Ethernet & WiFi Daughter Boards Configuration Manual

Wisen Innovation Co., Ltd.

14th October 2021

Revision History and Clarification

Rev.	Issue Date	Version Control	Written by	Revised by
V1.1	27/11/2018	1. Initial Version.	H.X.Y.	Y.W.
V1.2	29/04/2020	1. Correct “Local Port Number” setting to “0” instead of “23” in Step 3.1.B and Step 3.2.B; “Local Port Number” is set to “0” so that at each connection to a router, gateway will use a random port number among 1-65535, therefore multiple Ethernet Gateways can be working under one router. 2. Trouble Shoot rewording added； 3. Document name changed from “Series B Gateway Ethernet Module Instructions” to “Wisen Gateway Ethernet Daughter Board Configuration Instructions”.	H.X.Y.	Y.W.
V1.3	14/10/2020	1. Combination of WiFi and Ethernet configuration documents. Original doc A: Instructions to Configure a Wisen System V2.2 - 2021.01.16.pdf; Original doc B: Series B Gateway WiFi Module Instructions - 2018.11.27 - V1.1.pdf; **In to** “Ethernet & WiFi Daughter Boards Configuration Manual.pdf” 2. Ethernet Daughter board adds “Local Software Configuration Method”; 3. Format optimisation.	H.X.Y.	Y.W.

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1. Ethernet Daughter Board Configuration

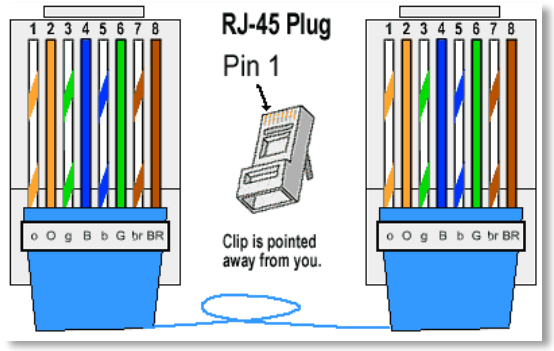
1.1 Statement

All the Ethernet Module when shipped from Wisen are in the following condition:

1. all are set to send data to our Business server;
2. all are set in **WLAN + DHCP** mode, so when a module is connected with any Wisen gateway, then connected via an Ethernet cable with a router of DHCP setting, it can work straight away.

   Note: However, when the user needs to reconfigure the board (such as “LAN Application”), please follow the instructions in Trouble Shoot located at the end of this document.

Notice: **Cabling:** to maintain an IP66 or above seal protection, a Straight Through Ethernet cable should be made locally, refer to http://www.groundcontrol.com/galileo/ch5-ethernet.htm. Or the photo as below:

STRAIGHT THROUGH	
	Ethernet cables are the standard cable used for almost all purposes, and are often called "patch cables". It is highly recommend you duplicate the color order as shown on the left. Note how the green pair is not side-by-side as are all the other pairs. This configuration allows for longer wire runs.

Wisen Ethernet Daughter Layout.

1.2 Purpose of Using an Ethernet Daughter Board

1. This document should ONLY be used when the forwarding address needs to be modified;
2. This document should ONLY be used when WLAN + DHCP mode does not suit for the condition to use, such as: a static IP is needed in the module;
3. This document should ONLY be used if a LAN setting is required, e.g., a Wisen gateway is connected to a local industrial PC. Note: in this case, customers should request for the local Windows TCP-IP Monitoring Software from Wisen in advance.

Gateway Preparation

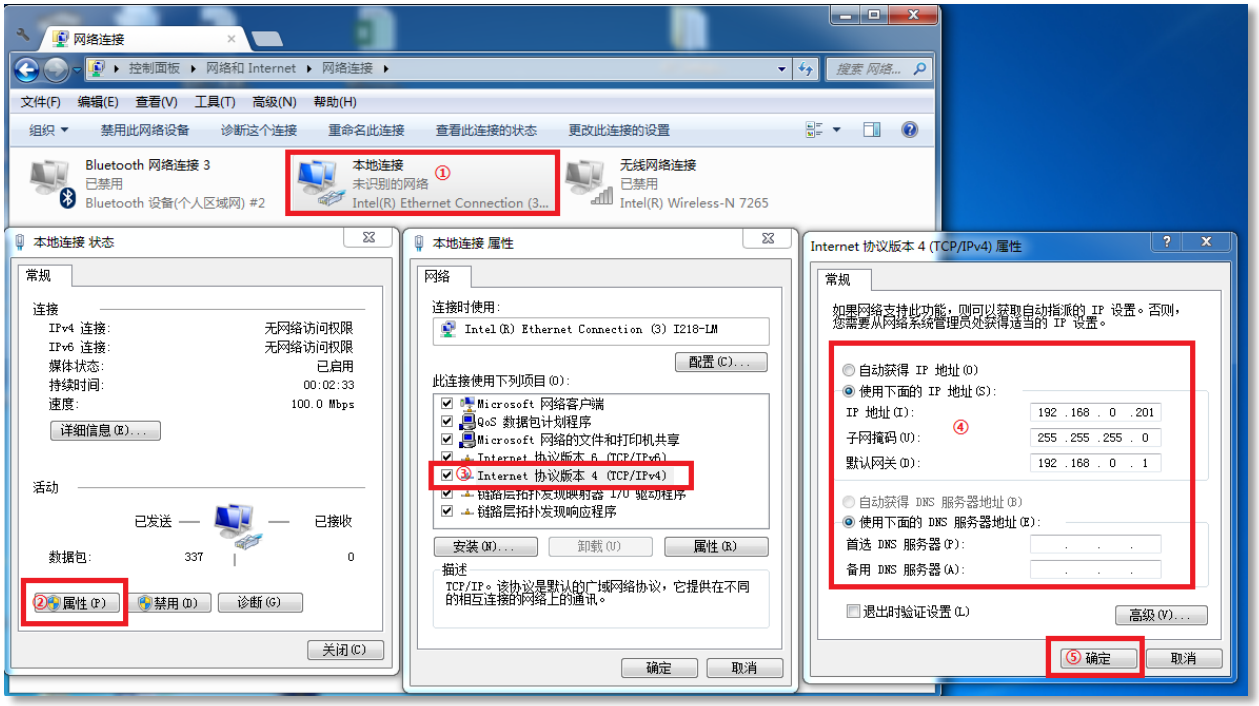
Hardware: Series B gateway V7.0 or plus;

Software: RS232 Serial program SVN543 or above;

1.3 Web Page Configuration Method

Step 1 – Laptop Setting

Laptop: Configure local IP for PC. Connect a laptop with the Ethernet daughter board via the straight through Ethernet cable, which made before.



Step 2 - Power On

Power on the gateway. Within 10s, the "**POWER**" LED on the Ethernet daughter board is on. After 5s, the green LED of RJ45 is on and the yellow/orange one irregularly blinks, representing the Ethernet module is initialised properly and the connection between laptop and Ethernet module has been established properly;

Step 3 – Login for Ethernet Module Setting

A. On the laptop, from the Internet explorer, visit 192.168.0.7 with:

Username: admin

Password: admin

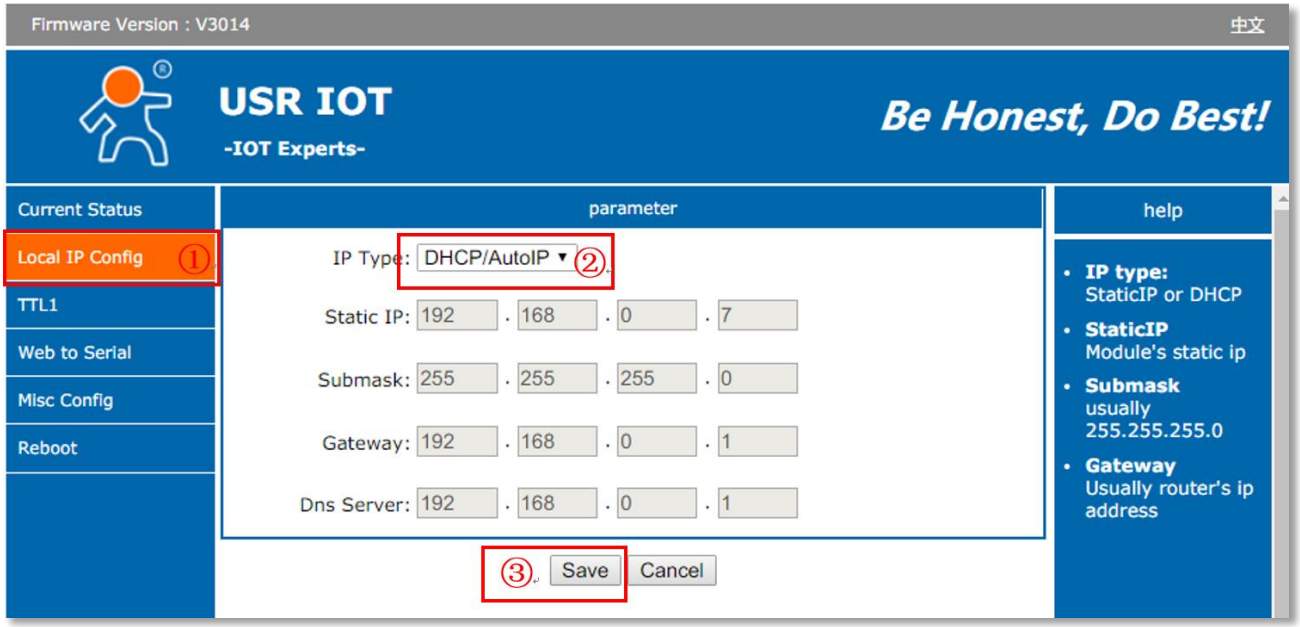
There are 2 applications for Ethernet module:

A. WLAN application (by default): Connect wisen server by a router. In this application, we assume that the DHCP function of a router is enabled.

B. LAN application: Connect PC which has been installed with Wisen TCP-IP Monitoring Software.

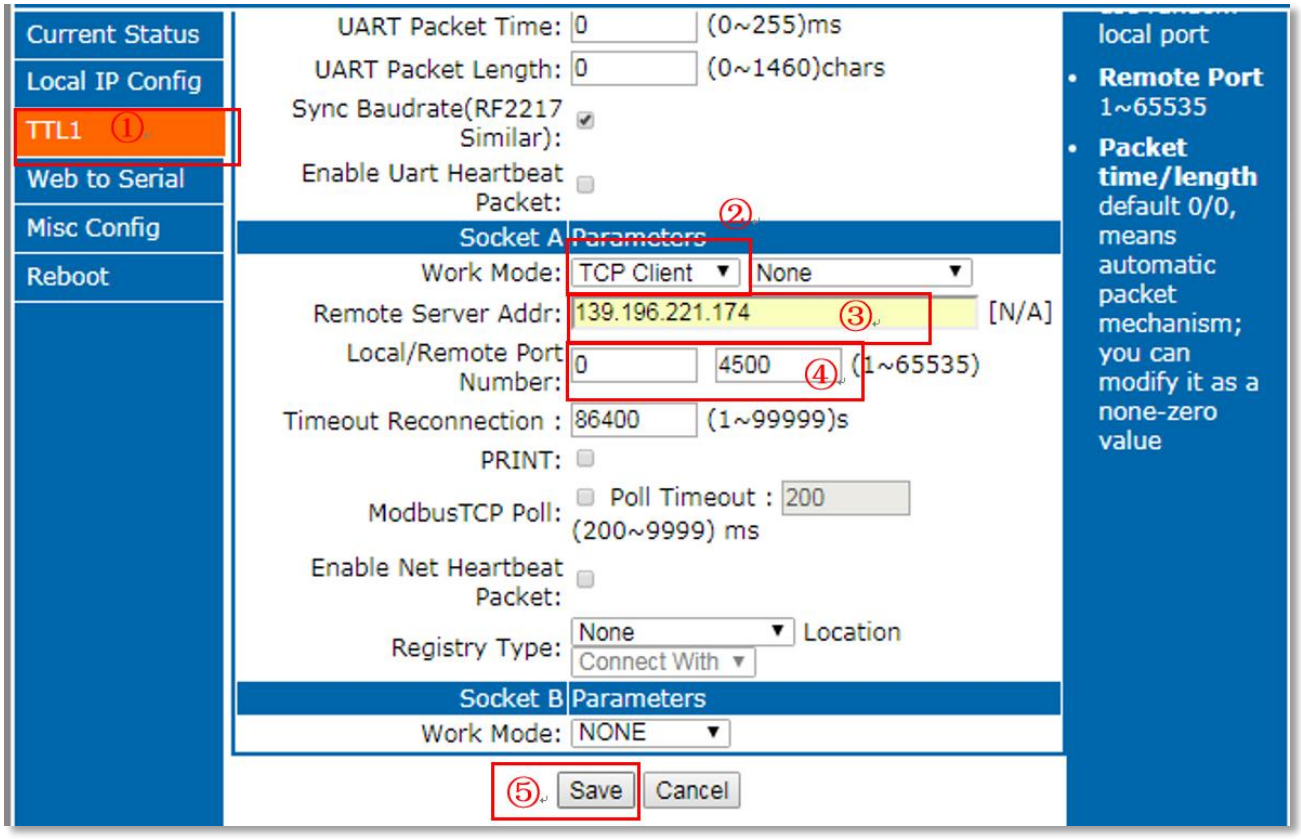
Step 3.1 - WLAN Setting (by default)

A. On the explorer, click on "**Local IP Config**", select **"DHCP/AutoIP"**, then click **"Save"**;

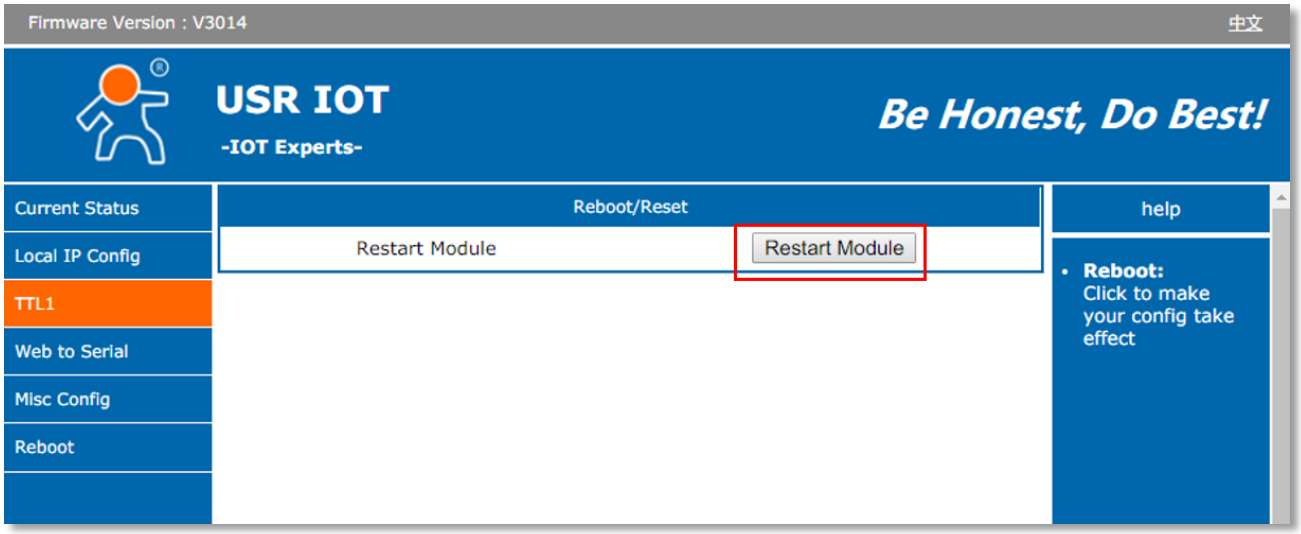


B. Click on **"TTL1"**, select **"TCP Client"** in **"Work Mode"**, type **"139.196.221.174"** (Wisen Business Server IP address) to **"Remote Server Addr", "0"** to **"Local Port Number"** and **"4500"** to **"Remote Port Number"**, then click **"Save"**; Note: **Do NOT** restart at this stage!

Notice: “Local Port Number” is set to “0” so that at each connection to a router, gateway will use a random port number among 1-65535, therefore multiple Ethernet Gateways can be working under one router.



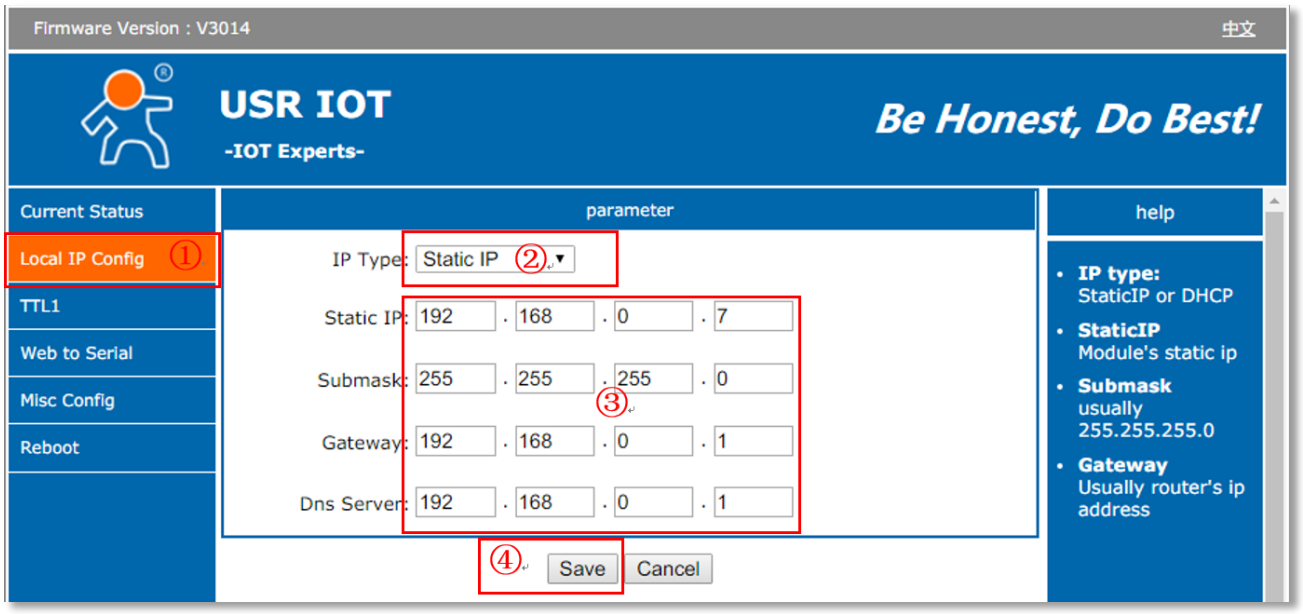
C. Click on “**Restart Module**” to make all the settings to be effective.



D. Connect the router with the Ethernet daughter board via Ethernet cable.

Step 3.2 - LAN Setting

A. On the explorer, click on "**Local IP Config**", select **"Static IP"**, type **"Static IP", "Submask", "Gateway", "Dns Server"** according to actual requirements provided by system administrator (Note: all the information filled in the figure below are examples ONLY!), then click **"Save"**;



B. Click on **"TTL1"**, select **"TCP Client"** in **"Work Mode"**;

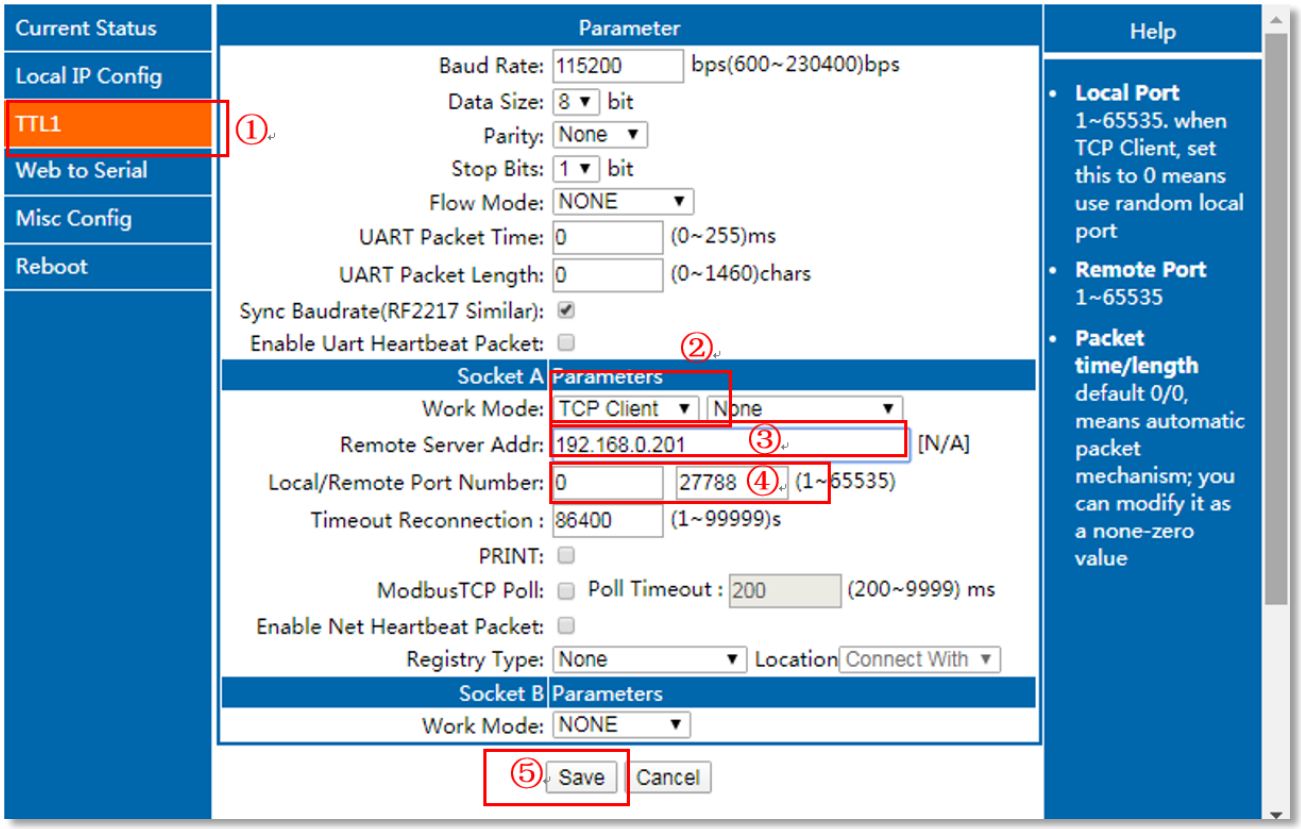
Type the ACTUAL IP address (of the PC connecting to) in **"Remote Server Addr"**

Type **"0"** to **"Local Port Number"**; Notice: "Local Port Number" is set to "0" so that at each connection to a PC, gateway will use a random port number among 1-65535, therefore multiple Ethernet Gateways can be working under one PC.

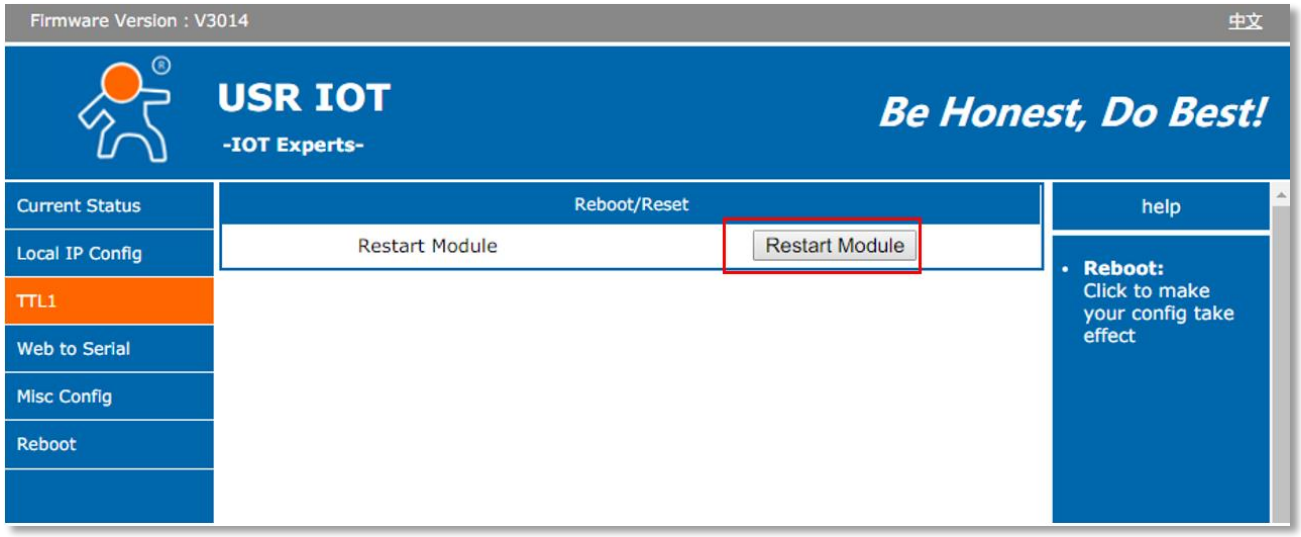
Type the ACTUAL Remote PORT from WISENMESHNET Windows TCP-IP Monitoring Software to **"Remote Port Number"**;

Then click **"Save"**;

Notice: the ACTUAL IP address and the ACTUAL Remote PORT filled in the figure below are examples ONLY!



C. Click on "**Restart Module**" to make all the settings to be effective.



D. Connect the PC and the Ethernet daughter board via Ethernet cable.

Step 4 – Data Confirmation on Wisen Platform

A. If data is transmitted successfully from a gateway to a Wisen server successfully, then on the gateway PCB board, "**NET**" LED will be on within 5 minutes! By default, T=5min;

B. For WLAN application:

Check WISENMESHNET Visualisation Software and ensure live data is there.

Note: all the gateway data is transmitted to our Business server.

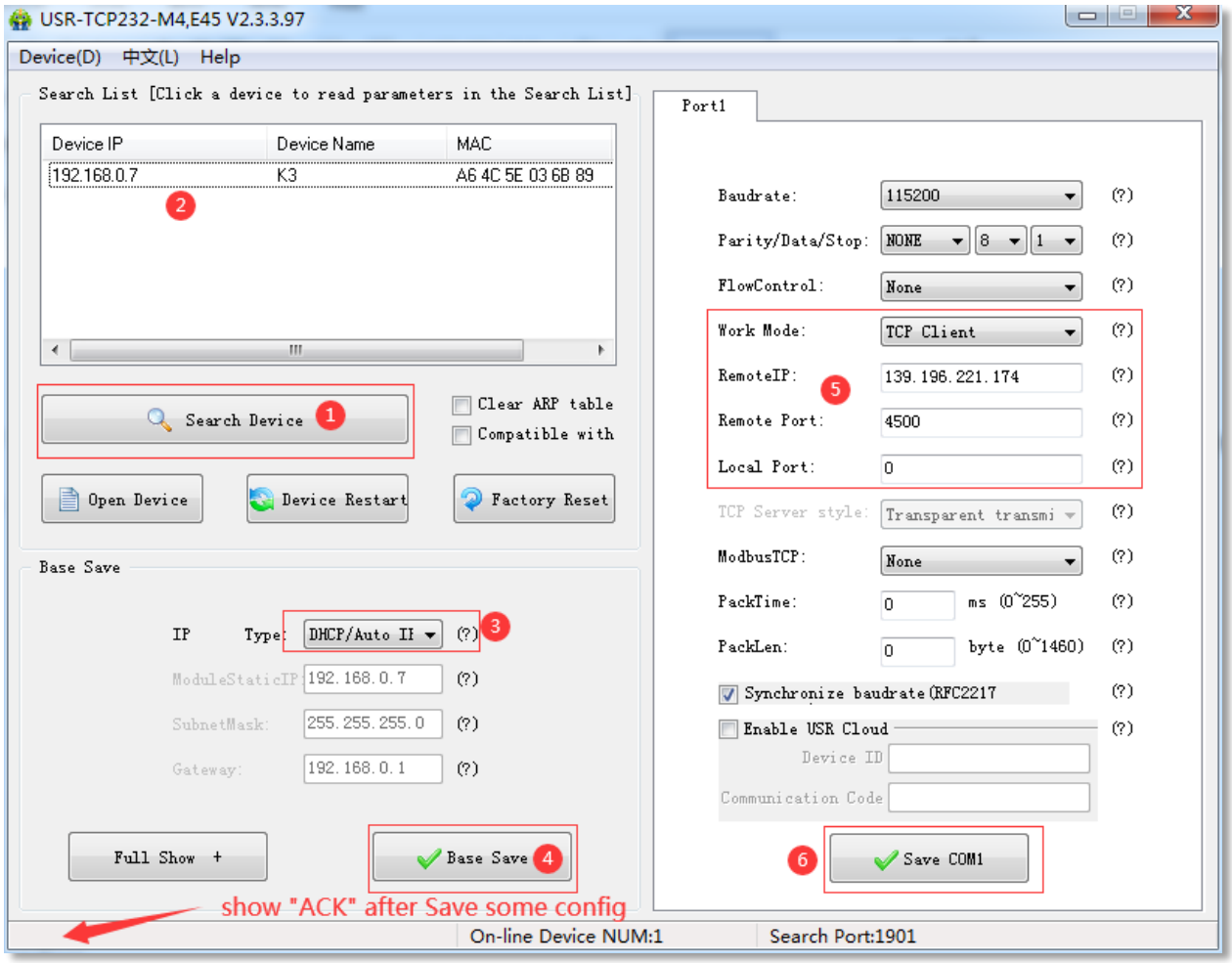
For LAN application:

Check wisen TCP-IP Monitoring Software on IPC and ensure live data is received.

1.4 Local Software Configuration Method

1. Download "USR-TCP232-M4-setup-V2.3.3.97.rar" from WiSen Visualisation Platform (/Download & Upload/Calibration & Document & Software);

2. Connect Ethernet cable between Windows PC and the Ethernet Daughter Board on a smart gateway. Make sure the RED LED on Ethernet Daughter Board is on, i.e., powered on status, so that the configuration can be executed.



3. Open the software, click on “Search Device” button (marked in ①) then wait for some time (normally <30s). If nothing shows in Panel (marked in ②), click again.

4. Change “IP Type” to “DHCP/Auto IP” (marked in ③), then click “Base Save” (marked in ④). “ACK” is now shown at bottom left corner on the software, then Ethernet Module is automatically rebooted and contents in Panel ② are cleared.

5. Click on “Search Device” button again. Then fill up the contents as displayed in “Work Mode”, “Remote IP”, “Remote Port”, “Local Port” (marked in ⑤);

6. Click on “Save COM1” button (marked in ⑥). “ACK” is now shown at bottom left corner on the software again, then Ethernet Module is automatically rebooted;

7. Ethernet Daughter Board configuration is now completed successfully.

1.5 Trouble Shoot

How to initialise the Ethernet module:

1. **Power off** the gateway and wait for a minimum of 3 minutes;
2. Keep pressing on the “Reload” button on daughter board, switch on the gateway, Notice: the “Reload” button should stay pressed for more than 5s after daughter board “POWER” light turns on, then release “Reload”;
3. By now, the module is initialised successfully. You must follow Steps 2 & 3 to reconfigure the Ethernet Module.

2. WiFi Daughter Board Configuration

Step 0 – Gateway Preparation

Hardware: Series B gateway V7.0 or plus;

Software: RS232 Serial program SVN543 or above.

Step 1 - Power On

Power on the gateway. Within 10s, the "**POWER**" LED on the WIFI daughter board is on. Within 5s, "**READY**" LED is on, representing the WiFi module is initialised properly;

Step 2 - Explorer Access

B. On the laptop, from hotspot list look for:

SSID: wisen_XXXX (*Note: XXXX is the last 4 digits of the module's MAC address, e.g., 5E2F*)

Password: wisenmeshnet

C. Then from internet explorer, visit 192.168.1.1 with:

Username: admin

Password: admin

Once connected successfully, "**Link**" is on.

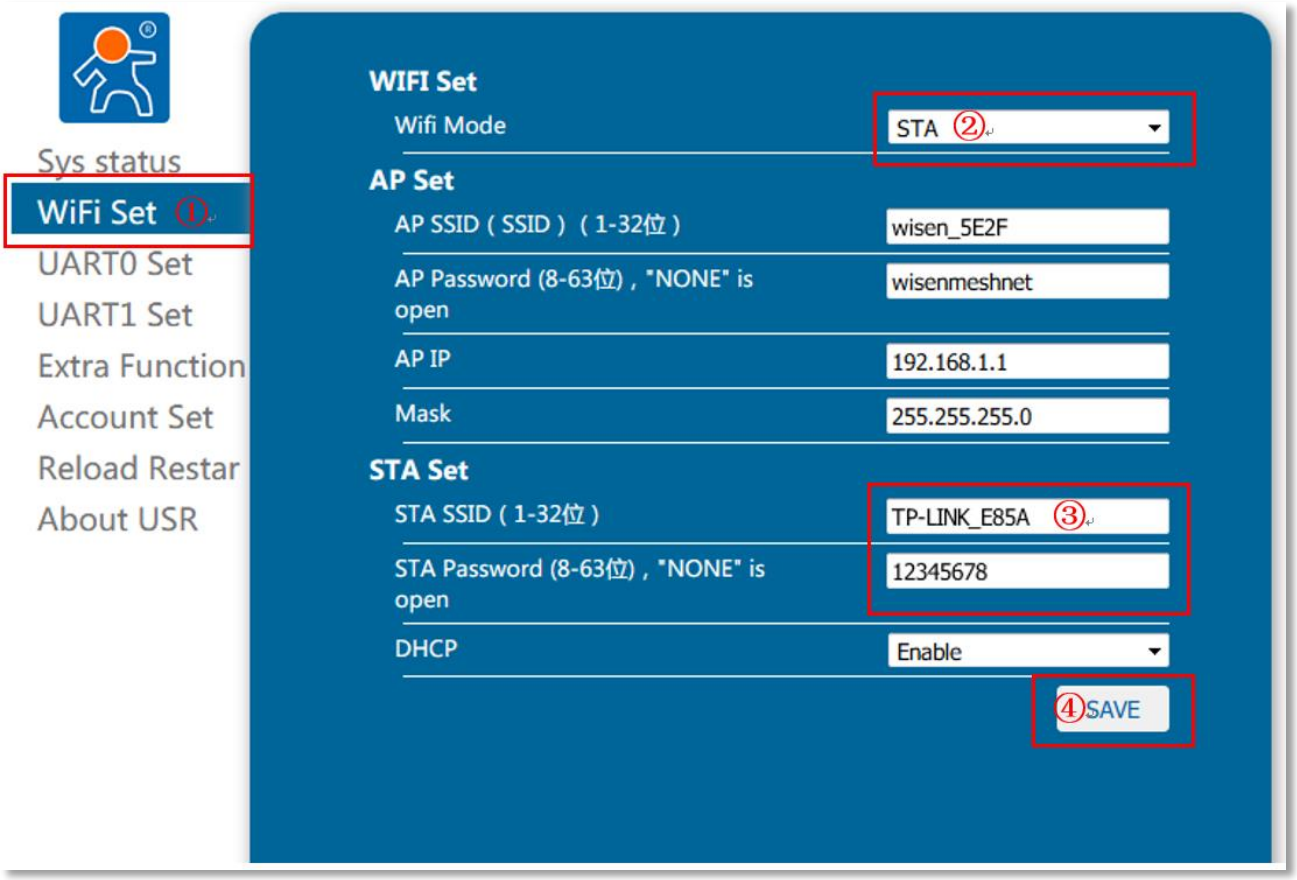
Step 3 - WiFi Account Setting

A. On the explorer, click on "**WiFi Set**";

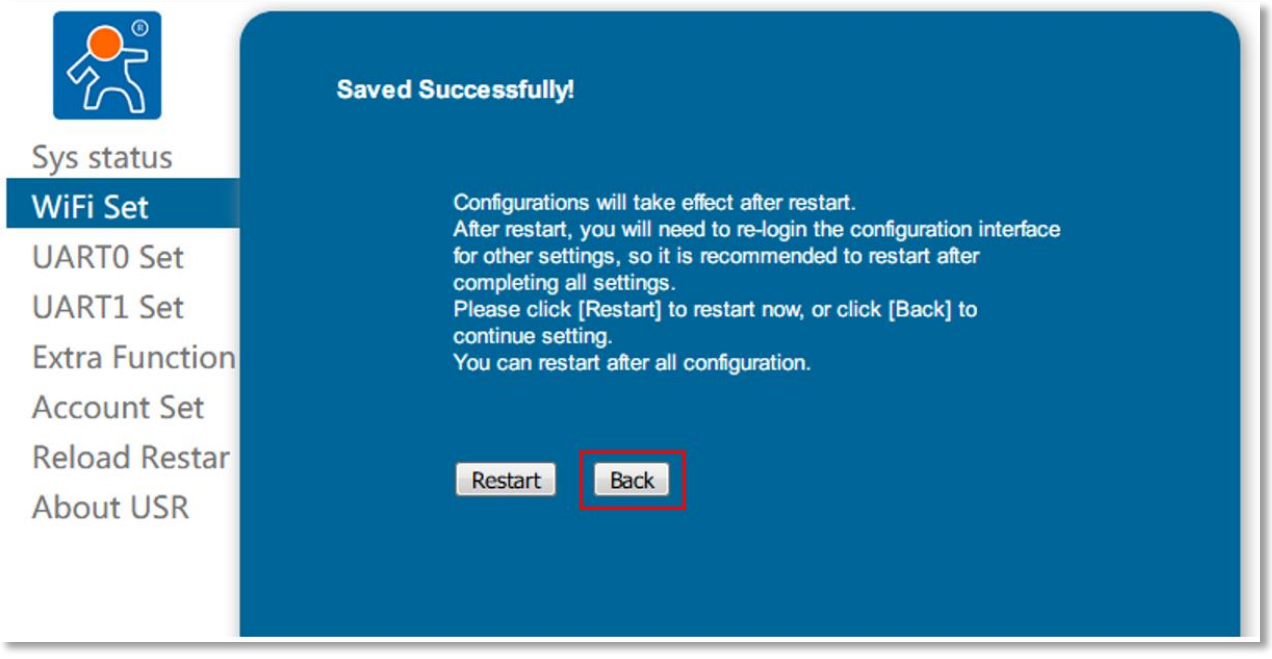
B. Select **"STA"** in "**WiFi Mode**";

C. Type the WiFi Access information in to "**STA SSID**" and "**STA Password**" fields. Note: this information should be obtained from your local WiFi System administrator; and ensure the correct and case sensitive information is typed in!

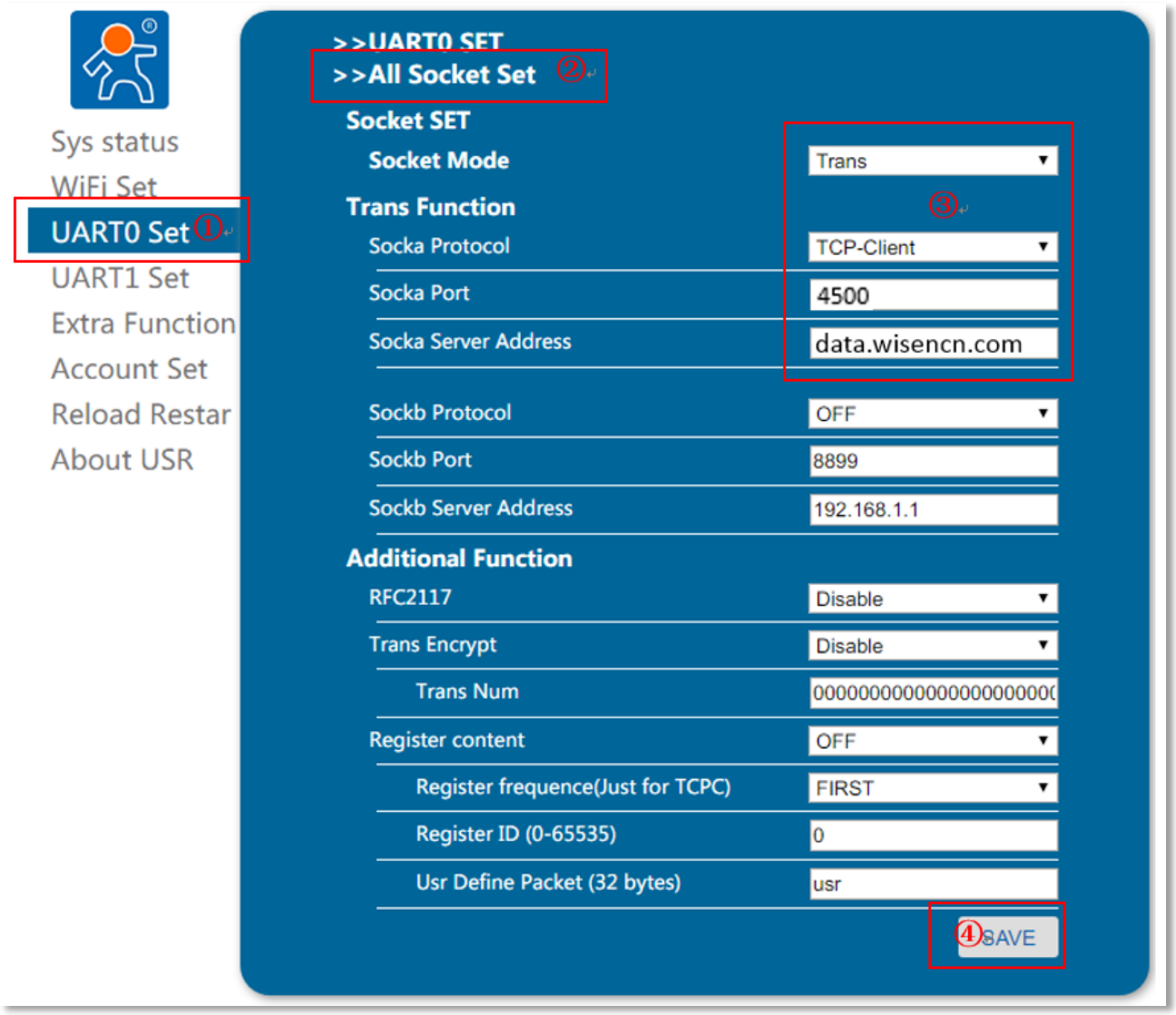
D. Click on "Save";



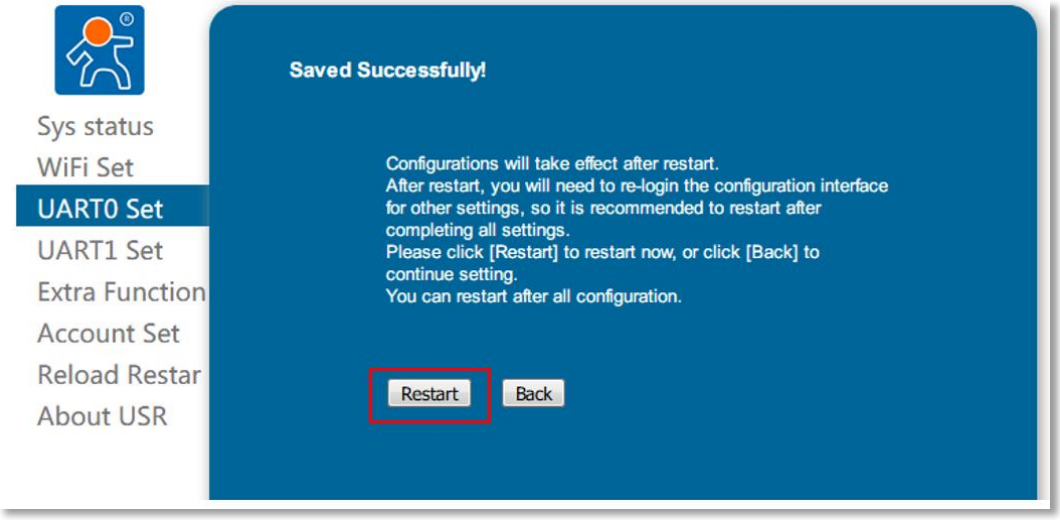
E. Click on **"Back"**; DO NOT CLICK "**Restart**" HERE!



F. Click on **"UART0 Set"**, then **"All Socket Set"**, then ensure the followings in the red highlighted boxes are filled in correctly;



G. Click on "**Restart**" to make all the settings to be effective;



H. On the WiFi daughter board, you will see "**POWER**" LED on, then "**READY**" LED on. And if the local WiFi access information has been filled in correctly, "**LINK**" LED is on representing that Gateway is connecting local WiFi successfully;

Step 4 – Data Confirmation on Wisen Platform

A. If data is transmitted successfully from a gateway to a Wisen server successfully, then on the main PCB board, "**NET**" LED will be on! By default, T=5min;

B. Check WISENMESHNET Visualisation Software and ensure live data is there.

Note: all the WiFi gateway data are transmitted to our Business data server.

Trouble shoot:

Local WiFi STA SSID and STA Password are filled incorrectly or if you want to initialise the WiFi module.

After Step 1 is completed, press on "Reload" button on the daughter board for 5s, then release, you will see "POWER " LED then "READY " LED on. By now you are ready to re-enter the local WiFi Access information, i.e., to perform Steps 2 & 3 again.

WiFi Daughter Layout: