

CM-WIFI User Manual

Shenzhen Coolmay Technology Co., Ltd

Version 6.71

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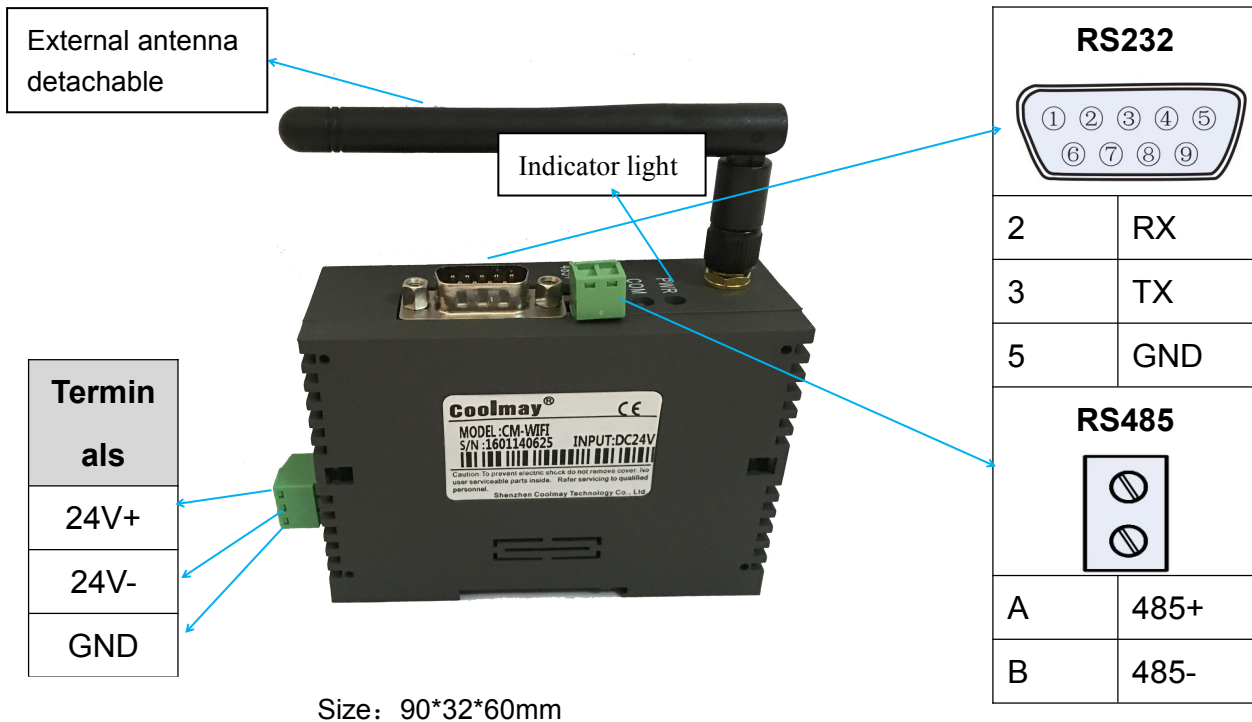
CM-WIFI module, developed and produced by Shenzhen Coolmay Technology Co., Ltd, is a compact and powerful integration of 802.11 b/g/n WIFI solution with low consumption. It has a Rs485 and a standard Rs232. Through CM-WIFI, traditional serial devices such as PLCs and meters can easily connect with wifi 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



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

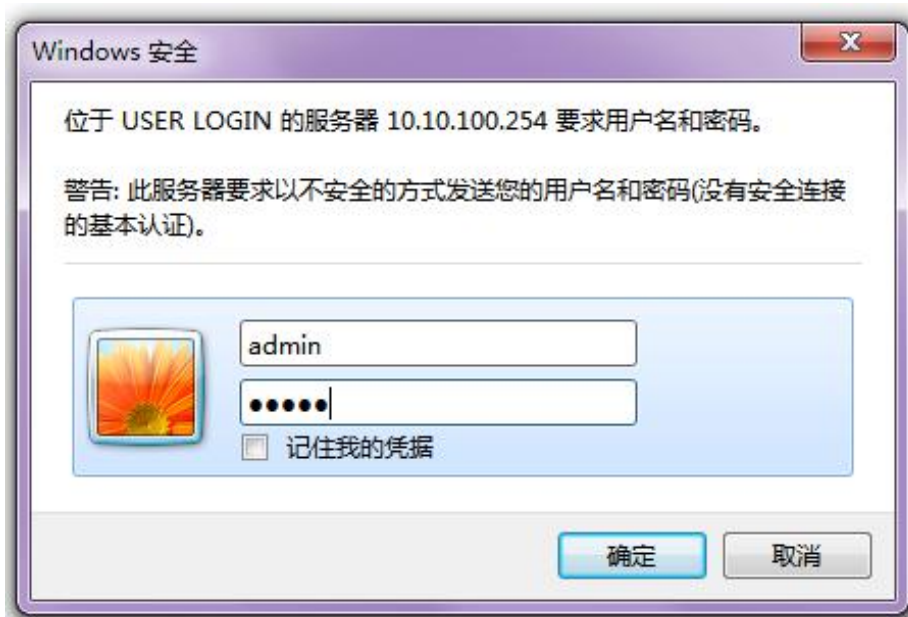
When first using CM-WIFI, some configurations need to be set. Users can connect AP port of CM-WIFI through PC and configure through web page.

Network default Settings table:

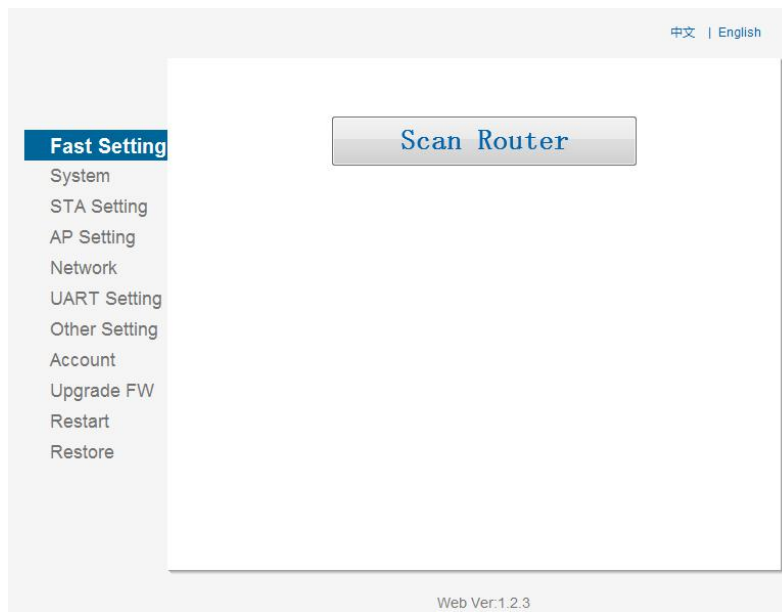
Parameters	Default settings
SSID	USR-WIFI232-T
IP address	10.10.100.254
Subnet Mask	255.255.255.0
Username	admin
Password	admin

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”.



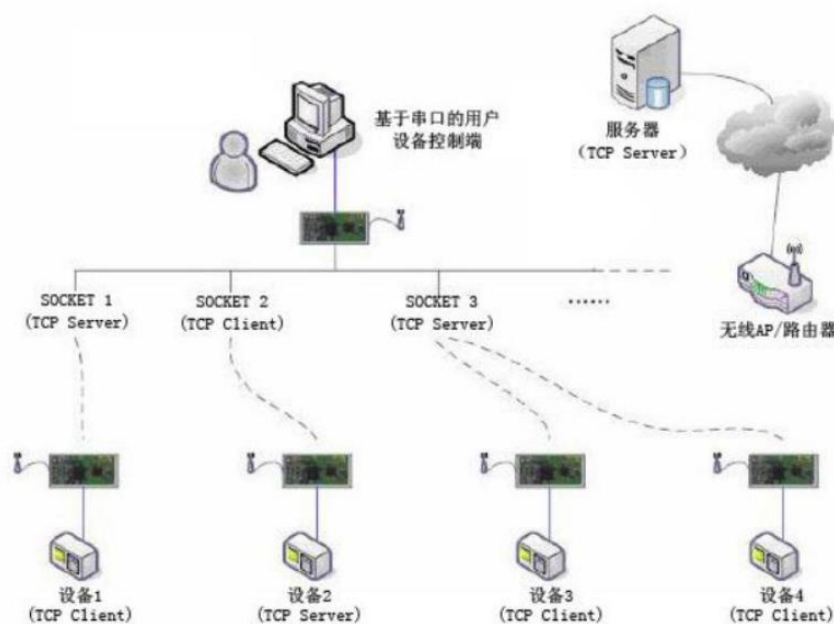
Then the management webpage of USR-WIFI232-T will pop up.



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.

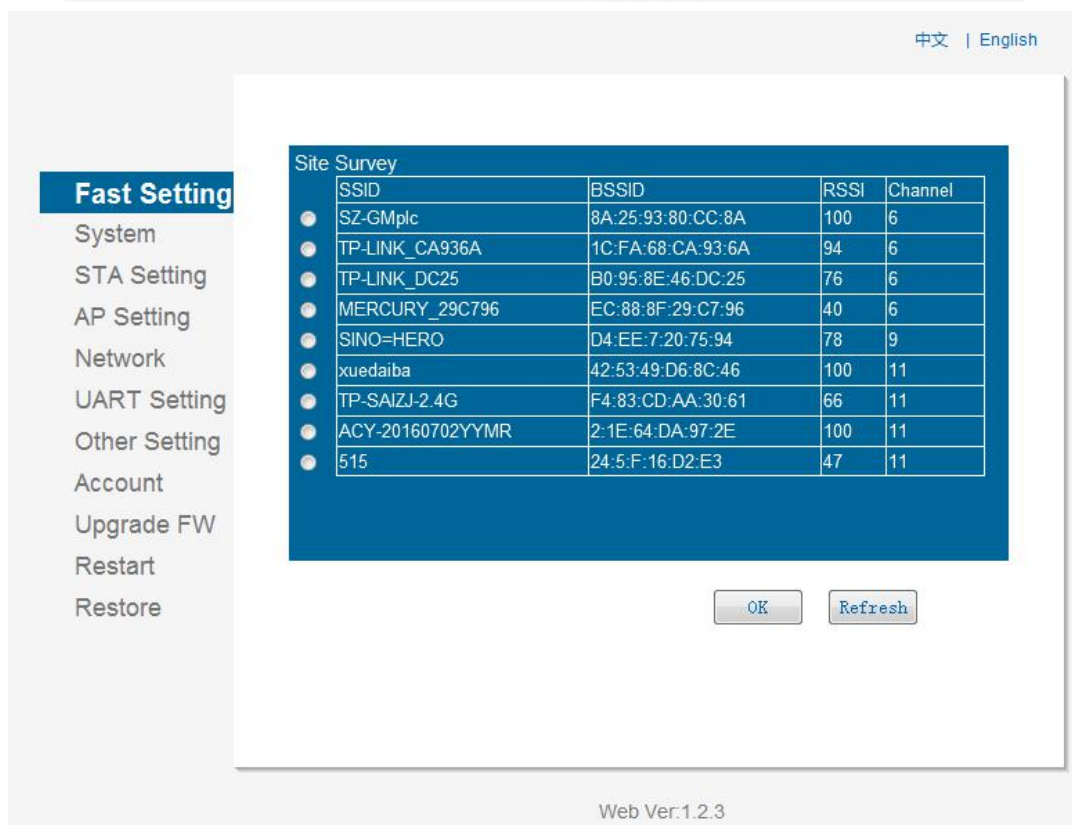
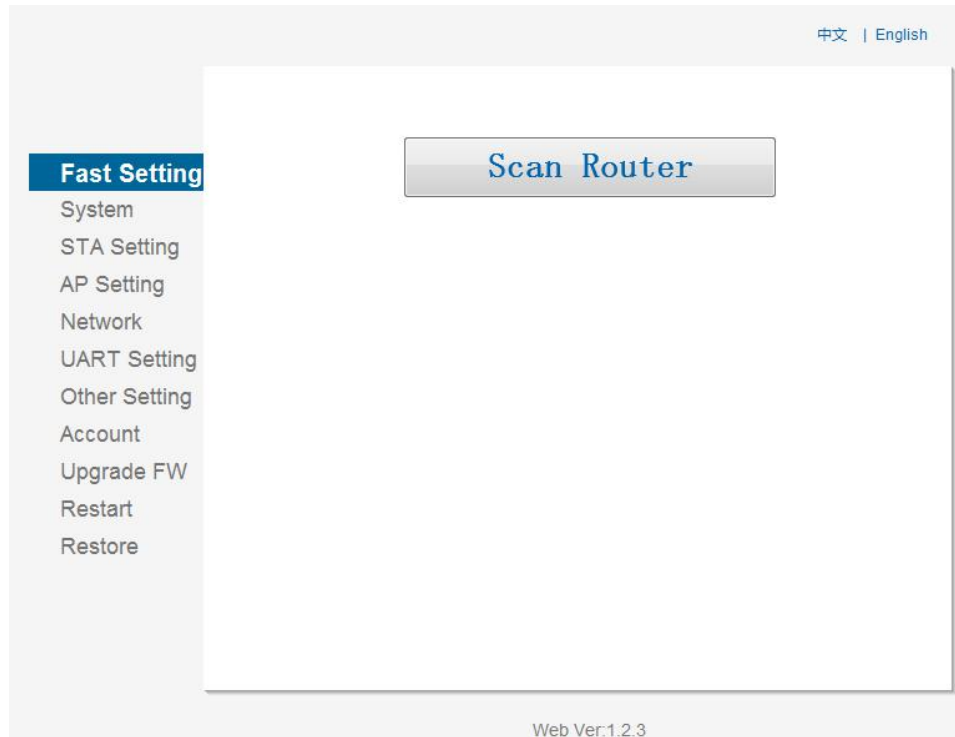
Note:

- 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.

中文 | English

Fast Setting

System

STA Setting

AP Setting

Network

UART Setting

Other Setting

Account

Upgrade FW

Restart

Restore

MID	USR-WIFI232-G2
Software Version	V1.0.07
Small Version	V1.2.13
WiFi Work Mode	AP
AP mode	
SSID	USR-WIFI232-G2
IP Address	10.10.100.254
MAC Address	ACCF23CBED99
STA Mode	
Router SSID	
Signal Strength	
IP Address	
MAC Address	

Web Ver:1.2.3

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.

中文 | English

Fast Setting

- System
- STA Setting**
- AP Setting
- Network
- UART Setting
- Other Setting
- Account
- Upgrade FW
- Restart
- Restore

Mode Selecting: STA

Network Name(SSID) case sensitive: SZ-GMplc

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

Web Ver:1.2.3

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

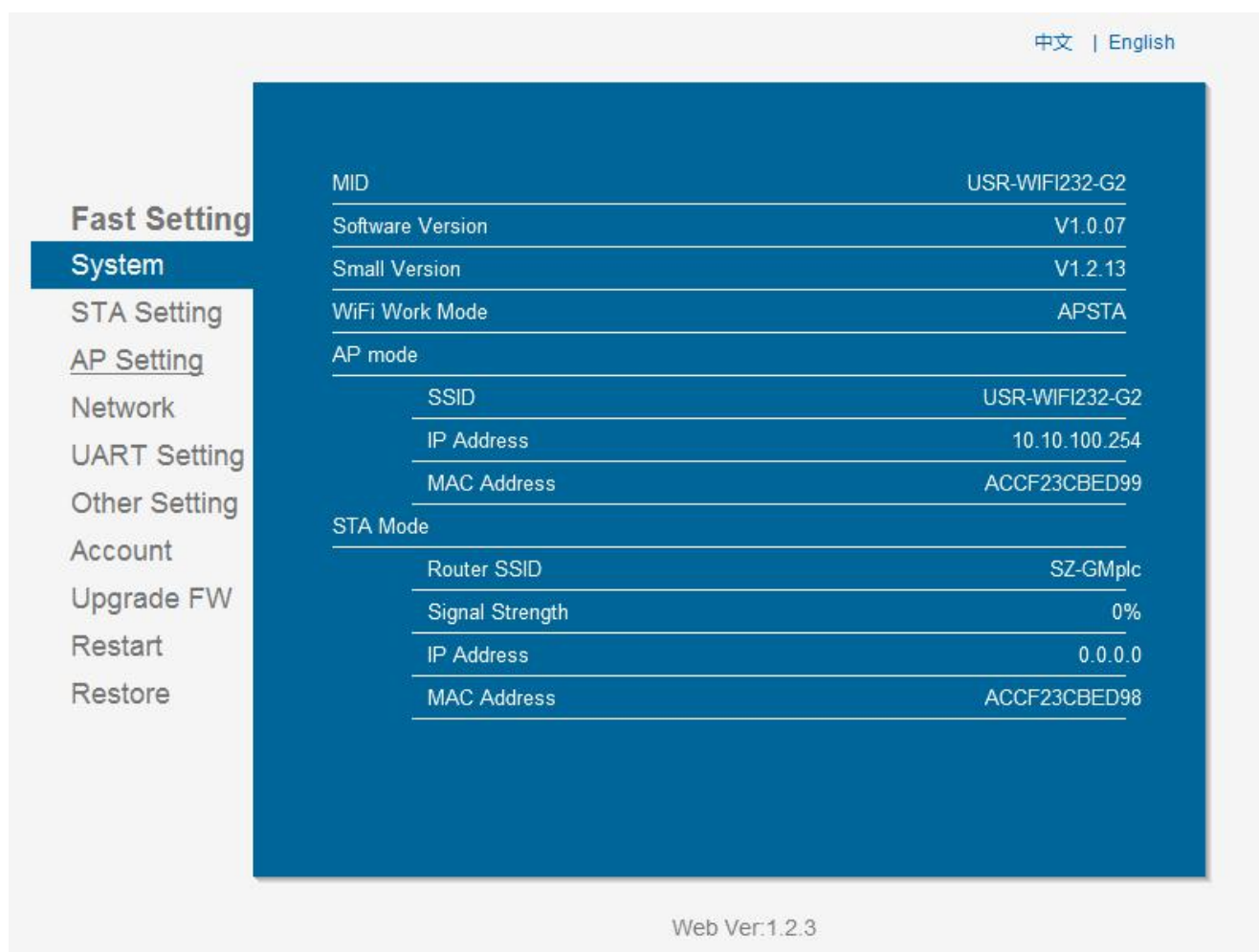
OK Refresh

Web Ver:1.2.3

Note:

When configures 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%.



The screenshot displays the STA webpage search user router interface. On the left is a sidebar with navigation options: **Fast Setting**, **System**, **STA Setting**, **AP Setting**, **Network**, **UART Setting**, **Other Setting**, **Account**, **Upgrade FW**, **Restart**, and **Restore**. The main content area is titled "Fast Setting" and shows the following settings:

Fast Setting	
MID	USR-WIFI232-G2
Software Version	V1.0.07
Small Version	V1.2.13
WiFi Work Mode	APSTA
AP mode	
SSID	USR-WIFI232-G2
IP Address	10.10.100.254
MAC Address	ACCF23CBED99
STA Mode	
Router SSID	SZ-GMplc
Signal Strength	0%
IP Address	0.0.0.0
MAC Address	ACCF23CBED98

At the bottom of the interface, it says "Web Ver:1.2.3".

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.

The screenshot displays the 'Wireless AP Setting' page of the Coolmay CM-WIFI web interface. The interface has a blue header with '中文 | English' in the top right. A left sidebar contains a menu with 'Fast Setting' (highlighted), 'System', 'STA Setting', 'AP Setting', 'Network', 'UART Setting', 'Other Setting', 'Account', 'Upgrade FW', 'Restart', and 'Restore'. The main content area is titled 'Wireless AP Setting' and contains three sections: 'Wireless AP Setting' with fields for 'Mode Selecting' (AP+STA), 'Network Mode' (11bgn), 'Network Name(SSID)' (USR-WIFI232-G2), 'Module MAC Address' (ACCF23CBED99), and 'Select Channel' (2412MHz (channel 1)); 'Wireless AP Security Setting' with 'Encryption Mode' (Disable); and 'Network Parameters Setting' with 'IP Address(DHCP Gateway Setting)' (10.10.100.254), 'Subnet Mask' (255.255.255.0), and 'DHCP Server' (Enable). A 'Save' button is at the bottom right. The footer shows 'Web Ver:1.2.3'.

Wireless AP Setting	
Mode Selecting	AP+STA
Network Mode	11bgn
Network Name(SSID)	USR-WIFI232-G2
Module MAC Address	ACCF23CBED99
Select Channel	2412MHz (channel 1)

Wireless AP Security Setting	
Encryption Mode	Disable

Network Parameters Setting	
IP Address(DHCP Gateway Setting)	10.10.100.254
Subnet Mask	255.255.255.0
DHCP Server	Enable

Save

Web Ver:1.2.3

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.

中文 | English

Fast Setting

- System
- STA Setting
- AP Setting
- Network**
- UART Setting
- Other Setting
- Account
- Upgrade FW
- Restart
- Restore

SOCKET_A Setting

Protocol	TCP-Server
Port ID	8899
Server Address	10.10.100.254
TCP Time Out Setting	300

SOCKET_B Setting

Enable/Disable	Disable
Protocol	TCP-Client
Port ID	
Server Address	
TCP Time Out Setting	300

Save

Web Ver:1.2.3

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.

中文 | English

UART Setting	
Baud Rate	9600
Data Bit	7
Parity Bit	Even
Stop Bit	1
CTS/RTS	Disable
RS485	Enable

Save

Web Ver:1.2.3

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.

中文 | English

Fast Setting

System

STA Setting

AP Setting

Network

UART Setting

Other Setting

Account

Upgrade FW

Restart

Restore

Mode of transmission
LINK/DATA

Link

D2D Setting
Enable/Disable

Disable

D2D ID

3

Report MAC
Enable/Disable

Disable

Format of data

ASCII

WiFi Check
Enable/Disable

Disable

Check Period

30

Register
Enable/Disable

Disable

Data of register :

1234567812345678123456

Pass Cloud
Enable/Disable

Disable

ID:

12345678001122334455

Password:

••••••••

☐ Show passwords

Save

Web Ver:1.2.3

2.10 Account management page

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

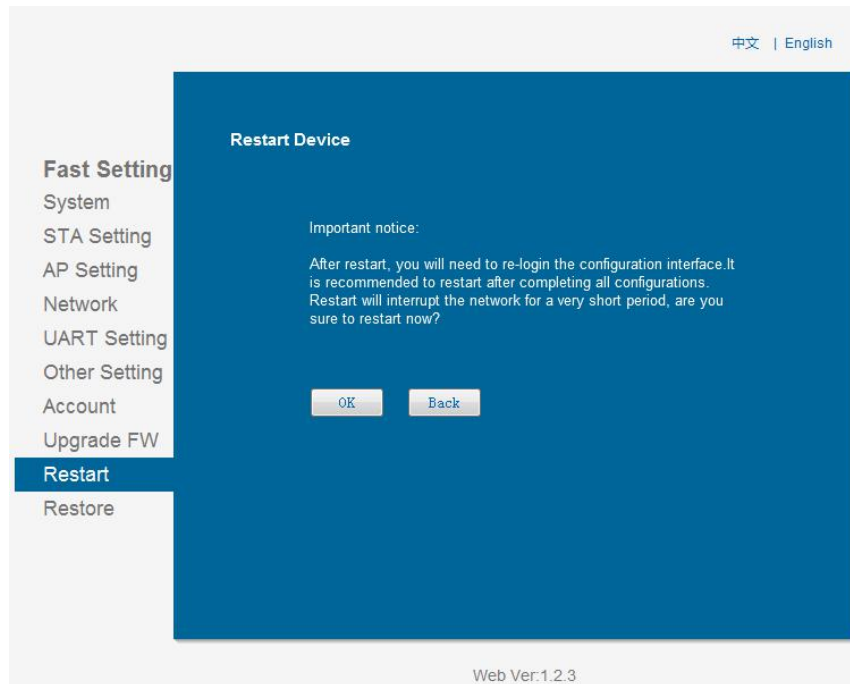
The screenshot shows a web interface for setting a new account and password. On the left is a sidebar menu with the following items: Fast Setting, System, STA Setting, AP Setting, Network, UART Setting, Other Setting, **Account** (highlighted), Upgrade FW, Restart, and Restore. The main content area has a blue header 'Set a New Account and Password'. Below the header, there are four input fields: 'Current User Name' with the value 'admin', 'Current Password' with the value 'admin', 'New User Name' (empty), and 'New Password' (empty). A 'Save' button is located at the bottom right of the form. In the top right corner, there are language links '中文 | English'. At the bottom center, the text 'Web Ver:1.2.3' is displayed.

2.11 Firmware upgrade page

The screenshot shows a web interface for upgrading software. On the left is a sidebar menu with the following items: Fast Setting, System, STA Setting, AP Setting, Network, UART Setting, Other Setting, Account, **Upgrade FW** (highlighted), Restart, and Restore. The main content area has a blue header 'Upgrade Software'. Below the header, there is a 'Current version:' label followed by an input field and a '浏览...' (Browse...) button. Below this is an 'Upload' button. In the top right corner, there are language links '中文 | English'. At the bottom center, the text 'Web Ver:1.2.3' is displayed.

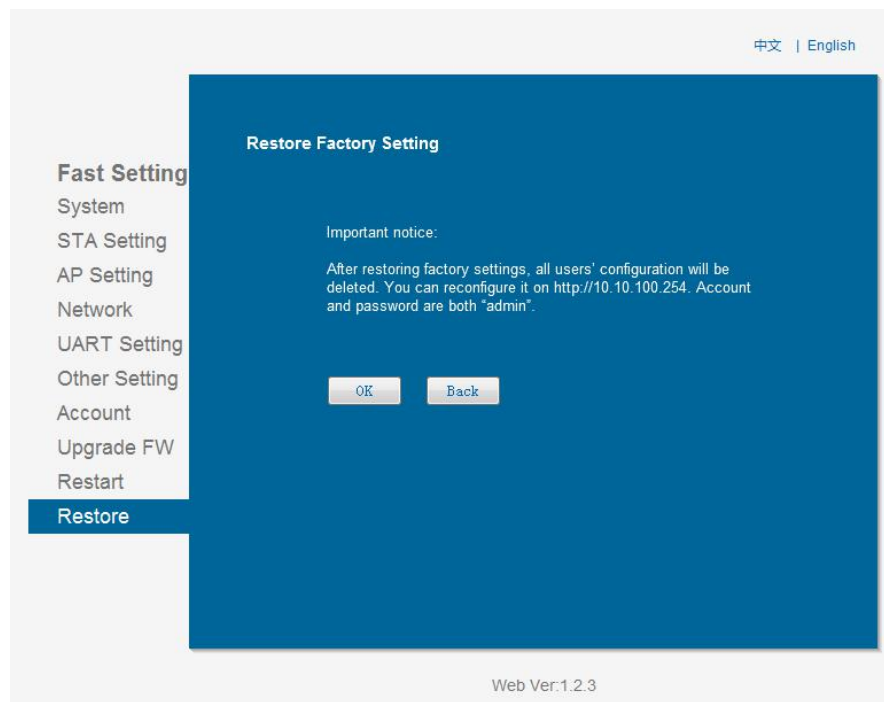
2.12 Restart page

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

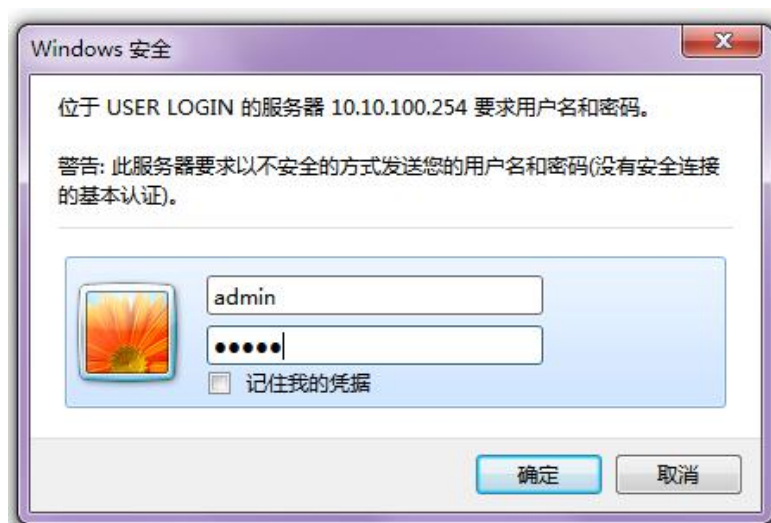
This chapter will describe specific usage through application case.

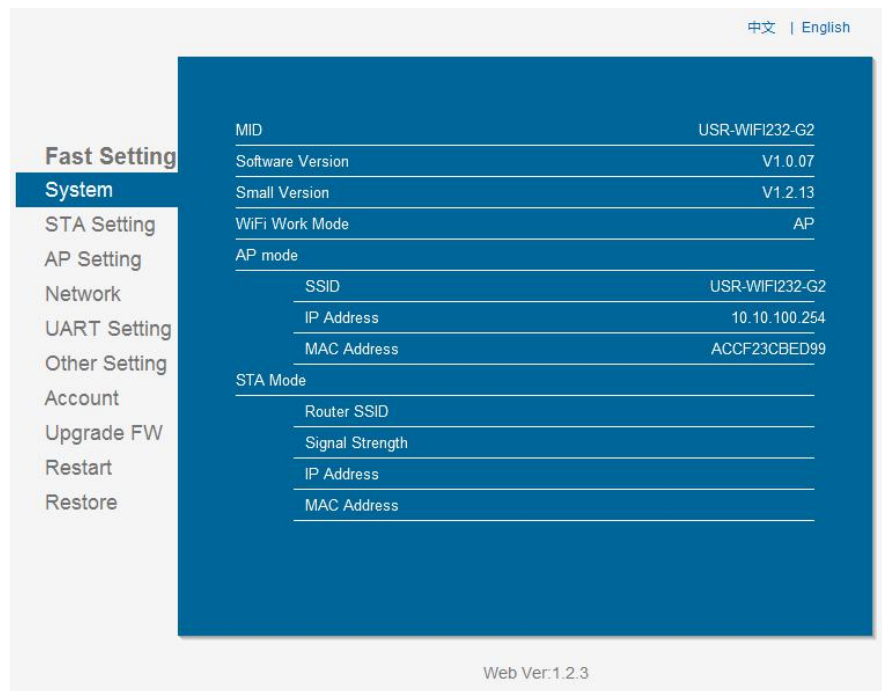
3.1 STA port connection debug

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

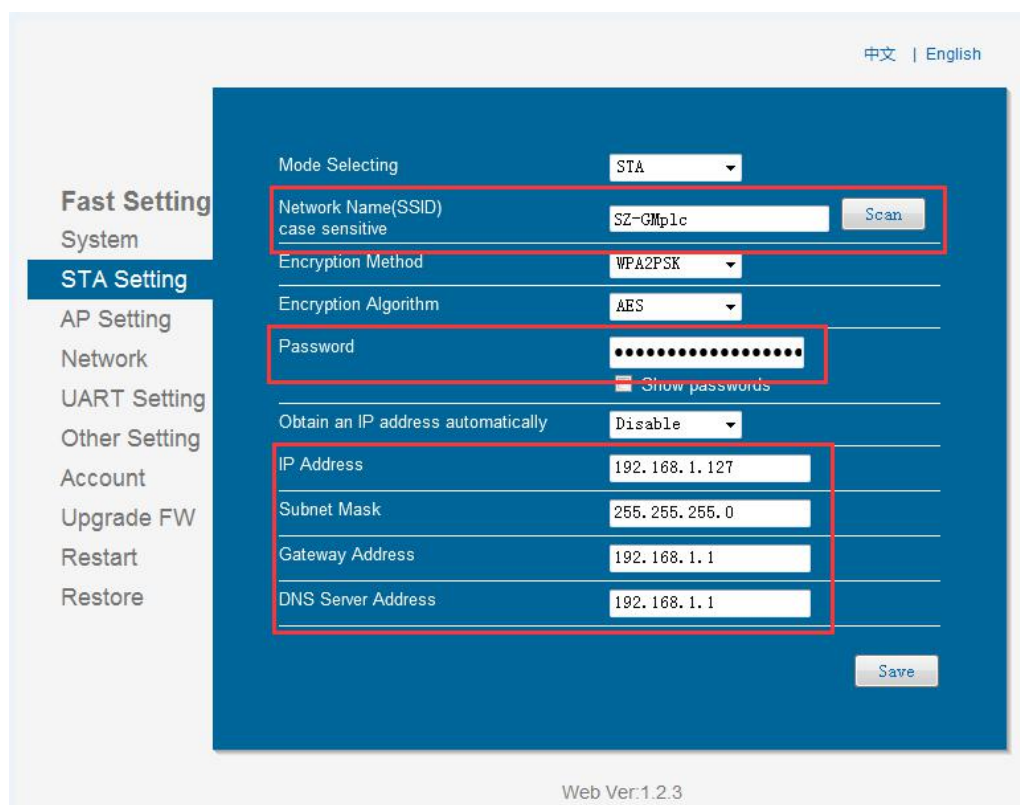


② Open browser, type in the address <http://10.10.100.254>, carriage return. Enter user name and password into the popping up dialog box.





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, server address set as 120.76.116.193 or coolmay.wicp.net (copy) , save as:

Fast Setting
System
STA Setting
AP Setting
Network
UART Setting
Other Setting
Account
Upgrade FW
Restart
Restore

SOCKET_A Setting

Protocol	TCP-Client
Port ID	25565
Server Address	120.76.116.193
TCP Time Out Setting	300

SOCKET_B Setting

Enable/Disable	Disable
Protocol	TCP-Client
Port ID	
Server Address	
TCP Time Out Setting	300

Save

Web Ver:1.2.3

- 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.

Fast Setting
System
STA Setting
AP Setting
Network
UART Setting
Other Setting
Account
Upgrade FW
Restart
Restore

UART Setting

Baud Rate	9600
Data Bit	7
Parity Bit	Even
Stop Bit	1
CTS/RTS	Disable
RS485	Enable

Save

Web Ver:1.2.3

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:

中文 | English

Fast Setting	Mode of transmission	LINK/DATA	Link
System	D2D Setting	Enable/Disable	Enable
STA Setting	D2D ID		64847
AP Setting	Report MAC	Enable/Disable	Disable
Network	Format of data		ASCII
UART Setting	WiFi Check	Enable/Disable	Disable
Other Setting	Check Period		30
Account	Register	Enable/Disable	Disable
Upgrade FW	Data of register:		1234567812345678123456
Restart	Pass Cloud	Enable/Disable	Disable
Restore	ID:		12345678001122334455
	Password:		••••••••
			☐ Show passwords
			Save

Web Ver:1.2.3

3.2 AP port connection debug

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

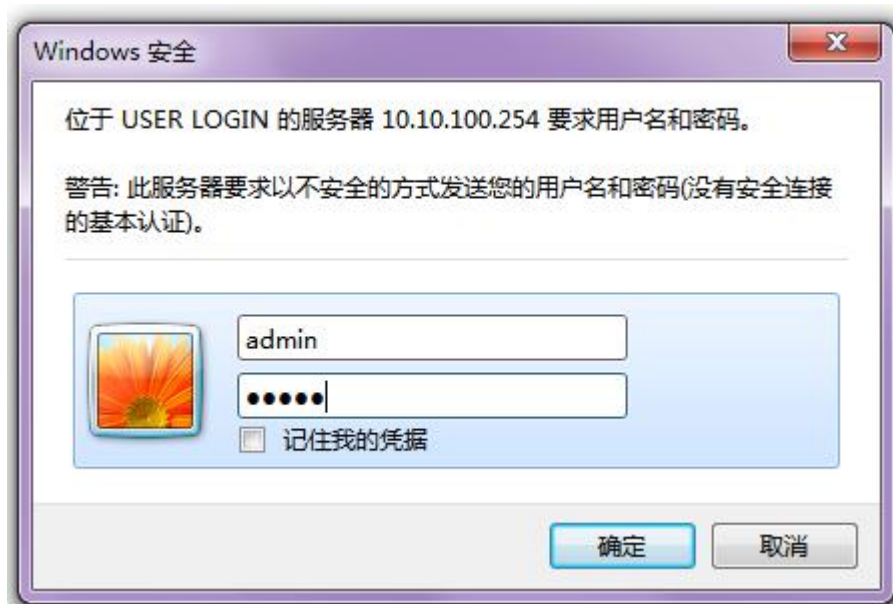
Application scenarios: PLC is stalled in control box or spots not convenient to connect with programming cable.

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.



中文 | English

Fast Setting

- System
- STA Setting
- AP Setting
- Network
- UART Setting
- Other Setting
- Account
- Upgrade FW
- Restart
- Restore

MID	USR-WIFI232-G2
Software Version	V1.0.07
Small Version	V1.2.13
WiFi Work Mode	AP
AP mode	
SSID	USR-WIFI232-G2
IP Address	10.10.100.254
MAC Address	ACCF23CBED99
STA Mode	
Router SSID	
Signal Strength	
IP Address	
MAC Address	

Web Ver:1.2.3

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:

中文 | English

Fast Setting

- System
- STA Setting
- AP Setting
- Network
- UART Setting
- Other Setting
- Account
- Upgrade FW
- Restart
- Restore

Wireless AP Setting

Mode Selecting: AP

Network Mode: 11bgn

Network Name (SSID): USR-WIFI232-G2

Module MAC Address: ACCF23CBED99

Select Channel: 2412MHz (channel 1)

Wireless AP Security Setting

Encryption Mode: WPA2-PSK

WPA Encryption: ☒ TKP ☐ AES ☐ TKPAES

Password: 12345678 ☒ Show Passwords

Network Parameters Setting

IP Address (DHCP Gateway Setting): 10.10.100.254

Subnet Mask: 255.255.255.0

DHCP Server: Enable

Save

Web Ver:1.2.3

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

Fast Setting
System
STA Setting
AP Setting
Network
UART Setting
Other Setting
Account
Upgrade FW
Restart
Restore

SOCKET_A Setting

Protocol	TCP-Server
Port ID	8899
Server Address	10.10.100.254
TCP Time Out Setting	300

SOCKET_B Setting

Enable/Disable	Disable
Protocol	TCP-Client
Port ID	
Server Address	
TCP Time Out Setting	300

Save

Web Ver:1.2.3

- 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.

Fast Setting
System
STA Setting
AP Setting
Network
UART Setting
Other Setting
Account
Upgrade FW
Restart
Restore

UART Setting

Baud Rate	9600
Data Bit	7
Parity Bit	Even
Stop Bit	1
CTS/RTS	Disable
RS485	Enable

Save

Web Ver:1.2.3

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:

Virtual COM: COM2

Net Protocol: TCP Client

Remote IP/addr: 120.76.116.193

Remote Port: 25565

Local Port: 8233

Remarks:

OK Cancel Advanced -

☒ Use D2D

Register ID: 43589 (?)

☐ Use USB CLOUD

Cloud ID:

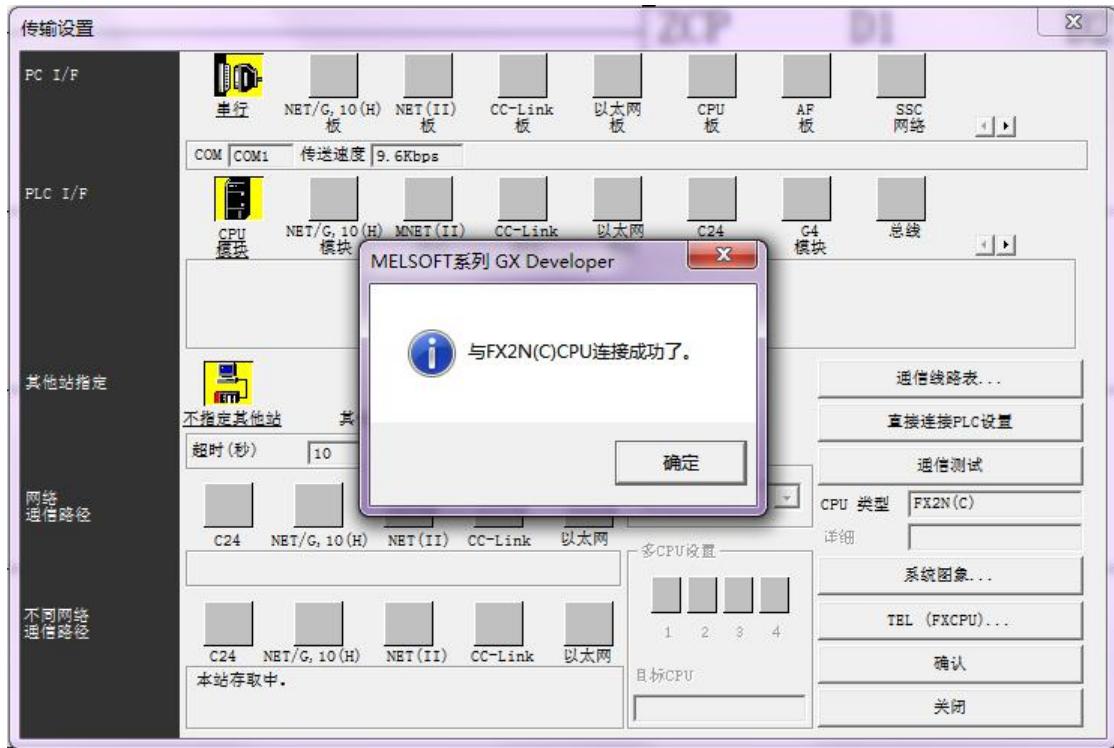
Communication Code:

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

Remarks	COM Name	Parameters	COM State	Net Protocol	Remote IP	Remote Port	Local Port	COM Received	Net Received	Net State	Reg ID	CloudID
	COM2		Not used	TCP Client	120.76.116.193	25565	--	0	0	Connected	43589	

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.

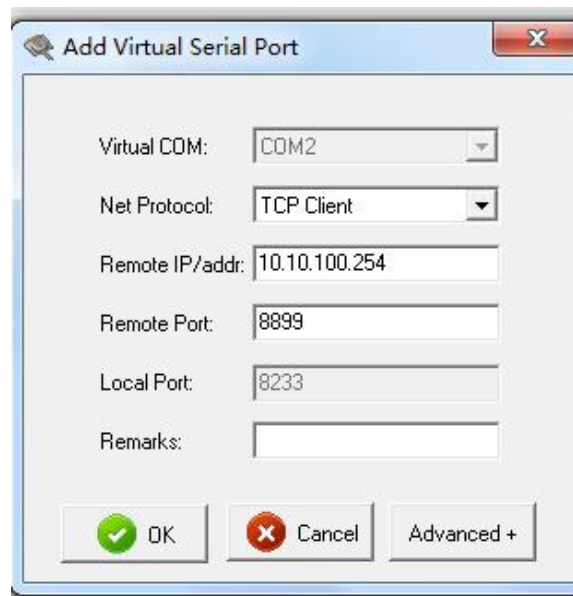


4.3 Virtual serial port software usage---AP port link debug setting

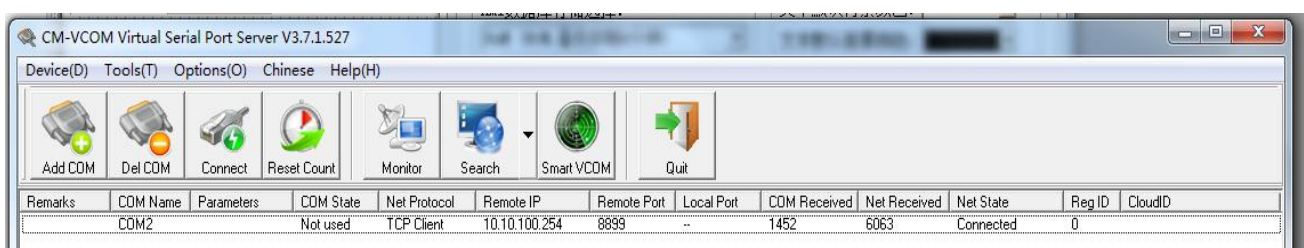
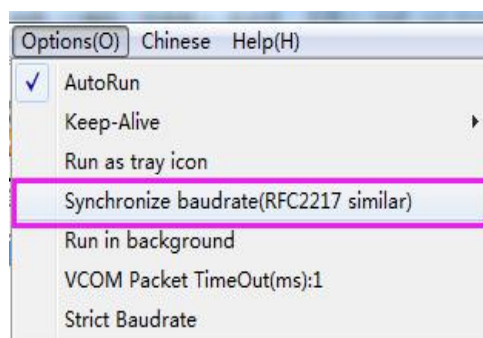
① Open wireless network, search for USR-WIFI232-T, access to it:



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**.

