## FusionSolar App and SUN2000 App

## **Device Commissioning Guide**

 Issue
 01

 Date
 2024-04-30





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## Downloading and Installing the App

#### NOTICE

- Mobile phone operating system: Android 8.0, iOS 13.0, or later versions (iSitePower-M does not support iOS. Please download the Android version.).
- 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 2.4 GHz WLAN, and the WLAN signal reaches the device.
- 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.



#### **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**.

# **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.

# **3** Device Commissioning

For details, see the FusionSolar App, SUN2000 App Device Commissioning Manual.

#### **Obtaining the Device Commissioning Manual**

Method 1: Visit the following link to obtain the commissioning manual.

https://support.huawei.com/enterprise/en/doc/EDOC1100273864

Method 2: Scan the QR code below to obtain the device commissioning manual.



## 3.1 EMMA

## 3.1.1 Login the SUN2000 APP

#### Procedure

Step 1 Connect the EMMA.

<	
Connect	
(Manual connection)	

#### Figure 3-1 Connect

Connection record

- Code scanning: Tap Connect to access the scanning screen, place the QR code or bar code of the EMMA 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.

#### 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.

#### 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.

----End

#### 3.1.2 Setting Off-Grid Mode for the Inverter

After the off-grid mode is set, the inverter supports off-grid operation.

#### Method 1: Setting Off-Grid Mode for the Inverter Using the SmartGuard

Connect to the EMMA by referring to **3.1.1 Login the SUN2000 APP**, choose **Monitor > SUN2000**, tap **Set**, and enable **Off-grid mode**.



#### Figure 3-3 Setting off-grid mode

#### Method 2: Directly Setting Off-Grid Mode for the Inverter

Connect to the inverter by referring to **3.2.1 Login the SUN2000 APP**. On the home screen, choose **Set** > **Feature parameters** and enable **Off-grid mode**.

Figure 3-4 Setting off-grid mode



Parameter	Description	Value Range
Off-grid mode	If this parameter is enabled, the inverter switches to off-grid mode through the SmartGuard when the grid fails.	<ul><li>Enabled</li><li>Disabled</li></ul>
Backup power SOC	Set the backup power SOC. In on-grid mode, the ESS does not discharge when it is discharged to the backup power SOC. When the grid fails, loads are powered in backup mode.	[0, 100%]
Backup Box model	SmartGuard must be selected when the system is powered on in off-grid mode. Otherwise, the system will not work.	<ul> <li>BackupBox- (B0,B1)</li> <li>Compatible Third Party BackupBox</li> <li>SmartGuar d</li> <li>No BackupBox</li> </ul>

Table 3-1 On/Off-grid par	rameter settings
---------------------------	------------------

## 3.1.3 Setting Generator Scheduling Parameters

#### Setting the Generator Control Mode

**Connect to the EMMA**, choose **Device monitoring** > **Generator** > **Maintenance** on the home screen, and set **Control Mode** for the generator.

<	Maintenance	
Control mo	de	Manual $\vee$
Power-on		$\bigcirc$
Shut Down		$\bigcirc$

#### Table 3-2 Generator control parameters

Parameter	Description
Manual	Manually control <b>Start</b> and <b>Stop</b> for the generator on the app.

Parameter	Description		
Auto	You can set the battery SOC upper and lower thresholds. When the battery SOC reaches the specified upper or lower threshold, the generator automatically shuts down or starts.		

#### **Setting Generator Scheduling Parameters**

**Connect to the EMMA**, choose **Device monitoring** > **Generator** > **Settings** on the home screen, and set generator scheduling parameters.

#### Figure 3-5 Setting generator parameters

<	Set	
Fault Detection		
Fault Detection Mode	By ON signal 🗸	
Minimum Uptime	min >	
Maximum Uptime	min >	
Status Detection Interval	min >	
ESS SOC Threshold for Starting Up Generator	% >	
ESS SOC Threshold for Shutting Down Generator	% >	

Table 3-3	Generator	parameters
-----------	-----------	------------

Parameter	Description	
Fault Detection	After Fault Detection is enabled, you need to set Fault	
Fault Detection Mode	<b>By ON signal</b> : When the generator fails to run, the generator alarm signal circuit has low impedance. When the generator is normal, the generator alarm signal circuit has high impedance.	
	<b>By OFF signal</b> : When the generator fails to run, the generator alarm signal circuit has high impedance. When the generator is normal, the generator alarm signal circuit has low impedance.	

Parameter	Description		
Minimum Uptime	In auto control mode, the generator cannot automatically shut down if the specified minimum uptime is not reached.		
Maximum Uptime	In auto control mode, the generator automatically shuts down upon reaching the specified maximum uptime.		
Status Detection Interval	After the generator startup or shutdown command is delivered, if the generator fails to start or shutdown when <b>Status Detection Interval</b> is reached, a generator startup or shutdown failure alarm is generated and reported.		
ESS SOC Threshold for Starting Up Generator	<ul> <li>When the battery SOC is lower than ESS SOC</li> <li>Threshold for Starting Up Generator, the generator starts.</li> <li>NOTE</li> <li>ESS SOC Threshold for Starting Up Generator must be greater than or equal to 10% of the battery End-of-discharge SOC.</li> <li>If the generator startup fails, loads will be powered off after the battery discharges to End-of-discharge SOC.</li> </ul>		
ESS SOC Threshold for Shutting Down Generator	When the battery SOC is higher than <b>ESS SOC</b> <b>Threshold for Shutting Down Generator</b> , the generator shuts down.		
Charge ESS with Generator	Set this parameter to <b>Enabled</b> to allow the generator to charge the battery.		
Rated power	Indicates the rated power of the generator.		
Max Output Power Ratio	Indicates the maximum output power ratio of the generator.		

## **3.1.4 Setting Limited Feed-in Parameters**

#### **Function Description**

If surplus PV energy is fed to the grid, the limited feed-in parameters can be set to ensure that the feed-in power is within the range specified by the grid company.

#### **NOTE**

When the functions of the limited feed-in and scheduling via the DI port are enabled at the same time, the system calculates the output power thresholds for both functions respectively, and then sends the smaller value to the inverter.

#### Procedure

1. Log in to the local commissioning screen of the EMMA. For details, see **Connect to the EMMA**.

2. Tap **Power adjustment** > **Limited Feed-in** and set related parameters as prompted.

K Limited Feed-in				
Control mode	Limited feed–in (kW) $ \smallsetminus $			
Limitation mode	Total power $$			
Power lowering adjustment period	0.5s>			
Maximum protection time	5.0 s >			
Power raising threshold	0.500 kW >			
Active power output limit when meter fails	0.0 % >			
Maximum grid feed-in power	0.000 kW >			

Parameter	Description		
Control mode	Sets the power control mode at the grid connection point.		
	<b>Disabled</b> : The inverter output power is not limited, and the inverter runs at full load.		
	<b>Grid connected with zero power</b> : The inverter output power is limited, with zero feed-in power at the grid connection point.		
	<ul> <li>Limited feed-in (kW): The inverter output power is limited, with the specified maximum active output power at the grid connection point.</li> </ul>		
	• <b>Power-limited grid connected (%)</b> : The inverter output power is limited based on the plant capacity percentage at the grid connection point.		
Limitation mode	Sets the export limitation mode at the grid connection point.		
	• <b>Total power</b> : indicates export limitation of the total power at the grid connection point.		
	• <b>Single phase power</b> : indicates export limitation of the power in each phase at the grid connection point. (This mode can be used only for a three-phase four-wire system.)		
Power lowering adjustment interval	Specifies the shortest interval for a single export limitation adjustment.		

Parameter	Description		
Maximum protection time	Specifies the time for detecting power meter data. If the EMMA does not detect the power meter data within the preset time, the EMMA sends the value of <b>Active power output limit when meter fails</b> to the inverter for protection.		
Power raising threshold	Specifies the deadband for adjusting the inverter output power. If the power fluctuates within the power raising threshold, the power is not adjusted. You are advised to set this parameter to 1%–2% of the total rated output power of the inverter.		
Active power output limit when meter fails	Specifies the derating value of the inverter active power by percentage. The active power percentage derating value is sent to the inverter when no power meter data is detected.		
Maximum grid feed- in power (kW)	Sets the maximum active feed-in power at the grid connection point. This parameter is valid when the control mode is set to <b>Limited feed-in (kW)</b> .		
Maximum grid feed- in power (%)	Sets the percentage of the maximum active power at the grid connection point to the plant capacity. This parameter is valid when control mode is set to <b>Power-</b> <b>limited grid connected (%)</b> .		

## 3.1.5 Setting Scheduling via DI Port Parameters

#### **Function Description**

This function applies to scenarios where the grid company performs remote scheduling through dedicated ripple control receivers. The grid company remotely sends a scheduling command (%) to the plant with a wireless transmitting apparatus. Then, the wireless receiving apparatus receives the scheduling command and converts it into a DI signal. The plant monitoring device controls the inverter to output the corresponding power.

Ensure that the inverter is correctly connected to the ripple control receiver when setting this function. (In Germany and some other European areas, the ripple control receiver is used to convert a power grid scheduling signal to a dry contact signal, in which a dry contact is needed.)

#### **NOTE**

When the functions of the limited feed-in and scheduling via the DI port are enabled at the same time, the system calculates the output power thresholds for both functions respectively, and then sends the smaller value to the inverter.

#### Procedure

- 1. Log in to the local commissioning screen of the EMMA. For details, see **Connect to the EMMA**.
- 2. Tap **Power adjustment** > **Scheduling via DI Port** and set related parameters as prompted.

< Scheduling via DI Port						
Sche	Scheduling via DI Port					
DI active DI reactive power scheduling scheduling				e power uling		
NO.	DI1	DI2	DI3	DI4	Percentage	
+						
Submit						

Parameter	Description
Scheduling via DI Port	Enables or disables the scheduling via DI port function for a plant.
DI active scheduling	Sets the DI scheduling signals and the corresponding active output power percentage levels.
DI reactive power scheduling	Sets the DI scheduling signal and the corresponding reactive output power percentage.

#### **NOTE**

- The two scheduling modes support 16 levels of percentages. The percentage levels of DI1–DI4 must differ from each other. Otherwise, an exception will occur during command parsing.
- If the actual input DI signal is inconsistent with the setting, the EMMA generates an **Abnormal DI Instruction** alarm.

## **3.1.6 Setting Peak Shaving Parameters**

#### **Function Description**

This function applies to areas that have peak demand charges. The demand limit function allows you to lower the peak power drawn from grid in maximum self-consumption or TOU mode during peak hours, reducing electricity fees.

#### D NOTE

- If the ESS working mode is **Fully fed to grid**, the demand limit function is unavailable.
- Before enabling **Peak Shaving**, enable **Charge from AC**.

#### Procedure

- 1. Log in to the local commissioning screen of the EMMA. For details, see **Connect to the EMMA**.
- 2. Tap **Power adjustment** > **Peak Shaving** to set the demand limit working mode.

<		Peak	Shav	ring		
Lir	nitation mo	de				$\sim$
Ba SC sh	ackup powe )C for peak aving	r				>
Sta	art date	End c	late	Pea Power(	k kW)	+
	00:00	23:5	59			⑪
D	ау			e	everyda	ay >
			. In sector			
		S	abmit			
rameter		Des	criptior	ı		
ak Ch	avina		- N	la cont	ral	

Parameter	Description
Peak Shaving	No control     Active power limit
	Apparent power limit

Parameter	Description		
Backup power SOC for peak shaving	The value of this parameter affects the peak shaving capability. A larger value indicates stronger peak shaving capability.		
	Backup power SOC for peak shaving > Backup power SOC (when Off-grid mode is enabled) > End-of- discharge SOC		
Start Time	• Set the peak power range based on the start time		
End Time	and end time. The peak power is configured based on electricity prices in different time segments. You are		
Peak Power (kW)	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.		

## **3.1.7 Setting WLAN Antenna Parameters**

By default, the EMMA has a built-in WLAN antenna. If the signal quality is poor, install an external antenna to enhance WLAN signals. If an external antenna is used, set the antenna in the built-in WLAN parameters to an external antenna.

#### Procedure

- 1. Log in to the local commissioning screen of the EMMA. For details, see **Connect to the EMMA**.
- 2. Tap Settings > Communication settings > Inverter WLAN settings and set Selected antenna to External.

< Inv	verter WLAN settings	Finish
WLAN name		****
Encryption mode		***
New password		
Security level:		
Confirm new password		
Selected antenna		Embedded $\checkmark$
WLAN AP		Always ON 🗸
SSID broadcast		Enable 🗡
	Embedded	
	External	
	Cancel	

## 3.1.8 Three-Phase Imbalance Control

#### **Function Description**

Three-phase imbalance control applies to the following scenarios:

- Asymmetric phase feeding with feed-in limitation: The feed-in power of each phase in the three-phase power grid cannot exceed the preset threshold. The inverter outputs different power for each phase based on the loads of each phase to ensure that the feed-in power of each phase does not exceed the preset threshold.
- PV+ESS asymmetric phase feeding for self-consumption: When the ESS discharges power to the loads, the inverter outputs phase-specific power based on the load of each phase and tracks the loads on each phase to ensure that no ESS discharge power is fed to the grid while the PV power can be fed to the grid.

The preceding two scenarios are supported concurrently.

#### **NOTE**

**Three-phase imbalance control** is supported in the EMMA networking scenario where only one inverter is applied or multiple inverters are connected in parallel.

#### Prerequisites

- Choose Device monitoring > Inverter > Settings and check that Output mode is set to Three-phase, four-wire and Meter Connection Mode in Settings is set to Three-phase four-wire.
- In the asymmetric phase feeding with feed-in limitation scenario, choose
   Power adjustment > Limited Feed-in and check that Limitation mode is set to Single phase power.
- In the PV+ESS asymmetric phase feeding for self-consumption scenario, choose **Power adjustment** > **Battery control** and check that **Working Mode** is set to **Maximum self-consumption** or **TOU**.

#### Procedure

- 1. Log in to the local commissioning screen.
- 2. Choose **Power adjustment** > **Limited Feed-in** and set **Three-phase imbalance control** to **Enable**.

< Limit	ed Feed-in
Control mode	Limited feed-in (kW) $ \smallsetminus $
Limitation mode 🕕	Total power 🗸
Power lowering adjustment interval	8.0 s >
Maximum protection time	89.0 s >
Power raising threshold	8.000 kW >
Active power output limit when meter fails	99.0 % >
Maximum grid feed-in power	-99.000 kW >
Three-phase imbalance control	(i) Enable $\vee$

## 3.1.9 Setting the Energy Measurement Mode

#### **Function Description**

This function is used to configure different energy measurement modes for different areas. After power meters are installed, you can configure the measurement modes to implement balanced and unbalanced measurement of energy.

#### Procedure

- 1. Log in to the local commissioning screen.
- 2. Set the energy measurement mode based on the site requirements.
  - In the EMMA networking scenario, choose Settings > Set Installation
     Parameters and set Energy Measurement Mode.

< Set li Pai	nstallation rameters		
Mains power settings			
Rated Current of Main Circuit Breaker	(i)	63 A	$\sim$
Meter settings			
Meter Installation Type		Built-in	$\sim$
Meter Connection Mode	Three-pha	ase four-wire	$\sim$
Meter measurement mode		Built-in CT	$\sim$
Energy Measurement Mode	Balanced M	easurement	$\sim$

Parameter		Description
Energy Measureme nt Mode	Balanced Measurement	Default setting. The forward energy and reversing energy are respectively calculated by integrating the sum of power from three phases.
	Unbalanced Measurement	The forward energy and reversing energy are respectively calculated by integrating the power of each phase.

## **3.1.10 Third-Party Management System Settings (Connecting to Two Management Systems)**

#### Prerequisites

If the EMMA connects to a third-party management system, you also need to connect the EMMA to Huawei management system to facilitate inverter O&M.

#### **NOTE**

The FusionSolar app 6.24.00.xxx or later can connect to a third-party management system.

#### Connecting to the EMMA Built-in WLAN and Setting Third-Party Management System Parameters

Step 1 Connect to the EMMA by referring to Connecting the EMMA on the App, choose Set > Communication settings > Third-Party Management System Configuration and set third-party management system parameters.



Parameter	Description	Value Range
Connection	• The default value is <b>Disable</b> , meaning that a third-party management system cannot be connected.	<ul><li>Disable</li><li>Enable</li></ul>
	• When this parameter is set to <b>Enable</b> , a third-party management system can be connected.	
Server	Domain name or IP address.	-
Port	Server port.	[1, 65535]
Third-Party Management System Certificate	-	[Root certificate, Customer certificate, Key file, Key password]

 Table 3-4 Parameter settings

----End

## 3.1.11 Restoring to Factory Settings

#### **NOTE**

If you want to clear your data, contact the installer through phone call or email and ask the installer to log in to the FusionSolar app and clear the data by choosing **Maintenance** > **Restore defaults**.

- 1. Log in to the local commissioning screen.
- 2. Choose Maintenance > Restore defaults.
  - Restoring configuration data: The device running parameters will be restored to factory settings. (The management system connection parameters, router connection parameters, device WLAN password, user login password, and energy yield information will not be restored.)
  - Clearing all data: All device data is restored to factory settings, including management system connection parameters, router connection parameters, device WLAN password, user login password, all logs, and energy yield information.

#### **NOTE**

When the SUN2000-(8K,10K)-LC0 or SUN2000-(2KTL-6KTL)-L1 inverter is directly connected to the FusionSolar SmartPVMS, after the inverter is restored to the factory settings, the **ESS thermal runaway data report** function is disabled. In this case, you need to log in to the FusionSolar SmartPVMS to enable the function again.

Menu path: Log in to the FusionSolar SmartPVMS, choose **Device Management** > **Inverter** > **Configuration** > **Feature Parameter** and enable **ESS thermal runaway data report**.

## **3.2 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.

## 3.2.1 Login the SUN2000 APP

#### Procedure

**Step 1** Connect the solar inverter.

#### Figure 3-6 Connect



Connection record

- 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.

< Manua	l conne	ction		
Select connection mode				
🛜 WLAN				
<b>_ _ -</b>	SmartLogger	SmartLogger	USB-Adapter	SDongleA
	10004	3000	2000-C	WLANTE
Bluetooth				
SmartLogger USB-Adapter2000-8				
💾 USB data cable				
Ű				

#### Figure 3-7 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 Inverter 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.

**Step 2** Select a login user and enter the password.
·· <b>·</b> ·································	
C Identity authentication	
SN: XXXXXXXXXXX	
installer	$\sim$
Enter your password.	**
Cancel Log in	

#### Figure 3-8 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.



#### 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

# 3.2.2 Alarm Management

SUN2000-XXX  $\langle$ Active alarm Historical alarm  $\langle$ .... All -Sort by generated time \* Connection succe 17-Nov-2020 🛗 17-Nov-2021 🛗 0.000 kW 0.00 kWh Active power Yield today Alarm list: 161 0.00 kWh 100.00 kWh a License expired Monthly energy yield Total vield 1. The privilege certificate has entered the grace period. 2. The privilege feature will be invalid soon. 27-Oct-2021 15:36:20 R [!] > License expired Alarm Quick settings 1. The privilege certificate has entered the grace period. 2. The privilege feature will be invalid soon. 12-Oct-2021 15:29:01 Grid Failure > The power grid experiences an outage.
 The AC power cable is disconnected or the AC circuit breaker is OFF. ~ Device monitoring Maintenance 12-Oct-2021 15:28:34 Grid Failure o 1. The power grid experiences an outage 2. The AC power cable is disconnected or the AC circuit breaker is OFF. {<u>}</u> t+t 29-Sep-2021 15:42:12 Settings Power adjustment Grid Failure

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

## 3.2.3 Quick Settings

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



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

# 3.2.4 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 3-9 Device information

## 3.2.5 Maintenance

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

< Maintenance	
Upgrade	>
Log management	>
Battery maintenance	>
Communication Diagnosis	>
Connection Test	>
AFCI self-check	
Adjust total energy yield	>
Performance data	>
Inverter ON/OFF On-grid	
Reset	>
Restore defaults	>
Clear alarms	>
Clear historical energy yield	>

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

Parameter	Description	Paramete r	Description
Subdevice management	Adds power meters, batteries, optimizers, or SmartGuards as required.	IPS test	Performs IPS self-check and generates a self-check report.
Optimizer layout	Sets the physical locations of optimizers.	Inverter ON/OFF	Sends a command to start or shut down the inverter based on its status.

Parameter	Description	Paramete r	Description
Upgrade	Upgrades the software version of devices such as the inverter as required.	Restore defaults	Restores the inverter parameters to factory settings. NOTE When the SUN2000-(8K,10K)-LC0/ SUN2000-(2KTL-6KTL)-L1 single inverter is directly connected to the FusionSolar SmartPVMS, after the inverter is restored to the factory settings, the ESS thermal runaway data report function is disabled. In this case, you need to log in to the FusionSolar SmartPVMS to enable the function again. Menu path: Log in to the FusionSolar SmartPVMS, choose Device Management > Inverter > Configuration > Feature Parameter and enable ESS thermal runaway data report.
Log management	Downloads the logs of the inverter, battery, optimizer, or app.	Clear alarms	Clears historical alarms of the inverter.
Performance data	Views the performance data of devices such as power meters.	Clear historical energy yield	Clears historical energy yields of the inverter.
Alarm beacon	Generates audible and visual signals to indicate that the inverter generates an alarm.	Adjust total energy yield	Sets the initial energy yield of the inverter. In inverter replacement scenarios, sets the initial energy yield of the new inverter to the total energy yield of the replaced inverter to ensure continuous statistics of cumulative energy yield.
AFCI self- check	Starts the arc-fault circuit- interrupter (AFCI) self-check.	Reset	Restarts the inverter.
Optimizer disconnection detection	Detects the disconnection of the optimizer and determines the physical location of the fault.	O&M via WLAN connectio n	Enables or disables 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.

If the user data of an owner needs to be cleared, the owner shall contact the installer through phone call or email and ask the installer to log in to the FusionSolar app and clear the data by choosing **Maintenance** > **Clear user data**.

## 3.2.6 Settings

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

Management system Connection succeeded	
0.00 kwh Vield today	
100.00 kwh	
Total yield	
(2)	
Maintenance	
(t+t)	
Power adjustment	

#### Figure 3-10 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
Isolation settings	Set the working mode of the inverter based on the grounding status at DC side and the connection to the power grid.	<ul> <li>Input ungrounded, without TF</li> <li>Input ungrounded, with TF</li> </ul>
Output mode	Specifies whether the inverter output has a neutral wire based on the application scenario.	<ul> <li>Three-phase three-wire</li> <li>Three-phase four-wire</li> <li>L/N</li> <li>L1/L2/N</li> <li>L1/L2</li> </ul>
Automatically start upon grid recovery	Specifies whether to allow the inverter to automatically start after the power grid recovers.	<ul><li>Disable</li><li>Enable</li></ul>
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 <b>Grid</b> <b>reconnection voltage upper limit</b> , 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 <b>Grid</b> <b>reconnection voltage lower limit</b> , the inverter is not allowed to reconnect to the grid.	[45% Vn, 100% Vn]

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
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 <b>Grid</b> <b>reconnection frequency upper limit</b> , the inverter is not allowed to reconnect to the grid.	[100% Fn, 120% Fn]
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 <b>Grid</b> <b>reconnection frequency lower limit</b> , 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 coso-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]

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
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.	<ul><li>Disable</li><li>Enable</li></ul>
10-min overvoltage protection threshold (V)	Specifies the 10-minute overvoltage protection threshold.	[1 * Vn, 1.5 * Vn]
<b>10-min overvoltage protection</b> <b>duration</b> (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]

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
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]
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]

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)
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]
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]

## **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 <b>Enable</b> , and then the inverter will perform MPPT scanning at regular intervals to locate the maximum power.	<ul><li>Disable</li><li>Enable</li></ul>	N/A
MPPT multi- peak scan interval (min)	Specifies the MPPT scanning interval.	[5, 30]	This parameter is displayed when <b>MPPT multi-peak</b> scan interval is set to Enable.
Automatic OFF due to communication interrupted NOTE If the inverter is not connected to a controller (SDongle, EMMA, or SmartLogger), disable this parameter.	The standards of certain countries and regions require that the inverter must shut down after the communication is interrupted for a certain time.	<ul><li>Disable</li><li>Enable</li></ul>	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

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Automatic ON due to communication resume	If this parameter is set to <b>Enable</b> , the inverter automatically starts after communication recovers. If this parameter is set to <b>Disable</b> , the inverter needs to be started manually after communication recovers.	<ul><li>Disable</li><li>Enable</li></ul>	This parameter is displayed when Automatic OFF due to communication interrupted is set to Enable.
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.	<ul><li>Disable</li><li>Enable</li></ul>	N/A
AFCI detection adaptation mode	This function is used to adjust the sensitivity of arc detection.	<ul><li>High</li><li>Moderate</li><li>Low</li></ul>	This parameter is displayed when <b>AFCI</b> 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 <b>Enable</b> . If the solar inverter cannot be grounded properly, it shuts down.	<ul> <li>Disable</li> <li>Enable</li> </ul>	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 <b>Disable</b> 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.

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
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.	<ul><li>Disable</li><li>Enable</li></ul>	After the inverter starts to upgrade, if <b>Delay upgrade</b> is set to <b>Enable</b> , the upgrade package is loaded first. After the PV power supply recovers and the activation conditions are met, the inverter automatically activates the upgrade.
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 <b>Enable</b> , and then unlock optimizer .	<ul><li>Disable</li><li>Enable</li></ul>	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.	<ul><li>Disable</li><li>Enable</li></ul>	N/A

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
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 <b>LVRT</b> is set to <b>Enable</b> .
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]	<ul> <li>This parameter is displayed when LVRT is set to Enable.</li> <li>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.</li> </ul>
LVRT characteristic curve	Specifies the low voltage ride through curve.	N/A	This parameter is displayed when <b>LVRT</b> is set to <b>Enable</b> .
RCD static protection point	Setting RCD Static Protection Point	[5mA, 300mA]	<ul> <li>If the residual current device (RCD) static protection point is set to a small value, the device is more likely to be shut down due to RCD protection. Exercise caution when setting this parameter.</li> <li>Adjusting the leakage current protection threshold may cause the device to frequently trigger the protection mechanism. Exercise caution when setting this parameter. If you have any questions, contact the vendor or manufacturer.</li> </ul>

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
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.	<ul><li>Disable</li><li>Enable</li></ul>	N/A
Threshold for triggering HVRT (∨)	Specifies the threshold for triggering HVRT. The threshold settings should meet the local grid standard.	[100% Vn, 136% Vn]	This parameter is displayed when <b>HVRT</b> is set to <b>Enable</b> .
Grid voltage protection shied during VRT	Specifies whether to apply voltage protective shielding to the power grid when HVRT or LVRT is enabled.	<ul><li>Disable</li><li>Enable</li></ul>	This parameter is displayed when <b>LVRT</b> is set to <b>Enable</b> or <b>HVRT</b> is set to <b>Enable</b> .
Active islanding protection	Specifies whether to enable the active islanding protection function.	<ul><li>Disable</li><li>Enable</li></ul>	N/A
Passive islanding protection	Specifies whether to enable the passive islanding protection function.	<ul><li>Disable</li><li>Enable</li></ul>	This parameter is displayed if the Japanese grid code is selected.
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.	<ul><li>Disable</li><li>Enable</li></ul>	N/A

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
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)	<ul> <li>This parameter is displayed when Voltage rise suppression is set to Enable.</li> <li>The value of Voltage rise suppressing active power derating point</li> </ul>
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]	must be greater than that of Voltage rise suppressing reactive power adjustment point.
Voltage rise suppression P-U curve	The standards of certain countries and regions require that the P-U curve be set.	<ul> <li>U (V): [176, 1500]</li> <li>U device verification (V) :[0.8 Un, 1.36 Un]</li> <li>P/Pn (%): [0, 100]</li> </ul>	This parameter is displayed when <b>Voltage rise</b> <b>suppression</b> is set to <b>Enable</b> .
Voltage rise suppression Q-U curve	The standards of certain countries and regions require that the Q-U curve be set.	<ul> <li>U (V): [176, 1500]</li> <li>U device verification (V) :[0.8 Un, 1.36 Un]</li> <li>Q/S: [-0.6, 0.6]</li> </ul>	
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.	<ul> <li>Disable</li> <li>Suppress</li> <li>Repair</li> <li>Suppress + Repair</li> </ul>	N/A

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
PID nighttime off-grid repair	Specifies whether to enable the PID nighttime off-grid repair.	<ul><li>Disable</li><li>Enable</li></ul>	This parameter is displayed when <b>PID running mode</b> is set to <b>Repair</b> .
Closed-loop controller	<ul> <li>Set this parameter to SDongle/SmartLogger when the SmartLogger1000A is connected.</li> <li>If multiple inverters are cascaded, set this parameter to SDongle/SmartLogger.</li> <li>If there is only one inverter, set this parameter to Inverter.</li> </ul>	<ul> <li>SDongle/ SmartLogger</li> <li>Solar inverter</li> </ul>	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 <b>Enable</b> , the ESS switches to the off-grid mode when the grid fails.	<ul><li>Disable</li><li>Enable</li></ul>	-

# Power Adjustment

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Remote power schedule	If this parameter is set to <b>Enable</b> , the inverter responds to the scheduling instruction from the remote port. If this parameter is set to <b>Disable</b> , the inverter does not respond to the scheduling instruction from the remote port.	<ul><li>Disable</li><li>Enable</li></ul>	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 <sub>max</sub> , S <sub>max_real</sub> ]	N/A
Active power baseline (kW)	Adjusts the active output baseline of the inverter.	[0.1, Min(P <sub>max_real</sub> , S <sub>max</sub> )]	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 <sub>max</sub> , S <sub>max</sub> ]	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 <sub>max</sub> ]	N/A
OFF at %0 power limit	If this parameter is set to <b>Enable</b> , the inverter shuts down after receiving the 0% power limit command. If this parameter is set to <b>Disable</b> , the inverter does not shut down after receiving the 0% power limit command.	<ul><li>Disable</li><li>Enable</li></ul>	N/A

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 <sub>max</sub> ]	N/A
Active power percentage derating (%)	Adjusts the active power output of the inverter by percentage.	[0, 100]	If this parameter is set to <b>100</b> , 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 <b>Enable</b> , 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.	<ul><li>Disable</li><li>Enable</li></ul>	N/A

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
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.	<ul> <li>50Hz: [40, 60]</li> <li>60Hz: [48, 72]</li> </ul>	<ul> <li>This parameter is displayed when Overfrequency derating is set to Enable.</li> <li>When setting this parameter, ensure that</li> </ul>
Frequency for exiting overfrequency derating (Hz)	Specifies the frequency threshold for exiting overfrequency derating.	<ul> <li>50Hz: [40, 60]</li> <li>60Hz: [48, 72]</li> </ul>	the following condition is met: Frequency for exiting overfrequency derating ≤ Trigger frequency of
Cutoff frequency of overfrequency derating (Hz)	Specifies the frequency threshold for cutting off overfrequency derating.	<ul> <li>50Hz: [40, 60]</li> <li>60Hz: [48, 72]</li> </ul>	overfrequency derating < Cutoff frequency of overfrequency
Cutoff power of overfrequency derating (%)	Specifies the power threshold for cutting off overfrequency derating.	[0, 100]	derating.
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 <b>Enable</b> when power scheduling through dry contacts is required.	<ul><li>Disable</li><li>Enable</li></ul>	N/A
Dry contact scheduling settings	Specifies the dry contact power scheduling parameters.	N/A	This parameter is displayed when <b>Dry contact</b> <b>scheduling</b> is set to <b>Enable</b> .
cosф-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.	<ul> <li>P/Pn (%): [0, 100]</li> <li>cosφ: (-1, -0.8]U[0.8, 1]</li> </ul>	N/A
Q-U characteristic curve	Specifies the voltage reactive power scheduling curve.	<ul> <li>U/Un (%): [80, 136]</li> <li>Q/S: [-0.6, 0.6]</li> </ul>	N/A

Parameter	Description	Value Range (Vn: Rated Voltage; Fn: Rated Frequency)	Remarks
Q-U hysteresis curve	Specifies the voltage reactive power scheduling hysteresis curve.	<ul> <li>U/Un (%): [80, 136]</li> <li>Q/S: [-0.6, 0.6]</li> </ul>	Associated with the Italian standard code.
Underfrequency rise power	The standards of certain countries and regions require that if the power grid frequency is lower than <b>Frequency for</b> <b>triggering of</b> <b>underfrequency rise</b> <b>power</b> , the inverter needs to increase the active power output to help increase the power grid frequency. In this case, set this parameter to <b>Enable</b> .	<ul><li>Disable</li><li>Enable</li></ul>	N/A
Frequency for triggering of underfrequency rise power (Hz)	Specifies the frequency threshold of <b>Underfrequency rise</b> <b>power</b> .	<ul> <li>50Hz: [40, 60]</li> <li>60Hz: [48, 72]</li> </ul>	<ul> <li>This parameter is displayed when</li> <li>Underfrequency rise</li> <li>power is set to Enable.</li> </ul>
Power recovery gradient of underfrequency rise (%/min)	Specifies the recovery rate of <b>Underfrequency rise</b> <b>power</b> .	[1, 6000]	<ul> <li>When setting this parameter, ensure that the following condition is met: Cutoff frequency of</li> </ul>
Cutoff frequency of underfrequency rise power (Hz)	Specifies the cutoff frequency of <b>Underfrequency rise</b> <b>power</b> .	<ul> <li>50Hz: [40, 60]</li> <li>60Hz: [48, 72]</li> </ul>	underfrequency rise power < Frequency for triggering of
Cutoff power of underfrequency rise power (%)	Specifies the cutoff power of <b>Underfrequency rise power</b> .	[0, 100]	power < Frequency rise power < Frequency for exiting of underfrequency rise
Frequency for exiting of underfrequency rise power (Hz)	Specifies the exit frequency of <b>Underfrequency rise power</b> .	<ul> <li>50Hz: [40, 60]</li> <li>60Hz: [48, 72]</li> </ul>	power.

# **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).	<ul><li>Disable</li><li>Enable</li></ul>	N/A
Offset time	Specifies the DST offset.	[-240, 240]	This parameter is displayed
Start date	Specifies the DST offset start date.	[01-01, 12-31]	when <b>Daylight saving</b> <b>time</b> is set to <b>Enable</b> .
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	Specifies whether to enable	• Disable	N/A
synchronization	NTP time synchronization.	• Enable	
NTP server address	Specifies the NTP server IP address or domain name.	N/A	This parameter is displayed when <b>NTP time</b> 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]	

Parameter	Description	Paramete r	Description
Inverter WLAN settings	Changes the WLAN password for the solar inverter.	Router connectio n settings	When using WLAN for communication, enter the information about the connected router. <b>NOTICE</b> By entering the WLAN password of the router, you agree that the inverter saves the password. To withdraw your consent, choose <b>Maintenance</b> > <b>Clear</b> <b>user data</b> on the home screen and delete the password from the inverter.
			Local O&M: You can connect to the router WLAN to log in to the local commissioning screen of the inverter. This function is disabled by default. NOTICE The local O&M function requires connection to a router. If the router is attacked, potential network security risks exist. Therefore, exercise caution when using this function.
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.	Managem ent System Configura tion	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.	Unbind Managem ent System	Unbind the device from the management system. <b>NOTE</b> After unbinding, you can bind the device to a new plant.

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

#### Table 3-5 RS485 settings

Parameter	Description	Value Range
Baud rate	Set the RS485 baud rate to be consistent with the baud rate of the devices on the same bus.	<ul> <li>4800</li> <li>9600</li> <li>19200</li> <li>115200</li> </ul>
Protocol	The solar inverter can connect to the upper- layer management unit over the Modbus RTU, SunSpec, or AVM protocol.	<ul><li>MODBUS RTU</li><li>AVM</li></ul>
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]

# Off-grid/grid-tied control parameters

Paramet er	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.	<ul><li>Enable</li><li>Disabled (default</li></ul>
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 switchin g	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.	<ul> <li>Automatic switching (default)</li> <li>Manual switching</li> </ul>

# 3.2.7 Power Adjustment

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

< SUN2000	)-XXX .	 Power adjustment	
Communication status Good WLAN signal	Management system Connection succeeded	Active power control	>
0.000 kw	0.00 kwh Vield today	Reactive power control	>
0.00 kWh	100.00 kwh	Grid-tied point control	>
Monthly energy yield	Total yield	Capacity control	>
<b>L</b> Alarm	L Quick settings		
Device monitoring	Maintenance		
ÇÇŞ Settings	Power a ustmen		

#### **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 3-6.

Table 3-6 Grid-tied P	oint Control	Parameters
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Parameter			Description	
Activ e powe	Activ Unlimite N/A e d powe		If this parameter is set to <b>Unlimited</b> , the output power of the solar inverter is not limited and the solar inverter can connect to the power grid at the rated power.	
r Gri cor on zer pov	Grid connecti on with zero power	Closed-loop controller	<ul> <li>When the SmartLogger1000A is connected, set this parameter to SDongle/SmartLogger.</li> <li>When multiple solar inverters are cascaded, set this parameter to SDongle/SmartLogger.</li> <li>When there is only one solar inverter, set this parameter to Inverter.</li> </ul>	
		Limitation mode	<ul> <li>Total power indicates export limitation of the total power at the grid-tied point.</li> <li>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.)</li> </ul>	
		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 <b>Fail-</b> <b>safe power threshold</b> 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.	
			Communicati on disconnection fail-safe	In the solar inverter export limitation scenario, if this parameter is set to <b>Enable</b> , 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 <b>Communication</b> <b>disconnection detection time</b> . <b>NOTE</b> In the Smart Dongle+single inverter scenario, active power derating is not performed.
		Communicati on disconnection detection time	Specifies the time for determining the communication disconnection between the solar inverter and the Dongle. This parameter is displayed only when <b>Communication disconnection fail-safe</b> is set to <b>Enable</b> .	

Parameter			Description
		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.
	Grid connecti	Closed-loop controller	<ul> <li>For a single inverter, set Closed-loop controller to Inverter or SDongle/SmartLogger.</li> </ul>
	on with limited		<ul> <li>When Closed-loop controller is set to Inverter, the duration of export limitation control is less than 2s.</li> </ul>
	power (kW)		<ul> <li>When Closed-loop controller is set to SDongle/ SmartLogger, the duration of export limitation is less than 5s.</li> </ul>
			• For multiple inverters, <b>Closed-loop controller</b> can only be set to <b>SDongle/SmartLogger</b> . The duration of export limitation control is less than 5s.
	Limitation mode	• <b>Total power</b> indicates export limitation of the total power at the grid-tied point.	
			• <b>Single-phase power</b> 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 <b>Fail-safe power threshold</b> 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.

Parame	Parameter		Description
		Communicati on disconnection fail-safe	In the inverter export limitation scenario, if this parameter is set to <b>Enable</b> , 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 <b>Communication disconnection</b> <b>detection time</b> . <b>NOTE</b> In the Smart Dongle+single inverter scenario, active power derating is not performed.
		Communicati on disconnection detection time	Specifies the time for determining the communication disconnection between the inverter and the Smart Dongle. This parameter is displayed when <b>Communication disconnection fail-safe</b> is set to <b>Enable</b> .
		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 connec on with limited power (%)	Grid connecti on with limited power (%)	Closed-loop controller	<ul> <li>For a single inverter, set Closed-loop controller to Inverter or SDongle/SmartLogger.</li> <li>When Closed-loop controller is set to Inverter, the duration of export limitation control is less than 2s.</li> <li>When Closed-loop controller is set to SDongle/ SmartLogger, the duration of export limitation is less than 5s.</li> <li>For multiple inverters, Closed-loop controller can only be set to SDongle/SmartLogger. The duration of export limitation control is less than 5s.</li> </ul>
		Limitation mode	<ul> <li>Total power indicates export limitation of the total power at the grid-tied point.</li> <li>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.)</li> </ul>
		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.

Parame	eter		Description
		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 <b>Fail-safe power threshold</b> 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.
		Communicati on disconnection fail-safe	In the inverter export limitation scenario, if this parameter is set to <b>Enable</b> , 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 <b>Communication disconnection</b> <b>detection time</b> . <b>NOTE</b> In the Smart Dongle+single inverter scenario, active power derating is not performed.
		Communicati on disconnection detection time	Specifies the time for determining the communication disconnection between the inverter and the Smart Dongle. This parameter is displayed when <b>Communication disconnection fail-safe</b> is set to <b>Enable</b> .
		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.
React ive	Power factor	Target power factor	Specifies the target power factor of the power meter.
powe clos r loop con	closed- loop control	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.

Paramo	eter		Description
Communi on disconnec fail-safe		Communicati on disconnection fail-safe	When this parameter is set to <b>Enable</b> , and the communication between the solar inverter and the SDongle/SmartLogger is interrupted for a certain period (set by <b>Communication disconnection detection time</b> ), the solar inverter outputs power based on <b>Fail-safe power</b> .
	Communicati on disconnection detection	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 <b>Communication</b>	
		time	disconnection fail-safe is set to Enable.
	No Output	N/A	If this parameter is set to <b>No Output</b> , no parameter is available.

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.	<ul> <li>Maximum self- consumption</li> <li>Time-of-use</li> <li>Fully fed to grid</li> <li>Third-party dispatch</li> </ul>
<b>Maximum charge power</b> (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.	<ul> <li>Discharge: [0, Maximum discharge power]</li> </ul>
End-of-charge SOC (%)	Set the charge cutoff capacity.	90%–100%

Parameter	Description	Value Range
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 <b>Charge from grid</b> function is disabled by default, comply with the grid charge requirements stipulated in local laws and regulations when this function is enabled.	<ul><li>Disable</li><li>Enable</li></ul>
Grid charge cutoff SOC	Set the grid charge cutoff SOC.	[20%, 100%]

### • Capacity Control Parameters (Peak Shaving)

Parameter	Description	Range
Capacity control	<ol> <li>Before enabling Capacity control, set Charge from grid to Enable.</li> <li>Before disabling Charge from grid, set Capacity control to Disable.</li> </ol>	<ul> <li>Disable</li> <li>Active capacity limit</li> </ul>
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	-
End dete	and end time. The peak	
Peak power (kW)	<ul> <li>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.</li> <li>A maximum of 14 time segments are allowed.</li> </ul>	[0.000, 1000.000]

#### D 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**.

# 3.2.8 Three-Phase Imbalance Control

### **Function Description**

Three-phase imbalance control applies to the following scenarios:

- Asymmetric phase feeding with feed-in limitation: The feed-in power of each phase in the three-phase power grid cannot exceed the preset threshold. The inverter outputs different power for each phase based on the loads of each phase to ensure that the feed-in power of each phase does not exceed the preset threshold.
- PV+ESS asymmetric phase feeding for self-consumption: When the ESS discharges power to the loads, the inverter outputs phase-specific power based on the load of each phase and tracks the loads on each phase to ensure that no ESS discharge power is fed to the grid while the PV power can be fed to the grid.

The preceding two scenarios are supported concurrently.

#### **NOTE**

**Three-phase imbalance control** is not supported in the Smart Dongle networking scenario where inverters are connected in parallel.

#### Prerequisites

- Choose Settings > Grid Parameters and check that Output mode is set to Three-phase, four-wire.
- Choose Power adjustment > Grid-tied Point Control > Active power and check that Closed-loop controller is set to Inverter and Limitation mode is set to Single phase power.
- In the PV+ESS asymmetric phase feeding for self-consumption scenario, choose Power adjustment > Battery control and check that Working Mode is set to Maximum self-consumption or TOU.

#### Procedure

- 1. Log in to the local commissioning screen.
- 2. Choose **Power adjustment** > **Active power control** and set **Three-phase imbalance control** to **Enable**.

< Active po	wer control
of overfrequency derating	70.00 Hz >
Cutoff power of overfrequency derating	100 % >
Trigger frequency of overfrequency derating	70.00 Hz >
Quit frequency of overfrequency derating	70.00 Hz >
Power recovery gradient of overfrequency derating	1 %/min >
Overfrequency derating response duration	120.00 s >
Underfrequency power raising	
Cutoff frequency of underfrequency rise power	70.00 Hz >
Cutoff power of underfrequency rise power	1 % >
Trigger frequency of underfrequency rise power	71.00 Hz >
Quit frequency of underfrequency rise power	71.00 Hz >
Power recovery gradient of underfrequency rise power	70 %/min >
Three-phase imbalance control	Enable $  imes $

# 3.2.9 Setting the Energy Measurement Mode

# **Function Description**

This function is used to configure different energy measurement modes for different areas. After power meters are installed, you can configure the measurement modes to implement balanced and unbalanced measurement of energy.

## Procedure

- 1. Log in to the local commissioning screen.
- choose Maintenance > Subdevice management > PowerMeter and set Energy Measurement Mode.

<	Power meter	
Installation guide		
Meter type	DTSU666-H(Three-phase)	$\sim$
Power meter address	11	>
Energy Meas urement Mode	Balanced Measurement	>

Parameter		Description
Energy Measureme nt Mode	Balanced Measurement	Default setting. The forward energy and reversing energy are respectively calculated by integrating the sum of power from three phases.
	Unbalanced Measurement	The forward energy and reversing energy are respectively calculated by integrating the power of each phase.

# **3.2.10 Restoring to Factory Settings**

### **NOTE**

If you want to clear your data, contact the installer through phone call or email and ask the installer to log in to the FusionSolar app and clear the data by choosing **Maintenance** > **Restore defaults**.

- 1. Log in to the local commissioning screen.
- 2. Choose Maintenance > Restore defaults.
- Restoring configuration data: The device running parameters will be restored to factory settings. (The management system connection parameters, router connection parameters, device WLAN password, user login password, and energy yield information will not be restored.)
- Clearing all data: All device data is restored to factory settings, including management system connection parameters, router connection parameters, device WLAN password, user login password, all logs, and energy yield information.

#### D NOTE

When the SUN2000-(8K,10K)-LC0 or SUN2000-(2KTL-6KTL)-L1 inverter is directly connected to the FusionSolar SmartPVMS, after the inverter is restored to the factory settings, the **ESS thermal runaway data report** function is disabled. In this case, you need to log in to the FusionSolar SmartPVMS to enable the function again.

Menu path: Log in to the FusionSolar SmartPVMS, choose **Device Management** > **Inverter** > **Configuration** > **Feature Parameter** and enable **ESS thermal runaway data report**.

# **3.3 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.

## **3.3.1 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.

# A B C ISUINCOOD9

(B) WLAN/Bluetooth module (C) Mobile phone

#### Figure 3-11 WLAN/Bluetooth connection



(A) Solar inverter





# 3.3.2 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.

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

Table 3-7 WLAN/Bluetooth module model

## **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.

## 3.3.3 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 3-13 Operation permissions of common users



Figure 3-14 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 3-15 Operation permissions of special users

# 3.3.4 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.

## Procedure

- **Step 1** Connect the solar inverter.
  - Figure 3-16 Connect



Connection record

- 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 3-17 Manual connection

K Manual connection				
Select connection mode				
🛜 WLAN				
_ <b>_</b> _	SmartLooper 1000A	SmartLogger 3000	USB-Adapter 2000-C	SDongleA -WLAN-FE
Bluetooth				
SmartLogper USB-Adapter2000 B				
🏳 USB data cable				

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.

***	
SN:	~
Advanced user	
Advanced user	5 <sub>14</sub> 4
Advanced user	~

#### Figure 3-18 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	3-8	Ouick	settinas
		Quicit	securigs

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	<ul> <li>The solar inverter can connect to the upper-layer management unit over the Modbus RTU, SunSpec, or AVM protocol.</li> <li>When the solar inverter connects to the support tracking</li> </ul>
	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

# 3.3.5 Screen Operations (Common User)

## 3.3.5.1 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 3-19 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.

#### 

- Tap Sort by generated time to set the alarm sorting mode for active alarms or historical alarms.

  - Tap **IIII** 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

## 3.3.5.2 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 3-20 Time settings (common user)

<	Settings	
🖓 Time setting		>

#### **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

## 3.3.5.3 Maintenance

## 3.3.5.3.1 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 3-21 Maintenance

<	Maintenance	
٢	Inverter ON/OFF Grid connected : power limited	
Тар	next to Inverter ON/C	<b>)FF</b> to perform

- Step 2 m the operation.
- **Step 3** Enter the password for logging in to the app, and tap **OK**.

----End

### 3.3.5.3.2 Feedback

## Context

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

Do not add private data.

## Procedure

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

#### Figure 3-22 Feedback

SUN2000- XXX Grid connected #			
Active power	Change password		
0.000(kw)	🖉 Feedback		
Monthly Energy Yield	⑦ Help		
0.00(kwh)	<li>About</li>		

#### 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  $\stackrel{!}{\bigcirc}$  to upload logs. Select device logs or app logs as required.
- Step 6 Tap Submit.

----End

## 3.3.5.3.3 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.

F <b>igure 3-23</b> Help			
SUN2000-XXX Grid connected *			
Active power	Change password		
0.000(kw)	🖉 Feedback		
Monthly Energy Yield	⑦ Help		
0.00(kwh)	(i) About		

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

----End

## 3.3.5.3.4 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.

#### 

- 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 3-24 About

SUN2000-XXX Grid connected =			
Activo power	<ul> <li>Change password</li> </ul>		
0.000(kw)	Peedback		
Monthly Energy Yield	⑦ Help		
0.00(kwh)	④ 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

# 3.3.6 Screen Operations (Advanced User)

## 3.3.6.1 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 3-25 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.

#### 

- Tap Sort by generated time to set the alarm sorting mode for active alarms or \_ historical alarms.

  - Tap **IIII** 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

## 3.3.6.2 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 3-26 Quick settings

<	Quick settings
Device m	nagt Communication networking
Basic parameters	Energy storage Completed control
Time zone	(UTC+08:00) Beijing ∨
Time	2021-11-18 14:52:56 >
Sync phone time	
	Next

#### **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

## 3.3.6.3 Settings

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

#### Figure 3-27 Settings (advanced user)

<	Settings	
	Grid parameters	>
EØ F	Protection parameters	>
6 F	eature parameters	>
ר 🞝	Time setting	>
🖵 1	Fracking system	>
÷ F	ile store path	>
<b>†</b> ↓ (	Communication configuration	>

## 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.

## 3.3.6.3.1 Setting Grid Parameters

#### Procedure

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

#### Figure 3-28 Grid Parameters (advanced user)

<	Grid Parameters	
Grid code		
		$\sim$
Isolation		
		$\sim$

For details about how to set the parameters, see **5.4 Commercial Smart Inverters Parameters**.

----End

## **3.3.6.3.2 Setting Protection Parameters**

## Procedure

- Step 1 On the home screen, choose Settings > Protection Parameters to access the parameter setting screen.
  - Figure 3-29 Protection parameters (advanced user)

<	Protection Parameters	
Insulati	on resistance protection(MO)	
0.037		

For details about how to set the parameters, see **5.4 Commercial Smart Inverters Parameters**.

----End

#### **3.3.6.3.3 Setting Feature Parameters**

#### Procedure

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

Feature Parameters	
MPPT multi-peak scanning	
MPPT multi-peak scanning interval(min) 15	
RCD enhancing	
PID protection at night	
Power quality optimization mode	
PV module type	
Crystalline silicon	$\sim$
PID compensation direction	
Disable output	$\sim$
String connection mode	
Automatic detection	$\sim$
Communication interrupt shutdown	

Figure 3-30 Feature parameters (advanced user)

For details about how to set the parameters, see **5.4 Commercial Smart Inverters Parameters**.

----End

## 3.3.6.3.4 Setting Time

## Procedure

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

Figure 3-31 Time setting (advanced user)

C Time setting		
Time zone	UTC+08:00 🗸	
Time setting	16-Apr-2021 21:04:19 >	
Daylight saving time		
Offset time	60 min >	
Start date	03-28 >	
Start time	02:00:00 >	
End date	10-31 >	
End time	03:00:00 >	
NTP time synchronization		
NTP server address	>	
NTP server port	123 >	
NTP time synchronization interval	5 min >	

#### Table 3-9 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

## 3.3.6.3.5 Setting Communications Parameters

## Procedure

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

## Figure 3-32 Communications parameters

Communication configuration	
Router connection settings	>
RS485	>
MBUS	>
Management system settings	>
4G/GPRS	>
Dongle parameter settings	>
Parallel system communication parameter settings	>

Table 3-10 Setting com	munications parameters
------------------------	------------------------

Parameter		Description	
<b>RS485</b> RS485_1		Set the RS485 communications parameter. <b>RS485 CAN Resistor</b> is available only to the 1000 V 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 inverter in the daisy chain.	
	RS485_2	Set the RS485 communications parameter. This parameter is displayed only for the inverters that can connect to the RS485 slave device.	
	Baud Rate Negotiation	The system automatically negotiates the baud rates of all devices on each RS485 cascading link.	
MBUS		Set MBUS communications parameters. These parameters are displayed only for the inverters that support the MBUS function.	
Ethernet		<ul> <li>Set Ethernet parameters.</li> <li>NOTE <ul> <li>When DHCP is , IP address, Subnet mask, and Gateway of the inverter are automatically allocated.</li> <li>When DHCP is , IP address, Subnet mask, and Gateway of the inverter can be manually set.</li> </ul> </li> </ul>	
Management system settings		Set management system parameters. These parameters are displayed only for the inverters that can connect to the Smart Dongle. <b>NOTE</b> If <b>TLS encryption</b> 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. These parameters are displayed only for the inverters that can connect to the Smart Dongle.	
WLAN		Set WLAN communications parameters. These parameters are displayed only for the inverters that can connect to the Smart Dongle.	
Dongle parame	eter settings	Set Smart Dongle communications parameters. These parameters are displayed only for the inverters that can connect to the Smart Dongle.	

#### **NOTE**

You can check whether an inverter supports the MBUS or Smart Dongle function by viewing the product nameplate on it.

----End

### 3.3.6.3.6 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	3-33	Tracking	system
--------	------	----------	--------

Support parameters Suc	port status
Controller vendor and model	
Tonking	~
Support system type	
Tilted single axis	$\sim$
Southbound RS485 baud rate	
19200	$\vee$
Southbound RS485 check	
Even parity	$\vee$
Southbound RS485 stop bit	
2-bit stop bit	$\sim$
Total number of supports 8	
Max. concurrently controlled motor 4	rs
Time zone for support	
UTC+08:00	$\vee$
Installation longitude(degrees) 91.00	
Installation latitude(degrees)	
45.00	
Working mode	
Automatic control	$\sim$

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

#### Figure 3-34 Support

< s	upport1
Support name Support1	
Sensor address 21	
Control address	
Azimuth control(degra	ees)
Clear faults	

#### ----End

## 3.3.6.3.7 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

## 3.3.6.4 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 3-35 Power adjustment

<	Power adjustment	
Grid-tied	I point control	>

**Step 2** Set power parameters as required.

For details about how to set the parameters, see **5.4 Commercial Smart Inverters Parameters**.

**NOTE** 

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

----End

## 3.3.6.5 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 3	-36	Maintenance screen	(advanced use	er)
----------	-----	--------------------	---------------	-----

Maintenance	
Upgrade device	>
Log management	>
PV string access detection	>
Import and export configuration file	>
License management	>
Terminal test	>
Inspection	>
Inverter ON/OFF OFF : manual startup required	
Restore defaults	
Clear alarms	
Clear historical energy yield	
Adjust total energy yield	
Reset	

## 3.3.6.5.1 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 3-37 Device inspection

<	Inverter Inspect	ightarrow
Inspe	ection type	Inspection $>$
•	SUN2000-XXX Waiting for inspect	0%

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

Figure 3-38 Inverter Inspect

		$\bigcirc$
Inspec	tion type	Inspection >
u!	SUN2000-XXX Waiting for inspect	0%
	Inspection     Quick inspection	

----End

#### 3.3.6.5.2 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.

#### Figure 3-39 License management

< License management	≡
License status	
Deregistered	
LicenseLSN	
LIC20190924WS6S50	
License loading time	
2019-09-24 18:44:22	
License expiration time	
2019-09-27 23:59:59	
License revocation time	
2019-09-24 18:45:53	
Authorized function	
None	

#### **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

#### 3.3.6.5.3 Subdevice management

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

Figure 3-40 Subdevice management



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

• 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

## 3.3.6.5.4 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.

#### Figure 3-41 String access detection

< String Access Detection	
String Access Detection	
Startup current(A) 5.00	
Startup current for 2-in-1 detection(A) 15.00	
PV string 1 access type	~

#### Table 3-11 PV string access detection

Parameter	Description	
String Access DetectionString Access Detection is set to Disable by de After solar inverters are connected to the power set String Access Detection to Enable.		
Startup current (A)	<ul> <li>When the current of all connected PV strings reaches the preset value, the PV string access detection function is enabled.</li> <li>NOTE Startup current setting rules: <ul> <li>Startup current = I<sub>sc</sub> (S<sub>tc</sub>) × 0.6 (rounded up). For details about I<sub>sc</sub> (S<sub>tc</sub>), see the PV module nameplate.</li> <li>Default startup current (5 A): applicable to the scenarios where the short-circuit current I<sub>sc</sub> (S<sub>tc</sub>) is greater than 8 A for the monocrystalline and polycrystalline PV modules.</li> </ul></li></ul>	
Startup current for 2- in-1 detection (A)	When the current of a PV string reaches <b>Startup</b> <b>current for 2-in-1 detection</b> , 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 <i>N</i> 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

## 3.3.6.5.5 Startup and Shutdown

## Procedure

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



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

----End

#### 3.3.6.5.6 Restoring to Factory Settings

#### **NOTE**

If you want to clear your data, contact the installer through phone call or email and ask the installer to log in to the FusionSolar app and clear the data by choosing **Maintenance** > **Restore defaults**.

- 1. Log in to the local commissioning screen.
- 2. Choose Maintenance > Restore defaults.
  - Restoring configuration data: The device running parameters will be restored to factory settings. (The management system connection parameters, router connection parameters, device WLAN password, user login password, and energy yield information will not be restored.)
  - Clearing all data: All device data is restored to factory settings, including management system connection parameters, router connection parameters, device WLAN password, user login password, all logs, and energy yield information.

## **NOTE**

When the SUN2000-(8K,10K)-LC0 or SUN2000-(2KTL-6KTL)-L1 inverter is directly connected to the FusionSolar SmartPVMS, after the inverter is restored to the factory settings, the **ESS thermal runaway data report** function is disabled. In this case, you need to log in to the FusionSolar SmartPVMS to enable the function again.

Menu path: Log in to the FusionSolar SmartPVMS, choose **Device Management** > **Inverter** > **Configuration** > **Feature Parameter** and enable **ESS thermal runaway data report**.

#### 3.3.6.5.7 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

## 3.3.6.5.8 Resetting a Solar Inverter

## Context

The solar inverter automatically shuts down and restarts after reset.

## 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

#### 3.3.6.5.9 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

## 3.3.6.5.10 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

## 3.3.6.5.11 Importing and Exporting Configuration Files

## Procedure

- 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.

## 3.3.6.5.12 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.

<	Spot-check
Devices status	
Shutdown: Fault	
OV pro lim(V)	
Setpoint	
0.0	
sample pt	
0.0	
OV pro time(ms)	
Setpoint	
0	
sample pt	
0	
UV pro lim(V)	
Setpoint	
0.0	
sample pt	
0.0	
UV pro time(ms)	
Setpoint	
0	
sample pt	
0	
OF pro lim(Hz)	
Setpoint	
START	EXIT

#### Figure 3-42 Spot-Check

Step 2 Tap START.

----End

## 3.3.6.5.13 DC Input Detection

## Context

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

## Procedure

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

<	DC In Det	
	Detection status: NA	
	MPPT1 : -0.1V	
	MPPT2 : -0.1V	
	MPPT3 : -0.1V	
	MPPT4 : -0.1V	
	Detection end time: NA	
	STARTING	

Figure 3-43 Starting DC input detection

Step 2 Tap Start.

----End

## 3.3.6.5.14 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 to the **Android/ data/com.huawei.inverterapp/files/** directory on the mobile phone. The upgrade package must be 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 3-44 Device upgrade

<	Upgrade device	
Inverter	upgrade	
Current v	version:	Upgrade

**Step 3** Perform operations as prompted.

----End

#### 3.3.6.5.15 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 3-45 Downloading logs

<	Download logs	Current logs
🕑 Select all		
🕑 Inverter le	ogs	
🕑 APP log		
	Download	

Step 2 You can download Inverter logs and APP log.

#### D 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

## 3.3.6.5.16 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.

## 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

#### 3.3.6.5.17 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 3-46 Feedback

<	SUN2000-XXX Grid connected		
Act	vo powor	<li>Chai</li>	nge password
0.	000 <sub>(kw)</sub>	🖉 Feed	dback
Monthly Energy Yield	⑦ Help	2	
0.00(kwh)		(i) Abo	ut

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

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



#### 3.3.6.5.18 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 3-47 Help		
<	SUN2000 Grid	- XXX connected =
Acti	ve nower	Change password     Change password
0.	000(kw)	🖉 Feedback
Monthly Energy Yield	⑦ Help	
0.	00(kwh)	(i) About

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

----End

## 3.3.6.5.19 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 3-48 About

	- XXX connected =
Activo power	6 Change password
0.000(kw)	🖉 Feedback
Monthly Energy Yield	⑦ Help
0.00(kWh)	(i) 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

## 3.3.7 Screen Operations (Special User)

## 3.3.7.1 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.

< SUN200 Grid	0- XXX
Active power	Energy yield of current day
0.000 <sub>(kw)</sub>	0.00(kwn)
Monthly Energy Yield	Total
0.00(kWh)	5.00(мин)
Li Alarm management	Device Monitoring
Maintenance	Settings
<b>t</b> tt Power adjustment	R

Figure 3-49 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.

#### **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

#### 3.3.7.2 Settings

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

Figure 3-50 Settings

<	Settings	
Grid parameters		>
Protection parameters		>
Feature parameters		>
Power adjustment		>
File store path		>

#### 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.

## 3.3.7.2.1 Setting Grid Parameters

## Procedure

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

Figure 3-51	Grid	parameters	(special	user)	
-------------	------	------------	----------	-------	--

C Grid parameters		
Grid code	>	
Isolation settings	Input ungrounded(with $\sim$ TF) $\sim$	
Output mode	Three-phase three-wire $$	
Auto start upon grid recovery		
Grid connection delay after grid recovery	150 s >	
Grid reconnection voltage upper limit	552.0 V >	
Grid reconnection voltage lower limit	384.0 V >	
Grid reconnection frequency upper limit	51.50 Hz >	
Grid reconnection frequency lower limit	47.50 Hz >	

For details about how to set the parameters, see **5.4 Commercial Smart Inverters Parameters**.

----End

### 3.3.7.2.2 Setting Protection Parameters

## Procedure

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

Protection parameter	ſS
Unbalance voltage protection threshold	50.0 % >
Phase protection threshold	6.0°>
Phase angle offset protection	
Voltage threshold for 10-minute overvoltage protection	600.0 V >
Duration threshold for 10-minute overvoltage protection	200 ms >
Level-1 overvoltage protection threshold	600.0 V >
Duration threshold for level-1 overvoltage protection	1000 ms >
Level-1 undervoltage protection threshold	384.0 V >
Duration threshold for level-1 undervoltage protection	1000 ms >
Level-1 overfrequency protection threshold	51.50 Hz >
Duration threshold for level-1 overfrequency protection	1000 ms >
Level-1 underfrequency protection threshold	47.50 Hz >
Duration threshold for level-1 underfrequency protection	1000 ms >
Active islanding protection	

## Figure 3-52 Protection parameters

For details about how to set the parameters, see **5.4 Commercial Smart Inverters Parameters**.

#### ----End

## 3.3.7.2.3 Setting Feature Parameters

## Procedure

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

Feature parameters		
LVRT		
LVRT triggering threshold	384.0∨ >	
LVRT gradient K1	2.0 >	
LVRT gradient K2	0.0 >	
Percentage of LVRT reactive current limiting	100 % >	
Threshold of LVRT zero-current mode	336.0 V >	
LVRT mode	Constant current mode $$	
LVRT characteristic curve	>	
HVRT		
HVRT triggering threshold	576.0 V >	
HVRT gradient K1	0.0 >	
HVRT gradient K2	0.0 >	
Grid voltage protection shield during VRT		
VRT exit hysteresis threshold	24.0 >	

#### Figure 3-53 Feature parameters

For details about how to set the parameters, see **5.4 Commercial Smart Inverters Parameters**.

#### ----End

## 3.3.7.2.4 Setting Power Adjustment Parameters

## Procedure

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

Power adjustmen	t
Remote power schedule	
Schedule instruction valid duration	0s>
Maximum apparent power	70.000 kVA >
Maximum active power	62.500 kW >
Shutdown at 0% power limit	
Active power change gradient	125.000 %/s >
Derated by active power % (0.1%)	0.0 % >
Active power derating in absolute value	62.5 kW >
Reactive power output at night	
Reactive power change gradient	125.000 %/s >
Reactive power adjustment time	10 s >
Power factor	1.000 >
Reactive power compensation(Q/S)	0.000 >
Overfrequency derating	

#### Figure 3-54 Power adjustment parameters

For details about how to set the parameters, see **5.4 Commercial Smart Inverters Parameters**.

----End

## 3.3.7.2.5 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

## 3.3.7.3 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 3-55 Power adjustment

t
>
>
>

#### **Step 2** Set power parameters as required.

For details about how to set the parameters, see **5.4 Commercial Smart Inverters Parameters**.

#### **NOTE**

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

----End

## 3.3.7.4 Maintenance

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

#### Figure 3-56 Maintenance (special user)

<	Maintenance	
Upgrade device		>
Log management		>
Inverter ON/OFF Standby : initializatio	on	
Restore defaults		

#### 3.3.7.4.1 Subdevice management

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

Figure 3-57 Subdevice management



• Tap + to add a power meter.

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

Parameter	Description
Current change ratio	<ul> <li>Set this parameter to <b>1</b> if the power meter uploads the primary value.</li> </ul>
	<ul> <li>Set this parameter based on the actual transformer ratio if the power meter uploads the secondary value.</li> </ul>

• 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

#### 3.3.7.4.2 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

3.3.7.4.3 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

## 3.3.7.4.4 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**.
- 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 must be 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 3-58 Device upgrade

<	Upgrade device	
Inverter up	grade	
Current vers	sion:	Upgrade

**Step 3** Perform operations as prompted.

----End

## 3.3.7.4.5 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 3-59 Downloading logs

<	Download logs	Current logs
🕑 Select a	all	
🕑 Inverter	logs	
S APP log	1	
	Download	

#### 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

#### 3.3.7.4.6 Feedback

#### Context

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

Do not add private data.

## Procedure

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

#### Figure 3-60 Feedback

<	SUN2000- XXX Grid connected =	
1	Activo powor	6 Change password
0.000(kw)	🖉 Feedback	
Monthly Energy Yield 0.00(kwh)	⑦ Help	
	(i) About	

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

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



## 3.3.7.4.7 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 3-61 Help		
	0-XXX I connected =	
Active nower	Change password	
0.000(kw)	Peedback	
Monthly Energy Yield	⑦ Help	
	(i) About	

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

----End

#### 3.3.7.4.8 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 3-62 About

	- XXX connected =
Activo nowor	Change password     Change password
0.000(kw)	Peedback
Monthly Energy Yield 0.00(wwh)	⑦ Help
	(i) 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

# 3.4 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.

## 3.4.1 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.
- 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 3-63**, **Figure 3-64**, and **Figure 3-65** show the menu operation permissions of common users, special users, and advanced users respectively.



Figure 3-63 Operation permissions of common users

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





#### **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 3-65 Operation permissions of special users

#### **NOTE**

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

## 3.4.2 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 3-66 Connect

<
Connect
(Manual connection)

Connection record

- 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.

K Manual connection				
Select connection mode				
🛜 WLAN				
	SmartLogger 1000A	SmartLogger 3000	USB-Adapter 2000-C	SDongleA -WLAN-FE
Bluetooth				
SmartLogger USB-Adapter2000-B				
USB data cable				

#### Figure 3-67 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.

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

< Ide	Identity authentication	
SN:XXXXXXX installer	xxxxx ×	
Enter your pa	assword. 😽	
Cancel	Log in	

#### Figure 3-68 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

## 3.4.3 Screen Operations (Common User)

## 3.4.3.1 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.

< SmartLogger3000 Online •		
Communication status	Management system	
Good SIM card signal	Connection succeeded	
60.000 kW	27.602 kW	
Rated power	Active power	
232.43 kWh	64.15 MWh	
Yield today	Total yield	
<b>Life</b> Alarm	Device monitoring	
<b>Goo</b>	کې	
Maintenance	Settings	

#### Figure 3-69 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

## 3.4.3.2 Settings

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

#### Figure 3-70 Settings (Common User)

<	Settings
∧ User param.	
Data&Time	
Plant	
Currency	

## 3.4.3.2.1 Setting the System Date and Time

## Procedure

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

#### Figure 3-71 Date&Time screen

<	Data&Time	
Time zone		
(UTC+08:00	)Beijing	$\vee$
Date		
2019-11-0	5	
Time		
11:30:54		
Clock sour	ce	
NTP		$\sim$

**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

## 3.4.3.2.2 Setting Plant Information

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

Figure 3-72 Plant		
<	Plant	
Plant name		
Plant owner		
Plant address		
Plant owner a	ddress	
Country		
CN(China, Peop	le's Republic of)	$\sim$

**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

## 3.4.3.2.3 Setting Revenue Parameters

## Procedure

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

#### Figure 3-73 Gain

<	Currency	
Currency		
JPY		$\vee$
Currency	factor	
500.000		
CO2 emis	sion reduction coefficient(kg	g/kWh)
0.997		

----End

## 3.4.3.3 Maintenance

#### 3.4.3.3.1 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.



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

#### D 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

## 3.4.3.3.2 Feedback

## Context

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

**NOTE** 

Do not add private data.

## Procedure

Step 1 Choose

se **Feedback** in the upper-right corner of the home screen.

## Figure 3-75 Feedback

C Smart L	.ogger 😶
Communication status	🖉 Feedback
component	⑦ Help
Total Inverte	er (i) About

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

#### Figure 3-76 Problem record

< Problem record	
*Specify the type	>
*Description (0/200 words)	
Briefly describe the problem.	
Upload image (0/20)	
+	
Upload log (OB/20MB)	0 🕂
Submit	

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



## 3.4.3.3.3 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.



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

## Figure 3-78 Help 2

< Help
Q Search
How Should I Change the Password?
How Should I Set the System Date and Time?

----End

#### 3.4.3.3.4 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.

#### 

- 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 3-79 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

## 3.4.3.4 Device Monitoring

#### 3.4.3.4.1 Query

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

#### Figure 3-80 Device monitoring

<	Monitor
$\vee$ SmartLogger200	0
$\sim$ PID	
$\sim$ MBUS	
$\sim$ SUN2000(1)	
∨ SUN2000(4)	

- **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.

#### D 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

#### 3.4.3.4.2 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 3-81 Maintenance

<	Maintenance	
Power on		
Power off		
Performance da	ta	>

#### Step 2 Tap Maintenance.

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

D 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

## 3.4.4 Screen Operations (Advanced User)

## 3.4.4.1 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 3-82 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

## **3.4.4.2 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.

## 3.4.4.2.1 Query

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

<	Monitor
$\vee$ SmartLogger2	2000
$\sim$ PID	
∨ MBUS	
∨ SUN2000(1)	
∨ SUN2000(4)	



- **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.

#### 

- 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

#### 3.4.4.2.2 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 anticrosstalk list take effect.

----End

#### 3.4.4.2.3 Maintenance

## 3.4.4.2.3.1 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

#### 3.4.4.2.3.2 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 Denver 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

## 3.4.4.2.3.3 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  $\triangleright$  next to **MBUS reset** and reset the MBUS as prompted.
- **Step 5** Tap **Anti-crosstalk list** to synchronize, import, or export the list.

----End

## 3.4.4.2.3.4 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

## 3.4.4.3 Maintenance

## 3.4.4.3.1 System Maintenance

## 3.4.4.3.1.1 Changing a User Password

#### Procedure

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

#### Figure 3-84 System Maintenance

System Maintenance	
Change password	>
Offline configuration	>
Reset	>
Clear data	>
Export all files	>
Import all files	>
Restore factory settings	>
Inverter inspect	>
Device Mgmt.	>
Device List	>
Device logs	>
Upgrade	>
Inverter Spot	>

#### **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

## 3.4.4.3.1.2 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 3-85 System Maintenance

< System Maintenance	
Change password	>
Generate local maint. Script	>
Offline configuration	>
Reset	>
Clear data	>
Export all files	>
Import all files	>
Restore factory settings	>
Inverter inspect	>
Device Mgmt.	>
Device List	>
Device logs	>
Upgrade	>

#### ----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.

## 3.4.4.3.1.3 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 3-86 System Maintenance

< System Maintenance	
Change password	>
Generate local maint. Script	>
Offline configuration	>
Reset	>
Clear data	>
Export all files	>
Import all files	>
Restore factory settings	>
Inverter inspect	>
Device Mgmt.	>
Device List	>
Device logs	>
Upgrade	>

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

----End

## 3.4.4.3.1.4 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.

< System Maintenance	
Change password	>
Generate local maint. Script	>
Offline configuration	>
Reset	>
Clear data	>
Export all files	>
Import all files	>
Restore factory settings	>
Inverter inspect	>
Device Mgmt.	>
Device List	>
Device logs	>
Upgrade	>

#### Figure 3-87 System Maintenance

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

## 3.4.4.3.1.5 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.

System Maintenance	
Change password	>
Generate local maint. Script	>
Offline configuration	>
Reset	>
Clear data	>
Export all files	>
Import all files	>
Restore factory settings	>
Inverter inspect	>
Device Mgmt.	>
Device List	>
Device logs	>
Upgrade	>

Figure 3-88 System Maintenance

----End

## 3.4.4.3.1.6 Restoring to Factory Settings

#### **NOTE**

If you want to clear your data, contact the installer through phone call or email and ask the installer to log in to the FusionSolar app and clear the data by choosing **Maintenance** > **Restore defaults**.

- 1. Log in to the local commissioning screen.
- 2. Choose Maintenance > Restore defaults.
  - Restoring configuration data: The device running parameters will be restored to factory settings. (The management system connection parameters, router connection parameters, device WLAN password, user login password, and energy yield information will not be restored.)
  - Clearing all data: All device data is restored to factory settings, including management system connection parameters, router connection parameters, device WLAN password, user login password, all logs, and energy yield information.

#### D NOTE

When the SUN2000-(8K,10K)-LC0 or SUN2000-(2KTL-6KTL)-L1 inverter is directly connected to the FusionSolar SmartPVMS, after the inverter is restored to the factory settings, the **ESS thermal runaway data report** function is disabled. In this case, you need to log in to the FusionSolar SmartPVMS to enable the function again.

Menu path: Log in to the FusionSolar SmartPVMS, choose **Device Management** > **Inverter** > **Configuration** > **Feature Parameter** and enable **ESS thermal runaway data report**.

#### 3.4.4.3.2 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.





#### Figure 3-89 Inspection method



## Figure 3-90 Inspection type



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

#### Figure 3-91 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

#### 3.4.4.3.3 Device Management

#### 3.4.4.3.3.1 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 3-92 Changing a device name



#### **NOTE**

The name of the SmartLogger cannot be changed.

----End

#### 3.4.4.3.3.2 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 3-93 Deleting devices

<	Device Mgmt.	Cancel
	MBUS-inside	
SN: <b>Port</b> - Logica	Comm Addr.: MBUS-249 al Addr.: 1	
11	PID(COM1-1)	
SN:		
Port- Logica	Comm Addr.: 1-1 al Addr.: 33	



#### **NOTE**

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

----End

#### 3.4.4.3.3.3 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 Manually Adding a Device.

## Procedure

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

5	5
< Dev	ice Mgmt.
60KTL	Q Auto Device Search
SN: 210107352010G60	🚯 Add Device
Port-Comm Addr.: ME	📔 Auto Assign Address
Logical Addr.: 7	Import Configuration
	By Export Configuration
SN: 210107000010H50	🔟 Reset Alarms
Logical Addr.: 2	Batch Control
MBUS-inside	🖳 Access Param.

Figure 3-94 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

#### 3.4.4.3.3.4 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.

5	5
< Dev	ice Mgmt.
60KTL	Q Auto Device Search
SN: 210107352010G60	🚯 Add Device
Port-Comm Addr.: ME	📕 Auto Assign Address
Logical Addr.: 7	Simport Configuration
	By Export Configuration
SN: 210107000010H50	🔟 Reset Alarms
Logical Addr.: 2	Batch Control
MBUS-inside	Ccess Param.

Figure 3-95 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 **3.4.4.4.5 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*.

## 3.4.4.3.3.5 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 3-96 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

## 3.4.4.3.3.6 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.

< Dev	ice Mgmt.
60KTL	Q Auto Device Search
SN: 210107352010G60	🕂 Add Device
Port-Comm Addr.: ME	📕 Auto Assign Address
100KTL	Simport Configuration
	By Export Configuration
SN: 210107000010H50	🔟 Reset Alarms
Logical Addr.: 2	Batch Control
MBUS-inside	🔣 Access Param.

## Figure 3-97 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

#### 3.4.4.3.3.7 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.

< Dev	ice Mgmt. 🚆
60KTL	Q Auto Device Search
SN: 210107352010G60	🚯 Add Device
Port-Comm Addr.: ME	📋 Auto Assign Address
Logical Addr.: 7	Simport Configuration
	By Export Configuration
SN: 210107000010H50	🔟 Reset Alarms
Logical Addr.: 2	Batch Control
MBUS-inside	Access Param.

Figure 3-98 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

#### 3.4.4.3.3.8 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.

- 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.

<	Device Mgmt.	≡
60KTL	Q Auto Device Searc	:h
SN: 210107352	010G60 🚯 Add Device	
Port-Comm Ad	ddr.: ME 👖 Auto Assign Addr	ess
Logical Addr.: 7	🏂 Import Configurat	ion
	L By Export Configuration	ion
SN: 210107000	010H50 🔟 Reset Alarms	
Port-Comm Ad Logical Addr.: 2	ddr.: ME	
MBUS-	inside 🖪 Access Param.	

#### **-:** 2 00 David t

- **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

## 3.4.4.3.3.9 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.

< Dev	ice Mgmt.
60KTL	Q Auto Device Search
N: 210107352010G60	🚯 Add Device
Port-Comm Addr.: ME	Auto Assign Address
100KTL	👌 Import Configuration
	By Export Configuration
N: 210107000010H50	🔟 Reset Alarms
Logical Addr.: 2	Batch Control
MBUS-inside	E Access Param.

#### Figure 3-100 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

#### 3.4.4.3.3.10 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 3-101 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**.

## 3.4.4.3.4 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 3-102 Device List

<	Device List
<b>*</b>	Import device info
B	Export device info
1	Edit device info file

**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

#### 3.4.4.3.5 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 3-103 Exporting device logs

<	Sel Device	Next
	SmartLogger2000	$\sim$
	PID	$\sim$
	MBUS	$\sim$

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

#### 

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

----End

#### 3.4.4.3.6 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 3-104 Device upgrade

<	Device upgrade +
$\sim$	SmartLogger2000
$\sim$	PID
$\sim$	MBUS
$\sim$	SUN2000(1)

- **Step 2** Tap **i**n 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

#### 3.4.4.3.7 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 3-105 Inverter spo	t
---------------------------	---



**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

#### 3.4.4.3.8 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 3-106 Feedback



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

Figure 3-107 Problem record

< Problem record	
*Specify the type	>
*Description (0/200 words)	
Briefly describe the problem.	
Upload image (0/20)	
+	
Upload log (OB/20MB)	<b>•</b> +
Submit	

- **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

## 3.4.4.3.9 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.



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



<	Help
O Sear	rch
How Sh	ould I Change the Password?
How Sh	ould I Set the System Date and Time?

----End

## 3.4.4.3.10 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.

#### D 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 3-110 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

#### 3.4.4.4 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.

<	Settings
∧ User p	param.
Data	a&Time
Plar	ıt
Curr	ency
∧ Comm	n. Param.
Ethe	ernet
RS4	85
Pow	ver Meter
Mar	agement System
Mod	ibus TCP
IEC1	03
IEC1	04
	ded Param.
FTP	

#### Figure 3-111 Settings (advanced user)

#### D NOTE

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

## 3.4.4.4.1 Setting the System Date and Time

## Procedure

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

#### Figure 3-112 Date&Time screen

<	Data&Time	
Time zone		
(UTC+08:00	)Beijing	$\vee$
Date		
2019-11-0	5	
Time		
11:30:54		
Clock sour	ce	
NTP		$\vee$

**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

#### 3.4.4.2 Setting Plant Information

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

#### Figure 3-113 Plant

<	Plant	
Plant name		
Plant owner		
Plant address		
Plant owner address		
Country		
CN(China, People's Rep	ublic of) V	

**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

#### 3.4.4.3 Setting Revenue Parameters

#### Procedure

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

#### Figure 3-114 Gain

<	Currency	
Currency		
JPY		$\vee$
Currency factor	r	
500.000		
CO2 emission r	reduction coefficient(kg/kWh)	
0.997		

## 3.4.4.4 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

#### 3.4.4.5 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 3-115 COM1

<	COM1	
Baud rate(bps)		
9600		$\sim$
Parity		
None		$\sim$
Start address		
End address		
Protocol		
Modbus		$\sim$
Stop Bit		
NA		
NA		

#### **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

#### 3.4.4.4.6 Setting Modbus-RTU Power Meter Parameters

## Procedure

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

#### Figure 3-116 Power Meter



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

----End

## 3.4.4.4.7 Setting Management System Parameters

## Procedure

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

Management System	
Server	
Port number 27250	
Address mode Logical address	$\sim$
TLS encryption	
Second challenge authentication	
NMS connection status	
4G module status No card	
Ethernet state The network is normal	

#### Figure 3-117 Management system

#### 

- 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.

## 3.4.4.4.8 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	3-118	Modbus	TCP
--------	-------	--------	-----

< Modbus TC	P
Link setting	
Enable (limited)	$\sim$
Client 1 IP Address 0.0.0.0	
Client 2 IP Address	
0.0.0.0	
Client 3 IP address	
0.0.0.0	
Client 4 IP address	
0.0.0.0	
Client 5 IP address	
0.0.0.0	
Address mode	
Physical address	$\sim$
SmartLogger address	
0	

## D 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**.

## 3.4.4.4.9 Setting IEC103 Device Parameters

## Procedure

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

Figure 3-119 IEC103

<	IEC103	
IEC103 port No.		
None	\ \	/
IEC103 address 126		
IEC103 IP 0.0.0.0		

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

----End

#### 3.4.4.4.10 Setting IEC104 Device Parameters

## Procedure

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

Figure 3-120 IEC104

<	IEC104	
Basic Parameter	S	
Transfer Table Co	onfig	

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.

## 3.4.4.4.11 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 3-121 Remotely shutting down solar inverters in dry contact mode

<	Dry contact remote shutdo	wn
Acce	ess port	
No		$\vee$
Pote	nzialfreier Kontakt – Gültiger Status	i.
Disat	bled	$\sim$
OVG	R shutdown	
Cubi	cle alarm enabling	

----End

#### 3.4.4.12 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 3-122 FTP

<	FTP	
Test transmission		
FTP server		
User name		
Password		
Remote directory		

#### D 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

#### 3.4.4.4.13 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 3-123 Email

<	Email
Send test Email	۲
SMTP server	
Encryption mode	
Not encrypted	$\vee$
User name	
Password	
•••••	
SMTP port 25	
Email language	
English	$\vee$
Send address	
Receive address 1	
Receive address 2	

#### **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

#### 3.4.4.14 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 3-124 Setting a file save path



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

----End

## 3.4.4.5 Power adjustment

#### 3.4.4.5.1 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 3-125 Active power control



----End

#### 3.4.4.5.2 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

## 3.4.4.5.3 Setting Peak Shaving Parameters

#### **Function Description**

This function applies to areas that have peak demand charges. The demand limit function allows you to lower the peak power drawn from grid in maximum self-consumption or TOU mode during peak hours, reducing electricity fees.

#### D NOTE

- If the ESS working mode is **Fully fed to grid**, the demand limit function is unavailable.
- Before enabling **Peak Shaving**, enable **Charge from AC**.

## Procedure

1. Tap **Power adjustment** > **Peak Shaving** to set the demand limit working mode.

Parameter	Description	
Peak Shaving	No control	
	Active power limit	
	Apparent 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. Backup power SOC for peak shaving > Backup power SOC (when Off-grid mode is enabled) > End-of- discharge SOC	
Start Time	• Set the peak power range based on the start time	
End Time	and end time. The peak power is configured based o electricity prices in different time segments. You are	
Peak Power (kW)	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.	

## 3.4.5 Screen Operations (Special User)

## 3.4.5.1 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.

SmartLogger1000A Online •		
Communication status Fair SIM card signal	Management system	
182.500 kW Rated power	0.000 kW Active power	
0.00 kWh Yield today	696.55 kWh Total yield	
<b>Lip</b> Alarm	L Quick Settings	
Device monitoring	<b>Ø</b> Maintenance	
Settings	The second secon	

#### Figure 3-126 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
```

## **3.4.5.2 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.

## 3.4.5.2.1 Query

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

#### Figure 3-127 Device monitoring

<	Monitor
$\vee$ SmartLogger20	00
$\sim$ PID	
$\sim$ MBUS	
∨ SUN2000(1)	
∨ SUN2000(4)	

- **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

#### 3.4.5.2.2 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.

## 3.4.5.2.3 Maintenance

#### 3.4.5.2.3.1 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

#### 3.4.5.2.3.2 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 **b** next to **Power on** or **Power off** to perform the operation.

D 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

## 3.4.5.3 Maintenance

#### 3.4.5.3.1 System Maintenance

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

## 3.4.5.3.1.1 Changing a User Password

## Procedure

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

Figure 3-128 Change Password		
<	System Maintenance	
(d)	Change password	
Reset		*
Clear o	data	Ŵ
Genera	ate local maint. Script	Ð
Offline	configuration	•
Export	all files	E
Import	all files	
Restor	e factory settings	Ø

#### **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

## 3.4.5.3.1.2 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 3-129 Reset

< System Maintenance	
Change password	
Reset	*
Clear data	Û
Generate local maint. Script	Ð
Offline configuration	•
Export all files	
Import all files	
Restore factory settings	0

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

----End

#### 3.4.5.3.1.3 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.

	System Maintenance	
Ch	nange password	>
Ge	enerate local maint. Script	>
Of	fline configuration	>
Re	eset	>
Cle	ear data	>
Ex	port all files	>
Im	port all files	>
Re	estore factory settings	>
Inv	verter inspect	>
De	evice Mgmt.	>
De	evice List	>
Issue 01 (2024-04-30) C De	Copyright © Huawei Digital Power Technologies Co., Ltd. EVICE IOGS	> 168

## Figure 3-130 System Maintenance
**Step 2** Enter the password for logging in to the app, and tap **OK**.

----End

# 3.4.5.3.1.4 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.

	< System Maintenance	
	Change password	>
	Generate local maint. Script	>
	Offline configuration	>
	Reset	>
	Clear data	>
	Export all files	>
	Import all files	>
	Restore factory settings	>
	Inverter inspect	>
	Device Mgmt.	>
	Device List	>
Issue 01 (2024-04-30	) Copyright © Huawei Digital Power Technologies Co., Ltd. Device logs	> 170

# Figure 3-131 System Maintenance

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

----End

### 3.4.5.3.2 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 3-132 Device inspection

<	Inverter Inspect	lacksquare
Inspe	action type	Inspection $>$
•	SUN2000-XXX Waiting for inspect	0%

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

Figure 3-133 Inverter Inspect



----End

### 3.4.5.3.3 Device Management

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

# 3.4.5.3.3.1 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 3-134 Changing a device name

<	Device Mgmt.	-
	MBUS-inside	
SN: P Port-O Logica	PLC002311NAEG6000024 Comm Addr.: MBUS-249 i) Addr.: 1	
lí	PID(COM1-1)	
SN: Port-C Logica	Comm Addr.: 1-1 1 Addr.: 33	
	Change device name	
	MBUS-inside	
	Information: (a~z,A~Z,0~9,,#,(,),.)	
	CANCEL OK	

### **NOTE**

The name of the SmartLogger cannot be changed.

----End

### 3.4.5.3.3.2 Deleting Devices

- 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 3-135 Deleting devices

<	Device Mgmt.	Cancel
	MBUS-inside	
SN:		
Port-	Comm Addr.: MBUS-249	
Logica	al Addr.: 1	
	PID(COM1-1)	
SN:		
Port-	Comm Addr.: 1-1	
Logica	al Addr.: 33	



### **NOTE**

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

----End

# 3.4.5.3.3.3 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 Manually Adding a Device.

# Procedure

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

# Figure 3-136 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

### 3.4.5.3.3.4 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 3-137 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 **3.4.5.4.1 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

# 3.4.5.3.3.5 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 3-138 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

## 3.4.5.3.3.6 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.

< Dev	ice Mgmt.
60KTL	Q Auto Device Search
N: 210107352010G60	🚯 Add Device
Port-Comm Addr.: ME	👖 Auto Assign Address
ogical Addit. 7	😚 Import Configuration
100KTL	By Export Configuration
N: 210107000010H50	🔟 Reset Alarms
Port-Comm Addr.: ME Logical Addr.: 2	Batch Control
MBUS-inside	民 Access Param.

Figure 3-139 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

## 3.4.5.3.3.7 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.

Device Mgmt.  $\equiv$ 60KTL Q Auto Device Search SN: 210107352010G60 😯 Add Device Port-Comm Addr.: ME 🚺 Auto Assign Address Logical Addr.: 7 😚 Import Configuration 100KTL Export Configuration SN: 210107000010H50 🔟 Reset Alarms Port-Comm Addr.: ME Batch Control Logical Addr.: 2 Access Param. MBUS-inside

Figure 3-140 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

## 3.4.5.3.3.8 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.

rigure 3-141 Device manageme		
< Dev	ice Mgmt. 🗮	
60KTL	Q Auto Device Search	
SN: 210107352010G60	🚯 Add Device	
Port-Comm Addr.: ME	📋 Auto Assign Address	
Logical Addi 7	월 Import Configuration	
100KTL	By Export Configuration	
SN: 210107000010H50	🔟 Reset Alarms	
Logical Addr.: 2	Batch Control	
MBUS-inside	Recess Param.	

### Figure 3-141 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

## 3.4.5.3.3.9 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.

< Dev	ice Mgmt.
60KTL	Q Auto Device Search
N: 210107352010G60	🚯 Add Device
Port-Comm Addr.: ME	Auto Assign Address
Logical Addi 7	🔧 Import Configuration
100KTL	By Export Configuration
SN: 210107000010H50	🔟 Reset Alarms
Logical Addr.: 2	Batch Control
MBUS-inside	民 Access Param.

# Figure 3-142 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

### 3.4.5.3.3.10 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 3-143 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

### 3.4.5.3.4 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 3-144 Device List

<	Device List
*	Import device info
勆	Export device info
1	Edit device info file

**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

### 3.4.5.3.5 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 3-145 Exporting device logs

<	Sel Device	Next
	SmartLogger2000	$\sim$
	PID	$\sim$
	MBUS	$\sim$

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

### 

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

----End

### 3.4.5.3.6 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 3-146 Device upgrade

<	Device upgrade +
$\sim$	SmartLogger2000
$\sim$	PID
$\sim$	MBUS
$\sim$	SUN2000(1)

- **Step 2** Tap **i**n 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

### 3.4.5.3.7 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.

|--|



- **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

### 3.4.5.3.8 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 3-148 Feedback



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

Figure 3-149 Problem record

< Problem record	
*Specify the type	>
*Description (0/200 words)	
Briefly describe the problem.	
Upload image (0/20)	
+	
Upload log (CE/201MB)	0 🕀
Submit	

- **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

# 3.4.5.3.9 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.



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



<	Help
O Sear	ch
How Sho	ould I Change the Password?
How Sho	ould I Set the System Date and Time?

----End

## 3.4.5.3.10 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 3-152 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

### 3.4.5.4 Settings

### 3.4.5.4.1 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 3-153 COM1

<	COM1
Baud rate(bps)	
9600	$\sim$
Parity	
None	$\sim$
Start address	
1	
End address	
100	
Protocol	
Modbus	$\sim$
Stop Bit	
NA	

### **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

### 3.4.5.4.2 Setting Modbus-RTU Power Meter Parameters

### Procedure

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

### Figure 3-154 Power Meter



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

----End

### 3.4.5.5 Power adjustment

### 3.4.5.5.1 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 3-155 Active power control

<	Active power contr	rol
Active p	power control	
Active p	ower control mode	
No limit		$\sim$

----End

### 3.4.5.5.2 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

# **3.5 Operations on the Screen for Connecting to the Smart PCS**

# **3.5.1 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.





## 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.

### D 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.

# 3.5.2 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.





Connection record

- 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.

< Manual connection				
Select connection mode				
🤶 WLAN				
<b>_ _ _</b>	SmartLogger 1000A	SmartLogger 3000	USB-Adapter 2000-C	SDongleA -WLAN-FE
Bluetooth				
SmartLogger USB-Adapter2000-B 2000				
💾 USB data cable				

#### Figure 3-158 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.

### Figure 3-159 Login

< Ide	entity authentication	
installer	xxxx	~
		ž
Cancel	Log in	

### 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

# 3.5.3 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 3-160 Home screen

< LUNA2000-200KTL-H0 Standby : initialization •				
0.000 kW Active power	<b>0.0</b> V DC voltage			
<b>0.00/0.00</b> kWh Today's yield/power supply from grid	6.07/6.69 MWh Total yield/power supply from grid			
<b>Lip</b> Alarm	Quick settings			
Device monitoring	<b>Ø</b> Maintenance			
Settings	Power adjustment			

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

----End

# 3.5.4 Settings

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

Figure 3-161 Settings

< Settings	
Grid parameters	>
Protection parameters	>
Feature parameters	>
Time setting	>
Comm. 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.

# 3.5.4.1 Setting Grid Parameters

## Procedure

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

### Figure 3-162 Grid parameters

< Grid parameters			
Grid code	CHINA-GBT34120- MV800 >		
Output mode	Three-phase three-wire		
Isolation	Input ungrounded(with TF)		
Auto start upon grid recovery			
Grid connection delay after grid recovery	60 s >		
Quick startup for short- time grid disconnection	$\bigcirc$		
Grid reconnection voltage upper limit	880.0 V >		
Grid reconnection voltage lower limit	680.0 V >		
Grid reconnection frequency upper limit	50.20 Hz >		
Grid reconnection frequency lower limit	49.50 Hz >		

----End

# 3.5.4.2 Setting Protection Parameters

## Procedure

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

### Figure 3-163 Protection parameters

< Protection parameters	
Insulation resistance protection threshold	0.050 MQ >
Anti-islanding protection	>
Voltage protection	>
Overvoltage protection	>
Undervoltage protection	>
Overfrequency protection	>
Underfrequency protection	>

### ----End

# 3.5.4.3 Setting Feature Parameters

## Procedure

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

### Figure 3-164 Feature parameters

< Feature parameters	5
Communication failure settings	>
Soft start time	20 s >
Shutdown gradient	50.000 %/s >
Hibernate at night	$\bigcirc$
Upgrade delay	$\bigcirc$
HVRT/LVRT	>
Frequency control	>

----End

# 3.5.4.4 Setting the Time

# Procedure

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

<	Time setting
Time zone	(UTC+08:00)Beijing $\smallsetminus$
Time setting	23-Apr-2023 00:05:20 >
End	

### Figure 3-165 Time setting

# 3.5.4.5 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

# **3.5.4.6 Setting Communications Parameters**

# Procedure

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

Figure 3-166 Comm. parameters



----End

# 3.5.5 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.

### Figure 3-167 Maintenance

< Maintenance		
Device Name F	PCS001	>
Upgrade device		>
Log management		>
Inspection		>
Change WLAN password		>
<b>Power On/Off</b> Standby : initialization	$\bigcirc$	
Restore defaults		>
Clear alarms		>
Adjust total energy yield		>
Correction of accumulated absorbed energ	an An	>
Reset		>
Physical location	6	>

# 3.5.5.1 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, you have copied the upgrade package to the **Android/ data/com.huawei.inverterapp/files/** directory on the mobile phone. The upgrade package must be a .zip file.

# Procedure

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

Figure 3-168 Upgrading the Smart PCS

<	Upgrade device	
PCS update	Upgrade	
Current version:FusionSolar V800R021C10SPC030		

- **Step 2** Access the device upgrade screen and tap **Upgrade**.
- **Step 3** Perform operations as prompted.

----End

# 3.5.5.2 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 3-169 Log download





### 

- 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

# 3.5.5.3 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 3-170 Device inspection



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

<	Inspection	$\bigcirc$
Inspection	type	Inspection $\checkmark$
UNA V	2000-200KTL-H0 /aiting for inspect	0%
Inspec	tion type	
O In	spection	
() Q	uick inspection	
	Cancel	Confirm

Figure 3-171 Inspection types

----End

# 3.5.5.4 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

# 3.5.5.5 Power-On/Off

# Procedure

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

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

Step 3 Enter the app login password and tap OK.

----End

# 3.5.5.6 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

# 3.5.5.7 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

# 3.5.5.8 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

# 3.5.5.9 Device Name Change

- **Step 1** On the home screen, tap **Maintenance** to access the maintenance screen.
- **Step 2** Tap a device name to change it.

K Maintenance		
Device Name	PCS001	>
Upgrade device		>
Log management		>
Device Name C P s C Cancel Conf Clear alarms	irm	
Adjust total energy yield		>
Correction of accumulated absorbed ene	ergy	>
Reset		>
Physical location	6	>

### Figure 3-172 Changing a device name

----End

# 3.5.5.10 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.

- 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**.

-	, 5	3, ,	
	Maintenance		
		500004	`
Dev	ICE NAME	PCS001	/
Upc	Irade device		>
Log	management		>
Ir			
	Adjust total energy yield(kWh	)	
С	Range[0.00, 42949600.00]		>
Ρ			
S			/
R	Enter a valid value		>
	Cancel Con	firm	
Clea	ar alarms		>

### Figure 3-173 Adjusting total energy yield

# 3.5.5.11 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.

- 1. On the home screen, tap **Maintenance** to access the maintenance screen.
- 2. Tap Correction of accumulated absorbed energy.
| <                           | Maintenance                                                                                            |          |
|-----------------------------|--------------------------------------------------------------------------------------------------------|----------|
| Devi                        | ice Name                                                                                               | PCS001 > |
| Upg                         | rade device                                                                                            | >        |
| Log                         | management                                                                                             | >        |
| Ir<br>C<br>P<br>S<br>R<br>R | Correction of accumulated absorenergy(kWh) Range[0.00, 42949600.00] Enter a valid value Cancel Confirm | m        |

#### Figure 3-174 Correction of accumulated absorbed energy

# 3.5.5.12 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**.

< Maintenance		
opgrade device		1
Log management		>
Inspection		>
Change WLAN password		>
O&M via USB connection		
Always ON		
OFF in idle state		
Cancel Co	onfirm	
Correction of accumulated absorbed	energy	>
Reset		>
Physical location	6	>
O&M via USB connection	OFF in idle state	>

# 3.5.5.13 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**.

< Maintenance				
Device Name PCS00	1)			
Upgrade device	>			
Log management	>			
Physical location C Range[1, 65534]	-> >			
P 6 S Valid value R Cancel Confirm	)			
Clear alarms	>			
Adjust total energy yield	>			
Correction of accumulated absorbed energy				
Reset	>			
Physical location	6 >			

#### Figure 3-175 Physical location

# 3.5.6 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**.

#### Figure 3-176 Power adjustment

< Power adjustment	
Remote control	>
Active power	>
Reactive power	>
Q-U characteristic curve	>
PF-U curve	>
Cosφ-P/Pn characteristic curve	>

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

----End

# **3.6 Operations on the Screen for Connecting to the Central Monitoring Unit**

# 3.6.1 Connection Mode

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

# **3.6.2 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.

<	
Connect	
(Manual connection)	

Figure 3-177 Connect

Connection record

- 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.

< Manual connection						
Select connection mode						
🛜 WLAN						
<b>_</b>	SmartLogger 1000A	SmartLogger 3000	USB-Adapter 2000-C	SDongleA -WLAN-FE		
Bluetooth						
SmartLogger USB-Adapter2000-B						
USB data cable						

#### Figure 3-178 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.

#### Figure 3-179 Login

<	Identity authentication					
SN:XXXXXXXXXXX						
	Enter your p	assword.	*			
	Cancel	Log in				

#### 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

# 3.6.3 UI Operations (user)

# 3.6.3.1 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 3-180 Home screen

< LUNA2000-2 onl	C LUNA2000-2.0MWH-1H0 Online •					
<b>1.080</b> (kW)	<b>90</b> (%)					
Charge power	SUC					
<b>0.00</b> (kWh)	0.00 (kWh)					
Current-day charge capacity	Current-day discharge capacity					
(P						
Alarm	Device monitoring					
,	Serves mentering					

**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.

# **3.6.3.2 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	3-181	Device	monitoring
--------	-------	--------	------------

< Device monitoring							
Chargeable capacity Dischargeable capacity							ity
,							
HVAC-12 HVAC-11	HVAC-10 H	IVAC-9	HVAC-8	HVAC-7			
ESR-6 ESR-5			ES	R-4	ESC-4	ESC-5 ESC-6	
ESR-1	ESR-2		ESR-3		ESC-1	ESC-2 ESC-3	HVAC-13
HVAC-1 HVAC-2	HVAC-3 H	IVAC-4	HVAC-5	HVAC-6			
<ul> <li>Normal</li> <li>Fa</li> <li>Loading</li> <li>S</li> </ul>	<ul> <li>Normal</li> <li>Faulty</li> <li>Offline</li> <li>Front side</li> <li>Front side</li> <li>Standby/Commanded shutdown/Others</li> </ul>						
Fire Suppression Status Fire Suppression Response							
Fire Suppression System Faulty						Faulty	
Fire Suppression Gas Discharge Status					Fire s ga	suppi is dis	ression charge
Fire Alarm State	us					Fire	e alarm
Water sensor status in the Norma					Normal		
Water sensor status in the Norma					Normal		
Control unit cabin door					Open		
Battery cabin door 1 Open							
iii) Summary			Etails		D	evice l	ist

- **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.

# 3.6.4 UI Operations (installer)

# 3.6.4.1 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 3-182 Home screen

< LUNA2000-2.0MWH-1H0 Online •				
<b>1.080</b> (kW)	<b>90</b> (%)			
Charge power	SOC			
<b>0.00</b> (kWh)	<b>0.00</b> (kWh)			
Current-day charge	Current-day discharge			
capacity	capacity			
<b>Lip</b> Alarm	Device monitoring			
<b>E</b>	र्ट्रे			
Maintenance	Settings 🕑			

**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.

# **3.6.4.2 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.

#### 3.6.4.2.1 Query

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

< Device monitoring						
Chargeable capacity Dischargeable capacity						
HVAC-12 HVAC-11	HVAC-10 HVAC-9	HVAC-8 HVAC-7				
ESR-6	ESR-5	ESR-4	ESC-4 ESC-5 ESC-5			
ESR-1	ESR-2	ESR-3	ESC-1 ESC-3 ESC-3 HVAC-13			
HVAC-1 HVAC-2	HVAC-3 HVAC-4	HVAC-5 HVAC-6				
<ul> <li>Normal ● Faulty ● Offline Front side ?</li> <li>Loading ● Standby/Commanded shutdown/Others</li> </ul>						
Fire Suppressic	on Status		Fire Suppression Response			
Fire Suppressic Fault Status	on System		Faulty			
Fire Suppressic Discharge Stati	on Gas us		Fire suppression gas discharge			
Fire Alarm State	us		Fire alarm			
Water sensor status in the Nor battery cabin						
Water sensor status in the Norma						
Control unit cal	oin door		Open			
Battery cabin door 1 Open						
) Summary	( De	etails	Device list			

Figure 3-183 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.

#### D NOTE

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

----End

#### 3.6.4.2.2 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

#### 3.6.4.2.3 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

#### 3.6.4.3 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.

#### **3.6.4.3.1 Setting Feature Parameters**

#### Procedure

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

#### Figure 3-184 Feature parameters



#### ----End

#### 3.6.4.3.2 Setting the Time

# Procedure

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

#### Figure 3-185 Time setting

<	Time setting
Time zone	(UTC+08:00)Beijing 🗸
Time setting	23-Apr-2023 00:05:20 >

#### Table 3-12 Time setting

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

----End

## **3.6.4.3.3 Setting Communications Parameters**

# Procedure

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

#### Figure 3-186 Comm. parameters

<	Communication settings	
RS485		>
Wired Netwo	ork	>
Device WLA	Ν	>

 Table 3-13 Communications parameter settings

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

----End

#### 3.6.4.3.4 Setting Ventilation and Exhaust

# Procedure

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



----End

#### 3.6.4.3.5 Setting Environment Parameters

# Procedure

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



# 3.6.4.3.6 Setting Fire Suppression

# Procedure

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

#### Figure 3-189 Fire Suppression



# 3.6.4.4 System Maintenance

# 3.6.4.4.1 Device Name Change

# Procedure

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

# Maintenance > **Device Name** Device logs > Upgrade device > Device magt > > **Device Layout** Restore defaults > > System reset Data clearance >

#### Figure 3-190 Device name

----End

# 3.6.4.4.2 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 **III** 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.

# 3.6.4.4.3 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 3-191 Upgrade device

<	Upgrade device	+
CMU (1)		^
CMU Current versio V800R021C10	n: FusionSolar ISPC100	•
ESU (1)		$\wedge$
ESU-1		٠
Current versio V800R021C10	n: FusionSolar SPC100	

- **Step 2** Tap **I** 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

#### 3.6.4.4.4 Device Management

## 3.6.4.4.4.1 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.

 ✓
 Device management
 ....

 ESU
 Q. Search for device

 ESU-1
 ....

 SN:1025B0106000
 ....

 IP address: 192.168.0.10
 ....

 Meter
 ....

----End

#### 3.6.4.4.2 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 3-193 Search for device

< Device ma	nagement ····
ESU	Q Search for device
ESU-1 SN:1025B0106000	⊕ Add Devices
IP address: 192.168.0.10	🔟 Delete device
Meter	1pcs A
Matar	0
End	



## 3.6.4.4.3 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 3-194 Delete device

< Device ma	nagement …
ESU	Q Search for device
ESU-1 SN:1025B0106000	⊕ Add Devices
IP address: 192,168.0.10	Delete device
Meter	1pcs 🔨
20122-0164	

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

#### **NOTE**

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

----End

#### 3.6.4.4.5 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 3-195 Device Layout

onditione	r Binding								E
HVAC-12	HVAC-11	恭 HVAC-10	HVAC-9	* HVAC-8	HVAC-7		V/////		
ES	R-6	ES	R-5	Es	SR-4	ÉSC-4	ESC-5	ESC-6	
( ES	<mark>)</mark> <sub>ir-1</sub>	ES	R-2	ES	5R-3	ESC-1	ESC-2	ESC-3	HVAC-13
HVAC-1	HVAC-2	HVAC-3	HVAC-4	HVAC-5	HVAC-6				

**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**.

SN	Enter SN	63
	AC_V800R021C00BXX	(003

#### **NOTE**

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

# 3.6.4.4.6 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 3-196 Restore defaults

<	Maintenance	
Device Name		>
Device logs		>
Upgrade device		>
Device magt		>
Device Layout		>
Restore defaults		>
System reset		>
Data clearance		>

----End

#### 3.6.4.4.7 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.

<	Maintenance	
Device Name		>
Device logs		>
Upgrade device		>
Device magt		>
Device Layout		>
Restore defaults		>
System reset		>
Data clearance		>

#### Figure 3-197 System reset

----End

# 3.6.4.4.8 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 3-198 Data clearance

<	Maintenance	
Device Name		>
Device logs		>
Upgrade device		>
Device magt		>
Device Layout		>
Restore defaults		>
System reset		>
Data clearance		>

----End

# 3.7 Operations on the Screen for Connecting to the PID Module

#### NOTICE

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

# 3.7.1 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 3-199, Figure 3-200 and Figure 3-201 show the menu operation permissions of common users, advanced users, and special users respectively.

#### Figure 3-199 Operation permissions of common users



Figure 3-200 Operation permissions of advanced users



**NOTE** 

File save path is available only for Android system.



#### Figure 3-201 Operation permissions of special users

**NOTE** 

File save path is available only for Android system.

# 3.7.2 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.

<	
Connect	
(Manual connection)	

Figure 3-202 Connect

Connection record

- 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 3-203 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 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.

- 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.

#### 

- 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

# 3.7.3 Screen Operations (Common User)

# 3.7.3.1 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 3-204 Home screen

< F	PID
Working mode Automatic	Compensation Method N/PE
Alarm	Running Info.
COS Settings	<b>Ø</b> Maintenance
Upgrade device	Device logs

**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 is to set a time criterion. The historical alarms generated within the time segment are displayed.

# 3.7.3.2 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	3-205	User	parameters
--------	-------	------	------------

<	User Parameters
Date 2019-11-05	
Time 11:20:47	
User passwo	rd

#### D 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

# 3.7.3.3 Maintenance

# 3.7.3.3.1 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 3-206 Feedback

<		PID Online_*	-
1		Feedback	C
	Automatic	⑦ Help	
		④ About	

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

Figure 3	3-207	Problem	record
----------	-------	---------	--------

< Problem record	
*Specify the type	>
*Description (12/200 werds)	
Briefly describe the problem.	
Upload image (0/20)	
+	
Upload log (08/20MB)	Ð
Submit	

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



# 3.7.3.3.2 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	3-208	Help
--------	-------	------

<		PID Online *	
		Feedback	C
	Working mode Automatic	⑦ Help	
		(i) About	
		(i) About	

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

Figure 3-209 Help 2		
<	Help	
<b>Ο</b> Bearch		
How Should	I Change the Password?	
How Should	d I Set the System Date and Time?	

----End

# 3.7.3.3.3 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 3-210 About

<	PID Online *		1
C.		E Feedback	)
	Automatic	⑦ Help	
		() 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.

# 3.7.4 Screen Operations (Advanced User)

# 3.7.4.1 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.

<	c	PID
	Working mode Automatic	Compensation Method N/PE
	Alarm	Running Info.
	रिंट्रे Settings	<b>K</b> aintenance
	Upgrade device	E Device logs

Figure 3-211 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.



# 3.7.4.2 Settings

#### 3.7.4.2.1 Setting Protection Parameters

#### Procedure

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

#### Figure 3-212 Protection parameters



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	<ul> <li>The default value is 500 V.</li> <li>For the 1500 V SUN2000, the recommended value is 800 V.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul>
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.

Table 3-14 Parameter description

# 3.7.4.2.2 Setting Feature Parameters

# Procedure

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

#### Figure 3-213 Feature parameters

< Feature Parameters	
Offset mode	
N/PE	$\vee$
Compensation offset voltage(V) 50.0	
PV module compensation voltage direction	
PV-positive offset	$\sim$
Modbus version number	
D2.0	$\sim$
IMD access	
Periodic PID runtime(Min)	
60	
Periodic IMD runtime(Min)	
15	

 Table 3-15
 Parameter description

No.	Parameter	Description	Unit	Remarks
1	Offset mode	Specifies the compensation mode of the PID module.	-	<ul> <li>Select <b>Disable</b> if the PID module is not required.</li> </ul>
				<ul> <li>Select N/PE if the PID module is required to use voltage output from the power grid.</li> </ul>
No.	Parameter	Description	Unit	Remarks
-----	----------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------	------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
2	Compensatio n offset voltage	Specifies the compensation offset voltage between PV and the ground after the PID module operates stably.	V	<ul> <li>If PV module compensation voltage direction is set to PV- positive offset, this parameter specifies the positive voltage between PV- and the ground.</li> <li>If PV module compensation voltage direction is set to PV+ negative offset, this parameter specifies the negative voltage between PV+ and the ground.</li> <li>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 output voltage.</li> </ul>
3	PV module compensatio n 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.	-	<ul> <li>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.</li> <li>NOTICE You can set Periodic PID runtime and Periodic IMD runtime only when IMD access is set to Enable.</li> <li>Select Disable if you forbid the access of IMDs.</li> </ul>
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

## 3.7.4.2.3 Setting User Parameters

## Procedure

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

#### Figure 3-214 User parameters

<	User Parameters
Date 2019-11-05	
Time 11:22:21	
User passwo	rd

#### **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

## 3.7.4.2.4 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 3-215 Communications parameters

<	RS485
Baud rate(bps)	
9600	$\vee$
RS485 protocol	
MODBUS RTU	$\vee$
Parity	
None	$\vee$
Com address 212	

----End

## 3.7.4.2.5 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 3-216 File save path



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

----End

## 3.7.4.3 Maintenance

#### 3.7.4.3.1 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.

<	Download logs
	Select all
H	istorical alarms
al	armg_history.emap
A	ctive alarms
al	armg_active.emap
0	peration log
u:	srmg_usrlog_2.emap
R	unning log In_log.emap
D	SP log A
d:	sp_log.a
D	SP log B
d:	sp_log.b
0	ther logs
hi	s_inv_rd.emap
O	ther logs
d:	sp_wave_data.emap

#### Figure 3-217 Downloading logs

#### **Step 2** Download log files as required.

📩 Download file

#### **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

#### 3.7.4.3.2 System Maintenance

#### Procedure

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

5		
<	Maintenance	
Setting work m	ode	>
Power on		۲
Power off		۲
Reset		۲
Data clear		۲
Restore defau	lts	۲

#### Figure 3-218 Maintenance

#### Step 2 Tap Setting work mode to set working mode parameters.

## Figure 3-219 Setting work mode

<	Setting work mode	
Workin	ng mode	
Automa	atic	$\sim$
Output	t voltage (v)	
0.0		
Output	t current (mA)	
0		
Device	es status	
Shutdo	own: Fault	

# Step 3 Tap Device 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

#### 3.7.4.3.3 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 3-220 PID Upgrade



----End

## 3.7.4.3.4 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 3-221 Feedback

<	l	PID
		Feedback
	Working mode Automatic	⑦ Help
		(i) About

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

< Problem record	
*Specify the type	>
*Description (0/200 words)	
Briefly describe the problem.	
Upload image (0/20)	
Upload log (BE/ZD/MB)	î 🕈
Submit	

#### Figure 3-222 Problem record

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



## 3.7.4.3.5 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 3-223 Help

<	Q	PID
		Feedback
	Working mode Automatic	⑦ Help
		(i) About

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

#### Figure 3-224 Help 2

<	Help
O, þ	earch
How S	hould I Change the Password?
How S	hould I Set the System Date and Time?

#### ----End

#### 3.7.4.3.6 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 **Step 1** > **About** to view the app version, connected product model, SN, firmware version, software version, and technical support website.

#### Figure 3-225 About

N	PID Online *	
		Feedback
Auton	natic	⑦ Help
		(i) 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

## 3.7.5 Screen Operations (Special User)

## 3.7.5.1 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 3-226 Home screen

< ,	PID
Working mode Automatic	Compensation Method N/PE
<b>L</b> arm	ििं∔ी Running Info.
Çî Settings	(2) Maintenance
Upgrade device	Device logs

**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 is to set a time criterion. The historical alarms generated within the time segment are displayed.

----End

## 3.7.5.2 Settings

## 3.7.5.2.1 Setting User Parameters

## Procedure

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

Figure 3-227 User parameters

<	User Parameters
User passwo	rd

#### **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

#### 3.7.5.2.2 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 3-228 File save path

<	Path Settings
File save	bath
/storage/e sun2000aj	mulated/0/inverterapp/ op_download/

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

----End

## 3.7.5.3 Maintenance

## 3.7.5.3.1 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 3-229 Downloading logs

<	Download logs
Select a	ll
Historica	al alarms
alarmg_h	istory.emap
Active al	arms
alarmg_a	cctive.emap
Operatio	n log
usrmg_u	srlog_2.emap
Running	log
run_log.e	map
DSP log	A
dsp_log.a	a
DSP log dsp_log.l	B
Other log	gs
his_inv_r	d.emap
Other log	gs
dsp_wav	e_data.emap



**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

## 3.7.5.3.2 System Maintenance

## Procedure

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

#### Figure 3-230 Maintenance

<	Maintenance	
Power on		
Power off		
Data clear		

**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

## 3.7.5.3.3 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 3-231 PID Upgrade



----End

#### 3.7.5.3.4 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	3-232	Feedback
--------	-------	----------

<		PID Online	ę
1		Peedback	C
	Automatic	⑦ Help	
		(i) About	

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

< Problem record	
*Specify the type	>
*Description (0/200 words)	
Briefly describe the problem.	
Upload image (0/20)	
+	
Upload log (OB/ZDMB)	•
Submit	

#### Figure 3-233 Problem record

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



## 3.7.5.3.5 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 3-234 Help

<	Q	PID
		Feedback
	Working mode Automatic	⑦ Help
		(i) About

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

#### Figure 3-235 Help 2

<	Help
O þe	arch
How Sh	ould I Change the Password?
How Sh	ould I Set the System Date and Time?

#### ----End

## 3.7.5.3.6 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 3-236 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

## 3.8 Smart Dongle

After logging in to the app, you can view the number of inverters connected to the Smart Dongle on the home screen.

## 3.8.1 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

## 3.8.2 Maintenance

## 3.8.2.1 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.		
	<ul> <li>Select an appropriate power meter based on the application scenario. The device model is subject to change. The actual product may vary.</li> </ul>		
	<ul> <li>Set the power meter model correctly. Otherwise, the power meter function may be unavailable.</li> </ul>		
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

## 3.8.2.2 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 must be 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

## 3.8.2.3 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.

#### **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

## **3.8.2.4 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**.

## 3.8.2.5 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.

## 3.8.3 Settings

## **3.8.3.1 Setting Communications Parameters**

## Procedure

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

## 3.8.4 Power Adjustment

## 3.8.4.1 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

## 3.8.4.2 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

## 3.8.4.3 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

 Choose Power adjustment > Shutdown at high feed-in power. The Shutdown at high feed-in power screen is displayed.

Table 3-16 Shutdow	n at high	feed-in	power
--------------------	-----------	---------	-------

Parameter	Description
Shutdown at high feed-in power	<ul> <li>The default value is <b>Disable</b>.</li> <li>If this parameter is set to <b>Enable</b>, 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.</li> </ul>
Upper feed-in power threshold for inverter shutdown	The default value is <b>0</b> . 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	<ul> <li>The default value is 20. This parameter specifies the duration threshold of high feed-in power for triggering inverter shutdown.</li> <li>When High feed-in power duration threshold for triggering inverter shutdown is set to 5, Shutdown at high feed-in power takes precedence.</li> <li>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).</li> </ul>

## 3.8.4.4 Dry Contact Scheduling Settings

## Procedure

Step 1 On the home screen, choose Power adjustment > Dry contact scheduling
 settings.

----End

## 3.9 STS

## 3.9.1 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

## 3.9.2 Maintenance

## 3.9.2.1 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.
  - 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

## 3.9.2.2 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.

- 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

#### 3.9.2.3 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

#### 3.9.2.4 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

#### 3.9.2.5 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

## 3.9.2.6 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

## 3.9.2.7 O&M via WLAN Connection

## Context

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.

## Procedure

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

## 3.9.2.8 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

## 3.9.2.9 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

## 3.9.3 Settings

## 3.9.3.1 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

## 3.9.3.2 Time Settings

## Procedure

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

----End

## **3.9.3.3 Communications Parameters**

## Procedure

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

----End

## 3.10 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.

## 3.10.1 Connecting to a Charger

- 1. Log in to the FusionSolar app and choose Services > Device Commissioning.
- 2. Connect to the WLAN of the charger as prompted.



#### D 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.
- 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.
- 3. Select a login user and enter the password.

#### **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.

## 3.10.2 I'm an Installer

You can perform wizard-based commissioning on the FusionSolar app to monitor the overall running status of the charger. If a device is faulty, you can perform O&M on the app.

After logging in to the app, you can view the running KPIs of the charger on the home screen.

Home		
	Offline • Status	My Charging Pile Alias *********** SN
Realtime [	Data	
Available Working S	tatus	Normal Charge Working Mode
<b>22.0 kW</b> Maximum Power	Dynamic	0.0 kW Charge Power
XXX V Phase L1 \	/oltage	<b>0.0 A</b> L1 Output Current
XXX V Phase L2 \	/oltage	<b>0.0 A</b> L2 Output Current
XXX V Phase L3 \	/oltage	<b>0.0 A</b> L3 Output Current
<b>A</b> Hardware	Version	
1 Home	A	larm Maintenance

#### Figure 3-237 Home screen

## 3.10.2.1 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 3-238 Charger FE port directly connected to a meter

For details about the commissioning procedure, see **Charger FE Port Directly Connected to a Meter**.





For details about the commissioning procedure, see **Charger FE Port Directly Connected to a Router**.



Figure 3-240 Charger connected to a router through WLAN

For details about the commissioning procedure, see **Charger Connected to a Router Through WLAN**.

## 3.10.2.1.1 Charging-only

#### **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 3-241 Charger FE port directly connected to a meter



For details about the commissioning procedure, see **Charger FE Port Directly Connected to a Meter**.





For details about the commissioning procedure, see **Charger FE Port Directly Connected to a Router**.



Figure 3-243 Charger connected to a router through WLAN

For details about the commissioning procedure, see **Charger Connected to a Router Through WLAN**.

#### 3.10.2.1.1.1 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.



- 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.
- 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**.

← Log In	
SN:XXXXXXXXXXXXXX	
Installer	•
password	Ś
Log In	

#### D 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.

4. Tap **Finish** and connect devices to a plant as prompted. For details, see Connecting to a Plant.

#### 3.10.2.1.1.2 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.



- 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.
- 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**.

← Log In	
SN:XXXXXXXXXXXXX	
Installer	•
password	Ŕ
Log In	

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.



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.

4. Tap **Finish** and connect devices to a plant as prompted. For details, see Connecting to a Plant.

#### 3.10.2.1.1.3 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.



- 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.
- 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**.
| ← Log In         |   |
|------------------|---|
| SN:XXXXXXXXXXXXX |   |
| Installer        | • |
| password         | Ŵ |
|                  |   |
| Log In           |   |
|                  |   |
|                  |   |
|                  |   |
|                  |   |
|                  |   |

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.



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.

4. Tap **Finish** and connect devices to a plant as prompted. For details, see Connecting to a Plant.

# 3.10.2.1.2 PV+ESS+Charger (Smart Dongle/Inverter WLAN Direct Connection Scenario)

The charger 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.

 For details about PV+ESS device deployment and commissioning, see FusionSolar App Quick Guide, or scan the QR code to obtain the corresponding quick guide.



If a virtual meter is used for a charger, 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**.

< Settings		Communication configuration			< Dongle parameter sett	ings
Grid parameters	>	Inverter WLAN settings	>		Start address for automatic address allocation	1 >
Protection parameters	>	Router connection settings	>	ſ	Modbus TCP	>
Feature parameters	>	RS485_1	>			
Power adjustment	,	Management system	>		$\bigcirc$	
Time setting	>	Dongle parameter settings	>			
Communication configuration	>	Parallel system communica	>			
	)					

- 2. Commission the charger by referring to **3.10.2.1.1 Charging-only**.
- 3. Connect the charger to the created PV plant by referring to Connecting to a Plant.

#### 3.10.2.1.3 PV+ESS+Charger/ Charging-only (EMMA Scenario)

The charger can be connected to the same router as the EMMA over WLAN or FE. As one of the home loads, the charger is managed and controlled by the EMMA. After the deployment and commissioning on the EMMA side are complete, the charger can be connected to the management system. You do not need to perform deployment and commissioning on the charger separately.

For details about EMMA deployment and commissioning, see **FusionSolar App Quick Guide (EMMA)**, or scan the QR code to obtain the corresponding quick guide.



D NOTE

- If there is only one charger, it can be directly connected to the EMMA through the FE port or connected to the router through the FE or WLAN port.
- If there are two chargers, connect the FE ports of the two chargers to the router. Do not connect one charger to the router over wired network (FE) and the other charger over WLAN.

#### 3.10.2.2 Alarm Management

1. On the home screen of the app, tap **Alarm** to view active and historical alarms.

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

- Tap an alarm record to view the alarm details. Tap **Clear** in the alarm details to manually clear the alarm.
- Tap  $\mathcal{D}$  to view historical alarms.

#### 3.10.2.3 O&M Management

On the home screen, tap **O&M** to set charger parameters.

Parameter	Description	Remarks
Log management	Download app operation logs and charger run logs.	If log export is abnormal or failed, try again.
Upgrade Management	Upgrade the charger software version.	The iOS system does not support adding an upgrade package manually. Save the upgrade package to the installation path before upgrade. For details, see 4.7 What Should I Do If the Upgrade Package Obtained from an iPhone Cannot Be Selected on the Upgrade Screen?
Earthing System	Grounding mode of the charger.	-
Derated charge current	Minimum charge current of the charger.	When the charger detects that the power meter is disconnected, the charger switches to the minimum charge current mode.
Maximum Dynamic Power	Maximum charge power that can be set by the owner.	Not greater than <b>Maximum Power</b> set by the installer.
Maximum Power	Maximum charge power of the charger that can be set by the installer.	Not greater than the rated power of the charger.
Maximum Current of Charging Cable	Charge current of the charging connector.	-
Third-party management system	<b>TCP-Modbus Settings</b> : After this function is enabled, the IP address and port for connecting the charger to a third-party network management system (NMS) or controller can be set. <b>NOTE</b> Used only for connecting the charger to a third-party NMS or controller.	-

Parameter	Description	Remarks
	<b>OCPP Settings</b> : Configure the IP address and port number of the OCPP.	-
Login Password	Change the user login password for the current charger on the app.	<ul> <li>Ensure account security by changing the 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.</li> <li>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 4.2 How Do I Reset the Default Password of a Charger Using an RFID Card When I Forgot the Password?</li> </ul>
Date and Time	Set the date and time of the charger.	-
Route Management	Set the information about the router connected to the charger.	-
Security Settings	<b>Certificate management</b> Manage device certificates, ensure certificate security, and replace certificates before they expire.	-
	Communication using expired certificate After this function is enabled, if a certificate expires and is not replaced in a timely manner, the user can choose to continue using the certificate (insecure).	-
	Anti-rollback After this function is enabled, the user cannot roll back the software version to an early version.	-
Restore defaults	Restore the charger parameters to factory settings.	After factory settings are restored, historical charging records, schedule records, app login and WLAN passwords, alarms, and management system access passwords of the charger will be cleared.

### 3.10.3 I'm an Owner

You can set parameters on the FusionSolar app, such as charge, card management, whether to lock the charging connector, and router and power meter settings.

#### 3.10.3.1 Starting and Stopping Charging on the App

#### Precautions

Before charging, you need to completely insert the charging connector into the charger and vehicle. 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 vehicle.

#### **Starting Charging**

On the charger screen, choose **Charge Now** > **Start Charging**. If the indicator on the charger turns blue on and off cyclically (on for 0.5s and off for 0.5s), the charger is in the charging state.



#### **Stopping Charging**

After the vehicle is fully charged, the charger automatically stops charging. In this

case, the indicator is steady blue. You can also press and hold on the app to stop charging.

#### 3.10.3.2 Plug-and-Play Charging

After the charging connector is inserted into the charging port of a vehicle, the charger automatically starts and stops charging.

#### Precautions

To use plug-and-play charging, disable the **Identity Authentication** function. However, unauthorized charging may occur.

#### **Starting Charging**

Insert the charging connector completely into the charger and the charging port of a vehicle. If the indicator on the charger turns blue on and off cyclically (on for 0.5s and off for 0.5s), the charger is in the charging state.

#### **Stopping Charging**

After the vehicle is fully charged, the charger automatically stops charging. In this

case, the indicator is steady blue. You can also touch and hold or swipe the RFID card in the swiping area to stop charging.



#### 3.10.3.3 Starting and Stopping Charging Using an RFID Card

#### Precautions

- Before charging, ensure that you add an RFID card to the system.
- Before charging, you need to completely insert the charging connector into the charger and vehicle. 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 vehicle.

#### **Starting Charging**

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.

Figure 3-244 Charging by card swiping



#### **Stopping Charging**

After the vehicle is fully charged, the charger automatically stops charging. In this case, the indicator is steady blue. You can also swipe the RFID card in the swiping area to stop charging.

#### 3.10.3.4 Scheduled Charging

You can use the scheduled charging function to charge your car during off-peak hours to save electricity fees.

#### Precautions

Before charging, you need to completely insert the charging connector into the charger and vehicle. 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 vehicle.

#### **Charging Procedure**

- 1. On the charger screen, tap **Scheduled Charging**.
- 2. Tap **Schedule**. 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.

$\leftarrow$ Charger ::
Scheduled Charging Charge Now
Schedule

#### Setting the Scheduled Charging Time

- 1. On the charger screen, tap :: > **Settings** > **Scheduled Charging**.
- Tap  $^{\textcircled{}}$  to set the charging start time and end time.
- Tap a scheduled charging plan to edit it.

$\leftarrow$ Scheduled Charging	(†) M
10:00 - 16:00 Ø 22.0 kW   Sat,Sun	
<b>22:00 - 06:00 the next day</b> 22.0 kW   Mon,Tue,Wed,Thu,Fri	

• Select a plan you want to delete, press and swipe left, and tap 🔨 to delete the scheduled plan.



#### 3.10.3.5 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, enable **Identity Authentication** in **::** > **Settings** > **Advanced Settings**.

#### Adding an **RFID** Card

- 1. On the charger screen, tap **Settings** > **Card Management**.
- 2. In the upper right corner of the **Card Management** screen, tap and select a mode to add a card.
  - 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 **OK**

← Ca	rd Management	Ð
	REID	
Card	l swiping authenti	cation
Swipe the car charger to au name.	d at the indicated positio tomatically obtain the car	n on the rd number and
Card No	Reading	$\odot$
Card Name	Reading	$\odot$
Manually	add card	
	Cancel	

Figure 3-245 Swiping

- Manually adding

Enter the card number and user-defined name of the RFID card, and tap **OK**.

← Card Management	÷
Card 11*****38	•
Add Card	
Card No Enter	
Card NameEnter	
Cancel OK	

#### Figure 3-246 Manually adding

#### **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.



You cannot delete all added RFID cards. At least two RFID cards must be retained.

#### 3.10.3.6 Viewing Charging Records

On the charger screen, tap **Charging Record** to view the charging records of the past six months.

	ging record	
All periods	•	
0.0 kWh		Terminated manually
Start Time 2	28/08/2023 18:02:04	
Charge time	15min	
User U	ser	
0.0 kWh		Terminated manually
Start Time 2	28/08/2023 17:59:13	
Charge time	1min	
User		
		Terminated manually
0.0 kWh		Terminated manually
0.0 kWh Start Time 2	28/08/2023 17:56:24	Terminated manually
0.0 kWh Start Time 2 Charge time	28/08/2023 17:56:24 2min	renninated mandany
0.0 kWh Start Time 2 Charge time User	28/08/2023 17:56:24 2min	reminateu manuany
0.0 kWh Start Time 2 Charge time User	28/08/2023 17:56:24 2min	Terminated mandany
0.0 kWh Start Time 2 Charge time User 07/2023	28/08/2023 17:56:24 2min -	Terminated mandally
0.0 kWh Start Time 2 Charge time User 07/2023	28/08/2023 17:56:24 2min	Terminated mandally
0.0 kWh Start Time 2 Charge time User	28/08/2023 17:56:24 2min	

#### 3.10.3.7 Upgrading the Charger Software Version

#### Prerequisite

You have copied the upgrade package to the storage directory of the mobile phone that connects to the charger.

#### Procedure

1. On the charger screen, tap **::** > **Settings** > **Upgrade Management**.



#### D NOTE

The iOS system does not support adding an upgrade package manually. Save the upgrade package to the installation path before upgrade. For details, see **4.7 What Should I Do If the Upgrade Package Obtained from an iPhone Cannot Be Selected on the Upgrade Screen?** 

#### 3.10.3.8 More Settings

#### **Changing a Device Name**

- 1. On the charger screen, choose **::** > **Settings** > **Device name**.
- 2. Enter the charger name and tap **OK**.

#### Maximum Dynamic Power (Maximum Charging Power)

Set the maximum charging power for the charger.

- 1. On the charger screen, choose **::** > **Settings** > **Maximum Dynamic Power**.
- 2. Enter the charge power value.

#### **NOTE**

The actual screen may vary. For some charger versions, **Maximum Charging Power**, but not **Maximum Dynamic Power**, is displayed.

#### **Password Management**

On the charger screen, tap :: > Settings > Password Management.
 Set the login password and WLAN password of the charger.

#### **NOTE**

Ensure account security by changing the password periodically. 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.

#### **Derated Charge Current**

This function is used to set the minimum charge current of the charger. When the charger detects that the power meter is disconnected, the charger switches to the minimum charge current mode.

- 1. On the charger screen, tap **::** > **Settings** > **Advanced Settings**.
- 2. Tap **Derated charge current** and enter the current value.

#### PV Power Configuration (Not Applicable to the EMMA Scenario)

Check Max Charging Power from Grid and Surplus Power to Start Charging.

- 1. On the charger screen, tap :: > Settings > Advanced Settings.
- 2. Tap **PV Power Configuration** and check **Max Charging Power from Grid** and **Surplus Power to Start Charging**.
  - Max Charging Power from Grid: This means the maximum power that the charger can draw from the power grid during charging in PV power mode.
  - Surplus Power to Start Charging: In PV power mode, when the PV feedin power is greater than this set value, the charger starts to charge the vehicle.
  - **Switch Between Single- and Three-Phase Power**: You are advised to enable this function in PV scenarios to increase the PV energy utilization.

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.

The temporary interruption of charging caused by switching between single- and three-phase power will not cause damage to the vehicle.

#### **Identity Authentication**

#### NOTICE

If identity authentication is disabled, the charger automatically starts charging after the charging connector is inserted into the charging port of a vehicle, which may result in unauthorized charging.

After identity authentication is enabled, you need to swipe a card for authentication before charging.

- 1. On the charger screen, choose **::** > **Settings** > **Advanced Settings**.
- 2. Enable or disable Identity Authentication.

#### Route Management

1. On the charger screen, tap :: > Settings > Advanced Settings.

2. Tap **Route Management** to set the route parameters for the charger.

#### **Charging Connector Locking Mode**

Set **Charging Connector Locking Mode** to lock the charging connector on the charger.

- 1. On the charger screen, choose **::** > **Settings**.
- 2. Tap **Charging Connector Locking Mode** to set the charging connector locking mode.

#### Anti-rollback

After this function is enabled, the user cannot roll back the software version to an early version.

- 1. On the charger screen, tap :: > **Settings** > **Security Settings**.
- 2. Enable or disable Anti-rollback.

#### **Restoring Factory Settings**

After factory settings are restored, historical charging records, schedule records, app login and WLAN passwords, and management system access passwords of the charger will be cleared.

- 1. On the charger screen, tap :: > Settings > Advanced Settings.
- 2. Tap **Restore defaults** and enter the current app login password.

### 3.11 SUN2000 APP Tool Kit

You can download the upgrade package for the distributed solar inverter, scan the solar inverter SN bar code.



Figure 3-247 Tool kit

### 3.11.1 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 3-248 File download

<	File download
🗹 Se	elect all
	) Device upgrade package(4MB)
	) Grid code(33KB)

- **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.

### 3.11.2 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 3-249, and that of the SUN2000-50KTL is shown in Figure 3-250.

Figure 3-249 SN label position on the SUN2000-33KTL



Figure 3-250 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**.

#### Figure 3-251 MBUS whitelist

K MBUS whitelist
File name
Enter the file name.
List of sound files
ConfigurationFile20191031102637.csv
DeviceInfo2102311NAE10G6000024.csv
Next

#### **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.

<	SN List	Save
Scanned:0		
Com address	SN	Device name
	No data	
		linout

- 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.

#### D 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*.

#### 3.11.3 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

### 3.11.4 About

#### Context

Checks the new app version, including **Terms of Use**, **Privacy Policy**, **Personal Data Collected**, **Customer service contact information**, and **Open source software notice**.

#### **NOTE**

- If you use the app for the first time or run the app for the first time after update, you need to agree to the **Terms of Use** and **Privacy Policy**.
- If you want to withdraw the authorization of the Terms of Use, choose ... > About > Terms of Use and tap Revoke in the upper right corner. After withdrawal, all exported log files will be cleared and you will exit this app. If you want to use this app later, you need to grant the authorization again.

#### Procedure

**Step 1** On the app connection screen, choose **...** > **About**.

< Abo	out	
<b>SUN2000</b> Version:6.24.00.***		
Technical support website:	https://solar.huawei.com	
Terms of Use	>	
Privacy Policy	>	
Personal Data Collected		
Customer service contact information		
Open source software notice		
Check for Updates	>	
Automatic Update Detection		

#### Figure 3-253 About

# 3.12 Setting the Password for Logging In to the Local Commissioning Screen

#### Context

After a new device is powered on for the first time or factory settings are restored, the password for logging in to the local commissioning screen of the device is in initial settings. You need to connect to the device and log in to the local commissioning screen to set the password.

#### NOTICE

- After completing the deployment settings, the installer should remind the owner to access the local commissioning screen of the device and set the login password of the owner account as prompted.
- Ensure account security by changing the password periodically. Your password might be stolen or cracked if it is left unchanged for extended periods. If a password is lost, the device cannot be accessed. In these cases, the Company shall not be liable for any loss.

#### Procedure

- 1. Log in to the FusionSolar app and choose **Services** > **Commission Device**.
- 2. Connect to the device WLAN as prompted.



3. Select a login user and set the login password as prompted.

**NOTE** 

- The last six digits of the device WLAN name are the same as the last six digits of the device SN.
- For the first connection, log in with the initial password. You can obtain the initial WLAN password from the label on the device.
- If the message **This WLAN network has no Internet access. Connect anyway?** 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.
- If the login screen is not displayed after you scan the QR code, check whether your phone is correctly connected to the device WLAN. If not, manually select and connect to the WLAN.

# **4**<sub>FAQs</sub>

# 4.1 How Do I Navigate to the Device Local Commissioning Screen?

- 1. Log in to the FusionSolar app and choose **Services** > **Device Commissioning**.
- 2. Connect to the device WLAN as prompted.



#### D NOTE

- The last six digits of the device WLAN name are the same as the last six digits of the device SN.
- For the first connection, log in with the initial password. You can obtain the initial WLAN password from the label on the device.
- Ensure account security by changing the password periodically. Your password might be stolen or cracked if it is left unchanged for extended periods. If a password is lost, the device 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 your phone is correctly connected to the device WLAN. If not, manually select and connect to the WLAN.
- If the message **This WLAN network has no Internet access. Connect anyway?** 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 a login user and enter the password.
- Log in to the charger local commissioning screen as the **Owner** user.

#### D NOTE

- Change the initial password as prompted at the first login. If the system does not prompt you to change the password, use the initial password to log in.
  - The initial password for a charger is **Changeme**.
  - The initial password for a PV device is **00000a**.
- Ensure account security by changing the password periodically. Your password might be stolen or cracked if it is left unchanged for extended periods. If a password is lost, the device cannot be accessed. In these cases, the Company shall not be liable for any loss.

# 4.2 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 in the **No Car Connected**, **Faulty**, or **Alarms** state.

#### Procedure

1. Swipe the card for five consecutive times (wait until the indicator flashes blue before you swipe the card again). Then, the indicator on the charger is steady white for 3s and the charger enters the swipe protection state. Stop swiping the card now.

#### D NOTE

- When swiping the card consecutively, keep the intervals within 5s.
- If you swipe your card in the swipe protection state, the swipe protection time will start again.
- 2. After 3s, the indicator flashes 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.



# 4.3 How Do I Connect to a Charger When I Cannot Log In to the FusionSolar App Due to Poor Network Connection?

#### D NOTE

Before connecting to the WLAN of the charger, disable the mobile network function and ensure that the mobile phone cannot connect to the Internet. When connecting to the WLAN of the charger, enable the WLAN as prompted.

- 1. On the app login screen, tap **::** > **Commission Device**.
- 2. Connect to the WLAN of the charger as prompted.



# 4.4 What Should I Do If the Charging Connector Cannot Be Removed From the Charger?

# Scenario 1: Charging Connector Cannot Be Removed After an AC Power Outage

Solution: Remove the charging connector only after the AC power supply is recovered and the charger enters the standby state.

#### **Scenario 2: Charging Connector Locked**

Solution:

- 1. Unlock the charging connector on the app.
  - a. On the **Overview** screen, tap **Settings**.
  - b. Disable Lock Charging Connector.
- 2. Insert the charging connector back into the charger. When you hear a **click**, remove the charging connector.

# 4.5 What Should I Do If the App Cannot Identity the Charger?

Upgrade the app to the latest version and reconnect to the charger.

# 4.6 Upgrading the Charger Software Version

#### 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**.
- You have copied the upgrade package to the storage directory of the mobile phone that connects to the charger.

#### Procedure

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



# 4.7 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.

Deselect All	1 Item		Done	Deselect All	1 Item	Done
Q Search				Q Search		
SUN2000LV2 00R0ge.zip 2022/10/11 2.1 MB				SUN2000LV2 00R0ge.zip 2022/10/11 2.1 MB		
_				zip SUN2000LV ZIP Archive · 2.	200R001C00SPC 1 MB	2124_p ×
				AirDrop Fusion	Solar More	
				Сору		Ф
				Quick Look		۲
1 item,	19.33 GB availa	ble		Add Tags		$\bigcirc$
Ċ <sub>n</sub> @		Ŵ	$\bigcirc$	Save to Files		
-4m)					2	

# 4.8 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

Log in to the FusionSolar app and choose Services > Device Commissioning
 .



2. On the connection record screen, select the connection record of the target device and tap 4 to copy the registration code and device information.

## 4.9 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.

# 4.10 How Do I Add or Delete an RFID Card?

#### Adding an **RFID** Card

- 1. On the charger screen, tap **Settings** > **Card Management**.
- 2. In the upper right corner of the **Card Management** screen, tap  $\bigoplus$  and select a mode to add a card.
  - 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 OK

#### Figure 4-1 Swiping



Manually adding

4 FAQs

Enter the card number and user-defined name of the RFID card, and tap

OK.				
Figure 4-2 Manually adding				
← Card M	/lanagem	ent	÷	
Card 11*****38				
Add Car	rd			
Card No	Enter		. 1	
Card Nam	<b>ie</b> Enter			
Cance	5]	OK		

#### **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.



You cannot delete all added RFID cards. At least two RFID cards must be retained.

## 4.11 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.

### 4.12 Why Is the Display of Some Screens Incomplete or Abnormal After I Enlarge the Font Size on My Phone?

#### **Possible Causes**

Some screens are not compatible with font adjustment. After the font size is set to a large value, the screen layout is abnormal.

#### Solutions

Adjust the font of your phone to the standard or default font before browsing.

# 4.13 How Can I Change the WLAN Password of a Device?

- 1. Access the FusionSolar app and tap **::** > **WLAN Configuration** on the login screen.
- 2. Connect to the WLAN of the device as prompted.
- 3. After the login is successful, the screen for resetting the WLAN password is displayed.

English 🔻	::	
	Help and Feedback	
	WLAN Configuration	
n_	Certificategement	
	Login setting	
Username or	Log Export	
Password	Commission Device	
No account?	Forgot password?	
Log In		
Demo site		
https://antoh	ill.fusionsolar.huawei.com	
## 4.14 What Should I Do If the Device Is Disconnected from the App When I Switch the Local Commissioning Screen to the Background?

#### Symptom

During local commissioning, you may need to switch the app to the background (for example, uploading an upgrade package, uploading a photo, or scanning a QR code for WLAN connection). When you switch back to the app screen, a message is displayed, indicating that the device is disconnected from the app and you need to log in again.

#### Solution

- 1. Tap **Settings** > **Apps & services**, and choose **App launch**.
- 2. Tap Manage manually > Run in background for the FusionSolar app.



#### **NOTE**

The menu name may vary according to the mobile phone brand.

# 4.15 What Can I Do If the Password Is Incorrect When I Connect to the Charger WLAN?

#### Solutions

- Check whether the initial password has been changed.
- Check whether the eight-character initial password that you entered is correct. Identify the initial password on the device nameplate and enter the password again.
- You are advised to scan the QR code to connect to the charger.

# 4.16 What Can I Do If the Optimizer Needs to Be Upgraded on the Quick Guide Screen?

During deployment as an installer, a message is displayed on the **Quick Guide** screen, indicating that the optimizer needs to be upgraded. Tap **Confirm** and wait until the optimizer upgrade is complete.

#### **NOTE**

- A message is displayed, indicating that you should switch to the mobile network to download the upgrade package.
- The optimizer upgrade takes a long time. Do not leave the upgrade screen until the upgrade is complete.

# 4.17 How Do I Download the Software Upgrade Package?

When the device can be updated to a new version, a message is displayed on the local commissioning screen of the device, indicating that a device file update is available. Download the upgrade package as prompted.



If no update message is displayed, tap ... > **File download** to manually check for updates.



# 4.18 How Do I Upgrade the Optimizer Software Version?

Log in to access the local commissioning screen of the device, tap **Maintenance** > **Upgrade device**, and then upgrade the optimizer.

K Maintenance	е		< Upgrade device	Download	< Select upgrade packag	е
Device name	Inverter-1 >		Inverter upgrade	Upgrade	Optimizer upgrade	
Model replacement	>		Current version: V100R001C00SPC148		Current VxxxRxxxCxx version:	
Optimizer layout Physical layout design of PV modules	>		Optimizer upgrade	Upgrade	Please select an	Mai
Subdevice management	>		Current version: V100R023C00B005		SUN2000PB_VxxxRxxxCxxSPCx_x_packa	ge.
Upgrade device		]	MBUS (DC)Upgrade	Upgrade	Tips	
Log management			Current version: V100R001C00SPC327		Optimizer upgrade	(
AFCI self-check					Stay on the current screen during th upgrade.	e
Adjust total energy yield	>					
Performance data	>					
Inverter ON/OFF Grid scheduling : Q-U curve		1				
Reset	>					
Restore defaults	>					
Clear alarms	>					

# 4.19 What Can I Do If the Upgrade Package Fails to Be Imported?

#### Symptom

The upgrade package downloaded to the storage directory of the mobile phone cannot be imported for upgrading the device software on the local commissioning screen, or the imported upgraded package is not displayed on the screen.

#### **Possible Cause**

During the import, a third-party file management app is used to query and select the upgrade package.

#### Solution

Use the pre-installed file management app in the mobile phone to query and select the upgrade package.

# **5** Related Information

## **5.1 Environment Parameters**

Parameter	Definition	Formula	Remarks
Global irradiation	Total solar radiation energy measured by an environmental monitoring instrument (EMI).	/	An EMI is required.
Average temperature	Average ambient temperature measured by the EMI in the plant.	/	
CO <sub>2</sub> avoided	Amount of $CO_2$ emitted by burning fossil fuel to produce the same amount of power generated by the plant. 1 kWh of power is equivalent to about 475 g of $CO_2$ emission (global average value).	Energy yield (kWh) of the plant x per kWh CO <sub>2</sub> emission (0.475)	If the value changes, contact the system administra tor to modify
Equivalent trees planted	Number of trees that can absorb the amount of $CO_2$ avoided by the plant. A tree absorbs 18.3 kg of $CO_2$ in one year and has a lifespan of 40 years.	CO <sub>2</sub> avoided/CO <sub>2</sub> absorbed by a tree in one year (18.3)/40	

Parameter	Definition	Formula	Remarks
Standard coal saved	Amount of standard coal needed to produce the amount of PV power generated by the plant. 0.4 kg of standard coal is needed to produce 1 kWh of power.	Energy yield (kWh) of the plant x Standard coal needed per kWh (0.4)	

# **5.2 Power Parameters**

Parameter	Definition	Formula	Remarks
Total string capacity	Total capacity of PV arrays installed in the PV plant.	Total capacity of the strings connected to all inverters	This parameter is configured during plant creation.
Power per MWp	Power generated per MWp.	Active power/Total string capacity x 1000	-
Theoretical yield (daily/ monthly/ yearly)	Theoretical amount of power that can be generated by the PV arrays installed in a plant.	Hourly: Hourly global irradiation x String capacity Daily: Daily irradiation x String capacity Monthly: Total theoretical yield of each day in a month Yearly: Total theoretical yield of each month in a year	An EMI is required.
PV output power	Total output power of PV arrays.	PV output power	-
PV yield	Total yield of PV arrays in a given reporting period.	Hourly: PV yield each hour Daily: PV yield each day Monthly: Total yield of each day in a month Yearly: Total yield of each month in a year	-

Parameter	Definition	Formula	Remarks
Inverter yield	Yield of a plant.	Hourly: Inverter output energy each hour	-
		Daily: Inverter output energy each day	
		Monthly: Total inverter output energy of each day in a month	
		Yearly: Total inverter output energy of each month in a year	
Total yield	Total output energy of the PV plant throughout the lifetime.	Total PV energy yield	-
Performance ratio	Ratio of measured output energy to total irradiation received by the plant.	PV energy yield/ Theoretical energy yield	An EMI is required
Specific energy	Ratio of the energy yield to the total string capacity.	PV energy yield/Total PV string capacity	-
Consumption (daily/ monthly/	Power consumed by the loads during a given reporting period.	Daily: Amount of power consumed by the loads each day	-
yearly)		Monthly: Total amount of power consumed by the loads each day in a month	
		Yearly: Total amount of power consumed by the loads each month in a year	
Fed to grid (daily/ monthly/ yearly)	Amount of power fed to the power grid from the plant in a give reporting period.	Daily: Amount of power fed to the grid from the plant each day	A power meter is required. Otherwise,
		Monthly: Total amount of power fed to the grid from the plant each day in a month	the amount of power purchased
		Yearly: Total amount of power fed to the grid from the plant each month in a year	from or fed to the grid cannot be displayed.

Parameter	Definition	Formula	Remarks
From grid (daily/ monthly/ yearly)	Amount of power purchased from the grid in a given reporting period.	Daily: Amount of power purchased from the grid each day Monthly: Total amount of power purchased from the grid each day in a month Yearly: Total amount of power purchased from the grid each month in	
Self- consumption (daily/ monthly/ yearly)	PV energy consumed by loads and charged to batteries. It includes the amount of PV power consumed directly by loads and the amount of PV power stored in batteries.	Daily: Daily PV yield – Daily feed-in to grid Monthly: Total amount of self-consumed power of each day in a month Yearly: Total amount of self-consumed power of each month in a year	-
From PV (daily/ monthly/ yearly)	Load consumption from PV. It includes the amount of PV power consumed directly by loads and the amount of PV power discharged from batteries.	Daily: Daily power consumption – Daily supply from grid Monthly: Total amount of self-supplied power of each day in a month Yearly: Total amount of self-supplied power of each day month in a year	-
Total consumption	Load consumption power.	Load consumption power	Supported when loads exist. Not supported when no load exits.

Parameter	Definition	Formula	Remarks
Consumed from PV	Power of PV energy consumed locally.	When feeding to the grid: PV output power – Feed-in power When purchasing power from the grid: PV output power	When the active power of the bi- directional meter is a positive value, the power is the feed-in power. When the active power of the bi- directional meter is a negative value, the power is the power of supply from the grid.
Battery charge/ discharge power	Battery charge/discharge power.	Battery charge/ discharge power	If the symbol before the power value is +, the battery is charging. If the symbol before the power value is -, the battery is dischargin g.

Parameter	Definition	Formula	Remarks
PV revenue	Revenues from photovoltaic power generation. It consists of two parts, which are revenue of power fed in to the grid and the saved electricity bills. Electricity prices need to be configured.	Revenue of power fed in to the grid (power fed to the grid x feed- in tariff)+ Saved electricity bills (self- supplied power x electricity price)	If the price unit is inconsisten t with the local type, contact the company administra tor to change the currency.
Grid Connection Duration	The time period during which the inverter is connected to the power grid.	Daily: daily on-grid duration Monthly: total daily on-grid durations in a month Year: total monthly on- grid durations in a year	The string capacity needs to be configured . If the string capacity is not configured , the calculated on-grid duration will be inaccurate.
Peak Power	Maximum active power of a plant in a statistical period.	Maximum active power of a plant in a statistical period	-
Load Rate	Ratio of the peak power to the string capacity of a plant in a statistical period.	Daily: Daily peak power/String capacity Monthly: Monthly peak power/String capacity Yearly: Yearly peak power/String capacity	The string capacity needs to be configured . The load rate can be calculated only when the string capacity is configured

Parameter	Definition	Formula	Remarks
Planned Yield	Planned energy yield in a statistical period.	Planned energy yield in a statistical period	Contact the system
Plan Completion Rate	Ratio of the actual feed- in energy to the planned yield of a plant in a statistical period.	Monthly: Monthly feed-in energy/Planned monthly yield Yearly: Yearly feed-in energy/Planned yearly yield	administra tor to configure the planned yield.

#### **NOTE**

Unless otherwise specified, the energy yield in this document refers to AC power yield.

## **5.3 Battery Parameters**

#### Battery parameter settings

Table 5-1	Battery	parameters
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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 <b>End-of-</b> <b>discharge SOC</b> to 0.
Charge from AC	If <b>Charge from AC</b> 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.

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	<ul> <li>This mode applies only to distributed scenarios.</li> <li>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.</li> </ul>

#### Table 5-2 Battery working modes

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 <b>Add</b> 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.)
	<ul> <li>In some countries, the grid is not allowed to charge batteries. In such case, this mode cannot be used.</li> </ul>
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. If the generated PV energy is sufficient, the energy is fed to the grid based on the 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.

Working Mode	Mode Description
TOU (fixed power)	<ul> <li>This mode applies the PV+ESS scenario and ESS-only scenario where peak to valley electricity prices are different and power meters are unavailable.</li> </ul>
	• 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 <b>Add</b> 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.
	<ul> <li>In some countries, the grid is not allowed to charge batteries. In such case, this mode cannot be used.</li> </ul>
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.

Working Mode	Parameter	Description	
ΤΟυ	Redundant PV energy priority	<ul> <li>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.</li> <li>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.</li> </ul>	
	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	
	End Time	and discharge. A maximum of 14 time segments can be set. You can set a cycle by week by clicking the buttons corresponding to <b>Mon.</b> through <b>Sun.</b> in the <b>Repeat</b> box.	
	Charge/ Discharge		
	Repeat		
TOU (fixed	Start Time	Specifies the start time, end time, and power	
power)	End Time	of charge and discharge. A maximum of 14 time segments can be set. You can set a cycl	
	Charge/ Discharge	by week by clicking the buttons corresponding to <b>Mon.</b> through <b>Sun.</b> in the <b>Repeat</b> box.	
	Fixed Charge/ Discharge Power		
	Repeat		
Fixed	Start Time	Specifies the start time, end time, and power	
discharge	End Time	10 time segments can be set.	
	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.	

**Table 5-3** Running parameters in each battery working mode

Working Mode	Parameter	Description
	Start Time	Specifies the start time, end time, and
	End Time	electricity price. This parameter is displayed when <b>Time-of-use price enable</b> is set to
Time-of-use Enable. A i be set.	<b>Enable</b> . A maximum of 10 time segments can be set.	

#### Table 5-4 Forced charge/discharge parameters

Parameter Name	Description
Charge/Discharge	Forced charge/discharge operation, which can be <b>Charge</b> , <b>Discharge</b> , or <b>Stop</b> .
Forced charge power/Forced discharge power	Specifies the forced charge/discharge power.
Setting mode	To enter the forced charge/discharge mode, set <b>Duration</b> or <b>Energy</b> .
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 <b>Setting mode</b> is set to <b>Energy</b> .
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	<ol> <li>Before enabling Peak Shaving, set Charge from AC to Enable.</li> <li>Before disabling Charge from AC, set Peak Shaving to Disable.</li> </ol>	<ul><li>Disable</li><li>Active Power Limit</li></ul>
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	-
End Time	end time. The peak power is	
Peak Power (kW)	configured based on electricity prices in different	[0.000, 1000.000]
Repeat	<ul> <li>time segments. You are advised to set the peak power to a low value when the electricity price is high.</li> <li>A maximum of 14 time segments can be set.</li> <li>You can set a cycle by week by clicking the buttons corresponding to Mon. through Sun. in the Repeat box.</li> </ul>	-

#### 

The peak shaving function is unavailable when the battery working mode is set to **Fully fed to grid**.

# **5.4 Commercial Smart Inverters Parameters**

## 5.4.1 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.

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 <b>PQ mode 1</b> , the maximum AC output power equals the maximum apparent power. If this parameter is set to <b>PQ</b> <b>mode 2</b> , 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 <b>Startup voltage lower threshold of grid connection</b> , 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 <b>Startup frequency upper threshold of grid connection</b> , the inverter is not allowed to connect to the grid.

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 <b>Startup frequency lower threshold of grid connection</b> , 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 <b>Grid reconnection voltage upper limit</b> , 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 <b>Grid reconnection voltage lower limit</b> , 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 <b>Grid reconnection frequency upper limit</b> , 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 <b>Grid reconnection frequency lower limit</b> , 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 cos $\phi$ -P curve.
15	Reactive power compensation (cosφ-P) exit voltage (%)	Specifies the voltage threshold for exiting reactive power compensation based on the coso-P curve.

## **5.4.2 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.

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.

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.

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.

## 5.4.3 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 <b>Enable</b> , 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 <b>MPPT multi-peak</b> <b>scanning</b> is set to <b>Enable</b> .
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 <b>Isolation settings</b> is set to <b>Input ungrounded, with</b> <b>TF</b> .
5	PID protection at night	When the inverter outputs reactive power at night and this parameter is set to <b>Enable</b> , 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 <b>Enable</b> .	_

No.	Parameter	Description	Remarks
7	Power quality optimization mode	If this parameter is set to <b>Enable</b> , 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.	<ul> <li>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.</li> <li>When concentration PV modules are used:         <ul> <li>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.</li> <li>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.</li> </ul> </li> </ul>
9	Built-in PID compensation direction	When the external PID module compensates the PID voltage for the PV system, set <b>Built-in PID</b> <b>compensation direction</b> to the actual compensation direction of the PID module so that the inverter can output reactive power at night.	This parameter is displayed when <b>PV module type</b> is set to <b>Crystalline silicon</b> . Select <b>PV-positive offset</b> for P-type PV modules. Select <b>PV+</b> <b>negative offset</b> 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 <b>PID running mode</b> is not set to <b>Disable</b> , the parameter
12	PID daytime off-grid repair	Specifies whether to enable the PID daytime off-grid repair.	can de set.

No.	Parameter	Description	Remarks
13	String connection mode	Specifies the connection mode of PV strings.	<ul> <li>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.</li> <li>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.</li> </ul>
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 <b>Enable</b> , the inverter automatically starts after communication recovers. If this parameter is set to <b>Disable</b> , the inverter needs to be started manually after communication recovers.	This parameter is displayed when <b>Automatic OFF due to</b> <b>communication interrupted</b> is set to <b>Enable</b> .
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.	-

No.	Parameter	Description	Remarks
20	AFCI detection adaptive mode	Adjusts the sensitivity of arc detection.	This parameter is displayed only when <b>AFCI</b> is set to <b>Enable</b> .
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 <b>Enable</b> , the inverter shuts down after receiving the OVGR signal. If this parameter is set to <b>Disable</b> , 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 <b>OVGR</b> for OVGR signals, and set it to <b>NC</b> 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 <b>Enable</b> , 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 <b>Disable</b> to reduce power consumption.	-
28	RS485-2 communication	If this parameter is set to <b>Enable</b> , the RS485-2 port can be used. If the port is not used, you are advised to set this parameter to <b>Disable</b> to reduce power consumption.	-

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 <b>Delay upgrade</b> is set to <b>Enable</b> , 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 <b>String</b> <b>monitor</b> to <b>Disable</b> 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 <b>String monitor</b> is set to <b>Enable</b> .
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 <b>Enable</b> , the inverter shuts down after receiving the 0% power limit command. If this parameter is set to <b>Disable</b> , 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 <b>Enable</b> , the buzzer sounds when the DC input cable is incorrectly connected. If this parameter is set to <b>Disable</b> , the buzzer does not sound when the DC input cable is incorrectly connected.	-

No.	Parameter	Description	Remarks
1	Automatic OFF due to communicatio n 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	Communicatio n 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 communicatio n resumed	If this parameter is set to <b>Enable</b> , the inverter automatically starts after communication recovers. If this parameter is set to <b>Disable</b> , 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 <b>LVRT</b> is set to <b>Enable</b> .

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 <b>Percentage</b> <b>of LVRT reactive current limiting</b> to <b>50</b> , 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.	<ul> <li>This parameter is displayed when LVRT is set to Enable.</li> <li>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.</li> </ul>
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 <b>HVRT</b> is set to <b>Enable</b> .
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 <b>HVRT</b> <b>compensation power factor of</b> <b>reactive power in positive sequence</b> to <b>2</b> , 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.	

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 <b>HVRT</b>	
		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.	<ul> <li>This parameter is displayed when LVRT or HVRT is set to Enable.</li> <li>LVRT recovery threshold = Threshold for triggering LVRT + VRT exit hysteresis threshold</li> <li>HVRT recovery threshold = Threshold for triggering HVRT + VRT exit hysteresis threshold</li> </ul>
20	LVRT undervoltage protection shield	Specifies whether to shield the undervoltage protection function during LVRT.	This parameter is displayed when <b>LVRT</b> is set to <b>Enable</b> .
21	Grid voltage protection shield during VRT	Specifies whether to shield the undervoltage protection function during LVRT or HVRT.	This parameter is displayed when <b>LVRT</b> or <b>HVRT</b> is set to <b>Enable</b> .

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 <b>Grid code</b> is set to <b>VDE 4120</b> .
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 <b>Enable</b> . After this parameter is set to <b>Enable</b> , the output current is less than 10% of the rated current during high/low voltage ride-through.	This parameter is displayed when <b>LVRT</b> or <b>HVRT</b> is set to <b>Enable</b> .
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.	<ul> <li>This parameter is displayed when Voltage rise suppression is set to Enable.</li> <li>The value of Voltage rise suppressing active power</li> </ul>
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.	derating point must be greater than that of Voltage rise suppressing reactive power adjustment point.
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.

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 <b>Enable</b> 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.	

# 5.4.4 Power adjustment parameters

No.	Parameter	Description	Remarks
1	Remote power schedule	If this parameter is set to <b>Enable</b> , the inverter responds to the scheduling instruction from the remote port. If this parameter is set to <b>Disable</b> , 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 <b>Enable</b> , the inverter shuts down after receiving the 0% power limit command. If this parameter is set to <b>Disable</b> , 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 <b>Remote power schedule</b> is set to <b>Enable</b> .
			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 <b>Remote power schedule</b> is set to <b>Enable</b> .
			If this parameter is set to <b>100</b> , 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.	-

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 <b>Plant active</b> <b>power gradient</b> .	-	
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 <b>Remote power schedule</b>	
15	Reactive power compensation (Q/S)	Specifies the reactive power output by the inverter.	is set to <b>Enable</b> .	
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 <b>Isolation settings</b> is set to <b>Input ungrounded</b> , with TF.	
18	Enable reactive power parameters at night	When this parameter is set to <b>Enable</b> , the inverter outputs reactive power based on the setting of <b>Reactive</b> <b>power compensation at night</b> . Otherwise, the inverter executes the remote scheduling command.	This parameter is displayed when <b>Night-time reactive</b> <b>power output</b> is set to <b>Enable</b> .	
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 <b>Night-time reactive</b> <b>power output</b> and <b>Enable</b> <b>reactive power</b> <b>parameters at night</b> are set to <b>Enable</b> .	
20	Overfrequency derating	If this parameter is set to <b>Enable</b> , 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.		
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.	<ul> <li>This parameter is displayed when</li> <li>Overfrequency</li> <li>derating is set to</li> <li>Enable.</li> </ul>	
22	Frequency for exiting overfrequency derating (Hz)	Specifies the frequency threshold for exiting overfrequency derating.	When setting this parameter, ensure that the following condition is met: Frequency for exiting overfrequency	
23	Cutoff frequency of overfrequency derating (Hz)	Specifies the frequency threshold for cutting off overfrequency derating.	derating ≤ Frequency for triggering overfrequency derating	
24	Cutoff power of overfrequency derating (%)	Specifies the power threshold for cutting off overfrequency derating.	< Cutoff frequency of 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 <b>Enable</b> , 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 <b>Voltage</b>	
30	Cut-off point of voltage derating (V)	Specifies the stop point for voltage derating.	<ul> <li>derating is set to Enable.</li> <li>When setting this parameter, ensure that</li> </ul>	
31	Voltage derating cut-off power (V)	Specifies the power threshold for cutting off voltage derating.	the following condition is met: Voltage derating start point < Voltage derating stop point.	

No.	Parameter	Description	Remarks
32	Communication disconnection fail- safe	In the inverter export limitation scenario, if this parameter is set to <b>Enable</b> , 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 <b>Communication</b> <b>disconnection detection time</b> . <b>NOTE</b> In the Smart Dongle+single inverter scenario, active power derating is not performed.	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 <b>Communication</b> <b>disconnection fail-safe</b> is set to <b>Enable</b> .
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 <b>Frequency modulation control droop</b> to help stabilize the power grid frequency. In this case, set this parameter to <b>Enable</b>	-
38	Adjustment ratio of frequency modulation control	Specifies the droop of the active power output.	This parameter is displayed when <b>Frequency</b> <b>modulation control</b> is set to <b>Enable</b> .
39	Underfrequency rise power	The standards of certain countries and regions require that if the power grid frequency is lower than <b>Frequency for</b> <b>triggering of underfrequency rise</b> <b>power</b> , the inverter needs to increase the active power output to help increase the power grid frequency. In this case, set this parameter to <b>Enable</b> .	-

No.	Parameter	Description	Remarks
40	Frequency for triggering of underfrequency rise power (Hz)	Specifies the frequency threshold of <b>Underfrequency rise power</b> .	This parameter is displayed when <b>Underfrequency rise</b> <b>power</b> is set to <b>Enable</b> .
41	Power recovery gradient of underfrequency rise (%/min)	Specifies the recovery rate of <b>Underfrequency rise power</b> .	
42	Cutoff frequency of underfrequency rise power (Hz)	Specifies the cutoff frequency of <b>Underfrequency rise power</b> .	
43	Cutoff power of underfrequency rise power (%)	Specifies the cutoff power of <b>Underfrequency rise power</b> .	
44	Frequency for exiting of underfrequency rise power (Hz)	Specifies the exit frequency of <b>Underfrequency rise power</b> .	
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 coso in real time based on P/Pn(%).	-

### 5.4.5 Grid-tied control parameters

#### **Special User**

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. <b>Solar inverter</b> 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 <b>Grid connection with limited</b> <b>power (kW)</b> 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.

**Table 5-5** Grid-tied control parameters

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 <b>Enable</b> , and the communication between the solar inverter and the SDongle/ SmartLogger is interrupted for a certain period (set by <b>Communication</b> <b>disconnection detection time</b> ), the solar inverter generates power based on <b>Fail-safe power</b> . <b>NOTE</b> In the Smart Dongle+single inverter scenario, active power derating is not performed.
Communication disconnection detection time (s)	Specifies the protection duration to determine whether the communication between the SDongle/SmartLogger and the solar inverter is interrupted.

# 5.5 Domain Name List of Management Systems

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The list is subject to change.

Domain Name	Data Type	Scenario
intl.fusionsolar.huawei.co m	Public IP address	Global domain name of FusionSolar SmartPVMS <b>NOTE</b> Compatible with the original domain name <b>cn.fusionsolar.huawei.co</b> <b>m</b> in Chinese mainland
au7.fusionsolar.huawei.c om	Public IP address	Domain name of Australia single-node server
eu5.fusionsolar.huawei.co m	Public IP address	Domain name of FusionSolar SmartPVMS in Europe
intlobt.fusionsolar.huawe i.com	Public IP address	Domain name of FusionSolar SmartPVMS in Europe
jp5.fusionsolar.huawei.co m	Public IP address	Domain name of FusionSolar SmartPVMS in Japan
la5.fusionsolar.huawei.co m	Public IP address	Domain name of FusionSolar SmartPVMS in Latin America
kr5.fusionsolar.huawei.co m	Public IP address	Domain name of FusionSolar SmartPVMS in South Korea
sg5.fusionsolar.huawei.co m	Public IP address	Domain name of FusionSolar SmartPVMS in Asia Pacific and Australia
region01eu5.fusionsolar. huawei.com	Public IP address	Server domain name of FusionSolar SmartPVMS in European cluster 1
region02eu5.fusionsolar. huawei.com	Public IP address	Server domain name of FusionSolar SmartPVMS in European cluster 2
region03eu5.fusionsolar. huawei.com	Public IP address	Server domain name of FusionSolar SmartPVMS in European cluster 3
region04eu5.fusionsolar. huawei.com	Public IP address	Server domain name of FusionSolar SmartPVMS in European cluster 4

 Table 5-6 Domain names of management systems

Domain Name	Data Type	Scenario
neteco.alsoenergy.com	Public IP address	Domain name of partner's management system
re-ene.kyuden.co.jp	Public IP address	Domain name of the remote output control server of Kyushu Electric Power Company
re-ene.yonden.co.jp	Public IP address	Domain name of the remote output control server of Shikoku Electric Power Company
au1.fusionsolar.huawei.c om	Public IP address	Domain name of FusionSolar SmartPVMS in Australia
br1.fusionsolar.huawei.co m	Public IP address	Domain name of FusionSolar SmartPVMS in Brazil
huawei.devicedataacqui- sition.com	Public IP address	Domain name of the third-party network management system Locus dedicated for the United States
pvms01cn.fusionsolar.hu awei.com pvmspro01cn.fusionsolar. huawei.com	Public IP address	Domain names for whole-county rollout projects in Chinese mainland

## 5.6 Public URLs

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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.

URL	Description
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 5-8 Public URLs of the Fus	ionSolar app
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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
androidamap://viewMap	Amap
http://maps.google.com	Google Maps
qqmap://map/marker	Tencent Maps