# SmartLogger1000A

# User Manual

**Issue** 02
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Huawei Technologies Co., Ltd.


| | |
|---|---|
| Address: | Huawei Industrial Base |
| | Bantian, Longgang |
| | Shenzhen 518129 |
| | People's Republic of China |
| Website: | http://e.huawei.com |

# About This Document

## Purpose

This document introduces the SmartLogger1000A (SmartLogger for short) in terms of installation, electrical connections, system operation and maintenance, and troubleshooting. Understand the SmartLogger features, functions, and safety precautions provided in this document before installing and operating the SmartLogger.

## Intended Audience

This document is intended for photovoltaic (PV) plant operators and qualified electrical technicians.

## Symbol Conventions

The symbols that may be found in this document are defined as follows.

| Symbol | Description |
|---|---|
| **⚠ DANGER** | Indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death. |
| **⚠ WANRNING** | Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death. |
| **⚠ CAUTION** | Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. |
| **NOTICE** | Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury. |
| **⬛ NOTE** | Calls attention to important information, best practices and tips. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration. |

# Change History

Changes between document issues are cumulative. The latest document issue contains all updates made in previous issues.

## Issue 02 (2019-01-15)

Updated 6.4.5 Setting Export Limitation Parameters.

Added 6.4.6 Setting DRM parameters.

Updated 7.4.3 Sending a System Maintenance Command.

## Issue 01 (2018-11-20)

This issue is used for first office application (FOA).

# Contents

# 1 Safety Precautions

## General Safety Precautions

**NOTICE**

- Before performing operations, read through this manual and follow all the precautions to prevent accidents. The "DANGER", "WARNING", "CAUTION", and "NOTICE" marks in this document do not represent all the safety instructions. They are only supplements to the safety instructions.
- Only certified electricians are allowed to install, connect cables for, commission, maintain, and troubleshoot the SmartLogger, and they must understand basic safety precautions to avoid hazards.

To ensure safety of humans and the equipment, pay attention to the safety symbols on the equipment and all the safety instructions in this document. The safety precautions provided in this document do not cover all the safety precautions. Huawei shall not be liable for any consequence caused by the violation of the safety operation regulations and design, production, and usage standards.

## Disclaimer

Huawei shall not be liable for any consequence caused by any of the following events:

- Damage during transportation
- Storage conditions that do not meet the requirements specified in this document
- Incorrect storage, installation, or use
- Installation or use by unqualified personnel
- Failure to obey the operation instructions and safety precautions in this document
- Operation in extreme environments which are not covered in this document
- Unauthorized modifications to the product or software code or removal of the product
- Device damage due to abnormal natural factors (force majeure, such as earthquake, lightning strike, and fire)
- Warranty expiration without extension of the warranty service
- Installation or use in environments which are not specified in international standards

## Personnel Requirements

Only certified electricians are allowed to install, connect cables for, commission, maintain, troubleshoot, and replace the SmartLogger. Operators need to meet the following requirements:

- Be properly trained.
- Read through this manual and master related safety precautions.
- Be familiar with related safety regulations on electrical systems.
- Understand the components and functioning of a grid-tied PV power system and relevant local standards.
- Wear proper PPE all the time.

## Labels

Do not scrawl, damage, or block any label or nameplate on the SmartLogger.

## Installation

**⚠ DANGER**

Do not install the SmartLogger with the power on.

- Install the SmartLogger in an environment with good ventilation.
- Ensure that the heat dissipation holes of the SmartLogger are not blocked.
- Install the SmartLogger in a dedicated area.
- During installation, do not touch any component inside the enclosure except the external ports of the SmartLogger.
- Ensure that the cables of Smartlogger are connected through the cable groove to avoid the cables being exposed.

## Maintenance and Replacement

- A faulty SmartLogger requires overall maintenance. Contact the dealer if the SmartLogger is faulty.
- With sufficient knowledge of this document, maintain the SmartLogger by using proper tools and testing equipment.
- Observe ESD precautions and wear ESD gloves during maintenance.
- The device has multiple inputs. Switch off all inputs before maintenance.

# 2 Product Overview

## 2.1 Product Model

### Model Description

This document involves the following product models:

- SmartLogger1000A01CN
- SmartLogger1000A02JP
- SmartLogger1000A01EU
- SmartLogger1000A01UK
- SmartLogger1000A01AU
- SmartLogger1000A02KR
- SmartLogger1000A01US

**Figure 2-1** Model



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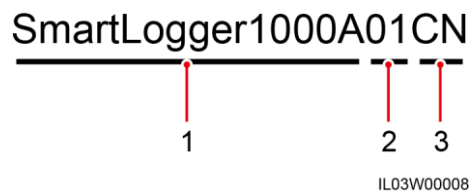
**Table 2-1** Model description

| No. | Meaning | Description |
|-----|---------|-------------|
| 1 | Product name | SmartLogger1000A: data collector |
| 2 | Feature ID | • 01: The PLC function is optional.<br>• 02: The PLC function is not supported. |
| 3 | Region | • CN: China<br>• JP: Japan<br>• EU: Europe |

| No. | Meaning | Description |
|---|---|---|
| | | • UK: United Kingdom<br>• AU: Australia<br>• KR: South Korea<br>• US: United States |

## Model Identification

You can view the SmartLogger model on the nameplate on the enclosure.

**Figure 2-2** Nameplate
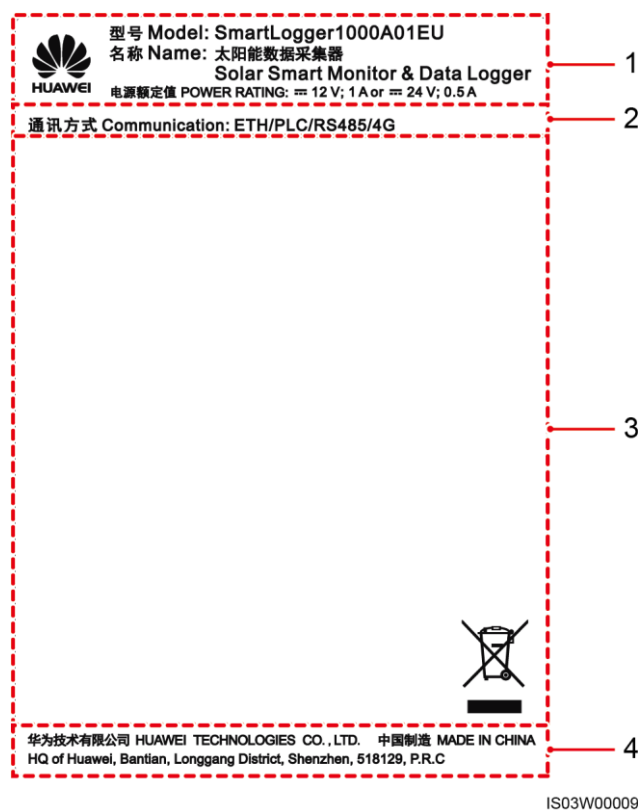


(1) Trademark, product model, and power rating

(2) Communications mode

(3) Compliance symbols

(4) Company name and place of manufacture

&#x1F4D5; **NOTE**

The nameplate figure is for reference only.

**Table 2-2** Compliance symbols

| Symbol | Name | Meaning |
|---|---|---|
|  | EU waste electrical and electronic equipment (WEEE) mark | The SmartLogger must not be disposed of as domestic waste. |

# 2.2 Overview

## Function

The SmartLogger monitors and manages the PV power system. It converges all ports, converts protocols, collects and stores data, and centrally monitors and maintains the devices in the PV power system.

## Network Application

The SmartLogger applies to a PV power system. It supports the following:

- Local operations on the SmartLogger using the mobile phone app through the built-in WLAN
- RS485 networking, which enables the SmartLogger to connect to:
  - Huawei devices such as inverters and PID modules
  - Third-party inverters, environment monitoring instrument (EMIs), box-type transformers, and power meters that use the standard Modbus-RTU protocol
  - Power meters that use the DL/T645 protocol
  - Devices that use the standard IEC103 protocol
- PLC networking, which enables the SmartLogger to connect to inverters and the PID-PVBOX.
- Ethernet, 2G, 3G, or 4G networking, which allows the SmartLogger to connect to a network management system (NMS) that uses the Modbus TCP or IEC104 protocol

□ NOTE

When using the IEC104 protocol,4G/3G/2G networking is not supported.

**Figure 2-3** Network application
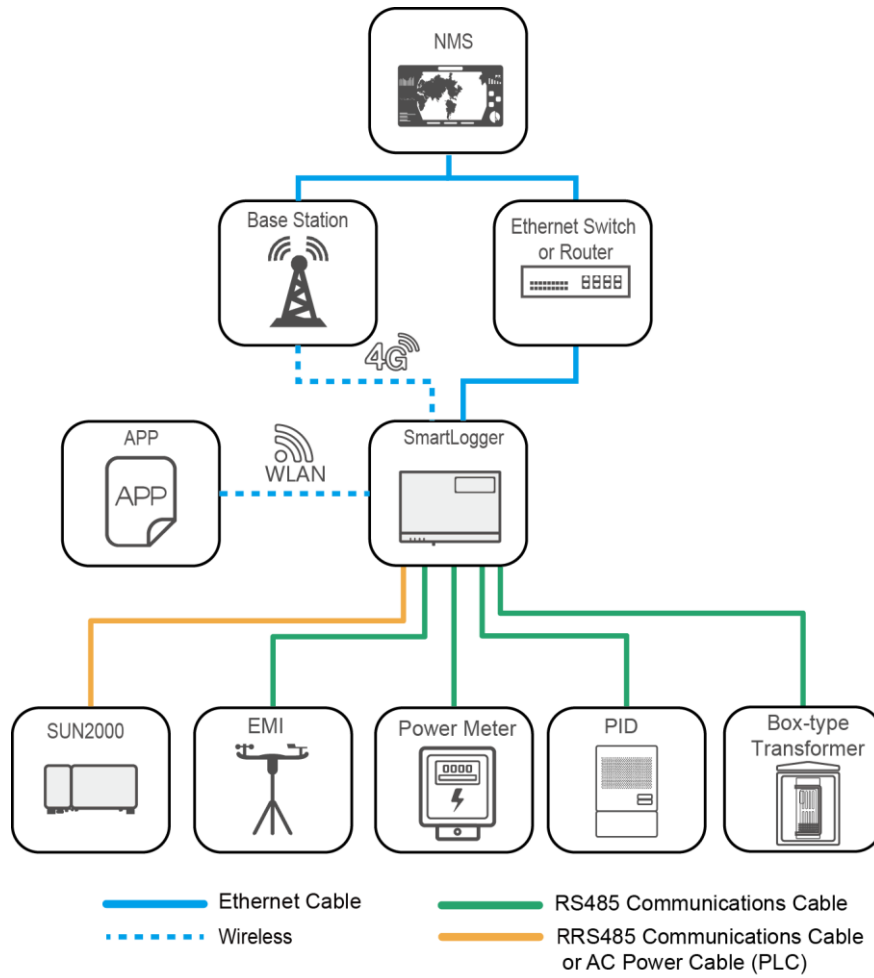
# 2.3 Appearance

## Front View

**Figure 2-4** Front view
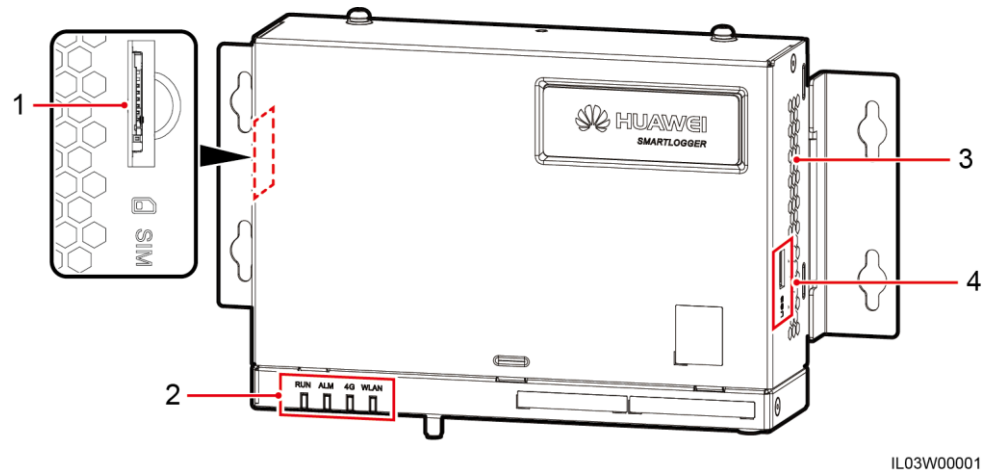


(1) SIM card slot      (2) LED indicators      (3) Heat dissipation holes      (4) USB port

**Table 2-3** LED indicator description

| Indicator | Status | | Description |
|---|---|---|---|
| Running indicator (RUN) | Green off | | The SmartLogger is not powered on. |
| | Blinking green at short intervals (on for 0.125s and then off for 0.125s) | | The communication with the encrypted NMS is interrupted. |
| | Blinking green at long intervals (on for 1s and then off for 1s) | | The connection with the encrypted NMS is normal. |
| Alarm/maintenance indicator (ALM)[a] | Alarm status | Red off | No system alarm is raised. |
| | | Blinking red at long intervals (on for 1s and then off for 4s) | The system raises a warning alarm. |
| | | Blinking red at short intervals (on for 0.5s and then off for 0.5s) | The system raises a minor alarm. |
| | | Steady red | The system raises a |

| Indicator | Status | | Description |
|---|---|---|---|
| | | | major alarm. |
| | Maintenance status | Green off | No local maintenance is underway[b]. |
| | | Blinking green at long intervals (on for 1s and then off for 1s) | Local maintenance is in progress. |
| | | Steady green | Local maintenance succeeds. |
| | | Blinking green at short intervals (on for 0.125s and then off for 0.125s) | Local maintenance fails. |
| 4G/3G/2G indicator (4G) | Blinking green at short intervals (on for 0.125s and then off for 0.125s) | | 4G/3G/2G is not connected. |
| | Blinking green at long intervals (on for 1s and then off for 1s) | | Succeeds in dialing through 4G/3G/2G network. |
| WLAN indicator (WLAN) | Green off | | No mobile phone is connected. |
| | Blinking green at long intervals (on for 1s and then off for 1s) | | A mobile phone is successfully connected. |
| a: If an alarm and local maintenance happen concurrently, the alarm/maintenance indicator shows the near-end maintenance state first. After the USB flash drive is removed, the indicator shows the alarm state. | | | |
| b: Local maintenance refers to operations performed by connecting a USB flash drive to the SmartLogger USB port, such as full data import and export using a USB flash drive. | | | |

## Rear View

**Figure 2-5** Rear view



IL03W00002
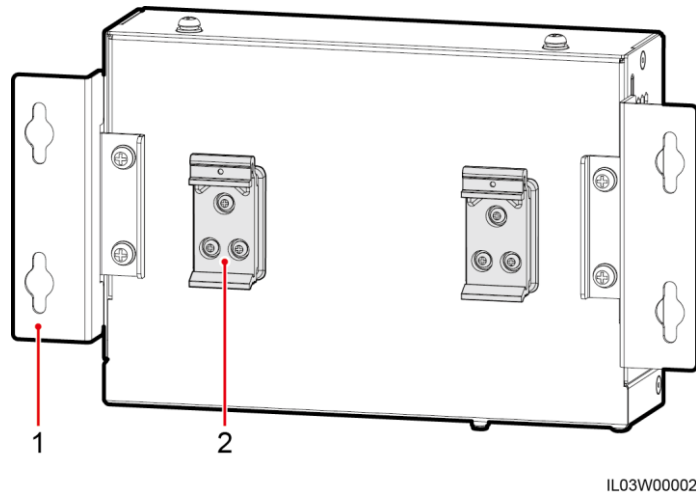
(1) Mounting ear                    (2) Guide rail clamp

## Bottom View

**Figure 2-6** Bottom view



IL03W00003
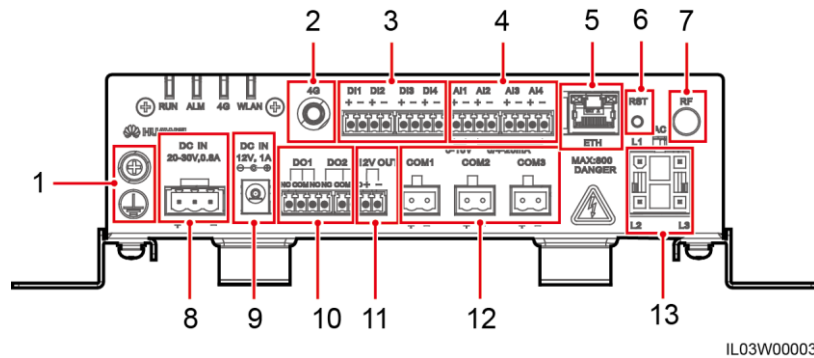
**Table 2-4** Port description

| No. | Port | Function | Description |
|-----|------|----------|-------------|
| 1 | ⏚ | External grounding | N/A |
| 2 | 4G | 4G antenna port | N/A |
| 3 | DI1–DI4 | Digital input | Connects to a dry contact input. |
| 4 | AI1–AI4 | Analog input | • AI1 detects 0–10 V signals.<br>• AI2 to AI4 detect 4–20 mA or |

| No. | Port | Function | Description |
|-----|------|----------|-------------|
|  |  |  | 0–20 mA signals. The signal current range can be configured on the WebUI or mobile phone app. |
| 5 | ETH | Ethernet electrical port | Connects to an Ethernet switch, router, or PC. |
| 6 | RST | Button | • To perform a restart, hold down the button for 3s to 10s.<br>• To restore to the default IP address 192.168.0.10, hold down the button for more than 10s. The IP address will be restored within 5minutes. |
| 7 | RF | Reserved | N/A |
| 8 | DC IN 20–30 V,0.8 A | 20–30 V DC input | N/A |
| 9 | DC IN 12 V,1 A | 12 V power input | N/A |
| 10 | DO1–DO2 | Digital output | NO and COM are normally open contacts, and NC and COM are normally closed contacts. The maximum signal voltage of 12 V is supported. |
| 11 | 12 V OUT | 12 V power output | N/A |
| 12 | COM1–COM3 | RS485 communication | N/A |
| 13 | AC | AC power cable port | Use this port when the PLC function is required for power line communication between the SmartLogger and the inverter. If the PLC function is not required, you do not need to connect a cable to this port. |

## Dimensions

**Figure 2-7** Dimensions
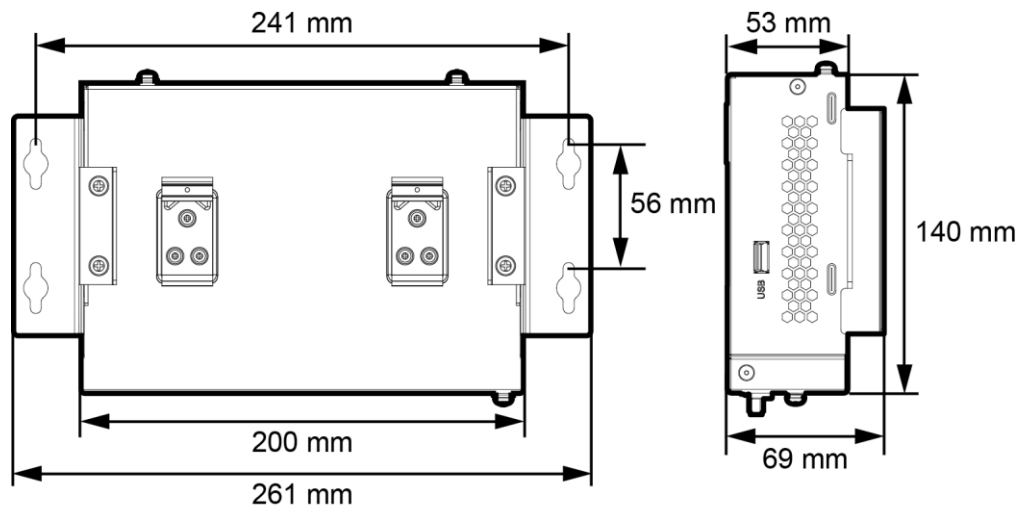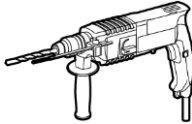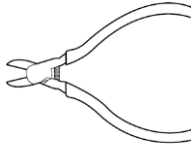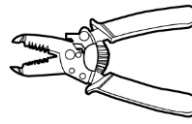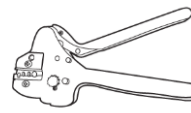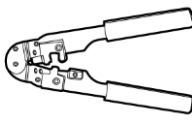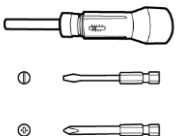


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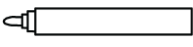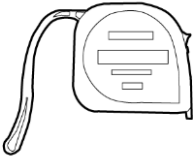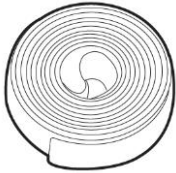
# 3 Device Installation

## 3.1 Checking Before Installation

| Check Item | Criteria |
|---|---|
| Outer packaging | The outer package is intact. If it is damaged or abnormal, do not unpack it and contact your dealer. |
| Deliverables | Check the quantity of deliverables against the *Packing List* in the packing case. If any component is missing or damaged, contact your dealer. |

## 3.2 Tools

| Type | Tool | | | |
|---|---|---|---|---|
| Installation | Hammer drill | Diagonal pliers | Wire stripper | Crimping tool |
| | RJ45 crimping tool | Flat-head screwdriver | Torque screwdriver | Rubber mallet |

| Type | Tool | | | |
|------|------|--|--|--|
| | Utility knife | Cable cutter | Vacuum cleaner | Marker |
| | Measuring tape | Cable tie | Heat gun | Multimeter |
| | Heat shrink tubing | Bubble or digital level | - | - |
| PPE | Safety gloves | Safety goggles | Anti-dust respirator | Safety shoes |

# 3.3 Installation Requirements

**Figure 3-1** Installation position
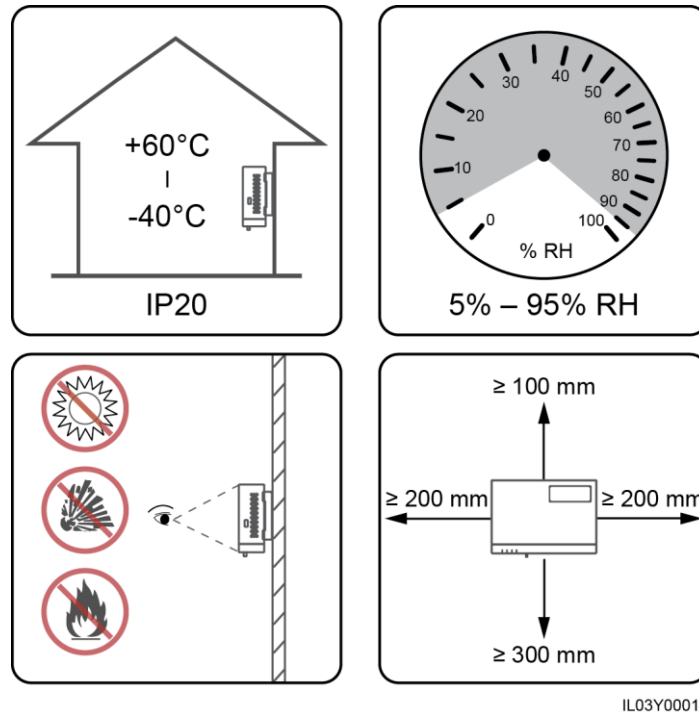


# 3.4 Installing the SmartLogger

The SmartLogger can be wall-mounted or guide rail-mounted.

## Wall-Mounted Installation

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⚠ WARNING

Avoid drilling holes in the water pipes and power cables buried in the wall.

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**Figure 3-2** Wall-mounted installation
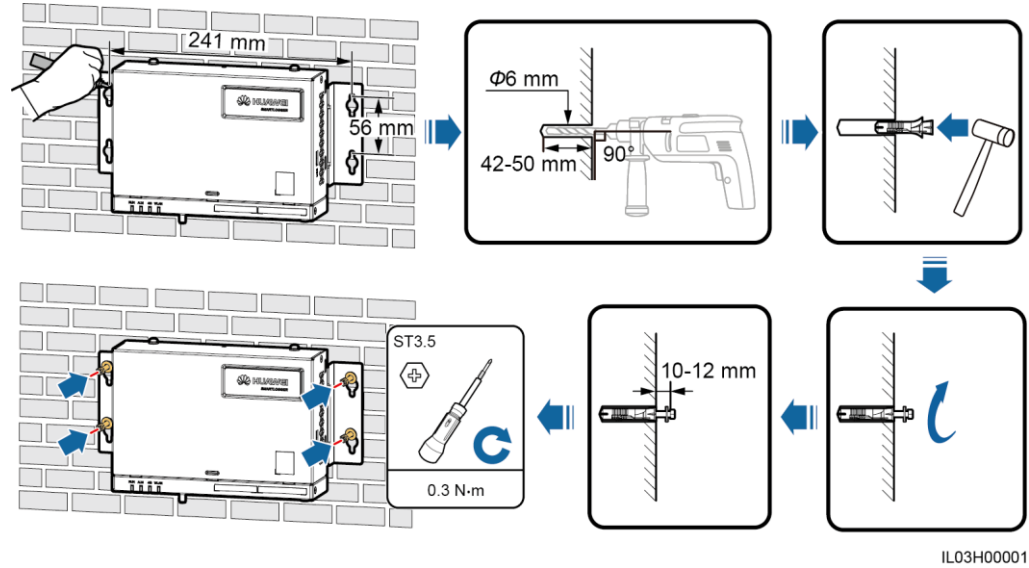


## Guide Rail-Mounted Installation

Prepare a 35 mm standard guide rail by yourself. Ensure that the guide rail:

● Has sufficient length for securing the SmartLogger. The recommended effective length is 200 mm or greater.

● Has been secured before you install the SmartLogger.

**Figure 3-3** Guide rail-mounted installation
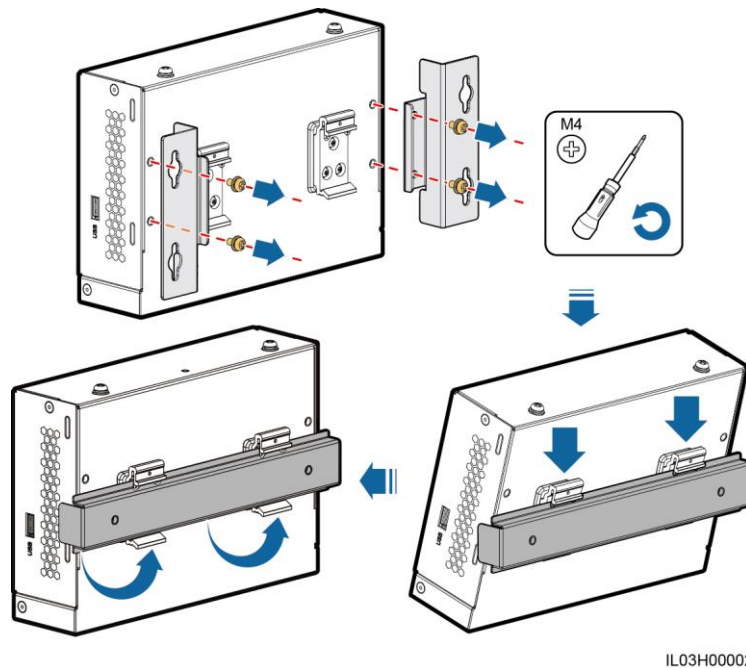
# 3.5 Installing a Power Adapter

A power adapter can be installed on a wall or flat surface.

If a power adapter is needed for the SmartLogger, install the adapter on the left side of the SmartLogger, and keep the AC power cable port upward.

## Wall-Mounted Installation

> ⚠ **WARNING**
>
> Avoid drilling holes in the water pipes and power cables buried in the wall.

**Figure 3-4** Wall-mounted installation
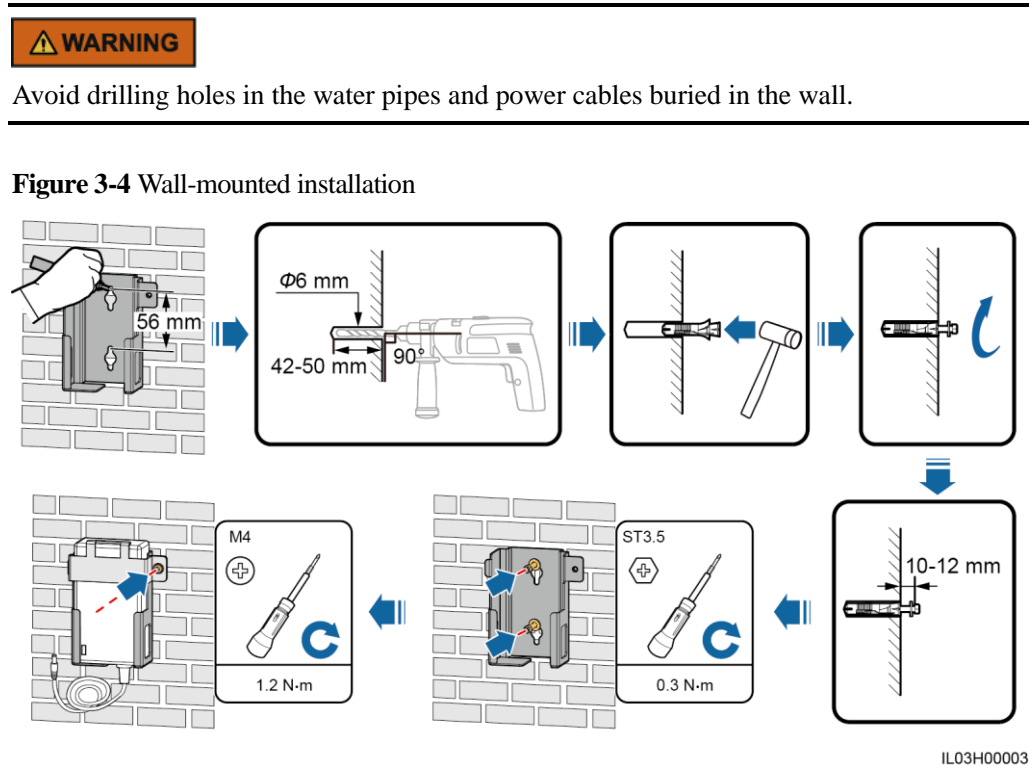


## Flat Surface-Mounted Installation

Install the power adapter on a flat surface. This section describes how to install the power adapter on the top of the SmartLogger.

**Step 1** Place the power adapter horizontally on the top of the SmartLogger.

> **NOTICE**
>
> Ensure that the power adapter indicator faces upward or outward.

**Step 2** Plan the route for the power adapter cable and bind the cable to the heat dissipation holes of the SmartLogger.

**Figure 3-5** Flat surface-mounted installation
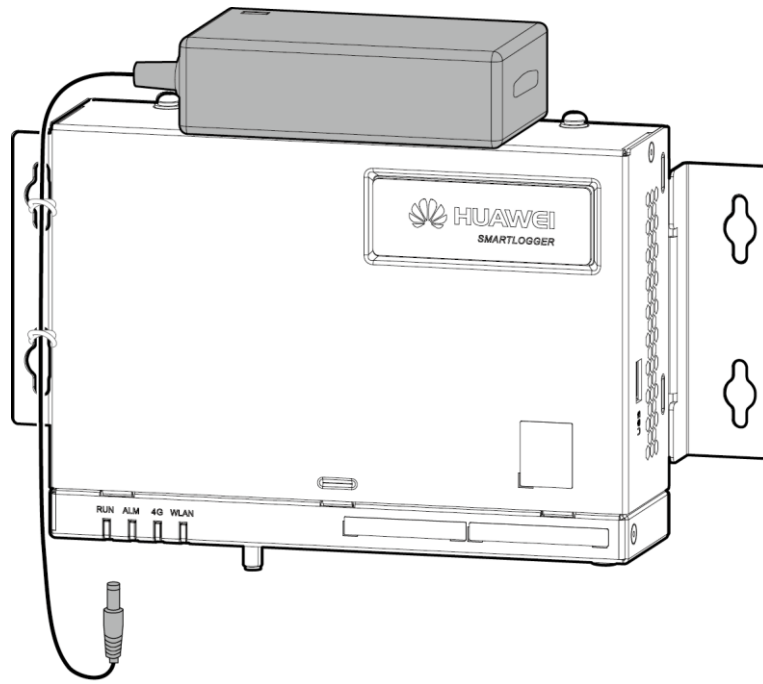


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**----End**

# 4 Cable Connections

## 4.1 Preparing Cables

| Type | Recommended Cable Specifications |
|------|----------------------------------|
| PE cable | Outdoor copper-core cable with a cross-sectional area of 4–6 mm$^2$ or 12–10 AWG |
| RS485 communications cable | Two-core or multiple-core cable with a cross-sectional area of 1.5 mm$^2$ or 20 AWG |
| AI, DI, and DO signal cables | Two-core or multiple-core cable with a cross-sectional area of 1.5 mm$^2$ or 20 AWG |
| PLC communications cable (optional) | Delivered with the SmartLogger. The length is 1.5 m. |
| Network cable | Delivered with the SmartLogger. The length is 2.2 m. |
| Power cable (optional) | Two-core or multiple-core cable with a cross-sectional area of 1.5 mm$^2$ or 20 AWG |

☐ NOTE

If the delivered network cable is too short, use a shielded network cable of CAT 5E or higher specifications. The cable length should not exceed 100 m.

## 4.2 Connecting a PE Cable

### Procedure

**Step 1** Connect the PE cable.

**Figure 4-1** Connecting a PE cable



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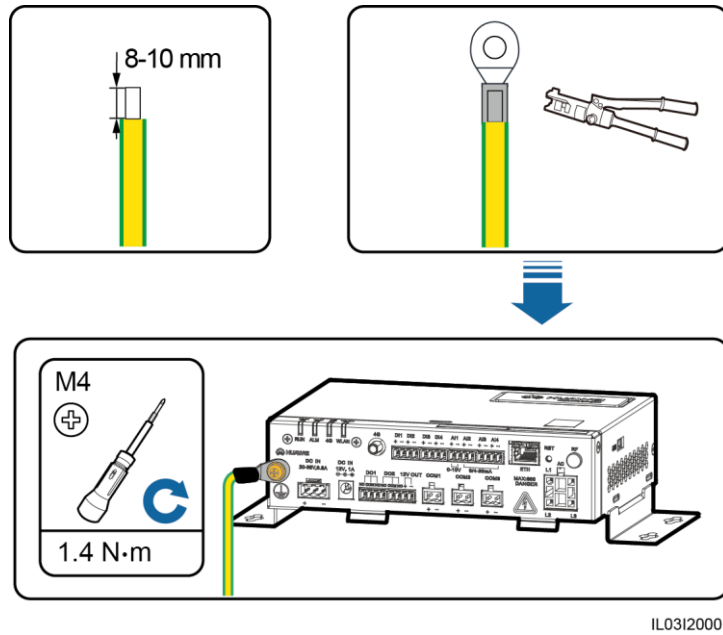
**----End**

# 4.3 Connecting an RS485 communications cable

## Context

- The SmartLogger can connect to RS485 communications devices such as the inverter, EMI, power meter, and PID module over COM ports.
- Ensure that RS485+ is connected to COM+ of the SmartLogger and RS485− is connected to the COM- of the SmartLogger.

**Figure 4-2** COM ports
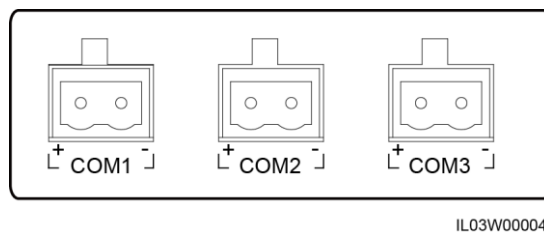


IL03W00004

| Port | Silk Screen | Description |
|------|-------------|-------------|
| COM1–COM3 | + | RS485A, RS485 differential signal+ |
| | - | RS485B, RS485 differential signal− |

## Procedure

**Step 1** Connect the RS485 communications cable.

**Figure 4-3** Connecting an RS485 communications cable
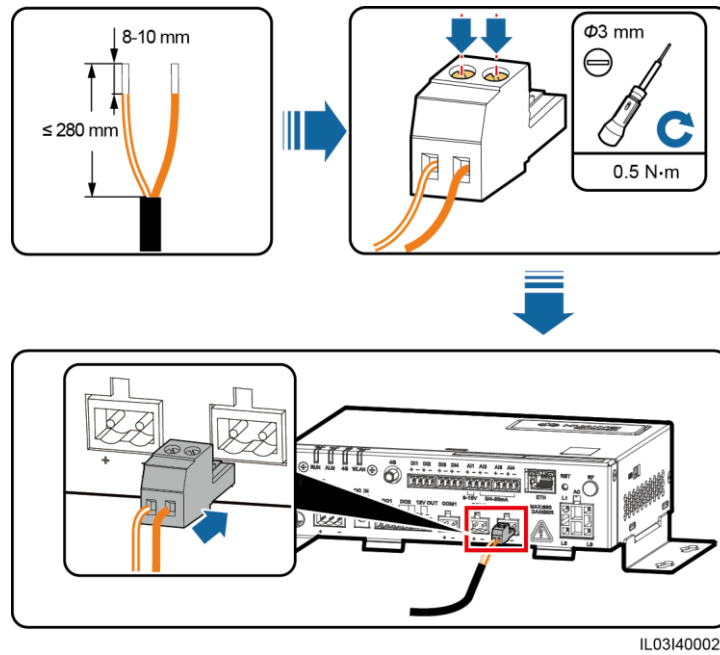


**Step 2** If devices need to be cascaded, cascade the devices and then connect them to the SmartLogger.

**NOTICE**

- A maximum of 80 devices can connect to a single SmartLogger. You are advised to connect less than 30 devices to each RS485 route.
- The baud rate, communications protocol, and parity mode of all devices on an RS485 cascading link must be the same as those of the COM port on the SmartLogger.

**Figure 4-4** Cascading connection
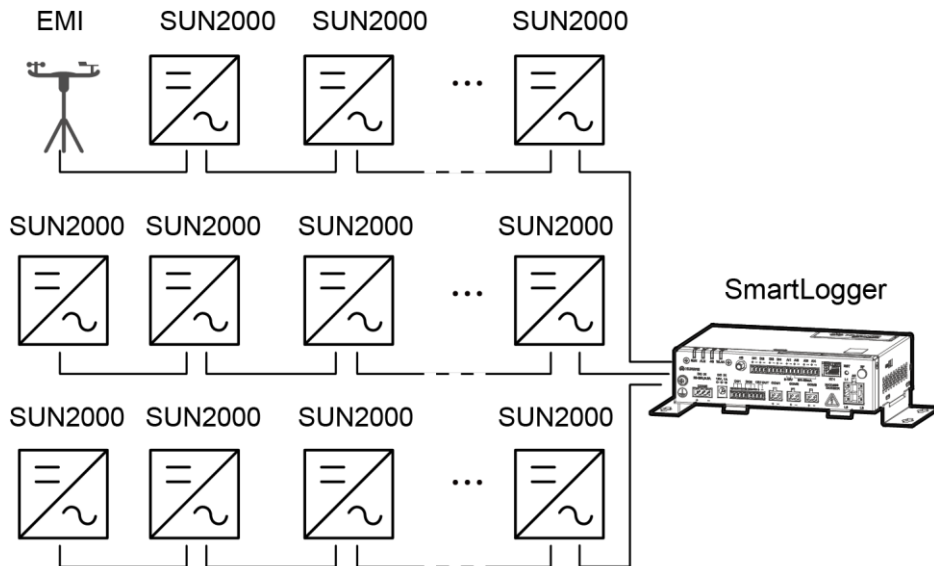


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**----End**

# 4.4 Connecting an AC Power Cable (PLC)

## Context

If both the SmartLogger and the inverter support PLC, the SmartLogger can be connected to the inverter through an AC power cable. In this case, you do not need to connect the RS485 communications cable of the inverter.

If the SmartLogger uses an AC power cable as the communications cable, a MCB and a knife fuse switch need to be installed to prevent device damage in the case of short circuits.

**Figure 4-5** PLC networking
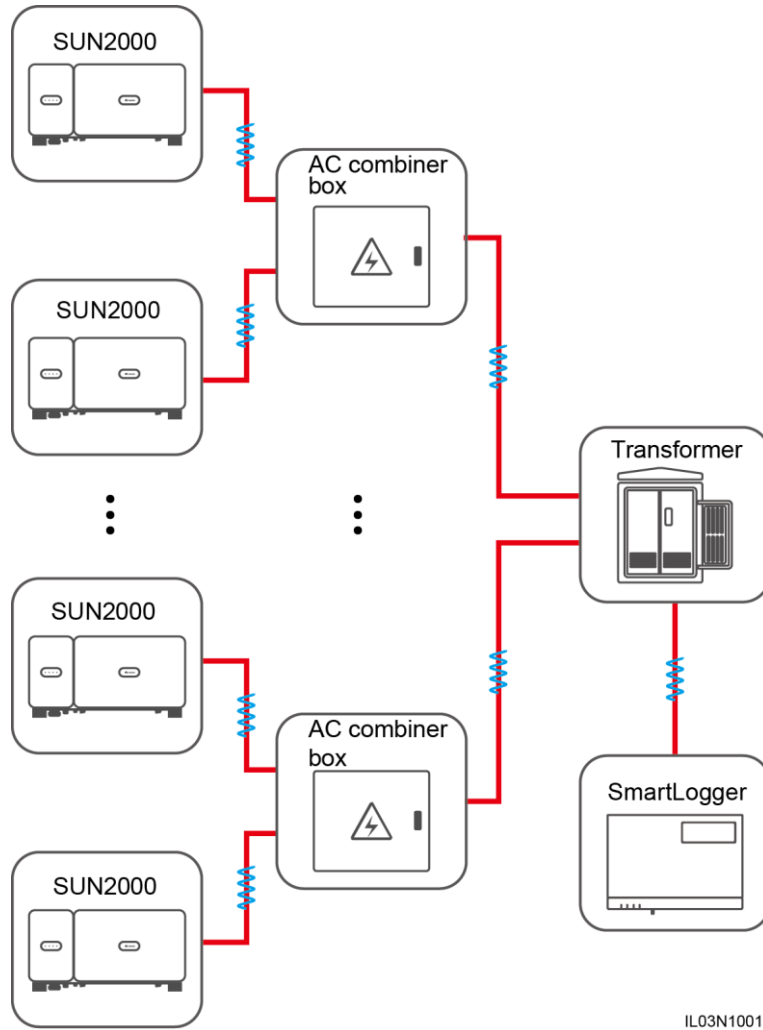


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# Procedure

**Step 1**  Connect an AC power cable.

**Figure 4-6** Connecting an AC power cable
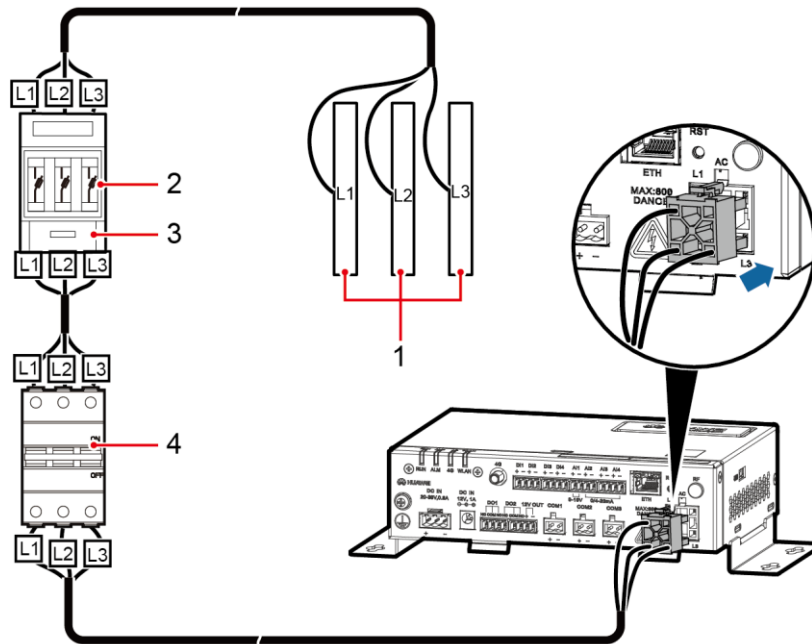


| (1) Busbars L1, L2, and L3 of the box-type transformer | (2) Fuse | (3) Knife fuse switch | (4) MCB |
|---|---|---|---|

**----End**

# 4.5 Connecting an AI Signal Cable

## Context

The SmartLogger can receive AI signals from devices including sensors and the environmental monitoring instrument (EMI) through AI ports. The signal transmission distance is recommended not to exceed 10 m.

**Figure 4-7** AI ports
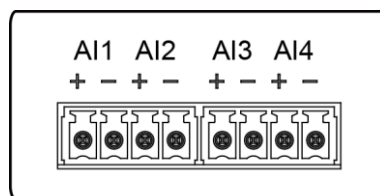


| Port | Description |
|---|---|
| AI1 | Supports 0–10 V input voltage. |

| Port | Description |
|------|-------------|
| AI2–AI4 | Supports 4–20 mA or 0–20 mA input current. |

## Procedure

**Step 1** Connect an AI signal cable.

**Figure 4-8** Connecting an AI signal cable
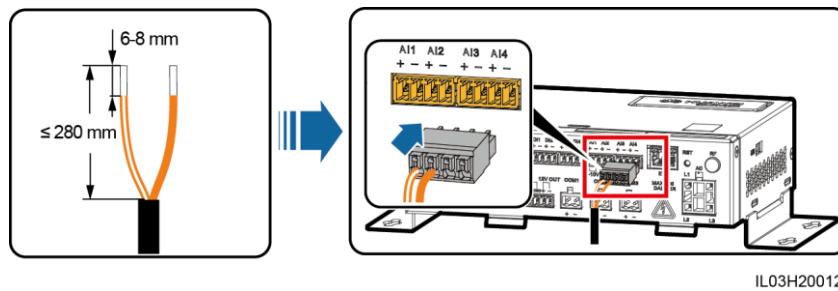


**----End**

# 4.6 Connecting a DI Signal Cable

## Context

The SmartLogger can receive DI signals from power grid scheduling and alarms through DI ports. It can only receive passive dry contact signals. It is recommended that the signal transmission distance be less than or equal to 10 m.

## Procedure

**Step 1** Connect a DI signal cable.

**Figure 4-9** Connecting a DI signal cable
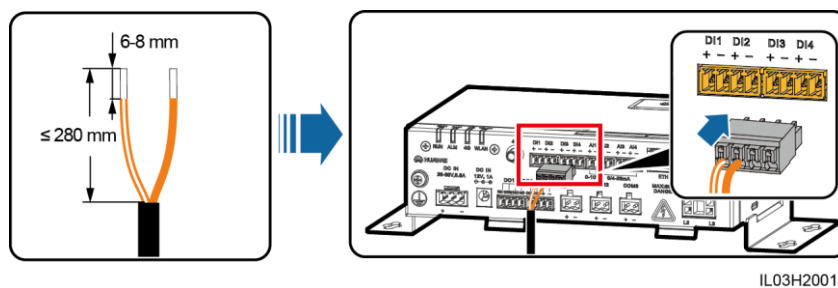


**----End**

# 4.7 Connecting a DO Signal Cable

## Context

The DO port supports a signal voltage of 12 V at most. NC and COM are normally closed contacts, and NO and COM are normally open contacts. It is recommended that the signal transmission distance be less than or equal to 10 m.

## Procedure

**Step 1** Connect a DO signal cable.

**Figure 4-10** Connecting a DO signal cable
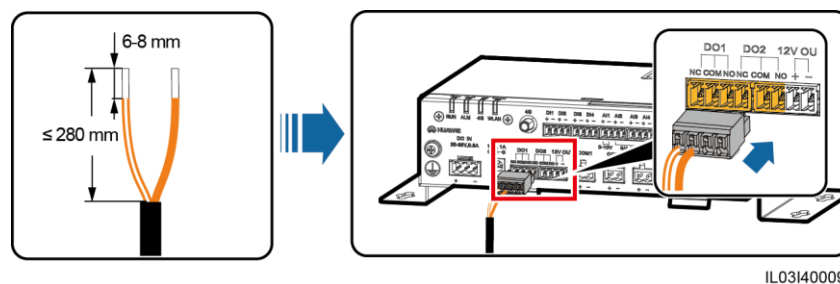


**----End**

# 4.8 Connecting an Ethernet Cable

## Context

The SmartLogger can connect to an Ethernet switch, router, or computer over an Ethernet cable.

## Procedure

**Step 1** Connect an Ethernet cable.

**Figure 4-11** Connecting an Ethernet cable
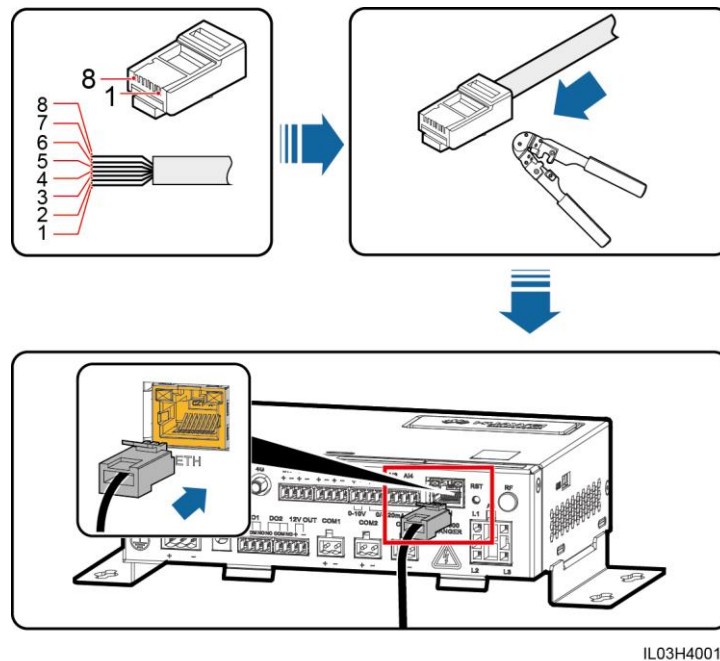


| (1) White and orange | (2) Orange | (3) White and green | (4) Blue |
| (5) White and blue | (6) Green | (7) White and brown | (8) Brown |

**----End**

# 4.9 Installing a SIM Card and a 4G Antenna

## Context

The SmartLogger provides the 4G wireless communication function. A SIM card of the local carrier can be inserted for dial-up access.

Prepare a standard SIM card (dimension: 25 mm x 15 mm, capacity ≥ 64 KB)

**Table 4-1** SIM card traffic description

| **Number of Connected Devices:** | **SIM Card Traffic** | **Traffic Baseline** |
|---|---|---|
| 1–5 | Traffic ≤ 30 MB/month | • Support updating device performance data every 5 minutes. |
| 6–10 | Traffic ≤ 50 MB/month | |
| ≥11 | Traffic ≤ number of devices x 5 MB/month | • Support the export of inverter logs and I–V diagnosis data, and the inverter upgrading once a month. |

## Procedure

**Step 1** Insert the SIM card into the SIM card slot.

> **NOTICE**
>
> - When installing the SIM card, determine its installation direction based on the silk screen and arrow on the card slot.
> - Press the SIM card in place to lock it. The SIM card is correctly installed.
> - When removing the SIM card, push it inward to eject it.

**Step 2** Install the antenna.

**Figure 4-12** Installing the SIM card and antenna
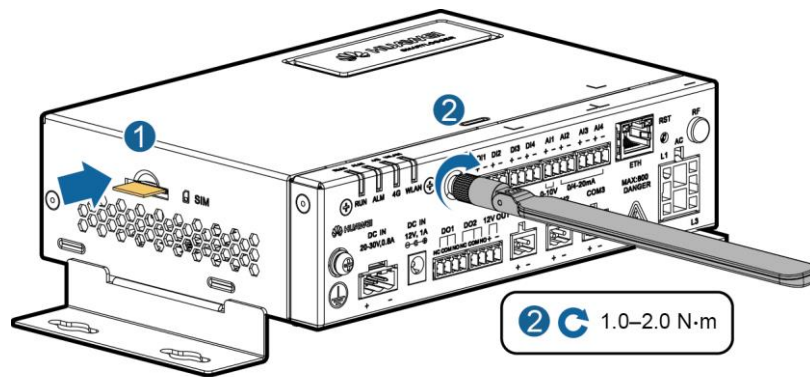


----**End**

# 5 System Operation

## 5.1 Check Before Power-On

**Table 5-1** Items to be checked before power-on

| No. | Check That |
|-----|------------|
| 1 | The SmartLogger is installed correctly and securely. |
| 2 | All cables are connected securely. |
| 3 | Routing for the power cables and signal cables meets the requirements for routing strong-current and weak-current cables and complies with the cable routing plan. |
| 4 | Cables are bound neatly, and cable ties are secured evenly and properly in the same direction. |
| 5 | There are no sundries such as unnecessary adhesive tape or cable ties on cables. |

## 5.2 Powering On the System

**Step 1** Connect the input power cable.

- **Method 1**: When a power adapter is used, connect the power adapter cable and turn on the switch on the AC socket side.

📖 NOTE

- The rated input of the power adapter is 100–240 V AC, 50/60 Hz.
- Select an AC socket that matches the power adapter.

**Figure 5-1** Supplying power through a power adapter
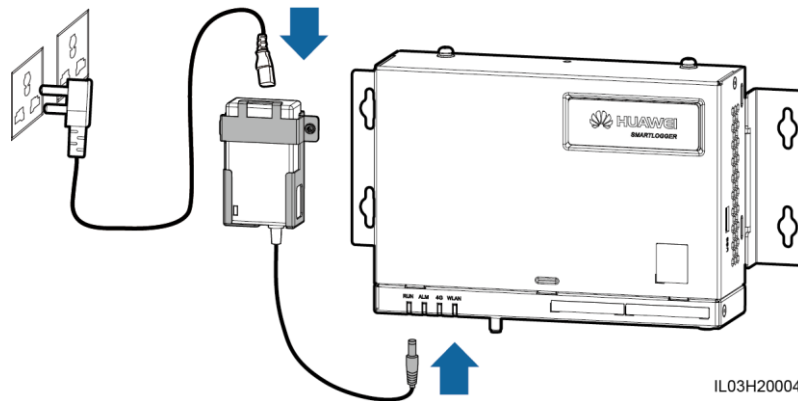


- **Method 2**: When a DC power supply is used, connect the cable between the DC power supply and the SmartLogger. Then, turn on the upstream power switch of the DC power supply.

**Figure 5-2** Supplying power through a DC power supply
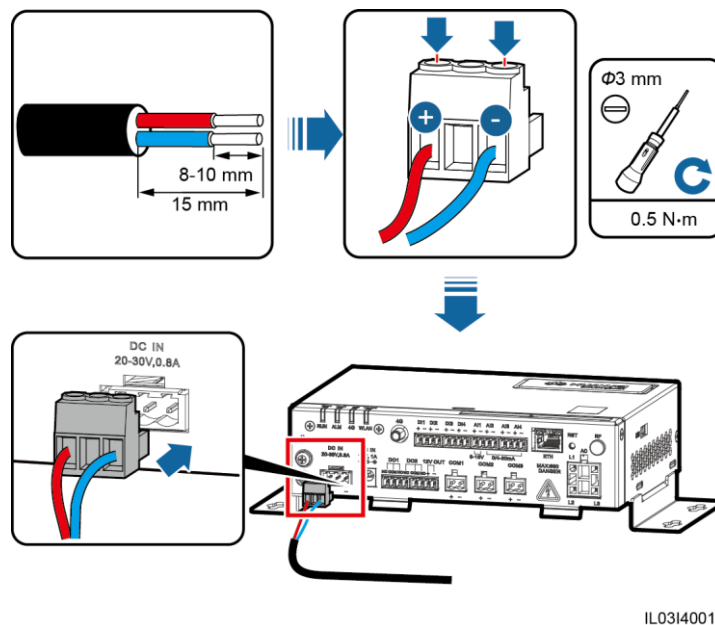


**Step 2** When PLC is used for communication, turn on all the upstream switch of the AC power cable

**----End**

# 6 WebUI Operations

## 6.1 Introduction to WebUI

---

**NOTICE**

- The web software version corresponding to the WebUI snapshots in this document is SmartLogger V100R002C00SPC020. The snapshots are for reference only.
- The parameter names, value ranges, and default values are subject to change. The actual display prevails.

---

### 6.1.1 WebUI Layout

**Figure 6-1** WebUI layout
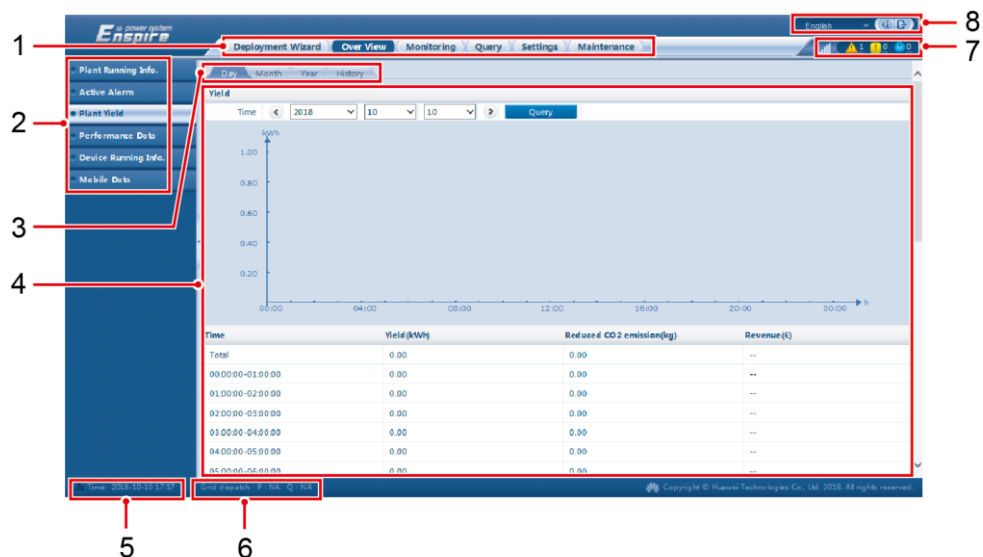
| No. | Function | Description |
|-----|----------|-------------|
| 1 | Main menu | Click the corresponding main menu before you perform an operation over the WebUI. |
| 2 | Second-level menu | Under the main menu, choose the device to be queried or the parameter to be set under the second-level menu. |
| 3 | Third-level menu | • After selecting a second-level menu, choose a third-level menu to access the query or setting page.<br>• There is no third-level menu under some second-level menus. |
| 4 | Details page | Displays the details of the queried information or parameter settings. |
| 5 | System time | Displays the current system time. |
| 6 | Power grid scheduling status | Displays the current power grid scheduling mode of the system. |
| 7 | Alarm icon | Displays the severities and number of active system alarms. You can click a number to access the alarm page. |
| 8 | Display language and logout button | Allows you to select the display language and log out. |

## 6.1.2 Icon Description

| Icon | Description | Icon | Description |
|------|-------------|------|-------------|
|  | Click the About icon to query the WebUI version information. |  | Click the Drop-down icon to select a parameter or time. |
|  | Click the Exit icon to log out. |  | Alarms are classified into major, minor, and warning ones. Click the Alarm icon to query an alarm. |
|  | Click the Increase/Decrease icon to adjust time. |  | Click the Start icon to start the device. |

| Icon | Description | Icon | Description |
|---|---|---|---|
| | The Select icon indicates that a parameter is selected. | | Click the Stop icon to shut down the device. |
| | The Select icon indicates that a parameter is not selected. Click the icon to select a parameter. | | Click the Reset icon to reset the device. |
| | Hide icon and Display icon. Click them to hide and expand parameters. | | • The inverter is in **On-grid** state.<br>• The EMI, power meter, slave SmartLogger, or PLC is in **Online** state.<br>• The PID is in **Running** state. |
| | The device is in **Disconnection** state.<br>If a device is in **Disconnection** state, its parameters cannot be set. | | The inverter is in **Loading** state. |
| | • The inverter is in **Initializing**, **Power-off**, **Idle**, or other state in which it is not feeding power into the grid.<br>• The PID device is in **Power-off**, **Idle** or other state in which it is not running properly. | - | - |

## 6.1.3 WebUI Menu

📖 NOTE

● ● indicates that the user has permission to operate the menu.

● ○ indicates that the user does not have permission to operate the menu.

**Table 6-1** WebUI menus and user operation permissions

| Main Menu | Second-Level Menu | Third-Level Menu | Function | Common User | Advanced User | Special User |
|---|---|---|---|---|---|---|
| Deployment Wizard | - | - | Supports the deployment wizard function. You can | ○ | ● | ● |

| Main Menu | Second-Level Menu | Third-Level Menu | Function | Common User | Advanced User | Special User |
|---|---|---|---|---|---|---|
| | | | set deployment parameters, connect devices, and connect to the management system according to the wizard. | | | |
| Over View | Plant Running Info. | - | Queries PV plant information. | ● | ● | ● |
| | Active Alarm | - | Queries active alarms. | ● | ● | ● |
| | Plant Yield | - | Queries the energy yield of the system.<br>● Daily energy yield: The data can be stored for 30 days on an hourly basis.<br>● Monthly energy yield: The data can be stored for one year on a daily basis.<br>● Annual energy yield: The data can be stored for 10 years on a monthly basis.<br>● Historical energy yield: The data can be stored for 25 years on a yearly basis. | ● | ● | ● |
| | Performance Data | - | Queries or exports performance data. | ● | ● | ● |
| | Device Running Data | - | Queries or exports device running information. | ● | ● | ● |
| | Mobile Data | - | Queries mobile network data. | ● | ● | ● |
| Monitoring | SmartLogger1000A | Running Info. | Queries the running information. | ● | ● | ● |
| | | Active Alarm | Queries active alarms. | ● | ● | ● |
| | | About | Queries the version and communication information of the master SmartLogger. | ● | ● | ● |

| Main Menu | Second-Level Menu | Third-Level Menu | Function | Common User | Advanced User | Special User |
|---|---|---|---|---|---|---|
| | SmartLogger | About | Queries the version and communication information of the slave SmartLogger. | ● | ● | ● |
| | SUN2000 | Running Info. | Queries the running information. | ● | ● | ● |
| | | Active Alarm | Queries active alarms. | ● | ● | ● |
| | | Performance Data | Queries or exports performance data. | ● | ● | ● |
| | | Yield | Queries the energy yield. | ● | ● | ● |
| | | Running Param. | Sets running parameters. | ○ | ● | ● |
| | | Tracking System | Sets tracing system parameters. | ○ | ● | ○ |
| | | LVRT Characteristic Curve | Sets the curve of the LVRT feature. | ○ | ○ | ● |
| | | About | Queries the version and communication information. | ● | ● | ● |
| | PLC | Running Info. | Queries the running information. | ● | ● | ● |
| | | STA List | • Sets or synchronizes the baud rates of PLC communication devices.<br>• Exports the STA list. | ○ | ● | ○ |
| | | Networking Settings | • Sets running parameters.<br>• Manages the SN list. | ○ | ● | ○ |
| | | About | Queries the version and communication information. | ● | ● | ● |
| | EMI | Running Info. | Queries the running information. | ● | ● | ● |
| | | Performance Data | Queries or exports performance data. | ● | ● | ● |
| | | Running | Sets running parameters. | ○ | ● | ○ |

| Main Menu | Second-Level Menu | Third-Level Menu | Function | Common User | Advanced User | Special User |
|---|---|---|---|---|---|---|
| | | Param. | | | | |
| | | About | Queries the version and communication information. | ● | ● | ● |
| | Power Meter | Running Info. | Queries the running information. | ● | ● | ● |
| | | Performance Data | Queries or exports performance data. | ● | ● | ● |
| | | Running Param. | Sets the running parameters of the DL/T645 power meter. | ○ | ● | ● |
| | | About | Queries the version and communication information. | ● | ● | ● |
| | PID | Running Info. | Queries the running information. | ● | ● | ● |
| | | Active Alarm | Queries active alarms. | ● | ● | ● |
| | | Performance Data | Queries or exports performance data. | ● | ● | ● |
| | | Running Param. | Sets running parameters. | ○ | ● | ○ |
| | | About | Queries the version and communication information. | ● | ● | ● |
| | Custom Device and IEC103 Device | Running Info. | Queries the running information. | ● | ● | ● |
| | | Teleindication | Queries teleindication parameters. | ● | ● | ● |
| | | Telemetering | Queries telemetering parameters. | ● | ● | ● |
| | | Telecontrol | Sets telecontrol parameters. | ● | ● | ● |
| | | Teleadjust | Sets teleadjust parameters. | ● | ● | ● |
| Query | Alarm History | - | Queries historical alarms. | ● | ● | ● |
| | Operation Log | - | Queries operation logs. | ○ | ● | ● |

| Main Menu | Second-Level Menu | Third-Level Menu | Function | Common User | Advanced User | Special User |
|---|---|---|---|---|---|---|
| | Export Data | - | Exports historical alarms, energy yield, operation logs, and power grid scheduling data. | ○ | ● | ● |
| Settings | User Param. | Date&Time | Sets the date and time. | ● | ● | ○ |
| | | Plant | Sets PV plant information. | ● | ● | ○ |
| | | Revenue | Sets the revenue parameters. | ● | ● | ○ |
| | | Save Period | Sets the save period of performance data. | ● | ● | ○ |
| | Comm. Param. | Wireless Network | • Changes the SSID and password of the built-in WLAN.  • Sets mobile data (4G/3G/2G) parameters. | ○ | ● | ○ |
| | | Wired Network | Sets wired network parameters. | ○ | ● | ○ |
| | | RS485 | Sets RS485 parameters. | ○ | ● | ● |
| | | Power Meter | Sets power meter parameters. | ○ | ● | ● |
| | | Management | • Sets management system parameters.  • Uploads the security certificate. | ○ | ● | ○ |
| | | Modbus TCP | Sets Modbus TCP parameters. | ○ | ● | ● |
| | | IEC103 | Sets IEC103 parameters. | ○ | ● | ○ |
| | | IEC104 | Sets IEC104 parameters. | ○ | ● | ○ |
| | Extended Parameters | FTP | Sets FTP parameters. | ○ | ● | ○ |
| | | Email | Sets email parameters. | ○ | ● | ○ |
| | Port Setting | DO | Configures the DO port function. | ○ | ● | ○ |
| | | USB | Configures the USB port function. | ○ | ● | ○ |
| | Alarm | - | Sets the association | ○ | ● | ○ |

| Main Menu | Second-Level Menu | Third-Level Menu | Function | Common User | Advanced User | Special User |
|---|---|---|---|---|---|---|
| | Output | | between the inverter alarms and DO port. | | | |
| | Other Parameters | - | • Sets **RS485 upgrade rate autonegotiation**.<br>• Sets **AI1 SPD detection alarm**. | ○ | ● | ○ |
| | Active Power Control | - | Sets parameters for active power control. | ○ | ○ | ● |
| | Reactive Power Control | - | Set parameters for reactive power control. | ○ | ○ | ● |
| | Dry Contact Remote Shut | - | Sets parameters for remote shutdown over dry contacts. | ○ | ○ | ● |
| | DI | - | Configures the DI port function. | ○ | ○ | ● |
| | Export Limitation | - | Sets export limitation parameters. | ○ | ○ | ● |
| | DRM | - | Sets the DRM parameters. | ○ | ○ | ● |
| Maintenance | Firmware Upgrade | - | Upgrades the firmware of the SmartLogger, inverter, PLC module, or PID module. | ○ | ● | ● |
| | Product Information | - | Queries product information. | ● | ● | ● |
| | Security Settings | - | • Changes the user password.<br>• Sets the automatic logout time.<br>• Uploads a network security certificate.<br>• Updates the key.<br>• Sets web TLS1.0.<br>• An advanced user or a special user can configure digital signature verification. | ● | ● | ● |
| | System | - | • Resets the system. | ○ | ● | ● |

| Main Menu | Second-Level Menu | Third-Level Menu | Function | Common User | Advanced User | Special User |
|---|---|---|---|---|---|---|
| | Maint. | | • Restores the factory settings. <br> • Clears data. <br> • Full profile export. <br> • Full profile import. | | | |
| | Device Log | - | Exports device logs. | ○ | ● | ● |
| | Onsite Test | Inspection | Starts the inverter health check. | ○ | ● | ● |
| | | Spot-check | Starts the inverter spot-check. | ○ | ● | ● |
| | License Management | - | • Views the license information. <br> • Exports the license application file. <br> • Loads or revokes a license. | ○ | ● | ● |
| | Device Mgmt. | Connect Device | • Adds or removes a device. <br> • Imports or exports configurations. | ○ | ● | ● |
| | | Device List | • Modifies device information. <br> • Imports or exports device information. | ○ | ● | ● |
| | | Export Param. | Exports device parameters. | ○ | ● | ● |
| | | Clear Alarm | Clears device alarms. | ○ | ● | ● |
| | | Collect Perf. Data | Recollects historical performance data and energy yield of devices. | ○ | ● | ● |
| | | Adjust total energy yield | Calibrates the accumulated energy yield. | ○ | ● | ● |

☐ NOTE

The third-level menu varies with the device model and grid code. The displayed menu prevails.

# 6.2 Device Commissioning

## Prerequisites

- Device and cable installation has been checked according to PV plant specifications and requirements.
- The PV plant devices and SmartLogger are powered on.
- You have obtained the IP address of the SmartLogger as well as the user name and password used for logging in to the WebUI.

## Context

After installing or replacing a device or SmartLogger, you need to set device parameters and add the device.

# 6.2.1 Preparations and WebUI Login

## Prerequisites

- Operating system: Windows 7 or later
- Browser: Chrome52, Firefox58, Internet Explorer 9 or later is recommended.

## Procedure

**Step 1** Connect the network cable between the network port on the PC and the ETH port on the SmartLogger.

**Step 2** Set the IP addresses of the PC and SmartLogger in the same network segment.

| Item | SmartLogger Default Value | Example PC Setting |
| --- | --- | --- |
| IP address | 192.168.0.10 | 192.168.0.11 |
| Subnet mask | 255.255.255.0 | 255.255.255.0 |
| Default gateway | 192.168.0.1 | 192.168.0.1 |

**Step 3** Set LAN parameters.

> **NOTICE**
>
> - If the SmartLogger is connected to a local area network (LAN) and a proxy server has been set, you need to cancel the proxy server settings.
> - If the SmartLogger is connected to the Internet and the PC is connected to the LAN, do not cancel the proxy server settings.

1. Open Internet Explorer.
2. Choose **Tools** > **Internet Options**.
3. Click the **Connections** tab and then click **LAN settings**.

4. Clear **Use a proxy server for your LAN**.

**Figure 6-2** LAN settings
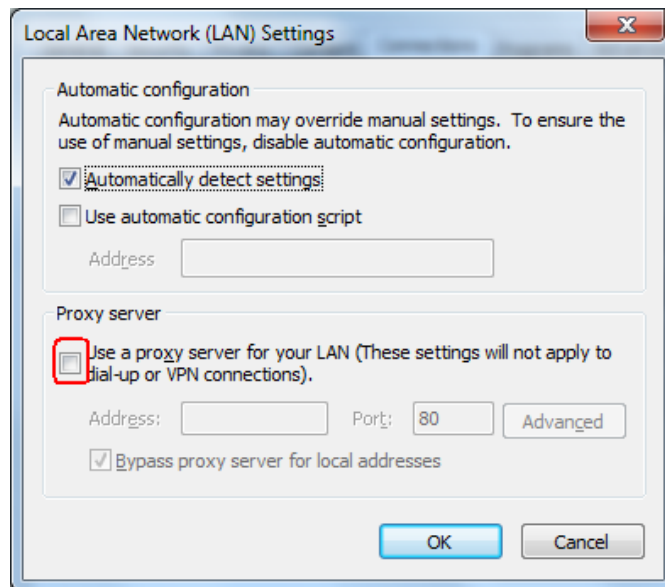


5. Click **OK**.

**Step 4** Log in to the SmartLogger WebUI.

1. Enter **https://XX.XX.XX.XX** (XX.XX.XX.XX is the IP address of the SmartLogger) in the address box of the browser, and press **Enter**. The login page is displayed.

   If you log in to the WebUI for the first time, a security risk warning is displayed. Click **Continue to the website (not recommended)** to log in to the WebUI.

   ◫ NOTE

   - It is recommended that users use their own certificates. If the certificate is not replaced, the security risk warning will be displayed during each login.
   - After logging in to the WebUI, you can import a certificate under **Maintenance** > **Security Settings** > **Network Security Certificate**.
   - The imported security certificate needs to be bound to the SmartLogger IP address. Otherwise, the security risk warning will still be displayed during login.

**Figure 6-3** Security risk warning
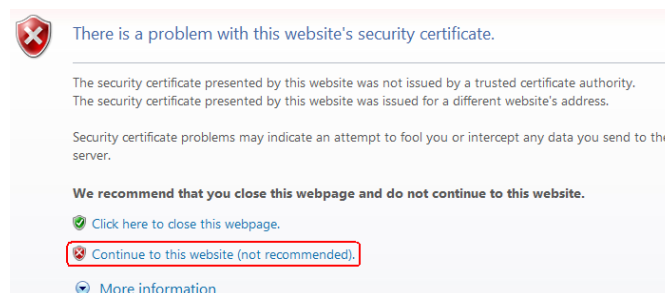


2. Specify **Language**, **User Name**, and **Password**, and click **Log In**.

**Figure 6-4** Login page
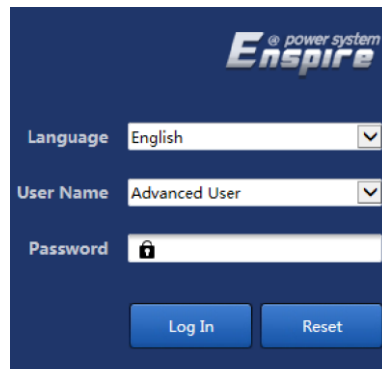


IL03J00002

| Parameter | Description |
|-----------|-------------|
| Language | Set this parameter as required. |
| User Name | If device commissioning is required, select **Advanced User** or **Special User**. |
| Password | • The initial password is **Changeme**. Change the password immediately to ensure account security.<br>• If you enter incorrect passwords for five consecutive times within 5 minutes, your account will be locked out. You need to try again with the account 10 minutes later. |

**----End**

## Follow-up Procedure

If any page is blank or a menu cannot be accessed after you log in to the WebUI, clear the cache, refresh the page, or log in again.

# 6.2.2 Performing Deployment Wizard

## Context

The deployment wizard allows you to configure basic SmartLogger parameters, connect Huawei devices, power meters, and EMIs, configure Huawei NMS, and implement interworking with third-party devices.

## Procedure

**Step 1** Log in as **Advanced User** or **Special User** to access the deployment wizard page.

**Step 2** Set parameters as prompted. For details, click **Help** on the page.

📖 **NOTE**

When setting parameters, click **Previous**, **Next**, and **Skip** as required.

**Figure 6-5** Deployment wizard
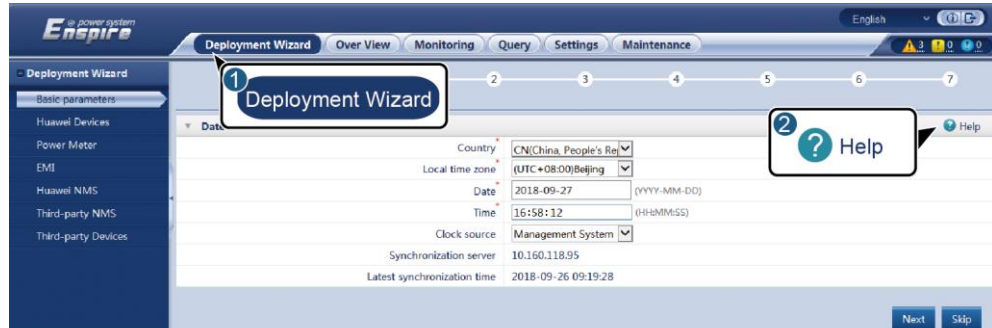


IL03J00003

**Step 3** After setting parameters, click **Finish**.

**----End**

# 6.3 Parameter Settings

**NOTICE**

● If the parameters listed in this section have been set in **Deployment Wizard**, ignore the settings for these parameters.

● If the PV plant does not contain certain devices, such as electricity meters, EMIs, IEC103 devices, and custom devices, ignore the corresponding settings.

● You are advised to log in as **Advanced User** and set related parameters.

## 6.3.1 Setting User Parameters

Log in as **Common User** or **Advanced User**, set user parameters, and click **Summit**.

**Figure 6-6** Setting user parameters
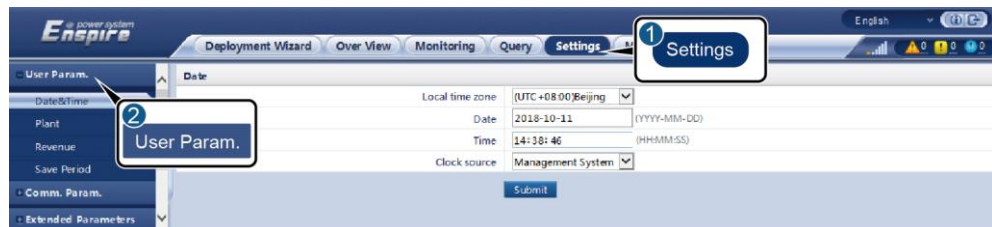


IL03J00004

### Date&Time

| Parameter | Description |
|---|---|
| Local time zone | Select a time zone based on the region where the PV plant is located. |
| DST enable | Set this parameter as required.<br>**NOTE**<br>This parameter is unavailable for zones without DST. |
| Date | Set this parameter to the local date. |
| Time | Set this parameter to the local time. |
| Clock source | Set this parameter as required.<br>The value can be **NTP**, **Management System**, **IEC104**, or **Modbus-TCP**. If there is no management system, ignore the corresponding setting. |

**NOTICE**

● After the date and time are set, the date and time of all the inverters connected to the SmartLogger are updated accordingly. Ensure that the settings are correct.

● Changing the date and time affects the recording of system energy yield and performance data. Do not change the time zone or system time unless necessary.

### Plant

| Parameter | Description |
|---|---|
| Plant name | Set this parameter as required. |
| Plant address | **NOTE**<br>In the English half-width status, you cannot enter any of the following characters:<br><>:,`'?()#&\$\|%+;~^" |
| Plant owner | |
| Plant owner address | |
| Country | Select a country based on the region where the PV plant is located. |

### Revenue

| Parameter | Description |
|---|---|
| Currency | Set this parameter as required.<br>The value can be **EUR**, **GBP**, **USD**, **CNY**, or **JPY**. |

| Parameter | Description |
|---|---|
| Electricity price/kWh | Set this parameter to the local electricity price, which is used to calculate the converted revenue of the energy yield. |
| CO2 emission reduction coefficient | Set this parameter based on the local standard. |

## Save Period

| Parameter | Description |
|---|---|
| Performance data save period | Set this parameter to the save period of performance data. After the setting, the data will be displayed accordingly on the performance data page. |

# 6.3.2 Setting Parameters for Connecting to the NMS

## Procedure

**Step 1** Log in as **Advanced User** and set up a network connection.

- **Method 1**: If the SmartLogger connects to the NMS over the 4G/3G/2G network, set mobile data parameters and click **Submit**.

**Figure 6-7** Setting mobile data parameters
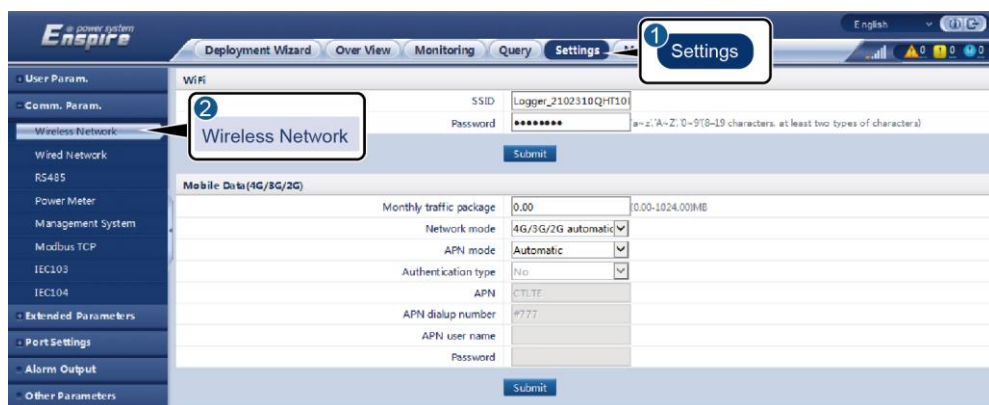


IL03J00005

| Parameter | Description |
|---|---|
| Monthly traffic package | Set this parameter based on the SIM card traffic package. |
| Network mode | Set this parameter based on the SIM card network mode. |

| Parameter | Description |
|---|---|
| APN mode | The default value is **Automatic**. Set this parameter to **Manual** if the dial-up connection cannot be set up in **Automatic** mode. |
| Authentication type | When **APN mode** is set to **Manual**, you need to set the parameters related to the SIM card. Obtain the information about the parameters from the SIM card operator. |
| APN | |
| APN dialup number | |
| APN user name | |
| Password | |

- **Method 2**: If the SmartLogger connects to the NMS over a wired network, set the wired network parameters and click **Submit**.

**Figure 6-8** Setting wired network parameters
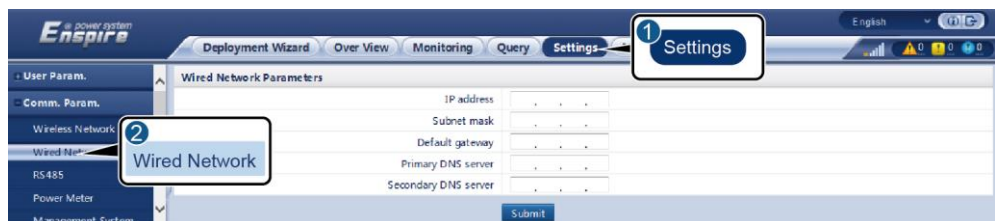


| Parameter | Description |
|---|---|
| IP Address | Set this parameter based on the PV plant plan.<br>**NOTE**<br>If the IP address is changed, use the new IP address to log in again. |
| Subnet mask | Set this parameter based on the actual subnet mask of the LAN where the SmartLogger is located. |
| Default gateway | Set this parameter based on the actual gateway of the LAN where the SmartLogger is located. |
| Primary DNS server | You can ignore this parameter if the SmartLogger connects to the LAN.<br>Set this parameter to the IP address of the LAN router when the SmartLogger connects to the public network (for example, connecting to the hosting cloud server, email server, or third-party FTP server). |

| Parameter | Description |
|---|---|
| Secondary DNS server | In normal cases, you can ignore this parameter. |
| | If the primary DNS server cannot resolve the domain name, the secondary DNS server is used. |

**Step 2** Set the management system parameters.

- **Method 1**: If the SmartLogger connects to a Huawei NMS or a third-party NMS using the encrypted Modbus TCP protocol, log in as **Advanced User**, set management system parameters, and click **Submit**.

**Figure 6-9** Setting management system parameters
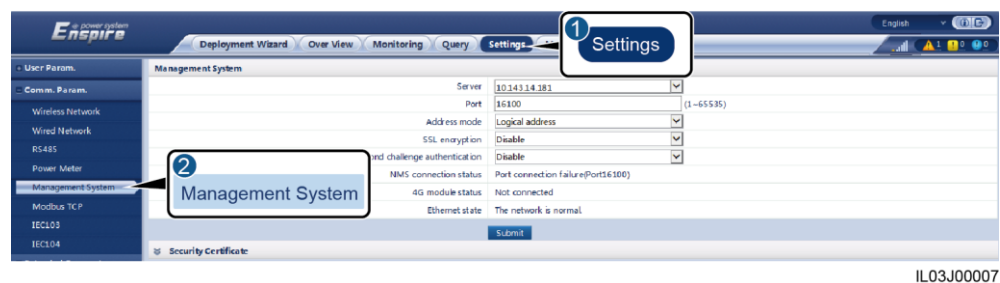


IL03J00007

| Parameter | Description |
|---|---|
| Server | Set this parameter to the IP address or domain name of the management system. |
| Port | Set this parameter based on the connected management system. |
| Address mode | The value can be **Comm.address** or **Logical address**. |
| | If the communication address of the device connected to the SmartLogger is unique, you are advised to select **Comm.address**. In other cases, you must select **Logical address**. |
| SSL encryption | Retain the default value **Enable**. |
| | NOTE |
| | If this parameter is set to **Disable**, data exchange between the SmartLogger and the management system will not be encrypted, which poses security risks. |
| Second challenge authentication | If this parameter is set to **Disable**, the system does not check the result of the second challenge authentication. |
| Security certificate | Optional. Set this parameter only when the certificate has expired or the customer needs to use their own certificate. |

- **Method 2**: If the SmartLogger connects to a third-party NMS using the unencrypted Modbus-TCP protocol, log in as **Advanced User** or **Special User**, set Modbus TCP parameters, and click **Submit**.

**Figure 6-10** Setting Modbus TCP parameters



| Parameter | Description |
|---|---|
| Link setting | Modbus TCP is a general standard protocol without a security authentication mechanism. To reduce network security risks, the function of connecting to a third-party NMS using the Modbus TCP protocol is disabled by default.<br><br>To use this function, you can set this parameter to **Enable(Limited)** or **Enable(Unlimited)**.<br><br>• If this parameter is set to **Enable(Limited)**, the SmartLogger can connect to a maximum of five preset third-party NMSs.<br><br>• If this parameter is set to **Enable(Unlimited)**, the SmartLogger can connect to any third-party NMS with a valid IP address. |
| Client N IP Address<br>**NOTE**<br> N is 1, 2, 3, 4, or 5. | If **Link setting** is set to **Enable(Limited)**, set this parameter based on the IP address of the third-party NMS. |
| Address mode | The value can be **Comm.address** or **Logical address**.<br><br>If the communication address of the device connected to the SmartLogger is unique, you are advised to select **Comm.address**. In other cases, you must select **Logical address**. |
| SmartLogger address | Set this parameter to the communication address of the SmartLogger. |

- **Method 3**: If the SmartLogger connects to a third-party NMS using the IEC104 protocol, log in as **Advanced User**, set IEC104 parameters, and click **Submit**.

**Figure 6-11** Setting IEC104 parameters
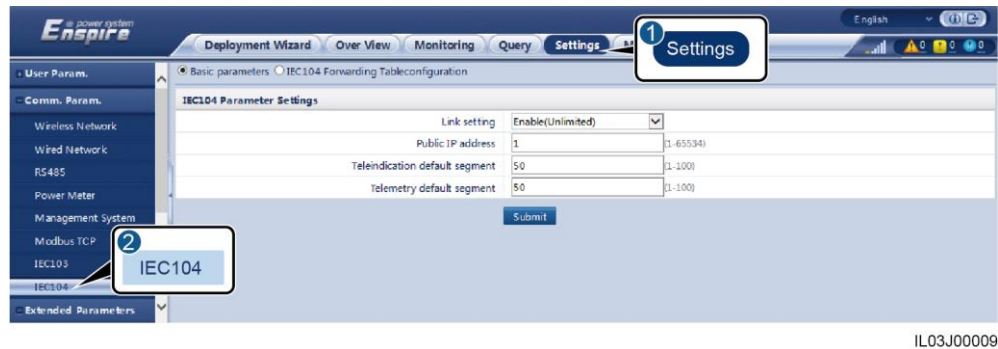


IL03J00009

| Tab | Parameter | Description |
|---|---|---|
| Basic parameters | Link setting | IEC104 is a general standard protocol without a security authentication mechanism. To reduce network security risks, the function of connecting to a third-party NMS using the IEC104 protocol is disabled by default.<br><br>To use this function, set this parameter to **Enable(Limited)** or **Enable(Unlimited)**.<br><br>• If this parameter is set to **Enable(Limited)**, the SmartLogger can connect to a maximum of five preset third-party NMSs.<br><br>• If this parameter is set to **Enable(Unlimited)**, the SmartLogger can connect to any third-party NMS with a valid IP address. |
| | IEC104-N IP<br><br>NOTE<br>  N is 1, 2, 3, 4, or 5. | If **Link setting** is set to **Enable(Limited)**, set this parameter based on the IP address of the third-party NMS. |
| | Public IP address | Set these parameters as required. |
| | Teleindication default | |

| Tab | Parameter | Description |
|-----|-----------|-------------|
| | segment | |
| | Telemetry default segment | |
| IEC104 forwarding table configuration | - | Set this parameter as required.<br><br>**NOTE**<br>After the IEC104 configuration file exported from the SmartLogger and the device type IEC104 information files delivered with devices are correctly configured in a third-party NMS, the third-party NMS will be able to monitor devices connected to the SmartLogger over the IEC104 protocol. |

**----End**

# 6.3.3 Setting RS485 Communications Parameters

Log in as **Advanced User** or **Special User**, set RS485 parameters, and click **Submit**.

**Figure 6-12** Setting RS485 parameters
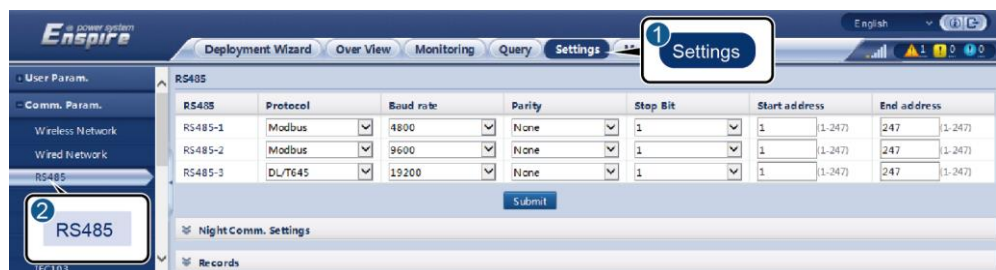


IL03J00010

## RS485

RS485-1 to RS485-3 correspond to communications ports COM1 to COM3 respectively. **Protocol**, **Baud rate**, **Parity**, and **Stop Bit** must be set to the same values for the devices connected to the same COM port.

| Parameter | Description |
|-----------|-------------|
| Protocol | Set this parameter based on the protocol type of the connected device.<br><br>The value can be **Modbus**, **IEC103**, **DL/T645**, **Modbus-Slave**, or **Modbus-Control**. |

| Parameter | Description |
|---|---|
|  | **NOTE** <br> • When the SmartLogger serves as a slave node to interconnect with a third-party device over Modbus-RTU, set **Protocol** to **Modbus-Slave**. <br> • When the connected inverter performs rapid power grid scheduling using both PLC and RS485, set **Protocol** to **Modbus-Control**. |
| Baud rate | Set this parameter based on the baud rate of the connected device. <br> The value can be **2400**, **4800**, **9600**, **19200**, or **115200**. |
| Parity | Set this parameter based on the parity mode of the connected device. <br> The value can be **None**, **Odd parity**, or **Even parity**. |
| Stop Bit | Set this parameter based on the stop bit of the connected device. <br> The value can be **1** or **2**. |
| Start address <br><br> End address | 1 ≤ Start address ≤ Communication address of the connected device ≤ End address ≤ 247 <br> The address segments for RS485-1 to RS485-3 can overlap. <br> **NOTE** <br> The start and end addresses have no impact on the devices that have been connected. |

## Night Comm. Settings

If device information query is not required at night, enable **Night silent**.

| Parameter | Description |
|---|---|
| Night silent | Specifies whether the night silent mode is enabled. |
| Enter time | Specifies the time for entering the night silent mode. |
| Exit time | Specifies the time for exiting the night silent mode. |
| Wakeup period | Specifies the wakeup period for the night silent mode. |

## Records

The SmartLogger supports exporting of PLC and RS485 communication packets.

Set **Choose port** and click **Start** to start packet recording. Then, click **Export** to stop packet recording and export the packets.

| Parameter | Description |
|---|---|
| Choose port | Specifies the port for recording packets.<br>The value can be **All**, **PLC**, **RS485-1**, **RS485-2**, or **RS485-3**. |

# 6.3.4 Setting Slave SmartLogger Parameters

Log in as **Advanced User** or **Special User**, set the access parameters for the slave SmartLogger, and click **Add Devices**.

### ☐ NOTE

The communications parameter Modbus TCP must be set to **Enable(Umlimited)**.

**Figure 6-13** Setting access parameters
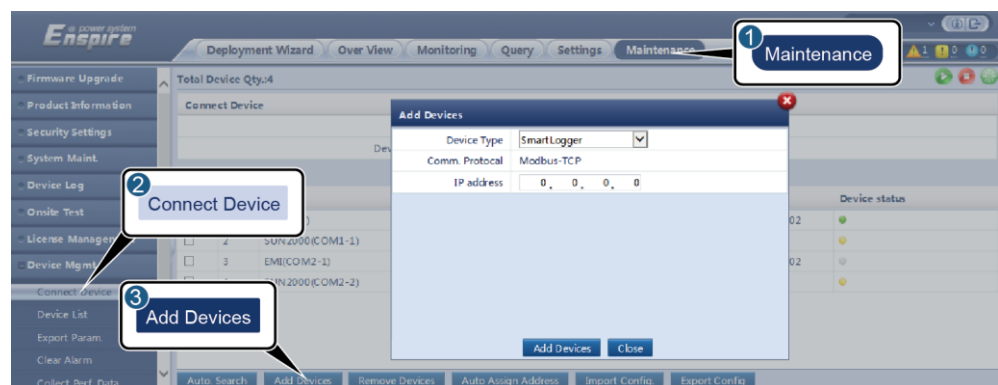


| Parameter | Description |
|---|---|
| Device Type | Set this parameter to **SmartLogger**. |
| IP address | Set this parameter to the IP address of the slave SmartLogger. |

# 6.3.5 Setting PLC CCO Parameters

## Procedure

**Step 1** Log in as **Advanced User** or **Special User** and set access parameters.

● Set parameters for the built-in PLC CCO and click **Submit**.

**Figure 6-14** Setting parameters for the built-in PLC
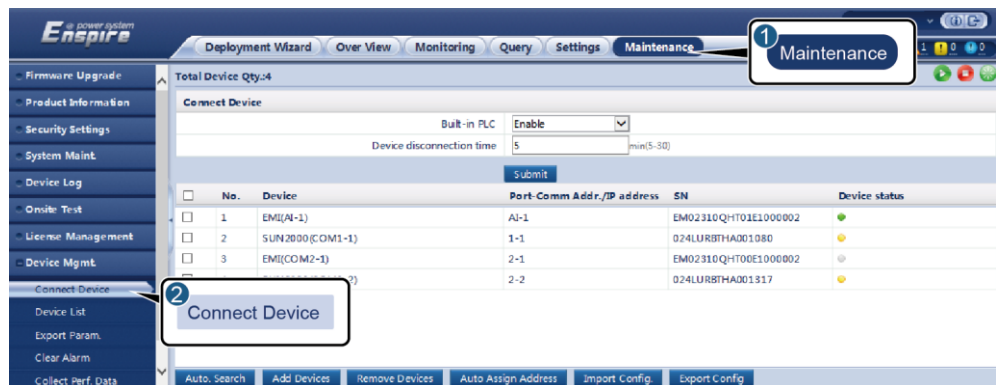


IL03J00012

| Parameter | Description |
|---|---|
| Built-in PLC | • If the SmartLogger communicates with the inverter using a built-in PLC, set this parameter to **Enable**.<br>• If only RS485 communication is used between the SmartLogger and the inverter and third-party device, set this parameter to **Disable**. |
| Device disconnection time | Specifies the duration for determining device disconnection. |

● Set access parameters for an external PLC CCO.
  – **Method 1**: Click **Auto. Search** to connect to the PLC CCO.
  – **Method 2**: Click **Add Devices**, set access parameters, and click **Add Devices**.

**Figure 6-15** Setting access parameters for an external PLC
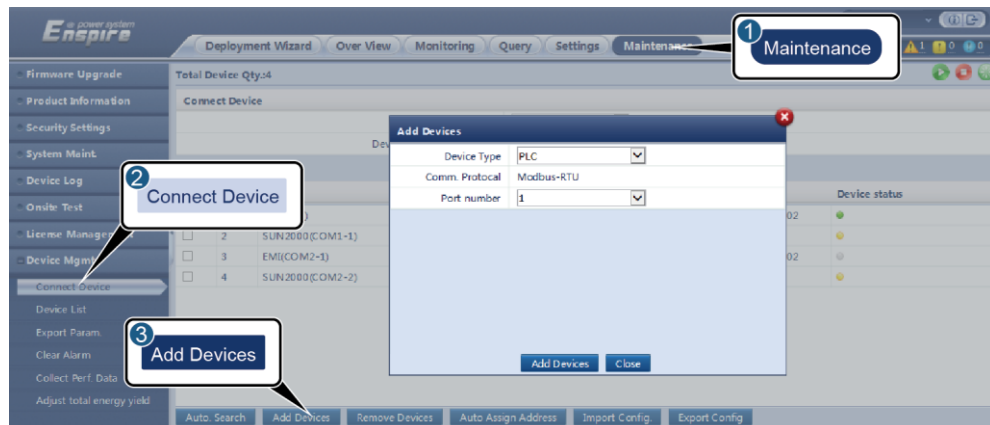


| Parameter | Description |
|-----------|-------------|
| Device type | Set this parameter to **PLC**. |
| Port number | Set this parameter to the number of the COM port connected to the PLC CCO. |

**Step 2** Log in as **Advanced User** and set networking parameters.

**Figure 6-16** Networking settings



| Category | Parameter | Description |
|----------|-----------|-------------|
| Running Param. | Baud rate | Retain the default value **115200** for optimal communications performance. |
| | Anti-crosstalk | Set this parameter to **Enable**. When the box-type transformer number and winding number of the inverter are the same as those of the PLC CCO, or the inverter SN is in the SN |

| Category | Parameter | Description |
|---|---|---|
|  |  | list, the inverter can connect to the SmartLogger over a PLC network. |
|  | Network frequency band | • U.S.: Set this parameter to **1.7–4.9 (MHz)**.<br>• Other regions: Retain the default value **2.5–5.7 (MHz)**.<br>**NOTE**<br>Other network frequency bands are reserved. |
|  | Box-type transformer No. | Set this parameter based on the number of the box-type transformer connected to the SmartLogger. |
|  | Winding No. | In multi-split box-type transformer scenarios, set this parameter based on the number of the winding of the box-type transformer connected to the SmartLogger. |
|  | Networking | • When the SmartLogger communicates with the inverter over PLC, set **Networking** to **Enable**.<br>• When the SmartLogger communicates with the inverter only over RS485, set **Networking** to **Disable**. |
| SN List | - | • Maintain the inverter SN list.<br>• You can click **Synchronize** to synchronize the box-type transformer number and winding number of the PLC CCO to the inverters in the SN list. |

**----End**

## 6.3.6 Setting SUN2000 Parameters

### Procedure

**Step 1** Log in as **Advanced User** or **Special User** and set access parameters.

- **Method 1**: Click **Auto. Search** to connect to the SUN2000.
- **Method 2**: Click **Add Devices**, set access parameters, and click **Add Devices**.

**Figure 6-17** Setting access parameters
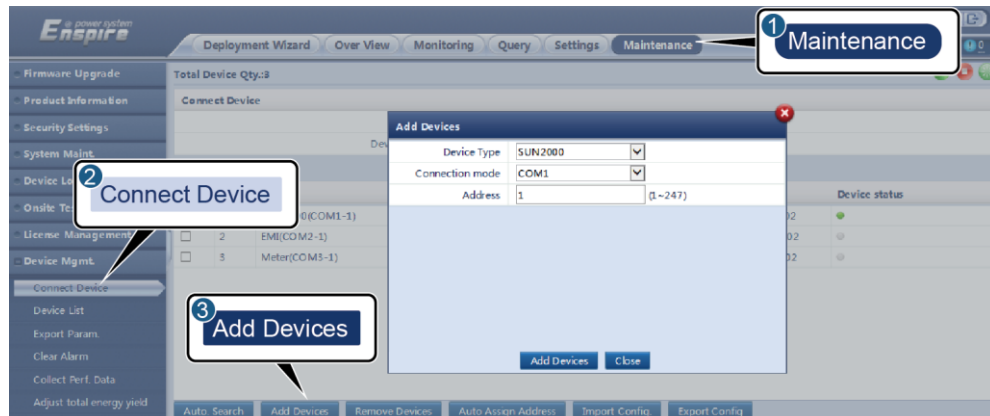


IL03J00015

| Parameter | Description |
|---|---|
| Device type | Set this parameter to **SUN2000**. |
| Connection mode | <ul><li>If the inverter uses PLC for communication, set this parameter to **PLC**.</li><li>If the inverter uses RS485 for communication, set this parameter to the COM port connected to the inverter.</li></ul> |
| Address | Set this parameter to the communication address of the inverter. |

**Step 2** Set running parameters and click **Submit**.

**NOTICE**

Before setting the running parameters of the inverter, ensure that the DC side of the inverter is energized.

**Figure 6-18** Setting running parameters



**----End**

# 6.3.6.1 Running Parameters (Advanced User)

## Grid Parameters

| Parameter | Description |
|---|---|
| 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. |
| Isolation | Specifies the inverter working mode based on the grounding status at the DC side and the connection to the power grid. |

## Protection Parameters

| Parameter | Description |
|---|---|
| Insulation resistance protection | To ensure device safety, the inverter detects the insulation resistance of the input side to the ground when it starts a self-check. If the detected value is less than the preset value, the inverter does not feed power to the power grid. |

## Feature Parameters

| Parameter | Description |
|---|---|
| MPPT multi-peak scanning | When the inverter is used in scenarios where PV strings are obviously shaded, enable this function. Then the inverter will perform MPPT scanning at regular intervals to locate the maximum power. |
| MPPT scanning interval | Specifies the MPPT multi-peak scanning interval. |

| Parameter | Description |
|---|---|
| RCD enhancing | RCD refers to the residual current of the inverter to the ground. To ensure device and personal safety, RCD should comply with the standard. If an AC switch with a residual current detection function is installed outside the inverter, you need to enable this function to reduce the residual current generated during inverter running, thereby preventing the AC switch from misoperations. |
| Reactive power output at night | In some specific application scenarios, a power grid company requires the inverter to perform reactive power compensation at night to ensure that the power factor of the local power grid meets requirements.<br><br>This parameter is available only when **Isolation** is set to **Input ungrounded (with TF)**. |
| Strong adaptability | If the value of **Power grid short circuit capacity/power plant installed capacity** is less than 3 and the power grid impedance is too high, the power grid quality will be affected and the inverter may be unable to run properly. Set **Strong adaptability** to **Enable**. |
| Power quality optimization mode | If **Power quality optimization mode** is set to **Enable**, the output current harmonics of the inverter will be optimized. |
| PV module type | Specifies the type of PV module. The PV module type determines the inverter shutdown time. If concentration PV modules are shaded, the power may drop to 0 abruptly and the inverter shuts down. The energy yield would be affected since it takes too long for the power to recover and inverter to restart.<br><br>• If **PV module type** is set to **Crystalline** or **Film**, the inverter will run properly and will not shut down if PV modules are blocked.<br>• When concentration PV modules are used:<br>  – If **PV module type** is set to **CPV 1**, the inverter can restart quickly in 60 minutes if PV modules are shaded and the input power decreases abruptly.<br>  – If **PV module type** is set to **CPV 2**, the inverter can restart quickly in 10 minutes if PV modules are shaded and the input power decreases abruptly. |
| Crystalline silicon PV compensation mode | This parameter reduces the DC voltage of PV modules to the PE by reducing the impedance of the inverter input side to the PE, thereby effectively reducing PID effect of PV modules.<br><br>Set this parameter to **P-type output** for P-type PV modules and **N-type output** for N-type PV modules. |

| Parameter | Description |
|---|---|
| Communication interrupt shutdown | The standards of certain countries and regions require that the inverter must shut down after the communication is interrupted for a certain time.<br><br>If **Communication interrupt shutdown** is set to **Enable** and the inverter communication has been interrupted for a specified time (set by **Communication interruption duration**), the inverter will automatically shut down. |
| Communication interruption duration | Specifies the duration for determining communication interruption, and is used for automatic shutdown for protection in case of communication interruption. |
| Communication resumed startup | If this parameter is enabled, the inverter automatically starts after communication recovers. If this parameter is disabled, the inverter needs to be started manually after communication recovers. |
| Soft start time | Specifies the duration for the power to gradually increase when the inverter starts. |
| AFCI | The North American standard requires the inverter to provide the DC arc detection function. |
| Arc detection adaptation mode | Adjusts the sensitivity of arc detection. |
| AFCI self-test | Sends the AFCI self-check command manually. |
| Current error during scanning | When the IV curves of PV strings are being scanned, the current change of PV strings operating properly should be monitored to avoid inaccurate scanning caused by sunlight change. When the current exceeds the specified value, it is determined that the sunlight changes, and the IV curves should be scanned again. |
| OVGR linked shutdown | • If this parameter is set to **Enable**, the inverter shuts down after receiving the OVGR signal.<br>• If this parameter is set to **Disable**, the inverter does not shut down after receiving the OVGR signal. |
| Dry contact function | Identifies the dry contact signals from the SmartLogger.<br><br>Set this parameter to **OVGR** for OVGR signals, and set it to **NC** for other signals. |
| Hibernate at night | The inverter monitors PV strings at night. If **Hibernate at night** is set to **Enable**, the monitoring function of the inverter will hibernate at night, reducing power consumption. |
| PLC communication | For inverter models that support both RS485 and PLC communication, when RS485 communication is used, you are advised to set **PLC communication** to **Disable** to reduce power consumption.<br><br>• If the inverter communicates with the SmartLogger |

| Parameter | Description |
|---|---|
| | in PLC mode and the inverter does not support the setting of **RS485-2 communication**, this parameter cannot be set to **Disable**.<br>• If **Tracker controller** is set to a manufacturer model, this parameter cannot be set to **Disable**. |
| Upgrade delay | **Upgrade delay** is mainly used in the upgrade scenarios where the PV power supply is disconnected at night due to no light or unstable at dawn or dusk due to poor sunlight.<br>After the SUN2000 upgrade starts, if **Upgrade delay** is set to **Enable**, the upgrade package is loaded first. After the PV power supply recovers and the activation conditions are met, the SUN2000 automatically activates the upgrade. |
| String monitor | The inverter monitors PV strings in real time. If any PV string is abnormal (such as energy yield decrease as a result of a shaded PV string), the inverter raises an alarm to remind maintenance personnel to maintain the PV string in a timely manner.<br>If PV strings are easily shaded, you are advised to set **String monitor** to **Disable**. |
| String detection low power delay | Specifies the delay time for raising 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. |
| String detection high power delay | Specifies the delay time for raising abnormal string alarms when the inverter detects that a PV string is working with high power. |
| 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. |
| 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 the value of this parameter. |
| 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 the value of this parameter. |
| Shutdown at 0% power limit | • If this parameter is set to **Enable**, the inverter shuts down after receiving the 0% power limit instruction.<br>• If this parameter is set to **Disable**, the inverter does |

| Parameter | Description |
|---|---|
| | not shut down after receiving the 0% power limit instruction. |
| Maximum apparent power | Specifies the output upper threshold for the maximum apparent power to adapt to the capacity requirements of standard and customized transformers.<br><br>If the maximum active power equals Smax_limit, this parameter is not displayed. |
| Maximum active power | Specifies the output upper threshold for the maximum active power to adapt to various market requirements. |
| Tracker controller | Selects a controller vendor based on the actual situation. |
| Commanded shutdown hold after power recovery | The standards of certain countries and regions require the inverter to remain in the commanded shutdown state after being powered off by a command and experiencing a power failure and recovery. |
| String connection mode | Specifies the connection mode of PV strings.<br>● You do not need to set this parameter if each PV string is separately connected to an inverter. The inverter can automatically detect the connection mode of the PV strings.<br>● Set this parameter to **All PV strings connected** if all PV strings are connected in parallel and then connected to the inverter in parallel. |
| PID protection at night | When the inverter outputs reactive power at night and this parameter is set to **Enable**, the inverter will shut down automatically if it detects that the voltage compensation of the PID module is abnormal. |
| RS485-2 communication | If this parameter is set to **Enable**, the RS485-2 port of the inverter can be used. If the RS485-2 port is not used, you are advised to set this parameter to **Disable** to reduce power consumption. |
| Built-in PID running mode | Specifies the running mode of the built-in PID of the inverter. |
| PID nighttime off-grid repair | Specifies whether to enable the PID nighttime off-grid repair. |
| PID daytime off-grid repair | Specifies whether to enable the PID daytime off-grid repair. |

## Tracking System

If a PV string uses a tracking system with a controller, set corresponding parameters on the **Tracking System** tab page.

## 6.3.6.2 Running Parameters (Special User)

### Grid Parameters

| Parameter | Description |
|---|---|
| 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. |
| Output mode | Specifies whether the inverter output has a neutral wire. Set this parameter based on the inverter application scenario. |
| PQ mode | • If **PQ mode 1** is selected, the maximum AC output power equals the maximum apparent power.<br>• If **PQ mode 2** is selected, the maximum AC output power equals the rated output power. |
| Auto start upon grid recovery | Specifies whether to allow the inverter to automatically start after the power grid recovers. |
| Grid connection duration after power grid recovery | Specifies the waiting time for inverter restart after the power grid recovers. |
| Grid reconnection voltage upper limit | The standards of certain countries and regions require that the inverter must not connect to the power grid when the power grid voltage is higher than the upper limit. |
| Grid reconnection voltage lower limit | The standards of certain countries and regions require that the inverter must not connect to the power grid when the power grid voltage is lower than the lower limit. |
| Grid reconnection frequency upper limit | The standards of certain countries and regions require that the inverter must not connect to the power grid when the power grid frequency is higher than the upper limit. |
| Grid reconnection frequency lower limit | The standards of certain countries and regions require that the inverter must not connect to the power grid when the power grid frequency is lower than the lower limit. |
| Reactive power compensation (cos-P) trigger voltage | Specifies the voltage threshold for triggering reactive power compensation when low voltage ride-through (LVRT) occurs. |
| Reactive power compensation (cos-P) exit voltage | Specifies the voltage threshold for exiting reactive power compensation when the inverter recovers from LVRT. |
| Isolation | Specifies the inverter working mode based on the grounding status at the DC side and the connection to the power grid. |

## Protection Parameters

| Parameter | Description |
|---|---|
| Unbalance voltage protection | Specifies the inverter protection threshold when the power grid voltage is unbalanced. |
| Phase protection point | The Japanese standard requires that protection should be triggered if an abrupt voltage phase change is detected during passive islanding detection. |
| Phase angle offset protection | The standards of certain countries and regions require that the inverter needs to be protected when the three-phase angle offset of the power grid exceeds a certain value. |
| 10 minute OV protection | Specifies the 10-minute overvoltage protection threshold. |
| 10 minute OV protection time | Specifies the 10-minute overvoltage protection duration. |
| Level-N OV protection | Specifies the level-N grid overvoltage protection threshold. |
| Level-N OV protection time | Specifies the level-N grid overvoltage protection duration. |
| Level-N UV protection | Specifies the level-N grid undervoltage protection threshold. |
| Level-N UV protection time | Specifies the level-N grid undervoltage protection duration. |
| Level-N OF protection | Specifies the level-N grid overfrequency protection threshold. |
| Level-N OF protection time | Specifies the level-N grid overfrequency protection duration. |
| Level-N UF protection | Specifies the level-N grid underfrequency protection threshold. |
| Level-N UF protection time | Specifies the level-N grid underfrequency protection duration. |

☐ **NOTE**

N is 1, 2, 3, 4, 5, or 6.

## Feature Parameters

| Parameter | Description |
|---|---|
| LVRT | When the power grid voltage is abnormally low for a short time, the inverter cannot disconnect from the |

| Parameter | Description |
|---|---|
| | power grid immediately and has to work for some time. This is called LVRT. |
| LVRT triggering threshold | Specifies the threshold for triggering LVRT. The threshold settings should meet the local grid standard. |
| LVRT undervoltage protection shield | Specifies whether to shield the undervoltage protection function during LVRT. |
| LVRT reactive power compensation power 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.<br><br>For example, if you set **LVRT reactive power compensation power factor** to **2**, the reactive current generated by the inverter is 20% of the rated current when the AC voltage drops by 10% during LVRT. |
| HVRT | When the power 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. This is called high voltage ride-through (HVRT). |
| HVRT triggering threshold | Specifies the threshold for triggering HVRT. The threshold settings should meet the local grid standard. |
| HVRT reactive power compensation power factor | 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.<br><br>For example, if you set **HVRT reactive power compensation power factor** to **2**, the reactive current generated by the inverter is 20% of the rated current when the AC voltage increases by 10% during HVRT. |
| VRT grid voltage protection shield | Specifies whether to shield the undervoltage/overvoltage protection function during HVRT/LVRT. |
| Grid voltage transition triggering threshold | To meet the standards of certain countries and regions, when the power grid voltage goes through transient changes, the inverter cannot disconnect from the power grid immediately and has to work for some time. This is called transient voltage jump.<br><br>This parameter specifies the threshold for triggering transient voltage jump. |
| Active islanding | Specifies whether to enable the active islanding protection function. |
| Passive islanding | Specifies whether to enable the passive islanding protection function. |
| Voltage rise suppression | The standards of certain countries and regions require |

| Parameter | Description |
|---|---|
| | that the active power of the inverter be derated according to a certain slope when the output voltage exceeds a certain value. |
| Voltage rise suppression reactive adjustment point | The standards of certain countries and regions require that the inverter must generate a certain amount of reactive power when the output voltage exceeds a certain value. |
| Voltage rise suppression active 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.<br><br>The value of **Voltage rise suppression active derating point** must be greater than that of **Voltage rise suppression reactive adjustment point**. |
| Frequency change rate protection | Specifies whether to protect the inverter when the power grid frequency changes too fast. |
| Frequency change rate protection point | Specifies the frequency change rate protection threshold. |
| Frequency change rate protection time | Specifies the frequency change rate protection duration. |
| Soft start time after grid failure | Specifies the time for the power to gradually increase when the inverter restarts after the power grid recovers. |

## Power Adjustment Parameters

| Parameter | Description |
|---|---|
| Active power change gradient | Adjusts the change speed of the inverter active power. |
| Fixed active power derated | Adjusts the active power output of the inverter based on fixed values. |
| Active power percentage derating | Adjusts the active power output of the inverter based on the percentage.<br><br>If this parameter is set to 100%, the inverter delivers the maximum output power. |
| Reactive power change gradient | Adjusts the change speed of the inverter reactive power. |
| Power factor | Adjusts the power factor of the inverter. |
| Overfrequency derating | If this parameter is enabled, the active power of the inverter will be derated according to a certain slope when the power grid frequency exceeds the frequency that triggers overfrequency derating. |

| Parameter | Description |
|---|---|
| Trigger frequency of over frequency derating | The standards of certain countries and regions require that the output active power of the inverter be derated when the power grid frequency exceeds a certain value. |
| Quit frequency of over frequency derating | Specifies the frequency threshold for exiting overfrequency derating. |
| Cutoff frequency of overfrequency derating | Specifies the frequency threshold for cutting off overfrequency derating.<br><br>The parameter setting should meet the following condition: **Overfrequency derating ≤ Trigger frequency of over frequency derating < Cutoff frequency of overfrequency derating**. |
| Cutoff power of overfrequency derating | Specifies the power threshold for cutting off overfrequency derating. |
| Power recovery gradient of overfrequency derating | Specifies the power recovery gradient for overfrequency derating. |
| Remote power schedule | • If this parameter is set to **Enable**, the inverter responds to the scheduling instruction from the remote port.<br>• If this parameter is set to **Disable**, the inverter does not respond to the scheduling instruction from the remote port. |
| Schedule instruction valid duration | Adjusts the duration within which the scheduling instruction is valid.<br><br>If this parameter is set to **0**, the scheduling instruction is valid permanently. |
| Maximum apparent power | Specifies the output upper threshold for the maximum apparent power to adapt to the capacity requirements of standard and customized transformers. |
| Maximum active power | Specifies the output upper threshold for the maximum active power to adapt to various market requirements. |
| Shutdown at 0% power limit | • If this parameter is set to **Enable**, the inverter shuts down after receiving the 0% power limit instruction.<br>• If this parameter is set to **Disable**, the inverter does not shut down after receiving the 0% power limit instruction. |
| Reactive power compensation (Q/S) | Adjusts the output reactive power of the inverter. |
| Reactive power output at night | In some specific application scenarios, a power grid company requires the inverter to perform reactive power compensation at night to ensure that the power factor of the local power grid meets requirements.<br><br>This parameter is available only when **Isolation** is set |

| Parameter | Description |
|-----------|-------------|
|  | to **Input ungrounded (with TF)**. |

## LVRT Characteristic Curve

On the **LVRT Characteristic Curve** tab page, configure the LVRT feature.

📖 **NOTE**

The SmartLogger supports only the curve configuration for LVRT that lasts no more than 10s. If a power grid standard requires that LVRT be longer than 10s, **LVRT Characteristic Curve** is not displayed for the grid code.

# 6.3.7 Setting PID Module Parameters

## Procedure

**Step 1** Log in as **Advanced User** or **Special User** and set access parameters.

- **Method 1**: Click **Auto Search** to connect to the PID module.
- **Method 2**: Click **Add Devices**, set access parameters, and click **Add Devices**.

**Figure 6-19** Setting access parameters
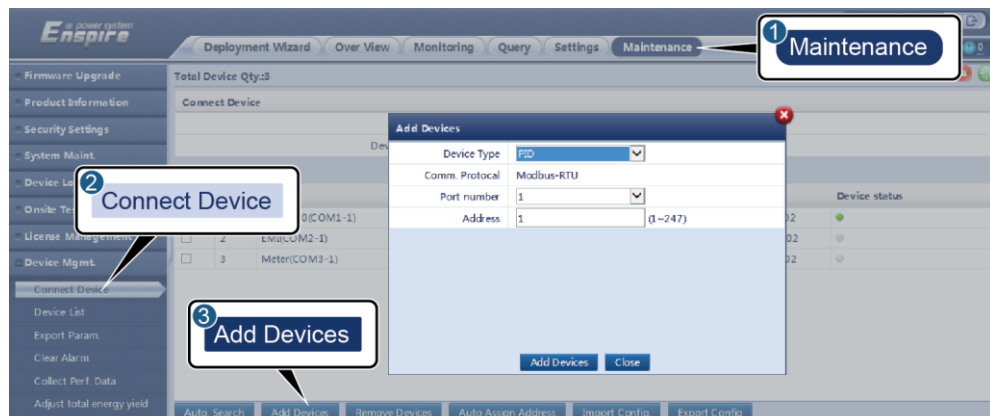


| Parameter | Description |
|-----------|-------------|
| Device Type | Set this parameter to **PID**. |
| Port number | Set this parameter to the number of the COM port connected to the PID module. |
| Address | Set this parameter to the communication address of the PID module. |

**Step 2** Log in as **Advanced User**, set running parameters, and click **Submit**.

**Figure 6-20** Setting running parameters



IL03J00018

**Table 6-2** Running parameters of PID01

| Parameter | Description |
|---|---|
| Offset mode | Specifies the offset mode of the PID module. <br>• Select **Disable** if the PID module is not required. <br>• Select **N/PE** if the PID module is required to use voltage output from the inductor virtual midpoint. <br>• Select **PV/PE** if the PID module is required to use voltage output from the negative PV terminal. This mode is applicable only to Huawei SUN8000. <br>• In the SUN2000 scenario, **Automatic** indicates the **N/PE** offset mode. |
| Output enabled | Specifies whether PID module output is enabled. |
| PV type | Specifies the type of the PV module used in the PV plant. For details about the PV module type, consult the manufacturer. |
| PV/PE offset voltage | Specifies the DC output voltage when the offset mode is set to PV/PE. <br>• If the PV module type is P, set this parameter to **P-type**. In this case, the output voltage of the PID module is positive. <br>• If the PV module type is N, set this parameter to **N-type**. In this case, the output voltage of the PID module is negative. |
| Operation Mode | Specifies the working mode of the PID module. |

| Parameter | Description |
|---|---|
| | • **Commissioning** mode: If **Offset mode** is set to **N/PE** or **PV/PE**, and **Output enabled** is set to **Enable**, the PID module outputs data based on **Commissioning output voltage**.<br><br>• **Normal** mode: After the PID module and inverter communicate with the SmartLogger properly, the PID module automatically runs.<br><br>**NOTE**<br>• To check whether the PID module functions properly, it is recommended that **Operation Mode** be set to **Commissioning** upon first power-on.<br><br>• After checking that the PID module functions properly, set **Operation Mode** to **Normal**. |
| Commissioning output voltage | Specifies the output voltage.<br><br>**NOTE**<br>After this parameter is set and the output from the PID module becomes stable, use a multimeter that is set to the DC position to measure the three-phase (A, B, and C) voltages of the power grid to the ground, and check whether the voltages are the same as the configured values. |
| Maximum DC voltage | Specifies the PV-PE voltage when the normal operation mode is used.<br><br>If the PV module type is P, the parameter value indicates the highest DC voltage between PV+ and PE. If the PV module type is N, the parameter value indicates the highest DC voltage between PV− and PE. |
| Maximum output voltage | Specifies the maximum output voltage of the PID module.<br><br>If the offset mode is **PV/PE**, the parameter value indicates the highest DC output voltage between PV and PE. If the offset mode is **N/PE**, the parameter value indicates the highest DC output voltage between N and PE. |
| IMD access | Specifies whether the PID module and insulation monitor device (IMD) can operate in cycle mode.<br><br>Only the IMDs of mainstream suppliers such as DOLD and BENDER are supported, and the IMDs must have enabled dry contacts.<br><br>**NOTICE**<br>You can set **Periodic PID runtime**, **Periodic IMD runtime**, and **IMD control dry contact** |

| Parameter | Description |
|---|---|
| | only when **IMD access** is set to **Enable**. |
| Periodic PID runtime | Specifies the operating time segment of the PID module when the PID module and IMD operate in cycle mode.<br><br>The IMD is shut down when the PID module is operating. |
| Periodic IMD runtime | Specifies the operating time segment of the IMD when the PID module and IMD operate in cycle mode.<br><br>The PID module is standby when the IMD is operating. |
| IMD control dry contact | Specifies the dry contact No. over which the SmartLogger controls the IMD.<br><br>Set appropriate ports based on the cable connections between the IMD and the SmartLogger. |
| Clear data | Clears the active alarms and historical alarms stored on the PID module.<br><br>You can select **Clear data** to clear active alarms and historical alarms for the PID module. |

**----End**

# 6.3.8 Setting Power Meter Parameters

## 6.3.8.1 Setting DL/T645 Power Meter Parameters

### Procedure

**Step 1** Log in as **Advanced User** or **Special User**, set access parameters, and click **Add Devices**.

**Figure 6-21** Setting access parameters
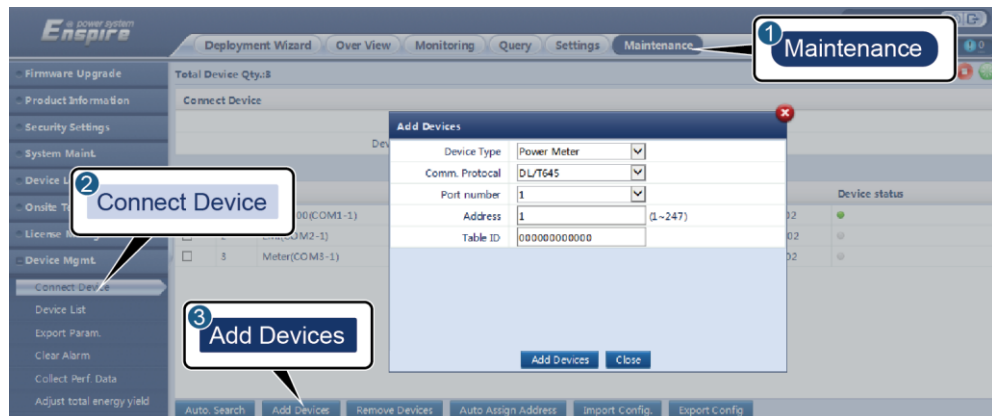


IL03J00019

| Parameter | Description |
|-----------|-------------|
| Device Type | Set this parameter to **Power Meter**. |
| Comm.Protocal | Set this parameter to **DL/T645**. |
| Port number | Set this parameter to the number of the COM port connected to the power meter. |
| Address | Set this parameter to the communication address of the power meter. |
| Table ID | Set this parameter to the meter ID. |

**Step 2** Set running parameters and click **Submit**.

**Figure 6-22** Setting running parameters
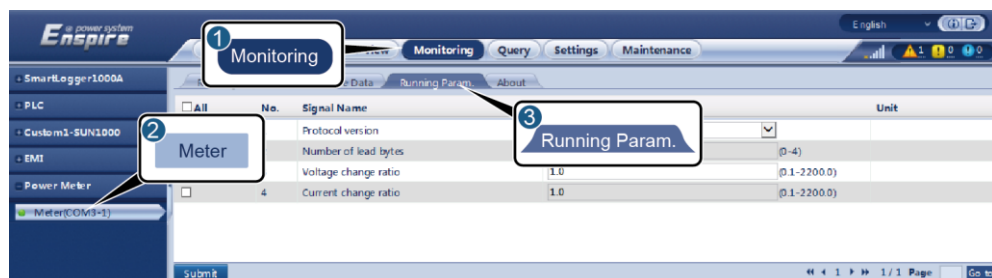


IL03J00020

| Parameter | Description |
|-----------|-------------|
| Protocol version | Select **DL/T645-2007** or **DL/T645-1997** based on the protocol version of the power meter. |
| Number of lead bytes | Retain the default value unless otherwise |

| Parameter | Description |
|---|---|
| | specified. |
| Voltage change ratio<br><br>Current change ratio | • Set this parameter to **1** when the power meter uploads a value once.<br>• When the power meter uploads a value twice, set this parameter based on the actual transformer ratio. |

**----End**

## 6.3.8.2 Setting Modbus-RTU Meter Parameters

### Procedure

**Step 1**  Log in as **Advanced User** or **Special User**, set power meter parameters, and click **Submit**.

**Figure 6-23** Setting power meter parameters
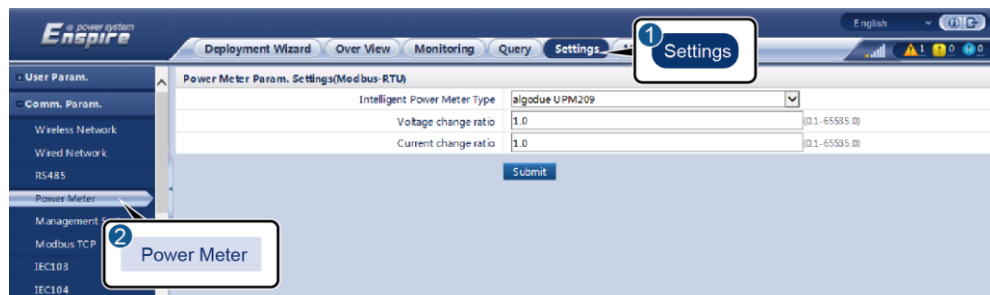


IL03J00021

● If the model of the connected device is displayed in the **Intelligent Power Meter Type** drop-down list box, set parameters as follows.

| Parameter | Description |
|---|---|
| Intelligent Power Meter Type | Set this parameter to the corresponding meter model.<br><br>Currently, the following meter models are supported: ABB A44, Acrel PZ96L, algodue UPM209, CHNT DTSU666, Janitza UMG604, Lead LD-C83, MingHua CRDM-830, NARUN PD510, NetBiter CEWE, People RM858E, Schneider PM1200, SFERE PD194Z, and Socomec COUNTIS E43. |
| Voltage change ratio<br><br>Current change ratio | • Set this parameter to **1** when the power meter uploads a value once.<br>• When the power meter uploads a value twice, set this parameter based on the |

| Parameter | Description |
|-----------|-------------|
|           | actual transformer ratio. |

● If the connected power meter is of another model, set parameters as follows.

| Parameter | Description |
|-----------|-------------|
| Intelligent Power Meter Type | Set this parameter to **Other**. |
| Read function code | Set this parameter to **Read holding register 03H** or **Read holding register 04H** based on the protocol adopted by the vendor. |
| Read mode | The value can be **Multiple read** or **Single read**. |
| Word ordering | Set this parameter to **Big endian** or **Little endian** based on the protocol adopted by the vendor. |
| Start address | If **Read mode** is set to **Multiple read**, set the start address for reading. |
| End address | If **Read mode** is set to **Multiple read**, set the end address for reading. |
| Voltage change ratio<br><br>Current change ratio | ● Set this parameter to **1** when the power meter uploads a value once.<br>● When the power meter uploads a value twice, set this parameter based on the actual transformer ratio. |
| Signal parameters<br><br>**NOTE**<br>Signal parameters include **Signal Name**, **Signal address**, **Number of Registers**, **Gain**, **Data Type**, and **Unit**. | Set this parameter based on the vendor protocol.<br><br>**NOTE**<br>If the power meter can collect a signal, set **Signal address** for the signal to the corresponding register address. If the power meter cannot collect a signal, set **Signal address** for the signal to **65535**. |

**Step 2** Set access parameters and click **Add Devices**.

**Figure 6-24** Setting access parameters
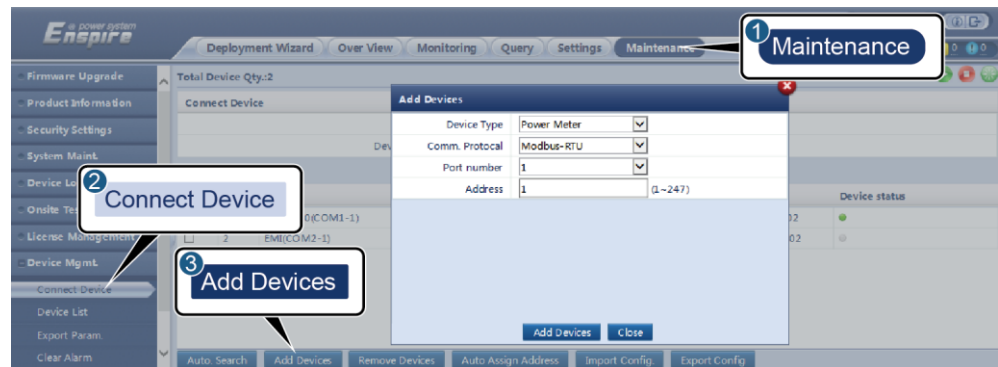


| Parameter | Description |
|---|---|
| Device Type | Set this parameter to **Power Meter**. |
| Comm.Protocal | Set this parameter to **Modbus-RTU**. |
| Port number | Set this parameter to the number of the COM port connected to the power meter. |
| Address | Set this parameter to the communication address of the power meter. |

**----End**

# 6.3.9 Setting EMI Parameters

## 6.3.9.1 Setting Modbus-RTU EMI Parameters

### Procedure

**Step 1** Log in as **Advanced User** or **Special User**, set access parameters, and click **Add Devices**.

**Figure 6-25** Setting access parameters
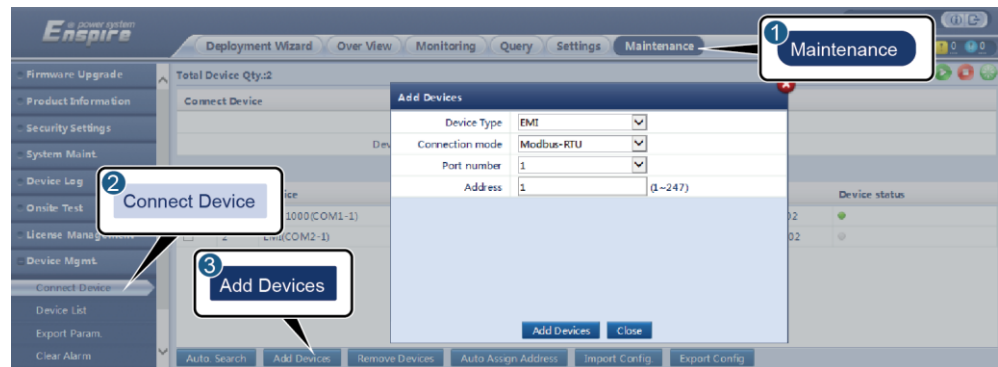


IL03J00023

| Parameter | Description |
|---|---|
| Device Type | Set this parameter to **EMI**. |
| Connection mode | Set this parameter to **Modbus-RTU**. |
| Port number | Set this parameter to the serial number of the COM port connected to the EMI. |
| Address | Set this parameter to the communication address of the EMI. |

**Step 2** Log in as**Advanced User**, set running parameters and click **Submit**.

**Figure 6-26** Setting running parameters



IL03J00024

- If the model of the connected EMI is displayed in the **EMI Mode** drop-down list box, set parameters as follows.

| Parameter | Description |
|---|---|
| EMI Mode | Set this parameter to the model of the connected EMI. |
| | Currently, the following EMI models are supported: ABB VSN800-12, ABB VSN800-14, Gill MetPak Pro, Hukseflux SRx, Ingenieurbüro Si-RS485TC, Kipp&Zonen SMPx, Lufft WSx-UMB, Lufft WSx-UMB(external sensors), Meier-NT ADL-SR, Meteo control SR20-D2, Rainwise PVmet-150, |

| Parameter | Description |
|---|---|
| | Rainwise PVmet-200, Soluzione Solare SunMeter, JinZhou LiCheng, JinZhou YangGuang(PC-4), Handan(RYQ-3). |
| Synchronize Environment Data | You are advised to retain the default value **Disable**.<br><br>**NOTE**<br><br>When this parameter is set to **Enable**, the SmartLogger transmits the wind speed and direction data to the inverter in a PV plant with the tracking system. |
| Master/Slave | When the SmartLogger connects to multiple EMIs, set one of them to **master mode**. The inverter performance data displayed is the data of the EMI in **master mode**. |

- If the connected EMI is a split EMI that supports Modbus-RTU, set parameters as follows.

| Parameter | Description |
|---|---|
| EMI Mode | Set this parameter to **Sensor(ADAM)**. |
| Synchronize Environment Data | You are advised to retain the default value **Disable**.<br><br>**NOTE**<br><br>When this parameter is set to **Enable**, the SmartLogger transmits the wind speed and direction data to the inverter in a PV plant with the tracking system. |
| Master/Slave | When the SmartLogger connects to multiple EMIs, set one of them to **master mode**. The inverter performance data displayed is the data of the EMI in **master mode**. |
| Read function code | Set this parameter to **Read holding register 03H** or **Read holding register 04H** based on the protocol adopted by the vendor. |
| Data reporting mode | Set this parameter to **Integer** or **Floating point** based on the protocol adopted by the vendor. |
| Word ordering | Set this parameter to **Big endian** or **Little endian** based on the protocol adopted by the vendor. |
| Read mode | The value can be **Multiple read** or **Single read**. |
| Start address | If **Read mode** is set to **Multiple read**, set the start address for reading. |
| End address | If **Read mode** is set to **Multiple read**, set the end address for reading. |
| Signal parameters | Set these parameters based on the vendor |

| Parameter | Description |
|---|---|
| **NOTE**<br>Signal parameters include **Signal Name**, **Signal address**, **Lower Thres.**, **Upper Thres.**, **Spec**, **Start (mV/mA)**, **End (mV/mA)**, and **Unit**. | protocol.<br>**NOTE**<br>If the EMI can collect a signal, set **Signal address** for the signal to the corresponding register address. If the EMI cannot collect a signal, set **Signal address** for the signal to **65535**. |

- If the connected EMI is of another model, set parameters as follows.

| Parameter | Description |
|---|---|
| EMI Mode | Set this parameter to **Other**. |
| Synchronize Environment Data | You are advised to retain the default value **Disable**.<br>**NOTE**<br>When this parameter is set to **Enable**, the SmartLogger transmits the wind speed and direction data to the inverter in a PV plant with the tracking system. |
| Master/Slave | When the SmartLogger connects to multiple EMIs, set one of them to **master mode**. The inverter performance data displayed is the data of the EMI in **master mode**. |
| Read function code | Set this parameter to **Read holding register 03H** or **Read holding register 04H** based on the protocol adopted by the vendor. |
| Data reporting mode | Set this parameter to **Integer** or **Floating point** based on the protocol adopted by the vendor. |
| Word ordering | Set this parameter to **Big endian** or **Little endian** based on the protocol adopted by the vendor. |
| Read mode | The value can be **Multiple read** or **Single read**. |
| Start address | If **Read mode** is set to **Multiple read**, set the start address for reading. |
| End address | If **Read mode** is set to **Multiple read**, set the end address for reading. |
| Signal parameters<br>**NOTE**<br>Signal parameters include **Signal Name**, **Signal address**, **Gain**, **Offset**, and **Unit**. | Set these parameters based on the vendor protocol.<br>**NOTE**<br>If the EMI can collect a signal, set **Signal address** for the signal to the corresponding register address. If the EMI cannot collect a signal, set **Signal address** for the signal to |

| Parameter | Description |
|---|---|
| | **65535**. |

**----End**

## 6.3.9.2 Setting AI EMI Parameters

### Procedure

**Step 1**  Log in as **Advanced User** or **Special User**, set access parameters, and click **Add Devices**.

**Figure 6-27** Setting access parameters
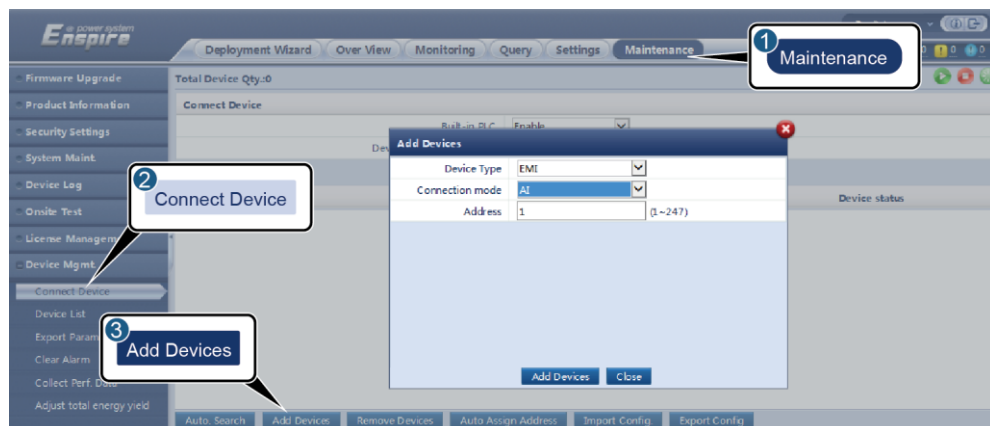


| Parameter | Description |
|---|---|
| Device Type | Set this parameter to **EMI**. |
| Connection mode | Set this parameter to **AI**. |
| Address | Set this parameter to the communication address of the EMI. |

**Step 2**  Log in as **Advanced**, set running parameters, and click **Submit**.

**Figure 6-28** Setting running parameters



| Parameter | Description |
|---|---|
| Synchronize Environment Data | You are advised to retain the default value **Disable**.<br><br>**NOTE**<br>When this parameter is set to **Enable**, the SmartLogger transmits the wind speed and direction data to the inverter in a PV plant with the tracking system. |
| Master/Slave | When the SmartLogger connects to multiple EMIs, set one of them to **master mode**. The inverter performance data displayed is the data of the EMI in **master mode**. |
| Signal parameters<br><br>**NOTE**<br>Signal parameters include **Signal Name**, **Port number**, **Lower Thres.**, **Upper Thres.**, **Start (V/mA)**, **End (V/mA)**, and **Unit**. | Set these parameters as required.<br><br>**NOTE**<br>When you need to change the configured port number, set **Port number** to **No** first, then to the required port number. |

**----End**

# 6.3.10 Setting IEC103 Device Parameters

## Description

An IEC103 device supports two data transmission modes:

- **Transparent transmission mode**: When connecting to the NMS, the SmartLogger transparently transmits the IEC103 device information to the NMS. The SmartLogger does not parse the IEC103 device data.

- **Parsing mode**: The IEC103 device is connected to the SmartLogger, and the SmartLogger parses the IEC103 device data.

## Transparent Transmission Mode

**Step 1** Log in as **Advanced User**, set IEC103 parameters, and click **Submit**.

**Figure 6-29** Setting IEC103 parameters



| Parameter | Description |
|---|---|
| IEC103 port No. | Set this parameter based on the COM port connected to the device.<br>**NOTE**<br>RS485-1 to RS485-3 correspond to communications ports COM1 to COM3 respectively. |
| IEC103 address | Set this parameter to the IEC103 device address. |
| IEC103 IP | The value must be the same as the IP address of the NMS. |

**----End**

## Parsing Mode

The SmartLogger can connect to third-party devices that support IEC103, such as the relay protection or monitoring device like the box-type transformer. The protocol information points vary depending on vendors. Therefore, you need to obtain a protocol information file in **.cfg** format from Huawei and import the file into the SmartLogger for successfully connecting to a custom device.

The supported device types are IEC103 device 1 to IEC103 device 5. The corresponding configuration file names are **iec103_equip_custom_1.cfg** to **iec103_equip_custom_5.cfg**. Multiple devices of the same type can be connected.

**Step 1** Log in as **Advanced User** or **Special User**, configure a protocol information point file in **.cfg** format, and import the file to the SmartLogger.

**Figure 6-30** Importing configuration
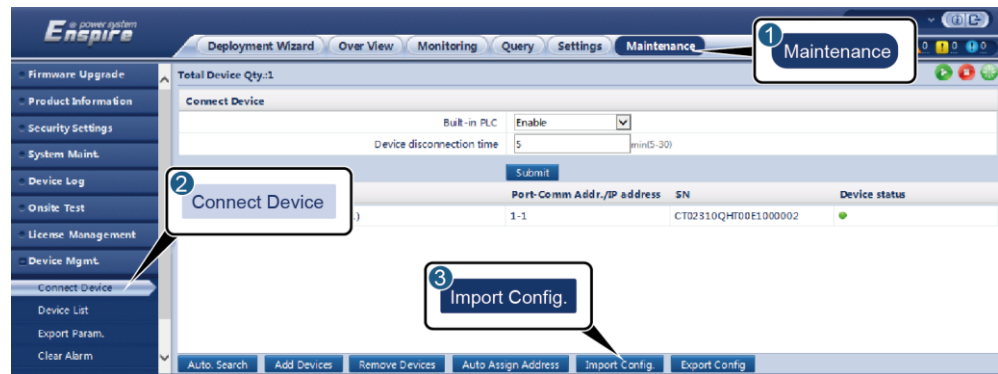


IL03J00028

**Step 2** Set access parameters and click **Connect Device**.

**Figure 6-31** Setting access parameters
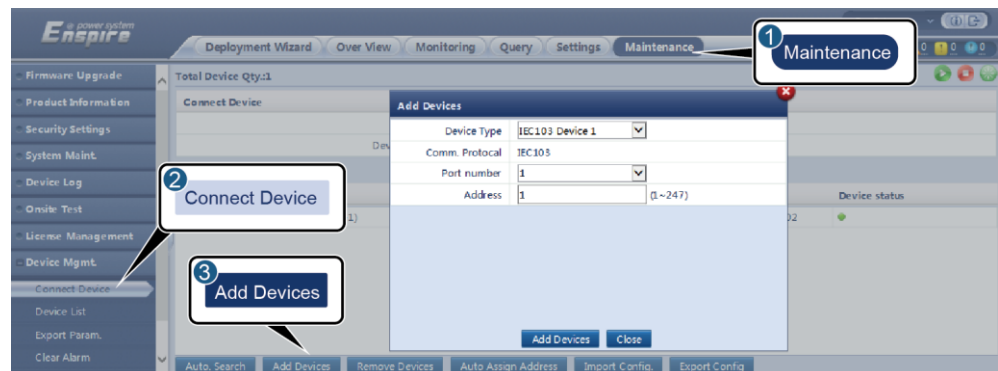


IL03J00029

| Parameter | Description |
|---|---|
| Device Type | The value can be **IEC103 Device 1** to **IEC103 Device 5**. Select a value based on the configuration file. For example, if **iec103_equip_custom_1.cfg** needs to be imported, select **IEC103 Device 1**. |
| Port number | Set this parameter to the serial number of the COM port connected to the IEC103 device. |
| Address | Set this parameter to the communication address of the IEC103 device. |

**Step 3** Log in as **Common User**, **Advanced User**, or **Special User**, set device monitoring parameters, and click **Submit**.

**Figure 6-32** Device monitoring
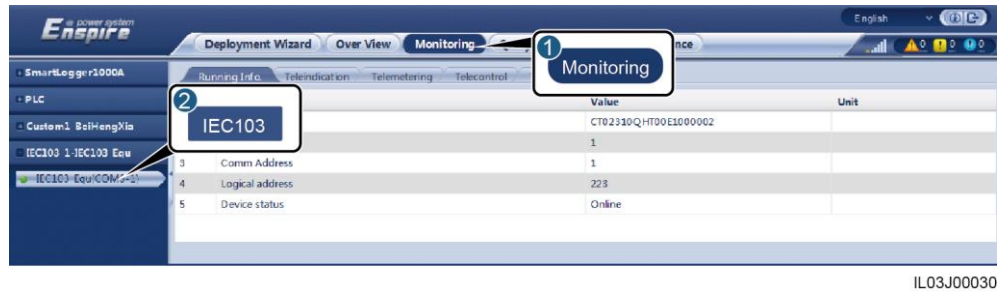


IL03J00030

| Tab | Function | Description |
|-----|----------|-------------|
| Running Info. | View the running information about the IEC103 device. | - |
| Teleindication | View the device status, such as the switch status. | - |
| Telemetering | View the real-time analog data of the device, such as the voltage. | - |
| Telecontrol | Set the status control parameters, such as the parameters for turning on or off switches. | Set the parameters on the tab page as required. |
| Teleadjust | Set analog parameters, for example, set voltage protection parameters. | Set the parameters on the tab page as required. |

**----End**

# 6.3.11 Setting Parameters for a Custom Device

## Context

The SmartLogger can connect to third-party devices supporting the Modbus-RTU protocol, such as the box-type transformer and EMI. The protocol information points vary depending on vendors. Therefore, you need to configure a protocol information file in **.cfg** format and import the file into the SmartLogger for successfully connecting to a custom device.

The supported device types are custom device 1 to custom device 5. The corresponding configuration file names are **modbus_equip_custom_1.cfg** to **modbus_equip_custom_5.cfg**. Multiple devices of the same type can be connected.

## Procedure

**Step 1** Log in as **Advanced User** or **Special User**, configure a protocol information point file in **.cfg** format, and import the file to the SmartLogger.

**Figure 6-33** Importing configuration
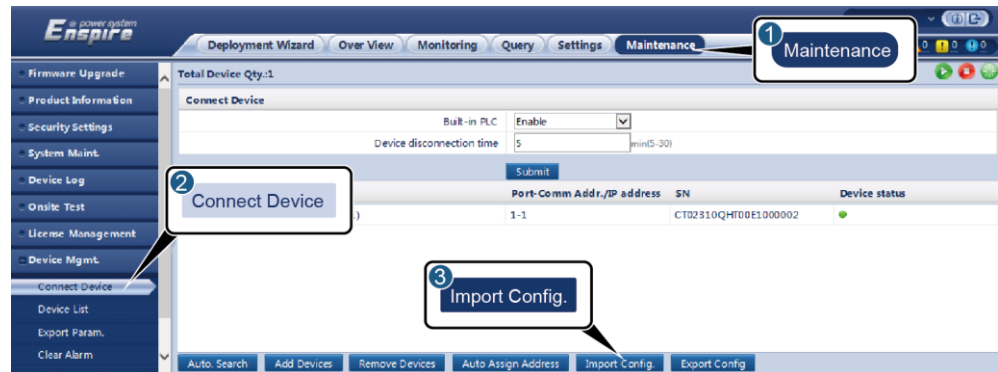


**Step 2** Set access parameters and click **Add Devices**.

**Figure 6-34** Setting access parameters
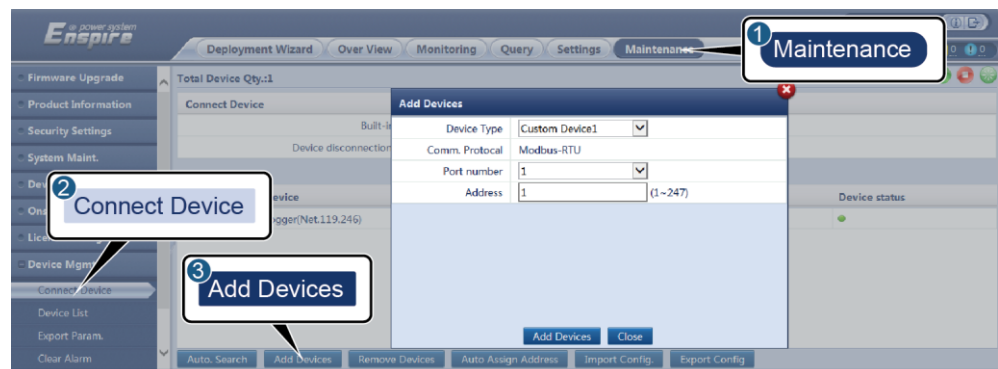


| Parameter | Description |
|---|---|
| Device Type | The value can be **Custom Device 1** to **Custom Device 5**. <br><br> Select a value based on the configuration file. For example, if **modbus_equip_custom_1.cfg** needs to be imported, select **Custom Device 1**. |
| Port number | Set this parameter to the serial number of the COM port connected to the custom device. |
| Address | Set this parameter to the communication address of the custom device. |

**Step 3**  Log in as **Common User**, **Advanced User**, or **Special User**, set device monitoring parameters, and click **Submit**.

**Figure 6-35** Device monitoring



| Tab | Function | Description |
|-----|----------|-------------|
| Running Info. | View the running information about the custom device. | - |
| Teleindication | View the device status, such as the switch status. | - |
| Telemetering | View the real-time analog data of the device, such as the voltage. | - |
| Telecontrol | Set the status control parameters, such as the parameters for turning on or off switches. | Set the parameters on the tab page as required. |
| Teleadjust | Set analog parameters, for example, set voltage protection parameters. | Set the parameters on the tab page as required. |

**----End**

# 6.4 Power Grid Scheduling

## 6.4.1 Power Adjustment Description

According to standard requirements, the SmartLogger can reliably adjust power for the connected inverters in real time to ensure that the PV plant can respond to requirements of the power grid company in a timely manner.

> **NOTICE**
>
> ● To ensure that the SmartLogger will deliver scheduling commands to the connected inverters, you must enable active or reactive power control before adjusting the active or reactive power for a PV plant.
> ● If you disable active or reactive power control, the SmartLogger will not deliver scheduling commands to the connected inverters and the inverters will retain their status after the previous change.

# 6.4.2 Setting Active Power Control

If the PV plant has requirements of power limitation, the power grid scheduling personnel should limit the active power or disable all the active power for the PV plant, that is, to enable the active power derating mode.

**Step 1** Log in as **Special User**, and choose **Monitoring** > **SUN2000** > **Running Param.** > **Power Adjustment**. On the displayed page, ensure that **Remote power schedule** is set to **Enable**.

**Step 2** Set the parameters for active power control and click **Submit**.

**Figure 6-36** Active power control



| Parameter | Description |
|---|---|
| Active power control | Specifies whether to enable active power control. |
| Active power control mode | Specifies the active power control mode. The following modes are supported:<br>● Disable active power reduction<br>● Dry contact remote control<br>● Percentage fix limitation<br>● Remote scheduling<br>● Remote output control |

**----End**

## Disabling Active Power Reduction

| Parameter | Description |
|---|---|
| Active power control | Set this parameter to **Enable**. |

| Parameter | Description |
|---|---|
| Active power control mode | If this parameter is set to **Disable active power reduction**, the inverter runs at full load. |

## Dry Contact Remote Control

> **NOTICE**
>
> - Before setting this function, ensure that the DI port custom control is not occupied. Otherwise, the setting fails.
> - Before setting this function, ensure that the SmartLogger is correctly connected to a ripple control receiver.

| Parameter | Description |
|---|---|
| Active power control | Set this parameter to **Enable**. |
| Active power control mode | Set this parameter to **Dry contact remote control**. |
| DI parameters<br><br>**NOTE**<br>DI parameters include **DI1**, **DI2**, **DI3**, **DI4**, and **Percentage(%)**. | - Sixteen levels are supported for the active power derating percentage.<br>- "√" indicates low level. When connecting to DI–, the four DI+ ports of the SmartLogger are low-level ports. If not connected, the ports are high-level ports.<br>- The percentage levels of DI1–DI4 should differ from each other. Otherwise, an abnormal command will be generated.<br>- If the actual input DI signal is inconsistent with that configured on the WebUI, the SmartLogger controls the inverter to work at full load and the Abnormal Active Schedule alarm is raised. |

## Percentage Fix Limitation

The SmartLogger provides simplified active power percentage configuration as well as power control automation, that is, to automatically adjust the active power derating percentage in different periods of a day.

| Parameter | Description |
|---|---|
| Active power control | Set this parameter to **Enable**. |
| Active power control mode | Set this parameter to **Percentage fix limitation** to control the maximum power output of the inverter in different periods of a day. |

| Parameter | Description |
|---|---|
| Start time<br><br>Percentage(%) | If the inverter needs to run with specified maximum power in certain periods of a day, add setting records based on site requirements.<br><br>When multiple time points are set, the inverter will run with the maximum power specified for the time point that is earlier than and the closest to the current system time. For example, if you add 00:00:00 and 12:00:00 on the WebUI and the current system current is 14:30:00, the inverter will run with the maximum power specified for 12:00:00. |

## Remote Scheduling

The NMS or independent power adjustment device sends scheduling commands over the communications port that works with Modbus-TCP or IEC104, without the need of user configuration or operation. The SmartLogger can automatically switch between scheduling modes and send scheduling commands.

| Parameter | Description |
|---|---|
| Active power control | Set this parameter to **Enable**. |
| Active power control mode | Set this parameter to **Remote scheduling**.<br><br>The SmartLogger parses the scheduling command delivered by the upper-layer NMS to valid instruction data that can be identified by the inverters in the PV plant and delivers the data to all inverters connected to the SmartLogger.<br><br>As the **Remote scheduling** mode has a higher priority, the SmartLogger automatically changes **Active power control mode** to **Remote scheduling** after receiving a scheduling command from the upper-layer NMS. |
| Schedule strategy | The value can be **Disable**, **Strategy 1**, or **Strategy 2**.<br><br>• **Disable**: The SmartLogger controls the inverter to work at full load and will not receive scheduling commands sent by the NMS.<br><br>• **Strategy 1**: Open-loop scheduling policy. That is, the SmartLogger evenly allocates the power value from the scheduling and delivers the average value to each inverter, which then operates with the specific power. The adjustment value delivered by the SmartLogger is constant. If **Adjustment coefficient** is set, the power value will be sent to the inverter after being multiplied by the preset coefficient.<br><br>• **Strategy 2**: The customized function is provided for a site. Set **Overshoot**, **Adjustment period**, and **Adjustment deadband** based on the scheduling requirements of the site. |

## Remote Output Control

**Step 1** Log in as **Advanced User** and synchronize the clock source of the server.

| Path | Parameter | Description |
|---|---|---|
| **Settings** > **User Param.** > **Date&Time** | Clock source | Set this parameter to **NTP**. |
| | Server | Set this parameter to the IP address or domain name of the server for time synchronization. |
| | NTP synchronization test | You can click this button to check the time synchronization status. |

**Step 2** Log in as **Special User** and set remote output control parameters.

| Path | Parameter | Description |
|---|---|---|
| **Settings** > **Active Power Control** | Active power control | Set this parameter to **Enable**. |
| | Active power control mode | Set this parameter to **Remote output control**. |
| | Control area | Set this parameter to the area where the remote output control function is used. To enable the function in some areas, the license needs to be imported and enabled. |
| | Output control duration | Set this parameter to the time required for the inverter to change its output power from 0% to 100% or from 100% to 0%. |
| | Remote output control server | Set this parameter to the IP address or domain name of the server. |
| | Enable certificate | Determine whether to import and enable a certificate based on the actual situation. |

☐ NOTE

● If the connection between the SmartLogger and the server is abnormal, obtain the output control file in .data format from the website of the power company and import the file.

● After the SmartLogger connects to the server, you can export the relevant file.

**----End**

# 6.4.3 Setting Reactive Power Control

Large-scale PV plants are required to adjust the voltage at the grid-tied point. Power grid scheduling personnel enable a PV plant to absorb or add reactive power at the grid-tied point, that is, to enable the reactive power compensation, based on the real-time reactive power transmission status in the power grid.

**Step 1** Log in as **Special User**, and choose **Monitoring** > **SUN2000** > **Running Param.** > **Power Adjustment**. On the displayed page, ensure that **Remote power schedule** is set to **Enable**.

**Step 2** Set the parameters for reactive power control and click **Submit**.

**Figure 6-37** Reactive power control



| Parameter | Description |
|---|---|
| Reactive Power Control | Specifies whether to enable reactive power control. |
| Reactive power control mode | Specifies the reactive power control mode. The following modes are supported:<br>• Disable reactive power output<br>• Dry contact remote control<br>• Reactive power fix control<br>• Power factor fix control<br>• Q-U characteristic curve<br>• cos(Phi)-P/Pn characteristic curve<br>• Q-U hysteresis curve(CEI0-16)<br>• Remote scheduling<br>• Pwr factor closed-loop control<br>• Distributed power factor closed-loop control |

**----End**

## Disabling Reactive Power Output

| Parameter | Description |
|---|---|
| Reactive Power Control | Set this parameter to **Enable**. |
| Reactive power control mode | If the PV plant is not required to adjust the voltage at the grid-tied point or perform reactive power compensation, inverters can run with only active power output. In this case, set this parameter to **Disable reactive power output**. |

## Dry Contact Remote Control

> **NOTICE**
>
> - Before setting this function, ensure that the DI port is not occupied. Otherwise, the setting fails.
> - Before setting this function, ensure that the SmartLogger is correctly connected to a ripple control receiver.

| Parameter | Description |
| --- | --- |
| Reactive Power Control | Set this parameter to **Enable**. |
| Reactive power control mode | Set this parameter to **Dry contact remote control**. |
| DI parameters<br><br>**NOTE**<br>　DI parameters include **DI1**, **DI2**, **DI3**, **DI4**, and **Power factor**. | - Sixteen levels are supported for power factors.<br>- "√" indicates low level. When connecting to DI–, the four DI+ ports of the SmartLogger are low-level ports. If not connected, the ports are high-level ports.<br>- The percentage levels of DI1–DI4 should differ from each other. Otherwise, an abnormal command is generated.<br>- If the actual input DI signal is inconsistent with that configured on the WebUI, the SmartLogger controls the inverter to work at full power and the Abnormal Reactive Schedule alarm is raised. |

## Reactive Power Fix Control

| Parameter | Description |
| --- | --- |
| Reactive Power Control | Set this parameter to **Disable**. |
| Reactive power control mode | If the PV array is required to generate constant reactive power at a specified time, set this parameter to **Reactive power fix control**. |
| Start time | If the inverter is required to run with a specified maximum power in certain periods of a day, add setting records based on site |
| Reactive power (kVar) | |

| Parameter | Description |
|---|---|
|  | requirements. |
|  | When multiple time points are set, the inverter will run with the maximum power specified for the time point that is earlier than and the closest to the current system time. For example, if you add 00:00:00 and 12:00:00 on the WebUI and the current system current is 14:30:00, the inverter will run with the maximum power specified for 12:00:00. |

## Power Factor Fix Control

| Parameter | Description |
|---|---|
| Reactive Power Control | Set this parameter to **Enable**. |
| Reactive power control mode | If the PV plant is required to generate a constant power factor at the grid-tied point and the inverter is required to adjust the real-time reactive power based on the preset power factor, set this parameter to **Power factor fix control**. |
| Start time | If the inverter is required to run with a specified power factor in certain periods of a day, add setting records based on site requirements. |
| Power factor | When multiple time points are set, the inverter will run with the maximum power specified for the time point that is earlier than and the closest to the current system time. For example, if you add 00:00:00 and 12:00:00 on the WebUI and the current system current is 14:30:00, the inverter will run with the maximum power specified for 12:00:00. |

## Q-U Characteristic Curve

If you do not need the SmartLogger to send remote reactive power control commands, you can configure the characteristic curve as a substitute. The SmartLogger delivers the values configured for the characteristic curve to the inverter, which then operates according to the configuration. The SmartLogger no longer adjusts the values.

> **NOTICE**
>
> Configure the characteristic curve under instructions from professionals to ensure that the
> inverter works properly.

The Q-U characteristic curve control mode is to dynamically adjust the ratio Q/S of output
reactive power to apparent power in accordance with the ratio U/Un(%) of the actual grid
voltage to the rated grid voltage.

| Parameter | Description |
|---|---|
| Reactive Power Control | Set this parameter to **Enable**. |
| Reactive power control mode | Set this parameter to **Q-U characteristic curve**. |
| Reactive power adjustment time | Specifies the change interval of the reactive power for a grid-tied point. |
| Percents of trigger frequency | Under a specific grid code, after you set this parameter, the characteristic curve takes effect only when the actual output active power of the inverter is greater than the preset value. |
| Characteristic curve points | Specifies the number of characteristic curve points.<br>The characteristic curve supports a maximum of 10 valid points. |
| U/Un(%)<br><br>Q/S | When configuring the curve, ensure that the U/Un(%) value of a point is greater than the U/Un(%) value of the previous point. Otherwise, the message indicating invalid input will be displayed. |

## cos(Phi)-P/Pn Characteristic Curve

If you do not need the SmartLogger to send remote reactive power control commands, you
can configure the characteristic curve as a substitute. The SmartLogger delivers the values
configured for the characteristic curve to the inverter, which then operates according to the
configuration. The SmartLogger no longer adjusts the values.

> **NOTICE**
>
> Configure the characteristic curve under instructions from professionals to ensure that the
> inverter works properly.

The cos(Phi)-P/Pn characteristic curve control mode is to dynamically adjust the power factor
cos(Phi) in accordance with the P/Pn (%) based on the VDE-4105 and BDEW German
standards.

| Parameter | Description |
|---|---|
| Reactive Power Control | Set this parameter to **Enable**. |
| Reactive power control mode | Set this parameter to **cos(Phi)-P/Pn characteristic curve**. |
| Characteristic curve points | Specifies the number of characteristic curve points.<br><br>The characteristic curve supports a maximum of 10 valid points. |
| U/Un(%)<br><br>cosφ | When configuring the curve, ensure that the P/Pn(%) value of a point is greater than the P/Pn(%) value of the previous point. Otherwise, the message indicating invalid input will be displayed. |

## Q-U Hysteresis Curve (CEI0-16)

If you do not need the SmartLogger to send remote reactive power control commands, you can configure the characteristic curve as a substitute. The SmartLogger delivers the values configured for the characteristic curve to the inverter, which then operates according to the configuration. The SmartLogger no longer adjusts the values.

> **NOTICE**
>
> Configure the characteristic curve under instructions from professionals to ensure that the inverter works properly.

The Q-U hysteresis curve (CEI0-16) control mode is the Italian standard CEI0-16 version of the Q-U characteristic curve. It dynamically adjusts the output reactive power of the inverter in accordance with the ratio of the actual voltage to the rated voltage. The final value should be in the form of Q/S.

| Parameter | Description |
|---|---|
| Reactive Power Control | Set this parameter to **Enable**. |
| Reactive power control mode | Set this parameter to **Q-U hysteresis curve(CEI0-16)**. |
| Reactive power adjustment time | Specifies the change interval of the reactive power for a grid-tied point. |
| Percents of trigger frequency | Under a specific grid code, after you set this parameter, the characteristic curve takes effect only when the actual output active power of the inverter is greater than the preset value. |
| U/Un(%) | When configuring the curve, ensure that the |

| Parameter | Description |
|-----------|-------------|
| Q/S | U/Un(%) value of a point is greater than the U/Un(%) value of the previous point. Otherwise, the message indicating invalid input will be displayed. |
| | When configuring the curve, ensure that the Q/S values at points A and B are the same and set in sequence, and that the Q/S values at points C and D are the same and set in sequence. Otherwise, a message indicating indicating invalid input is displayed. |

## Remote Scheduling

The NMS or independent power adjustment device sends scheduling commands over the communications port that works with Modbus-TCP or IEC104, without the need of user configuration or operation. The SmartLogger can automatically switch between scheduling modes and send scheduling commands.

| Parameter | Description |
|-----------|-------------|
| Reactive Power Control | Set this parameter to **Enable**. |
| Reactive power control mode | As the **Remote scheduling** mode has a higher priority, the SmartLogger automatically changes **Reactive power control mode** to **Remote scheduling** after receiving a scheduling command from the upper-layer NMS. |
| | If this parameter is set to **Remote scheduling**, the SmartLogger parses the scheduling command delivered by the upper-layer NMS to valid instruction data that can be identified by the inverters in the PV plant and delivers the data to all inverters connected to the SmartLogger. |

## Power Factor Closed-Loop Control

**NOTICE**

Before setting this parameter, ensure that the power meter is correctly connected to the SmartLogger.

| Parameter | Description |
|-----------|-------------|
| Reactive Power Control | Set this parameter to **Enable**. |

| Parameter | Description |
|---|---|
| Reactive power control mode | Set this parameter to **Pwr factor closed-loop control**. |
| Target power factor | Specifies the target value for the adjustment power factor of the power meter. |
| Adjustment period | Specifies the interval for sending adjustment commands by the SmartLogger. |
| Adjustment deadband | Specifies the adjustment power factor precision.<br><br>**NOTE**<br>This parameter is valid only when the power factor of the power meter is greater than 0.9. |

## Distributed Power Factor Closed-Loop Control

To improve the revenue, a distributed PV plant needs to reduce or avoid the power factor surcharge by performing the distributed reactive power compensation. To enable the function, set the related parameters.

> **NOTICE**
>
> Before setting this parameter, ensure that the power meter is correctly connected to the SmartLogger.

| Parameter | Description |
|---|---|
| Reactive Power Control | Set this parameter to **Enable**. |
| Reactive power control mode | Set this parameter to **Distributed power factor closed-loop control**. |
| Electric meter power direction | When the inverter has no output power, set this parameter to **Positive** if the active power displayed on the meter is positive. Otherwise, set this parameter to **Reverse**. After the setting is complete, you can check the power direction of the power meter if you are not sure about it. |
| Power meter | Set this parameter to **Smart meter**. |
| Target power factor | Specifies the target value for the adjustment power factor of the power meter. The target value should be larger than the appraisal value of the PV plant power factor. |
| Adjustment period | Specifies the interval for sending adjustment commands by the SmartLogger. |

| Parameter | Description |
|-----------|-------------|
| Adjustment deadband | Specifies the adjustment power factor precision.<br>**NOTE**<br>This parameter is valid only when the power factor of the power meter is greater than 0.9. |
| Reactive compensation delay | Specifies the delay time for starting the distributed power factor compensation if the current power factor is lower than the target power factor. |

📖 **NOTE**

When the SmartLogger receives a remote reactive power scheduling command from the PV plant, **Reactive power control mode** automatically switches to **Remote scheduling**. To perform distributed reactive power compensation again, set **Reactive power control mode** to **Distributed power factor closed-loop control** and set the target power factor correctly.

# 6.4.4 Setting Remote Shutdown over Dry Contacts

## Context

The SmartLogger provides four DI ports. The OVGR can connect to any DI port. The SmartLogger shuts down the inverter over OVGR signals.

**Figure 6-38** Networking
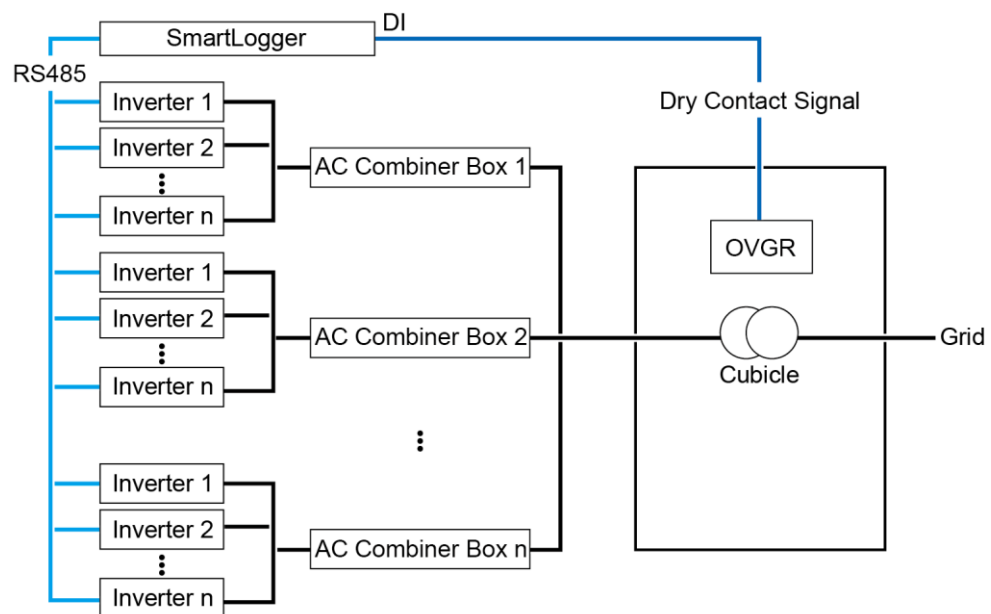
**NOTICE**

When setting this function, ensure that the DI port is not occupied. Otherwise, the setting fails.

## Procedure

**Step 1** Log in as **Special User** and set parameters for remote shutdown over dry contacts.

**Figure 6-39** Remote Off by Dry Con



| Parameter | Description |
|---|---|
| connection port | Set this parameter to the DI port connected to OVGR signals. |
| Effective dry contact status | The value can be **Open** or **Close**.<br>**NOTE**<br>If OVGR shutdown is enabled and this parameter is set to **Close**, the SmartLogger sends an inverter shutdown command only when the corresponding DI port is in the **Close** state. |
| OVGR shutdown | Specifies whether to enable shutdown over OVGR. |
| Cubicle alarm enabling | If this parameter is set to **Enable**, the Abnormal Cubicle alarm is raised when the dry contact signal is effective and the Cubicle is abnormal. |

**----End**

# 6.4.5 Setting Export Limitation Parameters

## Context

When the PV plant generates power for self-consumption, countercurrent may feed into the power grid if the loads cannot consume all the power. In this case, you can set the export limitation parameters over the WebUI to prevent countercurrent.

● Scenario without a circuit breaker: The countercurrent feeding into the power grid can be eliminated by sending a command from the SmartLogger to lower the inverter output power.

**Figure 6-40** Network diagram (without a circuit breaker)
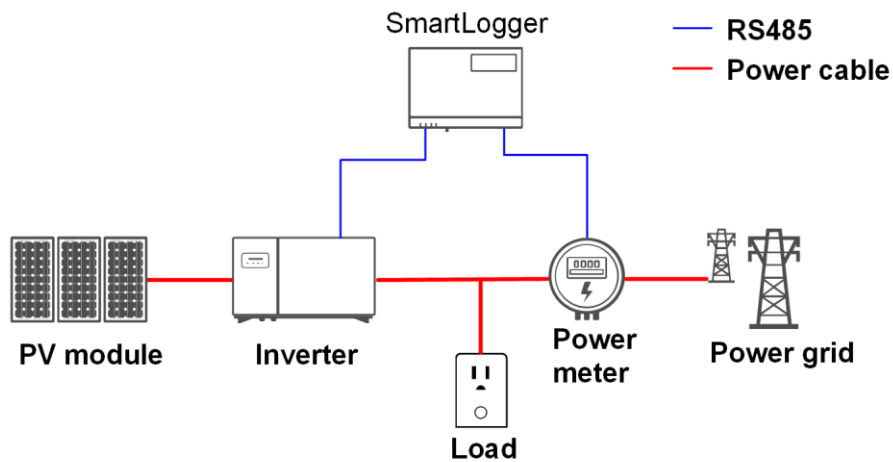
● Scenario with a circuit breaker: If the countercurrent feeding into the power grid cannot be eliminated by sending a command from the SmartLogger to lower the inverter output power, and **Maximum protection time** is exceeded, the SmartLogger drives the relay to switch off the circuit breaker by controlling the DO port to prevent countercurrent. When the DI port detects that the circuit breaker is switched off, the DO port of the SmartLogger and the relay will be switched off, and the SmartLogger will restore to the initial state.

**Figure 6-41** Network diagram (with a circuit breaker)
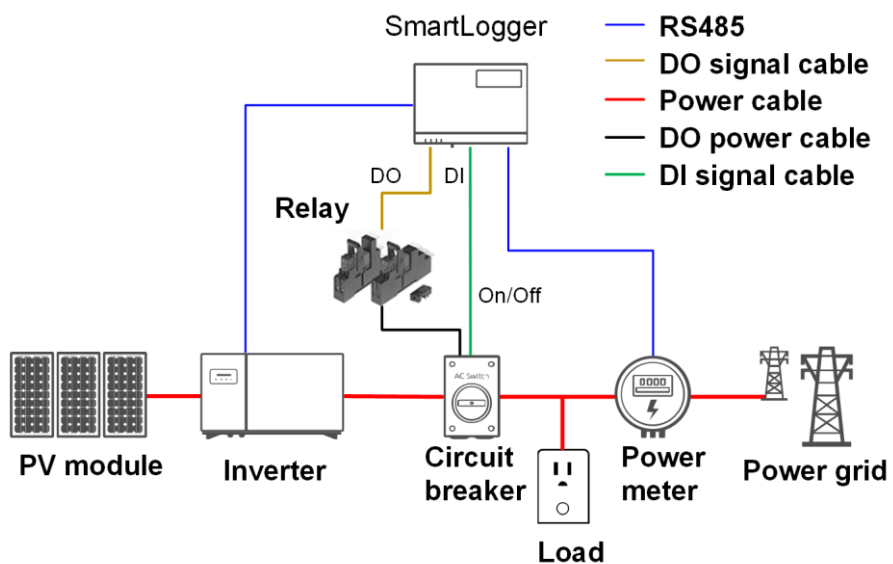
⚠ CAUTION

In the scenario with a circuit breaker, place the power supply of the SmartLogger before the circuit breaker to avoid the SmartLogger power-off after the DO switches off the circuit breaker.

## Procedure

**Step 1** Log in as **Advance User**, choose **Monitoring** > **SUN2000** > **Running Param.** > **Feature Parameters**, and set the following parameters.

| Parameter | Description | Recommended Value |
|---|---|---|
| Communication interrupt shutdown | The standards of certain countries and regions require that the inverter must shut down after the communication is interrupted for a certain time. | Enable |
| Communication resumed startup | If this parameter is enabled, the inverter automatically starts after communication recovers. If this parameter is disabled, the inverter needs to be started manually after communication recovers. | Enable |
| Communication interruption duration | Specifies the duration for determining communication interruption, and is used for automatic shutdown for protection in case of communication interruption. | 1 |
| Soft start time | Specifies the duration for the power to gradually increase when the inverter starts. | 20 |
| Soft start time after grid failure | Specifies the time for the power to gradually increase when the inverter restarts after the power grid recovers. | 20 |

**Step 2** Log in as **Special User**, choose **Monitoring** > **SUN2000** > **Running Param.** > **Adjustment**, and set the following parameters.

| Parameter | Description | Recommended Value |
|---|---|---|
| Plant active power gradient | Adjusts the rate of active power rise due to light changes. | 0 |
| Active power change gradient | Adjusts the change speed of the inverter active power. | 125%/s<br>If the maximum value is 50%/s, set this parameter to |

| Parameter | Description | Recommended Value |
|---|---|---|
| | | **50%/s**. |
| Remote power schedule | If this parameter is set to **Enable**, the SUN2000 responds to the remote power schedule command. If it is set to **Disable**, the SUN2000 does not respond to the command. | Enable |

**Step 3** Log in as **Special User** and choose **Settings** > **Active power control**. Ensure that **Active power control** is set to **Disable**.

**Step 4** Set export limitation parameters and click **Submit**.

**Figure 6-42** Setting export limitation parameters
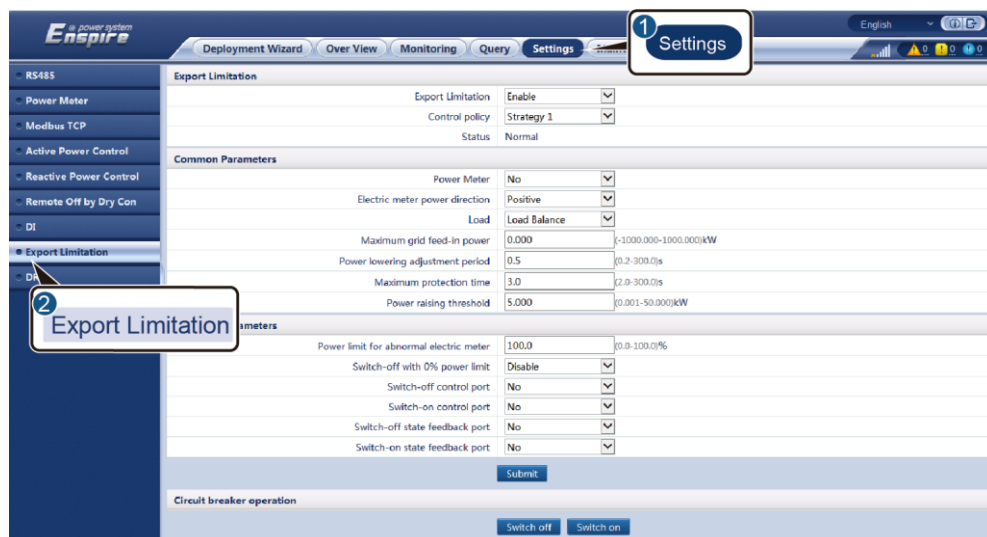


| Parameter | Description |
|---|---|
| Export Limitation | Specifies whether to enable export limitation. |
| Power Meter | Set this parameter to **Smart meter**. Otherwise, the export limitation function will not take effect. |
| Electric meter power direction | When the inverter has no output power, set this parameter to **Positive** if the active power displayed on the meter is positive. Otherwise, set this parameter to **Reverse**. |
| Load | • Load Balance: export limitation for the total power of the grid-tied point <br> • Load Imbalance: export limitation for each phase of the grid-tied point |
| Maximum grid feed-in | Specifies the maximum power that the inverter can feed into |

| Parameter | Description |
|---|---|
| power | the power grid. |
| | You are advised to set this parameter based on the countercurrent threshold allowed by the power grid company. |
| Power lowering adjustment period | Specifies the period for lowering inverter output power. |
| Maximum protection time | Specifies the maximum duration from the time the SmartLogger detects countercurrent to the time it adjusts the inverter output power to 0. |
| | You are advised to set this parameter based on the maximum countercurrent duration allowed by the power grid company. |
| Power raising threshold | Specifies the threshold for raising inverter output power. |
| Power limit for abnormal electric meter | Specifies the inverter output power percentage controlled by the SmartLogger when communication between the SmartLogger and the power meter is abnormal. |
| Swith-off with 0% power limit | Specifies whether the DO port is allowed to switch off the circuit breaker. |
| Switch-off control port | Set this parameter to the DO port that controls the switch-off. |
| Switch-on control port | Set this parameter to the DO port that controls the switch-on. |
| Switch-off state feedback port | Set this parameter to the DI port that provides feedback on the switch-off status. |
| Switch-on state feedback port | Set this parameter to the DI port that provides feedback on the switch-on status. |

**Step 5** In the scenario with a circuit breaker, verify that the SmartLogger can remotely switch on and off the circuit breaker.

- Click **Switch off**, enter the user password, and click **Submit**.
- Click **Switch on**, enter the user password, and click **Submit**.

**----End**

## 6.4.6 Setting DRM parameters

### Context

According to an Australian standard, the inverters must comply with demand response modes (DRM).

**Figure 6-43** Wiring diagram for the DRM function
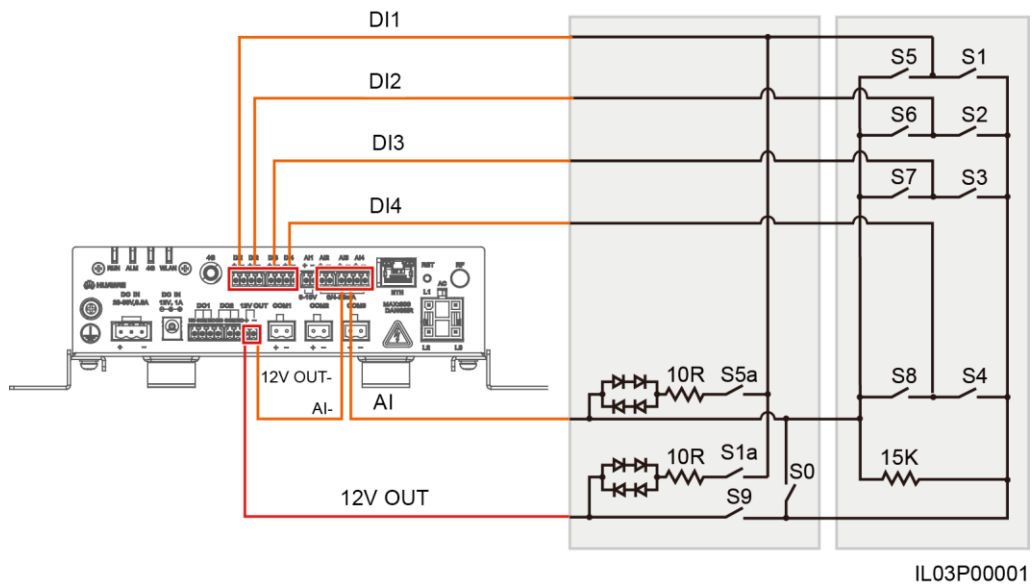


**Table 6-3** DRM requirements

| Mode | Corresponding Port on the SmartLogger | Requirements | Remarks |
|------|---------------------------------------|--------------|---------|
| DRM0 | AI2–AI4 | • When S0 is turned on, the inverters shut down.<br>• When S0 is turned off, the inverters are connected to the power grid. | - |
| DRM5 | DI1 | When S5 is turned on, the inverters do not output active power. | When two or more DRM modes are used at the same time, the strictest requirement must be met. |
| DRM6 | DI2 | When S6 is turned on, the output active power of the inverters does not exceed 50% of the rated power. | |
| DRM7 | DI3 | When S7 is turned on, the output active power of the inverters does not exceed 75% of the rated power, and the inverters consume the maximum reactive power. | |
| DRM8 | DI4 | When S8 is turned on, the output active power of inverters recovers.<br>**NOTE**<br>The inverters output active power based on the percentage set on the SmartLogger. | |

## Procedure

**Step 1** Log in as **Special User** and click **Settings**. Ensure that **Active power control** and **Reactive Power Control** are set to **Disable**, and **Dry Contact Remote Shutdown** does not include DI ports.

**Step 2** Set DRM parameters and click **Submit**.

**Figure 6-44** Setting DRM parameters



IL02J00001
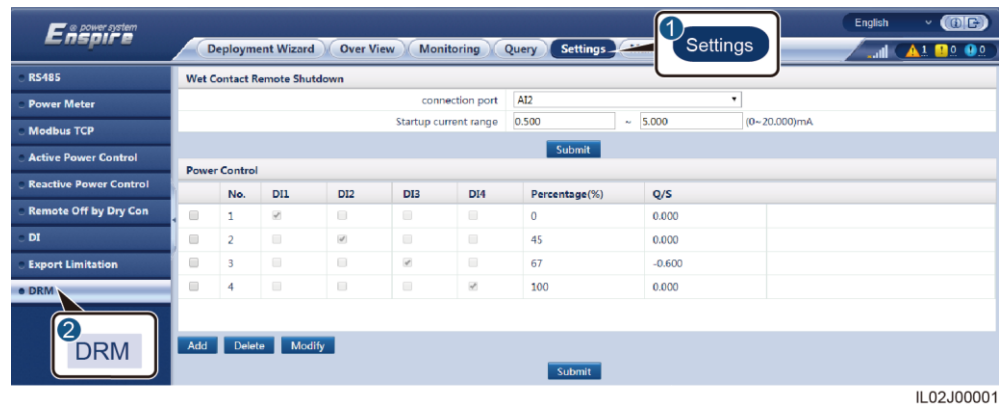
| Parameter | Description |
|---|---|
| connection port | Set the parameter to the AI port for DRM signals. |
| Startup current range | If the current of the AI port is within the setting range, inverters are turned on. Otherwise, inverters are turned off. |
| Power Control | Set DI parameters based on the DRM requirements. |

**----End**

# 7 Device Maintenance

## 7.1 Routine Maintenance

- Ensure that the SmartLogger is free from strong electromagnetic interference.
- Ensure that the SmartLogger is away from heat sources.
- Ensure that the heat dissipation holes are not blocked.
- Regularly clean the SmartLogger.
- Regularly check that cables are secured.

## 7.2 Troubleshooting

| No. | Symptom | Possible Cause | Suggestion |
|-----|---------|----------------|------------|
| 1 | The SmartLogger cannot be power on | 1. The DC output power cable for the power adapter does not connect to the **12V IN** port of the SmartLogger. <br> 2. The power cable does not connect to the AC power receiving port of the power adapter. <br> 3. The AC input power cable does not connect to the AC socket. <br> 4. The power adapter is faulty. <br> 5. The SmartLogger is faulty. | 1. Connect the DC output plug of the power adapter to the **12V IN** port of the SmartLogger. <br> 2. Check that the power cable connects to the AC power receiving port of the power adapter. <br> 3. Check that the power cable connects to the AC socket. <br> 4. Replace the power adapter. <br> 5. Contact the vendor or Huawei technical support. |
| 2 | No device is found | 1. The COM port does not connect to any device, or the cable is loose, disconnected, or reversely connected. <br> 2. RS485 communications parameters are not correctly set, and the inverter address is beyond the search range preset on the SmartLogger. <br> 3. The devices that cannot be detected automatically, such as the EMI and electricity meter, are not manually added. | 1. Check the RS485 cables. If they are loose, disconnected, or connected reversely, reconnect them securely and correctly. <br> 2. Check that the settings of RS485 communications parameters, such as the baud rate and communications address, are correctly set, and that the inverter address is within the search range preset on the SmartLogger. <br> 3. Manually add the devices that cannot |

| No. | Symptom | Possible Cause | Suggestion |
|-----|---------|----------------|------------|
| | | | be detected automatically, such as the EMI and electricity meter.<br>4. Contact the vendor or Huawei technical support. |
| 3 | The communication for PLC networking fails | 1. The inverter and SmartLogger do not support PLC.<br>2. The AC power cable is loose, disconnected, or reversely connected.<br>3. The upstream circuit breaker for the AC power cable is switched off.<br>4. In PLC networking, **Built-in PLC** or **Networking** is set to **Disable**.<br>5. The SmartLogger is faulty. | 1. Check whether the inverter and SmartLogger support PLC.<br>2. Check the AC power cable. If it is loose, disconnected, or connected reversely, reconnect it securely and correctly.<br>3. Check that the upstream circuit breaker for the AC power cable is switched on.<br>4. Set **Built-in PLC** and **Networking** to **Enable**.<br>5. Contact the supplier or Huawei technical support. |
| 4 | The communication for optical fiber networking fails | 1. The cable between the device and the SmartLogger is loose or disconnected.<br>2. The device is powered off.<br>3. The baud rate or RS485 address of the device is changed.<br>4. The device is replaced.<br>5. The device is removed and not reconnected. | 1. Check the cable between the device and the SmartLogger. If it is loose or disconnected, reconnect it firmly.<br>2. Check the device connection and power on the device.<br>3. Verify that the baud rate and RS485 address of the device are set correctly.<br>4. If any device is replaced, enable the SmartLogger to search for the device again or manually add the device.<br>5. If the device has been removed, perform the **Remove Devices** operation on the **Device Mgmt** page. |
| 5 | The EMI fails in communication | 1. The RS485 communications cable between the EMI and the SmartLogger is connected incorrectly, loose, or disconnected.<br>2. The EMI is not powered on.<br>3. The EMI and SmartLogger use different RS485 communications parameter settings.<br>4. The EMI parameters are not set correctly. | 1. Check the RS485 communications cable. If it is loose or disconnected, reconnect it securely and correctly.<br>2. Power on the EMI.<br>3. Check that the RS485 communications parameters are correctly set on the EMI.<br>4. Log in to the WebUI and ensure that the EMI parameters are set correctly. |
| 6 | The SmartLogger cannot communicate with the the management system | 1. The SmartLogger is not connected to the PC, or the cable is loose or disconnected.<br>2. The settings of the wired or wireless network parameters are incorrect.<br>3. The settings of the management system parameters are incorrect. | 1. Check that the Ethernet electrical port of the SmartLogger correctly connects to a PC or router.<br>2. Check that the wired or wireless network parameters are set correctly.<br>3. Check that the management system parameters are set correctly. |

| No. | Symptom | Possible Cause | Suggestion |
|-----|---------|----------------|------------|
| 7 | The communication fails in RS485 networking | 1. The RS485 communications cable connection is incorrect, loose, disconnected.<br>2. The SmartLogger or its connected device is not powered on.<br>3. The RS485 communications parameter values are incorrect. | 1. Terminal block connection: Check that the RS485 communications cable is connected to the correct port on the terminal block.<br>2. RJ45 network port connection: Check that the RJ45 connector is properly crimped and that each core wire connects to the correct pin.<br>3. Verify that the RS485 ports of other devices connect to the correct ports on the SmartLogger.<br>4. Check the RS485 cables. If they are loose, disconnected, or connected reversely, reconnect them securely and correctly.<br>5. Power on the SmartLogger and its connected device.<br>6. Check the settings of RS485 communications parameters.<br>7. Contact the vendor or Huawei technical support. |
| 8 | The 4G communication is abnormal. | 1. The SIM card is not inserted, is in arrears, or is damaged.<br>2. The 4G antenna is damaged or not tightened.<br>3. the management system parameters and wireless network parameters are not set correctly.<br>4. Failed to register the SIM card. | 1. Insert the SIM card.<br>2. Replace the SIM card.<br>3. Tighten or change the 4G antenna.<br>4. Check whether the management system parameters and wireless network parameters are set correctly.<br>5. Contact the SIM card carrier or Huawei technical support. |

# 7.3 Alarm List

| Alarm ID | Alarm | Alarm Severity | Alarm Sub-ID | Causes | Measure |
|----------|-------|----------------|--------------|--------|---------|
| 1100 | Abnormal P-Control | Major | 4 | Under the active power **Dry contact remote control** mode, the four DI ports read command combinations not configured. | 1. Verify that the cables are connected correctly to the DI ports.<br>2. Access the active power **Dry contact remote control** configuratio |

| Alarm ID | Alarm | Alarm Severity | Alarm Sub-ID | Causes | Measure |
|----------|-------|----------------|--------------|--------|---------|
| | | | | | n page and check the mapping table of the DI signal configuration.<br>3. Contact the power grid company and verify that the combination configurations in the table are complete and meet the requirements of the company. |
| 1101 | Abnormal Q-Control | Major | 4 | Under the active power **Dry contact remote control** mode, the four DI ports read command combinations not configured. | 1. Verify that the cables are connected correctly to the DI ports.<br>2. Access the active power **Dry contact remote control** configuration page and check the mapping table of the DI signal configuration.<br>3. Contact the power grid company and verify that the combination configurations in the table are complete and meet the |

| Alarm ID | Alarm | Alarm Severity | Alarm Sub-ID | Causes | Measure |
|---|---|---|---|---|---|
| | | | | | requirements of the company. |
| 1103 | Breaker Disconnect | Major | 1 | The general breaker at the grid connection point is disconnected. | Check whether the disconnection is normal. If it is abnormal, contact service engineers to restore the breaker. |
| 1104 | Abnormal Cubicle | Major | 1 | The Cubicle device has detected an exception at the grid connection point. | When the Cubicle alarm is enabled, check whether the DI signal received by the SmartLogger is consistent with the dry contact status. If so, restart the inverter. |
| 1105 | Device Address Conflict | Major | 1 | The SmartLogger RS485 address conflicts with the physical address (RS485 address) or logical address for the connected southbound device. | • If the SmartLogger RS485 address conflicts with the communication address for the connected southbound device, choose **Settings** > **Modbus TCP** and change the SmartLogger address, or choose **Maintenance** > **Device Mgmt.** > **Connect Device** and change the |

| Alarm ID | Alarm | Alarm Severity | Alarm Sub-ID | Causes | Measure |
|---|---|---|---|---|---|
|  |  |  |  |  | southbound device address. If the southbound device is a SUN2000, you can change its address on the app.<br>• If the SmartLogger RS485 address conflicts with the logical address for the connected southbound device, choose **Settings** > **Modbus TCP**and change the SmartLogger address. |
| 1106 | AC SPD fault | Major | 1 | The SPD in the smart array controller is faulty. | • Check whether the cable to the SPD in the smart array controller is loose, disconnected, or connected in reverse. If so, reconnect the cable securely.<br>• Check whether the SPD in the smart array controller is faulty. |

| Alarm ID | Alarm | Alarm Severity | Alarm Sub-ID | Causes | Measure |
|---|---|---|---|---|---|
|  |  |  |  |  | Replace the faulty SPD. |
| 1107-1114 | DI1 custom alarm–DI4 custom alarm | Major | 1 | The dry contact signal from the peripheral to the corresponding DI port on the SmartLogger is abnormal. | • Check whether the cable to the 24 V power module in the smart array controller is loose, disconnected, or connected in reverse. If so, reconnect the cable securely.<br>• Check whether the 24 V power module in the smart array controller is faulty. Replace the faulty power module. |

# 7.4 WebUI Maintenance Operations

## 7.4.1 Upgrading the Device Firmware Version

### Context

You can upgrade the firmware of the SmartLogger, inverter, PLC module, or PID module over the WebUI.

### Procedure

**Step 1** Log in as **Advanced User** or **Special User** and perform an upgrade.

**Figure 7-1** Upgrade
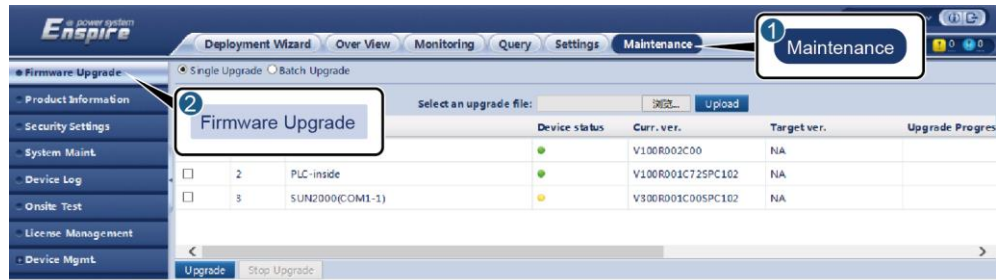


IL03J00037

| Tab | Function | Operation Description |
|---|---|---|
| Single Upgrade | Upgrade a device of any type.<br><br>**NOTE**<br>The **Single Upgrade** mode does not apply to two or more types of device at a time. For example, you cannot select both SUN2000 and the PLC module. | 1. Select the upgrade package and click **Upload**.<br>2. Select the device that requires a firmware upgrade.<br>3. Click **Upgrade**. |
| Batch Upgrade | Upgrade inverters in batches. | 1. Select the upgrade package and click **Upload**.<br>2. Click **Upgrade**. |

&#x1F4D6; **NOTE**

The **Stop Upgrade** function applies only to the devices waiting to be upgraded.

**----End**

# 7.4.2 Configuring Security Parameters

Log in as **Common User**, **Advanced User**, or **Special User** and configure security parameters.

**Figure 7-2** Setting security parameters



IL03J00038

| Parameter | Description |
|---|---|
| Password Change | Change the password for the current login user to log in to the WebUI. |
| Automatic logout time | After this parameter is set, a user is automatically logged out if the user does not perform any operation within the period specified by this parameter. |
| Network Security Certificate | You are advised to use the existing network security certificate and key. |
| Update Key | Update the key for saving the password. |
| TLS1.0 enable | Enables or disables the TLS1.0 function. |
| Digital signature verification for upgrade package | <ul><li>If this parameter is set to **Enable**, the upgrade package must contain the digital signature file and the upgrade package must not be modified.</li><li>If this parameter is set to **Disable**, the digital signature of the upgrade package is not verified.</li></ul>**NOTE**<br>Only **Advanced User** or **Special User** supports modification of this parameter. |

# 7.4.3 Sending a System Maintenance Command

Log in as **Advanced User** or **Special User** and send a system maintenance command.

**Figure 7-3** System maintenance



IL03J00039

| Function | Description | Procedure |
|---|---|---|
| Reset System | Resets the SmartLogger, which will automatically shut down and restart. | Click **Submit**. In the displayed **Confirm** dialog box, enter the password and click **Submit**. |
| Restore Factory Settings | Restores factory settings. After the factory settings are restored, all configured parameters (except the current date, time, and communication parameters) are restored to their factory default values. The running information, alarm records, and system logs are not changed. Exercise caution when deciding to perform this operation. | |
| Clear Data | Clears all historical data of the SmartLogger. | |
| Full profile export | Before replacing the SmartLogger, export the SmartLogger configuration file to a local PC. | |
| Full profile import | After replacing the SmartLogger, import the local configuration file to the new SmartLogger. After the import is successful, the SmartLogger restarts and the configuration file takes effect. Ensure that the parameters on the **Settings** tab page and the built-in PLC parameters are correctly set. | |

# 7.4.4 Exporting Device Logs

## Procedure

**Step 1** Log in as **Advanced User** or **Special User** to access the device log page.

**Figure 7-4** Exporting logs
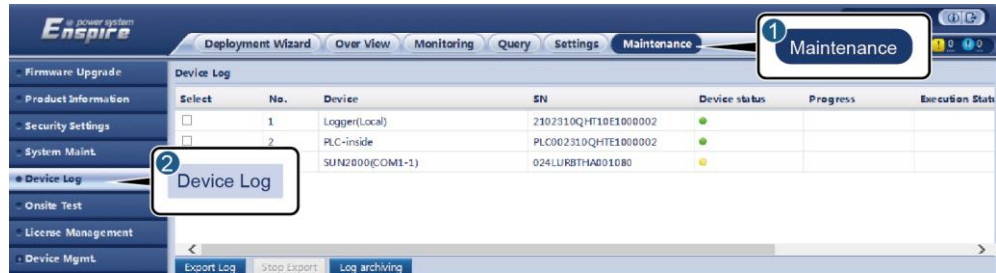


IL03J00040

**Step 2** Select the device whose logs are to be exported and click **Export Log**.

📖 NOTE

- Logs of two or more types of devices cannot be exported at a time. For example, you cannot select both SUN2000 and the PLC module.
- Logs can be exported for a maximum of five devices of the same type at a time.

**Step 3** Observe the progress bar and wait until the log export is complete.

**Step 4** After the export is successful, click **Log archiving** to save the logs.

**----End**

# 7.4.5 Starting an Onsite Test

## Context

After an inverter is put into use, you need to periodically check its health to detect potential risks and problems.

## Procedure

**Step 1** Log in as **Advanced User** or **Special User** and start an onsite test.

Figure 7-5 Onsite test
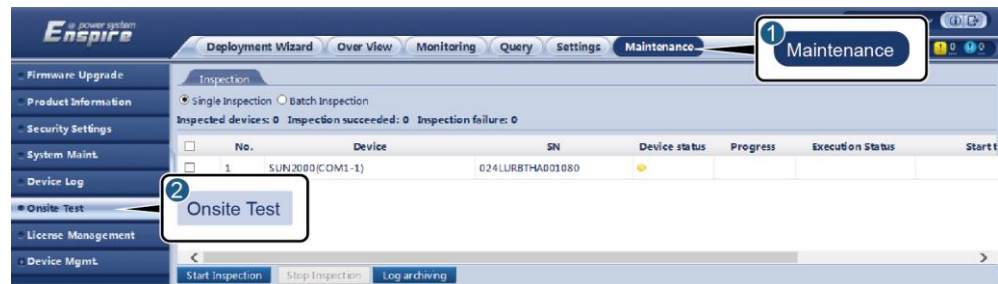


IL03J00041

| Tab | Function | Operation Description |
|-----|----------|----------------------|
| Inspection | Check the health status of the inverter. | 1. If **Single Inspection** is selected, select the device to be inspected. If **Batch Inspection** is selected, you do not need to select a device.<br>2. Click **Start Inspection**.<br>3. Observe the progress bar and wait until the inspection is complete.<br>4. After the inspection is successful, click **Log archiving** to download the inspection log. |
| Spot-check | Start a spot-check.<br><br>**NOTE**<br>The spot-check function is available only for a device whose grid code is set to the Japanese standard. | 1. Select the device to be spot-checked.<br>2. Click **Start Spot-check**.<br>3. Perform a spot-check test onsite.<br>4. After the spot-check test is complete, click **Exit Spot-check**. |

**----End**

# 7.4.6 Managing the Inverter License

## Context

Smart I-V Curve Diagnosis can be used only after a license is purchased. The license file for Smart I-V Curve Diagnosis is stored in the inverter. The inverter SN uniquely maps to the license.

License management allows you to view the license information about the inverter and obtain the current license status. Before a device is replaced, the current device license needs to be

revoked so that the revocation code can be generated and used for applying for a new device license.

## Procedure

**Step 1** Log in as **Advanced User** or **Special User** to access the license management page.

**Figure 7-6** License management
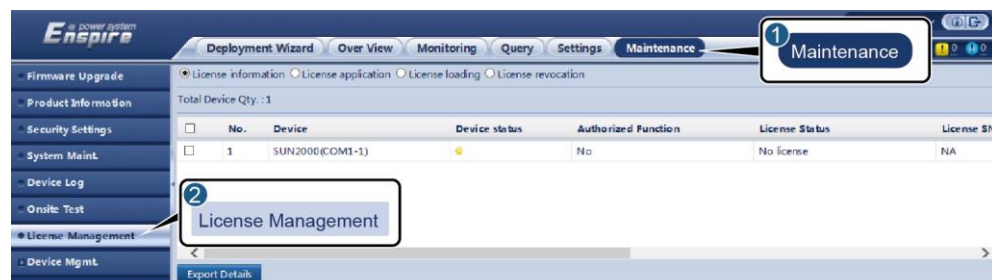


IL03J00042

| Tab | Function | Operation Description |
|---|---|---|
| License information | View the information about the inverter license. | 1. Select the name of the device whose license details are to be exported.<br>2. Click **Export Details**. |
| License application | Export the inverter license application file. | 1. Select the name of the device for which you want to apply for a license.<br>2. Click **Export License Appli File**. |
| License loading | Load the obtained license to the inverter. | 1. Click **Upload License**.<br>2. Select the name of the device whose license is to be loaded.<br>3. Click **Load License**. |
| License revocation | Revoke the existing license or export the revocation code file. | 1. Select the name of the device whose license is to be revoked.<br>2. Click **Revoke License**.<br>3. Click **Export Revo Code File**. |

📖 **NOTE**

Ensure that the extension of the license file to be imported is .dat or .zip.

**----End**

## 7.4.7 Collecting Performance Data

### Context

You can recollect the inverter performance data as well as daily, monthly, and yearly energy yields.

### Procedure

**Step 1** Log in as **Advanced User** or **Special User**, and choose **Maintenance** > **Device Mgmt** > **Collect Perf. Data** .

**Step 2** Select the type of the data to be collected and set the collection period.

**Step 3** Select the name of the device whose data is to be collected and click **Collect Data**.

**Step 4** Wait until the data collection is successful. On the **Monitoring** page, query the data collection result.

**----End**

## 7.4.8 Adjusting the Total Energy Yield

### Procedure

**Step 1** Log in as **Advanced User** or **Special User**, and choose **Maintenance** > **Device Mgmt** > **Adjust total energy yield**.

**Step 2** Set **Adjust total energy yield(kWh)**, select the name of the device whose total energy yield is adjusted, and click **Submit**.

**----End**

# 7.5 Device Disposal

If the service life of the SmartLogger expires, dispose of the SmartLogger according to the local disposal act for waste electric appliances.

# 8 FAQ

## 8.1 How to Connect the SmartLogger to the SUN2000 App?

### Prerequisites

- The SmartLogger has been powered on.
- The SUN2000 app has been installed on your phone.

### Context

- The SUN2000 app is an app that communicates with the SmartLogger through the WLAN. As a convenient local monitoring and maintenance platform, it provides functions such as alarm query, parameter settings, and routine maintenance. The app is named SUN2000.
- Requirements for the mobile phone operating system: Android 4.0 or later, iOS 8.0 or later.
- Access the Huawei App Store (http://appstore.huawei.com), Google Play (https://play.google.com), or App Store (iOS), search **SUN2000**, and download the app installation package.

**Figure 8-1** WLAN Connection Range
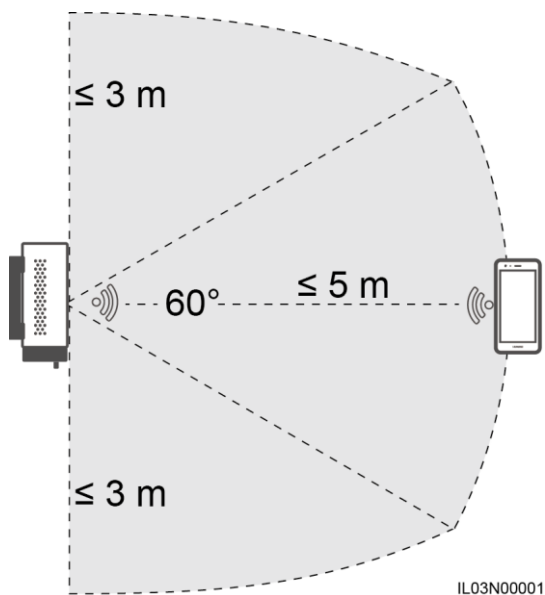


## Procedure

**Step 1** Run the SUN2000 app and select the WLAN of SmartLogger to connect.

☐ NOTE

- The screenshots in this document correspond to app version 2.2.00.032 (Android).

- The WLAN name of the SmartLogger is **Logger_SN** and the initial password is **Changeme**. The **SN** can be obtained from the SmartLogger label.

**Figure 8-2** Selecting a connection mode
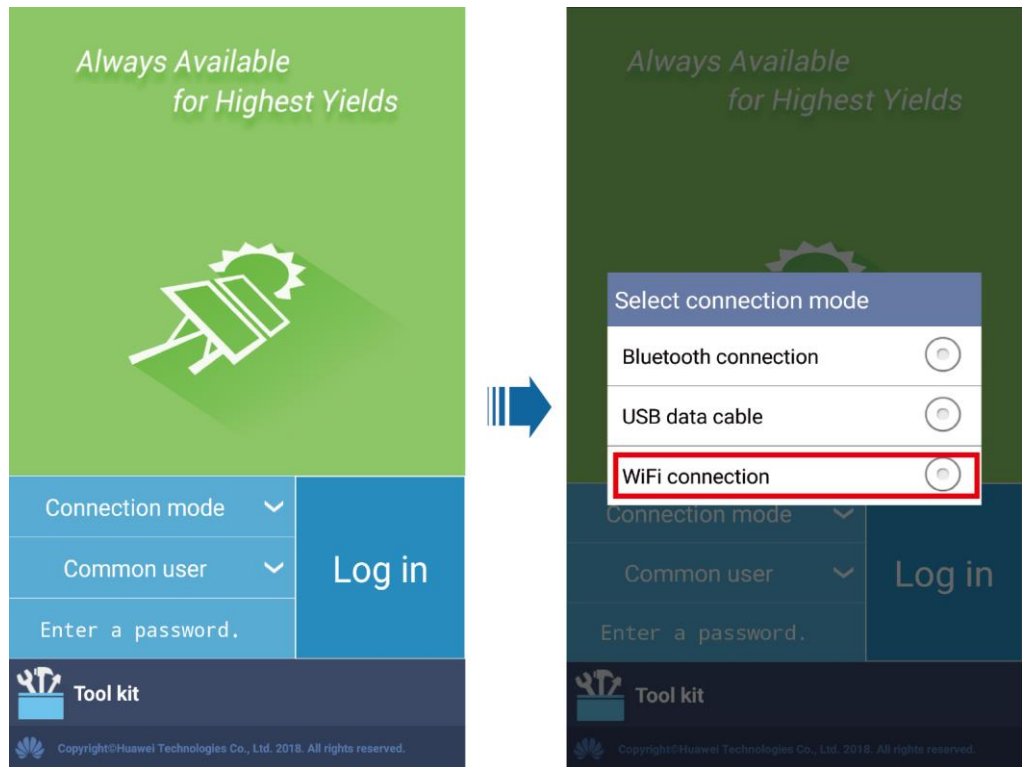


**Step 2** Select a user to login.

**Figure 8-3** Select user
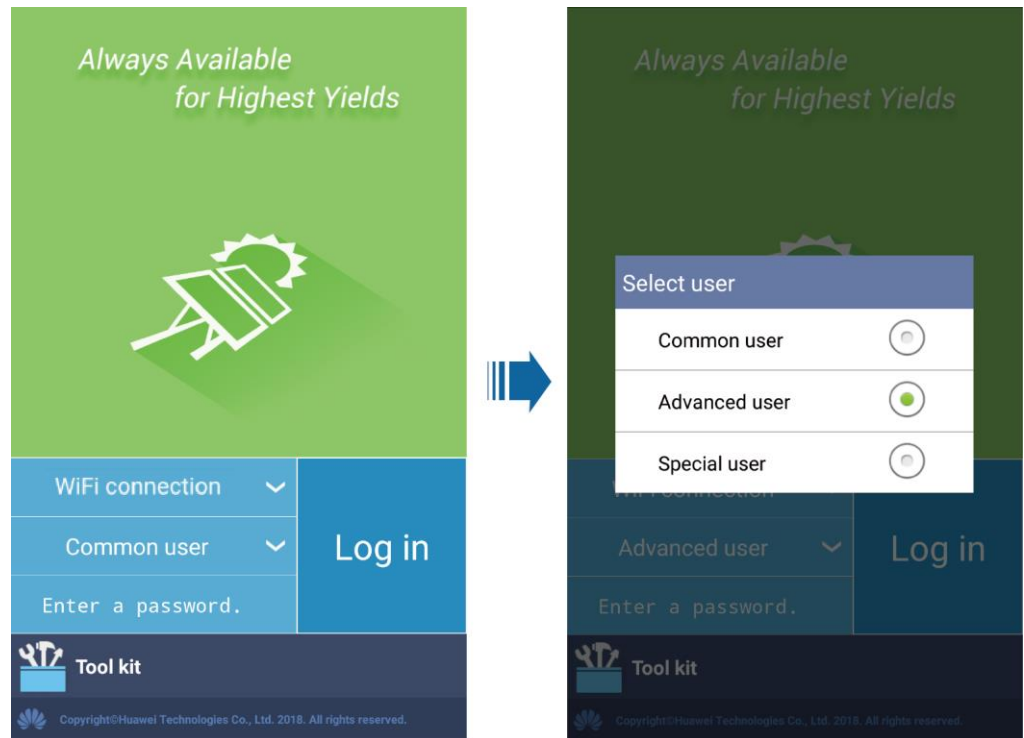


☐ NOTE

The initial password for **Common user**, **Advanced user**, and **Special user** is **00000a**. Upon the first login, it is recommended that you change the initial password immediately to ensure account security.

**Step 3** (Optional) Quick settings.

Figure 8-4 Quick settings
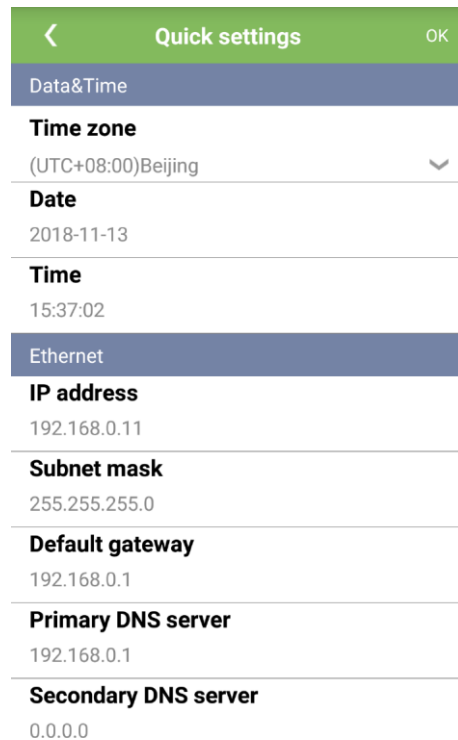


&#x260E; NOTE

If the SmartLogger is powered on for the first time or the factory defaults are restored and parameter configuration is not performed on the embedded WebUI, the quick settings screen is displayed when the SmartLogger connects to the app. You can set parameters based on site requirements.

----**End**

# 8.2 How Do I Set 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 PV plant system through FTP. A third-party NMS can access Huawei devices after being configured.

## Procedure

**Step 1** Log in as **Advanced User**, set FTP parameters, and click **Submit**.

**Figure 8-5** Setting FTP parameters



| Parameter | Description |
|---|---|
| FTP server | Set this parameter to the domain name or IP address of the FTP server. |
| User name | Set this parameter to the user name for logging in to the FTP server. |
| Password | Set this parameter to the password for logging in to the FTP server. |
| Remote directory | After you set this parameter, a subdirectory of the same name is created in the default data upload directory (specified by the FTP server). |
| Data export | Specifies whether data can be reported. |
| File format | **Format 1**, **Format 2**, **Format 3**, and **Format 4** are supported.<br>**NOTE**<br>    **Format 2** has two more information points than **Format 1**: E-Day (current-day energy yield) and E-Total (total energy yield). **Format 3** has more information points than **Format 1** and **Format 2**: power meter, PID module, user-defined device, and SmartLogger data. **Format 4** has more information points than format 3: active and reactive power of power meters. |
| File name | Set this parameter to the format of the file name. |
| Time format | Set this parameter to the time format. |
| Export mode | The value can be **Cyclic** or **Fixed time**.<br>● **Cyclic**: Periodically reports data. **Export interval** specifies the period for reporting data. **File mode** specifies whether all data or only the incremental data of a day is reported each time.<br>● **Fixed time**: Reports data at a specified time. **Fixed time** specifies the time for reporting data. |

📖 NOTE

> You can click **Start report test** to check whether the SmartLogger can report data to the FTP server.

**----End**

## Troubleshooting

| Error Code | Troubleshooting Suggestion | Error Code | Troubleshooting Suggestion |
|---|---|---|---|
| 0x1002 | Configure the FTP server address. | 0x1003 | 1. Check whether the DNS server address is correctly configured.<br>2. Check whether the domain name of the third-party FTP server is correctly configured. |
| 0x1004 | Configure the user name of the FTP account. | 0x1005 | Configure the user name of the FTP account. |
| 0x3001 | 1. Check whether the FTP server address is correctly configured.<br>2. Check whether the third-party FTP server is working properly. | 0x3002 | 1. Check whether the user name of the FTP account is correctly configured.<br>2. Check whether the password of the FTP account is correctly configured. |
| 0x3007 | Check whether the third-party FTP server allows the client to upload data. | 0x3008 | Ensure that the SmartLogger data upload directory exists on the third-party FTP server. |
| Other Codes | Provide SmartLogger run logs and contact Huawei technical support. | - | - |

# 8.3 How Do I Set Email Parameters?

## Context

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

When using this function, ensure that the SmartLogger can connect to the configured email server and correctly set the Ethernet parameters and email parameters for the SmartLogger. Ensure that no password is set between the SmartLogger and the email server.

## Procedure

**Step 1** Log in as **Advanced User**, set email parameters, and click **Submit**.

**Figure 8-6** Setting email parameters
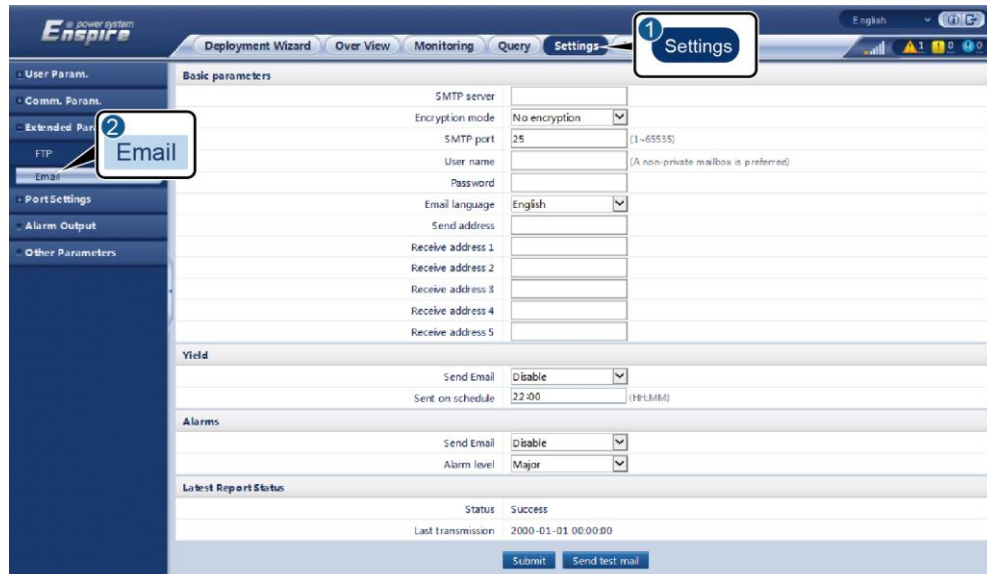


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| Parameter | Description |
|-----------|-------------|
| SMTP server | Set this parameter to the domain name or IP address of the SMTP server. |
| Encryption mode | Set this parameter to the email encryption mode. |
| SMTP port | Set this parameter to the email sending port. |
| User name | Set this parameter to the user name for logging in to the SMTP server. |
| Password | Set this parameter to the password for logging in to the SMTP server. |
| Email language | Set this parameter to the language for sending emails. |
| Send address | Set this parameter to the email address for sending emails. |
| Receive address N **NOTE** N is 1, 2, 3, 4, or 5. | Set this parameter to the email address for receiving emails. |
| Yield | Specifies whether to send energy yield data by email and the time for sending emails. |
| Alarms | Specifies whether to send alarms by email and the severity of the alarms to be sent. |

☐ NOTE

You can click **Send test mail** to check whether the SmartLogger can successfully send emails to users.

**----End**

## Troubleshooting

| Error Code | Troubleshooting Suggestion | Error Code | Troubleshooting Suggestion |
|---|---|---|---|
| 0x2002 | 1. Check whether the DNS server address is correctly configured.<br>2. Check whether the domain name and the IP address of the SMTP server are correct.<br>3. Check whether the network communication between the NMS and the DNS server is normal. | 0x2003 | 1. Try again later.<br>2. Check whether the domain name and the IP address of the SMTP server are correct. |
| 0x200b | 1. Check whether the DNS server address is correct.<br>2. Check whether the domain name and the IP address of the SMTP server are correct. | 0x4016 | 1. Try again later.<br>2. Check whether the DNS server address is correctly configured.<br>3. Check whether the domain name and the IP address of the SMTP server are correct. |
| 0x406e | Confirm the encryption mode and port supported by the email box, and check whether they are correct. | 0x8217 | 1. Check whether the user name and password are correct.<br>2. Log in to the email box of the email sender and start the SMTP service.<br>3. Log in to the email box of the email sender and start the third-party client license code function. |
| 0xa003 | Check whether the domain name and the IP address of the SMTP server are correct. | 0xa005 | Enter the user name correctly. |
| 0xa006 | Enter the password correctly. | 0xe002 | Configure the domain/IP of the SMTP server correctly. |
| 0xe003 | Configure the addresses for sending and receiving emails correctly. | Others | Please provide SmartLogger running logs and contact Huawei Service Center. |

# 8.4 How Do I Change the SSID and Password of the Built-in WLAN?

## Procedure

**Step 1** Log in as **Advanced User**, choose **Settings** > **Wireless Network**, set parameters for the built-in WLAN, and click **Submit**.

| Parameter | Description |
|---|---|
| SSID | Specifies the name of the built-in WLAN.<br><br>The default name of the built-in WLAN is **Logger_SN**. |
| Password | Specifies the password for accessing the built-in WLAN.<br><br>The default password of the built-in WLAN is **Changeme**. |

**----End**

# 8.5 How Do I Use DI Ports?

The SmartLogger provides four DI ports, which support dry contact remote control, dry contact remote shutdown, and associated alarm input.

For details about dry contact remote control and dry contact remote shutdown, see 6.4 Power Grid Scheduling.

> **NOTICE**
>
> Before setting the corresponding function, ensure that the DI port is not set for other purposes. Otherwise, the setting will fail.

## Alarm Input

When a valid level is delivered into a DI port, an alarm is raised. You can set the alarm name and severity.

**Step 1** Log in as **Special User**, choose **Settings** > **DI**, and associate alarms with DI ports.

| Parameter | Description |
|---|---|
| Activation Status | If this parameter is set to **Activated** for a DI port, you can set the function of the DI port. Otherwise, you cannot set the function of the DI port. |
| Dry Contact Status | Specifies the valid input status of a DI port. |
| Alarm Generation | Specifies whether to allow alarm generation. |
| Alarm Severity | Specifies the alarm severity. |
| Trigger Shutdown | Specifies whether to deliver an inverter remote shutdown command. |

| Parameter | Description |
|-----------|-------------|
| Alarm Name | Specifies the alarm name. |

**----End**

# 8.6 How Do I Use DO Ports?

The SmartLogger provides two DO ports, which support the reset of external routers, audible and visual alarming for grounding faults, and output of associated alarms.

> **NOTICE**
>
> Before setting the corresponding function, ensure that the DO port is not set for other purposes. Otherwise, the setting will fail.

## Resetting External Router

Connect one DC power cable of the 3G router to a DO port on the SmartLogger, and power on and off the wireless module by connecting and disconnecting the DO dry contact to control the reset of the 3G router.

**Step 1** Cut off a DC power cable of the router, and connect the DC power cable to a DO port on the SmartLogger.

**Figure 8-7** Connecting to a DO port
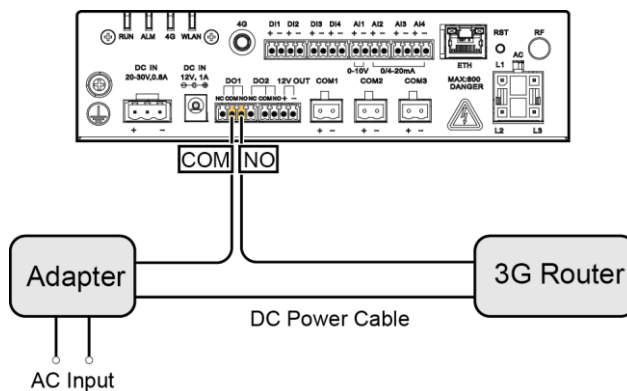


**Step 2** Log in as **Advanced User**, choose **Settings** > **DO**, and set the connected DO port to **Reset the external router**.

**----End**

## Audible and Visual Alarming for Grounding Faults

Connect one DC power cable of the audible and visual alarm to a DO port on the SmartLogger, and power on and off the audible and visual alarm by connecting and disconnecting the DO dry contact to implement audible and visual alarming for grounding faults.

**Step 1** Connect one DC power cable of the audible and visual alarm to the DO port (COM/NO) on the SmartLogger.

**Step 2** Log in as **Advanced User**, choose **Settings** > **DO**, and set the connected DO port to **Ground fault audi and vis alm**.

**----End**

## Alarm Output

After an inverter alarm is linked to a DO port, the alarm signal is delivered from the DO port when the inverter raises the alarm.

**Step 1** Log in as **Advanced User**, choose **Settings** > **Alarm Output**, and link inverter alarms to the DO port.

&#9633; NOTE

After the function is enabled, the DO port status may change and the alarm output may be abnormal if the SmartLogger restarts or is powered off.

**----End**

# 8.7 How Do I Use the USB Port?

The SmartLogger has a USB port, which provides 5 V/1 A power supply.

- The USB port can connect to a 3G router to supply power to the router, and the power supply of the USB port is disconnected when communication is disconnected, implementing 3G router reset control.

**NOTICE**

If the maximum operating current of the 3G router is greater than 1 A, it cannot be connected through the USB port.

- The USB port can connect to a USB flash drive for local maintenance, device log export, and device upgrade.

&#9633; NOTE

It is recommended that you use a SanDisk, Netac, or Kingston USB flash drive to ensure compatibility.

## Connecting to a 3G Router

If the DC power cable of the 3G router has a standard USB connector with the maximum operating current of less than 1 A, it can be directly connected to the USB port on the SmartLogger.

**Step 1** Connect the USB connector of the DC power cable for the 3G router to the USB port on the SmartLogger.

**Step 2** If the reset function of the external router is required, log in to **Advanced User**, choose **Settings** > **USB**, and set **USB** to **Reset the external router**.

**----End**

## Connecting to a USB Flash Drive for Local Maintenance

| Local Maintenance Item | Description | Preparations |
|---|---|---|
| Exporting Data | By exporting data, you can obtain active alarms, historical alarms, performance data, abnormal takeover logs, debug logs, operation logs, fault information files, and electronic labels. | - |
| Upgrading the Application | - | The **smartlogger1000a.zip** file in the upgrade package is stored in the root directory of the USB flash drive. Do not decompress the file. |
| Upgrading the BSP | - | The **smartlogger1000a_bsp.zip** file in the upgrade package is stored in the root directory of the USB flash drive. Do not decompress the file. |

## Connecting to a USB Flash Drive to Export Device Logs

**Step 1** Connect the USB flash drive to the USB port on the SmartLogger.

**Step 2** Log in to the app as **Advanced User**, choose **More** > **Device Logs**, select the device whose logs are to be exported, and click **Next**.

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

**Step 4** After the logs are exported, remove the USB flash drive.

**----End**

## Connecting to a USB Flash Drive for Device Upgrade

You can upgrade the SmartLogger, inverter, PLC module, or PID module using a USB flash drive.

**Step 1** Save the device upgrade package to the USB flash drive.

📖 **NOTE**

> Do not decompress the upgrade package.

**Step 2** Connect the USB flash drive to the USB port on the SmartLogger.

**Step 3** Log in to the app as **Advanced User**, choose **More** > **Device Update**, select a single device or multiple devices of the same type, and click **Next**.

**Step 4** Select the upgrade package and click **Next**.

**Step 5** Confirm the upgrade package and the device to be upgraded, and then click **OK** to start the device upgrade.

📖 **NOTE**

> After the upgrade is complete, the device automatically restarts.

**Step 6** After the upgrade is complete, remove the USB flash drive.

**----End**

# 8.8 How Can I Change a Device Name?

## Procedure

**Step 1** Log in as **Advanced User** or **Special User**, and choose **Maintenance** > **Device Mgmt** > **Device List**.

**Step 2** Modify the device name based on the actual situation, select the modified entry, and click **Modify Device Info**.

📖 **NOTE**

> You can also export device information to a .csv file, modify the file, and import the modified file to modify device information.

**----End**

# 8.9 How Do I Change the Communication Address?

The SmartLogger allows you to change the communication address of Huawei devices on the **Connect Device** or **Device List** page.

## Changing Communication Address on the Connect Device Page

**Step 1** Log in as **Advanced User** or **Special User**, and choose **Maintenance** > **Device Mgmt** > **Connect Device**.

**Step 2** Click **Auto Assign Address**, set the start address for assignment, and confirm the address assignment.

**Step 3** Confirm the address adjustment, adjust the device address as required, and click **Address Adjustment**.

**Step 4** Confirm to search for the device again.

**Step 5** After the search is complete, click **Close**.

**----End**

## Changing Communication Address on the Device List Page

**Step 1** Log in as **Advanced User** or **Special User**, and choose **Maintenance** > **Device Mgmt** > **Device List**.

**Step 2** Change the device communication address and device name based on the site requirements, select the modified entries, and click **Modify Device Info**.

**Step 3** Choose **Maintenance** > **Device Mgmt** > **Connect Device**, and click **Auto Search**.

**Step 4** After the search is complete, click **Close**.

**----End**

# 8.10 How Do I Export Inverter Parameters?

## Context

You can export configuration parameters of multiple inverters to a .csv file. Site engineers can then check whether the inverter configurations are correct in the exported file.

## Procedure

**Step 1** Log in as **Advanced User** or **Special User**, and choose **Maintenance** > **Device Mgmt** > **Export Param.**.

**Step 2** Select the device whose parameters are to be exported and click **Export**.

**Step 3** Observe the progress bar and wait until the export is complete.

**Step 4** After the export is successful, click **Log archiving** to save the file.

**----End**

# 8.11 How Do I Clear Alarms?

## Context

You can clear all active and historical alarms for the selected device and re-collect alarm data.

## Procedure

**Step 1** Log in as **Advanced User** or **Special User**, and choose **Maintenance** > **Device Mgmt** > **Clear Alarm**.

**Step 2** Select the device from which the alarms need to be cleared, click **Submit**. Choose **All**, **Locally synchronized alarms**, or **Alarms stored on devices** clear the alarms.

> 📖 **NOTE**
>
> If alarms are cleared for the SmartLogger, you must reset alarms on the NMS. Otherwise, the NMS cannot obtain the alarm information collected by the SmartLogger after the alarms are cleared.

**----End**

# 8.12 How Do I Enable the AI1 Port to Detect SPD Alarms?

## Context

In the SmartACU2000C smart array controller application scenario, the AI1 port of the SmartLogger can be connected to the SPD alarm output to raise an alarm when the SPD is faulty.

## Procedure

**Step 1** Log in as **Advanced User**, choose **Setting** > **Other Parameters**, and set **AI1 SPD detection** to **Enable**.

**----End**

# 8.13 What Types of Electricity Meters and EMIs does the SmartLogger Support?

**Table 8-1** Meters Supported

| Vendor | Model | Reversed current prevention |
| --- | --- | --- |
| Janitza | UMG604/UMG103/UMG 104 | Yes |
| NARUN | PD510 | - |
| Acrel | PZ96L | Yes |
| algodue | UPM209 | Yes |
| CHNT | DTSU666 | - |
| Socomec | COUNTIS E43 | Yes |
| ABB | A44 | - |
| Netbiter | CEWE | - |
| Schneider | PM1200 | - |
| SFERE | PD194Z | - |
| Lead | LD-C83 | - |
| MingHua | CRDM-830 | - |
| People | RM858E | - |

📖 **NOTE**

    Only one meter under the MODBUS protocol can be connected to the SmartLogger.

**Table 8-2** Environment Monitoring Instruments (EMIs) Supported

| Vendor | Model | EMI information |
|--------|-------|-----------------|
| Jinzhou sunlight | PC-4 | Total radiation, ambient temperature, PV module temperature, wind direction, and wind speed |
| Handan | RYQ-3 | Total radiation, ambient temperature, PV module temperature, wind direction, and wind speed |
| ABB | VSN800-12 | Total radiation, ambient temperature, and PV module temperature |
|  | VSN800-14 | Total radiation, ambient temperature, PV module temperature, wind direction, and wind speed |
| Kipp&Zonen | SMPx series | Total radiation and ambient temperature |
| Lufft | WSx-UMB | Total radiation, ambient temperature, wind direction, and wind speed |
|  | WSx-UMB (external sensors) | Total radiation, ambient temperature, PV module temperature, wind direction, and wind speed |
| Hukseflux SRx | Hukseflux SRx | Total radiation and ambient temperature |
| MeteoControl | SR20-D2 | Total radiation and ambient temperature |
| RainWise | PVmet-150 | Total radiation, ambient temperature, and PV module temperature |
|  | PVmet-200 | Total radiation, ambient temperature, PV module temperature, wind direction, and wind speed |
| Gill MetPak Pro | Gill MetPak Pro | Total radiation, ambient temperature, PV module temperature, wind direction, and wind speed |

| Vendor | Model | EMI information |
|---|---|---|
| Ingenieurbüro Si-RS485TC | Ingenieurbüro Si-RS485TC | Total radiation, ambient temperature, PV module temperature, and wind speed |
| Meier-NT ADL-SR | Meier-NT ADL-SR | Total radiation, ambient temperature, PV module temperature, and wind speed |
| Soluzione Solare | SunMeter | Total radiation and ambient temperature |
| Jinzhou Licheng | Jinzhou Licheng | Total radiation, ambient temperature, PV module temperature, wind direction, and wind speed |
| Sensor (ADAM)<br><br>**NOTE**<br>Sensor (current-type or voltage-type) EMI needs to communicate with the SmartLogger using the ADAM analog-to-digital converter. | - | - |

# 9 Technical Specifications

## Device Management

| Item | Technical Specifications |
|---|---|
| Number of devices that can be connected | ≤ 80 |
| Communications mode | RS485, ETH, PLC (optional), 4G |
| Maximum communication distance | • RS485: 1000 m<br>• ETH: 100 m<br>• PLC (multi-core cable): 500 m |

## Common Specifications

| Item | Technical Specifications |
|---|---|
| Power adapter | • AC input: 100–240 V, 50/60 Hz<br>• DC output: 12 V, 2 A |
| DC power supply | 20–30 V, 0.8 A |
| Power consumption | Typical: 8 W; maximum: 15 W |
| Dimensions (W x H x D) | • 261 mm x 140 mm x 69 mm (including mounting ears)<br>• 200 mm x 140 mm x 53 mm (excluding mounting ears) |
| Net weight | 2 kg |
| Operating temperature | –40°C to +60°C |
| Storage temperature | –40°C to +70°C |
| Relative humidity | 5%–95% |
| Protection level | IP20 |

| Item | Technical Specifications |
|------|--------------------------|
| Installation mode | Installed on a wall or guide rail |
| Highest operating altitude | 4000 m |
| Pollution degree | 2 |

**Ports**

| Item | Technical Specifications |
|------|--------------------------|
| Ethernet electrical port (ETH) | 1; 10/100M auto-negotiation |
| PLC port (AC) | 1; supports an AC input voltage of 800 V at most |
| RS485 (COM) port | 3; supported baud rates: 2400 bit/s, 4800 bit/s, 9600 bit/s, 19200 bit/s, and 115200 bit/s |
| USB port | USB2.0 |
| Digital input (DI) port | 4; supports only the access from relay dry contacts |
| Digital output (DO) port | 2; relay dry contact output ports, supporting normally open or closed contacts; supports 12 V, 0.5 A signal voltage |
| Analog input (AI) port | 4; AI1 supports 0–10 V voltage (passive); AI2–AI4 support 4–20 mA or 0–20 mA input current (passive) |

**Wireless Communication**

| Item | Technical Specifications |
|------|--------------------------|
| 4G/3G/2G | The SmartLogger1000A01CN supports 2G, 3G, and 4G networks of China Mobile and China Unicom, and 4G networks of China Telecom. The following frequency bands are supported: <br>• FDD-LTE: B1, B3, B8 <br>• TDD-LTE: B39, B40, B41 (38) <br>• DC-HSPA+/HSPA+/HSPA/UMTS: B1, B5, B8, B9 <br>• TD-SCDMA: B34, B39 <br>• GSM/GPRS/EDGE: 900 MHz/1800 MHz <br><br> The SmartLogger1000A02JP supports 3G and 4G networks of Docomo. The following frequency bands are supported: |

| Item | Technical Specifications |
|---|---|
| | • FDD-LTE: B1, B3, B19, B21 (B3 is supported only in Tokyo, Nagoya, and Osaka.)<br>• UMTS: B1, B6, B19 |
| | The SmartLogger1000A01EU, SmartLogger1000A02KR, and SmartLogger1000A01UK support networks of T-Mobile, Vodafone, Orange, and KPN.<br>The following frequency bands are supported:<br>• FDD-LTE: B1, B2, B3, B4, B5, B7, B8, B20<br>• DC-HSPA+/HSPA+/HSPA/UMTS: 850 MHz/900 MHz/1900 MHz/2100 MHz<br>• GSM/GPRS/EDGE: 850 MHz/900 MHz/1800 MHz/1900 MHz |
| | The SmartLogger1000A01AU supports networks of Telstra, Optus, and Vodafone.<br>The following frequency bands are supported:<br>• FDD-LTE: B1, B3, B5, B7, B28<br>• TDD-LTE: B40<br>• UMTS: B1 (2100 M), B5 (850 M), B8 (900 M)<br>• GSM: 900 MHz/1800 MHz |
| | The SmartLogger1000A01US supports the networks of AT&T.<br>The following frequency bands are supported:<br>• FDD-LTE: B2, B4, B5, B17, B30<br>• UMTS: B2 (1900 M), B5 (850 M)<br>• GSM: 850 MHz/1900 MHz |
| WLAN (local maintenance using app) | 2.4G |

# A Product User Lists

**Table A-1** Monitoring user lists

| Login Mode | User Name | Initial Password |
|---|---|---|
| App | Common User | 00000a |
| | Advanced User | 00000a |
| | Special User | 00000a |
| Web | Common User | Changeme |
| | Advanced User | Changeme |
| | Special User | Changeme |
| NetEco | emscomm | /EzFp+2%r6@IxSCv |

**Table A-2** Operating system user lists

| User Name | Initial Password |
|---|---|
| enspire | Changeme |
| root | Changeme |
| prorunacc | No initial password |
| bin | No initial password |
| daemon | No initial password |
| nobody | No initial password |
| sshd | No initial password |

# B Acronyms and Abbreviations

**A**

**APP**                          application


**C**

**CCO**                          central coordinator


**F**

**FTP**                          File Transfer Protocol


**L**

**LED**                          light emitting diode


**N**

**NMS**                          network management system


**P**

**PID**                          potential induced degradation

**PLC**                          Power Line Communication

**PV**                           Photovoltaic


**S**

**STA**                          station