Smart Optimizer SUNGO iOPT 800W & Data Gateway SUNGO GT Quick Installation Guide

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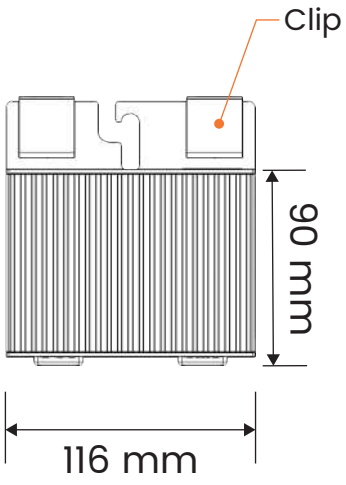
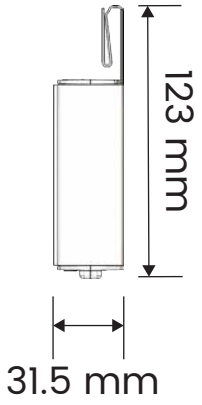
Release Date:2024.5

1. Product Overview

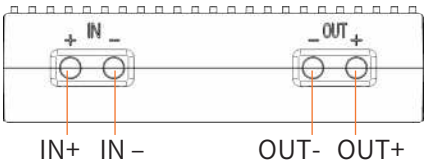


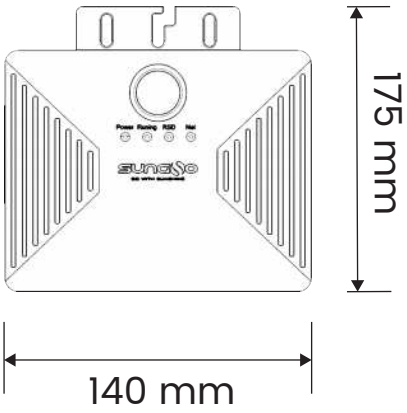


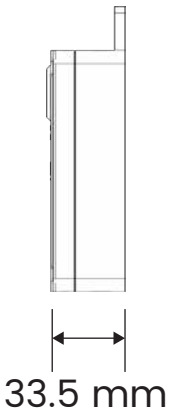
Model Description

SUNGO iOPT 800W
-Smart PV Optimizer
-Maximum Input Power800W

Interface definition







Model Description

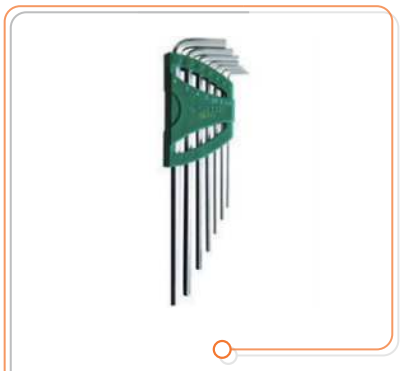
SUNGO GT
-Data Gateway

2. Installation Instructions

Tools

The following tools are required for installation, inspection, and replacement:

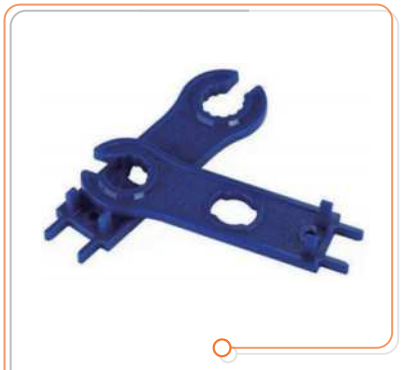
Phillips screwdriver
（Phillips head - M4）



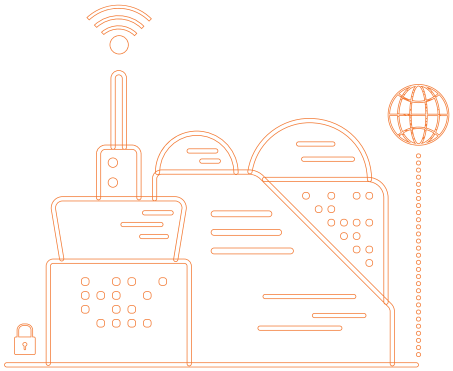
Hex key wrench

Multimeter

Clamp meter



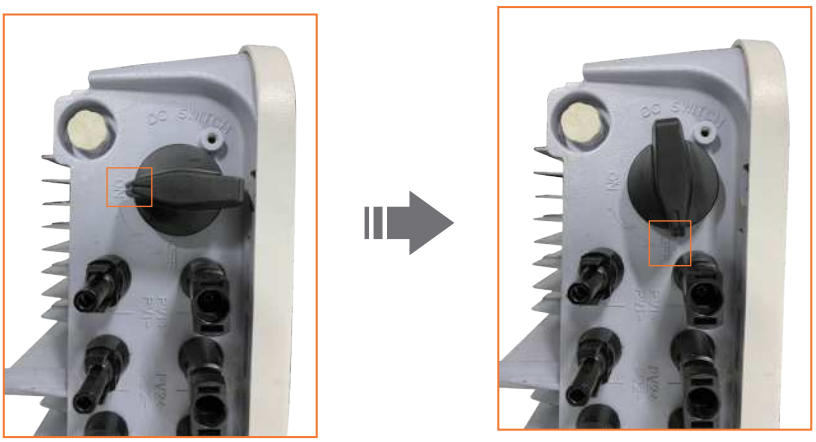
MC4 connector wrench



3. Install the Intelligent Optimizer iOPT

Step 1.

Before installing the optimizer, make sure the inverter is stopped (DC switch placed in OFF) and disconnect the inverter from the module array.



DC switch Placement in OFF position Schematic

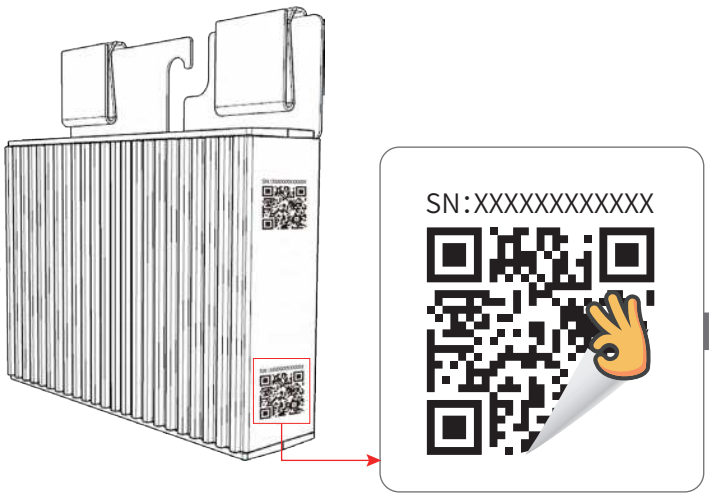
Step 2.

Plan the optimizer installation location properly to ensure proper connection of cables between the optimizer, components, and neighboring optimizers.
Optimizer IN+: 200mm exposed IN-: 1100mm exposed OUT+/OUT-: 750mm

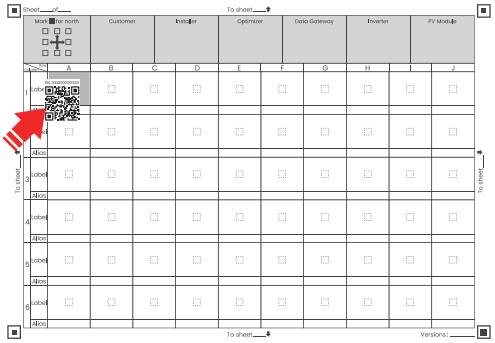
Step 3.

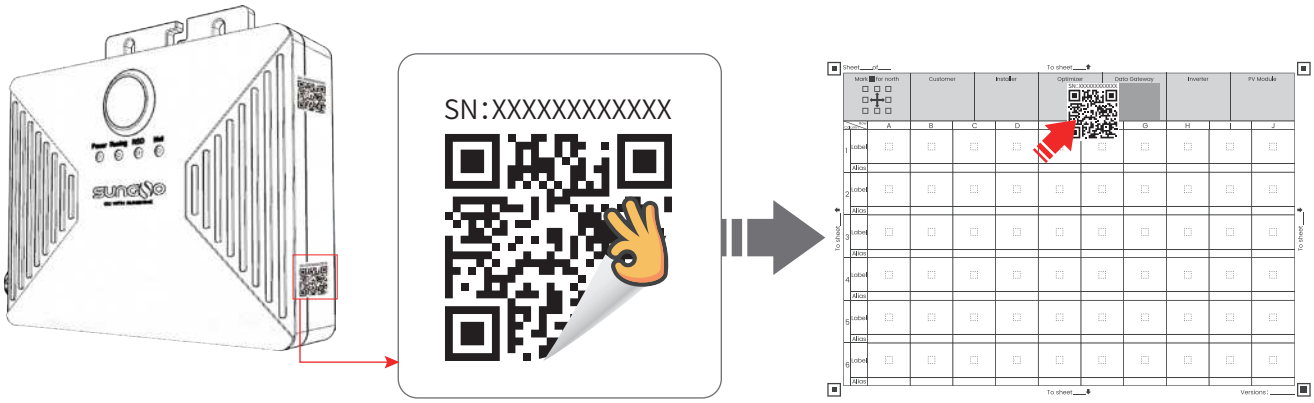
After confirming the installation location of the optimizer and data gateway (Stay close to the strings and away from the inverter), start installing the optimizer and data gateway. At the same time remove the SN label and paste it to the physical layout template.

The physical location layout must be done at the time of installation for purpose 1: the physical location layout is required for the data gateway GT entry optimizer, and for purpose 2: it corresponds to the physical power station, so that the corresponding optimizer can be found in the event of a failure.



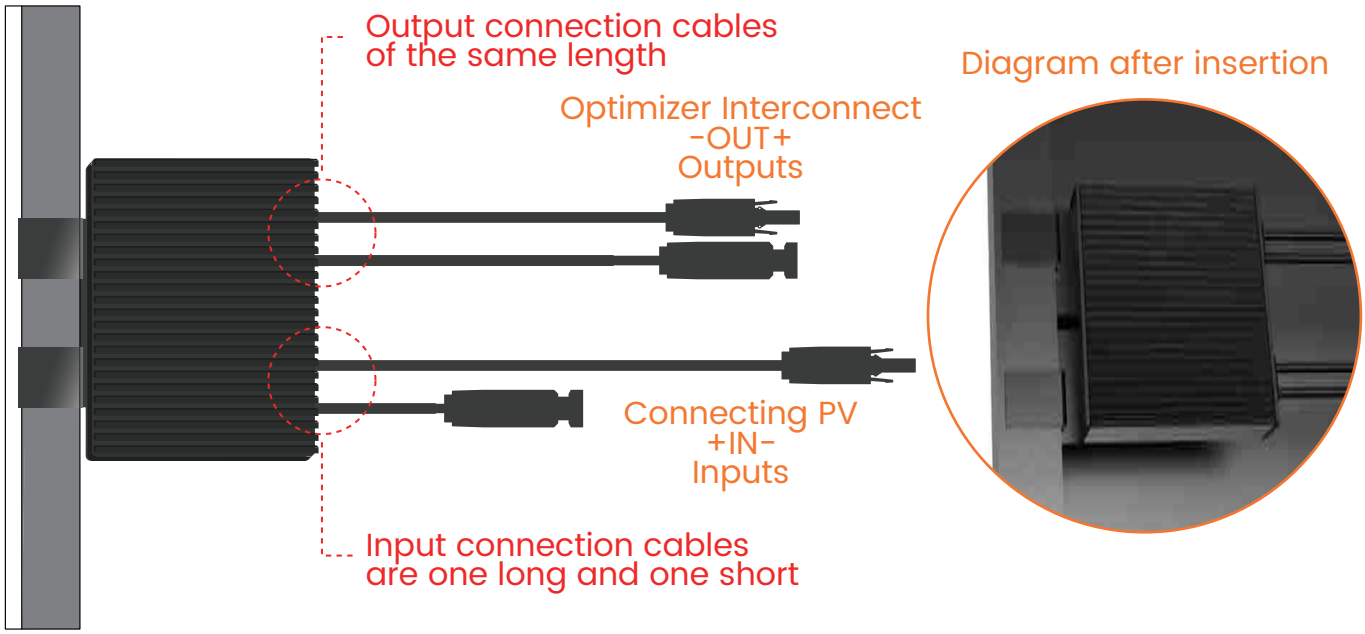
Note: If you need to mark information on the physical layout template, please use a marker pen





Step 4.

Install the Optimizer on the PV Frame.
Attach the optimizer to the outer frame on the back of the solar panel using the buckle. The installation is complete when the buckle is fully engaged with the outer frame.



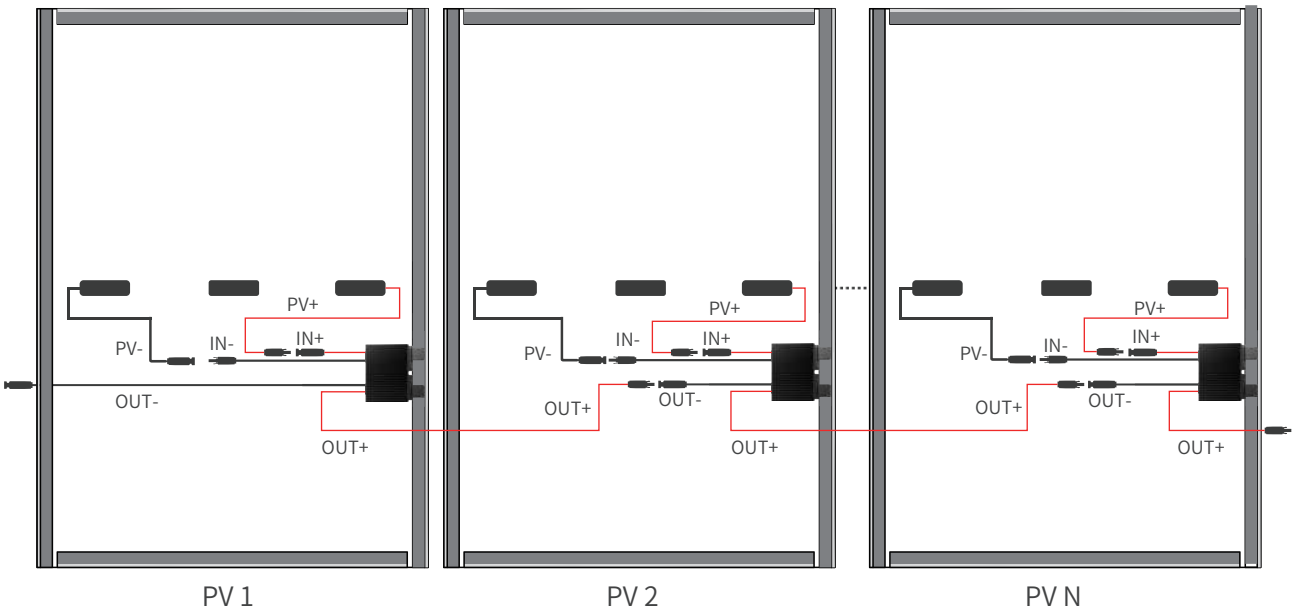
Attention: The positive and negative terminals of the input connection cable are connected to the positive and negative terminals of the PV module, do not connect the positive and negative terminals of the output connection cable to the PV.

4. Smart Optimizer iOPT Cable Connections

Step 1.

- Install the optimizer cable as shown below, otherwise the optimizer or the PV module may be damaged.

1. Connect the IN+ and IN- of the optimizer to the positive and negative terminals of the PV panel junction box correspondingly.
2. Connect OUT+ of the first optimizer to OUT- of the next optimizer.
3. Connect the cables of the other optimizers sequentially according to steps 1 and 2.



Caution!

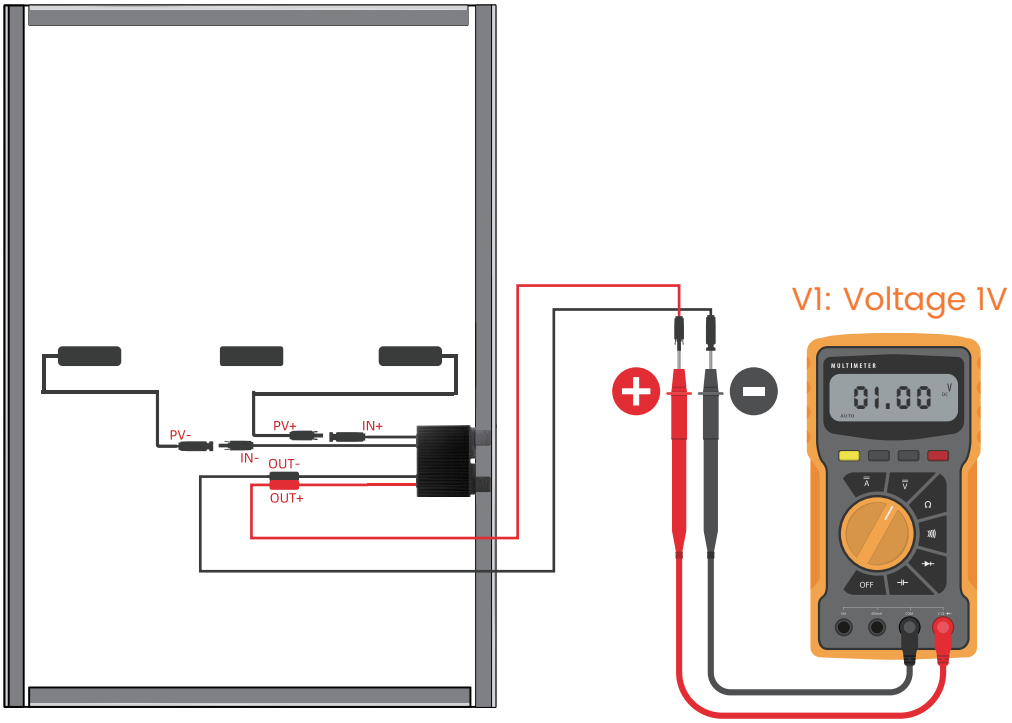
In installation
Input cables of PV optimizer MUST be connected first, output cables of PV optimizer should be connected second.

In disassembly
Output cables of PV optimizer MUST be disconnected first, input cables of PV optimizer should be disconnected second.

Step 2. Optimizer Detection

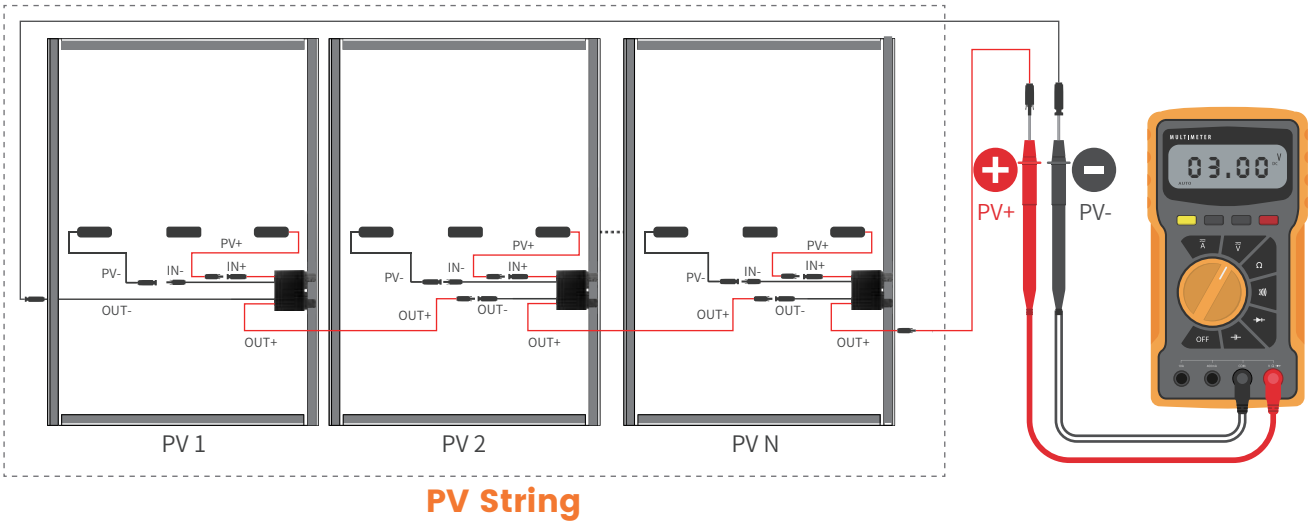
1. Connect the optimizer input (IN) to the pv junction box.

2. Use the positive pen of the multimeter to connect the positive output of the optimizer, and the negative to connect the negative output , and check the output voltage of a single optimizer.



Voltage	Reason	Solve suggestion
0.9V ≤ V1≤ 1.1V	Optimizer normal	——
V1 >1.1 V	Optimizer fault	Replacement optimizer
V1 < 0.9V	·Weak light ·optimizer input is not connected ·The optimizer is wired incorrectly ·Optimizer fault	1. Voltage is measured when light is sufficient。 2. Connect the optimizer input cable 3. Adjust the optimizer cable connection and connect the optimizer input cable to the PV module output 4. If the voltage is still abnormal, replace the optimizer
V1≈ -1V	The multimeter pen is reversed	Multimeter pen positive and negative exchange

3. After confirming that the optimizer and the input cable are properly connected, connect the optimizer output cable. When the light is sufficient, the voltage of the photovoltaic string is measured.

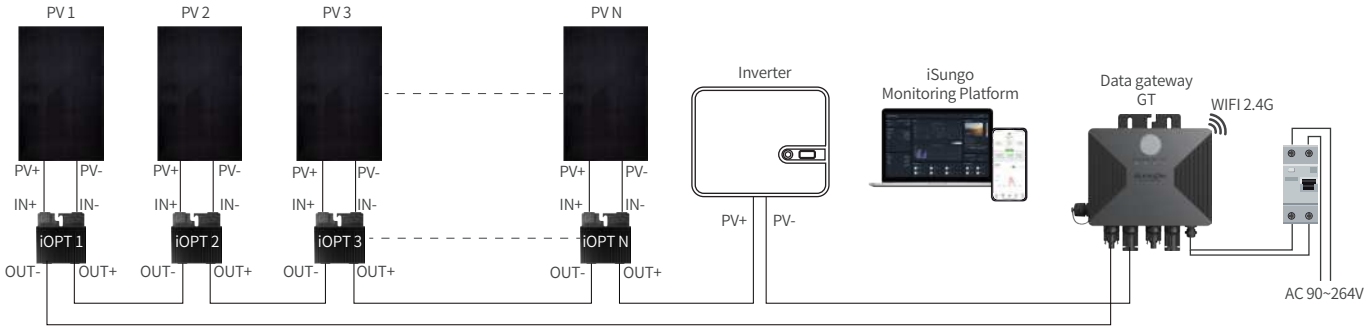


PV String

Voltage	Reason	Solve suggestion
The string voltage is 0	·PV module strings have open circuit ·The cables are not in the same string	1. Check whether the group string is open circuit faulty 2. Connect the strings cables correctly
The string voltage is negative	·The multimeter pen is reversed ·The label on the cable is incorrect	1. Multimeter pen positive and negative exchange 2. Make proper cable labels
The string voltage is less than the number of optimizers	·Some optimizer input missed connections ·Some optimizer outputs miss connections ·Some optimizer outputs are connected opposite	Check whether the PV modules and strings cables are correctly connected
The string voltage is greater than the number of optimizers	·The actual number of optimizers in the group string is greater than the expected number ·The photovoltaic panel is not connected to the optimizer, and is directly connected to the group string	1. Check that the number of optimizers in the group string is correct 2. Check whether the PV modules and series cables are correctly connected

5. Installing the GT and connecting the strings to the inverter

1. install the GT near the inverter.
2. connect the OUT+ of the last optimizer to the PV+ of the inverter.
3. Connect the OUT of the first optimizer to GT (as shown in the figure below) and then connect it to PV- of the inverter.
4. After confirming that the connection is correct GT connects the MCB and then connects it to the AC.



System Wiring Diagram

The GT itself is IP67 waterproof and can be used without a distribution cabinet.
The AC input line is connected to the AC power using the L16-2 waterproof connector.
-Check that the structural mounts are secure and that all screws are tightened.
-Check that all cables are connected with the correct polarity and that the connections are firm and reliable to ensure that there are no short circuits.

6. System power-up and product management

Step 1. Turn on the inverter

Confirm that the system is connected correctly, the inverter DC switch is ON, and the inverter is turned on.

Step 2. Connecting the data gateway to a power source

Connect the data gateway to 90~264V AC power supply. Ensure that the power indicator green light is always on, and the running indicator green light is also always on. Check whether the inverter is working normally.

Step 3. GT status indication

Four permanently illuminated status indicators from left to right (1, 2, 3, 4)

Note: Indicator status indicates

1, 2, 4 Indicator status schematic: Indicates normally lit Indicates extinguished Indicates blinking **3 Indicator status schematic: Indicates normally lit Indicates extinguished Indicates blinking**	
None of the four indicator lights are lit Wrong or faulty circuit connection	1 on 2 off 3 on 4 on Turn off the optimizer, the network is connected normally
1, 2 on 3, 4 off Start optimizer, network not connected	1 on 2 blinking 3 blinking 4 blinking Search Optimizer self-test
1, 2 on 3 off 4 on Start the optimizer, the network is connected normally	1 on 2Blinking 3on 4 on or off Search Optimizer self-test successful
1 on 2 off 3 on 4 off Optimizer off, network not connected	1 on 2 off 3 blinking 4 on or off Search Optimizer self-test failed

Step 4. GT Entry Optimizer

The GT needs to enter the address of the optimizer it manages, otherwise it can't communicate and upload the optimizer's data normally. There are two ways to enter optimizers: automatic and manual. When there is only one GT in the field, you can use the automatic optimizer, but if there are more than one GT in the field, you must execute the manual optimizer.

Auto Entry Optimizer (GT=1)

Press the middle button of GT to let the Running light always on, let the RSD light go out, after 5 seconds and then long press the button, GT enters into the automatic recording mode, release the button, the indicator light 234 flashes back and forth waiting for about 10 minutes the Running indicator light flashes to indicate the success of the automatic recording, press the button again to the Running indicator light is always on, the Optimizer is working normally. If the indicator light 3 blinking means that this automatic recording failed please check the line and re-execute the step, if three times are not successful please contact the relevant technical personnel.

Manual entry optimizer (GT>1)

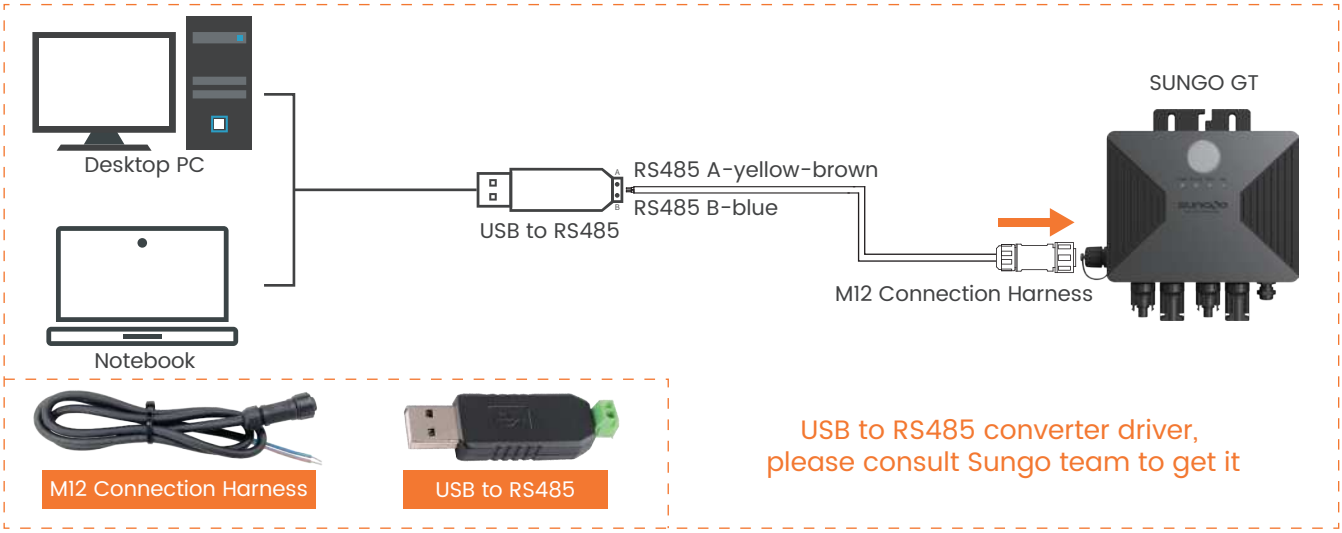
Note: If the automatic optimizer entry function is used, it will cause conflicts by duplicating the optimizers that are managed by each of the multiple GTs in the field, and you only need to re-execute the operation of manually entering the optimizers. (Manual entry of optimizers is to enter the optimizers in the field into different GTs)

I. Process

Recommended application process:
1. First power up the GT.
2. Use the USB to RS485 cable to connect GT and the computer
3. Select the corresponding serial port
4. Read MAC Addr and Version, if normal display, represents the current connection is normal, otherwise check whether the cable is properly connected.
5. Enter the iOPT code into the List list, and then click Write to write it to GT; there are two ways to enter the code as follows
①Through Import button, recognize the selected picture to import.
② Enter the number manually through the keyboard, and note that each number is separated by a comma.
6. Monitor the current status of the optimizer through To Monitor.

II. Wiring

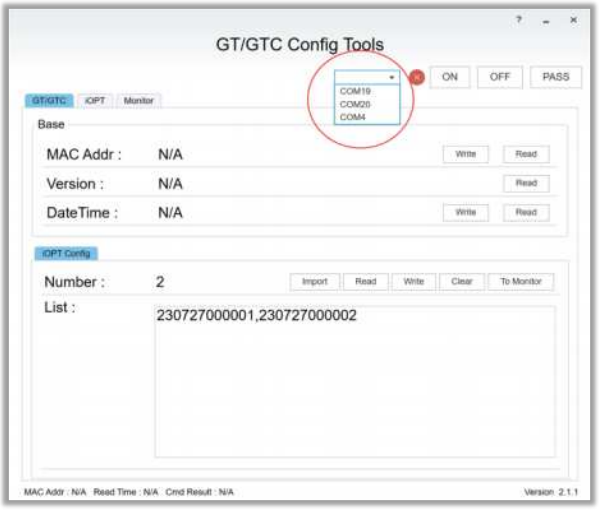
Use USB to RS485 to connect the GT to the computer, the connection is shown below:



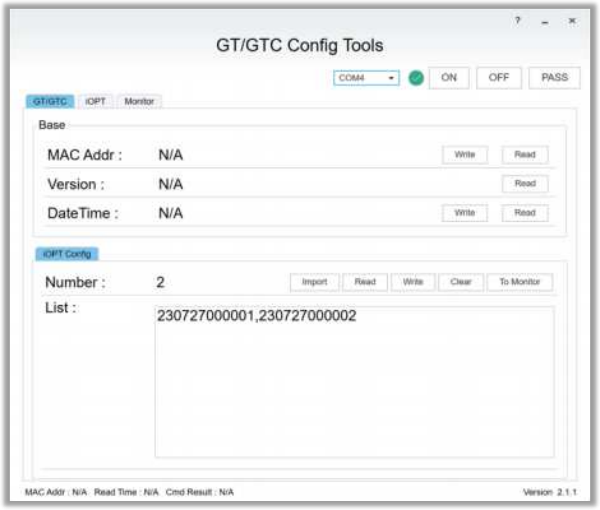
Wiring Diagram

III. Description

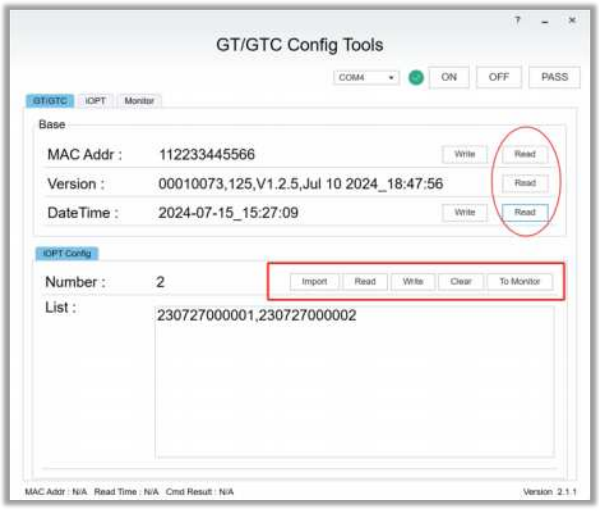
1. Select the corresponding serial port



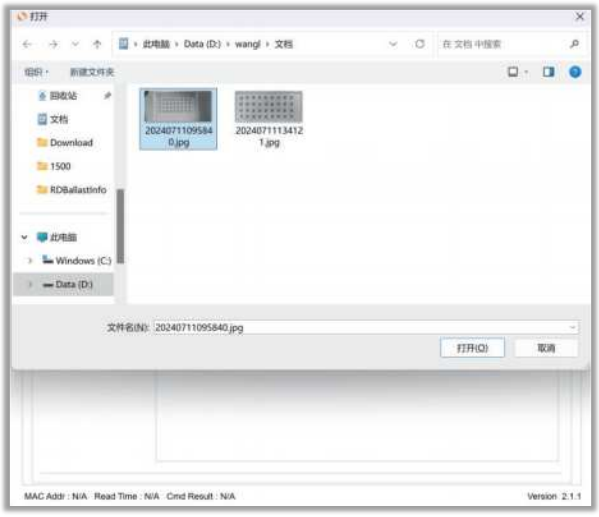
After success, the green circle is displayed as follows



2. Description of GT functions

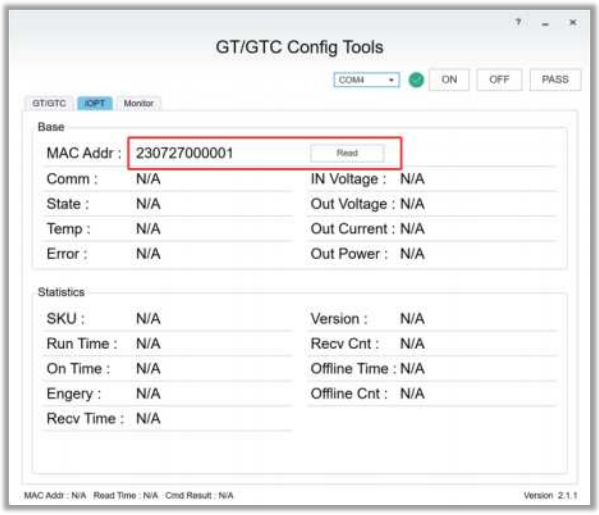


①MAC Addr:
Click Read to read the address of GT, and click Write to write the address in the left input box to GT.
②Version
Click Read to read the software version number of GT.
③DateTime
Click Read to read the time of GT, and click Write to write the system time into GT.
④iOPT Config - Import
Click Import to import the iOPT code through the image, as follows
Click Import to import the recognized codes into the List box.



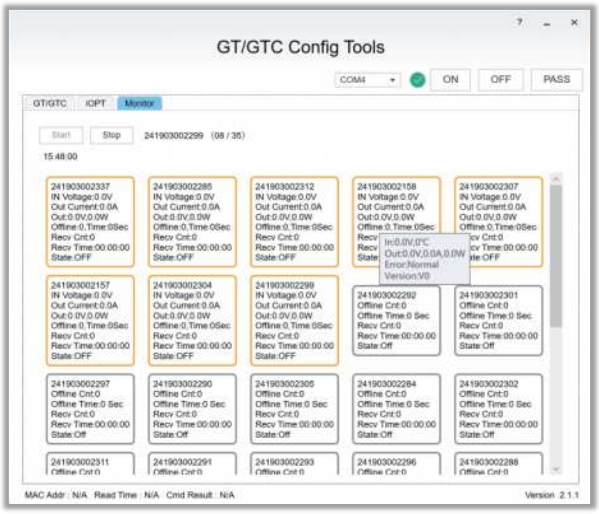
⑤iOPT Config - Read
Click Read to read the iOPT list of the current GT configuration.
⑥iOPT Config - Write
Click Write to write the iOPT list to GT.
⑦iOPT Config - Clear
Click Clear to delete all the iOPTs in GT.
⑧iOPT Config - To Monitor
Click Monitor to display the iOPTs in List on the Monitor page.

3. Read single iOPT working parameters function description



Input the iOPT number you need to read, click Read to read its current status.
Comm: communication status, Online stands for online, Offline stands for offline.
State: current state, ON working, OFF closed.
Temp: current temperature, Celsius degrees
Error: current fault, Normal stands for normal.
IN Voltage: input voltage
Out Voltage： Output Voltage
Out Current: Output Current
Out Power： Output Power
SKU: Product Model
Run Time： Run Time
On Time: Working Time
Engery: Power Generation
Recv Time: Receive Time

4.Monitor Function Description



Click Start to start monitoring, the software will refresh the status of iOPT in List regularly.

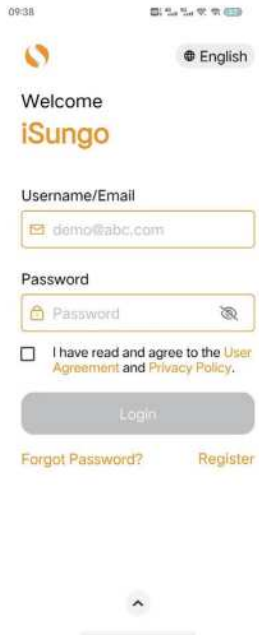
7. GT distribution network (APP instructions for use)

Step 1. Download APP and register account

iSungo Android

iSungo iOS

Scan the QR code to download APP

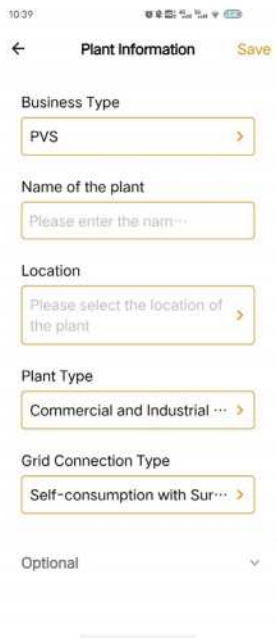


Open the APP to register an account

Step 2. Creation of PV power plants

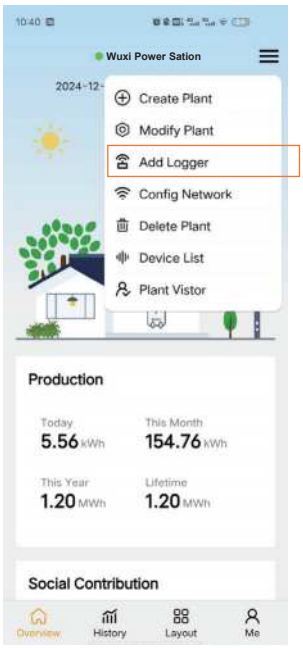
Click to create a power station

Step 3. Filling in power plant information



Just fill in the information according to your own power station

Step 4. Scanning the data collection gateway

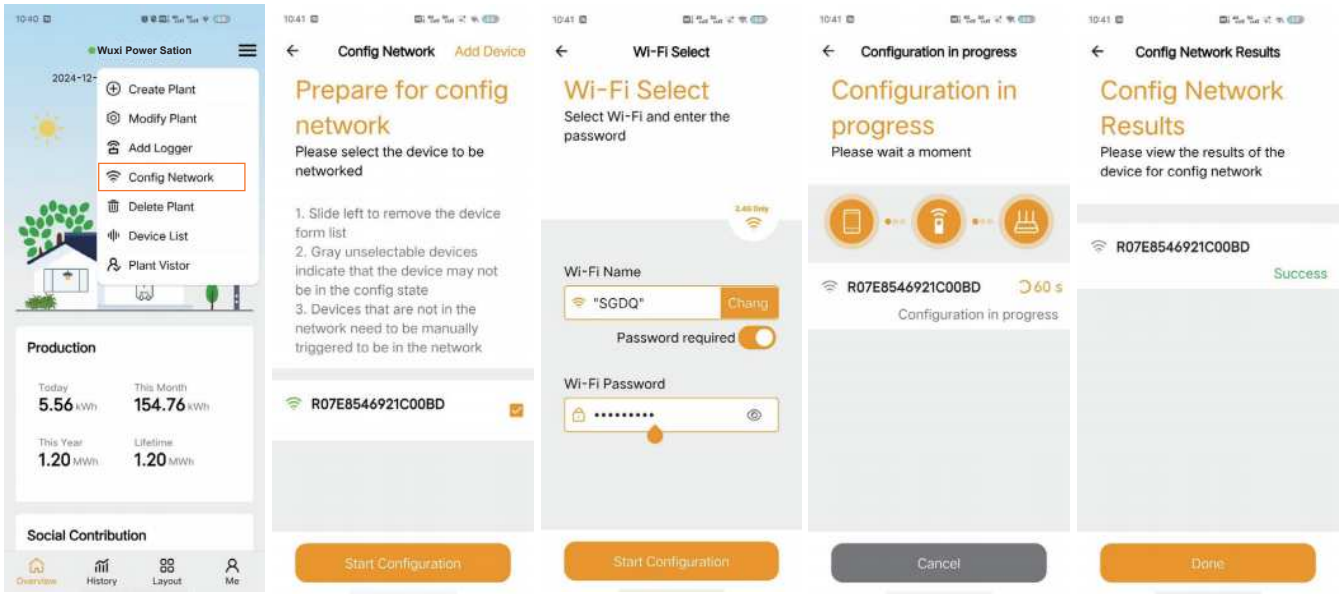


WIFI Serial Number:
XXXXXXXXXXXXXXX

Example of QR code on the left side of GT

Click the drop-down menu in the upper right corner, click "Add Logger", and scan the QR code of the WIFI serial number on the left side face of the Data Gateway GT

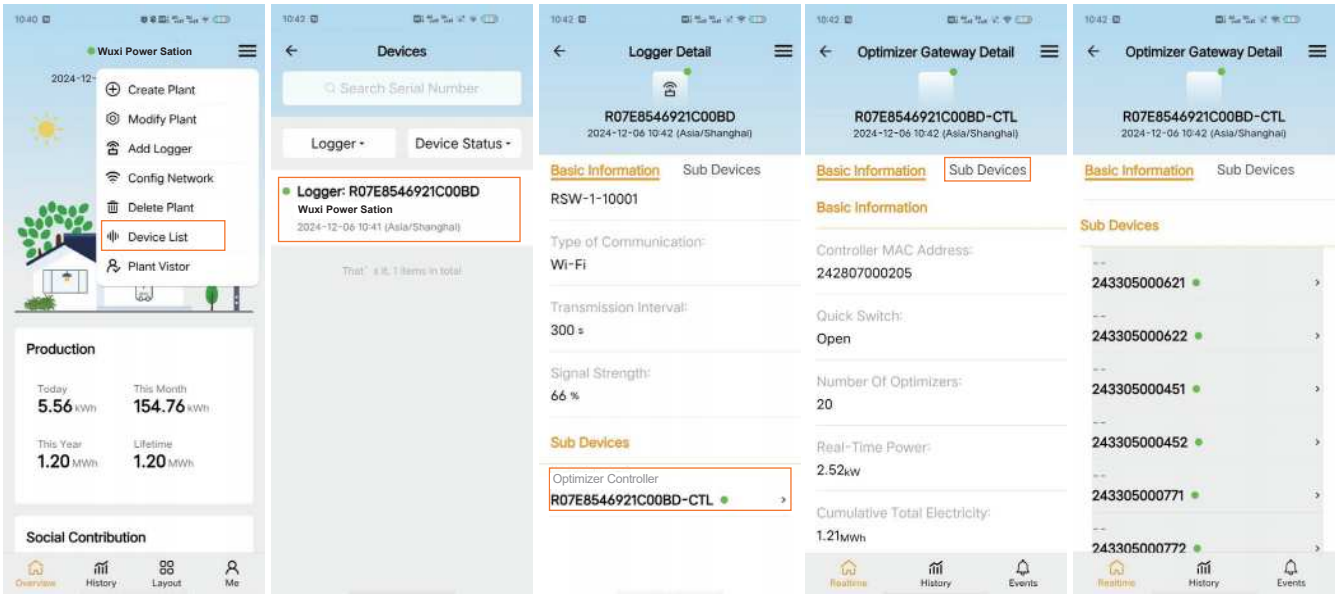
Step 5. GT WIFI distribution network



1 2 3 4 5

First, click on the drop-down menu in the upper right corner of the "Overview" page, and then click on "Configuring Network". Operate according to the indicated process. It will be okay as long as the successful network configuration is displayed

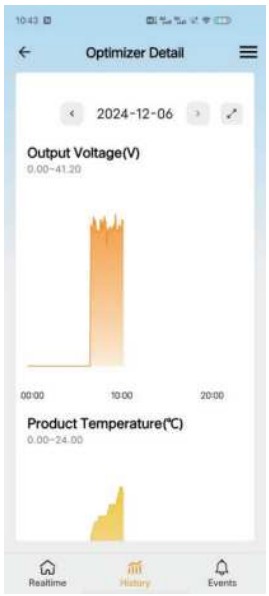
Step 6. Optimizer Details



1 2 3 4 5

1.Click on the drop-down menu in the upper right corner on the "Overview" page, and then click on "Device List"
2.Click on the "Logger" column to enter the collector details page
3.Click on the "Optimizer Controller" under "Logger Details" to enter the "Optimizer Gateway Detail" page
4.Click on "Sub Devices" and you can see the optimizer serial number
5.Click on the arrow on the right side of the optimizer serial number to enter the "Optimizer Detail" page

6

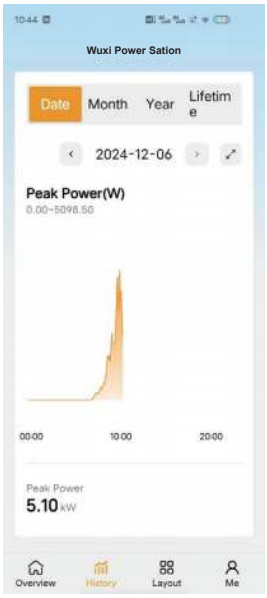


7

6.The device information will be displayed on the "Optimizer Detail" page
7.Click on the "History" icon at the bottom to view the graphical display of the "Optimizer Detail" (showing input voltage, output voltage, temperature, output current and output power)

Step 7. Observation of the status of the power station

1



2

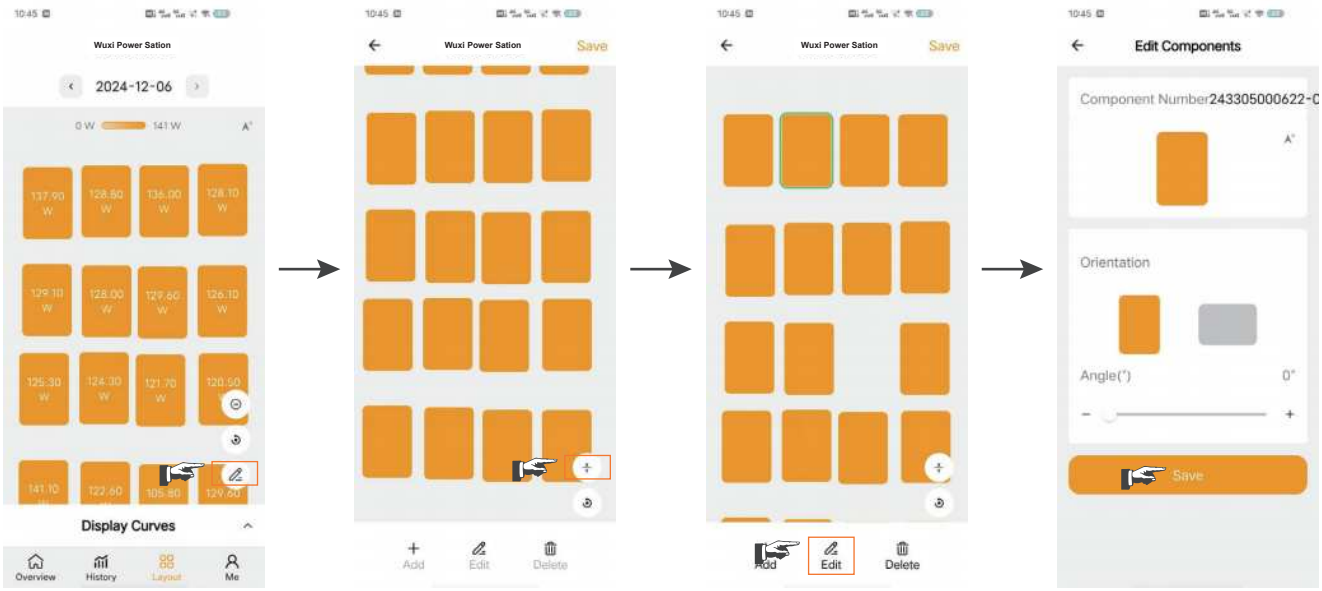
3

4

5

1.Return to the "Overview" page and you can see the basic information about the power generation of the power station
2.Click on "History" on the right side of the "Overview" in the APP and you can see the peak power of the power station
3.Click on "Layout" on the right side of "History" in the APP and you can see the status of the photovoltaic modules
4.Click on "Display Curves" and you can see the power curve of the modules
5.Long-press on the "Photovoltaic Module Graph" and the detailed information of the modules will be displayed

Step 8: Layout modifications



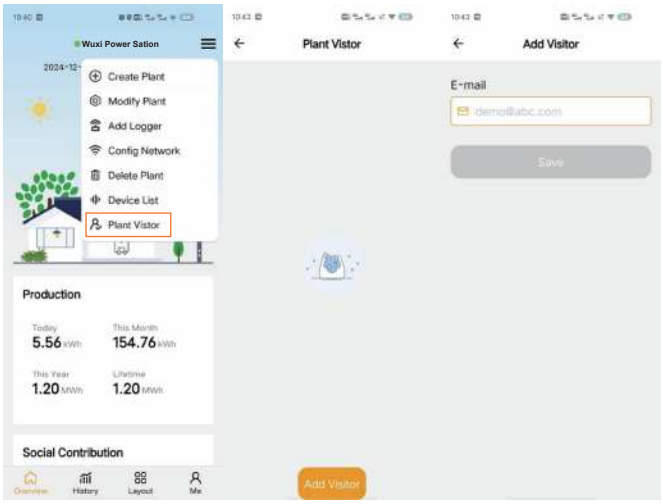
Click on the small icon here to modify the layout

Click on the small icon here. There will be a dotted grid to facilitate the layout

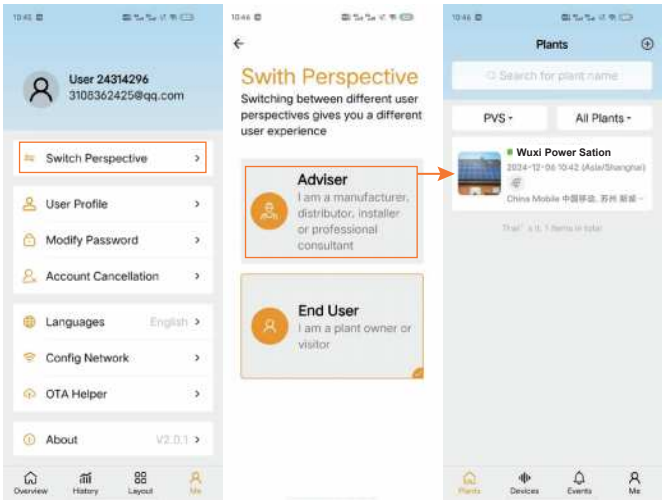
Click on "Edit"

You can modify the angle of the components. Save it after the modification is completed

Other functions



Add visitor's email address



Switch perspectives, that of professional consultants and end users

All the above steps are operated based on end users

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SUNGO Energietechnik GmbH

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