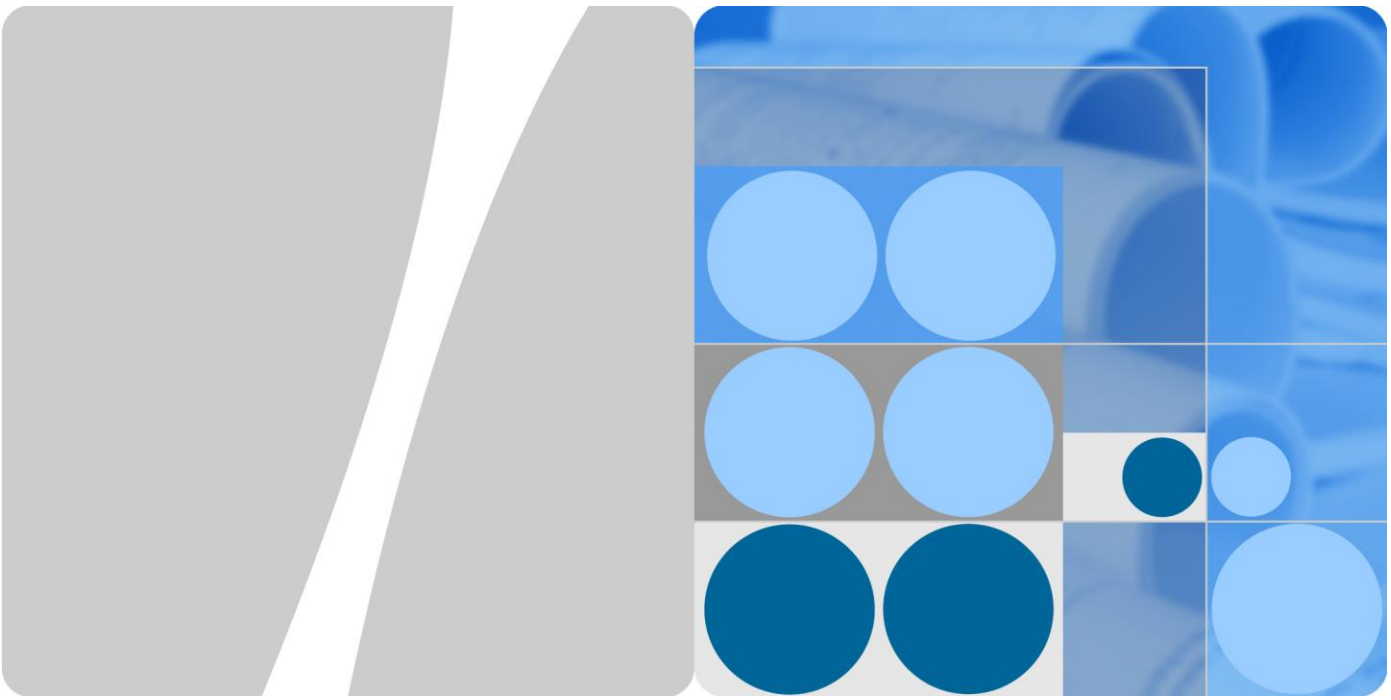

SmartLogger1000

User Manual

Issue 05

Date 2014-05-20

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About This Document

Overview

This document introduces the SmartLogger1000 (**SmartLogger**) in terms of installation, electrical connections, system operation and maintenance, and troubleshooting measures. Get familiar with the functions and features of the SmartLogger, and read safety precautions before installing and operating the SmartLogger.

You can print the document. Store the paper copies or compact disk (CD) properly for future use. You can also download the latest documents from **http://support.huawei.com**.

Intended Audience

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

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 death or serious injury.
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
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.

Symbol	Description
	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 the changes made in earlier issues.

Issue 05 (2014-05-20)

Added 4.4 Connecting the SmartLogger to a Power Meter.

Added 6.2.5 Querying Master Slave SmartLogger Information.

Added 6.2.6 Querying Slave SmartLogger Information.

Added 6.2.7 Querying Power Meter Information.

Added 6.2.11 Setting SmartLogger Contrast.

Added 6.2.21 Batch Power-On/Off.

Added 7.3 WebUI Layout.

Added 7.8 Querying the Master SmartLogger Running Information.

Added 7.9 Querying the Active Alarms of the Master SmartLogger.

Added 7.10 Querying the Slave SmartLogger Running Information.

Added 7.30 Setting Power Meter Parameters.

Added 8.2 Application Scenarios.

Added 9.3 Alarms.

Issue 04 (2013-12-01)

This is the fourth official release.

Added **Server+Client** mode as a NetEco parameter in 6.2.14 Setting Communications Parameters.

Added address assignments in 6.2.18 Managing Devices.

Added the setting of USB parameters in 7.34.2 Setting USB Parameters.

Updated parts of the web user interface (WebUI).

Issue 03 (2013-09-10)

This issue is the third official release.

Compared with the second official release, this document updates some operations and figures for the LCD and WebUI.

Issue 02 (2013-06-06)

This issue is the second official release.

Issue 01 (2013-04-25)

This issue is the first official release.

Compared with the original draft, this document updates some operations and figures for the LCD and WebUI.

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1 Safety Precautions

About This Chapter

Read the safety precautions carefully. Otherwise, human injury and equipment damage may occur.

1.1 Overview

This topic describes the precautions for installing and operating the SmartLogger.

Personnel Requirements

- Only qualified and trained electrical technicians are allowed to install and operate the SmartLogger.
- Operation personnel should understand the composition and working principles of the PV grid-tied power generating system and local regulations.

Identification Protection

- The signs on the SmartLogger shell specify important information about secure operations. Do not damage the signs.
- The nameplate attached to the bottom of the SmartLogger lists the SmartLogger parameters. Do not damage the nameplate.

Installation

NOTICE

Before installation, read this document carefully. Huawei shall not be liable for any consequence caused by violation of the regulations specified in this document.

- Before installing the SmartLogger, ensure that it is not connected or energized.
- Install the SmartLogger in well-ventilated environments to ensure system performance.
- Ensure that the heat dissipation holes of the SmartLogger are not blocked.

- Do not move the components inside the shelf except for the wiring terminals at the bottom.

Operation

NOTICE

Strictly comply with the safety precautions in this document and associated documents to operate the SmartLogger.

When operating the SmartLogger, follow local laws and regulations.

Maintenance and Replacement

- A faulty SmartLogger requires overall maintenance. Contact the dealer if any fault occurs in the SmartLogger shelf.
- Maintain the SmartLogger after you get familiar with this document and tools and testing equipment are available.
- When maintaining the SmartLogger, wear ESD gloves and comply with ESD precautions.

1.2 Symbols

The following table describes all symbols on the Smart Logger.

Symbol	Name	Meaning
	CE certification label	This product complies with the Conformite Europeenne (CE) certification standards.
	Environmentally friendly use period (EFUP) label	This product does not pollute the environment during a specified period.
	EU waste electrical and electronic equipment (WEEE) label	Do not dispose of the SmartLogger as household garbage. For details about how to deal with the undesirable SmartLogger, refer to 10 Disposing of the SmartLogger.

2 Overview

About This Chapter

This topic describes the SmartLogger in terms of functions, networking applications, product features, appearance, and the monitoring panel.

2.1 Product Description

This topic describes the SmartLogger in terms of functions, networking applications, and product features.

Functions

The SmartLogger is dedicated for monitoring and managing the PV power generating system. It converges all ports, converts protocols, collects and stores data, and centrally monitors and maintains the PV power generating system.

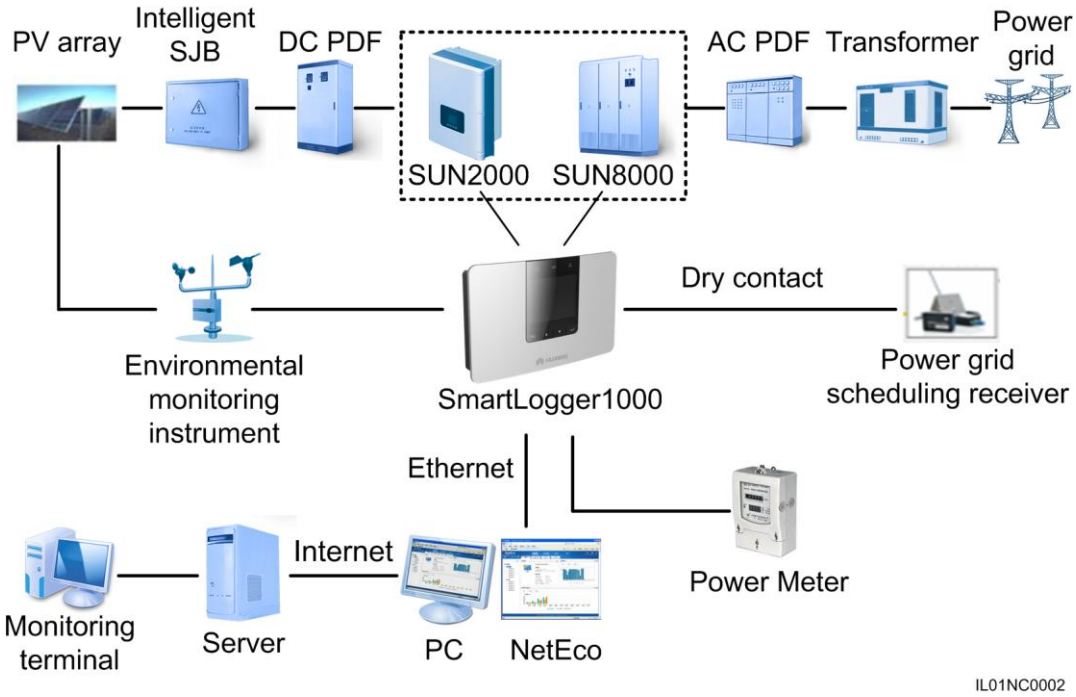
Networking Applications

The SmartLogger applies to the PV system.

- Monitors Huawei inverters;
- Compatible with a third-party EMI that has an RS485 port supporting the Modbus protocol;
- Compatible with a smart meter that supports the Modbus-RTU protocol;
- Supports the protocol conversion between a third-party device that supports the Modbus-RTU protocol and a network management system (NMS) that supports the Modbus-TCP protocol.

The SmartLogger networking shows in Figure 2-1.

Figure 2-1 SmartLogger networking



Features

The SmartLogger enjoys the following features:

- Central monitoring
  - Centrally monitors a maximum of 80 devices.
  - Allows users to view information about power station, devices, products, and alarms, set parameters, and maintain devices on the liquid crystal display (LCD).
  - Allows users to monitor and manage the PV power generating system on the embedded WebUI, for example, viewing real-time information about power station, devices, and faults, and setting device parameters in remote mode.
- Graphical data
  - Displays energy yields and real-time monitoring information on the LCD in graphics and texts
  - Displays energy yields, real-time monitoring information, and performance data of power station and devices on the embedded WebUI in tables and curves
- Convenient maintenance
  - Allows users to upgrade the firmware of the SmartLogger and inverters and export data by using a USB flash drive.
  - Allows users to upgrade the firmware of the SmartLogger, view operation dates, and export data on the embedded WebUI.
- Grid dispatching

  Supports power grid scheduling: the active power reduction and reactive power compensation.
- Intelligent Management

Automatically scans and connects to the inverters.

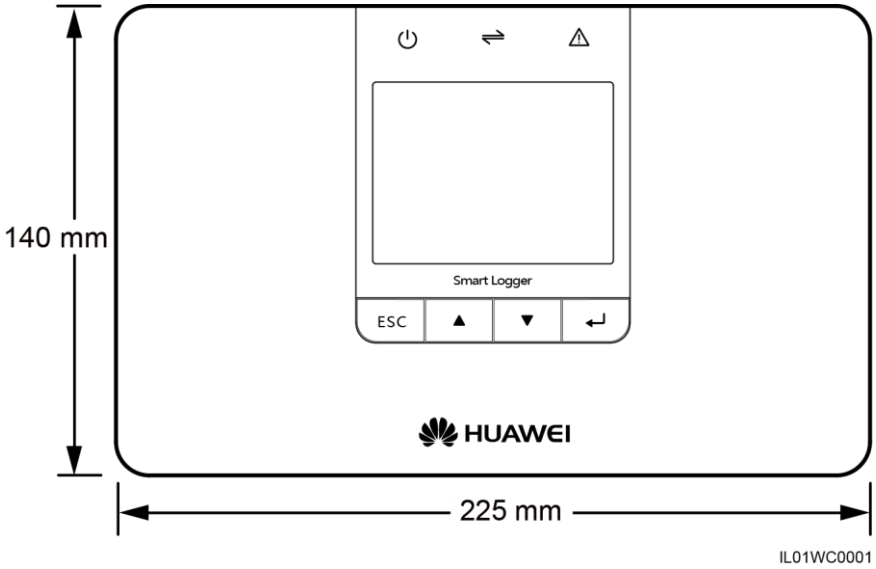
- Automatically scans and connects to the inverters and supports protocol conversion for third-party devices.
- An RS485 address can be automatically assigned to the connected inverter over the SmartLogger, facilitating remote configuration and maintenance.
- Supports remote setting of inverter parameters and synchronizes the parameters of one inverter to other inverters in batch.

- Remote maintenance
  - Remotely manages all devices over the Modbus-TCP protocol, Huawei NetEco, and a third-party NMS.
  - Allows users to access a third-party element management system (EMS) over File Transfer Protocol (FTP).
  - Sends energy yield and fault information to users by emails.

2.2 Appearance

This topic describes the SmartLogger in terms of its appearance and specifications.

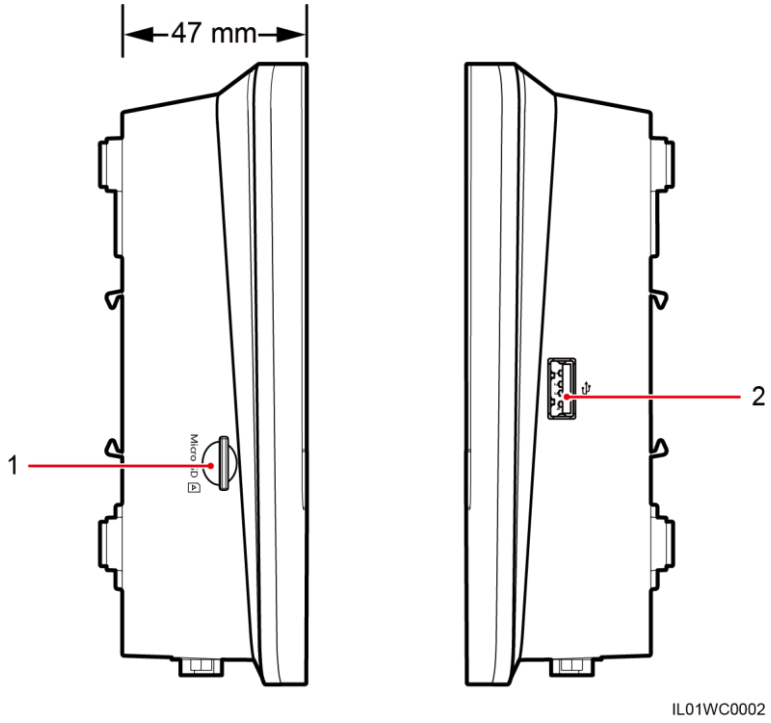
Front View of the Shell



NOTE

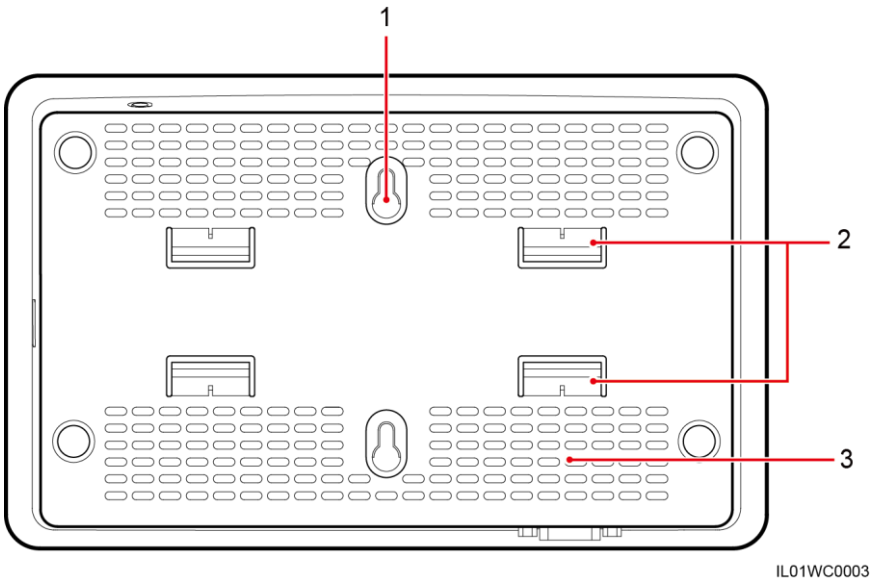
The LCD on the SmartLogger monitoring panel displays information about the power site, devices, alarms, and products. This topic describes how to set parameters and maintain devices over the monitoring panel.

Side view of the shell



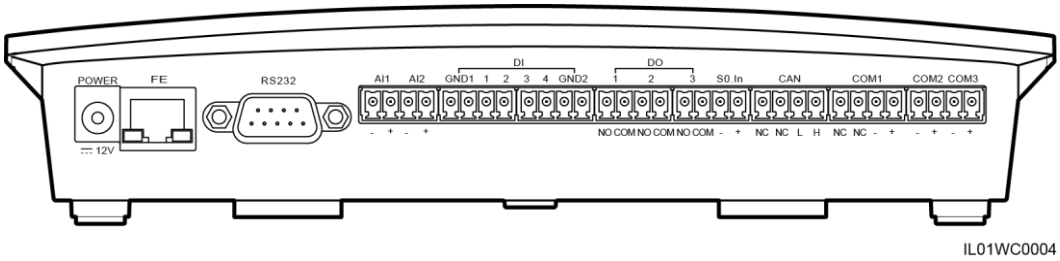
1. SD card slot
2. USB port

Rear View of the Shell



1. Mounting hole
2. Rail snap
3. Heat dissipation hole

Bottom of the Shell



The following table describes functions of each port of the SmartLogger, as shown in Table 2-1.

Table 2-1 Port description

Port	Function	Description
POWER	Power supply	12 V DC.
FE	Ethernet	Connects to PC or routers.
RS232	RS232	Connects to external RS232 devices (reserved).
AI	Analog input	12 V current-type signal (reserved).
DI	Digital parameter input	Connects to the power grid scheduling signal controlled by dry contacts.
DO	Digital parameter output	Relay output.
S0.In	Connects to pulse output power meters.	Reserved.
CAN	CAN	Reserved.
COM1–COM3	RS485	Supports three RS485 ports and connects to inverters and s.
Micro SD	SD card slot	Reserved.
	USB port	Connects a USB flash drive.

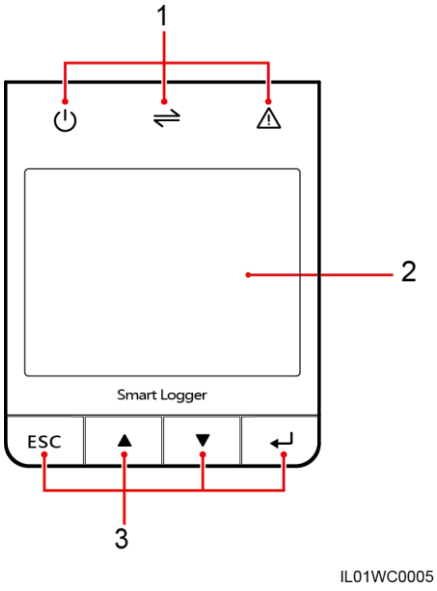
2.3 Monitoring Panel

This topic describes the monitoring panel, including an LCD, indicators, buttons, and the default page.

Monitoring panel

The monitoring panel provides one LCD, three indicators, and four buttons, as shown in Figure 2-2.

Figure 2-2 Monitoring panel



1. Indicator 2. LCD 3. Button

Indicators

There are three indicators on the monitoring panel. They are Power indicator, Run indicator, and Alarm indicator from left to right.

Table 2-2 describes the indicators.

Table 2-2 Indicator description

Indicator	Status	Meaning
Power indicator	Steady green	The power supply is normal.
	Off	There is no power supply.
Run indicator	Blinking green (on for 1s and then off for 1s)	The SmartLogger is working.
	Off	The SmartLogger stops working.
Alarm indicator	Steady red	The inverter connected to the SmartLogger generates a major alarm. For details about the alarm, see 6.2.8 Querying Alarm Records.

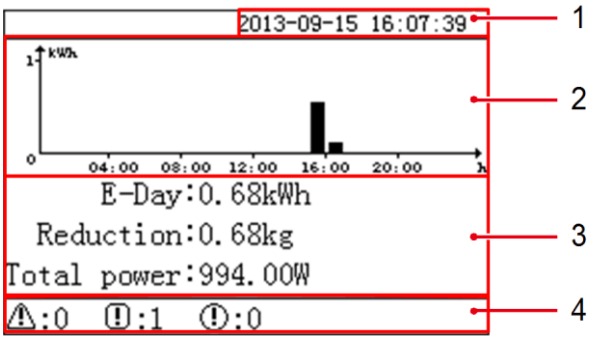
Indicator	Status	Meaning
	Blinking red (on for 0.5s and then off for 0.5s)	The inverter connected to the SmartLogger generates a minor alarm. For details about the alarm, see 6.2.8 Querying Alarm Records.
	Blinking red (on for 1s and then off for 4s)	The inverter connected to the SmartLogger generates a warning. For details about the warning, see 6.2.8 Querying Alarm Records.
	Off	The inverter connected to the SmartLogger is working normally.

LCD

The LCD displays data in graphics and text, including the information about the site, devices, alarms and products. Users can also set parameters and maintain devices on the LCD.

If you do not press any button within 90s on a non-default page, the LCD returns to the default page automatically, as shown in Figure 2-3.

Figure 2-3 Default page



1. Date and time	Allows you to view the date and time.
2. Energy production histogram	Allows you to view the total energy production in each hour by all the inverters connected to the SmartLogger.
3. Energy production data	• Allows you to view the total energy production from 0:00 to the current time by all the inverters connected to the SmartLogger. • Allows you to view the emission reduction of CO_2 corresponding to the energy yield of the current day. • Allows you to view the total output power by all the online inverters

	connected to the SmartLogger at the present.
4. Status information	Allows you to view the number of the major alarms, minor alarms, and warnings of all the inverters connected to the SmartLogger. When remote grid dispatching is enabled, you can view the current status of grid dispatching.

Buttons

There are four buttons on monitoring panel. They are the Return button, Cursor Up button, Cursor Down button, and Confirm button from left to right.

Table 2-3 describes the button functions.

Table 2-3 Button description

Buttons	Name	Functions
ESC	Return button	Allows you to return to the last page or end an operation.
▲	Cursor Down button	Allows you to go to the upper-level menu or set parameters.
▼	Cursor Up button	Allows you to go to the lower-level menu or set parameters.
↵	Confirm button	Allows you to go to the menu or confirm the value.

NOTE
The backlight lasts 120s after you press any button.

3 Installation

About This Chapter

This topic describes how to install the SmartLogger.

Context

Install the SmartLogger in an appropriate position and surface.

DANGER

- Do not store the SmartLogger in areas with flammable or explosive materials.
- Do not install the SmartLogger on flammable building materials.

3.1 Installation Process

This topic describes the SmartLogger installation process.

The SmartLogger installation process is shown in Figure 3-1.

Figure 3-1 Installation flowchart

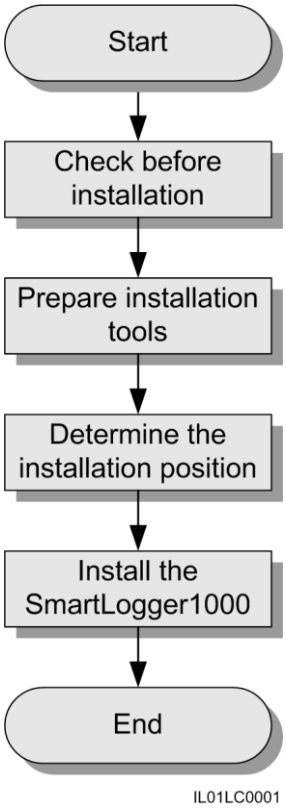


Table 3-1 describes the installation process.

Table 3-1 Description of the installation process

Step	Operation	Description
1	Checking Before Installation	Before unpacking, check that the outer packing materials are intact. After unpacking, check that deliverables are complete and intact.
2	Preparing Tools	Prepare tools required for installation and electrical connections.
3	Determine the installation position.	Before installing the SmartLogger, determine an appropriate position to ensure that the SmartLogger works properly.
4	Installing the SmartLogger	The SmartLogger can be installed on a desk, a wall or along a guide rail.

3.2 Checking Before Installation

Before unpacking, check that the outer packing materials are intact. After unpacking, check that deliverables are complete and intact.

Checking Outer Packing Materials

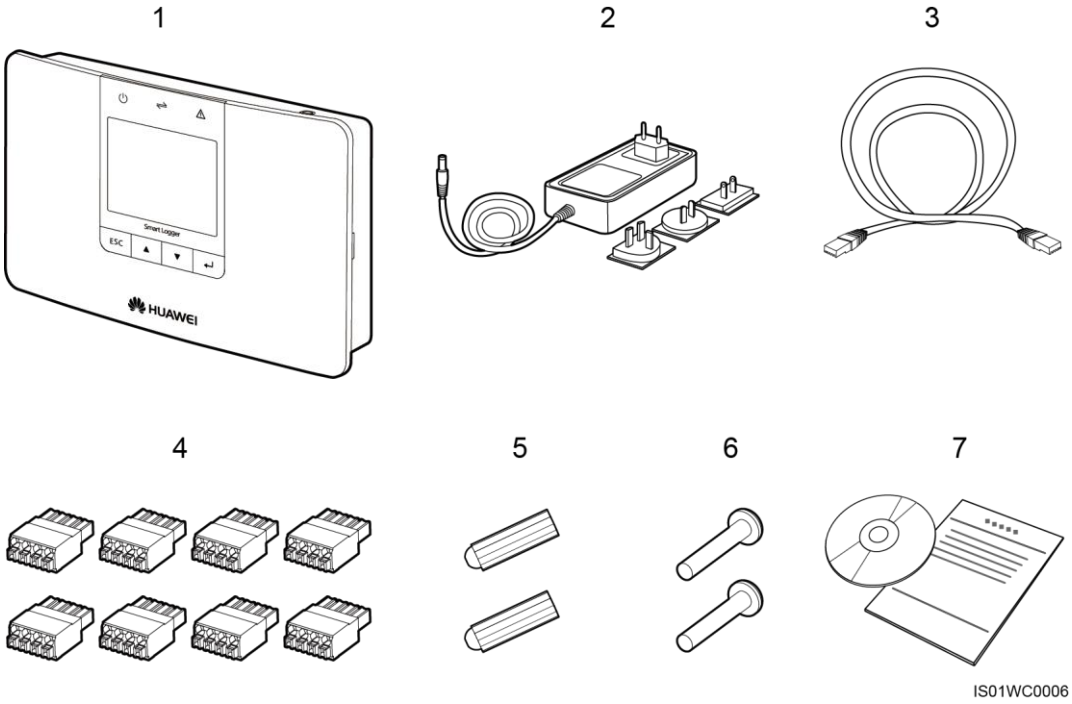
Check the outer packing materials for damage before unpack the SmartLogger, such as holes and cracks. If any damage is found, do not unpack the SmartLogger and contact the dealer as soon as possible.

Checking Deliverables

After unpacking the SmartLogger, check whether deliverables are intact and complete. If any damage is found or any component is missing, contact the dealer.

Figure 3-2 shows the components and mechanical parts that should be delivered.

Figure 3-2 Deliverables

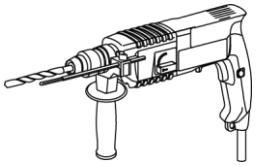
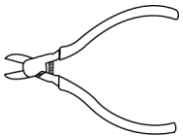
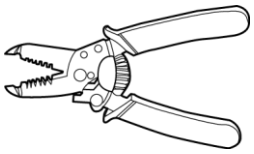
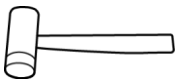
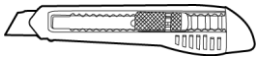
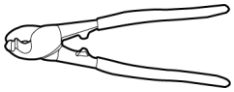


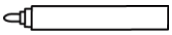
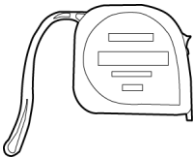
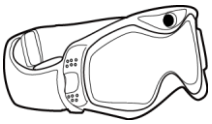
No.	Quantity	Description
1	1	SmartLogger
2	1	Adapter (adapter type depends on the country specified in the order)
3	1	Network cable (2.2 meters long)
4	8	Terminal block
5	2	Expansion tube

No.	Quantity	Description
6	2	Screws (used to secure the SmartLogger to the wall)
7	1	Auxiliary documents (including the quick installation guide in paper copies and user manual in CD-ROM)

3.3 Preparing Tools

Prepare tools required for installation and electrical connections.

Tools	Model	Function
Hammer drill 	Φ6 drill bit	Drills holes in the wall when the SmartLogger is wall-mounted.
Diagonal pliers 	-	Cuts and tighten cable ties.
Wire stripper 	-	Peels cable jackets.
Rubber mallet 	-	Hammers expansion bolts into holes.
Guarded blade utility knife 	-	Removes package.
Cable cutter 	-	Cuts cables.
Vacuum cleaner 	-	Cleans up dust after holes are drilled.

Tools	Model	Function
Marker 	Diameter: ≤ 10 mm	Marks signs.
Measuring tape 	-	Measures distance
Plumb line 	-	Ensures that the screws are perpendicular to the wall.
Safety goggles 	-	Protect your eyes during hole drilling.
Anti-dust respirator 	-	Prevents dust from entering your mouth and nostrils during hole drilling.

3.4 Determining the Installation Position

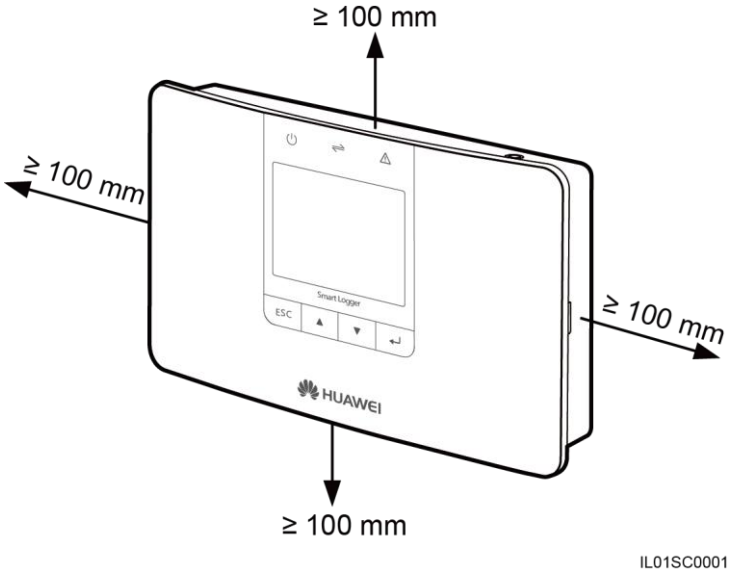
Before installing the SmartLogger, determine an appropriate position to ensure that the SmartLogger works properly.

Comply with the following requirements when determining the installation position for the SmartLogger:

- Do not install the SmartLogger outdoors because it is protected to IP20.
- Install the SmartLogger in a dry environment to protect it against water.
- The ambient temperature should range from -20 ℃ to +60 ℃.
- The communication distance for the RS485 port should be less than 1000 m and for the Ethernet less than 100 m.
- Install the SmartLogger at an appropriate height for the user's ease to view and operate on the monitoring panel.

- Do not place the SmartLogger upside down. Ensure that the heat dissipation holes are facing upwards, preventing dust from entering the SmartLogger and reducing its service life.
- Choose appropriate installation method and position for the Smart Logger according to its weight and size. For details, refer to 11 Technical Specifications.
- If you install the SmartLogger on a wall or along a guide rail, the area for connecting cables should be downwards.
- The SmartLogger is at least 100 mm away from the neighboring objects on both sides, the top side, and the bottom side respectively, as shown in Figure 3-3.

Figure 3-3 Minimum installation clearance



3.5 Installing the SmartLogger

The SmartLogger can be installed on a desk, on a wall, or along a guide rail.

3.5.1 Installing the SmartLogger on a Desk

This topic describes how to install the SmartLogger on a desk.

Context

NOTICE

- Ensure that the desk on which the SmartLogger is installed is horizontal to prevent it from falling down.
- Install the SmartLogger in places where cables cannot be easily touched to avoid signal disruption.

Procedure

Step 1 Take the SmartLogger out from the package.

Step 2 Place the SmartLogger onto a horizontal desk.

----End

3.5.2 Mounting the SmartLogger on a Wall

This topic describes how to mount the SmartLogger on a wall.

Context

NOTICE

- Before hanging the SmartLogger on the screws, secure the expansion tubes and screws into the wall.
- Install the SmartLogger on a solid and smooth wall to ensure that it can be secured on the wall.

Procedure

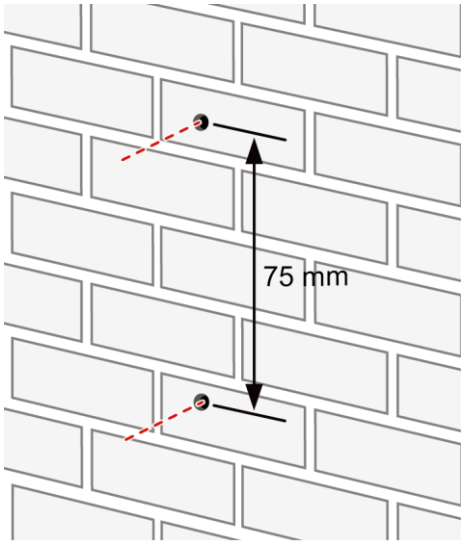
Step 1 Install the expansion tubes and screws.

NOTICE

If you need to use a ladder to install the SmartLogger on a high position, keep balance to protect yourself from falling down.

1. Use a plumb line to ensure that the line between the centric points of the two holes is vertical to the ground. Use a marker to mark out the holes, as shown in Figure 3-4.

Figure 3-4 Hole positions and dimensions



2. Drill holes using a hammer drill and install expansion tubes and screws, as shown in Figure 3-5.

Figure 3-5 Drilling a hole and installing an expansion tubes and screws

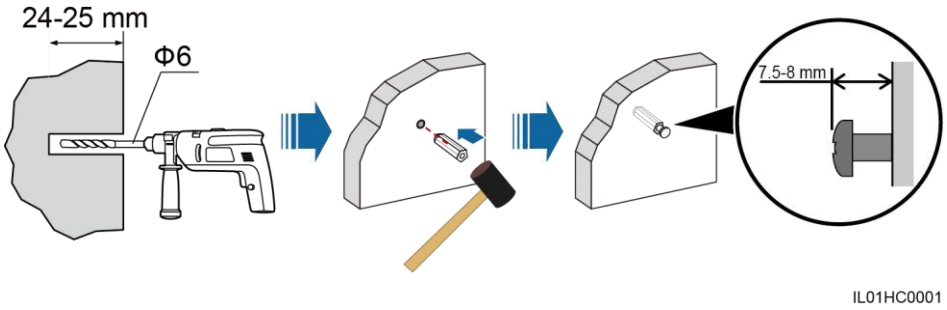


Table 3-2 describes the operations shown in Figure 3-5.

Table 3-2 Drilling a hole and installing an expansion tubes and screws

Step	Operation
1	Put a hammer drill with a Φ6 drill bit on a marked hole position perpendicularly against the wall and drill holes with a depth of 24 mm to 25 mm. **NOTICE** • To prevent dust inhalation or contact with eyes, wear safety goggles and an anti-dust respirator when drilling holes. • Wipe away any dust in or around the holes and measure the hole distance. If the holes are inaccurately positioned, drill holes again.
2	Vertically insert an expansion tube into a hole, and knock it completely into the hole by using a rubber mallet.

Step	Operation
3	Insert the screws into the expansion tube until the screw heads are 7.5 mm to 8 mm away from the wall.

Step 2 Hang the SmartLogger onto the secured screws by the mounting holes on the rear of the SmartLogger.

NOTICE

Ensure that the area for connecting cables in the SmartLogger is downwards for the ease of electrical connections and maintenance.

----End

3.5.3 Mounting the SmartLogger Along a Guide Rail

This topic describes how to mount the SmartLogger along a guide rail.

Context

The guide rails are not delivered together with the SmartLogger. If you need to mount the SmartLogger along a guide rail, prepare a 35 mm wide guide rail.

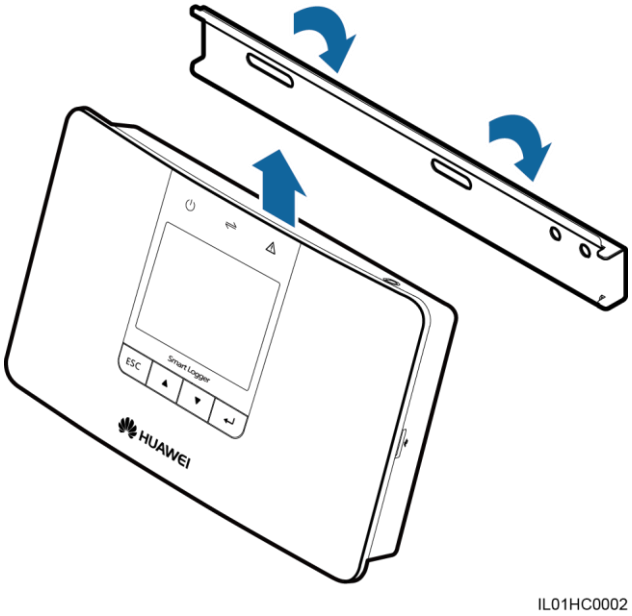
NOTICE

- Choose a guide rail with appropriate lengths to ensure that the SmartLogger can be secured along it.
- Secure the guide rail before mounting the SmartLogger.

Procedure

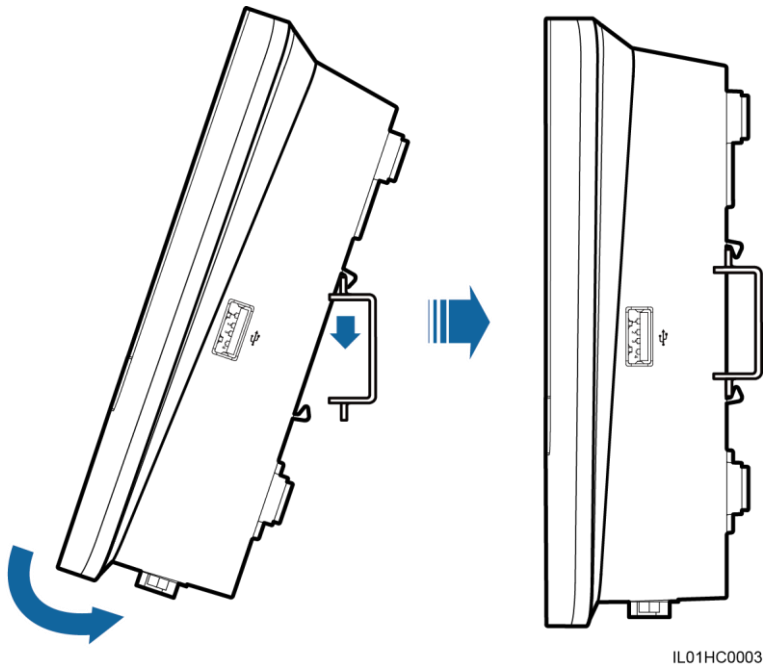
Step 1 Hold both sides of the SmartLogger, keep it parallel with the guide rail, and then tilt it slightly to insert its upper hooks into the guide rail, as shown in Figure 3-6.

Figure 3-6 Mounting the SmartLogger Along a guide rail (1)



Step 2 Hold the two lower corners of the SmartLogger, pull it downwards appropriately, and then push it towards the guide rail. When you hear a click sound, the SmartLogger is successfully mounted along the guide rail, as shown in Figure 3-7.

Figure 3-7 Mounting the SmartLogger along a guide rail (2)



----End

4 Electrical Connections

About This Chapter

This topic describes how to connect the SmartLogger to the inverters, environmental monitoring instrument, and PCs.

Context

NOTICE

- Ensure that all cables are connected and secured.
- Do not connect a power adapter to the SmartLogger before the cable connections are complete because the SmartLogger has no startup button.

4.1 Port Description

This topic describes the functions of ports in the SmartLogger.

For the bottom view of the SmartLogger and port description, see Bottom of the Shell in 2.2 Appearance.

4.2 Connecting the SmartLogger to Inverters

This topic describes how to connect the SmartLogger to inverters.

4.2.1 Connecting the SmartLogger to the SUN2000

This topic describes how to connect the SmartLogger to the SUN2000.

Context

The RS485 communications port for the SUN2000 is an RJ45 port, which is connected over a crystal plug, as shown in Figure 4-1.

Figure 4-1 RS485 crystal plug of the SUN2000 (side view without the fastener)

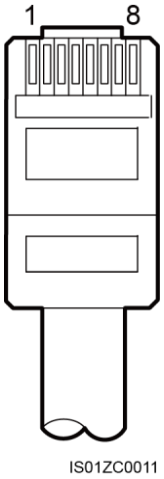


Table 4-1 lists the cable colors and functions.

Table 4-1 Cable colors and functions

Category	Color	Function
1	White and orange	RS485A, RS485 differential signal +
2	Orange	RS485B, RS485 differential signal -
3	White and green	PGND
4	Blue	RS485A, RS485 differential signal +
5	White and blue	RS485B, RS485 differential signal -
6	Green	PGND
7	White and brown	PGND
8	Brown	PGND

There are three COM ports for the RS485 communications of the SmartLogger, as shown in Figure 4-2.

Figure 4-2 COM ports on the SmartLogger

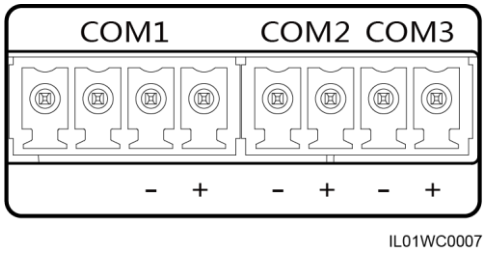


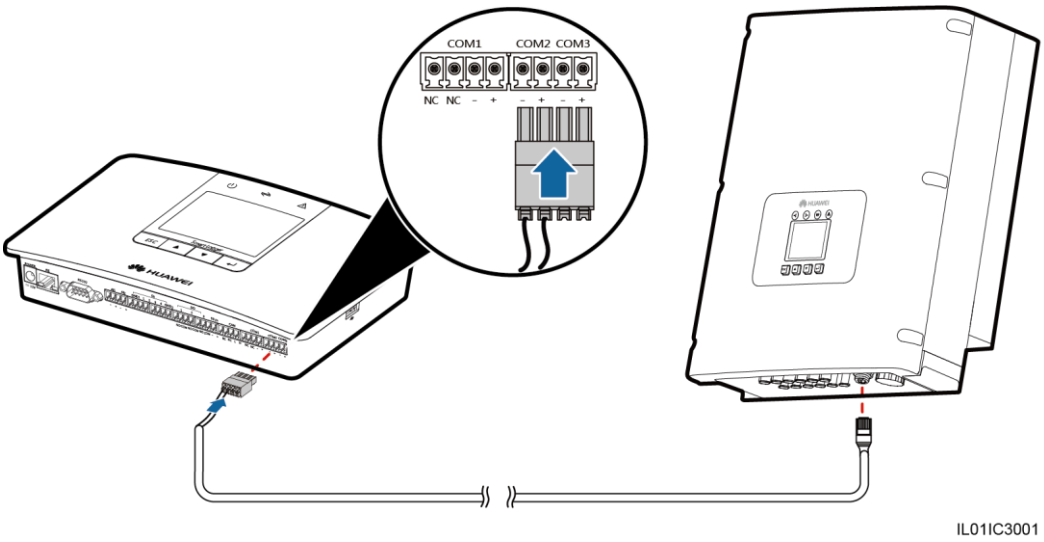
Table 4-2 describes the definition of the COM ports.

Table 4-2 COM port description

Port	Identifier	Function
COM1 port	NC	Reserved
	NC	Reserved
	-	RS485B, RS485 differential signal -
	+	RS485A, RS485 differential signal +
COM2 port	-	RS485B, RS485 differential signal -
	+	RS485A, RS485 differential signal +
COM3 port	-	RS485B, RS485 differential signal -
	+	RS485A, RS485 differential signal +

Figure 4-3 shows how to connect the SmartLogger to the SUN2000.

Figure 4-3 Connecting the SmartLogger to the SUN2000



Procedure

Step 1 Obtain a shielded network cable with an appropriate length. Crimp the crystal plug to one of its ends and then connect the end to the RS485 port in the SUN2000.

- Recommended communications cable model: CAT 5E outdoor shielded network cable.
- For details about how to connect the crystal plug to one end of the cable, see the *SUN2000 (8KTL-20KTL) User Manual*.

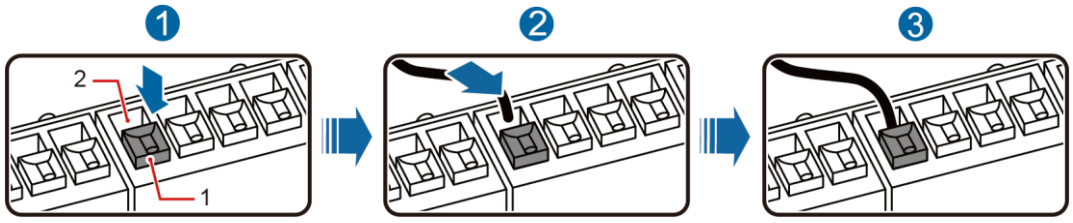
Step 2 Use a cable peeler to peel off 15 mm long of the external insulation layer on the other end of the shielded network cable.

Step 3 Use a cable peeler to peel off 10 mm long of the internal insulation layer on the white-orange (or blue) core wire and the orange (or white-blue) core wire. And cut off 15 mm long of the other six core wires.

Step 4 Connect cables to the terminal block.

Ensure that the white-orange (or blue) core wire connects to the wiring terminal that connects to the COM+ port and that the orange (or white-blue) core wire connects to the wiring terminal that connects to the COM- port.

Figure 4-4 Connecting cables to the terminal block



1. White contact plate
2. Wiring terminal

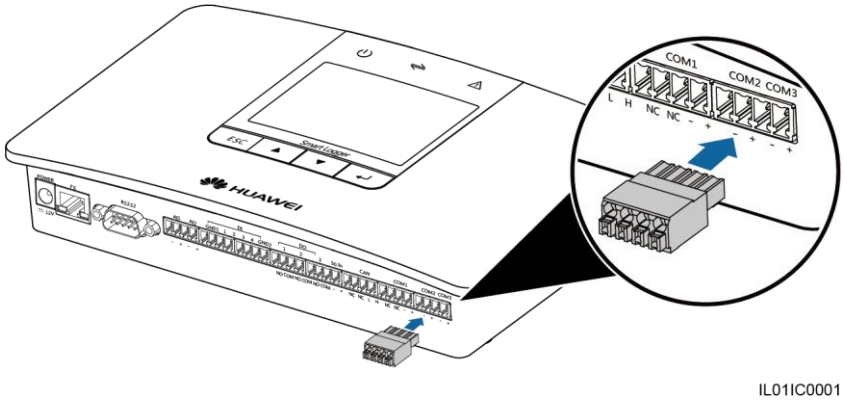
Figure 4-4 describes the operations shown in Table 4-3.

Table 4-3 Connecting cables to the terminal block

Step	Operation
1	Press the white contact plate to flip the metal spring inside the wiring terminal.
2	Insert the uninsulated parts of the core wires into the wiring terminals.
3	Let go the white contact plate to fasten the core wire.

Step 5 Connect the terminal block to the COM port on the SmartLogger, as shown in Figure 4-5.

Figure 4-5 Connecting the terminal block to the SmartLogger



Step 6 Ensure that the cable is correctly connected and secured. Set **Baud rate** for the SUN2000 and the SmartLogger and ensure that the parameters for these two devices are consistent.

- For details about how to set the communications parameters for the SmartLogger, see 6.2.14 Setting Communications Parameters.
- For how to set the communications parameters for the SUN2000, see the *SUN2000 (8KTL-20KTL) User Manual*.

----End

Follow-up Procedure

Take operations in reversed order to disconnect the SmartLogger from the SUN2000.

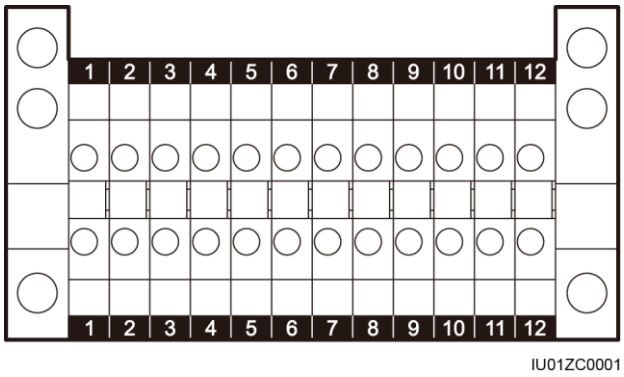
4.2.2 Connecting the SmartLogger to the SUN8000

This topic describes how to connect the SmartLogger to the SUN8000.

Context

Figure 4-6 shows the RS485 wiring terminals of the SUN8000.

Figure 4-6 RS485 wiring terminals for the SUN8000



Ports 07, 08, 09, 10, 11, and 12 are communications ports. Table 4-4 describes the functions of these ports.

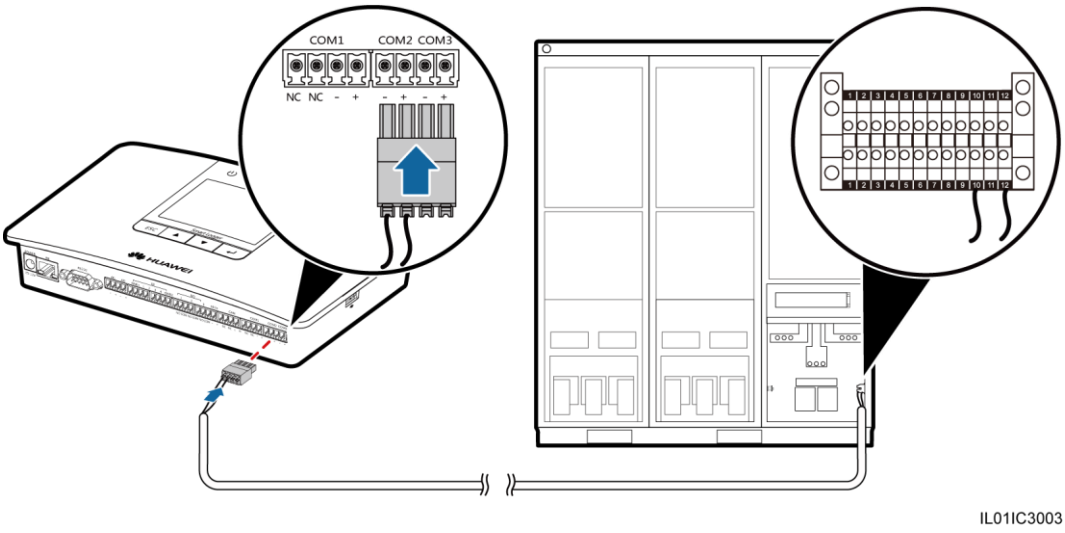
Table 4-4 Port description

No.	Function	Description
07	S485A	RS485A, RS485 differential signal + (reserved)
08	S485B	RS485B, RS485 differential signal - (reserved)
09	N485A_OUT	RS485A, RS485 differential signal +
10	N485A_IN	RS485A, RS485 differential signal +
11	N485B_OUT	RS485B, RS485 differential signal -
12	N485B_IN	RS485B, RS485 differential signal -

There are three RS485 ports in the SmartLogger. For the port descriptions, see **Context** in 4.2.1 Connecting the SmartLogger to the SUN2000.

Figure 4-7 shows how to connect the SmartLogger to the SUN8000.

Figure 4-7 Connecting the SmartLogger to the SUN8000



Procedure

Step 1 Configure a shielded network cable with an appropriate length. Connect two core wires of the cable to the N485A_IN and N485B_IN ports of the RS485 port for the SUN8000.

- Recommended communications cable: dual-core shielded network cable (outdoor shielded network cables are also acceptable, if only two core wires are connected).
- For details about connecting the RS485 ports for the SUN8000, see the *SUN8000-500KTL User Manual*.

Step 2 Use to a cable peeler to peel off 15 mm long of the external insulation layer on the dual-core shielded network cable.

Step 3 Use to a cable peeler to peel off 10 mm long of the internal insulation layer on the two core wires of the shielded network cable.

Step 4 After connecting the core wires to the terminal block, connect the terminal block to the SmartLogger. For details, see Step 4 and Step 5 in 4.2.1 Connecting the SmartLogger to the SUN2000.

Insure that the core wire connected to the SUN8000 N485A_IN connects to the COM+ port and that the core wire connected to the SUN8000 N485B_IN connects to the COM- port.

Step 5 Ensure that the cable is correctly connected and secured. Set **Baud rate** for the SUN8000 and the SmartLogger and ensure that the parameters for these two devices are consistent.

- For details about how to set the communications parameters for the SmartLogger, see 6.2.14 Setting Communications Parameters.
- For how to set the communications parameters for the SUN8000, see the *SUN8000-500KTL User Manual*.

----End

Follow-up Procedure

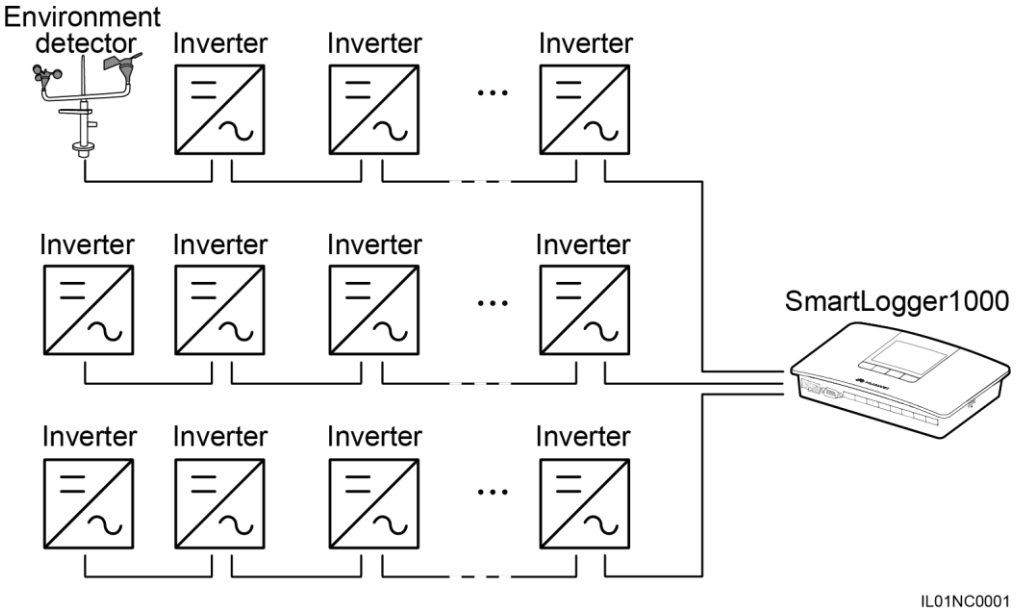
Take operations in reversed order to disconnect the SmartLogger from the SUN8000.

4.2.3 Connecting Multiple Inverters to the SmartLogger

This topic describes how to connect the SmartLogger to multiple inverters.

Connect the SmartLogger to multiple inverters in daisy chain, that is, first connect the RS485IN port of one inverter to the RS485OUT port of another inverter and then connect the first inverter to the SmartLogger, as shown in 4.2.1 Connecting the SmartLogger to the SUN2000 or 4.2.2 Connecting the SmartLogger to the SUN8000. Figure 4-8 shows the daisy chain connecting the SmartLogger and multiple inverters.

Figure 4-8 Connecting Multiple Inverters to the SmartLogger



NOTE

- A maximum of 80 devices can be connected to one SmartLogger. You are advised to connect less than 30 devices to each RS485 route.
- If an EMI is to be connected, connect it at the end of the chain. Set the address for the EMI to 1.
- Set **Match Resistance** of every inverter at the end of the daisy chain to **Connect** in **Comm. Param.** (For details about this, see the *SUN2000 (8KTL-20KTL) User Manual*.
- The addresses for all devices in the daisy chain should be within the searching scope set in the SmartLogger and they must differ from each other. Otherwise, the communications would fail between the device and the SmartLogger.
- If the firmware version of the SUN2000 is later than V100R001C11SPC010, you can perform **Addr. Allocate** on the SmartLogger. If detecting that an RS485 address is repeatedly used, the SmartLogger automatically allocates another address and hence no local operation is required.
- **Baud rate** of all the devices in one daisy chain should stay consistent with those of the SmartLogger.

4.3 Connecting the SmartLogger to an EMI

This topic describes how to connect the SmartLogger to an environmental monitoring instrument.

Context

Connect the SmartLogger to an EMI that complies with the standard MODBUS/485 protocol. The SmartLogger can connect to and manage only one EMI at a time.

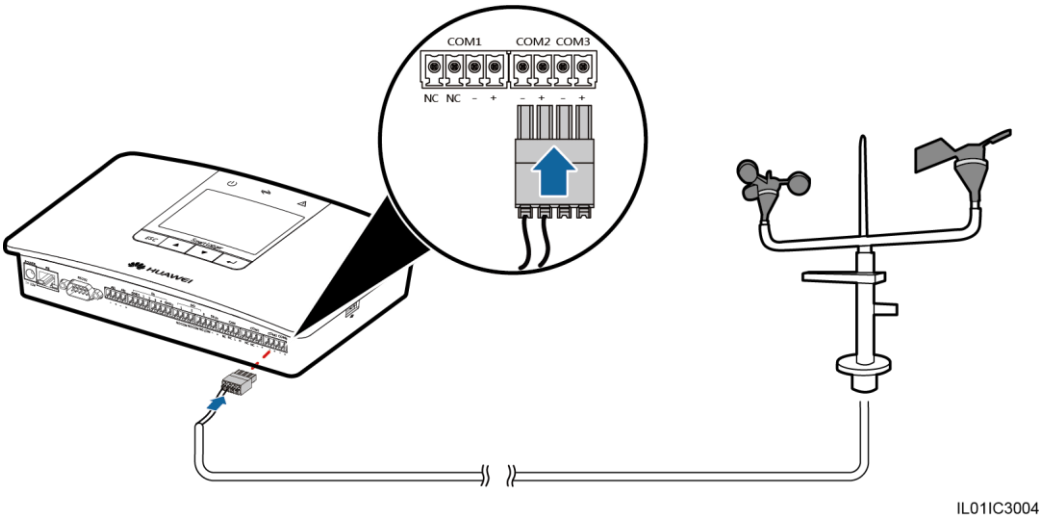
The protocol points for EMIs provided by different vendors are varied. Therefore, to obtain information from an EMI, configure the protocol point on the WebUI of the SmartLogger properly based on the document delivered by the vendor.

For details about the definition of the RS485 communications cables for the EMI, see the operation manual delivered with the EMI.

There are three RS485 ports in the SmartLogger. For details about the port descriptions, see **Context** in 4.2.1 Connecting the SmartLogger to the SUN2000.

Figure 4-9 shows how to connect the SmartLogger to the EMI.

Figure 4-9 Connecting the SmartLogger to an EMI



Procedure

Step 1 Connect one end of the shielded network cable delivered together with the EMI to the RS485 port.

Step 2 Connect the other end to the COM port in the SmartLogger. For details about the operation, see the **Procedure** in 4.2.1 Connecting the SmartLogger to the SUN2000.

NOTICE

- Connect the RS485+ port of the EMI to the COM+ port of the SmartLogger and the RS485- port of the EMI to the COM- port of the SmartLogger.
- After connecting the cable, log in to the WebUI and set parameters under **Environmental Monitoring Instrument**. For details about this operation, see 7.29 Setting EMI Parameters.
- The EMI cannot be detected automatically. You need to add this device manually. For details about this operation, see 6.2.18 Managing Devices.
- When the SmartLogger is connected to an EMI and multiple inverters at the same time, connect the EMI to the end of the daisy chain. For details, see 4.2.3 Connecting Multiple Inverters to the SmartLogger.

----End

Follow-up Procedure

Take operations in reversed order to disconnect the SmartLogger from the EMI.

4.4 Connecting the SmartLogger to a Power Meter

This topic describes how to connect the SmartLogger to a meter.

Context

Connect the SmartLogger to a Power Meter that complies with the standard MODBUS/485 protocol. The SmartLogger can connect to and manage only one Power Meter at a time.

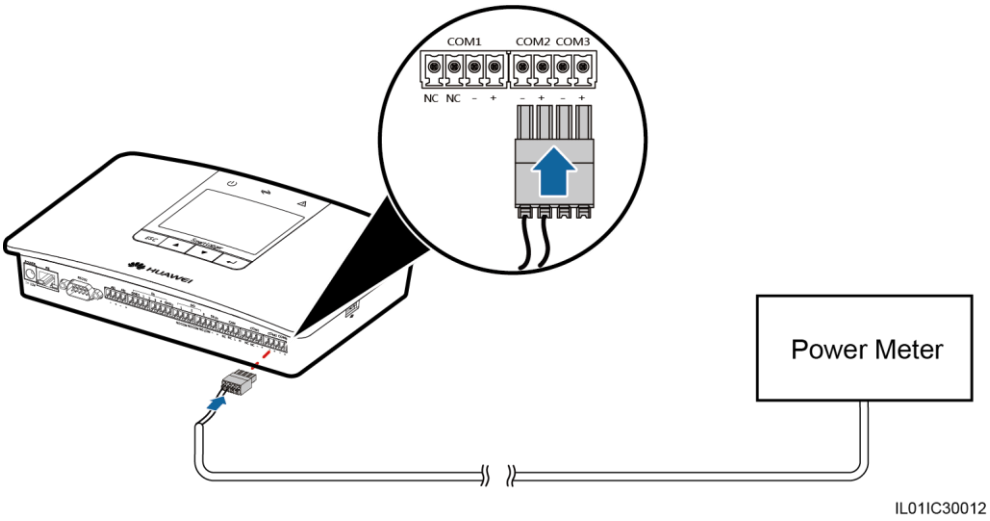
The protocol points for Power Meters provided by different vendors are varied. Therefore, to obtain information from a Power Meter, configure the protocol point on the WebUI of the SmartLogger properly based on the document delivered by the vendor.

For details about the definition of the RS485 communications cables for the Power Meter, see the operation manual delivered with the Power Meter.

There are three RS485 ports in the SmartLogger. For details about the port descriptions, see **Context** in 4.2.1 Connecting the SmartLogger to the SUN2000.

Figure 4-10 shows how to connect the SmartLogger to the Power Meter.

Figure 4-10 Connecting the SmartLogger to a Power Meter



Procedure

Step 1 Connect one end of the shielded network cable delivered together with the Power Meter to the RS485 port.

Step 2 Connect the other end to the COM port in the SmartLogger. For details about the operation, see the **Procedure** in 4.2.1 Connecting the SmartLogger to the SUN2000.

NOTICE

- Connect the RS485+ port of the Power Meter to the COM+ port of the SmartLogger and the RS485- port of the Power Meter to the COM- port of the SmartLogger.
- After connecting the cable, log in to the WebUI and set parameters under **Power Meter**. For details about this operation, see 7.30 Setting Power Meter Parameters.
- The Power Meter cannot be detected automatically. You need to add this device manually. For details about this operation, see 6.2.18 Managing Devices.

----End

Follow-up Procedure

Take operations in reversed order to disconnect the SmartLogger from the Power Meter.

4.5 Connecting the SmartLogger to a PC

This topic describes how to connect the SmartLogger to a PC.

Procedure

Step 1 Connect one end of the network cable delivered together with the SmartLogger to its **FE** port.

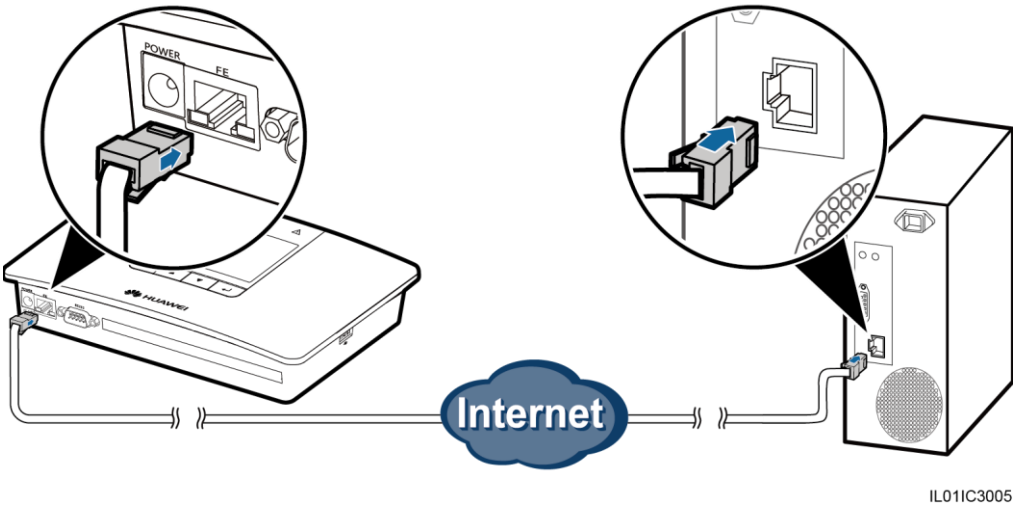
NOTE

If the delivered network cable is shorter than the required length, note the following when preparing network cable:

- Choose CAT 5E or above shielded network cables.
- It is suggested that the cable length is less than or equal to 100 meters.

Step 2 Connect the other end to the network port of the PC, as shown in Figure 4-11.

Figure 4-11 Connecting the SmartLogger to a PC



NOTE

The default IP address for the SmartLogger is 192.168.0.10; its default subnet mask is 255.255.255.0; its gateway is 192.168.0.1.

- If the SmartLogger connects to the PC directly or through a Hub, set their IP addresses to be in the same network segment. For example, if the IP address for the SmartLogger is 192.168.0.10, the IP address for the PC can be 192.168.0.11. The subnet mask and the gateway of the PC should stay consistent with those of the SmartLogger.
- If the SmartLogger connects to the PC through a network device (for example, a router), set the IP addresses for the SmartLogger and network device to be in the same network segment. Correctly set the gateway of the SmartLogger to ensure that the SmartLogger can normally communicate with the network device.
- To enable communication between the SmartLogger and the NetEco on the PC, set the NetEco parameters properly. For details, see 6.2.14 Setting Communications Parameters.

----End

Follow-up Procedure

Take operations in reversed order to disconnect the SmartLogger from the PC.

4.6 Connecting the SmartLogger to a Ripple Control Receiver

This topic describes how to connect the SmartLogger to a ripple control receiver.

Context

In Germany and some European areas, a ripple control receiver is used to convert a power grid scheduling signal to a dry contact signal, in which a dry contact is required.

Figure 4-12shows the DI ports on the SmartLogger.

Figure 4-12 DI ports in the SmartLogger

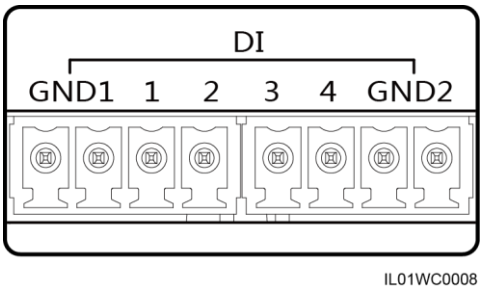


Table 4-5 describes the definition of the DI ports.

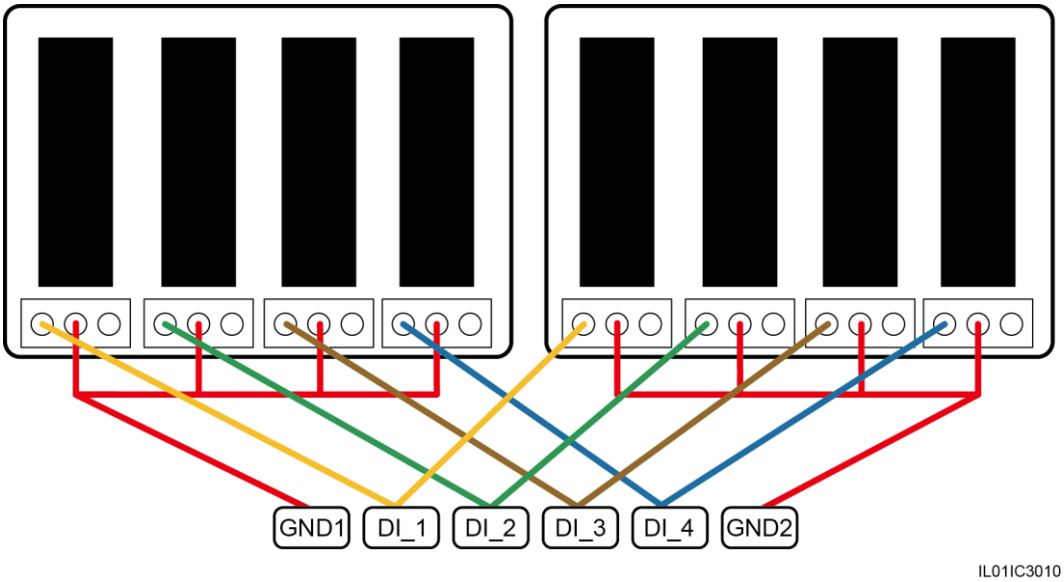
Table 4-5 DI port description

Port	Functions

Port	Functions
GND1	Active power reduction
1	DI_1
2	DI_2
3	DI_3
4	DI_4
GND2	Reactive power compensation

Figure 4-13 shows how to connect the Smart Logger to the ripple control receiver.

Figure 4-13 Connecting the SmartLogger to a Ripple Control Receiver



NOTICE

When active power remote control and reactive power remote control are supported, only one out of the four outputs of each ripple control receiver can be closed

Procedure

Step 1 Select a cable of appropriate length and connect one end of a cable to the ripple control receiver.

Step 2 Connect the other end to the DI port in the SmartLogger. For details about the operation, see **Procedure** in 4.2.1 Connecting the SmartLogger to the SUN2000.

NOTICE

To enable a normal power grid scheduling function, you need to set the corresponding parameters (Active Power Control or Reactive Power Control) on the embedded WebUI. For details, see 8.1.1 Active Power Control or 8.1.2 Reactive Power Control.

----End

Follow-up Procedure

Take operations in reversed order to disconnect the SmartLogger from the ripple control receiver.

5 System Operation

About This Chapter

This topic describes how to start the SmartLogger and set the initialization parameters.

5.1 Power-on Process

This topic describes how to check the SmartLogger before power-on and how to power on the SmartLogger.

Checking Before Powering On the SmartLogger

Check and ensure the following before powering on the SmartLogger.

- All cables are intact and well insulated.
- All cables are of proper size.
- All cables are correctly connected and secured.

Power-on Process

Power on the devices in the following sequence: Inverter > SmartLogger > PC terminal.

NOTE
The PC terminal refers to a PC where the NetEco1000 is installed.

Step	Operation
1	Perform the requirements mentioned in Checking Before Powering On the SmartLogger.
2	Start the inverter and correctly set the communications parameters (including **Address**, and **Baudrate**) on the monitoring panel. For details about how to set the communications parameters, refer to **Setting Communications Parameters** in the *SUN2000 (8KTL-20KTL) User Manual* and *SUN8000-500KTL User Manual*.
3	Connect the output terminal of the power adapter for the SmartLogger to the power port **POWER** and the input terminal to the AC socket.

Step	Operation
4	Set the search address segment and baud rate for the RS485 port on the SmartLogger monitoring panel. If the SmartLogger is powered on for the first time, set the search address segment and baud rate for the RS485 port in the Wizard, as shown in 5.2 Setting Initialization Parameters. If it is not powered on for the first time, set the parameters in the **Comm. Param.** under the **Settings**, as shown in 6.2.14 Setting Communications Parameters.
5	Wait for the SmartLogger to search for inverters. After the search is completed, the SmartLogger automatically connects to all inverters. Alternatively, you can skip this operation and manually search for, add, or delete inverters in follow-up operations. For details, see 6.2.18 Managing Devices.
6	(Optional) Add the environmental monitoring instrument and power meter manually. For details, see 6.2.18 Managing Devices. **NOTICE** Before you add the EMI or Power Meter manually, log in to the WebUI and set related parameters. For details, see 7.29 Setting EMI Parameters or 7.30 Setting Power Meter Parameters.
7	(Optional) Start the PC terminal and set Ethernet and NetEco parameters on the SmartLogger.

NOTICE

- When starting the SmartLogger, use only the 12 V power adapter shipped along with the shell. If adapters of other models are used, the SmartLogger may be damaged.
- Log into the SmartLogger on the monitoring panel. When you log in to the **Settings** page or **Maintenance** page, an identity authentication is required. The initial password is *000001*. Change the password as soon as possible to ensure the security of the user account. For details about how to change the password, refer to 6.2.13 Changing a Password.

5.2 Setting Initialization Parameters

When starting the SmartLogger for the first time, set initialization parameters on the monitoring panel. The initialization parameters include system language, system time, the search address segment for the RS485 port, and the Ethernet parameters.

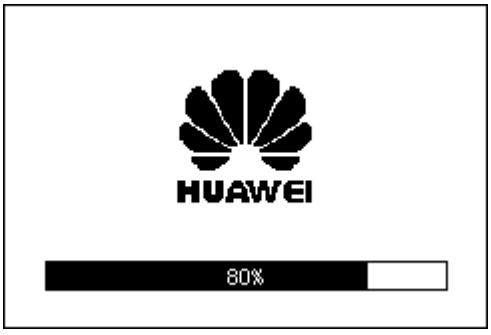
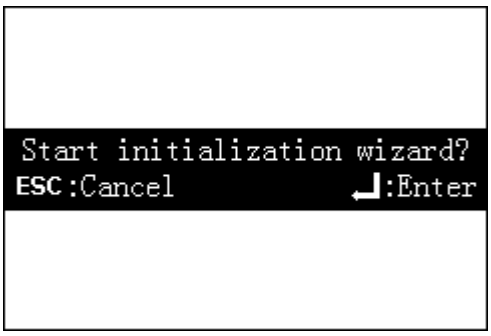
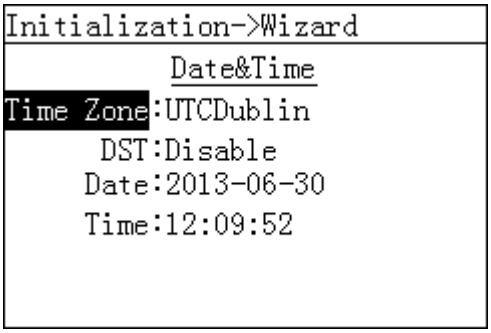
Context

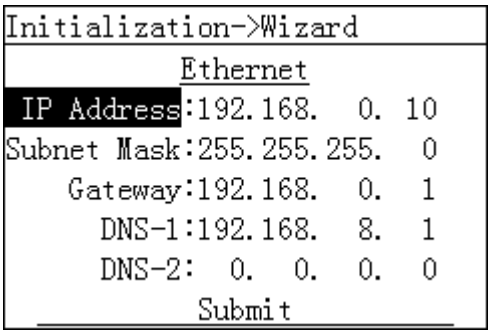
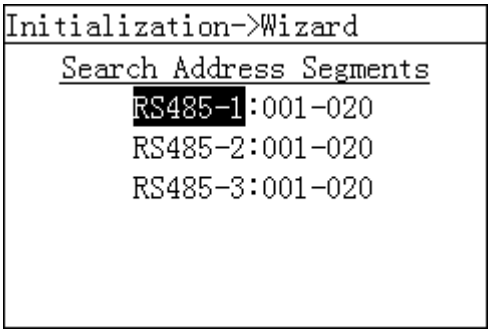
NOTE

If the SmartLogger is started for the first time, set the initialization parameters by referring to this section. If it is not started for the first time, it directly performs the automatic search and then the default page.

Procedure

- The following table describes the process for setting initialization parameters. The parameter values in the following figures are for reference only.

LCD	Operation Procedure
	1. After startup, the SmartLogger enters the initialization page. The default system language is **English**.
	2. Press ↵ to enter the **Wizard** page. To return to the default page, press **ESC**. If some later re-settings are required, refer to 6.2.9 Setting the System Language, 6.2.10 Setting System Time Parameters, and 6.2.14 Setting Communications Parameters.
	3. Select a display language and then press ↵. The pages will be displayed in the selected language.
	4. Set the correct date and time and then press ↵. • To select the specific parameter, press ↵. To set the parameter value, press ▲ or ▼. • The date and time are displayed in the formats of **YYYY-MM-DD** and **hh:mm:ss** respectively. **YYYY** stands for the year, **MM** the month, **DD** the date, **hh** the hour, **mm** the minute, and **ss** the second. **NOTICE** After the **Time** is successfully set, this time can be synchronized in all the inverters connected to the SmartLogger.

LCD	Operation Procedure
	5. Set the Ethernet parameters and then press ↵. The following Ethernet parameters are to be set: **IP address**, **Subnet mask**, **Gateway** and **DNS**.
	6. Set the RS485 search address segment and then press ↵. You need to set the search address segments for **RS485-1**, **RS485-2**, and **RS485-3** respectively.
	7. On the page, press ↵. After the search is complete, the SmartLogger displays a search result. Press ↵ to end this operation.

NOTE

Visiting some menu requires identity authentication. Therefore, after you set the initialization parameters, change the password immediately to ensure the security of the user account. For details, see Change the Password.

----End

6 User Interface

About This Chapter

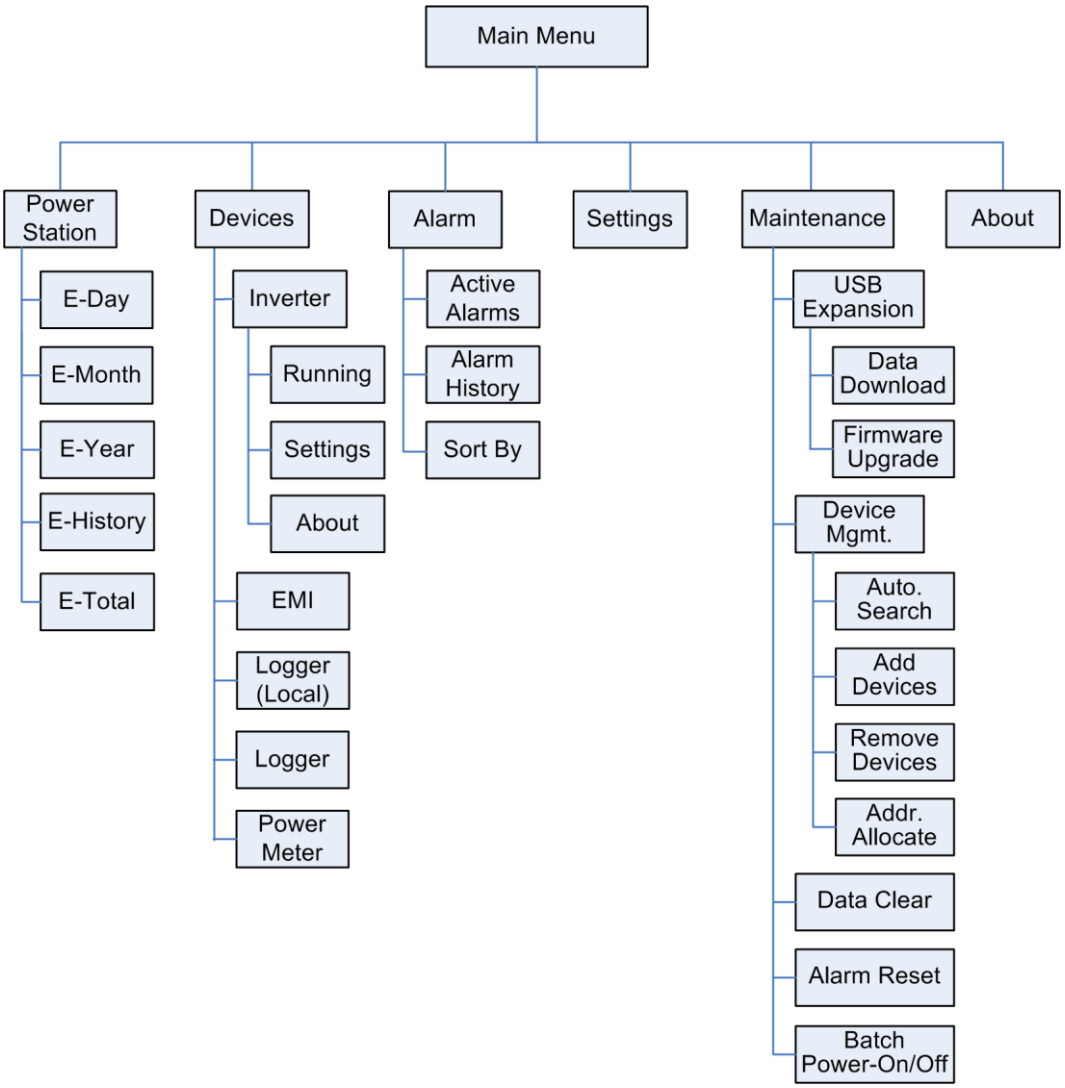
This topic describes the monitoring menu and operations.

6.1 Monitoring Menu Hierarchy

This topic describes the monitoring menu hierarchy, which allows you to perform operations conveniently.

Figure 6-1 shows the monitoring menu hierarchy.

Figure 6-1 Monitoring menu hierarchy (1)



NOTE

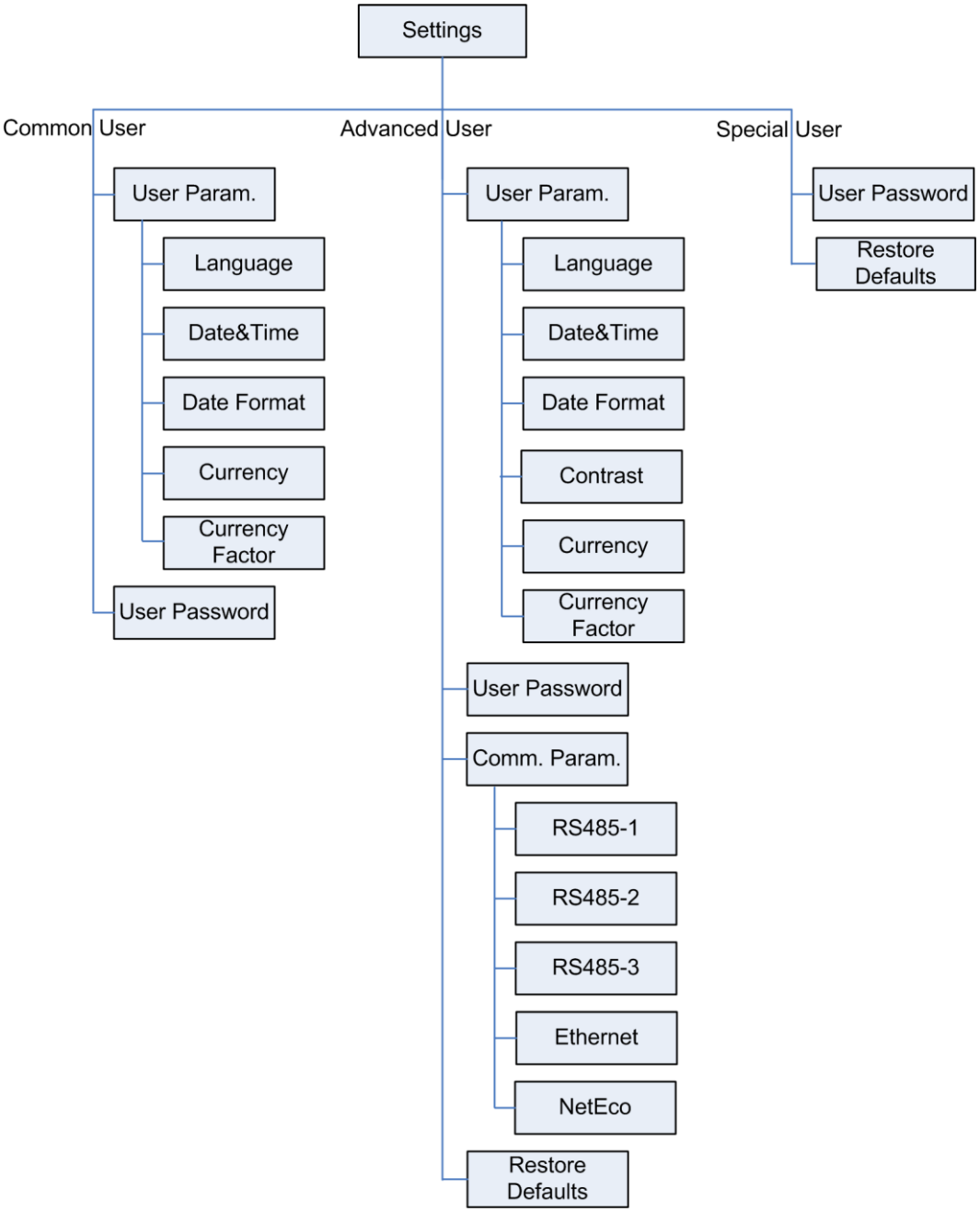
If you visit **Maintenance** as **Common User**, a message **Current user has no authority** is displayed.

Different identities (Common User, Advanced User, and Special User) have different permissions for setting parameters. The hierarchies of **Settings** are shown in Figure 6-2.

NOTICE

The initial password for **Common User**, **Advanced User** and **Special User** is *000001*. If the SmartLogger is logged in for the first time, use the initial password to log in and change the password immediately to ensure the account security.

Figure 6-2 Monitoring menu hierarchy (2)



6.2 Monitoring Operations

This topic describes how to operate on the monitoring panel, such as querying site and device information and setting system parameters and user parameters.

6.2.1 Querying Power Station Information

This topic describes how to view the power station information on the monitoring panel of the SmartLogger, such as the daily, monthly, yearly, historical, and total energy yield.

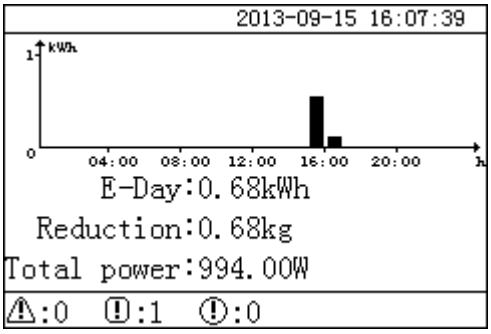
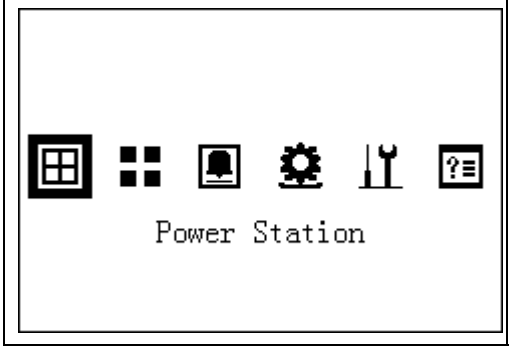
Procedure

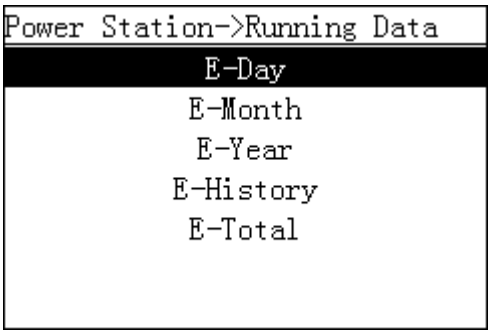
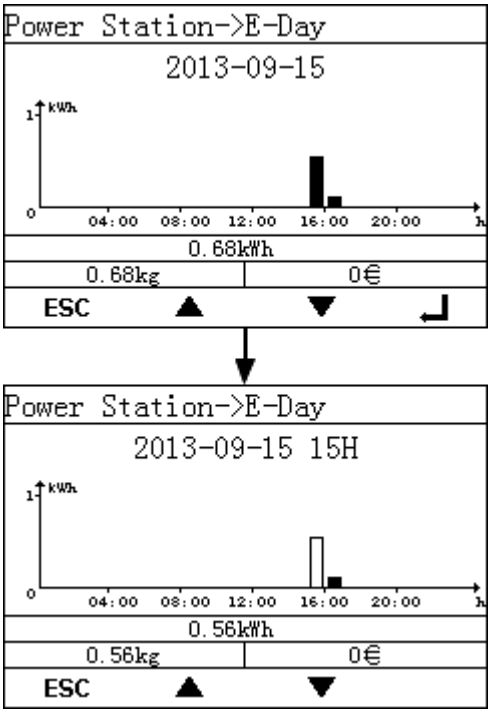
- The following table describes the procedure for viewing power station information. The parameter values in the following figures are for reference only.

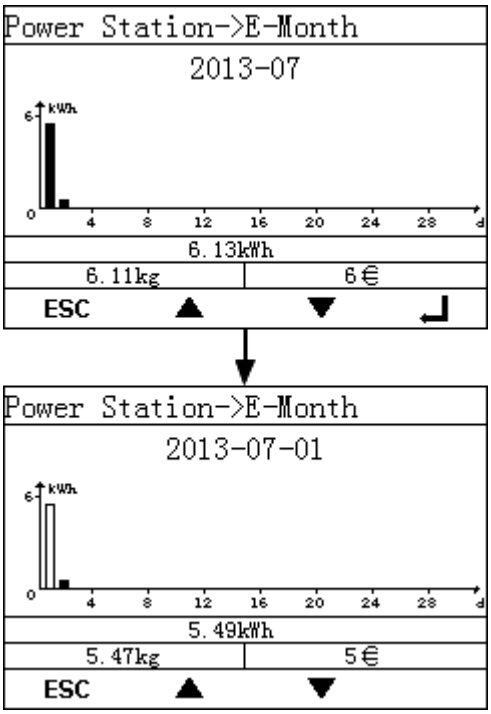
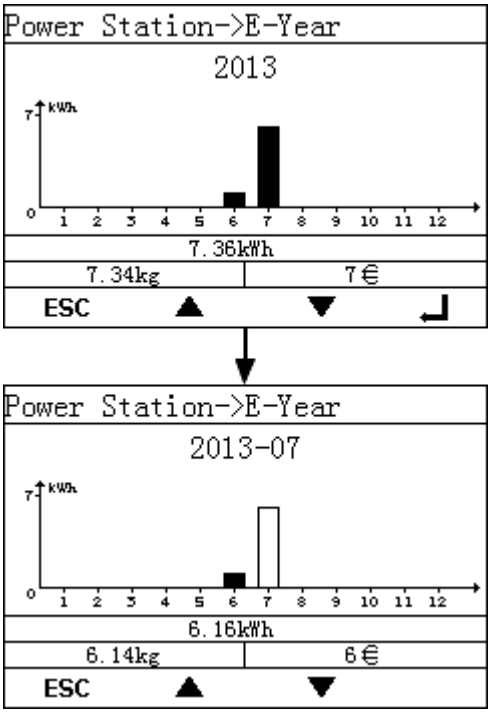
NOTICE

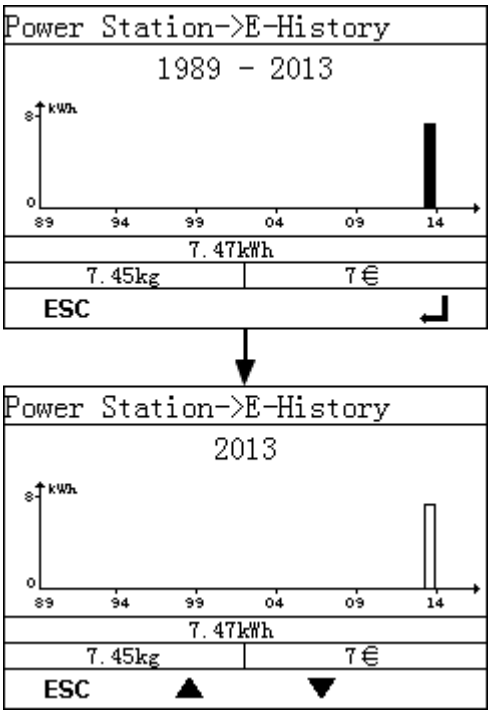
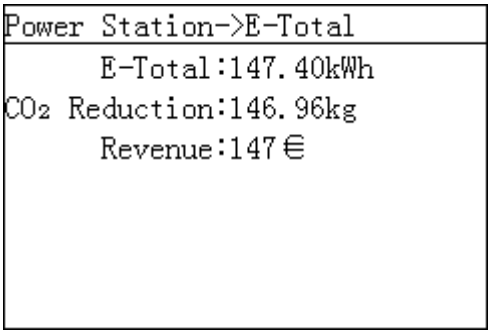
You can view the daily, monthly, yearly, and historical energy yields of the power station. The values relate to the number of connected inverters.

- Daily energy yield. Data of a maximum of 80 devices can be stored for 34 days.
- Monthly energy yield. Data of a maximum of 80 devices can be stored for 27 months.
- Yearly energy yield. Data of a maximum of 80 devices can be stored for 25 years.
- Historical energy yield. Data of a maximum of 80 devices can be stored for 25 years.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Choose ⊞ and press ↵.

LCD	Operation Procedure
	3. Press ▲ and ▼ to view the running data of the power station. The running data includes the daily, monthly, yearly, historical, and total energy yield. For details, see step 4 to step 8.
	4. View the daily energy yield. a. On the **E-Day** page, view the total energy yield and hourly energy yield of the power station on the current day. The displayed information includes the energy yield histogram, date, total energy yield on the current day, CO_2 emission reduction, and revenue. To view the energy yield in the past 30 days (including the current day), press ▲ or ▼. **NOTE** In the daily energy yield histogram, the horizontal axis stands for time (each block stands for one hour). The vertical axis stands for the total energy yield of all the inverters connected to the SmartLogger (each block stands for the total energy yield during the last hour). b. Press ↵ to view the energy yield of a specific hour on the current day. To switch between hours, press ▲ or ▼. **NOTE** The selected block is displayed in white.

LCD	Operation Procedure
	5. View the monthly energy yield. a. On the **E-Month** page, view the total energy yield and daily energy yield in the current month. The displayed information includes the energy yield histogram, Month, total energy yield of the current month, CO_2 emission reduction, and revenue. To view the energy yield in the past 12 months (including the current month), press ▲ or ▼. **NOTE** In the monthly energy yield histogram, the horizontal axis stands for day (each block stands for one day). The vertical axis stands for the total energy yield of all the inverters connected to the SmartLogger (each block stands for the total energy yield on that day). b. Press ↵ to view the energy yield on a specific day of the current month. To switch between days, press ▲ or ▼. **NOTE** The selected block is displayed in white.
	6. View the yearly energy yield. a. On the **E-Year** page, view the total energy yield and daily energy yield in the current month. The displayed information includes the energy yield histogram, Year, total energy yield of the current month, CO_2 emission reduction, and revenue. To view the energy yield in the past 25 years (including the current year), press ▲ or ▼. **NOTE** In the yearly energy yield histogram, the horizontal axis stands for day (each block stands for one month). The vertical axis stands for the total energy yield of all the inverters connected to the SmartLogger (each block stands for the total energy yield on that month). b. Press ↵ to view the energy yield on a specific day of the current month. To switch between months, press ▲ or ▼. **NOTE** The selected block is displayed in white.

LCD	Operation Procedure
	7. View the historical energy yield. a. On the **E-History** page, view the energy yield in the past 25 years (including the current year). The displayed information includes the energy yield histogram, Year, total energy yield, CO_2 emission reduction, and revenue. To view the energy yield in the past 25 years (including the current year), press ▲ or ▼. **NOTE** In the historical energy yield histogram, the horizontal axis stands for day (each block stands for one year). The vertical axis stands for the total energy yield of all the inverters connected to the SmartLogger (each block stands for the total energy yield on that year). b. Press ↵ to view the energy yield on a specific day of the current month. To switch between months, press ▲ or ▼. **NOTE** The selected block is displayed in white.
	8. On the **E-Total** page, view the total energy yield, CO_2 emission reduction, and revenue of all the devices connected to the SmartLogger. The total energy yield of the devices before they connect to the SmartLogger is also counted in the system after they are connected.

----End

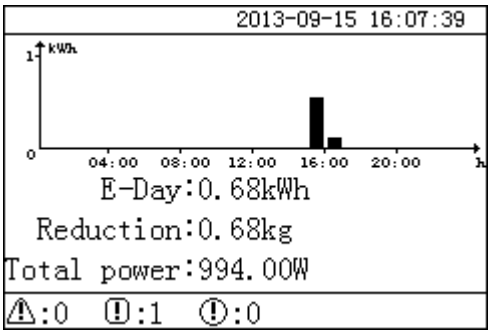
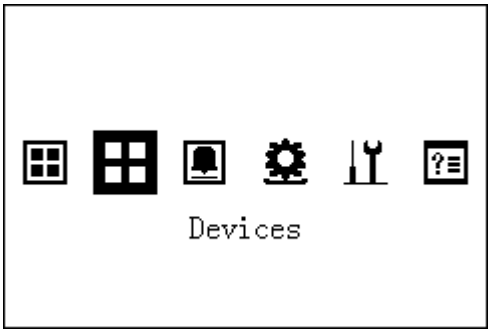
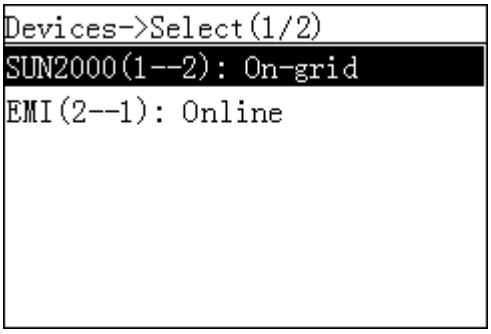
6.2.2 Querying Inverter Information

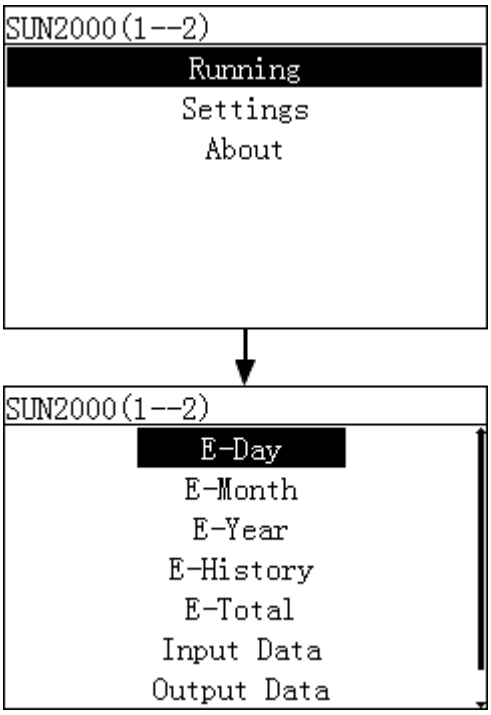
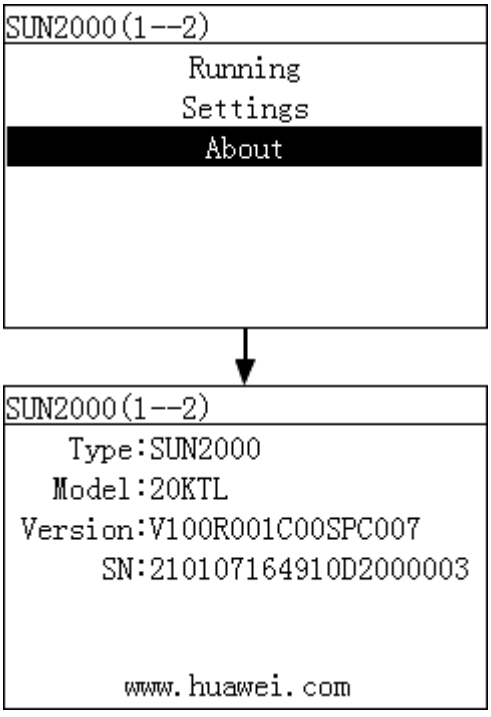
This topic describes how to query the running information and version of each inverter connected to the SmartLogger.

Procedure

- The following table describes the procedure for viewing inverter information. The parameter values in the following figures are for reference only.

LCD	Operation Procedure

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Select ■■ and press ↵.
	3. Select an inverter and press ↵. **NOTE** **SUN2000 (1--2)** on the left indicates that the inverter connects to **Port 1** of the SmartLogger and the communications address of the RS485 port is **2**. The device status is displayed behind the device name. • **Devices Status** is any of the following five values for the SUN8000: **Initializing**, **Idle**, **Loading**, **Starting up**, **On-grid**, **Shutdown**, **Disconnection**, **Detecting ISO**, and **Debug**. • **Devices Status** is any of the following five values for the SUN2000: **Starting up**, **Idle**, **Loading**, **On-grid**, **Shutdown**, and **Disconnection**. The follow-up operations are described as follows: • To view the operating data of the inverter, perform step 4. • To view the version of the inverter, perform step 5.

LCD	Operation Procedure
	4. Select **Running** and press ↵.
	5. Select **About** and press ↵.

----End

6.2.3 Manually Powering On or Off the Inverter on the monitoring panel

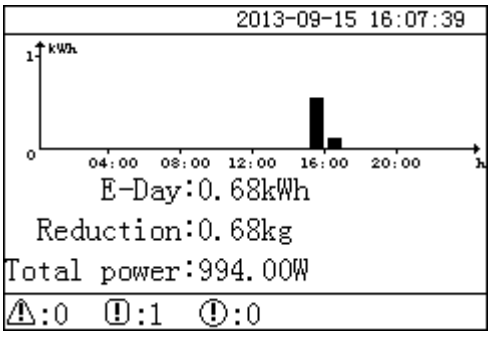
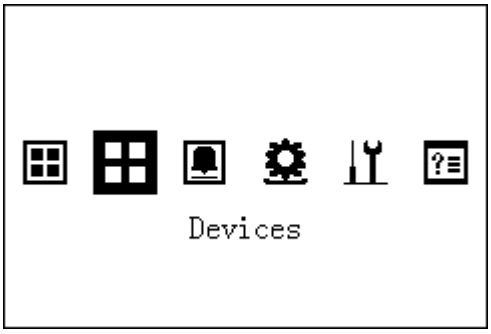
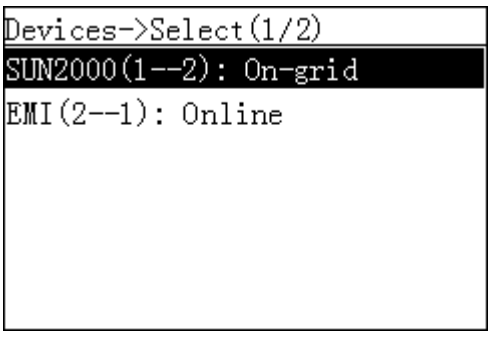
This topic describes how to power on or off the inverter on the monitoring panel.

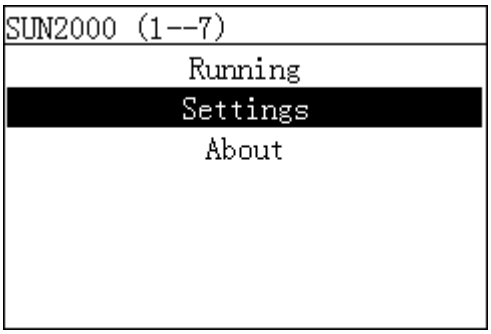
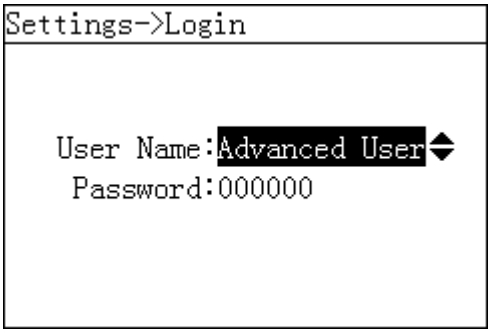
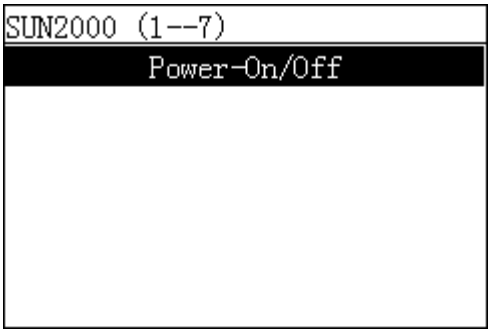
Procedure

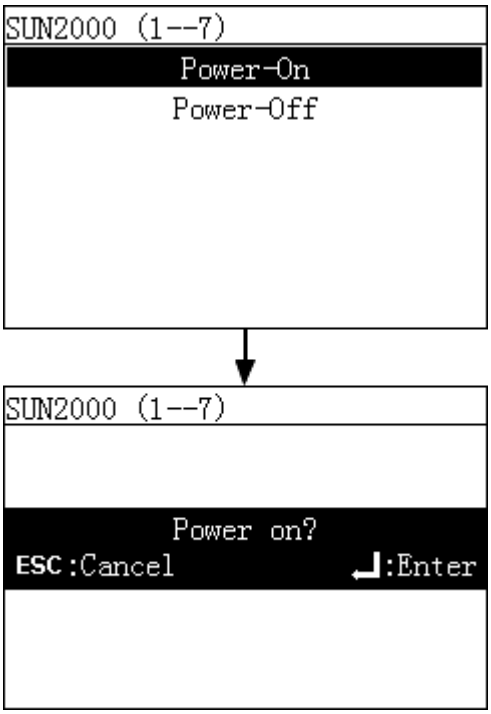
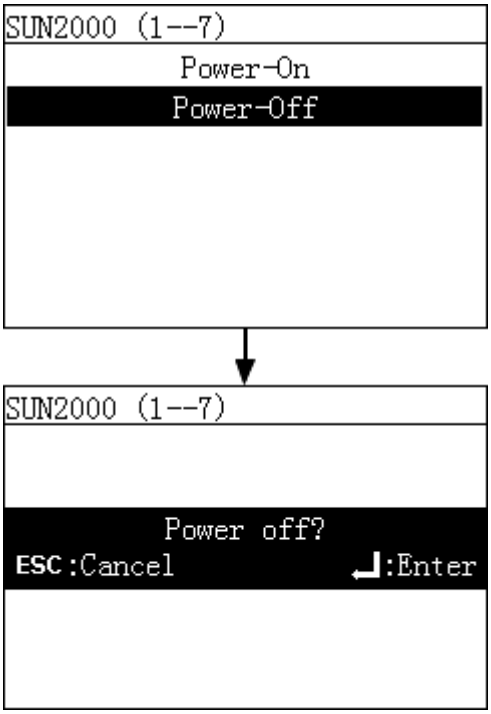
- The following table shows the procedure for powering on or off the inverter on the monitoring panel. The parameter values in the following figures are for reference only.

NOTICE

Choose **Batch Power-On/Off** under **Maintenance** to power on or off all inverters that connect to the SmartLogger.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Choose ■■ and press ↵.
	3. Select an inverter and press ↵. **NOTE** **SUN2000 (1--2)** on the left indicates that the inverter connects to **Port 1** of the SmartLogger and the communications address of the RS485 port is **2**.

LCD	Operation Procedure
	4. Choose **Settings**, and press ↵.
	5. Set the specific **User name** and **Password**. **NOTE** The following user names can be selected: **Common User**, **Advanced User**, and **Special User**. The initial password for **Common User**, **Advanced User** and **Special User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login.
	6. Choose **Power-On/Off**, and press ↵. • Perform step 7 if you want to power on the inverter manually. • Perform step 8 if you want to power off the inverter manually.

LCD	Operation Procedure
	7. Power on manually. a. Choose **Power-On** and press ↵. b. Enter ↵ again to verify your settings.
	8. Power off manually. a. Choose **Power-Off**, and press ↵. b. Enter ↵ again to verify your settings.

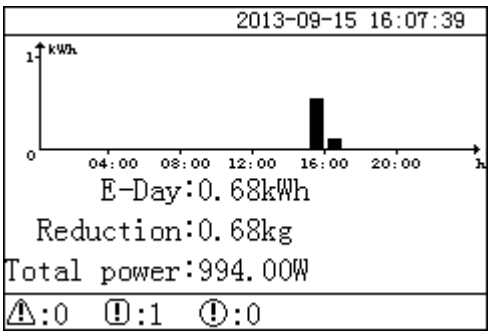
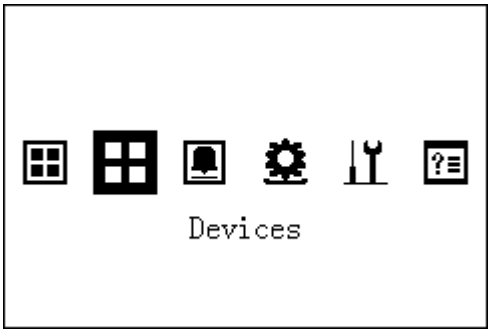
----End

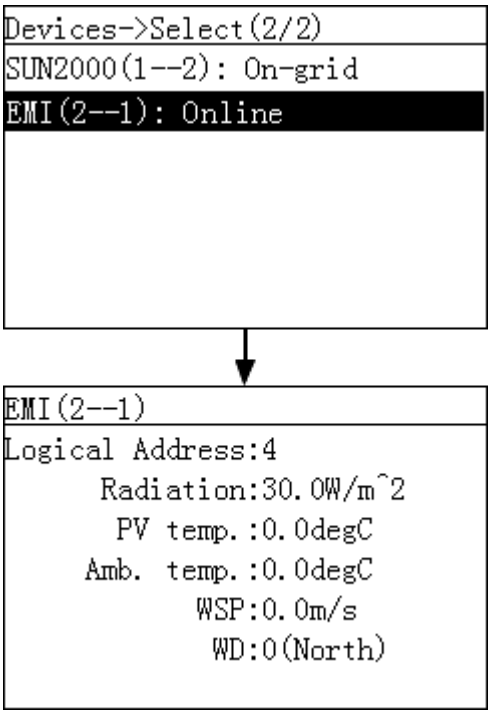
6.2.4 Querying Information about the Environmental Monitoring Instrument

This topic describes how to query information about the environmental monitoring instrument connected the SmartLogger, such as the radiation intensity, PV array temperature, ambient temperature, wind speed, and wind direction.

Procedure

- The following table describes the procedure for querying information about the environmental monitoring instrument. The parameter values in the following figures are for reference only.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Choose ■■ and press ↵.

LCD	Operation Procedure
	3. Choose the name of the environmental monitoring instrument and press ↵ to view information about the instrument. **Devices Status** is either of the following values for the EMI: **Online** and **Disconnection**.

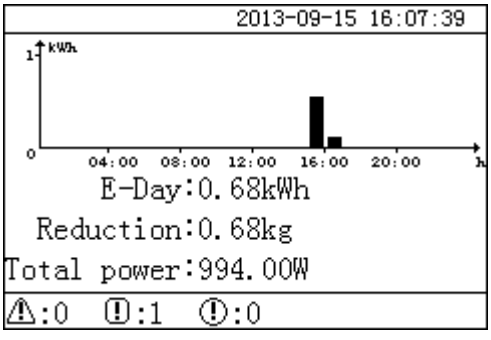
----End

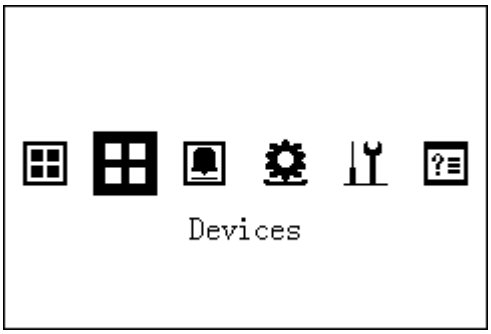
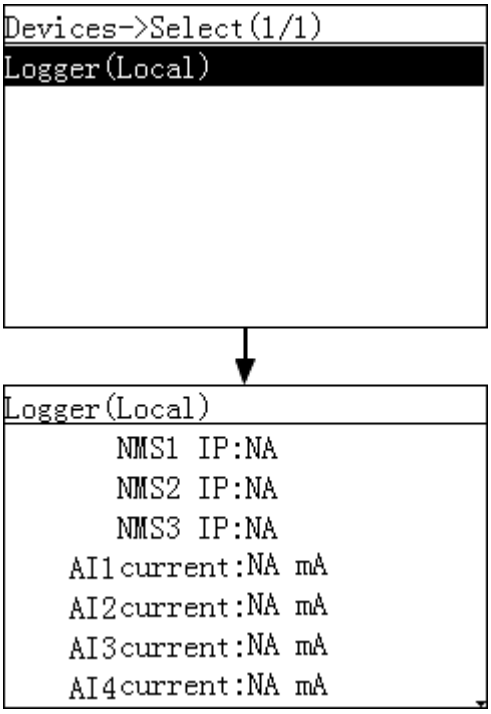
6.2.5 Querying Master Slave SmartLogger Information

This topic describes how to query Master SmartLogger information.

Procedure

- To query Master SmartLogger information, perform the steps described in the following table: The parameter values in the figures are for reference only.

LCD	Procedure
	1. On the default page, press ↵ to enter the main menu.

LCD	Procedure
	2. Choose and press .
	3. Choose **Logger (Local)** and press to view the Master SmartLogger information.

----End

6.2.6 Querying Slave SmartLogger Information

This topic describes how to query Slave SmartLogger information on the monitoring panel.

Procedure

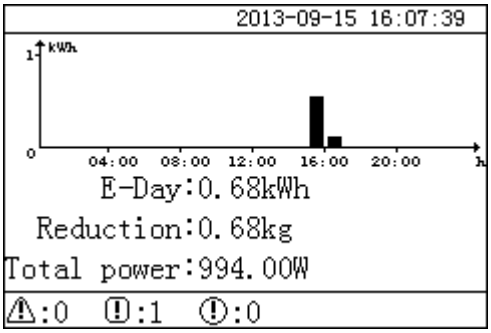
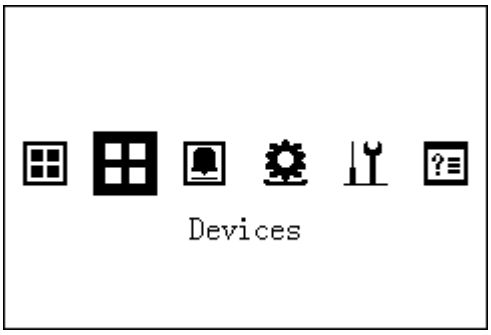
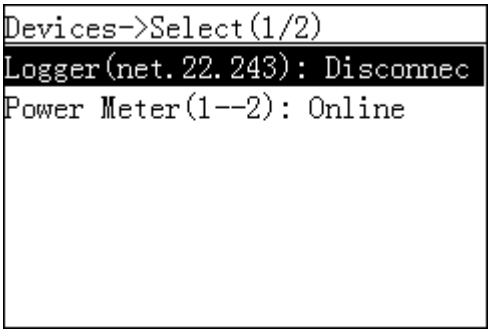
- To query Slave SmartLogger information, perform the steps described in the following table: The parameter values in the figures are for reference only.

The Slave SmartLogger mainly applies to power grid scheduling of large-sized power stations. One SmartLogger can connect to a maximum of 80 devices. When there are more than 80 inverters in the power station, a certain number of Slave SmartLoggers should be configured. The power grid scheduling command sent to the Master SmartLogger is synchronized to the Slave SmartLogger to enable the centralized power grid scheduling of the power station.

Devices can only be manually added and removed in the Slave SmartLogger on the monitoring panel or the embedded WebUI.

NOTICE

The Slave SmartLogger and the Master SmartLogger should be within the same local area network (LAN).

LCD	Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Select ■■ and press ↵.
	3. Choose **Logger** to view the status and IP address of the Slave SmartLogger. The status of the Slave SmartLogger can either **Online** or **Disconnection**.

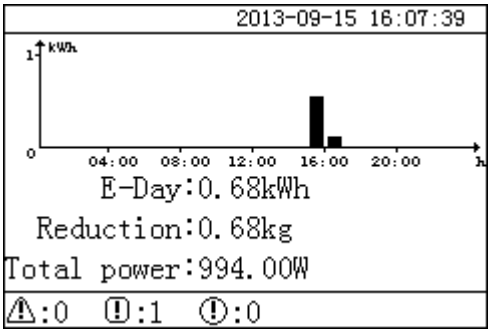
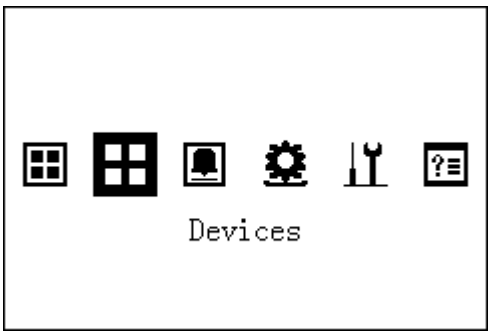
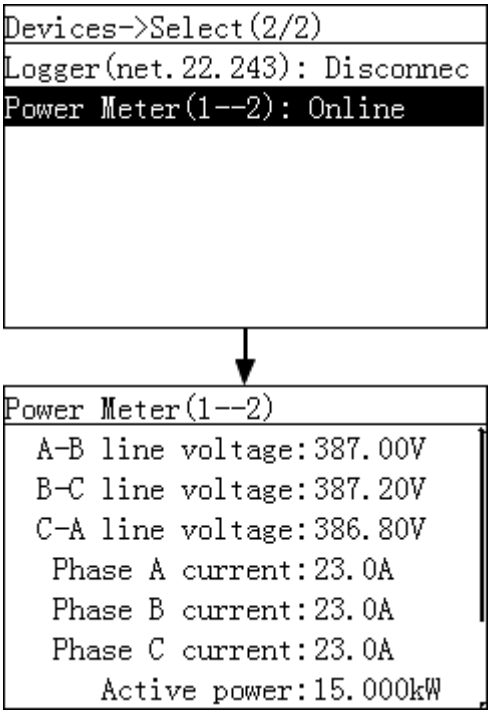
----End

6.2.7 Querying Power Meter Information

This topic describes how to query the power meter information on the monitoring panel.

Procedure

- To query the power meter information, perform the steps described in the following table: The parameter values in the figures are for reference only.

LCD	Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Select ■■ and press ↵.
	3. Choose **Meter** and press ↵ to query the power meter information. **NOTE** **Meter (1--2)** on the left indicates that the power meter connects to **Port 1** of the SmartLogger and the communications address of the RS485 port is **2**. The status of the power meter can be neither **Online** or **Disconnection**.

----End

6.2.8 Querying Alarm Records

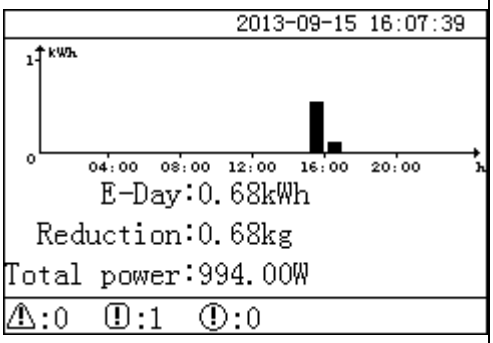
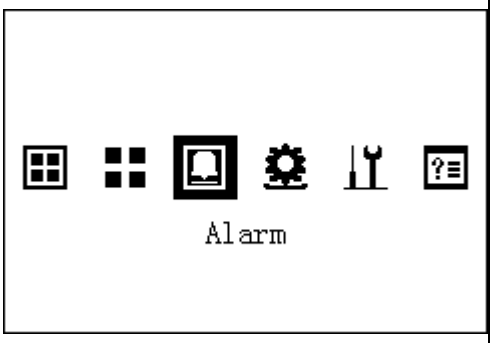
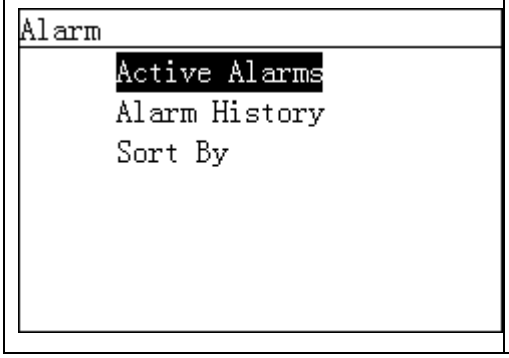
This topic describes how to query the active and historical alarms of the SmartLogger and the inverters connected to it and how to set the alarm record sort mode.

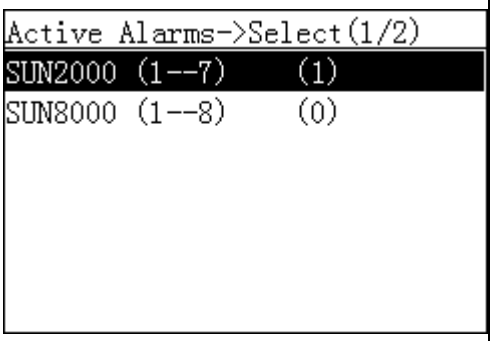
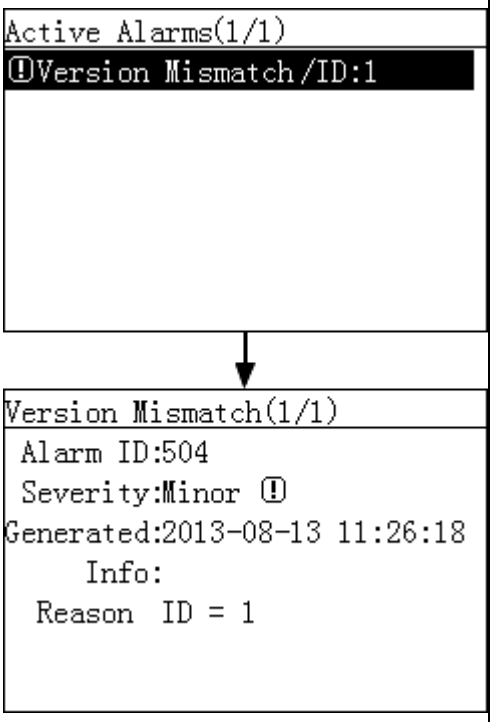
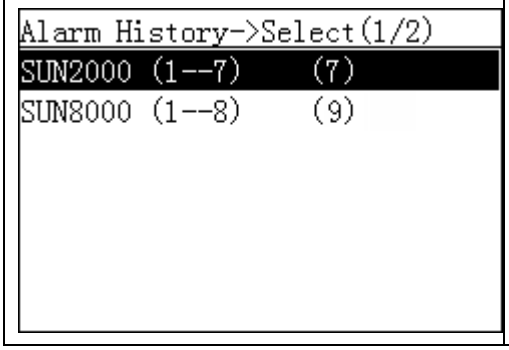
Context

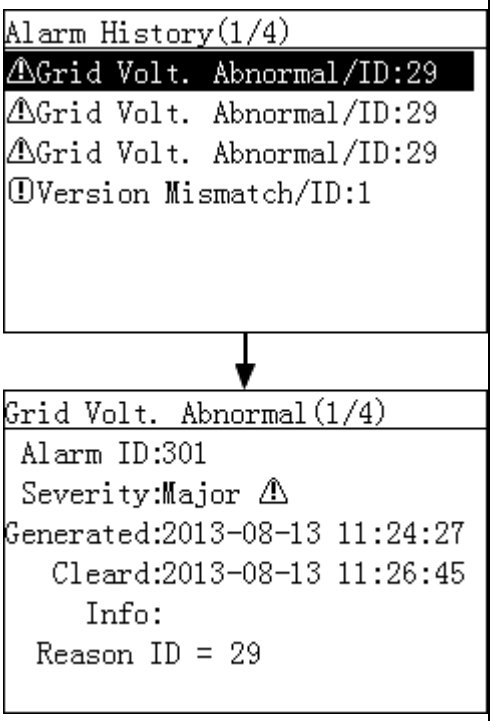
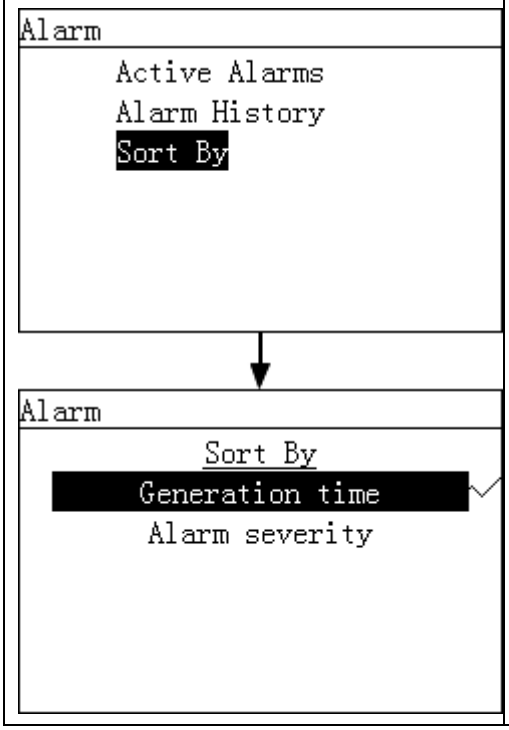
The LCD displays a maximum of 8000 latest alarm records.

Procedure

- The following table describes the procedure for viewing active and historical alarms and setting the alarm record sort mode. The parameter values in the following figures are for reference only.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Choose 🔔 and press ↵.
	3. Select a menu by pressing ▼, and view the active and historical alarms of the inverters, or set the alarm record sort mode by pressing ↵. • Perform step 4 and step 5 to view active alarms. • Perform step 6 and step 7 to view historical alarms. • Perform step 8 to set the alarm sort mode.

LCD	Operation Procedure
	4. On the **Active Alarms** page, select one inverter, and press ↵ to view all the active alarms for this inverter.
	5. Select one of the active alarms by pressing ▲ or ▼ and view the alarm details by pressing ↵. The alarm details include the Alarm ID, Severity, Generate, Info, and Reason ID. **NOTE** • For details about the alarm list of the SUN1000, see 9.3 Alarms. • For details about the alarm list of the SUN2000, see the **Common Faults and Troubleshooting Measures** in the *SUN2000 (8KTL-20KTL) User Manual*. • For details about the alarm list of the SUN8000, see the **Common Faults and Troubleshooting Measures** in the *SUN8000-500KTL User Manual*.
	6. On the **Alarm History** page, select one inverter or SmartLogger1000, and press ↵ to view all the historical alarms for this inverter.

LCD	Operation Procedure
	7. Select one of the Historical Alarms by pressing ▲ or ▼ and view the alarm details by pressing ↵. The alarm details include the Alarm ID, Severity, Generate, Clear, Info, and Reason ID. **NOTE** • For details about the alarm list of the SUN1000, see 9.3 Alarms. • For details about the alarm list of the SUN2000, see the **Common Faults and Troubleshooting Measures** in the *SUN2000 (8KTL-20KTL) User Manual*. • For details about the alarm list of the SUN8000, see the **Common Faults and Troubleshooting Measures** in the *SUN8000-500KTL User Manual*.
	8. On the **Sort By** page, select **Generation time** or **Alarm severity**.

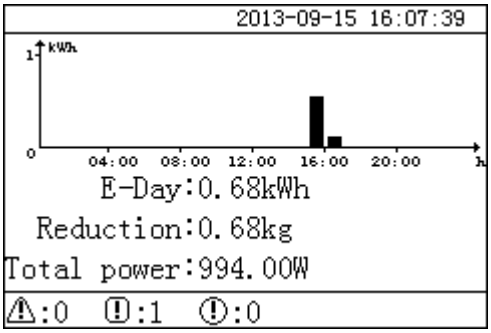
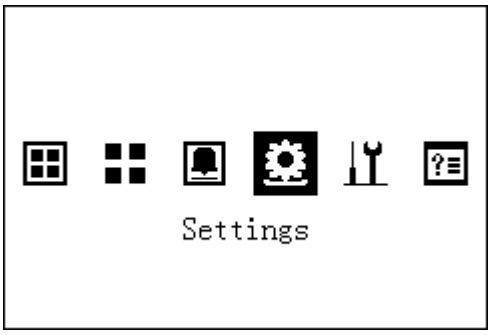
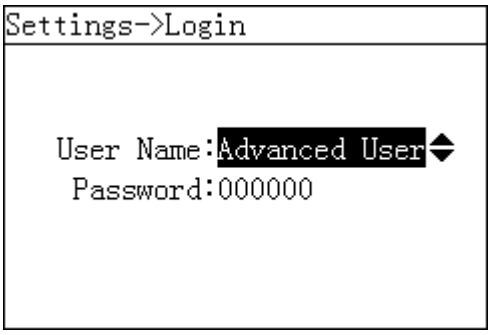
----End

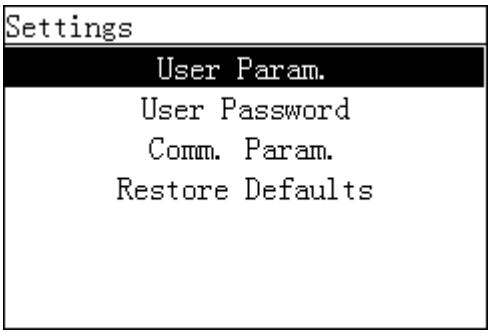
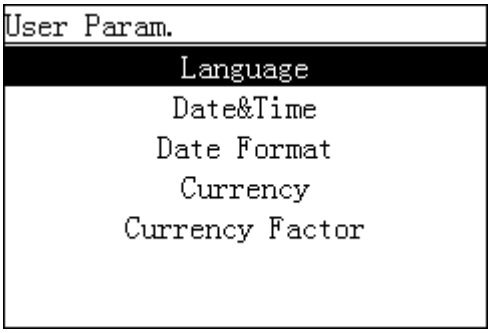
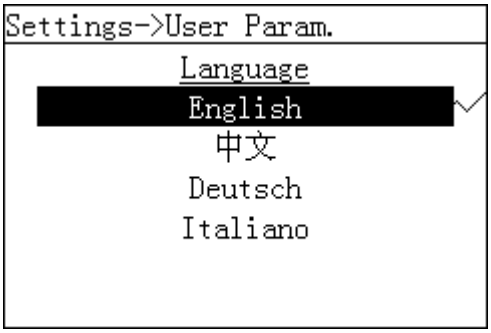
6.2.9 Setting the System Language

This topic describes how to set the display language for the SmartLogger on the monitoring panel.

Procedure

- The following table describes the procedure for setting the display language. The parameter values in the following figures are for reference only.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Choose ⚙ and press ↵.
	3. Specify the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Common User** or **Advanced User**. The initial password for **Common User** and **Advanced User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Settings** page and log in again within 30 seconds, no authentication is required.

LCD	Operation Procedure
 Here use the pages displayed when you log in to the SmartLogger as **Advanced User**.	4. Choose **User Param.**, and press ↵.
	5. Choose **Language**, and press ↵.
	6. On the **Language** page, select a display language, and press ↵. The pages will be displayed in the selected language.

----End

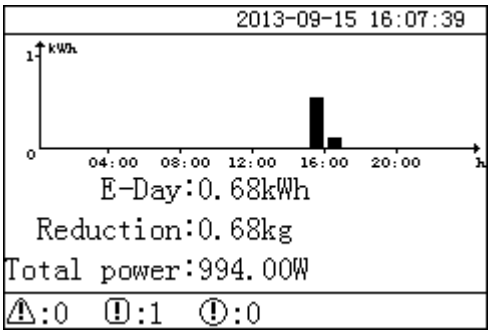
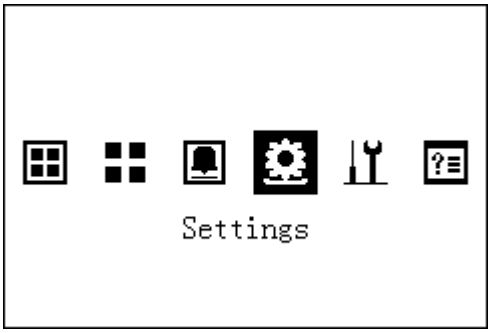
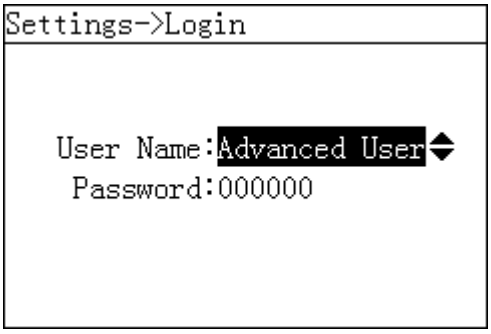
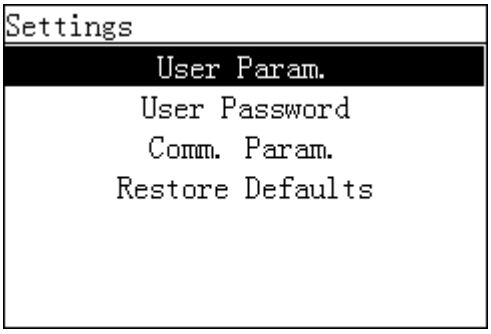
6.2.10 Setting System Time Parameters

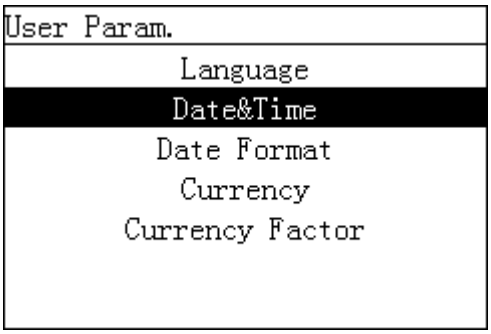
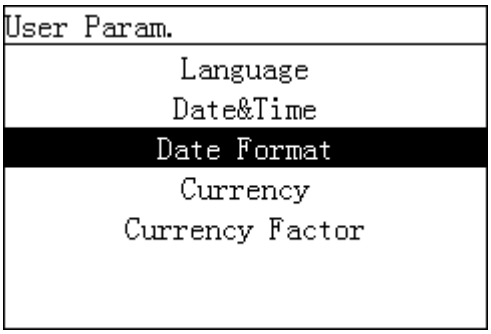
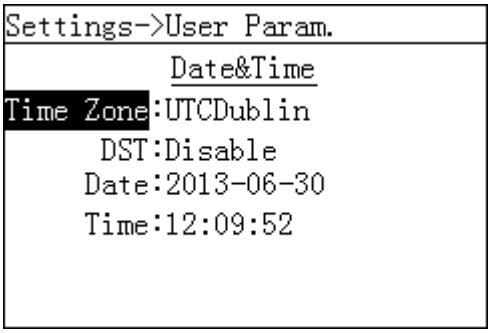
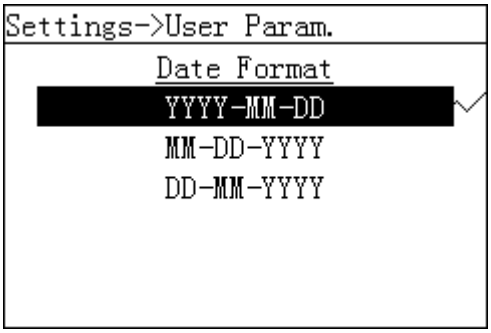
This topic describes how to set the date, time and date format for the SmartLogger on the monitoring panel.

Procedure

- The following table describes the procedure for setting the time and date. The parameter values in the following figures are for reference only.

LCD	Operation Procedure

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Choose ⚙ and press ↵.
	3. Specify the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Common User** or **Advanced User**. The initial password for **Common User** and **Advanced User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Settings** page and log in again within 30 seconds, no authentication is required.
 Here use the pages displayed when you log in to the SmartLogger as **Advanced User**.	4. Choose **User Param.**, and press ↵.

LCD	Operation Procedure
 	5. Choose **Date&Time** or **Date Format** by pressing ▼, and press ↵. **NOTICE** • Modifying **Date&Time** will affect the integrity of the SmartLogger's energy yield and performance data. Hence, do not change it at will. • After **Date&Time** is successfully set, this time can be synchronized in all the inverters connected to the SmartLogger.
	6. On the **Date&Time** page, set the date and time, set the time zone, enable or disable the daylight saving time, and press ↵. • To select the specific parameter, click ↵. To set the parameter value, set ▲ or ▼. • Set **Time Zone** based on the location of the inverters and enable or disable **DST** as required.
	7. On the **Date Format** page, select a date format, and press ↵.

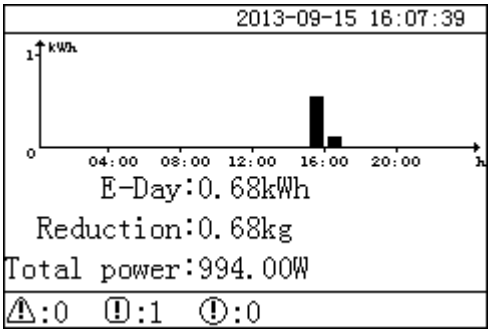
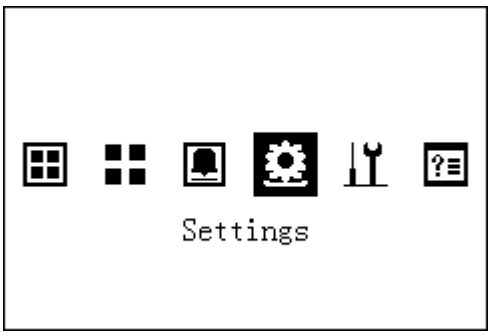
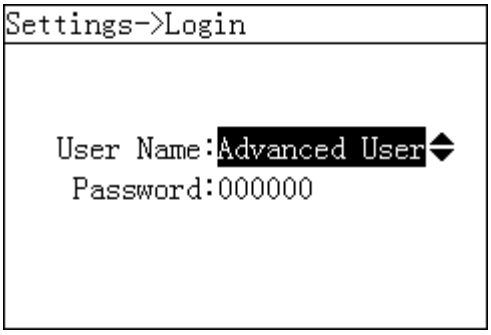
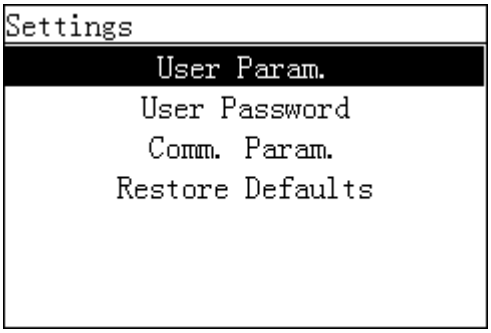
----End

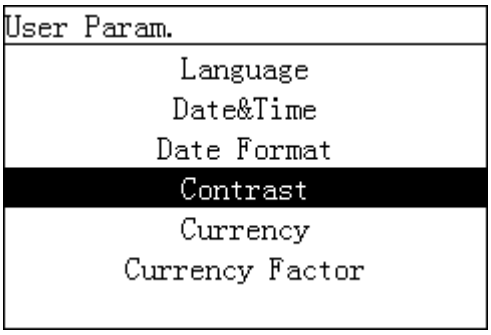
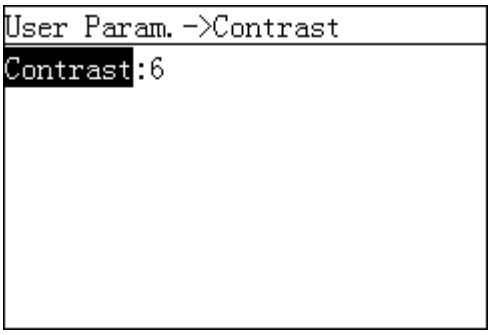
6.2.11 Setting SmartLogger Contrast

This topic describes how to set the SmartLogger contrast on the monitoring panel.

Procedure

- To set the SmartLogger contrast, perform the steps in the following table: The parameter values in the figures are for reference only.

LCD	Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Choose ⚙ and press ↵.
	3. Specify the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Common User** or **Advanced User**. The initial password for **Common User** and **Advanced User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Settings** page and log in again within 30 seconds, no authentication is required.
 Here use the pages displayed when you	4. Choose **User Param.**, and press ↵.

LCD	Procedure
log in to the SmartLogger as **Advanced User**.	
	5. Select **Contrast** and press ↵.
	6. On the **Contrast** tab, press ▲ and ▼ to set the contrast. **NOTE** The contrast value ranges from one to ten.

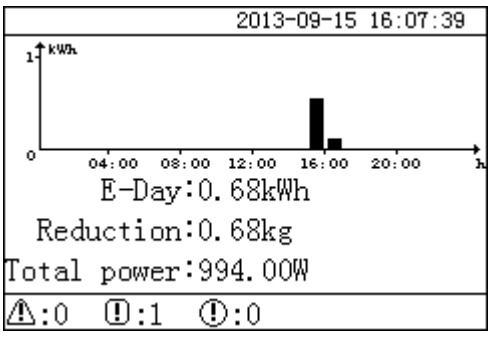
----End

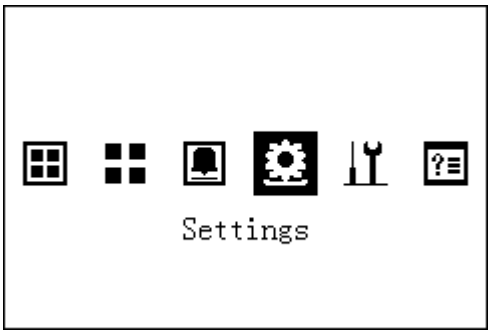
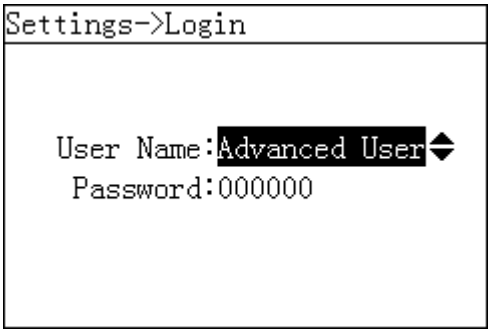
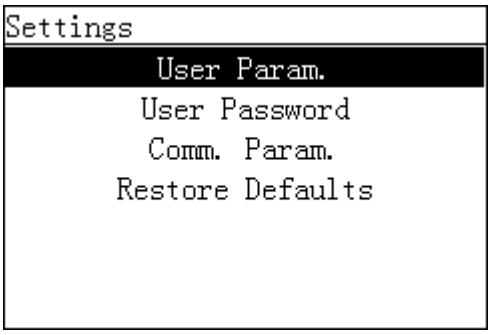
6.2.12 Setting the Currency and Currency Factor

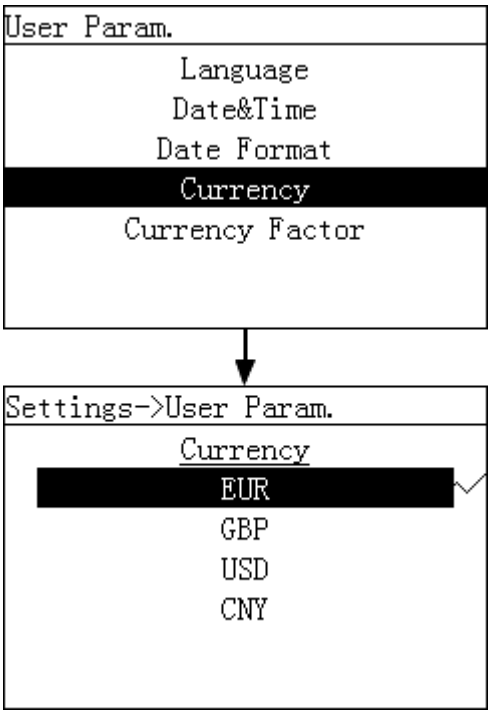
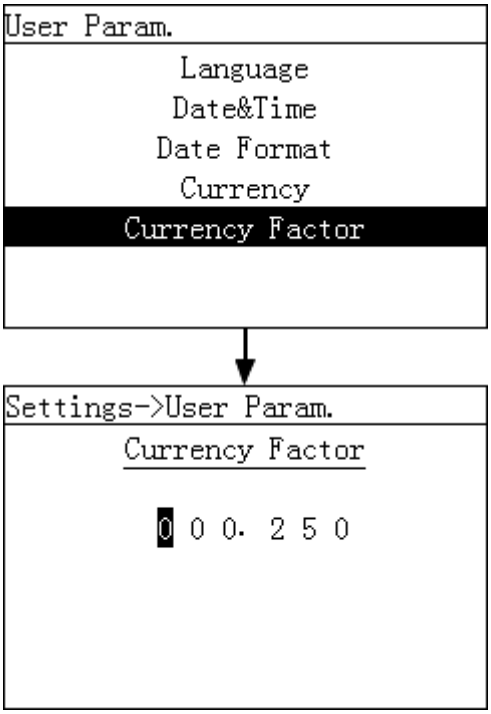
This topic describes how to set the currency and currency factor for the SmartLogger.

Procedure

- The following table describes the procedure for setting the currency and currency factor. The parameter values in the following figures are for reference only.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.

LCD	Operation Procedure
	2. Choose  and press .
	3. Specify the **User name** and **Password** by pressing or  , and then press  . **NOTE** • Because of the limited permission, select the **User name** as **Common User** or **Advanced User**. The initial password for **Common User** and **Advanced User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Settings** page and log in again within 30 seconds, no authentication is required.
 Here use the pages displayed when you log in to the SmartLogger as **Advanced User**.	4. Choose **User Param.**, and press  . • Perform step 5 to set the currency. • Perform step 6 to set the currency factor.

LCD	Operation Procedure
	5. Set the currency. a. Select **Currency** by pressing ▼, and press ↵. b. Select a currency, and press ↵. .
	6. Set the currency factor. **NOTICE** Set the currency before you set the currency factor. The currency factor is the electricity price per kWh, which is used to calculate the energy yield revenue. a. Select **Currency Factor** by pressing ▼, and then press ↵. b. Set the currency factor by pressing ▲ or ▼, and then press ↵.

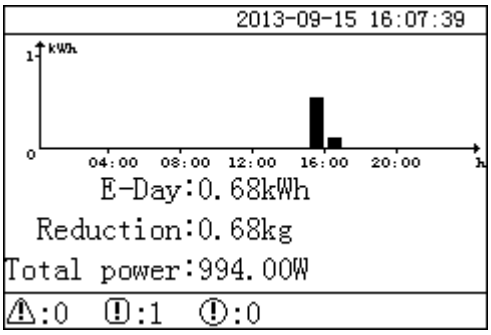
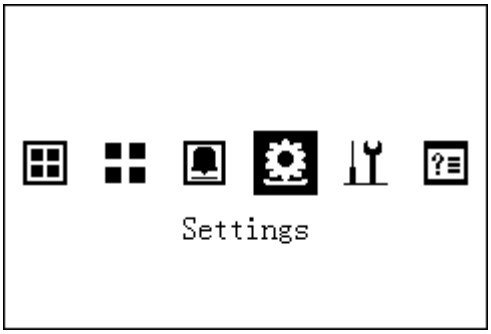
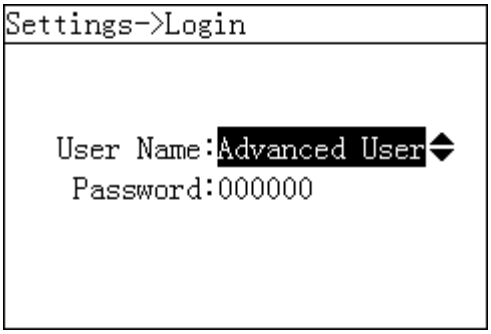
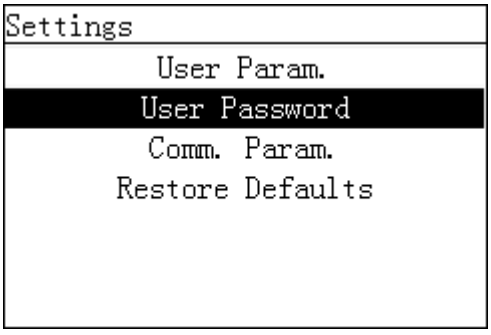
----End

6.2.13 Changing a Password

This topic describes how to change a password on the monitoring panel.

Procedure

- The following table describes the procedure for changing a password. The parameter values in the following figures are for reference only. A password may contain digits, upper-case letters, and lower-case letters.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Choose ⚙ and press ↵.
	3. Set **User Name** and **Password** by pressing ▲ or ▼, and press ↵. **NOTE** • **User Name** can be set to any of the following values: **Common User**, **Advanced User**, and **Special User**. The initial password is *000001*. If you forget the password, contact Huawei technical support personnel for a dynamic password that is valid only on the current day. Change the password after login. • After the authentication is successful, the system keeps the authentication information for 30 seconds. If you exit from the **Settings** screen and log in again within 30 seconds, no authentication is required.
 Here use the pages displayed when you	4. Select **User Password** by pressing ▼, and press ↵. **NOTICE** The password on the LCD is the same as that on the WebUI. After you change a password on the LCD, the password on the WebUI changes synchronously.

LCD	Operation Procedure
log in to the SmartLogger as **Advanced User**.	
	5. Enter the old password and press ↵. Increase or decrease the value by pressing ▲ or ▼. Switch between data bits by pressing ↵.
	6. Enter a new password and press ↵. Increase or decrease the value by pressing ▲ or ▼. Switch between data bits by pressing ↵.
	7. Enter the new password again and press ↵. **NOTE** Ensure that you enter the new password twice coherently. Otherwise, an error message is displayed. After the password is changed successfully, the LCD displays operation success information.

NOTE

If you want to change the password for another account, exit from the **Settings** screen (without logging in to the **Maintenance** screen), wait 30 seconds, log in by using the account for which you want to change the password, and perform step 3 to step 7 in the preceding table.

----End

6.2.14 Setting Communications Parameters

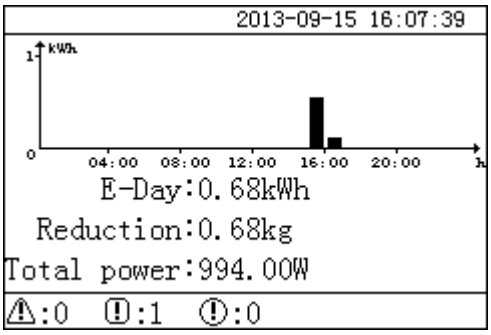
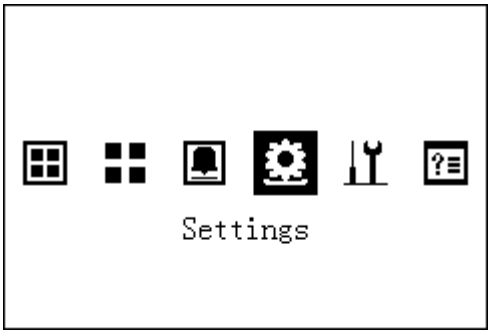
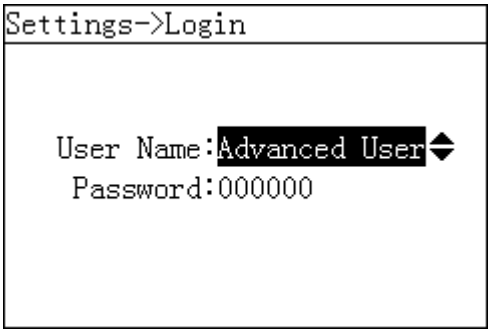
This topic describes how to set the communications parameters for the SmartLogger on the monitoring panel, including the parameters for the RS485 (baud rate, start address, and end address), parameters for the Ethernet (IP address, subnet mask, gateway and DNS) and parameters for the Server (Connect Mode, NMS IP, and Port Number).

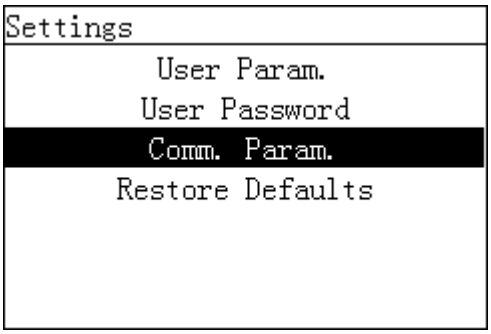
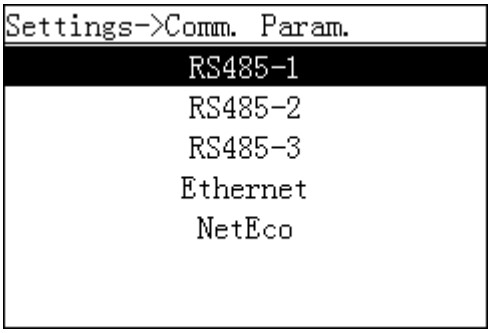
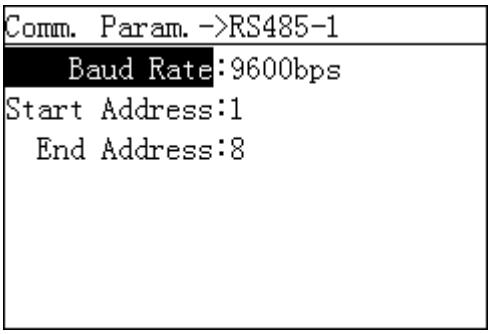
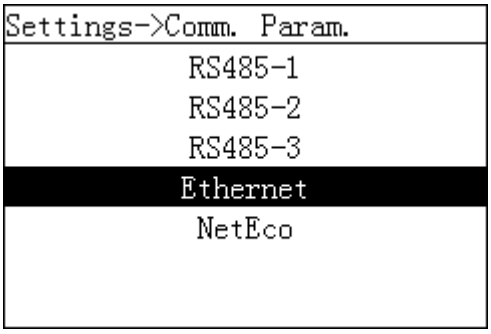
Context

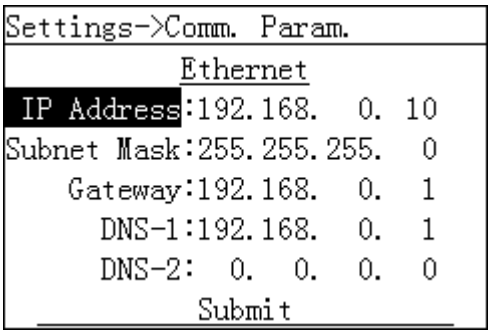
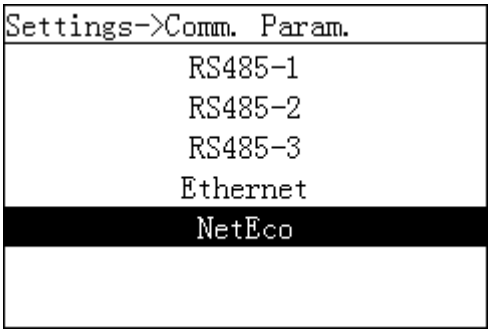
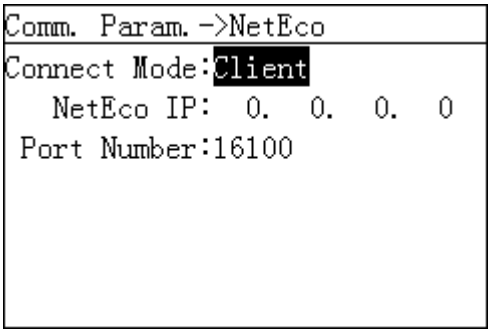
- Correctly set RS485 parameters to ensure normal communication between the SmartLogger and the inverters and between the SmartLogger and the environmental monitoring instrument.
- Correctly set Ethernet parameters to ensure proper operation of Ethernet ports and functions of logging in to the embedded WebUI, connecting to the element management system, and sending emails.
- Correctly set NetEco parameters to ensure normal communication between the SmartLogger and the NetEco.

Procedure

- The following table describes the procedure for setting communications parameters. The parameter values in the following figures are for reference only.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Choose ⚙ and press ↵.
	3. Enter the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Advanced User**. The initial password for **Advanced User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Settings** page and log in again within 30 seconds, no authentication is required.

LCD	Operation Procedure
 Here use the pages displayed when you log in to the SmartLogger as **Advanced User**.	4. Select **Comm. Param.** and press ↵. • Perform step 5 and step 6 to set the parameters for the RS485. • Perform step 7 and step 8 to set the parameters for the Ethernet. • Perform step 9 and step 10 to set the parameters for the NetEco.
	5. Select an RS485 port by pressing ▲ or ▼ and then press ↵. There are three RS485 ports: **RS485-1**, **RS485-2**, and **RS485-3**. The corresponding port for **RS485-1** is **COM1**; **RS485-2** is **COM2**; **RS485-3** is **COM3**.
	6. Set **Baud Rate**, **Start Address** and **End Address**, and press ↵. • The following baud rates are supported: **4800bps**, **9600bps** and **19200bps**. 9600bps is recommended. • 1≤**Start Address** ≤ **End Address** ≤ 247. The address segments for these three ports can overlap. Set the address scope properly. The broader the scope is, the longer the time is for searching the devices.
	7. Press ▼, select **Ethernet**, and press ↵.

LCD	Operation Procedure
	8. Set **IP address**, **Subnet Mask**, **Gateway**, and **DNS**, and press ↵. **NOTICE** Take the following precautions for setting Ethernet parameters when the SmartLogger connects to the Internet through a router: • Set the gateway address to the IP address of the router. • Ensure that the IP address of the SmartLogger is in the same network segment as the gateway address. • Set the domain name server (DNS) address to the IP address of the router or obtain the DNS address from the network provider.
	9. Press ▼, select **NetEco**, and press ↵.
	10. Set **Connect Mode**, **NetEco IP**, and **Port Number**, and press ↵. • When **Connect Mode** is set to **Server**, the NetEco connects to the SmartLogger as a client. Generally, this mode applies to the scenario where the SmartLogger and NetEco are in the same local area network (LAN). • When **Connect Mode** is set to **Client**, set an IP address and a port ID (16100 by default) for the NetEco on the SmartLogger. This mode applies to remote access scenarios, for example, when the SmartLogger and NetEco are not in the same LAN. • When **Connect Mode** is set to **Server+Client**, the SmartLogger connects to the NetEco as a client or connects to a third-party EMS as a server. The SmartLogger can connect to a third-party EMS and Huawei NetEco by Modbus and TCP. In this way, customers can perform centralized monitoring by using a third-party EMS while using Huawei NetEco to perform remote upgrade, log uploading, batch parameter setting,

LCD	Operation Procedure
	historical performance data analysis, and historical alarm analysis.

----End

6.2.15 Restoring Factory Settings

This topic describes how to restore factory settings for the SmartLogger on the monitoring panel. After this operation, all parameters, excluding the current date and time, will restore to the default factory settings. However, the running information, alarm records, and system logs do not change.

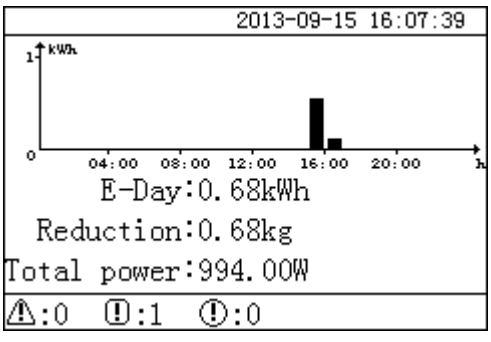
Context

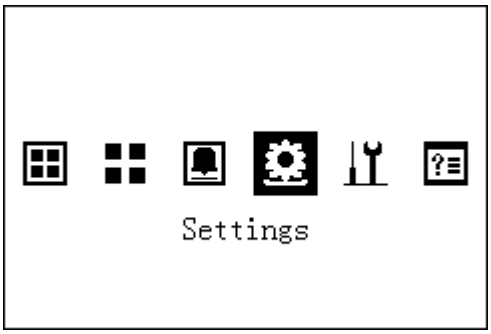
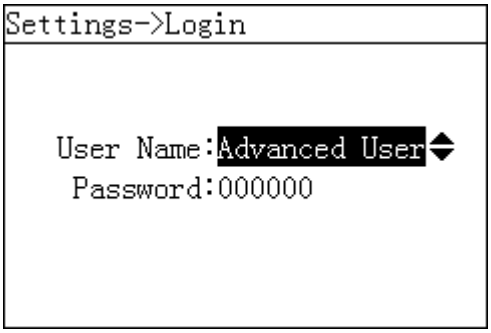
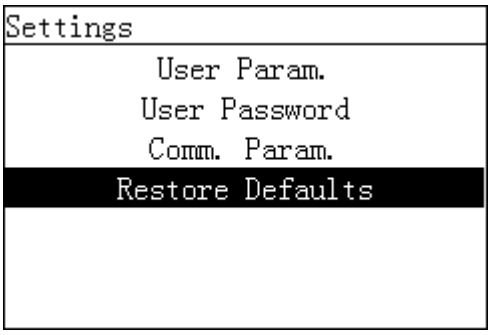
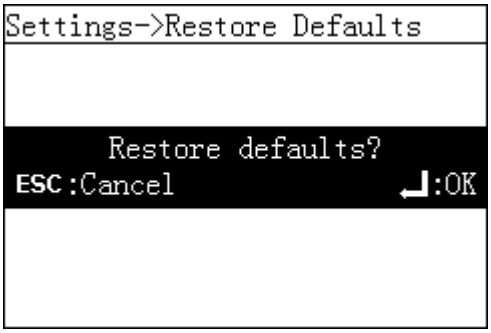
NOTICE

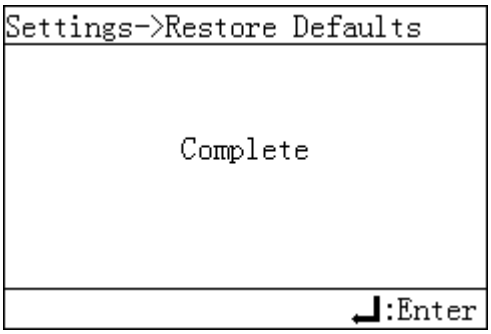
- After restoring factory settings for the SmartLogger, set the user parameters and communications parameters in time and log in to the WebUI to set the environmental monitoring instrument parameters and power grid dispatching parameters.
- The displayed language is **English** by default.

Procedure

- The following table describes the procedure for restoring factory settings. The parameter values in the following figures are for reference only.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.

LCD	Operation Procedure
	2. Choose ⚙ and press ↵.
	3. Enter the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Advanced User** or **Special User**. The initial password for **Advanced User** and **Special User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Settings** page and log in again within 30 seconds, no authentication is required.
 Here use the pages displayed when you log in to the SmartLogger as **Advanced User**.	4. Choose **Restore Defaults**, and press ↵.
	5. On the displayed page, press ↵.

LCD	Operation Procedure
	6. Press ↵ to complete the settings.

----End

6.2.16 Downloading Data by Using a USB Flash Drive

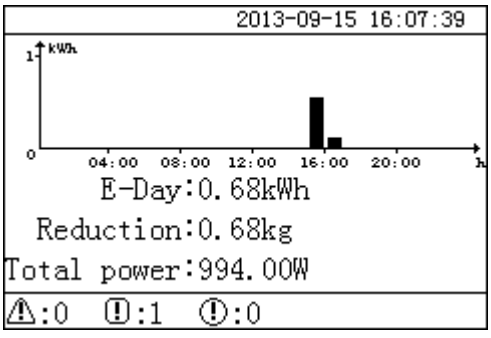
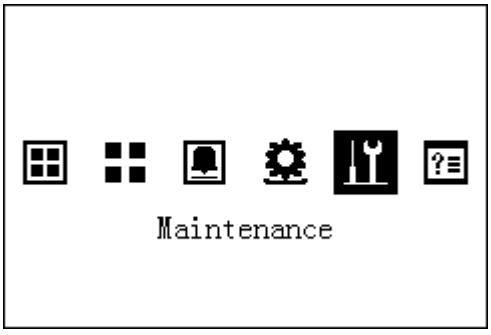
This topic describes how to use a USB flash drive to download data on the monitoring panel, such as the performance data, operation logs, commissioning logs of the SmartLogger and the alarm records of all the inverters. It provides reference for backtracking and problem analysis.

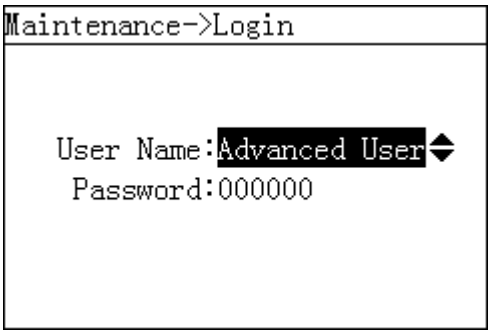
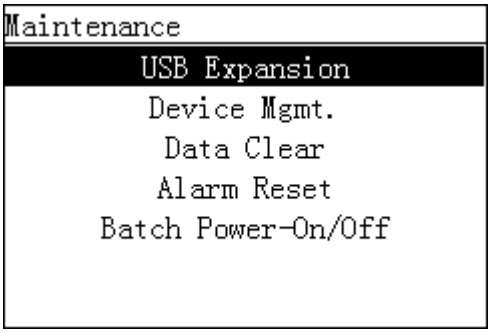
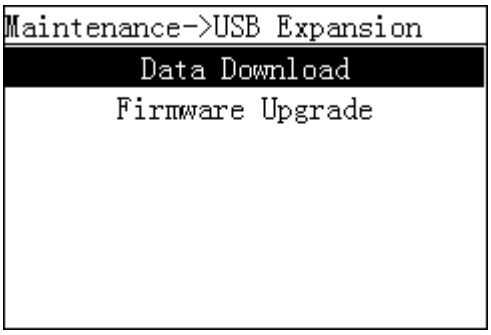
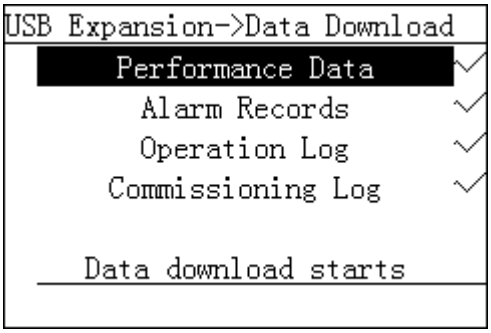
Context

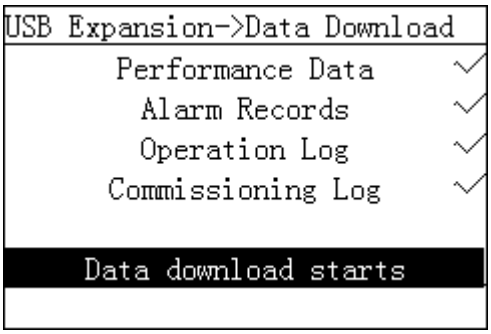
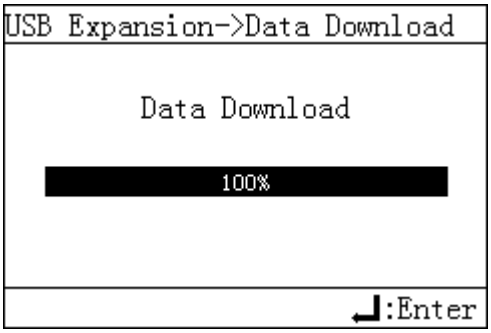
- Side view of the shell shows the USB port in the SmartLogger.

Procedure

- The following table describes the procedure for using a USB flash drive to download data. The parameter values in the following figures are for reference only.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Select and press ↵.

LCD	Operation Procedure
	3. Enter the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Advanced User** or **Special User**. The initial password for **Advanced User** and **Special User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Maintenance** page and log in again within 30 seconds, no authentication is required.
 Here use the pages displayed when you log in to the SmartLogger as **Advanced User**.	4. Select **USB Expansion** and press ↵. **NOTE** • Before this operation, connect the USB flash drive to the USB port. • If no USB flash drive is detected, the LCD displays a message prompting **No USB device detected.**. The system takes 5 to 10 seconds to detect the USB flash drive. Then perform the following steps.
	5. Select **Data Download** and press ↵.
	6. Press ▲ or ▼ to select the data you want to download and press ↵ to include or exclude the data. All kinds of data are included by default.

LCD	Operation Procedure
	7. Select **Data download starts** and press ↵.
	8. When the progress bar reaches 100%, press ↵.

----End

6.2.17 Upgrading Firmware by Using a USB Flash Drive

This topic describes how to upgrade the firmware on the monitoring panel by using a USB flash drive. You can not only upgrade the firmware of the SmartLogger, but also upgrade the firmware of the connected inverters on the SmartLogger.

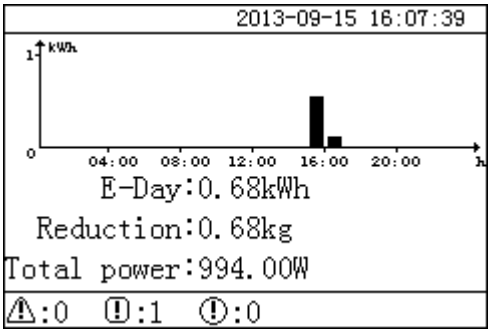
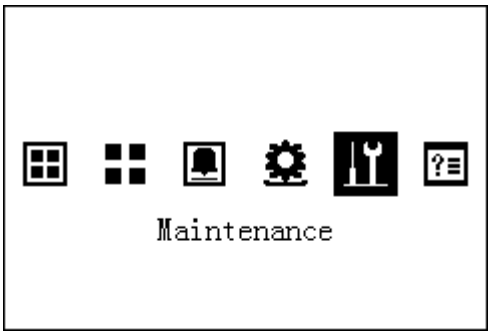
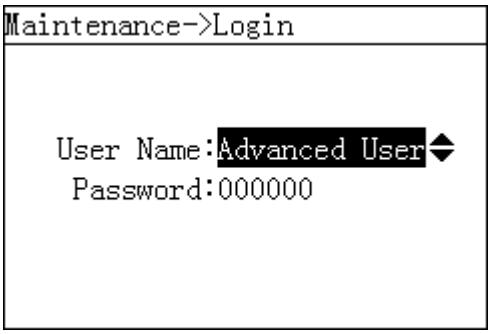
Context

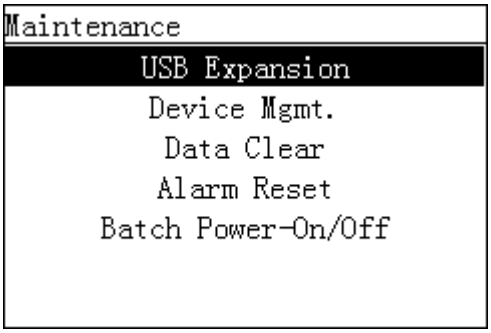
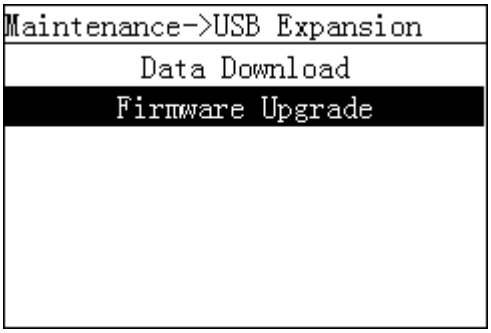
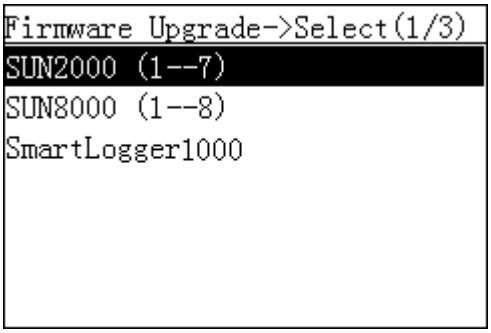
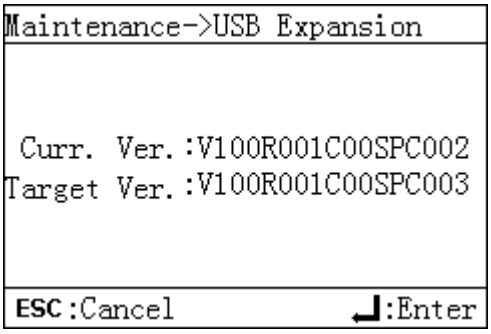
NOTICE

- Before upgrading the firmware, download the upgrade package from **http://support.huawei.com** and copy it to the USB flash drive.
- Save the compressed package under the root directory and do not extract the package.
- When upgrading the firmware for the SUN2000, change the file name of the package to sun2000_usb.zip.
- When upgrading the firmware for the 8UN2000, change the file name of the package to sun8000_usb.tar.gz.
- When upgrading the SmartLogger1000, do not change the file name of the package.

Procedure

- The following table shows the procedure for upgrading the firmware versions by using a USB flash drive. The parameter values in the following figures are for reference only.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Select and press ↵.
	3. Enter the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Advanced User** or **Special User**. The initial password for **Advanced User** and **Special User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for

LCD	Operation Procedure
	30 seconds. If you exit from the **Maintenance** page and log in again within 30 seconds, no authentication is required.
 Here use the pages displayed when you log in to the SmartLogger as **Advanced User**.	4. Select **USB Expansion** and press ↵. **NOTE** • Before this operation, connect the USB flash drive to the USB port. • If no USB flash drive is detected, the LCD displays a message prompting **No USB device detected.**. The system takes 5 to 10 seconds to detect the USB flash drive. Then perform the following steps.
	5. Choose **Firmware Upgrade**, and press ↵.
	6. Press ↵ to select a specific device. The SmartLogger and the inverters connected to it can be upgraded. The **SUN2000 (1--7)** on the left indicates that this inverter connects to the **Port 1** of the SmartLogger and the communications address for the RS485 port is **7**.
 The displayed page for upgrading the inverter.	7. After determining the **Target Version**, press ↵. **NOTICE** Before upgrading the SUN2000, ensure that it is correctly connected to the PV arrays. • After upgrading the SmartLogger, restart the SmartLogger. • After upgrading the inverter, press ↵.

----End

6.2.18 Managing Devices

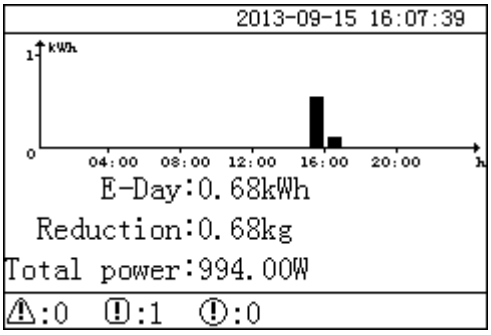
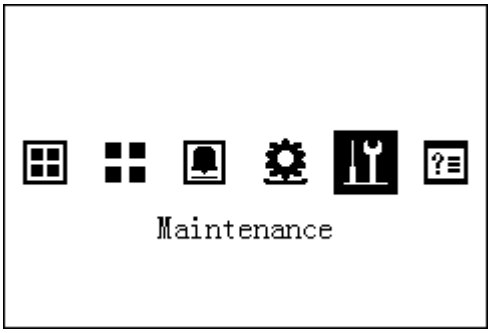
This topic describes how to search for, add, or delete devices that are connected to the SmartLogger on the monitoring panel.

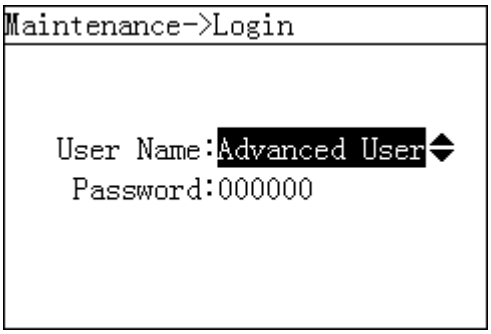
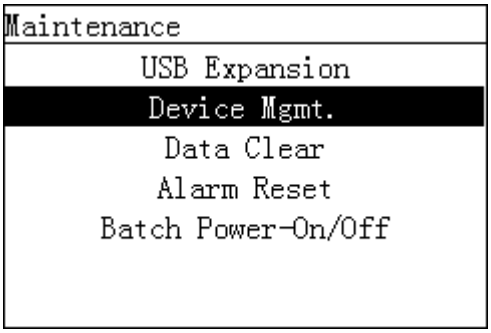
Context

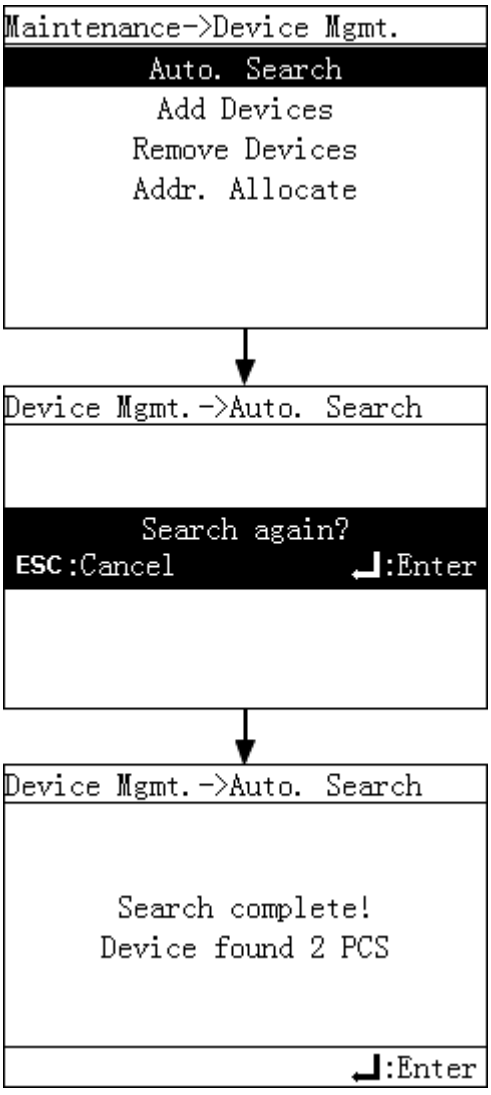
- Provided that all the inverters are correctly connected to the SmartLogger and that all the communications parameters are correctly set, the SmartLogger can perform the automatic search and detect all the connected inverters.
- After you add, delete, or replace a device, or change the RS485 address, search for devices again or restart the SmartLogger (the SmartLogger automatically searches for devices after it restarts).
- The EMI, Slave SmartLogger, and power meter cannot be detected automatically. You need to add these devices manually.
- For devices that no longer exist in the PV power system, perform **Remove Devices** in time to save the system resources.
- The RS485 addresses of all inverters are set the same when they are delivered. If the firmware version of the SUN2000 is later than V100R001C00SPC010, you can perform the automatic address assignment on the SmartLogger. If any two RS485 addresses overlap, the SmartLogger automatically reassigns different addresses, which facilitates remote site setup and improves the maintenance efficiency.

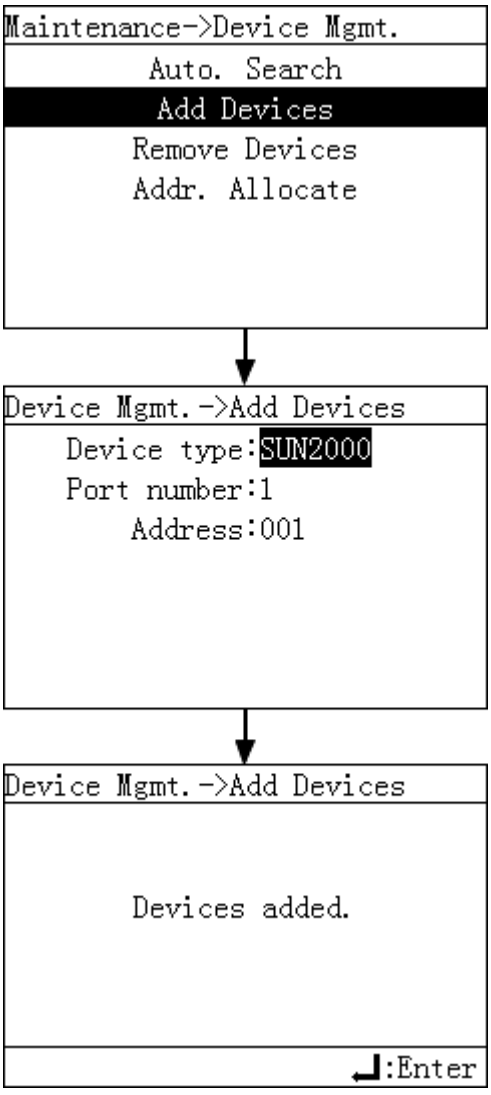
Procedure

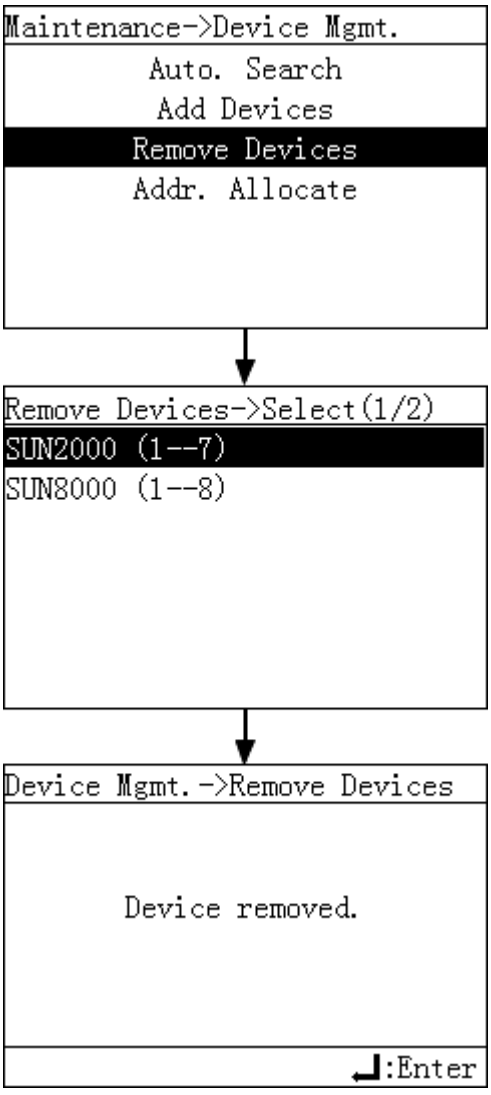
- The following table describes the procedure for managing the devices. The parameter values in the following figures are for reference only.

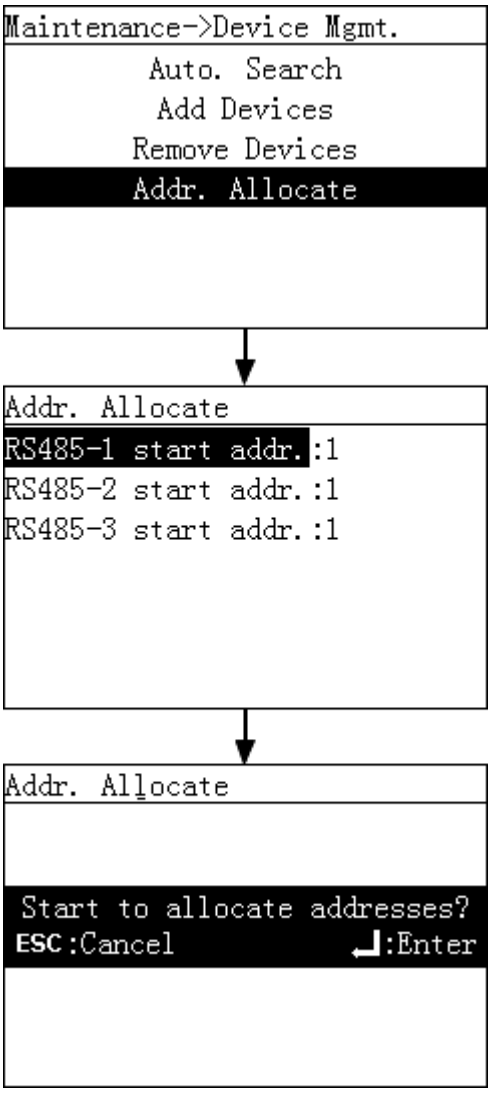
LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Select and press ↵.

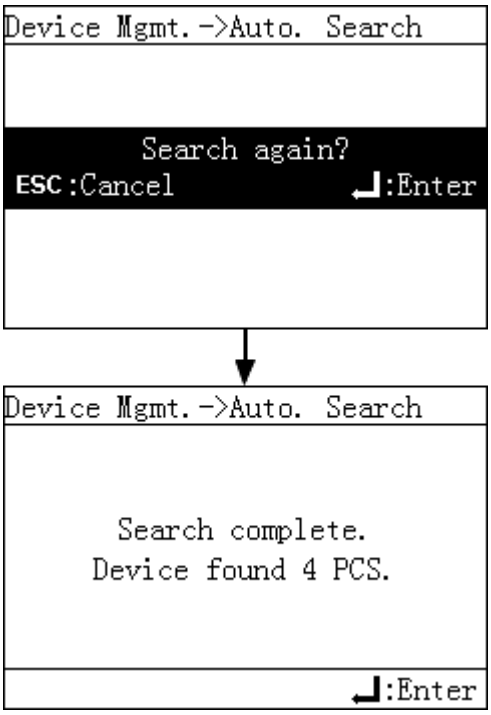
LCD	Operation Procedure
	3. Enter the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Advanced User** or **Special User**. The initial password for **Advanced User** and **Special User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Maintenance** page and log in again within 30 seconds, no authentication is required.
	4. Select **Device Mgmt.** and press ↵. • Perform step 5 to enable the SmartLogger to automatically search for devices. • Perform step 6 to add devices to the SmartLogger. • Perform step 7 to delete devices. • To assign addresses, perform step 8 and step 9.

LCD	Operation Procedure
	5. Select **Auto. Search**, and press ↵. Before performing the automatic search, ensure that all the devices can normally communicate with the SmartLogger. **NOTE** • After you add, delete, or replace a device, or change the RS485 address, search for devices again. • If a device is added, search for the device on the SmartLogger or restart the SmartLogger and then search for the device on the NetEco1000.

LCD	Operation Procedure
	6. Select **Add Devices** and press ↵. **NOTE** • The EMI, power meter, and Slave SmartLogger cannot be detected automatically. You need to add these devices manually. • If the communication is abnormal, or the address on the port has been used, the device cannot be added.

LCD	Operation Procedure
	7. Select **Remove Devices** and press ↵ twice. **NOTE** For devices that no longer exist in the PV power system, perform **Remove Devices** in time to save the system resources.

LCD	Operation Procedure
	8. Select **Addr. Allocate**, set the start addresses assigned for RS485-1, RS485-2, and RS485-3, and then press ↵ to allocate the addresses.

LCD	Operation Procedure
	9. After the setting of **Addr. Allocate** is complete, press ↵ to search the devices.

----End

6.2.19 Clearing Data

This topic describes how to delete alarm and performance data on the LCD.

Context

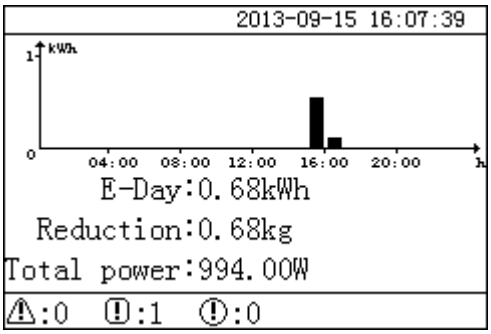
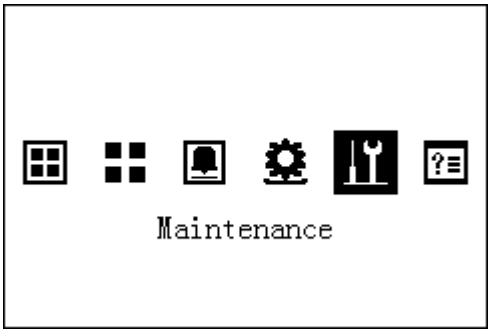
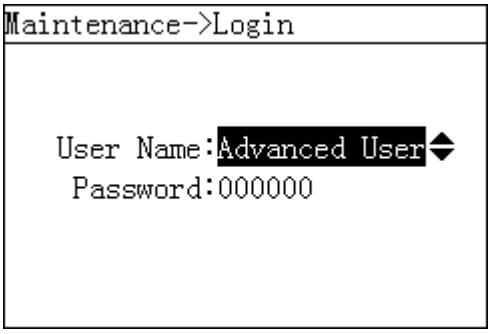
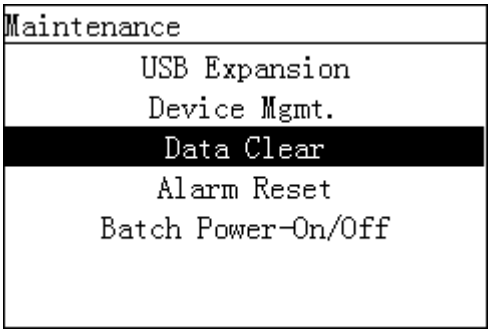
NOTICE

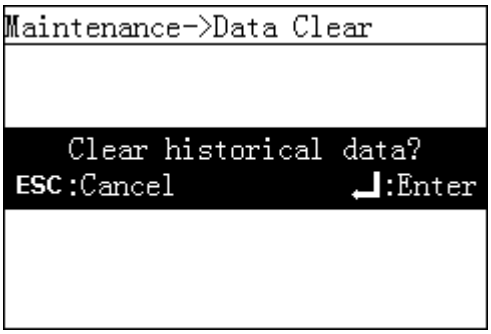
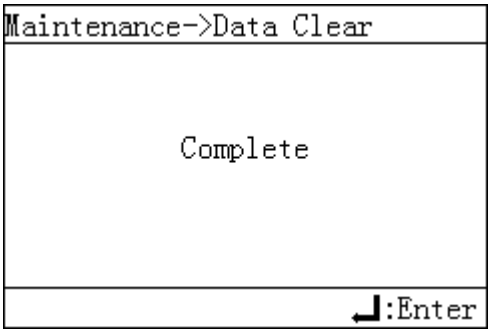
After you perform this operation, energy yield data, performance data, operation logs and alarms are cleared from the SmartLogger.

Procedure

- The following table describes the procedure for clearing data. The parameter values in the following figures are for reference only.

LCD	Operation Procedure

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Select and press ↵.
	3. Enter the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Advanced User** or **Special User**. The initial password for **Advanced User** and **Special User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Maintenance** page and log in again within 30 seconds, no authentication is required.
	4. Press ▼, select **Data Clear**, and press ↵. **NOTICE** Cleared data cannot be restored. Therefore, perform this operation with caution.

LCD	Operation Procedure
	5. On the displayed screen, press ↵.
	6. After the data is cleared, press ↵. No further operation is required.

----End

6.2.20 Alarm Reset

This topic describes how to reset alarm on the LCD.

Context

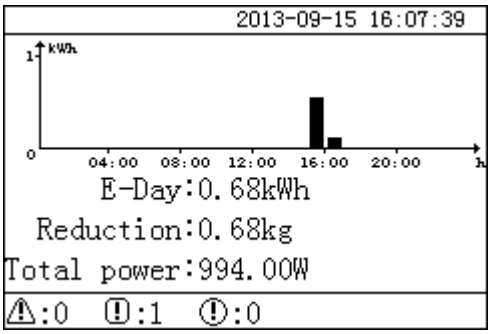
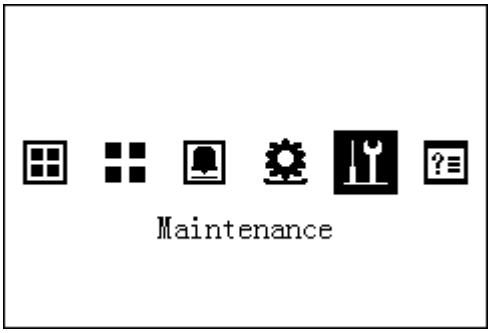
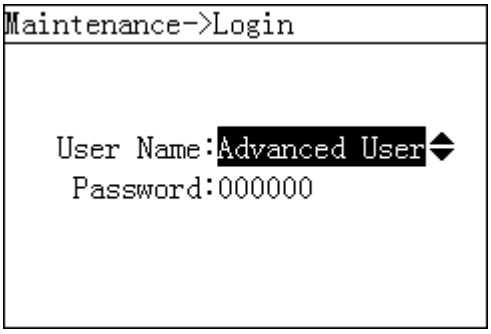
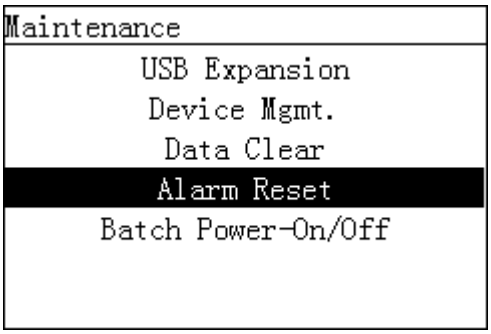
If you reset alarms on the LCD, all the active and historical alarms for the inverter are deleted and the SmartLogger starts to collect new alarms.

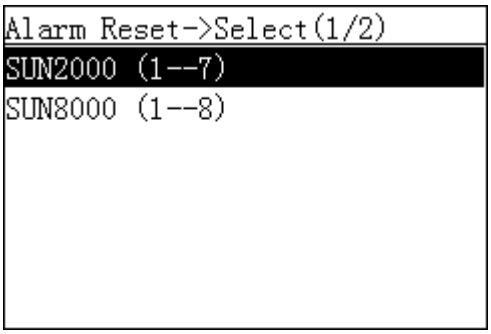
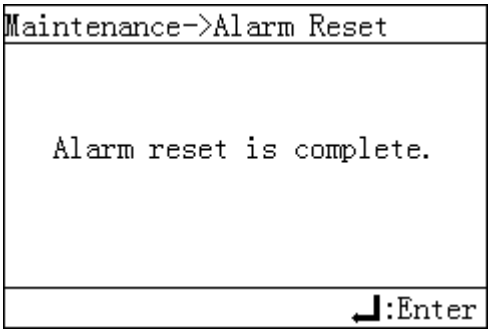
NOTICE

- If you perform **Data Clear** for inverters, you need to perform **Alarm Reset** for both the SmartLogger and the NetEco1000 at the same time. Otherwise, the SmartLogger cannot collect the alarm information generated by the inverter after **Alarm Reset** is performed.
- If you perform **Alarm Reset** or **Data Clear** for the SmartLogger, you also need to perform **Alarm Reset** for the NetEco1000. Otherwise the NetEco1000 cannot collect the alarm information collected by the SmartLogger after **Alarm Reset** is performed.

Procedure

- The following table describes the procedure for resetting data. The parameter values in the following figures are for reference only.

LCD	Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Select and press ↵.
	3. Enter the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Advanced User** or **Special User**. The initial password for **Advanced User** and **Special User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Maintenance** page and log in again within 30 seconds, no authentication is required.
	4. Press ▼, choose **Alarm Reset**, and press ↵.

LCD	Procedure
	5. Choose the inverter you want to reset alarms for, press ↵.
	6. After resetting the data, press ↵.

----End

6.2.21 Batch Power-On/Off

This topic describes how to perform the batch power-on/off on the monitoring panel.

Context

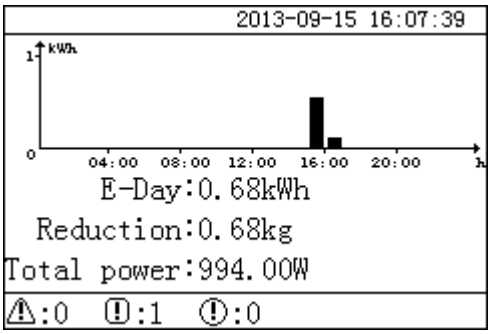
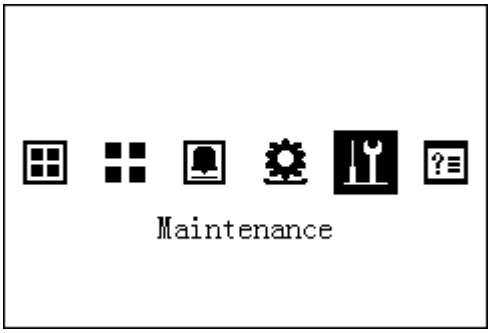
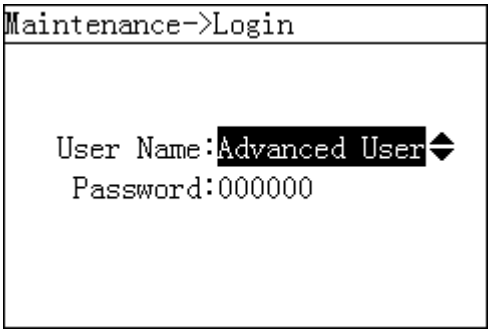
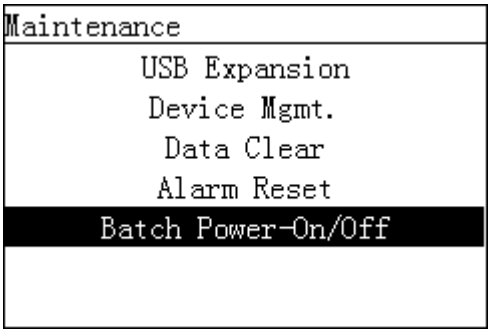
NOTICE

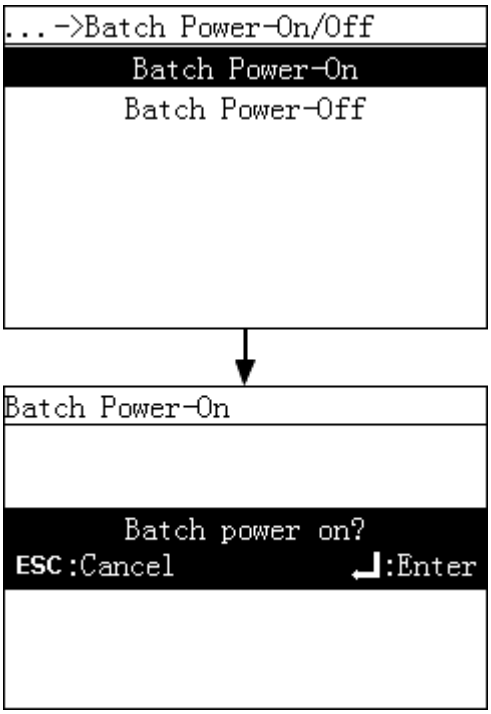
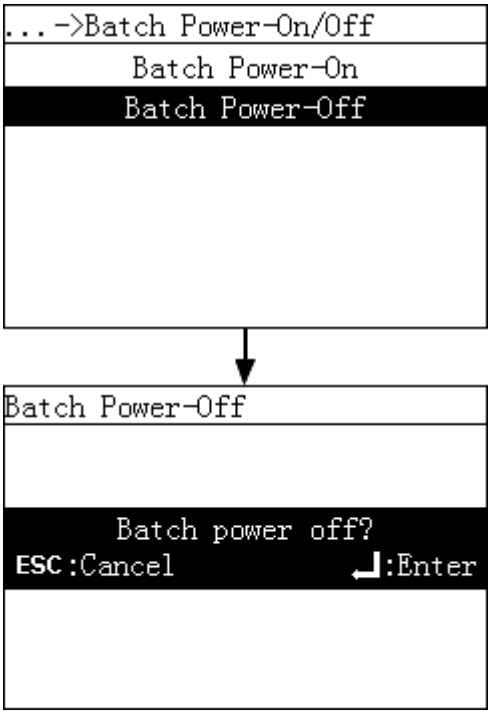
- The batch power-on/off command sent by the Master SmartLogger is synchronized to the Slave SmartLogger. Hence inverters connected to the Slave SmartLogger also perform the batch power-on/off.
- If a batch power-off command is sent to the inverters, send a batch power-on command to restart the inverters.

Procedure

- The following table describes the procedures of the batch power-on/off. The parameter values in the figures are for reference only.

LCD	Procedure

LCD	Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Select and press ↵.
	3. Enter the **User name** and **Password** by pressing ▲ or ▼, and then press ↵. **NOTE** • Because of the limited permission, select the **User name** as **Advanced User** or **Special User**. The initial password for **Advanced User** and **Special User** is *000001*. If you forget the password, contact Huawei technical support for a dynamic password that is effective only on that current day. Change the password after login. • After passing the permission validation, the system keeps the authentication information for 30 seconds. If you exit from the **Maintenance** page and log in again within 30 seconds, no authentication is required.
	4. Press ▼, choose **Batch Power-On/Off**, and press ↵. • To power on the inverters in batch, go to step 5. • To power off the inverters in batch, go to step 6.

LCD	Procedure
	5. Choose **Batch Power-On** and press ↵.
	6. Choose **Batch Power-Off** and press ↵.

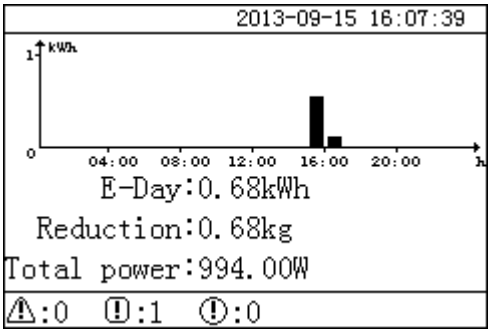
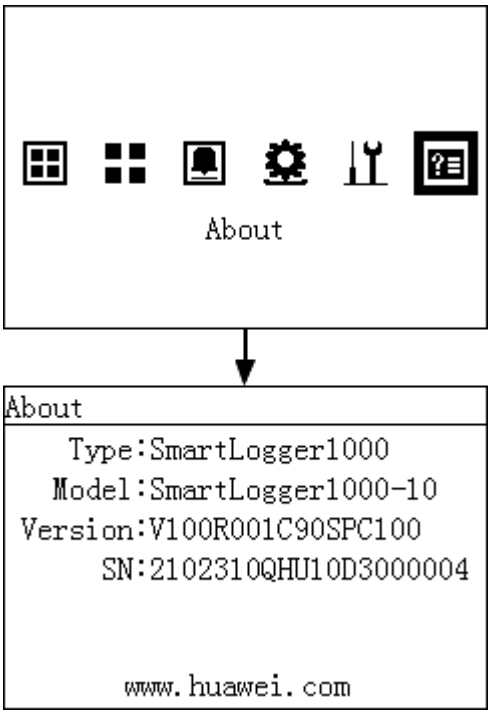
----End

6.2.22 Querying Product Information

This topic describes how to query the information about the SmartLogger on the monitoring panel, including the device type, firmware version, and serial number.

Procedure

- The following table describes the procedure for querying product information. The parameter values in the following figures are for reference only.

LCD	Operation Procedure
	1. On the default page, press ↵ to enter the main menu.
	2. Choose and press ↵. The version information includes **Type**, **Model**, **Version**, and **SN**.

----End

7 Web User Interface

About This Chapter

This topic describes how to log in to the Web user interface (WebUI) and the WEB menu, and set parameters and maintain devices on the WebUI.

7.1 Preparations for Login

This topic describes the operating environment for the WebUI and the required preparations before you log in to the WebUI.

Operating Environment

The running environment for the WebUI should meet the following requirements:

- Operating system: Windows
- Browser: Internet Explorer 7.0, Internet Explorer 8.0, Internet Explorer 9.0, Firefox 17.0, Firefox 18.0, Firefox 19.0, Firefox 20.0, Firefox21.0.
- Minimum resolution: 1024 x 768.

Setting the IP Address

Correctly set the IP address, subnet mask, and gateway for the SmartLogger, PC, and network devices.

Setting the LAN

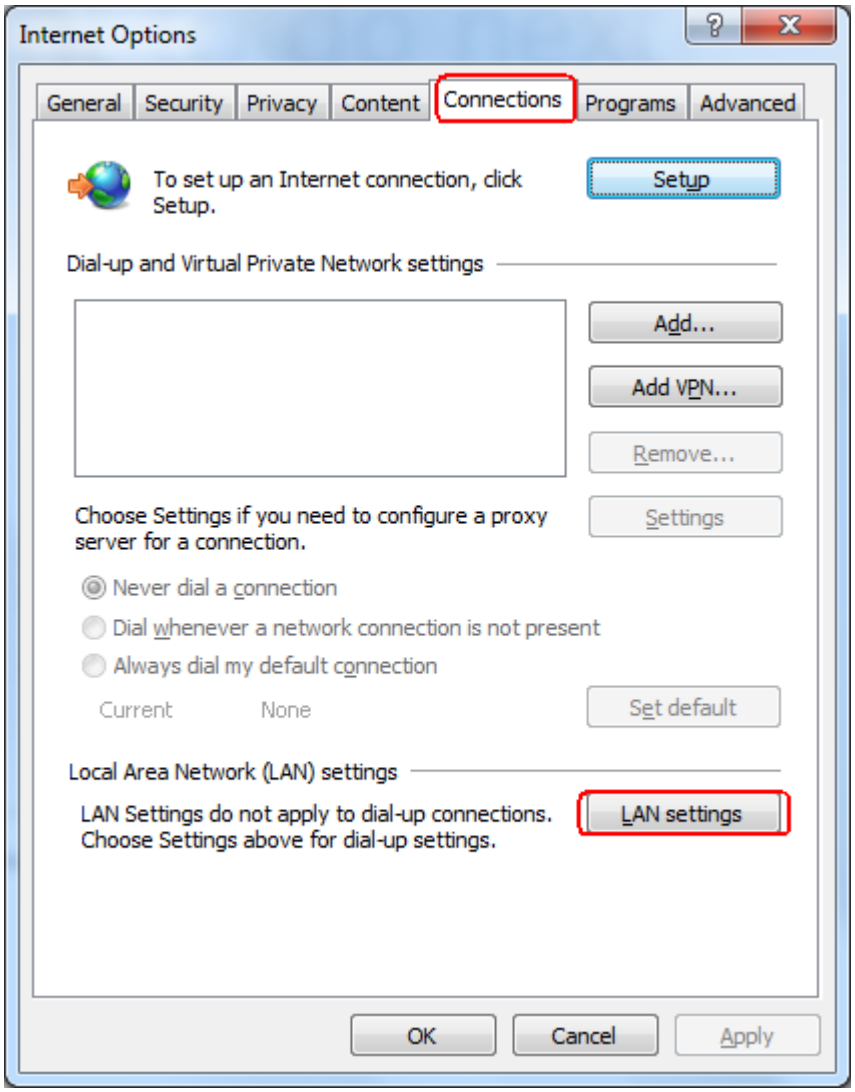
NOTICE

- If the SmartLogger is connected to a local area network (LAN) and a proxy server has been selected, you need to cancel proxy server setting.
- If the SmartLogger is connected to the Internet but the computer is connected to the LAN, you cannot cancel proxy server setting.

To set the LAN, perform the following steps:

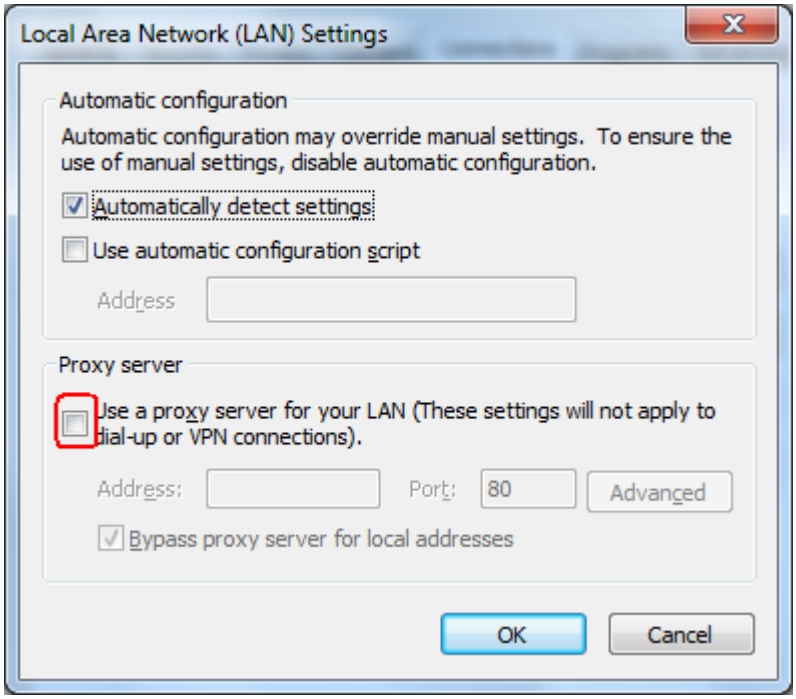
1. Open Internet Explorer.
2. Choose **Tools** > **Internet Options**.
3. Click the **Connections** tab and then click **LAN settings**, as shown in Figure 7-1.

Figure 7-1 LAN settings (1)



4. Deselect the check box under **Proxy server**, as shown in Figure 7-2.

Figure 7-2 LAN settings (2)



5. Click **OK** to finish the LAN settings.

Setting Internet Explorer Security

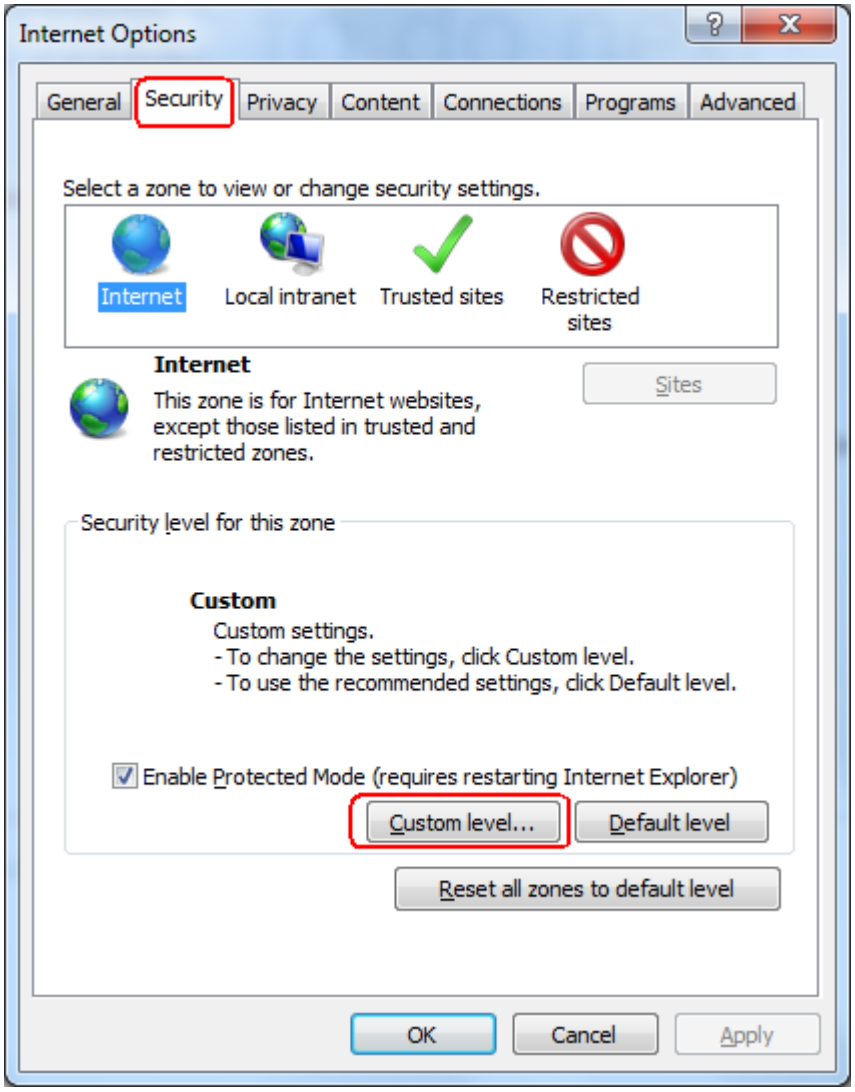
NOTICE

If you need to export the fault information and operation logs, set Internet Explorer security.

To set Internet Explorer security, perform the following steps:

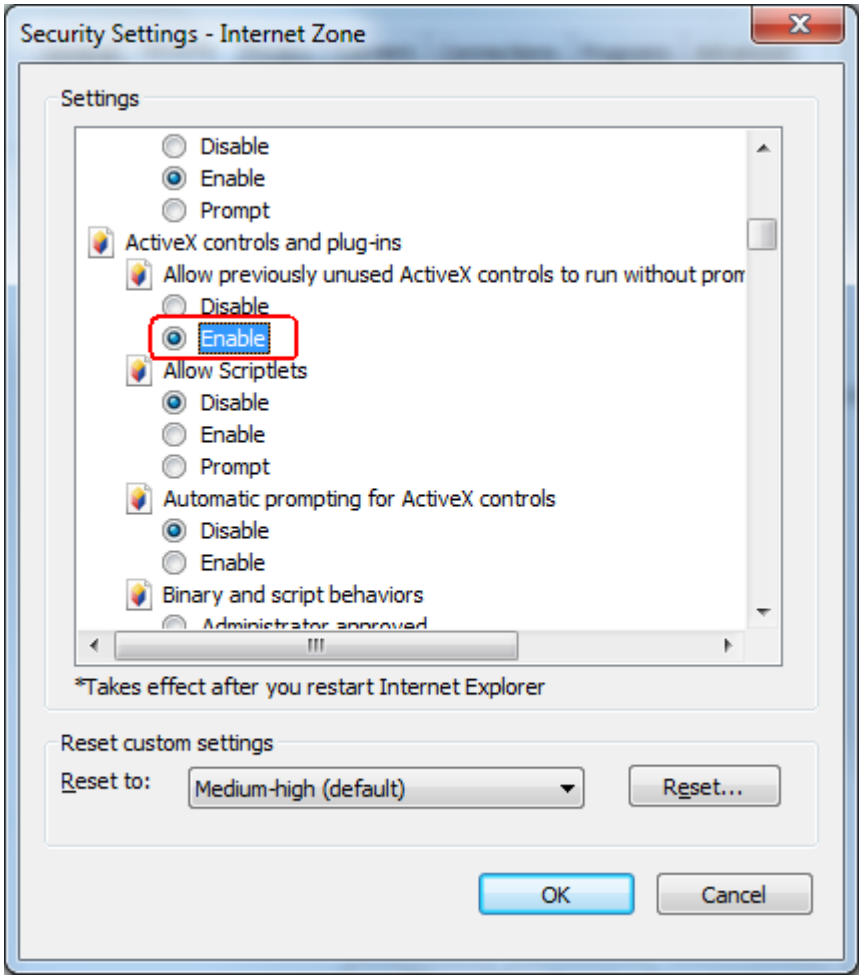
1. Open Internet Explorer.
2. Choose **Tools** > **Internet Options**.
3. Click the **Security** tab.
4. Click **Internet** > **Custom level** as shown in Figure 7-3. After set **Internet**, please set **Local intranet** in the same method.

Figure 7-3 Internet Explorer security (1)



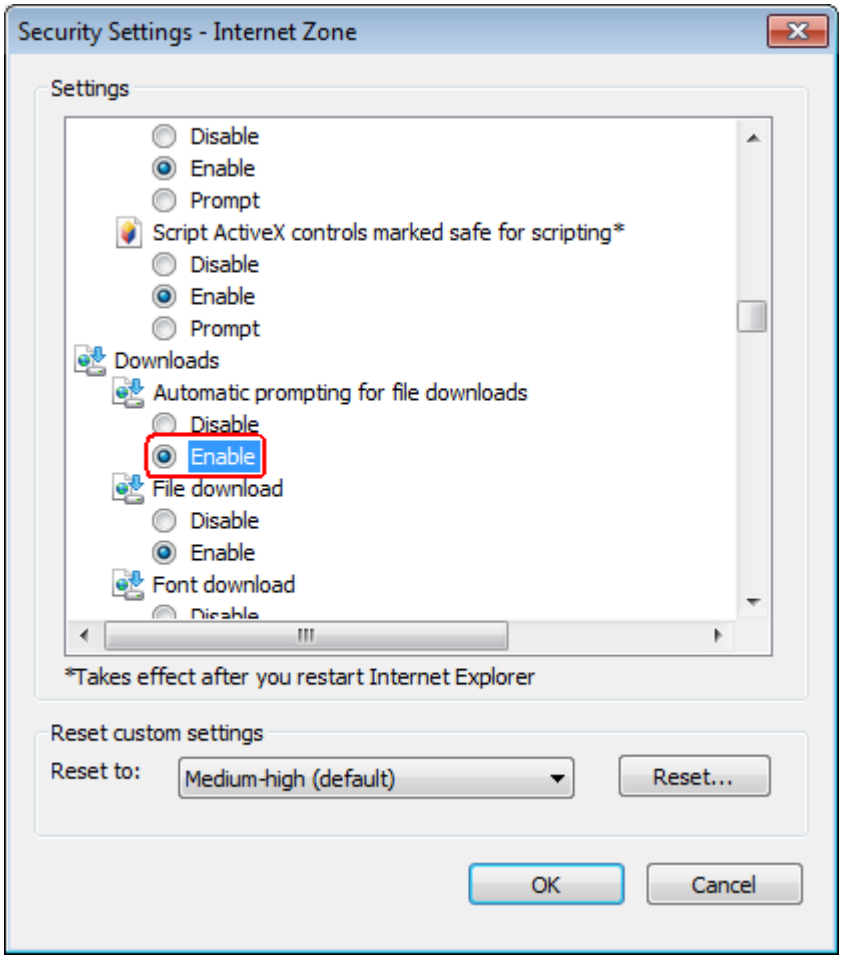
5. Enable **Allow previously unused ActiveX controls to run without prompt**, as shown in Figure 7-4.

Figure 7-4 Setting Internet Explorer security (1)



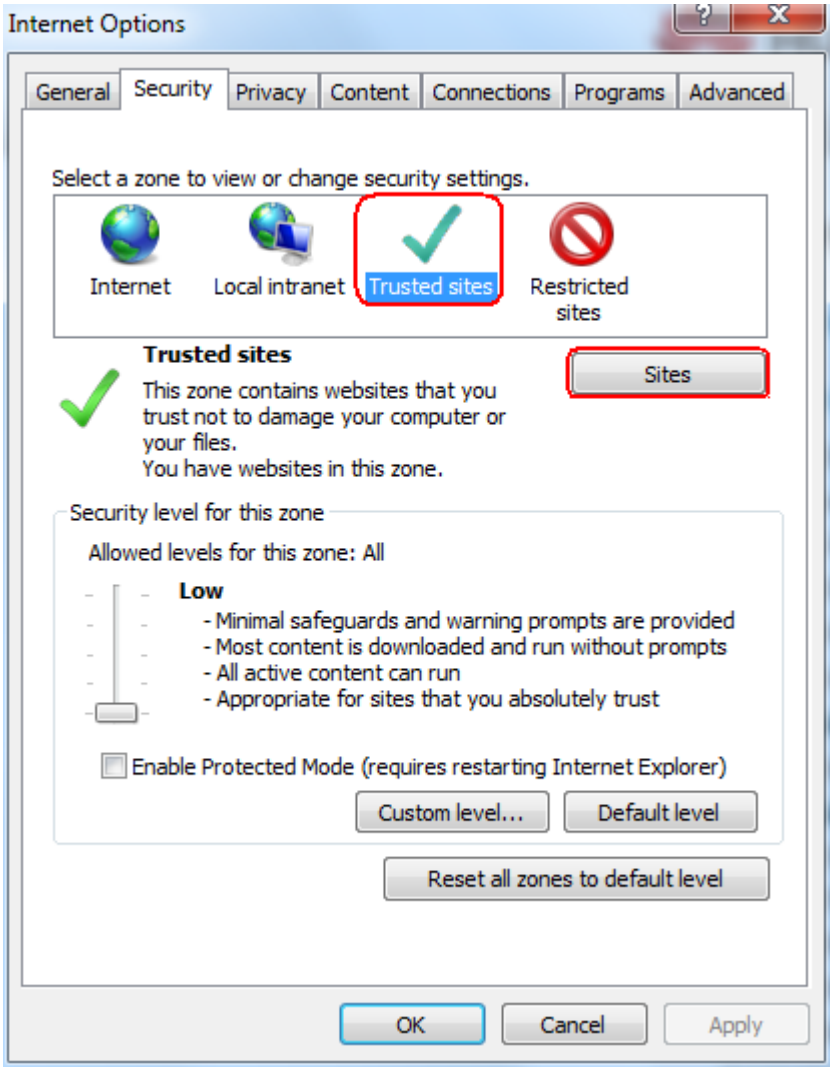
6. Enable **Automatic prompting for file downloads**, as shown in Figure 7-5.

Figure 7-5 Setting Internet Explorer security (2)



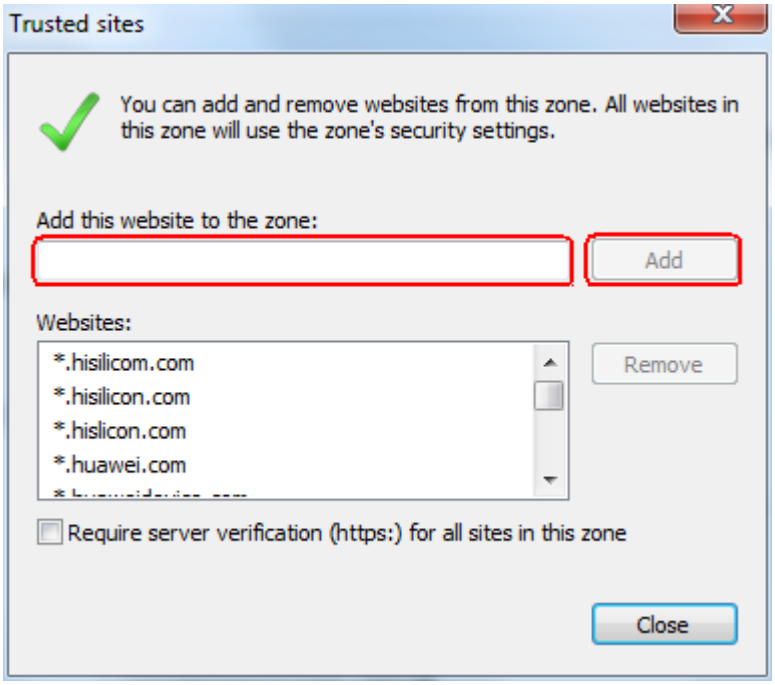
7. Select **Security** and click **Sites** in **Trusted sites**, as shown in Figure 7-6.

Figure 7-6 Internet Explorer security (2)



8. After entering the Web address (namely, the IP address for the SmartLogger), click **Add**, as shown in Figure 7-7.

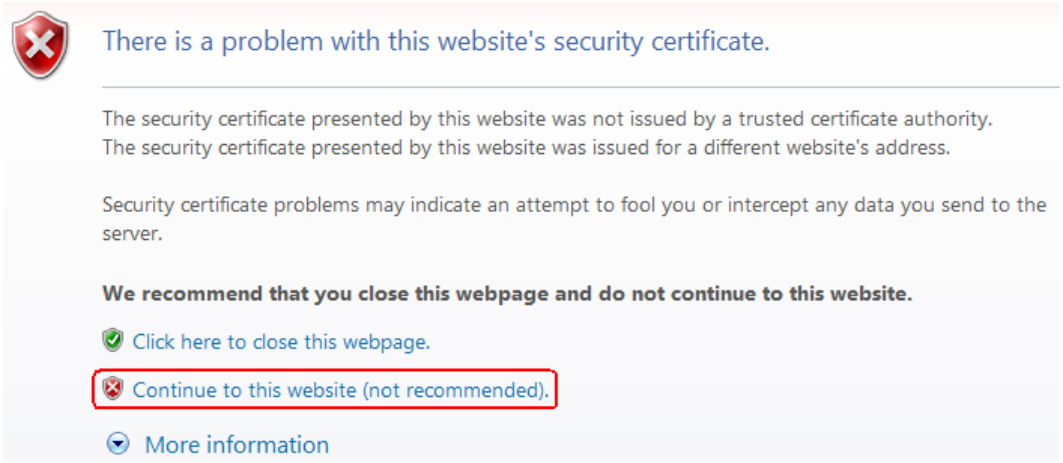
Figure 7-7 Internet Explorer security (3)



Installing a Security Certificate

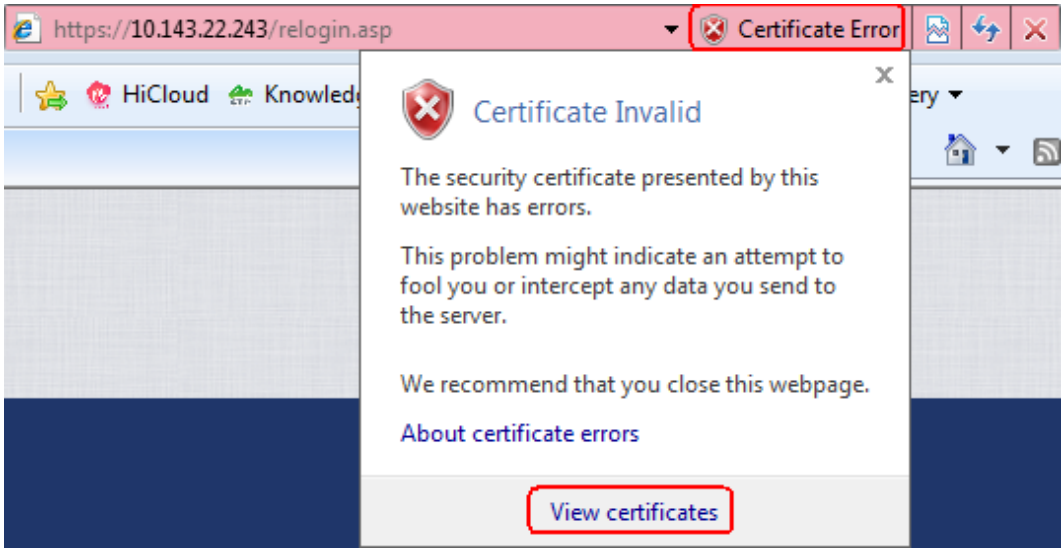
1. If you log in to the WebUI for the first time, a message as shown in Figure 7-8 is displayed. Click **Continue to this website**.

Figure 7-8 Installing the security certificate (1)



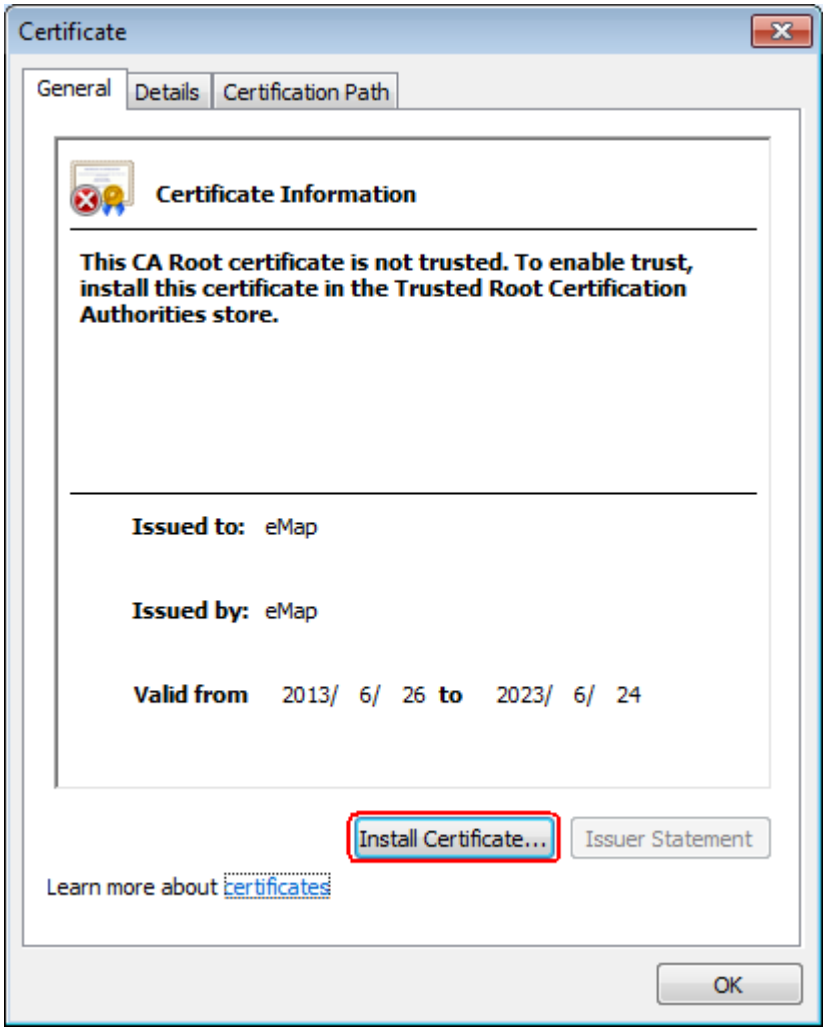
2. Click **Certificate Error** on the right of the address bar and choose **View certificates**, as shown in Figure 7-9.

Figure 7-9 Installing the security certificate (2)



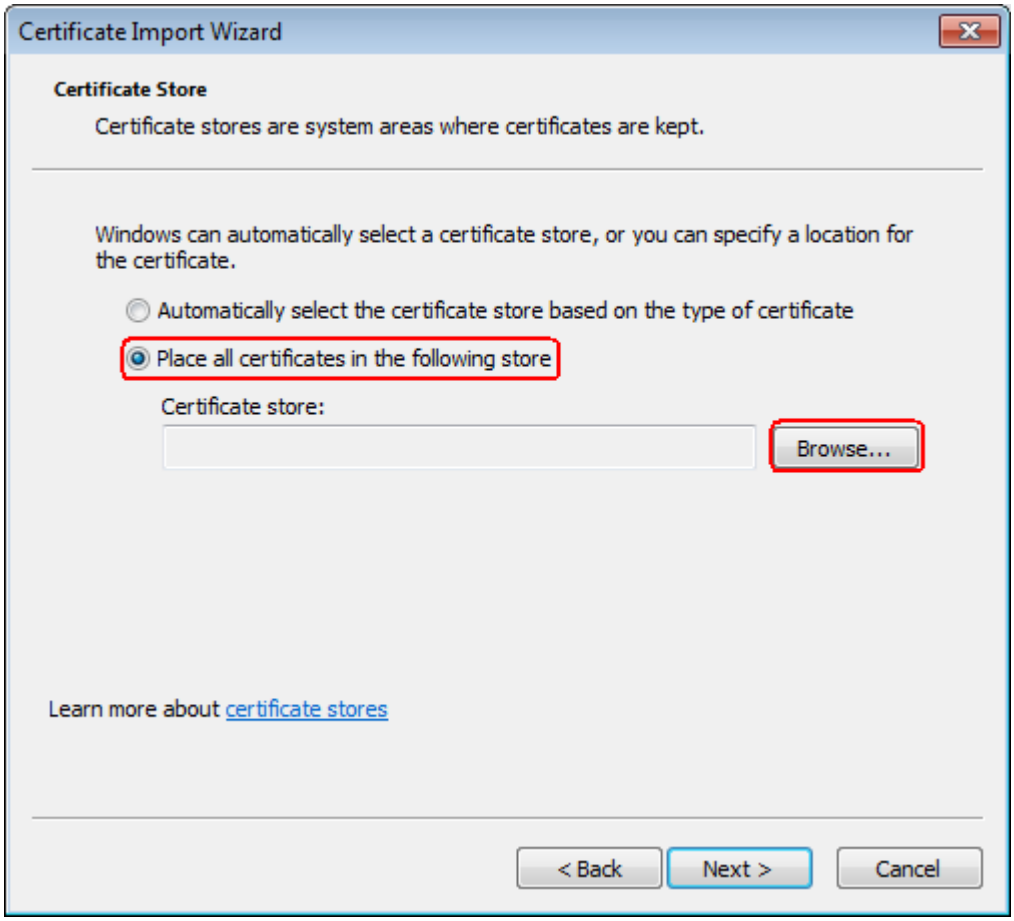
3. Click **Install Certificate**, as shown in Figure 7-10.

Figure 7-10 Installing the security certificate (3)



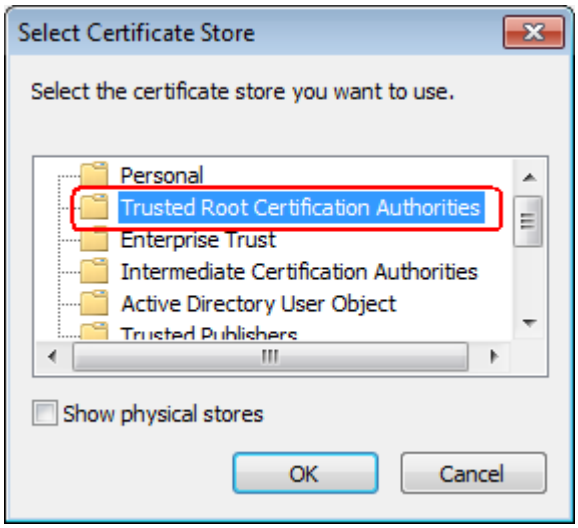
4. Click **Next**.
5. Select **Place all certificates in the following store** and click **Browse**, as shown in Figure 7-11.

Figure 7-11 Installing the security certificate (4)



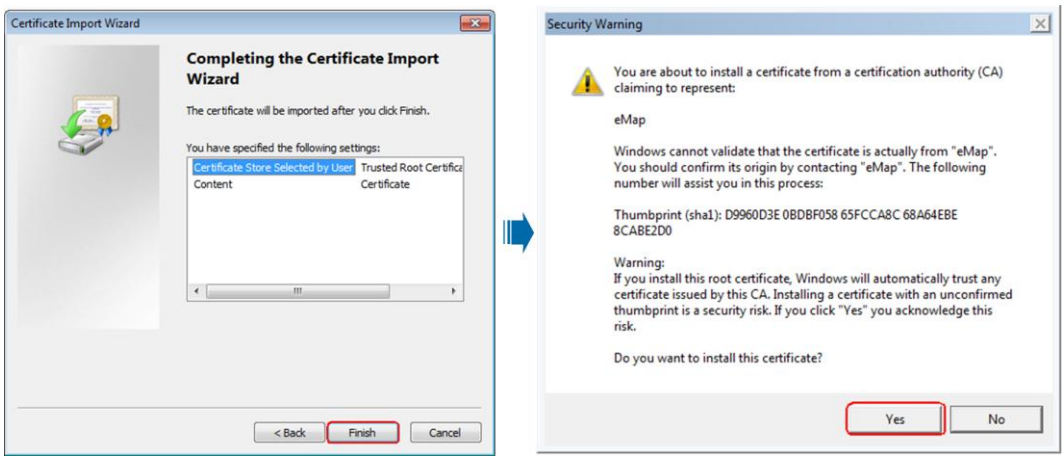
6. Select **Trusted Root Certification Authorities** and click **OK**, as shown in Figure 7-12.

Figure 7-12 Installing the security certificate (5)



7. Click **Next**.
8. Click **Finish**. A security warning dialog box is displayed. Click **Yes**, as shown in Figure 7-13.

Figure 7-13 Installing the security certificate (6)



7.2 Logging In to the WebUI

This topic describes how to log in to the WebUI.

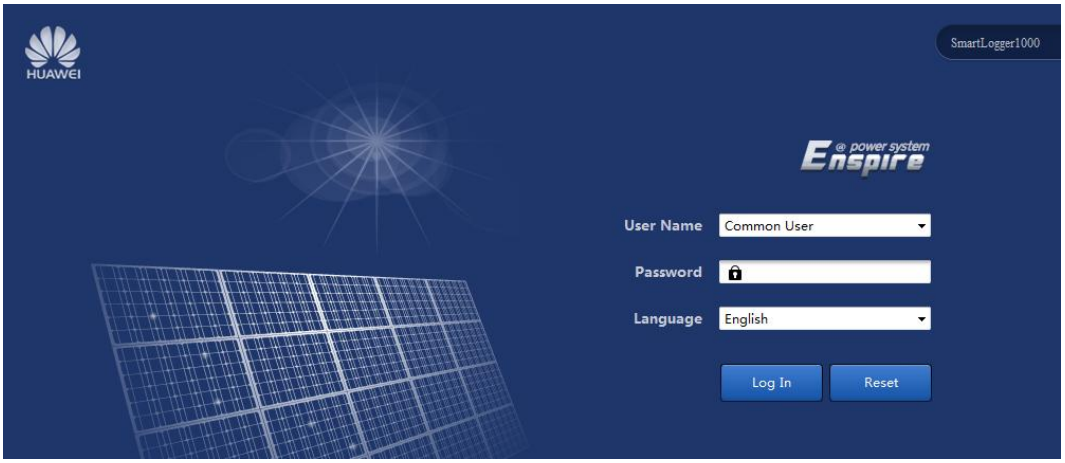
Procedure

Step 1 Connect the SmartLogger to a PC directly or over the Internet. For details about this operation, see 4.5 Connecting the SmartLogger to a PC.

Step 2 Set the IP address, subnet mask, and gateway on the LCD of the SmartLogger.

Step 3 Enter the IP address for the SmartLogger in the browser, enter the correct **User name** and **Password**, and select **Language**. Click **Login** to enter the main page, as shown in Figure 7-14.

Figure 7-14 Login page of the WebUI



NOTE

- There are three roles of the system user: **Common User**, **Advanced User** and **Special User**. The initial password for **Common User**, **Advanced User** and **Special User** is *000001*.
- If you enter a wrong password for six times in five minutes, a message "Repeat check fail several times, this account have been locked, please login after an hour!" is displayed.
- If you log in to the SmartLogger for the first time, use the initial password to log in and change the password immediately to ensure the account security.

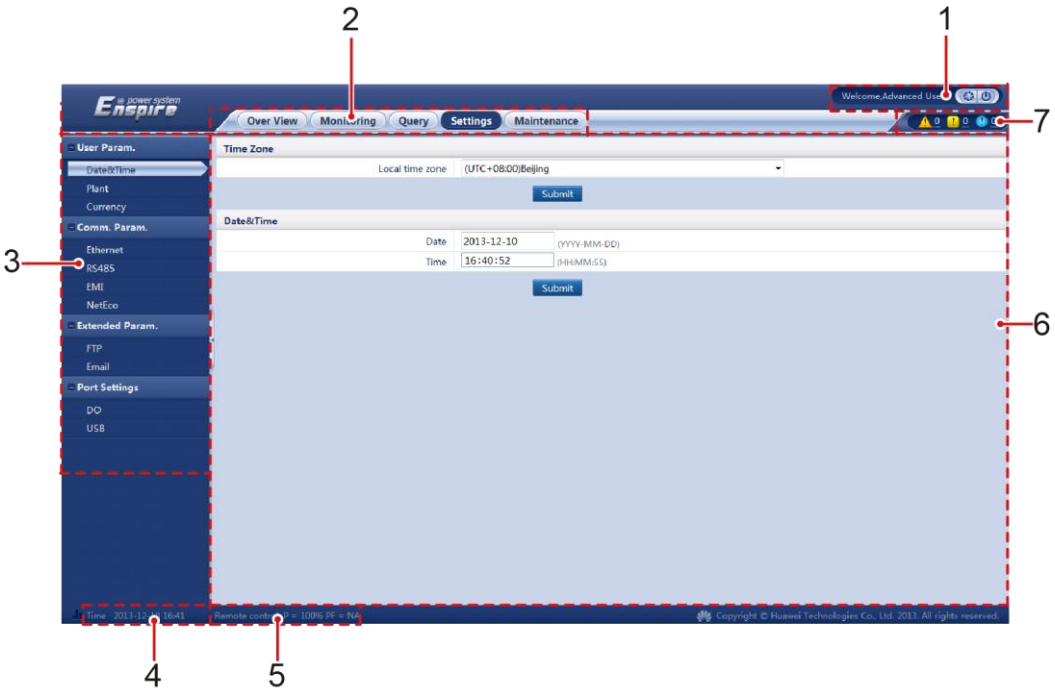
----End

7.3 WebUI Layout

This section describes the layout of the WebUI.

Figure 7-15 shows the layout of the WebUI.

Figure 7-15 WebUI layout



describes the layout of the WebUI shown in Figure 7-15.

Table 7-1 WebUI layout description

No.	Functions	Description
1	User name	Role of the login user
2	Primary navigation menu	Click the corresponding primary navigation menu before you perform any operation on the WebUI.
3	Secondary navigation menu	Under the primary navigation menu, choose the device to be queried or the parameter to be set under the secondary navigation menu.
4	System time	Displays the current system time.
5	Power grid scheduling	Displays the current power grid scheduling mode of the system.
6	Page of parameter details	Displays details of the queried information or the parameter setting.
7	Alarm icon	Displays the severities and number of alarms in the system. You can enter the alarm page by clicking the number.

NOTE

7.4 WebUI Menu shows the menu tree of the WebUI.

7.4 WebUI Menu

This topic describes the WebUI menu, which allows you to perform operations conveniently.

The WebUI menu consists of five parts: **Over View**, **Monitoring**, **Query**, **Settings** and **Maintenance**. Different identities (**Common User**, **Advanced User**, and **Special User**) have different permissions for setting parameters and maintenance, as shown in Figure 7-16 and Figure 7-17.

Figure 7-16 Structure of the main menu

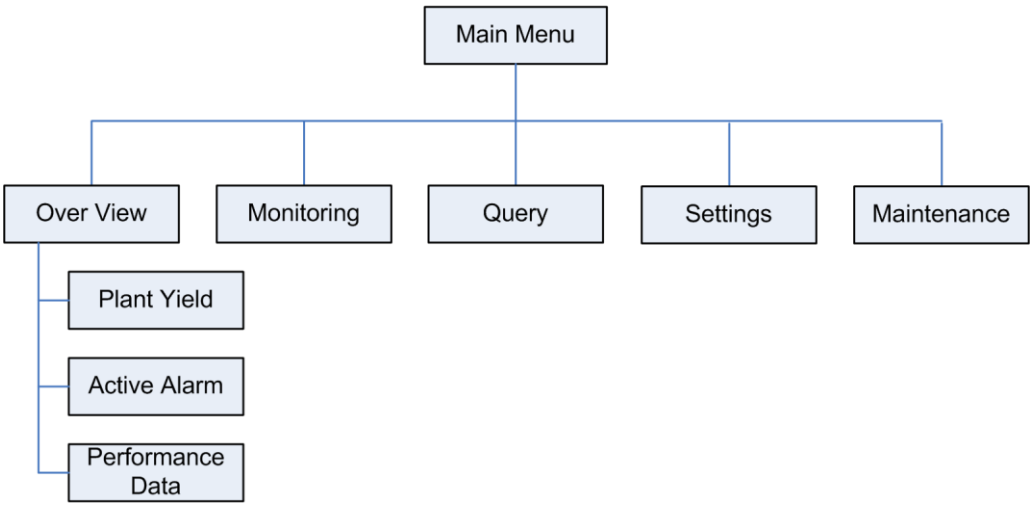


Figure 7-17 shows the information available on the **Monitoring** tab page based on user rights.

Figure 7-17 Information available on the Monitoring tab page based on user rights

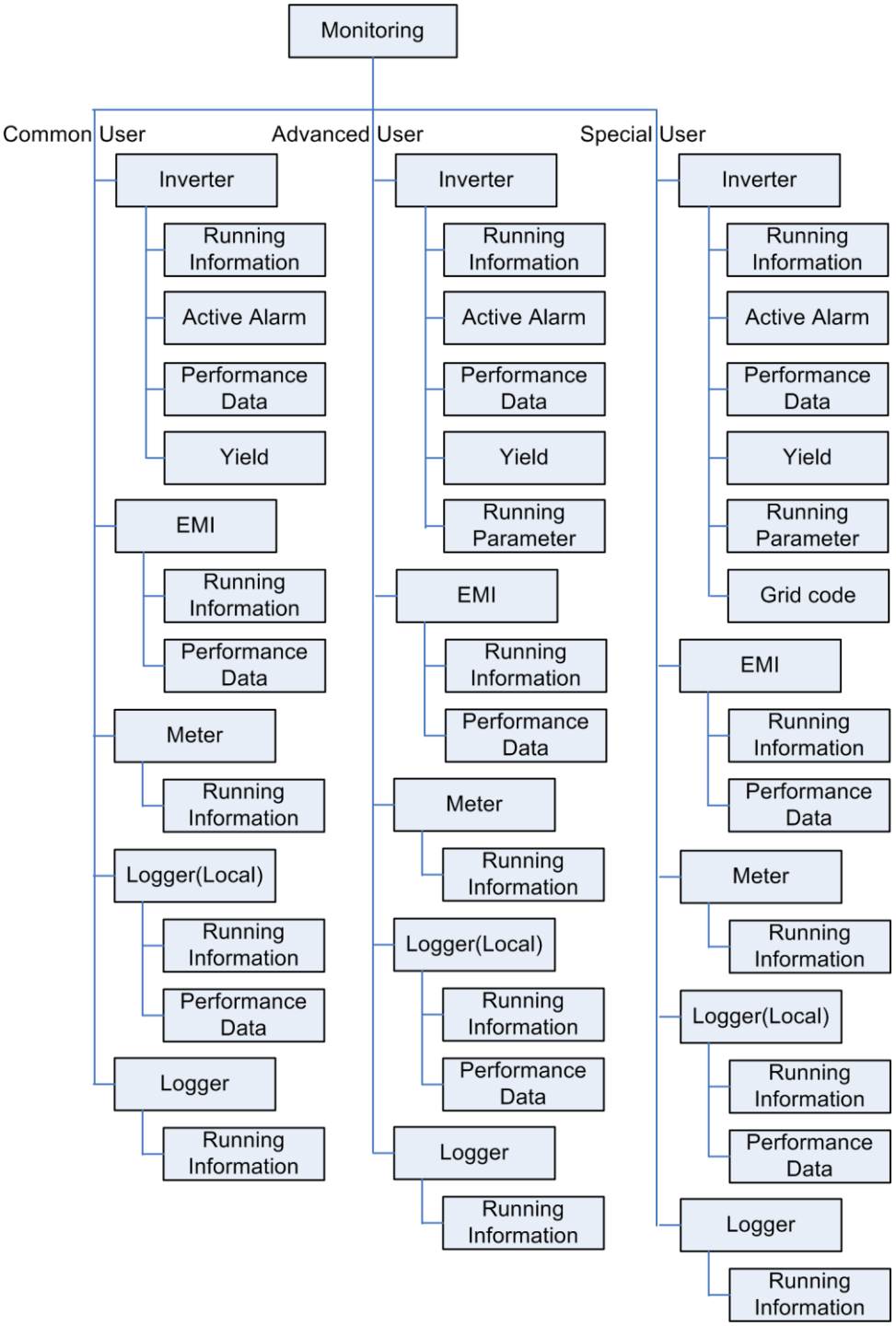


Figure 7-18 shows the information available on the **Query** tab page based on user rights.

Figure 7-18 Information available on the Query tab page based on user rights

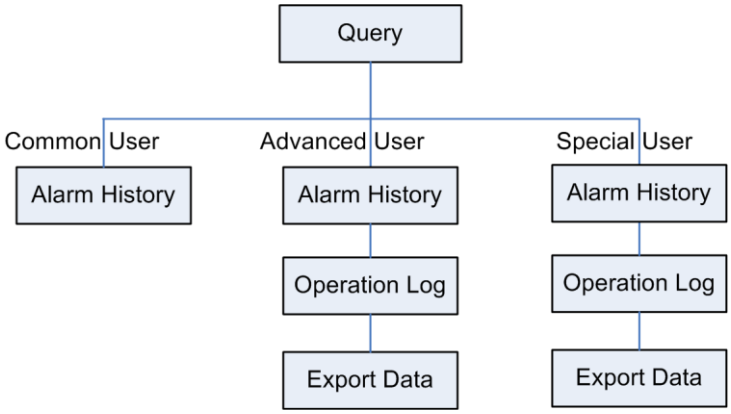


Figure 7-19 shows the information available on the **Settings** tab page based on user rights.

Figure 7-19 Information available on the Settings tab page based on user rights

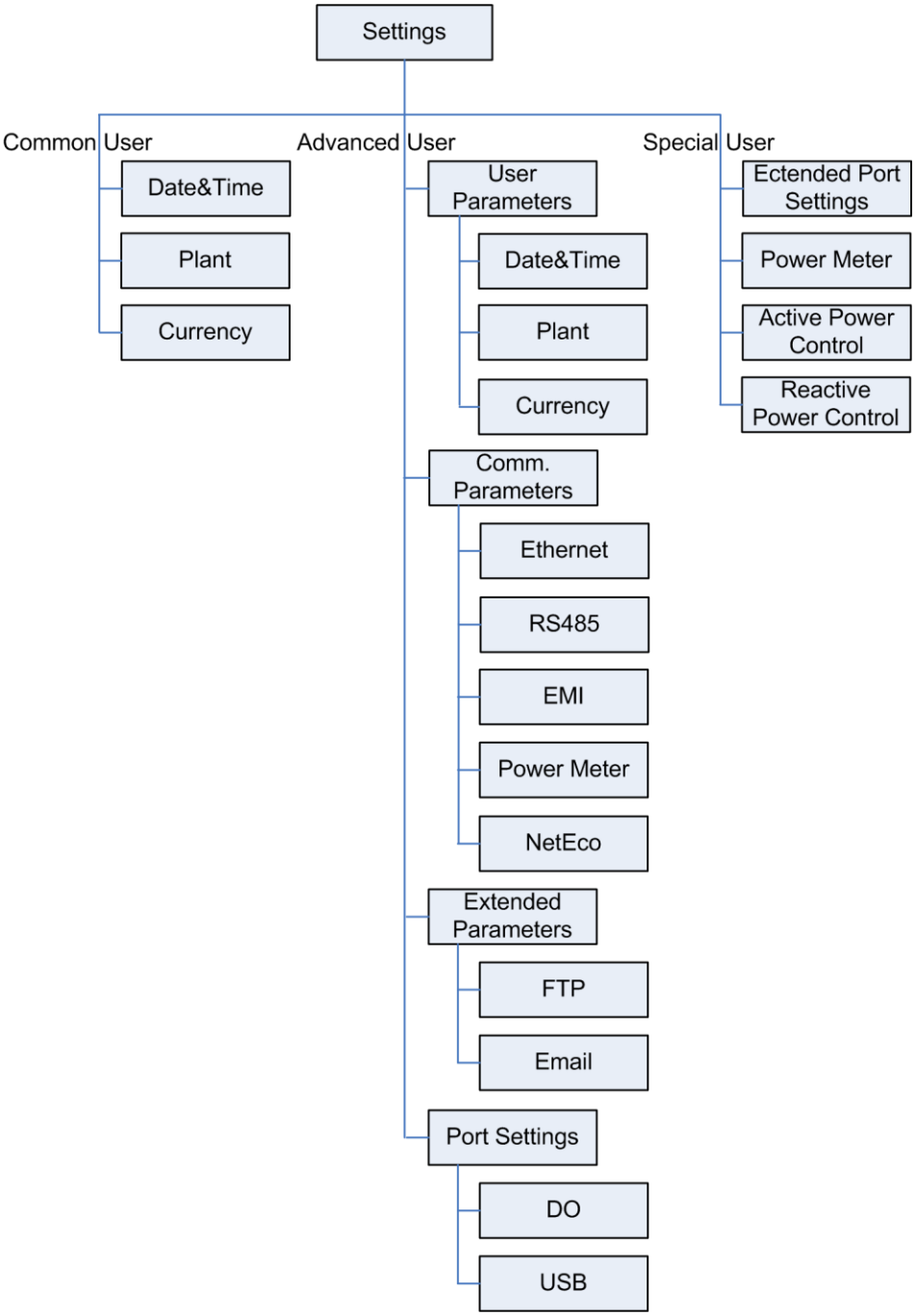
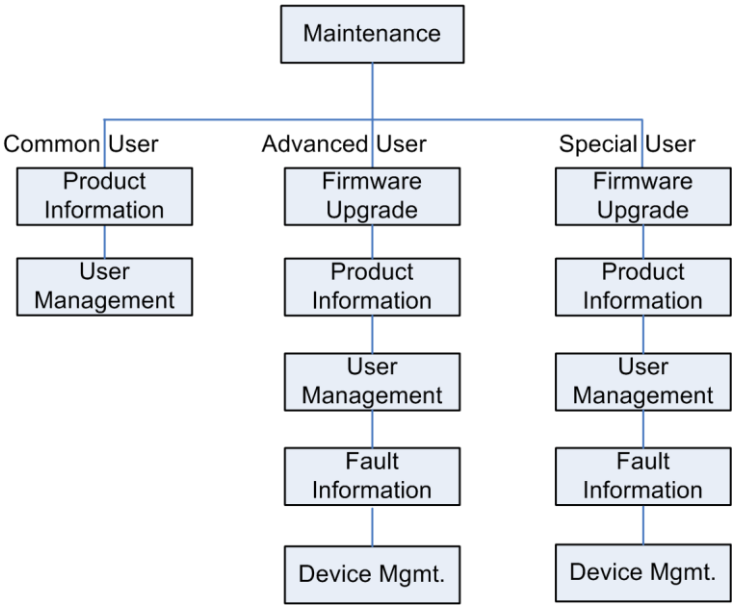


Figure 7-20 shows the information available on the **Maintenance** tab page based on user rights.

Figure 7-20 Information available on the Maintenance tab page based on user rights



7.5 Querying System Energy Yield

This topic describes how to query system energy yield, including the daily, monthly, annual, historical, and total energy yield, over the WebUI.

On the **Over View** tab page, click **Plant Yield** and query the system energy yield.

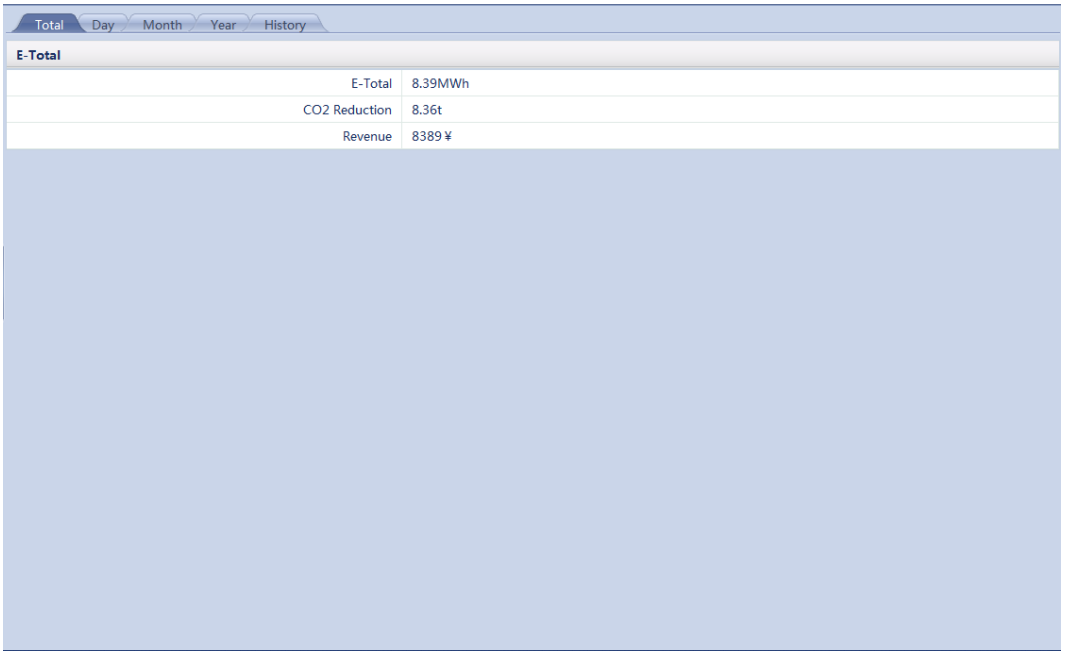
NOTE

When you query system energy yield, select a date from the **Time** drop-down list box or adjust the date by clicking the buttons on both sides of the drop-down list box.

Total Energy Yield

On the **Total** tab page, **E-Total**, **CO_2 Reduction**, and **Revenue** are displayed, as shown in Figure 7-21.

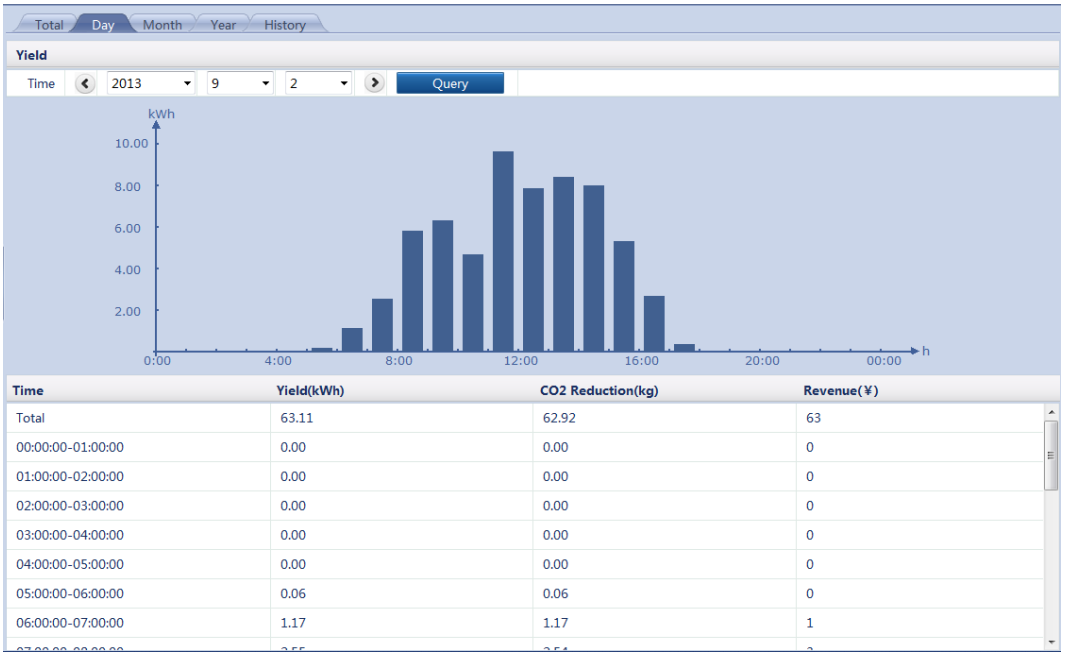
Figure 7-21 Total energy yield



Daily Energy Yield

On the **Day** tab page, set **Time** and click **Query**. The daily and hourly energy yield are displayed, as shown in Figure 7-22.

Figure 7-22 Daily energy yield



The following information is displayed: energy yield column graph, hourly energy yield, CO_2 emission reduction, revenue, and total values.

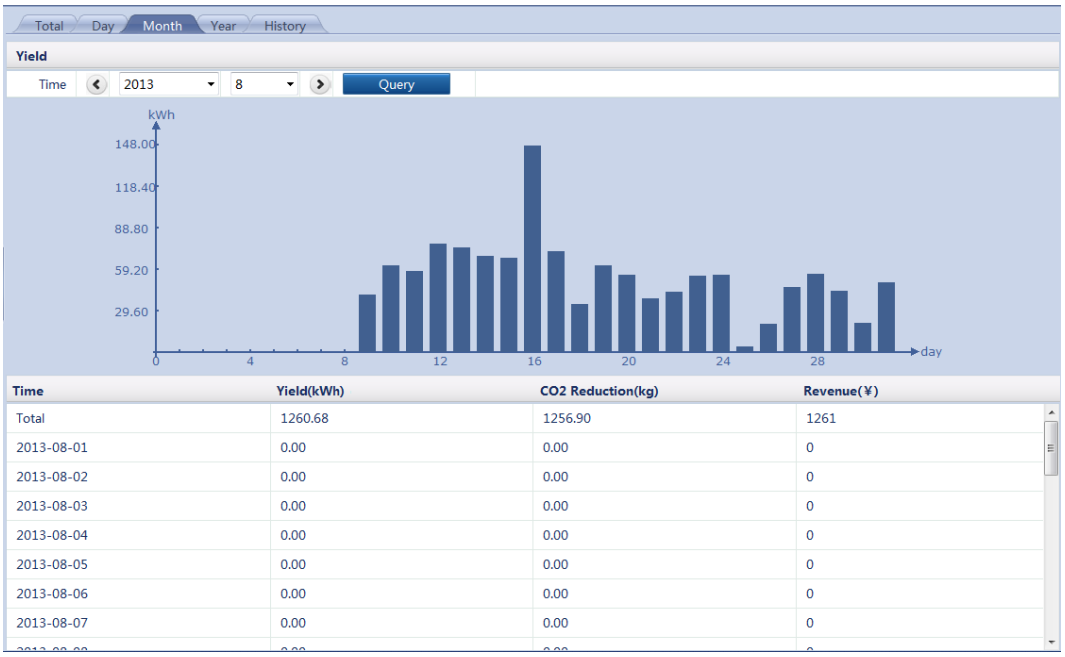
NOTE

In the daily energy yield column graph, the horizontal axis indicates time (by hour), and the vertical axis indicates energy yield. Each column indicates the total energy yield within an hour before an integer time point.

Monthly Energy Yield

On the **Month** tab page, set **Time** and click **Query**. The monthly and daily energy yield are displayed, as shown in Figure 7-23.

Figure 7-23 Monthly energy yield



Time	Yield(kWh)	CO2 Reduction(kg)	Revenue(¥)
Total	1260.68	1256.90	1261
2013-08-01	0.00	0.00	0
2013-08-02	0.00	0.00	0
2013-08-03	0.00	0.00	0
2013-08-04	0.00	0.00	0
2013-08-05	0.00	0.00	0
2013-08-06	0.00	0.00	0
2013-08-07	0.00	0.00	0

The following information is displayed: energy yield column graph, daily energy yield, CO_2 emission reduction, revenue, and total values.

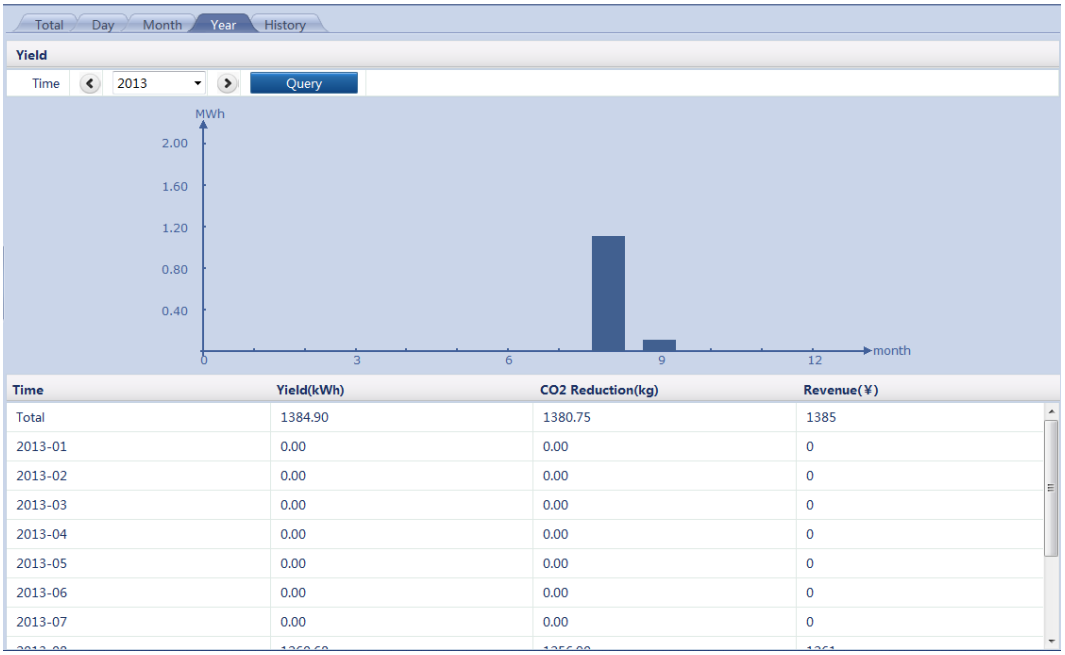
NOTE

In the monthly energy yield column graph, the horizontal axis indicates time (by day), and the vertical axis indicates energy yield. Each column indicates the total energy yield of a day.

Annual Energy Yield

On the **Year** tab page, set **Time** and click **Query**. The annual and monthly energy yield are displayed, as shown in Figure 7-24.

Figure 7-24 Annual energy yield



Time	Yield(kWh)	CO2 Reduction(kg)	Revenue(¥)
Total	1384.90	1380.75	1385
2013-01	0.00	0.00	0
2013-02	0.00	0.00	0
2013-03	0.00	0.00	0
2013-04	0.00	0.00	0
2013-05	0.00	0.00	0
2013-06	0.00	0.00	0
2013-07	0.00	0.00	0

The following information is displayed: energy yield column graph, monthly energy yield, CO_2 emission reduction, revenue, and total values.

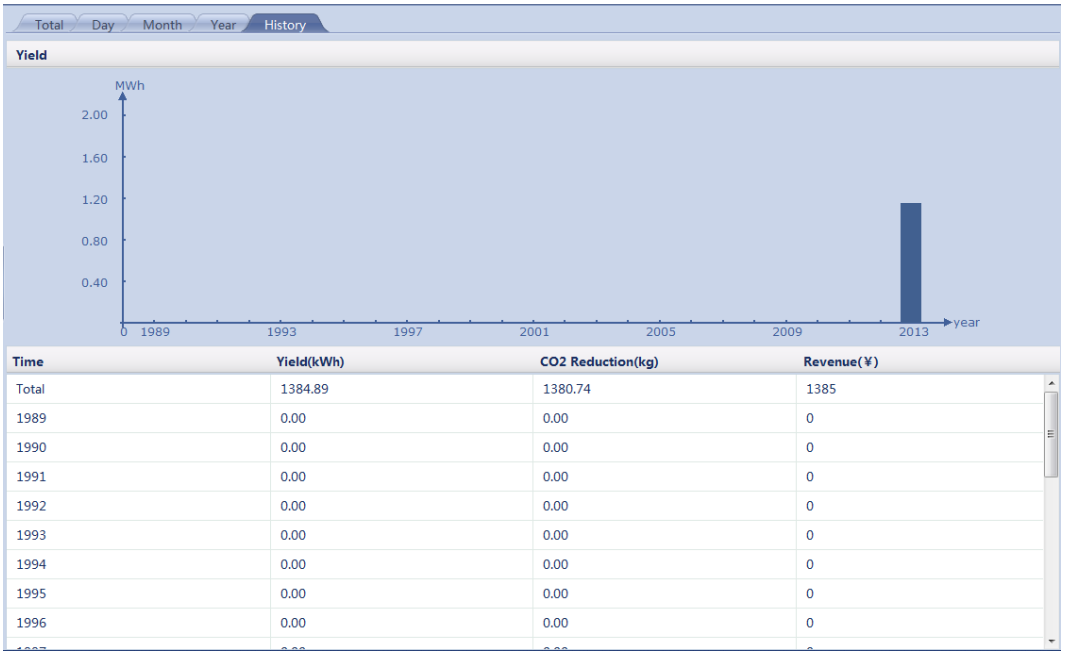
NOTE

In the annual energy yield column graph, the horizontal axis indicates time (by month), and the vertical axis indicates energy yield. Each column indicates the total energy yield of a month.

Historical Energy Yield

On the **History** tab page, the total and annual energy yield of the past 25 years are displayed, as shown in Figure 7-25.

Figure 7-25 Historical energy yield



Time	Yield(kWh)	CO2 Reduction(kg)	Revenue(¥)
Total	1384.89	1380.74	1385
1989	0.00	0.00	0
1990	0.00	0.00	0
1991	0.00	0.00	0
1992	0.00	0.00	0
1993	0.00	0.00	0
1994	0.00	0.00	0
1995	0.00	0.00	0
1996	0.00	0.00	0

The following information is displayed: energy yield column graph, annual energy yield, CO_2 emission reduction, revenue, and total values.

NOTE

In the historical energy yield column graph, the horizontal axis indicates time (by year), and the vertical axis indicates energy yield. Each column indicates the total energy yield of a year.

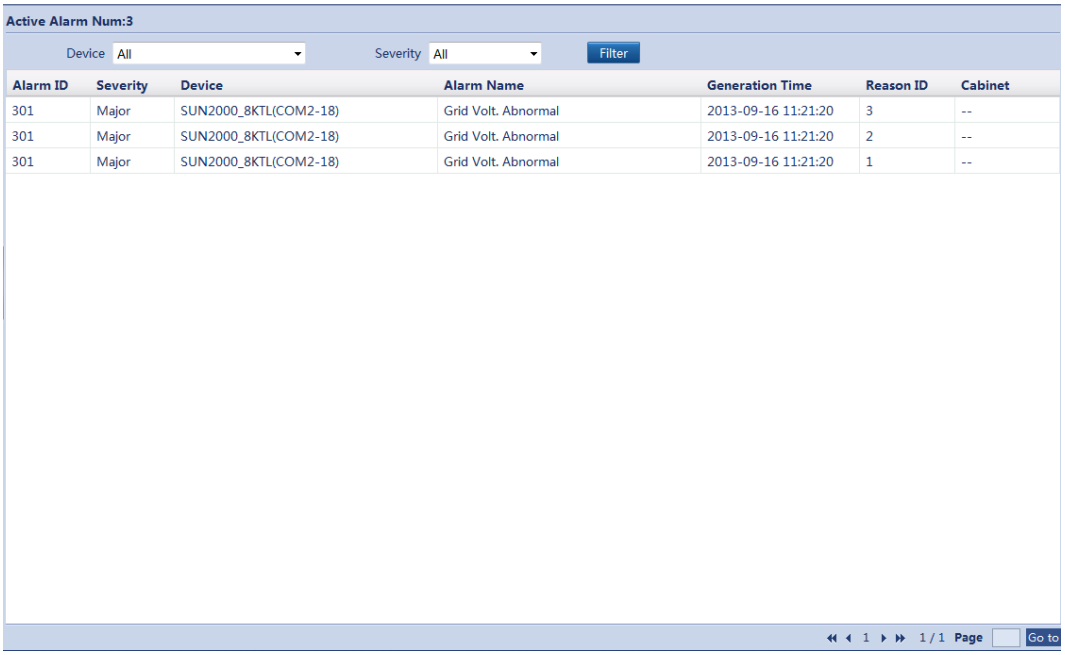
7.6 Querying Current Active Alarms in the System

This topic describes how to query the current active alarms in the system and details about the alarms over the WebUI.

On the **Over View** tab page, choose **Active Alarm** to access the active-alarm query page. You can query the information about all the current active alarms in the system on this page, including the values of **Alarm ID**, **Severity**, **Equipment**, **Alarm Name**, **Generation Time**, **Reason ID**, and **Cabinet**.

On the **Active Alarm** tab page, choose the equipment to be queried and alarm severity and click **Filter**, as shown in Figure 7-26.

Figure 7-26 Active system alarm



NOTE

You can also quickly determine the severity and quantity of current active alarms by viewing the alarm icons and values in the upper right corner of the WebUI. By clicking a value behind an alarm icon, you can directly access the active system alarm page.

7.7 Querying System Performance Data

This topic describes how to query system performance data, display system performance data in a table or curve, and export system performance data over the WebUI.

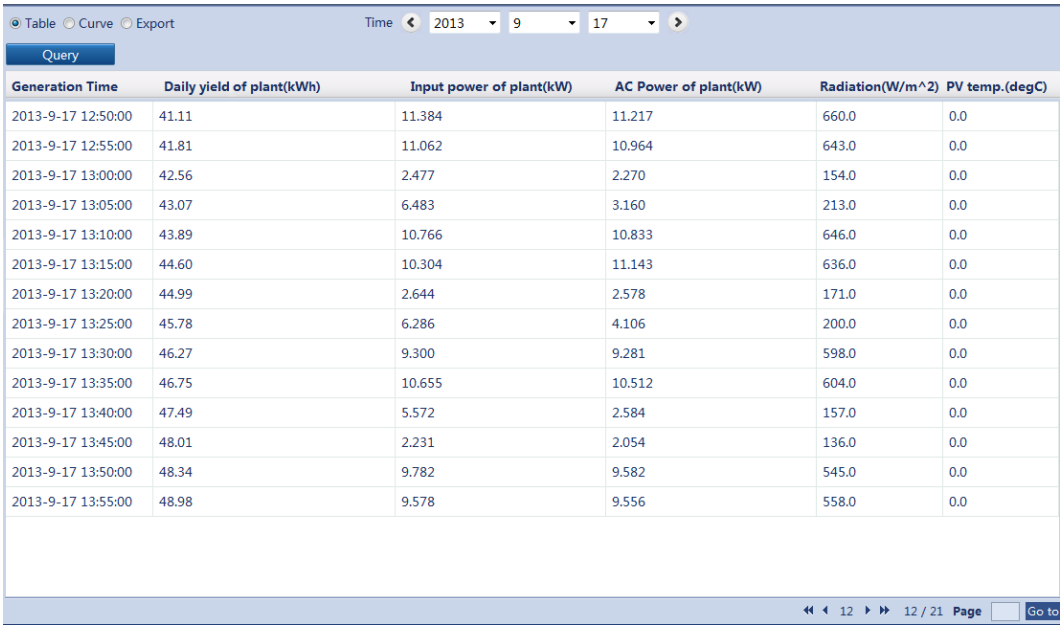
On the **Over View** tab page, click **Performance Data**. The performance data querying page is displayed.

NOTE

When you query system performance data, select a date from the **Time** drop-down list box or adjust the date by clicking the buttons on both sides of the drop-down list box.

Select **Table**, set **Time**, and click **Query**. You can query the values of various performance parameters, such as **Generation Time**, **Day yield of plant** and **AC Power of plant**, as shown in Figure 7-28.

Figure 7-27 Performance data displayed in a table



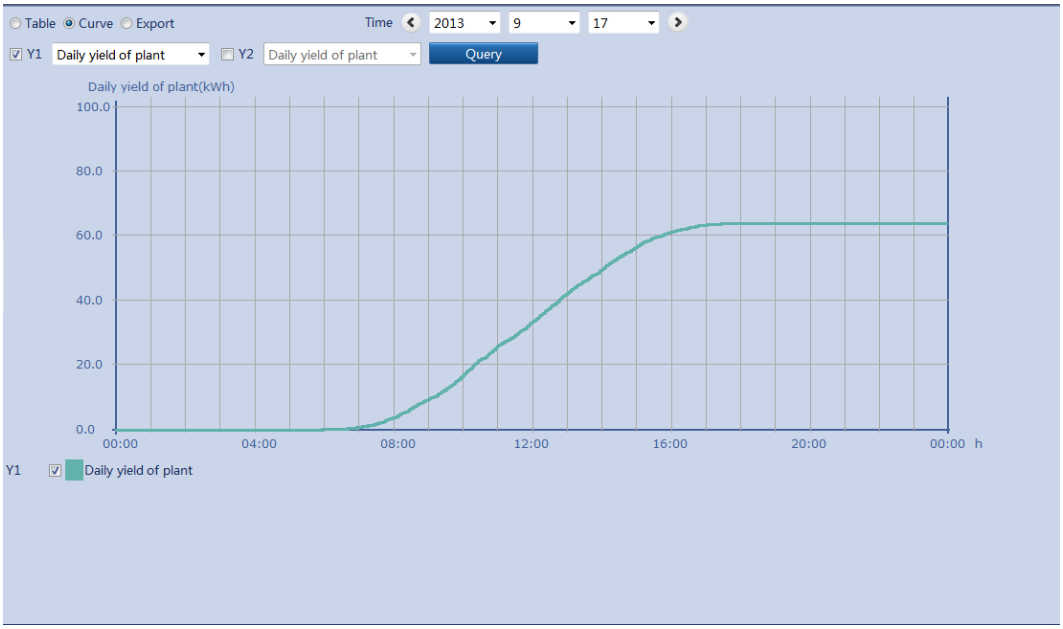
NOTE

Select **Curve**, set **Time**, **Y1**, and **Y2**, and click **Query**, as shown in Figure 7-28.

NOTICE

You can compare the curves of two parameters by selecting **Y1** and **Y2** at the same time. However, the values of **Y1** and **Y2** must be different.

Figure 7-28 Performance data displayed in a curve



Select **Export** and click **Export**. Performance data is exported, as shown in Figure 7-29.

Figure 7-29 Exporting performance data

NOTICE

When changing the name of the exported files, retain the extension **.tar.gz**. Otherwise, the file cannot be functional.

7.8 Querying the Master SmartLogger Running Information

This topic describes how to query the Master SmartLogger running information over the WebUI.

On the **Monitoring** tab page, select a Master SmartLogger, and click **Running Information**. The corresponding **SN**, **Version**, and **IP Address** are displayed, as shown in Figure 7-30.

Figure 7-30 Master SmartLogger running information

Running Info. | Active Alarm

No.	Signal Name	Value	Unit
1	SN	2102310QHU10D3000003	
2	Version	V100R001C92	
3	IP Address	10.143.22.243	
4	NMS1 IP	NA	
5	NMS2 IP	NA	
6	NMS3 IP	NA	
7	AI1/AI2/AI3/AI4 Current	NA/NA/NA/NA	mA
8	AO1/AO2/AO3/AO4/AO5 Feedback current	0.000/0.000/0.000/0.000/0.000	mA
9	DI1/DI2/DI3/DI4(GND1)	0/0/1/0	
10	DI1/DI2/DI3/DI4(GND2)	1/0/0/0	
11	DO1/DO2/DO3	0/0/0	

7.9 Querying the Active Alarms of the Master SmartLogger

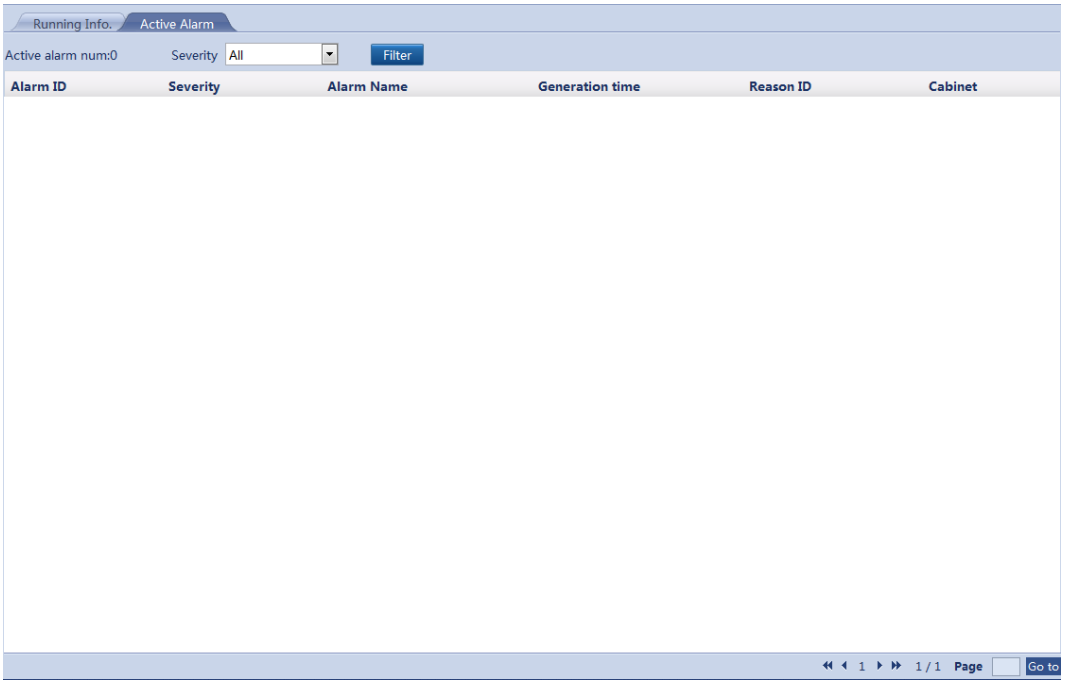
This topic describes how to query the active alarms of the Master SmartLogger and details about the alarms over the WebUI.

On the **Monitoring** tab page, select the Master SmartLogger to be queried and click **Active Alarm** to access the active-alarm query page. You can query the information about all the

active alarms of the selected SmartLogger on this page, including the values of **Alarm ID**, **Severity**, **Alarm Name**, **Generation Time**, **Reason ID**, and **Cabinet**.

On the **Active Alarm** tab page, choose an alarm severity and click **Filter**, as shown in Figure 7-31.

Figure 7-31 Active alarms of the Master SmartLogger

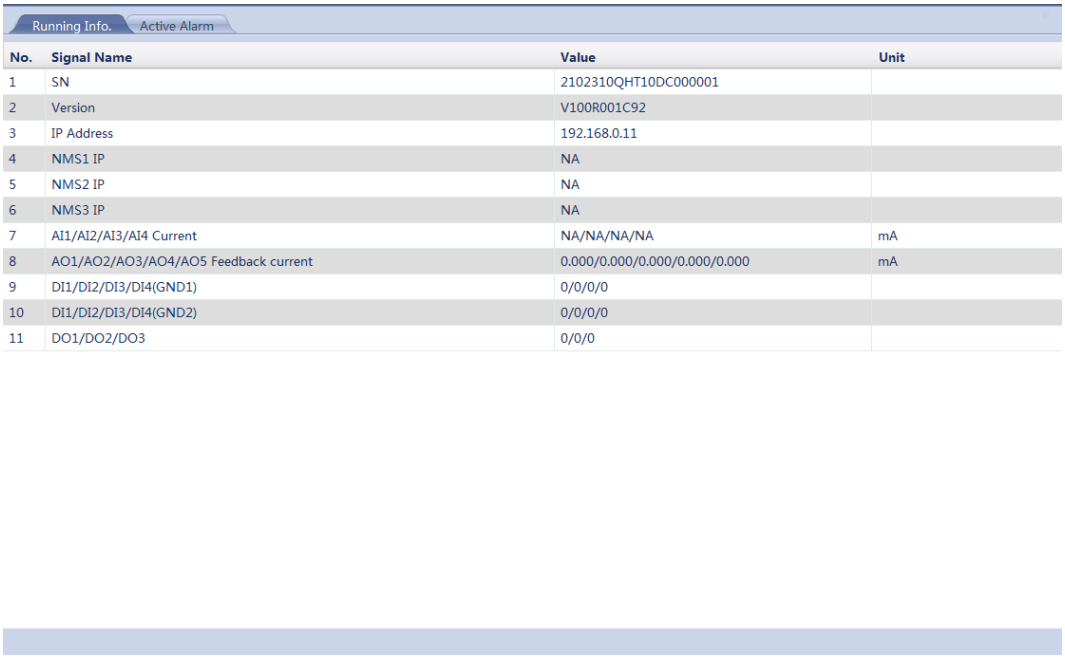


7.10 Querying the Slave SmartLogger Running Information

This topic describes how to query the Slave SmartLogger running information over the WebUI.

On the **Monitoring** tab page, select a Slave SmartLogger, and click **Running Information**. The corresponding **SN**, **IP Address**, and **Online Status** are displayed, as shown in Figure 7-32.

Figure 7-32 Slave SmartLogger running information



Running Info. | Active Alarm

No.	Signal Name	Value	Unit
1	SN	2102310QHT10DC000001	
2	Version	V100R001C92	
3	IP Address	192.168.0.11	
4	NMS1 IP	NA	
5	NMS2 IP	NA	
6	NMS3 IP	NA	
7	AI1/AI2/AI3/AI4 Current	NA/NA/NA/NA	mA
8	AO1/AO2/AO3/AO4/AO5 Feedback current	0.000/0.000/0.000/0.000/0.000	mA
9	DI1/DI2/DI3/DI4(GND1)	0/0/0/0	
10	DI1/DI2/DI3/DI4(GND2)	0/0/0/0	
11	DO1/DO2/DO3	0/0/0	

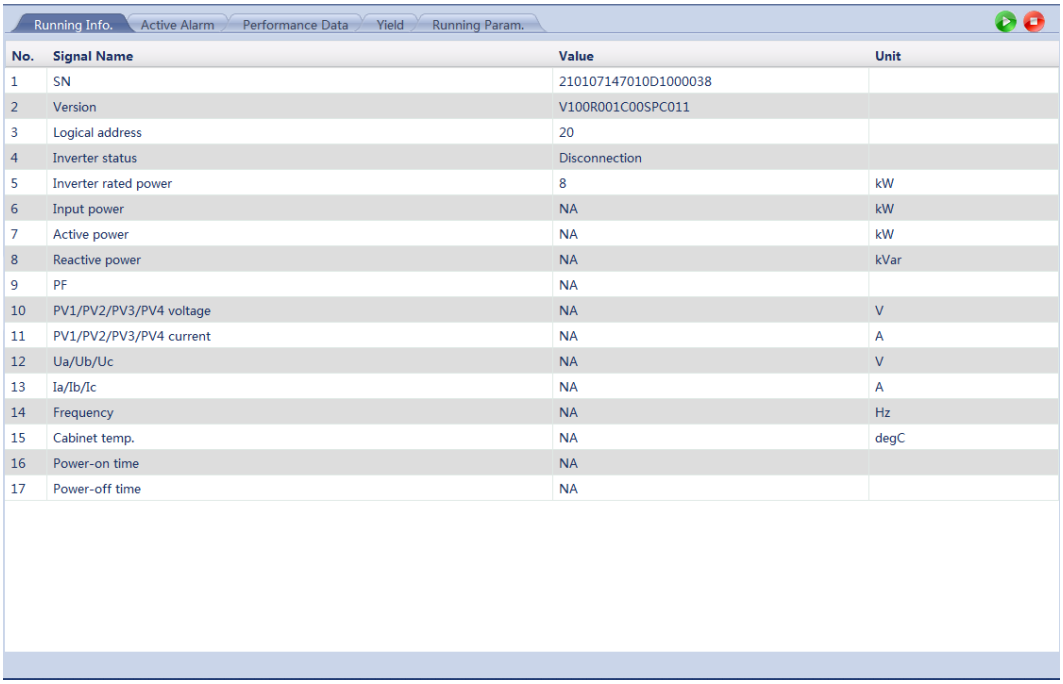
7.11 Querying Running Information of Inverters

This topic describes how to query running information, including SN, Version, and Devices Status, of inverters over the WebUI.

Querying Running Information

On the **Monitoring** tab page, select an inverter, and click **Running Information**. **SN**, **Version**, and **Devices Status** are displayed, as shown in Figure 7-33.

Figure 7-33 Running information of an inverter



No.	Signal Name	Value	Unit
1	SN	210107147010D1000038	
2	Version	V100R001C00SPC011	
3	Logical address	20	
4	Inverter status	Disconnection	
5	Inverter rated power	8	kW
6	Input power	NA	kW
7	Active power	NA	kW
8	Reactive power	NA	kVar
9	PF	NA	
10	PV1/PV2/PV3/PV4 voltage	NA	V
11	PV1/PV2/PV3/PV4 current	NA	A
12	Ua/Ub/Uc	NA	V
13	Ia/Ib/Ic	NA	A
14	Frequency	NA	Hz
15	Cabinet temp.	NA	degC
16	Power-on time	NA	
17	Power-off time	NA	

Querying Device Status

Names and status of devices connected to the SmartLogger are displayed in the left pane of the **Monitoring** tab page.

The indicator in front of the device name indicates the current status of a device.

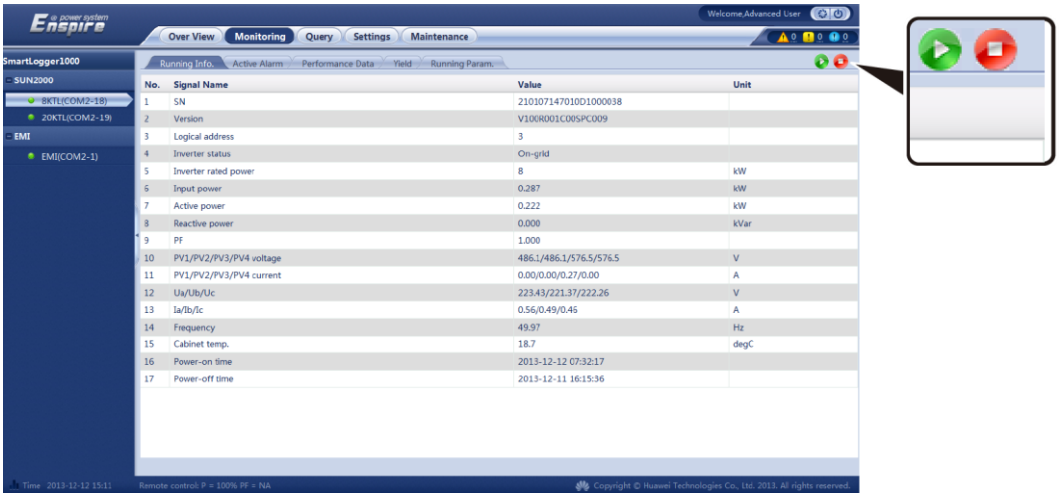
- When the indicator is , the inverter is in the **On-grid** state, and the EMI, Power Meter or Slave SmartLogger is in the **Online** state.
- When the indicator is , the inverter, EMI, Power Meter or Slave SmartLogger is in the **Disconnection** state.
- When the indicator is , the inverter is in the **Loading** state.
- When the indicator is , the inverter is in a non-on-grid state, for example, **Initializing**, **Shutdown**, or **Idle** state.

7.12 Manually Powering On or Off the Inverter

This topic describes how to power on or off the inverter over the WebUI.

On the **Monitoring** tab page, choose the inverter to be powered on or off and click **Running Information**. The power-on and power-off buttons are located in the upper right corner of the tab page. The green one is the power-on button and the red one is the power-off button, as shown in Figure 7-34.

Figure 7-34 Manually powering on or off the inverter



NOTE

When you click the power-on or power-off button, the system displays a prompt asking whether to power on or off the inverter. If you are sure, click **OK**.

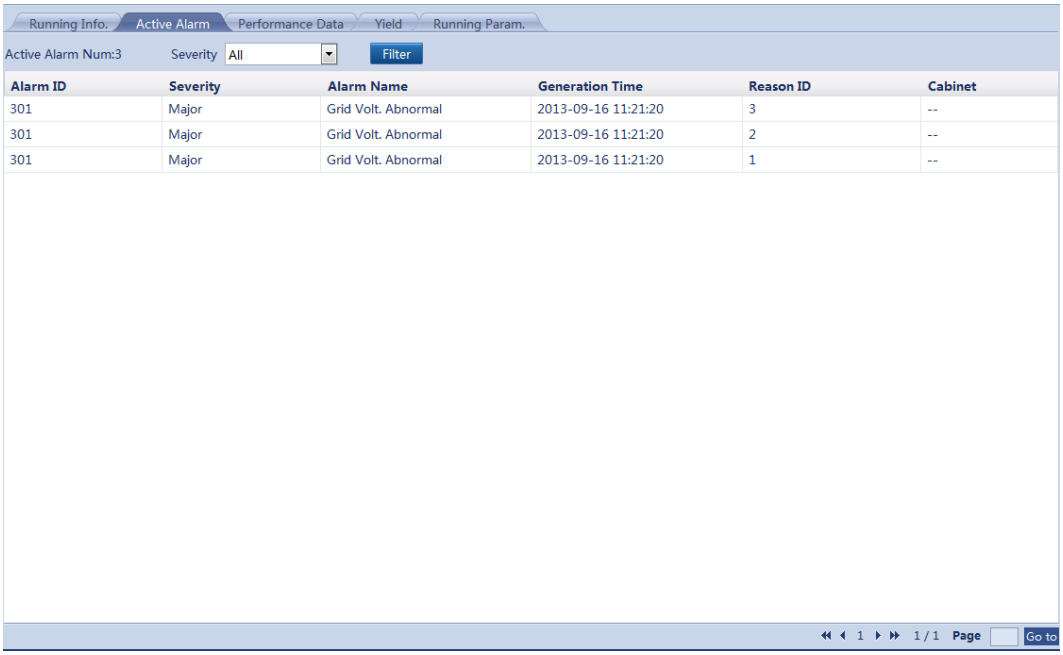
7.13 Querying the Active Alarms of an Inverter

This topic describes how to query the active alarms of an inverter and details about the alarms over the WebUI.

On the **Monitoring** tab page, choose the inverter to be queried and click **Active Alarm** to access the active-alarm query page. You can query the information about all the current active alarms of the selected inverter on this page, including the values of **Alarm ID**, **Severity**, **Alarm Name**, **Generation Time**, **Reason ID**, and **Cabinet**.

On the **Active Alarm** tab page, choose an alarm severity and click **Filter**, as shown in Figure 7-35.

Figure 7-35 Active alarms of the inverter



7.14 Querying the Performance Data of an Inverter

This topic describes how query the performance data of an inverter over the WebUI. You can choose to display the performance data in a table or curve or export it.

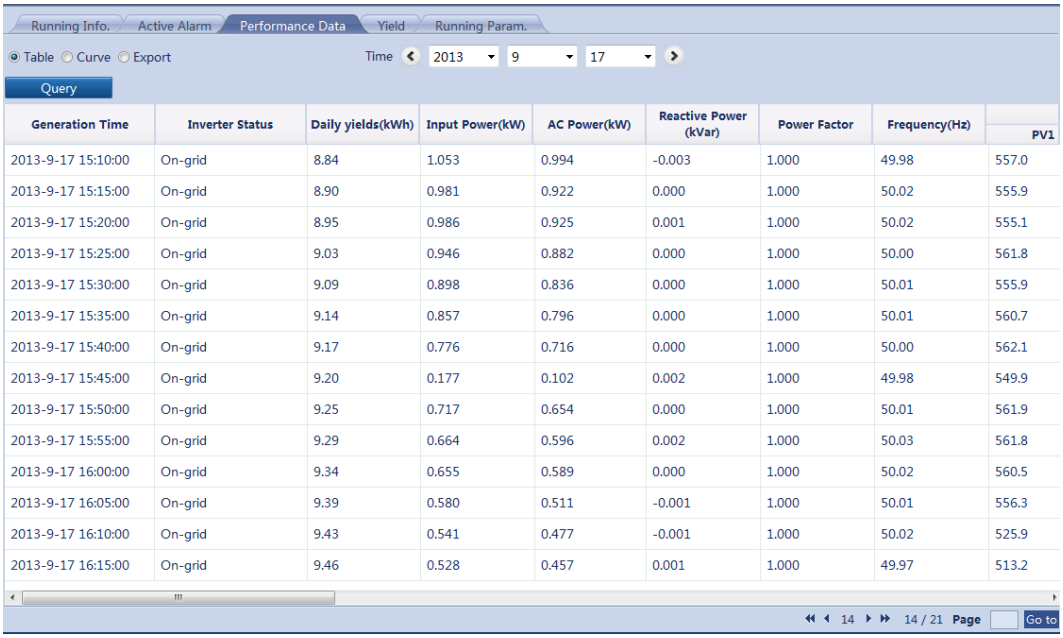
On the **Monitoring** tab page, choose the inverter to be queried and click **Performance Data** to access the performance data query page.

NOTE

- When querying the performance data of an inverter, you can select a period in which the performance data you want to query directly from the **Time** drop-down list or by clicking the time adjustment buttons on both sides of the drop-down list box.
- Valid performance data of at most one month is stored for each inverter.

Select **Table** as the display mode, select a period in which the performance data you want to query, and click **Query**. You can query the values of various performance parameters, such as **Generation Time**, **Inverter Status**, and **Daily yield**, as shown in Figure 7-37.

Figure 7-36 Performance data displayed in a table

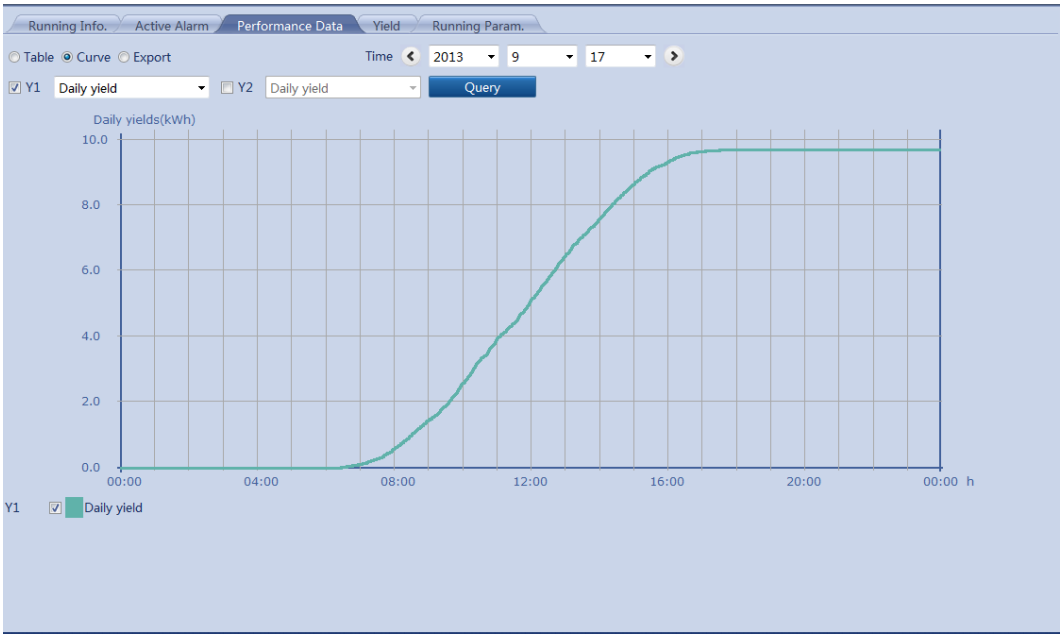


Select **Curve** as the display mode, select a period in which the performance data you want to query, specify the parameters indicated by Y1 and Y2, and click **Query**, as shown in Figure 7-37.

NOTICE

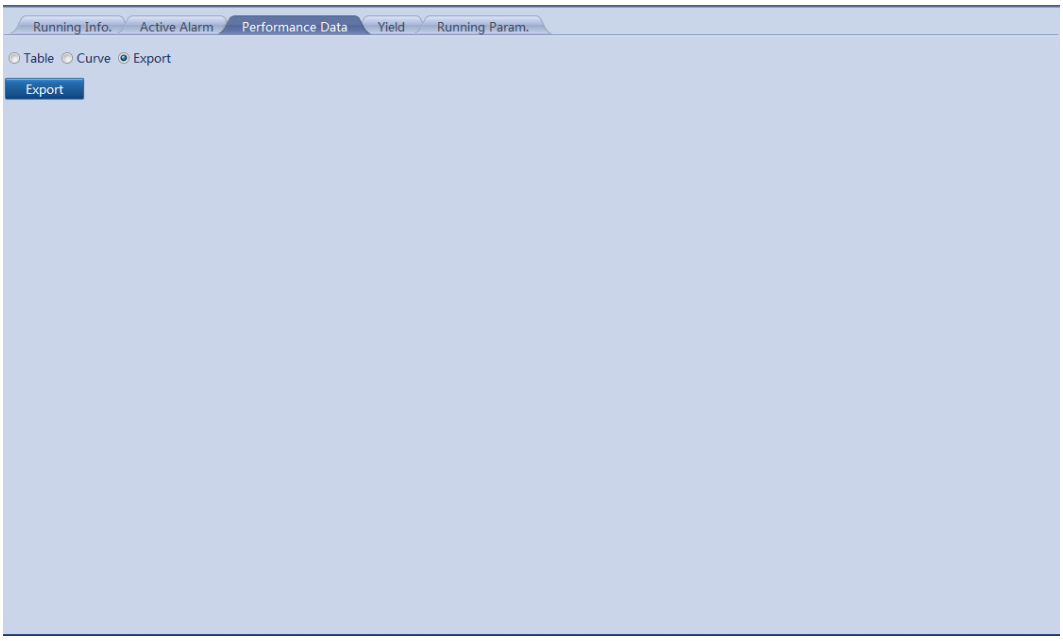
You can specify two parameters respectively indicated by Y1 and Y2 simultaneously to compare the value curves of the two parameters. However, the two parameters must be different.

Figure 7-37 Performance data displayed in a curve



You can select **Export** as the display mode and click **Export** to export the performance data, as shown in Figure 7-38.

Figure 7-38 Exporting performance data



NOTICE

When changing the name of the exported files, retain the extension **.tar.gz**. Otherwise, the file cannot be functional.

7.15 Querying the Energy Yield of Inverters

This topic describes how to query the energy yield of inverters over the WebUI, including the daily, monthly, annual, historical, and total energy yield.

On the **Monitoring** tab page, you can choose the inverter to be queried and click **Yield** to query the information about the energy yield of the inverter.

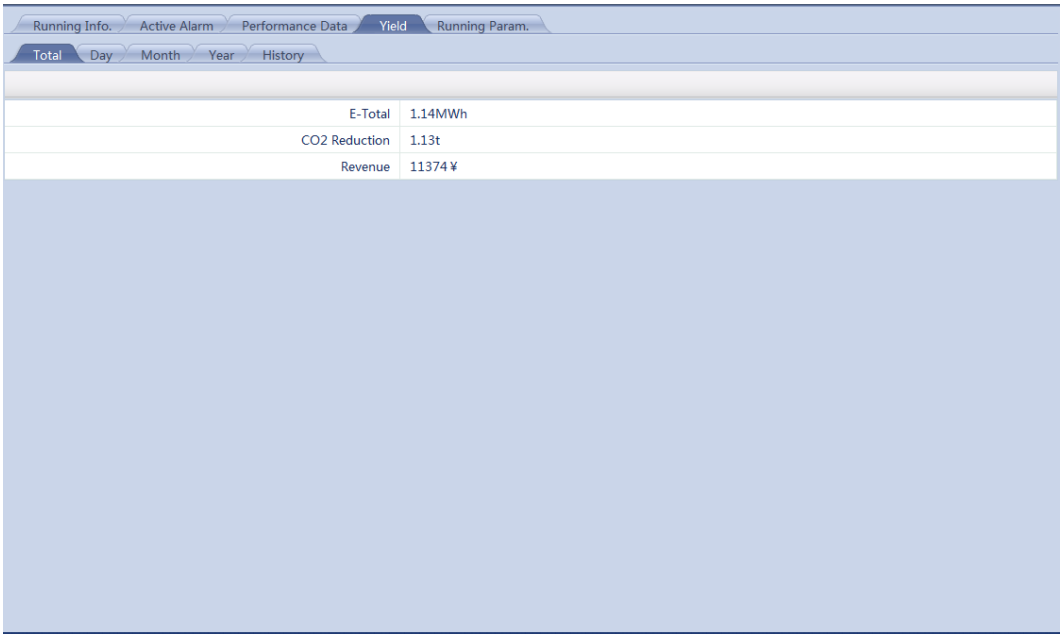
NOTICE

When querying the information about energy yield, you can select a period in which the energy yield you want to query directly from the **Time** drop-down list or by clicking the time adjustment buttons on both sides of the drop-down list box.

Total Energy Yield of Inverters

On the **Total** tab page, you can query various information, such as the total energy yield of inverters, CO_2 emission reduction, and revenue corresponding to the CO_2 emission reduction, as shown in Figure 7-39.

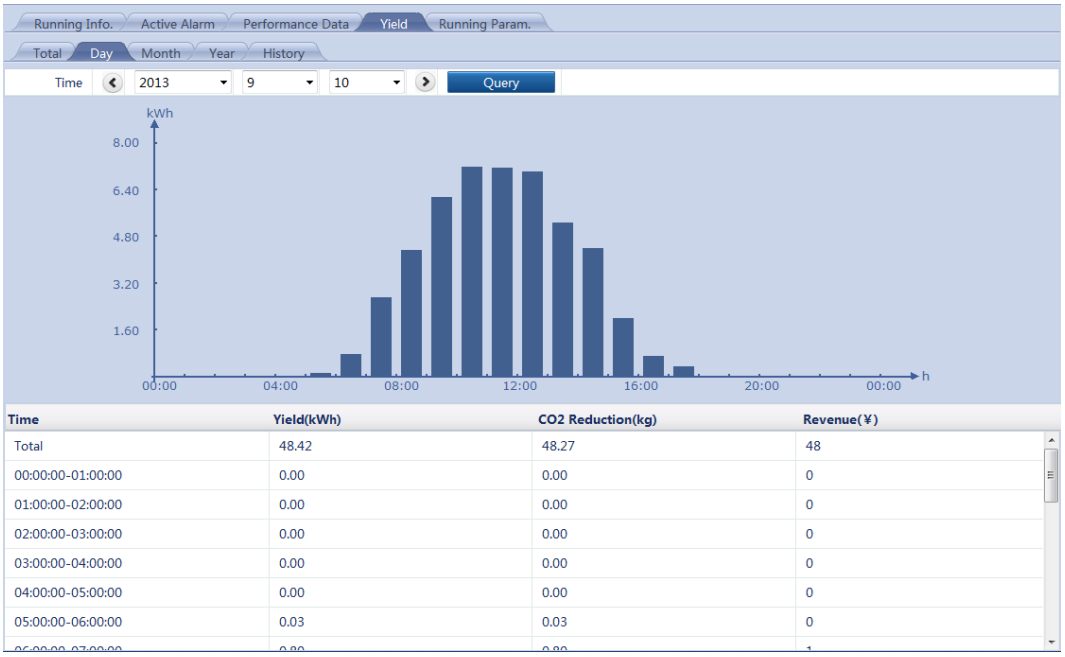
Figure 7-39 Total energy yield



Daily Energy Yield of Inverters

On the **Day** tab page, you can select a day and click **Query** to query the total and hourly energy yield of that day, as shown in Figure 7-40.

Figure 7-40 Daily energy yield



Time	Yield(kWh)	CO2 Reduction(kg)	Revenue(¥)
Total	48.42	48.27	48
00:00:00-01:00:00	0.00	0.00	0
01:00:00-02:00:00	0.00	0.00	0
02:00:00-03:00:00	0.00	0.00	0
03:00:00-04:00:00	0.00	0.00	0
04:00:00-05:00:00	0.00	0.00	0
05:00:00-06:00:00	0.03	0.03	0

The displayed information includes the energy yield histogram, hourly energy yield, CO_2 emission reduction, revenue corresponding to the emission reduction, and total energy yield, emission reduction, and revenue.

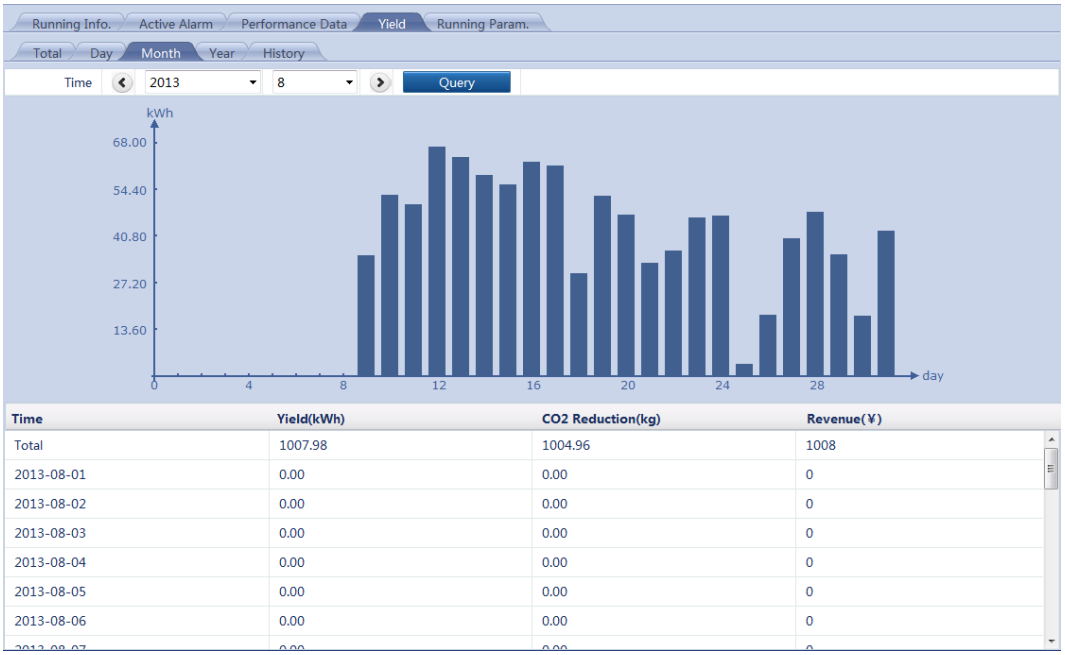
NOTE

- The number of days on which the energy yield can be queried is relevant to the inverter quantity. For example, if 60 inverters are connected to the SmartLogger, daily energy yield data of at most 45 days can be stored.
- In the daily energy yield histogram, the horizontal coordinate stands for time (each block stands for one hour). The vertical coordinate stands for the energy yield (each block stands for the total energy yield during the last hour).

Monthly Energy Yield of Inverters

On the **Month** tab page, you can select a month and click **Query** to query the total and daily energy yield of that month, as shown in Figure 7-41.

Figure 7-41



The displayed information includes the energy yield histogram, daily energy yield, CO_2 emission reduction, revenue corresponding to the emission reduction, and total energy yield, emission reduction, and revenue.

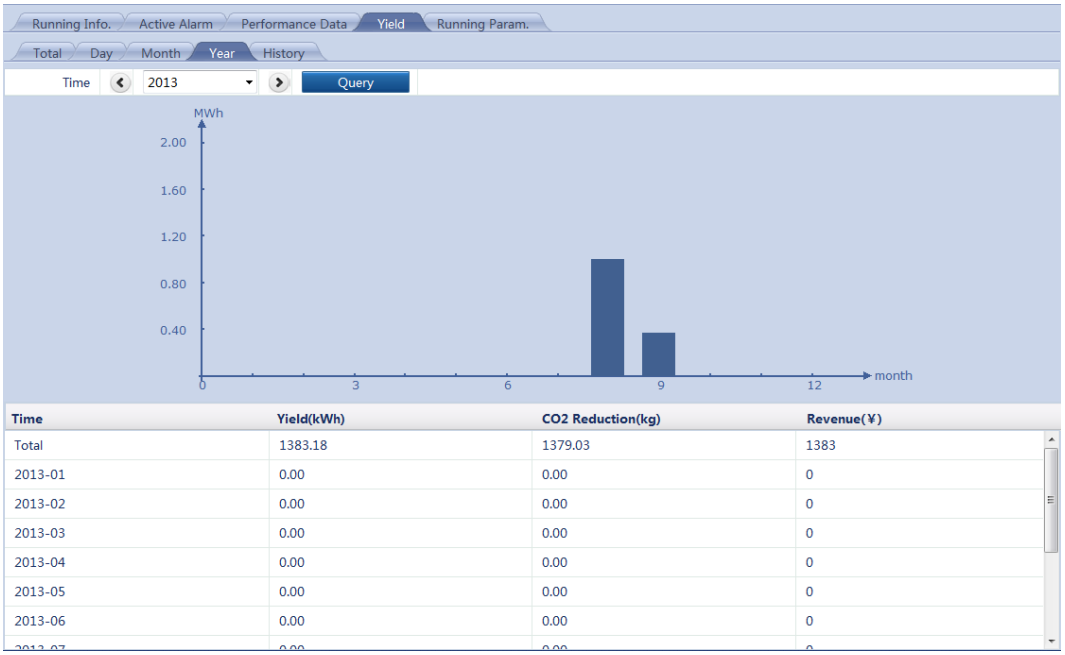
NOTE

- The number of months in which the energy yield can be queried is relevant to the inverter quantity. For example, if 60 inverters are connected to the SmartLogger, monthly energy yield data of at most 36 months can be stored.
- In the monthly energy yield histogram, the horizontal coordinate stands for day (each block stands for one day). The vertical coordinate stands for the energy yield (each block stands for the total energy yield on that day).

Annual Energy Yield of Inverters

On the **Year** tab page, you can select a year and click **Query** to query the total and monthly energy yield of that year, as shown in Figure 7-42.

Figure 7-42 Annual energy yield



Time	Yield(kWh)	CO2 Reduction(kg)	Revenue(¥)
Total	1383.18	1379.03	1383
2013-01	0.00	0.00	0
2013-02	0.00	0.00	0
2013-03	0.00	0.00	0
2013-04	0.00	0.00	0
2013-05	0.00	0.00	0
2013-06	0.00	0.00	0

The displayed information includes the energy yield histogram, monthly energy yield, CO_2 emission reduction, revenue corresponding to the emission reduction, and total energy yield, emission reduction, and revenue.

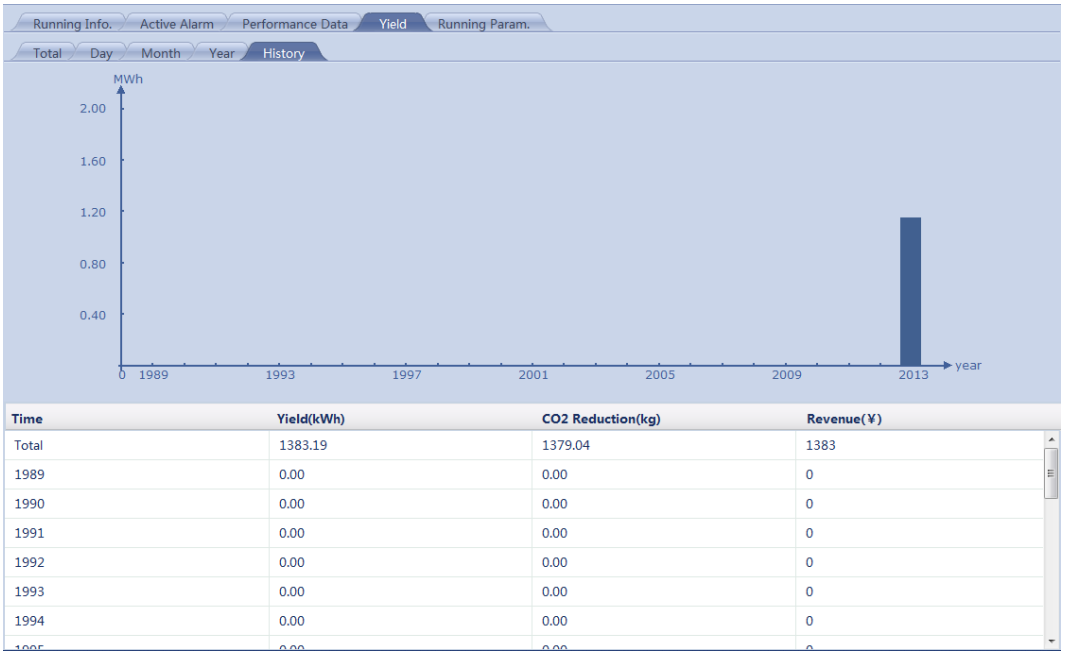
NOTE

- The number of years in which the energy yield can be queried is relevant to the inverter quantity. For example, if 60 inverters are connected to the SmartLogger, annual energy yield data of at most 25 years can be stored.
- In the annual energy yield histogram, the horizontal coordinate stands for month (each block stands for one month). The vertical coordinate stands for the energy yield (each block stands for the total energy yield in that month).

Historical Energy Yield of Inverters

On the **History** tab page, you can query the total and annual energy yield of the past 25 years, as shown in Figure 7-43.

Figure 7-43 Historical energy yield



Time	Yield(kWh)	CO2 Reduction(kg)	Revenue(¥)
Total	1383.19	1379.04	1383
1989	0.00	0.00	0
1990	0.00	0.00	0
1991	0.00	0.00	0
1992	0.00	0.00	0
1993	0.00	0.00	0
1994	0.00	0.00	0

The displayed information includes the energy yield histogram, annual energy yield, CO_2 emission reduction, revenue corresponding to the emission reduction, and total energy yield, emission reduction, and revenue.

NOTE

- The historical energy yield data of the past 25 years can be queried.
- In the historical energy yield histogram, the horizontal coordinate stands for year (each block stands for one year). The vertical coordinate stands for the energy yield (each block stands for the total energy yield in that year).

7.16 Setting the Running Parameters of an Inverter

This topic describes how to set the running parameters of an inverter over the WebUI. Due to permission limits, the parameters that can be set by advanced users and special users are different.

On the **Monitoring** tab page, choose the inverter to be set and click **Running Parameter** to access the running parameter setting page.

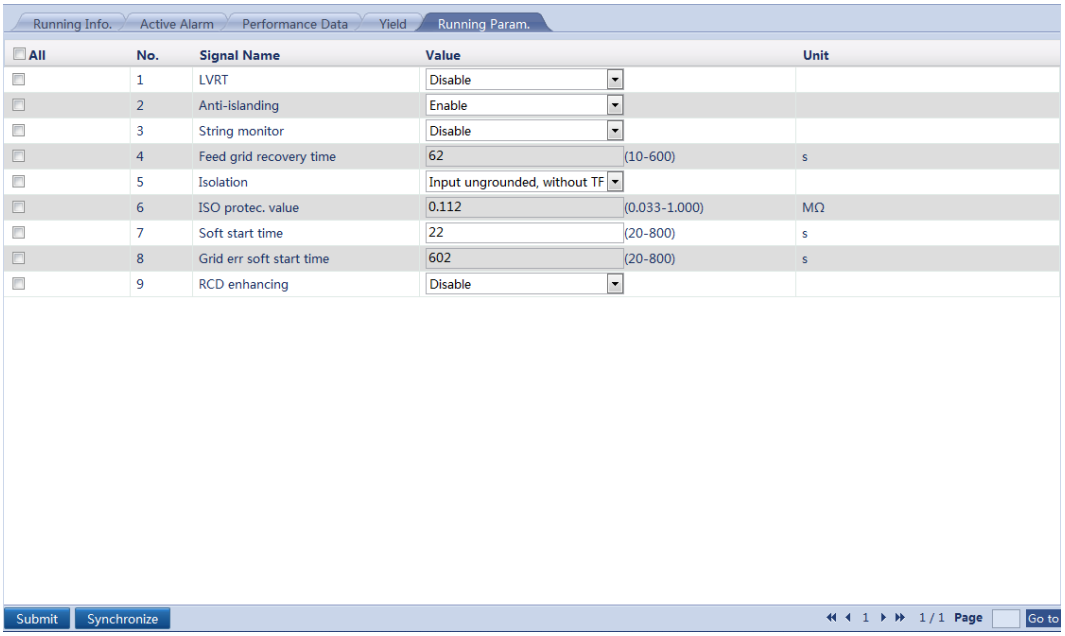
NOTICE

- When the SUN8000 status is **Disconnection**, you cannot set or synchronize parameters.
- You can set or synchronize parameters only when the SUN2000 status is **On-grid** or **Shutdown**.

Running Parameter (1)

When you log in as an **Advanced User**, you can set various parameters, such as **LVRT**, **Anti-Islanding**, **String Monitor**, and **Feed Grid Recovery Time**, as shown in Figure 7-44.

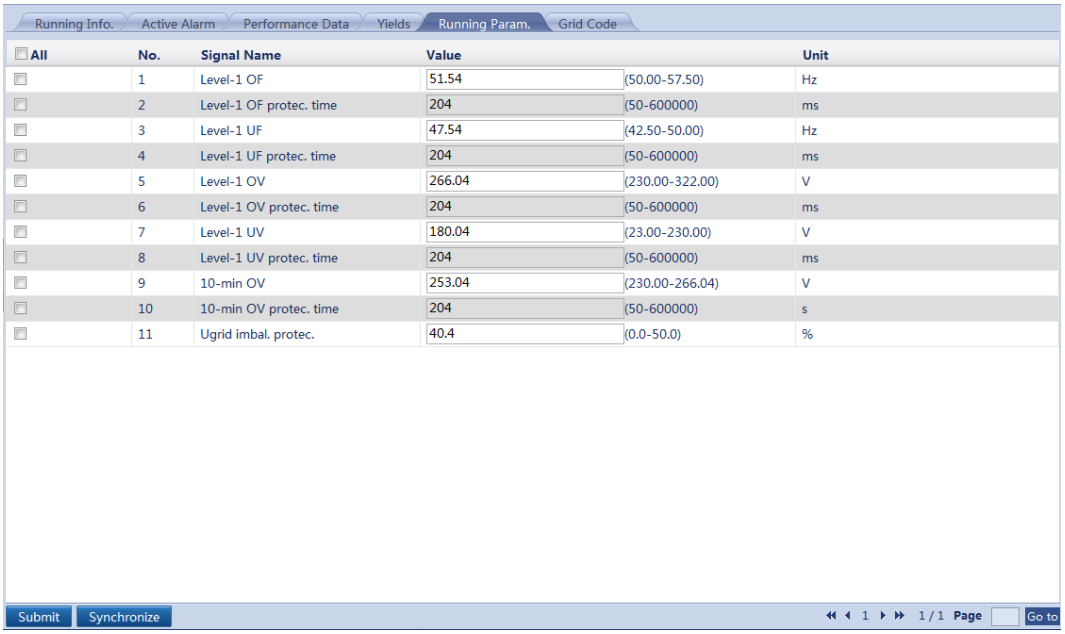
Figure 7-44 Inverter running parameter (1)



Running Parameter (2)

When you log in as a **Special User**, you can set various parameters, such as the protection point and protection time, as shown in Figure 7-45.

Figure 7-45 Inverter running parameter (2)



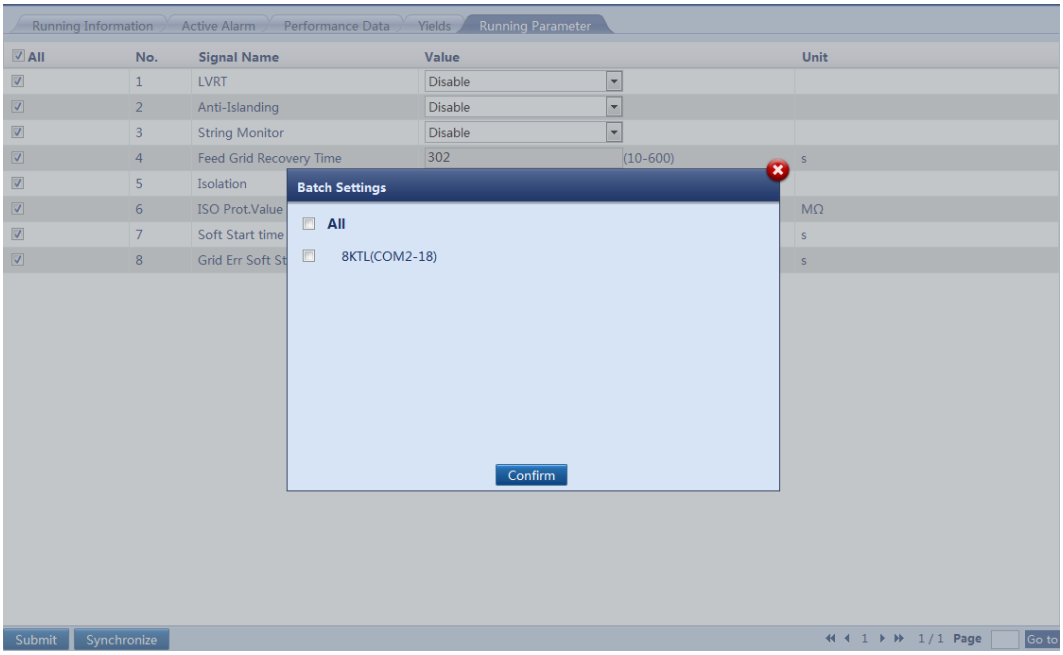
NOTE

Different parameter configurations on the **Grid Code** tab page correspond to different **Running Parameter** tab pages. Before setting parameters on the **Running Parameter** tab page, set the parameters on the **Grid Code** tab page.

Synchronizing Running Parameter

After setting the running parameters of an inverter, you can click **Synchronize** to synchronize the settings of required parameters to another inverter, as shown in Figure 7-46.

Figure 7-46 Synchronizing running parameter



7.17 Setting the Power Grid Standard Code for an Inverter

This topic describes how to set the power grid standard code for an inverter over the WebUI.

Setting the Power Grid Standard Code

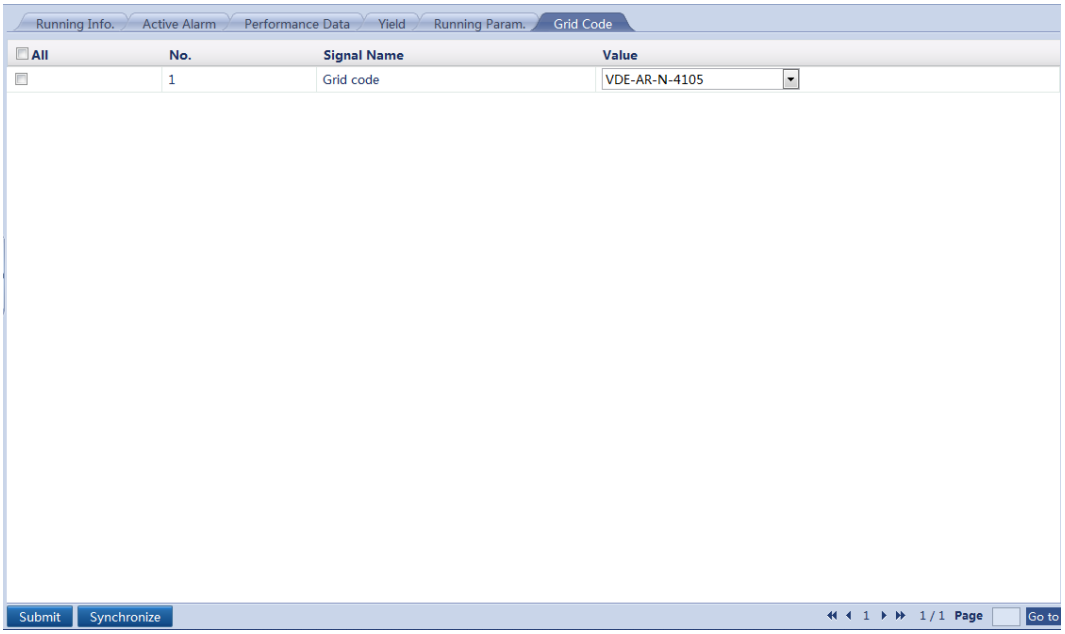
An inverter can normally generate electricity in grid-tied mode only if the power grid standard code is set properly for it.

NOTICE

This parameter must be set by professional personnel. Otherwise, the equipment may be damaged.

On the **Monitoring** tab page, choose the inverter for which the power grid standard code will be set and click **Grid Code**, as shown in Figure 7-47. Because of the limited permission, select the User name as **Special User**.

Figure 7-47 Power Grid Standard Code



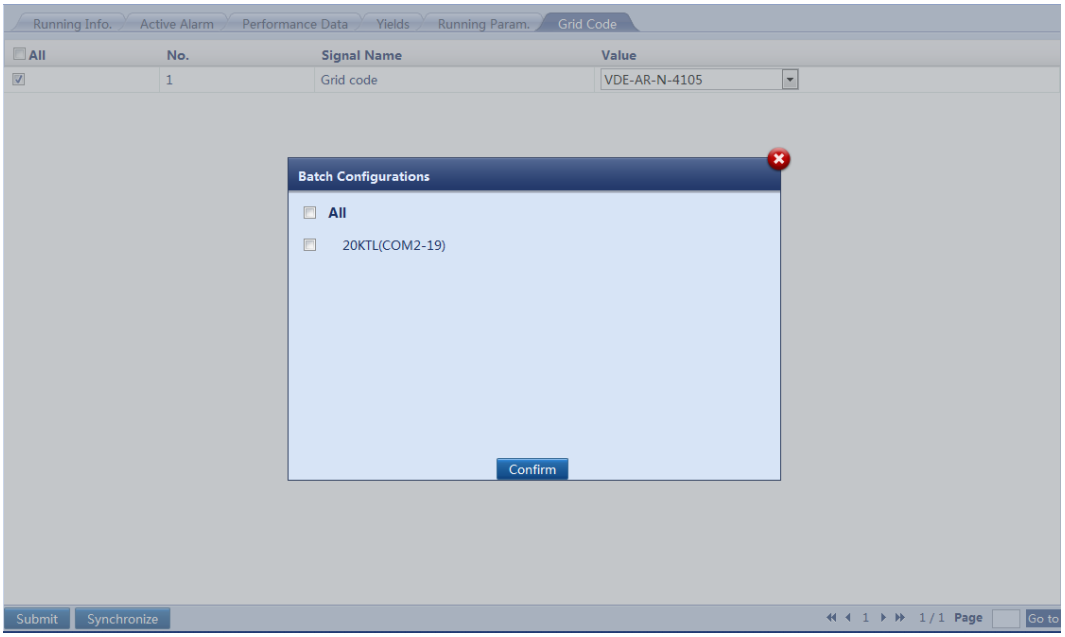
NOTICE

Properly set the power grid standard code based on the local standard.

Synchronizing the Power Grid Standard Code

After you set the power grid standard code of one inverter, press **Synchronize** to synchronize the standard code on other inverters, as shown in Figure 7-48.

Figure 7-48 Synchronizing the power grid standard code

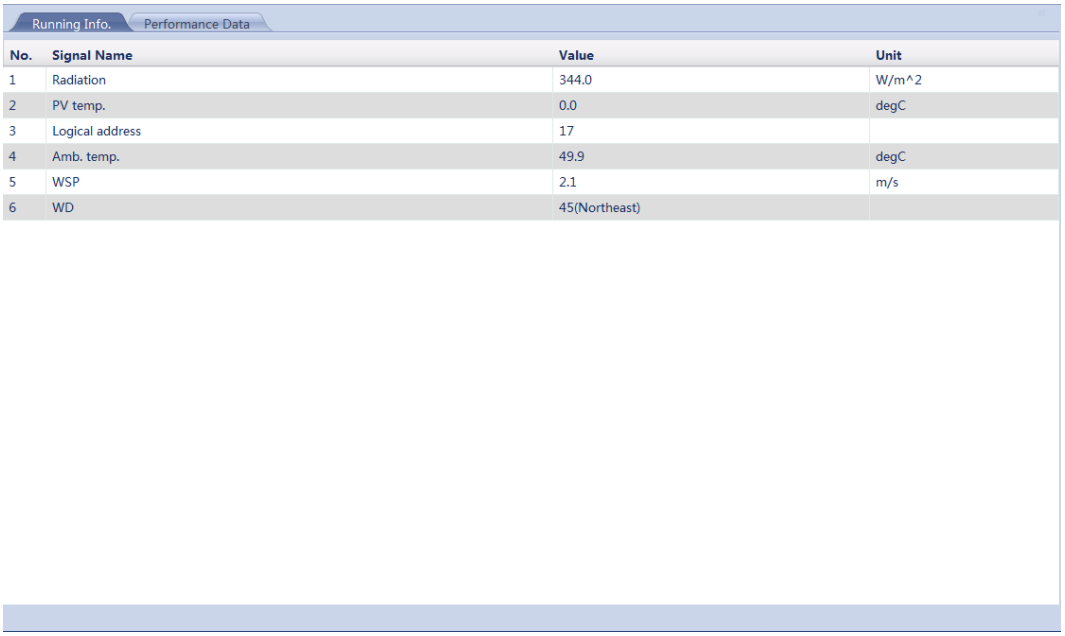


7.18 Querying the Running Information of an EMI

This topic describes how to query the running information of an environmental monitoring instrument over the WeBUI.

On the **Monitoring** tab page, you can choose the EMI to be queried and click **Running Information** to query the values of various parameters related to the running of the EMI, such as **Total Radiation**, **PV Module Temperature**, **Ambient temperature**, **Wind Speed**, and **Wind Direction**, as shown in Figure 7-49.

Figure 7-49 Running information of the EMI



7.19 Querying the Performance Data of an EMI

This topic describes how to query the performance data of an environmental monitoring instrument over the WEBUI. You can choose to display the performance data in a table or curve or export it.

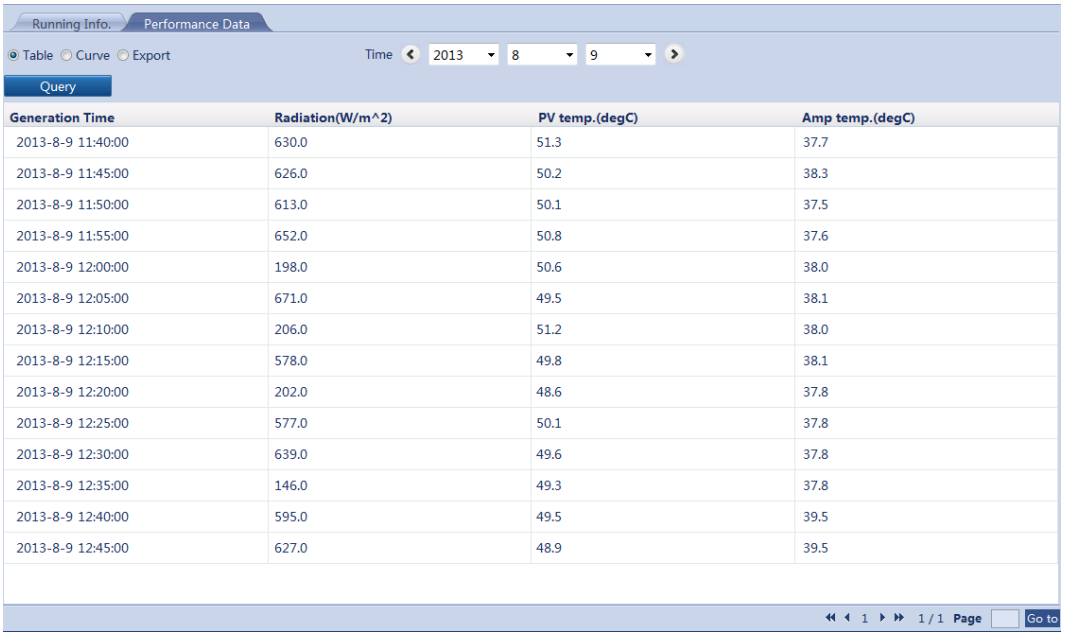
On the **Monitoring** tab page, choose the EMI to be queried and click **Performance Data** to access the performance data query page.

NOTE

When querying the performance data of an EMI, you can select a period in which the performance data you want to query directly from the **Time** drop-down list or by clicking the time adjustment buttons on both sides of the drop-down list box.

Select **Table** as the display mode, select a period in which the performance data you want to query, and click **Query**. You can query the values of various performance parameters, such as **Generation Time**, **Radiation**, **PV temperature**, and **Ambient temperature**, as shown in Figure 7-51.

Figure 7-50 Performance data displayed in a table

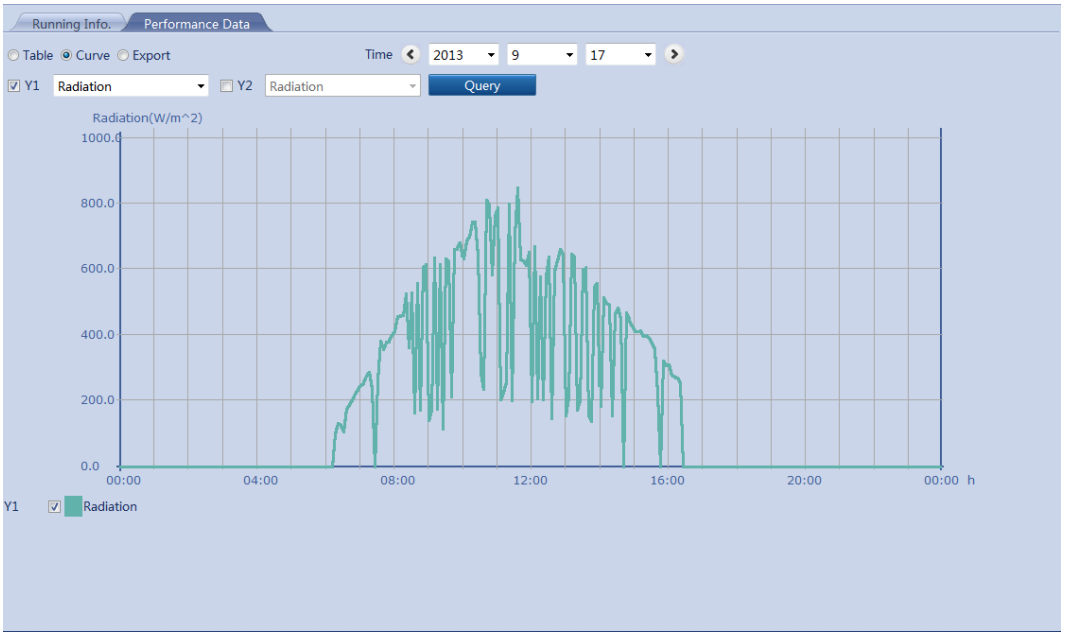


Select **Curve** as the display mode, select a period in which the performance data you want to query, specify the parameters indicated by Y1 and Y2, and click **Query**, as shown in Figure 7-51.

NOTICE

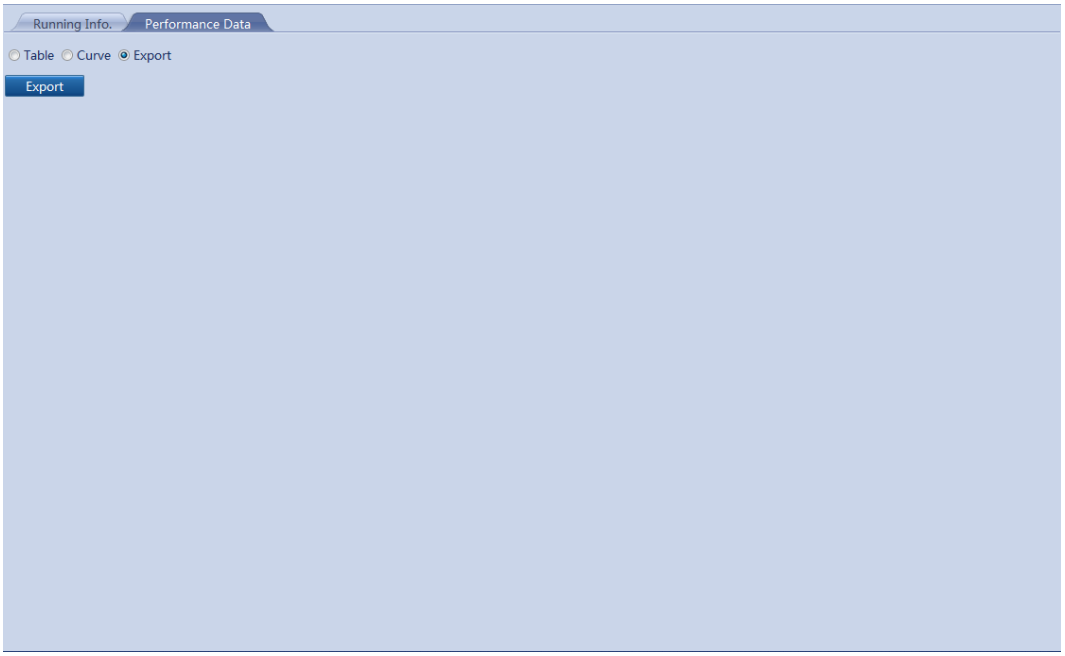
You can specify two parameters respectively indicated by Y1 and Y2 simultaneously to compare the value curves of the two parameters. However, the two parameters must be different.

Figure 7-51 Performance data displayed in a curve



You can select **Export** as the display mode and click **Export** to export the performance data, as shown in Figure 7-52.

Figure 7-52 Exporting performance data



NOTICE

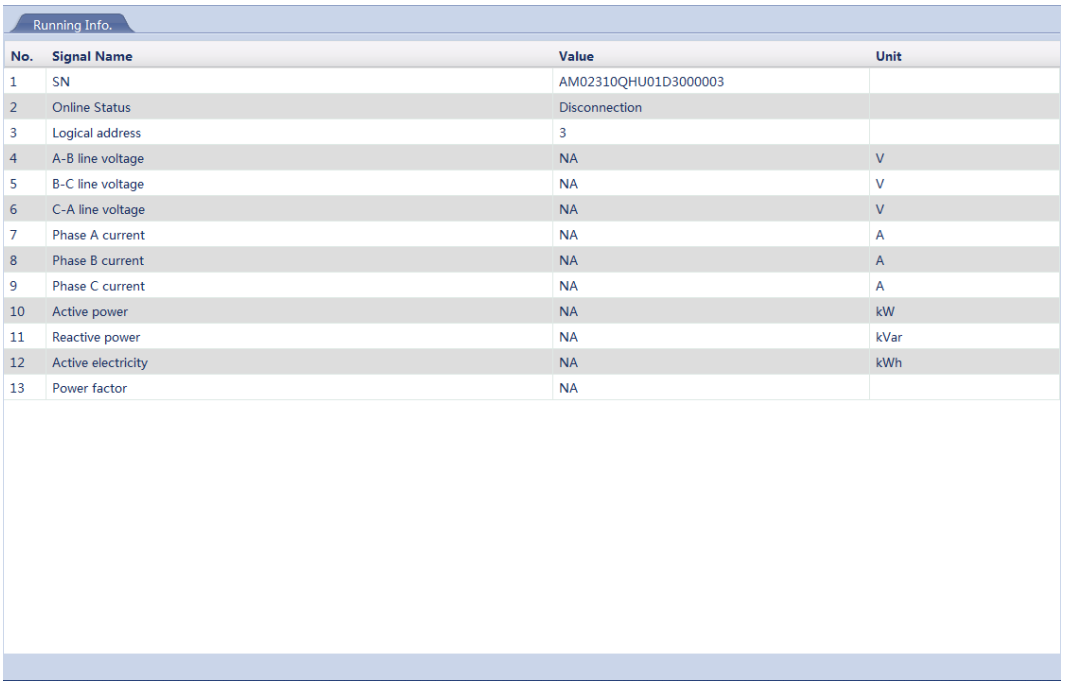
When changing the name of the exported files, retain the extension **.tar.gz**. Otherwise, the file cannot be functional.

7.20 Viewing the Power Meter Running Information

This topic describes how to query the power meter running information over the WebUI.

On the **Monitoring** tab page, select an power, and click **Running Information**. The corresponding **Online Status** and **Logical address** are displayed, as shown in Figure 7-53.

Figure 7-53 Power meter running information



No.	Signal Name	Value	Unit
1	SN	AM02310QHU01D3000003	
2	Online Status	Disconnection	
3	Logical address	3	
4	A-B line voltage	NA	V
5	B-C line voltage	NA	V
6	C-A line voltage	NA	V
7	Phase A current	NA	A
8	Phase B current	NA	A
9	Phase C current	NA	A
10	Active power	NA	kW
11	Reactive power	NA	kVar
12	Active electricity	NA	kWh
13	Power factor	NA	

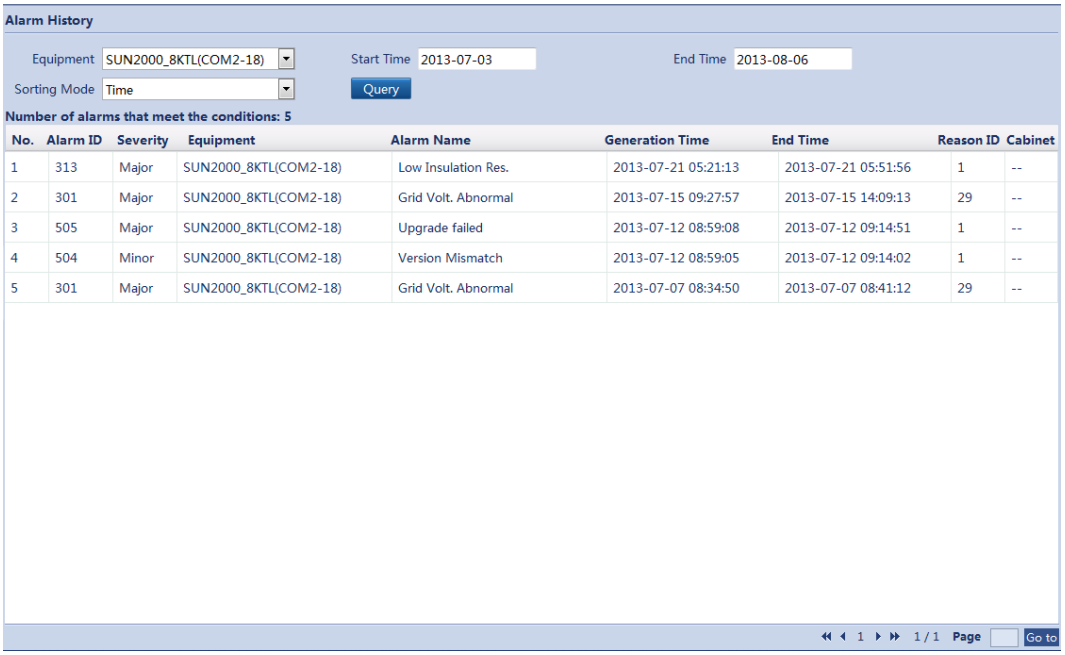
7.21 Querying Historical Alarms

This topic describes how to query historical alarms of the equipment over the WebUI.

On the **Query** tab page, you can select **Alarm History** to query the alarm information of the equipment.

On the **Alarm History** page, choose the equipment to be queried and the start time, end time, and sorting mode of alarms. After that, click **Query**, as shown in Figure 7-54.

Figure 7-54 Historical alarms



7.22 Querying Operation Logs

This topic describes how to query operation logs over the WebUI.

On the **Query** tab page, click **Operation Log**. Operation logs (such as login, parameter setting, data export, firmware upgrade, and password change) of users are displayed, as shown in Figure 7-55. Because of the limited permission, select the User name as **Advanced User** or **Special User**.

Figure 7-55 Operation logs

Operation Log

Number of alarms that meet the conditions : 1000

No.	User Name	Operation Time	Operation Source	Content
1	Advanced User	2013-12-12 14:56:23	WEB	Login
2	Special User	2013-12-12 14:56:17	WEB	Logout
3	Special User	2013-12-12 14:54:16	WEB	Login
4	Special User	2013-12-12 14:54:02	WEB	Logout
5	Special User	2013-12-12 14:50:27	WEB	Login
6	Special User	2013-12-12 14:43:07	WEB	Logout
7	Special User	2013-12-12 14:42:27	WEB	4 DI:8 90%
8	Special User	2013-12-12 14:42:27	WEB	3 DI:4 30%
9	Special User	2013-12-12 14:42:27	WEB	2 DI:2 60%
10	Special User	2013-12-12 14:42:27	WEB	1 DI:1 100%
11	Special User	2013-12-12 14:42:27	WEB	SmartLogger1000-Active power reduction gradient->10
12	Special User	2013-12-12 14:42:26	WEB	SmartLogger1000-Active power control mode->Remote control
13	Special User	2013-12-12 14:42:26	WEB	SmartLogger1000-Active power control->Enable
14	Special User	2013-12-12 14:42:17	WEB	4 DI:8 90%
15	Special User	2013-12-12 14:42:17	WEB	3 DI:4 30%
16	Special User	2013-12-12 14:42:17	WEB	2 DI:2 60%
17	Special User	2013-12-12 14:42:17	WEB	1 DI:1 100%
18	Special User	2013-12-12 14:42:17	WEB	SmartLogger1000-Active power reduction gradient->10
19	Special User	2013-12-12 14:42:17	WEB	SmartLogger1000-Active power control mode->Remote control
20	Special User	2013-12-12 14:42:17	WEB	SmartLogger1000-Active power control->Disable

1 / 50 Page Go to

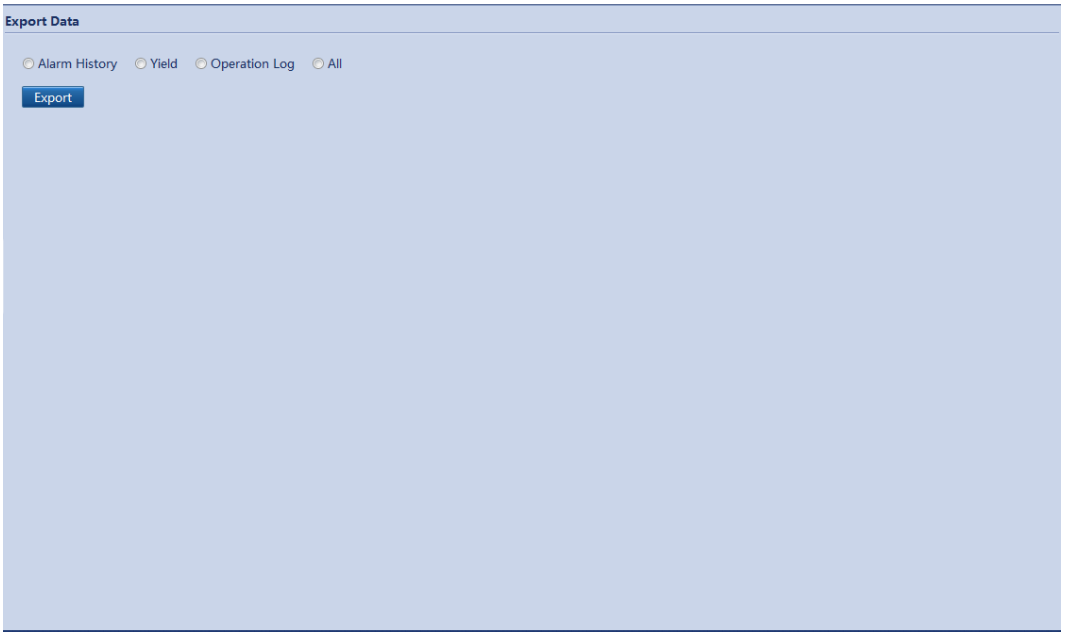
7.23 Exporting Data

This topic describes how to export historical alarms, energy yield, and operation logs over the WebUI.

Exporting Data

In the **Exporting Data** window, you can export **Alarm History**, **Yield**, **Operation Log**, or **All** in CSV format, as shown in Figure 7-56. Because of the limited permission, select the User name as **Advanced User**.

Figure 7-56 Exporting Data



NOTICE

When changing the name of the exported files, retain the extension **.tar.gz**. Otherwise, the file cannot be functional.

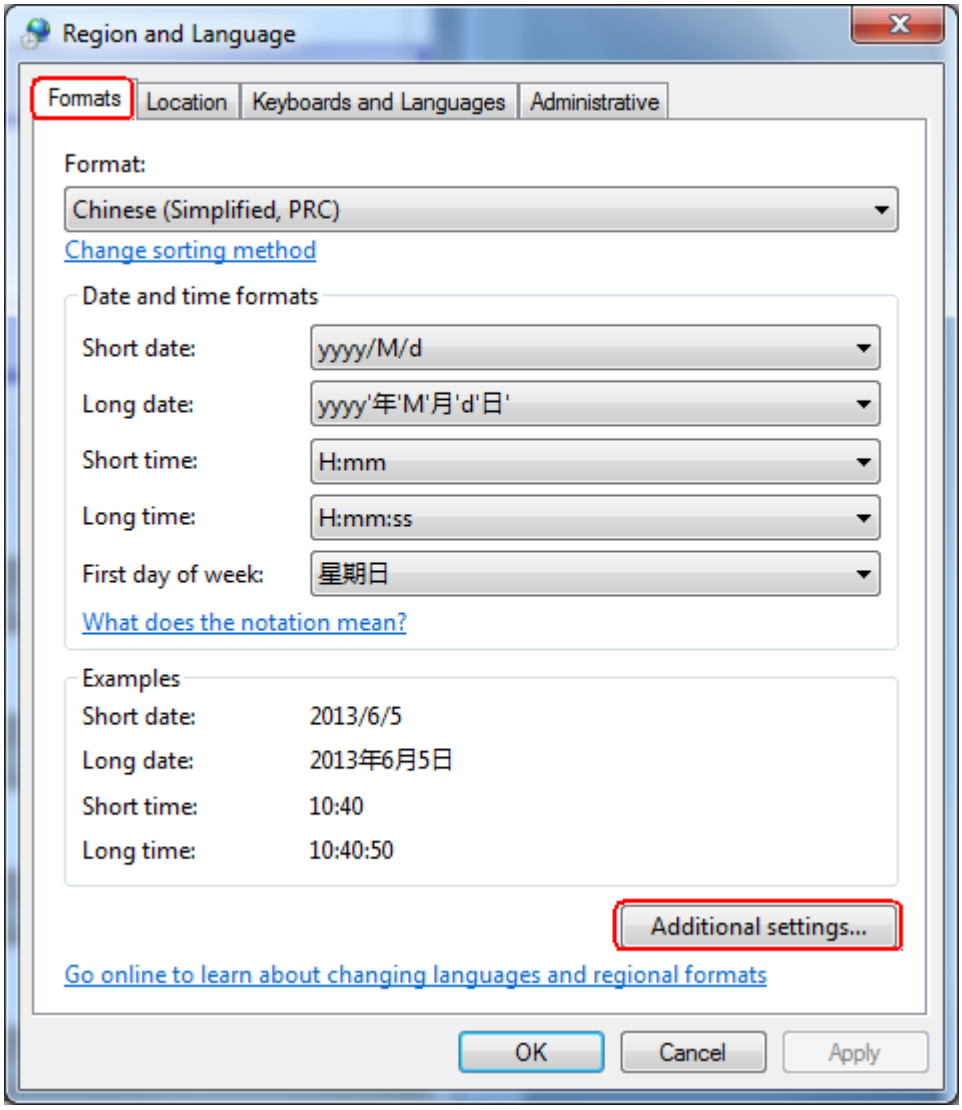
Opening the Exported File

The exported files are in CSV format and can be opened in Microsoft Office Excel. If the table is in disorder after file is opened, check that **List separator** is **,**. If **List separator** is not **,**, change it to **,**.

To view and change List separator, perform the following steps:

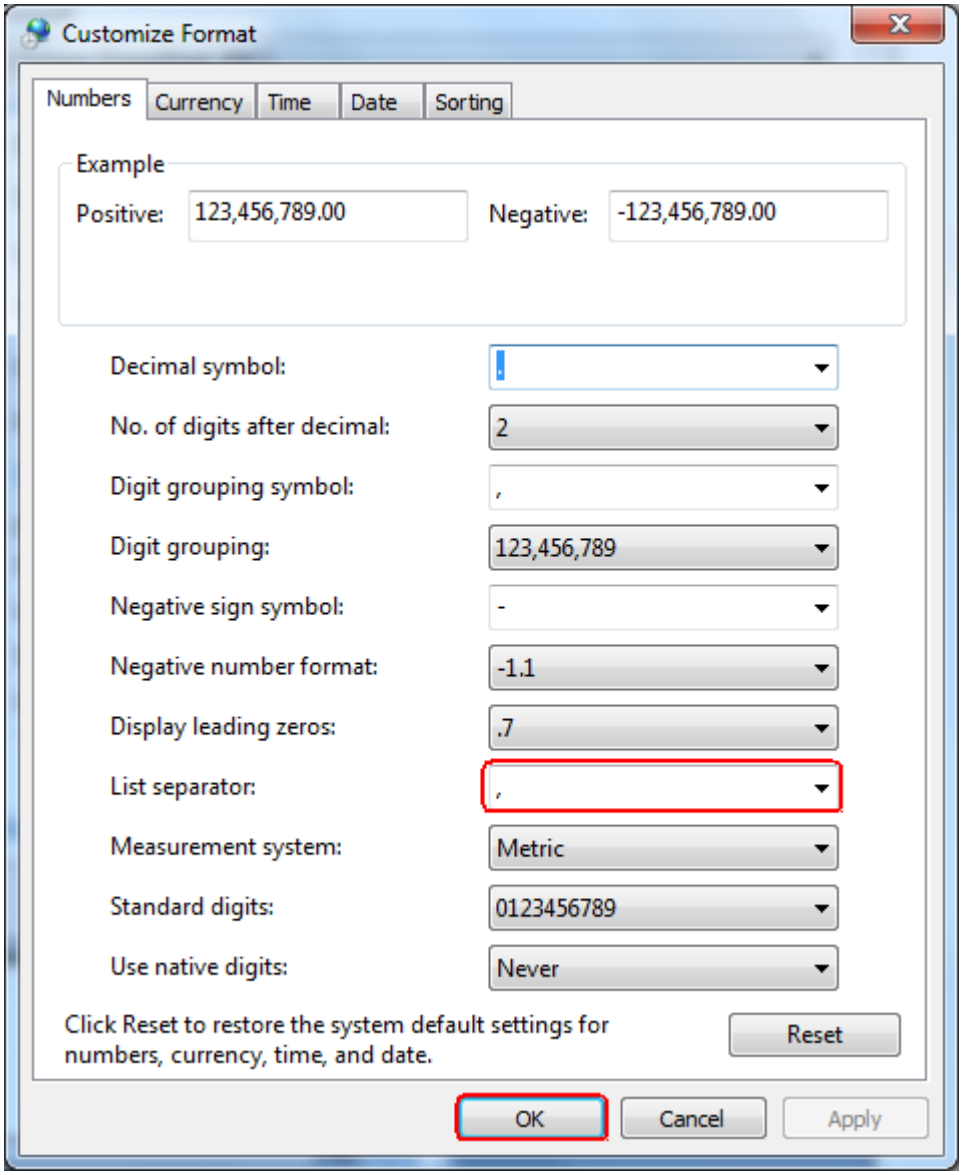
1. Open **Control Panel** and choose **Region and Language**.
2. Under **Formats**, click **Additional settings**, as shown in Figure 7-57.

Figure 7-57 Viewing and changing List separator (1)



3. View and change List separator, as shown in Figure 7-58.
   - If **List separator** is **,**, click **OK**.
   - If **List separator** is not **,**, change it to **,** and click **OK**.

Figure 7-58 Viewing and changing List separator (2)

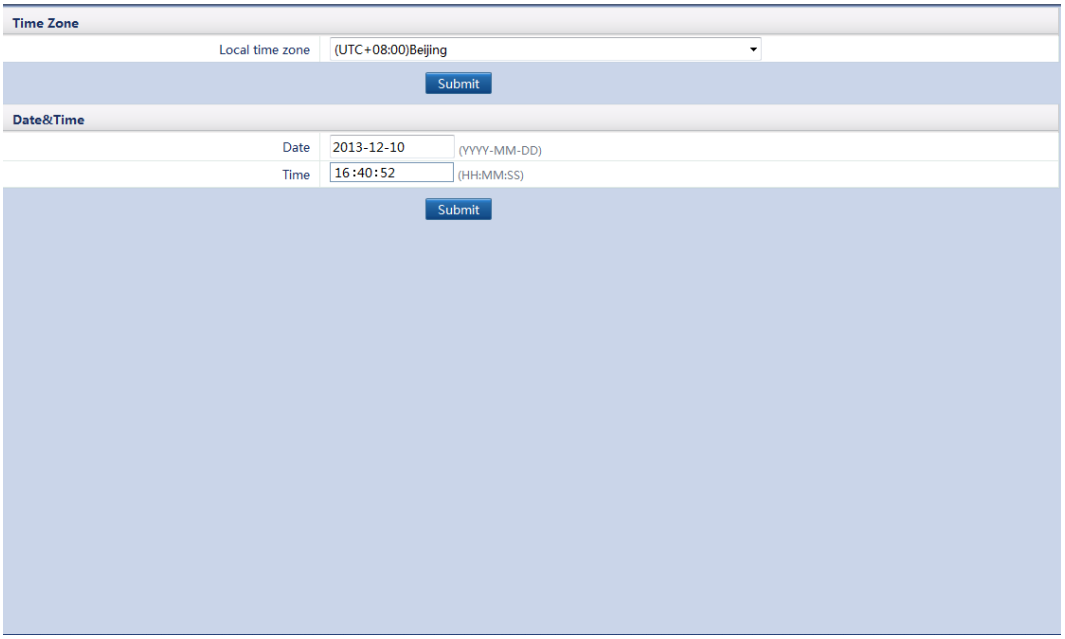


7.24 Setting Date&Time

This topic describes how to set Time Zone and Date&Time over the WebUI.

On the **Settings** tab page, choose **User Parameters** > **Date&Time** and set **Local time zone**, **Date**, and **Time**, as shown in Figure 7-59. Because of the limited permission, select the User name as **Common User** or **Advanced User**.

Figure 7-59 Date&Time



NOTICE

- Set **Local time zone** based on the location of the inverters and enable or disable **DST** as required.
- After **Date&Time** is successfully set, this time can be synchronized in all the inverters connected to the SmartLogger.
- Modification of **Date&Time** may affect the energy yield and performance data. Therefore, change the time zone or system time with caution.

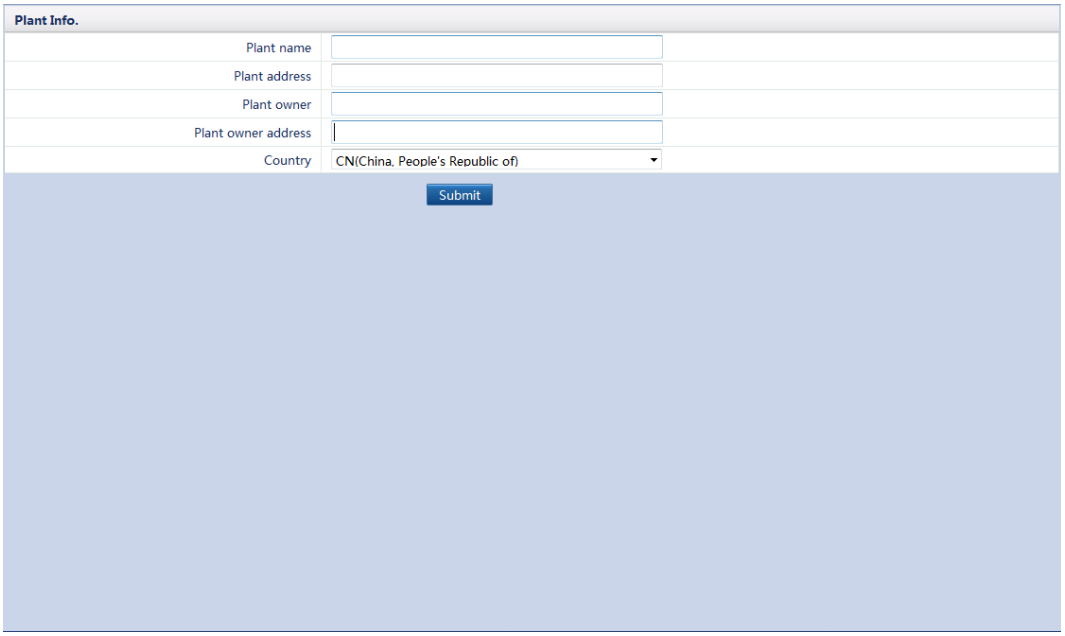
7.25 Setting Plant Information

This topic describes how to set plant information over the WebUI, including the plant name and owner and address and nationality of the plant owner.

After you set the plant information, a plant configuration file can be generated. You can upload this file to a third-party hosting website to implement remote monitoring.

On the **Settings** tab page, choose **User Parameters** > **Plant** and set **Plant Name**, **Plant Owner**, **Plant Owner Address**, and **Country**, as shown in Figure 7-60. Because of the limited permission, select the User name as **Common User** or **Advanced User**.

Figure 7-60 Plant information

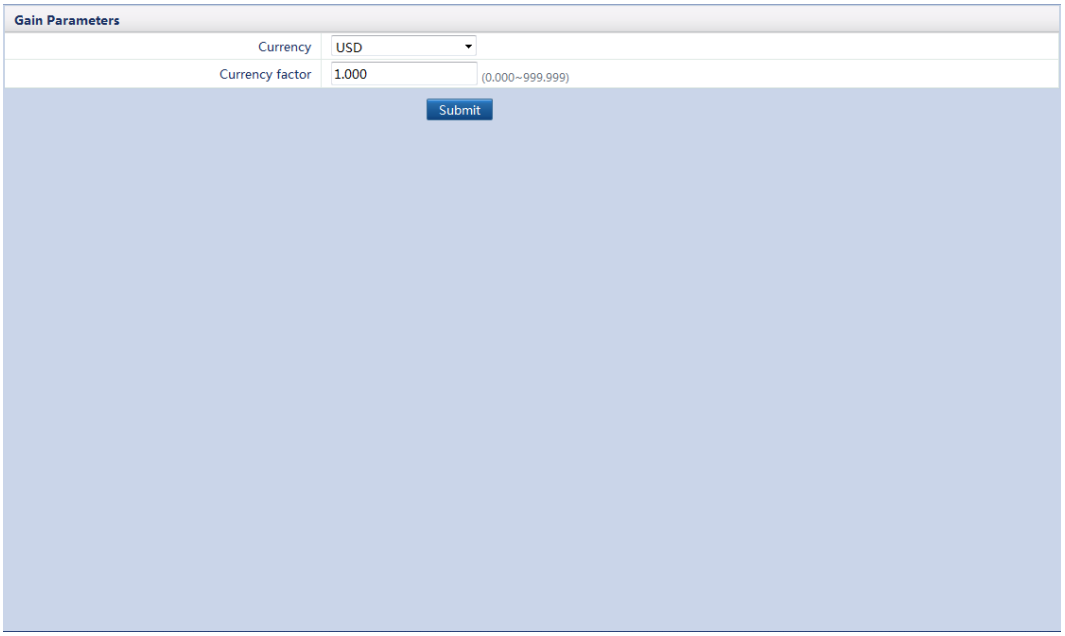


7.26 Setting Currency Parameters

This topic describes how to set currency parameters, such as Currency and Currency Factor, over the WebUI.

On the **Settings** tab page, choose **User Parameters** > **Currency** and set **Currency** and **Currency Factor**, as shown in Figure 7-61. Because of the limited permission, select the User name as **Common User** or **Advanced User**.

Figure 7-61 Currency parameters



NOTE

- Four values are available for **Currency**, that is, **EUR**, **CNY**, **GBP**, and **USD**.
- The currency factor is the electricity price per kWh, which is used to calculate the energy yield revenue.

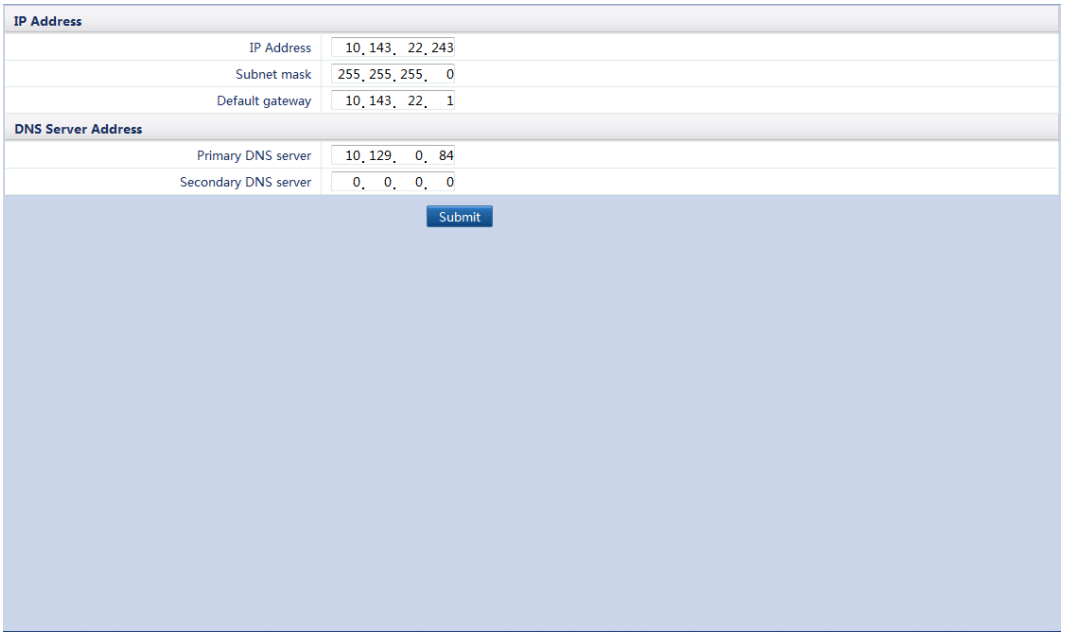
7.27 Setting Ethernet Parameters

This topic describes how to set Ethernet parameters, including IP Address and DNS server address over the WebUI.

Correctly set parameters for the Ethernet to ensure the normal communications between the SmartLogger and the monitoring terminal.

On the **Settings** tab page, choose **Comm. Parameters** > **Ethernet** and set **IP Address**, **Subnet Mask**, **Default Gateway**, and **DNS server address**, as shown in Figure 7-62. Because of the limited permission, select the User name as **Advanced User**.

Figure 7-62 Ethernet



NOTICE

Take the following precautions for setting Ethernet parameters when the SmartLogger connects to the Internet through a router:

- Set the gateway address to the IP address of the router.
- Ensure that the IP address of the SmartLogger is in the same network segment as the gateway address.
- Set the DNS address to the IP address of the router or obtain the DNS address from the network provider.

When you change an IP address, a dialog box is displayed asking for your confirmation. After the IP address is changed, you need to use the new IP address to log in to the system.

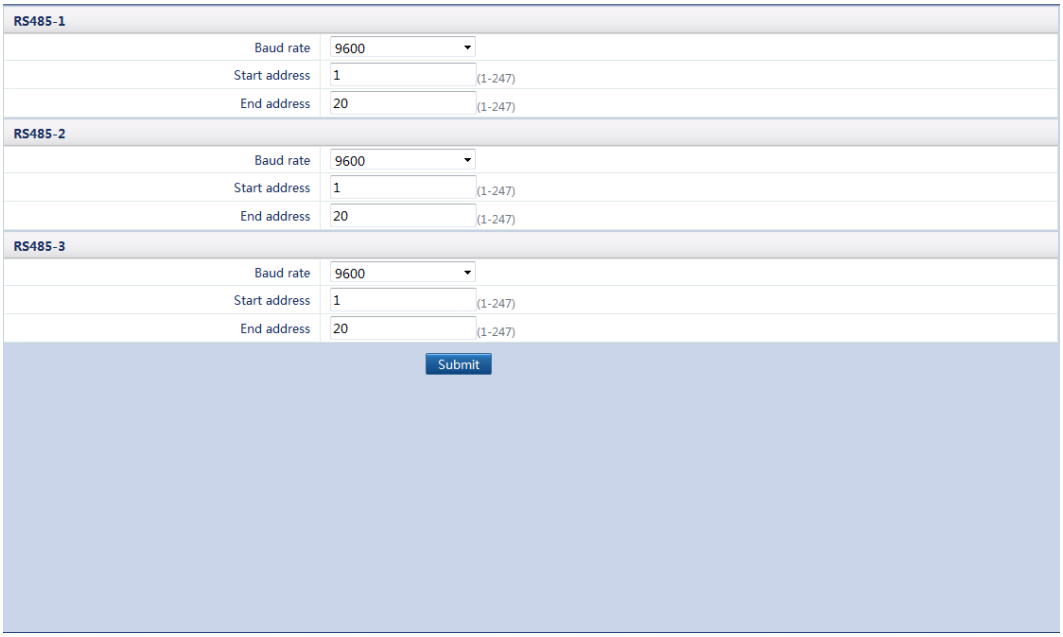
7.28 Setting RS485 Parameters

This topic describes how to set RS485 parameters, including Baud Rate, Start Address, and End Address, over the WebUI.

Correctly set the parameters for the RS485 to ensure the normal communications between the SmartLogger and the inverters and between the SmartLogger and the environmental monitoring instrument.

On the **Settings** tab page, choose **Comm. Parameters** > **RS485** and set **Baud Rate**, **Start Address**, and **End Address**, as shown in Figure 7-63. Because of the limited permission, select the User name as **Advanced User**.

Figure 7-63 RS485



NOTE

- **RS485-1** indicates communications port **COM1**, **RS485-2** indicates communications port **COM2**, and **RS485-3** indicates communications port **COM3**.
- The following baud rates are supported: **4800bps**, **9600bps** and **19200bps**. 9600bps is recommended.
- 1 ≤ **Start Address** ≤ **End Address** ≤ 247. The address segments for these three ports can overlap.

  Set the address scope properly. The broader the scope is, the longer the time is for searching the devices.

7.29 Setting EMI Parameters

This topic describes how to set parameters, including Read Function Code, Read Mode, Start Address, and End Address, for the environmental monitoring instrument over the WebUI.

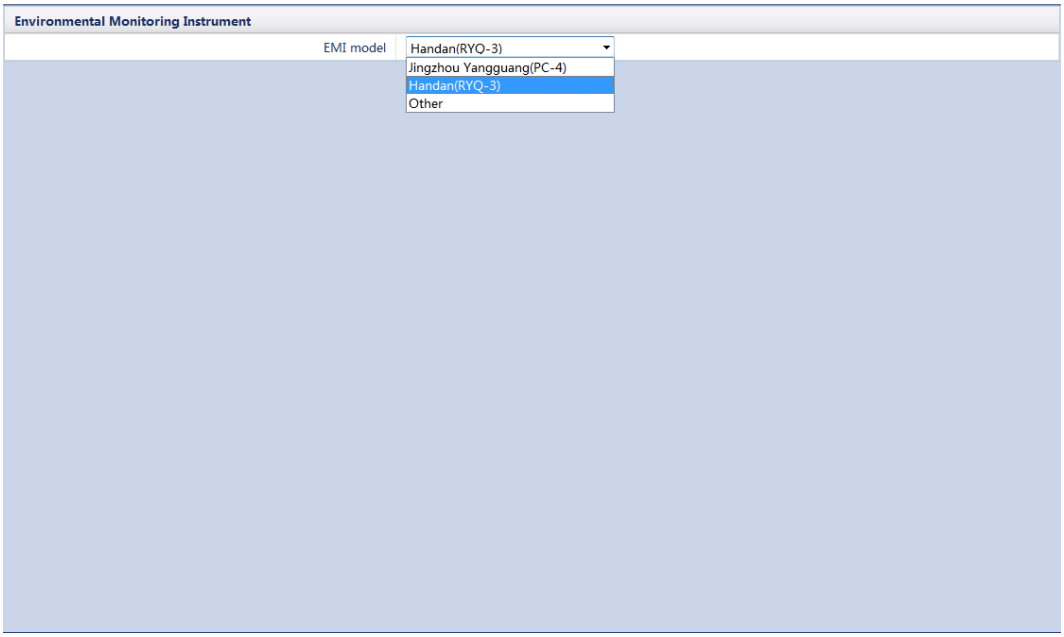
Connect the SmartLogger to an EMI that complies with the standard MODBUS/485 protocol. The SmartLogger can connect to and manage only one EMI at a time.

The protocol points for EMIs provided by different vendors are varied. Therefore, to obtain information from an EMI, configure the protocol point on the WebUI of the SmartLogger properly based on the document delivered by the vendor.

On the **Settings** tab page, choose **Comm. Parameters** > **EMI** and set EMI parameters. Because of the limited permission, select the user name as **Advanced User**.

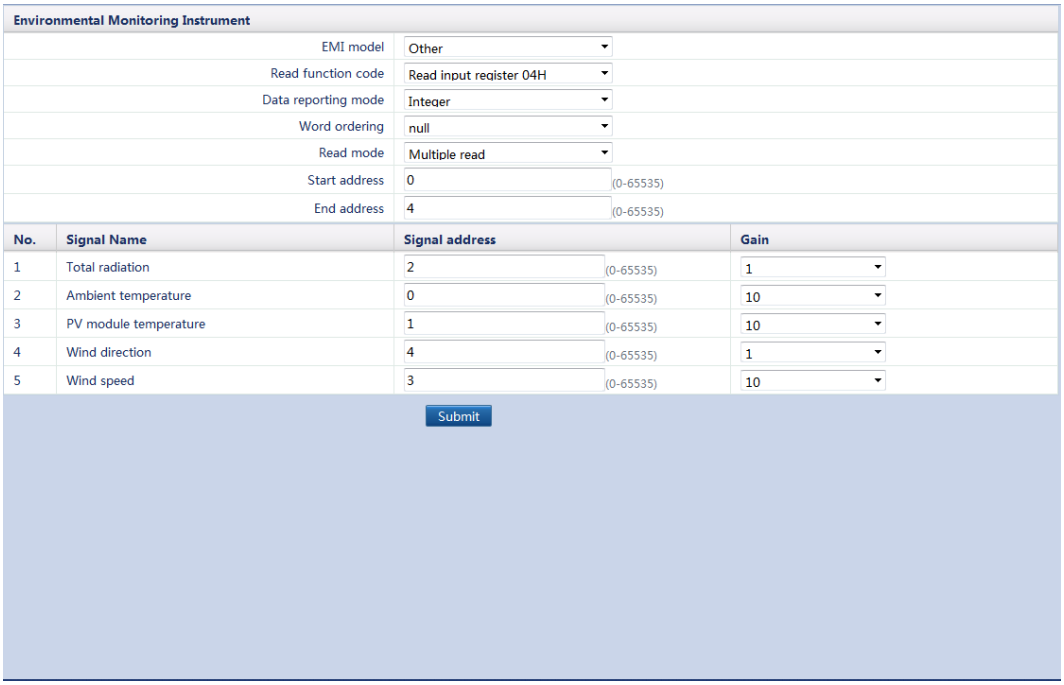
- If the EMI model is Handan or Jinzhou Yangguang, select **Handan (RYQ-3)** or **Jinzhou Yangguang (PC-4)** from the drop-down list, as shown in Figure 7-64.

Figure 7-64 EMI (1)



- If an EMI of other model is used, select **Other** from the drop-down list and then set EMI parameters, as shown in Figure 7-65.

Figure 7-65 EMI (2)



NOTE

Correctly set the parameters in accordance with the Modbus parameters provided by the EMI manufacturers. Otherwise, the EMI data cannot be correctly read.

- Based on the mode supported by the EMI, set **Read function code** to **Read holding register 03H** to **Read input register 04H**.
- Set **Data reporting mode** and **word ordering** based on site requirements.
- Based on the mode supported by the EMI, set **Read code** to **Single read** to **Multiple read**.

  If **Multiple read** is set, set **Start address** and **End address** based on the acquired Modbus signal address range on the EMI.
- The **Signal address** and **Gain** of parameters like **Total radiation** and **Ambient temperature** should be set as the manufacturers require.

  If a certain signal cannot be collected by the EMI, set the **Signal address** of the signal to **65535**.

7.30 Setting Power Meter Parameters

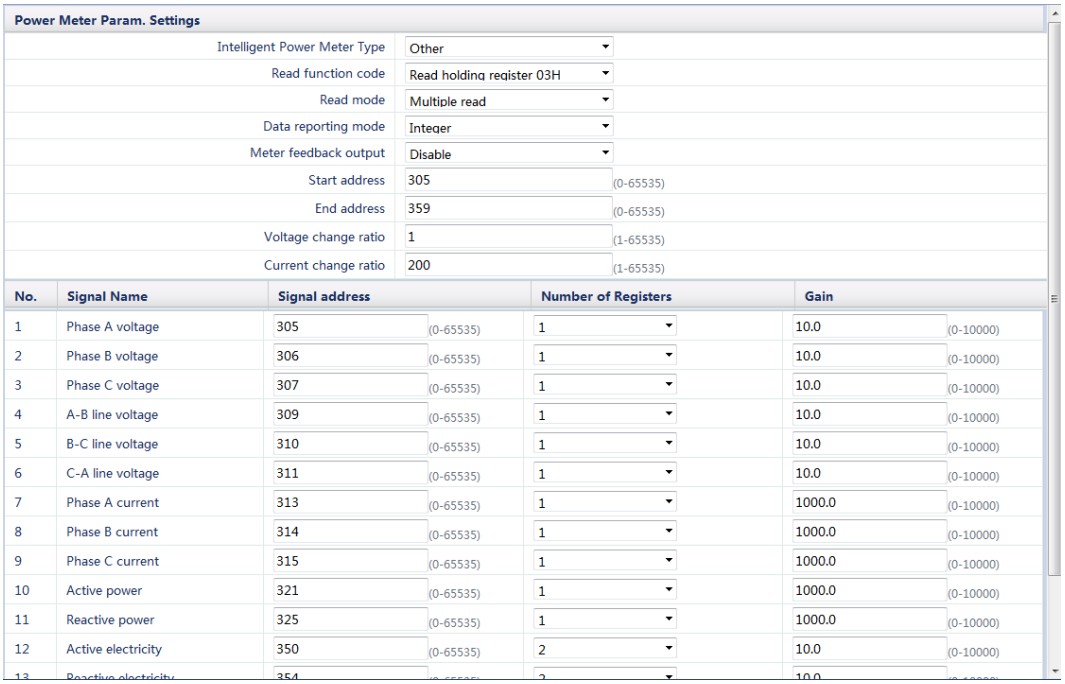
This topic describes how to set the power meter parameters on the WebUI.

On the **Settings** tab, choose **Power Meter** under **Comm. Parameters** to set the power meter parameters. To set the power meter parameters, log in as **Advanced User** or **Special User**.

Power Meter without Feedback of Grid-tied Point Data

If an power meter configured in the power station does not need to provide feedback of the grid-tied point data, set **Meter feedback output** to **Disable**.

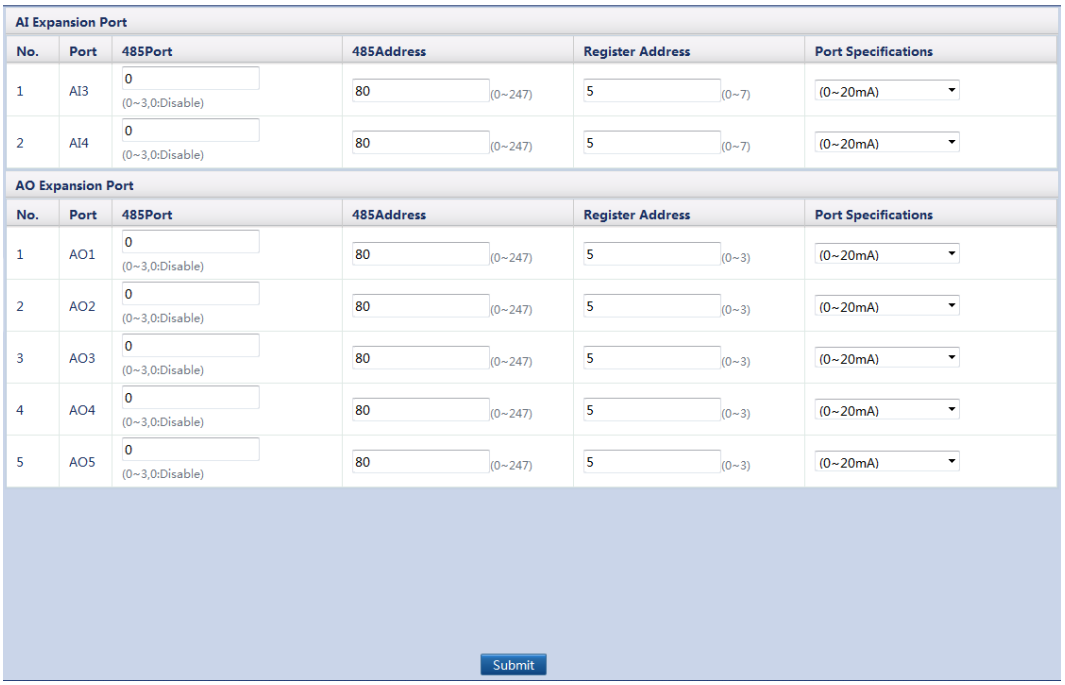
- When the connected meter model is **UMG604**, **PD510**, or **PZ96L**, select the model in the drop-down list box of **Intelligent Power Meter Type**.
- When the connected meter models are beyond the foregoing three, select **Other** from the drop-down list box of **Intelligent Power Meter Type** and set **Read function code**, **Read mode**, and **Data reporting mode**.



Power Meter With Feedback of Grid-tied Point Data

If the power meter configured in the power station provides feedback of the grid-tied point data over the AO port, connect the SmartLogger to an ADAM to extend an AI/AO port and log in to the WebUI to correctly configure the parameters of the extended port. To set **Extended Port Settings**, log in as **Special User**, as shown in Figure 7-66.

Figure 7-66 Extended Port Settings

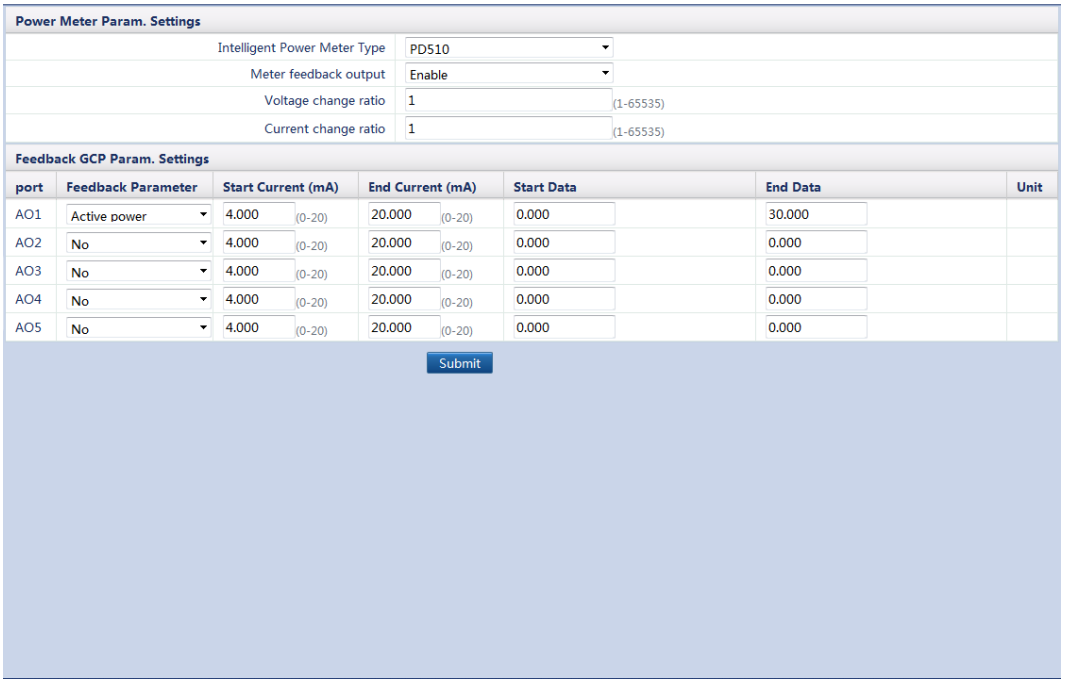


NOTE

- **1 to 3** under **485Port** indicates that the AO ports connect to the COM1 to COM3 correspondingly. **0** indicates that the port is disabled.
- **485Address** is the actual 485 address set for the ADAM. Set **Register Address** based on the actual connection.
- Set **Port Specifications** based on the standards of the power grid company.

Set **Meter feedback output** under **Power Meter** to **Enable**. Set parameters for each port, as shown in Figure 7-67.

Figure 7-67 Feedback GCP Param. Settings



NOTE

- A maximum of five concurrent AO ports can provide feedback of the grid-tied point data.
- In the **Feedback Parameter** drop-down list box, select the parameter of which the port provides feedback. One parameter corresponds to one AO port and no redundant parameters should be set.
- **Start Current** and **End Current** indicate the valid value range of signals carried by the analog output loop. The current range is smaller than or equal to the current range set in the AO specifications. **Start Data** corresponds to **End Data**.
- **Star Data** and **End Data** are the valid signal value range of the current **Feedback Parameter**. Set the two parameters based on site requirements. An excessive range results in low precision of the feedback while an insufficient range results in the incompleteness of the feedback.
- **Unit** is the unit for the current **Feedback Parameter**. When setting **Start Data** and **End Data**, note the unit selected. Otherwise, a false input and output may be caused.

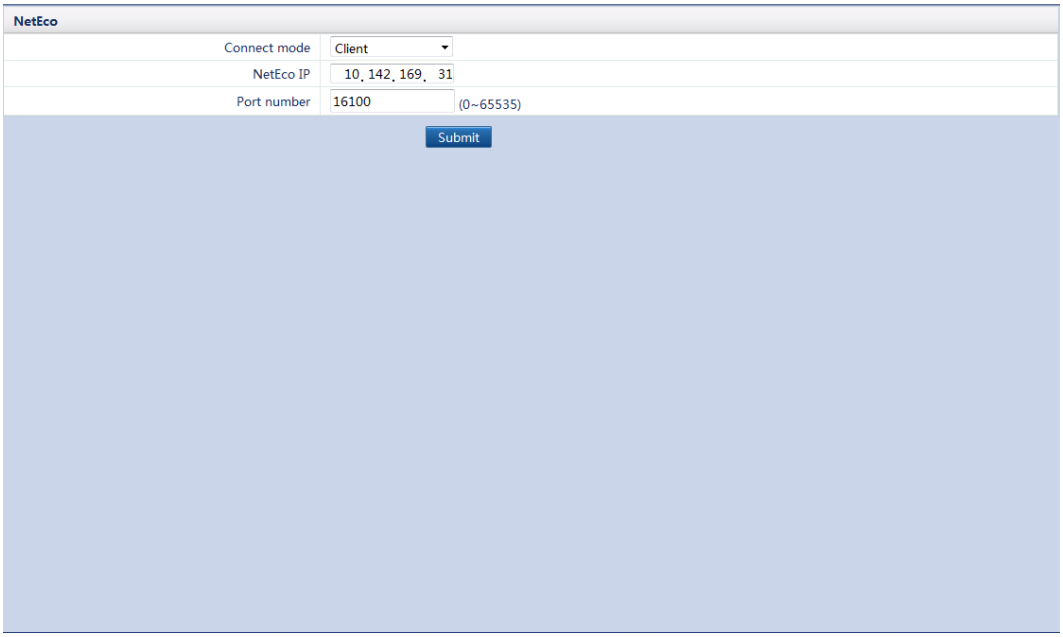
7.31 Setting NetEco Parameters

This topic describes how to set NetEco parameters, including Connect Mode, NetEco IP, and Port, over the WebUI.

Set NetEco parameters to ensure normal communication between the SmartLogger and the NetEco.

On the **Settings** tab page, choose **Comm. Parameters** > **NetEco** and set **Connect Mode**, **NetEco IP**, and **Port number**, as shown in Figure 7-68. Because of the limited permission, select the User name as **Advanced User**.

Figure 7-68 NetEco



NOTICE

- When **Connect Mode** is set to **Server**, the NetEco connects to the SmartLogger as a client. Generally, this mode applies to the scenario where the SmartLogger and NetEco are in the same LAN.
- When **Connect Mode** is set to **Client**, set an IP address and a port ID (16100 by default) for the NetEco on the SmartLogger. This mode applies to remote access scenarios, for example, when the SmartLogger and NetEco are not in the same LAN.
- When **Connect Mode** is set to **Server+Client**, the SmartLogger connects to the NetEco as a client or connects to a third-party EMS as a server. The SmartLogger can connect to a third-party EMS and Huawei NetEco by Modbus and TCP. In this way, customers can perform centralized monitoring by using a third-party EMS while using Huawei NetEco to perform remote upgrade, log uploading, batch parameter setting, historical performance data analysis, and historical alarm analysis.

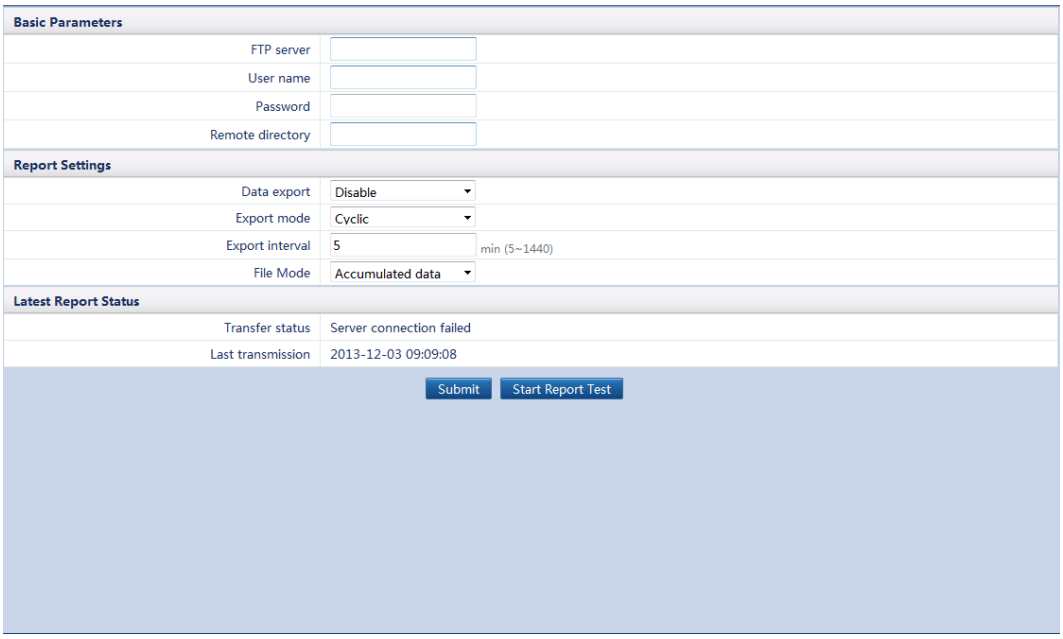
7.32 Setting FTP Parameters

This topic describes how to set basic parameters of the FTP server and view the latest report status over the WebUI.

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

On the **Settings** tab page, choose **Extended Parameters** > **FTP**. On the displayed page, you can set parameters in the **Basic Parameters** and **Report Settings** areas and view the information in the **Latest Report Status** area, as shown in Figure 7-69. Because of the limited permission, select the User name as **Advanced User**.

Figure 7-69 FTP



NOTE

- **FTP Server** can be set to the domain name or IP address of the FTP server.

  If this parameter is set to the domain name of the FTP server, ensure that the address of the DNS server is set properly.
- **User Name** and **Password** indicate the user name and password that need to be entered when you log in to the FTP server.
- Under the default directory to which data is uploaded, you can set **Remote Directory** to create a subdirectory with a name the same as the value of this parameter.
- You can click **Start report test** to check whether the SmartLogger can successfully report data to the third-party EMS.
- You can enable or disable the data report function as required.
- If you enable the data report function, you can choose to report data at regular intervals or at fixed time.
- Data reported on schedule is accumulated data, whose file name remains the same for a whole day. You can choose **Accumulated data** or **Periodically added data** to be reported within a specified cycle.

7.33 Setting Email Parameters

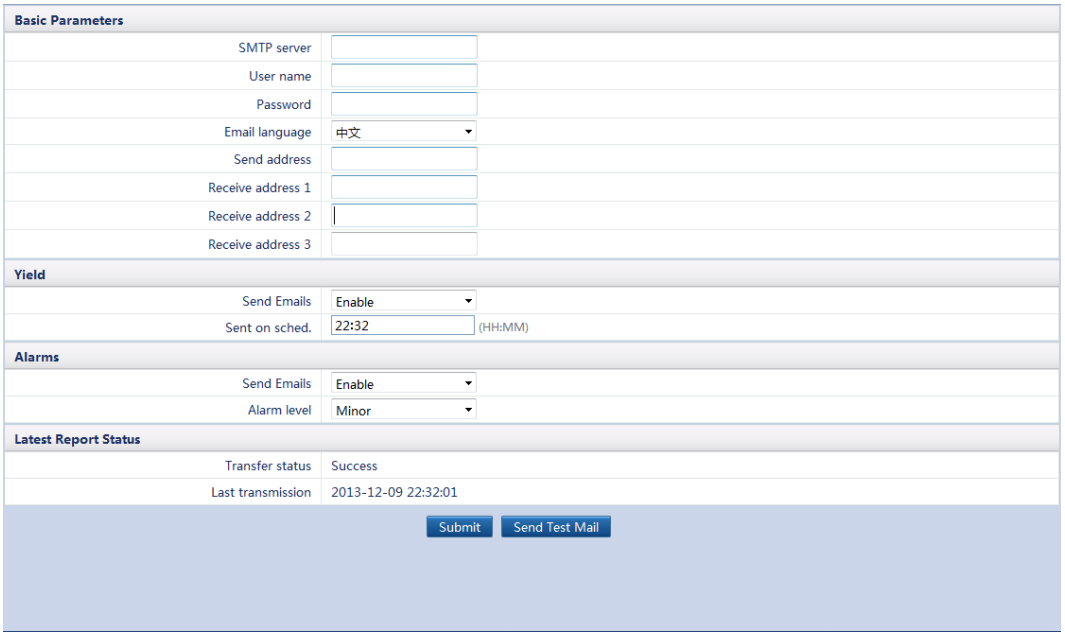
This topic describes how to set basic parameters of email and view the latest report status over the WebUI.

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

When using this function, ensure that the SmartLogger can be connected to the configured email server and set the Ethernet parameters and email parameters of the SmartLogger.

On the **Settings** tab page, choose **Extended Parameters** > **Email** and set parameters in the **Basic Parameters**, **Yield**, and **Alarm** areas and view the information in the **Latest Report Status** area, as shown in Figure 7-70. Because of the limited permission, select the User name as **Advanced User**.

Figure 7-70 Email



NOTE

- **SMTP Server** can be set to the domain name or IP address of the SMTP server.

  If this parameter is set to the domain name of the SMTP server, ensure that the address of the DNS server is set properly.
- **User Name** and **Password** indicate the user name and password that need to be entered when you log in to the SMTP server.
- You can click **Send Test Mail** to check whether the SmartLogger can successfully send emails to users.
- You can enable or disable the function of sending emails to inform you of the energy yield or alarm information as required.

Note the following when setting email parameters:

- Before setting email parameters, set the DNS server address. By default, you can set the DNS server address to the IP address of the 3G router or obtain an address from the network provider as the DNS server address. For detailed operations, see 7.27 Setting Ethernet Parameters.
- If you want to be informed of the energy yield information by emails at regular intervals, enable the relevant function and set the sending time.

- Alarm emails are sent in trigger mode. That is, with the relevant function enabled and alarm severity preset, a notification email is sent to you if an alarm of this severity or higher is generated.

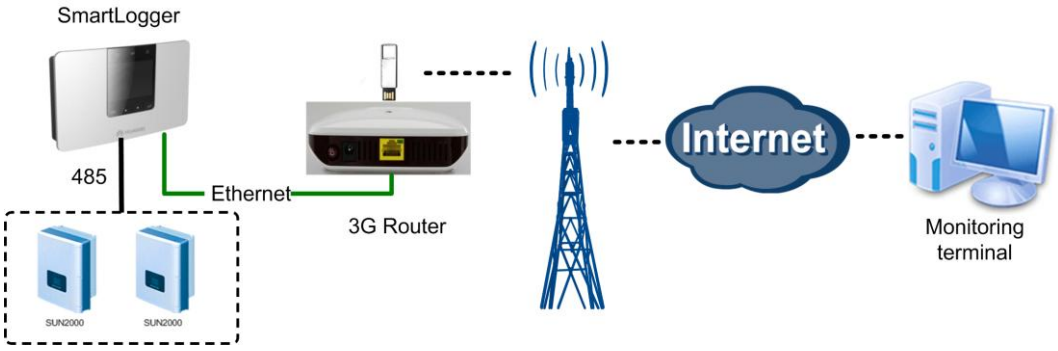
7.34 Port Settings

This topic describes how to reset a 3G router by configuring a DO port or USB port.

When the PV plant and the element management system (EMS) are not in the same area, the SmartLogger needs to be connected to the EMS to implement the function of monitoring a remote PV plant. After you connect the SmartLogger to a router and set the Ethernet parameters, the SmartLogger can be connected to the remote EMS, SMTP mail server, or FTP server through the router.

If it is inconvenient to connect the PV plant in wired mode, you can connect it to a wireless 3G router for accessing the Internet, as shown in .

Figure 7-71 3G router networking



A 3G router is a communication device for civil use. Its reliability is limited. You can connect the DC power supply cable of a 3G router to the SmartLogger. This allows the SmartLogger to control the reset of the 3G router when the communication link is interrupted, improving the reliability of the communication link.

7.34.1 Setting DO Parameters

This topic describes how to set DO configuration parameters for resetting an external 3G router over the WebUI.

Context

The SmartLogger provides three DO ports. You can connect one DC power cable of the 3G router to one DO port in series and power on or off the wireless module by disconnecting or connecting the DO dry contact to control the reset of the 3G router.

Considering the restrictions on the current that can pass the DO port of the SmartLogger, you need to determine the number of DO ports to be used for the control based on the maximum power supply current of the 3G router (the maximum power supply current can be calculated based on the maximum power consumption and DC power supply voltage).

- When the power supply current is smaller than 1 A, use one DO port.

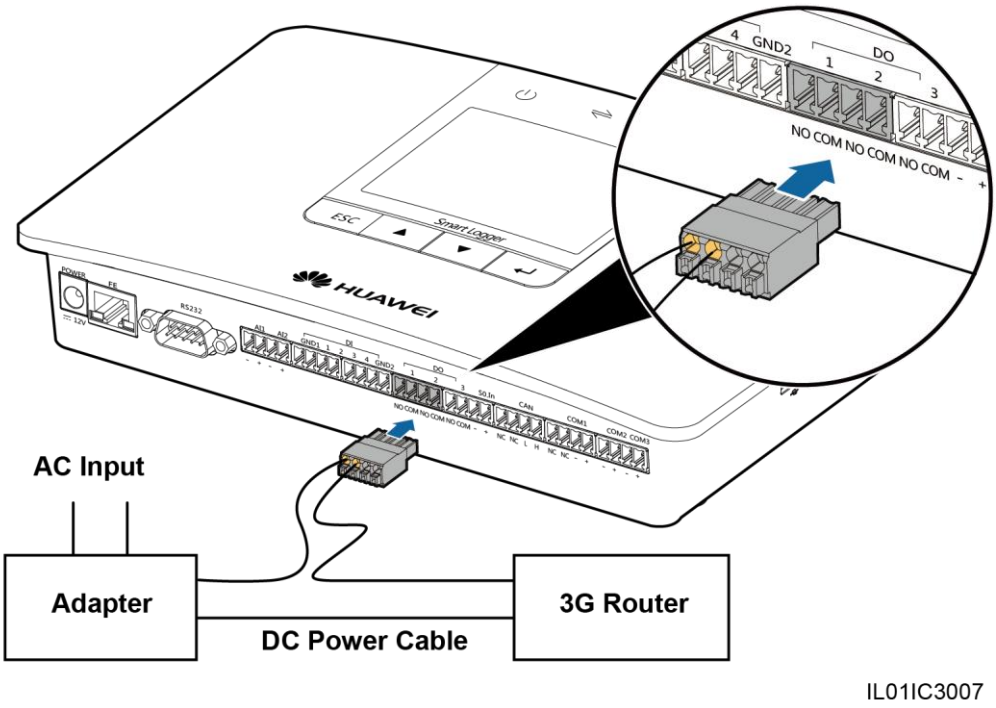
- When the power supply current is larger than 1 A but smaller than 1.6 A, use two DO ports.
- When the power supply current is larger than 1.6 A but smaller than 2.4 A, use three DO ports.
- When the power supply current is larger than 2.4 A, access is not allowed because the current exceeds the upper limit.

Connecting a 3G Router to the SmartLogger Over a DO Port

Before connecting a 3G router to the SmartLogger, cut off a DC power cable of the connector, and then connect the cable cut to the DO port on the SmartLogger.

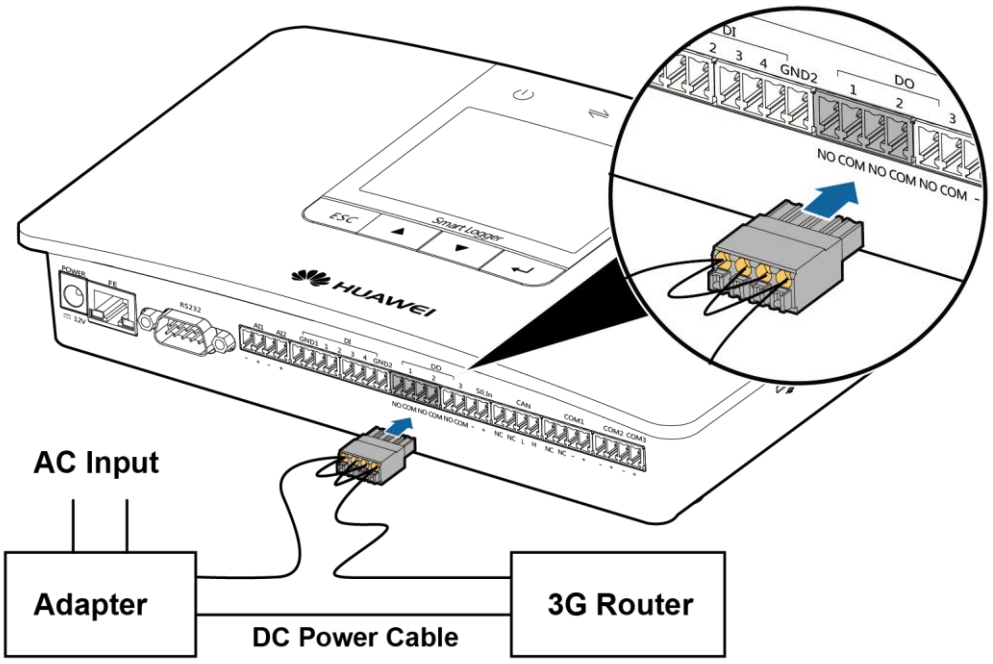
- Figure 7-72 shows the connection when one DO port is used.

Figure 7-72 Connecting one DO port



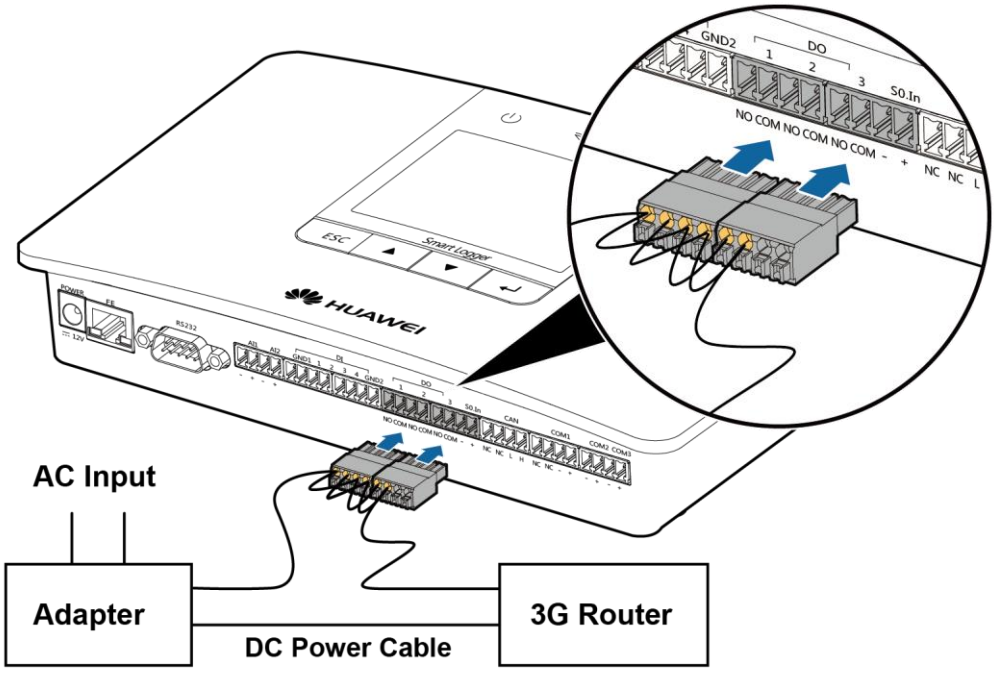
- Figure 7-73 shows the connection when two DO ports are used.

Figure 7-73 Connecting two DO ports



- Figure 7-74 shows the connection when three DO ports are used.

Figure 7-74 Connecting three DO ports

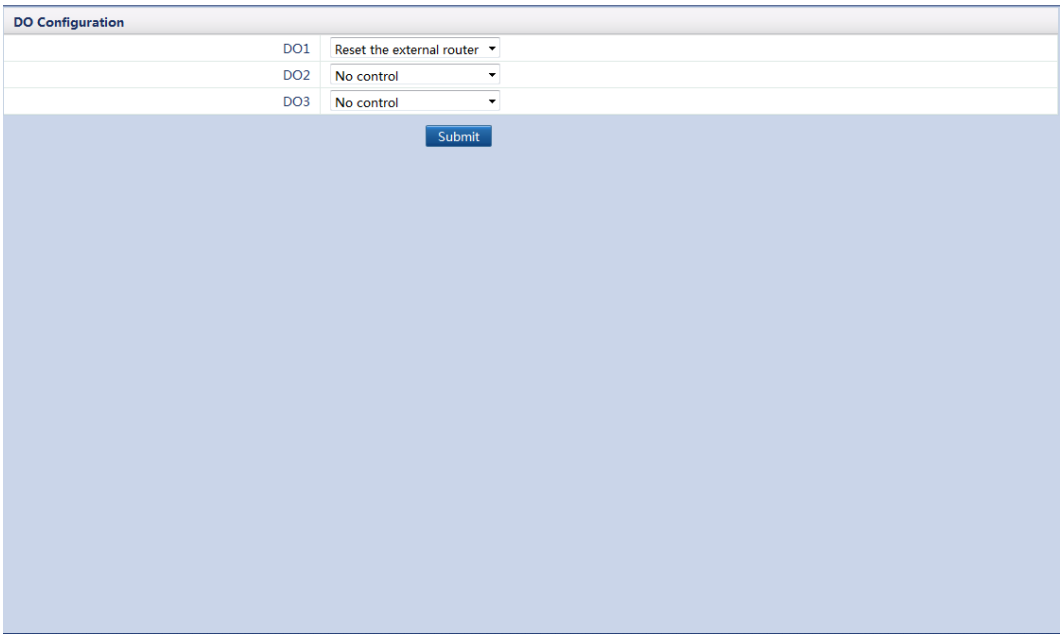


DO Configuration

After connecting the 3G router to the SmartLogger properly, you can set DO configuration parameters over the WebUI to make the external 3G router automatically reset if the SmartLogger fails to connect to the NetEco, email server, or FTP server within 30 minutes.

On the **Settings** tab page, choose **Port Settings** > **DO** and set **DO1**, **DO2**, and **DO3** to **Reset the external router** or **No control**, as shown in Figure 7-75. Because of the limited permission, select the User name as **Advanced User**.

Figure 7-75 DO configuration



NOTE

Set **DO1**, **DO2**, and **DO3** to **Reset the external router** or **No control** based on the connections between the router and the three DO ports of the SmartLogger.

7.34.2 Setting USB Parameters

This topic describes how to set USB parameters for resetting an external 3G router over the WebUI.

Context

The SmartLogger provides a USB port, which has a power capacity of 5 V/1 A. If the DC power cable of the 3G router has a standard USB connector and has a maximum current of less than 1 A, it can directly connect to the USB port on the SmartLogger. Hence the SmartLogger can power on or off the 3G router, which allows the SmartLogger to control the reset of the 3G router when the communication link is interrupted.

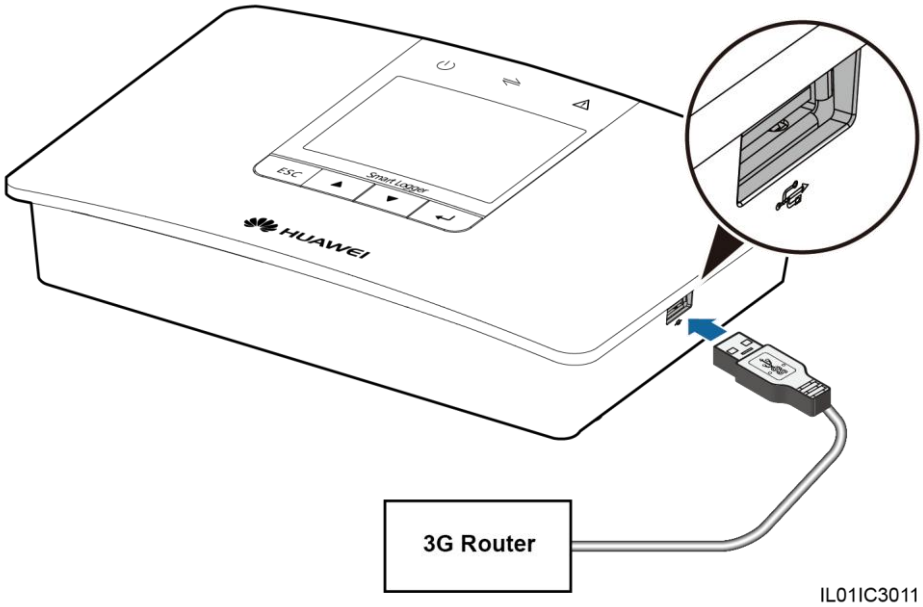
NOTICE

- Only the SmartLoggers in versions later than V100R001C90SPC300 enjoy this function.
- If the maximum working current of the 3G router is greater than 1 A, it cannot be connected over a USB port.

Connecting a 3G Router over a USB

Connect the USB connector of the DC power cable of the 3G router to the USB port on the SmartLogger, as shown in Figure 7-76.

Figure 7-76 Connecting the 3G router and the SmartLogger

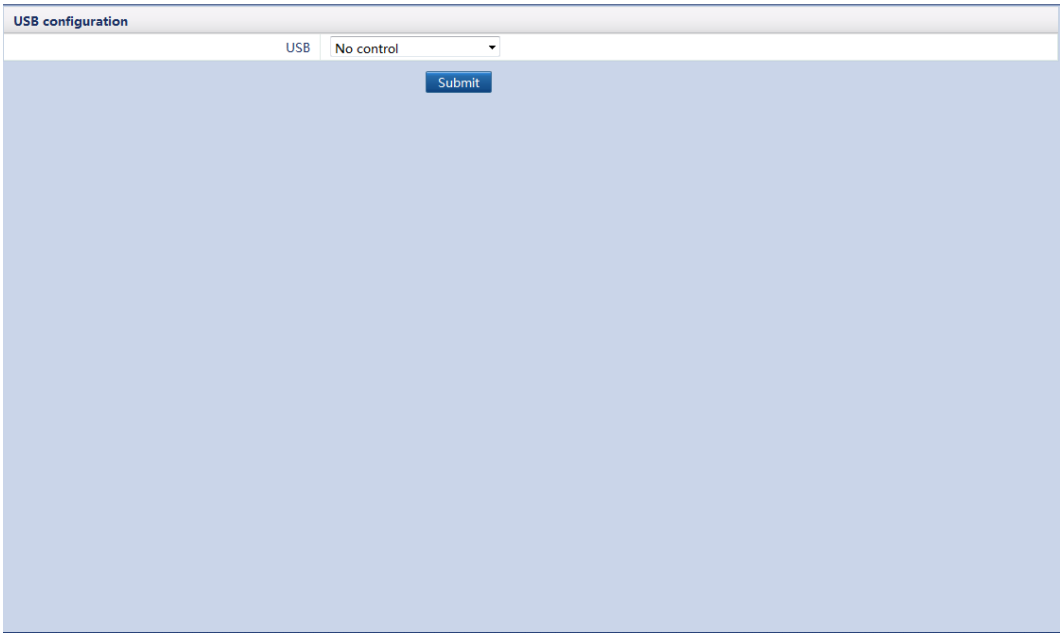


USB Configuration

After connecting the 3G router to the SmartLogger properly, you can set USB configuration parameters over the WebUI to make the external 3G router automatically reset if the SmartLogger fails to connect to the NetEco, email server, or FTP server within 30 minutes.

On the **Settings** tab page, choose **Port Settings** > **USB** and set USB to **Reset the external router** or **No control**, as shown in Figure 7-77. Because of the limited permission, select the User name as **Advanced User**.

Figure 7-77 USB configuration



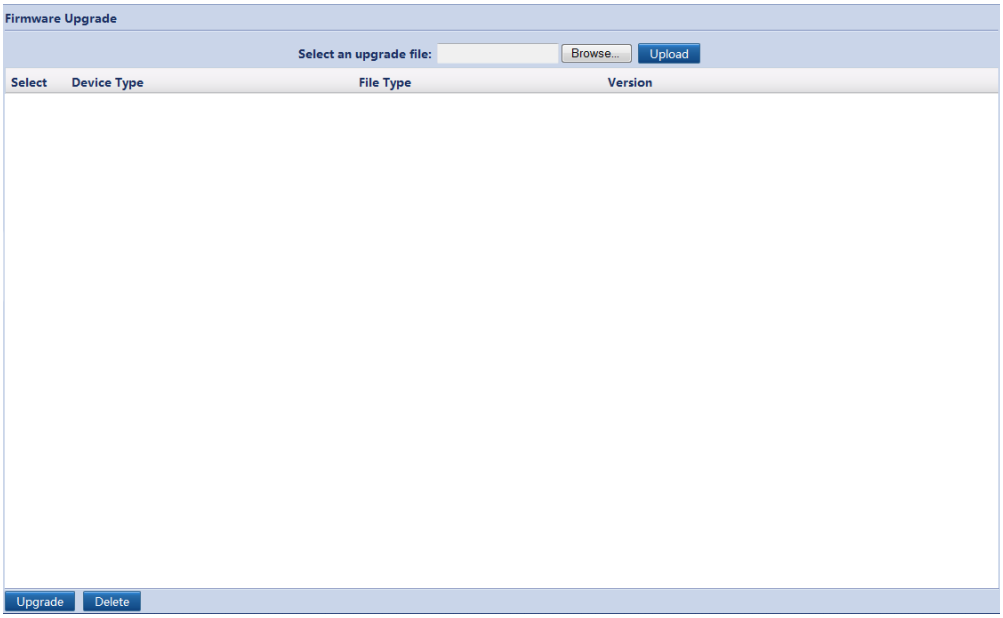
7.35 Upgrading Firmware

This topic describes how to upgrade firmware for the SmartLogger over the WebUI.

On the **Maintenance** tab page, click **Firmware Upgrade** and upgrade firmware for the SmartLogger. Because of the limited permission, select the User name as **Advanced User** or **Special User**.

1. On the **Firmware Upgrade** page, click **Browse**, select the updated file, and then click **Upload**, as shown in Figure 7-78.

Figure 7-78 Updating the firmware



2. After the update file is uploaded, the displayed page lists the sub-files to be updated.
3. Select the item you need to update and click **Upgrade**. An update progress bar is displayed until the update is complete.
4. Select the items that do not need to be updated and click **Delete**.

7.36 Viewing Product Information

This topic describes how to view SmartLogger information, including SN, Hardware Version, Device Type, and Firmware Version, over the WebUI.

On the **Maintenance** tab page, click **Product Information**. **SN**, **Hardware Version**, **Device Type**, and **Firmware Version** are displayed, as shown in Figure 7-79.

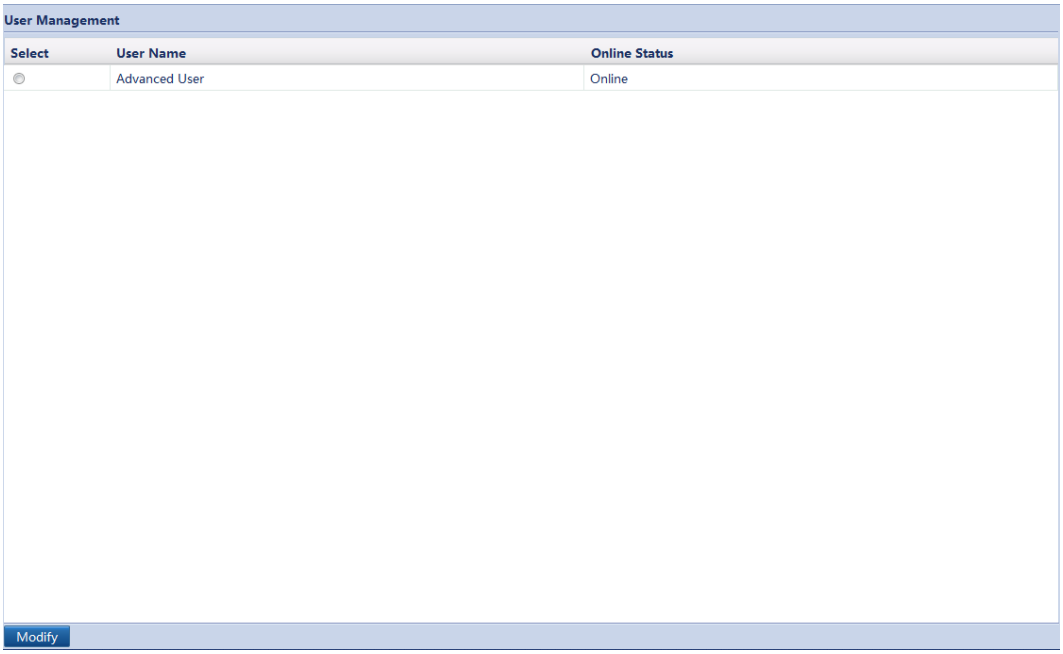
Figure 7-79 Product information

7.37 User Management

This topic describes how to change the password for the active user over the WebUI.

On the **Maintenance** tab page, you can select **User Management** to change a user password, as shown in Figure 7-80.

Figure 7-80 User management



NOTE

Click **Modify** to change the password for the active user.

NOTICE

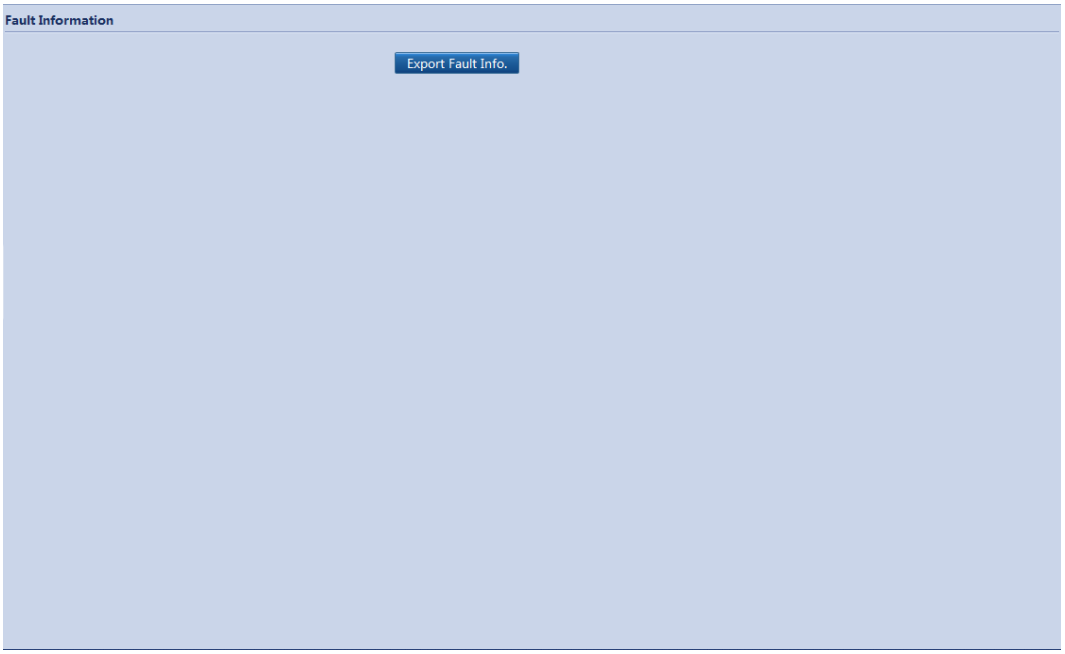
The password for login on the LCD is the same as that for login to the WebUI. After you change a password on the WebUI, the password on the LCD changes synchronously.

7.38 Exporting Fault Information

This topic describes how to export fault information over the WebUI.

On the **Maintenance** tab page, select **Fault Information** and click **Export Fault Info.**, as shown in Figure 7-81. Because of the limited permission, select the User name as **Advanced User** or **Special User**.

Figure 7-81 Fault information



NOTICE

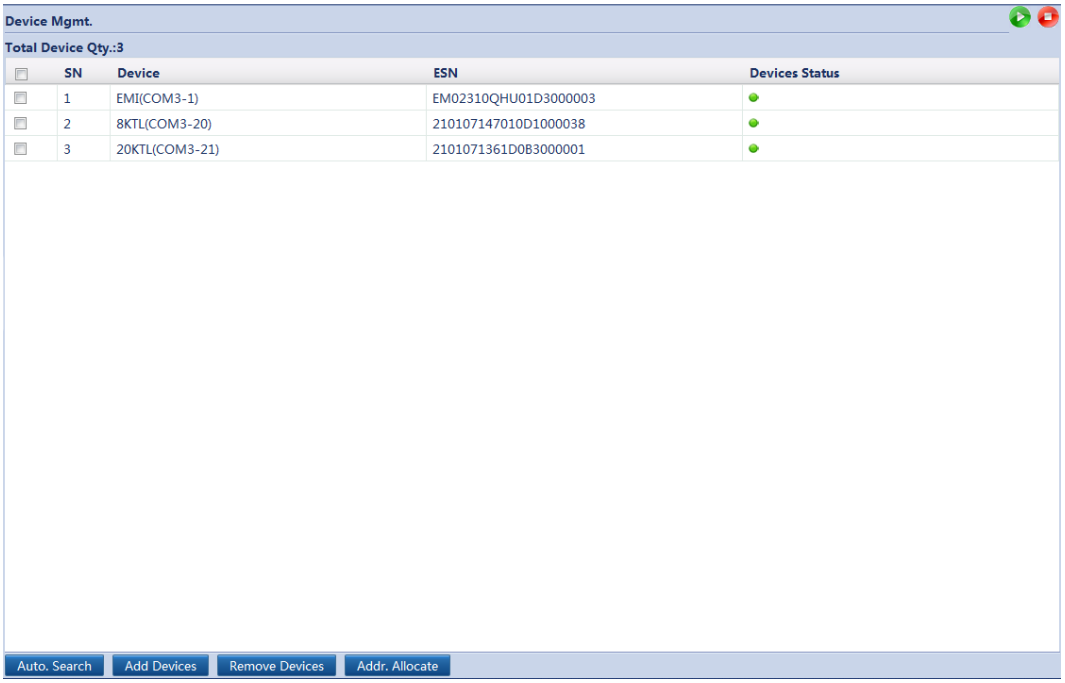
When changing the name of the exported files, retain the extension **.tar.gz**. Otherwise, the file cannot be functional.

7.39 Device Management

This topic describes how to manage devices on the WebUI.

On the **Maintenance** tab, choose **Device Mgmt.**, as shown in Figure 7-82. To perform this, log in as **Advanced User** or **Special User**.

Figure 7-82 Device management



Choose **Auto. Search**, **Add Devices**, **Remove Devices**, or **Add. Allocate** as required.

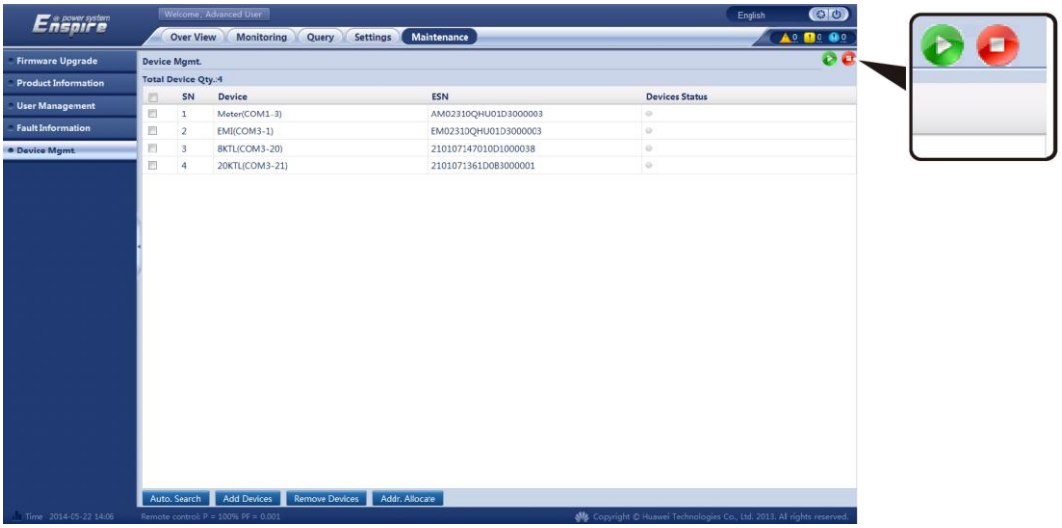
NOTICE

- The EMI, power meter, and Slave SmartLogger cannot be detected automatically. You need to add them manually.
- Before you add the EMI manually, correctly set the EMI parameters. For details, see 7.29 Setting EMI Parameters.
- Before you add the power meter manually, correctly set the power meter parameters. For details, see 7.30 Setting Power Meter Parameters.

Batch Power-on/off

On the **Device Mgmt.** tab, you can power on or off all the inverters connected the SmartLogger in batch. The power-on and power-off buttons are located in the upper right corner of the tab page. The green one is the power-on button and the red one is the power-off button, as shown in Figure 7-83.

Figure 7-83 Batch power-on/off



NOTE

- When you click **Batch Startup** or **Batch Shutdown** button, the system displays a prompt asking whether to power on or off the inverter. If you are sure, click **OK**.
- If a Slave SmartLogger is configured in the power station, when the batch power-on/off command is sent to the Master SmartLogger, the command is also synchronized to the Slave SmartLogger and then all the connected inverters.

8 Grid Dispatch

About This Chapter

This topic describes the power grid dispatching function.

In a PV power generating system, the short-term fluctuation and periodic changes of the local illumination may lead to a tremendous power fluctuation, which brings risks to the power grid running.

The power grid dispatching center should build up a real-time dispatching mechanism to ensure that the power output from the PV power generating system takes precedence during the load peak hours. If the power grid is faulty or a voltage or frequency imbalance occurs between the power generating side and the power consuming side, the power grid dispatching center sends the active power control and reactive power control command to ensure the secure power grid running.

As the core device in the communications system of the PV power station, Smart Logger receives the remote dispatching signals, analyzes the dispatching commands, and sends the commands to all the inverters connected to it. The power grid dispatching person can set all the parameters on the WebUI to meet different customers' requirements.

By integrating grid-tied PV system standards of various countries and regions, the Smart Logger also provides various and flexible power grid dispatching meet different requirements of countries and regions.

8.1 Power Grid Scheduling Modes

This topic describes the power grid scheduling modes.

Two power grid scheduling modes are available, active power control and reactive power control. Before you perform the power control for the power station, set the corresponding mode to **Enable** and then correctly set related parameters.

8.1.1 Active Power Control

This topic describes how to set the active power control mode.

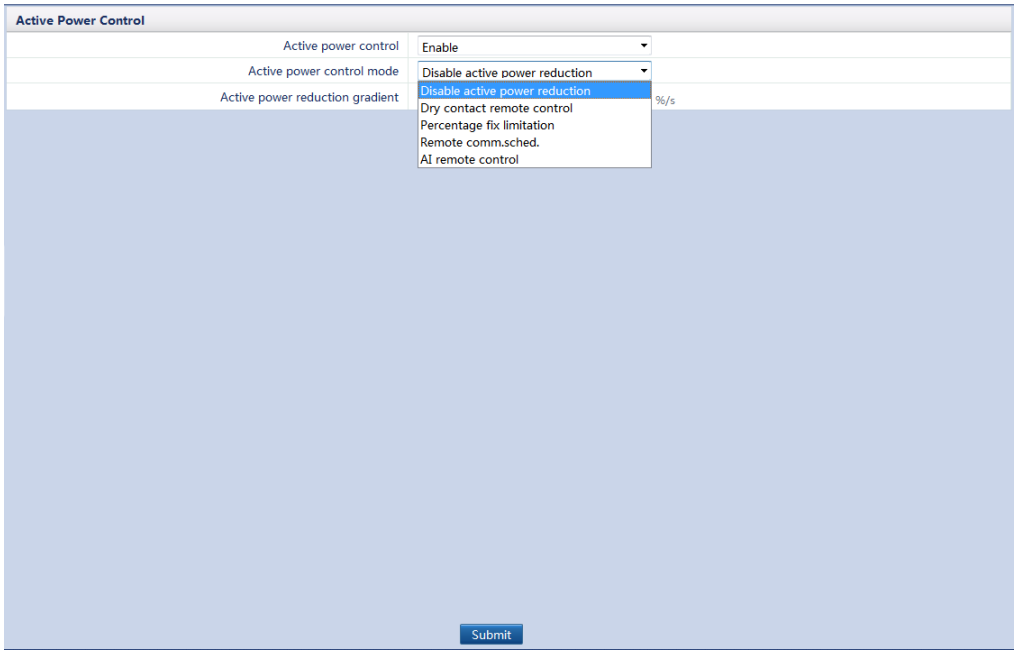
The SmartLogger can send remote dispatching commands in real time to inverters connected to it, which ensures that the PV power station can quickly respond to the requirements of the power grid company.

If the power grid or the PV power station is faulty, the power grid dispatching personnel should limit the active power or disable all the active power for the power station, that is, to enable the active power reduction mode.

NOTICE

The SmartLogger controls the active power of connected inverters only when active power control is **Enable**.

Figure 8-1 Active Power Control



8.1.2 Reactive Power Control

This topic describes how to set the reactive power control mode.

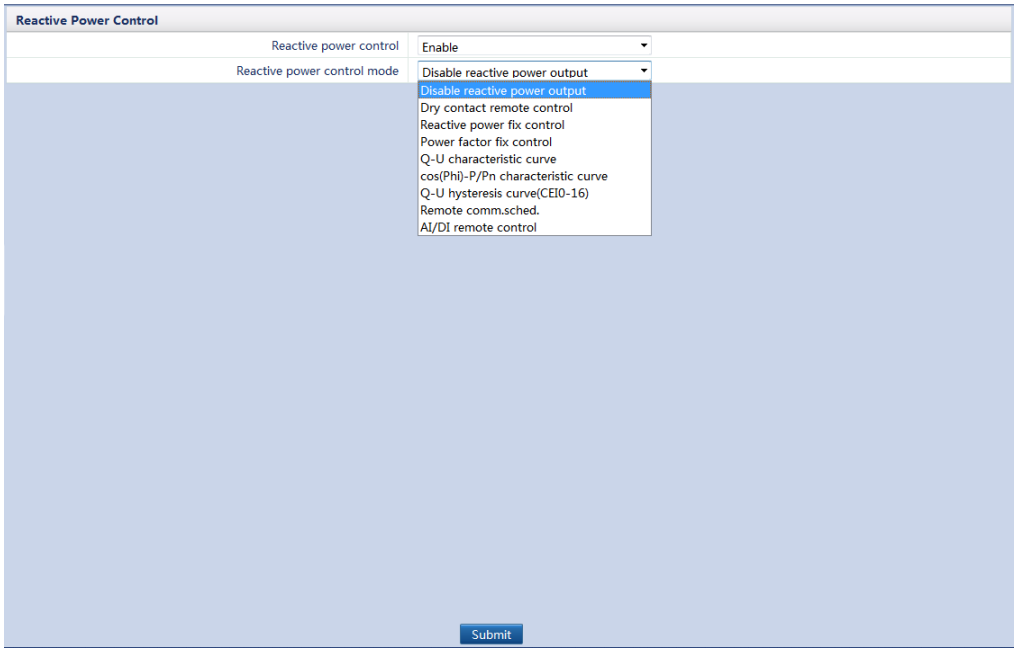
The SmartLogger can send remote dispatching commands in real time to inverters connected to it, which ensures that the PV power station can quickly respond to the requirements of the power grid company.

Large-scale power stations are required to adjust the voltage at the grid-feeding point. Power grid dispatching personnel enables the power station to reduce or add the reactive power at the grid-feeding point, that is, to enable the reactive power compensation, based on the real-time reactive power status in the power grid.

NOTICE

The SmartLogger controls the reactive power of connected inverters only when reactive power control is **Enable**.

Figure 8-2 Reactive Power Control



8.2 Application Scenarios

This topic describes the application scenarios of the power grid scheduling function.

Requirements of power grid scheduling vary with countries and power grid companies. The number of inverters varies in accordance with the power level of the power station and hence the networking mode differs too. A different networking mode indicates a different power grid scheduling data source and a different communication mode between the SmartLogger and the power grid. There are four application scenarios of the power grid scheduling: local scheduling, dry contact scheduling, AI/DI scheduling, and communication scheduling.

8.2.1 Local Scheduling

This topic describes the compositions and application of the local scheduling.

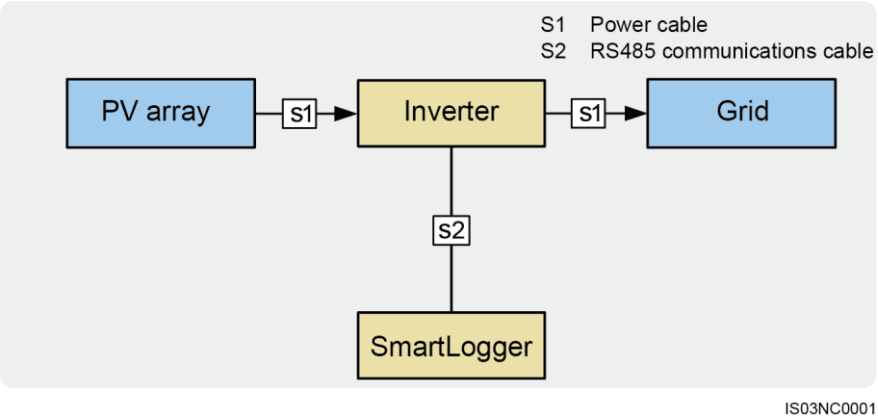
Local scheduling applies to power stations that have a rated power of no more than 100 kW and less than five grid-tied inverters. As the system is small-sized, the power grid company has simple requirements of power scheduling. Hence, local scheduling is sufficient.

Some power grid companies require no remote reactive power control but multiple local reactive power control modes.

You can set the power control modes on the WebUI based on the actual output features. The SmartLogger continuously controls the power output of the inverters based on the user setting.

Figure 8-3 shows the networking application of the local scheduling.

Figure 8-3 Local scheduling



Active Power Control

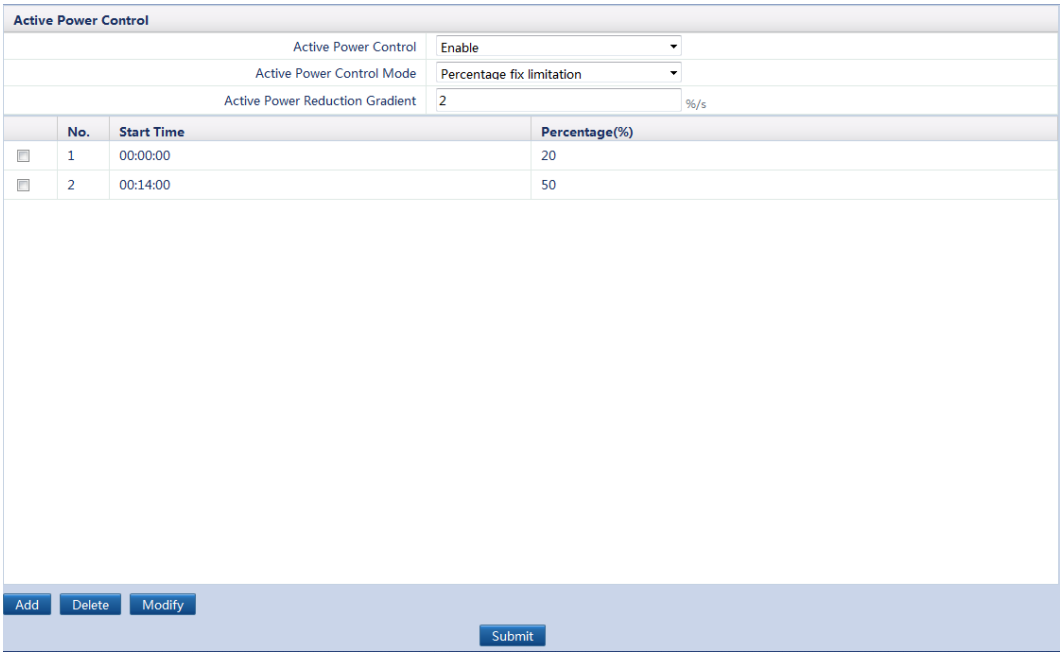
The SmartLogger provides simplified local active power percentage configuration as well as the local power control automation, that is, to automatically adjust the active power reduction percentage in different periods of the day.

- If the inverters are allowed to run overloaded, set **Active Power Control Mode** to **Disable active power reduction**.

NOTICE

This function takes effect only when **Active Power Control** is set to **Enable**.

- If the maximum power output of the inverters should be controlled, set **Active Power Control Mode** to **Percentage fix limitation**.



NOTE

- Set **Start Time** in the format of hh:mm:ss (in which hh means hour, mm means minute, ss means second).
- Users can set the active power reduction gradient to control active power change speed of the grid-feeding point in the PV power station. The range is 0 to 10%/s.
- If no separate periods are required, users can set only one start time.
- If the inverters should run under a specified maximum power in certain periods of the day, first set **Active Power Control Mode** to **Percentage fix limitation**, add setting records based on the site requirements, and then set **Start Time** and **Percentage**.
- If the inverters should run under 70% derating power, set **Percentage fix limitation** to **Percentage fix limitation**, add one setting record, and then set **Percentage** to **70**.

Reactive Power Control

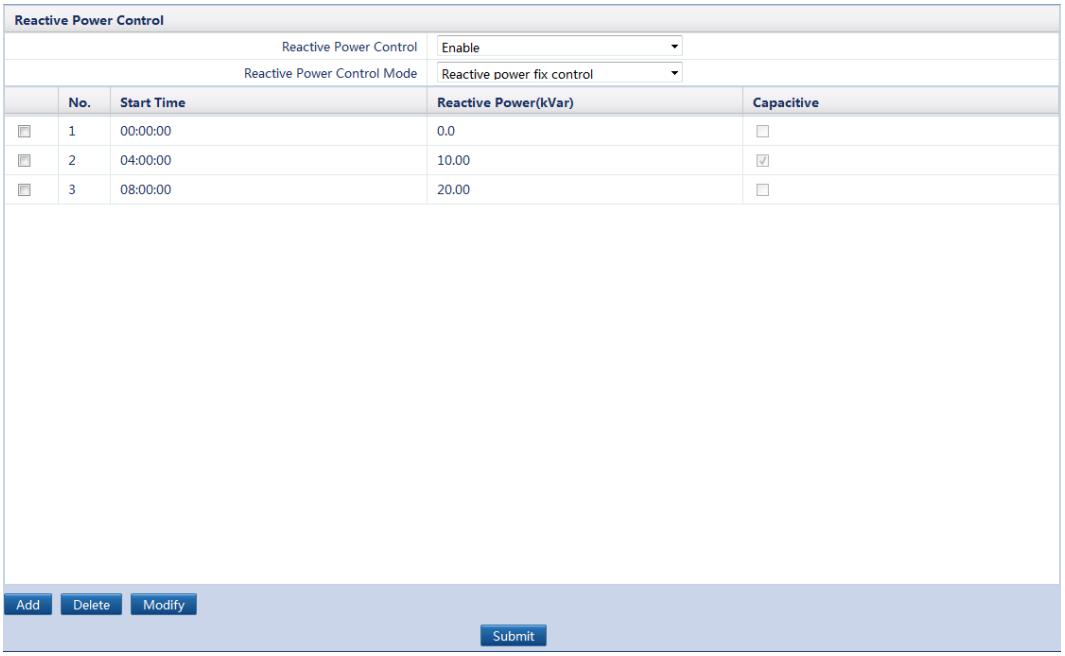
The SmartLogger provides simplified local reactive power parameters configuration as well as local power control automation, that is, to automatically adjust the power factor or absolute value of the reactive power compensation in different periods of the day.

- If the power station is not required to adjust the voltage at the grid-tied point or perform reactive power compensation, inverters can run with pure active power output. Hence, set **Reactive Power Control Mode** to **Disable reactive power output**.

NOTICE

This function takes effect only when **Reactive Power Control** is set to **Enable**.

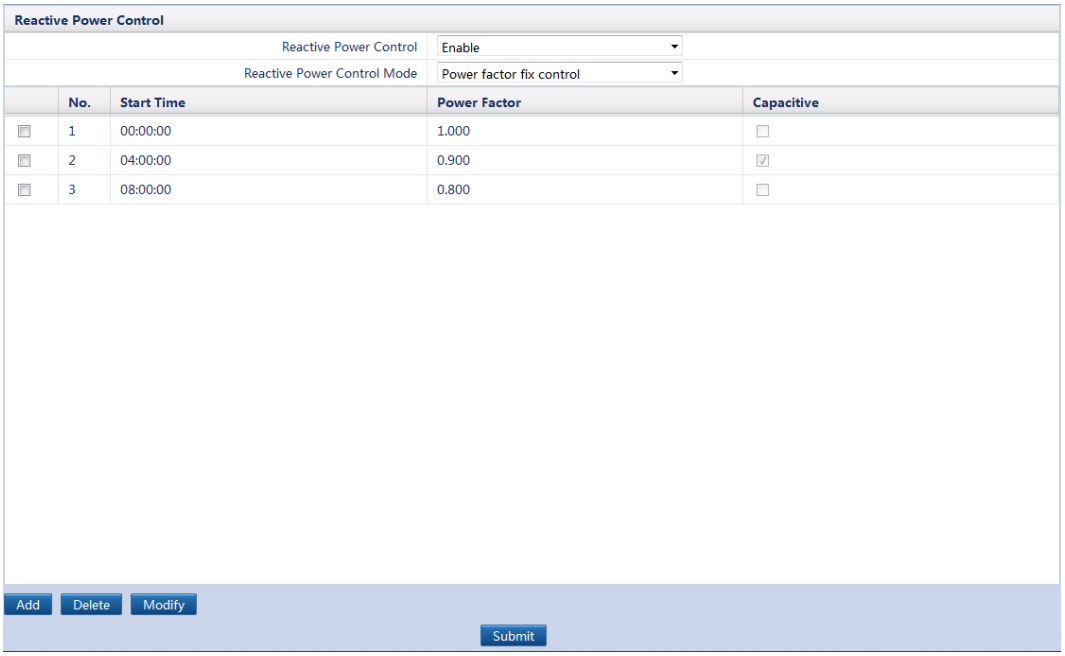
- If the power station is required to generate at the grid-tied point a specified constant reactive power within the power factor range, set **Reactive Power Control Mode** to **Reactive Power Fix Control**, add the setting records, and then set **Start Time** and **Reactive Power** corresponding to a certain period.



NOTE

- Set **Start Time** in the format of hh:mm:ss (in which hh means hour, mm means minute, ss means second).
- If no separate periods are required, users can set only one start time.
- If a "√" is under **Capacitive**, the power grid supplies capacitive reactive power to the power station. If no "√" is under **Capacitive**, the power station supplies inductive reactive power to the power grid.
- The upper threshold of **Reactive Power** is the rated output power sum of all online inverters and the lower threshold is **0**.
- Limited by the power factor (the maximum range is 1 to 0.8), the reactive power at the grid-tied point cannot stay constant when the real-time active power is small.

- If the power station is required to generate a constant power factor at the grid-tied point and the inverters are required to adjust the real-time reactive power based on the set power factor, set **Reactive Power Control Mode** to **Power factor fix control**, add the setting records, and then set **Start Time** and **Power Factor** corresponding to a certain period.



NOTE

- Set **Start Time** in the format of hh:mm:ss (in which hh means hour, mm means minute, ss means second).
- If no separate periods are required, users can set only one start time.
- If a "√" is under **Capacitive**, the power grid supplies capacitive reactive power to the power station. If no "√" is under **Capacitive**, the power station supplies inductive reactive power to the power grid.

- If the remote control of the reactive power compensation is unavailable, the SmartLogger provides the Q-U characteristic curve, cos(Phi)-P/Pn characteristic curve, or Q-U Hysteresis curve(CEI0-16) for substitute. The power dispatching personnel specifies the characteristic curve according to the requirements of the local power grid and grid-tied power system and sends the signal to all the connected inverters in real time.

  Set **Reactive Power Control Mode** to **Q-U characteristic curve**, as shown in Figure 8-4, or to **cos(Phi)-P/Pn characteristic curve**, as shown in Figure 8-5, or to **Q-U Hysteresis curve(CEI0-16)**, as shown in Figure 8-6.

NOTE

- Q-U characteristic curve control mode is to dynamically adjust the ratio of the output reactive power to apparent power **Q/S** in accordance with the ratio of the actual grid voltage to the rated grid voltage **U/Un** (%).
- cos(Phi)-P/Pn characteristic curve control modes is to dynamically adjust the power factor **cosψ** in accordance with the ratio of the actual inverter output power to the rated inverter power **P/Pn** (%).
- 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 of the grid-tied point. And the final value should be in the form of **Q/Pn**.

NOTICE

Set the parameters of characteristic curves under instructions from professionals to ensure that the inverters work properly.

Figure 8-4 Q-U characteristic curve

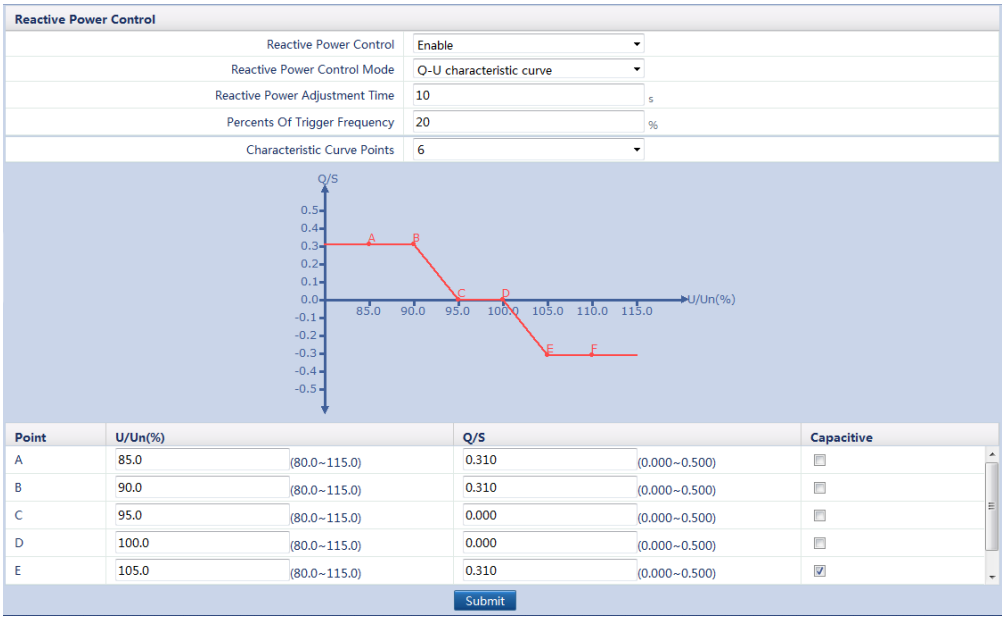


Figure 8-5 cos(Phi)-P/Pn characteristic curve

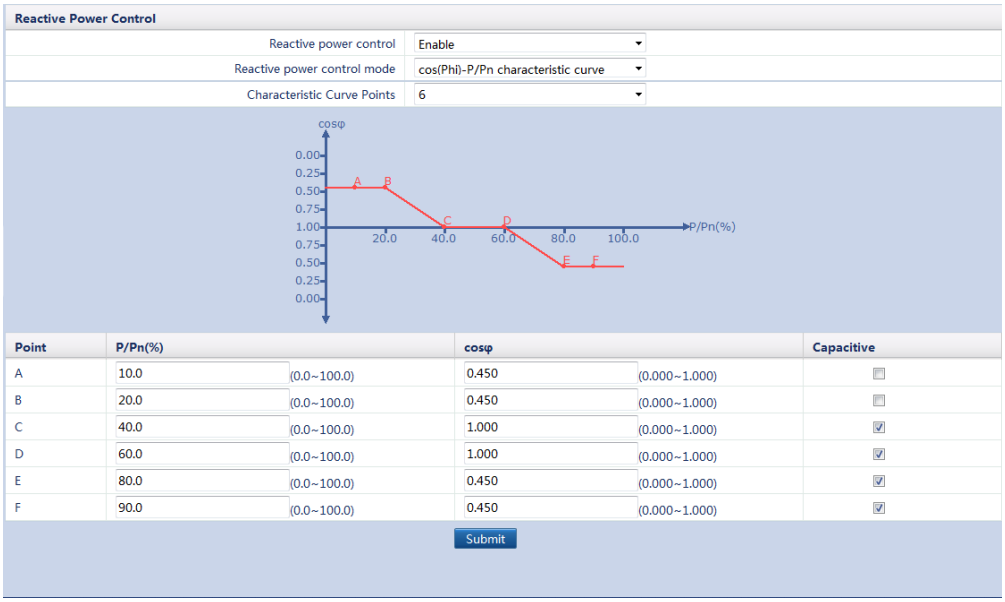
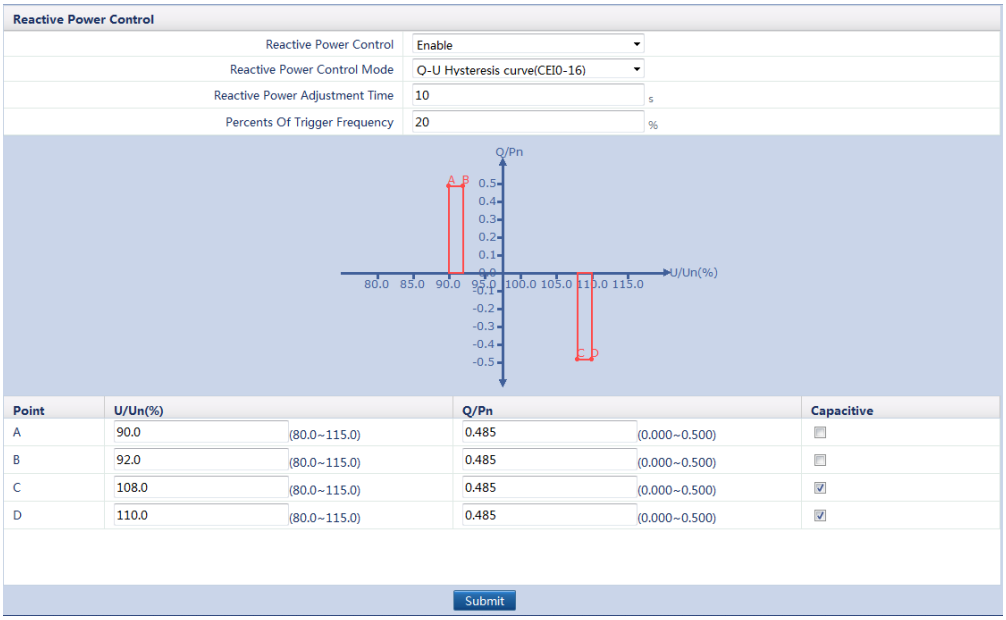


Figure 8-6 Q-U Hysteresis curve(CEI0-16)



NOTICE

When you set **Q-U Hysteresis curve (CEI0-16)**, ensure that the **Capacitive** settings of A and B are consistent, the **Capacitive** settings of C and D are consistent, and the **Capacitive** settings of A and B are different from the **Capacitive** settings of C and D.

NOTE

- When you set **Q-U Hysteresis curve (CEI0-16)**, ensure that the **U/Un(%)** or **P/Pn(%)** value of a point is larger than the **U/Un(%)** or **P/Pn(%)** value of the previous point. Otherwise, the **Invalid input** message is displayed.
- If a "√" is under **Capacitive**, the power factor is a negative value, indicating that the power grid supplies reactive power to the PV power station. If no "√" is under **Capacitive**, the power factor is a positive value, indicating that the PV power station supplies reactive power to the power grid.
- Both the Q-U characteristic curve and cos(Phi)-P/Pn characteristic curve can support a maximum of 10 valid data points.
- Set **Reactive Power Adjustment Time** to specify the changing intervals of the reactive power compensation for the grid-feeding point in the PV power station. The range is 0 to 60s.
- When adding data points for the curve, refer to the provided range in the right of the text box.

8.2.2 Dry Contact Scheduling

This topic describes the compositions and application of the dry contact scheduling.

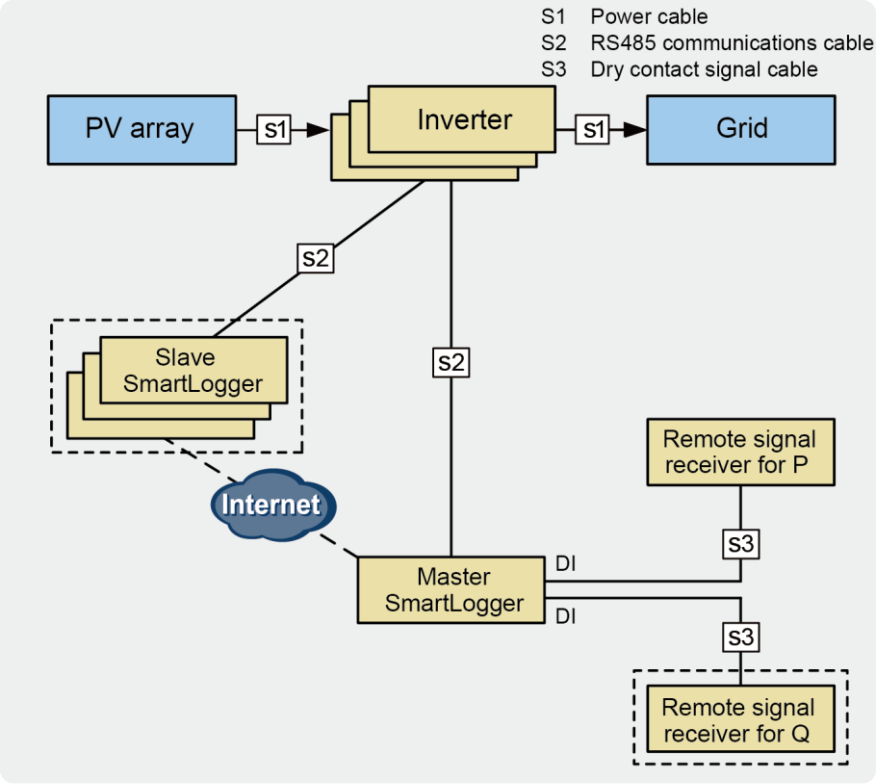
Dry contact scheduling mainly applies to power stations that have a rated power larger than 100 kW and require remote and real-time adjustment of active power and reactive power over dry contacts.

The SmartLogger scans all the dry contact signals sent from the power grid scheduling devices (the wireless receiver controller or power carrier communications devices), converts

the signals into valid command data identified by the inverters, and sends the data to all the inverters connected to the SmartLogger.

Figure 8-7 shows the networking application of the dry contact scheduling.

Figure 8-7 Dry contact scheduling



NOTICE

If a Slave SmartLogger is configured in the system, inverters should be connected to the Slave SmartLogger instead of the Master SmartLogger. Otherwise, inverters that connect to the Master SmartLogger cannot perform the power grid scheduling command.

NOTE

- Slave SmartLogger and Remote signal receiver for Q are optional access devices.

  If a Slave SmartLogger is to be connected, manually add the Slave SmartLogger on the monitoring panel or WebUI of the Master SmartLogger.
- Master SmartLogger connects to Slave SmartLogger over the Ethernet. The Slave SmartLogger functions as the network device for the Master SmartLogger.

  Slave SmartLogger synchronizes the commands sent by Master SmartLogger to devices connected to the Master SmartLogger.
- Remote signal receiver receives the scheduling commands sent by the power grid company, converts them into dry contact signals, and then sends them to the Master SmartLogger.

  Remote signal receiver for P receives the active power scheduling commands and Remote signal receiver for Q receives the reactive power scheduling commands.

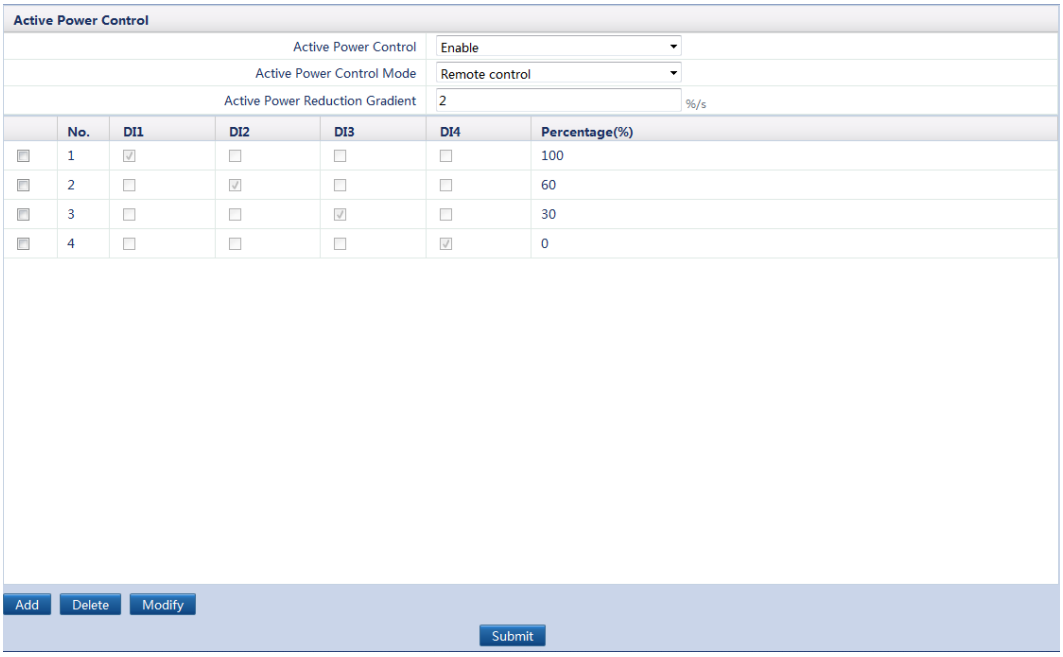
Active Power Control

Set **Active Power Control Mode** to **Dry contact remote control**, as shown in Figure 8-8.

NOTICE

Ensure that the SmartLogger is properly connected to the ripple control receiver before you set **Active Power Control Mode** to **Dry contact remote control**. For details, see 4.6 Connecting the SmartLogger to a Ripple Control Receiver.

Figure 8-8 Dry contact remote control



NOTE

- Users can set the active power reduction gradient to control active power change speed of the grid-feeding point in the PV power station. The range is 0%/s to 10%/s.
- The active power is reduced by percentage. Four levels are recommended: 100%, 60%, 30%, and 0%.
- A maximum of 16 levels is supported for the active power reduction percentage.
- If a "√" is under **Capacitive**, the power factor is a negative value, indicating that the power grid supplies reactive power to the power station. If no "√" is under **Capacitive**, the power factor is a positive value, indicating that the power station supplies reactive power to the power grid.
- The percentage levels of DI1, DI2, DI3, and DI4 should differ from each other. Otherwise, an abnormal command is generated.
- If the SmartLogger supports both active power control and reactive power control, DI1, DI2, DI3, or DI4 can be selected only once. In this case, four percentage levels are available.

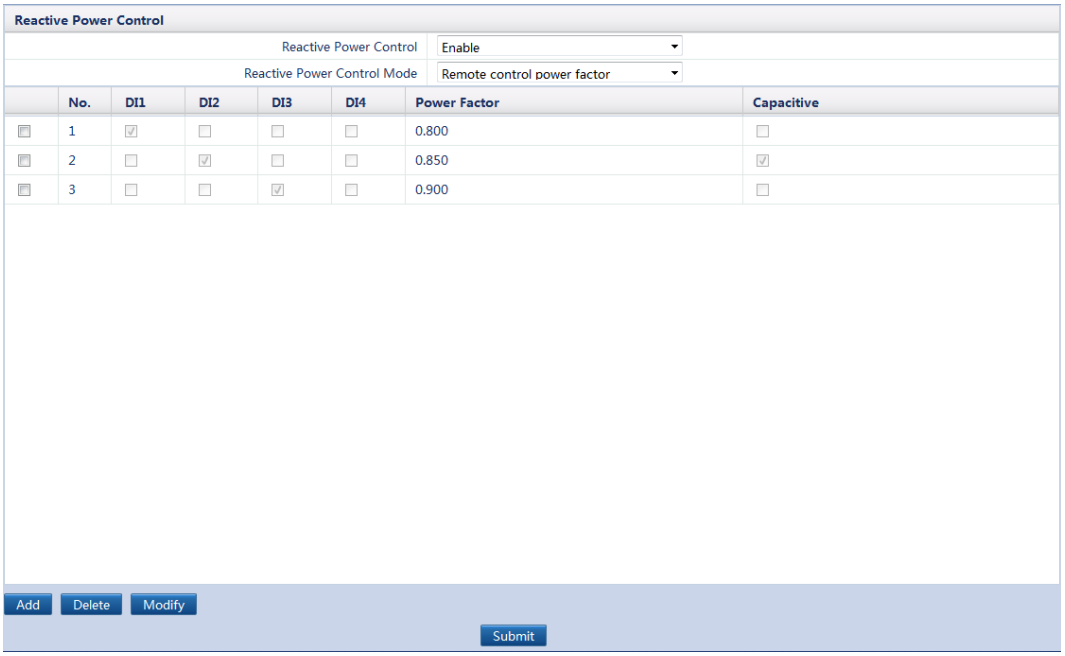
Reactive Power Control

Set **Reactive Power Control Mode** to **Dry contact remote control**, as shown in Figure 8-9.

NOTICE

Ensure that the SmartLogger is properly connected to the ripple control receiver before you set **Reactive Power Control Mode** to **Dry contact remote control**. For details, see 4.6 Connecting the SmartLogger to a Ripple Control Receiver.

Figure 8-9 Dry contact remote control



NOTE

- A maximum of 16 levels is supported for power factors.
- "√" means low level. When the four DI ports in the SmartLogger are connected to the GND2, low level is indicated; when they are not connected to the GND2, high level is indicated.
- The power factors of DI1, DI2, DI3, and DI4 should differ from each other. Otherwise, an abnormal command is generated.
- If the SmartLogger supports both active power control and reactive power control, DI1, DI2, DI3, or DI4 can be selected only once. In this case, four power factor levels are available.
- If a "√" is under **Capacitive**, the power factor is a negative value, indicating that the power grid supplies reactive power to the power station. If no "√" is under **Capacitive**, the power factor is a positive value, indicating that the power station supplies reactive power to the power grid.

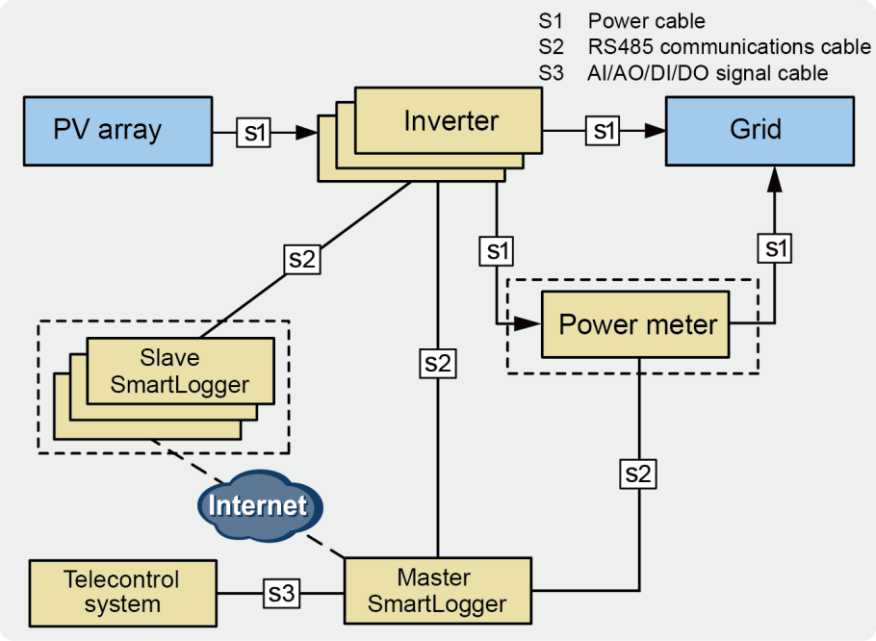
8.2.3 AI/DI Scheduling

This topic describes the compositions and application of the AI/DI scheduling.

AI/DI scheduling mainly applies to power stations that have a higher rated output power level and complex networking. The power grid company requires more remote and real-time scheduling methods, scheduling commands of higher precision, and communication of higher reliability. The power grid company adjust the power of the power station and also requires the power station to send back the key sampling data of the grid-tied point.

One SmartLogger can connect to a maximum of 80 devices. The number of inverters are more than 80 in the AI/DI scheduling scenario. Hence, a certain number of Slave SmartLoggers should be configured. The Master SmartLogger scans over the AI/DI port the remote scheduling commands sent by the power grid company, sends them to the Slave SmartLogger. The Slave SmartLogger sends the commands to all inverters. Figure 8-10 shows the networking application of the AI/DI scheduling.

Figure 8-10 AI/DI scheduling



NOTICE

If a Slave SmartLogger is configured in the system, inverters should be connected to the Slave SmartLogger instead of the Master SmartLogger. Otherwise, inverters that connect to the Master SmartLogger cannot perform the power grid scheduling command.

NOTE

- The Master SmartLogger connects to the Slave SmartLogger over the Ethernet. The Slave SmartLogger functions as the network device for the Master SmartLogger.

  If a Slave SmartLogger is to be connected, manually add the Slave SmartLogger on the monitoring panel or WebUI of the Master SmartLogger.

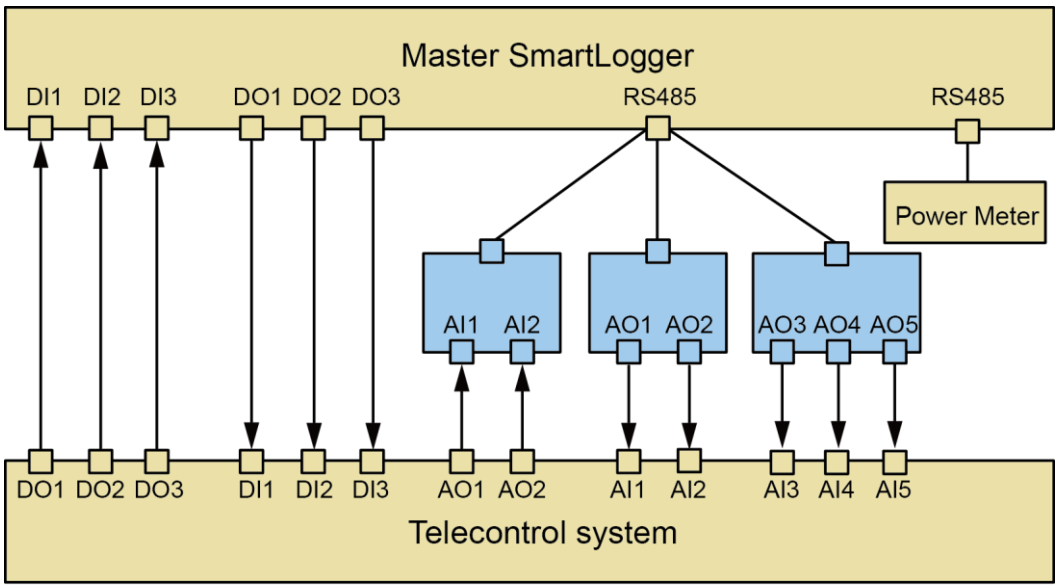
- The Master SmartLogger forwards the scheduling commands sent by the **Telecontrol system** to all Slave SmartLoggers. The Slave SmartLoggers send the commands to the connected inverters.
- The power and voltages at the grid-tied point collected by the power meter are compared with the scheduling commands from the power grid company to verify that the power station operates in accordance with requirements of the power grid company.

Port Expansion

Power grid scheduling commands are sent over AI/AO ports while the SmartLogger is not configured with AI/AO ports. Hence an ADAM device is required.

The ADAM port expansion device and remote terminal control system should both be connected to the Master SmartLogger. Figure 8-11 shows the cable connection.

Figure 8-11 Cable connection for port expansion



NOTE

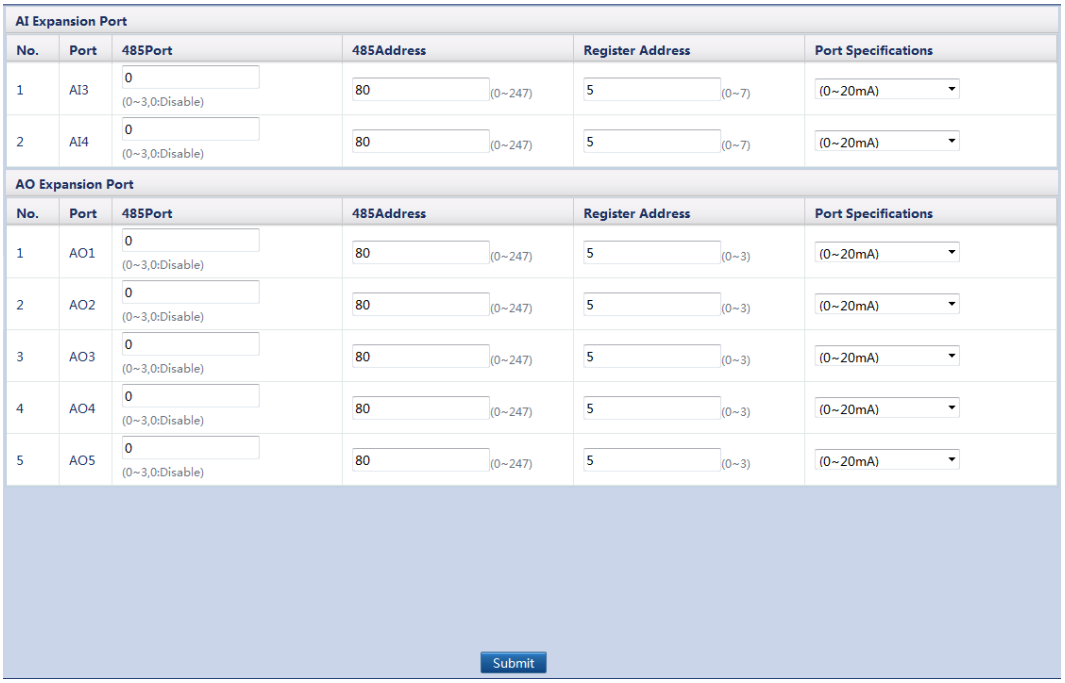
Functions of ports in the remote terminal control system are described as follows:

- AO1 sends the active power derating command.
- AO2 sends the reactive power derating command.
- AI1 receives the active power data of the grid-tied point.
- AI2 receives the reactive power data of the grid-tied point.
- AI3 receives the voltage data of the grid-tied power point.
- AI4 receives the active power derating command feedback of the SmartLogger.
- AI5 receives the reactive power derating command feedback of the SmartLogger.
- DO1 to DO3 send the reactive power adjustment mode command.
- DI1 to DI3 receive the reactive power adjustment mode command feedback of the SmartLogger.

Extended Port Settings

Correct settings of the extended ports ensure the normal communication between the SmartLogger and power and the remote terminal control system, as shown in Figure 8-12.

Figure 8-12 Extended Port Settings



NOTE

- **1 to 3** under **485Port** indicates that the AO ports connect to the COM1 to COM3 correspondingly. **0** indicates that the port is disabled.
- **485Address** is the actual 485 address set for the ADAM. Set **Register Address** based on the actual connection.
- Set **Port Specifications** based on the standards of the power grid company.

Power Meter Parameters Settings and Feedback GCP Parameters Settings

To configure the power meter parameters and feedback GCP parameters, see 7.30 Setting Power Meter Parameters.

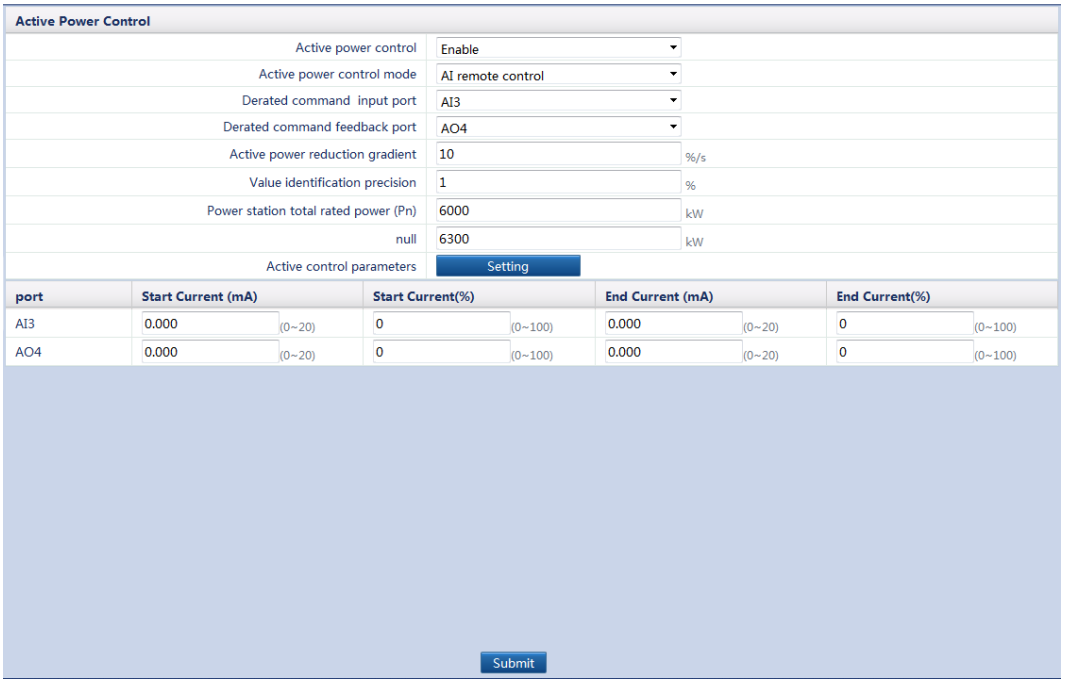
Active Power Control

The remote scheduling command sent by the SmartLogger controls the active power output of the power station in analog input mode. Set **Active Power Control Mode** to **AI remote control**, as shown in Figure 8-13.

NOTICE

Before you set **Active Power Control Mode** to **AI remote control**, ensure that connections between the SmartLogger, ADAM, and the remote terminal control system are correct.

Figure 8-13 AI remote control



NOTE

- Based on the actual cable connection, select a proper **Derated command input port**.
- Based on the actual cable connection, select a proper **Derated command feedback port**.
- **Value identification precision** identifies the remote scheduling command variation threshold in the case of active power adjustment to prevent frequent control command sending due to the sampling deviation. Its setting range is 1% to 100%.
- **Power station total rated power (Pn)** is the maximum power capacity fed by the power station to the power grid agreed by the power station and the power grid company. Confirm this parameter value with the power grid company and set it correctly.
- Set **Start Current**, **End Current**, **Start Current(%)**, and **End Current(%)** based on requirements of the power grid company.

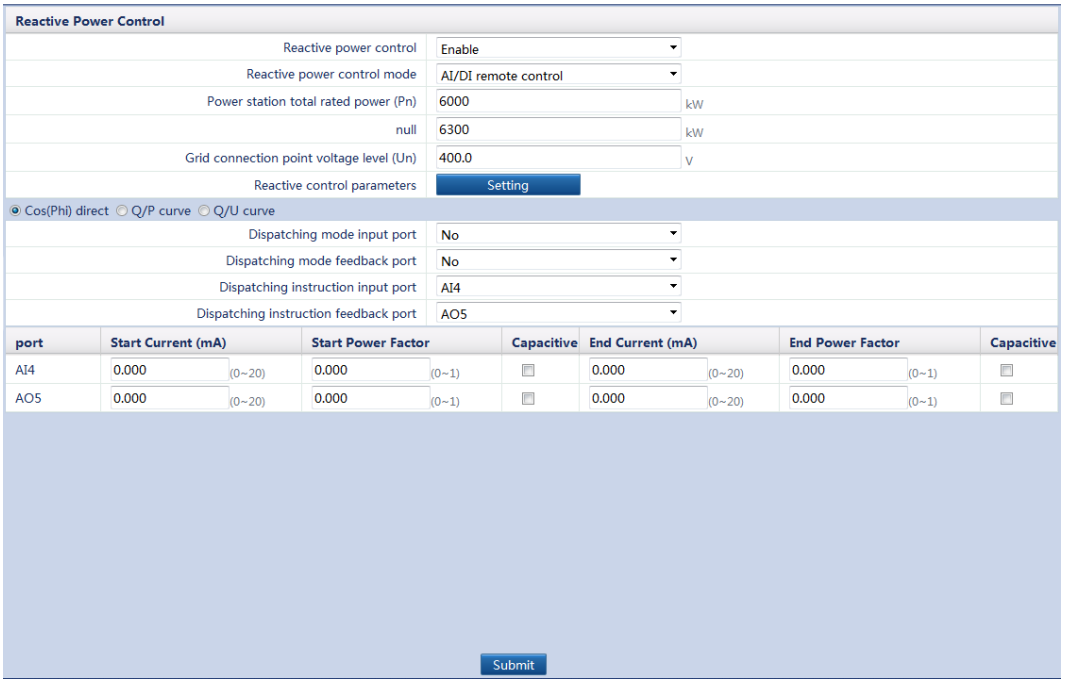
Reactive Power Control

The remote scheduling command sent by the SmartLogger controls the reactive power output of the power station in analog input mode. Set **Reactive Power Control Mode** to **AI/DI remote control**, as shown in Figure 8-14.

NOTICE

Before you set **Reactive Power Control Mode** to **AI/DI remote control**, ensure that connections between the SmartLogger, ADAM, and the remote terminal control system are correct.

Figure 8-14 AI/DI remote control



NOTE

- **Power station total rated power (Pn)** is the maximum power capacity of the power station agreed by the power station and the power grid company. Confirm this parameter value with the power grid company and set it correctly.
- **Grid connection point voltage level (Un)** is the voltage level at the connection point between the power station and the power grid. Set this parameter based on the power grid status.
- Set parameters under **Cos(Phi) direct**, **Q/P curve**, and **Q/U curve** respectively.

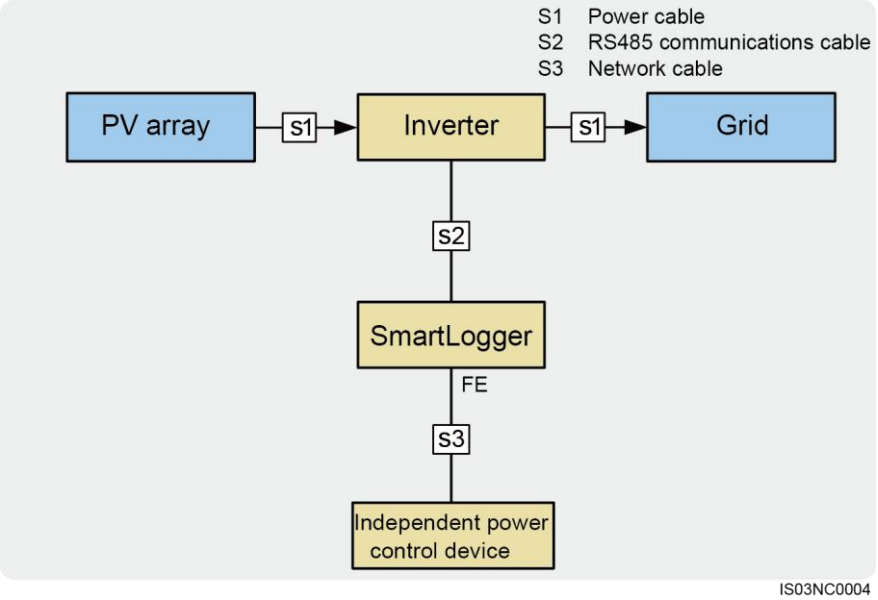
8.2.4 Communication Scheduling

This topic describes the compositions and application of the communication scheduling.

Communication scheduling mainly applies to the power stations in China that use an independent power adjustment device to send scheduling commands over the Modbus-TCP without user configuration or operation. The SmartLogger can automatically switch between scheduling modes and send scheduling commands.

Figure 8-15 shows the networking application of the communication scheduling.

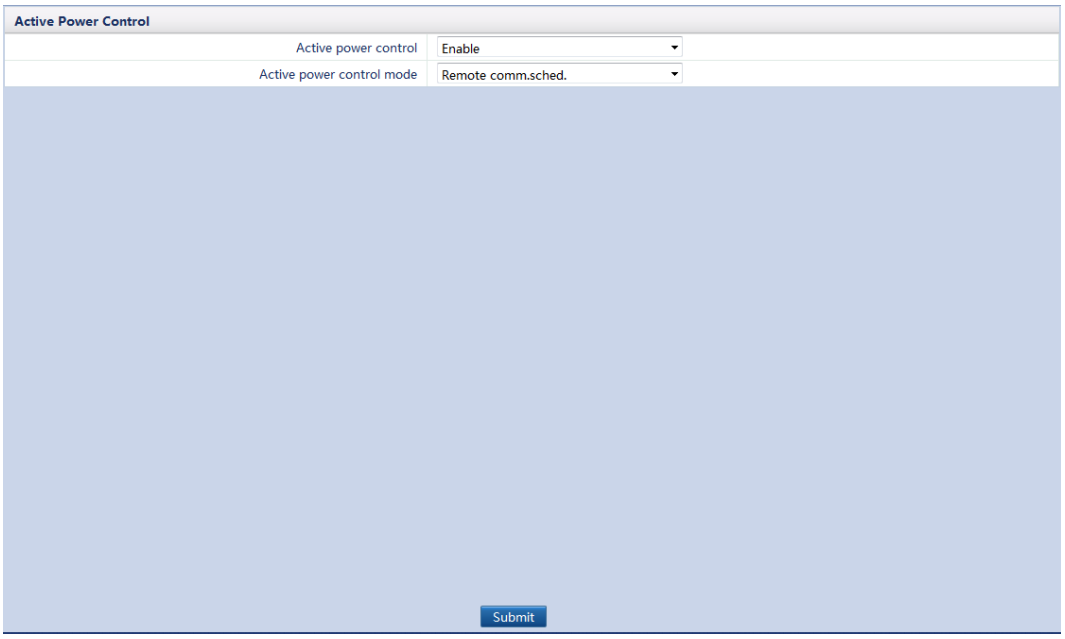
Figure 8-15 Communication scheduling



Active Power Control

When **Active Power Control Mode** is set to **Remote comm.sched.**, as shown in Figure 8-16, the SmartLogger receives the scheduling commands from the upstream EMS, converts them into valid command data identified by the inverters, and then sends the data to all the connected inverters. Based on the principle of preference of remote communication scheduling, the SmartLogger automatically set **Active Power Control Mode** to **Remote comm.sched.** after receiving a scheduling command from the upstream EMS.

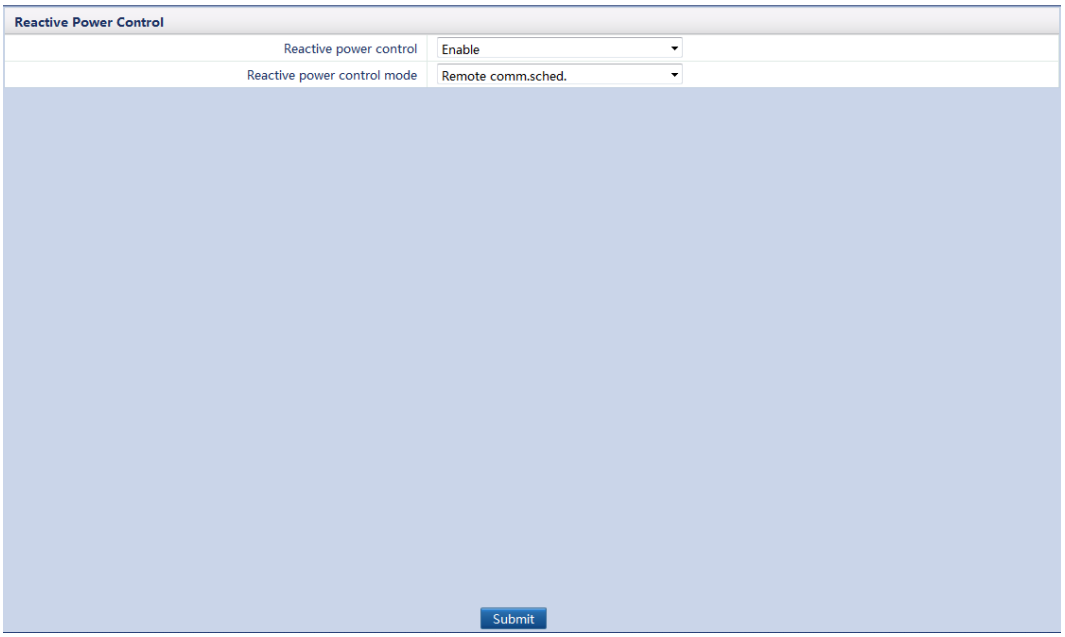
Figure 8-16 Remote communication scheduling



Reactive Power Control

When **Reactive Power Control Mode** is set to **Remote comm.sched.**, as shown in Figure 8-17, the SmartLogger receives the scheduling commands from the upstream EMS, converts them into valid command data identified by the inverters, and then sends the data to all the connected inverters. Based on the principle of preference of remote communication scheduling, the SmartLogger automatically set **Reactive Power Control Mode** to **Remote comm.sched.** after receiving a scheduling command from the upstream EMS.

Figure 8-17 Remote communication scheduling



9 Maintenance

About This Chapter

This topic describes how to perform daily maintenance and troubleshooting to ensure long-term proper operation of the SmartLogger.

9.1 Daily Maintenance

This topic describes the daily maintenance for the SmartLogger.

- Check that the SmartLogger is free from strong electromagnetic interference.
- Check that the SmartLogger is free from heat sources.
- Check that the heat dissipation holes are not blocked.
- Clean up the dirt and dust for the SmartLogger periodically.
- Check that the cables are secured.

9.2 Troubleshooting

This topic describes the common faults in the SmartLogger and the troubleshooting measures.

Table 9-1 describes the common faults and the troubleshooting measures.

Table 9-1 Common fault list

No.	Symptom	Possible Cause	Measures
1	The SmartLogger cannot be powered on.	1. The DC output terminal of the power adapter does not connect to the **Power** port of the SmartLogger. 2. The AC input terminal of the power adapter does not connect to the AC power port. 3. Power adapter is faulty.	1. Connect the DC output of the power adapter to the **Power** port of the SmartLogger. 2. Connect the AC input of the power adapter to the AC power port. 3. Replace the power adapter. 4. Contact the supplier or

No.	Symptom	Possible Cause	Measures
		4. The SmartLogger is faulty.	Huawei Customer Service Dept.
2	The LCD is off.	1. The LCD is faulty. 2. The SmartLogger is faulty.	Contact the supplier or Huawei Customer Service Dept.
3	The LCD does not respond when a button is pressed.	1. The button is faulty. 2. The SmartLogger is faulty.	Contact the supplier or Huawei Customer Service Dept.
4	Devices cannot be searched.	1. The COM port does not connect to any devices or the cables are loose. 2. The communications parameters for the RS485 port are incorrect. 3. No EMI is manually added. 4. The communications parameters for the EMI are incorrect. 5. The address for the inverter is not within the search address segment set for the SmartLogger.	1. Correctly set the RS485 communications parameters, and ensure that the baud rate and the communications address are correctly set. 2. Add the EMI manually. 3. Correctly set the EMI parameters 4. Set the address of the inverter to be within the search address segment set for the SmartLogger.
5	Devices Status is Disconnection on the SmartLogger.	1. The cable between the device and the SmartLogger is loose or disconnected. 2. The device is powered off. 3. The baud rate or RS485 address of the device is changed. 4. The device is replaced. 5. The device is no longer connected.	1. Verify that the cable between the device and the SmartLogger is properly connected and tightened. 2. Power on the device. 3. Verify the baud rate and RS485 address of the device. 4. If a device is replaced, search for or manually add the device. 5. If the device is removed, remove the device on the SmartLogger.
6	The EMI cannot be added.	1. The RS485 communications cable between the EMI and the SmartLogger is not properly connected, or the RS485 communications cable is loose or disconnected. 2. The EMI is powered off. 3. The baud rate of the EMI is inconsistent with that of the SmartLogger. 4. Parameter settings of the	1. Verify that the RS485 communications cable is properly connected and tightened. 2. Power on the EMI. 3. Verify the baud rate of the EMI. 4. Log in to the WebUI and verify the parameter settings of the EMI.

No.	Symptom	Possible Cause	Measures
		EMI are incorrect.	
7	The SmartLogger cannot communicate with the NetEco in the PC.	1. The SmartLogger is not connected to the PC, or the cable between the SmartLogger and the PC is loose or disconnected. 2. Ethernet parameters are not properly set. 3. NetEco parameters are not properly set.	1. Connect the Ethernet network port of the SmartLogger to the PC or router. 2. Check that the Ethernet parameters are correctly set. 3. Check that the NetEco parameters are correctly set.
8	Emails cannot be received.	1. The SmartLogger cannot communicate with the email server. 2. Ethernet parameters are not properly set. 3. Email parameters are not properly set.	1. Connect the Ethernet network port of the SmartLogger to the PC or router. 2. Check that the Ethernet parameters are correctly set. 3. Check that the Email parameters are correctly set.

9.3 Alarms

This topic describes the common faults in the SmartLogger and the troubleshooting measures.

Table 9-2 describes the common faults and the troubleshooting measures.

Table 9-2 Alarms

Alarm ID	Alarm	Alarm Severity	Alarm Sub-ID	Causes	Measure
1100	Abnormal P-Control	Major	1	Under the active power **AI remote control** mode, the AI port receives currents beyond the configuration range.	1. Check on the ADAM4117 the cable connection of the port corresponding to the AI number. Reconnect and secure the cable if it is loose or reversely connected. 2. Enter the active power **AI remote control** configuration page and check that the start and end current ranges of the AI comply with the requirements of the power grid company. 3. Enter the **Extended Port Settings** page, check that the

Alarm ID	Alarm	Alarm Severity	Alarm Sub-ID	Causes	Measure
					current configuration of the AI number is consistent with the current specification of the ADAM4117. 4. Contact the power grid company to check whether the command data sent is correct.
			2	Under the reactive power **AI remote control** mode, the command data of the AI port cannot be read due to the ADAM fault, power disconnection, or abnormal link.	1. Check whether the communications cable connection between the ADAM4117 and the SmartLogger is correct, whether the RS485 address conflicts with the addresses of other devices, whether the baud rate is consistent with that set for the corresponding SmartLogger port. 2. Check whether the auxiliary power supply for the ADAM4117 is normal.
			3	Under the active power **AI remote control** mode, the feedback command data of the AO port cannot be read due to the ADAM fault, power disconnection, or abnormal link.	1. Check whether the communications cable connection between the ADAM4024 and the SmartLogger is correct, whether the RS485 address conflicts with the addresses of other devices, whether the baud rate is consistent with that set for the corresponding SmartLogger port. 2. Check whether the auxiliary power supply for the ADAM4024 is normal.
			4		1. Check whether the cable connections to the DI ports are correct. 2. Enter the active power **Dry contact remote control** configuration page and check the mapping table of the current DI signal configuration. Contact the power grid company to check the completeness of the combination configurations in the mapping table and check whether the configurations comply with the requirements

Alarm ID	Alarm	Alarm Severity	Alarm Sub-ID	Causes	Measure
					of the power grid company.
1101	Abnormal Q-Control	Major	1	Under reactive power **AI remote control** mode, the AI port receives currents beyond the configuration range.	1. Check on the ADAM4117 the cable connection of the port corresponding to the AI number. Reconnect and secure the cable if it is loose or reversely connected. 2. Enter reactive power **AI remote control** configuration page and check that the start and end current ranges of the AI comply with the requirements of the power grid company. 3. Enter the **Extended Port Settings** page, check that the current configuration of the AI number is consistent with the current specification of the ADAM4117. 4. Contact the power grid company to check whether the command data sent is correct.
			2	Under the reactive power **AI remote control** mode, the command data of the AI port cannot be read due to the ADAM fault, power disconnection, or abnormal link.	1. Check whether the communications cable connection between the ADAM4117 and the SmartLogger is correct, whether the RS485 address conflicts with the addresses of other devices, whether the baud rate is consistent with that set for the corresponding SmartLogger port. 2. Check whether the auxiliary power supply for the ADAM4117 is normal.
			3	Under the reactive power **AI/DI remote control** mode, the command data of the AO port cannot be read due to the ADAM fault, power disconnection, or abnormal link.	1. Check whether the communications cable connection between the ADAM4024 and the SmartLogger is correct, whether the RS485 address conflicts with the addresses of other devices, whether the baud rate is consistent with that set for the corresponding SmartLogger port. 2. Check whether the auxiliary power supply for the

Alarm ID	Alarm	Alarm Severity	Alarm Sub-ID	Causes	Measure
					ADAM4024 is normal.
			4	Under the reactive power **Dry contact remote control** mode, the four DI ports read commands beyond the configuration.	1. Check whether the cable connections to the DI ports are correct. 2. Enter the reactive power **Dry contact remote control** configuration page and check the mapping table of the current DI signal configuration. Contact the power grid company to check the completeness of the combination configurations in the mapping table and check whether the configurations comply with the requirements of the power grid company.
1102	Abnormal Meter Data	Major	1	The electricity meter cannot properly send feedback signals to a third-party scheduling device due to the ADAM fault, power disconnection, or abnormal link.	1. Check whether the communications cable connection between the ADAM4024 and the SmartLogger is correct, whether the RS485 address conflicts with the addresses of other devices, whether the baud rate is consistent with that set for the corresponding SmartLogger port. 2. Check whether the auxiliary power supply for the ADAM4024 is normal.
1103	Breaker Disconnect	Major	1	The general AC circuit breaker at the grid-tied point is OFF.	Check whether the disconnection of the circuit breaker is a normal operation. Otherwise, contact the service engineer to restore the connection.

10 Disposing of the SmartLogger

This topic describes how to dispose the SmartLogger.

If the service life of the SmartLogger expires, dispose of the SmartLogger according to the local disposal act for waste electric appliances. You can also return it to Huawei, with the related expenses paid.

11 Technical Specifications

This topic describes the SmartLogger technical specifications.

Device management

Specifications	SmartLogger1000
Number of managed devices	80
Communications mode	Three RS485 ports
The maximum communication distance	RS485: 1000 m; Ethernet: 100 m

Display

Specifications	SmartLogger1000
LCD	3.5-inch LCD
Indicator	Three indicators
WEB	Embedded

Common parameters

Specifications	SmartLogger1000
Power supply	90 V AC to 270 V AC, 50 Hz or 60 Hz
Power consumption	Normal: 3 W; maximum: 7 W
Storage capacity	70 MB flash. Can be expanded to 16 GB by configuring an SD card.
Language	English, Chinese, German, Italian
Dimensions (H x W x D)	140 mm x 225 mm x 50 mm

Specifications	SmartLogger1000
Weight	500 g
Operating temperature	-20 ℃ to +60 ℃
Relative humidity (non-condensing)	5%–95%
Protection level	IP20
Installation mode	Installed on a wall, desk, or along a guide rail.

Port

Specifications	SmartLogger10001
Ethernet	10/100M, Modbus-TCP
RS485	Modbus-RTU
USB	Supported
Digital parameter input	4
Analog input	2
Relay output	3

12 Quality Assurance

Warranty

During the warranty, the user should provide the invoice and date. At the same time, the signs on the products should be clear. Otherwise, Huawei will not be liable for the quality assurance. The warranty period for the SmartLogger is 24 months. The warranty starts from the time that the customer accepts the equipment, and the starting date should be within 90 days after delivery. The contract prevails if it specifies the warranty.

Quality Assurance Regulations

- Huawei maintains or replaces the equipment freely if the equipment becomes faulty within the warranty.
- Return the faulty equipment to Huawei.
- The customer reserves appropriate time for Huawei to maintain the faulty equipment.

Disclaimer

- Damage caused during transportation
- Incorrect installation
- Misoperation
- Damage caused by abnormal natural environments
- Operation under severe environments which are not specified in this document
- Unauthorized product changes and software code modification
- Usage under installation and operating environments which are not specified in related international specifications
- Neglect of the safety precautions and regulations specified in this document