Ailogger

User Manual

Solplanet

Table of Contents

1 Safety Precautions

1.1 Safety instructions

This section describes the safety precautions to be followed during the installation and operation of the Ai-Logger.

1.2 Personnel requirements

1. Ai-Logger can only be operated by trained professional electrical technicians.
2. Operators should be quite familiar with the composition and working principle of the entire grid-connected PV system, as well as the relevant standards of the country/region where the project is located.

Notice

- Operators should read this manual carefully. Equipment damage caused by storage, handling, installation and use of Ai-Logger not in accordance with the contents of this manual is not covered by the warranty.

1.3 System installation

1. Before installing the Ai-Logger, make sure it is not electrically connected and powered on.
2. Please install Ai-Logger in a well ventilated environment to ensure unaffected system performance.
3. Please make sure that the cooling holes of the Ai-Logger are not blocked.
4. During the installation process, please do not touch other parts inside the case except the terminals at the bottom of the box.

1.4 Operation

Notice

- Please strictly follow the safety precautions listed in this manual and other related documents
- When operating the equipment, obey local regulations and codes.

1.5 Maintenance and replacement

1. Ai-Logger is maintained as a whole unit, if there is any fault inside the case, please contact your dealer.
2. To maintain Ai-Logger, you need to be familiar with and understand the contents of this manual, and have appropriate tools and test equipment.
3. During the maintenance process, please observe electrostatic protection standards and wear anti-static gloves.

2 Product overview

Overview of functions, networking application, features, appearance and monitoring panel of Ai-Logger.

2.1 Product overview

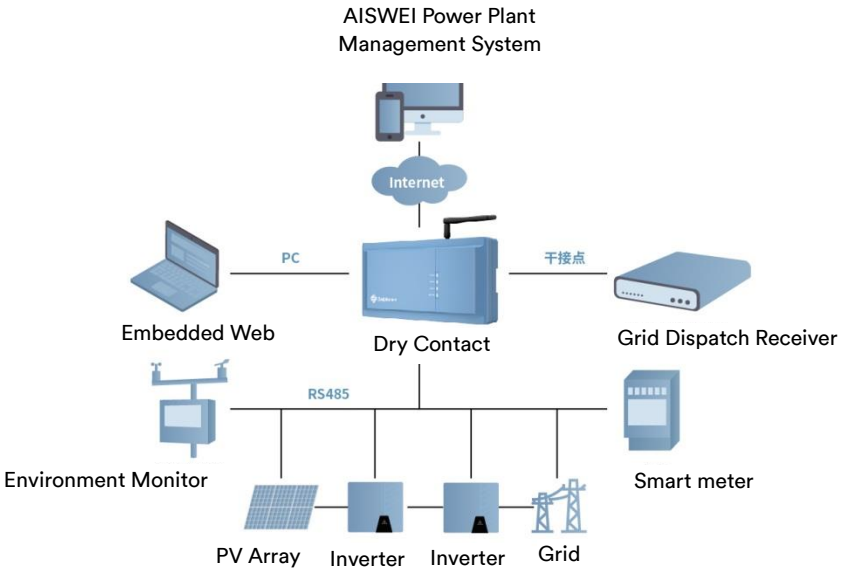
Functions: Ai-Logger is a special device for PV system monitoring and management platform, with functions such as interface aggregation, protocol conversion, data acquisition, data storage, centralized monitoring and centralized maintenance for each PV system device.

2.2 Networking application

Ai-Logger is suitable for PV systems,

1. Can monitor AISWEI's inverters.
2. Support third-party weather station and smart meter access using standard MODBUS protocol RS485 interface.
3. Support access to multi-function meters through DLT645 protocol.

The networking application of Ai-Logger, as shown in the figure



2.3 Features

Ai-Logger features centralized monitoring, graphic data, easy maintenance, grid dispatch, and intelligent management.

1. Centralized monitoring
   a) Centrally manage up to 80 devices.
   b) The PV system can be monitored and managed through the embedded WEB which can be used to view real-time information of power plants, equipment, fault information and set remote parameters.
2. Graphic data
   a) In addition to power information and real-time monitoring information, the embedded WEB can also display power plant and equipment performance data in graphic tables and curves.
3. Easy maintenance
   a) Use the USB port to upgrade firmware and export data of Ai-Logger or inverter by inserting a USB stick.

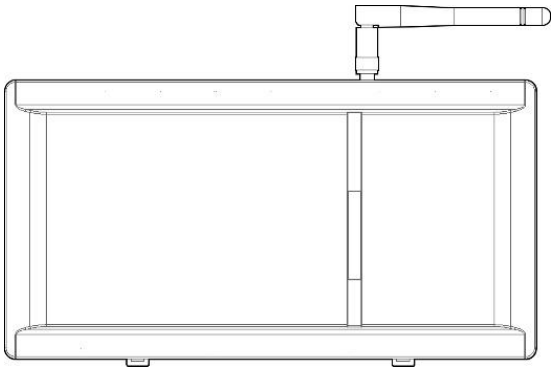
b) Use the embedded WEB to upgrade firmware and export data of Ai-Logger or inverter.

4. Grid dispatch
   a) Support grid dispatch and active power derating at the same time.
5. Intelligent management
   a) Ai-Logger can automatically scan and identify AISWEI's inverters.
   b) Equipment of third-party manufacturers can also be connected if it supports the standard MODBUS-RTU protocol.
   c) Ai-Logger can automatically assign RS485 addresses to connected inverters and supports changing names according to device serial numbers for easy remote configuration and maintenance.
   d) Support remote setting of inverter parameters.

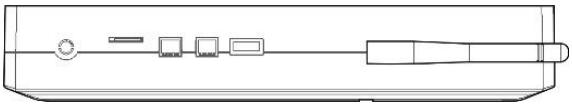
2.4 Appearance

Schematic overview of Ai-Logger

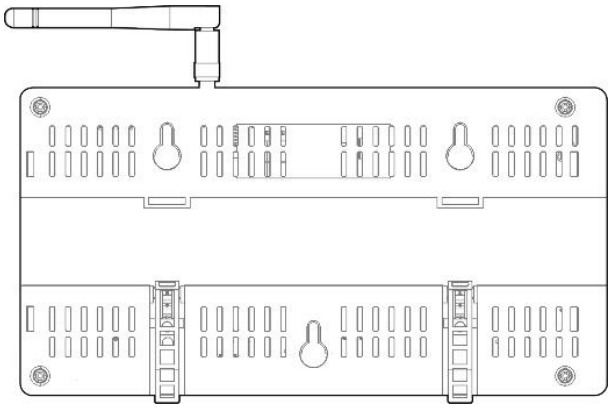
- Front view



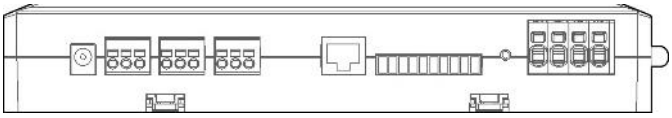
- Top view



- Back view



- Bottom view

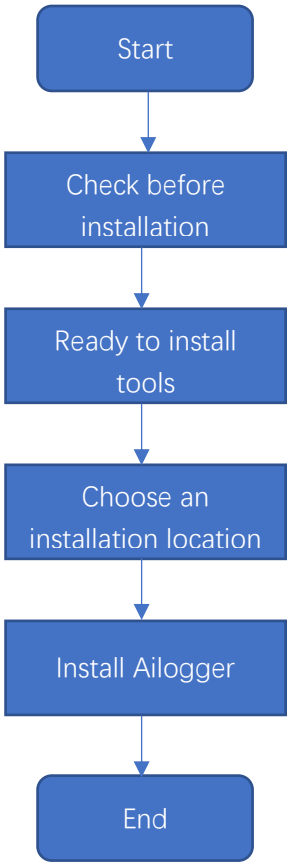


3 Device Installation

Below are Ai-Logger installation instructions, please read carefully to help you install this product better.
Background information: Choose a suitable mounting location and mounting surface

3.1 Installation process

Ai-Logger installation process overview.
The installation process of Ai-Logger is shown in the figure.

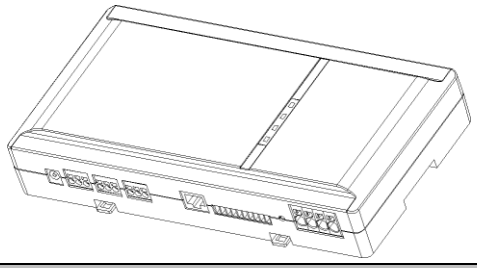
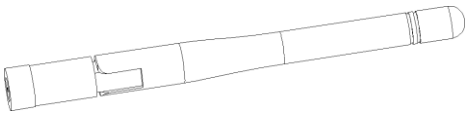


● Installation Process Description

Step	Operation	Description
1	Check before installation	Before unpacking, check outer packaging for damage; after unpacking, check if anything is missing and whether there is any obvious external damage.
2	Ready to install tools	Before installing Ai-Logger, you need to have the appropriate tools ready for smooth installation and wiring.
3	Choose an installation location	Choose an appropriate location and install Ai-Logger to ensure that Ai-Logger can work normally and efficiently.
4	Install Ai-Logger	Ai-Logger can be installed on desktops, walls and rails.

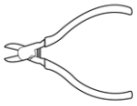
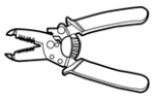
3.2 Check before installation

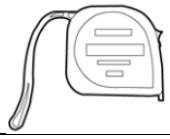
Check outer packaging: Before unpacking the Ai-Logger, check the outer packaging for visible damage such as holes, cracks, or other signs of possible internal damage. If abnormal, do not open it, contact your dealer as soon as possible.
Check the delivery: After unpacking the Ai-Logger, please check the delivery to see if anything is missing and whether there is any obvious external damage. In case of any damage or if anything is missing, please contact your dealer.

	
Ai logger	**WiFi antenna**

3.3 Get installation tools ready

Before installing Ai-Logger, you need to have the appropriate tools ready for smooth installation and wiring.

Tools	Reference picture	Model	User
Impact drill			When wall-mounted, it is used to punch holes in the wall.
Diagonal plier			Cut the cable ties.
Wire stripper			Strip off the cable skin.
Rubber hammer			Tap the expansion bolts into the holes.
Utility knife			Unpacking etc.

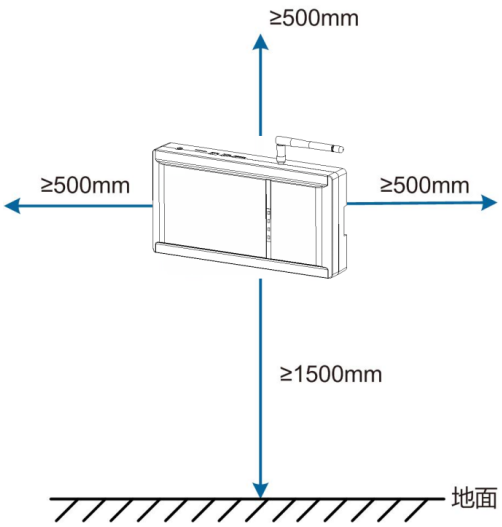
Wire cutter			Cut the cable.
Marker			Making marks.
Vacuum cleaner			After drilling holes in the wall, clean the dust on the site.
Steel tape			Measure distance.
Safety goggles			It is worn by the operator when punching.
Dust mask			It is worn by the operator when punching.

3.4 Choose an installation location

Choose an appropriate location and install Ai-Logger to ensure that Ai-Logger can work normally and efficiently.
Please take the following into consideration when selecting an installation location.

1. Ai-Logger is rated IP20, do not place Ai-Logger outdoors.
2. Do not place the Ai-Logger in an easily accessible environment to avoid damage to the Ai-Logger.
3. The ambient temperature should be kept at -20℃~+60℃, and avoid direct sunlight.
4. The ambient humidity of the installation location cannot exceed 95%. Excessive humidity may cause damage to internal components.
5. Ensure that the RS485 communication distance does not exceed 1000m, and the Ethernet communication distance does not exceed 100m.
6. It is recommended to install the Ai-Logger at an appropriate height.
7. Do not turn Ai-Logger upside down. When the cooling holes are facing upward, dust might fall in and affect the life of the Ai-Logger.
8. The installation method and location must be suitable for the weight and size of the Ai-Logger.
9. Make sure the cable connection area is facing down when mounting on walls or rails.

10. The distance between Ai-Logger and surrounding objects should meet the following conditions: the distance between the two sides is ≥500mm; the distance from the top is ≥500mm; the distance from the ground is ≥1500mm, as shown in the figure.

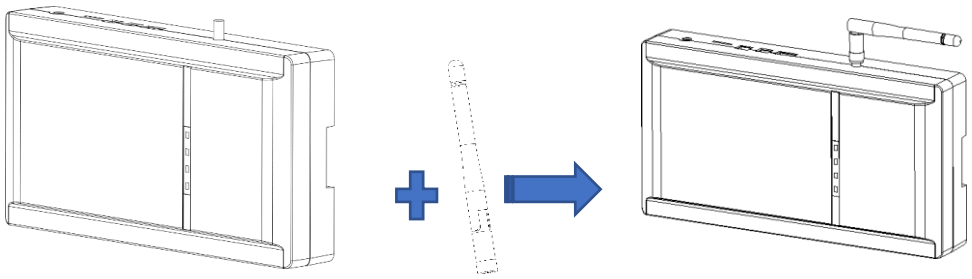


3.5 Install Ai-Logger

There are three installation methods for the Ai-Logger: desktop installation, wall-mounted installation, and rail installation.

Notice

- First install the antenna by screwing clockwise in the thread on Ai-Logger, the antenna can be bent 90° and rotated 360° after installation.



3.5.1 Desktop installation

How to install Ai-Logger on desktop

Notice

- Please choose horizontal desktop to install Ai-Logger to avoid damage caused by Ai-Logger sliding down.
- Do not place the Ai-Logger in a place where it is easy to touch the cable to avoid signal interruption.

Steps

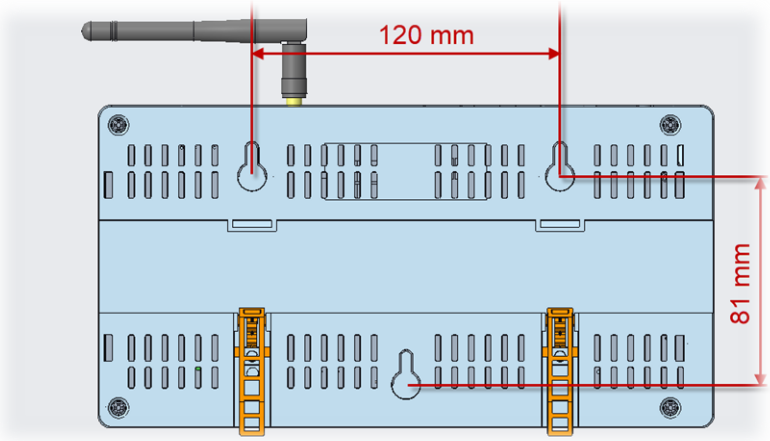
Step 1: Take the Ai-Logger out of the outer packaging.
Step 2: Place the Ai-Logger on a horizontal table.

3.5.2 Wall-mounted installation

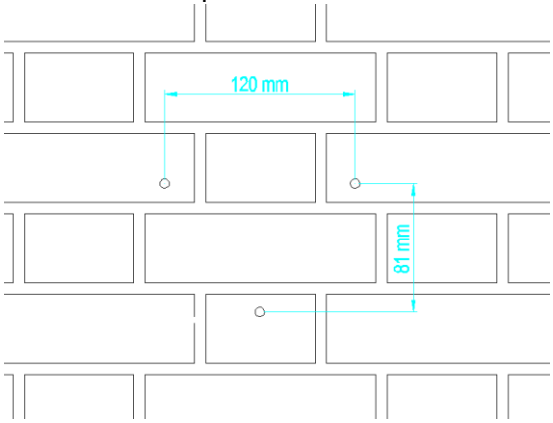
How to mount the Ai-Logger on the wall.

Notice

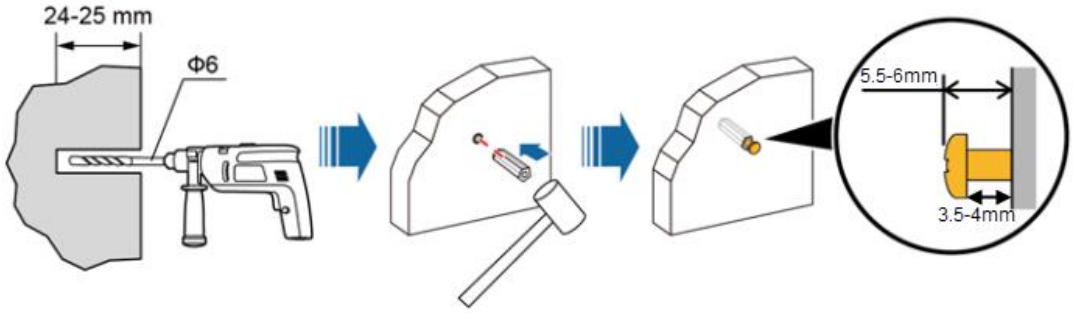
- Secure the Ai-Logger through the wall mounting holes on the back (as shown in the figure below).



1. Install Ai-Logger on a solid and flat wall and make sure Ai-Logger is steadily fixed to the wall.
   Measure out the following dimensions on the wall and mark them well. Ai-Logger can be hung on the wall with three screws to make it more steady, or it can be hung on the wall with only two screws on the top.

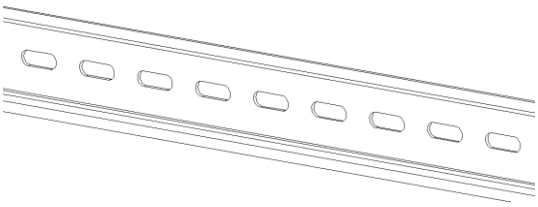


2. Use a pistol drill (φ6 drill bit is recommended) at the marked place to drill a depth of 24-25mm. Clean up the debris in the hole, then install the expansion coil and screw on the wall. The screw requirements are as follows. The thickness of the head is 2mm, and the diameter is φ6-10. Finally, hang the Ai-Logger on the screw.

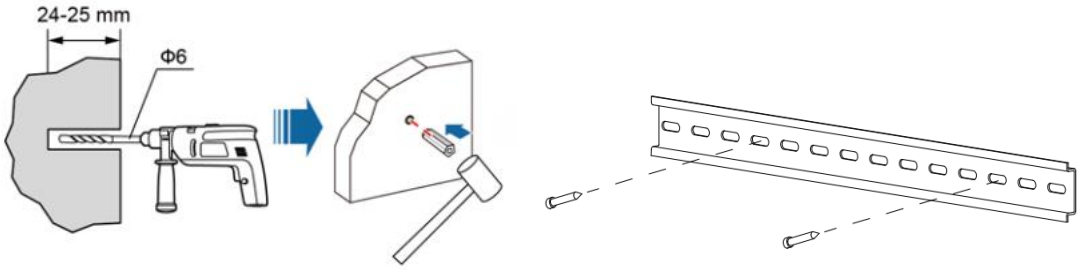


3.5.3 Rail installation

1. Choose a standard DIN35mm rail with a thickness of 1mm and a rail length of not less than 280mm.



2. Fix the guide rail to the selected cabinet or wall. The way of fixing on the wall is similar to wall mounting.

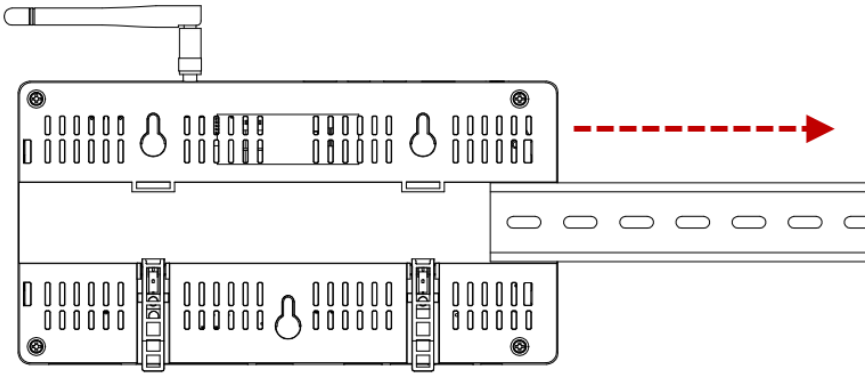


3. Mount the Ai-Logger on the rail.

There are two ways to install:

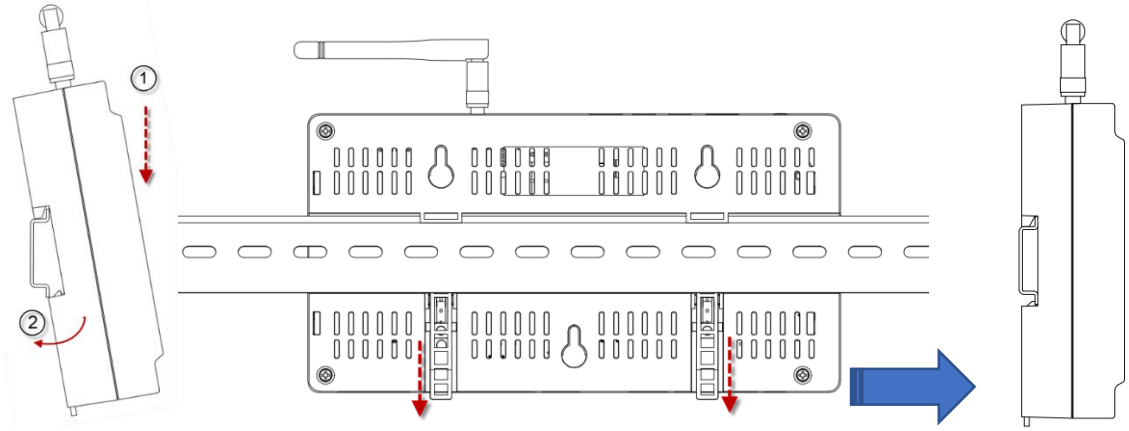
Method 1:

Align the Ai-Logger rail groove with the rail and push it into place.

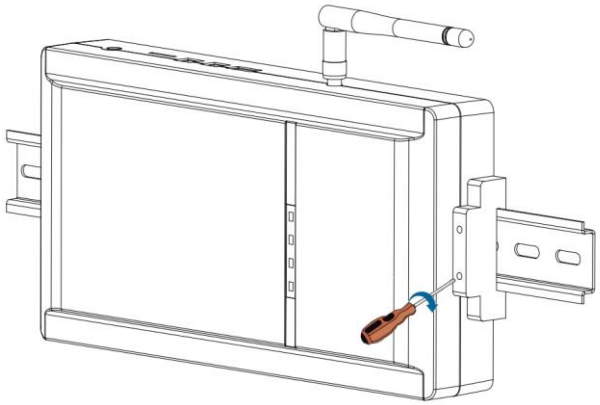


Method 2:

Hold the Ai-Logger to clamp the upper grove on the upper edge of the rail, rotate the Ai-Logger to make the rail contact the two rail clips on the Ai-Logger, then press the Ai-Logger to make the rail completely snap into the rail clips. If it is difficult to snap into place, use a flat-blade screwdriver and gently move the clip down through the hole, then the rail can be easily snapped into place.



4. Fix the end brackets on the rail at both ends to prevent the Ai-Logger from mo the rail.



5. Check to make sure the Ai-Logger is securely installed.

4 Electrical connection

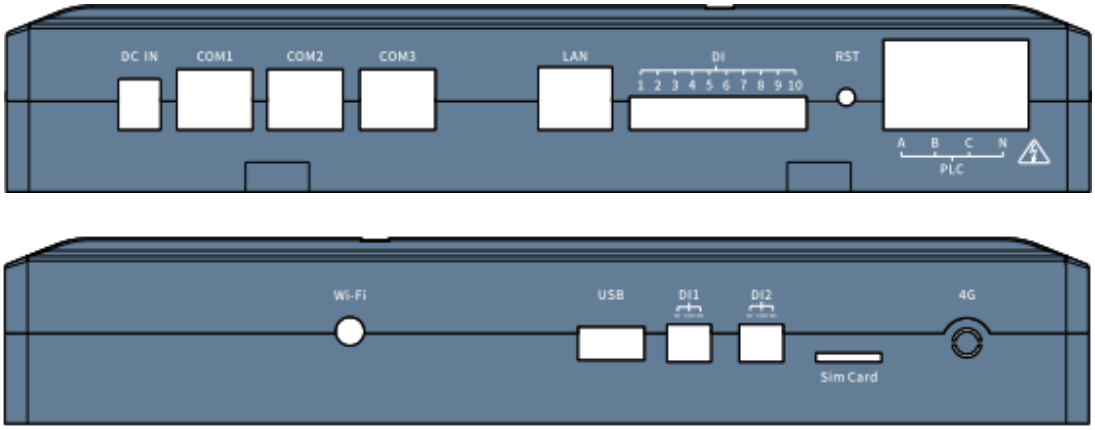
How to electrically connect Ai-Logger with inverter, weather station, PC and other equipment.

Notice

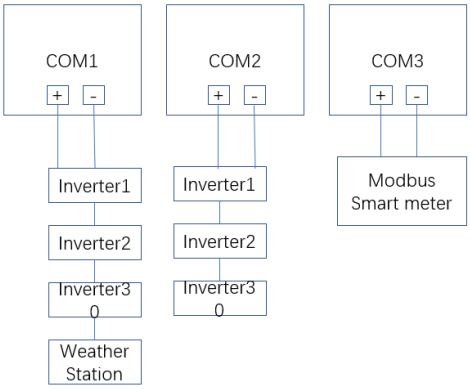
- When making electrical connections, make sure all cables are securely connected to prevent loosening.
  Ai-Logger does not have a power-on button, please do not connect the power adapter until the electrical connection is completed.

4.1 Connection Instructions

Ports: For the bottom diagram of Ai-Logger and port function description, see



Device Connection Instructions: When Ai-Logger connects multiple devices through the COM port, the recommended connection method is as shown in the figure. For details see Ai-Logger connects multiple devices via COM port



4.2 Connecting to Inverter

4.2.1 Connect to Huatuo

How to connect Ai-Logger to Huatuo through RS485 communication cable.

Background information: Ai-Logger has 3 RS485 channels with COM port as shown in the figure.

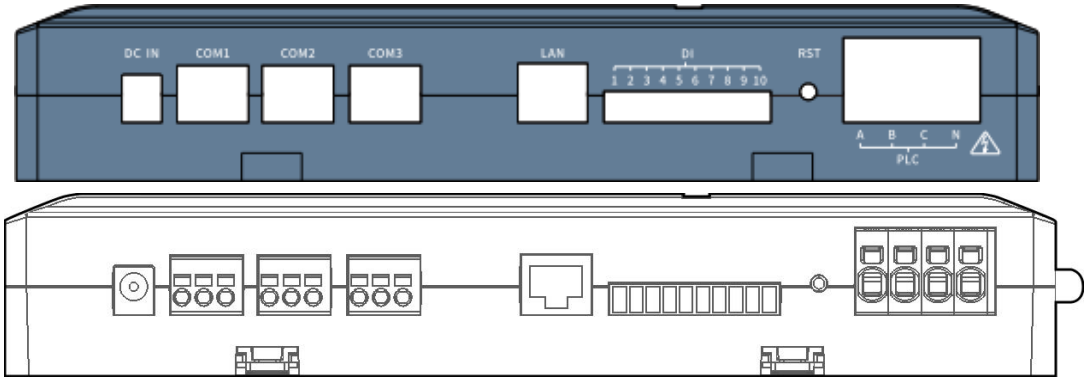


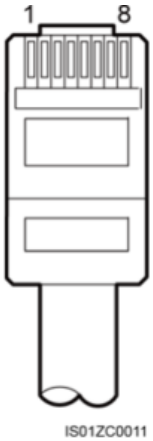
Table COM Port Description

Port	Label	Function
COM1	A	RS485A, RS485 differential signal+
	B	RS485B, RS485 differential signal-
	GND	Grounding
COM2	A	RS485A, RS485 differential signal+
	B	RS485B, RS485 differential signal-
	GND	Grounding
COM3	A	RS485A, RS485 differential signal+
	B	RS485B, RS485 differential signal-
	GND	Grounding

RJ45 port connection

The RS45 port is connected with a crystal head, as shown in the figure

Huatuo



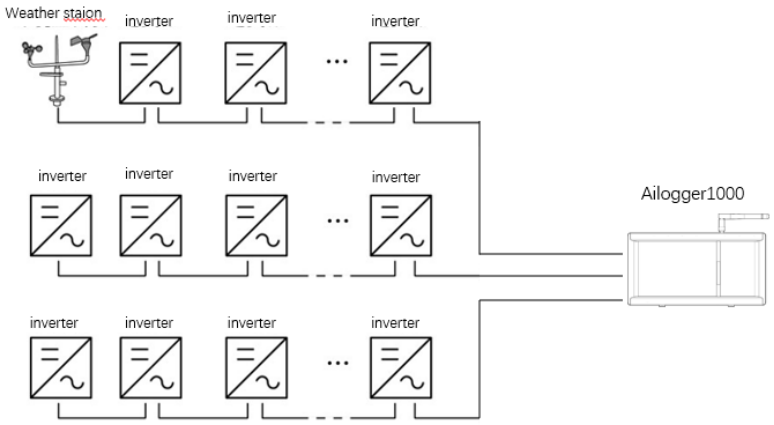
Corresponding cable colors and functions are shown in the table

Table Shielded Network Cable Wiring Instructions

Serial number	Color	Function
1	Orange white	RS485A, RS485 differential signal+
2	Orange	RS485B, RS485 differential signal-
3	Green and white	NC
4	Blue	GND
5	Blue and white	NC
6	Green	NC
7	Brown and white	NC
8	Brown	NC

4.2.2 Connect to multiple inverters

How to connect Ai-Logger with multiple inverters
Ai-Logger can be connected to multiple inverters at the same time by daisy chain, as shown in the figure



Note

- A single Ai-Logger supports up to 80 devices, and it is recommended that the number of devices connected to each RS485 channel be less than 30.
- The addresses of all devices on each daisy chain must be within the address range set by Ai-Logger, and there must be no duplication, otherwise the communication will fail.
- If Ai-logger detects a conflict between the RS485 addresses of the inverter, it will reassign a different address without the need of going to the inverter to modify it.
- All devices on each daisy chain must have baud rates set to 9600.
- It is recommended to use a CAT 6E network cable with a cross-sectional area of 0.5mm² or more or a shielded twisted pair cable of 1mm²

Connect to a weather station

Note

- Ai-Logger only supports weather stations with standard MODBUS-RTU protocol. One Ai-Logger can only manage one weather station.
- For the definition of the RS485 communication cable of the weather station, please refer to the operating instructions delivered with the weather station for details.

4.3 Connect to a smart meter

How to connect the Ai-Logger to a smart meter
Background information: Ai-Logger can connect to smart meters that support standard MODBUS-RTU protocol or DL/T645 protocol.

Note

- After the MODBUS-RTU protocol smart meter is wired, you need to log in to the embedded WEB and set the relevant parameters of the MODBUS smart meter. For details, please refer to 6.4.5.2 Setting smart meter parameters.
- The smart meter does not support automatic identification, you need to set the relevant parameters of the MODBUS smart meter through the embedded WEB, please refer to 6.4.5.2 Setting smart meter parameters for details.
- The protocols supported by the devices connected to a COM port of the Ai-Logger should be the same. After completing the wiring, you need to modify the protocol of the corresponding COM port through the embedded WEB. For details, please refer to 6.5.2.2 Setting RS485 parameters.
- The smart meter does not support automatic identification and needs to be added manually through the embedded WEB. For details, please refer to 6.4.5.2 Setting smart meter parameters.

------End

4.4 Connect through Ethernet cable

Background information: Ai-Logger can be connected to Ethernet switches, routers and other devices through Ethernet cable, and can also be connected to the Ethernet electrical port of a PC directly or through a Hub. You can select the device to be connected according to the specific networking scenario.

Steps

Step 1. Insert one end of the purchased network cable into the Ethernet port of the device.

Note

- Pay attention when preparing your own network cable:
- Use CAT 5E or higher shielded network cables.
- It is recommended that the cable length should not exceed 100 meters.

Step 2. Plug the other end of the network cable into the "LAN" port of the Ai-Logger.

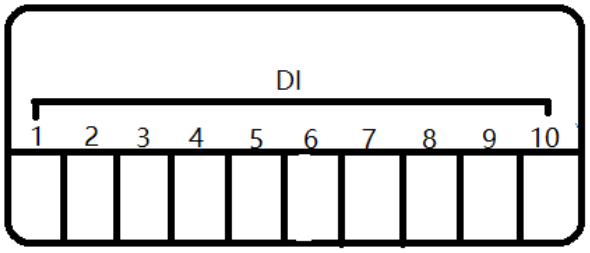
Note

- Ai-Logger provides AP hotspot as distribution network
- If Ai-Logger is connected to PC directly or through Hub, both IP addresses need to be set in the same network segment.
- If the Ai-Logger needs to be connected to the PC through a network device (such as a router), the IP addresses of the Ai-Logger and the router and other network devices need to be set in the same network segment. Please set the gateway of Ai-Logger correctly to ensure that it can communicate with network devices.

------End

4.5 Connect to Ripple Control Receiver

How to connect Ai-Logger to Ripple Control Receiver.
Background information: In Germany and parts of Europe, grid companies use Ripple Control Receiver to convert grid dispatch signals to dry contact and need power plants to receive grid dispatch signals using dry contact communication.
The DI signal terminal of Ai-Logger, as shown in the figure

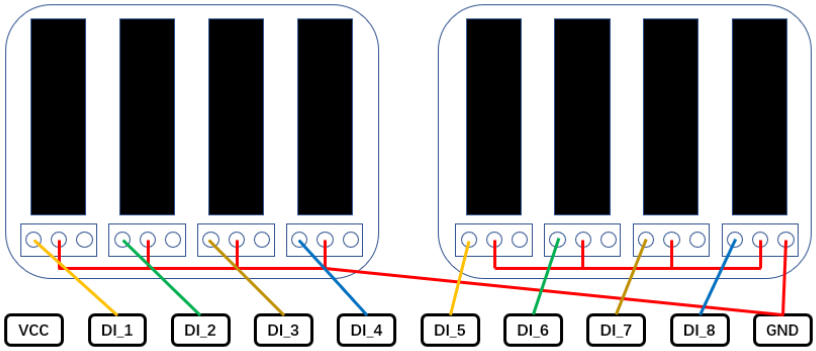


DI port description, as shown in the table

Port	Function
1	
2	DI_1
3	DI_2
4	DI_3
5	DI_4

6	DI_5
7	DI_6
8	DI_7
9	DI_8
10	GND, dry contact input terminal, work with DI_1~DI_4 to perform reactive power derating, and DI_5~DI_8 to perform active power compensation.

When Ai-Logger is connected with Ripple Control Receiver, the connection method is as shown in the figure



Notice

- When supporting active power remote control and reactive power remote control at the same time, only one of the four outputs of the two Ripple Control Receivers can be in a closed state.

Steps

Step 1: Choose a cable of suitable length and connect one end to the Ripple Control Receiver.

Step 2: Connect the other end of the cable to the DI port of the Ai-Logger.

Notice

- In order to use the power grid dispatch function normally, after the cable is connected, you need to set up relevant settings (active power schedule or reactive power schedule) on the embedded WEB. For details, please refer to 7. Grid dispatch.

-----End

5 System Operation

How to start the Ai-Logger and how to set the initialization parameters.

5.1 System Power-On Process

How to check the system before power-on and the power-on process.

Check before power on

Before powering on the Ai-Logger, please check and make sure:

1. All cable skins are undamaged and well insulated.
2. All cables are properly sized.
3. All cables are connected correctly and securely.

Power-on process

The recommended power-on sequence is: Inverter > Ai-Logger > PC Terminal.

> **Note**
>
> - A terminal refers to a PC with network management software installed.

Step	Operation
1	Check before power-up.
2	Turn on the inverter and set the correct communication parameters (including "address", "baud rate", etc). For details on setting the communication parameters, please refer to the corresponding inverter user manual.
3	Turn on the Ai-Logger and plug the output terminal of its power adapter into the "POWER" port and connect the input terminal of the power adapter to the AC socket.
4	Log in to the embedded WEB of Ai-Logger, set time and power plant parameters
5	Through the embedded WEB of Ai-Logger, set the search range and baud rate of the RS485 communication port address. When powering up for the first time, you can set the address search range and baud rate in the Setup Initialization Parameters Wizard, please refer to 6.5.2.2 Setting RS485 parameters for details. ;
6	Wait for Ai-Logger to search for inverter devices, Ai-Logger will automatically connect all inverter devices after the search is finished. You can also choose to skip this process and manually search, add or delete devices. For details, please refer to 6.6.3 Device Management.

7	(Optional) Manually add weather stations and smart meters. For details, please refer to 6.4.4.2 Setting Weather Station Parameters **Notice** Before adding a weather station or smart meter, you need to log in to the embedded WEB and set the parameters of the environmental monitor or smart meter correctly
8	(Optional) Start the PC terminal, and set the Ethernet and management system parameters correctly on the Ai-Logger.

Notice

- The first time you power up, please use the initial password and change it as soon as possible. It is recommended to update your password regularly and remember the changed password to keep your account safe. Failure to change the initial password may lead to password leakage. Long-term use of the password will increase the risk of theft and cracking. Loss of the password will prevent the user from accessing the device, which may cause damage to the power plant, and the user shall be responsible for the resulting loss.

6 WEB interface operation

6.1 WEB interface description

- The WEB software version corresponding to the interface pictures in this document is Ai-Logger 1000. Data shown in the pictures are for reference only, actual data might be different.
- WEB login with different identities might show different operation interface parameters. This document describes the relevant operation interface by logging in as a "senior user".
- Parameter names, ranges and default values may be changed or adjusted later according to actual display.
- Issuing reset, shutdown, and upgrade commands to the inverter may cause the inverter not to be connected to the grid and affect power generation.
- Only professionals can set grid parameters, protection parameters, characteristic parameters and power regulation parameters of the inverter. Incorrect settings of grid parameters, protection parameters and characteristic parameters may cause the inverter not to be connected to the grid, and incorrect settings of power regulation parameters may cause the inverter to not be connected to the grid according to the requirements of the grid and affect power generation.
- The grid dispatch parameters of Ai-Logger must be set by professionals. If the settings are wrong, the power plant may not be connected to the grid according to the grid requirements, which will affect power generation.

6.1.1 WEB page menu

Log in to the WEB interface with different user names, and the interface menu will be different.

Note

● indicates that the user has operating authority to the menu; ○ indicates that the user does not have operating authority to the menu.

Table 7-1 WEB interface user operating authorities

Menu				General user	Senior user
Primary menu	Secondary menu	Tertiary menu	Fourth level menu		
Overview	Power plant operation information	-	-	●	●
	Activity alert	-	-	●	●
	System power generation	-	-	●	●
	Performance data	-	-	●	●
	Device running information	-	-	●	●
Device monitoring	Ai-Logger	Running Information	-	●	●
		About	-	●	●
	Inverter a	Running Information	-	●	●
		Activity alert	-	●	●
		Performance data	-	●	●
		Power generation	-	●	●
		Operating parameters	Grid parameters	○	●
			Protection parameters	○	●
			Characteristic parameter	○	●
			Power regulation	○	○
		About	-	●	●
	Weather station	Running Information	-	●	●
		Performance data	-	●	●

		Operating parameters	-	○	●
		About	-	●	●
	Smart meter b	Running Information	-	●	●
		Performance data	-	●	●
		Operating parameters	-	○	●
		About	-	●	●

Menu				General user	Senior user
Primary menu	Secondary menu	Tertiary menu	Fourth level menu		
Historical query	Historical alarms	-	-	●	●
	Operation log	-	-	○	●
	Data output	-	-	○	●
Set up	User parameters	Date and time	-	●	●
		Power plant	-	●	●
		Income	-	●	●
	Communication parameters	Ethernet	-	○	●
		RS485	-	○	●
		Smart meter	-	○	●
		Management system	-	○	●
		Modbus TCP	-	○	●
		IEC103	-	○	●
		IEC104	-	○	●
	Active power schedule	-	-	○	○
	Reactive power schedule	-	-	○	○
	Remote shutdown	-	-	○	○

	DI port configuration	-	-	○	○
	Anti-backflow	-	-	○	○
Maintenance	Firmware upgrade	-	-	○	●
	Security Settings	-	-	○	●
	System maintenance	-	-	○	●
	Device management	Device access	-	○	●
		Device List	-	○	●

6.1.2 WEB interface layout

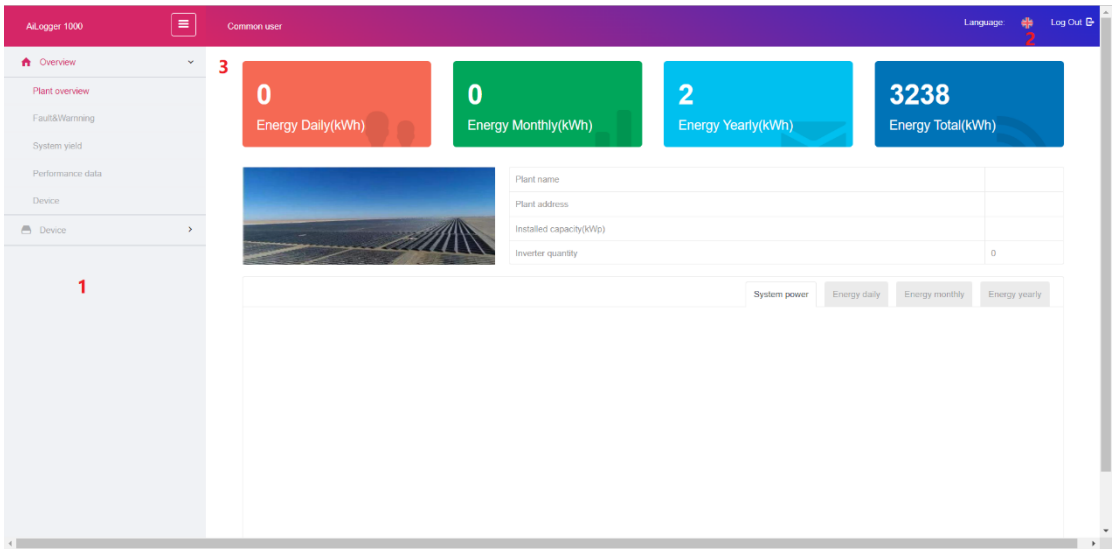


Table WEB interface layout description

Serial number	Function	Note
1	Navigation menu	The menu bar for general user is different from the menu bar for senior user.
2	Display language	Select the page display language, and you can register and log in.
3	Details interface	Detailed information query or parameter setting interface.

6.2 Prepare and log in to the WEB

Operating Environment Requirements

Supports Windows 7 and above operating systems.

Browser: Chrome52, Firefox58, IE11 and above are recommended.

Configure IP address

Correctly configure the IP address, subnet mask and gateway of Ai-Logger, PC and network devices (configured when connecting).
Login to WEB interface

Note

- The Ai-Logger has been connected directly to the PC, or connected to the PC via Ethernet.

Step 1 Enter http://XX.XX.XX.XX (XX.XX.XX.XX is the IP address of Ai-Logger or http://ailogger-XXX.local (XXX the last three digits of the serial number) in the address bar of the browser, and press " Enter " to enter the login interface.
Step 2 Select "Language" and "Username", enter "Password", and click "Login".
Login Interface

Parameter name	Setup Instructions
Language	Choose as needed.
Username	For device commissioning, please select “senior user”.
Password	The initial password is 12345. When powering on for the first time, please use the initial password. After logging in, you must change the initial password and log in again. It is recommended to update the password regularly and remember the changed password to keep your account safe. Long-term use of the password will increase the risk of theft and cracking. The device will need to be reset to factory setting if the password is lost, which may cause loss to the power plant, and the user shall be responsible for the resulting loss.

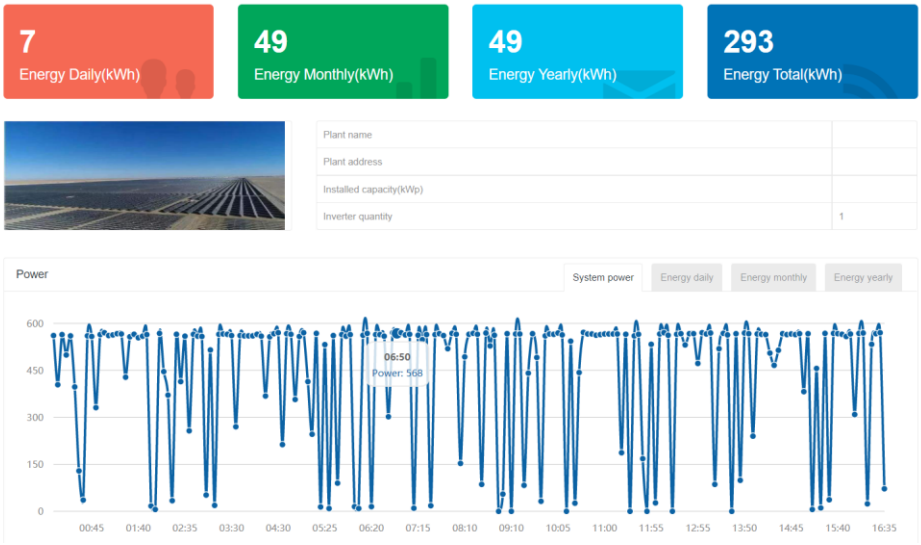
Note

- After logging into the WEB interface, if the page is blank, or if you click any menu page without jumping, you can clear the cache, refresh the page or log in again to solve the problem.

6.3 Overview

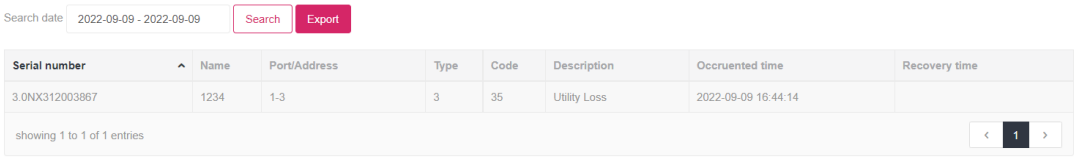
6.3.1 Plant operation information

Go to "Overview > Plant Overview" to enter the interface and query information.



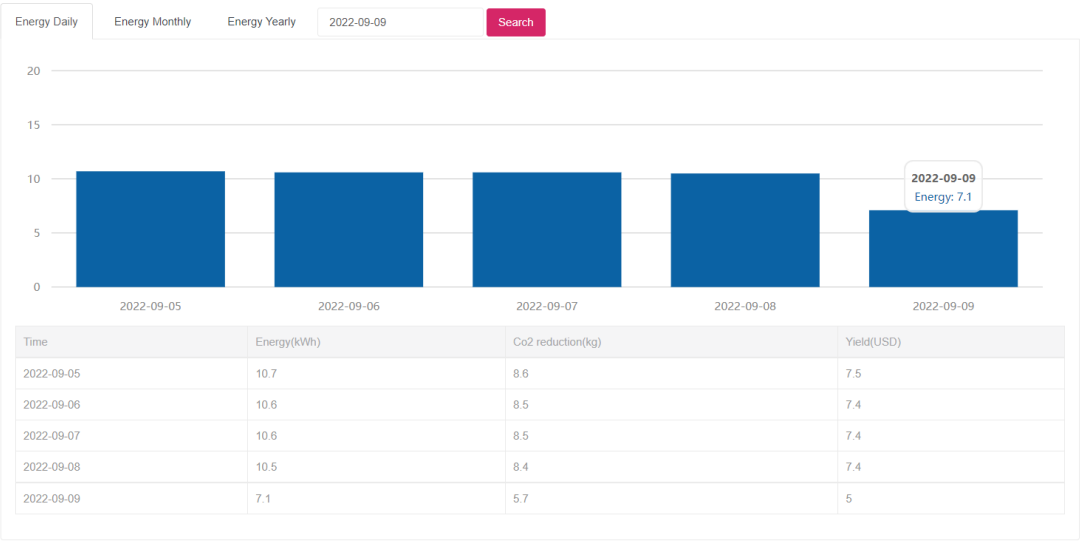
6.3.2 Fault warning

Go to "Overview > Fault Warning" to enter the page to query fault information.



6.3.3 System power generation

Go to "Overview > System Power Generation" to enter the page and query the power generation.



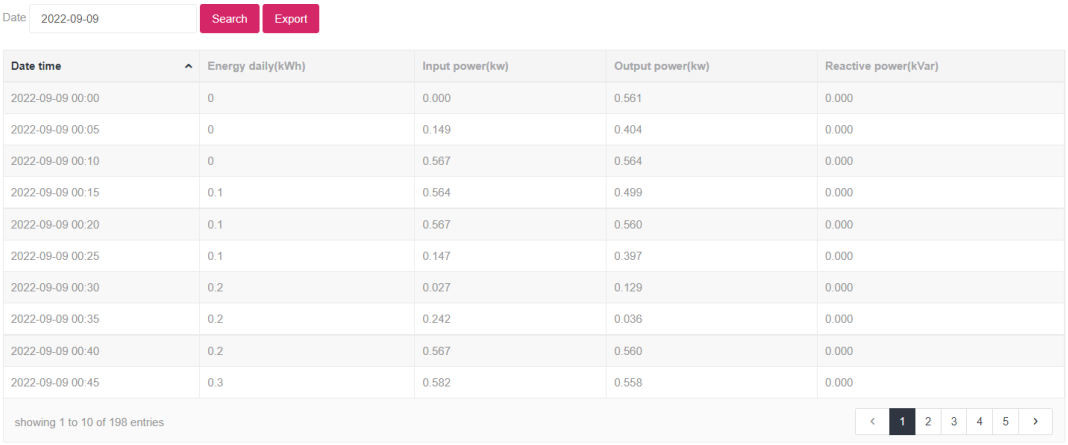
Time	Energy(kWh)	Co2 reduction(kg)	Yield(USD)
2022-09-05	10.7	8.6	7.5
2022-09-06	10.6	8.5	7.4
2022-09-07	10.6	8.5	7.4
2022-09-08	10.5	8.4	7.4
2022-09-09	7.1	5.7	5

Note

- According to the hourly storage (daily power generation), it can be stored for 30 days.
- According to the daily storage (monthly power generation), it can be stored for 1 year.
- According to the monthly storage (annual power generation), it can be stored for 10 years.
- According to the annual storage (historical power generation), it can be stored for 25 years.

6.3.4 Performance data

Go to “Overview” > “Performance Data” to enter the interface and query related information.



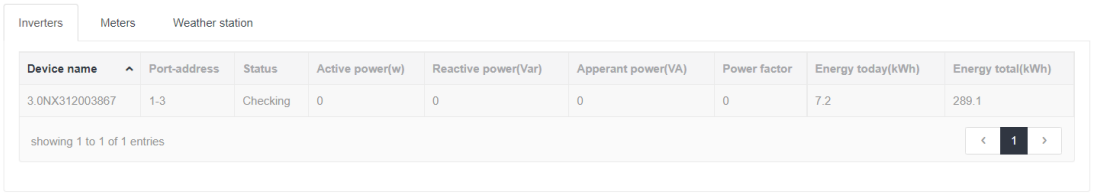
Date time	Energy daily(kWh)	Input power(kw)	Output power(kw)	Reactive power(kVar)
2022-09-09 00:00	0	0.000	0.561	0.000
2022-09-09 00:05	0	0.149	0.404	0.000
2022-09-09 00:10	0	0.567	0.564	0.000
2022-09-09 00:15	0.1	0.564	0.499	0.000
2022-09-09 00:20	0.1	0.567	0.560	0.000
2022-09-09 00:25	0.1	0.147	0.397	0.000
2022-09-09 00:30	0.2	0.027	0.129	0.000
2022-09-09 00:35	0.2	0.242	0.036	0.000
2022-09-09 00:40	0.2	0.567	0.560	0.000
2022-09-09 00:45	0.3	0.582	0.558	0.000

Note

- Users can choose the type of data display or export data in the upper left corner of the interface as needed.
- Data is exported in CSV format.

6.3.5 Device running information

Through "Overview > Devices", you can enter the interface, and query or export information about device running information.



6.4 Device Monitoring

6.4.1 Ai-Logger

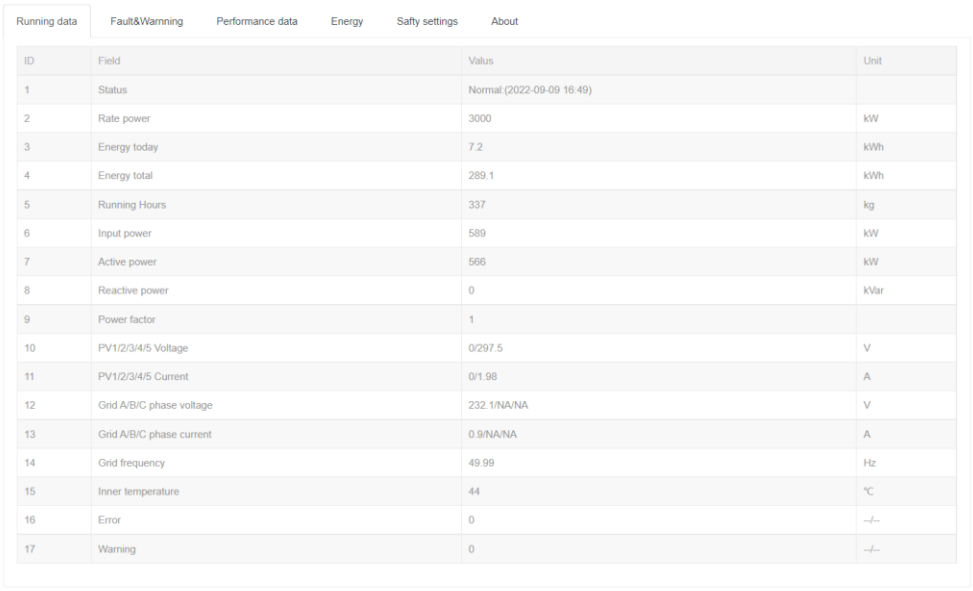
6.4.1.1 Querying Ai-Logger related information

Go to Device > Ai-Logger to enter the interface and query the related information of Ai-Logger.

6.4.2 Inverter

6.4.2.1 Query related information

Go to "Device > Inverter", select the inverter to be queried, enter the interface, and query related information.



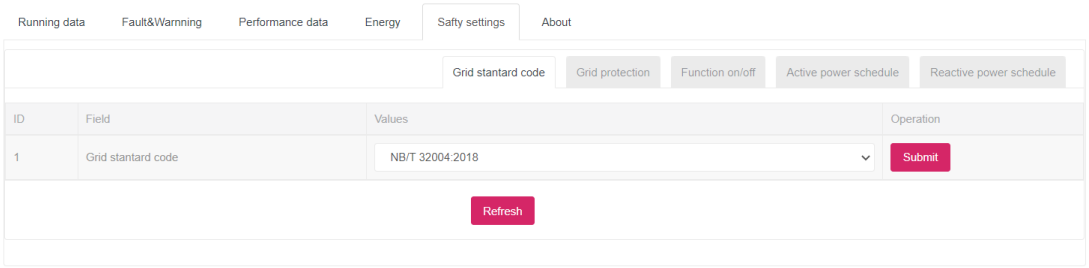
ID	Field	Valus	Unit
1	Status	Normal (2022-09-09 16:49)	
2	Rate power	3000	kW
3	Energy today	7.2	kWh
4	Energy total	289.1	kWh
5	Running Hours	337	kg
6	Input power	589	kW
7	Active power	566	kW
8	Reactive power	0	kVar
9	Power factor	1	
10	PV1/2/3/4/5 Voltage	0/297.5	V
11	PV1/2/3/4/5 Current	0/1.98	A
12	Grid A/B/C phase voltage	232.1/NA/NA	V
13	Grid A/B/C phase current	0.9/NA/NA	A
14	Grid frequency	49.99	Hz
15	Inner temperature	44	℃
16	Error	0	--/--
17	Warning	0	--/--

Note

- Users can query the inverter related information through the tab page.

6.4.2.2 Setting operating parameters (senior user)

Set interface
Due to permission restrictions, please log in as "senior user". On the "Device Monitoring" interface, select the inverter to be set, and then select the "Operating Parameters" tab to enter the interface.



Notice

- The parameter list in the documentation is a collection of all settable parameters. The parameters that can be set for different models and different standard codes will be different, depending on the actual display.
- If the power grid standard code is changed, some parameters may be restored to the factory default values. After the power grid standard code is changed, please check whether the previously set parameters are affected.

- Grid parameters

Serial number	Parameter name	Parameter Description	Remark
1	Grid standard code	Set according to the grid standard of the country / region where the inverter is located and the application scenario of the inverter.	-
2	Overvoltage protection value of first grid connection	Set the overvoltage protection value of the first grid connection point	Range 230V~300V
3	Undervoltage protection value of first grid connection	Set the undervoltage protection value of the first grid connection point	Range 45V~230V
4	Overfrequency protection value of first grid connection	Set the first grid connection overfrequency protection value	Range 50Hz~55Hz (50Hz grid)/60Hz~65Hz (60Hz grid)
5	Under-frequency protection value of first grid connection	Set the first grid connection underfrequency protection value	Range 45Hz~50Hz (50Hz grid)/55Hz~60Hz (60Hz grid)
6	CAT III overvoltage protection value	Set the grid CAT III overvoltage protection point.	Range 230V~300V
7	CAT III overvoltage protection time	Set the grid CAT III overvoltage protection time.	Range 0ms~300000ms
8	CAT II overvoltage protection value	Set the grid CAT II undervoltage protection point.	Range 230V~300V
9	CAT II overvoltage protection time	Set the grid CAT II undervoltage protection time.	Range 0ms~300000ms
10	CAT I overvoltage protection value	Set the grid CAT I undervoltage protection point.	Range 230V~300V
11	CAT I overvoltage protection time	Set the grid CAT I undervoltage protection time.	Range 0ms~300000ms
12	CAT III undervoltage protection value	Set the grid CAT III overfrequency protection point.	Range 45V~230V
13	CAT III undervoltage protection time	Set the grid CAT III overfrequency protection time.	Range 0ms~300000ms
14	CAT II undervoltage protection value	Set the grid CAT II overfrequency protection point.	Range 45V~230V
15	CAT II undervoltage protection time	Set the grid CAT II overfrequency protection time.	Range 0ms~300000ms
16	CAT I undervoltage protection value	Set the grid CAT I underfrequency protection point.	Range 45V~230V
17	CAT I undervoltage	Set the grid CAT I	Range 0ms~300000ms

	protection time	underfrequency protection time.	
18	10min overvoltage protection value	Set the 10min overvoltage protection value.	Range 230V~280V
19	10min overvoltage protection time	Set the 10min overvoltage protection time.	Range 0ms~60000ms
20	Overvoltage return value	Set the overvoltage return value.	Range 230V~300V
21	Undervoltage return value	Set the undervoltage return value.	Range 45V~230V
22	CAT III overfrequency protection value	Set the grid CAT III overfrequency protection point.	Range 50Hz~55Hz (50Hz grid)/60Hz~65Hz (60Hz grid)
23	CAT III overfrequency protection time	Set the grid CAT III overfrequency protection time.	Range 0ms~300000ms
24	CAT II overfrequency protection value	Set the grid CAT II overfrequency protection point.	Range 50Hz~55Hz (50Hz grid)/60Hz~65Hz (60Hz grid)
25	CAT II overfrequency protection time	Set the grid CAT II overfrequency protection time.	Range 0ms~300000ms
26	CAT I overfrequency protection value	Set the grid CAT I overfrequency protection point.	Range 50Hz~55Hz (50Hz grid)/60Hz~65Hz (60Hz grid)

● Protection parameters

Serial number	Parameter name	Parameter Description	Remark
27	CAT I overfrequency protection time	Set the grid CAT I overfrequency protection time.	Range 0ms~300000ms
28	CAT III underfrequency protection value	Set the grid CAT III underfrequency protection point.	Range 45Hz~50Hz (50Hz grid)/55Hz~60Hz (60Hz grid)
29	CAT III underfrequency protection time	Set the grid CAT III underfrequency protection time.	Range 0ms~300000ms
30	CAT II underfrequency protection value	Set the grid CAT II underfrequency protection point.	Range 45Hz~50Hz (50Hz grid)/55Hz~60Hz (60Hz grid)
31	CAT II underfrequency protection time	Set the grid CAT II underfrequency protection time.	Range 0ms~300000ms
32	CAT I underfrequency protection value	Set the grid CAT I underfrequency protection point.	Range 45Hz~50Hz (50Hz grid)/55Hz~60Hz (60Hz grid)
33	CAT I underfrequency	Set the grid CAT I	Range 0ms~300000ms

	protection time	underfrequency protection time.	
34	Rate of Change of Frequency Protection Threshold	Set the Rate of Change of Frequency protection threshold.	Range0Hz~10Hz
35	Rate of Change of Frequency protection time	Set the Rate of Change of Frequency protection time.	Range 0ms~1000ms
36	Overfrequency return value	Set the overfrequency return value.	Range 50Hz~55Hz (50Hz grid)/60Hz~65Hz (60Hz grid)
37	Underfrequency return value	Set the underfrequency return value.	Range 45Hz~50Hz (50Hz grid)/55Hz~60Hz (60Hz grid)
38	First grid connection time	Set the first grid connection time.	Range 30 seconds ~ 1600 seconds
39	Grid reconnection time	Set the grid reconnection time.	Range 30 seconds ~ 1600 seconds

● Enable switch

Serial number	Parameter name	Parameter Description	Remark
1	Active power schedule function	Settings to enable the active power schedule function of the inverter	
2	EEG function	Set the default 70% active power limit of the inverter	
3	Slope loading function	Set active power slope loading function	
4	Overvoltage load shedding function	Settings to enable/disable the overvoltage load shedding function	
5	Over-frequency load shedding function	Settings to enable/disable over-frequency load shedding function	
6	Reactive power schedule function	Settings to enable/disable reactive power schedule function	
7	Low Voltage Ride Through (LVRT) Function	Settings to enable/disable the Low Voltage Ride Through (LVRT) Function	
8	High Voltage Ride Through (HVRT) Function	Settings to enable/disable the High Voltage Ride Through (HVRT) Function	
9	10-minute voltage average overvoltage function	Settings to enable/disable the 10-minute voltage average overvoltage function	
10	Islanding protection function	Settings to enable/disable Islanding protection function	
11	PE detection function	Settings to enable/disable	

		PE detection function	
12	Wire grounding protection function	Settings to enable/disable Wire grounding protection function	
13	PV string current monitoring function	Settings to enable/disable PV string current monitoring function	
14	0 power output Relay disconnect function	Settings to enable/disable 0 power output Relay disconnect function	
15	Overload enable	Settings to enable/disable Overload function	
16	Parallel enable	Settings to enable/disable Parallel function	
17	SPD detection enable	Settings to enable/disable SPD detection function	
18	Undervoltage loading function	Settings to enable/disable Undervoltage loading function	
19	Underfrequency loading function	Settings to enable/disable Underfrequency loading function	
20	CV mode enable	Settings to enable/disable CV mode function	
21	CAT I over-under-frequency enable	Settings to enable/disable CAT I over-under-frequency function	
22	Communication loss detection function	Settings to enable/disable Communication loss detection function	
23	Shadow MPPT scanning function	Settings to enable/disable Shadow MPPT scanning function	

● Active Power Dispatch

1. Active power limit

Serial number	Parameter name	Parameter Description	Remark
1	Active power limit percentage	Set the active power output percentage	Range 0%~100%

2. Over-frequency load shedding curve

Serial number	Parameter name	Parameter Description	Remark
1	Operation mode	Set the over-frequency load shedding operation mode	
2	Starting frequency	The standards of some countries/regions require that when the grid frequency exceeds a certain set value, the active power output by the inverter must be derated.	Range 50Hz~52Hz (50Hz grid), 60Hz~62Hz (60Hz grid)

3	Termination frequency	Set the termination frequency for over-frequency derating	Range 50Hz~52Hz (50Hz grid), 60Hz~62Hz (60Hz grid)
4	Return frequency	Set the return frequency of over-frequency derating	Range 50Hz~52Hz (50Hz grid), 60Hz~62Hz (60Hz grid)
5	Derating ratio	Set the derating ratio for over-frequency derating	Range 10%~100%
6	Load shedding delay time	Set the load shedding delay time for over-frequency derating	Range 0 seconds ~ 1.6 seconds
7	Recovery delay time	Set the recovery delay time for over-frequency derating	Range 0 seconds ~ 60000 seconds
8	Load to Pn slope after frequency recovery	Set the load to Pn slope after the frequency recovery of over-frequency derating	Range 5%Pn/min~650%Pn/min
9	0 power frequency point	Set the 0 power frequency point for over-frequency derating	

3. Overvoltage load shedding curve

Serial number	Parameter name	Parameter Description	Remark
1	Overvoltage load shedding mode	Set the overvoltage load shedding mode	
2	Starting voltage	The standards of some countries/regions require that when the grid voltage exceeds a certain set value, the active power output by the inverter must be derated.	
3	Termination voltage	Set the termination voltage for overvoltage derating	Range 100%Un~120%Un
4	Return voltage	Set the return voltage for overvoltage derating	Range 100%Un~135%Un
5	Derating ratio	Set the derating ratio for overvoltage derating	Range 80%Un~120%Un
6	Load shedding delay time	Set the load shedding delay time for overvoltage derating	Range 10%~100%
7	Recovery delay time	Set the recovery delay time for overvoltage derating	Range 0 seconds ~ 1.6 seconds
8	Load slope after recovery	Set the load slope after recovery from overvoltage derating	Range 0 seconds ~ 6000 seconds

4. Underfrequency loading curve

Serial number	Parameter name	Parameter Description	Remark
1	Underfrequency loading mode	Set the underfrequency loading mode	

2	Starting frequency	Set the starting frequency for underfrequency loading	Range 48Hz~50Hz (50Hz grid)/58Hz~60Hz (60Hz grid)
3	Termination frequency	Set the termination frequency for underfrequency loading	Range 45Hz~50Hz (50Hz grid)/55Hz~60Hz (60Hz grid)
4	Return frequency	Set the return frequency for underfrequency loading	Range 48Hz~50Hz (50Hz grid)/58Hz~60Hz (60Hz grid)
5	Loading ratio	Set the loading ratio for underfrequency loading	Range 10%~100%
6	Loading delay time	Set the loading delay time for underfrequency loading	Range 0 seconds ~ 1.6 seconds
7	Recovery delay time	Set the recovery delay time for underfrequency loading	Range 0 seconds ~ 60000 seconds
8	Pref slope after underfrequency recovery	Set the Pref slope after underfrequency recovery of underfrequency loading	Range 5%Pn/min~3000%Pn/min
9	Underfrequency loading 0 power frequency point	Set the Underfrequency loading 0 power frequency point	Range 45Hz~50Hz

5. Undervoltage loading curve

Serial number	Parameter name	Parameter Description	Remark
1	Undervoltage loading mode	Set the Undervoltage loading mode	
2	Starting voltage	Set the starting voltage for undervoltage loading	Range 80%Un~100%Un
3	Termination voltage	Set the termination voltage for undervoltage loading	Range 70%Un~100%Un
4	Return voltage	Set the return voltage for undervoltage loading	Range 80%Un~120%Un
5	Loading ratio	Set the loading ratio for undervoltage loading	Range 10%~100%
6	Loading delay time	Set the loading delay time for undervoltage loading	Range 0 seconds ~ 1.6 seconds
7	Recovery delay time	Set the recovery delay time for undervoltage loading	Range 0 seconds ~ 6000 seconds
8	Load shedding slope after recovery	Set the load shedding slope after recovery from undervoltage loading	Range 5%Pn/min~3000%Pn/min

● Reactive Power Dispatch

1. Fixed power factor

Serial number	Parameter name	Parameter Description	Remark
1	Power factor	Set fixed power factor	Range 0.75 ~ 1.00

2. Cos(φ)-P curve

Serial number	Parameter name	Parameter Description	Remark
1	Point 1 active power	Set the active power of the first point	Range 10%~100%
2	Point 1 Cos (φ)	Set the Cos (φ) of the first point	Range 0.75 ~ 1.00
3	Point 2 active power	Set the active power of the second point	Range 10%~100%
4	Point 2 Cos (φ)	Set the Cos (φ) of the second point	Range 0.75 ~ 1.00
5	Point 3 active power	Set the active power of the third point	Range 10%~100%
6	Point 3 Cos (φ)	Set the Cos (φ) of the third point	Range 0.75 ~ 1.00
7	Point 4 active power	Set the active power of the fourth point	Range 10%~100%
8	Point 4 Cos (φ)	Set the Cos (φ) of the fourth point	Range 0.75 ~ 1.00
9	Lock voltage	Set lock voltage (for Cos(φ))	Range 80%Un~120%Un

3. Fixed reactive power

Serial number	Parameter name	Parameter Description	Remark
1	Q mode setting value	Set fixed reactive power output	Range 0%~65%

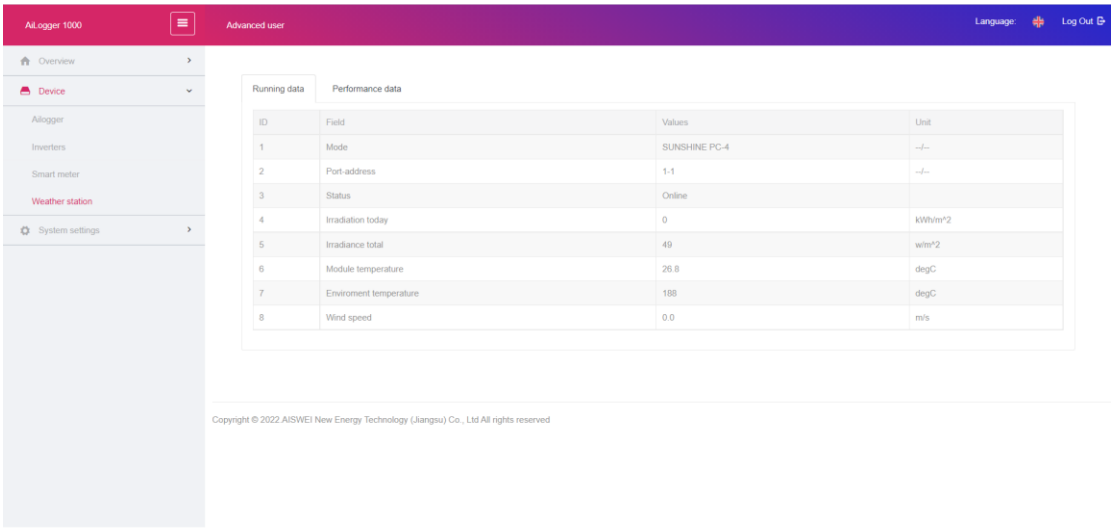
4. Q-U curve

Serial number	Parameter name	Parameter Description	Remark
1	Point 1 U	Set the U of point 1	Range 80%Un~100%Un
2	Point 2 Q	Set the Q of point 2	Range 0%Un~65%Un
3	Point 2 U	Set the U of point 2	Range 80%Un~100%Un
4	Point 2 Q	Set the Q of point 2	Range 0%Un~65%Un
5	Point 3 U	Set the U of point 3	Range 80%Un~100%Un
6	Point 3 Q	Set the Q of point 3	Range 0%Un~65%Un
7	Point 4 U	Set the U of point 4	Range 80%Un~100%Un
8	Point 4 Q	Set the Q of point 4	Range 0%Un~65%Un
9	Lock power	Set lock power (for Q(U) curve)	Range 0%Pn~100%Pn
10	Unlock power	Set unlock power (for Q(U) curve)	Range 0%Pn~100%Pn

6.4.4 Weather station

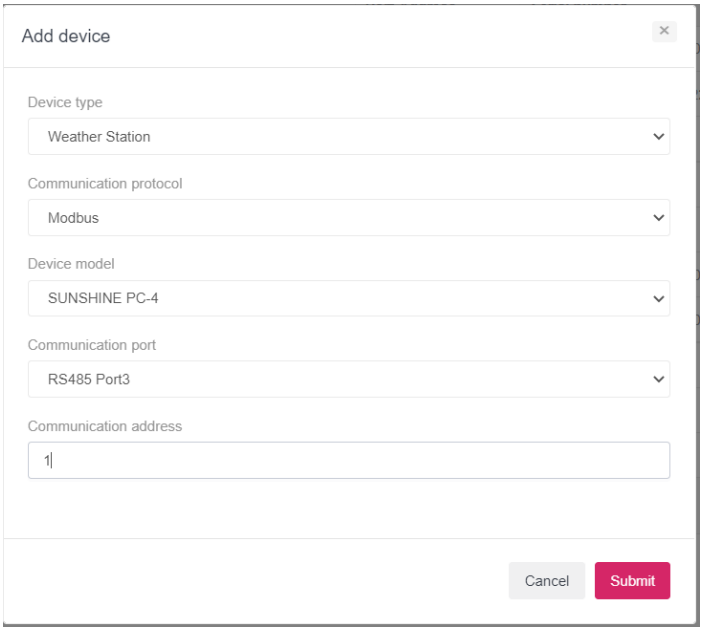
6.4.4.1 Query related information

Go to "Device > Weather Station" to enter the interface and query related information



6.4.4.2 Setting Weather Station Parameters

Since different vendors have different protocol points, the parameters must be properly configured on the WEB of Ai-Logger according to the protocol points provided by the vender in order to get environment monitoring information properly.
After the Ai-Logger is connected to the weather station, you need to manually add a device. The selected "Device Type" is "Weather Station".



When the connected device model is in the "Environmental Monitor Model" drop-down menu, the parameter settings are as follows.

Parameter name	Setup Instructions
Environmental Monitor Model	Set to the corresponding environmental monitor model. Currently supported models are: Jinzhou Sunshine (PC-4)

6.4.5 Smart Meter

6.4.5.1 Query related information

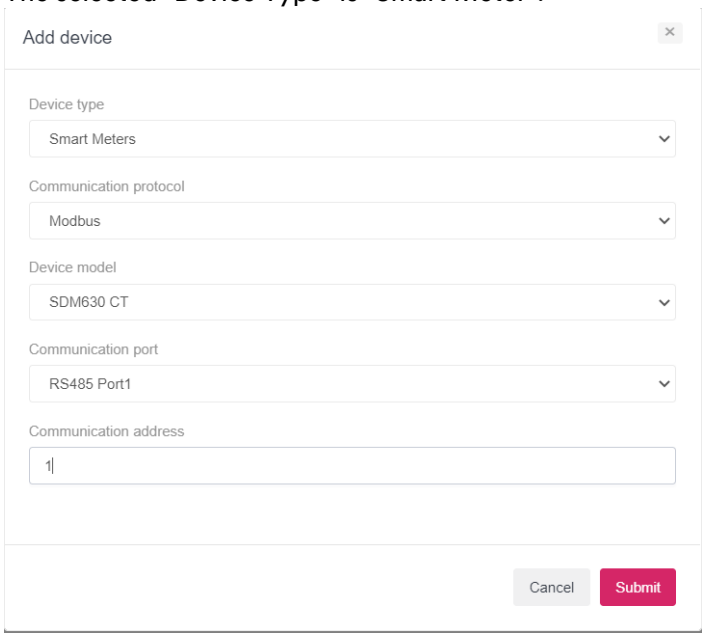
Go to "Device > Smart Meter" to enter the interface and query related information.

Running data | Performance data

ID	Field	Values	Unit
1	Meter mode	EASTRON SDM 630 DC	--/--
2	Port-address	3-1	--/--
3	Status	Online	--/--
4	AB line voltage	395.38	V
5	BC line voltage	402.26	V
6	CA line voltage	400.15	V
7	A phase voltage	227.05	V
8	B phase voltage	229.50	V
9	C phase voltage	234.98	V
10	A phase current	0.81	A
11	B phase current	0.82	A
12	C phase current	0.82	A
13	A phase power	-182.68	W
14	B phase power	-183.85	W
15	C phase power	-190.22	W
16	Active power	-556.00	W
17	Reactive power	-95.00	Var
18	Power factor	-98.00	

6.4.5.2 Set Smart meter parameters

Since different vendors have different protocol points, the parameters must be properly configured on the WEB of Ai-Logger according to the protocol points provided by the vender in order to get smart meter information properly.
After the Ai-Logger is connected to the smart meter, you need to manually add a device. The selected "Device Type" is "Smart Meter".



When the connected device model is in the "Smart Meter" drop-down menu, the parameter settings are as follows.

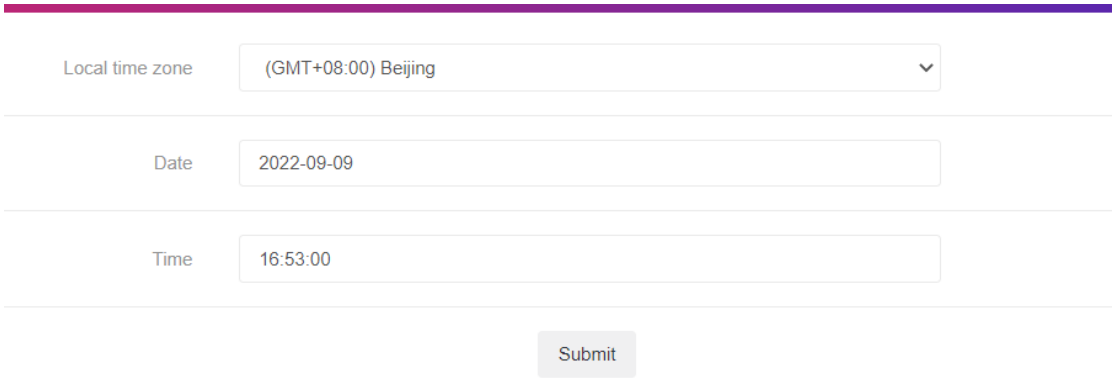
Parameter name	Setup Instructions
Smart Meter Model	Set to the corresponding smart meter model. Currently supported models are: Donghong (SDM630 CT, SDM630 DC)

6.5 Settings

6.5.1 User Parameters

6.5.1.1 Set date and time

Due to permission restrictions, please log in as "senior user". Enter the interface through "Settings > Date and Time".

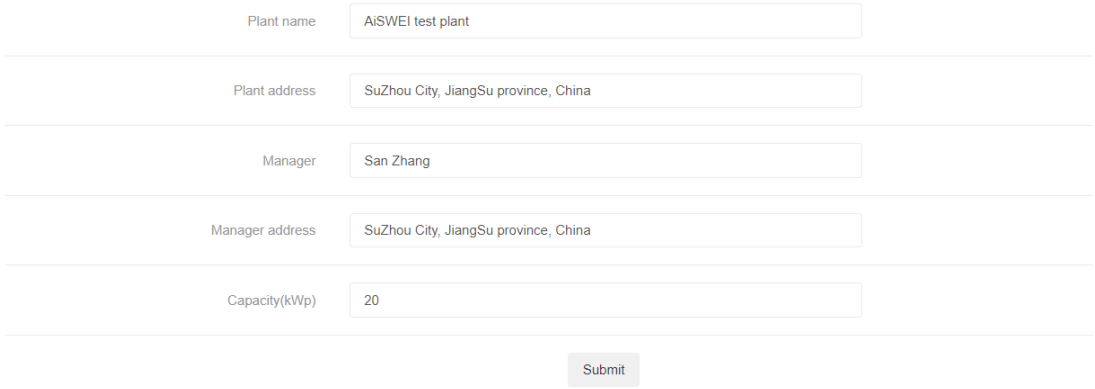


Notice

- There is no "Daylight Saving Time Enable" option in regions that do not involve daylight saving time.
- After the "Date and Time" is set, all inverters connected to the Ai-Logger will be modified to this time synchronously, please make sure the setting is accurate.
- Modifying the "date and time" will affect the integrity of the system's power generation and performance data records. Please do not arbitrarily change the time zone and system time.
- If the device is connected to the Internet, Ai-Logger will automatically synchronize with the cloud server, no need to set the time.

6.5.1.2 Set power plant information

Due to permission restrictions, please log in as "senior user". Enter the interface through "Settings > Power Plant".

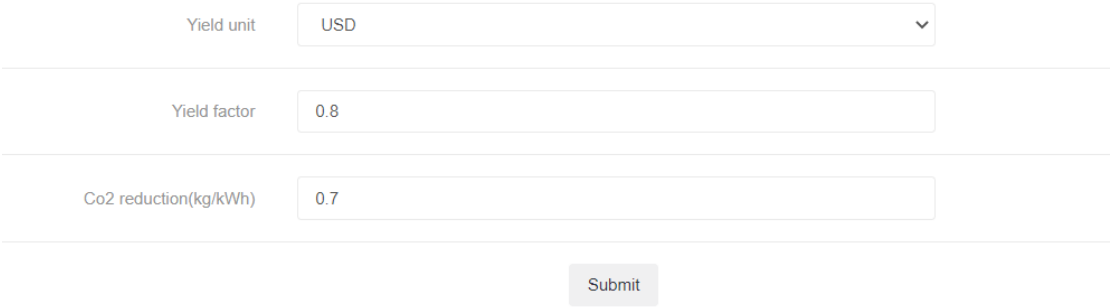


Note

- When setting the power plant information, you cannot enter " <>:,`'?()#&\$|%+;~^" " as any of the characters.

6.5.1.3 Set Yield Parameters

Due to permission restrictions, please log in as "senior user". Go to "Settings > Yield" to enter the interface.



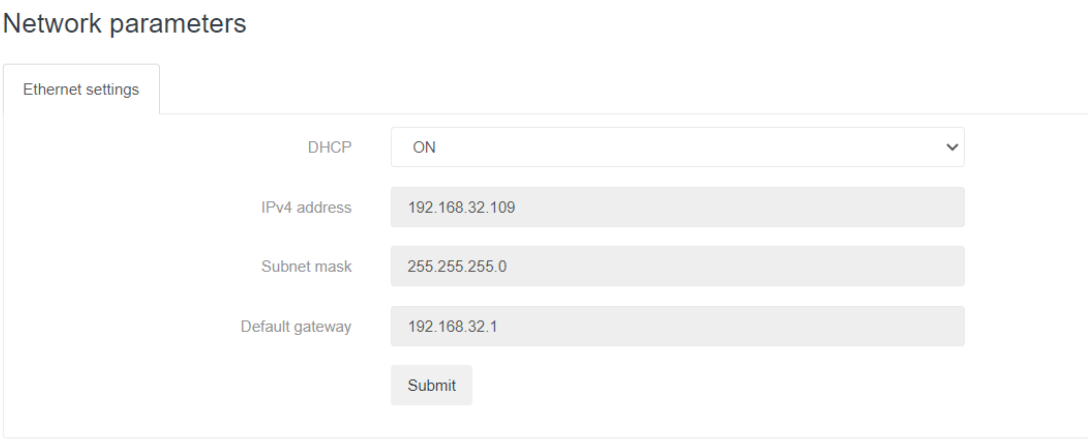
Note

- "Yield /kWh " is the local electricity price, which is used to calculate the converted revenue of power generation.

6.5.2 Communication parameters

6.5.2.1 Set network parameters

Due to permission restrictions, please log in as "senior user". Go to "Settings > Network" to enter the interface.



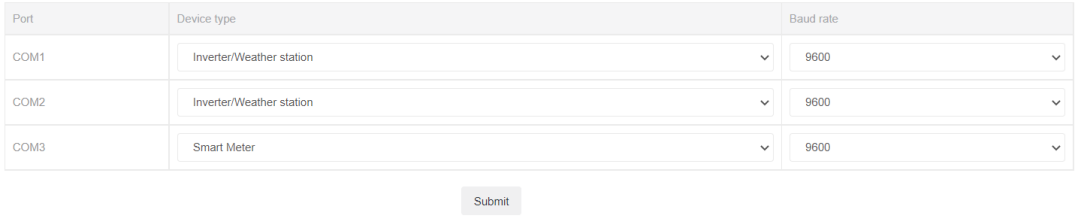
Notice

If the A i -Logger is connected to an external network through a router, pay attention to the following when setting the network parameters:

- The gateway address is set to the IP address of the router.
- The IP address of the Ai-Logger must be in the same network segment as the gateway.
- The DNS address is usually set to the IP address of the router, or obtained from the network provider.

6.5.2.2 Set RS485 parameters

Due to permission restrictions, please log in as "senior user" or "Special User". Enter the interface through "Settings > RS485 ".



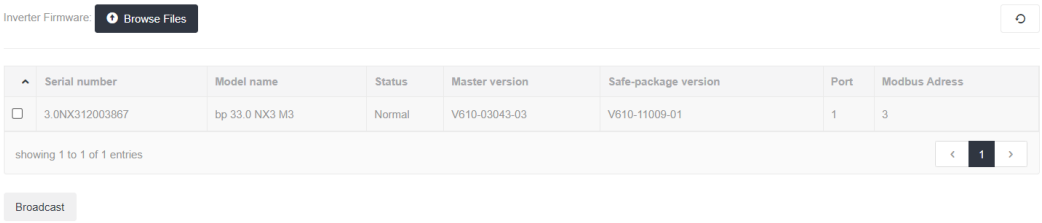
Note

- " RS485-1 "~" RS485-3 " correspond to the communication ports " COM1 "~" COM3 ", and the default baud rate is 9600bps . The baud rates of devices connected to the same RS485 port must be the same.
- The protocol type of RS485 is set according to the protocol supported by the connected device as well as the state of the device in the network.
- The "protocol type", "check mode" and "stop bit" of all devices connected to the same RS485 port must be the same.

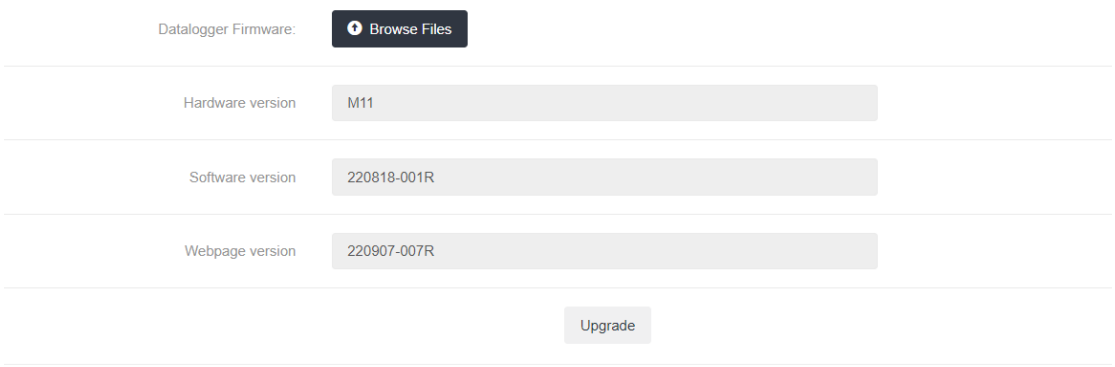
6.6 Maintenance

6.6.1 Firmware upgrade

Users can upgrade the firmware of Ai-Logger and inverter through the WEB interface.
Due to permission restrictions, please log in as "senior user". Go to Maintenance > Firmware Upgrade to enter the interface.
Upload the upgrade file for the device that needs to be upgraded.
Click Upgrade.
It takes 20 minutes to upgrade the inverter and 1 minute to upgrade the Ai-Logger. Please click the refresh button to update the version to confirm that the upgrade is successful.
Upgrading the Inverter

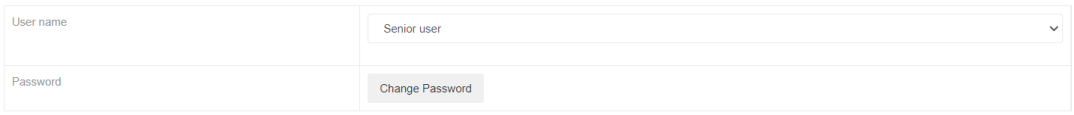


Upgrading Ai-Logger



6.6.2 Security Settings

Go to Maintenance > Security Settings to enter the interface.



Note

- The system user names are "general user" and "senior user", and the initial password is 12345 .
- The first time you power up, please use the initial password and change it as soon as possible. It is recommended to update your password regularly and remember the changed password to keep your account safe. Failure to change the initial password may lead to password leakage. Long-term use of the password will increase the risk of theft and cracking. Loss of the password will prevent the user from accessing the device, which may cause damage to the power plant, and the user shall be responsible for the resulting loss.
- It is recommended to change the password at least once every six months to prevent account theft which might compromise system security.

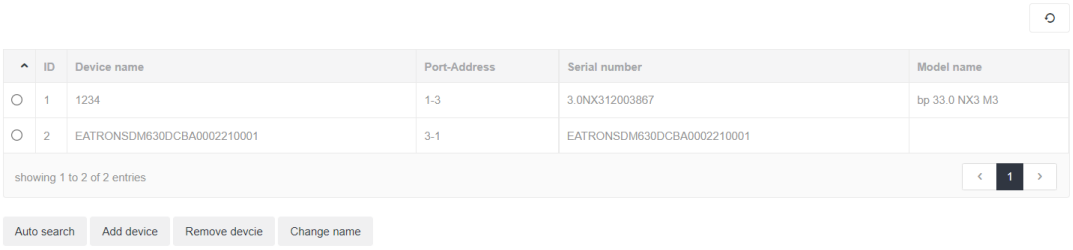
Password settings must follow the following principles:

- The password length is 6 to 20 characters.
- Passwords consist of at least two of the three types: numbers, uppercase letters, and lowercase letters.

6.6.3 Device Management

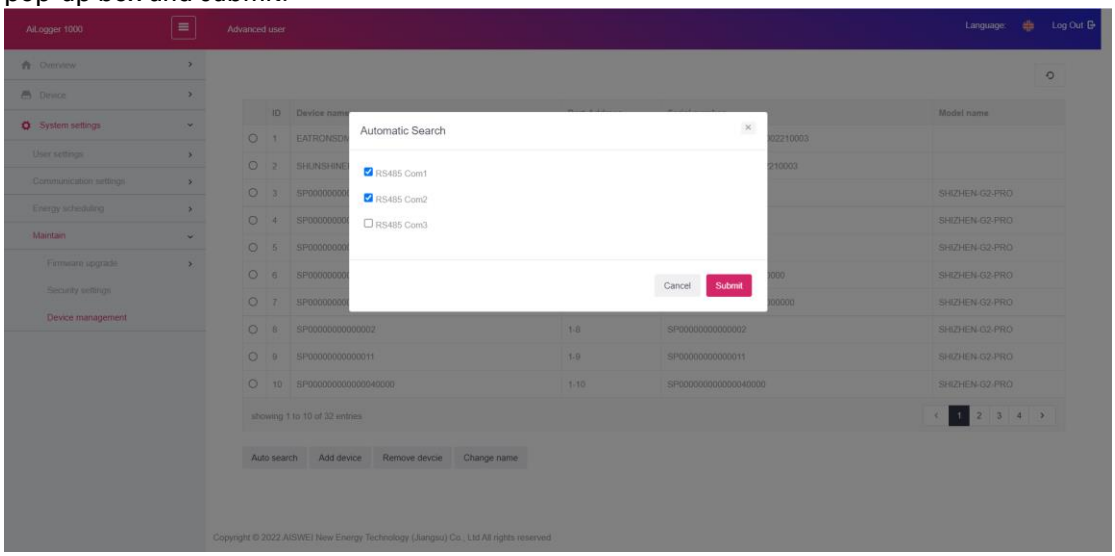
6.6.3.1 Device Access

Due to permission restrictions, please log in as "senior user". Go to “Maintenance” > “Device Access” to enter the interface.



6.6.3.2 Automatically search for inverters

Click "Automatic Search", select the communication port connected to the inverter in the pop-up box and submit.



Note

- AISWEI devices can be accessed through automatic search or added manually; weather stations and smart meters do not support automatic search and need to be added manually.
- Before manually adding a Modbus meter or DL/T645 meter, you need to set the RS485 parameters correctly. For details, see 6.5.2.2 Set upRS485Parameters. Before adding a Modbus meter manually, you need to configure the smart meter parameters correctly. For details, see 6.4.5.2 Set Smart Meter Parameters. When adding a smart meter, select "Device Type" as "Smart Meter", and select "Communication Protocol" according to the protocol supported by the connected meter.
- The connected device can be manually removed, and the removed device can still be added again.
- The device address can be adjusted according to the serial number through "Automatic Address Assignment" . For example, when the device cannot be accessed due to address conflict, you can perform this operation to reassign the device address and access the device.

7 Grid dispatch

7.1 Power Regulation Instructions

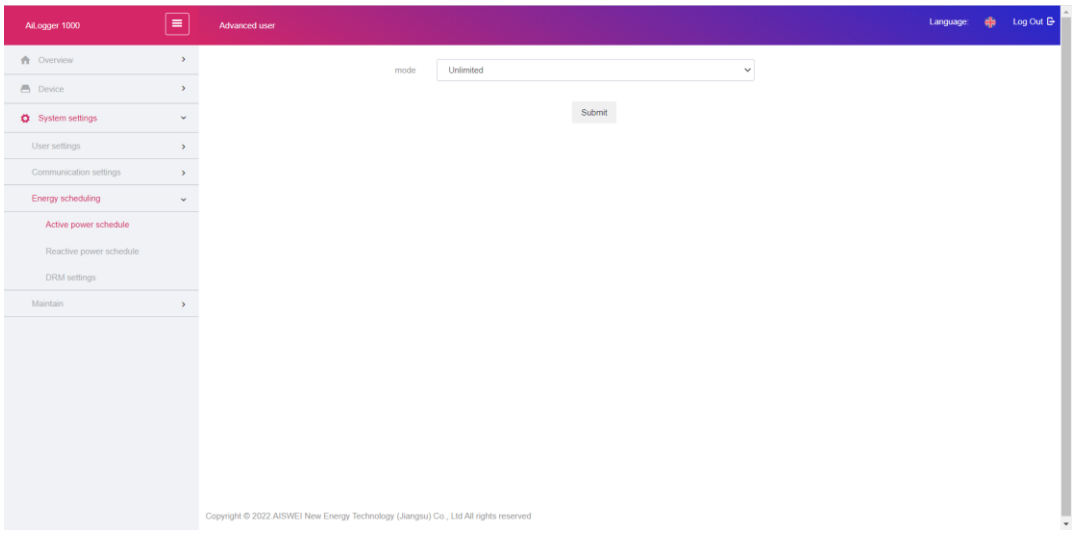
According to the standard requirements, Ai-Logger can reliably regulate the power of the connected inverters in real time to ensure that the PV power plant can respond to the requirements of the grid company in time.
There are two types of grid dispatch regulation: active power schedule and reactive power schedule.

Notice

- When regulating the active power or reactive power of the power plant, you must first "enable" the active power schedule or reactive power schedule, and then the Ai-Logger will issue dispatch commands to the connected inverters.
- If the active power schedule or reactive power schedule is "disabled", the Ai-Logger will not issue dispatch commands to the connected inverters, and the inverters will remain in the last changed state.

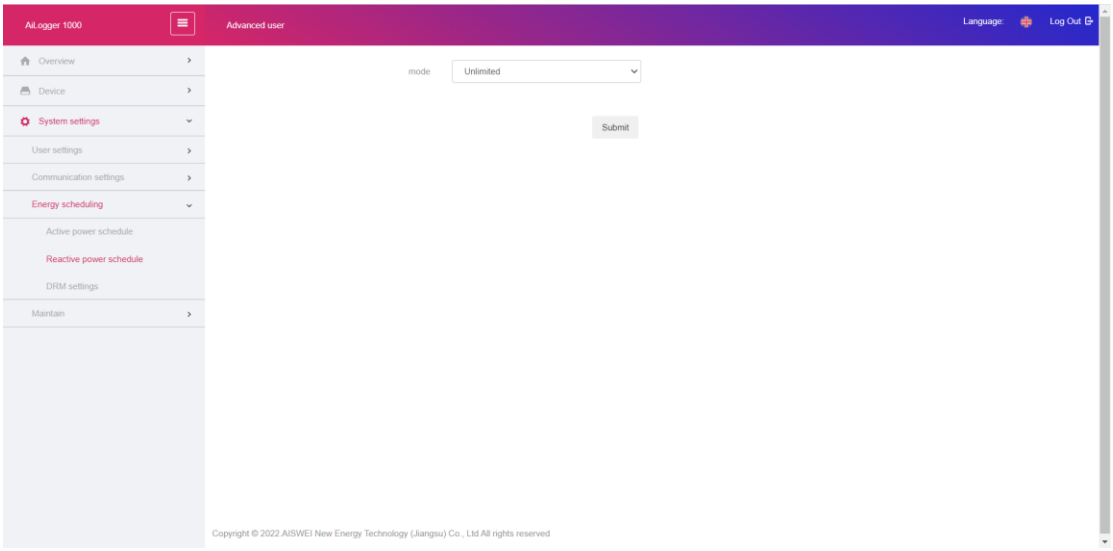
Active power schedule

When the power plant has limited power demand, the grid dispatcher needs to temporarily limit the active power input of the power plant, or directly disconnect all active power input of the power plant, that is, active power derating.
Due to permission restrictions, please log in as "Advanced user". Enter the interface through "System Settings > Energy Scheduling> Active Power Schedule".



Reactive power schedule

Power grid companies require large power plants to have a certain ability to adjust the voltage at the grid connection point. The grid dispatcher requires the power plant to absorb or inject reactive power into the grid connection point according to the real-time reactive power transmission in the power grid, that is, reactive power compensation.
Due to permission restrictions, please log in as "Advanced user". Enter the interface through "System Settings > Energy Scheduling> Reactive Power Schedule".

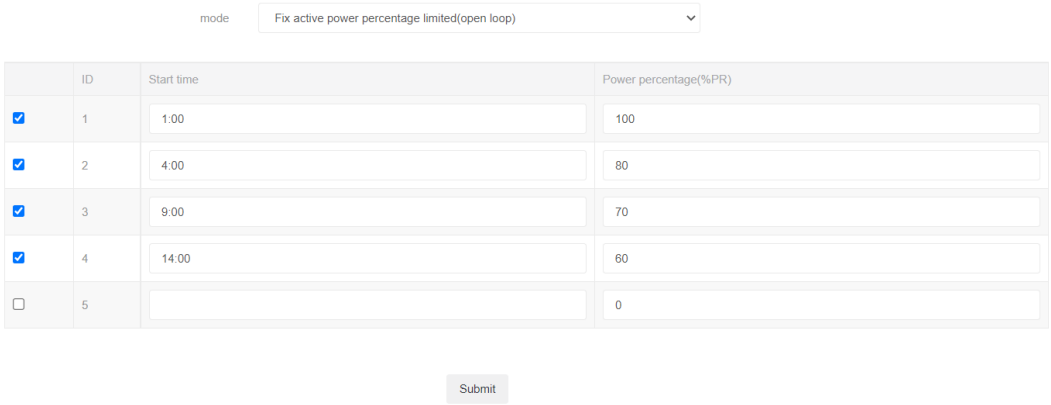


7.2 Active power schedule

Note

- When the power plant has limited power demand, the grid dispatcher needs to temporarily limit the active power input of the power plant, or directly disconnect all active power input of the power plant, that is, active power derating.
- Currently supported active power schedule modes are: unlimited, DI active power schedule, fixed active power percentage limited (open loop) , grid connection with limited active power (kW) .

- Log in as "Advanced user", enter the "Active Power Schedule" interface, set the active power schedule parameters, and click "Submit".



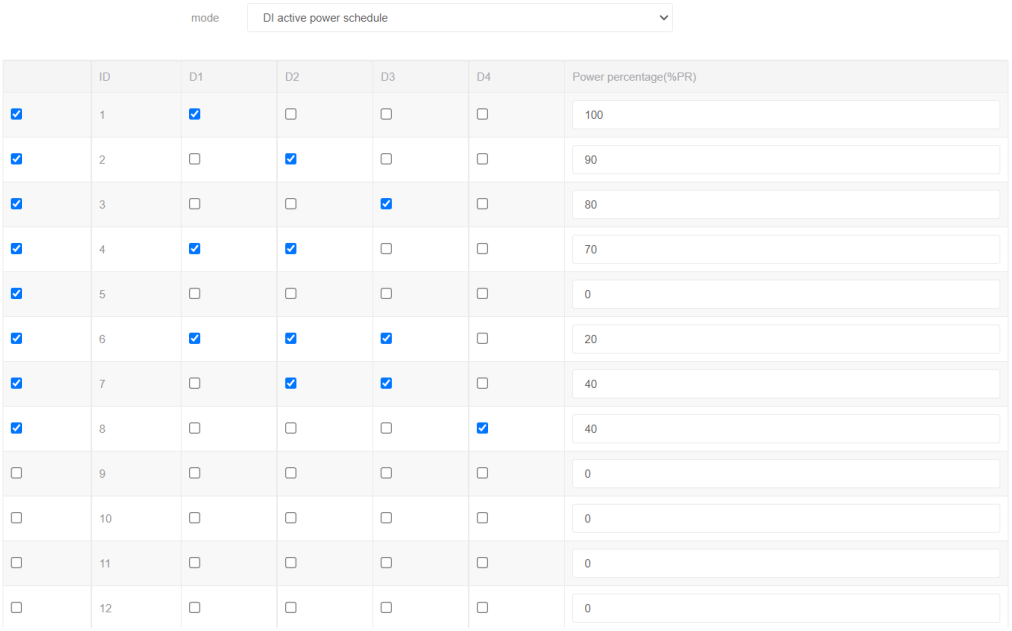
7.2.1 Unlimited

Parameter name	Setup Instructions
Active power schedule mode	Set to "unlimited", the inverter keeps running at full load.

7.2.2 Dry contact remote control

Notice

- When setting this function, please make sure that Ai-Logger is correctly connected to Ripple Control Receiver. For details, please refer to 4.5 Connect to Ripple Control Receiver.

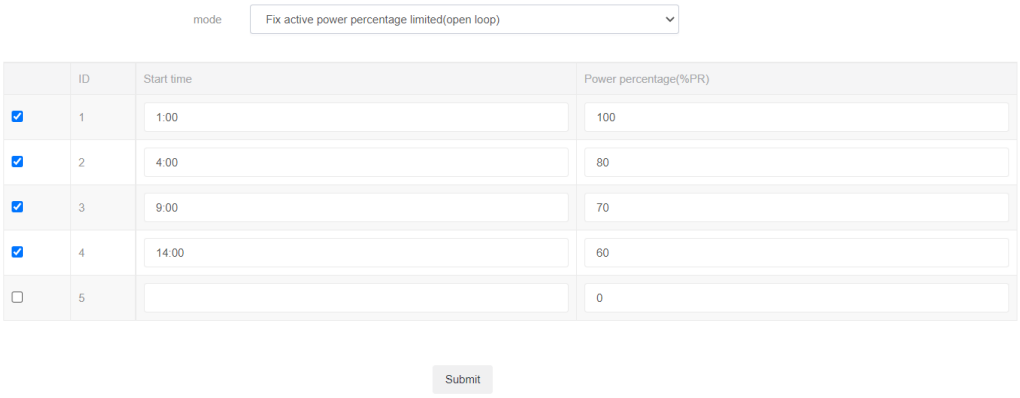


Note

- Support configuration of up to 16 percentage values.
- Tick √ in the box to indicate low level, Ai-Logger 's 4 -way DI is low level when connected to GND1, and high level when not connected.
- The state combination of DI1(GND1)～DI4(GND1) must not be repeated, otherwise

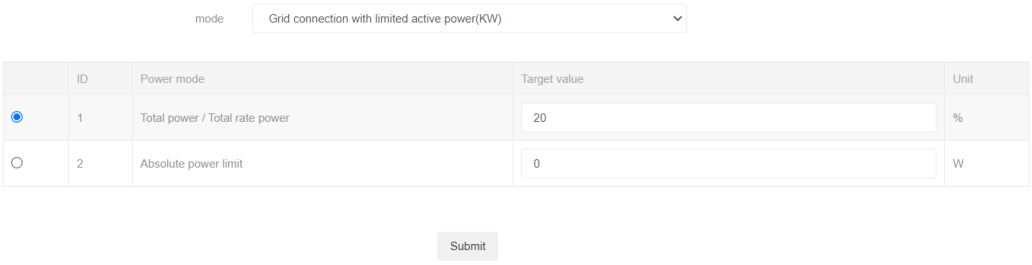
7.2.3 Fix active power percentage limited (open loop)

Ai-Logger provides a simple active power percentage configuration, and also supports the power control automation function, that is, according to different time periods of the day, the active power derating percentage is automatically adjusted.



Parameter name	Setup Instructions
Active power schedule mode	Set to "Fix active power percentage limited (open loop) " to control the maximum power output of the inverter in different time periods.
Start time	If time periods need to be divided throughout the day or part of the day, limit the inverter to run at a certain set maximum power, and add records as needed. When multiple time points are set, the inverter will operate according to the setting of the time point before and closest to the current system time. If the WEB sets two time points of 00:00:00 and 12:00:00, and the current system time is 14:30:00, then the inverter will run according to the time point of 12:00:00 .

7.2.4 Setting anti-backflow parameters



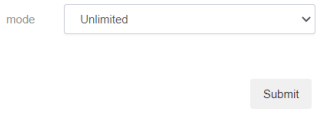
Parameter name	Setup Instructions
Active power percentage	Controls the maximum power output percentage of the inverter.
Single phase power	Single phase minimum output power.

7.3 Reactive power regulation

Note

- Power grid companies require large power plants to have a certain ability to adjust the voltage at the grid connection point. The grid dispatcher requires the power plant to absorb or inject reactive power into the grid connection point according to the real-time reactive power transmission in the power grid, that is, reactive power compensation.
- Currently supported reactive power schedule modes are: no output, DI reactive power dispatch, fixed reactive power schedule, fixed power factor schedule, and Grid connection with limited power factor.

- Log in as "Advanced user", enter the "Reactive Power Schedule" interface, set the reactive power schedule parameters, and click "Submit"



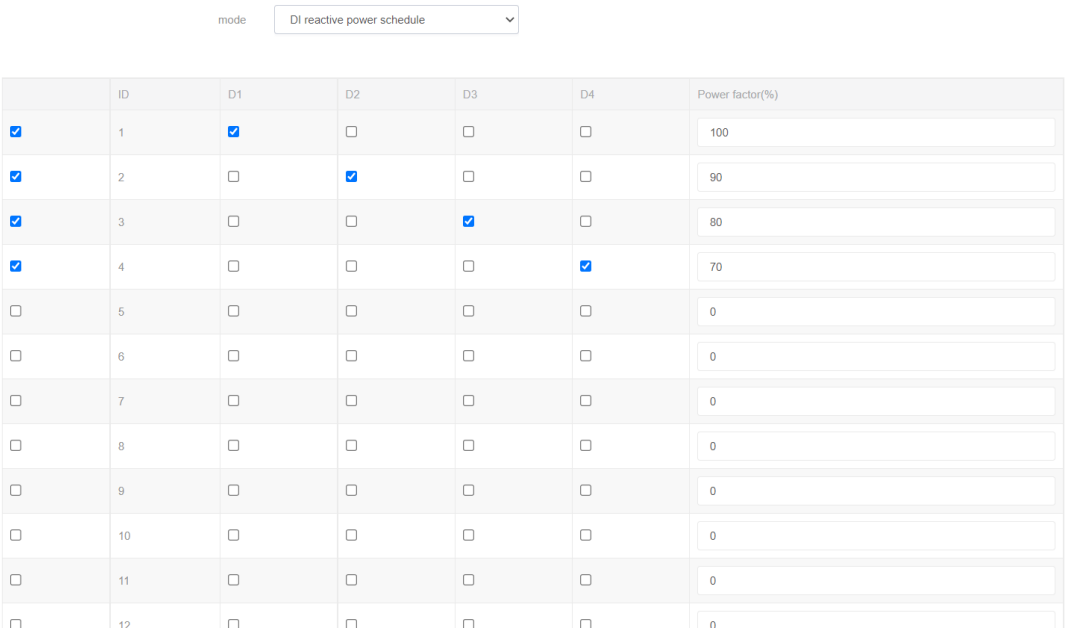
7.3.1 No output

Parameter name	Setup Instructions
Reactive power schedule mode	If the power grid company does not require the power plant to adjust the voltage at the grid-connected point, and does not need to cooperate with the grid to implement reactive power compensation, the inverter can keep running in the state of pure active power output, set to "no output".

7.3.2 Dry contact remote control

Notice

- When setting this function, please make sure that Ai-Logger is correctly connected to Ripple Control Receiver. For details, please refer to 4.5 Connect to Ripple Control Receiver.



Note

- Supports up to 16 power factor configurations.
- Tick √ in the box to indicate low level, Ai-Logger 's 4 -way DI is low level when connected to GND2, and high level when not connected.
- The state combination of DI1(GND2)～DI4(GND2) must not be repeated, otherwise the command parsing will be executed abnormally.

7.3.3 Reactive power fixed value control

Parameter name	Setup Instructions
Reactive power schedule mode	If the sub-array is required to emit constant reactive power at a specified time, set it to "Fixed Reactive Power Schedule".
Start time	If time periods need to be divided throughout the day or part of the day, limit the inverter to run at a certain set maximum power, and add records as needed. When multiple time points are set, the inverter will operate according to the setting of the time point before and closest to the current system time. If the WEB sets two time points of 00:00:00 and 12:00:00 , and the current system time is 14:30:00 , then the inverter will operate according to the time point of 12:00:00 .
Reactive power (kVar)	

7.3.4 Power factor fixed value control

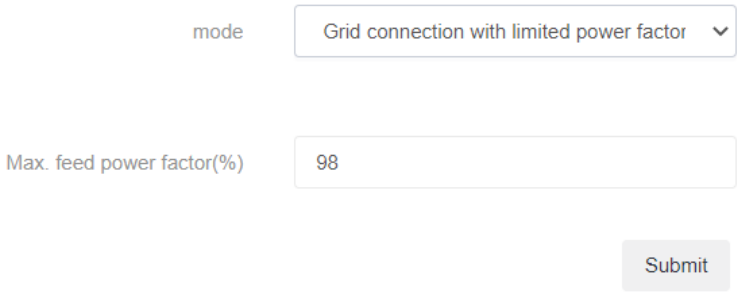
Parameter name	Setup Instructions
Reactive power schedule mode	If the power grid company requires the power plant to output a constant power factor at the grid-connected point, and the inverter regulates the reactive power in real time according to the set power factor, set it to "power factor fixed value control".
Start time	If time periods need to be divided throughout the day or in a day, limit the total reactive power of the sub-array inverters to run at a certain set power, and add records as needed.
Power factor	
	When multiple time points are set, the inverter will operate according to the setting of the time point before and closest to the current system time. If the WEB sets two time points of 00:00:00 and 12:00:00, and the current system time is 14:30:00, then the inverter will operate according to the time point of 12:00:00.

7.3.5 Grid connection with limited power factor

Notice

- Before setting this parameter, please make sure that the power meter has been connected to the Ai-Logger. For details, see 4.6 Connecting to the Power Meter_bookmark94.

Select "Reactive Power Schedule Mode" as "Grid connection with limited power factor".



- "Target Power Factor": Set the target value for adjusting the power factor of the meter.

8 Device Maintenance

To ensure the Ai-Logger can run well for a long time, it is recommended to perform routine maintenance and troubleshooting according to the descriptions in this manual.

8.1 Routine Maintenance

- Make sure that no strong electromagnetic interference devices are placed around the Ai-Logger.
- Make sure there are no heat sources placed around the Ai-Logger.
- Make sure the cooling holes are not blocked.
- Wipe down dirt regularly.
- Periodically check for signs of loose cable connections.

8.2 Troubleshooting

This section describes the common faults and troubleshooting methods of the Ai-Logger. Table 9 - 1 lists the common faults and troubleshooting methods of the Ai-Logger.

Serial number	Fault	Possible causes	Suggested solutions
1	Can't power up	1. The DC output of the power adapter is not plugged into The " Power " port of the Ai-Logger. 2. The AC input of the power adapter is not plugged into the AC outlet. 3. Power adapter failure. Ai-Logger failure.	1. Check the power adapter, plug the DC output into The " Power " port of the Ai-Logger. 2. Check the power adapter, plug the AC input into the AC outlet. 3. Replace the power adapter. Please contact the supplier or AISWEI Customer Service Center.
4	Device not found	1. There is no device connected to the COM port, or the cable connection is loose, disconnected, or reversed. 2. The RS485 communication parameters are not set correctly. 3. Weather stations are not added manually.	1. Check the connection of the RS485 communication cable. If it is loose, dropped, or reversely connected, it needs to be reconnected and tightened. 2. Check the RS485 communication parameter settings to ensure that the baud rate and communication address are set correctly. 3. Manually add environmental monitors.

5	Ai-Logger shows that the device status is disconnected	1. The cable connection between the device and the Ai-Logger is loose or disconnected. 2. The device is powered off. 3. The baud rate or RS485 address of the device was modified. 4. Device was replaced. 5. The device has been removed and is no longer connected.	1. Check the cable connection between the device and the Ai-Logger. If it is loose or falls off, reconnect and tighten it. 2. After checking that the device is connected correctly, power on the device. 3. Check if the baud rate and RS485 address of the device are set correctly. 4. Check if there is a replaced device, and if so, search again or add the device manually. 5. If the device has been removed, please perform the "Remove Device" operation through "Device Management".
6	Failed to add weather station	1. The RS485 communication cable between the weather station and the Ai-Logger is incorrectly connected, or the cable connection is loose or falls off. 2. The weather station is not powered on. 3. The baud rate of the weather station is not set to 9600	1. Check whether the cable connection is correct. If it is loose or falls off, it needs to be reconnected and tightened. 2. Power up the weather station. 3. Check that the baud rate of the weather station is set correctly.
7	Unable to communicate with the management system on the PC	1. The Ai-Logger is not connected to the PC, or the cable connection is loose or dropped. 2. The Ethernet parameters are not set correctly.	1. Check whether the Ethernet port of the Ai-Logger is properly connected to the PC or router. 2. Check that the Ethernet parameters are set correctly.

● LED light status description

Serial number	Fault	Possible causes	Suggested solutions
COM1	1. Blinking	In the case of multiple inverters, one inverter cannot communicate.	1. Check if the inverter is turned on. 2. Check whether the 485 communication cable is damaged. 3. Rescan the inverter.
COM2			
COM3			

SERVER	1. Blinking	Not connected to cloud server	1. Check if the Ethernet cable is connected properly. 2. Check whether the enterprise routing restricts the server domain name. 3. Check if the enterprise router assigns an IP address.

9 Scrap Ai-Logger

How to scrap Ai-Logger.
At the end of the Ai-Logger 's useful life, please dispose of it in accordance with the applicable electrical waste disposal laws where it is installed.

10 Technical data

Overview of the technical specifications of Ai-Logger.

● Device management

Technical indicators	Ai-Logger1000
Number of devices managed	80
Communication method	3×RS485
Maximum communication distance	RS485: 1000m; Ethernet: 100m

● General parameters

Technical indicators	Ai-Logger1000
Power supply	12V～24V DC
Power consumption	Regular: 3W; Max: 7W
Storage	Store 1 month's worth of inverter historical performance data
Language	English, Chinese
Dimensions (W×H×D)	

Technical indicators	Ai-Logger1000
Net weight	
Operating temperature	-40℃～+60℃
Relative humidity (non-condensing)	5%～95%
Rating	IP20

Installation method	Wall, desktop, rail

Technical indicators	Ai-Logger1000
Ethernet	10/100M
RS485	Modbus-RTU
USB	Support
Digital input	4
Analog input	2

- Interface

11 Manage system domain name list

Domain name	Type of data	Scenario
*.aisweicloud.com	public address	Aiswei managed cloud domain name
*.aliyun.com	public address	Aiswei managed cloud domain name

12 Contact Us

We can be contacted through the following methods.
Mainland China:
AISWEI Technology Co., Ltd.

Service Hotline: 400 801 9996
E-mail: service.china@aiswei-tech.com

URL: www.aiswei-tech.com

Address: Room 905B, No. 757, Mengzi Road, Huangpu District, Shanghai


Solplanet