



Insight-V427-UEN-Ver13-202011

Insight

New Energy Monitoring System

User Manual

SUNGROW

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1 About This Manual

1.1 Foreword

This manual introduces the new energy monitoring system Insight in overview, diagram, operation step and examples for you to understand and use this system flexibly and effectively.

The monitoring system is referred to as Insight hereinafter unless otherwise specified.

Due to the continuous improvement of the software, the software you use may differ from the description or example in this manual about the interface and function. Please refer to the latest software. Please contact Sungrow if you have any question about using this software.

1.2 Target Group

This manual is intended for:

- Operators
- Managers
- Engineers

1.3 Manual Description

This manual is briefly described by using the standard Insight interface as an example. For specific activated functions, refer to the content of the technical agreement or the contract.

1.4 Symbol Explanations



NOTE indicates additional information, emphasized contents or tips to help you solve problems or save time.

1.5 Explanation of Description

Type	Description in this manual
Select a menu option	Select "Monitoring" from the navigation bar.
Select several menu options	Select "Monitoring->Power Monitoring" menu.
Select a button	Select "Monitoring" Click the "Confirm" button

2 System Description

2.1 Introduction

The Insight is a web-based local monitoring system. User can monitor the real-time operating state of the plant and obtain the key information of the plant power yields, power, CO2 reduction, inverter, combiner box, meter, and other devices after user uses the system to create plant and connect the system to the devices in the plant. User can also check the device operating data, for example the fault and alarm information; and acquire various report data and customize the report display format by using the Management functional module.

2.2 Main Features

The Insight monitoring system has the following features:

Smart and flexible

- Hierarchical and graphical display, support of flexible configuration display
- Support of multi-plant monitoring

Simple and efficient

- Second-based real-time data refresh
- Real-time alarm display, accurate fault positioning, efficient troubleshooting

Safe and reliable

- Linux operating system for core services, more stable operation
- Strict control procedure, complying with power system safety standards

2.3 Requirements

- Browser: Chrome 45 and above supported
- Resolution: 1920 x 1080 supported
- Microsoft Office: version 2007 or above.

3 Login

This chapter introduces the login method of the Insight.

3.1 Login Steps

Contact technically qualified personnel of SUNGROW to:

- Install hardware devices and deploy Insight software
- Obtain server address, username, and password

step 1 Input the IP address of the server in the address bar of the browser to enter the login interface as shown in the figure below.



step 2 Select the desired language in the upper right corner of the interface.

step 3 Enter the initial username and password and click Log-in. Default Username: admin; password: admin. If the default user is not valid, please contact system administrator.

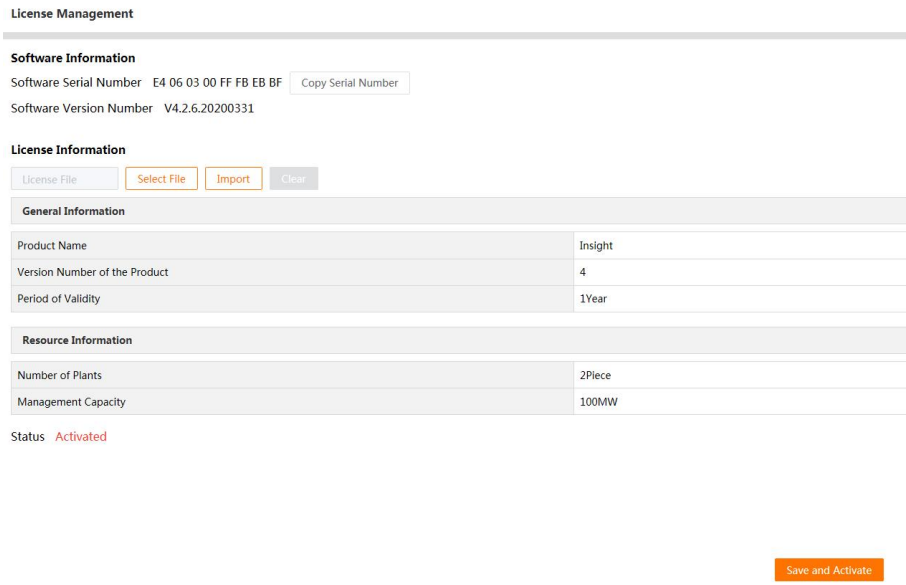
- - End

The Monitoring -> Home Page of Plant interface will show if you login successfully.

3.2 License

After login for the first time, Import the license file, only after which the Insight system is available. The method of applying the license is as follows:

step 1 Click "Configuration->License Management" to enter the corresponding interface.



step 2 Click "Copy Serial Number".

Copy the software Serial Number and send it to the license administrator, so as to apply license file according to the Serial Number.

step 3 Select a file.

step 4 Import the license file.

Import the license file and display license information in the table.

If an incorrect file is imported, click the button [Clear] to remove the file.

For the version Chrome browser (Ver. 71), switch to an American keyboard when importing the license file.

step 5 Click the button [Save and Activate].

Other function modules of the system will be automatically displayed once the license file is activated.

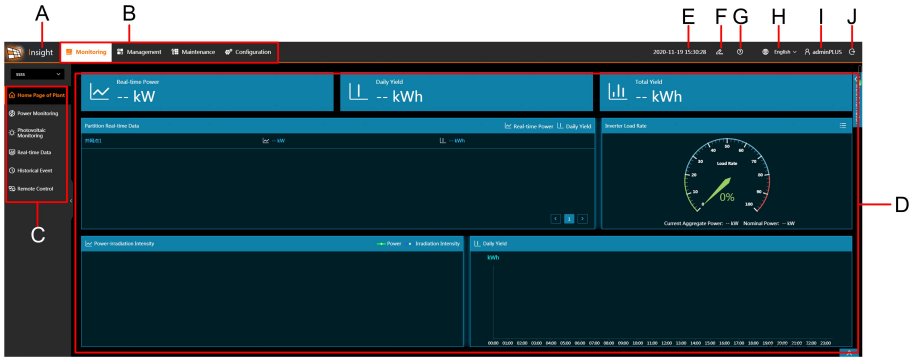
- - End

If the file is activated, the "State" on the interface will be "Activated".

4 Interface Description

4.1 Main Interface

The main interface of the Insight is shown in the figure below.



No.	Name	Description
A	Title bar	Display the name of the software
B	Navigation bar	Display the function modules of the software
C	Menu bar	Display the functions of the software
D	Function display area	Display the software function selected
E	Time display column	Display the system time of the software
F	SVG configure	-
G	Help	Display the help document of the software
H	Language switching bar	Switch to desired system language
I	Username	Display the username logged in
J	Logout button	Exit from the software

4.2 System Menu

There are four sub-menus in the Menu bar: Monitoring, Management, Maintenance, and Configuration.

Monitoring

The function is to monitor the operating state of the devices in the PV plant.

Managemant

The function is to manage the plant reports and provide data charts.

Maintenance

The function is to maintain the plant information.

Configuration

The function is to manage the Insight system.

4.3 Username

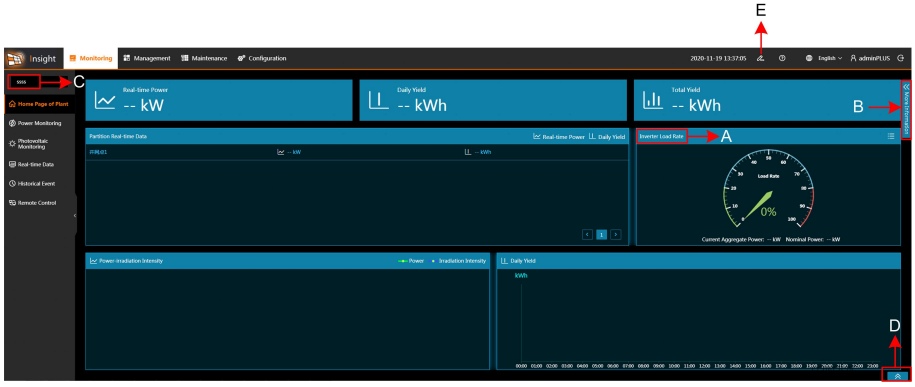
Click the username to modify the user information.



5 Monitoring

5.1 Plant Homepage

Open the homepage by going to “Monitoring >Plant Homepage”.



No.	Name	Description
A	Inverter load rate	When a PV Plant is selected, on the homepage, • click in the "Inverter Load Rate" bar to display the inverter utilization rate list. • Click to return to the original interface.
B	More	When a plant is selected, click [More Information] to view the basic information of the current plant, environmental monitoring data, and energy conservation and emissions reduction data.
C	Plant Selection drop-down menu	When multiple plants are monitored, click the Plant Selection drop-down menu to select a plant.
D	Show Fault button	Click the Show Fault button to view the current faults in the system.
E	Configuration tool	See thechapter.

Show Fault button

Click the Show Fault button  to view the current faults in the system.Click the name of a fault alarm to view the processing recommendations.

When  is checked, a fault message will automatically pop up and a tone will sound when there is a fault in the PV station.

Click  to turn off the prompt tone.

Click  to display the fault in full screen.

> In the actual plant, after the O&M engineer checks the fault, click the [OK] button to remove the fault from the screen.
>
> If the O&M engineer fails to resolve the fault in the PV plant, the corresponding fault information will pop up in the next fault update.

5.2 Power Monitoring

Select the "Monitoring -> Power Monitoring" to enter the substation interface of the system.

The Power Monitoring interface is to monitor the main electrical scheme and energy meter in the substation.

Main Electrical Scheme

Click [Main Electrical Scheme] to enter the corresponding interface.

Information of the main electrical scheme is displayed.

Energy Meter

Click [energyr Meter] to enter the corresponding interface.

Information of the device is displayed.

5.3 Photovoltaic Monitoring

Open the Photovoltaic Monitoring interface by going to "Monitoring -> Photovoltaic Monitoring"."Photovoltaic Monitoring" monitors the devices in the selected PV Plant.You can monitor the devices in the PV plant by unit through the plant list on the left side of the interface.

Different colors are used to indicate different working states of PV plant devices.



Switch between different function display interfaces by clicking the small buttons on the interface, such as "Plant Check" and "Primary Diagram".

Item	Description
Plant View	View the current distribution diagram of the units in the Plant and the alarm information for the units.(Click an alarm name to view the corresponding processing recommendations)
Primary Diagram	View information on the operation of the different units and arrays in the PV plant.
Real-time power	View the real-time power of each array in the PV plant.
Real-time power normalization	View the real-time power normalization of each array in the PV plant.
Daily Yield	View the daily yield of each array in the PV plant.
Equivalent Hours	View the yield/installed power information.

5.4 Real-Time Data

Open the device real-time data interface by going to "Monitoring -> Real-time Data". Through this interface, you can monitor the operations of inverters, combiner boxes, box-type transformers, weather plants, relay protection, meters, temperature and humidity sensors, and other devices.

step 1 Click a device, such as an [Inverter], to open the device information overview interface.

step 2 In the device list bar on the left, select a grid-connection point to view an overview of the devices under this grid-connection point.

step 3 Click the device, such as an inverter, to open the detailed information interface for the device.

This interface consists of the “Real-Time Data” and “Alarm Record” tabs.

- Real-time data

  By clicking the "Real-time Data" tab, you can view the basic operating information of the device.

- Alarm Record

  By clicking the “Alarm Record” tab, you can view the device's faults, alarms, and prompts.You can also export the queried information to your PC for viewing.Click on the name of an inverter fault alarm or other alarm to view the corresponding processing recommendations.

- Operation Log

  Click the “Operation Log” tab, select a start and end time, and click “Query” to view the operation log information for the selected time period.You can also export the queried information to your PC for viewing.

--End

5.5 Historical Events

Enter the Historical Event interface by going to "Monitoring -> Historical Event".

The Historical Event interface consists of two tabs: Fault Alarm and Operation Information.

Fault Alarm

Enter the Fault Alarm interface by clicking "Fault Alarm".In this interface, you can do the following:

- View the fault alarm information

  You can view alarms by alarm type, alarm level, and confirmation status.

  Fuzzy search of fault alarm information by conditions such as "fault name", "start time", and "end time" is also supported.

  By clicking a fault alarm name, you can view the processing recommendations for the fault alarm.

- Confirm the fault alarm information

  In the operation bar to the right of a fault alarm information record, click [Confirm] to confirm the fault. Alternatively, check the checkbox to the left of the plant name and then click [Batch Confirm] to confirm multiple faults at once.

  Confirmed fault alarms are no longer be displayed. If the fault alarm has not been processed, it will still be displayed when the fault alarm information is updated.

- Export fault alarm information

  Click "Export" to export the fault alarm report.

Operation Information

Click “Operation Information” to enter the operation information interface. In this interface, enter the start and end time, appropriate device, and operator and then click  to view the corresponding operation information.

Click Export in the upper-right corner of the interface  to export the information.

5.6 Remote Control

Click "Monitoring -> Remote Control" to enter the corresponding interface. On this interface, users can set device parameters remotely.

step 1 Select a device. Select the device to be controlled from the unit/array in the plant list.

step 2 Select the control method.

- Select one device, to control the single device.
- Select several devices, to control these devices in batch.

step 3 Set target parameter value according to the parameter range on the interface.

step 4 Click the button [Issued] on the operation bar, select "Operator Verification", enter the username and password, and confirm issuing the remote control.

Do not automatically save the password in the browser when performing this operation.

step 5 Click "Remote Control Execution".

- - End

View history control information

Click the button [View Task History] to view the remote control information.

6 Management

Click the menu "Management" on the navigation bar to enter the corresponding interface.

On this interface, users can monitor the running state of devices in the PV power plant. Submenus such as data query and intelligent analysis are included.

6.1 Plant Report

Enter the Plant Report interface by going to "Production Management -> Plant Report ”.

The plant report interface consists of three tabs:

- “ All ”, including common reports and custom reports.
- “ Common Report ”, including common reports.
- “ Custom Report ”, including custom reports.

Report type	Operation			
	Modify	View	Delete	Export
Common Report	○	●	○	●
Custom Report	●	●	●	●

Note:●Supported.○Not supported.

Custom Report

To save a report, add a custom report, go to the report interface, select the corresponding report type and report period, check the required indicators, and click "-Save As".

To export the report locally as a table, select "Excel report", check the corresponding report type, report period, and start and end time, select a plant and indicators, and click "Generate Excel".

6.2 Data Query

Select the "Product Manage -> Data Query" menu to enter the data enquiry interface.

The Data Query interface can check all the monitored information of the selected plant.

step 1 Click the "Plant" drop-down list to select the plant to be checked. The related data will be displayed in the figure in the right side.

step 2 Input the time range and the data curve will be changed accordingly. User can also change the refresh time interval of the data curve.

step 3 User can set the display color, the chart type and the statistic pattern under the function display area.

step 4 Click the save button to save the present data chart.

- - End

6.3 Intelligent Analysis

Enter the intelligent analysis interface by going to "Production Management" -> "-Intelligent Analysis". In this interface, you can view the output dispersion rate of the inverter, the input dispersion rate (inverter input dispersion rate, combiner box input dispersion rate), IV curve online diagnosis, and power forecast.

Item	Description
Analysis of Inverter Output Dispersion Rate	View the output dispersion rate of the inverter.If the dispersion rate is too high, the data on the output side of the inverter is unstable.
Inverter Input Dispersion Rate Analysis	View the input dispersion rate of the inverter.If the dispersion rate is too high, the data on the input side of the inverter is unstable.
Analysis of Combiner Box Input Dispersion Rate	View the input dispersion rate of the combiner box.If the dispersion rate is too high, the data on the input side of the combiner box is unstable.
IV Curve Online Diagnosis	Diagnosis processes are divided into unit level scans and inverter level scans. • Unit level scans are used for diagnosing the operation of components. • Inverter-level scans are used for diagnosing the operation of inverters.
Power Forecast	The power forecast can forecast power information for different time periods and display the data as a power-irradiation graph.

Prerequisites

No.	Requirement	Description
1.	The IV scan function switch is turned on.	Go to the “Plant Maintenance”-> “Plant Management” interface and make sure that “the IV scan function switch” is turned on.
2	Configure the inverter serial number.	Go to the “Plant Maintenance”-> “Plant Management” interface and, in the device list bar on the left, select the appropriate inverter, right-click "Modify Device", and fill in the SN information in the parameter configuration field.
3*	Configure the number of combing boards.	Go to the “Plant Maintenance”-> “Device management”-> “Device Model Management” interface and, in the operation bar, click “Parameter Settings” to configure the "Number of Combining Boards".
4.	The Modbus address and measuring point number have been set.	Go to the “Plant Maintenance”-> “Plant Management” interface and make sure that: • “The measuring point name” is set to “the Modbus address” • “The measuring point number” is set to “639”.
5.	The MPPT voltage range of the string inverter has been set.	Go to the “Plant Maintenance”-> “Device Management”-> “Device/Measurement Point Management”> “Device Model Management” interface and check the MPPT voltage range to ensure that the maximum value is 1000 or 1500.
6.	The manufacturer information of the component model has been added.	Go to the “Plant Maintenance”-> “Device Management”-> “Device Manufacturer Management” interface and make sure that the information of the component manufacturer has been set.

*Optional.

IV Curve Scan

step 1 To go to the IV diagnosis interface, click "Production Management -> Intelligent Analysis -> Smart IV Curve Diagnosis".

step 2 Click “Settings”-> “> Component Management” to set component information.

step 3 Click “Settings”-> “Inverter Parameters” to set the inverter information.

1 String Configuration:Simply check the corresponding string.

2 (Optional) Configure Y terminal.Turn on the Y terminal configuration switch.

3 (Optional) Set the number of connected components per string.

After turning on the "Identical" switch and setting certain PV information, the other PVs will also be synchronized with this parameter. If the "Identical" switch is off, you must set the PVs one by one.

4 After configuring the settings, click "OK" or "Confirm and Copy".

Click "OK" to complete the configuration for the current inverter. Click "Confirm and Copy" to apply the current configuration to the inverters of the same model in the plant.

step 4 Click "Settings" -> "Plant Parameters" to set the plant type.

step 5 Select "Unit Level Scan" or "Inverter Level Scan".

step 6 After clicking "Start Diagnosis", enter the password.

step 7 Fill in the name of the scan task and click [OK].

After the scan is completed, the following prompt will appear on the interface:

- Successful:Indicates that the scan was successful.
- Failed:Indicates that the scan failed.When the scan fails, you can click "Details" to check the fault code and failure cause analysis.If you have any questions, please contact Sungrow Power Supply Co., Ltd.

step 8 Click "Scan Results" to view the scan results.

--End

In the scan result interface, you can do the following:

- Export various reports

Report Type	Description
Overview report	Provides a plant overview report.
Diagnostic report	You can select multiple units to export multiple diagnostic reports.
Operations and maintenance report	Provides diagnosis results and repair suggestions based on abnormalities, facilitating troubleshooting by on-site O&M engineers.

- View and download pie charts
- View IV curves
- View smart IV curve analysis results
  - For data whose diagnostic results show normal, you can click "Check in the Analysis and Suggestion bar" to "view" the specific scan data.

- For data whose diagnostic results show abnormal, you can click “Check in the Analysis and Suggestion bar” to “view” specific abnormal data.If you have any questions, please contact Sungrow Power Supply Co., Ltd.

- Upload scan data to the client server

6.3.1 Upload Server

Function Introduction

This function is used to upload the scanning data of IV diagnosis to the client server.

Prerequisite

Users have obtained the correct server address.

step 1 Click "View Task History" in the upper right corner of the "IV Curve Online Diagnosis" interface.

step 2 Click "View" on the corresponding "Details" operation bar, to view the scanning results.

step 3 Click  in the upper right corner, to enter the "Upload Server" interface.

step 4 Select corresponding file, such as "IV Diagnostic Raw Data" or "IV Diagnosis Report".

step 5 Enter the obtained server address, server port, save route, user name, and password.

step 6 Click  to perform connection detection. The interface will prompt "Server connection is normal" after successful detection.

step 7 Click "Start to Upload" to upload the selected scanning information to the client server.

It may take a long time to upload, please be patient.

After the current window is closed, the uploading task will be executed on the background.

- - End

7 Maintenance

Select the "Maintenance" menu on the navigation bar to enter the maintenance interface.
The "Maintenance" interface is used for maintaining the plant information, has sub-menus including the channel management, device management, management.

7.1 Channel

Click "Maintenance ->Channel" to enter the channel management interface.
On this interface, users can perform the following operations:

- Search channel

  Users may search channels based on "Channel name", "Enable or not".

- Add new channel

  For details, refer to"7.1.1 Adding New Channel".

- View channel
- Modify channel

  Users can modify fields such as "Channel name", "IP address", "TCP port", "connect node", and "Enable" of the channel, and display the modified information on the interface.

- Export

  Channels can be exported.

- Restart data collect pro.
- Batch 104 configuration

  Select multiple channels, and click "104 configuration" to configure them in batch.

- Single 104 configuration

  Click the button “104 Configuration” on the operation bar to perform 104 configuration on the corresponding single channel.

- Batch delete

  Select channels to be deleted, and click the button104 Configuration to delete them in batch.

- Single delete

  Click the button delete on the operation bar to delete the corresponding single channel.

7.1.1 Adding New Channel

step 1 Click [Add New Channel] to enter the corresponding interface.

step 2 Fill in the required fields and click [Confirm].

Item	Description
Channel Number.	An integral number, and usually starts from 1
Channel name	Within 128 characters, otherwise the redundancy will not be displayed
IP address	32 bits, 4 segments, each segment includes 8 bits, indicated by decimal numbers. Each segment ranges from 0 ~ 255, and segments are separated by ".".
TCP port	Generally start from 2404, and each IP address must have an only corresponding port.
Connection mode	Set it to "Client".
Enable	Set it to "Yes", which means that the channel is used to receive data.

Note: * indicates items that must be filled in, and items without * may be filled in or not.

- - End

7.1.2 Importing Channel

step 1 Click " Import in batch" to enter the corresponding interface.

step 2 Click "Select file" to select the to-be-imported file.

The format of the to-be-imported file is as follows:

Item	Description
Channel No.	Without repetition
Channel name	Without repetition
IP address	32 bits, 4 segments, each segment includes 8 bits, indicated by decimal numbers. Each segment ranges from 0 ~ 255, and segments are separated by ".".
TCP port	Generally start from 2404, and each IP address must have an only corresponding port.
Connect mode	Set it to 0. 0: Client; 1: Server
Enabling status	Set it to 1. 1: Yes; 0: No

step 3 Click "Import".

Prompt information "Import successfully" pops up once the file is successfully imported.

- - End

Other Functions

Users can switch pages via "First page", "Last page", "Previous page", and "Next page"; or jump to the desired page via "Go to" option.

7.2 Device Management

Click "Maintenance -> Device" to access the corresponding interface. The menu "-Device" is used to manage plant devices, and it includes two submenus "Equipment/ Measuring Point Management" and "Device Manufacturer Management".

7.2.1 Device/Measurement Point Management

The Device/Measuring Point Management interface includes:Device type management, device measurement point management, device model management, model measurement point management, and enable measurement point management.

Item	Description
Device Type Management	View, add, delete, and export device type information.
Device Measurement Point Management	View, add, modify, import, export, and delete device measurement point information.
Device Model Management	View, add, modify, import, export, and delete device measuring point information and parameter settings.
Model Measurement Point Management	Check the measurement point information. Reset the measurement point information. Export the measurement point information. (Batch) Enable/(Batch) Disable measurement points. • Enable: For specific operations and instructions, contact the Sungrow Customer Service Center. • Disable: For specific operations and instructions, contact the Sungrow Customer Service Center.
Enable measurement point management	Sort measurement point information.

7.2.2 Device Manufacturer Management

On this interface, users can modify, add, reset, or delete manufacturer information.

Query Manufacturer Information

Enter manufacturer name, select the industry, such as power industry and PV industry, and click the query button to view the corresponding manufacturer information.

Users can re-enter the manufacturer name or re-select the industry by clicking the reset button if necessary.

Add Manufacturer Information

Click the "Add" button, fill in the information as required, and click "Confirm".

Modify Manufacturer Information

Select a device, click the modify button in the corresponding operation bar, and fill in the information as required.

Delete Manufacturer Information

Select a device, click the delete button in the corresponding operation bar, and click "Confirm".

7.3 Plant Management

Select the "Maintenance-> Management " menu to enter the plant management interface.

The management includes the plant management and device management.

7.3.1 Plant Management

Right click the plant list and fill in information according to the prompt information.

Operation	Description
Create new plants	**Fill in basic information** Create a same-level power plant or a subordinate power plant and display the information about the power plant in the function display area on the right. When filling in information, observe the following requirements: Plant code: an integer whose length should be no more than 9 digits Plant name: the length should be no more than 50 characters Device ID: an integer whose length should be no more than 9 digitals Plant type: selected according to actual situation IV scan function switch: set it as needed. • When it is set to , users can perform string IV curve scan and diagnosis on the power plant on "-Management -> Intelligent Analysis" interface. • When it is set to , users cannot perform string IV curve scan and diagnosis on the power plant on "-Management -> Intelligent Analysis" interface. **Parameter configuration** Configure parameters as needed.
Modify plant	Modify basic information on the power plant.
Delete plant	Delete the power plant.
Add device	Add devices to the current power plant.
Export plant	Add devices to this plant.
Configure IEC mapping	Configure 104 forwarding point.

Operation	Description
Batch device modification	Modify device information in batch.
Configure Main Meteo Station*	• If the plant is equipped with only one environmental monitoring device, the monitoring device is the “Main Meteo Statio”. As shown in "figure 7-1 Scenario 1", select and use “Meteo Station” as the main Meteo Station. • If the plant is equipped with several environmental monitoring devices, the device closest to the plant is the “Main Meteo Statio”. As shown in "figure 7-2 Scenario 2", select and use “Meteo Station1” as the main Meteo Station. • If environmental monitoring devices are connected to a type of device in the plant, the Meteo Station with the smallest device ID is the “Main Meteo Statio”. As shown in "figure 7-3 Scenario 3", select and use “Meteo Station1” as the main Meteo Station. • If the plant is equipped with several Meteo Stations and the device in the power plant also connects several Meteo Stations, the Meteo Station equipped for and closet to the plant is the “Main Meteo Statio”. As shown in "figure 7-4 Scenario 4", select and use “Meteo Station1” as the main Meteo Station. • If the plant is equipped with no Meteo Station, the Meteo Station connected to the plant device and with the smallest device ID is the “Main Meteo Statio”. As shown in "figure 7-5 Scenario 5", select and use “Meteo Station” as the main Meteo Station.

Note: * is optional. For details, refer to the actual plant device.

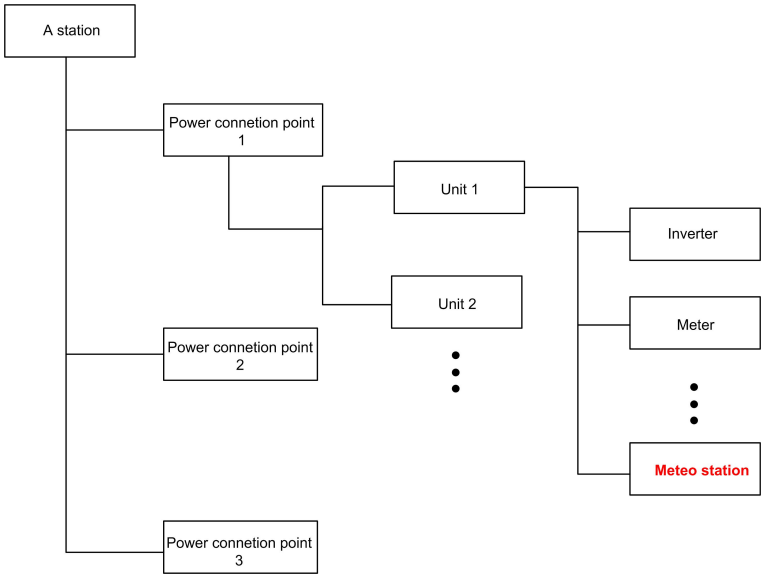


figure 7-1 Scenario 1

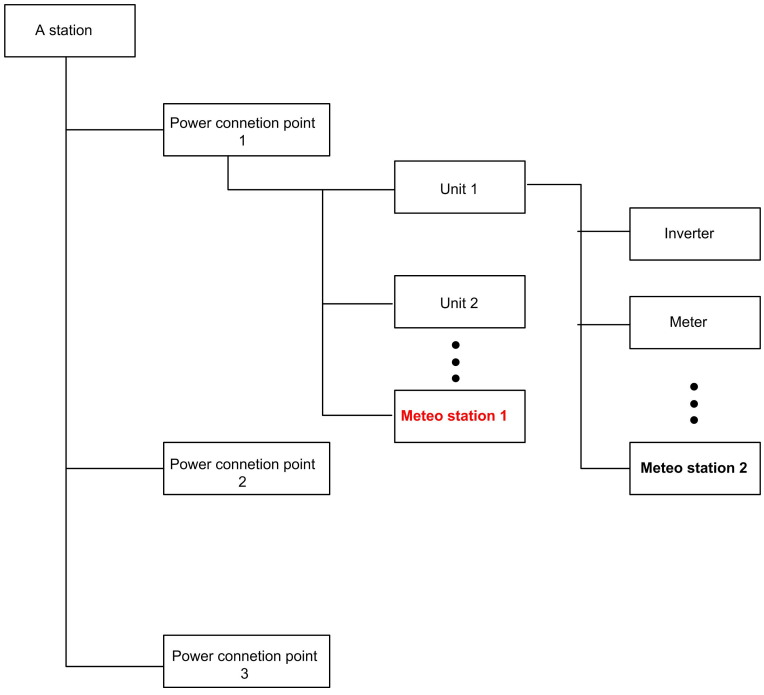


figure 7-2 Scenario 2

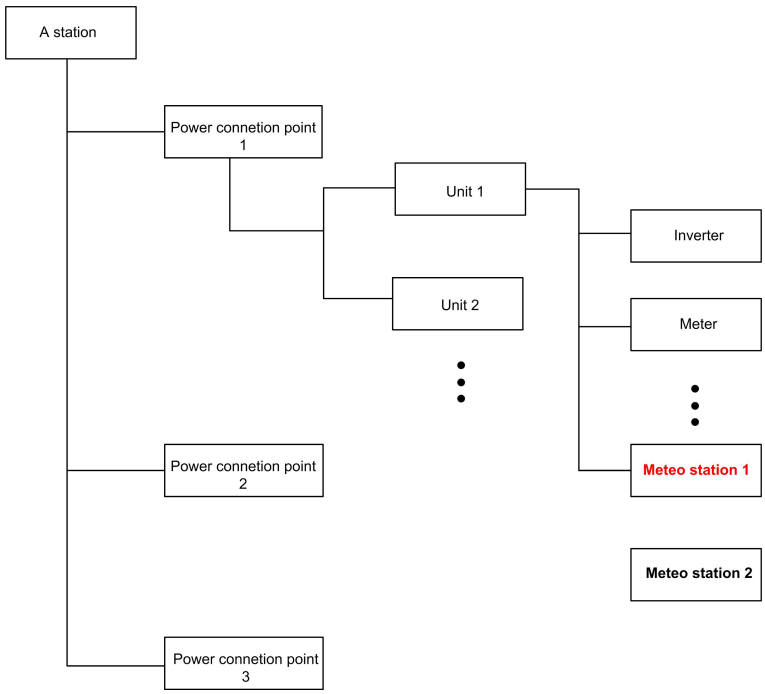


figure 7-3 Scenario 3

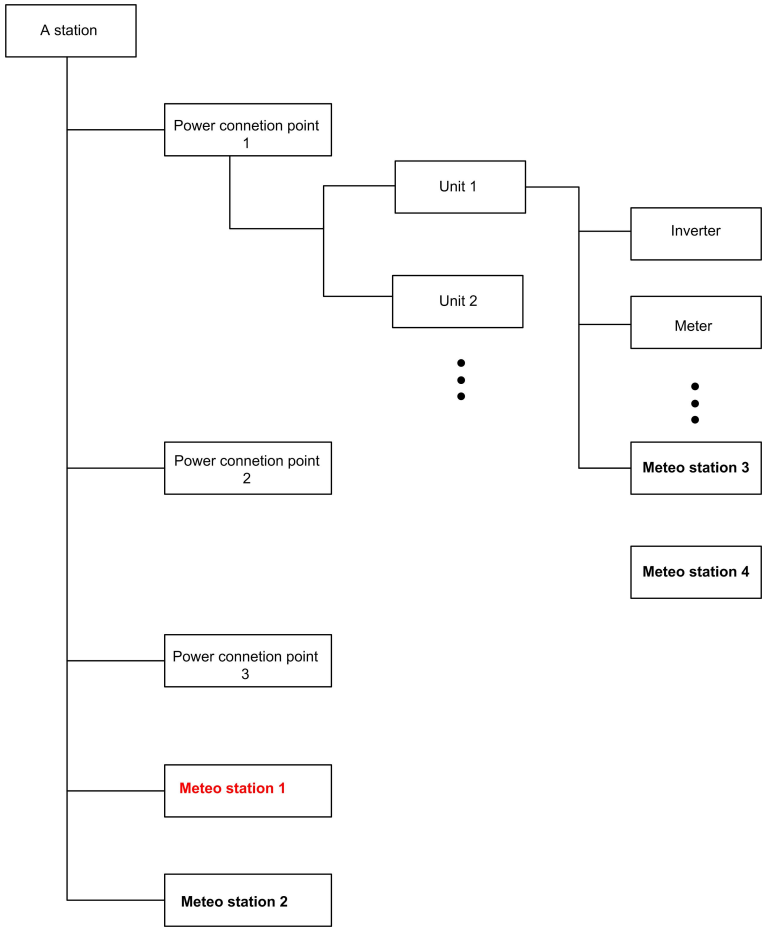


figure 7-4 Scenario 4

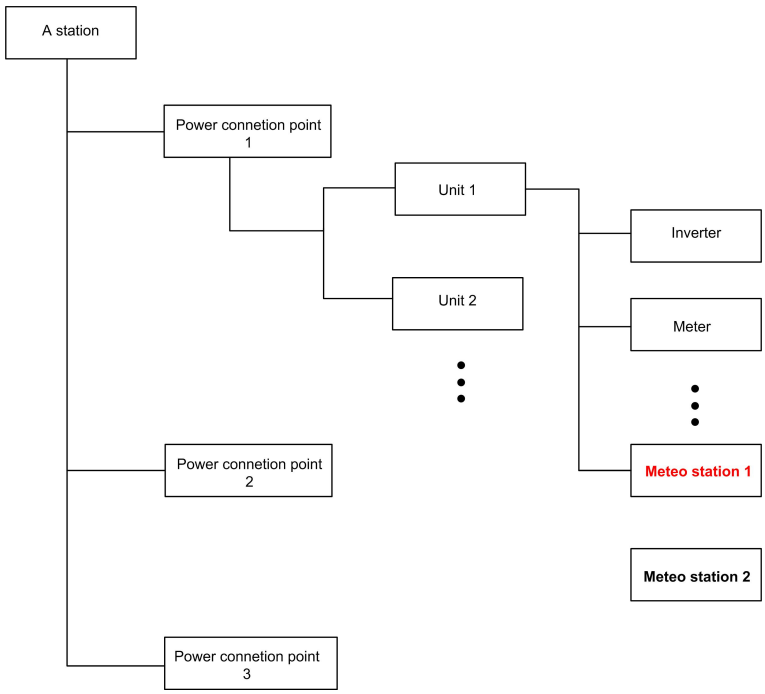


figure 7-5 Scenario 5

Other Operations

- Download plant template

  Users can download the plant template for ease of future plant import operation.

- Cloud data synchronization

  Users can upload plant structures to iSolarCloud.

- Import plant

  Import plant structure.

- Export

  Export plant structure.

- Delete

  Users can delete selected plants.

- Delete device

  Users can delete selected devices.

- Batch modification of devices

  Modify parameter configuration information of different types of devices in batch.

7.3.2 Device Management

Right click a device in the plant list and fill in information according to the prompt information.

Operation	Description
Add device	**Fill in basic information** • Device ID An integer whose length should be no more than 9 digitals • Device name The length should be no more than 50 characters. (For ease of distinguishing between device types, it is recommended that the device name demonstrates the device type, for example, the device name can be "-Inverter#1". Users can also name the device as they like) • Plant code Default • Model of belonged device Select according to actual situation. **Parameter configuration**: Configure parameters as needed. Configurable parameters: measuring point code, measuring point name, and measuring point value. If the newly-added inverter needs to support IV scanning function, the parameters must be configured as follows: • Measuring point code: 639 • Measuring point name: Modbus address • Measuring point value: fill in as required.
Modify device	Modify information about the device.
Delete device	When a device is removed on site, delete the device from the system via this operation. After deletion, the corresponding power plant will no longer receive or transmit information on the device.

8 Configuration

Click the menu "Configuration" on the navigation bar to enter the corresponding interface.

The "Configuration" menu is used to manage the Insight system. Submenus such as user management, role management, authority management, security configuration, data forwarding, alarm configuration, forward 104, and license management are included.

8.1 User Management

Click "Configuration -> User" to enter the corresponding interface.

On the user management interface, the administrator can manage users

User information includes account, real name, role name, office telephone, mobile telephone, and E-mail.

Notice

When adding new a user, specify the user role. If the user role does not exist, create a new one. For details, refer to "8.1 User Management".

8.2 Log Management

Open the log management interface by going to "System Management -> Log Management".

On this interface, you can view operation logs.This is used for future data traceability.

Method:

step 1 Open the log management interface by going to "System Management -> Log Management".

step 2 Select the start and end time, corresponding account, and operation type to view a specific operation log.

- - End

8.3 Role Management

Click "Configuration -> Role" to enter the corresponding interface.

On this interface, the administrator can define user roles and permissions.

Add new roles

Click the button [Add New Role] to add a new role.

Permission assignment

Select a role, click the permission button on the operation bar, select corresponding function permissions, and click "Confirm the Assignment".

Modify role description

Select a role, click the modify button on the operation bar, fill in corresponding description, and click "Confirm".

Delete user role

Select a role, click the delete button on the operation bar, and click "Confirm".

8.4 Authority Management

Click "Configuration -> Authority Management", to enter the corresponding interface. On this interface, users can show/hide the menus.

Set the state of authority interface

Select a menu or its submenu, and click the modify button at corresponding operation bar, to display or hide the menu/submenu.

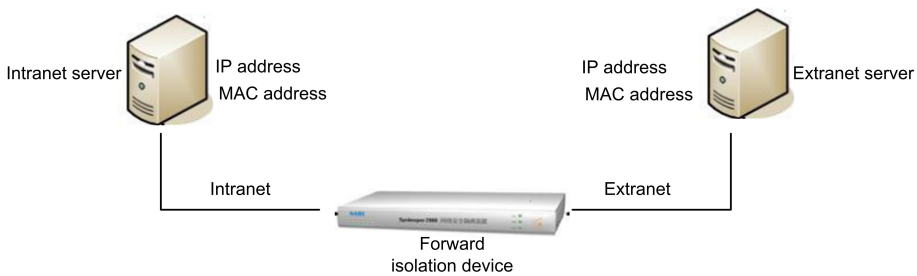
Page data synchronization

After finishing the settings, click the button "Page Data Synchronization" in the upper right corner of the interface to refresh the authority interface of the current user.

8.5 Security Configuration

Background Information

Insight has a positive isolation function, which allows the forward transmission of data from the internal network to the external network and prevents the transmission of data from the external network back to the internal network.



Setting Method

step 1 Enter the setting interface by going to "System Management" -> "Security Device".

step 2 Select internal/external network type.

- To set the internal network parameters, check “Internal Network”.

- To set the external network parameters, check “External Network”.

step 3 When you select the configured network port, the system will automatically fill in the corresponding IP address and MAC address.

step 4 Configure isolation device rules.

To add a new rule, click “Add Rule” and enter the source address, source port, protocol, and other information. Then, click “Save Settings” and click "Restart Insight-transfer Program".

To modify an existing rule, in the operation bar, click “Modify”, enter the source address, source port, protocol, and other information, and click “Save Settings”.

- - End

8.5.1 View History Records

View History Records

Click the tab "Records" to view history information on isolation device configuration.

Select start time, end time, and transmission result, and then click the button "View", to view corresponding records.

Transmission Repair Configuration

If the data transmission from the intranet to the extranet is abnormal, supplementary transmission configuration is required.

After clicking "Transmission Repair Configuration", select the time period that requires supplementary transmission and click "Begin Transmission Repair" to supplement the data.

8.6 Data Forwarding

On this interface, users can perform cloud configuration, including parameter setting, upload record, communication, etc.

8.6.1 Parameter Settings

Select the "Parameter Setting" tab to go to the parameter setting interface.

On this interface, you can configure the following parameters:

Item	Description
Upload Parameters	**Configure cloud address.** • If the cloud address is "Chinese Server", "International Server", or "-European Server", the system will automatically complete the upload parameter configuration. • To customize the cloud address, you need to manually configure the relevant parameters. When the configuration is complete, click "Save" and then click "Restart Insight-transfer Program". **Configure Upload Cycle** Set the range to 5, 10, or 15 minutes as needed. **Configure Compensation Strategy** This is used to set the transmission repair time. When the time is set, the system will automatically repair transmission of all data from the set time.
Plant Structure Uploading	This function is used to add the plant to which data needs to be uploaded. During configuration, you need to enter information such as "Plant Code", "Plant Name", and "Authorization Code".

Silent Function

After clicking the "Silent" button in the upper-right corner of the interface, set the corresponding silent interval. During this time interval, no telemetry data uploads will occur between Insight and the iSolarCloud platform, but the telesignal data can be uploaded normally.

8.6.2 Querying Uploading Records

Enter plant code and plant name, select time segment and data type, and click "Search" to query the uploading records.

8.6.3 Querying Communication Records

Select time segment, test mode, and test result, and click "Search" to query the communication records.

8.7 Alarm Configuration

Click “Configuration->Alarm Configuration”, to enter the interface.

This interface has contains two submenus: Real-time Alarm Configuration and Fault Alarm Configuration

Real-time Alarm Configuration

The real-time alarm configuration includes number of query records, data refresh interval, alarm type, and alarm level.

Item	Description
Number of query records	The largest number of displayed real-time alarms
Data refresh interval	Refreshment interval of the real-time alarm signal
Display alarm type	The type of the real-time alarm If an alarm type is selected, only alarms of this type are displayed.

Fault Alarm Configuration

Users can configure fault alarm types on this interface.

8.8 Forward 104

"Forward 104" includes submenus such as Forwarding Service Configuration, Forwarding Device Configuration, and Manual Forwarding.
Click "Configuration -> Forward 104" to perform the corresponding configurations.

8.8.1 Forwarding Service Configuration

The forwarding service configuration includes Basic Information Configuration and Channel Information Configuration.

- Basic information configuration:Includes the main and backup network ports and the corresponding IP configuration.
- Channel information configuration:Includes the number of channels setting and 104 parameter configuration.

Basic information configuration

Click "Modify" and enter the appropriate information. Then click "OK" and "Restart Forward Procedure 104".

Channel information configuration

- Modify channel information

  Check a channel name, click Modify in the appropriate operation bar, and enter the main network port, local network port, main station IP address, and main station IP address 2 according to the actual situation. Then click "OK" and "Restart Forward Procedure 104".

- 104 Configuration

104 parameter configuration is divided into two categories: ASDU (Application Service Data Unit) settings and switch settings.

table 8-1 ASDU Parameters

Item	Description
Public address bytes	Range:1, 2. When set to 1, the number of bytes is 8 bits. When set to 2, the number of bytes is 16 bits.
Public address	Used to set the channel number agreed by the master and the slave.
Informosome address bytes	Range:1, 2, 3. When set to 1, the number of bytes is 8 bits. When set to 2, the number of bytes is 16 bits. When set to 3, the number of bytes is 24 bits.
Transmission cause bytes	Range:1、2。 When set to 1, the number of bytes is 8 bits. When set to 2, the number of bytes is 16 bits.

table 8-2 Switch Settings

Item	Description
General calling switch	Can be set to on or off. When set to , it is turned on. When set to , it is turned off.
Timing switch	Can be set to on or off. When set to , it is turned on. When set to , it is turned off.
Periodic up switch	Can be set to on or off. When set to , it is turned on. When set to , it is turned off.
Burst feed switch	can be set to on or off. When set to , it is turned on. When set to , it is turned off.
Remote control remoter control switch	Can be set to on or off. When set to , it is turned on. When set to , it is turned off.

Click “Restore Defaults” to restore the above parameters to their default values.

8.8.2 Forwarding Device Configuration

On this interface, users can configure forwarding devices of the power plant, configure measuring points corresponding to the forwarding devices, and query forwarding information according to channel number.

On the forwarding device configuration interface, users can perform operations such as device measuring point configuration, channel device configuration, and forwarding information query.

8.8.2.1 Configuration of Device Measuring Point

Click the tab "Configuration of Device Measuring Point" to access the corresponding interface.

On this interface, users can perform the following operations:

- Query device measuring point information
- Add device measuring point information
- Sort device measuring point information
- Enable/Disable device measuring points in batch
- Set device measuring point information in batch
- Export device measuring points
- Delete device measuring points

Query Device Measuring Point Information

Select a device type, device model, and measuring point type, and click  to view the corresponding measuring point information of the device.

Click the button  to re-select device type, device model, or measuring point type in case the information selected is incorrect.

Add Device Measuring Points

Click the "Add" button, select the device type, device model, measuring point type, and measuring point code/name, turn on/off the forward enable switch as needed, and then click "Confirm".

Sort Device Measuring Point Information

Click the button "Sequencing", sort measuring points as needed, and then click "Save Order" to save the operation.

Enable/Disable Device Measuring Points in Batch

- Enable/disable device measuring points

  Tick the desired measuring point, click the button  in corresponding operation bar, and click "Confirm" to enable or disable the measuring point.

- Enable/disable device measuring points in batch

  Tick multiple measuring points, click the button "In-batch Operation", and select "-Batch enable/disable", to enable/disable these measuring points.

Set Device Measuring Point Information (in Batch)

Measuring points of the type of telemetry or remote pulse can be set according to the formula "System data = Forwarding data x Correction factor + Offset". Setting method:

- Set single measuring point

  Select a measuring point, click the button  in the operation bar, fill in the corresponding correction factor and offset, and click "Confirm" to finish the operation.

- Set measuring points in batch

  Tick multiple measuring points, click the button "In-batch Operation", select "Batch settings", fill in the corresponding correction factor and offset, and click "Confirm" to finish the operation.

For measuring points of the type of remote signaling, only "Reverse" setting is available. Setting method:

- Set single measuring point

  Select the desired measuring point, click the button  in the operation bar, set "-Reverse" to "Yes" or "No", and click "Confirm" to finish the operation.

- Set measuring points in batch

  Tick multiple measuring points, click the button "In-batch Operation", select "Batch settings", set "Reverse" to "Yes" or "No", and click "Confirm" to finish the operation.

Export Device Measuring Points

Tick one or multiple measuring points, click the button "In-batch Operation", and select "Export" to export the measuring point information.

Delete Device Measuring Points

Select a measuring point, click the button  in the corresponding operation bar, and then click "Confirm" to delete the measuring point.

Newly-added northbound measuring points can be deleted.

Configured southbound measuring points cannot be deleted.

8.8.2.2 Device Channel Configuration

Click the tab "Device Channel Configuration" to access the corresponding interface. On this interface, users can configure a single channel device or configure multiple channel devices in batch.

Configure Single Channel Device

Select a channel device, click the button  in the corresponding operation bar, select the desired channel devices, and click "Confirm".

Configure Channel Devices in Batch

Select multiple channel devices, click the button "Configure Device", select the desired channel devices, and click "Confirm".

8.8.2.3 Forwarding Information Query

Click the tab "Forwarding Information Query" to access the corresponding interface.
On this interface, users can query forwarding information of each channel, and export the queried information locally in the excel form.

Query Forwarding Information

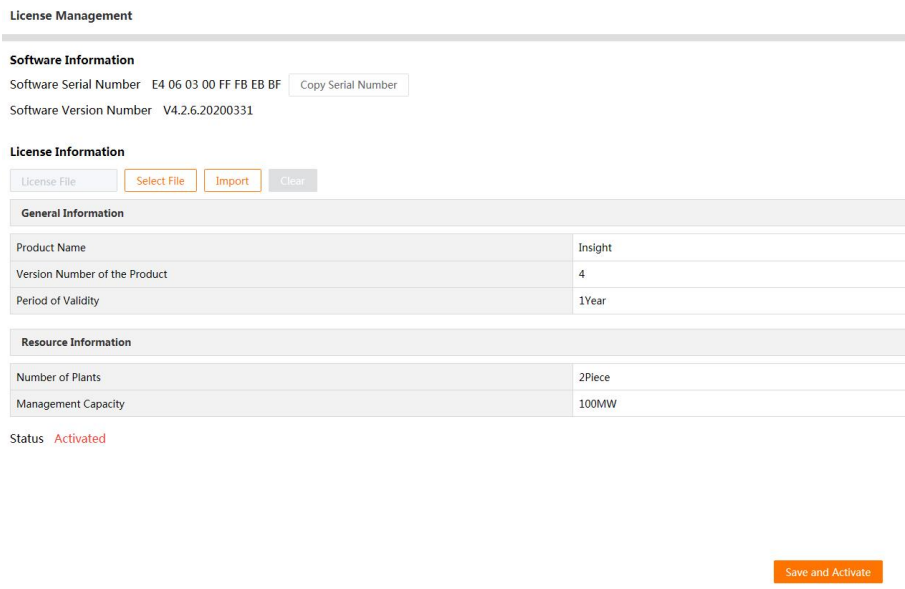
Select the desired channel No. and measuring point type, such as telemetry, remote signalling, remote control, remote regulating, or remote pulse, so that the system will automatically screen out the corresponding forwarding information.

Export Forwarding Information

Click the button  to export the queried forwarding information, where the information will be exported in excel form.

8.9 License Management

Configure Insight license on this interface, so that the Insight system can be used normally.



Configure Insight license on this interface, so that users can use the Insight system normally.

For specific method, refer to "3.2 License"

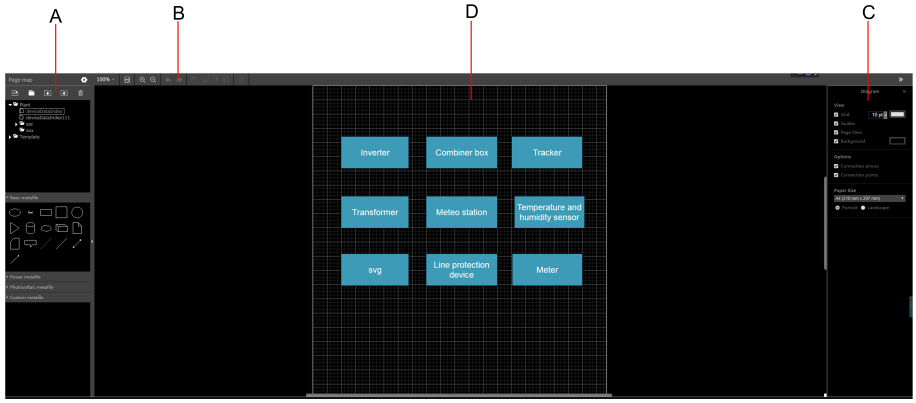
9 SVG Configuration

1. How to enter the SVG configuration interface?

Click the button  in the upper right corner of any interface to enter the SVG configuration interface.

2. What parts does the SVG configuration interface consist of?

The SVG configuration interface consists of four modules, page map (shown by A), toolbar (shown by B), chart (shown by C), and SVG diagram display area (Shown by D).



Functions of each module are described as follows:

Module	Description
Function navigation bar	 From top to bottom: Page map to configuration metafile (- including basic metafile, power metafile, photovoltaic metafile, and custom metafile)
Toolbar	From left to right: save, zoom in, zoom out, undo, redo, left justify, right justify, top justify, down justify, and delete
SVG diagram display area	Display the configuration results of the system.
Chart	Set background image and colour of the background image colour. Set page size and paper orientation. Show/hide grid lines, rulers, etc.

3. How to perform SVG configuration?

If there is a template, the template needs to be loaded in the first operation.

- New folders can be created in one folder, and multiple folders are displayed in the append form.

- The folder contains the option of creating SVG graphs, and the created SVG graph folder is also displayed in the append form.
- The xml files can be exported/imported in batch.

In drawing the graph, shortcuts of the windows system can be used. For example, delete (delete), save (ctrl+s), and copy (ctrl+c).

- Drag the node to move it to desired position through the mouse.
- Double click the node to change its name.
- Right click any node to perform operations such as adding new folders/ SVG graphs, movement, rename, copy, paste, import, export, and deleting.

4. Which SVG graphs can be drawn on the configuration interface?

You can draw the main wiring diagram, energy meter graph, power plant view, primary drawing, real-time data index map, inverter SVG graph, combiner box SVG graph, transformer SVG graph, etc

10 Terminology

Remote regulation

Remote regulation is also referred to as "remote regulation information". This means receiving and executing remote regulation commands to remotely debug remote control devices, for example, regulating the output power of the inverter.

Telesignalisation

Telesignalisation is also referred to as "remote communication information", that is, remote signal. This means collecting and transmitting various protection and digital information.

Telemetry

Telemetry is also referred to as "telemetry information", that is, remote measuring. This means collecting and transmitting running parameters, including various electrical parameters such as voltage, current, and power.

Remote control

Telemetry is also referred to as "remote control information". This means receiving and executing remote control commands, mainly including switching on and off and remote control operations.

11 Appendix

11.1 Copyright

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Should you have any technical question about this software, please contact us.

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