SUNGROW
Clean power for all

User Manual

Smart Communication Unit

SCU1100

SCU1100-UEN-Ver36-202409

Contents

1 About This Manual

1.1 Preface

This manual describes in detail the SCU intelligent communication gateway in the form of overviews, charts, operation steps, and examples, to facilitate better understanding and flexible, efficient use of the system.

It will be referred to as "SCU" for short hereinafter unless otherwise specified.

With continuous software update, the interface and functions of the software you are using may differ from the example pictures provided in this manual. If so, please refer to the latest software version. If you have any questions, please contact Sungrow Power Supply Co. Ltd.

1.2 Target Group

This manual is intended for the following target groups:

- O&M personnel
- System administrators
- Technical engineers

1.3 Manual Description

This manual provides brief description by using the standard SCU interfaces as examples. For specific activated functions, refer to the technical agreements or the contract.

1.4 Symbol Explanation

"NOTE" indicates additional information, emphasized contents, or tips helping you solve problems or save time.

1.5 Expression Explanation

Type	Expression example
Select a certain menu	Select "Monitoring" on the navigation bar
Select multiple menus	Select "Monitoring -> Device operation"
Click a certain button	Click the button [Confirm]

2 System Introduction

2.1 Brief Introduction

SCU is a data collection and protocol conversion device that can collect data from inverters, combiner boxes and other equipment in PV systems. Users can view the collected information by accessing the server through PC.

SCU supports two modes: Network Safety Mode and non-Network Safety Mode. This manual mainly introduces the common features of the two modes, and please refer to the corresponding manual for the specific information of the Network Safety Mode.

2.2 Main Features

The SCU has the following features:

Smart and Flexible

- Support RS485, CAN communication
- Support remote upgrade and maintenance
- Support connection to both iSolarCloud and the third-party monitoring system

Simple and Efficient

- Embedded Web operation interface, support inverter parameter setting and remote maintenance
- Support configuration of multiple forwarding protocols, convenient for onsite debugging

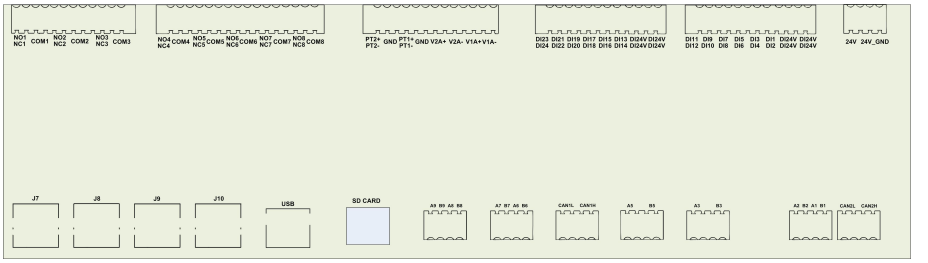
Safe and Reliable

- More stable running as the core system service runs in the linux operating system
- Strict control procedure, complying with power system safety standards

2.3 System Requirements

Item	Requirement
Browser	CHROME 32bits, version 66 or later

3 Introduction to Ports



Port	Port definition	Remarks
J7（NET2）、J10(NET1)、 J8（Goose1）、J9(Goose2)	Ethernet port Goose port	4-way
USB	USB port	Not open yet
A1B1~A3B3 A6B6~A9B9	RS485 port	7-way
CAN1H, CAN1L CAN2H, CAN2L, GND	CAN port	Not open yet
DI1~DI24 DI24V	Dry contact input port	24-way
NC1 NO1 COM1 ~ NC8 NO8 COM8	Dry contact output port	8-way, output signal 250Vac/1A or 30V/1A
PT1+ PT1– PT2+ PT2–	PT100 temperature detection port	2-way
V1A+ V1A- V2A+ V2A-	Analog input port	2-way, 0~5Vdc, 4~20mA
24V, 24V-GND	24Vdc power port	24Vdc,I≤2.0A
SD	SD card slot	8G, not open yet

3.1 Ethernet Port Wiring

Introduction

Port	Function
J7(NET2)	For internal debugging only
J8(Goose1)	Exclusively for Goose
J8(Goose2)	Exclusively for Goose
J10(NET1)	Connect to external devices such as Ethernet switch.

Wiring Requirements

CAT-5e or aboove cable is recommended.

Wiring Method

Use CAT-5e or aboove cable with one end connected to external device and the other end connected to the “NET1” or “NET2” port of the SCU.

Item	Description
Modbus-TCP forwarding	Click”System- > “Transfer Configuration”- > “Modbus”- > ”SERVER”,supports up to 15 port configurations.
IEC104 forwarding	Click”System- > “Transfer Configuration”- > “IEC104”,supports up to 15 port configurations.

3.2 RS485 Port Wiring

Introduction

The SCU supports 7-way RS485 terminal connection to equipment such as box transformer measurement and control equipment, electricity meter, PV combiner box and environmental monitor.

Port mark	Function
An	RS485A, RS485 differential signal+
Bn	RS485B, RS485 differential signal-

* n=3 or 6~9。

Cable Requirements

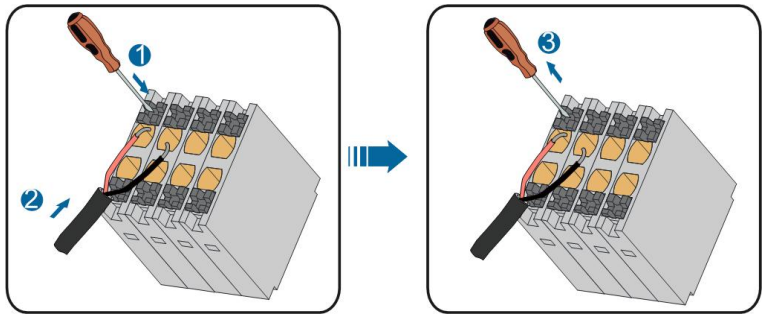
- 0.75mm²~1.5mm² twisted pair shielded wire is recommended for connection.
- The RS485 communication distance is less than 1200m.
- A single RS485 communication port can support the access of 32 devices.
- A single RS485 communication port does not allow different types of equipment to be connected.

Wiring Method

Step 1 Lead the RS485 cable outgoing from external equipment to the wiring area of the SCU.

Step 2 Use wire strippers to strip the protective layer and shielded layer of the cable to expose the copper core of the wire.

Step 3 Connect the cable of which the insulation layer has been stripped to the either the SCU's“A1B1~A3B3”or“A5B5~A9B9”port as shown in the following figure.



*for illustration only.

- - End

NOTICE

The shielding layer should be grounded.

3.3 DI Input Dry Contact Wiring

Introduction

The SCU supports multi-input dry contact connection to the transformer or switchgear signal node.

Port	Function
DI1~DI24	Input dry contact terminals 1~24
DI24V	Total 8 input dry contact 24V terminal

* DI1~ DI5 are for internal use by the SUNGROW R&D team only and do not support configuration by users.

Wiring Requirements

0.75mm²~1.5mm²wire is recommended.

Wiring Method

Step 1 Connect the DI input dry contact cable and 24V cable outgoing from the transformer to the wiring area of the SCU.

Step 2 Use a wire stripper to strip the protective layer and shielded layer of the cable to expose the copper core of the wire.

Step 3 Connect the DI cable to either the SCU's“DI1~DI21”port: Connect 24V cable to“DI24V”port.

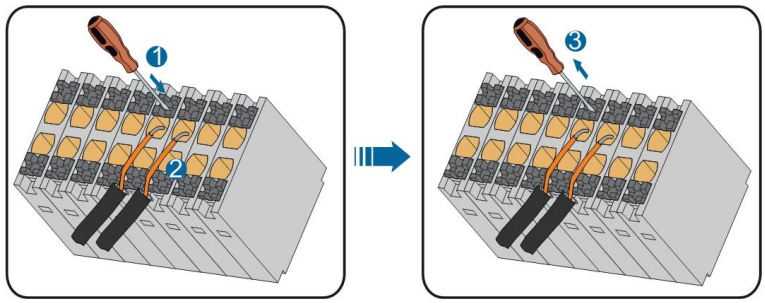


figure 3-1 Wiring method (take DI20 port wiring for example)

- - End

3.4 DO Output Dry Contact Wiring

Introduction

The SCU supports 8-way output dry contact connection to the transformer or switchgear signal node.

Port	Function
NC1	Output port 1, NC
N01	Output port 1 ，NO
COM1	Output port 1, COM
NC2	Output port 2, NC
NO2	Output port 2, NO
COM2	Output port 2, COM
NC3	Output port 3, NC
N03	Output port 3, NO
COM3	Output port 3, COM
NC4	Output port 4, NC
N04	Output port 4, NO
COM4	Output port 4, COM
NC5	Output port 5, NC
N05	Output port 5, NO
COM5	Output port 5, COM
NC6	Output port 6, NC
N06	Output port 6, NO
COM6	Output port 6, COM
NC7	Output port 7, NC
N07	Output port 7, NO
COM7	Output port 7, COM
NC8	Output port 8, NC

Port	Function
N08	Output port 8, NO
COM8	Output port 8, COM

Wiring Requirements

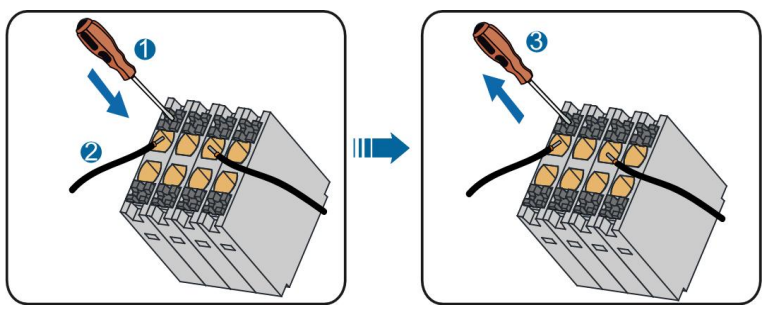
0.75mm^2~1.5mm^{2}wire is recommended.

Wiring Method

Step 1 Connect the output dry contact (NO, NC, COM) cable outgoing from the transformer to the wiring area of the SCU.

Step 2 Use a wire stripper to strip the protective layer and shielded layer of the cable to expose the copper core of the wire.

Step 3 Connect cables outing from NO, NC and COMs to the corresponding ports of the SCU.



- - End

3.5 PT100 Port Wiring

Introduction

The SCU has two PT100 sampling ports, which are used for transformer oil temperature sampling and copper busbar temperature sampling respectively.

Wiring Requirements

Recommended cable specifications:0.75mm^2~1.5mm^2.

Wiring Method

Step 1 Lead the sampling signal line to the wiring area of the SCU.

Step 2 When connecting a two-wire cable, connect the PT + cable to the "PT +" port; connect the PT- cable to the "PT-" port. (**Note**: "PT-" port and "GND" port are short-circuited)

When connecting a three-wire cable, PT+ cable connects to "PT+" port; PT- cable connects to "PT-" port; ground cable Connect to the "GND" port.

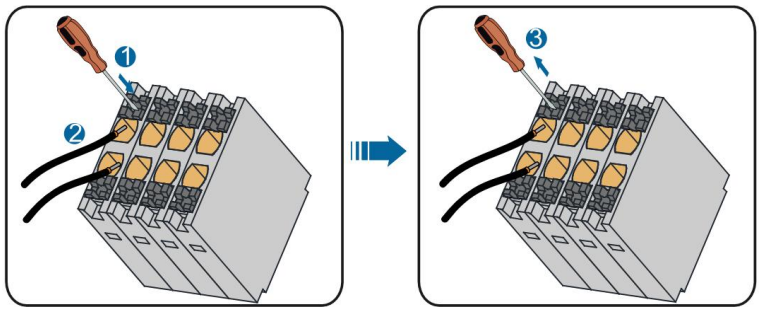


figure 3-2 Two-wire cable connection

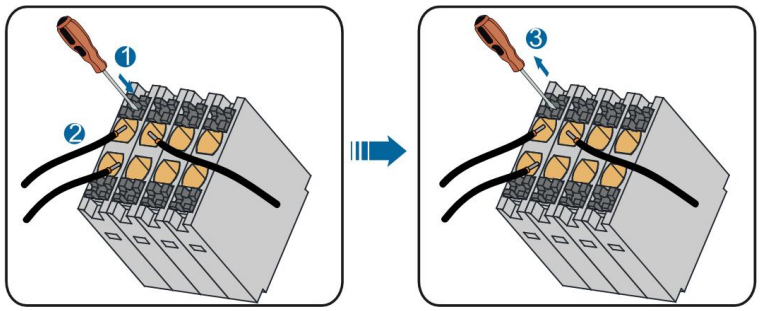


figure 3-3 Three-wire cable connection

- - End

3.6 Analog Port Wiring

Introduction

The SCU offers two analog input ports.

Wiring Requirements

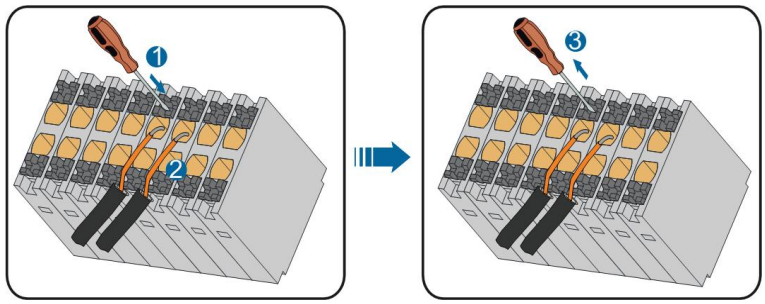
0.75mm^2~1.5mm^{2}is recommended.

Wiring Method

Step 1 Lead the external （0~5Vdc，4~20mA）analog signal cable to the wiring area of the SCU.

Step 2 Strip the insulation layer of the cable to expose the copper core.

Step 3 Connect the 1st analog input signal line to the SCU“V1A+, VA1–” ； Connect the 2nd analog input signal line to the SCU's“V2A+, VA2–”ports.



- - End

3.7 24Vdc Power Port Wiring

Introduction

The 24Vdc power port of the SCU has been connected to the DC side of the inverter and supplies DC power for it.

Wiring Requirements

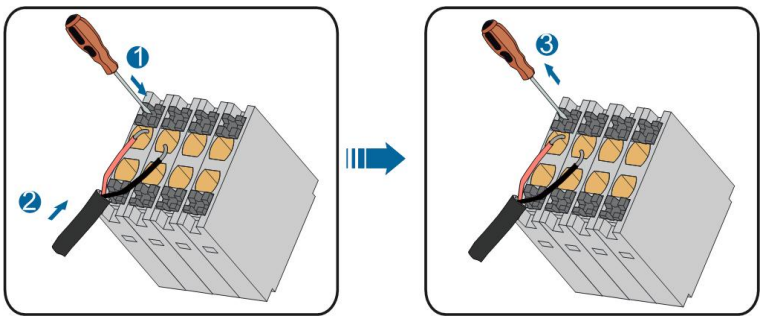
Recommended cable specifications:0.75mm^2~1.5mm^2.

Wiring Method

Step 1 Lead the external power cable to the wiring area of the SCU.

Step 2 Strip the cable to expose the copper core.

Step 3 Connect the red wire core to“24V”port, black wire core“24V-GND”port.



- - End

4 Login

4.1 Login

4.1.1 Overview

The SCU is designed with two network ports NET1 and NET2.

- Default IP address of NET1: 12.12.12.12.
- Default IP address of NET2: 14.14.14.14.

NOTICE

IP addresses of "NET1" and "NET2" should be on different network segments. If otherwise, communication error occurs.

4.1.2 Preparation before Login

- Connect PC to NET of the SCU by using a network cable. (**Notice**: Do not enable the DHCP function of NET.)
- Set the IP address of the PC to be on the same network segment as that of the SCU. It is recommended to set the IP address of the PC to 12.12.12.125, and the subnet mask to 255.0.0.0.

4.1.3 Login Method

Step 1 Enter the address in the PC address bar, enter as a guest by default.

NET1 port, URL:http://12.12.12.12 or https:// 12.12.12.12.

NET2 port, URL:http://14.14.14.14 or https:// 14.14.14.14.

- Under the Network Safety Mode, only login over HTTPS is allowed.
- If the Network Safety Mode is not turned on, login over HTTP and HTTPS are both allowed.

Step 2 Click“**login**”in the upper right of the interface, please refer to "12 User Management"to select the operating environment that you need to log in, and then enter the access screen after logging in.

- - End

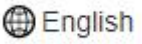
4.2 Modify the Password

Click  , and select **Modify Password**, enter the orginnal password and new password, click [Save].

- Passwords should be 12–32 character long and contain at least uppercase letters, lowercase letters, and numbers. The new password cannot be the same as the old one.
- Please contact the Super Administrator if you forgot your password. Password cannot be changed with verification code.

- Under the Network Safety Mode, the initial password will be forced to be changed.
- If the Network Safety Mode is not turned on, the initial password is not mandatory to change.

4.3 Setting the Language

Click 

and select the desired language to switch the interface.

4.4 Logout

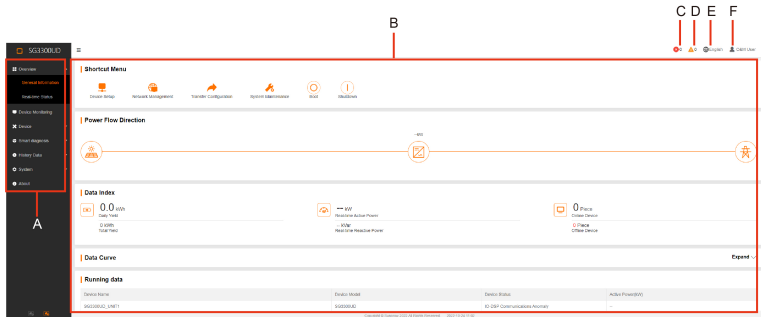
In order to protect the security of the account, it is recommended to log out in time after the operation is completed.

Method

Click  , choose “**Logout**”.

5 Interface Description

5.1 Homepage



No.	Description
A	Page and menu selection bar
B	Function display area
C	Fault number
D	Alarm number
E	Language switching options
F	Personal center

5.2 WEB Menu

Navigation Bar/Menu	Submenu	Third-Level Menu
Overview	General Information	-
	Real-time Status	-
Device Monitoring	-	-
Device	Device List	-
	Firmware Update	-
	Fault Recorder	-
Smart diagnosis	Smart IV Diagnosis	-
	Fault Diagnosis	-
History Data	Operation Log	-
	Status Records	-
	Parameter log	-
	History Curve	-
	Syslog	-
System	Run Information	-
	System Maintenance	-
	Romote Maintenance	-
	Message Export	-

Navigation Bar/Menu	Submenu	Third-Level Menu
	System Time	-
	Transfer Configuration	-
	Template Management	-
	File Management	-
	Port Parameter	RS485
		EyeW485
		Ethernet
		WLAN
		AI
		DI
	MPLC	-
	Certificate Management	-
About	-	-

6 Overview

6.1 Checking the General Information

Function Description

In this interface, you can view the current power generation, real-time power, the number of online devices, etc., view the operating data and cycle (day, month, year, total) power generation curve. One-click access to the interface corresponding to common functions, such as adding devices, configuring network port parameters, configuring forwarding information, upgrading/restarting the system, and quickly issuing instructions to devices.

Procedure

Step 1 Click““**Overview→General Information**””to enter the interface.

Step 2 Click the corresponding column to view related data.

- - End

6.2 Checking the Real-time Status

Function Description

View the event type, event name, and time of the event of the current device.

Procedure

Step 1 Click““**Overview→Real-time Status**””to enter the interface.

Step 2 View the event information of the current device.

- - End

7 Device Monitoring

Function Introduction

- View the real-time running information of the specific device and corresponding node status.
- Set initial parameters, operation parameters, system parameters, and protection parameters for the specific device.
- Start or stop the specific device, and restore default values.

Procedure

Step 1 Click “**Device Monitoring**” to enter the corresponding interface.

Step 2 Select the target device from the device list on the left.

Step 3 Choose the "**Realtime Values**" tab to view the real-time running information of the current device.

Choose the "**Node Status**" tab to view the node status of the current device.

Choose the "**Initial Parameter**" tab, and set the country and device model according to the local standards.

The above parameters have been configured before the product leaves the factory.

Choose the "**Operation Parameters**" tab to set the relevant operation parameters for the product.

Choose the "**System Parameters**" tab to set the relevant system parameters for the product.

Choose the "**Protection Parameters**" tab to set the relevant protection parameters for the product. Parameters 116~128* are parameters related to AC insulation detection.

The AC insulation detection function is able to monitor the AC insulation resistance to ground of the whole PV system in off-grid and grid-connected states. If the insulation resistance is too low, an alarm will be sent, and the device's operation could even be stopped to keep the personnel and the device safe.

Code	Parameter	Range and Default Value	Description
116	ISO Board Fault Integration	Open/close. It is set to "Close" by default.	When the **ISO Device** in "System Parameter" is set to "ISO", if this parameter is set to "Open", the device will shut down in case of a fault with the ISO board. If this parameter is set to "Close", the device will run on warning in case of a fault with the ISO board.
117	IMD-PID Switching	Open/close. It is set to "Close" by default.	Turn on/off the 24h insulation detection function.
118	VCB Tripping	Open/close. It is set to "Open" by default.	Allow/do not allow the VCB to trip.
119	Anti-PID Running Duration	10~720 min. 240 min by default.	When anti-PID running and AC insulation detection are compatible with each other, the time duration of anti-PID running.

Code	Parameter	Range and Default Value	Description
120	ISO Running Duration	10~720 min. 30 min by default.	When anti-PID running and AC insulation detection are compatible with each other, the running duration of AC insulation detection.
121	24h AC Insulation Alarm Pro Value	20~100 kΩ. 30 kΩ by default.	Threshold value for triggering an insulation alarm. When **24h AC Insulation Protection Value** < insulation resistance ≤ **24h AC Insulation Alarm Pro Value** for a period of time equivalent to **24h AC Insulation Alarm Pro Time**, an alarm will be sent.
122	24h AC Insulation Alarm Pro Time	600.0~6000.0 s; 600.0 s by default.	When **24h AC Insulation Protection Value** < insulation resistance ≤ **24h AC Insulation Alarm Pro Value** for a period of time equivalent to **24h AC Insulation Alarm Pro Time**, an alarm will be sent.
123	24h AC Insulation Alarm Pro-recov Value	20~100 kΩ. 50 kΩ by default.	In the event of an insulation alarm, if the insulation resistance exceeds and remains greater than this value for a period of time equivalent to **24h AC Insulation Alarm Pro-recov Time**, the alarm will be cleared.
124	24h AC Insulation Alarm Pro-recov Time	600.0~6000.0 s; 600.0 s by default.	If insulation resistance > **24h AC Insulation Alarm Pro-recov Value** for a period of time equivalent to **24h AC Insulation Alarm Pro-recov Time**, the insulation alarm will then be cleared.
125	24h AC Insulation Protection Value	20~100 kΩ. 20 kΩ by default.	Threshold value for reporting an insulation fault. If the insulation resistance is lower than this value for a period of time equivalent to **24h AC Insulation Protection Time**, a fault will be reported.

Code	Parameter	Range and Default Value	Description
126	24h AC Insulation Protection Time	600.0~6000.0 s; 600.0 s by default.	If the insulation resistance falls below and remains lower than **24h AC Insulation Protection Value** for a period of time equivalent to **24h AC Insulation Protection Time**, a fault will be reported.
127	24h AC Insulation Protection Recovery Value	20~100 kΩ. 50 kΩ by default.	In the event of an insulation fault, if the insulation resistance exceeds and remains greater than this value for a period of time equivalent to **24h AC Insulation Protection Recovery Time**, the insulation fault will be cleared.
128	24h AC Insulation Protection Recovery Time	600.0~6000.0 s; 600.0 s by default.	If the insulation resistance exceeds and remains greater than **24h AC Insulation Protection Recovery Value** for a period of time equivalent to **24h AC Insulation Protection Recovery Time**, the insulation fault will be cleared.

*The codes of the parameters are for reference only. Please refer to the information actually shown on the interface.

For **Operation Parameters**, **System Parameters**, and **Protection Parameters**:

- Choose **Import** to import a parameter file into the system.
- Choose **Export** to export the parameter file to your local system.

Choose the "**Device Instruction**" tab, and you can start/stop the device or restore default values.

"Boot" and "Shutdown" on this interface are valid for the device as a whole.

After restoring settings to the default values, information related to the product such as historical data and parameter logs will all be deleted.

- - End

8 Device Maintenance

8.1 Device List

Function Description

In this interface, you can add devices, modify devices and delete devices.

Prerequisite

The device model and configuration file have been obtained through Sungrow Power Supply Co., Ltd.

Procedure

Step 1 Click""**Device→Device List**""to enter the interface.

Step 2 Click""**Add Device**""to enter the interface. On the Add Device interface, select the device type, port, device model, beginning address and quantity of device.

Step 3 click"**Save**", complete the device addition.

- - End

8.2 Firmware Update

Function Description

In this interface, you can upgrade the device.

Prerequisite

Contact SUNGROW to obtain the upgrade package.

Procedure

Step 1 Click""**Device→Firmware Update**""to enter the interface.

Step 2 Click"**Select a Firmare File**", select the upgrade package that has been obtained, and click"**Update**".

The upgrade file must be in sgu format.

- - End

8.3 Fault Recorder

Function Description

When the fault occurs, click **Instantaneous Value Recorder Query**, **RMS Recorder Query**and **Trigger fault recorder**to locate the fault and find the cause of the fault.

The operations involved in this interface are only performed by SUNGROW.

Step 1

- - End

9 Smart Diagnosis

9.1 Smart IV Diagnosis

The smart IV diagnosis function is used for monitoring the operating status of the combiner box with communication function and providing effective diagnoses for its faults.

Function Introduction

This function can be used to collect and analyze the voltage and current data of the up-stream combiner box of the inverter, and judge whether there is a fault.

Procedure

Step 1 Click“**Smart Diagnosis→Smart IV Diagnosis**” to enter the corresponding interface.

Step 2 Click “**Start Diagnosis**” to start diagnosing devices such as the combiner box.

Step 3 Click “**Diagnosis Results**” to view the diagnosis results.

Step 4 Click “**PV Configuration**” to add a new module.

Set the module parameters according to actual conditions, and only one module can be enabled at a time.

- - End

9.2 Fault Diagnosis

The smart branch diagnosis function is used for monitoring the operating status of the combiner box and providing effective diagnoses for its faults.

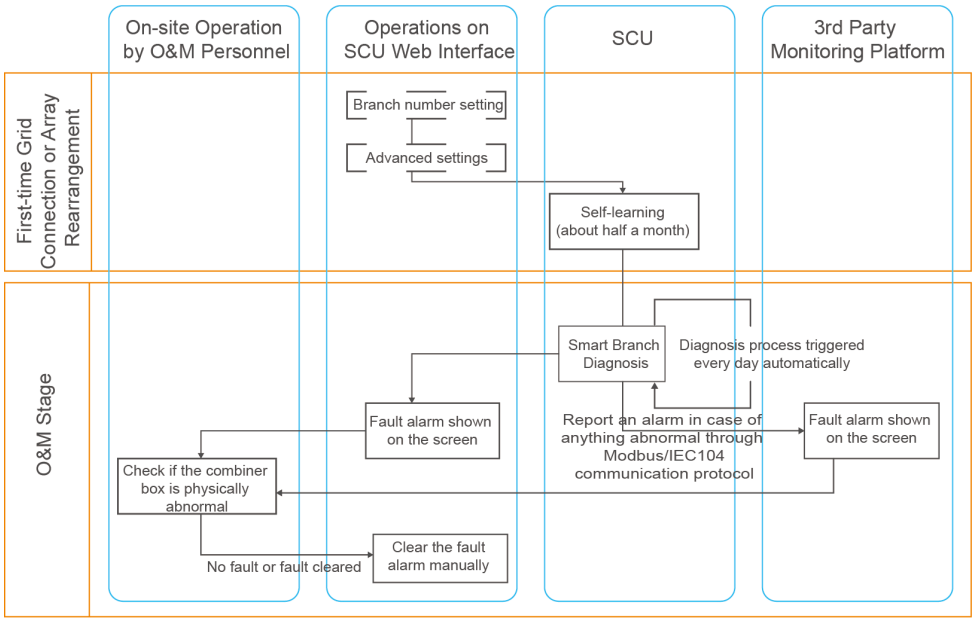
9.2.1 Function Introduction

Inverters supporting smart branch diagnosis are able to collect the output current of the combiner box (which is, the input current of the inverter). It can analyze the working status of the combiner box and strings connected to it by applying intelligent algorithms, and alarm the monitoring system in case of open circuits.

9.2.2 Access to User Interface

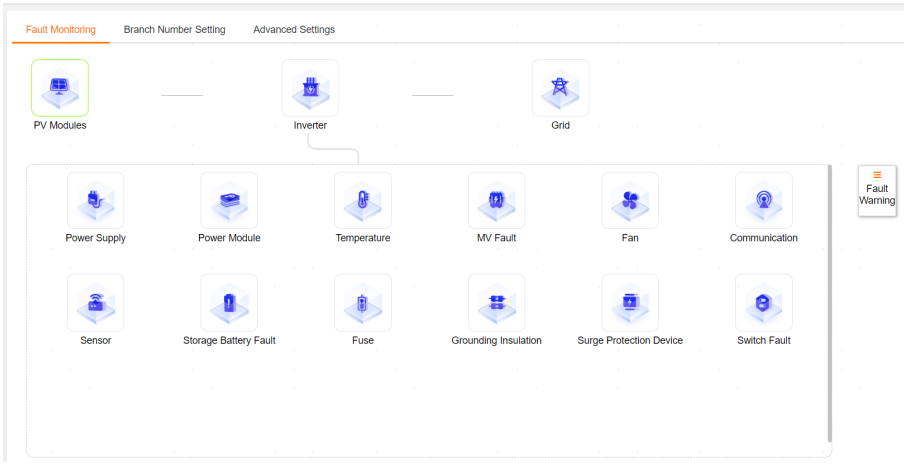
Log in to the SCU Web interface, and choose **Smart Diagnosis** - **Fault Diagnosis** to go to the page for fault diagnosis.

9.2.3 Diagnostic Process



9.2.4 Fault Monitoring

You can check the working status of the PV modules (the combiner box and strings connected to it) on the "Fault Monitoring" page, as shown in the figure below.



The color codes for branch status are listed in the table below.

Color and Icon	Status
Green	Normal

Orange	Branch abnormal (string connected to the combiner box is offline)
Grey	Branch offline (the combiner box is offline)

Normal Status

- **PV Module Status**

  You can see from the icon of "PV Module" in case a fault alarm is reported from smart branch diagnosis. This icon normally shows as:

- **Branch Map**

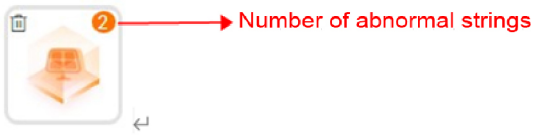
  Click on the center of the “PV Module” icon, the below branch map will pop up. In normal status, the branch icon is green and the inverter unit’s frame is grey.

Branch Abnormal

In case of a branch abnormal open-circuit alarm, which is, some string connected to the combiner box is offline, you can see on the page that:

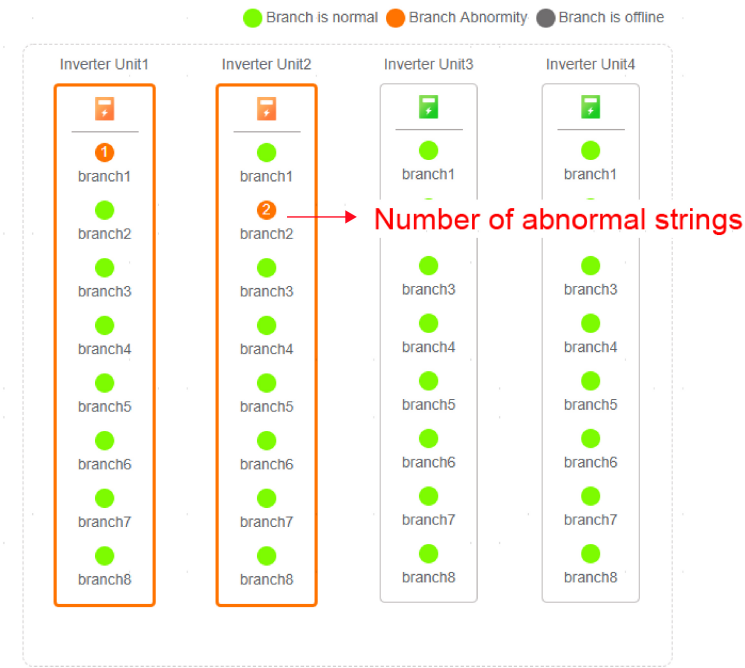
- **PV Module Status**

  The number in the upper right corner of the “PV Module” icon represents the number of inverter units in abnormal status. The trash bin icon in the upper left corner is used to clear the alarms. Alarms from smart branch diagnosis need to be cleared manually, or they will remain there.



- **Branch Map**

  Click on the center of the “PV Module” icon, the below branch map will pop up. The branch icon turns orange, and the number in the icon represents the number of strings in abnormal status. The inverter unit's frame also shows orange.



If the icon of a branch in an inverter unit turns orange, please find this branch on the site, and proceed as follows to perform troubleshooting and clear the alarm:

1 Check if any fuse inside the combiner box is blown with a multimeter. If so, please replace the fuse.

2 Check if PV modules in the branch are covered by dust or weeds, etc. If so, clean them up in time.

3 Check if PV modules in the branch are damaged. If so, remove the damaged PV modules, or replace them with new ones.

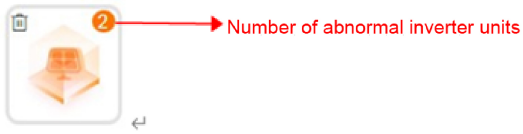
4 After finishing troubleshooting, go to SCU Web interface and choose **Smart Diagnosis** - **Fault Diagnosis** - **Fault Monitoring**. Click on the trash bin icon in the upper left corner of the "PV module" icon to manually clear the alarm message.

Branch Offline

In case of a branch offline alarm, which is, the combiner box is offline, you can see on the page that:

- **PV Module Status**

  The number in the upper right corner of the “PV Module” icon represents the number of inverter units in abnormal status. The trash bin icon in the upper left corner is used to clear the alarms. Alarms from smart branch diagnosis need to be cleared manually, or they will remain there.



- **Branch Map**

  Click on the center of the “PV Module” icon, the below branch map will pop up. The branch icon turns grey. The inverter unit’s frame shows orange.

If the icon of a branch in an inverter unit turns orange, please find this branch on the site, and proceed as follows to perform troubleshooting and clear the alarm:

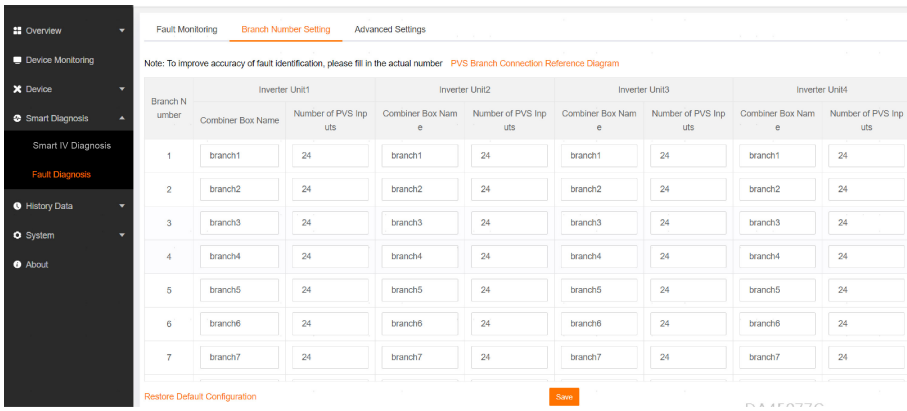
1 Check if the circuit breaker inside the combiner box has tripped. If so, reset the circuit breaker.

2 Check if fuses inside the combiner box are all blown with a multimeter. If so, replace all the blown fuses with new ones.

3 After finishing troubleshooting, go to SCU Web interface and choose **Smart Diagnosis** - **Fault Diagnosis** - **Fault Monitoring**. Click on the trash bin icon in the upper left corner of the "PV module" icon to manually clear the alarm message.

9.2.5 Branch Number Setting

At the first time of grid connection, or in the event of array rearrangement, you can set parameters for each combiner box in each inverter unit on the “Branch Number Setting” page. The page is shown below.

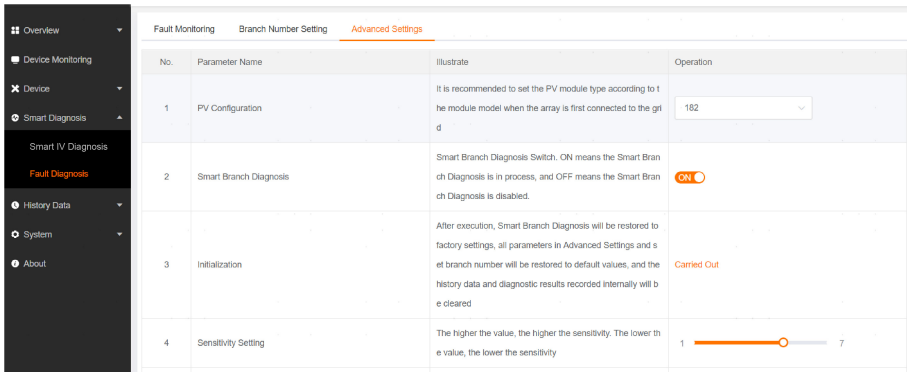


Parameter	Range	Description
Combiner Box Name	1 - 64 bytes (which is, up to 32 Chinese characters or 64 English letters/numbers)	User-definable. Default name: branch1, branch2, branch3...
Number of PVS Inputs	1 - 24; 24 by default	Indicate the number of inputs connected to the combiner box. It is suggested to set this parameter according to the actual situation before the first grid connection.

9.2.6 Advanced Settings

You can set the key parameters of the smart branch diagnosis function on the “Advanced Settings” page, such as “PV Configuration”, “Smart Branch Diagnosis”, “Initialization”, “Sensitivity Setting”, “Alert Information Upload”, and “Restore Default Configuration”.

Default values are available in the system. At the first time of grid connection or in the event of array rearrangement, you may adjust the parameter settings according to the actual situation. The page is shown below.



Parameter descriptions and suggestions on setting are listed in the table below. For other parameters, please refer to the information shown on the page.

Parameter	Description	Range	Suggestions
PV Configuration	Type of PV modules	166, 182, or 210; 182 by default.	It is suggested to set this parameter in line with the actual model of PV modules in the first time of grid connection.
Sensitivity Setting	The greater the value is, the higher the sensitivity gets.	1 - 7. For instance, when the sensitivity is set to “1”, a fault should occur every day for 30 days in a row to trigger an alarm. The correlation between the sensitivity setting and the time required to trigger a fault alarm is shown in the table below.	For plants where the combiner box output current is stable, you can set the sensitivity to a high level. For plants where the output current of the combiner box is prone to fluctuation due to weather or other factors, you can set the sensitivity to a low level, so as to avoid false alarms.

table 9-1 Correlation between the sensitivity setting and the time required to trigger a fault alarm

Sensitivity	Alarm triggered if a fault occurs for N days in a row
1	30
2	20
3	15
4	10
5	5
6	3
7	1

10 History Data

10.1 Operation Log

You can view each user's operation history, for traceback of major events, on the "Operation Log" page.

Log Type

table 10-1 Operation Log

User Type	Operation	Information Recorded
All users	Login and logout	Username and user IP
Super Administrator	All operation logs, including but not limited to: add/delete an user, modify user information, empty users, login management, enable or disable R&D debugging.	Operating type, target object/settings made, and results
O&M/General User	Failed visits/key operations: • User login failed • System upgrade failed • Import/export failed in one-click migration • Certificate import failed	Name and target object of the operation

Procedure

Step 1 Choose ""**History Data→Operation Log**"".

Step 2 View the operation log on this page. Click  in the upper right corner of the page to export a log report.

If the user IP is 11.11.11.XXX, the user logged into the system by adopting local access via WLAN.

- - End

10.2 Status Records

Function Introduction

The history fault, alarm, and prompt information can be viewed on this interface.

Procedure

Step 1 Click ""**History Data→Status History**"" to enter the corresponding interface.

Step 2 Select the start and end time and all historical status is displayed by default.

To view the historical status of a certain type, check the corresponding status column. For example, check fault to view the historical fault information of a corresponding time period.

Step 3 Click  in the upper right corner of the interface to export the historical running information.

- - End

10.3 Parameter log

Function Description

In this interface, you can view the completed parameter setting records of the current account.

Procedure

Step 1 Click""**History Data→Parameter log**""to enter the interface.

Step 2 View the corresponding parameter log information.

Step 3 Click  to export the log of parameter settings.

- - End

10.4 History Curve

Function Introduction

Historical information such as the power of the overall machine, each inverter unit and SCU can be viewed on this interface.

Procedure

Step 1 Click ""**History Data→History Curve**"" to enter the corresponding interface.

Step 2 Select the start and end time to view the measuring point records within the specified time period.

Step 3 Click  in the upper right corner to switch between table or curve display.

Click  in the upper right corner of the interface to export the measuring point log in a table.

- - End

10.5 Syslog

"Syslog" displays user operations and login activities.

Step 1 Choose “**History Data→Syslog**”.

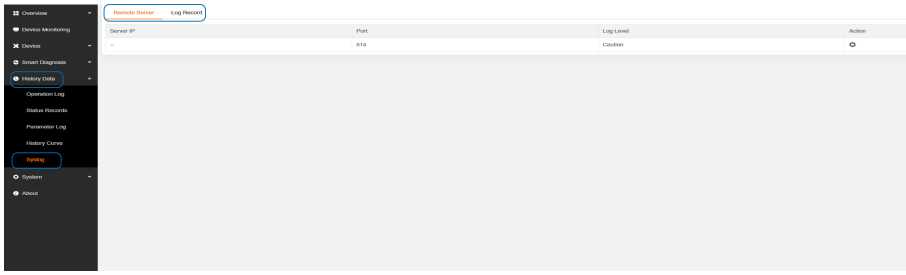


figure 10-1 Syslog

Step 2 Choose **Remote Server**. Click the icon in the “Action” column to configure the remote server for syslog uploads.

Step 3 Choose **Log Record**. Set the start time and end time to view syslog entries within that period.

Step 4 You can click  in the upper right corner of the “Log Record” page to export the syslog.

- - End

11 System

11.1 Run Information

Function Introduction

The communication address, input and output node status, and forwarding configuration information can be viewed on this interface.

Procedure

Step 1 Click ""**System→Run Information**"" to enter the corresponding interface.

Step 2 Select an option as needed:

- Click "**General Information**" to view the running information such as the communication address and CPU utilization.
- Click "**IO Information**" to view the status of each input and output node.
- Click "**Forward Information**" to view the name and current value of the forwarded configuration.

- - End

11.2 System Maintenance

Function Introduction

Perform system upgrade, log export, rebooting, and one-click migration on this interface.

Procedure

Step 1 Click ""**System→System Maintenance**"" to enter the corresponding interface.

Step 2 Select an option as needed:

- Click "**System Upgrade** " and select an upgrade file to upgrade the system.
- Click "**Log Export**" to export the required log.
- Click "**Rebooting**" and select 【Confirm】 in the **Warning** pop-up box to restart the system.
- Click "**One-click Migration**" and select 【Export】 or 【Import】 as needed in the **One-click Migration** pop-up box.

- For exporting, you need to set a password for the zipped file, and export it to your local system.
- For importing, you need to enter the password required for unzipping, and import a local file to the system.

- Click **HTTPS Certificate Import**. In the pop-up, select the .crt certificate file and .key private key file. Once the files are imported successfully, there will be a prompt about whether to restart the system.

Certificate import is available only for the O&M user and the Developer, and is not accessible to the General User.

- - End

11.3 Remote Maintenance

Function Introduction

Remote maintenance can be enabled or disabled on this interface for specific conditions.

Procedure

Step 1 Click ""**System→Remote Maintenance**"" to enter the corresponding interface.

Step 2 Select a menu as needed:

If the remote maintenance is set to 【Disable】, the device cannot be accessed through the public network.

If the remote maintenance is set to 【 Enable】, the device can be accessed through the public network after selecting the server site where the product is used.

Step 3 Click "**Save**" to finish setting the remote maintenance switch.

- - End

11.4 Message Export

Function Introduction

Different types of port message data can be exported on this interface.

Procedure

Step 1 Click ""**System→Message Export**"" to enter the corresponding interface.

Step 2 Select a menu as needed:

Item	Description
Type	• Serial port • Network • CAN Multiple choices
Port	COM1 ~ COM3, COM6 ~ COM9, multiple choices
Duration (min)	Range 1 ~ 10

Step 3 Click "**Start**". The parameter is successfully set and the countdown starts based on the set duration.

Step 4 Click "**Export**" to export the message of the selected ports.

After finishing exporting the message, please export the file before switching the port.

- - End

11.5 System Time

Function Introduction

Here you can choose from different time source options.

Procedure

Step 1 Click""**System→System Time**"".

Step 2 Select based on your actual needs. A total of 7 time source options are available.

Clock source	Description
User Define	• Use PC Time: After the check box is selected, the current PC time can be synchronized with the intelligent communication gateway time. • Time Zone: Select the time zone where the intelligent communication gateway is installed. • Date: Set the system date of the intelligent communication gateway in the format of “YYYY-MM-DD”, that is, year-month-day. • Time: Set the system time of the intelligent communication gateway in the format of “HH: MM: SS”, that is, hour: minute: second.
NTP/NTS	• Time Zone: Select the time zone where the intelligent communication gateway is installed. • Server: NTP/NTS server address. • Time Interval (Min): Time calibration will be performed once at specific time intervals.
IEC104	-
iSolarColud	-
MODBUS	-
B Code	• Time Interval (Min): Time calibration will be performed once at specific time intervals.

- There are certain risks with the NTP protocol as it is not a secure protocol. Before enabling NTP, please make sure the device is running on a secure network.
- Give priority to NTS as it is a secure protocol.
- Only one clock source is effective at a time.

Step 3 Click “Save”, and the setting is finished.

- - End

11.6 Transfer Configuration

In this interface, the collected device data can be forwarded to the remote monitoring system or the local monitoring system.

11.6.1 IEC104

Function Introduction

Transmit the collected data to the monitoring system through IEC104 protocol stack on this interface.

There are certain risks related to this protocol as it is not a secure protocol. Please make sure the device is working on a secure network before enabling it.

Procedure

Step 1 Click ""**System→Transfer Configuration→IEC104**"" to enter the corresponding interface.

- The SCU supports both network security mode and non-security mode. In the network security mode, only port 2418 is encrypted by default. The other ports are not encrypted by default, but users can enable or disable encryption for these ports based on actual needs.
- To use the encrypted port, users need to have it decrypted in the background system using TLS1.2 protocol first.

Step 2 Click  of the local port to configure the general parameters.

Item	Description
ASDU public address configuration	Enable/Disable
Remote signaling measuring point type	Single/Multiple
Uploading interval of remote signaling packet	Range from 100 to 1000.
Remote signaling time mark	Range: • If it is set to "SOE", the remote signaling message contains a time tag. • If it is set to "COS", the remote signaling message does not contain a time tag. • If it is set to "SOE, COS", the intelligent communication gateway will not forward the remote signaling message.
Upload with a change	The system will automatically upload the changes of the intelligent communication gateway parameters.

Step 3 Click  to export IEC104 setting information of the corresponding port.

Click 【Generate Point Table】 to generate IEC104 point table information.

Click 【Export Point Table】 to export IEC104 point table information.

Click 【White List Setting】 to set the peer IP.

NOTICE

If the white list is set to "0.0.0.0", the background device with any legal IP address can access the intelligent communication gateway.

If the background IP is set to a specific address, the intelligent communication gateway can only be accessed by this address.

- - End

Follow-up Operations

After finishing setting the parameters, restart the device for the configuration to take effect.

11.6.2 MODBUS

Function Introduction

Transmit the collected data to the monitoring system through MODBUS-TCP protocol on this interface.

There are certain risks related to this protocol as it is not a secure protocol. Please make sure the device is working on a secure network before enabling it.

Procedure

Step 1 Click ""**System→Transfer Configuration→MODBUS**"" to enter the corresponding interface.

- The SCU supports both network security mode and non-security mode. In the network security mode, only port 516 is encrypted by default. The other ports are not encrypted by default, but users can enable or disable encryption for these ports based on actual needs.
- To use the encrypted port, users need to have it decrypted in the background system using TLS1.2 protocol first.

Step 2 Click **SERVER** tab to view the white list information of each port.

Click 【White List Setting】 to modify it if necessary.

If the white list is set to "0.0.0.0", the background device with any legal IP address can access the intelligent communication gateway.

If the background IP is set to a specific address, the intelligent communication gateway can only be accessed by this address.

Step 3 Click **RTU** tab to view the delay time of the serial port.

Step 4 Tap 【Save】 after configuration.

- - End

Follow-up Operations

After finishing setting the parameters, restart the device for the configuration to take effect.

11.6.3 GOOSE

Function Introduction

Select whether to enable the Goose function on this interface.

There are certain risks related to this protocol as it is not a secure protocol. Please make sure the device is working on a secure network before enabling it.

Procedure

Step 1 Click ""**System→Transfer Configuration→GOOSE**"" to enter the corresponding interface.

Step 2 Select to 【Disable】 or 【enable】 this function.

- If it is set to 【Disable】, GOOSE port is not available.
- If it is set to 【Enable】, GOOSE port is available.
  - Select Configuration File Import to import GOOSE files into the system.
  - Select Configuration File Export to export GOOSE files to local.

- - End

Follow-up Operations

After finishing setting the parameters, restart the device for the configuration to take effect.

11.7 Template Management

Function Description

It is convenient to save, transfer and apply a configuration combination to realize the same configuration operation on multiple devices.

This operation is only performed by SUNGROW.

11.8 File Management

Function Introduction

The point table files can be imported or exported on this interface.

Step 1 Click ""**System→File Management**"" to enter the corresponding interface.

Step 2 Click  to export the point table file.

Click  to import the point table file.

- - End

11.9 Port Parameter

11.9.1 RS485

Function Introduction

Set the serial port parameters of the intelligent communication gateway, such as parameters of the COM port, including port function, baud rate, check bit and stop bit, etc.

Procedure

Step 1 Click "**SystemPort Parameter RS485**" to enter the corresponding interface.

Step 2 Set the parameters as needed.

The intelligent communication gateway is designed with 7 COM ports, which are numbered COM1 to COM3 and COM6 to COM9.

- The port function must be set to "Collection" if the serial port of the intelligent communication gateway is connected to a PV device.
- The total number of serial ports configured as "Forwarding background" should not exceed 2. COM3 is recommended as forwarding serial ports.

- - End

Port Function Modification

Switch the serial port function from "Collection" to "Forwarding background" as follows.

1 Click "**System→Port Parameters→RS485**", select the port to switch, click 【Operation】 to switch the port function from **Collection** to **Forwarding background**, and click 【Save】.

If a device is connected to the serial port, click "**Device Maintenance→Device List**" to delete the device.

2 Click “**System→Transfer Configuration→MOBUS→RTU**” after switching. Select the COM port that has been switched to forwarding background and click  .

3 If it prompts that the operation is successful, connect the serial port cable to the selected COM port for communication.

Set the baud rate, check bit, and stop bit to the same values of those on the “**System→Port Parameters→RS485**” interface when establishing the communication.

4 When switching serial ports in the same forwarding channel, stop the communication device from sending data first, then select the serial port to switch for saving data,and then connect the communication device to the switched COM port for sending and receiving data.

Follow-up Operations

After finishing setting the parameters, restart the device for the configuration to take effect.

11.9.2 EyeW485

Function Introduction

Configure EyeW485 on this interface.

Preparation

The EyeW485 can only be configured after the wireless 485 is enabled.

1 Click “**SystemPort Parameter RS485**” to enter the corresponding interface.

2 Select the serial port connected with the W485 master node (select it according to the actual wiring), enable EyeW485 connection, and click 【Save】. It would prompt that the operation is successful.

NOTICE

The baud rate will be automatically modified to 115200. Please do not modify it, otherwise, the transmission efficiency may be affected.

EyeW485 cannot be enabled if forwarding background is selected.

W485 can be enabled for only one port at a time.

11.9.2.1 EyeW485-H Configuration

Function Introduction

Configure EyeW485-H on this interface.

Procedure

Step 1 Click “**SystemPort Parameter EyeW485**” to enter the corresponding interface.

Step 2 Click “EyeW485-H” to view the frequency point and array number of the master node.

- Scan and set 【Frequency】 as needed:
- Click the drop-down list of 【Array】 to select the array number according to actual needs.
- Set the power, which ranges from 10 to 20, according to actual needs.

Step 3 After the setting is completed, click 【Settings】 or 【Configuration Synchronization】 for the newly set power to take effect.

- - End

Follow-up Operations

After finishing setting the parameters, restart the device for the configuration to take effect.

11.9.2.2 EyeW485 Configuration

Function Introduction

The slave node will be refreshed if the EyeW485 interface is clicked open for the first time. The slave node information can also be refreshed by clicking the refresh button.

Step 1 Click “**SystemPort Parameter EyeW485**” to enter the corresponding interface.

Step 2 Click “EyeW485” and refresh the slave node information.

Step 3 After the slave node information is refreshed and displayed, click 【Operation】 to set the specified slave node.

- - End

Follow-up Operations

After finishing setting the parameters, restart the device for the configuration to take effect.

11.9.2.3 Operation Instructions

Function Introduction

Restart, upgrade, and switch between the EyeW485-H and EyeW485, as well as restore factory settings of the EyeW485-H and EyeW485 on this interface.

Procedure

Step 1 Click “**SystemPort Parameter EyeW485**” to enter the corresponding interface.

Step 2 Click “Operation Instructions”.

- Select 【One-touch Switch】, and the master and slave nodes will start networking using the optimal frequency points among the randomly allocated ones.
- Select 【System Update EyeW485-H only】 to restart the master node.
- Select 【 Reset All Settings】 to restore the factory settings of the master node.
- Select 【Rebooting EyeW485-H, EyeW485】 to restart the master and slave nodes.
- Select 【Log Export】, and interface will be locked and start exporting the log.
- Select 【System Upgrade EyeW485-H only】, select the obtained local upgrade package, and click 【Upgrade】. It will go to the homepage that has been refreshed after the successful upgrade.

- - End

Follow-up Operations

After finishing setting the parameters, restart the device for the configuration to take effect.

11.9.3 Ethernet

Function Description

This function is used for the network port parameters of the SCU.

Procedure

Step 1 Click“”**System→Port Parameter→Ethernet**””to enter the interface.

Step 2 Click  to save the settings.

- - End

The default IP address of the NET1 port is12.12.12.12.

The default IP address of the NET2 port is 14.14.14.14.

11.9.4 WLAN

Function Introduction

The WLAN parameters of the intelligent communication gateway can be configured on this interface.

In Network Safety Mode, WLAN is turned off by default. Please make sure the device is working on a secure network before enabling it.

Procedure

Step 1 Click “**SystemPort ParameterWLAN**” to enter the corresponding interface.

Step 2 Set the parameters as needed:

Item	Description
AP hotspot enable switch	【Disable】 or 【Enable】 the hotspot. In Network Safety Mode, it is turned off by default.
SSID	Set the hotspot name.
Security	Set to 【None】 or 【WAP2】.
Password	8-32 characters.

WLAN connection shall be established again if the WLAN password is modified.

- - End

11.9.5 AI

Function Introduction

Port parameters of the dry contact AI can be set on this interface.

Procedure

Step 1 Click "**SystemPort ParameterAI**" to enter the corresponding interface

Step 2 Set the parameters as needed.

Step 3 Click , and the setting is finished.

- - End

11.9.6 DI

Function Introduction

Port parameters of the dry contact DI can be set on this interface.

Procedure

Step 1 Click "**SystemPort ParameterDI**" to enter the corresponding interface

Step 2 Set the parameters as needed.

Step 3 Click , and the setting is finished.

- - End

11.10 MPLC

When DC MPLC configuration is required, you need to perform the corresponding operation under this window.

For specific configuration of DC MPLC communication, please refer to theInstructions for DC MPLC Communication Configuration。

11.11 Certificate Management

"Certificate Management" allows users to import HTTPS, IEC104, Modbus TCP, and NTS certificate files into the system and view the certificate information.

Step 1 Choose "**System→Certificate Management**". Four types of certificate are available here: HTTPS, IEC104, Modbus TCP, and NTS.

Step 2 To import an HTTPS certificate, for example, click **Import Certificate** on the **HTTPS Certificate** tab. Then, in the pop-up window, select the .crt certificate file and the .key private key file to upload them to the system. A prompt will appear asking whether to restart the system once the files have been successfully imported.

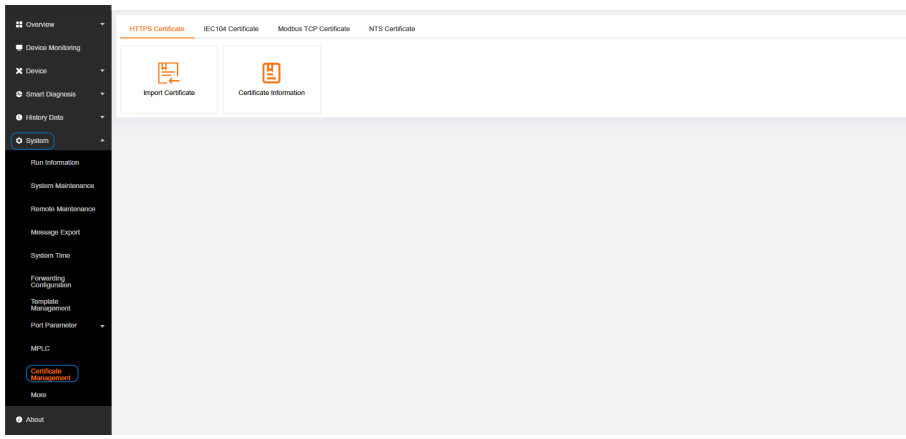


figure 11-1 Certificate Management

- - End

12 User Management

The administrator can assign different accounts and permissions to different users, which thus boosts the system's security, improves operation efficiency for users, and lowers management costs.

table 12-1 User type

User type	Permissions
Super Administrator	Add/delete a user, modify user information, empty users, login management, enable or disable R&D debugging.
O&M user	Operations mentioned in this manual.
General user	Granted access to monitoring and general settings. For instance, **Overview**, **Device Monitoring**, and some of the **History Data**.

If a General User sees a message reading “The account has been logged in elsewhere” when attempting to log into the system, it indicates an O&M User or a Developer account has been logged in somewhere else. In this case, the other users need to log out first.

table 12-2 Default User Type

User type	Username	Password
Super Administrator	administrator	Please contact Sungrow.
General user	user	pw8888
O&M user	maintain	Please contact Sungrow.

Super Administrator

- User Management
  - The Super Administrator can assign up to 5 user accounts.
  - Only one user is allowed to log in at the same time.
  - When adding a user, the user name should not be longer than 16 characters. The password should be 12-32 character long and contain at least three of the following three character types: uppercase letters, lowercase letters, numbers.

- If the Network Safety Mode is not turned on, the passwords of all users are permanently valid.
- Under Network Safety Mode, the Super Administrator can set passwords to expire after a number of days between 1 and 90 for different types of users. The password age is rounded up to the nearest integer. For example, if it shows the password age is 3 days, the remaining days until password expiration are actually 2-3 days.

- Login Management

table 12-3 Login Management Settings

Parameter	Default value	Range	Remark
Number of Illegal Visits	5	5–20	Users will be verified for illegal visits when logging in. The session will be terminated if the number of illegal visits exceeds the preset value.
Login Time-out Time	10 minutes	10-30 minutes	If the user does not take any actions within the preset time period after logging in, there will be a prompt about session timeout, and the user will go back to the login page.
User Lock Time	10 minutes	1–60 minutes	The period of time during which the user remains locked out for illegal visits.

13 About

View the device serial number and firmware version information of the SCU through this interface.

14 Appendix

14.1 Copyright

14.2 Contact Information

Should you have any technical question about this software, please contact us:
HQ Tel: 0551 - 6532 7878 / 0551 - 6532 7877
For more contact information, see **https://www.sungrowpower.com/headquarter.html**.