Zero-export Commissioning Guide

1. Integrated Meter selection

To carry out Zero-export, a meter is necessary to monitor consumption and to relay this data to the Smart Communication Box, calculate the private consumption and the current power generated of the plant then control the power output.

The parameters of the Meter listed in the following table have been integrated in the SUNGROW Logger1000. Please find the specific models in the following table, which are subject to change without notice.

Integrated Meter stations with Logger1000:

No.	Brand	Model
1	SFERE	PD194EZ
2	Acrel	DTSD1352 DLT645-07 PZ96-E3
3	Janitza	UMG604 UMG104
4	Weidmuller	EM610

Table 1-1 Integrated list

2. Commissioning Guide

2.1. Limitations

The Meter that needs to be connected to Logger1000 must support RS485 or Ethernet. Before starting work, please make sure that Meter is properly connected to the power supply and connected to the Logger1000.

2.2. Connect the Meter

RS485 Connection:

The following figure shows the connection between the Logger1000 and the meter via RS485.

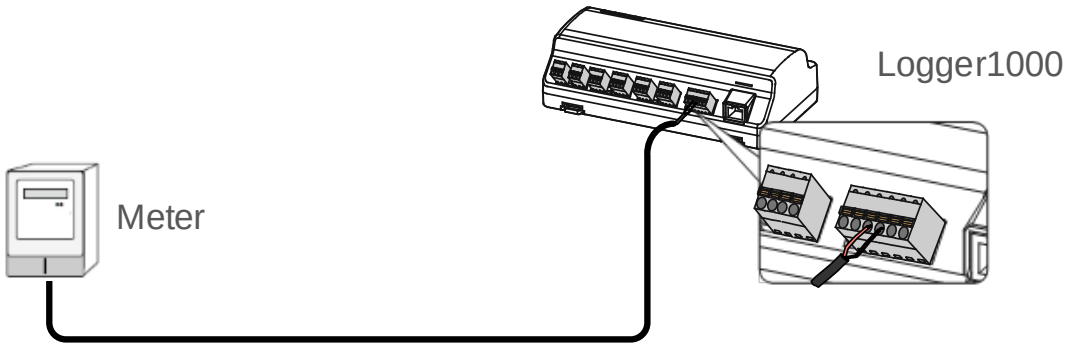


Figure 2-1 RS485 Connection

Connect the communication cable led from the Meter to the RS485 port of the Logger1000. If multiple inverters are connected to the Logger1000 together with the Meter, the Meter should be connected on the end of the daisy chain.

Note: If a meter is connected to a logger by means of RS485 bus, the inverter and the meter are not connected to the same COM port, and the meter is separately connected to a COM port.

NET Connection:

Step 1: Connect NET meter and logger by Ethernet cable by one of the following two methods.

Method 1: Connect the meter and logger by network cable directly;

Method 2: Forward by router: Connect the meter to a switch by network cable at first, and

then use a network cable to connect the logger to the router, too.

Step 2: Log in the WEB page of the Logger and add a meter device.

The following figure shows the connection between the Logger1000 and the Meter via NET.

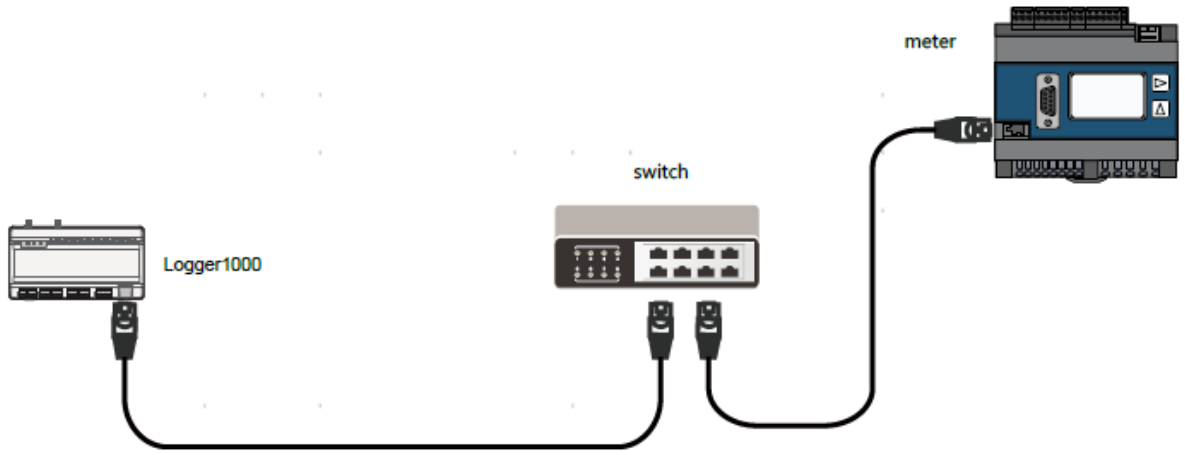


Figure 2-2 NET Connection

2.3. Logger1000 Login

WLAN Login:

Step 1: Open the WLAN network settings of the PC/Pad/Mobile phone, search the WLAN network "SG-XXXXX" of the Logger1000 and connect.

Step 2: Enter the IP address 11.11.11.1 of the Logger1000 in the browser to enter the general user login interface.

Step 3: Click the button "Login" in the upper right corner, enter the default password "pw1111", and click "Login", to enter the O&M user interface.

Ethernet Login:

Step 1: Connect the Logger1000 to PC via ethernet cable.

Step 2: Setting the PC IP address and subnet mask, let PC and Logger1000 in the same LAN network. The Logger1000 ethernet default IP address and subnet mask are 12.12.12.12, 255.255.255.0. The PC IP address and subnet mask can set 12.12.12.XXX, 255.255.255.0.

Step 3: Enter the IP address 12.12.12.12 of the Logger1000 in the browser to enter the general user login interface.

Step 4: Click the button “Login” in the upper right corner, enter the default password “pw1111”, and click “Login”, to enter the O&M user interface.

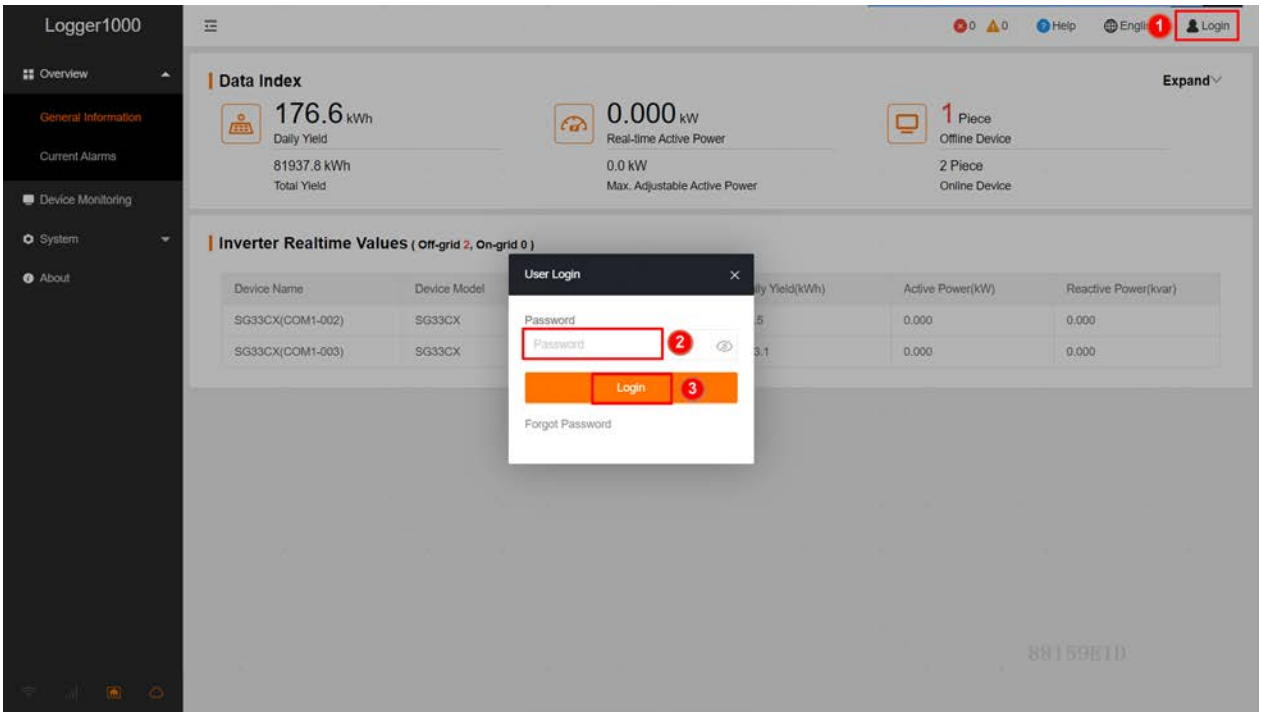


Figure 2-3 Login

2.4. Add Meter

2.4.1. RS485 type Meter

Add the Meter:

Step 1: Click “Device” -> “Device List” -> “Add Device” to enter the corresponding interface.

Step 2: In the pop-up window, select “Meter” in the “Device Type”.

Step 3: Select the corresponding Logger1000 COM “Port” which connect the Meter

Step 4: Select the corresponding meter model in the “Device Model”.

Step 5: Enter the value of “Beginning Address” and the “Device Quantity”, then click “Save”.

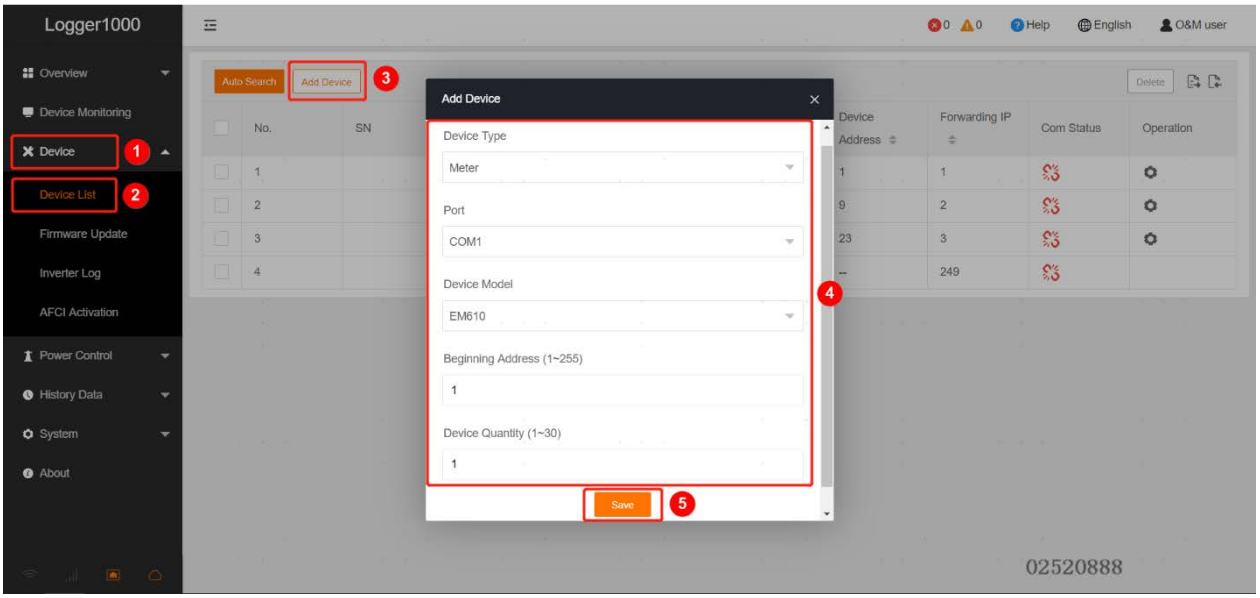


Figure 2-4 Add the RS485 type Meter

Note:

The Modbus ID addresses of the devices connected in the same COM port of Logger1000 cannot be repeated.

2.4.2. NET type Meter

Add the Meter:

Step 1: Click “Device” -> “Device List” -> “Add Device” to enter the corresponding interface.

Step 2: In the pop-up window, select “Meter” in the “Device Type”.

Step 3: Select “NET” in the “Port”, select “MODBUS-TCP” in the “Protocol type”, enter the IP address of the meter in the “Peer IP Address” (according to the actual IP), and enter 502 in the “Peer Port (1-65535)”.

Step 4: Select the corresponding meter model in the “Device Model”.

Step 5: Enter the value of “Beginning Address” and the “Device Quantity”, then click “Save”.

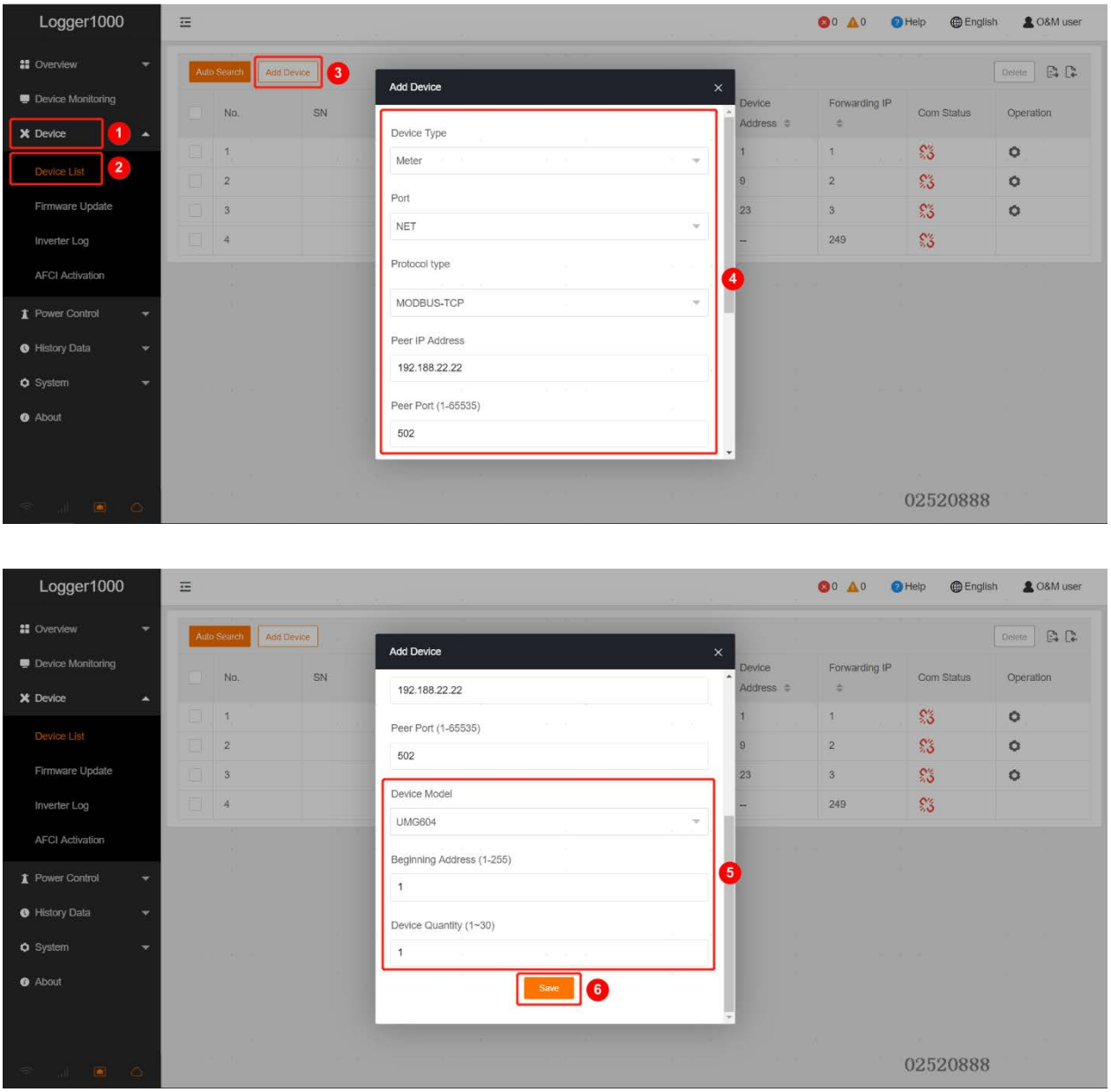


Figure 2-5 Add the NET type Meter

2.4.3. Com Status

Click on Save to enter the following interface. If the hardware connection is correct, a period of time after the meter is powered on, we can see “Com Status” turns green from red. It means communication is successful.

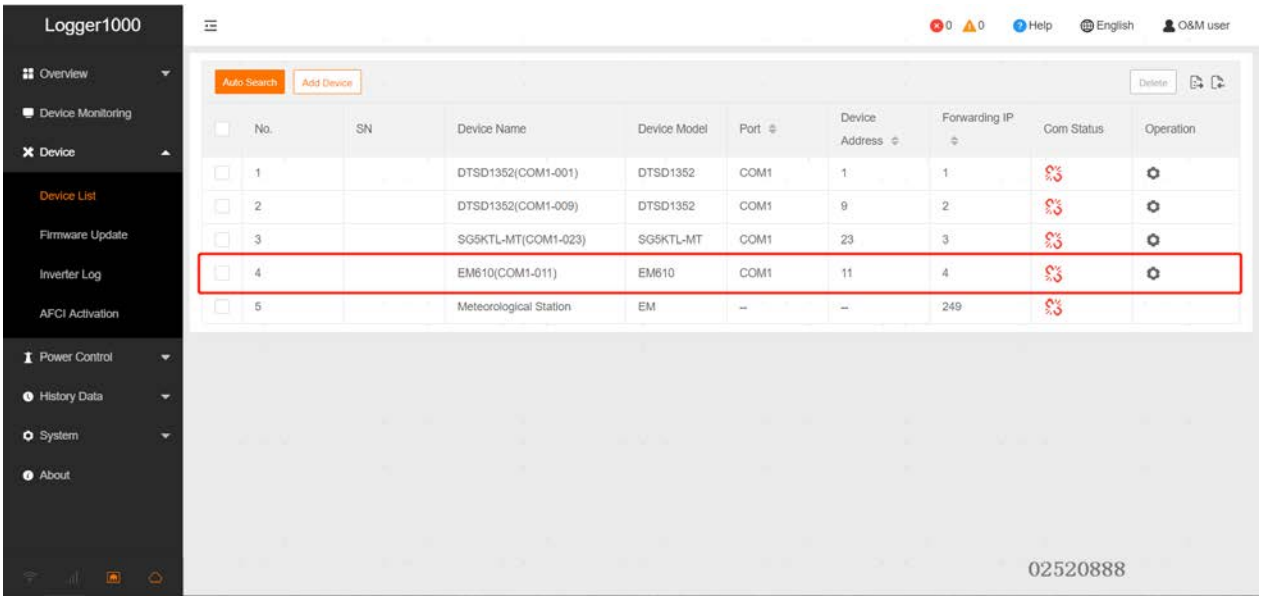


Figure 2-6 Com Status

In general, the meter acquires the current at the grid-connection point via CT. If CT connection is correct, when the power generated by an inverter is transmitted to the grid, feed-in power can be viewed on the Device Monitoring interface of the web. If feed-in power is a negative value, it means the connection between CT and the meter is correct; if it is a positive value, it means the wires are reversely connected.

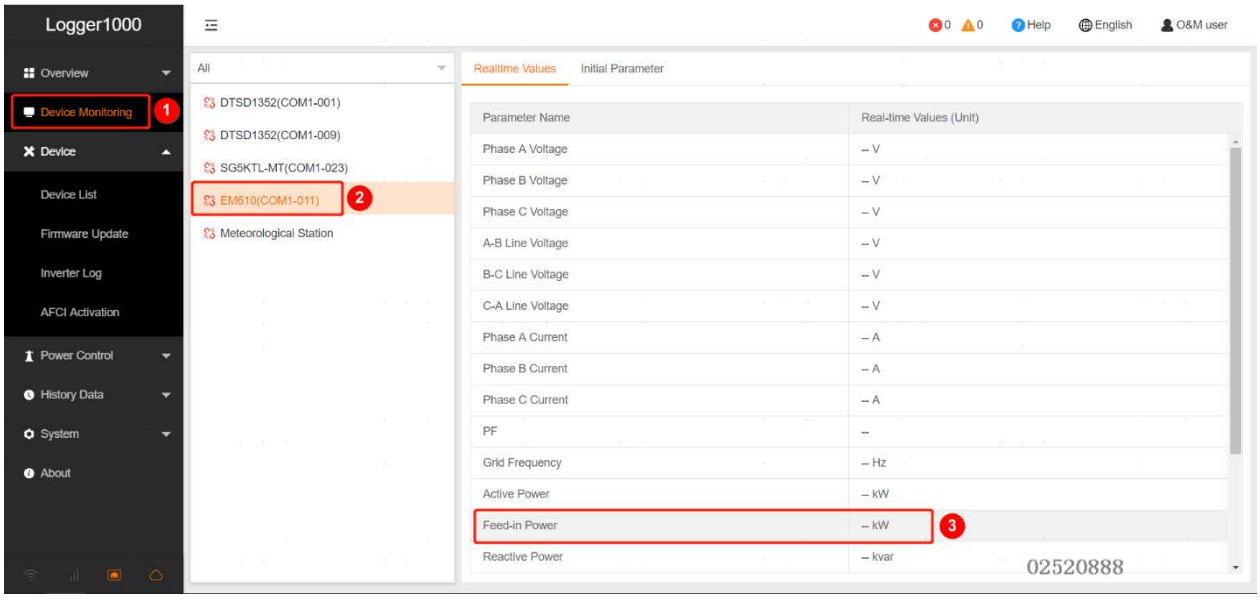


Figure 2-7 Connection Status

2.5. Add Inverter

2.5.1. Auto Search

Step 1: Click “Device” -> “Device List” -> “Auto Search” to enter the corresponding interface.

Step 2: In the pop-up window, select “All” in the “Port” and click “Search”.

Step 3: Select the corresponding Inverter, then click “Save”.

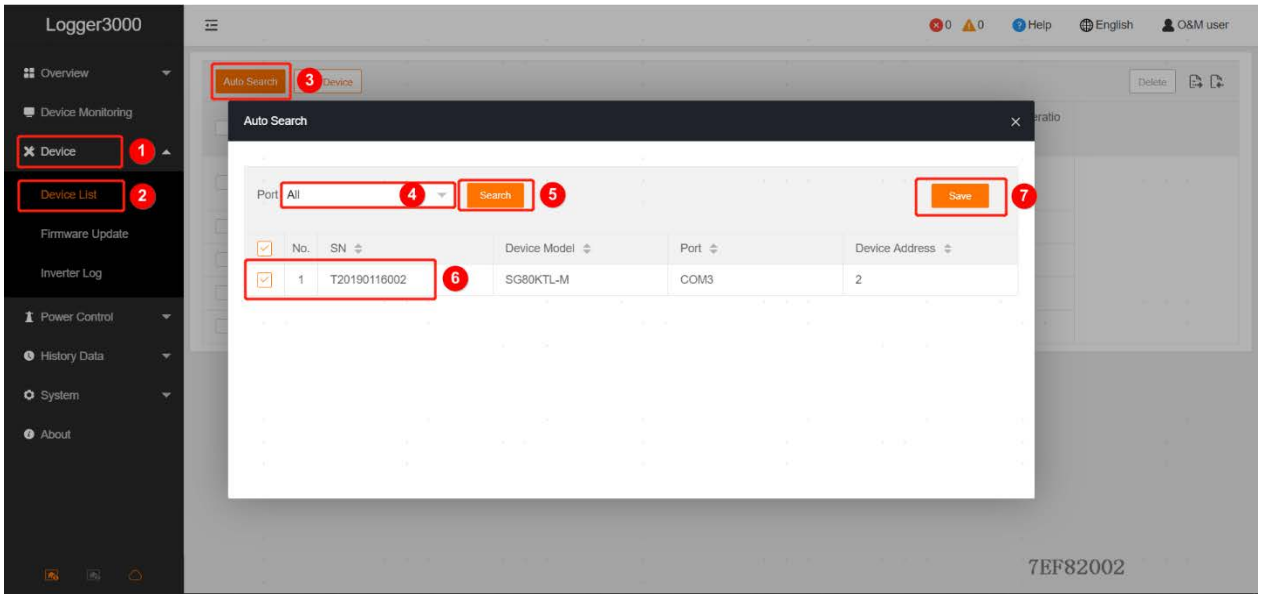


Figure 2-8 Add Inverter (Auto Search)

Note:

Auto search mode for device addition currently only supports the inverter devices self-developed by Sungrow Power Supply Co., Ltd. (Please refer to relevant document for the specific supported models).

2.5.2. Manual Addition

Step 1: Click “Device” -> “Device List” -> “Add Device” to enter the corresponding interface.

Step 2: In the pop-up window, Select the corresponding Inverter type in the “Device Type”.

Step 3: Select the corresponding Logger1000 COM “Port” which connect the Inverter.

Step 4: select the corresponding Inverter in the “Device Model”.

Step 5: Enter the value of “Beginning Address” and the “Device Quantity”, then click “Save”.

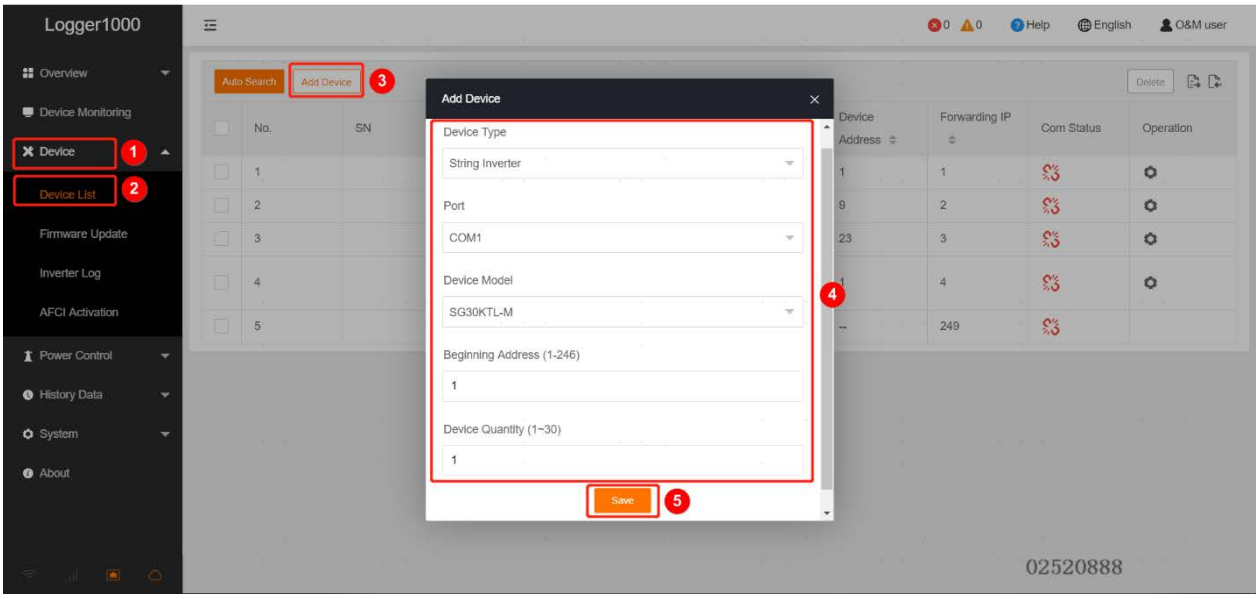


Figure 2-9 Add Inverter (Manual Addition)

Note:

To add a device manually, the model, beginning address and other relevant information of the device to be added need to be confirmed (such information is shown in the user manual of inverter).

2.6. Add Slave Loggers

Background:

Industrial and commercial roof plant (including multiple workshops or roofs). One logger (this logger serves as a slave logger) can access one workshop or roof only. Now one logger as a master logger needs to be added at the grid-connection point to collect data of the slave loggers.

Step 1: Click “Device” -> “Device List” -> “Add Device” to enter the corresponding interface.

Step 2: In the pop-up window, select “SUNGROW Logger” in the “Device Type”.

Step 3: Select “NET” in the “Port”, select “MONBUS-TCP” in the “Protocol type”, enter the IP address of the slave Logger in the “Peer IP Address”(according to the actual IP),and enter the port of the Logger in the ”Peer Port (1-65535)”(The port number must be consistent with the transfer port number of the slave logger).

Step 4: Select the corresponding Logger model in the “Device Model”.

Step 5: Enter 247 in the “Beginning Address”, and enter the value of “Device Quantity”, then click “Save”.

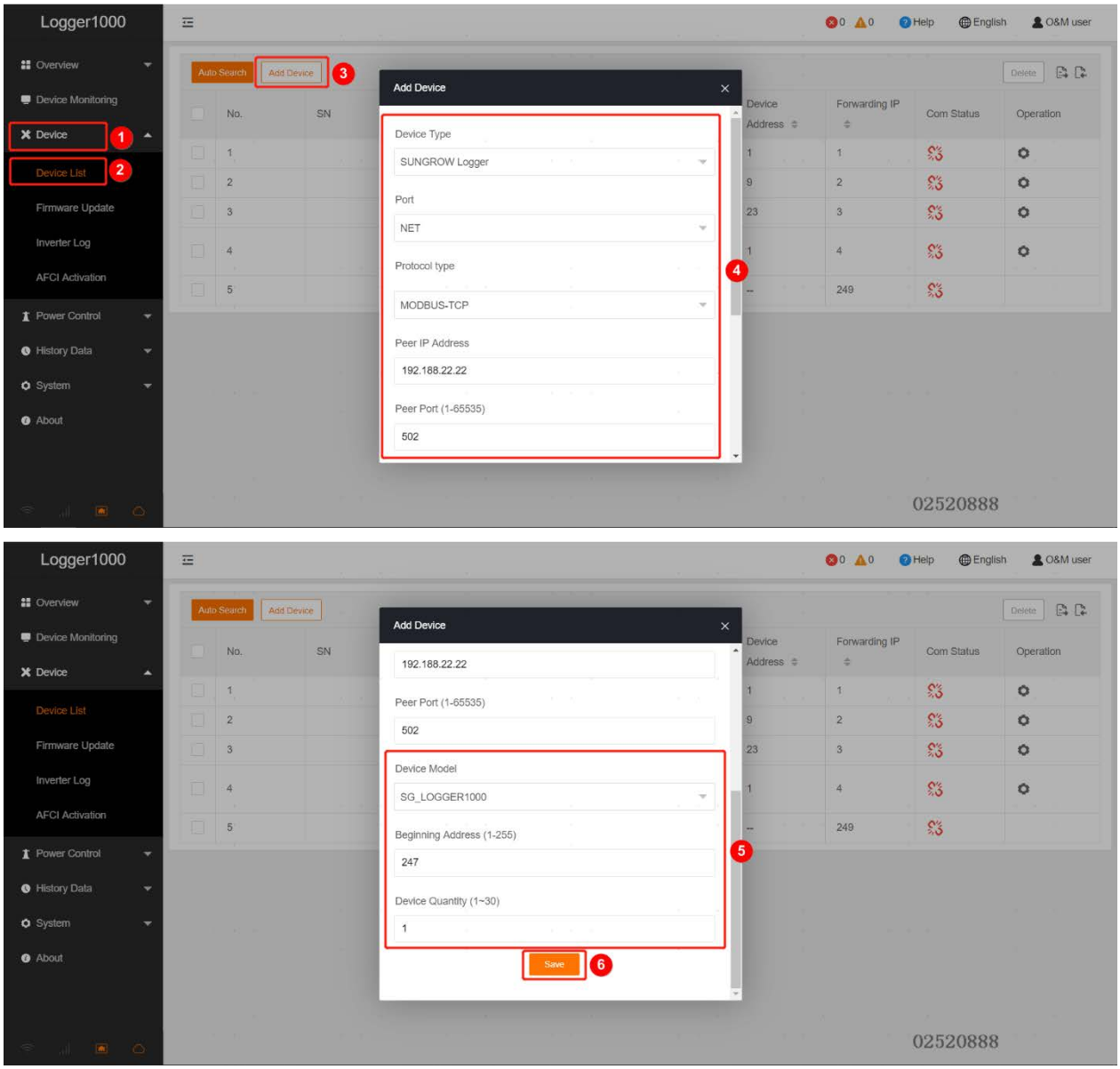


Figure 2-10 Add Slave Loggers

2.7. Zero-export

2.7.1. Direct Connection Mode

Background:

Small industrial and commercial roof plant, one logger accesses all inverters of the plant. By accessing only, the meter at the grid-connection point, zero power feed-in can be achieved.

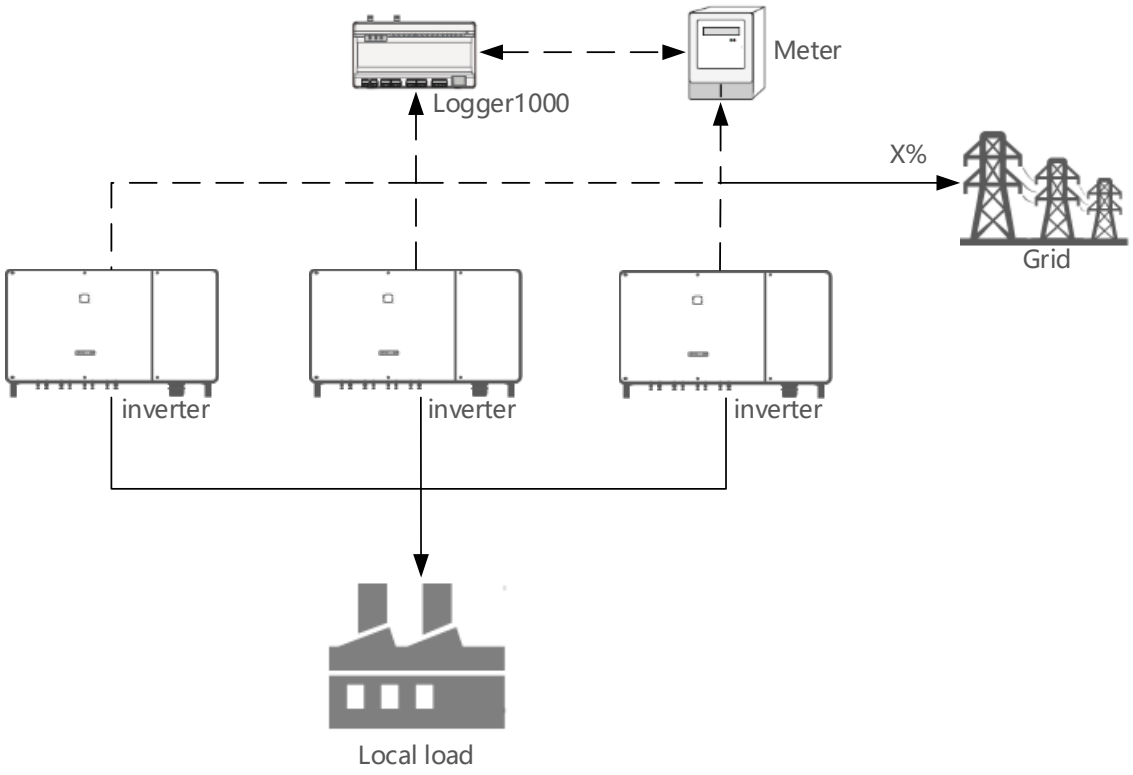


Figure 2-11 Direct Connection Mode

Step 1: Click “Power Control” -> “Active Power” to enter the corresponding interface.

Step 2: select “Local Power Control” in the “Active Control Mode”, enter the value of “Communication abnormality output (%)” (In case of meter communication abnormality, a fixed setting ratio, which is settable, is issued).

Step 3: Select “Closed-loop Control” in the “Control Method”, select the Meter in the “Select Meter”, select “Cascading” in the “Wiring mode”, select “Enable” in the “Start after communication recovery”.

Step 4: Enter the value of “Start delay after communication recovery (0–120)s”(The logger will be able to issue a start instruction only after recovery of meter communication has been stabilized for a settable period of time),select “Disable” in the “Feed-in stop”, Enter the value of “Control Cycle (5-60)s”, select “%” in the “Instruction Type”.

Step 5: Enter 0 in the “Percentage”, then click “Save”.

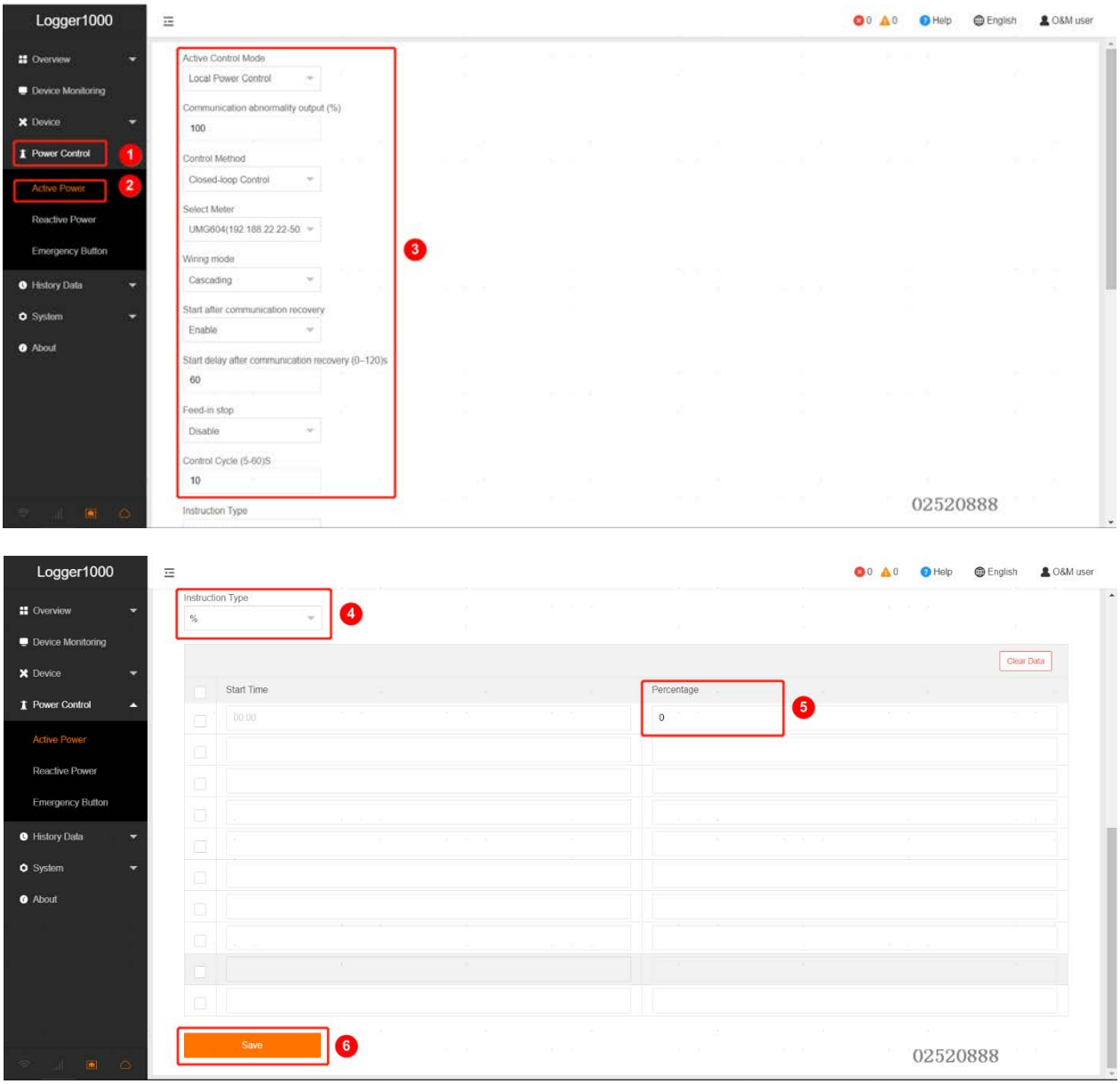


Figure 2-12 Zero-export (Direct Connection Mode)

Suggestions to Users:

When the grid company requires immediate stop of the inverter in case of feed-in at the grid-connection point, or requires the recovery time of feed-in at the grid-connection point be less than 2s, Enable is selected for feed-in stop to enable the feed-in stop function.

2.7.2. Cascading Mode

Background:

Industrial and commercial roof plant (including multiple workshops or roofs). One logger (this logger serves as a slave logger) can access one workshop or roof only. Now one logger as a master logger needs to be added at the grid-connection point to collect data of the slave loggers.

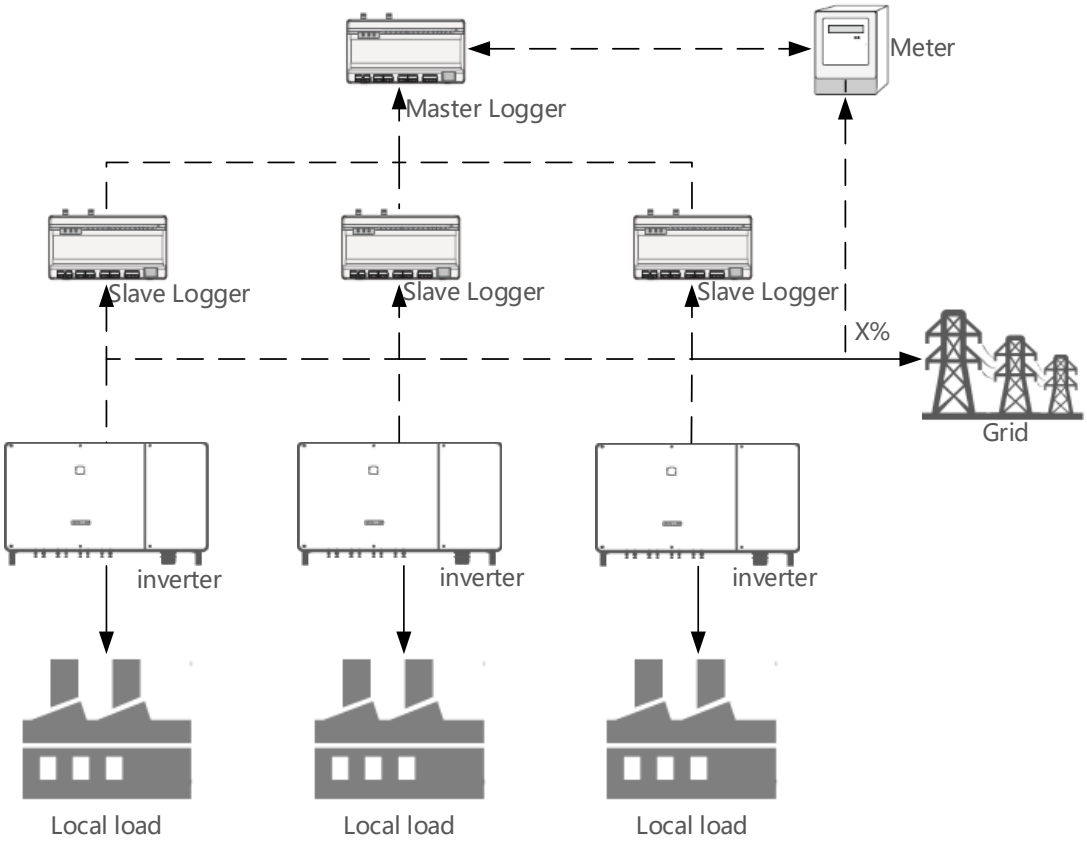


Figure 2-13 cascading mode

Step 1: Click “Power Control” -> “Active Power” to enter the corresponding interface.

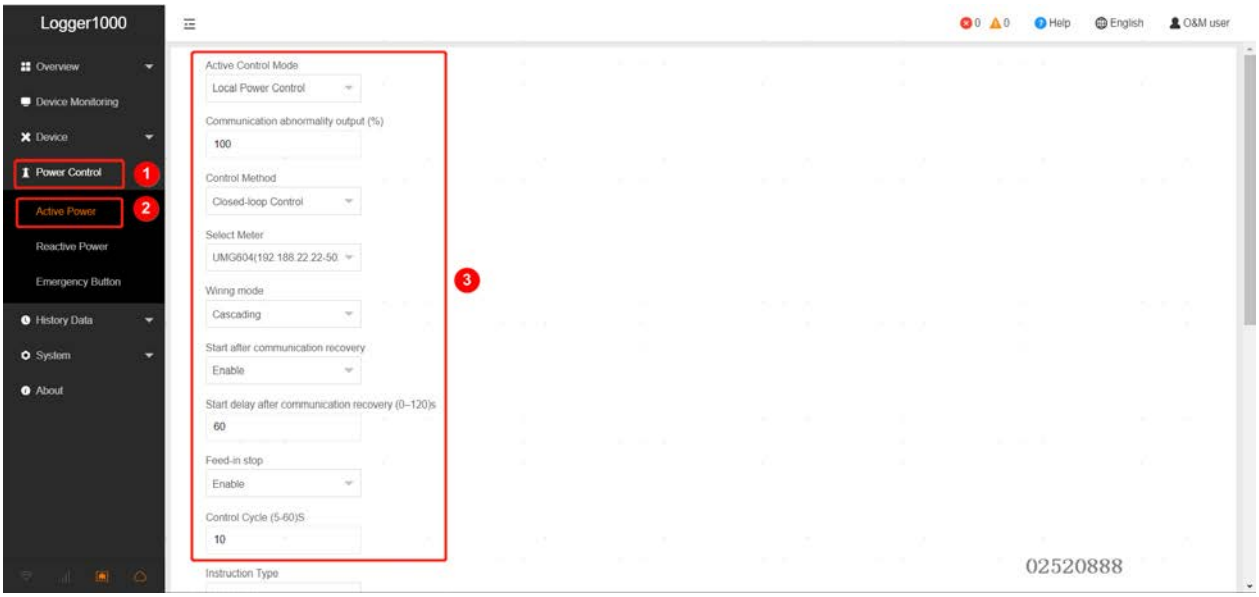
Step 2: select “Local Power Control” in the “Active Control Mode”, enter the value of “Communication abnormality output (%)” (In case of meter communication abnormality,

a fixed setting ratio, which is settable, is issued).

Step 3: Select “Closed-loop Control” in the “Control Method”, select the Meter in the “Select Meter”, select “Cascading” in the “Wiring mode”, select “Enable” in the “Start after communication recovery”.

Step 4: Enter the value of “Start delay after communication recovery (0–120)s”(The logger will be able to issue a start instruction only after recovery of meter communication has been stabilized for a settable period of time),select “Enable” in the “Feed-in stop”, Enter the value of “Control Cycle (5-60)s”, select “%” in the “Instruction Type”.

Step 5: Enter 0 in the “Percentage”, then click “Save”.



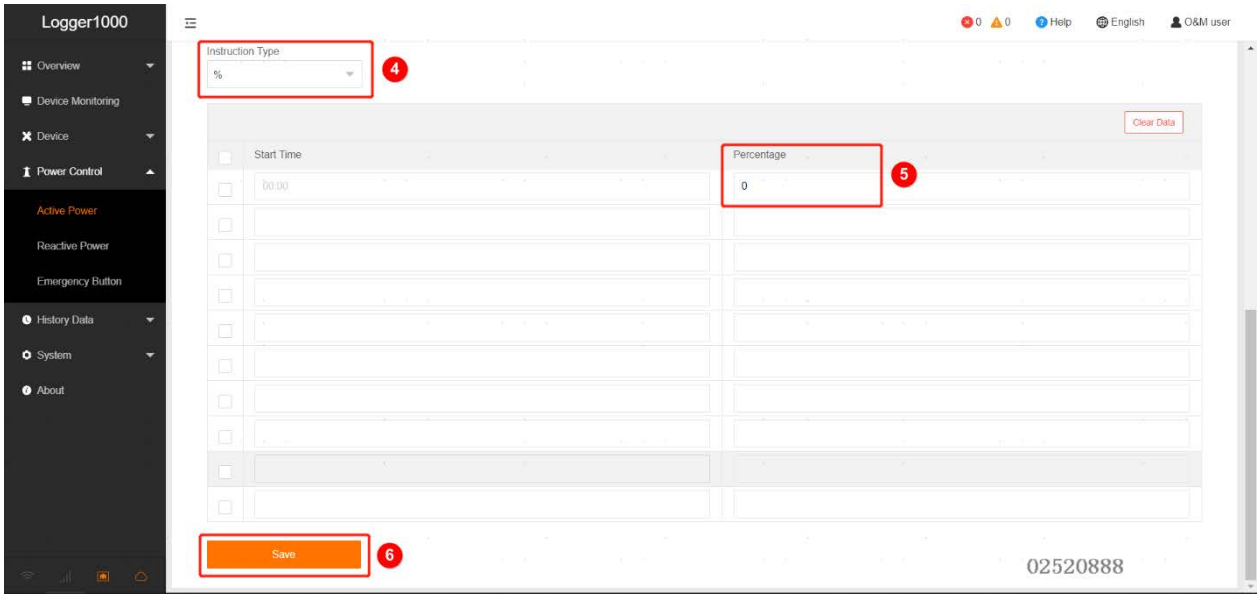


Figure 2-14 Zero-export (Cascading Mode)

2.7.3. Configuration of Slave Loggers

Step 1: Click “Power Control” -> “Active Power” to enter the corresponding interface.

Step 2: select “Remote Power Control” in the “Active Control Mode”, enter the value of “Communication abnormality output (%)” (In case of meter communication abnormality, a fixed setting ratio, which is settable, is issued).

Step 3: Select “Open-loop Control” in the “Control Method”.

Step 4: Enter the value of “Query recovery time(0-60)s” and the “Frame delay(4-70)ms”(Generally the default value), then click “Save”.

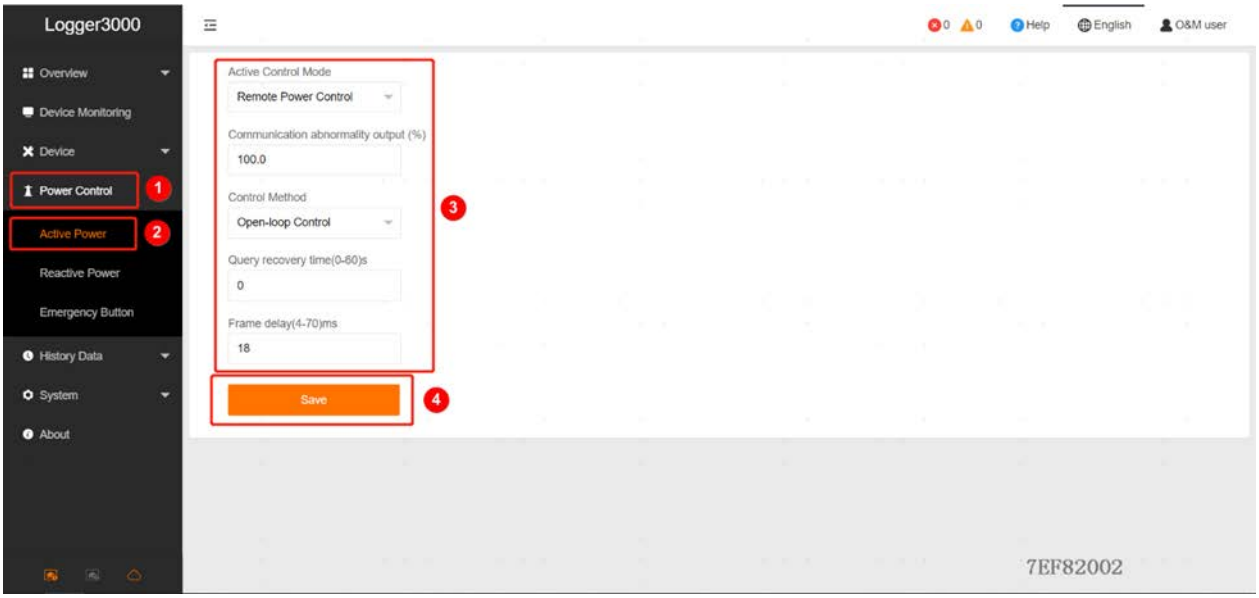


Figure 2-15 Configuration of Slave Loggers

Step 5: Click “System” -> “Transfer Configuration” -> “MODBUS” to enter the corresponding interface, turn on the corresponding Local Port Switch.

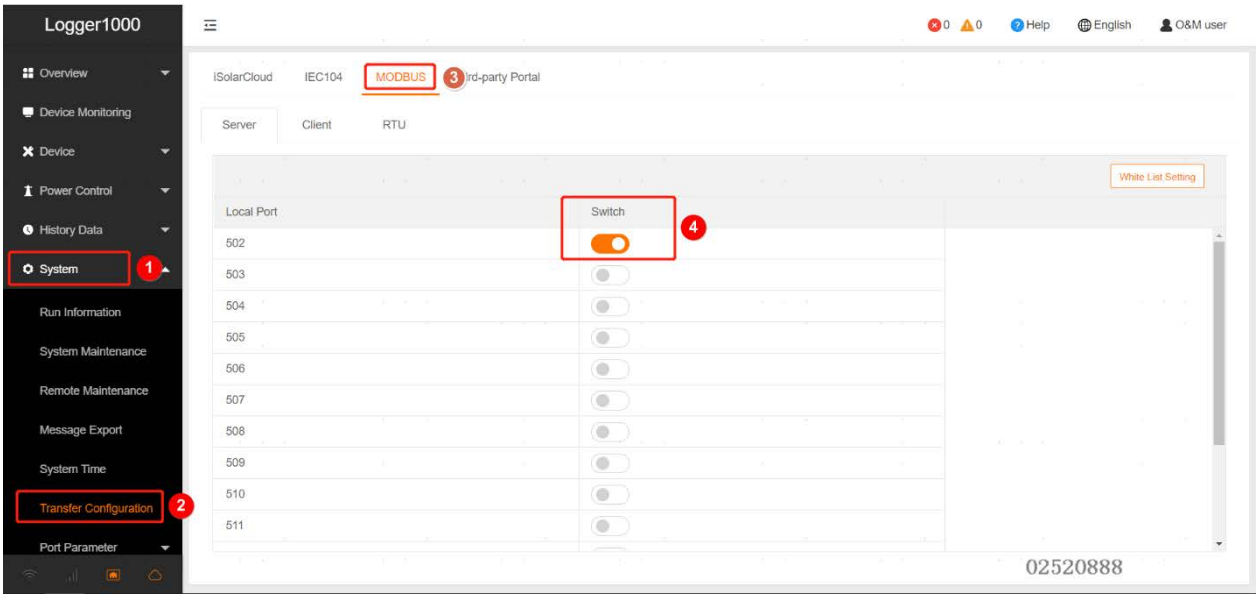


Figure 2-16 turn on the Local Port Switch

2.8. Delete the Meter

Step 1: Click “Device” -> “Device List”, then select the device which wants to delete and click "Delete".

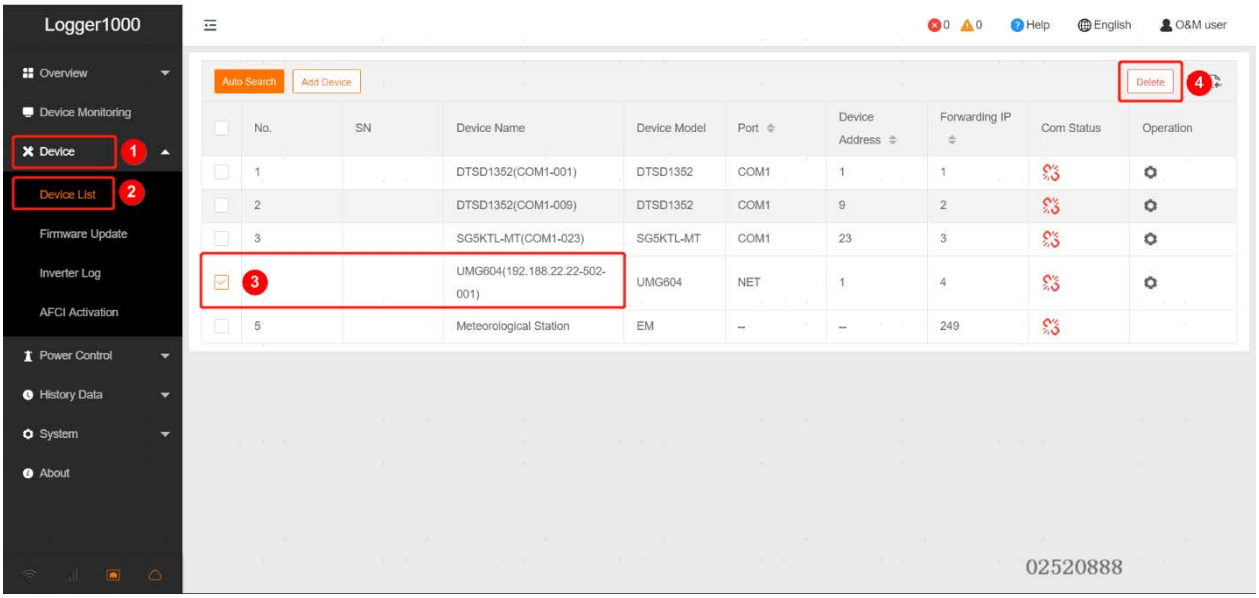


Figure 2-17 Delete the meter

The End