CM-WIFI
User Manual

**Shenzhen Coolmay Technology Co., Ltd   V6.71**

Content

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.

1、 Hardware description

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

1-1. Model and appearance
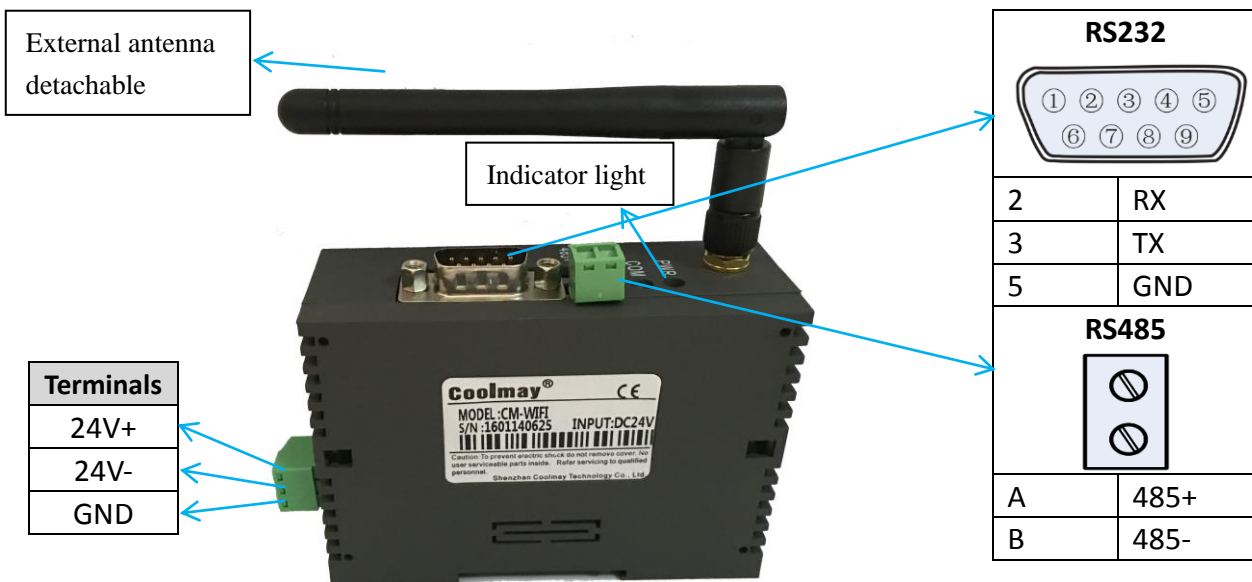
Size：90*32*60mm
Installation：standard 35mmDIN-Rail installation

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's power supply is DC 5-30V，   the basic parameters are 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. Application

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

●Remote device monitoring

●Internet of things application

●industrial control

●handheld device

2、Setting and user manual

2-1. Web management 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. (search for USR-WIFI232-T or USR-WIFI232-G2, right click, connect) As defaulted, AP port of CM-WIFI is SSID, USR-WIFI232-T or USR-WIFI232-G2, IP address、User name and password are as below:

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 page

Firstly, be used for PC wireless card connection USR-WIFI232-T, SIDD is USR-WIFI232-T. When connect well, open IE, type in http://10.10.100.254 in the address bar, carriage returns. Type in user name admin and password admin, and then "confirm".
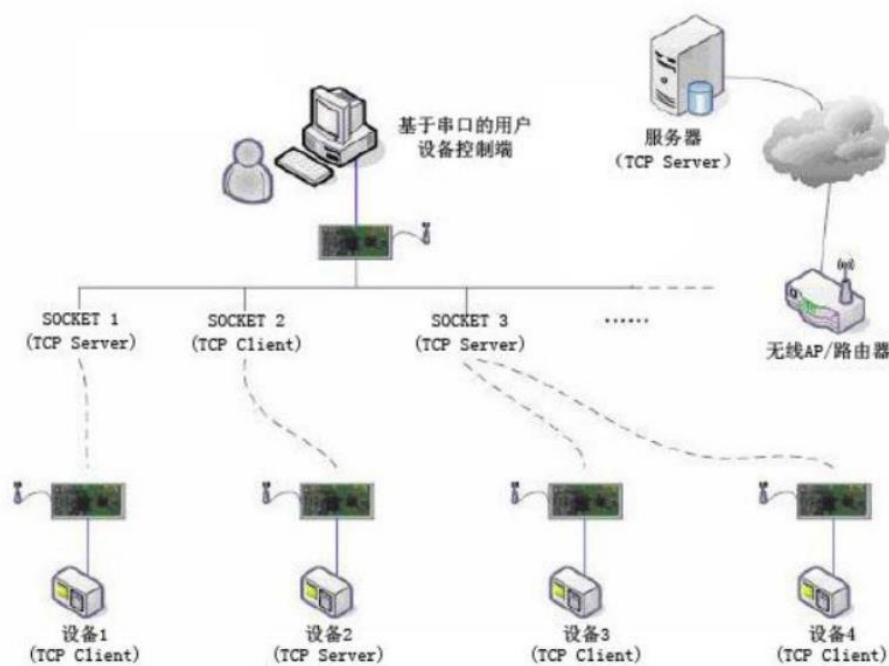
Then the management webpage of USR-WIFI232-T will pop up.
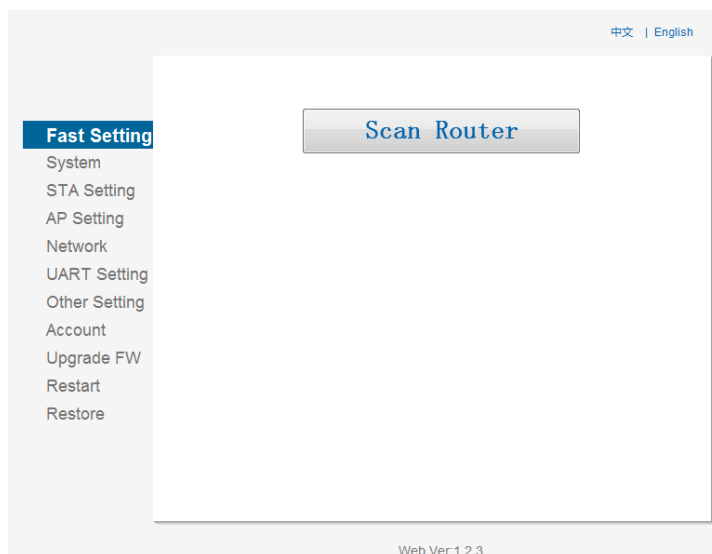
The menu is divided to 11 webpages, they are " Fast settings"、 "System"、 "STA setting"、 "AP setting"、 "network"、 "UART setting"、 "Other setting"、 "Account"、 "Upgrade FM"、 "Restart"、 "Restore"
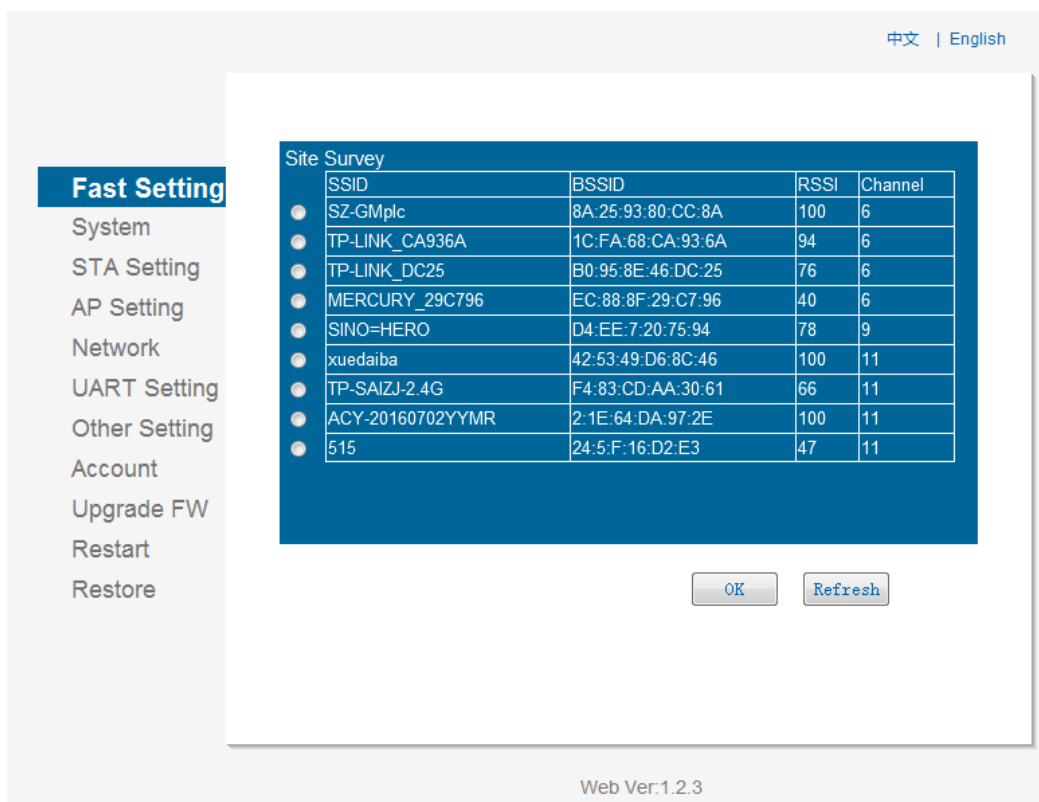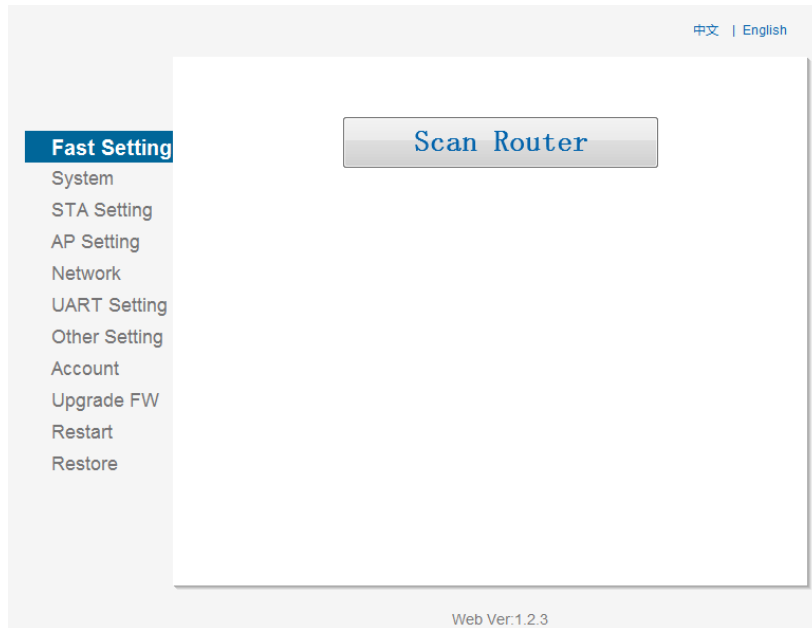
Note:

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 Setting

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

中文 | English

Scan Router

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

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

Site Survey

SSID	BSSID	RSSI	Channel
SZ-GMplc	8A:25:93:80:CC:8A	100	6
TP-LINK_CA936A	1C:FA:68:CA:93:6A	94	6
TP-LINK_DC25	B0:95:8E:46:DC:25	76	6
MERCURY_29C796	EC:88:8F:29:C7:96	40	6
SINO=HERO	D4:EE:7:20:75:94	78	9
xuedaiba	42:53:49:D6:8C:46	100	11
TP-SAIZJ-2.4G	F4:83:CD:AA:30:61	66	11
ACY-20160702YYMR	2:1E:64:DA:97:2E	100	11
515	24:5:F:16:D2:E3	47	11

OK   Refresh

Web Ver:1.2.3

2-4. System

In [System], users can achieve important information of current device, including MID、Software Version、wireless networking information and related parameters. And strength indicator of wireless signal in STA mode can be read.
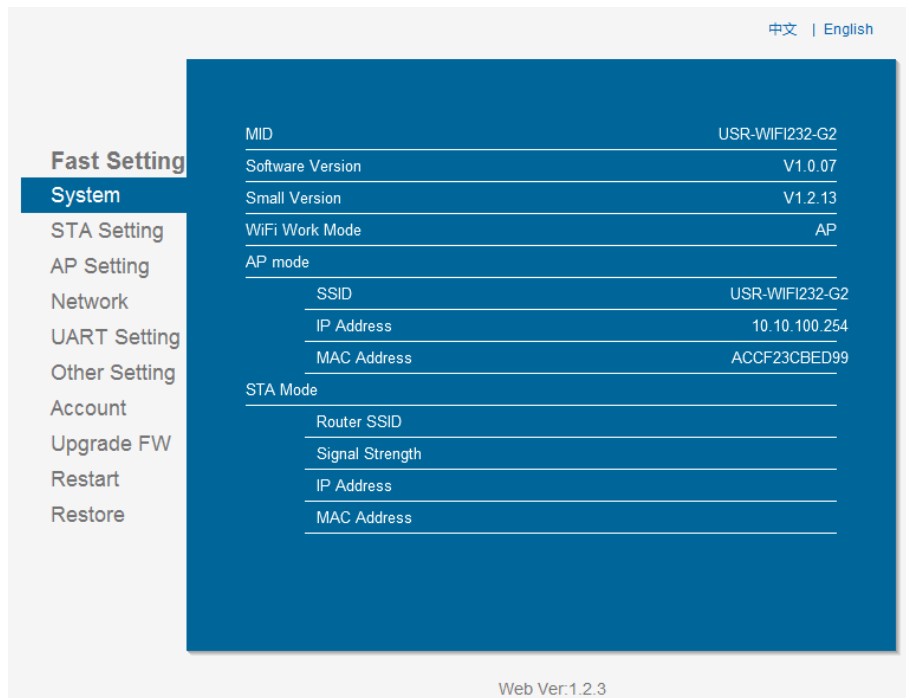
2-5. STA setting

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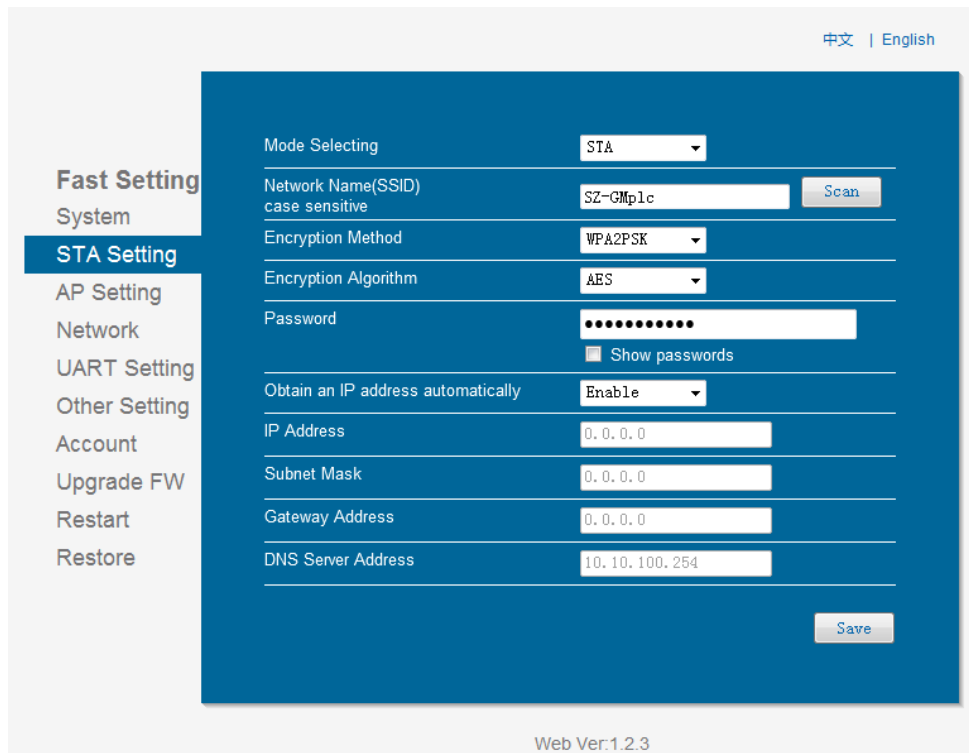

Select "SZ-GMplc" (Note: "SZ-GMplc" is the Internal wireless network of Coolmay), the setting of wifi hotspot will be introduced briefly. Click "confirm" after being searched and selected: the original name is modified.
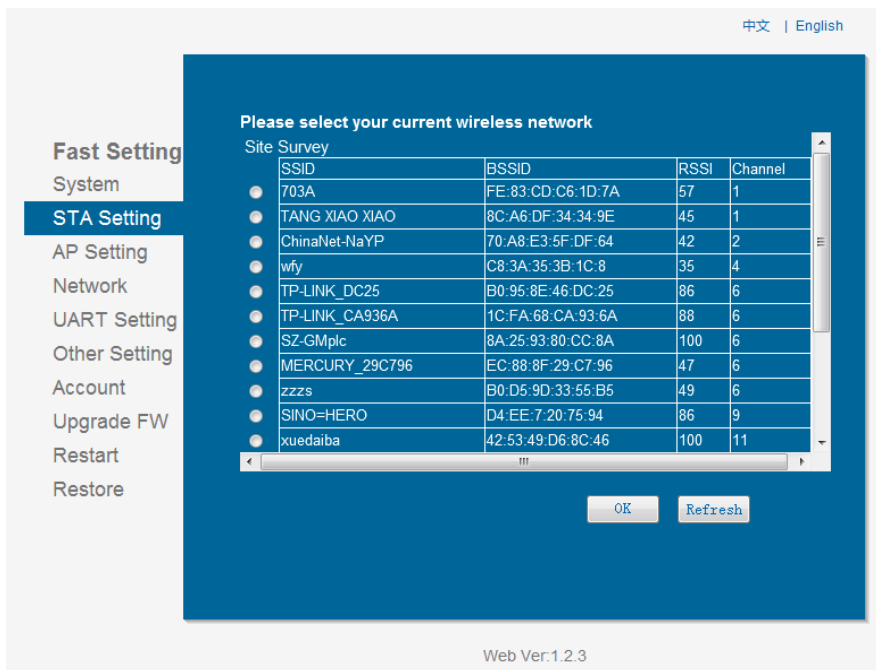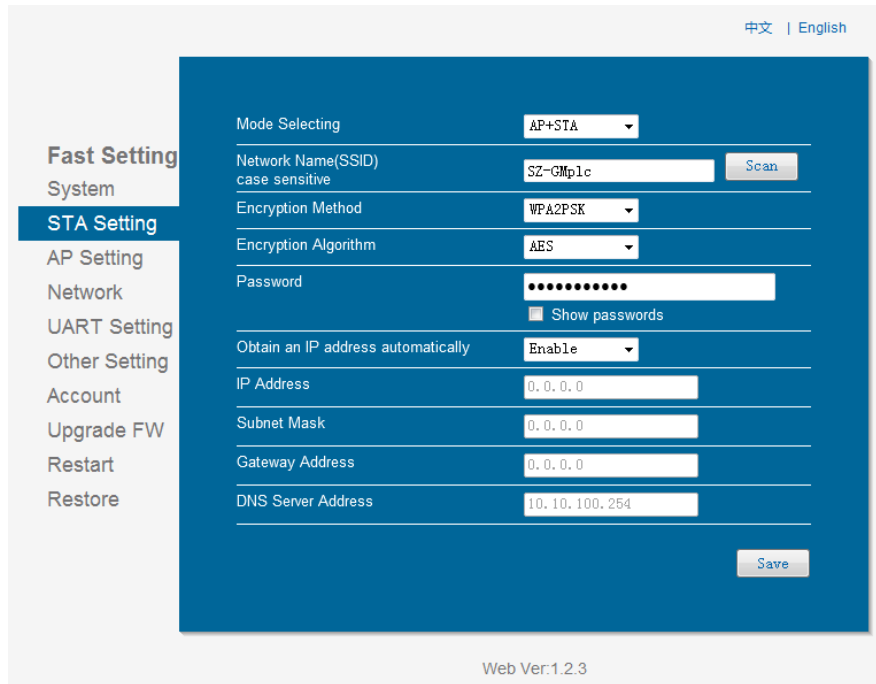
Note:

It is more convenient to visit management page of web server as AP mode when configurate CM-WIFI. 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, signal strength is 100%.
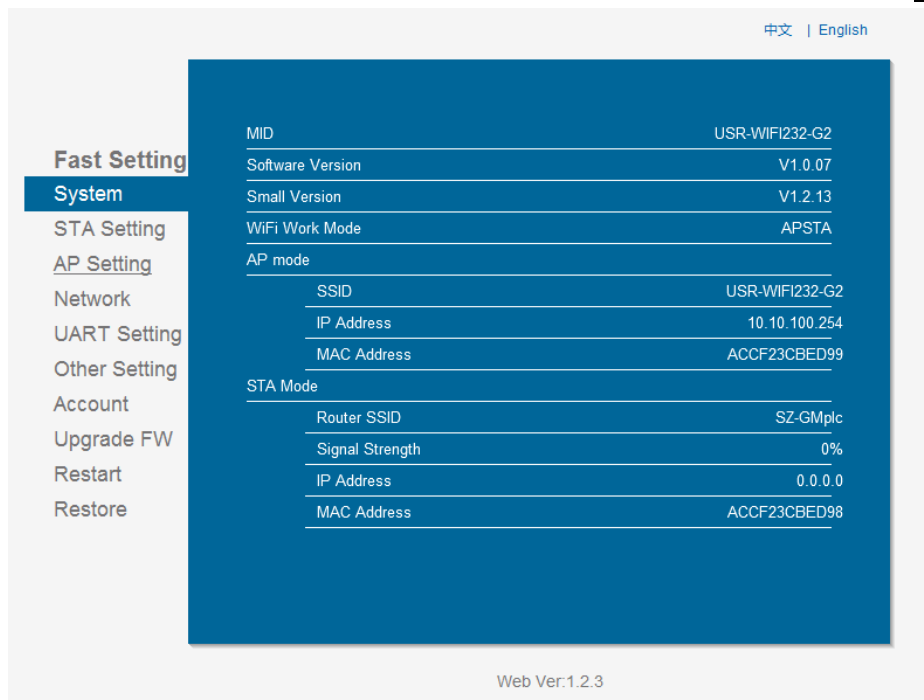
STA webpage search user router

2-6. AP setting

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.
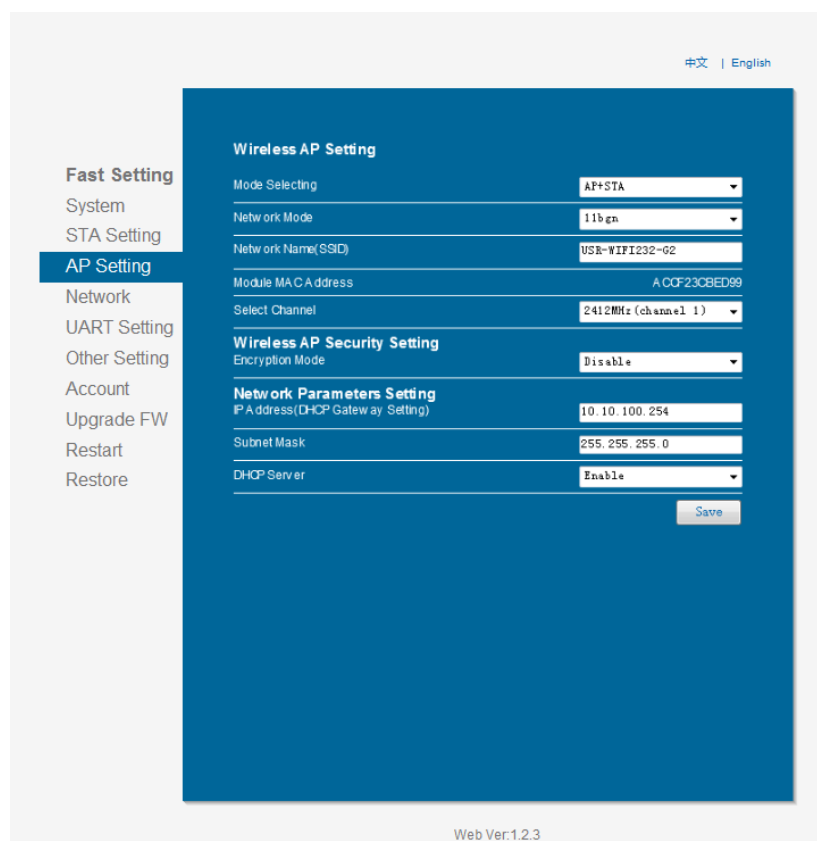
Note:

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

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 Disable socket B.

2-8. UART setting

In this page, UART 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

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

Web Ver:1.2.3

2-9. Other setting

In this page, D2D function can be set. D2D is a function of achieving remote control by server forwarding. Each CM-WIFI needs to register an ID in coolmay server. The server will set a pair of IDs, when they are well matched, the devices can communicate remotely.
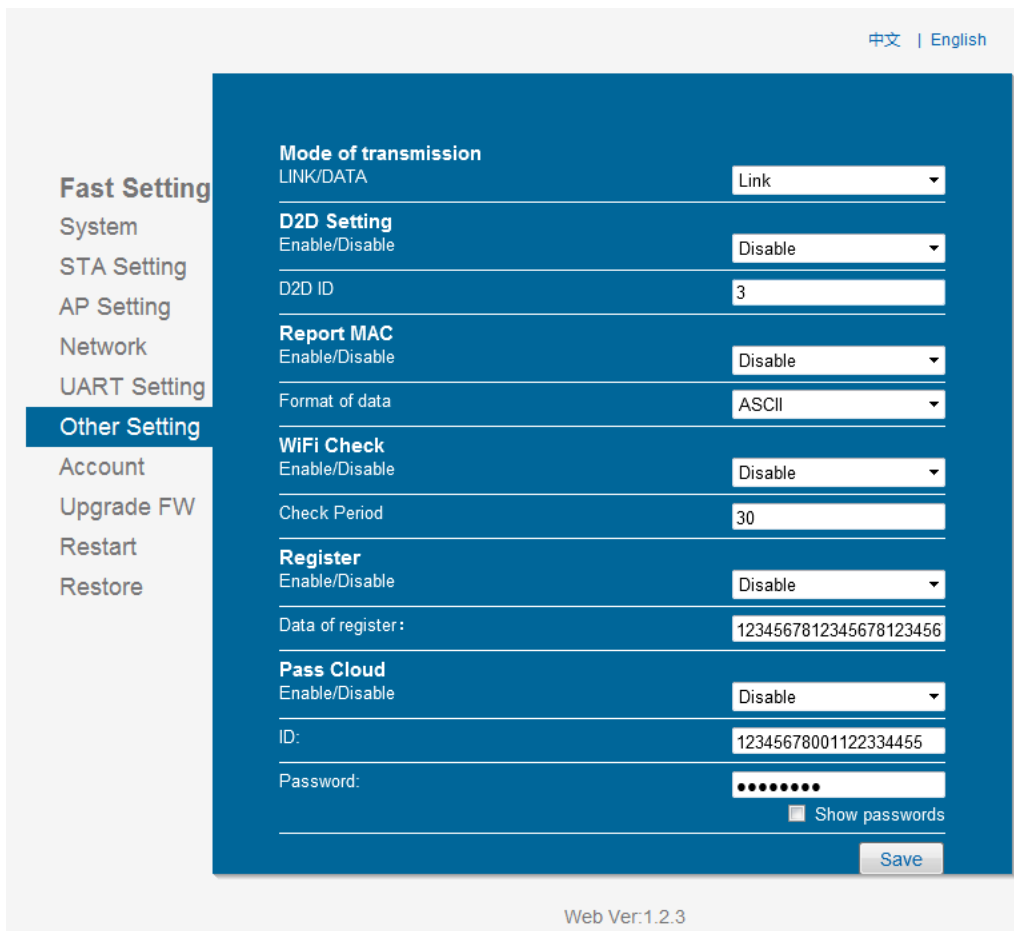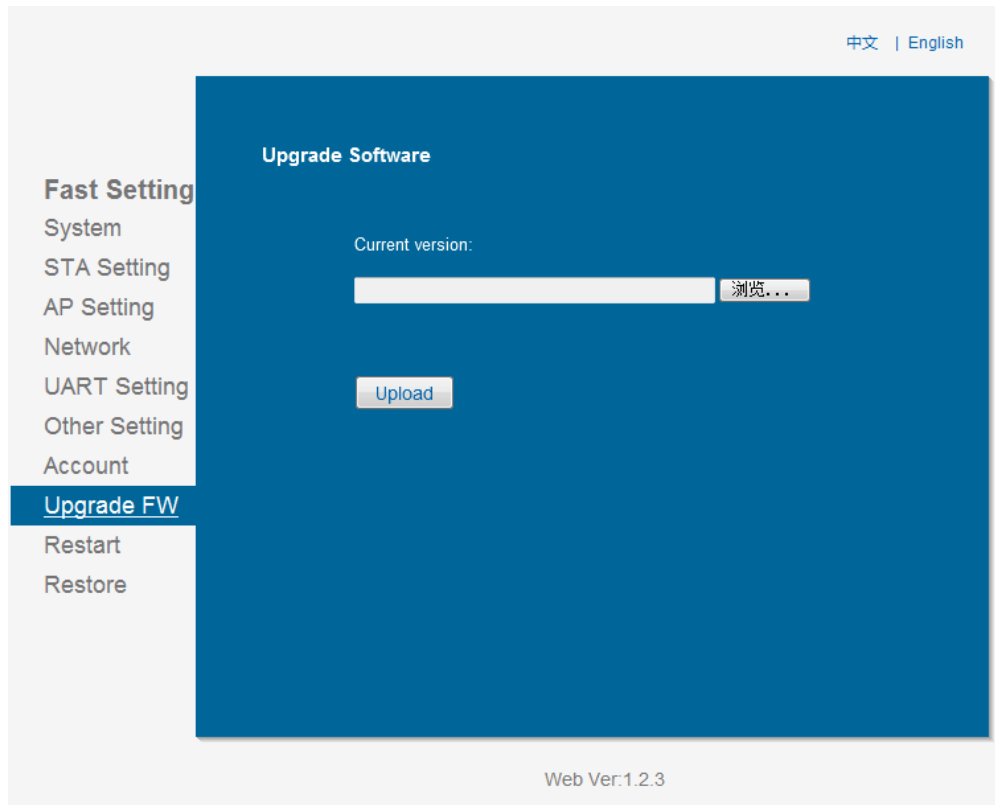
2-10. Account

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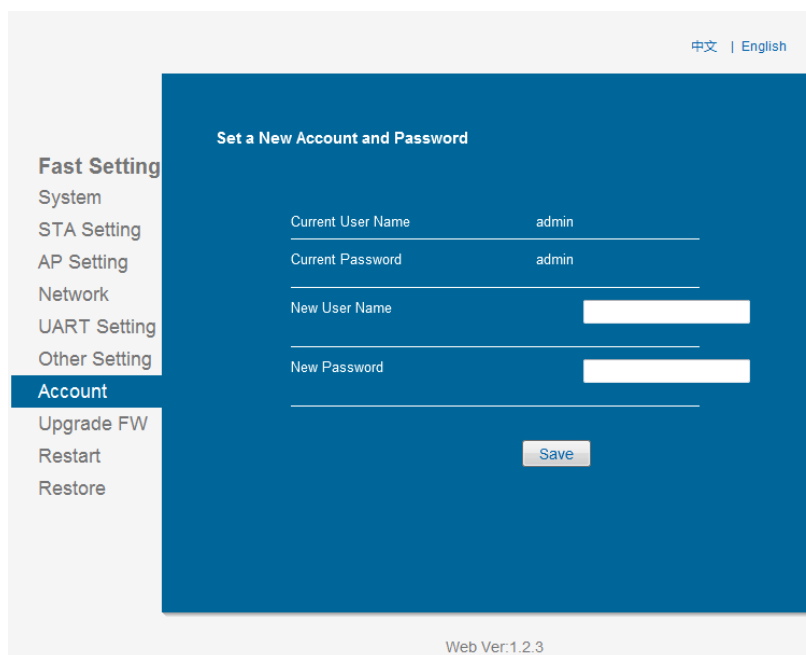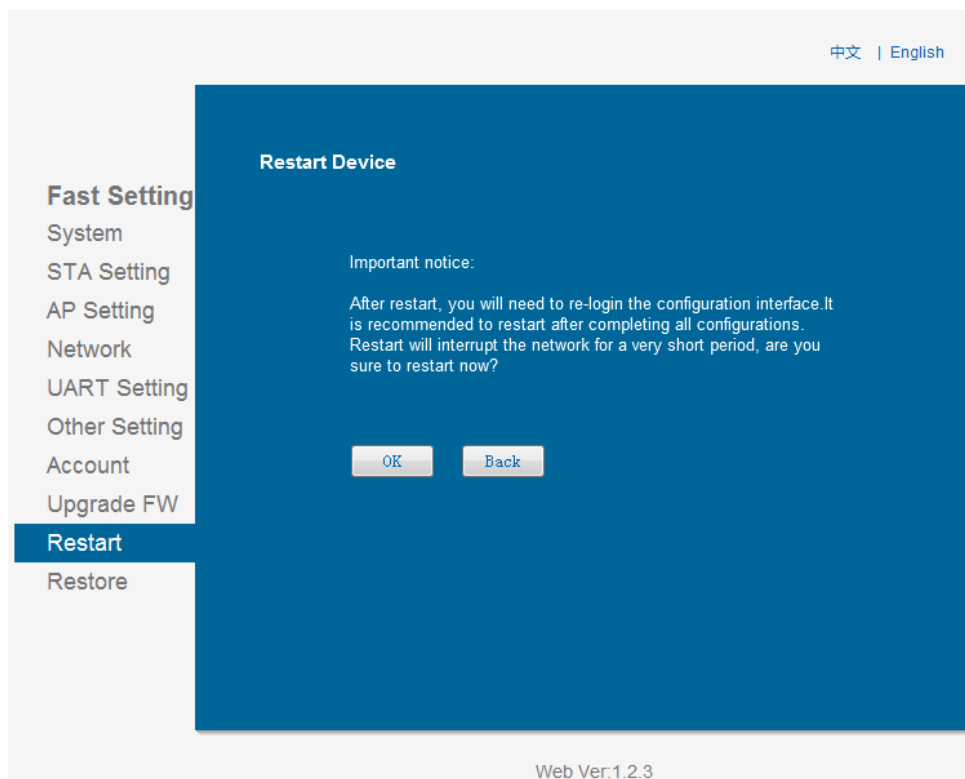

2-11. Upgrade FW

Users can upgrade software through uploading upgrade files in local PC.
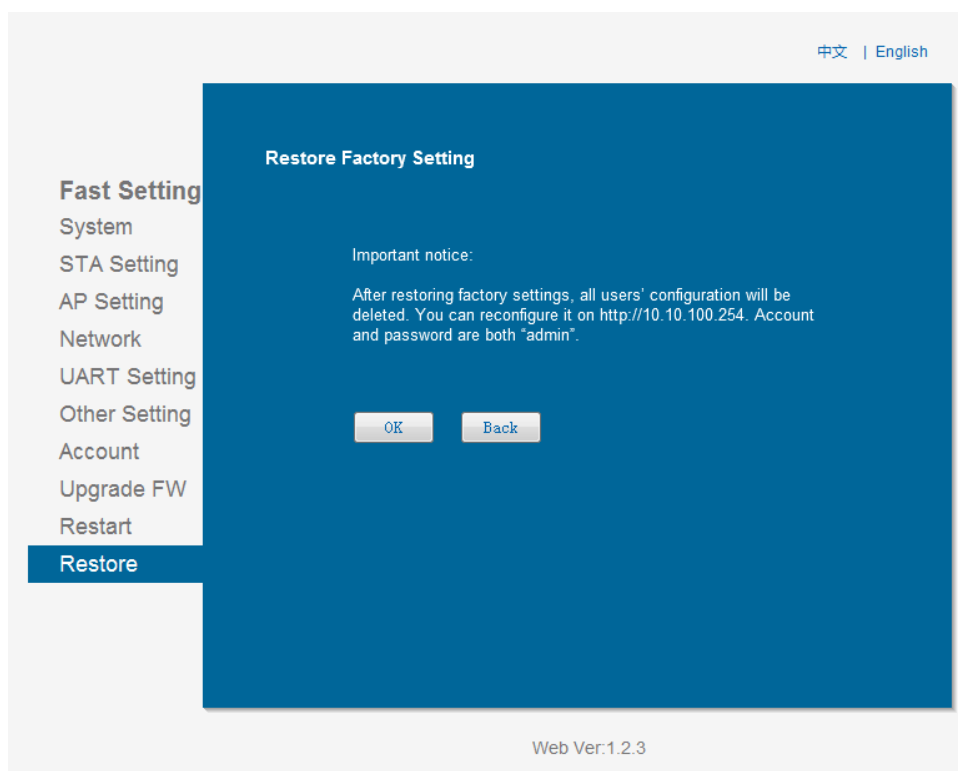
2-12. Restart

After restarting, the newly saved parameters will function.

2-13. Restore

Restore to factory default setting, all user configurations will be deleted. CM-WIFI will automatically recover to AP mode. Users can set it again through http://10.10.100.254, user name and password is both admin.

3、Application

This chapter will describe specific usage through application case.

3-1. STA debug

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

1. Open WLAN, scan and access to USR-WIFI232-T.

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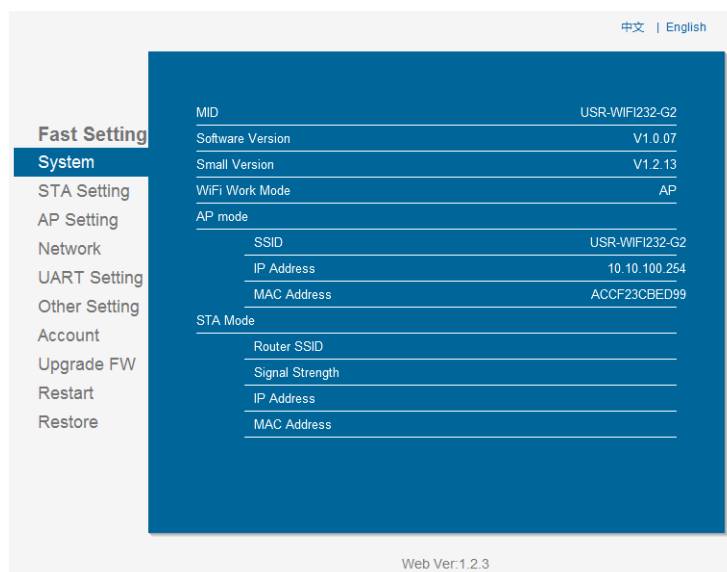
3. Select STA mode, search the WLAN the device in, this demo program connect with SZ-GMplc, please select [Disable] to achieve IP address automatically, set IP address, subnet mask, gateway address, DNS server address (Note: IP address, subnet mask, gateway address, DNS server address should be set according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

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

5. Set UART the same parameters which PLC corresponding to, baud rate 9600; data bits 7, parity bit Even; stop bit one, save, then restart after all the above steps well set.
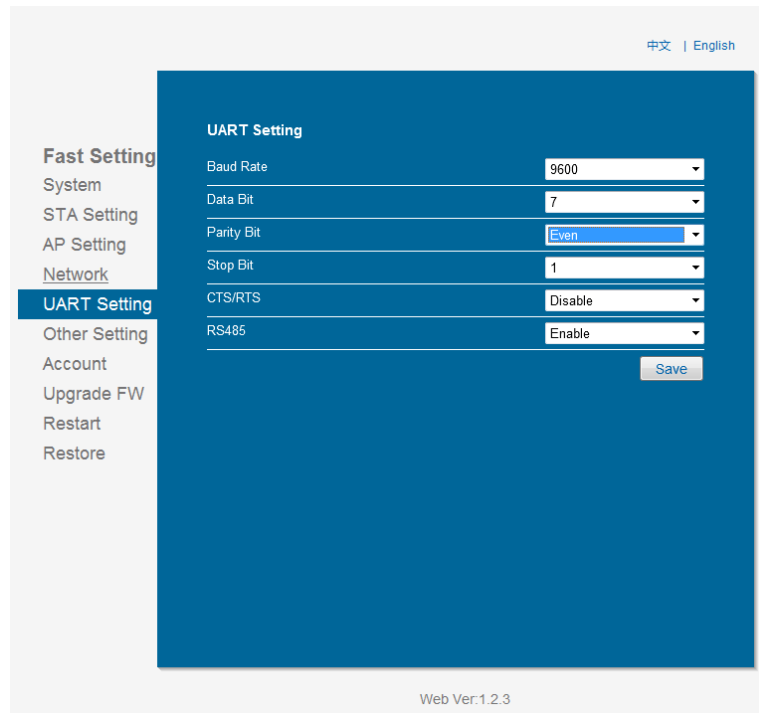
6. In [Other setting], select Link as [Mode of data transmission], D2D parameter select Enable, D2D ID according to the ID set in server (Note: please set D2D ID after consulting with Coolmay technicians), save as:
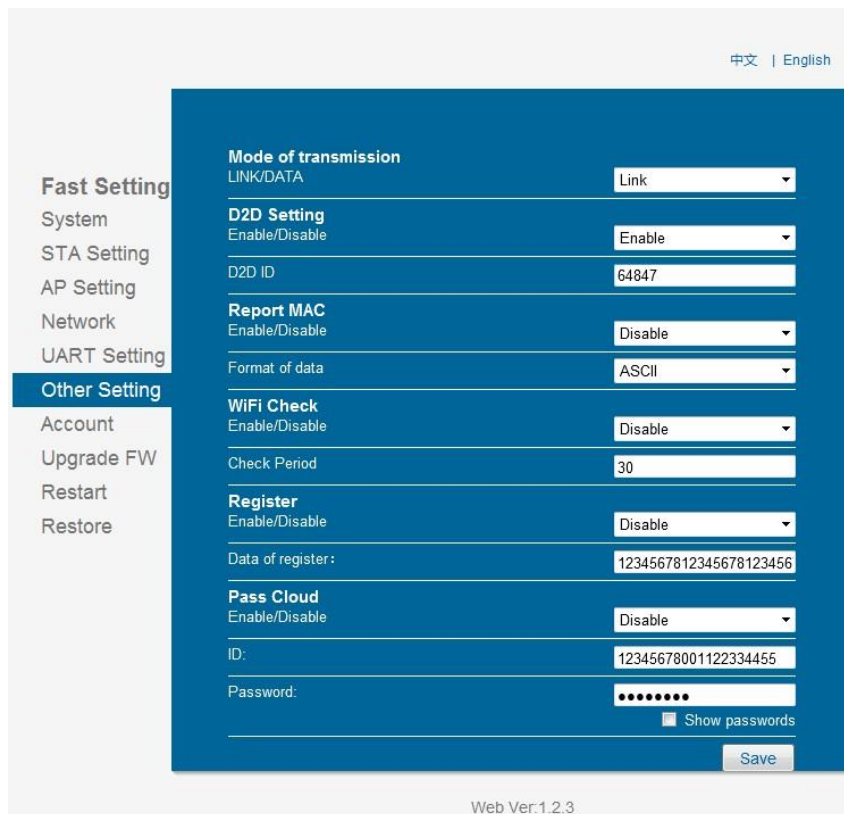
3-2. AP debug

Control requirements: PLC communicating with CM-WIFI. Download program remotely through PLC software in computer.

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

First step: CM - WIFI configuration

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

② Open browser, enter in the address http://10.10.100.254, carriage return. Enter user name and password into the popping up dialog box.
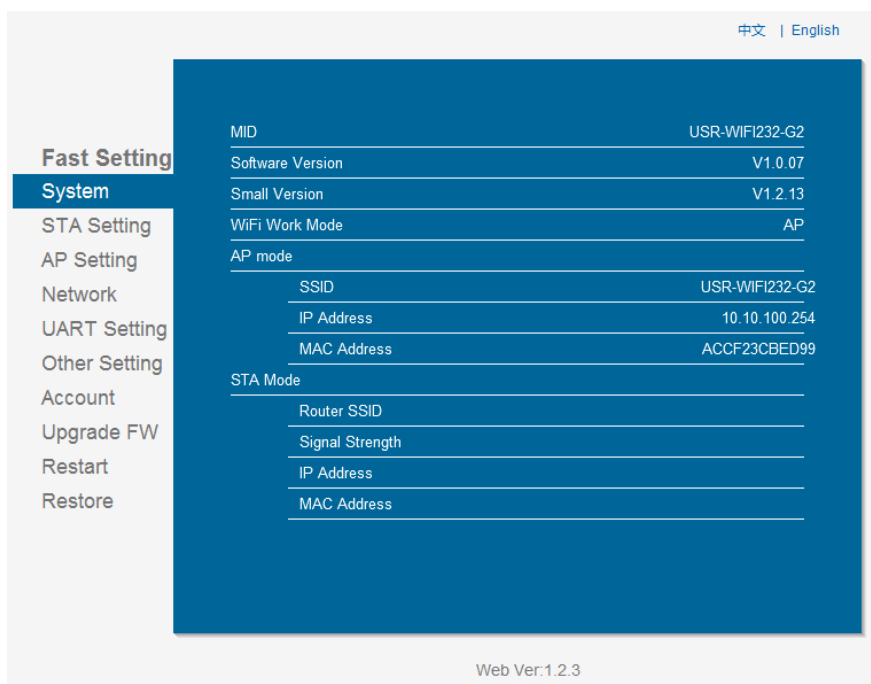
③ AP setting: select AP mode, [Wireless AP security settings] is WPA2-PSK, select AES as WPA encryption algorithm, set 123456789 as the below picture, save as:
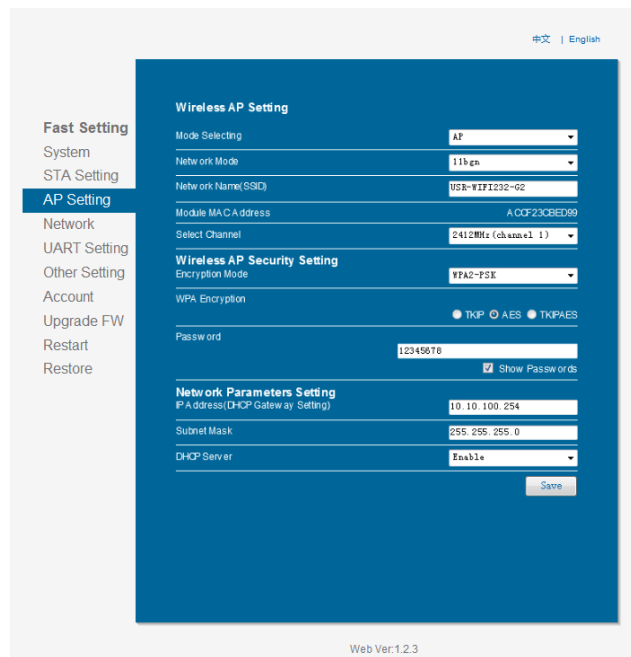
④ In network mode, set protocol as TCP-Server, set terminal port 8899, save as：
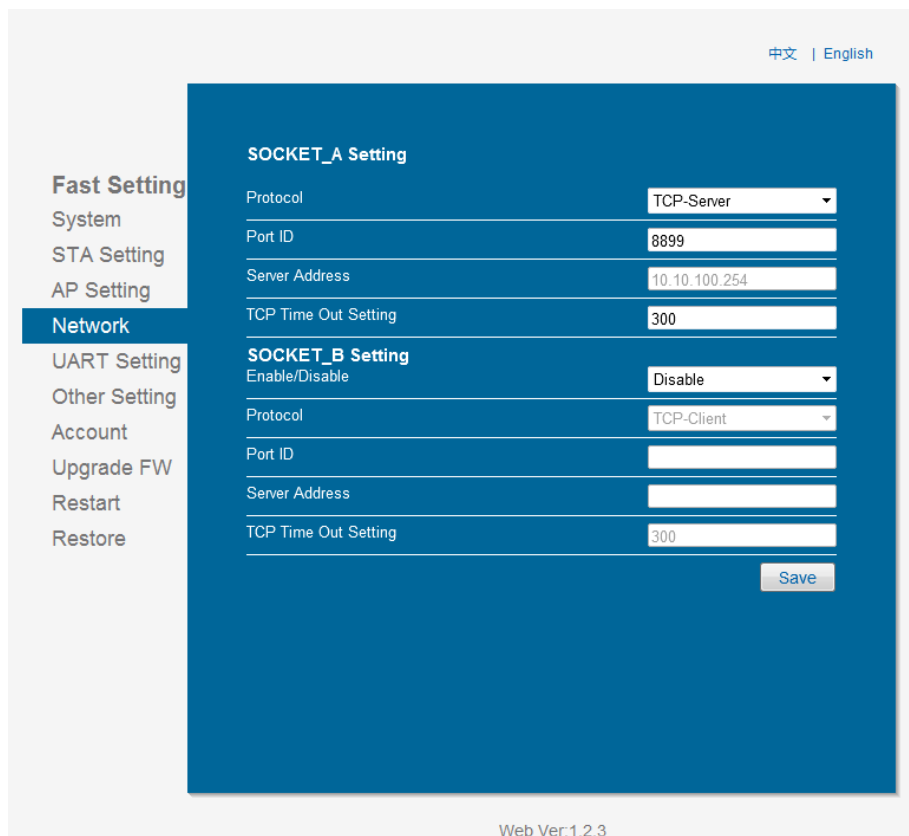
⑤Set UART the same parameters which PLC corresponding to, baud rate 9600; data bits 7, parity bit Even; stop bit 1, save, will restart after all the above steps well set.

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

4、 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.
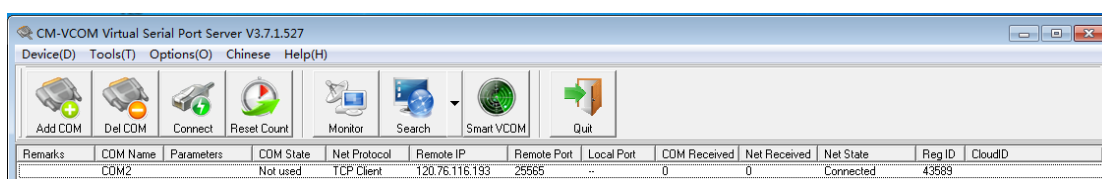
● Support Server、Client、UDP mode.

4-2. Virtual serial port software application---STA debug setting

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

② Build connection, create serial port:
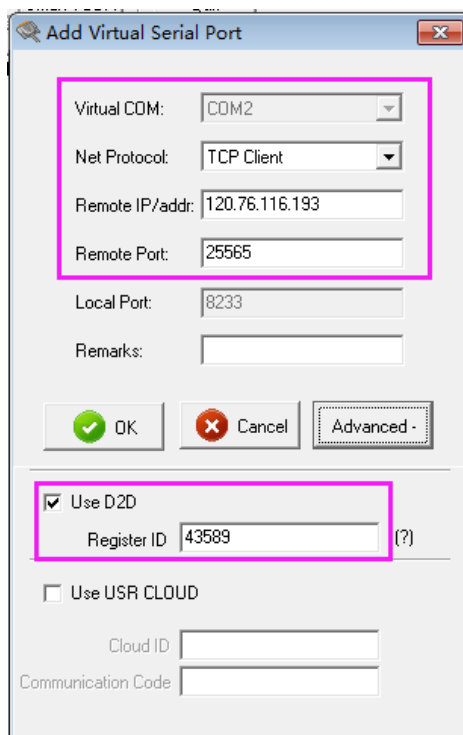
Note: [Net protocol] select TCP Client; [Remote IP/ address] select 120.76.116.193 or coolmay.wicp.net (standby) (note: IP/ Domain name is coolmay domain name, need to link with coolmay server); [Remote port]select 25565; [Register ID] in advance select 43589 (note: please set register ID after consult with coolmay technician)
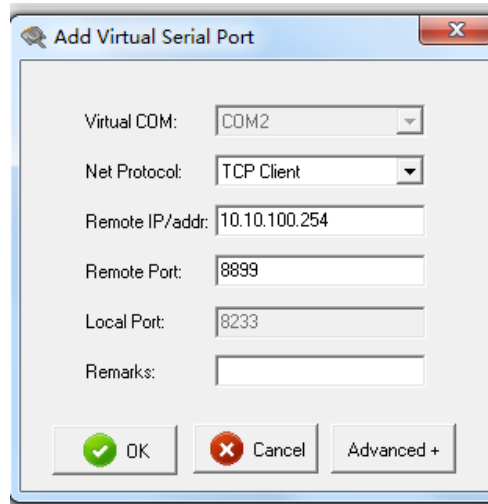
③Link to virtual port

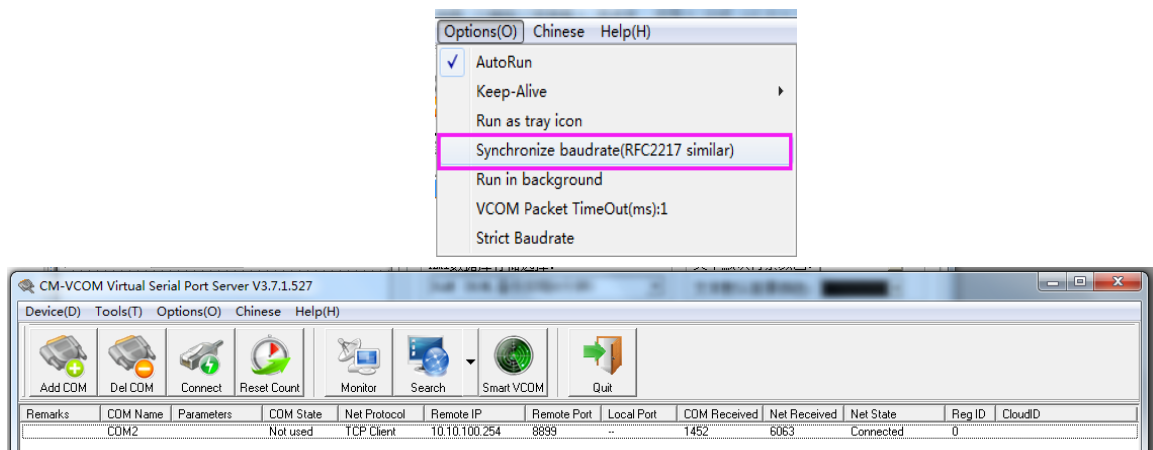
④Virtual COM has been built, port NO. is COM1, link PLC software with COM1, thus wireless monitoring to PLC has been achieved. Customers can also download program to PLC and monitor HMI through HMI software.

4-3. Virtual serial port software application---AP debug setting

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

2. Build connection, create serial port:

3. Connect with virtual port and change [synchronous baud rate] to unchecked state.

4. Virtual COM 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 WORKS 2.