PEEM-S100 WiFi Smart Meter_User Manual _ EN

Update Instructions

This section records the updates of the Smart Meter User Manual.

Version	Update Date	Content
V1.0	2024-11-8	Initial version

Read Before Use

This manual contains important instructions for Smart Meter, which must be read completely before installing or debugging the equipment. For safety reasons, only qualified technicians who have been trained or have proven skills can install and maintain this Smart Meter under the guidance of this document.

This manual is applicable to the following products:

Model	Communication	Installation Mode	Wiring Mode
PEEM-S100	WiFi	DIN Rail	CT Connected

The following security symbols are used in this manual. Before installing or operating the system, familiarize yourself with these symbols and their meanings.

Identification	Explanation
	**Danger:** Danger indicates a dangerous situation that may cause fatal electric shock, other serious personal injury, or fire danger.
	**Warning:** Warnings indicate instructions that must be fully understood and followed to avoid potential safety hazards, including equipment damage or personal injury.
	**Note:** Notes indicate that the described operation should not be performed. Before continuing, readers should stop using and

	fully understand the explained operation.

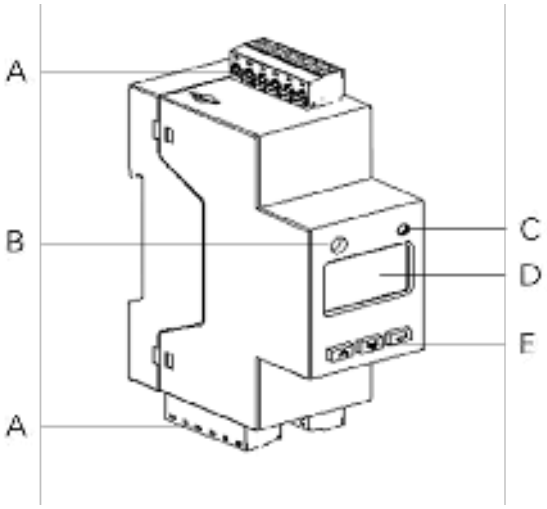
Product Introduction

System Introduction

Smart Meter is a power meter that uses WIFI communication. It is installed in the home distribution box, collects voltage, current, power and other information of the power grid, and transmits it to microinverter or micro storage unit through the WIFI network. It assists microinverter or micro storage unit in performing control functions such as zero-export function.

Example : Smart Meter and TSUN Products integrated with WiFi

Product Introduction



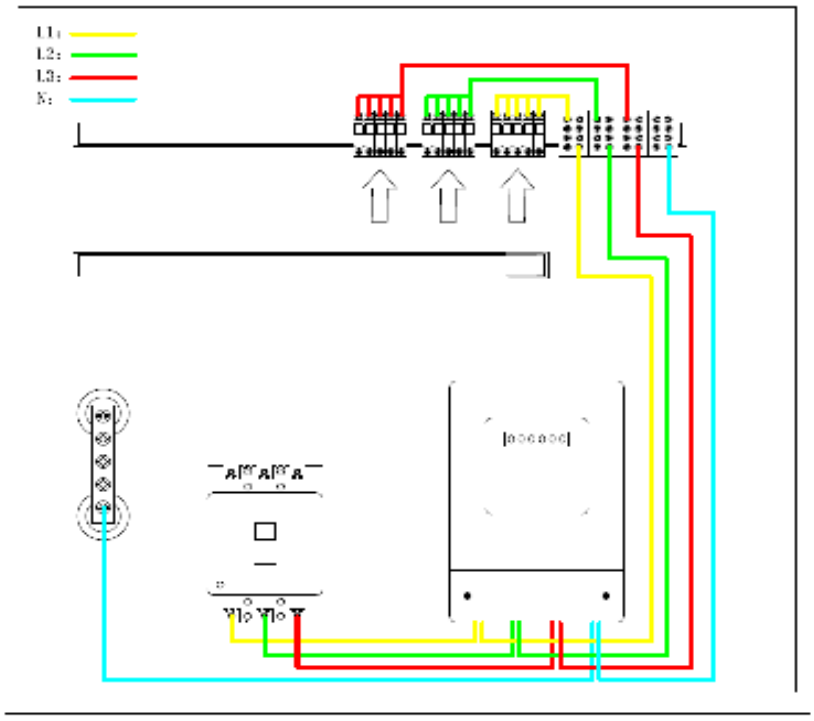
A	Connector	D	Screen
B	Antenna Port	E	Buttons
C	Status Light		

Product Installation

Confirm the Phase of the Circuit

If this smart meter is installed on a single-phase power grid, ignore this section and proceed to the next step, "Install the Smart Meter".

If this smart meter is installed on a three-phase power grid, it is necessary to confirm the installation position of the meter according to the following method. Confirm the corresponding switch and the phase of the microinverter or micro storage unit in the household distribution box. As shown in the figure below, it is necessary to confirm which phase of the microinverter or micro storage unit is in. The smart meter must be installed next to the electricity meter. When the meter is in the same phase as the corresponding microinverter or micro storage unit, the microinverter or micro storage unit can turn on the zero export function.



- Method 1:

If the circuits or devices controlled by each switch are clearly marked on each single-phase switch in the household distribution box, the installer can directly find the circuit switch that controls the microinverter or micro storage unit.

- Method 2:

If the control circuit of each single - phase switch in the household distribution box cannot be clearly distinguished, the installer can consult the household about the house power grid wiring diagram, obtain relevant information by querying the drawing, and find the circuit switch that controls the microinverter or micro storage unit.

- Method 3:

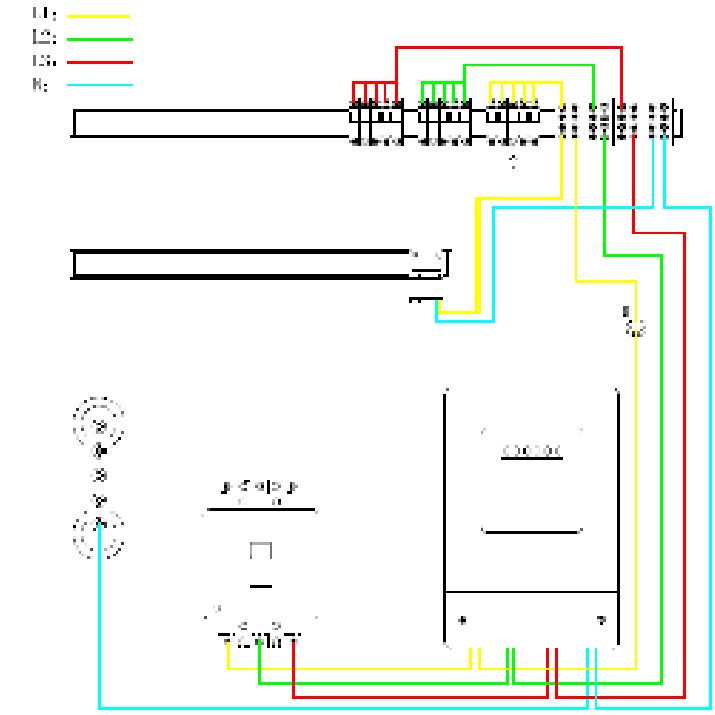
If relevant information cannot be found in the distribution box or drawing materials, the installer can quickly find the corresponding circuit switch according to the following steps.

1. Step 1: Connect an easily-observable household appliance (such as an electric fan, desk lamp, etc.) to the socket that is ready to have the microinverter or micro storage unit installed.

2. Step 2: Turn on the household appliance and put it in working mode (for example, turning on the electric fan or desk lamp).

3. Step 3: Turn off the single-phase switches in the household distribution box one after another, and observe the status of household appliances at the same time. If the household appliance used for observation stops working after closing a single-phase switch (for example, the electric fan stops rotating, the desk lamp goes out), then the single-phase switch is the control switch of the corresponding circuit.

After finding the corresponding circuit switch, install the smart meter on the bus (or connection line) between the three-phase switch and the single-phase switch. For example, if the smart meter is installed in the L1 phase, the wiring should be as follows.



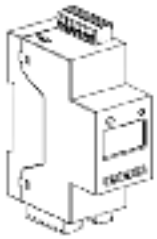
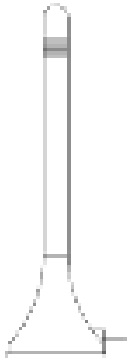
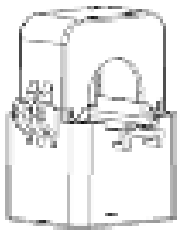
Warning:

The maximum passing current of the Smart Meter is 100A. The load current in this circuit cannot exceed this upper limit.

Pre-installation Check

Check the Product and Accessary

Although TSUN's products have passed stringent testing and are inspected before leaving the factory, it is possible that the products may be damaged during transportation. Please check the product for any obvious signs of damage. If such signs are present, contact your dealer as soon as possible.

			
Meter * 1	Antenna * 1	CT * 1	SN Label * 1

Check the Installation Environment and Location

When selecting the installation location, the following conditions should be adhered to:

- Install the PEEM-S100 close to or within the home distribution box.
- Avoid electromagnetic interference that could affect the proper operation of electronic equipment.
- Use a mobile phone to assess the Wi-Fi signal strength at the installation site. If the Wi-Fi signal is weak, attempt to install the PEEM-S100 at an alternative location or relocate the Wi-Fi router.

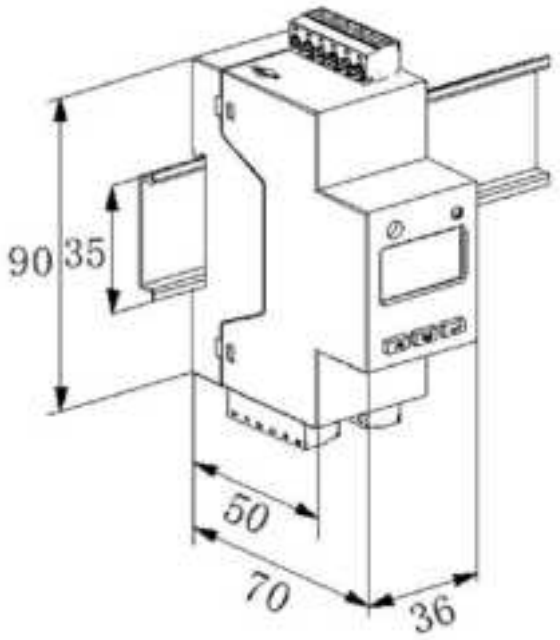
Install the Smart Meter

- Step 1: Turn off the three-phase switch and all single-phase switches of the distribution box.

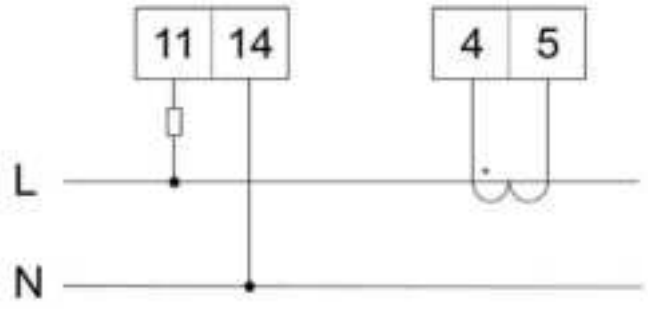
Danger:

Installers must ensure that the three-phase switch as well as all other switches remain in a closed state during the whole operation process. Meanwhile, be cautious not to touch the exposed conductive part on the grid - side of the three - phase switch to prevent electric shock.

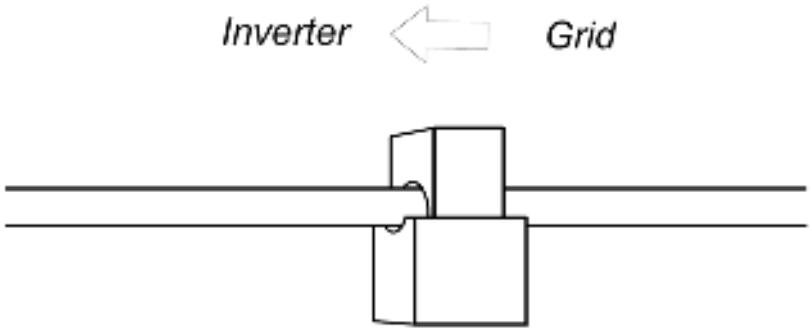
- Step 2: Install the Smart Meter on the rail of the distribution box.



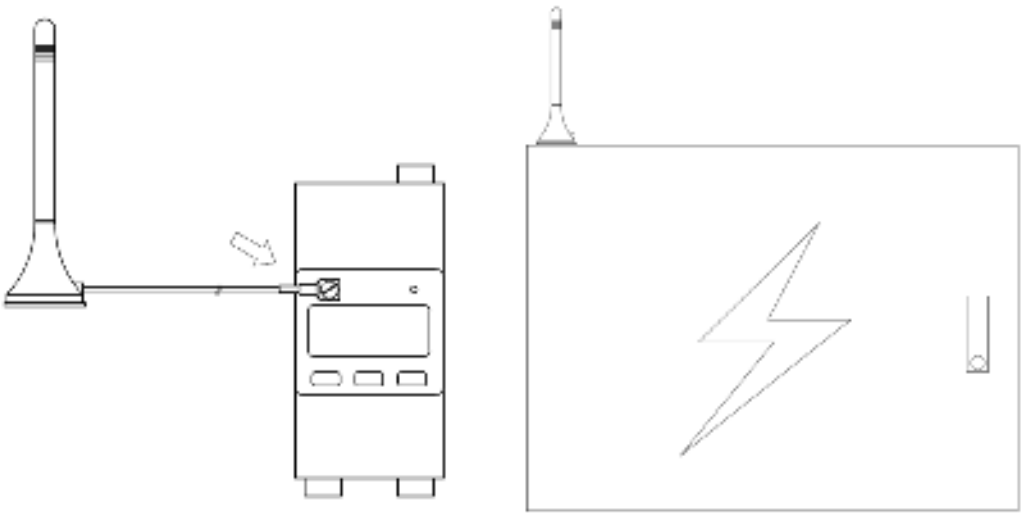
- Step 3: Connect the L (Live) and N (Neutral) cables to port 11 and port 14 respectively. Then connect the CT cable to port 4 (using the Red Cable) and port 5 (using the Black Cable).



- Step 4: Mount the CT onto the correct L cable. The arrow direction marked on the CT should be oriented towards the inverter side.



- Step 5: Connect the Wi-Fi antenna cable to the PEEM-S100. Place the antenna outside the distribution box to ensure a strong Wi-Fi signal.



- Step 6: Upon confirming the correct wiring of the meter, turn on the three-phase switch and the single-phase switch.

Monitoring System

Download and Install APP

Download and install the "TSUN Smart" APP.

1. IOS users can directly search for "TSUN Smart" in the APP Store and download the software.

2. Android users can directly search for "TSUN Smart" in Google Play and download the software.

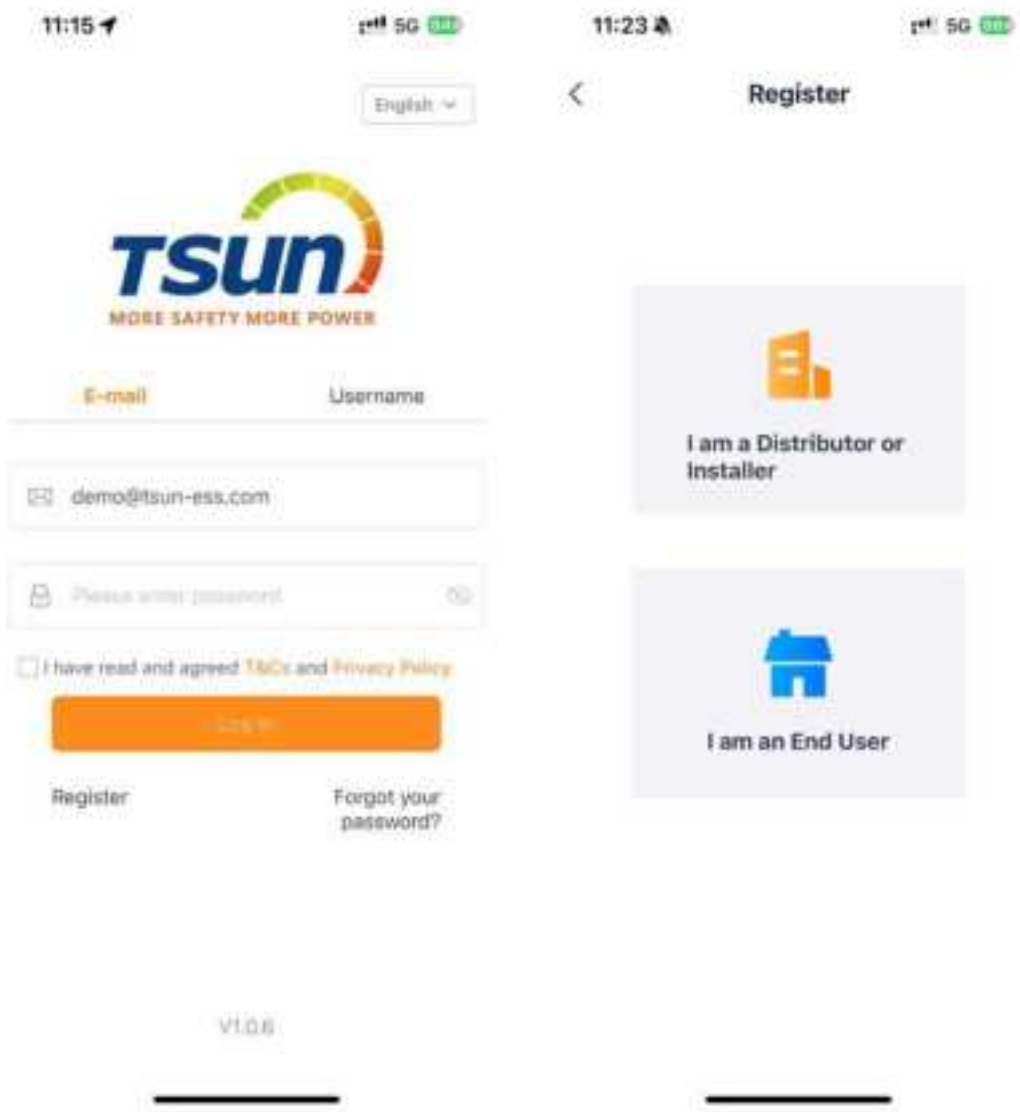
3. Android users who cannot access Google Play can scan the QR code below to download and install "TSUN Smart".

Register an account and log into the APP.

When registering, you can choose to be an installer or an end-user.

The rooftop solar plant which uses microinverters needs to be built by a professional installer. Please register as an "installer" and follow the subsequent instructions to execute the APP operation.

The DIY balcony storage plant which uses micro storage units is built by end - users, but the installation of smart meter still needs to be done by professionals. Please register as "end - users" and follow the subsequent instructions to execute the APP operation.

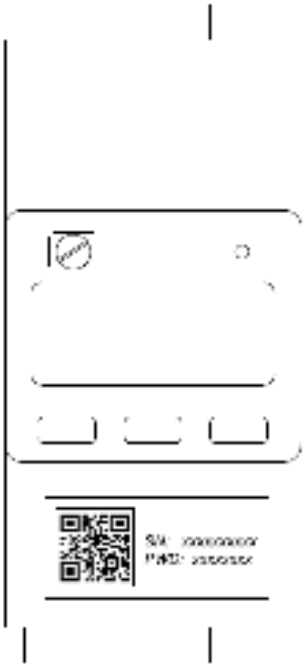


Operation Steps (Professional Installer + Microinverter)

- Step 1: Click "+" to create a soalr plant. After filling in the plant information, click "Save" to complete the solar plant creation.

⚠	**Note:** The system type is "Photovoltaic + Grid + Load".

- Click "Add Datalogger" and scan the QR code on the meter to complete the device addition.



- First,click "..." in the upper right corner and select "WIFI Configuration". Then select the corresponding meter and click "Start Config". Finally, select the WIFI you want to connect to, enter the WIFI password and click "Start Config" again.

After approximately 10 seconds, the WiFi configuration will be completed successfully, and the meter data will be uploaded to the server.

- Step 4: Enter the “Device” page and click "Meter Configuration". Set the installation site to "Grid" and set the arrow to "Energy Purchase". Click "Save" and finish the configuration.

- Step 5: Click “...” on the plant home page and click “Anti-Reverse Flow Configuration”. Choose “Turn On” and set the total plant power and offset value

(Normally set to 0 W). Reconfirm all the information and click “OK”. Waiting for around 300 seconds and complete this configuration.Check the status in the device list after the configuration.

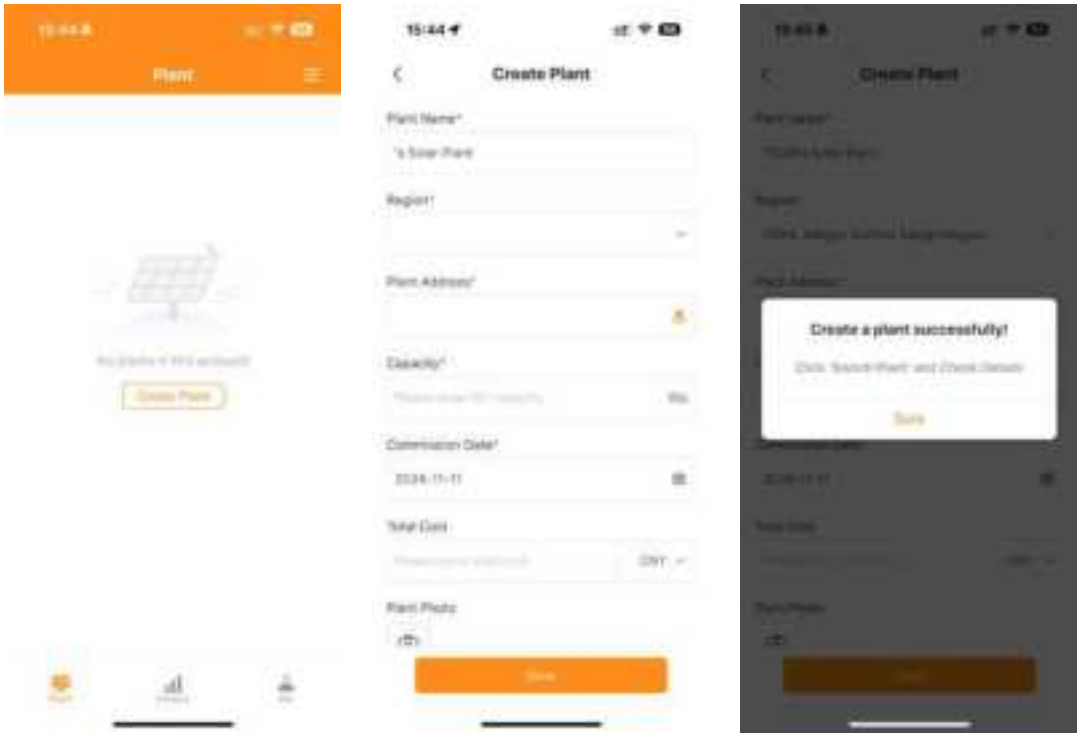
Note:

All devices must be online during the configuration.

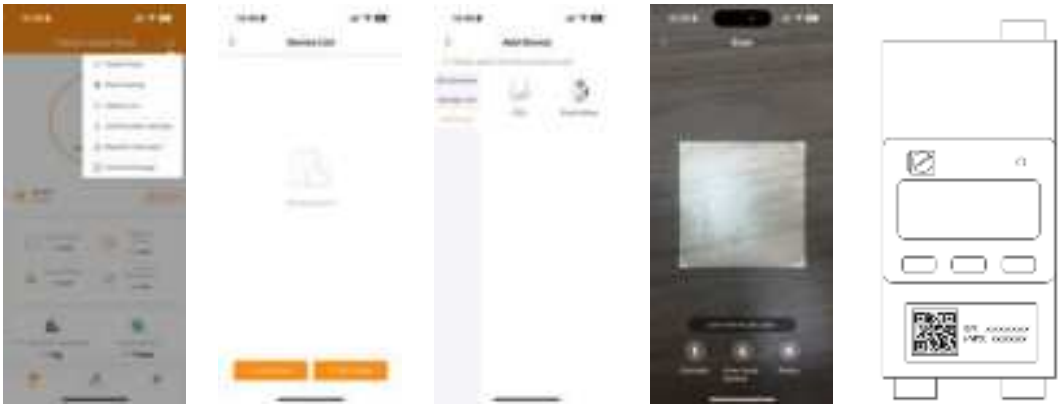
If there are any issues, you can try reconfiguring.

Operation Steps (DIY End-Users + Micro Storage Unit)

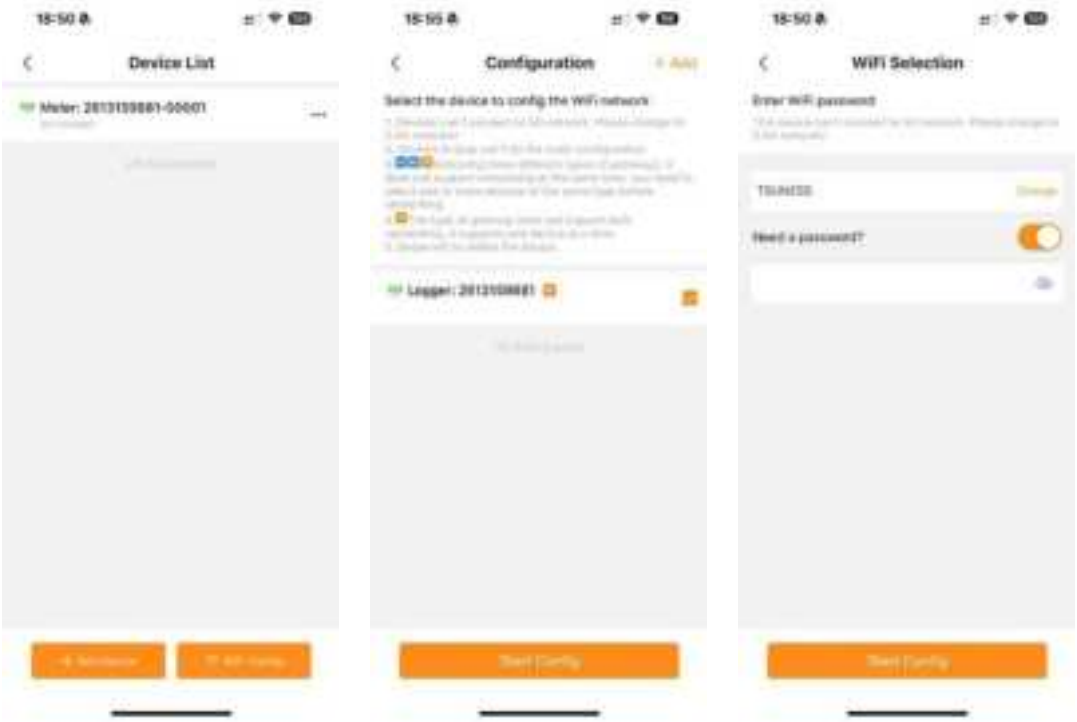
- Step 1: Click "Create Plant". After filling in the plant information, click "Save" to complete the plant creation.



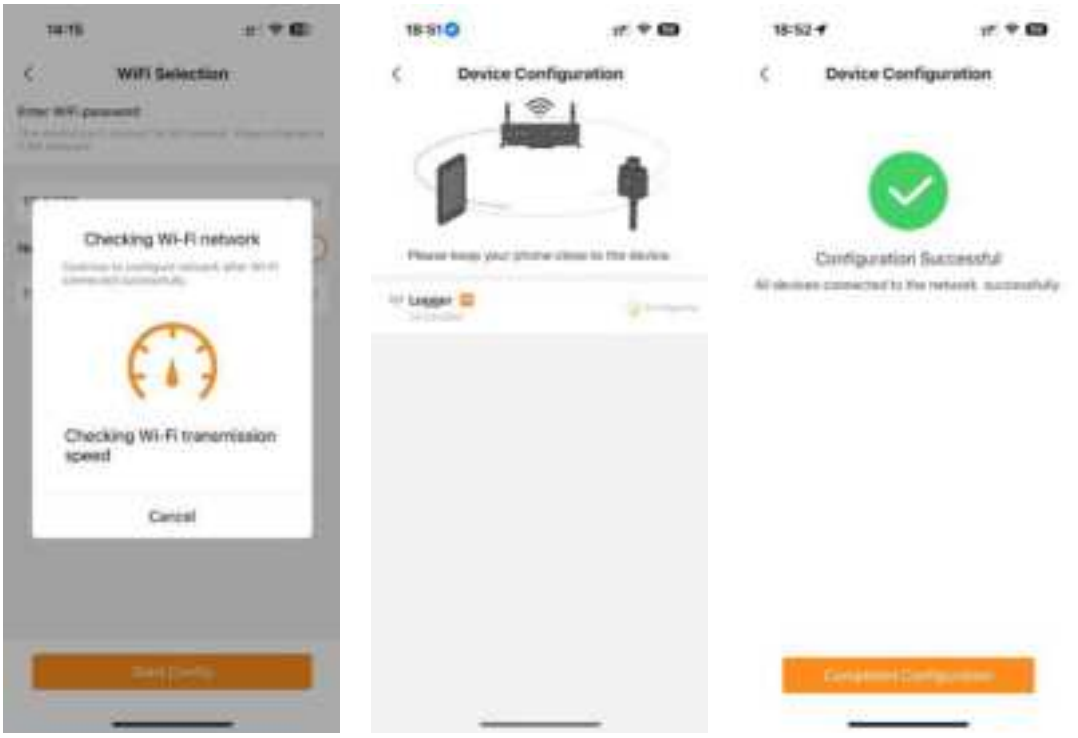
- Step 2: First, click menu button in the upper right corner and then select "Device List". Next, click "Add Device" and under the "Accessories" menu, select "Smart Meter" device. Finally, scan the QR code on the meter to complete the device addition.



- Step 3: In the "Device List", click "WIFI Config". Select the corresponding meter and click "Start Config". Select the WIFI you want to connect to, enter the WIFI password, and click "Start Config" again.



After approximately 10 seconds, the WiFi configuration will be completed successfully, and the meter data will be uploaded to the server.



- Step 4: Click menu button on the plant home page and click “Control Strategy”.

Click “Go to Contiguration” . Turn on the Anti-Reverse Flow Contiguration.

Appendix:

PEEM-S100

AC Input	Grid Type	Single phase
	Input AC Voltage	230V
	Input AC Frequency	50 / 60 Hz
	Max. Current per phase	100A
	Power Consumption per phase	< 1W
Communication	Wi-Fi Type	WIFI (802.11 b/g/n)
	Wi-Fi Frequency Range	2400MHz-2483.5MHz
	Maximum Distance to Router (Open Space)	100m

	Bluetooth Type	BLE 5.0
	Bluetooth Frequency Range	2400MHz-2483.5MHz
	Maximum Distance to mobile phone (Open Space)	50m
Control	Connection Limit	5 Microinverters
	Communicate to Server	300 s
	Communicate to Microinverter	300 ms
Accessary	External Antenna	Yes
	Cable length of antenna	2m
	External CT	1
	Cable length of CT	2m
	CT Type	16mm
Mechanical Data	Dimension(mm)	36 * 90 * 90
	Weight (g)	130
	Ambient Temperature(°C)	-20~+55
	Mounting System	Rail mounted (35mm)
	Indicator Light	1 * LED
	Altitude(m)	< 2000
	Relative Humidity	0 - 95%, No condensation