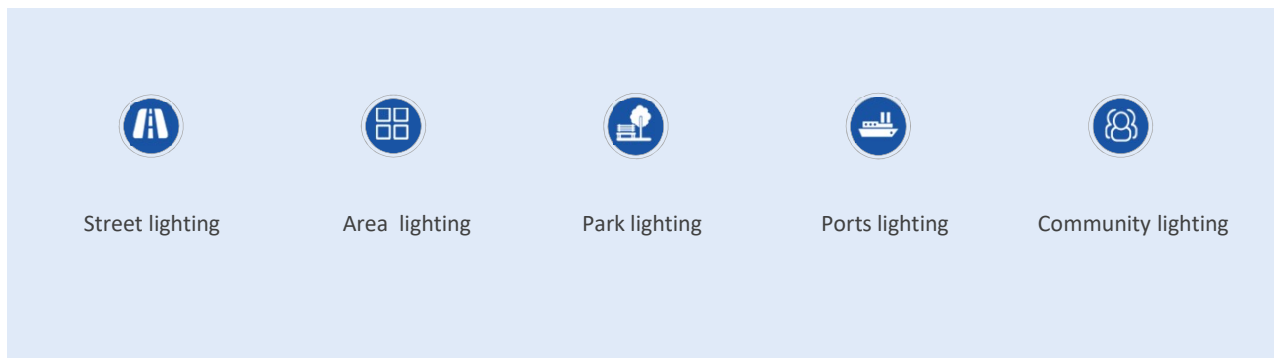




Single Lamp Controller

MODEL: FONDA-LCU16LD

Application



Features

- | | |
|--|--|
|  LoRa Frequency communication |  Recording and resetting : total energy consumed |
|  Standard NEMA 7-PIN interface, plug and play |  Lightning protection |
|  Remotely turn ON/OFF, built-in 16A relay |  Remotely read electrical parameters : current , voltage , power factor and consumed energy |
|  Lamp failure detection and auto report to server |  Optional module: GPS, Tilt and RTC |
|  Dimming interface: DALI , 0-10V (default) |  Waterproof : IP66 |
|  Nema Pin optocoupler output | |

Basic Information

Model		FONDA-LCU16LD
AC Input AC Output	Voltage Range	100V-240VAC
	Frequency Range	50-60Hz
	Current Range	0-2A
	Static Power	< 2W
	Max Load	≤ 400W
	Data Accuracy	≤ 3%

Dimming Information

Mode	Analog Voltage	DALI
Output	0-10V	DALI 1.0
Note	Preset 100%, Voltage=10V or 0V	Standard DALI

Working Environment

Working Temperature	-40 ~ +85°C
Storage Temperature	-55 ~ +125°C
Waterproof	IP66
Humid	<95%
Weight	0.24Kg
Size	Diameter 84mm, Height 98mm

Data Reading

Voltage Detection	100V-240VAC
Current Detection	0-2A
Data Accuracy	≤3%
Active Power Calc	Yes
Power Factor Calc	Yes
Energy Record	Yes

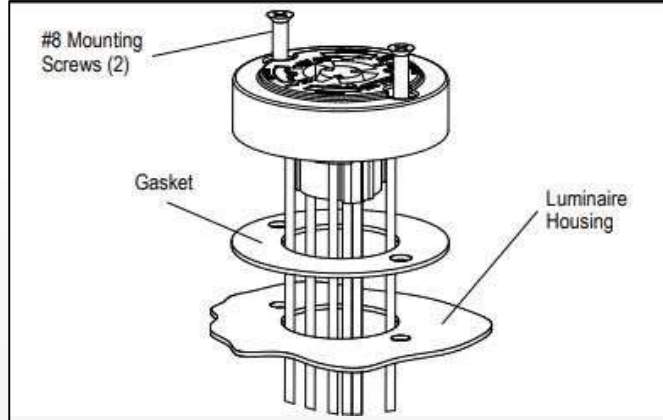
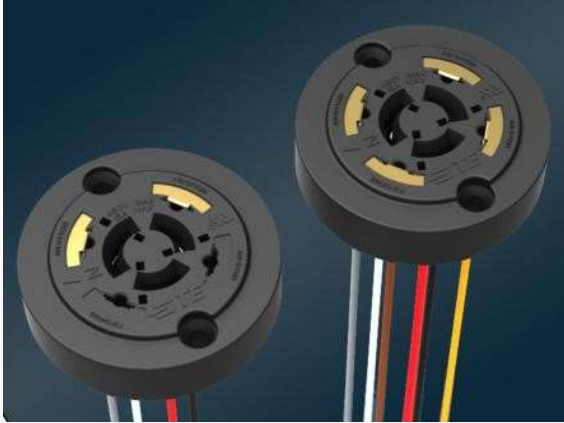
Communication Performance

Model	FONDA-LCU16LD
Frequency	915MHz
Range	902.3~926.8MHz
Channels	50
Transmit Power(MAX)	21 dBm
RX Sensitivity	-135±1 dBm
Coverage	1.0km visual distance
Application	Accept command instructions from LoRa gateway, transmit its own status and measurement data back

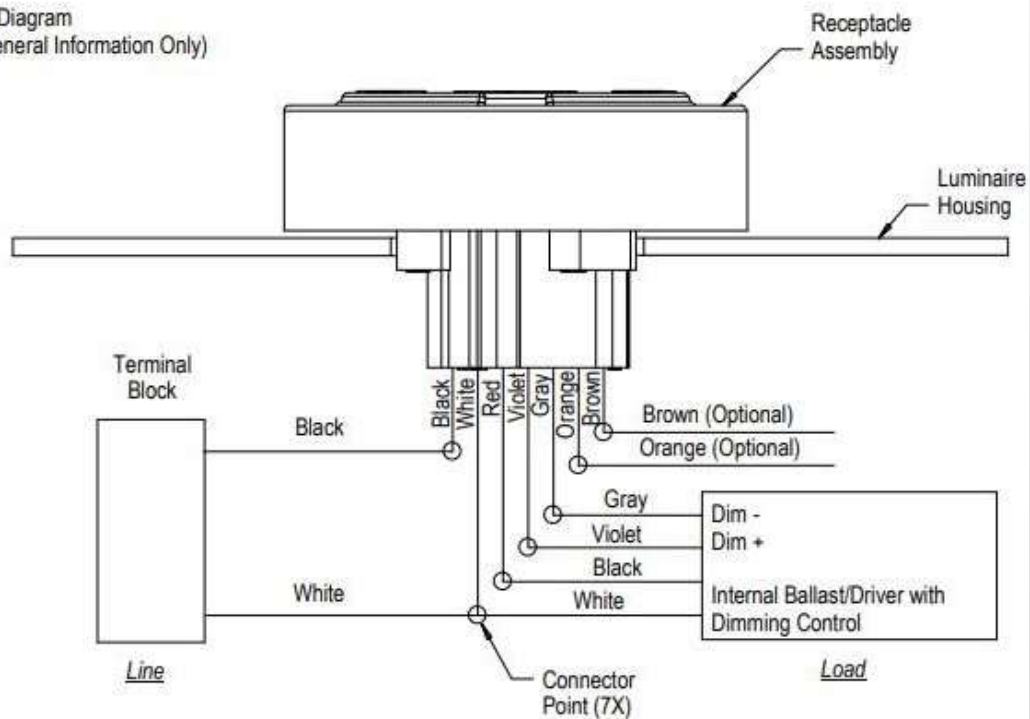
Other Functions

Failure Detection	Lamp failure, compensation capacitor failure, power failure
Photocell	Customize, provide parameter Settings
Tilt	Customize, preset 30°
GPS	Customize, support GPS & Beidou

FONDA-LCU16LD Wiring Diagram



Wiring Diagram
(For General Information Only)



Standard: C136.41

Manufacture Company Name: ZHEJIANG FONDA TECHNOLOGY CO.,LTD

Address: 9TH FLOOR SHUYU BUILDING, NO.98 WENYI WEST ROAD, XIHU DISTRICT, HANGZHOU, ZHEJIANG, CHINA

Commercial Record (Trade License) : 913301065802789569

This model of our company's FCC certified products: FONDA-LCU16LD, make the following statement:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

FCC Warning:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE 1: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



FONDA TECHNOLOGY

User Manual For Fonda LD Solution

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1. Device Introduction

1.1 Device Appearance

Fonda LD Lamp Controller (short for LCU) with NEMA interface is as shown below.



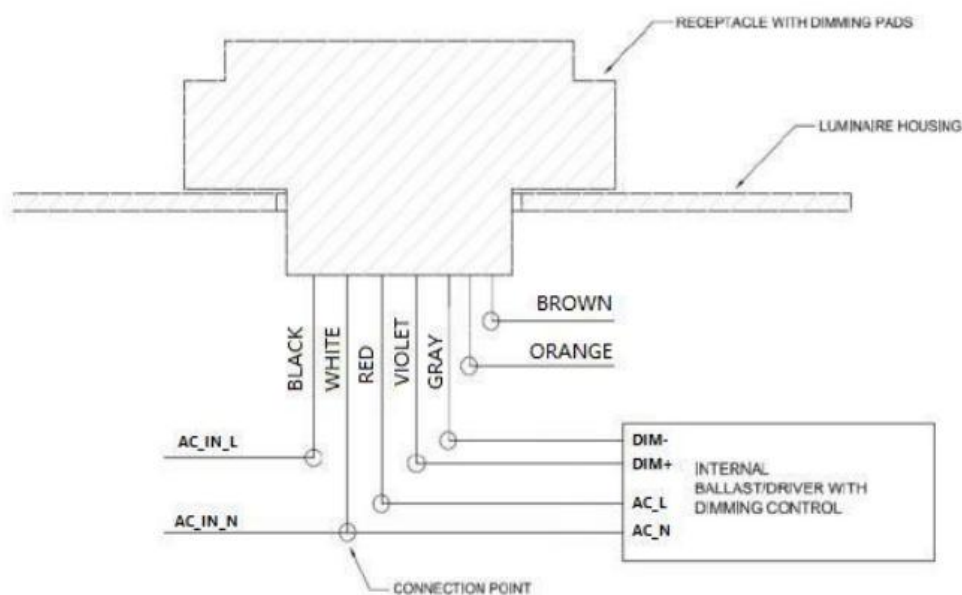
Fonda LD Gateway (short for gateway) is as shown below.



1.2 Device Installation

LCU with NEMA interface can be connected to 7-pin NEMA socket which is compliant with ANSI C136.41 standard.

Insert the LCU into the NEMA socket, rotate LCU clockwise by 30 ° to fully power on the LCU.



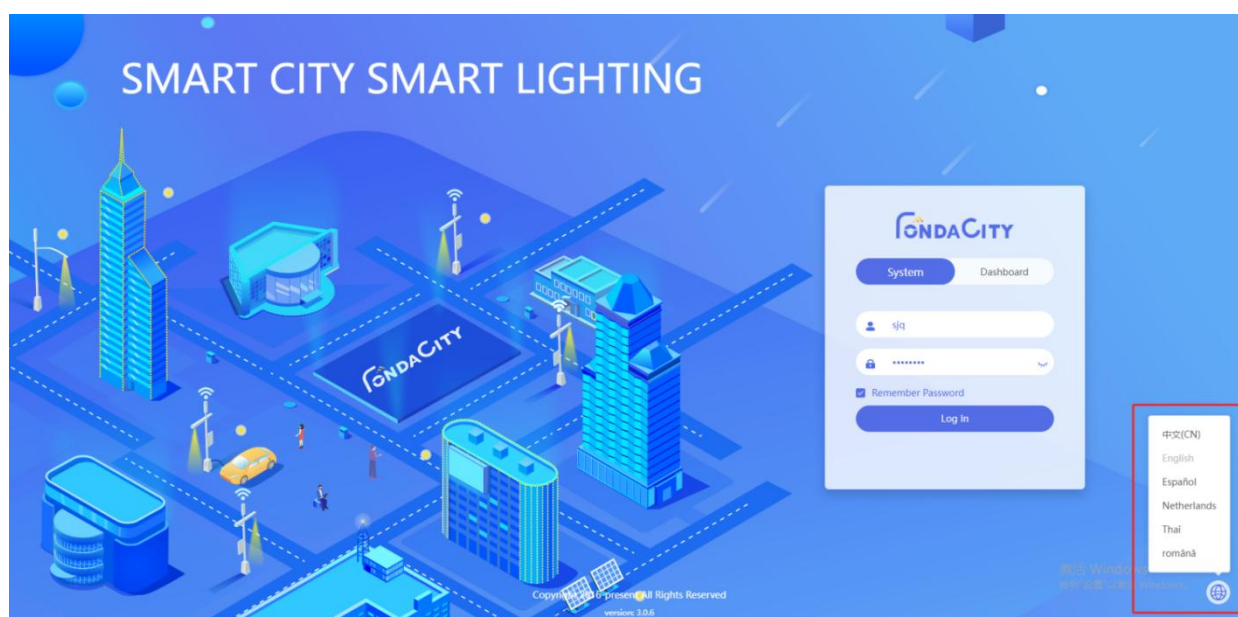
The gateway should be installed in a reasonable location with less obstruction and able to cover the LCUs, on a high pole or tower. Please design and confirm the specific installation locations with Fonda team.

2. Platform Login

Open browser and input the IP address of your Fonda City platform, enter.

← → ↻ 🏠 🔍 183.129.24 [REDACTED] /#/login

Switch the language that you need in the bottom right corner.



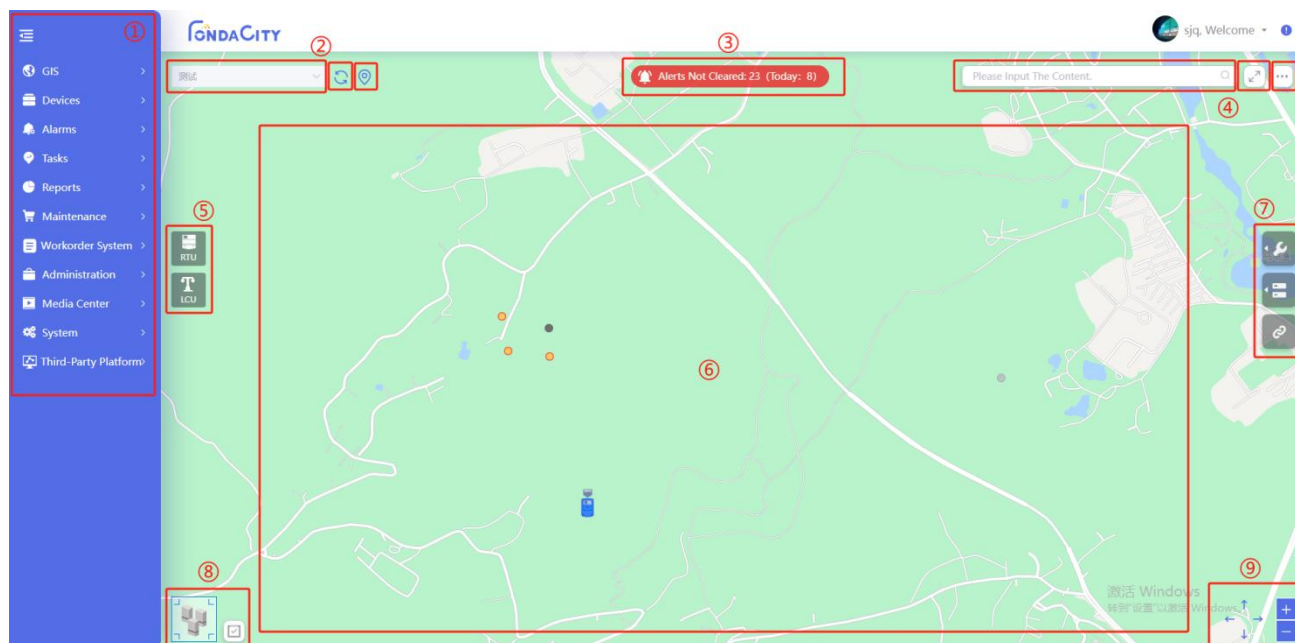
Select the interface to enter, “System” or “Dashboard”.

Input your account name and password, then click the “Log In” button.



3. System Interface

If you select the “System” interface and log in, you will see an interface like this.



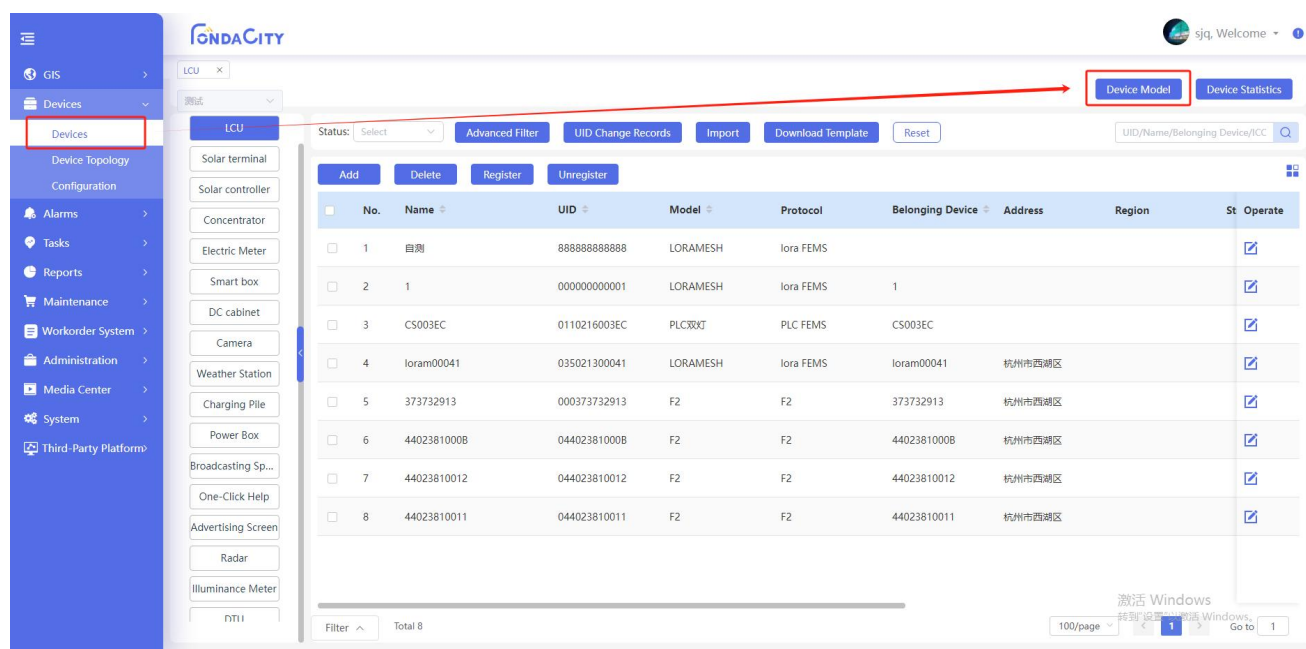
Functional area description:

- ① Function catalog
- ② Switch projects, refresh and positioning
- ③ Unclear alarms
- ④ Search, full screen and operation menu
- ⑤ View different devices
- ⑥ Map and locations of devices
- ⑦ Batch operations, device list and linkage records
- ⑧ Switch project / cabinet view, execution result details
- ⑨ Map movement and zoom in/out

4. Add Device Model

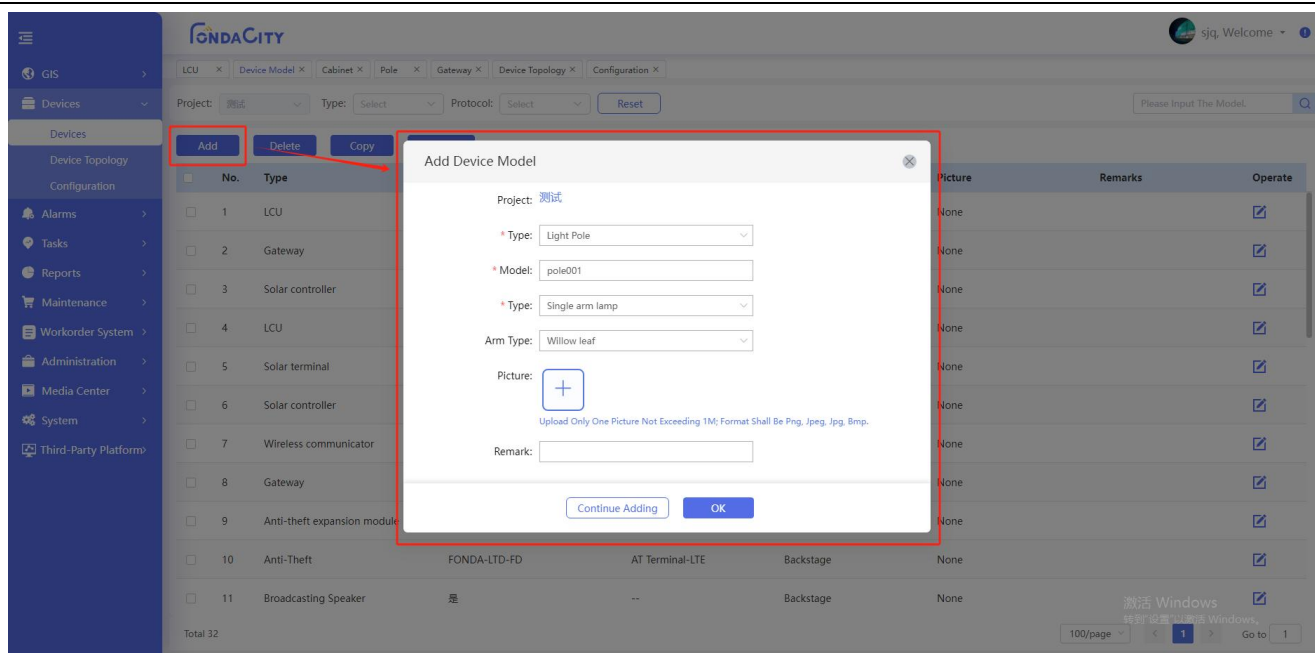
Before add devices to the project in system, you need to add device models first.

Open “Devices”, click “Device Model”, you can add device models, such as light pole, lamp, gateway and LCU in LD network.



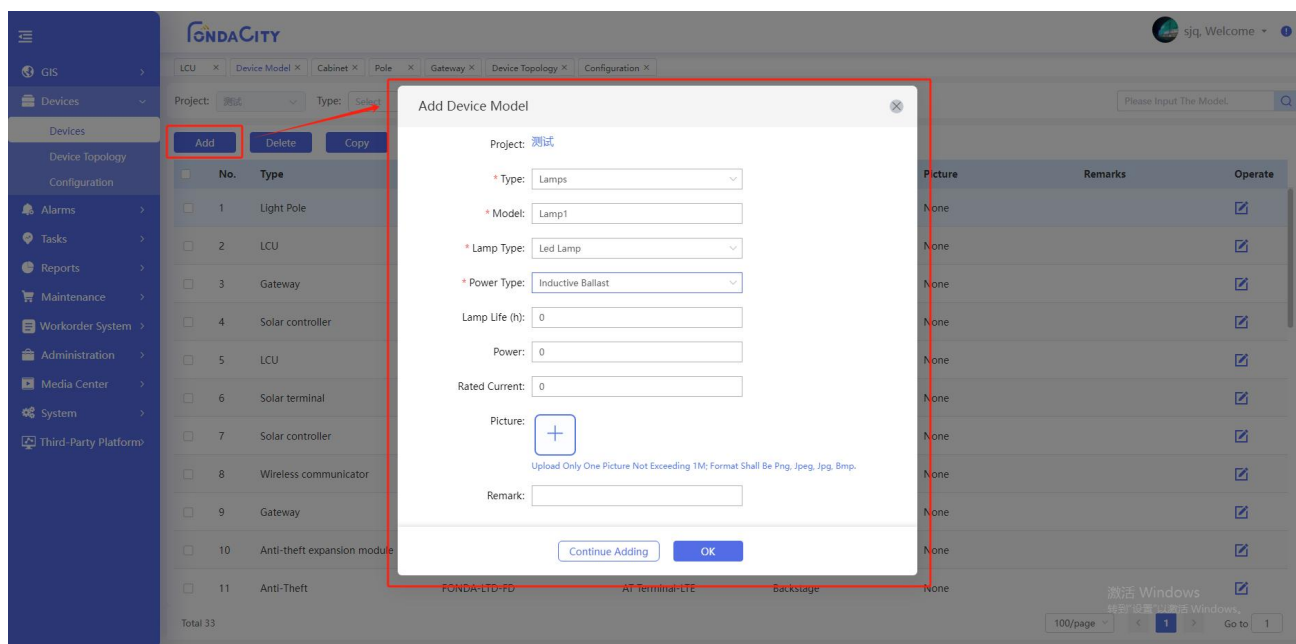
4.1 Add Light Pole Model

The light pole model can be added as shown below. “Type” select “Light Pole”, in “Model” you can input self-defined model name, select the type and arm type of the pole, and you can also add picture and remark. In the end, click “OK”.



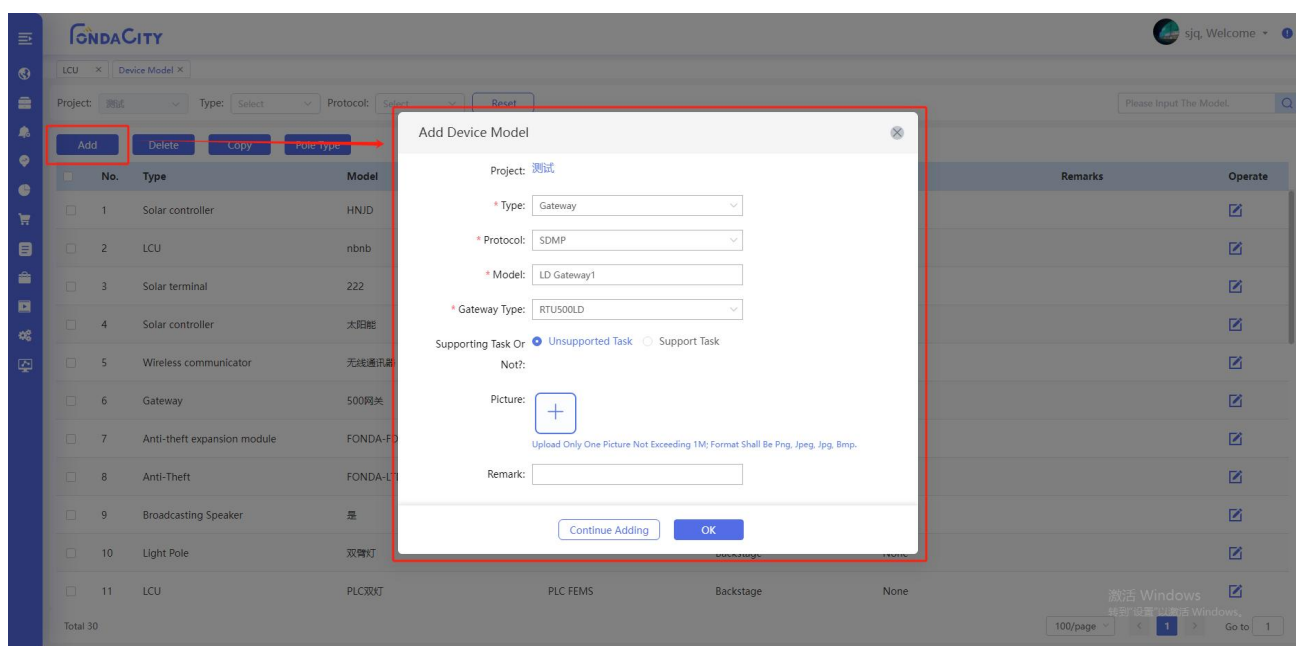
4.2 Add Lamp Model

The lamp model can be added as shown below. “Type” select “Lamps”, in “Model” you can input self-defined model name, select the lamp type and power type of the lamp, and you can also add picture and remark. In the end, click “OK”.



4.3 Add Gateway Model

The gateway model of LD network can be added as shown below. “Type” select “Gateway”, “Protocol” select “SDMP”, in “Model” you can input self-defined model name, “Gateway Type” select “RTU500LD”, “Supporting Task Or Not” select “Unsupported Task”, and you can also add picture and remark. In the end, click “OK”.



4.4 Add LCU Model

The LCU model of LD network can be added as shown below. “Type” select “LCU”, “Protocol” select “RF F2”, in “Model” you can input self-defined model name, “Supporting Task Or Not” select “Supported Task”, “LCU Type” select “LCU16LD”, in “Dimming Level” you can select “20” or “100”, and you can also add picture and remark. In the end, click “OK”.

FONDA CITY

LCU Gateway Device Model

Project: 测试 Type: Select Protocol: Select

Add Delete Copy Pole Type

No.	Type	Model	Remarks	Operate
1	Gateway	LD Gateway		
2	Solar controller	HN/D		
3	LCU	nbnb		
4	Solar terminal	222		
5	Solar controller	太阳能		
6	Wireless communicator	无线通信器		
7	Gateway	500网关		
8	Anti-theft expansion module	FONDA-ED		
9	Anti-Theft	FONDA-LT		
10	Broadcasting Speaker	是		
11	Light Pole	双臂灯		

Total 31

Add Device Model

Project: 测试

* Type: LCU

* Protocol: RF F2

* Model: LD LCU1

Supporting Task Or Not?: ☐ Unsupported Task ☒ Support Task 10

* LCU Type: LCU16LD

* Lamp Number: 1

* Dimming Level: 20

Picture:

Upload Only One Picture Not Exceeding 1M; Format Shall Be Png, Jpeg, Jpg, Bmp.

Remark:

Continue Adding OK

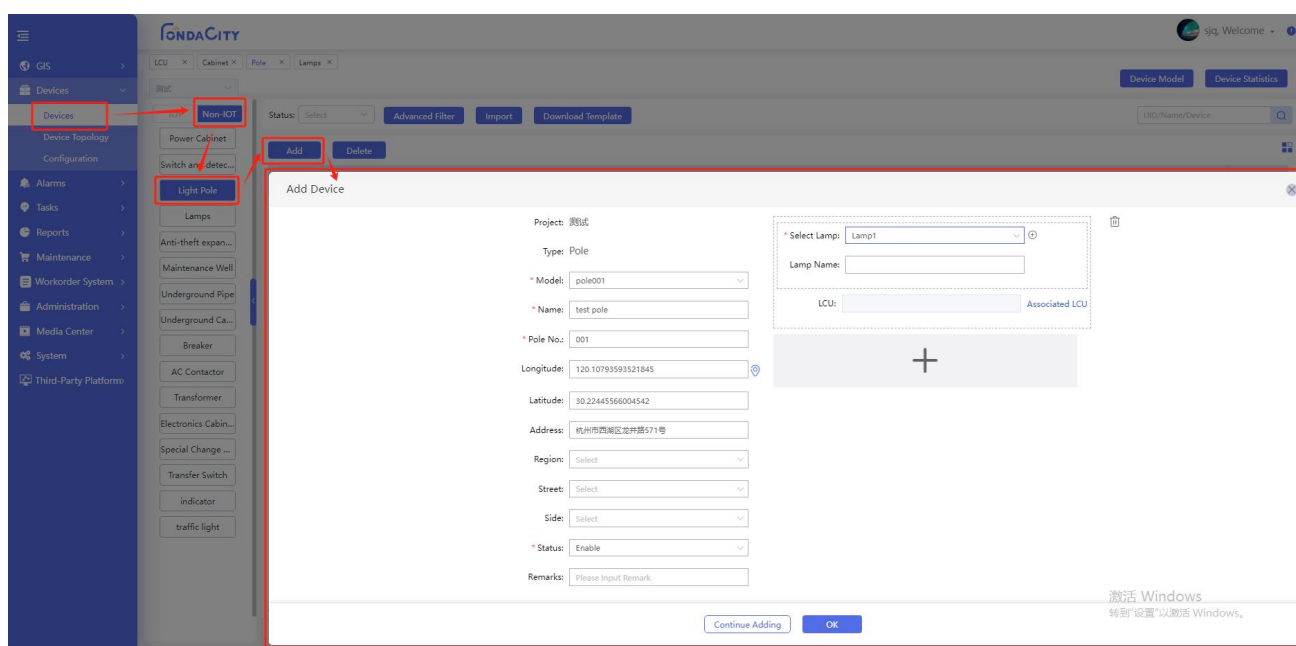
Backstage None

100/page 1 Go to 1

5. Add Devices To Project

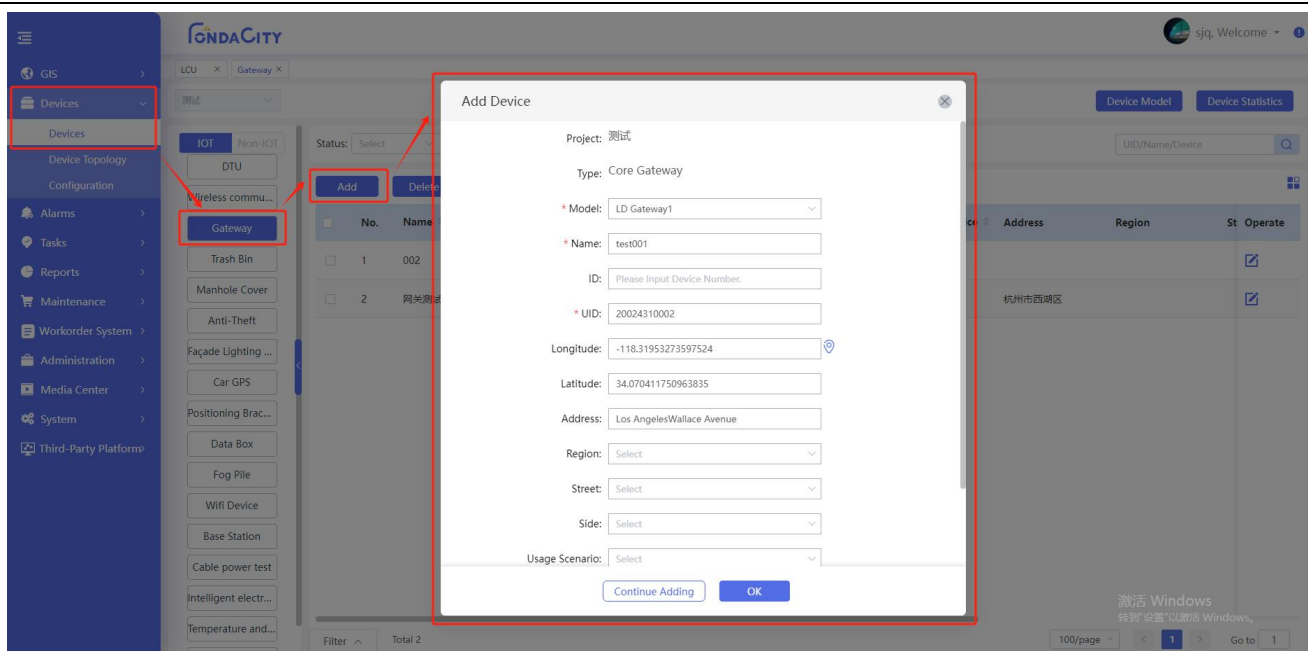
5.1 Add Light Pole To Project

Open “Devices”, click “Non-IOT”, click “Light Pole”, then click “Add”, in the new settings interface you can select the light pole model created in previous steps, input name, pole number, location, lamp type and other information. In the end, click “OK”.



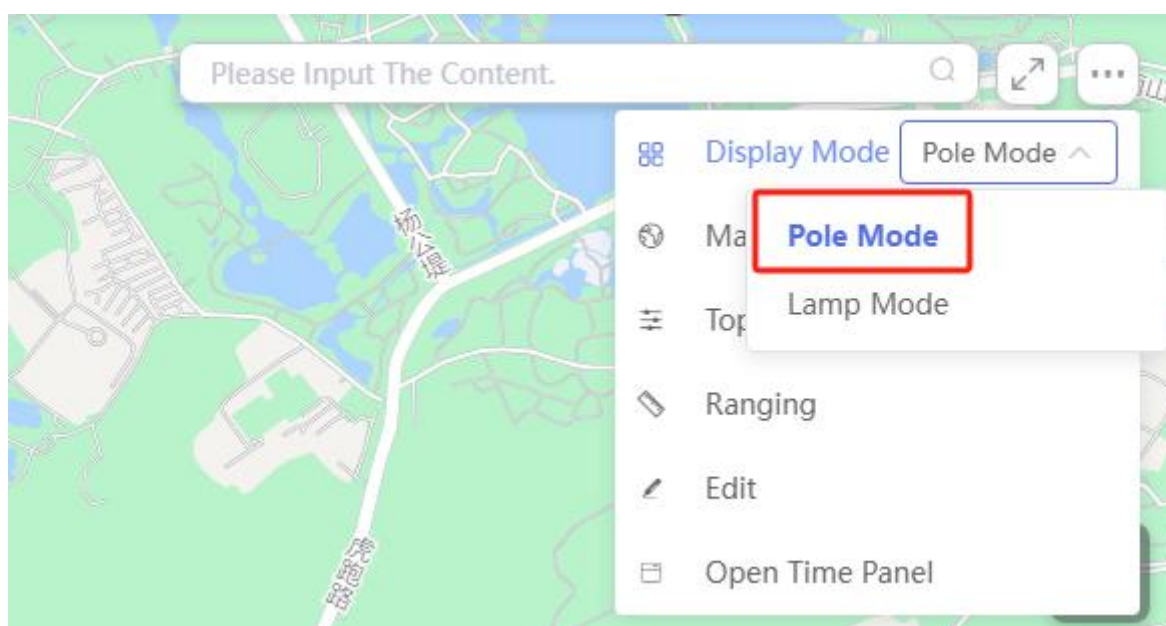
5.2 Add Gateway Device To Project

Open “Devices”, click “Gateway”, then click “Add”, in the new settings interface you can select the gateway model created in previous steps, input name, UID and other information. In the end, click “OK”.



Notice:

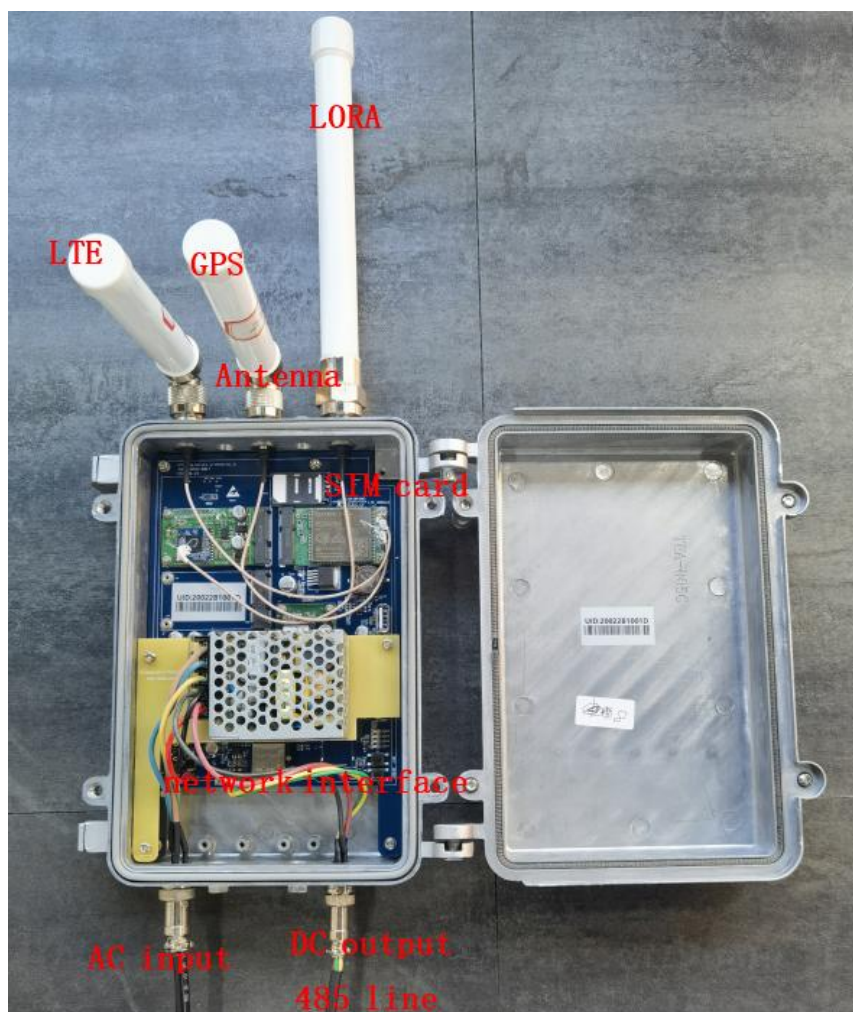
- In the GIS map interface, gateway device is in an invisible state in Lamp Mode, so we need to change "Display Mode" to "Pole Mode" to check the location of gateways.



5.3 Gateway Web Configuration

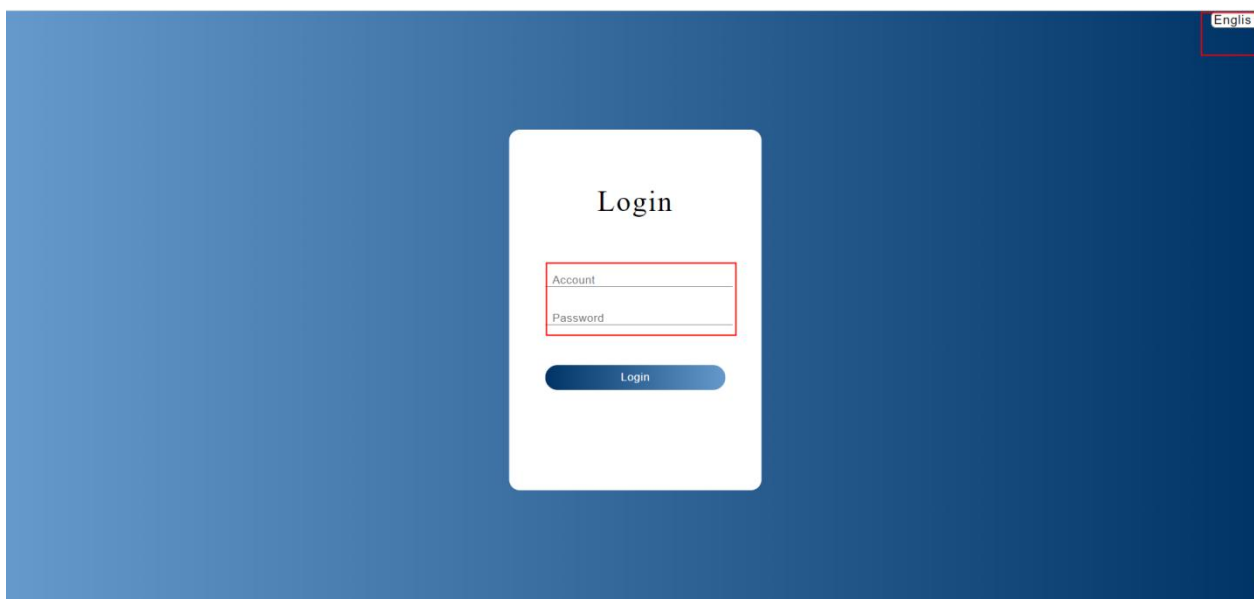
After adding the gateway device to the platform, we also need to configure the gateway parameters to bring it online. We need to connect the gateway device to PC through network

interface first. For example, this is a RTU500LD gateway in the picture. The network interface is in the lower part inside the casing. Connect the network interface to PC with a network cable.

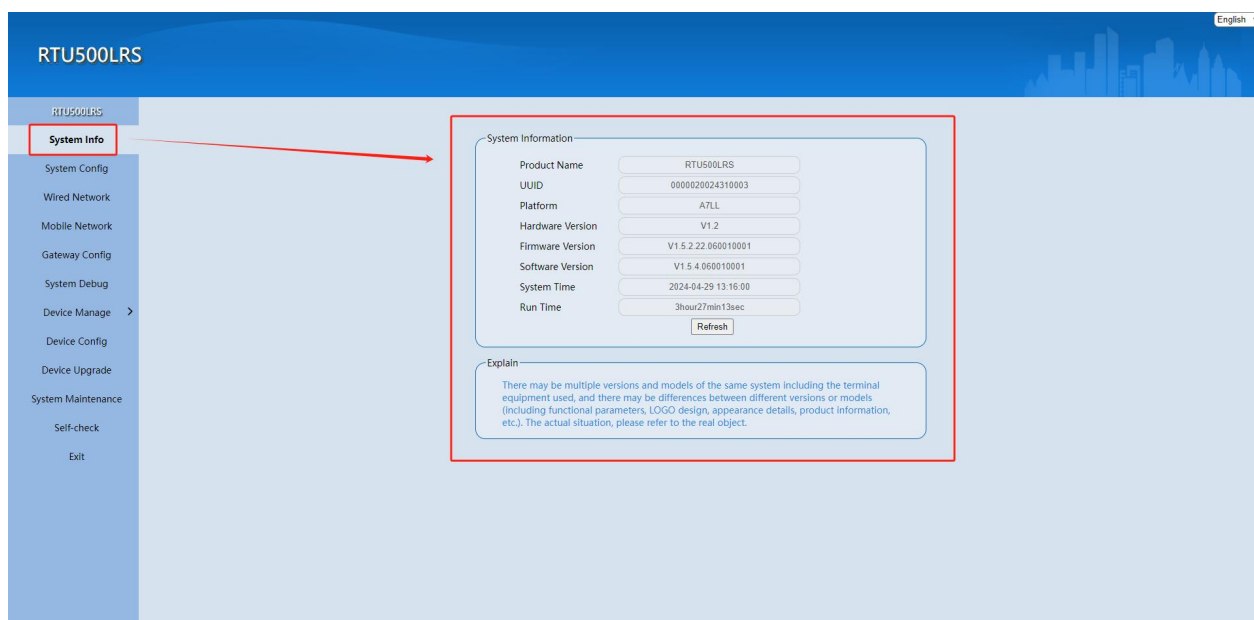


Configure the PC to the same network segment (192.168.1.XXX) as the gateway.

Open the browser(recommend Google Chrome), input the gateway IP address(192.168.1.253), and press Enter to enter the built-in web interface of the gateway (default account name: admin, password: 123456).

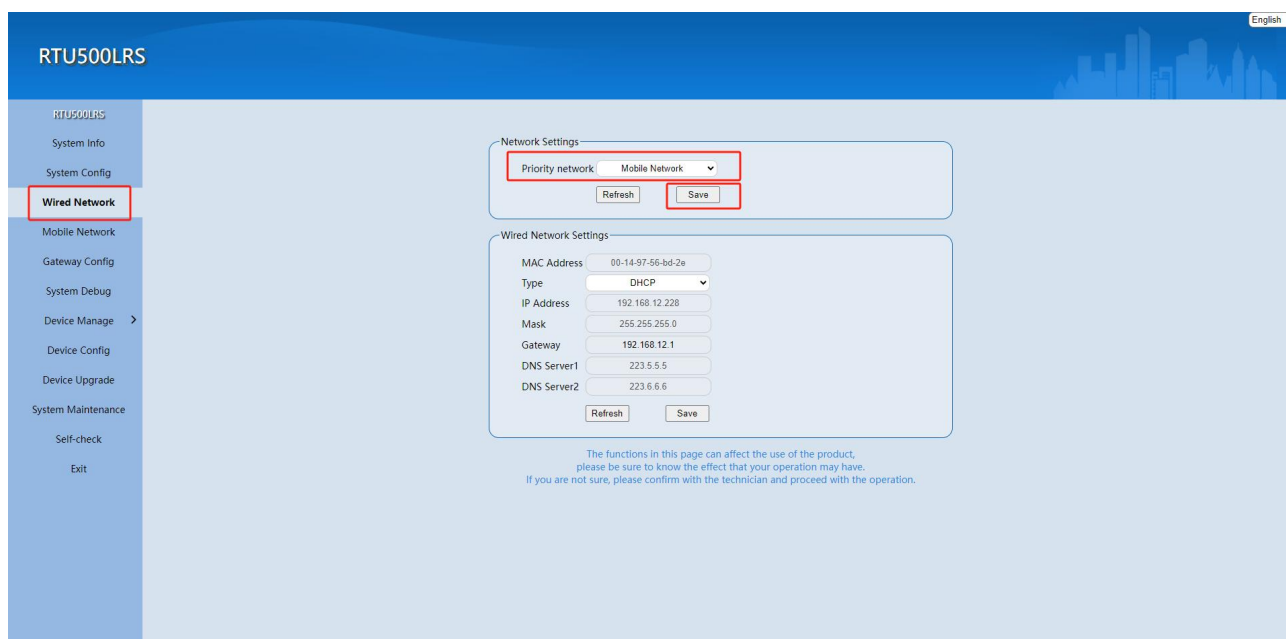


After logging in, you can check the system information in “System Info” interface.

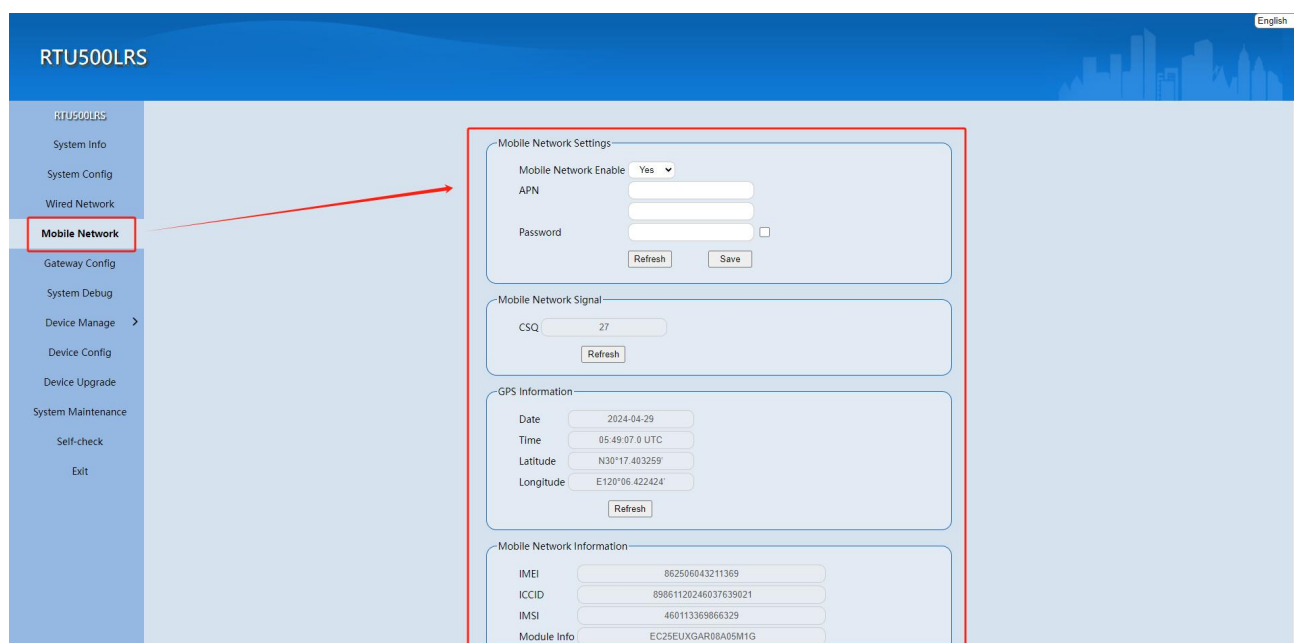


Then you need to select uplink network access modes (mobile network or wired network), as shown below:

- ① If you select mobile network uplink, select “Mobile Network” in Network Settings, and click “Save”.



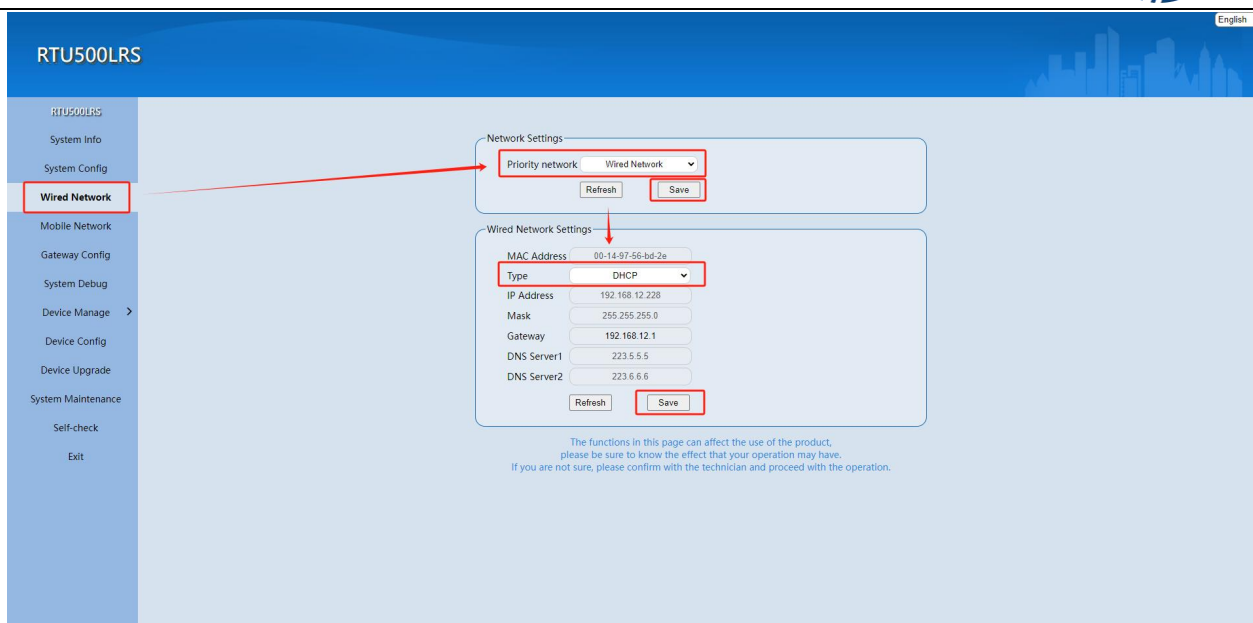
And configure mobile network settings in “Mobile Network” interface.



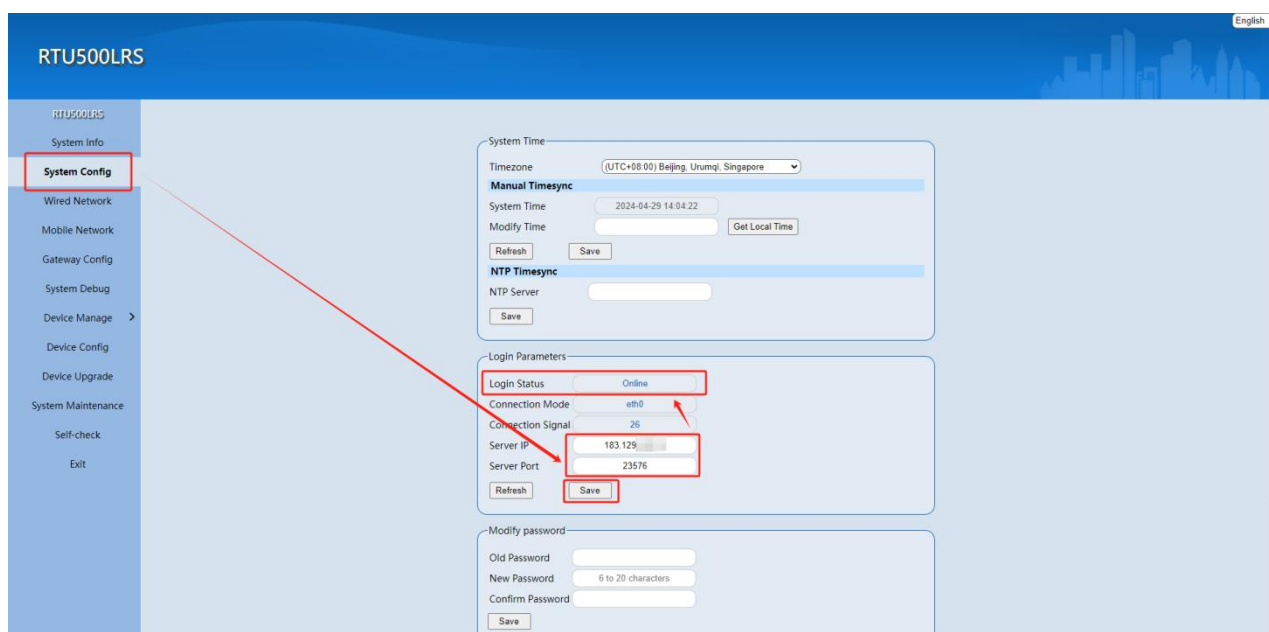
② If you select wired network uplink, select “Wired Network” in Network Settings, and click “Save”. Select “DHCP” or “Static”, and click “Save”.

Notice:

- After configuring the network parameters, the IP address may change, and PC must change to the same network segment as the gateway to log in the web interface.



Set the platform server IP address and port for gateway connection. After setting up, save and restart the gateway, and the connected status will be displayed. As shown below:

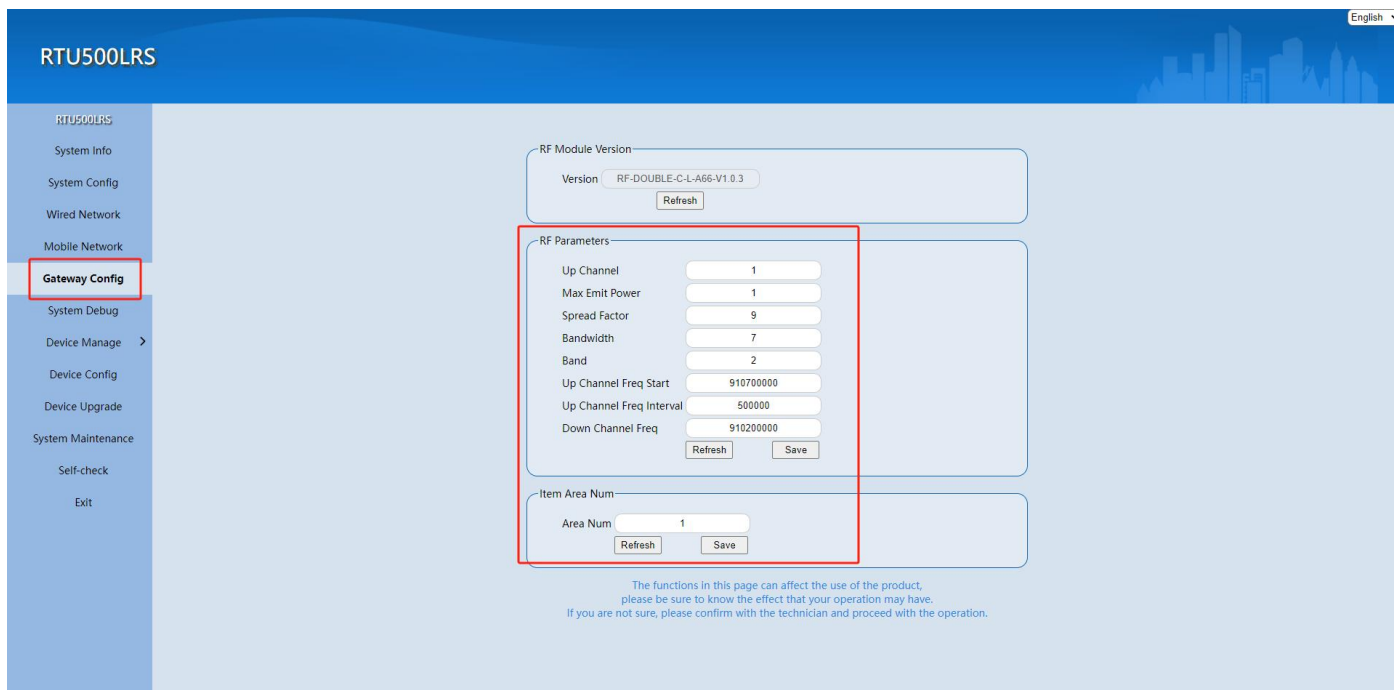


At last you can configure RF parameters, change the gateway up channel number to 1-8. Please do not modify downlink frequency, uplink frequency.

Notice:

- The up channel number of adjacent gateways in the same area cannot be same, and gateways with the same channel number should be installed as far away as possible to reduce mutual

interference between gateways.



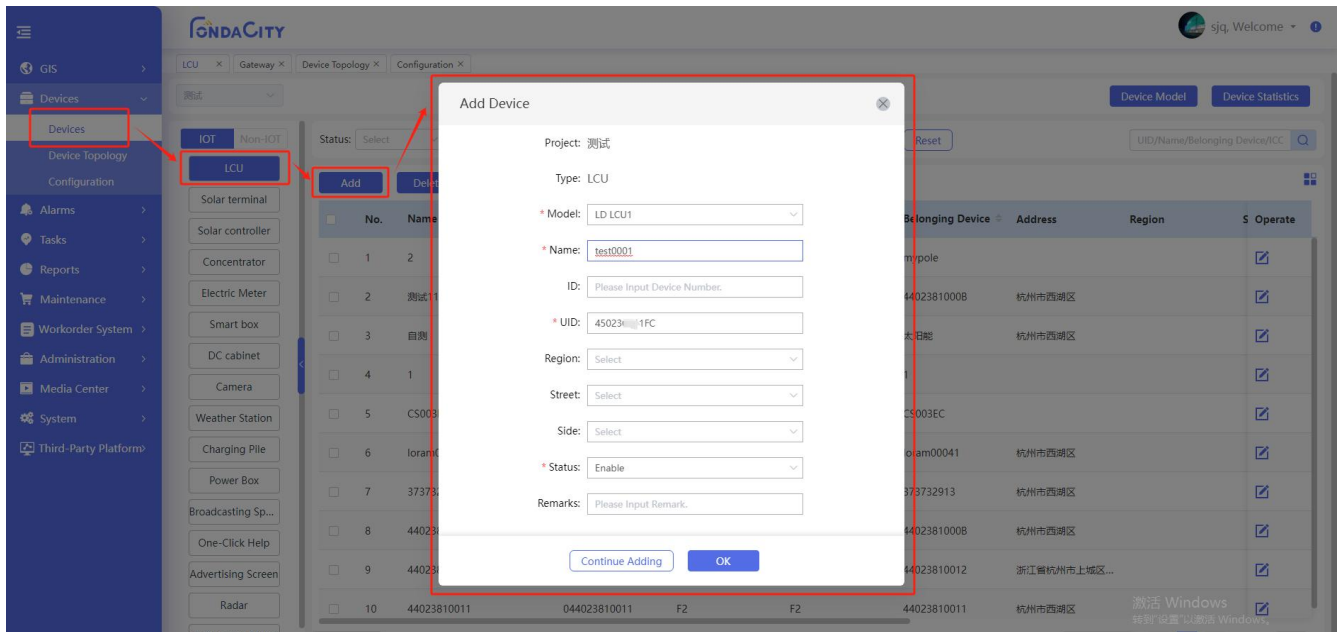
After the modification of the gateway RF parameters, please take a screenshot of this configuration page and mark it with the UID of the gateway for future troubleshooting. After correct configuration of the gateway, it will become online status in the platform.

5.4 Add LCU Device To Project

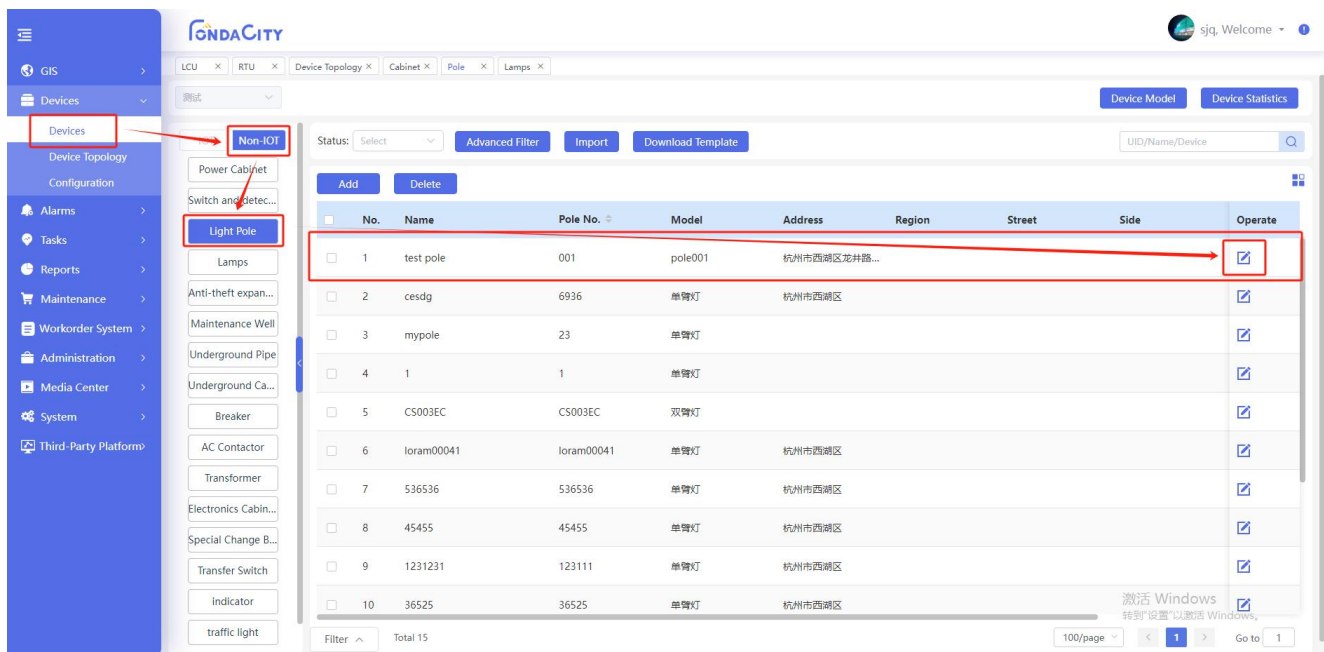
There are three ways to add LCUs: ① add them one by one directly, ② add them in batch by template, ③ scan the bar codes on LCUs to add them through APP.

① Add LCUs one by one

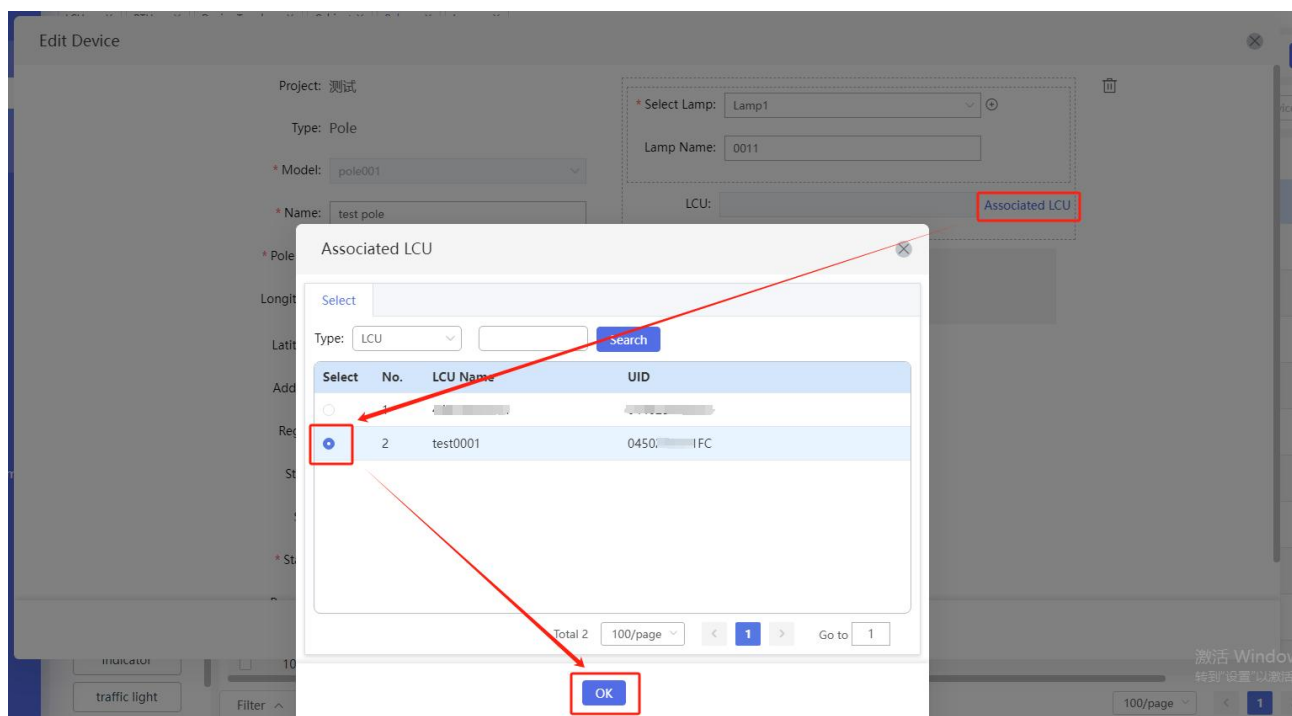
Open "Devices", click "LCU", then click "Add", in the new settings interface you can select the LCU model created in previous steps, input name, UID and other information. In the end, click "OK".



After adding LCUs, you need to find the associated light poles to bind them. Find the associated light pole and click the “Operation” button.

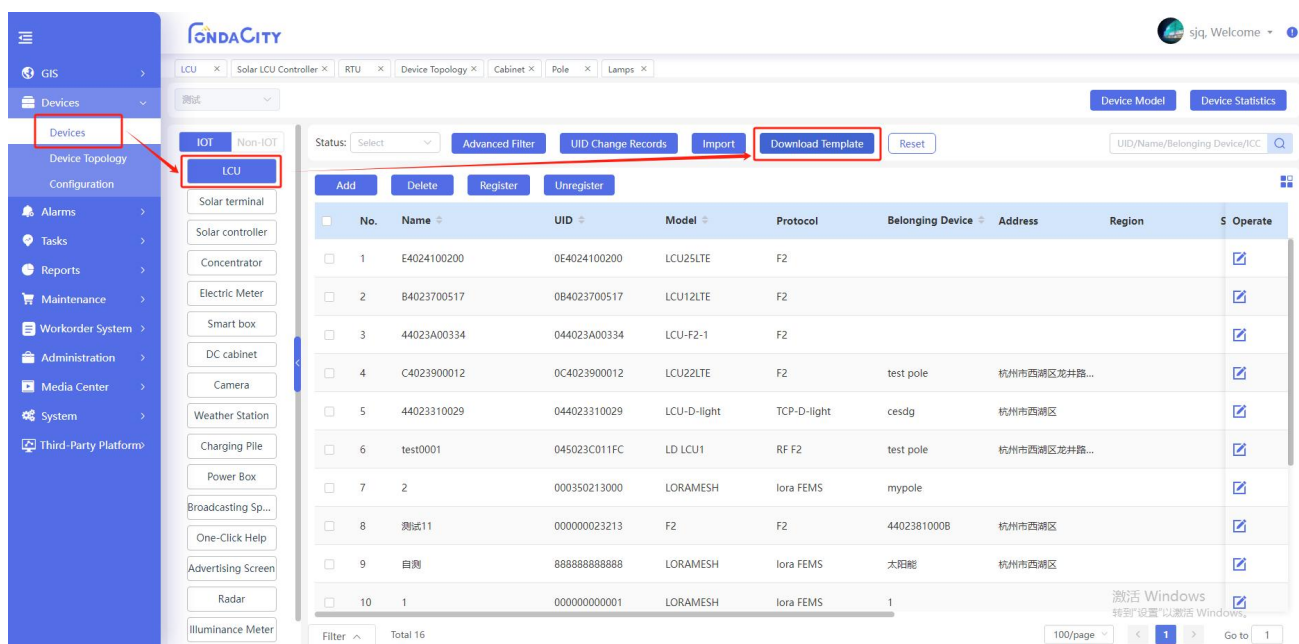


In the “Edit Device” interface, click “Associated LCU”, select the LCU and click “OK”.



② Add LCUs in batch by template

Open “Devices”, click “LCU”, then click “Download Template”.



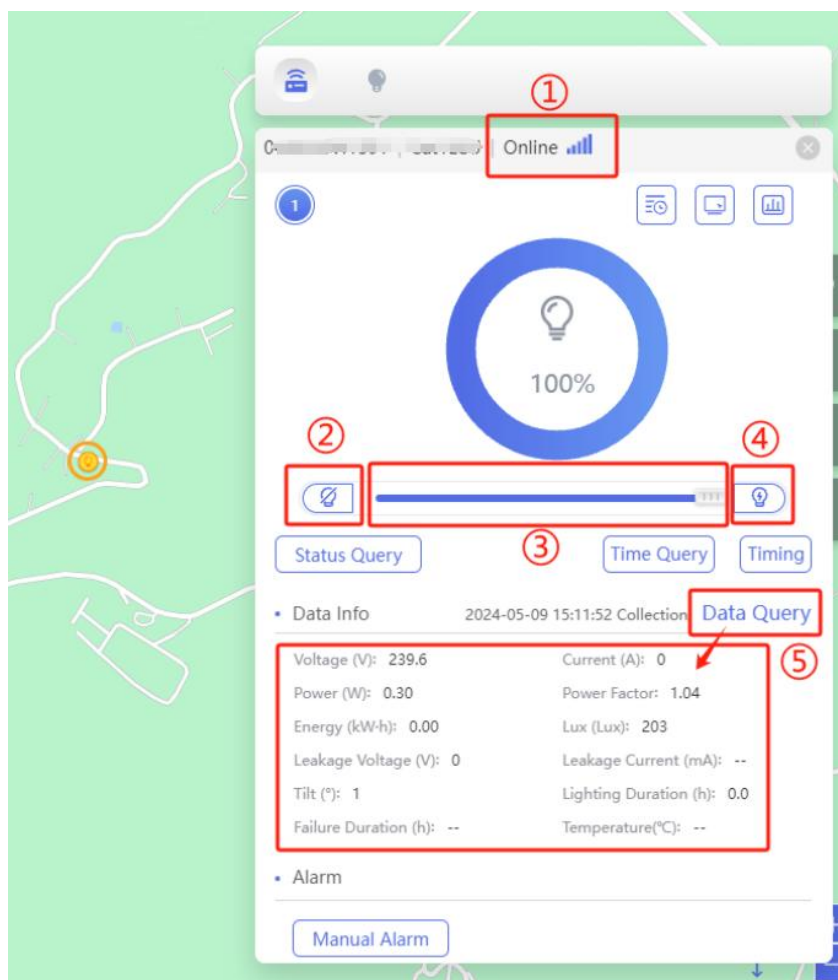
After downloading the template, you will get a form like this. Fill in the information of poles, lamps and terminals(LCUs), and save.

Notice:

- All device models in the template must be same as the models you add in the platform, otherwise

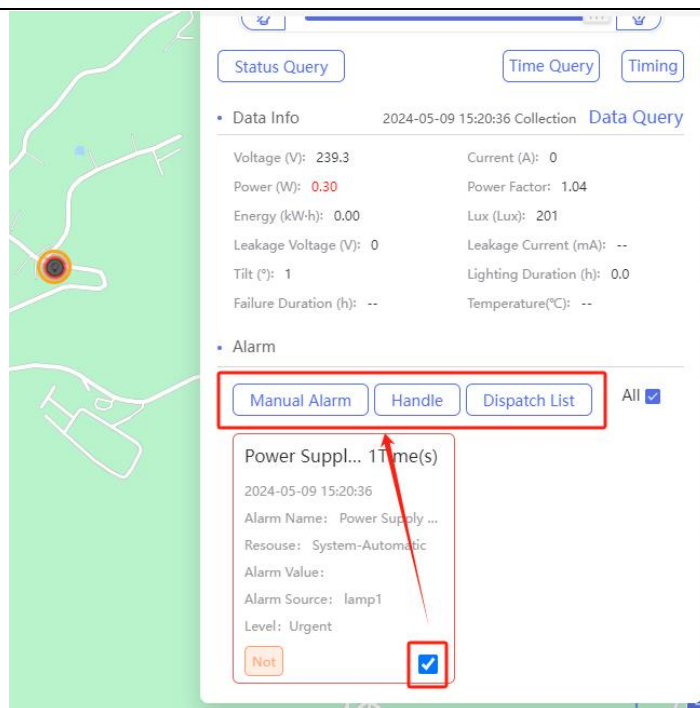
5.5 LCU Operation

After adding the LCUs, if the LCUs power on and connect to gateways normally, LCUs will become online status in the platform as shown below.



- ① Online/offline status
- ② Turn off the lamp
- ③ Slide to dim the lamp
- ④ Turn on the lamp
- ⑤ Query real-time power parameters

You can also check the alarms in the LCU and the lamp, select an alarm to handle or dispatch a work order.

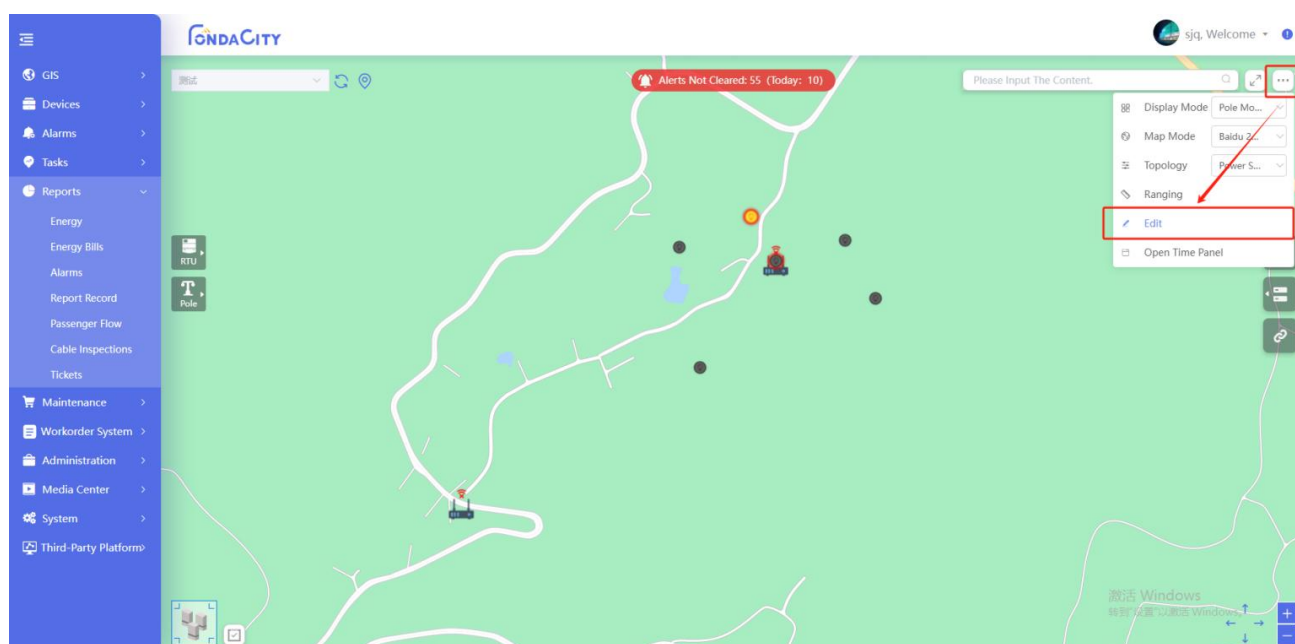


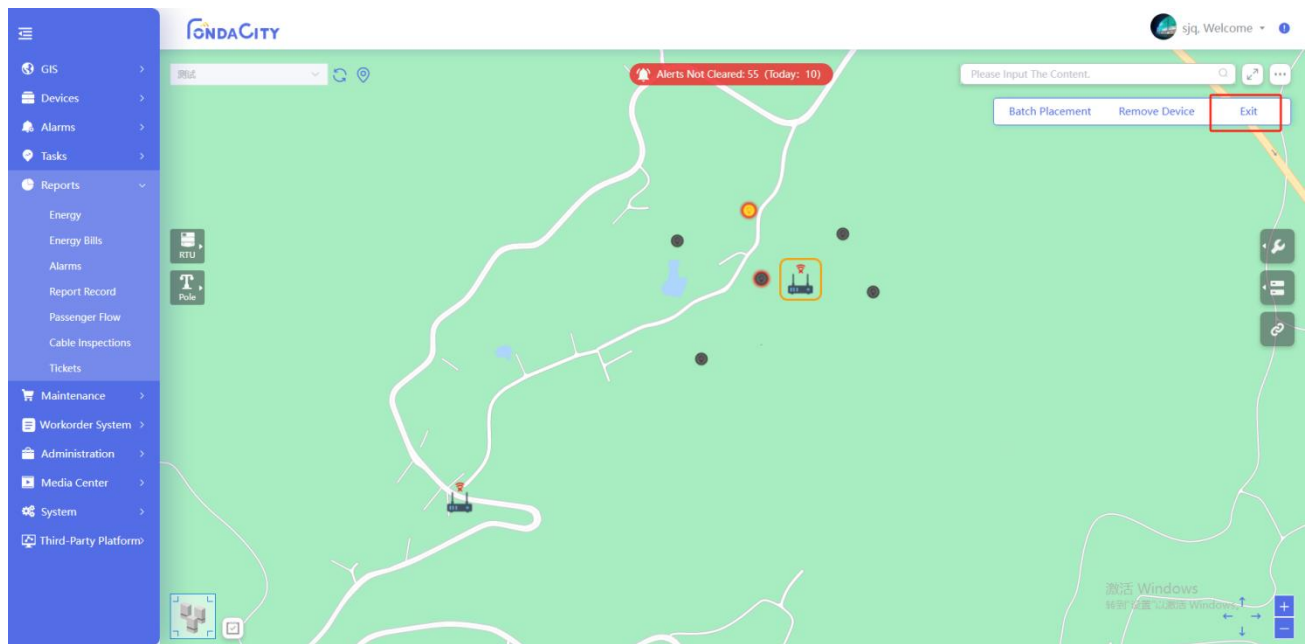
5.6 Change Locations Of Devices On The Map

Change “Display Mode” to “Pole Mode”, and click “Edit”.

You can change the locations of the devices and exit at last.

If the latitude and longitude information has already been filled in when adding the devices, this step can be omitted.

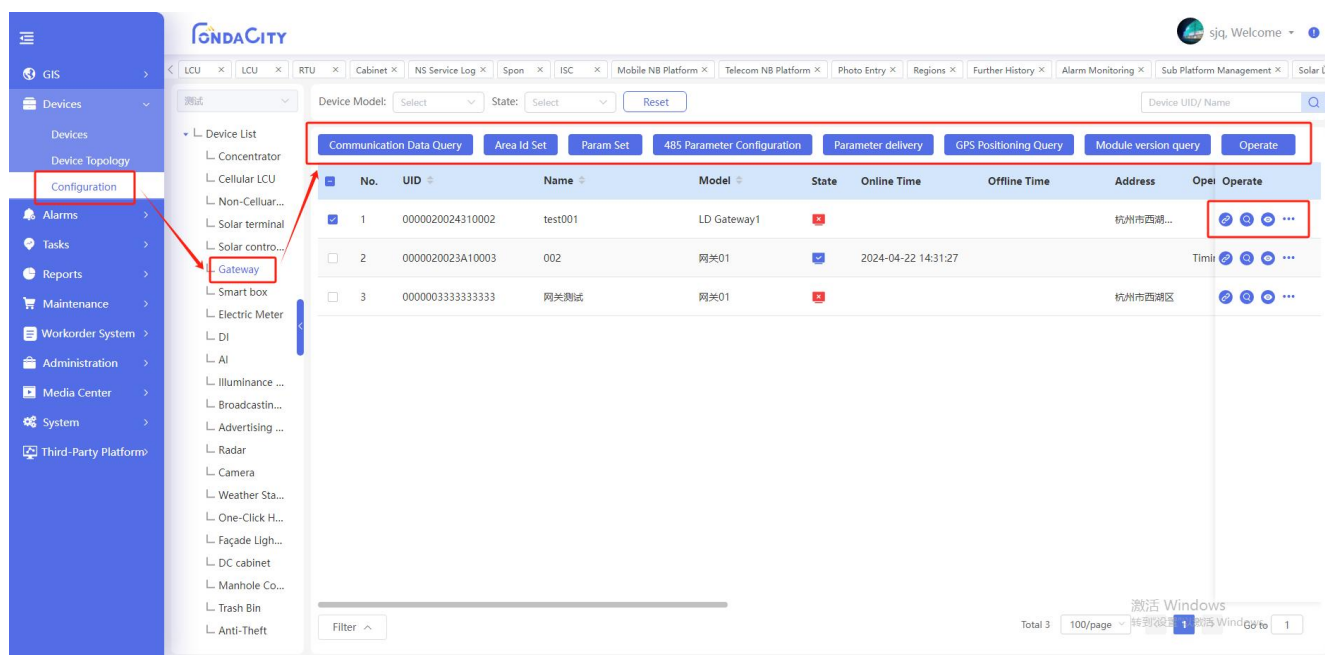




6. Device Configuration

In the configuration interface, we can perform relevant operations on the devices. For example, status parameter query, modifying parameters, upgrading version, rebooting, controlling lamps and so on.

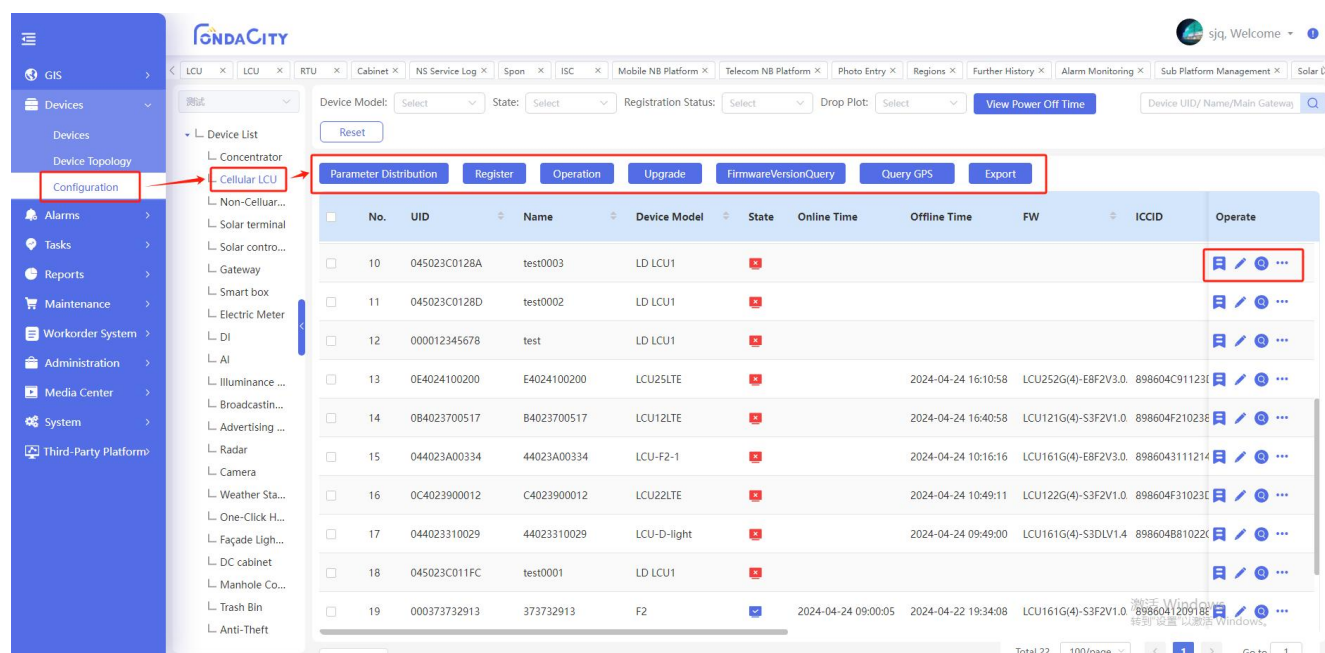
The configuration interface of gateway:



The screenshot shows the 'Gateway' configuration interface in the FONDA CITY system. The left sidebar contains a menu with 'Configuration' highlighted. The main area displays a table of gateways with columns: No., UID, Name, Model, State, Online Time, Offline Time, Address, and Operate. A red box highlights the 'Operate' column for the first gateway (test001), showing icons for edit, delete, and other actions. Above the table, there are tabs for 'Communication Data Query', 'Area Id Set', 'Param Set', '485 Parameter Configuration', 'Parameter delivery', 'GPS Positioning Query', 'Module version query', and 'Operate'.

No.	UID	Name	Model	State	Online Time	Offline Time	Address	Operate
1	0000020024310002	test001	LD Gateway1	✖			杭州市西湖...	[Edit] [Delete] [More]
2	0000020023A10003	002	网关01	✔	2024-04-22 14:31:27		Timi...	[Edit] [Delete] [More]
3	0000003333333333	网关测试	网关01	✖			杭州市西湖区	[Edit] [Delete] [More]

The configuration interface of LCU:



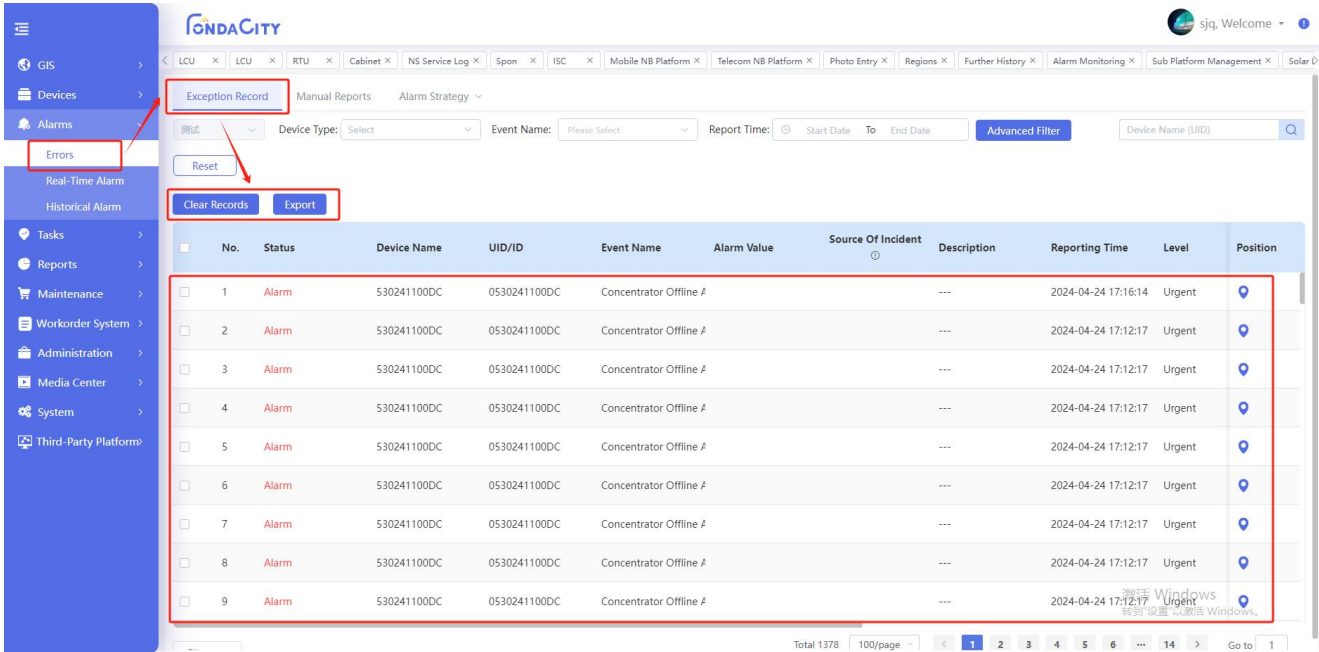
The screenshot shows the 'LCU' configuration interface in the FONDA CITY system. The left sidebar contains a menu with 'Configuration' highlighted. The main area displays a table of LCUs with columns: No., UID, Name, Device Model, State, Online Time, Offline Time, FW, ICCID, and Operate. A red box highlights the 'Operate' column for the first LCU (test003), showing icons for edit, delete, and other actions. Above the table, there are tabs for 'Parameter Distribution', 'Register', 'Operation', 'Upgrade', 'FirmwareVersionQuery', 'Query GPS', and 'Export'.

No.	UID	Name	Device Model	State	Online Time	Offline Time	FW	ICCID	Operate
10	045023C0128A	test0003	LD LCU1	✖					[Edit] [Delete] [More]
11	045023C0128D	test0002	LD LCU1	✖					[Edit] [Delete] [More]
12	000012345678	test	LD LCU1	✖					[Edit] [Delete] [More]
13	0E4024100200	E4024100200	LCU25LTE	✖		2024-04-24 16:10:58	LCU252G(4)-E8F2V3.0. 898604C91123		[Edit] [Delete] [More]
14	084023700517	B4023700517	LCU12LTE	✖		2024-04-24 16:40:58	LCU121G(4)-S3F2V1.0. 898604F21023E		[Edit] [Delete] [More]
15	044023A00334	44023A00334	LCU-F2-1	✖		2024-04-24 10:16:16	LCU161G(4)-E8F2V3.0. 8986043111214		[Edit] [Delete] [More]
16	0C4023900012	C4023900012	LCU22LTE	✖		2024-04-24 10:49:11	LCU122G(4)-S3F2V1.0. 898604F31023C		[Edit] [Delete] [More]
17	044023310029	44023310029	LCU-D-light	✖		2024-04-24 09:49:00	LCU161G(4)-S3DLV1.4. 898604B81022C		[Edit] [Delete] [More]
18	045023C011FC	test0001	LD LCU1	✖					[Edit] [Delete] [More]
19	000373732913	373732913	F2	✔	2024-04-24 09:00:05	2024-04-22 19:34:08	LCU161G(4)-S3F2V1.0. 898604120918E		[Edit] [Delete] [More]

7. Alarms

7.1 Errors

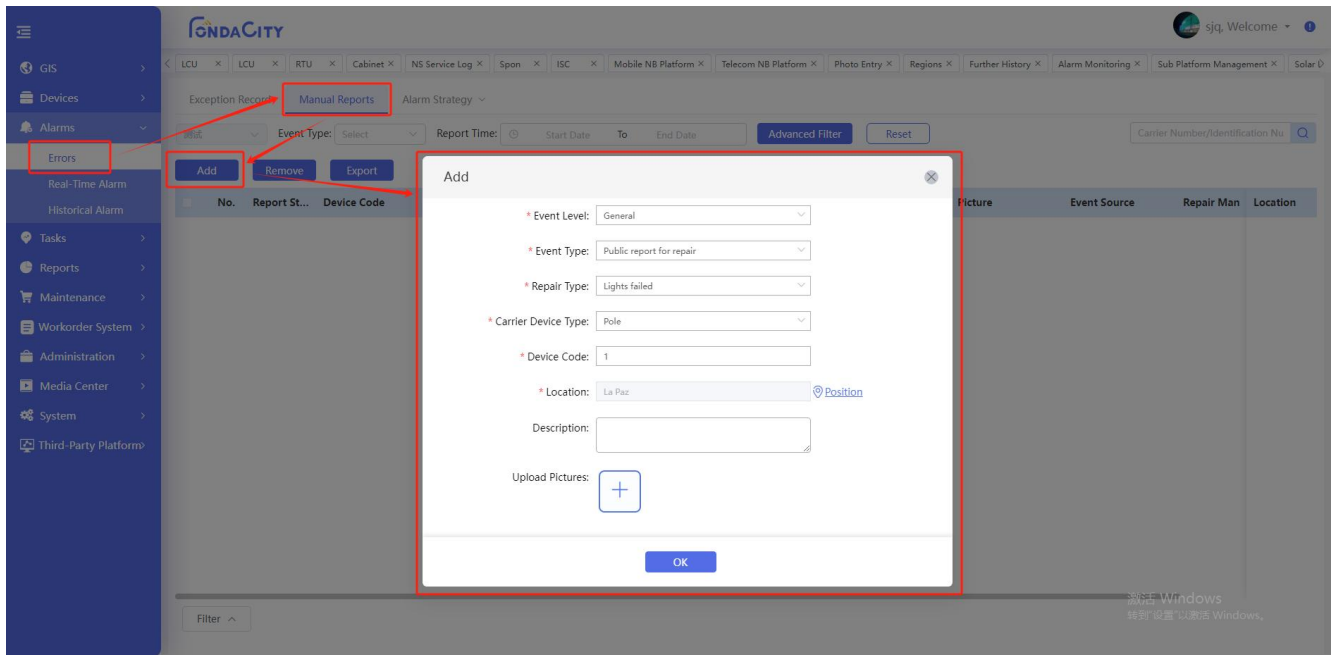
In “Errors” interface, under the label of “Exception Record”, you can check all the errors and alarms in the system, choose to clear records or export a form file.



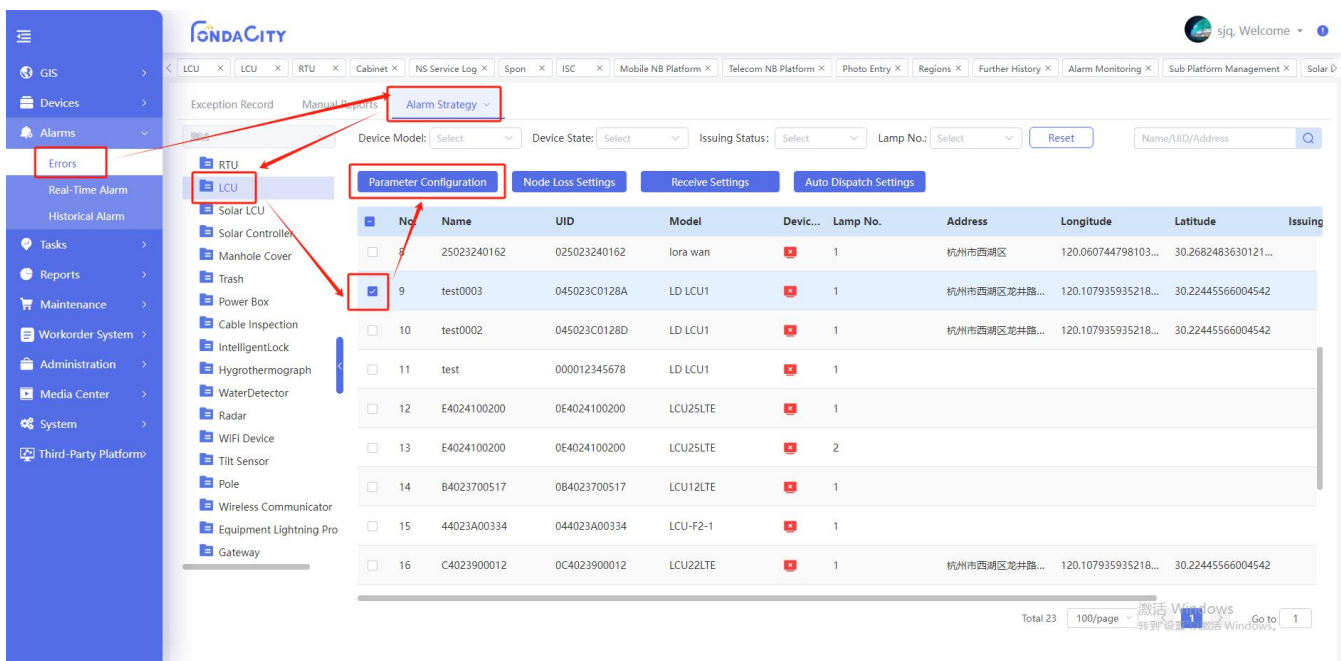
The screenshot shows the FONDA CITY web interface. On the left sidebar, the 'Alarms' menu is expanded, and 'Errors' is selected. The main content area has a tab labeled 'Exception Record'. Below this tab, there are filters for 'Device Type' and 'Event Name', and a 'Report Time' range selector. Two buttons, 'Clear Records' and 'Export', are visible. Below the filters is a table with the following columns: No., Status, Device Name, UID/ID, Event Name, Alarm Value, Source Of Incident, Description, Reporting Time, Level, and Position. The table contains 9 rows of data, all with a status of 'Alarm' and an event name of 'Concentrator Offline #'. The reporting times are all from 2024-04-24 17:12:17. The level is 'Urgent' for all entries. The position is indicated by a location pin icon.

No.	Status	Device Name	UID/ID	Event Name	Alarm Value	Source Of Incident	Description	Reporting Time	Level	Position
1	Alarm	530241100DC	0530241100DC	Concentrator Offline #			---	2024-04-24 17:16:14	Urgent	
2	Alarm	530241100DC	0530241100DC	Concentrator Offline #			---	2024-04-24 17:12:17	Urgent	
3	Alarm	530241100DC	0530241100DC	Concentrator Offline #			---	2024-04-24 17:12:17	Urgent	
4	Alarm	530241100DC	0530241100DC	Concentrator Offline #			---	2024-04-24 17:12:17	Urgent	
5	Alarm	530241100DC	0530241100DC	Concentrator Offline #			---	2024-04-24 17:12:17	Urgent	
6	Alarm	530241100DC	0530241100DC	Concentrator Offline #			---	2024-04-24 17:12:17	Urgent	
7	Alarm	530241100DC	0530241100DC	Concentrator Offline #			---	2024-04-24 17:12:17	Urgent	
8	Alarm	530241100DC	0530241100DC	Concentrator Offline #			---	2024-04-24 17:12:17	Urgent	
9	Alarm	530241100DC	0530241100DC	Concentrator Offline #			---	2024-04-24 17:12:17	Urgent	

In “Errors” interface, under the label of “Manual Reports”, you can add, remove or export manual event reports.



In "Errors" interface, under the label of "Alarm Strategy", you can configure the alarm parameters of different devices.



For example, in LCU you can set parameters of light alarm and LCU alarm.

Alarm Parameter Settings

Light Alarm
 LCU Alarm

Compensation Capacitor Failure

☒ Enable

* Capacitor Alarm
 40 (W)
 Power(P):

* Capacitor Release
 35 (W)
 Power(P):

* Power Factor (PF)
 0.2
 Lower Limit:

* Power Factor (PF)
 0.4
 Upper Limit:

* Brightness Lower
 0 (%)
 Limit Of Fault:

Alarm Level:
 Urgent

Load Current Alarm

☒ Enable

* Overcurrent
 5 (A)
 Warning Value:

* Overcurrent Release
 1.6 (A)
 Value:

Alarm Level:
 Urgent

Power Supply Failure

☒ Enable

* Upper Active Power
 15 (W)
 Limit :

* Lower Active Power
 10 (W)
 Limit :

* Apparent Power
 40 (VA)
 Upper Limit :

Lamp Failure

Issue
 Search
 Reset
 Save

Alarm Parameter Settings

Light Alarm
 LCU Alarm

Leakage alarm

☒ Enable

Detection Type:
 Leakage Voltage (V)

* Over Limit Alarm
 36 (V)
 Value Of Leakage Voltage (V):

* Alarm Release Value
 24 (V)
 Of Leakage Voltage (V):

Alarm Level:
 Urgent

AC Overvoltage Input Alarm

☒ Enable

* Overvoltage
 260 (V)
 Warning Value:

* Overvoltage Relief
 240 (V)
 Value:

Alarm Level:
 Urgent

AC Undervoltage Input Alarm

☒ Enable

* Undervoltage
 90 (V)
 Warning Value:

* Undervoltage
 110 (V)
 Release Value:

Alarm Level:
 Urgent

Light Pole Tilt

☒ Enable

* Tilt Alarm Value:
 30 (°)

* Tilt Release Value:
 5 (°)

Issue
 Search
 Reset
 Save

Notice:

- The LCU must be online when issuing the parameter configuration.

7.2 Real-Time Alarm

In “Real-Time Alarm” interface, you can check recent alarms in the list. After selecting an alarm, you can choose to handle the alarm, dispatch work orders or export a form.

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