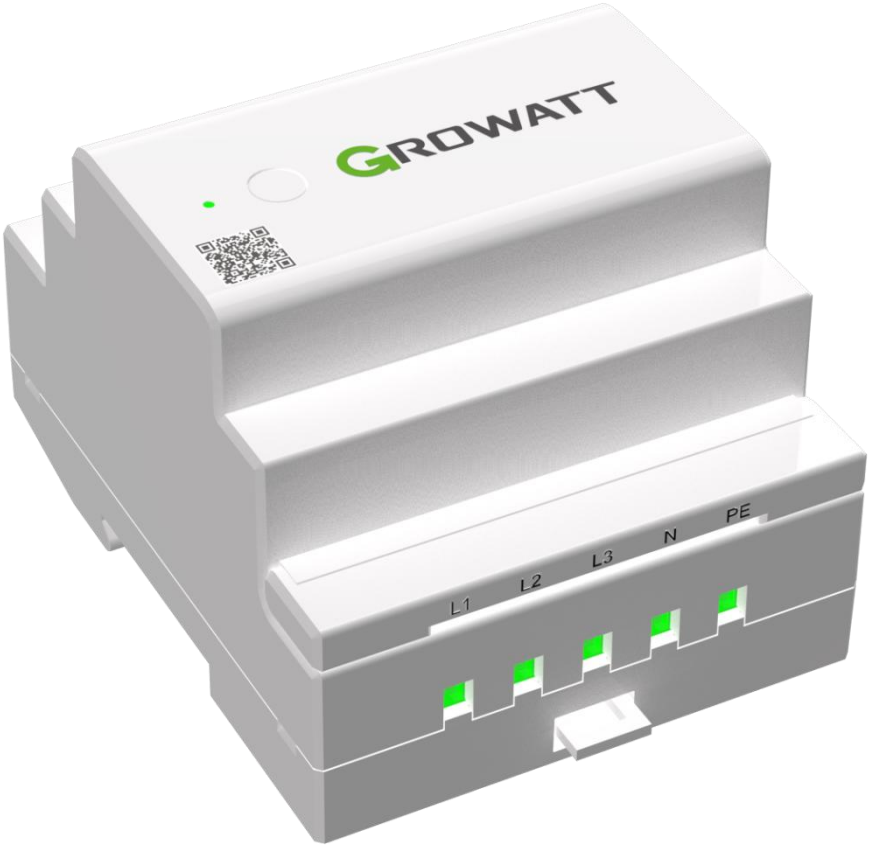
GROWATT



GroHomeManager-X

User Manual

About this document

This document describes the installation, electrical connection, operation, commissioning, maintenance, and troubleshooting of GroHomeManager-X. Before installing and operating the GroHomeManager-X system, please ensure that you are familiar with the product features, functions, and safety considerations provided in this document.

Statement:

Our company will update the content of this manual based on product upgrades and optimizations. The updated information will be reflected in the latest version of this manual and will not be notified to users separately. Users can download and obtain the latest version of the manual information through the official website or by scanning the QR code in the manual. This manual is only for reference and guidance to users, and the actual application is subject to the actual product. Copyright and interpretation rights belong to Shenzhen Guruiwatt New Energy Co., Ltd., and all rights are reserved. Without permission, copying or excerpting the content of the document is prohibited.

Wiring precautions:

①Comply with laws, regulations, and norms: The selection, installation, and wiring of cables must comply with local laws, regulations, and relevant technical standards.

②Power cord placement requirements: When laying power cords, it is strictly prohibited to circle or twist. If the length of the power cord is insufficient, it must be replaced with a suitable length, and it is strictly prohibited to make joints or solder in the cable.

③Cable placement and arrangement: Similar cables should be bundled neatly, with a straight appearance and no outer skin damage. Different types of cables should be placed separately, and it is strictly prohibited to entangle or cross each other.

④Cable trough and wire hole protection: Cable trough and wire hole should have no sharp edges, and the parts of the pipe or wire hole must be protected to avoid damage to the cable from sharp edges, burrs and other items.

General precautions:

①It is strictly prohibited to install the equipment in areas with strong vibration, strong noise sources, or strong electromagnetic interference to avoid affecting the normal operation and performance of the equipment.

②Site selection must comply with local laws, regulations, and relevant standards to ensure that the equipment installation environment is within the technical specifications. Going beyond the technical scope may lead to equipment performance degradation and even safety hazards.

③Electrical connections must be made by personnel who have received professional training and are wearing appropriate personal protective equipment.

④Before connecting the power cord, be sure to confirm that the label identification of the power cord is accurate to ensure the correctness and safety of the electrical connection.

⑤It is strictly prohibited to make any unauthorized modifications to the equipment. Unauthorized modifications may not only damage the performance of the equipment, but also increase safety risks and even cause serious personal injury.

Symbol usage:

In order to ensure the personal safety and property safety of users when using the product, and to use the product more efficiently, the following symbols will be highlighted in this manual. Please read carefully to better understand and use the content in this manual.

Mark	Explanation
 DANGER	Used to warn of high-risk situations that, if not avoided, could lead to death or serious personal injury
 WARNING	Used to warn of dangerous situations that, if not avoided, may result in death or serious personal injury
 CAUTION	Used to warn of low-risk situations that, if not avoided, may cause minor or moderate injury
 NOTICE	Used to warn of potential dangerous situations that, if not avoided, may cause equipment to malfunction
 Information	To ensure the optimal operation of the system, you must read and understand the information to effectively help solve problems

Record of Changes

Instructions: Use the table below to record information regarding changes made to the document over time.

Table 1 -Record of Changes

Version Number	Date	Author/Owner	Description of Change
<V1.0.0>	2025-2-5	Hh	Initial Version

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1 Product Overview

1.1 Product Overview

GroHomeManager-X is an intelligent monitoring host that serves as the core of the entire home energy management system. It adopts a device-gateway-server-client architecture model, integrates metering functions, can be connected to the Internet of Things through router WiFi/Lan, and can communicate with devices such as photovoltaic inverters, energy storage inverters, charging piles, intelligent loads, and intelligent switches through RF wireless or RS485 wired communication, realizing functions such as monitoring, analysis, scheduling, or intelligent energy management of photovoltaic power.

GroHomeManager-X serves as a gateway with metering functions. It has the advantages of small size, high accuracy, and simple installation. It can be used for connecting single-phase, three-phase, and split-phase power grid systems, and is placed at the grid-connected input and output ports to monitor the energy output, feeding, and grid access of the entire home system. Through photovoltaic power generation and consumption habits, it recommends the best energy strategy for users. Its photovoltaic linkage mode automatically works when there is surplus power output from the solar power generation system to the grid, maximizing the use of solar energy self-consumption. At the same time, various self-adaptive user-configured working methods can also meet other needs.

1.2 Product Explain

1.2.1 Product Packaging

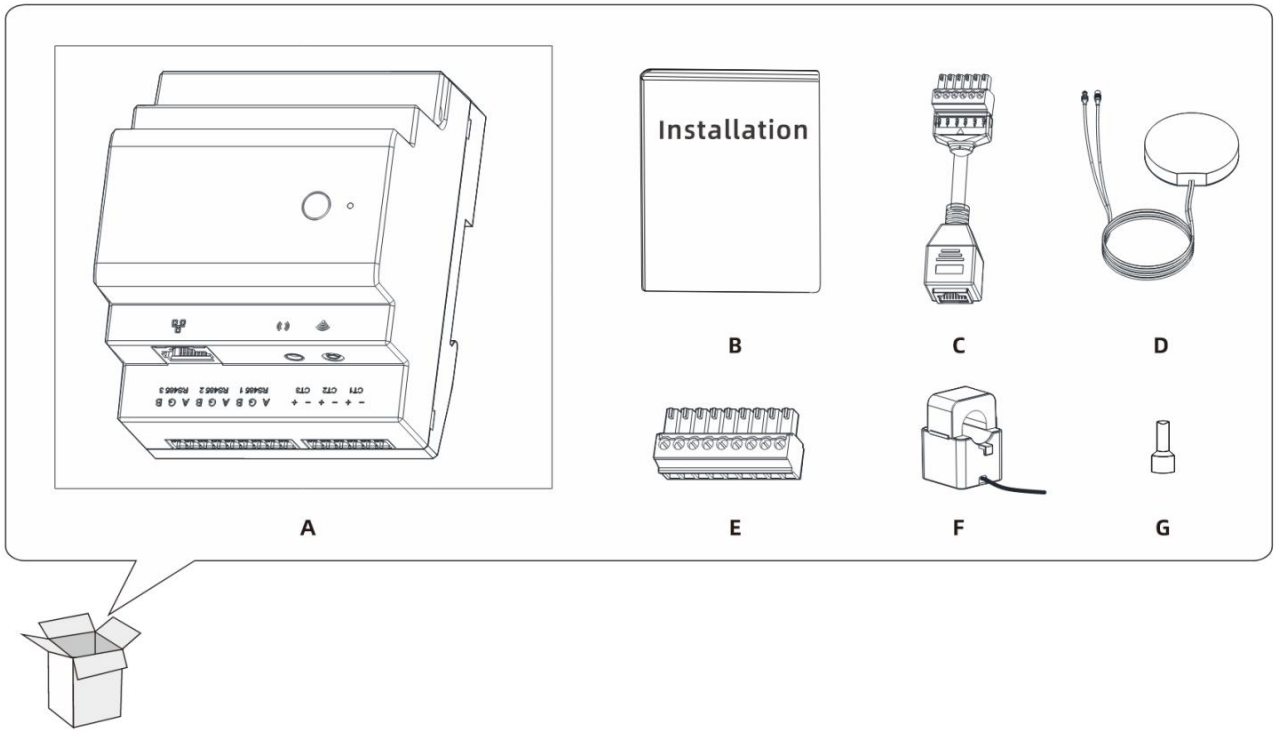


Figure 1 Product Packaging

1.2.2 Product Appearance

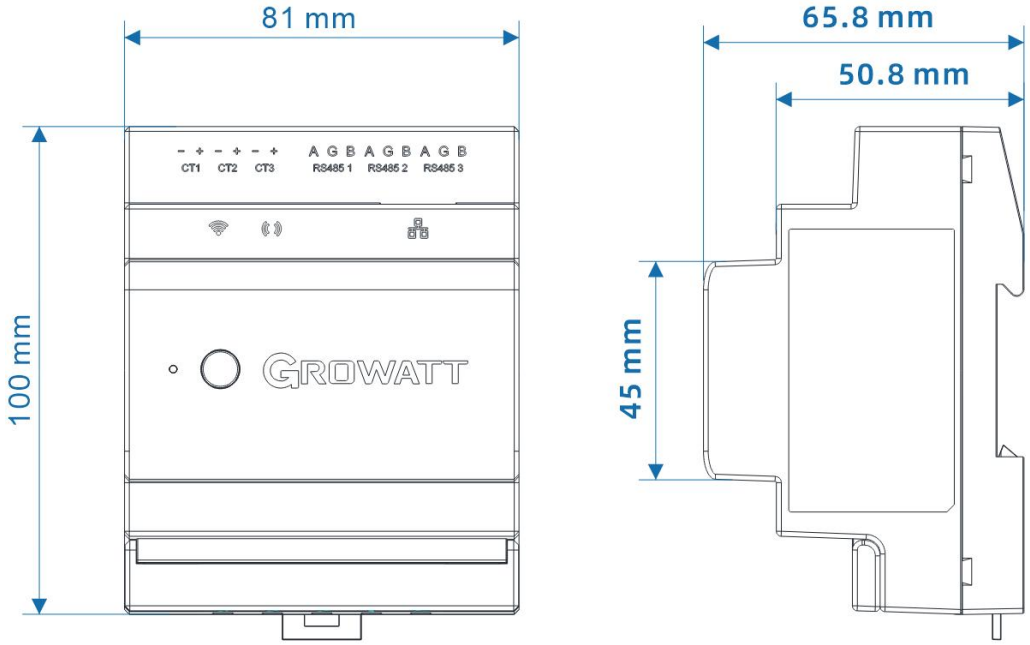


Figure 2 Product size drawing

1.2.3 Power Module

The GroHomeManager-X power module consists of L1, L2, L3, N, and PE, which can be used for single-phase, three-phase, and split-phase power grid system connections. It is placed at the grid-connected input and output ports, and performs voltage measurement. The appearance of the power module is shown in the figure below.

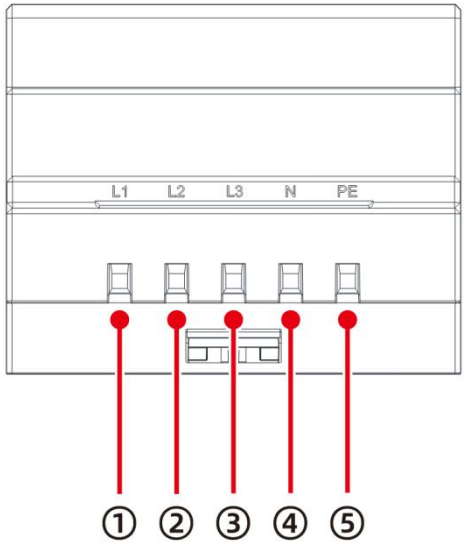


Figure 3 GroHomeManager-X Power Module

Number	Identification	Description
①	L1	The first phase line of L1 represents the three different phases of three-phase AC power in a three-phase power system. In a three-phase power system, L1, L2, and L3 provide three-phase power to support high-power equipment and load balancing.
②	L2	The second phase line of L2 represents the three different phases of three-phase AC power in a three-phase power system. In a three-phase power system, L1, L2, and L3 provide three-phase power to support high-power equipment and load balancing.
③	L3	The third phase line of L3 represents three different phases of three-phase AC power in a three-phase power system. In a three-phase power system, L1, L2, and L3 provide three-phase power supply to support high-power equipment and load balancing.

④	N	The neutral wire is a wire connected to the ground, used to provide the midpoint of the loop. It helps balance the current, provides stable voltage, and returns the current to the power supply.
⑤	PE	PE grounding wire is used for safe grounding to ensure that the shell or other conductive components of electrical equipment can be properly grounded in the event of a fault, preventing electric shock or fire caused by leakage.

Table 2 GroHomeManager-X Power Module Identification Description

1.2.4 Communication Module

The GroHomeManager-X communication module is equipped with an Ethernet port, 3 wired RS485 interfaces, 3 CT interfaces, WiFi antenna port, and RF antenna port. The appearance of the communication module is shown in the following figure.

It supports the following functions:

Uplink networking: Connect to the network through Ethernet port/WiFi

Downlink device communication: exchange data with other devices through RS485 interface/RF

Current metering: current metering through the CT interface

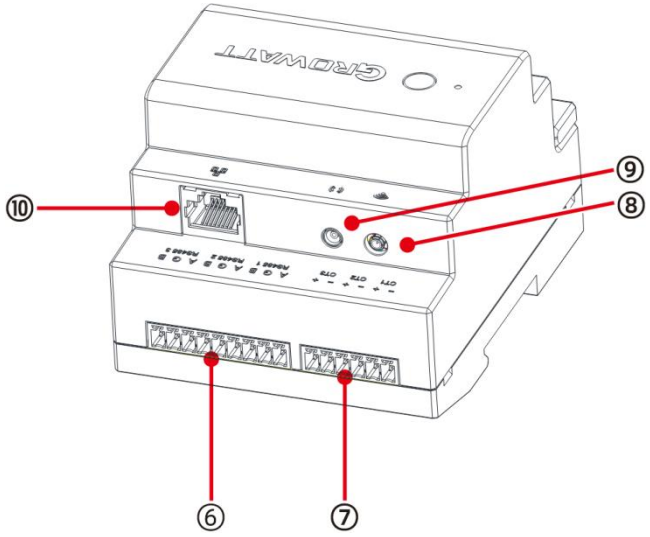


Figure 4 GroHomeManager-X Communication Module

Number	Identification	Description
⑥	3-Channel RS485 interface A G B A G B A G B RS485 1 RS485 2 RS485 3	Half-duplex communication interface, which can communicate with photovoltaic/energy storage inverters and wired RS485 through this interface. The interface supports 4800/9600 (default)/38400/19200/115200 baud rates
⑦	3-Channel CT interface − + − + − + CT1 CT2 CT3	Current transformer access interface for real-time current monitoring
⑧	WiFi antenna port	WiFi external antenna access interface enhances the propagation and reception of WiFi signals

⑨	RF antenna port	RF external antenna access interface enhances the propagation and reception of RF signals
⑩	Ethernet port	The Ethernet port belongs to the RJ45 interface type and transmits data through standard network protocols. The interface supports 10/100M Ethernet

Table 3 GroHomeManager-X Communication module identification description

1.2.5 User interaction module

The GroHomeManager-X user interaction module is equipped with indicator lights, buttons, and product QR codes. The appearance of the user interaction module is shown in the following figure。

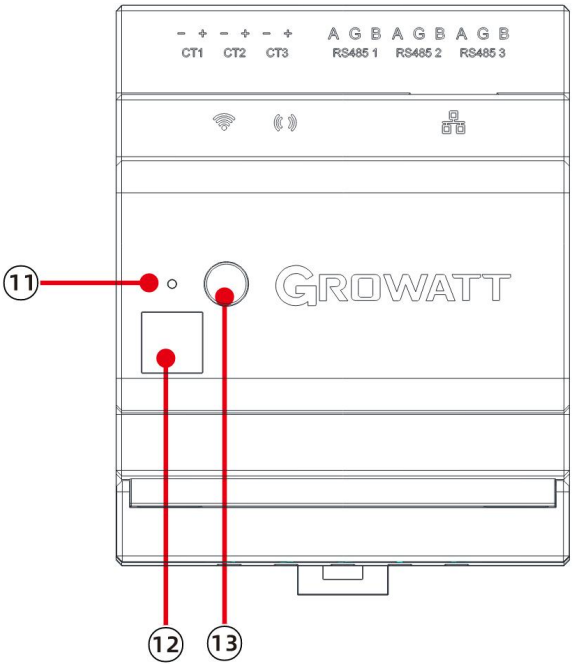


Figure 5 GroHomeManager-X User interaction module

Number	Identification	Description
⑪	Indicator light	Used to display device status and operation
⑫	KEY	Used to control various functions of the equipment
⑬	Product QR code	Used for network configuration, addition, and function settings of devices on the APP side

Table 4 GroHomeManager-X User interaction module identification description

Indicator light status	Working state
Steady White	1. Initializing, please wait patiently 2. Restore factory default settings (long press button 6S to take effect)
Steady Yellow	In Bluetooth mode, please continue to follow the APP instructions for networking/sub-device addition process. If networking/sub-device addition process is not required, please click the button to exit this mode
Yellow Flashing Slowly	RF pairing mode and synchronize Bluetooth, please continue to follow the APP instructions to add sub-devices, without RF pairing, double-click the button to exit pairing mode
Yellow Flashing	It is in Bluetooth local upgrade mode. Please wait patiently for the upgrade to complete.
Steady Red	Not connected to router, not connected to PV/RF sub-devices, please continue to follow the APP instructions for networking and sub-device addition process
Steady Green	If the PV/RF sub-device is not connected, please continue with the sub-device addition process according to the APP instructions
Green Flashing	Connect the photovoltaic/RF sub-device link is abnormal, please check whether the wiring method and baud rate setting of RS485 are correct/check the ShineRFStick-X2 indicator light to judge the abnormal situation
Steady Blue	Connected router, not connected server, connected PV/RF sub-device 1. Check if the router can access the internet 2.Does the router restrict the server and port number? The collector needs to use port 7006

Blue Flashing	Unable to connect router, connected PV/RF sub-device 1. WiFi wireless connection method (1)Check if the router account password filled in during the configuration process is correct (2)Check the router: a)The wireless name of the router should be composed of English and numbers, and special characters are not supported： (¯﹃¯…·€¥) b)For security reasons, please use an encrypted wireless network c)Networks that do not support secondary authentication and bridged wireless signals 2. LAN wired connection method (1)Ethernet cable not connected (2Restart the router and confirm that the router's automatic IP allocation function is available (3)If a static IP Address is used, determine whether the IP Address is consistent with the router setting network segment
Blue Flashing Slowly	Connected router, connected server, connected photovoltaic/RF sub-device, in normal working mode, slow flash times represent the number of connections of the device
Attention： 1. For the first WiFi connection, the device will automatically enter Bluetooth mode 2. The device indicator light is flashing yellow and Bluetooth will be turned on synchronously. 3. When Bluetooth is turned on, there is no data interaction with the APP, and Bluetooth will be automatically turned off after 1Min 4. When a single device is connected, the slow flash frequency is 1S, and the fast flash frequency is 0.5S. When multiple devices are connected, the number of flashes during slow flash represents the number of PV/RF slave devices connected 5. When the Bluetooth mode is turned on, the indicator light prioritizes displaying the yellow light and is always on. Please check the network/sub-device configuration in the APP. If you need to view GroHome device information through the indicator light, click the button to exit the Bluetooth mode	

Table 5 GroHomeManager-X Indicator light working status description

Button interaction behavior	Working state
Click	Enter Bluetooth mode, please follow the APP instructions for network configuration/setup process. If network configuration/setup is not required, please click the button to exit this mode
Double click	Enter RF pairing mode, please follow the APP instructions to add devices
Long press	Long press 6S until the indicator light white light is always on, restore the factory default settings

Table 6 GroHomeManager-X Button working status description

1.2.6 RF slave ShineRFStick-X2

ShineRFStick-X2 is compatible with all GROWATT photovoltaic inverters with USB interfaces. It can be connected to the RF host through RF to achieve wireless monitoring and maintenance of photovoltaic systems. The appearance is shown in the following figure

①Support RF wireless communication connection

②Support parameter settings and firmware upgrades

③Support local data saving and resume

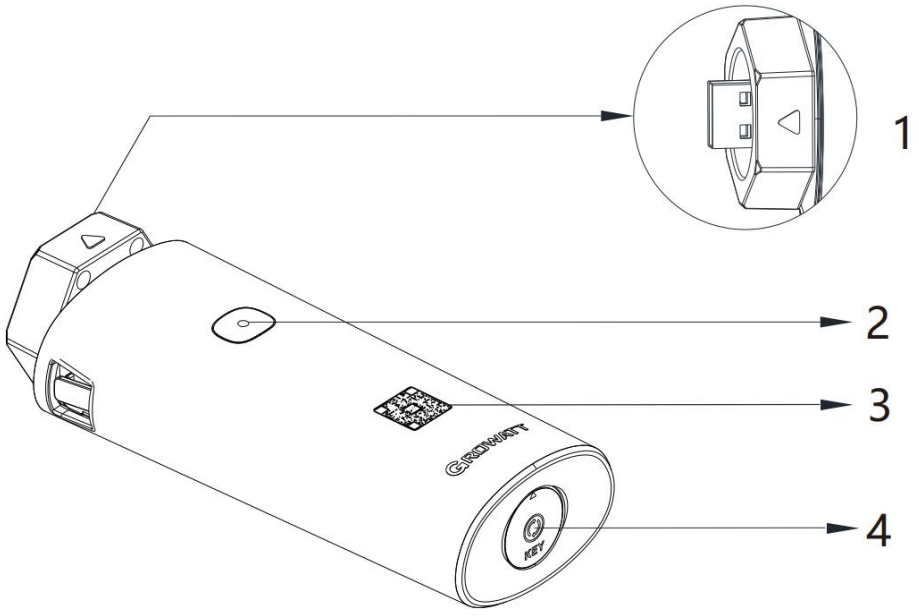


Figure 6 ShineRFStick-X2 Product overview map

Number	Identification	Description
1	USB Port	For connecting GROWATT photovoltaic devices with USB ports
2	Indicator light	Used to display device status and operation
3	Product QR code	Used for adding RF equipment to the host
4	Key	Used to control various functions of the equipment

Table 7 ShineRFStick-X2 User interaction module identification description

Indicator light status	Working state
Steady White	1.Initializing, please wait patiently for 30S. 2.Restore factory default settings (long press button 6S to take effect)
Steady Yellow	In Bluetooth mode, please continue to follow the APP instructions to set up the process. If you do not need to set it up, please click the button to exit this mode
Yellow Flashing Slowly	RF pairing mode, please follow the APP instructions of the RF host to add the device, no pairing is required, double-click the bottom button to exit pairing mode
Yellow Flashing	It is in Bluetooth local upgrade mode. Please wait patiently for the upgrade to complete.
Steady Red	If the RF host is not connected and the photovoltaic device is not connected, please continue to follow the APP instructions of the RF host to add the device
Steady Green	If the photovoltaic equipment is not connected, please check whether the collector and inverter are connected normally. If the phenomenon persists after repeated plugging and unplugging, please contact Growatt customer service

Green Flashing	The connection of photovoltaic/RF equipment link is abnormal. Please check whether the collector and inverter are connected normally. After repeated plugging and unplugging several times, the phenomenon still exists. Please contact Growatt customer service
Blue Flashing	Unable to connect to RF host, connected photovoltaic equipment/RF equipment 1. Please check if the host is powered on/online 2. Please check whether the leader/follower is within the recommended distance range 3. Please check whether the host antenna is damaged 4. If it appears repeatedly, please contact Growatt customer service
Blue Flashing Slowly	Connected to RF host, connected to photovoltaic equipment/RF equipment, in normal working mode
Attention: 1. Slow flash frequency 1S, flash frequency 0.5S	

Table 8 ShineRFStick-X2 Indicator light working status description

Button interaction behavior	Working state
Click	Enter Bluetooth mode, please follow the APP instructions to set up the process, if you do not need to set, please click the button to exit this mode
Double click	Enter RF pairing mode, please follow the instructions of the RF host APP to add devices
Long press	Long press 6S until the indicator light white light is always on, restore the factory default settings

Table 9 ShineRFStick-X2 Button working status description

1.2.6 CT

Current transformer, used for real-time current monitoring, often uses closed-mouth CT, needs to be clamped on the wire for measurement, no need to disconnect the original power line, connect the white wire to CT +, connect the black wire to CT-, and insert the quick CT into the network port.

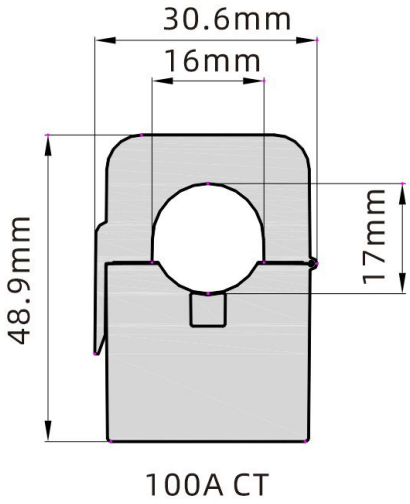


Figure 7 CT Overview of appearance

1.3 Product specifications

1.3.1 GroHomeManager-X Product specifications

Type	Item		Parameter
Common parameters	Appearance (length/width/height)		81*100*66mm
	Weight		473g
	User manual language		English
	Protection level		IP20
	Antenna		External disk adsorption antenna
	Installation		DIN 35 rail mounting
	Certification		CE/ROHS
Electrical parameters	Single phase	Rated voltage	230VAC
		Phase voltage range	100VAC-416VAC
	Three-phase four-wire	Rated voltage	230VAC/400VAC
		Phase voltage range	100VAC-416VAC
	Three-phase three-wire	Rated voltage	230VAC/400VAC
		Phase voltage range	100VAC-240VAC
		Line voltage range	173VAC-416VAC
	Split phase	Rated voltage	120VAC/240VAC

		Phase voltage range	100VAC-150VAC
	Average power consumption (MAX)		9W(15W)
	Working environment	Working temperature	-30~60℃
		Working humidity	<85%RH(No condensation)
		Storage temperature	-40~70℃
Measurement parameter	Support metering mode		Single-phase, split-phase, three-phase three-wire, three-phase four-wire
	Support measurement data		Voltage/Current/Active/Reactive/Power Factor/Frequency
	Support measurement frequency		45-65Hz
Communication parameters	RS485	Communication baud rate	9600bps(Default)
		Communication distance	500m
		Number of Facilities Management	6 units (3-channel RS485 interface, 2 units per channel)
	RF		1.Frequency range: 860~ 930MHz (868/915MHz RF) 2.Maximum transmit power: 868MHz 14dBm/915MHz 17dBm 3.Maximum transmission distance: 120m (depending on the installation environment)

		4.Facility Management Number: Monitoring Number -12Pcs/Anti-backflow -6Pcs/HEMS-5Pcs
	WiFi	1.Frequency range: 2412~ 2484 MHz (2.4 GHz WiFi) 2.Support 802.11 b/g/n protocol, with a maximum speed of 150Mbps. 3.Maximum output power 19.5dBm, receiving sensitivity up to -97dBm 4.Transmission distance: open 50m
	BLE	1.Compliant with Bluetooth V4.2 (2.4GHz) 2.Transmission distance: open 10m
	LAN	1.10/100 M Self-Adaptation 2.Communication distance: 100m (Cat5e)
Application parameters	Supported servers	ShineServer
	User configuration interface	APP configuration
	Data upload cycle	5Min
	Communication protocol with photovoltaic equipment	ModBus RTU
	Communication protocol with server	MQTT

Table 10 GroHomeManager-X Product specifications

1.3.2 ShineRFStick-X2 Product specifications

Type	Item		Parameter
Common parameters	Appearance (length/width/height)		122mm/47mm/32mm
	Weight		65g
	User manual language		English
	Protection level		IP65
	Installation		USB straight plug
	Certification		CE/ROHS
Electrical parameters	Working voltage		5V(+/-5%)
	Working current		250mA
	Average power consumption (MAX)		2.5W(5W)
	Working environment	Working temperature	-30~60℃
		Working humidity	< 85% RH (No condensation)
		Storage temperature	-40~70℃
Common parameters	RF		1. Frequency range: 860~ 930MHz (868/915MHz RF) 2. Maximum transmit power: 868MHz 14dBm/915MHz 17dBm 3. Maximum transmission distance: 120m (depending on the installation environment)
	User configuration interface		APP configuration

	Data upload cycle	5Min
	Communication protocol with photovoltaic equipment	ModBus RTU

Table 11 ShineRFStick-X2 Product specifications

2 System block diagram

As the core of the entire home energy management system, GroHomeManager-X can be connected to the Internet through router WiFi/Lan, and can communicate with photovoltaic devices, photovoltaic energy storage devices, charging piles, smart loads, and smart switches through wireless RF or wired RS485, realizing functions such as monitoring, analysis, scheduling, or intelligent energy management of photovoltaic energy. The system diagram is shown below.

2.1 HEMS System block diagram

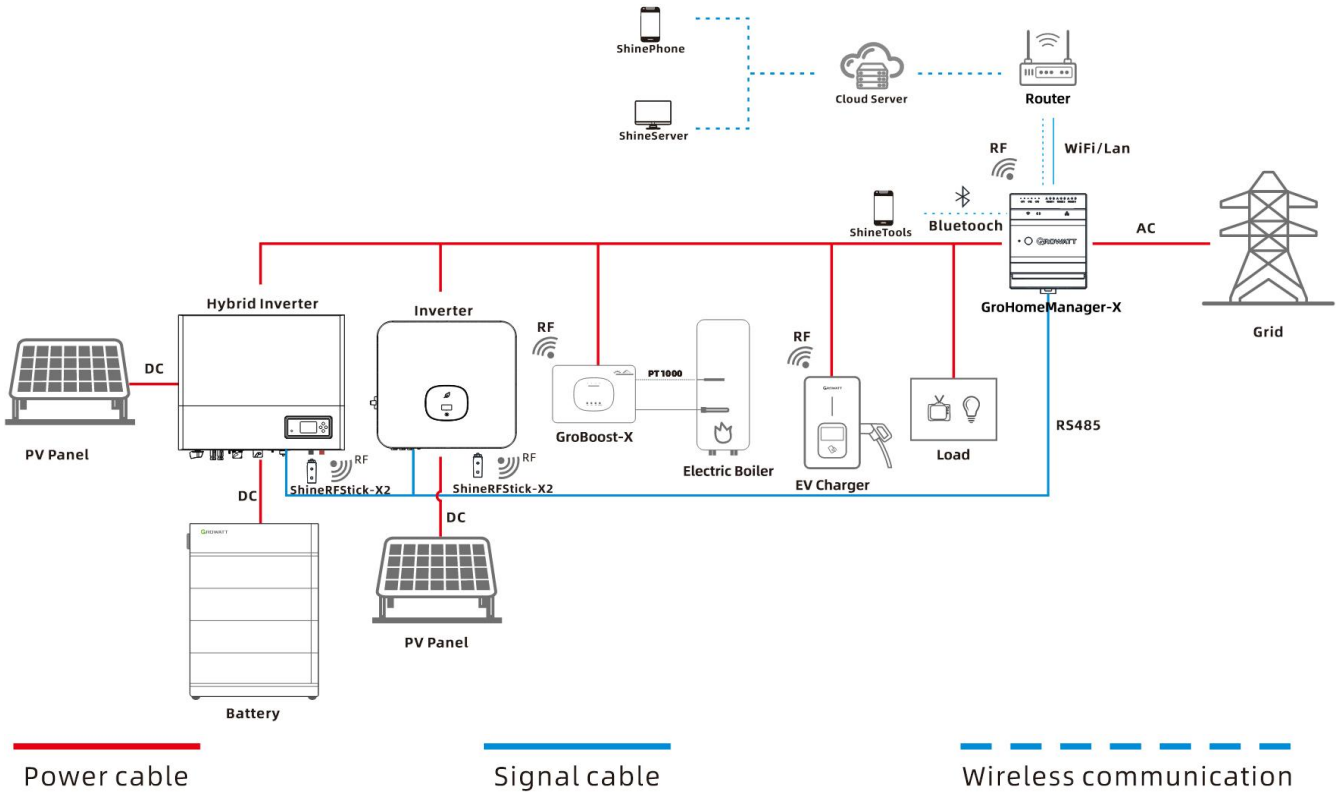


Figure 8 HEMS System block diagram

2.2 Wireless RF System Block Diagram（Monitor quantity 12Pcs）

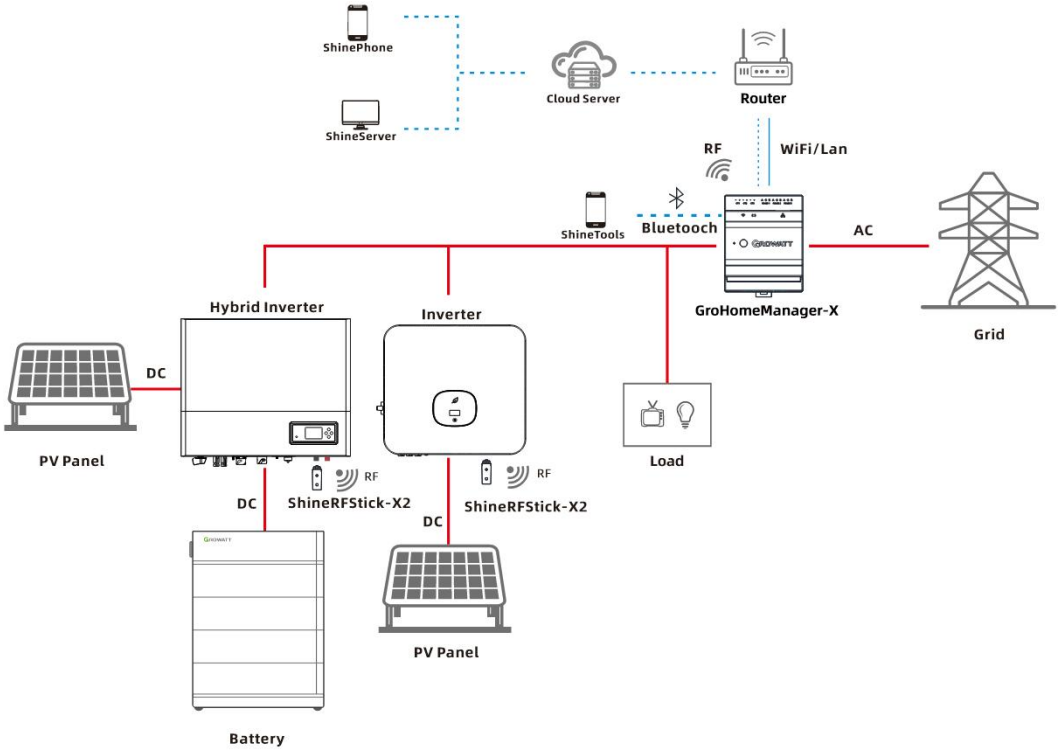


Figure 9 Wireless RF System Block Diagram

2.3 Wired RS485 parallel system diagram

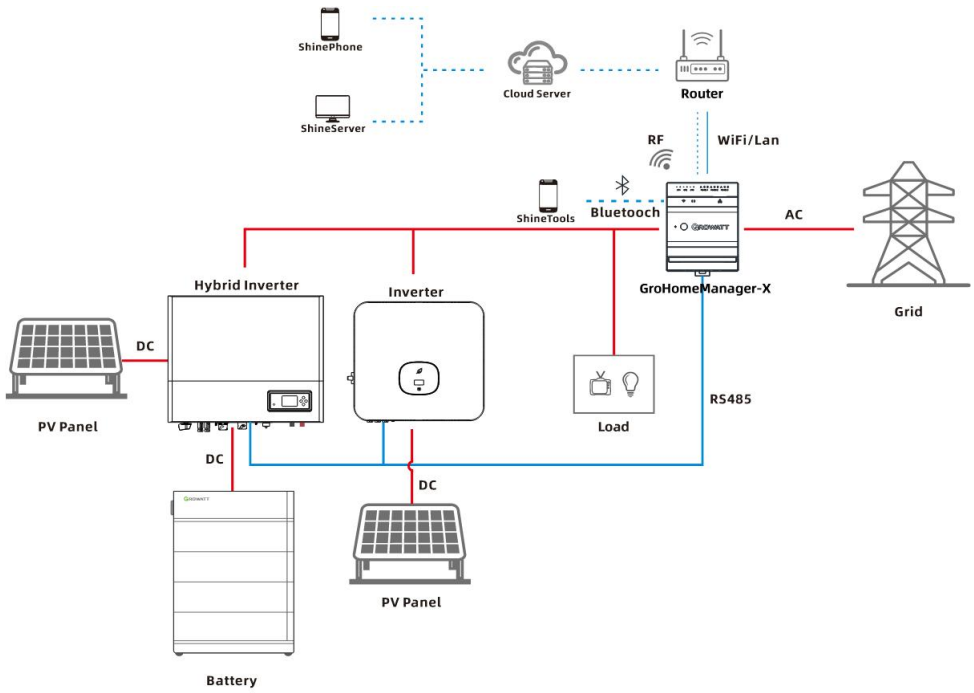


Figure 10 Wired RS485 parallel system diagram

2.4 Micro-inverse RF system diagram (monitoring quantity 12Pcs/anti-backflow 6Pcs)

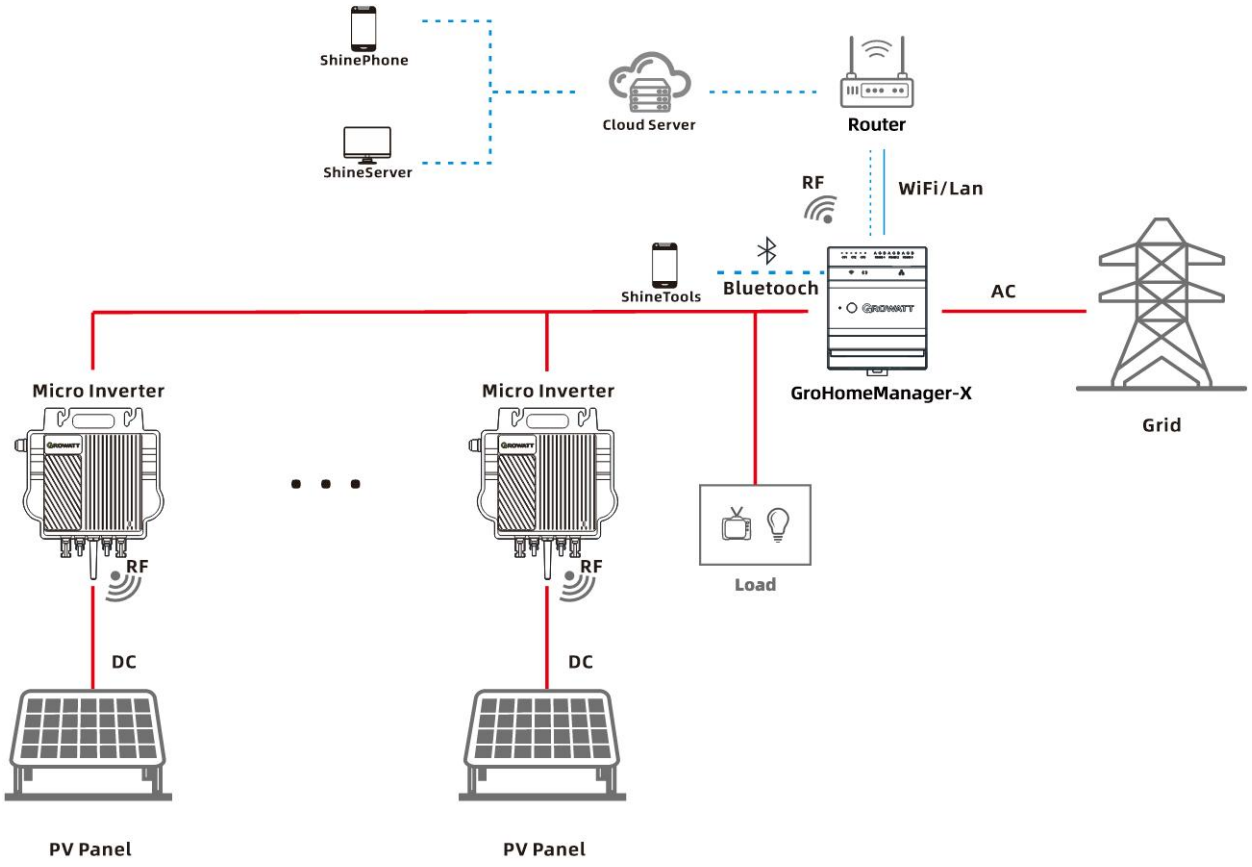


Figure 11Micro-inverse RF system diagram

3 Installation instructions

3.1 GroHomeManager-X Installation

3.1.1 Guide rail mounting

1. Clip the GroHomeManager-X onto the DIN 35mm standard rail of the AC distribution box.

2. Press the top of the GroHomeManager-X to fasten the buckle to the guide rail, or turn the buckle down to push the GroHome to the guide rail and release the buckle for fastening.

3.Gently shake the GroHomeManager-X to confirm secure installation.

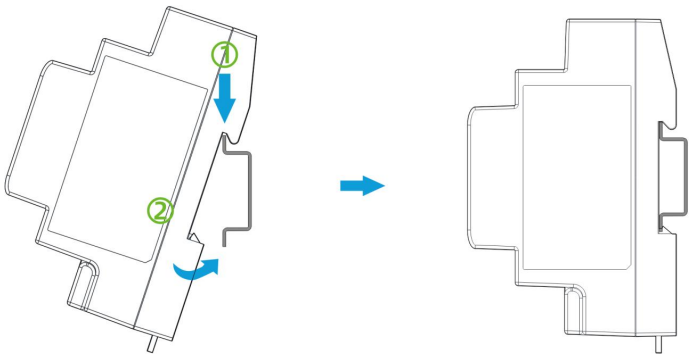


Figure 12 GroHomeManager-X guide rail installation

WARNING	1.This meter is installed after the metering meter and switch at the grid entrance, and the switch is the disconnection device of this meter. The switch is included in the building installation and needs to be installed within the range that the operator can easily access. 2.Before installing this device, make sure the power is cut off to avoid the risk of electric shock. 3.Regularly check the fixing status of the guide rails and equipment to ensure that there is no looseness or detachment. 4.The AC distribution box should be equipped with lightning protection devices. When installing lightning protection devices, relevant local electrical safety standards should be followed. 5.After installation, the equipment should not be disassembled without authorization. Repairs and replacements should be carried out by qualified professionals to avoid the risk of electric shock.

3.1.2 Antenna installation

1. Insert the two antenna terminals of the disc antenna into their corresponding antenna holes to ensure a secure and reliable connection, in order to ensure the stability of signal transmission and the normal operation of the antenna.

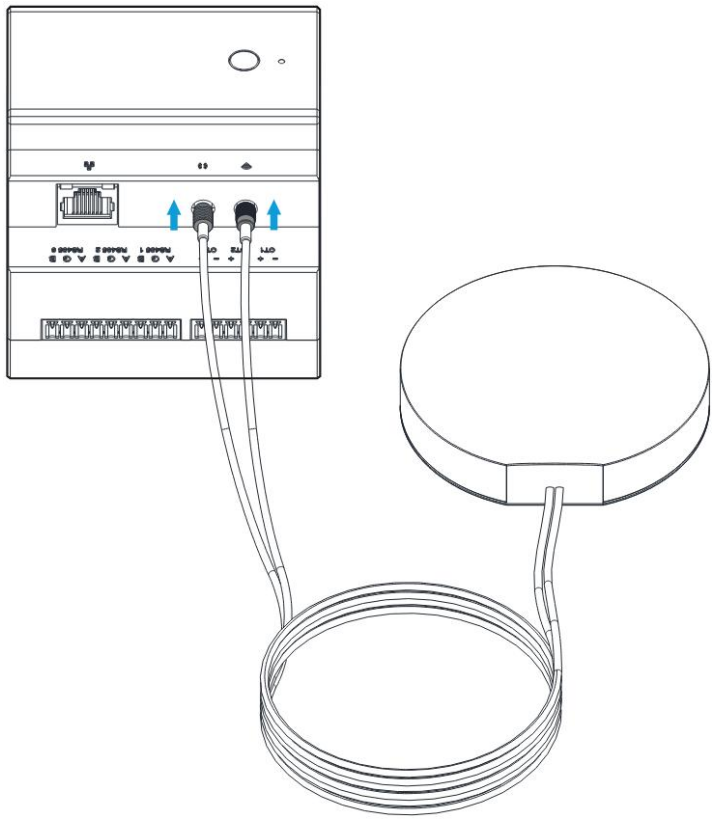


Figure 13 GroHomeManager-X Antenna installation

Information	1.If the GroHome device is placed in a metal distribution box or the wall of the distribution room is made of metal material, and there is adhesive backing behind the disc antenna, it can be torn off and pasted and placed outside the metal distribution box or metal wall. Otherwise, it will seriously hinder the propagation and reception of wireless signals, resulting in a significant decrease in signal quality, thereby affecting the performance and communication stability of the device. 2.The antenna should be kept away from sources of electromagnetic interference, such as large power equipment, high-frequency signal transmitters, wireless communication base stations, high-power motors, large transformers, etc. 3.When installing the disc antenna, try to face the router and device side as much as possible.

3.1.3 AC end connection

1. When using a 28-14 AWG cable for the AC power port, remove the insulation layer of the cable by about 7-8mm, insert the exposed wire end into the corresponding terminal, ensure good contact, and then tighten and fix the bolt.

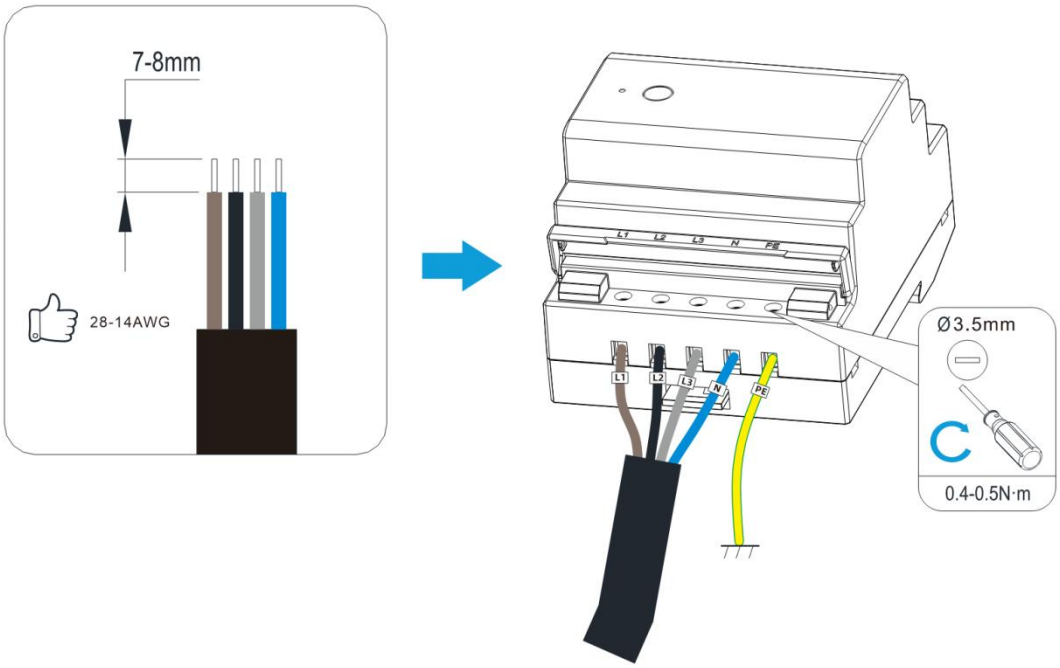


Figure 14 GroHomeManager-X Installs the AC end of the power supply

WARNING	**Wiring precautions:** ①Cable specifications and quality: The cables used must meet the requirements of relevant technical and safety specifications to ensure sufficient load-bearing capacity and stable electrical performance. In addition, the connection points must be firm to ensure good and loose contact between the cables and wires, avoiding electrical failures or safety hazards caused by poor contact. ②Avoid pulling and damaging: During the electrical connection process, do not apply excessive tension or pulling to cables or wires to avoid damaging the insulation layer of the cable or causing damage to the internal conductors. Excessive pulling may cause short circuits or other electrical faults in the circuit. ③Reasonably reserve bending space: When installing all cables, sufficient bending space should be reserved to avoid damage to internal conductors or insulation layer rupture caused by excessive

	bending of the cables. Especially when turning or passing through narrow spaces, ensure that the bending radius of the cable does not exceed its maximum allowable range. ④Reduce cable stress: In order to reduce the stress caused by external forces on the cable, necessary auxiliary measures should be taken, such as using appropriate brackets, fixtures, or protective pipes, to ensure that the cable maintains a stable position during operation and avoid cable damage caused by excessive stretching or bending. ⑤To avoid the impact of high temperature environment: Adequate safety distance should be maintained between the cable and the heating device to avoid the cable being exposed to heat radiation or direct contact with the heating source in high temperature environment. Long-term exposure to high temperature environment will cause the insulation layer of the cable to age, soften, and even break. It should be ensured that the insulation material of the cable can withstand the temperature in the actual working environment to ensure its long-term reliability and safety.

3.1.4 CT end connection

1. The connection method of the network port CT is to directly insert the network port cable into the fast network port terminal to ensure stable and firm contact, in order to achieve reliable connection of data transmission. For details on the CT buckle direction, please refer to section 3.3 on system wiring.

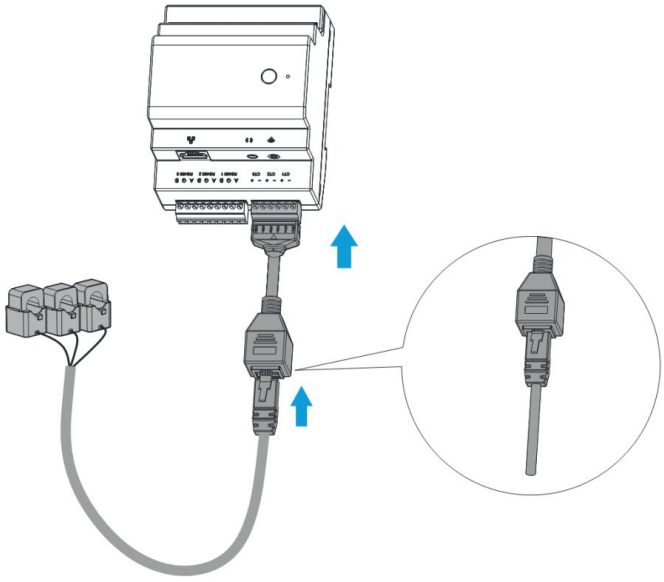
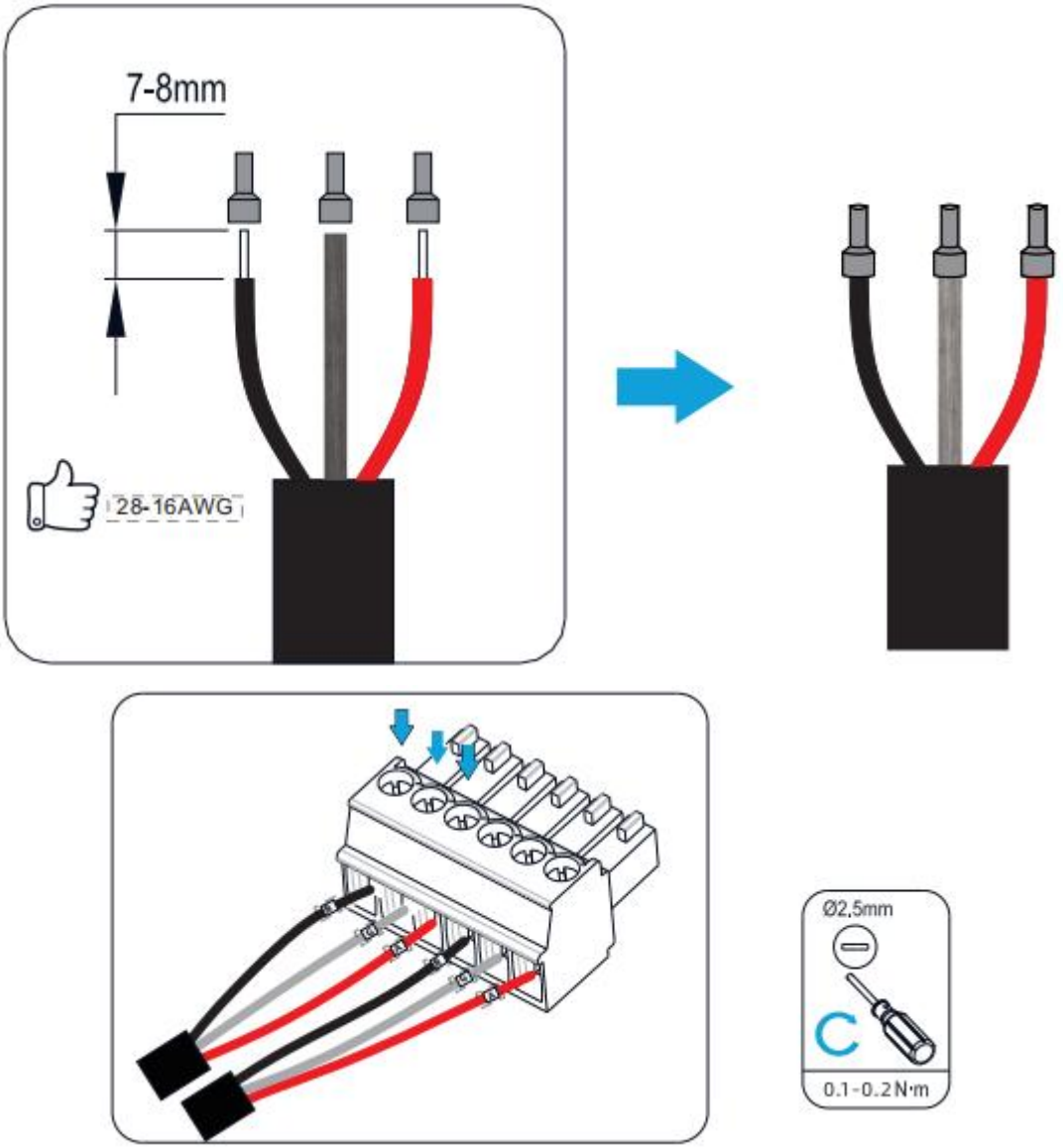


Figure 15 GroHomeManager-X Installs the CT end

3.1.5 RS485 end installation

When installing the RS485 port, it is recommended to use 28-14 AWG cables. Peel off the insulation layer of the wire by about 7-8mm, insert the exposed wire end into the corresponding crimping terminal, ensure good contact, and then tighten and fix it. When using RS485 for connection, it is recommended to use a twisted pair shielded wire for connection. The shielding layer of the twisted pair shielded wire is connected to the G end of the GroHome terminal.



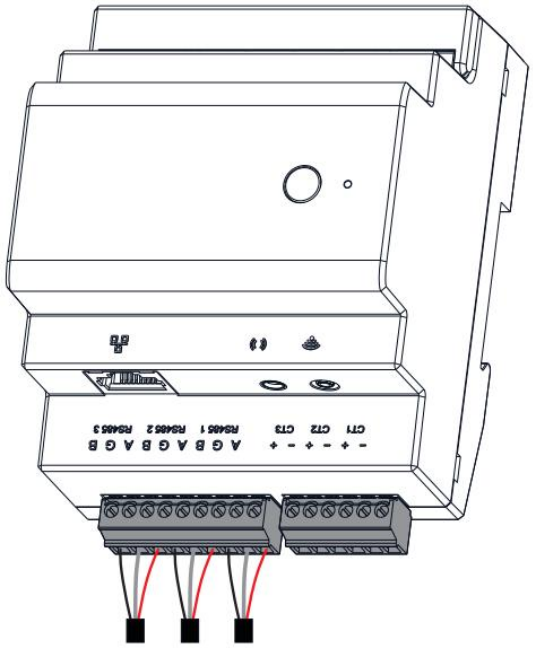


Figure 16 GroHomeManager-X Install the RS485 port

3.2 ShineRFStick-X2 Installation

1.Rotate and twist the USB interface cover of the photovoltaic device counterclockwise.

2.Rotate the lock at the top of the collector to ensure that the triangle mark is on the front and centered.

3.Connect the interface of the collector to the USB interface of the photovoltaic device, ensure that the triangle mark is on the front, press the lock and rotate clockwise until the lock is tightened.

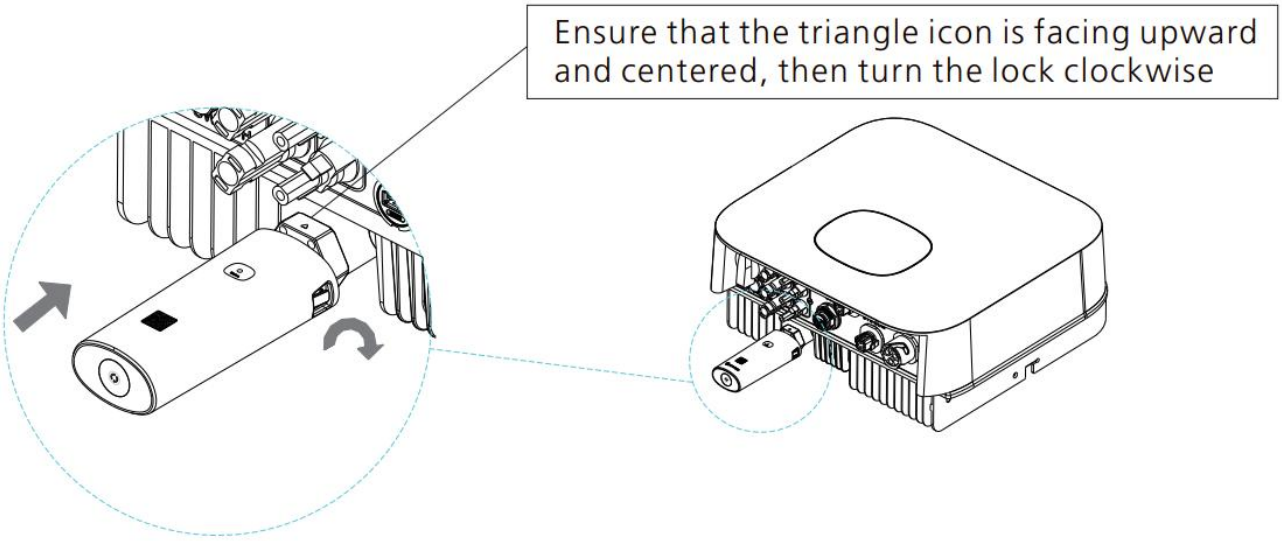


Figure 17 ShineRFStick-X2 slave mounting

CAUTION	1.This product can only be powered by the Growatt inverter USB interface. Do not connect other USB interfaces or adapters. 2.It is prohibited to use this device in places where wireless devices are not allowed. 3.Do not attempt to repair or modify the equipment. If you need service, please contact us. 4.When the inverter error panel displays low insulation impedance, the inverter casing may have a problem with grounding. Please do not perform the operation of plugging and unplugging the collector at this time to avoid danger.

3.3 System wiring

Users can choose the corresponding wiring method according to their own needs, and GroHomeManager-X can automatically recognize the working mode through the wiring method.

3.3.1 Single-phase grid-connected system

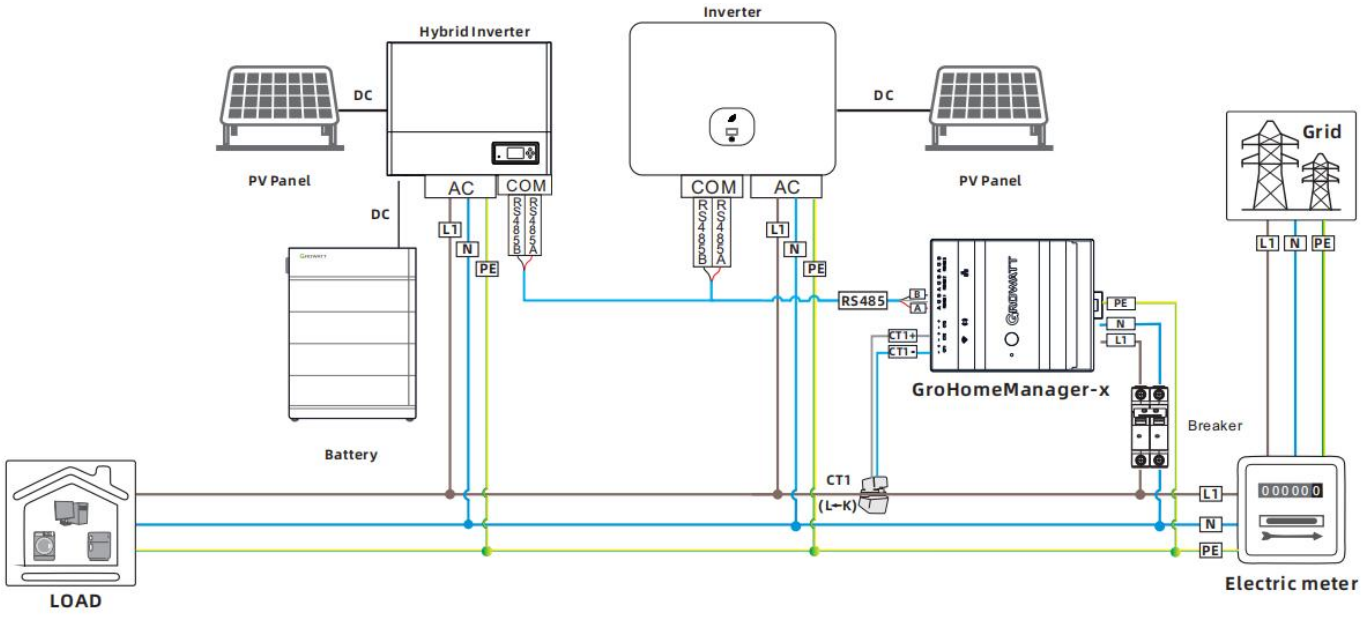


Figure 18 Single-phase grid-connected system

3.3.2 Single-phase micro-inverse grid-connected anti-backflow system

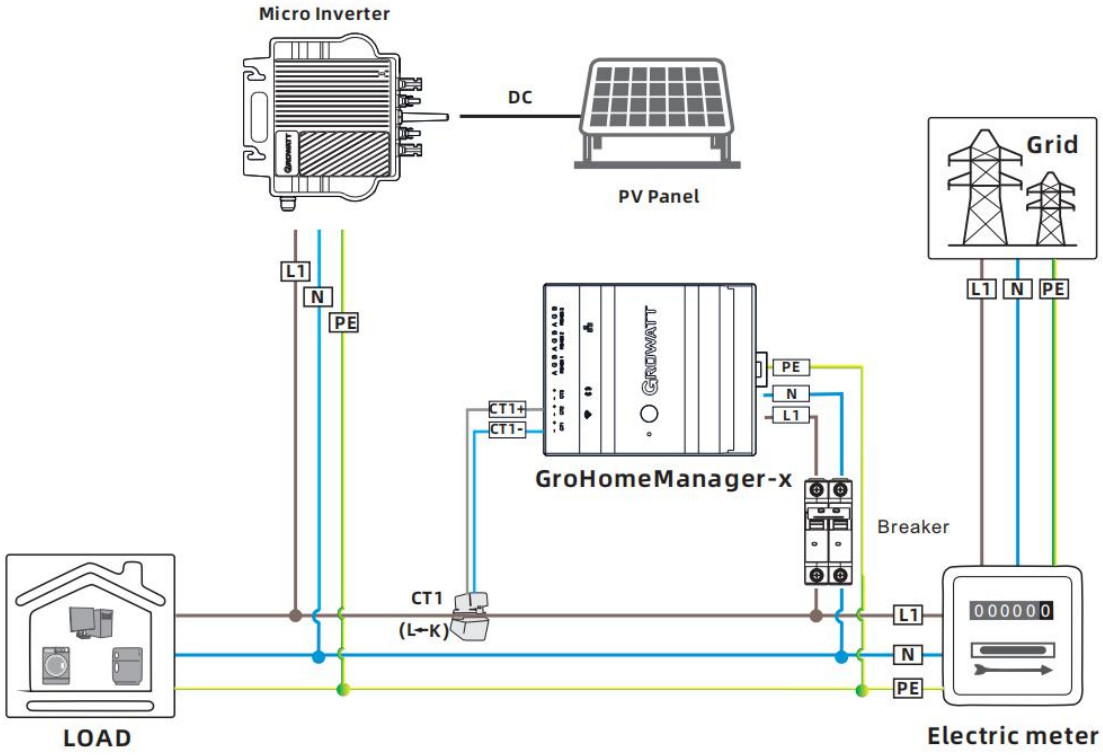


Figure 19 Single-phase micro-inverse grid-connected anti-backflow system

3.3.3 Single-phase HEMS system

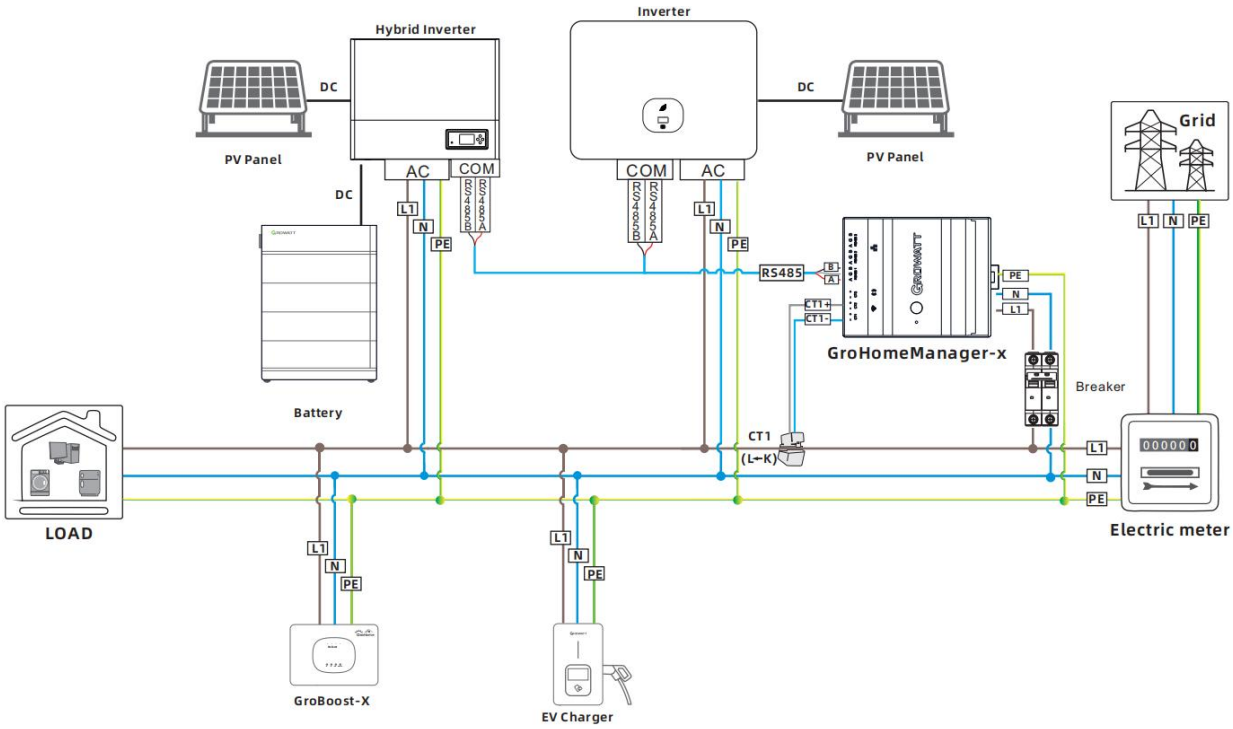


Figure 20 Single-phase HEMS system

Wiring system name	GroHomeManager-X side	Grid side	Photovoltaic equipment side
Single-phase system	L1	L1	L1
	L2	/	/
	L3	/	/
	N	N	N
	PE	PE	PE
	CT1-	L1 K(Power grid)->L(Load)	/
	CT1+		/
	CT2-/CT3-	/	/
	CT2+/CT3+	/	/
	RS485-1/2/3-A	/	A
	RS485-1/2/3-G	PE(485 shielding layer access)	/
	RS485-1/2/3-B	/	B

Note:

1. Optional wired RS485 and wireless RF

2.CT white wire is connected to CT +, black wire is connected to CT-, and the network port can be quickly inserted into the network port.

3./Represents no access

Table 12 Single-phase system wiring

3.3.4 Split phase inverse system

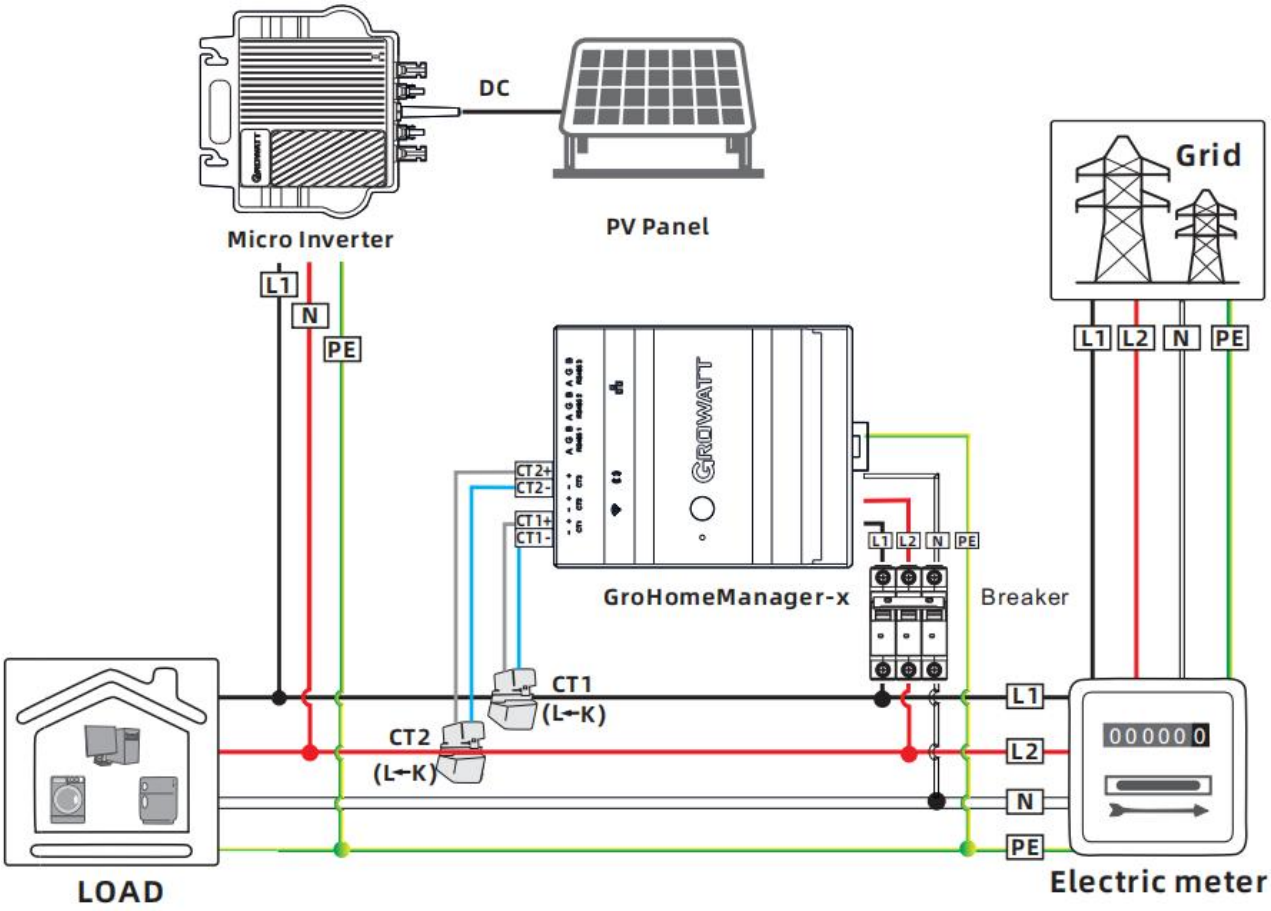


Figure 21 Split phase inverse system

Wiring system name	GroHomeManager-X side	Grid side	Micro-reverse side
Split phase inverse system	L1	L1	L1
	L2	L2	N
	L3	/	/
	N	N	/
	PE	PE	PE
	CT1-	L1 K(Power grid)->L(Load)	/
	CT1+		/
	CT2-	L2 K(Power grid)->L(Load)	/
	CT2+		/

	CT3-	/	/
	CT3+	/	/
	RS485-1/2/3-A	/	A
	RS485-1/2/3-G	PE(485 shielding layer access)	/
	RS485-1/2/3-B	/	B

Table 13 Split-phase micro-inverse system wiring

3.3.5 Splitting system

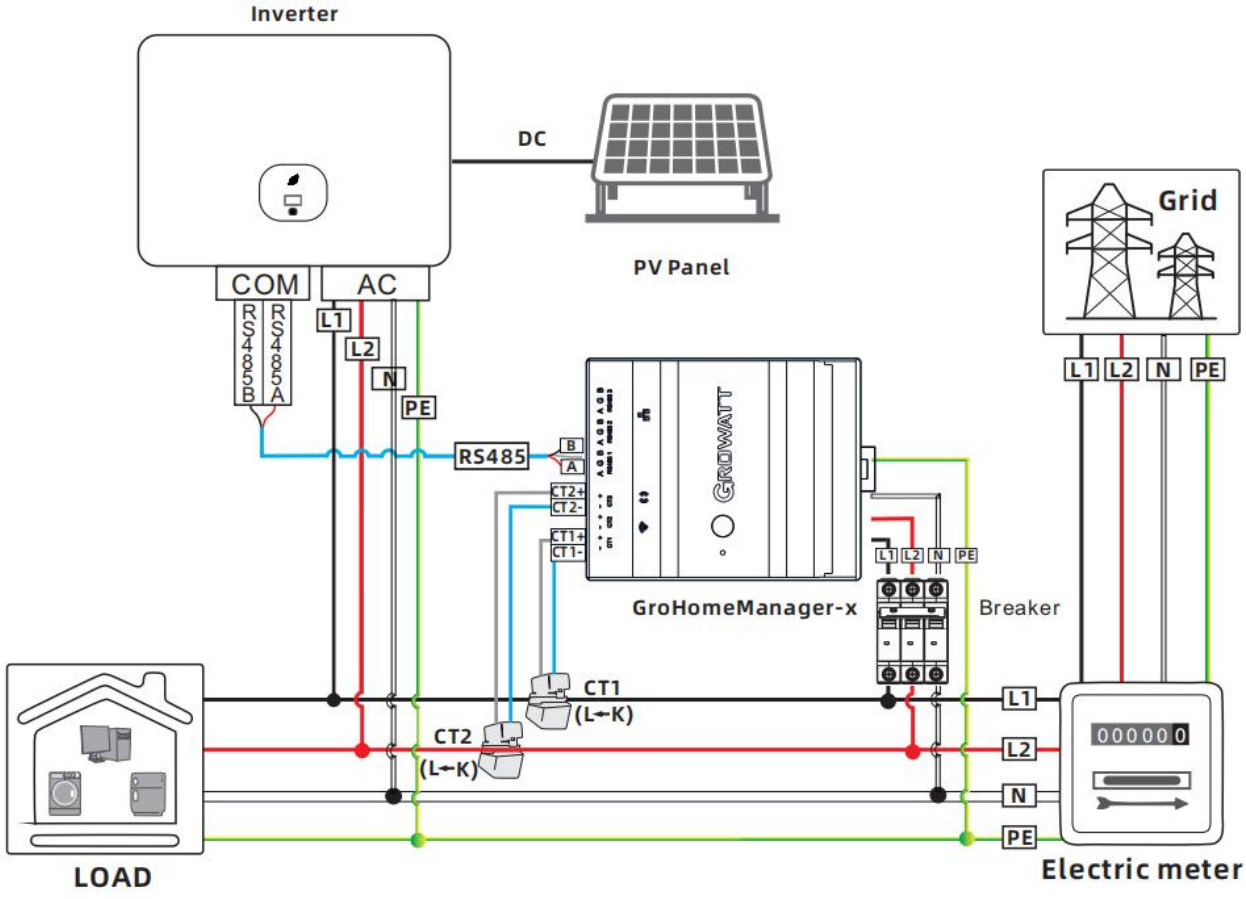


Figure 22 Splitting system

Wiring system name	GroHomeManager-X side	Grid side	Photovoltaic equipment side
Splitting system	L1	L1	L1
	L2	L2	L2
	L3	/	/
	N	N	N
	PE	PE	PE
	CT1-	L1 K(Power grid)->L(Load)	/
	CT1+		/
	CT2-	L2 K(Power grid)->L(Load)	/
	CT2+		/
	CT3-	/	/
	CT3+	/	/
	RS485-1/2/3-A	/	A
	RS485-1/2/3-G	PE(485 shielding layer access)	/
	RS485-1/2/3-B	/	B

Table 14 Split-phase system wiring

3.3.6 Three-phase three-wire system

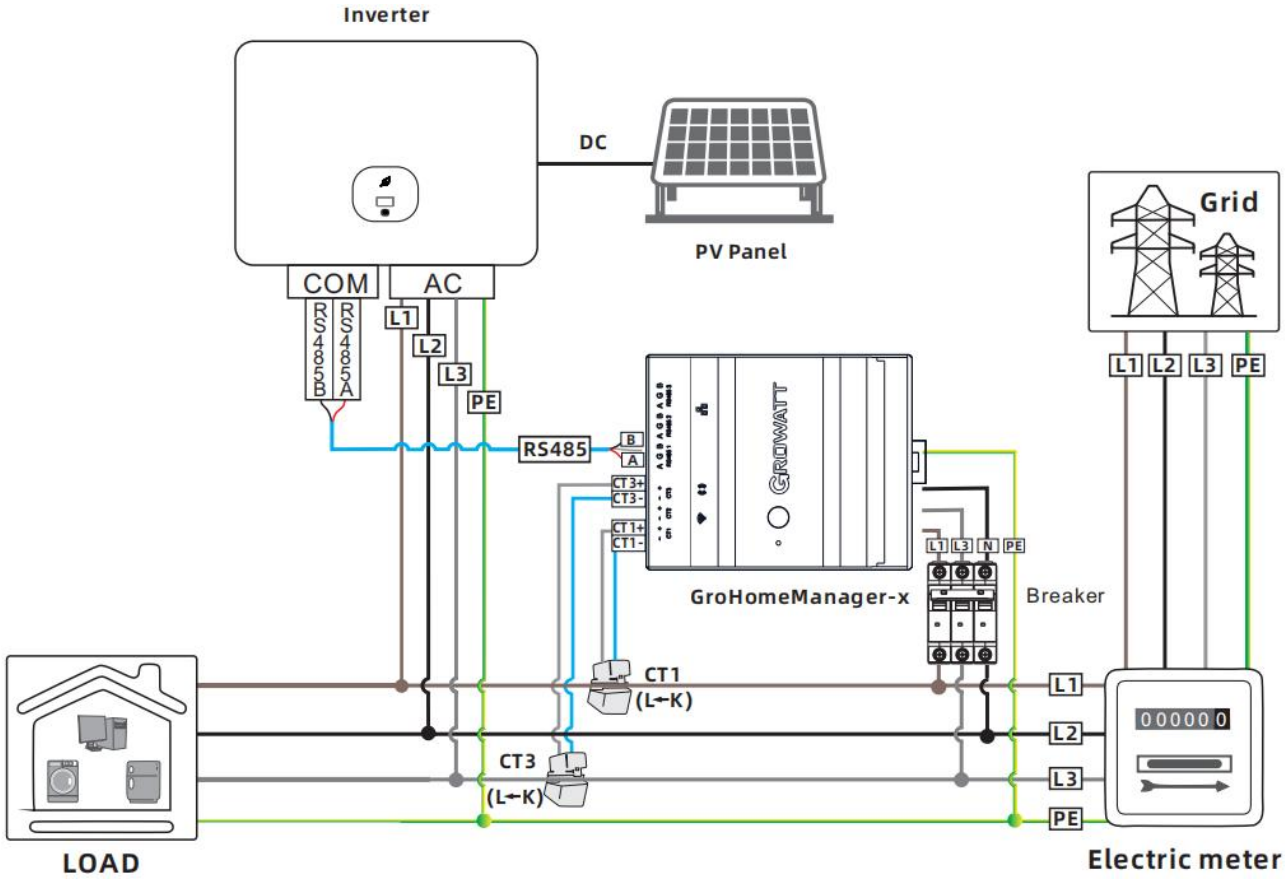


Figure 23 Three-phase three-wire system

Wiring system name	GroHomeManager-X side	Grid side	Photovoltaic equipment side
Three-phase three-wire system	L1	L1	L1
	L2	/	/
	L3	L3	L3
	N	L2	L2
	PE	PE	PE
	CT1-	L1 K(Power grid)->L(Load)	/
	CT1+		/
	CT2-	/	/

	CT2+	/	/
	CT3-	L3 K(Power grid)->L(Load)	/
	CT3+		/
	RS485-1/2/3-A	/	A
	RS485-1/2/3-G	PE(485 shielding layer access)	/
	RS485-1/2/3-B	/	B

Table 15 Three-phase three-wire system cables

3.3.7 Three-phase four-wire system

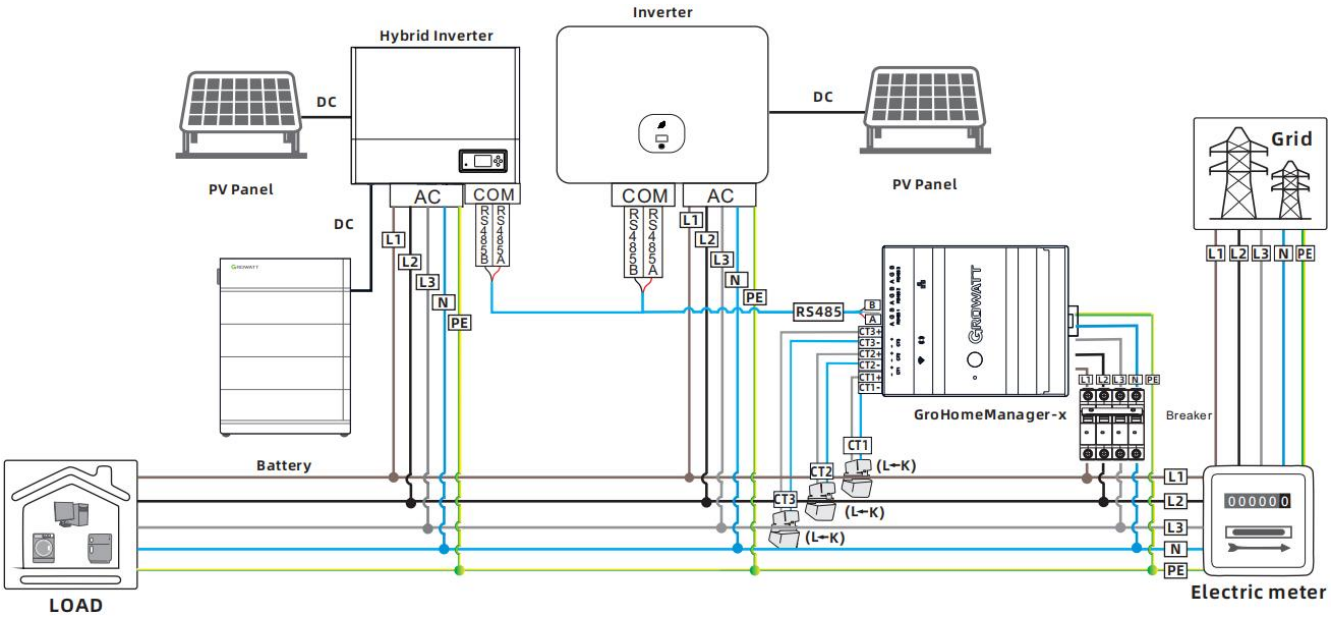


Figure 24 Three-phase four-wire system

3.3.8 Three-phase four-wire HEMS system

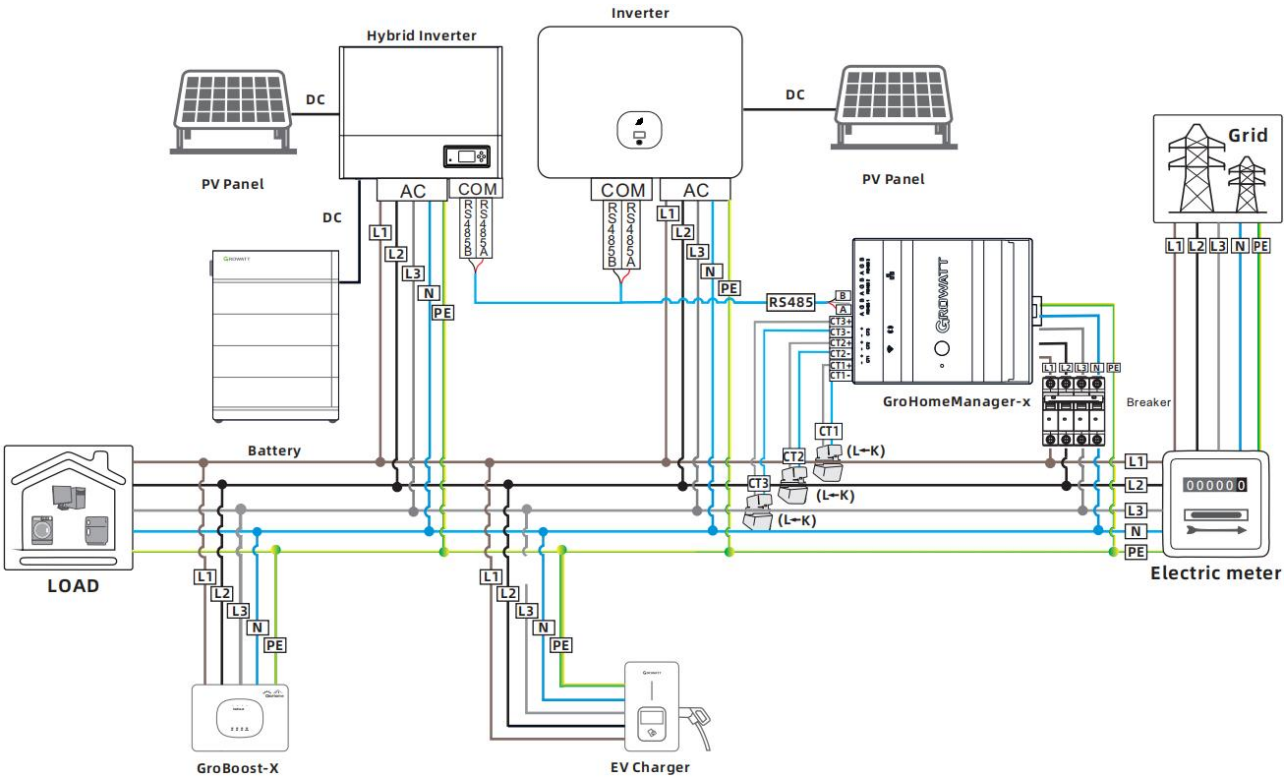


Figure 25 Three-phase four-wire HEMS system

Wiring system name	GroHomeManager-X side	Grid side	Photovoltaic equipment side
Three-phase four-wire system	L1	L1	L1
	L2	L2	L2
	L3	L3	L3
	N	N	N
	PE	PE	PE
	CT1-	L1 K(Power grid)->L(Load)	/
	CT1+		/
	CT2-	L2 K(Power grid)->L(Load)	/
	CT2+		/

	CT3-	L3 K(Power grid)->L(Load)	/
	CT3+		/
	RS485-1/2/3-A	/	A
	RS485-1/2/3-G	PE(485 shielding layer access)	/
	RS485-1/2/3-B	/	B

Table 16 Three-phase four-wire system cables

NOTICE	1.It is recommended to use single-strand wires for wiring. If multiple-strand wires are used for wiring, matching crimping terminals must be used. Recommended wire diameter (AWG): 16-22. 2.RS485 interface G signal must be connected to the RS485 cable shielding layer, and the shielding layer needs to be connected to the earth, using twisted pair shielded cable. 3.Before operating the equipment, isolate voltage input and power supply, and short circuit the secondary winding of all current transformers, otherwise it may cause serious injury. 4.Wired RS485 and wireless RF can be optionally installed. 5. The white wire of the snap-on CT is connected to CT +, and the black wire is connected to CT-. The network port can be quickly inserted into the network port. 6.The power supply of the power supply system shall be in good contact with the earth, and the position of the air switch shall be confirmed so that the power supply can be cut off in time in case of an accident. 7.After installation, check that GroHomeManager-X and photovoltaic equipment are properly grounded.

4 APP Operation Guide

4.1 Initial power-on, check connection status

- 1.Turn on the inverter & turn on the air switch in front of GroHomeManager-X, check the connection status between GroHomeManager-X and ShineRFStick-X2 (only need to watch when ShineRFStick-X2 uses RF connection, if using RS485, please skip the relevant instructions of ShineRFStick-X2).
- 2.When the GroHomeManager-X is initially powered on, the white light is always on, and after waiting for 10 seconds, it converts to a red light always on
- 3.ShineRFStick-X2 is always on when the white light is on, and after waiting for 30 seconds, it converts to always on when the red light is on, and when it is successfully connected to the photovoltaic equipment, it slowly flashes green light

GroHomeManager-X Indicator light status	GroHomeManager-X Working state
Steady White	1. Initializing, please wait patiently 2. Restore factory default settings (long press button 6S to take effect)
Steady Yellow	In Bluetooth mode, please continue to follow the APP instructions for networking/sub-device addition process. If networking/sub-device addition process is not required, please click the button to exit this mode
Yellow Flashing Slowly	RF pairing mode and synchronize Bluetooth, please continue to follow the APP instructions to add sub-devices, without RF pairing, double-click the button to exit pairing mode
Yellow Flashing	It is in Bluetooth local upgrade mode. Please wait patiently for the upgrade to complete.
Steady Red	Not connected to router, not connected to PV/RF sub-devices, please continue to follow the APP instructions for networking and sub-device addition process

Steady Green	If the PV/RF sub-device is not connected, please continue with the sub-device addition process according to the APP instructions
Green Flashing	Connect the photovoltaic/RF sub-device link is abnormal, please check whether the wiring method and baud rate setting of RS485 are correct/check the ShineRFStick-X2 indicator light to judge the abnormal situation
Steady Blue	Connected router, not connected server, connected PV/RF sub-device 1. Check if the router can access the internet 2.Does the router restrict the server and port number? The collector needs to use port 7006
Blue Flashing	Unable to connect router, connected PV/RF sub-device 1. WiFi wireless connection method (1)Check if the router account password filled in during the configuration process is correct (2)Check the router: a)The wireless name of the router should be composed of English and numbers, and special characters are not supported： (¯﹃¯…·€¥) b)For security reasons, please use an encrypted wireless network c)Networks that do not support secondary authentication and bridged wireless signals 2. LAN wired connection method (1)Ethernet cable not connected (2Restart the router and confirm that the router's automatic IP allocation function is available (3)If a static IP Address is used, determine whether the IP Address is consistent with the router setting network segment

Blue Flashing Slowly	Connected router, connected server, connected photovoltaic/RF sub-device, in normal working mode, slow flash times represent the number of connections of the device
Attention: 1. For the first WiFi connection, the device will automatically enter Bluetooth mode 2. The device indicator light is flashing yellow and Bluetooth will be turned on synchronously. 3. When Bluetooth is turned on, there is no data interaction with the APP, and Bluetooth will be automatically turned off after 1Min 4. When a single device is connected, the slow flash frequency is 1S, and the fast flash frequency is 0.5S. When multiple devices are connected, the number of flashes during slow flash represents the number of PV/RF slave devices connected 5. When the Bluetooth mode is turned on, the indicator light prioritizes displaying the yellow light and is always on. Please check the network/sub-device configuration in the APP. If you need to view GroHome device information through the indicator light, click the button to exit the Bluetooth mode	

Table 17 GroHomeManager-X Indicator light working status description

ShineRFStick-X2 Indicator light status	**ShineRFStick-X2 Working state**
Steady White	1.Initializing, please wait patiently for 30S. 2.Restore factory default settings (long press button 6S to take effect)
Steady Yellow	In Bluetooth mode, please continue to follow the APP instructions to set up the process. If you do not need to set it up, please click the button to exit this mode
Yellow Flashing Slowly	RF pairing mode, please follow the APP instructions of the RF host to add the device, no pairing is required, double-click the bottom button to exit pairing mode
Yellow Flashing	It is in Bluetooth local upgrade mode. Please wait patiently for the upgrade to complete.
Steady Red	If the RF host is not connected and the photovoltaic device is not connected, please continue to follow the APP instructions of the RF host to add the device

Steady Green	If the photovoltaic equipment is not connected, please check whether the collector and inverter are connected normally. If the phenomenon persists after repeated plugging and unplugging, please contact Growatt customer service
Green Flashing	The connection of photovoltaic/RF equipment link is abnormal. Please check whether the collector and inverter are connected normally. After repeated plugging and unplugging several times, the phenomenon still exists. Please contact Growatt customer service
Blue Flashing	Unable to connect to RF host, connected photovoltaic equipment/RF equipment 1. Please check if the host is powered on/online 2. Please check whether the leader/follower is within the recommended distance range 3. Please check whether the host antenna is damaged 4. If it appears repeatedly, please contact Growatt customer service
Blue Flashing Slowly	Connected to RF host, connected to photovoltaic equipment/RF equipment, in normal working mode
Attention: 2. Slow flash frequency 1S, flash frequency 0.5S	

Table 18 ShineRFStick-X2 Indicator light working status description

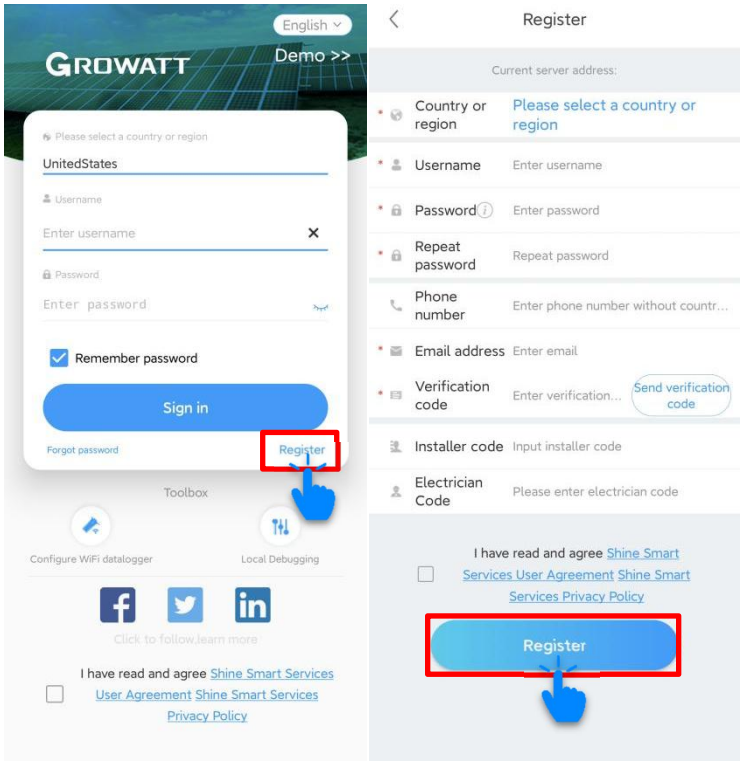
4.2 Download the ShinePhone app

Scan the QR code below to download ShinePhone, or search for ShinePhone to download the app in Apple Store or Google Play.

【ShinePhone APP】

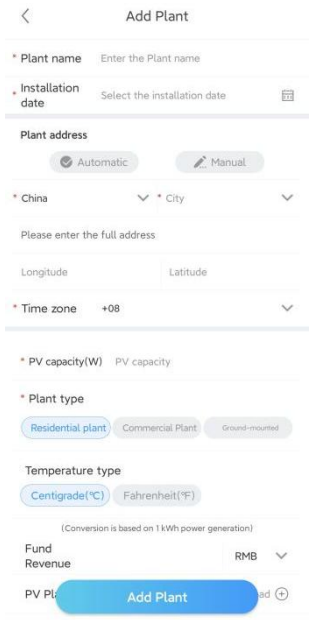
4.3 User registration

- 1.Run the ShinePhone mobile app and enter the registration page
- 2.Fill in the registration information and click Register (country or region, please select accurate information).



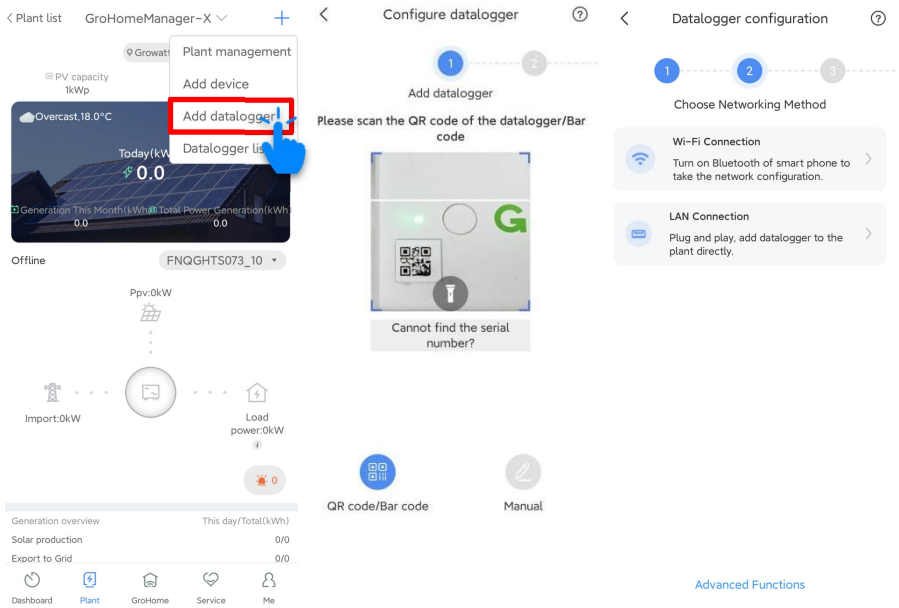
4.4 Add/Create Power Station

- 1.Enter the add power station page (the first registration will automatically pop up, please click the + sign on the power station page to add the power station later).
- 2.Fill in the power station information
- 3.Click Add Station



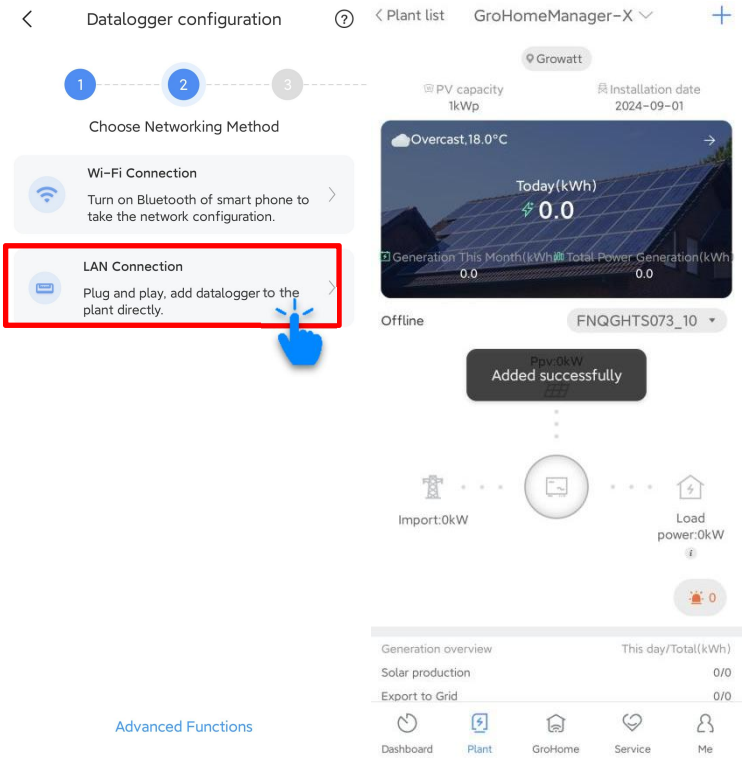
4.5 Add GroHomeManager-X to the power station.

- 1.On the power station page, click "+" to add collector (WiFi/GPRS, etc.), and you will enter the page of adding collector.
- 2.Scan Serial Number or manually enter Serial Number and Check Code



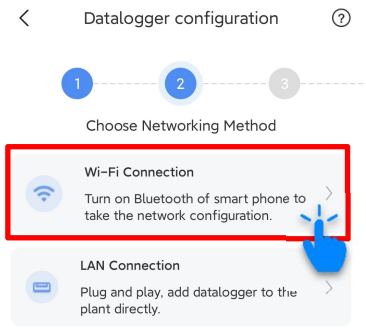
4.6 Network Configuration - LAN Connection

➢ 1.Click LAN Connection in Select Network Mode (no network configuration required, directly add to the power station).

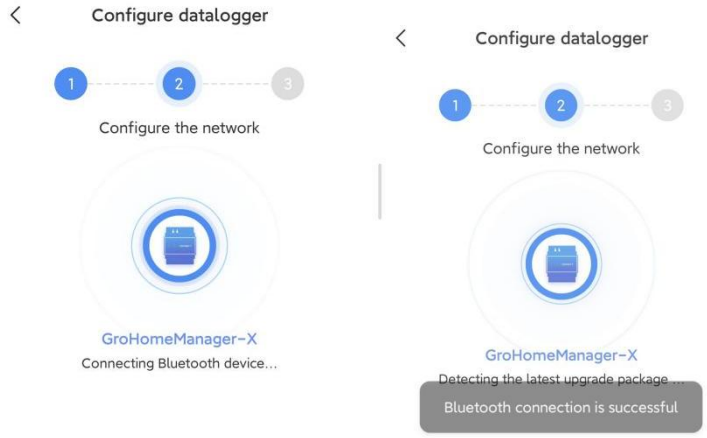


4.7 Network Configuration - WiFi Connection

➢ 1.Click WiFi Connection in Select Network Mode



- 2.Enter the search Bluetooth mode. The GrHomeManager-X indicator light is yellow and always on, indicating that Bluetooth is on. If Bluetooth is off, click the collector button to turn on Bluetooth and continue the network configuration operation.

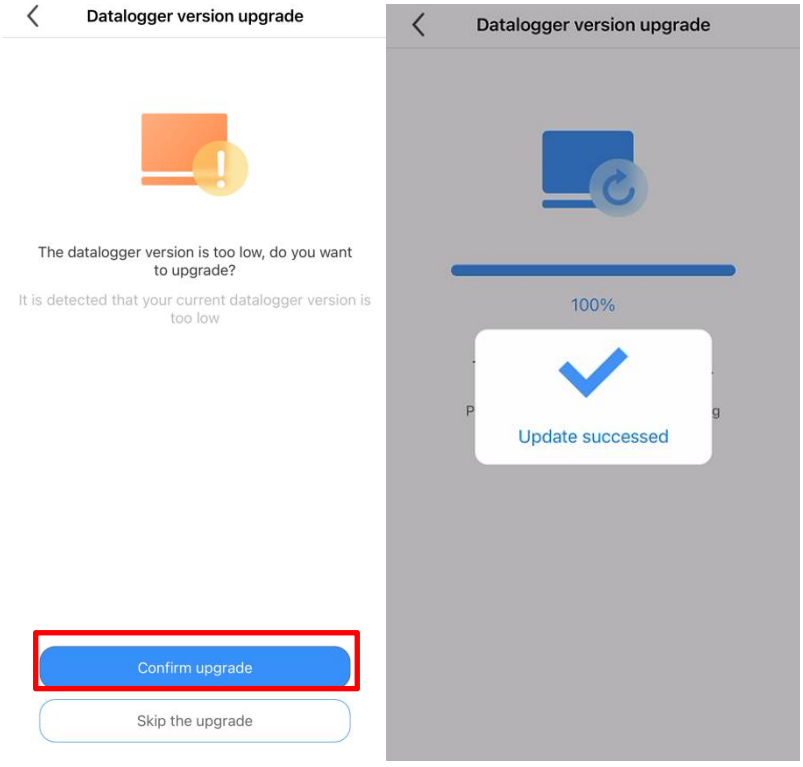


- 3.Collector firmware upgrade (only when the collector firmware version needs to be updated)

Step 01: Please choose whether to upgrade the collector version

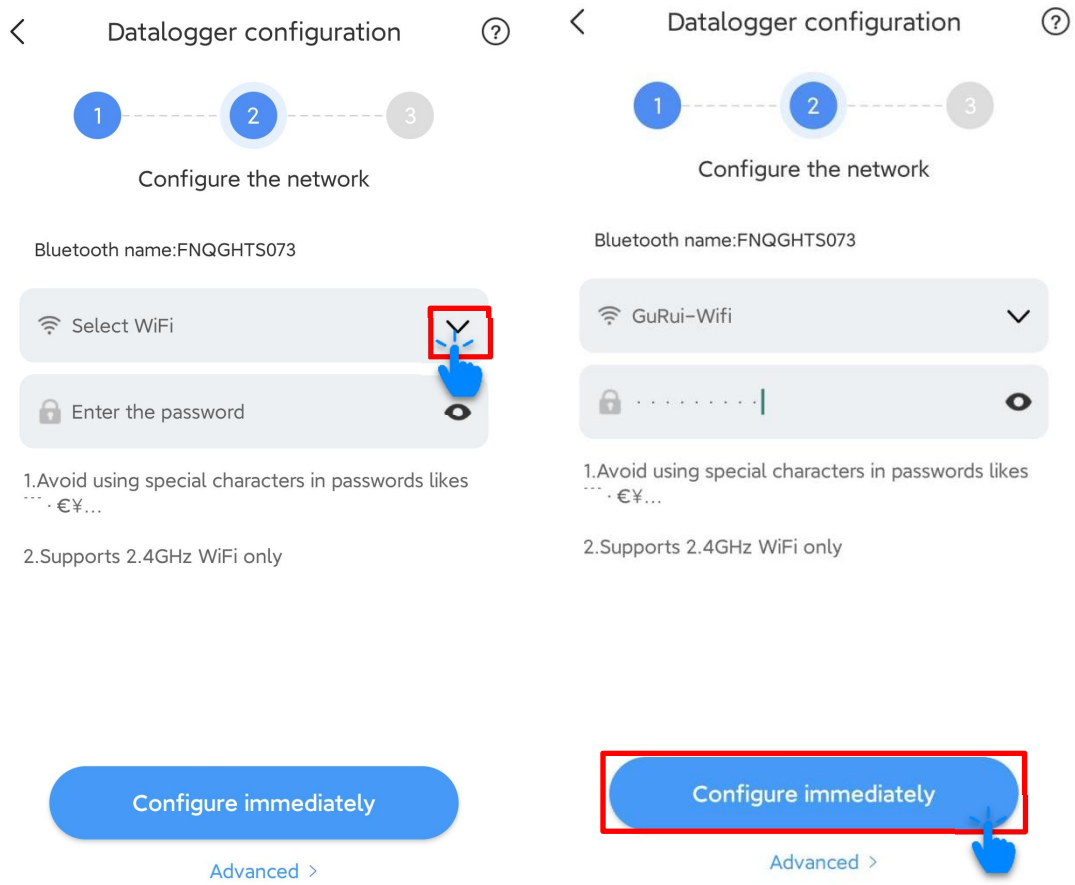
Step 02: If you select "Confirm Upgrade", please wait for about 10 minutes. The collector will automatically restart after the upgrade is completed

Step 03: After the collector automatically restarts, reconnect to the collector Bluetooth

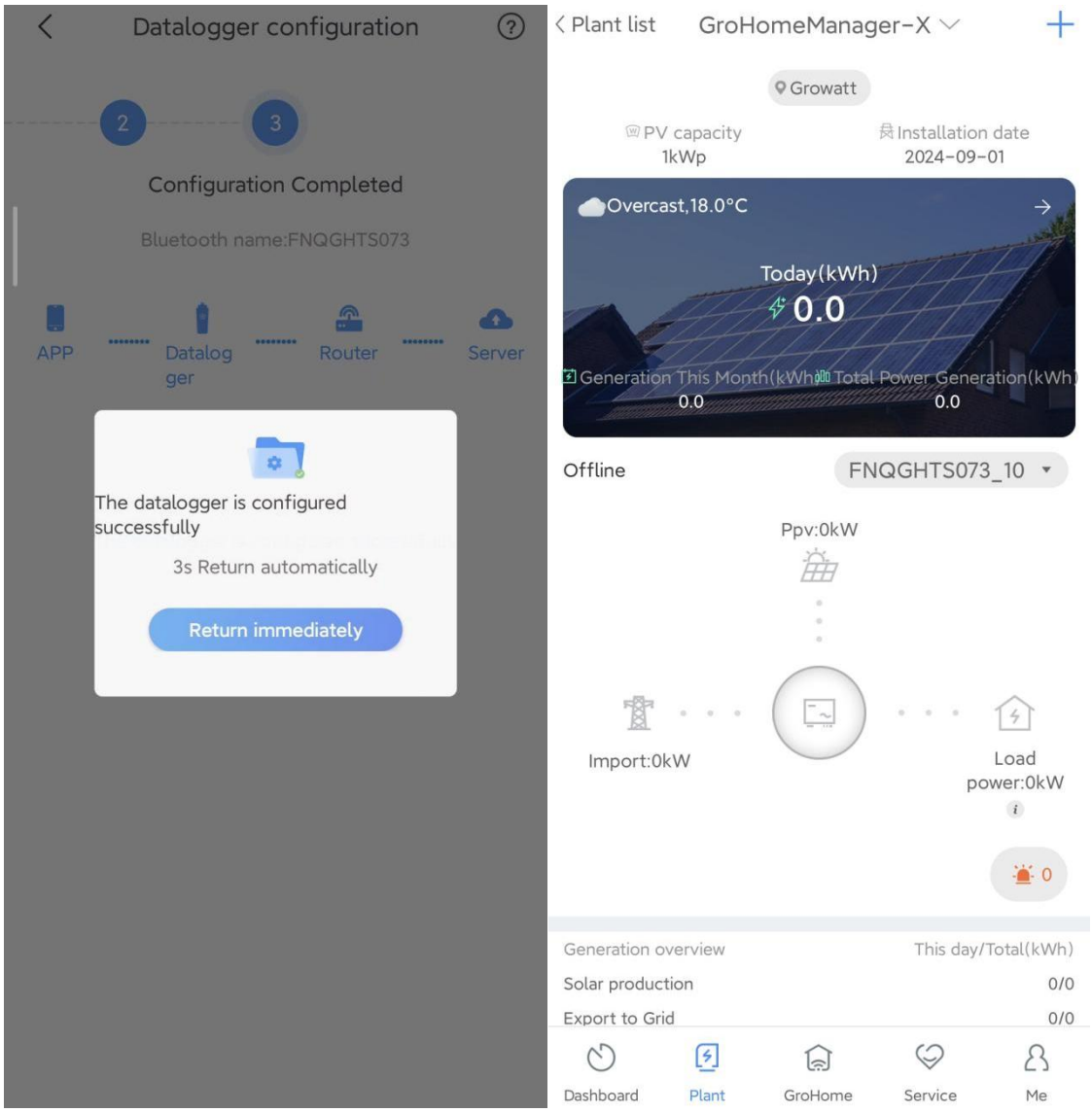


➢ 4.Connect to the home router and configure the network

Step 01: After the Bluetooth connection is successful, enter the settings interface, select the home router to connect to, and enter the password



➢ 5.WiFi configuration successful, return to the power station page



4.8 RF Device Pairing - Omnidirectional Pairing

➢ 1.RF starts RF pairing mode from the device (factory default enabled).

①ShineRFStick-X2: Double-click the bottom button, the indicator light flashes yellow

②GroBoost-X: Long press the Home button, L3 light flashes

③Charging pile: Press the button 3 times within 3 seconds. The indicator light flashes yellow

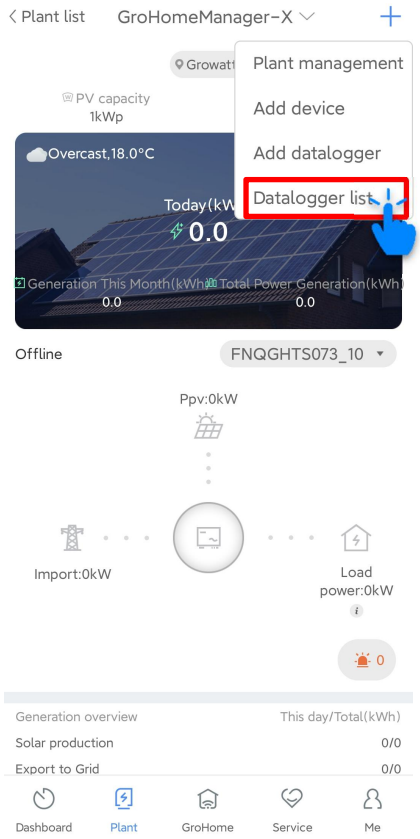
④NEO: Switch AC twice, open and close AC time recommended 5S

➢ 2.GroHomeManager-X enables RF pairing mode

Double-click the top button, turn on the RF pairing mode when the yellow light is in slow flashing state, automatically start scanning the surrounding RF slave devices and actively add them. The time is about 2Min. After successful pairing, the indicator light status changes from always on to flashing, and the number of flashes represents the number of connections of the photovoltaic/RF devices.

➢ 3.GroHomeManager-X can be viewed in the device list after adding RF from the device

Step 01: On the power station page, click the "+" collector list to enter the collector list interface.



Step 02: According to the serial number displayed by GroHomeManager-X, select the collector with the corresponding serial number and click "Device List".

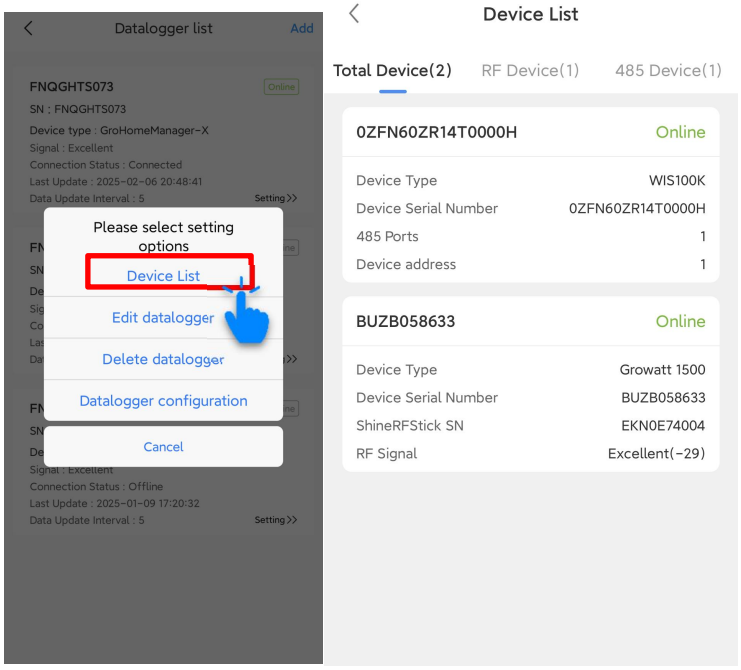
Step 03: The interface mainly has the following functions. This time, we need to view the paired devices. We select the device list to view the currently connected devices

A.Device List - View paired devices/Add new slave devices

B.Edit Collector - Alias Collector

C.Delete collector - the collector is removed from this station and can be added again in another station

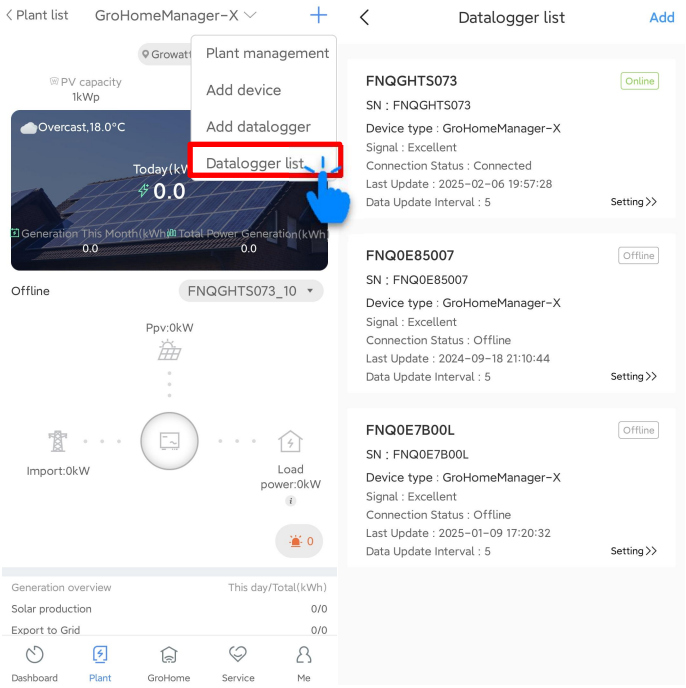
D.Configure the collector - reconfigure the collector's network and enter the advanced settings interface



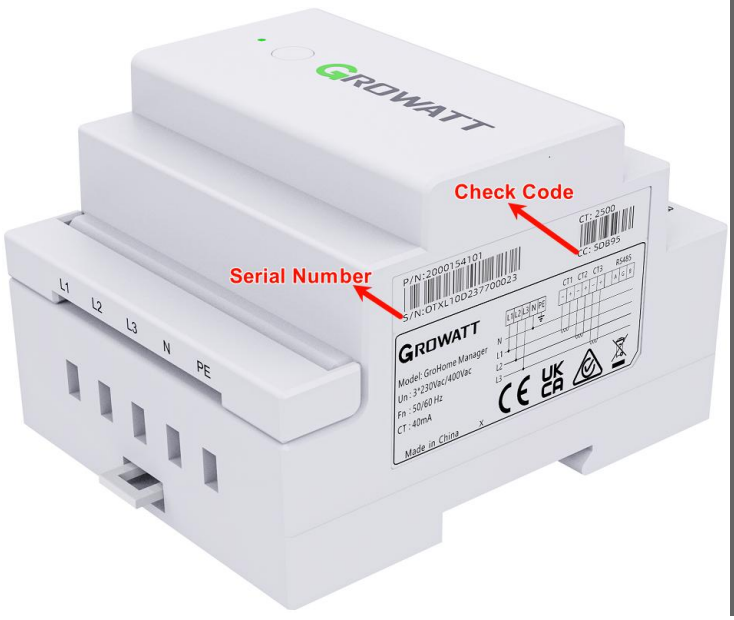
4.9 RF device pairing - directional pairing (non-professionals, please do not perform this operation)

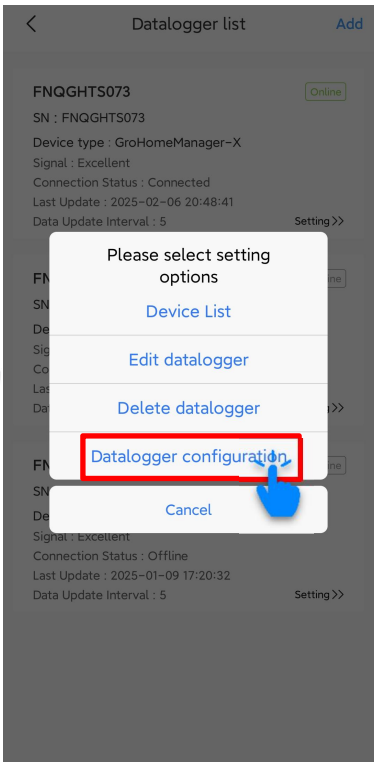
➢ 1.Enter the advanced settings interface

Step 01: On the power station page, click the "+" collector list to enter the collector list interface.



Step 02: Select the collector corresponding to the serial number displayed by GroHomeManager-X





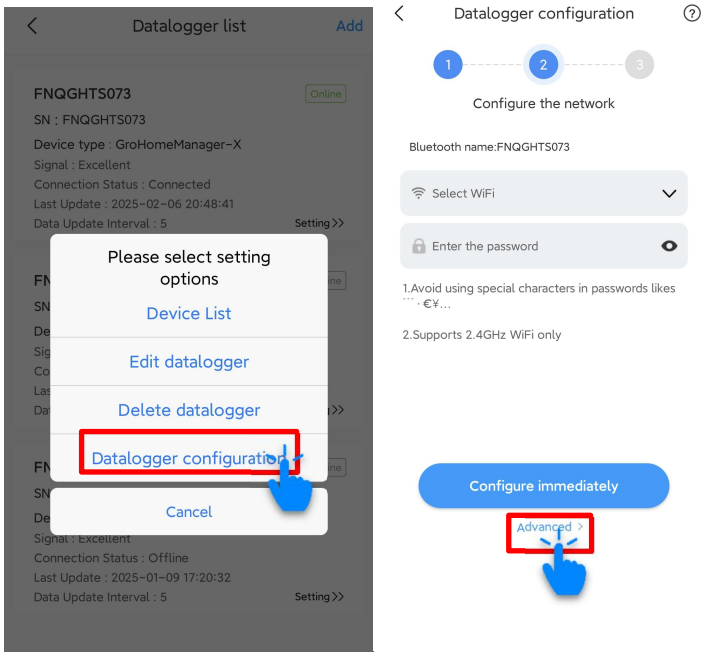
Step 03: To enter the advanced settings, you need to press the button to turn on the Bluetooth mode of GroHomeManager-X. The Bluetooth mode indicator light is yellow and always on. The interface mainly has the following functions. This time, we choose to configure the collector in the advanced settings interface

A.Device List - View paired devices/Add new slave devices

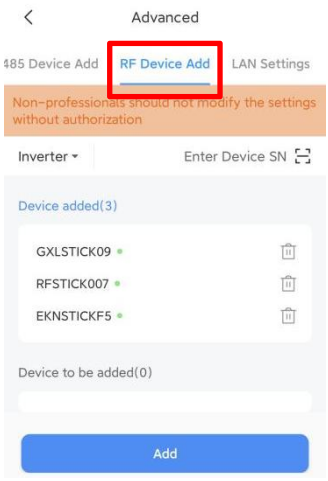
B.Edit Collector - Alias Collector

C.Delete collector - the collector is removed from this station and can be added again in another station

D.Configure the collector - reconfigure the collector's network and enter the advanced settings interface



➢ 2.Advanced Settings Interface Select RF Device Add



- 3.RF device addition can scan/input device serial numbers. When adding RF devices, the RF slave device needs to be in paired mode. After scanning, it appears in the list of devices to be added, and multiple devices can be added at the same time.

The following is a guide for RF slave devices to open pairing mode:

Enabled by factory default, please follow the prompts below to enter

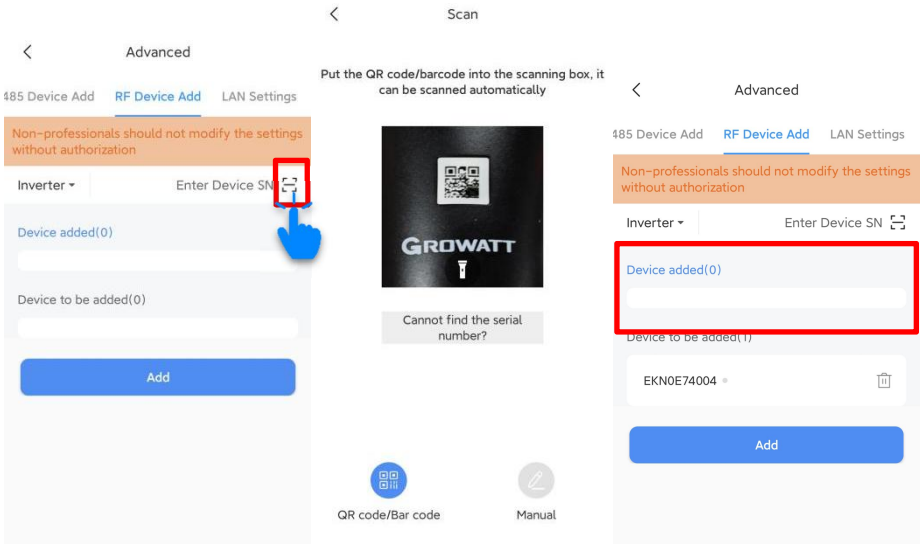
①ShineRFStick-X2：Double-click the bottom button, the indicator light flashes yellow

②GroBoost-X：Long press the Home button, L3 light flashes

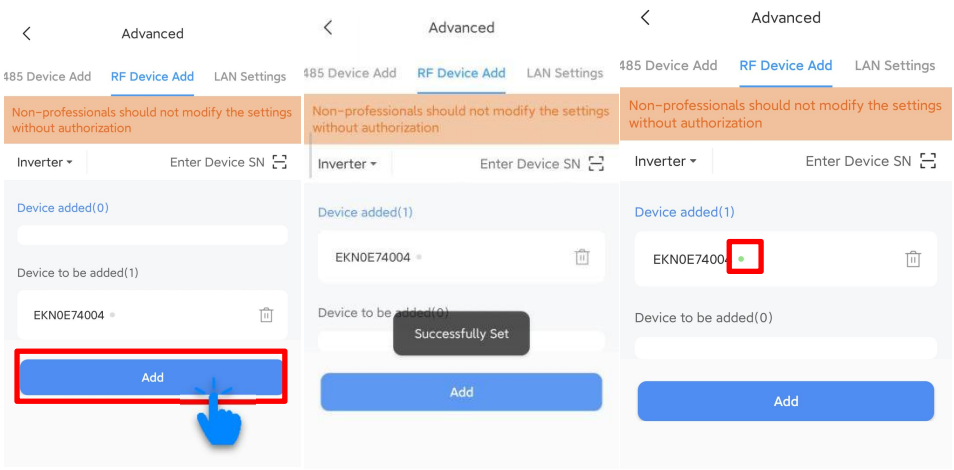
③Charging pile: Press the button 3 times within 3 seconds. The indicator light flashes yellow

④NEO:Switch AC twice, open and close AC time recommended 5S

The following figure shows the device for adding scanning ShineRFStick-X2. For other models, please refer to the corresponding product QR code.



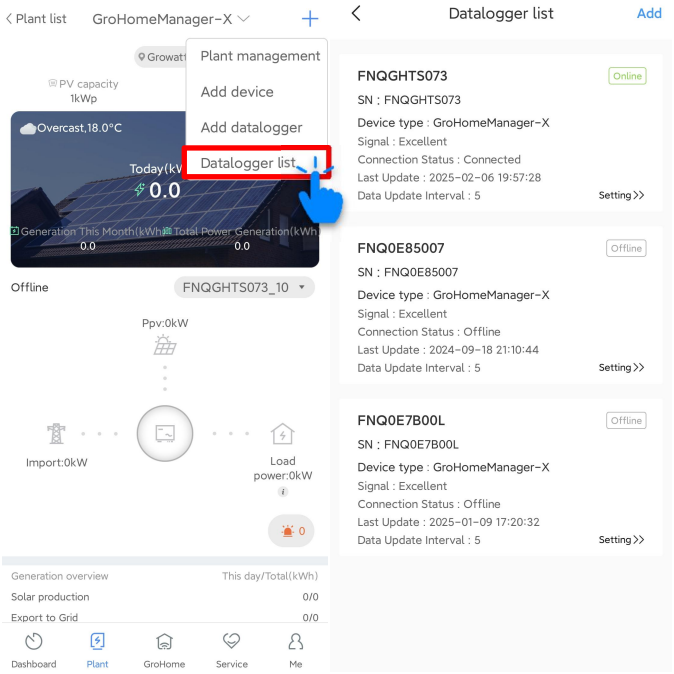
- 4.Click the Add button, GroHomeManager-X will actively pair with the RF slave device. After the pairing is successful, the added device will show a green dot always on.



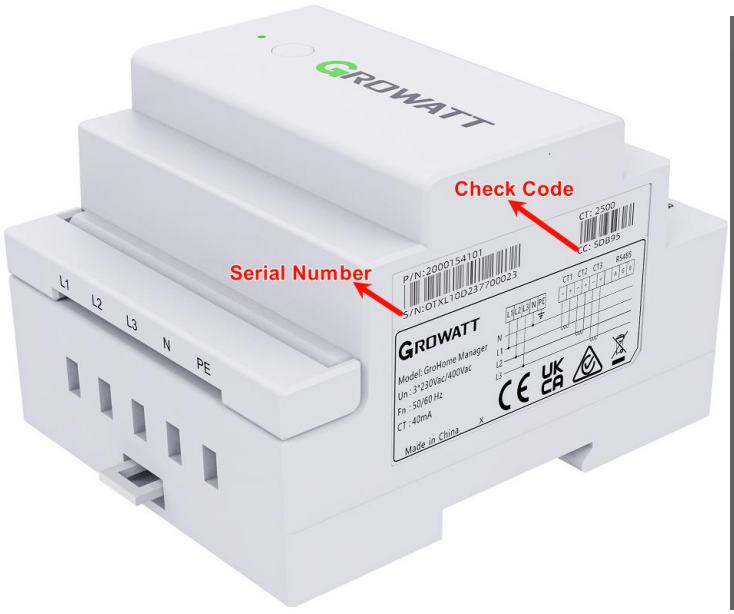
4.10 RS485 device addition (non-professionals, please do not perform this operation)

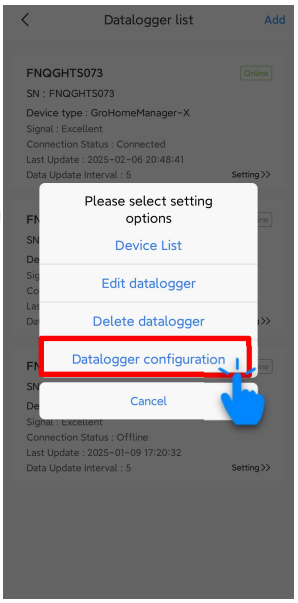
➢ 1.Enter the advanced settings interface

Step 01: 在 On the power station page, click the "+" collector list to enter the collector list interface.



Step 02: Select the collector corresponding to the serial number displayed by GroHomeManager-X





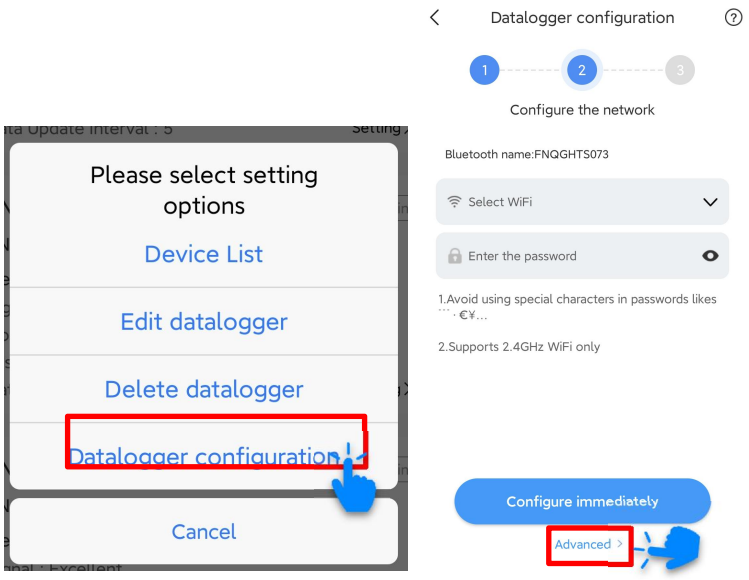
Step 03: To enter the advanced settings, click the button to enable the Bluetooth mode of GroHomeManager-X. The Bluetooth mode indicator light is yellow and always on. The interface mainly has the following functions. This time, we need to enter the advanced settings interface and choose to configure the collector

A.Device List - View paired devices/Add new slave devices (need to use after 485 device addition is completed)

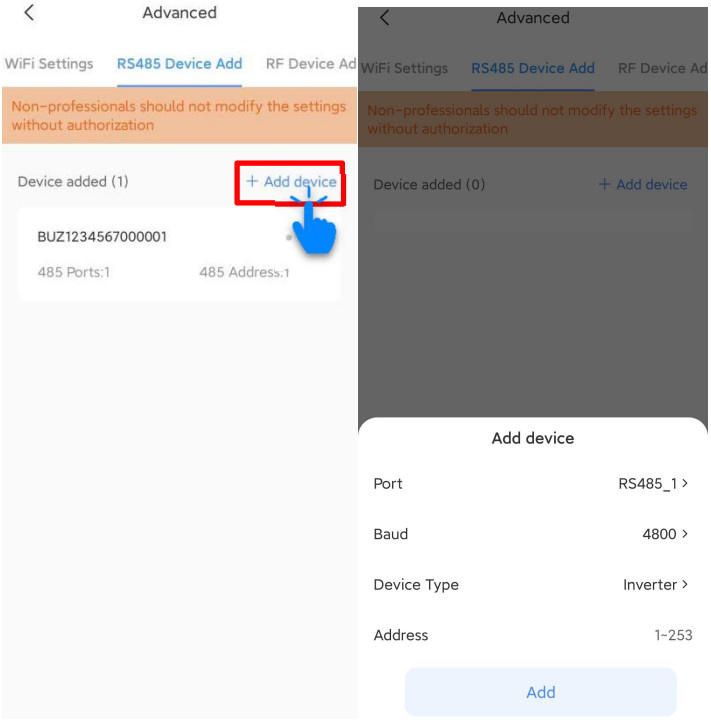
B.Edit Collector - Alias Collector

C.Delete collector - the collector is removed from this station and can be added again in another station

D.Configure the collector - reconfigure the collector's network and enter the advanced settings interface

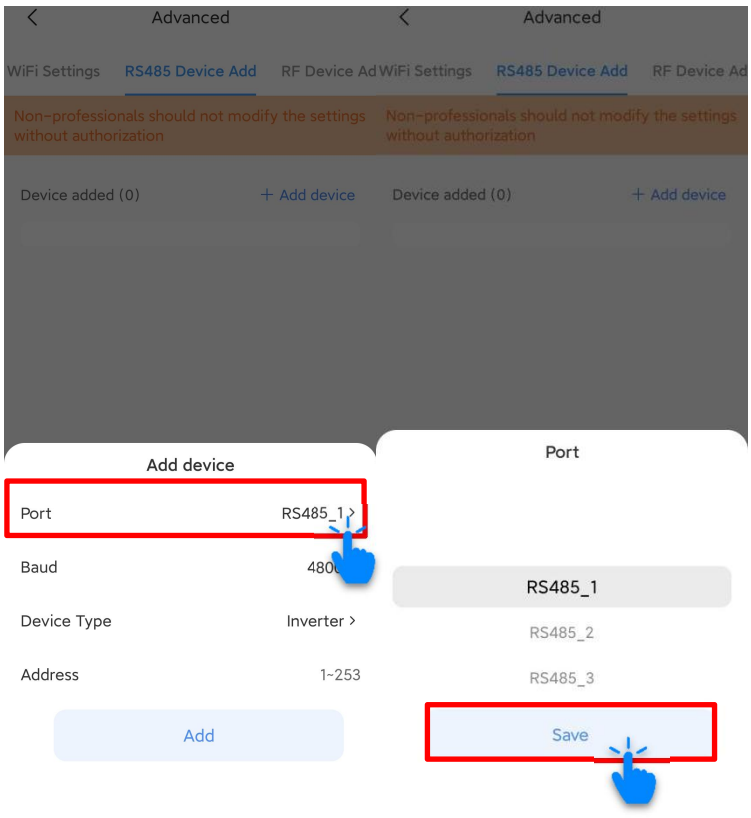


➢ 2.Select RS485 parameter settings in the advanced settings interface

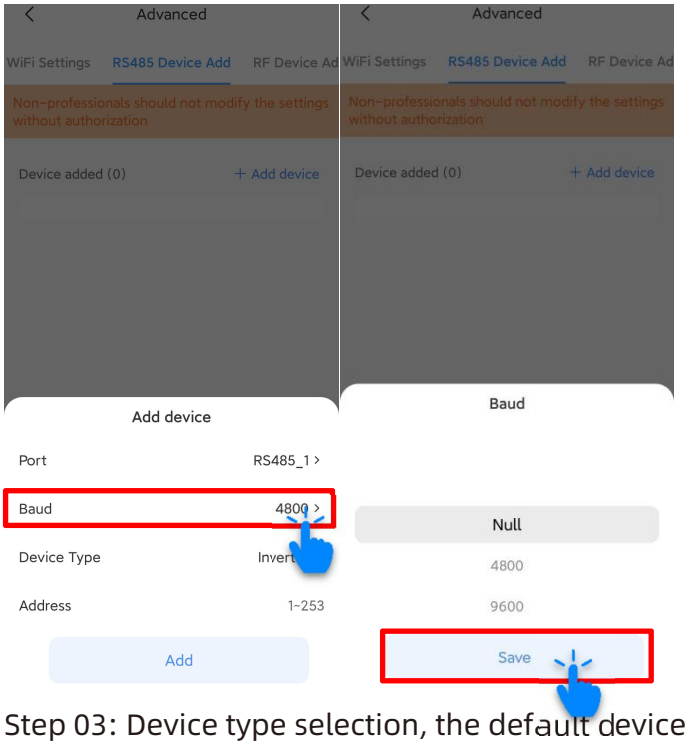


➢ 2.Configure relevant parameters and add them in the RS485 parameter setting interface.

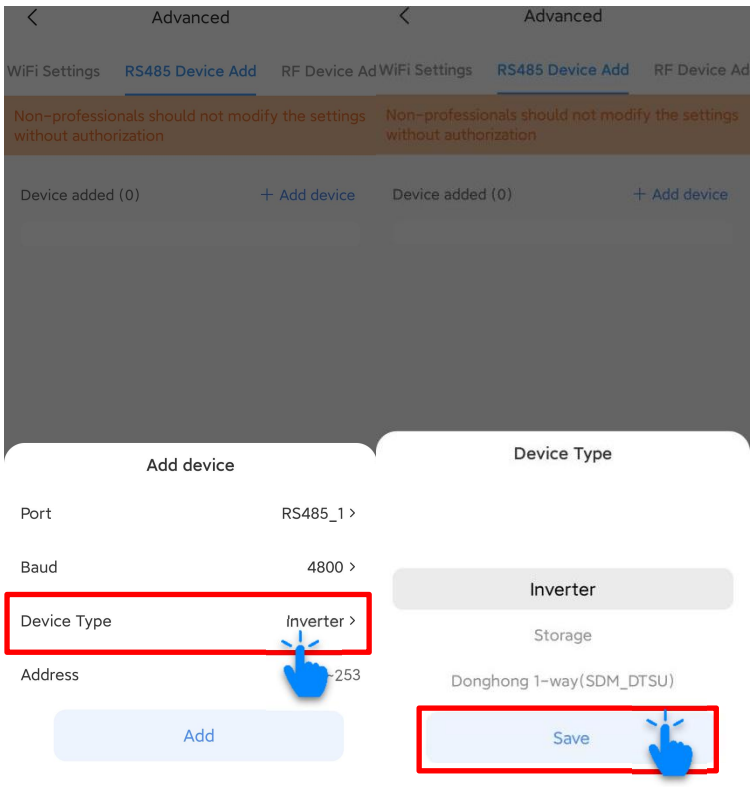
Step 01: Port selection, GroHomeManager-X has 3 485 ports, corresponding to RS485_1, RS485_2, RS485_3, each 485 supports connecting 2 photovoltaic devices, you can choose the corresponding port according to the installation.



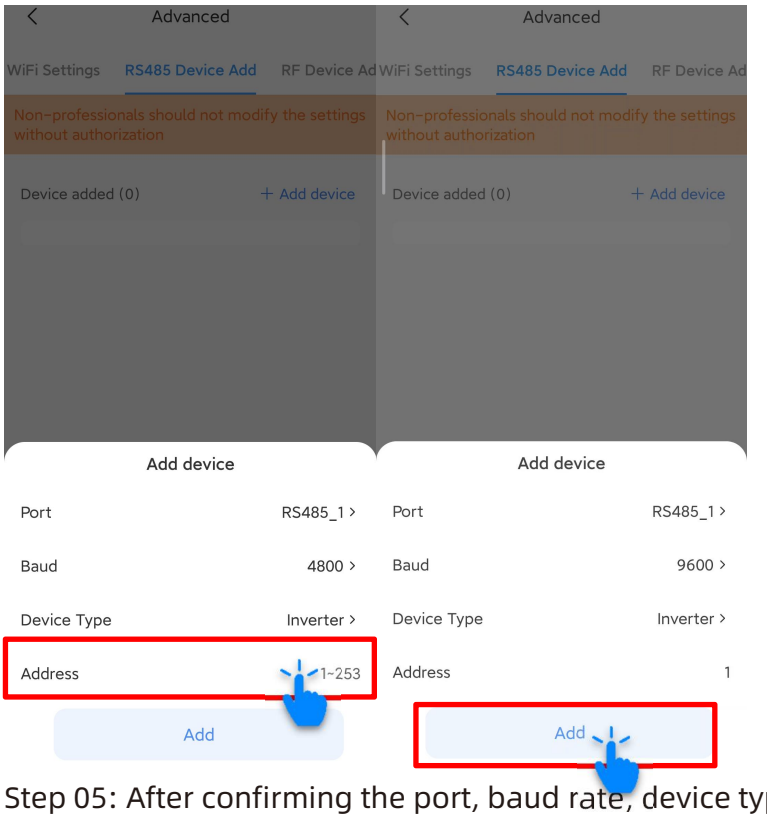
Step 02: Baud rate selection. The default baud rate of GroHomeManager-X is 9600, and it also supports 4800, 38400, 115200, and 19200. You can choose the corresponding baud rate according to the requirements of your device.



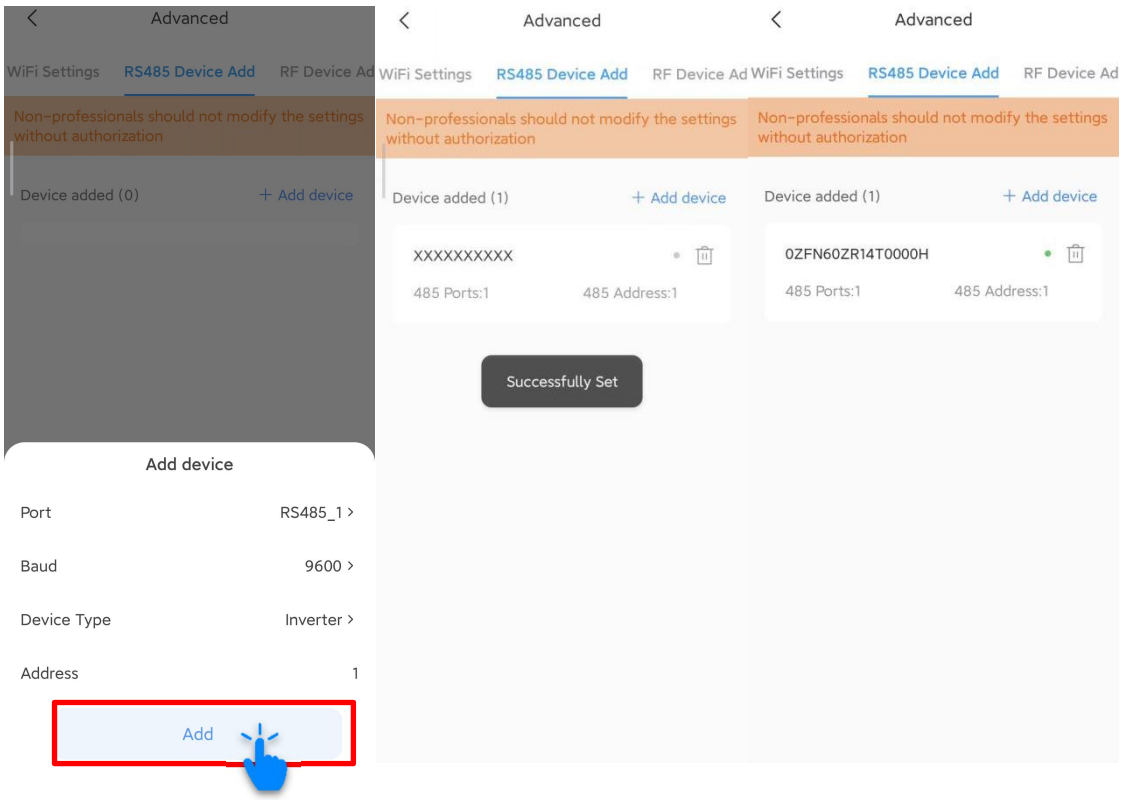
Step 03: Device type selection, the default device type of GroHomeManager-X is inverter, and it can also support energy storage machines, electric meters, charging piles, portable power supplies, and GroBoost. You can choose the corresponding device type according to the requirements of the device.



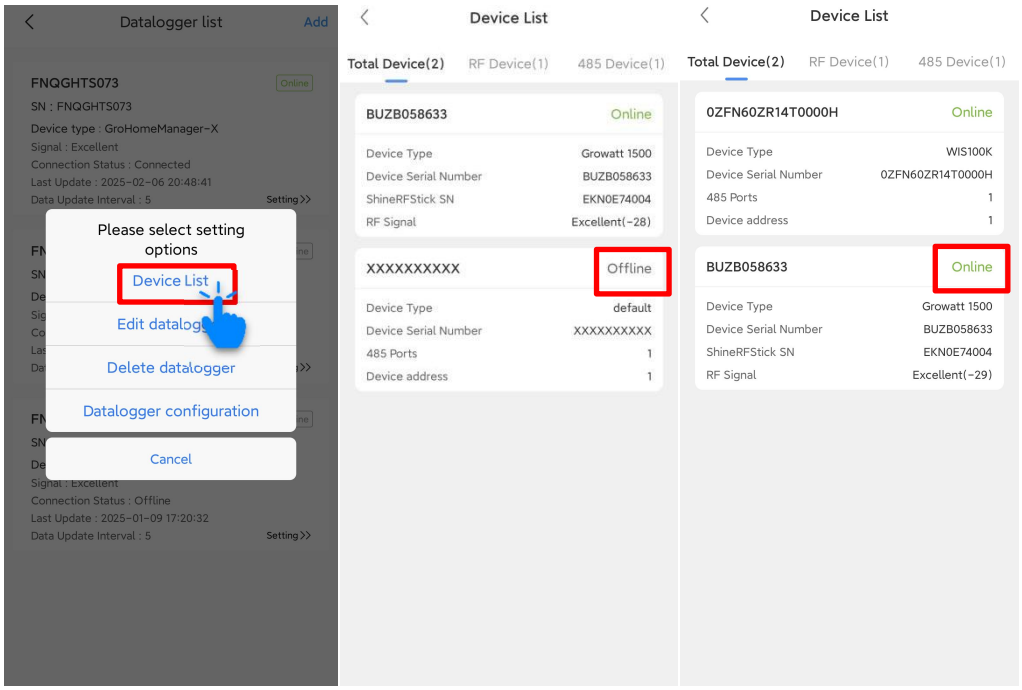
Step 04: Address input, GroHomeManager-X fills in the 485 address of the external device.



Step 05: After confirming the port, baud rate, device type, and address information, click the Add button to add.



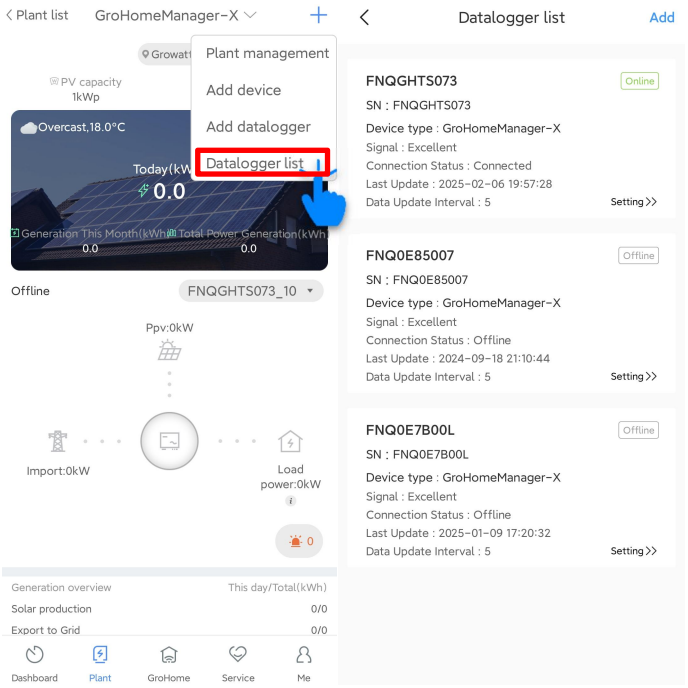
➢ 3.Check whether the RS485 device is online normally in the device list interface.



4.11 Static IP settings (This setting is only used when you need to set a static IP, non-professionals, please do not perform this operation)

➢ 1.Enter the advanced settings interface

Step 01: On the power station page, click the "+" collector list to enter the collector list interface.



Step 02: Select the collector corresponding to the serial number displayed by GroHomeManager-X

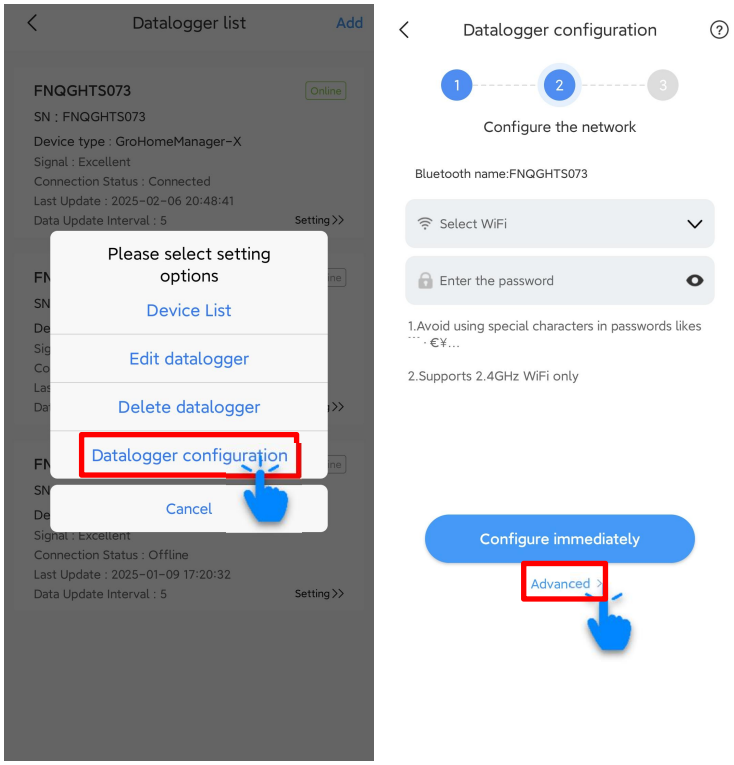
Step 03: To enter the advanced settings, click the button to enable the Bluetooth mode of GroHomeManager-X. The Bluetooth mode indicator light is yellow and always on. The interface mainly has the following functions. This time, we need to enter the advanced settings interface and choose to configure the collector

A.Device List - View paired devices/Add new slave devices

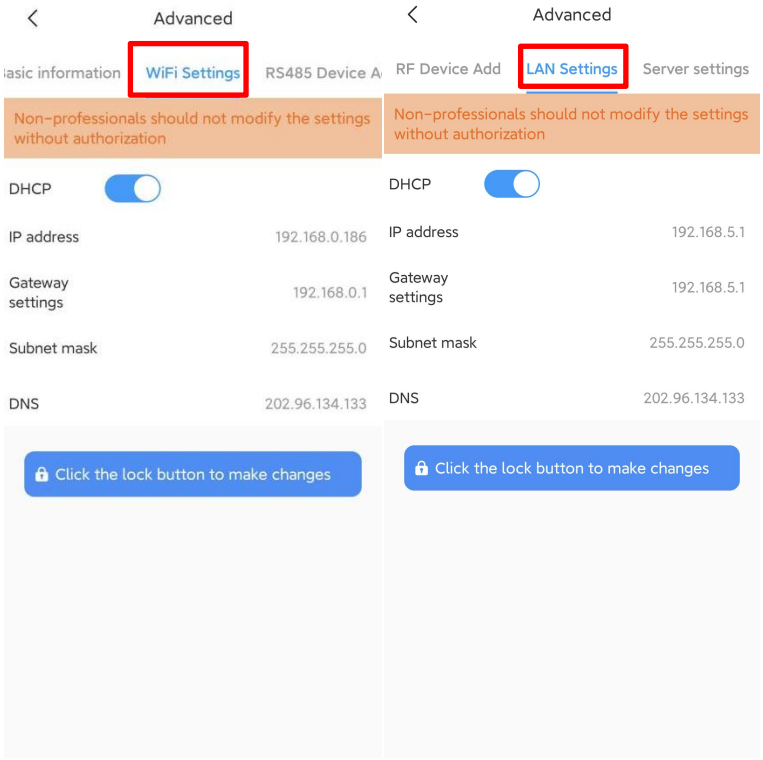
B.Edit Collector - Alias Collector

C.Delete collector - the collector is removed from this station and can be added again in another station

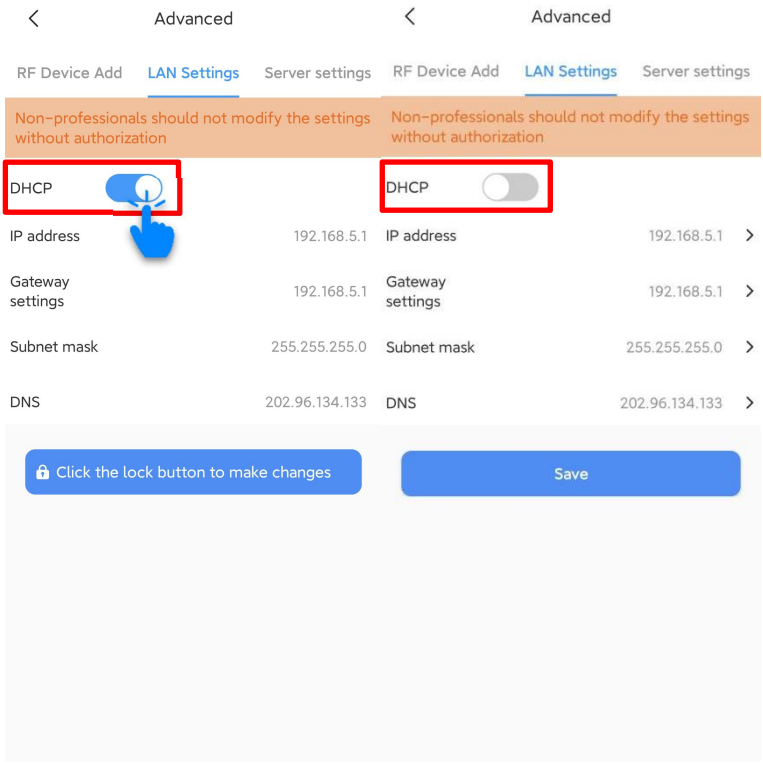
D.Configure the collector - reconfigure the collector's network and enter the advanced settings interface



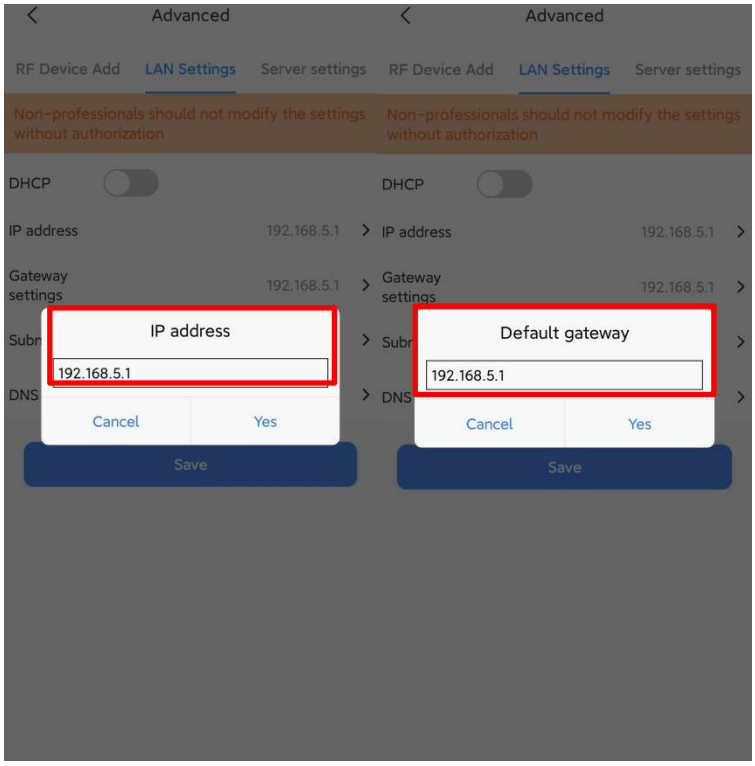
➢ 2.Select Router Settings/LAN Settings in the Advanced Settings interface, corresponding to the static IP settings for WiFi connection and Ethernet cable connection, respectively

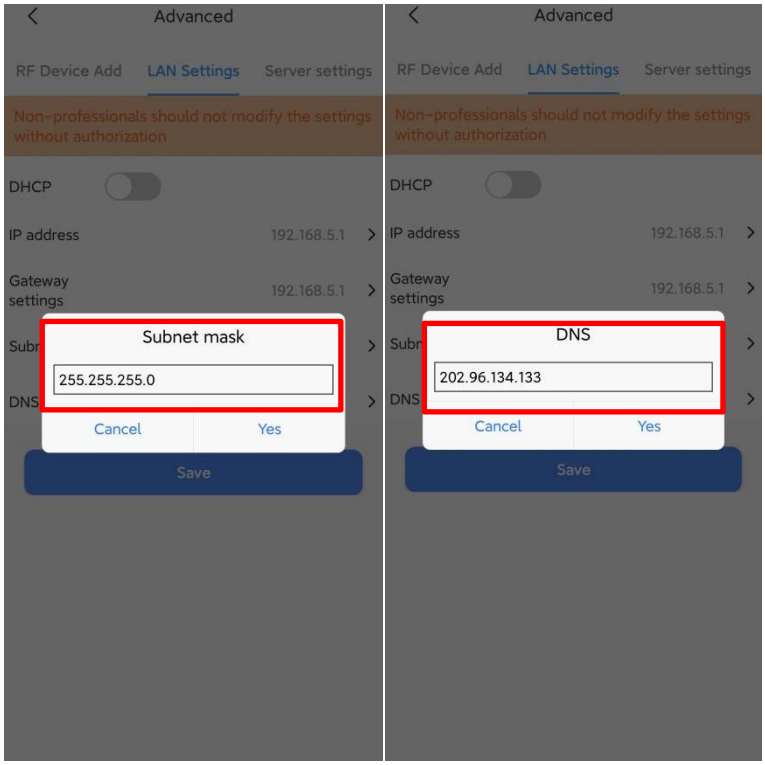


➢ 3. Turn off collector DHCP enable

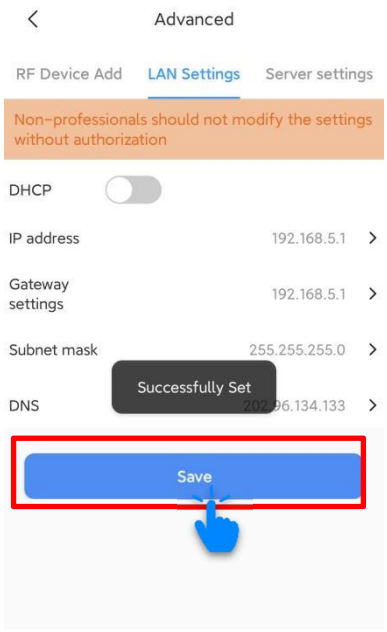


➢ 4.Click the corresponding arrow and enter the required static IP, gateway, mask, and DNS (The data shown in the figure below is only for display, please enter according to the actual situation).



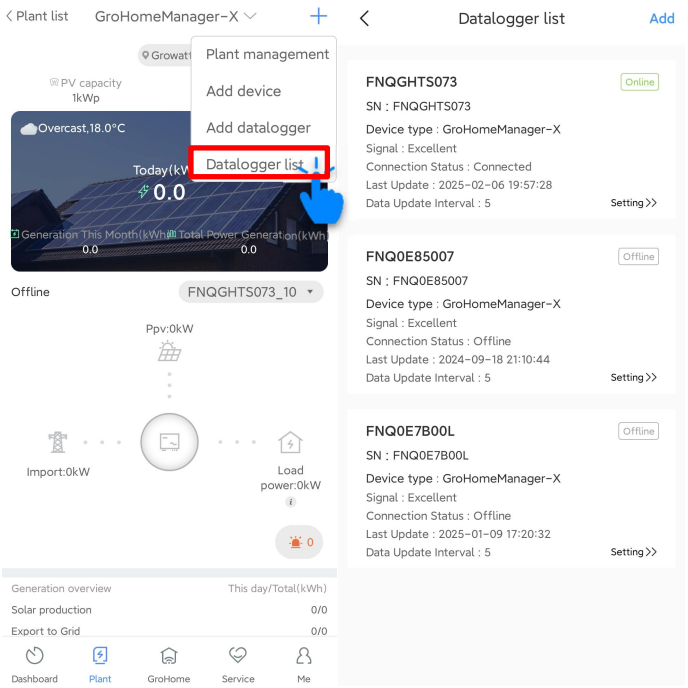

Advanced
RF Device Add
LAN Settings
Server settings
Non-professionals should not modify the settings without authorization
DHCP
IP address
192.168.5.1
Gateway settings
192.168.5.1
Subnet mask
255.255.255.0
Cancel
Yes
Save
Advanced
RF Device Add
LAN Settings
Server settings
Non-professionals should not modify the settings without authorization
DHCP
IP address
192.168.5.1
Gateway settings
192.168.5.1
DNS
202.96.134.133
Cancel
Yes
Save

➢ 5.Save

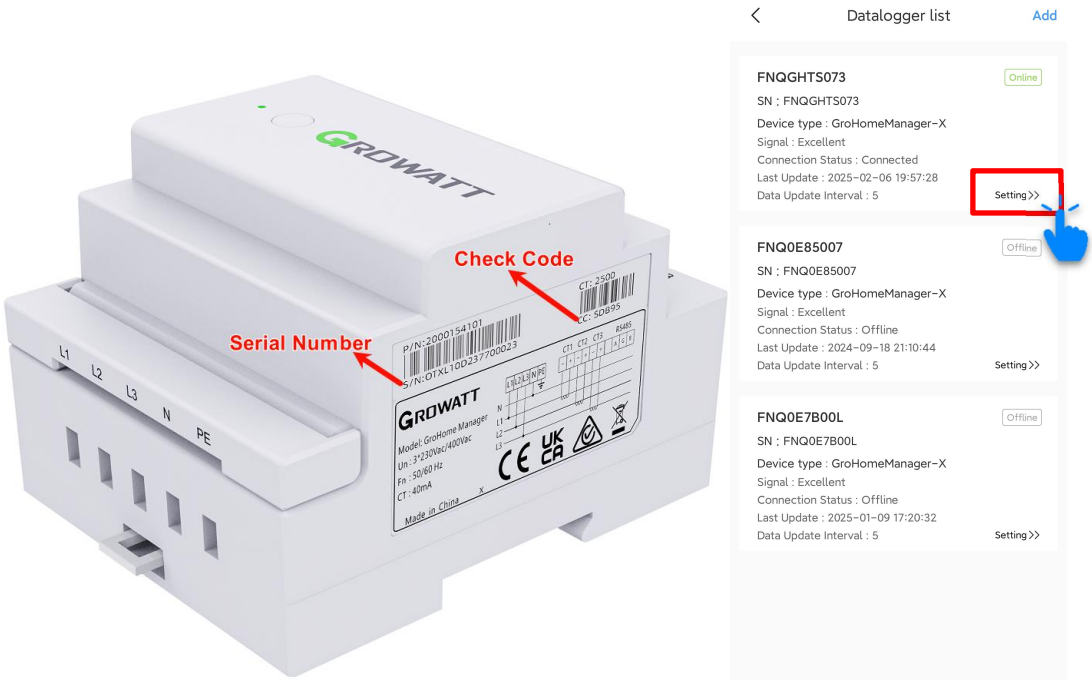

Advanced
RF Device Add
LAN Settings
Server settings
Non-professionals should not modify the settings without authorization
DHCP
IP address
192.168.5.1
Gateway settings
192.168.5.1
Subnet mask
255.255.255.0
Successfully Set
DNS
Save

4.12 Anti-backflow settings (non-professionals, please do not perform this operation)

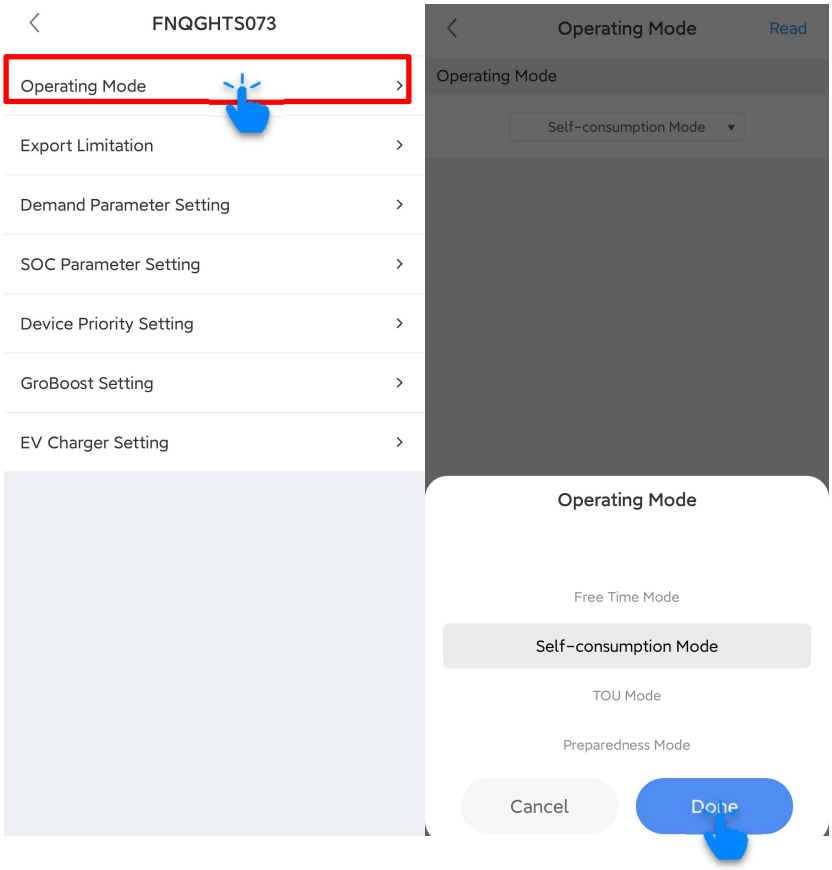
Step01.On the power station page, click the "+" collector list to enter the collector list interface.



Step 02: According to the serial number displayed by GroHomeManager-X, select the settings option in the lower right corner of the collector corresponding to the serial number



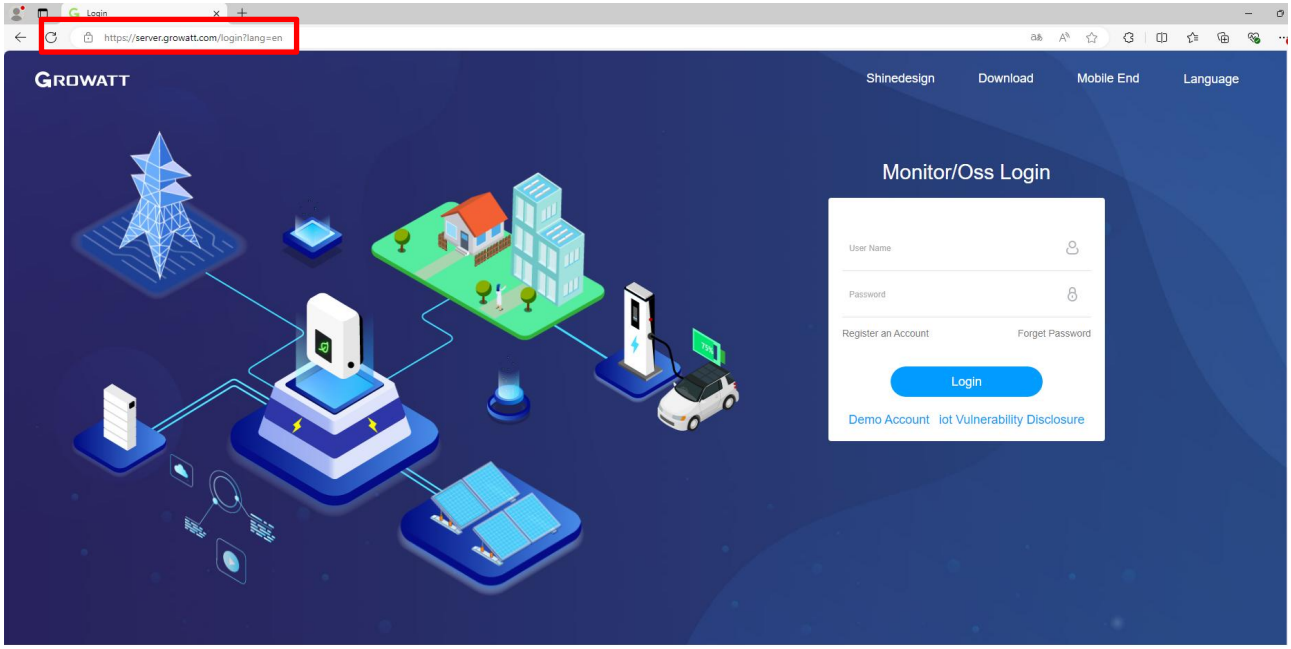
Step 03: According to the serial number displayed by GroHomeManager-X, select the setting option in the lower right corner of the collector corresponding to the serial number, enter the anti-backflow setting interface, click the anti-backflow setting, adjust the anti-backflow function to enable, set the relevant power and time parameters according to the current regional anti-backflow requirements, and click the complete button at the bottom to complete the setting.



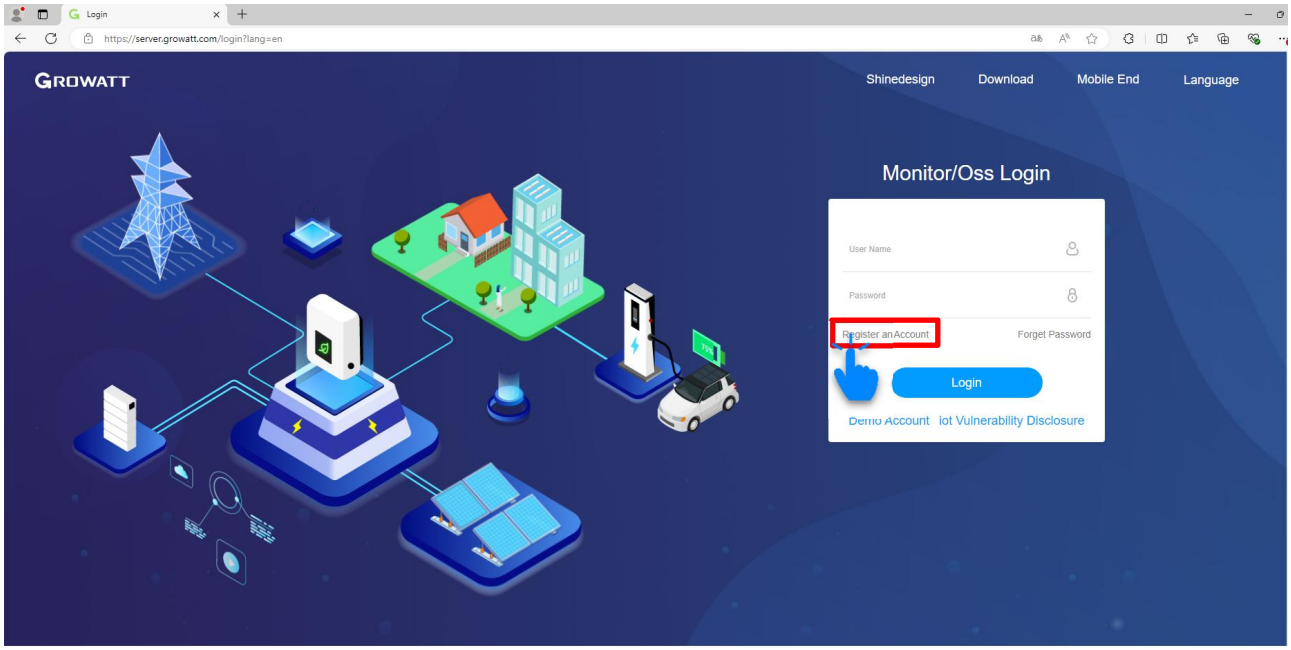
5 Server Operation Guide

5.1 Server registration (Users who have registered for the APP can skip this step and log in directly)

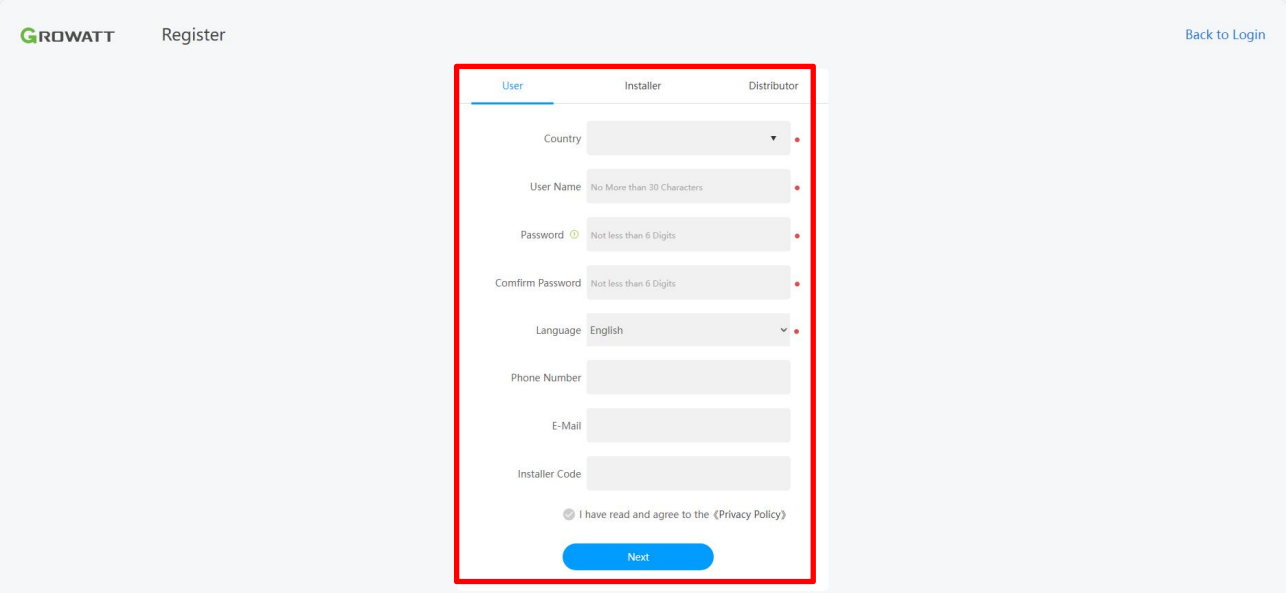
➢ 1.Use a computer browser to enter the https://server.growatt.com/login for server registration



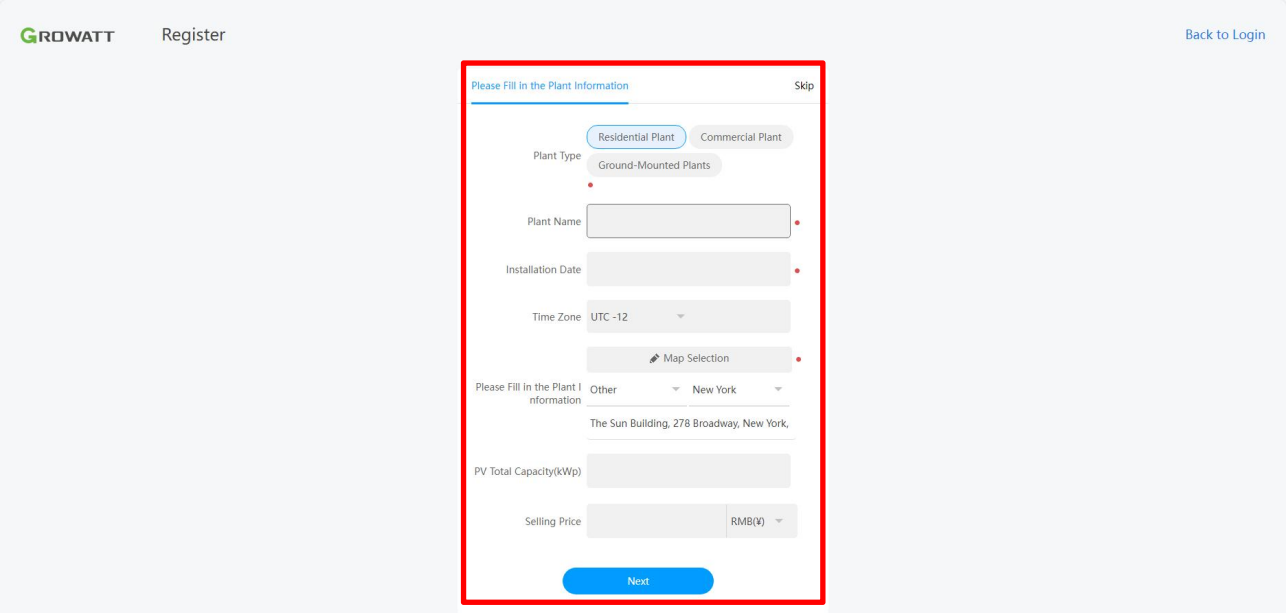
➢ 2. Click Account Registration



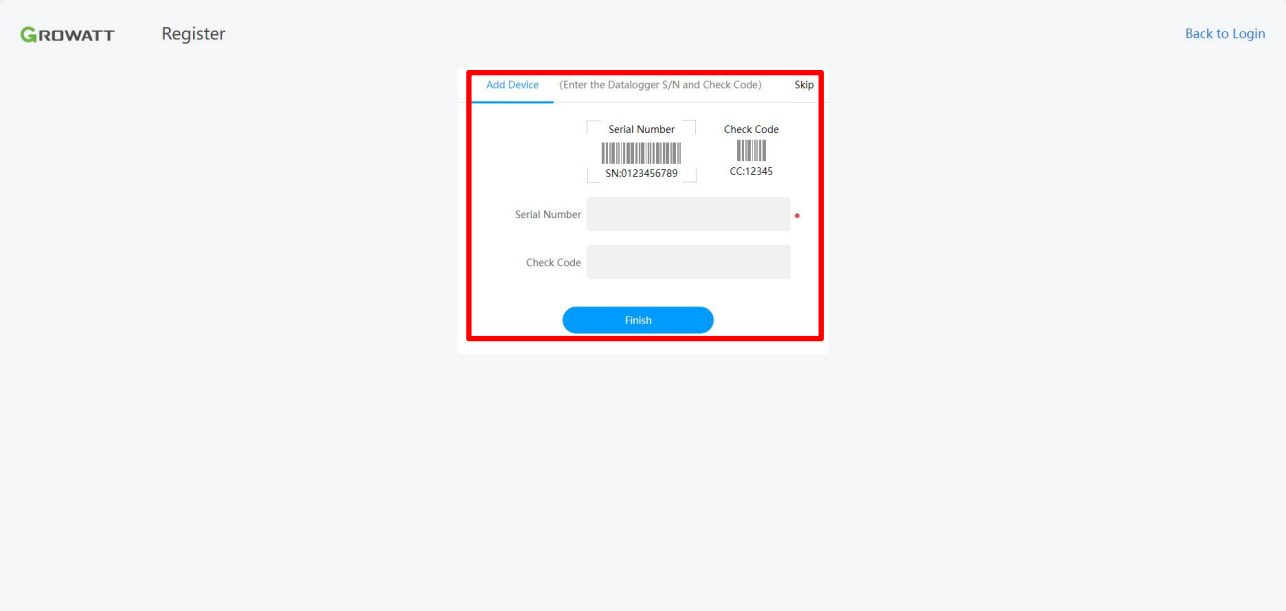
➢ 3.Users fill in the relevant information and click Next after filling in.

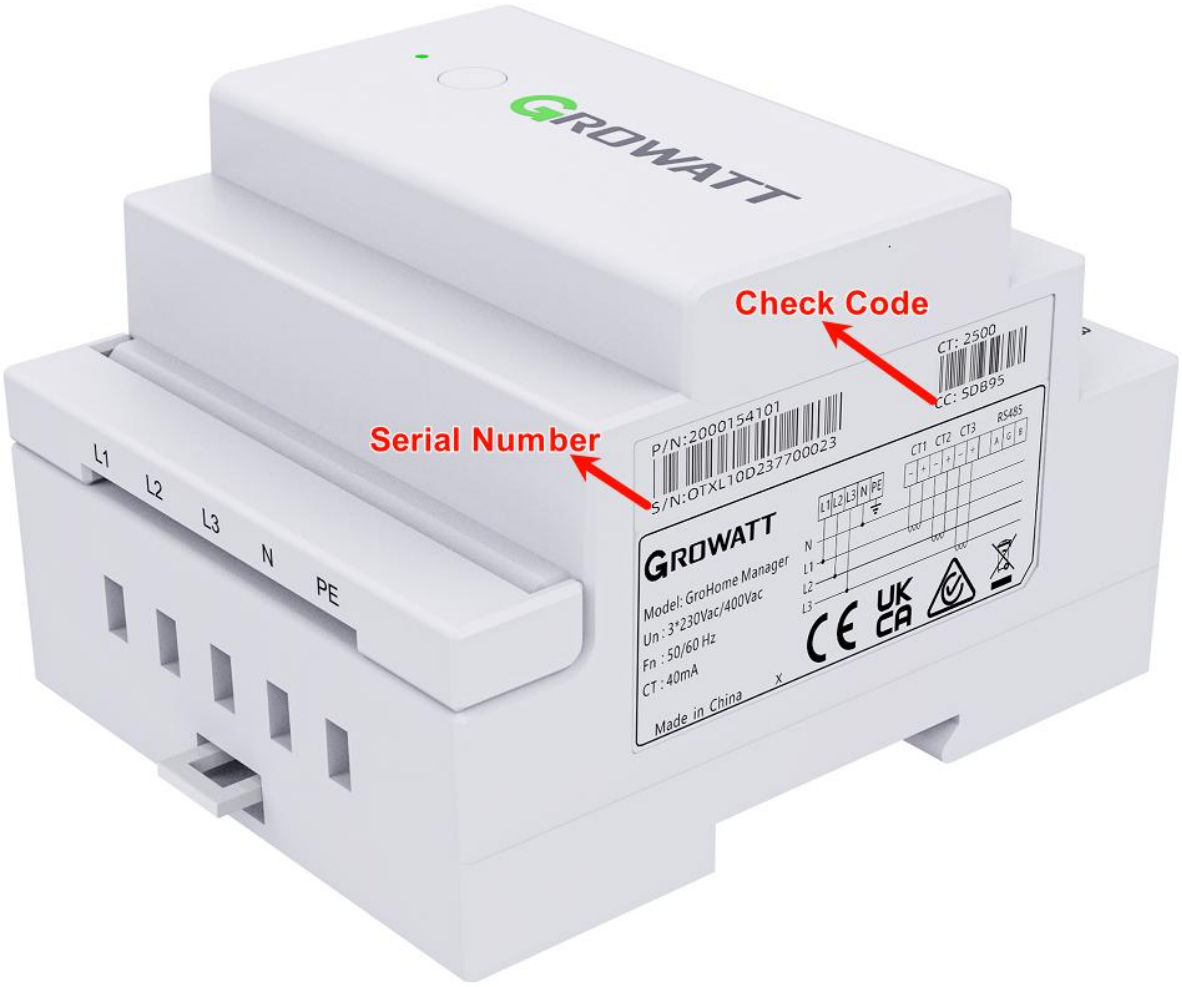


➢ 4.The user creates the power station information, and after filling it in, click Next.

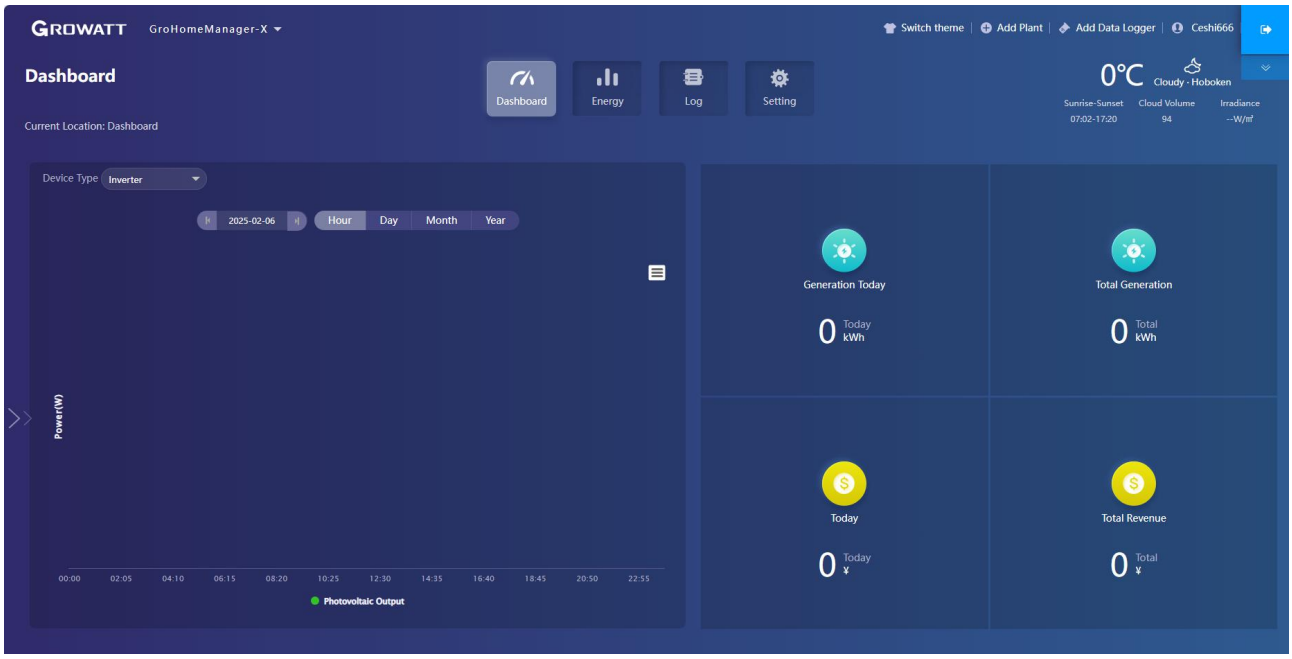


➢ 5.Enter the collector serial number and verification code, and click Finish.



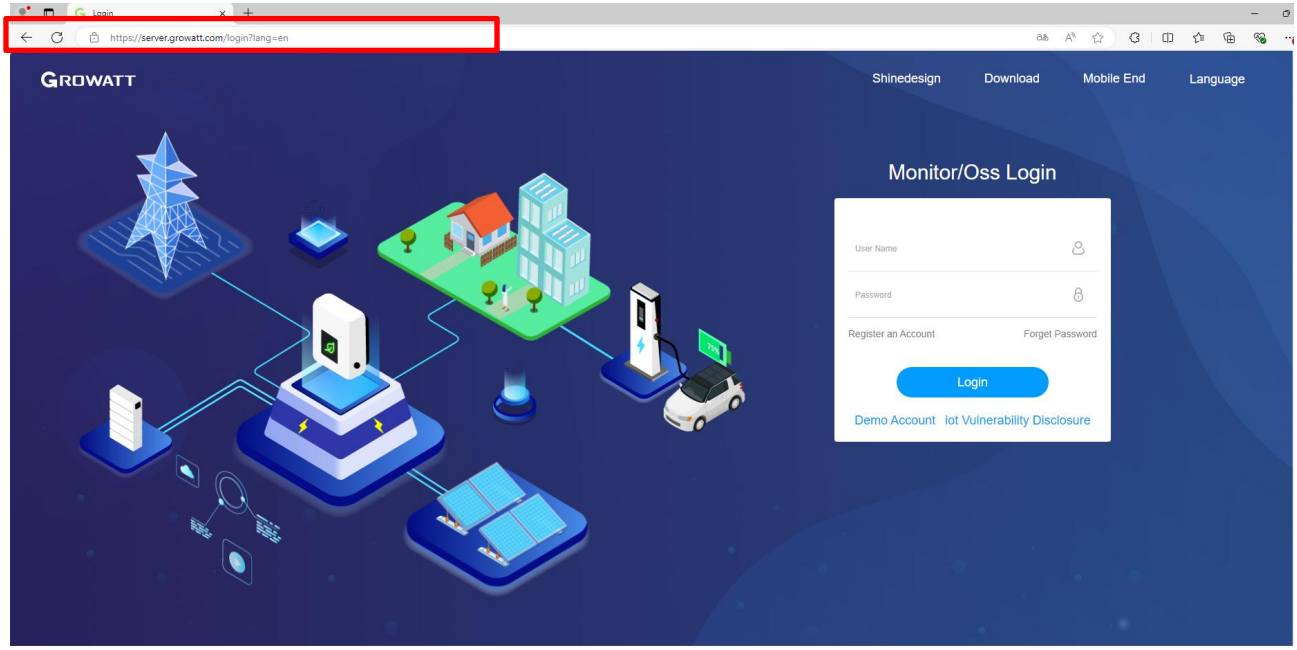


➢ 6.Registration successful, enter the power station page

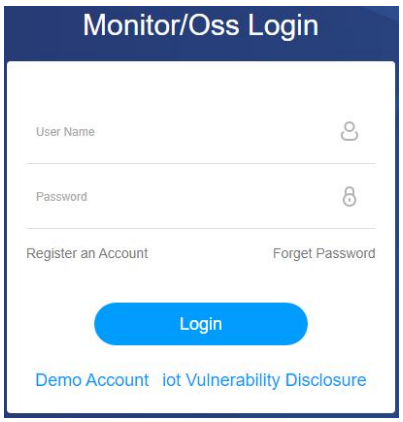


5.2 Server Login

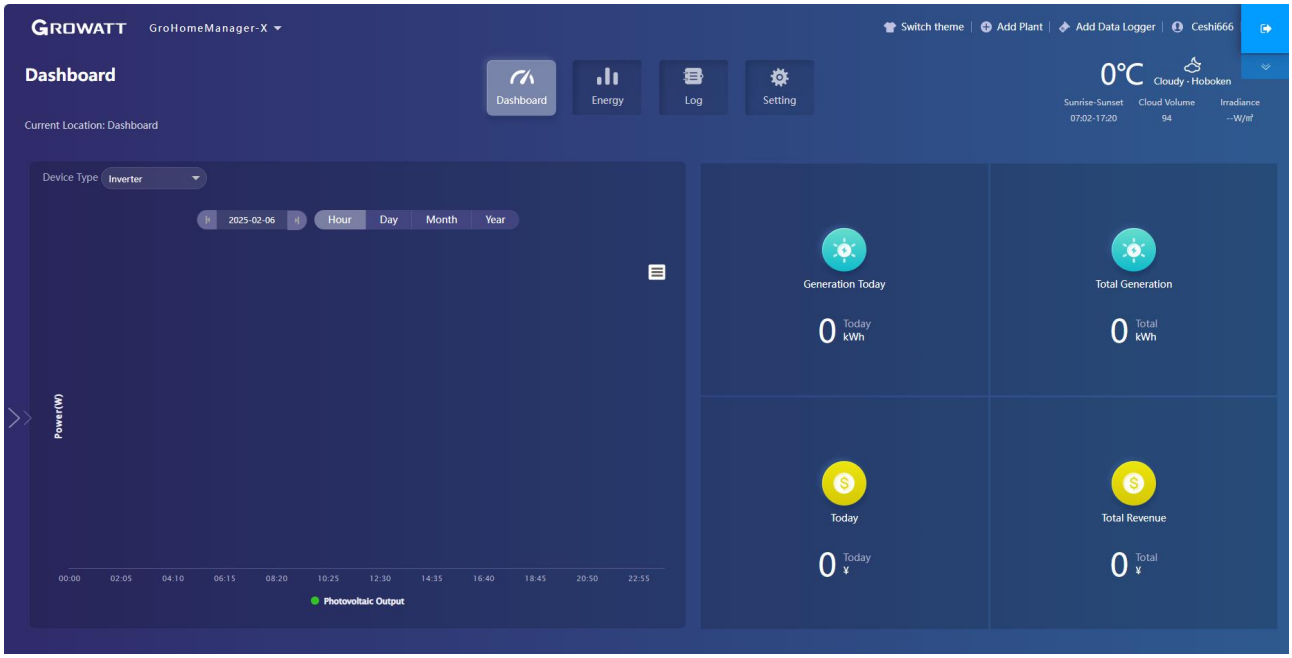
➢ 1.Use a computer browser to enter https://server.growatt.com/login



- 2.Enter the username and account registered on the Server/APP side, and click Login.

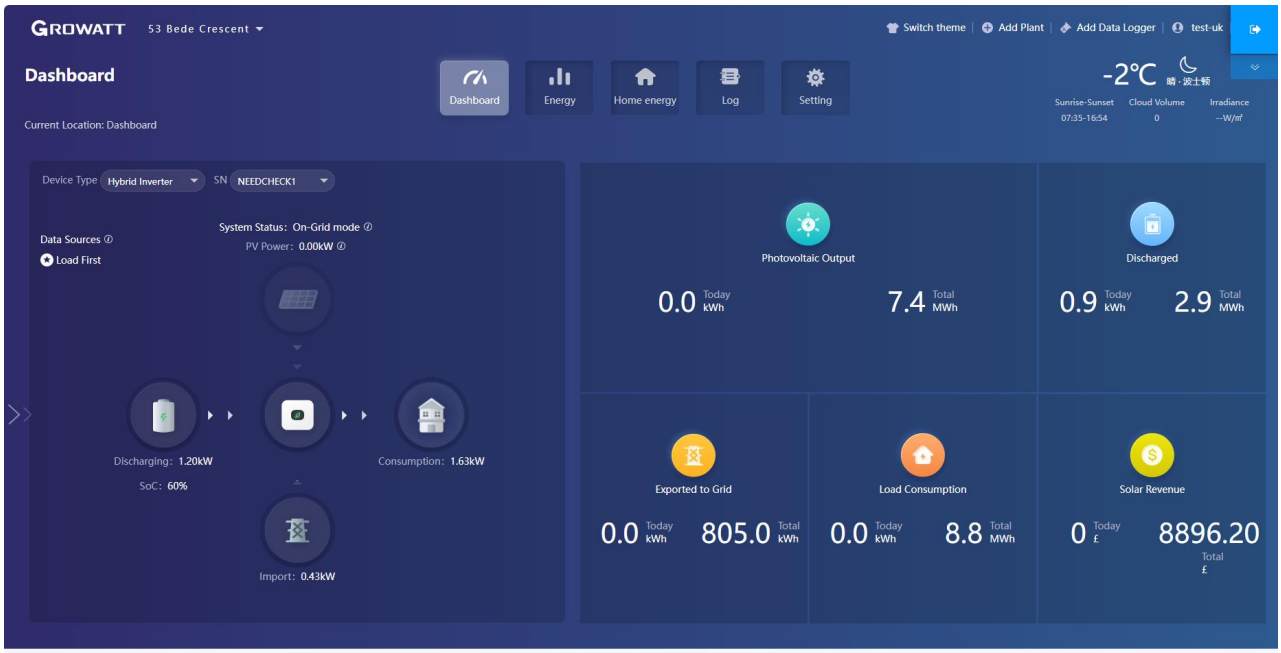


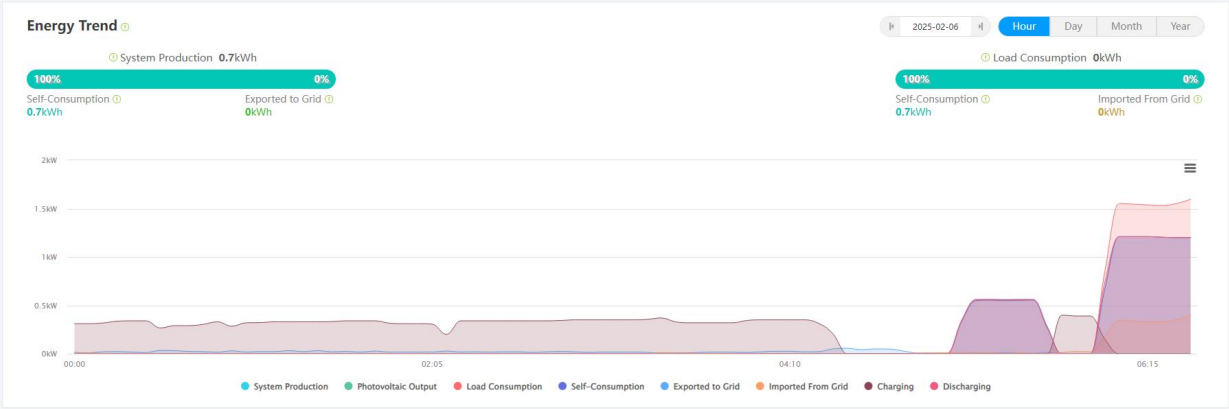
- 3.Login successfully, enter the power station page

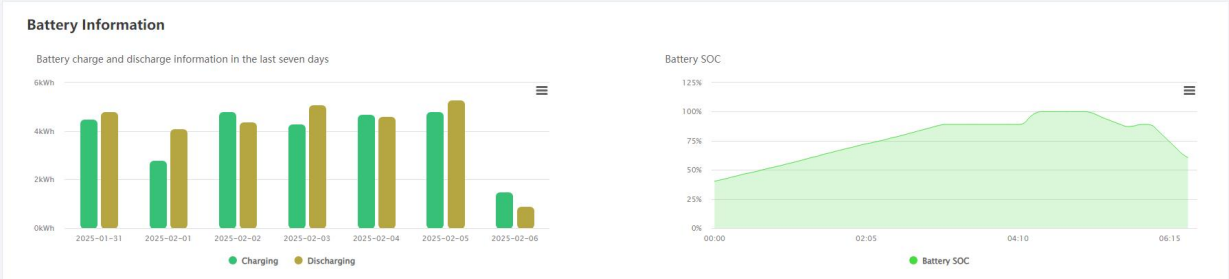


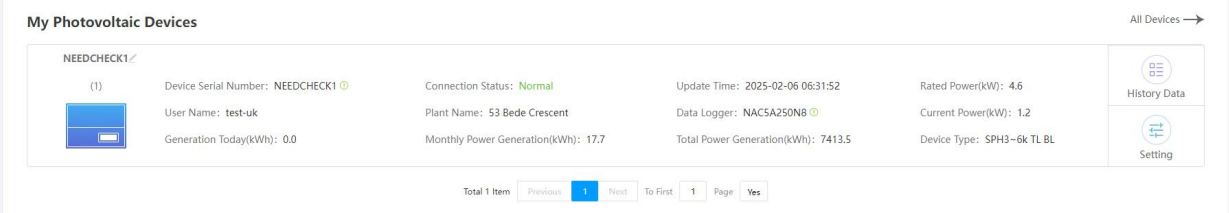
5.3 Server introduction

➢ 1.Dashboard: Presents current system status, photovoltaic parameters and energy trends, photovoltaic equipment

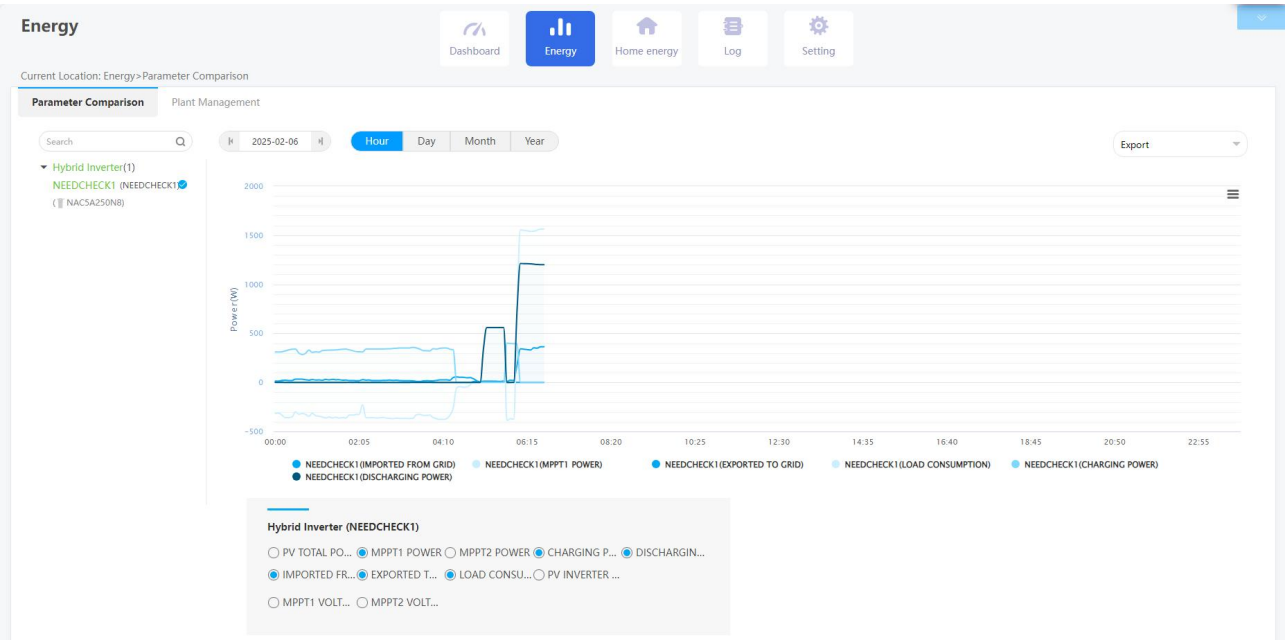




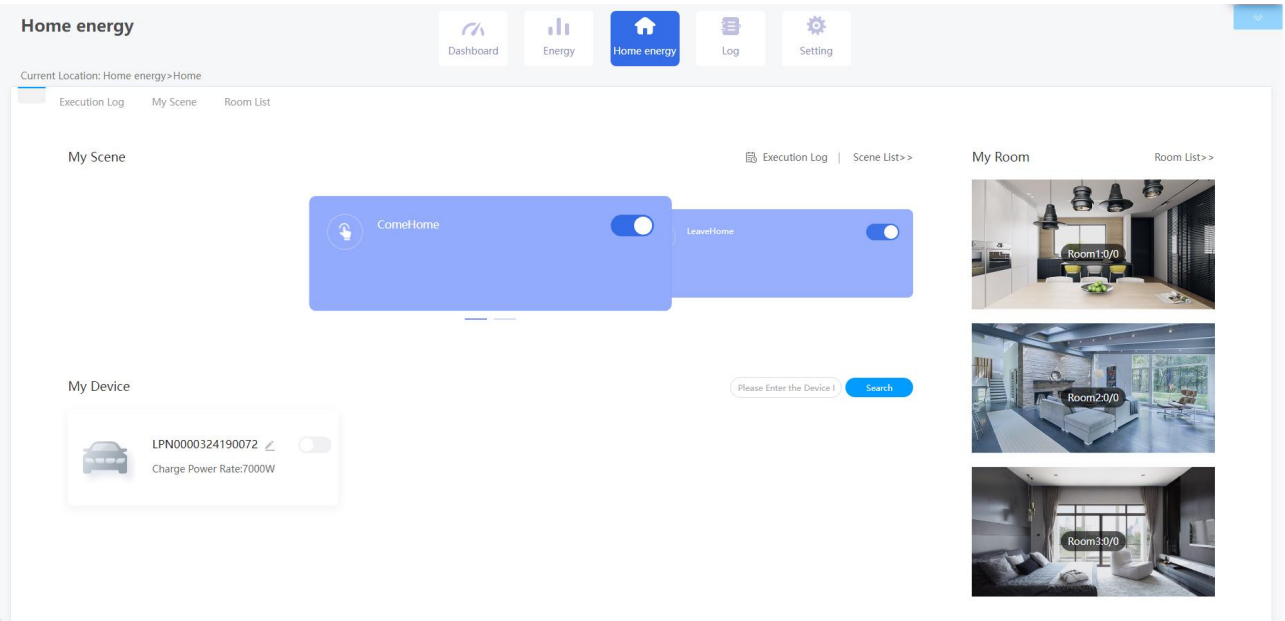




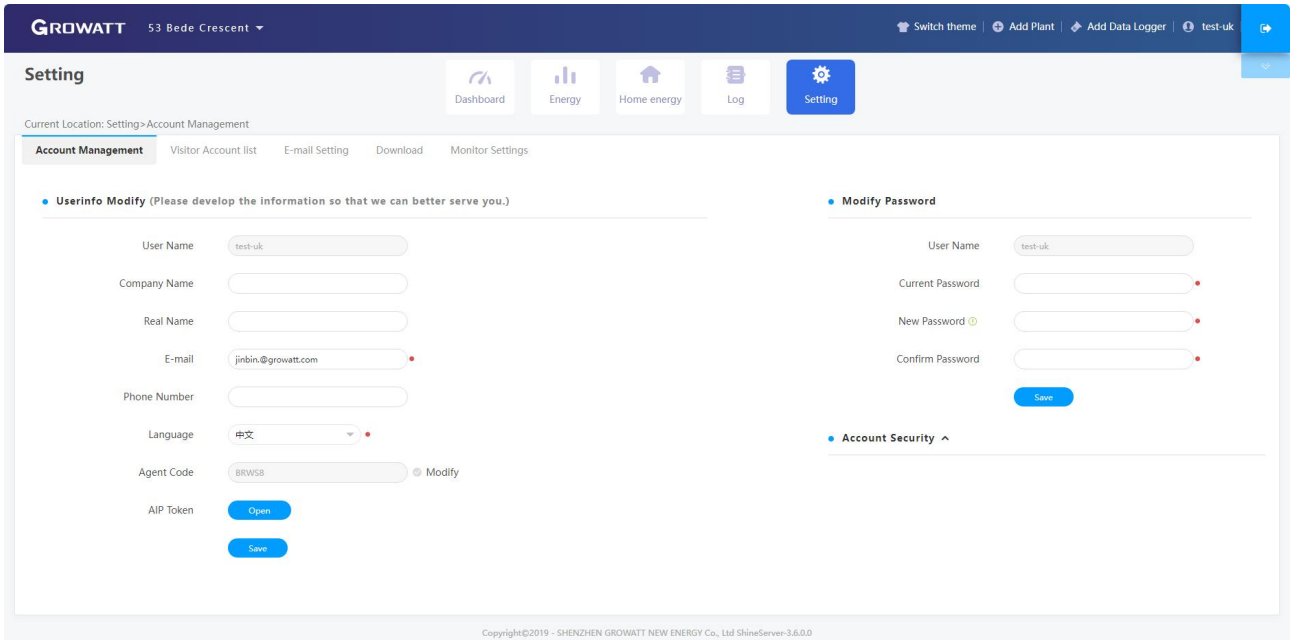
➢ 2.Energy: Showing the trend of photovoltaic parameters corresponding to photovoltaic equipment



➢ 3.Home energy: Present charging piles, GroBoost devices, and execute corresponding intelligent scenarios

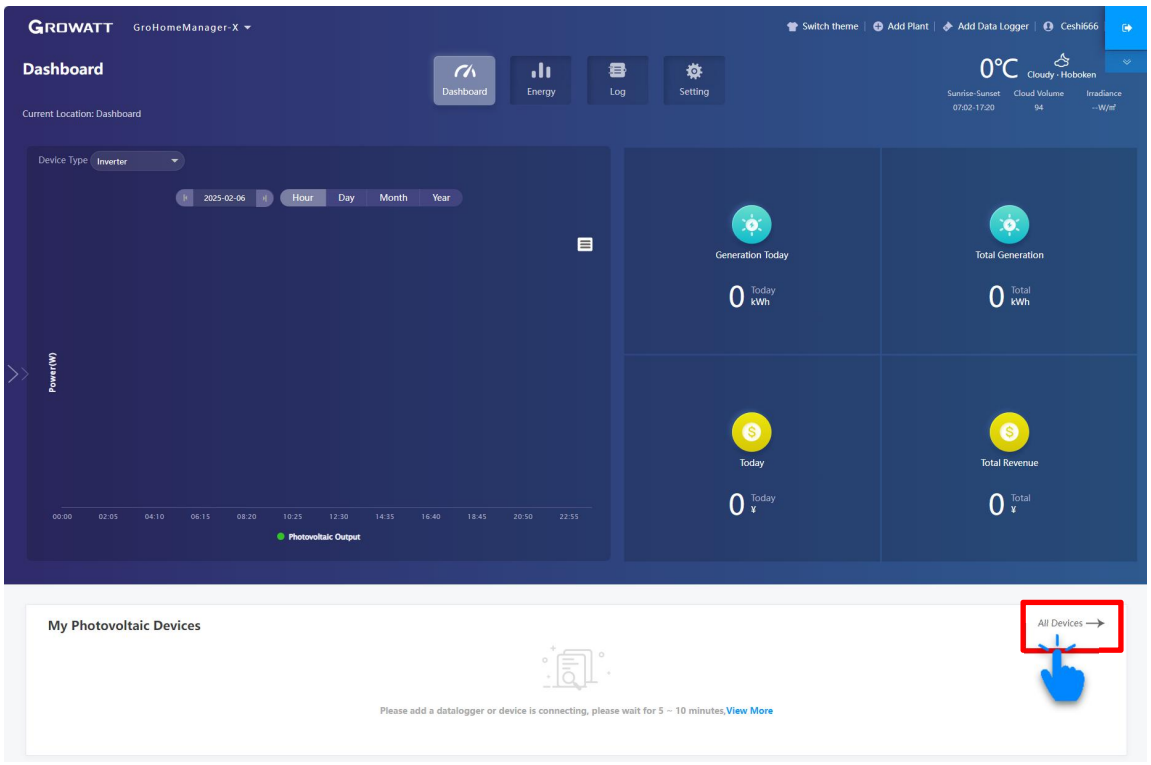


➢ 4.Settings: Account Settings Interface

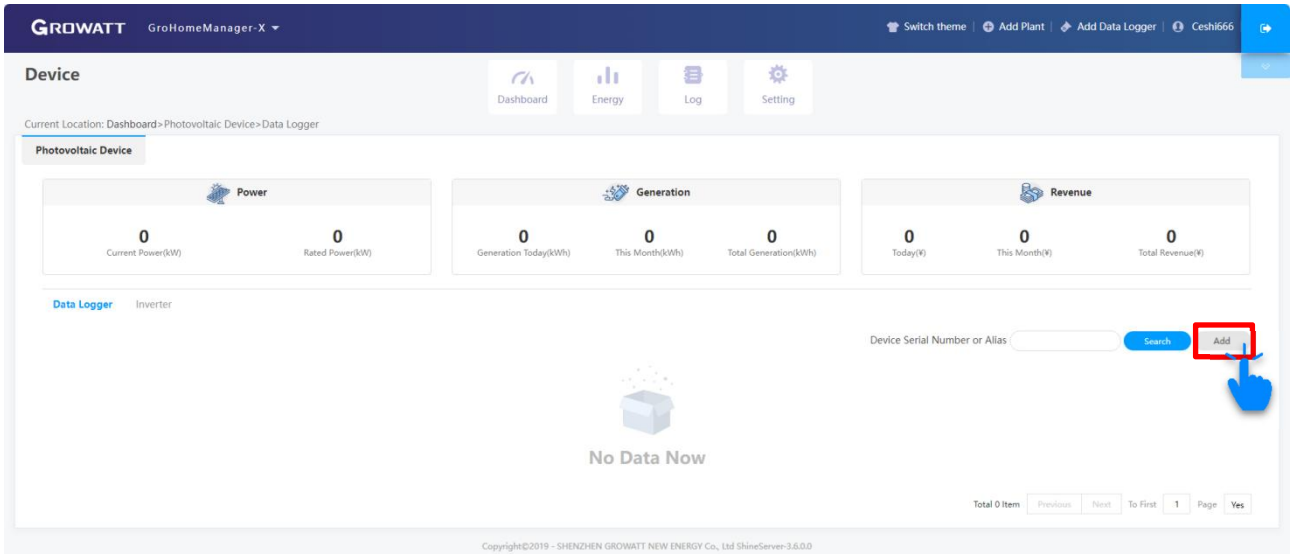


5.4 Add energy management device GroHomeManager-X (If added on the APP side/when registering an account, the device can be viewed directly without this step)

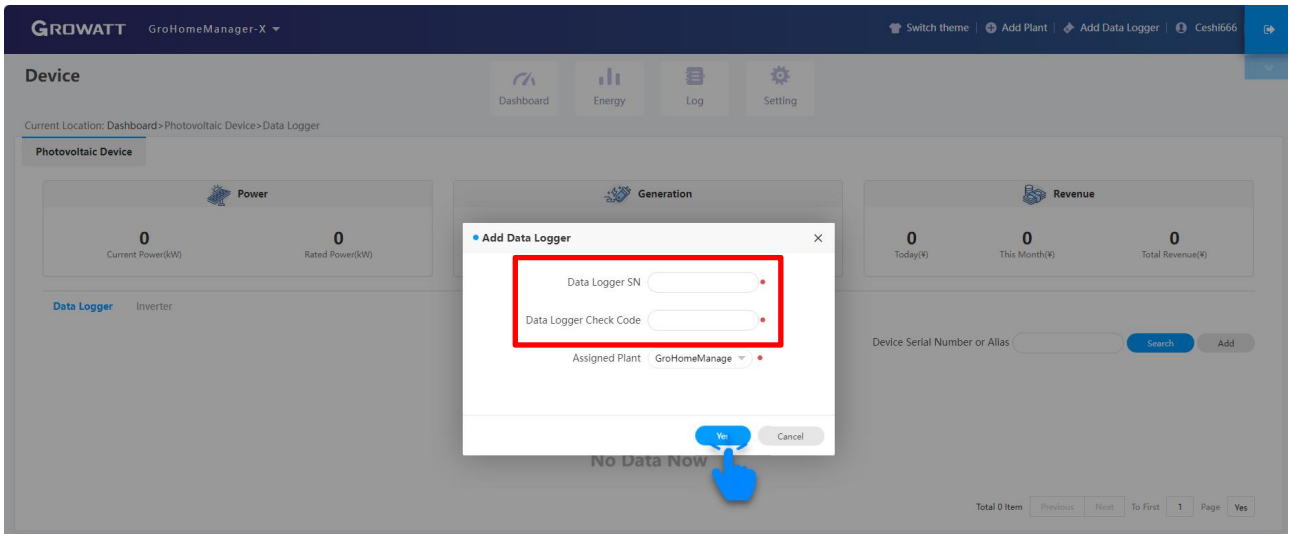
➢ 1.Scroll down the mouse on the dashboard interface, slide to the My Photovoltaic Equipment interface, and click the All Devices button.

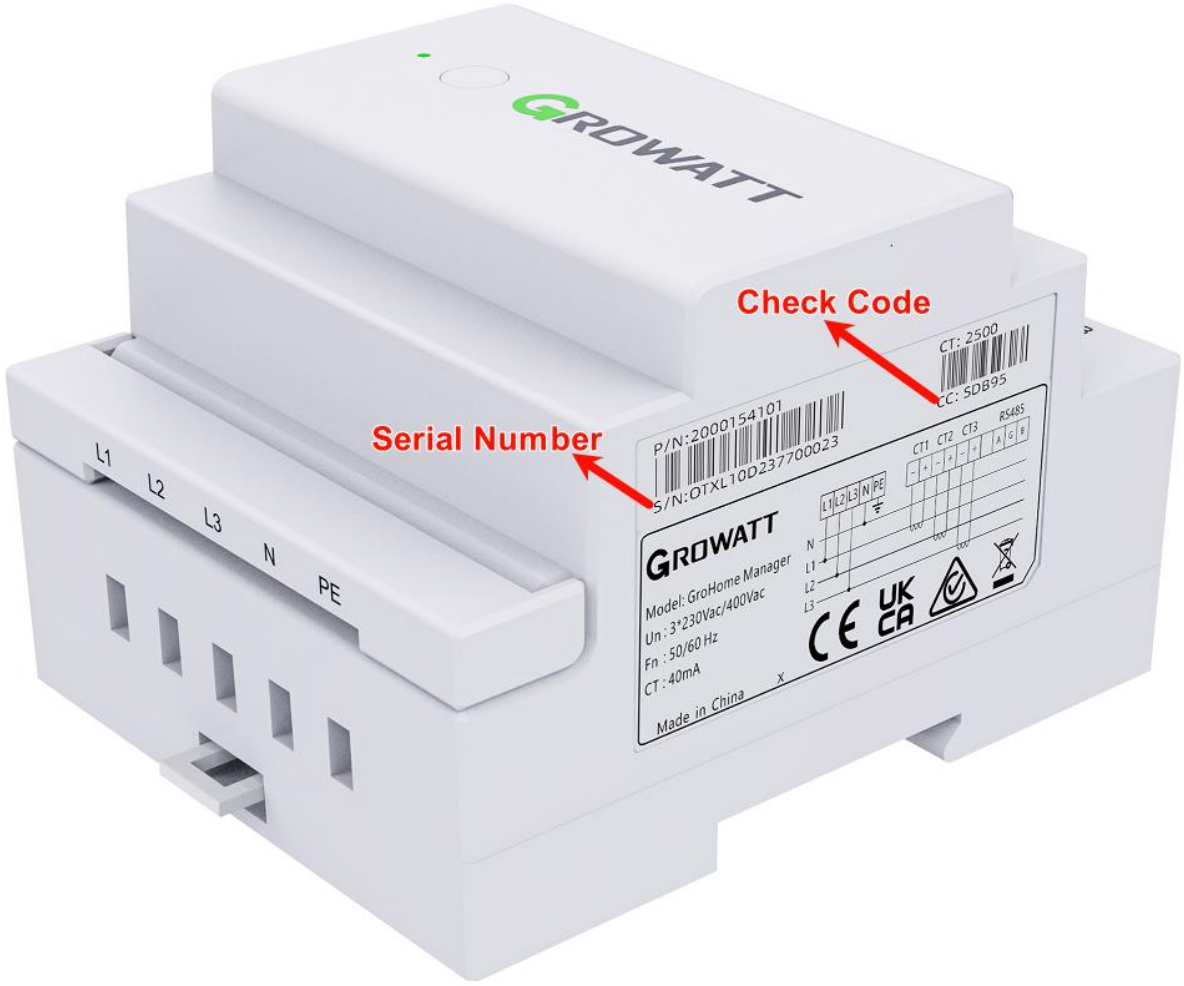


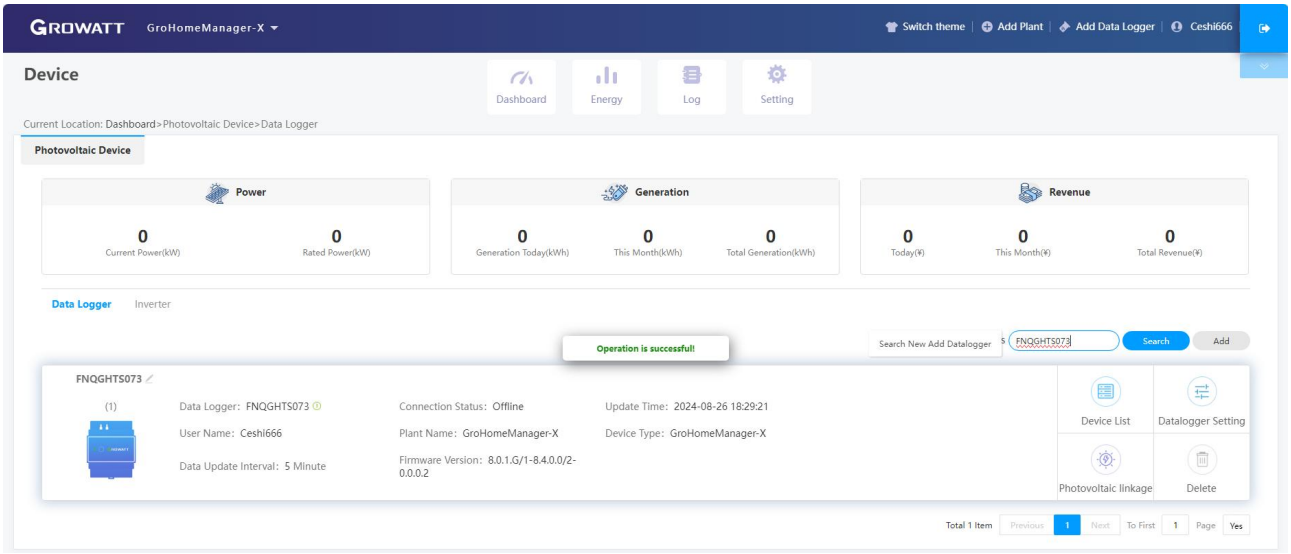
➢ 2.Click the Add button on the Data Acquisition interface



➢ 3.Enter the collector serial number and check code information, and click OK to complete the addition.

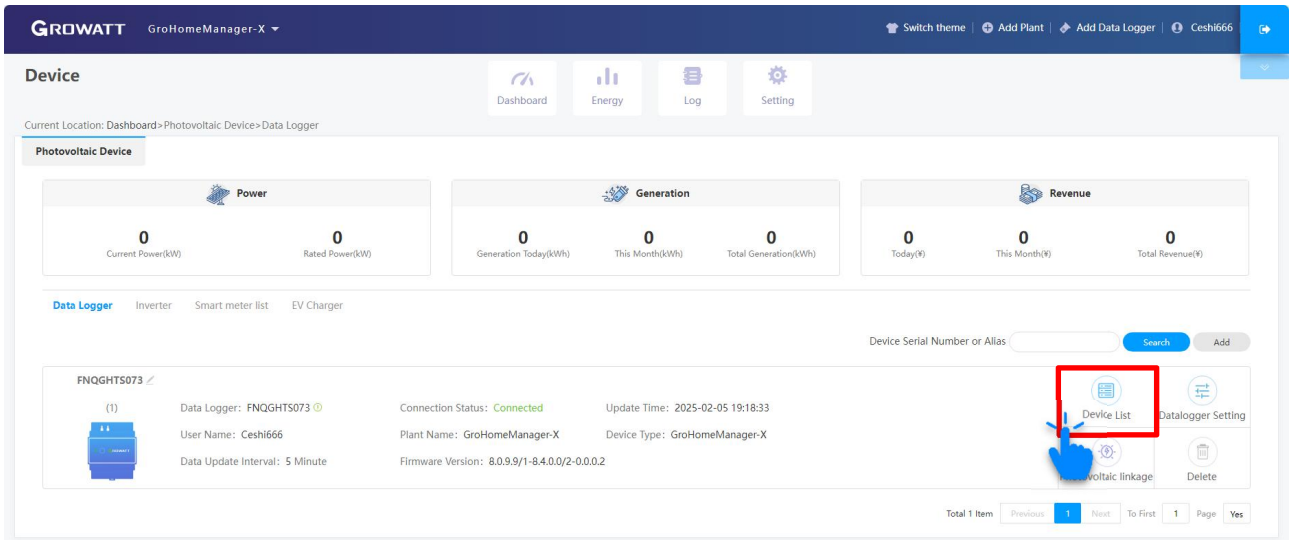




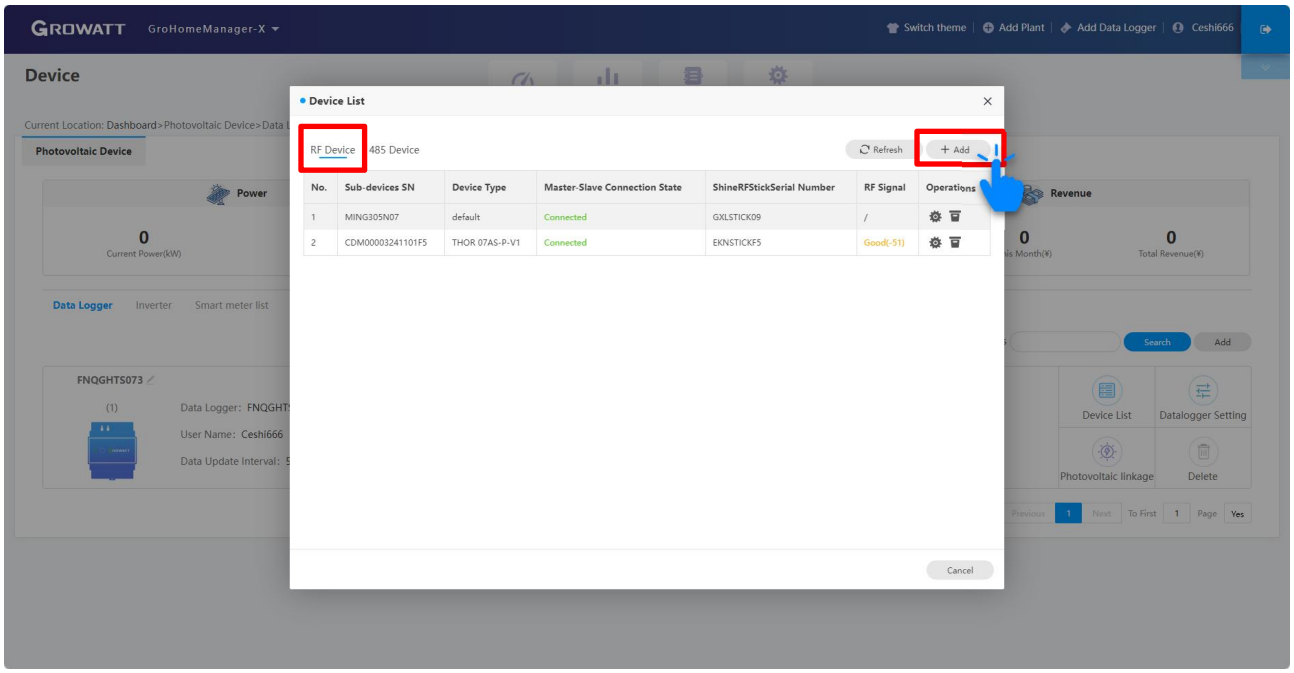


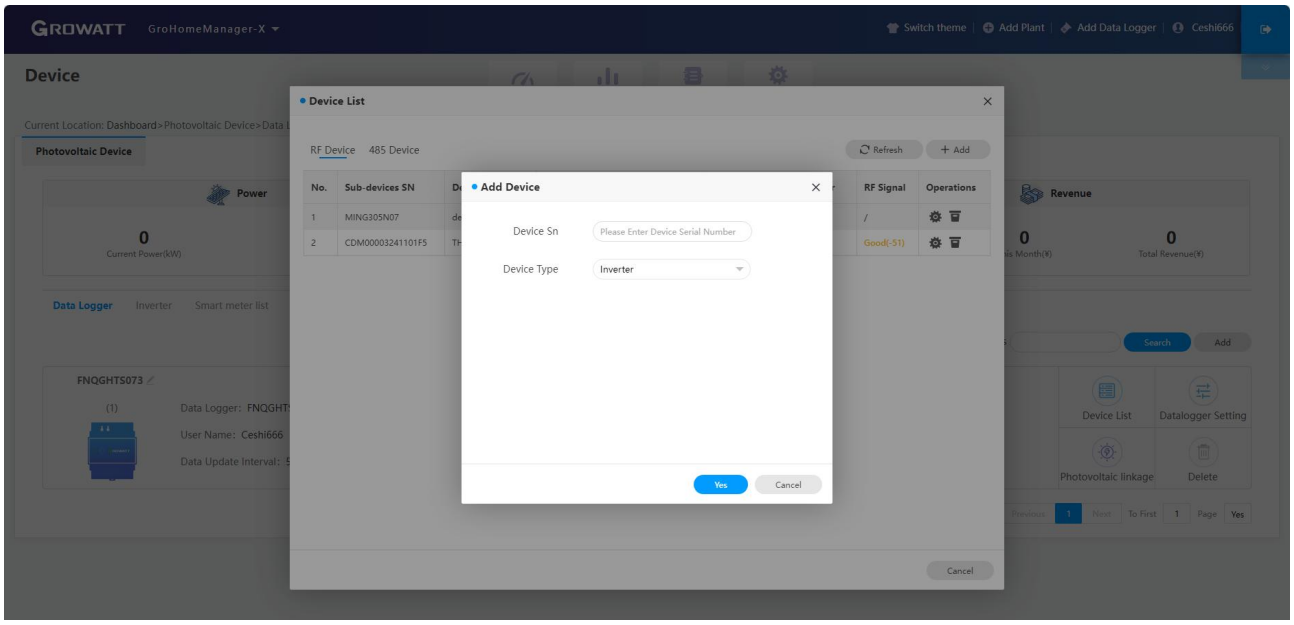
5.5 RF Device Oriented Matching and RF Facility Management

➢ 1.Click the Facility Management button of the corresponding serial number Energy Manager



➢ 2.Click the Add button in the RF Devices section of the Facility Management interface





➢ 3.Turn on the pairing mode of the RF slave device

The following is a guide for RF slave devices to open pairing mode:

Enabled by factory default, please follow the prompts below to enter

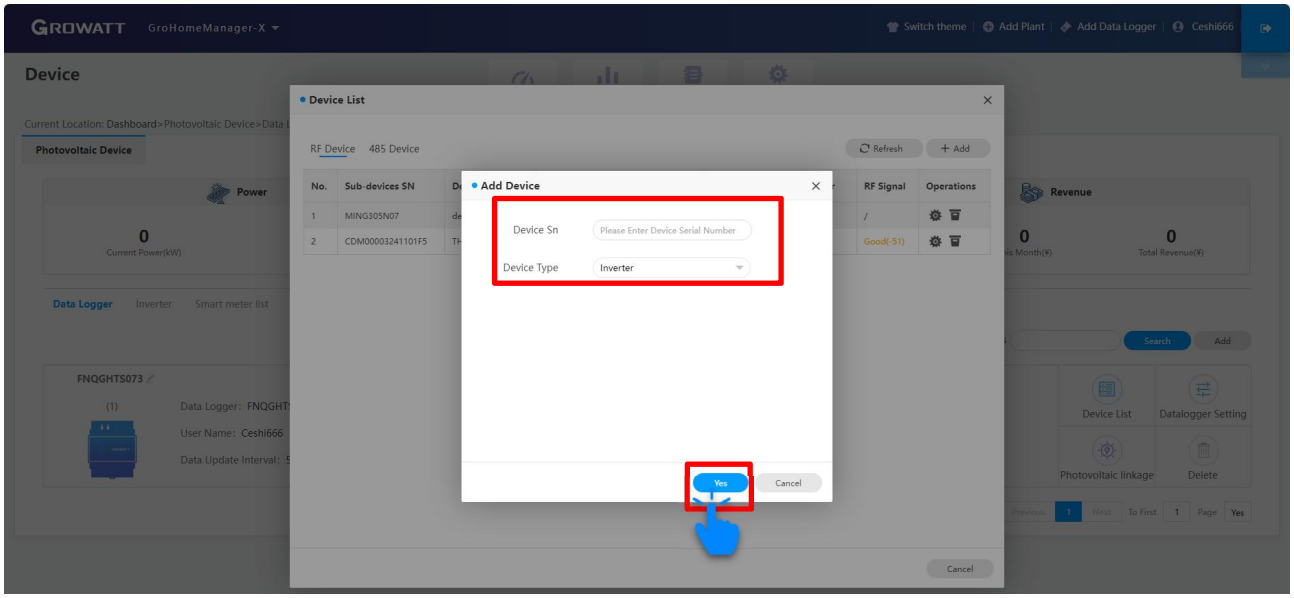
①ShineRFStick-X2：Double-click the bottom button, the indicator light flashes yellow

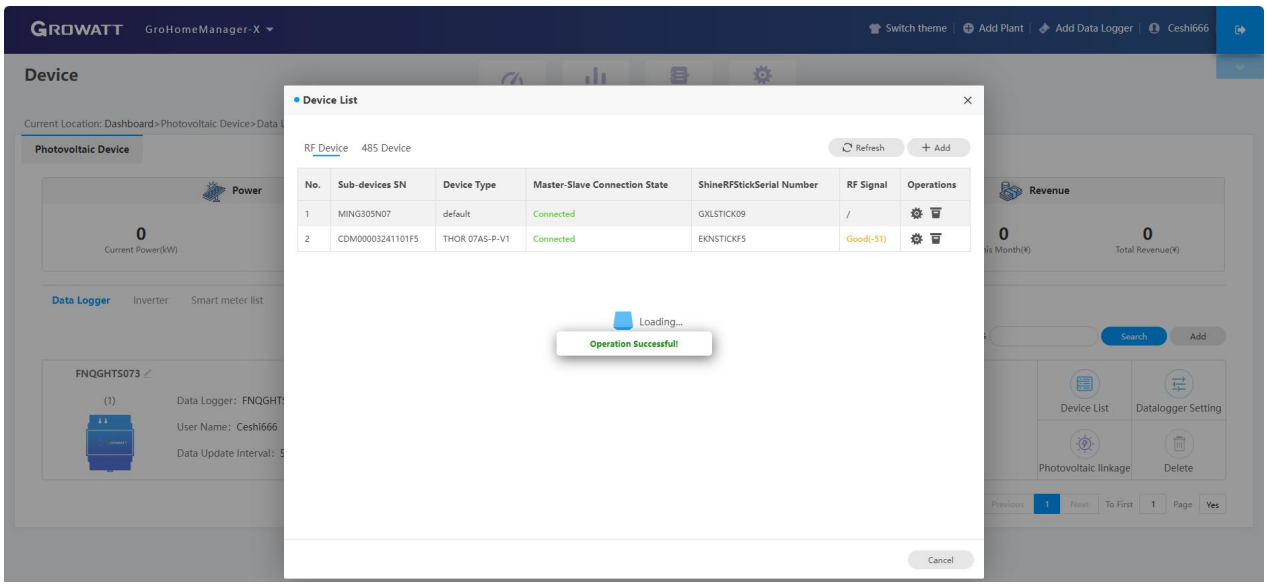
②GroBoost-X：Long press the Home button, L3 light flashes

③Charging pile: Press the button 3 times within 3 seconds. The indicator light flashes yellow

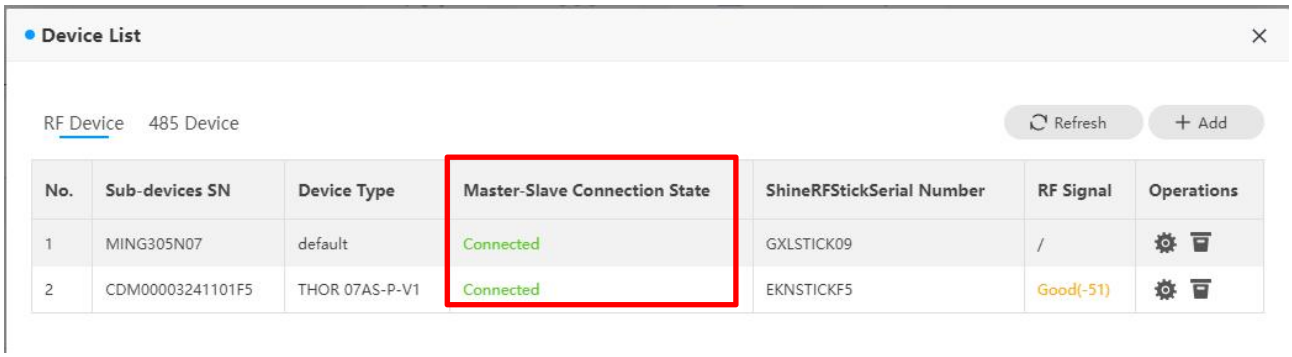
④NEO: Switch AC twice, open and close AC time recommended 5S

➢ 4.Enter the serial number of the RF slave device and select the corresponding RF device type, then click OK



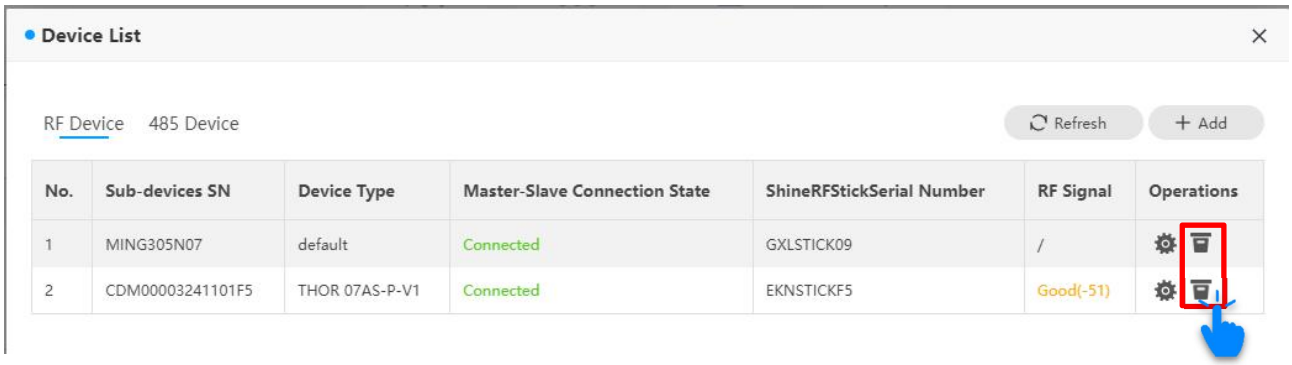


➢ 5.After the RF pairing connection is completed, the status bar of the RF device list of Facility Management will switch from offline to online.

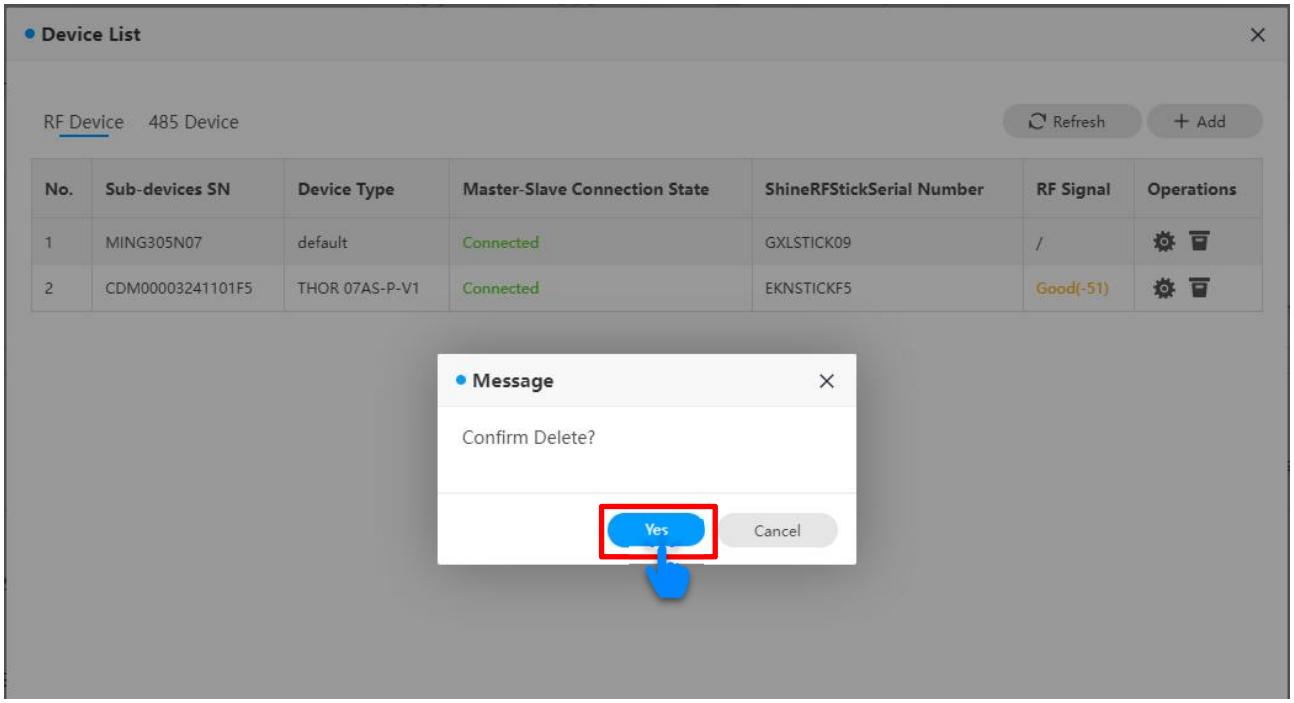


➢ 6.RF device deletion (non-professionals, please do not perform this operation)

Step 01: Click the trash can button in the operation column of Facility Management to delete the RF device with the corresponding serial number.

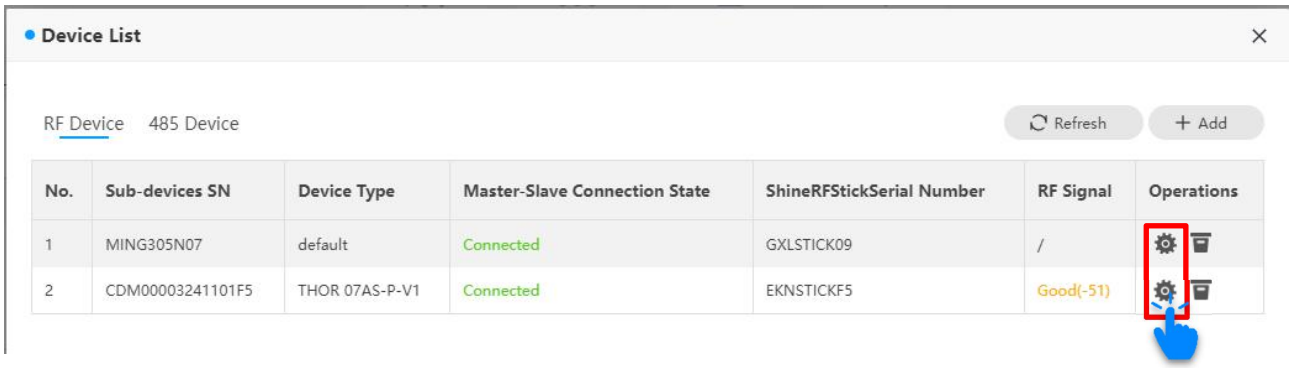


Step 02: Click "YES"

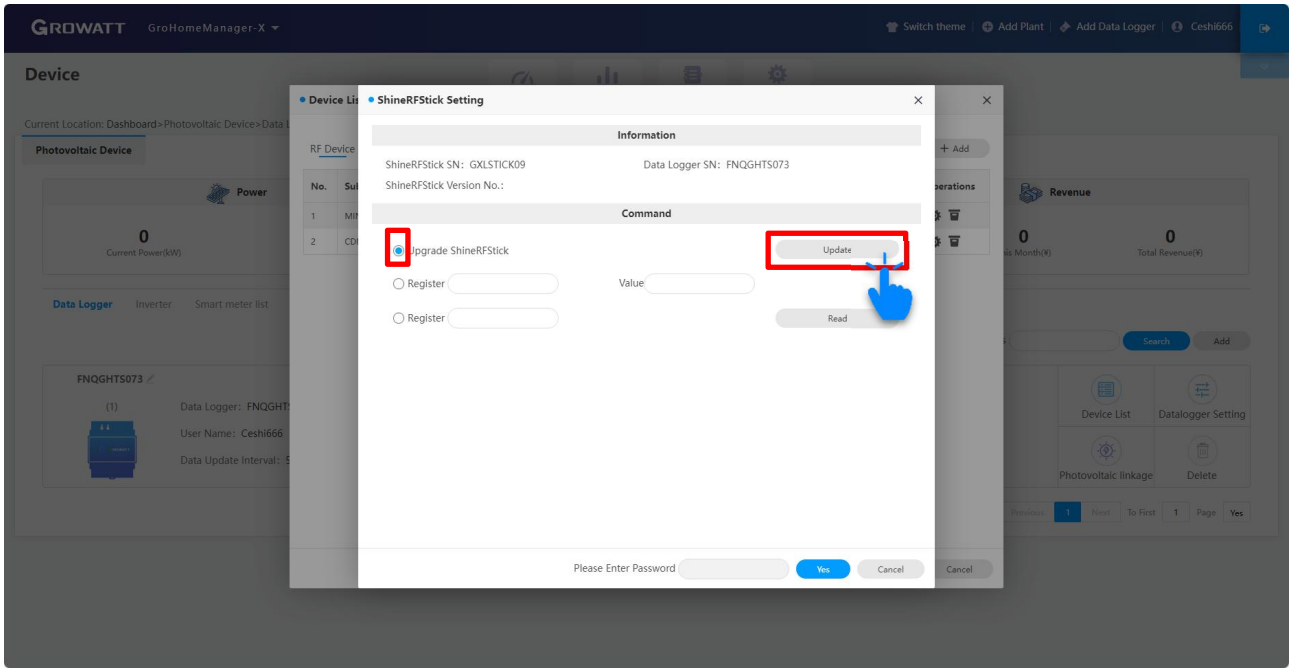


➢ 7.RF slave device ShineRFStick upgrade (non-professionals, do not perform this operation)

Step 01: Click the gear button for the RF equipment to be upgraded in the Operation section of Facility Management

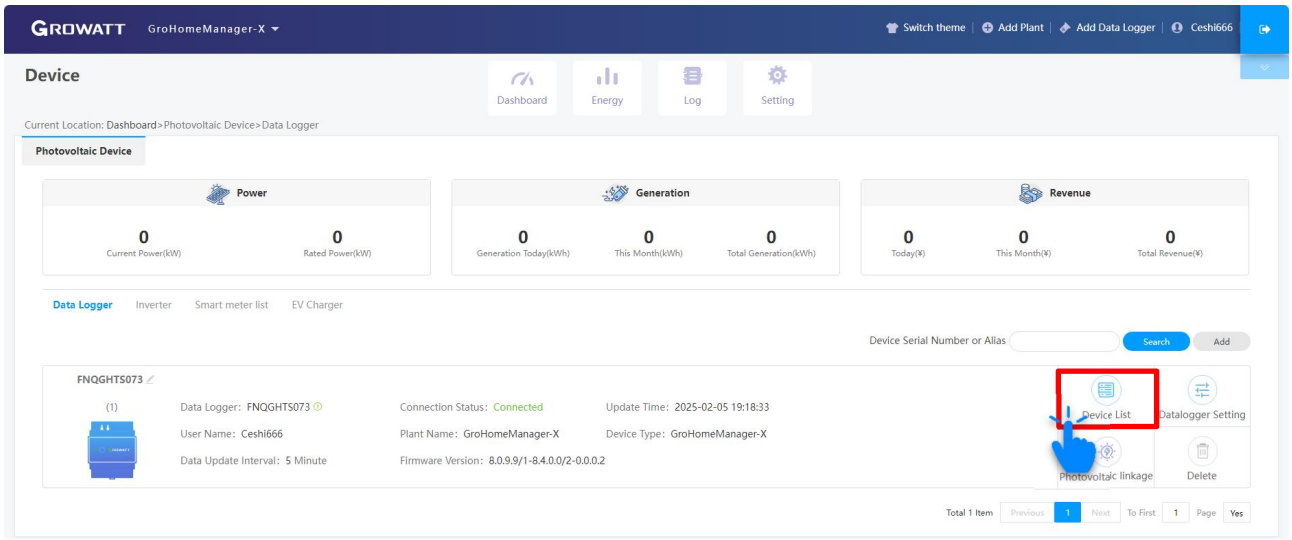


Step 02: Check Upgrade ShineRFStick, click Upgrade, and wait for 15Min to complete the upgrade.

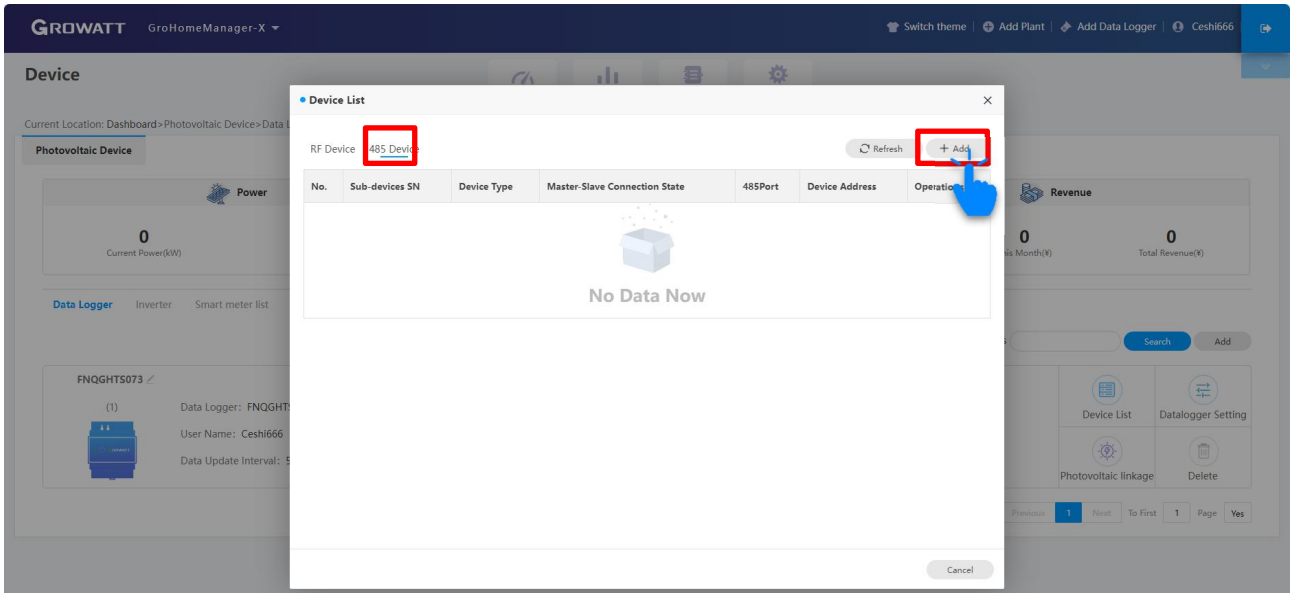


5.6 RS485 device addition and removal (non-professionals, please do not perform this operation)

➢ 1.Click the Facility Management button of the corresponding serial number Energy Manager



➢ 2.Click the Add button in the RS485 device in the Facility Management interface



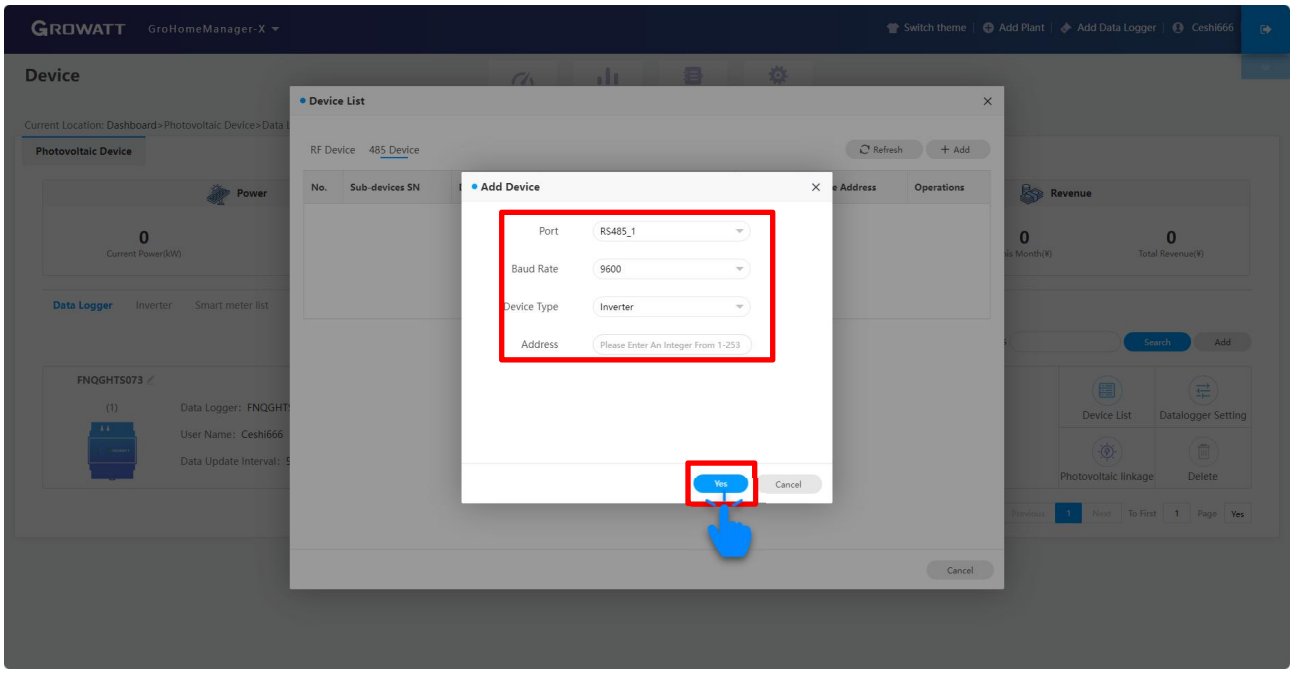
➢ 3.Enter the RS485 parameters corresponding to the added device

Port selection: GroHomeManager-X has 3 485 ports, corresponding to RS485_1, RS485_2, RS485_3, each 485 supports connecting 2 photovoltaic devices, and the corresponding port can be selected according to the installation.

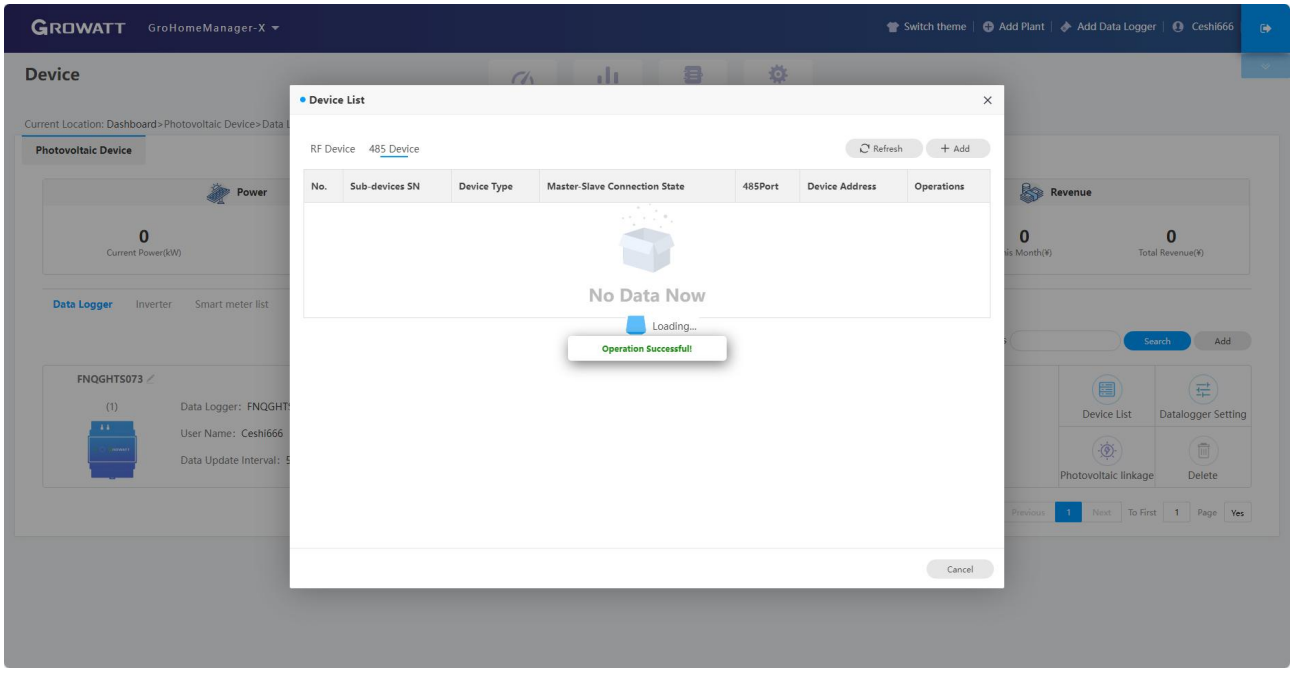
Baud rate selection: The default baud rate of GroHomeManager-X is 9600, and it also supports 4800, 38400, 115200, 19200. You can choose the corresponding baud rate according to the requirements of your device.

Device type selection: The default device type of GroHomeManager-X is inverter, and it can also support energy storage machines, electric meters, charging piles, portable power supplies, and GroBoost. You can choose the corresponding device type according to the needs of the device.

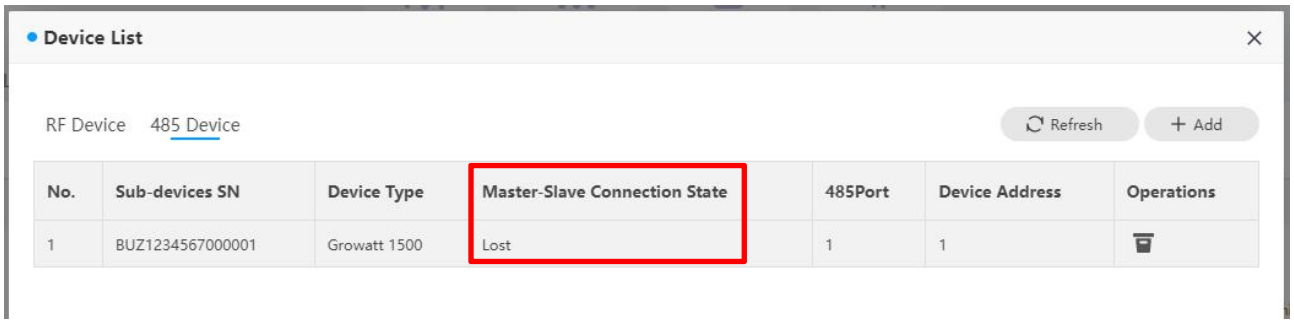
Address input: GroHomeManager-X Fill in the 485 address 1-253 of the external device.



➢ 4.Click the "OK" button after the input is complete.

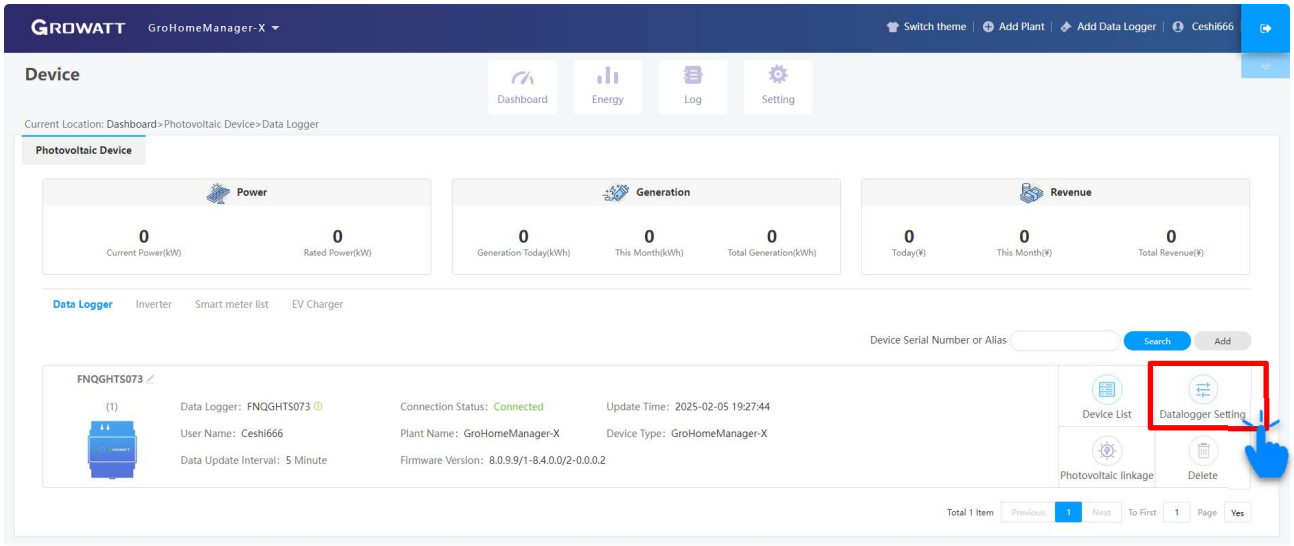


➢ 5.After the RS485 device connection is completed, the status bar of the RS485 device list in Facility Management will switch from offline to online.

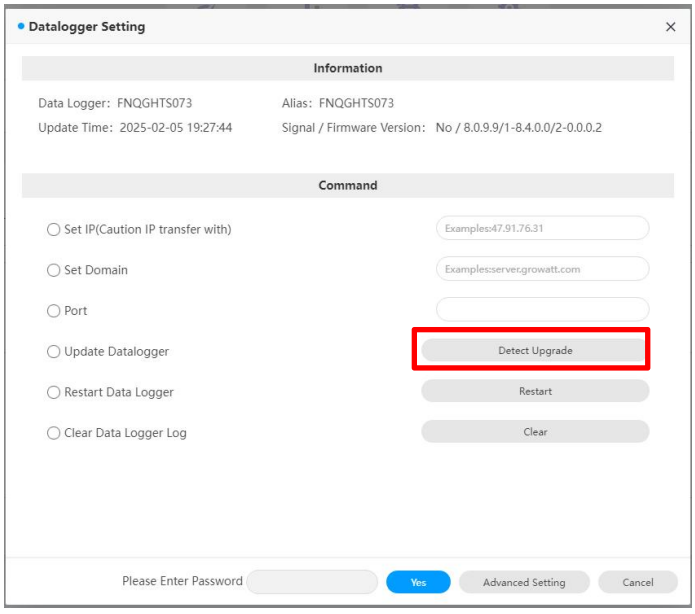


5.7 Equipment upgrade (non-professionals, please do not perform this operation)

➢ 1.Click Collector Settings to enter the collector settings interface

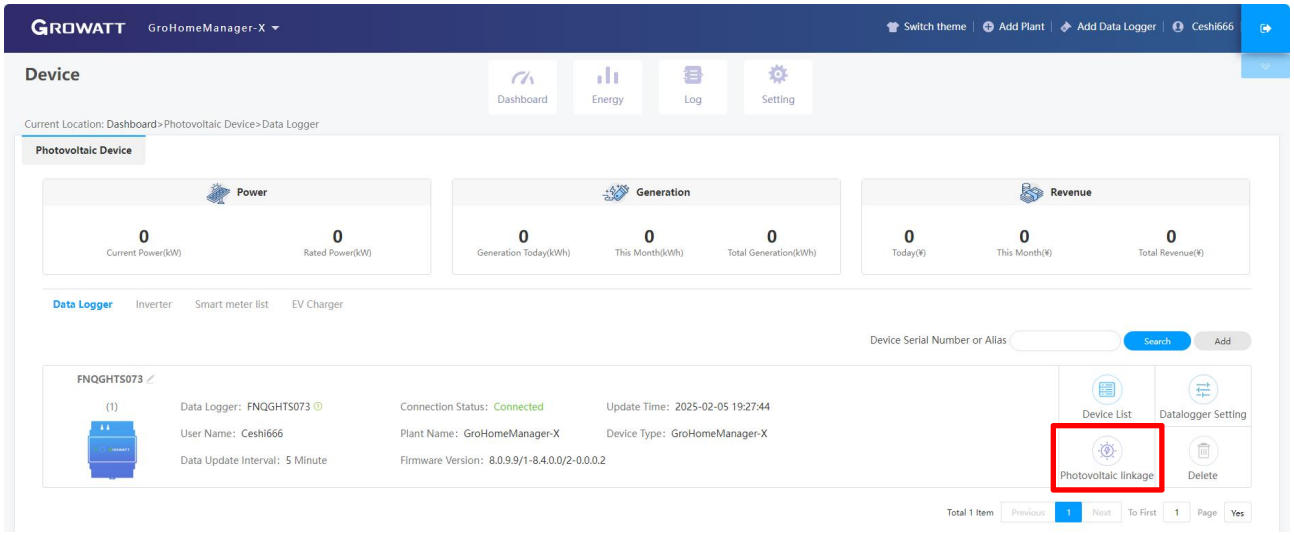


➢ 2.Check the upgrade collector, click detect upgrade, and wait for 5Min to complete the upgrade.

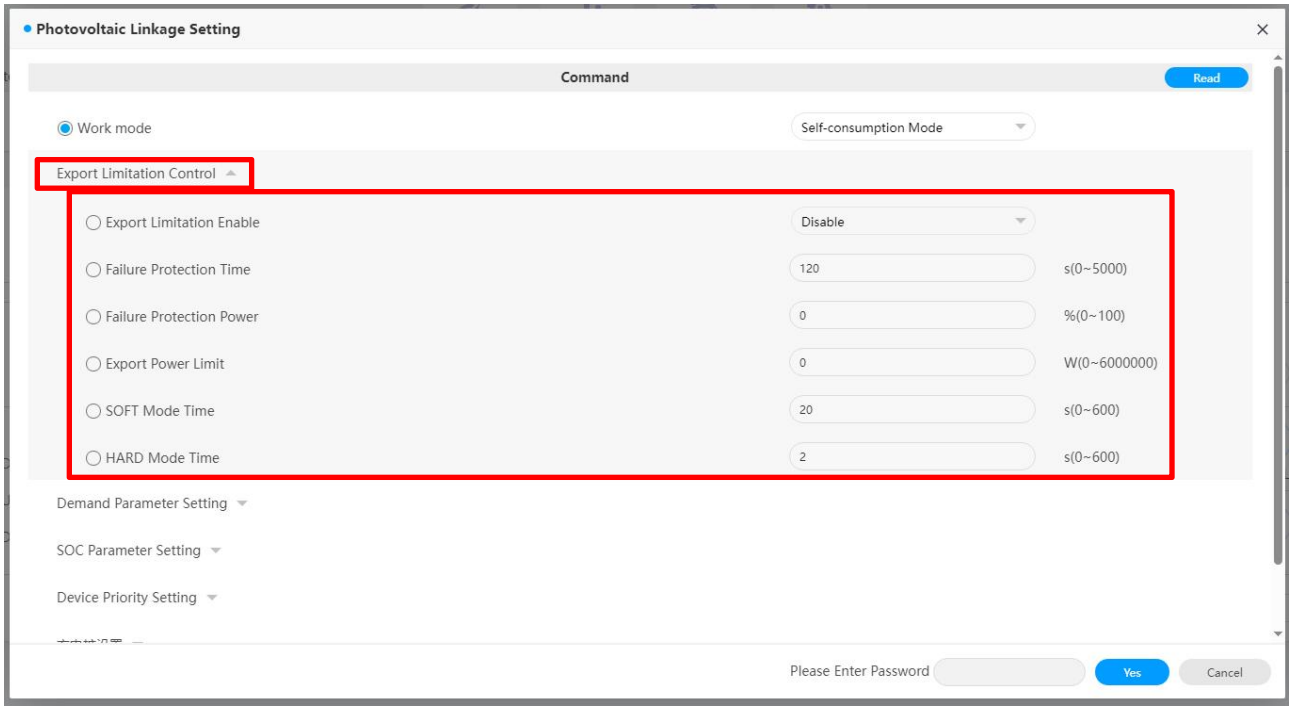


5.8 Server-side anti-backflow settings (non-professionals, please do not perform this operation)

➢ 1.Click on the collector photovoltaic linkage module to enter the collector anti-backflow setting interface



➢ 2.Adjust the anti-backflow function to enable, set the relevant power and time parameters according to the current regional anti-backflow requirements, enter the password below, and click the OK button to complete the setting.



6 Energy management

6.1 Introduction to Energy Management Model

- 1.Self-use Mode

Definition: In this mode, the electricity generated by the photovoltaic system is preferentially used for its own consumption. Only when the photovoltaic power generation exceeds the electricity demand, the remaining electricity will be transmitted to the grid, otherwise it will be supplemented from the grid. Users can reduce their dependence on the external grid, reduce electricity bills, and improve energy autonomy.

- 2.Idle mode

Definition: In idle mode, although the photovoltaic system is in operation, it does not provide any energy to the outside world. This mode usually occurs when there is no power demand or when the power demand is completely supplied by the battery or grid. When the power demand is lower than the capacity, the photovoltaic system can be in standby mode to reduce ineffective power output.

- 3. TOU mode

Definition: TOU mode is a mode that optimizes and dispatches electricity based on different usage periods. Users can adjust their electricity usage according to changes in the grid's electricity price. By adjusting the usage period, the economic benefits between photovoltaic power generation and the grid can be maximized.

- 4.Backup standby mode

Definition: Backup standby mode refers to the ability of photovoltaic systems and energy storage equipment to provide backup power when the power grid is cut off or fails, to ensure the continuity of power supply.

- 5.Demand management model

Definition: The demand management mode optimizes and regulates the electricity load to avoid exceeding the peak demand of electricity consumption and reduce grid pressure. It reduces grid load, reduces electricity bills during peak hours, and also reduces the impact of peak loads on photovoltaic power generation systems.

- 6.Demand-side response model

Definition: The system automatically adjusts the household's electricity consumption mode based on changes in grid load and electricity prices. For example, when the grid

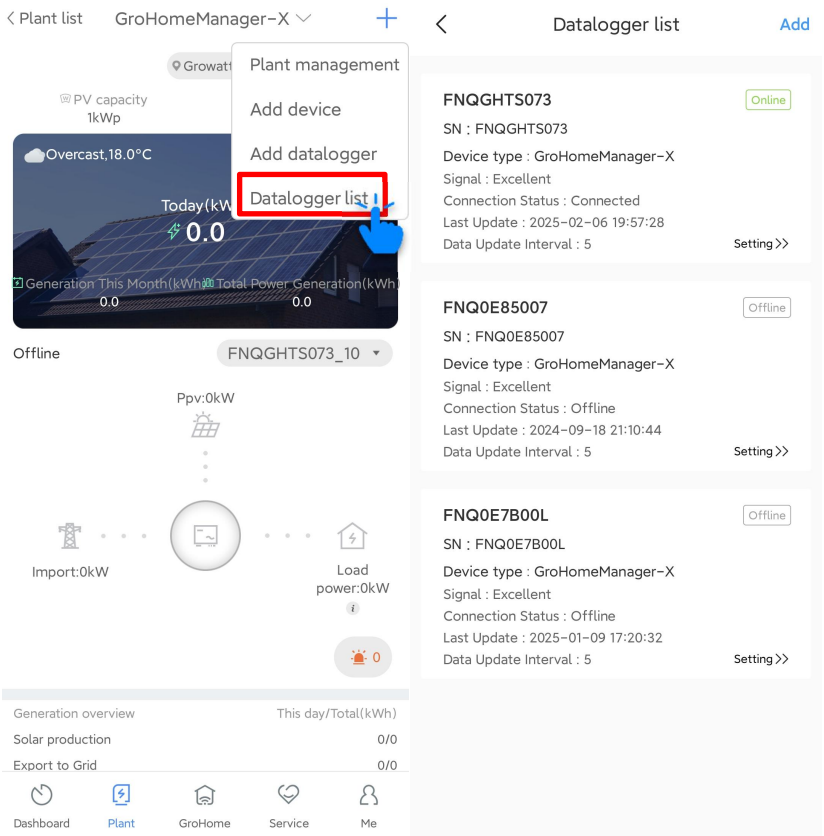
load is high, the system can automatically reduce the use of non-critical equipment, or reduce the demand on the grid by increasing photovoltaic power generation, energy storage and discharge. Through intelligent scheduling, the flexibility of the power system can be improved, grid overload can be avoided, and electricity bills can also be reduced.

➢ 7.Microgrid mode

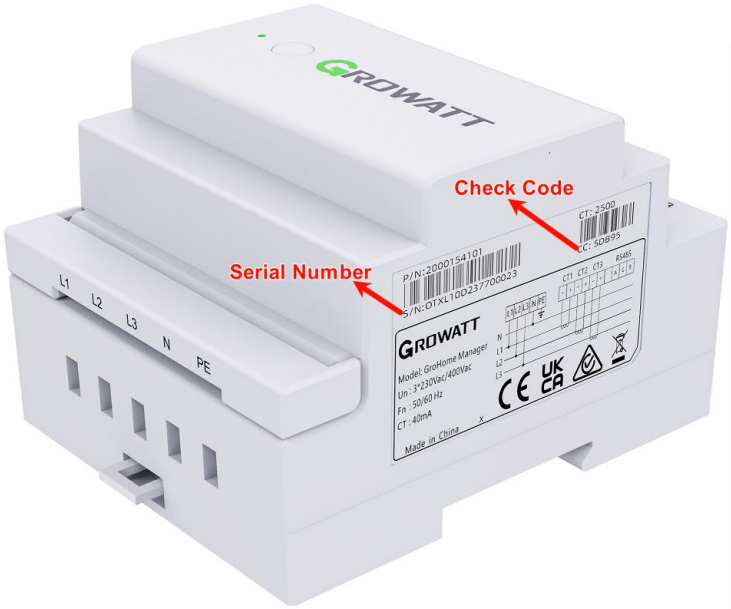
Definition: Microgrid mode refers to the combination of photovoltaic systems, energy storage equipment, and other distributed power sources (such as wind energy, natural gas power generation, etc.) to form a small power network independent of the main grid through self-power supply and management in a local area. In the microgrid mode, multiple energy sources (including photovoltaic power generation) jointly provide power to a specific area. The area can choose to be connected to the main grid or operate independently. When the power grid is cut off, the microgrid can be self-sufficient. Microgrid has high flexibility and Self-Adaptation ability.

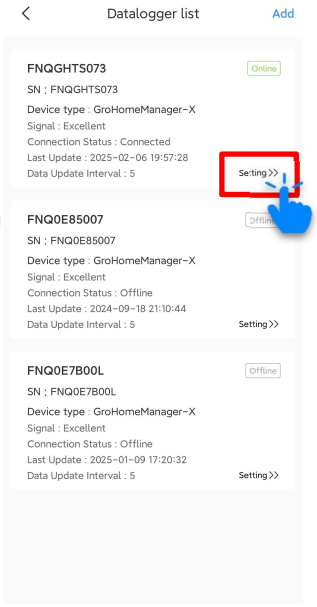
6.2 Energy Management Mode Settings - APP

➢ 1.On the power station page, click the "+" collector list to enter the collector list interface.

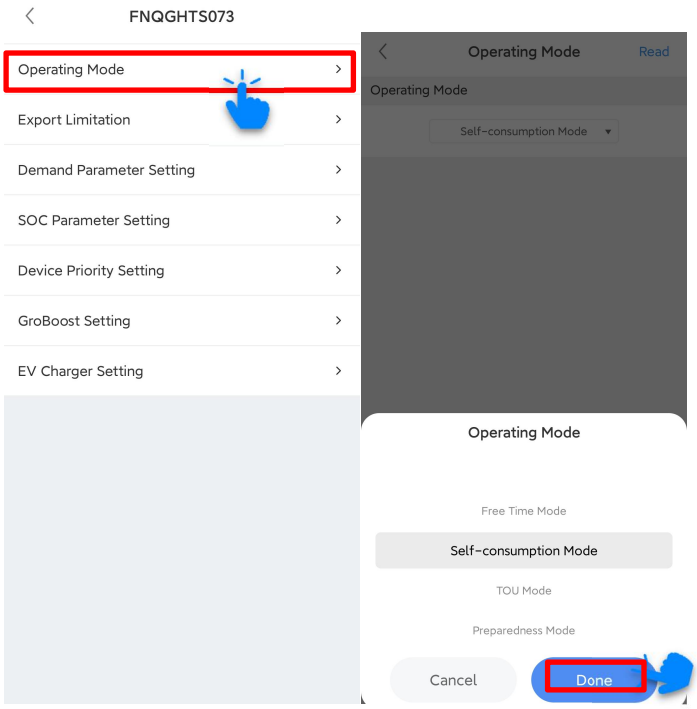


➢ 2. According to the serial number displayed by GroHomeManager-X, select the settings option in the lower right corner of the collector corresponding to the serial number



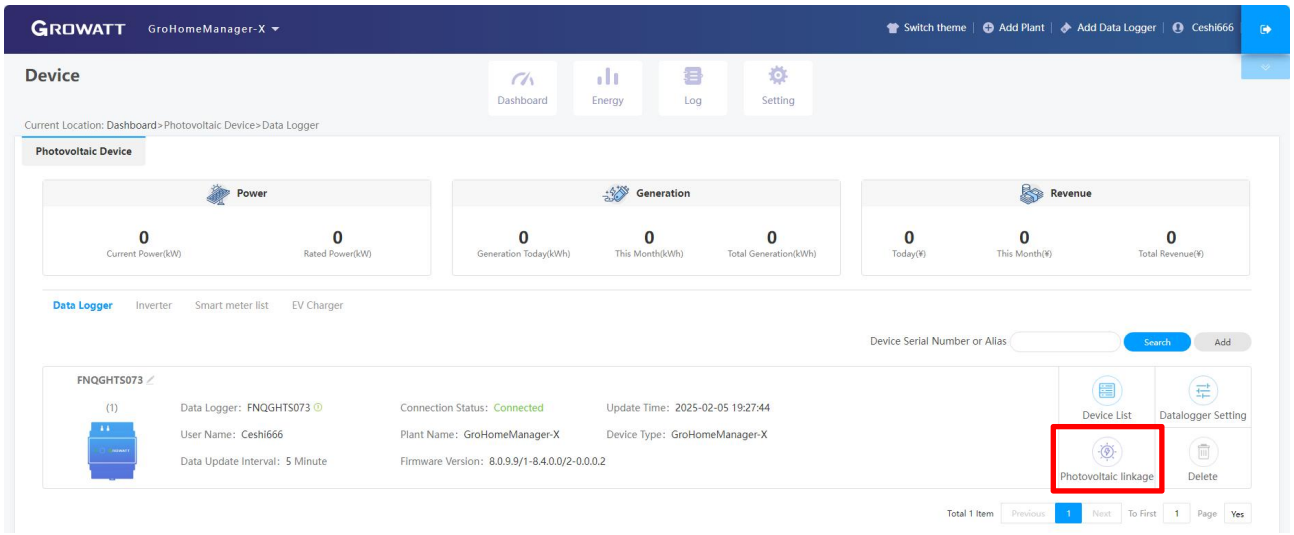


➢ 3.According to the serial number displayed by GroHomeManager-X, select the setting option in the lower right corner of the collector corresponding to the serial number, enter the energy management mode setting interface, then click the working mode, select and click the OK button below to complete the mode setting. After the setting is completed, synchronize and select all settings on the current page according to your own needs, such as anti-backflow setting, demand parameter setting, SOC parameter setting, etc

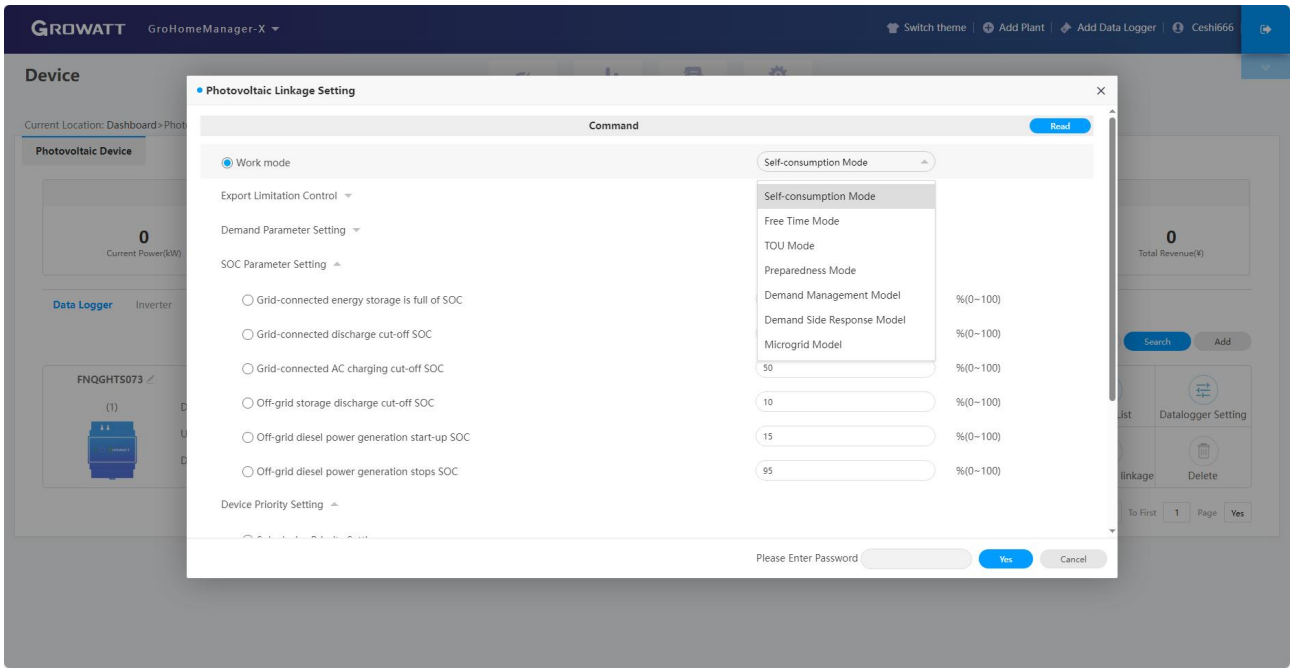


6.3 Energy Management Mode Settings-Server

➢ 1.In the Server-side device interface, click the collector photovoltaic linkage module to enter the collector energy management settings.



➢ 2.Select the working mode and click the "YES" button below to complete the mode setting. After setting, synchronize and select all settings on the current page according to your own needs, such as anti-backflow settings, demand parameter settings, SOC parameter settings, etc.



7 Troubleshooting

7.1 Troubleshooting based on the indicator status

➢ 1.GroHomeManager-X

LED status	Indication	Troubleshooting
Steady White	Initialized or in the state of restoring factory default settings	Wait for 10S initialization to complete
Steady Yellow	In Bluetooth mode	Please continue to follow the APP instructions for networking/sub-device addition process. If networking/sub-device addition process is not required, please click the button to exit this mode.
Yellow Flashing Slowly	RF pairing mode and synchronize Bluetooth	Please continue to follow the APP instructions to add sub-devices, without RF pairing, double-click the button to exit pairing mode.
Yellow Flashing	It is in Bluetooth local upgrade mode.	Please wait patiently for the upgrade to complete.
Steady Red	Not connected to router, not connected to PV/RF sub-devices	Please continue to follow the APP instructions for networking and sub-device addition process
Steady Green	If the PV/RF sub-device is not connected	Please continue with the sub-device addition process according to the APP instructions
Green Flashing	Connect the photovoltaic/RF sub-device link is abnormal	Please check whether the wiring method and baud rate setting of RS485 are correct/check the ShineRFStick-X2 indicator light to judge the abnormal situation.

Steady Blue	Connected router, not connected server, connected PV/RF sub-device	1. Check if the router can access the internet 2.Does the router restrict the server and port number? The collector needs to use port 7006
Blue Flashing	Unable to connect router, connected PV/RF sub-device	1. WiFi wireless connection method (1)Check if the router account password filled in during the configuration process is correct (2)Check the router: a)The wireless name of the router should be composed of English and numbers, and special characters are not supported：(¯﹃¯…·€¥) b)For security reasons, please use an encrypted wireless network c)Networks that do not support secondary authentication and bridged wireless signals 2. LAN wired connection method (1)Ethernet cable not connected (2Restart the router and confirm that the router's automatic IP allocation function is available (3)If a static IP Address is used, determine whether the IP Address is consistent with the router setting network segment
Blue Flashing Slowly	Connected router, connected server, connected photovoltaic/RF sub-device	in normal working mode, slow flash times represent the number of connections of the device.

Attention:
1. For the first WiFi connection, the device will automatically enter Bluetooth mode
2. The device indicator light is flashing yellow and Bluetooth will be turned on synchronously.
3. When Bluetooth is turned on, there is no data interaction with the APP, and Bluetooth will be automatically turned off after 1Min
4. When a single device is connected, the slow flash frequency is 1S, and the fast flash frequency is 0.5S. When multiple devices are connected, the number of flashes during slow flash represents the number of PV/RF slave devices connected
5. When the Bluetooth mode is turned on, the indicator light prioritizes displaying the yellow light and is always on. Please check the network/sub-device configuration in the APP. If you need to view GroHome device information through the indicator light, click the button to exit the Bluetooth mode

Table 19 GroHomeManager-X Troubleshooting based on the indicator status

- 2.ShineRFStick-X2

LED status	Indication	Troubleshooting
Steady White	Initialized or in the state of restoring factory default settings	Wait for 30S initialization to complete
Steady Yellow	In Bluetooth mode	please continue to follow the APP instructions to set up the process. If you do not need to set it up, please click the button to exit this mode
Yellow Flashing Slowly	RF pairing mode	Please follow the APP instructions of the RF host to add the device, no pairing is required, double-click the bottom button to exit pairing mode
Yellow Flashing	It is in upgrade mode.	Please wait patiently for the upgrade to complete.
Steady Red	If the RF host is not connected and the photovoltaic device is not connected	Please continue to follow the APP instructions of the RF host to add the device

Steady Green	If the photovoltaic equipment is not connected	please check whether the collector and inverter are connected normally. If the phenomenon persists after repeated plugging and unplugging, please contact Growatt customer service
Green Flashing	The connection of photovoltaic/RF equipment link is abnormal.	Please check whether the collector and inverter are connected normally. After repeated plugging and unplugging several times, the phenomenon still exists. Please contact Growatt customer service
Blue Flashing	Unable to connect to RF host, connected photovoltaic equipment/RF equipment	1. Please check if the host is powered on/online 2. Please check whether the leader/follower is within the recommended distance range 3. Please check whether the host antenna is damaged 4. If it appears repeatedly, please contact Growatt customer service
Blue Flashing Slowly	Connected to RF host, connected to photovoltaic equipment/RF equipment	In normal working mode
Attention: Slow flash frequency 1S, flash frequency 0.5S		

Table 20 ShineRFStick-X2 Troubleshooting based on the indicator statu

8 Declaration of conformity

8.1 This product complies with the following regulations and requirements

- Electromagnetic Compatibility Directive:2014/30/EU (EMC)
- Radio Equipment Directive: 2014/53/EU (RED)
- Electrical Equipment (Safety) Regulations 2016:2014/35/EU(LVD)
- Restriction of Hazardous Substances Directive: 2011/65/EU(EU) and 2015/863 (RoHS)

You can download the Declaration of Compliance at en.growatt.com

9 Contact

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For local customer support, please visit

https://en.growatt.com/support/contact

Growatt New Energy