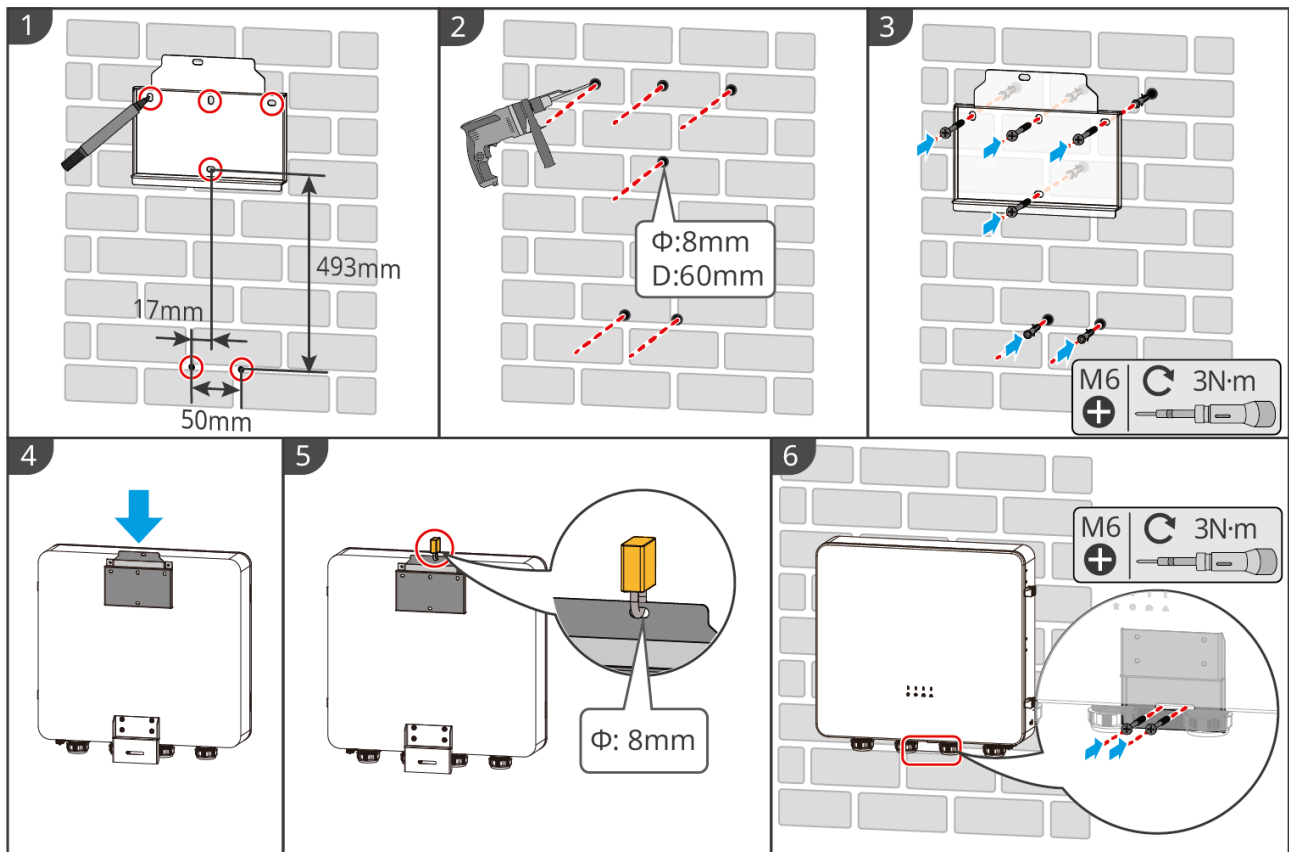
Step 2: Drill holes with the impact drill.

Step 3: Use the expansion bolts to fix the mounting plate on the wall.

Step 4: Install the STS on the mounting plate.

Step 5: Install a security lock.

Step 6: Use M6 screws to fix the support frame on the wall.



STS10INT0004

5.5 Installing the Battery System

5.5.1 Installation GW51.2-BAT-I-G10, GW56.3-BAT-I-G10

• Battery Rack Mount

Assemble the battery rack

Step1: Lay the rack flat according to the arrow mark and align the holes according to the serial number on the rack.

Step2: Use M5 screws to fix the round holes and then the waist holes.

Battery

• Type I

Step1: Use a marker to mark the drilling position on the horizontal ground.

Step2: Use an impact drill to drill holes and install expansion bolts.

Step3: Move the battery rack to the hole position and tighten the expansion bolts

with a socket wrench.

• Type II

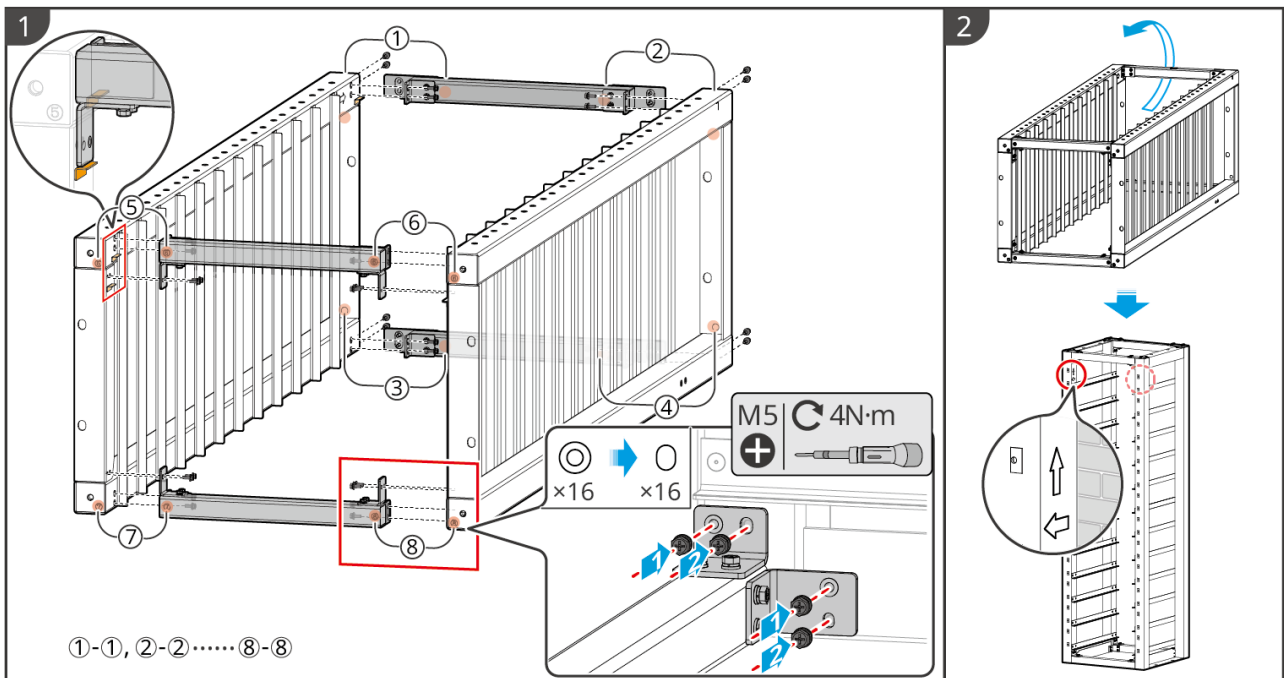
Step1: Lay down the rack and install the adjustable feet at the bottom.

Step2: Stand up the rack and use the wall fixing bracket to fix the battery rack to the wall.

Install the PCU and BatteryPack

Step1: Push the PCU and battery pack directly or use a forklift to carry the PCU and Battery Pack.

Step2: Attach labels, use M5 screws to tighten the PCU and Battery Pack.



BAT10INT0001

• Stacked Installation

Step1: Install foot cups under the base. The height of the foot cups can be adjusted within the range of 35-45mm.

Step 2: Fix the anti-tip brackets on the base.

Step3: Mark the drilling positions for the expansion bolts on the ground with a pen.

Step 4: Install the expansion bolts.

Step 5: Fix the anti-tip brackets to the ground with the expansion bolts.

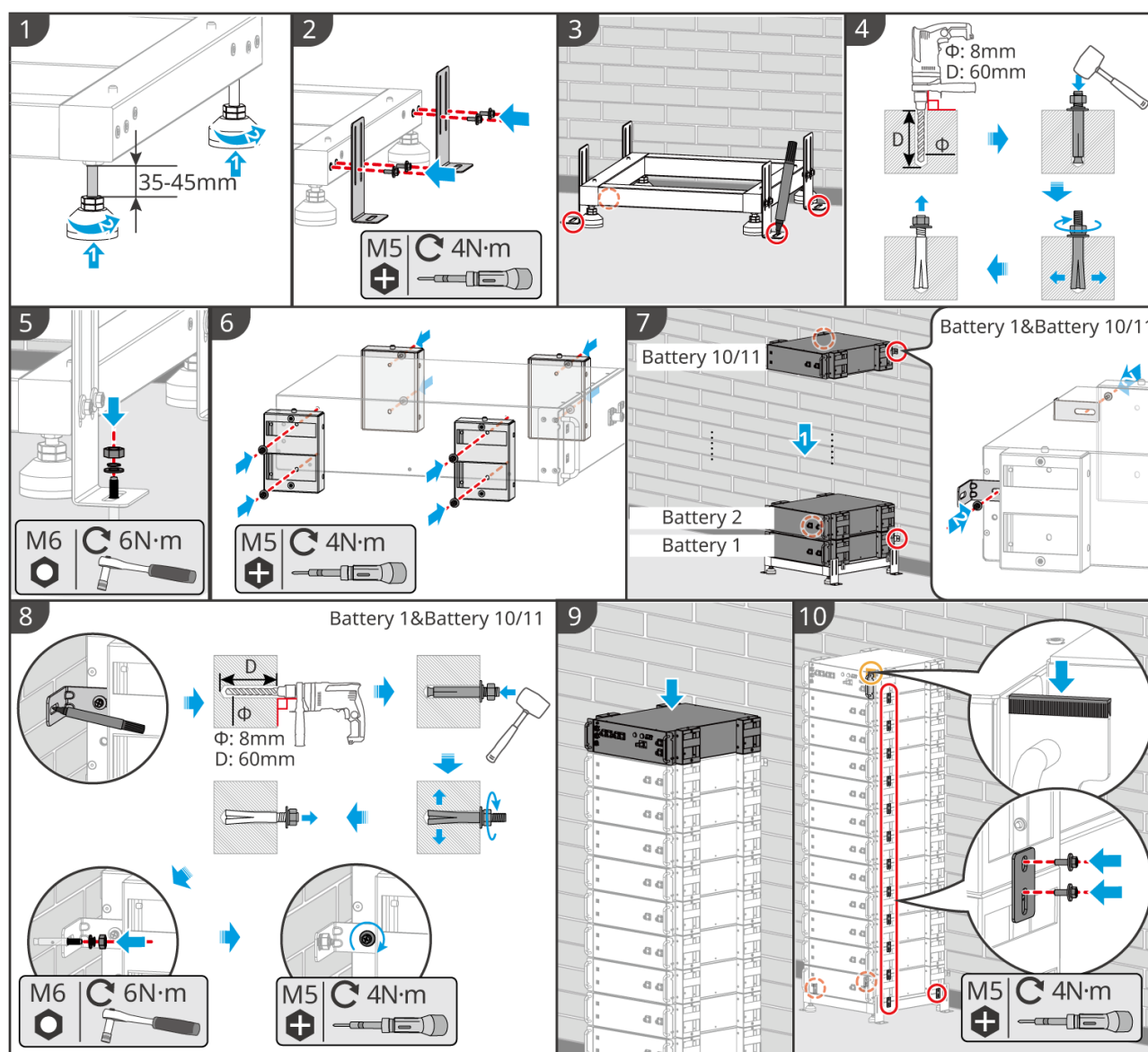
Step 6: Install the stacking brackets.

Step 7: Stack the Battery Packs, and pre-tighten the wall fixing brackets on the first and last Battery Packs.

Step 8: Mark the drilling positions for the expansion bolts on the wall with a pen, fix the wall fixing brackets with the expansion bolts, and then tighten the wall fixing brackets on the Battery Packs.

Step 9: Place the high-voltage box.

Step 10: Fix the equipotential bonding sheets with M5 screws.

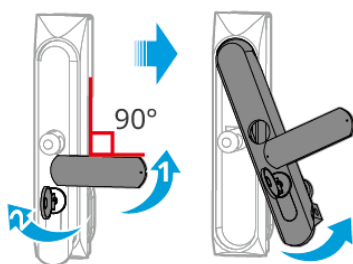


BAT10INT0021

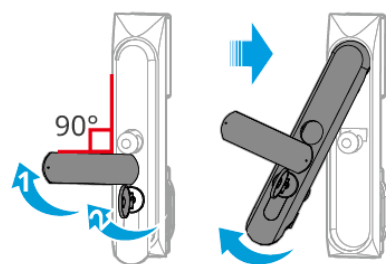
5.5.2 Installation GW92.1-BAT-AC-G10, GW102.4-BAT-AC-G10, GW112.6- BAT-AC-G10

Cabinet door operation

Open the door



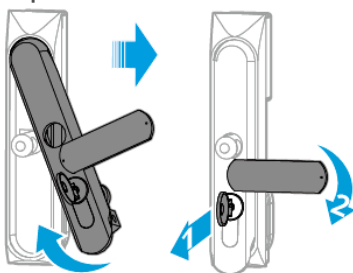
Front door



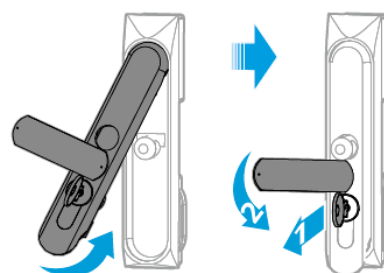
Back door

BAT10INT0006

Open the door



Front door

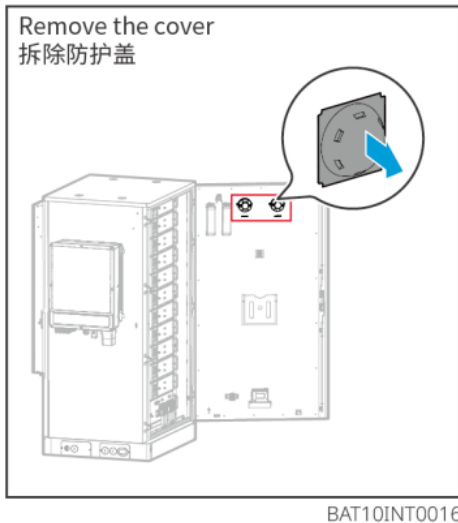


Back door

BAT10INT0007

Remove the the protecting cover of smoke alarm and temperature alarm.

When the batteries are shipped, smoke alarms and temperature alarms are equipped with protective covers. The protective covers need to be removed for the alarms to work properly.



Remove the skid plate and front panels, and lifting the batteries.

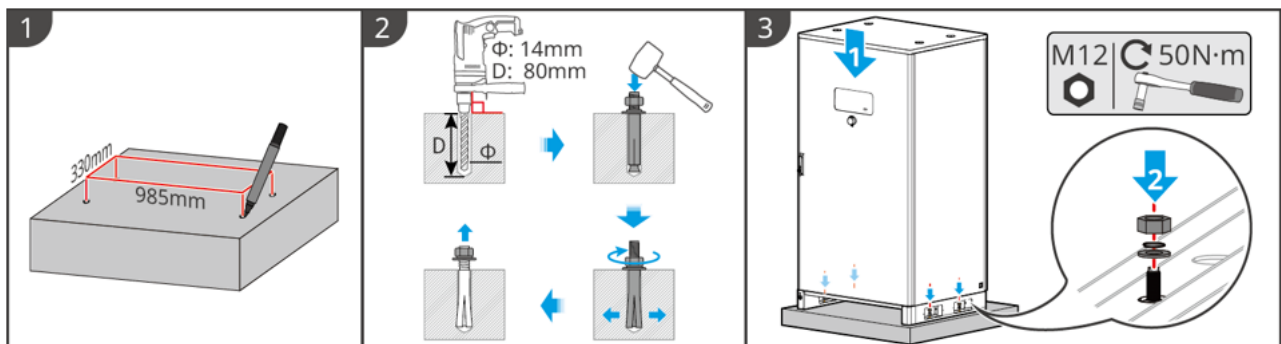
Note

- Remove the front panels before using a forklift to handle the batteries.
- The battery system is fastened to the skid plate with bottom screws when shipped. Remove the skid plate first before installation.

Step1: Mark the drilling positions according to the dimensions shown in the diagram.

Step2: Use an impact drill to drill holes and install expansion bolts.

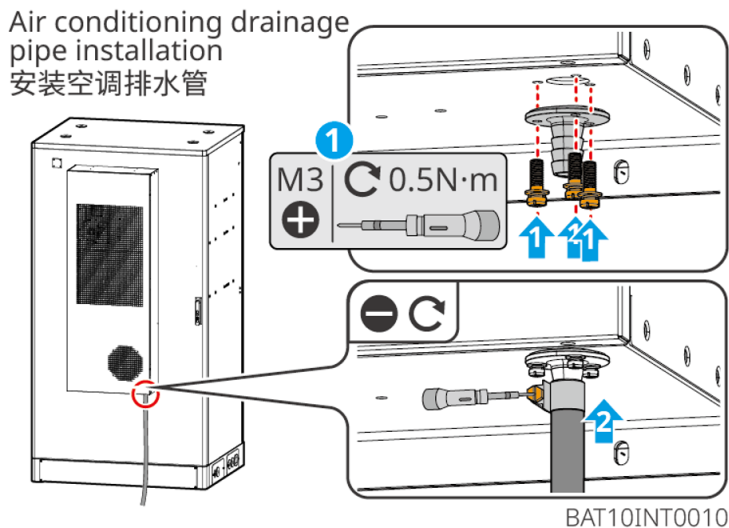
Step3: Move the battery rack to the hole positions and secure the batteries to the foundation with expansion bolts.



Install the air conditioner drain pipe

Step1: Install the air conditioner drain pipe connector.

Step2: Secure the air conditioner drain pipe to the connector.

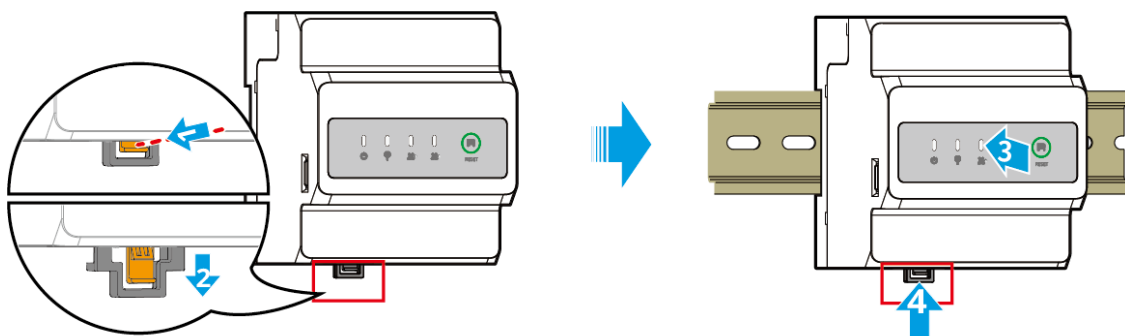


5.6 Installing the Smart Meter

⚠ WARNING

In areas at risk of lightning, if the meter cable exceeds 10 m and the cables are not wired with grounded metal conduits, you are recommended to use an external lightning protection device.

5.6 GM330



6 System Wirings

DANGER

- The erection, routing, connection and other operations of cables must comply with local laws and regulations.
- All operations, cables and parts specification during the electrical connection shall be in compliance with local laws and regulations.
- Disconnect the DC switch and the AC output switch of the inverter to power off the inverter before any electrical connections. Do not work with power on. Otherwise, an electric shock may occur.
- Tie the same type cables together, and place them separately from cables of different types. Do not place the cables entangled or crossed.
- If the cable bears too much tension, the connection may be poor. Reserve a certain length of the cable before connecting it to the Inverter cable port.
- When crimping the cable terminal, ensure that the cable conductor is in full contact with the terminal. Do not crimp the cable insulation together with the cable terminal. Otherwise, it may cause the equipment to fail to operate, or result in damage to the inverter terminal block due to issues such as overheating caused by unreliable connections during operation.

WARNING

- Do not connect loads between the inverter and the AC switch directly connected to the inverter.
- Install one AC output circuit breaker for each inverter. Multiple inverters cannot share one AC circuit breaker.
- An AC circuit breaker shall be installed on the AC side to make sure that the inverter can safely disconnect the grid when an exception happens. Select the appropriate AC circuit breaker in compliance with local laws and regulations.
- The BACK-UP function of the inverter needs to be implemented with an STS Static Transfer Switchgear.

Note

- Wear personal protective equipment like safety shoes, safety gloves, and insulating gloves during electrical connections.
- All electrical connections should be performed by qualified professionals.
- Cable colors in this document are for reference only, the cable specifications shall meet local laws and regulations.
- The external overcurrent protection devices for battery ports and AC output ports shall be provided during on-site installation and clearly specified in the installation manual.

6.1 System Wiring Electrical Block Diagram

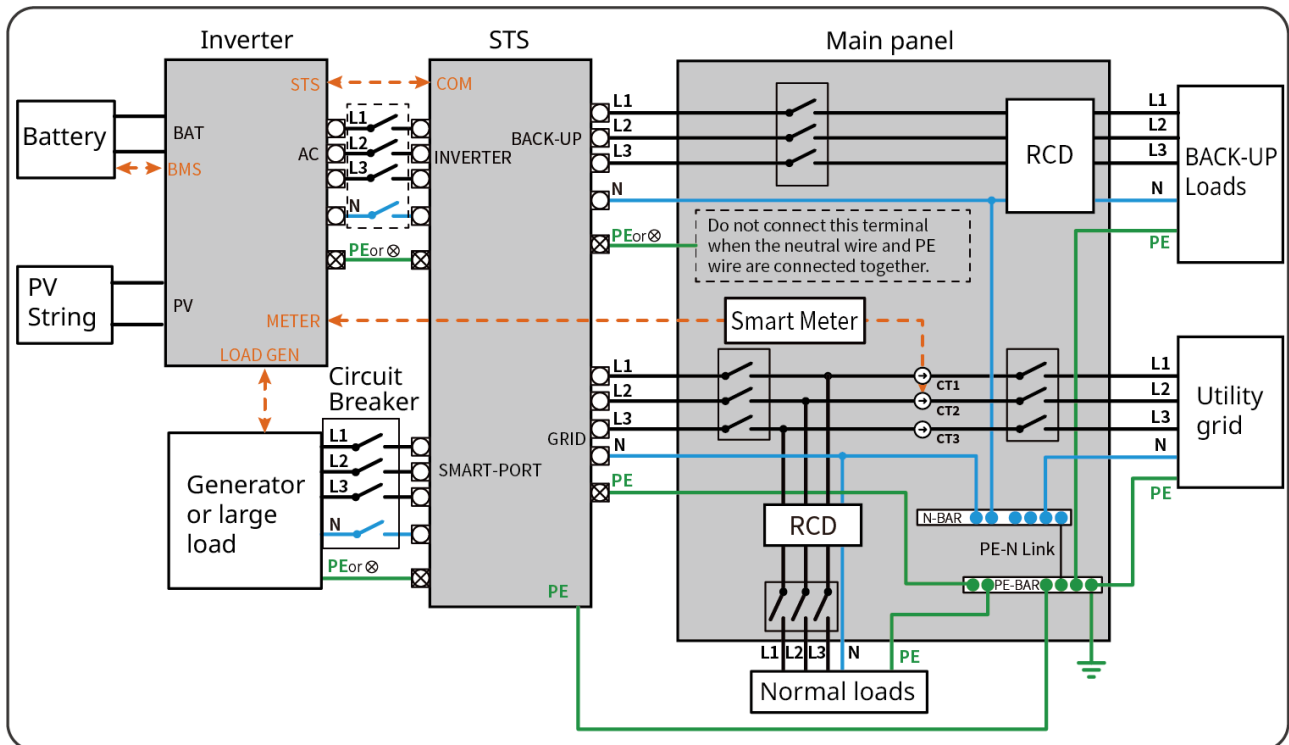
NOTICE

- N and PE wiring of GRID and BACK-UP of the inverter are different based on the regulation requirements of different regions. Refer to the specific requirements of local regulations.
- The BACK-UP function of the inverter can only be used when working with an STS.
- The GRID and BACK-UP AC ports of the STS are equipped with a built-in on/off-grid switching device. When the inverter is in off-grid mode, the built-in on /off grid switching device is in the disconnected state; when the inverter is in grid-tie operation mode, the built-in on /off grid switching device is in the closed state.
- When the inverter is powered on, the BACK-UP AC port is charged. Power off the inverter first if maintenance is required on the BACK-UP loads. Otherwise, it may cause electric shock.

The N line and PE line shall be connected together at a common terminal in the distribution box.

NOTICE

- To maintain neutral integrity, the N wires on the grid side and off grid side must be connected together, otherwise the off grid function cannot be used normally.
- The circuit diagram below is a schematic of the power grid system for regions such as Australia and New Zealand:



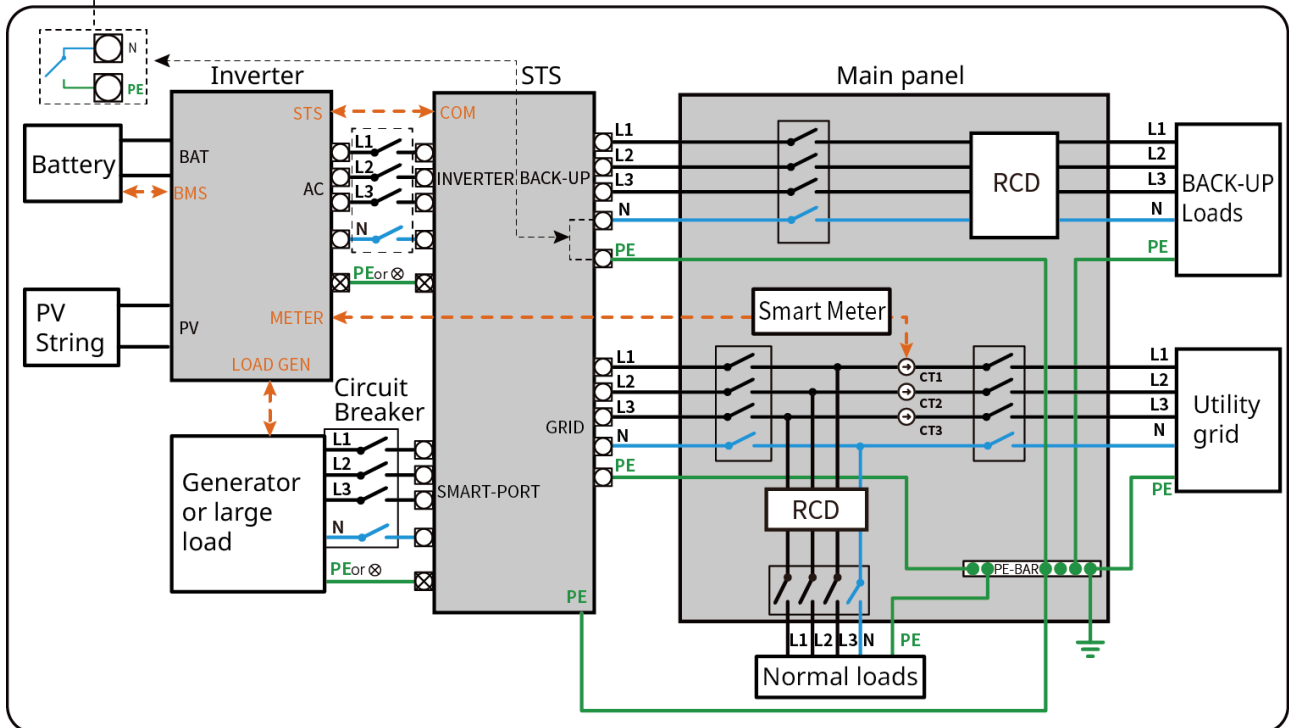
ET10010NET0009

N and PE cables in the Main Panel shall be wired separately.

NOTICE

If the N line and PE line do not need to be connected when the inverter switches to off-grid mode, this function can be set through the "Backup Power N and PE Relay Switch" in the "Advanced Settings" interface of the SolarGo APP. This wiring method is suitable for regions other than Australia and New Zealand.

- When the inverter switches to off grid mode, the STS internal relay automatically connects, connecting the PE and N cables.
- When the inverter switches to grid connection mode, the STS internal relay automatically disconnects, disconnecting the PE and N cables.



ET10010NET0008

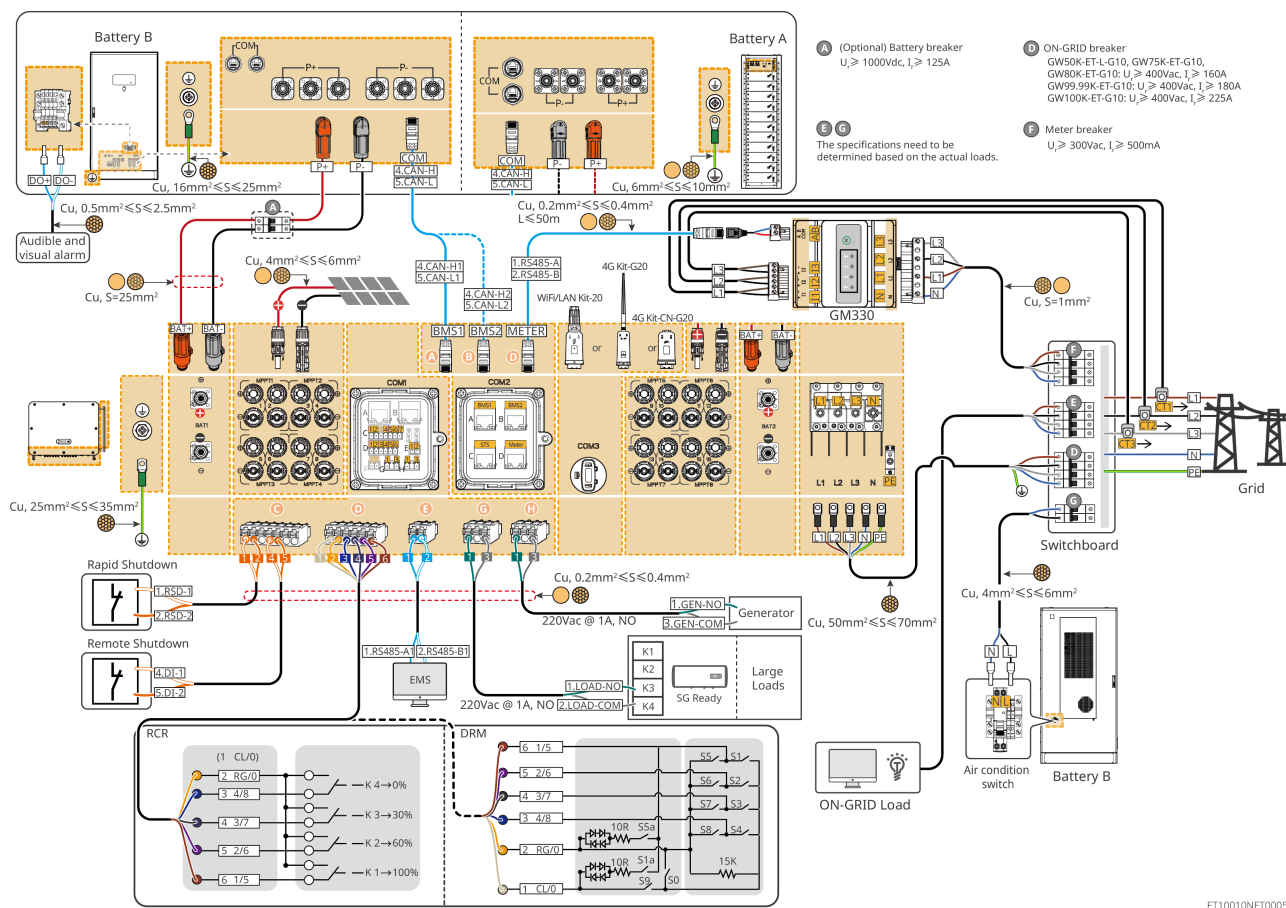
6.2 Detailed System Wiring Diagram

Note

- The Back-UP function of the inverter needs to be implemented with an STS Static Transfer Switchgear.
- No circuit breaker shall be connected between the inverter and the static transfer switchgear.

6.2.1 Single inverter (without off-grid function)

- In a single-machine scenario, the inverter uses the 4G Kit-G20, 4G Kit-CN-G20 (for domestic use in China), and WiFi/LAN Kit-20 Smart Communication Dongle.
- The GM330 smart meter is standard for single-machine scenarios.

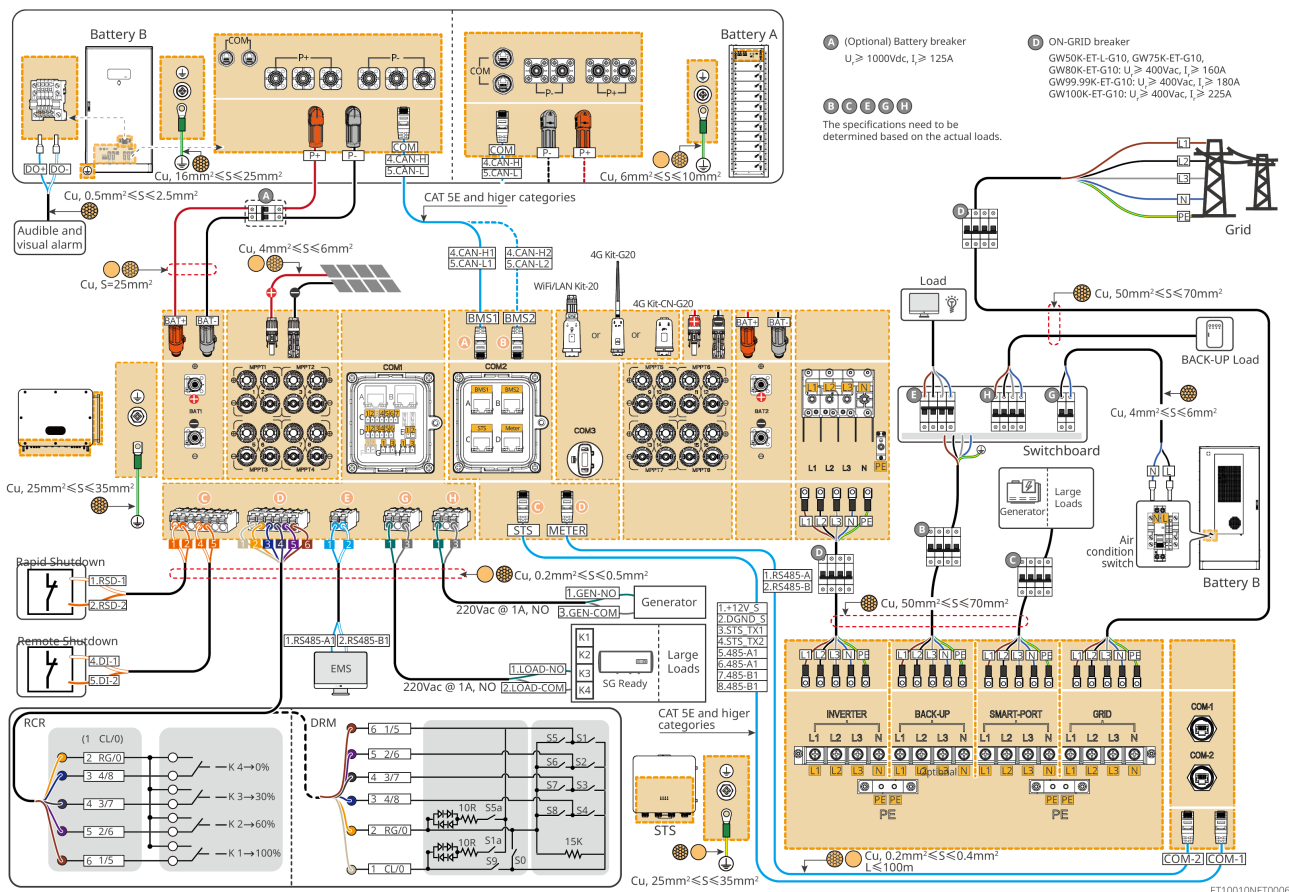


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6.2.2 Single Inverter (with Off-grid Function & Whole Home Backup)

This system is a single-inverter energy storage system, supporting both on-grid and off-grid operation.

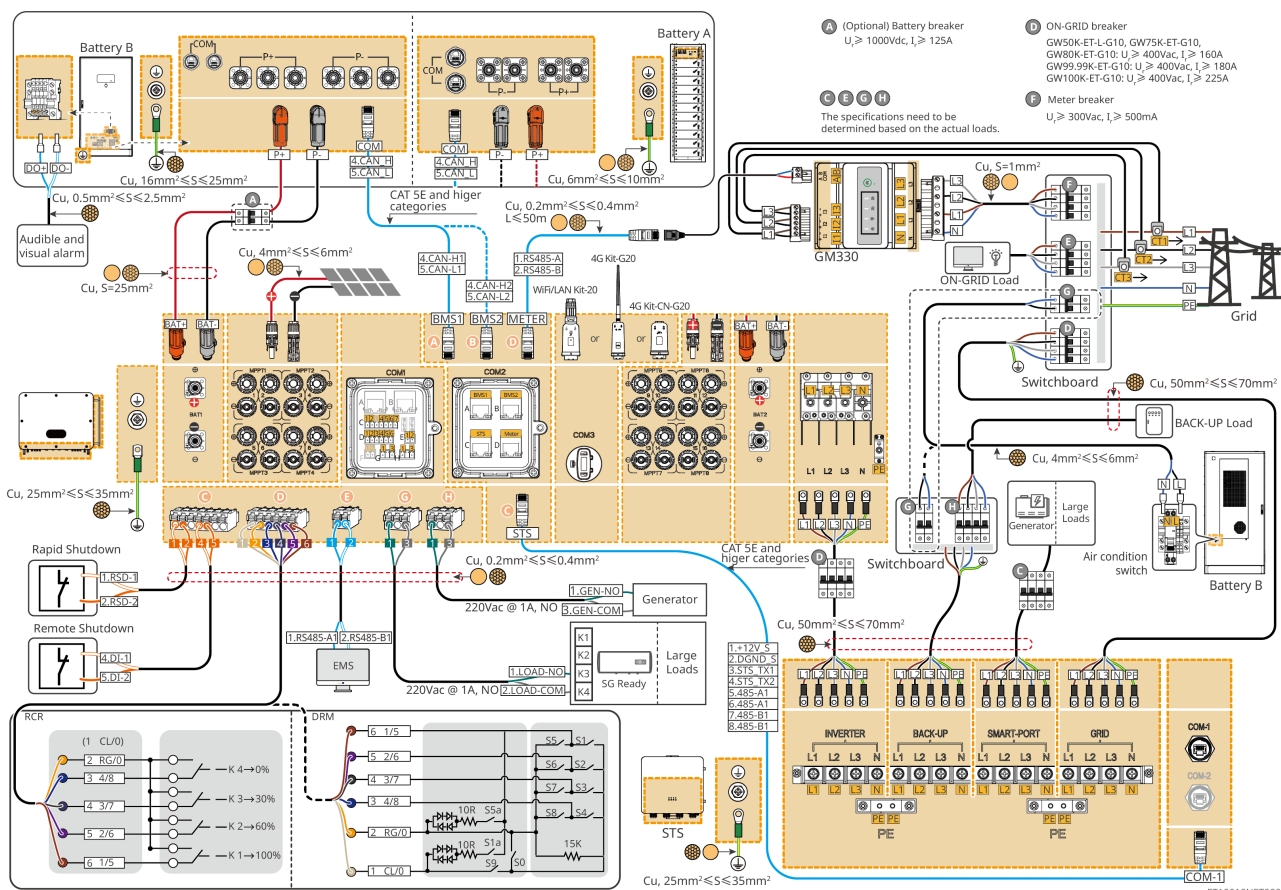
- When combined with an STS, the inverter provides UPS-grade on/off-grid switching with a transfer time of less than 10ms. Please ensure the BACK-UP load capacity is less than the inverter's rated power; Otherwise, it may cause functional failure when the grid is powered off.
- The inverter equipped with an STS can connect with a generator. The generator power must be $\leq 1.1 \times$ the inverter's rated power.
- In single-inverter scenarios, the inverter use the 4G Kit-G20, 4G Kit-CN-G20 (for domestic China), and WiFi/LAN Kit-20 Smart Dongle.
- The GM330 Smart Meter is standard for single-machine scenarios.



6.2.3 Single Inverter (with Off-grid Function & Partial Backup)

This system is a single-inverter energy storage system, supporting both on-grid and off-grid operation.

- When combined with an STS, the inverter provides UPS-grade on/off-grid switching with a transfer time of less than 10ms. Please ensure the BACK-UP load capacity is less than the inverter's rated power; Otherwise, it may cause functional failure when the grid is powered off.
- The inverter equipped with an STS can connect with a generator. The generator power must be $\leq 1.1 \times$ the inverter's rated power.
- In single-inverter scenarios, the inverter use the 4G Kit-G20, 4G Kit-CN-G20 (for domestic China), and WiFi/LAN Kit-20 Smart Dongle.
- The GM330 Smart Meter is standard for single-machine scenarios.



6.3 Preparing Materials

6.3.1 Preparing Breakers



WARNING

- Please install circuit breaker according to the table below Before maintenance, be sure to disconnect the circuit breaker to ensure personnel safety.

No.	Circuit breaker	Specification	Note
1	- GRID circuit breaker (for Inverter & STS) - BACK-UP load breaker (for STS) - Smart-Port breaker (for STS)	4P breakers ^[1] , Nominal Voltage $\geq 400V$, the Nominal Current requirements are as follows: - GW100K-ET-G10: Nominal Current $\geq 225A$ - GW99.99K-ET-G10: Nominal Current $\geq 180A$ - GW80K-ET-G10: Nominal Current $\geq 160A$ - GW75K-ET-G10: Nominal Current $\geq 160A$ - GW50K-ET-G10: Nominal Current $\geq 160A$	Prepared by customers
2	Battery Breaker	Optional in compliance with local laws and regulations 2P DC switch * 2 - Nominal Current $\geq 125A$ - Nominal Voltage $\geq 1000V$	Prepared by customers
3	RCD	Optional in compliance with local laws and regulations - Type A - GRID: 1000mA - BACK-UP side: 500- 1000mA	Prepared by customers
4	Battery Breaker	Nominal Voltage: 380V/ 400V Nominal Current: 0.5A	Prepared by customers
5	Load Circuit Breaker	The specification requirements shall be determined based on the actual operating load.	Prepared by customers
6	Manual Bypass Switch (Optional)		

[1]: The breakers for GRID and BACK-UP side in Australia and New Zealand are 3P.

6.3.2 Preparing Cables

No	Type	Cable	Recommended specifications	Acquisition method
1	PE Cable	Inverter PE cable	- Single-core outdoor copper cable - Cross-sectional area: 25-35mm²	Prepared by customer s.
2		GW92.1-BAT-AC-G10 GW102.4-BAT-AC-G10 GW112.6-BAT-AC-G10	- Single-core outdoor copper cable - Cross-sectional area: 16-25mm²	Prepared by customer s.
		GW51.2-BAT-I-G10 GW56.3-BAT-I-G10	- Single-core outdoor copper cable - Cross-sectional area: 6-10mm²	Prepared by customer s.
3	Power Line	PV DC cable	- Commonly used outdoor photovoltaic cable - Cross-sectional area: 4-6mm² - Outer diameter: 4.7mm-6.4mm	Prepared by customer s.
4		GW92.1-BAT-AC-G10 GW102.4-BAT-AC-G10 GW112.6-BAT-AC-G10 (Battery Paralleling)	- Single-core outdoor copper cable - Cross-sectional area: 50mm² - Outer diameter: 13mm-14mm	Prepared by customer s.

No	Type	Cable	Recommended specifications	Acquisition method
		GW51.2-BAT-I-G10 GW56.3-BAT-I-G10	- Single-core outdoor copper cable - Cross-sectional area: 25mm² - Outer diameter: 6.5mm-10.5mm	Prepared by customers.
5		Inverter AC Cable SMART - PORT AC Cable (STS) BACK-UP AC Cable (STS) GRID AC Cable (STS)	- Single-core outdoor copper cable - Cross-sectional area: 50-70mm² - Outer diameter: 22mm-43mm	Prepared by customers.
6		Smart meter power cable	- Outdoor copper cable - Cross-sectional area: 0.5-1mm²	Prepared by customers.
7	Communication cable	Battery BMS communication cable	-	Supplied with the cabinet
8		Smart meter RS485 communication cable	-	The RJ45-2PIN terminal adapter cable and standard network cable are supplied with the cabinet.

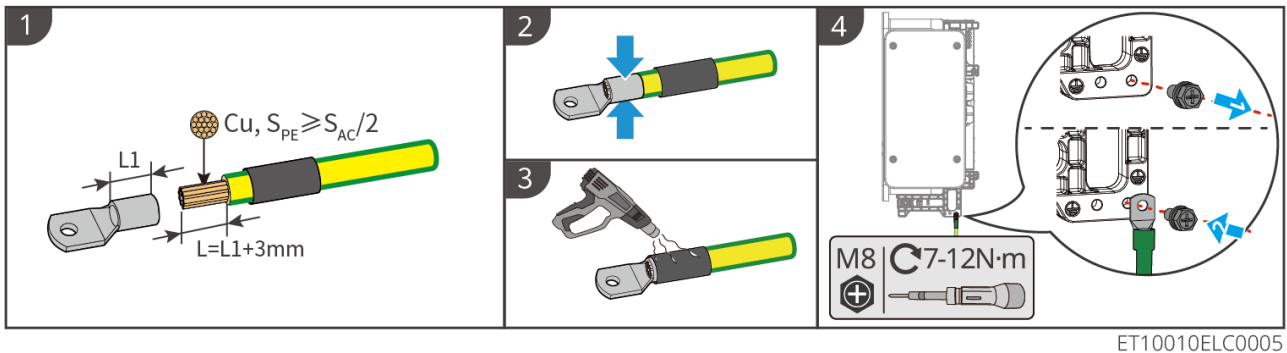
No	Type	Cable	Recommended specifications	Acquisition method
9		Battery Paralleling communication cable	Network cables of CAT 5E or higher specification (complying with EIA/TIA 568B standard) and RJ45 connectors	Prepared by customers.
10		Communication Cable (DO, GEN, Remote Shutdown, RSD, DRM/RCR, EMS, Charging Pile)	• Shielded cable that meets local standards • Cross-sectional area: 0.2mm²-0.4mm² • Outer diameter: 5mm-8mm	Prepared by customers.
11		Inverter and STS Communication Cable	• Standard Network Cable: CAT 5E or higher specification standard network cable and RJ45 connectors • Length: 10m	Prepared by customers.
12		Smart Meter CT Cable	• Single-core outdoor copper cable • Cross-sectional area: 1.3mm²-2.3mm² • Outer diameter: 1.3-1.7mm	Prepared by customers.

6.4 Connecting the PE Cable

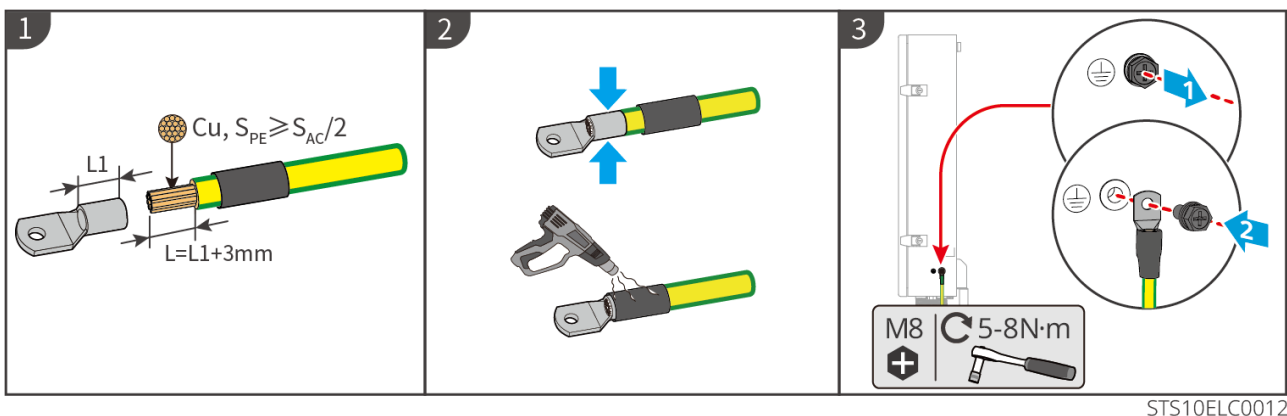
WARNING

- The PE cable connected to the enclosure of the inverter cannot replace the PE cable connected to the AC output port. Make sure that both of the two PE cables are securely connected.
- Make sure that all the grounding points on the enclosures are equipotential connected when there are multiple inverters.
- To improve the corrosion resistance of the terminal, it is recommended to apply silica gel or paint on the ground terminal after installing the PE cable.
- Connect the PE cable first before installing the equipment. Disconnect the PE cable before dismantling the equipment.

Inverter



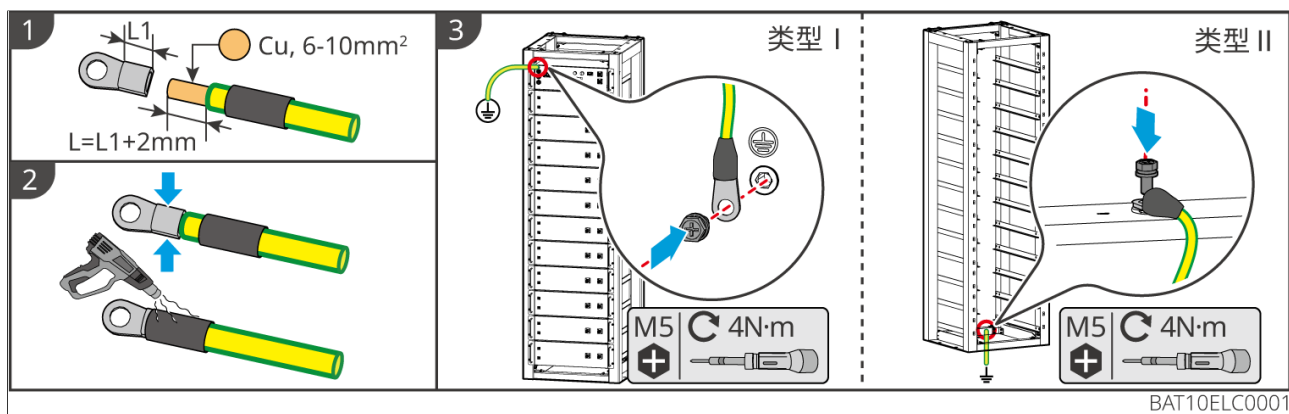
Static Transfer Switch (GW125K-STG-G10)



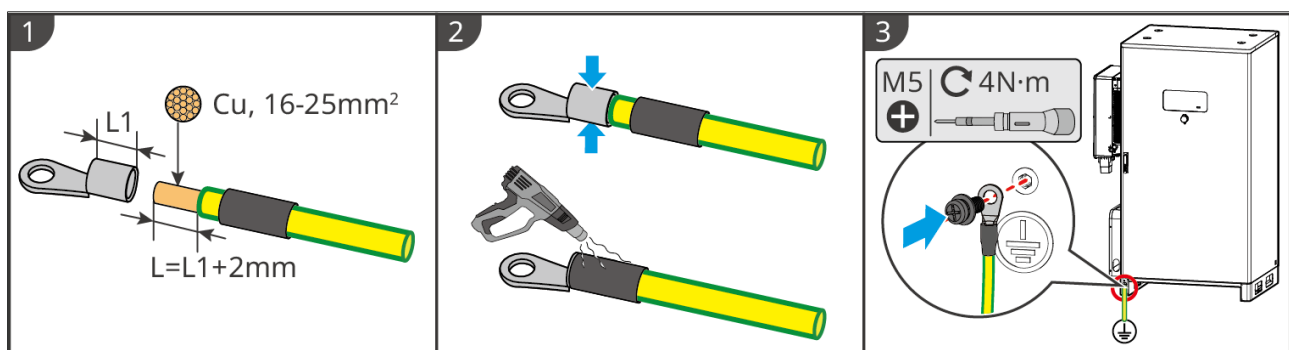
Battery System (GW51.2-BAT-I-G10, GW56.3-BAT-I-G10)

WARNING

- Either of the two grounding points on both sides of the energy storage system can be selected for grounding according to the actual site conditions.
- PE cable should be prepared by customers.



Battery System (GW92.1-BAT-AC-G10、GW102.4-BAT-AC-G10、GW112.6-BAT-AC-G10)



6.5 Connecting the PV cable

DANGER

- Do not connect one battery to more than one inverter at the same time. Otherwise, it may cause damage to the inverter.
- Photovoltaic (PV) strings generate high-voltage direct current (DC) when exposed to sunlight. Exercise caution during electrical connection to ensure safety.
- Confirm the following information before connecting the PV string to the inverter. Otherwise, the inverter may be damaged permanently or even cause fire and cause personal and property losses.
 1. Make sure the max short circuit current and the max input voltage are within the permissible range of the inverter.
 2. Make sure that the positive pole of the PV string connects to the PV+ of the inverter. And the negative pole of the PV string connects to the PV- of the inverter.

WARNING

- The PV strings cannot be grounded. Ensure the minimum insulation resistance of the PV string to the ground meets the minimum insulation resistance requirements before connecting the PV string to the inverter ($R = \text{maximum input voltage} / 30\text{mA}$).
- Ensure the DC cables are connected tightly, securely and correctly.
- Measure the DC cables using a multimeter to avoid reverse polarity connection. Also, the voltage should be under the permissible range.
- The MPPT string parallel connection must meet the requirements of local laws and regulations.
- Ensure that the voltage difference between different MPPT channels is less than or equal to 200V.
- The two input strings per MPPT should be of the same type, the same number of modules, the same tilt and angle to ensure the best efficiency.

PV String Connection Method

For maximizing power generation, it is recommended to access PV strings in the way as follows:

- When the number of PV strings is < 9, connect the PV strings to the inverter from MPPT1 to MPPT8 sequentially.
- When the number of PV strings is >= 9, connect the PV strings to the inverter in accordance with the table below.

PV String Number s	MPPT1	MPPT2	MPPT3	MPPT 4	MPPT 5	MPPT 6	MPPT 7	MPPT8
9	••	•	•	•	•	•	•	•
10	••	••	•	•	•	•	•	•
11	••	••	••	•	•	•	•	•
12	••	••	••	••	•	•	•	•
13	••	••	••	••	••	•	•	•
14	••	••	••	••	••	••	•	•
15	••	••	••	••	••	••	••	•
16	••	••	••	••	••	••	••	••

•: Connect one PV string

••: Connect two PV strings

Connection steps

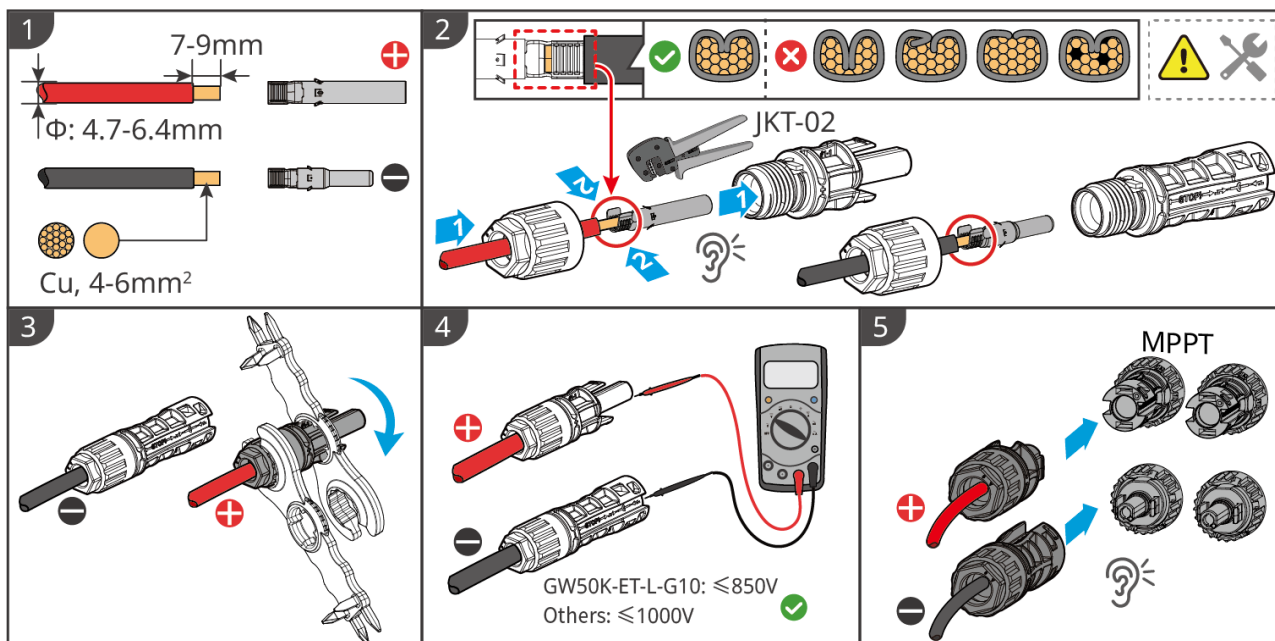
Step1: Prepare DC Cables.

Step2: Crimp the crimp contacts and assemble the DC connectors.

Step3: Tighten the DC connectors.

Step4: Detect the DC input voltage.

Step5: Connect the DC connector to the DC terminal of the inverter.



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Note

If the DC input terminals of the inverter do not need to be connected to PV strings, please use dust caps to seal the terminals. Otherwise, the equipment protection level will be affected.

6.6 Connecting the Battery Cable

DANGER

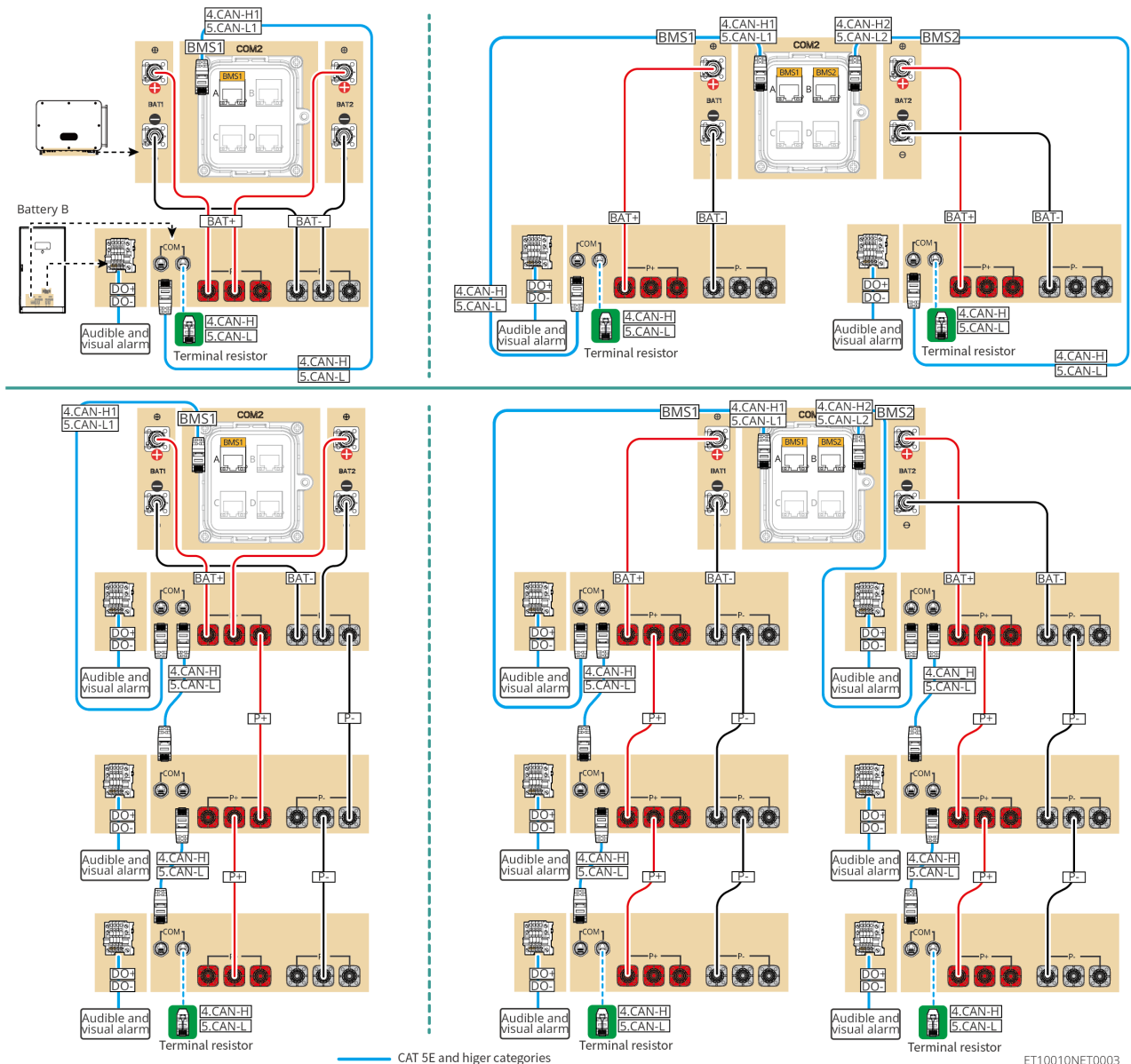
- Do not connect one battery pack to more than one inverter at the same time. Otherwise, it may cause damage to the inverter.
- Connecting loads between the inverter and the battery is prohibited.
- When connecting the battery cables, use insulated tools to prevent accidental electric shock or battery short circuit.
- Please ensure that the battery open-circuit voltage is within the allowable range of the inverter.
- Install a DC breaker between the inverter and the battery in compliance with local laws and regulations.

Battery system wiring diagram

GW92.1-BAT-AC-G10/GW102.4/BAT-AC-G10/GW112.6- BAT-AC-G10

Notice

- When connecting homologous batteries to the inverter, the battery's communication cable must be connected to the inverter's BMS1 port; do not connect it to the BMS2 port.
- When connecting heterologous batteries to the inverter, the communication cable of the battery connected to the inverter's BAT1 port must be connected to the inverter's BMS1; the communication cable of the battery connected to the inverter's BAT2 port must be connected to the inverter's BMS2.

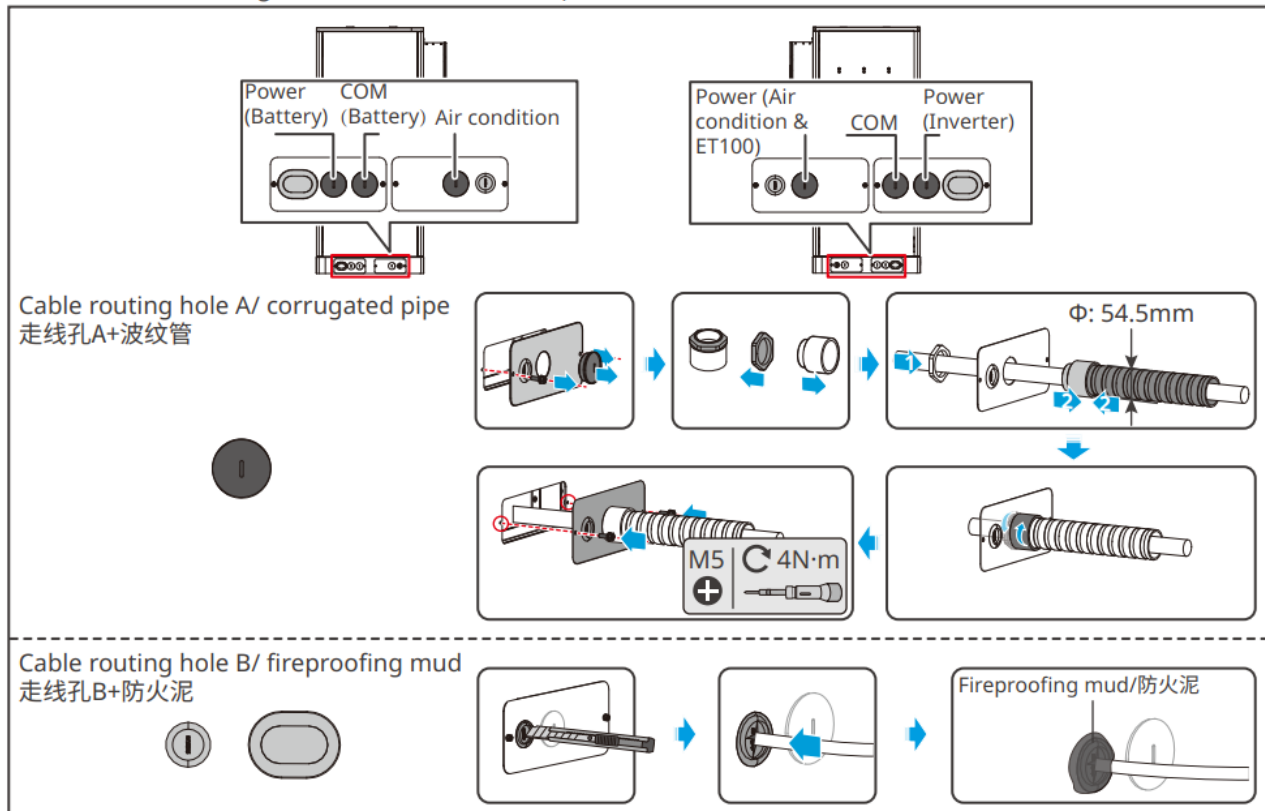


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GW51.2-BAT-I-G10, GW56.3-BAT-I-G10

6.6.1.1 Battery Wire Feed-Through Hole and System Wiring Introduction

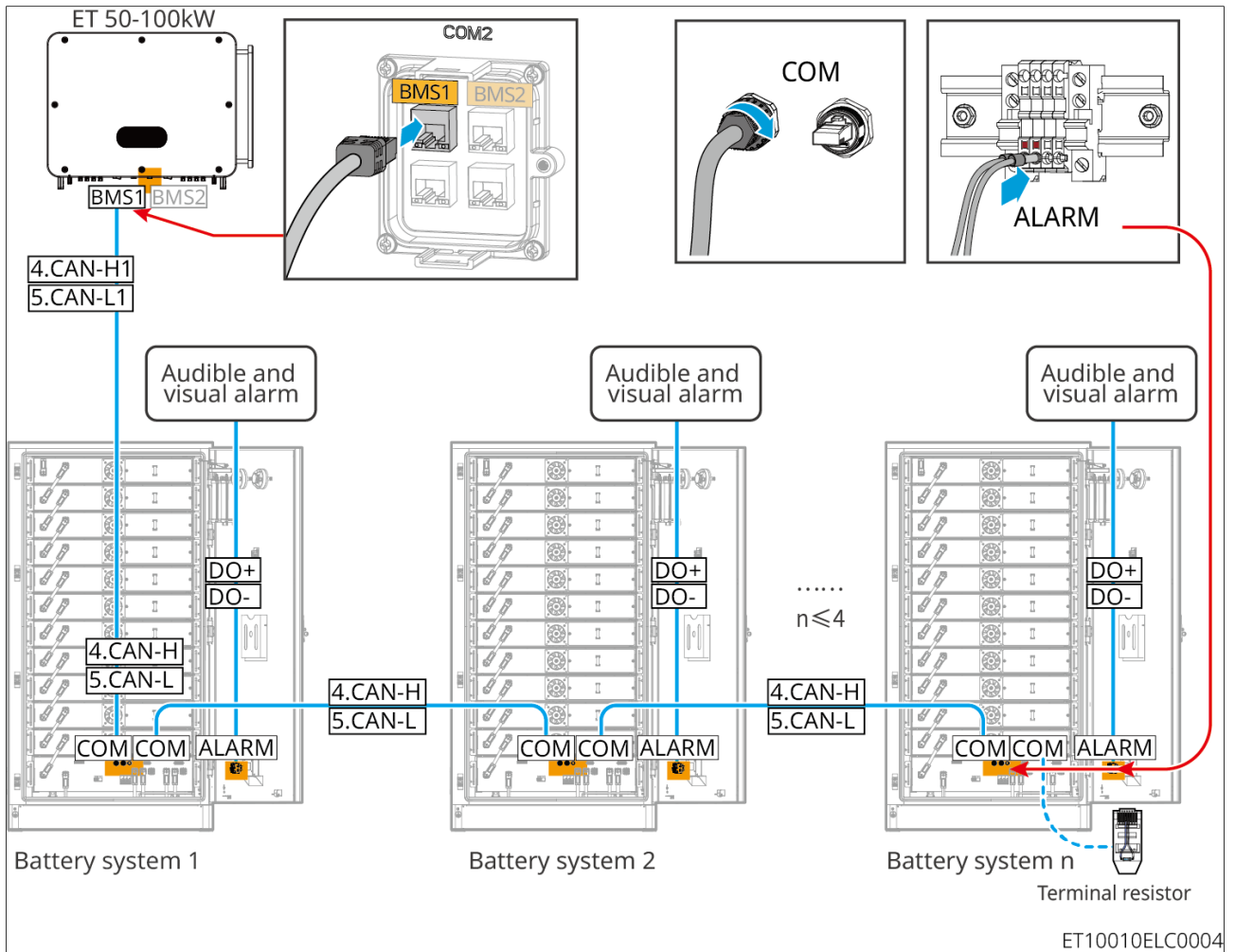
Introduction to routing holes on the cabinet side/机柜侧面走线孔介绍



BAT10INT0014

6.6.1.2 Connect the Power Cable between the Inverter and Battery, as well as the Power Cables between Batteries.

Port	Definition	Description
1~3, 6- 8	-	-
4	CAN_H	CAN Bus for Inverter Communication and Battery Clustering
5	CAN_L	



6.6.1.4 Connecting the Battery Air-conditioner Cable

Connection steps

Step 1: Fabricate the air conditioning cable.

Step 2: Connect the cable to the air conditioning switch of the battery.

Step 3: Connect the cable to the distribution board, or to the BACKUP port of the inverter via an STS. (When batteries are clustered in parallel, wire the air conditioning

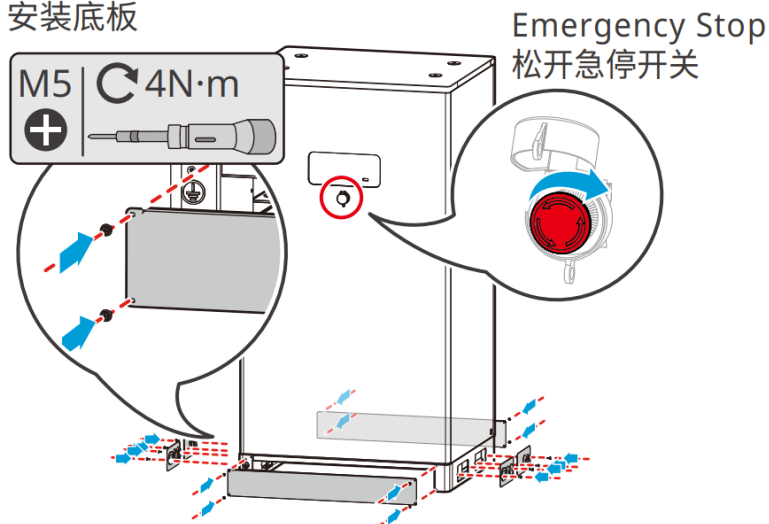
power cables separately!)

6.6.1.5 Loosen the emergency stop switch on the mounting baseplate.

After completing the wiring, please reattach the battery's bottom baffle to the battery and turn the emergency stop switch clockwise to release it.

Pedestal installation

安装底板

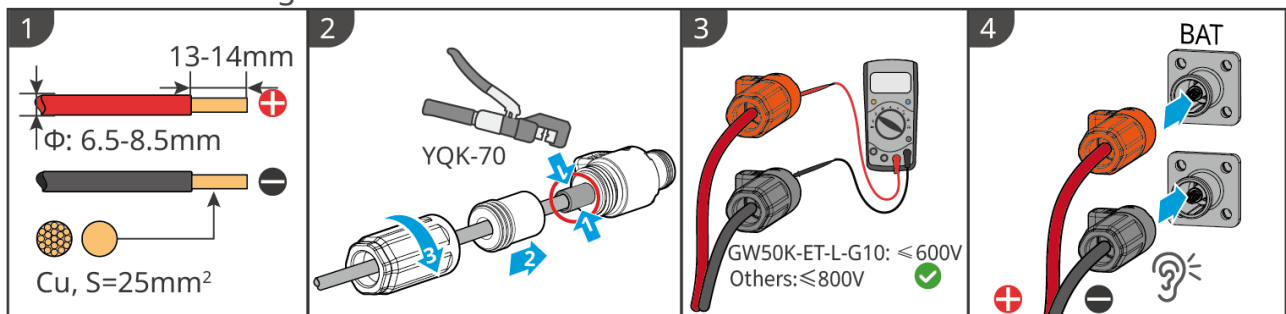


BAT10INT0009

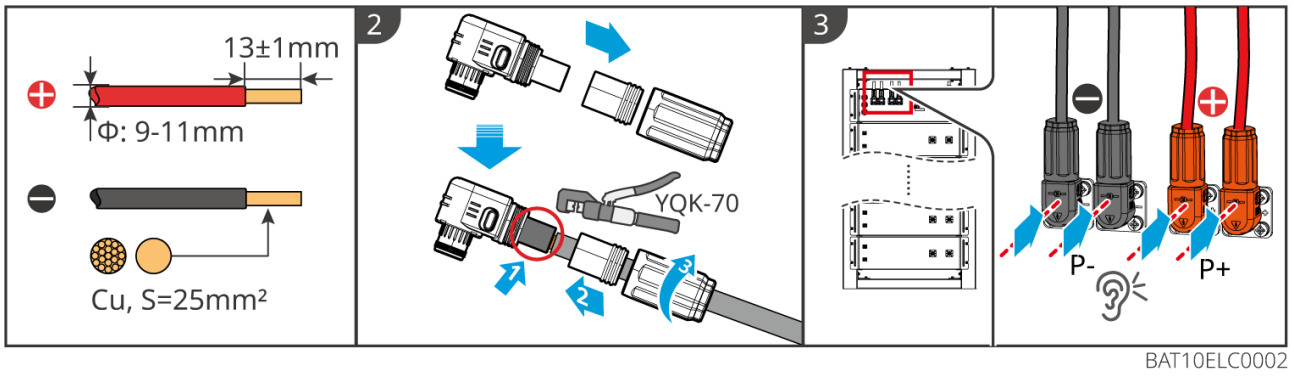
6.6.2 GW51.2-BAT-I-G10, GW56.3-BAT-I-G10

6.6.2.1 Connecting the Power Cable between the Inverter and Battery

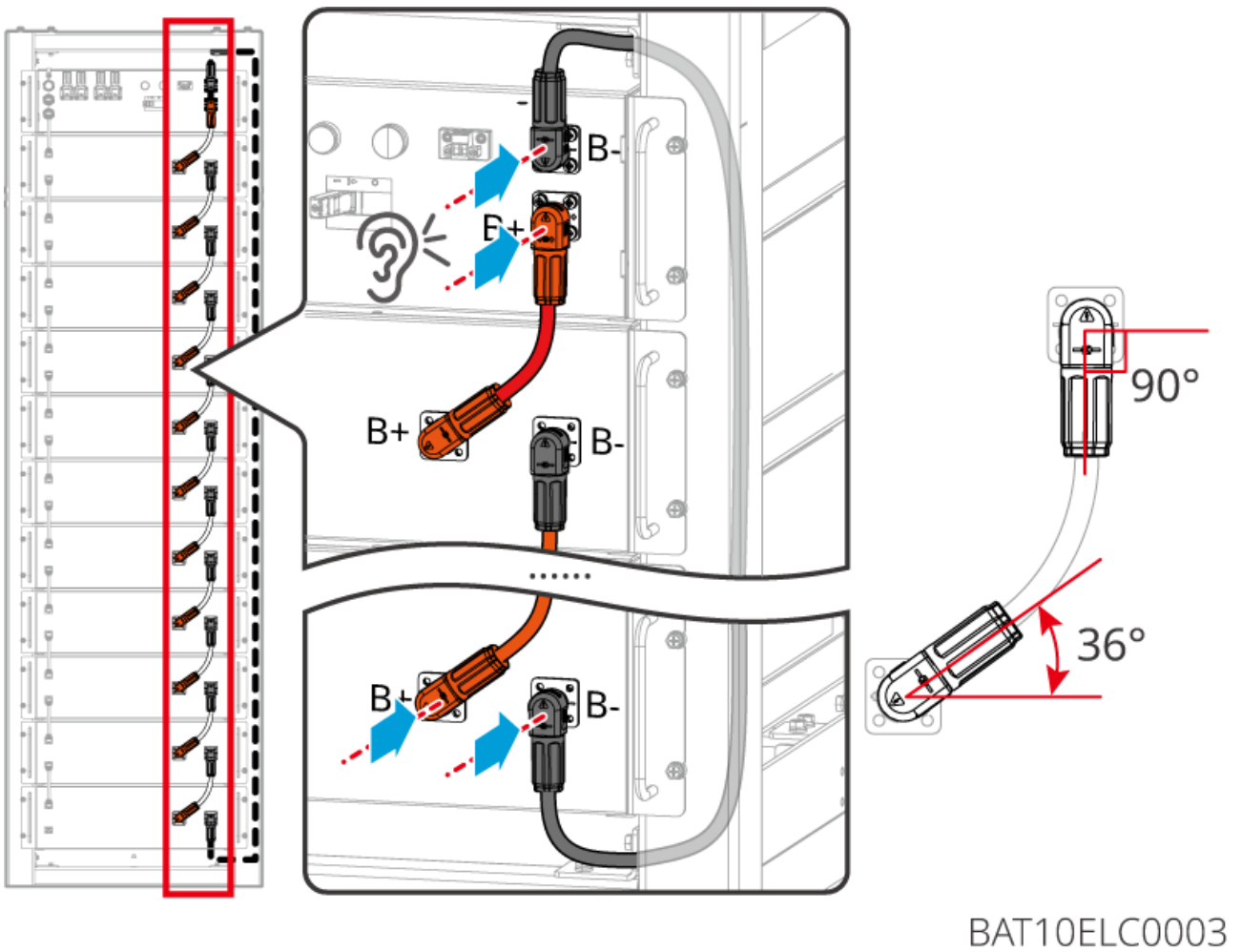
Method for making cables at the inverter terminal



ET10010ELC0007



6.6.2.2 Connect the power cables between batteries



6.6.2.3 Connect the Communication Cable

NOTICE

The battery system is provided with communication cables; please use these supplied cables.

BMS Communication Connection Instructions Between Inverter and Battery

Port	Definition	Discription
COM1、COM2	1: RS485_A1: 2: RS485_B1:	Communication with the Inverter (Reserved).
	4: CAN_H 5: CAN_L	Connect the inverter communication port or battery parallel communication port

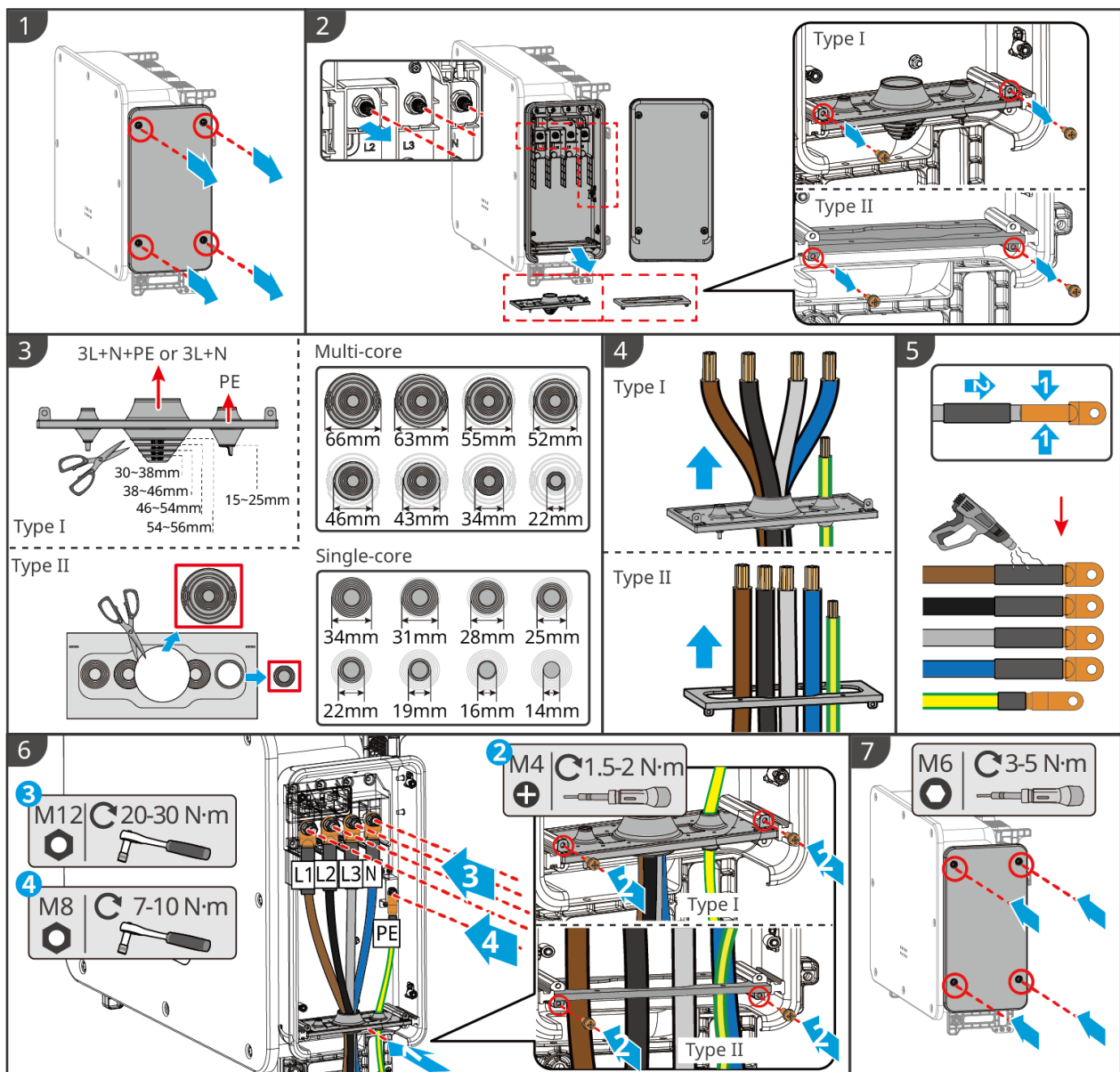
6.7 Connecting the AC Cable

6.7.1 Connect the inverter's AC cables

WARNING

- The residual current monitoring unit (RCMU) is integrated into the inverter to avoid the residual current exceeds the limit. The inverter will disconnect the utility grid quickly once it found the residual current exceeds the limit.
- Connect the AC cables to the corresponding terminals such as "L1", "L2", "L3", "N" and "PE" ports correctly. Otherwise it will cause damage to the inverter.
- Ensure that the whole cable cores are inserted into the terminal holes, and no part of the cable core can be exposed.
- Ensure that the insulation board is inserted into the AC terminal tightly.
- Ensure that the cables are connected securely. Otherwise it will cause damage to the inverter due to overheat during its operation.
- To ensure the load at the BACK-UP port continues operating when the inverter is powered off for maintenance, installing a single-pole double-throw (SPDT) switch is recommended.

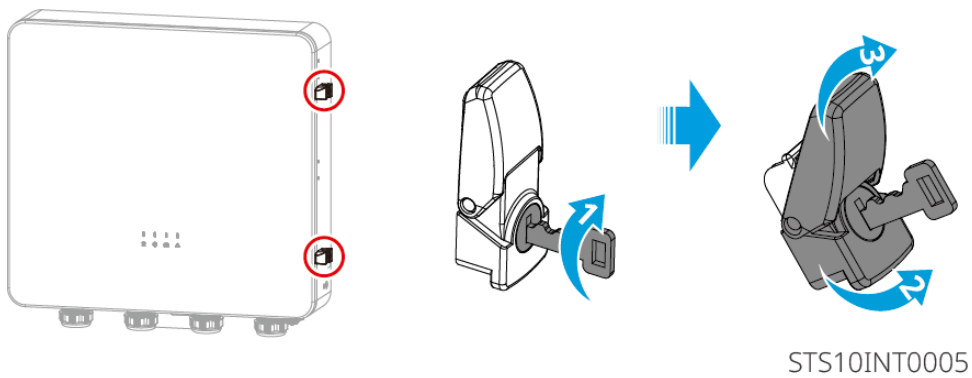
Connect the inverter's AC cables



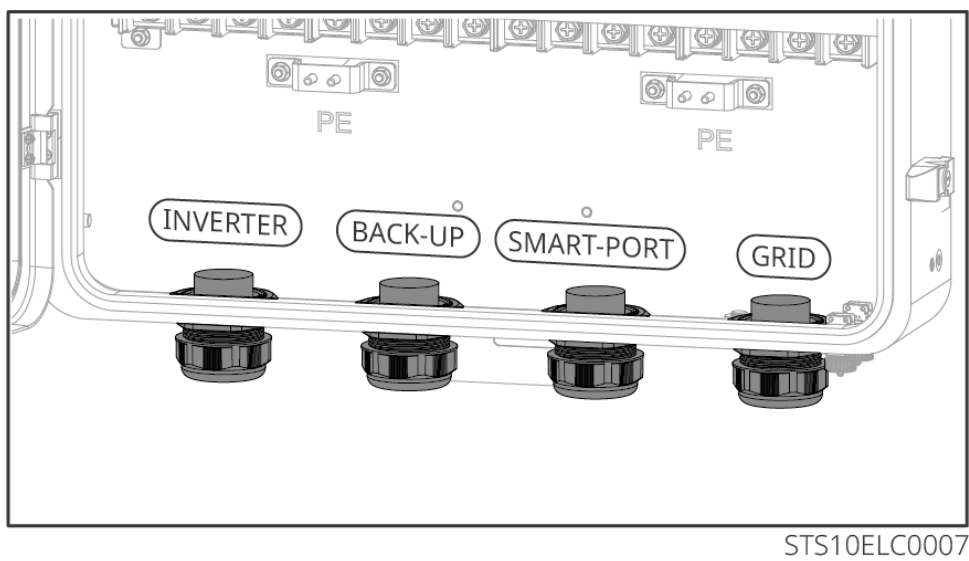
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6.7.2 Connect the STS's AC cables (Optional)

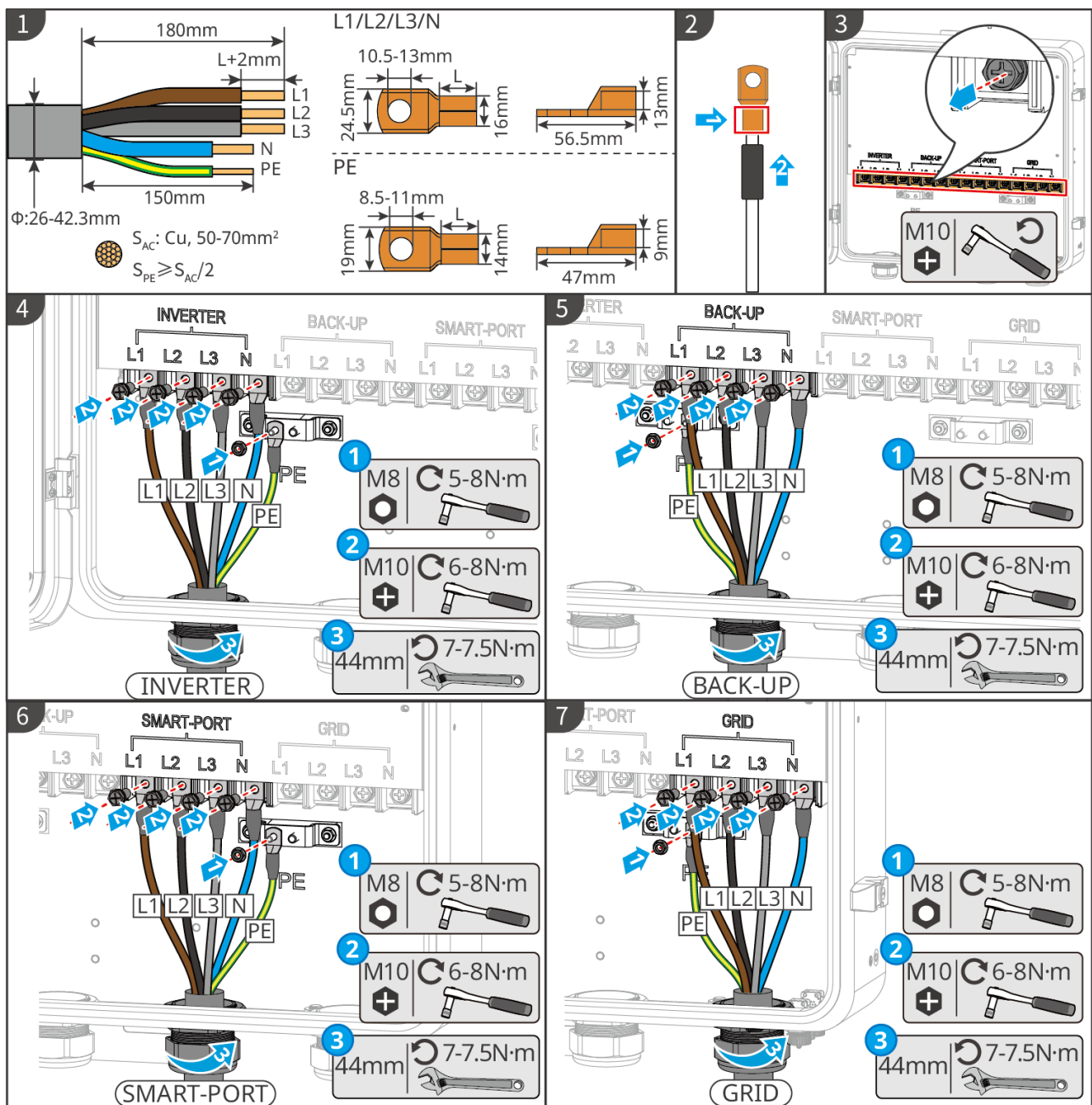
Open the front panel of STS



Introduction to STS Bottom Cable Inlet Hole



Connection steps



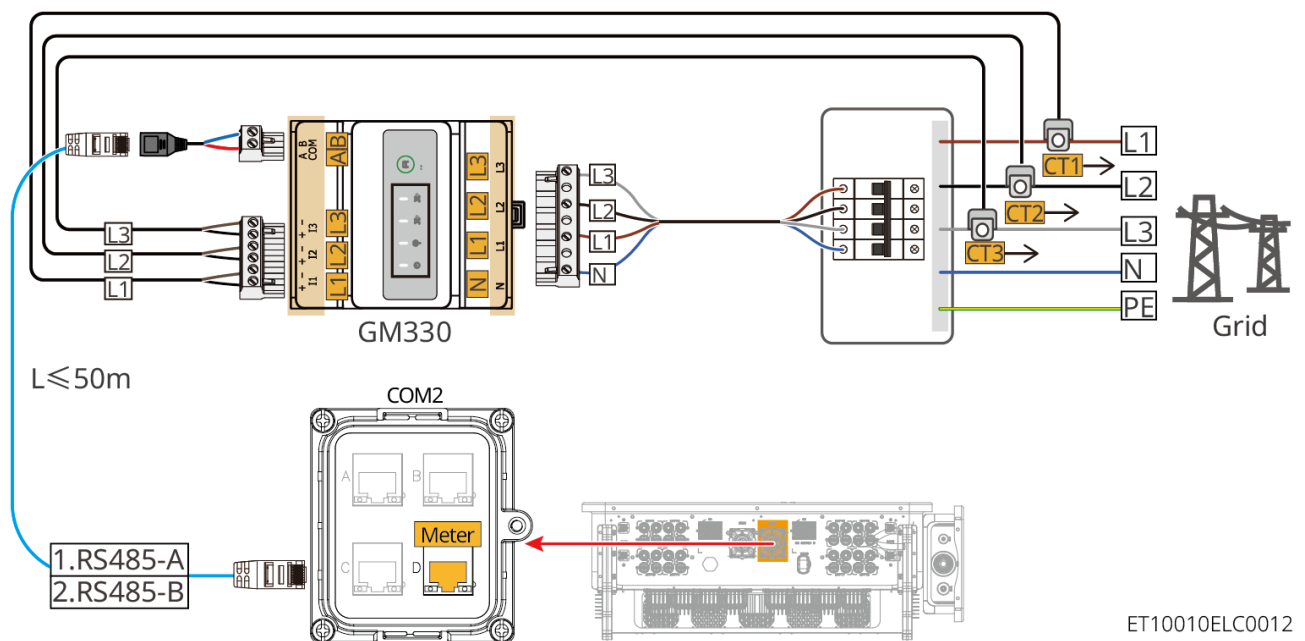
STS10ELC0009

6.8 Connecting the Meter Cable

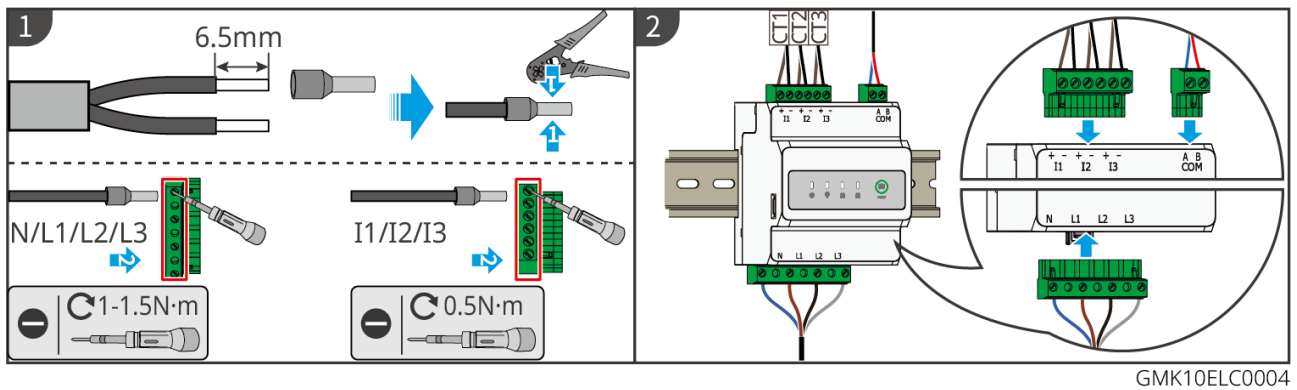
NOTICE

- The electricity meter supplied with the cabinet is for one inverter only. Do not connect one electricity meter to multiple inverters. Contact the manufacturer for additional smart meters if multiple inverters are connected.
- Ensure that the CT is connected in the correct direction and phase sequences, otherwise the monitoring data will be incorrect.
- Ensure all cables are connected tightly, securely, and correctly. Inappropriate wiring may cause poor contacts or meter damage.
- In areas at risk of lightning, if the meter cable exceeds 10 m and the cables are not wired with grounded metal conduits, you are recommended to use an external lightning protection device.

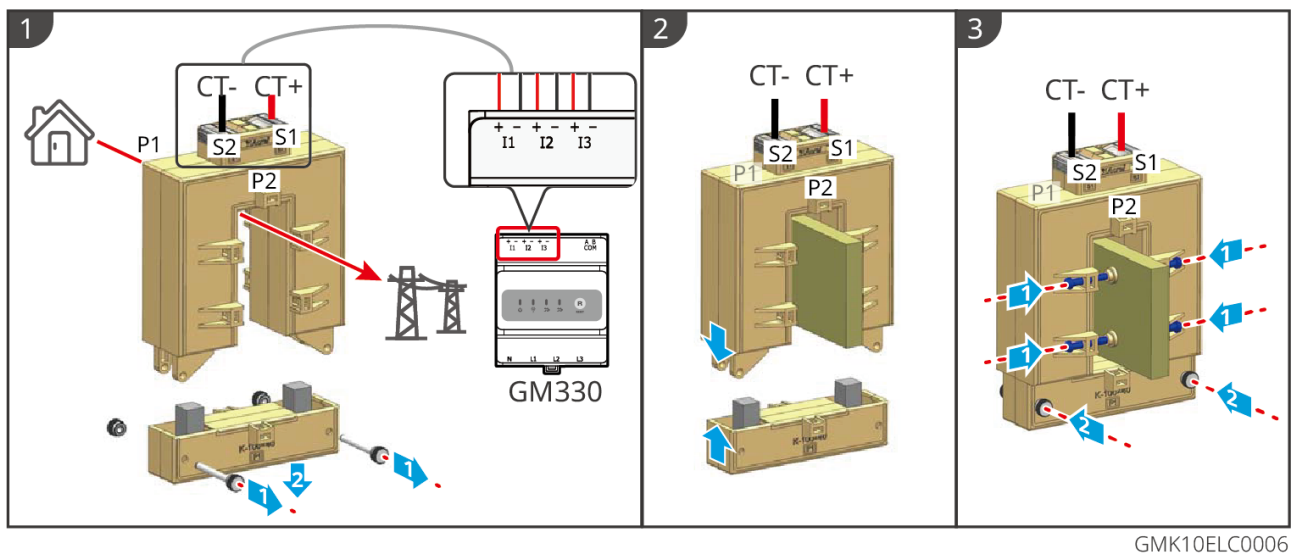
Wiring of GM330 smart meter



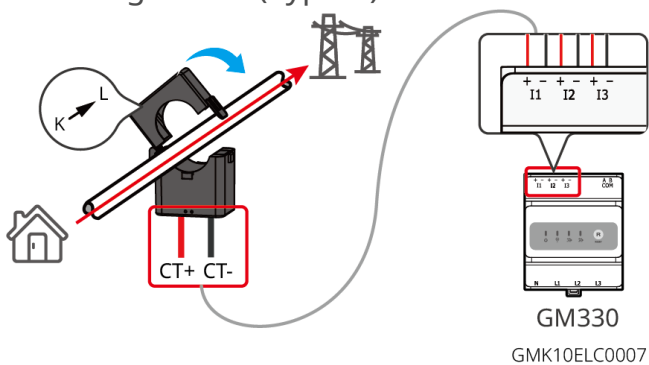
Connection steps



Installing the CT (Type I)



Installing the CT (Type II)

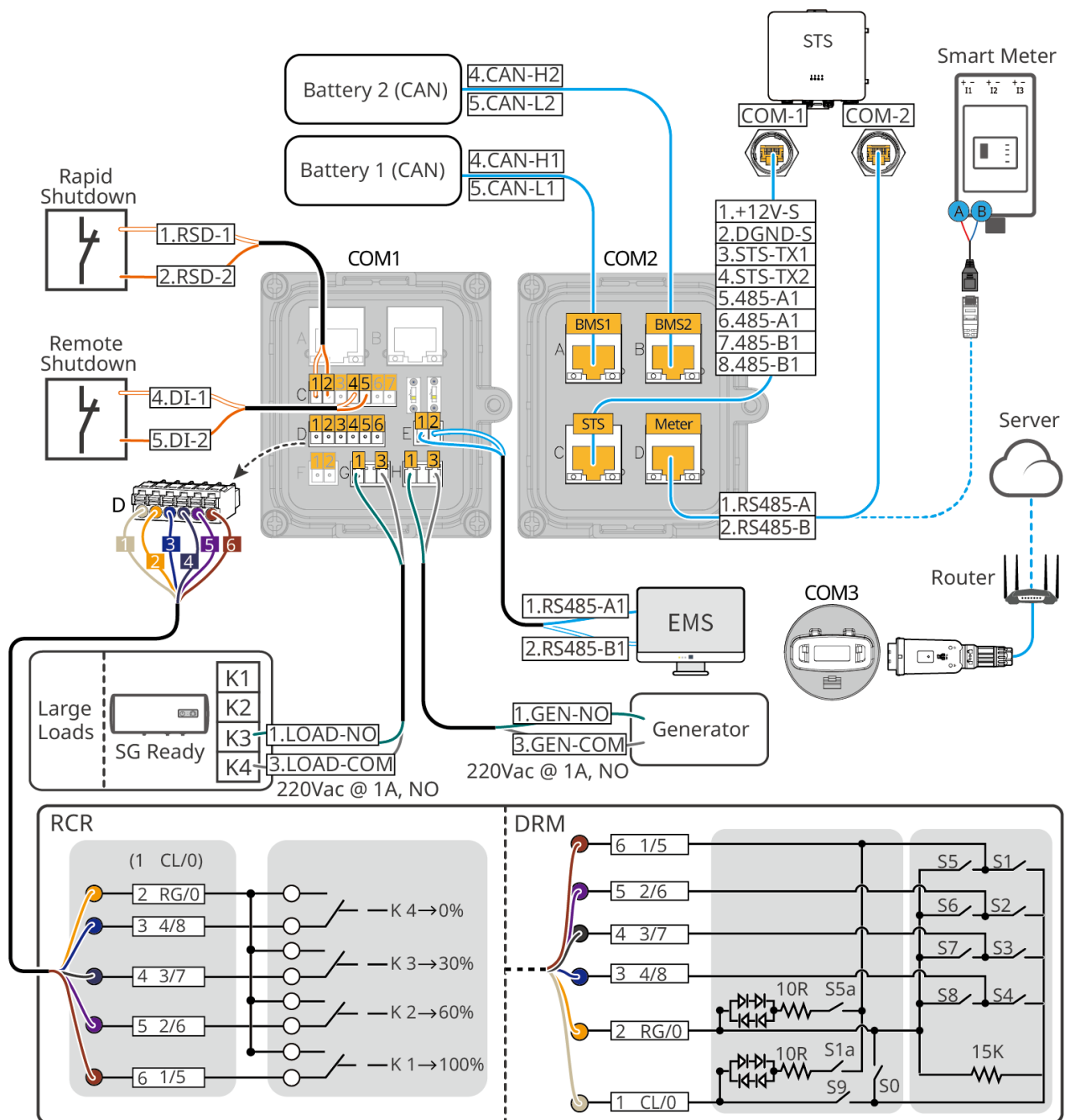


6.9 Connecting the Inverter Communication Cable

Note

- The communication functions are optional. Connect the cables based on actual needs.
- If you need to use the remote shutdown function, please turn it on in the SolarGo App after wiring is completed.
- If the inverter is not connected to the DRED or remote shutdown device, do not enable these functions in the SolarGo App or SEC3000C, Otherwise, the inverter cannot operate normally.
- When the inverter uses a 4G module for communication, the following points should be noted:
 - The 4G module is an LTE single-antenna device, suitable for application scenarios with low requirements for data transmission rate.
 - To ensure the 4G signal communication quality, do not install the device indoors or in areas with metal interference to the signal.
 - The built-in SIM card of the 4G module is a mobile communication card, please confirm whether the device is installed in an area covered by mobile 4G signals.

Communication Function Description



ET10010ELC0011

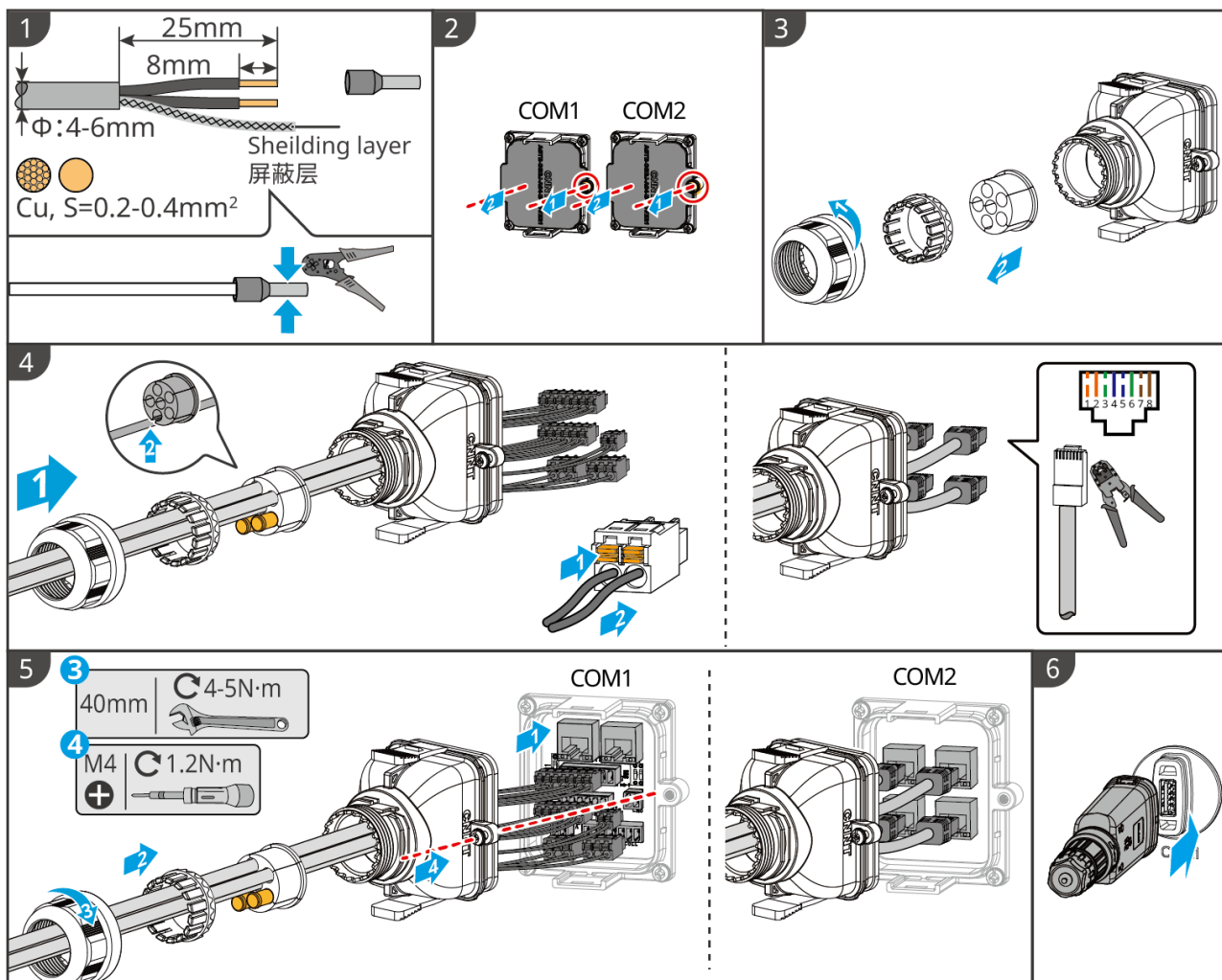
Comm unicat ion Port	Area s	No	Function/Co nnected devices	Name	Function
COM1	C	1	Rapid Shutdown	RSD-1	When an accident occurs, the equipment can be controlled to shut down.
		2		RSD-2	

Communication Port	Areas	No	Function/Connected devices	Name	Function
		3	-	-	Reserved
		4	Remote Shutdown	DI-1	When an accident occurs, the equipment can be controlled to shut down.
		5		DI-2	
		6-7	-	-	Reserved
	D	1	DRM&RCR	CL/0	The inverter meets the Australian DERD (Demand Response Modes) certification requirements and provides a DRED signal control port. RCR (Ripple Control Receiver): In Germany and some European regions, power grid companies use Ripple Control Receiver to convert power grid dispatch signals into dry contact mode for transmission, and power stations receive power grid dispatch signals through dry contact communication.
		2		RG/0	
		3		4/8	
		4		3/7	
		5		2/6	
		6		1/5	
	E	1	EMS	RS485-A1	

Communication Port	Areas	No	Function/Connected devices	Name	Function
		2		RS485-B1	Used to connect the EMS, enabling communication between the EMS and the inverter.
		1	Heavy Load	LOAD-NO	Large Load Control Port
		2		LOAD-COM	
		1	Generator	GEN-NO	Generator Control Port
		2		GEN-COM	
	COM2	1~3, 5-6	-	-	Reserved
		4	Batteries	CAN-H1	Connecting the battery BMS to enable BMS communication between the inverter and the battery.
		5		CAN-L1	
		1~3, 5-6	-	-	Reserved
		4	Batteries	CAN-H2	Connecting the battery BMS to enable BMS communication between the inverter and the battery.
		5		CAN-L2	
		1	STS	+12V-S	Used to connect the COM1 Port of STS, enabling communication between the STS and the inverter.
		2		DGND-S	
		3		STS-TX1	
		4		STS-TX2	

Communication Port	Areas	No	Function/Connected devices	Name	Function
		5		485-A1	
		6		485-A1	
		7		485-B1	
		8		485-B1	
	D	1	Smart Meter/STS	RS485-A	Connecting the Smart Meter or the COM2 port of STS, to achieve communication between the inverter and the Smart Meter.
		2		RS485-B	
		3-8		-	Reserved
COM3	-	-	Smart Dongle	-	Connecting the Smart Dongle

Method to connect the communication cable



ET10010ELC0010

7 System Commissioning

7.1 Check Before Power ON

No	Check Item
1	The inverter is firmly installed in a clean place where is well-ventilated and easy to operate.
2	Ensure that the ground wire, DC wire, AC wire, communication wire, and terminal resistor are connected correctly and securely.
3	Cable ties are intact, routed properly and evenly.
4	Unused wire holes and ports should be sealed up.
5	The used cable holes are sealed.
6	The voltage and frequency at the connection point meet the inverter grid connection requirements.

7.2 Power ON

WARNING

When there are multiple inverters in the system, please ensure that all slave inverter AC sides are powered on within one minute after the master inverter AC side is powered on.

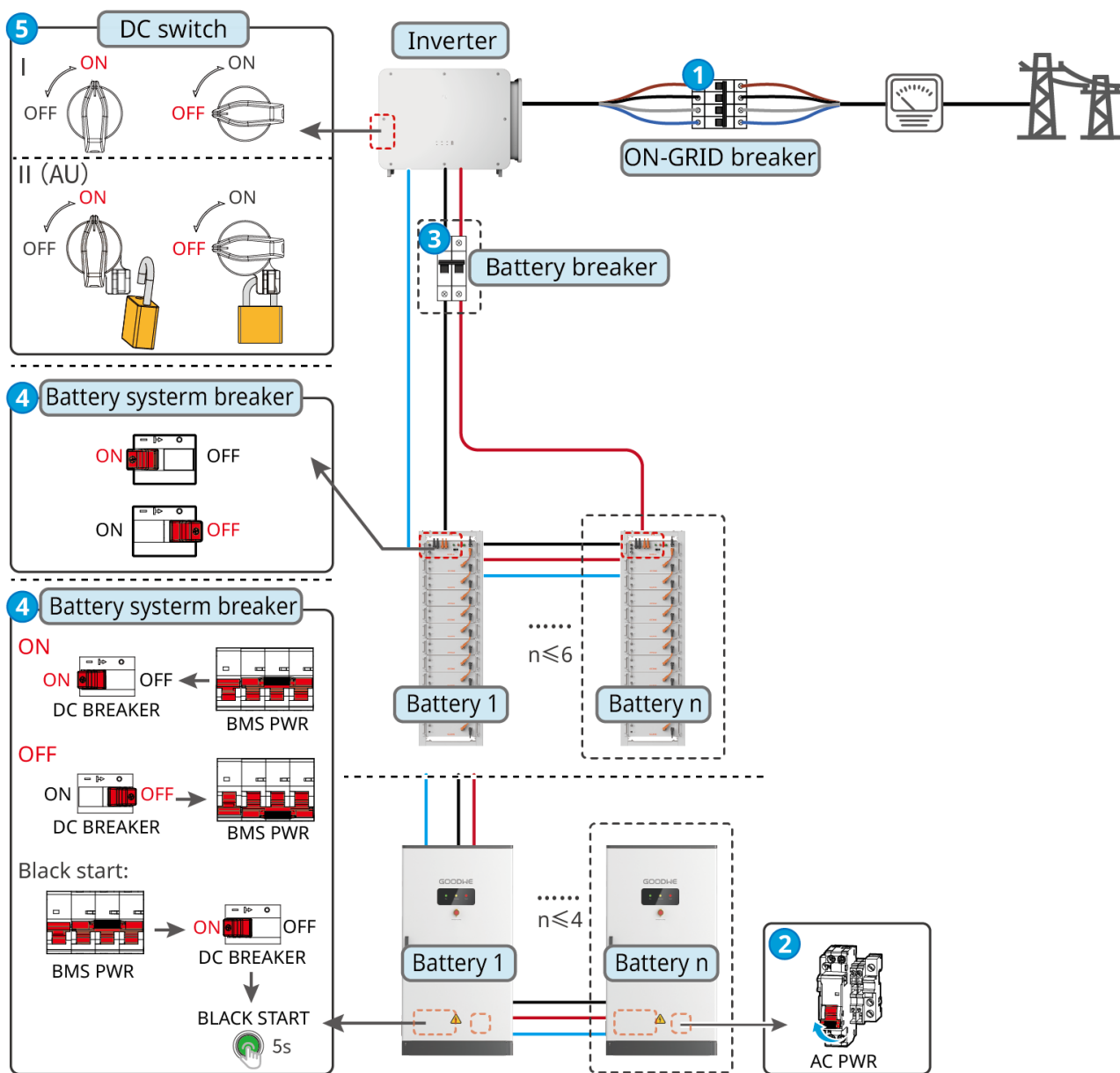
Note

Battery black start function: When there is no PV power generation in the photovoltaic system and the grid is abnormal, if the inverter cannot operate normally, the battery black start function can be used to force the battery to discharge and start the inverter. The inverter can then enter off-grid mode and operate, with the battery supplying power to the load.

- GW51.2-BAT-I-G10, GW56.3-BAT-I-G10 black start process: Turn on the DC Breaker, and the RUN light  flashes, and the FAULT light  is off. Press and hold the RUN  for 5 seconds, If you hear the sound of the contactor closing, and RUN  light turns to long light, the black start is successful; If the RUN light  keeps flashing, and the FAULT  light keeps off, the black start fails. If the black start fails, press and hold RUN  for 5 seconds to repeat the black start process. If it fails again, please contact GoodWe After-sales personnel.
- GW92.1- BAT-AC-G10, GW102.4-BAT-AC-G10, GW112.6-BAT-AC-G10. The black-start procedure can be found in the power-on and power-off steps.
- The black start process of the rest batteries is the same as the the power-on process of their own.
- GW92.1- BAT-AC-G10, GW102.4-BAT-AC-G10, GW112.6-BAT-AC-G10: Ensure that the emergency stop switch of the battery is in the released state before performing the power-on operation. The releasing steps are as follows: Turn the emergency stop switch clockwise.



7.2.1 Single inverter without off-grid function



Power On/Off:

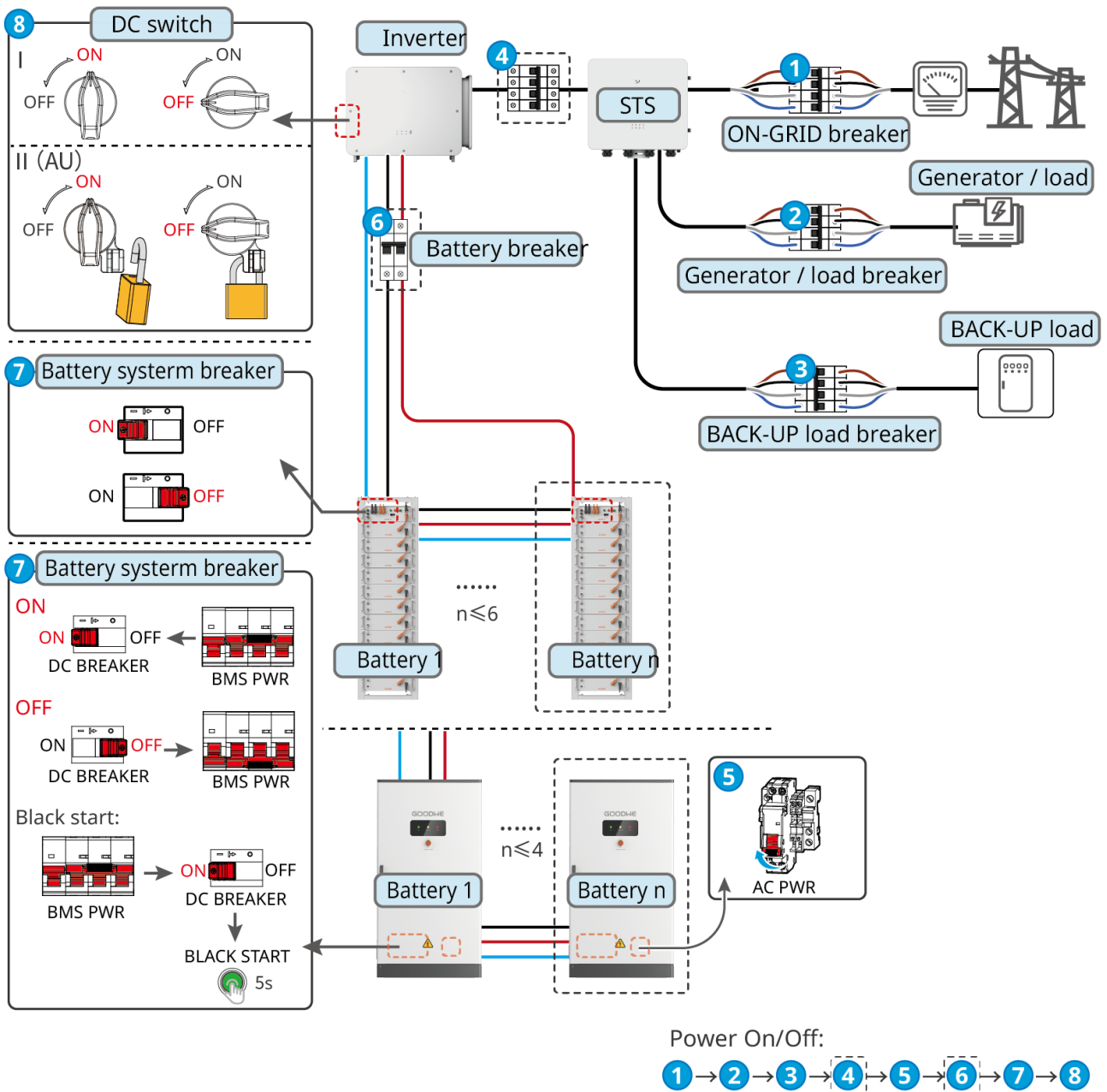


ET10010PWR0001

Power ON: 1 → 2 → 3 → 4 → 5

③: Install or not based on local laws and regulations.

7.2.2 Single inverter with off-grid function



ET10010PWR0002

Power on: 1 → 2 → 3 → 4 → 5 → 6 → 7

5: Optional in compliance with local laws and regulations.

7.3 Indicators

7.3.1 Inverter Indicators

LED

Indicator	Status	Description
		The inverter is power on and in the standby mode.
		The inverter is starting up and in the self-check mode.
		The inverter is in normal operation under grid-tied or off-grid mode.
		BACK-UPoutput overload.
		System Failure
		The inverter is powered off.
		The grid is abnormal, and the power supply to theBACK-UPport of the inverter is normal.
		The grid is normal, and the power supply to theBACK-UPport of the inverter is normal.
		TheBACK-UPport has no power supply.
		The monitoring module of the inverter is resetting.
		The inverter fails to connect with the communication termination.
		Communication fault between the communication Termination and Server.
		The monitoring of the inverter operates well.
		The monitoring module of the inverter has not been started yet.

LCD Overview

7.3.2 Battery Indicators

- **GW51.2-BAT-I-G10, GW56.3-BAT-I-G10**

Indicator	Status	Description
 Run		Green light on: The equipment is working properly.
		Blinks 1 time: The battery is operating normally and not communicating with the inverter.
		Blinks 2 times: The device is in standby mode.

 Fault		Power On: Fault
		Blinks 1 time: Undervoltage faults3~ 4levels.
		Blinks 2 times: SNabnormal status

• **GW102.4-BAT-AC-G10、GW112.6-BAT-AC-G10**

Indicator	Status	Description
 Run		Green light on: The equipment is working properly.
		Blinks 1 time: The battery is operating normally and not communicating with the inverter.
		Blinks 2 times: The device is in standby mode.
		Green light off and yellow light on: Warning Green light off and red light on: Fault All green, yellow and red light are off: The equipment is power off.
 Warning		Power On: Warning
		Power Off: No Warning
 Fault		Power On: Fault
		Power Off: No Fault
		Blinks 1 time: Sleep mode (undervoltage)
		Blinks 2 times:SNabnormality.

7.3.3 Smart Meter Indicator

GM330 Smart Meter Indicator:

Type	Status	Description
 Power	On	Power on, noRS485communication.
	Blinks	Power on,RS485communication works properly.
	Off	The smart meter has been powered off.
	Off	Reserved

Communication indicator 	Blinks.	Press the Reset button >= 5s, power light, buying or selling electricity indicator light flash: Reset the meter.
Importing or exporting indicator 	On	Importing from the grid.
	Blinks	Exporting to the grid.
	Off	Exporting to the grid.
	Reserved	

7.3.4 Smart Dongle Indicator

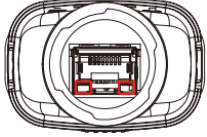
- **WiFi/LAN Kit-20**

Note

- After double press the Reload button to turn on Bluetooth, the communication indicator light will switch to single flash. Please connect to the SolarGo App within 5 minutes or Bluetooth will turn off automatically.
- The single flash status of the communication indicator only appears after double-press the Reload button to turn on Bluetooth.

Indicator	Status	Description
Power 		Power On: The smart dongle is powered on.
		Power Off: The smart dongle is powered off.
Communication indicator 		Power On: The WiFi or LAN communication is working well.
		Blinks 1 time: The Bluetooth signal is on and waiting for connection to the SolarGo app.
		Blinks 2 times: The Smart Dongle is not connected to the router.

		Blinks 4 times: The Smart Dongle is communicating with the router but not connected to the server.
		Blinks 6 times: The smart dongle is identifying the connected device.
		Power Off: The software of the Smart Dongle is in reset or not powered on.

Indicator	Color	Status	Description
Communication indicator in LANPort 	Green	On	The 100Mbps wired network is normally connected.
		Off	- The Internet cable is not connected. - The 100Mbps wired network is abnormally connected. - The 10Mbps wired network is normally connected.
	Yellow	On	The 10/100Mbps wired network is normally connected, but no communication data is received or transmitted.
		Blinks	The communication data is being transmitted or received.
		Off	The Internet cable is not connected.

Button	Description
Reload	Press and hold for 0.5 to 3 seconds to reset the Smart Dongle.
	Press and hold for 6 to 20 seconds to restore the Smart Dongle to factory settings.
	Double press quickly to activate Bluetooth signal (only lasts for 5 minutes).

• 4G Kit-G20/ 4G Kit-CN-G20

Indicator	Status	Description
		Power On: The smart dongle is powered on.

Power 		Power Off: The smart dongle is powered off.
Communication indicator 		Power On: The Smart Dongle is connected to the server and the communication is normal.
		Blinks 2 times: The Smart Dongle is not connected to the foundation.
		Blinks 4 times: Smart Dongle
		Blinks 6 times: The Smart Dongle is not connected to the inverter.
		Power Off: The software of the Smart Dongle is in reset or not powered on.
Button	Description	
Reload	Press and hold for 0.5 to 3 seconds to reset the Smart Dongle.	
	Press and hold for 6 to 20 seconds to restore the Smart Dongle to factory settings.	

7.3.5 STS indicators

Indicator	Status	Description
		Connected to the power grid, with normal port voltage.
		Connected to the power grid, no voltage at the port, and the STS is powered by the inverter communication Cable.
		STS Power off
		Connected to the port, with normal port voltage.
		Connected to the port, no voltage at the port, and the STS is powered by the inverter communication Cable.
		STS Power off
		Connected to the port, with normal port voltage.
		Connected to the port, no voltage at the port, and the STS is powered by the inverter communication Cable.
		STS Power off
		Fault
		No Fault

8 Rapid System Configuration

8.1 Downloading the App

8.1.1 Downloading SolarGo App

Make sure that the mobile phone meets the following requirements:

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

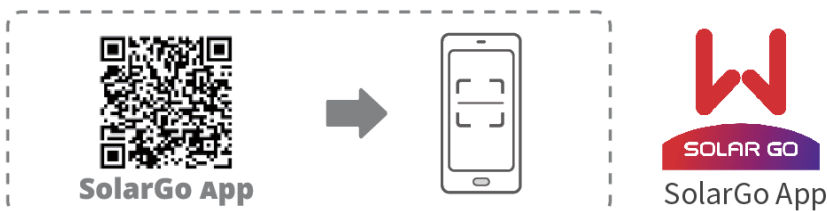
NOTICE

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

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



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



8.1.2 Downloading SEMS+ APP

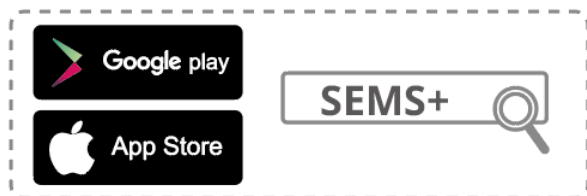
Make sure that the mobile phone meets the following requirements:

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

Download Method:

Method 1:

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



Method 2:

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



8.2 Connecting the Hybrid Inverter

8.3 Setting Communication Parameters

NOTICE

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

8.3.1 Setting Privacy and Security Parameters

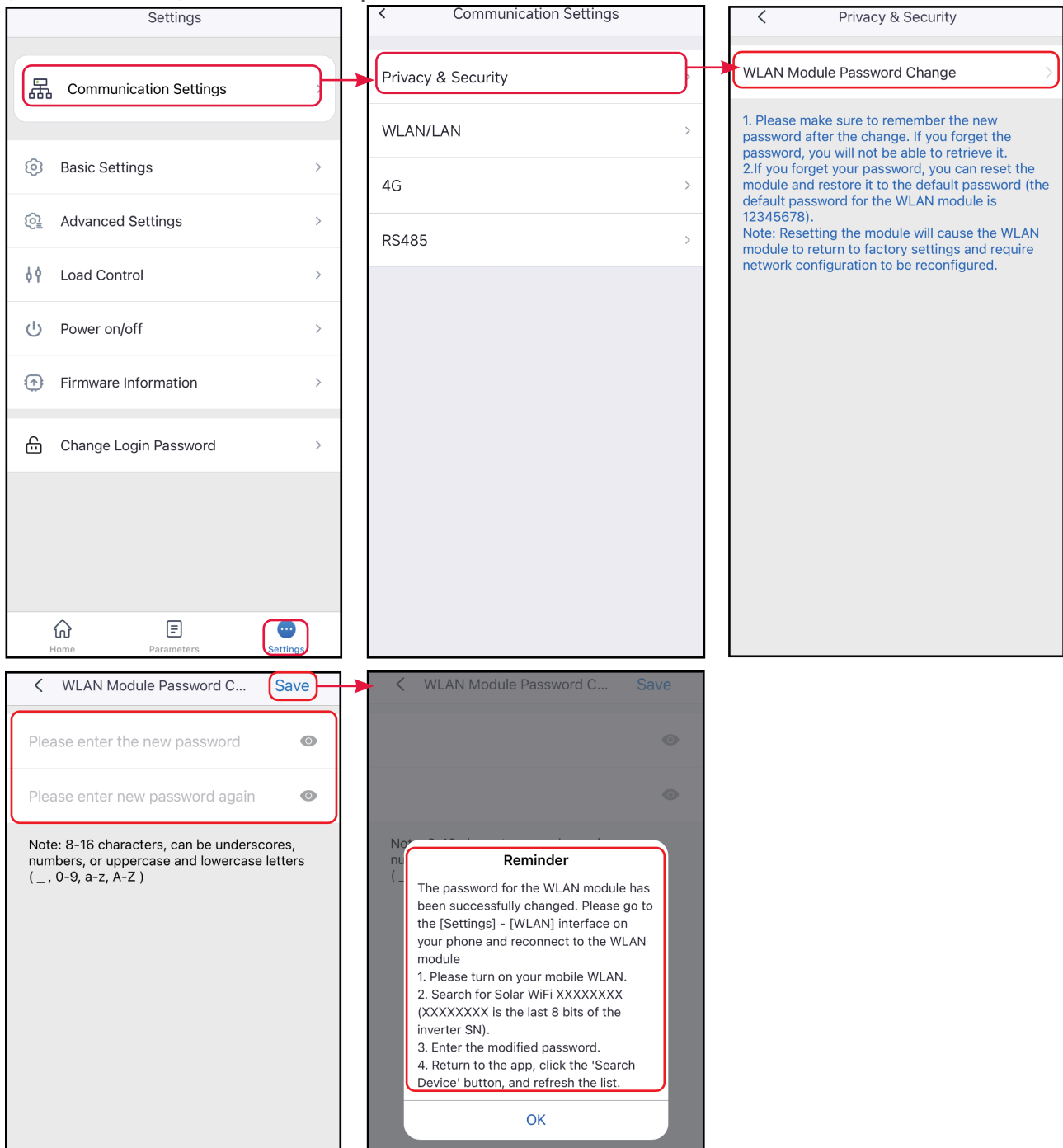
Type I

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

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

Step 3 Open the WiFi settings of your phone and connect to the inverter's WiFi signal

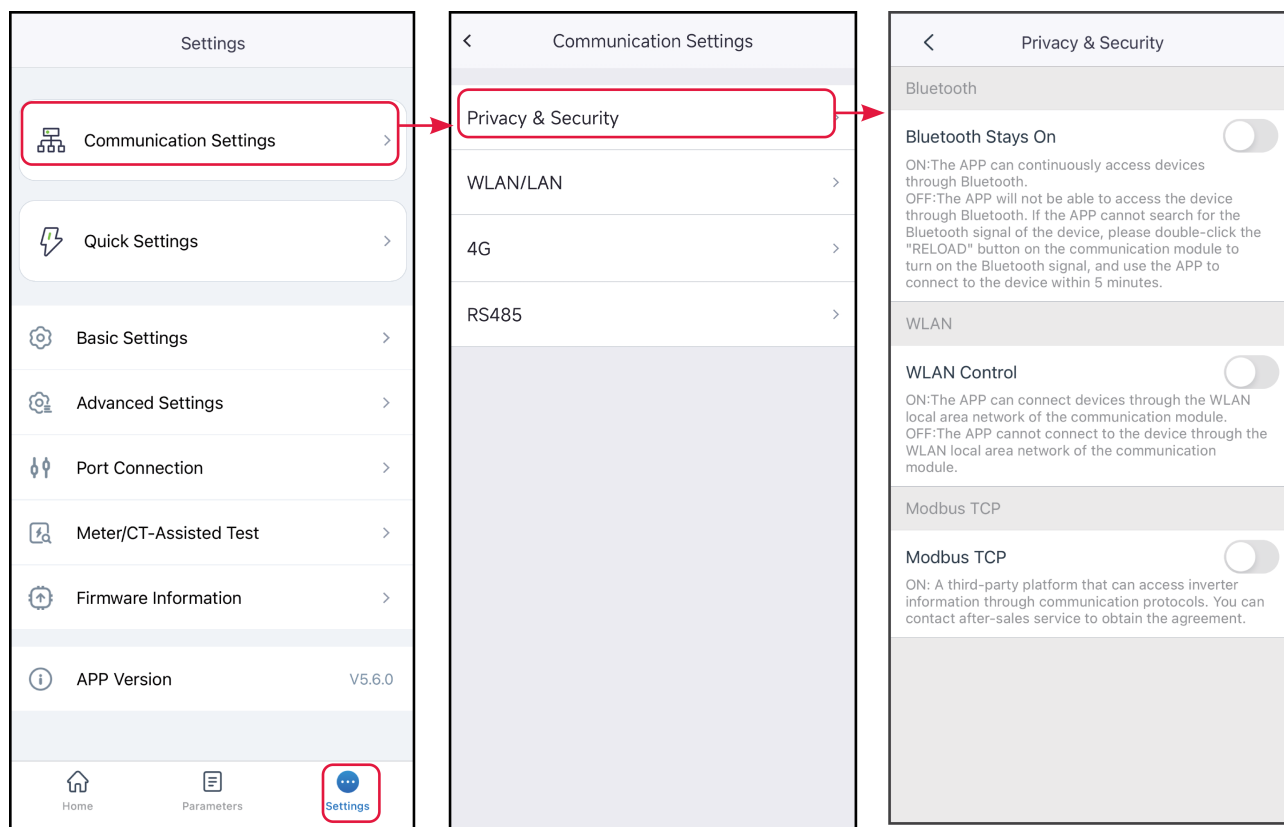
(Solar WiFi***) with the new password.



Type II

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

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



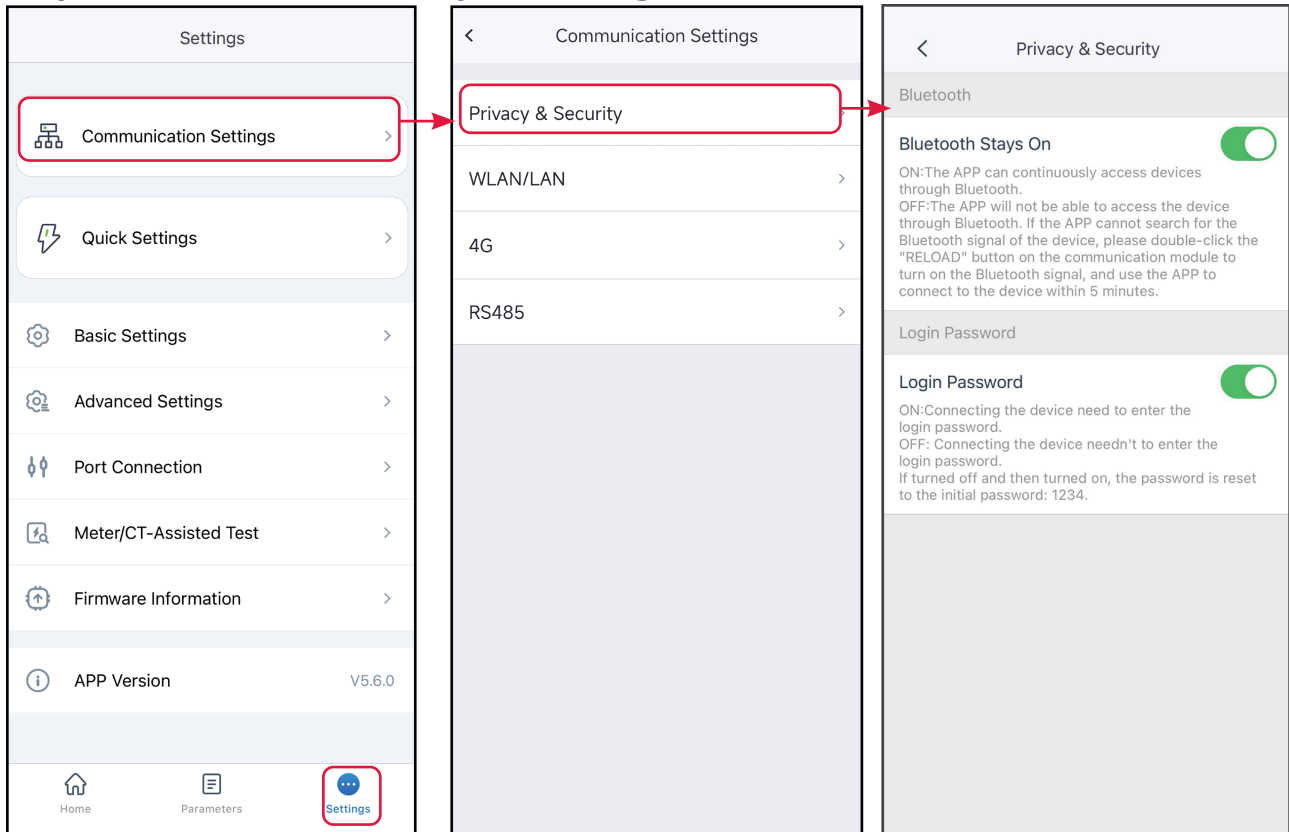
No.	Parameters	Description
1	Bluetooth Stays On	Disabled by default. Enable the function, the bluetooth of the device will be contentious on to keep connected to SolarGo. Otherwise, the bluetooth will be off in 5 minutes, and the device will be disconnected from SolarGo.
2	WLAN Control	Disabled by default.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

Type III

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

the parameters.

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



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

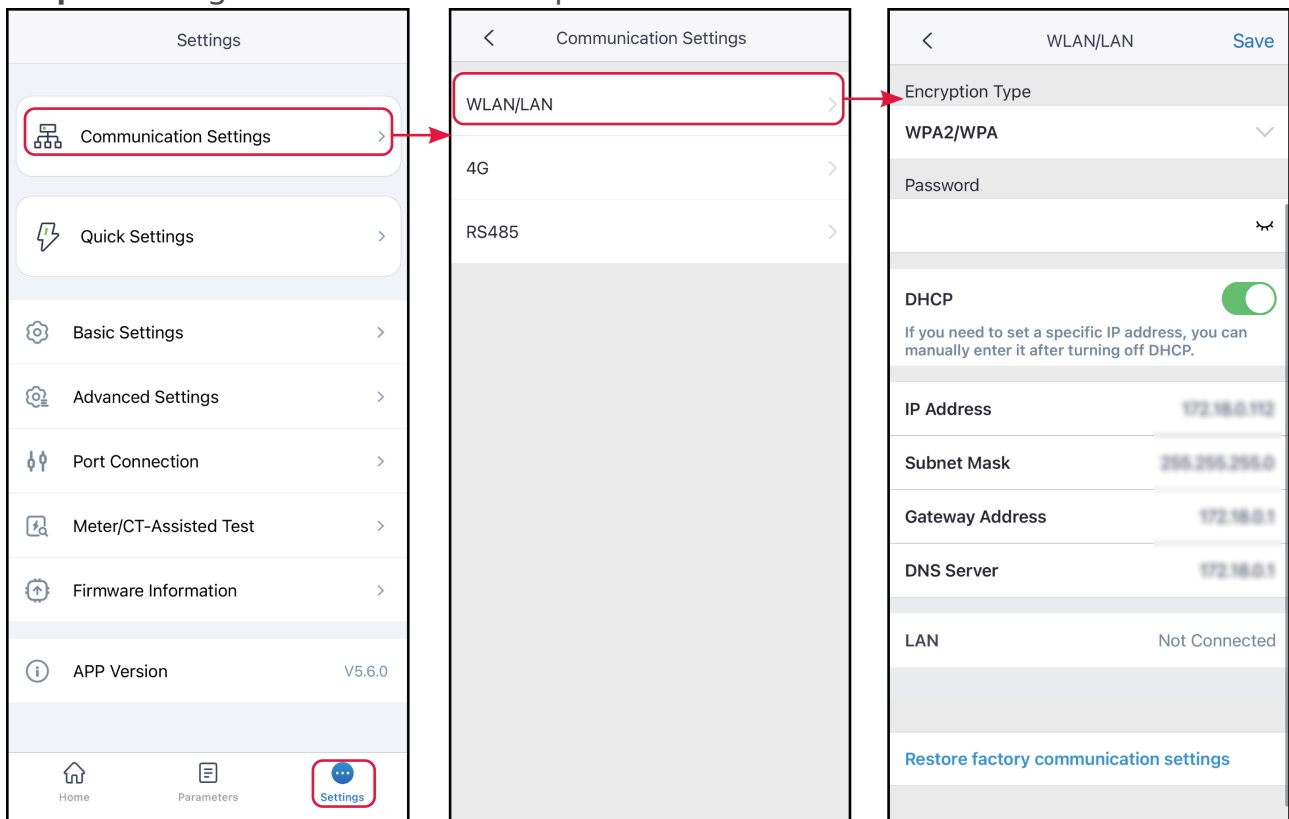
8.3.2 Setting WLAN/LAN Parameters

NOTICE

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

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

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



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

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

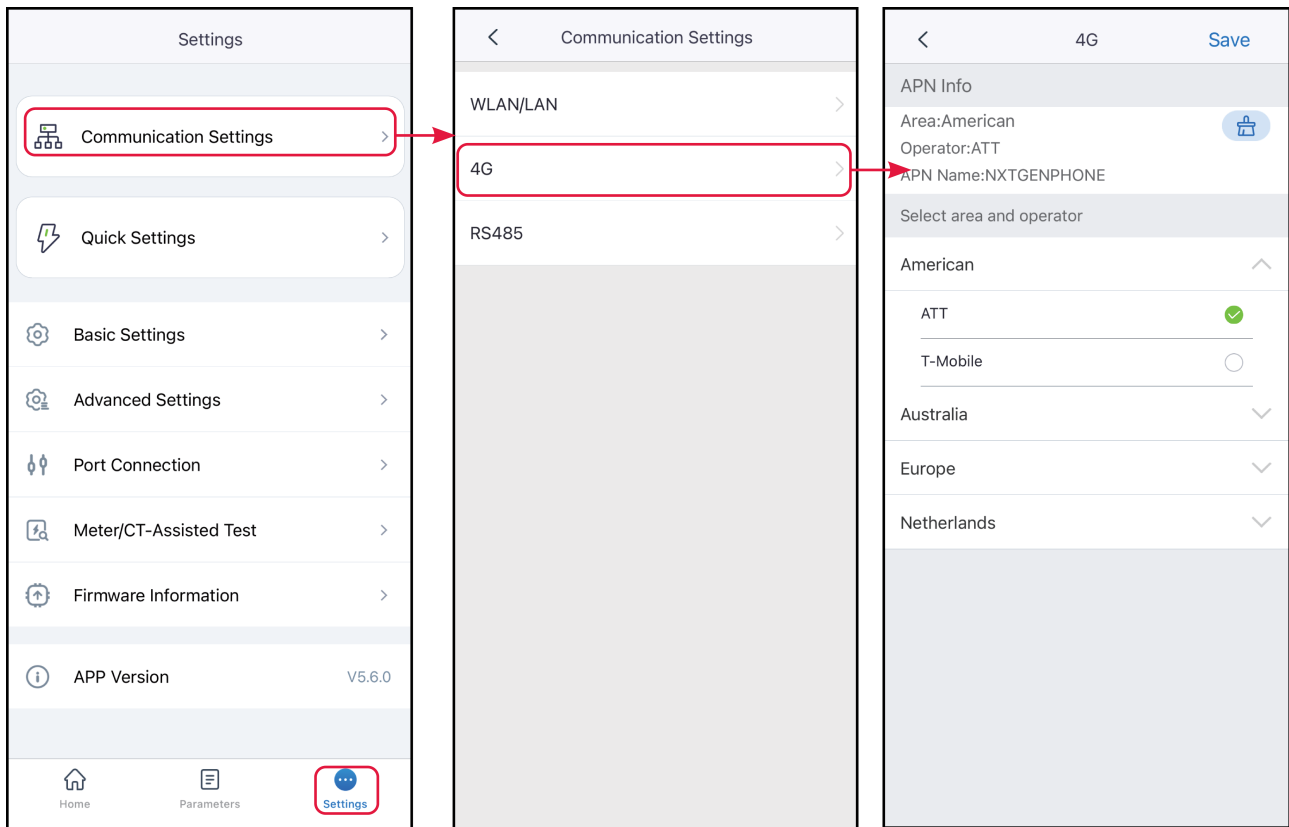
8.3.3 Configuring APN Parameters

NOTICE

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

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

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



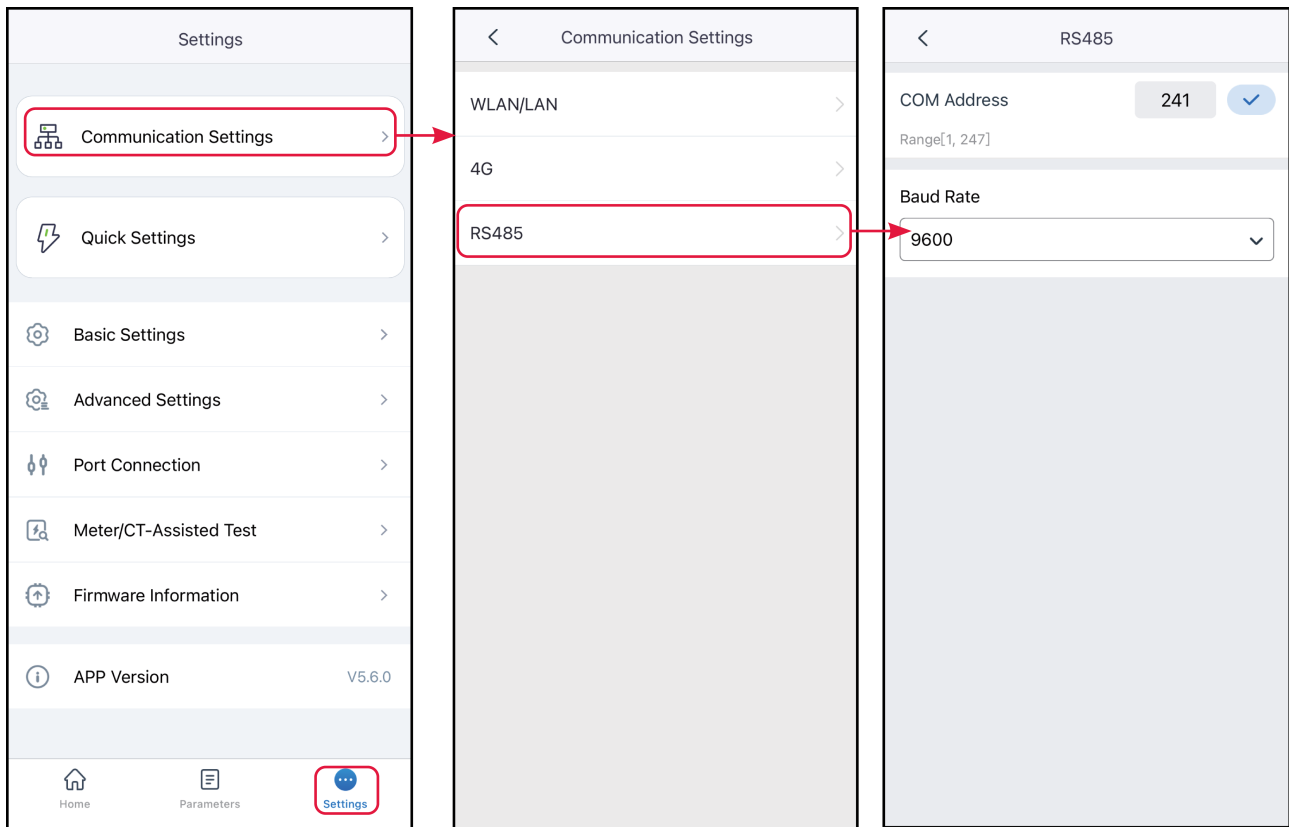
8.3.4 Configuring RS485 Parameters

NOTICE

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

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

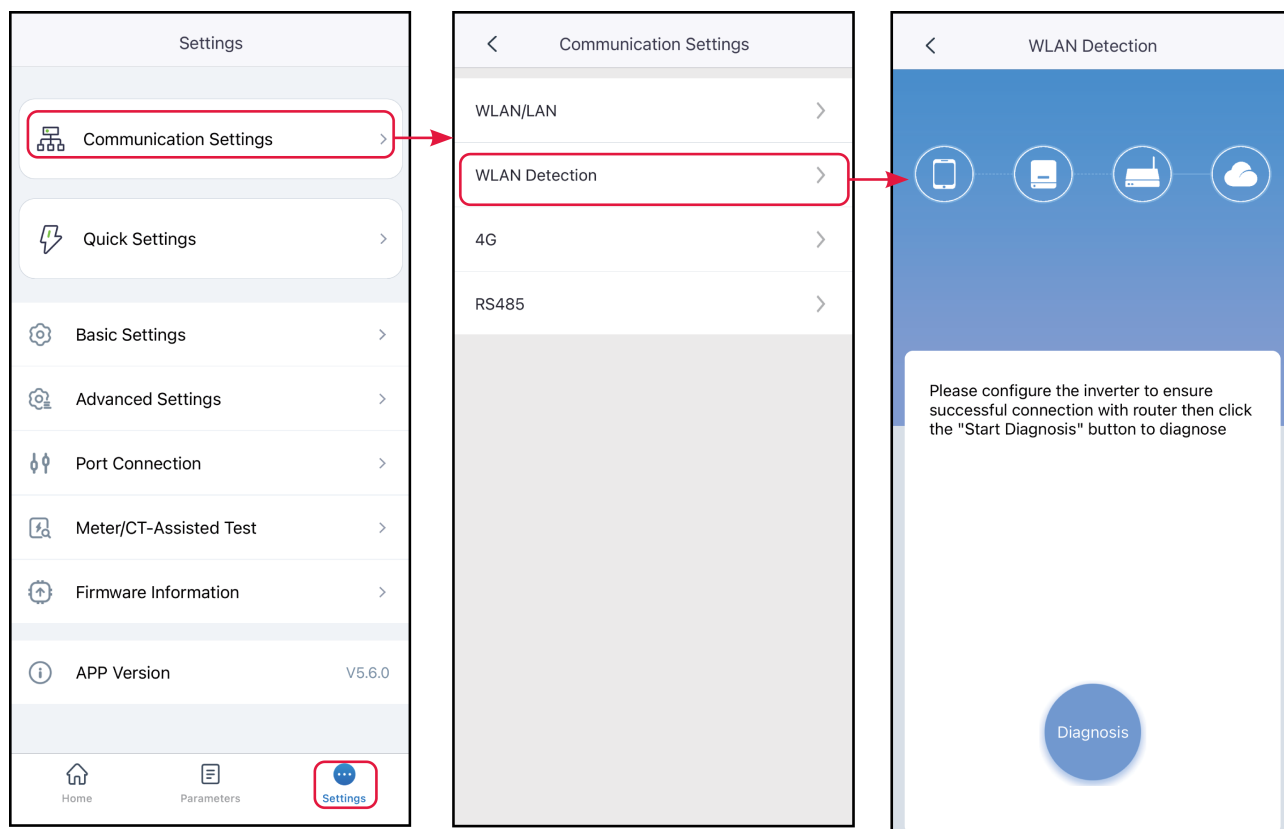
Step 2 : Set the Modbus Address And Baud Rate base on actual situation.



8.3.5 WLAN Detection

Step 1 : Tap **Home** > **Settings** > **Communication Settings** > **WLAN Detection**..

Step 2 : Tap **Diagnosis** to check the network connection status.



8.4 Quick Setting the Basic Information(Type II)

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

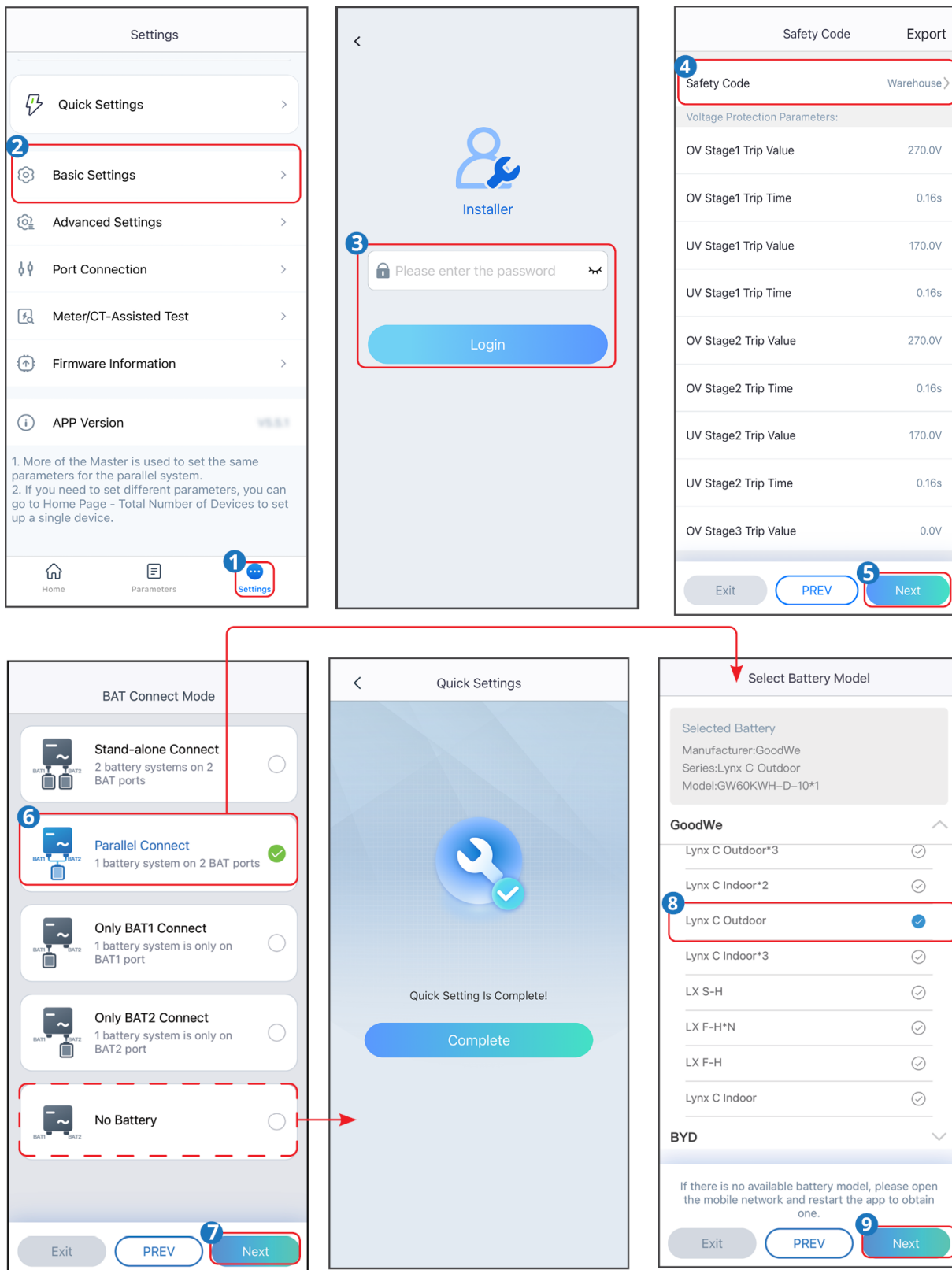
Step 2 : Enter the password for quick settings. Contact the supplier or after sales service for password. Password for professional technicians only.

Step 3 : Some models support one-click configuration. Select **Guided Mode** to quickly configure the system.

Step 4: Select safety country accordingly. Tap **Next** to set the Battery Connect Mode.

Step 5 : Select the actual mode in which the battery is connected to the inverter. The basic settings are completed if there is no battery connected in the system. Tap **Next** to set the Battery Model if there is any battery connected in the system.

Step 6: Select the actual battery model. Tap **Next** to set the Working Mode.

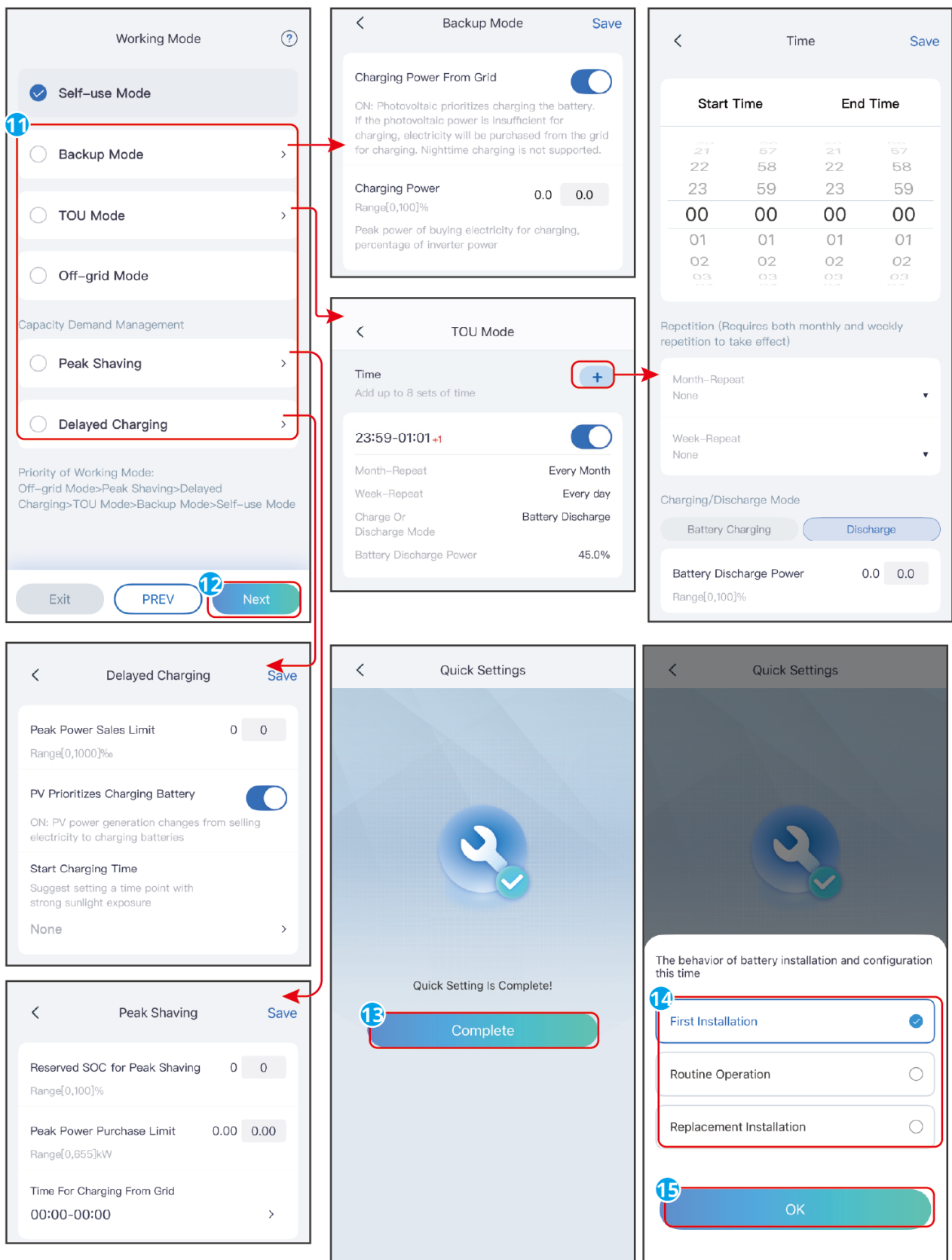


SLG00CON0059

Step 7: Set the working mode based on actual needs. Tap **Next** to set the Working Mode. For some models, after the working mode configuration is completed, it will

automatically enter the CT/meter self-test state. At this time, the inverter will temporarily disconnect from the grid and then automatically reconnect.

Step 8 : Select the battery based on actual situation whether it is **First Installation, Routine Operation** or **Replacement Installation**.



SLG00CON0060

No.	Parameters	Description
Back-up mode		
1	Charging Power From Grid	Enable Charging Power From Grid to allow power purchasing from the utility grid.
2	Charging Power	The percentage of the purchasing power to the rated power of the inverter.
TOU mode		
3	Start Time	Within the Start Time and End Time, the battery is charged or discharged according to the set Battery Mode as well as the Rated Power.
4	End Time	
5	Charge Discharge Mode	Charge or discharge according to actual needs.
6	Rated Power	The percentage of the charging/discharging power to the rated power of the inverter.
7	Charge Cut-off SOC	The battery stop charging/discharging once the battery SOC reaches Charge Cut-off SOC.
Peakshaving		
8	Reserved SOC For Peakshaving	In Peak Shaving mode, the battery SOC should be lower than Reserved SOC For Peakshaving. Once the battery SOC is higher than Reserved SOC For Peakshaving, the peak shaving mode fails.
9	Peak Power Purchase Limit	Set the maximum power limit allowed to purchase from the grid. When the loads consume power exceed the sum of the power generated in the PV system and Peak Power Purchase Limit, the excess power will be made up by the battery.
10	Time for Charging From Grid	The utility grid will charge the battery between Start Time and End Time if the load power consumption do not exceed the power quota. Otherwise, only PV power can be used to charge the battery. Otherwise, only PV power can be used to charge the battery.

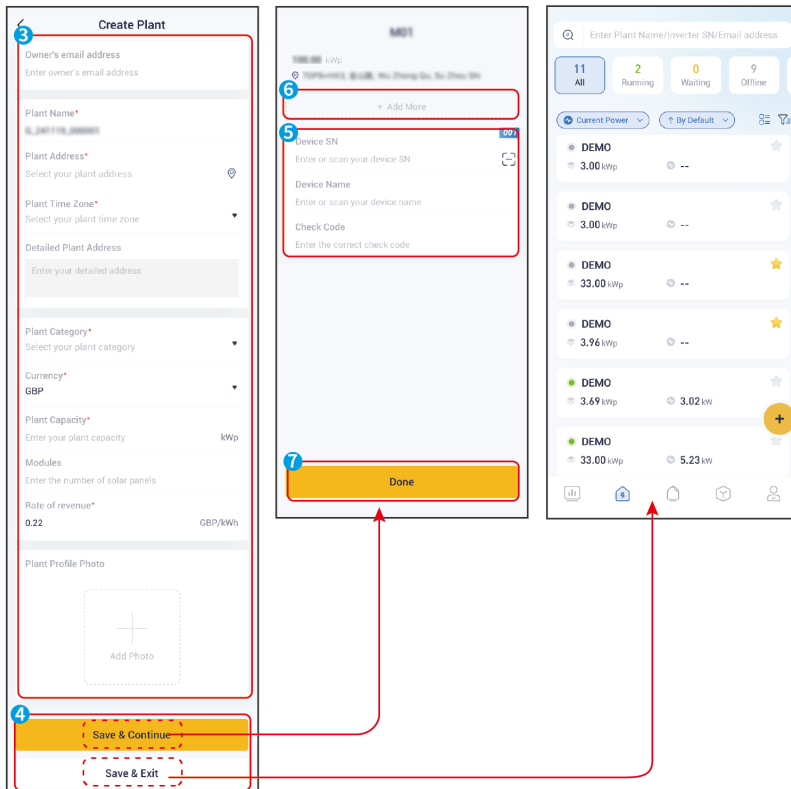
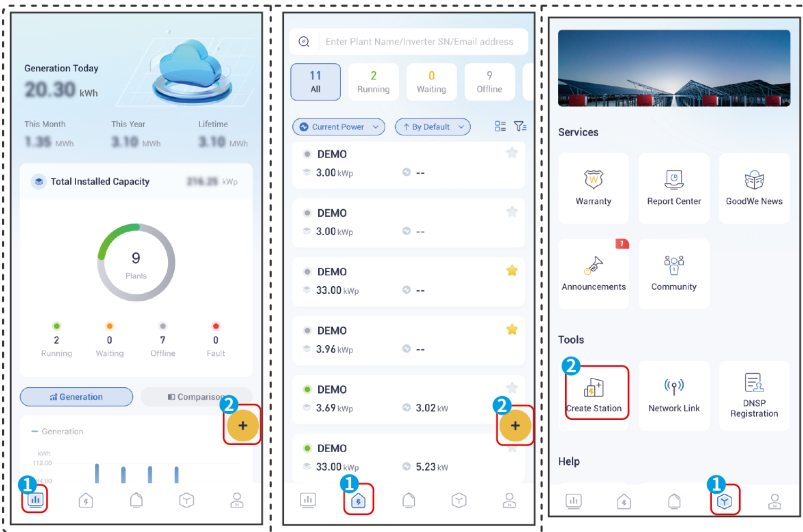
No.	Parameters	Description
Smart charging		
11	Peak Power Sales Limit	Set the Peak Power Sales Limit in compliance with local laws and regulations. The Peak Limiting Power shall be lower then the output power limit specified by local requirements.
12	PV Prioritizes Charing Battery	During charging time, the PV power will first charge the battery.
13	Start Charging Time	

8.5 Creating a Station

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

Step 2: Enter station information on the **Creat Station** page.

Step 3: Tap **Save&Exit** to complete creating a station, without devices added. Or tap **Save&Continue** to add devices. Support adding multiple devices.



9 System Commissioning

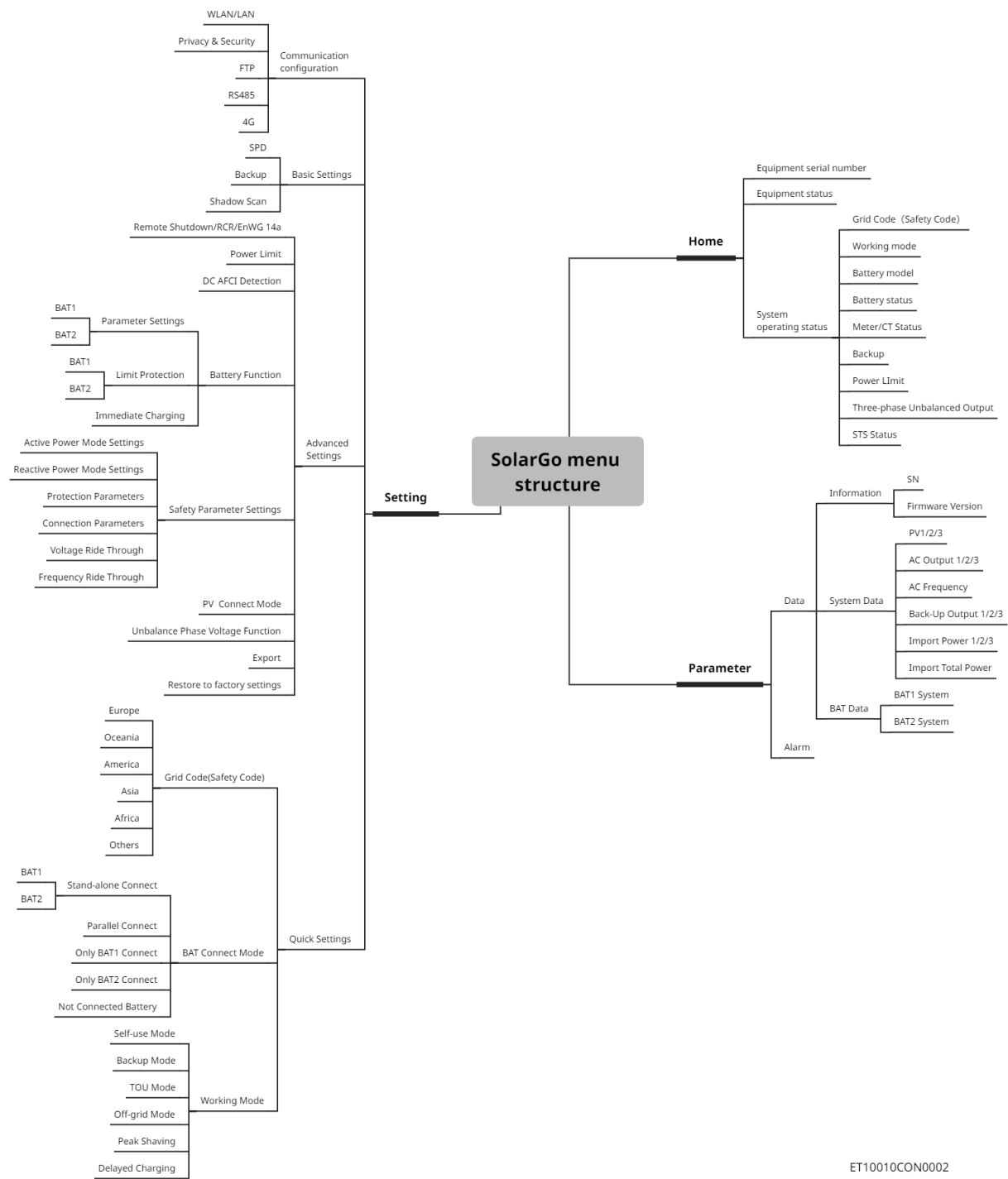
9.1 SolarGo APP

9.1.1 SolarGo APP Introduction

SolarGo App is a mobile application software that can communicate with inverters via Bluetooth or WiFi modules. Commonly used functions are as follows:

1. Check the operating data, software version, alarms, etc.
2. Set the grid parameters, communication parameters, safety regulation regions and anti-backflow of the inverter.
3. Equipment maintenance.
4. Upgrading Device software version.

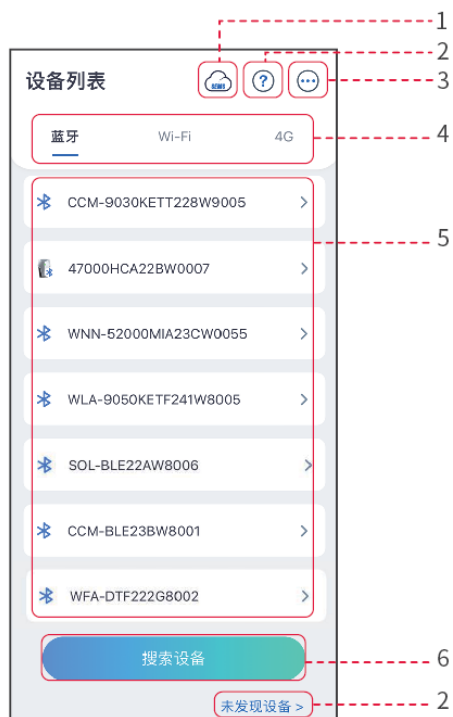
App Interface Structure



ET10010CON0002

Presented with xmind

Introduction to the SolarGo App Login Interface

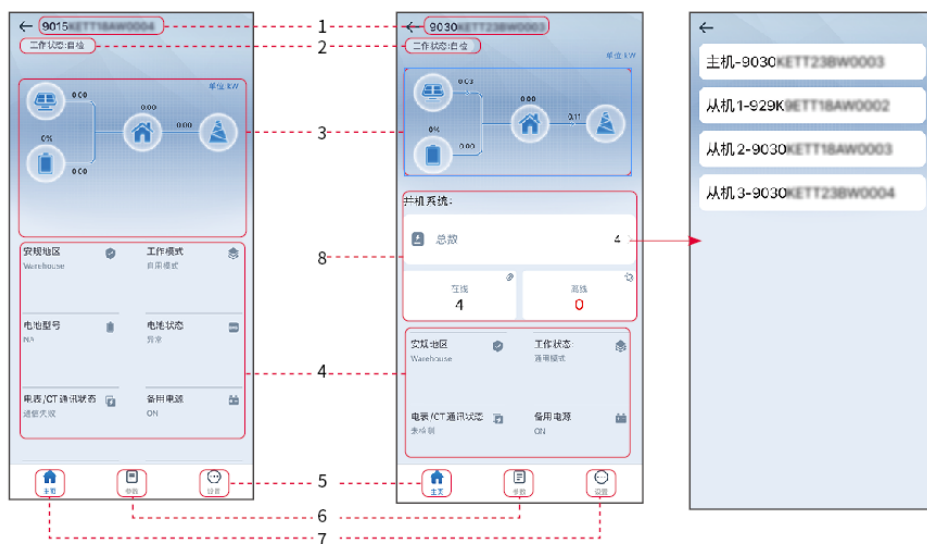


No.	Name/Icon	Description
1		Tap the icon to open the page downloading the SEMS Portal app.
2	 No Devices Found	Tap to read the connection guide.
3		- Check information such as app version, local contacts, etc. - Other settings, such as update date, switching language, set temperature unit, etc.
4	Bluetooth/ WiFi/4G	Choose according to the actual communication method of the device. If you have any problems, tap or NOT Found to read the connection guides.

5	Device List	- Device List. The device name corresponds to the device serial number. Please select the corresponding device based on the device serial number. - Select the device by checking the serial number of the master inverter when multi inverters are parallel connected. - When the device model or communication module type is different, the device name displayed will be different.
6	Search Device	If the corresponding device is not found in the device list, click Search for Devices.

Introduction to the SolarGo App Home Screen

Single Inverter Multiple Inverters



No.	Name/Icon	Discription
1	Serial Number	Serial number of connected device.
2	Device Status	Displays the inverter status, such as running, fault, etc.
3	En Chart	En Chart The interface displays different content in different modes. Please refer to the actual situation.
4	System Operation Status	Displays the current system operation status, such as safety regulation region, working mode, battery model, battery status, anti-backflow, three-phase imbalance, etc.
5	 Home	Home Screen. Click to view device serial number, operating status, energy flow chart, system operating status, and other information.

6		Parameter Query Interface, it supports the query of system operation parameters.
7		Settings interface. Log in before entering Quick Settings and Advanced Settings. Initial password: goodwe2010 or 1111 1111.
8	Parallel System	Click the Total Number to view all inverter serial numbers, and click an inverter serial number to enter the single - unit settings interface of that inverter.

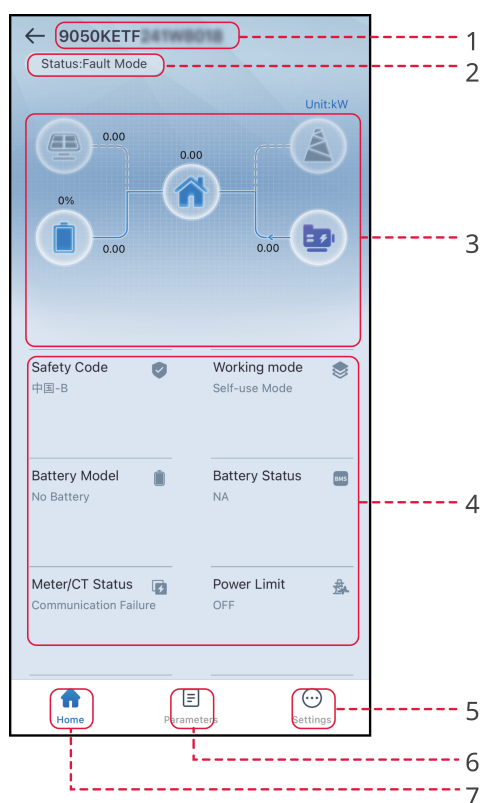
Connect the inverter via SolarGo.

Notice
When the device model or communication module type is different, the device name displayed will be different. • Wi-Fi/LAN Kit; Wi-Fi Kit: Solar-WiFi*** • Bluetooth module: Solar-BLE*** • WiFi/LAN Kit-20: WLA-*** • Ezlink3000: CCM-BLE***; CCM-***; ***

Connecting the Inverter Communication Cable

9.1.2 Connecting the Hybrid Inverter

9.1.3 GUI Introductions to Hybrid Inverters



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

No.	Name/Icon	Description
7		• Settings Tap to perform quick settings, basic settings, advanced settings, etc. on the inverter. • Login required to access Quick Setup and Advanced Setup interfaces Initial password: goodwe2010 or 1111.

9.1.4 Setting Communication Parameters

NOTICE

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

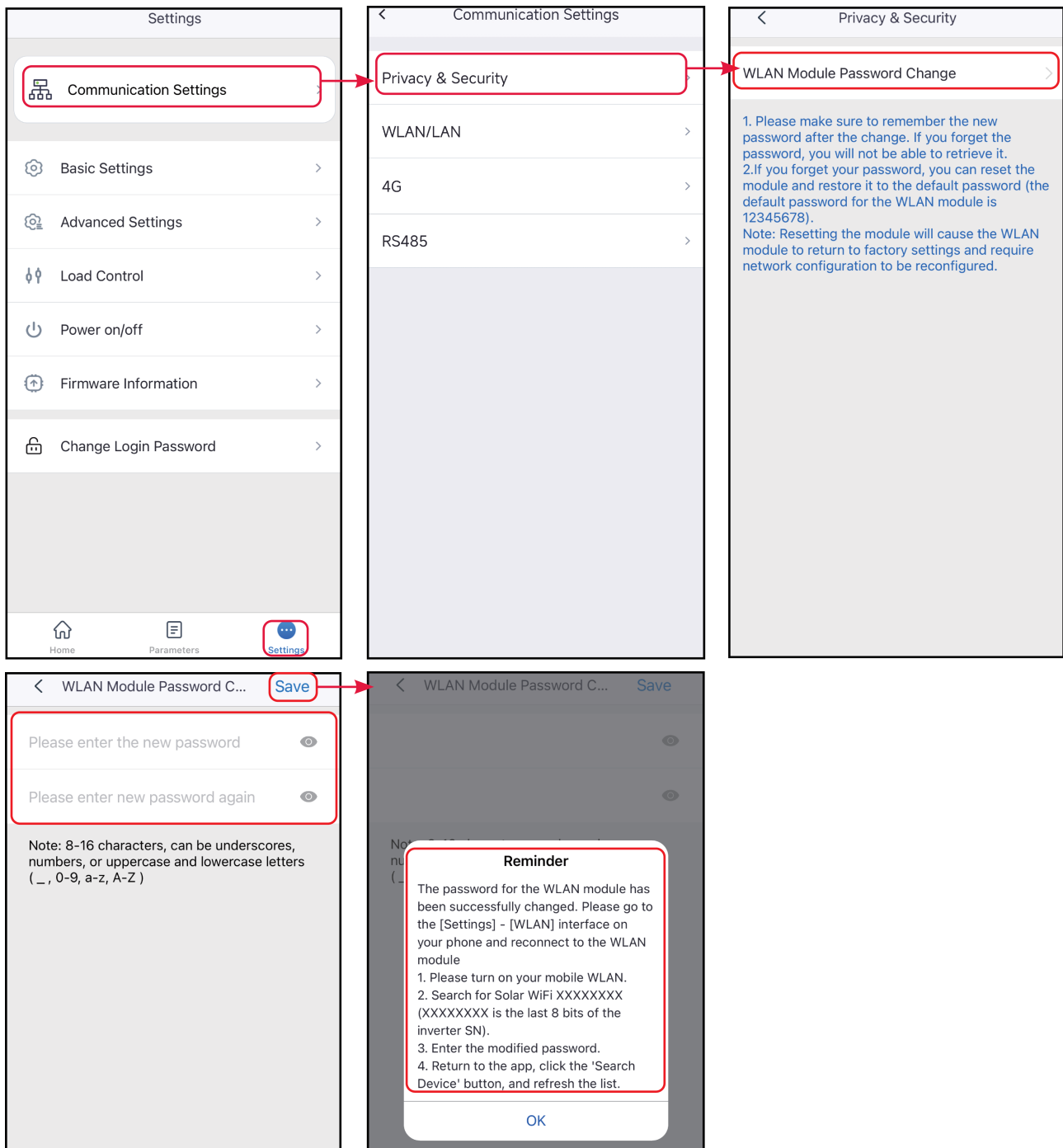
9.1.4.1 Setting Privacy and Security Parameters

Type I

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

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

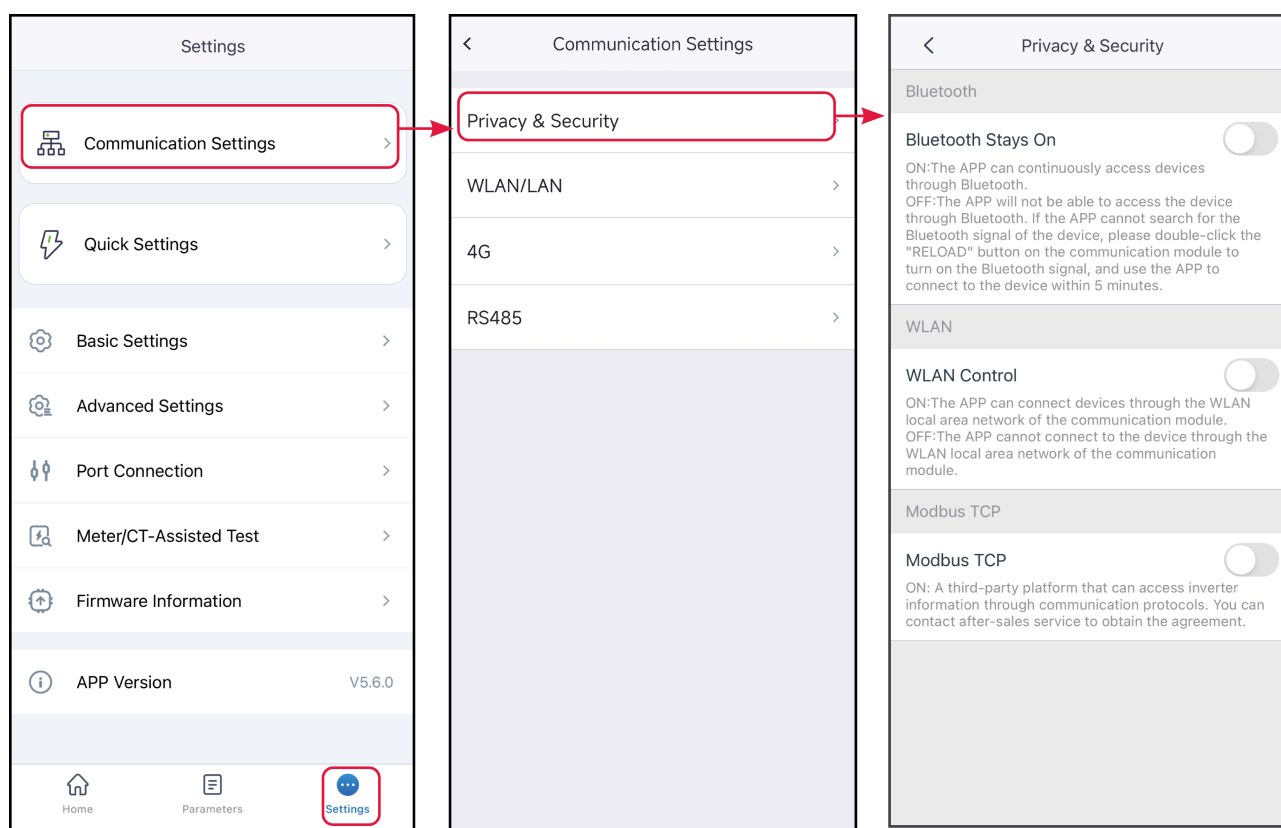
Step 3 Open the WiFi settings of your phone and connect to the inverter's WiFi signal (Solar WiFi**) with the new password.



Type II

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

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



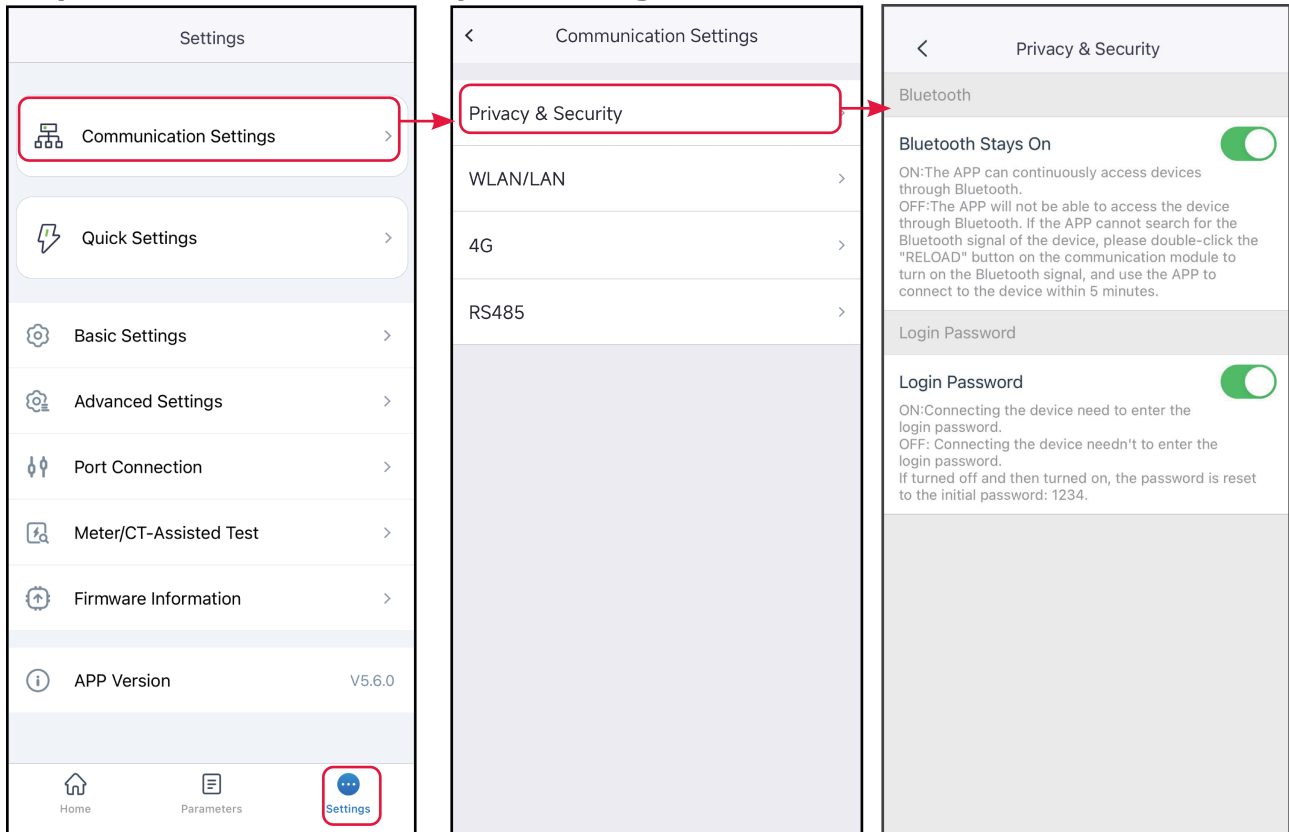
No.	Parameters	Description
1	Bluetooth Stays On	Disabled by default. Enable the function, the bluetooth of the device will be contentious on to keep connected to SolarGo. Otherwise, the bluetooth will be off in 5 minutes, and the device will be disconnected from SolarGo.
2	WLAN Control	Disabled by default.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

Type III

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

the parameters.

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



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

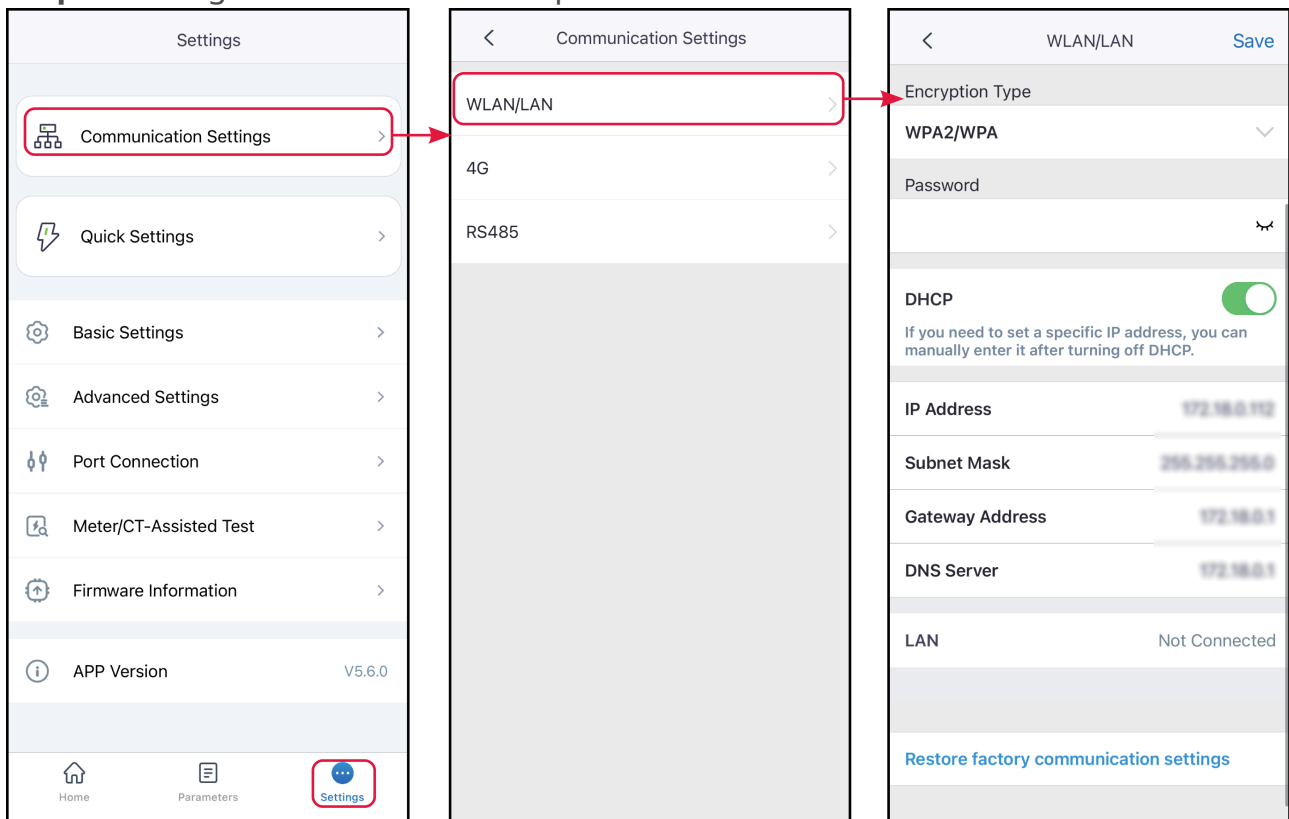
9.1.4.2 Setting WLAN/LAN Parameters

NOTICE

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

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

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



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

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

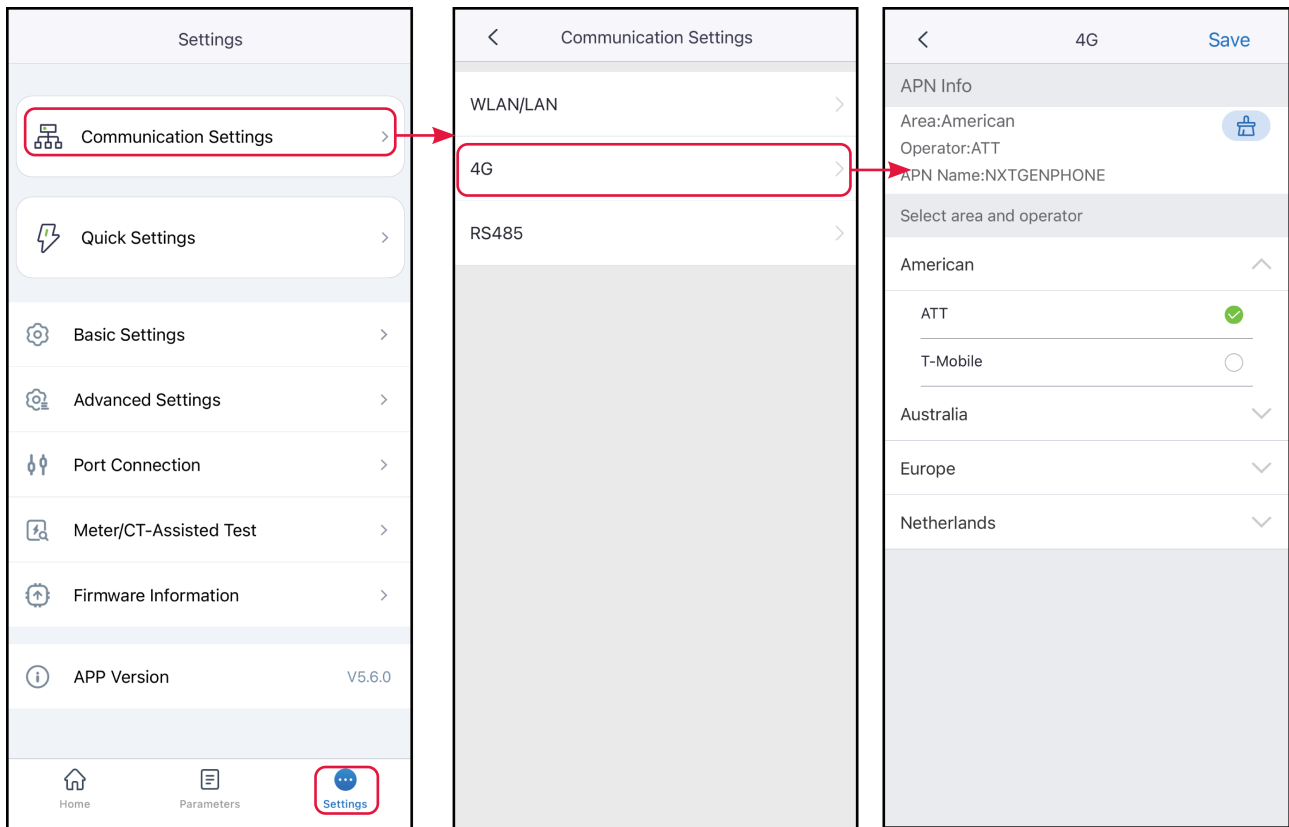
9.1.4.3 Configuring APN Parameters

NOTICE

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

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

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



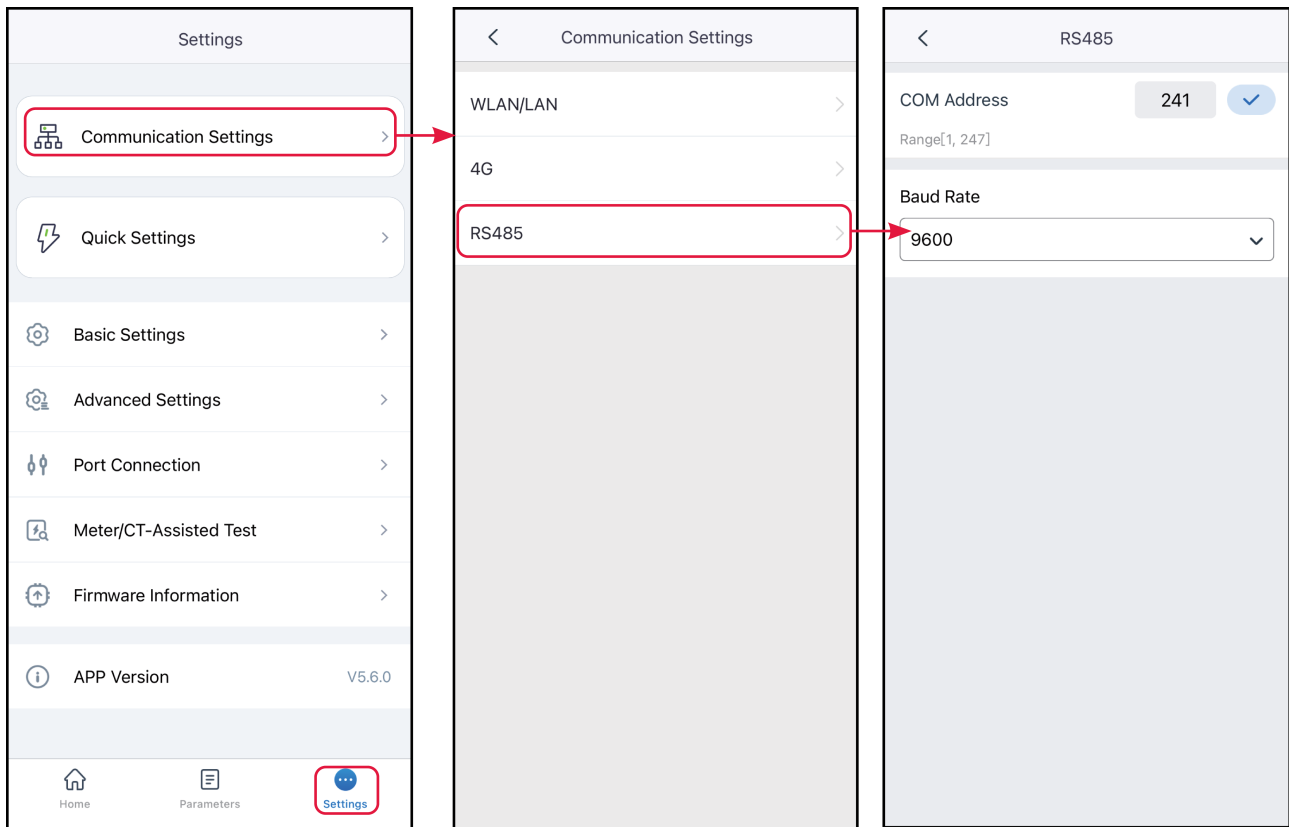
9.1.4.4 Configuring RS485 Parameters

NOTICE

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

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

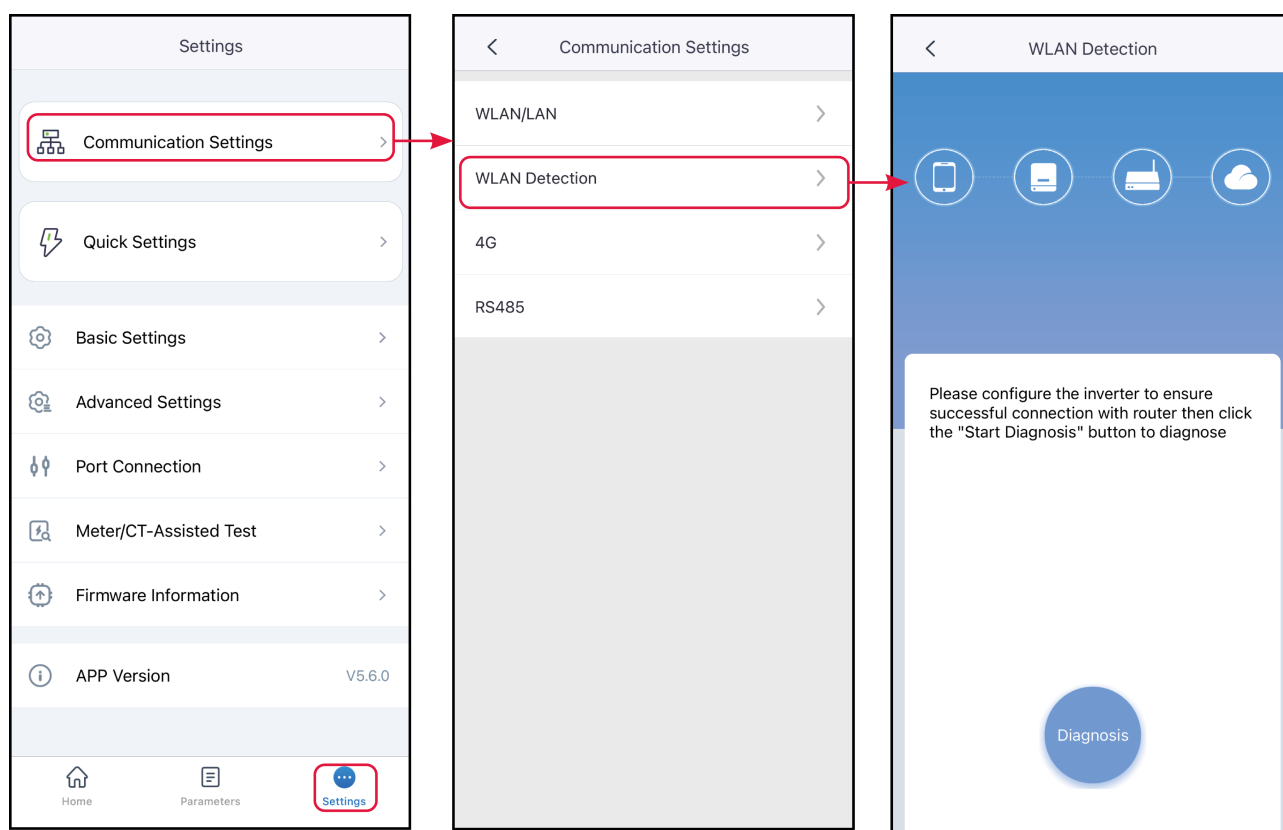
Step 2 : Set the Modbus Address And Baud Rate base on actual situation.



9.1.4.5 WLAN Detection

Step 1 : Tap **Home > Settings > Communication Settings > WLAN Detection..**

Step 2 : Tap **Diagnosis** to check the network connection status.



9.1.5 Setting the Wiring Method

NOTICE

- Only for ET40-50kW series inverters.
- Do not set the Wiring Method if the inverter is installed for the first time and only one inverter is applied.

Step 1 : Tap **Home > Settings > Wiring Method**.

Step 2 : If the system is a single inverter system, select **Device Stand-Alone Working**. If the system is a parallel system with multiple inverters, select **Multiple Device Parallel Working**, and set the specific wiring method based on actual needs.

- When the system is both on-grid and off-grid, select **the STS-BACKUP Port Parallel Connect**.
- When the system is a grid-connected parallel system or an off-grid non-parallel system, select **the STS-BACKUP Port Stand-alone Connect**.
- When STS is not connected to the system, select **No STS Box**.

Step 3 : Tap **Save** to complete the settings, and click OK in the pop-up window to restart the device.

Panel 1: Settings

- Communication Settings
- Wiring Method** (Step 2)
- Quick Settings
- Basic Settings
- Advanced Settings
- Port Connection
- Meter/CT-Assisted Test
- Firmware Information
- Settings** (Step 1)

Panel 2: Wiring Method

System Mode

- Device Stand-Alone Working (Radio button)
- Multiple Device Parallel Working** (Step 3, Green checkmark)

Please select the communication module of the parallel system

- Ezlink3000
- SEC3000C

Please select the wiring method for the parallel system

- STS-Backup Port Parallel Connect** (Step 4, Green checkmark)
- STS-Backup Port Stand-alone Connect
- No STS Box

Panel 3: Confirmation Dialog

STS-Backup Port Parallel Connect (Green checkmark)

Tips
After the Wiring Method is successfully set, the device needs to be restarted, and the app will jump to [Device List] to reconnect the device. Are you sure to save?

Confirm (Step 5)

Annotations:

- Select **STS-BACKUP Port Parallel Connect** if the inverters are connected in parallel both on-grid and off-grid.
- Select **STS-BACKUP Port Stand-alone Connect** if the inverters are connected in parallel on-grid, but cannot be connected in parallel off-grid.
- Select **No STS Box** if no STS is connected.

9.1.6 Quick Setting the Basic Information

NOTICE

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

9.1.6.1 Quick Setting the Basic Information(Type II)

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

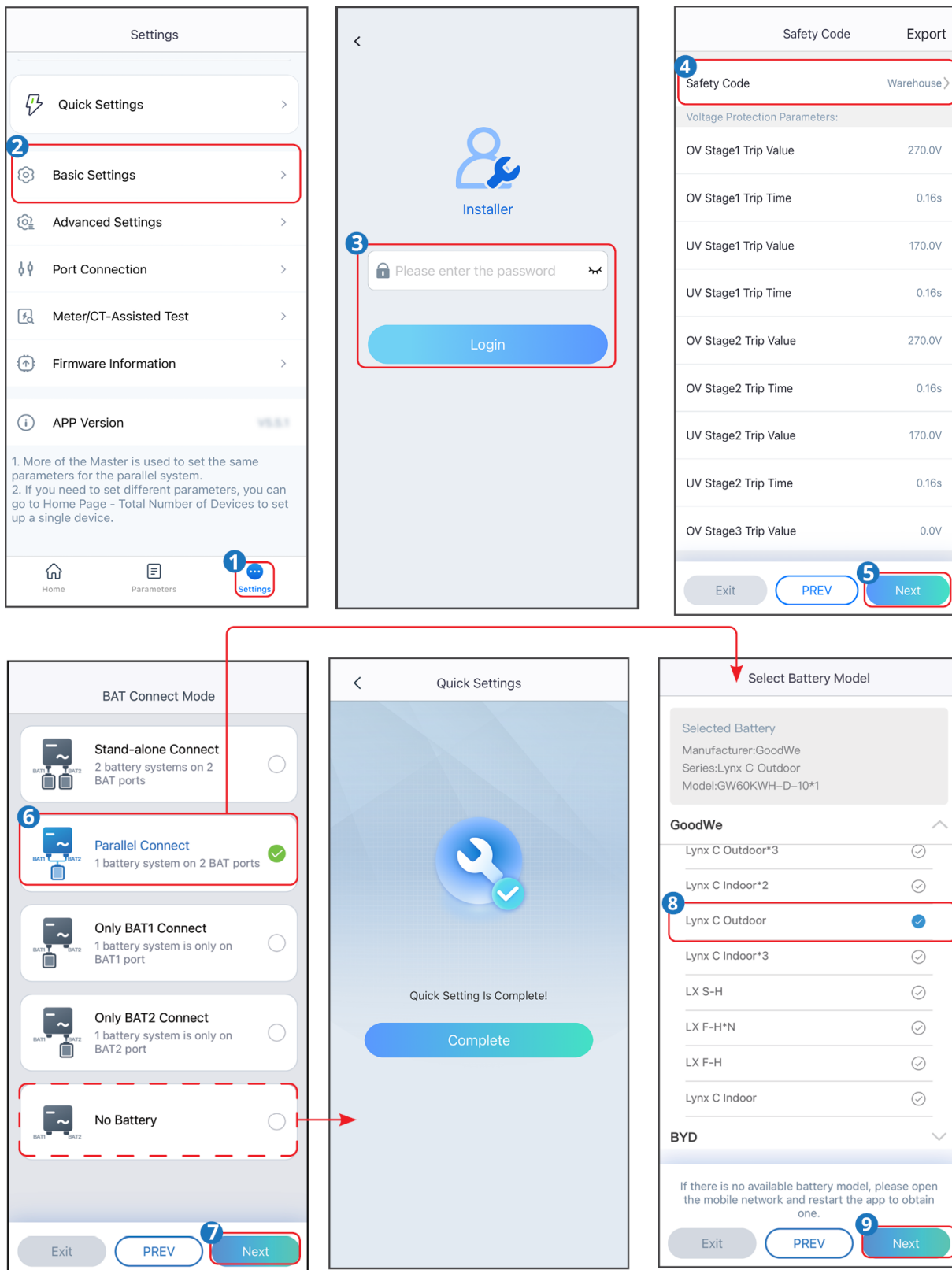
Step 2 : Enter the password for quick settings. Contact the supplier or after sales service for password. Password for professional technicians only.

Step 3 : Some models support one-click configuration. Select **Guided Mode** to quickly configure the system.

Step 4: Select safety country accordingly. Tap **Next** to set the Battery Connect Mode.

Step 5 : Select the actual mode in which the battery is connected to the inverter. The basic settings are completed if there is no battery connected in the system. Tap **Next** to set the Battery Model if there is any battery connected in the system.

Step 6: Select the actual battery model. Tap **Next** to set the Working Mode.

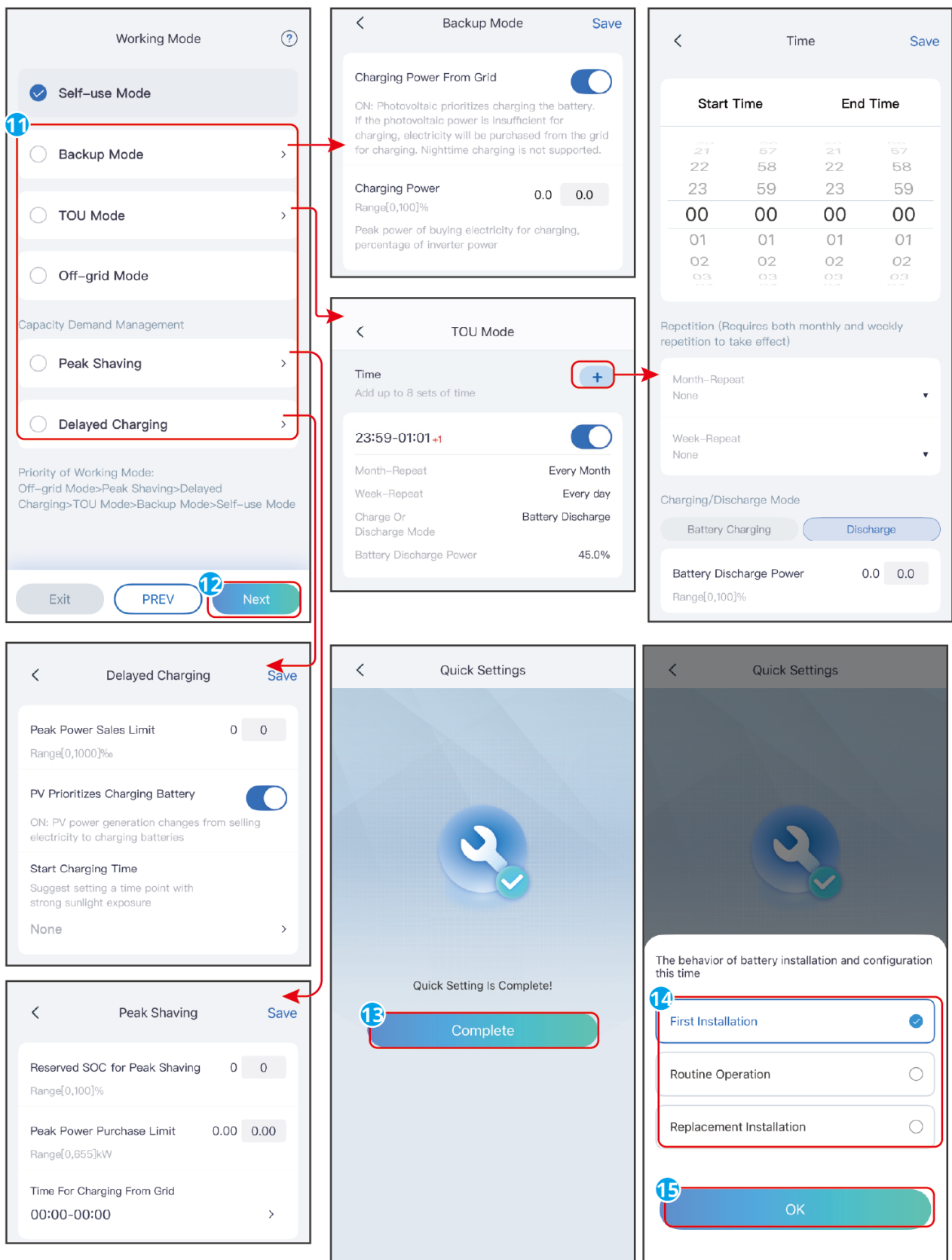


SLG00CON0059

Step 7: Set the working mode based on actual needs. Tap **Next** to set the Working Mode. For some models, after the working mode configuration is completed, it will

automatically enter the CT/meter self-test state. At this time, the inverter will temporarily disconnect from the grid and then automatically reconnect.

Step 8 : Select the battery based on actual situation whether it is **First Installation, Routine Operation** or **Replacement Installation**.



SLG00CON0060

No.	Parameters	Description
Back-up mode		
1	Charging Power From Grid	Enable Charging Power From Grid to allow power purchasing from the utility grid.
2	Charging Power	The percentage of the purchasing power to the rated power of the inverter.
TOU mode		
3	Start Time	Within the Start Time and End Time, the battery is charged or discharged according to the set Battery Mode as well as the Rated Power.
4	End Time	
5	Charge Discharge Mode	Charge or discharge according to actual needs.
6	Rated Power	The percentage of the charging/discharging power to the rated power of the inverter.
7	Charge Cut-off SOC	The battery stop charging/discharging once the battery SOC reaches Charge Cut-off SOC.
Peakshaving		
8	Reserved SOC For Peakshaving	In Peak Shaving mode, the battery SOC should be lower than Reserved SOC For Peakshaving. Once the battery SOC is higher than Reserved SOC For Peakshaving, the peak shaving mode fails.
9	Peak Power Purchase Limit	Set the maximum power limit allowed to purchase from the grid. When the loads consume power exceed the sum of the power generated in the PV system and Peak Power Purchase Limit, the excess power will be made up by the battery.
10	Time for Charging From Grid	The utility grid will charge the battery between Start Time and End Time if the load power consumption do not exceed the power quota. Otherwise, only PV power can be used to charge the battery. Otherwise, only PV power can be used to charge the battery.

No.	Parameters	Description
Smart charging		
11	Peak Power Sales Limit	Set the Peak Power Sales Limit in compliance with local laws and regulations. The Peak Limiting Power shall be lower than the output power limit specified by local requirements.
12	PV Prioritizes Charging Battery	During charging time, the PV power will first charge the battery.
13	Start Charging Time	

9.1.7 Setting the Basic Information

Setting the Basic Information

Shadow Scan Function

Step 1: Through APP, tap **Home > Settings > Basic Settings**, go to the setting pages.

Step2: Set functions according to actual needs.

No.	Parameter	Description
1	Shadow Scan	When the photovoltaic (PV) panels are severely shaded, enabling the shadow scanning function can optimize the power generation efficiency of the inverter.

Level 2 SPD (Surge Protection Alarm)

Step 1: Through APP, tap **Home > Settings > Basic Settings**, go to the setting pages.

Step2: Set functions according to actual needs.

No.	Parameter	Description
1	Level 2 SPD (Surge Protection Alarm)	After enabling SPD secondary lightning protection alarm, when the lightning protection module is abnormal, there will be SPD module abnormal alarm prompt.

Backup Power Supply Function

After enabling Backup, the battery will power the load connected to the BACKUP port of the inverter to ensure Uninterrupted Power Supply when the power grid fails.

Step 1: Through APP, tap **Home > Settings > Basic Settings**, go to the setting pages.

Step2: Set functions according to actual needs.

No.	Parameter	Description
1	UPS Mode - Full Wave Detection	Check whether the utility grid voltage is too high or too low.
2	UPS Mode - Half Wave Detection	Check whether the utility grid voltage is too low.
3	EPS Mode - Supports LVRT	Stop detecting utility grid voltage.
4	Clear Overload Fault	Once the power of loads connected to the BACK-UP exceeds the rated load power, the inverter will restart and detect the power again. The inverter will perform restart and detection several times until the overloading problem is solved. Time increases between each reboot. Tap Clear Overload History to reset the restart time interval after the power of the loads connected to BACK-UP meets the requirements. The inverter will restart immediately.

Setting Advanced Parameters

AFCI Test

Step 1: Through APP, tap **Home > Settings > Advanced Settings**, go to the setting pages.

Step2: Set functions according to actual needs. After entering the parameter value, click the "v" or "Save" button, and the parameter setting will be successful.

No.	Parameter		Description
1	AFCI Test	AFCI Test	Please enable or disable the inverter's arc detection function based on actual needs.
		AFCI test status	The test status, like Not Self-checking, self-check succeeded, etc.
		Clear AFCI Alarm	Clear ARC Faulty alarm records.
		Self-check	Tap "Settings" to check if the device's arc detection module is functioning properly.

PV Connect Mode

Step 1: Through APP, tap **Home > Settings > Advanced Settings**, go to the setting pages.

Step2: Set functions according to actual needs. After entering the parameter value, click the "v" or "Save" button, and the parameter setting will be successful.

No.	Parameter		Description
1	PV Connect Mode	Stand-alone Connect	The PV strings are connected to the MPPT terminals one by one.
		Partial Parallel Connect	When a PV string is connected to multiple MPPT ports on the inverter side, there are also other PV modules connected to other MPPT ports on the inverter side.
		Parallel Connect	The external photovoltaic strings are connected one-to-one with the photovoltaic input ports on the inverter side.

Setting the On-Grid Power Limit

Step 1: Tap **Home > Settings > Advanced Settings > On-Grid Power Limit Settings**, go to the setting pages.

Step2: Enable or disable the power limit function based on actual needs.

Step 3: After enabling the anti-backflow function, enter the parameters and tap v. The parameters are set successfully.

No.	Parameter	Description
1	The On-grid Power Limit	Enable Power Limit when power limiting is required by national or local grid standards and requirements.
2	Power Limit	Set the value based on the actual maximum power feed into the utility grid.
3	External MeterCT Ratio	Set it as the ratio of the primary side current to the secondary side current of the external CT.

Setting the Battery Parameters

Setting the Battery Parameters

Step 1: Tap **Home > Settings > Advanced Settings > Battery Function Setting**, go to the setting pages.

Step2: After entering the parameters according to actual needs, tap v, the parameters are set successfully.

No.	Parameter	Description
-----	-----------	-------------

1	Max. Charging Current	Set the maximum charging current based on actual needs.
2	Max. Discharging Current	Set the maximum discharging current based on actual needs.
3	SOC Protection	Start battery protection when the battery capacity is lower than the Depth of Discharge.
4	Depth Of Discharge (On-Grid)	The maximum percentage of the battery's allowable discharge capacity relative to its total capacity when the inverter is in on/off-grid mode.
5	Depth of Discharge (Off-Grid)	
6	Backup SOC Holding	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.
7	Immediate Charging	Enable to charge the battery by the grid immediately Take effect once. Enable or Disable based on actual needs.
8	SOC For Stopping Charging	Stop charging the battery once the battery SOC reaches SOC For Stopping Charging.
9	Immediate Charging Power	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.

10	Battery Heating	This option is displayed on the interface when a battery that supports heating is connected. After the battery heating function is activated, if the battery temperature is not suitable for battery startup, PV power generation or purchased electricity will be used to heat the battery. Heating Mode: • Low Power Mode: Maintains minimum battery power input capacity, turns on when the temperature is below 5°C, and turns off when the temperature is above or equal to 7°C. • Medium Power Mode: to maintain the moderate power input capacity of the battery. It will be turned on when the temperature is less than 10°C, and turned off when it is greater than or equal to 12°C. • High Power Mode: to maintain the higher power input capacity of the battery. It will be turned on when the temperature is less than 20°C, and turned off when it is greater than or equal to 22°C. This function can only be set up via the APP.
11	Battery Wake-up	After activation, when the battery shuts down due to undervoltage protection, the battery can be awakened. Only applicable to lithium batteries without a circuit breaker. After activation, the output voltage of the battery port is approximately 60V.

Setting Lead-acid Battery Parameter

Notice

1. Before setting the parameters of the lead-acid battery, you must read the lead-acid battery user manual, technical parameters, and other relevant materials. To ensure battery safety, please set the battery parameters in strict accordance with the relevant materials provided by the lead-acid battery manufacturer. Otherwise, the inverter manufacturer shall not be liable for any risks arising therefrom.
2. The voltage range of the lead-acid battery must match that of the inverter. The inverter recommends connecting to a lead-acid battery with a voltage $\leq$ 60V; otherwise, the inverter may not work properly.
3. The State of Charge (SOC) of a lead-acid battery is calculated by the inverter's Battery Management System (BMS); it does not represent the actual battery capacity, and errors or SOC jumps may occur. During use, the SOC should only be used as a reference for battery capacity. Calibrating the SOC value after fully charging the battery can improve the accuracy of the SOC reading.

Step 1: Tap **Home> Settings > Advanced Settings > Battery Function Setting**, go to the setting pages.

Step2: After entering the parameters according to actual needs, tap $\checkmark$, the parameters are set successfully.

No.	Parameter	Description
1	Battery Capacity	Set according to the battery's technical parameters.
2	Floating Voltage	When the battery is nearly fully charged, it will switch to float charging mode. This value is the upper limit of the charging voltage in this mode; please set it in line with the battery's technical parameters.
3	Constant Charging Voltage	Battery charging defaults to constant charging mode; this value is the upper limit of the charging voltage in this mode, so please set it according to the battery's technical parameters.
4	Minimum Discharge Voltage	Set in line with the battery's technical parameters. To protect the battery's performance and service life, this parameter must not be set too low.

5	Max. Charging Current	The maximum current during charging is used to limit the charging current. Set according to the battery's technical parameters.
6	Max. Discharging Current	Set according to the battery's technical parameters. The larger the discharge current, the shorter the battery operating time.
7	Max. Charging Current	Max. Charging Current in the floating charge state. Set according to the battery's technical parameters. When a battery is nearly fully charged, it enters the floating charge state. For the specific definition, please refer to the technical parameters of the corresponding battery model.
8	Battery Internal Resistance	Set according to the battery's technical parameters.
9	Time to Switch to Float Charging Mode	When the battery charging state switches from the constant charge state to the floating charge state and the duration reaches the set value, the battery charging mode will switch to the floating charge mode, with a default duration of 180 seconds.
10	Temperature Compensation	When the default temperature is above 25°C, the upper limit of the charging voltage decreases by 3mV for every 1°C increase in temperature. Set according to the battery's technical parameters.

Setting Generator Parameters

Step 1: After connecting to the SolarGo APP, tap **Home > Settings > Port Connection > Generator Connection**, and select the generator type the generator type, then go to the parameter setting interface.

Step2: After entering the parameters according to actual needs, tap ✓, the parameters are set successfully.

Manual Control of Generator (Does Not Support Dry Node Connection): The generator must be manually controlled to start and stop; the inverter cannot control the generator's operation.

Manual Control of Generator (Does Not Support Dry Node Connection): The generator must be manually controlled to start and stop; the inverter cannot control the generator's operation.

No.	Parameter	Description
-----	-----------	-------------

1	Dry Contact Control Mode	The switch control mode/ automatic control mode. In the switch control mode, the generator can be remotely controlled to start or stop. In the automatic control mode, the generator starts or stops automatically according to the preset parameters. This function is only effective for generators that support dry contact connection.
2	No Working Time	Setting No Working Time. During this time period, the generator stops working. This function is only effective for generators that support dry contact connection.
3	Rated Power	The rated power for generator.
4	Operation Time	The continuous operation time of a generator. After exceeding the set operation time, the generator will shut down automatically. This function is only effective for generators that support dry contact connection.
5	Upper Voltage	Set the maximum operation voltage for generator operation.
6	Lower Voltage	The time mode will be on between the Start Time and End Time. Set the operation voltage limit for generator operation.
7	Upper Frequency	Set the maximum operation frequency for generator operation.
8	Lower Frequency	Set the minimum operation frequency for generator operation.
9	Preheating Time	Set the generator no-load preheating time.
10	Switch	Set the starting voltage for the generator to charge the battery. This function can only be set up via the APP.
11	Maximum Charging Power	Set the maximum charging power when the generator charges the battery.
12	Starting Voltage	Set the starting voltage for the generator to charge the battery. When the battery SOC is below this value, the generator generates electricity to charge the battery.
13	Stop voltage	Set the stop voltage for the generator to charge the battery. When the battery SOC exceeds this value, stop charging the battery.

Setting Load Control Parameters

Step 1: After connecting to the SolarGo APP, tap **Home > Settings > Port Connection > Load Control**, go to the parameter settings interface.

Step2: After entering the parameters according to actual needs, tap ✓, the parameters are set successfully.

No.	Parameter	Description
-----	-----------	-------------

1	Dry Contact Mode	The loads will be powered within the setting time period. When the switch ON, the loads will be powered; when the switch OFF, the power will be cut off. Turn the switch On or OFF based on actual needs.
2	Time Mode	Set the time to enable the load, and the load will be powered automatically within the setting time period.
3	SOC mode	The inverter is equipped with a built-in relay dry contact control port, which enables load on/off control via the relay. In off-grid mode, if the BACK-UP terminal is detected to be overloaded and the battery SOC is lower than the set value for battery off-grid protection, the load connected to the relay port can be turned off.

Setting Load Control Parameters

9.1.8 Setting Advanced Parameters

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

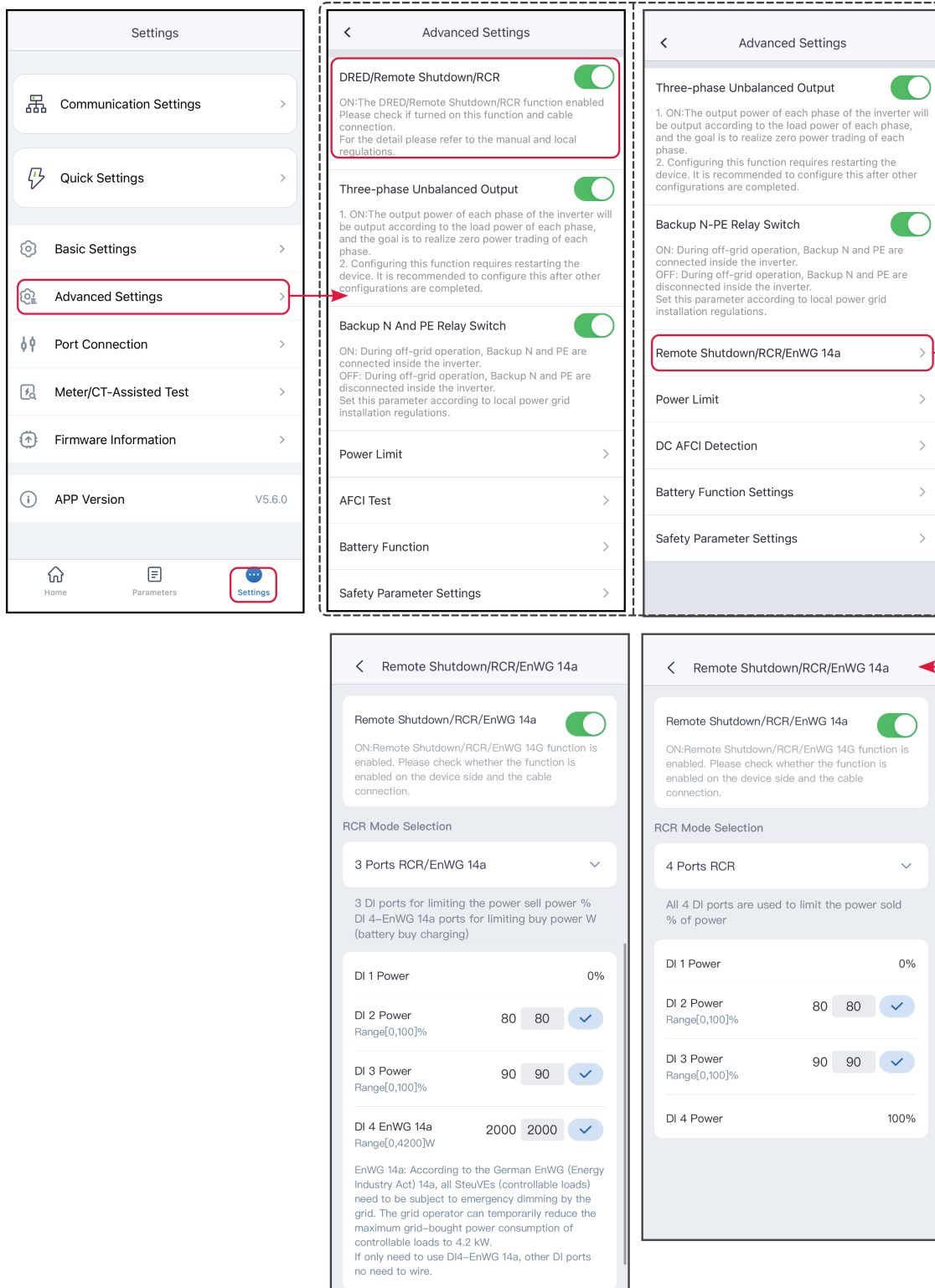
9.1.8.1 Setting DRED/Remote Shutdown/RCR/EnWG 14a

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

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

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

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



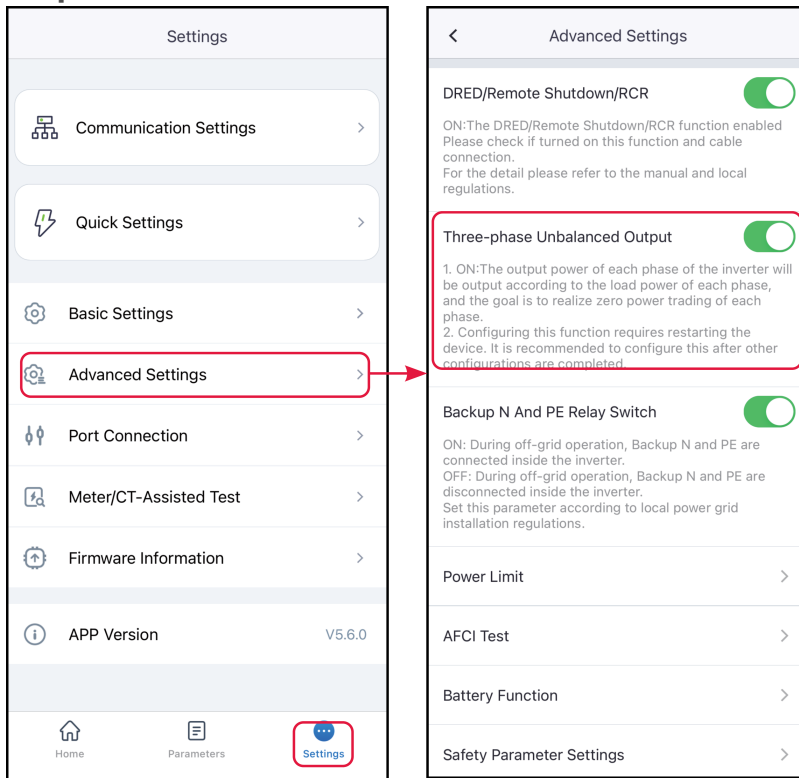
9.1.8.2 Setting Three-phase Unbalanced Output

Enable the Three-phase unbalanced output when connecting unbalanced loads,

which means L1, L2, L3 of the inverter respectively connected to loads with different power. Only for three phase inverters.

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

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

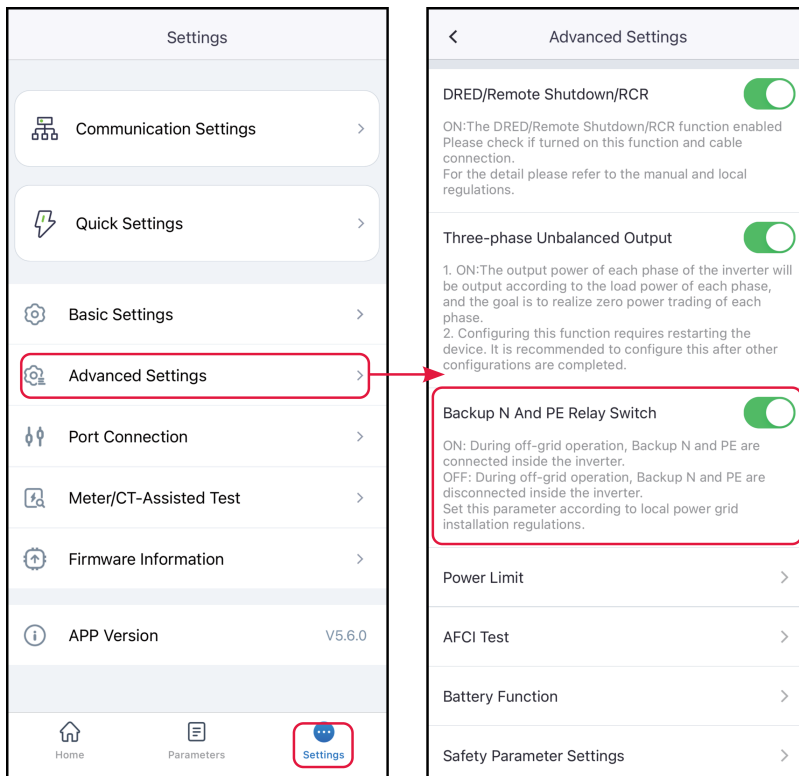


9.1.8.3 Setting the Backup N and PE Relay Switch

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

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

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



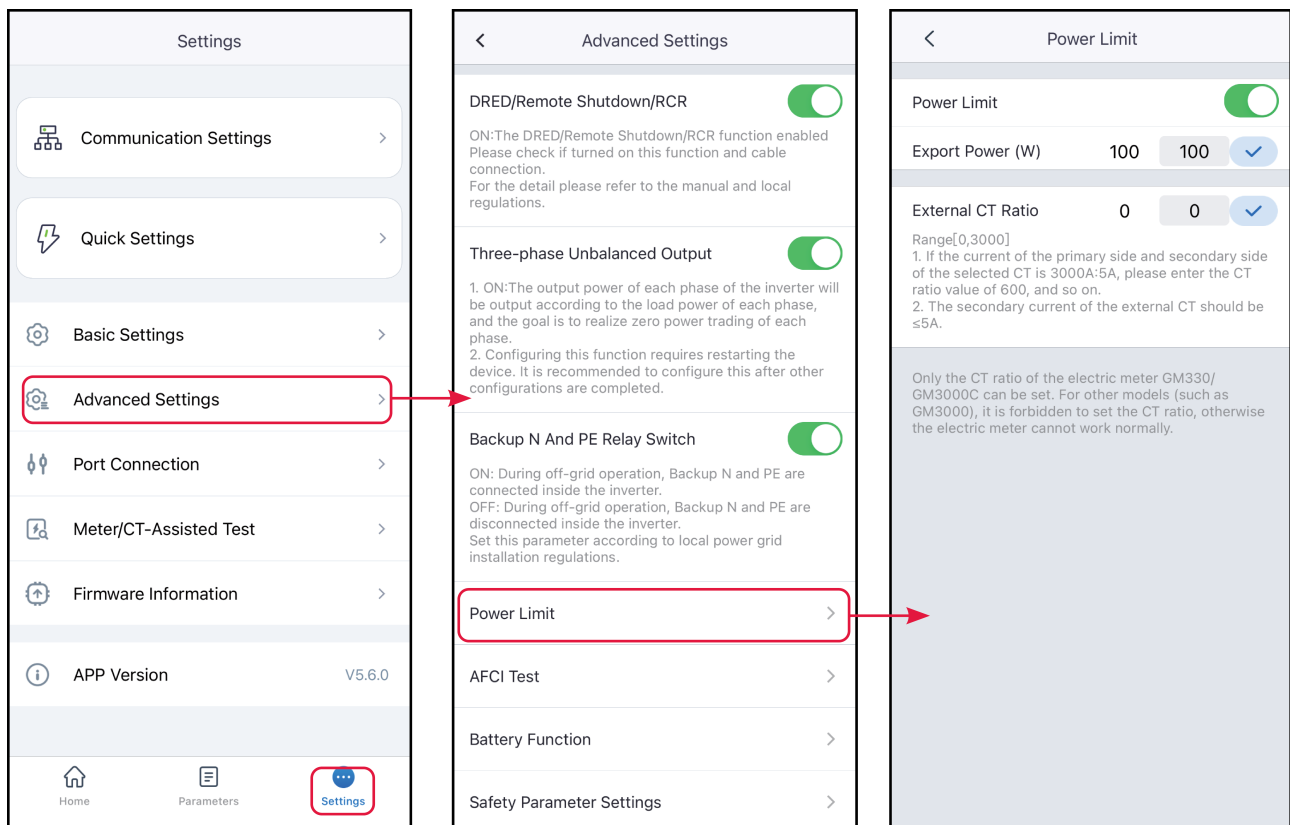
9.1.8.4 Setting the Power Limit Parameters

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

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

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

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



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

9.1.8.4.2 Setting the Power Limit Parameters (Australia)

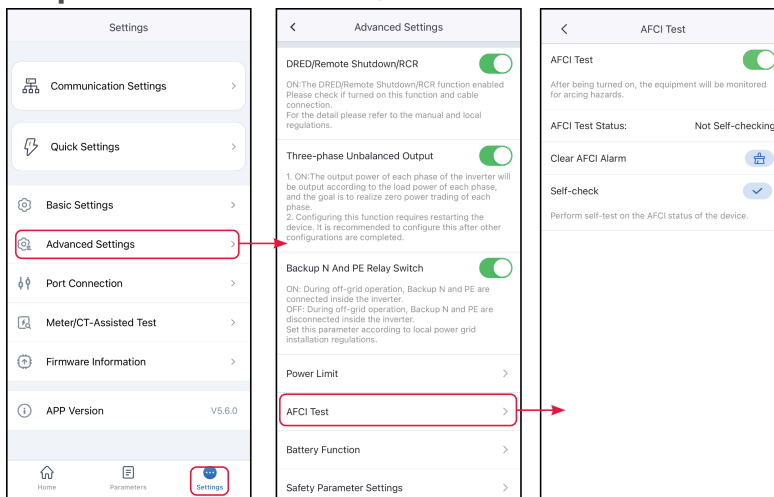
SLG00CON0133178

No.	Parameters	Description
3	Hardware Power Limit	After enabling this function, when the amount of electricity fed into the grid exceeds the limit value, the inverter will automatically disconnect from the grid.
4	External Meter CT Ratio	Set the ratio of the primary current to the secondary current of the external CT.

9.1.8.5 Setting the AFCI Detection

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

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



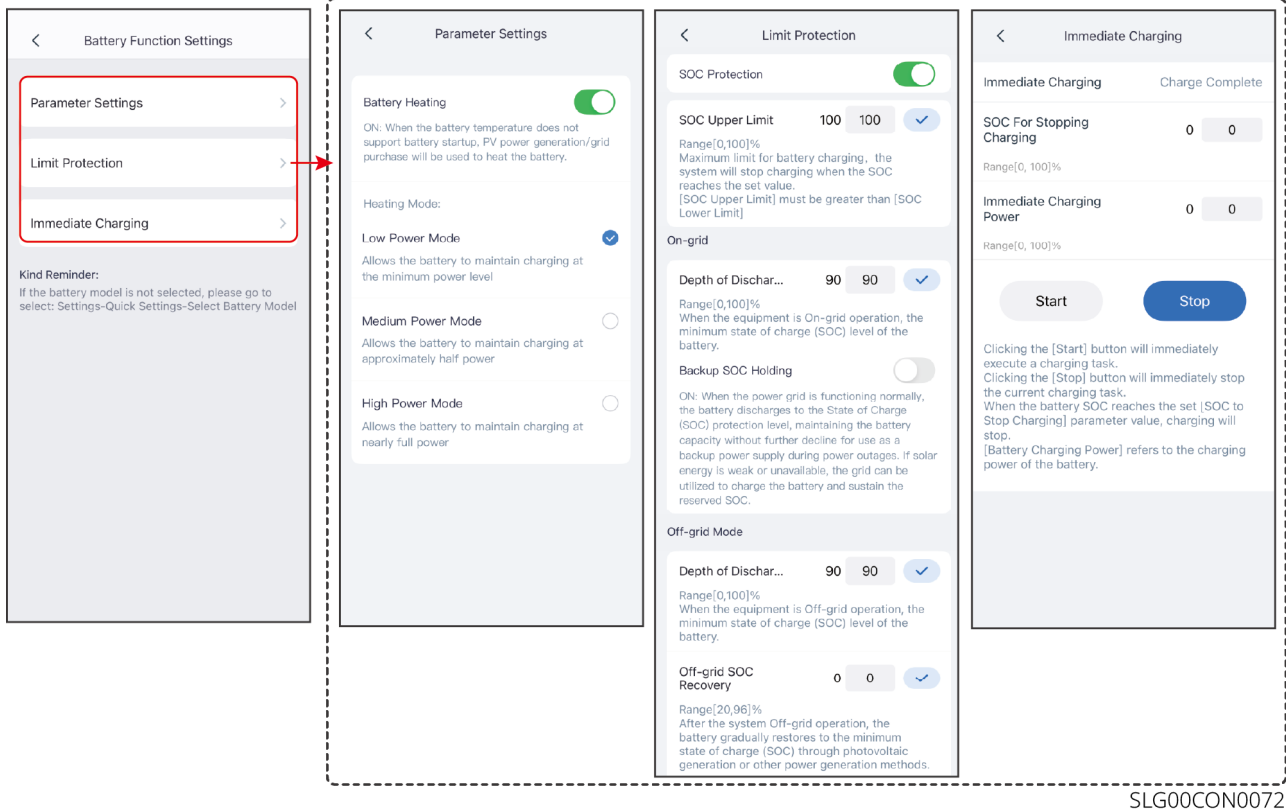
No.	Parameters	Description
1	AFCI Test	Enable or disable AFCI accordingly.
2	AFCI Test Status	The detection status like Not Self-checking.
3	Clear AFCI Alarm	Clear ARC Faulty alarm records.
4	Self-check	Tap to check whether the AFCI function works normally.

9.1.8.6 Setting the Battery

9.1.8.6.1 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.



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°C, and turns off when the temperature is above or equal to -7°C. ◦ Medium Power Mode: to maintain the moderate power input capacity of the battery. It will be turned on when the temperature is less than 6°C, and turned off when it is greater than or equal to 8°C. ◦ High Power Mode: to maintain the higher power input capacity of the battery. It will be turned on when the temperature is less than 11°C, and turned off when it is greater than or equal to 13°C. • GW14.3-BAT-LV-G10 ◦ Low Power Mode: Maintains minimum battery power input capacity, turns on when the temperature is below 5°C, and turns off when the temperature is above or equal to 7°C. ◦ Medium Power Mode: to maintain the moderate power input capacity of the battery. It will be turned on when the temperature is less than 10°C, and turned off when it is greater than or equal to 12°C. ◦ High Power Mode: to maintain the higher power input capacity of the battery. It will be turned on when the temperature is less than 20°C, and turned off when it is greater than or equal to 22°C.

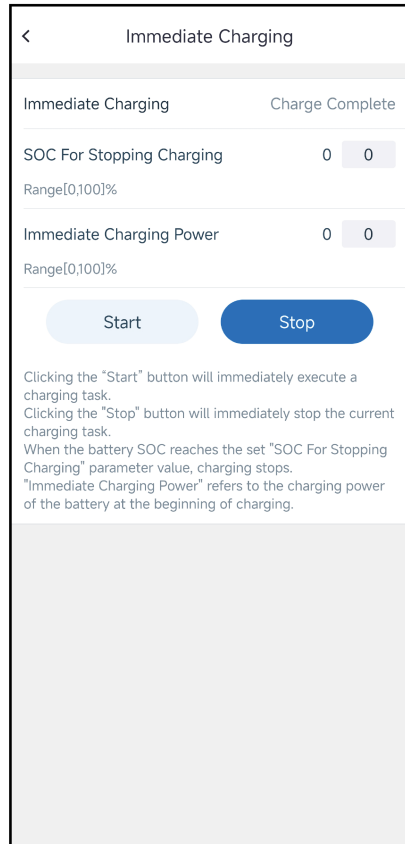
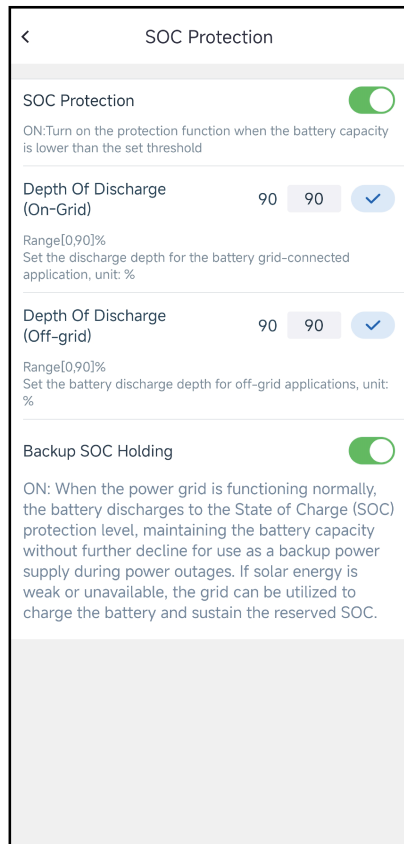
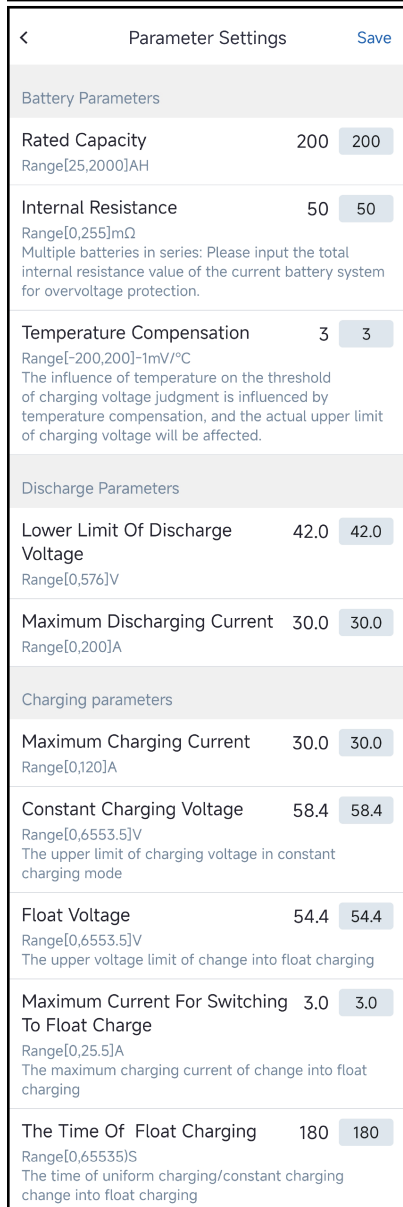
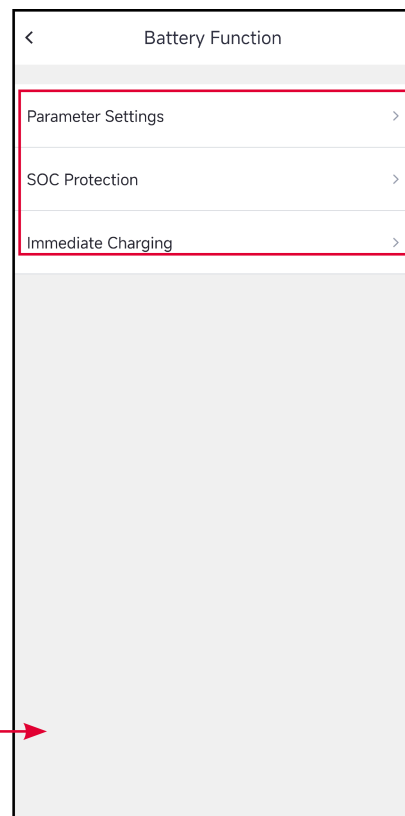
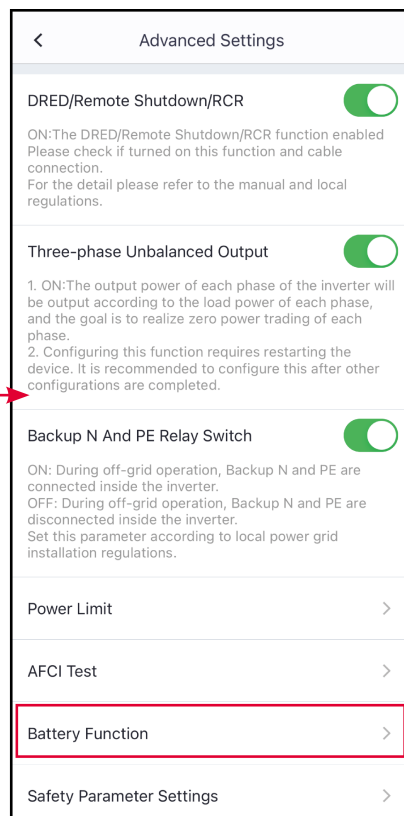
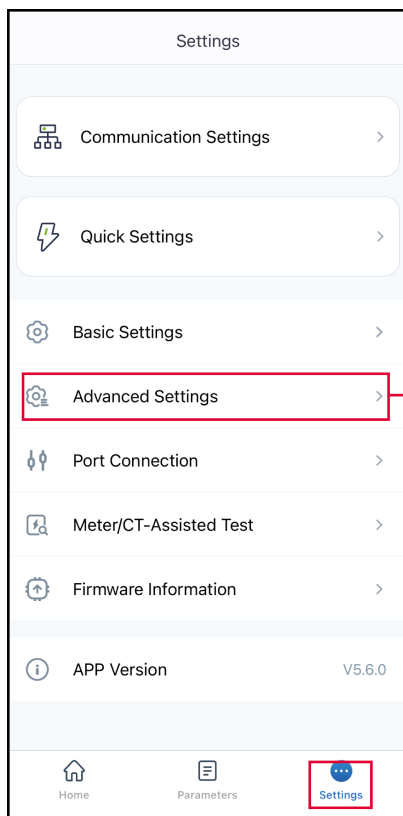
No.	Parameter	Description
4	Battery Wake-up	- After being turned on, the battery can be awakened when it shuts down due to undervoltage protection. - Only applicable to lithium batteries without circuit breakers. After being turned on, the output voltage of the battery port is about 60V.
Limit Protection		
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.

9.1.8.6.2 Setting Lead-acid Battery Parameter

Step 1: Tap **Home > Settings> Advanced Settings > Battery Function Settings** to set the parameters.

Step 2: Set the parameters based on actual needs.



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

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

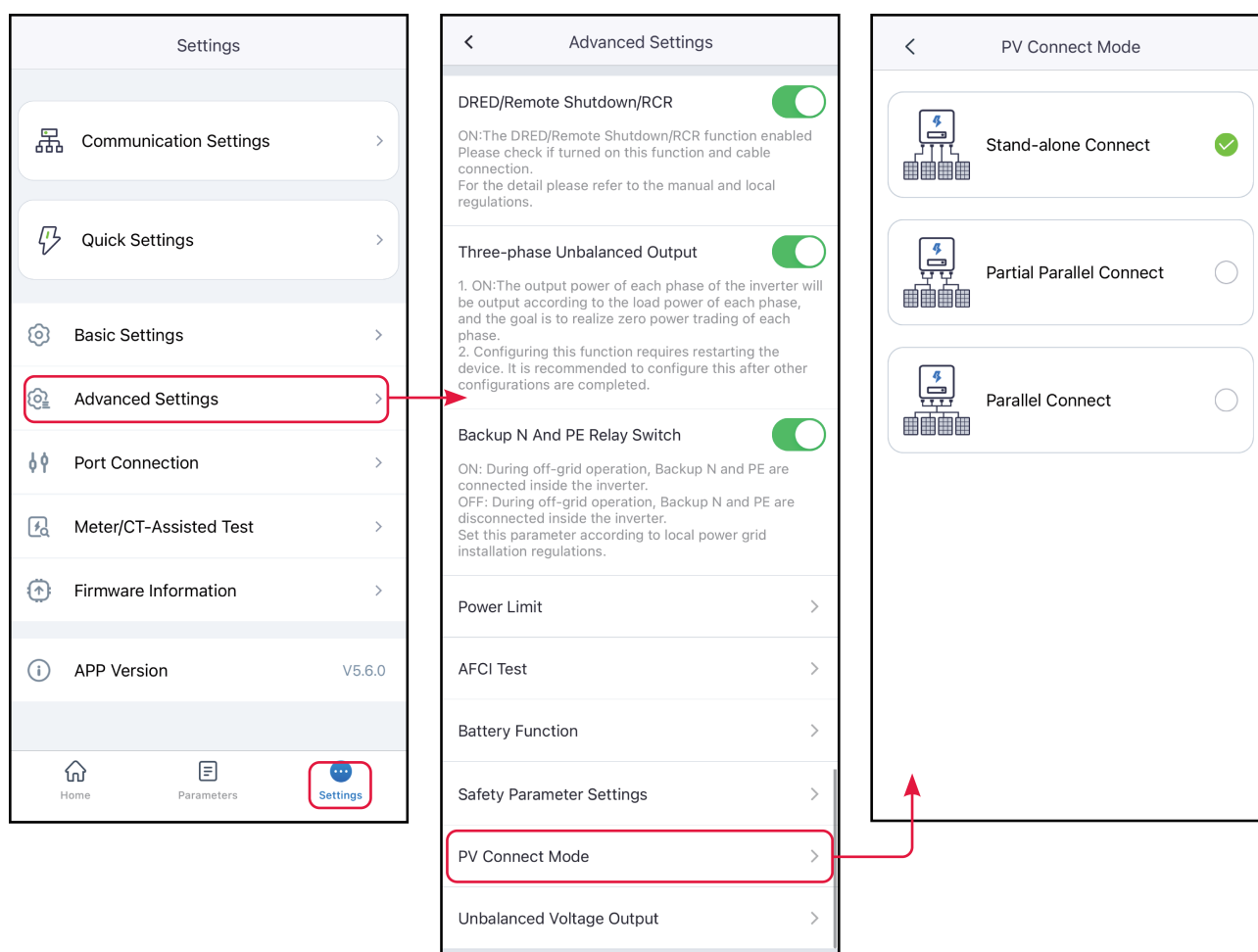
No.	Parameter	Description
18	Immediate Charging Power	Indicates the percentage of the charging power to the inverter rated power when enabling Immediate Charging. For example, for an inverter with a rated power of 10kW, when set to 60, the charging power is 6kW.
19	Start	Start charging immediately.
20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

9.1.8.7 Setting PV Connect Mode

Select the PV connect mode based on the actual connections between the PV strings and MPPT ports of the inverter.

Step 1 : Tap **Home > Settings > Advanced Settings > PV Connect Mode** to set the parameters.

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



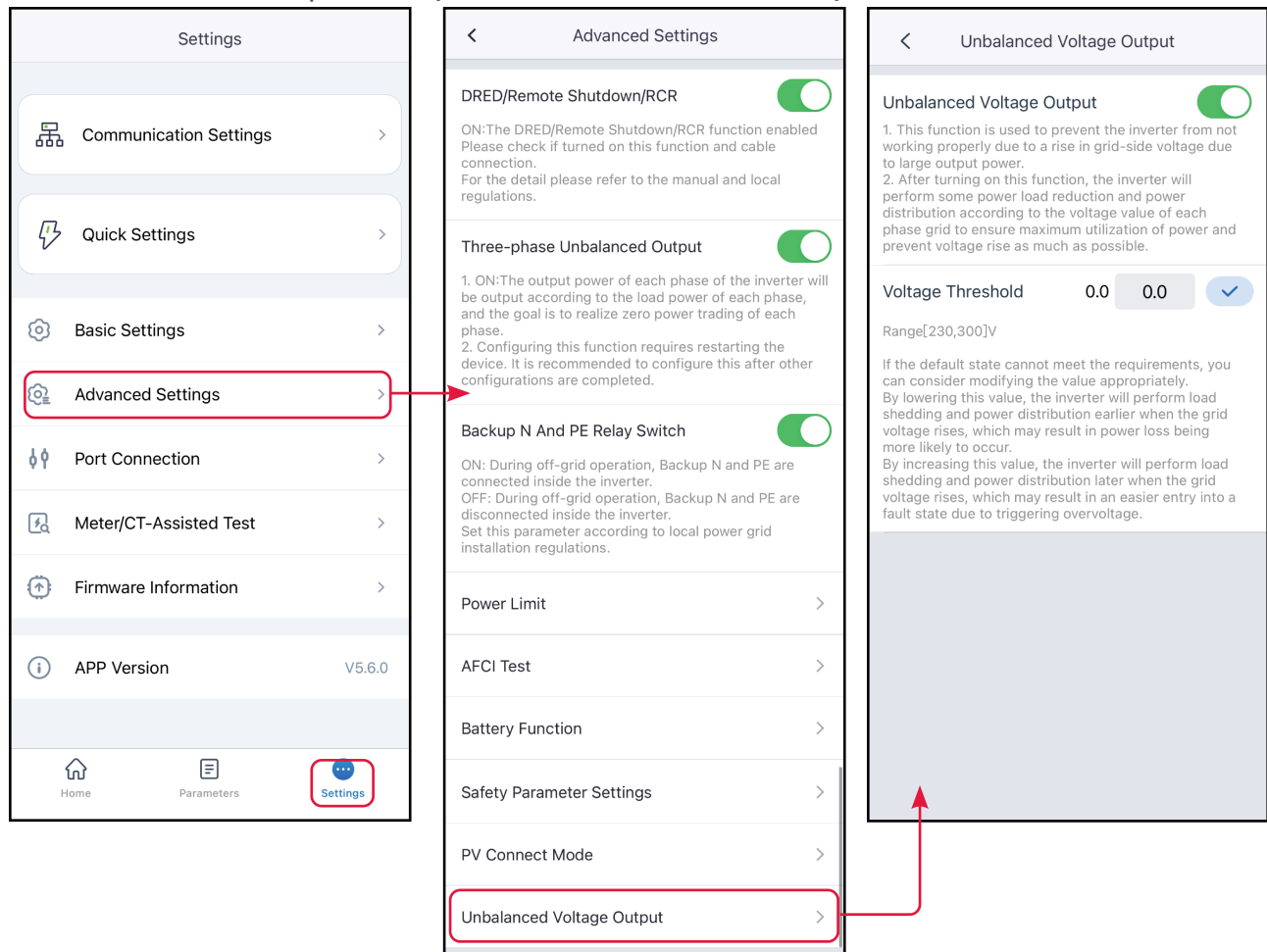
No.	Parameters	Description
1	Stand-alone Connect	The external PV string is connected to multi MPPT terminals of the inverter.
2	Partial Parallel Connect	The PV strings are connected to the inverter in both stand-alone and parallel connection. For example, one PV string connect to MPPT1 ad MPPT2, another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

9.1.8.8 Setting the Unbalanced Voltage Output

Step 1 : Tap **Home > Settings > Advanced Settings > Unbalanced Voltage Output** to se the parameters.

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

Step 3 : After enabling the Unbalance Voltage Function, set parameters based on actual needs. And tap 'V'. The parameters are set successfully.



9.1.8.9 Setting Power Adjustment Response Parameters

Step 1: Go to the parameter settings page via **Home > Settings > Advanced Settings > Power Adjustment Response Parameters**.

Step 2: Based on actual requirements, select **Disable**, **Slope Adjustment**, or **First-Order Low-Pass Filter** Mode from the Active Power Adjustment drop-down menu. If you select slope adjustment, enter the power change gradient value; if you select first-order low-pass filter mode, enter the first-order low-pass filter time parameter value.

Step 3: Based on actual requirements, select **Disable**, **Slope Adjustment**, or **First-Order Low-Pass Filter** Mode from the Reactive Power Adjustment drop-down menu. If you select slope adjustment, enter the power change gradient value; if you select first-order low-pass filter mode, enter the first-order low-pass filter time parameter

value.

Step 4: Click ✓ to save the settings.

< Power Scheduling Response Parameters

Active Power Dispatching Response Mode

Slope Mode

Increasing Slope

Derating Slope

Power Gradient 20.0 20.0 ✓

Range[0,6000]%Pn/min

Reactive Dispatching Response Mode

Disable

SLG00CON0125

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

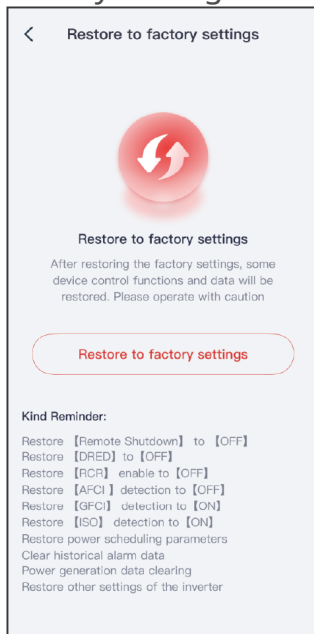
No.	Parameter	Description
Reactive Adjustment Response Mode		
5	First-order Low-pass Filter	Within the response time constant, reactive adjustment is implemented according to a first-order low-pass curve.
6	First-order Low-pass Filter Time Parameter	Set the time constant within which the reactive power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

9.1.8.10 Restore Factory Settings

To restore the device to its factory default settings, perform the following steps.

Step 1: Go to the settings page by selecting **Home > Settings > Advanced Settings > Restore Factory Settings**.

Step 2: Tap **Restore Factory Settings** to restore the interface prompt section to factory settings.

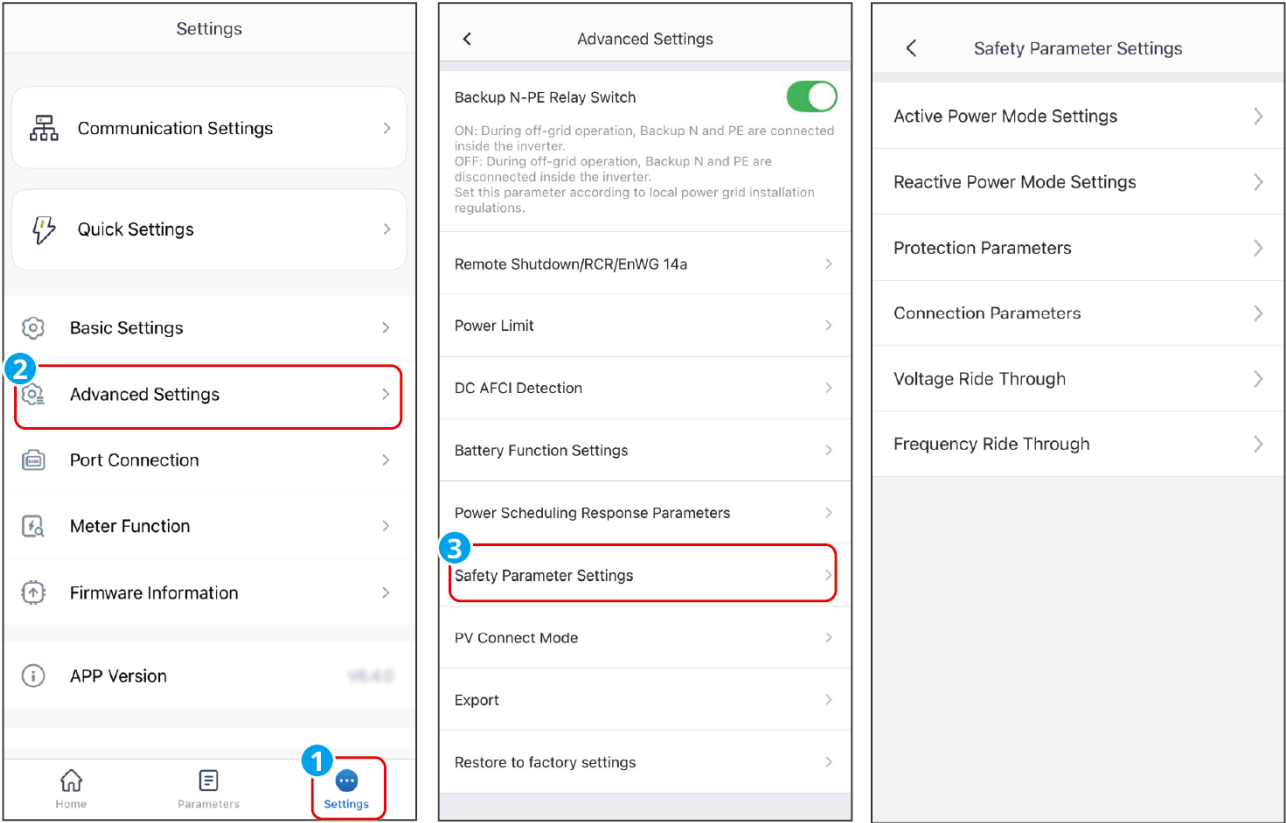


SLG00CON0122

9.1.9 Setting Safety Parameters

NOTICE

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



SLG00CON0076

9.1.9.1 Setting the Active Power Mode

Active Power Mode Settings

Generation Power Limit

0.0

0.0

Range[0,100]%

Frequency And Power Parameters:

P(F) Curve
(Frequency Power Curve)

Voltage And Power Parameters:

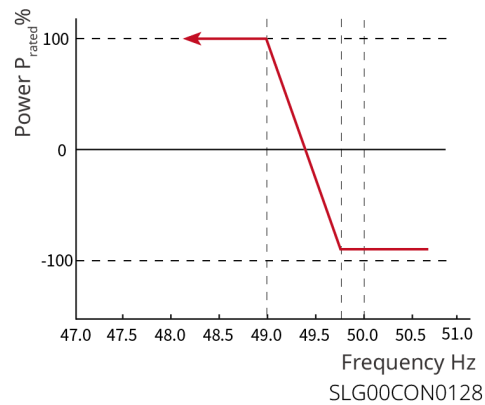
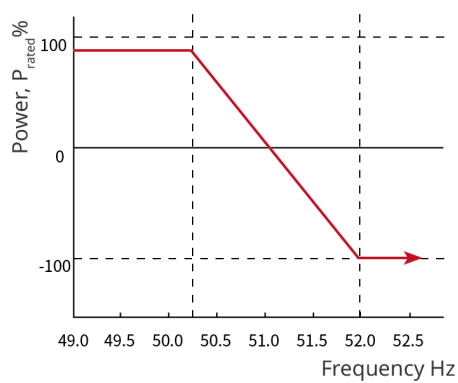
P(U) Curve
(Voltage Power Curve)

SLG00CON0149

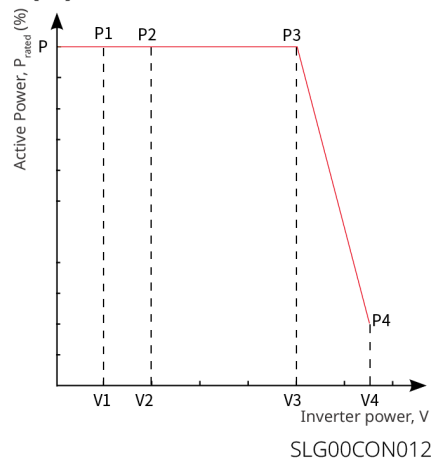
Step 1: Tap **Home > Settings > Advanced Settings > Safety Parameter Settings > Active Power Mode Settings** to set the parameters.

Step 2: Set the parameters based on actual needs.

P(F) Curve



P(U) Curve



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

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

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

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

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

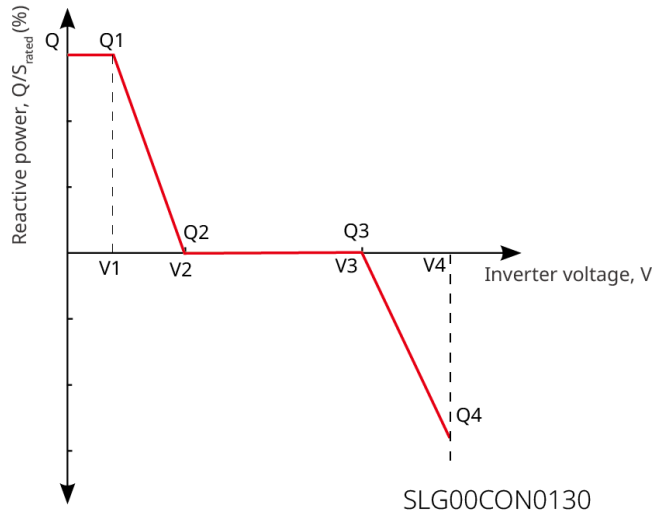
9.1.9.2 Setting the Reactive Power Mode

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

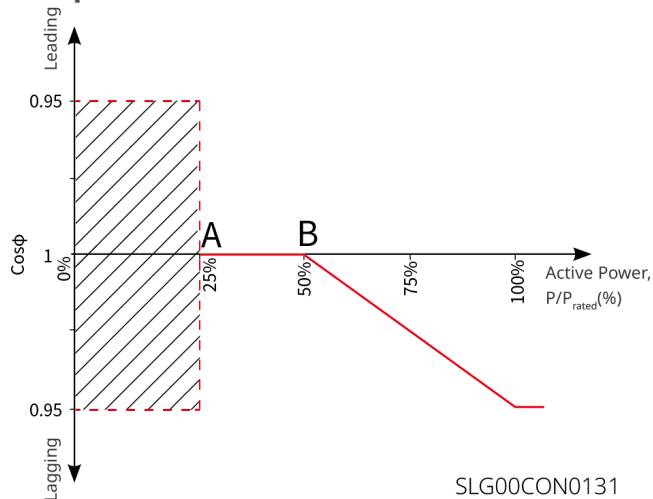
Reactive Power Mode Settings to set the parameters.

Step 2 :Set the parameters based on actual needs.

Q(U) Curve



Cosφ Curve



No.	Parameters	Description
Fix PF		
1	Fix PF	Enable Fix PF when it is required by local grid standards and requirements. After the parameters are set successfully, the power factor remains unchanged during the operation of the inverter.
2	Under-excited	Set the power factor as lagging or leading based on actual needs and local grid standards and requirements.
3	Over-excited	

No.	Parameters	Description
4	Power Factor	Set the power factor based on actual needs. Range: 0~-0.8, or +0.8~+1.
Fix Q		
1	Fix Q	Enable Fix Q when it is required by local grid standards and requirements.
2	Over-excited/Under-excited	Set the reactive power as inductive or capacitive reactive power based on actual needs and local grid standards and requirements.
3	Reactive Power	Set the ratio of reactive power to apparent power.
Q(U) Curve		
1	Q(U) Curve	Enable Q(U) Curve when it is required by local grid standards and requirements.
2	Mode Selection	Set Q(U) curve mode, supporting basic mode and slope mode.
3	Vn Voltage	The percentage of actual voltage to the rated voltage at Vn point, n=1, 2, 3, 4. When set to 90, it means: $V/V_{rated}\% = 90\%$.
4	Vn Reactive Power	The percentage of the reactive output power to the apparent power at Vn point, n=1, 2, 3, 4. For example, setting Vn Reactive Power to 48.5 means $Q/S_{rated}\%=48.5\%$.
5	Voltage Deadband Width	When Q(U) curve mode is set to slope mode, this parameter defines the voltage deadband range where no reactive power output is required.
6	Over-excitation Slope	(In Q(U) slope mode) Sets the positive or negative slope for reactive power variation during over-voltage conditions.
7	Under-excitation Slope	

No.	Parameters	Description
8	Vn Reactive Power	The percentage of the reactive output power to the apparent power at Vn point, n=1, 2, 3, 4. For example, setting Vn Reactive Power to 48.5 means $Q/S_{rated}\%=48.5\%$ 。
9	Q(U) Curve Response Time Constant	The reactive power must reach 95% of the target value within 3 time constants, following a first-order low-pass filter curve.
10	Extended Function	Enable the extended function and configure the corresponding parameters.
11	Lock-In Power	When the inverter output reactive power to the rated power ratio is between the Lock-in power and Lock-out power, the ratio meets Q(U) curve requirements.
12	Lock-out Power	
Cosφ(P) Curve		
1	Cosφ(P) Curve	Enable Cosφ Curve when it is required by local grid standards and requirements.
2	Mode Selection	Set cosφ(P) Curve Mode and support basic mode and slope mode configurations.
3	N-point Power	The percentage of inverter output active power relative to rated power at the N-point. N=A, B, C, D, E。
4	N-point cosφ Value	N-point Power Factor N=A, B, C, D, E。
5	Over-excitation Slope	When cosφ(P) curve mode is set to slope mode, configures the power variation slope as either positive or negative.
6	Under-excitation Slope	
7	N-point Power	The percentage of inverter output active power relative to rated power at the N-point. N=A, B, C。
8	N-point cosφ Value	N-point Power Factor N=A, B, C。

No.	Parameters	Description
9	cosφ(P) Curve Response Time Constant	The reactive power must reach 95% of the target value within 3 time constants, following a first-order low-pass filter curve.
10	Extended Function	Enable the extended function and configure the corresponding parameters.
11	Lock-in Voltage	When the grid voltage is between Lock-in Voltage and Lock-out Voltage, the voltage meets Cosφ curve requirements.
12	Lock-out Voltage	
Q(P) Curve		
1	Q(P) Curve Function	Enable Q(P) Curve when it is required by local grid standards and requirements.
2	Mode Selection	Set Q(P) curve mode, supporting basic mode and slope mode.
3	Pn-point Power	The percentage of the output reactive power to the rated power at Pn point, n=1, 2, 3, 4, 5, 6. For example, setting to 90 means Q/Prated%=90%.
4	Pn-point Reactive Power	The percentage of the output active power to the rated power at Pn point, n=1, 2, 3, 4, 5, 6. For example, When set to 90, it means: P/Prated% = 90%.
5	Over-excitation Slope	When the Q(P) curve mode is set to slope mode, configure the power variation slope as either a positive or negative value.
6	Under-excitation Slope	
7	Pn-point Power	Ratio of reactive power to rated power at Pn points (n=1, 2, 3). For example, setting to 90 means Q/Prated%=90%.
8	Pn-point Reactive Power	Ratio of active power to rated power at Pn points (n=1, 2, 3). For example, When set to 90, it means: P/Prated% = 90%.

No.	Parameters	Description
9	Time Constant	The reactive power must reach 95% of the target value within 3 time constants, following a first-order low-pass filter curve.

9.1.9.3 Setting Protection Parameters

Step 1 : Tap **Home > Settings > Advanced Settings > Safety Parameter Settings > Protection Parameters** to set the parameters.

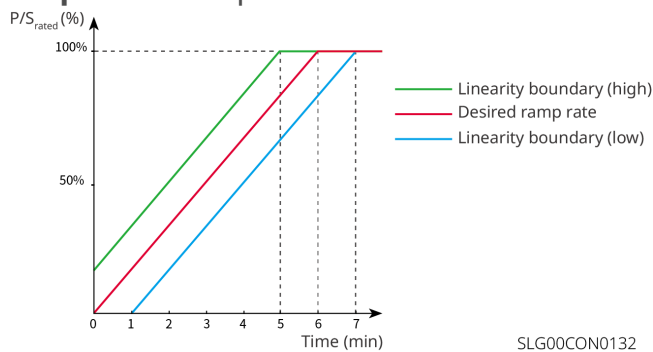
Step 2: Set the parameters based on actual needs.

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

9.1.9.4 Setting Connection Parameters

Step 1 : Tap **Home > Settings > Advanced Settings > Safety Parameter Settings > Protection Parameters** to set the parameters.

Step 2: Set the parameters based on actual needs.



No.	Parameters	Description
Ramp Up		
1	Upper Voltage	The inverter cannot connect to the grid if it is powered on for the first connection and the grid voltage is higher than the Upper Voltage .
2	Lower Voltage	The inverter cannot connect to the grid if it is powered on for the first connection and the grid voltage is lower than the Lower Voltage .
3	Upper Frequency	The inverter cannot connect to the grid if it is powered on for the first connection and the grid frequency is higher than the Upper Frequency .
4	Lower Frequency	The inverter cannot connect to the grid if it is powered on for the first connection and the grid frequency is lower than the Lower Frequency .
5	Observation Time	The waiting time for connecting the inverter to the grid when meeting the following requirements. 1. The inverter is powered on for the first connection. 2. The utility grid voltage and frequency meet certain requirements.

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

9.1.9.5 Setting Voltage Ride Through Parameters

Step 1 : Tap **Home > Settings > Advanced Settings > Safety Parameter Settings > Voltage Ride Through** to set the parameters.

Step 2 : Set the parameters based on actual needs.

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

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

9.1.9.6 Setting Frequency Ride Through Parameters

Step 1 : Tap **Home > Settings > Advanced Settings > Safety Parameter Settings > Frequency Ride Through** to set the parameters.

Step 2 : Set the parameters based on actual needs.

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

9.1.10 Setting the Wiring Method

NOTICE

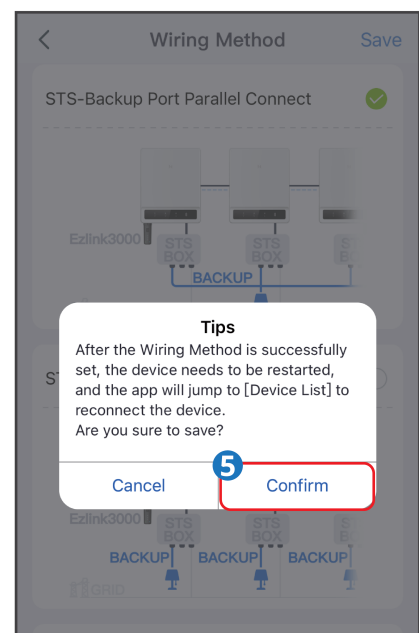
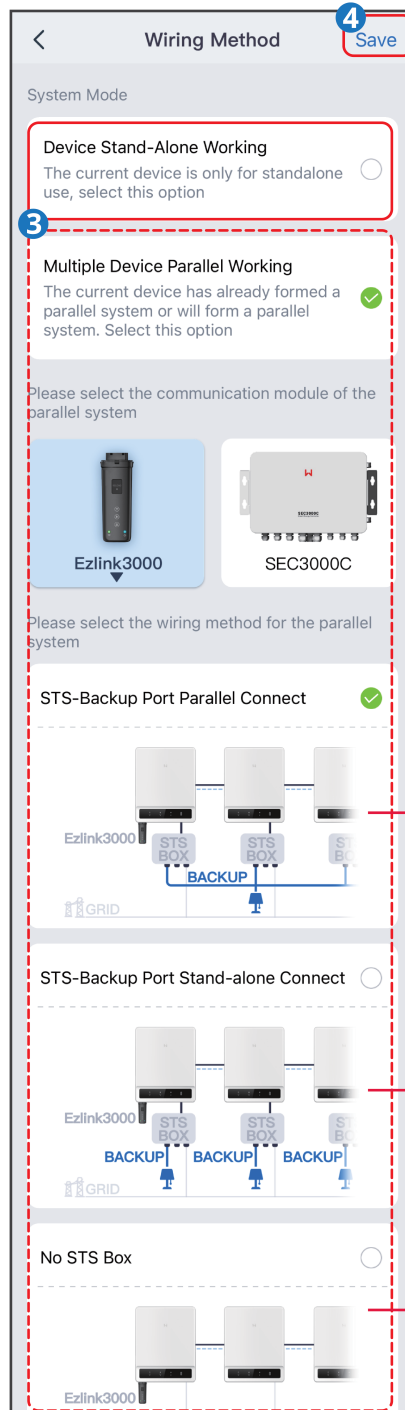
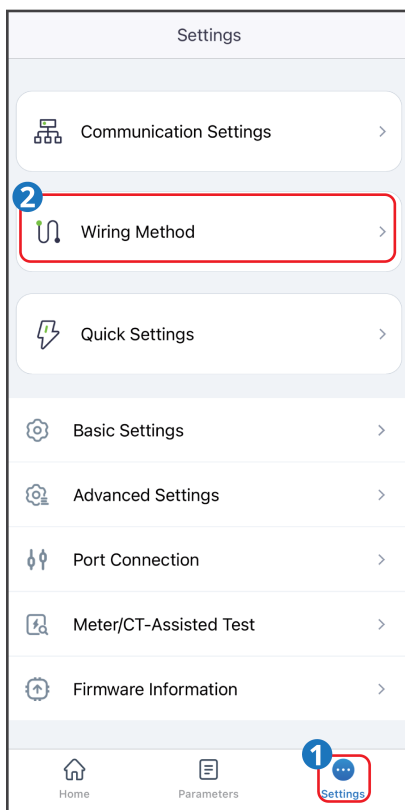
- Only for ET40-50kW series inverters.
- Do not set the Wiring Method if the inverter is installed for the first time and only one inverter is applied.

Step 1 : Tap **Home > Settings > Wiring Method**.

Step 2 : If the system is a single inverter system, select **Device Stand-Alone Working**. If the system is a parallel system with multiple inverters, select **Multiple Device Parallel Working**, and set the specific wiring method based on actual needs.

- When the system is both on-grid and off-grid, select **the STS-BACKUP Port Parallel Connect**.
- When the system is a grid-connected parallel system or an off-grid non-parallel system, select **the STS-BACKUP Port Stand-alone Connect**.
- When STS is not connected to the system, select **No STS Box**.

Step 3 : Tap **Save** to complete the settings, and click OK in the pop-up window to restart the device.



Select **STS-BACKUP Port Parallel Connect** if the inverters are connected in parallel both on-grid and off-grid.

Select **STS-BACKUP Port Stand-alone Connect** if the inverters are connected in parallel on-grid, but cannot be connected in parallel off-grid.

Select **No STS Box** if no STS is connected.

9.1.11 Exporting Parameters

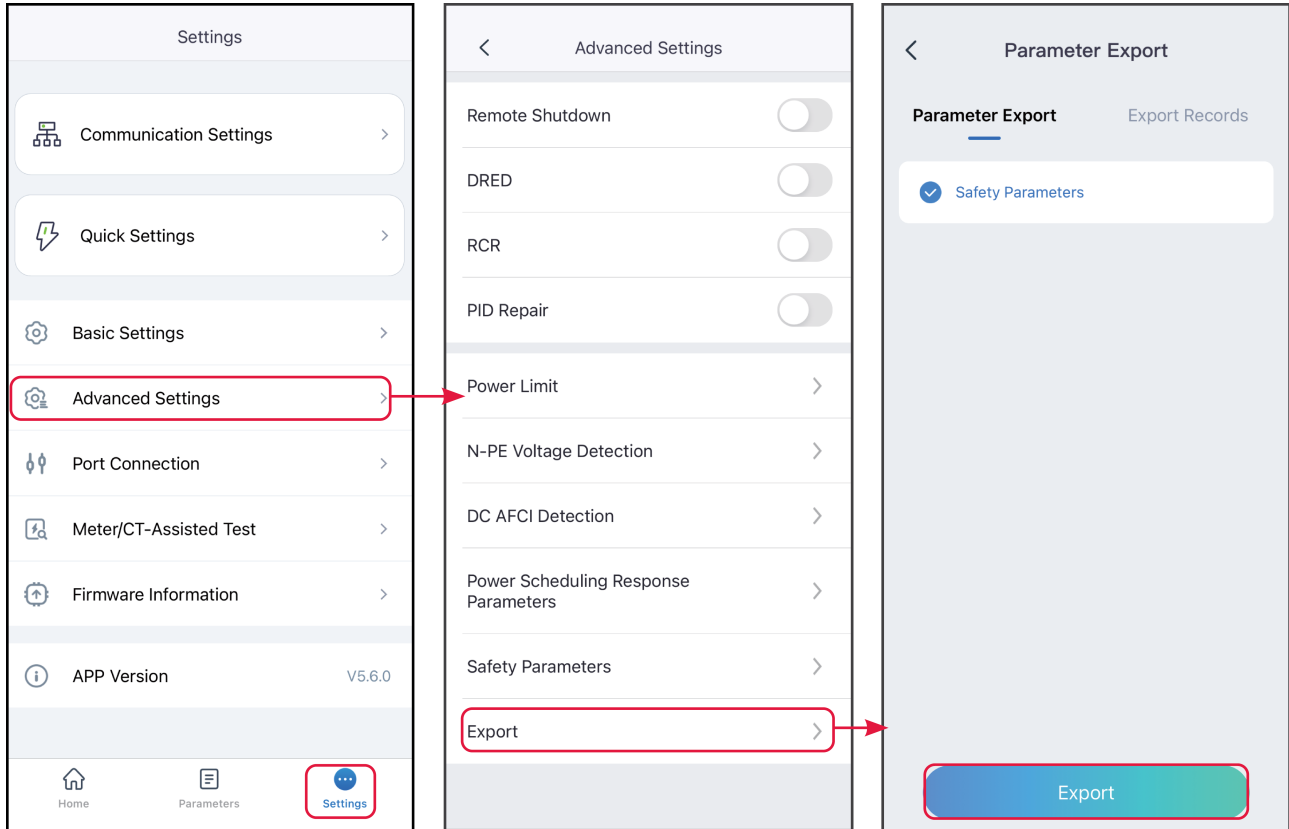
9.1.11.1 Exporting Safety Parameters

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

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

parameters.

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

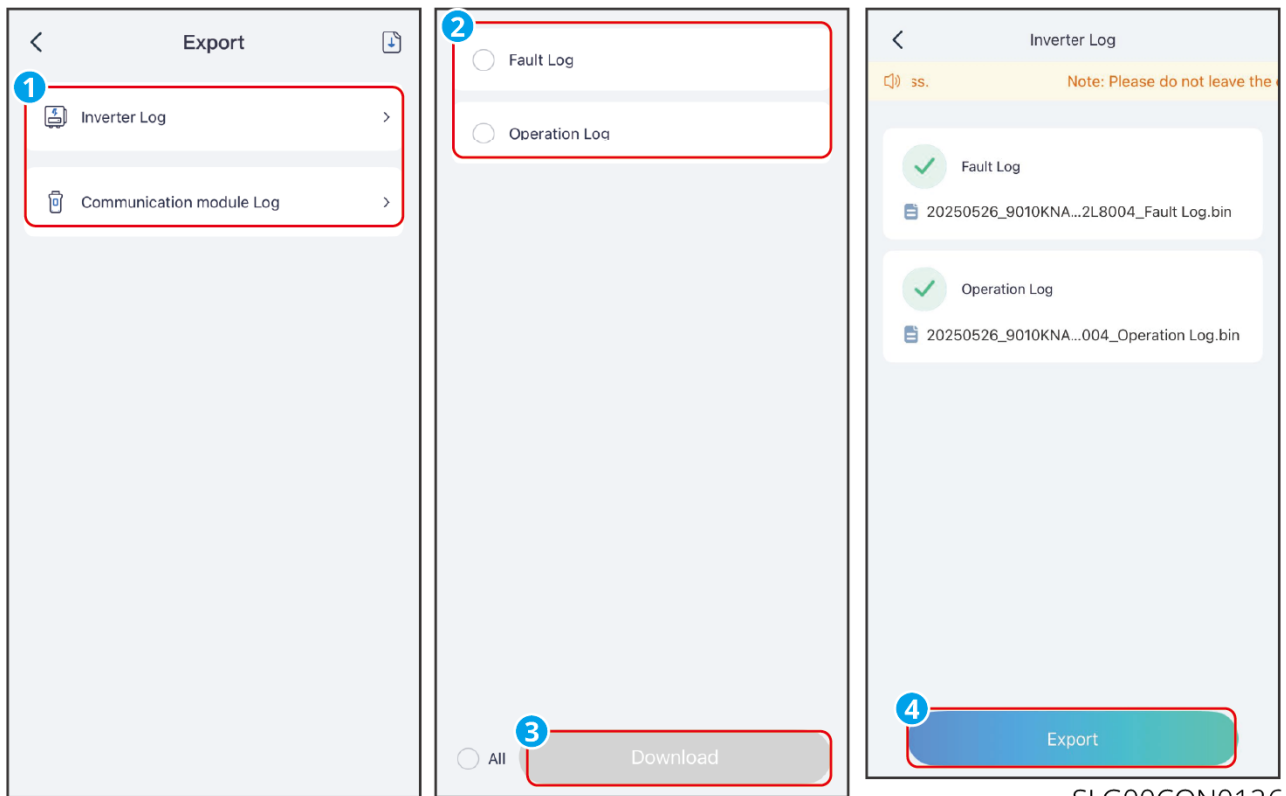


9.1.11.2 Exporting Log Parameters

Step 1 : Tap **Home > Settings > Advanced Settings > Export**.

Step 2 : Select the device type to export logs, such as inverter logs, communication module logs, etc.

Step 3: Select the log type to export, download and export the log file. After the export is complete, tap **Share** and choose how to open the exported file according to actual needs.



SLG00CON0126

9.1.12 Setting Generator/Load Control

9.1.12.1 Setting Generator/Load Control

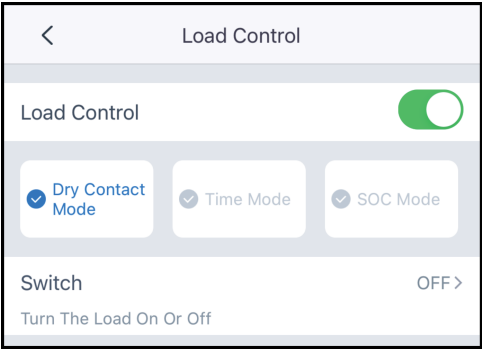
NOTICE

- Loads can be controlled by SolarGo app when the inverter supports load control function.
- For ET40-50kW series inverters, the load control function is supported only when the inverter is used with STS. The inverter supports load control of the GENERATOR port or the BACKUP LOAD port.
- For ET50-100kW series inverters, the load control function is supported only when the inverter is used with STS. The inverter supports load control of the or the SMART PORT port.

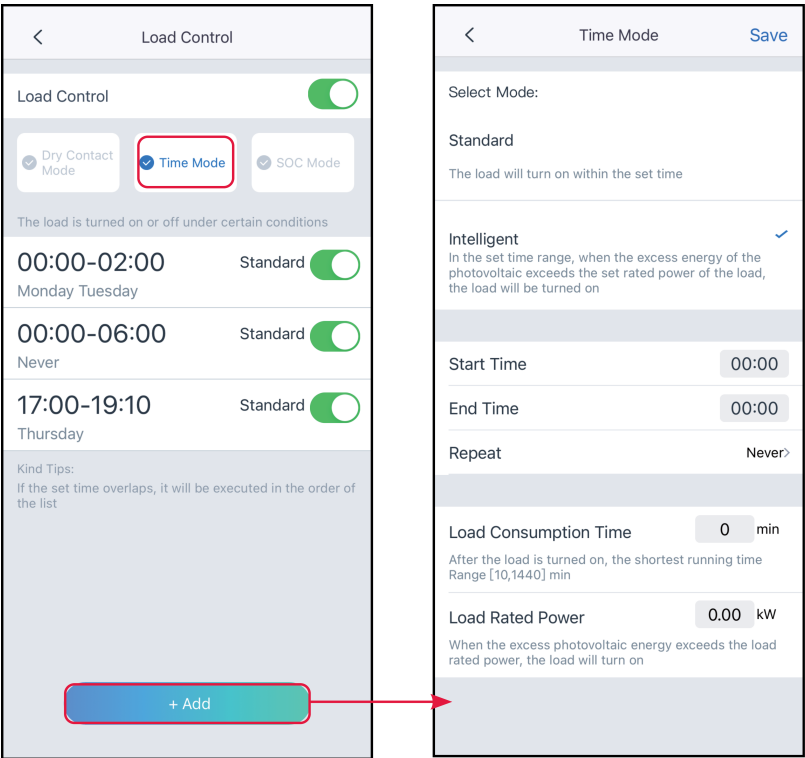
Step 1: Tap **Home > Settings > Port Connection** to set the parameters.

Step 2: Select **Generator Control or Load Control** based on actual needs.

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



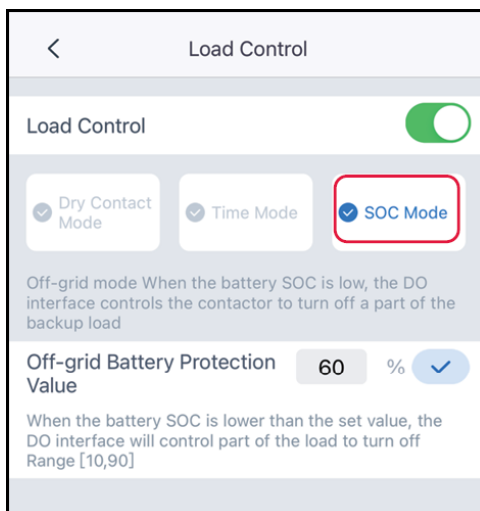
- Time Mode: set the time to enable the load, and the load will be powered automatically within the setting time period. Select standard mode or intelligent mode.



No.	Parameters	Description
1	Standard Mode	The loads will be powered within the setting time period.

No.	Parameters	Description
2	Intelligent Mode	When the residual energy generated by the PV exceeds the preset load power rating within a set time period, it starts to supply power to the load.
3	Start Time	The time mode will be on between the Start Time and End Time.
4	Closing Time	
5	Repetition	Set the repetition frequency.
6	Minimum Load Operating Time	Minimum time of operation after the load is turned on to avoid frequent switching of the load due to energy fluctuations. Only applicable to Intelligent Mode
7	Load Rated Power	When the residual energy generated by the PV exceeds the rated power of this load, it begins to power the load. Only applicable to Intelligent Mode

- SOC mode: The inverter has a built-in relay dry contact control port that can control whether to supply power to the load. In off-grid mode, if overload is detected at the BACK- UP terminal or GENERATOR terminal, or if the battery SOC protection function is triggered, power supply to the load connected to the terminal will be stopped.



9.1.12.2 Setting Generator Parameters

NOTICE

- When the inverter supports generator control functionality, the generator can be controlled via the SolarGo app.
- For the ET40-50kW series inverters, connection and control of generators is only supported when the inverter is used STS.
- For the ET50-100kW series inverters, connection and control of generators is only supported when the inverter is used STS.

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

Step 2: Follow the prompts on the screen to enter the generator control interface and set the generator parameters according to your actual needs.

Step 3: When setting up the generator control function, select the generator type based on the actual connection status. **Currently supported types are: no generator connected, manual start/stop generator, and automatic start/stop generator.** Set the corresponding parameters according to the selected generator type.

- No generator connected: When no generator is connected to the energy storage system, select No generator connected.
- Manual Control of Generator (Does Not Support Dry Node Connection): The generator must be manually controlled to start and stop; the inverter cannot control the generator's operation.
- Automatic generator control (supports dry contact connection): When the generator has a dry contact control port and is connected to the inverter, you need to set the generator control mode of the inverter to switch control mode or automatic control mode in the SolarGo app.
 - Switch control mode: When the switch is turned on, the generator operates; after reaching the set operating time, the generator automatically stops operating.
 - Automatic control mode: Prohibits generator operation during set prohibited operating hours and allows generator operation during operating hours.

Generator Control

Generator Type:

Not Installed generator

Generator Control

Generator Type:

Manual control of generator
(Doesn't support dry node connection)

Generator information settings

Rated Power

9.00 9.00

Range [0,650]kW

Upper Voltage

280 280

Range [80,280]V

Lower Voltage

180 180

Range [80,280]V

Upper Frequency

55.00 55.00

Range [45,65]Hz

Lower Frequency

45.00 45.00

Range [45,65]Hz

Delay Time Before Loading

10 10

Range [10,300]s
Preheating time for no-load generator before loading

Generator To Charge The Battery

Switch

Max Charging Power (%)

1 1

% of rated power of generator

SOC for Starting Charging

20 20

Range [20,90]%

SOC For Stopping Charging

90 90

Range [40,95]%

Generator Control

Generator Type:

Automatic control generator
(Supports dry node connection)

Startup Mode

Switch Control Mode

Automatic Control Mode

Prohibited Working Hours

00:00-00:00

Never

Generator information settings

Rated Power

9.00 9.00

Range [0,650]kW

Run time

8.0 8.0

Range [0,24]h
The continuous operating time of the generator.
After the continuous operation time ends, the generator will automatically shut down.

Upper Voltage

280 280

Range [80,280]V

Lower Voltage

180 180

Range [80,280]V

Upper Frequency

55.00 55.00

Range [45,65]Hz

Lower Frequency

45.00 45.00

Range [45,65]Hz

Delay Time Before Loading

10 10

Range [10,300]s
Preheating time for no-load generator before loading

Generator To Charge The Battery

Switch

Max Charging Power (%)

1 1

% of rated power of generator

SOC for Starting Charging

20 20

Range [20,90]%

SOC For Stopping Charging

90 90

Range [40,95]%

SLG00CON0079

No.	Parameters	Description
1	Dry Contact Control Mode	The switch control mode/ automatic control mode.
Switch control mode		
2	Generator Dry Node Switch	Only applicable to switch control mode.
3	Operation Time	The generator continues to run until the arrival time, at which point it stops running.

No.	Parameters	Description
Automatic control mode		
4	No Working Time	Set the time period during which the generator is prohibited from operating.
5	Operation Time	After the generator starts running, it continues to run for a certain period of time. When the time is up, the generator stops running. If the generator's start-up and operation time includes a prohibited working time, the generator will stop operating during this time period. After the prohibited working time, the generator will restart and resume timing.

No.	Parameters	Description
Generator Information Settings		
1	Nominal Power	Set the rated power for generator operation.
2	Operation Time	Set the continuous operating time of the generator. The generator will shut down after the continuous operating time has elapsed.
3	Upper Voltage	Set the voltage range for generator operation.
4	Lower Voltage	
5	Upper Frequency	Set the frequency range for generator operation.
6	Lower Frequency	
7	Preheating Time	Set the generator no-load preheating time.
Parameter settings for charging batteries with a generator.		
8	Switch	Select whether to use the generator to charge the battery.
9	Maximum Charging Power (%)	The charging power when the generator charges the battery.

No.	Parameters	Description
10	Start Charging SOC	When the battery SOC is below this value, the generator generates electricity to charge the battery.
11	Stop Charging SOC	When the battery SOC exceeds this value, stop charging the battery.

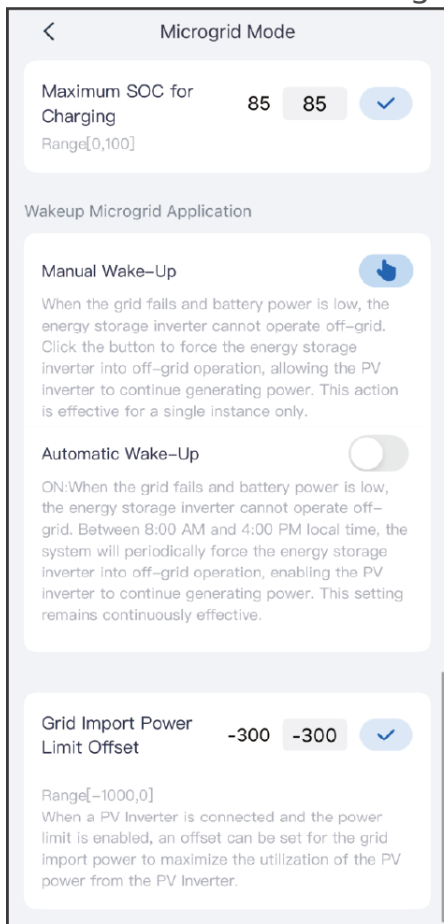
9.1.12.3 Setting Microgrid Parameters

NOTICE

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

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

Step 2 : According to the actual interface prompts, enter the microgrid control interface and set the microgrid parameters according to actual needs.



SLG00CON0078

No.	Parameters	Description
1	Maximum SOC for Charging	Set the upper limit of charging SOC, and stop charging when the upper limit is reached.
2	Manual wake-up	- When the grid fails, if the battery power is low, the energy storage inverter cannot be supported to work off the grid. Click this button to force the energy storage inverter to output voltage to the grid-connected inverter, thereby starting the grid-connected inverter. - Single effect.
3	Automatic wake-up	- When the grid fails, if the battery power is low, the energy storage inverter cannot be supported to work off the grid. After enabling this function, the system will force the energy storage inverter to output voltage to the grid-connected inverter at a fixed time, thereby starting the grid-connected inverter. - Multiple effect.
4	Grid Import Power Limit Offset	Set the adjustable range of the maximum power that the device can actually buy from the grid.

9.1.13 Setting the Meter Parameters

9.1.13.1 Bind/Unbind Meter

NOTICE

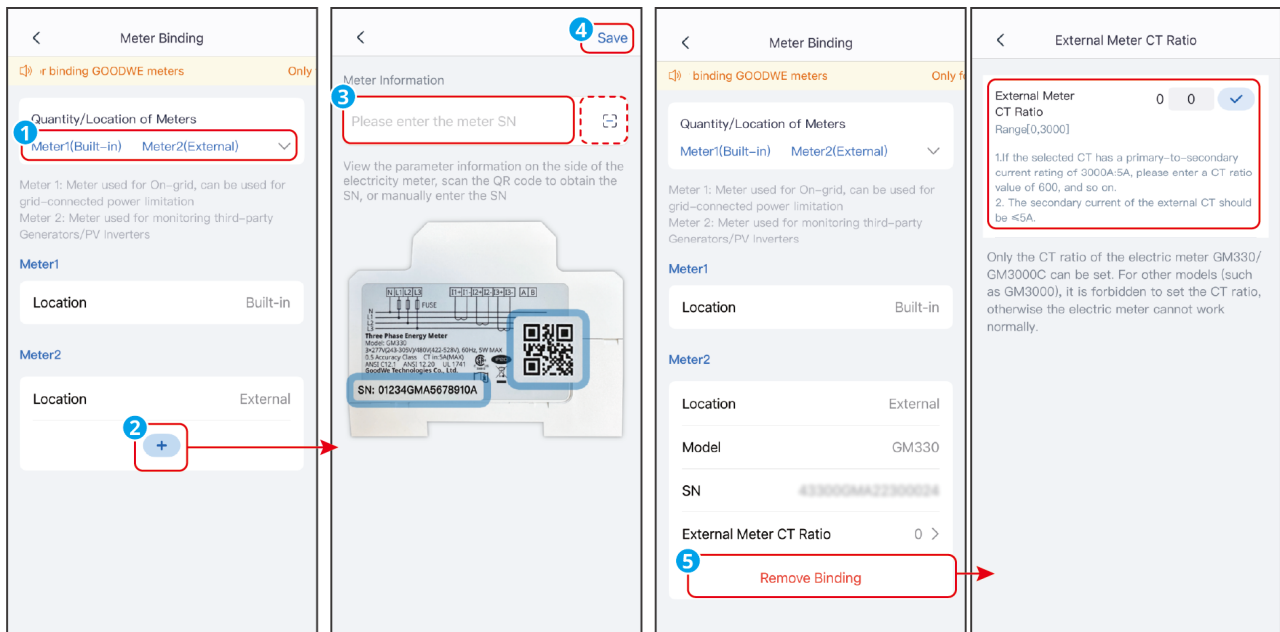
- When the PV system uses both the grid-connected inverter and the energy storage inverter to achieve coupling or microgrid functions, dual meters may be used in the system. Please set the meter binding information according to the actual usage.
- Applicable only to GoodWe meters.

Step 1 : Tap **Home > Settings > Meter Function > Meter Binding** to enter the binding interface.

Step 2 : Tap **Quantity/Location of Meters** to select the actual application scenario. Supported options: Meter 1 (built-in) No Meter 2; Meter 1 (external) No Meter 2; Meter 1 (built-in) Meter 2 (external); Meter 1 (external) Meter 2 (external). the interface of Meter 1 (built-in) Meter 2 (external) is used as an example to explain how to bind the meter.

Step 3 : As shown in the figure below, when you choose to use an external meter, you need to manually add the external meter information. Tap  to bind the meter by manually entering the meter SN or scanning the meter SN QR code. When the bound meter model is GM330, please set the meter CT ratio according to the actual situation and click ✓ to complete the setting. If you use other meters, you do not need to set the meter CT ratio.

Step 4 : (Optional) If you need to unbind the external meter, please tap **Remove Binding**.



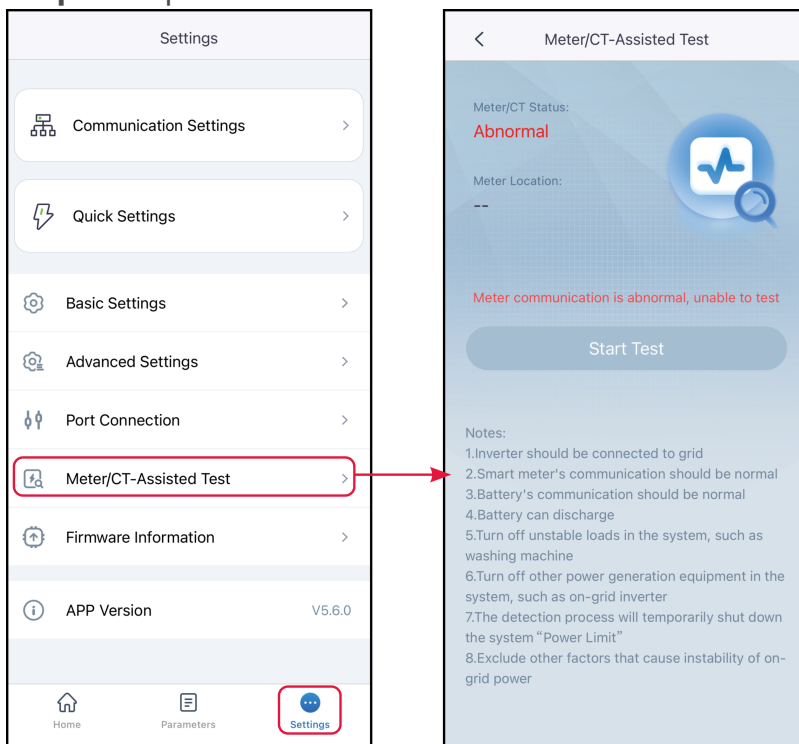
SLG00CON0123

9.1.13.2 Meter/CT-Assisted Test

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

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

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



9.1.14 Equipment Maintenance

9.1.14.1 Checking Firmware Information/Upgrading Firmware Version

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

NOTICE

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

9.1.14.1.1 Regular Upgrade

NOTICE

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

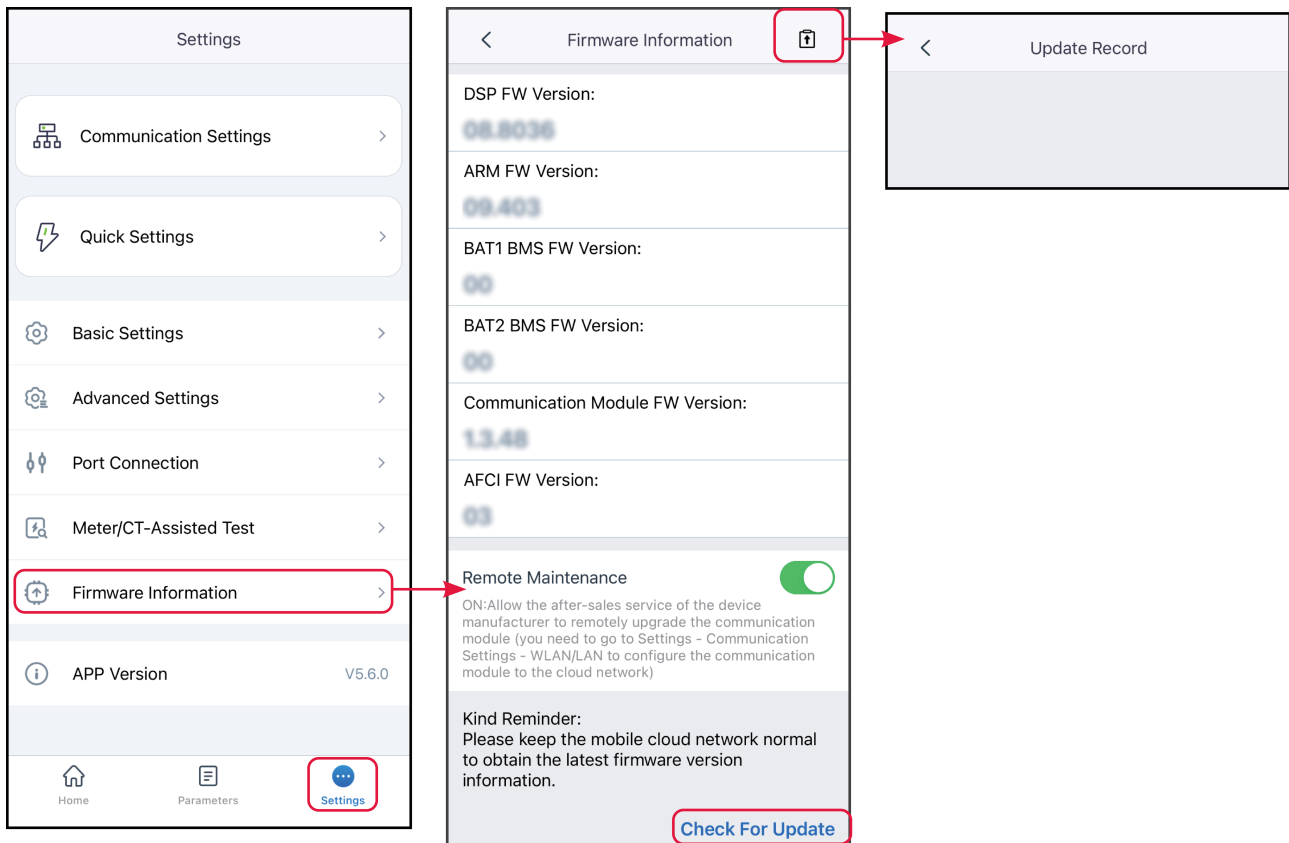
Step 1 : Tap **Home > Settings > Firmware Information** to check the firmware version. If the firmware upgrade dialog box pops up, tap **Firmware Upgrade** and turn to the upgrade interface.

Step 2 : (Optional) Tap **Check For Update** to confirm whether the latest firmware version is available for updating.

Step 3: Tap **Firmware Upgrade** to enter the firmware upgrade interface.

Step 4 : (Optional) Tap **Learn More** to view firmware-related information, such as the current version, the latest version, firmware update records, etc.

Step 5 : Tap **Upgrade** and complete the upgrade according to the prompts on the interface.



9.1.14.1.2 One-click Upgrade

NOTICE

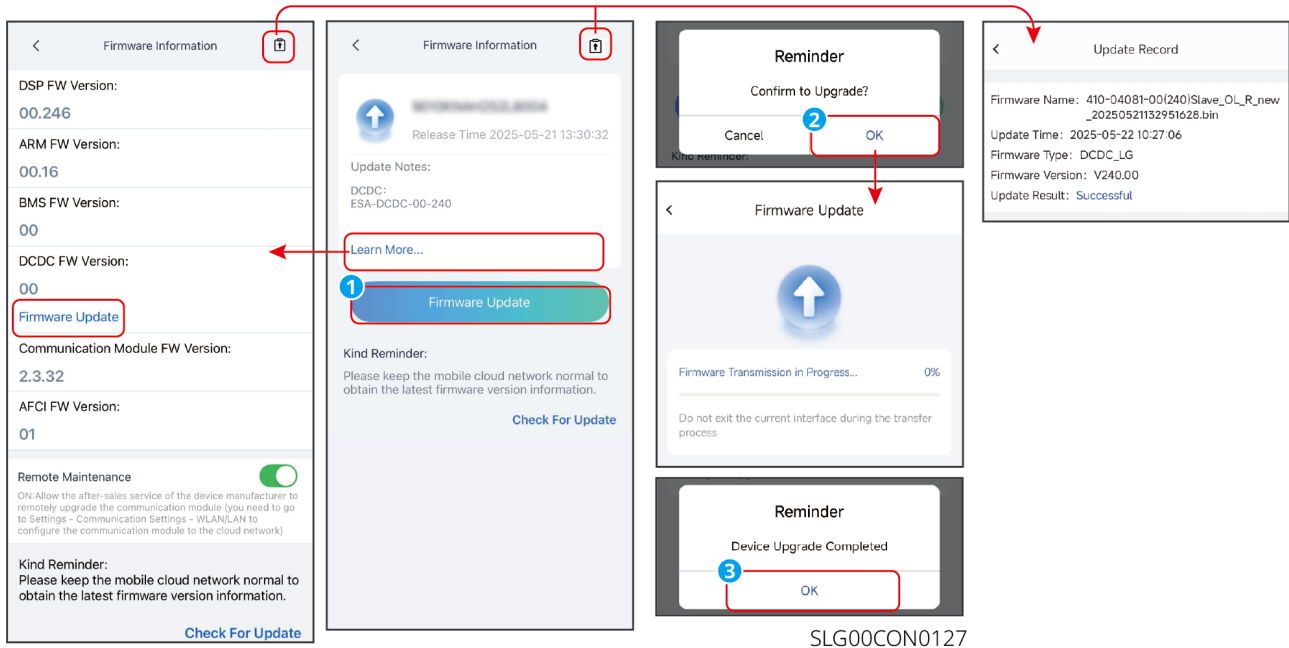
- When there is a red dot on the right side of the firmware information, please click to view the firmware update information.
- During the upgrade process, please ensure that the network is stable and the device is connected to SolarGo, otherwise the upgrade may fail.

Step 1 : Tap **Home > Settings > Firmware Information**. Tap **Firmware Information** as prompted to enter the firmware upgrade page.

Step 2 : Tap **Upgrade** and follow the prompts to complete the upgrading. If you only need to upgrade a specific firmware version, tap **Learn More** to check the firmware related information and tap **Firmware Upgrade** below the firmware version you want to upgrade, and follow the on-screen prompts to complete the operation.

Step 3 : Tap **Learn More** to view all current firmware version information.

Step 4: (Optional) Tap , to view the version upgrade record.



9.1.14.1.3 Automatic Upgrade

NOTICE

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

Step 1 : Tap **Home > Settings > Firmware Information**.

Step 2 : Enable or disable the automatic device upgrade function according to actual needs.

9.1.14.2 Change the Login Password

NOTICE

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

Step 1 : Tap **Home > Settings > Change Login Password** to change the password.

Step 2 : Change the password based on actual needs.

<

Change Login Password

Save

Please enter the new password



Please enter new password again



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

SLG00CON0088

10 Product Introduction

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

10.1 Managing the Account

10.1.1 Logging in to the App

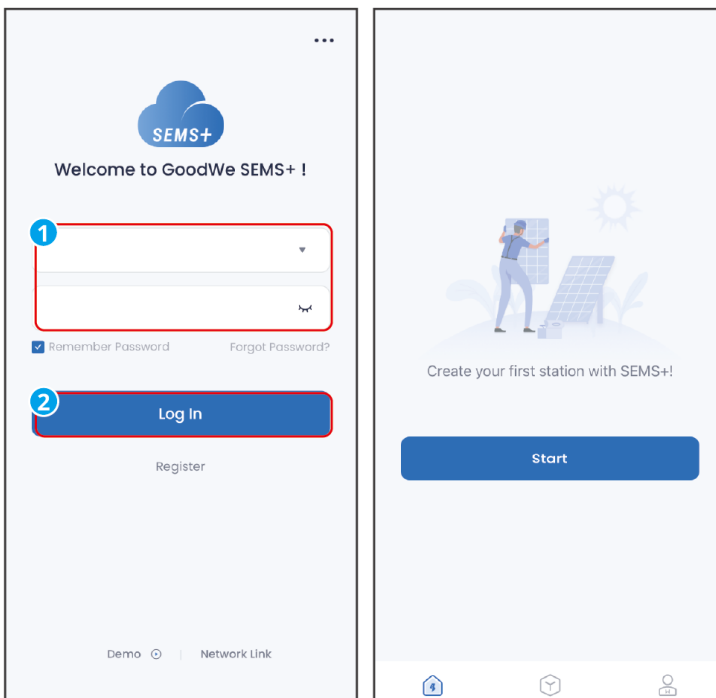
NOTICE

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

Step 1: Enter the username and password, read, and agree to the login agreement.

Tap **Log In**.

SEMS0006



10.2 Managing Stations

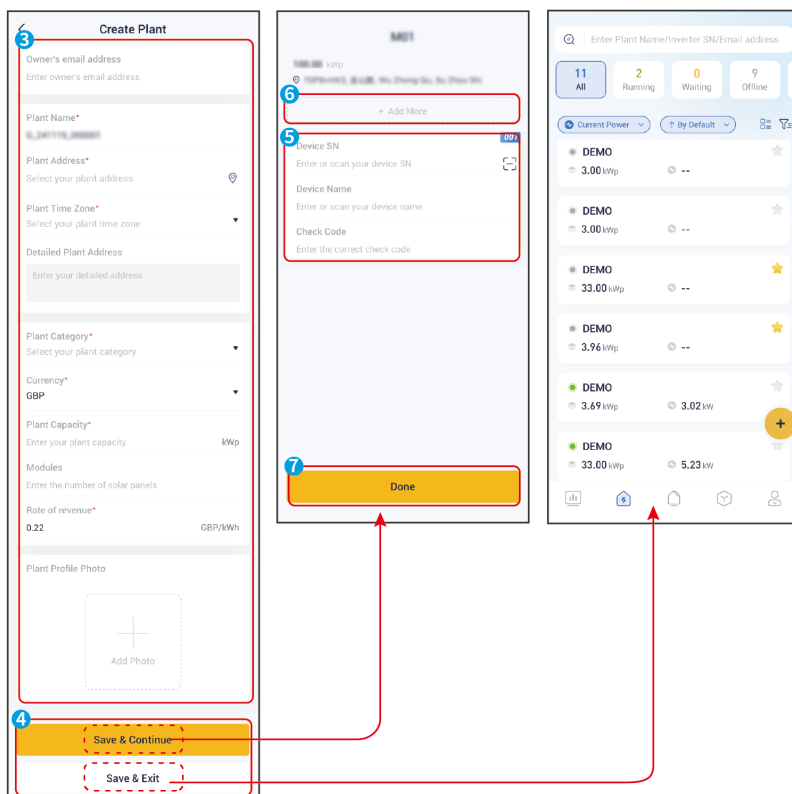
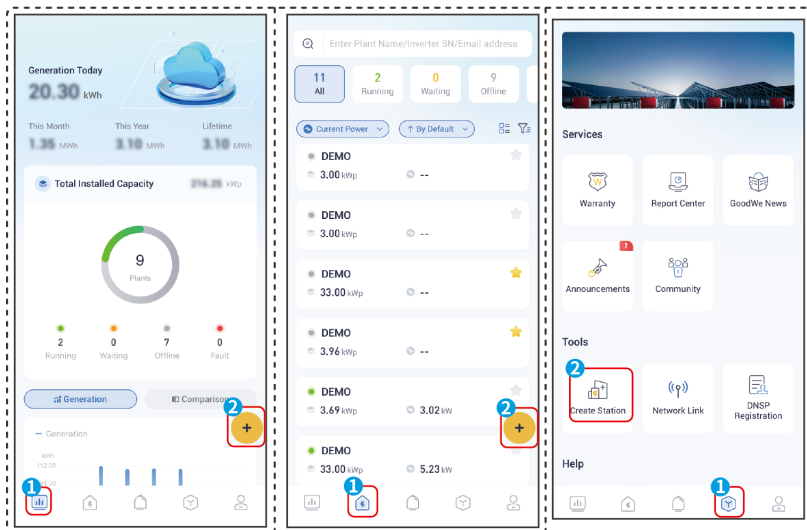
10.2.1 Creating a Station

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

Step 2: Enter station information on the **Creat Station** page.

Step 3: Tap **Save&Exit** to complete creating a station, without devices added. Or tap **Save&Continue** to add devices. Support adding multiple devices.

SEMS0011



10.2.2 Configuring Station Information

NOTICE

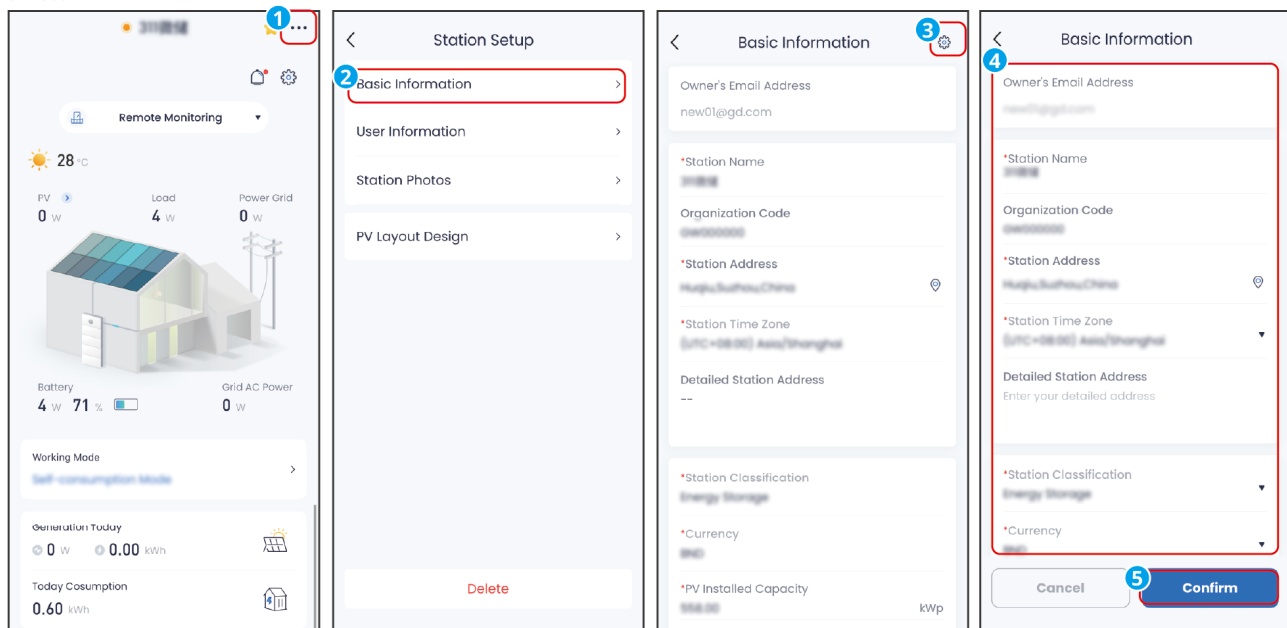
The configuration information of the station can be updated as needed. When the information filled in is inconsistent with the actual situation of the power station, the actual situation of the power station shall prevail.

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

Step 2: Tap **⋮** > **Basic Information** to check the basic information.

Step 3: Tap **⚙️** to modify the information, and tap **Confirm** to save the changes.

SEMS0012



10.2.3 Adding a Device

NOTICE

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

Step 1: Select a station from the station list.

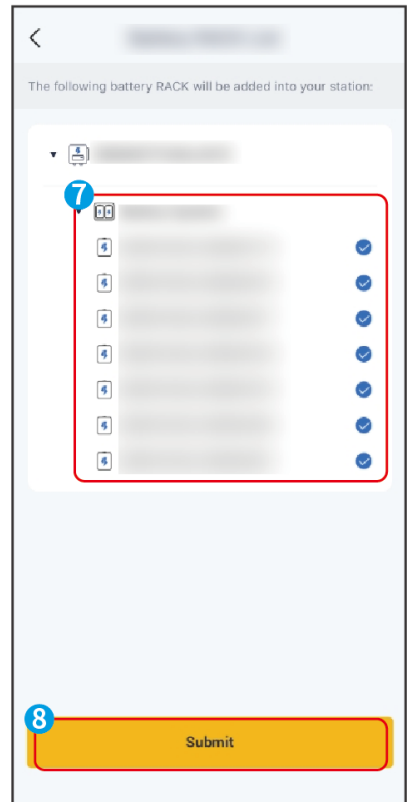
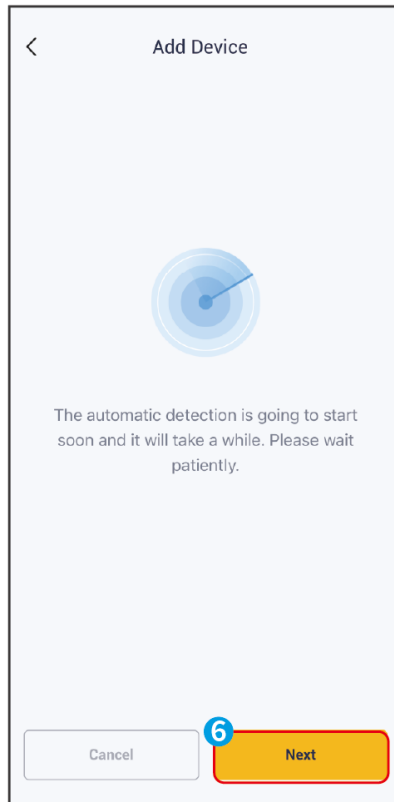
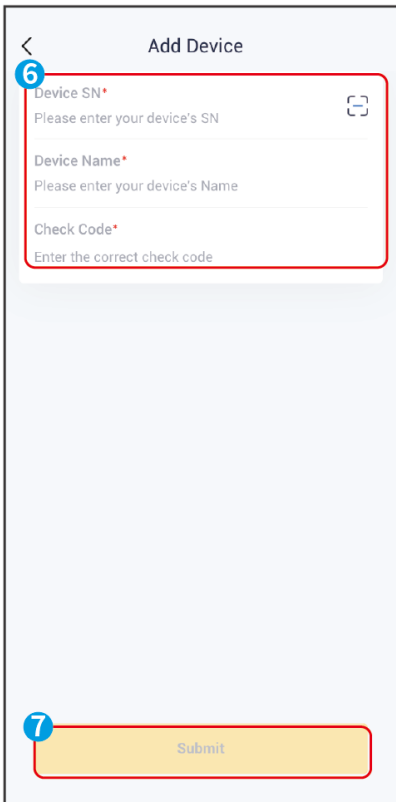
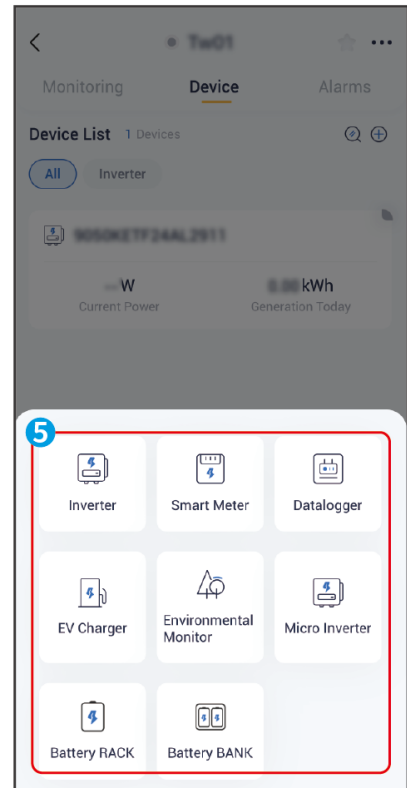
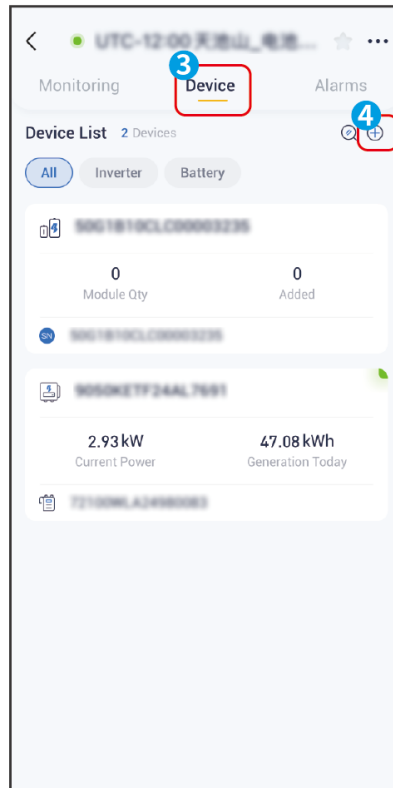
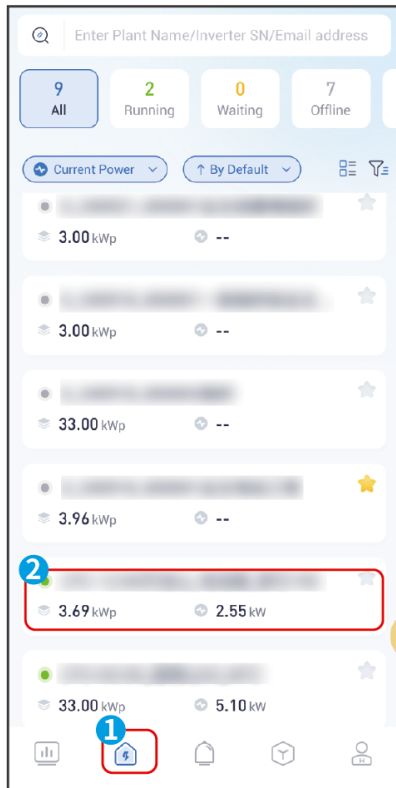
Step 2: Tap **Device** > **+** to enter the device addition interface.

Step 3: Select the type of device to add.

Step 4: Follow the instructions to scan or manually input device information. To add the scanned devices, choose devices from the scanned device list. To manually add a device, scan the device SN code or input required device information. To add multiple devices, repeat the steps as needed.

Step 5: When manually adding devices, if you need to add multiple devices, return to the power station details page and repeat steps 3 and 4.

SEMS0025



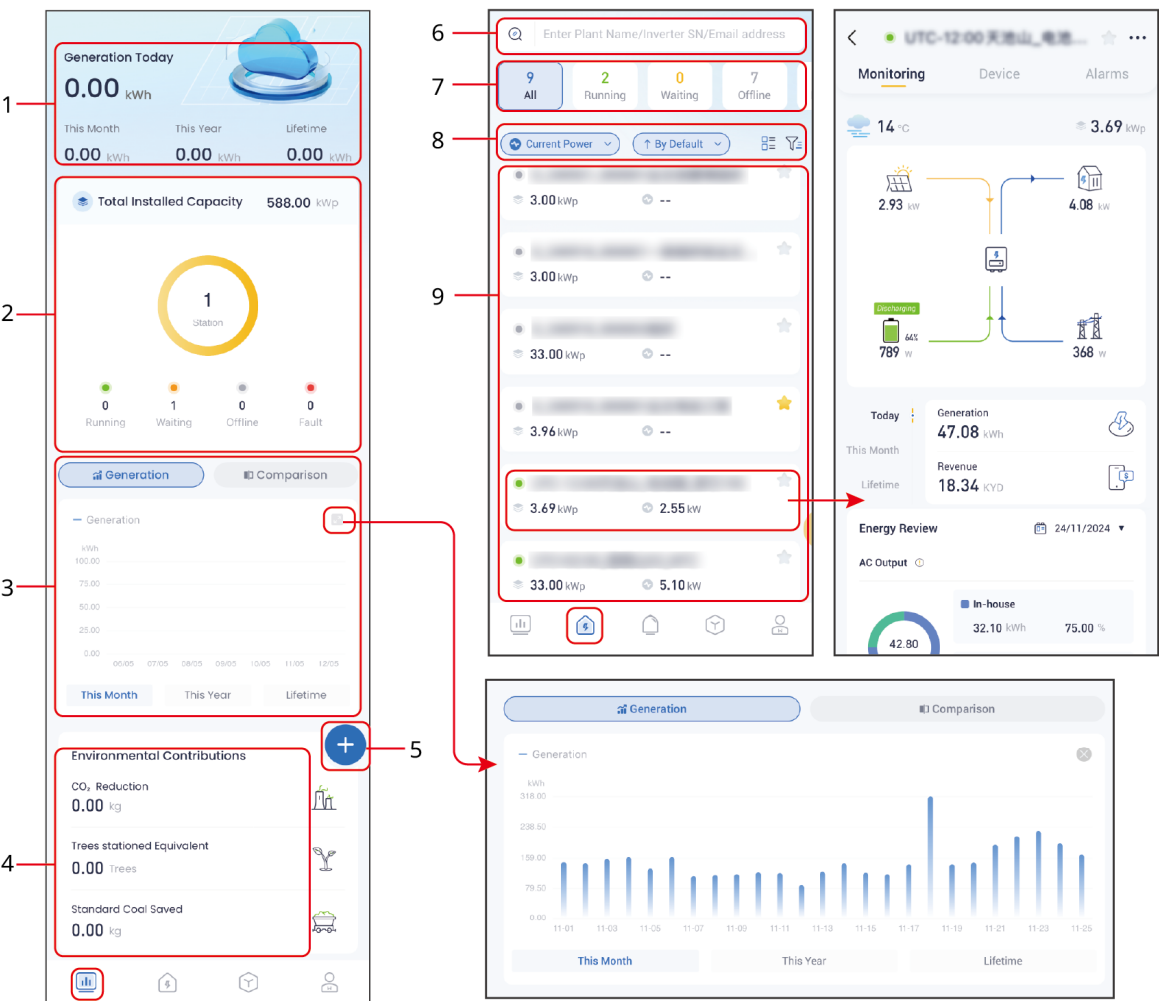
10.3 Checking Station Information

10.3.1 Checking Overview Information of All Stations

After logging in, you can view an overview of all stations linked to your account from the homepage.

Or sort the list of all power stations through different sorting and filtering conditions on the power station page to view the detailed information of the power stations.

SEMS0018



No.	Description
1	Displays the overall generation information of all stations, including: Generation Today, Generation This Month, Generation This Year, and Generation Lifetime. Generation This Year will not be displayed if the station amount exceeds 10.

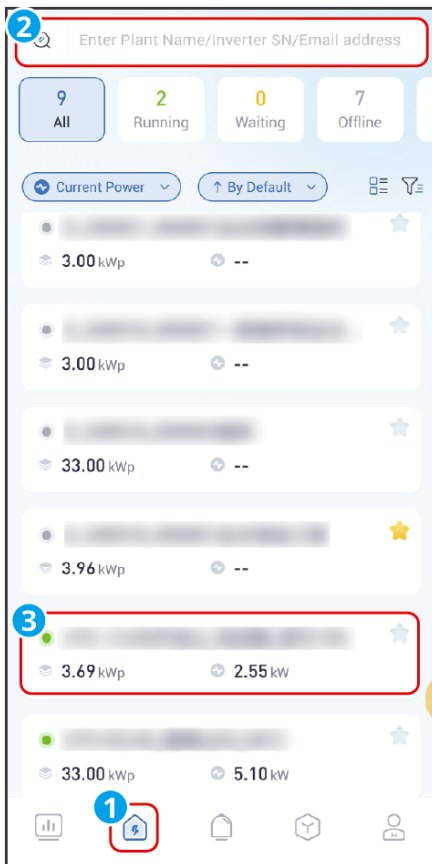
No.	Description
2	Displays the total installed capacity and the working status of the stations. Working status: Running, Waiting, Offline, and Faulted. The stations status is running only when all the devices of the station are working properly.
3	Displays statistical chart of Generation Today, This Year, and Lifetime.Or displays comparison chart comparing current and past generation. Tap  to expand the chart.
4	Displays environmental contributions like CO₂ Reduction , Trees Stationed Equivalent , and Standard Coal Saved .
5	Creating a New Station
6	Searching Stations Enter the device SN, power station name or email address to quickly search for the corresponding power station.
7	Power station operation status. Display the current operation status of power stations and the number of power stations operating in each status. Tap the operation status to filter power stations in the corresponding operation status.
8	• Set KPI indicators displayed in the power station list: Current Power, Rev. Today, Rev. Total, Gen. Today, Gen. Total • Set the sorting method of the power station list: By Default, By Capacity • Set the display mode of the power station list: Station Card, Station List • Set the filtering conditions for the power station list: Scope, Category, Capacity
9	Power station list. Tap the power station name to view the detailed information of the power station. The displayed content varies depending on the station type. The actual interface takes precedence

10.3.2 Checking Detailed Information of Single Station

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

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

SEMS0052



10.3.3 Checking Alarm Information

11 Maintenance

11.1 Power Off the System

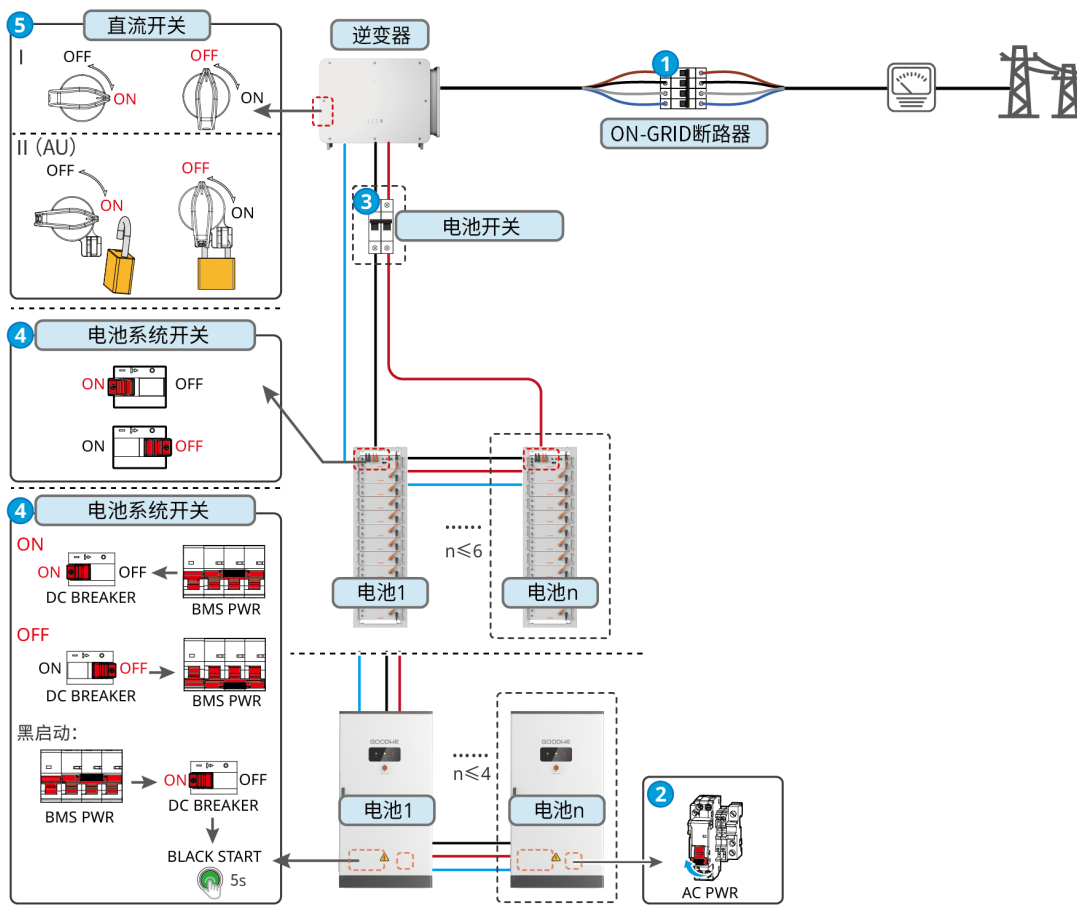
DANGER

- Power off the equipment before operations and maintenance. Otherwise, the equipment may be damaged or electric shocks may occur.
- After the equipment is powered off, the internal components require some time to discharge. Please wait until the equipment is fully discharged in accordance with the time specified on the label.
- When shutting down the battery system, please strictly follow the battery system's power-off requirements to prevent damage to the system.
- In case of an emergency requiring battery shutdown, press the emergency stop switch, and the battery will power off immediately.

Notice

The circuit breakers between the inverter and the battery, as well as those between battery systems, must be installed in compliance with local laws and regulations.

11.1.1 Single inverter without off-grid function

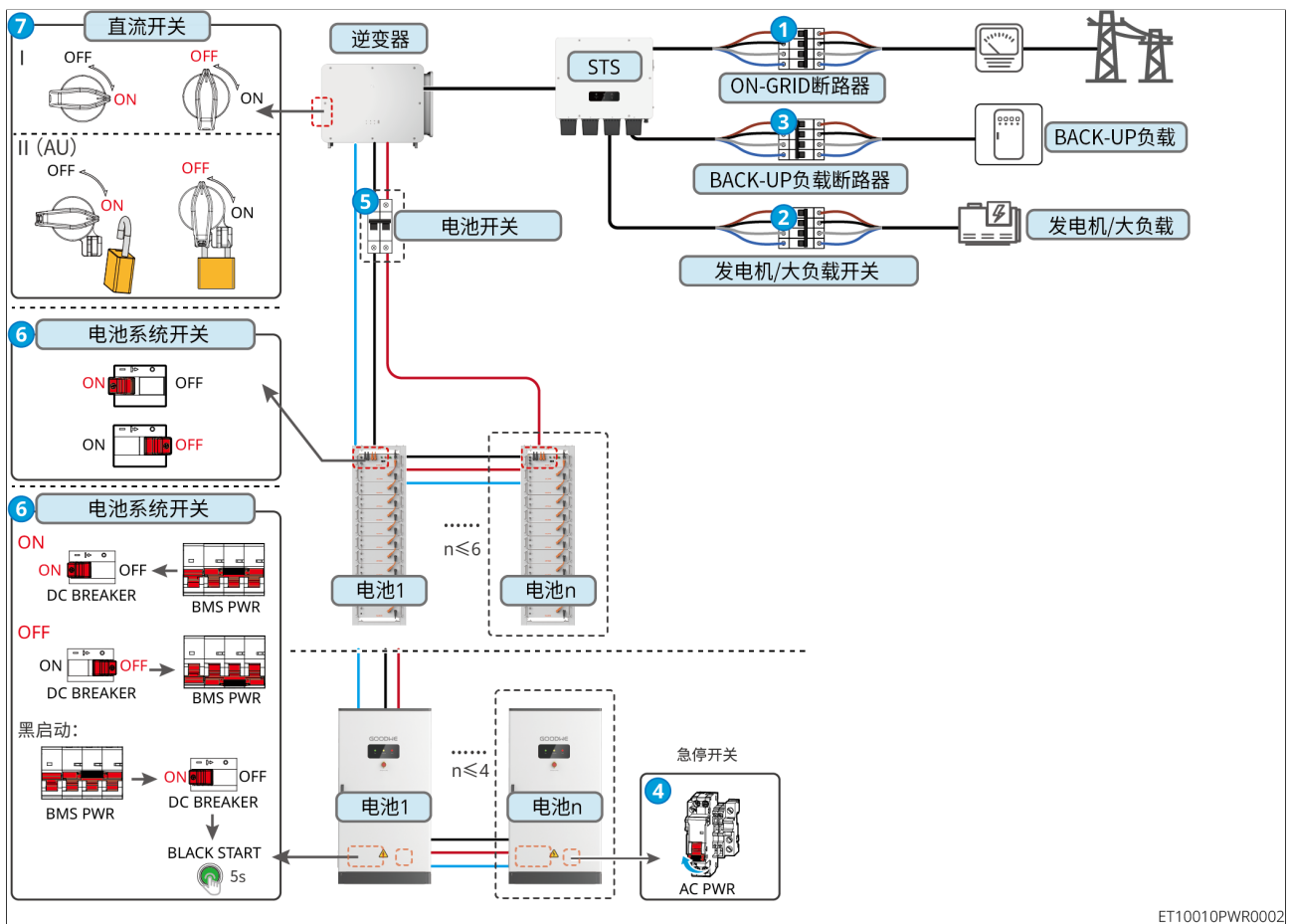


ET10010PWR0001

Power ON: ① → ② → ③ → ④ → ⑤

③: Install or not based on local laws and regulations.

11.1.2 Single inverter with off-grid function



ET10010PWR0002

Power Off: ①→②→③→④→⑤→⑥→⑦

⑤: Optional in compliance with local laws and regulations.

11.2 Removing the Equipment

DANGER

- Make sure that the equipment is powered off.
- Wear proper PPE during operations.
- When removing PV terminals or battery terminals, please use the disassembly tool provided with the package.

Notice

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

Step1: Power Off the System.

Step2: Label the cables connected in the system to indicate their cable types.

Step3: Disconnect the electrical connections of the inverter、STS、battery、BACK-UPload in the system.

Step4: Remove the device from the wall-mounted bracket and take off the device backplate.

Step5: Remove the Smart Meter and Communication Module.

Step6: Store the inverter properly. If the inverter needs to be used later, ensure that the storage conditions meet the requirements.

11.3 Disposing of the Equipment

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

11.4 Routine Maintenance

WARNING

- If any issue that may affect the battery or energy storage inverter system is identified, please contact after-sales personnel; do not disassemble the equipment without authorization.
- If exposed copper wires inside the conductive cable are found, do not touch them. High voltage hazard. Please contact after-sales personnel and do not disassemble without authorization.
- In the event of other emergency situations, please contact after-sales personnel immediately. Perform under the guidance of after-sales personnel, or wait for after-sales personnel to conduct on-site operations.

Maintenance Content	Maintenance Method	Maintenance Cycle	Maintenance Purpose
System Cleaning	Check whether the heat sinks and air inlets/outlets are free of foreign objects and dust. Check whether the installation space meets the requirements and whether there is debris accumulation around the equipment.	Once every 6 months	To prevent heat dissipation failures.
System Installation	Check whether the equipment is installed securely and whether the fastening screws are loose. Check whether the equipment appearance is free of damage or deformation.	Once every 6 months to once a year	To confirm the equipment installation stability.
Electrical Connections	Check whether electrical connections are loose, and whether the cable appearance is damaged or has exposed copper.	Once every 6 months to once a year	Confirm the reliability of electrical connections.
Sealing	Check whether the sealing of the equipment's cable entry holes meets the requirements; if there are excessively large gaps or unblocked areas, re-seal them.	Once a year	Confirm that the machine seal and waterproof performance are intact.
Battery Maintenance	If the battery has not been used for a long time or is not fully charged, it is recommended to charge the battery regularly.	Once every 15 days	To protect the battery's service life

11.5 Fault

1. Viewing Fault/Alarms Information

All detailed fault and alarm information of the energy storage system is displayed in the **[SolarGo App]**、 **[SEMS Portal App]** and on the LCD display, If your product malfunctions and no relevant fault information is found in the **[SolarGo App]**、 **[SEMS Portal App]** or on the LCD display, please contact the After-sales service center.

- **Method 1: LCD screen**

Click or select the fault information icon on the screen  to view the alarm or fault information of the energy storage system.

- **Method 2: SolarGo App**

Through **[Home]** > **[Parameters]** > **[Alarms]**, View the alarm information of the energy storage system.

- **Method 3: SEMS Portal App**

- a. Open the SEMS App and log in with any account.
- b. All power station fault information can be viewed through the **Power Plant > Alarm**.
- c. Click on the specific fault name to view detailed information about the fault: [time of occurrence], [possible cause], and [solution].

2. Fault Information and Troubleshooting

Perform troubleshooting according to the following methods. Contact the after-sales service if these methods do not work.

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

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

If unlisted problems occur in the system, or if following the instructions does not stop the problem or abnormality, stop operating the system immediately and contact your dealer immediately.

11.5.1 System Failure

No	Fault	Solutions
1	Unable to connect to the wireless signal of the Smart Dongle.	1. Ensure the smart communication stick is powered properly, with its blue indicator light in a blinking or steady-on state. 2. Ensure the smart device is within the communication range of the Smart Dongle. 3. Refresh theApp'sdevice list again. 4. Restart the inverter.
2	Unable to connect to the wireless signal of the Smart Dongle.	1. Ensure no other smart devices are connected to the inverter's WiFi signal. 2. Restart the inverter and reconnect to its WiFi signal. 3. If connecting via Bluetooth signal, ensure Bluetooth pairing is successful.
3	The router SSID cannot be found.	1. Place the router close to the Smart Dongle, or add a WiFi range extender to boost the WiFi signal. 2. Reduce the number of devices connected to the router. 3. Confirm whether the router is a 2.4G router.
4	After all configurations are completed, the Smart Dongle fails to connect to the router.	1. Restart the inverter. 2. Check whether the network name (SSID), encryption method, and password in the WiFi configuration are the same as those of the router. 3. Restart the router. 4. Place the router close to the Smart Dongle, or add a WiFi range extender to boost the WiFi signal.
5	After all configurations are completed, the Smart Dongle fails to connect to the router.	Restart the inverter.

6	When using 4G Kit-CN-G20 module, the GSA-*** cannot be found.	1. Ensure the Smart Dongle on the inverter is powered properly, with its blue indicator light in a blinking or steady-on state. 2. Ensure the smart device is within the communication range of the Smart Dongle. 3. Refresh the App's device list again. 4. Restart the inverter.
7	When using 4G Kit-CN-G20 module, the GSA-*** cannot be found.	1. Ensure Bluetooth pairing has been completed successfully. 2. Restart the inverter and reconnect to the GSA-***. 3. In your phone's Bluetooth settings, unpair the connection with the GSA-***, then reconnect via the App.
8	 When using 4G Kit-CN-G20 module, the indicator light flashes six times.	Ensure the Smart Dongle is properly connected to the inverter.
9	The inverter fails to recognize the 4G Kit-CN-G20 communication module.	Restart the inverter.

11.5.2 Inverter Troubleshooting

11.5.3 Battery Failure

• GW51.2-BAT-I-G10, GW56.3-BAT-I-G10

No	Fault	Causes are possibly as follows:	Troubleshooting
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1	Charging Overvoltage2	• Single-cell voltage/Total voltage is too high • Abnormality in voltage acquisition line	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
2	Charging Overvoltage3	• Single-cell voltage/Total voltage is too high • Abnormality in voltage acquisition line	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
3	Discharging Undervoltage3	• Single-cell voltage/Total voltage is too low • Abnormality in voltage acquisition line	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. Confirm the inverter's operating status: check if the battery is not being charged due to issues such as its operating mode. Try charging the battery via the inverter and observe if the fault is resolved. 3. If the fault is not resolved, contact GoodWe after-sales service.
4	Discharging Undervoltage2	• Single-cell voltage/Total voltage is too low • Abnormality in voltage acquisition line	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. Confirm the inverter's operating status: check if the battery is not being charged due to issues such as its operating mode. Try charging the battery via the inverter and observe if the fault is resolved. 3. If the fault is not resolved, contact GoodWe after-sales service.

5	Single-cell Overvoltage ²	- Single-cell voltage/Total voltage is too high - Abnormality in voltage acquisition line	Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; If the fault is not resolved, contact GoodWe after-sales service.
6	Single-cell Undervoltage ²	Single-cell Undervoltage	- Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; - Confirm the inverter's operating status: check if the battery is not being charged due to issues such as its operating mode. Try charging the battery via the inverter and observe if the fault is resolved. - If the fault is not resolved, contact GoodWe after-sales service.
7	Single-cell Voltage Difference Excessive ²	Single-cell Voltage Difference Excessive	- Restart the battery and wait for 12 hours. - If the fault is not resolved, contact GoodWe after-sales service.
8	Charging Overcurrent ²	- Excessive charging current, abnormal battery current limiting: sudden changes in temperature and voltage values. - Abnormal inverter response	- Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; - Check if the inverter is set to excessive power, resulting in exceeding the battery's rated operating current. - If the fault is not resolved, contact GoodWe after-sales service.

9	Discharging Overcurrent ²	- Excessive discharging current, abnormal battery current limiting abnormality: sudden changes in temperature and SOC values. - Abnormal inverter response	
10	Cell High Temperature ²	- Single-cell temperature is too high - Abnormality in temperature sensor	- Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; - If the fault is not resolved, contact GoodWe after-sales service.
11	Cell Low Temperature ²	- The ambient temperature is too low. - Abnormality in temperature sensor	- Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; - If the fault is not resolved, contact GoodWe after-sales service.
12	Charging Over-temperature ²	- Single-cell temperature is too high - Abnormality in temperature sensor	- Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; - If the fault is not resolved, contact GoodWe after-sales service.
13	Charging Low-temperature ²	- The ambient temperature is too low. - Abnormality in temperature sensor	- Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; - If the fault is not resolved, contact GoodWe after-sales service.

14	Discharging Over-temperature ²	• Single-cell temperature is too high • Abnormality in temperature sensor	1. Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
15	Discharging Low-temperature ²	• The ambient temperature is too low. • Abnormality in temperature sensor	1. Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
16	Single-cell Temperature Difference Excessive ²	Single-cell Temperature Difference Excessive	1. Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
17	Pre-charging Failure	Pre-charging MOS closure failure	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
18	Battery Trip	Battery air switch tripped	1. Let it stand for 10 min, then reclose to restore; 2. If the fault is not resolved, contact GoodWe after-sales service.

19	Communication failure between battery and inverter	Communication failure between battery and inverter	1. Check whether the communication line sequence and DC lines are correct, and whether the on-off status is normal. 2. Restart the inverter and battery. 3. If the fault is not resolved, contact GoodWe after-sales service.
20	Specific fault	Specific battery fault	Please contact the after-sales service center.
21	Parallel cluster fault	Parallel cluster Disconnection Parallel cluster failure	Check the reliability of the communication connection of the master-slave wiring harness Please contact the after-sales service center.
22	Software fault	Software self-check failure	Please contact the after-sales service center.
23	Microelectronic Fault	Electronic component failure	Please contact the after-sales service center.
24	Master control overload	Exceeding the carrying capacity of the power line	Stop charging, if it does not recover automatically, please contact professional technicians to restart the system.
25	SN abnormal status	Batteries with duplicate SN exist	Please contact the after-sales service center.
26	Air Switch Abnormality	Molded Case Air Switch disconnected abnormally	Replace the molded case air switch

• **GW102.4-BAT-AC-G10, GW112.6-BAT-AC-G10**

No	Fault	Causes are possibly as follows:	Troubleshooting
1	Charging Overvoltage2	• Single-cell voltage/Total voltage is too high • Abnormality in voltage acquisition line	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.

2	Charging Overvoltage3	• Single-cell voltage/Total voltage is too high • Abnormality in voltage acquisition line	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
3	Discharging Undervoltage3	• Single-cell voltage/Total voltage is too low • Abnormality in voltage acquisition line	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. Confirm the inverter's operating status: check if the battery is not being charged due to issues such as its operating mode. Try charging the battery via the inverter and observe if the fault is resolved. 3. If the fault is not resolved, contact GoodWe after-sales service.
4	Discharging Undervoltage2	• Single-cell voltage/Total voltage is too low • Abnormality in voltage acquisition line	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. Confirm the inverter's operating status: check if the battery is not being charged due to issues such as its operating mode. Try charging the battery via the inverter and observe if the fault is resolved. 3. If the fault is not resolved, contact GoodWe after-sales service.
5	Single-cell Overvoltage2	• Single-cell voltage/Total voltage is too high • Abnormality in voltage acquisition line	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; If the fault is not resolved, contact GoodWe after-sales service.

6	Single-cell Overvoltage2	Single-cell Overvoltage	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. Confirm the inverter's operating status: check if the battery is not being charged due to issues such as its operating mode. Try charging the battery via the inverter and observe if the fault is resolved. 3. If the fault is not resolved, contact GoodWe after-sales service.
7	Single-cell Voltage Difference Excessive2	Single-cell Voltage Difference Excessive	1. Restart the battery and wait for 12 hours. 2. If the fault is not resolved, contact GoodWe after-sales service.
8	Charging Overcurrent2	• Excessive charging current, abnormal battery current limiting: sudden changes in temperature and voltage values. • Abnormal inverter response	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. 3. If the fault is not resolved, contact GoodWe after-sales service.
9	Discharging Overcurrent2	• Excessive discharging current, abnormal battery current limiting abnormality: sudden changes in temperature and SOC values. • Abnormal inverter response	

10	Cell High Temperature2	• Single-cell temperature is too high • Abnormality in temperature sensor	1. Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
11	Cell Low Temperature2	• The ambient temperature is too low. • Abnormality in temperature sensor	1. Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
12	Charging Over-temperature2	• Single-cell temperature is too high • Abnormality in temperature sensor	1. Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
13	Charging Low-temperature2	• The ambient temperature is too low. • Abnormality in temperature sensor	1. Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
14	Discharging Over-temperature2	• Single-cell temperature is too high • Abnormality in temperature sensor	1. Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.

15	Discharging Low-temperature ²	• The ambient temperature is too low. • Abnormality in temperature sensor	1. Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
16	Single-cell Temperature Difference Excessive ²	Single-cell Temperature Difference Excessive	1. Turn off the device and let it stand for 30 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
17	Pre-charging Failure	Pre-charging MOS closure failure	1. Turn off the device and let it stand for 5 minutes, restart to check if the fault persists; 2. If the fault is not resolved, contact GoodWe after-sales service.
18	Battery Trip	Battery air switch tripped	1. Let it stand for 10 min, then reclose to restore; 2. If the fault is not resolved, contact GoodWe after-sales service.
19	Communication failure between battery and inverter	Communication failure between battery and inverter	1. Check whether the communication line sequence and DC lines are correct, and whether the on-off status is normal. 2. Restart the inverter and battery. 3. If the fault is not resolved, contact GoodWe after-sales service.
20	Specific fault	Specific battery fault	Please contact the after-sales service center.

21	Parallel cluster fault	Parallel cluster Disconnection Parallel cluster failure	Check the reliability of the communication connection of the master-slave wiring harness Please contact the after-sales service center.
22	Software fault	Software self-check failure	Please contact the after-sales service center.
23	Microelectronic Fault	Electronic component failure	Please contact the after-sales service center.
24	Master control overload	Exceeding the carrying capacity of the power line	Stop charging, if it does not recover automatically, please contact professional technicians to restart the system.
25	SN abnormal status	Batteries with duplicate SN exist	Please contact the after-sales service center.
26	Air Switch Abnormality	Molded Case Air Switch disconnected abnormally	Replace the molded case air switch
27	Air Switch Sticking Fault	Molded case air switch fault or auxiliary air switch fault	Replace the molded case air switch or replace the auxiliary air switch
28	Fire Protection System Activated	Internal system thermal runaway or false fire activation	Please contact the after-sales service center.
29	Air Conditioner Fault	Abnormal fault occurred in the air conditioning system	Please contact the after-sales service center.
30	Access Control Fault	Door opened abnormally or access control sensor damaged	Close the door or replace the access control sensor
31	Emergency Stop Activated	Emergency stop button pressed or damaged	Replace the emergency stop button
28	PACK Fan Fault	PACK Fan Locked-rotor or Inoperable	Replace the corresponding PACK Fan

12 Technical Parameters

12.1 The Parameter of Inverters

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Battery Side					
Battery Type ^{*1}	Li-Ion	Li-Ion	Li-Ion	Li-Ion	Li-Ion
Nominal Voltage (V)	400	600	600	600	600
Voltage Range (V)	300 ~ 600	300 ~ 800	300 ~ 800	300 ~ 800	300 ~ 800
Start-up Voltage (V)	300	300	300	300	300
Number of Battery Inputs	2	2	2	2	2
Max. Continuous Charging Current (A)	85×2	85×2	100×2	110×2	110×2
Max. Continuous Discharging Current (A)	85×2	85×2	100×2	110×2	110×2
Max. Charging Power (kW)	50	75	88	99.99	110
Max. Discharge Power (kW)	50	75	88	99.99	110

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
PV Side					
Max. Input Power (kW)	100	150	160	200	200
Max. Input Voltage (V) ^{*2}	850	1000	1000	1000	1000
MPPT Operating Voltage Range (V) ^{*3}	160 ~ 700	160 ~ 950	160 ~ 950	160 ~ 950	160 ~ 950
MPPT Voltage Range at Nominal Power (V)	300 ~ 600	500 ~ 850	500 ~ 850	500 ~ 850	500 ~ 850
Start-up Voltage (V)	200	200	200	200	200
Nominal Input Voltage (V)	420	620	620	620	620
Max. MPPT Current (A)	42×8	42×8	42×8	42×8	42×8
Max. MPPT Short Circuit Current (A)	55×8	55×8	55×8	55×8	55×8
Max. Backfeed Current to the Array (A)	0	0	0	0	0

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Number of MPPTs	8	8	8	8	8
Number of Strings per MPPT	2	2	2	2	2
AC Side (on-grid)					
Max. Input Power (kW)	50	75	80	99.99	100
Max. Power (kW)	50	75	88 ^{*6}	99.99	110 ^{*6}
Nominal Apparent Power from/to Grid (kVA)	50	75	80	99.99	100
Max. Apparent Power to Grid (kVA)	50	75	88 ^{*7}	99.99	110 ^{*7}
Max. Apparent Power from Grid (kVA)	50	75	88 ^{*7}	99.99	110 ^{*7}
Nominal Voltage (V)	127/220, 3L/N/PE	220/380, 230/400, 240/415, 3L/N/PE	220/380, 230/400, 240/415, 3L/N/PE	220/380, 230/400, 240/415, 3L/N/PE	220/380, 230/400, 240/415, 3L/N/PE

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Voltage Range (V)	114~139 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)
Nominal Frequency (Hz)	50/60	50/60	50/60	50/60	50/60
Frequency Range (Hz)	45~55/55~65	45~55/55~65	45~55/55~65	45~55/55~65	45~55/55~65
Nominal Current from/to Grid (A)	131.3	114.0 @380Vac 108.3 @400Vac 104.4 @415Vac	121.6 @380Vac 115.5 @400Vac 111.3 @415Vac	152.0 @380Vac 144.4 @400Vac 139.2 @415Vac	152.0 @380Vac 144.4 @400Vac 139.2 @415Vac
Max. Current to Grid (A)*8	131.3	114.0 @380Vac 108.3 @400Vac 104.4 @415Vac	133.8 @380Vac 127.1 @400Vac 122.5 @415Vac	152.0 @380Vac 144.4 @400Vac 139.2 @415Vac	167.2 @380Vac 158.8 @400Vac 153.1 @415Vac
Max. Current from Grid (A)*8	131.3	114.0 @380Vac 108.3 @400Vac 104.4 @415Vac	133.8 @380Vac 127.1 @400Vac 122.5 @415Vac	152.0 @380Vac 144.4 @400Vac 139.2 @415Vac	167.2 @380Vac 158.8 @400Vac 153.1 @415Vac

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Max. Output Fault Current (Peak and Duration) (A)	406 @2.3us	406: 2.3us	406: 2.3us	406: 2.3us	406: 2.3us
Inrush Current (Peak and Duration) (A)	63.5 @20ms	63.5 @20ms	63.5 @20ms	63.5 @20ms	63.5 @20ms
Power Factor	~1 (Adjustable from 0.8 lead to 0.8 lag)	~1 (Adjustable from 0.8 lead to 0.8 lag)	~1 (Adjustable from 0.8 lead to 0.8 lag)	~1 (Adjustable from 0.8 lead to 0.8 lag)	~1 (Adjustable from 0.8 lead to 0.8 lag)
THDi	<3%	<3%	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	385	385	385	385	385
Type of Voltage	a.c	a.c	a.c	a.c	a.c
Backup Side ^{*4}					

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Nominal Output Apparent Power (kVA)	50	75	80	99.99	100
Max. Output Apparent Power (kVA)	50	75	88	99.99	110
Peak Output Power without Grid (kW)	120% @60s 150% @10s	120% @60s 150% @10s	110% @continuous 120% @60s 150% @10s	120% @60s 150% @10s	110% @continuous 120% @60s 150% @10s
Nominal Output Voltage (V)	127/220, 3L/N/PE	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE
Nominal Output Frequency (Hz)	50/60	50/60	50/60	50/60	50/60
Frequency Range (Hz)	45~55/55~65	45~55/55~65	45~55/55~65	45~55/55~65	45~55/55~65
Nominal Output Current (A)	131.3	114.0 @380Vac 108.3 @400Vac 104.4 @415Vac	121.6 @380Vac 115.5 @400Vac 111.3 @415Vac	152.0 @380Vac 144.4 @400Vac 139.2 @415Vac	152.0 @380Vac 144.4 @400Vac 139.2 @415Vac

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Max. Output Current (A)	131.3	114.0 @380Vac 108.3 @400Vac 104.4 @415Vac	133.8 @380Vac 127.1 @400Vac 122.5 @415Vac	152.0 @380Vac 144.4 @400Vac 139.2 @415Vac	167.2 @380Vac 158.8 @400Vac 153.1 @415Vac
Max. Fault Current (Peak and Duration) (A)	406 @2.3us	406: 2.3us	406: 2.3us	406: 2.3us	406: 2.3us
Inrush Current (Peak and Duration) (A)	63.5 @20ms	63.5 @20ms	63.5 @20ms	63.5 @20ms	63.5 @20ms
Maximum Overcurrent Protection (A)	385	385	385	385	385
THDv (@Linear Load)	<3%	<3%	<3%	<3%	<3%
On/Off-grid Switching Time	<10ms	<10ms	<10ms	<10ms	<10ms
Generator Side ^{*4}					

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Nominal Apparent Power (kVA)	50	75	80	99.99	100
Max. Apparent Power (kVA)	50	75	88	99.99	110
Nominal Voltage (V)	127/220, 3L/N/PE	220/380, 230/400, 240/415, 3L/N/PE	220/380, 230/400, 240/415, 3L/N/PE	220/380, 230/400, 240/415, 3L/N/PE	220/380, 230/400, 240/415, 3L/N/PE
Voltage Range (V)	114~139 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)
Nominal Frequency (Hz)	50/60	50/60	50/60	50/60	50/60
Frequency Range (Hz)	45~55/55~65	45~55/55~65	45~55/55~65	45~55/55~65	45~55/55~65
Max. Current (A)	131.3	114.0 @380Vac 108.3 @400Vac 104.4 @415Vac	133.8 @380Vac 127.1 @400Vac 122.5 @415Vac	152.0 @380Vac 144.4 @400Vac 139.2 @415Vac	167.2 @380Vac 158.8 @400Vac 153.1 @415Vac
Efficiency					
Max. Efficiency	97.4%	98.1%	98.1%	98.1%	98.1%
European Efficiency	96.8%	97.7%	97.7%	97.7%	97.7%

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Max. Battery to AC Efficiency	97.6%	98.2%	98.2%	98.2%	98.2%
MPPT Efficiency	99.9%	99.9%	99.9%	99.9%	99.9%
Protection					
PV String Current Monitoring	Integrated	Integrated	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated	Integrated	Integrated
Battery Reverse Polarity Protection	Integrated	Integrated	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated	Integrated	Integrated

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
AC Short Circuit Protection	Integrated	Integrated	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated	Integrated	Integrated
DC Surge Protection	Type II(Type I+II Optional)	Type II(Type I+II Optional)	Type II(Type I+II Optional)	Type II(Type I+II Optional)	Type II(Type I+II Optional)
AC Surge Protection	Type II	Type II	Type II	Type II	Type II
AFCI ^{*9}	Optional	Optional	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional	Optional	Optional
Remote Shutdown	Optional	Optional	Optional	Optional	Optional
General Data					
Operating Temperature Range (°C)	-35~+60	-35~+60	-35~+60	-35~+60	-35~+60
Operating Environment	Indoor/Outdoor	Indoor/Outdoor	Indoor/Outdoor	Indoor/Outdoor	Indoor/Outdoor
Storage Temperature (°C)	-40~70	-40~70	-40~70	-40~70	-40~70

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Relative Humidity	0~100%	0~100%	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000	4000	4000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication with BMS	CAN	CAN	CAN	CAN	CAN
Communication	RS485, WiFi+LAN+ Bluetooth, 4G+ Bluetooth (Optional)	RS485, WiFi+LAN+ Bluetooth, 4G+ Bluetooth (Optional)	RS485, WiFi+LAN+ Bluetooth, 4G+ Bluetooth (Optional)	RS485, WiFi+LAN+ Bluetooth, 4G+ Bluetooth (Optional)	RS485, WiFi+LAN+ Bluetooth, 4G+ Bluetooth (Optional)
Communication Protocols	Modbus-RTU, Modbus-TCP	Modbus-RTU, Modbus-TCP	Modbus-RTU, Modbus-TCP	Modbus-RTU, Modbus-TCP	Modbus-RTU, Modbus-TCP
Weight (kg)	97.0	97.0	97.0	97.0	97.0
Dimension (W×H×D mm)	995×758×358	995×758×358	995×758×358	995×758×358	995×758×358

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Noise Emission (dB)	60	60	60	60	60
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Power Self-consumption at Night (W)	<15	<15	<15	<15	<15
Ingress Protection Rating	IP66	IP66	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4	C4	C4
DC Connector	MC4 (4~6mm ²)	MC4 (4~6mm ²)	MC4 (4~6mm ²)	MC4 (4~6mm ²)	MC4 (4~6mm ²)
AC Connector	OT (max.240mm ²)	OT (max.240mm ²)	OT (max.240mm ²)	OT (max.240mm ²)	OT (max.240mm ²)
Environmental Category	4K4H	4K4H	4K4H	4K4H	4K4H
Pollution Degree	III	III	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I	I	I

	GW50K-ET-L-G10	GW75K-ET-G10	GW80K-ET-G10	GW99.99K-ET-G10	GW100K-ET-G10
Decisive Voltage Classification (DVC)	Battery: C PV: C AC: C Com: A	Battery: C PV: C AC: C Com: A	Battery: C PV: C AC: C Com: A	Battery: C PV: C AC: C Com: A	Battery: C PV: C AC: C Com: A
Mounting Method	Wall Mounted	Wall Mounted	Wall Mounted	Wall Mounted	Wall Mounted
Active Anti-islanding Method	AFDPF+AQDPF ^{*5}	AFDPF+AQDPF ^{*5}	AFDPF+AQDPF ^{*5}	AFDPF+AQDPF ^{*5}	AFDPF+AQDPF ^{*5}
Type of Electrical Supply System	TN-S, TN-C, TN-C-S, TT	TN-S, TN-C, TN-C-S, TT	TN-S, TN-C, TN-C-S, TT	TN-S, TN-C, TN-C-S, TT	TN-S, TN-C, TN-C-S, TT
Country of Manufacture	China	China	China	China	China

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

*2: For GW50K-ET-L-G10, when the input voltage ranges from 700V to 850V, the inverter will enter the standby mode, and the voltage returns to 700V to enter the normal operation state. For GW75K-ET-G10/GW80K-ET-G10/GW99.99K-ET-G10/GW100K-ET-G10, when the input voltage ranges from 950V to 1000V, the inverter will enter the standby mode, and the voltage returns to 950V to enter the normal operation state.

*3: Please refer to the user manual for the MPPT Voltage Range at nominal Power.

*4: The STS Box or STS Cabinet is needed.

*5: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

*6: For Chile, Max. Power (kW): GW80K-ET-G10: 80kW, GW100K-ET-G10: 100kW.

*7: For Chile, Max. Apparent Power to Grid (kVA)/Max. Apparent Power from Grid (kVA): GW80K-ET-G10: 80kVA, GW100K-ET-G10: 100kVA.

*8: For Chile, Max. Current to Grid (A)/Max. Current from Grid (A): GW80K-ET-G10: 121.6@380Vac, 115.5@400Vac, 111.3@415Vac; GW100K-ET-G10: 152.0@380Vac,

144.4@400Vac, 139.2@415Vac.

*9: For Brazil, AFCI: Integrated.

12.2 The Parameter of STS

GW125K-ST5-G10	
Grid side	
Nominal Voltage (V)	220/380/400/415, 3L/N/PE
Voltage Range (V)	114~280 (according to local standard)
Nominal Frequency (Hz)	50/60
Frequency Range (Hz)	45~55/55~65
Max. Current (A)	210
Rated Power (kW)	125(75@220V)
Max. Apparent Power (kVA)	137.5(75@220V)
Rated conditional short-circuit current (kA)	3
Back-up Mode	
Nominal Output Voltage (V)	220/380/400/415, 3L/N/PE
Output Voltage Range (V)	114~280 (according to local standard)
Nominal Output Frequency (Hz)	50/60
Frequency Range (Hz)	45~55/55~65
Rated Output Current (A)	210
Rated Output Power (kW)	125(75@220V)

Max. Output Apparent Power (kVA)	137.5(75@220V)
Rated Conditional Short-time Current (kA)	3
Smart Port side	
Nominal Voltage (V)	220/380/400/415, 3L/N/PE
Voltage Range (V)	114~280 (according to local standard)
Nominal Frequency (Hz)	50/60
Frequency Range (Hz)	45~55/55~65
Max. Current (A)	210
Rated Power (kW)	125(75@220V)
Max. Apparent Power (kVA)	137.5(75@220V)
Rated conditional short-circuit current (kA)	3
Inverter side	
Nominal Voltage (V)	220/380/400/415, 3L/N/PE
Voltage Range (V)	114~280 (according to local standard)
Nominal Frequency (Hz)	50/60
Frequency Range (Hz)	45~55/55~65
Max. Current (A)	210
Rated Power (kW)	125(75@220V)
Max. Apparent Power (kVA)	137.5(75@220V)
Rated conditional short-circuit current (kA)	3

General Data	
On/Off Grid Transfer Time (ms)	<10
Operating Temperature Range (°C)	-35~+60
Installation Type	Indoor/Outdoor
Storage Temperature (°C)	-40~+70
Relative Humidity	0~100%
Pollution Degree	III
Type of Electrical Supply System	TN-S, TN-C, TN-C-S, TT
Stationary or Movable	Stationary
Type Of Short-circuit Protective Device	Icc
Max. Operating Altitude (m)	4000
Cooling Method	Intelligent air cooling
Communication	RS485
Weight (kg)	21
Dimension (W×H×D mm)	680*620*165
Mounting Method	Wall Mounted
Noise Emission (dB)	45
Ingress Protection Rating	IP54

12.3 电池技术参数

• **GW51.2-BAT-I-G10, GW56.3-BAT-I-G10**

Technical Data	GW51.2-BAT-I-G10	GW56.3-BAT-I-G10
Battery System		
Cell Type	LFP (LiFePO4)	
Capacity (Ah)	100	
Pack Type/model	GW 5.1-BAT-I-G10	
Pack Nominal Energy (kWh)	5.12	
Pack Configuration	1P160S	1P176S
Pack Weight (kg)	42.5	
Number of Packs	10	11
Nominal Energy (kWh)	51.2	56.3
Usable Energy (kWh)*1	50	55
Nominal Voltage (V)	512	563.2
Operating Voltage Range (V)	459.2~577.6	505.12~635.36
Charging Operating Temperature Range (°C)	0~+55	

Discharging Operating Temperature Range (°C)	-20~+55	
Max. Charge/ Discharge Current (A) *2	100/110	
Max. Charge/ Discharge Rate*2	1C/1.1C	
Max. Charge/ Discharge power (kW) *2	51.2/56.3	56.3/61.9
Cycle Life	6000 (25±2°C, 0.5C, 90%DOD, 70%EOL)	
Depth of Discharge	100%	
Efficiency		
Round-trip Efficiency	96%@100%DOD,0.2C,25±2°C	
General Data		
Operating Temperature Range (°C)	0 ~ 40°C	
Storage Temperature (°C)	+35°C~+45°C(< 6 Months); -20°C~+35°C(< 1 Year)	

Relative Humidity	5 ~ 85%, No condensation	
Max. Operating Altitude (m)	3000	
Cooling Method	Natural Cooling	
User Interface	LED	
Communication	CAN (RS485 Optional)	
Weight (kg)	495	540
Dimension (LxWxH mm)	543*520*1815	543*520*1815
Ingress Protection Rating	IP20	
Fire safety equipment	Aerosol Optional, Pack Level	
Certification*3		
Safety Regulation	IEC62619/IEC60730-1/EN62477-1/IEC63056	
EMC	IEC/EN61000-6-1/2/3/4	
1. Test conditions, 100% DOD, 0.2C charge & discharge at +25±2 °C for battery system at beginning life. System Usable Energy may vary with system configuration. 2. Actual Dis-/Charge Current and power derating will occur related to Cell Temperature and SOC. And, Max C-rate continuous time is affected by SOC, Cell Temperature, Atmosphere environment temperature . 3. Not all certifications & standards listed, check the official website for detail.		

• **GW92.1-BAT-AC-G10, GW102.4-BAT-AC-G10, GW112.6-BAT-AC-G10**

	GW92.1-BAT-AC-G10	GW102.4-BAT-AC-G10	GW112.6-BAT-AC-G10
Battery System			
Cell Type	LFP (LiFePO4)	LFP (LiFePO4)	LFP (LiFePO4)
Cell Capacity (Ah)	100	100	100
Rated Capacity (Ah)	200	200	200
Pack Type/model	GW10.2-PACK-ACI-G10	GW10.2-PACK-ACI-G10	GW10.2-PACK-ACI-G10
Pack Nominal Energy (kWh)	10.24	10.24	10.24
Pack Configuration	2P144S	2P160S	2P176S
Pack Weight (kg)	< 90	< 90	< 90
Number of Packs	9	10	11
Nominal Energy (kWh)	92.1	102.4	112.6
Usable Energy (kWh) *1	90	100	110
Nominal Voltage (V)	460.8	512	563.2
Operating Voltage Range (V)	413.28~519.84	459.2~577.6	505.12~635.36
Charging Operating Temperature Range (°C)	-20~+55	-20~+55	-20~+55

Discharging Operating Temperature Range (°C)	-20~+55	-20~+55	-20~+55
Max. Charge/ Discharge Current (A) *2	180/220	180/220	180/220
Max. Charge/ Discharge Rate *2	0.9C/1.1C	0.9C/1.1C	0.9C/1.1C
Max. Charge/ Discharge power (kW) *2	82.9/101.3	92.1/112.6	101.3/123.9
Cycle Life	≥6000 times until 70% SOH under 25±2°C, 0.5C and 100% DOD		
Depth of Discharge	100%	100%	100%
Efficiency			
Round-trip Efficiency	96%@100%DOD, 0.2C, 25±2°C	96%@100%DOD, 0.2C, 25±2°C	96%@100%DOD, 0.2C, 25±2°C
General Data			
Operating Temperature Range (°C)	-20~55°C	-20~55°C	-20~55°C
Storage Temperature (°C)	+35°C~+45°C(< 6 Months); -20°C~+35°C(< 1 Year)	+35°C~+45°C(< 6 Months); -20°C~+35°C(< 1 Year)	+35°C~+45°C(< 6 Months); -20°C~+35°C(< 1 Year)
Relative Humidity	0 ~ 100% (Condensationless)	0 ~ 100% (Condensationless)	0 ~ 100% (Condensationless)
Max. Operating Altitude (m)	4000	4000	4000

Cooling Method	Air Conditioner	Air Conditioner	Air Conditioner
User Interface	LED	LED	LED
Communication	CAN (RS485 Optional)	CAN (RS485 Optional)	CAN (RS485 Optional)
Weight (kg)	< 1220	< 1310	< 1400
Dimension (W×H×Dmm)	1055*2000*1055	1055*2000*1055	1055*2000*1055
Noise Emission (dB)	≤70	≤70	≤70
Ingress Protection Rating	IP55	IP55	IP55
Anti-corrosion Class	C4 (C5-M Optional)		
Fire safety equipment*3	Aerosol (Pack&Cabinet Level)		
Certification *4			
Safety Regulation	IEC62619/IEC63056/IEC60730/IEC62477/VDE2510/ISO13849 IEC62040/N140/EU 2023/1542/UN38.3		
EMC	IEC/EN61000-6-1/2/3/4		

Note:

1. Test conditions, 100% DOD, 0.2C charge & discharge at +25±2 °C for battery system at beginning life. System Usable Energy may vary with system configuration.
2. Actual Dis-/Charge Current and power derating will occur related to Cell Temperature and SOC. And, Max C-rate continuous time is affected by SOC, Cell Temperature, Atmosphere environment temperature .
3. Aerosol (Cabinet Level) before May 30th, Aerosol (Pack&Cabinet Level) after May 30th
4. Not all certifications & standards listed, check the official website for detail.

12.4 Smart Meter Technical Data

Technical parameters			GM330
Input	Grid		Three-phase
	Voltage	Nominal Voltage-Line to N (Vac)	220/230
		Nominal Voltage-Line to Line (Vac)	380/400
		Voltage Range	0.88Un-1.1Un
		Nominal AC Grid Freqncy (Hz)	50/60
	Currt	Currt Transformer Ratio	nA: 50A
Communication			RS485
Communication Distance (m)			1000
User interface			4 LED, Reset button
Accuracy	Voltage/Currt		Class 0.5
	Active Energy		Class 0.5
	Reactive Energy		Class 1
Power Consumption(W)			<5
Mechanical	Dimsions (W×H×D mm)		72* 85* 72
	Weight (g)		240
	Mounting		Din rail
Environmt	Ingress Protection Rating		IP20
	Operating Temperature Range (°C)		-30~70
	Storage Temperature Range(°C)		-30~70
	Relative Humidity (non-condsing)		0~95%

Technical parameters		GM330
	Max. Operating Altitude (m)	3000

12.5 Smart Dongle Technical Data

- **WiFi/LAN Kit-20**

Technical parameters		WiFi/LAN Kit-20
Input voltage (V)		5
Power Consumption(W)		≤3
Connection Interface		USB
Communication	Ethernet Interface	10M/100Mbps Self-adaption
	WLAN	IEEE 802.11 b/g/n @2.4 GHz
	Bluetooth	Bluetooth V4.2 BR/EDR
		Bluetooth LE Specification
Mechanical	Dimsions (W×H×D mm)	48.3*159.5*32.1
Parameters	Weight (g)	82
	Ingress Protection Rating	IP65
	Installation	Plug and Play
Operating Temperature Range (°C)		-90
Storage Temperature Range (°C)		-110
Relative Humidity		0-95%
Max. Operating Altitude (m)		4000

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

Technical Parameters	4G Kit- CN-G20	4G Kit- CN-G21
Geral Data		
Maximum number of supported inverters	1	1
Interface form	USB	USB
Mounting Method	Plug-and-play	Plug-and-play
Indicator	LED indicator	LED indicator
Dimention (W×H×D mm)	48.3*95.5*32.1	48.3*95.5*32.1
SIM card size (mm)	15*12	15*12
Weight (g)	87	87
Ingress Protection Rating	IP66	IP66
Power Consumption(W)	<4	<4
Operating temperature (°C)	-30~+65	-30~+65
Storage Temperature (°C)	-40~+70	-40~+70
Relative Humidity	0-100%	0-100%
Max. Working Altitude (m)	4000	4000
Wireless Parameters		
LTE-FDD	B1/B3/B5/B8	B1/B3/B5/B8
LTE-TDD	B34/B39/B40/B41	B34/B39/B40/B41
GNSS positioning	/	Beidou, GPS
Bluetooth	V5.0	V5.0
Life (Year)	5	5

13 Appendix

13.1 FAQ

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

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

- Approach 1:

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

- Approach 2:

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

13.1.2 How to Upgrade the Device Version

Through the firmware information, you can view or upgrade the DSP version, ARM version, BMS version, and smart dongle software version of the inverter. Some smart dongles do not support software version upgrade via SolarGo App, and the actual situation shall prevail.

- **Upgrade prompt:**

When the user opens the APP, an upgrade prompt will pop up on the homepage, and the user can choose whether to upgrade or not. If you choose to upgrade, you can complete the upgrade by following the prompts on the interface.

- **Regular upgrade:**

Access the firmware information viewing interface through "Home" > "Settings" > "Firmware Information"

Click "Check for Updates". If there is a new version, complete the upgrade according to the prompts on the interface.

- **Forced Upgrade:**

The APP will push upgrade information, and users need to upgrade according to the prompts to continue using the app. You can complete the upgrade by following the prompts on the interface.

13.2 Abbreviations

Abbreviation	English Description	Chinese Description
Ubatt	Battery Voltage Range	电池电压范围
Ubatt,r	Nominal Battery Voltage	额定电池电压
Ibatt,max (C/D)	Max. Charging Current Max. Discharging Current	最大充/放电电流
EC,R	Rated Energy	额定能量
UDCmax	Max. Input Voltage	最大输入电压
UMPP	MPPT Operating Voltage Range	MPPT 电压范围
IDC,max	Max. Input Current per MPPT	每路 MPPT 最大输入电流
ISC PV	Max. Short Circuit Current per MPPT	每路 MPPT 最大短路电流
PAC,r	Nominal Output Power	额定输出功率
Sr (to grid)	Nominal Apparent Power Output to Utility Grid	额定并网输出视在功率
Smax (to grid)	Max. Apparent Power Output to Utility Grid	最大并网输出视在功率
Sr (from grid)	Nominal Apparent Power from Utility Grid	从电网买电额定输出视在功率
Smax (from grid)	Max. Apparent Power from Utility Grid	从电网买电最大输出视在功率
UAC,r	Nominal Output Voltage	额定输出电压
FAC,r	Nominal AC Grid Frequency	输出电压频率
IAC,max(to grid)	Max. AC Current Output to Utility Grid	最大并网输出电流
IAC,max(from grid)	Max. AC Current From Utility Grid	最大输入电流
P.F.	Power Factor	功率因数

Abbreviation	English Description	Chinese Description
Sr	Back-up Nominal apparent power	离网额定视在功率
Smax	Max. Output Apparent Power (VA) Max. Output Apparent Power without Grid	最大输出视在功率
IAC,max	Max. Output Current	最大输出电流
UAC,r	Nominal Output Voltage	最大输出电压
FAC,r	Nominal Output Frequency	额定输出电压频率
Toperating	Operating Temperature Range	工作温度范围
IDC,max	Max. Input Current	最大输入电流
UDC	Input Voltage	输入电压
UDC,r	DC Power Supply	直流输入
UAC	Power Supply/AC Power Supply	输入电压范围/交流输入
UAC,r	Power Supply/Input Voltage Range	输入电压范围/交流输入
Toperating	Operating Temperature Range	工作温度范围
Pmax	Max Output Power	最大功率
PRF	TX Power	发射功率
PD	Power Consumption	功耗
PAC,r	Power Consumption	功耗
F (Hz)	Frequency	频率
ISC PV	Max. Input Short Circuit Current	最大输入短路电流
Udcmin-Udcmax	Range of input Operating Voltage	工作电压范围
UAC,rang(L-N)	Power Supply Input Voltage	适配器输入电压范围
U _{sys} ,max	Max System Voltage	最大系统电压
Haltitude,max	Max. Operating Altitude	最高工作海拔高度
PF	Power Factor	功率因数
THDi	Total Harmonic Distortion of Current	电流谐波
THDv	Total Harmonic Distortion of Voltage	电压谐波

Abbreviation	English Description	Chinese Description
C&I	Commercial & Industrial	工商业
SEMS	Smart Energy Management System	智慧能源管理系统
MPPT	Maximum Power Point Tracking	最大功率点跟踪
PID	Potential-Induced Degradation	电位诱发衰减
Voc	Open-Circuit Voltage	开路电压
Anti PID	Anti-PID	防PID
PID Recovery	PID Recovery	PID修复
PLC	Power-line Commucation	电力线载波通信
Modbus TCP/IP	Modbus Transmission Control / Internet Protocol	基于TCP/IP层的modbus
Modbus RTU	Modbus Remote Terminal Unit	基于串行链路的modbus
SCR	Short-Circuit Ratio	短路比
UPS	Uninterruptable Power Supply	不间断电源
ECO mode	Economical Mode	经济模式
TOU	Time of Use	使用时间
ESS	Energy Stroage System	储能系统
PCS	Power Conversion System	电能转换系统
RSD	Rapid shutdown	快速关断
EPO	Emergency Power Off	紧急关断
SPD	Surge Protection Device	防雷保护
ARC	zero injection/zero export Power Limit / Export Power Limit	防逆流
DRED	Demand Response Enabling Device	命令响应设备
RCR	Ripple Control Receiver	-
AFCI	AFCI	AFCI直流拉弧保护
GFCI	Ground Fault Circuit Interrupter	接地故障分断器
RCMU	Residual Current Monitoring Unit	残余电流监控装置
FRT	Fault Ride Through	故障穿越
HVRT	High Voltage Ride Through	高电压穿越

Abbreviation	English Description	Chinese Description
LVRT	Low Voltage Ride Through	低电压穿越
EMS	Energy Management System	能量管理系统
BMS	Battery Management System	电池管理系统
BMU	Battery Measure Unit	电池采集单元
BCU	Battery Control Unit	电池控制单元
SOC	State of Charge	电池的荷电状态
SOH	State of Health	电池健康度
SOE	State Of Energy	电池剩余能量
SOP	State Of Power	电池充放电能力
SOF	State Of Function	电池的功能状态
SOS	State Of Safety	安全状态
DOD	Depth of discharge	放电深度

13.3 Explanation of Terms

- **Overvoltage Category Definition**

- **Category I:** applies to equipment connected to a circuit where measures have been taken to reduce transient overvoltage to a low level.
- **Category II:** applies to fixed downstream equipment. For example, appliances, portable tools and other plug-connected equipment; Voltage category III is used if there are special requirements for the reliability and suitability of such equipment.
- **Category III:** applies to fixed downstream equipment, including the main distribution board. For example, switchgear and other equipment in an industrial installation
- **Category IV:** applies to the upstream equipment in the power supply of the distribution device, including measuring instruments and upstream over-current protection devices.

- **Definition of Types of Damp Places**

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

- **Definition of Environmental Category:**

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

13.4 Meaning of Battery SN Code

*****2388*****


 11-14位

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

The above picture has a production date of 2023-08-08

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

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

- λThe 14th digit is the date of manufacture, e.g., 8th indicated by 8;

Priority is given to the use of numbers, e.g. 1~9 for days 1~9, A for day 10 and so on. The letters I and O are not used to avoid confusion. The details are as follows:

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

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

Production Date	21	22	23	24	25	26	27	28	29	30	31
Code	M	N	P	Q	R	S	T	U	V	W	X

14 Contact Details

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