CM-WIFI User Manual

Shenzhen Coolmay Technology Co., Ltd

Version 6.71

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CM-WIFI module, developed and produced by Shenzhen Coolmay Technology Co., ltd, is a compact and powerful integration of 802.11 b/g/n WIFI solution with low consumption. It has a Rs485 and a standard Rs232. Through CM-WIFI, traditional serial devices such as PLCs and meters can easily connect with wifi signal, thus realize the control and management of Internet of Things through transparent transmission. CM-WIFI adopts the embedded structure with the lowest consumption in the industry. Meanwhile, CM-WIFI professionally optimizes data transmission field which is low discharge and low frequency, such as intelligent housing system, smart power grids, handheld device, personal medical, industrial control.

● Support STA/AP/STA+AP

● Support Smart Link intelligent networking function(provide APP)

● Completely replace cables to realize the direct connection and networking between PLC and computer(upper computer)

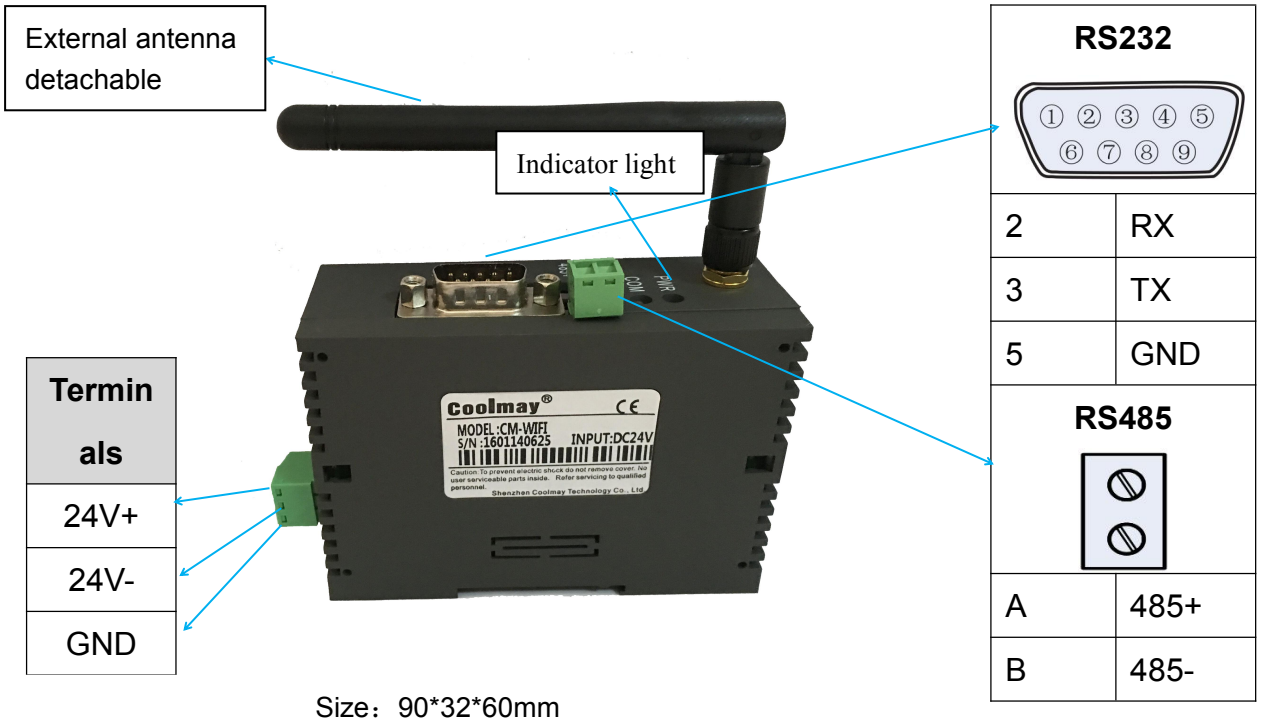
● There is a built-in WIFI module, with transmitted power of 300MW, can easily cover the scene hundred meters and realize wireless programming, debugging, monitoring in any corner.

● Cross-regional connection, there is no need to set complicated parameters in long distant scene, plug and play. Conveniently control PLCs in long distance at home or office, avoid the boring business trip.

I. Hardware description

This chapter mainly introduce the appearance, wiring, parameters, installation and application area of CM-WIFI.

1.1 Model and appearance



Size：90*32*60mm

Installation：standard 35mmDIN-Rail installation

1.2 Indicator light

Indicator lights in CM-WIFI, functions as below:

Indicator light	Function
PWR	Power
COM	After PLC connected with CM-WIFI， COM light will flicker when serial ports are communicating.
Leady	Normally work and remain ON after initialization.
Link	SAT successfully connected

1.3 parameters and Antenna

CM-WIFI power supply is DC 5-30V, the basic parameter is as below diagram:

Parameters	Value
Standard authentication	FCC/CE
Wireless standards	802.11 b/g/n
Frequency range	2.412GHz-2.484GHz
Transmitted power	802.11b: +16 +/-2dBm
	802.11g: +14 +/-2dBm
	802.11n: +13 +/-2dBm
Receive sensitivity	802.11b: -93 dBm
	802.11g: -85dBm
	802.11n: -82dBm
Data interface	UART
	PWM, GPIO
Working voltage	5V-30V
Operating Temperature	-40℃~85℃
Storage temperature	-45℃~125℃
Dimension	90*32*60mm
Installation	Standard 35mm DIN-Rail installation
Wireless network type	STA/AP/STA+AP
Security regime	WEP/WPA-PSK/WPA2-PSK
Encryption type	WEP64/WEP128/TKIP/AES
Network protocol	IPv4, TCP/UDP/HTTP
User Configuration	Web Page

■ External antenna

If using external antenna, according to IEEE 802.11b/g/h standard requirement, CM-WIFI need to connect with 2.4G antenna.

Item	Parameters
Frequency range	2.4~2.5GHz
Impedance	50 Ohm
VSWR	2（Max）
Return Loss	-10dB(Max)
Connection type	I-pex or populate directly

1.4 Main Application Areas

CM-WIFI can be widely used in the following area.

- Remote device monitoring
- Internet of things application
- Industrial control
- Handheld device

II. Setting and user manual

2.1 Web page description

When first using CM-WIFI, some configurations need to be set. Users can connect AP port of CM-WIFI through PC and configurate through web page.

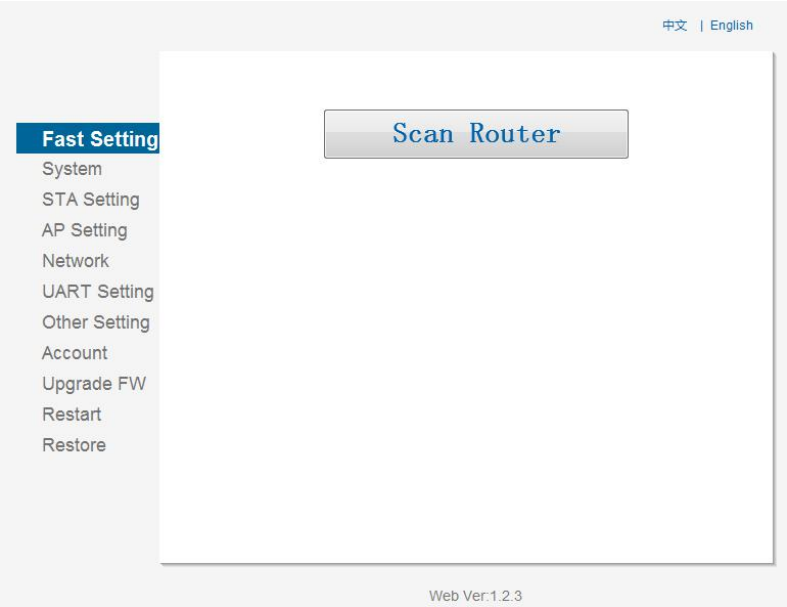
Network default Settings table:

Parameters	Default settings
SSID	USR-WIFI232-T
IP address	10.10.100.254
Subnet Mask	255.255.255.0
Username	admin
Password	admin

2.2 Open management webpage

Firstly, be used for PC wireless card connection USR-WIFI232-T, SIDD is USR-WIFI232-T. When connected well, open IE, type in http://10.10.100.254 in the address bar, carriage returns. Type in user name admin and password admin in the popping up dialog box, and then “confirm”.

Then the management webpage of USR-WIFI232-T will pop up.

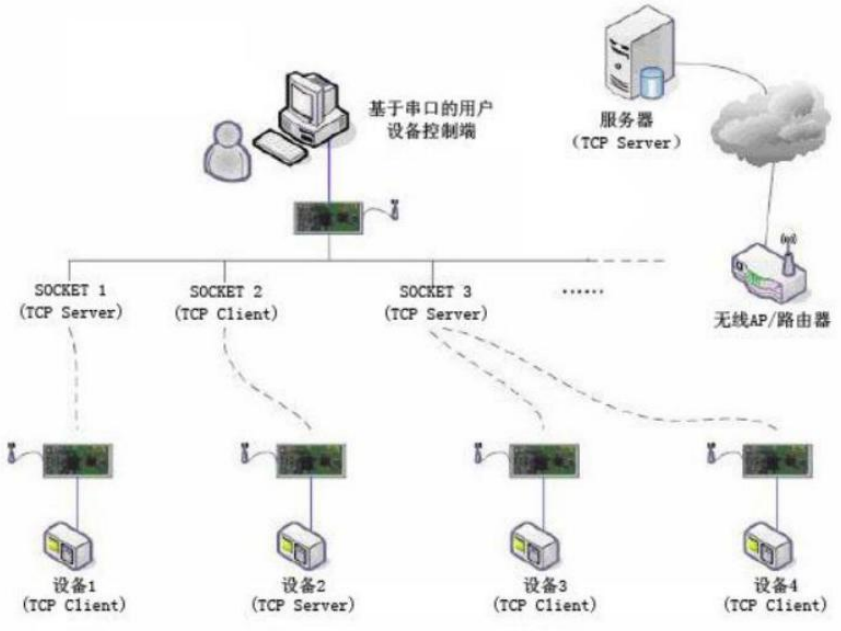


The menu is divided to 11 webpages, they are “ quick settings”, ”system information”, STA setting AP setting, network setting, serial port setting, other setting, account management, firmware upgrade, restart, recover.

Note:

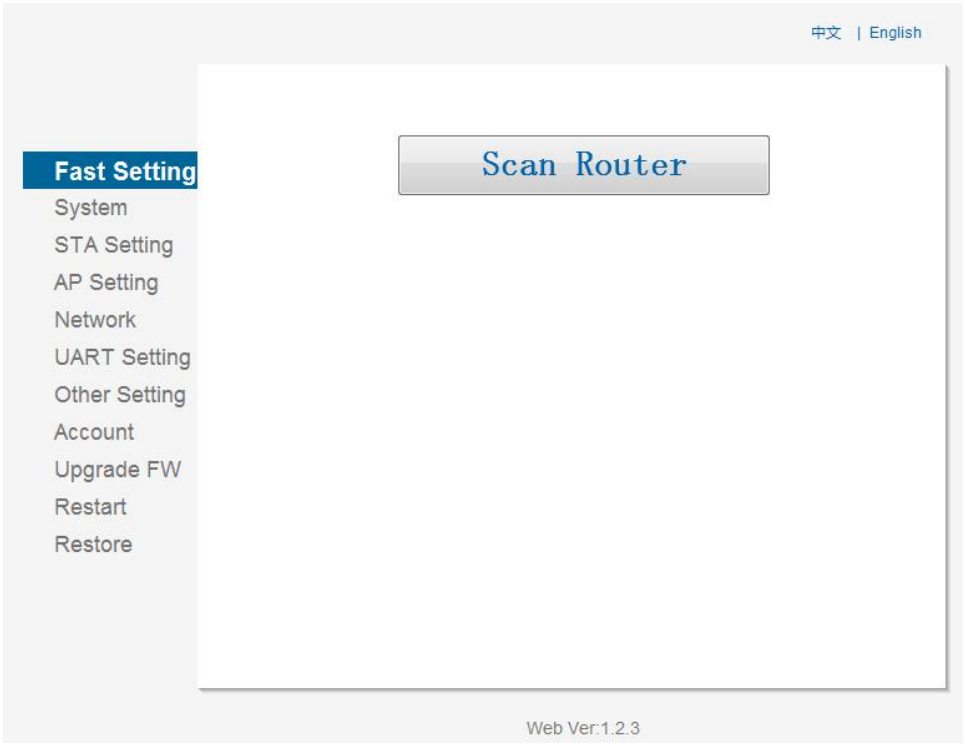
1) AP: namely wireless access point, is the creator of wireless network, is the center node of network. Usually the wireless router being used in home or office is a AP.

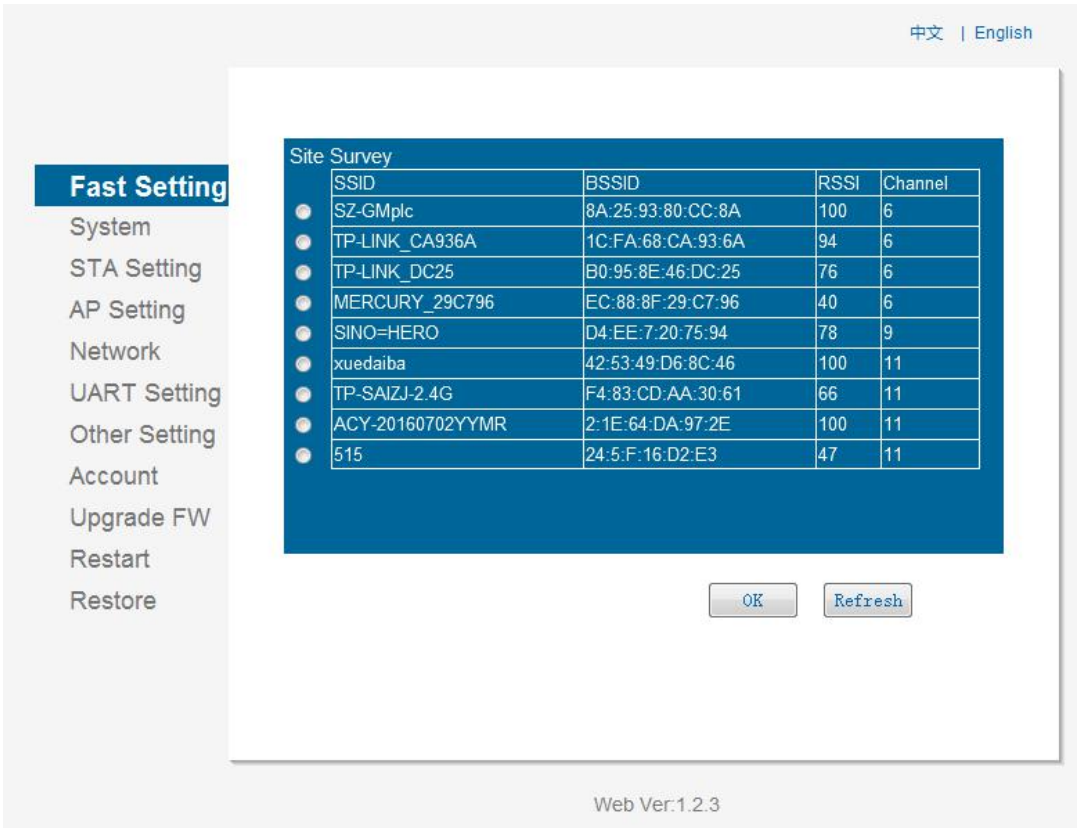
2) STA station, every terminal connected to wireless network (such as laptop, PDA and other user device can be connected with internet) can be called a station.



2.3 Fast networking settings

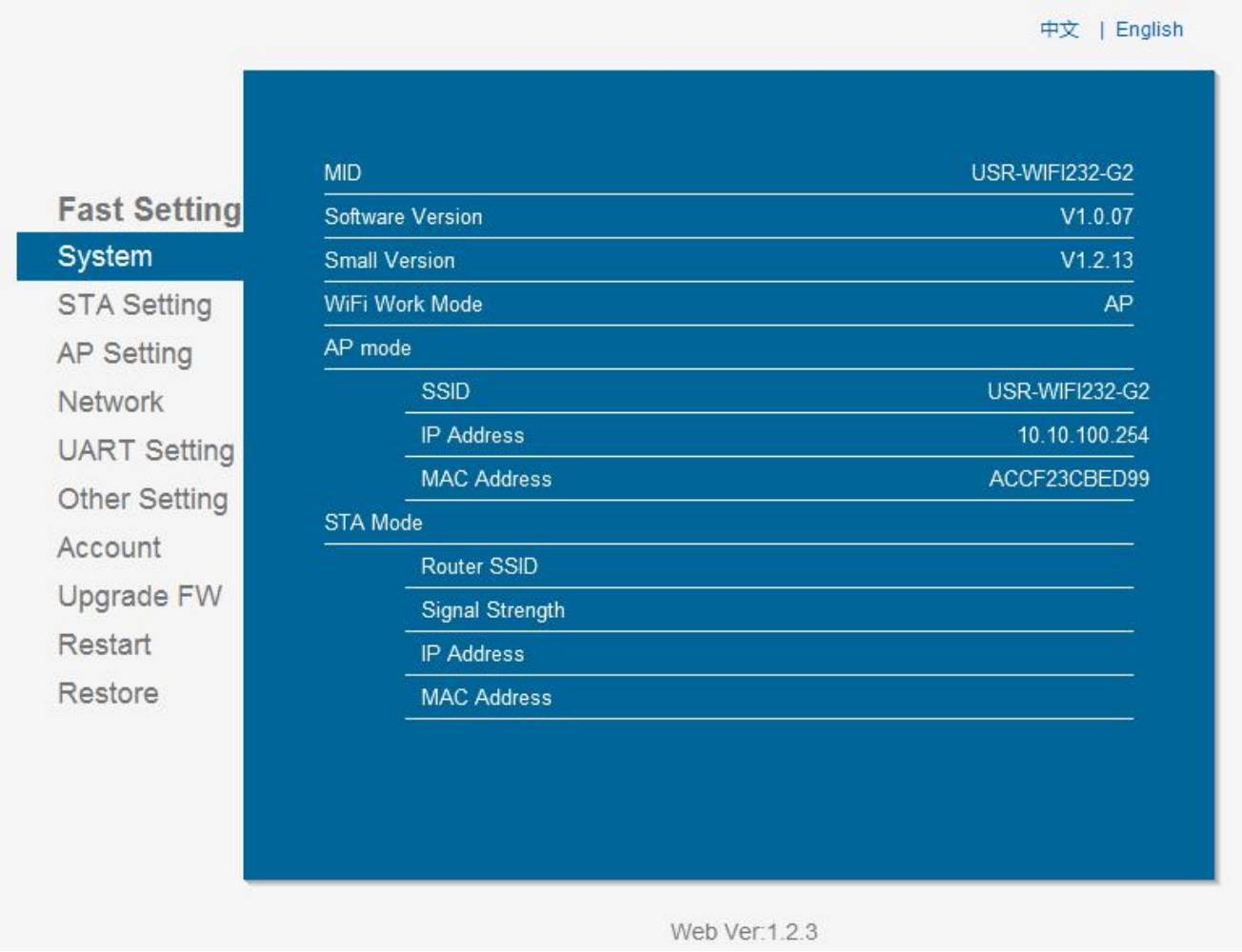
In this page, fast networking can be realized through CM-WIFI.





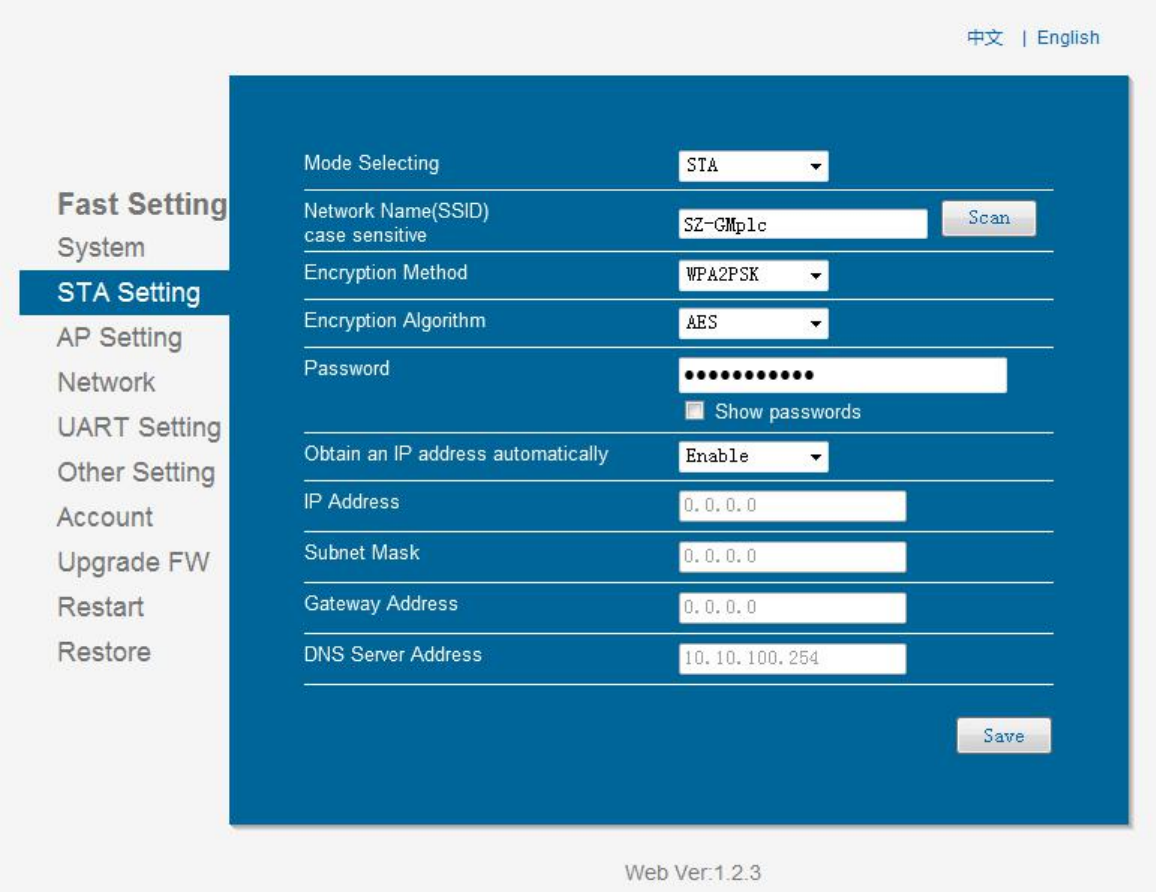
2.4 System information page

In system information page, users can achieve important state information of current device, including device serial number, Firmware Version, wireless networking information and related parameter setting. And can read strength indicator of wireless signal in STA mode.

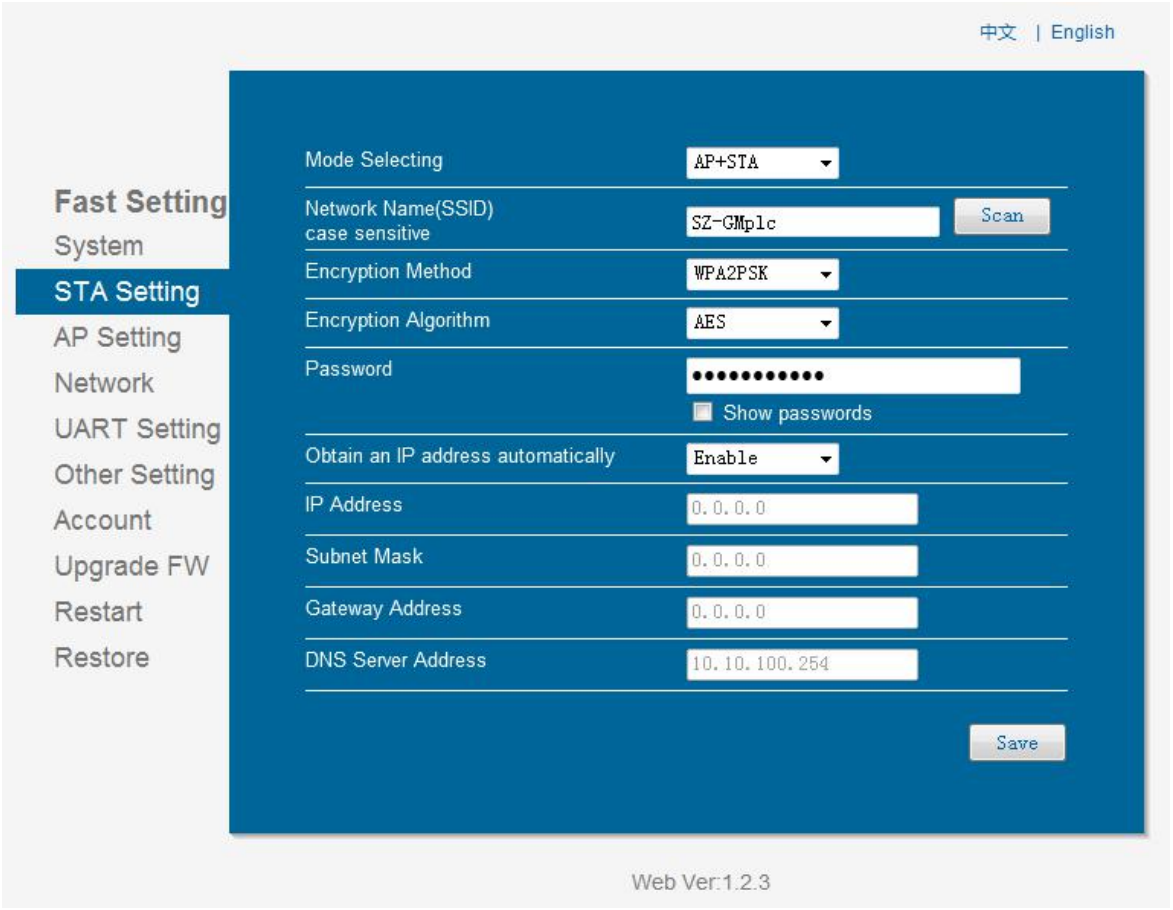


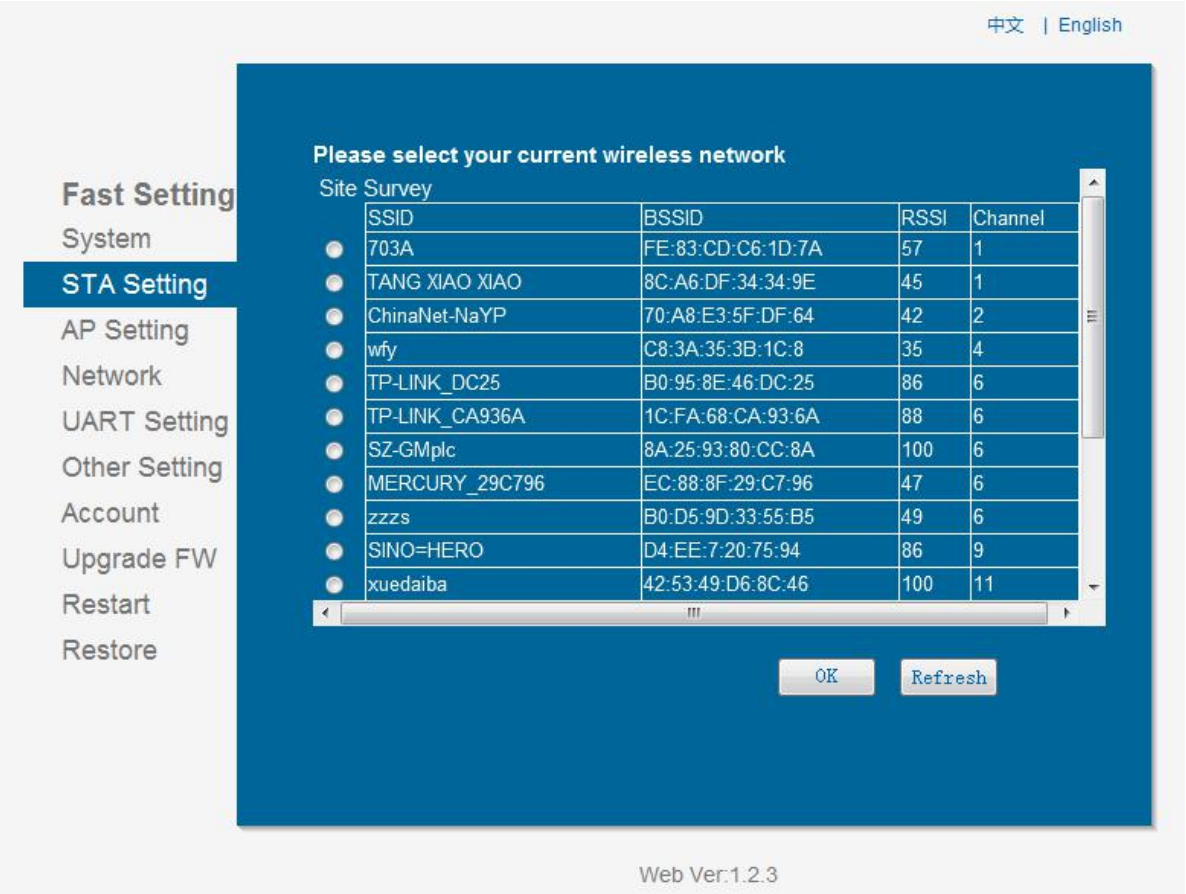
2.5 STA setting page

In this page, users can click [search] to search wireless access point nearby automatically, and connect it by setting network parameters. Encryption information provided here must remain the same with the corresponding wireless access point that STA can be successfully connected.



Select “SZ-GMplc” (Note: “SZ-GMplc” is the Internal wireless network of Coolmay), the setting of wifi hotspot will be introduced briefly. Click “confirm” after being searched and selected: the original name is changed.

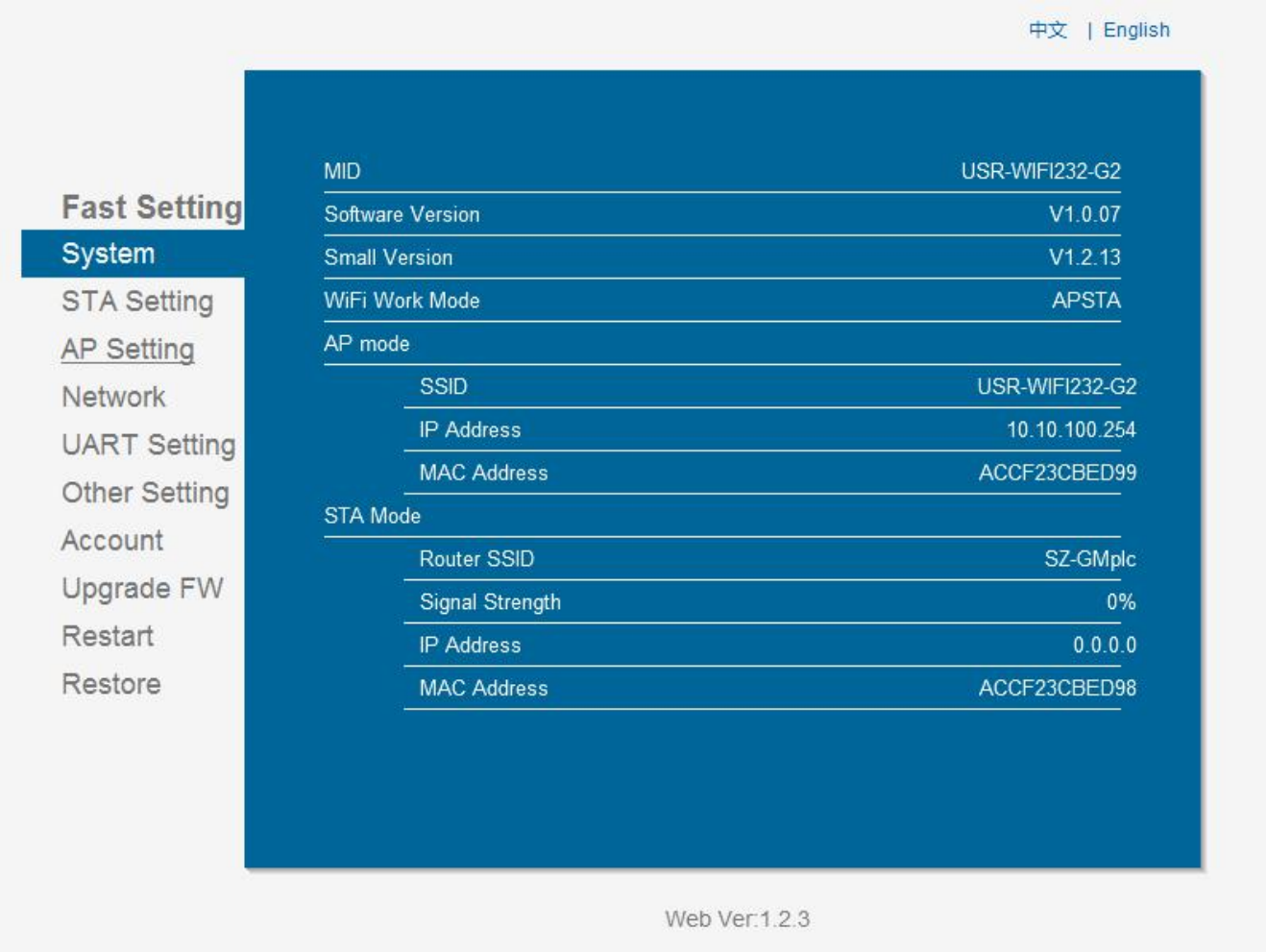

中文 | English
Fast Setting
System
STA Setting
AP Setting
Network
UART Setting
Other Setting
Account
Upgrade FW
Restart
Restore
Mode Selecting
AP+STA
Network Name(SSID)
case sensitive
SZ-GMplc
Scan
Encryption Method
WPA2PSK
Encryption Algorithm
AES
Password
Show passwords
Obtain an IP address automatically
Enable
IP Address
0. 0. 0. 0
Subnet Mask
0. 0. 0. 0
Gateway Address
0. 0. 0. 0
DNS Server Address
10. 10. 100. 254
Save
Web Ver:1.2.3


中文 | English
Fast Setting
System
STA Setting
AP Setting
Network
UART Setting
Other Setting
Account
Upgrade FW
Restart
Restore
Please select your current wireless network
Site Survey
SSID
BSSID
RSSI
Channel
703A
FE:83:CD:C6:1D:7A
57
1
TANG XIAO XIAO
8C:A6:DF:34:34:9E
45
1
ChinaNet-NaYP
70:A8:E3:5F:DF:64
42
2
wfy
C8:3A:35:3B:1C:8
35
4
TP-LINK_DC25
B0:95:8E:46:DC:25
86
6
TP-LINK_CA936A
1C:FA:68:CA:93:6A
88
6
SZ-GMplc
8A:25:93:80:CC:8A
100
6
MERCURY_29C796
EC:88:8F:29:C7:96
47
6
zzzs
B0:D5:9D:33:55:B5
49
6
SINO=HERO
D4:EE:7:20:75:94
86
9
xuedaiba
42:53:49:D6:8C:46
100
11
OK
Refresh
Web Ver:1.2.3

Note:

When configurates module. It is more convenient to visit the management page of web server as AP mode. Thus set as AP+STA mode instead of STA mode. AP+STA is very practical networking mode: the model can be regard as AP, meanwhile it can be exist as a STA mode. For example, CM-WIFI as AP allows customer's cellphone or computer being accessed. Meanwhile CM-WIFI can be regard as a STA to uploading data by accessing to routers or host servers.

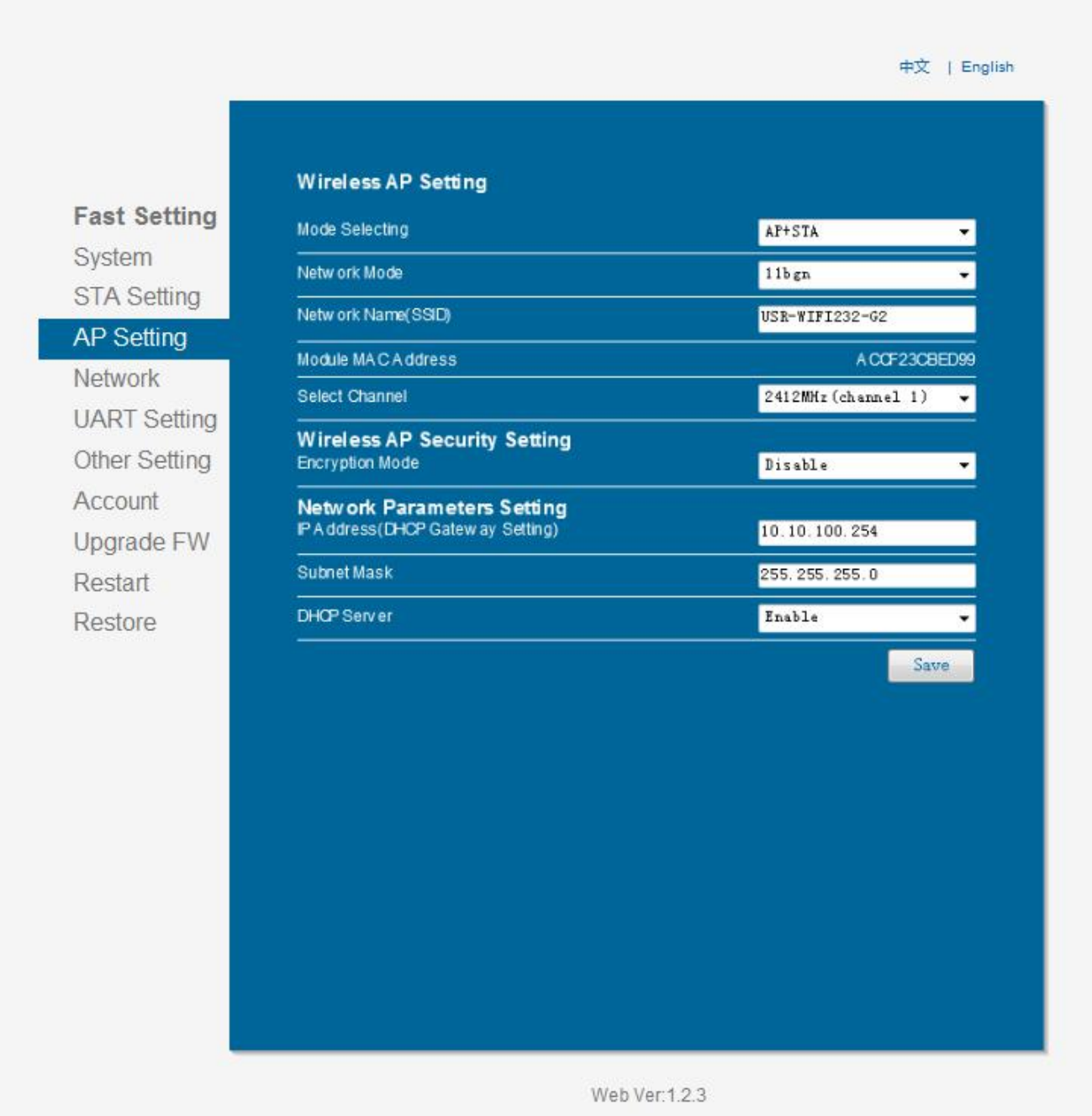
When successfully access to SZ-GMplc in AP mode, the below window will pop up, the signal strength is 100%.



STA webpage search user router interface

2.6 AP setting page

When AP or AP+STA mode is selected, wireless and network parameters need to be set. Most system support DHCP achieve IP automatically. It is suggested to set DHCP TYPE as “server”, otherwise parameters of relevant STA need to be entered by hand.



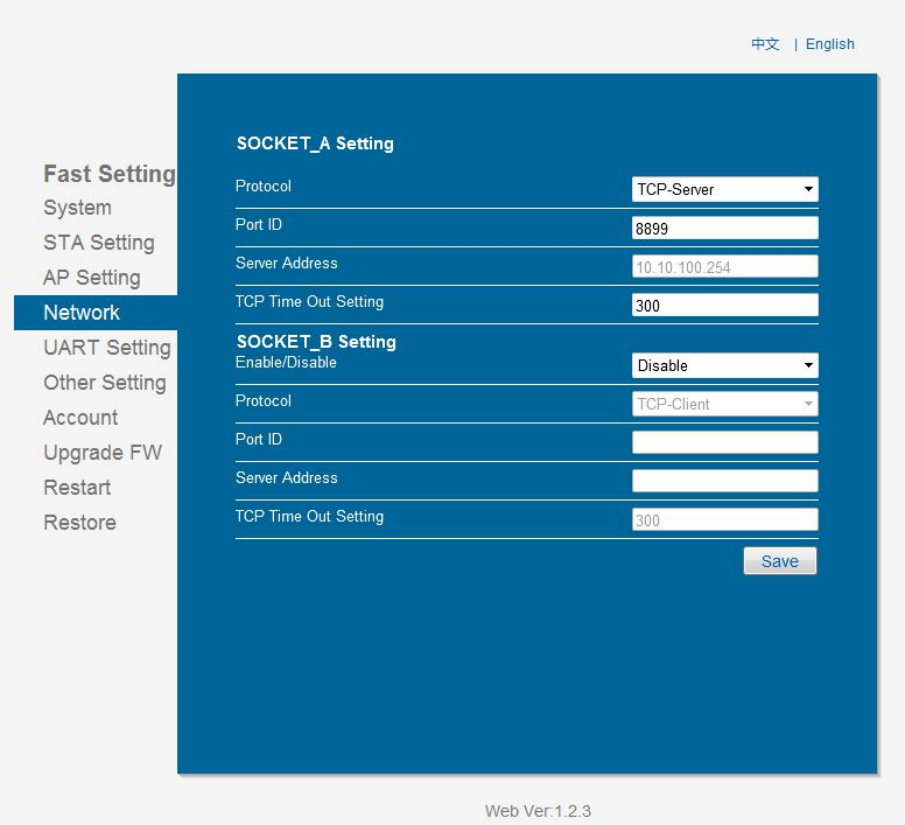
Note:

Network name: can be changed arbitrary.

LAN parameter setting: can be modified to valid IP address (As own IP), if also as a client, it should not be in the same gateway with the server IP.

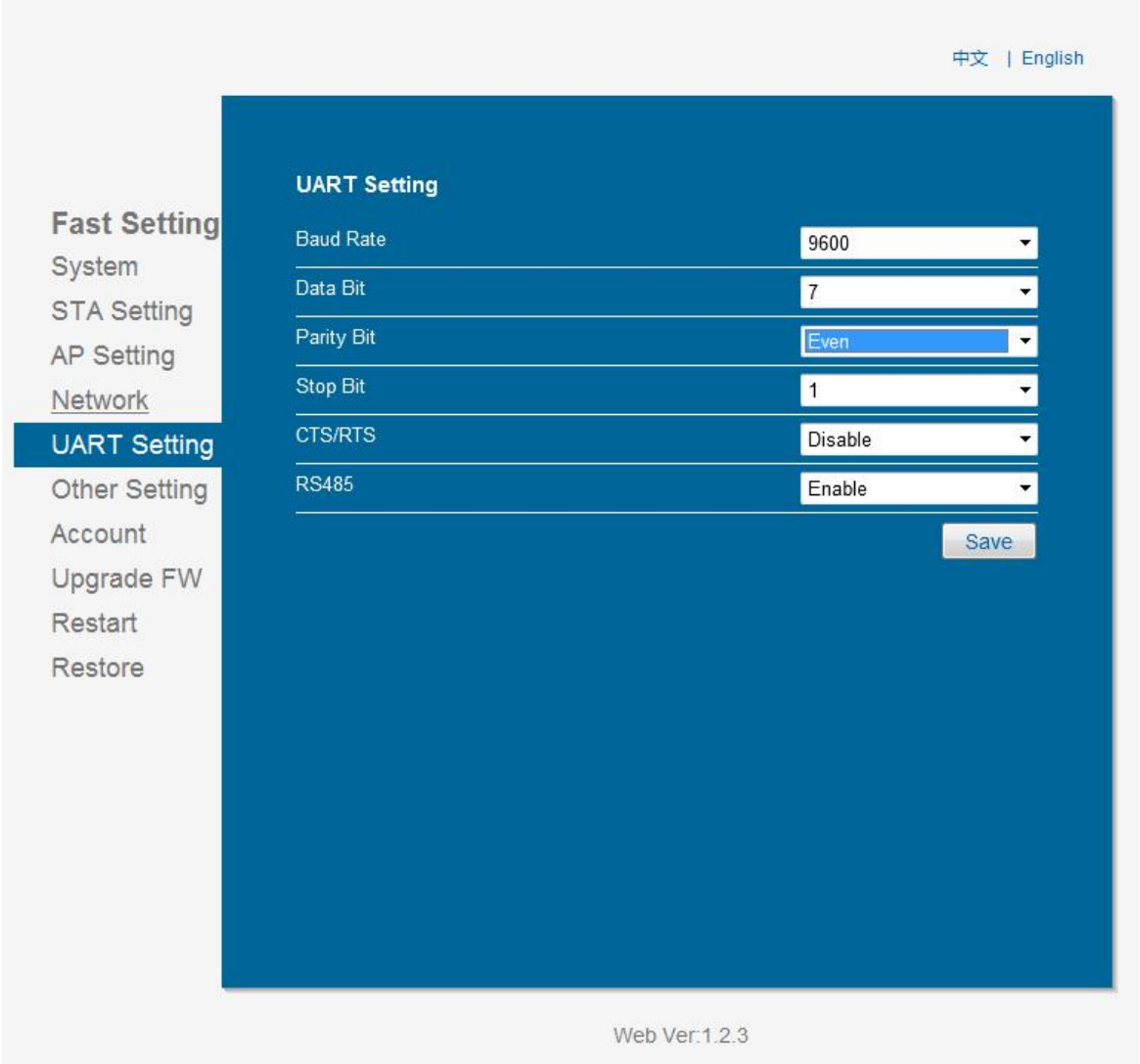
2.7 Network setting page

In this page, socket A and socket B can be set. Socket A can be set as TCP Server , TCP Client, UDP Server, UDP Client； socket B can be set as UDP Server, UDP Client , TCP Client，or forbidden socket B.



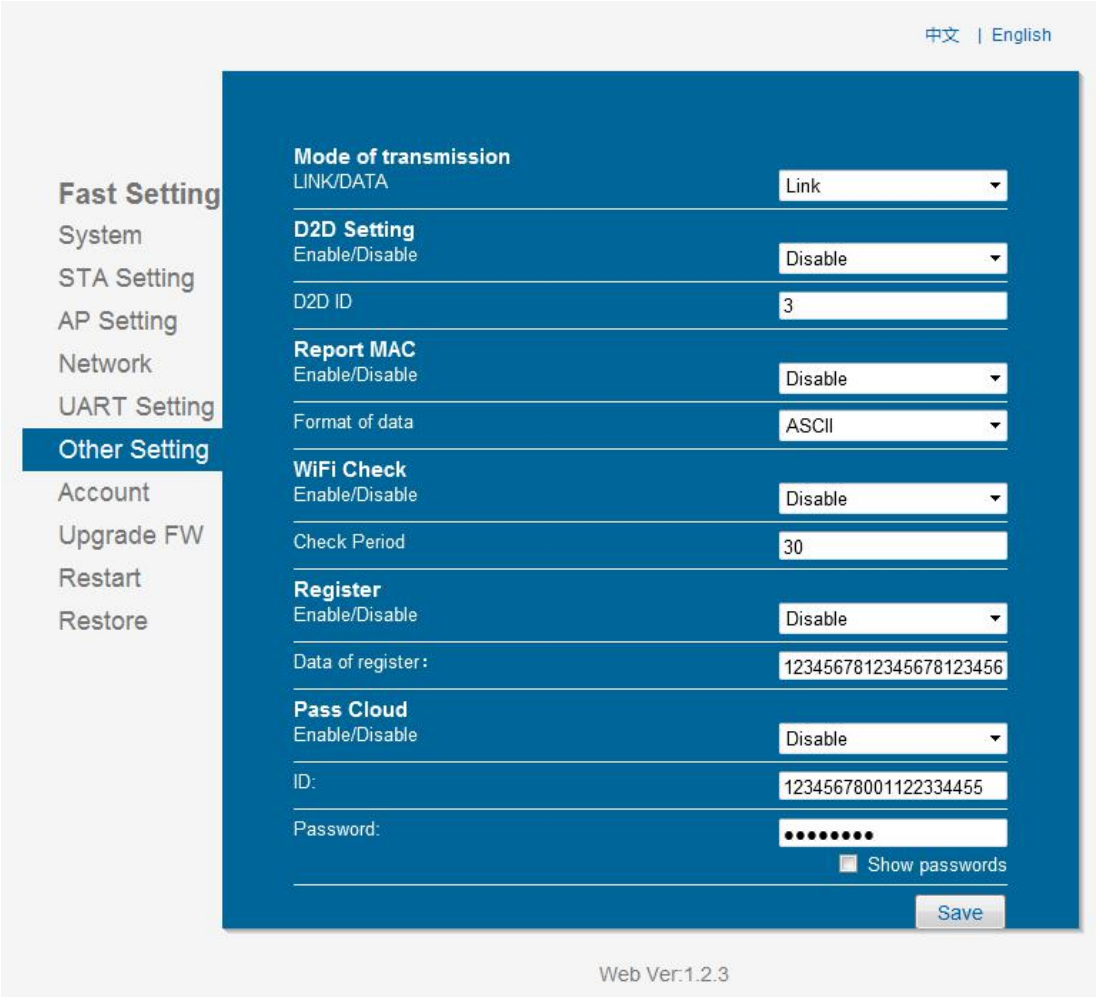
2.8 Serial port setting page

In this page, serial port parameters can be set , baud rate 9600, data bits seven, parity bit Even, stop bit one is the parameter communicating with coolmay PLC.



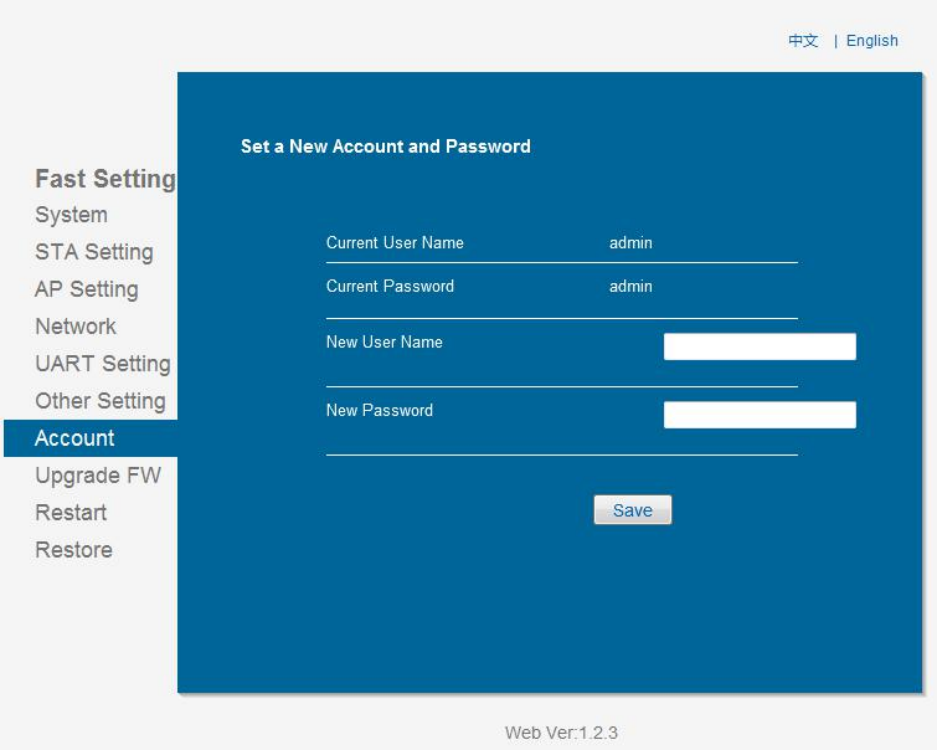
2.9 Other setting page

In this page, D2D function can be set. D2D is a function of achieving remote control by server forwarding. Each device need to register a ID in coolmay server.

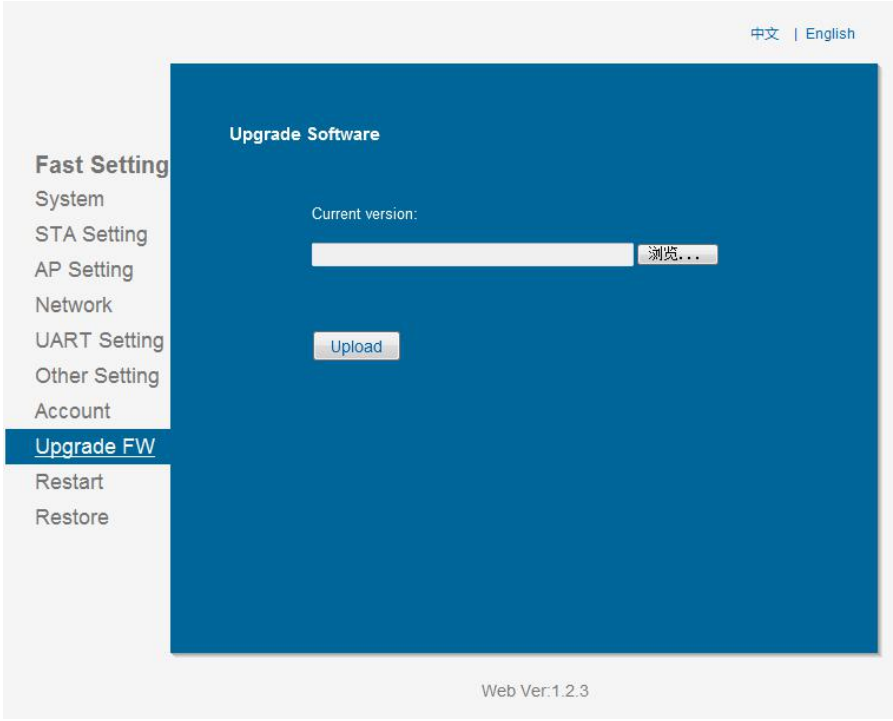


2.10 Account management page

This page was used to set the user name and password of inside Web Server

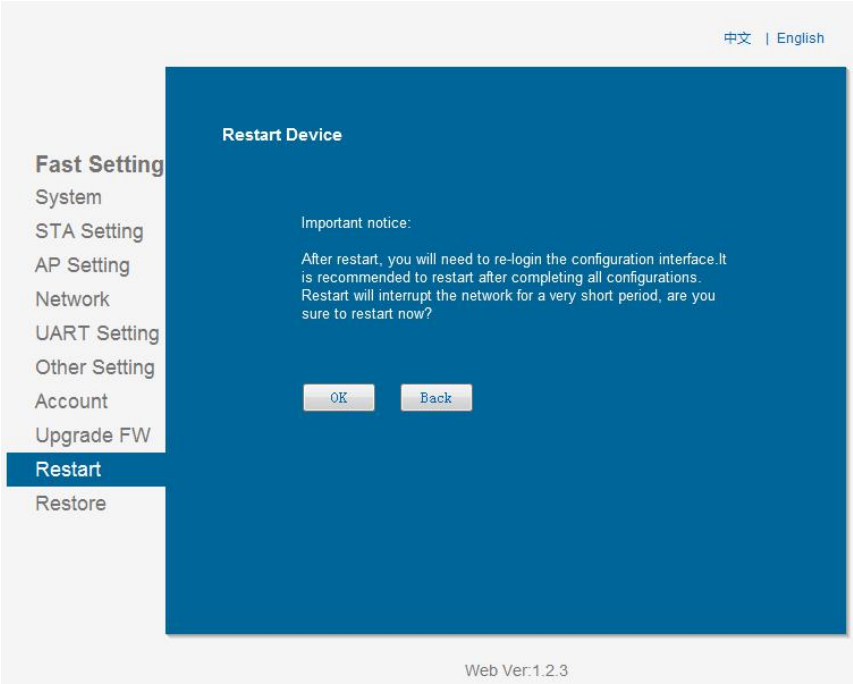


2.11 Firmware upgrade page



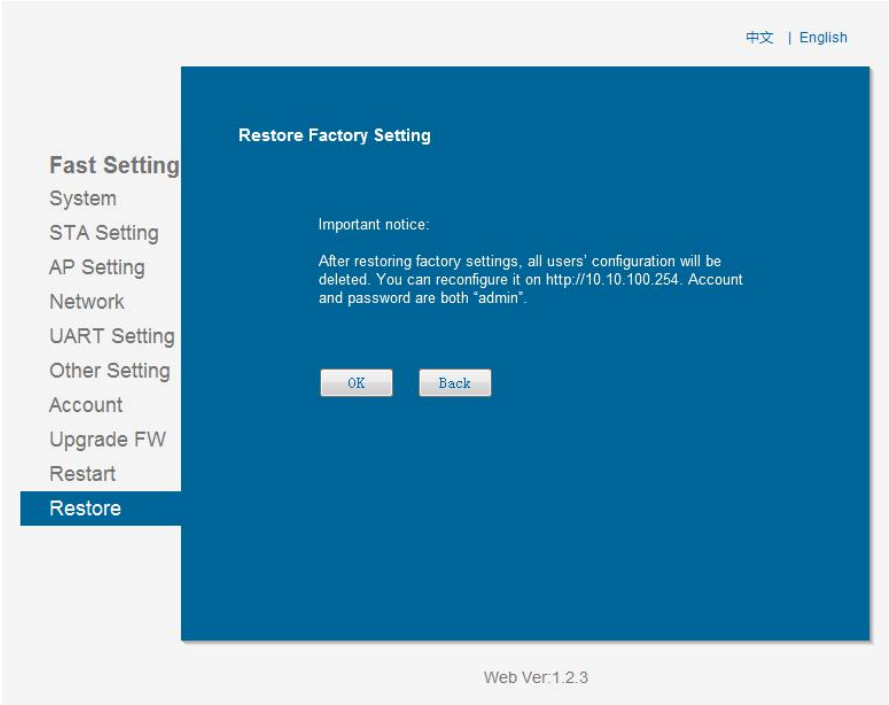
2.12 Restart page

After restarting, the newly saved parameters will start using.



2.13 Recover page

Restore to factory default settings, all the user configuration will be deleted. The module will automatically recover to AP mode. Users can configurate again.



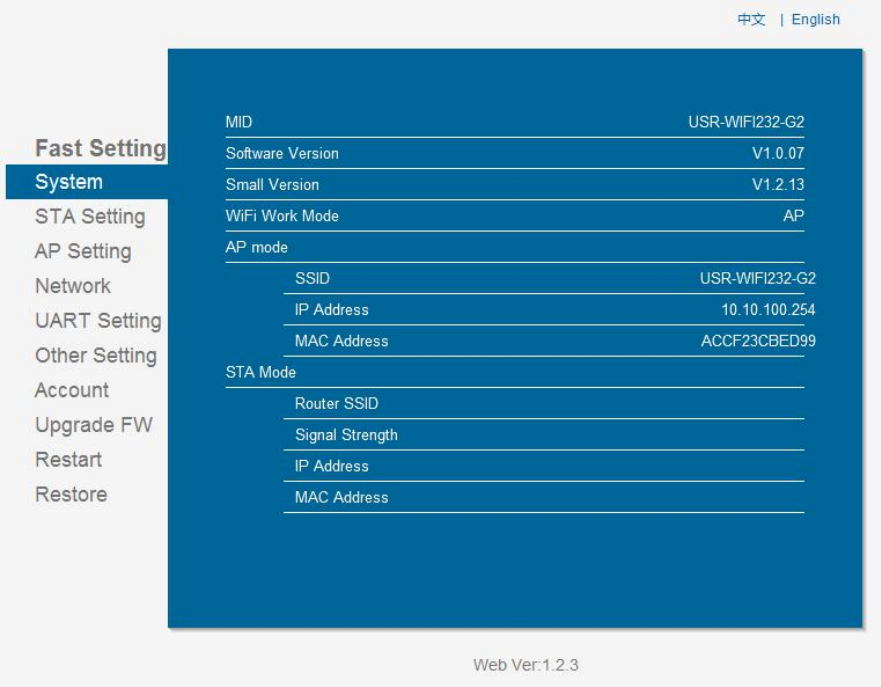
III. Application

This chapter will describe specific usage through application case.

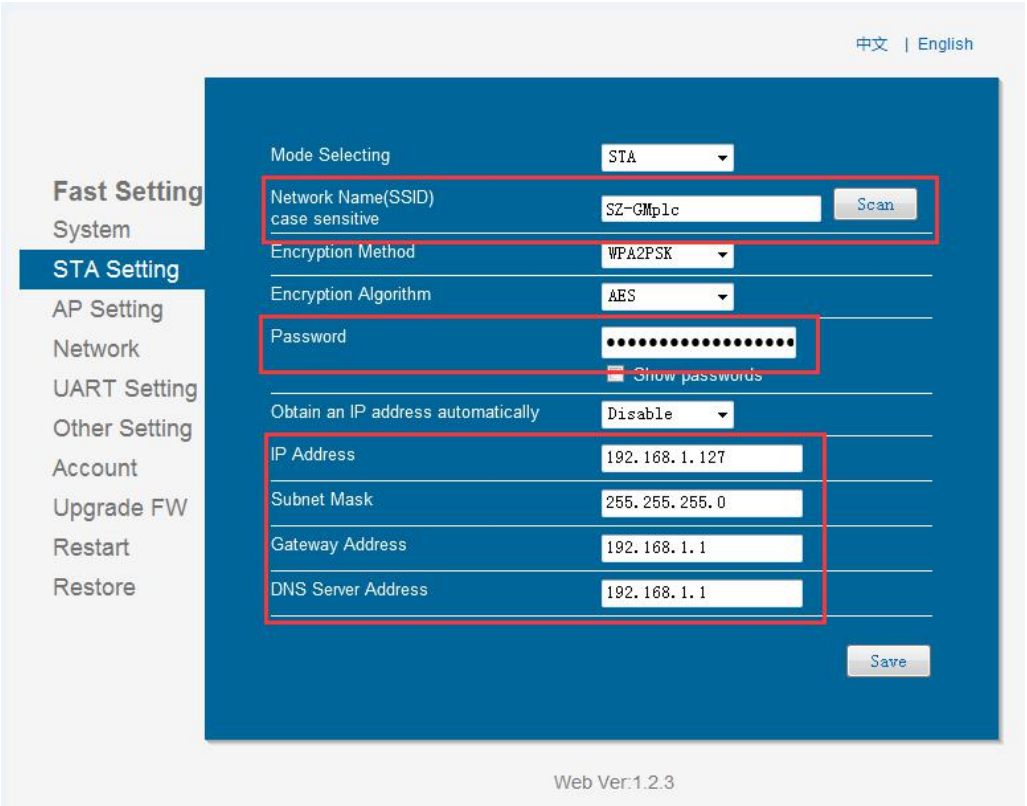
3.1 STA port connection debug

① Control requirement: PLC communicating with CM-WIFI. Remote download PLC program through PLC software in computer.

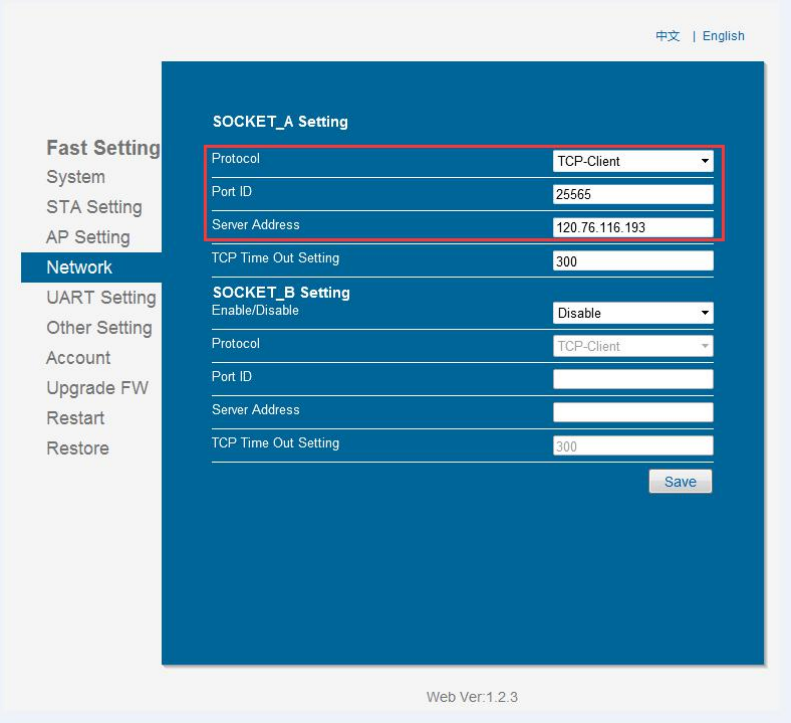
② Open browser, type in the address http://10.10.100.254, carriage return. Enter user name and password into the popping up dialog box.



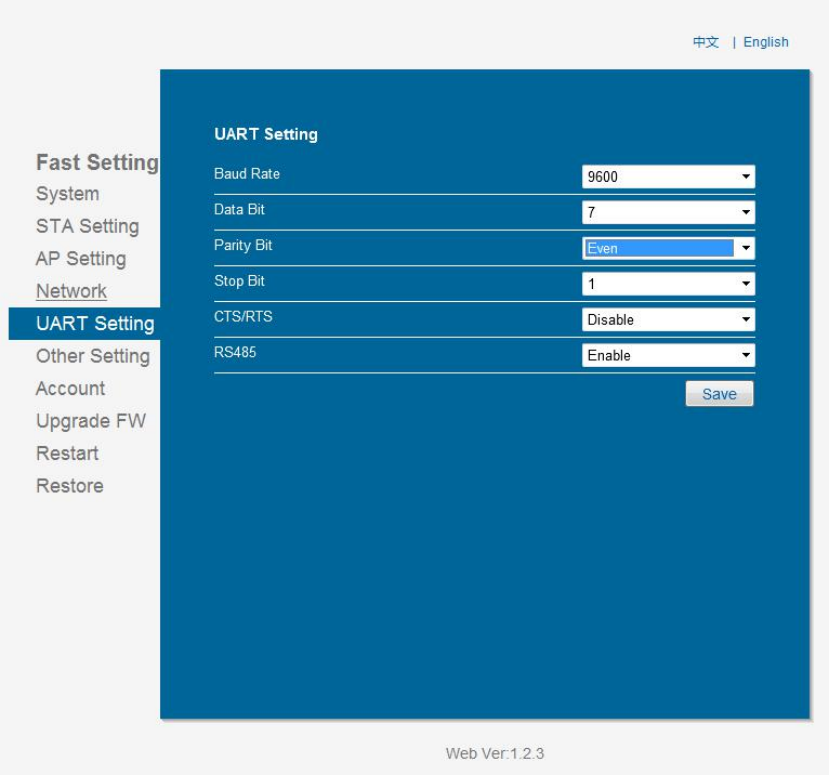
③ Select STA mode, search the network which the device is in, this demo program connect with SZ-GMplc, please select Disable to achieve IP address automatically, set IP address, subnet mask, gateway address, DNS server address (Note: IP address, subnet mask, gateway address, DNS server address should be set according to the network segment which CM-WIFI is in)



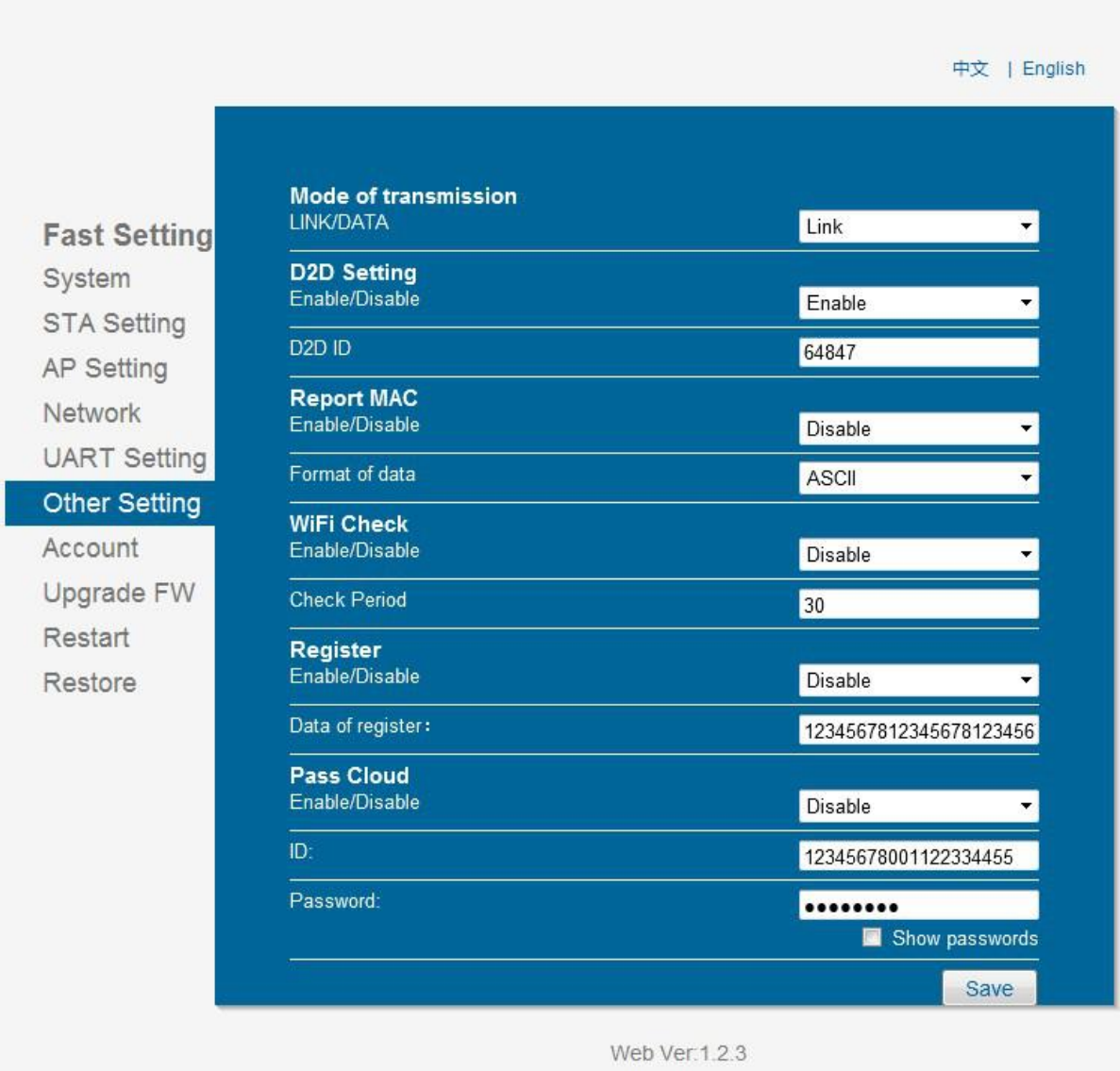
④ Change network setting protocol to TCP-Client, set terminal port as 25565, serer address set as 120.76.116.193 or coolmay.wicp.net（copy）, save as：



⑤ Set serial port the same communicating parameters which PLC corresponding to, baud rate 9600; data bits 7, parity bit Even; stop bit one, save, will restart after all the above steps well set.



⑥ In other setting, select Link as mode of data transmission, D2D parameter select Enable, D2D ID according to the ID set in server （ Note: please set D2D ID after consulting with Coolmay technicians), save:



3.2 AP port connection debug

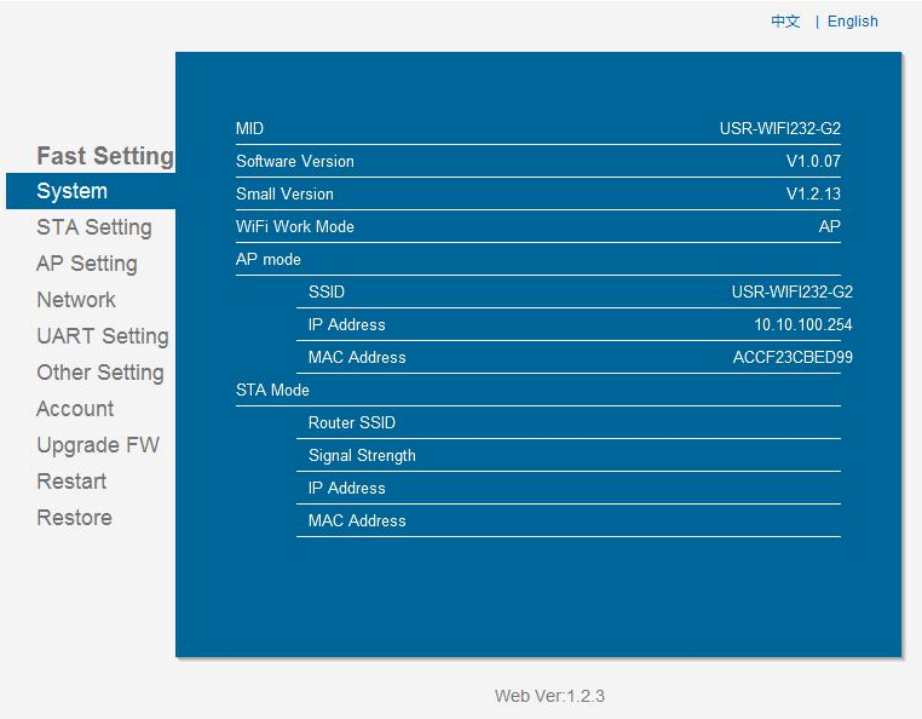
Control requirements: PLC communicating with CM-WIFI. Using computer PLC software download PLC program remotely.

Application scenarios: PLC is stalled in control box or spots not convenient to connect with programming cable.

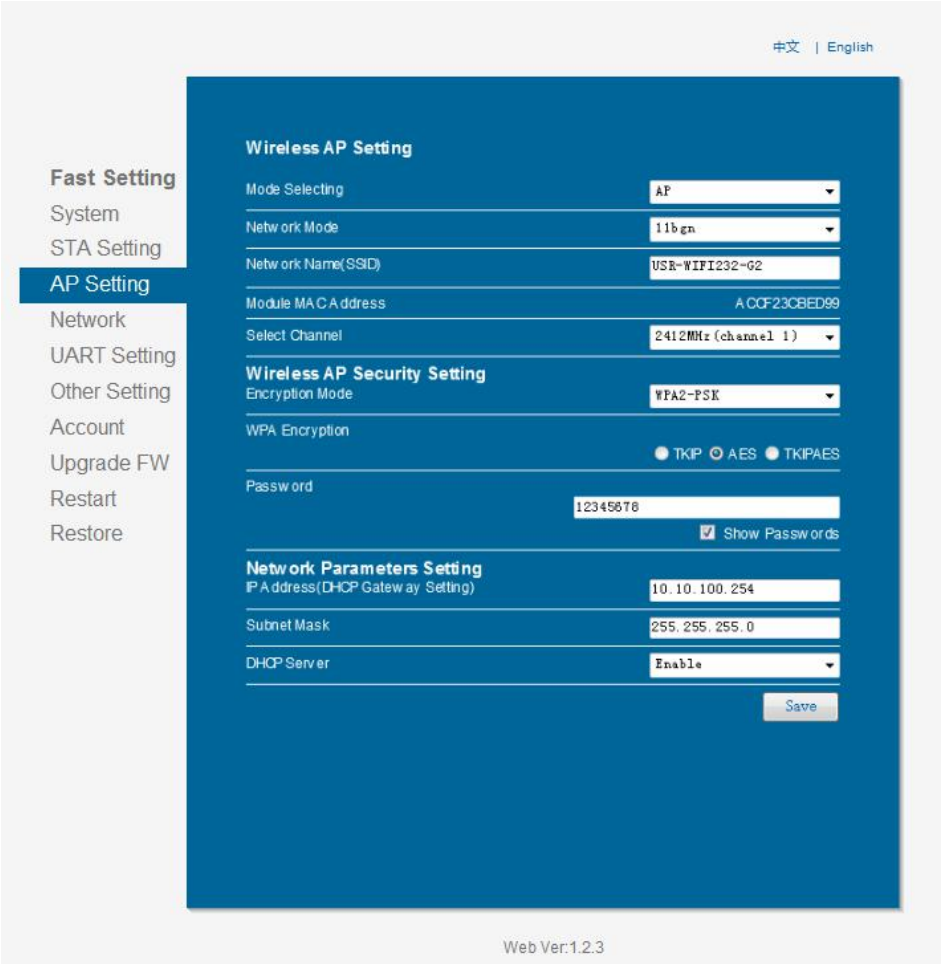
First step: CM - WIFI module communication configuration

① Open wireless network, search for USR-WIFI232-T, and then access to it.

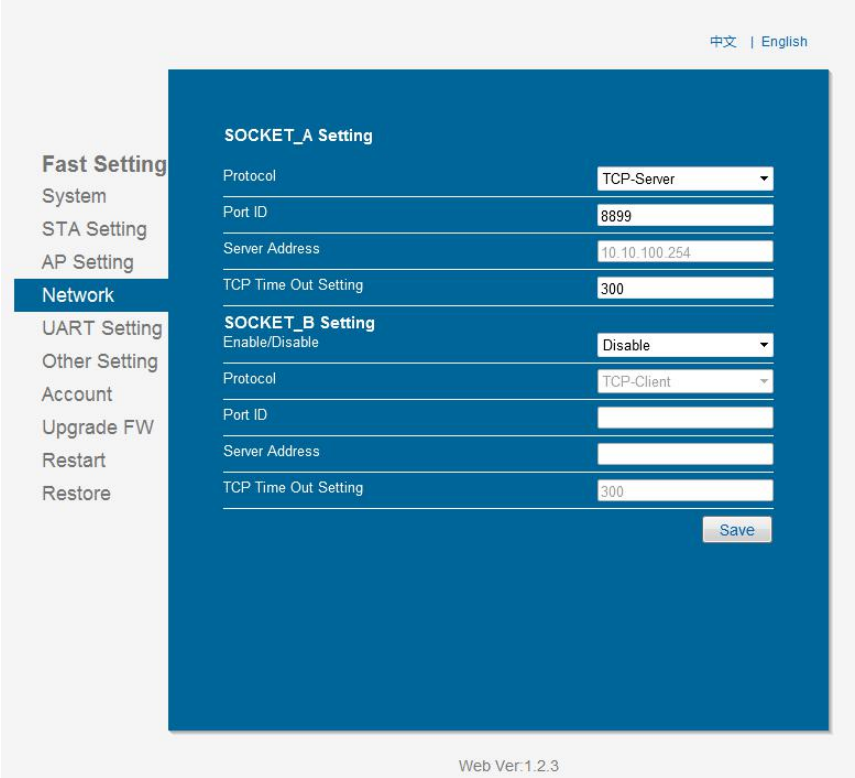
② Open browser, type in the address http://10.10.100.254, carriage return. Enter user name and password into the popping up dialog box.



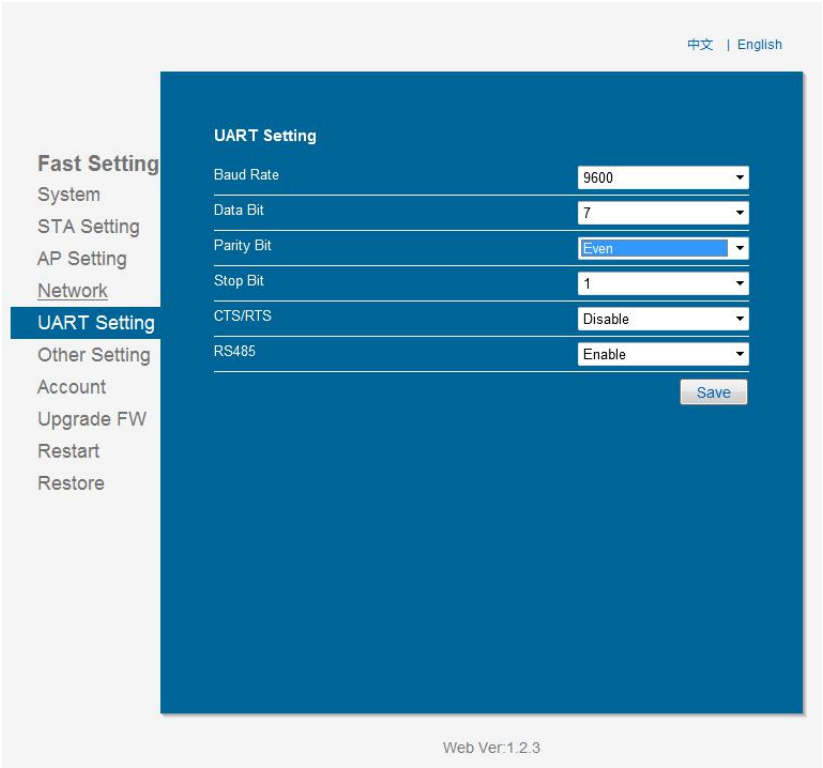
③ AP setting: select AP mode, wireless access point security Settings is WPA2-PSK, select AES as WPA encryption algorithm, set 123456789 as the below picture, save:



④ In network mode, set protocol as TCP-Server, set terminal port 8899, save as：



⑤ Set serial port the same communicating parameters which PLC corresponding to, baud rate 9600; data bits 7, parity bit Even; stop bit 1, save, will restart after all the above steps well set.



IV. Virtual serial port

This chapter mainly describes parameters and usage of virtual serial port.

4.1 Software parameters

Virtual serial port software can map TCP/IP, UDP, UDP broadcast to virtual COM port of this computer.

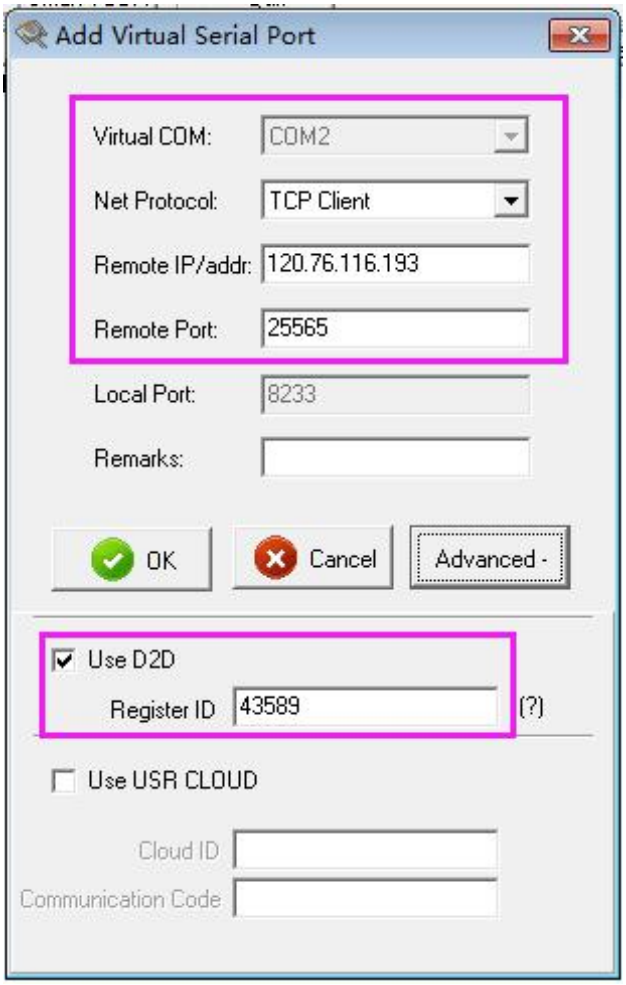
● Support TCP/IP, UDP data mapping to virtual COM port of this computer, at most 512-1024 virtual COM port can be built.

● Support Server, Client, UDP mode.

4.2 Virtual serial port software usage---STA port link debug setting

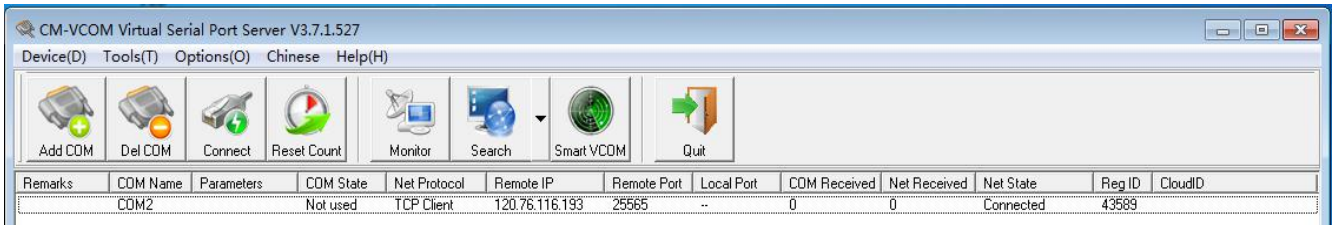
① Open wireless network, search for SZ-GMplc and access to it:

② Build connection, create serial port:

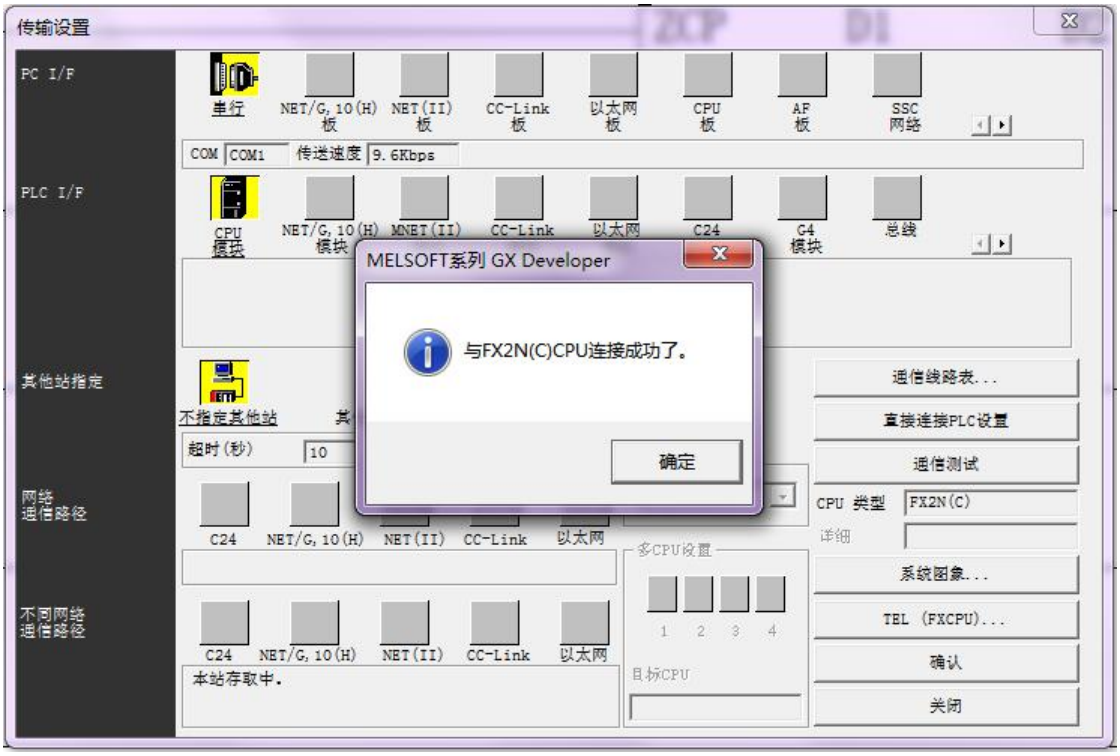


Note: network protocol select TCP Client; target IP/ domain name select 120.76.116.193 or coolmay.wicp.net (standby) (note: IP/ Domain name is coolmay domain name, need to link with coolmay server); target port select 25565; register ID in advance select 43589 (note: please set register ID after consult with coolmay technician)

③ connect virtual port



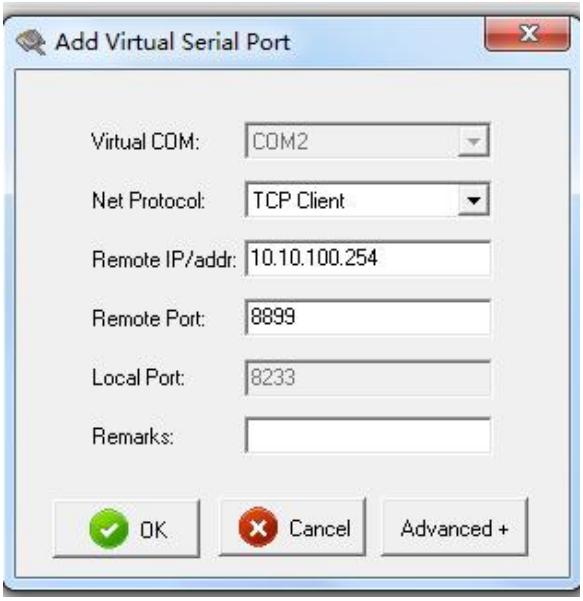
④ Virtual port has been built, port NO. is COM1, link PLC programming software with COM1, thus wireless monitoring to PLC has been achieved. Customers can also download program to PLC and monitor HMI through HMI software.



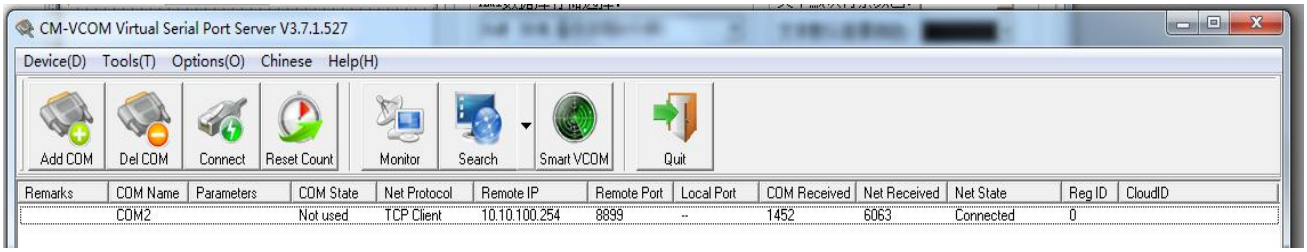
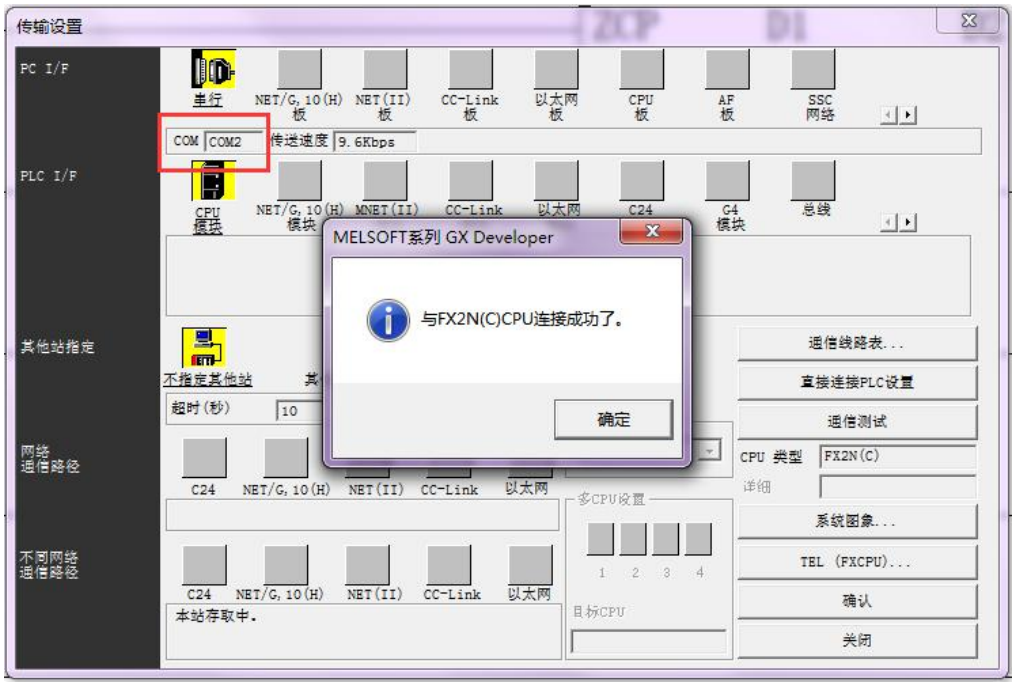
4.3 Virtual serial port software usage---AP port link debug setting

① Open wireless network, search for USR-WIFI232-T, access to it:

② Build link, create serial port:



③ Connect virtual port, and change Synchronous baud rate to unchecked state.



④ Virtual port has been built, port NO. is COM2, link PLC programming software with COM2, thus wireless monitoring to PLC has been achieved. Note: PLC software version must be GX 8.52 or WORKS2.