GROWATT

MIN 3000-11400TL-XH-US

Commissioning Guide

About This Document

This document introduces the MIN 3000-11400TL-XH-US Energy Management System in terms of its installation, electrical connection, operation, commission, maintenance, and troubleshooting. Before installing and operating the system, ensure that you are familiar with the product features, functions, and safety precautions provided in this document.

Symbol	Description
 WARNING	Indicates a potentially hazardous situation, if not avoided, could result in serious injury or death.

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
<V01>	14-MAY-2024	WSH	Initial Version

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1 System Overview

1.1 Overview

There are two types of configurations of MIN 3000-11400TL-XH-US, PHB (Partial Home Backup) and WHB (Whole Home Backup Version). For PHB, inverter has two AC ports, one is for grid connected and the other is for load connected. For WHB, inverter shares the common grid and load ports.

1.2 System Configuration Contains

Energy Storage System / Off- Grid System:

MIN 3000-11400TL-XH-US inverter.

ARO/APX/LG battery(s).

ATS/SYN (ATS is used for the PHB system, and SYN is used for the WHB system).

Electric meter SM-US-200(Integrated in SYN 200-XH-US).

PV-only System:

MIN 3000-11400TL-XH-US inverter.

Electric meter SM-US-200 (Optional).

Product	Model	Function	Note
Inverter	MIN 3000-11400TL-XH-	Energy	
ARO Battery	ARO 6.6-19.8H-C1-US	Energy storage	Up to 4 battery banks
APX Battery	APX 5.0-30. 0P-S0-US	Energy storage	Up to 2 battery banks
LG Battery	RESU10H/16H Prime	Energy storage	Up to 2 battery banks
ATS/SYN	ATS 11400T- US/ SYN 200-XH-US	EPS switching	
Smart	SM-US- 200	Energy	
Button	RSD Button	Rapid shutdown	Accessory (included in the package)

Note: You can scan the QR code on the right to obtain the Quick Guide of the Rapid Shutdown Device. Please comply with NEC 690.12 (1) through (4) for rapid shutdown initiation methods.

1.3 PHB Energy Management System Introduction

MIN 3000-11400TL-XH-US PHB energy storage system diagram is shown in the figure below:

Note: When installing the emergency stop switch, please refer to its Quick Guide.

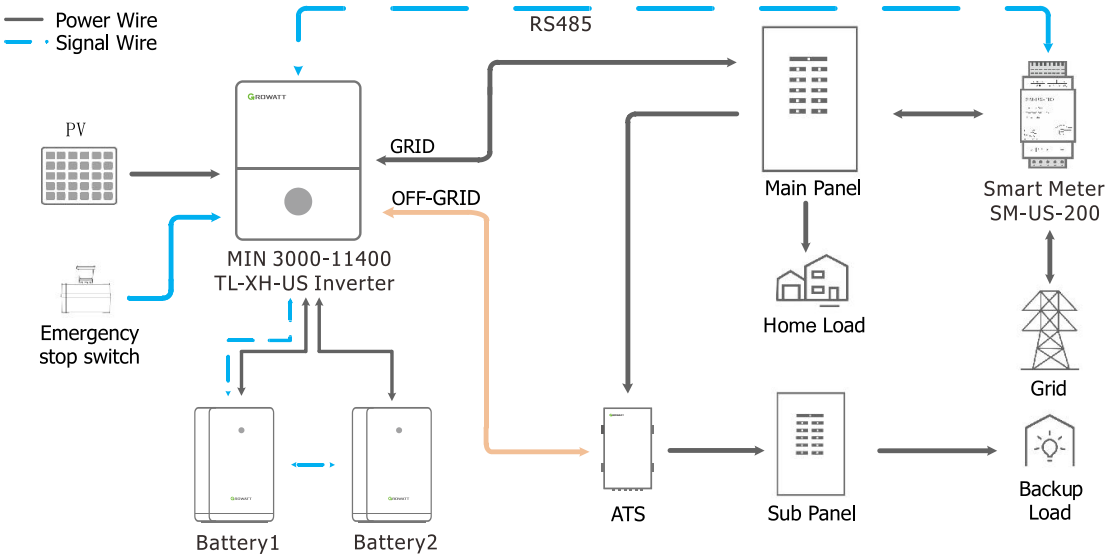


Figure 1 Residential Critical Load Backup System(DC Coupled)

The system wiring diagram is as follows:

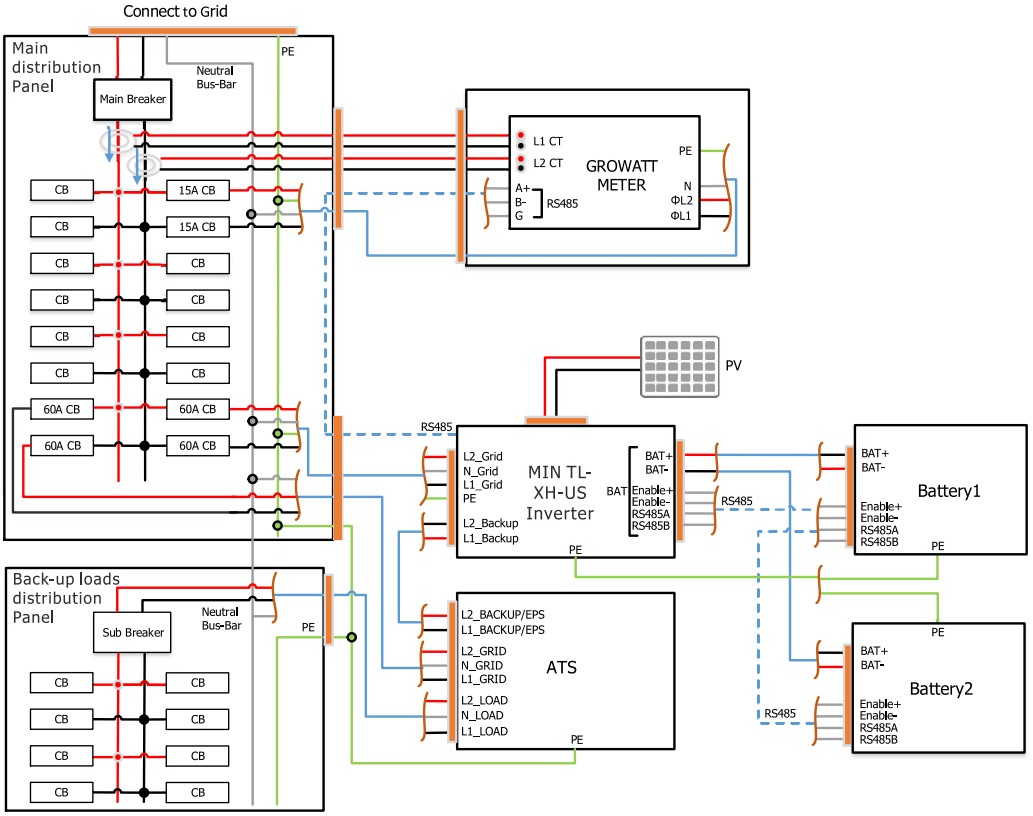


Figure 2 Residential Critical Load Backup System Wiring Diagram(DC Coupled)

MIN 3000-11400TL-XH-US AC Couple system diagram is shown in the figure below:

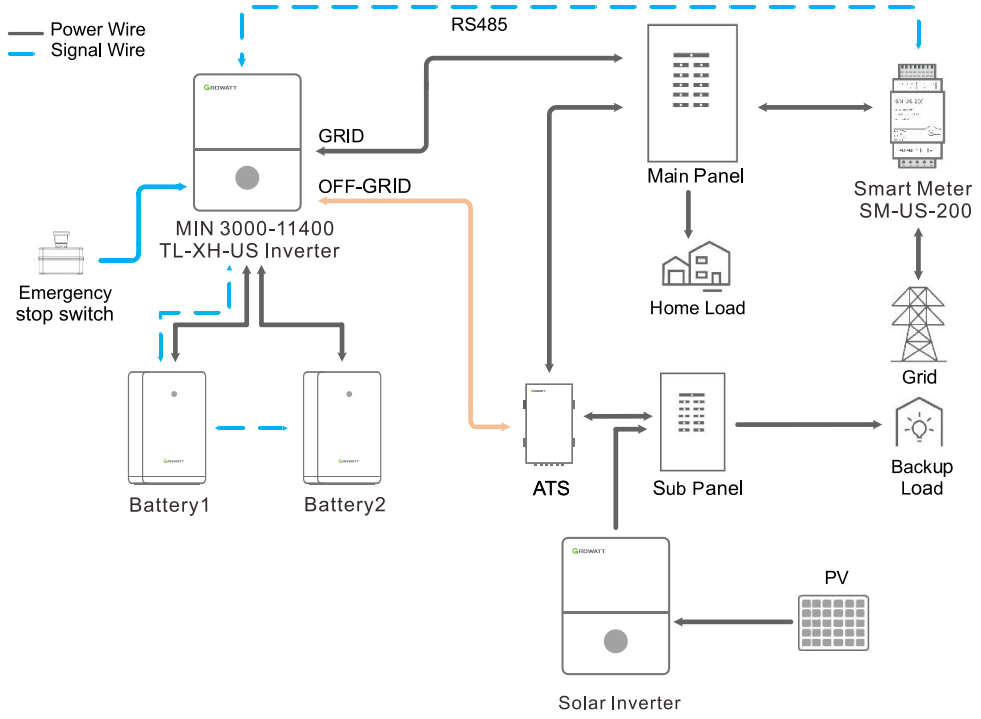


Figure 3 Residential Critical Load Backup System(AC Coupled)

The AC Couple system wiring diagram is as follows:

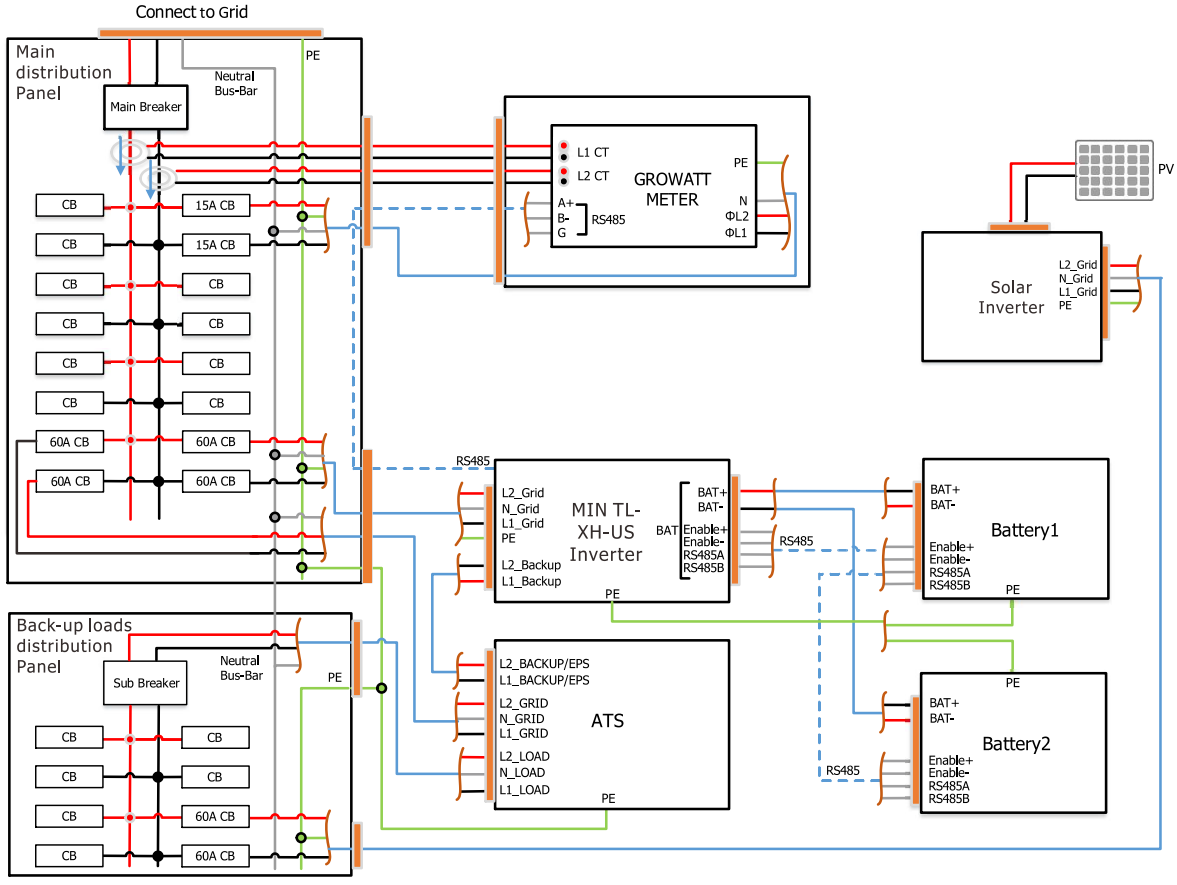


Figure 4 Residential Critical Load Backup System Wiring Diagram(AC Coupled)

1.4 WHB Energy Management System Introduction

MIN 3000-11400TL-XH-US WHB energy storage system diagram is shown in the figure below:

Note: When installing the emergency stop switch, please refer to its Quick Guide.

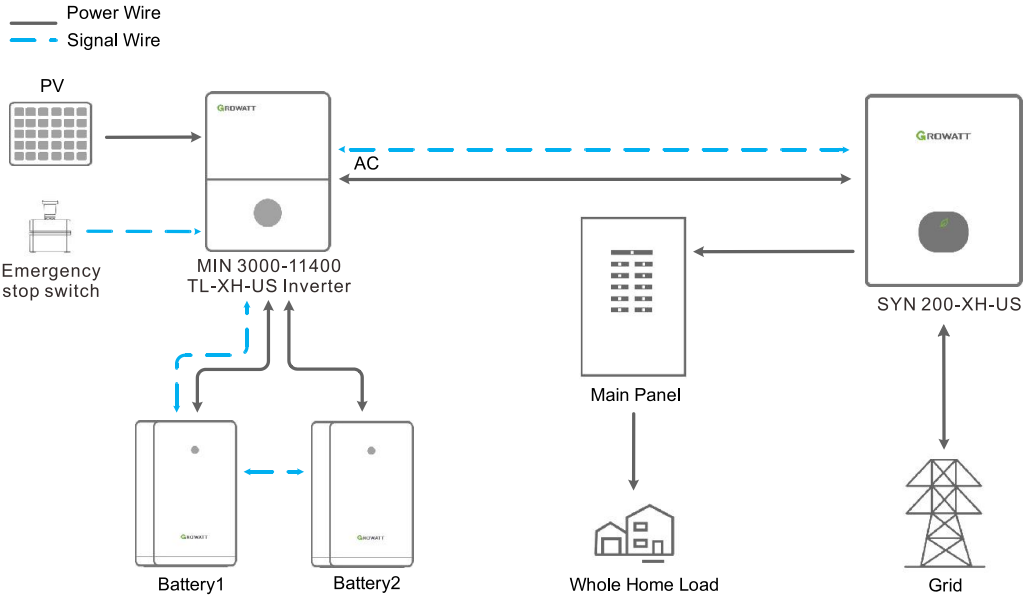


Figure 5 Residential Whole Home Backup System(DC Coupled)

The system wiring diagram is as follows:

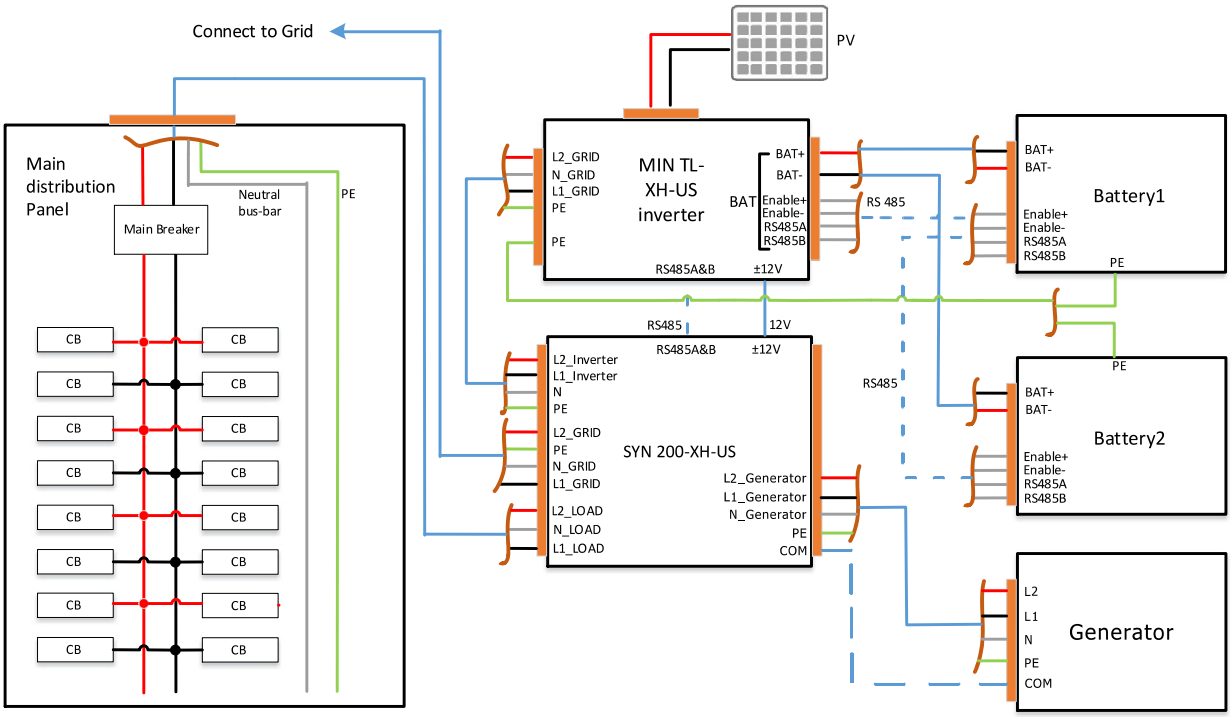


Figure 6 Residential Whole Home Backup System Wiring Diagram(DC Coupled)

MIN 3000-11400TL-XH-US AC Couple system diagram is shown in the figure below:

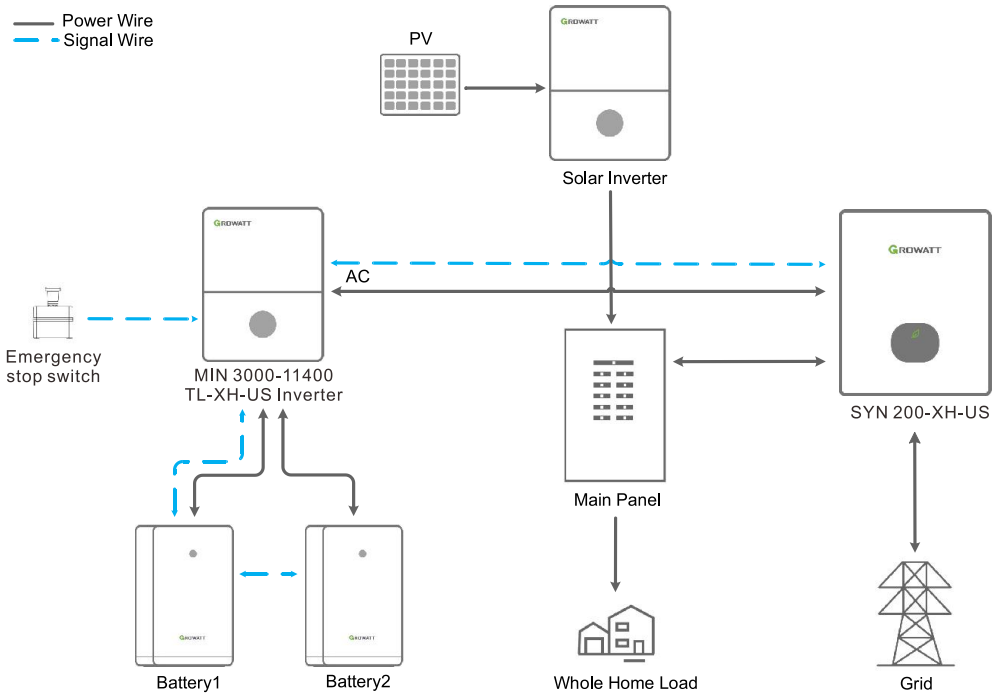


Figure 7 Residential Whole Home Backup System (AC Coupled)

The AC Couple system wiring diagram is as follows:

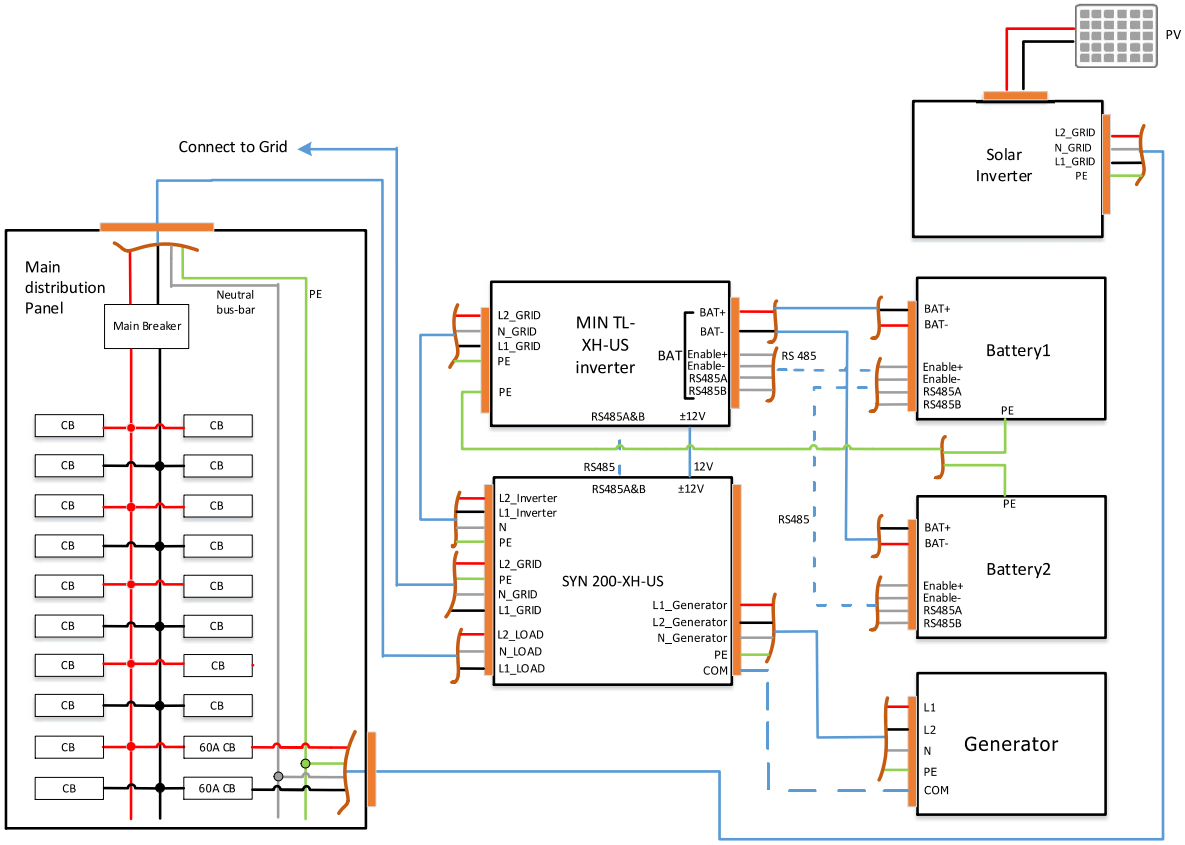


Figure 8 Residential Whole Home Backup System Wiring Diagram(AC Coupled)

2 Power on the system

All components were installed according to the installation guides, please check the following installation locations:

Power on the system according to the **MIN 3000-11400TL-XH-US Quick Guide** which is included in the inverter package/box.

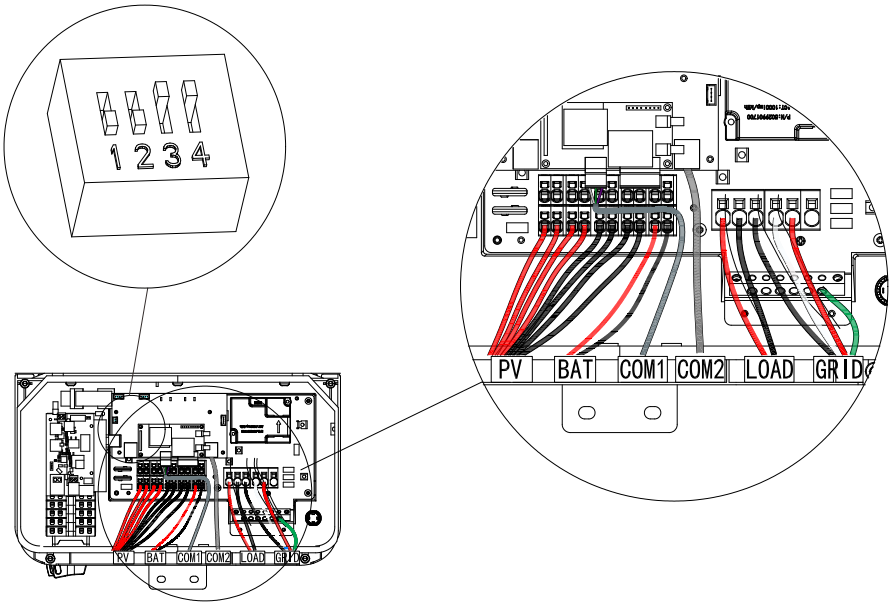


Figure 9 Inverter Box Wiring Diagram

- ARO Battery Wiring Diagram please refer to **ARO 6.6-19.8H-C1-US Quick Guide** QR code.
- APX Battery Wiring Diagram please refer to **APX 5.0-30.0P-S0-US Quick Guide** QR code.
- LG Battery Wiring Diagram please refer to **LG RESU Prime Quick Guide** QR code.
- ATS 11400T-US Wiring Diagram please refer to **ATS-US Series Quick Guide** QR code.

ARO Battery APX Battery LG Battery ATS-US

3 ShineTools APP Setup

3.1 APP Download

There are two ways to download the ShineTools APP:

a) Scan the QR code

- Scanning the QR code through phone camera for downloading the APP.

Figure 10 ShineTools App QR code

b) APP Store

- Search for ShineTools App from app stores (App or Play Store).
- The ShineTools App icon is displayed the same as the Figure 11.
- Download and install the App by following the installation instructions.

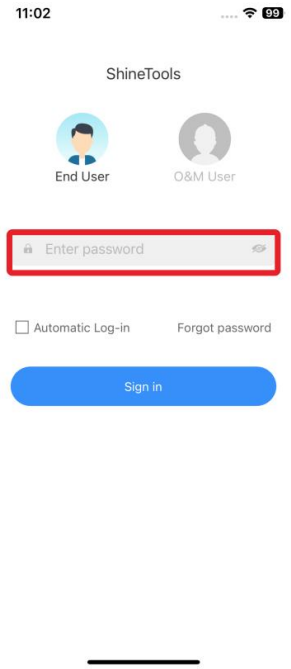
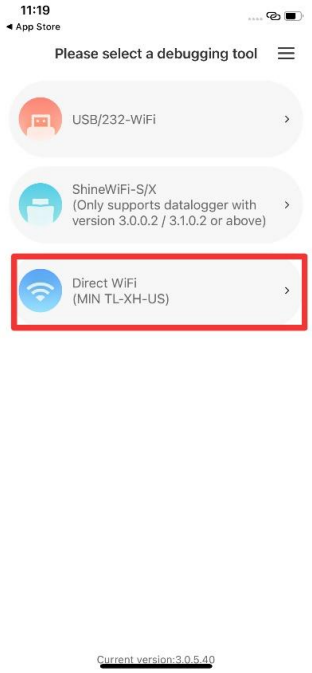
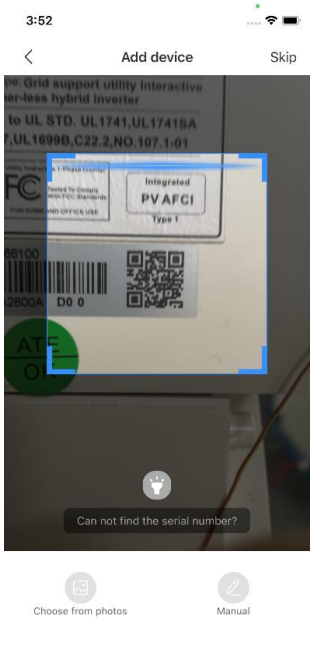
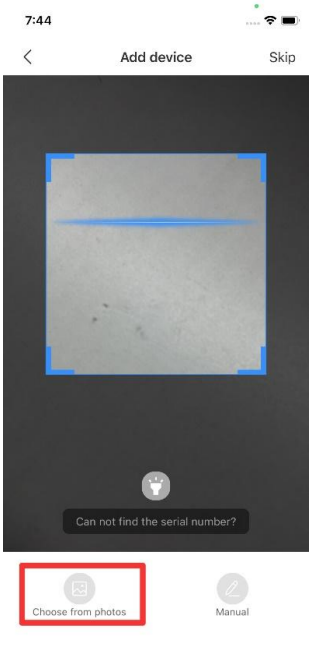
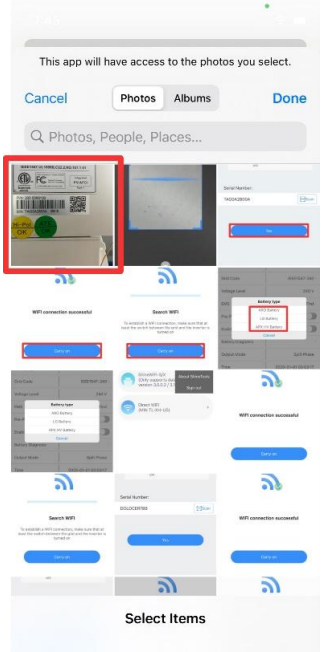
Figure 11 ShineTools App icon

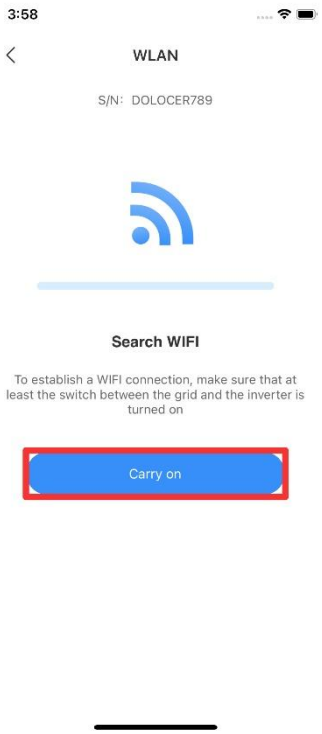
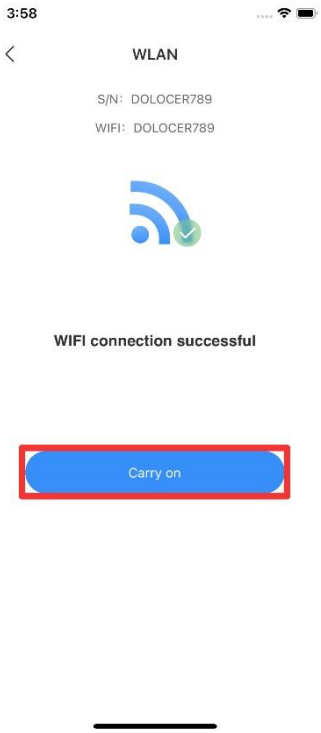
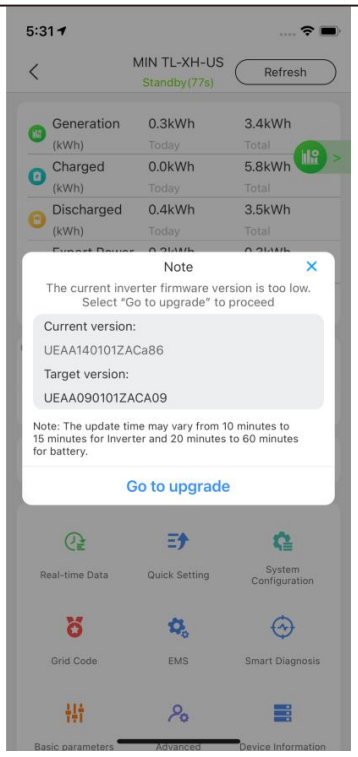
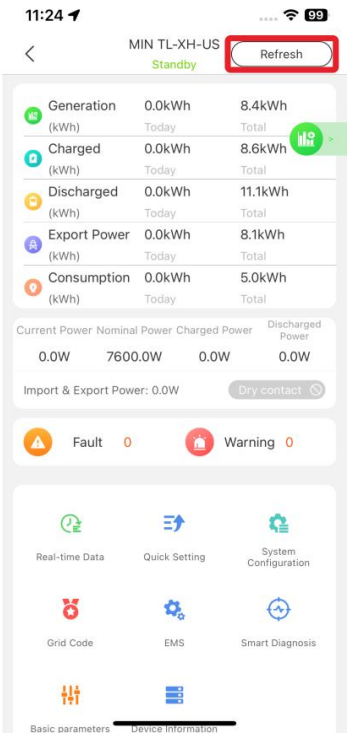
3.2 APP Introduction

Shinetools is the app designed for commissioning and troubleshooting. It facilitates communication with the inverter via a built-in Wi-Fi, enabling real-time status monitoring, alarm queries, parameter configuration, diagnosis and other routine maintenance functions.

3.3 Connecting to Local Wi-Fi Network

The steps for using APP are as follows:

<table>
<tr><th colspan="3">Setup local Wi-Fi to communicate with the inverter</th></tr>
<tr><td>1.Login interface</td><td>2.Enter the default password and log in</td><td>3.Tap in Direct WiFi</td></tr>
<tr><td> 
</td><td>The default password is oss+ day. Ex: if today's date is Dec 29, 2024, the default password would be oss20241229, You can change the password according to the prompts below.</td><td> 
</td></tr>
<tr><td>4. Scan the QR code to add the inverter serial number</td><td>5. You can also take a photo in advance ,and then select it from album</td><td>6. Select the SN label recorded in the photo taken in the previous step</td></tr>
<tr><td> 
</td><td> 
</td><td> 
</td></tr>
</table>

7. The Wi-Fi name is the Serial Number on the label	8. Tap in Yes	9. Tap in Carry on
The label is on the left side of the inverter. The Wi-Fi password is 12345678. 		
10. Tap in Carry on	**11. Select to upgrade or skip**	**12. Tap in Refresh**
		

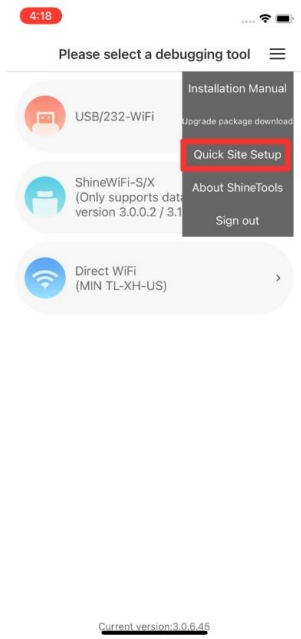
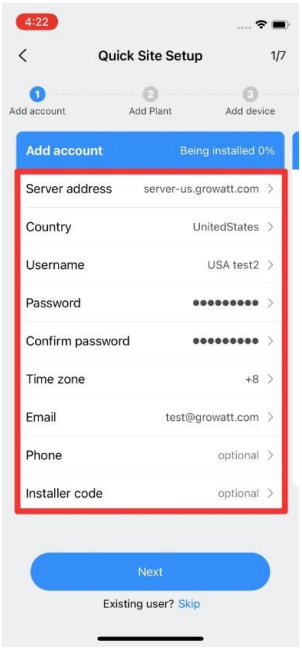
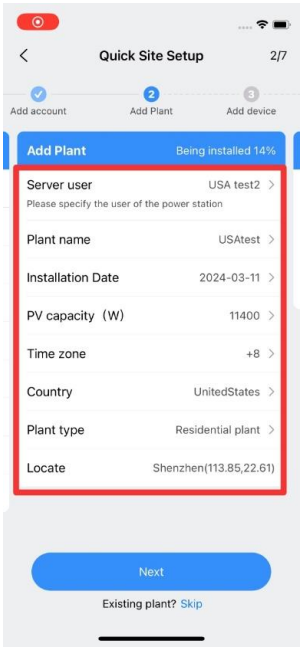
Note:

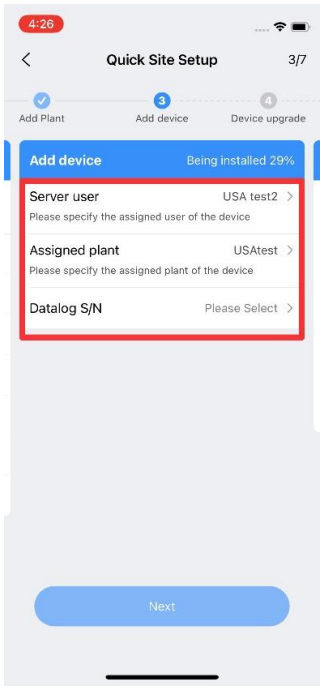
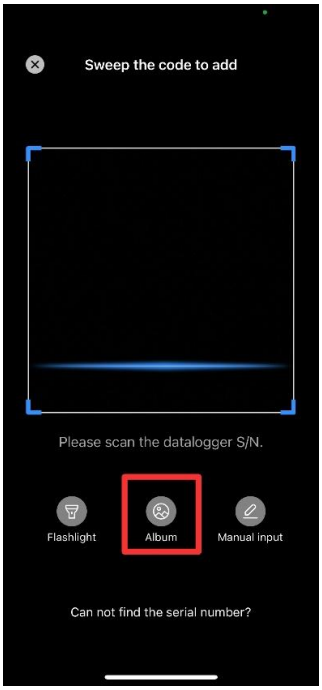
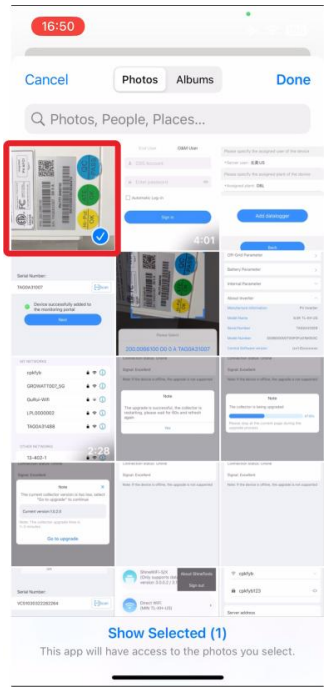
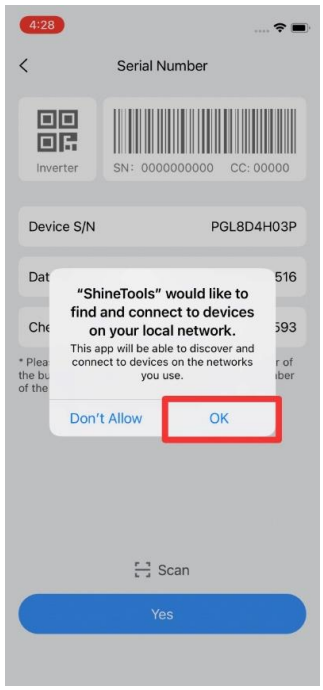
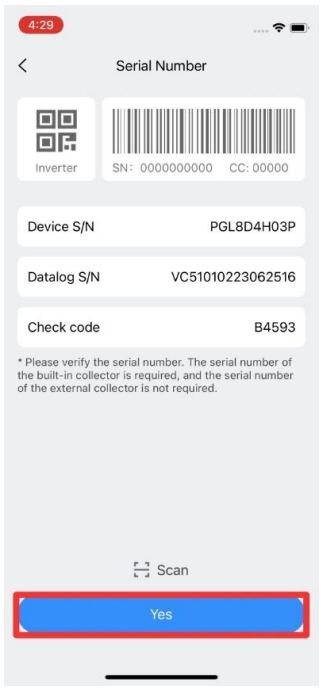
To upgrade the inverter, the PV or battery power should be available. When no data is present, the communication connection is unsuccessful and you will need to reconnect the built-in Wi-Fi of the inverter by turning off Wi-Fi setting in the phone and turn on again OR power cycle the system.

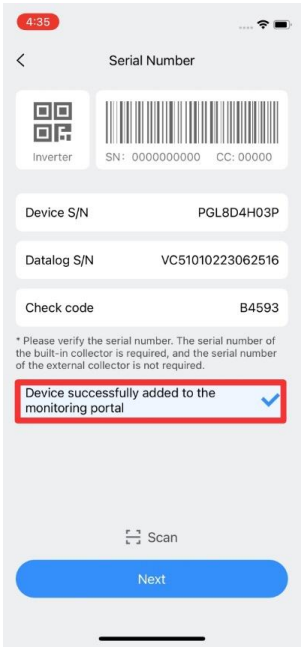
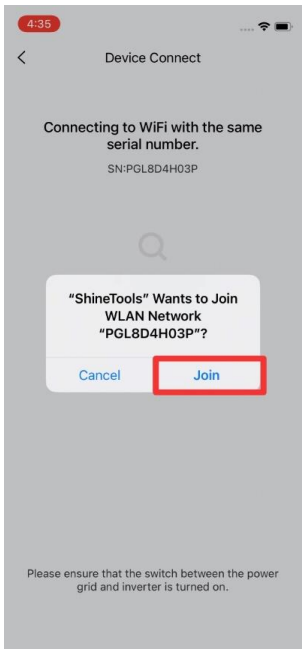
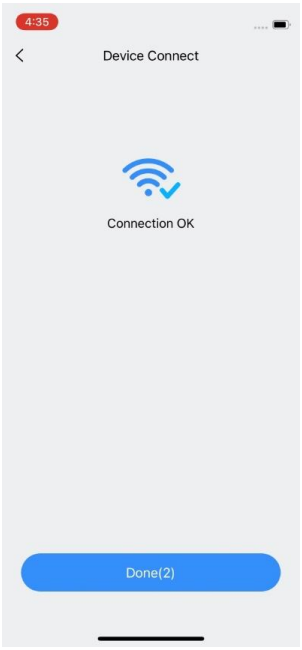
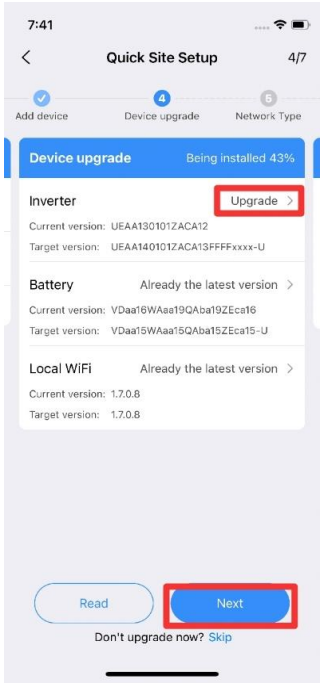
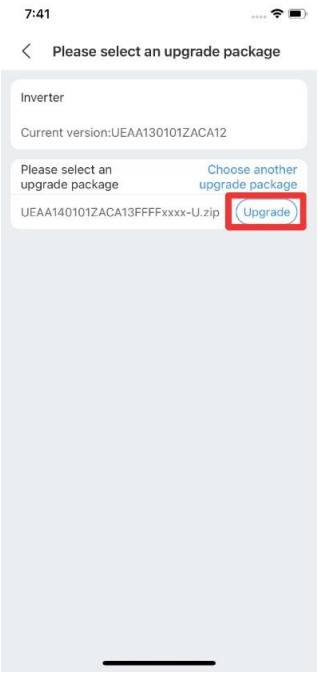
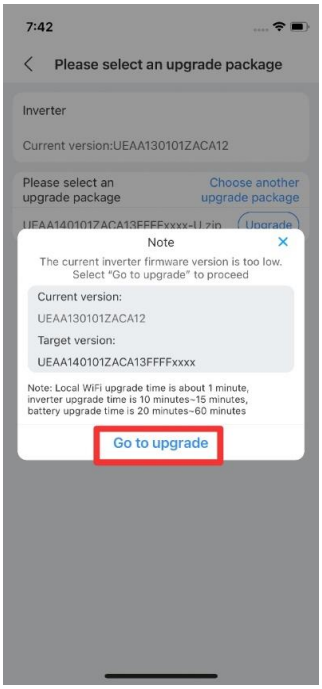
Also, keep the mobile phone within 3 meters of the inverter to ensure stable connection between phone and inverter.

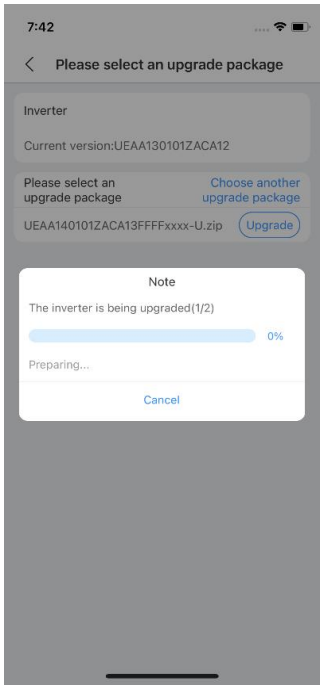
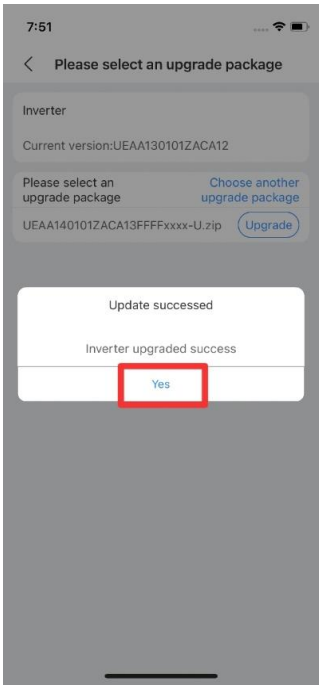
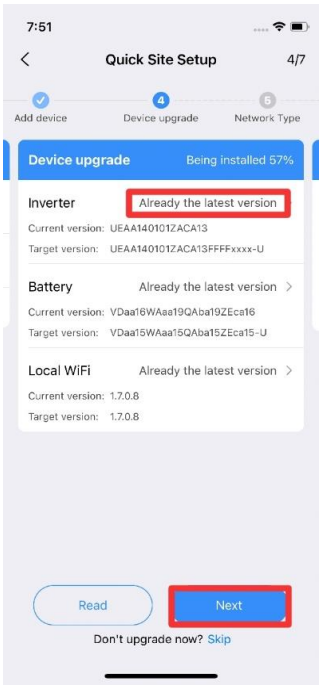
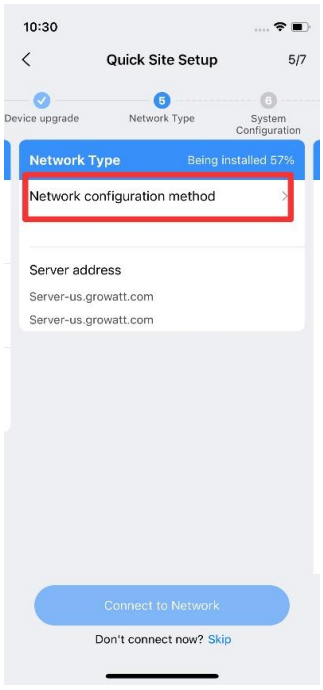
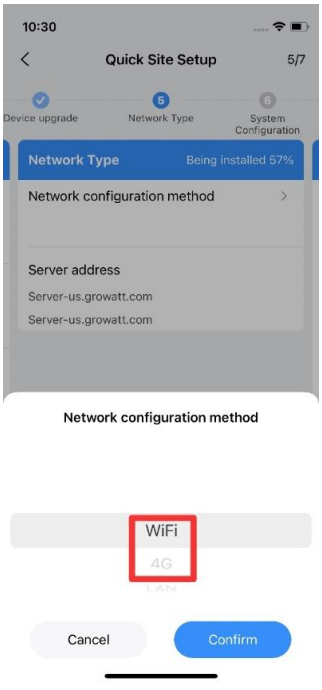
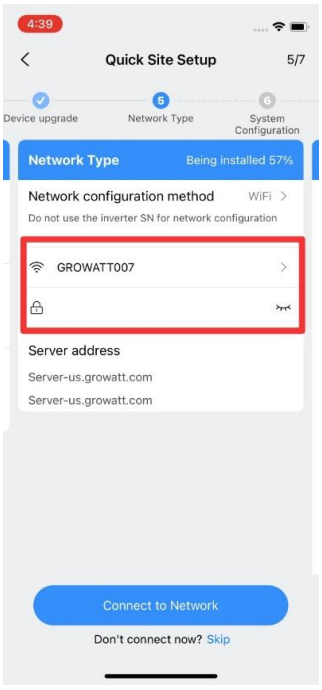
3.4 Quick Site Setup

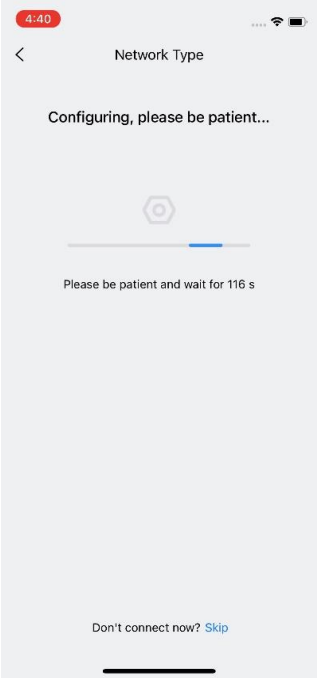
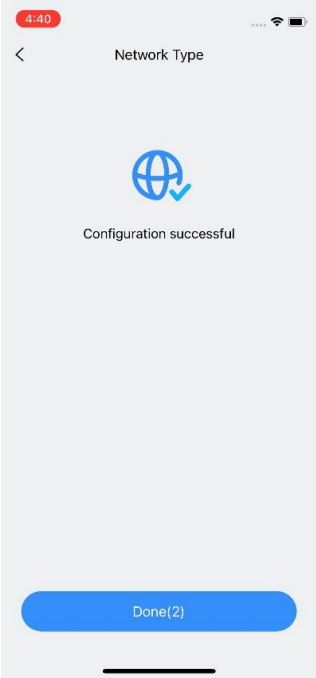
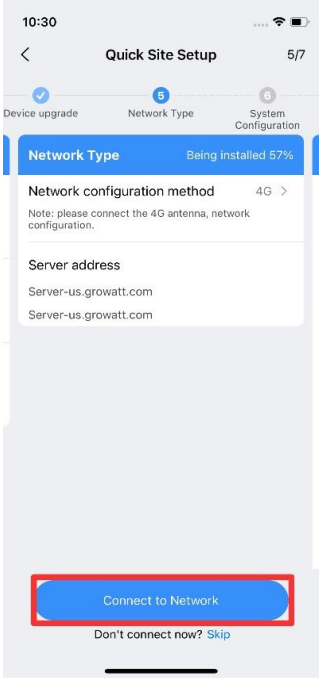
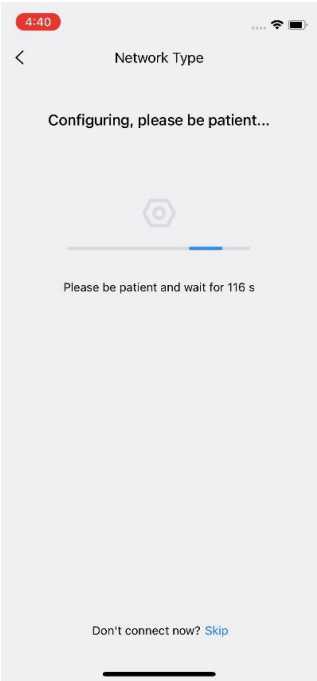
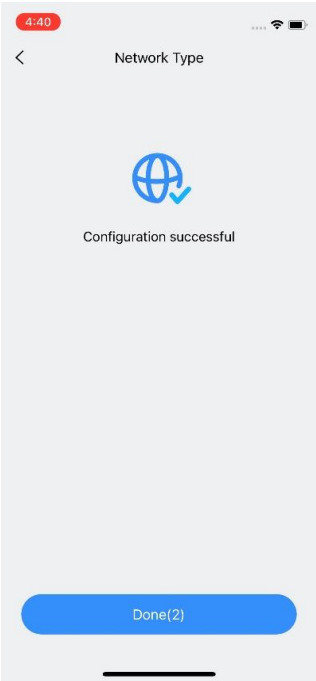
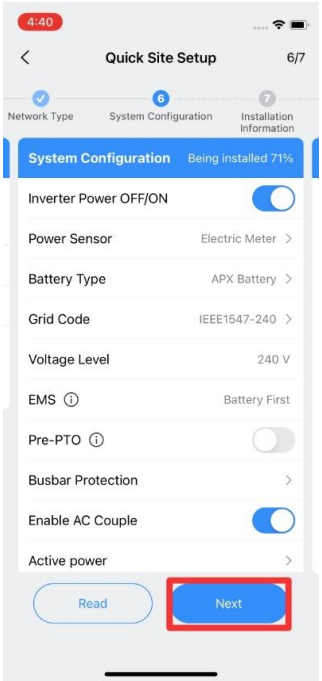
When installing the inverter for the first time, you need to add the inverter to the power station (O&M User only).

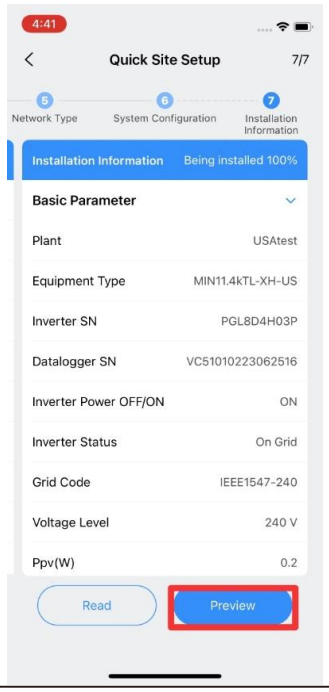
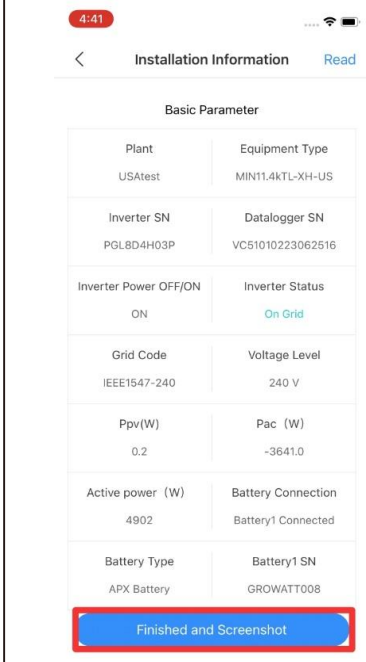
1.Tap in Quick Site Setup	2.Fill in the account information and click	3.Fill in the plant information and click
		

4. Select the existing Server user account and power plant, then click "Datalog S/N"	5. Scan the QR code or any of the barcodes to add the serial number of the inverter and datalogger	6. You can also take a photo with them in advance, and then select it from album
		
7. Select the SN label recorded in the photo taken in the previous step	8. Click "OK" to allow ShineTools to connect to devices over the network.	9. Check the SN number again. After confirmation, please click "Yes" to add it to the monitoring portal
		

10. After success, there will be the following prompt. Then click "Next"	11. Click "Join" and wait for 5s	12. Prompt "Connection OK" is displayed. Wait for 3s and it will advance to the next page automatically.
		
13. Enter the device upgrade page, you can choose to upgrade or skip.	14. If you choose to upgrade, it will enter the following page, click "Upgrade"	15.Click "Go to upgrade"
		

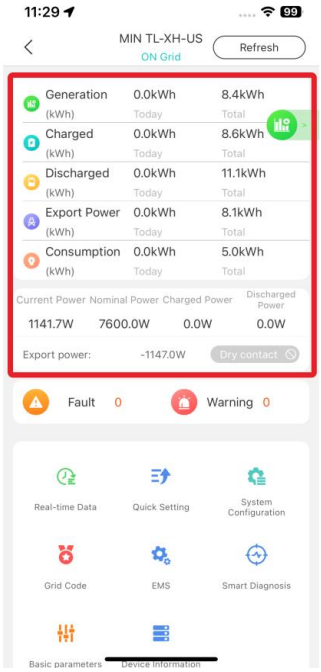
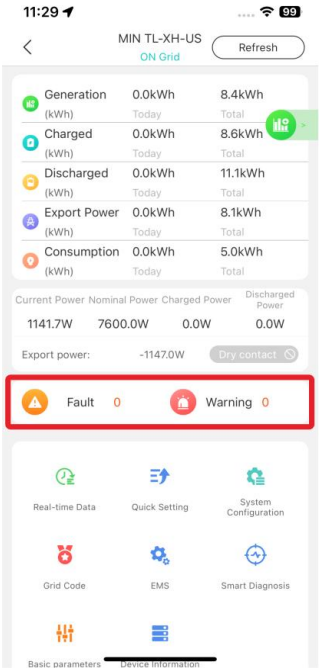
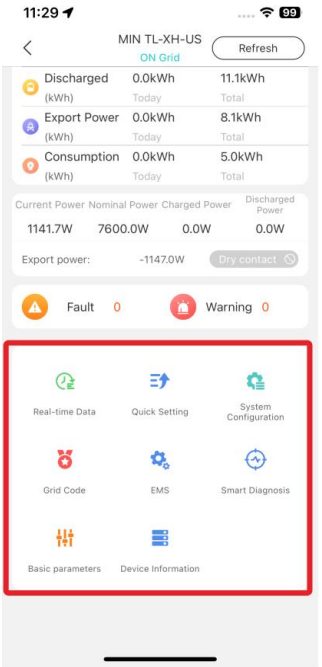
16. The page shows "The inverter is upgrading", wait until the upgrade is complete	17. The page shows "Upgrade successful", click "Yes"	18. It has been upgraded to the latest version, click "Next" to proceed
		
19.Click "Network configuration method"	20.You can choose WiFi or 4G	21. If you choose WiFi, enter WiFi username and password, click "Connect to Network"
		

22. Enter the following page, and wait until the network configuration is successful.	23. It will display "Configuration successful". Wait for 3 seconds to move on.	24. If you choose 4G, click "Connect to Network"
		
25. Enter the following page, and wait until the network configuration is successful.	26. It will display "Configuration successful". Wait for 3 seconds to move on.	27. On this page, you can confirm and change the system information, then click "Next".
		

28. Confirm information	23. After checking all the information, click Finished	
		

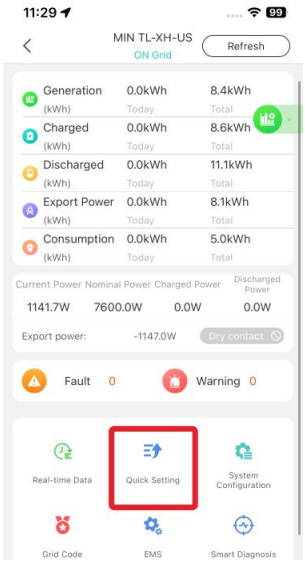
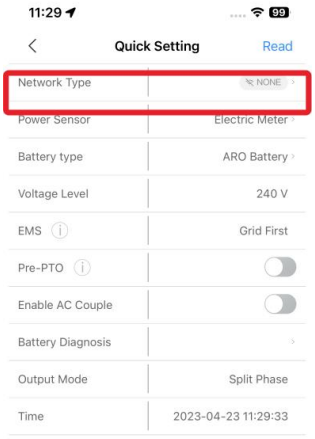
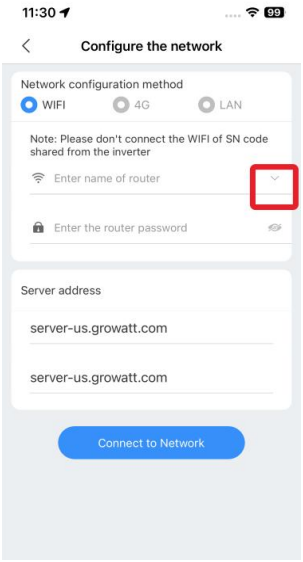
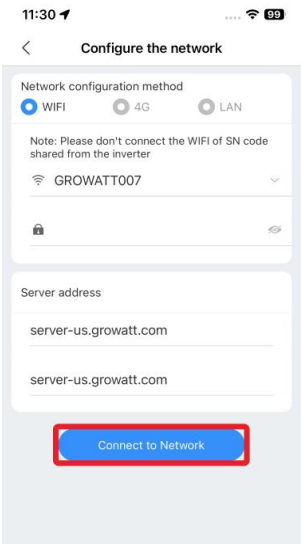
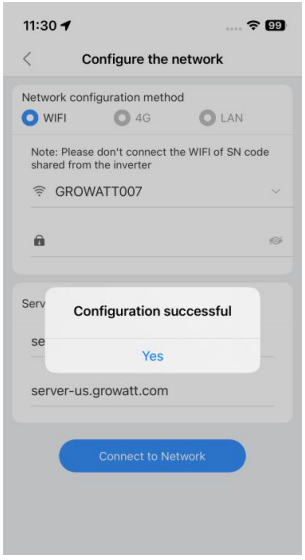
3.5 Local Commissioning Main Interface Introduction

The main interface of local commissioning consists of three parts:

Power generation information	Fault and Warning message	Internal information viewing and parameter setting
		

4 Network Configuration

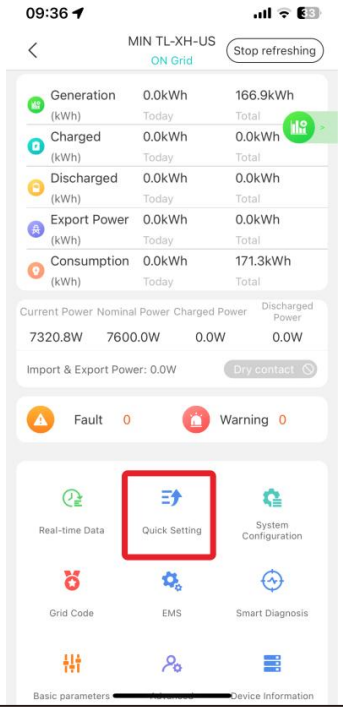
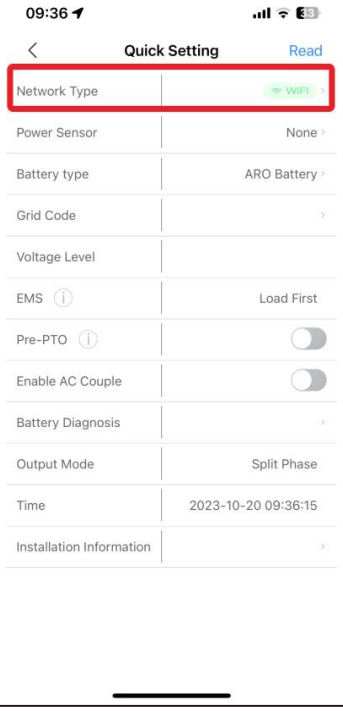
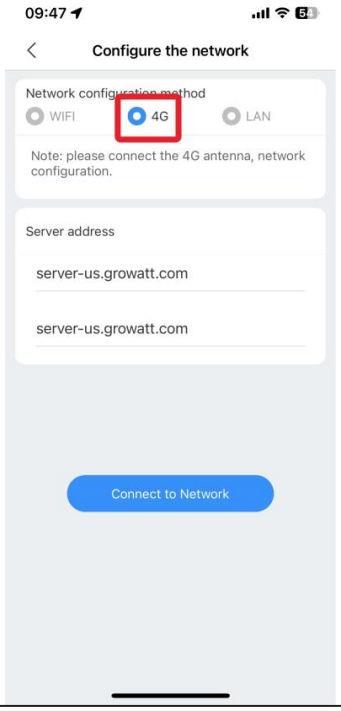
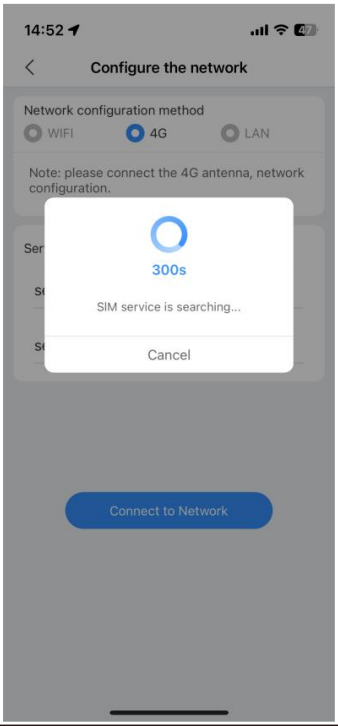
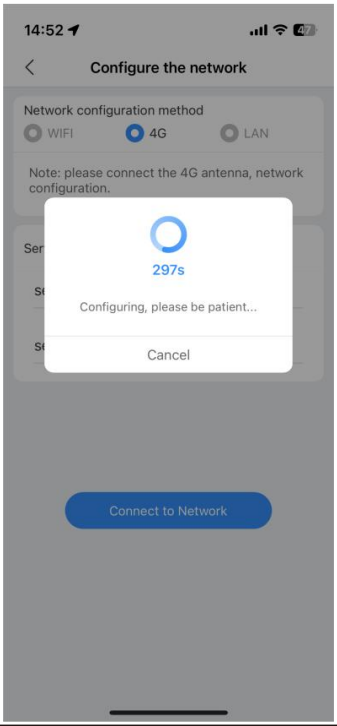
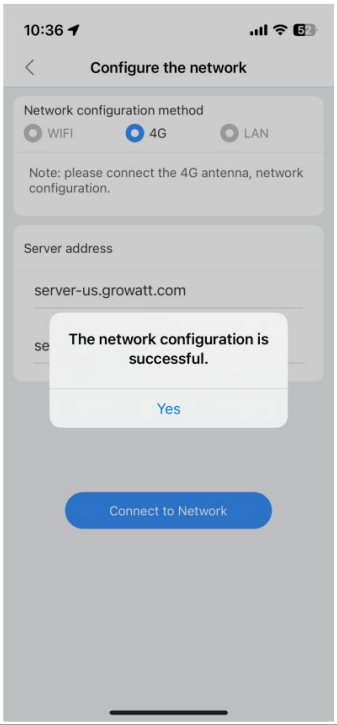
The first time the inverter is installed, it needs to be configured to connect to the home's Wi-Fi/4G to ensure the remote monitoring.

1.Tap in Quick Setting icon	2.Click “Network Type” to configure the network	3.Click to enter the Wi-Fi list (New version only)
		
4.(Or) Enter network information manually	5.Tap in Connect to Network icon	6.Prompt message for successful configuration
		

Note: If the network configuration has failed, please carefully check the Wi-Fi name, password and antenna installation connection, and then try again.

Notice: The inverter does not support 5GHz Wi-Fi network.

4G connection procedure:

1.Tap “Quick Setting”	2.Click “Network Type” to configure the network	3.Select “ 4G” , then tap “Connect to Network”
		
4.Prompt “ SIM service is searching ...” is displayed	5.Prompt “ Configuring, please be patient . ..” is displayed	6.Prompt indicating a successful configuration is displayed
		

5 Grid Code Mapping Table

The factory Default grid mode of the inverter is IEEE1547-240, which can adapt to the most power grids. The different grid code can be changed according to local regulation in the network configuration interface from Quick Setting in ShineTools App.

No.	Grid Code	Description	No.	Grid Code	Description
1	HECO-208	US Hawaii low-voltage power grid	2	HECO- 240	US Hawaii low- voltage power grid
3	IEEE1547-208	US low-voltage power grid	4	IEEE1547-240	US low-voltage power grid
5	PRC-East-208	Eastern US low-voltage power grid	6	PRC-East- 240	Eastern US low- voltage power grid
7	PRC-Quebec-208	Canada Quebec low-voltage power grid	8	PRC-Quebec-240	Canada Quebec low-voltage power
9	RULE21-208	US California low-voltage power grid	10	RULE21-240	US California low- voltage power grid
11	NEWYORK-208	US New York low-voltage power grid	12	NEWYORK-240	US New York low- voltage power grid

Note: The different grid codes can be changed according to local regulation in the Grid Code icon. Do not change the grid code during grid connection. It takes about 300 seconds for reconnection to the grid after changing the grid code.

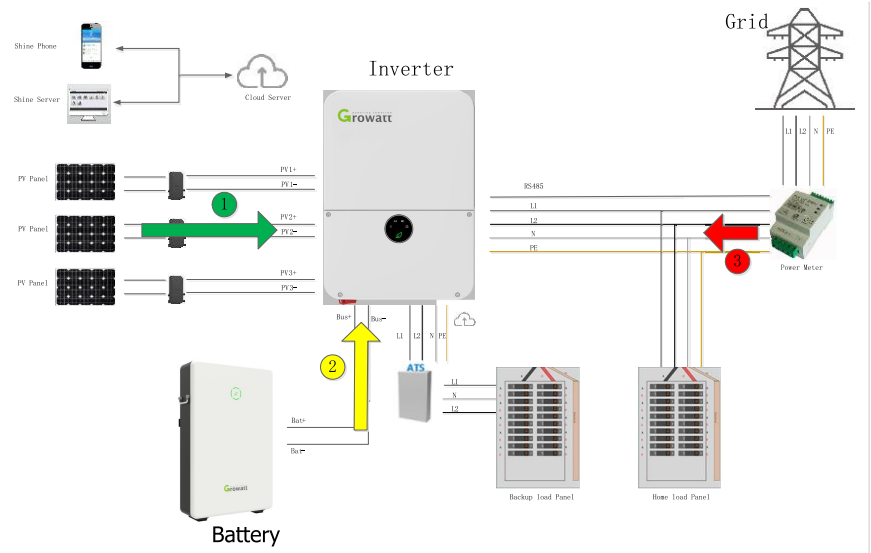
6 Energy Management System(EMS)

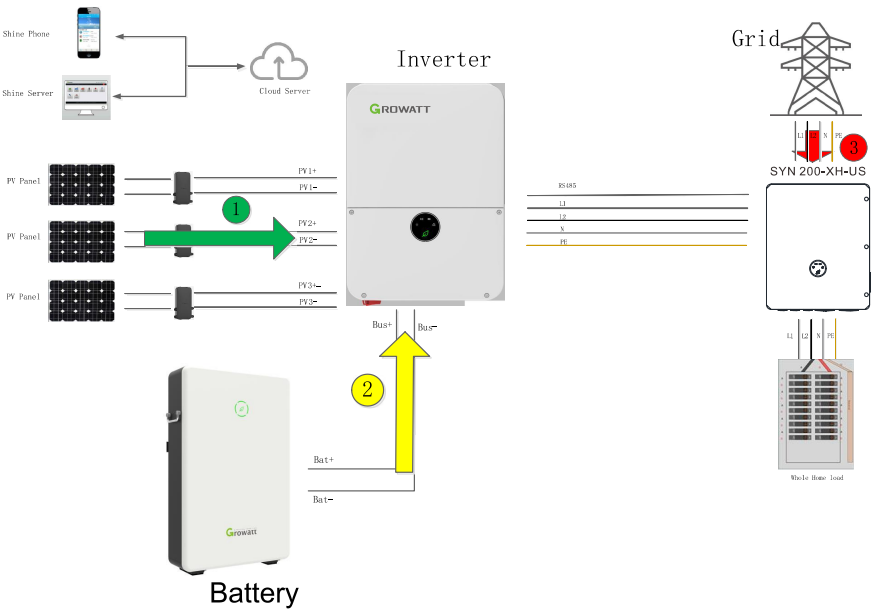
Note: This whole section only applies to Energy Storage Systems. If installing a PV-only system, please skip to section6.2.7(Power Sensor Setting). First time install the energy storage system, charge the battery for at least 1 hours or up to 60% SOC before powering off the system. This action will keep up the battery power to avoid running out while waiting for PTO.

- The fastest method to charge the battery (if allowed by the utility) is to connect the AC output of the inverter to the grid without any PV input, turn on the AC charging function (6.2.3) and set the EMS mode of the system to TOU Charging (6.2.5).

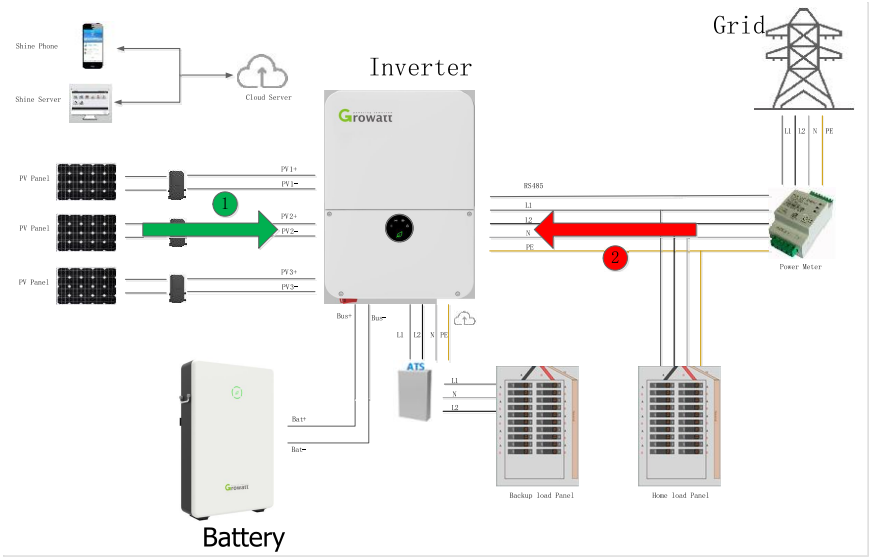
6.1 Management System Mode Introduction

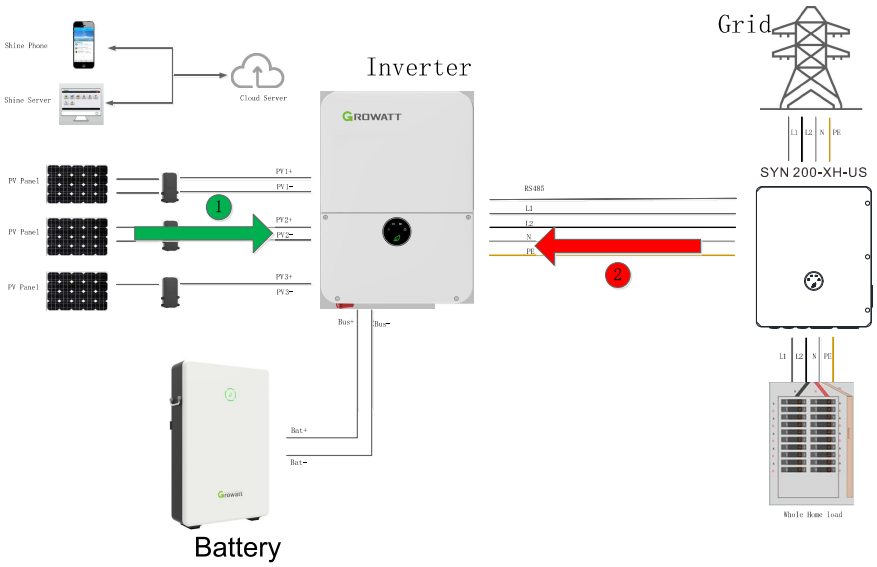
The MIN 3000-11400TL-XH-US system provides seven energy storage modes to choose.

<table>
<tr><th>Storage Mode</th><th>Description</th></tr>
<tr><td rowspan="2">Load First
(Default)</td><td>Use PV production for self-consumption, then charge/discharge battery as needed to maximize self-consumption.</td></tr>
<tr><td> 

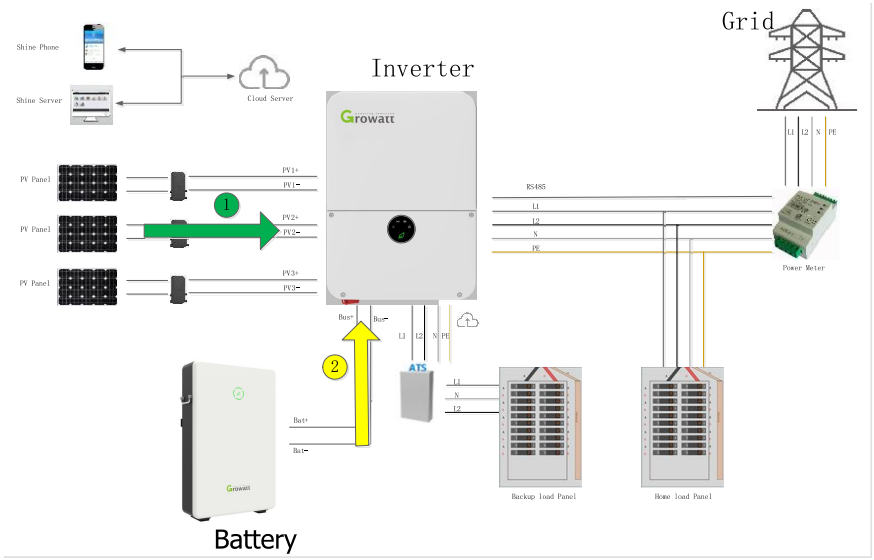
PHB Load First Mode Diagram
 

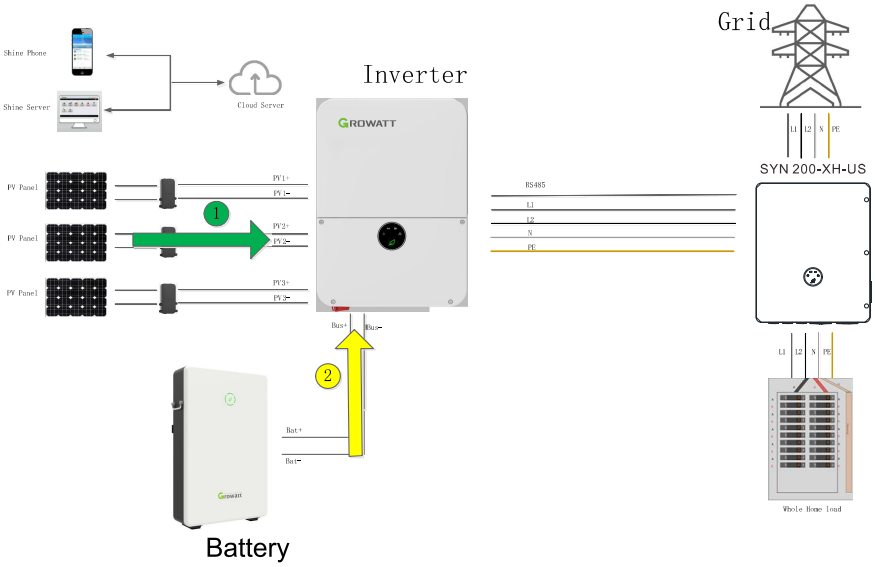
WHB Load First Mode Diagram</td></tr>
</table>

<table>
<tr><td rowspan="3">Battery First
(TOU Charging)</td><td>Charge battery from PV production and grid power (if needed) until it is full. Only then use PV production for self-consumption and grid.</td></tr>
<tr><td> 

PHB Battery First Mode Diagram</td></tr>
<tr><td> 

WHB Battery First Mode Diagram</td></tr>
</table>

<table>
<tr><td rowspan="2">Grid First
(TOU Discharging)</td><td>If PV Production < Inverter Maximum Production (nameplate or limited power), discharge battery for self-consumption and grid export until the inverter reaches its power limit or max battery discharge power.</td></tr>
<tr><td> 

PHB Grid First Mode Diagram</td></tr>
<tr><td></td><td> 

WHB Grid First Mode Diagram</td></tr>
<tr><td>Solar Only Backup</td><td>The battery stays charged at 100%(tare loss accepted) and only charges from Solar, not the Grid. Grid can supply energy to the load. In the event of grid outage, the battery provides energy to home until it reaches a predetermined minimum reserve.</td></tr>
<tr><td>TOU Idle</td><td>The battery will not charge or discharge during on-grid. The system runs as if it were PV only, with the battery backup available for outages.</td></tr>
</table>

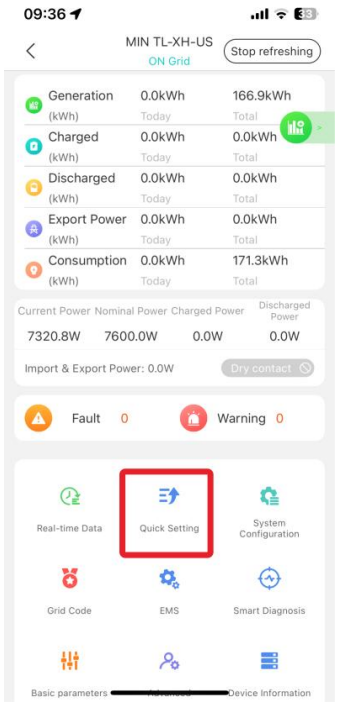
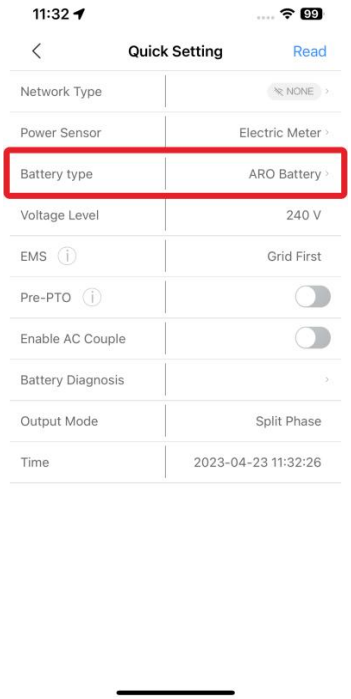
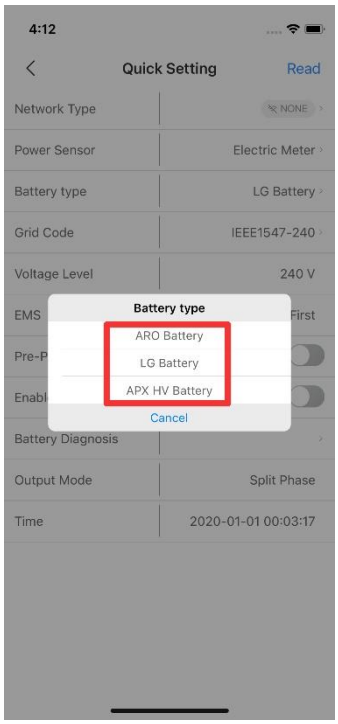
6.2 Energy Management System setting

For the photovoltaic energy storage system, several functions of the system need to set after the first installation and power-up.

6.2.1 Battery type Setting

The Battery type setting is to choose ARO Battery or LG Battery.

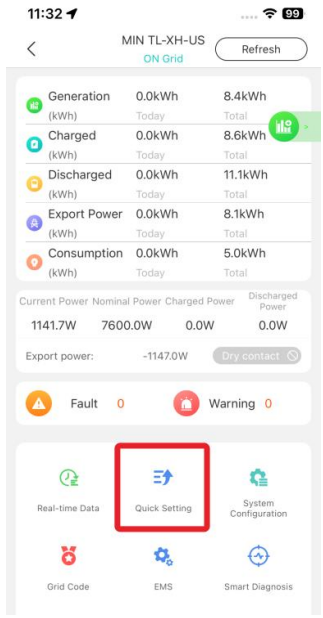
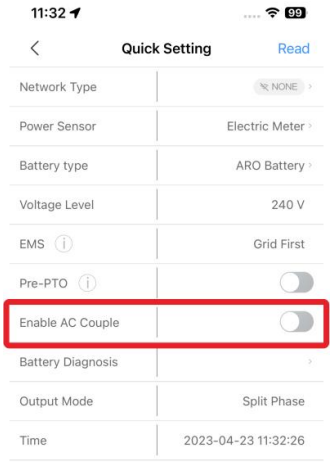
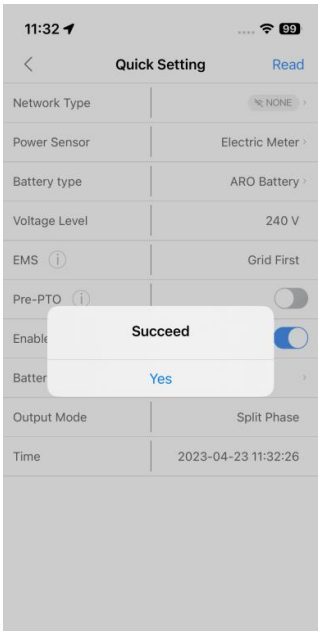
Factory Default is ARO/APX Battery.

1.Tap in Quick Setting icon	2.Tap in Battery type	3. Tap in ARO/LG/APX Battery button
		

6.2.2 AC Couple Setting

The AC Couple setting is what the AC Coupled system needs to set.

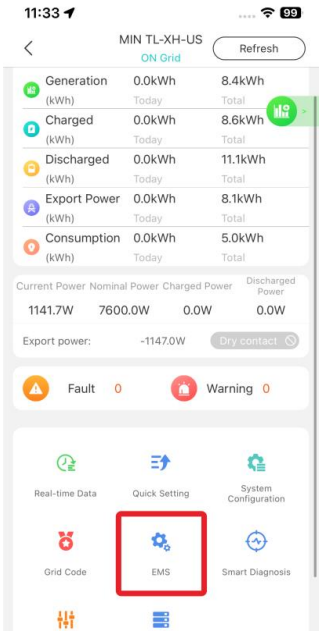
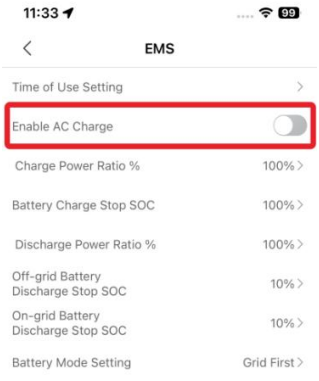
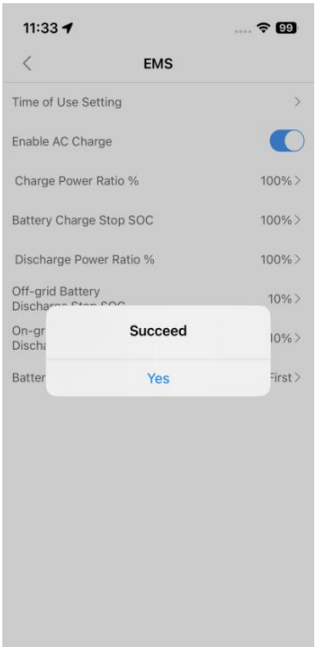
Factory Default is Disabled.

1.Tap in Quick Setting icon	2.Find Enable AC Couple	3.Tap in ON/OFF button
		

6.2.3 AC Charging Setting

The AC charging is used to set whether to allow charging the battery from the Grid.

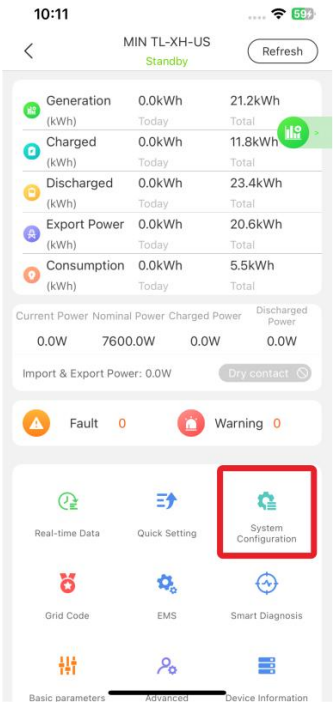
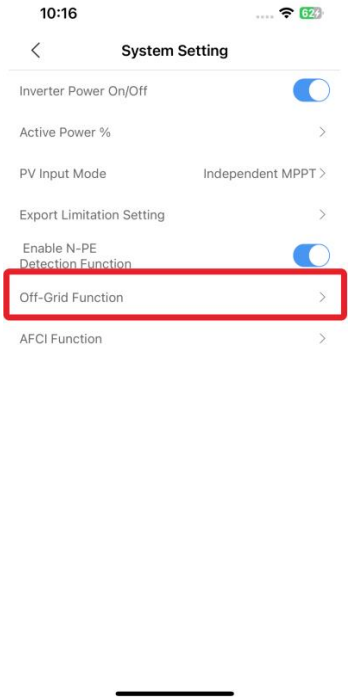
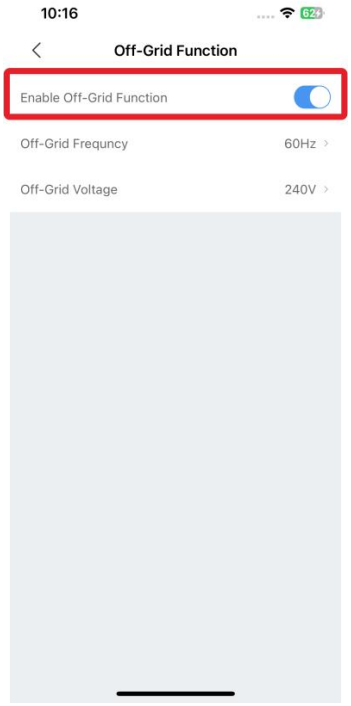
Factory Default is Disabled.

1.Tap in Charge and Discharge Management	2.Find Enable AC Charging	3.Tap in ON/OFF button.
		

6.2.4 Off-Grid Setting

Note: Off-grid settings only apply for the WHB system.

Default: Disabled

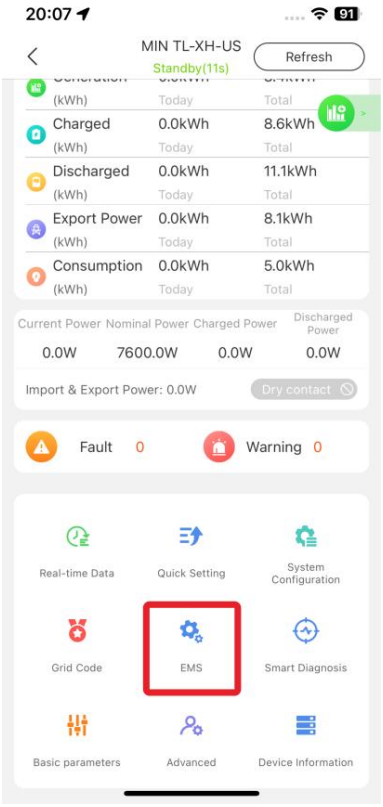
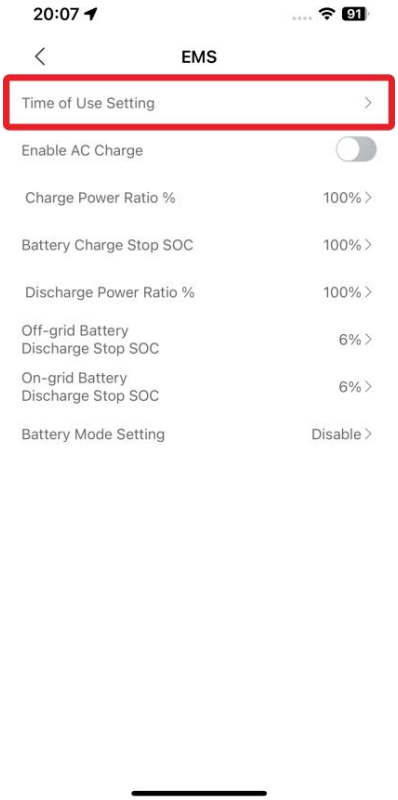
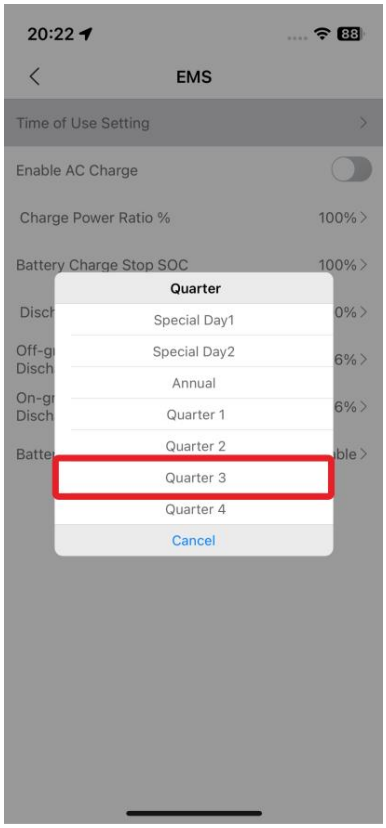
1.Tap in Charge and Discharge Management	2.Find Enable AC Charging	3.Tap in ON/OFF button.
		

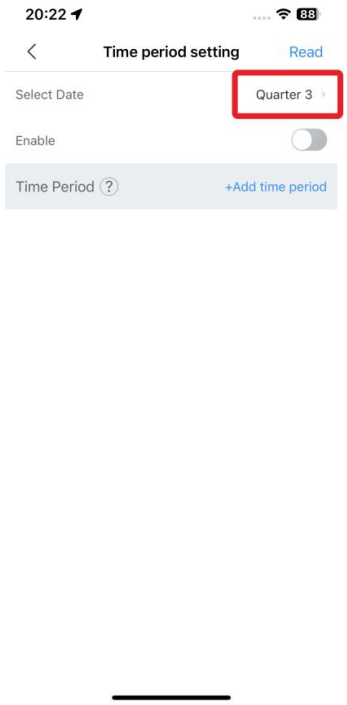
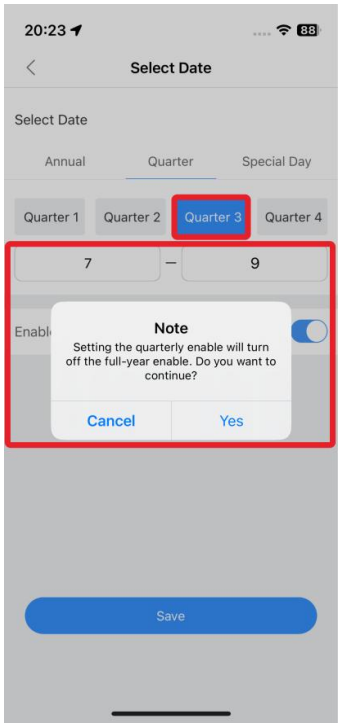
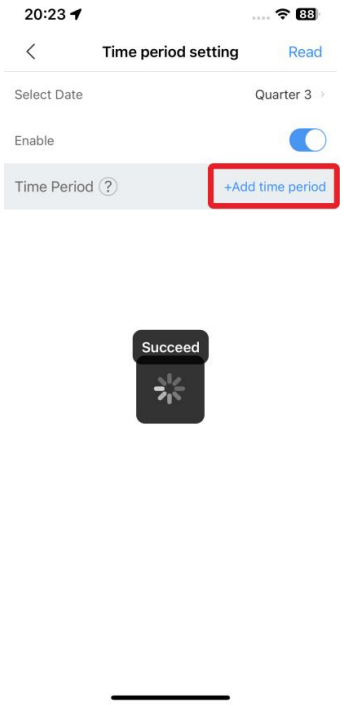
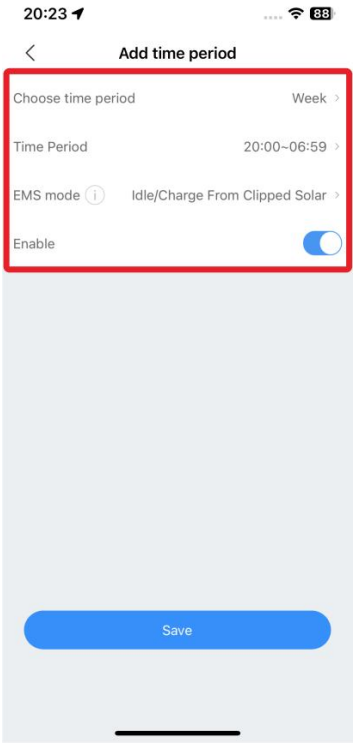
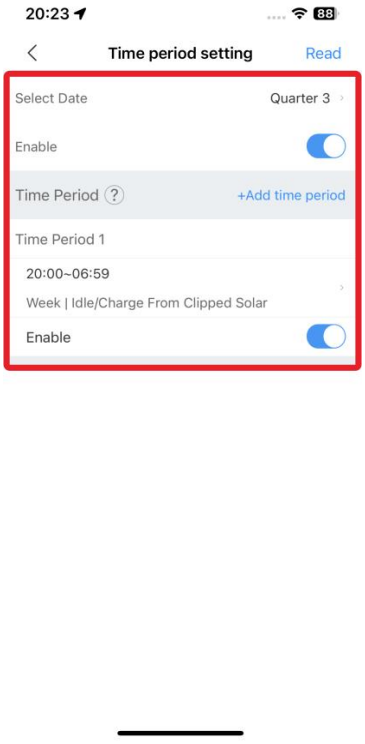
6.2.5 TOU Schedule Setting

If any batteries are installed in the system, you can change the energy storage mode as you need. **(Factory Default is Maximum Self-consumption also referred to as "Load First")**

Example: If you want the inverter to run the EMS mode shown in the table below in the third quarter, set it as shown below.

No.	Time Period	EMS Mode
1	07:00-15:59	Maximum Self- consumption (Load First)
2	16:00-17:59	TOU Idle
3	18:00-19:59	TOU Discharging (Grid First)
4	20:00-06:59	TOU Idle

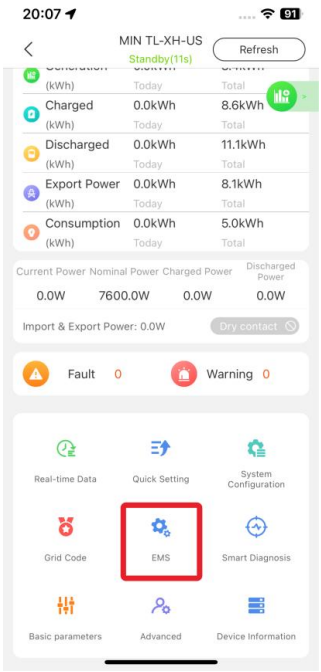
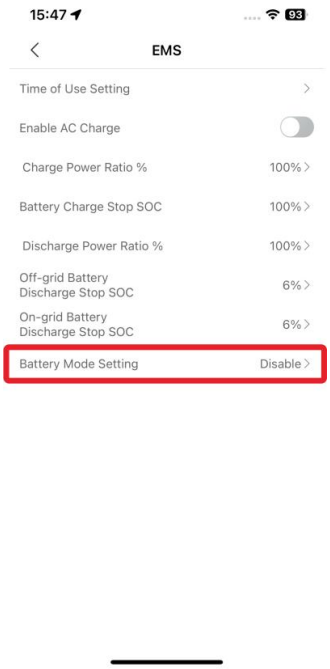
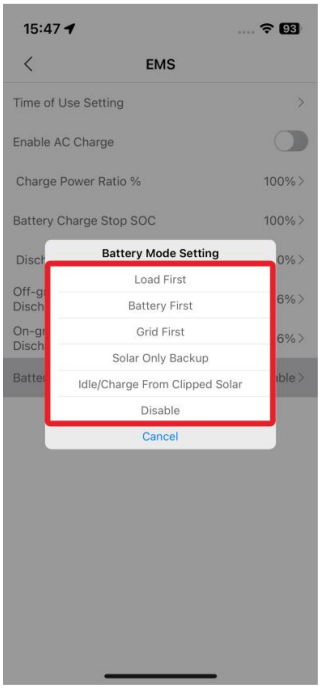
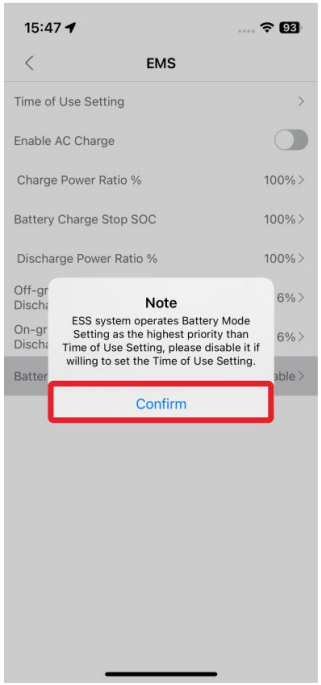
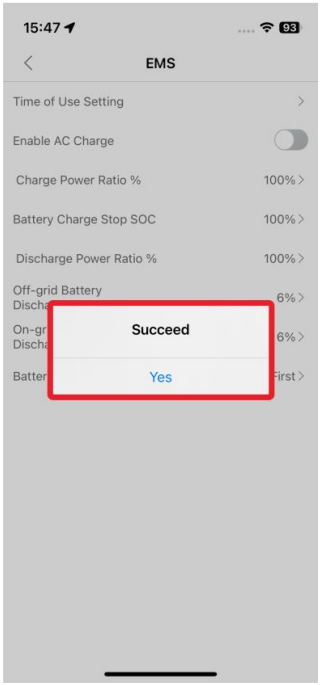
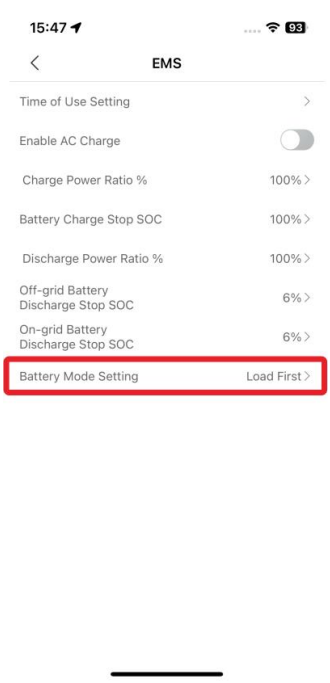
1.Tap in EMS	2.Tap in Time of Use Setting	3.Tap in Quarter 3 (e.g.)
		

4.Tap in Quarter 3	5.Select month and enable in turn, save after confirmation	6.After success, tap in +Add time period
		
7.Select the required setting items in turn, save after confirmation	8.Click Read to check whether the settings are correct	9. If you need to set other time periods, please do similar operations
		

6.2.6 Quick Battery Mode Setting

If you want to quickly set the Battery Mode to a certain one, you can follow the steps below.

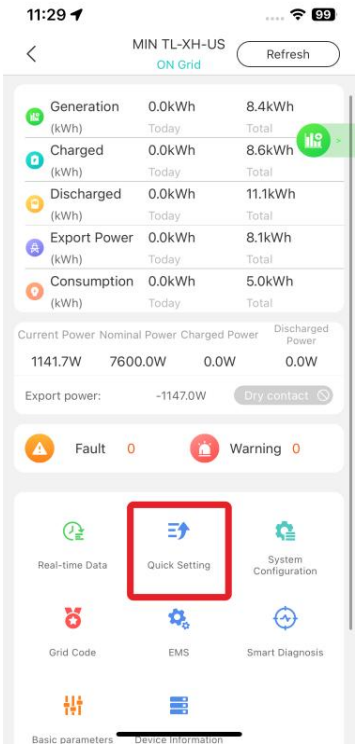
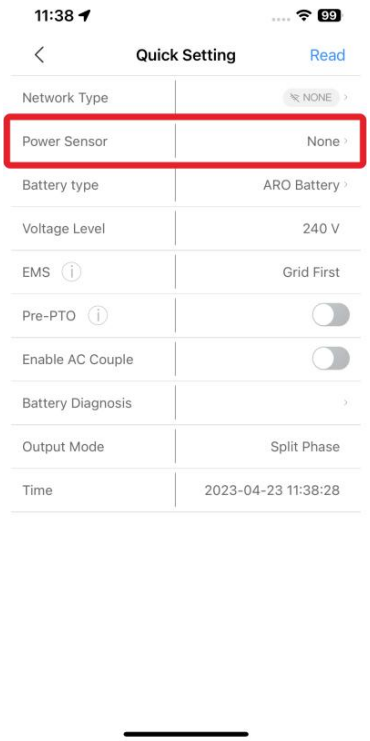
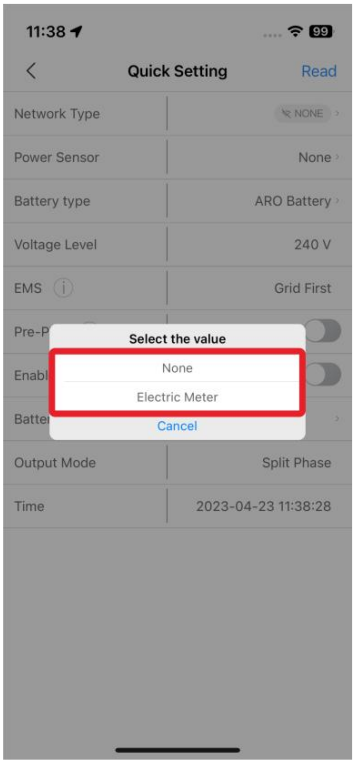
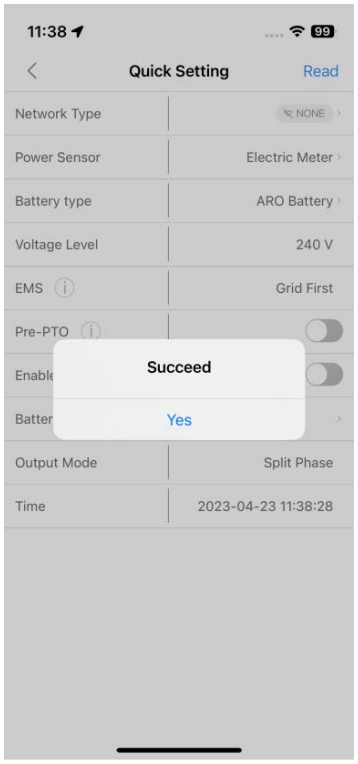
Note: Quick battery mode setting has the highest priority.

1.Tap in EMS	2.Tap in Battery Mode Setting	3.Select the mode that needs to be set
		
4.Select Confirm in the pop- up prompt	**5.After a few seconds it will prompt success**	**6. Battery Mode Setting will display the current**
		

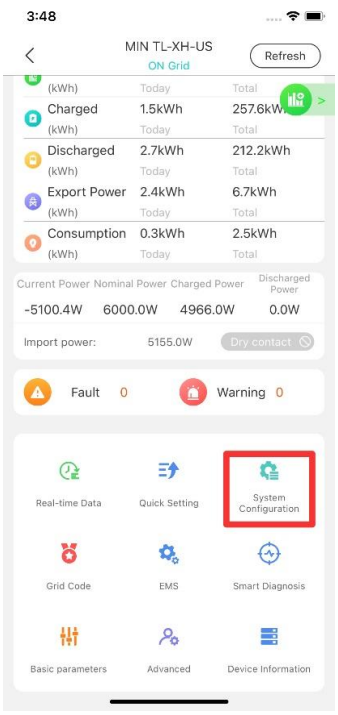
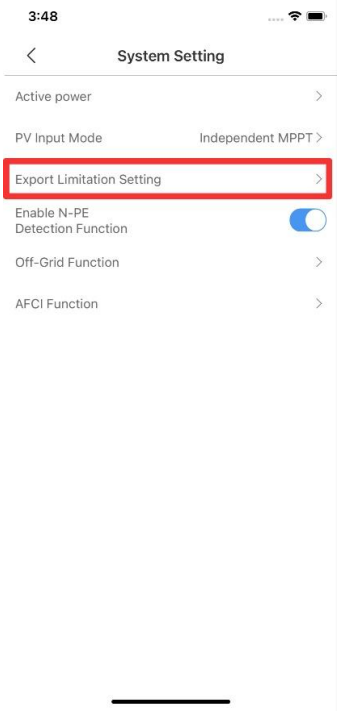
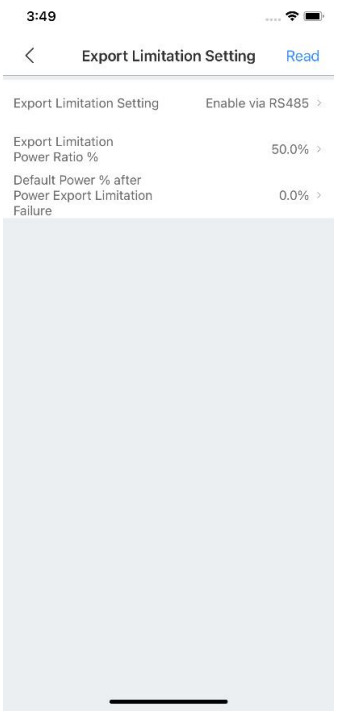
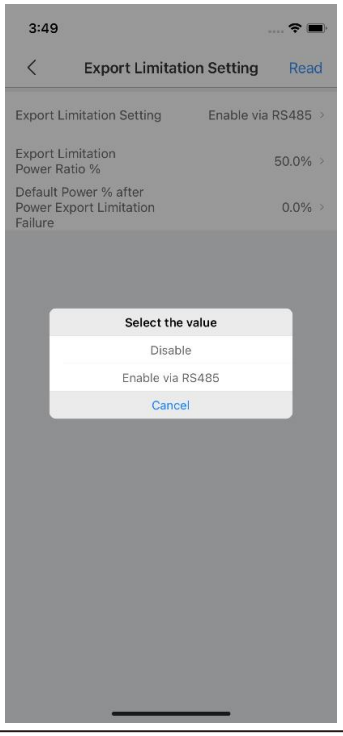
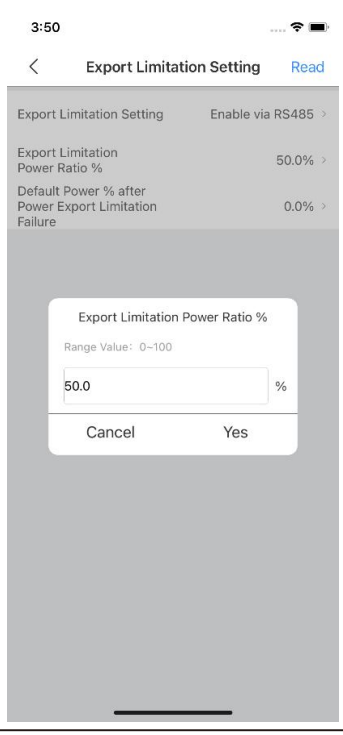
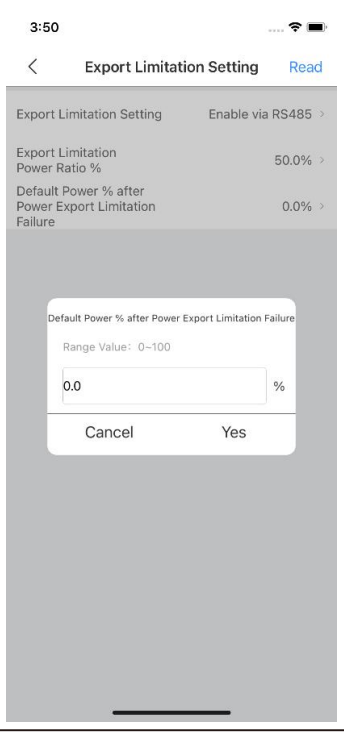
6.2.7 Power Sensor Setting

If an electric meter is installed in the system, please set. Factory Default is Disabled.

Note: Power Sensor: IOS = Electric meter Android = Meter

1.Tap in Quick Setting icon	2.Choose Power Sensor	3.Select Electric Meter
		
4.Prompt message for		
		

6.2.8 Export Limitation Setting

1.Tap in System Configuration icon	2.Choose Export Limitation Setting	3.Enter the following page
		
4. Set Export Limitation Setting to Enable via RS485 to enable the function.	5. Click Export Limitation Power Ratio %. Enter the percentage of power.	6. Click Default Power % after Power Export Limitation Failure and set the percentage.
		

7 Battery Life Maintenance(Important)

a) Unplug Battery power, Battery Communication cables and turn OFF battery modules power (Check battery quick installation guide for the detail), if the following conditions were met:

- The installation is not completed.
- No PV and AC power can charge the battery.

b) Charge the battery SOC above 60% or higher after installation is complete and pending for AHJ/city review and approval.

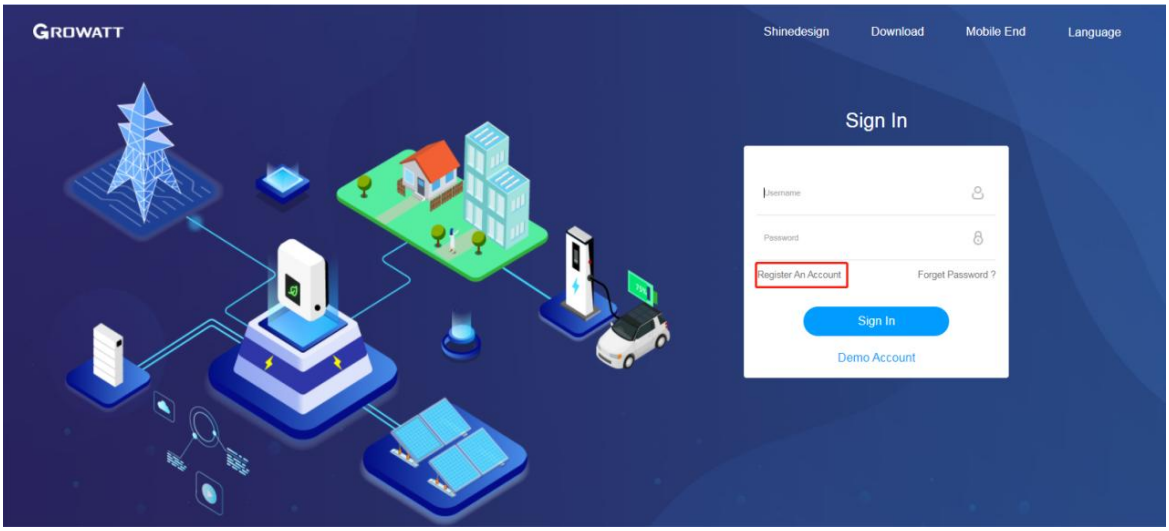
8 ShineServer Operation

ShineServer is the online monitoring platform that allows remote access through the ShinePhone App or any web browser. However, the premise is that the Wi- Fi network has been configured.

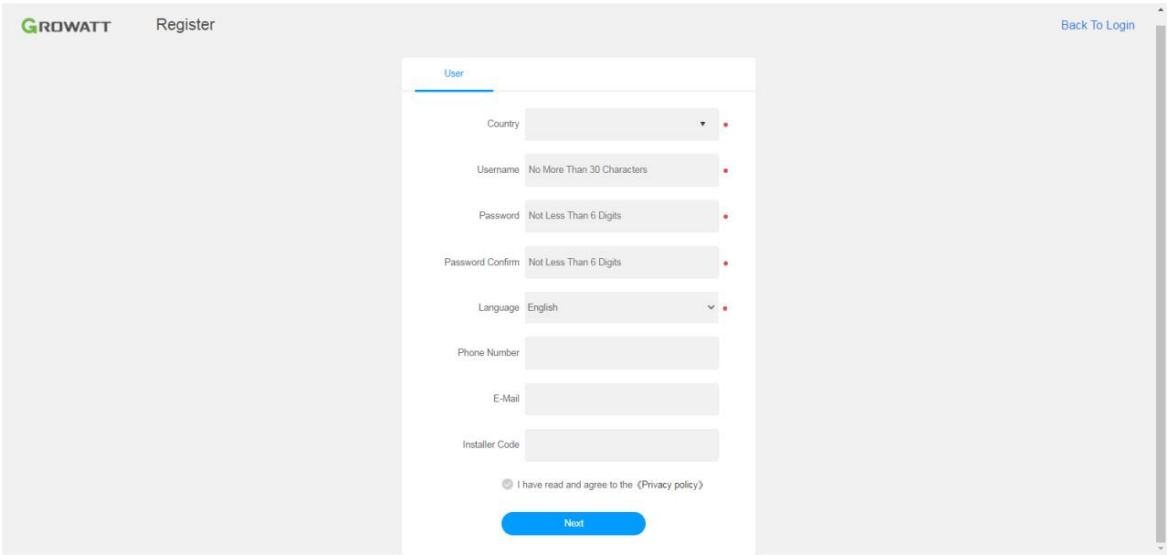
Account and plant information will be the same in both the web browser version and on the ShinePhone App.

8.1 Register an Account

a) Log in to our monitoring website http://server- us.growatt.com and click Register an Account.



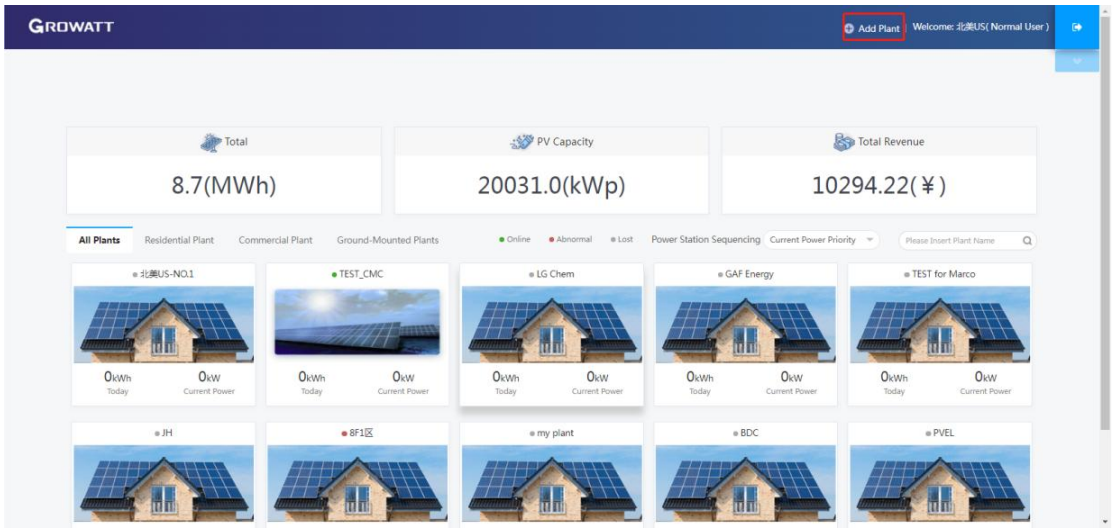
b) Fill in the appropriate information on the registration interface and log into the account after the registration is completed.



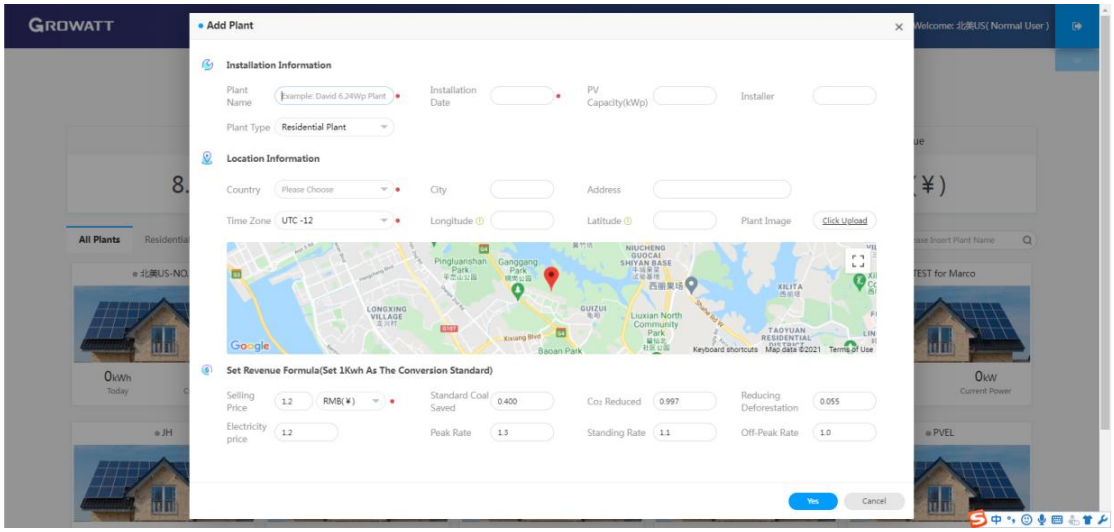
8.2 Create a power plant

a) When you log into your account for the first time, you will be prompted to register a power plant.

b) Click Add Plant on the upper right hand corner to create a power plant. A single account can contain multiple power plants.

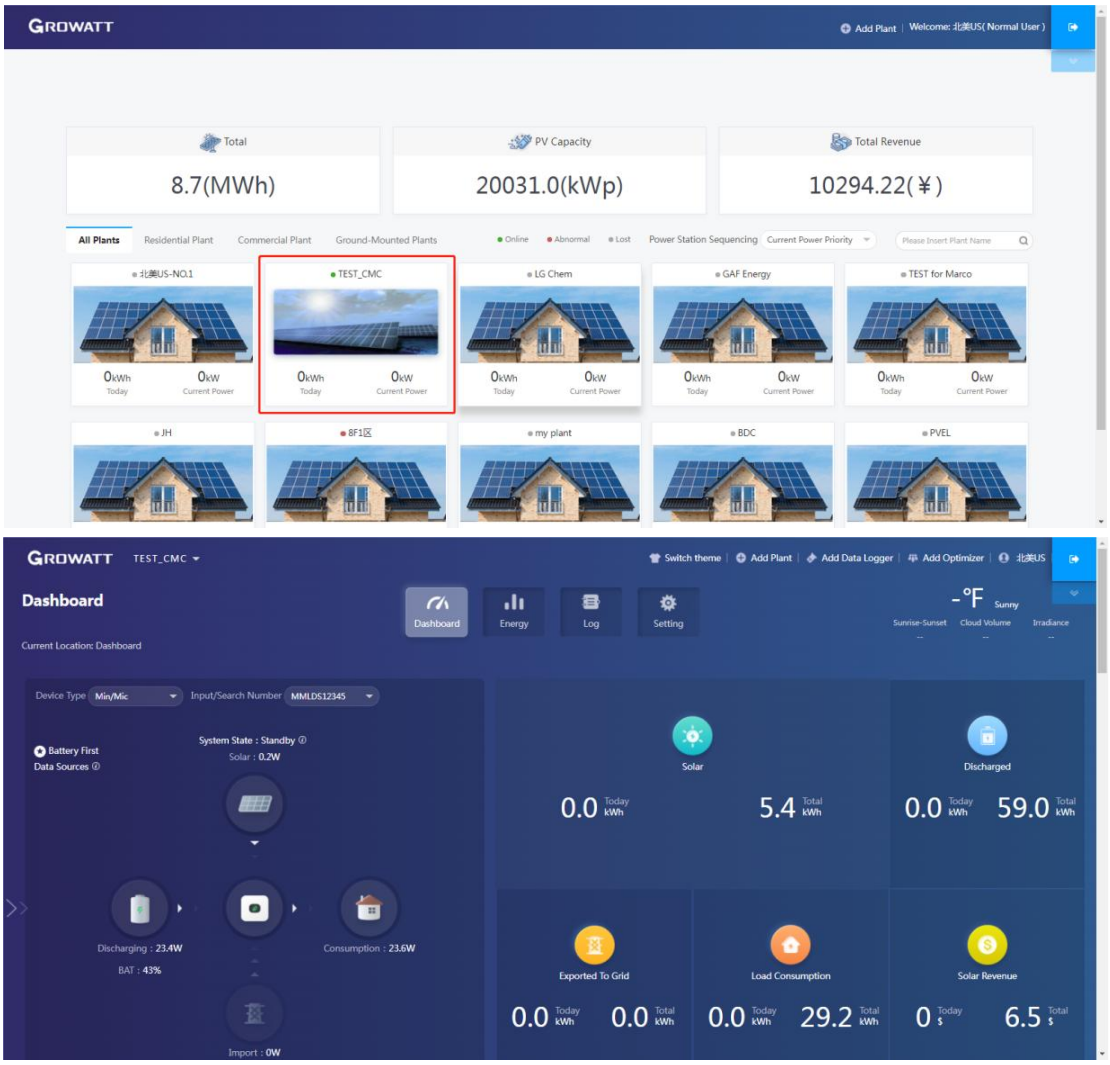


c) Fill in the appropriate power plant information in order to complete the power plant creation.



8.3 Add Data Logger to power plant

a) Click on the power plant just created, enter the power plant page, and then add a data logger. The SN number of the collector is on the barcode on the side of the inverter, starting with VC. A power plant can contain multiple data loggers.



b) When you have completed these steps, you will be able to view the inverter system remotely through the ShinePhone APP and through any browser.

9 Shinephone Introduction

9.1 APP Download

There are two ways to download the ShinePhone APP:

a) Scan the QR code

Figure 12 ShinePhone downloading QR code

Scanning the QR code through WeChat or IOS's Camera, then download the APP.

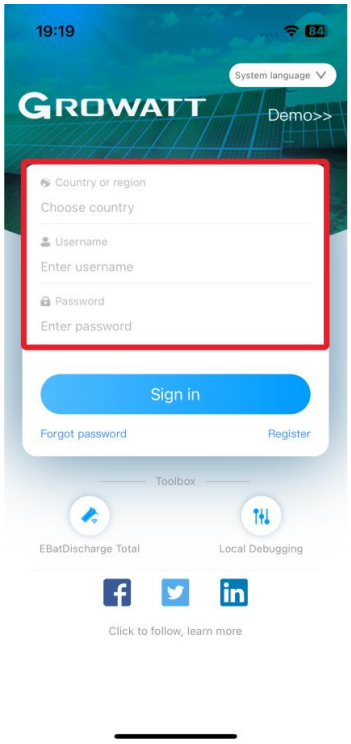
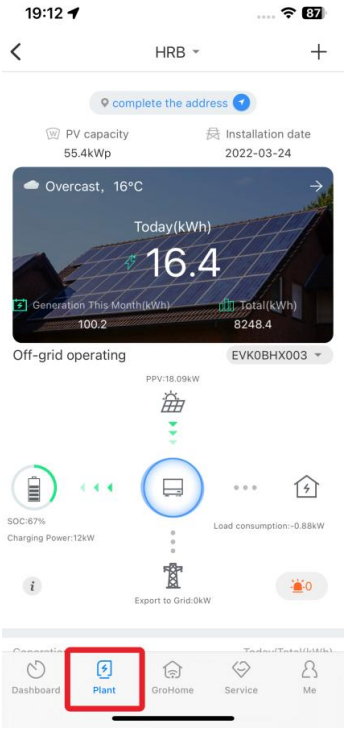
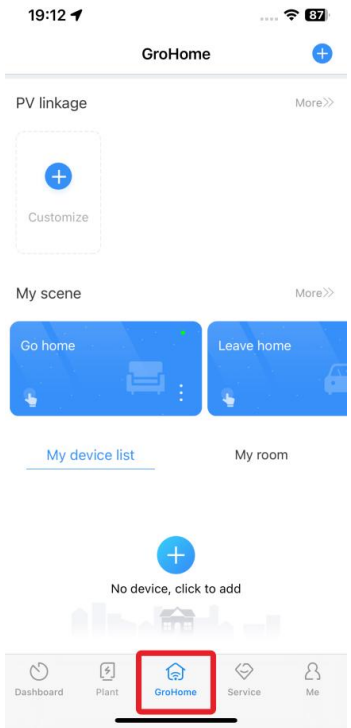
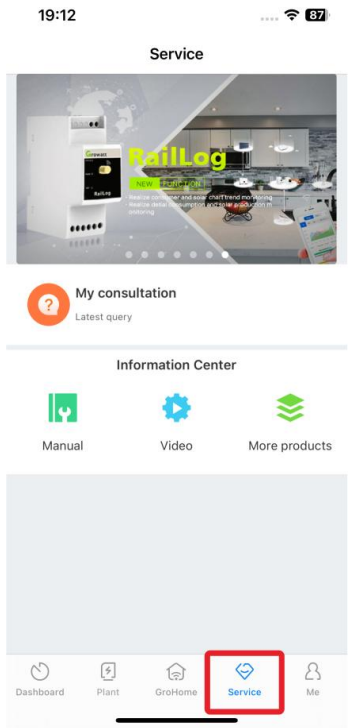
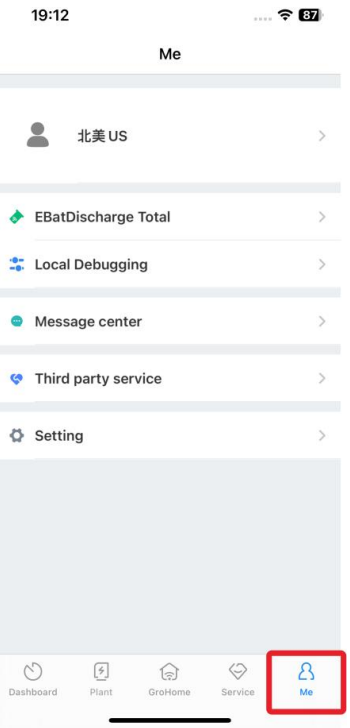
b) APP Store

Search for ShinePhone from app stores, download the installation package, and install the ShinePhone app by following the instructions. The ShinePhone icon is displayed on the home screen.

Figure 13 ShinePhone App icon

9.2 APP Introduction

ShinePhone app is a tool designed for the system owner to monitor the status of the Growatt system 24/7. It displays real-time and historical data and provides reports, alarms and various notifications of the system. ShinePhone can remotely monitor the inverter system information, which has the same function as ShineServer, and the two information are shared. We can also register and create power stations through the ShinePhone app.

1.Login: Same as the ShineServer account	2. Dashboard: Overview of inverters and generation etc.	3. Plant: Plant lists and information
		
4.GroHome: Home Energy information	5.Service:Help information, customer service and more	6. Me: Account Information and other tools
		

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