

# LonHand series product specification

## USR-WIFIIO-83

File Version: V1.4



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## 1. Quick start

First, you should power on USR-WIFIIO-83 with the power adapter supplied by our company. The red LED that presents power will glow after you power on the device. After about 5 seconds the green LED that presents ready will glow. The internal Wi-Fi module starts to work, now you can use it.



### 1. Install LonHand software.

You can download LonHand software from official website

<http://www.usr.so/Download/117.html>, click on the floppy symbol then download LonHand software. We supply back-end server and software on different platforms such as Windows, IOS, Android and MAC system. Install Lonhand software on your computer or your cellphone or your pad.

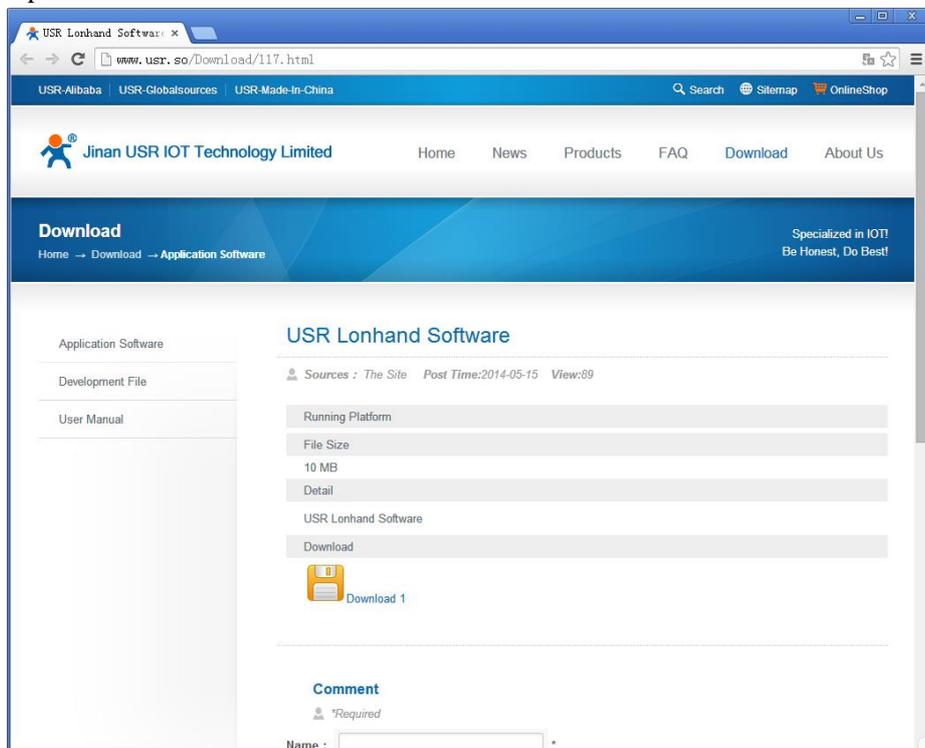


Fig.1 Link address to software

IOS system users can download software from App store for free. **Because there are few differences of software interface between IOS system and Android system, we will illustrate how to use it on android system now and later, as an reference to ios system users.**

- Set up WLAN. Your mobile phone should link to our device, as shown in Fig.2.  
The green LED that presents link will glow after the link between the device and cellphone have been set up.

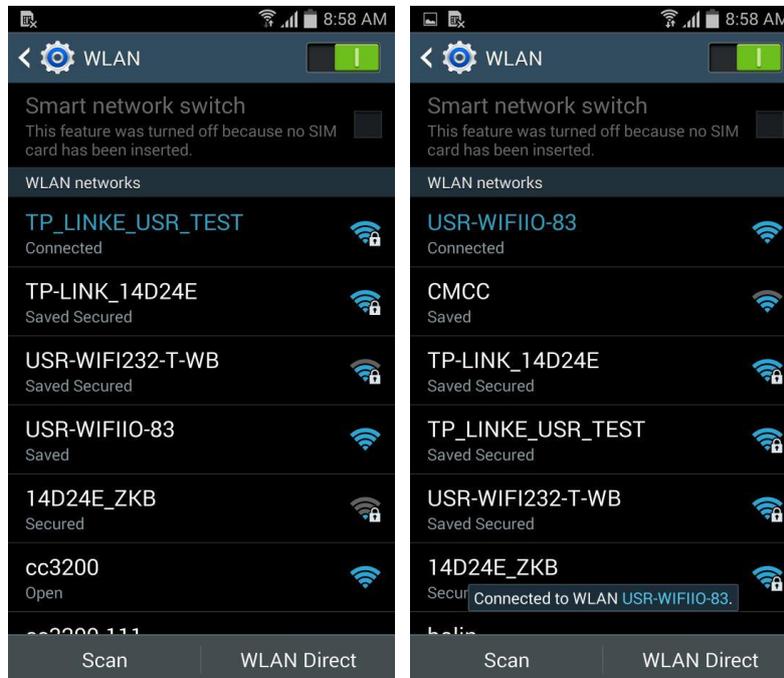


Fig.2 Set up wireless network

- Open LonHand software. Slide to the fourth page, click on start button.
- Enter Device page. You can find the USR-WIFIIO-83 device. If your phone and USR-WIFIIO-83 have built connection, the Wi-Fi symbol turns blue, otherwise it turns gray. Click on its name enter Source Control page. In this page you are able to control the output, click on the button on right side, the button change blue and the output is enabled. Click it again, the button change glue and the output is disabled. You can try it by yourself. We will introduce this software in detail later.

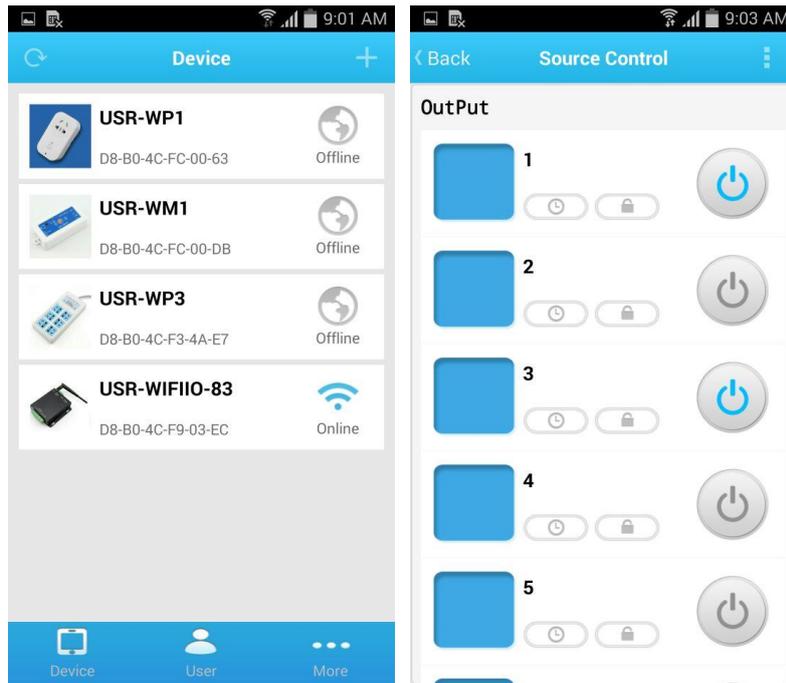


Fig.3 Device page and Source Control page

5. Wireless connection to router setup. Users should configure USR-WIFIIO-83 before control it on line. Procedures are listed as bellow.
6. Long press on the icon of USR-WIFIIO-83, click “web config” in popup menu. Enter the default username and password “admin” of Wi-Fi module in popup dialogue, click log in.

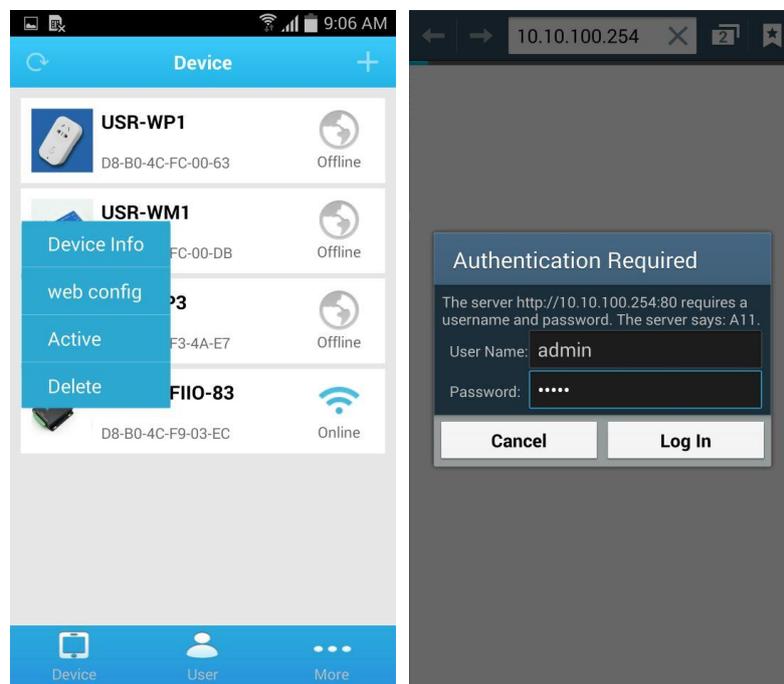


Fig.4 Log in device

7. Enter WEB IO page, click on English button at the bottom of the page. Click on Settings button at the bottom of the page.

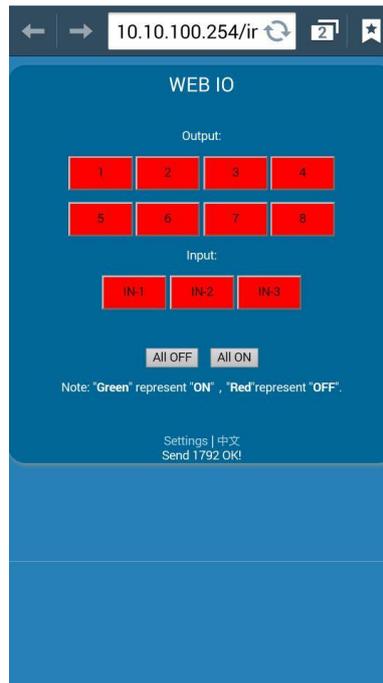


Fig.5 WEB IO page

8. Click on OK in popup dialog box.

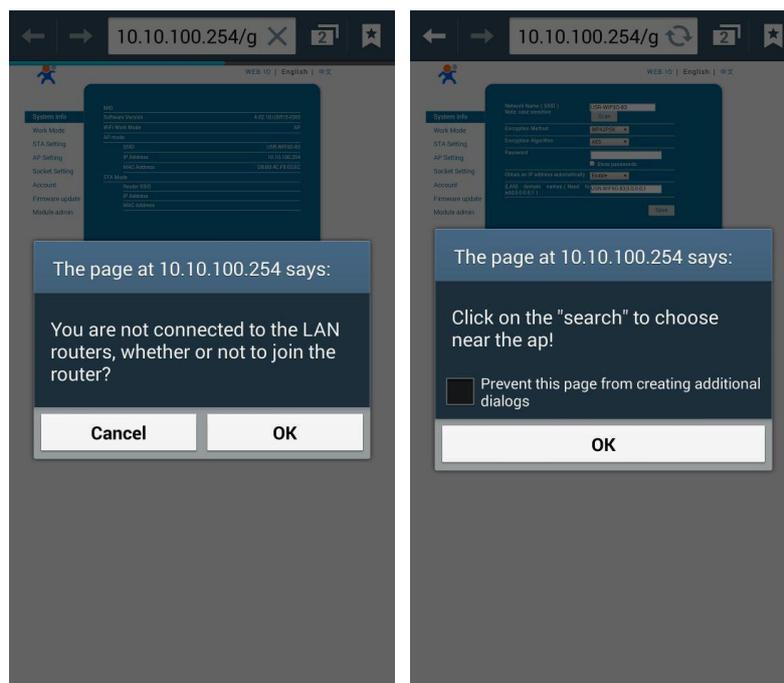


Fig.6 Popup dialog box

9. Search the local wireless router your USR-WIFIIO-83 required to join. Take our company wireless router for example. Click scan button.

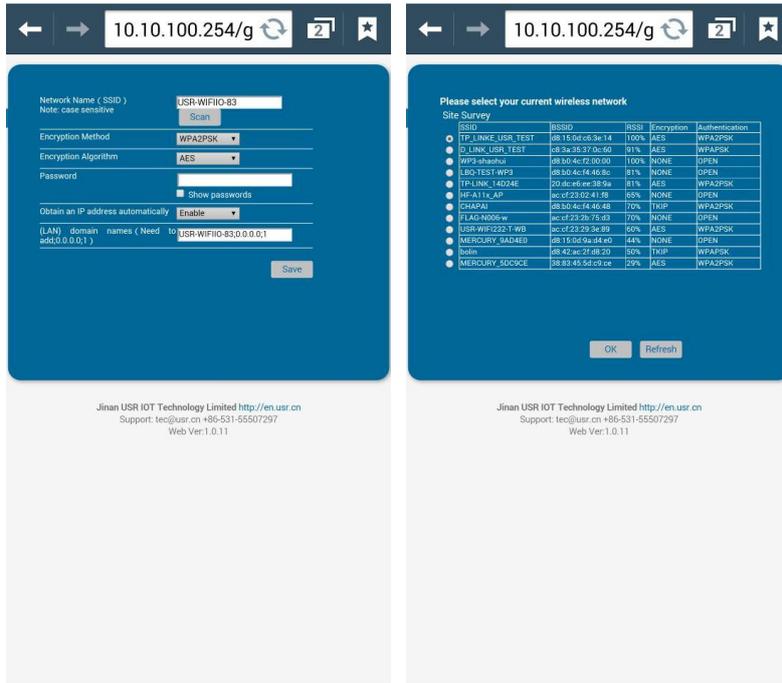


Fig.7 Scan the wireless network

10. Select wireless router, click OK at the bottom of the page. Click OK on the popup dialog box, enter password of your selecting router. Click Save at the bottom of the page.

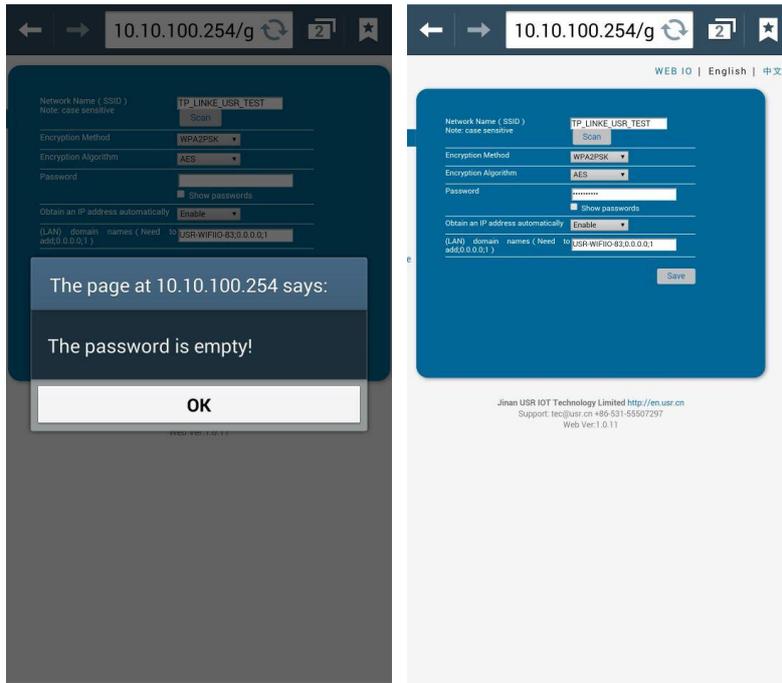


Fig.8 Enter password

11. Click Restart button at the bottom of the page.

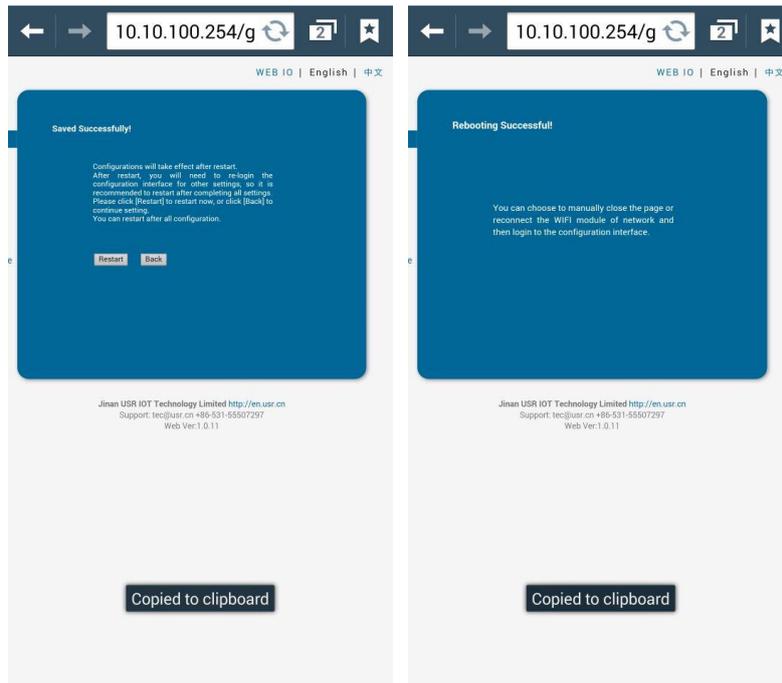


Fig.9 Restart USR-WIFIIO-83

## 12. Local control

Set up your cellphone WLAN. The wireless network should be same with USR-WIFIIO-83 joining. Open LonHand software. If you can't find device, click on refresh button on the top left corner.

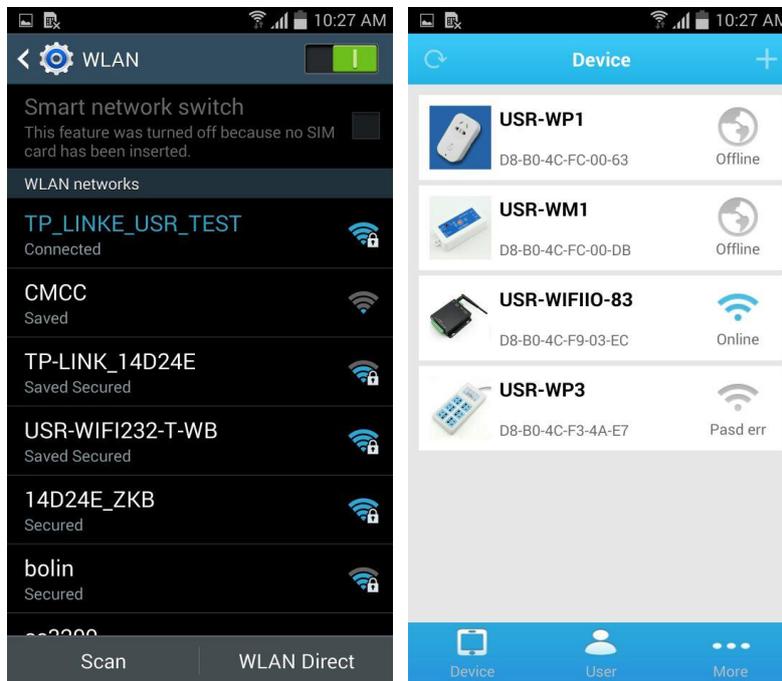


Fig.10 set up network

Click on the name of USR-WIFIIO-83, enter source control page. Slide up and down you will see 8 outputs and 3 inputs.

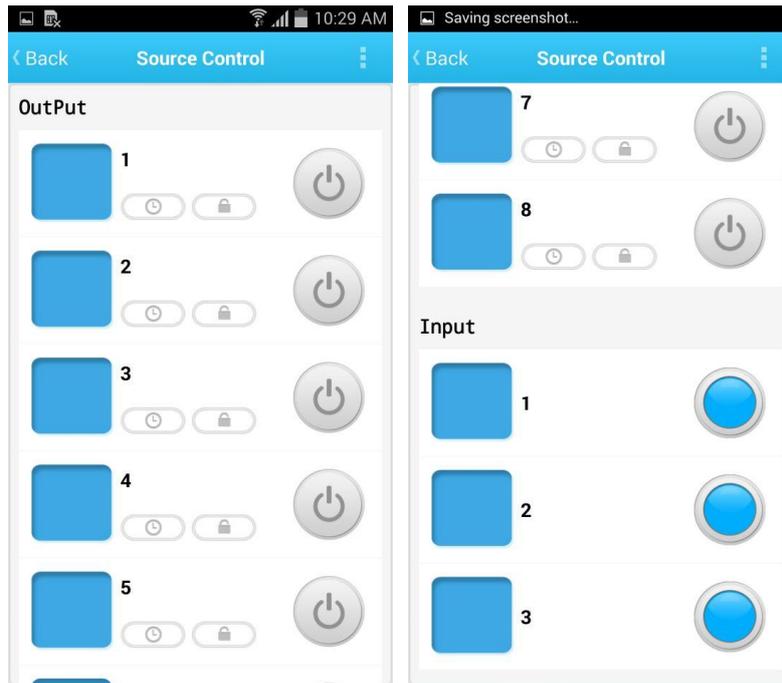


Fig.11 source control page

Users can control the outputs and detect input switch states in this page. The buttons on the right side will change color with different operation, as shown in table 1. Eight outputs are open and 3 inputs are off by default.

Table 1 representation of buttons' color

	Switch on		Relay close
	Switch off		Relay open

Users can try to control the relays. When you click on the button, its color turn blue and the relay is close, click it again, its color turn gray and relay is open. You will hear the sound of switching on and off in quiet environment.

Click the lock button , users can lock the state of output. You can't control the output after you lock the output state. This is very useful for preventing mistake operation. Click the lock button again, the output is unlocked, users can control the output again.

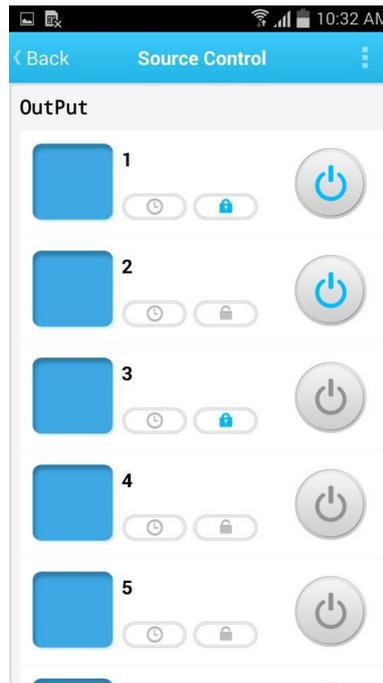


Fig.12 Lock the output state

Users can implement timing tasks. Click on timer button , pop timer task page, click on the add button on the top right corner, pop timer setting dialog box.

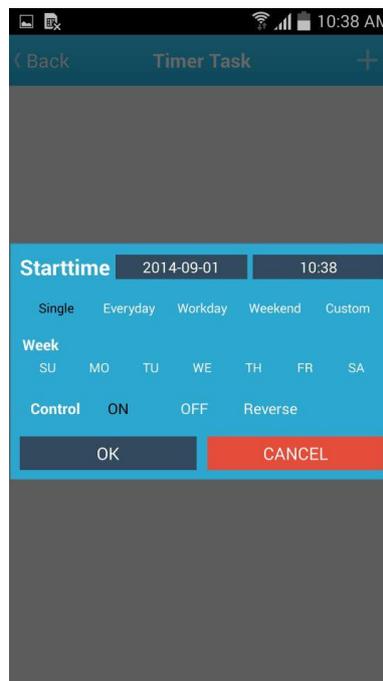


Fig.13 Timer task

Users should set up start time which must be future time with respect to system time. There are five conditions that your timing task will emerge: single, everyday, workday, weekend, custom. In control column you can select on, off, reverse operation. Click ok after you have set up. There is a task in timer task page after you add one. The timing symbol is blue when the task

is going to be done. Users can disable it by click on the timing symbol. Click it again the task is enabled. Click the dustbin symbol users can delete the task.

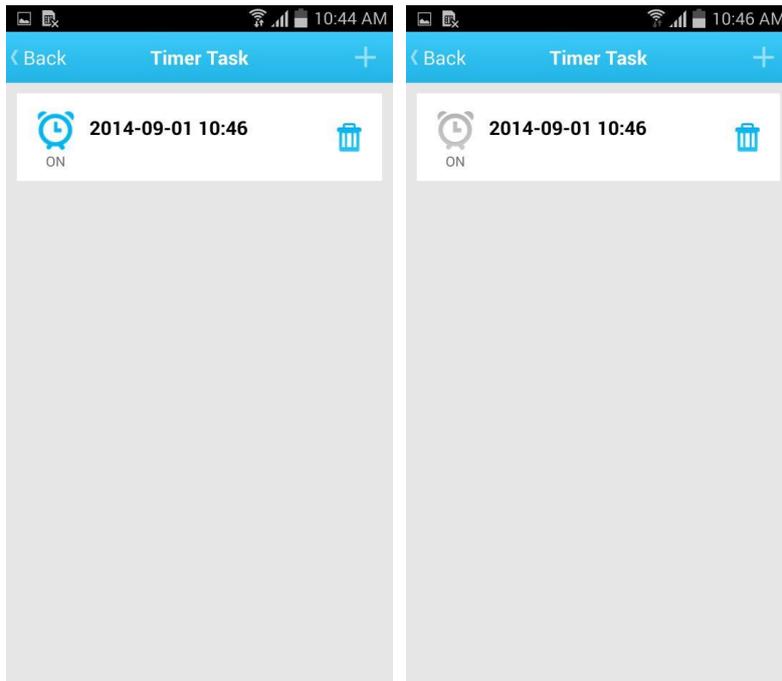


Fig.14 Enable and disable the task

Click on the back button , back to source control page. Click the block on the left side of one output, enter select a source icon page. In this page you can add symbol of the output control terminal. Long press the output column, edit the name of this output.

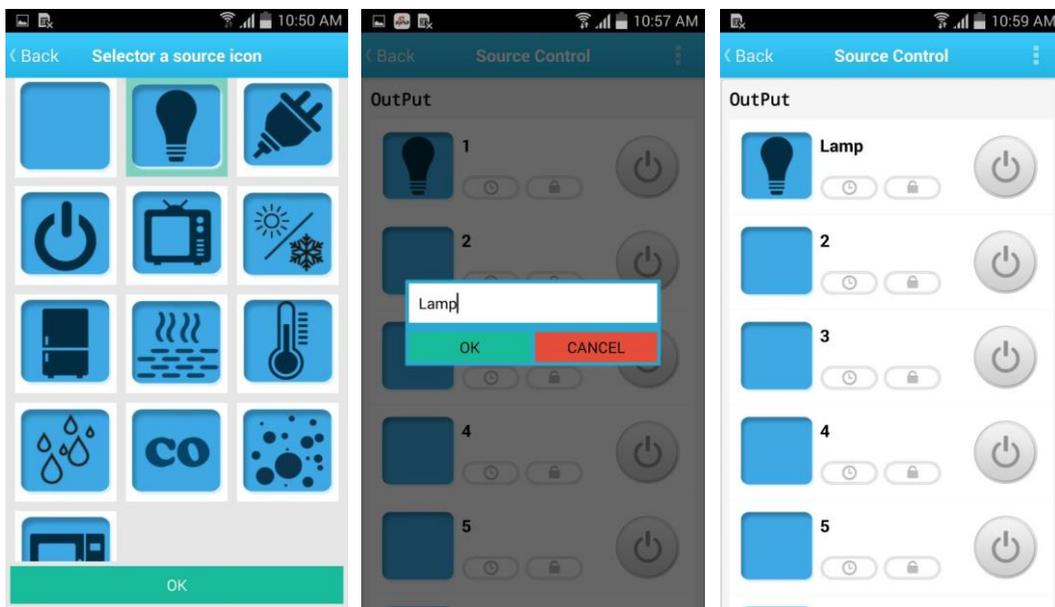


Table 2 Icon for appliances

	Lamp		Fridge
---	------	---	--------

	Outlet		Water heater
	Switch		temperature
	TV		Humidity
	Air Conditioner		CO alarm apparatus
	Particulate matter		

Click on the menu at the top of the page, pop a pull-down list. Click turn-on, all the outputs are on, click turn-off all the outputs are off. Click touch mode, the outputs operate in touch mode, relay is close when you touch on the button, relay is open when you release. Click normal mode, the output operate in normal mode, relay is close when you click on the button one time, relay is open when you click on the button once again.

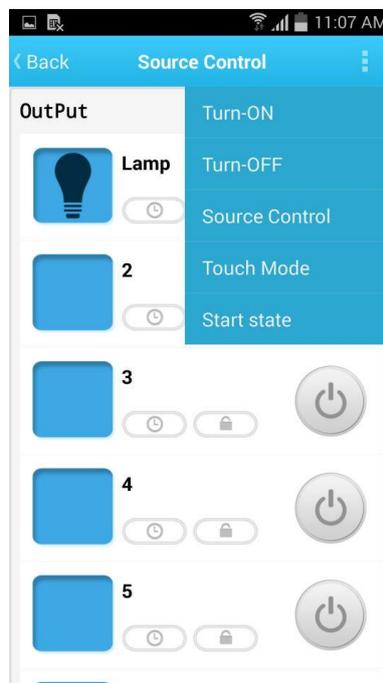


Fig.15 Pull-down list

Users can set start state in touch mode. First you set the state of every output, then click the menu, click the start state, setup is complete.

Click on the back button on the top of the page. Long press the icon of USR-WIFIIO-83 in device page. Click device info in the pull-down list, enter device info page. Users can modify name, icon, password (default: admin) of USR-WIFIIO-83 as shown in fig.16.

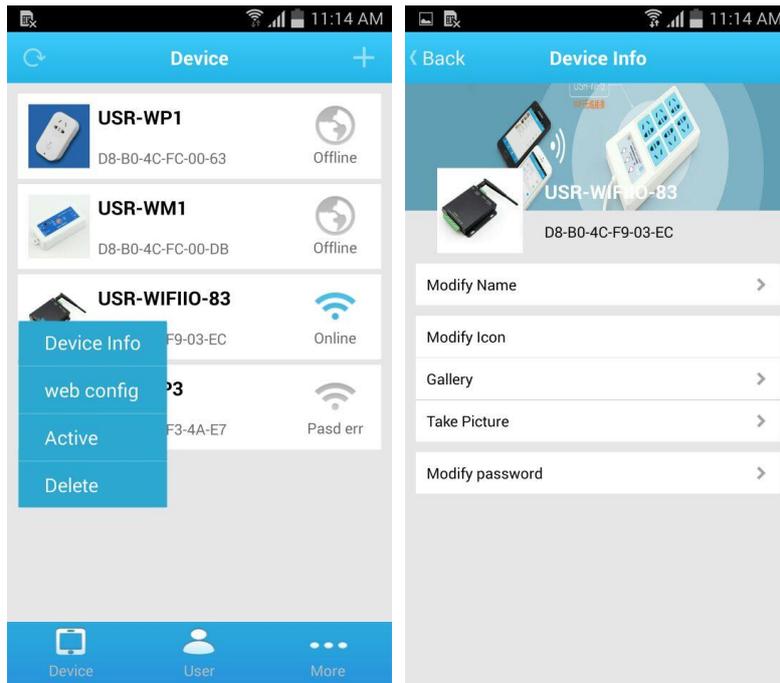


Fig.16 Device information

### 13. Remote control

First you should register an account on our server. If you register unsuccessfully, change an account, try it again. Enter the user page. Click register, register an account. Then login in.

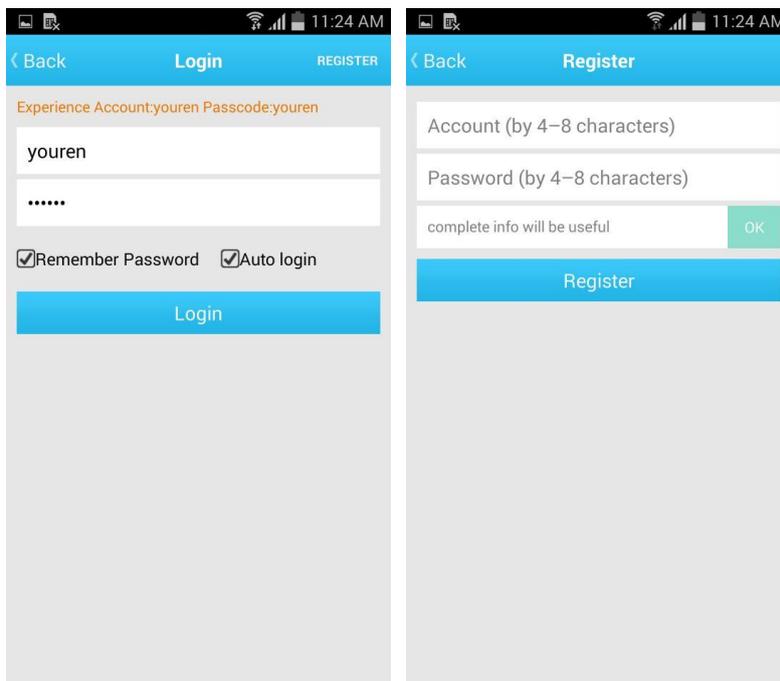


Fig.17 Register an account

Confirm that now your cellphone is in the same local area network with USR-WIFIIO-83. That is to say up to now you have not changed your cellphone WLAN just set up in above section. Now back to device page, click on the icon of the device, click active in the pull-down list.

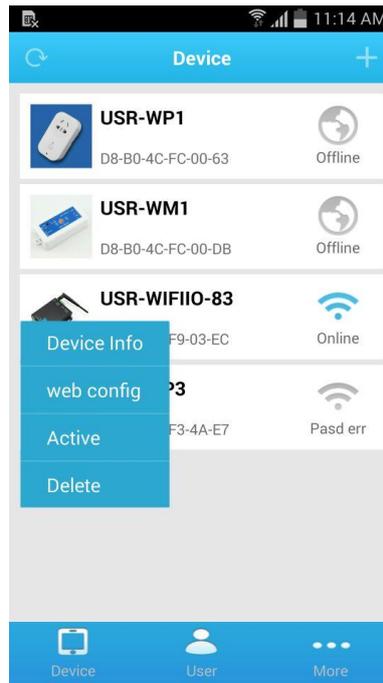
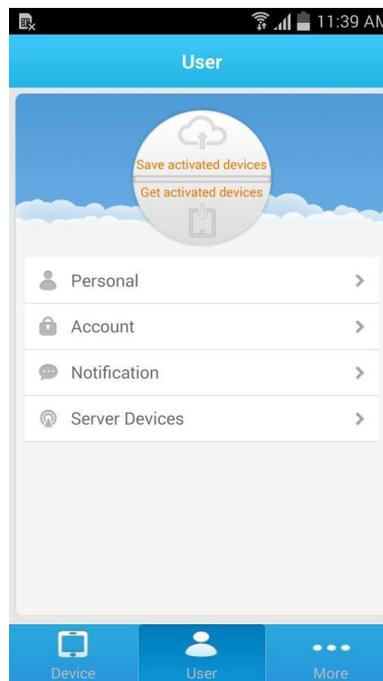


Fig.18 Active the device

Enter user page click on save activated devices. Now you can control the device remotely based on our server. For example, you can control it in your office while your device is at home. What you need to do is to join your cellphone to network, open the Lonhand software, login in your account, click get activated devices in user page after you open the software, then enter devices page operate it.



## 2. Description

### 2.1 Brief introduction

The USR-WIFIIO-83 device whose relays can be switched on or switched off by remote control, is WIFI branch of LonHand series product, and is designed for industrial application.

LonHand series control terminals are developed for the application in the field of smart home, Internet of Things, industrial controlling and so on. They are suitable for rapid deployment, especially for mobile application because the USR-WIFIIO-83 can be controlled by your cellphone. They can operate with WIFI connection compared to traditional wired connection. These devices are an ideal choice to realize remote control.

These series product are suitable for household application to build smart home for more comfortable life. Also it can be used in industry and agriculture for low cost, high efficiency in intelligent control of the devices. Users are capable to carry out more effective cost control and gain higher profits, because there's no big change and upgrading of your owned equipment under wireless remote control, users can make full use of your original product without more costs for you.

### 2.2 USR-WIFIIO-83 detail introduction

USR-WIFIIO-83's specific parameters are listed in table 3.

**Table3 Parameters**

Dimension(L×W×H)	104.5*83*28.7mm antenna, external terminals and fixed edge on both sides are not included
Supply voltage	DC 12V
Number of Ports	8 outputs 3 inputs
Standby power consumption	Typical: 3W Max: 6W
Input port operation mode	Passive switch
Output ports maximum voltage/current	AC 250V/10A
Operating temperature	-25~75 ℃
Storage temperature	-40~85 ℃
Storage humidity	5%~95%RH
Packing list	antenna*1, USR-WIFIIO-83*1, CD*1, 12v power adapter*1

## 2.3 USR-WIFIIO-83 features

The USR-WIFIIO-83 device can be connected to the surrounding network by WIFI or by direct cable connection (via Ethernet cable interface RJ45) after you appropriately set up it. Users can control the USR - WIFIIO - 83 for proper operation with the LonHand software in long distance.

Output ports features:

- Multiple timing tasks(4 timing tasks for every output)
- Lock of output state
- All on
- All off
- Self-define startup state
- Touch mode
- Jog mode

Detail operating approaches are illustrated later.

## 3. Operation instruction

### 3.1 USR-WIFIIO-83 Hardware wiring instructions and applications

Voltage source output ports: two COMs are common terminal. External voltage source across the two COMs are shunted by 8 relays. 8 relays are turned off by default.

Input ports: Passive switch states acquisition. One terminal of the switch connects to GND terminal of Input ports, another terminal connects to one of 3 input ports. Schematic diagram is shown as bellow.

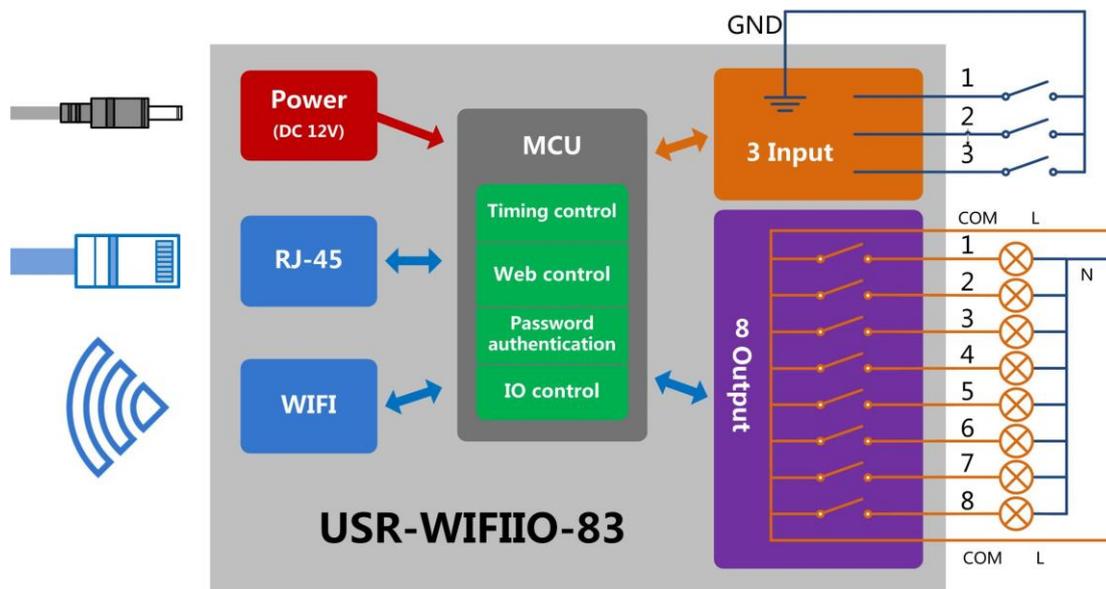


Fig.19 Schematic diagram

USR-WIFIIO-83 has 8 outputs, the live line or positive terminal of your device connects to one of the 8 outputs whose internal circuit connects to the live line of external voltage source, the null line or ground of your device connects to the null line of external voltage source.

Your device can be powered on or off by switching on or off relays by remote control. The switch states can be detected by USR-WIFIIO-83 when the switches connect to input ports. You can define the real device the switch represents (for example alarm).

There are two types of applications, one is local area network application, as shown in Fig.20; another is internet application as shown in Fig.21. We will focus on these two types of applications in the following sections.

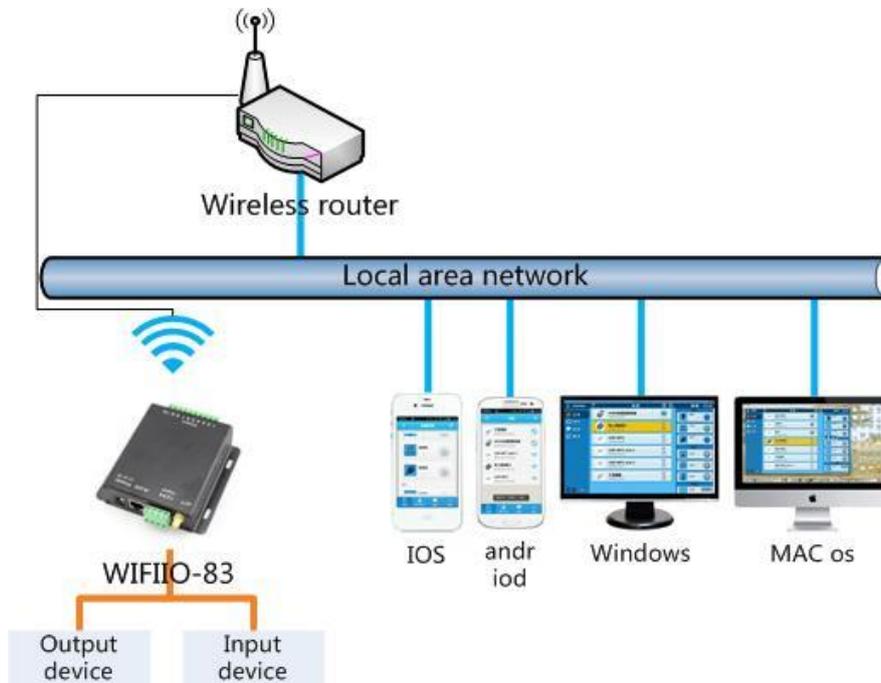


Fig.20 Local area network application

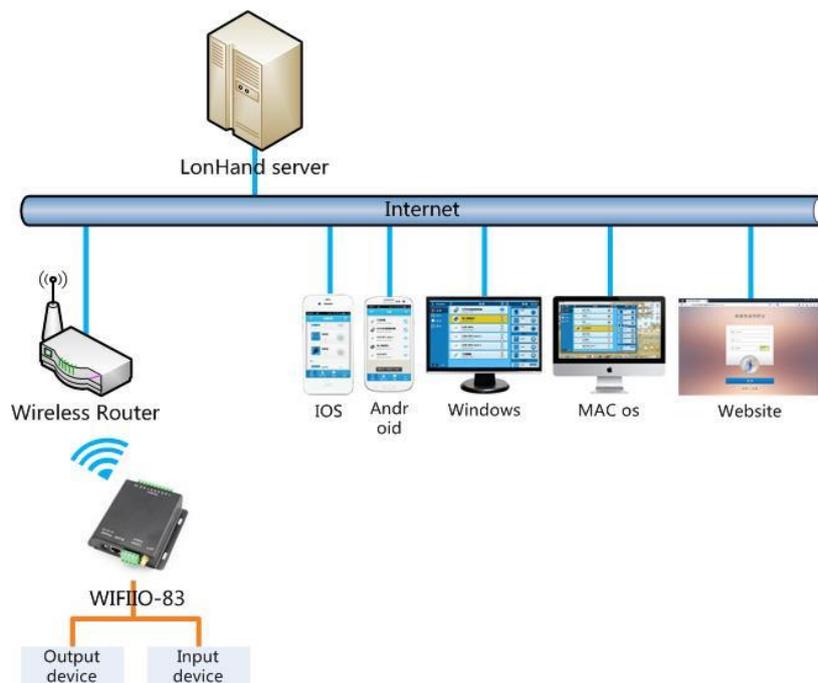


Fig.21 Internet application

### 3.2 USR-WIFIIO-83 configuration

This section tells how to join the device to your local router network. There are two ways to connect to the local router, one way is by WIFI network; another approach is by network cable. If you buy more than one USR-WIFIIO-83, please configure one at a time.

If have set some parameters wrong, you can restore factory defaults: find the reset hole underneath the Reload mark (in the red ellipse), push the button more than 3 seconds by tweezers or other tools.



### 3.3 Cable connection

If you want connect USR-WIFIIO-83 to your local router by network cable, please set up parameters as bellow.

The first steps are similar to wireless connection configuration.

When you enter page like below, Click on work mode on the left side.

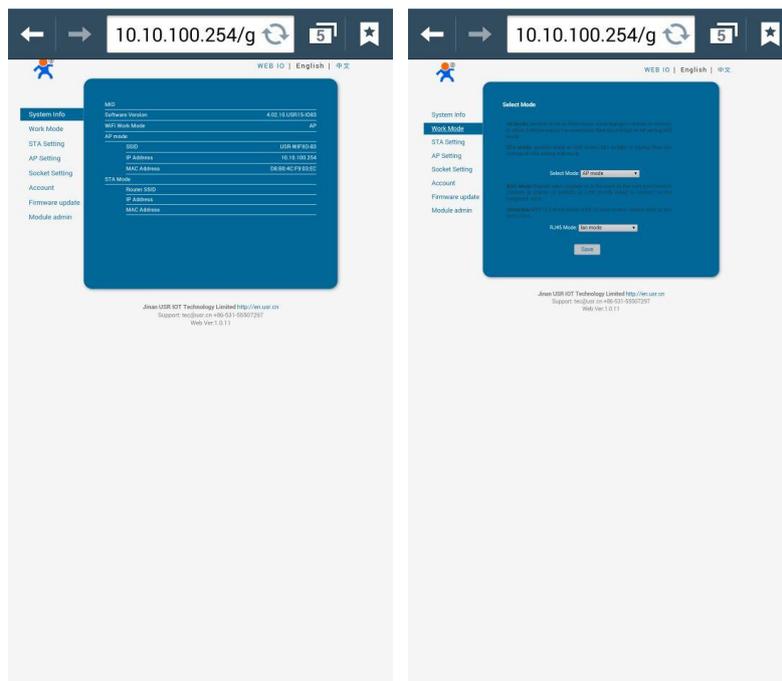


Fig.22 work mode page

In the RJ45 mode column, click on the drop-down list , in the popup list select wan mode. Click done, click save. NOTICE:AP mode should be together with WAN mode, otherwise device may can't work normally.

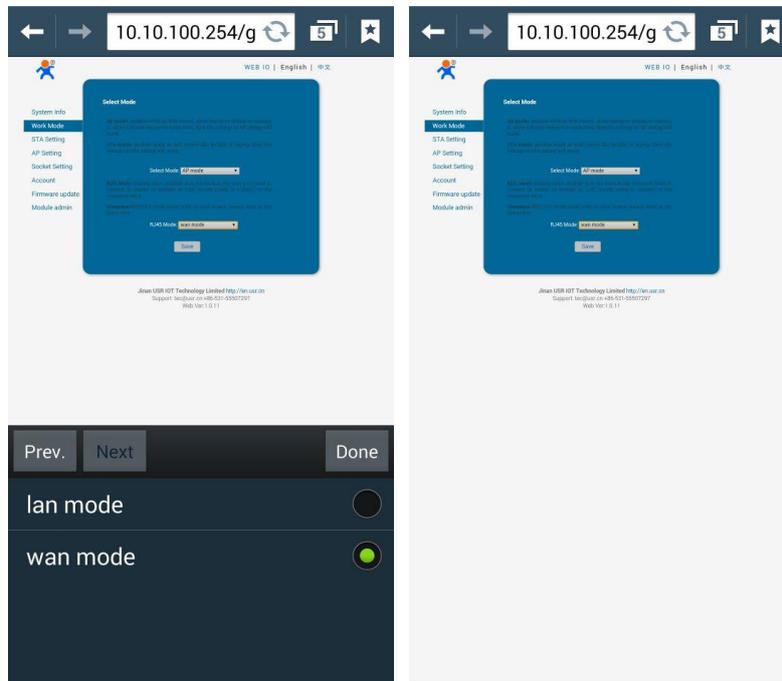


Fig.23 select wan mode

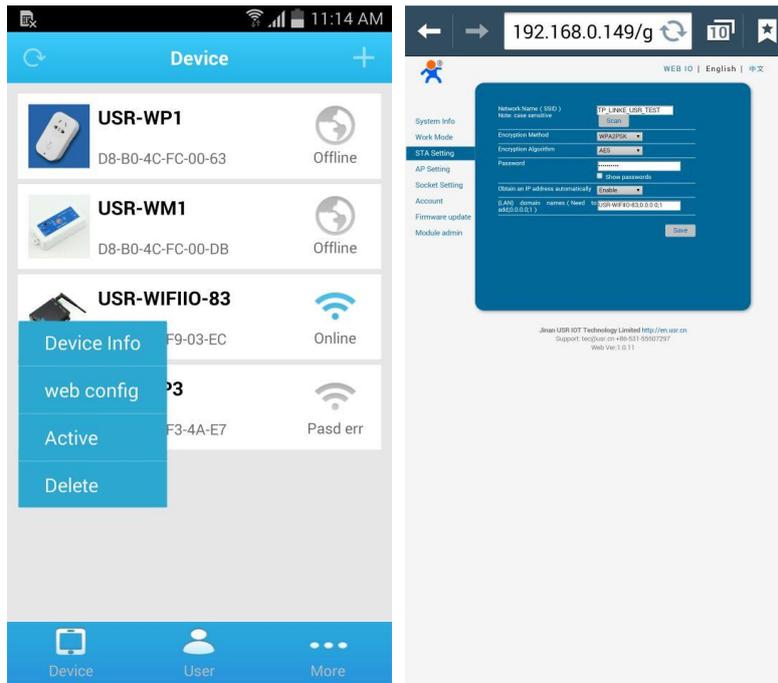
Click restart. Restart USR-WIFIIO-83. After restart you can join USR-WIFIIO-83 to the local network router by network cable.

## 4. LonHand Mini Software Instructions

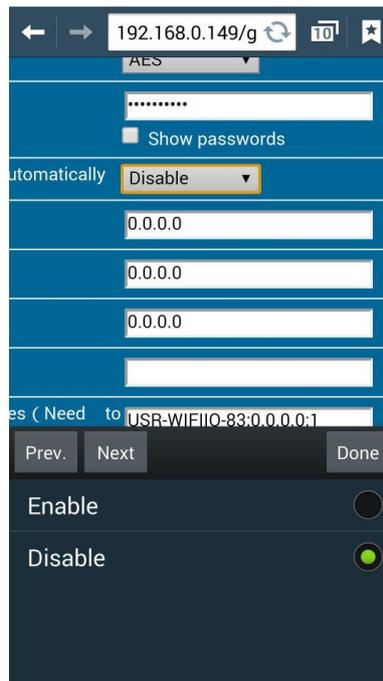
If you control our product remotely using LonHand software, you maybe find the speed a bit slow, because our server is located in china. Now we supply a faster solution: LonHand Mini software. This software bases on port mapping in router.

Your router must offer virtual servers setting or NAT setting that is port forwarding.

1. First, you must set our device connect the router with static IP. Take USR-WIFIIO-83 as an example. Set your phone WLAN, choose the router which your device (IO-83) have connected to (this process is the same to use Lonhand software). Open LonHand Mini software. Click the icon of USR-WIFIIO-83, click “Login Device” in pull-down menu. Enter web setting page of Wi-Fi module. Click STA setting.



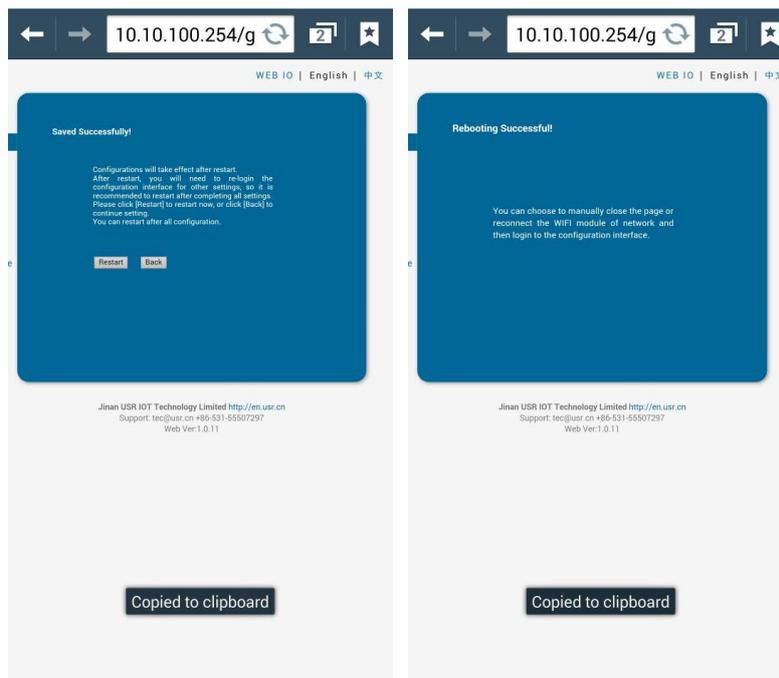
2. Click Inverted triangle in “obtain an IP address automatically” column, choose disable.



3. Input static IP address of IO-83 in IP Address column, such as 192.168.0.100 which is not occupied by other device. Input subnet mask and gateway address of the router. Click save.

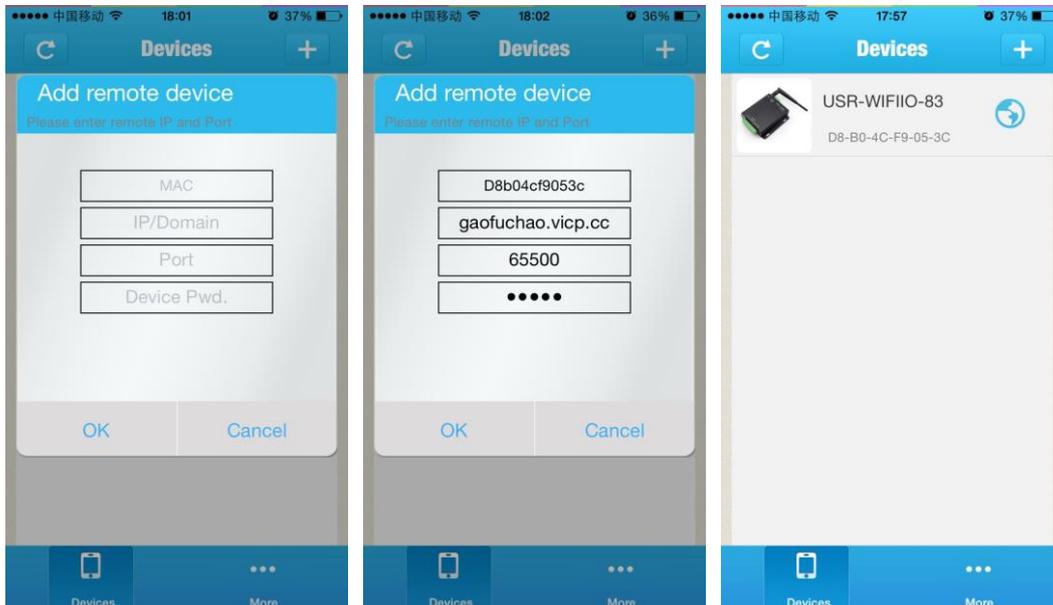


4. Click restart.



- Use this static IP to make port mapping. Now you need use browser to configure the router. Two important things need to be done in this step: port forwarding and Dynamic DNS setting. Because I can't do these things in English in china, you need find ways of port forwarding and DDNS setting by searching in google.com. It is easy to do. For example, USR-WIFIIO-83 default inside port: 8899, outside port: 65500 (it is unique in router service port, 8899 also works but if you have two devices in one router you should differ them by using different outside port).
- When you have finish previous step, now you can control it remotely by network. for example, your device is at home, but you want to control it outdoors. Connect your

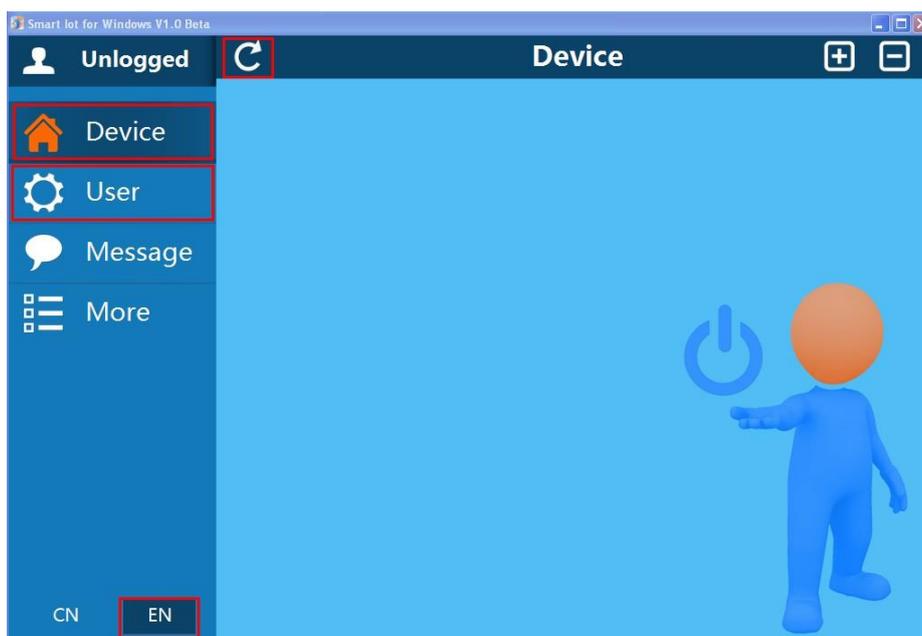
phone to network (obviously it is not your home router). Open software. Click add button on the top right corner. Input device MAC in MAC bar, input dynamic domain name in IP/Domain bar, input port number in Port bar, input device password in Device Pwd bar. Click OK.



If global icon turn blue, it means you can control device remotely. Operations are same to Lonhand software.

## 5. Software Instructions

1. After configuration, open the software in Windows desk  [www.usr.cn](http://www.usr.cn).
2. The main interface primarily including Device and User page is shown as below. You can choose EN to English language.



3. Click User column, here you can log in your account. If you have no account, register one first.

**Login**

---

**Account:**  ✕

**Password:**  👁

Remember password

Auto Login

**Login**

**Register**

**Register**

**Account:**  ✕ (Required)

**Password:**  👁 (Required)

**Retype:**  👁 (Required)

**NickName:**

**Email:**

**User Name:**

**Telephone:**

**Address:**

**Remark:**

**Register** Cancel

Register ok!  
OK

Account, Password and Retype are required, click Register, it will pop OK. Get back and log in the account you registered just now.

4. Click Device part, you can see all devices in LAN or internet.



**Instructions:**

USR-WIFIIO-83 is default name, D8-B0-4C-F2-25-D0 is the MAC address.



Blue means online, gray means offline; Signal icon means LAN, earth means internet.



Click the device Icon, it will show “Open URL”, you will open built-in webpage. This IP address is the one that router assigned to USR-WIFIIO-83.

5. Click the device you want to control, is shown as below, number 1~8 means 1~8 channel, you can control each channel by these buttons:



**Instructions:**

- (1) Click this block to choose each channel icon.
- (2) Click this clock to add timer task, you can manage the exist tasks.



(3) Click this button to lock this channel, , you will not be able to turn this channel on/off until unlock it.



(4) Relay state: yellow means on, gray means off

(5) This is used to set the whole relay. Click this, we can see:



All ON: turn all channels on. All OFF: turn all channels off.

Touch mode: in this mode, if you turn on the channel, it will keep state, when you turn off, the channel is off.

Click it to switch to Jog mode: in this mode, you need to keep touching on, when you release, the channel will be off.

Start mode: click this to save, next time when you power on relay, it will work in the state that you set.

(6) This is used to set up USR-WIFIIO-83, here is the device setting interface:



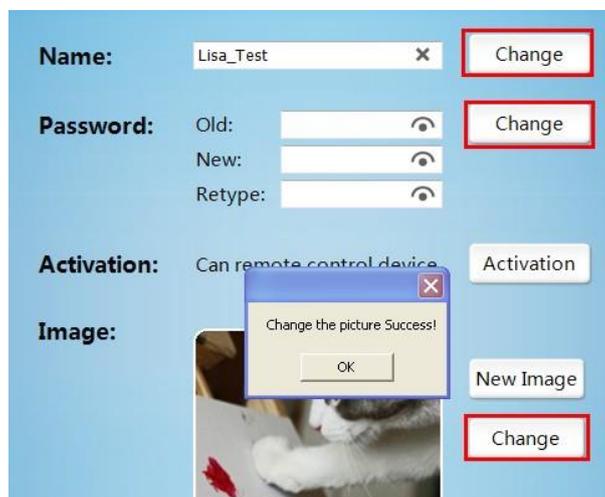
In the middle of the page, we can see Activation, we can remote control the relay by activate it. (Log your account first) Click Activation, as shown below:



Device can only be activated one time.

You can also change device Name, and image here, click Change to save settings.

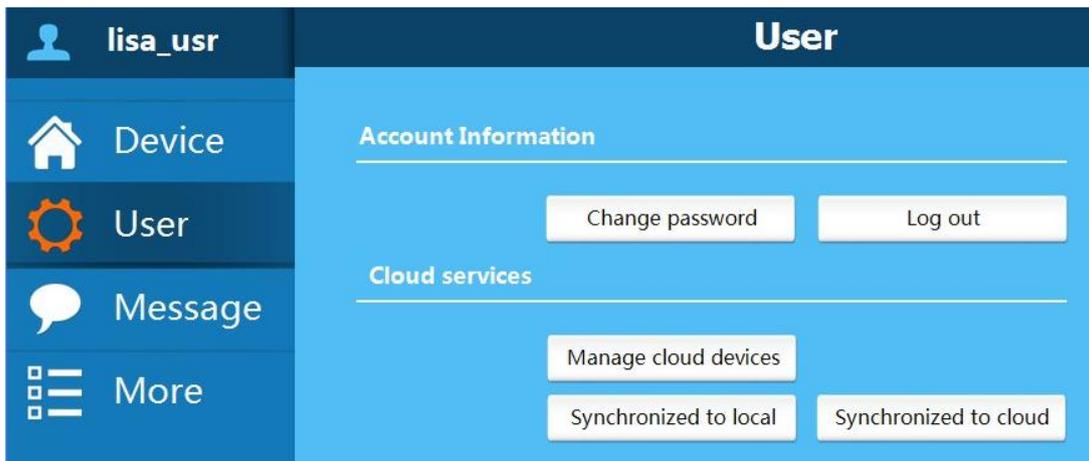
The Password is device password, default “admin”, WIFI module will restart after you change password.



Get back to Device page, we will see changes.



6. In User part, as shown below:



Account information: to change password and log out

Cloud Services instructions: This part is important in remote control.

- 1) Click Manage cloud devices, we can check the devices under your account. Only after log in your account, activation, can you see these devices.



- 2) Synchronized to local: Synchronize your devices from cloud to local, this is used when you use other network/app, that is remote control, click it and devices under your account will show in your new network/app.
- 3) Synchronized to cloud: Synchronize your devices from local to cloud, this is used when you change some setting on local devices, click this, the cloud server will save

your new settings.

- Now you can control the relay remotely.

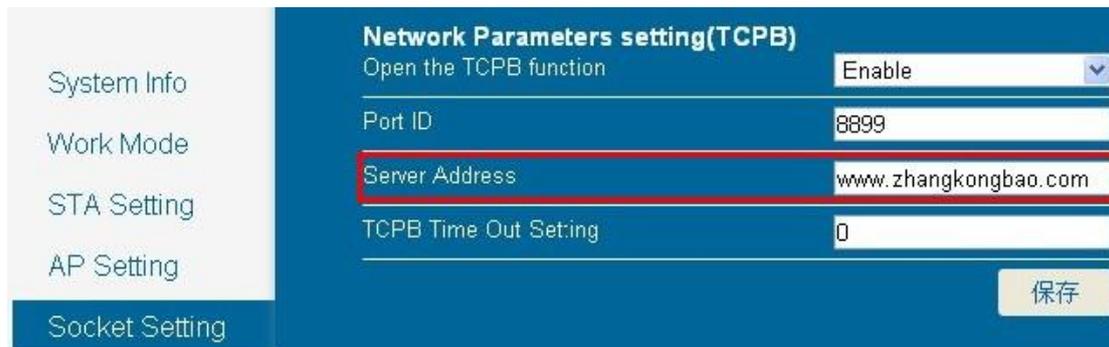
Log in your device in other network---->open the app---->select User column---->log in your account---->click Synchronized to local---->select Device part and refresh

- If you followed all above steps but it still did not work, please check these points:

- Log in built-in webpage:



- Socket Setting page, see Server Address, here should be “www.zhangkongbao.com” or “42.96.196.194”



Change to this, click Save, in module admin page, choose Restart module.

## Appendix A

### A. Triple protection makes your control safer

- Built-in webpage need user name and password to log in.
- Can set independent password for each device.
- For remote control, user can register an account to manage cloud devices.

### B. The essential steps of remote control

- Register and log in your account
- Activate the device
- Synchronize to and from cloud

## Appendix B Contact Information

Company: Jinan USR IOT Technology Limited  
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 Tel: 86-531-55507297, 86-531-88826739  
 Web: [www.usr.so](http://www.usr.so)  
 Email: [sales@usr.cn](mailto:sales@usr.cn), [order@usr.cn](mailto:order@usr.cn)

## Appendix C Disclaimer

This document provides information about USR-WIFIIO-83, this document does not grant any

license to intellectual property rights. Except the responsibility declared in the product sale clause, USR does not assume any other responsibilities. In addition, USR does not make any warranties for the sale and use of this product, including the suitability of the product for a particular purpose, merchantability or fitness for any patent, copyright or other intellectual property infringement, etc. USR may make changes to specifications and product descriptions without notice.

## **Appendix D Update History**

- V1.0 First edition publish
- V1.1 Some content change with product update, did not publish
- V1.2 Some content change with product improvement, did not publish
- V1.3 Rearrange the instruction, add content about how use it on cellphone, general release.
- V1.4 Describe the instructions based on Android system.