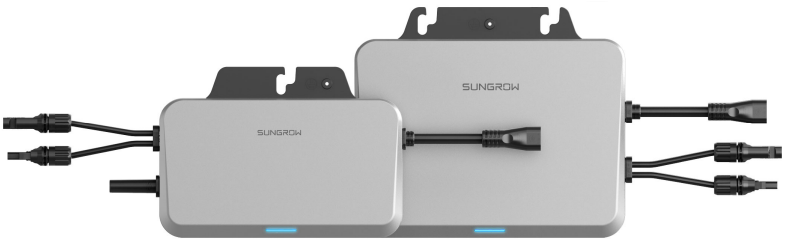
SUNGROW
Clean power for all

User Manual

Single-Phase Microinverter

S450/800S(Balcony)



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About This Manual

The manual mainly contains the product information, as well as guidelines for installation, operation, and maintenance. The manual does not include complete information about the photovoltaic (PV) system. Readers can get additional information at **www.sungrowpower.com** or on the webpage of the respective component manufacturer.

Validity

This manual is valid for the following model of low-power grid-connected PV microinverters:

- S450S
- S800S

It will be referred to as "microinverter" hereinafter unless otherwise specified.

Target Group

This manual is intended for who are responsible for installation, operation, and maintenance of microinverters, and users who need to check microinverter parameters.

- Be familiar with local standards and relevant safety regulations of electrical systems.
- Read this manual thoroughly and understand the safety instructions related to operations.

How to Use This Manual

Please read this manual carefully before using the product and keep it properly at a place for easy access.

Contents of this manual may be periodically updated or revised, and the actual product purchased shall prevail. Users can obtain the latest manual from **support.sungrowpower.com** or sales channels.

Symbols

This manual contains important safety instructions, which are highlighted with the following symbols, to ensure personal and property safety during usage, or to help optimize the product performance in an efficient way.

Please carefully understand the meaning of these warning symbols to better use the manual.

⚠ DANGER

Indicates high-risk potential hazards that, if not avoided, may lead to death or serious injury.

⚠ WARNING

Indicates moderate-risk potential hazards that, if not avoided, may lead to death or serious injury.

⚠ CAUTION

Indicates low-risk potential hazards that, if not avoided, may lead to minor or moderate injury.

NOTICE

Indicates potential risks that, if not avoided, may lead to device malfunctions or financial losses.

“NOTE” indicates additional information, emphasized contents or tips that may be helpful, e.g., to help you solve problems or save time.

Contents

1 Safety Instructions

Follow strictly the relevant safety instructions during the process of product installation, commissioning, operation, and maintenance. Improper use or misoperation may result in:

- Injury to or death of the operator or other people.
- Damage to the product, or to the property that belongs to the operator or a third party.

Strictly follow the safety instructions stated in the manual to avoid the hazards mentioned above.

⚠ WARNING

Do not perform any operation on the product (including but not limited to, handling, installing, powering on, and maintaining the product, performing electrical connection, and working at heights) in harsh weather conditions, such as thunder and lightning, rain, snow, and Level 6 or stronger winds. SUNGROW shall not be held liable for any damage to the product due to force majeure, such as earthquakes, floods, volcanic eruptions, mudslides, lightning strikes, fires, wars, armed conflicts, typhoons, hurricanes, tornadoes, and other extreme weathers.
In case of fire, evacuate the building or product area and call the fire department. Do not go back to the fire area.
To protect its internal components, during manufacture, after the product enclosure is closed, sealant will be injected into the product. Do not disassemble the product when using it. Forcible disassembly may damage the product, and the losses caused therefrom will not be covered by warranty.
Tighten the screws at the specified torques using proper tools when fastening the product and terminals. Otherwise, the product may be damaged. The damage caused therefrom will not be covered by the warranty.
Understand how to use the tools properly first before starting using them, to avoid causing personal injury or product damage.

NOTICE

Perform operations on the product only if you have a good understanding of this manual and appropriate tools in hand.

- Safety instructions in this manual should only serve as a supplement and are not all-encompassing regarding all the norms that need to be followed. All work should be carried out considering the actual situation on the site.
- SUNGROW shall not be held liable for any damage caused by violation of general safe operation requirements, safety standards, and the safety instructions specified in this manual.
- Product installation, operation, and maintenance should be conducted in compliance with applicable local laws, regulations, and specifications. Safety instructions in this manual should only be a supplement to the local laws, regulations, and specifications.
- During the product transport, installation, wiring, and maintenance, etc., the materials and tools prepared by users must meet the requirements of applicable local laws and regulations, safety standards, and other relevant specifications. SUNGROW shall not be held liable for any damage to the product caused by the adoption of materials and tools that fail to meet the above-mentioned requirements.
- Where the transport of the product is arranged by users, SUNGROW shall not be held liable for any damage to the product that is caused by users themselves or the third-party transport service providers designated by the users.
- SUNGROW shall not be held liable for any damage to the product caused by the negligence, intent, fault, improper operation, and other behaviors of users or third-party organizations.
- SUNGROW shall not be held liable for any damage to the product arising from reasons unrelated to SUNGROW.

1.1 Signs on the Product

Sign	Definition
	All external power sources must be disconnected before operation and maintenance!
	After the product is disconnected from the external power source, wait at least 10 minutes before touching any of its internal conductive parts.
	Burn hazard due to the hot surface that may exceed 60℃.
	Hazardous high voltages present on the AC side!

Sign	Definition
	Read the manual before performing any operation on the product.
	CE compliance mark.
	EU RoHS compliance mark.

1.2 Network Port Description

Port No.	Description
502	Used to connect a SUNGROW device or third-party management system to the microinverter via the Modbus TCP protocol. This port is disabled by default.
443	Used for local access via the iSolarCloud App over the HTTPS protocol. Use TLS 1.2 or later.
67	Used exclusively for DHCP-related functions. No product information or data transmission is involved.
5353	Used exclusively in device self-networking for device identification purposes. No product data is involved.
6363~6366	Used in mesh networking for the exchange of networking information and the broadcasting of online and offline status between nodes.
10001	Used in mesh networking for device updates, transmitting version and other update-related information.
10000	Used exclusively for data exchange with an associated device.

1.3 Important Safety Instructions

1.3.1 Unpacking and Inspection

⚠ WARNING

- Do not bump, squeeze, or bend its connectors or Wi-Fi antenna when handling the microinverter. Deformation or damage may impair the device's performance or normal operation.
- Check all safety signs, warning labels and nameplates on devices.
- The safety signs, warning labels and nameplates must be clearly visible and cannot be removed or covered before the device is decommissioned.

NOTICE

After receiving the product, check whether the appearance and structural parts of the device are damaged, and check whether the packing list is consistent with the actual ordered product. If there are problems with the above inspection items, do not install the device and contact your distributor first. If the problem persists, contact SUNGROW in time.

1.3.2 Installation Safety

⚠ DANGER

- Make sure there is no electrical connection before installation.
- Before drilling, avoid the water and electricity wiring in the wall.

⚠ CAUTION

Improper installation may cause personal injury!

- The microinverter is heavy. Install or handle it with care to prevent personal injuries.
- When moving the product, be aware of the product weight and keep the balance to prevent it from tilting or falling.

NOTICE

Before operating the product, must check and ensure that tools to be used have been maintained regularly.

1.3.3 Electrical Connection Safety

⚠ DANGER

Before electrical connections, make sure that the product is not damaged; otherwise, it may lead to danger!

⚠ DANGER

Hazardous high voltages in PV modules when they are exposed to sunlight!

- Operators must wear proper personal protective equipment during electrical connections.
- Check and confirm that the DC cables are voltage-free using a measuring instrument before touching them.
- Observe all the safety instructions listed in the documents for the PV modules and other relevant documents.

⚠ DANGER

Danger to life due to high voltages inside the product!

- Be sure to use specialized insulated tools during wiring.
- Observe the warning signs on the product, and perform operations by strictly following the corresponding safety instructions.
- Observe all the safety instructions listed in this manual and other relevant documents for the product.

⚠ WARNING

Improper wiring may damage the product, and such damage will not be covered by the warranty.

- Electrical connection must only be performed by qualified technical persons.
- The specification of cables used in the PV power system should meet the relevant requirements. The cables should be properly insulated and firmly connected.

⚠ WARNING

- It is recommended to make a protective ground connection. Lack of protective grounding or unreliable grounding may lead to personal injuries.
- Before connecting the PV connectors to the product, check the positive and negative ends of PV module cables first. Connect the PV connectors to the corresponding terminals on the product only after confirming that the polarity is correct.
- Determine the specifications of AC circuit breakers to be used strictly in compliance with the applicable local laws and regulations and safety standards or the recommendation by SUNGROW. Otherwise, the circuit breaker may not open in time in the event of something abnormal, which may then lead to safety incidents.

NOTICE

Wiring must be done in compliance with the applicable local grid regulations and relevant safety instructions specified for the PV modules.

1.3.4 Operation Safety

⚠ DANGER

When laying cables, keep the cables at least 30 mm away from the outer edge of the heat-generating components or areas, so as to protect the insulation layer of cables from aging or getting damaged due to high temperature.
When the product is operating:

- Do not touch the product enclosure;
- Do not plug and unplug any connector on the product;
- Do not touch any wiring terminal of the product. Otherwise, it may lead to electric shocks;
- Do not disassemble or remove any part of the product. Otherwise, it may lead to electric shocks;
- Do not touch any hot part of the product. Otherwise, it may cause burns;
- Do not connect or remove any PV module. Otherwise, it may lead to electric shocks.

1.3.5 Maintenance Safety

⚠ DANGER

Risk of product damage or personal injury due to improper servicing!

- Turn off the grid-side AC circuit breaker before maintenance.
- After the product is powered off for 10 minutes□measure the voltage and current using proper instruments. Be sure to perform operation and maintenance of the product wearing proper protective equipment after confirming that there is no voltage or current present.
- Even after the microinverter has been stopped, it may still be hot and cause burns.Wait 30min until the microinverter cools down,and then perform operations on it wearing protective gloves

⚠ DANGER

Touching the power grid or the contacts and terminals inside the product connected to the power grid may lead to electric shocks!

- Voltage may be present on the grid side. Use a standard voltmeter to check and confirm that it is voltage-free before touching.

⚠ CAUTION

To prevent irrelevant personnel from operating the product by mistake or other accidents, please set up highly visible warning signages around the product or fence off a warning zone.

NOTICE

- If the paint on the product enclosure peels off or the enclosure rusts, repair it in time. Otherwise, the product performance may be affected.
- Do not use cleaning agents to clean the product. Otherwise, the product may be damaged, and the loss caused therefrom will not be covered by the warranty.
- No part inside the product requires maintenance. Therefore, do not open the product enclosure (except for the wiring box) or replace any of its internal components without authorization. Otherwise, the damage caused therefrom will not be covered by the warranty.
- To minimize the risk of electric shocks, do not perform maintenance operations that are not specified in this manual. If needed, please contact SUNGROW for maintenance and repair services. Otherwise, damages caused therefrom will not be covered by the warranty.

1.3.6 Disposal Safety

⚠ WARNING

Please scrap the product in accordance with relevant local regulations and standards to avoid property losses or casualties.

2 Microinverter-based Grid-connected PV System

System Introduction

The microinverter-based grid-connected PV system is mainly composed of the PV modules, grid-connected PV microinverter ("microinverter"), monitoring platform, and power grid. The system structure is shown below.

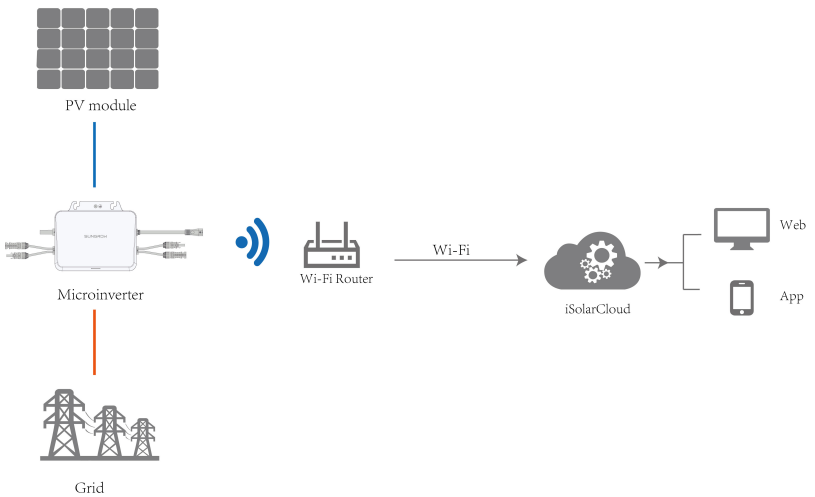


Figure 2-1 Microinverter-based Grid-connected PV System

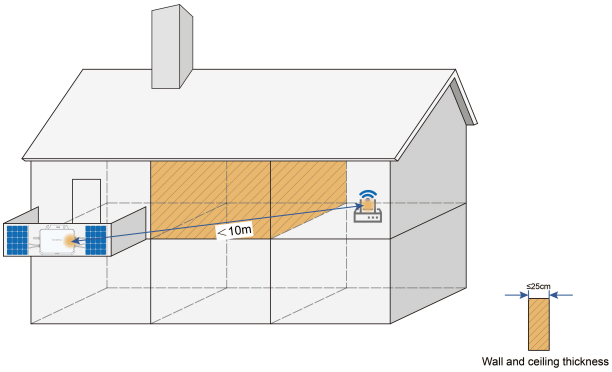
Microinverter

As an integral part of the PV power system, the microinverter converts the DC power generated from the PV modules into the grid-compatible AC power and feeds it to the grid. Compared with central and string inverters, the microinverter has the advantages of high production and great safety performance and is now widely applied in residential and distributed PV systems.

With its built-in Wi-Fi function, the microinverter can access the Internet through a wireless home router and then upload the data generated during its operation to iSolarCloud. Users can log in to the iSolarCloud monitoring platform or iSolarCloud App to check the cloud data.

Wi-Fi Extender (Optional)

ForPV systems requiring higher communication quality, in case the microinverter's Wi-Fi functionality cannot satisfy the requirements for system data communication, a Wi-Fi extender (optional) should be added at a proper position between the microinverter and the router.



The user may stand at the position of the router, log in via local access to the microinverter on the iSolarCloud App, and check the router's Wi-Fi signal strength on the network settings screen. After the Wi-Fi signal has stabilized, see if an extender is needed.

Check the signal strength of the router's Wi-Fi in the network list. If the router's Wi-Fi network cannot be detected or the number of signal bars is ≤2, it is suggested to take the below actions:

1. Move the router to a position closer to the microinverter, until the strength of the router's Wi-Fi reads □ 2 bars. Then, the microinverter can engage in communication normally.
2. Add an Wi-Fi extender in the middle between the router and the microinverter, and ensure the signal strength at the position of the extender reads □ 2 bars. Then, the microinverter can engage in communication normally.

- Read the manuals for the router and Wi-Fi extender before use. Ensure the number of devices connected is less than the limit specified by the router or Wi-Fi extender. Otherwise, the device may not be able to access the network.
- The Wi-Fi extender should be prepared by the user separately. Users may use the recommended Wi-Fi extender products , or choose an extender based on their actual needs.

iSolarCloud Monitoring Platform

The iSolarCloud monitoring platform is a Web-based monitoring and management software. The platform allows users to view detailed production and performance data of the microinverter. It also enables users to manage and maintain the device remotely and remove some possible faults and alarms in the earliest stage, thus ensuring the device's stable operation. For more information, please refer to iSolarCloud (Web) User Manual.

iSolarCloud App

The iSolarCloud App is a mobile application designed for new energy power plant management. It can be used on Android and iOS devices. Users can view the plant's running data on the App. It also provides functions such as quick access to the plant, remote parameter setting, quick fault location and notification, and yield and revenue

analyzing. The App enables more efficient management since it is not dependent on PC. For more information, please refer to iSolarCloud (App) User Manual.

3 Microinverter

Types of Microinverters

Based on the number of PV modules that can be connected, the microinverters are divided into two types: “1-in-1” and “2-in-1”. Only one PV module can be connected to an "1-in-1" microinverter, while two to a "2-in-1" microinverter, as shown in the figure below.

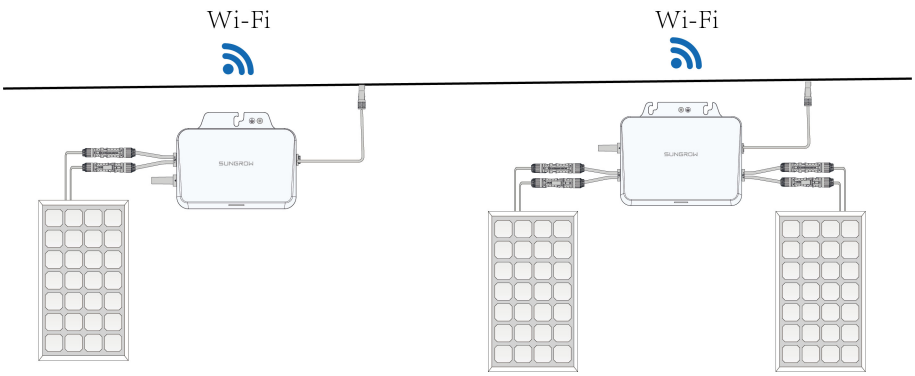


Figure 3-1 Types of Microinverters

Features

- High power generation efficiency: In the microinverter-based grid-connected PV system, the microinverter guarantees that the PV modules all work at their optimal performance through independent MPPT control for each module. Since the modules each has an independent MPPT, their power generation performance will not be affected by each other. That is, the decrease in the power generation of a single module, due to shading, orientation, or other factors, will not affect the power generation efficiency of other modules in the system.
- Great safety performance: As the microinverter has a DC voltage rating of only tens of volts, the potential fire risk caused by high-voltage DC arcs is eliminated and the safety is further guaranteed.
- Smarter O&M: The microinverter supports module-level operation and maintenance. Users can locate every one of the PV modules precisely and perform diagnosis of their operating status, which makes O&M easier and smarter.

Microinverter Wireless Specifications

S450S:

RF operating frequency band:

2.4G Wi-Fi: 2412-2472MHz (TX/RX)

Bluetooth Low Energy: 2402-2480MHz (TX/RX)

Maximum Output Power:

2.4G Wi-Fi: 19.93dBm

Bluetooth Low Energy: 9.015dBm

S800S:

RF operating frequency band:

2.4G Wi-Fi: 2412-2472MHz (TX/RX)

Bluetooth Low Energy: 2402-2480MHz (TX/RX)

Maximum Output Power:

2.4G Wi-Fi: 19.93dBm

Bluetooth Low Energy: 9.201dBm

4 Balcony PV System

In balcony PV systems, the use of microinverters can help to increase the yield. The product intended for this scenario comes with a cable with a wall plug. Users can put the wall plug into the wall socket to power the microinverter. As complicated wiring is not required, the installation is made easier, as shown in the figure below.

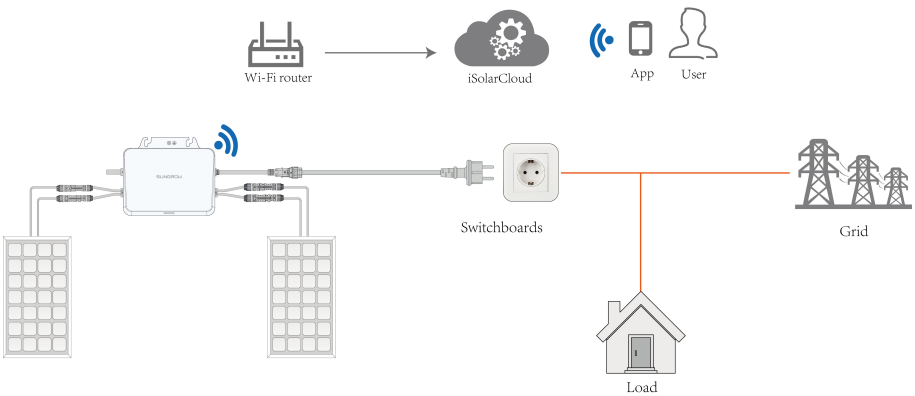


Figure 4-1 Networking Diagram of Balcony PV System

5 Installation and Commissioning

For detailed instructions on the installation and commissioning of the microinverter, please scan the QR code for the user manual.

6 Plant Operation and Maintenance

6.1 iSolarCloud Download and Installation

Prerequisite

This section introduces how to download and install the iSolarCloud App.

Steps

Step 1 Search for **iSolarCloud** in App Store, Google Play, or other application stores, or scan the QR code below with a mobile phone and download the App by following the onscreen instructions.

Step 2 Tap the downloaded installation package and follow the onscreen instructions to complete the installation. The icon of iSolarCloud will then appear on the screen of your phone.

--End

Table 6-1 User role

User type	Username	Password	Permissions
General user	user	pw1111	Granted access to monitoring and general settings. For instance,Overview, Device Monitoring, and some of the History Data.
O&M user	admin	pw8888	Operations mentioned in this manual.

User type	Username	Password	Permissions
Developer Account	develop	Dynamic password	Login with a developer account is allowed only after authorization by an O&M user account.

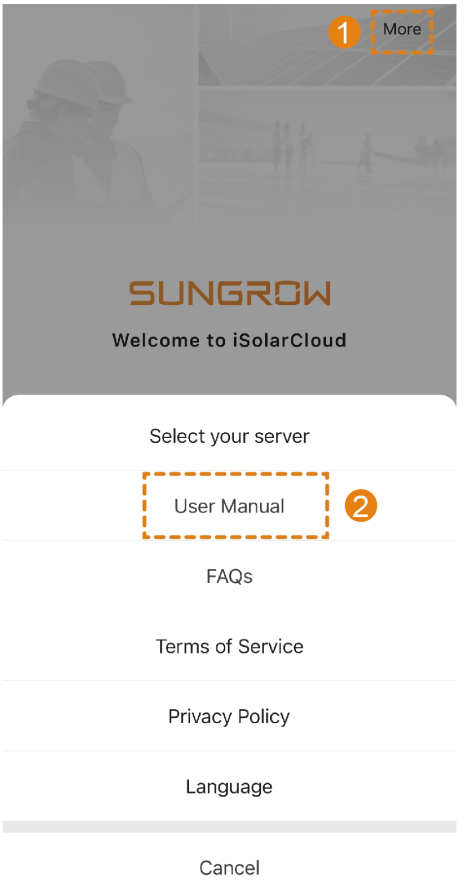
This manual gives instructions on how to use the iSolarCloud App on an iOS device. These instructions also apply to Android devices, with only small differences in user interfaces. Please refer to the user interfaces actually shown on your device. Icons and data in the figures are for reference only, which may be different on the App you actually use.
System requirements:

- Mobile OS: Android 5.0 or later, iOS 11.0 or later;
- The phone can connect to WLAN or 4G/5G network;
- The phone has sufficient storage space to install the App.

6.2 Preparation

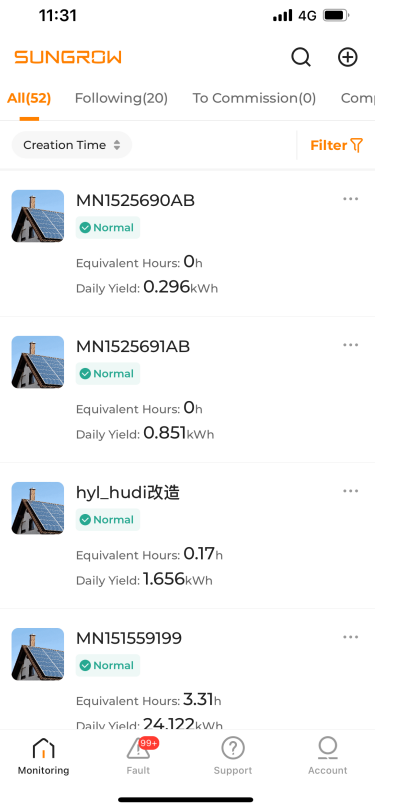
Ensure the microinverter has been installed and commissioned, and you have completed device initialization and network settings and created a plant on the iSolarCloud App.
For detailed instructions on the above-mentioned operations, see the user manual for the microinverter. You can scan the QR code below for the manual.

The user manual for iSolarCloud App can be found on the login screen, as shown in the figure below.


1
More
SUNGROW
Welcome to iSolarCloud
Select your server
User Manual
2
FAQs
Terms of Service
Privacy Policy
Language
Cancel

6.3 View Plant List

6.3.1 Plant List



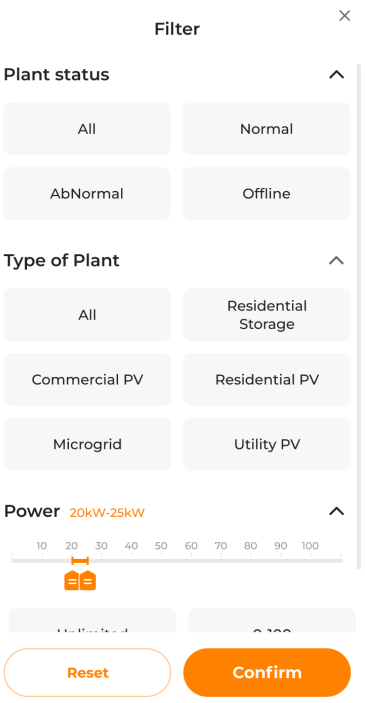
You will go to the **All** tab after logging in to the iSolarCloud App. All the plants that have been created under your account will be shown here. You can tap **Following**, **To Commission**, or **Completed** at the top of the screen to check plants in different states.

- Search for a plant:

  Tap and enter relevant information to search for a plant or device.

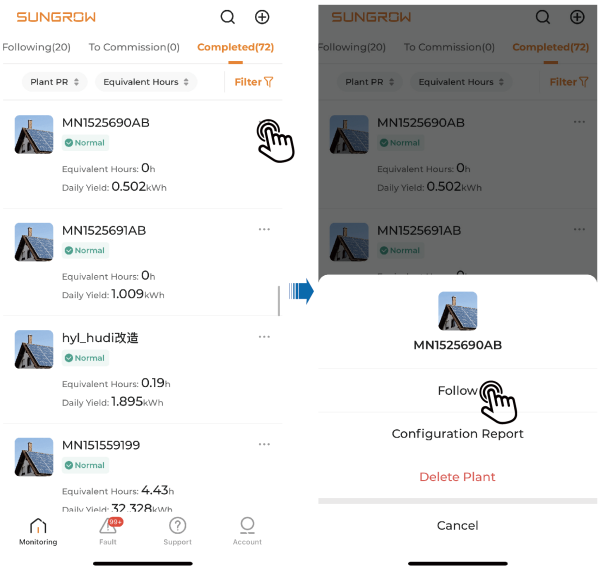
  - You can search for a plant by name.
  - You can search for a device by S/N, or by scanning the QR code on the device. You may tap to scan a QR code.
- Filter:

  Tap **Filter**, and select the **Plant Status**, **Plant Type**, and **Power** of the plant you want to check. Then, tap **Confirm**. Plants that meet the search criteria will then be shown on the screen.



6.3.2 Follow Plant

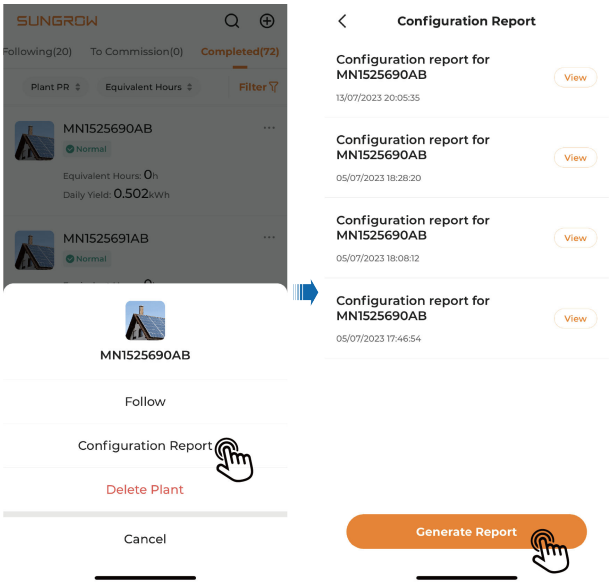
Tap ••• and choose **Follow**. An icon ★ will then appear to the right of the plant name. You may check the plants you have followed in the **Following** tab.



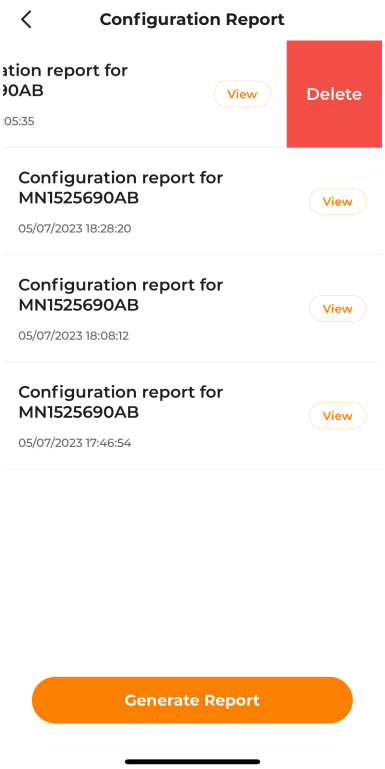
6.3.3 Plant Configuration Report

The configuration report contains the general information of the plant as well as information of retailers/installers and plant owners.

- Generate a report: Tap ••• and choose **Configuration Report**.
  Tap **Generate Report** and wait for the report to be generated, which may take a while. When the report is ready, tap **View** to download the report from a browser.

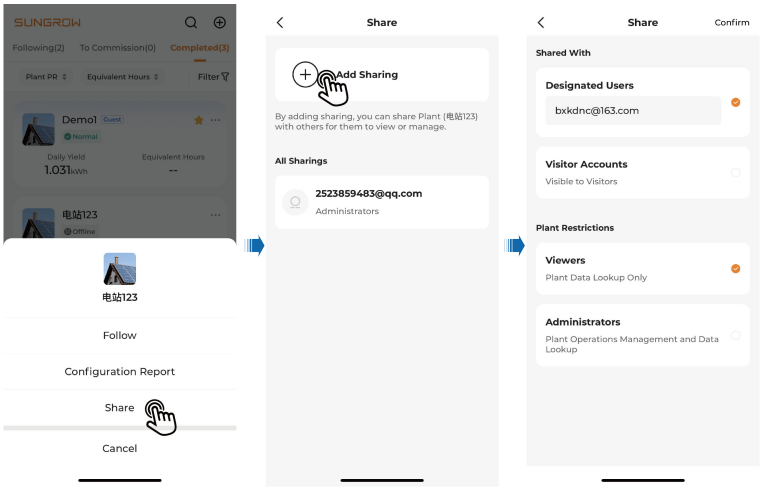


- Delete a report: Swipe left on the generated report, and tap **Delete** to delete it.



6.3.4 Share Plant

1. Tap ••• and choose **Share**.



2. Tap **Add Sharing**. You can now complete the information about the user with whom you want to share the plant and assign permissions accordingly.

Table 6-2 Description of Permissions

Roles	Plant Restrictions	Description
Designated Users	Viewers	Plant data lookup only
	Administrators	Plant operation management and data lookup
Visitor Accounts	Viewers	Plant data lookup only

3. Tap **Confirm**. Your sharing will then be presented on the screen.

6.3.5 Delete Plant

The Owner can delete their own plant and cannot delete a plant that is shared by other users.

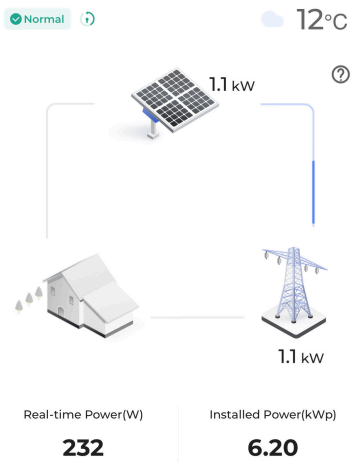
1. Tap ••• and choose **Delete Plant**. A confirmation dialog will then appear on the screen.
2. Tap **Confirm deletion** to delete the plant.

6.4 View Plant Details

6.4.1 Overview

Choose a plant from the list to go to "**Overview**".

- View the power flow
  Power Flow: Information such as generated output and feed-in power of the PV system are shown here. Arrows between the icons indicate that there is energy flowing between the devices. The direction in which the arrow points indicates the direction of the energy flow.



At night, since there is no light, the microinverter in the plant stops working due to the absence of power source. In this case, it does not communicate with the background and its status shows "offline". However, this does not indicate a fault in the device. Once the light conditions return to normal, with stable power source, the microinverter will start up and work again. It will then communicate with the background normally and its status will be "online". If the device stays offline for a long time or in case of other abnormal symptoms, inspect the device and its network connection.

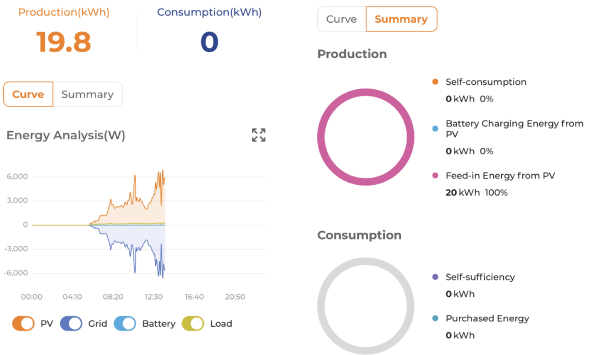
- View the energy production data

  The Owner can view operation information of the plant such as **Daily Yield** and **Daily Revenue**.

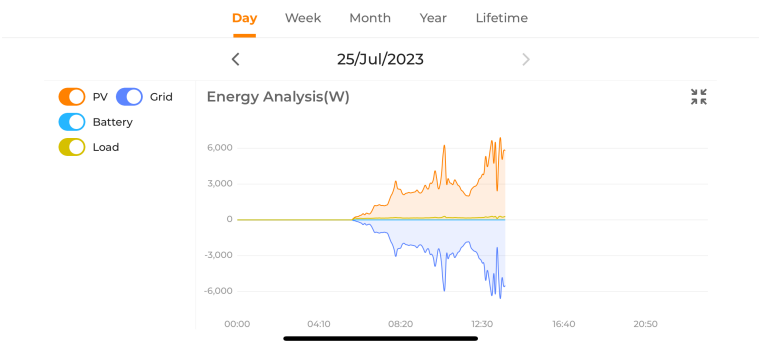
  The Retailer/Installer can view operation information of the plant such as **Energy Analysis**, **Production** and **Consumption** of energy, and **Earnings**.

  Take **Energy Analysis** as an example:

  - You can toggle between **Curve** and **Summary** to check the curves and the production and consumption data.



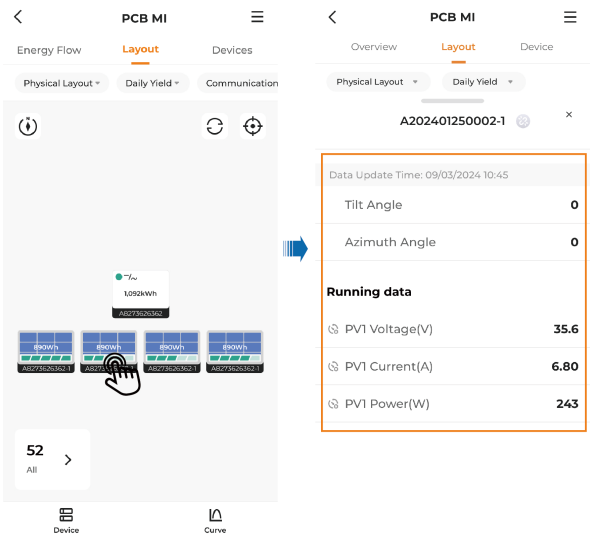
  - Tap ⛶ in the upper right corner of the curve graph to view it in landscape mode.



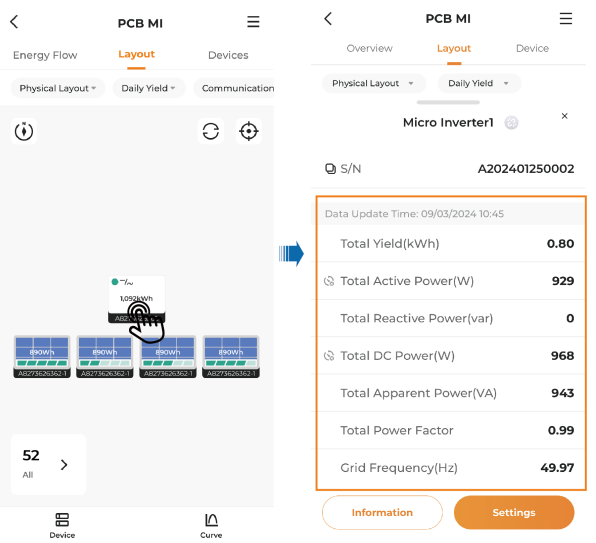
6.4.2 Layout

Choose the **Layout** tab at the top of the screen. Here you can check the yield data and arrangement of all PV modules attached to the microinverter.

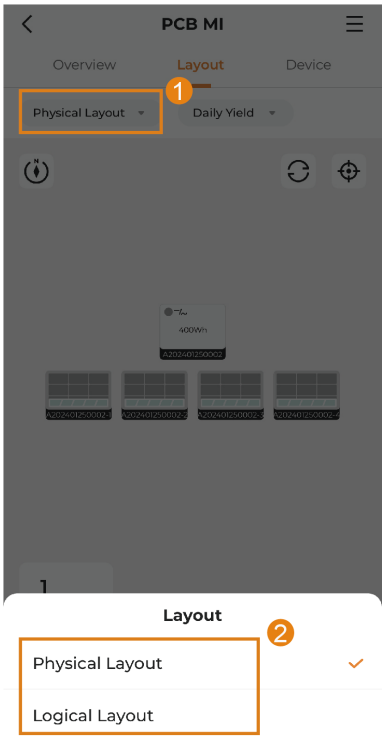
- View device information:
  - View PV module information: Tap a PV module in the layout to check its mounting angle and running data.



  - View microinverter information: Tap a microinverter in the layout to check its energy production information.
    - Choose **Information** at the lower left of the screen to view more information about the microinverter, such as **General Information**, **Fault**, **Curve**, **Settings**, and **Remote Signaling Status**.
    - Choose **Settings** at the lower right for device parameter setting.

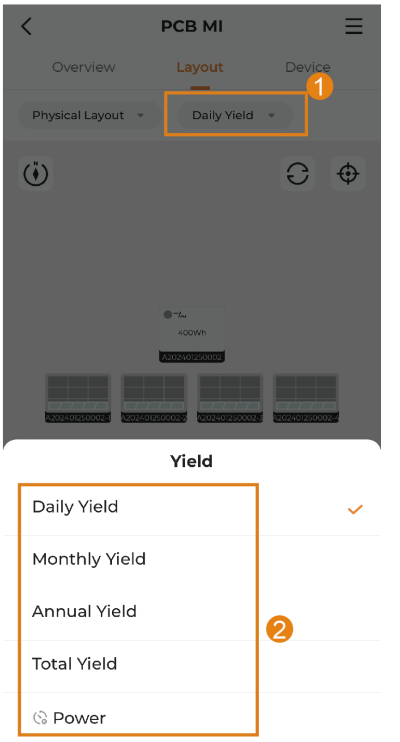


- Switch between layouts: Tap at the upper left of the layout view to switch between **Physical Layout** and **Logical Layout**.

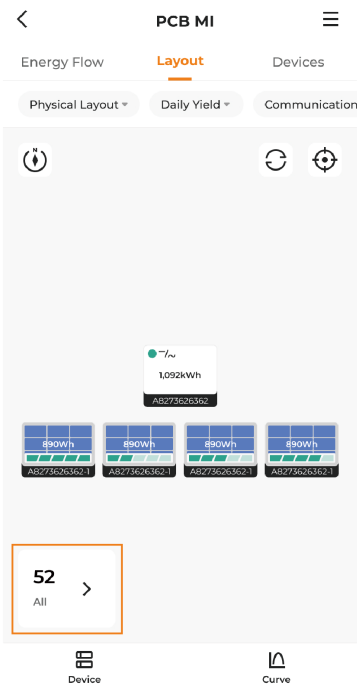


  - **Physical Layout**: Shows the installation position and angle of the microinverter and PV modules.
  - **Logical Layout**: Shows the connection between the microinverter and PV modules and their assignment status.
- View power yield data:

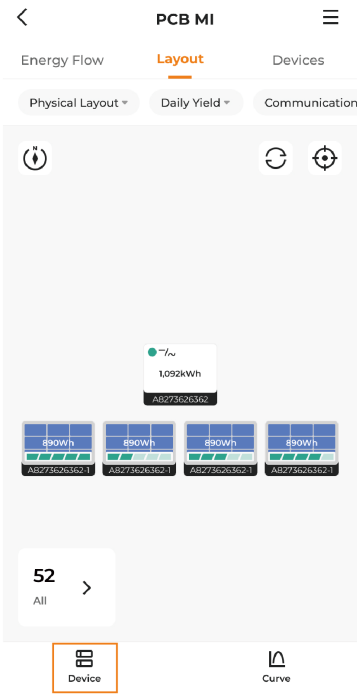
- Tap ▼ at the upper right of the layout view. You can switch between **Daily Yield**, **Monthly Yield**, **Annual Yield**, and **Total Yield** and check the energy production data of PV modules accordingly.
- Tap ▼ at the upper right of the layout view. Choose **Power** and enable the live data function. You can then choose ☰ **> Live Data** to check the live data of this plant.



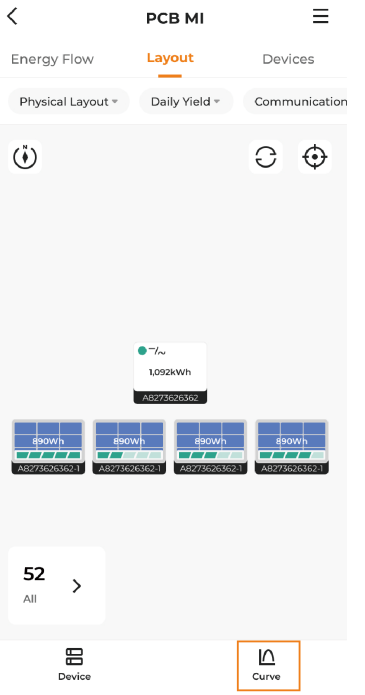
- View device status and quantity: Tap › at the lower left of the layout view to check the status and number of microinverters.



- View device: Tap **Device** at the lower left of the layout view to check the device S/N and assignment status.



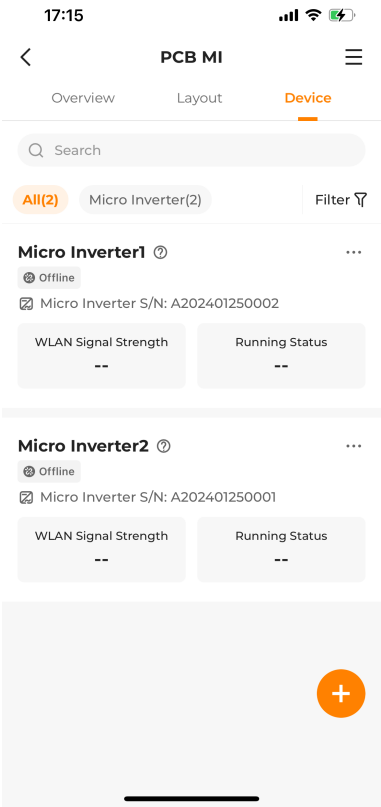
- View curves: Tap **Curve** at the lower right of the layout view. You can choose a module, and tap **Curve** to check its energy production data displayed as a curve.



6.5 View Devices in the Plant

6.5.1 Device List

Choose a plant from the list on the **Monitoring** screen. You will then go to the **Overview** tab by default. You can choose the **Device** tab to check all the devices added to the plant.



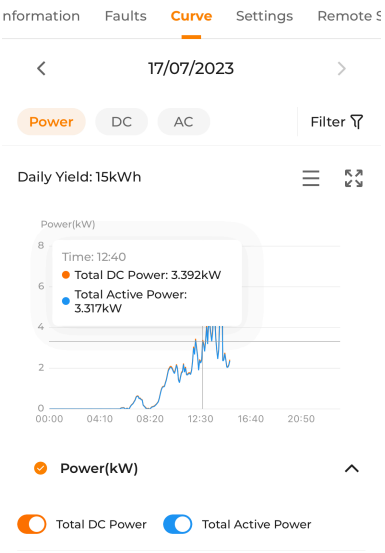
- Search for a device: You can search for a device by entering its name or S/N in the search box, or by scanning the QR code on its enclosure.
- Edit device name: Tap ••• to the right of the device and choose **Modify** to edit its name.

6.5.2 Device Details

On the **Device** screen, tap a device to check its detailed operation data.

- View general device information
  You will go to the **General Information** tab by default. Here you can view the following information:
  - S/N
  - Status
  - Overview
  - String information
  - Device information
- Fault
  Choose the **Faults** tab to check the pending and historical faults of the device.
- Curve

Choose the **Curve** tab to check the **Power**, **DC**, and **AC** curves of the microinverter device.



Tap ☰ in the upper right corner of the curve graph to check the power, current, and voltage data of the microinverter at different times.

- Parameter setting
  Choose the **Settings** tab to set parameters as needed.

  > Configurable parameters may vary by device model. Please refer to the information actually shown on the screen.

- Communication device parameter setting
  Choose the **Communication Device Parameter Setting** tab. Here you can reset the password used to access the device and restart the device remotely.
- Remote signaling status
  Choose the **Remote Signaling Status** tab to check the device's remote signaling status.

6.5.3 Device Check

1. On the “Device” screen, tap ••• to the right of the device and choose **Device Self-test** .
2. Tap **Start Self-test**.
3. Information such as **Module Connection Status**, **Inverter Working Status**, **Country**, and **Environment Status** will be shown in **Device Self-test Result**.

6.5.4 Add Device

1. Tap  at the lower right of the “Device” screen. Then, scan the QR code on the communication module, upload a QR code image, or enter manually the module S/N.
2. A confirmation dialog will then pop up on the screen. Check that the S/N, captured by the software or entered manually, is correct. Then, tap **Confirm**.

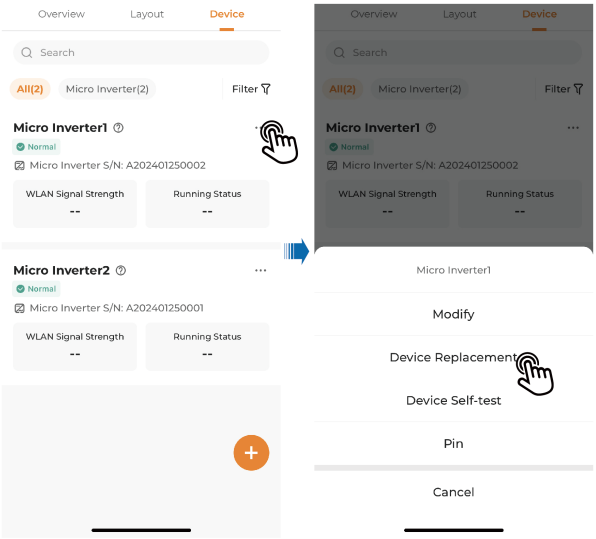
After the communication device is added successfully, wait 1–10 minutes for communication to be established.

6.5.5 Replace Device

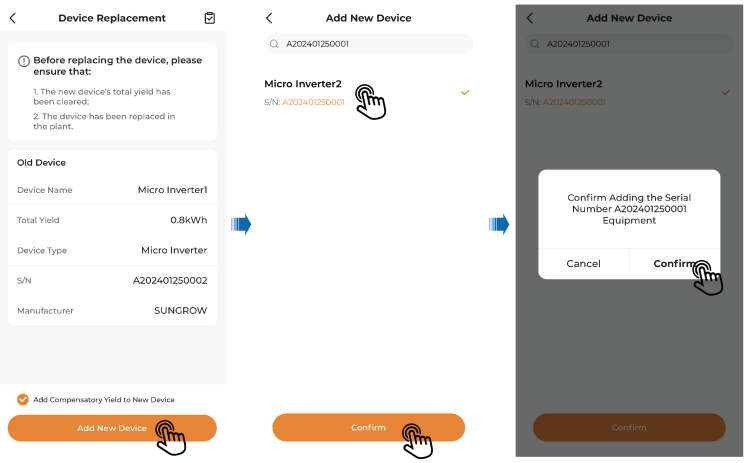
In case any device in the plant has been damaged or replaced, please proceed as follows to replace the device on the iSolarCloud App.

Before replacement, please make sure that:
- The total yield of the new device has been zeroed out.
- The device on the plant site has already been replaced.

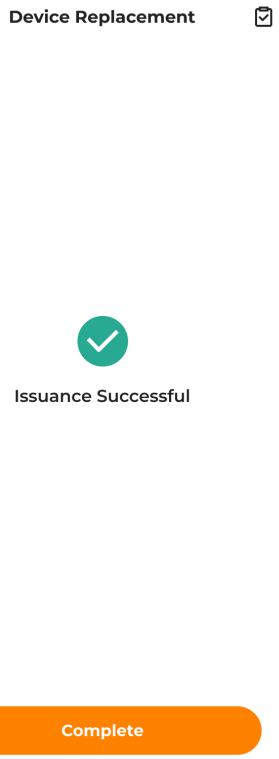
Step 1 On the “Device” screen, tap ••• and choose **Device Replacement**.



Step 2 When replacing the device, you can select **Add Compensatory Yield to New Device** to add the total yield of the old device to that of the new device as compensatory yield. Check that the information about the old device is correct, and then tap **Add New Device**. Select the new device from the list, and tap **Confirm**. Then, tap **Confirm** again in the confirmation dialog.



Step 3 Tap **Start Replacement** to send a command. Device replacement will then be completed.



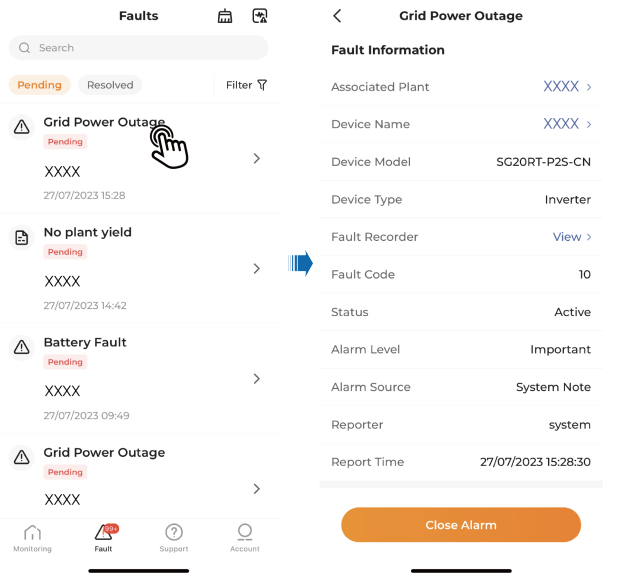
--End

6.6 View Fault Information

6.6.1 Faults in All Plants

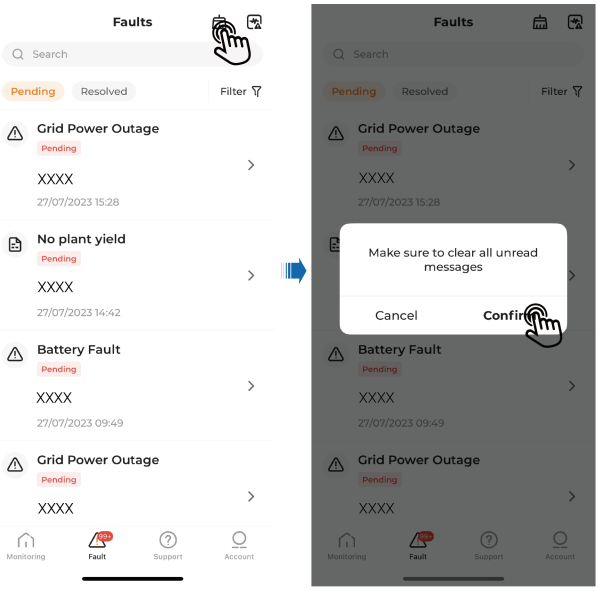
Log in to the iSolarCloud App, and tap **Fault** in the bottom navigation bar. You will then see the fault list. Faults in the **Pending** state will be shown by default. You can choose **Resolved** to view faults that have already been closed. Faults in all plants created under the account will be shown on this screen.

- View fault details:
  Tap the fault name to check its detailed information.



- Search for a fault:
  Enter **Fault Code** or **Fault Classification** in the search box at the top of the screen to search for the relevant fault information.
- Clear unread messages:

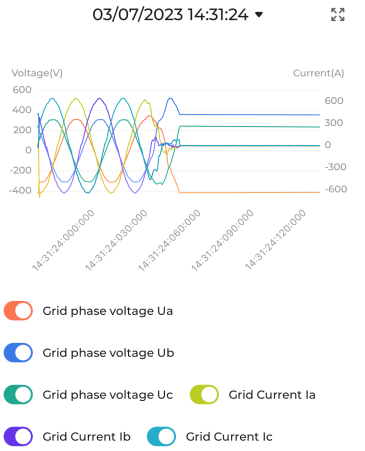
  Tap in the upper right corner of the screen to clear the unread fault messages.



- Check fault recording tasks:

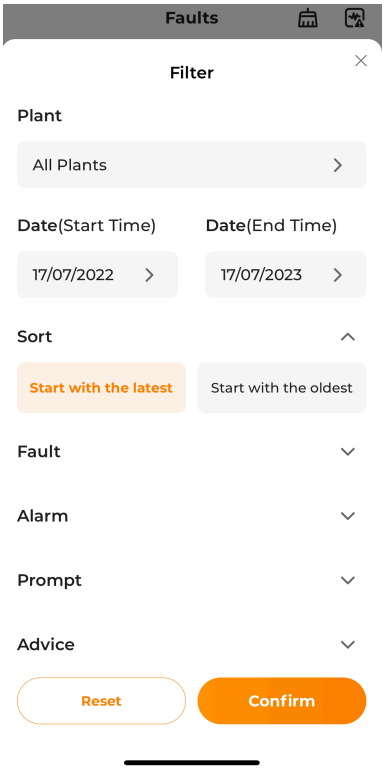
  Tap in the upper right corner of the screen to check the **Fault Recorder**.

  1. Enter a task name in the search box at the top of the screen to search for the relevant fault recording task.
  2. Choose the **Successful** tab, and tap the task name to view the data captured in a successfully executed fault recording task.



- Filter:

  Tap , select the **Plant**, **Date**, **Sort**, or fault type, and then tap **Confirm**. The list of faults that meet the search criteria will then be shown on the screen.



6.6.2 Faults in One Plant

Choose a plant from the list to go to the **Overview** screen. Then, choose ☰ **> Faults** to view all faults in this plant.

For more details, see 6.6.1 Faults in All Plants.

7 Indicator Status and Troubleshooting

LED Indicator

Table 7-1 Description of LED Indicator Status

LED Indicator	Status	Definition
Blue	Steady on	On-grid operation
	Blink fast	Standby or starting up
Red	Steady on	Fault (e.g., microinverter fault, update failed)
	Blink fast	Update in progress
Grey	Off	Power off

If there is a fault in the microinverter, the fault information will be shown on the iSolarCloud App. Fault codes and corresponding troubleshooting methods are all listed in the table below, which are intended for all PV inverter products. Some of these faults may not occur in the product you have purchased. In case of a fault in the inverter, you can check its detailed information by fault code on the iSolarCloud App.

Troubleshooting

Table 7-2 Troubleshooting

Fault Code	Fault Name	Troubleshooting Methods
2	Grid over-voltage	Generally, the inverter will reconnect to the grid once the grid returns to normal. If this fault occurs repeatedly: 1. Measure the actual grid voltage. Contact your local power company for help if the grid voltage is higher than the set value; 2. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
3	Grid transient overvoltage	Generally, the inverter will reconnect to the grid once the grid returns to normal. If this fault occurs repeatedly:

Fault Code	Fault Name	Troubleshooting Methods
		1. Measure the actual grid voltage. Contact your local power company for help if the grid voltage is higher than the set value; 2. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
4	Grid under-voltage	Generally, the inverter will reconnect to the grid once the grid returns to normal. If this fault occurs repeatedly: 1. Measure the actual grid voltage. Contact your local power company for help if the grid voltage is lower than the set value; 2. Check whether the AC cable connection is secure; 3. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
5	Grid undervoltage	
7, 16, 38, 61, 85, 104, 105, 107, 262, 300, 306, 307, 312, 313, 314, 315, 316, 327, 1352–1369, 1370, 1372	System fault	Generally, the inverter will reconnect to the grid once the grid returns to normal. If this fault occurs repeatedly: 1. Measure the actual grid voltage and frequency. Contact your local power company for help if the grid voltage and frequency fluctuation are out of the operating range required by the device; 2. The grid voltage DC component may be out of the operating range required by the device. In this case, contact your local power company for help; 3. Check the specifications of the PV modules and see if their voltage data exceeds the operating range required by the device; 4. Check if there is any obstruction by foreign objects to the device enclosure. If so, remove them; 5. Turn off the AC switch inside the power distribution box. Then, re-connect the cables of PV modules, restart the device, and wait for it to return to normal;

Fault Code	Fault Name	Troubleshooting Methods
		6. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
8	Grid over-frequency	Generally, the inverter will reconnect to the grid once the grid returns to normal. If this fault occurs repeatedly: 1. Measure the actual grid voltage and frequency. Contact your local power company for help if the grid parameter exceeds the set range; 2. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
9	Grid under-frequency	Generally, the inverter will reconnect to the grid once the grid returns to normal. If this fault occurs repeatedly: 1. Measure the actual grid voltage and frequency. Contact your local power company for help if the grid parameter is below the set range; 2. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
10	Grid outage	Generally, the inverter will reconnect to the grid automatically once the grid returns to normal. If this fault occurs repeatedly: 1. Check if the grid voltage is lower than the operating range required by the device. If so, contact your local power company for help; 2. Check whether the AC cable connection is secure; 3. Check whether the AC cable is connected in correct polarity; 4. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.

Fault Code	Fault Name	Troubleshooting Methods
13	Grid abnormal	Generally, the inverter will reconnect to the grid once the grid returns to normal. If this fault occurs repeatedly: 1. Measure the actual grid frequency and grid voltage. Contact your local power company for help if the grid parameter exceeds the set range; 2. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
14	10-minute grid over-voltage	Generally, the inverter will reconnect to the grid once the grid returns to normal. If this fault occurs repeatedly: 1. Measure the actual grid voltage. Contact your local power company for help if the grid voltage exceeds the set range; 2. Open the iSolarCloud App and check the setting of the 10-minute over-voltage protection function. With the permission of the local power system operator, you can increase the 10-minute over-voltage protection threshold; 3. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
15	Grid high voltage	Generally, the inverter will reconnect to the grid once the grid returns to normal. If this fault occurs repeatedly: 1. Measure the actual grid voltage. Contact your local power company for help if the grid voltage is higher than the set value; 2. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
17	Grid voltage unbalance	Generally, the inverter reconnect to the grid automatically once the grid returns to normal. If this fault occurs repeatedly:

Fault Code	Fault Name	Troubleshooting Methods
		1. If the grid voltage unbalance is out of the operating range required by the inverter, contact your local power company for help; 2. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
26, 28, 29, 208, 212, 215	PV reserve connection fault	Check the wiring of the positive and negative cables of the PV modules (including extension cables): 1. If the phase sequence is wrong, turn off the AC switch in the power distribution box first. Then, when the light is weak, or after covering the PV module completely with a shelter, reconnect the cables of the PV module (including extension cable) correctly; 2. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
37	Ambient temperature too high	Generally, the inverter will reconnect to the grid automatically once the ambient temperature returns to normal. If this fault occurs repeatedly: 1. Check if the ambient temperature exceeds the operating range required by the device; 2. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
39	Low system insulation resistance	Generally, the device will reconnect to the grid automatically after the fault is removed. If this fault occurs repeatedly: 1. Check whether the preset ISO resistance protection value of the inverter is too high and whether it complies with the local regulations; 2. Check if the resistance of the PV module is too low on rainy or cloudy days, or in the morning or evening. Measure the PV module negative- and positive-to-ground insulation resistance and see if they are too low;

Fault Code	Fault Name	Troubleshooting Methods
		3. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
43	Ambient temperature too low	Generally, the inverter will reconnect to the grid automatically once the ambient temperature returns to normal. If this fault occurs repeatedly: 1. Check if the ambient temperature is below the operating range required by the device; 2. If the fault does not arise for the aforementioned reason and still cannot be resolved, please contact SUNGROW Customer Service.
74, 78, 79, 80, 81, 220, 221, 505, 506	System alarm	Generally, the alarm will not affect the device's operation. If this alarm occurs repeatedly: 1. Turn off the AC switch inside the power distribution box, and check if the cables of the PV modules are connected firmly; 2. Check if there are short circuits or open circuits in the cables of PV modules; 3. Re-connect the cables of PV modules, restart the device, and wait for the device to return to normal; 4. If the alarm does not arise for the reasons above, please contact SUNGROW Customer Service.
1320, 1321, 1322, 1323, 1324, 1325	PV over-current fault	Generally, the device will reconnect to the grid automatically after the fault is removed. If this fault occurs repeatedly: 1. Check the specifications of the PV modules and see if their current is out of the operating range required by the device; 2. If the fault does not arise for the reasons above, please contact SUNGROW Customer Service.
1500, 1501, 1502, 1503, 1504, 1505	PV over-voltage fault	Generally, the device will reconnect to the grid automatically after the fault is removed. If this fault occurs repeatedly:

Fault Code	Fault Name	Troubleshooting Methods
		1. Check the specifications of the PV module and see if their voltage data is out of the operating range required by the device; 2. If the fault does not arise for the reasons above, please contact SUNGROW Customer Service.

Contact your dealer if you have already tried the “Troubleshooting Methods” listed in the table above but the problem is still not resolved. In case the dealer cannot help you solve the problem, please contact SUNGROW.

8 Quality Assurance

When product faults occur during the warranty period, SUNGROW will provide free service or replace the product with a new one.

Evidence

During the warranty period, the customer shall provide the product purchase invoice and date. In addition, the trademark on the product shall be undamaged and legible. Otherwise, SUNGROW has the right to refuse to honor the quality guarantee.

Conditions

- After replacement, unqualified products shall be processed by SUNGROW.
- The customer shall give SUNGROW a reasonable period to repair the faulty device.

Exclusion of Liability

In the following circumstances, SUNGROW has the right to refuse to honor the quality guarantee:

- The free warranty period for the whole machine/components has expired.
- The device is damaged during transport.
- The device is incorrectly installed, refitted, or used.
- The device operates in harsh conditions beyond those described in this manual.
- The fault or damage is caused by installation, repairs, modification, or disassembly performed by a service provider or personnel not from SUNGROW.
- The fault or damage is caused by the use of non-standard or non-SUNGROW components or software.
- The installation and use range are beyond stipulations of relevant international standards.
- The damage is caused by unexpected natural factors.

For faulty products in any of above cases, if the customer requests maintenance, paid maintenance service may be provided based on the judgment of SUNGROW.

Product data such as product dimensions are subject to change without prior notice. The latest documentation from SUNGROW should take precedence in case of any deviation.

9 Contact Information

In case of questions about this product, please contact us. We need the following information to provide you the best assistance:

- Model of the device
- Serial number of the device
- Fault code/name
- Brief description of the problem

For detailed contact information, please visit: **https://en.SUNGROWpower.com/contactUS**

SUNGROW

Sungrow Power Supply Co., Ltd.

www.sungrowpower.com