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# User Manual

## Instructions for DC PLC Communication Configuration

SG1100UD Series

# Contents

# 1 About This Manual

After confirming that the wiring on site has been completed correctly, you may proceed with the DC PLC communication configuration for initial grid-connection operations by following the steps specified in this manual.

## 1.1 Target Group

This manual is intended for:

- O&M personnel
- System administrators
- On-site technical support team

## 1.2 Validity

This manual applies to the following products:
SG1100UD series

## 1.3 How to Use This Manual

Read through this manual and other related documents carefully before configuring the DC PLC communication for initial grid-connection operations.
The manual may be updated and revised from time to time, however, there still might be slight deviations from the real product or errors. In such cases, the actual product you have purchased should take precedence.


## 1.4 Notice

Due to the continuous improvement of the software, the software you use may deviate from the description or examples provided in this manual, regarding the interface or function. In this case, the most up-to-date version of software prevails. Please contact SUNGROW if you have any questions when using the software.

## 1.5 Symbols in the Manual

Symbols that may appear in this manual are listed below. Please read carefully for better use of this manual.

**DANGER**

**"DANGER" indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.**

**NOTICE**

**“NOTICE” indicates a potential hazard which, if not avoided, will result in device malfunction or property damage.**

NOTE indicates supplementary information, emphasis on specific points, or tips related to the use of the product that might help to solve your problems or save your time.

# 2 Operation Procedure

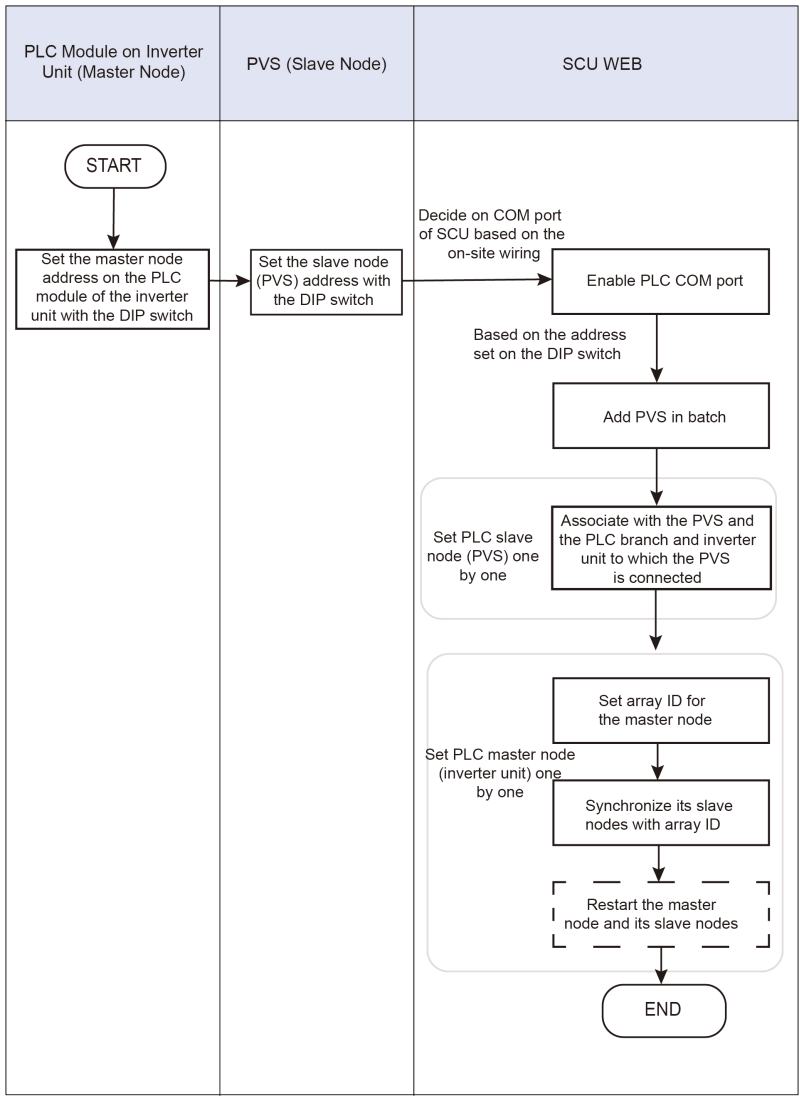



**figure 2-1** Operation Flow Chart

# 3 Communication Address Setting

To enable DC PLC communication, you need to set the communication addresses of the inverter units and PVS (combiner boxes) separately.

## 3.1 Communication Topology

The typology diagram of communication among the PVS, inverter unit, and smart communication unit (SCU) is as shown in the figure below, with SG4400UD as an example.

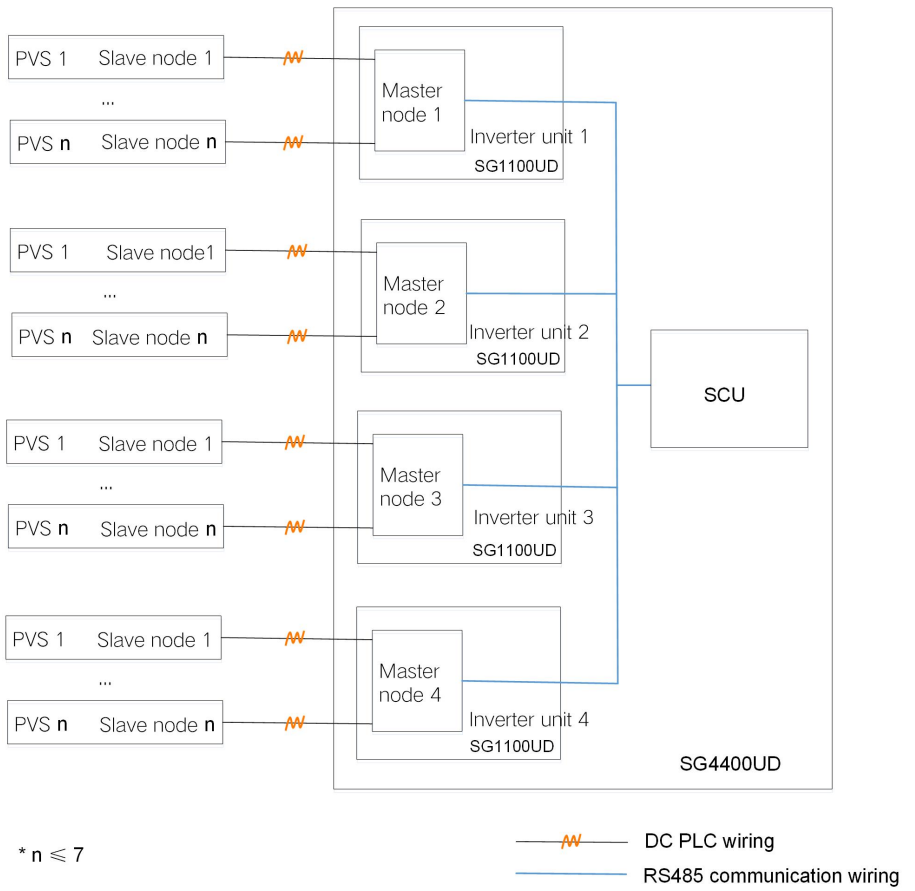



**figure 3-1** Topology Diagram of Device Communication

## 3.2 Set PLC Master Node Address on DIP Switch

Each inverter unit has a PLC master node module. Therefore, you need to set the PLC master node address on each inverter unit separately.

**Step 1** Open the cabinet door on the DC side of the inverter unit. The PLC master node module is set on the cabinet door, as shown in the picture below.

**Step 2** Set the DIP value for the PLC master node module of the inverter unit.

PLC master node address = 232 + DIP value. The DIP value is set using the DIP switch below. Switches 1–4 on the DIP switch are in "0" by default. You can flip up the switch to turn it to "1".

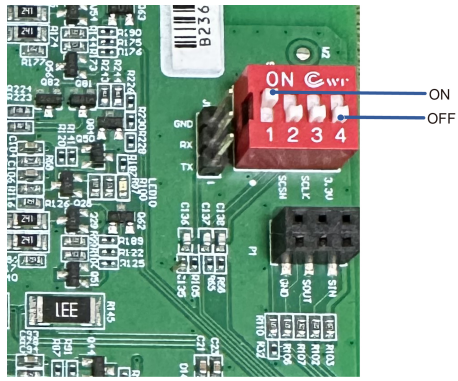



table 3-1 Master Node Address Description

| Switch 1 | Switch 2 | Switch 3 | Master Node Address |
|---|---|---|---|
| 0 | 0 | 0 | 232 (invalid address *) |
| 0 | 0 | 1 | 233 |
| 0 | 1 | 0 | 234 |
| 0 | 1 | 1 | 235 |
| 1 | 0 | 0 | 236 |
| 1 | 0 | 1 | 237 |
| 1 | 1 | 0 | 238 |
| 1 | 1 | 1 | 239 |

* The address of the PLC master node module cannot be set to 232, which is an invalid address.

- Switch 4 is currently not in use and thus requires no operation.
- When setting, please note that the DIP addresses of inverter units in the same inverter should be different from each other.

**Step 3** Unplug the power supply cable of the PLC master node module. Then, connect it again to restart the master node module.

**- - End**

The communication address setting for the PLC master node module is now completed.

## 3.3 Set PVS Address on DIP Switch

You can set and view the PVS communication parameters on the PVS monitoring board.

**Step 1** Disassemble the PVS and find the monitoring board. The board has a PVS backplane and a DC PLC slave board, as shown in the picture below.

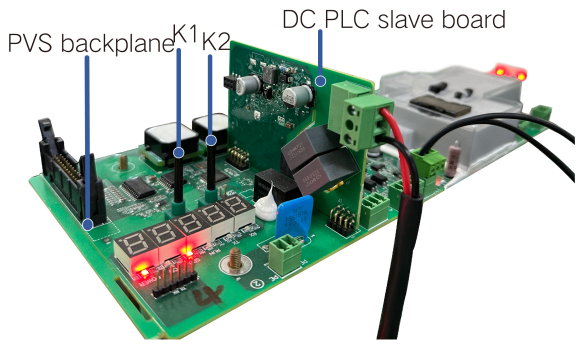



**figure 3-2** Monitoring Board

*The picture is for reference only and the product on the site may differ.

**Step 2** Press and hold the push-button switch K1 for over 3 seconds until the digital tube shows "**A:001**". When the last three digits on the tube are blinking, you may start setting the communication address.

**Step 3** At this time, you can set the communication address by pressing the K1 and K2 buttons, with K1 as "+" and K1 as "-". The PVS communication address ranges from 1 to 231.

**Step 4** After finishing the setting, press K1 and K2 at the same time until the whole digital tube goes off. The address setting will then be saved successfully.

Communication addresses of PVS in the same array should not be the same.

**- - End**

The setting of PVS communication address is now completed.

# 4 Operation on WEB

## 4.1 Preparation Before Login

You can visit the SCU WEB system on the PC or the mobile device.

### 4.1.1 Login (PC)

**Step 1** Connect the PC to the commissioning network port on the SCU with a network cable.

**Step 2** Configure the IP address of the PC. Set the IP address of the PC to the same network segment as the NET address of the smart unit board.

Default IP address of NET1 port: 12.12.12.12

Default IP address of NET2 port: 14.14.14.14

**- - End**

### 4.1.2 Login (Mobile)

**Step 1** Turn on WLAN on your mobile device (such as a mobile phone). Search for the WLAN network, e. g., SG-xxx ("xxx" represents the device S/N), and enter the default password **ESPWifi@123**.

**Step 2** Open a browser on your mobile phone, and enter the address (11.11.11.1) or domain (sungrow.net) in the address bar to go to the WEB system.

**- - End**

## 4.2 Login Steps

**Step 1** Enter the server address, and you will go to the home page as a visitor by default.

PC:

- For NET1 port (PC and intelligent communication gateway): 12.12.12.12
- For NET2 port (PC and intelligent communication gateway): 14.14.14.14

Mobile device:

11.11.11.1

**Step 2** Click  at the top right of the page, and select a preferred language.

**Step 3** Click  to go to the login page.

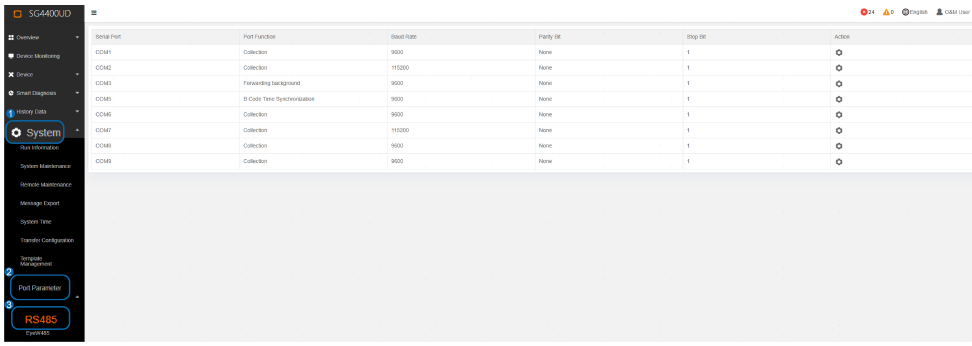
**Step 4** Enter the password “pw1111” and click **Login** to log into the system as an O&M user.

> Please change the password in time at your first login to ensure your account safety.

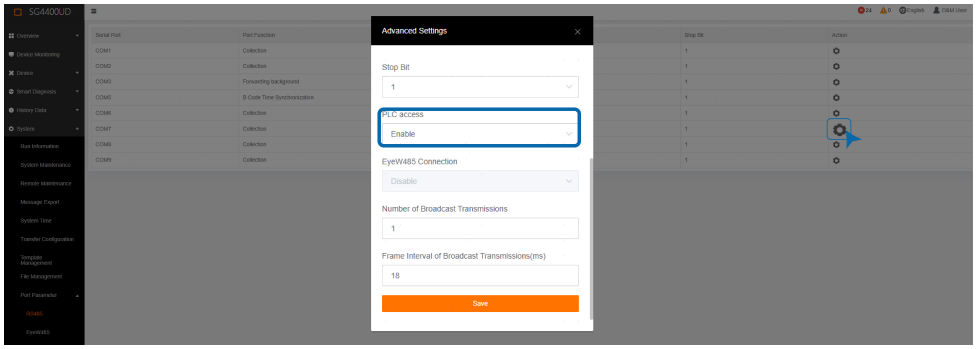
**- - End**

## 4.3 Enable PLC Master Node

**Step 1** On the WEB system, choose “**System→Port Parameter→RS485**”, as shown in the figure below.




**Step 2** Select the corresponding COM port based on the on-site wiring. Click , and set “PLC access” to “**Enable**”. Then, click “**Save**”.




**- - End**

## 4.4 Add Device

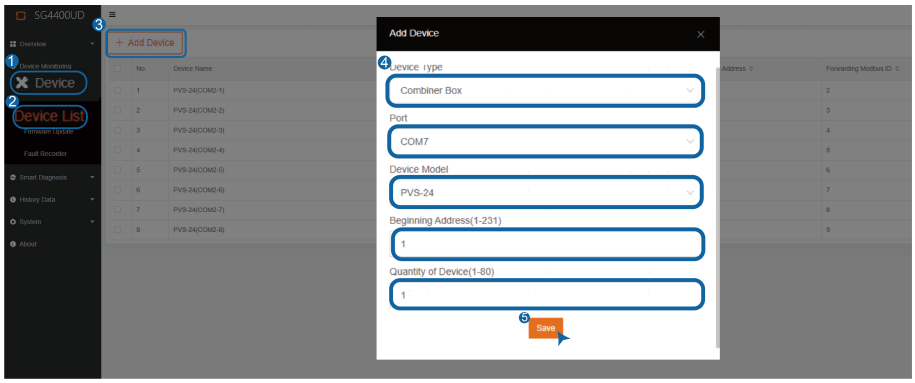
Configure the topological relationship between the inverter unit and the PVS, based on the actual connection between the slave node of the PVS and the master node of the inverter unit.

**Step 1** Add a PVS.

Choose “**Device Maintenance→Device list**”, and click “**Add Device**”. Then, in the pop-up dialog, as shown below, complete the parameter settings.

table 4-1 Add Device

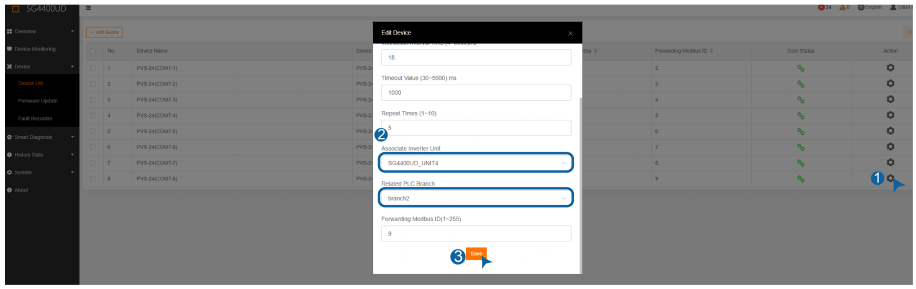
| Add Device | Device Parameters |
|---|---|
| Device Type | Select “**Combiner Box**”. |
| Port | Select the port for PLC access. See "4.3 Enable PLC Master Node". |
| Device Model | Set based on the model of the PVS actually used on site. It is generally set to “**PVS-24**”. |
| Beginning Address | Set it to the PVS communication address. See "3.3 Set PVS Address on DIP Switch". |
| Quantity of Device | Set it to the number of consecutively-numbered PVS devices connected to this port.<br>For example, if PVS 6–9, a total of four PVS, are connected to this port, the quantity of device should be set to 4. If PVS 6 and PVS 9 are connected to this port, you will need to add them one by one separately; each time you add a PVS, set the quantity of device to 1. |



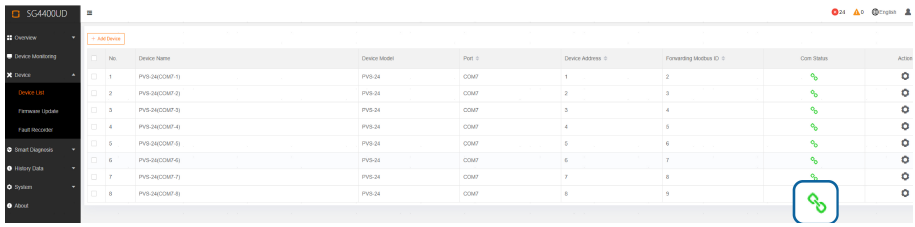
**Step 2** Configure the topological relationship between the master node and slave node.

Click ⚙ on the right, and enter the device information based on the actual connection between the slave node and master node.

For example, if a PVS slave node is connected to the Branch 2 port of the PLC master node of inverter unit #4, set the parameters according to the figure below.




**Step 3** Wait for the device to come online. If a green link icon shows in the communication status column, the device is online.



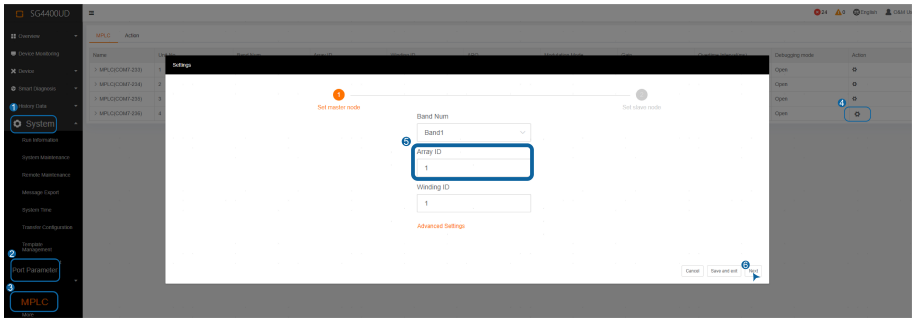

**- - End**

## 4.5 Set Array ID for Master/Slave Node

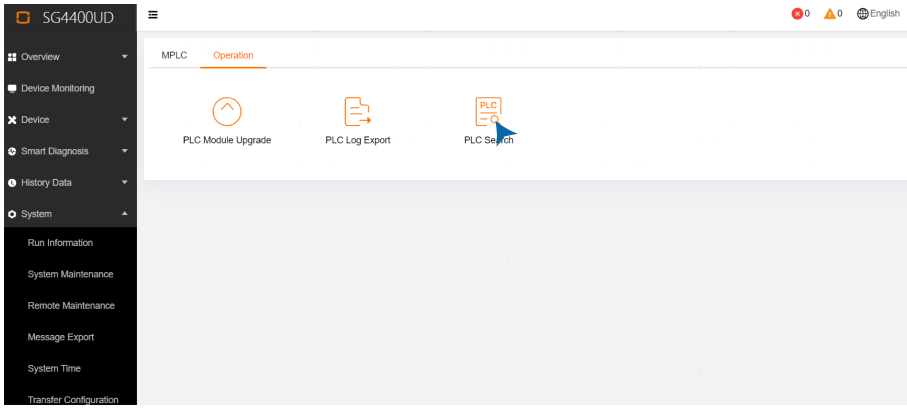
There is not a complete one-to-one match between the array ID set on the WEB system and the device. The array ID corresponds to the SCU instead. If the device has more than one SCU, you will need to set more than one array ID on the WEB system for this device.

**Step 1** Set the master node.

Choose "**System→Port Parameter→MPLC**". Select the master node, and click . Then, based on the on-site arrangement, enter the array ID in the pop-up dialog, and click "**Next**".

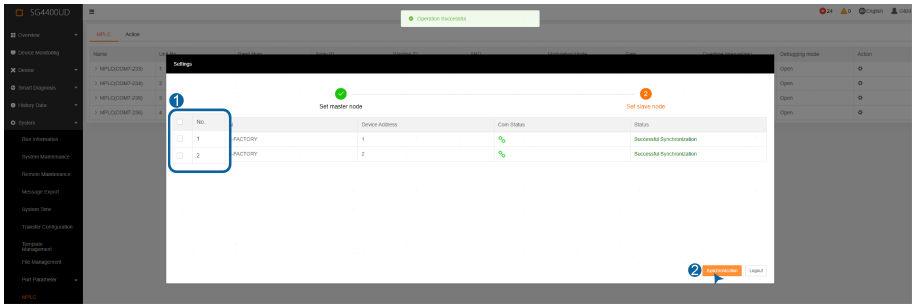



If the device information is not shown on this page, choose "**Action→PLC Search**" to search for the device again, as shown in the figure below.




**Step 2** Set the slave nodes.

Select all the slave nodes under the master node, and click "**Synchronization**". If a success message shows up, the array ID of slave nodes is set successfully.

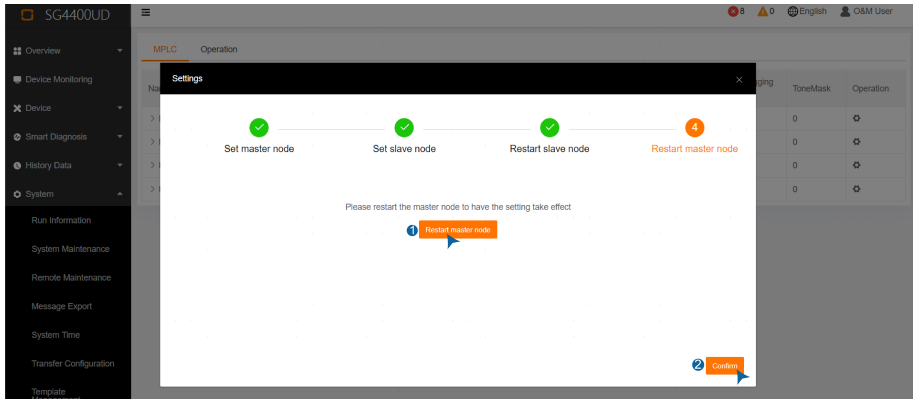



Up to 7 slave nodes can be connected to one PLC master node.

**Step 3** Set the array ID for each master node and its slave nodes in the proper order one by one.

**Step 4** Considering the difference in version, for some versions, the master and slave nodes need to be restarted so that the settings can take effect.

Restart the slave node first. Select all slave nodes under the master node, and click "**Restart slave node**". After the success message shows, click "**Next**" to restart the master node. Again, after the success message shows up, click "**Confirm**".




If the communication quality is poor, the node setting may fail. In this case, you need to repeat the above steps, until you see a success message.

**- - End**

The DC PLC communication configuration is now completed.

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