FusionSolar App, SUN2000 App

Device Commissioning Guide

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1 Downloading and Installing the App

NOTICE

- Mobile phone operating system: Android 8.0, iOS 11.0, or later versions.
- To ensure the stability of each function, you are advised to use mobile phones running Android 8.0, iOS 13.0, or later versions. (For the mobile phones running iOS, iPhone 6 and later versions are supported, but iPhone SE is not supported.)
- Use mobile phones that support the access to the Internet.
- Use mobile phones that support the WLAN function.
- The router supports WLAN (IEEE 802.11 b/g/n, 2.4 GHz) and the WLAN signal reaches the inverters.
- The WPA, WPA2, or WPA/WPA2 encryption mode is recommended for routers. The Enterprise mode is not supported (such as airport WLAN and other public hotspots that require authentication). WEP and WPA TKIP are not recommended because they have serious security vulnerabilities. If the access fails in WEP mode, log in to the router and change the encryption mode of the router to WPA2 or WPA/WPA2.

Procedure

Method 1: Download and install the app from the app store.

- Huawei mobile phone users: Search for **FusionSolar** in Huawei AppGallery.
- iPhone users: Search for **FusionSolar** in the App Store.
- Other mobile phone users: Select method 2.



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

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NOTE

Users who select method 2 can select the download method based on the mobile phone type.

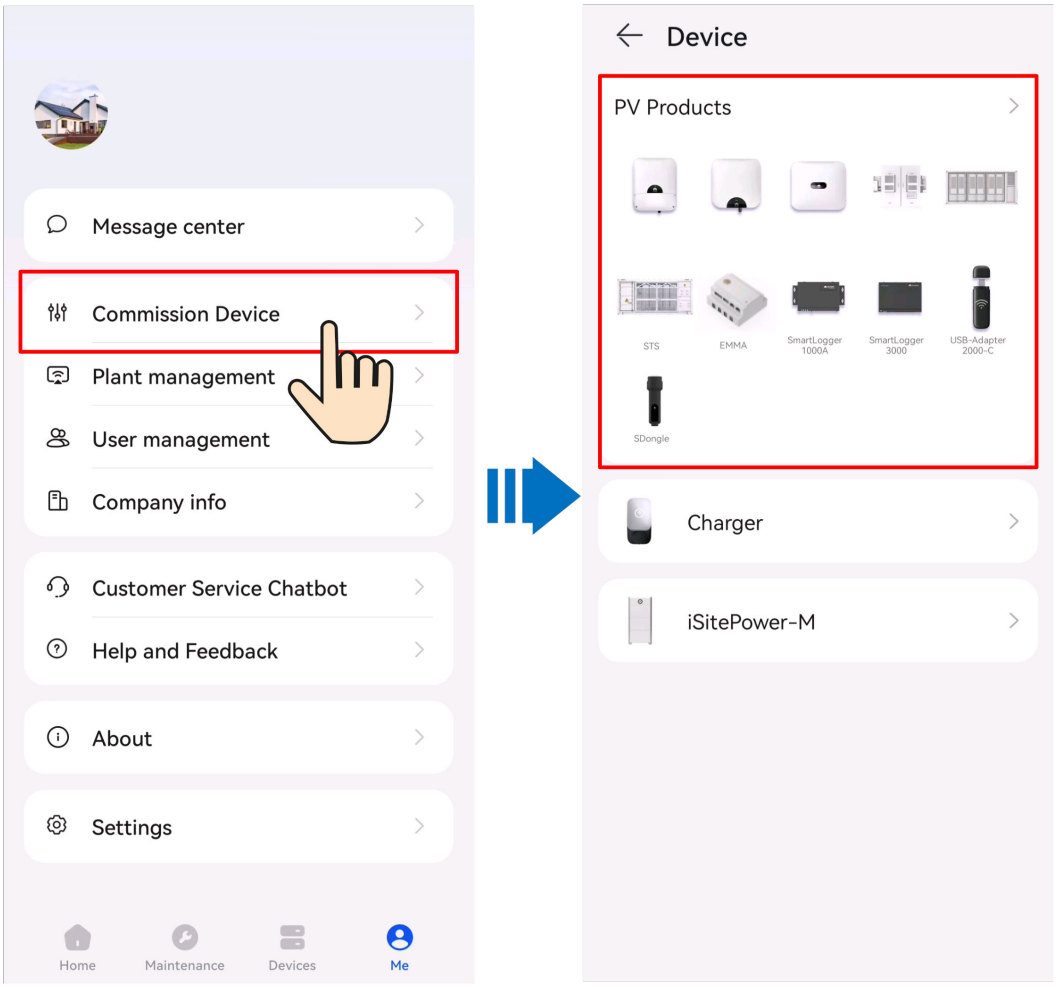
- Huawei mobile phone users: Download from Huawei AppGallery.
- Non-Huawei phone users: Download on a browser.

When you select **Download via the Browser**, if a security warning message is displayed indicating that the app is from an external source, tap **ALLOW**.

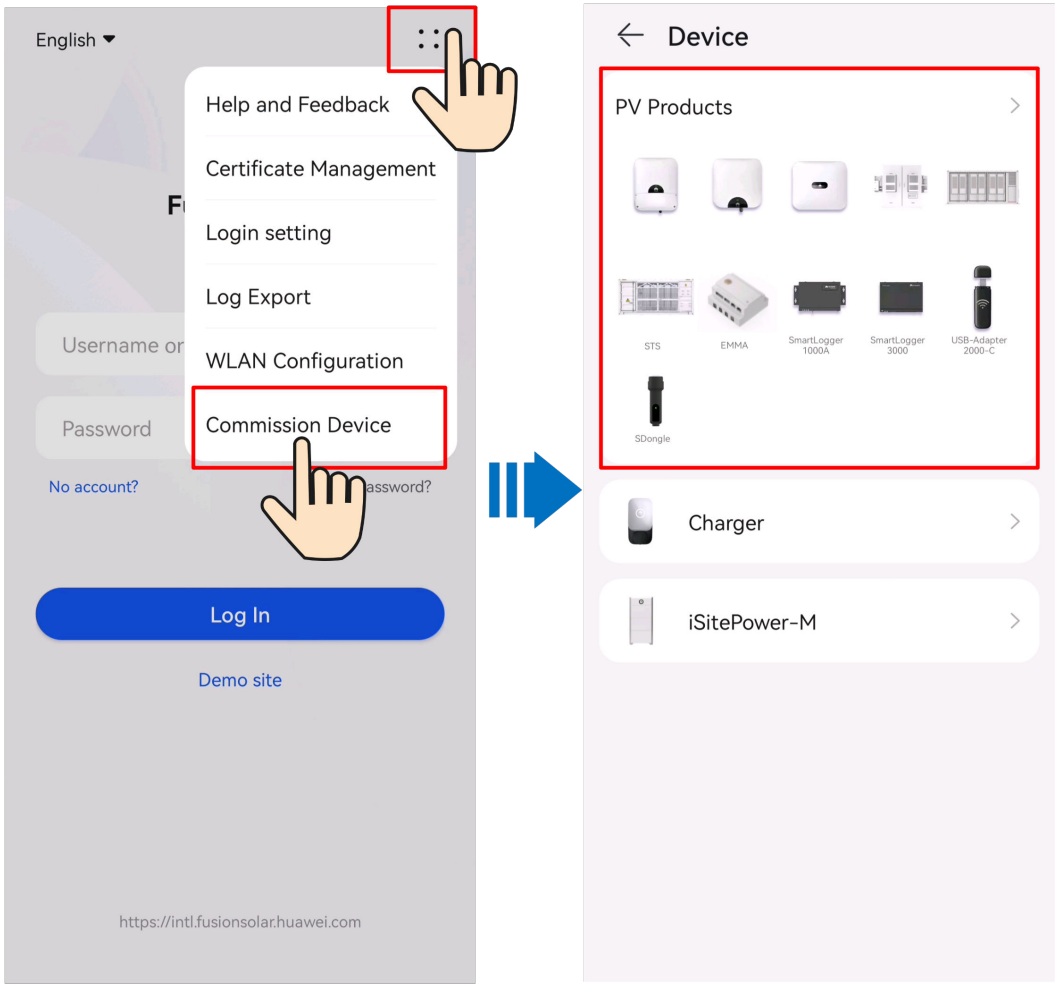
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2 Start Device Commissioning

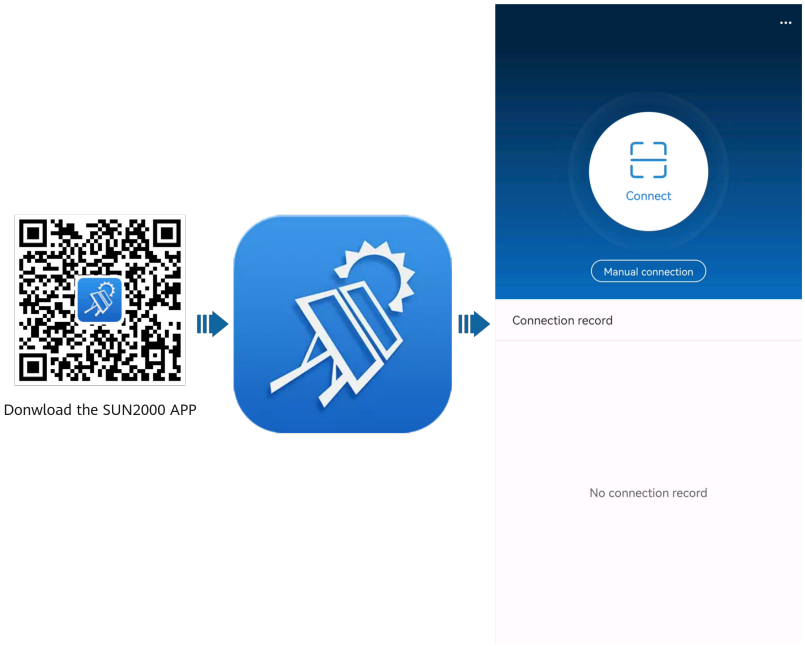
Method 1: FusionSolar app (with Internet access)



Method 2: FusionSolar app (without Internet access)



Method 3: SUN2000 app



NOTE

Method 2 can be used only when no Internet access is available. You are advised to log in to the FusionSolar app to commission devices using method 1.

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3 Operations on the Screen for Connecting to the Distributed Solar Inverter

NOTICE

- The figures and data displayed in this chapter are for reference only.
- The parameters displayed on the screen vary according to the solar inverter model connected to the app.
- Delivering a reset, factory reset, shutdown, or upgrade command to the solar inverters may cause power grid connection failure, which affects the energy yield.
- Only professionals are allowed to set the grid parameters, protection parameters, feature parameters, power adjustment parameters, and grid-tied point control parameters of the solar inverters. If the grid parameters, protection parameters, and feature parameters are incorrectly set, the solar inverters may not connect to the power grid. If the power adjustment parameters and grid-tied point control parameters are incorrectly set, the solar inverters may not connect to the power grid as required. In these cases, the energy yield will be affected.

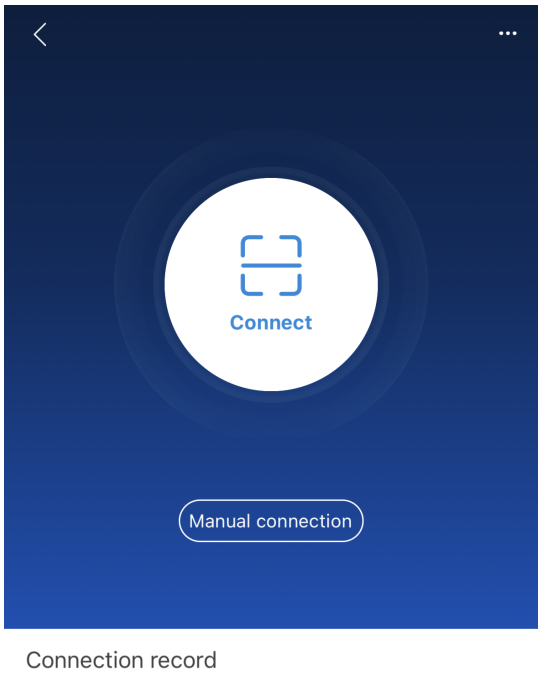
3.1 Login the SUN2000 APP

Procedure

Step 1 Connect the solar inverter.

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Figure 3-1 Connect



- Code scanning: Tap **Connect** to access the scanning screen, place the QR code or bar code of the solar inverter in the scan frame. The device will be automatically connected after the code is identified.
- Manual connection: Tap **Manual Connection** and select a connection mode.

Figure 3-2 Manual connection



  - Select **WLAN** and connect to the corresponding WLAN in the WLAN connection list of the APP. The initial name of the WLAN hotspot is **solar inverter SN**, and the initial password is **Changeme**.

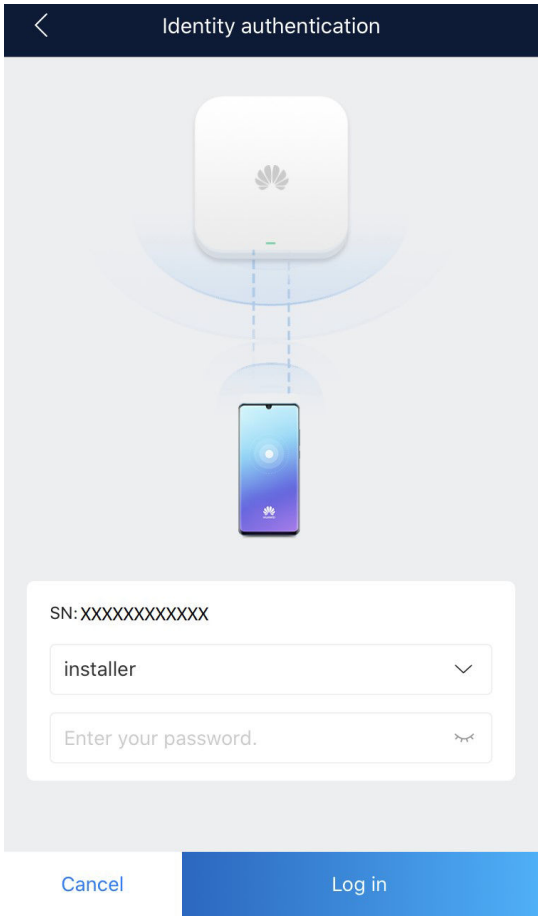
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NOTICE

- Use the initial password upon first power-on and change it immediately after login. To ensure account security, change the password periodically and keep the new password in mind. Not changing the initial password may cause password disclosure. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, the user is liable for any loss caused to the PV plant.
- If the **This WLAN network has no Internet access. Connect anyway?** message is displayed when you connect to the built-in WLAN, tap **CONNECT**. Otherwise, you cannot log in to the system. The actual UI and messages may vary with mobile phones.

Step 2 Select a login user and enter the password.

Figure 3-3 Login



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NOTICE

- For the initial power-on, set the password as prompted and then log in to the system. If not prompted, log in with the initial password **00000a**.
- To ensure account security, change the password periodically and keep the new password in mind. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, the user is liable for any loss caused to the PV plant.
- During the login, if five consecutive invalid password entries are made (the interval between two consecutive entries is less than 2 minutes), the account will be locked for 10 minutes. The password should consist of six characters.

Step 3 After successful login, the **Quick Settings** or **Function Menu** screen is displayed.

NOTICE

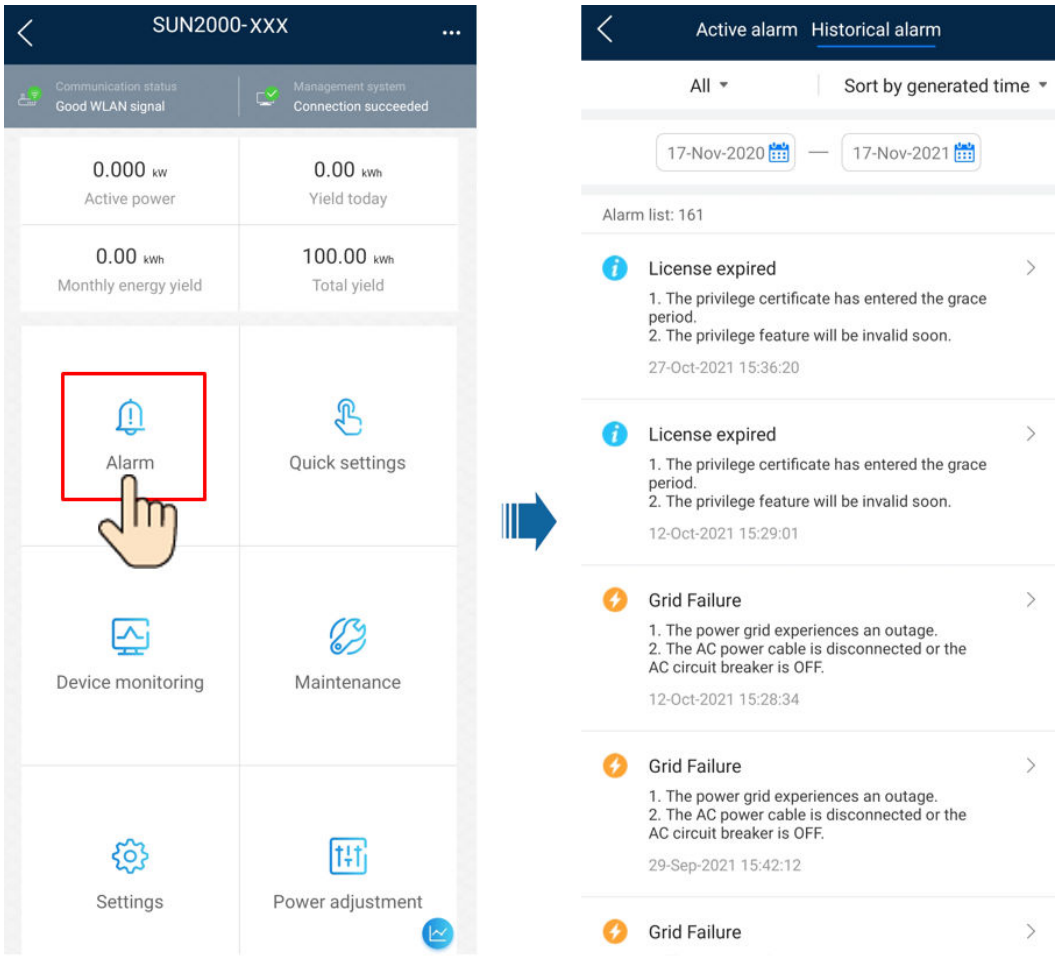
If you log in to the SUN2000 app after the device powers on for the first time or factory defaults are restored, the **Quick Settings** screen will be displayed. If you do not set the basic parameters for the solar inverter on the **Quick Settings** screen, the screen is still displayed when you log in next time.

----End

3.2 Alarm Management

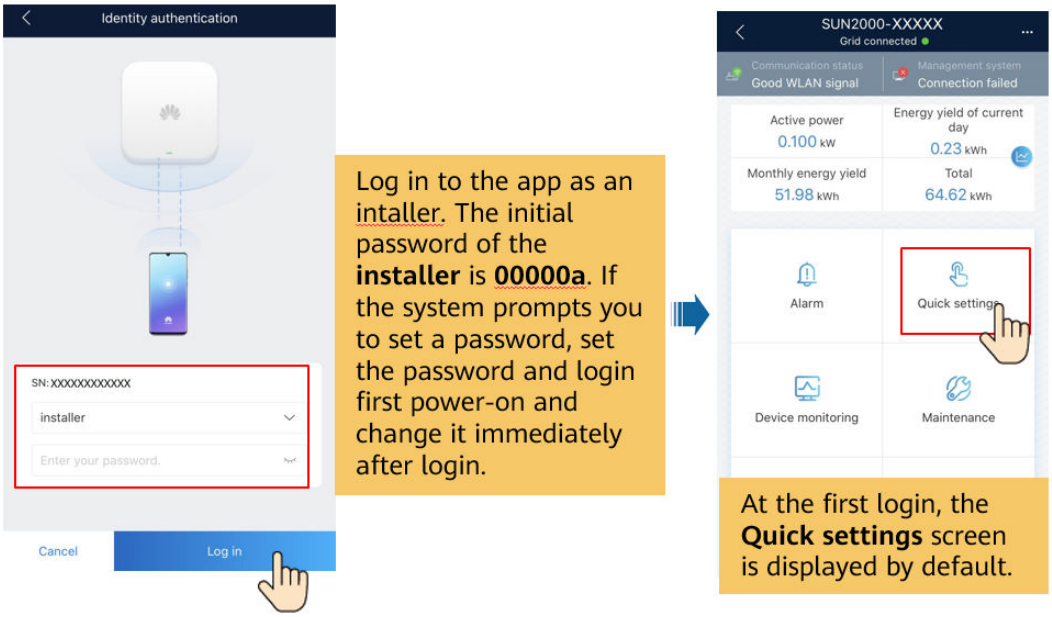
On the home screen, tap **Alarm management**. You can query active and historical alarms.

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3.3 Quick Settings

On the home screen, tap **Quick Settings**. Set parameters as prompted.



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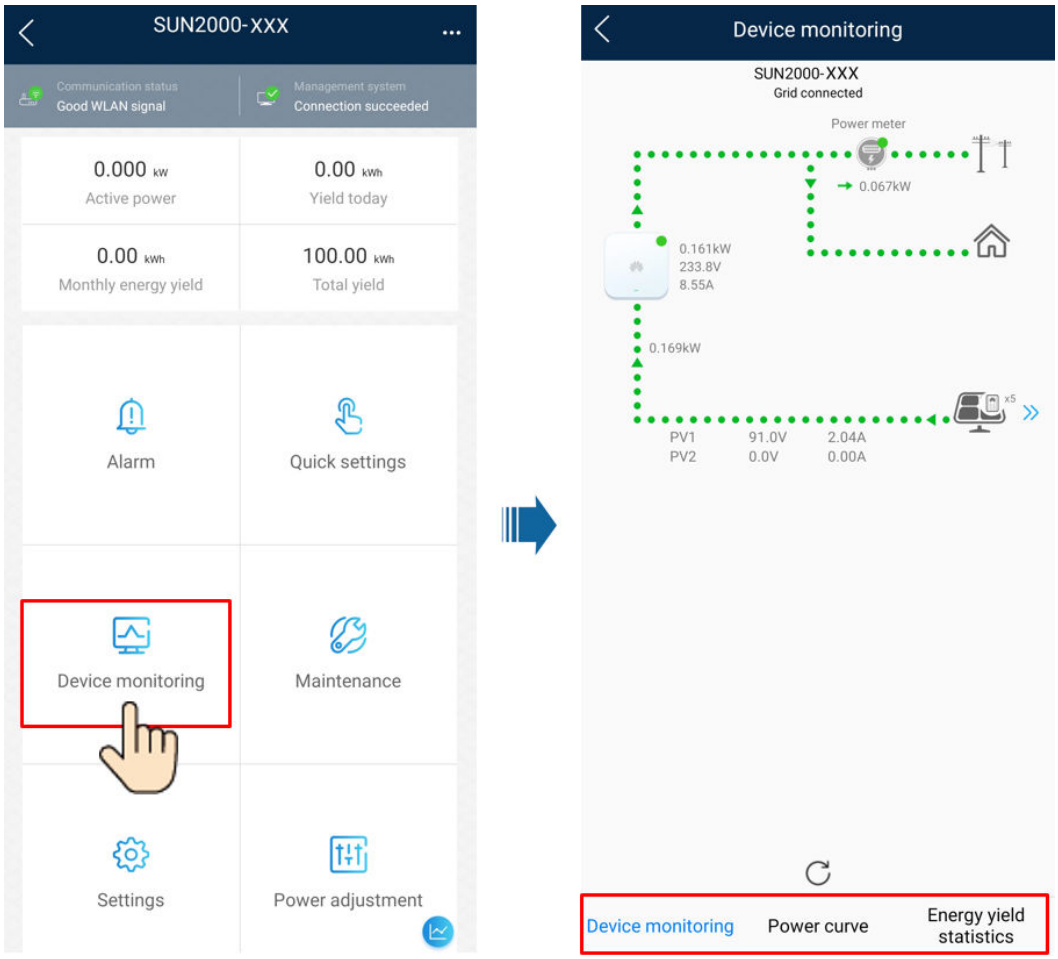
NOTE

The UI is for reference only. The UI varies with associated devices. The actual UI prevails.

3.4 Device Monitoring

On the home screen, tap **Device Monitoring**.Then tap a tab in the lower part of the screen as required to view related information.

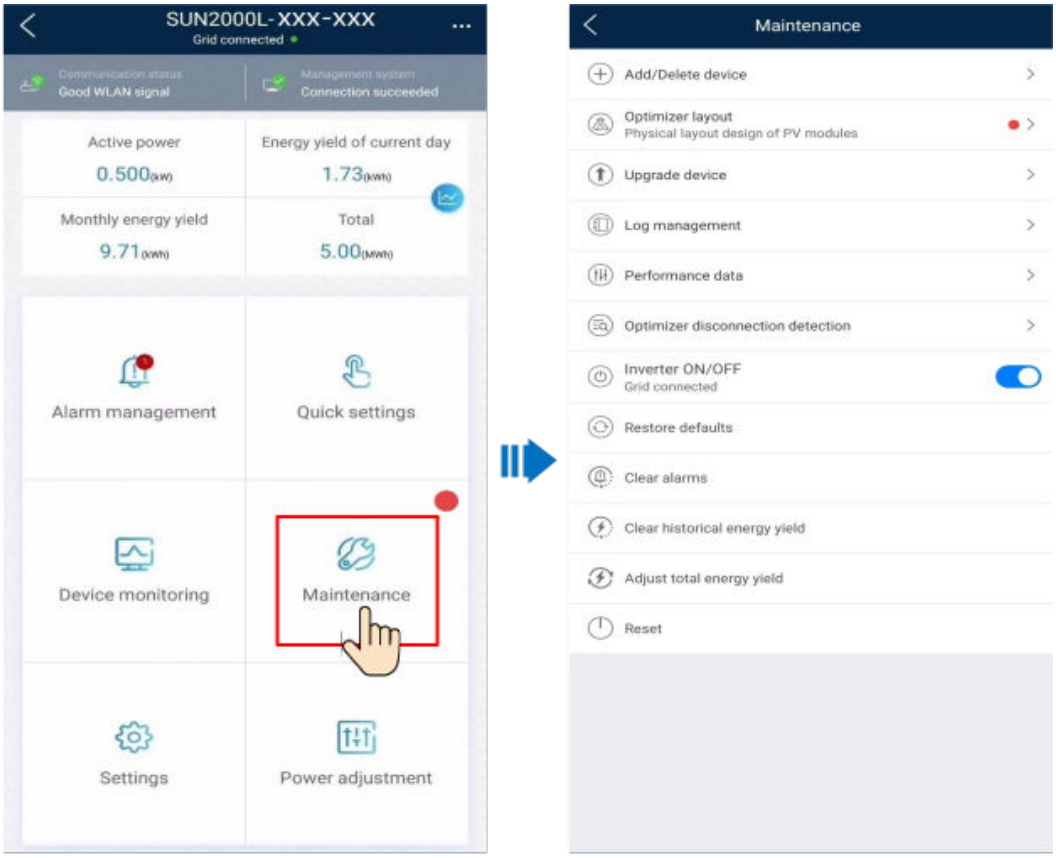
Figure 3-4 Device information



3.5 Maintenance

On the home screen, tap **Maintenance** to set device parameters.

Figure 3-5 Maintaining devices



NOTE

The parameter list provided in this document includes all configurable parameters that vary with the device model and grid code. The actual screen prevails.

Parameter	Description	Parameter	Description
Add/ Delete device	Adds power meters, batteries, optimizers, or safety shutdown boxes as required.	IPS test	Performs IPS self-check and generates a self-check report.
Physical Layout of PV Modules	Specifies the physical location of the optimizer.	Inverter ON/OFF Detection	Sends a command to start or shut down the solar inverter based on its current startup or shutdown status.
Upgrade device	Upgrades the software version of devices such as the solar inverter as required.	Restore defaults	Restores the solar inverter parameters to factory settings.
Log Management	Downloads the logs of the solar inverters, batteries, optimizers, or the app.	Clear alarms	Clears historical alarms of the solar inverter.

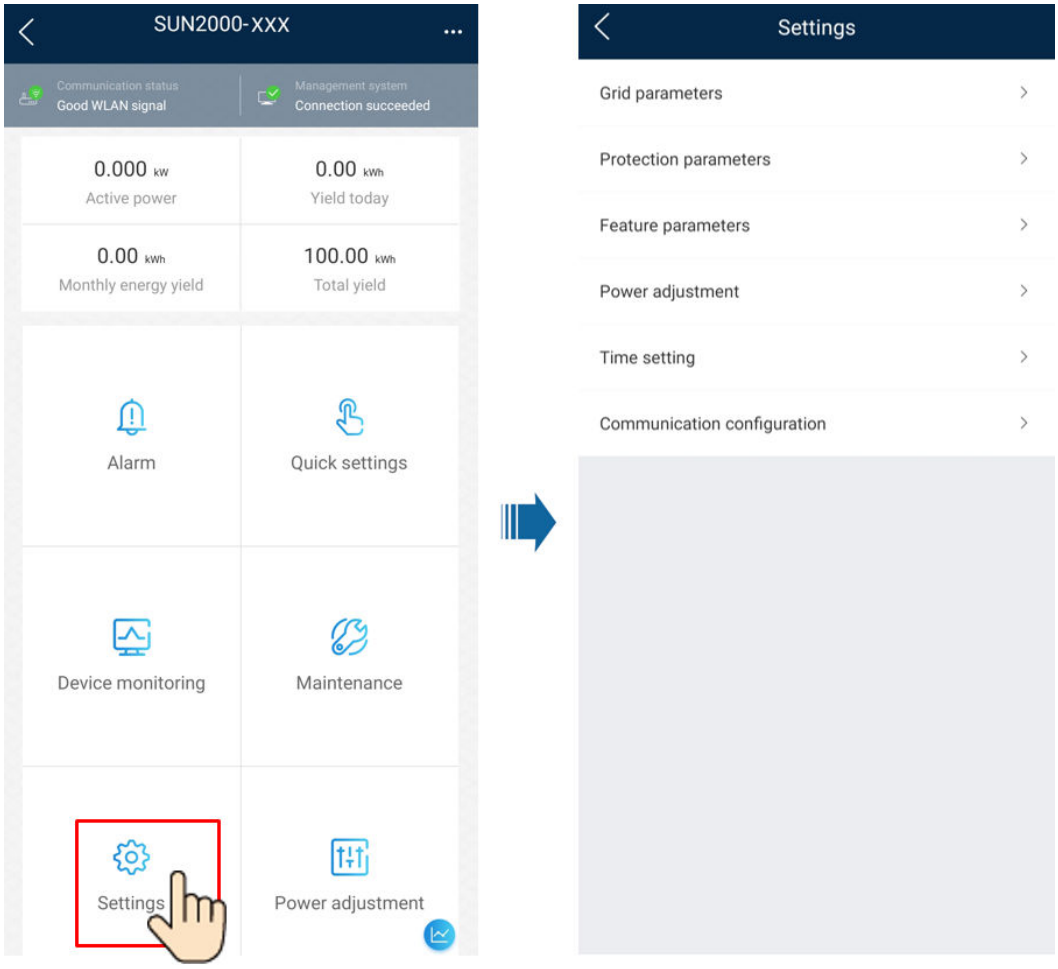
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Parameter	Description	Parameter	Description
Performance data	Views the performance data of devices such as power meters.	Clear historical energy yield	Clears historical energy yields of the solar inverter.
Alarm beacon	If this parameter is enabled, the alarm beacon produces audible and visual signals when the solar inverter generates an alarm.	Adjust total energy yield	Specifies the initial energy yield of the solar inverter. This parameter is used in solar inverter replacement scenarios. Set the initial energy yield of the new solar inverter to the total energy yield of the old solar inverter to ensure continuous statistics of cumulative energy yield.
AFCI (Arc-Fault Circuit-Interrupter) self-test	Performs the AFCI self-test.	Restart	Restarts the solar inverter.
Optimizer Disconnection Detection	Detect the disconnection point of the optimizer and determine the physical location of the fault point.	O&M via WLAN connection	You can enable or disable the WLAN. • **Always ON**: The WLAN is always on. • **OFF when idle**: The WLAN is automatically turned off after being idle for four hours. **NOTE** If you need to connect to the WLAN after disabling it, log in to the FusionSolar app to enable it. Otherwise, you cannot log in to the inverter for local commissioning.

3.6 Settings

On the home screen, tap **Settings** to set solar inverter parameters.

Figure 3-6 Settings



NOTE

- The parameter list provided in this document includes all configurable parameters that vary with the device model and grid code. The actual screen prevails.
- The parameters are for reference only. The configurable parameters vary with the device model and grid code. The actual configurable parameters prevail.
- The parameter names, value ranges, and default values are subject to change.

Grid Parameters

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
Grid Code	Set this parameter based on the grid code of the country or region where the inverter is used and the inverter application scenario.	N/A

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
Isolation settings	Set the working mode of the inverter based on the grounding status at DC side and the connection to the power grid.	• Input ungrounded, without TF • Input ungrounded, with TF
Output mode	Specifies whether the inverter output has a neutral wire based on the application scenario.	• Three-phase three-wire • Three-phase four-wire • L/N • L1/L2/N • L1/L2
Automatically start upon grid recovery	Specifies whether to allow the inverter to automatically start after the power grid recovers.	• Disable • Enable
Grid connected recovery time from grid faults (s)	Specifies the time after which the inverter begins connecting after the power grid recovers.	[0, 7200]
Grid reconnection voltage upper limit (V)	The standards of certain countries and regions require that after the inverter shuts down for protection due to a fault, if the power grid voltage is higher than **Grid reconnection voltage upper limit**, the inverter is not allowed to reconnect to the grid.	[100% Vn, 136% Vn]
Grid reconnection voltage lower limit (V)	The standards of certain countries and regions require that after the inverter shuts down for protection due to a fault, if the power grid voltage is lower than **Grid reconnection voltage lower limit**, the inverter is not allowed to reconnect to the grid.	[45% Vn, 100% Vn]
Grid reconnection frequency upper limit (Hz)	The standards of certain countries and regions require that after the inverter shuts down for protection due to a fault, if the power grid frequency is higher than **Grid reconnection frequency upper limit**, the inverter is not allowed to reconnect to the grid.	[100% Fn, 120% Fn]

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Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
Grid reconnection frequency lower limit (Hz)	The standards of certain countries and regions require that after the inverter shuts down for protection due to a fault, if the power grid frequency is lower than **Grid reconnection frequency lower limit**, the inverter is not allowed to reconnect to the grid.	[80% Fn, 100% Fn]
Reactive power compensation (cosφ-P) trigger voltage (%)	Specifies the voltage threshold for triggering reactive power compensation based on the cosφ-P curve.	[100, 136]
Reactive power compensation (cosφ-P) exit voltage (%)	Specifies the voltage threshold for exiting reactive power compensation based on the cosφ-P curve.	[70, 100]

Protection Parameters

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
Insulation resistance protection threshold (MΩ)	To ensure device safety, the inverter detects the insulation resistance of the input side with respect to ground when it starts a self-check. If the detected value is less than the preset value, the inverter does not connect to the grid.	[0.02, 1.5]
Voltage unbalance protection threhold (%)	Specifies the inverter protection threshold when the power grid voltage is unbalanced.	[0, 50]
Phase protection point (°)	The Japanese standard requires that during passive islanding detection, protection should be triggered if an abrupt voltage phase change is detected.	[0.5, 15]
Phase angle offset protection	The standards of certain countries and regions require that the inverter needs to be protected when the phase angle offset of the power grid three phases exceeds a certain value.	• Disable • Enable

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Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
10-min overvoltage protection threshold (V)	Specifies the 10-minute overvoltage protection threshold.	[1 * Vn, 1.5 * Vn]
10-min overvoltage protection duration (ms)	Specifies the 10-minute overvoltage protection duration.	[50, 7200000]
Level-1 overvoltage protection threshold (V)	Specifies the level-1 overvoltage protection threshold.	[1 * Vn, 1.5 * Vn]
Level-1 overvoltage protection duration (ms)	Specifies the level-1 overvoltage protection duration.	[50, 7200000]
Level-2 overvoltage protection threshold (V)	Specifies the level-2 overvoltage protection threshold.	[1 * Vn, 1.5 * Vn]
Level-2 overvoltage protection duration (ms)	Specifies the level-2 overvoltage protection duration.	[50, 7200000]
Level-3 overvoltage protection threshold (V)	Specifies the level-3 overvoltage protection threshold.	[1 * Vn, 1.5 * Vn]
Level-3 overvoltage protection duration (ms)	Specifies the level-3 overvoltage protection duration.	[50, 7200000]
Level-4 overvoltage protection threshold (V)	Specifies the level-4 overvoltage protection threshold.	[1 * Vn, 1.5 * Vn]
Level-4 overvoltage protection duration (ms)	Specifies the level-4 overvoltage protection duration.	[50, 7200000]
Level-5 overvoltage protection threshold (V)	Specifies the level-5 overvoltage protection threshold.	[1 * Vn, 1.5 * Vn]
Level-5 overvoltage protection duration (ms)	Specifies the level-5 overvoltage protection duration.	[50, 7200000]
Level-6 overvoltage protection threshold (V)	Specifies the level-6 overvoltage protection threshold.	[1 * Vn, 1.5 * Vn]
Level-6 overvoltage protection duration (ms)	Specifies the level-6 overvoltage protection duration.	[50, 7200000]
Level-1 undervoltage protection threshold (V)	Specifies the level-1 undervoltage protection threshold.	[0.15 * Vn, 1 * Vn]
Level-1 undervoltage protection duration (ms)	Specifies the level-1 undervoltage protection duration.	[50, 7200000]
Level-2 undervoltage protection threshold (V)	Specifies the level-2 undervoltage protection threshold.	[0.15 * Vn, 1 * Vn]
Level-2 undervoltage protection duration (ms)	Specifies the level-2 undervoltage protection duration.	[50, 7200000]

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Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
Level-3 undervoltage protection threshold (V)	Specifies the level-3 undervoltage protection threshold.	[0.15 * Vn, 1 * Vn]
Level-3 undervoltage protection duration (ms)	Specifies the level-3 undervoltage protection duration.	[50, 7200000]
Level-4 undervoltage protection threshold (V)	Specifies the level-4 undervoltage protection threshold.	[0.15 * Vn, 1 * Vn]
Level-4 undervoltage protection duration (ms)	Specifies the level-4 undervoltage protection duration.	[50, 7200000]
Level-5 undervoltage protection threshold (V)	Specifies the level-5 undervoltage protection threshold.	[0.15 * Vn, 1 * Vn]
Level-5 undervoltage protection duration (ms)	Specifies the level-5 undervoltage protection duration.	[50, 7200000]
Level-6 undervoltage protection threshold (V)	Specifies the level-6 undervoltage protection threshold.	[0.15 * Vn, 1 * Vn]
Level-6 undervoltage protection duration (ms)	Specifies the level-6 undervoltage protection duration.	[50, 7200000]
Level-1 overfrequency protection threshold (Hz)	Specifies the level-1 overfrequency protection threshold.	[1 * Fn, 1.2 * Fn]
Level-1 overfrequency protection duration (ms)	Specifies the level-1 overfrequency protection duration.	[50, 7200000]
Level-2 overfrequency protection threshold (Hz)	Specifies the level-2 overfrequency protection threshold.	[1 * Fn, 1.2 * Fn]
Level-2 overfrequency protection duration (ms)	Specifies the level-2 overfrequency protection duration.	[50, 7200000]
Level-3 overfrequency protection threshold (Hz)	Specifies the level-3 overfrequency protection threshold.	[1 * Fn, 1.2 * Fn]
Level-3 overfrequency protection duration (ms)	Specifies the level-3 overfrequency protection duration.	[50, 7200000]
Level-4 overfrequency protection threshold (Hz)	Specifies the level-4 overfrequency protection threshold.	[1 * Fn, 1.2 * Fn]
Level-4 overfrequency protection duration (ms)	Specifies the level-4 overfrequency protection duration.	[50, 7200000]
Level-5 overfrequency protection threshold (Hz)	Specifies the level-5 overfrequency protection threshold.	[1 * Fn, 1.2 * Fn]
Level-5 overfrequency protection duration (ms)	Specifies the level-5 overfrequency protection duration.	[50, 7200000]

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Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
Level-6 overfrequency protection threshold (Hz)	Specifies the level-6 overfrequency protection threshold.	[1 * Fn, 1.2 * Fn]
Level-6 overfrequency protection duration (ms)	Specifies the level-6 overfrequency protection duration.	[50, 7200000]
Level-1 underfrequency protection threshold (Hz)	Specifies the level-1 underfrequency protection threshold.	[0.8 * Fn, 1 * Fn]
Level-1 underfrequency protection duration (ms)	Specifies the level-1 underfrequency protection duration.	[50, 7200000]
Level-2 underfrequency protection threshold (Hz)	Specifies the level-2 underfrequency protection threshold.	[0.8 * Fn, 1 * Fn]
Level-2 underfrequency protection duration (ms)	Specifies the level-2 underfrequency protection duration.	[50, 7200000]
Level-3 underfrequency protection threshold (Hz)	Specifies the level-3 underfrequency protection threshold.	[0.8 * Fn, 1 * Fn]
Level-3 underfrequency protection duration (ms)	Specifies the level-3 underfrequency protection duration.	[50, 7200000]
Level-4 underfrequency protection threshold (Hz)	Specifies the level-4 underfrequency protection threshold.	[0.8 * Fn, 1 * Fn]
Level-4 underfrequency protection duration (ms)	Specifies the level-4 underfrequency protection duration.	[50, 7200000]
Level-5 underfrequency protection threshold (Hz)	Specifies the level-5 underfrequency protection threshold.	[0.8 * Fn, 1 * Fn]
Level-5 underfrequency protection duration (ms)	Specifies the level-5 underfrequency protection duration.	[50, 7200000]
Level-6 underfrequency protection threshold (Hz)	Specifies the level-6 underfrequency protection threshold.	[0.8 * Fn, 1 * Fn]
Level-6 underfrequency protection duration (ms)	Specifies the level-6 underfrequency protection duration.	[50, 7200000]

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Feature Parameters

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
MPPT multi-peak scanning	When the inverter is used in scenarios where PV strings are greatly shaded, set this parameter to **Enable**, and then the inverter will perform MPPT scanning at regular intervals to locate the maximum power.	• Disable • Enable	N/A
MPPT multi-peak scan interval (min)	Specifies the MPPT scanning interval.	[5, 30]	This parameter is displayed when **MPPT multi-peak scan interval** is set to **Enable**.
Automatic OFF due to communication interrupted	The standards of certain countries and regions require that the inverter must shut down after the communication is interrupted for a certain time.	• Disable • Enable	If **Automatic OFF due to communication interrupted** is set to Enable and the inverter communication is interrupted for a specified time (set by **Communication interruption duration)**, the inverter will automatically shut down.
Communication interruption duration (min)	Specifies the duration for determining communication interruption. Used for automatic shutdown for protection in case of communication interruption.	[1, 120]	N/A
Automatic ON due to communication resume	If this parameter is set to **Enable**, the inverter automatically starts after communication recovers. If this parameter is set to **Disable**, the inverter needs to be started manually after communication recovers.	• Disable • Enable	This parameter is displayed when **Automatic OFF due to communication interrupted** is set to **Enable**.

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Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Soft start/boot time (s)	Specifies the duration for the power to gradually increase when the inverter starts.	[1, 1800]	N/A
AFCI	The North American standard requires that the inverter should have DC arc detection function.	• Disable • Enable	N/A
AFCI detection adaptation mode	This function is used to adjust the sensitivity of arc detection.	• High • Moderate • Low	This parameter is displayed when **AFCI** is set to Enable.
OFF due to abnormal ground	This function is used to check whether the solar inverter is properly grounded before the solar inverter starts, or check whether the solar inverter ground cable is disconnected when the solar inverter is running. By default, this parameter is set to **Enable**. If the solar inverter cannot be grounded properly, it shuts down.	• Disable • Enable	For certain power grid types, if the output side of the solar inverter is connected to an isolation transformer, grounding detection is not required. Ensure that the solar inverter is properly grounded and set the parameter to **Disable** to enable the solar inverter to run properly. If you are not sure whether the solar inverter is connected to such a type of power grid, contact your dealer or Huawei technical support for confirmation.
Delay upgrade	This parameter is mainly used in the upgrade scenarios where the PV power supply is disconnected at night due to no sunlight or unstable at dawn or dusk due to poor sunlight.	• Disable • Enable	After the inverter starts to upgrade, if **Delay upgrade** is set to **Enable**, the upgrade package is loaded first. After the PV power supply recovers and the activation conditions are met, the inverter automatically activates the upgrade.

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Unlock optimizer	When replacing the optimizer, you need to disable the binding relationship between the optimizer and the MBUS master solar inverter. Set this parameter to **Enable**, and then unlock optimizer .	• Disable • Enable	N/A
Heartbeat period at application layer (min)	Specifies the timeout period for the solar inverter to connect to the management system.	[1, 65535]	N/A
TCP frame length	Specifies the maximum length of the TCP frame sent by the northbound device to the solar inverter.	[320, 1500]	N/A
TCP heartbeat interval (s)	Specifies the TCP link timeout period for the solar inverter to connect to the management system.	[0, 65535]	N/A
LVRT	LVRT is short for low voltage ride-through. When the grid voltage is abnormally low for a short time, the inverter cannot disconnect from the power grid immediately and has to work for some time.	• Disable • Enable	N/A
Threshold for triggering LVRT (V)	Specifies the threshold for triggering LVRT. The threshold settings should meet the local grid standard.	[50% Vn, 100% Vn]	This parameter is displayed when **LVRT** is set to **Enable**.

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Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
LVRT reactive power compensation factor	During LVRT, the inverter needs to generate reactive power to support the power grid. This parameter is used to set the reactive power generated by the inverter.	[0, 10]	• This parameter is displayed when **LVRT** is set to **Enable**. • For example, if this parameter is set to **2**, the reactive power generated by the inverter is 20% of the rated power when the AC voltage drops by 10% during LVRT.
LVRT characteristic curve	Specifies the low voltage ride through curve.	N/A	This parameter is displayed when **LVRT** is set to **Enable**.
HVRT	HVRT is short for high voltage ride-through. When the grid voltage is abnormally high for a short time, the inverter cannot disconnect from the power grid immediately and has to work for some time.	• Disable • Enable	N/A
Threshold for triggering HVRT (V)	Specifies the threshold for triggering HVRT. The threshold settings should meet the local grid standard.	[100% Vn, 136% Vn]	This parameter is displayed when **HVRT** is set to **Enable**.
Grid voltage protection shied during VRT	Specifies whether to apply voltage protective shielding to the power grid when HVRT or LVRT is enabled.	• Disable • Enable	This parameter is displayed when **LVRT** is set to **Enable** or **HVRT** is set to **Enable**.
Active islanding protection	Specifies whether to enable the active islanding protection function.	• Disable • Enable	N/A
Passive islanding protection	Specifies whether to enable the passive islanding protection function.	• Disable • Enable	This parameter is displayed if the Japanese grid code is selected.

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Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Voltage rise suppression	The standards of certain countries and regions require that when the output voltage exceeds a certain value, the inverter must suppress voltage rise by outputting reactive power and reducing active power.	• Disable • Enable	N/A
Voltage rise suppressing reactive power adjustment point (%)	The standards of certain countries and regions require that the inverter generate a certain amount of reactive power when the output voltage exceeds a certain value.	[100, 115)	• This parameter is displayed when **Voltage rise suppression** is set to **Enable**. • The value of **Voltage rise suppressing active power derating point** must be greater than that of **Voltage rise suppressing reactive power adjustment point**.
Voltage rise suppressing active power derating point (%)	The standards of certain countries and regions require that the active power of the inverter be derated according to a certain slope when the output voltage exceeds a certain value.	(100, 115]	
Voltage rise suppression P-U curve	The standards of certain countries and regions require that the P-U curve be set.	• U (V): [176, 1500] • U device verification (V) :[0.8 Un, 1.36 Un] • P/Pn (%): [0, 100]	This parameter is displayed when **Voltage rise suppression** is set to **Enable**.
Voltage rise suppression Q-U curve	The standards of certain countries and regions require that the Q-U curve be set.	• U (V): [176, 1500] • U device verification (V) :[0.8 Un, 1.36 Un] • Q/S: [-0.6, 0.6]	

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Soft start time after grid failure (s)	Specifies the time for the power to gradually increase when the inverter restarts after the power grid recovers.	[1, 1800]	N/A
PID running mode	Specifies the operation mode of the inverter built-in PID.	• Disable • Suppress • Repair • Suppress + Repair	N/A
PID nighttime off-grid repair	Specifies whether to enable the PID nighttime off-grid repair.	• Disable • Enable	This parameter is displayed when **PID running mode** is set to **Repair**.
Closed-loop controller	• Set this parameter to **SDongle/SmartLogger** when the SmartLogger1000A is connected. • If multiple inverters are cascaded, set this parameter to **SDongle/SmartLogger**. • If there is only one inverter, set this parameter to **Inverter**.	• SDongle/SmartLogger • Solar inverter	N/A
Active power output limit for fail-safe (%)	When the communication between the SDongle/SmartLogger, power meter, and solar inverter is interrupted, the solar inverter output is limited.	[0, 100]	N/A
Off-grid mode	If this parameter is set to **Enable**, the ESS switches to the off-grid mode when the grid fails.	• Disable • Enable	-

Power Adjustment

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Remote power schedule	If this parameter is set to **Enable**, the inverter responds to the scheduling instruction from the remote port. If this parameter is set to **Disable**, the inverter does not respond to the scheduling instruction from the remote port.	• Disable • Enable	N/A
Schedule instruction valid duration (s)	Specifies the time for maintaining the scheduling instruction.	[0, 86400]	When this parameter is set to 0, the scheduling instruction takes effect permanently.
Apparent power baseline (kVA)	Adjust the apparent output baseline of the inverter.	[P_{max}, S_{max_real}]	N/A
Active power baseline (kW)	Adjusts the active output baseline of the inverter.	[0.1, Min(P_{max_real}, S_{max})]	N/A
Maximum apparent power (kVA)	Specifies the output upper threshold for the maximum apparent power to adapt to the capacity requirements of standard and customized inverters.	[P_{max}, S_{max}]	N/A
Maximum active power (kW)	Specifies the output upper threshold for the maximum active power to adapt to different market requirements.	[0.1, P_{max}]	N/A
OFF at %0 power limit	If this parameter is set to **Enable**, the inverter shuts down after receiving the 0% power limit command. If this parameter is set to **Disable**, the inverter does not shut down after receiving the 0% power limit command.	• Disable • Enable	N/A

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Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Active power change gradient (%/s)	Specifies the change speed of the inverter active power.	[0.1, 1000]	N/A
Derated by fixed active power (kW)	Adjusts the active power output of the inverter by fixed value.	[0, P_{max}]	N/A
Active power percentage derating (%)	Adjusts the active power output of the inverter by percentage.	[0, 100]	If this parameter is set to **100**, the solar inverter generates power based on the maximum output power.
Reactive power change gradient (%/s)	Specifies the change speed of the inverter reactive power.	[0.1, 1000]	N/A
Reactive power compensation (Q/S)	Specifies the reactive power output by the inverter.	[-1, 1]	N/A
Power factor	Specifies the power factor of the inverter.	[–1.000, –0.800] U [0.800, 1.000]	N/A
Overfrequency derating	If this parameter is set to **Enable**, the active power of the inverter will be derated according to a certain slope when the grid frequency exceeds the frequency that triggers overfrequency derating.	• Disable • Enable	N/A
Frequency for triggering overfrequency derating (Hz)	The standards of certain countries and regions require that the output active power of inverters be derated when the power grid frequency exceeds a certain value.	• 50Hz: [40, 60] • 60Hz: [48, 72]	• This parameter is displayed when **Overfrequency derating** is set to **Enable**. • When setting this parameter, ensure that the following condition is met: **Frequency for exiting overfrequency derating** ≤ **Trigger frequency of overfrequency derating** < **Cutoff frequency of**
Frequency for exiting overfrequency derating (Hz)	Specifies the frequency threshold for exiting overfrequency derating.	• 50Hz: [40, 60] • 60Hz: [48, 72]	

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Cutoff frequency of overfrequency derating (Hz)	Specifies the frequency threshold for cutting off overfrequency derating.	• 50Hz: [40, 60] • 60Hz: [48, 72]	**overfrequency derating**.
Cutoff power of overfrequency derating (%)	Specifies the power threshold for cutting off overfrequency derating.	[0, 100]	
Power recovery gradient of overfrequency derating (%/min)	Specifies the recovery rate of the overfrequency derating power.	[1, 6000]	
Dry contact scheduling	The standards of some countries and regions require that this parameter be set to **Enable** when power scheduling through dry contacts is required.	• Disable • Enable	N/A
Dry contact scheduling settings	Specifies the dry contact power scheduling parameters.	N/A	This parameter is displayed when **Dry contact scheduling** is set to **Enable**.
cosϕ-P/Pn characteristic curve	After this parameter is set, the solar inverter can adjust the power factor cosϕ in real time based on the P/Pn.	• P/Pn (%): [0, 100] • cosϕ: (-1, -0.8]U[0.8, 1]	N/A
Q-U characteristic curve	Specifies the voltage reactive power scheduling curve.	• U/Un (%): [80, 136] • Q/S: [-0.6, 0.6]	N/A
Q-U hysteresis curve	Specifies the voltage reactive power scheduling hysteresis curve.	• U/Un (%): [80, 136] • Q/S: [-0.6, 0.6]	Associated with the Italian standard code.

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Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Underfrequency rise power	The standards of certain countries and regions require that if the power grid frequency is lower than **Frequency for triggering of underfrequency rise power**, the inverter needs to increase the active power output to help increase the power grid frequency. In this case, set this parameter to **Enable**.	• Disable • Enable	N/A
Frequency for triggering of underfrequency rise power (Hz)	Specifies the frequency threshold of **Underfrequency rise power**.	• 50Hz: [40, 60] • 60Hz: [48, 72]	• This parameter is displayed when **Underfrequency rise power** is set to **Enable**. • When setting this parameter, ensure that the following condition is met: **Cutoff frequency of underfrequency rise power** < **Frequency for triggering of underfrequency rise power** < **Frequency for exiting of underfrequency rise power**.
Power recovery gradient of underfrequency rise (%/min)	Specifies the recovery rate of **Underfrequency rise power**.	[1, 6000]	
Cutoff frequency of underfrequency rise power (Hz)	Specifies the cutoff frequency of **Underfrequency rise power**.	• 50Hz: [40, 60] • 60Hz: [48, 72]	
Cutoff power of underfrequency rise power (%)	Specifies the cutoff power of **Underfrequency rise power**.	[0, 100]	
Frequency for exiting of underfrequency rise power (Hz)	Specifies the exit frequency of **Underfrequency rise power**.	• 50Hz: [40, 60] • 60Hz: [48, 72]	

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Time Setting

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Time zone	Specifies the time zone.	N/A	N/A
Time setting	Specifies the time.	N/A	N/A
Daylight saving time	Specifies whether to enable daylight saving time (DST).	• Disable • Enable	N/A
Offset time	Specifies the DST offset.	[-240, 240]	This parameter is displayed when **Daylight saving time** is set to **Enable**.
Start date	Specifies the DST offset start date.	[01-01, 12-31]	
Start time	Specifies the DST offset start time.	[00:00:00, 23:59:59]	
End date	Specifies the DST offset end date.	[01-02, 12-30]	
End date	Specifies the DST offset end time.	[00:00:00, 23:59:59]	
NTP time synchronization	Specifies whether to enable NTP time synchronization.	• Disable • Enable	N/A
NTP server address	Specifies the NTP server IP address or domain name.	N/A	This parameter is displayed when **NTP time synchronization** is set to **Enable**.
NTP server port	Specifies the server port.	[0, 65535]	
NTP time synchronization interval	Specifies the NTP time synchronization interval.	[1, 1440]	

Communication Configuration

Parameter	Description	Parameter	Description
Inverter WLAN settings	Changes the WLAN password for the solar inverter.	Inverter's connection to a router	When using WLAN for communication, enter the information about the connected router.

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Parameter	Description	Parameter	Description
Dongle parameter settings	If the solar inverter is configured with a Dongle, view and set communication addresses to the solar inverter.	4G	When using a 4G Dongle, enter the SIM card information.
RS485 settings	Specifies the RS485 communications parameters of the solar inverter.	Management System Configuration	Enter information about the management system to which the solar inverter connects.
Management system-1 parameters	Set information about the third-party management system to which the solar inverter connects.	-	-

NOTE

Only the SUN2000 (12KTL-25KTL)-M5 series and SUN600-(15KTL-25KTL)-ZHM0 can connect to a third-party management system.

Table 3-1 RS485 settings

Parameter	Description	Value Range
Protocol	Set the RS485 baud rate to be consistent with the baud rate of the devices on the same bus.	• 4800 • 9600 • 19200
Baud rate	The solar inverter can connect to the upper-layer management unit over the Modbus RTU, SunSpec, or AVM protocol.	• MODBUS RTU • Sunspec • AVM
Com address	Set the communications address of the SUN2000 when it connects to the upper-level management unit, which should not conflict with the addresses of other devices on the same bus.	[1, 247]

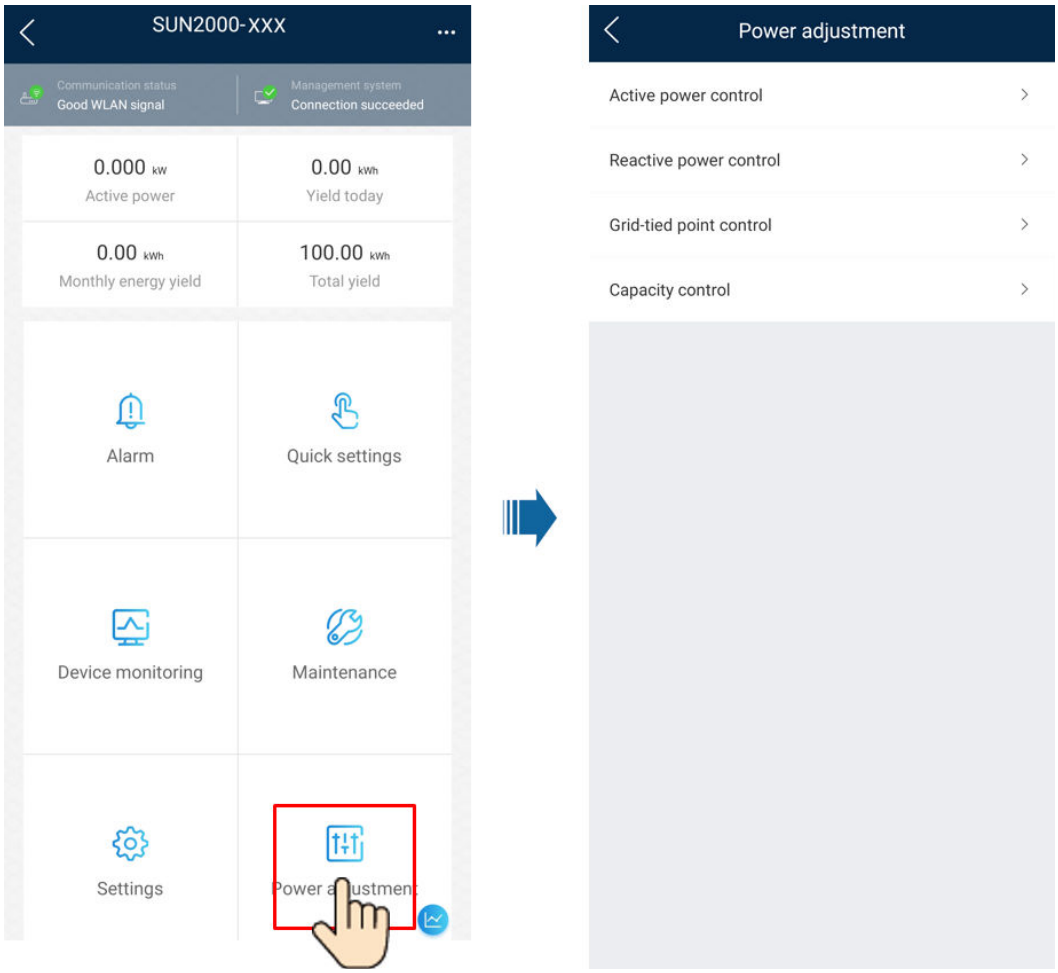
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Off-grid/grid-tied control parameters

Parameter	Settings	Value
Off-grid mode	If this parameter is enabled, the Backup Box switches to the off-grid mode when the grid fails. This parameter can be set only when the Backup Box is configured. If the Backup Box is not configured, this parameter cannot be enabled. Otherwise, an alarm is generated.	• Enable • Disabled (default
Backup power SOC	Sets the backup power SOC. In grid-tied mode, the battery does not discharge when it is discharged to the backup power SOC. When the grid fails, the battery supplies power to loads in off-grid mode until it reaches the end-of-discharge capacity.	[20%, 100%] Default value: N/A
Grid-tied/ Off- grid mode switching	If this parameter is set to Automatic switching, the system switches to the off-grid mode when the grid fails, and switches to the grid-tied mode when the grid recovers. If this parameter is set to Manual switching, you need to log in to the app and connect the inverter to enable the off-grid mode when the grid fails.	• Automatic switching (default) • Manual switching

3.7 Power Adjustment

On the home screen, tap **Power Adjustment** and set power parameters as required.



NOTE

- The UI is for reference only. The UI varies with associated devices. The actual UI prevails.
- The parameter list provided in this document includes all configurable parameters that vary with the device model and grid code. The actual screen prevails.

- For details about how to set active and reactive power control parameters, see **Power Adjustment**.
- For details about how to set the grid-tied point control parameters, see **Table 3-2**.

Table 3-2 Grid-tied Point Control Parameters

Parameter			Description
Active power	Unlimited	N/A	If this parameter is set to **Unlimited**, the output power of the solar inverter is not limited and the solar inverter can connect to the power grid at the rated power.

Parameter			Description
	Grid connection with zero power	Closed-loop controller	• When the SmartLogger1000A is connected, set this parameter to **SDongle/SmartLogger**. • When multiple solar inverters are cascaded, set this parameter to **SDongle/SmartLogger**. • When there is only one solar inverter, set this parameter to **Inverter**.
		Limitation mode	• **Total power** indicates export limitation of the total power at the grid-tied point. • **Single-phase power** indicates export limitation of the power in each phase at the grid-tied point. (Note: COUNTIS E43 does not apply to this scenario.)
		Power adjustment period	Specifies the shortest interval for a single export limitation adjustment.
		Maximum protection time	Specifies the time for detecting power meter data. If the Dongle does not detect any power meter data within the preset time, the Dongle delivers the preset value of the **Fail-safe power threshold** to the solar inverter for protection.
		Power control hysteresis	Specifies the dead zone for adjusting the inverter output power. If the power fluctuation is within the power control hysteresis, the power is not adjusted.
		Communication disconnection fail-safe	In the solar inverter export limitation scenario, if this parameter is set to **Enable**, the solar inverter will derate according to the active power derating percentage when the communication between the solar inverter and the Dongle is disconnected for a period longer than **Communication disconnection detection time**.
		Communication disconnection detection time	Specifies the time for determining the communication disconnection between the solar inverter and the Dongle. This parameter is displayed only when **Communication disconnection fail-safe** is set to **Enable**.
		Active power output limit for fail-safe	Specifies the derating value of the solar inverter active power by percentage. If the Dongle does not detect any power meter data or the communication between the Dongle and the solar inverter is disconnected, the Dongle delivers the derating value of the solar inverter active power by percentage.

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Parameter			Description
	Grid connection with limited power (kW)	Closed-loop controller	• For a single inverter, set **Closed-loop controller** to **Inverter** or **SDongle/SmartLogger**. – When **Closed-loop controller** is set to **Inverter**, the duration of export limitation control is less than 2s. – When **Closed-loop controller** is set to **SDongle/SmartLogger**, the duration of export limitation is less than 5s. • For multiple inverters, **Closed-loop controller** can only be set to **SDongle/SmartLogger**. The duration of export limitation control is less than 5s.
		Limitation mode	• **Total power** indicates export limitation of the total power at the grid-tied point. • **Single-phase power** indicates export limitation of the power in each phase at the grid-tied point. (Note: COUNTIS E43 does not apply to this scenario.)
		PV plant capacity	Specifies the total maximum active power in the solar inverter cascading scenario.
		Maximum grid feed-in power (kW)	Specifies the maximum active power transmitted from the grid-tied point to the power grid.
		Power adjustment period	Specifies the shortest interval for a single export limitation adjustment.
		Maximum protection time	Specifies the time for detecting power meter data. If the Smart Dongle does not detect any power meter data within the preset time, the Smart Dongle delivers the preset value of the **Fail-safe power threshold** to the inverter for protection.
		Power control hysteresis	Specifies the dead zone for adjusting the inverter output power. If the power fluctuates within the power control hysteresis, the power is not adjusted.
		Communication disconnection fail-safe	In the inverter export limitation scenario, if this parameter is set to **Enable**, the inverter will derate according to the active power derating percentage when the communication between the inverter and the Smart Dongle is disconnected for a period longer than **Communication disconnection detection time**.
		Communication disconnection detection time	Specifies the time for determining the communication disconnection between the inverter and the Smart Dongle. This parameter is displayed when **Communication disconnection fail-safe** is set to **Enable**.

Parameter			Description
		Active power output limit for fail-safe	Specifies the derating value of the inverter active power by percentage. If the Smart Dongle does not detect any power meter data or the communication between the Smart Dongle and the inverter is disconnected, the Smart Dongle delivers the derating value of the inverter active power by percentage.
	Grid connection with limited power (%)	Closed-loop controller	• For a single inverter, set **Closed-loop controller** to **Inverter** or **SDongle/SmartLogger**. – When **Closed-loop controller** is set to **Inverter**, the duration of export limitation control is less than 2s. – When **Closed-loop controller** is set to **SDongle/SmartLogger**, the duration of export limitation is less than 5s. • For multiple inverters, **Closed-loop controller** can only be set to **SDongle/SmartLogger**. The duration of export limitation control is less than 5s.
		Limitation mode	• **Total power** indicates export limitation of the total power at the grid-tied point. • **Single-phase power** indicates export limitation of the power in each phase at the grid-tied point. (Note: COUNTIS E43 does not apply to this scenario.)
		PV plant capacity	Specifies the total maximum active power in the inverter cascading scenario.
		Maximum grid feed-in power (%)	Specifies the percentage of the maximum active power of the grid-tied point to the PV plant capacity.
		Power adjustment period	Specifies the shortest interval for a single export limitation adjustment.
		Maximum protection time	Specifies the time for detecting power meter data. If the Smart Dongle does not detect any power meter data within the preset time, the Smart Dongle delivers the preset value of the **Fail-safe power threshold** to the inverter for protection.
		Power control hysteresis	Specifies the dead zone for adjusting the inverter output power. If the power fluctuates within the power control hysteresis, the power is not adjusted.
		Communication disconnection fail-safe	In the inverter export limitation scenario, if this parameter is set to **Enable**, the inverter will derate according to the active power derating percentage when the communication between the inverter and the Smart Dongle is disconnected for a period longer than **Communication disconnection detection time**.

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Parameter			Description
		Communication disconnection detection time	Specifies the time for determining the communication disconnection between the inverter and the Smart Dongle. This parameter is displayed when **Communication disconnection fail-safe** is set to **Enable**.
		Active power output limit for fail-safe	Specifies the derating value of the inverter active power by percentage. If the Smart Dongle does not detect any power meter data or the communication between the Smart Dongle and the inverter is disconnected, the Smart Dongle delivers the derating value of the inverter active power by percentage.
Reactive power	Power factor closed-loop control	Target power factor	Specifies the target power factor of the power meter.
		Reactive power adjustment period	Specifies the interval for sending adjustment commands.
		Reactive power adjustment deadband	Specifies the adjustment power factor precision.
		Fail-safe power factor	When the communication between the SDongle/SmartLogger, power meter, and solar inverter is interrupted, the solar inverter outputs power based on this threshold.
		Communication disconnection fail-safe	When this parameter is set to **Enable**, and the communication between the solar inverter and the SDongle/SmartLogger is interrupted for a certain period (set by **Communication disconnection detection time**), the solar inverter outputs power based on **Fail-safe power**.
		Communication disconnection detection time	Specifies the protection duration to determine whether the communication between the SDongle/SmartLogger and the solar inverter is interrupted. This parameter is displayed only when **Communication disconnection fail-safe** is set to **Enable**.
	No Output	N/A	If this parameter is set to **No Output**, no parameter is available.

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NOTE

The duration for export limitation control is as follows:

- For a single solar inverter, set **Closed-loop controller** to **Inverter** or **SDongle/SmartLogger**.
  - When **Closed-loop controller** is set to **Inverter**, the duration of export limitation control is less than 2s.
  - When **Closed-loop controller** is set to **SDongle/SmartLogger**, the duration is less than 5s if the controller is the SDongle. The duration is less than 2s if the controller is the SmartLogger.
- For multiple solar inverters, **Closed-loop controller** can only be set to **SDongle/SmartLogger**.
  - The duration is less than 5s if the controller is the SDongle.
  - The duration is less than 2s if the controller is the SmartLogger.

- Battery Control Parameters

Parameter	Description	Value Range
Working mode	For details, see the description on the App screen.	• Maximum self-consumption • Time-of-use • Fully fed to grid
Maximum charge power (kW)	Retain this parameter to the maximum charge power. Additional configuration is not required.	• Charge: [0, Maximum charge power]
Maximum discharge power (kW)	Retain this parameter to the maximum discharge power. Additional configuration is not required.	• Discharge: [0, Maximum discharge power]
End-of-charge SOC (%)	Set the charge cutoff capacity.	90%–100%
End-of-discharge SOC (%)	Set the discharge cutoff capacity.	0%–20% (When no PV module is configured or the PV modules have no voltage for 24 hours, the minimum value is 15%.)
Charge from grid	If **Charge from grid** function is disabled by default, comply with the grid charge requirements stipulated in local laws and regulations when this function is enabled.	• Disable • Enable
Grid charge cutoff SOC	Set the grid charge cutoff SOC.	[20%, 100%]

- Capacity Control Parameters (Peak Shaving)

Parameter	Description	Range
Capacity control	1. Before enabling **Capacity control**, set **Charge from grid** to **Enable**. 2. Before disabling **Charge from grid**, set **Capacity control** to **Disable**.	• Disable • Active capacity limit
Backup power SOC for peak shaving (%)	The value of this parameter affects the peak shaving capability. A larger value indicates stronger peak shaving capability.	[0.0, 100.0] Backup power SOC for peak shaving > Backup power SOC (when BackUp is enabled) > End-of-discharge SOC
Start date	• Set the peak power range based on the start time and end time. The peak power is configured based on electricity prices in different time segments. You are advised to set the peak power to a low value when the electricity price is high. • A maximum of 14 time segments are allowed.	-
End dete		
Peak power (kW)		[0.000, 1000.000]

NOTE

- The capacity control function is unavailable when the energy storage working mode is set to **Fully fed to grid**.
- When capacity control has been enabled, you must first disable capacity control and then set the energy storage working mode to **Fully fed to grid**.

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4 Operations on the Screen for Connecting to the Commercial Solar Inverter

NOTICE

- The figures and data displayed in this chapter are for reference only.
- The parameters displayed on the screen vary according to the solar inverter model connected to the app.
- The 1000 V and 1500 V solar inverters have the maximum input voltages of 1000 V and 1500 V respectively. The 1100 V solar inverter refers to the one with the maximum input voltage of 1100 V or SUN2000-33KTL-US/36KTL-US/40KTL-US. The maximum input voltage can be queried from the product nameplate or the user manual.
- Delivering a reset, factory reset, shutdown, or upgrade command to the solar inverters may cause power grid connection failure, which affects the energy yield.
- Only professionals are allowed to set the grid parameters, protection parameters, feature parameters, power adjustment parameters, and grid-tied point control parameters of the solar inverters. If the grid parameters, protection parameters, and feature parameters are incorrectly set, the solar inverters may not connect to the power grid. If the power adjustment parameters and grid-tied point control parameters are incorrectly set, the solar inverters may not connect to the power grid as required. In these cases, the energy yield will be affected.

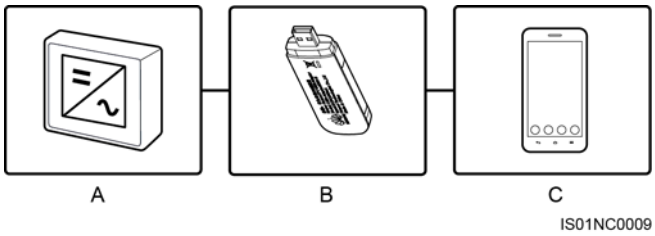
4.1 Connection Modes

After the DC or AC side of a solar inverter is energized, the app can connect to the solar inverter in two methods:

1. Connect over a WLAN/Bluetooth module.

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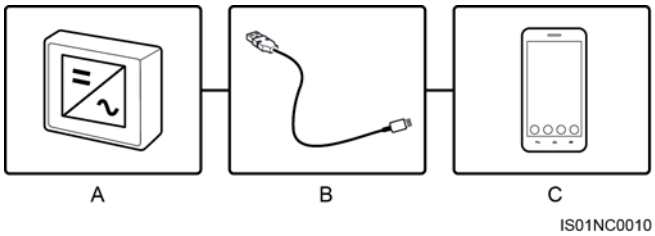
Figure 4-1 WLAN/Bluetooth connection



(A) Solar inverter (B) WLAN/Bluetooth module (C) Mobile phone

2. Connect over a USB data cable.

Figure 4-2 USB data cable connection



(A) Solar inverter (B) USB data cable (C) Mobile phone

4.2 Required Accessories

Mobile Phone

- Mobile phone operating system: Android 4.4 or later
- Recommended phone brands: Huawei and Samsung
- The mobile phone supports the access to the Internet over a web browser.
- WLAN/Bluetooth supported

WLAN/Bluetooth Module

Purchase a Bluetooth module or WLAN module that matches the solar inverter. A Bluetooth module or a WLAN module purchased from any other source may not support communication between the app and the solar inverter.

Table 4-1 WLAN/Bluetooth module model

Model	Module	Item Code	Purchased From
USB-Adapter2000-C	WLAN module	02312MCK	Can be purchased from Huawei
USB-Adapter2000-B	Bluetooth module	02311NEA	
BF4030	Bluetooth module	06080358	

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USB Data Cable

The USB data cable is delivered with the phone.

NOTE

The port type of the USB data cable connected to the solar inverter is USB 2.0.

4.3 User Operation Permissions

The user accounts that can log in to the app are classified into common users, special users, and advanced users. You can set different user permissions based on the responsibilities of PV plant operation personnel.

- Common user: Has the permission of viewing data and setting user parameters.
- Advanced user: Has the permission of viewing data, setting functional parameters, and maintaining devices.
- Special user: Has the permissions of viewing solar inverter data, setting grid related parameters, and maintaining devices (including starting and shutting down the solar inverter, restoring factory defaults, and upgrading devices).

Figure 4-3 Operation permissions of common users

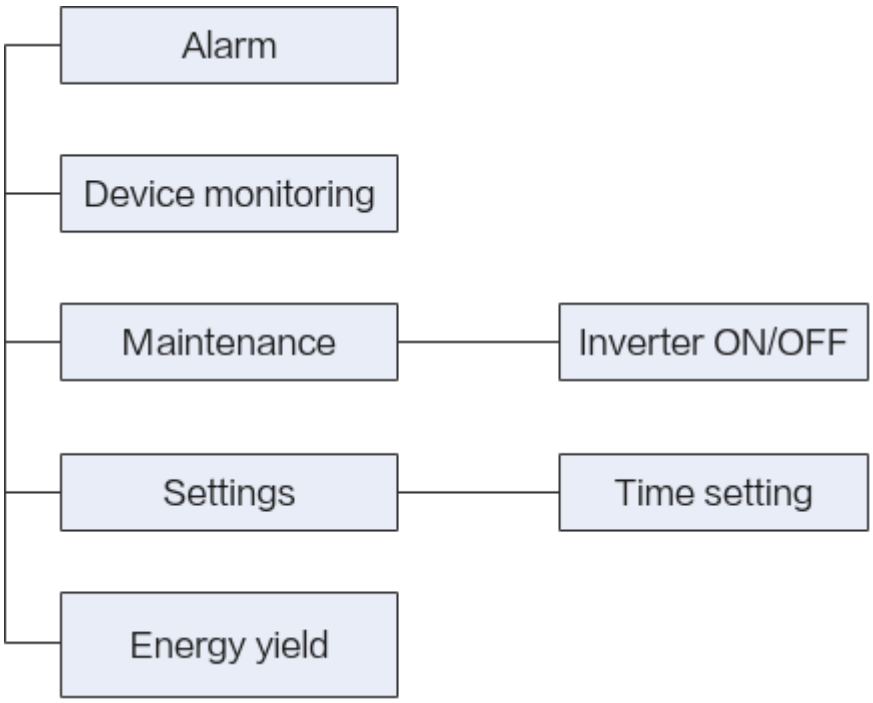
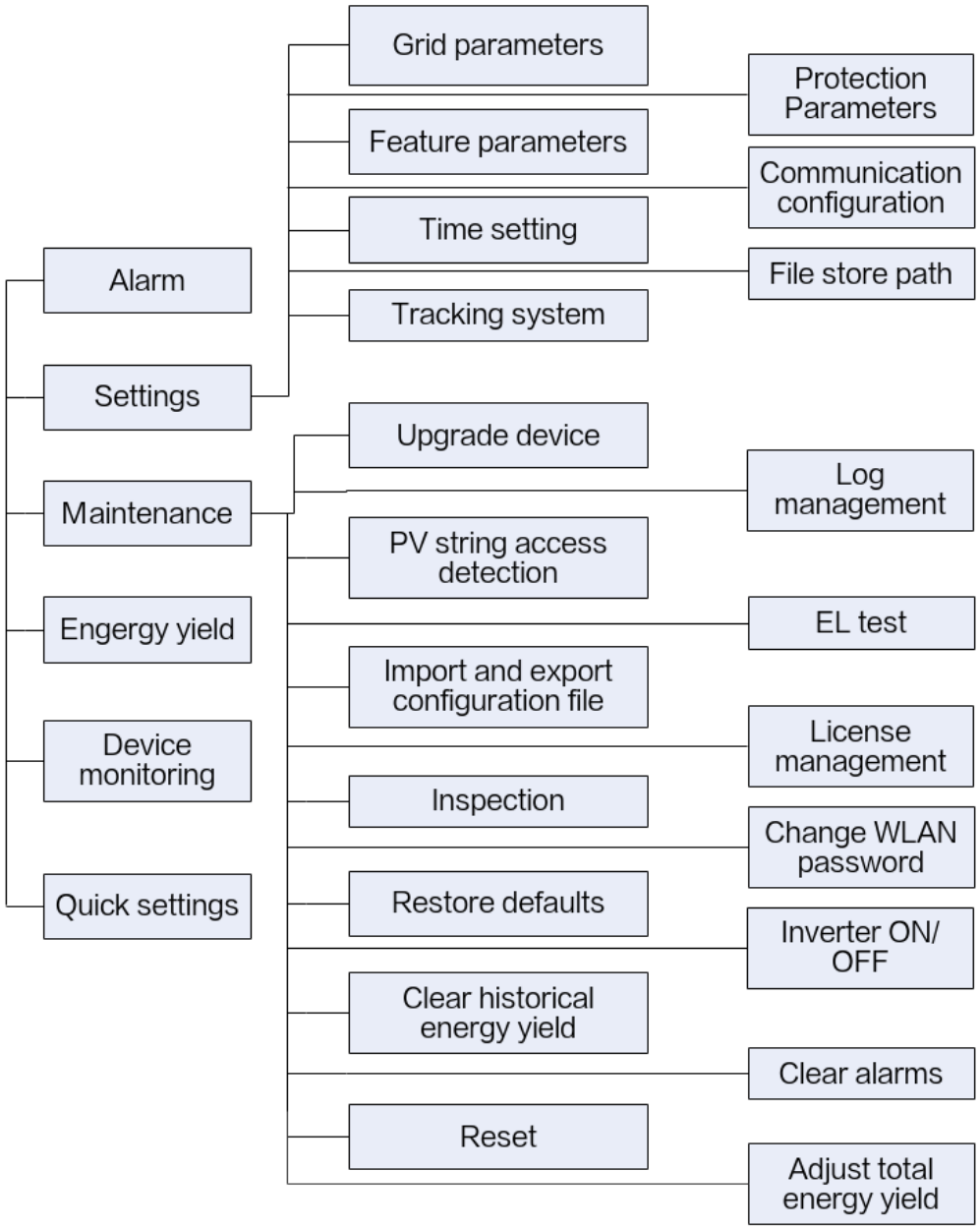


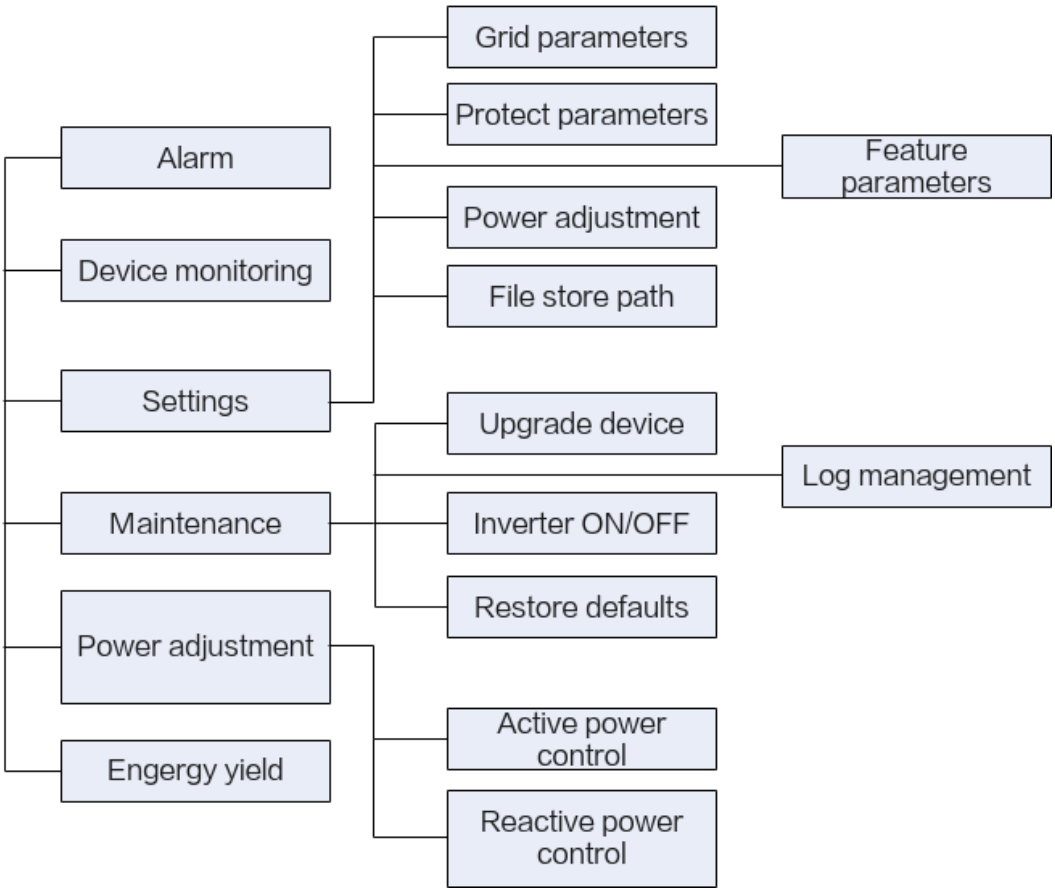
Figure 4-4 Operation permissions of advanced users



NOTE

- **Track system** is available for SUN2000 V200R001C91 and SUN2000 V200R001C93 of 1000 V solar inverters, all 1100 V solar inverters, and all 1500 V solar inverters.
- **File store path** is displayed only for the Android system.

Figure 4-5 Operation permissions of special users



4.4 Login the SUN2000 APP

Prerequisites

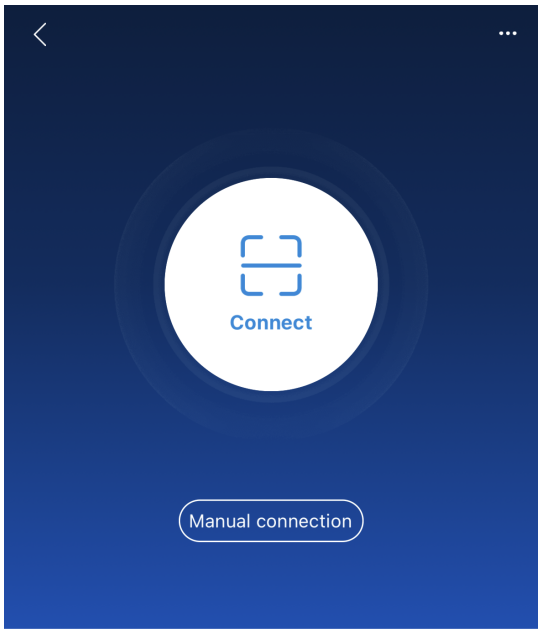
- The DC or AC side of the solar inverter has been energized.
- Connect over a WLAN/Bluetooth module:
  a. The WLAN/Bluetooth module is connected to the **USB** port at the bottom of the solar inverter.
  b. The WLAN/Bluetooth function is enabled on the mobile phone.
  c. Keep the mobile phone within 5 m from the solar inverter. Otherwise, communication between them would be affected.
- Connect over a USB data cable:
  a. The USB data cable is connected from the USB port at the bottom of the solar inverter to the USB port on the mobile phone.
  b. The USB data cable has been successfully connected and **Connected to USB Accessory** is displayed on the screen. Otherwise, the connection is invalid.

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Procedure

Step 1 Connect the solar inverter.

Figure 4-6 Connect



- Code scanning: Tap **Connect** to access the scanning screen, place the QR code or bar code of the WLAN/Bluetooth module in the scan frame. The device will be automatically connected after the code is identified.
- Manual connection: Tap **Manual Connection** and select a connection mode.

Figure 4-7 Manual connection



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- Select **WLAN** and connect to the corresponding WLAN in the WLAN connection list of the APP. The initial name of the WLAN hotspot is **Adapter-WLAN module SN**, and the initial password is **Changeme**.

  NOTICE

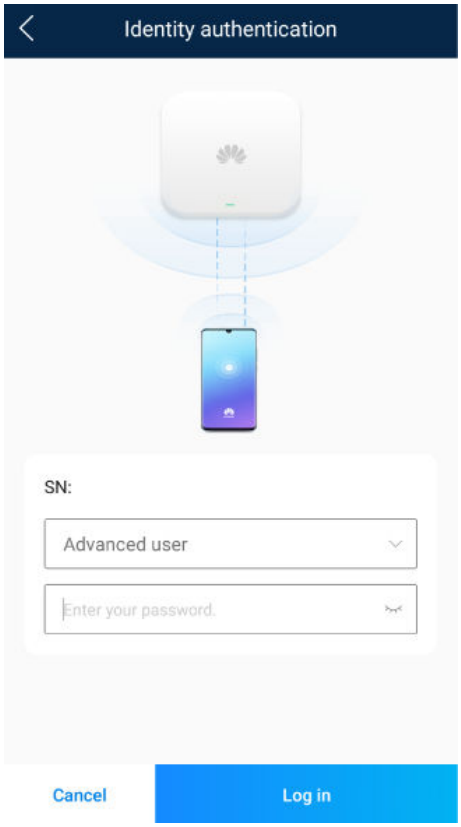
  - Use the initial password upon first power-on and change it immediately after login. To ensure account security, change the password periodically and keep the new password in mind. Not changing the initial password may cause password disclosure. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, the user is liable for any loss caused to the PV plant.
  - If the **This WLAN network has no Internet access. Connect anyway?** message is displayed when you connect to the built-in WLAN, tap **CONNECT**. Otherwise, you cannot log in to the system. The actual UI and messages may vary with mobile phones.

- Select **Bluetooth**, and tap **Search for device**. After a Bluetooth device is found, select the target Bluetooth device, and set up a connection. If the Bluetooth module is USB-Adapter2000-B, the connected Bluetooth device is named after **last 8 digits of the SN barcode + HWAPP**.
- Select **USB**, and tap **OK** to allow the app to access the USB accessory. After you select **Use by default for this USB accessory**, the message will not appear if you log in to the app again without removing the USB data cable.

Step 2 Select a login user and enter the password.

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Figure 4-8 Login



NOTICE

- For the initial power-on, set the password as prompted and then log in to the system. If not prompted, log in with the initial password **00000a**.
- To ensure account security, change the password periodically and keep the new password in mind. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, the user is liable for any loss caused to the PV plant.
- During the login, if five consecutive invalid password entries are made (the interval between two consecutive entries is less than 2 minutes), the account will be locked for 10 minutes. The password should consist of six characters.

Step 3 After successful login, the **Quick Settings** or **Function Menu** screen is displayed.

NOTICE

- If you log in to the SUN2000 app after the device powers on for the first time or factory defaults are restored, the **Quick Settings** screen will be displayed. If you do not set the basic parameters for the solar inverter on the **Quick Settings** screen, the screen is still displayed when you log in next time.
- To set the basic parameters on the **Quick Settings** screen, switch to **Advanced User**. When you log in as **Common User** or **Special User**, enter the password of **Advanced User** in the dialog box that is displayed. After you confirm the password, go to the **Quick Settings** screen.

Table 4-2 Quick settings

Parameter	Description
Grid code	Set this parameter based on the grid code of the country or region where the SUN2000 is used and the SUN2000 application scenario.
Date	Specifies the system date.
Time	Specifies the system time.
Baud rate (bps)	Set the RS485 baud rate to be consistent with the baud rate of the devices on the same bus.
RS485 protocol	• The solar inverter can connect to the upper-layer management unit over the Modbus RTU, SunSpec, or AVM protocol. • When the solar inverter connects to the support tracking system, only the Modbus RTU protocol is supported.
Com address	Set the communications address of the SUN2000 when it connects to the upper-level management unit, which should not conflict with the addresses of other devices on the same bus.

----End

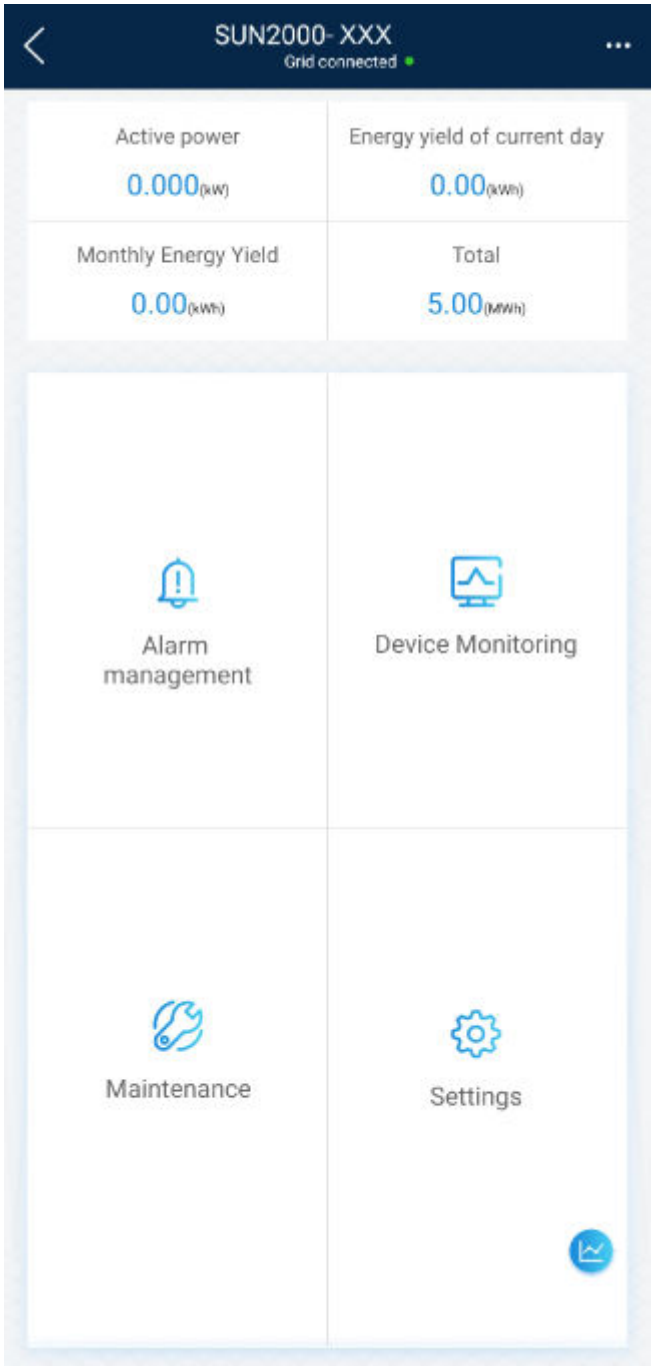
4.5 Screen Operations (Common User)

4.5.1 Query

Procedure

Step 1 After logging in to the app, you can view the active power and energy yield of solar inverters on the home screen.

Figure 4-9 Home screen



Step 2 Tap **Alarm** or **Device Monitoring** to view active alarms, historical alarms, and running information of the solar inverters.

You can view the following information on the **alarm** screen:

- Tap an alarm record and view the alarm details.
- Swipe right or left on the screen or tap either **Active Alarm** or **Historical Alarm** to display a list of active alarms or historical alarms.

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NOTE

- Tap **Sort by generated time** to set the alarm sorting mode for active alarms or historical alarms.
- Tap  to set a time criterion. The historical alarms generated within the time segment are displayed.

- Select the alarms that can be manually cleared, and tap **Delete** on the right of the alarm to manually clear the alarms.

NOTE

- Alarms that have been manually cleared can be viewed on the **Historical Alarm** screen.
- Only the **AFCI Self-Check Failure** and **DC Arc Fault** alarms can be manually cleared. Only the products whose technical specifications contain AFCI supports manual alarm clearance.

----End

4.5.2 Settings

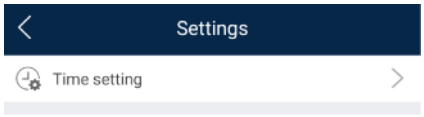
Context

Due to permission restrictions, common users can set time parameters only for the solar inverters.

Procedure

Step 1 On the home screen, choose **Settings** > **Time setting** and set the system time.

Figure 4-10 Time settings (common user)



NOTE

- For a solar inverter that supports DST, if an advanced user enables DST, a common user can view DST data.
- When an advanced user enables NTP time synchronization, common users can view the related data.

----End

4.5.3 Maintenance

4.5.3.1 System Maintenance

Context

Because of permission restriction, common users can only turn on or off solar inverters.

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Figure 4-11 Maintenance



Step 2 Tap  next to **Inverter ON/OFF** to perform the operation.

Step 3 Enter the password for logging in to the app, and tap **OK**.

----End

4.5.3.2 Feedback

Context

Users can provide feedback in text, pictures, and files.

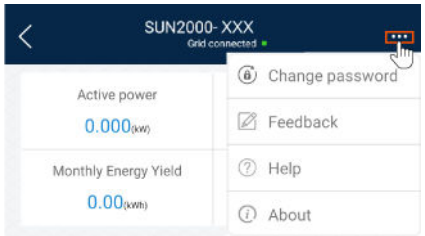
NOTE

Do not add private data.

Procedure

Step 1 Choose  > **Feedback** in the upper-right corner of the home screen.

Figure 4-12 Feedback



Step 2 Tap **Specify the type** and select **Feedback** or **Suggestion**.

Step 3 Briefly describe the problem that you encounter in the **Description** column.

Step 4 (Optional) Tap  to upload pictures.

Step 5 (Optional) Tap  to upload logs. Select device logs or app logs as required.

Step 6 Tap **Submit**.

----End

4.5.3.3 Help

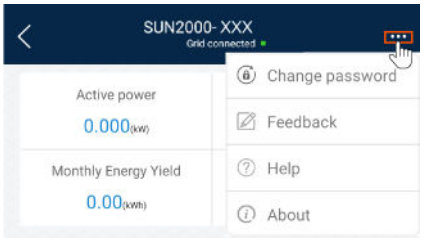
Context

If you have any questions when using an involved device or the app, search for solutions in the help information.

Procedure

Step 1 Choose  > **Help** in the upper-right corner of the home screen.

Figure 4-13 Help



Step 2 Specify your question. A solution will be displayed.

----End

4.5.3.4 About

Context

You can query the app version, connected product model, SN, part number, firmware version, software version, technical support website, privacy policy (displayed only on the SUN2000 app), customer service contact information, and open source software policy.

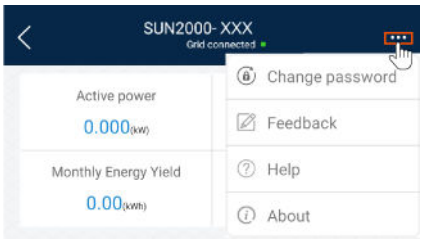
NOTE

- When the app starts for the first time after being downloaded or updated, the privacy policy is displayed. You can use the app only after agreeing to the privacy policy, and the privacy policy will no longer appear. If you do not agree to the privacy policy, the app exits, and the privacy policy is still displayed when you start the app next time until you agree to the privacy policy.
- You can revoke the agreed privacy policy.

Procedure

Step 1 In the upper-right corner of the home screen, choose ••• > **About** to view the app version, connected product model, SN, part number, firmware version, software version, and technical support website.

Figure 4-14 About



Step 2 Tap **Privacy policy**, **Customer service contact information**, or **Open source software policy** to view the privacy policy, customer service contact information, and open source software policy.

----End

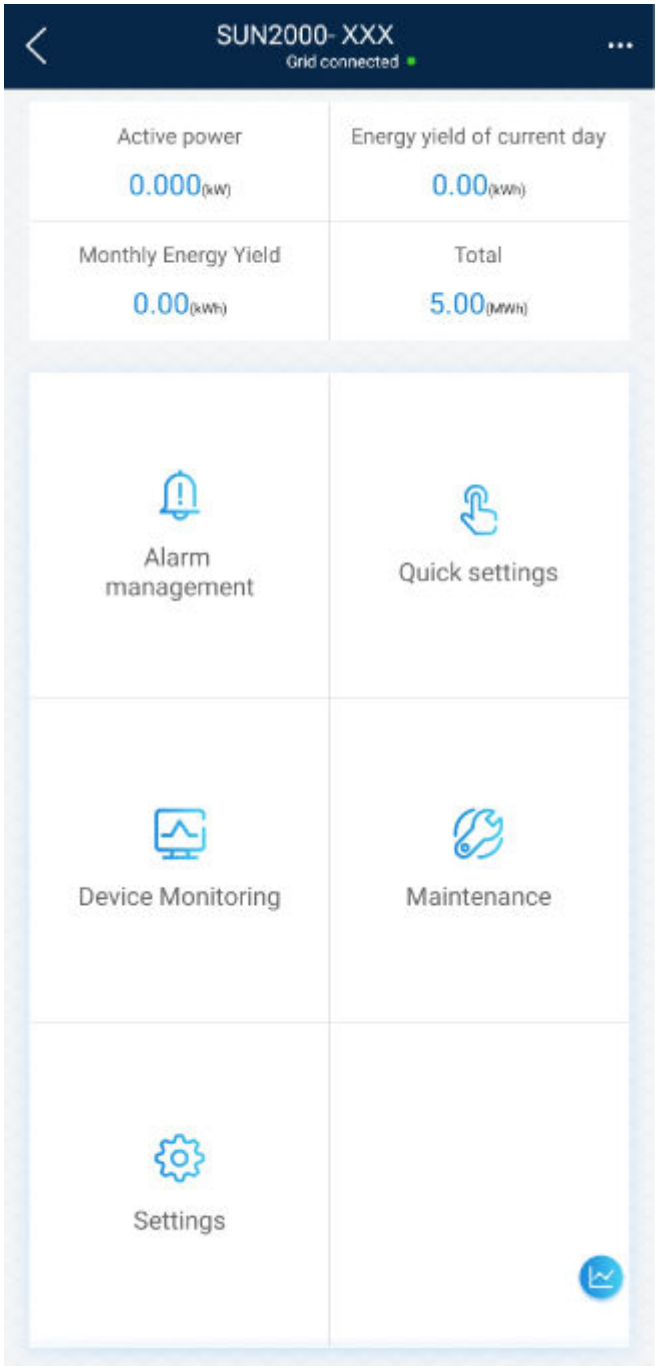
4.6 Screen Operations (Advanced User)

4.6.1 Query

Procedure

Step 1 After logging in to the app, you can view the active power and energy yield of solar inverters on the home screen.

Figure 4-15 Home screen



Step 2 Tap **Alarm** or **Device Monitoring** to view active alarms, historical alarms, and running information of the solar inverters.

You can view the following information on the **Alarm** screen:

- Tap an alarm record and view the alarm details.
- Swipe right or left on the screen or tap either **Active Alarm** or **Historical Alarm** to display a list of active alarms or historical alarms.

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NOTE

- Tap **Sort by generated time** to set the alarm sorting mode for active alarms or historical alarms.
- Tap  to set a time criterion. The historical alarms generated within the time segment are displayed.

- Select the alarms that can be manually cleared, and tap **Delete** on the right of the alarm to manually clear the alarms.

NOTE

- Alarms that have been manually cleared can be viewed on the **Historical Alarm** screen.
- Only the **AFCI Self-Check Failure** and **DC Arc Fault** alarms can be manually cleared. Only the products whose technical specifications contain AFCI supports manual alarm clearance.

----End

4.6.2 Quick Settings

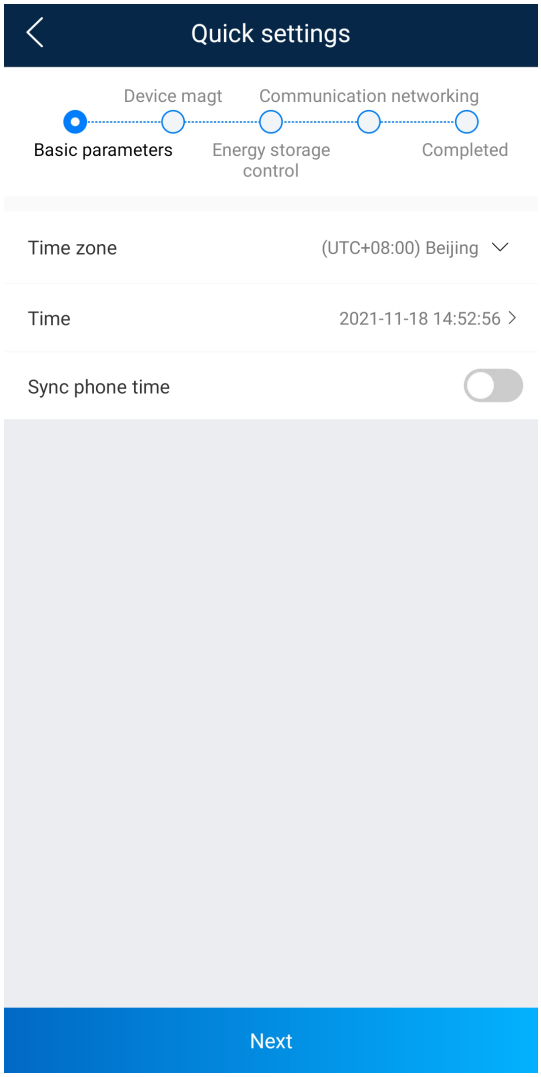
Context

Due to permission restrictions, only advanced users can quickly set up the solar inverter.

Procedure

Step 1 On the home screen, tap **Quick Settings**.

Figure 4-16 Quick settings



NOTE

The screenshot of **Quick settings** provided in this document is for reference only. The actual screens prevail.

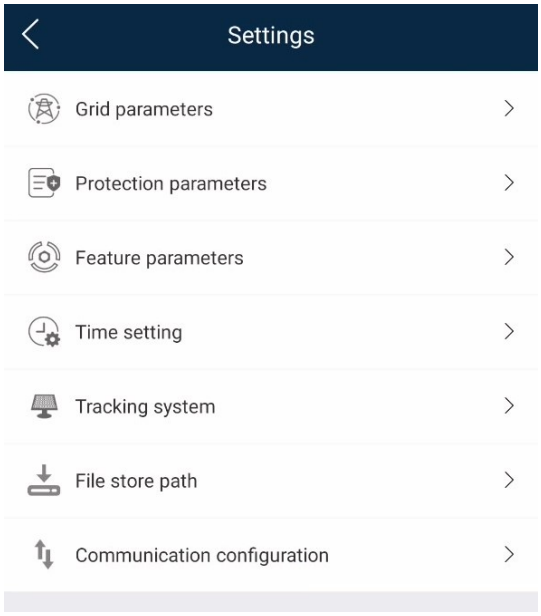
Step 2 Set parameters as prompted.

----End

4.6.3 Settings

On the home screen, an advanced user can tap **Settings** to set power grid, protection, and feature parameters for the solar inverter.

Figure 4-17 Settings (advanced user)



NOTICE

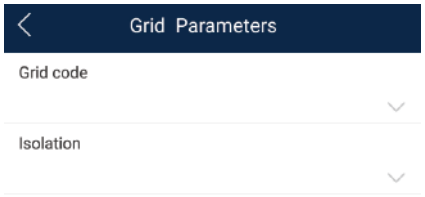
- The configurable solar inverter parameters vary with the solar inverter model and grid code. The displayed parameters prevail. The parameter list provided in this section includes all configurable parameters.
- The parameter ranges vary with the device model. The listed ranges are for reference only.
- The parameter names, value ranges, and default values are subject to change. The actual display prevails.

4.6.3.1 Setting Grid Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Grid Parameters** to access the parameter setting screen.

Figure 4-18 Grid Parameters (advanced user)



For details about how to set the parameters, see **14.2 Commercial Smart Inverters Parameters**.

----End

4.6.3.2 Setting Protection Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Protection Parameters** to access the parameter setting screen.

Figure 4-19 Protection parameters (advanced user)



For details about how to set the parameters, see **14.2 Commercial Smart Inverters Parameters**.

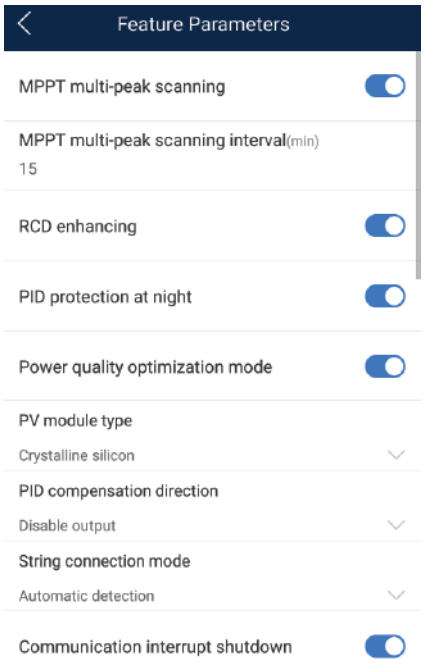
----End

4.6.3.3 Setting Feature Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Feature Parameters** to access the parameter setting screen.

Figure 4-20 Feature parameters (advanced user)



For details about how to set the parameters, see **14.2 Commercial Smart Inverters Parameters**.

----End

4.6.3.4 Time setting

Procedure

Step 1 On the home screen, choose **Settings > Time setting** and set time parameters.

Figure 4-21 Time setting (advanced user)

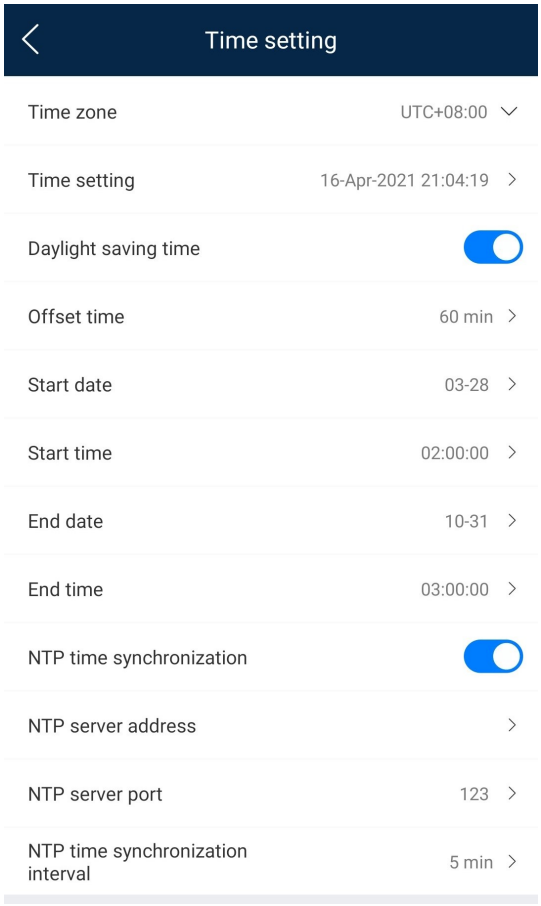


Table 4-3 Time settings

Parameter	Description
Time zone	Specifies the time zone.
Time setting	Specifies the system date and time.
Daylight saving time	Specifies whether to enable daylight saving time (DST).
Offset time	Specifies the DST offset.
Start date	Specifies the DST offset start date.
Start time	Specifies the DST offset start time.
End date	Specifies the DST offset end date.
End time	Specifies the DST offset end time.
NTP time synchronization	Specifies whether to enable NTP time synchronization.
NTP server address	Specifies the NTP server IP address or domain name.
NTP server port	Specifies the server port.
NTP time synchronization interval	Specifies the NTP time synchronization interval.

NOTE

You can set DST parameters and NTP parameters.

----End

4.6.3.5 Setting Communications Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Communication configuration** to access the parameter setting screen.

Figure 4-22 Communications parameters

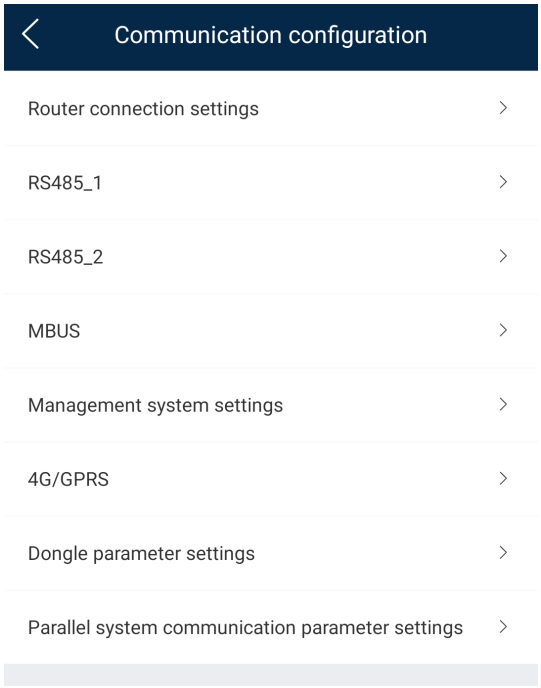


Table 4-4 Setting communications parameters

Parameter	Description
RS485_1	Set RS485 communications parameters. **RS485 CAN Resistor** is available only to the 1000 V solar inverters. This parameter is set to  by default. If signals are distorted or the communication is of poor quality because of an overlong communications cable, set the parameter to  for the last solar inverter in the daisy chain.
RS485_2	Set RS485 communications parameters. This parameter is displayed only for the solar inverters that can connect to the RS485 slave device.
MBUS	Set MBUS communications parameters. This parameter is displayed only for the solar inverters that support the MBUS function.
Ethernet	Set Ethernet parameters. **NOTE** • When **DHCP** is set to , the **IP address**, **Subnet mask**, and **Gateway** of the solar inverter are automatically allocated. • When **DHCP** is set to , you can manually set the **IP address**, **Subnet mask**, and **Gateway**.
Management system	Set management system parameters. This parameter is displayed only for the solar inverters that can connect to the SDongle. **NOTE** If **TLS encryption** is set to , data will be transmitted without being encrypted, which may pose security risks. Therefore, exercise caution when setting this parameter.
4G/GPRS	Set 4G/GPRS communications parameters. This parameter is displayed only for the solar inverters that can connect to the SDongle.
WLAN	Setting WLAN communications parameters This parameter is displayed only for the solar inverters that can connect to the SDongle.
Dongle	Set Dongle communications parameters. This parameter is displayed only for the solar inverters that can connect to the SDongle.

NOTE

You can check whether the solar inverter supports the MBUS or SDongle function by viewing the product nameplate on it.

----End

4.6.3.6 Setting a Tracking System

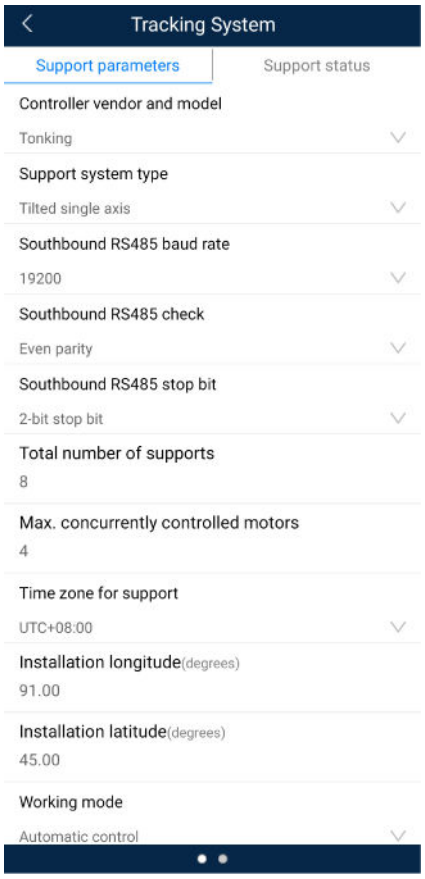
Context

This function is available to the 1000 V (SUN2000 V200R001C91 and SUN2000 V200R001C93 only), 1100 V, and 1500 V solar inverters. The support parameters vary depending on the controller manufacturer. Set parameters based on site requirements. The following screenshots are based on the same scenario.

Procedure

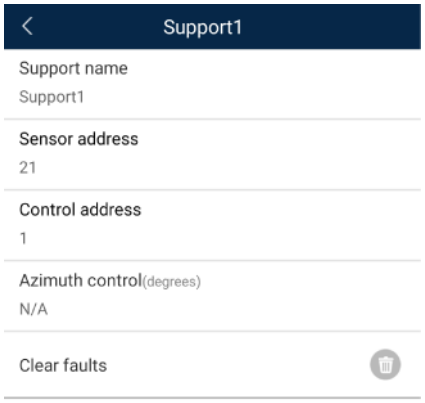
Step 1 On the home screen, choose **Settings** > **Tracking System** to access the support parameter setting screen.

Figure 4-23 Tracking system



Step 2 Swipe left on the screen to access the support status screen, tap a support, and set parameters for the support.

Figure 4-24 Support



----End

4.6.3.7 Setting a File Save Path

Prerequisite

This function is available only on the Android system.

Context

You can modify the save path for operation logs and solar inverter logs and export logs from the path.

Procedure

Step 1 On the home screen, choose **Settings** > **File Save Path** to access the path setting screen.

Step 2 Tap **File save path** to set a file save path.

----End

4.6.4 Power Adjustment

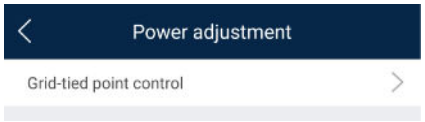
Context

Due to permission restrictions, advanced users support the setting of power adjustment, which can set the grid-connected control parameters of the solar inverter.

Procedure

Step 1 On the home screen, tap **Power Adjustment**.

Figure 4-25 Power adjustment



Step 2 Set power parameters as required.

For details about how to set the parameters, see **14.2 Commercial Smart Inverters Parameters**.

NOTE

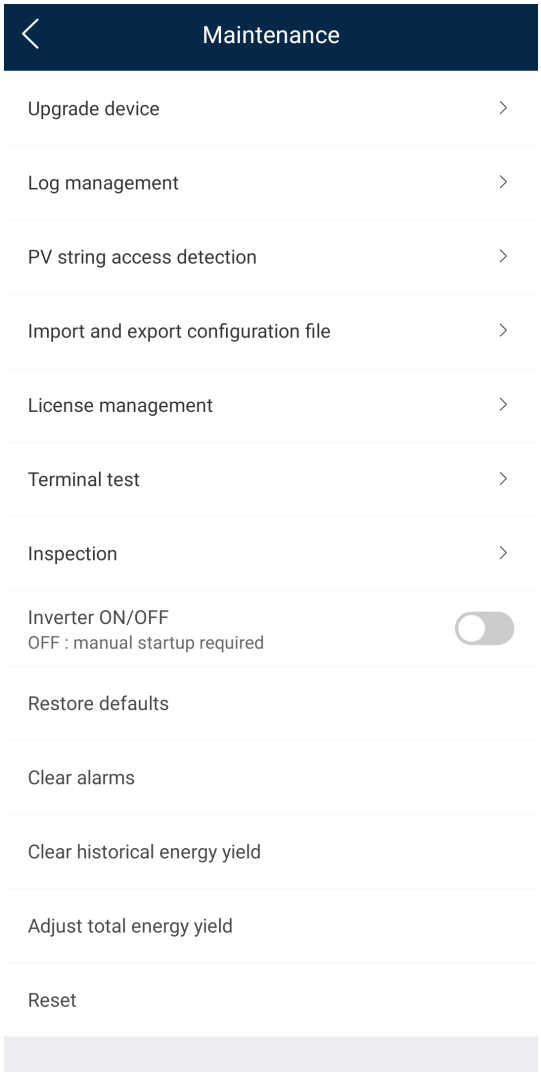
When setting the Grid-tied point control parameters, you need to enter the APP login password.

----End

4.6.5 Maintenance

An advanced user can tap **Maintenance** on the home screen to inspect, turn on, or turn off the solar inverters and detect the DC input.

Figure 4-26 Maintenance screen (advanced user)



4.6.5.1 Device Inspection

Context

After a solar inverter is put into use, it should be inspected periodically to detect any potential risks and problems.

Procedure

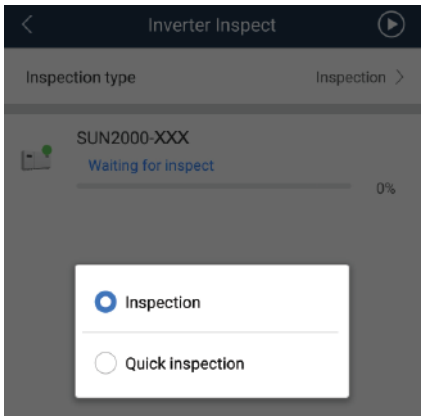
Step 1 On the home screen, choose **Maintenance** > **Inspection** to access the inspection screen.

Figure 4-27 Device inspection



Step 2 Choose **Inspection type**, tap  in the upper-right corner of the screen to start solar inverter inspection.

Figure 4-28 Inverter Inspect



----End

4.6.5.2 License Management

Context

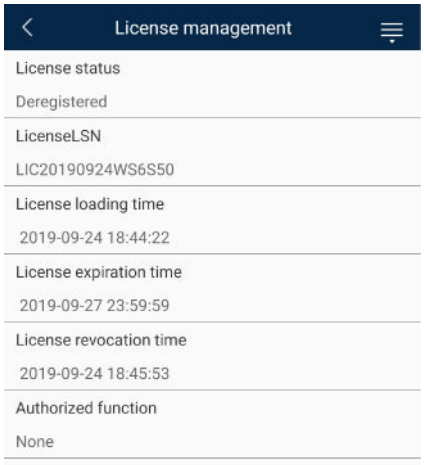
The **License management** screen allows an advanced user to view the solar inverter certificate and obtain the status of the certificate.

Procedure

Step 1 On the home screen, choose **Maintenance** > **License management** to access the license management screen.

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Figure 4-29 License management



NOTE

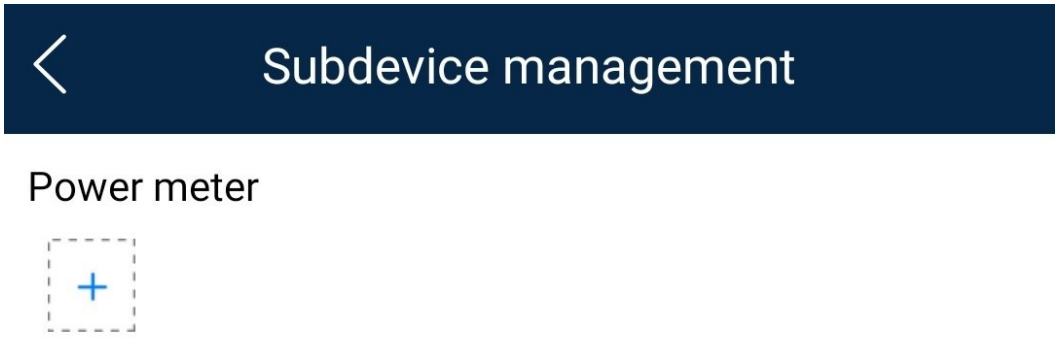
- When **License status** is **Normal**, you can revoke the license through the drop-down list box in the upper-right corner.
- When **License status** is **Deregistered**, you can export and view the license revocation code.
- When **License status** is **No license**, you can load the license through the drop-down list box in the upper-right corner.

----End

4.6.5.3 Subdevice management

Step 1 On the home screen, choose **Subdevice management** to access the **Subdevice management** screen.

Figure 4-30 Subdevice management



- Tap **+** to add a power meter.

Parameter	Description
Model	Set this parameter to the corresponding meter model. **NOTE** – Select an appropriate power meter based on the application scenario. The device model is subject to change. The actual product prevails. – Set the power meter model correctly. Otherwise, the power meter function may be unavailable.
Device address	Set this parameter to the communication address of the power meter.
Current change ratio	– Set this parameter to **1** if the power meter uploads the primary value. – Set this parameter based on the actual transformer ratio if the power meter uploads the secondary value.

- After a power meter is added, tap it to view and modify the power meter parameters. To delete the power meter, touch and hold it.

----End

4.6.5.4 PV String Access Detection

Context

- PV string access detection applies to large-scale commercial ground PV plants with PV strings facing the same direction.
- In AC or DC power limiting scenarios:
  - If the PV string access type has not been identified, **String Access Detection** will be displayed as **Not connected**. The PV string access type can be identified only when the solar inverters restore to the non-power limiting state and the current of all connected PV strings reaches the startup current.
  - If the PV string access type has been identified, when a certain PV string connected to the 2-in-1 terminals is lost, no alarm will be generated. If a certain PV string connected to the 2-in-1 terminals is restored, the access type cannot be identified. You can determine whether both 2-in-1 PV strings are restored only when the PV string current reaches **Startup current for 2-in-1 detection**.
- After setting the parameters, on the home screen, choose **Running Info. > Details** to check whether the PV string access status is normal.

Procedure

Step 1 On the home screen, choose **Maintenance > String Access Detection** and set PV string access detection parameters.

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Figure 4-31 String access detection

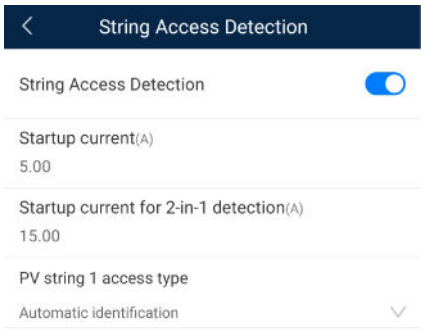


Table 4-5 PV string access detection

Parameter	Description
String Access Detection	**String Access Detection** is set to **Disable** by default. After solar inverters are connected to the power grid, set **String Access Detection** to **Enable**.
Startup current (A)	When the current of all connected PV strings reaches the preset value, the PV string access detection function is enabled. **NOTE** Startup current setting rules: • Startup current = I_{sc} (S_{tc}) x 0.6 (rounded up). For details about I_{sc} (S_{tc}), see the PV module nameplate. • Default startup current (5 A): applicable to the scenarios where the short-circuit current I_{sc} (S_{tc}) is greater than 8 A for the monocrystalline and polycrystalline PV modules.
Startup current for 2-in-1 detection (A)	When the current of a PV string reaches **Startup current for 2-in-1 detection**, the PV string is automatically identified as 2-in-1 string. You are advised to retain the default settings.
PV string *N* access type **NOTE** *N* is the DC input terminal number of the solar inverter.	Set this parameter based on the type of the PV string connected to DC input terminal *N* of the solar inverter. You are advised to retain the default value. If the value is incorrectly set, the PV string access type may be incorrectly identified and alarms may be generated by mistake for the PV string access status.

----End

4.6.5.5 Startup and Shutdown

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap  next to **Inverter ON/OFF** to perform the operation.

Step 3 Enter the password for logging in to the app, and tap **OK**.

----End

4.6.5.6 Restoring Factory Settings

Context

NOTICE

Perform this operation with caution because all configured parameters except the current date, time, baud rate, and address will be restored to their factory default values. This operation will not affect operating information, alarm records, or system logs.

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **Restore defaults** to perform the operation.

Step 3 Enter the password for logging in to the app, and tap **OK**.

----End

4.6.5.7 Performing an AFCI Self-Check

Context

The AFCI self-check function is available only to the solar inverter model marked with **-US**.

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **AFCI Self-Check** to perform the operation.

Step 3 Tap **OK**.

----End

4.6.5.8 Resetting a Solar Inverter

Context

The solar inverter automatically shuts down and restarts after reset.

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Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **Reset** to perform the operation.

Step 3 Enter the password for logging in to the app, and tap **OK**.

----End

4.6.5.9 Clearing Alarms

Context

After alarms are reset, all active alarms and historical alarms of the solar inverter connected to the app will be cleared.

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **Clear alarms** to perform the operation.

Step 3 Enter the password for logging in to the app, and tap **OK**.

----End

4.6.5.10 Clearing Historical Energy Yield Data

Context

If you clear historical energy yield data, all the historical energy yield data of the solar inverters connecting to the app will be cleared.

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **Clear historical energy yield** .

Step 3 Enter the password for logging in to the app, and tap **OK**.

----End

4.6.5.11 Importing and Exporting Configuration Files

Procedure

1. On the home screen, choose **Maintenance** > **Import and export configuration file** to access the screen for configuration file import and export.
   - Tap **Export Configuration File** to export the configuration files of the solar inverter to the phone.
   - Tap **Import Configuration File** to import the configuration files from the phone to the solar inverter.

4.6.5.12 Spot-Check

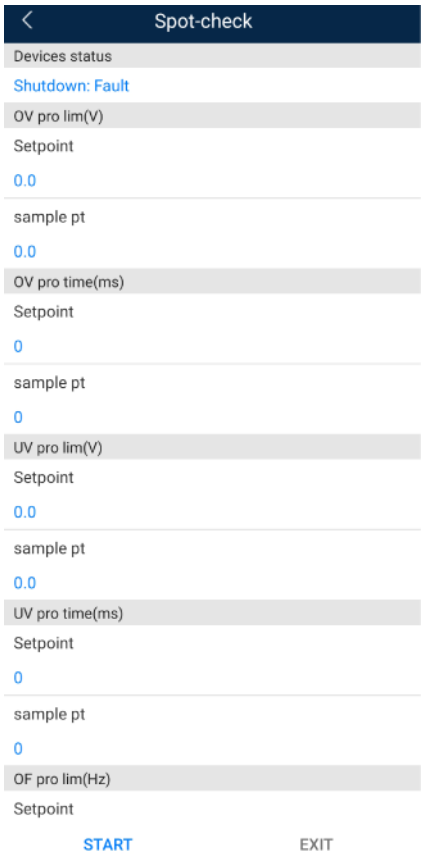
Context

You can perform spot-check for the solar inverter whose **Grid Code** is **Japan standard**.

Procedure

Step 1 On the home screen, tap **Spot-check** to access the spot-check screen.

Figure 4-32 Spot-Check



Step 2 Tap **START**.

----End

4.6.5.13 DC Input Detection

Context

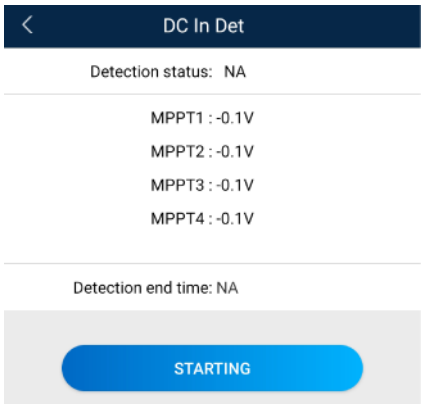
The DC input detection function is only applicable to the 1500 V solar inverter system.

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Procedure

Step 1 On the home screen, choose **Maintenance** > **Start DC Input Detection** to access the DC input detection screen.

Figure 4-33 Starting DC input detection



Step 2 Tap **Start**.

----End

4.6.5.14 Device Upgrade

Prerequisites

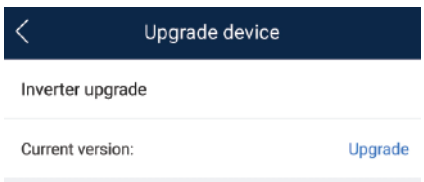
- You have obtained the upgrade package with the help of the supplier or Huawei engineers. After the downloading is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.
  a. Log in to Huawei enterprise technical support website **http://support.huawei.com/enterprise**.
  b. Browse or search for **PGP Verify**.
- In the Android system, you have copied the upgrade package has been copied to the Android/data/com.huawei.inverterapp/files/ directory on the mobile phone. The upgrade package is a .zip file.
- Certain solar inverters (only SUN2000 V500R001C00) support MBUS upgrade. The actual UI prevails.

Procedure

Step 1 On the home screen, choose **Maintenance** > **Upgrade device** .

Step 2 Access the device upgrade screen and tap **Upgrade**.

Figure 4-34 Device upgrade



Step 3 Perform operations as prompted.

----End

4.6.5.15 Log management

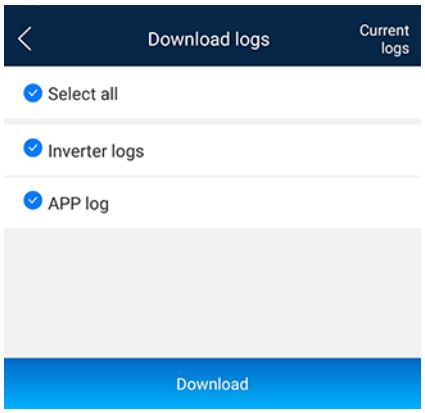
Context

You can tap **Log management** to export operation logs, as well as alarm records and energy yield information of the solar inverter from the mobile phone.

Procedure

Step 1 On the home screen, choose **Maintenance** > **Log management** to access the log download screen.

Figure 4-35 Downloading logs



Step 2 You can download **Inverter logs** and **APP log**.

NOTE

- By default, Android system logs are saved in the **Android/data/com.huanwei.smartpvms/files/inverterapp** folder in the phone memory. You can change the save path by referring to "Setting a File Save Path".
- The downloaded solar inverter logs are saved at the **Device Log** directory in **File Management** in your mobile phone. You can also send the logs to your mailbox for checking.

----End

4.6.5.16 Changing the WLAN Password

Context

You can tap **Maintenance** on the home screen to change the WLAN password to ensure account security.

NOTE

If the communication between the app and the solar inverter has not been established over WLAN, **Change WLAN Password** is not displayed on the screen.

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Procedure

Step 1 On the **Maintenance** screen, tap **Change WLAN Password** on the app connection screen to access the password change screen.

Step 2 Specify **Old password**, **New password**, and **Confirm password**, and then tap **OK**.

NOTE

The password must meet the following requirements:

- Contains 8–30 characters.
- Contains at least two of the three types: lowercase letters, uppercase letters, and digits.

----End

4.6.5.17 Feedback

Context

Users can provide feedback in text, pictures, and files.

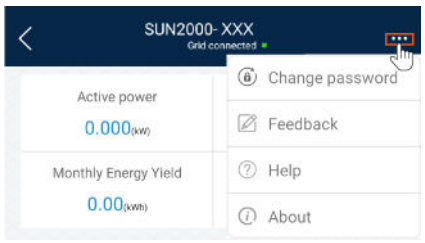
NOTE

Do not add private data.

Procedure

Step 1 Choose ••• > **Feedback** in the upper-right corner of the home screen.

Figure 4-36 Feedback



Step 2 Tap **Specify the type** and select **Feedback** or **Suggestion**.

Step 3 Briefly describe the problem that you encounter in the **Description** column.

Step 4 (Optional) Tap + to upload pictures.

Step 5 (Optional) Tap ⊕ to upload logs. Select device logs or app logs as required.

Step 6 Tap **Submit**.

----End

4.6.5.18 Help

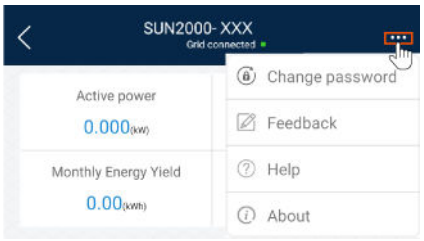
Context

If you have any questions when using an involved device or the app, search for solutions in the help information.

Procedure

Step 1 Choose ••• > **Help** in the upper-right corner of the home screen.

Figure 4-37 Help



Step 2 Specify your question. A solution will be displayed.

----End

4.6.5.19 About

Context

You can query the app version, connected product model, SN, part number, firmware version, software version, technical support website, privacy policy (displayed only on the SUN2000 app), customer service contact information, and open source software policy.

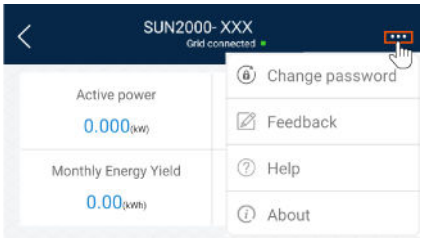
NOTE

- When the app starts for the first time after being downloaded or updated, the privacy policy is displayed. You can use the app only after agreeing to the privacy policy, and the privacy policy will no longer appear. If you do not agree to the privacy policy, the app exits, and the privacy policy is still displayed when you start the app next time until you agree to the privacy policy.
- You can revoke the agreed privacy policy.

Procedure

Step 1 In the upper-right corner of the home screen, choose ••• > **About** to view the app version, connected product model, SN, part number, firmware version, software version, and technical support website.

Figure 4-38 About



Step 2 Tap **Privacy policy**, **Customer service contact information**, or **Open source software policy** to view the privacy policy, customer service contact information, and open source software policy.

----End

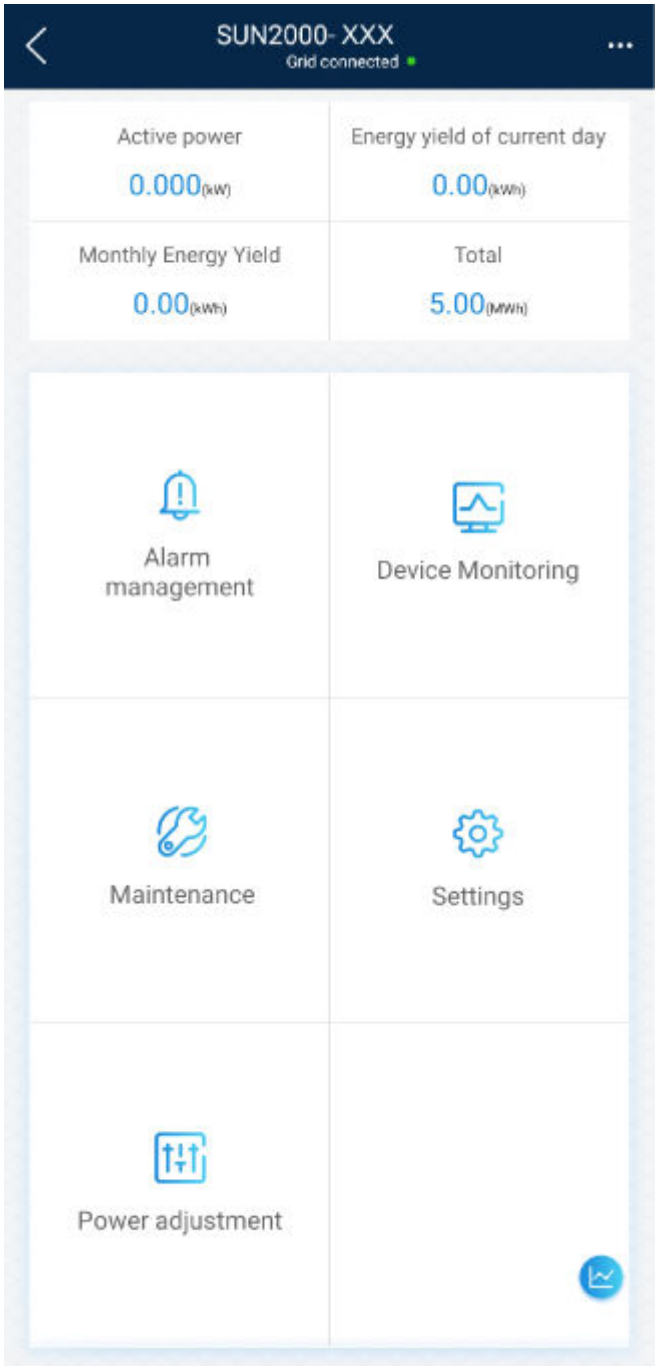
4.7 Screen Operations (Special User)

4.7.1 Query

Procedure

Step 1 After logging in to the app, you can view the active power and energy yield of solar inverters on the home screen.

Figure 4-39 Home screen



Step 2 Tap **Alarm management** or **Device Monitoring** to view active alarms, historical alarms, and running information of the solar inverters.

You can view the following information on the alarm management screen:

- Tap an alarm record and view the alarm details.
- Swipe right or left on the screen or tap either **Active Alarm** or **Historical Alarm** to display a list of active alarms or historical alarms.

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NOTE

- Tap **Sort by generated time** to set the alarm sorting mode for active alarms or historical alarms.
- Tap  to set a time criterion. The historical alarms generated within the time segment are displayed.

- Select the alarms that can be manually cleared, and tap **Delete** on the right of the alarm to manually clear the alarms.

NOTE

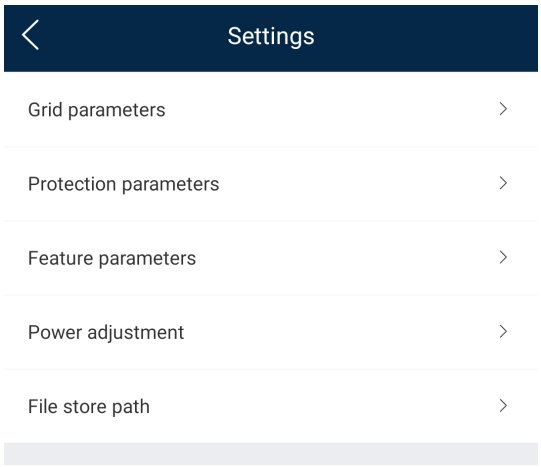
- Alarms that have been manually cleared can be viewed on the **Historical Alarm** screen.
- Only the **AFCI Self-Check Failure** and **DC Arc Fault** alarms can be manually cleared. Only the products whose technical specifications contain AFCI supports manual alarm clearance.

----End

4.7.2 Settings

On the home screen, a special user can tap **Settings** to set power grid, protection, and feature parameters for the solar inverter.

Figure 4-40 Settings



NOTICE

- The configurable solar inverter parameters vary with the solar inverter model and grid code. The displayed parameters prevail. The parameter list provided in this section includes all configurable parameters.
- The parameter ranges vary with the device model. The listed ranges are for reference only.
- The parameter names, value ranges, and default values are subject to change. The actual display prevails.

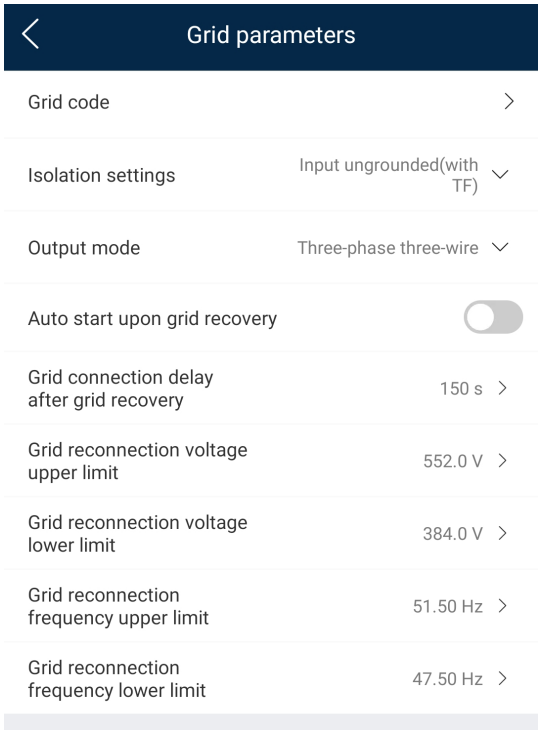
 Copyright © Huawei Digital Power Technologies Co., Ltd.

4.7.2.1 Setting Grid Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Grid Parameters** to access the parameter setting screen.

Figure 4-41 Grid parameters (special user)



For details about how to set the parameters, see **14.2 Commercial Smart Inverters Parameters**.

----End

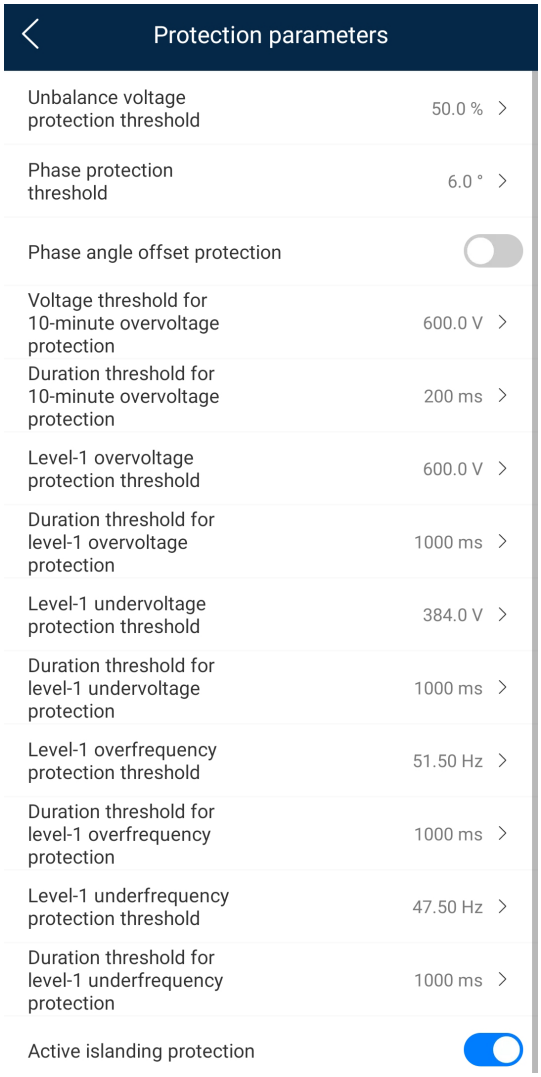
4.7.2.2 Setting Protection Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Protection Parameters** to access the parameter setting screen.

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Figure 4-42 Protection parameters



For details about how to set the parameters, see **14.2 Commercial Smart Inverters Parameters**.

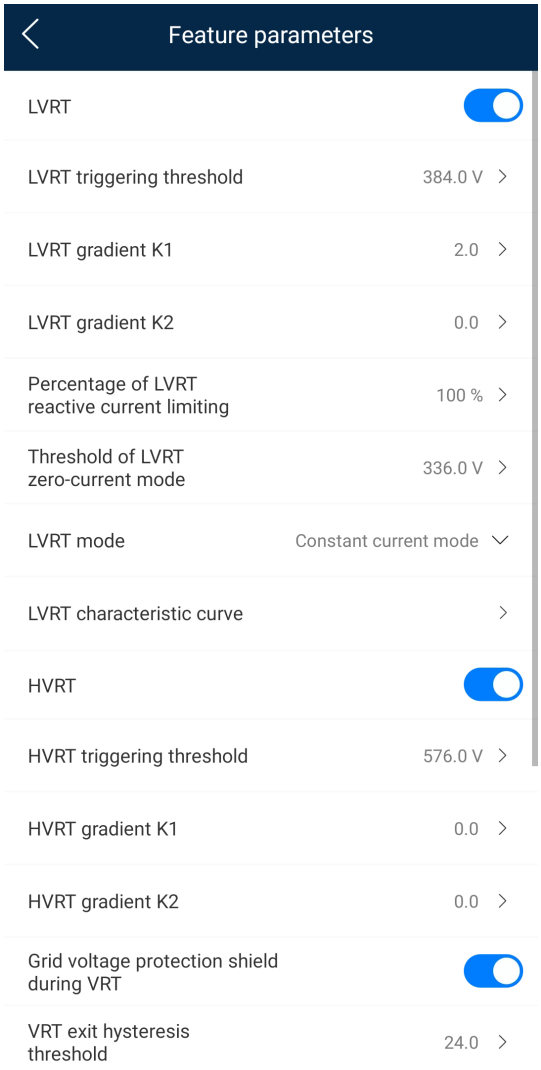
----End

4.7.2.3 Setting Feature Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Feature Parameters** to access the parameter setting screen.

Figure 4-43 Feature parameters



For details about how to set the parameters, see **14.2 Commercial Smart Inverters Parameters**.

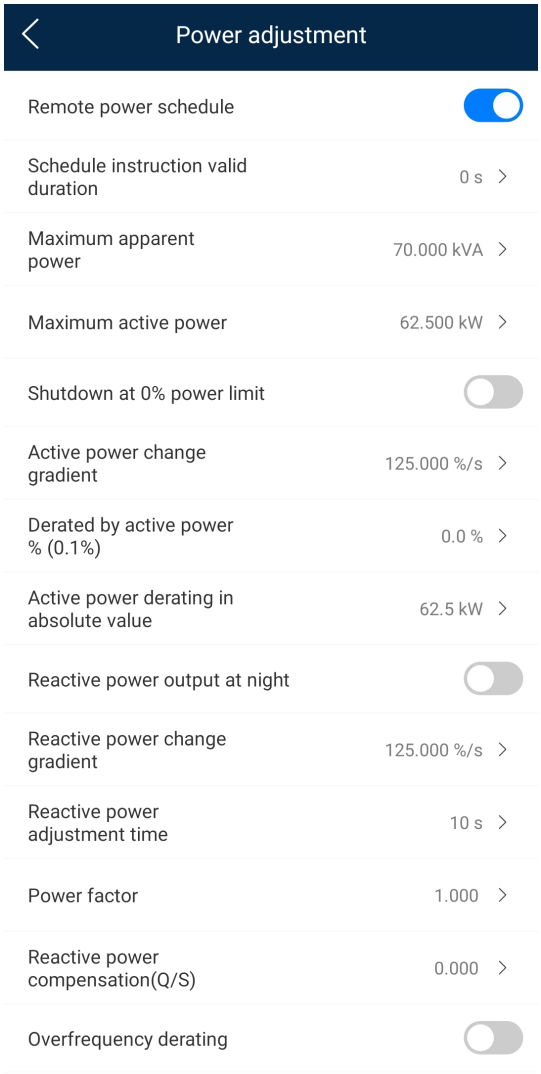
----End

4.7.2.4 Setting Power Adjustment Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Power Adjustment** to access the parameter setting screen.

Figure 4-44 Power adjustment parameters



For details about how to set the parameters, see **14.2 Commercial Smart Inverters Parameters**.

----End

4.7.2.5 Setting a File Save Path

Prerequisite

This function is available only on the Android system.

Context

You can modify the save path for operation logs and solar inverter logs and export logs from the path.

Procedure

Step 1 On the home screen, choose **Settings** > **File Save Path** to access the path setting screen.

Step 2 Tap **File save path** to set a file save path.

----End

4.7.3 Power Adjustment

Context

Due to permission restrictions, special users support the setting of power adjustment, which can set the active power, reactive power, and grid connection point control parameters of the solar inverter.

Procedure

Step 1 On the home screen, tap **Power Adjustment**.

Figure 4-45 Power adjustment



Step 2 Set power parameters as required.

For details about how to set the parameters, see **14.2 Commercial Smart Inverters Parameters**.

NOTE

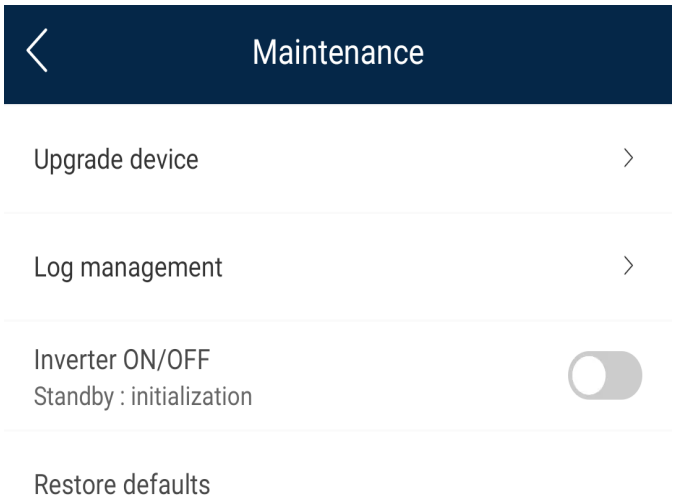
When setting the Grid-tied point control parameters, you need to enter the APP login password.

----End

4.7.4 Maintenance

On the home screen, a special user can tap **Maintenance** to start or shut down the solar inverter and restore factory settings.

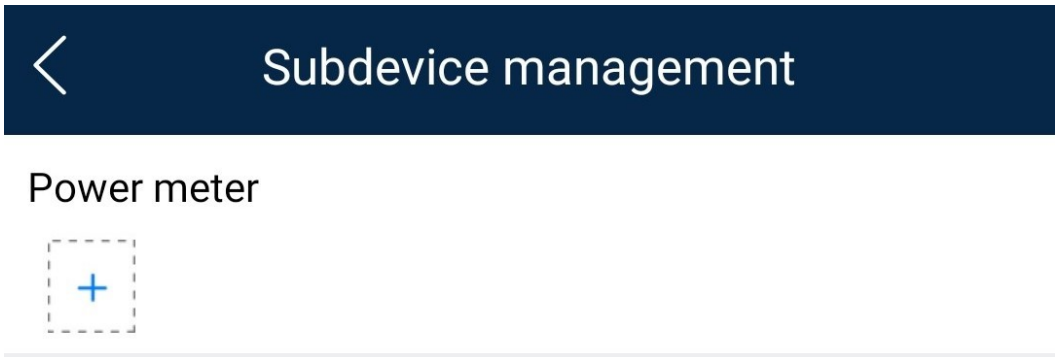
Figure 4-46 Maintenance (special user)



4.7.4.1 Subdevice management

Step 1 On the home screen, choose **Subdevice management** to access the **Subdevice management** screen.

Figure 4-47 Subdevice management



- Tap + to add a power meter.

Parameter	Description
Model	Set this parameter to the corresponding meter model. **NOTE** – Select an appropriate power meter based on the application scenario. The device model is subject to change. The actual product prevails. – Set the power meter model correctly. Otherwise, the power meter function may be unavailable.
Device address	Set this parameter to the communication address of the power meter.

Parameter	Description
Current change ratio	– Set this parameter to **1** if the power meter uploads the primary value. – Set this parameter based on the actual transformer ratio if the power meter uploads the secondary value.

- After a power meter is added, tap it to view and modify the power meter parameters. To delete the power meter, touch and hold it.

----End

4.7.4.2 Startup and Shutdown

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap  next to **Inverter ON/OFF** to perform the operation.

Step 3 Enter the password for logging in to the app, and tap **OK**.

----End

4.7.4.3 Restoring Factory Settings

Context

NOTICE

Perform this operation with caution because all configured parameters except the current date, time, baud rate, and address will be restored to their factory default values. This operation will not affect operating information, alarm records, or system logs.

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **Restore defaults** to perform the operation.

Step 3 Enter the password for logging in to the app, and tap **OK**.

----End

4.7.4.4 Device Upgrade

Prerequisites

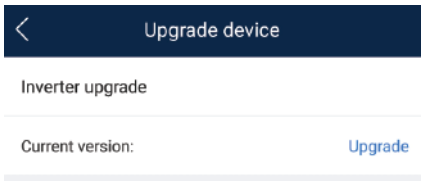
- You have obtained the upgrade package with the help of the supplier or Huawei engineers. After the downloading is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.
  a. Log in to Huawei enterprise technical support website **http://support.huawei.com/enterprise**.
  b. Browse or search for **PGP Verify**.
- Inthe Android system, youhave copied the upgrade package has been copied to the Android/data/com.huanwei.inverterapp/files/ directory on the mobile phone. The upgrade package is a .zip file.
- Certain solar inverters (only SUN2000 V500R001C00) support MBUS upgrade. The actual UI prevails.

Procedure

Step 1 On the home screen, choose **Maintenance** > **Uevice dpgrade**.

Step 2 Access the device upgrade screen and tap **Upgrade**.

Figure 4-48 Device upgrade



Step 3 Perform operations as prompted.

----End

4.7.4.5 Log management

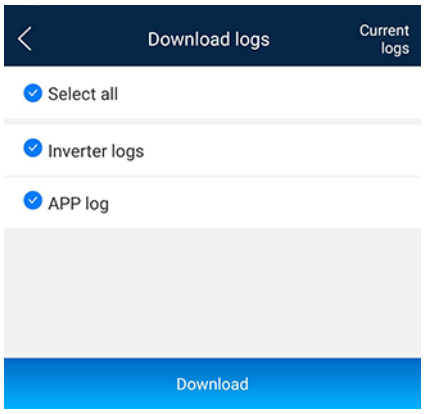
Context

You can tap **Log management** to export operation logs, as well as alarm records and energy yield information of the solar inverter from the mobile phone.

Procedure

Step 1 On the home screen, choose **Maintenance** > **Log management** to access the log download screen.

Figure 4-49 Downloading logs



Step 2 You can download **Inverter logs** and **APP log**.

NOTE

- By default, Android system logs are saved in the **Android/data/com.huanwei.smartpvms/files/inverterapp** folder in the phone memory. You can change the save path by referring to "Setting a File Save Path".
- The downloaded solar inverter logs are saved at the **Device Log** directory in **File Management** in your mobile phone. You can also send the logs to your mailbox for checking.

----End

4.7.4.6 Feedback

Context

Users can provide feedback in text, pictures, and files.

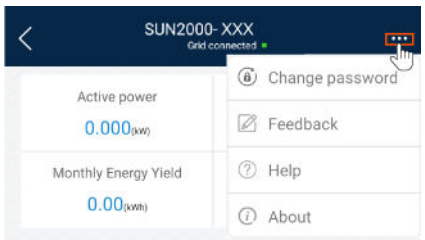
NOTE

Do not add private data.

Procedure

Step 1 Choose  > **Feedback** in the upper-right corner of the home screen.

Figure 4-50 Feedback



Step 2 Tap **Specify the type** and select **Feedback** or **Suggestion**.

Step 3 Briefly describe the problem that you encounter in the **Description** column.

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Step 4 (Optional) Tap  to upload pictures.

Step 5 (Optional) Tap  to upload logs. Select device logs or app logs as required.

Step 6 Tap **Submit**.

----End

4.7.4.7 Help

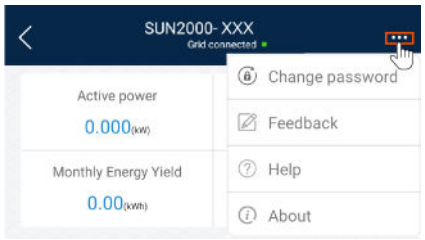
Context

If you have any questions when using an involved device or the app, search for solutions in the help information.

Procedure

Step 1 Choose  **> Help** in the upper-right corner of the home screen.

Figure 4-51 Help



Step 2 Specify your question. A solution will be displayed.

----End

4.7.4.8 About

Context

You can query the app version, connected product model, SN, part number, firmware version, software version, technical support website, privacy policy (displayed only on the SUN2000 app), customer service contact information, and open source software policy.

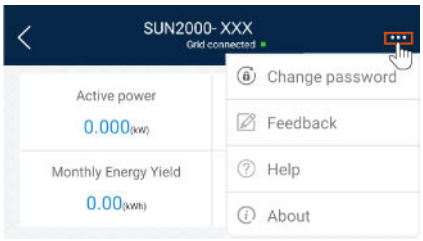
NOTE

- When the app starts for the first time after being downloaded or updated, the privacy policy is displayed. You can use the app only after agreeing to the privacy policy, and the privacy policy will no longer appear. If you do not agree to the privacy policy, the app exits, and the privacy policy is still displayed when you start the app next time until you agree to the privacy policy.
- You can revoke the agreed privacy policy.

Procedure

Step 1 In the upper-right corner of the home screen, choose ••• > **About** to view the app version, connected product model, SN, part number, firmware version, software version, and technical support website.

Figure 4-52 About



Step 2 Tap **Privacy policy**, **Customer service contact information**, or **Open source software policy** to view the privacy policy, customer service contact information, and open source software policy.

----End

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5 Operations on the Screen for Connecting to the SmartLogger

NOTICE

- The figures and data displayed in this chapter are for reference only.
- Delivering a reset, factory reset, shutdown, or upgrade command to the solar inverters may cause power grid connection failure, which affects the energy yield.
- Only professionals are allowed to set the grid parameters, protection parameters, feature parameters, power adjustment parameters, and grid-tied point control parameters of the solar inverters. If the grid parameters, protection parameters, and feature parameters are incorrectly set, the solar inverters may not connect to the power grid. If the power adjustment parameters and grid-tied point control parameters are incorrectly set, the solar inverters may not connect to the power grid as required. In these cases, the energy yield will be affected.
- Only professionals are allowed to set the power grid scheduling parameters of the SmartLogger. Incorrect settings may cause the PV plant to fail to connect to the power grid as required, which affects the energy yield.

5.1 User Operation Permissions

For SmartLogger2000 and SmartLogger1000A, the user accounts that can log in to the app are classified into common users, special users, and advanced users. You can set different user permissions based on the responsibilities of PV plant operation personnel.

- Common users: Has the permissions of viewing data about the SmartLogger and the devices connected to it, setting SmartLogger user parameters, and changing the system password.
- Advanced users: Has the permissions of viewing data about the SmartLogger and the devices connected to it, setting functional parameters, managing devices, and maintaining the system.

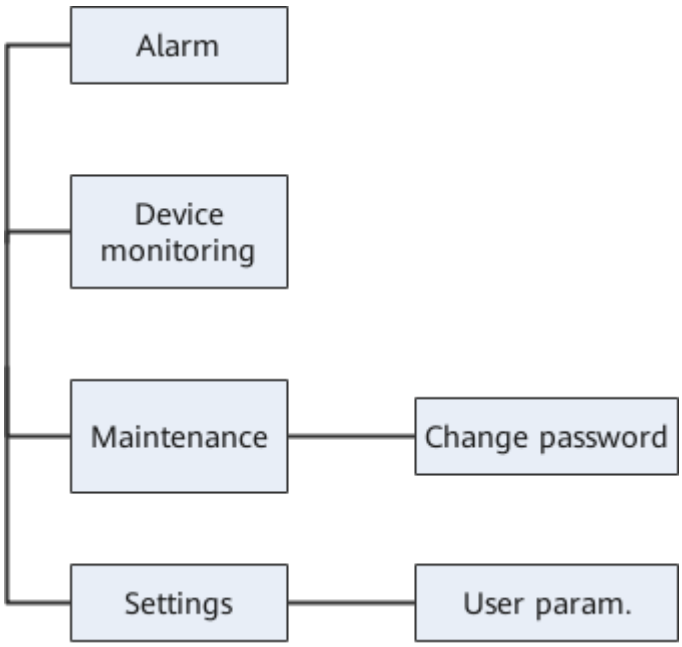
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- Special users: Has the permissions of viewing data about the SmartLogger and the devices connected to it, managing devices, and maintaining the system.

For SmartLogger3000, the user accounts that can log in to the app are classified into installer and user, user permissions can refer to common users permissions, and installer permissions can refer to advanced users permissions and special users permissions.

Figure 5-1, **Figure 5-2**, and **Figure 5-3** show the menu operation permissions of common users, special users, and advanced users respectively.

Figure 5-1 Operation permissions of common users

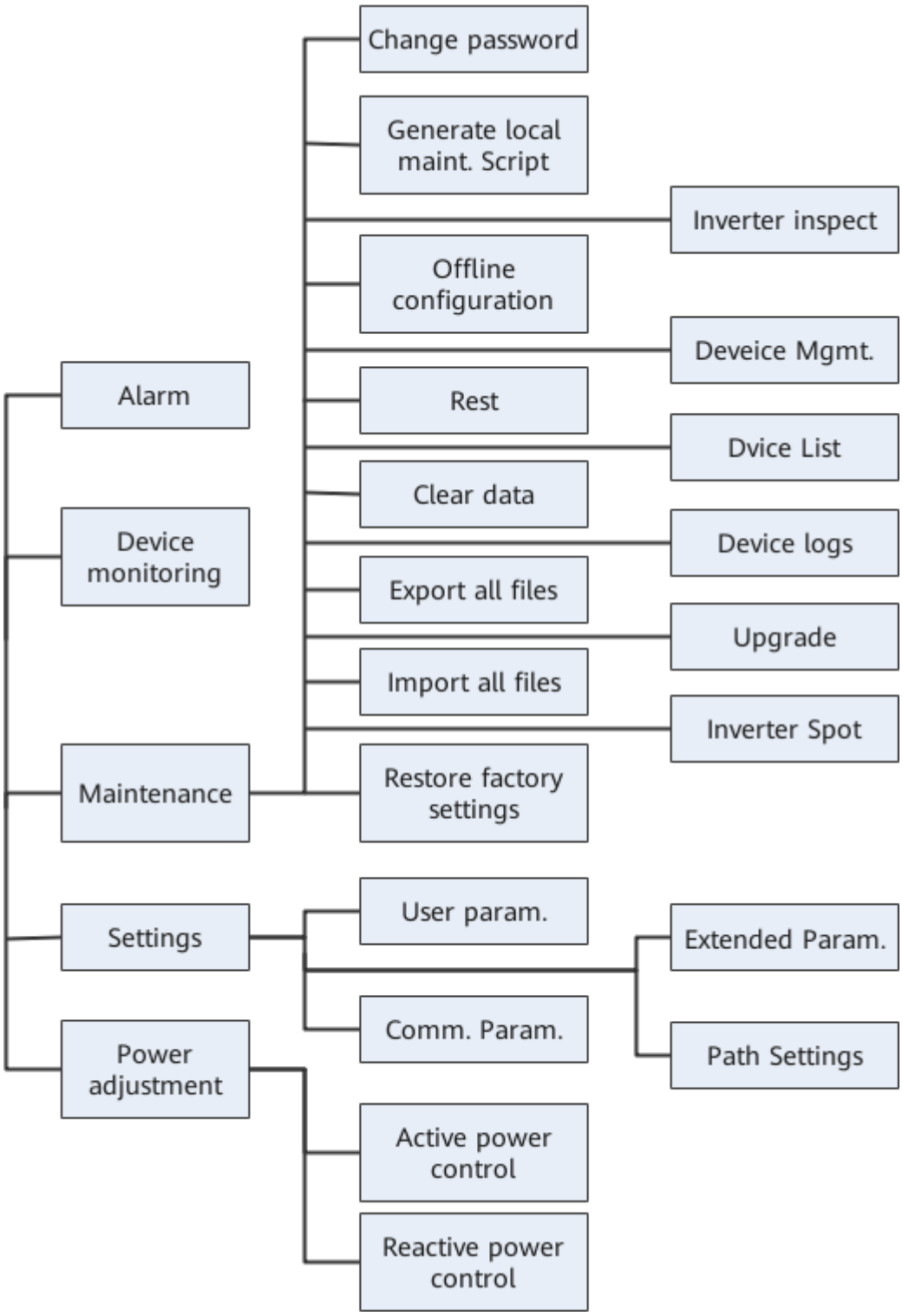


NOTE

Common users can view data and start or shut down the devices under **Monitoring**.

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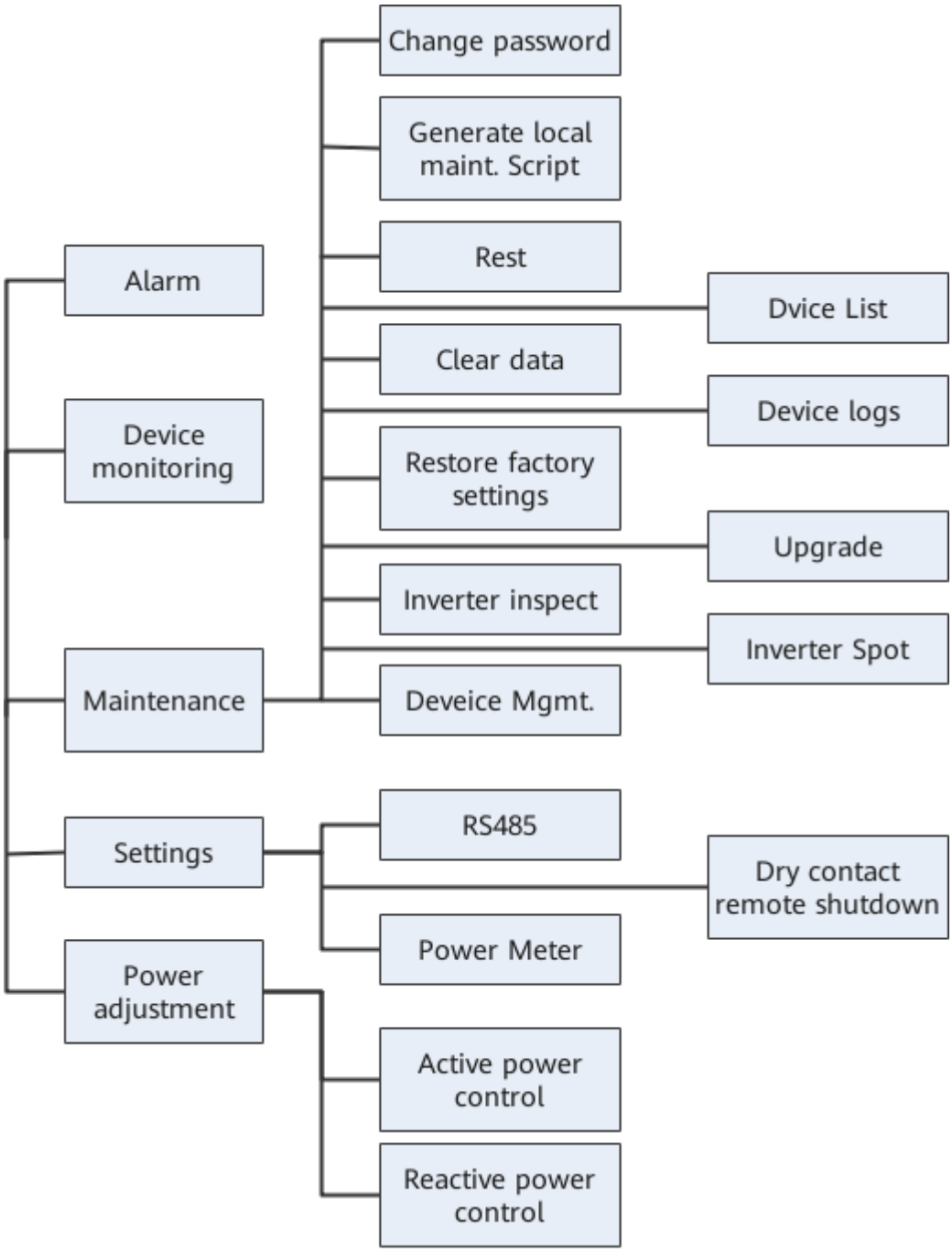
Figure 5-2 Operation permissions of advanced users



NOTE

- Advanced users can view data, set parameters, download logs, and start or shut down the devices under **Monitoring**.
- **Path Settings** is available only to the Android system.

Figure 5-3 Operation permissions of special users



NOTE

Special users can view data, download logs, and start or shut down the devices under **Monitoring**.

5.2 Login the SUN2000 APP

Prerequisites

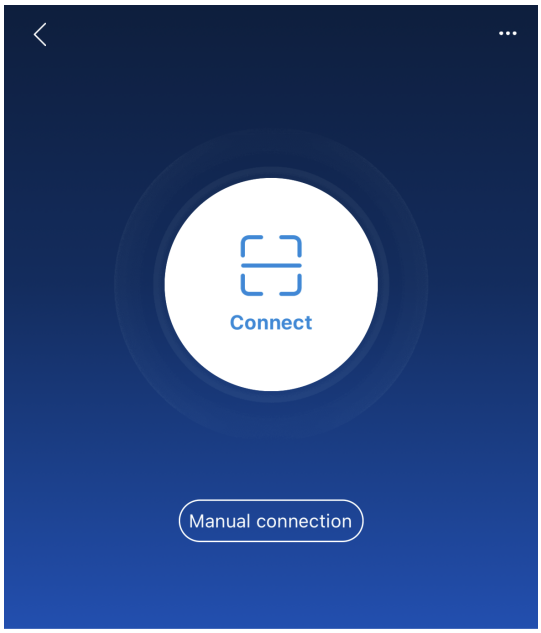
- The SmartLogger has been powered on.

- The Bluetooth function of the SmartLogger is enabled by default.
- The WLAN function of the SmartLogger is disabled by default. Ensure that the WLAN function is enabled before connecting to the SmartLogger.
- Connect over a WLAN/Bluetooth:
  a. The WLAN/Bluetooth function is enabled on the mobile phone.
  b. Keep the mobile phone within 5 m from the SmartLogger. Otherwise, the communication between them would be affected.

Procedure

Step 1 Connect to the SmartLogger.

Figure 5-4 Connect



- Code scanning: Tap **Connect**, on the scanning screen, place the QR code of the Device in the scan frame. The device will be automatically connected after the code is identified.
- Manual connection: Tap **Manual Connection** and select a connection mode.

Figure 5-5 Manual connection



– Select **WLAN** and connect the SmartLogger1000A or SmartLogger3000 to the corresponding WLAN in the WLAN connection list of the APP. The initial name of the WLAN is **Logger_SN bar code**, and the initial password is **Changeme**.

  NOTICE

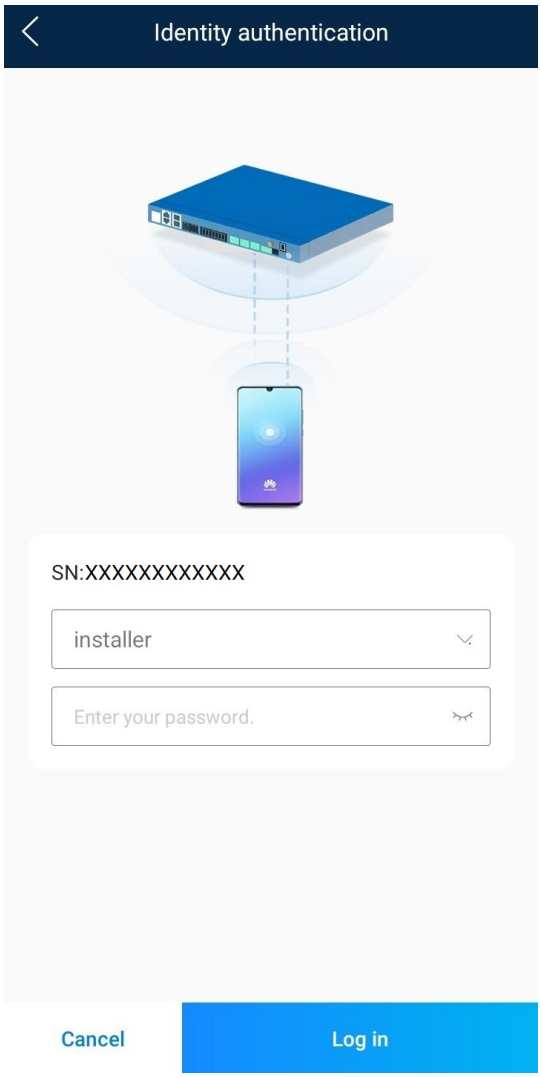
  - Use the initial password upon first power-on and change it immediately after login. To ensure account security, change the password periodically and keep the new password in mind. Not changing the initial password may cause password disclosure. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, the device needs to be restored to its factory settings. In these cases, the user is liable for any loss caused to the PV plant.
  - If the **This WLAN network has no Internet access. Connect anyway?** message is displayed when you connect to the built-in WLAN, tap **CONNECT**. Otherwise, you cannot log in to the system. The actual UI and messages may vary with mobile phones.

– Select **Bluetooth**, and tap **Search for Device**. After a Bluetooth device is found, select the target Bluetooth device, and set up a connection. When the Bluetooth connection is used for the SmartLogger2000, the name of the connected Bluetooth device is **LOG+last eight digits of the SN bar code**.

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Step 2 Select a login user and enter the password, tap **Log In**.

Figure 5-6 Login



NOTICE

- The login password is the same as that for the SmartLogger connected to the app and is used only when the SmartLogger connects to the app.
- For SmartLogger1000A and SmartLogger2000, the initial passwords for **Common User**, **Advanced User**, and **Special User** are all **00000a**.
- For SmartLogger3000, the initial passwords for **installer** and **user** are all **00000a**.
- Use the initial password upon first power-on and change it immediately after login. To ensure account security, change the password periodically and keep the new password in mind. Not changing the initial password may cause password disclosure. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, the user is liable for any loss caused to the PV plant.
- During the login, if five consecutive invalid password entries are made (the interval between two consecutive entries is less than 2 minutes), the account will be locked for 10 minutes. The password should consist of six characters.

Step 3 After successful login, the quick settings screen or home screen is displayed.

NOTE

- If you log in to the app after the SmartLogger powers on for the first time or the SmartLogger factory defaults are restored, the quick settings screen will be displayed. You can set basic parameters for the SmartLogger on the **Quick Settings** screen. After the setting, you can modify the parameters after choosing **MoreSettings**.
- If you do not set basic parameters for the SmartLogger on the **Quick Settings** screen, the screen is still displayed when you log in to the app next time.

----End

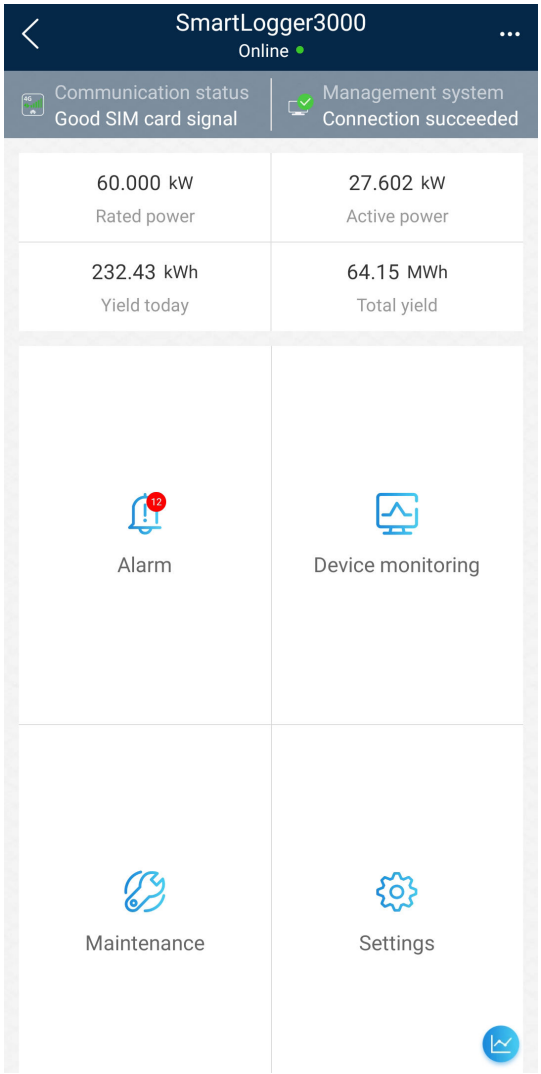
5.3 Screen Operations (Common User)

5.3.1 Query

Procedure

Step 1 After logging in to the app, you can view the active power and energy yield of the connected solar inverters on the home screen.

Figure 5-7 Home



Step 2 Tap **Alarm management** or **Device Monitoring** to view active alarms, historical alarms, and running information.

You can view the following information on the alarm management screen:

- Tap an alarm record and view the alarm details.
- Swipe right or left on the screen or tap either **Active Alarm** or **Historical Alarm** to display a list of active alarms or historical alarms.
- Select the alarms that can be manually cleared, and tap **Delete** on the right of the alarm to manually clear the alarms.

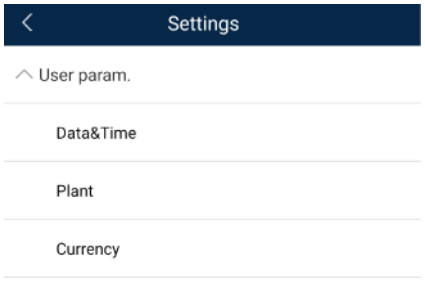
----End

5.3.2 Settings

A common user can choose **Settings** to set user parameters for the SmartLogger.

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Figure 5-8 Settings (Common User)



5.3.2.1 Setting the System Date and Time

Procedure

Step 1 Choose **Settings** > **User param.** > **Date&Time** to set the date and time.

Figure 5-9 Date&Time screen



Step 2 Set the date and time based on the region where the SmartLogger is located.

NOTE

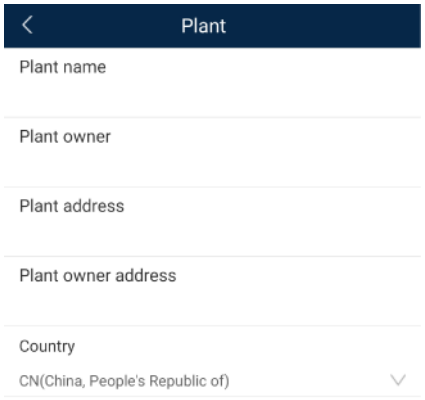
For a solar inverter that supports DST, if an advanced user enables DST, a common user can view DST data. The displayed parameters are for reference only.

----End

5.3.2.2 Setting Plant Information

Step 1 Choose **Settings** > **User param.** > **Plant** to access the parameter setting screen.

Figure 5-10 Plant



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Step 2 Tap target parameters. On the displayed screen, enter or select relevant information.

NOTE

The plant parameters that are manually entered must not contain any special character, such as <>:,`'?()#&\$|%+;~^" in the English half-width status.

----End

5.3.2.3 Setting Revenue Parameters

Procedure

Step 1 Choose **Settings** > **User param.** > **Currency** to access the parameter setting screen.

Figure 5-11 Gain



----End

5.3.3 Maintenance

5.3.3.1 System Maintenance

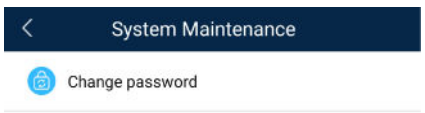
Context

A common user can choose **Maintenance** to change only the SmartLogger password.

Procedure

Step 1 Choose **Maintenance** > **Change Password** to access the password change screen.

Figure 5-12 Changing a password



Step 2 Type the old password, new password, and confirmation password. Tap **OK**.

NOTE

The password must meet the following requirements:

- Contains 6–20 characters.
- Contains at least two of the three types: lowercase letters, uppercase letters, and digits.

----End

5.3.3.2 Feedback

Context

Users can provide feedback in text, pictures, and files.

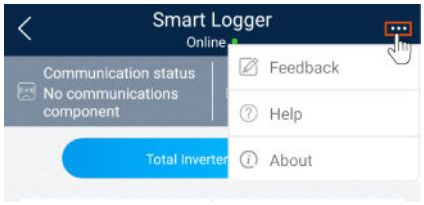
NOTE

Do not add private data.

Procedure

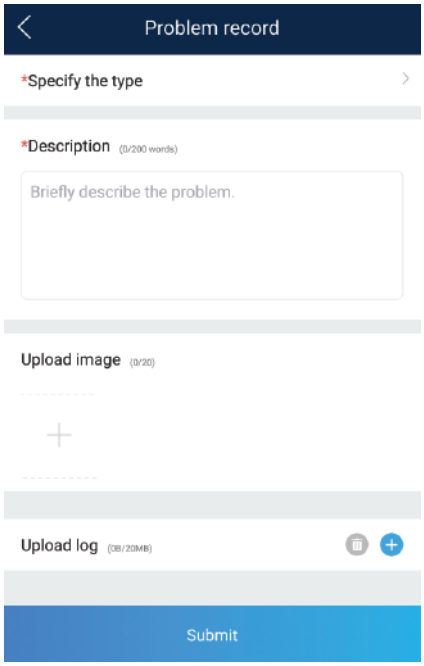
Step 1 Choose ••• > **Feedback** in the upper-right corner of the home screen.

Figure 5-13 Feedback



Step 2 Tap **Specify the type** and select **Feedback** or **Suggestion**.

Figure 5-14 Problem record



Step 3 Briefly describe the problem that you encounter in the **Description** column.

Step 4 (Optional) Tap  to upload pictures.

Step 5 (Optional) Tap  to upload logs. Select device logs or app logs as required.

Step 6 Tap **Submit**.

----End

5.3.3.3 Help

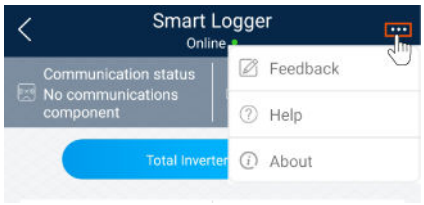
Context

If you have any questions when using an involved device or the app, search for solutions in the help information.

Procedure

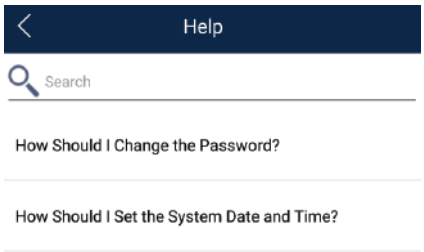
Step 1 Choose  > **Help** in the upper-right corner of the home screen.

Figure 5-15 Help 1



Step 2 Specify your question. A solution will be displayed.

Figure 5-16 Help 2



----End

5.3.3.4 About

Context

You can query the app version, connected product model, SN, firmware version, software version, technical support website, privacy policy (displayed only on the SUN2000 app), customer service contact information, and open source software policy.

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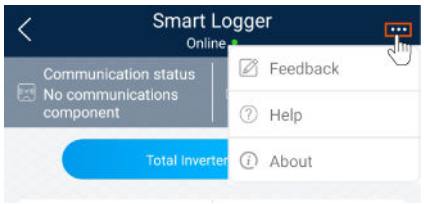
NOTE

- When the app starts for the first time after being downloaded or updated, the privacy policy is displayed. You can use the app only after agreeing to the privacy policy, and the privacy policy will no longer appear. If you do not agree to the privacy policy, the app exits, and the privacy policy is still displayed when you start the app next time until you agree to the privacy policy.
- You can revoke the agreed privacy policy.

Procedure

Step 1 In the upper-right corner of the home screen, choose  > **About** to view the app version, connected product model, SN, firmware version, software version, and technical support website.

Figure 5-17 About



Step 2 Tap **Privacy policy**, **Customer service contact information**, or **Open source software policy** to view the privacy policy, customer service contact information, and open source software policy.

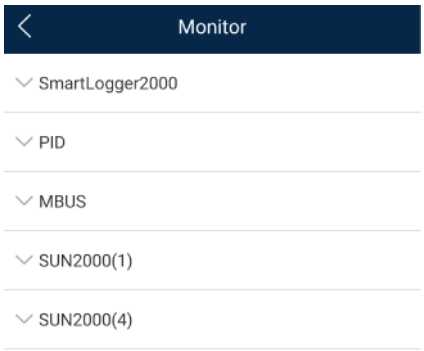
----End

5.3.4 Device Monitoring

5.3.4.1 Query

Step 1 On the home screen, tap **Monitor** to access the device monitoring screen.

Figure 5-18 Device monitoring



Step 2 Select a target device to access the function menu screen of the device.

Step 3 Tap **Alarm**, **Running Info.**, **Energy Yield**, or **About** to view the alarms, running information, energy yield, and version information about the device.

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NOTE

- The displayed information varies according to the device type.
- The SmartLogger can connect to third-party devices that support the Modbus-RTU protocol, such as the box-type transformer and EMI. The SmartLogger cannot automatically search user-defined devices. You need to manually add them.
- The SmartLogger can connect to a maximum of five types of user-defined devices and can connect to multiple devices of the same type.
- The SmartLogger can connect to a third-party device that supports IEC103, such as a relay protection or monitoring device like a box-type transformer. The SmartLogger cannot automatically search IEC103 devices. You need to manually add them.
- The SmartLogger can connect to a maximum of five types of IEC103 devices and can connect to multiple devices of the same type.

----End

5.3.4.2 Maintenance

Context

Common users can maintain only a solar inverter. They manually send commands to start or shut down the solar inverter.

Procedure

Step 1 Tap **SUN2000** on the **Monitor** screen and select the target device to access the function menu screen of the solar inverter.

Figure 5-19 Maintenance



Step 2 Tap **Maintenance**.

Step 3 Tap  next to **Power on** or **Power off** to perform the operation.

NOTE

Tap **Performance Data** to view the performance data curve of the solar inverter.

Step 4 Enter the password for logging in to the app, and tap **OK**.

----End

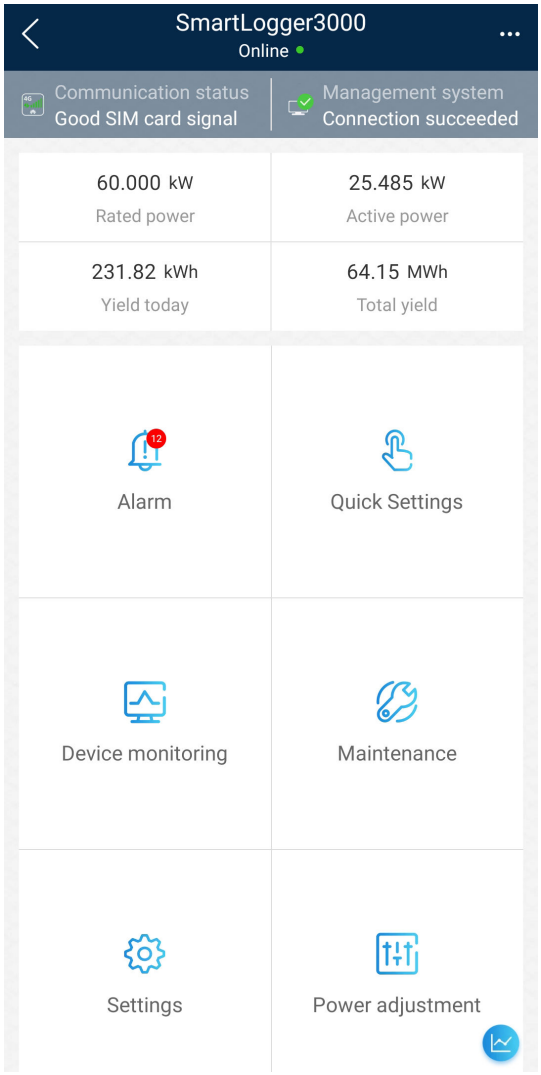
5.4 Screen Operations (Advanced User)

5.4.1 Query

Procedure

Step 1 After logging in to the app, you can view the active power and energy yield of the connected solar inverters on the home screen.

Figure 5-20 Home



Step 2 Tap **Alarm management** or **Device Monitoring** to view active alarms, historical alarms, and running information.

You can view the following information on the alarm management screen:

- Tap an alarm record and view the alarm details.
- Swipe right or left on the screen or tap either **Active Alarm** or **Historical Alarm** to display a list of active alarms or historical alarms.
- Select the alarms that can be manually cleared, and tap **Delete** on the right of the alarm to manually clear the alarms.

----End

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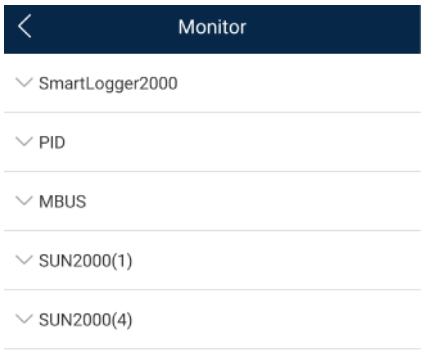
5.4.2 Device Monitoring

An advanced user can tap **Device Monitor** to query the running information and alarms about the SmartLogger and the devices connected to it, set parameters, and send commands.

5.4.2.1 Query

Step 1 On the home screen, tap **Device Monitor** to access the device monitoring screen.

Figure 5-21 Device monitoring



Step 2 Select a target device to access the function menu screen of the device.

Step 3 Tap **Alarm**, **Running Info.**, **Energy Yield**, or **About** to view the alarms, running information, energy yield, and version information about the device.

NOTE

- The displayed information varies according to the device type.
- The SmartLogger can connect to third-party devices that support the Modbus-RTU protocol, such as the box-type transformer and EMI. The SmartLogger cannot automatically search user-defined devices. You need to manually add them.
- The SmartLogger can connect to a maximum of five types of user-defined devices and can connect to multiple devices of the same type.
- The SmartLogger can connect to a third-party device that supports IEC103, such as a relay protection or monitoring device like a box-type transformer. The SmartLogger cannot automatically search IEC103 devices. You need to manually add them.
- The SmartLogger can connect to a maximum of five types of IEC103 devices and can connect to multiple devices of the same type.

----End

5.4.2.2 Settings

Context

An advanced user can set solar inverter parameters, MBUS parameters, PID Module parameters and DL/T645 parameters.

Procedure

Step 1 On the **Device Monitor** screen, select the target device to access the function menu screen of the solar inverter.

Step 2 Tap **Settings** to access the settings screen.

Step 3 Set parameters as required.

NOTE

For Setting MBUS Parameters, set **Anti-crosstalk** to **Enable** to make devices in the anti-crosstalk list take effect.

----End

5.4.2.3 Maintenance

5.4.2.3.1 Log Download

Context

An advanced user can download only the logs of the SmartLogger, solar inverter, MBUS, and PID module.

Procedure

Step 1 Select a device on the **Device Monitor** screen to access the function menu screen of the device.

Step 2 Tap **Device Logs** to access the log download screen.

Step 3 Download log files as required.

NOTE

- By default, Android system logs are saved in the **Android/data/com.huanwei.smartpvms/files/inverterapp** folder in the phone memory. You can change the save path by referring to "Setting a File Save Path".
- The downloaded solar inverter logs are saved at the **Device Log** directory in **File Manager** in your mobile phone. You can also send the logs to your mailbox for checking.

----End

5.4.2.3.2 Solar Inverter Maintenance

Procedure

Step 1 Tap **SUN2000** on the **Device Monitor** screen and select the target device to access the function menu screen of the solar inverter.

Step 2 Tap **Maintenance** to access the maintenance screen.

Step 3 Tap ▶ next to **Power on**, **Power off**, **AFCI self-check**, or **Reset**.

NOTE

- AFCI self-check is available only for the solar inverter model marked with **-US**.
- Tap **License Management** or **Performance Data** to view the certificate information and performance data curve of the solar inverter.

Step 4 Enter the password for logging in to the app, and tap **OK**.

----End

5.4.2.3.3 MBUS Maintenance

Procedure

Step 1 Tap **MBUS** on the **Device Monitor** screen and select the target device to access the function menu screen of the MBUS.

Step 2 Tap **Maintenance** to access the maintenance screen.

Step 3 Tap next to **Search STA Again** and search for the STA list again as prompted.

Step 4 Tap next to **MBUS reset** and reset the MBUS as prompted.

Step 5 Tap **Anti-crosstalk list** to synchronize, import, or export the list.

----End

5.4.2.3.4 PID Module Maintenance

Procedure

Step 1 Tap **PID** on the **Device Monitor** screen and select the target device to access the function menu screen of the PID module.

Step 2 Tap **Maintenance** to access the maintenance screen.

Step 3 Tap next to **Power on**, **Power off**, or **Data clear** as required.

NOTE

- If you clear data, active and historical alarms stored on the PID module will all be cleared.
- Tap **Performance Data** to view the performance data curve of the PID module.

Step 4 Enter the password for logging in to the app, and tap **OK**.

----End

5.4.3 Maintenance

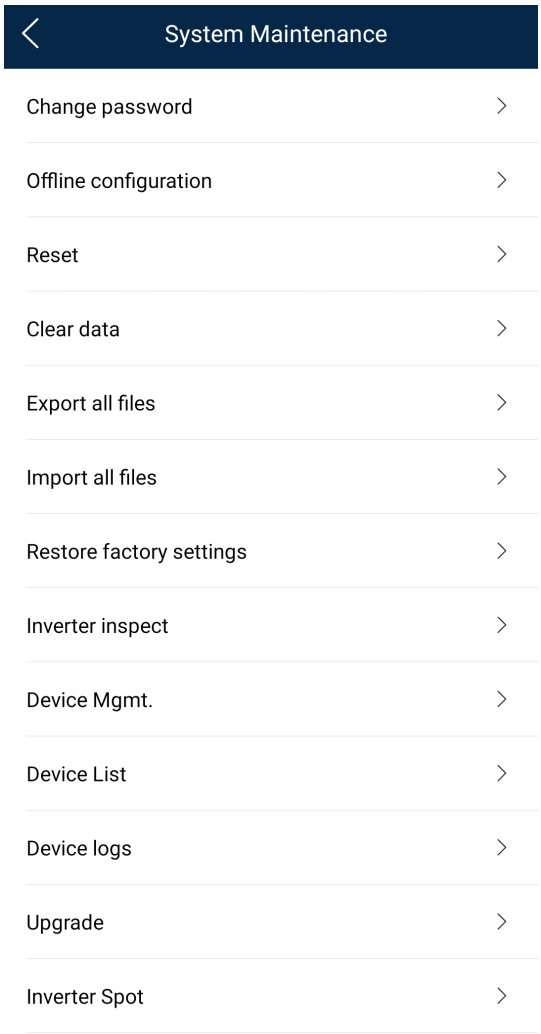
5.4.3.1 System Maintenance

5.4.3.1.1 Changing a User Password

Procedure

Step 1 Choose **Maintenance** > **Change Password** to access the password change screen.

Figure 5-22 System Maintenance



NOTE

The password must meet the following requirements:

- Contains 6–20 characters.
- Contains at least two of the following types: lowercase letters, uppercase letters, and digits.

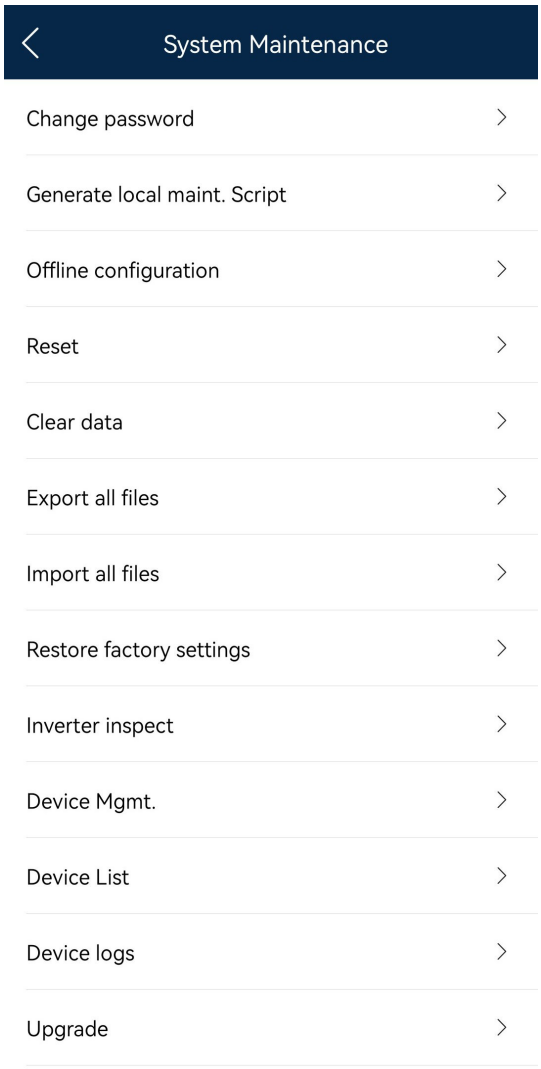
----End

5.4.3.1.2 Offline Configuration

You can import the offline configuration files to the SmartLogger over the app.

Step 1 Choose **Maintenance** > **Offline configuration** to perform offline configuration.

Figure 5-23 System Maintenance



----End

NOTE

After the configuration file is imported, choose **Latest Status** to view the import status of the last offline configuration file and choose **Enable offline config** to import other offline configuration files.

5.4.3.1.3 Resetting the System

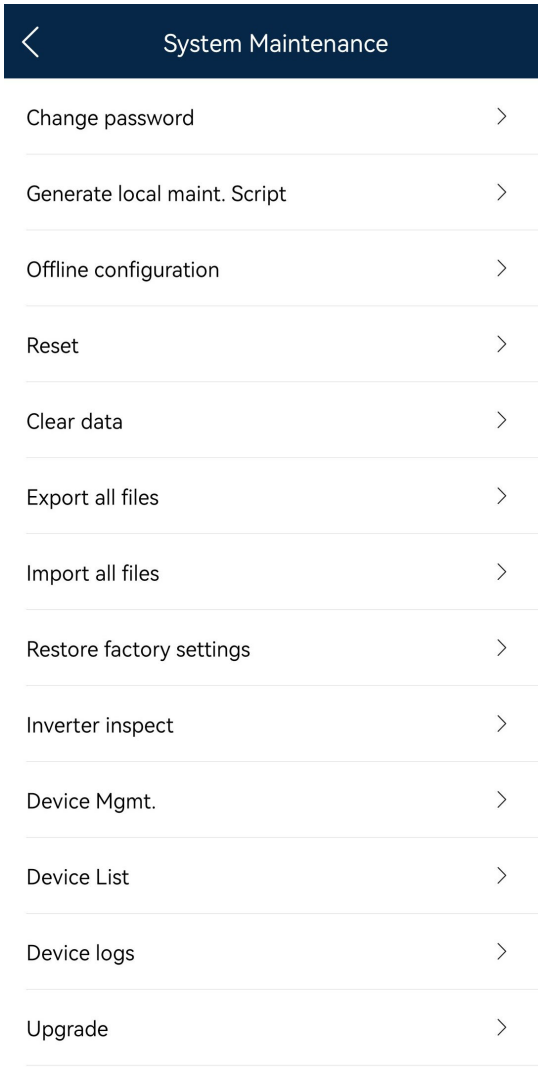
Context

After the system resets, the SmartLogger restarts.

Procedure

Step 1 Choose **Maintenance** > **Reset**. A dialog box for resetting the system is displayed.

Figure 5-24 System Maintenance



Step 2 Enter the password for logging in to the app, and tap **OK**.

----End

5.4.3.1.4 Clearing Data

Context

Clear data if the SmartLogger is relocated and its historical data needs to be deleted.

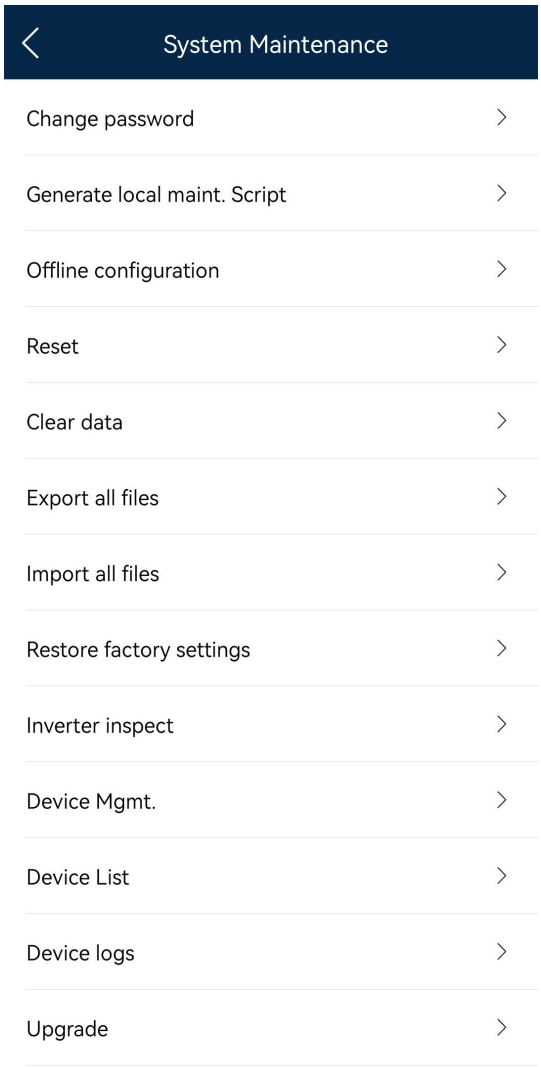
NOTICE

- After you perform **Clear Data**, electric energy yield data, performance data, and alarms are cleared from the SmartLogger.
- After you perform **Clear Data**, the devices connected to the SmartLogger are not removed. If the original device will no longer connect to the SmartLogger, remove the device.
- If you perform **Clear Data** on the SmartLogger, you also have to perform **Reset Alarms** on the NMS. Otherwise, the alarm information collected by the NMS and SmartLogger will be different.

Procedure

Step 1 Choose **Maintenance** > **Clear Data**. A dialog box for clearing data is displayed.

Figure 5-25 System Maintenance



Step 2 Enter the password for logging in to the app, and tap **OK**.

----End

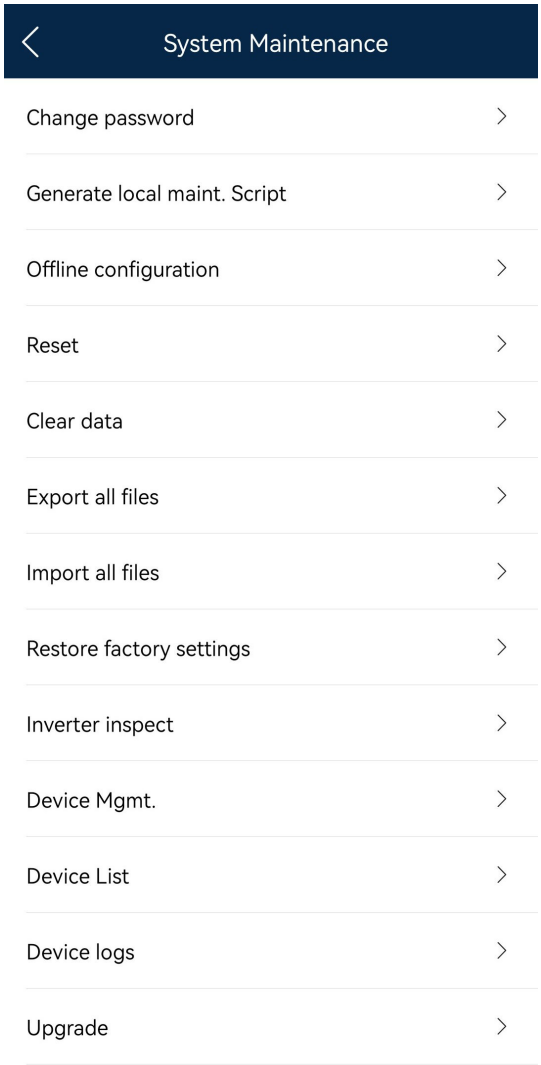
5.4.3.1.5 Importing and Exporting All Files

If the SmartLogger needs to be replaced, you can export the files before the replacement and then import the files of the new SmartLogger to ensure data integrity.

Procedure

Step 1 Choose **Maintenance** > **Import all files (or Export all files)** to import or export all files.

Figure 5-26 System Maintenance



----End

5.4.3.1.6 Restoring Factory Settings

Context

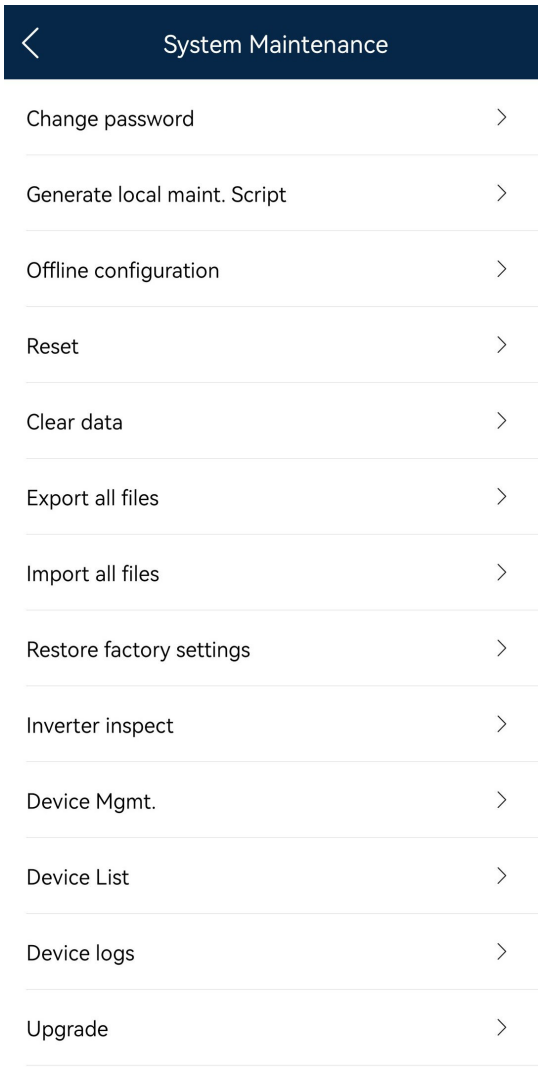
NOTICE

Perform this operation with caution because all configured parameters except the current date, time, baud rate, and address will be restored to their factory default values. This operation will not affect operating information, alarm records, or system logs.

Procedure

Step 1 Choose **Maintenance** > **Restore factory settings**. The **Restore factory** dialog box is displayed.

Figure 5-27 System Maintenance



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Step 2 Enter the password for logging in to the app, and tap **OK**.

----End

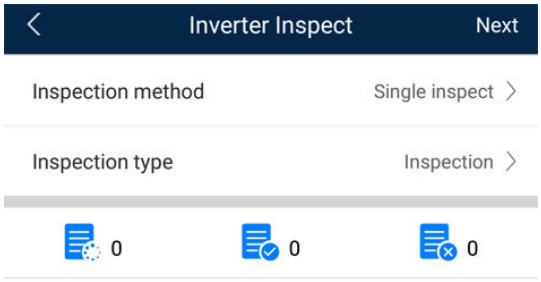
5.4.3.2 Solar Inverter Inspection

Context

After a solar inverter is put into use, it should be inspected periodically to detect any potential risks and problems.

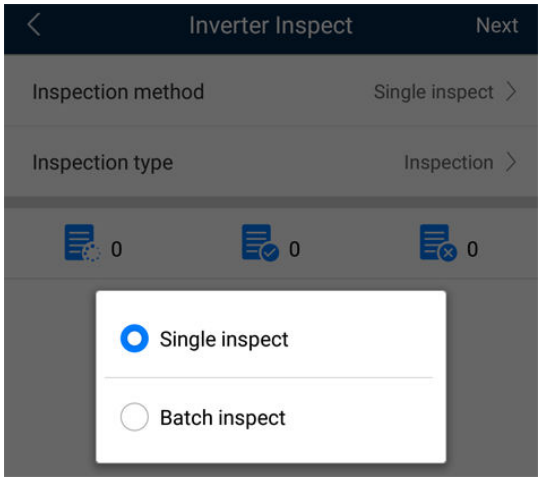
Procedure

Step 1 Tap **Maintenance** > **Inverter Inspect** to access the inspection screen.



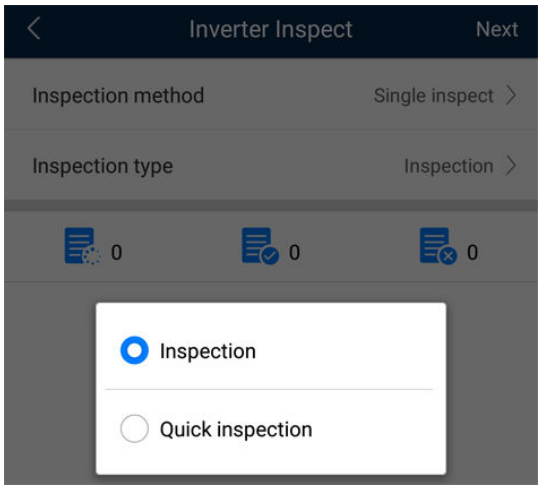
Step 2 Select **Inspection method** and **Inspection type**, tap **Next**.

Figure 5-28 Inspection method



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Figure 5-29 Inspection type



Step 3 Select **Inspection type** and tap **Next** in the upper-right corner of the screen to start inspection.

Figure 5-30 Select device



Step 4 An inspection file is generated after the inspection is complete.

NOTE

By default, the inspection file is saved in **Android/data/com.huanwei.smartpvms/files/inverterapp** in the phone memory. You can change the log save path by referring to *Setting a File Save Path*.

----End

5.4.3.3 Device Management

5.4.3.3.1 Changing a Device Name

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Step 2 Tap a device name to change it.

Figure 5-31 Changing a device name



NOTE

The name of the SmartLogger cannot be changed.

----End

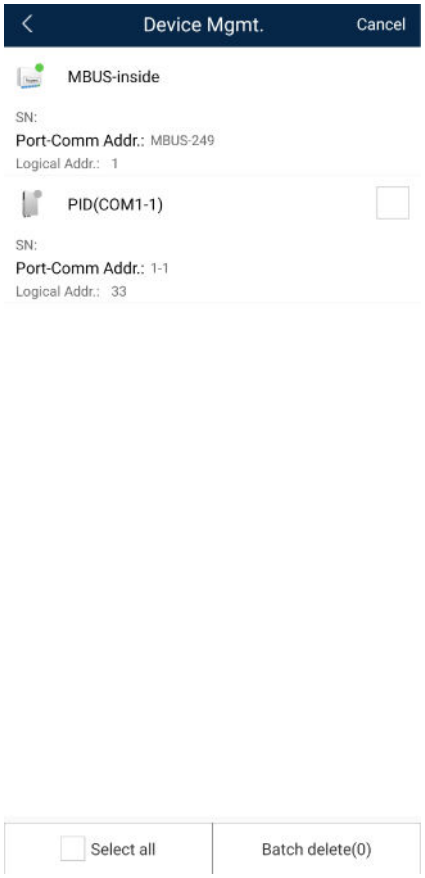
5.4.3.3.2 Deleting Devices

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Step 2 Hold down a device name, select the devices to be deleted, and tap **Batch delete** to delete them.

Figure 5-32 Deleting devices



NOTE

Deleted devices are not displayed on the **Monitor** screen.

----End

5.4.3.3.3 Automatically Searching for Devices

Context

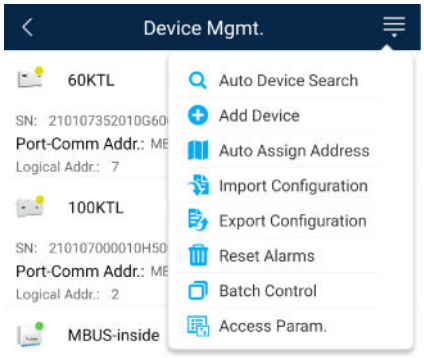
The SmartLogger can automatically detect and connect to devices.

The EMI, power meter, slave SmartLogger, and third-party devices cannot be automatically detected. You need to add them manually. For details, see **5.4.3.3.4 Manually Adding a Device**.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-33 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Automatically searching for devices

----End

5.4.3.3.4 Manually Adding a Device

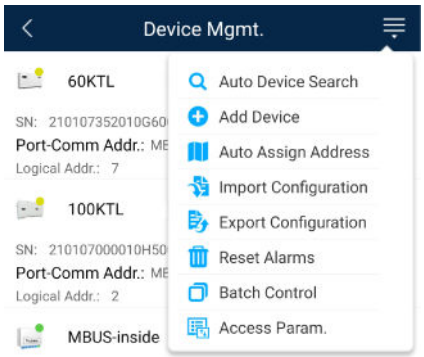
Context

The EMI, power meter, slave SmartLogger, and third-party devices cannot be automatically detected. You need to add them manually.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-34 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Add Device** and set device parameters.

NOTE

- **Comm. Protocol** is set to **Modbus RTU** by default. If you need to modify it, refer to **5.4.4.5 Setting RS485 Parameters**.
- Before adding the EMI or power meter manually, set the EMI or power meter parameters. For details, see *SmartLogger3000 User Manual* , *SmartLogger2000 User Manual* or *SmartLogger1000A User Manual*.

----End

5.4.3.3.5 Automatically Allocating Addresses

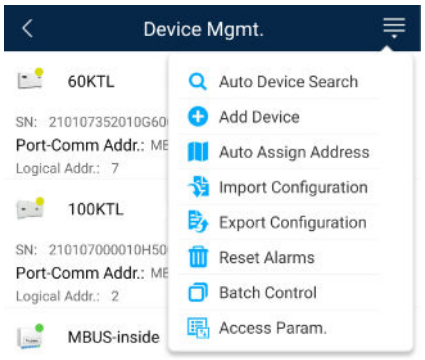
Context

The SmartLogger can automatically allocate addresses to the connected devices and adjust the addresses based on device sequence numbers.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-35 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Auto Assign Address**.

----End

5.4.3.3.6 Importing Configuration

Prerequisites

The name extension of the file to be imported must be **.cfg**. Otherwise, the file will be unavailable.

- The file to be imported is stored in the memory or SD card of the mobile phone.

Context

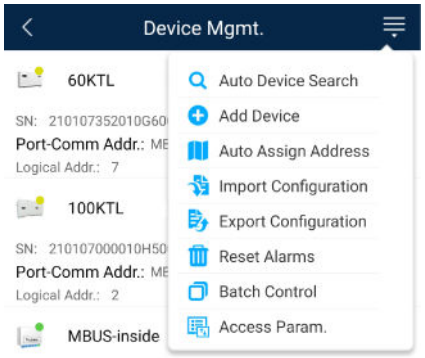
When connecting to a user-defined device or the IEC103 device, import a configuration file and add a device manually. Then, the device can be queried on the **Monitor** screen.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

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Figure 5-36 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Import Config** to import the **.cfg** file.

----End

5.4.3.3.7 Exporting Configuration

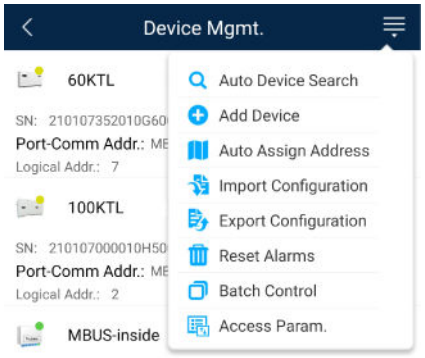
Context

After connecting to a third-party device, you can choose **Export Config** to view its configuration file.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-37 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Export Config**.

----End

5.4.3.3.8 Resetting Alarms

Context

- If you reset alarms, all the active and historical alarms of the selected device are deleted and the SmartLogger starts to collect new alarm data.

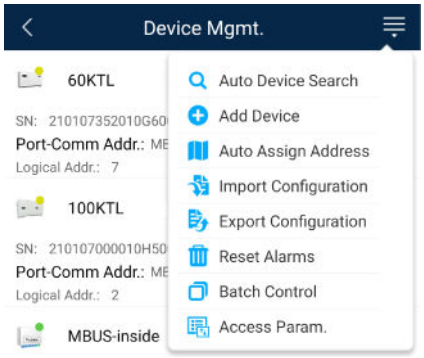
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- If data is deleted for a solar inverter, you must reset alarms on the SmartLogger and the NMS; otherwise, the SmartLogger cannot collect new alarm data from the solar inverter.
- If alarms are reset on the SmartLogger, you must reset alarms on the NMS; otherwise, the NMS cannot obtain the new alarm data collected by the SmartLogger from the solar inverter.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-38 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Reset Alarms** and select a device on the **Reset Alarms** screen.

Step 4 Tap **OK**.

----End

5.4.3.3.9 Starting, Shutting down, and Resetting Solar Inverters in Batches

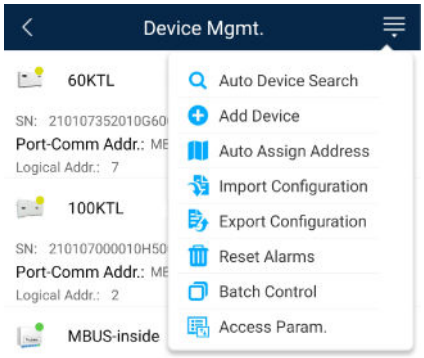
Context

Batch control operations allow the SmartLogger to start, shut down, and reset the connected solar inverters in batches. The solar inverters automatically restart after reset.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-39 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Batch Control**.

Step 4 Tap **Batch startup**, **Batch shutdown**, or **Batch reset**, enter the app login password, and tap **OK**.

----End

5.4.3.3.10 Setting Access Parameter

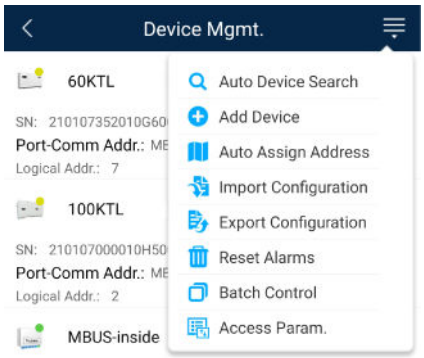
Context

Before connecting a device to the SmartLogger, configure access parameters correctly.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-40 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Access Param.** to access the settings screen.

NOTE

If the SmartLogger communicates with the solar inverter over the MBUS, set **Embedded MBUS enable** to **Enable**.

----End

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5.4.3.4 Managing the Device List

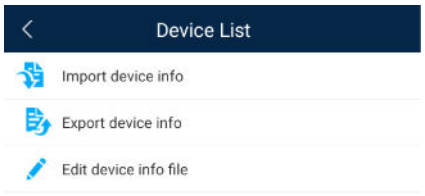
Context

On the device list screen, you can choose **Export Device Info** > **Edit Device Info File** > **Import Device Info** to modify device information in the information file.

Procedure

Step 1 Choose **Maintenance** > **Device List** to access the device list screen.

Figure 5-41 Device List



Step 2 Tap **Export Device Info** to export the device information file.

NOTE

The exported device information file is in .csv format.

Step 3 Tap **Edit Device Info File** to modify the device information file.

1. In the path where the device information file is exported, tap the exported .csv file to access the screen for modifying the file.
2. Tap a parameter to be modified and enter or select target information.
3. After all modifications, tap **Save** in the upper-right corner of the screen.

Step 4 Tap **Import Device Info** to import the modified device information file to the SmartLogger.

----End

5.4.3.5 Exporting Device Logs

Prerequisites

A USB flash drive has been inserted into the USB port on the SmartLogger.

Procedure

Step 1 Choose **Maintenance** > **Device logs** to access the device log screen.

Step 2 Tap  in the upper-right corner of the screen, select a device whose logs are to be exported, and tap **Next**.

Figure 5-42 Exporting device logs



Step 3 Select the types of logs to be exported and tap **OK** to start exporting device logs.

NOTE

The downloaded device logs are saved at the storage path of the USB flash drive.

----End

5.4.3.6 Device Upgrade

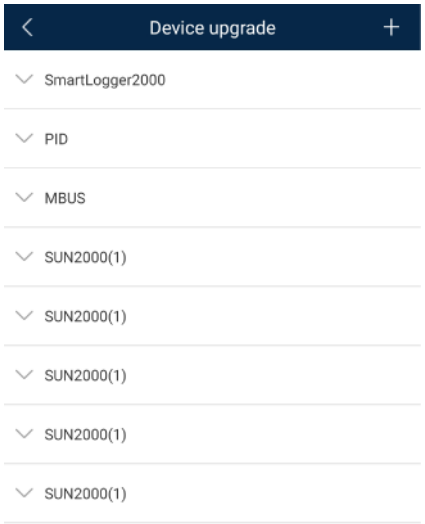
Prerequisites

- You have obtained the upgrade package with the help of the supplier or Huawei engineers. After the downloading is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.
  a. Log in to Huawei enterprise technical support website **http://support.huawei.com/enterprise**.
  b. Browse or search for **PGP Verify**.
- Insert the USB flash drive where the upgrade package is saved into the USB port on the SmartLogger.

Procedure

Step 1 Choose **Maintenance** > **Upgrade** to access the device upgrade screen.

Figure 5-43 Device upgrade



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Step 2 Tap  in the upper-right corner, select a single device or devices of the same type, and tap **Next**.

Step 3 Select the upgrade package and tap **Next**.

Step 4 Confirm the upgrade package and the device to be upgraded, and tap **Finish** to start upgrading the device.

----End

5.4.3.7 Spot-Checking Solar Inverters

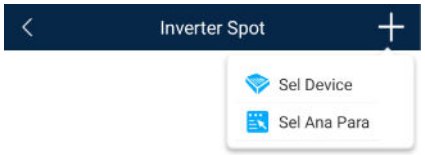
Context

You can perform spot-check for the solar inverter whose **Grid Code** is **Japan standard**.

Procedure

Step 1 Choose **Maintenance** > **Inverter Spot** to access the solar inverter spot-check screen.

Figure 5-44 Inverter spot



Step 2 (Optional) Tap  in the upper-right corner of the **Inverter Spot** screen, select **Sel Ana Para**, and tap **Finish** to set analog parameters.

NOTE

After the parameters on the **Sel Analog Para** screen are set, the analog parameters and their values are displayed on the solar inverter spot-check screen. You can also tap **Sel Device** to set parameters when the solar inverters are being spot-checked.

Step 3 Tap  in the upper-right corner of the **Inverter Spot** screen and select **Sel Device** to access the **Sel Device** screen.

Step 4 Select one or more devices to be spot-checked, and then tap **Finish** to start spot-check.

----End

5.4.3.8 Feedback

Context

Users can provide feedback in text, pictures, and files.

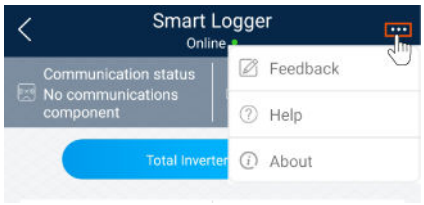
NOTE

Do not add private data.

Procedure

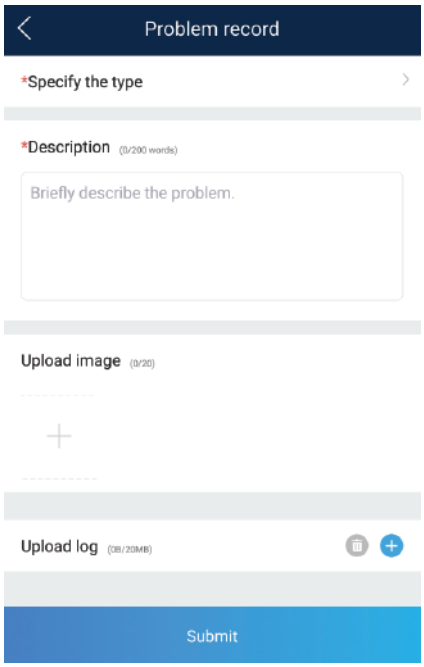
Step 1 Choose ••• > **Feedback** in the upper-right corner of the home screen.

Figure 5-45 Feedback



Step 2 Tap **Specify the type** and select **Feedback** or **Suggestion**.

Figure 5-46 Problem record



Step 3 Briefly describe the problem that you encounter in the **Description** column.

Step 4 (Optional) Tap + to upload pictures.

Step 5 (Optional) Tap ⊕ to upload logs. Select device logs or app logs as required.

Step 6 Tap **Submit**.

----End

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5.4.3.9 Help

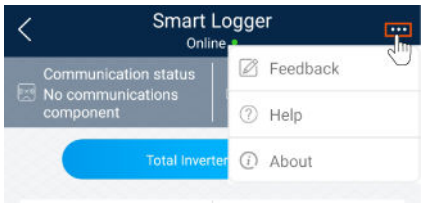
Context

If you have any questions when using an involved device or the app, search for solutions in the help information.

Procedure

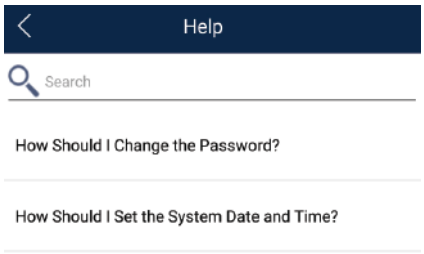
Step 1 Choose ••• > **Help** in the upper-right corner of the home screen.

Figure 5-47 Help 1



Step 2 Specify your question. A solution will be displayed.

Figure 5-48 Help 2



----End

5.4.3.10 About

Context

You can query the app version, connected product model, SN, firmware version, software version, technical support website, privacy policy (displayed only on the SUN2000 app), customer service contact information, and open source software policy.

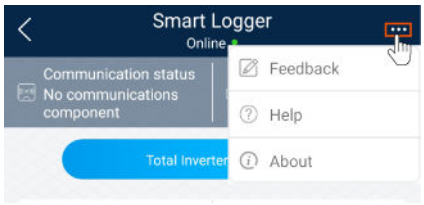
NOTE

- When the app starts for the first time after being downloaded or updated, the privacy policy is displayed. You can use the app only after agreeing to the privacy policy, and the privacy policy will no longer appear. If you do not agree to the privacy policy, the app exits, and the privacy policy is still displayed when you start the app next time until you agree to the privacy policy.
- You can revoke the agreed privacy policy.

Procedure

Step 1 In the upper-right corner of the home screen, choose ••• > **About** to view the app version, connected product model, SN, firmware version, software version, and technical support website.

Figure 5-49 About



Step 2 Tap **Privacy policy**, **Customer service contact information**, or **Open source software policy** to view the privacy policy, customer service contact information, and open source software policy.

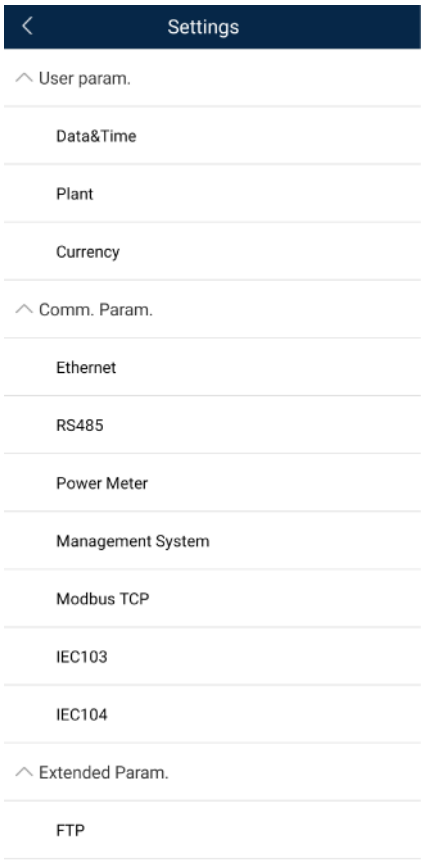
----End

5.4.4 Settings

An advanced user can choose **Settings** to access the settings screen and set the user parameters, communications parameters, extended parameters, and file save path for the SmartLogger.

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Figure 5-50 Settings (advanced user)



NOTE

Only the SmartLogger1000A/SmartLogge3000 supports **Mobile Data (4G/3G/2G)** and **WLAN** settings.

5.4.4.1 Setting the System Date and Time

Procedure

Step 1 Choose **Settings** > **User param.** > **Date&Time** to set the date and time.

Figure 5-51 Date&Time screen



Step 2 Set the date and time based on the region where the SmartLogger is located.

NOTE

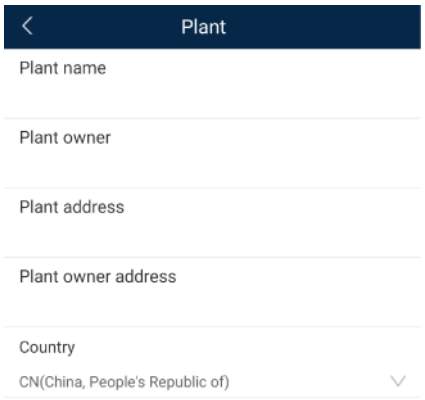
For a solar inverter that supports DST, if an advanced user enables DST, a common user can view DST data. The displayed parameters are for reference only.

----End

5.4.4.2 Setting Plant Information

Step 1 Choose **Settings** > **User param.** > **Plant** to access the parameter setting screen.

Figure 5-52 Plant



Step 2 Tap target parameters. On the displayed screen, enter or select relevant information.

NOTE

The plant parameters that are manually entered must not contain any special character, such as <>:,`'?()#&\$|%+;~^" in the English half-width status.

----End

5.4.4.3 Setting Revenue Parameters

Procedure

Step 1 Choose **Settings** > **User param.** > **Revenue** to access the parameter setting screen.

Figure 5-53 Gain



----End

5.4.4.4 Setting Ethernet Parameters

Context

Set Ethernet parameters to ensure proper operation of Ethernet ports and functions of logging in to the embedded WebUI of the SmartLogger, connecting to the NMS, and sending emails.

Procedure

Step 1 Choose **Settings** > **Comm. Param.** > **Ethernet** to access the Ethernet parameter setting screen.

Step 2 Tap target parameters. On the displayed screen, enter relevant information.

NOTICE

If the SmartLogger connects to the Internet through a router, note the following when setting Ethernet parameters:

- Set the NMS address to the IP address of the router.
- Ensure that the IP address of the SmartLogger is in the same network segment as the NMS address.
- Set the domain name server (DNS) address to the IP address of the router or obtain the DNS address from the network provider.
- After the IP address is changed, you need to use the new IP address to log in to the system.
- When DHCP is enabled, the IP address cannot be set.

----End

5.4.4.5 Setting RS485 Parameters

Context

Set RS485 parameters to ensure normal communication between the SmartLogger and devices such as the SUN2000, EMI, and power meter.

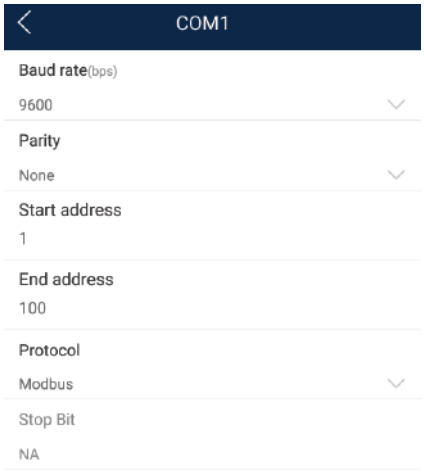
Procedure

Step 1 Choose **Settings** > **Comm. Param.** > **RS485** to access the parameter setting screen.

Step 2 Select a port from **COM1** to **COM6**.

Use the settings of **COM1** as an example.

Figure 5-54 COM1



NOTE

- **COM1** to **COM6** correspond to communications ports **COM1**–**COM3** (SmartLogger1000A and SmartLogger3000) or **COM1**–**COM6** (SmartLogger2000). The default baud rate is **9600 bit/s**.
- The SmartLogger3000 expansion module corresponds to communication ports **M1.COM1**~**M1.COM3**.
- Set the protocol supported by the RS485 port based on either the protocol supported by the connected device or the status of the device in the network. When the SmartLogger serves as a slave node to interconnect with a third-party device over Modbus-RTU, set **Protocol** to **Modbus-Slave**. When the connected solar inverter performs rapid power grid scheduling using both MBUS and RS485, set **Protocol** to **Modbus-Control**.
- **Parity**, **Protocol**, and **Stop bit** must be set to the same values for all devices connected to the same RS485 port.
- The baud rate for the RS485 ports of the SmartLogger must be the same as the baud rate for the device that communicates with the SmartLogger.
- 1 ≤ Start address ≤ End address ≤ 247. The address range of the ports can overlap. Set the address range as required. A larger address range requires a longer searching time. The start and end addresses have no impact on the devices that have been connected.

Step 3 On the **RS485** screen, tap **Night Communication Settings** to set the parameters for communication at night.

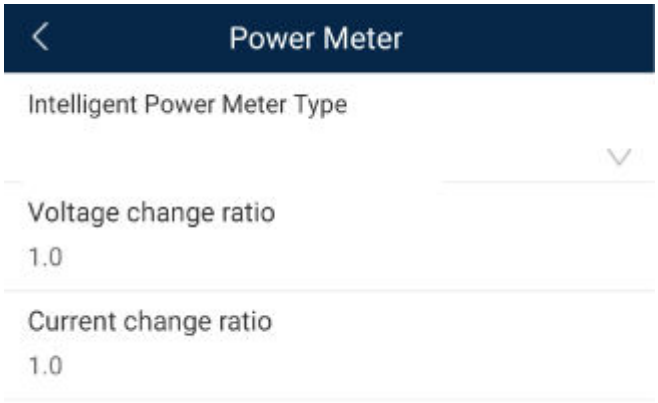
----End

5.4.4.6 Setting Modbus-RTU Power Meter Parameters

Procedure

Step 1 Choose **Settings > Comm. Param. > Power Meter** to access the parameter setting screen.

Figure 5-55 Power Meter



Step 2 Tap target parameters. On the displayed screen, enter relevant information.

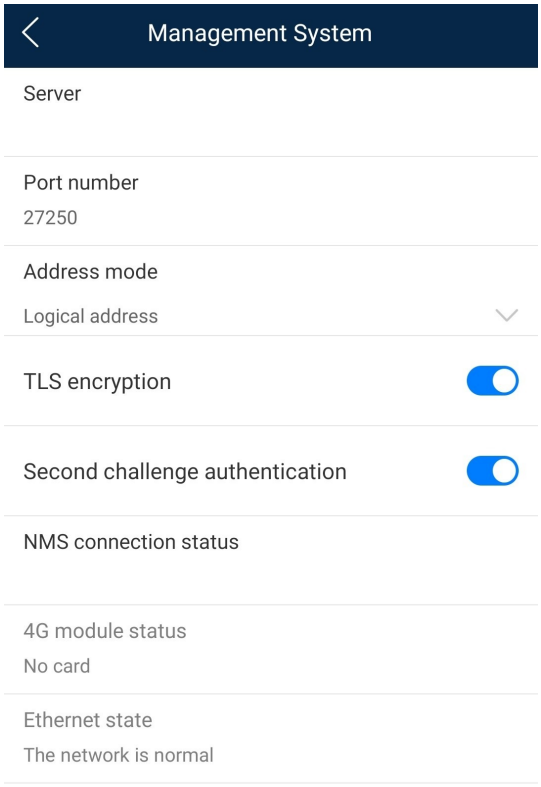
----End

5.4.4.7 Setting Management System Parameters

Procedure

Step 1 Choose **Settings** > **Comm. Param.** > **Management System** to access the parameter setting screen.

Figure 5-56 Management system



NOTE

- Set **Server** to the IP address or domain name of the NMS server.
- When the SmartLogger connects to the Huawei NMS, retain the default value **27250** for **Port number**. When the SmartLogger connects to a third-party NMS, set **Port number** according to the server port enabled in the third-party NMS.
- In most cases, set **Address mode** to **Physical address**. In this mode, addresses of devices connected to each RS485 port cannot be duplicate. If the devices connected to the six RS485 ports of the SmartLogger have duplicate addresses, set **Address mode** to **Logical address**.
- If **TLS encryption** is set to , data will be transmitted without being encrypted, which may pose security risks. Therefore, exercise caution when setting this parameter.
- If **Secondary challenge authentication** is set to , the result of the second challenge authentication is not checked, which may pose security risks. Therefore, exercise caution when setting this parameter.

----End

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5.4.4.8 Setting Modbus TCP Parameters

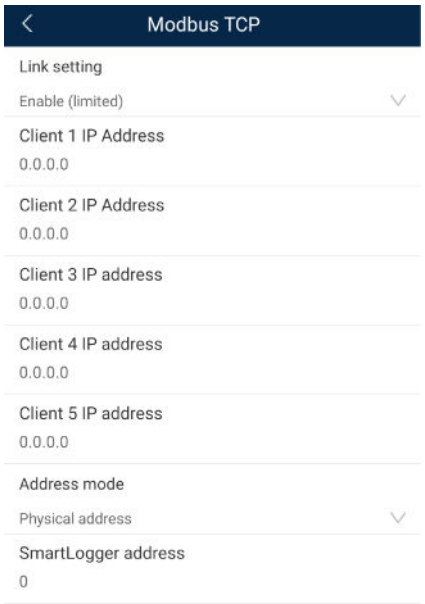
Context

Set Modbus-TCP parameters correctly to ensure normal communication between the SmartLogger and a third-party NMS.

Procedure

Step 1 Choose **Settings** > **Comm. Param.** > **Modbus TCP** to access the parameter setting screen.

Figure 5-57 Modbus TCP



NOTE

- Modbus TCP is a universal standard protocol used to connect to a third-party management system. Because there is no security authentication mechanism, data transmitted by Modbus TCP is not encrypted. To reduce network security risks, the function of connecting to a third-party management system using Modbus TCP is disabled by default. This protocol can transmit the running data and control commands of PV plants, which may cause user data breach and control permission theft. Therefore, exercise caution when using this protocol. Users are liable for any loss caused by the use of this protocol to connect to a third-party management system (non-secure protocol). Users are advised to take measures at the PV plant level to reduce security risks, or use Huawei management system to mitigate the risks.
- If the devices connected to the six RS485 ports of the SmartLogger have duplicate addresses, set **Address mode** to **Logical address**.

----End

5.4.4.9 Setting IEC103 Device Parameters

Procedure

Step 1 Choose **Settings** > **Comm. Param.** > **IEC103** to access the parameter setting screen.

Figure 5-58 IEC103



Step 2 Tap target parameters. On the displayed screen, enter relevant information.

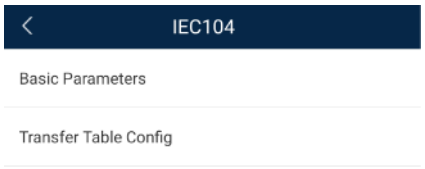
----End

5.4.4.10 Setting IEC104 Device Parameters

Procedure

Step 1 Choose **Settings** > **Comm. Param.** > **IEC104** to access the parameter setting screen.

Figure 5-59 IEC104



Step 2 Tap target parameters. On the displayed screen, enter relevant information.

NOTE

- IEC104 is a universal standard protocol used to connect to a third-party management system. Because there is no security authentication mechanism, data transmitted by IEC104 is not encrypted. To reduce network security risks, the function of connecting to a third-party management system using IEC104 is disabled by default. This protocol can transmit the running data and control commands of PV plants, which may cause user data breach and control permission theft. Therefore, exercise caution when using this protocol. Users are liable for any loss caused by the use of this protocol to connect to a third-party management system (non-secure protocol). Users are advised to take measures at the PV plant level to reduce security risks, or use Huawei management system to mitigate the risks.
- You can set the IP whitelist after **Linking setting** on the **Basic parameters** screen is enabled.
- On the **Transfer table config** screen, you can set teleindication and telemetry signals for devices.

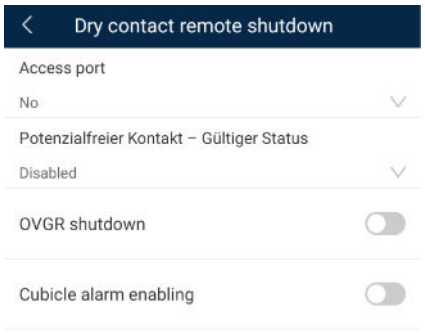
----End

5.4.4.11 Remotely Shutting Down Solar Inverters in Dry Contact Mode

Procedure

Step 1 Choose **Settings** > **Extended Param.** > **Dry contact remote shutdown**. On the displayed screen, set parameters to remotely shut down solar inverters in dry contact mode.

Figure 5-60 Remotely shutting down solar inverters in dry contact mode



----End

5.4.4.12 Setting FTP Parameters

Context

The FTP function is used to access a third-party NMS. The SmartLogger can report the configuration information and running data of the managed plant system through FTP. The third-party NMS can access Huawei devices with proper configurations.

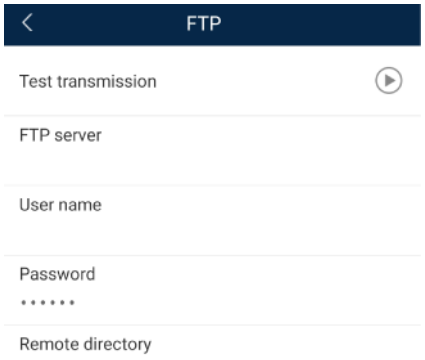
NOTE

FTP is a universal standard protocol without any security authentication mechanism. Data transmitted by FTP is not encrypted. To reduce network security risks, the IP address of the connected third-party FTP server is left blank by default. This protocol can transmit the running data of PV plants, which may cause user data breach. Therefore, exercise caution when using this protocol. Users are liable for any loss caused by the enabling of the FTP protocol (non-secure protocol). Users are advised to take measures at the PV plant level to reduce security risks, or use Huawei management system to mitigate the risks

Procedure

Step 1 Choose **Settings** > **Extended Param.** > **FTP** to access the parameter setting screen.

Figure 5-61 FTP



NOTE

- Perform **Test transmission** to check whether the SmartLogger can report data to the FTP server.
- Set **FTP server** to the domain name or IP address of the FTP server. If **FTP server** is set to the domain name of the FTP server, ensure that the address of the DNS server is set correctly.
- Set **User name** and **Password** for logging in to the FTP server.
- Set **Remote directory** to create a subdirectory of the same name under the default path for uploading data.
- If **Data export** is enabled, you can set the SmartLogger to report data regularly or at a specified time. Data reported at a specified time is all data, whose file name remains the same for a whole day. You can choose all data or incremental data to be reported regularly.

----End

5.4.4.13 Setting Email Parameters

Context

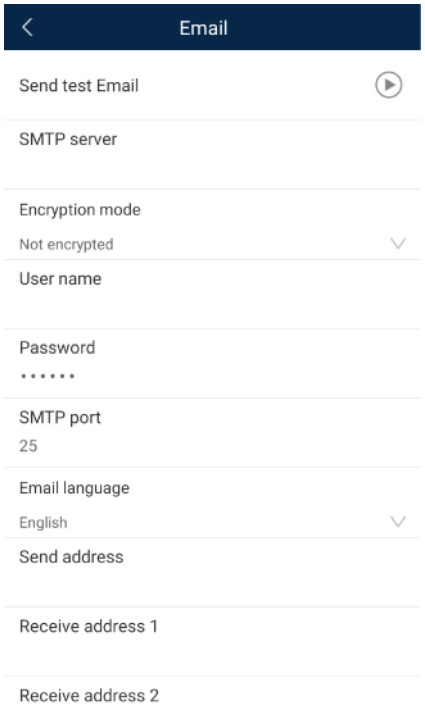
The SmartLogger can send emails to inform users of the current energy yield information, alarm information, and device status of the power plant system, helping users know the running status of the power plant system in time.

When using this function, ensure that the SmartLogger can connect to the configured email server and the Ethernet parameters and email parameters are correctly set for the SmartLogger.

Procedure

Step 1 Choose **Settings** > **Extended Param.** > **Email** to access the parameter setting screen.

Figure 5-62 Email



NOTE

- You can tap **Send test email** to check whether the SmartLogger can successfully send emails to users.
- You can set **SMTP server** to the domain name or IP address of the SMTP server. If it is set to the domain name of the SMTP server, ensure that the address of the DNS server is set correctly.
- Set **User name** and **Password** for logging in to the SMTP server.
- **Send address** indicates the sender's email address. Ensure that the sender's email server is the same as the server specified by **SMTP server**.

----End

5.4.4.14 Setting a File Save Path

Prerequisites

This function is available only on the Android system.

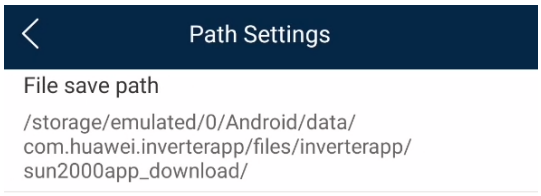
Context

You can modify the save path for logs of devices connected to the SmartLogger and export logs from the path.

Procedure

Step 1 Choose **Settings** > **Path Settings** > **File save path** to access the screen for setting a file save path.

Figure 5-63 Setting a file save path



Step 2 Tap **File save path** to set a file save path.

----End

5.4.5 Power adjustment

5.4.5.1 Active Power Control

Procedure

Step 1 Choose **Power adjustment** > **Active Power Control** to access the **Active Power Control** screen.

Step 2 Tap **Active power control mode** to set the active power control mode.

Figure 5-64 Active power control



----End

5.4.5.2 Setting Reactive Power Control

Procedure

Step 1 On the home screen, tap **Power adjustment > Reactive Power control** to access the parameter setting screen.

Step 2 Tap **Reactive power control mode** to set the active power control mode.

----End

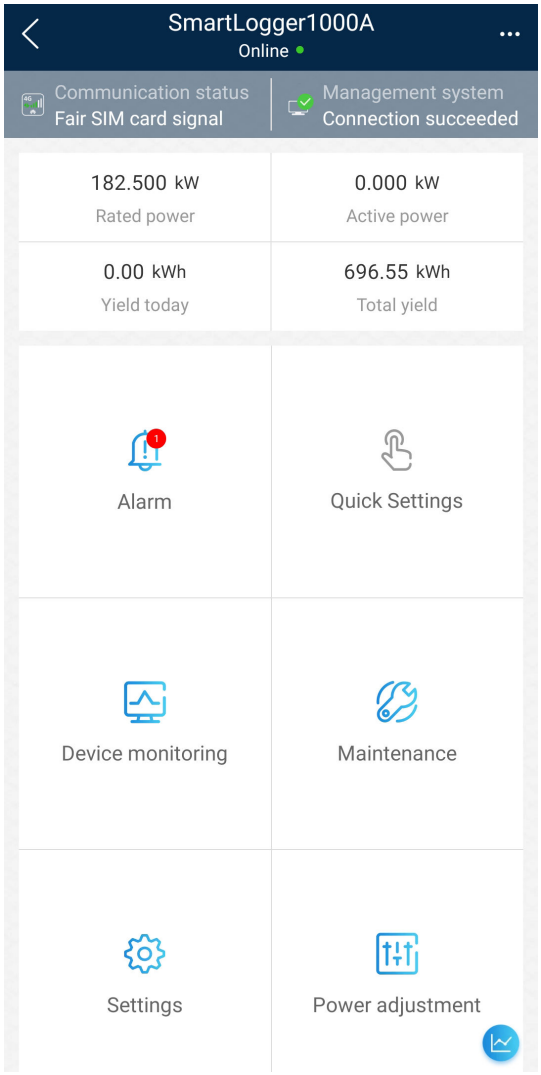
5.5 Screen Operations (Special User)

5.5.1 Query

Procedure

Step 1 After logging in to the app, you can view the active power and energy yield of the connected solar inverters on the home screen.

Figure 5-65 Home



Step 2 Tap **Alarm management** or **Device Monitoring** to view active alarms, historical alarms, and running information.

You can view the following information on the alarm management screen:

- Tap an alarm record and view the alarm details.
- Swipe right or left on the screen or tap either **Active Alarm** or **Historical Alarm** to display a list of active alarms or historical alarms.
- Select the alarms that can be manually cleared, and tap **Delete** on the right of the alarm to manually clear the alarms.

----End

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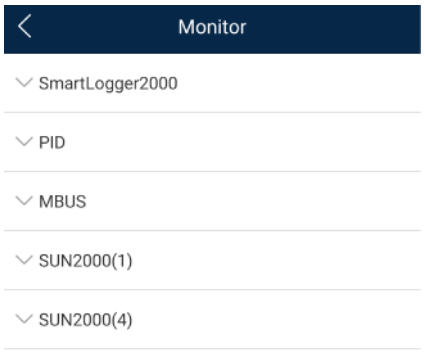
5.5.2 Device Monitoring

A special user can tap **Monitor** to query the running information and alarms about the SmartLogger and the devices connected to it, set parameters, and send commands.

5.5.2.1 Query

Step 1 On the home screen, tap **Monitor** to access the device monitoring screen.

Figure 5-66 Device monitoring



Step 2 Select a target device to access the function menu screen of the device.

Step 3 Tap **Alarm**, **Running Info.**, **Energy Yield**, or **About** to view the alarms, running information, energy yield, and version information about the device.

NOTE

- The displayed information varies according to the device type.
- The SmartLogger can connect to third-party devices that support the Modbus-RTU protocol, such as the box-type transformer and EMI. The SmartLogger cannot automatically search user-defined devices. You need to manually add them.
- The SmartLogger can connect to a maximum of five types of user-defined devices and can connect to multiple devices of the same type.
- The SmartLogger can connect to a third-party device that supports IEC103, such as a relay protection or monitoring device like a box-type transformer. The SmartLogger cannot automatically search IEC103 devices. You need to manually add them.
- The SmartLogger can connect to a maximum of five types of IEC103 devices and can connect to multiple devices of the same type.

----End

5.5.2.2 Settings

Context

An advanced user can set only the running parameters of solar inverters.

Procedure

Step 1 Tap **SUN2000** on the **Monitor** screen and select the target device to access the function menu screen of the solar inverter.

Step 2 Tap **Settings** to access the settings screen.

Step 3 Set parameters as required.

Step 4 (Optional) Select parameters as required and tap **Batch set** to set running parameters for multiple solar inverters of the same series.

----End

5.5.2.3 Maintenance

5.5.2.3.1 Log Download

Context

An advanced user can download only the logs of the SmartLogger, solar inverter, MBUS, and PID module.

Procedure

Step 1 Select a device on the **Monitor** screen to access the function menu screen of the device.

Step 2 Tap **Device Logs** to access the log download screen.

Step 3 Download log files as required.

NOTE

- By default, Android system logs are saved in the **Android/data/com.huanwei.smartpvms/files/inverterapp** folder in the phone memory. You can change the save path by referring to "Setting a File Save Path".
- The downloaded solar inverter logs are saved at the **Device Log** directory in **File Manager** in your mobile phone. You can also send the logs to your mailbox for checking.

----End

5.5.2.3.2 Solar Inverter Maintenance

Procedure

Step 1 Tap **SUN2000** on the **Monitor** screen and select the target device to access the function menu screen of the solar inverter.

Step 2 Tap **Maintenance** to access the maintenance screen.

Step 3 Tap  next to **Power on** or **Power off** to perform the operation.

NOTE

Tap **Performance Data** to view the performance data curve of the solar inverter.

Step 4 Enter the password for logging in to the app, and tap **OK**.

----End

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5.5.3 Maintenance

5.5.3.1 System Maintenance

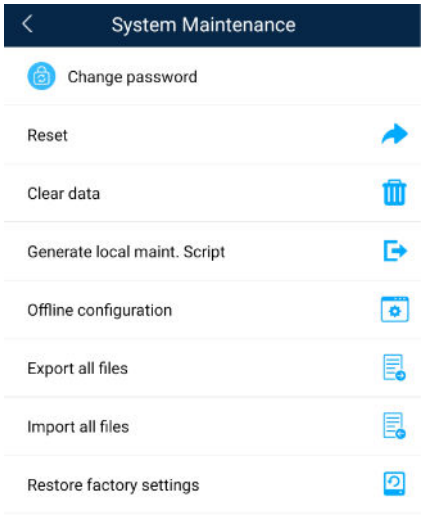
You can choose **Maintenance** to change the SmartLogger password and reset the system.

5.5.3.1.1 Changing a User Password

Procedure

Step 1 Choose **Maintenance** > **Change Password** to access the password change screen.

Figure 5-67 Change Password



NOTE

The password must meet the following requirements:

- Contains 6–20 characters.
- Contains at least two of the following types: lowercase letters, uppercase letters, and digits.

----End

5.5.3.1.2 Resetting the System

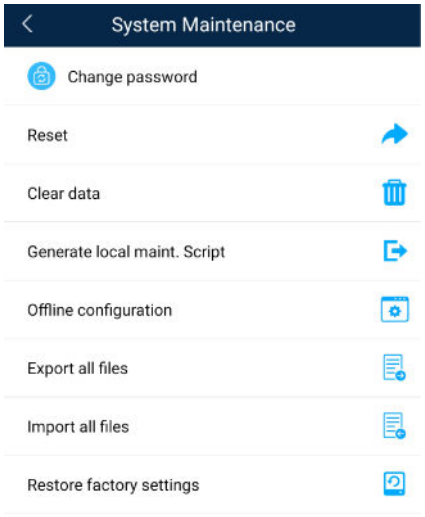
Context

After the system resets, the SmartLogger restarts.

Procedure

Step 1 Choose **Maintenance** > **Reset**. A dialog box for resetting the system is displayed.

Figure 5-68 Reset



Step 2 Enter the password for logging in to the app, and tap **OK**.

----End

5.5.3.1.3 Clearing Data

Context

Clear data if the SmartLogger is relocated and its historical data needs to be deleted.

NOTICE

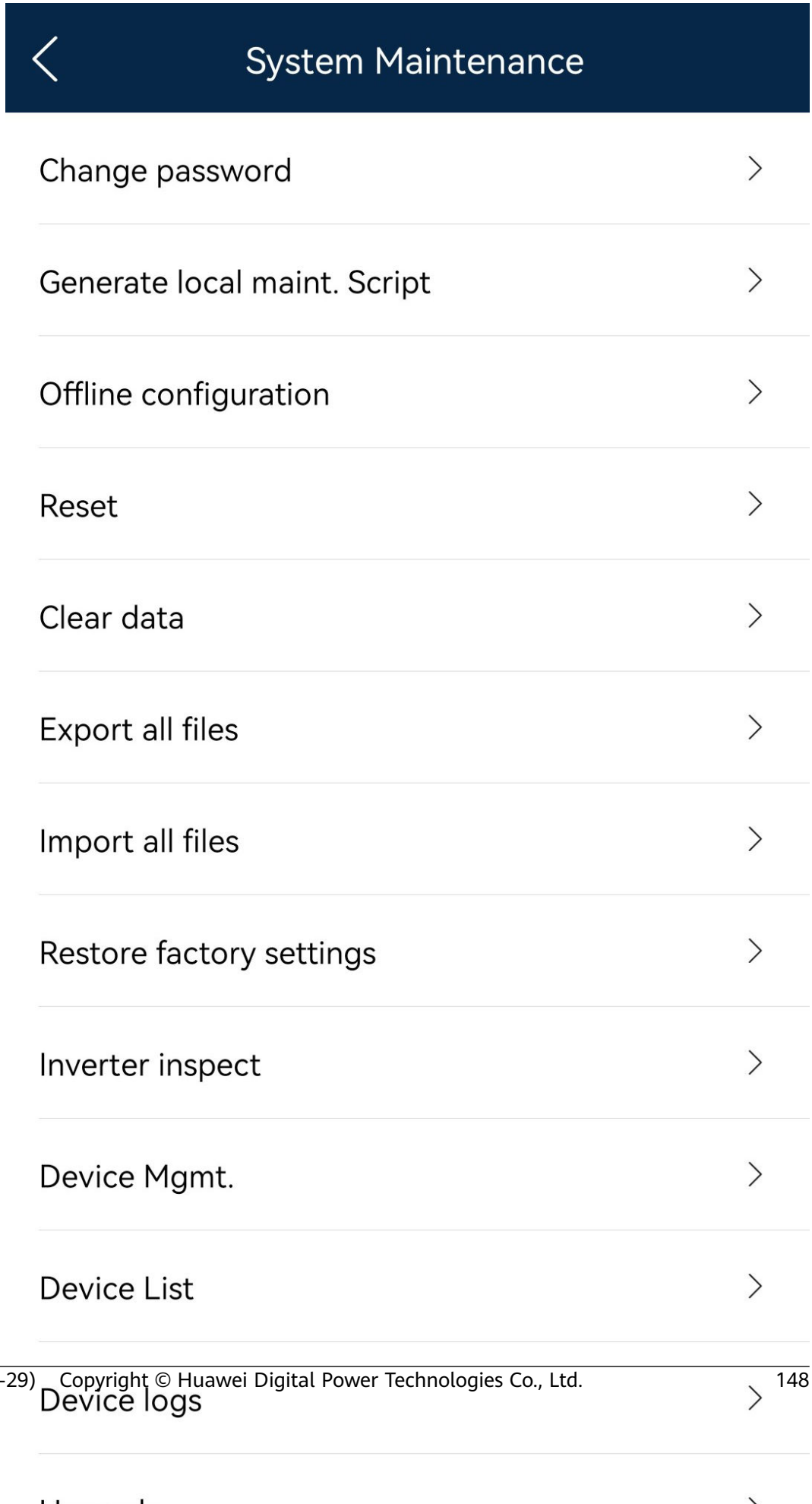
- After you perform **Clear Data**, electric energy yield data, performance data, and alarms are cleared from the SmartLogger.
- After you perform **Clear Data**, the devices connected to the SmartLogger are not removed. If the original device will no longer connect to the SmartLogger, remove the device.
- If you perform **Clear Data** on the SmartLogger, you also have to perform **Reset Alarms** on the NMS. Otherwise, the alarm information collected by the NMS and SmartLogger will be different.

Procedure

Step 1 Choose **Maintenance** > **Clear Data**. A dialog box for clearing data is displayed.

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Figure 5-69 System Maintenance



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Step 2 Enter the password for logging in to the app, and tap **OK**.

----End

5.5.3.1.4 Restoring Factory Settings

Context

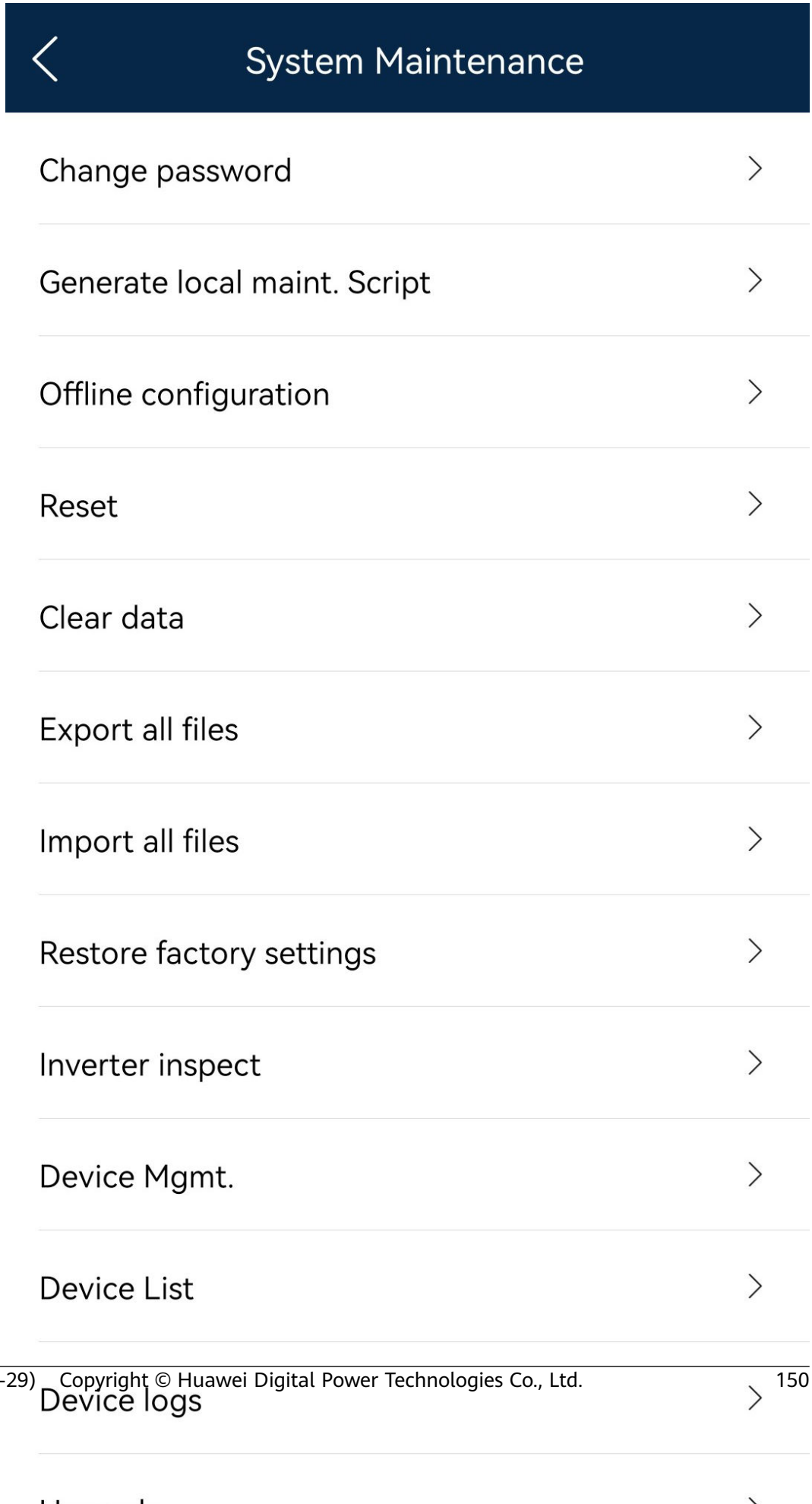
NOTICE

Perform this operation with caution because all configured parameters except the current date, time, baud rate, and address will be restored to their factory default values. This operation will not affect operating information, alarm records, or system logs.

Procedure

Step 1 Choose **Maintenance** > **Restore factory settings**. The **Restore factory** dialog box is displayed.

Figure 5-70 System Maintenance



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Step 2 Enter the password for logging in to the app, and tap **OK**.

----End

5.5.3.2 Device Inspection

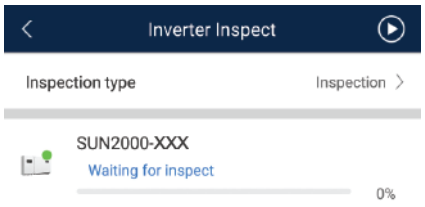
Context

After a solar inverter is put into use, it should be inspected periodically to detect any potential risks and problems.

Procedure

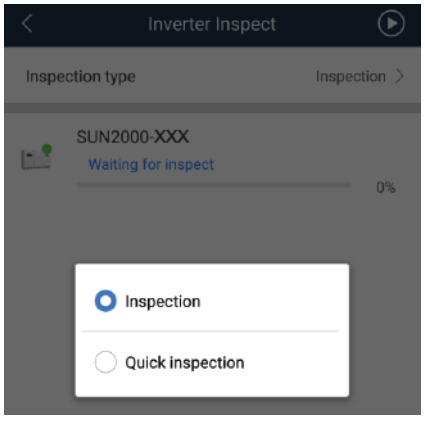
Step 1 On the home screen, choose **Maintenance** > **Inspection** to access the inspection screen.

Figure 5-71 Device inspection



Step 2 Choose **Inspection type**, tap  in the upper-right corner of the screen to start solar inverter inspection.

Figure 5-72 Inverter Inspect



----End

5.5.3.3 Device Management

You can choose **Maintenance** > **Device Mgmt** to manage all devices connected to the SmartLogger.

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5.5.3.3.1 Changing a Device Name

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Step 2 Tap a device name to change it.

Figure 5-73 Changing a device name



NOTE

The name of the SmartLogger cannot be changed.

----End

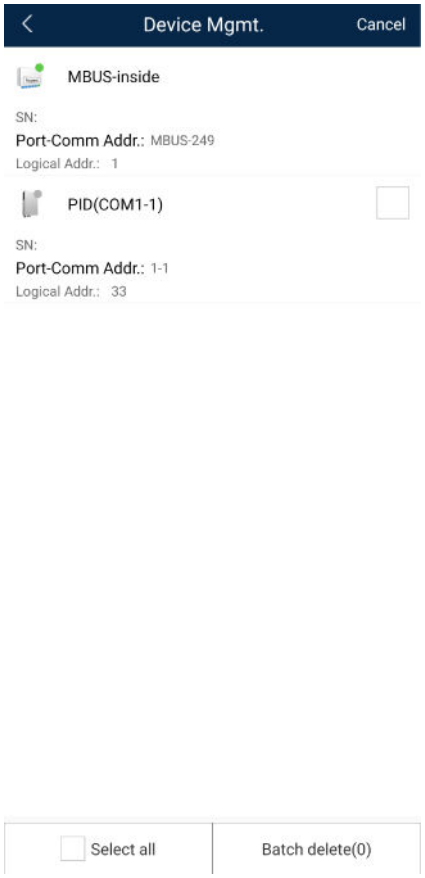
5.5.3.3.2 Deleting Devices

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Step 2 Hold down a device name, select the devices to be deleted, and tap **Batch delete** to delete them.

Figure 5-74 Deleting devices



NOTE

Deleted devices are not displayed on the **Monitor** screen.

----End

5.5.3.3.3 Automatically Searching for Devices

Context

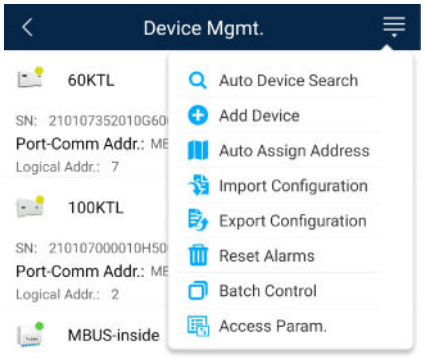
The SmartLogger can automatically detect and connect to devices.

The EMI, power meter, slave SmartLogger, and third-party devices cannot be automatically detected. You need to add them manually. For details, see **5.5.3.3.4 Manually Adding a Device**.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-75 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Automatically searching for devices

----End

5.5.3.3.4 Manually Adding a Device

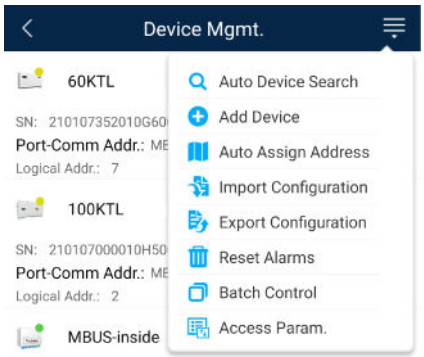
Context

The EMI, power meter, slave SmartLogger, and third-party devices cannot be automatically detected. You need to add them manually.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-76 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Add Device** and set device parameters.

NOTE

- **Comm. Protocol** is set to **Modbus RTU** by default. If you need to modify it, refer to **5.5.4.1 Setting RS485 Parameters**.
- Before adding the EMI or power meter manually, set the EMI or power meter parameters. For details, see *SmartLogger3000 User Manual* , *SmartLogger2000 User Manual* or *SmartLogger1000A User Manual*.

----End

5.5.3.3.5 Automatically Allocating Addresses

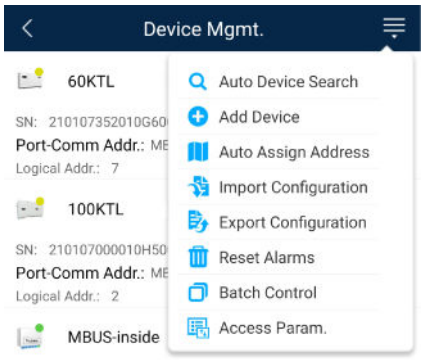
Context

The SmartLogger can automatically allocate addresses to the connected devices and adjust the addresses based on device sequence numbers.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-77 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Auto Assign Address**.

----End

5.5.3.3.6 Importing Configuration

Prerequisites

The name extension of the file to be imported must be **.cfg**. Otherwise, the file will be unavailable.

- The file to be imported is stored in the memory or SD card of the mobile phone.

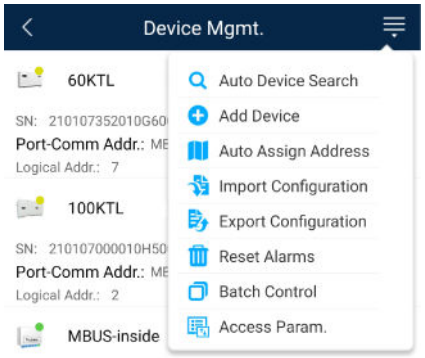
Context

When connecting to a user-defined device or the IEC103 device, import a configuration file and add a device manually. Then, the device can be queried on the **Monitor** screen.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-78 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Import Config** to import the **.cfg** file.

----End

5.5.3.3.7 Exporting Configuration

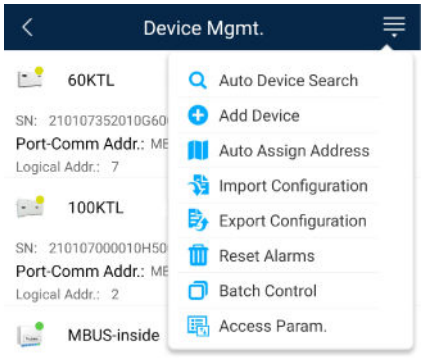
Context

After connecting to a third-party device, you can choose **Export Config** to view its configuration file.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-79 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Export Config**.

----End

5.5.3.3.8 Resetting Alarms

Context

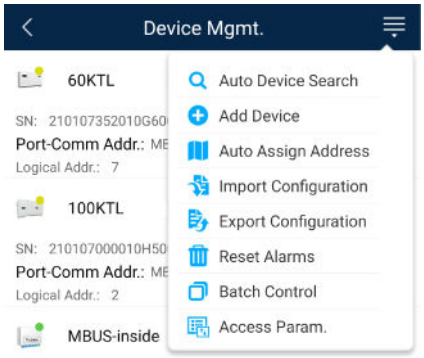
- If you reset alarms, all the active and historical alarms of the selected device are deleted and the SmartLogger starts to collect new alarm data.

- If data is deleted for a solar inverter, you must reset alarms on the SmartLogger and the NMS; otherwise, the SmartLogger cannot collect new alarm data from the solar inverter.
- If alarms are reset on the SmartLogger, you must reset alarms on the NMS; otherwise, the NMS cannot obtain the new alarm data collected by the SmartLogger from the solar inverter.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-80 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Reset Alarms** and select a device on the **Reset Alarms** screen.

Step 4 Tap **OK**.

----End

5.5.3.3.9 Starting, Shutting down, and Resetting Solar Inverters in Batches

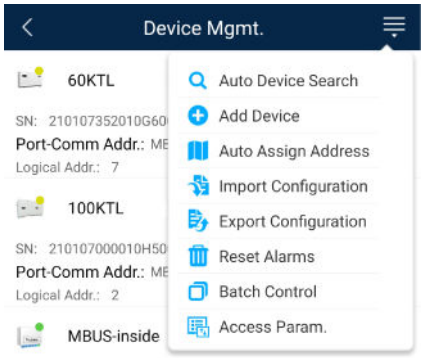
Context

Batch control operations allow the SmartLogger to start, shut down, and reset the connected solar inverters in batches. The solar inverters automatically restart after reset.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-81 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Batch Control**.

Step 4 Tap **Batch startup**, **Batch shutdown**, or **Batch reset**, enter the app login password, and tap **OK**.

----End

5.5.3.3.10 Setting Access Parameter

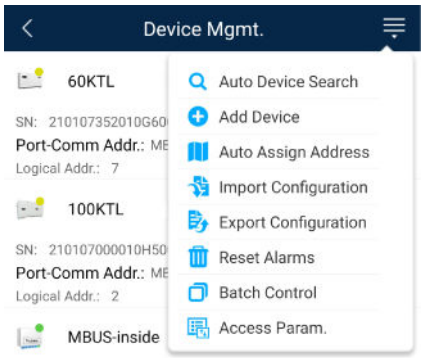
Context

Before connecting a device to the SmartLogger, configure access parameters correctly.

Procedure

Step 1 Choose **Maintenance** > **Device Mgmt.** to access the **Device Mgmt.** screen.

Figure 5-82 Device management



Step 2 Tap the drop-down list in the upper-right corner of the **Device Mgmt.** screen.

Step 3 Tap **Access Param.** to access the settings screen.

NOTE

If the SmartLogger communicates with the solar inverter over the MBUS, set **Embedded MBUS enable** to **Enable**.

----End

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5.5.3.4 Managing the Device List

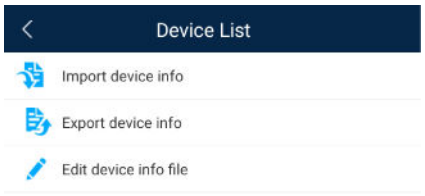
Context

On the device list screen, you can choose **Export Device Info** > **Edit Device Info File** > **Import Device Info** to modify device information in the information file.

Procedure

Step 1 Choose **Maintenance** > **Device List** to access the device list screen.

Figure 5-83 Device List



Step 2 Tap **Export Device Info** to export the device information file.

NOTE

The exported device information file is in .csv format.

Step 3 Tap **Edit Device Info File** to modify the device information file.

1. In the path where the device information file is exported, tap the exported .csv file to access the screen for modifying the file.
2. Tap a parameter to be modified and enter or select target information.
3. After all modifications, tap **Save** in the upper-right corner of the screen.

Step 4 Tap **Import Device Info** to import the modified device information file to the SmartLogger.

----End

5.5.3.5 Exporting Device Logs

Prerequisites

A USB flash drive has been inserted into the USB port on the SmartLogger.

Procedure

Step 1 Choose **Maintenance** > **Device logs** to access the device log screen.

Step 2 Tap  in the upper-right corner of the screen, select a device whose logs are to be exported, and tap **Next**.

Figure 5-84 Exporting device logs



Step 3 Select the types of logs to be exported and tap **OK** to start exporting device logs.

NOTE

The downloaded device logs are saved at the storage path of the USB flash drive.

----End

5.5.3.6 Device Upgrade

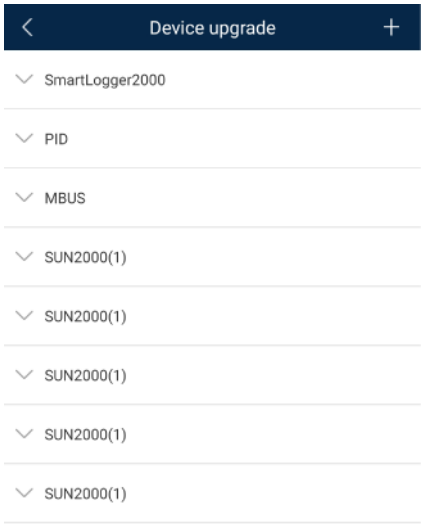
Prerequisites

- You have obtained the upgrade package with the help of the supplier or Huawei engineers. After the downloading is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.
  a. Log in to Huawei enterprise technical support website **http://support.huawei.com/enterprise**.
  b. Browse or search for **PGP Verify**.
- Insert the USB flash drive where the upgrade package is saved into the USB port on the SmartLogger.

Procedure

Step 1 Choose **Maintenance** > **Upgrade** to access the device upgrade screen.

Figure 5-85 Device upgrade



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Step 2 Tap  in the upper-right corner, select a single device or devices of the same type, and tap **Next**.

Step 3 Select the upgrade package and tap **Next**.

Step 4 Confirm the upgrade package and the device to be upgraded, and tap **Finish** to start upgrading the device.

----End

5.5.3.7 Spot-Checking Solar Inverters

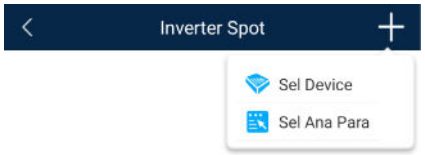
Context

You can perform spot-check for the solar inverter whose **Grid Code** is **Japan standard**.

Procedure

Step 1 Choose **Maintenance** > **Inverter Spot** to access the solar inverter spot-check screen.

Figure 5-86 Inverter spot



Step 2 (Optional) Tap  in the upper-right corner of the **Inverter Spot** screen, select **Sel Ana Para**, and tap **Finish** to set analog parameters.

NOTE

After the parameters on the **Sel Analog Para** screen are set, the analog parameters and their values are displayed on the solar inverter spot-check screen. You can also tap **Sel Device** to set parameters when the solar inverters are being spot-checked.

Step 3 Tap  in the upper-right corner of the **Inverter Spot** screen and select **Sel Device** to access the **Sel Device** screen.

Step 4 Select one or more devices to be spot-checked, and then tap **Finish** to start spot-check.

----End

5.5.3.8 Feedback

Context

Users can provide feedback in text, pictures, and files.

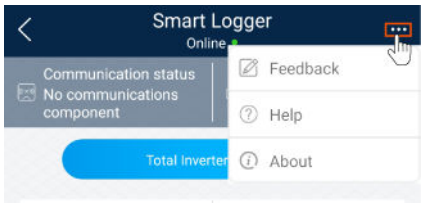
NOTE

Do not add private data.

Procedure

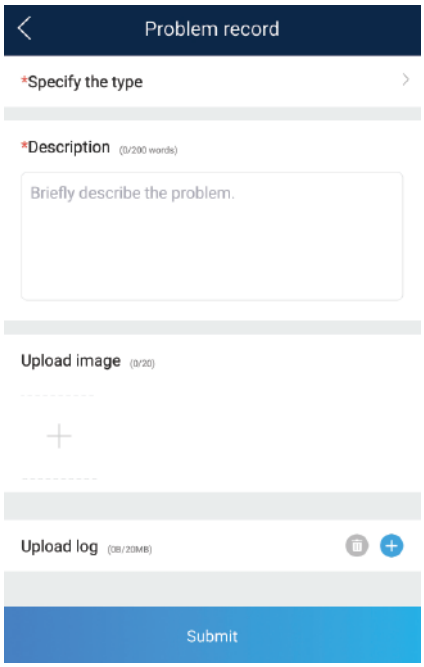
Step 1 Choose ••• > **Feedback** in the upper-right corner of the home screen.

Figure 5-87 Feedback



Step 2 Tap **Specify the type** and select **Feedback** or **Suggestion**.

Figure 5-88 Problem record



Step 3 Briefly describe the problem that you encounter in the **Description** column.

Step 4 (Optional) Tap + to upload pictures.

Step 5 (Optional) Tap ⊕ to upload logs. Select device logs or app logs as required.

Step 6 Tap **Submit**.

----End

5.5.3.9 Help

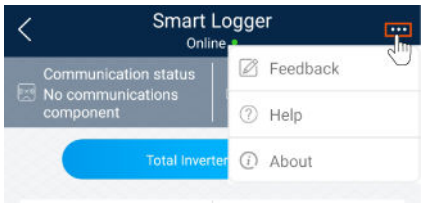
Context

If you have any questions when using an involved device or the app, search for solutions in the help information.

Procedure

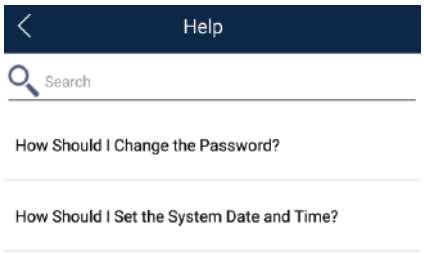
Step 1 Choose ••• > **Help** in the upper-right corner of the home screen.

Figure 5-89 Help 1



Step 2 Specify your question. A solution will be displayed.

Figure 5-90 Help 2



----End

5.5.3.10 About

Context

You can query the app version, connected product model, SN, firmware version, software version, technical support website, privacy policy (displayed only on the SUN2000 app), customer service contact information, and open source software policy.

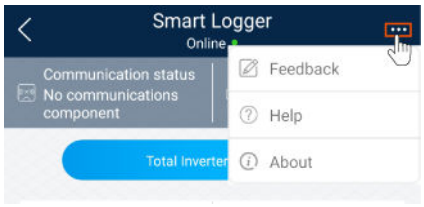
NOTE

- When the app starts for the first time after being downloaded or updated, the privacy policy is displayed. You can use the app only after agreeing to the privacy policy, and the privacy policy will no longer appear. If you do not agree to the privacy policy, the app exits, and the privacy policy is still displayed when you start the app next time until you agree to the privacy policy.
- You can revoke the agreed privacy policy.

Procedure

Step 1 In the upper-right corner of the home screen, choose ••• > **About** to view the app version, connected product model, SN, firmware version, software version, and technical support website.

Figure 5-91 About



Step 2 Tap **Privacy policy**, **Customer service contact information**, or **Open source software policy** to view the privacy policy, customer service contact information, and open source software policy.

----End

5.5.4 Settings

5.5.4.1 Setting RS485 Parameters

Context

Set RS485 parameters to ensure normal communication between the SmartLogger and devices such as the SUN2000, EMI, and power meter.

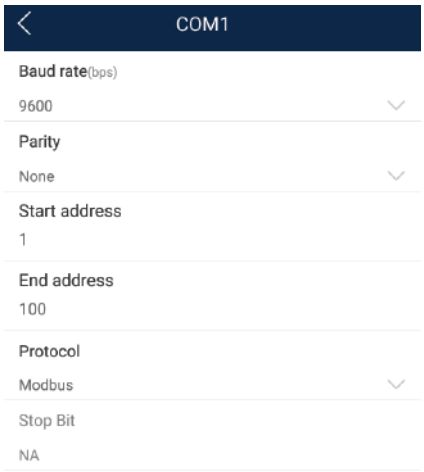
Procedure

Step 1 Choose **Settings** > **RS485** to access the parameter setting screen.

Step 2 Select a port from **COM1** to **COM6**.

Use the settings of **COM1** as an example.

Figure 5-92 COM1



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NOTE

- **COM1** to **COM6** correspond to communications ports **COM1**–**COM3** (SmartLogger1000A and SmartLogger3000) or **COM1**–**COM6** (SmartLogger2000). The default baud rate is 9600 bit/s.
- Set the protocol supported by the RS485 port based on either the protocol supported by the connected device or the status of the device in the network. When the SmartLogger serves as a slave node to interconnect with a third-party device over Modbus-RTU, set **Protocol** to **Modbus-Slave**. When the connected solar inverter performs rapid power grid scheduling using both MBUS and RS485, set **Protocol** to **Modbus-Control**.
- **Parity**, **Protocol**, and **Stop bit** must be set to the same values for all devices connected to the same RS485 port.
- The baud rate for the RS485 ports of the SmartLogger must be the same as the baud rate for the device that communicates with the SmartLogger.
- 1 ≤ Start address ≤ End address ≤ 247. The address range of the ports can overlap. Set the address range as required. A larger address range requires a longer searching time. The start and end addresses have no impact on the devices that have been connected.

Step 3 On the **RS485** screen, tap **Night Communication Settings** to set the parameters for communication at night.

----End

5.5.4.2 Setting Modbus-RTU Power Meter Parameters

Procedure

Step 1 Choose **Settings** > **Power Meter** to access the parameter setting screen.

Figure 5-93 Power Meter



Step 2 Tap target parameters. On the displayed screen, enter relevant information.

----End

5.5.5 Power adjustment

5.5.5.1 Active Power Control

Procedure

Step 1 Choose **Power adjustment** > **Active Power Control** to access the **Active Power Control** screen.

Step 2 Tap **Active power control mode** to set the active power control mode.

Figure 5-94 Active power control



----End

5.5.5.2 Setting Reactive Power Control

Procedure

Step 1 On the home screen, tap **Power adjustment > Reactive Power control** to access the parameter setting screen.

Step 2 Tap **Reactive power control mode** to set the active power control mode.

----End

6 Operations on the Screen for Connecting to the Smart PCS

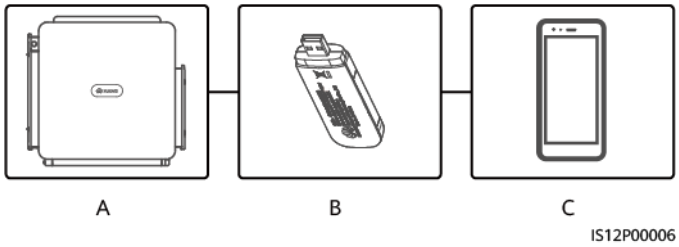
6.1 Connection Mode

After the DC or AC side of the Smart PCS is powered on, the app can connect to the Smart PCS through the WLAN module.

NOTICE

The USB-Adapter2000-C WLAN module is supported.

Figure 6-1 WLAN module connection



(A) Smart PCS (B) WLAN module (C) Mobile phone

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NOTICE

- If the AC switch between the Smart PCS and the power grid is turned on, but the external switch on the DC side of the Smart PCS is turned off, some parameters cannot be set. Turn on the external switch on the DC side, and then reset the parameters.
- Changing the grid code will restore some parameters to factory defaults. After the grid code is changed, check whether the previously set parameters are affected.
- When the Smart PCS receives a reset, shutdown, or upgrade command, it may disconnect from the grid, affecting the energy yield.
- When the equipment is powered on for the first time, ensure that professional personnel set parameters correctly. Incorrect settings may result in inconsistency with local certification and affect the normal operation of the equipment.
- Only professionals are allowed to set the grid, protection, feature, and power adjustment parameters of the Smart PCS. If the grid, protection, and feature parameters are set incorrectly, the Smart PCS may disconnect from the grid. If the power adjustment parameters are set incorrectly, the Smart PCS may not connect to the power grid as required. In these cases, the energy yield will be affected.

NOTE

- Configurable parameters vary depending on the grid code.
- The parameter names, value ranges, and default values are subject to change. The actual display may vary.

6.2 Login

Prerequisites

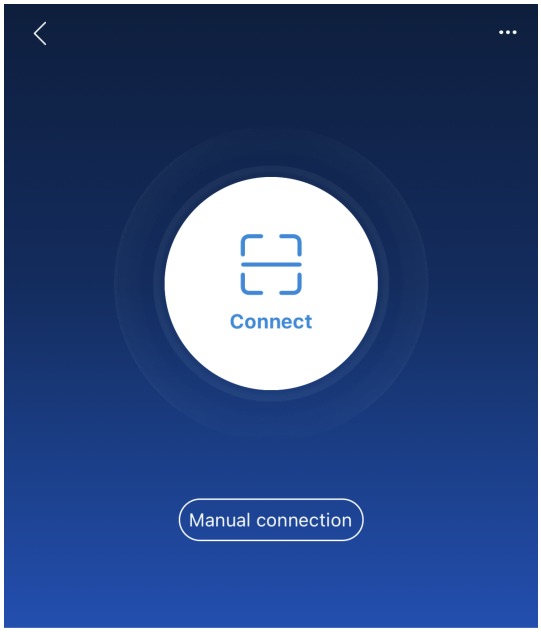
- The Smart PCS has been powered on.
- The WLAN module has been inserted into the **USB** port of the Smart PCS.
- The WLAN function has been enabled on your phone.
- Keep the mobile phone within 5 m from the Smart PCS. Otherwise, the communication between them might be affected.

Procedure

Step 1 Connect to the Smart PCS.

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Figure 6-2 Connect



- Connection by scanning a QR code: Tap **Connect**. On the scanning screen, place the QR code of the WLAN module in the scanning box to automatically scan and connect to the device.
- Manual connection: Tap **Manual connection** and select a connection mode.

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Figure 6-3 Manual connection



– Select **WLAN** and connect to the corresponding hotspot in the WLAN connection list of the app. The initial name of the WLAN hotspot is **Adapter-WLAN module SN**, and the initial password is **Changeme**.

NOTICE

- Use the initial password upon the first power-on and change it immediately after login. To ensure account security, change the password periodically and keep the new password in mind. Your password might be stolen or cracked if it is left unchanged for extended periods. If a password is lost, devices cannot be accessed. In these cases, you should be liable for any loss caused to the PV plant.
- If the **This WLAN network has no Internet access. Connect anyway?** message is displayed when you connect to the built-in WLAN, tap **CONNECT**. Otherwise, you cannot log in to the system. The actual UI and messages may vary with mobile phones.

Step 2 Select a login user and enter the password.

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Figure 6-4 Login



NOTICE

- If the system prompts you to set a password upon the first power-on, set the password before login.
- Ensure account security by changing the password periodically. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, you should be liable for any loss caused to the PV plant.
- You will be locked out for 10 minutes after five failed consecutive password attempts at an interval not longer than two minutes.

Step 3 Log in to the app and access the main menu screen.

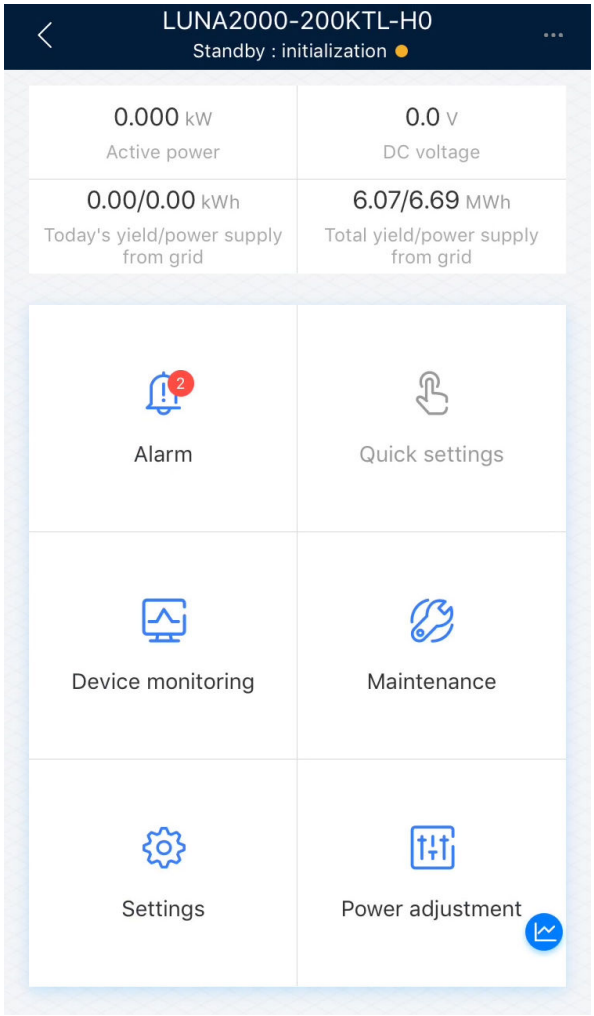
----End

6.3 Query

Procedure

Step 1 After logging in to the app, you can view the active power and energy yield of the Smart PCS on the home screen.

Figure 6-5 Home screen



Step 2 Tap **Alarms** or **Device Monitoring** to view active alarms, historical alarms, and Smart PCS running information.

On the **Alarms** screen, you can perform the following operations:

- Tap an alarm record and view the alarm details.
- Swipe left or right on the screen or tap **Active Alarms** or **Historical Alarms** to switch between active alarms and historical alarms.

On the **Device Monitoring** screen, you can perform the following operations:

- Tap **Running Info** to view the device running information.

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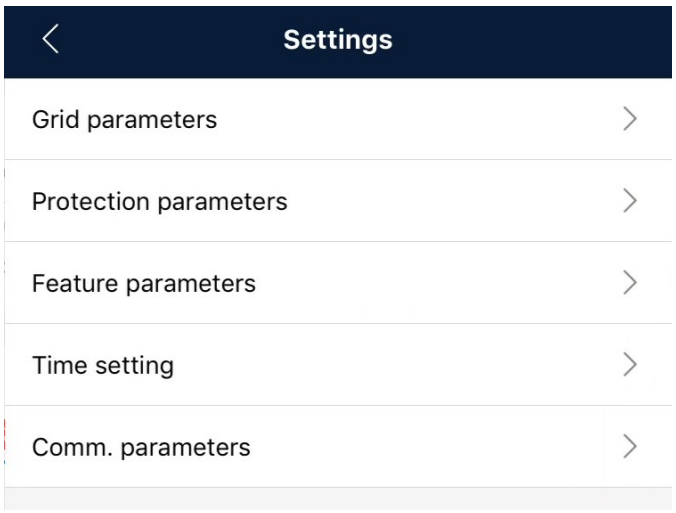
- Tap **Insulation Resistance** to view the insulation resistance of the device.

----End

6.4 Settings

On the home screen, tap **Settings** to set grid parameters, protection parameters, feature parameters, and other parameters.

Figure 6-6 Settings



NOTICE

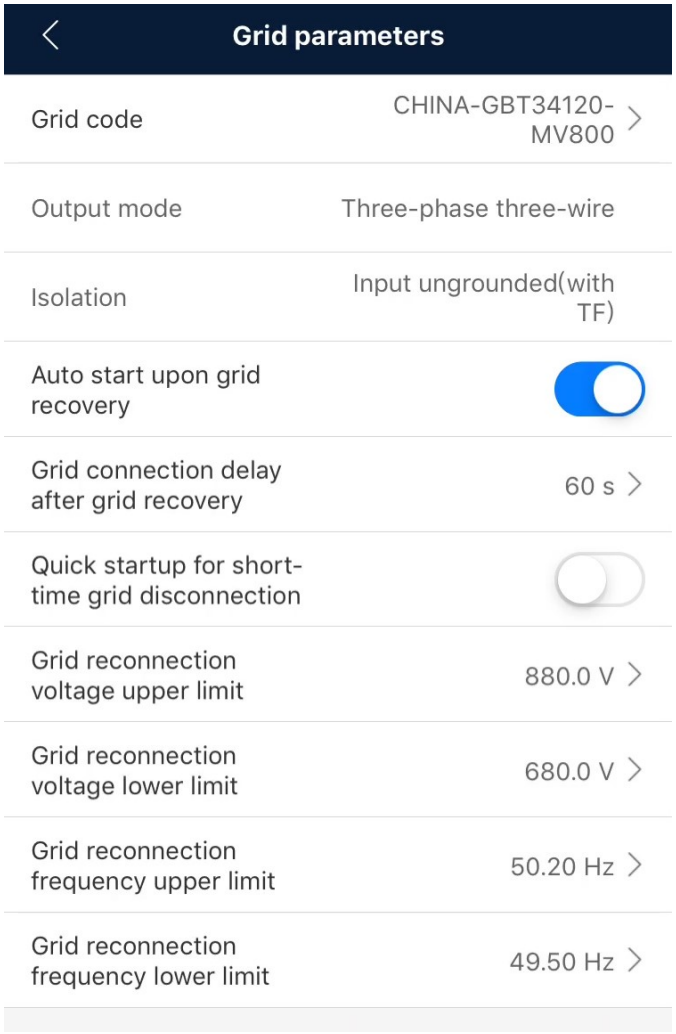
- The parameter ranges vary with the device model. The listed ranges are for reference only.
- The parameter names, value ranges, and default values are subject to change. The actual display may vary.

6.4.1 Setting Grid Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Grid parameters** to access the parameter setting screen.

Figure 6-7 Grid parameters



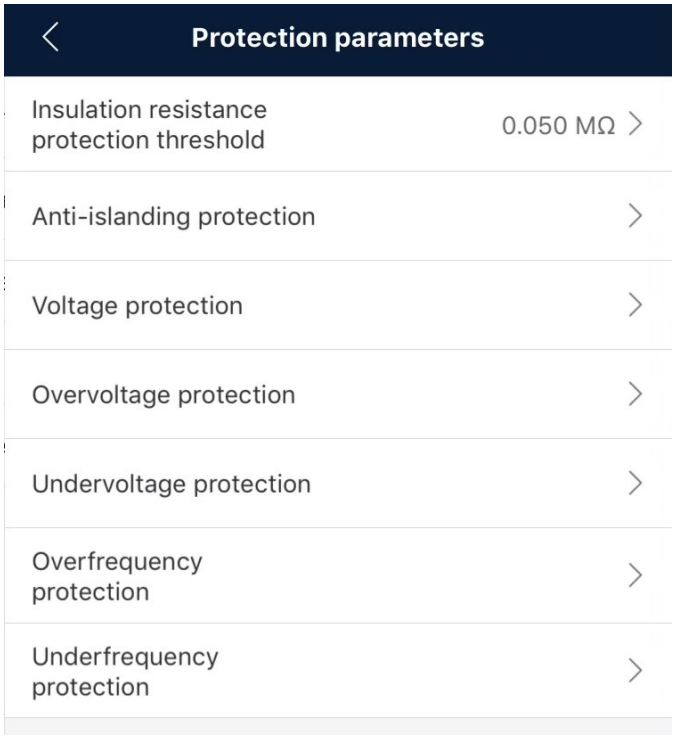
----End

6.4.2 Setting Protection Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Protection parameters** to access the parameter setting screen.

Figure 6-8 Protection parameters



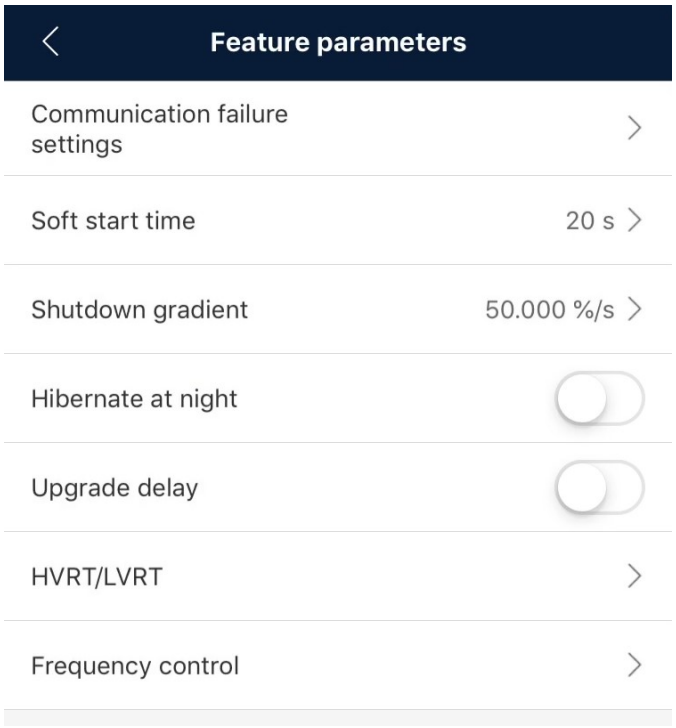
----End

6.4.3 Setting Feature Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Feature parameters** to access the parameter setting screen.

Figure 6-9 Feature parameters



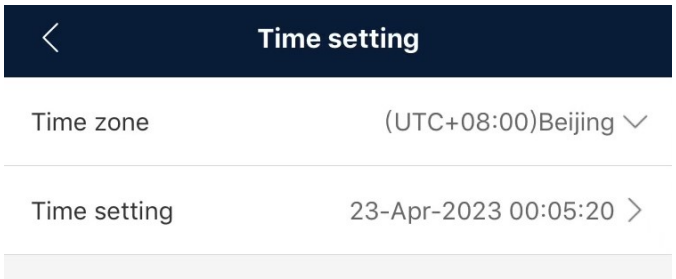
----End

6.4.4 Setting the Time

Procedure

Step 1 On the home screen, choose **Settings** > **Time settings** and set time parameters.

Figure 6-10 Time setting



----End

6.4.5 Setting a File Save Path

Prerequisites

This function is available only on the Android system.

Context

You can modify the save path for operation logs and Smart PCS logs and export logs from the path.

Procedure

Step 1 On the home screen, choose **Settings** > **File save path** to access the path setting screen.

Step 2 Tap **File save path** to set the save path.

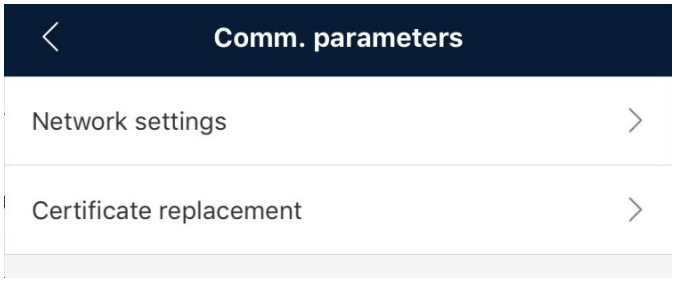
----End

6.4.6 Setting Communications Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Comm. parameters** to access the parameter setting screen.

Figure 6-11 Comm. parameters



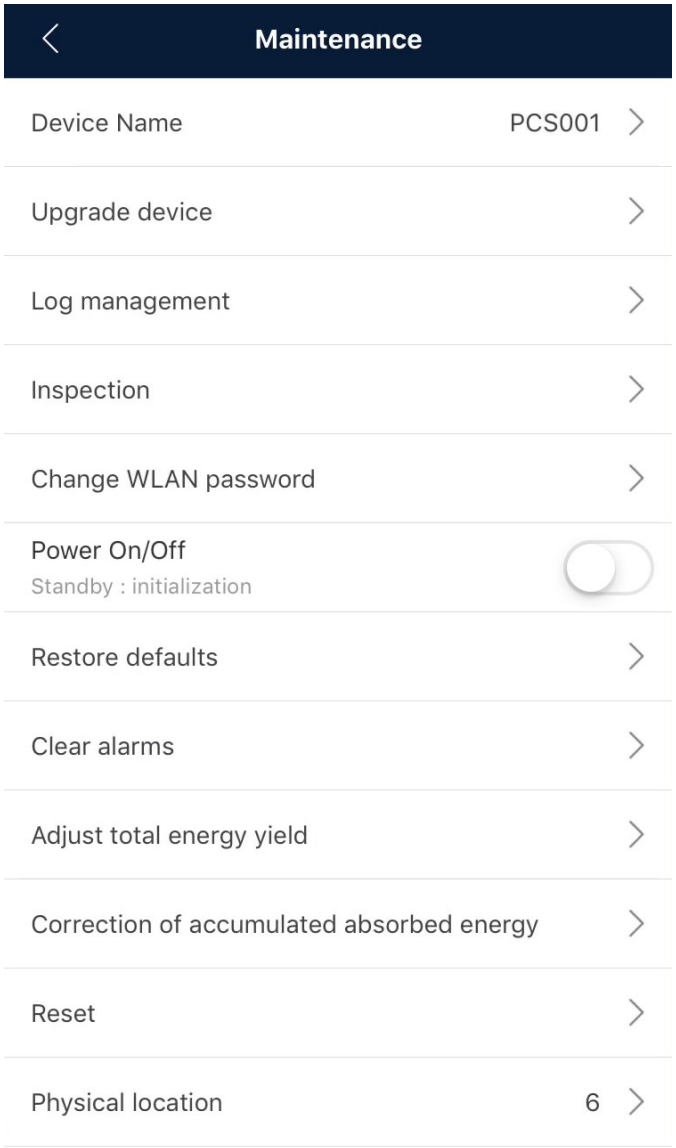
----End

6.5 Maintenance

On the home screen, tap **Maintenance**. The **installer** can perform maintenance operations on the Smart PCS, such as upgrade, inspection, power calibration, and power-on and power-off.

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Figure 6-12 Maintenance



6.5.1 Device Upgrade

Prerequisites

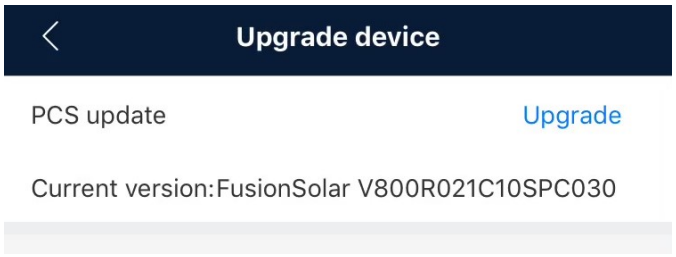
- You have obtained the upgrade package from your supplier or engineers. After the downloading is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.
  a. Log in to **https://support.huawei.com/enterprise/en/index.html**.
  b. Navigate to or search for **PGP Verify**.
- In the Android system, the upgrade package has been copied to the app directory **Android/data/com.huawei.smartpvms/files/inverterapp** on the mobile phone. The file name extension of the upgrade package must be .zip.

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Procedure

Step 1 On the home screen, choose **Maintenance** > **Upgrade Device**.

Figure 6-13 Upgrading the Smart PCS



Step 2 Access the device upgrade screen and tap **Upgrade**.

Step 3 Perform operations as prompted.

----End

6.5.2 Log Management

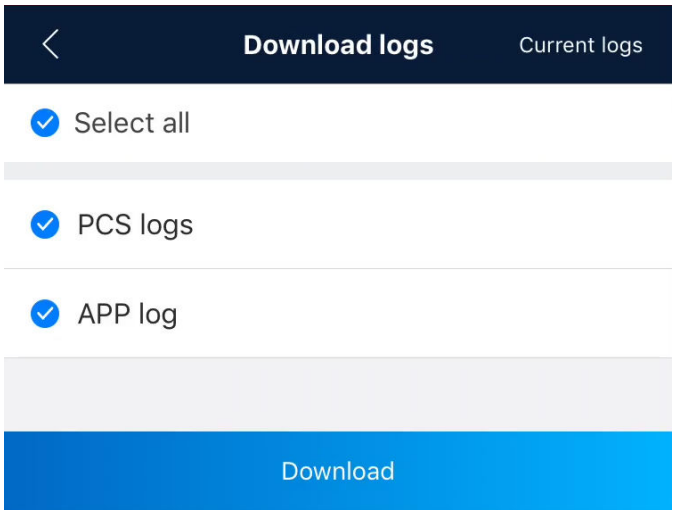
Context

Log management allows you to export operation logs, device alarms, and energy yield information on your mobile phone.

Procedure

Step 1 On the home screen, choose **Maintenance** > **Log Management** to access the log download screen.

Figure 6-14 Log download



Step 2 Select **PCS logs** or **APP log**.

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NOTE

- By default, Android system logs are saved in the **Android/data/com.huawei.smartpvms/files/inverterapp** folder in the phone memory. You can change the save path by setting **File save path**.
- The downloaded logs are saved in the **Device log** directory in **File Manager** on your mobile phone. You can also send the logs to your mailbox for checking.

----End

6.5.3 Device Inspection

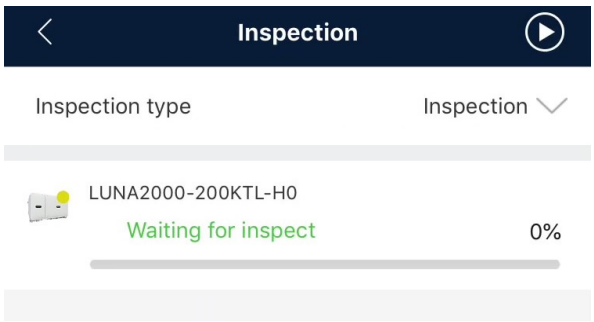
Context

After the Smart PCS is put into use, it needs to be inspected periodically to eliminate potential risks and detect potential problems in a timely manner.

Procedure

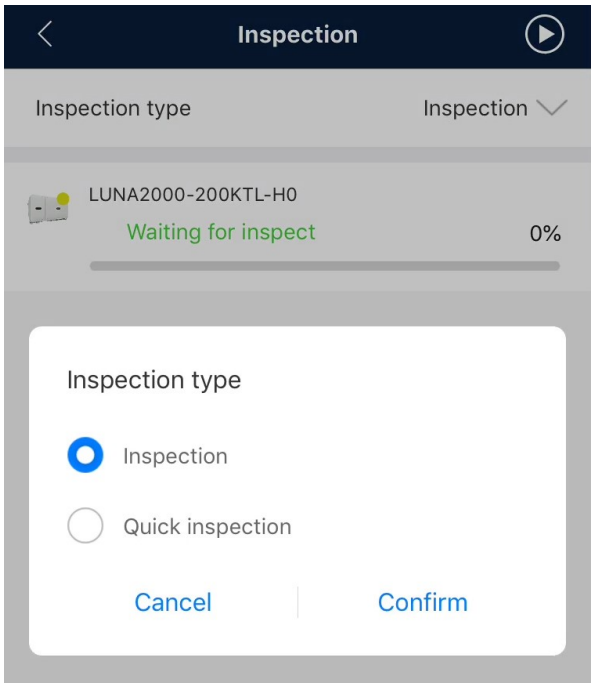
Step 1 On the home screen, choose **Maintenance** > **Inspection** to access the inspection screen.

Figure 6-15 Device inspection



Step 2 Set **Inspection type** and tap  in the upper right corner of the screen to start inspection for Smart PCS devices.

Figure 6-16 Inspection types



----End

6.5.4 Changing the WLAN Password

Context

To ensure account security, tap **Maintenance** on the home screen to change the WLAN password.

NOTE

If the communication between the app and Smart PCS is not implemented through a WLAN connection, the **Change WLAN Password** screen is not displayed.

Procedure

Step 1 On the **Maintenance** screen, tap **Change WLAN Password** to access the password change screen.

Step 2 Enter the old password, new password, and confirm password, and tap **OK**.

NOTE

The password must meet the following requirements:

- Contains 8 to 30 characters.
- Contains at least two types of lowercase letters, uppercase letters, and digits.

----End

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6.5.5 Power-On/Off

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap  next to **On/Off**.

Step 3 Enter the app login password and tap **OK**.

----End

6.5.6 System Reset

Context

After the system is reset, the Smart PCS restarts.

Procedure

Step 1 Choose **Maintenance** > **Reset**. The **System Reset** dialog box is displayed.

Step 2 Enter the app login password and tap **OK**.

----End

6.5.7 Factory Setting Restoration

Context

NOTICE

Perform this operation with caution because all configured parameters except the current date, time, baud rate, and address will be restored to their factory default values. This operation will not affect operating information, alarm records, or system logs.

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **Restore Factory Settings**.

Step 3 Enter the app login password and tap **OK**.

----End

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6.5.8 Alarm Clearance

Context

After alarms are reset, all active and historical alarms of the Smart PCS connected to the app are cleared.

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **Clear Alarms**.

Step 3 Enter the app login password and tap **OK**.

----End

6.5.9 Device Name Change

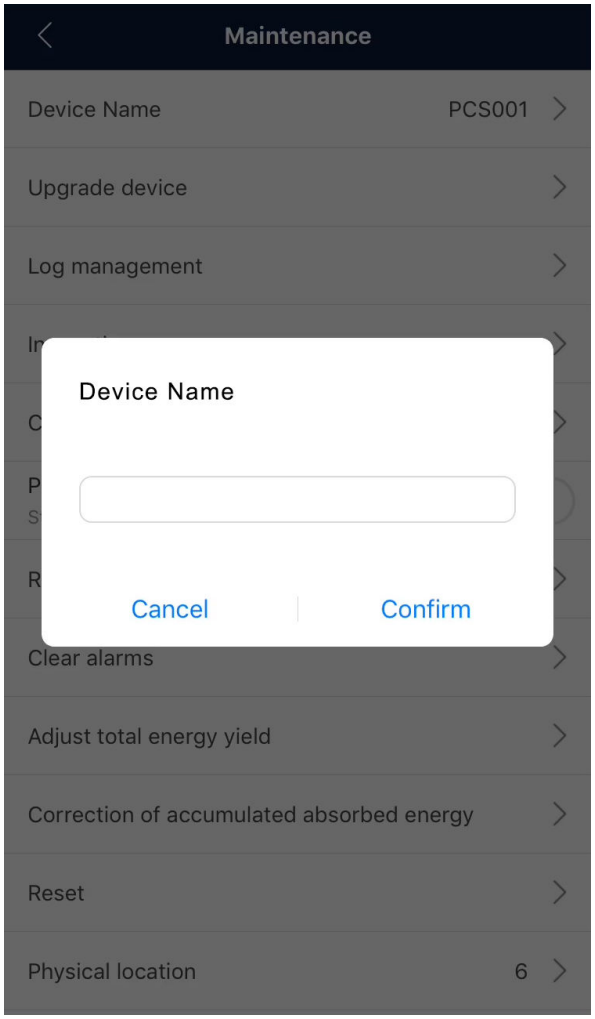
Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap a device name to change it.

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Figure 6-17 Changing a device name



----End

6.5.10 Total Energy Yield Adjustment

Context

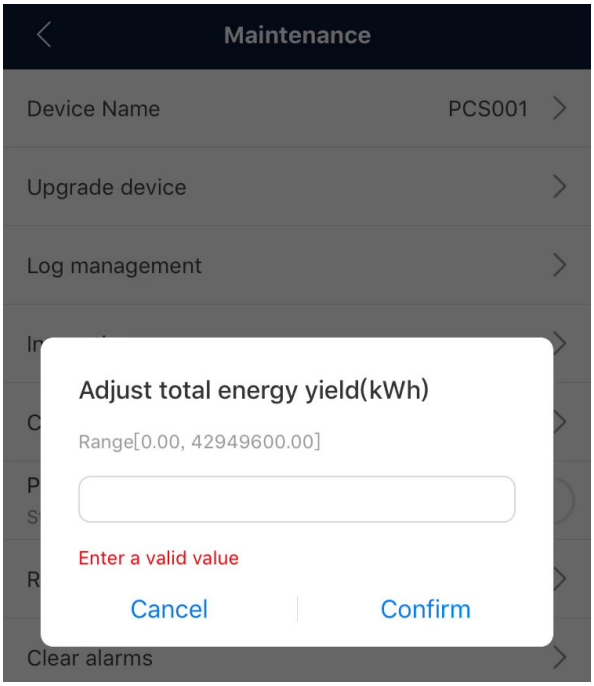
Adjust the cumulative energy yield of the Smart PCS to ensure that the reported energy yield is consistent with the actual energy yield absorbed by the grid-tied point.

Procedure

1. On the home screen, tap **Maintenance** to access the maintenance screen.
2. Tap **Adjust total energy yield**.
3. Enter the app login password and tap **OK**.

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Figure 6-18 Adjusting total energy yield



6.5.11 Correction of accumulated absorbed energy

Context

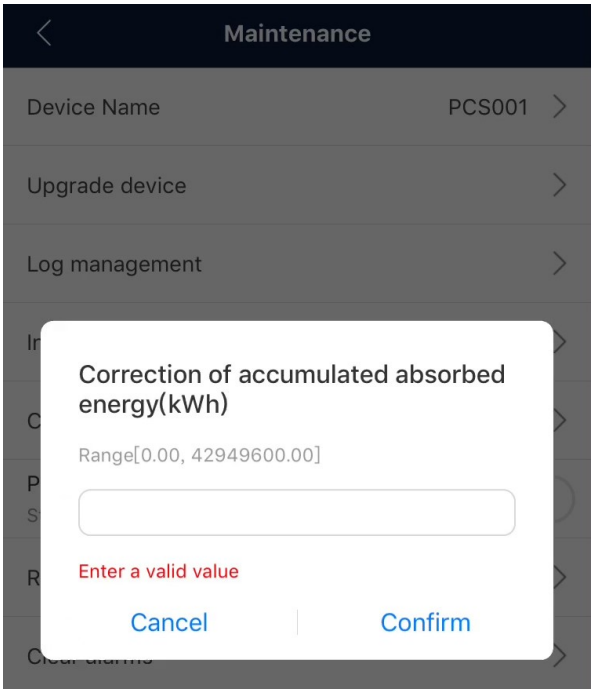
Adjust the cumulative absorbed energy of the Smart PCS to ensure that the reported energy yield is consistent with the actual energy yield absorbed by the grid-tied point.

Procedure

1. On the home screen, tap **Maintenance** to access the maintenance screen.
2. Tap **Correction of accumulated absorbed energy**.

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Figure 6-19 Correction of accumulated absorbed energy



6.5.12 O&M via USB connection

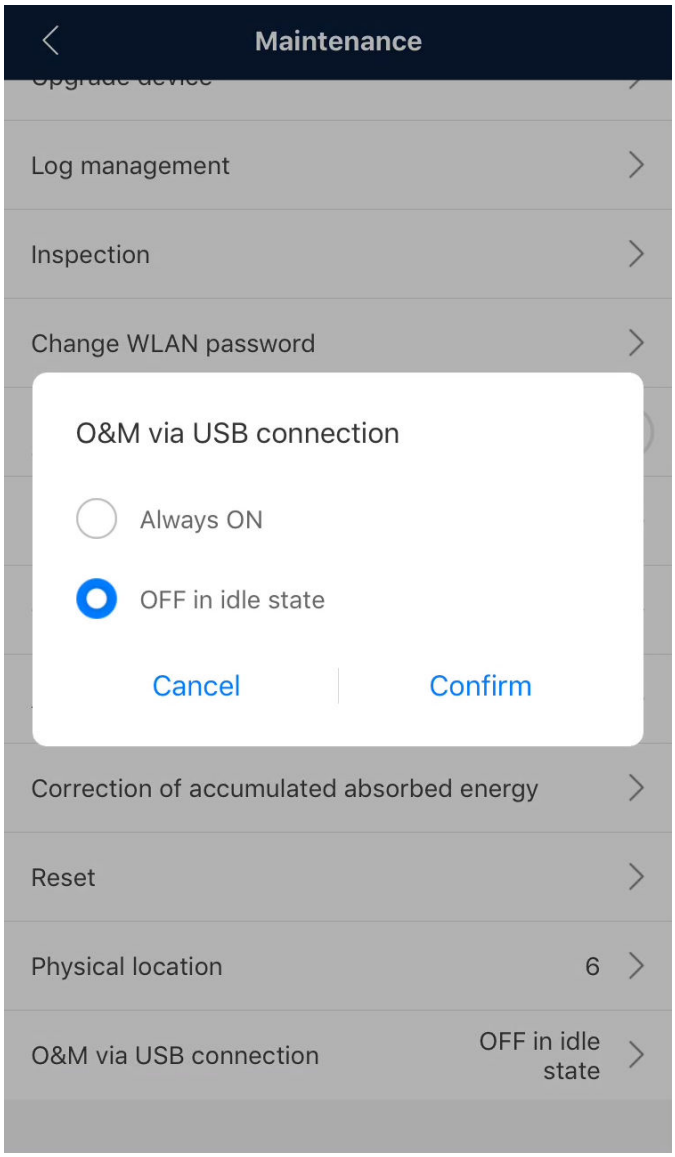
Context

By default, the USB O&M policy is permanently enabled. After this function is enabled, you can perform local maintenance operations such as upgrading devices and exporting logs over the USB port.

Procedure

1. On the home screen, tap **Maintenance** to access the maintenance screen.
2. Tap **O&M via USB connection**.

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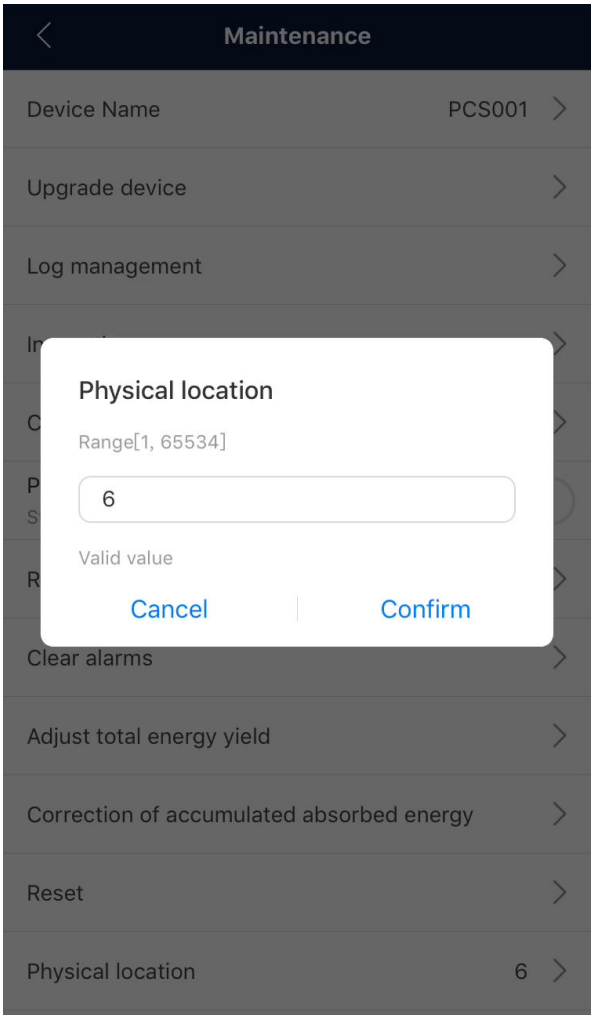
6.5.13 Physical Location

If there are multiple Smart PCSs in an ESS network, you can customize the physical location for each Smart PCS based on the installation scenario.

Procedure

1. On the home screen, tap **Maintenance** to access the maintenance screen.
2. Tap **Physical location**.

Figure 6-20 Physical location



6.6 Power Adjustment

Context

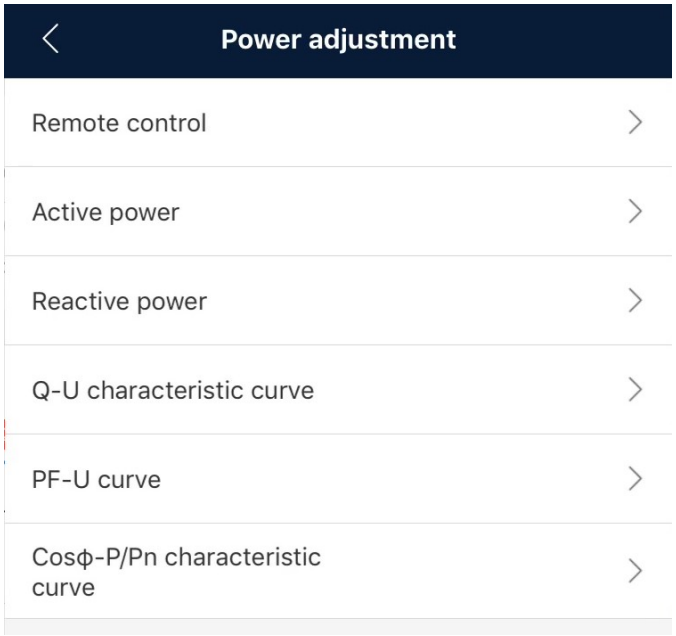
The **installer** user can set parameters such as the active power and reactive power for the Smart PCS.

Procedure

Step 1 On the home screen, tap **Power adjustment**.

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Figure 6-21 Power adjustment



Step 2 Set power control parameters based on the PV plant requirements.

----End

7 Operations on the Screen for Connecting to the Central Monitoring Unit

7.1 Connection Mode

After the central monitoring unit (CMU) is powered on, it can connect to the app over a built-in WLAN module.

7.2 Device Connection

Prerequisites

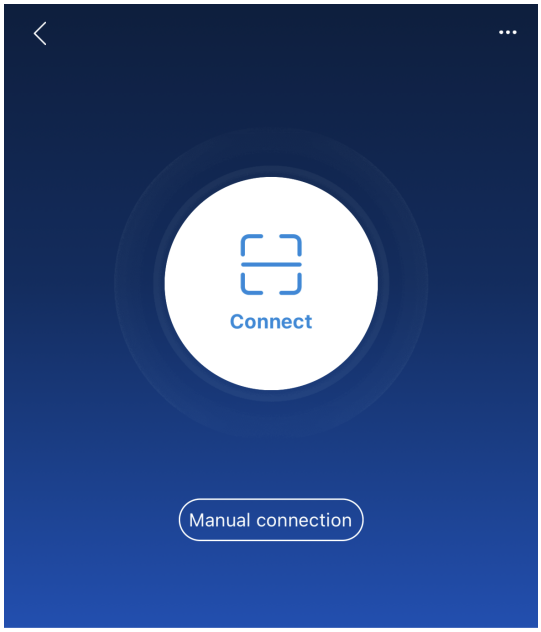
- The CMU has been powered on.
- By default, the WLAN function of the CMU is disabled when the CMU is idle. Before connecting to the CMU, ensure that the WLAN function is enabled.
- The WLAN function has been enabled on your phone.
- Keep the mobile phone within 5 m away from the CMU. Otherwise, the communication signal quality between the app and the CMU will be affected.

Procedure

Step 1 Connect to the CMU.

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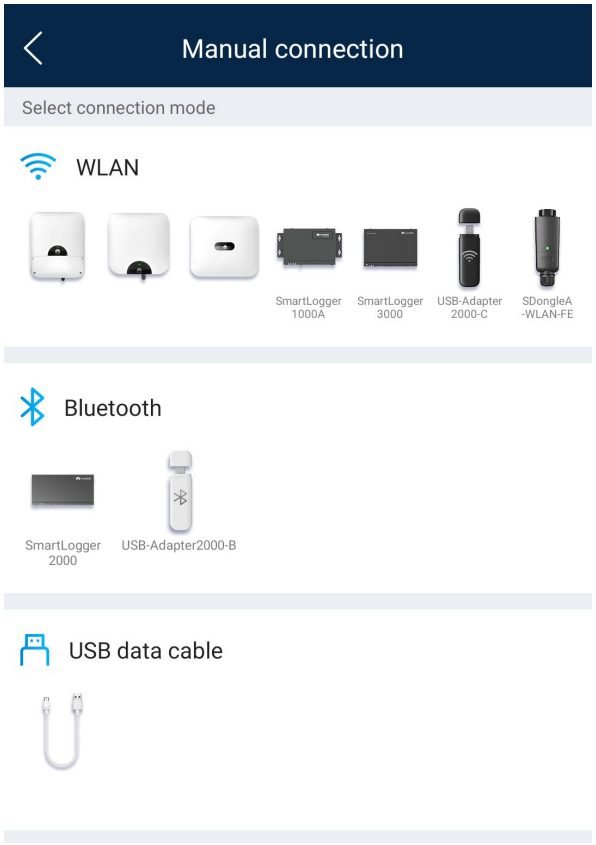
Figure 7-1 Connect



- Manual connection: Tap **Manual connection** and select a connection mode.
- Connection by scanning a QR code: Tap **Connect**. On the scanning screen, place the QR code or bar code of the device in the scanning box to automatically scan and connect to the device.

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Figure 7-2 Manual connection



– Select **WLAN** and connect to the corresponding hotspot in the WLAN connection list of the app. The initial name of the built-in WLAN is **Monitor_SN bar code**, and the initial password is **Changeme**.

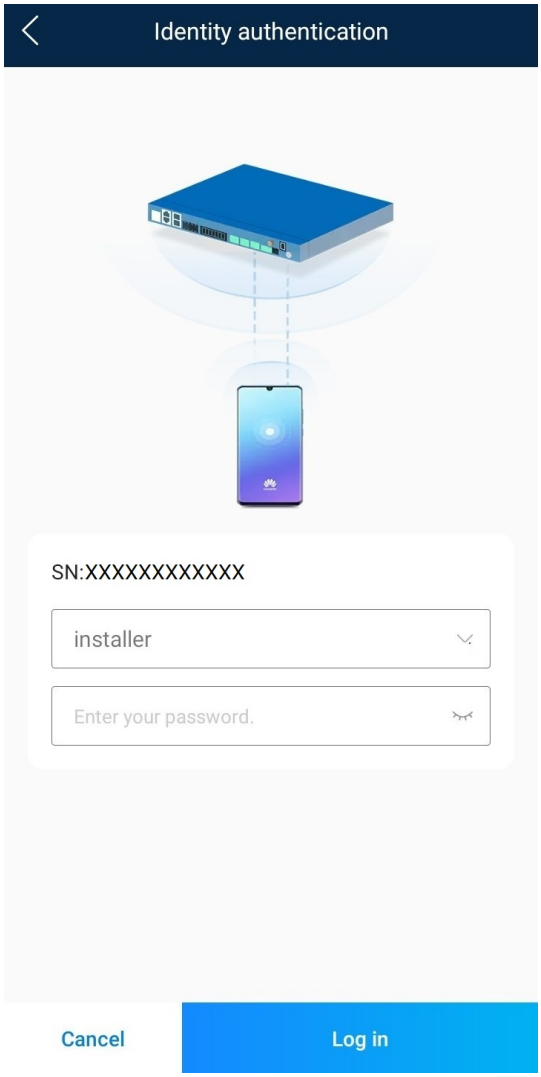
NOTICE

- Use the initial password upon the first power-on and change it immediately after login. To ensure account security, change the password periodically and keep the new password in mind. Your password might be stolen or cracked if it is left unchanged for extended periods. If a password is lost, you need to restore the device to factory settings. In these cases, you should be liable for any loss caused to the PV plant.
- If the **This WLAN network has no Internet access. Connect anyway?** message is displayed when you connect to the built-in WLAN, tap **CONNECT**. Otherwise, you cannot log in to the system. The actual UI and messages may vary with mobile phones.

Step 2 Select a login user, enter the login password, and tap **Log In**.

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Figure 7-3 Login



NOTICE

- If the system prompts you to set a password upon the first power-on, set the password before login.
- Ensure account security by changing password periodically. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, you should be liable for any loss caused to the PV plant.
- You will be locked out for 10 minutes after five failed consecutive password attempts at an interval not longer than two minutes.

Step 3 After the login is successful, check that the home screen is displayed.

----End

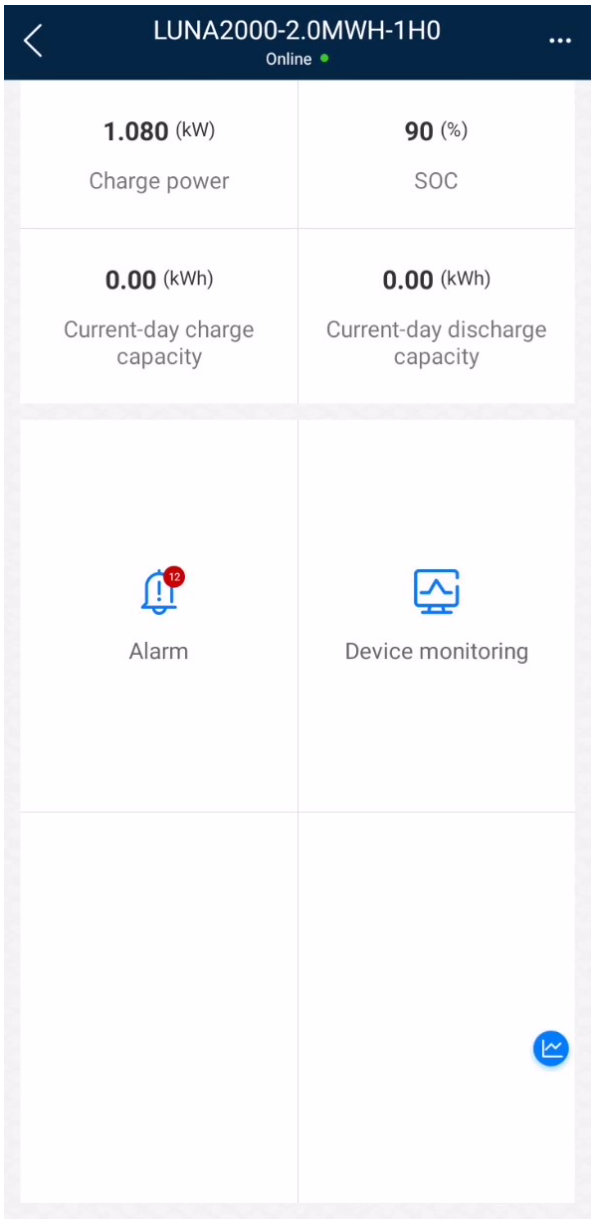
7.3 UI Operations (user)

7.3.1 Query

Procedure

Step 1 After logging in to the app, you can view the running data of the connected CMU on the home screen.

Figure 7-4 Home screen



Step 2 Tap **Alarm** to view active alarms and historical alarms.

On the alarm management page, you can perform the following operations:

- Tap an alarm record and view the alarm details.
- Swipe left or right on the screen or tap **Active Alarms** or **Historical Alarms** to switch between active alarms and historical alarms.

----End

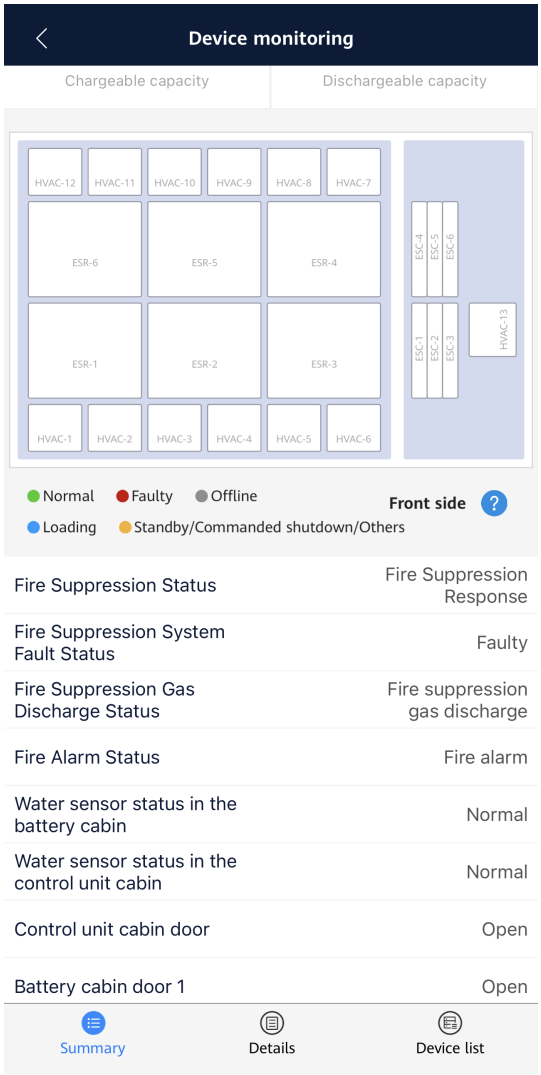
7.3.2 Device Monitoring

The **user** can view the device status and running status of the CMU and the devices connected to the CMU by using **Device monitoring**.

Procedure

Step 1 On the home screen, tap **Device monitoring**.

Figure 7-5 Device monitoring



Step 2 Tap **Overview** or **Detail** to view the device status and running information.

Step 3 Tap **Device list** and select the desired device to access its main menu screen.

Step 4 Tap **Running Info** to view the running information about the device.

NOTE

The displayed information varies depending on the device model or software version. The actual screen may vary.

----End

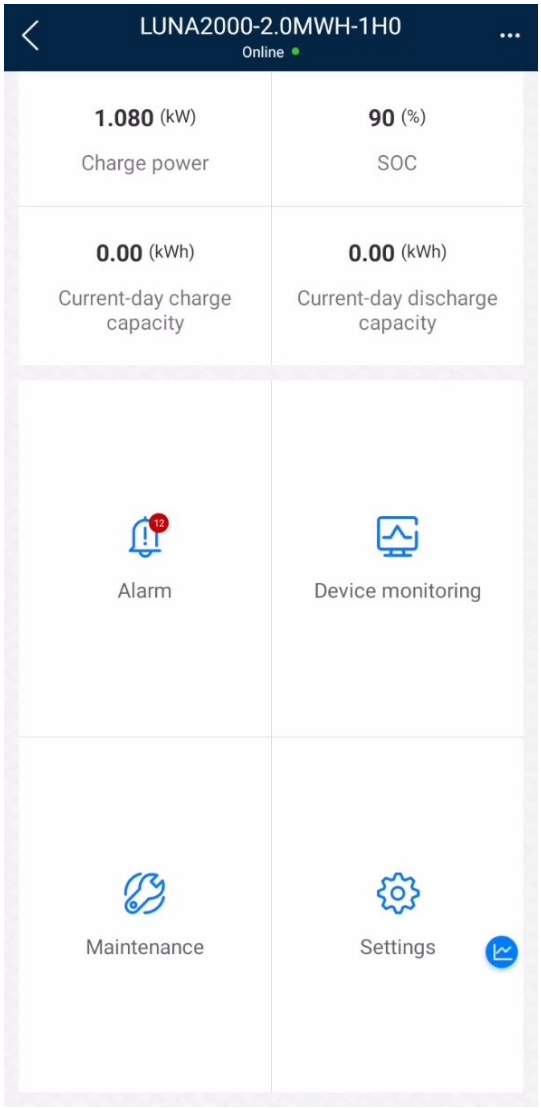
7.4 UI Operations (installer)

7.4.1 Query

Procedure

Step 1 After logging in to the app, you can view the running data of the connected CMU on the home screen.

Figure 7-6 Home screen



Step 2 Tap **Alarm** to view active alarms and historical alarms.

On the alarm management page, you can perform the following operations:

- Tap an alarm record and view the alarm details.
- Swipe left or right on the screen or tap **Active Alarms** or **Historical Alarms** to switch between active alarms and historical alarms.

----End

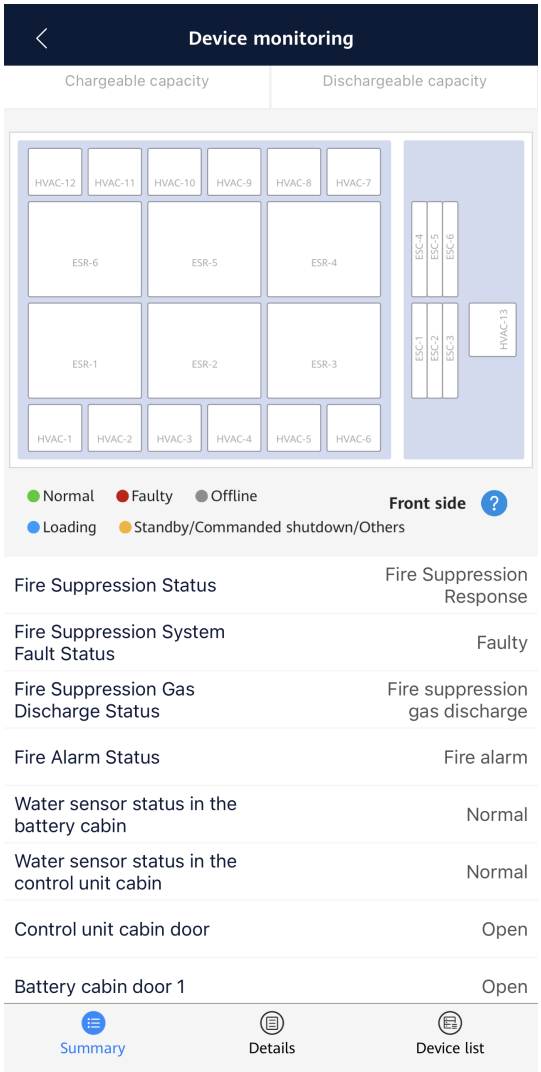
7.4.2 Device Monitoring

By using the **Device monitoring** function, the **installer** can view the running information and alarms about the CMU and the devices connected to the CMU, set parameters, and send commands.

7.4.2.1 Query

Step 1 On the home screen, tap **Device monitoring**.

Figure 7-7 Device monitoring



Step 2 Tap **Overview** or **Detail** to view the device status and running information.

Step 3 Tap **Device list** and select the desired device to access its main menu screen.

Step 4 Tap **Running Info**, **Maintenance**, or **Settings** to view device running information, maintain devices, and set device parameters, respectively.

NOTE

The displayed information varies depending on the device model or software version. The actual screen may vary.

----End

7.4.2.2 Settings

Procedure

Step 1 On the **Device monitoring** screen, tap **Device list** and select the desired device to access its main menu screen.

Step 2 Tap **Settings** to access the settings screen.

Step 3 Set parameters as required.

----End

7.4.2.3 Maintenance

Procedure

Step 1 On the **Device monitoring** screen, tap **Device list** and select the desired device to access its main menu screen.

Step 2 Tap **Maintenance** to access the maintenance screen.

Step 3 Set parameters as required.

----End

7.4.3 Settings

On the home screen, tap **Settings** to set feature parameters.

NOTICE

- The parameter ranges vary with the device model. The listed ranges are for reference only.
- The parameter names, value ranges, and default values are subject to change. The actual display may vary.

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7.4.3.1 Setting Feature Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Feature parameters** to access the parameter setting screen.

Figure 7-8 Feature parameters



----End

7.4.3.2 Setting the Time

Procedure

Step 1 On the home screen, choose **Settings** > **Time settings** and set time parameters.

Figure 7-9 Time setting

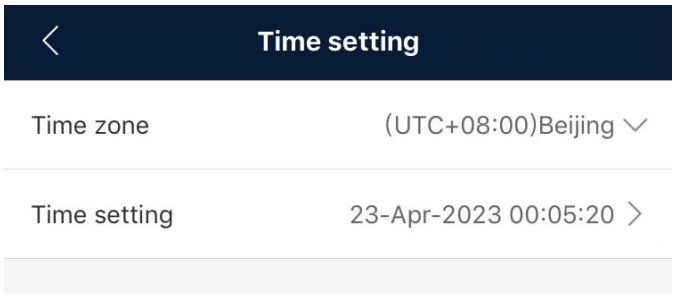


Table 7-1 Time setting

Parameter	Setting
Time zone	Specifies the time zone.
Time setting	Specifies the system date and time.

----End

7.4.3.3 Setting Communications Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Comm. parameters** to access the parameter setting screen.

Figure 7-10 Comm. parameters

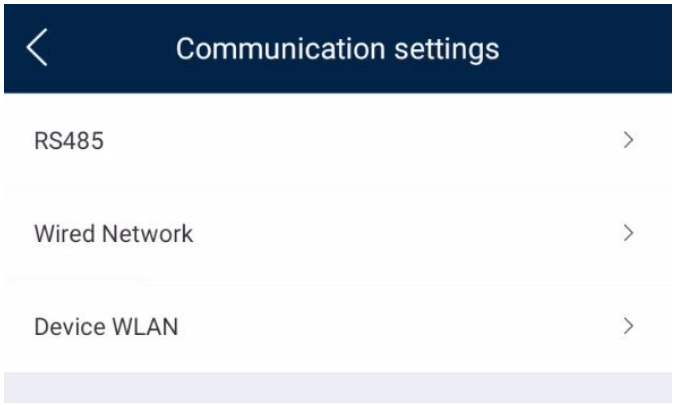


Table 7-2 Communications parameter settings

Parameter	Setting
RS485	Sets RS485 communications parameters.
Wired Network	Sets wired network parameters.
Device WLAN	Sets WLAN communication parameters.

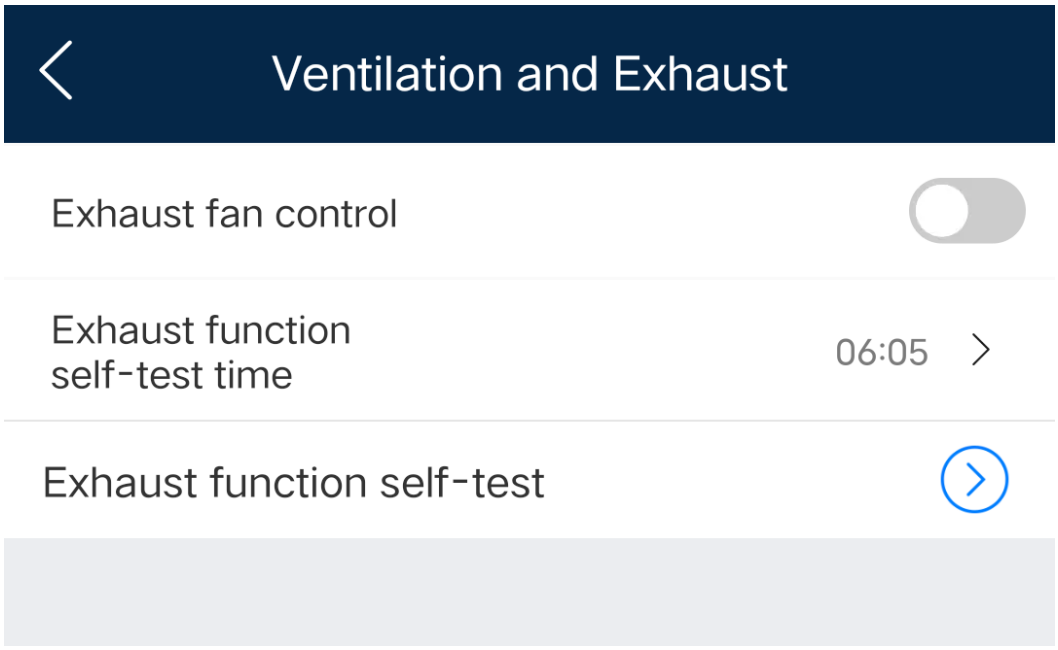
----End

7.4.3.4 Setting Ventilation and Exhaust

Procedure

Step 1 On the home screen, choose **Settings** > **Ventilation and Exhaust**.

Figure 7-11 Ventilation and Exhaust



----End

7.4.3.5 Setting Environment Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Environment parameters**.

Figure 7-12 Environment parameters



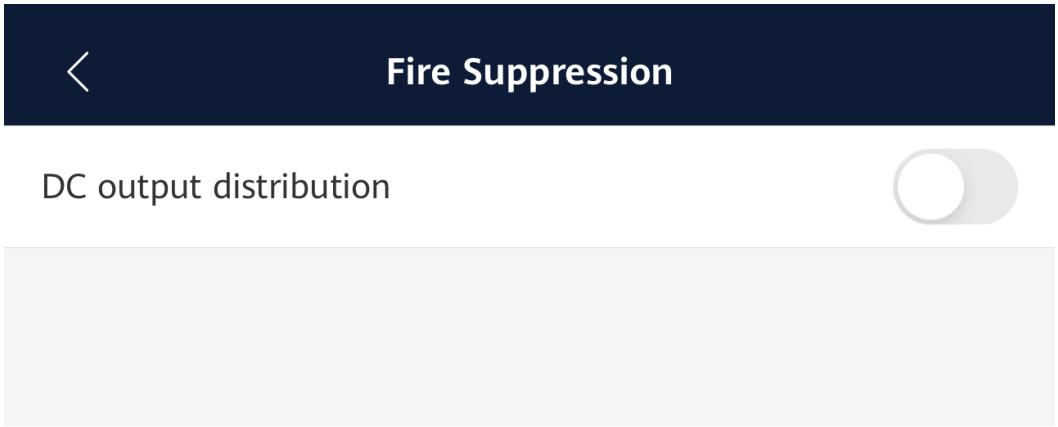
----End

7.4.3.6 Setting Fire Suppression

Procedure

Step 1 On the home screen, choose **Settings** > **Fire Suppression**.

Figure 7-13 Fire Suppression



----End

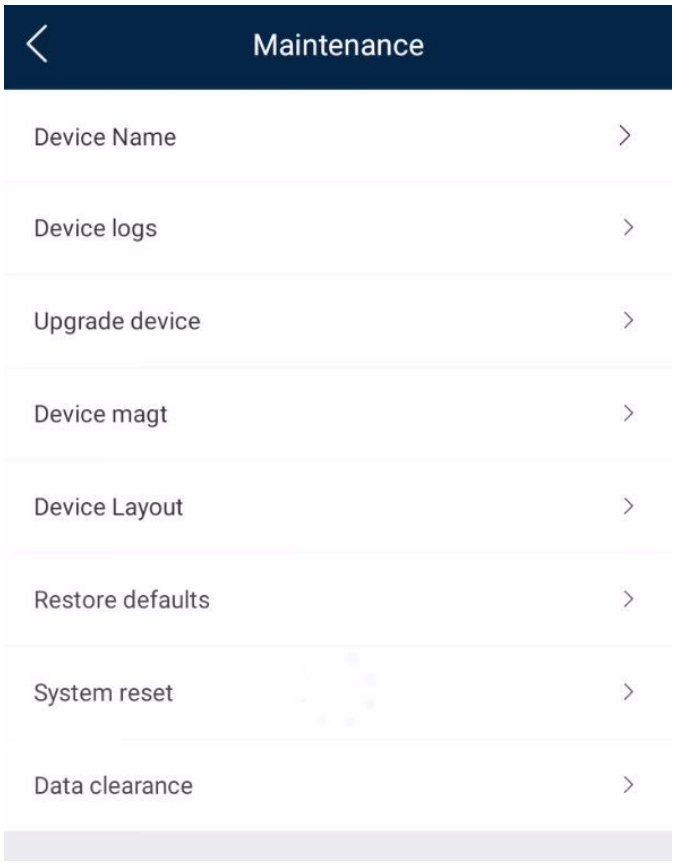
7.4.4 System Maintenance

7.4.4.1 Device Name Change

Procedure

Step 1 Choose **Maintenance** > **Device Name** and follow the onscreen instructions to set or change the device name.

Figure 7-14 Device name



----End

7.4.4.2 Device Log Export

Prerequisites

A USB flash drive has been inserted into the USB port on the CMU.

Procedure

Step 1 Choose **Maintenance** > **Device logs** to access the **Log download** screen.

Step 2 Tap  in the upper right corner of the screen, select the device whose logs are to be exported, and tap **Next**.

Step 3 Select the type of logs to be exported and tap **OK** to start exporting device logs.

NOTE

The successfully exported device logs are available in the storage path of the USB flash drive.

----End

7.4.4.3 Device Upgrade

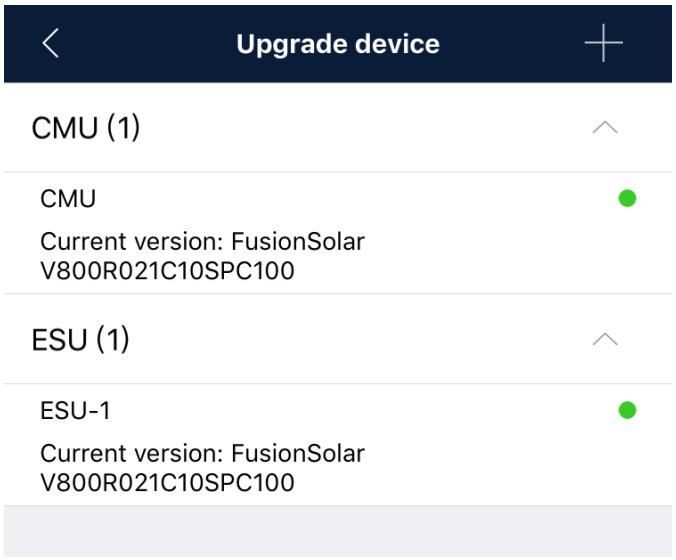
Prerequisites

- You have obtained the upgrade package with the help of the supplier or Huawei engineers. After the downloading is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.
  a. Log in to Huawei enterprise technical support website **http://support.huawei.com/enterprise**.
  b. Browse or search for **PGP Verify**.
- You have inserted the USB flash drive where the upgrade package is saved into the USB port on the CMU.

Procedure

Step 1 Choose **Maintenance** > **Upgrade device**.

Figure 7-15 Upgrade device



Step 2 Tap  in the upper right corner of the screen, select a single device or devices of the same type, and tap **Next**.

Step 3 Select the upgrade package and tap **Next**.

Step 4 Confirm the upgrade package and the device to be upgraded and tap **Finish** to start upgrading the device.

----End

7.4.4.4 Device Management

7.4.4.4.1 Manually Adding a Device

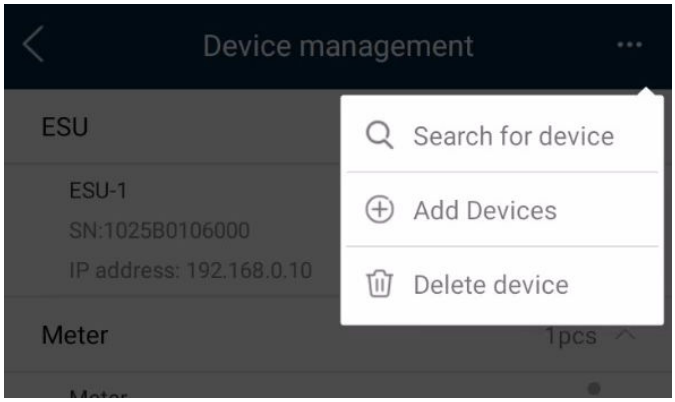
Procedure

Step 1 Choose **Maintenance** > **Device Management**.

Step 2 Tap ••• in the upper right corner of the **Device Management** screen.

Step 3 Tap **Add Devices** and set device parameters.

Figure 7-16 Add Devices



----End

7.4.4.4.2 Automatically Searching for Devices

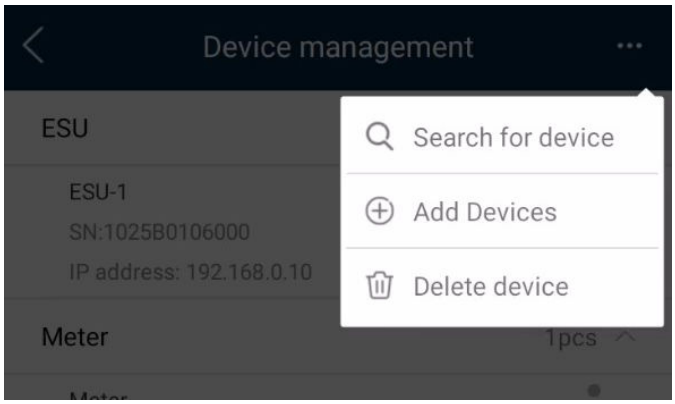
Procedure

Step 1 Choose **Maintenance** > **Device Management**.

Step 2 Tap ••• in the upper right corner of the **Device Management** screen.

Step 3 Tap **Search for device**.

Figure 7-17 Search for device



----End

7.4.4.4.3 Deleting a Device

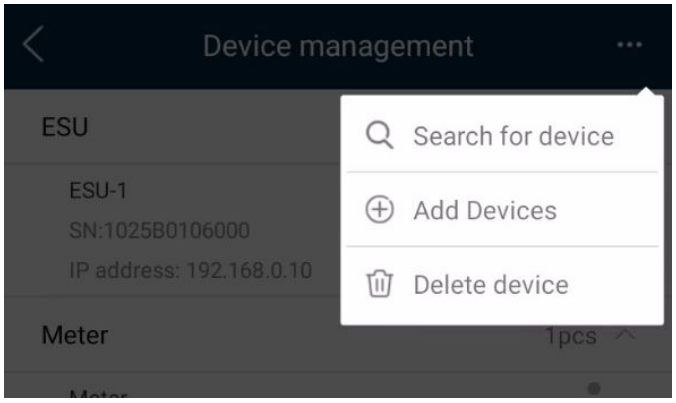
Procedure

Step 1 Choose **Maintenance** > **Device Management**.

Step 2 Tap ••• in the upper right corner of the **Device Management** screen.

Step 3 Tap **Delete device**.

Figure 7-18 Delete device



Step 4 Select the device to be deleted and tap **Delete**.

NOTE

Deleted devices are not displayed on the **Device monitoring** screen.

----End

7.4.4.5 Device Layout

Context

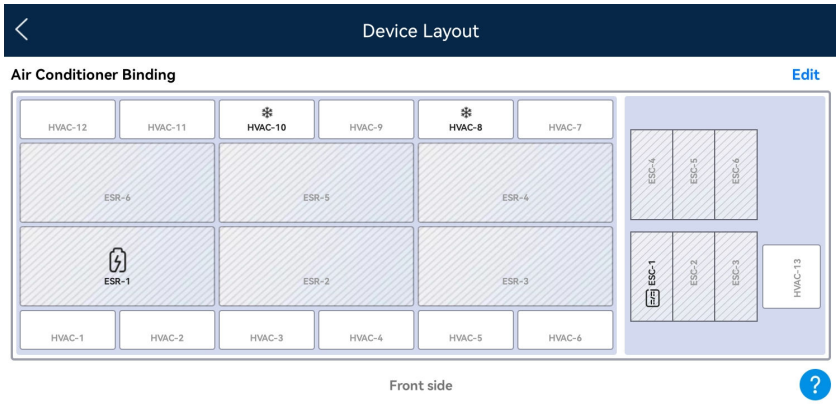
After the device is powered on, if an air conditioner exists in the ESS, you need to manually bind the SN in the physical location. Otherwise, the running data of the air conditioner cannot be displayed on the monitoring screen.

Procedure

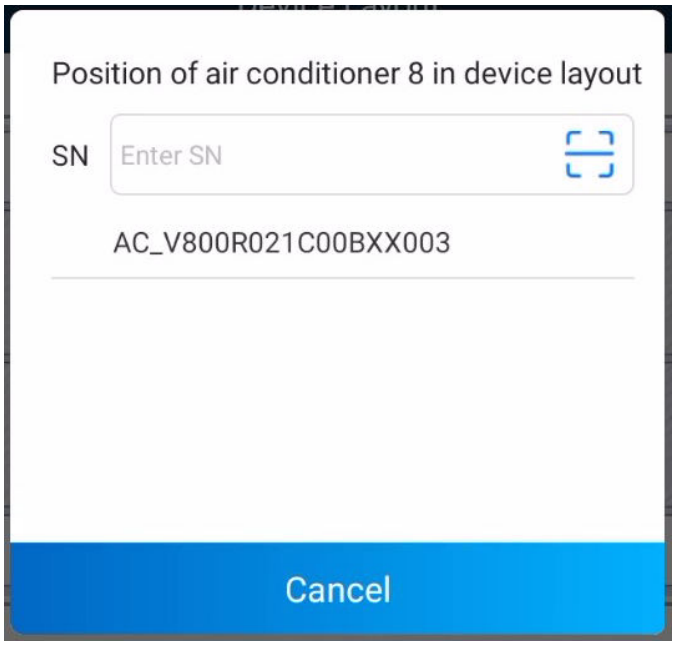
Step 1 Choose **Maintenance** > **Device Layout**.

Step 2 Tap **Edit**, and tap ⊕ based on the physical location of the device.

Figure 7-19 Device Layout



Step 3 In the dialog box that is displayed, select the SN of the target air conditioner or tap and scan the QR code on the air conditioner to add the SN, and then tap **OK**.



NOTE

The device layout varies depending on the device model or software version. The actual screen prevails.

----End

7.4.4.6 Factory Setting Restoration

Context

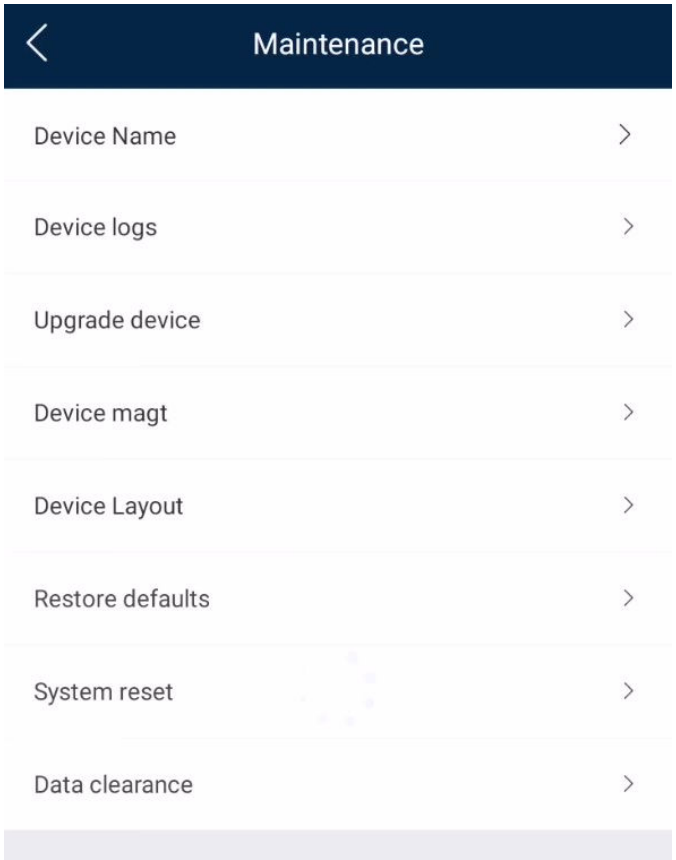
NOTICE

Perform this operation with caution because all configured parameters except the current date, time, baud rate, and address will be restored to their factory default values. This operation will not affect operating information, alarm records, or system logs.

Procedure

Step 1 Choose **Maintenance** > **Restore defaults** and follow the onscreen instructions to restore the phone to its factory settings.

Figure 7-20 Restore defaults



----End

7.4.4.7 System Reset

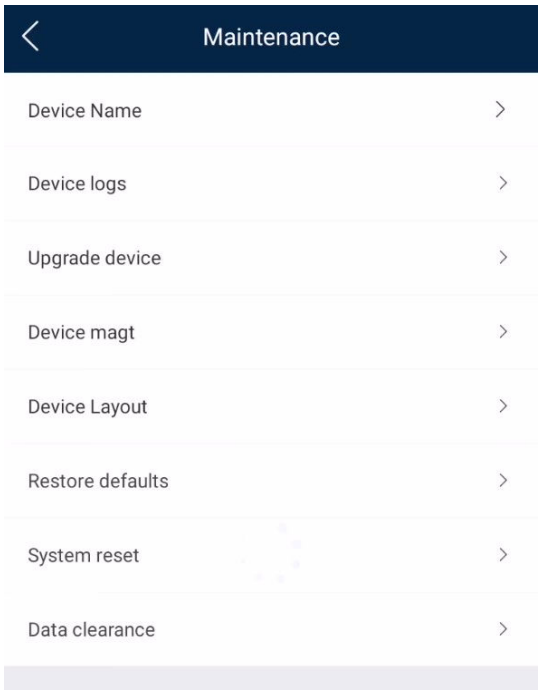
Context

The CMU will automatically restart after receiving the reset command.

Procedure

Step 1 Choose **Maintenance** > **System reset** and follow the onscreen instructions to reset the system.

Figure 7-21 System reset



----End

7.4.4.8 Data Clearance

Context

Clear data if the CMU is relocated and its historical data needs to be deleted.

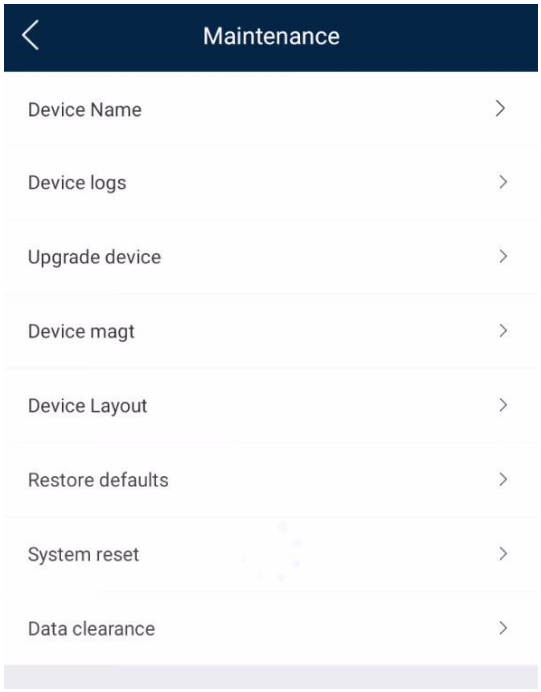
NOTICE

- The **Data clearance** operation clears all charge/discharge capacity, performance data, and alarms from the CMU.
- The **Data clearance** operation does not delete the devices connected to the CMU. If a device is no longer required for the CMU, perform the **Remove device** operation.
- If you tap **Data clearance** on the CMU, you must tap **Alarm reset** on the NMS. Otherwise, the alarm information collected by the NMS and CMU is inconsistent.

Procedure

Step 1 Choose **Maintenance** > **Data clearance** and follow the onscreen instructions to clear data.

Figure 7-22 Data clearance



----End

8 Operations on the Screen for Connecting to the PID Module

NOTICE

The figures and data displayed in this chapter are for reference only.

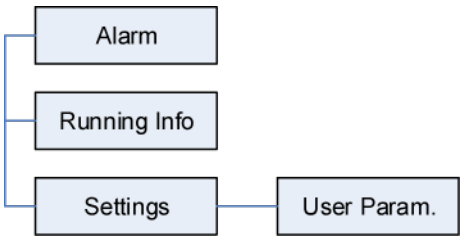
8.1 User Operation Permissions

The user accounts that can log in to the app are classified into common users, special users, and advanced users based on the responsibilities of PV plant operation personnel.

- Common user: Has the permissions of viewing PID module data and setting user parameters.
- Advanced users: Has the permissions of viewing PID module data, setting functional parameters, and maintaining devices.
- Special user: Has the permissions of viewing PID module data, setting user parameters, and maintaining devices (including starting and shutting down the PID module, clearing data, and upgrading devices).

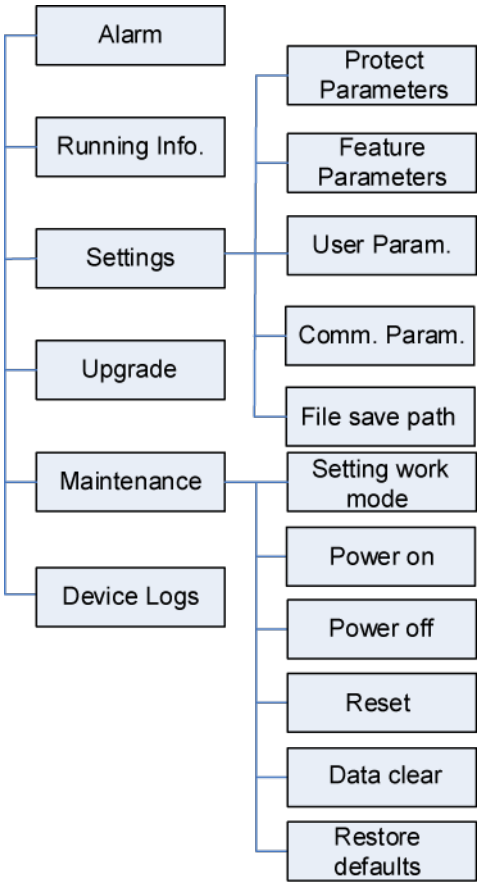
Figure 8-1, **Figure 8-2** and **Figure 8-3** show the menu operation permissions of common users, advanced users, and special users respectively.

Figure 8-1 Operation permissions of common users



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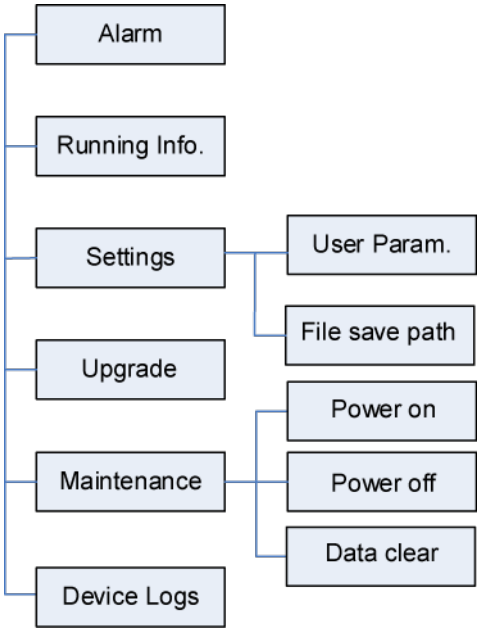
Figure 8-2 Operation permissions of advanced users



NOTE

File save path is available only for Android system.

Figure 8-3 Operation permissions of special users



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NOTE

File save path is available only for Android system.

8.2 Login the SUN2000 APP

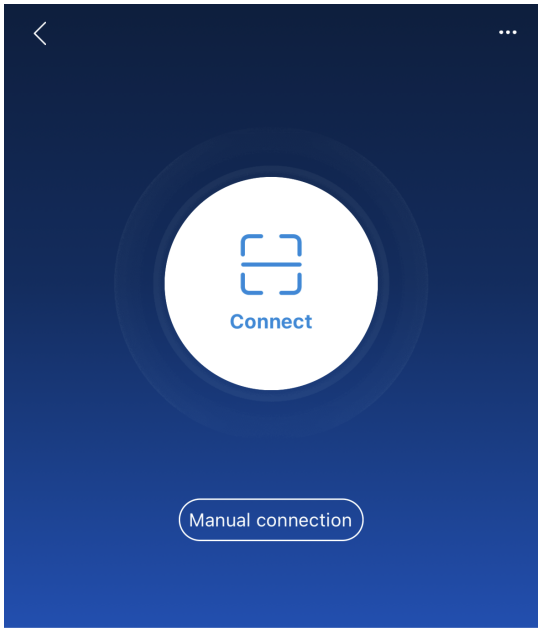
Prerequisites

- The PID module has been powered on.
- Connect over a Bluetooth module:
  a. A WLAN/Bluetooth module is available and has been inserted into the USB port in the PID module maintenance compartment.
  b. The WLAN/Bluetooth function is enabled on the mobile phone.
  c. Keep the mobile phone within 5 m away from the PID module. Otherwise, communication between them would be affected.
- Connect over a USB data cable:
  a. A USB data cable is available. One end of the USB data cable is connected to the USB port in the PID module maintenance compartment and the other end is connected to the USB port on the mobile phone.
  b. After connecting the USB data cable, **Connected to USB Accessory** is displayed on the mobile phone, indicating that the PID module and the mobile phone have been successfully connected. Otherwise, the USB data cable connection is invalid.

Procedure

Step 1 Start the app. Tap **Connect** to access the code scanning screen and connect to the PID module.

Figure 8-4 Connect



- Code scanning: Tap **Connect**, on the scanning screen, place the QR code or bar code of the WLAN/Bluetooth module in the scan frame. The device will be automatically connected after the code is identified.
- Manual connection: Tap **Manual Connection** and select a connection mode.

Figure 8-5 Manual connection



  - Select **WLAN** and connect to the corresponding WLAN in the WLAN connection list of the APP. The initial name of the WLAN hotspot is **Adapter-WLAN module SN**, and the initial password is **Changeme**.

    NOTICE

    Use the initial password upon first power-on and change it immediately after login. To ensure account security, change the password periodically and keep the new password in mind. Not changing the initial password may cause password disclosure. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, the user is liable for any loss caused to the PV plant.

  - Select **Bluetooth**, and tap **Search for device**. After a Bluetooth device is found, select the target Bluetooth device, and set up a connection. If the Bluetooth module is USB-Adapter2000-B, the connected Bluetooth device is named after last 8 digits of the SN barcode + HWAPP. The SN barcode can be obtained from the silk screen on the Bluetooth module.
  - Select **USB**, and tap **OK** to allow the app to access the USB accessory. After you select **Use by default for this USB accessory**, the message will

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not appear if you log in to the app again without removing the USB data cable.

Step 2 Select a login user and enter the password.

NOTE

- The login password is the same as that for the PID module connected to the app and is used only when the PID module connects to the app.
- The initial passwords for **Common User**, **Advanced User**, and **Special User** are all **00000a**. If you log in to the system for the first time, use the initial password and change the password as soon as possible. After the password is used for a period of time, change it periodically to ensure account security.
- During the login, if five consecutive invalid password entries are made (the interval between two consecutive entries is less than 2 minutes), the account will be locked for 10 minutes. The password should consist of six characters.

Step 3 After successful login, the **Quick Settings** screen or **Function Menu** screen is displayed.

NOTE

- If you log in to the app after the PID module powers on for the first time or factory defaults are restored, the **Quick Settings** screen will be displayed. You can set basic parameters for the PID module on the **Quick Settings** screen. After the settings take effect, you can access the **Function Menu** screen and modify the parameters on the **Settings** screen.
- If you do not set basic parameters for the PID module on the **Quick Settings** screen, the screen is still displayed when you log in to the app next time.

----End

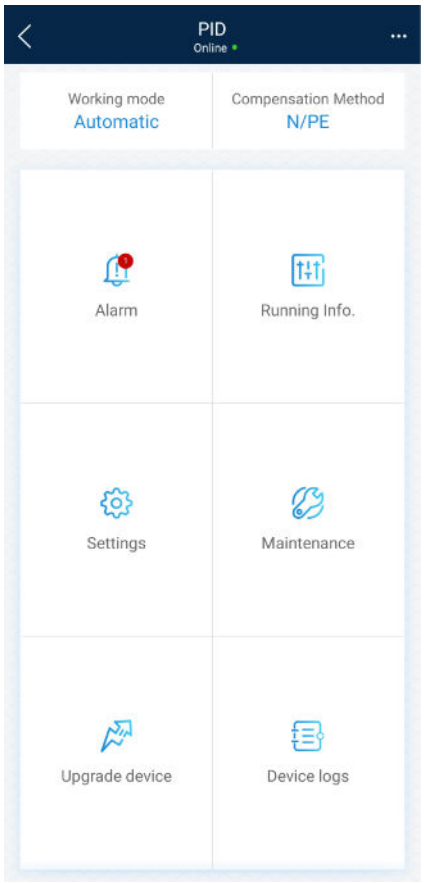
8.3 Screen Operations (Common User)

8.3.1 Query

Procedure

Step 1 After logging in to the app, you can view the PID module working mode and compensation mode on the home screen.

Figure 8-6 Home screen



Step 2 Tap **Alarms** or **Running Info.** to view active alarms, historical alarms, and PID module running information.

You can view the following information on the alarm information screen:

- Tap an alarm record and view the alarm details.
- Swipe right or left on the screen or tap either **Active Alarm** or **Historical Alarm** to display a list of active alarms or historical alarms.

  NOTE

  - Tap  to set the alarm sorting mode for active alarms or historical alarms.
  - Tap  to set a time criterion. The historical alarms generated within the time segment are displayed.

----End

8.3.2 Settings

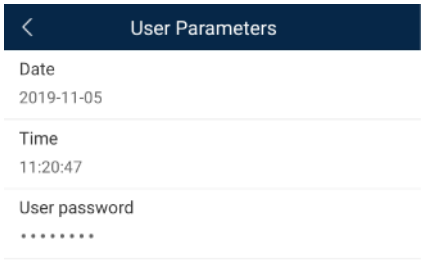
Prerequisite

Common users can set user parameters only for the PID module.

Procedure

Step 1 On the home screen, choose **Settings** > **User Parameters** and set user parameters.

Figure 8-7 User parameters



NOTE

The password must meet the following requirements:

- Contains six characters.
- Contains at least two of the three types: lowercase letters, uppercase letters, and digits.

----End

8.3.3 Maintenance

8.3.3.1 Feedback

Context

Users can provide feedback in text, pictures, and files.

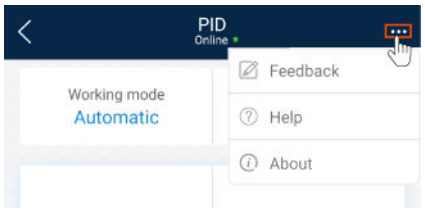
NOTE

Do not add private data.

Procedure

Step 1 Choose ••• > **Feedback** in the upper-right corner of the home screen.

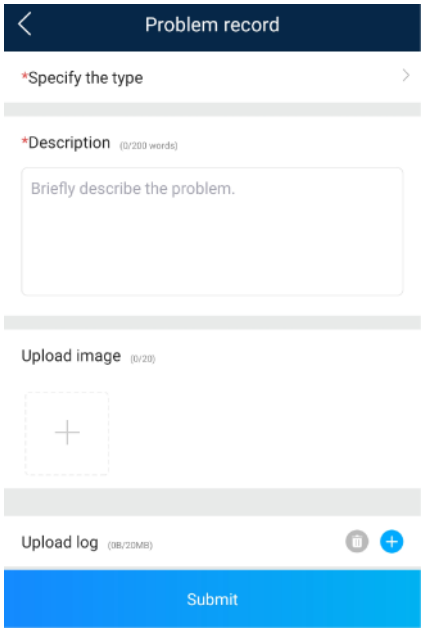
Figure 8-8 Feedback



Step 2 Tap **Specify the type** and select **Feedback** or **Suggestion**.

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Figure 8-9 Problem record



Step 3 Briefly describe the problem that you encounter in the **Description** column.

Step 4 (Optional) Tap  to upload pictures or logs.

Step 5 (Optional) Tap  to upload logs. Select device logs or app logs as required.

Step 6 Tap **Submit**.

----End

8.3.3.2 Help

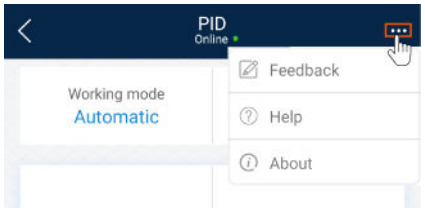
Context

If you have any questions when using an involved device or the app, search for solutions in the help information.

Procedure

Step 1 Choose  > **Help** in the upper-right corner of the home screen.

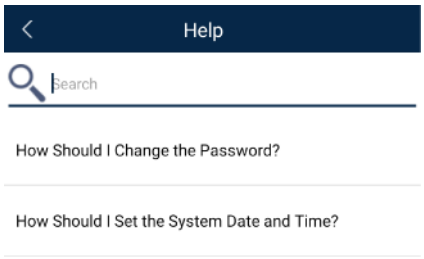
Figure 8-10 Help



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Step 2 Specify your question. A solution will be displayed.

Figure 8-11 Help 2



----End

8.3.3.3 About

Context

You can query the app version, connected product model, SN, firmware version, software version, technical support website, privacy policy, customer service contact information, and open source software policy.

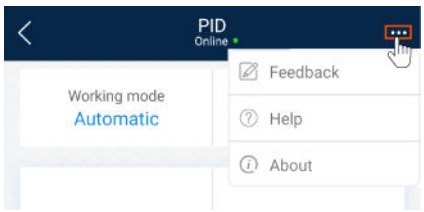
NOTE

- When the app starts for the first time after being downloaded or updated, the privacy policy is displayed. You can use the app only after agreeing to the privacy policy, and the privacy policy will no longer appear. If you do not agree to the privacy policy, the app exits, and the privacy policy is still displayed when you start the app next time until you agree to the privacy policy.
- You can revoke the agreed privacy policy.

Procedure

Step 1 In the upper-right corner of the home screen, choose ··· > **About** to view the app version, connected product model, SN, firmware version, software version, and technical support website.

Figure 8-12 About



Step 2 Tap **Privacy policy**, **Customer service contact information**, or **Open source software policy** to view the privacy policy, customer service contact information, and open source software policy.

----End

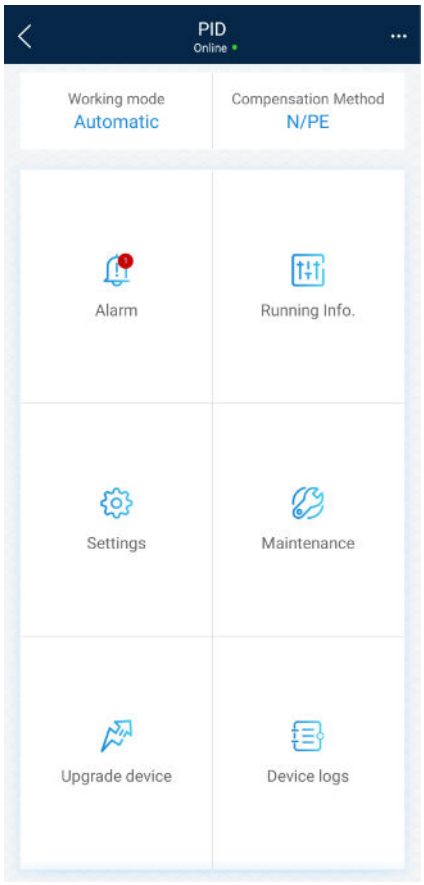
8.4 Screen Operations (Advanced User)

8.4.1 Query

Procedure

Step 1 After logging in to the app, you can view the PID module working mode and compensation mode on the home screen.

Figure 8-13 Home screen



Step 2 Tap **Alarms** or **Running Info.** to view active alarms, historical alarms, and PID module running information.

You can view the following information on the alarm information screen:

- Tap an alarm record and view the alarm details.
- Swipe right or left on the screen or tap either **Active Alarm** or **Historical Alarm** to display a list of active alarms or historical alarms.

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NOTE

- Tap  to set the alarm sorting mode for active alarms or historical alarms.
- Tap  to set a time criterion. The historical alarms generated within the time segment are displayed.

----End

8.4.2 Settings

8.4.2.1 Setting Protection Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Protection Parameters** to access the parameter setting screen.

Figure 8-14 Protection parameters

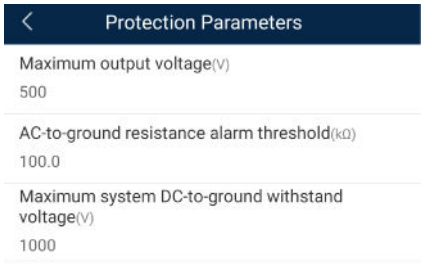


Table 8-1 Parameter description

No.	Parameter	Description	Unit	Remarks
1	Maximum output voltage	Specifies the highest step-up voltage of the PID module in normal or commissioning mode.	V	The default value is 500 V. For the 1500 V SUN2000, the recommended value is 800 V. ● For the 1000 V/1100 V SUN2000, the value ranges from 0 V to 550 V. The parameter value indicates the maximum DC step-up voltage between PV and the ground. ● For the 1500 V SUN2000, the value ranges from 0 V to 800 V. The parameter value indicates the maximum DC step-up voltage between PV and the ground.
2	AC-to-ground resistance alarm threshold	Specifies the alarm threshold for the impedance between the AC side of the PID module and the ground.	kΩ	You can set an alarm threshold for the impedance between the AC grid and the ground for the PID module. If the detected impedance is below the threshold, the PID module will generate an alarm.
3	Maximum system DC-to-ground withstand voltage	Specifies the voltages between the PV side and the ground and between the AC side and the ground in normal mode.	V	Specifies the lower threshold of the maximum voltage range between the solar inverter DC side (including the solar inverter, PV module, cable, SPD, and switch) and the ground. The default value is 1000 V. For the 1500 V SUN2000, the recommended value is 1500 V.

----End

8.4.2.2 Setting Feature Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Feature Parameters** to access the parameter setting screen.

Figure 8-15 Feature parameters



Table 8-2 Parameter description

No.	Parameter	Description	Unit	Remarks
1	Offset mode	Specifies the compensation mode of the PID module.	-	• Select **Disable** if the PID module is not required. • Select **N/PE** if the PID module is required to use voltage output from the power grid.

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No.	Parameter	Description	Unit	Remarks
2	Compensation offset voltage	Specifies the compensation offset voltage between PV and the ground after the PID module operates stably.	V	• If **PV module compensation voltage direction** is set to **PV– positive offset**, this parameter specifies the positive voltage between PV– and the ground. • If **PV module compensation voltage direction** is set to **PV+ negative offset**, this parameter specifies the negative voltage between PV+ and the ground. **NOTE** If **Compensation offset voltage** is set to 500 V, the PID module provides the maximum output to enhance the voltage compensation effect. The output voltage amplitude of the PID module is automatically capped to ensure the safety of a PV plant. The output voltage amplitude is also related to the maximum system DC-to-ground withstand voltage and maximum output voltage.
3	PV module compensation voltage direction	Specifies the offset direction of the PID module.	-	For the specific PV module compensation type, consult the PV module vendor. For example, P-type PV modules, HIT, CIS, thin-film PV modules, and CdTe PV modules meet the requirement for PV– positive offset.
4	Modbus version number	Specifies the version number of the Modbus protocol of the PID module.	-	-

No.	Parameter	Description	Unit	Remarks
5	IMD access	Specifies whether the PID module and insulation monitor device (IMD) can operate in cycle mode.	-	• Select **Enable** if you allow the PID module and IMD to operate in cycle mode. Only the IMDs of mainstream suppliers such as DOLD and BENDER are supported, and the IMDs must have enabled dry contacts. **NOTICE** You can set **Periodic PID runtime** and **Periodic IMD runtime** only when **IMD access** is set to **Enable**. • Select **Disable** if you forbid the access of IMDs.
6	Periodic PID runtime	Specifies the operating duration of the PID module when the PID module and IMD operate in cycle mode.	min	The IMD is shut down when the PID module is operating.
7	Periodic IMD runtime	Specifies the operating duration of the IMD when the PID module and IMD operate in cycle mode.	min	The PID module is standby when the IMD is operating.

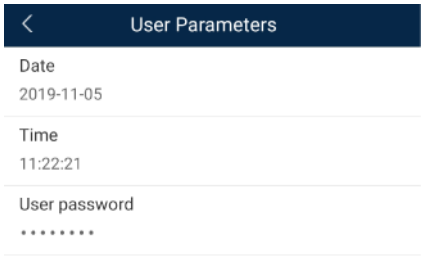
----End

8.4.2.3 Setting User Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **User Parameters** to access the parameter setting screen.

Figure 8-16 User parameters



NOTE

The password must meet the following requirements:

- Contains six characters.
- Contains at least two of the three types: lowercase letters, uppercase letters, and digits.

----End

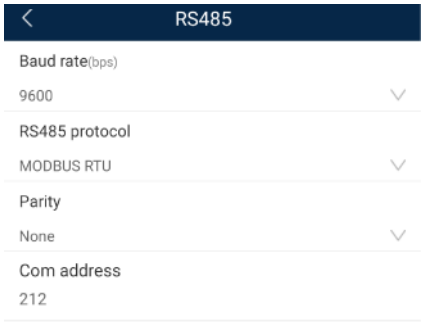
8.4.2.4 Setting Communications Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Comm. Parameters** to access the parameter setting screen.

Step 2 Tap **RS485** to set RS485 communications parameters.

Figure 8-17 Communications parameters



----End

8.4.2.5 Setting a File Save Path

Prerequisites

This function is available only on the Android system.

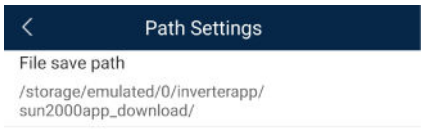
Context

You can modify the save path for operation logs and PID module logs and export logs from the path.

Procedure

Step 1 On the home screen, choose **Settings** > **File Save Path** to access the path setting screen.

Figure 8-18 File save path



Step 2 Tap **File save path** to set a file save path.

----End

8.4.3 Maintenance

8.4.3.1 Log Download

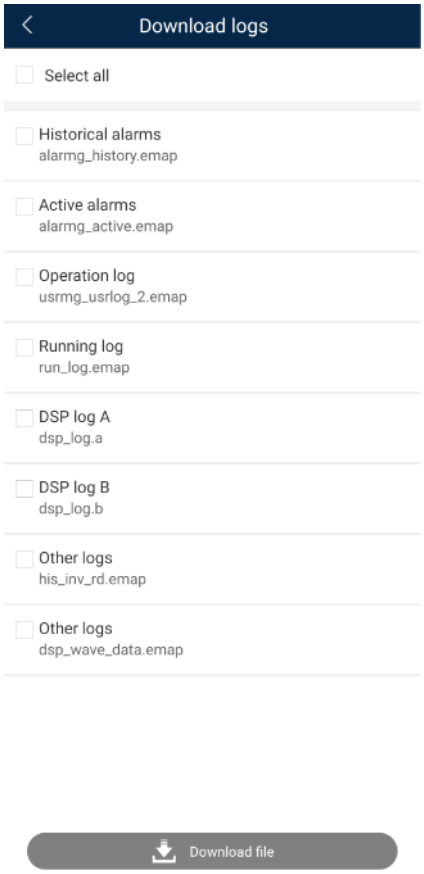
Context

On the **Device Logs** screen, you can export operation logs and PID logs from the mobile phone.

Procedure

Step 1 On the home screen, tap **Device Logs** to access the log download screen.

Figure 8-19 Downloading logs



Step 2 Download log files as required.

NOTE

- By default, Android system logs are saved in the **Android/data/com.huanwei.smartpvms/files/inverterapp** folder in the phone memory. You can change the save path by referring to "Setting a File Save Path".
- The downloaded solar inverter logs are saved at the **Device Log** directory in **File Manager** in your mobile phone. You can also send the logs to your mailbox for checking.

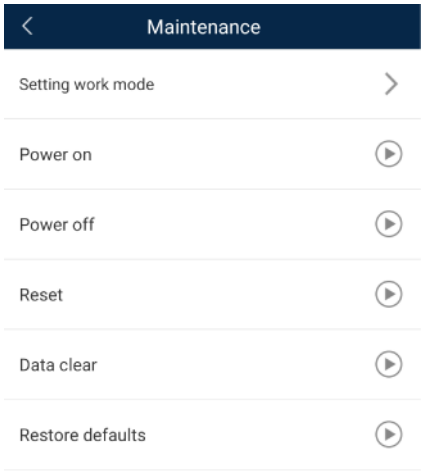
----End

8.4.3.2 System Maintenance

Procedure

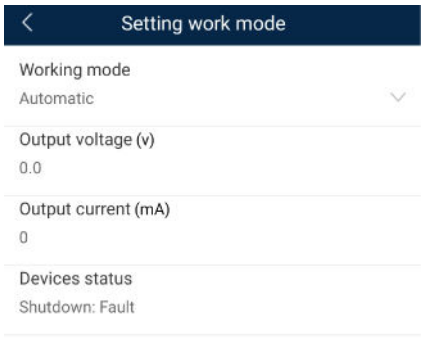
Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Figure 8-20 Maintenance



Step 2 Tap **Setting work mode** to set working mode parameters.

Figure 8-21 Setting work mode



Step 3 Tap next to **Power on**, **Power off**, **Reset**, **Data clear**, or **Restore defaults** as required.

NOTE

- If you clear data, active and historical alarms stored on the PID module will all be cleared.
- Tap **Performance Data** to view the performance data curve of the PID module.

Step 4 Enter the password for logging in to the app, and tap **OK**.

----End

8.4.3.3 Device Upgrade

Prerequisites

Obtain the upgrade package from your supplier or Huawei engineers. After the downloading is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.

1. Log in to Huawei enterprise technical support website **http://support.huawei.com/enterprise**.

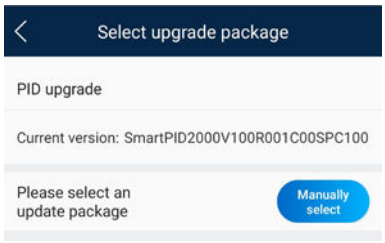
2. Browse or search for **PGP Verify**.

Procedure

Step 1 Copy the upgrade package to your mobile phone without decompressing the package.

Step 2 Tap **Upgrade** to access the PID module upgrade screen. Upgrade the software version of the device as required.

Figure 8-22 PID Upgrade



----End

8.4.3.4 Feedback

Context

Users can provide feedback in text, pictures, and files.

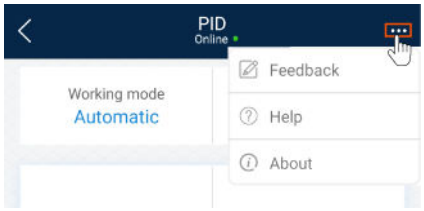
NOTE

Do not add private data.

Procedure

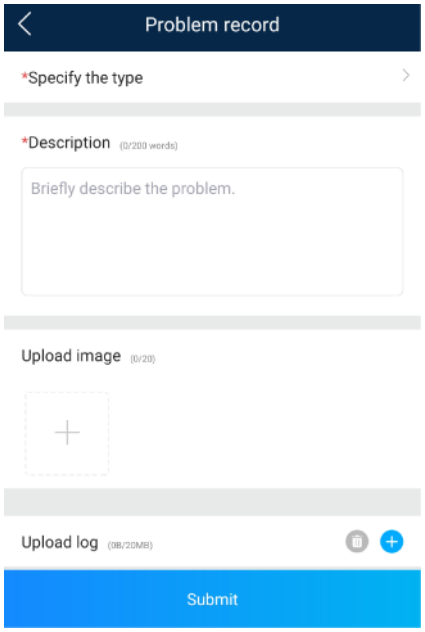
Step 1 Choose ••• > **Feedback** in the upper-right corner of the home screen.

Figure 8-23 Feedback



Step 2 Tap **Specify the type** and select **Feedback** or **Suggestion**.

Figure 8-24 Problem record



Step 3 Briefly describe the problem that you encounter in the **Description** column.

Step 4 (Optional) Tap  to upload pictures or logs.

Step 5 (Optional) Tap  to upload logs. Select device logs or app logs as required.

Step 6 Tap **Submit**.

----End

8.4.3.5 Help

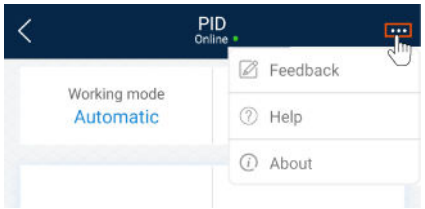
Context

If you have any questions when using an involved device or the app, search for solutions in the help information.

Procedure

Step 1 Choose  > **Help** in the upper-right corner of the home screen.

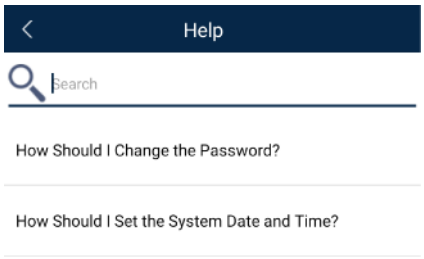
Figure 8-25 Help



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Step 2 Specify your question. A solution will be displayed.

Figure 8-26 Help 2



----End

8.4.3.6 About

Context

You can query the app version, connected product model, SN, firmware version, software version, technical support website, privacy policy, customer service contact information, and open source software policy.

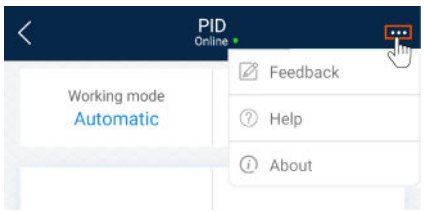
NOTE

- When the app starts for the first time after being downloaded or updated, the privacy policy is displayed. You can use the app only after agreeing to the privacy policy, and the privacy policy will no longer appear. If you do not agree to the privacy policy, the app exits, and the privacy policy is still displayed when you start the app next time until you agree to the privacy policy.
- You can revoke the agreed privacy policy.

Procedure

Step 1 In the upper-right corner of the home screen, choose ··· > **About** to view the app version, connected product model, SN, firmware version, software version, and technical support website.

Figure 8-27 About



Step 2 Tap **Privacy policy**, **Customer service contact information**, or **Open source software policy** to view the privacy policy, customer service contact information, and open source software policy.

----End

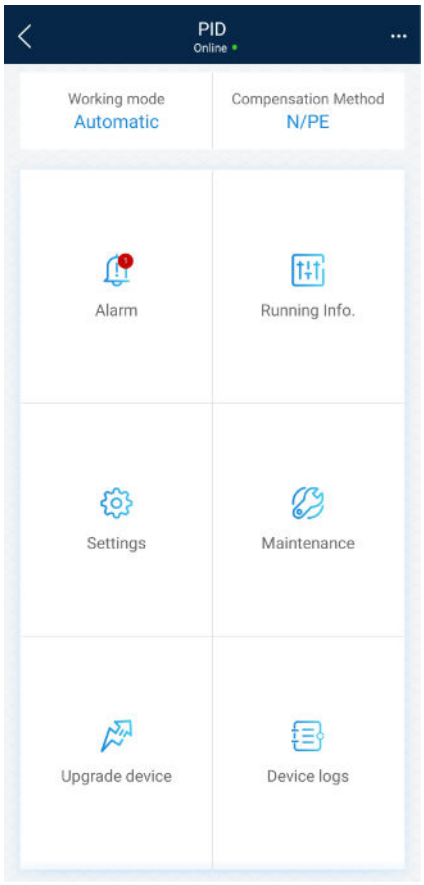
8.5 Screen Operations (Special User)

8.5.1 Query

Procedure

Step 1 After logging in to the app, you can view the PID module working mode and compensation mode on the home screen.

Figure 8-28 Home screen



Step 2 Tap **Alarms** or **Running Info.** to view active alarms, historical alarms, and PID module running information.

You can view the following information on the alarm information screen:

- Tap an alarm record and view the alarm details.
- Swipe right or left on the screen or tap either **Active Alarm** or **Historical Alarm** to display a list of active alarms or historical alarms.

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NOTE

- Tap  to set the alarm sorting mode for active alarms or historical alarms.
- Tap  to set a time criterion. The historical alarms generated within the time segment are displayed.

----End

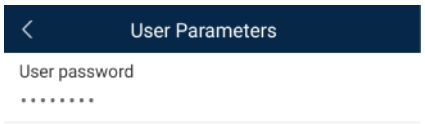
8.5.2 Settings

8.5.2.1 Setting User Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **User Parameters** to access the parameter setting screen.

Figure 8-29 User parameters



NOTE

The password must meet the following requirements:

- Contains six characters.
- Contains at least two of the three types: lowercase letters, uppercase letters, and digits.

----End

8.5.2.2 Setting a File Save Path

Prerequisites

This function is available only on the Android system.

Context

You can modify the save path for operation logs and PID module logs and export logs from the path.

Procedure

Step 1 On the home screen, choose **Settings** > **File Save Path** to access the path setting screen.

Figure 8-30 File save path



Step 2 Tap **File save path** to set a file save path.

----End

8.5.3 Maintenance

8.5.3.1 Log Download

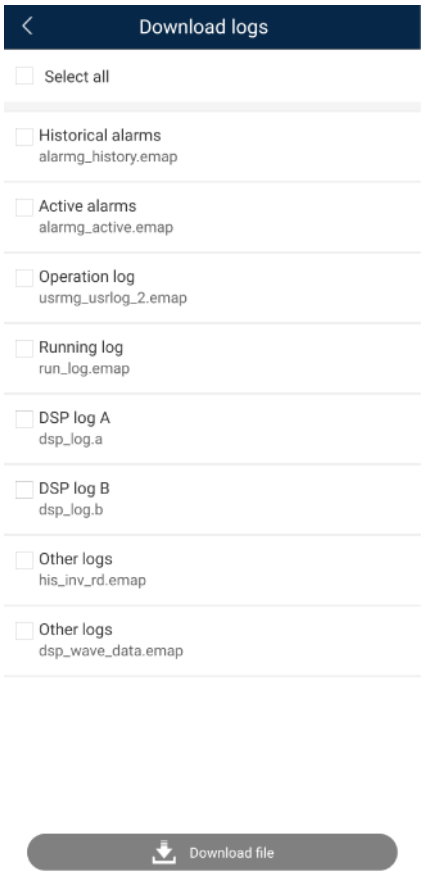
Context

On the **Device Logs** screen, you can export operation logs and PID logs from the mobile phone.

Procedure

Step 1 On the home screen, tap **Device Logs** to access the log download screen.

Figure 8-31 Downloading logs



Step 2 Download log files as required.

NOTE

- By default, Android system logs are saved in the **Android/data/com.huanwei.smartpvms/files/inverterapp** folder in the phone memory. You can change the save path by referring to "Setting a File Save Path".
- The downloaded solar inverter logs are saved at the **Device Log** directory in **File Manager** in your mobile phone. You can also send the logs to your mailbox for checking.

----End

8.5.3.2 System Maintenance

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Figure 8-32 Maintenance



Step 2 Tap ▶ next to **Power on**, **Power off**, or **Data clear** as required.

NOTE

- If you clear data, active and historical alarms stored on the PID module will all be cleared.
- Tap **Performance Data** to view the performance data curve of the PID module.

Step 3 Enter the password for logging in to the app, and tap **OK**.

----End

8.5.3.3 Device Upgrade

Prerequisites

Obtain the upgrade package from your supplier or Huawei engineers. After the downloading is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.

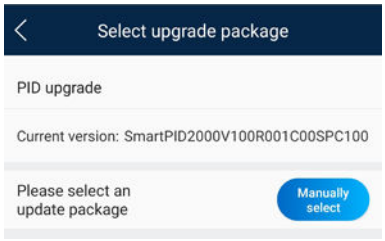
1. Log in to Huawei enterprise technical support website **http://support.huawei.com/enterprise**.
2. Browse or search for **PGP Verify**.

Procedure

Step 1 Copy the upgrade package to your mobile phone without decompressing the package.

Step 2 Tap **Upgrade** to access the PID module upgrade screen. Upgrade the software version of the device as required.

Figure 8-33 PID Upgrade



----End

8.5.3.4 Feedback

Context

Users can provide feedback in text, pictures, and files.

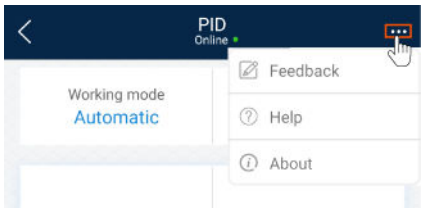
NOTE

Do not add private data.

Procedure

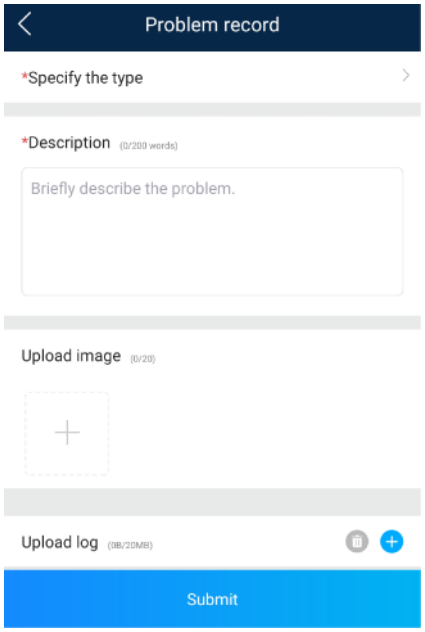
Step 1 Choose ••• **> Feedback** in the upper-right corner of the home screen.

Figure 8-34 Feedback



Step 2 Tap **Specify the type** and select **Feedback** or **Suggestion**.

Figure 8-35 Problem record



Step 3 Briefly describe the problem that you encounter in the **Description** column.

Step 4 (Optional) Tap  to upload pictures or logs.

Step 5 (Optional) Tap  to upload logs. Select device logs or app logs as required.

Step 6 Tap **Submit**.

----End

8.5.3.5 Help

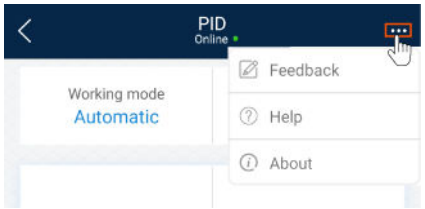
Context

If you have any questions when using an involved device or the app, search for solutions in the help information.

Procedure

Step 1 Choose  > **Help** in the upper-right corner of the home screen.

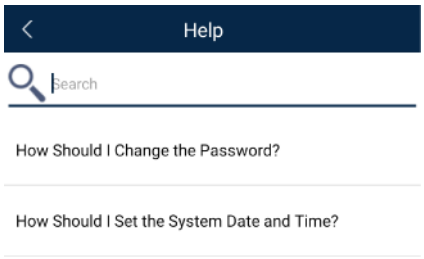
Figure 8-36 Help



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Step 2 Specify your question. A solution will be displayed.

Figure 8-37 Help 2



----End

8.5.3.6 About

Context

You can query the app version, connected product model, SN, firmware version, software version, technical support website, privacy policy, customer service contact information, and open source software policy.

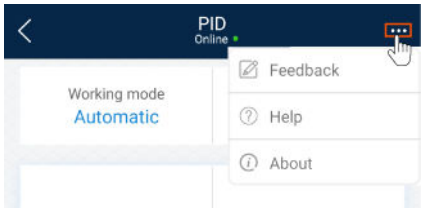
NOTE

- When the app starts for the first time after being downloaded or updated, the privacy policy is displayed. You can use the app only after agreeing to the privacy policy, and the privacy policy will no longer appear. If you do not agree to the privacy policy, the app exits, and the privacy policy is still displayed when you start the app next time until you agree to the privacy policy.
- You can revoke the agreed privacy policy.

Procedure

Step 1 In the upper-right corner of the home screen, choose  **> About** to view the app version, connected product model, SN, firmware version, software version, and technical support website.

Figure 8-38 About



Step 2 Tap **Privacy policy**, **Customer service contact information**, or **Open source software policy** to view the privacy policy, customer service contact information, and open source software policy.

----End

9 Smart Dongle

After logging in to the app, you can view the number of inverters connected to the Smart Dongle on the home screen.

9.1 Alarm Management

Step 1 Tap **Alarm** to view active and historical alarms.

On the **Alarms** screen, you can perform the following operations:

- Tap an alarm record and view the alarm details.
- Swipe left or right on the screen or tap **Active Alarms** or **Historical Alarms** to switch between active alarms and historical alarms.

----End

9.2 Maintenance

9.2.1 Subdevice Management

Step 1 On the home screen, choose **Maintenance** > **Subdevice management**. The **Subdevice management** screen is displayed.

- Tap **+** to add a power meter.

Parameter	Description
Model	Set this parameter to the corresponding meter model. **NOTE** – Select an appropriate power meter based on the application scenario. The device model is subject to change. The actual product may vary. – Set the power meter model correctly. Otherwise, the power meter function may be unavailable.

Parameter	Description
Device address	Set this parameter to the communication address of the power meter.

- After a power meter is added, tap it to view and modify the power meter parameters. To delete the power meter, touch and hold it.

----End

9.2.2 Device Upgrade

Prerequisites

- You have obtained the upgrade package from your supplier or engineers. After the download is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.
  a. Log in to Huawei enterprise technical support website **http://support.huawei.com/enterprise**.
  b. Browse or search for **PGP Verify**.
- In the Android system, you have copied the upgrade package to the **Android/data/com.huawei.inverterapp/files/** directory on the mobile phone. The upgrade package is a .zip file.

Procedure

Step 1 On the home screen, choose **Maintenance** > **Upgrade device**.

Step 2 Access the device upgrade screen and tap **Upgrade**.

Step 3 Perform operations as prompted.

----End

9.2.3 Log Management

Context

You can export operation logs and device running logs on your mobile phone on the **Log management** screen.

Procedure

Step 1 On the home screen, choose **Maintenance** > **Log Management** to access the log download screen.

Step 2 You can download **Dongle logs** and **APP log**.

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NOTE

- By default, Android system logs are saved in the **Android/data/com.huawei.smartpvms/files/inverterapp** folder in the phone memory. You can change the save path by referring to **File save path**.
- The downloaded inverter logs are saved in the **Device Log** directory in **File manager** on your mobile phone. You can also send the logs to your mailbox for checking.

----End

9.2.4 Device Performance

You can check the Smart Dongle running status on the **Device performance** screen.

Procedure

1. On the home screen, choose **Maintenance** > **Device performance**.
2. Check the **Dongle memory usage**, **Flash usage**, and **CPU usage**.

9.2.5 Minimum System

After the minimum system is enabled, the Smart Dongle disables the remote networking service and disconnects from the network management system (NMS).

Procedure

1. On the home screen, choose **Maintenance** > **Minimum system**.
2. Enable the minimum system function and enter the login password for secondary verification.

9.3 Settings

9.3.1 Setting Communications Parameters

Procedure

1. On the home screen, choose **Settings** > **Comm. parameters** to access the parameter setting screen.

9.4 Power Adjustment

9.4.1 Active Power Control

Procedure

Step 1 Choose **Power adjustment** > **Active Power Control**. The **Active Power Control** screen is displayed.

Step 2 Tap **Control mode** or **Limitation mode** to set the active power control mode.

----End

9.4.2 Reactive Power Control

Procedure

Step 1 On the home screen, tap **Power adjustment** > **Reactive Power control** to access the parameter setting screen.

Step 2 Tap **Reactive power control mode** to set the active power control mode.

----End

9.4.3 Shutdown at High Feed-in Power

The power grid company requires that power plants be able to limit or reduce the output power of PV power systems. If the output power cannot be limited within the specified range, all inverters need to be shut down, which is shut down at high feed-in power.

Procedure

1. Choose **Power adjustment** > **Shutdown at high feed-in power**. The **Shutdown at high feed-in power** screen is displayed.

Table 9-1 Shutdown at high feed-in power

Parameter	Description
Shutdown at high feed-in power	• The default value is **Disable**. • If this parameter is set to **Enable**, the inverter shuts down for protection when the grid-connection point power exceeds the threshold and remains in this condition for the specified time threshold.
Upper feed-in power threshold for inverter shutdown	The default value is **0**. This parameter specifies the power threshold of the grid-connection point for triggering inverter shutdown.
High feed-in power duration threshold for triggering inverter shutdown	The default value is **20**. This parameter specifies the duration threshold of high feed-in power for triggering inverter shutdown. • When **High feed-in power duration threshold for triggering inverter shutdown** is set to **5**, **Shutdown at high feed-in power** takes precedence. • When **High feed-in power duration threshold for triggering inverter shutdown** is set to **20**, **Limited feed-in** takes precedence (when **Active power control** is set to **Limited feed-in**).

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9.4.4 Dry Contact Scheduling Settings

Procedure

Step 1 On the home screen, choose **Power adjustment** > **Dry contact scheduling settings**.

----End

10 STS

10.1 Query

Procedure

Step 1 After logging in to the app, you can view the Smart Transformer Station (STS) running data on the home screen.

Step 2 Tap **Alarms** or **Device Monitoring** to view active alarms, historical alarms, and STS running information.

On the **Alarms** screen, you can perform the following operations:

- Tap an alarm record and view the alarm details.
- Swipe left or right on the screen or tap **Active Alarms** or **Historical Alarms** to switch between active alarms and historical alarms.

On the **Device Monitoring** screen, you can perform the following operations:

- Tap **Teleindication** to view the teleindication signals.
- Tap **Telemetering** to view the telemetry signals.
- Tap **Telecontrol** to view the remote control signal.

----End

10.2 Maintenance

10.2.1 Device Upgrade

Prerequisites

- You have obtained the upgrade package from your supplier or engineers. After the download is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.

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a. Log in to Huawei enterprise technical support website **http://support.huawei.com/enterprise**.
b. Browse or search for **PGP Verify**.

- Copy the upgrade package to the USB flash drive. The file name extension of the upgrade package must be **.zip**.

Procedure

Step 1 On the home screen, choose **Maintenance** > **Upgrade device**.

Step 2 Access the device upgrade screen and tap **Upgrade**.

Step 3 Perform operations as prompted.

----End

10.2.2 Log Management

Context

You can export operation logs and device running logs on your mobile phone on the **Log management** screen.

Procedure

Step 1 On the home screen, choose **Maintenance** > **Log Management** to access the log download screen.

Step 2 Select **STS logs** or **APP log**.

NOTE

- By default, Android system logs are saved in the **Android/data/com.huawei.smartpvms/files/inverterapp** folder in the phone memory. You can change the save path by referring to **File save path**.
- The downloaded inverter logs are saved in the **Device Log** directory in **File manager** on your mobile phone. You can also send the logs to your mailbox for checking.

----End

10.2.3 Changing a Device Name

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **Device Name** to change it.

----End

10.2.4 System Reset

Context

After the system is reset, the STS restarts.

Procedure

Step 1 Choose **Maintenance** > **Reset**. The **System Reset** dialog box is displayed.

Step 2 Enter the app login password and tap **OK**.

----End

10.2.5 Restoring Factory Settings

Context

NOTICE

Perform this operation with caution because all configured parameters except the current date, time, baud rate, and address will be restored to their factory default values. This operation will not affect operating information, alarm records, or system logs.

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **Restore Factory Settings**.

Step 3 Enter the app login password and tap **OK**.

----End

10.2.6 Resetting Machine-Machine Authentication Password

Procedure

Step 1 On the maintenance screen, choose **Reset machine-machine authentication password**.

Step 2 Enter the old password, new password, and confirm password, and tap **OK**.

----End

10.2.7 O&M via WLAN Connection

Context

You can enable or disable the WLAN.

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- **Always ON**: The WLAN is always on.
- **OFF when idle**: The WLAN is automatically turned off after being idle for four hours.

  NOTE

  If you need to connect to the WLAN after disabling it, log in to the FusionSolar app to enable it. Otherwise, you cannot log in to the inverter for local commissioning.

Procedure

1. On the home screen, tap **Maintenance** to access the maintenance screen.
2. Tap **O&M via WLAN connection**.

10.2.8 Data Clearance

Context

Clear data if the STS is relocated and its historical data needs to be deleted.

NOTICE

- The **Data clearance** operation clears all running data and alarms from the STS.
- The **Data clearance** operation does not delete the devices connected to the STS. If a device is no longer required for the STS, perform the **Remove device** operation.
- If you tap **Data clearance** on the STS, you must tap **Alarm reset** on the NMS. Otherwise, the alarm information collected by the NMS and STS is inconsistent.

Procedure

Step 1 Choose **Maintenance** > **Data clearance** and clear data as prompted.

----End

10.2.9 Alarm Clearance

Context

After alarms are reset, all active and historical alarms of the STS connected to the app are cleared.

Procedure

Step 1 On the home screen, tap **Maintenance** to access the maintenance screen.

Step 2 Tap **Clear Alarms**.

Step 3 Enter the app login password and tap **OK**.

----End

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10.3 Settings

10.3.1 Feature Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Feature parameters** to access the parameter setting screen.

Step 2 Set parameters as required.

----End

10.3.2 Time Settings

Procedure

Step 1 On the home screen, choose **Settings** > **Time settings** and set time parameters.

----End

10.3.3 Communications Parameters

Procedure

Step 1 On the home screen, choose **Settings** > **Comm. parameters** to access the parameter setting screen.

----End

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11 Charger

NOTE

6.23.00.157 and later versions support chargers and new functions. Update the app to the latest version before connecting to chargers.

11.1 I'm an Installer

An installer can perform wizard-based commissioning on the FusionSolar app to monitor the overall running status of the charger. If a device is faulty, the installer can perform O&M on the app.

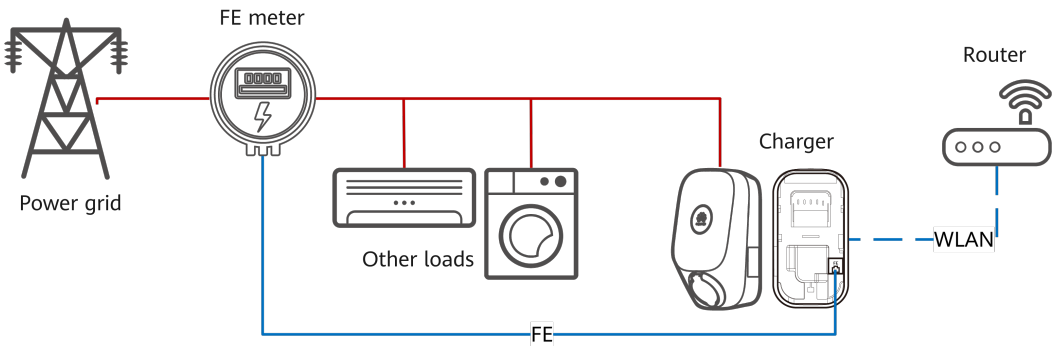
11.1.1 Device Commissioning (Charger)

NOTE

6.23.00.157 and later versions support chargers and new functions. Update the app to the latest version before connecting to chargers.

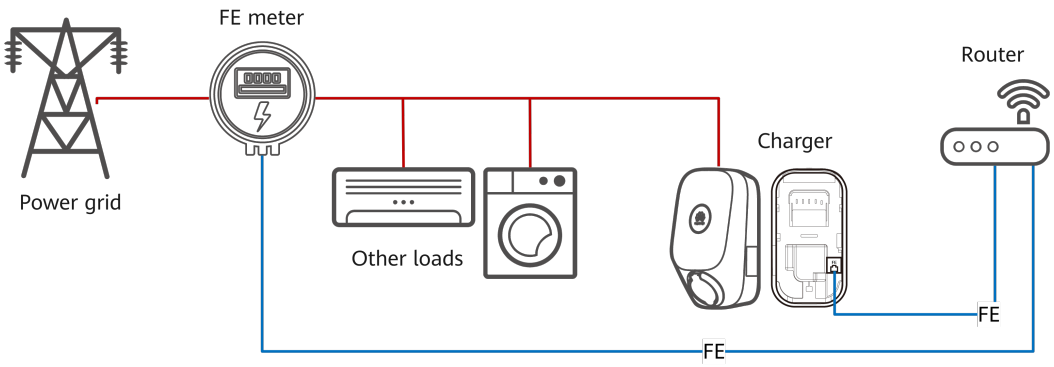
The chargers can implement dynamic power by connecting to the DTSU666-FE meter or the WLAN/FE Smart Dongle in the PV system through virtual meter networking to obtain RS485 meter detection data. Perform commissioning based on the actual networking scenarios of chargers, meters, and routers.

Figure 11-1 Charger FE port directly connected to a meter



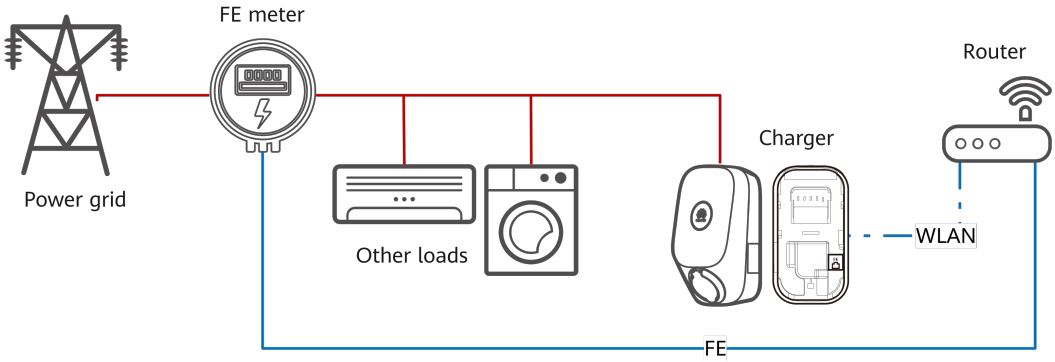
For details about the commissioning procedure, see **11.1.1.1 Charger FE Port Directly Connected to a Meter**.

Figure 11-2 Charger FE port directly connected to a router



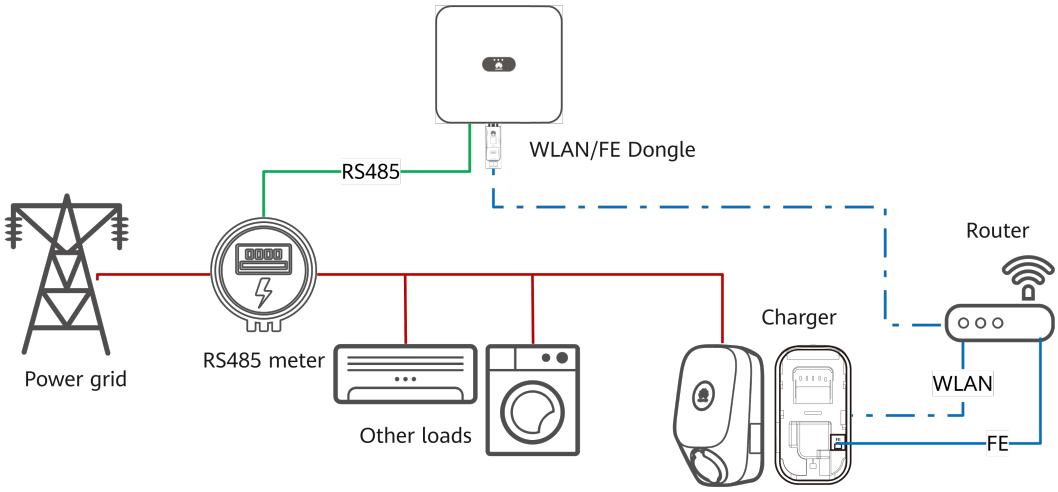
For details about the commissioning procedure, see **11.1.1.2 Charger FE Port Directly Connected to a Router**.

Figure 11-3 Charger connected to a router through WLAN



For details about the commissioning procedure, see **11.1.1.3 Charger Connected to a Router Through WLAN**.

Figure 11-4 Charger using a virtual meter

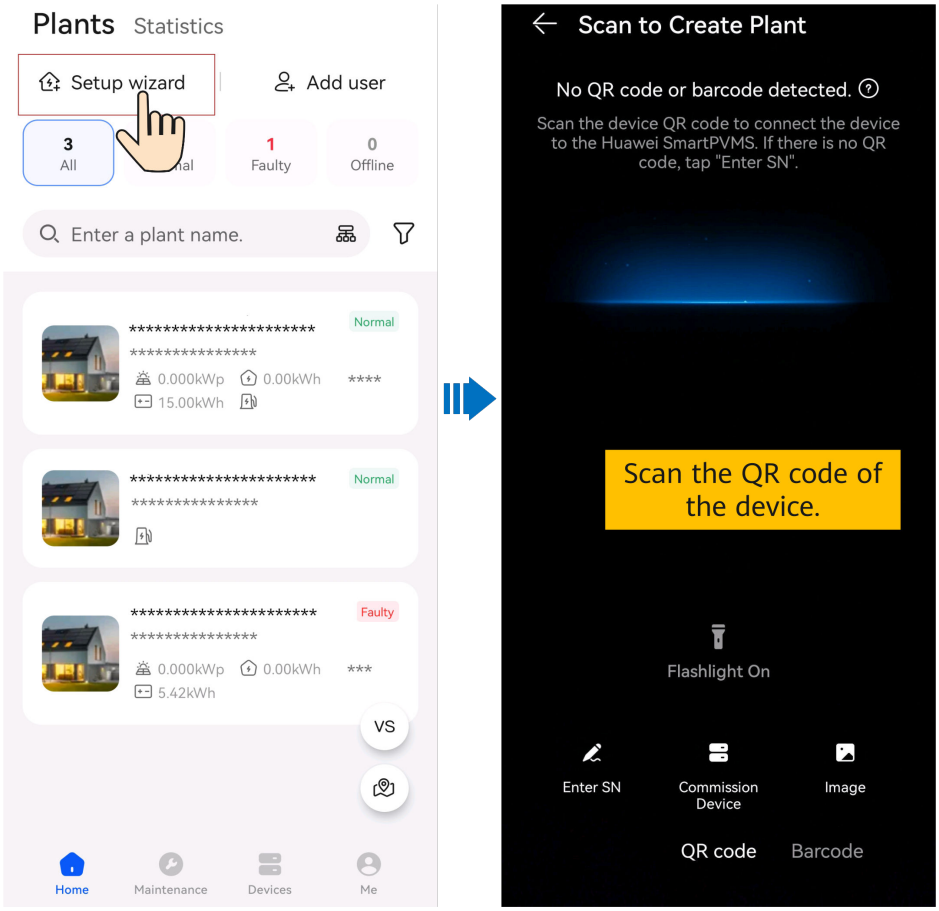


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For details about the commissioning procedure, see **11.1.1.4 Charger Using a Virtual Meter**.

11.1.1.1 Charger FE Port Directly Connected to a Meter

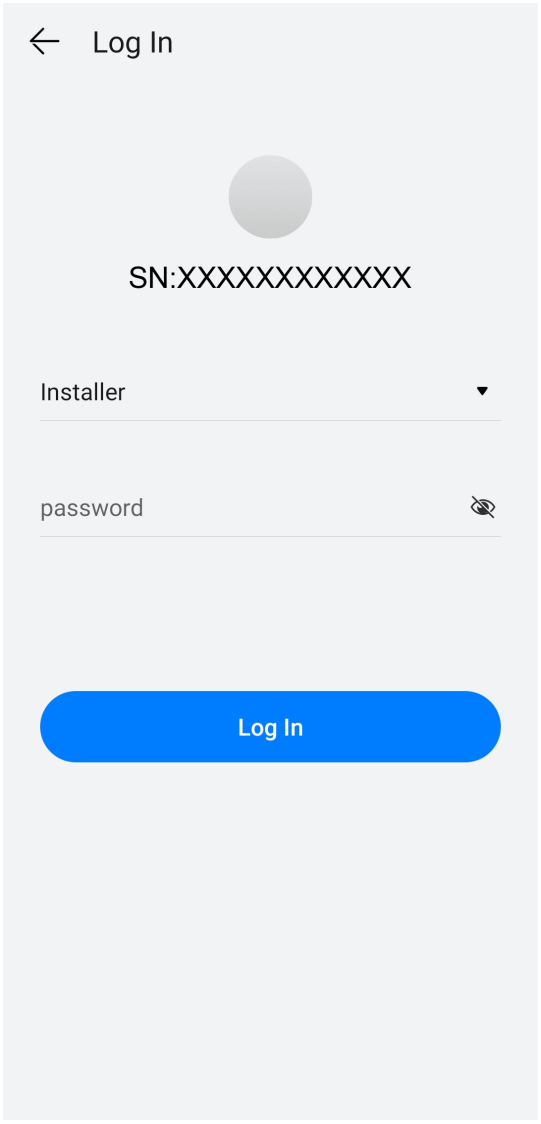
1. Log in to the FusionSolar app as an installer, tap **Setup wizard** on the **Home** screen, scan the QR code of the device, and follow the instructions to connect to the WLAN.



NOTE

- The last six digits of the product WLAN name are the same as the last six digits of the product SN.
- Use the initial password to log in for the first time and change the password as prompted. To ensure account security, protect the password by changing it periodically, and keep it secure. Your password might be stolen or cracked if it is left unchanged for extended periods. If a password is lost, devices cannot be accessed. In these cases, the Company shall not be liable for any loss.
- If the login screen is not displayed after you scan the QR code, check whether the device is correctly connected to the WLAN network. If not, manually select and connect to the WLAN network and tap **Next**.
- If the **This WLAN network has no Internet access. Connect anyway?** message is displayed when you connect to the device WLAN, tap **CONNECT**. Otherwise, you cannot log in to the system. The actual UI and messages may vary with mobile phones.

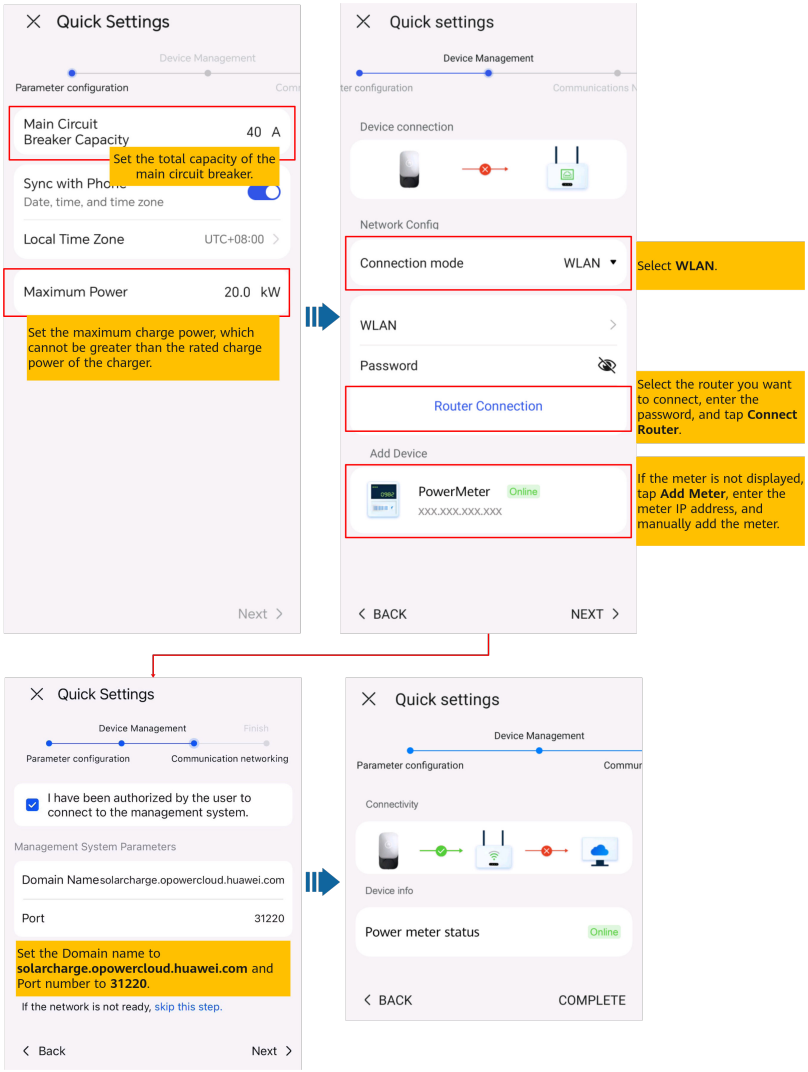
2. Log in to the app as an **Installer**.



NOTE

For the first login, the initial password is **Changeme**. If the system prompts you to set a password, set the login password as prompted.

3. Commission the device according to the wizard procedure.

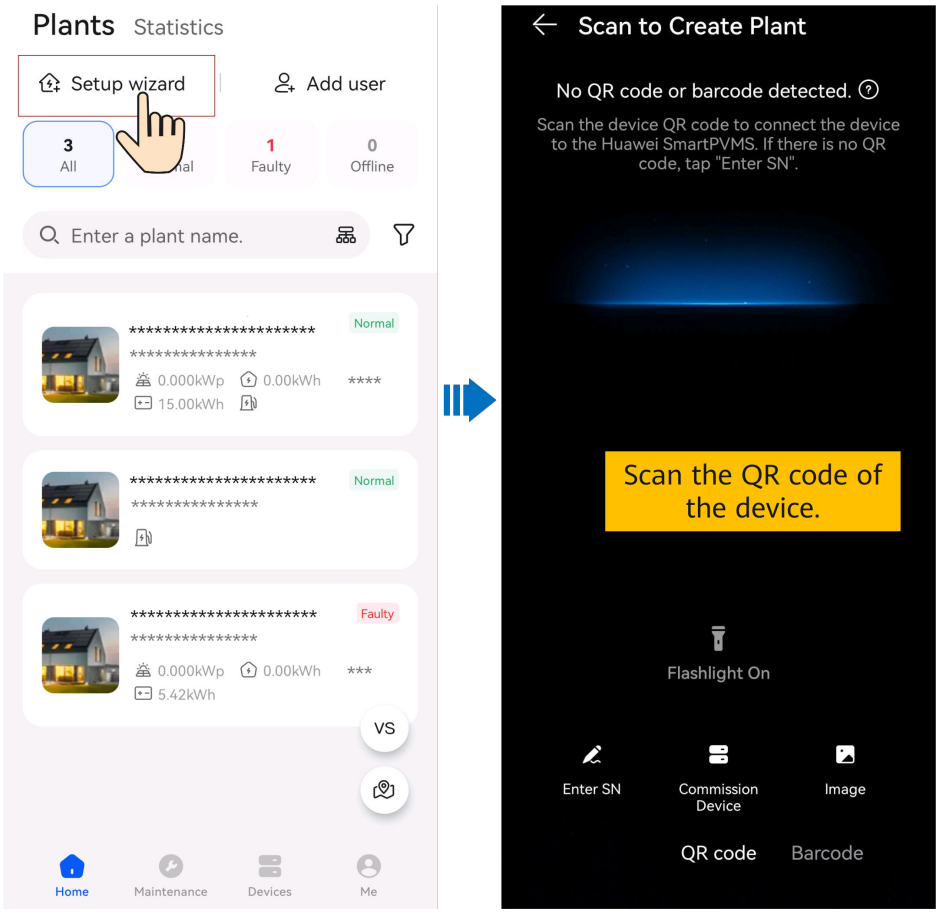


NOTE

Set the capacity of the main circuit breaker based on site requirements. If the set value is greater than the actual capacity, the circuit breaker trips due to overcurrent. If the set value is less than the actual capacity, the charger cannot work.

11.1.1.2 Charger FE Port Directly Connected to a Router

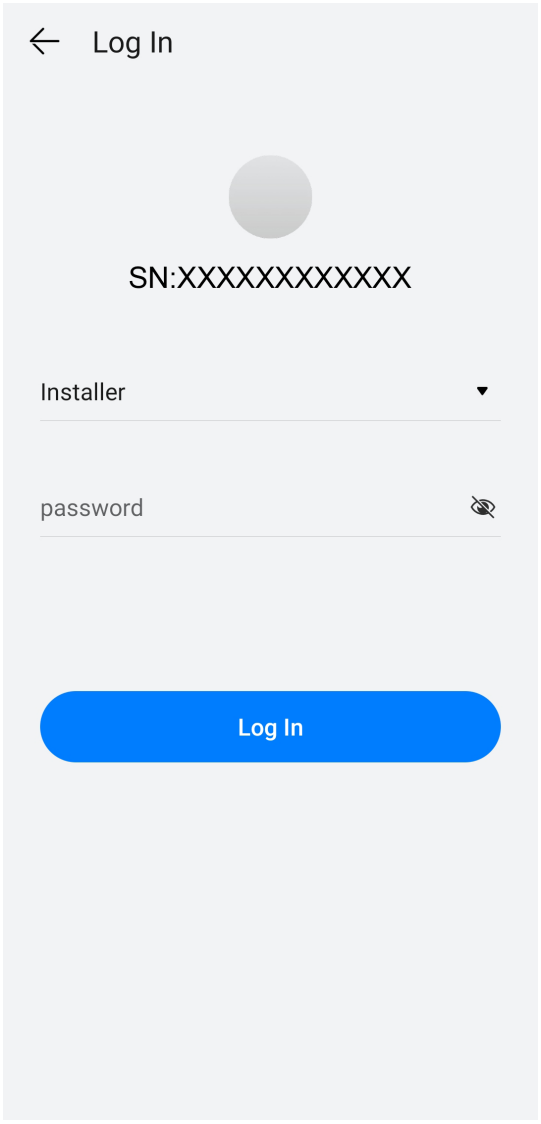
1. Log in to the FusionSolar app as an installer, tap **Setup wizard** on the **Home** screen, scan the QR code of the device, and follow the instructions to connect to the WLAN.



NOTE

- The last six digits of the product WLAN name are the same as the last six digits of the product SN.
- Use the initial password to log in for the first time and change the password as prompted. To ensure account security, protect the password by changing it periodically, and keep it secure. Your password might be stolen or cracked if it is left unchanged for extended periods. If a password is lost, devices cannot be accessed. In these cases, the Company shall not be liable for any loss.
- If the login screen is not displayed after you scan the QR code, check whether the device is correctly connected to the WLAN network. If not, manually select and connect to the WLAN network and tap **Next**.
- If the **This WLAN network has no Internet access. Connect anyway?** message is displayed when you connect to the device WLAN, tap **CONNECT**. Otherwise, you cannot log in to the system. The actual UI and messages may vary with mobile phones.

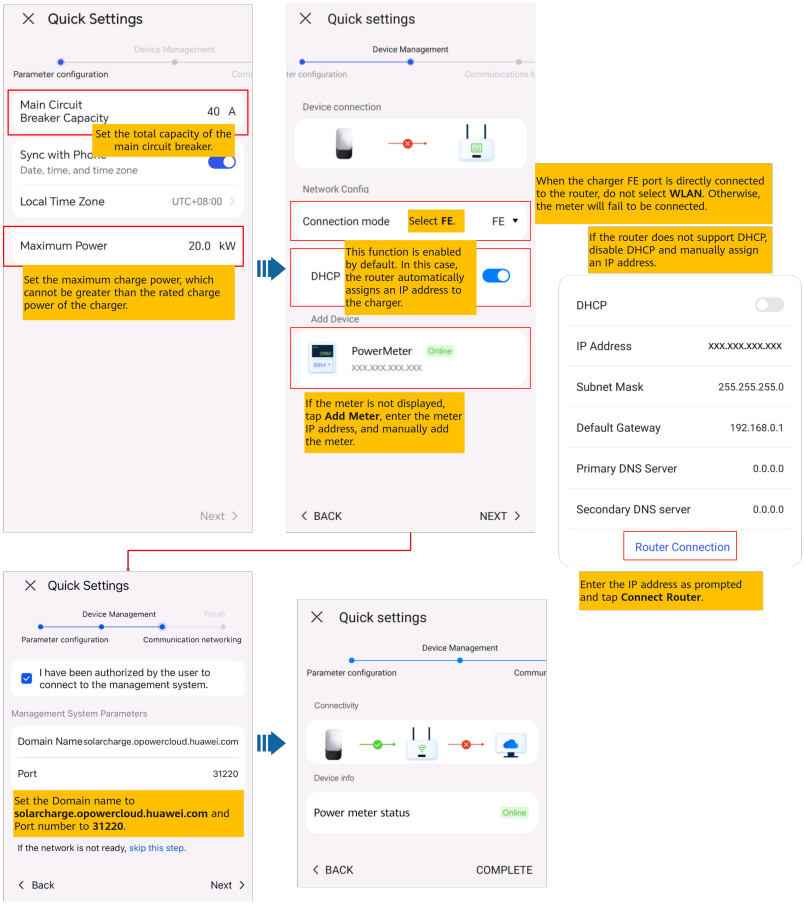
2. Log in to the app as an **Installer**.



NOTE

For the first login, the initial password is **Changeme**. If the system prompts you to set a password, set the login password as prompted.

3. Commission the device according to the wizard procedure.

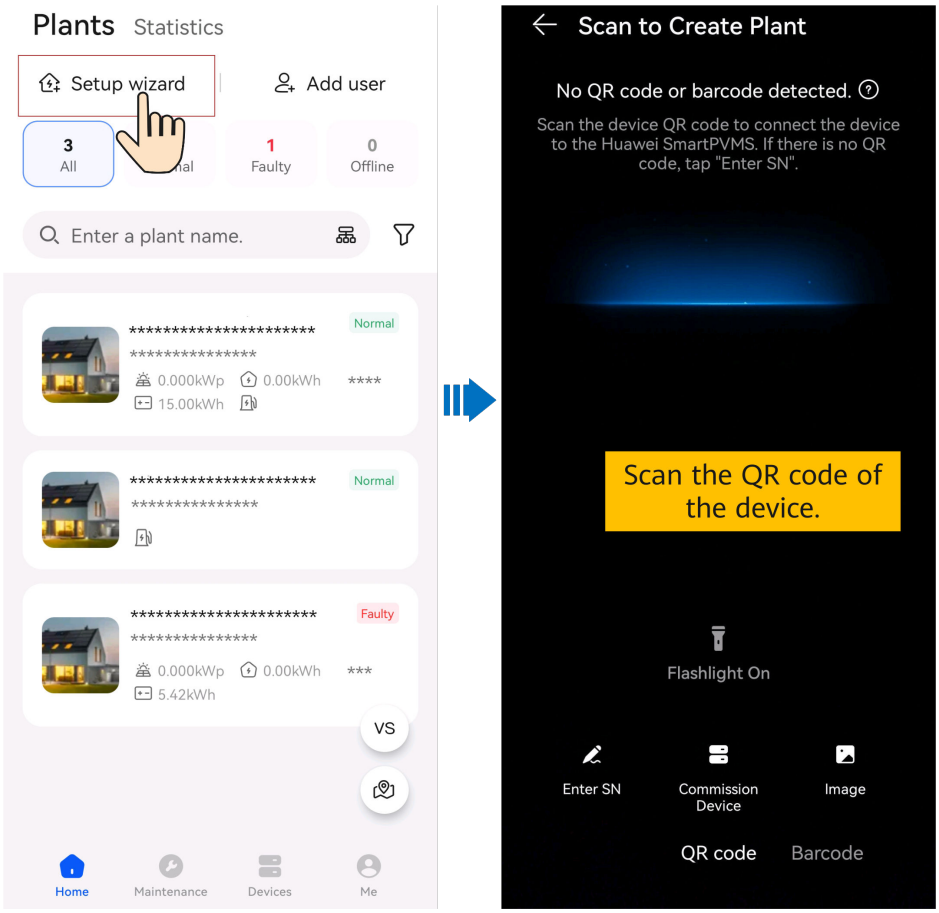


NOTE

Set the capacity of the main circuit breaker based on site requirements. If the set value is greater than the actual capacity, the circuit breaker trips due to overcurrent. If the set value is less than the actual capacity, the charger cannot work.

11.1.1.3 Charger Connected to a Router Through WLAN

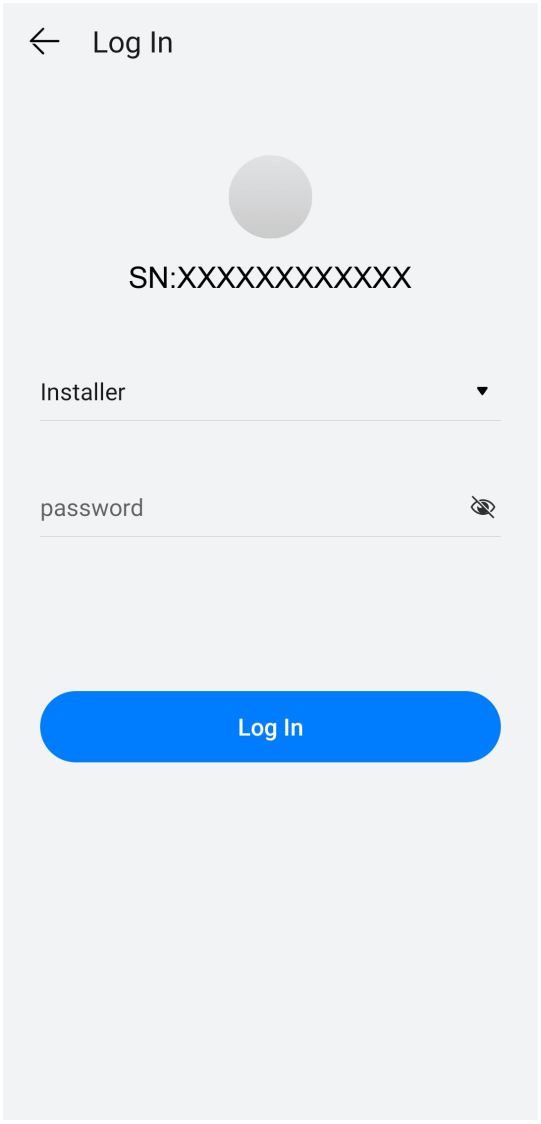
1. Log in to the FusionSolar app as an installer, tap **Setup wizard** on the **Home** screen, scan the QR code of the device, and follow the instructions to connect to the WLAN.



NOTE

- The last six digits of the product WLAN name are the same as the last six digits of the product SN.
- Use the initial password to log in for the first time and change the password as prompted. To ensure account security, protect the password by changing it periodically, and keep it secure. Your password might be stolen or cracked if it is left unchanged for extended periods. If a password is lost, devices cannot be accessed. In these cases, the Company shall not be liable for any loss.
- If the login screen is not displayed after you scan the QR code, check whether the device is correctly connected to the WLAN network. If not, manually select and connect to the WLAN network and tap **Next**.
- If the **This WLAN network has no Internet access. Connect anyway?** message is displayed when you connect to the device WLAN, tap **CONNECT**. Otherwise, you cannot log in to the system. The actual UI and messages may vary with mobile phones.

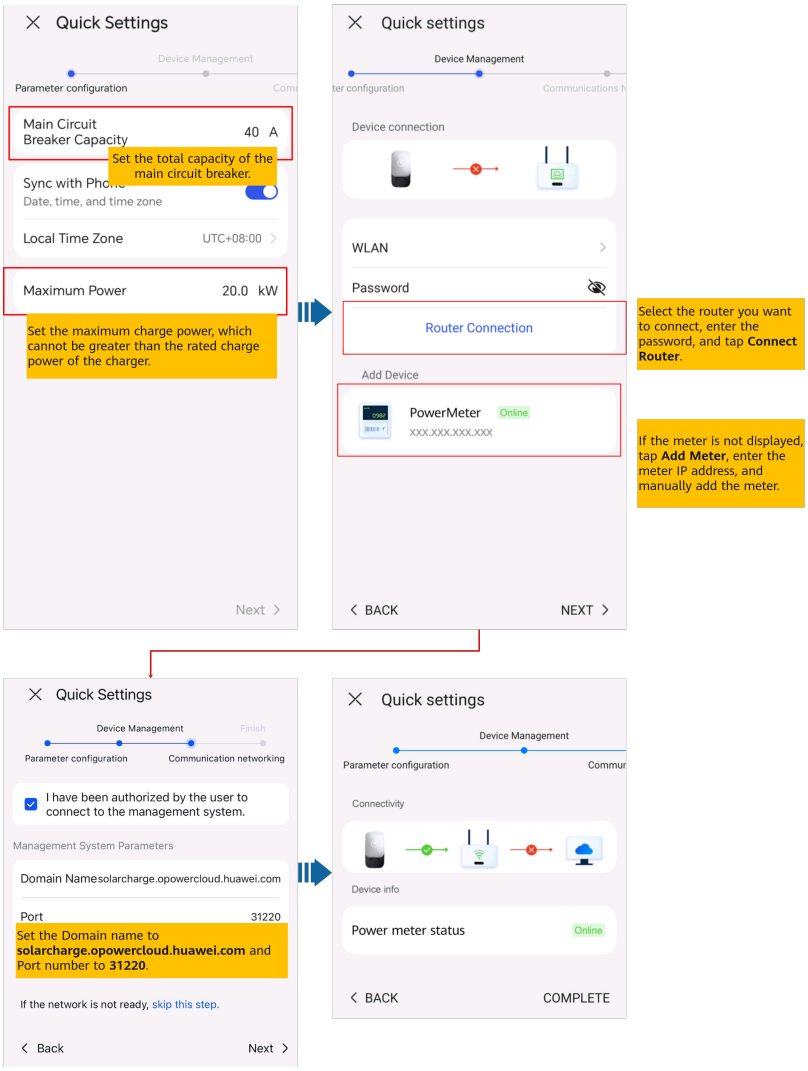
2. Log in to the app as an **Installer**.



NOTE

For the first login, the initial password is **Changeme**. If the system prompts you to set a password, set the login password as prompted.

3. Commission the device according to the wizard procedure.



NOTE

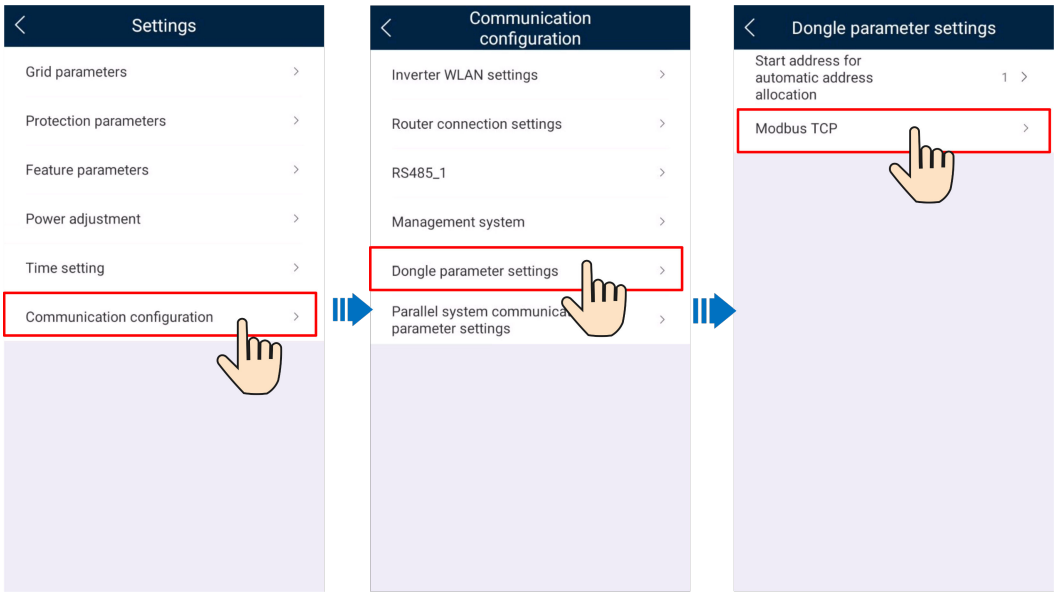
Set the capacity of the main circuit breaker based on site requirements. If the set value is greater than the actual capacity, the circuit breaker trips due to overcurrent. If the set value is less than the actual capacity, the charger cannot work.

11.1.1.4 Charger Using a Virtual Meter

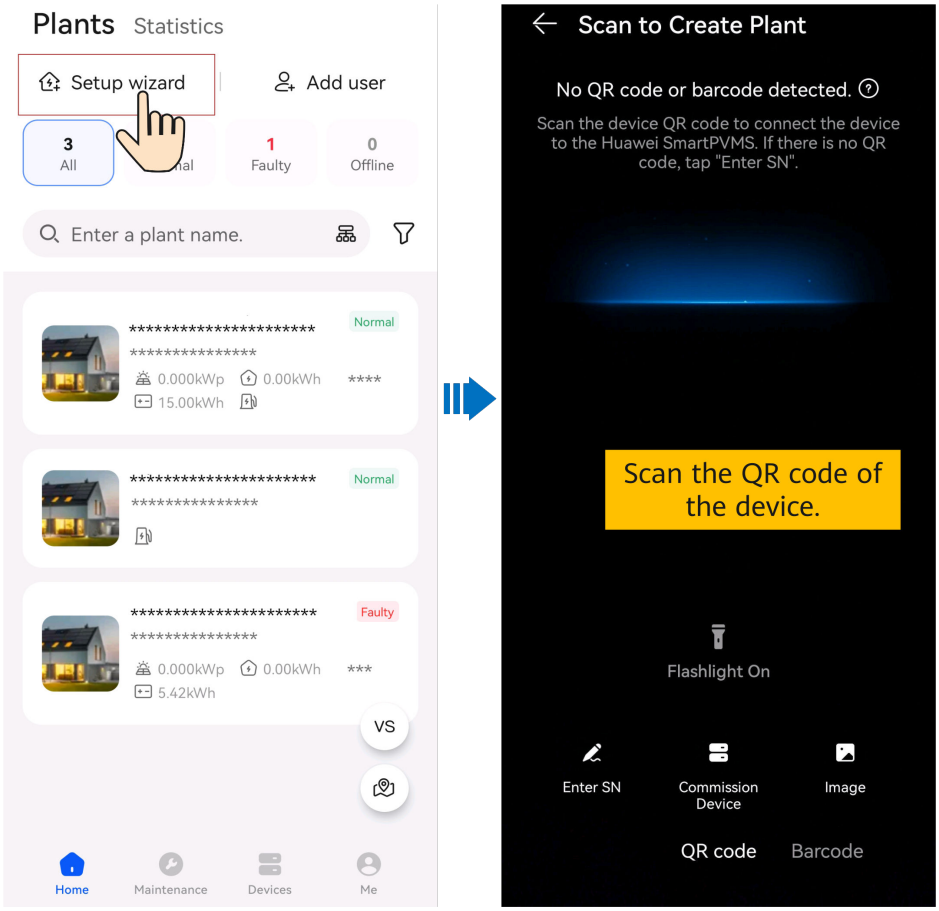
NOTE

If a virtual meter is used, log in to the inverter connected to the Smart Dongle, choose **Settings** > **Communication configuration** > **Dongle parameter settings**, and set Modbus TCP to **Enable (unrestricted)**. If an FE meter is used, set Modbus TCP to **Disable**.

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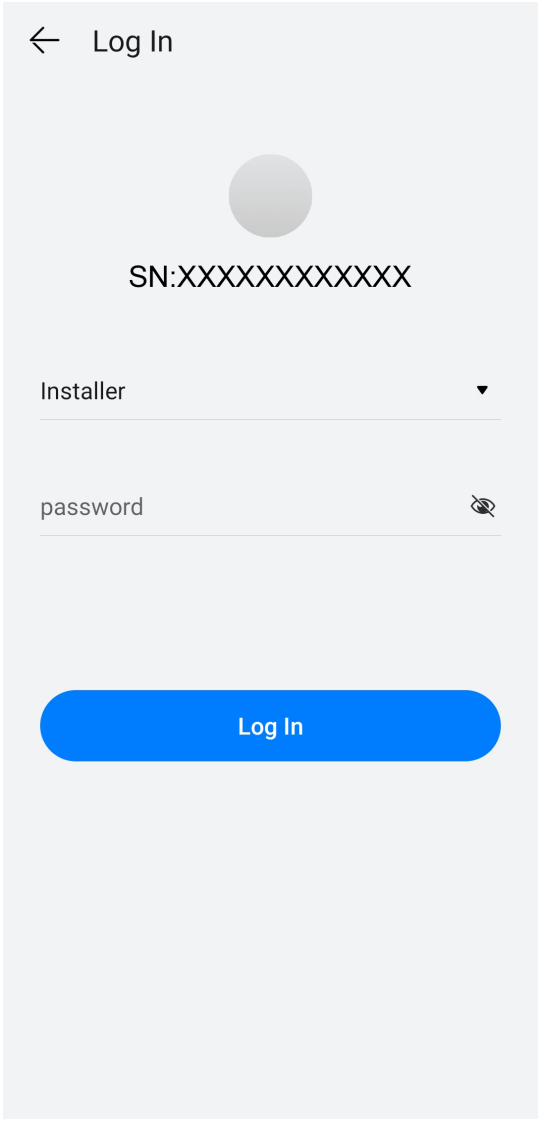
1. Log in to the FusionSolar app as an installer, tap **Setup wizard** on the **Home** screen, scan the QR code of the device, and follow the instructions to connect to the WLAN.



NOTE

- The last six digits of the product WLAN name are the same as the last six digits of the product SN.
- Use the initial password to log in for the first time and change the password as prompted. To ensure account security, protect the password by changing it periodically, and keep it secure. Your password might be stolen or cracked if it is left unchanged for extended periods. If a password is lost, devices cannot be accessed. In these cases, the Company shall not be liable for any loss.
- If the login screen is not displayed after you scan the QR code, check whether the device is correctly connected to the WLAN network. If not, manually select and connect to the WLAN network and tap **Next**.
- If the **This WLAN network has no Internet access. Connect anyway?** message is displayed when you connect to the device WLAN, tap **CONNECT**. Otherwise, you cannot log in to the system. The actual UI and messages may vary with mobile phones.

2. Log in to the app as an **Installer**.

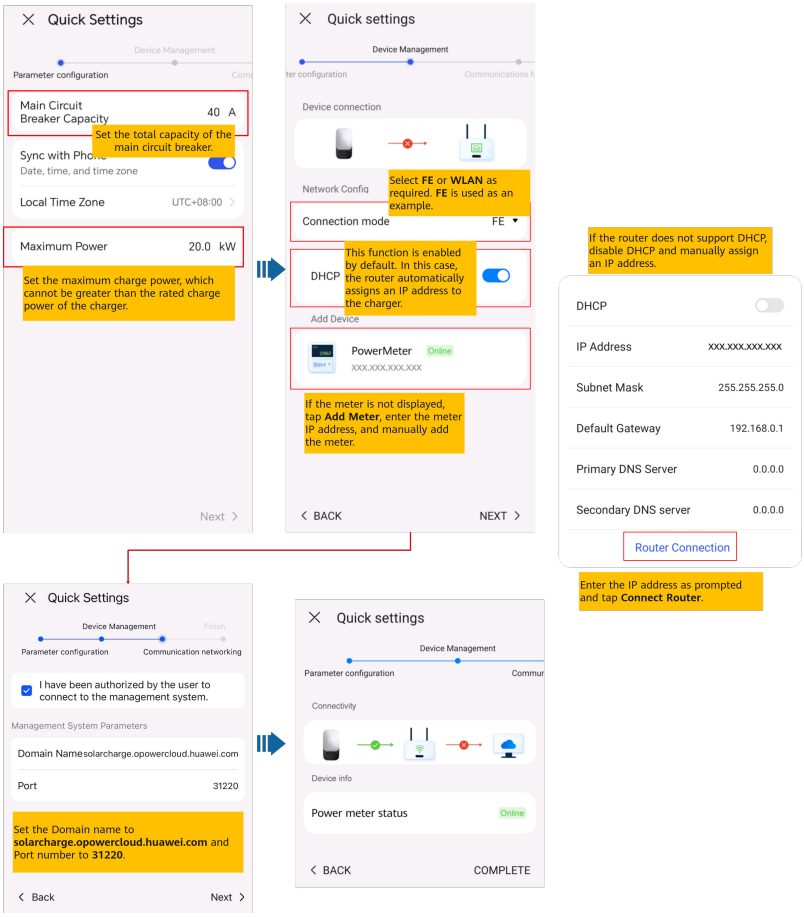


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NOTE

For the first login, the initial password is **Changeme**. If the system prompts you to set a password, set the login password as prompted.

3. Commission the device according to the wizard procedure.



NOTE

Set the capacity of the main circuit breaker based on site requirements. If the set value is greater than the actual capacity, the circuit breaker trips due to overcurrent. If the set value is less than the actual capacity, the charger cannot work.

11.1.2 Alarm Management

On the home screen, tap **Alarm** to view active alarms, historical alarms.

On the **Alarms** screen, you can perform the following operations:

- Tap an alarm to view its details. Tap **Clear** in the alarm details area to manually clear the alarm.
- Tap  to view historical alarms.

11.1.3 O&M Management

1. On the home page of the app, tap **O&M** to set charger running parameters, upgrade the charger, export logs, and change passwords.

- **Log Export**: Export app operation logs and charger run logs.

  NOTE

  If log export is abnormal or failed, try again.

- **Upgrade Management**: Upgrade the charger software version.

  NOTE

  - iPhones do not support manual addition of upgrade packages. Before using an iPhone to upgrade, save the upgrade package to the installation path. For details, see **13.2 What Should I Do If the Upgrade Package Obtained from an iPhone Cannot Be Selected on the Upgrade Screen?**
  - You have obtained the upgrade package from your supplier or engineers. After the download is complete, use the digital certificate and verification tool available at Huawei technical support website to verify the digital signature of the software package.
    1. Log in to Huawei enterprise technical support website **http://support.huawei.com/enterprise**.
    2. Browse or search for **PGP Verify**.

- **Switch Between Single and Three Phases**: You are advised to enable this function in PV scenarios to increase the PV energy utilization rate.

  After this function is enabled, the system automatically switches to the PV power charging mode when detecting that the phase switching conditions are met. To ensure charging safety, the ongoing charging task will be interrupted for a short period of time. After the switching is complete, the charging task will be restarted.

  NOTE

  The temporary interruption of charging caused by switching between single- and three-phase will not cause damage to the car.

- **Login password**: Change the app password for logging in to the current charger.

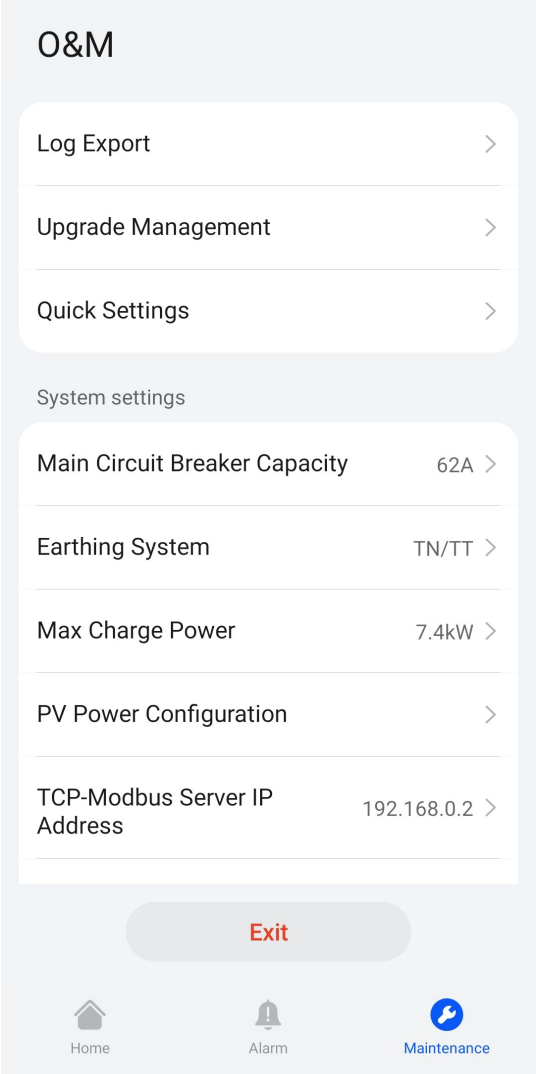
  NOTICE

  - Ensure account security by changing password periodically. A password that has been used for a long time is more likely to be stolen or cracked. Users cannot log in to the chargers if their passwords are lost, and the users shall be liable for any loss incurred.
  - User information is more secure if a password is changed more frequently. If a user forgets the password due to frequent password changes, the user can reset the password using an RFID card. For details, see **13.1 How Do I Reset the Default Password of a Charger Using an RFID Card When I Forgot the Password?**.

- Restore factory settings

  After restored, the historical charging records, reservation records, app login passwords, WLAN passwords, alarm and management system connection passwords of the charging pile will be cleared.

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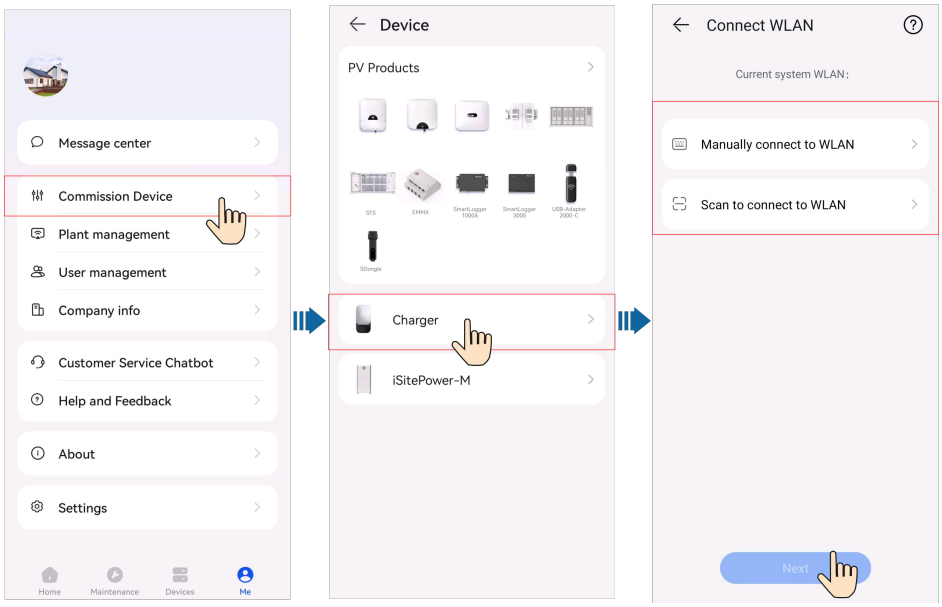
11.2 I'm an Owner

An owner can set parameters on the FusionSolar app, such as charge settings, card management, whether to lock the charging connector, and router and meter settings.

11.2.1 Connecting to a Charger

1. Log in to the FusionSolar app and tap **Me** > **Device commissioning**.
2. Tap **Charger** and connect to the WLAN of the charger as prompted.

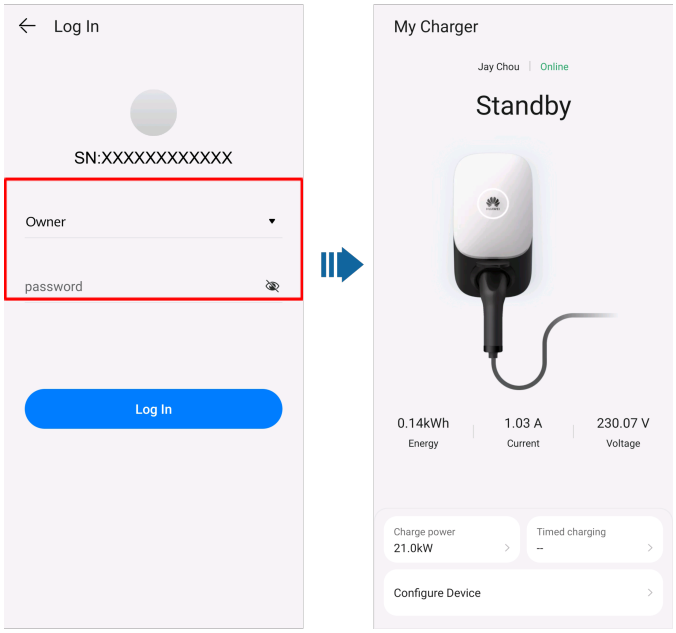
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NOTE

- The last six digits of the product WLAN name are the same as the last six digits of the product SN.
- Use the initial password upon first power-on and change it immediately after login. To ensure account security, change the password periodically and keep the new password in mind. Not changing the initial password may cause password disclosure. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, the user is liable for any loss caused.

3. Log in to the app as an **owner**.



NOTE

For the first login, the initial password is **Changeme**. If the system prompts you to set a password, set the login password as prompted.

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11.2.2 Charge Now

Precautions

Before charging, you need to completely insert the charging connector into the charger and car. If the indicator on the charger turns blue on and off cyclically (on for 4s and off for 1s), the charger is successfully connected to the car.

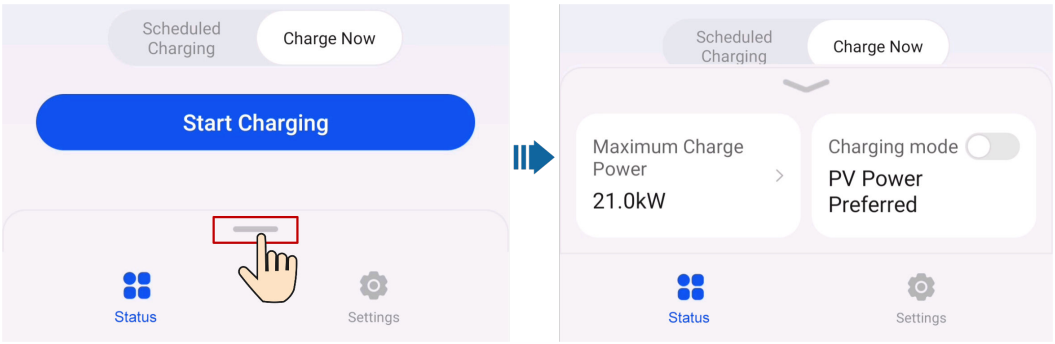
You can also lock the charging connector to the charger if the property safety is ensured. In this way, you only need to insert the charging connector to your car to charge. For details, see **Lock Charging Connector**.

Starting Charging Using the App

On the **Status** screen, tap **Charge Now** > **Start Charging**. The indicator on the charger turns blue on and off cyclically (on for 0.5s and off for 0.5s), indicating the charging state.

If the indicator turns blue on and off cyclically (on for 4s and off for 1s), **Identity authentication** is enabled. In this case, swipe the **RFID** card for authentication.

Tap – to set the **Max Charge Power** and **Charging Mode**.



NOTE

If you have installed PV devices, you can select a charging mode as required.

- **Normal Charge**: obtains power from the power grid and charges the car at the upper limit of the maximum charge power of the charger. The charging time is the shortest in this mode.
- **PV Power Preferred**: uses PV power for charging when it is available. The charging cost is minimized in this mode.

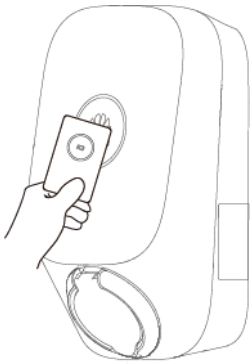
Starting and Stopping Charging Using an RFID Card

Place the ring pattern on the **RFID** card in the swiping area. If the indicator blinks blue fast three times, the card is swiped successfully.

- If **Scheduled Charging** is not set, wait until the indicator on the charger turns blue on and off cyclically (on for 0.5s and off for 0.5s), indicating the charging state.
- If you have set the **Scheduled Charging**, the charger enters the waiting state. The indicator is pulsating blue for 4s and off for 1s. When the scheduled time arrives, the charger automatically starts. You can also swipe the card again to charge immediately.

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Figure 11-5 Charging by card swiping



Stopping Charging

Charging will automatically stop when the car is fully charged.

Use the app to stop charging: Press and hold X.

Use an RFID card to stop charging: Swipe the RFID card in the swiping area.

If the indicator on the charger is steady blue, charging is stopped.

11.2.3 Scheduled Charging

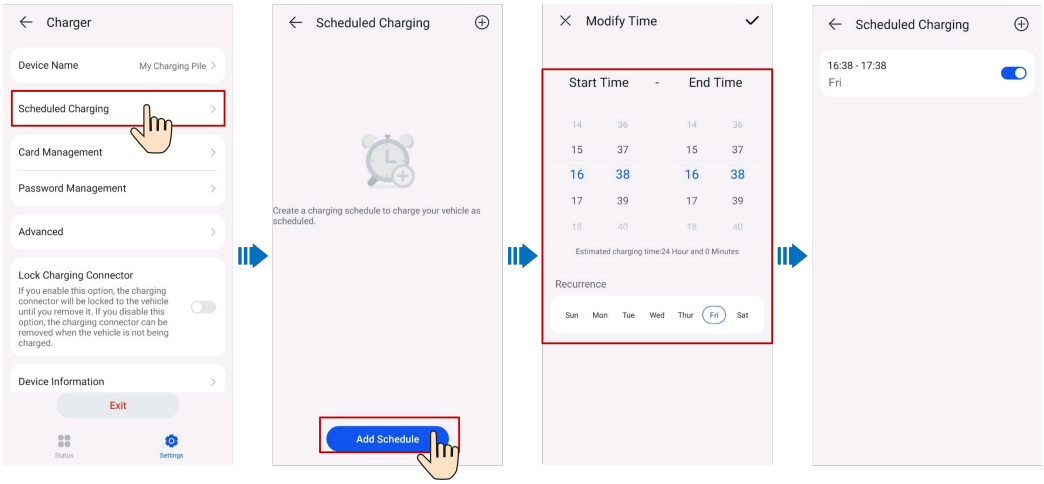
Charging Procedure

1. Connecting to a Charger.
2. On the **Status** screen, tap **Scheduled Charging**.
3. Tap **Scheduled Charging**. If the indicator on the charger turns blue on and off cyclically (on for 4s and off for 1s), the charger is in the scheduled charging waiting state.

Setting the Scheduled Charging Time

On the **Device Overview** screen, tap **Scheduled Charging**.

- Tap **Add Scheduled** to set the charging start time and end time.



- Tap a scheduled charging plan to edit it.
- Select a plan you want to delete, press and swipe left, and tap  to delete the time.

11.2.4 RFID Card Management

You can add or delete RFID cards and query the RFID card list on the FusionSolar app. After adding an RFID card and enabling identity authentication, you can start or stop charging by swiping the RFID card.

NOTE

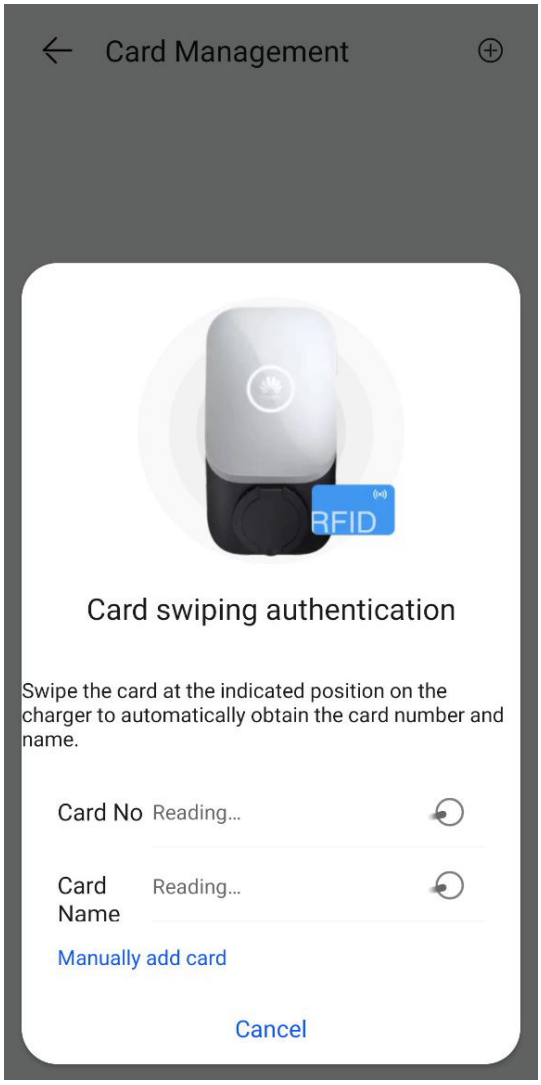
Before using an RFID card, choose **Settings** > **Advanced**, and enable **Identity Authentication**.

Adding an RFID Card

1. On the **Status** screen, choose **Settings** > **Card Management**.
2. In the upper right corner of the **Card Management** screen, tap  and select a card adding mode.
   - Add by swiping
     i. After the indicator blinks white fast twice, place the ring pattern on the RFID card in the swiping area. If the indicator is steady white for 5s, the card is successfully swiped.
     ii. Enter the user-defined card name and tap **Confirm**.

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Figure 11-6 Add by swiping

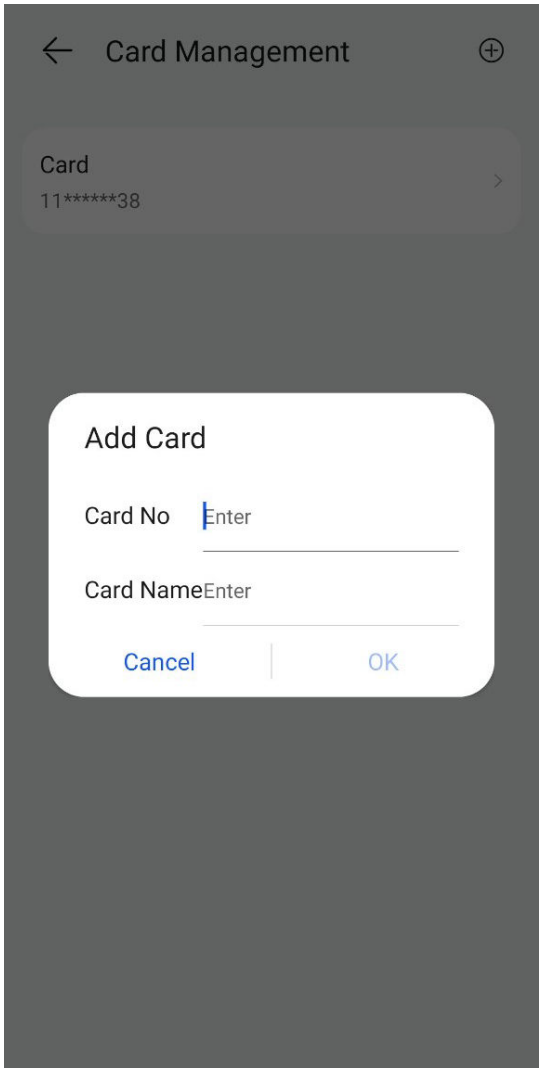


- Add manually

  Enter the card number and user-defined name of the RFID card, and tap **Confirm**.

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Figure 11-7 Add manually



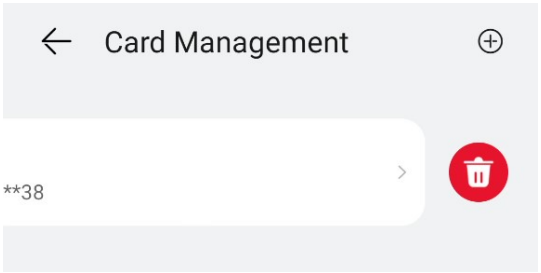
NOTE

A maximum of eight RFID cards can be added to each charger.

After you add an RFID card, you can use the card to start or stop charging.

Deleting an RFID Card

1. Select the card you want to delete, and then press and swipe left.
2. Tap to delete the card.



11.2.5 Settings

Password Management

1. On the **Status** screen, choose **Settings** > **Password Management**.

   Set the login password and WLAN password of the charger.

   NOTE

   Ensure account security by changing password periodically. Failure to change the initial password poses security risks. A password that has been used for a long time is more likely to be stolen or cracked. Users cannot log in to the chargers if their passwords are lost, and the users shall be liable for any loss incurred.

PV Power Configuration

Check the power drawn from grid and minimum startup power of the charger.

1. On the **Status** screen, tap **Settings**.
2. Choose **Advanced** > **PV Power Configuration** to view the power drawn from grid and minimum startup power of the charger.
   - Power drawn from grid: maximum power supplied from the power grid to all household loads and the charger.
   - Minimum startup power: The PV power is supplied to household loads first and the excess power is fed to the grid. If the feed-in power is greater than this set value, the charger starts charging.

Identity Authentication

If identity authentication is disabled, the charger automatically starts and stops charging after the charging connector is inserted into the charging port of a car, which may result in unauthorized charging.

After identity authentication is enabled, you need to swipe card for authentication before charging.

1. On the **Status** screen, choose **Settings** > **Advanced**.
2. Enable **Identity Authentication**.

Lock Charging Connector

Enable the **Lock Charging Connector** function. You can lock the charging connector to the charger. In this way, you only need to insert the charging connector to your car to charge.

1. On the **Status** screen, tap **Settings**.
2. Enable **Lock Charging Connector**.

Restore factory settings

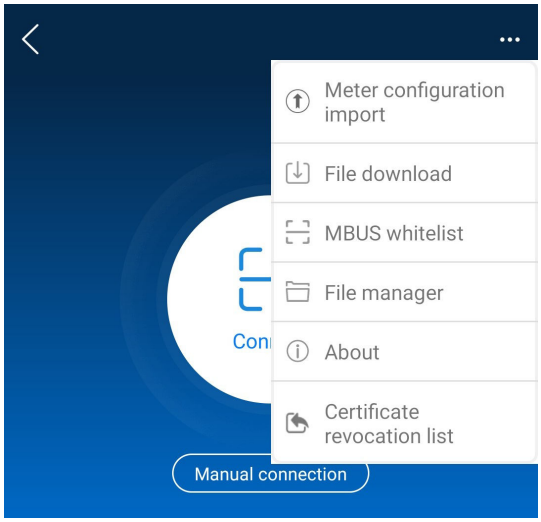
After restored, the historical charging records, reservation records, app login passwords, WLAN passwords, and management system connection passwords of the charging pile will be cleared.

1. Choose **Settings** > **Advanced**.
2. Tap **Restore factory settings**, enter the current app login password.

12 SUN2000 APP Tool Kit

You can download the upgrade package for the distributed solar inverter, scan the solar inverter SN bar code.

Figure 12-1 Tool kit



12.1 File download

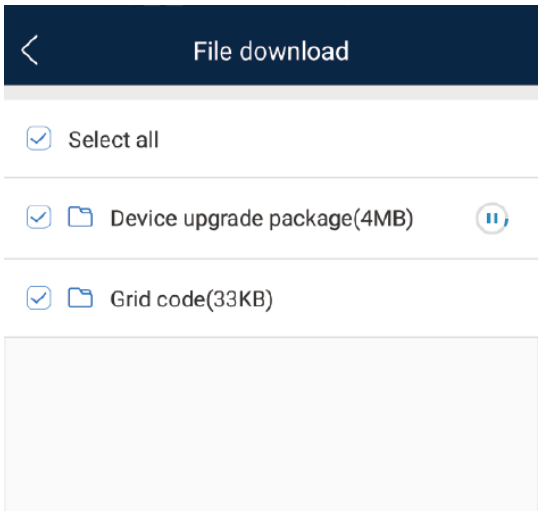
Context

Downloading app logs, inverter upgrade packages and grid codes is supported.

Procedure

Step 1 On the app connection screen, tap ••• **> File download** in the upper-right corner.

Figure 12-2 File download



Step 2 If an update of device upgrade package is detected, confirm to download it, Downloading device upgrade packages and grid codes is supported.

Step 3 Tap **Download** on the screen for downloading the upgrade package.

----End

NOTE

The SUN2000 app uses the ping solar.huawei.com command to check whether the mobile device is connected to the public network. The mobile phone automatically detects software updates when connected to the Internet. If the device upgrade package or grid code is updated, a message is displayed to prompt users to download the upgrade package or grid code.After the inverter is connected, the system prompts you to install the upgrade package. Perform operations as prompted.

12.2 MBUS Whitelist

Prerequisites

- Tools such as the diagonal pliers, grease pen, Android smartphone (with the SUN2000 app installed) are available.
- You have collected SN labels.

NOTICE

- The solar inverter without an LCD allows you to collect and scan the SN bar code.
- When using diagonal pliers to cut off the SN bar code label suspended under a solar inverter, mark its device name on the back of the label to ensure mapping between the solar inverter name and SN bar code. The SN label position of the SUN2000-33KTL is shown in **Figure 12-3**, and that of the SUN2000-50KTL is shown in **Figure 12-4**.

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Figure 12-3 SN label position on the SUN2000-33KTL

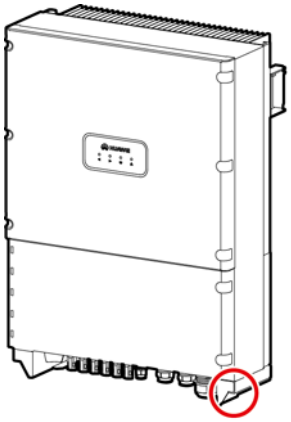
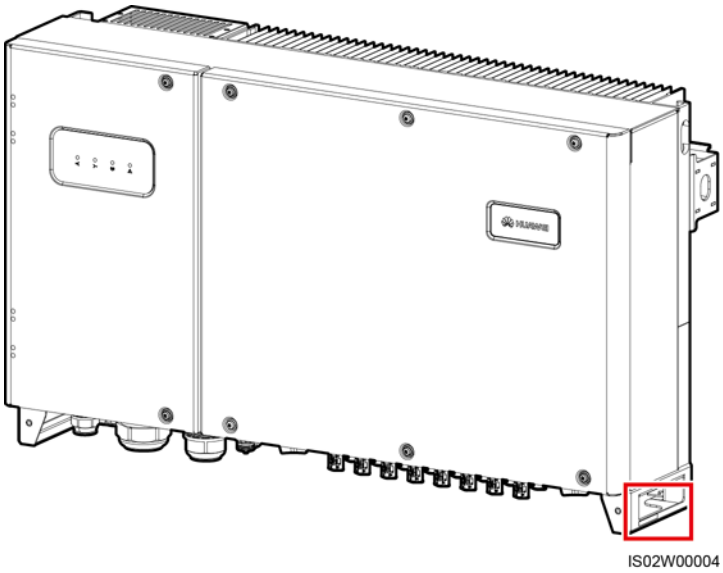


Figure 12-4 SN label position on the SUN2000-50KTL



Context

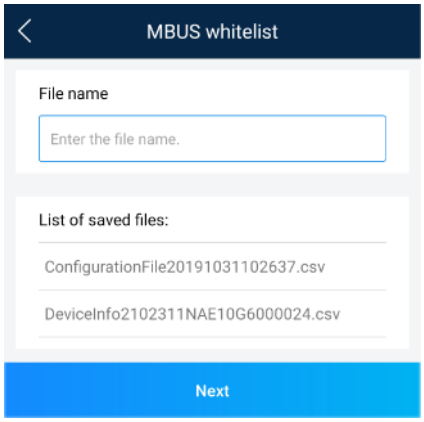
The SN bar codes of solar inverters are obtained in centralized mode. These bar codes help set up mapping between solar inverter names and SN bar codes on the SmartLogger and assist the SmartLogger to communicate with the solar inverters and commission them.

Procedure

Step 1 Choose ••• **> MBUS whitelist** on the app connection screen. On the **MBUS whitelist** screen, enter a user-defined file name and tap **Next**.

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Figure 12-5 MBUS whitelist

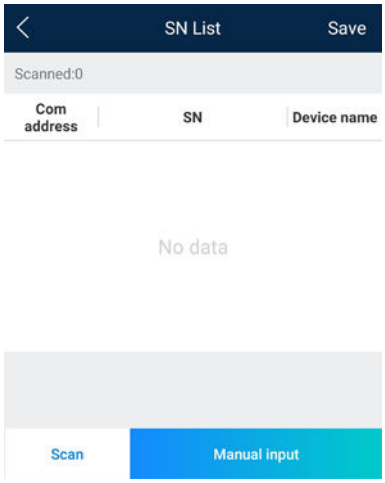


NOTE

If the SN file already exists, open and scan the file.

Step 2 On the **SN List** screen, tap **Scan** or **Manual input** to record SN bar codes or QR codes and device names.

Figure 12-6 SN list



- Method 1: Scan
  a. Tap **Scan** and specify a scanning mode to start scanning. Ensure that the camera is about 15 cm away from the SN label or QR code.
  b. After scanning, enter the device number at the back of the scanned label on the **SN Details** screen.
- Method 2: Manual input
  a. Tap **Manual input**. On the **SN Details** screen, enter the SN bar code and the device name at the back of the label.
  b. Tap **OK** to save the SN information.

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NOTE

You can choose  > **MBUS Whitelist** to find the saved SN information file on the list of saved files.

----End

Follow-up Procedure

- After scanning the SN bar code information file, you can choose **More** > **Device List** on the SmartLogger home page to modify the device information.
- Upload the scanned information file to the PC and rename the file as **DeviceInfo.csv**, which provides information when changing the device name and device address on the SmartLogger. For details, see*SmartLogger3000 User Manual*, *SmartLogger2000 User Manual* or *SmartLogger1000A User Manual*.

12.3 File Management

Context

The file management function manages app operation logs, device logs, and generated script files and configuration files. You can delete the logs and files, send them to your mailbox, or export them using a computer.

Procedure

Step 1 On the app connection screen, tap  > **File manager** to access the **File manager** screen.

Step 2 On the **File manager** screen, the downloaded log files, generated scripts, and configuration files are displayed.

Step 3 To delete files, select one or more files and tap **Delete**.

Step 4 To send files to your mailbox, select one or more files and tap **Share**.

Step 5 Download app logs.

1. On the **File manager** screen, tap **Download** in the upper right corner. The **Download logs** screen is displayed.
2. Select **APP log** and tap **Download**.

   After the logs are downloaded, you can tap **Share** to send the logs to your mailbox.

----End

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12.4 About

Context

This screen is used to query the app version information, technical support website, privacy policy (displayed only on the SUN2000 app), customer service contact information, and open source software policy.

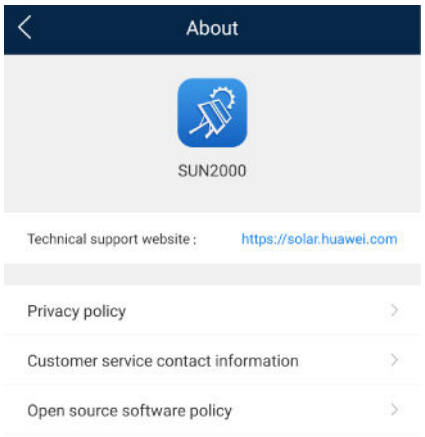
NOTE

- When the app starts for the first time after being downloaded or updated, the privacy policy is displayed. You can use the app only after agreeing to the privacy policy, and the privacy policy will no longer appear. If you do not agree to the privacy policy, the app exits, and the privacy policy is still displayed when you start the app next time until you agree to the privacy policy.
- You can revoke the agreed privacy policy.

Procedure

Step 1 On the app connection screen, tap ••• **> About** to view the app version information and technical support website.

Figure 12-7 About



Step 2 Tap **Privacy policy** or **Open source software policy** to view the privacy policy and open source software policy.

----End

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13 FAQs

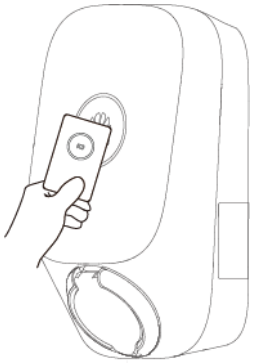
13.1 How Do I Reset the Default Password of a Charger Using an RFID Card When I Forgot the Password?

Precautions

- This operation will reset both the WLAN password and login password. The charger login password will be reset to **Changeme**. The WLAN connection password will be reset to the initial password.
- Before resetting the password, ensure that the charger is idle.

Procedure

1. Swipe the card for five consecutive times (at an interval of less than 5s). Then, the indicator on the charger is steady white for 3s and the charger enters the swipe protection state. Stop swiping the card now.
2. After 3s, the indicator blinks white fast for 20s. If you swipe the card again within this 20s, the indicator turns off and pulsates after 3s, indicating that the charger password has been successfully reset.



NOTE

If you swipe your card in the swipe protection state, the swipe protection time will start again.

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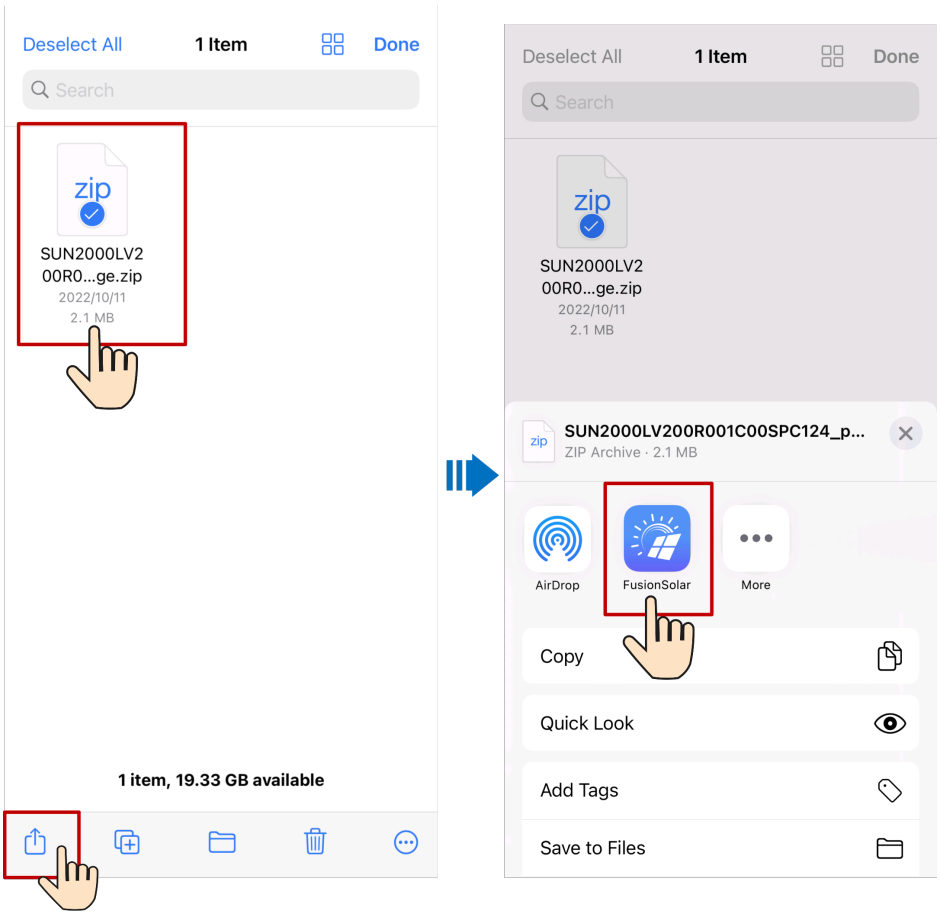
13.2 What Should I Do If the Upgrade Package Obtained from an iPhone Cannot Be Selected on the Upgrade Screen?

Cause

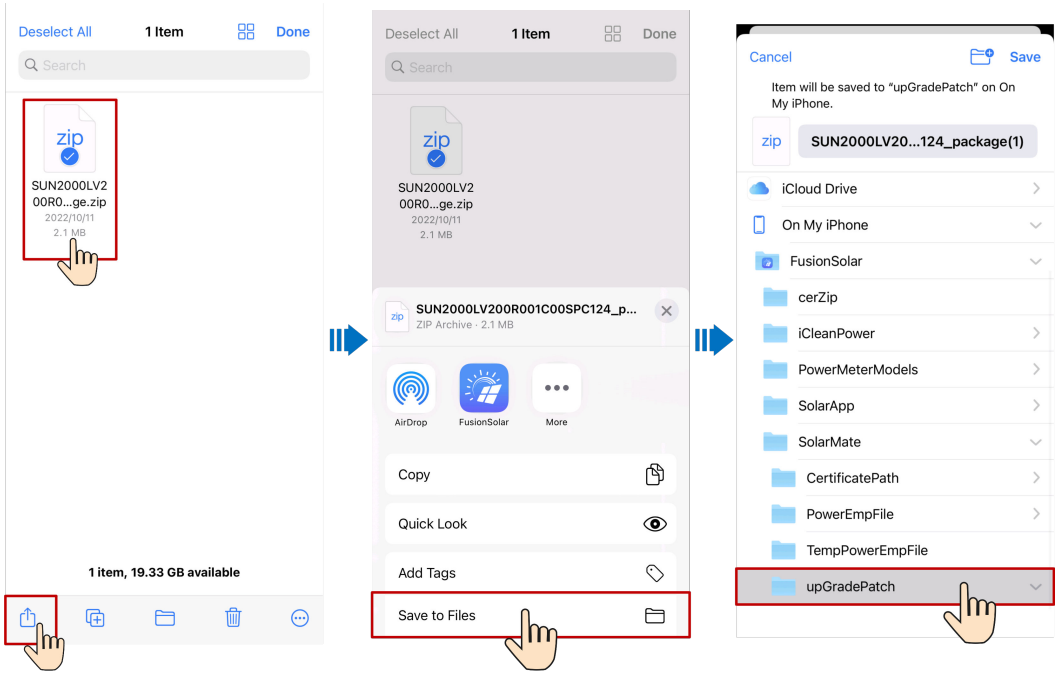
In the iOS system, the upgrade package can be selected only from the software installation path. If the upgrade package is not in the software installation path, the upgrade cannot be performed. You need to place the upgrade package in the installation path before the upgrade.

Procedure

Method 1: Share the upgrade package to the FusionSolar app.



Method 2: Save the upgrade package to the specified path (FusionSolar/SolarMate/upGradePatch) of the FusionSolar app.



13.3 Why Is the Pairing Request Displayed Twice During Bluetooth Pairing?

When you pair the charger to your phone through Bluetooth, the Bluetooth pairing request is displayed twice.

This is normal. Please allow pairing each time the request is displayed.

13.4 How Do I Obtain a Registration Code?

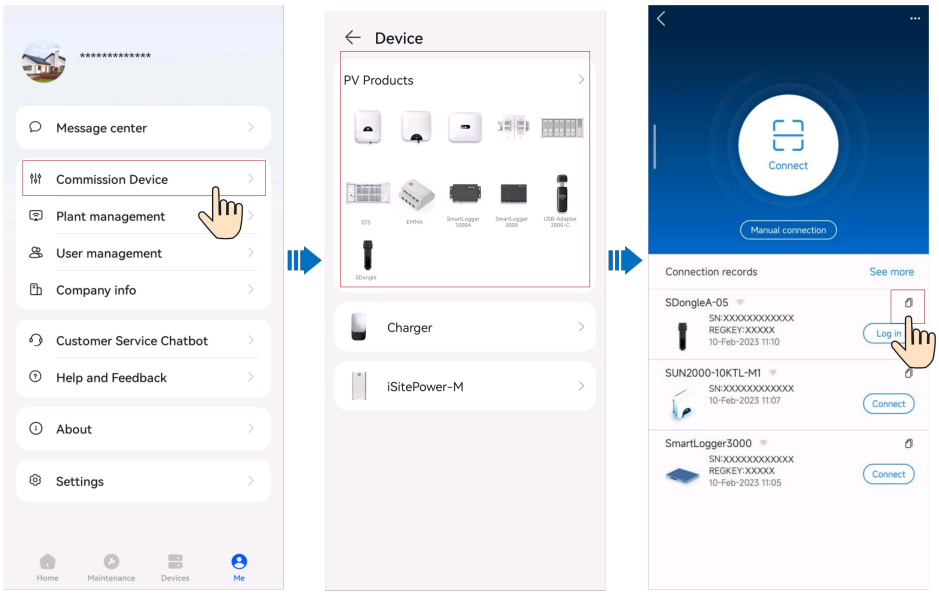
Context

If devices are connected to the management system through the SmartLogger or Smart Dongle, you need to enter the registration code when binding a plant.

Procedure

1. Log in to the FusionSolar app and choose **Me** > **Device commissioning**.
2. Select a PV Product and connect to the WLAN of the device as prompted.

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3. On the connection record screen, select the connection record of the target device and tap to copy the registration code and device information.

13.5 What Should I Do If My Android Phone Fails to Connect to the WLAN After I Scan the QR Code?

Symptom

After the device QR code is scanned using an Android phone, the **Device to use with** message is displayed. After **CONNECT** is tapped three times, the **The WLAN connection has changed. Try to connect to the system WLAN** message is displayed.

Solution

- For Huawei mobile phones on Android 10 or later:
  a. On the home screen of your mobile phone, tap **Settings** > **WLAN**.
  b. Tap **More settings**.
  c. Disable **WLAN+**.
- For other mobile phones:
  a. On the home screen of your mobile phone, tap **Settings** > **WLAN**.
  b. Tap the WLAN of the target device, select **FORGET** or **DELETE**, and scan the QR code to connect to the WLAN again.

  NOTE

  If the **This WLAN network has no Internet access. Connect anyway?** message is displayed when you connect to the built-in WLAN, tap **CONNECT**. Otherwise, you cannot log in to the system. The actual UI and messages may vary with mobile phones.

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13.6 What Can I Do If the System Prompts Me to Reconnect to the Charger's WLAN Hotspot During Quick Settings?

Cause

After setting routing parameters on some chargers, you need to restart the chargers for the settings to take effect. During the restart, the WLAN connection between your phone and the charger will become invalid.

Solution

Reconnect to the charger's WLAN hotspot as prompted.

NOTE

When reconnecting to the WLAN hotspot, you are advised not to stop the process of the FusionSolar app. Otherwise, you need to log in to the local commissioning screen of the charger again after the connection is set up.

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14 Related Information

14.1 Battery Parameters

Battery parameter settings

Table 14-1 Battery parameters

Parameter Name	Description
Maximum charge power (kW)	Specifies the maximum battery charging power.
Maximum discharge power (kW)	Specifies the maximum battery discharging power.
End-of-charge SOC (%)	Specifies the end-of-charge SOC.
End-of-discharge SOC (%)	Specifies the end-of-discharge SOC. When the battery SOC drops to 0%, charge the batteries in a timely manner. If the batteries are not charged in a timely manner, the battery capacity will attenuate irreversibly. The resulting battery faults are not covered under warranty. You are advised not to set **End-of-discharge SOC** to 0.
Charge from AC	If **Charge from AC** is disabled by default, comply with the grid charge requirements stipulated in local laws and regulations when this function is enabled.
AC charge cutoff SOC (%)	Specifies the grid charge cutoff SOC.

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Table 14-2 Battery working modes

Working Mode	Mode Description
No control	No other power scheduling control is performed. The power is automatically controlled by the device.
Maximum self-consumption	• This mode applies to areas where the electricity price is high, or areas where the feed-in tariff (FIT) subsidy is low or unavailable. • PV energy is preferentially supplied to loads, and the surplus energy is used to charge the batteries. If the batteries are fully charged or are being charged at full power, the surplus energy is fed to the grid. When PV energy is insufficient or no PV energy can be generated at night, the batteries discharge energy to loads. This improves the self-consumption rate and energy self-sufficiency rate, and reduces electricity costs. The grid cannot charge the batteries.
Fully fed to grid	• This mode applies only to distributed scenarios. • This mode maximizes the PV energy fed to the grid. When the generated PV energy in the daytime is greater than the maximum output capability of the inverter, the surplus energy is used to charge batteries. When the generated PV energy is less than the maximum output capability of the inverter, the batteries discharge energy to the inverter to maximize the energy fed from the inverter to the grid. The grid cannot charge the batteries.

Working Mode	Mode Description
TOU	• This mode applies to the PV+ESS scenario and ESS-only scenario where peak to valley electricity prices are different and power meters are available. • You can manually set the charge and discharge time segments. For example, if you set the low electricity price period at night as the charge time, the system charges the batteries at the maximum power during the charge time. If you set the high electricity price period as the discharge time, batteries can discharge only during the discharge time based on the actual load power, reducing electricity costs. • Click **Add** to set the charge and discharge time segments. A maximum of 14 time segments can be set. During the charge time, the grid can charge the batteries. During the discharge time, the batteries can supply power to the loads. In other time segments, the batteries do not discharge. The PV system and grid supply power to loads, and the PV system can charge the batteries. (In grid-tied/off-grid mode, if the grid fails, the batteries can discharge power at any time.) • In some countries, the grid is not allowed to charge batteries. In such case, this mode cannot be used.
Dispatching charge and discharge	• This mode applies to utility-scale plant scheduling scenarios where a third-party controller delivers active power scheduling commands. • The purpose of scheduled discharge is to meet the active power scheduling target value at the grid access point. PV energy is preferred. If the generated PV energy is insufficient, the batteries discharge and the energy is fed to the grid based on the active power scheduling target value. If the generated PV energy is sufficient, the energy is fed to the grid based on the active power scheduling target value, and the surplus PV energy is used to charge the batteries. • The purpose of scheduled charge is to meet the active power scheduling target value at the grid access point. If the battery charge power is insufficient or the Smart PCS limits the power, the grid charges the batteries with the maximum capability. If the batteries are not fully charged when the scheduling target value is met, the PV power is used to charge the batteries.

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Working Mode	Mode Description
TOU (fixed power)	• This mode applies the PV+ESS scenario and ESS-only scenario where peak to valley electricity prices are different and power meters are unavailable. • You can manually set the charge and discharge time segments. For example, if you set the low electricity price period at night as the charge time, the system charges the batteries at the fixed power during the charge time. If you set the high electricity price period as the discharge time, batteries can discharge only during the discharge time at the fixed power, reducing electricity costs. • Click **Add** to set the charge and discharge time segments. A maximum of 14 time segments can be set. During the charge time, the grid can charge the batteries. During the discharge time, the batteries can supply power to the loads. In other time segments, the batteries do not discharge and are not charged. • In some countries, the grid is not allowed to charge batteries. In such case, this mode cannot be used.
Fixed charge/ discharge	In this mode, the batteries are charged or discharge in the time segments that are set. A maximum of 10 time segments can be added.
Time of use electricity price	In this mode, the batteries discharge when the electricity price is high and the batteries are charged when the electricity price is low. A maximum of 10 time segments can be added.

Table 14-3 Running parameters in each battery working mode

Working Mode	Parameter	Description
TOU	Redundant PV energy priority	• **Charge preference**: When the PV power is greater than the load power, the surplus PV energy is used to charge the batteries. After the maximum charge power is reached or the batteries are fully charged, the surplus PV energy is fed to the grid. • **Fed-to-grid preference**: When the PV power is greater than the load power, the surplus PV energy is preferentially fed to the grid. When the maximum output power of the device is reached, the surplus energy is used to charge the batteries. This setting is applicable to the scenario where the FIT is higher than the electricity price. The grid cannot charge the batteries.
	Allowed AC charge power	Specifies the maximum power at which the grid charges the batteries.
	Start Time	Specifies the start time and end time of charge and discharge. A maximum of 14 time segments can be set. You can set a cycle by week by clicking the buttons corresponding to **Mon.** through **Sun.** in the **Repeat** box.
	End Time	
	Charge/ Discharge	
	Repeat	
TOU (fixed power)	Start Time	Specifies the start time, end time, and power of charge and discharge. A maximum of 14 time segments can be set. You can set a cycle by week by clicking the buttons corresponding to **Mon.** through **Sun.** in the **Repeat** box.
	End Time	
	Charge/ Discharge	
	Fixed Charge/ Discharge Power	
	Repeat	
Fixed charge/ discharge	Start Time	Specifies the start time, end time, and power of fixed charge and discharge. A maximum of 10 time segments can be set.
	End Time	
	Charge/ Discharge power	
Time of use electricity price	Time-of-use price enable	The time-of-use electricity price is disabled by default. After it is enabled, you can set the time-of-use electricity price.

Working Mode	Parameter	Description
	Start Time	Specifies the start time, end time, and electricity price. This parameter is displayed when **Time-of-use price enable** is set to **Enable**. A maximum of 10 time segments can be set.
	End Time	
	Time-of-use	

Table 14-4 Forced charge/discharge parameters

Parameter Name	Description
Charge/Discharge	Forced charge/discharge operation, which can be **Charge**, **Discharge**, or **Stop**.
Forced charge power/Forced discharge power	Specifies the forced charge/discharge power.
Setting mode	To enter the forced charge/discharge mode, set **Duration** or **Energy**.
Target SOC (%)	Specifies the target SOC for forced charge/discharge. When the SOC reaches this value, the forced charge/discharge stops automatically. This parameter is displayed when **Setting mode** is set to **Energy**.
Forced charge/discharge period (min)	Specifies the forced charge/discharge duration.
Remaining charge/discharge time (min)	Displays the remaining charge/discharge time. This parameter cannot be set.
Charged energy/Discharged energy (kWh)	Displays the charged and discharged energy. This parameter cannot be set.

Capacity Control Parameters (Peak Shaving)

The Peak Shaving function can reduce the maximum peak power obtained from the grid during peak hours by configuring the power supply power in self-use mode or TOU mode, thereby reducing power consumption costs.

Parameter	Description	Range
Peak Shaving	1. Before enabling **Peak Shaving**, set **Charge from AC** to **Enable**. 2. Before disabling **Charge from AC**, set **Peak Shaving** to **Disable**.	• Disable • Active Power Limit
Backup power SOC for peak shaving (%)	The value of this parameter affects the peak shaving capability. A larger value indicates stronger peak shaving capability.	[0.0, 100.0] Backup power SOC for peak shaving > Backup power SOC (when BackUp is enabled) > End-of-discharge SOC
Start Time	• Set the peak power range based on the start time and end time. The peak power is configured based on electricity prices in different time segments. You are advised to set the peak power to a low value when the electricity price is high. • A maximum of 14 time segments can be set. • You can set a cycle by week by clicking the buttons corresponding to **Mon.** through **Sun.** in the **Repeat** box.	-
End Time		
Peak Power (kW)		[0.000, 1000.000]
Repeat		-

NOTE

- The peak shaving function is unavailable when the battery working mode is set to **Fully fed to grid**.
- If the peak shaving function has been enabled but you need to use **Fully fed to grid**, disable the peak shaving function and then set the battery working mode to **Fully fed to grid**.

14.2 Commercial Smart Inverters Parameters

14.2.1 Grid parameters

Advanced User

No.	Parameter	Description
1	Grid Code	Set this parameter based on the grid code of the country or region where the inverter is used and the inverter application scenario.
2	Isolation settings	Set the working mode of the inverter based on the grounding status at DC side and the connection to the power grid.

Special User

No.	Parameter	Description
1	Grid Code	Set this parameter based on the grid code of the country or region where the inverter is used and the inverter application scenario.
2	Isolation settings	Set the working mode of the inverter based on the grounding status at DC side and the connection to the power grid.
3	Output mode	Specifies whether the inverter output has a neutral wire based on the application scenario.
4	PQ mode	If this parameter is set to **PQ mode 1**, the maximum AC output power equals the maximum apparent power. If this parameter is set to **PQ mode 2**, the maximum AC output power equals the rated output power.
5	Automatically start upon grid recovery	Specifies whether to allow the inverter to automatically start after the power grid recovers.
6	Grid connected recovery time from grid faults (s)	Specifies the time after which the inverter begins restarting after the power grid recovers.
7	Startup voltage lower threshold of grid connection (V)	According to the standards of certain countries and regions, after the inverter is powered on for the first time for grid connection, if the power grid voltage is lower than **Startup voltage lower threshold of grid connection**, the inverter is not allowed to connect to the grid.
8	Startup frequency upper threshold of grid connection (Hz)	According to the standards of certain countries and regions, after the inverter is powered on for the first time for grid connection, if the power grid voltage is higher than **Startup frequency upper threshold of grid connection**, the inverter is not allowed to connect to the grid.

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No.	Parameter	Description
9	Startup frequency lower threshold of grid connection (Hz)	According to the standards of certain countries and regions, after the inverter is powered on for the first time for grid connection, if the power grid voltage is lower than **Startup frequency lower threshold of grid connection**, the inverter is not allowed to connect to the grid.
10	Grid reconnection voltage upper limit (V)	The standards of certain countries and regions require that after the inverter shuts down for protection due to a fault, if the power grid voltage is higher than **Grid reconnection voltage upper limit**, the inverter is not allowed to reconnect to the grid.
11	Grid reconnection voltage lower limit (V)	The standards of certain countries and regions require that after the inverter shuts down for protection due to a fault, if the power grid voltage is lower than **Grid reconnection voltage lower limit**, the inverter is not allowed to reconnect to the grid.
12	Grid reconnection frequency upper limit (Hz)	The standards of certain countries and regions require that after the inverter shuts down for protection due to a fault, if the power grid frequency is higher than **Grid reconnection frequency upper limit**, the inverter is not allowed to reconnect to the grid.
13	Grid reconnection frequency lower limit (Hz)	The standards of certain countries and regions require that after the inverter shuts down for protection due to a fault, if the power grid frequency is lower than **Grid reconnection frequency lower limit**, the inverter is not allowed to reconnect to the grid.
14	Reactive power compensation (cosφ-P) trigger voltage (%)	Specifies the voltage threshold for triggering reactive power compensation based on the cosφ-P curve.
15	Reactive power compensation (cosφ-P) exit voltage (%)	Specifies the voltage threshold for exiting reactive power compensation based on the cosφ-P curve.

14.2.2 Protection Parameters

Advanced User

No.	Parameter	Description
1	Insulation resistance protection threshold (MΩ)	To ensure device safety, the inverter detects the insulation resistance of the input side with respect to ground when it starts a self-check. If the detected value is less than the preset value, the inverter does not connect to the grid.

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Special User

No.	Parameter	Description
1	Voltage unbalance protection threshold (%)	Specifies the inverter protection threshold when the power grid voltage is unbalanced.
2	Phase protection point (°)	The Japanese standard requires that during passive islanding detection, protection should be triggered if an abrupt voltage phase change is detected.
3	Phase angle offset protection	The standards of certain countries and regions require that the inverter needs to be protected when the phase angle offset of the power grid three phases exceeds a certain value.
4	10-min overvoltage protection threshold (V)	Specifies the 10-minute overvoltage protection threshold.
5	10-min overvoltage protection duration (ms)	Specifies the 10-minute overvoltage protection duration.
6	Level-1 overvoltage protection threshold (V)	Specifies the level-1 overvoltage protection threshold.
7	Level-1 overvoltage protection duration (ms)	Specifies the level-1 overvoltage protection duration.
8	Level-2 overvoltage protection threshold (V)	Specifies the level-2 overvoltage protection threshold.
9	Level-2 overvoltage protection duration (ms)	Specifies the level-2 overvoltage protection duration.
10	Level-3 overvoltage protection threshold (V)	Specifies the level-3 overvoltage protection threshold.
11	Level-3 overvoltage protection duration (ms)	Specifies the level-3 overvoltage protection duration.
12	Level-4 overvoltage protection threshold (V)	Specifies the level-4 overvoltage protection threshold.
13	Level-4 overvoltage protection duration (ms)	Specifies the level-4 overvoltage protection duration.
14	Level-5 overvoltage protection threshold (V)	Specifies the level-5 overvoltage protection threshold.
15	Level-5 overvoltage protection duration (ms)	Specifies the level-5 overvoltage protection duration.
16	Level-6 overvoltage protection threshold (V)	Specifies the level-6 overvoltage protection threshold.
17	Level-6 overvoltage protection duration (ms)	Specifies the level-6 overvoltage protection duration.

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No.	Parameter	Description
18	Level-1 undervoltage protection threshold (V)	Specifies the level-1 undervoltage protection threshold.
19	Level-1 undervoltage protection duration (ms)	Specifies the level-1 undervoltage protection duration.
20	Level-2 undervoltage protection threshold (V)	Specifies the level-2 undervoltage protection threshold.
21	Level-2 undervoltage protection duration (ms)	Specifies the level-2 undervoltage protection duration.
22	Level-3 undervoltage protection threshold (V)	Specifies the level-3 undervoltage protection threshold.
23	Level-3 undervoltage protection duration (ms)	Specifies the level-3 undervoltage protection duration.
24	Level-4 undervoltage protection threshold (V)	Specifies the level-4 undervoltage protection threshold.
24	Level-4 undervoltage protection duration (ms)	Specifies the level-4 undervoltage protection duration.
26	Level-5 undervoltage protection threshold (V)	Specifies the level-5 undervoltage protection threshold.
27	Level-5 undervoltage protection duration (ms)	Specifies the level-5 undervoltage protection duration.
28	Level-6 undervoltage protection threshold (V)	Specifies the level-6 undervoltage protection threshold.
29	Level-6 undervoltage protection duration (ms)	Specifies the level-6 undervoltage protection duration.
30	Level-1 overfrequency protection threshold (Hz)	Specifies the level-1 overfrequency protection threshold.
31	Level-1 overfrequency protection duration (ms)	Specifies the level-1 overfrequency protection duration.
32	Level-2 overfrequency protection threshold (Hz)	Specifies the level-2 overfrequency protection threshold.
33	Level-2 overfrequency protection duration (ms)	Specifies the level-2 overfrequency protection duration.
34	Level-3 overfrequency protection threshold (Hz)	Specifies the level-3 overfrequency protection threshold.
35	Level-3 overfrequency protection duration (ms)	Specifies the level-3 overfrequency protection duration.
36	Level-4 overfrequency protection threshold (Hz)	Specifies the level-4 overfrequency protection threshold.

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No.	Parameter	Description
37	Level-4 overfrequency protection duration (ms)	Specifies the level-4 overfrequency protection duration.
38	Level-5 overfrequency protection threshold (Hz)	Specifies the level-5 overfrequency protection threshold.
39	Level-5 overfrequency protection duration (ms)	Specifies the level-5 overfrequency protection duration.
40	Level-6 overfrequency protection threshold (Hz)	Specifies the level-6 overfrequency protection threshold.
41	Level-6 overfrequency protection duration (ms)	Specifies the level-6 overfrequency protection duration.
42	Level-1 underfrequency protection threshold (Hz)	Specifies the level-1 underfrequency protection threshold.
43	Level-1 underfrequency protection duration (ms)	Specifies the level-1 underfrequency protection duration.
44	Level-2 underfrequency protection threshold (Hz)	Specifies the level-2 underfrequency protection threshold.
45	Level-2 underfrequency protection duration (ms)	Specifies the level-2 underfrequency protection duration.
46	Level-3 underfrequency protection threshold (Hz)	Specifies the level-3 underfrequency protection threshold.
47	Level-3 underfrequency protection duration (ms)	Specifies the level-3 underfrequency protection duration.
48	Level-4 underfrequency protection threshold (Hz)	Specifies the level-4 underfrequency protection threshold.
49	Level-4 underfrequency protection duration (ms)	Specifies the level-4 underfrequency protection duration.
50	Level-5 underfrequency protection threshold (Hz)	Specifies the level-5 underfrequency protection threshold.
51	Level-5 underfrequency protection duration (ms)	Specifies the level-5 underfrequency protection duration.
52	Level-6 underfrequency protection threshold (Hz)	Specifies the level-6 underfrequency protection threshold.
53	Level-6 underfrequency protection duration (ms)	Specifies the level-6 underfrequency protection duration.

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14.2.3 Feature parameters

Advanced User

No.	Parameter	Description	Remarks
1	MPPT multi-peak scanning	When the inverter is used in scenarios where PV strings are greatly shaded, set this parameter to **Enable**, and then the inverter will perform MPPT scanning at regular intervals to locate the maximum power.	-
2	MPPT multi-peak scan interval (min)	Specifies the MPPT scanning interval.	This parameter is displayed when **MPPT multi-peak scanning** is set to **Enable**.
3	RCD enhancement	RCD refers to the residual current of the inverter to the ground. To ensure device and personal safety, RCD should be limited to the specified value in the standard. If an AC switch with a residual current detection function is installed outside the inverter, this function should be enabled to reduce the residual current generated when the inverter is running, thereby preventing the AC switch from misoperations.	-
4	Night-time reactive power output	In some specific application scenarios, a power grid company requires that the inverter can perform reactive power compensation at night to ensure that the power factor of the local power grid meets requirements.	This parameter is displayed when **Isolation settings** is set to **Input ungrounded, with TF**.
5	PID protection at night	When the inverter outputs reactive power at night and this parameter is set to **Enable**, the inverter will shut down automatically if it detects abnormal status of the PID compensation.	-
6	Strong adaptability	If the power grid short-circuit capacity or PV plant installed capacity is less than 3, the power grid quality will be affected if the power grid impedance is too high, which may cause the inverter to malfunction. In this case, if the inverter is required to work properly, set this parameter to **Enable**.	-

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No.	Parameter	Description	Remarks
7	Power quality optimization mode	If this parameter is set to **Enable**, the inverter output current harmonics will be optimized.	-
8	PV module type	This parameter is used to set different types of PV modules and the shutdown time of the concentration PV module. If the concentration PV modules are shaded, the power drops drastically to 0 and the inverter shuts down. The energy yield would be affected since it takes too long for the power to resume and inverter to restart. The parameter does not need to be set for crystalline silicon and filmy PV modules.	• If this parameter is set to **Crystalline silicon** or **Film**, the inverter automatically detects the power of PV modules when they are shaded and shuts down if the power is too low. • When concentration PV modules are used: – If this parameter is set to **CPV 1**, the inverter can quickly restart in 60 minutes if the input power of PV modules drops drastically due to shading. – If this parameter is set to **CPV 2**, the inverter can quickly restart in 10 minutes if the input power of PV modules drops drastically due to shading.
9	Built-in PID compensation direction	When the external PID module compensates the PID voltage for the PV system, set **Built-in PID compensation direction** to the actual compensation direction of the PID module so that the inverter can output reactive power at night.	This parameter is displayed when **PV module type** is set to **Crystalline silicon**. Select **PV–positive offset** for P-type PV modules. Select **PV+ negative offset** for N-type PV modules.
10	PID running mode	Specifies the operation mode of the inverter built-in PID.	-
11	PID nighttime off-grid repair	Specifies whether to enable the PID nighttime off-grid repair.	If **PID running mode** is not set to **Disable**, the parameter can be set.
12	PID daytime off-grid repair	Specifies whether to enable the PID daytime off-grid repair.	

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No.	Parameter	Description	Remarks
13	String connection mode	Specifies the connection mode of PV strings.	• When PV strings connect to the inverter separately (All PV strings separated), there is no need to set this parameter. The inverter can automatically detect the connection mode of the PV strings. • When PV strings connect to one another in parallel outside the inverter and then connect to it independently (All PV strings connected), set this parameter to **All PV strings connected**.
14	Automatic OFF due to communication interrupted	The standards of certain countries and regions require that the inverter must shut down after the communication is interrupted for a certain time.	If **Automatic OFF due to communication interrupted** is set to **Enable** and the inverter communication is interrupted for a specified time (set by **Communication interruption duration**), the inverter will automatically shut down.
15	Communication interruption duration (min)	Specifies the duration for determining communication interruption. Used for automatic shutdown for protection in case of communication interruption.	-
16	Automatic ON due to communication resumed	If this parameter is set to **Enable**, the inverter automatically starts after communication recovers. If this parameter is set to **Disable**, the inverter needs to be started manually after communication recovers.	This parameter is displayed when **Automatic OFF due to communication interrupted** is set to **Enable**.
17	Soft start/boot time (s)	Specifies the duration for the power to gradually increase when the inverter starts.	-
18	Shutdown gradient (%/s)	Specifies the power change speed when the inverter shuts down.	-
19	AFCI	The North American standard requires that the inverter should have DC arc detection function.	-

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No.	Parameter	Description	Remarks
20	AFCI detection adaptive mode	Adjusts the sensitivity of arc detection.	This parameter is displayed only when **AFCI** is set to **Enable**.
21	AFCI self-test	Send the AFCI self-check command manually.	-
22	Current error during the scan (A)	To prevent inaccurate scanning caused by sunlight change, the current change of PV strings operating properly should be monitored when the I-V curves of PV strings are being scanned. When the current exceeds the specified value, it is determined that the sunlight changes. The I-V curves should be scanned again.	-
23	OVGR associated shutdown	If this parameter is set to **Enable**, the inverter shuts down after receiving the OVGR signal. If this parameter is set to **Disable**, the inverter does not shut down after receiving the OVGR signal.	This parameter is displayed if the Japanese grid code is selected.
24	Dry contact function	Identifies the dry contact signals from the SmartLogger.	Set this parameter to **OVGR** for OVGR signals, and set it to **NC** for other signals. This parameter is displayed if the Japanese grid code is selected.
25	Commanded shutdown hold after power recovery	The standards of certain countries and regions require that if the inverter is shut down after receiving a command and powered on again after power recovers, it should still be in commanded shutdown state.	-
26	Night-time hibernation	The inverter monitors PV strings at night. If this parameter is set to **Enable**, the monitoring function of the inverter will hibernate at night to reduce power consumption.	-
27	MBUS communication	For inverters that support RS485 communication and MBUS communication, you are advised to set this parameter to **Disable** to reduce power consumption.	-
28	RS485-2 communication	If this parameter is set to **Enable**, the RS485-2 port can be used. If the port is not used, you are advised to set this parameter to **Disable** to reduce power consumption.	-

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No.	Parameter	Description	Remarks
29	Delay upgrade	This parameter is mainly used in the upgrade scenarios where the PV power supply is disconnected at night due to no sunlight or unstable at dawn or dusk due to poor sunlight.	After the inverter starts to upgrade, if **Delay upgrade** is set to **Enable**, the upgrade package is loaded first. After the PV power supply recovers and the activation conditions are met, the inverter automatically activates the upgrade.
30	String monitor	The inverter monitors PV strings in real time. If any PV string is abnormal (such as the PV string is shaded or the electric energy yield decreases), the inverter generates an alarm to remind maintenance personnel to maintain the PV string in a timely manner.	If PV strings are often shaded, you are advised to set **String monitor** to **Disable** to prevent false alarms.
31	String detection low power delay (min)	Specifies the delay time for generating abnormal string alarms when the inverter detects that a PV string is working with low power. This parameter is mainly used in the scenario where PV strings are shaded for a long time in the morning and evening, and is used to prevent false alarms.	This parameter is displayed when **String monitor** is set to **Enable**.
32	String detection high power delay (min)	Specifies the delay time for generating abnormal string alarms when the inverter detects that a PV string is working with high power.	
33	String detection power segment division percentage (%)	Specifies the thresholds for determining whether a PV string is working with high power or low power. This parameter is used to distinguish the working status of PV strings.	
34	String detection reference asymmetric coefficient	Specifies the threshold for determining PV string exception. The false alarms caused by fixed shadow shading can be controlled by changing this parameter.	
35	String detection starting power percentage (%)	Specifies the threshold for starting PV string exception detection. The false alarms caused by fixed shadow shading can be controlled by changing this parameter.	

No.	Parameter	Description	Remarks
36	OFF at 0% power limit	If this parameter is set to **Enable**, the inverter shuts down after receiving the 0% power limit command. If this parameter is set to **Disable**, the inverter does not shut down after receiving the 0% power limit command.	-
37	Maximum apparent power (kVA)	Specifies the output upper threshold for the maximum apparent power to adapt to the capacity requirements of standard and customized inverters.	If the maximum active power equals the value of Smax_limit, this parameter is not displayed.
38	Maximum active power (kW)	Specifies the output upper threshold for the maximum active power to adapt to different market requirements.	For 1000 V inverters, this parameter is configurable only for the SUN2000-25KTL-US, and the maximum value is 27.5 kW.
39	Tracker controller	Selects a controller vendor.	-
40	Adjust total energy yield (kWh)	Specifies the initial energy yield of the inverter. This parameter is used in inverter replacement scenarios. Set the initial energy yield of the new inverter to the total energy yield of the old inverter to ensure continuous statistics of cumulative energy yield.	-
41	Duration for determining short-time grid disconnection (ms)	The standards of certain countries and regions require that the inverter should not disconnect from the power grid if the power grid experiences a short-time failure. After the fault is rectified, the inverter output power needs to be quickly restored.	-
42	Buzzer	If this parameter is set to **Enable**, the buzzer sounds when the DC input cable is incorrectly connected. If this parameter is set to **Disable**, the buzzer does not sound when the DC input cable is incorrectly connected.	-

Special User

No.	Parameter	Description	Remarks
1	Automatic OFF due to communication interrupted	The standards of certain countries and regions require that the inverter must shut down after the communication is interrupted for a certain time.	If **Automatic OFF due to communication interrupted** is set to **Enable** and the inverter communication is interrupted for a specified time (set by **Communication interruption duration**), the inverter will automatically shut down.
2	Communication interruption duration (min)	Specifies the duration for determining communication interruption. Used for automatic shutdown for protection in case of communication interruption.	-
3	Automatic ON due to communication resumed	If this parameter is set to **Enable**, the inverter automatically starts after communication recovers. If this parameter is set to **Disable**, the inverter needs to be started manually after communication recovers.	This parameter is displayed when **Automatic OFF due to communication interrupted** is set to **Enable**.
4	Soft start/boot time (s)	Specifies the duration for the power to gradually increase when the inverter starts.	-
5	LVRT	LVRT is short for low voltage ride-through. When the grid voltage is abnormally low for a short time, the inverter cannot disconnect from the power grid immediately and has to work for some time.	-
6	Threshold for triggering LVRT (V)	Specifies the threshold for triggering LVRT. The threshold settings should meet the local grid standard.	This parameter is displayed when **LVRT** is set to **Enable**.

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No.	Parameter	Description	Remarks
7	LVRT compensation power factor of reactive power in positive sequence	During LVRT, the solar inverter needs to generate positive-sequence reactive power to support the power grid. This parameter is used to set the positive-sequence reactive power generated by the solar inverter. For example, if you set **LVRT compensation power factor of reactive power in positive sequence** to **2**, the positive-sequence reactive current generated by the solar inverter is 20% of the rated current when the AC voltage decreases by 10% during LVRT.	
8	LVRT compensation power factor of reactive power in negative sequence	During LVRT, the solar inverter needs to generate negative-sequence reactive power to support the power grid. This parameter is used to set the negative-sequence reactive power generated by the solar inverter. For example, if you set **LVRT compensation power factor of reactive power in negative sequence** to **2**, the negative-sequence reactive current generated by the solar inverter is 20% of the rated current when the AC voltage decreases by 10% during LVRT.	
9	Percentage of LVRT reactive current limiting	During LVRT, the solar inverter needs to limit the reactive current. For example, if you set **Percentage of LVRT reactive current limiting** to **50**, the reactive current upper limit of the solar inverter is 50% of the rated current during LVRT.	
10	Threshold of LVRT zero-current mode	When **Zero current due to power grid fault** is enabled, if the power grid voltage is less than the value of **Threshold of LVRT zero-current mode** during LVRT, the zero current mode is used. Otherwise, the mode configured in **LVRT mode** is used.	

No.	Parameter	Description	Remarks
11	LVRT mode	Sets LVRT mode. The options are **Zero-current mode**, **Constant current mode**, **Reactive power priority mode**, and **Active power priority mode**.	
12	LVRT reactive power compensation factor	During LVRT, the inverter needs to generate reactive power to support the power grid. This parameter is used to set the reactive power generated by the inverter.	• This parameter is displayed when **LVRT** is set to **Enable**. • For example, if this parameter is set to **2**, the reactive power generated by the inverter is 20% of the rated power when the AC voltage drops by 10% during LVRT.
13	LVRT characteristic curve	Specifies the low voltage ride-through capability of the inverter.	-
14	HVRT	HVRT is short for high voltage ride-through. When the grid voltage is abnormally high for a short time, the inverter cannot disconnect from the power grid immediately and has to work for some time.	-
15	Threshold for triggering HVRT (V)	Specifies the threshold for triggering HVRT. The threshold settings should meet the local grid standard.	This parameter is displayed when **HVRT** is set to **Enable**.
16	HVRT compensation power factor of reactive power in positive sequence	During HVRT, the solar inverter needs to generate positive-sequence reactive power to support the power grid. This parameter is used to set the positive-sequence reactive power generated by the solar inverter. For example, if you set **HVRT compensation power factor of reactive power in positive sequence** to **2**, the positive-sequence reactive current generated by the solar inverter is 20% of the rated current when the AC voltage increases by 10% during HVRT.	

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No.	Parameter	Description	Remarks
17	HVRT compensation power factor of reactive power in negative sequence	During HVRT, the solar inverter needs to generate negative-sequence reactive power to support the power grid. This parameter is used to set the negative-sequence reactive power generated by the solar inverter. For example, if you set **HVRT compensation power factor of reactive power in negative sequence** to **2**, the negative-sequence reactive current generated by the solar inverter is 20% of the rated current when the AC voltage increases by 10% during HVRT.	
18	HVRT compensation power factor of reactive power in positive sequence	During HVRT, the inverter needs to generate reactive power to support the power grid. This parameter is used to set the reactive power generated by the inverter.	
19	VRT exit hysteresis threshold	Specifies the LVRT/HVRT recovery threshold.	• This parameter is displayed when **LVRT** or **HVRT** is set to **Enable**. • LVRT recovery threshold = Threshold for triggering LVRT + VRT exit hysteresis threshold • HVRT recovery threshold = Threshold for triggering HVRT + VRT exit hysteresis threshold
20	LVRT undervoltage protection shield	Specifies whether to shield the undervoltage protection function during LVRT.	This parameter is displayed when **LVRT** is set to **Enable**.
21	Grid voltage protection shield during VRT	Specifies whether to shield the undervoltage protection function during LVRT or HVRT.	This parameter is displayed when **LVRT** or **HVRT** is set to **Enable**.

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No.	Parameter	Description	Remarks
22	Grid voltage jump triggering threshold (%)	Specifies the LVRT or HVRT threshold for triggering a transient voltage jump of a power grid. A transient voltage jump indicates that the inverter cannot immediately disconnect from the power grid when the power grid is abnormal due to transient changes.	This parameter is available when **Grid code** is set to **VDE 4120**.
23	Zero current due to power grid fault	Certain countries and regions have requirements on the output current during high/low voltage ride-through. In this case, set this parameter to **Enable**. After this parameter is set to **Enable**, the output current is less than 10% of the rated current during high/low voltage ride-through.	This parameter is displayed when **LVRT** or **HVRT** is set to **Enable**.
24	Active islanding protection	Specifies whether to enable the active islanding protection function.	-
25	Passive islanding protection	Specifies whether to enable the passive islanding protection function.	This parameter is displayed if the Japanese grid code is selected.
26	Voltage rise suppression	The standards of certain countries and regions require that when the output voltage exceeds a certain value, the inverter must suppress voltage rise by outputting reactive power and reducing active power.	-
27	Voltage rise suppressing reactive power adjustment point (%)	The standards of certain countries and regions require that the inverter generate a certain amount of reactive power when the output voltage exceeds a certain value.	• This parameter is displayed when **Voltage rise suppression** is set to **Enable**. • The value of **Voltage rise suppressing active power derating point** must be greater than that of **Voltage rise suppressing reactive power adjustment point**.
28	Voltage rise suppressing active power derating point (%)	The standards of certain countries and regions require that the active power of the inverter be derated according to a certain slope when the output voltage exceeds a certain value.	
29	Voltage rise suppression P-U curve	The standards of certain countries and regions require that the P-U curve be set.	This parameter is displayed when **Voltage rise suppression** is set to **Enable**.

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No.	Parameter	Description	Remarks
30	Voltage rise suppression Q-U curve	The standards of certain countries and regions require that the Q-U curve be set.	
31	Frequency change rate protection	Set this parameter to **Enable** to protect the inverter when the grid frequency changes too fast.	-
32	Frequency change rate protection threshold (Hz/s)	Specifies the frequency change rate protection threshold.	This parameter is displayed if **Frequency change rate protection** is set to **Enable**.
33	Frequency change rate protection duration (s)	The inverter is protected when the grid frequency change duration exceeds the value.	
34	Soft start time after grid failure (s)	Specifies the time for the power to gradually increase when the inverter restarts after the power grid recovers.	-
35	TCP heartbeat interval (s)	Specifies the TCP link timeout period for the solar inverter to connect to the management system.	-
36	TCP frame length	Specifies the maximum length of the TCP frame sent by the northbound device to the solar inverter.	-
37	Heartbeat period at application layer (min)	Specifies the timeout period for the solar inverter to connect to the management system.	-

14.2.4 Power adjustment parameters

Special User

No.	Parameter	Description	Remarks
1	Remote power schedule	If this parameter is set to **Enable**, the inverter responds to the scheduling instruction from the remote port. If this parameter is set to **Disable**, the inverter does not respond to the scheduling instruction from the remote port.	-

No.	Parameter	Description	Remarks
2	Schedule instruction valid duration (s)	Specifies the time for maintaining the scheduling instruction.	When this parameter is set to 0, the scheduling instruction takes effect permanently.
3	Maximum apparent power (kVA)	Specifies the output upper threshold for the maximum apparent power to adapt to the capacity requirements of standard and customized inverters.	If the maximum active power equals the value of Smax_limit, this parameter is not displayed.
4	Maximum active power (kW)	Specifies the output upper threshold for the maximum active power to adapt to different market requirements.	-
5	OFF at 0% power limit	If this parameter is set to **Enable**, the inverter shuts down after receiving the 0% power limit command. If this parameter is set to **Disable**, the inverter does not shut down after receiving the 0% power limit command.	-
6	Active power change gradient (%/s)	Specifies the change speed of the inverter active power.	-
7	Derated by fixed active power (kW)	Adjusts the active power output of the inverter by fixed value.	This parameter is displayed if **Remote power schedule** is set to **Enable**. For 1000 V inverters, the maximum value of this parameter for the SUN2000-25KTL-US is 27.5 kW.
8	Derated by active power % (%)	Adjusts the active power output of the inverter by percentage.	This parameter is displayed if **Remote power schedule** is set to **Enable**. If this parameter is set to **100**, the inverter outputs based on the maximum output power.
9	Reactive power change gradient (%/s)	Specifies the change speed of the inverter reactive power.	-
10	Plant active power gradient (min/100%)	Specifies the rate of active power rise due to sunlight changes.	-

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No.	Parameter	Description	Remarks
11	Average active power filtering time (ms)	Specifies the period of active power rise due to sunlight changes. This parameter is used with **Plant active power gradient**.	-
12	PF (U) voltage detection filtering time (s)	Specifies the time for filtering the grid voltage in the PF-U curve.	-
13	Reactive power adjustment time (s)	Specifies the adjustment time for the reactive power to reach the target value during reactive power adjustment.	-
14	Power factor	Specifies the power factor of the inverter.	This parameter is displayed if **Remote power schedule** is set to **Enable**.
15	Reactive power compensation (Q/S)	Specifies the reactive power output by the inverter.	
16	Night-time reactive power compensation (Q/S)	During the reactive power compensation at night, the reactive power is scheduled by percentage.	-
17	Night-time reactive power output	In some specific application scenarios, a power grid company requires that the inverter can perform reactive power compensation at night to ensure that the power factor of the local power grid meets requirements.	This parameter is displayed when **Isolation settings** is set to **Input ungrounded, with TF**.
18	Enable reactive power parameters at night	When this parameter is set to **Enable**, the inverter outputs reactive power based on the setting of **Reactive power compensation at night**. Otherwise, the inverter executes the remote scheduling command.	This parameter is displayed when **Night-time reactive power output** is set to **Enable**.
19	Fixed nighttime reactive power	During the reactive power compensation at night, the reactive power is scheduled by fixed value.	This parameter is displayed when **Night-time reactive power output** and **Enable reactive power parameters at night** are set to **Enable**.
20	Overfrequency derating	If this parameter is set to **Enable**, the active power of the inverter will be derated according to a certain slope when the grid frequency exceeds the frequency that triggers overfrequency derating.	-

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No.	Parameter	Description	Remarks
21	Frequency for triggering overfrequency derating (Hz)	The standards of certain countries and regions require that the output active power of inverters be derated when the power grid frequency exceeds a certain value.	• This parameter is displayed when **Overfrequency derating** is set to **Enable**. • When setting this parameter, ensure that the following condition is met: **Frequency for exiting overfrequency derating** ≤ **Frequency for triggering overfrequency derating** < **Cutoff frequency of overfrequency derating**.
22	Frequency for exiting overfrequency derating (Hz)	Specifies the frequency threshold for exiting overfrequency derating.	
23	Cutoff frequency of overfrequency derating (Hz)	Specifies the frequency threshold for cutting off overfrequency derating.	
24	Cutoff power of overfrequency derating (%)	Specifies the power threshold for cutting off overfrequency derating.	
25	Frequency detection filtering time (ms)	Specifies the frequency detection filter time.	
26	Overfrequency derating power drop gradient (%/s)	Specifies the decrease rate of the overfrequency derating power.	
27	Power recovery gradient of overfrequency derating (%/min)	Specifies the recovery rate of the overfrequency derating power.	
28	Voltage derating	If this parameter is set to **Enable**, the active power of the inverter will be derated according to a certain slope when the grid voltage exceeds the voltage that triggers overfrequency derating.	-
29	Voltage derating start point (V)	Specifies the start point for voltage derating.	• This parameter is displayed when **Voltage derating** is set to **Enable**. • When setting this parameter, ensure that the following condition is met: **Voltage derating start point** < **Voltage derating stop point**.
30	Cut-off point of voltage derating (V)	Specifies the stop point for voltage derating.	
31	Voltage derating cut-off power (V)	Specifies the power threshold for cutting off voltage derating.	

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No.	Parameter	Description	Remarks
32	Communication disconnection fail-safe	In the inverter export limitation scenario, if this parameter is set to **Enable**, the inverter will perform active power derating by percentage when the communication between the inverter and the SmartLogger or Smart Dongle is disconnected for more than the time specified by **Communication disconnection detection time**.	N/A
33	Communication disconnection detection time (s)	Specifies the fail-safe detection time for the disconnection between the inverter and the SmartLogger or Smart Dongle.	This parameter is displayed when **Communication disconnection fail-safe** is set to **Enable**.
34	Active power output limit for fail-safe (%)	Specifies the derating value of the inverter active power by percentage.	
35	Apparent power baseline (kVA)	Adjusts the apparent output baseline of the inverter.	-
36	Active power baseline (kW)	Adjusts the active output baseline of the inverter.	-
37	Frequency modulation control	The standards of certain countries and regions require that if the power grid frequency fluctuates around a certain value, the inverter needs to fine-tune the active power output based on **Frequency modulation control droop** to help stabilize the power grid frequency. In this case, set this parameter to **Enable**	-
38	Adjustment ratio of frequency modulation control	Specifies the droop of the active power output.	This parameter is displayed when **Frequency modulation control** is set to **Enable**.
39	Underfrequency rise power	The standards of certain countries and regions require that if the power grid frequency is lower than **Frequency for triggering of underfrequency rise power**, the inverter needs to increase the active power output to help increase the power grid frequency. In this case, set this parameter to **Enable**.	-
40	Frequency for triggering of underfrequency rise power (Hz)	Specifies the frequency threshold of **Underfrequency rise power**.	This parameter is displayed when **Underfrequency rise power** is set to **Enable**.

No.	Parameter	Description	Remarks
41	Power recovery gradient of underfrequency rise (%/min)	Specifies the recovery rate of **Underfrequency rise power**.	
42	Cutoff frequency of underfrequency rise power (Hz)	Specifies the cutoff frequency of **Underfrequency rise power**.	
43	Cutoff power of underfrequency rise power (%)	Specifies the cutoff power of **Underfrequency rise power**.	
44	Frequency for exiting of underfrequency rise power (Hz)	Specifies the exit frequency of **Underfrequency rise power**.	
45	Q-U characteristic curve mode	Specifies the reactive power compensation mode of the inverter output.	-
46	Power percentage for triggering Q-U scheduling	Specifies the reference apparent power, in percentage. When the actual apparent power of the inverter is greater than the value of this parameter, the Q-U characteristic curve scheduling function is enabled.	-
47	Q-U characteristic curve	The inverter adjusts Q/S (the ratio of the output reactive power to apparent power) in real time based on U/Un(%) (the ratio of the actual power grid voltage to the rated power grid voltage).	-
48	Q-P characteristic curve	The inverter adjusts Q/Pn (the ratio of the output reactive power to the rated active power) in real time based on P/Pn(%) (the ratio of the actual active power to the rated active power).	-
49	Cosϕ-P/Pn characteristic curve	The inverter adjusts the output power factor cosϕ in real time based on P/Pn(%).	-

14.2.5 Grid-tied control parameters

Special User

Table 14-5 Grid-tied control parameters

Parameter	Description
Active power control mode	Specifies the active power output mode at the grid-tied point.
Closed-loop controller	Specifies the grid-tied power controller. Before setting the parameter, confirm the controller type. Incorrect setting will result in abnormal power output of the solar inverter. **Solar inverter** applies only to the scenario where a single solar inverter is used or where a single solar inverter is used with an SDongle.
Limitation mode	Specifies the active power limitation mode as required by the power grid.
PV plant capacity (kW)	Specifies the PV array capacity.
Maximum grid feed-in power (kW)	In **Grid connection with limited power (kW)** mode, set the maximum power fed to the power grid from the PV array.
Maximum grid feed-in power (%)	In **Grid connection with limited power (%)** mode, set the proportion of the maximum power fed to the power grid from the PV array to the capacity of the PV plant.
Power adjustment period (s)	Specifies the interval for sending adjustment commands.
Maximum protection time (s)	Specifies the protection duration to determine whether the communication between the external controller and the Smart Power Sensor is interrupted.
Power control hysteresis (kW)	Specifies the dead zone for adjusting the inverter output power. If the power fluctuation is within the power control hysteresis, the power is not adjusted.
Fail-safe power threshold (%)	When the communication between the SDongle/SmartLogger, power meter, and solar inverter is interrupted, the solar inverter generates power based on this threshold.

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Parameter	Description
Reactive power control mode	Specifies the reactive power output mode at the grid-tied point.
Power factor	Specifies the target power factor of the power meter.
Adjustment period (s)	Specifies the interval for sending adjustment commands.
Adjustment deadband	Specifies the adjustment power factor precision.
Fail-safe power factor	When the communication between the SDongle/SmartLogger, power meter, and solar inverter is interrupted, the solar inverter generates power based on this threshold.
Communication disconnection fail-safe	When this parameter is set to **Enable**, and the communication between the solar inverter and the SDongle/SmartLogger is interrupted for a certain period (set by **Communication disconnection detection time**), the solar inverter generates power based on **Fail-safe power**.
Communication disconnection detection time (s)	Specifies the protection duration to determine whether the communication between the SDongle/SmartLogger and the solar inverter is interrupted.

14.3 Domain Name List of Management Systems

NOTE

The list is subject to change.

Table 14-6 Domain names of management systems

Domain Name	Data Type	Scenario
intl.fusionsolar.huawei.com	Public network address	Global domain name of FusionSolar **NOTE** Compatible with the former FusionSolar hosting cloud domain name cn.fusionsolar.huawei.com for the Chinese mainland.

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Domain Name	Data Type	Scenario
au7.fusionsolar.huawei.com	Public network address	Australia single-node server domain name
eu5.fusionsolar.huawei.com	Public network address	FusionSolar domain name of Europe
intlobt.fusionsolar.huawei.com	Public network address	FusionSolar domain name of Europe
jp5.fusionsolar.huawei.com	Public network address	FusionSolar domain name of Japan
la5.fusionsolar.huawei.com	Public network address	FusionSolar domain name of South America
kr5.fusionsolar.huawei.com	Public network address	FusionSolar domain name of South Korea
sg5.fusionsolar.huawei.com	Public network address	FusionSolar domain name of Asia-Pacific and Australia
region01eu5.fusionsolar.huawei.com	Public network address	Cluster Server 1 of Europe
region02eu5.fusionsolar.huawei.com	Public network address	Cluster Server 2 of Europe
region03eu5.fusionsolar.huawei.com	Public network address	Cluster Server 3 of Europe
region04eu5.fusionsolar.huawei.com	Public network address	Cluster Server 4 of Europe
neteco.alsoenergy.com	Public network address	Partner's management system
re-ene.kyuden.co.jp	Public network address	Remote output control server of Kyushu Electric Power Company
re-ene.yonden.co.jp	Public network address	Remote output control server of Shikoku Electric Power Company
au1.fusionsolar.huawei.com	Public network address	FusionSolar domain name of Australia
br1.fusionsolar.huawei.com	Public network address	FusionSolar domain name of Brazil
huawei.devicedataacquisition.com	Public network address	Third-party network management system Locus dedicated for the United States

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14.4 Public URLs

Table 14-7 Public URLs of the SUN2000 app

URL	Description
https://solar.huawei.com/~/media/Solar/Device/invert.xml	The mobile phone automatically detects software updates when connected to the Internet. If the device upgrade package or grid code is updated, a message is displayed to prompt users to download the upgrade package or grid code. After the distributed inverter is connected, the system prompts you to install the upgrade package.
https://solar.huawei.com/~/media/Solar/Device/DeviceUpgrade.zip	Download the device upgrade package.
https://solar.huawei.com/~/media/Solar/Device/InverterGridCode.zip	Download the grid code update package.
https://support.huawei.com/enterprise/en/doc/EDOC1100054980	View the app quick guide.
https://solar.huawei.com/na/appversion	The mobile phone automatically obtaining app version information when connected to the Internet.

Table 14-8 Public URLs of the FusionSolar app

URL	Description
https://support.huawei.com/enterprise/	View the app guide.
*.apple.com	Official website of Apple. The iOS version of the FusionSolar app needs to connect to this website for upgrade.
*.pinnettech.com	Official website of Pinnet Technologies. The FusionSolar app needs to connect to this website for upgrade.
https://solar.huawei.com	FusionSolar official website
eu_inverter_support@huawei.com	FusionSolar service email
baidumap://map/marker	Baidu Maps

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URL	Description
androidamap://viewMap	Amap
http://maps.google.com	Google Maps
qqmap://map/marker	Tencent Maps

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