Commissioning Guide

1-phase Hybrid Inverter

SH8.0RS / SH10RS

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About This Manual

Target Group

This manual is intended for distributors/installers, owners, and O&M personnel of SH8.0RS and SH10RS inverters.

Symbols in the Manual

> ⓘ **NOTE** indicates supplementary information, emphasis on specific points, or tips that might help to solve your problems or save your time.

Main Content

This manual gives instructions mainly on how to create a plant and set relevant parameters regarding SH8.0/10RS inverters on the iSolarCloud App.

> ⓘ User interfaces presented in this manual come from V2.1.6.20230731 iSolarCloud App. Icons and data in the figures are for reference only, which may be different on the App you actually use.
>
> 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.

System Requirements

- Mobile OS: Android 5.0 or later, iOS 11.0 or later;
- The phone can connect to WLAN or 2G/3G/4G/5G network;
- The phone has enough storage space to install the App;
- The phone has sufficient battery power.

Contents

1 System Introduction

The residential energy storage system is a group of devices, including PV strings, inverters, batteries, meters, and backup loads, that are used to store energy. Adopting PV power generation technologies, this system is capable of converting solar power into electrical energy and storing it in order to supply energy to users at a later time.

The residential energy storage system is mostly used in households. It stores excess electricity generated in the daytime and supplies energy to the household at night. The system helps to lower the electricity cost for households and is also able to bring in revenues for the home by feeding excess energy into the grid. As shown in the figure below, SH8.0/10RS represents inverters manufactured by SUNGROW that are intended for use in the residential energy storage system. This manual gives step-by-step instructions on how to set up the inverter.
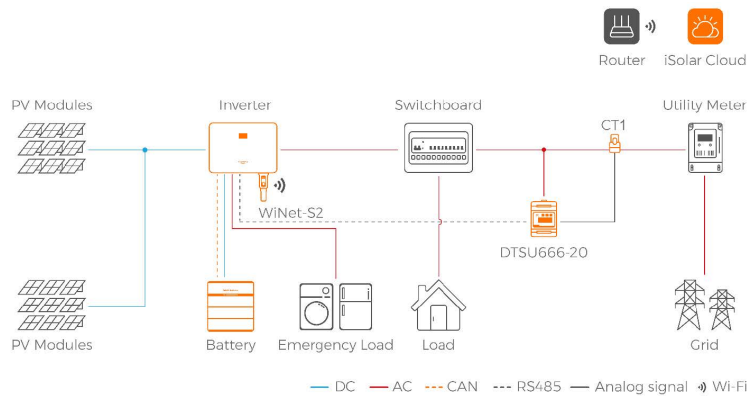
2 Commissioning

2.1 Inspection Before Commissioning

Check the following items before starting the inverter:

- All equipment has been reliably installed.
- DC switch(es) and AC circuit breaker are in the "OFF" position.
- The ground cable is properly and reliably connected.
- The AC cable is properly and reliably connected.
- The DC cable is properly and reliably connected.
- The communication cable is properly and reliably connected.
- The vacant terminals are sealed.
- No foreign items, such as tools, are left on the top of the machine or in the junction box (if there is).
- The AC circuit breaker is selected in accordance with the requirements of this manual and local standards.
- All warning signs & labels are intact and legible.

2.2 Commissioning Procedure

step 1 Close the AC switch (if any) between the inverter and the grid.

> ℹ️ Before closing the AC circuit breaker between the inverter and the grid, measure the AC voltage with a multimeter set to "AC voltage", making sure it is within the allowable range. Otherwise, the inverter may be damaged.

step 2 Rotate the DC switch of the inverter to "ON" position.

step 3 Close the DC switch (if any) between the inverter and the PV string.

step 4 If, with sufficient light, the grid conditions meet the grid connection requirements, the inverter will work normally.

step 5 Check the LED indicator. If it is in normal state, proceed with configuration on the iSolarCloud App.

- - End

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3 Configuration on iSolarCloud

3.1 Install iSolarCloud App

The iSolarCloud App is a software for users to configure running parameters for the inverter. You may download the App in the following two ways:

- Search for iSolarCloud in App Store, Google Play or other application stores, and download the App by following the onscreen instructions.
- Scan the QR code below with a phone and download the App.

3.2 Create an Account
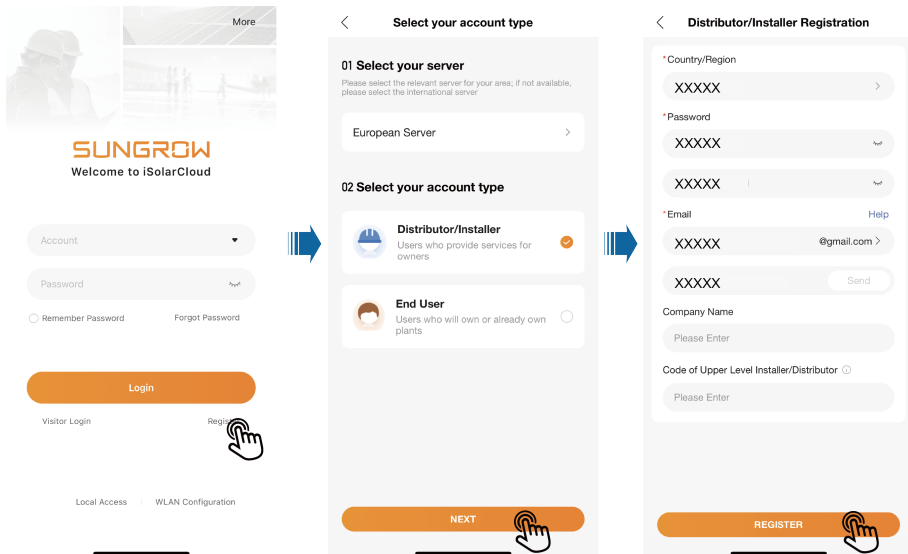
step 1 Tap **Register**.

step 2 Select a **Server**, and choose to create a **Distributor/Installer** or **Owner** account according to the actual needs. Then, tap "Next".

> ℹ️ Users in mainland China may choose **Chinese Server** and can only create a Distributor/Installer account.
>
> European and African users may choose **European Server**, Australian users may choose **Australian Server**, and users in other countries/regions may choose **International Server**. These users can create an Owner or a Distributor/Installer account.

step 3 Complete the required information. Information required for registration include: **Country/Region**, **Password**, **Phone Number**/**Email**, **Verification Code**, **Company Name**, and **Code of Upper Level Installer/Distributor**. The Distributor/Installer may also set a **Username**, which is optional.

> ℹ️ Please register with a phone number if you select the **Chinese Server**.
>
> Please register with an email if you select the **International Server**, **European Server**, or **Australian Server**.
>
> You can contact your upper-level distributor/installer for the "Code of Upper Level Installer/Distributor". Entering this code indicates that your organization is subordinate to an upper-level distributor/installer.

step 4 Tap **REGISTER** to complete registration.

- - End

3.3 Create a Plant

Requirements

- The matching communication device for the inverter has been properly installed.

- There are available wireless home networks, and your mobile phone has connected to a wireless home network.

- You have already logged in to the iSolarCloud App. You can create an iSolarCloud account by yourself, or contact your distributor/installer or SUNGROW for the account and password.

Devices are managed as part of a plant on the iSolarCloud App. You can add different types of devices to the plant, e.g., inverters, batteries, and communication modules. The following three steps are required to create a plant: "3.3.1 Complete Plant Information", "3.3.2 Add Communication Device & Set up Network Connection", and "3.3.4 Set Tariffs".

3.3.1 Complete Plant Information

Background Information

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User interfaces for creating a plant may differ slightly by the plant type, inverter type, or communication device. Please refer to the interfaces actually shown on the App. Some of the required information need to be acquired in advance, for example:

- To authorize the Distributor/Installer to manage the plant, the Owner needs to ask them for their distributor/installer code.

- To assist the Owner in creating a plant, the Distributor/Installer needs to ask for the owner's phone number.

step 1 Open the iSolarCloud App. Enter the account name and password on the login screen –> log into the account –> tap **Create Plant** –> fill in the general information of the plant –> save the settings.
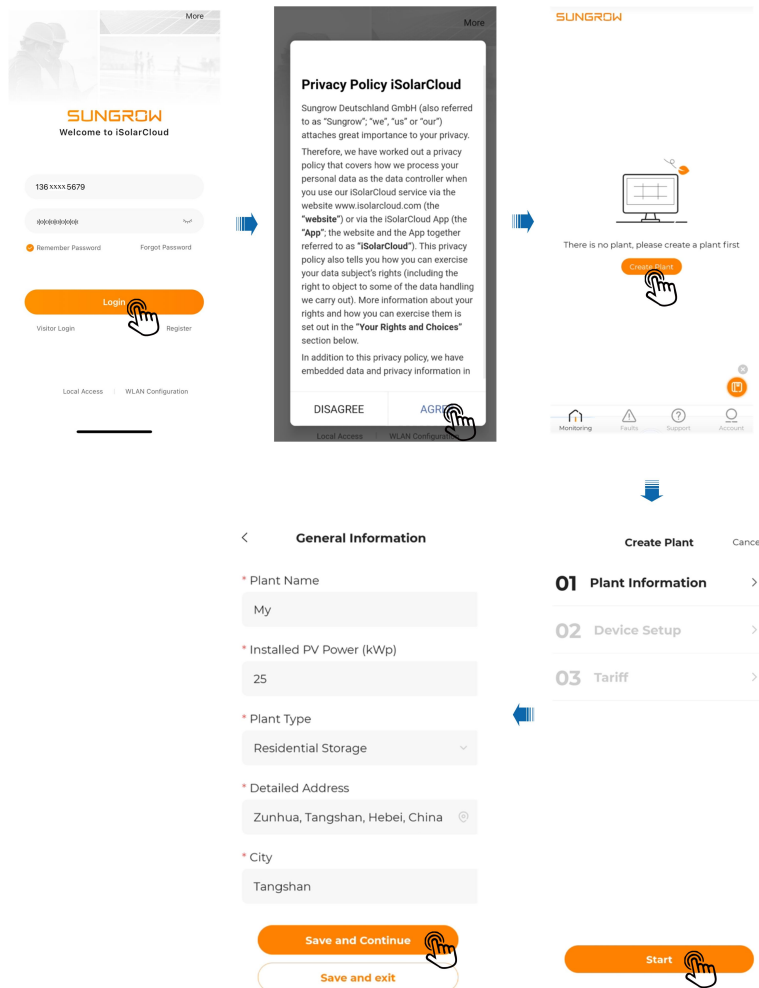

table 3-1 Parameters Required for Creating a Plant

Parameter	Description
Plant Name*	Enter the plant name.
Installed PV Power (kWp)*	Enter the installed power.

Parameter	Description
Plant Type*	Select the plant type.
Detailed Address*	The location of the plant, which can be set in the following two ways: • Manual setting: Enter the location of the plant in the input box. • Auto acquisition: Tap ⊙ to get the current location automatically.
City*	The city where the plant is located.
Postal Code	The postal code of the place where the plant is located.
Country/Region*	The country (region) where the plant is located.
Time Zone*	The time zone of the place where the plant is located.
Module Model	The model of the PV module actually used in the plant.
Owner's Email Address*	Enter the owner's email address.
Grid-connection Type*	Set the grid-connection type for the plant.
Grid-connected Date	Shows the current date by default. You may tap 🗓 to set the grid-connected date.
Plant Image	Upload an image of the plant.

> ⓘ
> • Note: * indicates required fields.
> • Upon opening "Create Plant", detailed information about the plant location will be acquired automatically.

- - End

3.3.2 Add Communication Device & Set up Network Connection

Background Information

Communication devices are used for network connection between the inverter and the server. To allow exchange with the server, users need to add a communication device to the plant and complete network configuration accordingly. The communication device should connect to the wireless home network, or any other network that is available. After the network connection is established, the communication device will collect the inverter's operating data and upload them to the server. Users can view all kinds of plant data on the iSolarCloud App.

Requirements

• Make sure the mobile phone has connected to a home network.

step 1   Scan the QR code on the device to add it to the plant.

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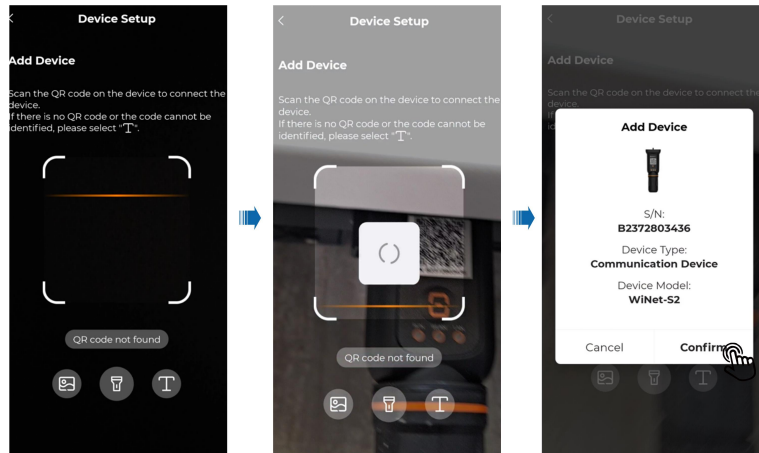
step 2   Connect the communication device to the home network, so that data can be transferred to the iSolarCloud server over the home network.

Tap **Network** –> select the target home network and enter the password –> press the button on the communication device once by following the onscreen instructions –> wait for the network connection to be established –> complete network configuration.
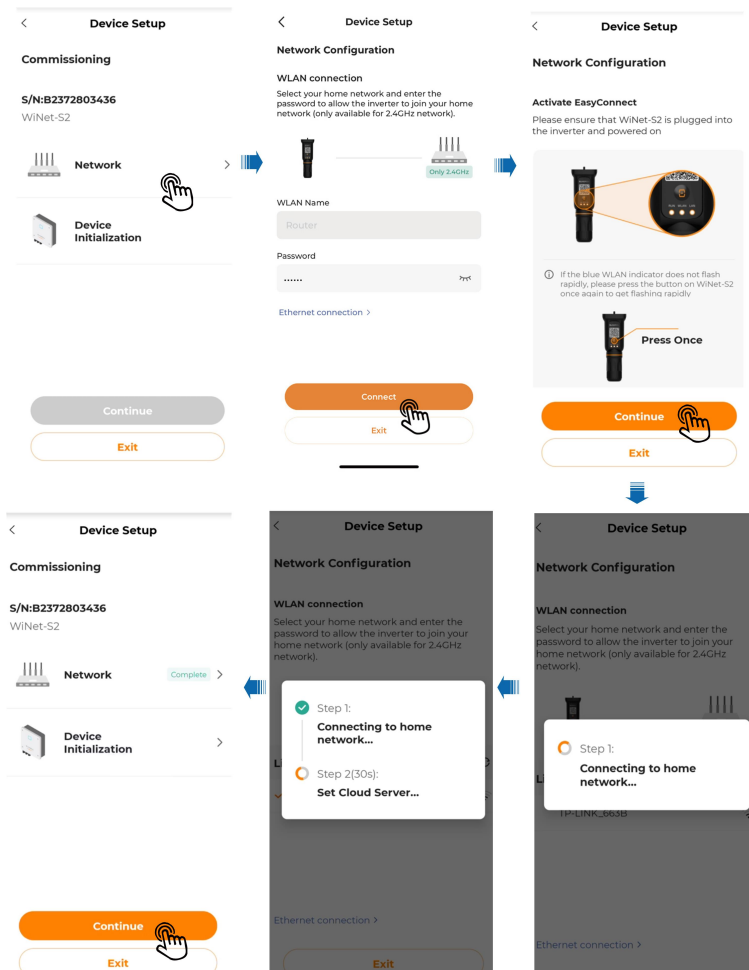
- - End

3.3.3 Device Initialization

Background Information

To get the inverter connected to the local grid, the local standards for grid connection must be met. Please set the inverter parameters according to the applicable local grid standards. Setting of Feed-in Limitation and Backup Mode, in accordance with the grid standards, is required for device initialization. For details, see "3.4.3 Feed-in Limitation" and "3.4.5 Backup Mode".

step 1 Tap Device Initialization in "Commissioning" –> select a Country/Region based on the location of the inverter –> choose a power company as needed –> tap Continue, and device initialization will be completed.

SUNGROW
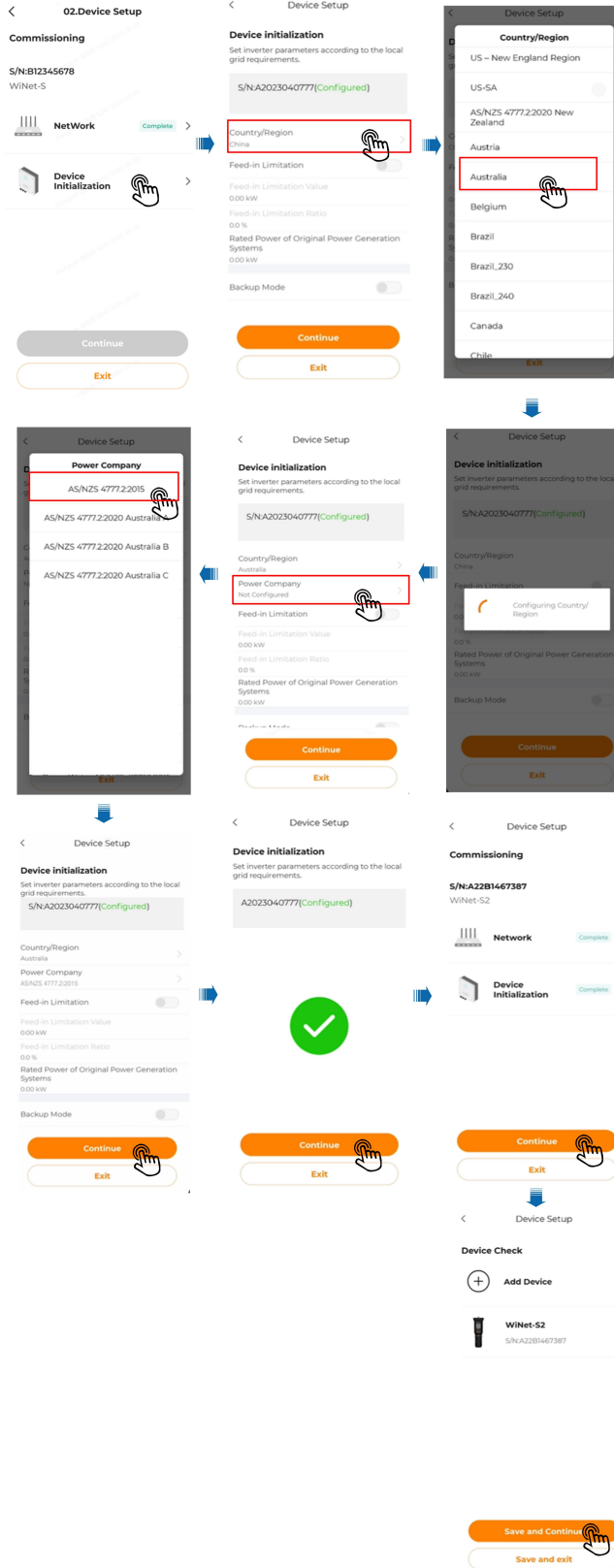
- - End

3.3.4 Set Tariffs

Tariff is required for revenue calculation. Please contact your local power company for energy tariff if needed.

step 1 Set your preferred currency in **Unit** —> set **Feed-in Tariff** and **Consumption Tariff** —> save the settings.

step 2 Tap **Complete**. Now the steps for creating a plant are completed.

SUNGROW
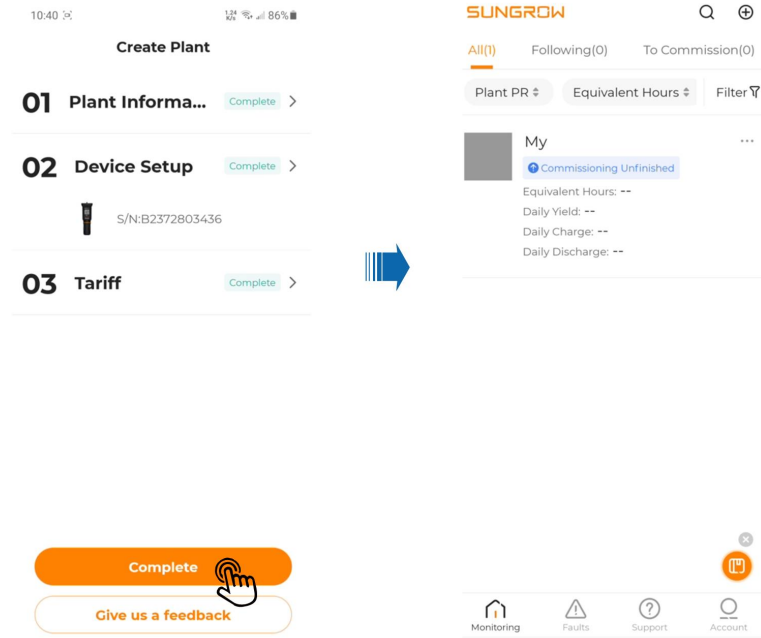
- - End

3.4   Set Common Parameters

This section introduces the parameters that are required to be set for the system, after a plant has been created.

Requirements

- You have created a plant already.

- All data have been updated to the plant.

### 3.4.1   Energy Management Mode

Background Information

Energy Management Mode is used for monitoring and optimizing the power flow and energy consumption in the power system. This function allows for more efficient energy management and optimization. Energy Management Mode is a parameter required to be set for the residential energy storage system; the system may not function properly if this parameter is not set.

- There are five options for Energy Management Mode: Self-Consumption, Compulsory Mode, External Energy Dispatch, VPP, and MicroGrid System Mode. Among the five, Self-Consumption, Compulsory Mode, External Energy Dispatch, and VPP are available for SH8.0/10RS inverters.

- In this section, the Energy Management Mode is set to **Self-Consumption**, which means the electricity generated can be used by the users themselves and also fed back into the grid for revenue.

Parameter	Description
Self-Consumption	The normal operation mode of the inverter, where the inverter will cover the house loads with PV and battery power. If the PV power supply is greater than the demand of loads and the battery is full, the power will be fed into the grid according to the Feed-in Limitation settings.
Compulsory Mode	Forced charging/discharging of the battery. Set the forced charging or discharging power, and the battery will charge, or release energy to the house load or the grid.
External Energy Dispatch	The inverter is controlled by an external energy management system over Modbus RTU or TCP.
VPP	The inverter receives charge and discharge commands from an external VPP system.
MicroGrid System Parameters	/

step 1   Select the target plant, and choose Device –> Hybrid Inverter –> Settings –> Advanced Settings –> Energy Management Parameters –> Energy Management Mode. Choose **Self-Consumption**, and tap Confirm to save the settings.

SUNGROW
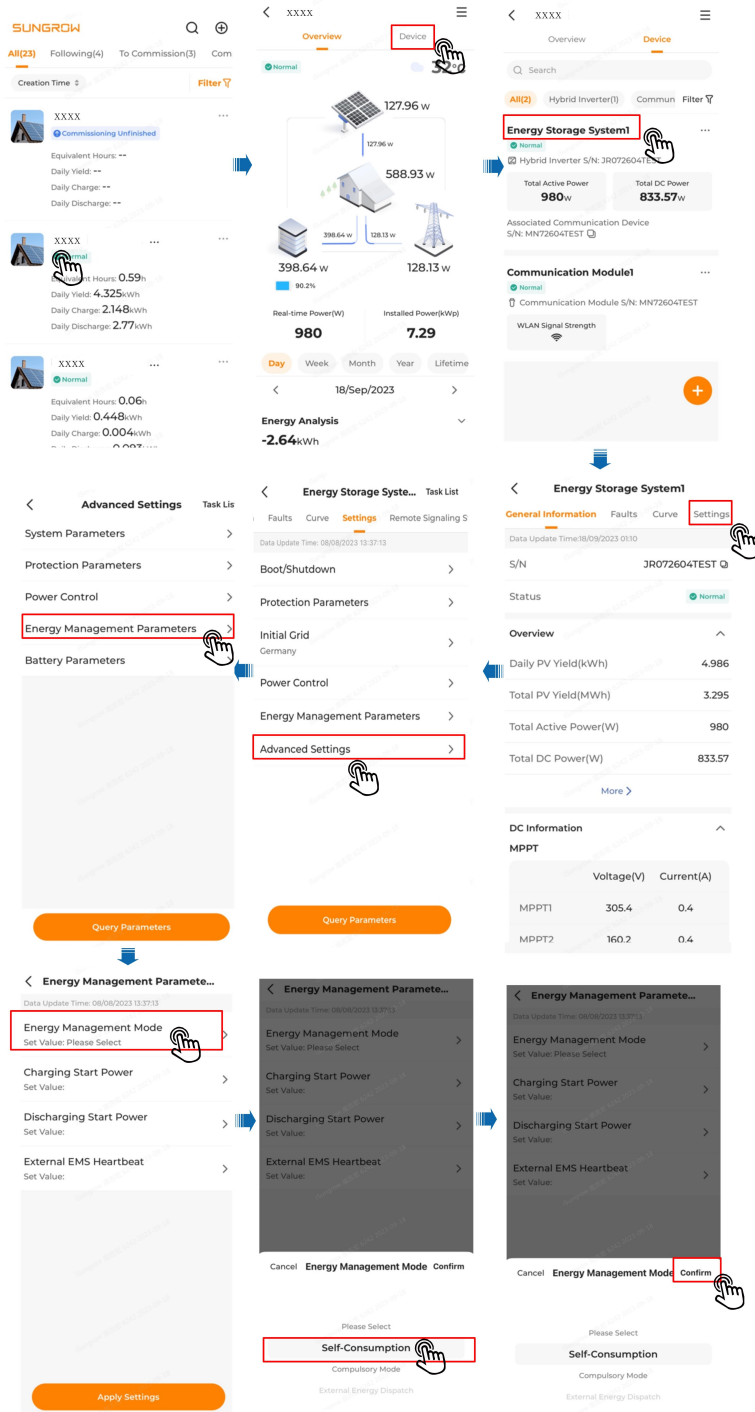
- - End

3.4.2   Import Power Limit

Background Information

When the power to household is lower than the charging power, the main air switch will trip off and the system cannot work normally. Therefore, to avert from such situation, it is necessary to set the Import Power Limit. This parameter is a required setting for the system.

Parameter	Default value	Range
Import Power Limit	13 kW	0 to 50kW It is recommended to set the Import Power Limit as ≤ 230*0.8*rated current of the house's main switch.

step 1   Select the target plant on the **Monitoring** screen, and choose Device –> Hybrid Inverter –> Settings –> Advanced Settings –> Power Control. Then, choose **Import Power Limit**, enter a value, and tap Confirm to save the settings.


- - End

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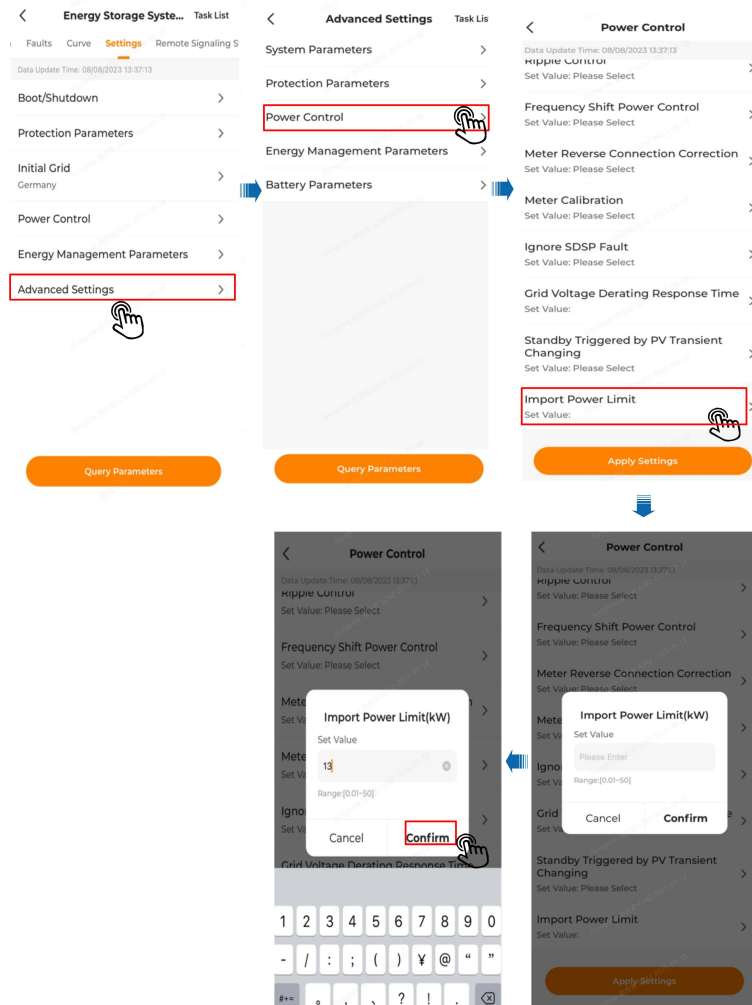
3.4.3 Feed-in Limitation
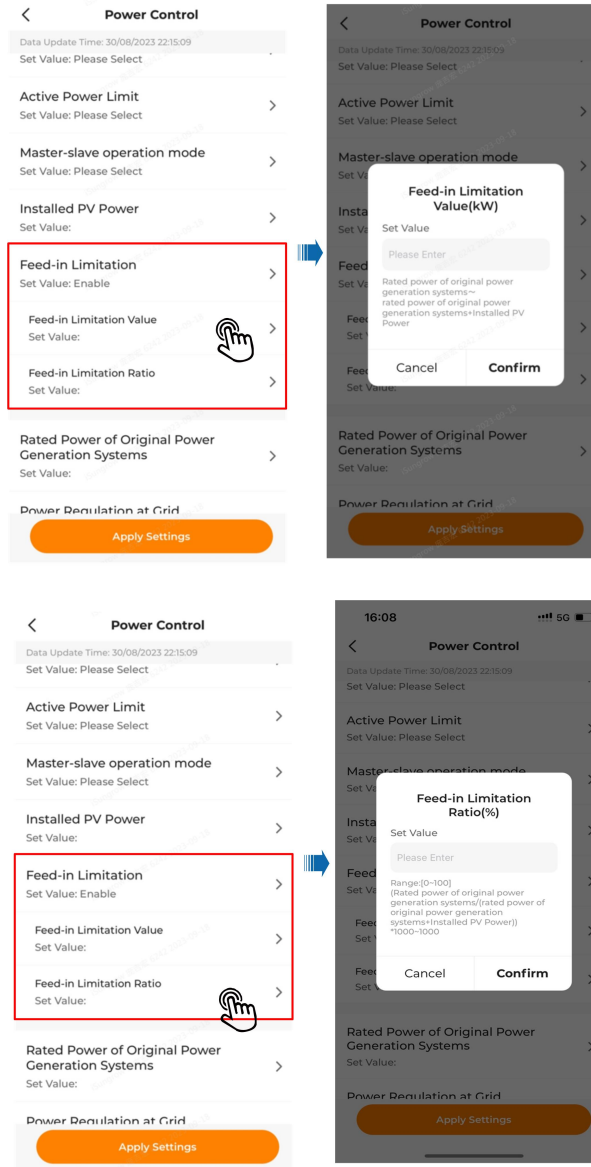
Background Information

The Feed-in Limitation function is used to limit the power fed into the grid from the PV installation. You may set this function based on actual needs. If the Feed-in Limitation is enabled, you need to set the **Feed-in Limitation Value** and **Feed-in Limitation Ratio** as well. Ranges of values for these parameters are listed in the table below. For example, for a 10kW system that has an export limit of 6kW, the ratio is 60%.

Parameter	Range
Feed-in Limitation Value (kW)	Rated power of original power generation systems ~ rated power of original power generation systems + Installed PV Power
Feed-in Limitation Ratio (%)	(Rated power of original power generation systems/(rated power of original power generation systems + Installed PV Power)) *1000 ~ 1000

step 1 Select the target plant on the **Monitoring** screen. Choose Device –> Hybrid Inverter –> Settings –> Advanced Settings –> Power Control –> Feed-in Limitation, and select **Enable**. Then, tap Confirm to turn on the Feed-in Limitation function.
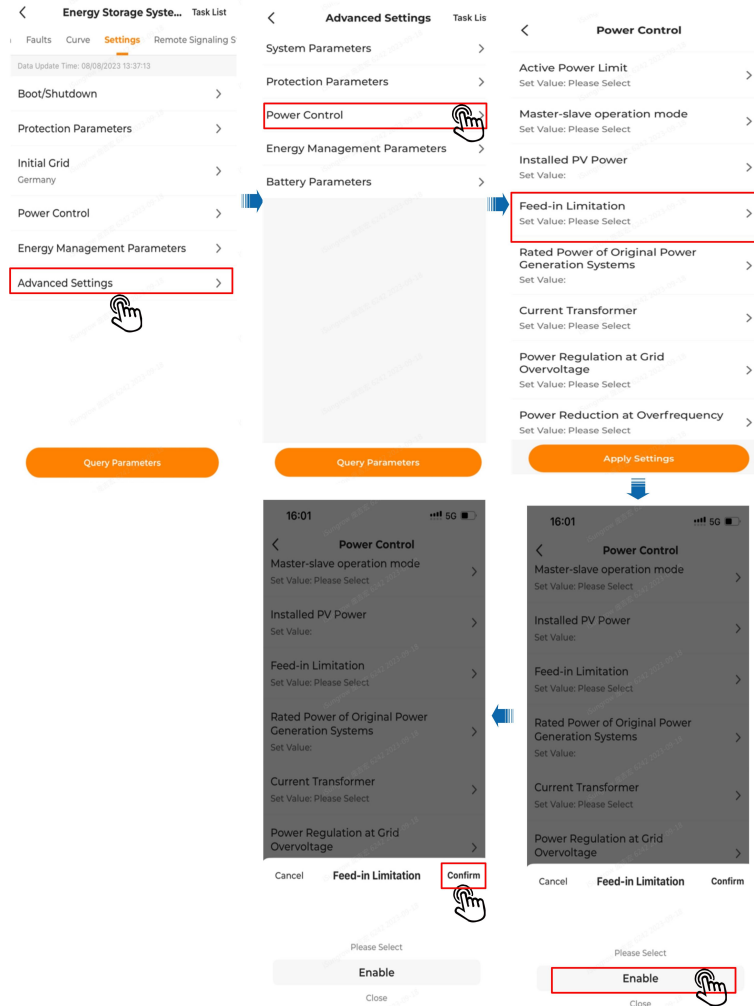
step 2   After the Feed-in Limitation is enabled, set the **Feed-in Limitation Value** and **Feed-in Limitation Ratio** in **Feed-in Limitation**.

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- - End

3.4.4 10-min Overvoltage Protection

Background Information

If the average grid voltage stays higher than the preset overvoltage protection value for 10 minutes, the inverter will shut down automatically due to a fault. To protect the inverter from damages caused by grid voltage staying overly high, it is necessary to enable this function.

step 1   Select the target plant on the **Monitoring** screen, and choose Device –> Hybrid Inverter –> Settings –> Advanced Settings –> Protection Parameters –> 10-min Overvoltage Protection. Then, select **Enable**, and tap Confirm to save the settings.
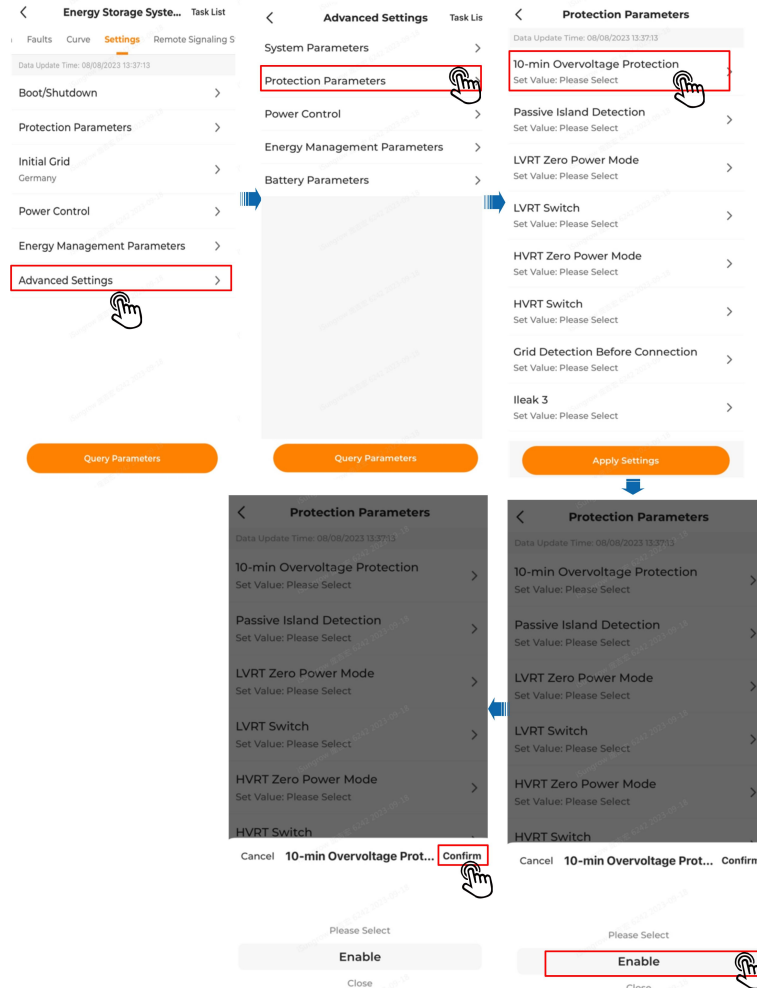
- - End

3.4.5 Backup Mode

Background Information

Enabling Backup Mode allows the system to keep working normally in the event of a grid failure. If the Backup Mode is not enabled, the system will only work in on-grid state. You may set this function based on actual needs.

step 1 Select the target plant on the **Monitoring** screen. Choose Device –> Hybrid Inverter –> Settings –> Power Control –> Backup Mode, and select **Enable**. Then, tap Confirm to enable Backup Mode.

SUNGROW
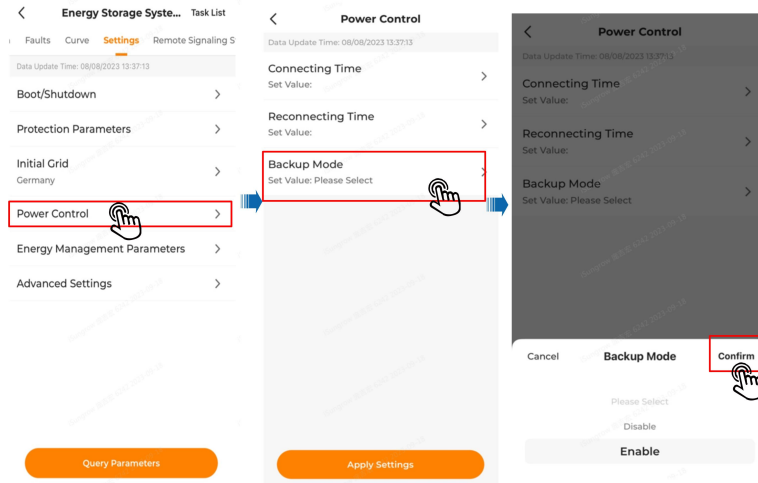
step 2   After enabling Backup Mode, set **Reserved Battery SOC for Off-Grid** in **Backup Mode**. This parameter defines the lower limit of SOC to which the battery can discharge in on-grid state, which is used to reserve energy for the system to work under the Backup Mode. Once the SOC reaches this setting value and the grid is available, the battery will stop discharging even though the system may still be in the set discharge time period.
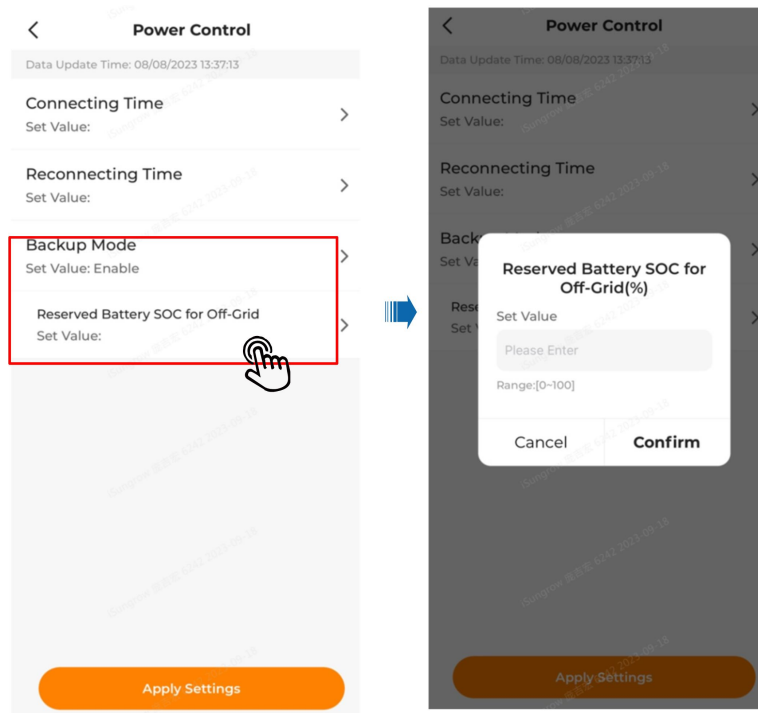

- - End

3.4.6   Whole Home Backup

Background Information

In scenarios where loads are all connected to the Backup port on the inverter and no meter is connected in the system, it is needed to set the Whole Home Backup parameter. If this function is enabled, the power supplied to the loads does not come directly from the grid. In case of a grid failure, the household loads will still be supplied, with power from the PV installation or battery.

step 1   Select the target plant on the **Monitoring** screen. Choose Device –> Inverter –> Settings –> Advanced Settings –> Energy Management Parameters –> Whole Home Backup, and select **Enable**. Then, tap Confirm to save the settings.
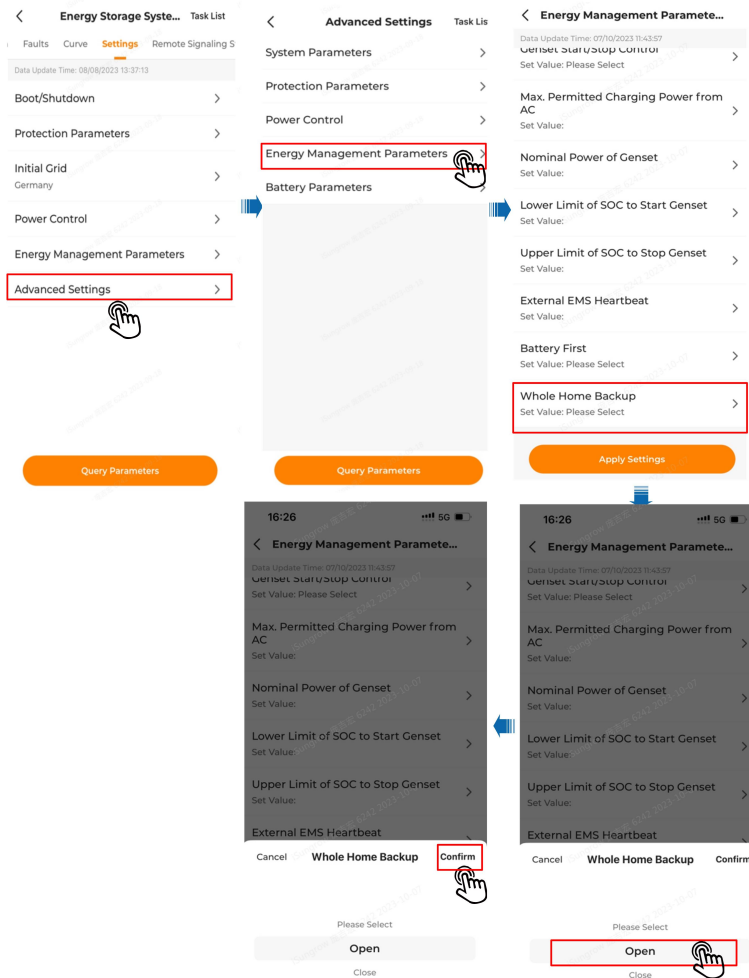

- - End

3.5   **Firmware Update**

Background Information

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Inverter firmware update is typically used to improve the performance, stability, and reliability of the inverter, or fix the known problems and vulnerabilities. Please perform firmware update on a regular basis to keep the inverter up-to-date.

step 1   Select the target plant. Choose ☰ in the upper right corner of the screen –> Firmware Update –> select the device –> Firmware Update –> set Single Device Update Timeout (e.g., 1h) –> Update.
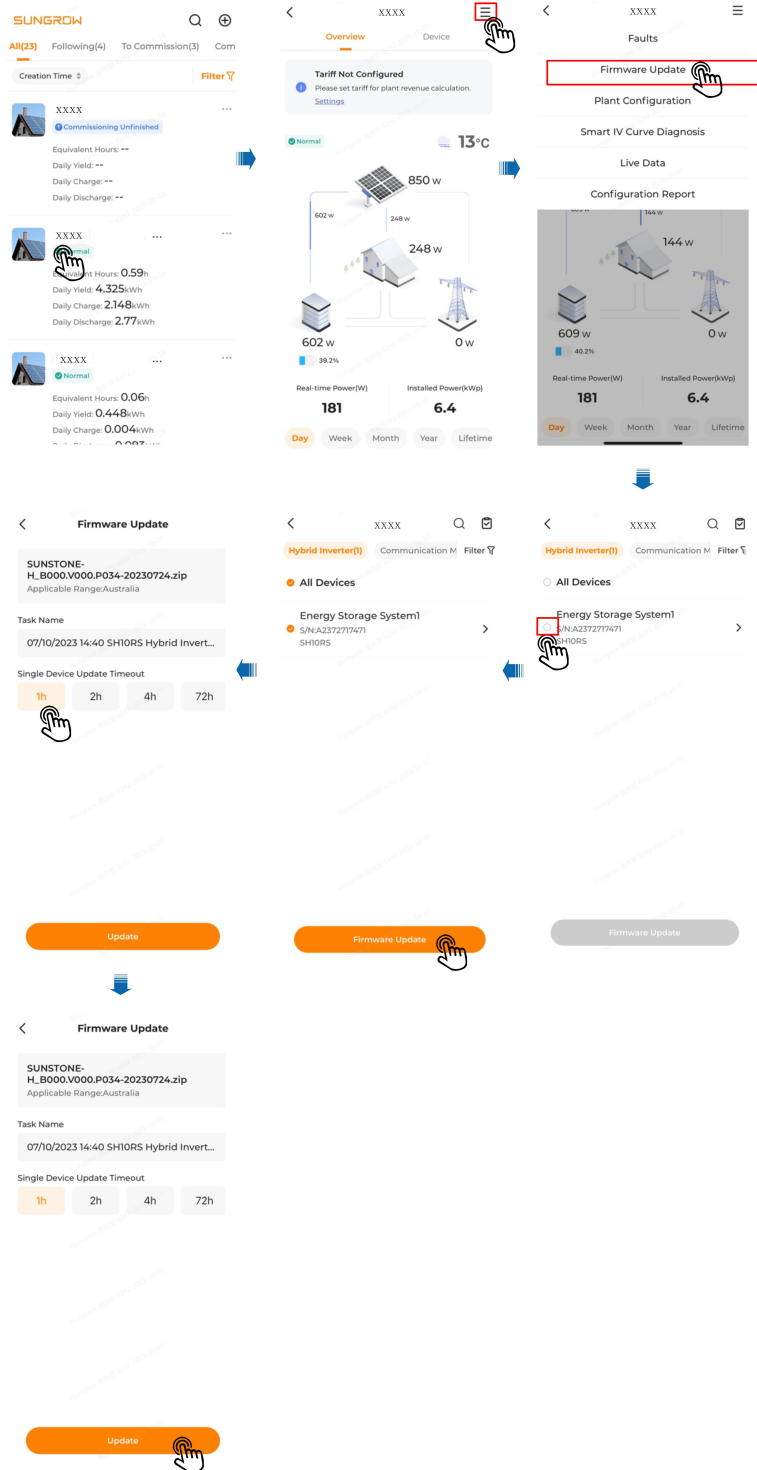
Single Device Update Timeout: If the time of firmware update exceeds 1h, there will be an update timeout message. In such a case, please repeat the steps for firmware update.

- - End

3.6   PV Plant Information

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.
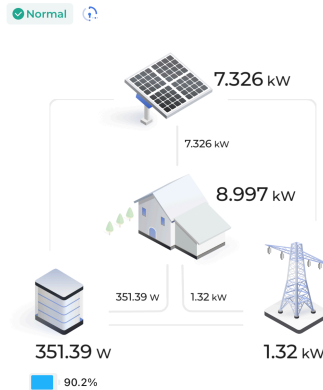
Users granted access to live data can see the live data status:

	Live data enabled
	Live data not enabled
	The device does not support live data

The Owner can view operation information of the plant such as **Today Yield** and **Today Revenue**.
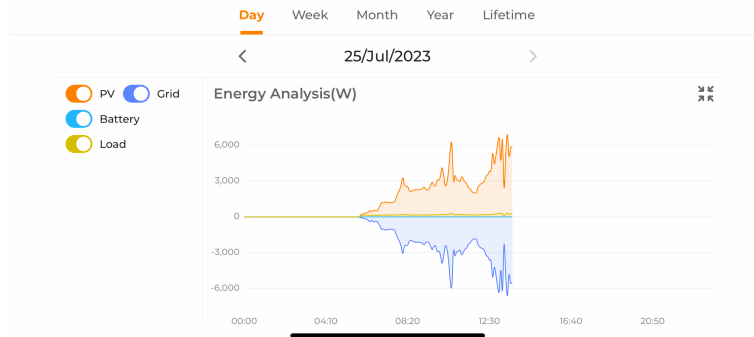
The Distributor/Installer can view operation information of the plant such as **Energy Analysis**, **Production** and **Consumption** of power, and **Earning**.

Take **Energy Analysis** as an example:

You can toggle between **Curve** and **Summary** to check the curves and the production and consumption data.
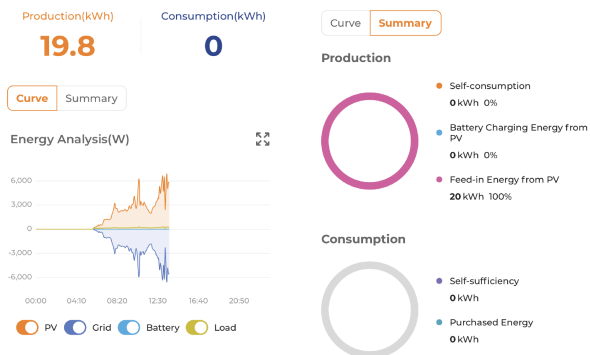
Tap ⤢ in the upper right corner of the curve graph to view it in landscape mode.


3.7 Frequently Asked Question

### 3.7.1 Communication Device Network Configuration Failed

Background

In the process of creating a plant, network configuration for the communication device has failed due to network or other reasons. This failure persists after retry, and the subsequent tasks cannot be carried on.

step 1   In case of a network connection failure, you can adopt **WLAN Direct Connection**.

Tap **WLAN Direct Connection** on the screen that shows a connection failure message –> press the button on the communication device three times by following the onscreen instructions –> connect the mobile phone to the communication module's WLAN.
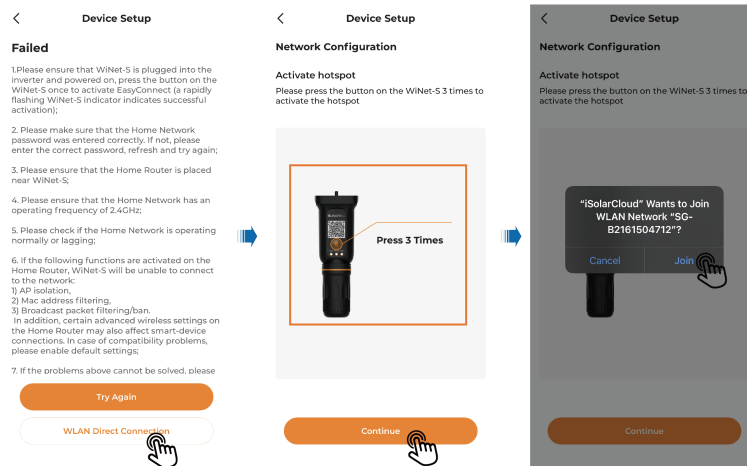
Select the target home network in "Network Configuration" –> enter the password –> wait for the network connection to be established –> complete network configuration.

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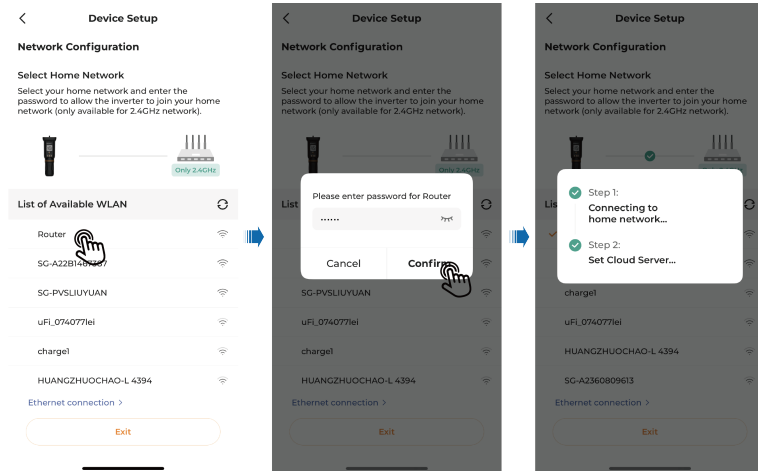
- - End

3.7.2 Unable to View Set Parameter Values

Background

Exit and go to another screen after finishing the parameter setting. Then, go back to the parameter setting screen again, and the value set for the parameter before is gone.

step 1 In case the set value for the parameter cannot be seen, you can select the corresponding plant on the **Monitoring** screen, and then choose "Settings" –> "Query Parameters". Wait for the task to be executed, and the value that has been set for the parameter will be shown on the screen.

- - End

SUNGROW
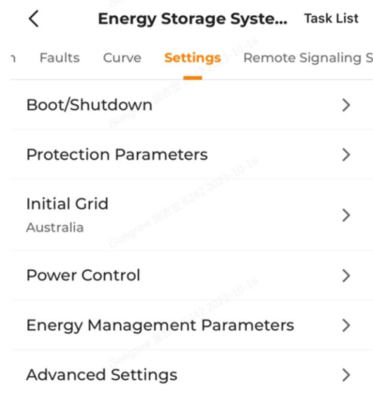
4 More Information

For more information about the inverter and the iSolarCloud App, you may refer to the documents below:

1. 《SH8.0/10RS User Manual》
2. 《iSolarCloud App User Manual (Overseas)》

5   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.

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6 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**