



W-BOX

Wireless communication module

User manual

Wuxi XINJE Electric Co., LTd.

Data No. MC11 20171201 3.5

Catalog

1. INTRODUCTION	1
1-1. PRODUCT OVERVIEW	1
2. PERFORMANCE.....	3
2-1. PRODUCT STRUCTURE	3
2-2. DIMENSION AND INSTALLATION	4
2-3. POWER SUPPLY	5
2-4. COMMUNICATION PORT	5
2-5. STATUS INDICATOR	6
2-6. SIGNAL INTENSITY	7
2-7. DIP SWITCH	7
2-8. PRODUCT FEATURES	8
3. CONFIGURATION PARAMETERS.....	9
3-1. DEVICE INFORMATION	9
3-2. NETWORK MODE	10
3-3. IP ADDRESS	12
3-4. REMOTE PARAMETERS	12
3-5. MODULE MARK BIT	13
3-6. WIRELESS ROAMING	15
3-7. INTIALIZATION	15
4. USING STEPS (XD SERIES).....	16
4-1. PREPARING TASKS	16
4-2. HARDWARE CONFIGURATION	16
4-3. SERIAL PORT CONFIGURATION	17
4-4. AP MODE.....	18
4-5. STA MODE	21
4-6. WAN.....	24
5. USING STEPS (XC SERIES /MODBUS RTU)	27
5-1. PREPARATION	27
5-2. HARDWARE CONFIGURATION	27
5-3. SERIAL PORT CONFIGURATION	27
5-4. AP MODE.....	28
5-5. STA MODE	32
5-6. WAN.....	36
6. APPLICATION	38
6-1. MODBUS TCP MONITORING	38

6-2. XINJE CLOUD41

1. Introduction

1-1. Product overview

WBOX is wireless communication module based on wifi, it supports X-NET and Modbus-RTU protocol. It is widely used in automation system with XC, XD series PLC, to wireless mointor the automation system.

WBOX has two models: WBOX and XD-WBOX-ED. Some model include “L” means installing 3 meters extension antenna. The standard model appearance is as below diagram:



W-BOX



XD-WBOX-ED

■ Performance features

- Support 2.4GHz wireless WLAN technology
- Support AP mode (wireless hotspot) and STA mode
- W-BOX has RS232, RS485 port
- XD-WBOX-ED is left extension TTL access
- Support wireless hotspot (same SSID) roaming technology

■ Compatibility

- XD series PLC provides data support for XD-WBOX-ED and W-BOX
- XC series PLC provides data support for W-BOX
- Modbus RTU equipment provides data support for W-BOX
- Support RS232, RS485, TTL serial port
- Support Modbus-TCP protocol (not over 4 devices connection);
- Support X-NET protocol, support XINJE Cloud.

■ Suitable PLC version

Series	W-BOX		XD-WBOX-ED	
	Support	Version	Support	Version
XD	√	Firmware V3.4.5 and up XDPPro V3.5.1 and up	√	Firmware V3.4.5 and up XDPPro V3.5.1 and up

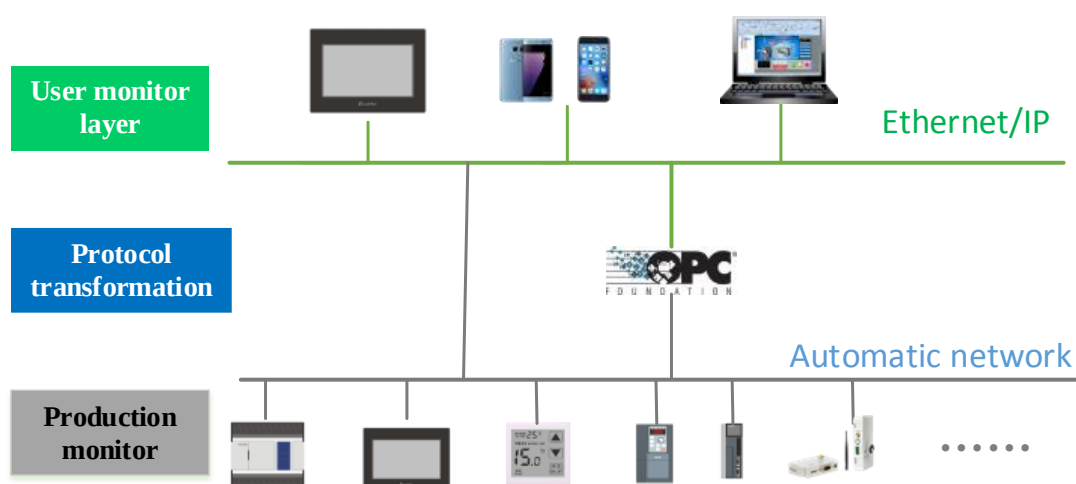
XC	√	XC2 series and up models XCPro V3.3r and up	×	-
ModbusRTU	√	Support 0/1/3/4 type address	×	-

Note:

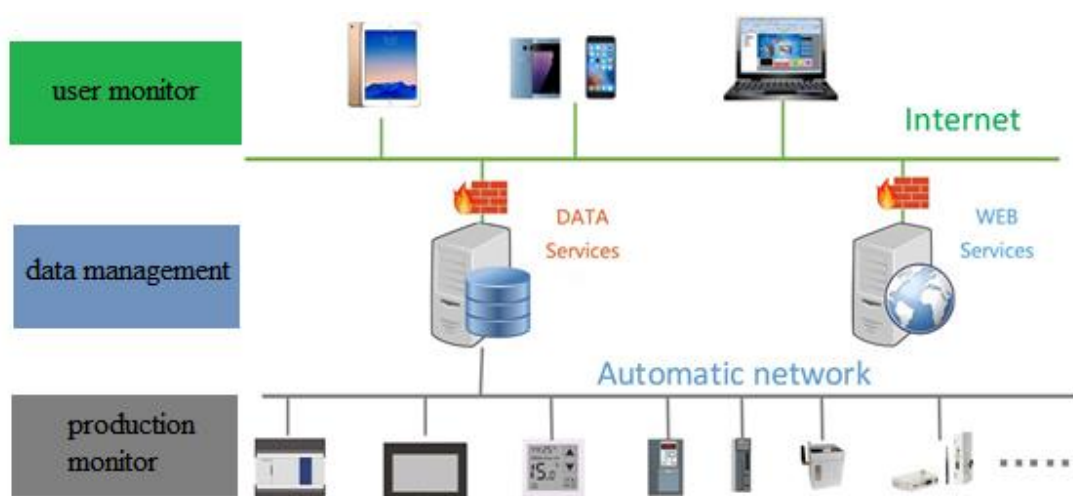
- (1) It needs to switch working mode by DIP switch 2 for W-BOX connecting XC/XD series PLC.
- (2) W-BOX can be used to integrated PLC&HMI controller.

■ Application functions

The data collection module can perform online program, real-time monitor, data upload and download in LAN working mode by using the PLC software XCPpro and XDPpro. It also supports other software monitoring the PLC such as WINCC, OPC.



The data collection module can perform online program, real-time monitor, data upload and download in WAN working mode by using the PLC software XCPpro and XDPpro. XINJE Cloud supports remote equipment management.

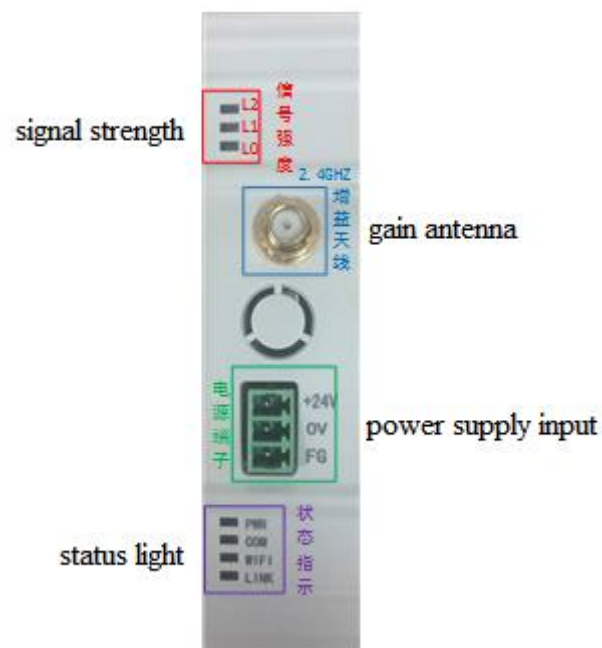


- Application fields
 - Workshop production process monitoring
 - Warehouse logistics system wireless scheduling
 - Remote diagnosis, online programming
 - Intelligent household, saloon car
 - Production and processing
 - Digital workshop reconstruction
 - Digital signage

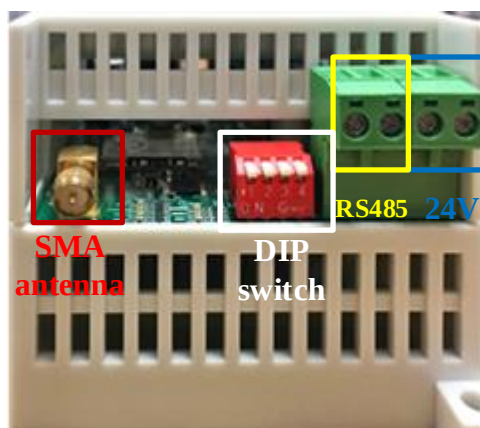
2. Performance

2-1. Product structure

- XD-WBOX-ED



- W-BOX



■ Antenna



L type extension antenna

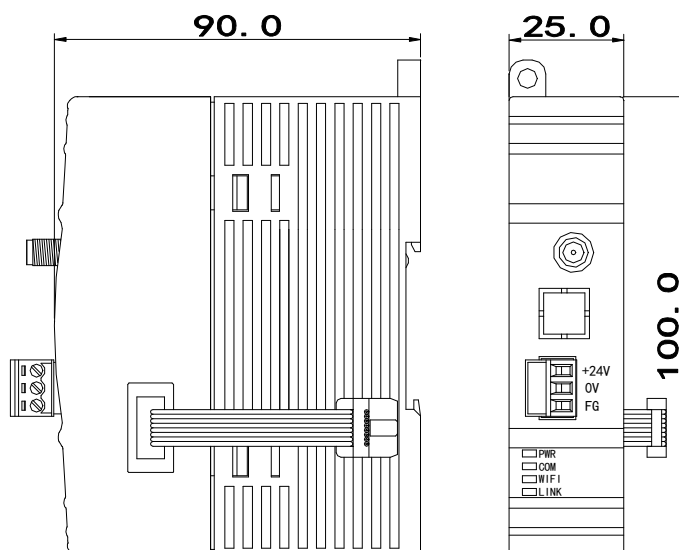


standard antenna

2-2. Dimension and installation

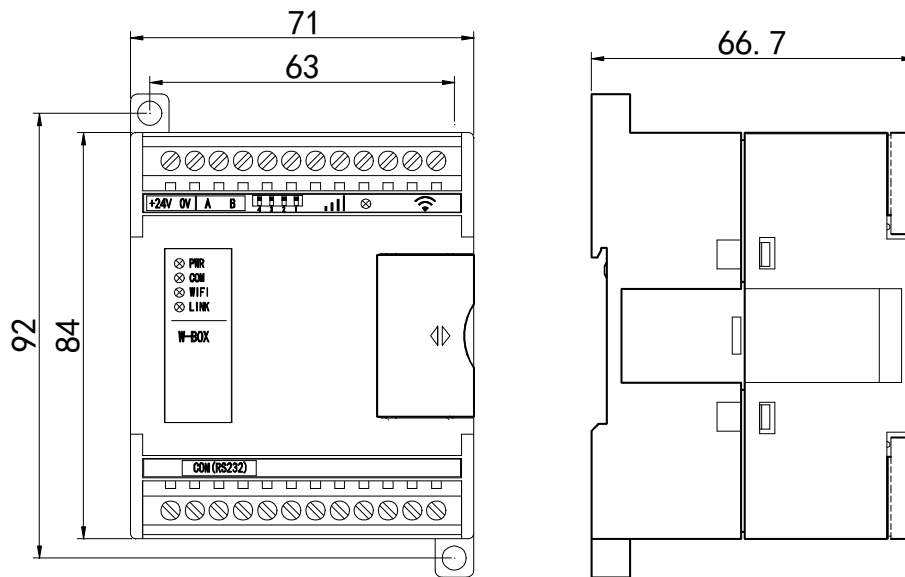
■ XD-WBOX-ED

The dimension is 25.0mm×100.0mm×90.0 mm. It can install on the rail DIN46277(width 35mm) with M3 screw.



■ W-BOX

Dimension is 71.0mm×92mm×66.7mm. It can install on the rail DIN46277(width 35mm) with M3 screw.



Note:

- (1) Please do not let the chip and wire cutting fall into the module when operating the screw hole and wiring project.
- (2) Make sure the specification of module and equipment before wiring.
- (3) Please check whether the connection is fixed when wiring. The disconnection of wire will cause data incorrect, short circuit and so on. please cut the power supply before installation and wiring.

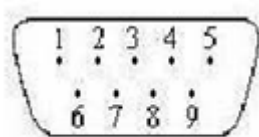
2-3. Power supply

The module power supply is DC 24V, the voltage range is DC 21.6V~26.4V.

2-4. Communication port

■ RS232 port (fit for W-BOX)

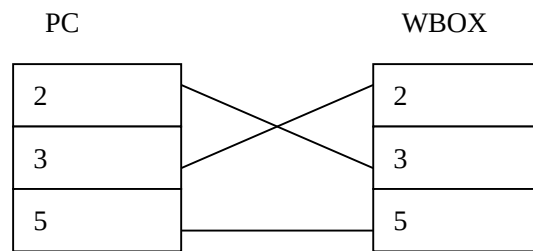
RS232 is 9-pin hole, the terminal is as below:



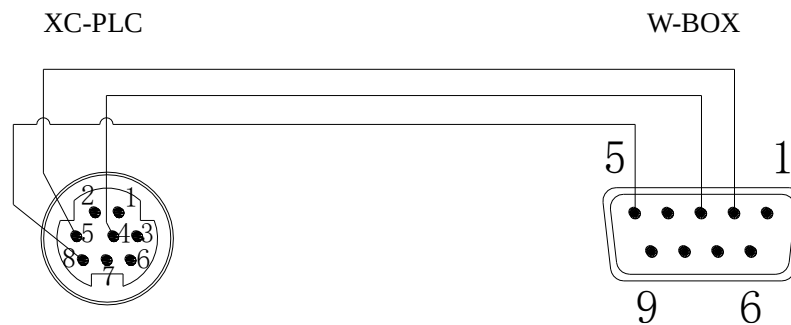
DB 9-pin

2	RXD
3	TXD
5	GND

The wiring diagram of PC and W-BOX:



The wiring diagram of XC/D series PLC and W-BOX:



■ RS485 port (fit for W-BOX)

B	A	0V	+24V
---	---	----	------

W-BOX has one RS485 port (terminal A, B), as above diagram showing. Terminal A is RS485+, terminal B is RS485-.

Note: it cannot support RS485 when W-BOX is set to X-NET communication.

■ Serial port information

Module name	Protocol	Suitable model	Default serial port information
W-BOX(S2: OFF)	Modbus RTU	XC2 and higher	19200,8,1,E
W-BOX(S2: ON)	X-NET	XD series integrated PLC&HMI controller	XNET-PPFD-RS232/TTL, 115200, network number and station number can be set freely
XD-WBOX-ED	X-NET	XD series	XNET-PPFD-TTL, 1000000, network number and station number can be set freely

2-5. Status indicator

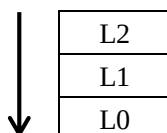
PWR
COM
WIFI
LINK

The status light will light according to the function after the module is energized.

Light	Function
PWR	The light is on when the module is energized.
COM	The light is flashing when the serial port parameters of XD series PLC and module are same and the module serial port has communication data when connecting XC/Modbus RTU devices.
WIFI	The light is always on when AP mode module is connected. The light is always on when STA mode accessing AP. The light is flashing when SSID or password is error. The light is off when AP mode or cannot find specified SSID.
LINK	The light is on when W-BOX successfully logs in the server.

Note: WIFI and LINK light will flash every 1 second in configuration mode.

2-6. Signal intensity



The signal intensity attenuation changes from negative value to 0, the larger the negative number, the weaker the signal, the stronger the vice versa. The signal intensity can be stored in single word register, the signal intensity cannot lower than -65dBm.

Mode	L2	L1	L0	Notes (Unit: dBm)
STA	√	√	√	Signal intensity 0~-55
	×	√	√	Signal intensity -56~-65
	×	×	√	Signal intensity -66~-80
	×	×	×	Signal intensity <-80
AP	√	√	√	The existed terminal connected with wifi hotspot of WBOX
	◎	◎	◎	Not existed or terminal disconnected with wifi hotspot of WBOX

Note: “√” means always on, “×” means always off, “◎” means flashing.

2-7. DIP switch

S1	S2	S3	S4
----	----	----	----

■ XD-WBOX-ED

S1	S2	S3	S4	Function
OFF	-	-	OFF	Running mode
ON	-	-	OFF	Configuration mode (needs to restart)
-	-	-	ON	Factory mode
Others				No definition

Note: serial port parameters and configuration parameters only can be written in in configuration mode. The running mode can only read these parameters.

■ W-BOX

S1	S2	S3	S4	Function
OFF	-	-	-	Running mode
ON	-	-	-	Configuration mode (needs to restart)
-	OFF	-	-	Modbus RTU mode
-	ON	-	-	X-NET mode
Others				No definition

Note: serial port parameters and configuration parameters only can be written in in configuration mode. The running mode can only read these parameters.

■ Configuration notes

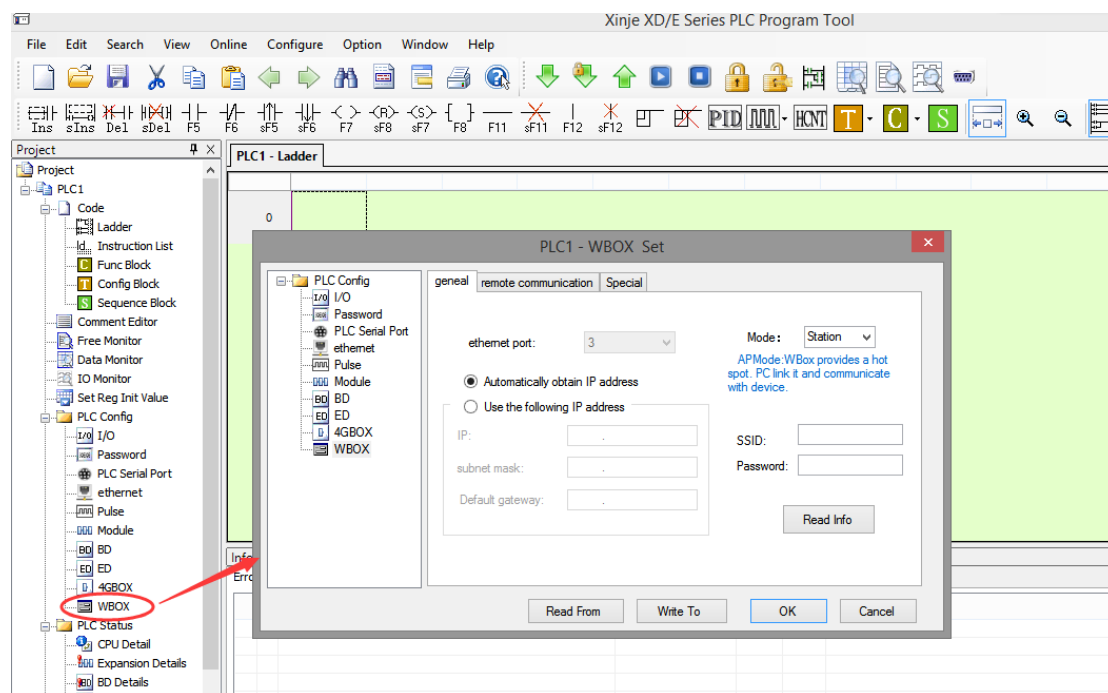
Please re-power on the module after setting the DIP switch.

Module name	Communication protocol	Suitable model	Default serial port information
W-BOX(S2: OFF)	Modbus RTU	XC2 or higher	19200,8,1,E
W-BOX(S2: ON)	X-NET	XD integrated PLC&HMI controller	XNET-PPFD-RS232/TTL, 115200, network number and station number can be set freely
XD-WBOX-ED	X-NET	XD series	XNET-PPFD-TTL, 1000000, network number and station number can be set freely

2-8. Product features

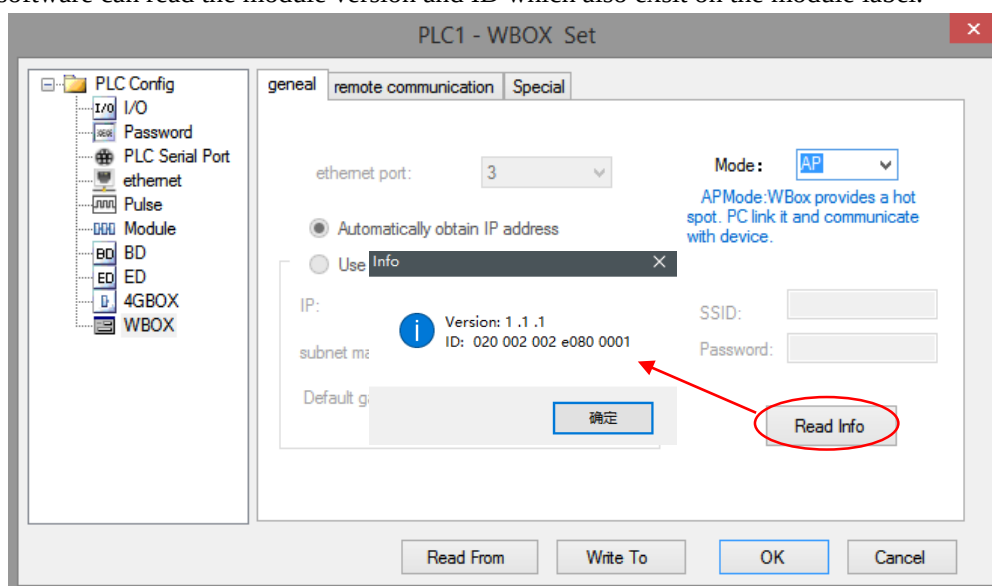
Parameter	Description
Working frequency	2.4GHz
Environment temperature	-40 ℃~85 ℃
Signal sensitivity	Tx power 18.0 dBm @ 1 DSSS 14.5 dBm @ 54 OFDM RX sensitivity -95.7 dBm @ 1 DSSS -74.0 dBm @ 54 OFDM
Working mode	Base station, access point(AP) and Wi-Fi Direct mode
Power consumption mode	Support RTC dormancy: 4 μA Low power deep sleep(LPDS): 120 μA RX flow(MCU activation): 59 mA@54 orthogonal frequency division multiplexing(OFDM) TX flow(MCU activation): 229 mA@54OFDM, max power Free connection(MCU in LPDS): 695 μA @ DTIM = 1
The encryption engin	256 bits AES encryption fast and safe Internet connection for TLS and SSL

First turn on DIP switch S1 before configuration, then re-power on the module. The WIFI light and LINK light will flash every 1 second. Click the WBOX item in the left side of PLC software to enter the configuration window.



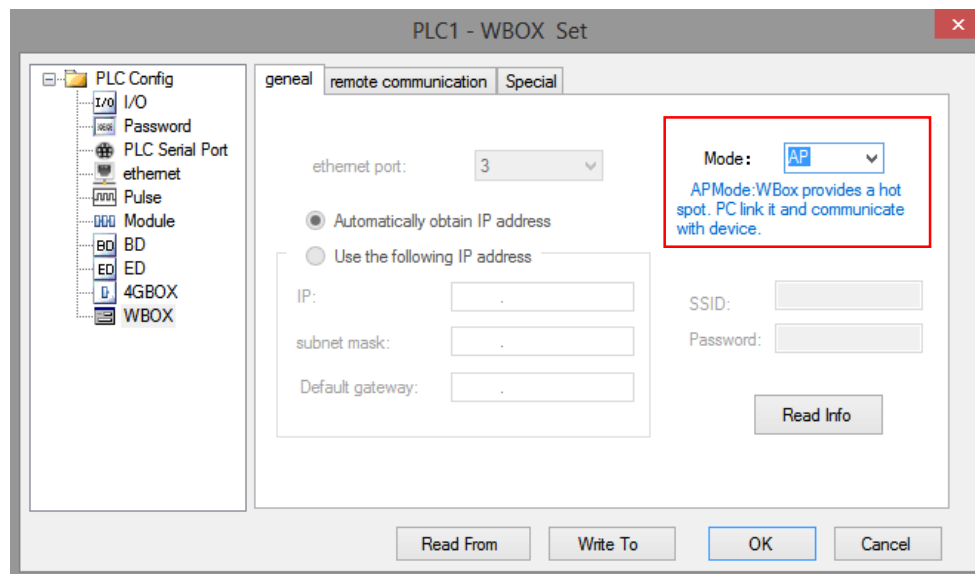
3-1. Device information

The software can read the module version and ID which also exist on the module label.



3-2. Network mode

Choose AP working mode in the general tab. The default mode is station which is STA mode.



■ AP mode

AP is wifi access point, the creator of wireless network, the central node of network. When WBOX is set to AP mode, it will not access other wireless network, the wireless receiving terminal can search the module SSID.

WBOX uses wireless WLAN technology, works at 2.4GHz. it uses hidden SSID which needs user input SSID by manual.

Module name	Hidden SSID name
XD-WBOX-ED	WBOX_ED
W-BOX	WBOX

When the three lights on the module is flashing, it means allow user can wireless connection. Always ON means the connection is successful or user already accessed the module.



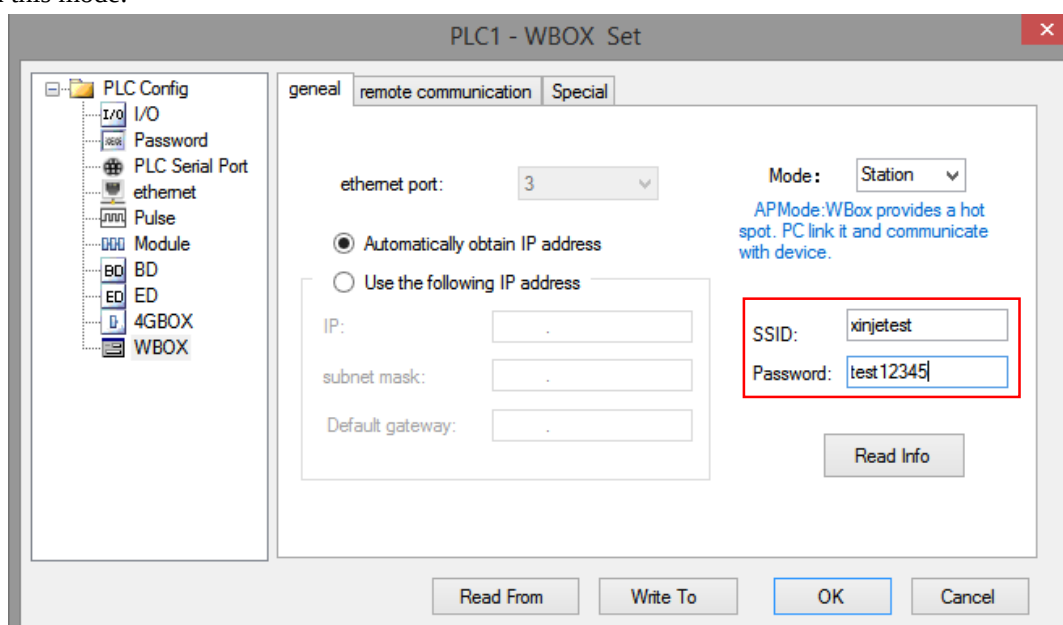
The module built-in DHCP server will automatic allocate IP, gateway, subnet mask for wireless receiving terminal which supports DHCP Client in AP mode. Some devices cannot support it. Please refer to below table to configure the terminal device information.

Parameter	Value
IP address	192.168.1.2
Subnet mask	255.255.255.0
Default gateway	192.168.1.1
DHCP server	192.168.1.1
DNS	192.168.1.1

In AP mode, the upper device can online debug PLC program, upload and download program and monitor the program through the LAN. WBOX supports Modbus TCP protocol and X-NET fieldbus protocol.

■ STA mode

STA station cannot accept wireless access but it can connect to AP, the general wireless network card works in this mode. It needs to appoint the correct SSID and password of accessing target AP in this mode.

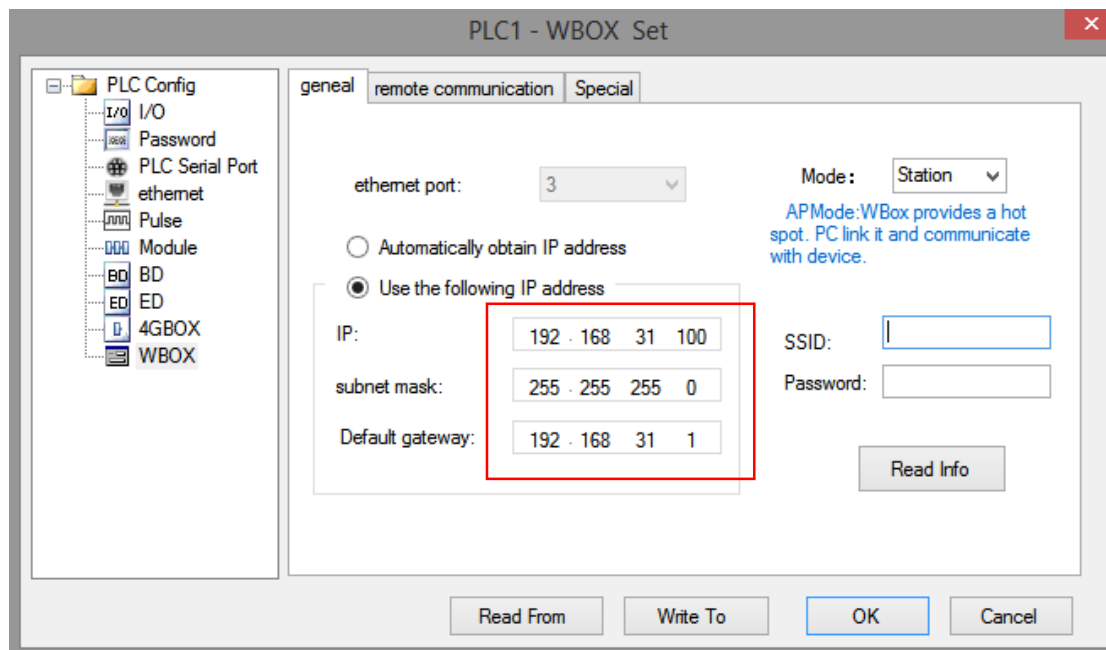


Make sure to restart the module after setting the SSID and password, otherwise the settings cannot be effective.

Light	Status description
WIFI	Light is always on when module is connected in AP mode. Light is always on when accessing AP module in STA mode. Light is flashing when SSID or password is error. Light is always off when AP mode or cannot find setting SSID.
LINK	Log in target server successfully, it means WBOX successfully log in the server.

In STA mode, the upper device can online debug PLC program, upload and download program and monitor the program by XINJE Cloud SCADA through the LAN or WAN. WBOX supports Modbus TCP protocol and X-NET fieldbus protocol.

3-3. IP address

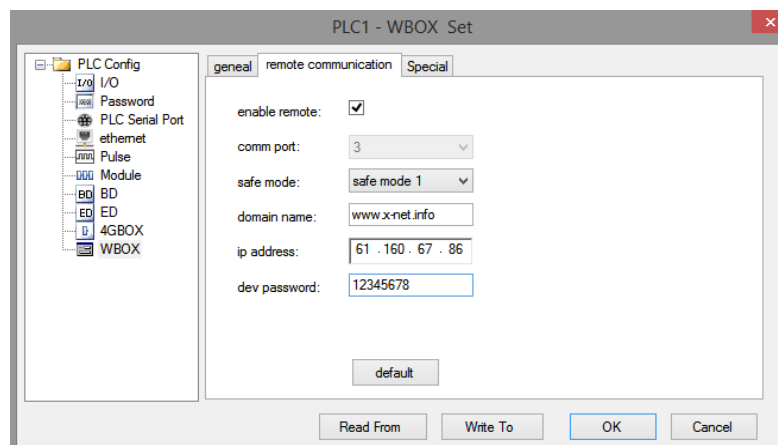


The module can automatic obtain the IP address and set the static IP in STA mode. The recommended application mode is shown as below:

Typical application	Configuration mode	Communication mode	Others
HMI, OPC, SCADA(WINCC)	Static setting	Modbus TCP	--
XCPPro, XDPPro online programming, XINJE Cloud monitoring	Automatic obtain	X-NET	Id automatic searching communication
PLC fieldbus communication	Static setting	X-NET	specified IP communication

3-4. Remote parameters

It needs to set the parameters for remote monitoring function such as remote debugging, upload and download PLC program, XINJE Cloud monitoring.



■ Enable remote communication

After enabling the remote communication, the module will log in target server according to user setting information(the server needs to install XINJE server).

Note: if enabling the function in the network which cannot support accessing external network, the reliability of module sign bit and wireless roaming function.

■ Safe mode

Only support safe mode 1 by now.

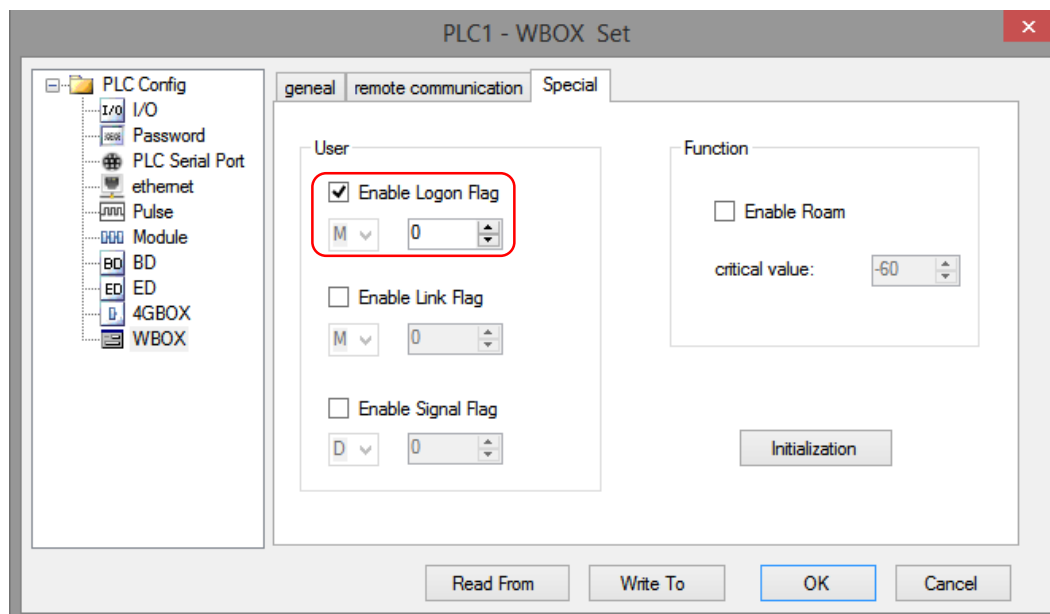
■ Server info

Server info includes server domain name and IP address. When the module is connecting server, it will resolve the domain name server, if log in server is failed, it will connect with setting server IP. If both is error, the log in is failed.

■ Device password

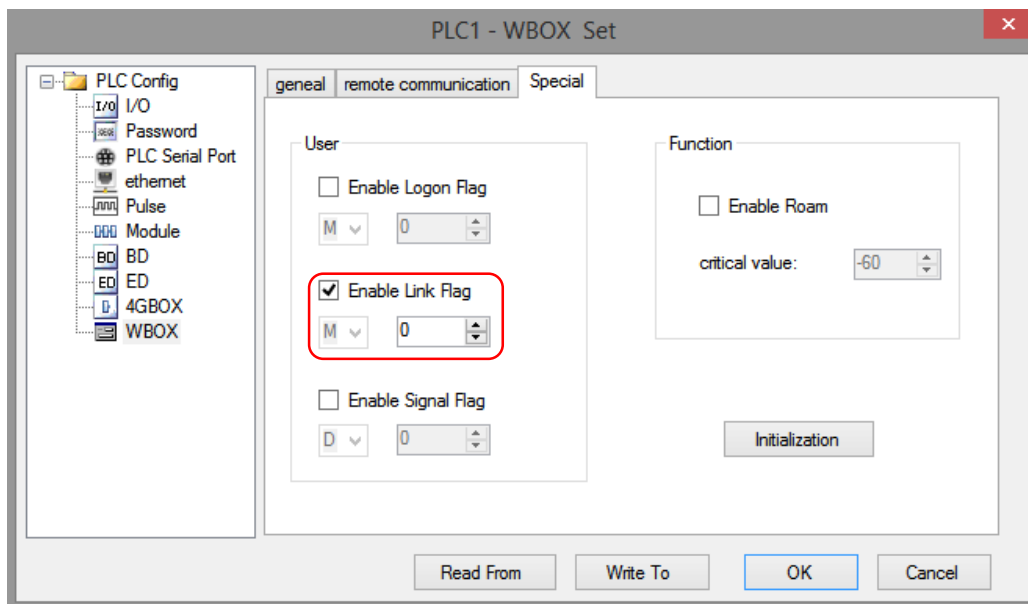
The device password is to improve the security of device remote access. User can set the password as needs.

3-5. Module mark bit



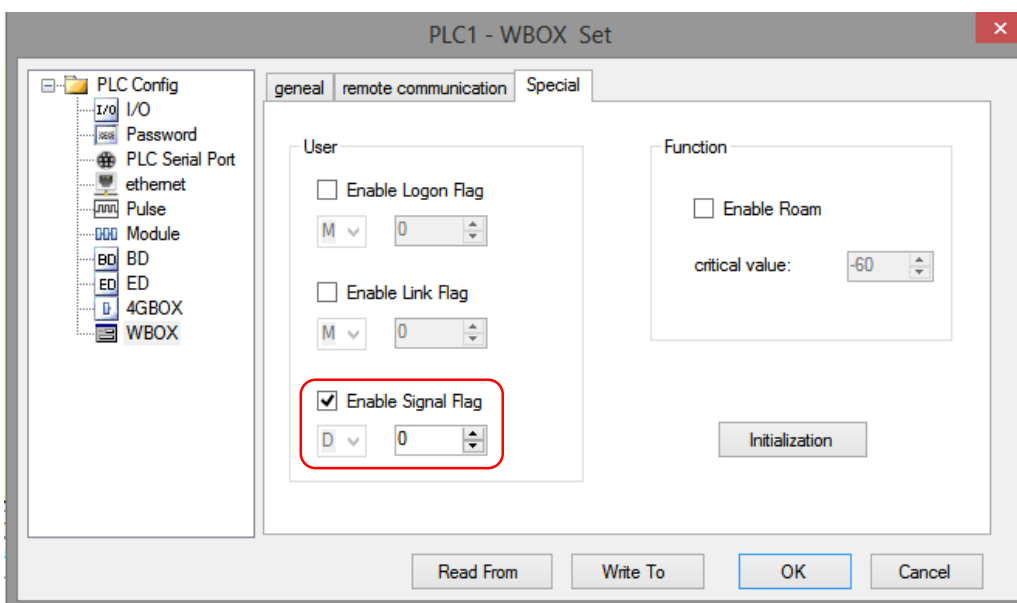
■ Log in flag

The log in flag can show the status of module log in the remote server. The module will write the status to target address every 5000ms. 1 means log in succeed, otherwise it is 0.



■ Link flag

The link flag is the connection status between module and AP. The status will be written to target address every 5000ms. 1 means connecting wifi succeed, otherwise it is 0.



■ Signal flag

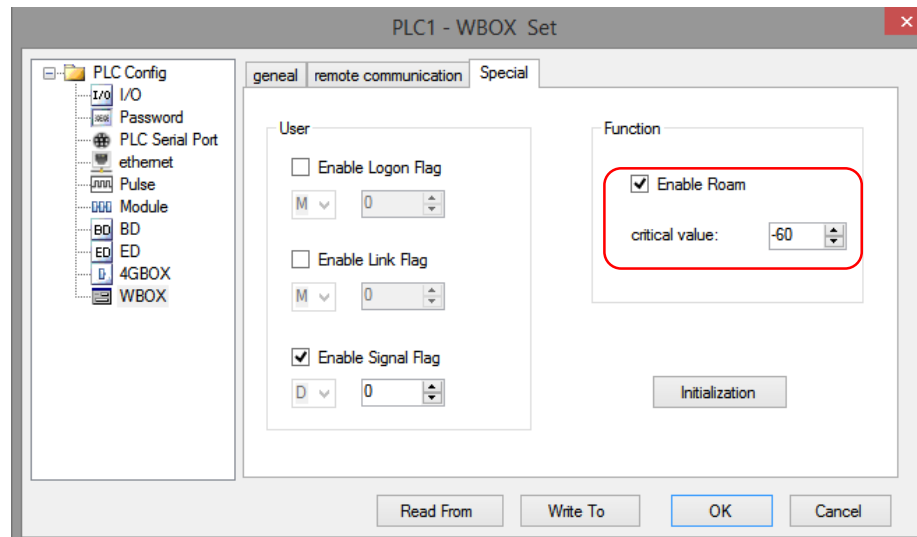
The signal intensity is attenuation changing, from negative number to 0, the greater the negative value, the weaker the signal, and vice versa. The signal intensity can be stored in single word register, the value cannot be lower than -65dBm. The module has signal intensity light. Please refer to performance parameter—signal intensity.

Note: all the flag bit is effective in STA mode.

3-6. Wireless roaming

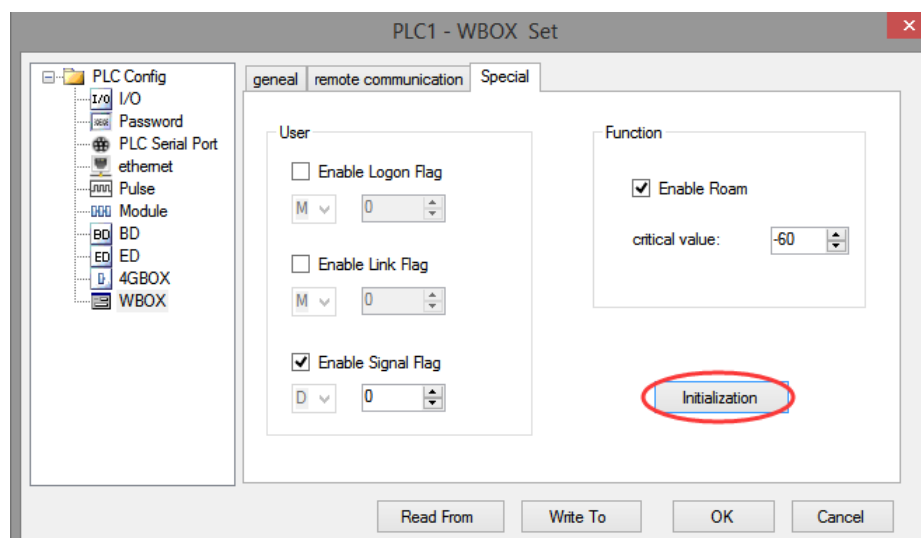
The wireless device is moving in the wifi covering area, the module will automatic detect the SSID signal intensity allowed to access in all the AP, and automatic switch in a short period of time according to user setting signal intensity threshold.

The typical switching time of wireless roaming is 1000-5000ms, it can perform by the networking scheme AP+AC+router.



Note: if enabling this function in the network which cannot support accessing external network, the reliability of module flag bit and wireless roaming function will be changed.

3-7. Intialization



The intialization function can set all the parameter to out of factory status, the default parameters are shown as below:

Parameter	status
Serial port info	XNET—PPFD—TTL—1M/115200
	Modbus RTU-19200-8-1-E

Network mode	STA mode, no SSID, password
IP address	Automatic obtain
Remote parameters	disable
Module flag bit	disable
Wireless roaming	disable

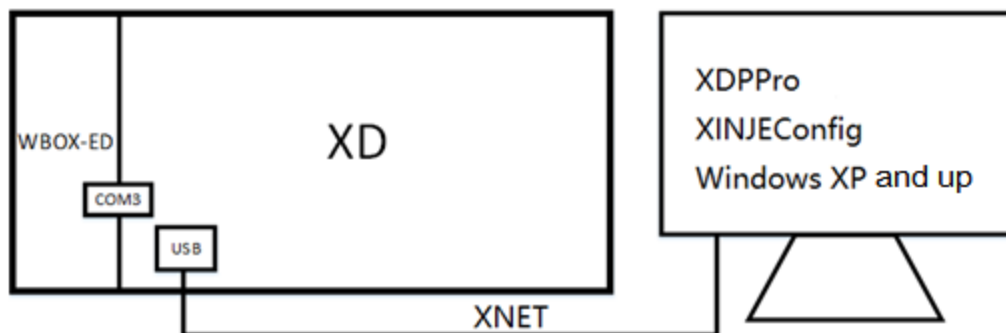
4. Using steps (XD series)

4-1. Preparing tasks

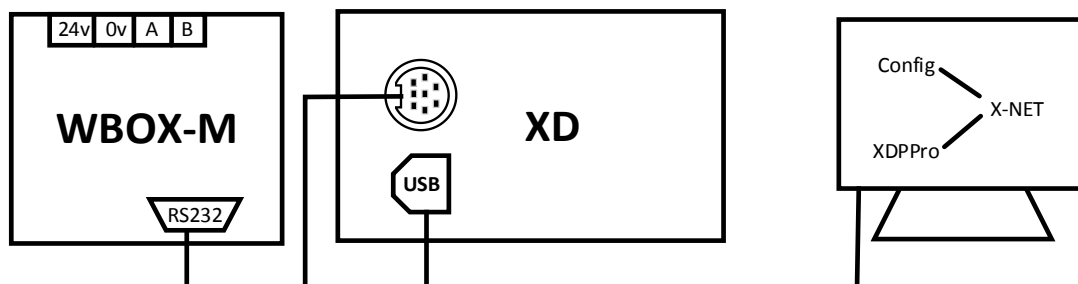
- XD-WBOX-ED V1.1.2 and up
- W-BOX V1.1.2 and up, DIP switch 2 is ON
- XD series PLC firmware V3.4.5 and up
- XDPPro software V3.5.1 and up
- XINJEConfig tool V1.6.375 and up
- XD series PLC programming cable
- PC which can access Internet

4-2. Hardware configuration

XD-WBOX-ED: make sure the PLC firmware, programming software and XINJEConfig version meet the above requirements. The connection method is shown as below for ED module configuration.



W-BOX: make sure the PLC firmware, programming software and XINJEConfig version meet the above requirements, and DIP switch 2 is ON. W-BOX and XD series PLC only supports RS232, but cannot support RS485, the connection method is shown as below:



4-3. Serial port configuration

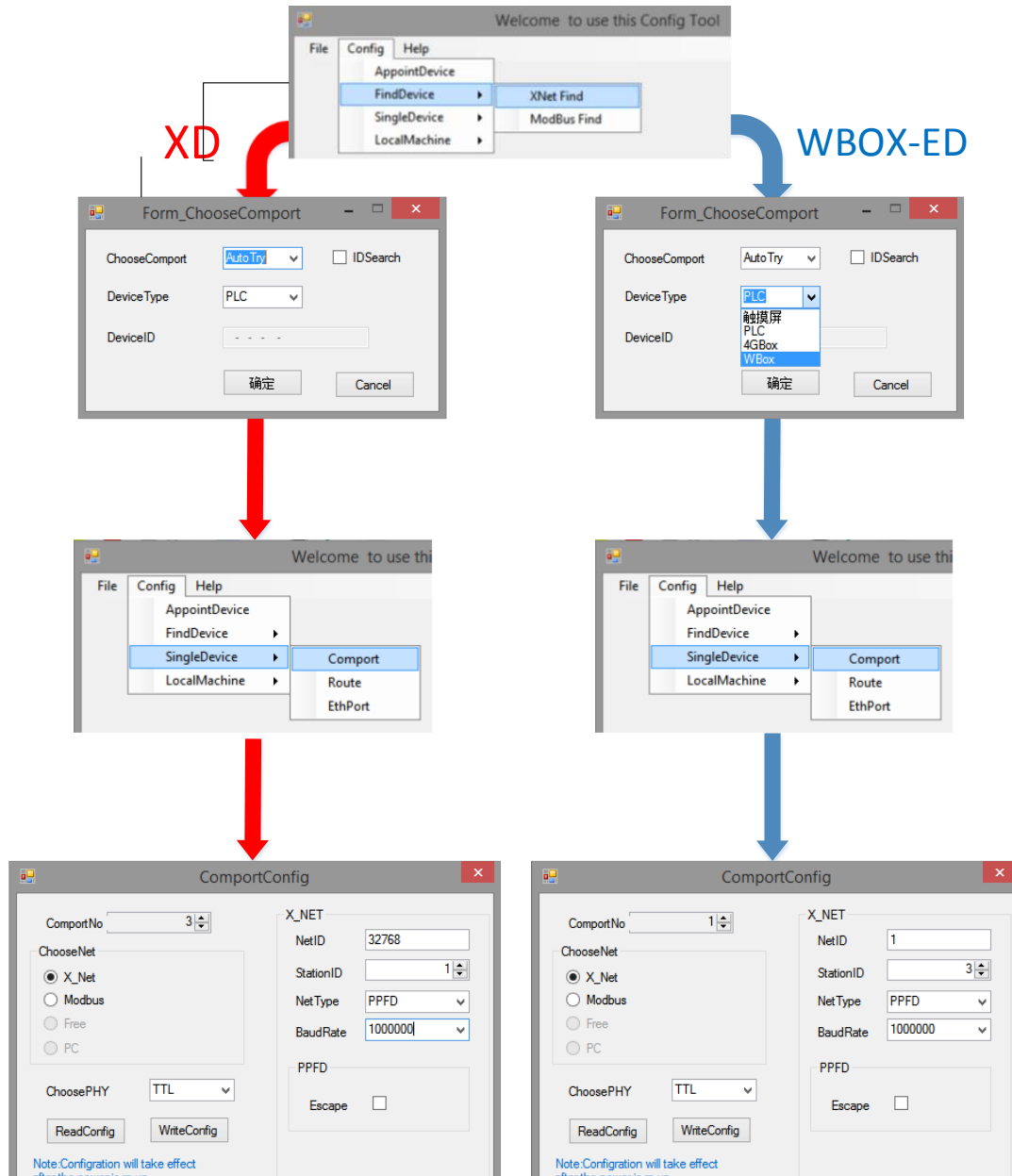
XD series PLC serial port can set to Modbus, XNET(OMMS/TBN/PPFD), free communication protocol. Make sure to match below parameters when connecting WBOX. The network number and station no. is recommended to use default parameters.

	XD-WBOX-ED	W-BOX
Communication protocol	XNET-PPFD	XNET-PPFD
Serial port speed	1000000bps	115200bps
Physical layer	TTL	RS232
Network number	32768	32768
Station number	1	1
DIP switch S2	-	ON

Please re-power on the module as the following DIP switching settings when user needs to configure the serial port information.

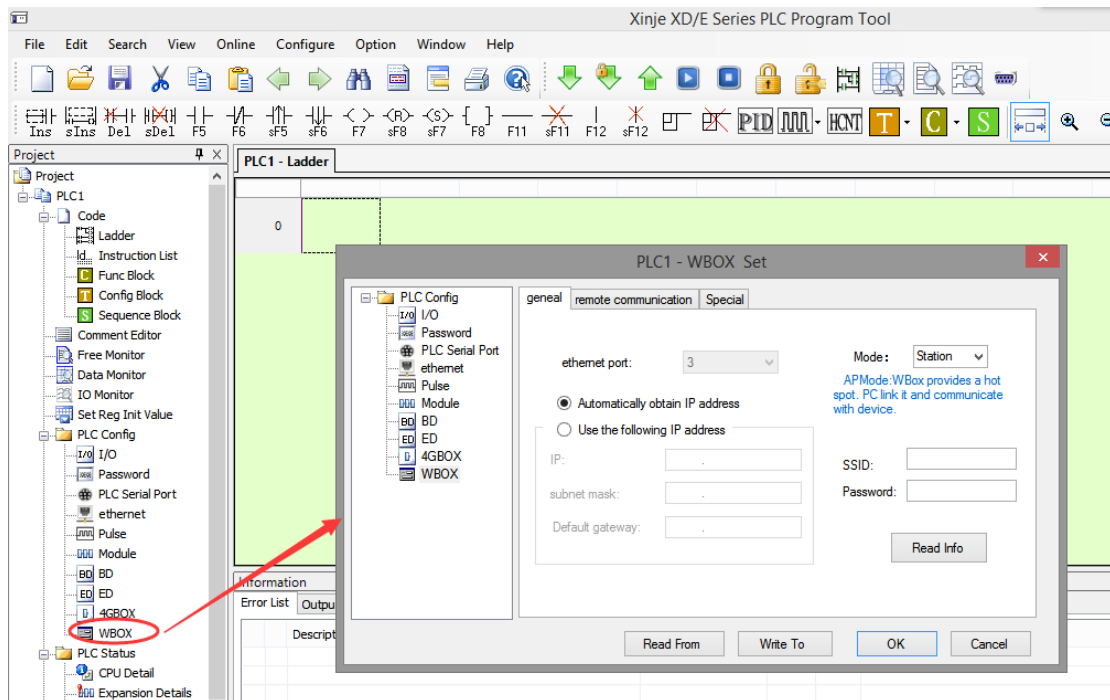
S1	S2	S3	S4	Function
ON	-	-	OFF	Configuration mode
OFF	-	-	OFF	Running mode

Please turn on DIP switch S1 for configuration. After re-powering on the module, WIFI and LINK light will flash every 1 second in configuration mode, and the related PLC serial port parameters are set to default parameters. The write-in parameters will be effective after re-power on. When the serial port parameters are consistent, the module COM light will periodically flash in XNET mode. Note: the default serial port speed can fit for most applications, if the local electromagnetic interference is very serious, please reduce the speed.

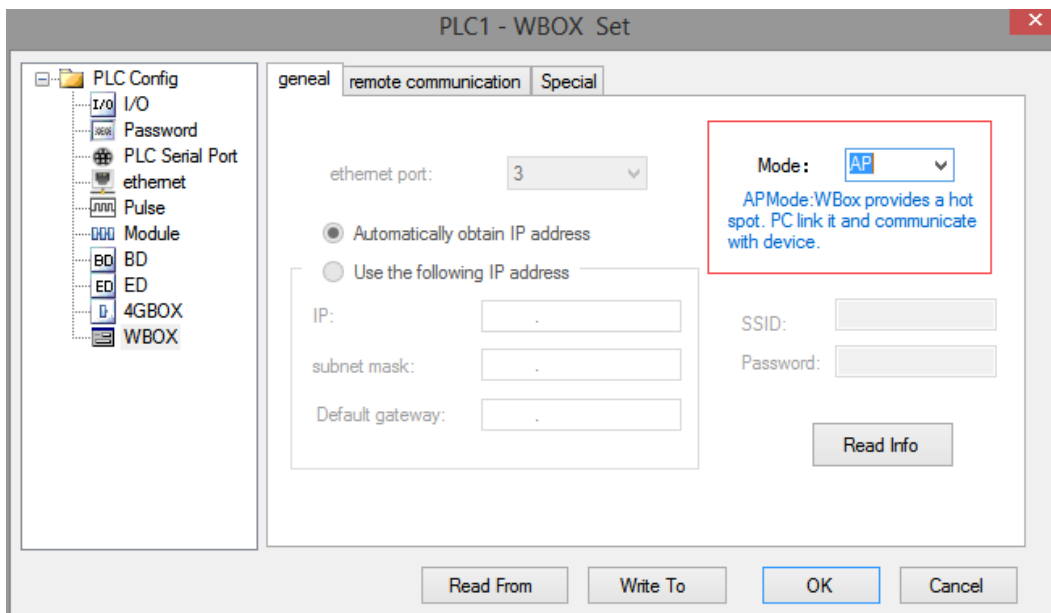


4-4. AP mode

1. when the serial port parameters are consistent, the module COM light will periodically flash in XNET mode. Please enter configuration mode by clicking the WBOX tab on PLC software left side.



2. choose AP mode in general tab.



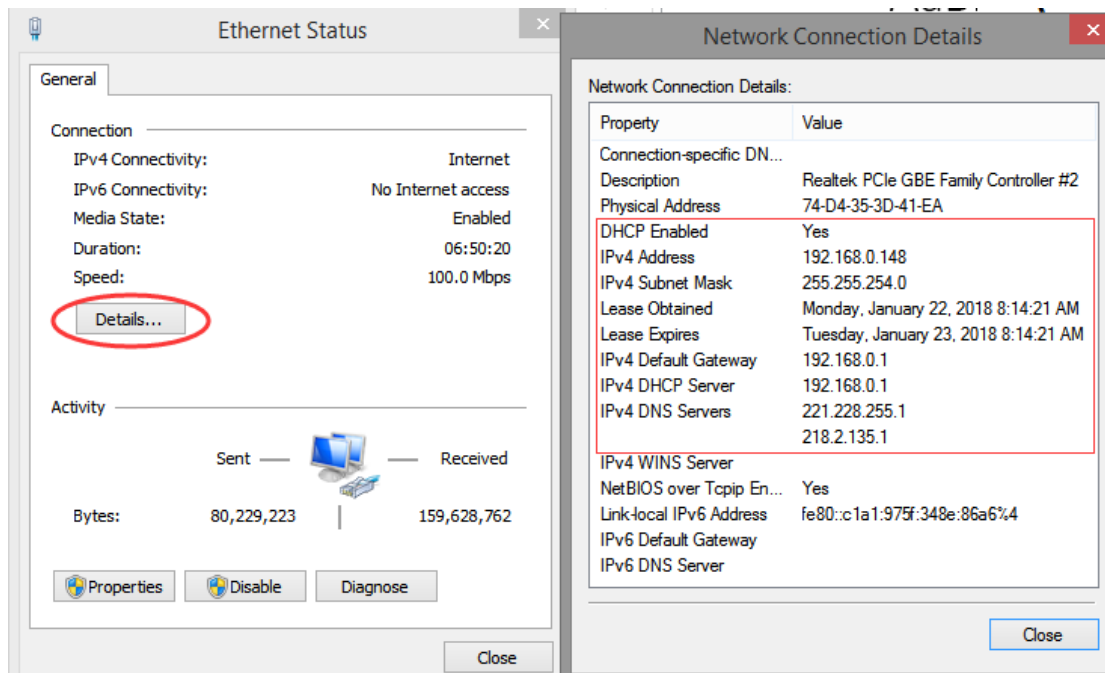
3. the module uses wireless WLAN technology, works at the frequency range of 2.4GHz, hidden SSID, user needs to input SSID info in the hidden network.

Module name	Hidden SSID name
XD-WBOX-ED	WBOX_ED
W-WBOX	WBOX

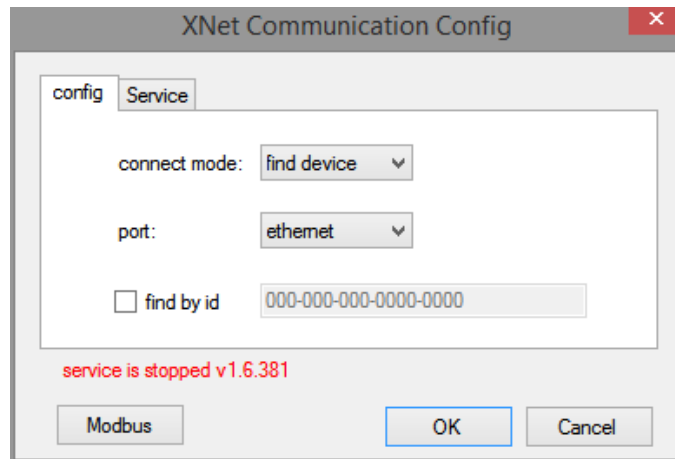
The three lights on the module flashing at the same time means allow user wireless connection. Light always on means connection successful or existed user connected to the module.



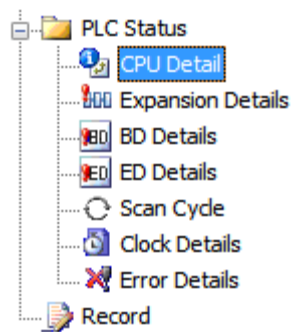
In AP mode, the module built-in DHCP server will automatic distribute access IP, gateway and subnet mask for wireless receiving terminal which supports DHCP Client technology. Some equipment cannot support it, user can refer to terminal device information.



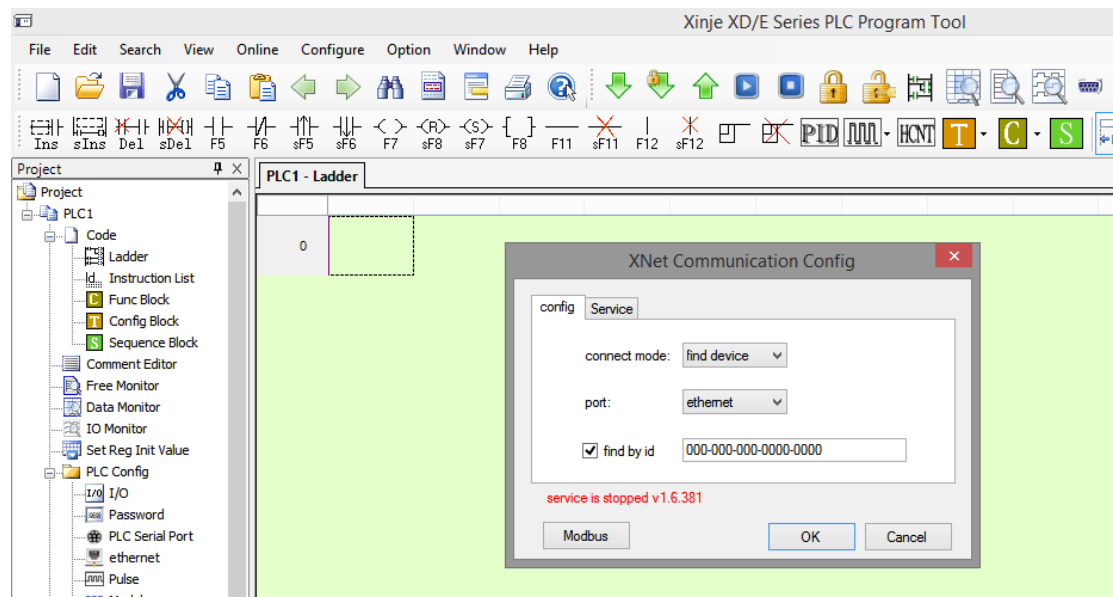
4. when using WBOX to connect XDPPro for online debugging, the connection methods is as below: open XD programming software v3.4.2, choose XNET protocol for serial port setting, choose Ethernet for port, not choose find by ID option, click OK to connect PLC successfully.



5. for PLC version v3.5 and up, the PLC device ID is shown in PLC CPU detail.



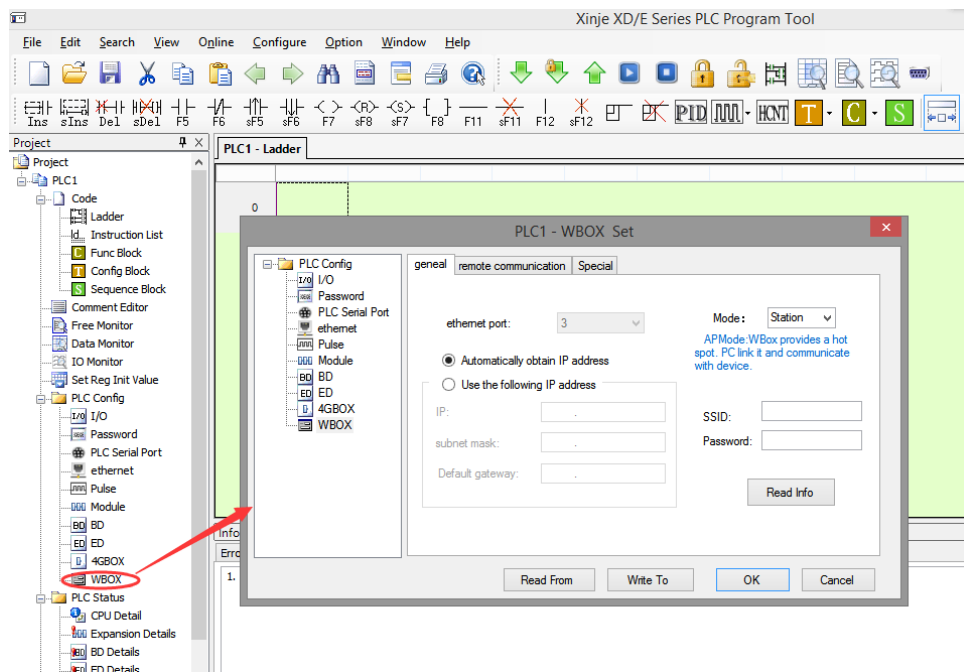
See below diagram, click serial port config/find device/Ethernet port/find by ID. Please refer to application for Modbus TCP mode.



4-5. STA mode

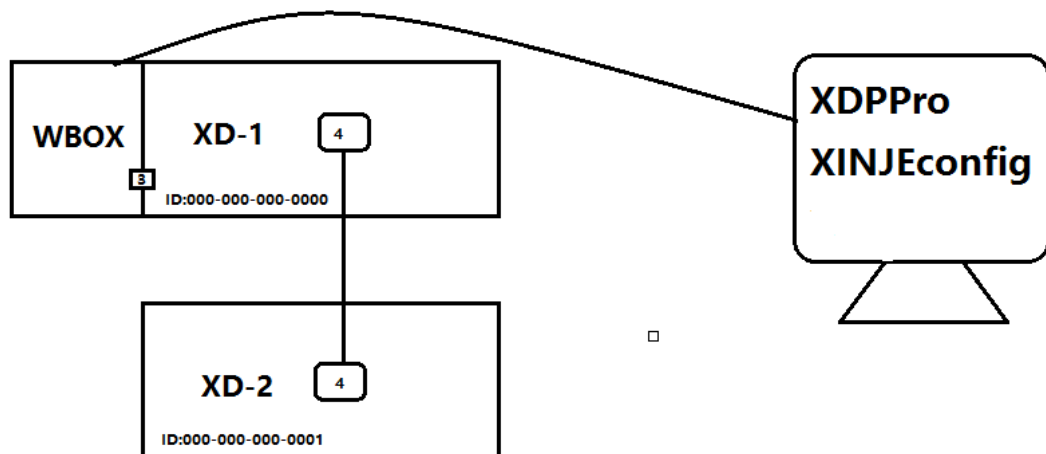
1. when the serial port parameters are consistent, the module COM light will periodically flash. Please enter configuration mode by clicking the WBOX tab on PLC software left side. Please turn on DIP switch S1 when configuring the module. And turn off the S1

switch after writing in successfully. Then restart the module again.

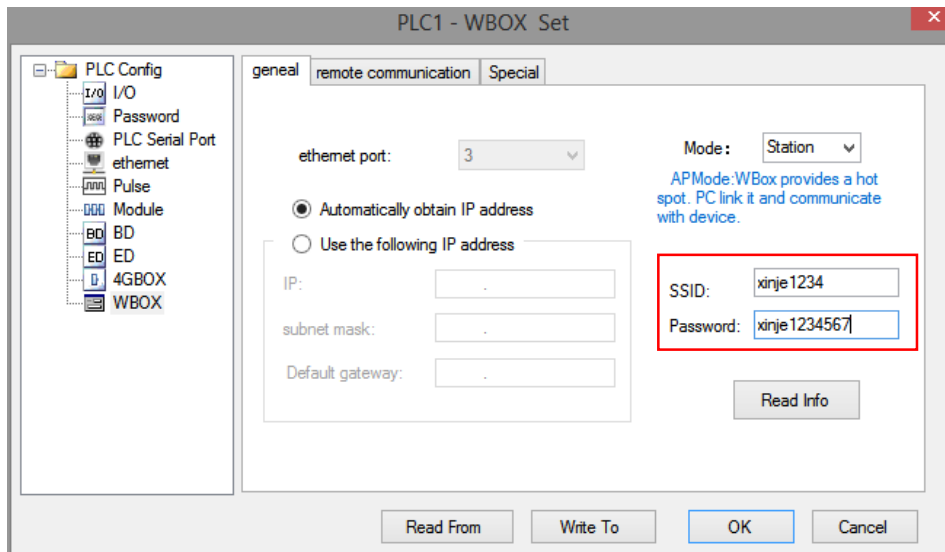


2. when using WBOX connect XDPro to online debugging in LAN, the module supports XD series PLC v3.5.1 and up.

Note: when using XNET communication protocol, multi-PLC can be accessed at the same time with one public WBOX in the LAN through XDPro or XNET interface. It only supports one PLC accessing by upper device with one WBOX in WAN(XNET) or in modbus tcp mode.



3. the module uses wireless WLAN technology, works at the frequency range of 2.4GHz, not supports 5GHz frequency range. It needs to appoint the SSID, password when module is in STA mode. Confirm the write in configuration information and do the next step as the hint.



Choose station for mode in general tab, the default setting is station mode, which is running in STA mode.

Note: WIFI light is always on when STA mode accessing AP. The light will flash when SSID or password is error. Refer to performance parameter—signal intensity for details of signal intensity.

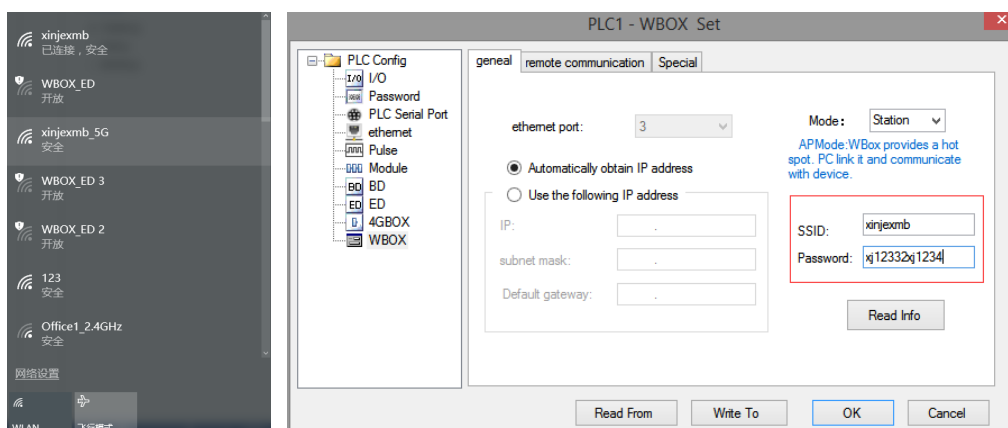
It can automatic obtain the IP on the router which supported DHCP function or set static IP when the module accessing the wireless router.

Monitoring mode	Communication protocol	IP obtain mode
Online debugging	XNET	Automatic obtain
SCADA monitoring	Modbus TCP	Static IP setting
Remote monitoring	XNET	Automatic obtain

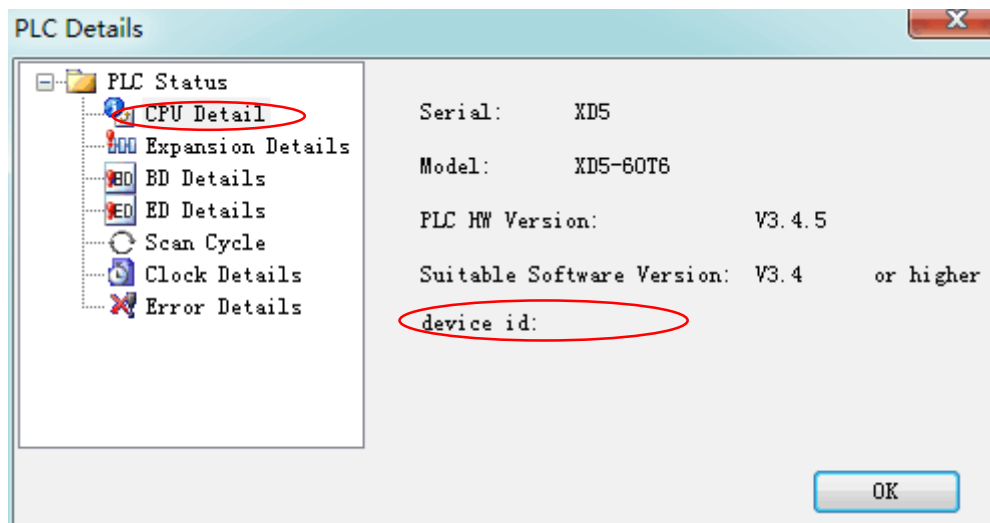
It needs to appoint the device IP and port when using Modbus TCP monitoring device. In order to ensure the device IP is fixed in the network every time, the device is set to static IP.

4. in STA mode, the flag bit function is enabled, the module writes in PLC internal address every 5000ms according to actual running status and user configuration information. The configuration mode, function meaning please refer to configuration parameters—module mark bit.

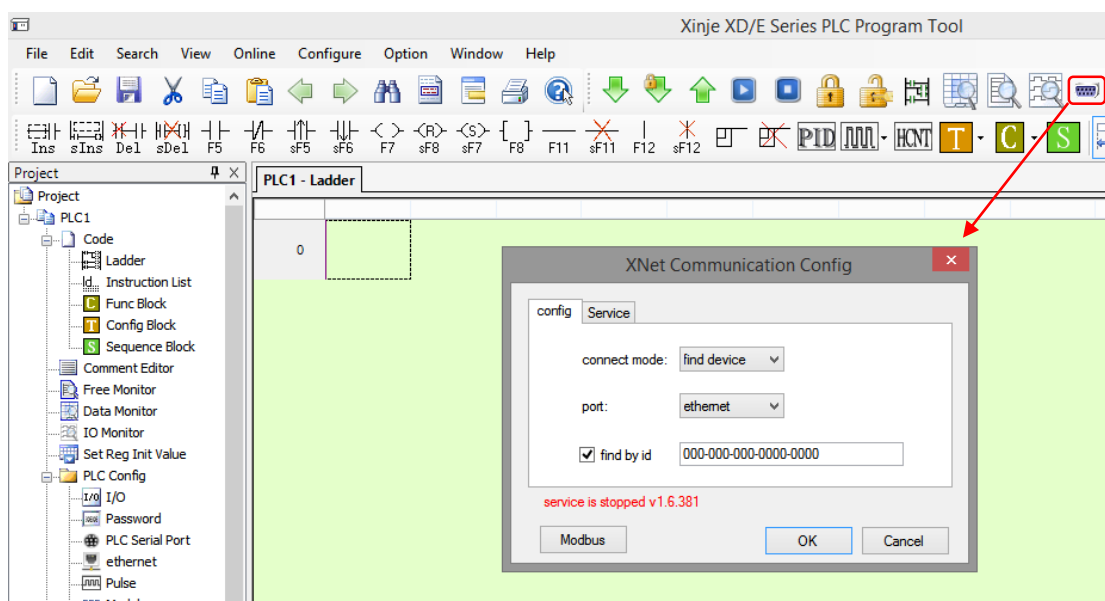
5. the PC accesses the network to build the LAN.



6. the PLC hardware version must be v3.5 and up for LAN mode. User can search as PLC device ID, which can be found in PLC CPU details.



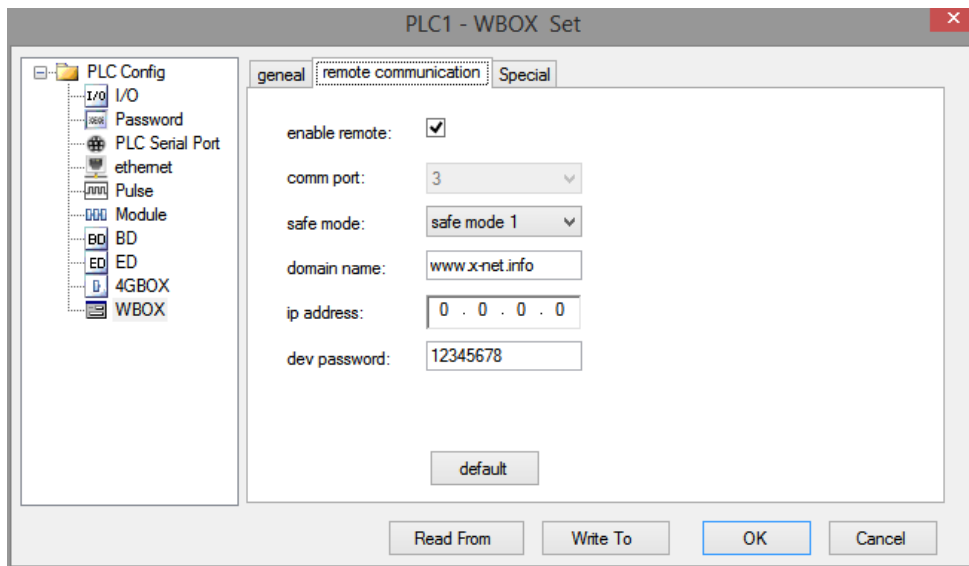
When the module is in STA mode, it only supports XDPPro find device---ethernet port—find by id. Please refer to application for Modbus TCP mode.



4-6. WAN

■ Module configuration

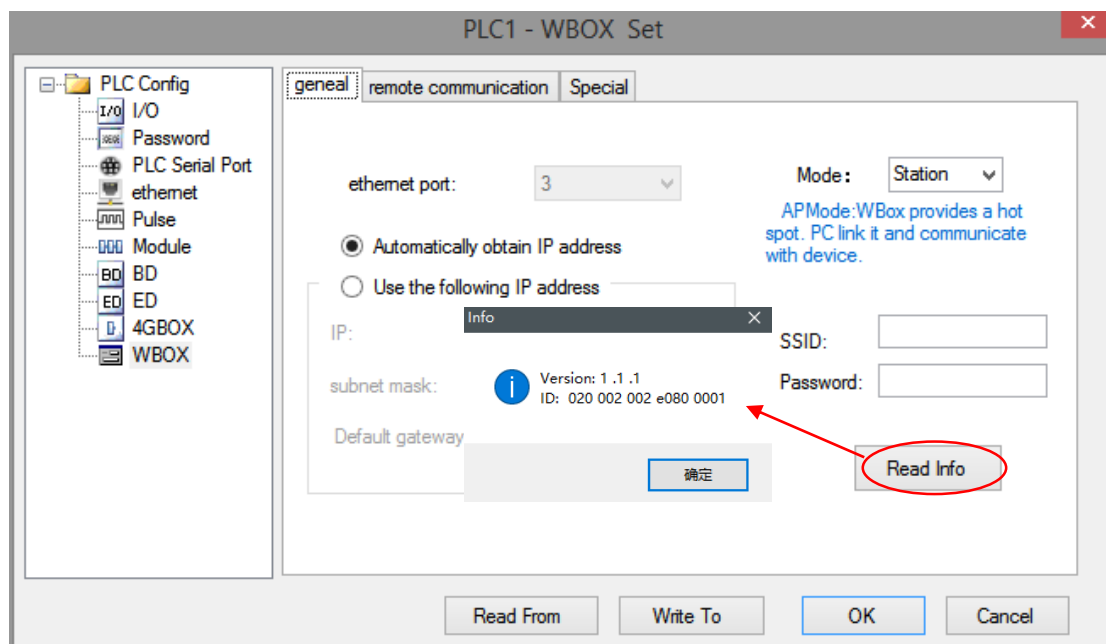
- (1) the module must work in STA mode, the configuration method please refer to LAN—STA mode.
- (2) The hotspot to be accessed must be with WAN(wide area network) access ability in STA mode.
- (3) Make sure the remote function is enabled, please refer to configure parameters---remote parameters.



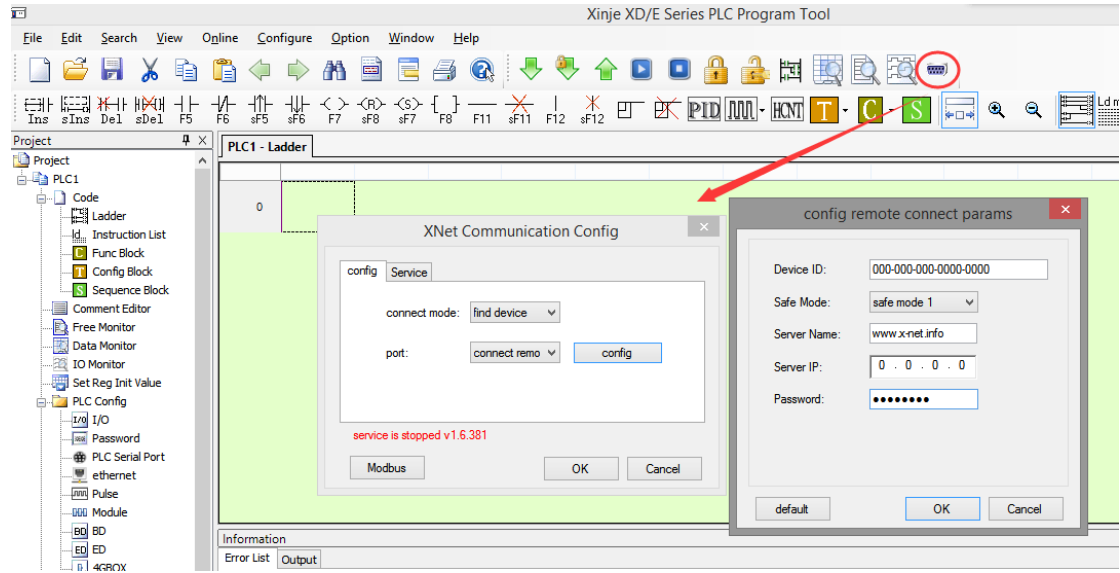
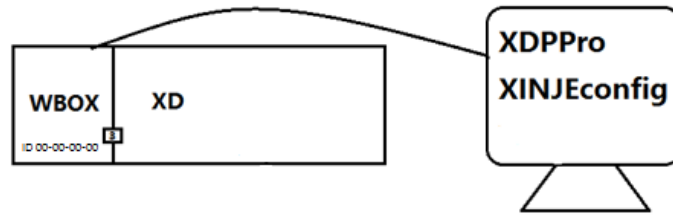
Note: after the module accessed server successfully, the LINK light is ON, if there is connecting server successful flag, it will be written in PLC address every 5000ms, the address status is ON.

■ Remote monitoring

Make sure the PC connected to Internet successfully, XD series PLC version is v3.4.5 and up. XDPPro can access the device such as PLC, HMI in the Internet by verifying the WBOX device ID and password.



Different from LAN mode, in WAN mode, XD series PLC only supports the remote visiting of PLC which directly connected to the Ethernet module.



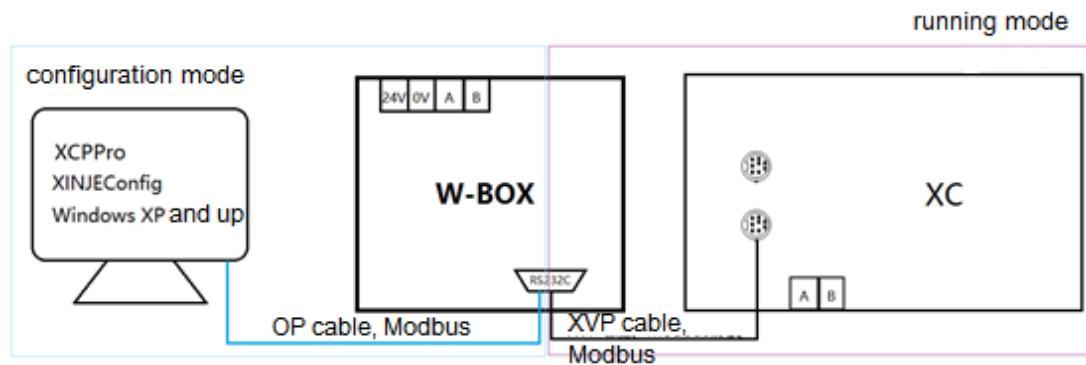
5. Using steps (XC series /Modbus RTU)

5-1. Preparation

- W-BOX V1.1.2 and up, DIP switch S2 is OFF
- XC2 series or higher series PLC
- Devices which supports Modbus RTU protocol
- XCPPro software V3.3r and up
- XINJEConfig tool V1.6.375 and up
- XC series PLC programming cable (XVP/DVP cable)
- RS232C cable (OP cable)

5-2. Hardware configuration

When the XC series PLC and integrated PLC&HMI controller use WBOX(Modbus mode), make sure the PLC hardware version and software version and XINJEConfig tool version accord to above requirements, and turn OFF DIP switch 2. The wiring method is as below:



5-3. Serial port configuration

XC series PLC serial port can be set to Modbus or free format protocol. When it is connecting WBOX, make sure to match below parameters. It is recommended to use default parameters.

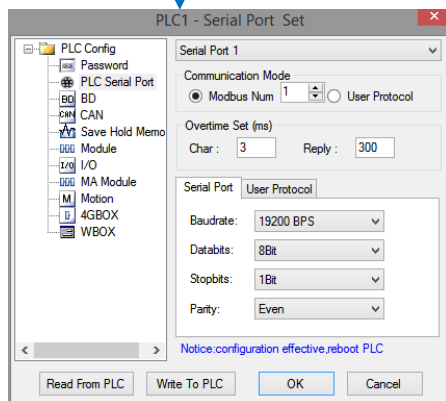
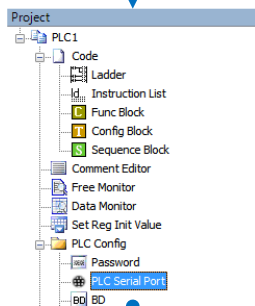
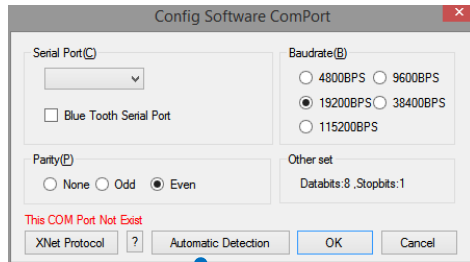
Communication protocol	Modbus RTU
Serial port speed	19200bps
Data bit	8
Stop bit	1
Parity	even
Over time	300ms
Retry times	3
Sending delay	3ms

Please turn OFF DIP switch 2 and set to Modbus mode when configuring the module serial port. Please turn ON DIP switch 1 when configuring and re-power on the module. WIFI and LINK light will flash every 1 second in configuration mode, and change the PLC serial port parameters to default. The parameters will be effective after re-power on the module.

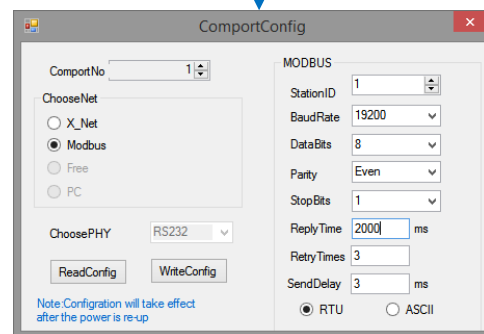
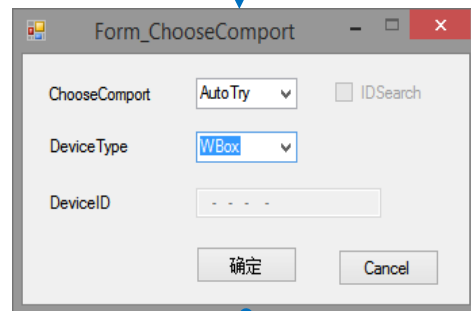
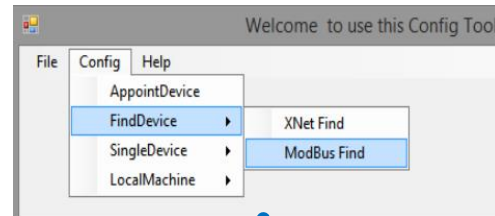
S1	S2	S3	S4	Function
ON	OFF	-	OFF	Configuration mode
OFF	OFF	-	OFF	Running mode

Note: the default serial port speed can meet most applications. If the electromagnetic environment is very bad, the speed can be reduced to reduce the impact of interference.

XC series serial port setting

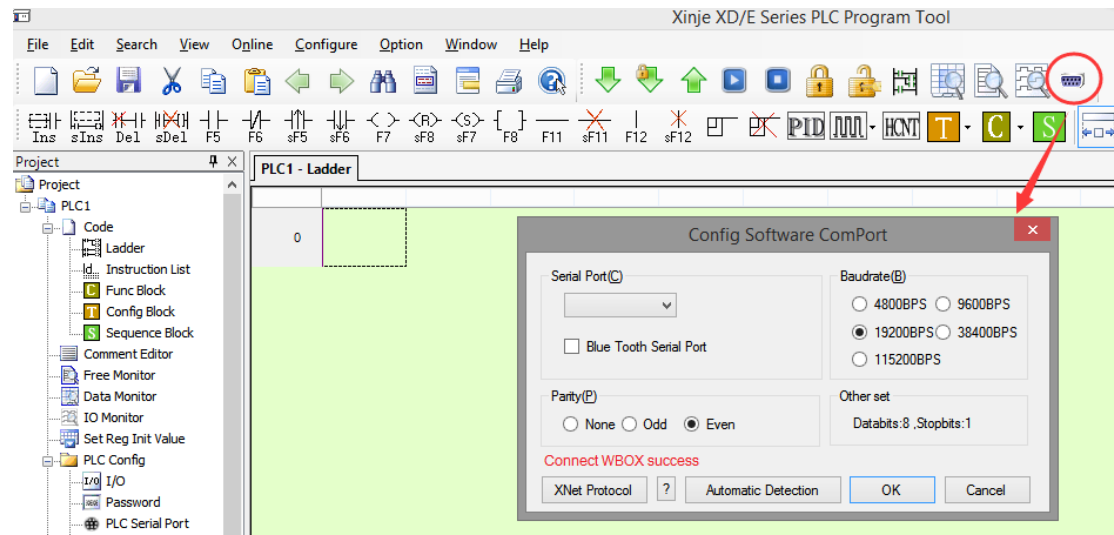


WBOX serial port setting

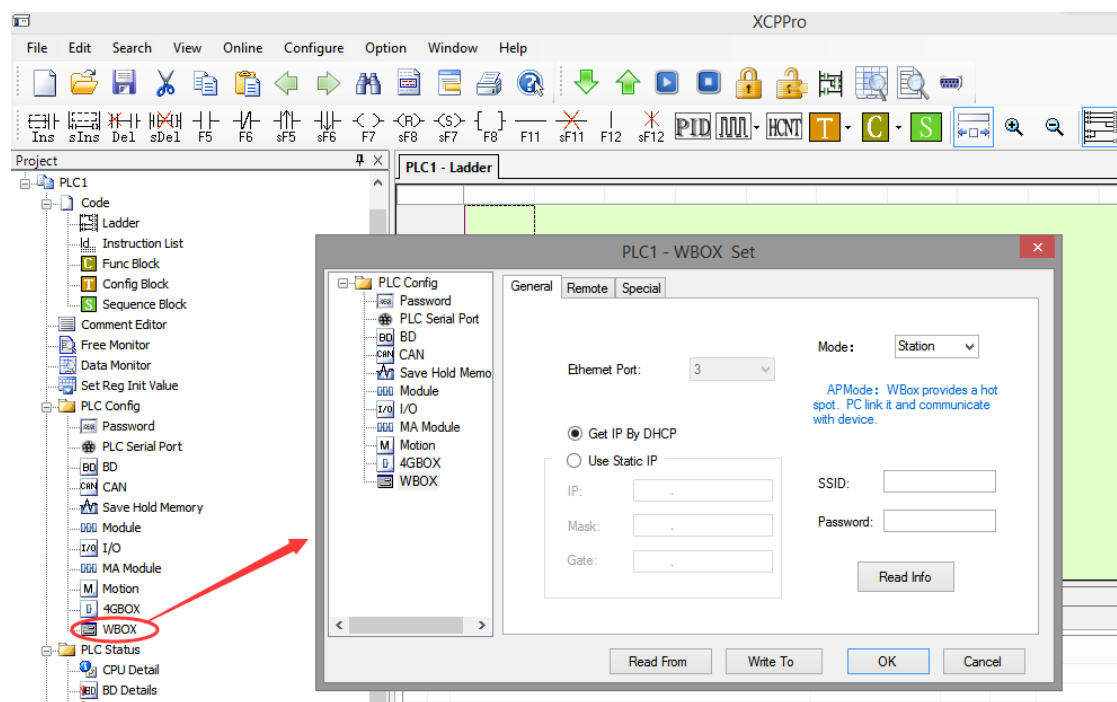


5-4. AP mode

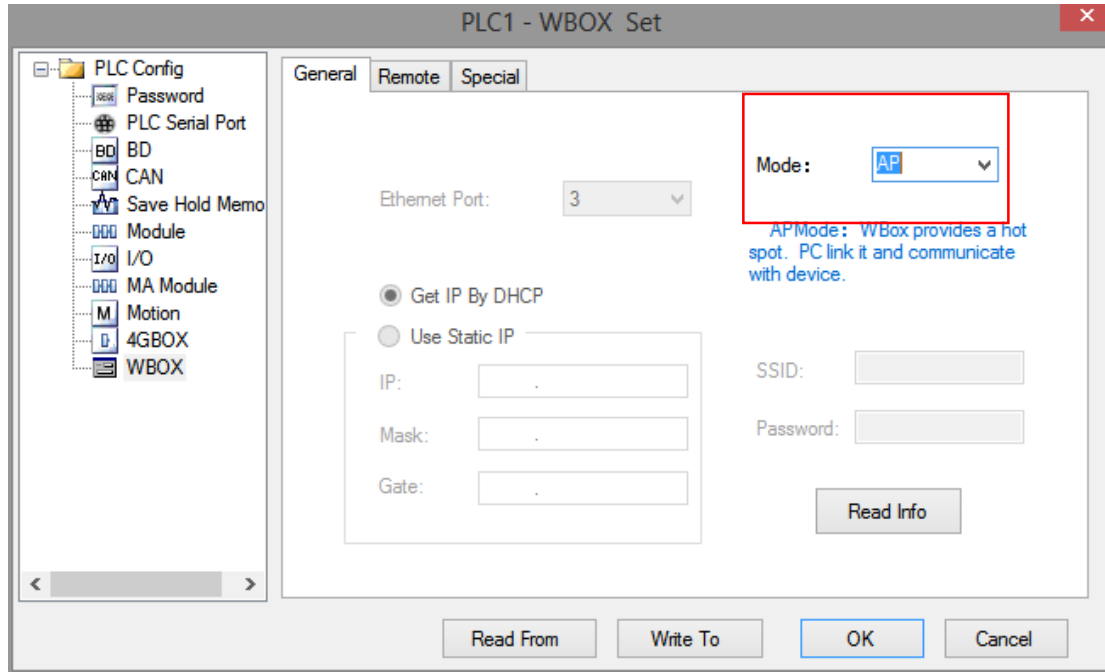
1. COM light will flash when there is communication data in Modbus mode. Please confirm WBOX connection successfully through serial port configuration.



2. Click WBOX in PLC software left side.



3. choose AP working mode in general tab, write to the module, and turn OFF switch 1, then re-power on the module.



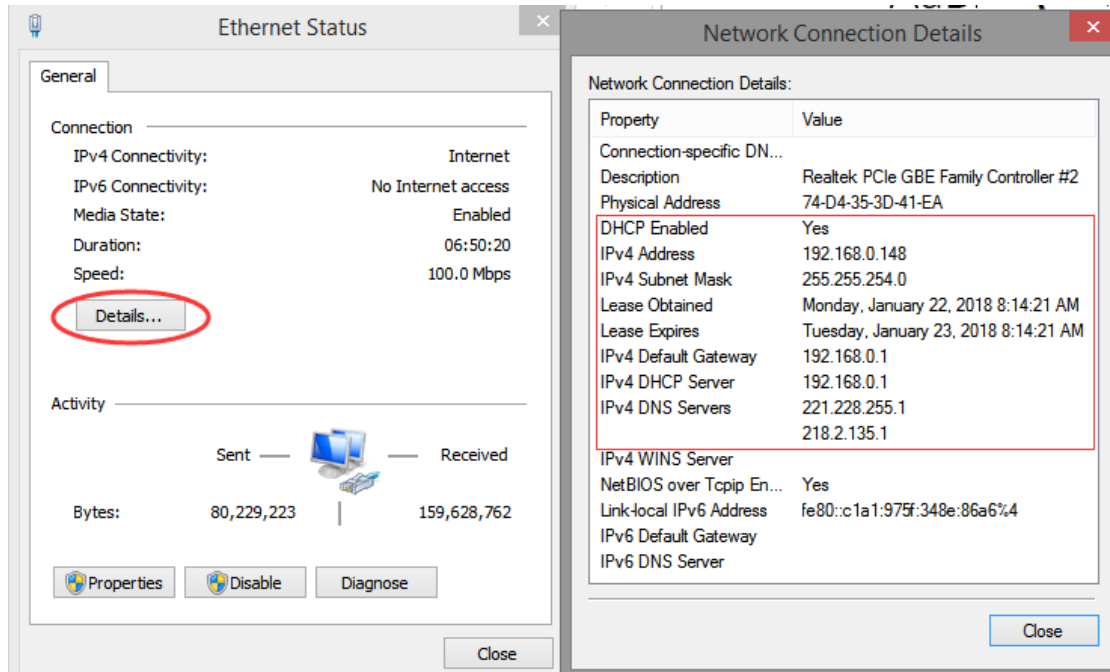
4. the module uses WLAN technology, works at 2.4GHz frequency range, hidden SSID, it needs to input SSID information by manual in hidden network.

Module type	Hidden SSID name
W-BOX	WBOX

When three indicator lights are flashing at the same time, it allows user to wireless access. Light always ON means the connection is successful or existed user connecting to the module.



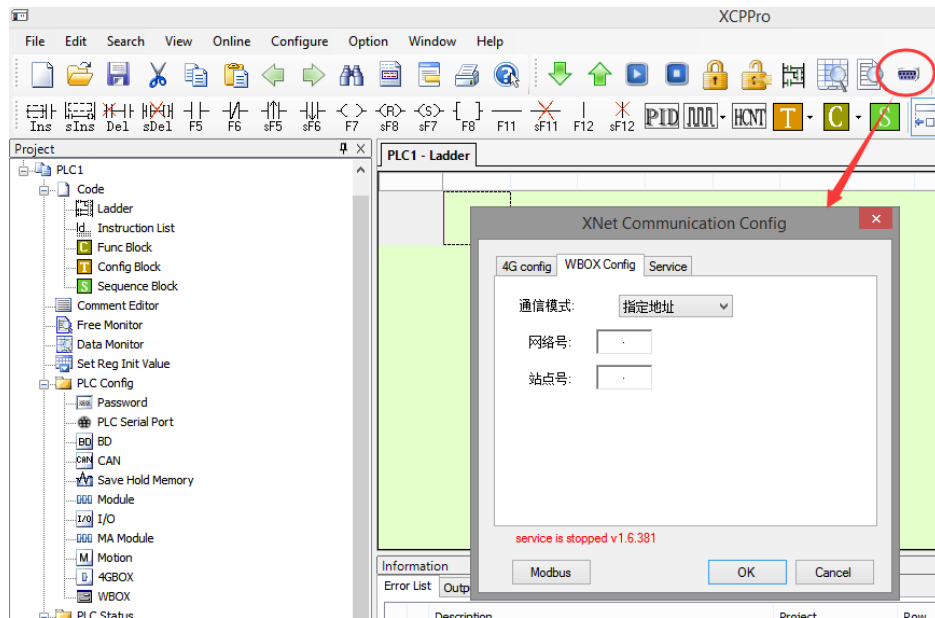
In AP mode, the module built-in DHCP server will automatic distribute access IP, gateway and subnet mask for wireless receiving terminal which supports DHCP Client technology. Some equipment cannot support it, user can refer to terminal device information.



5. the module supports specified address and LAN Ethernet port communication mode in AP mode. Please refer to application for Modbus TCP mode.

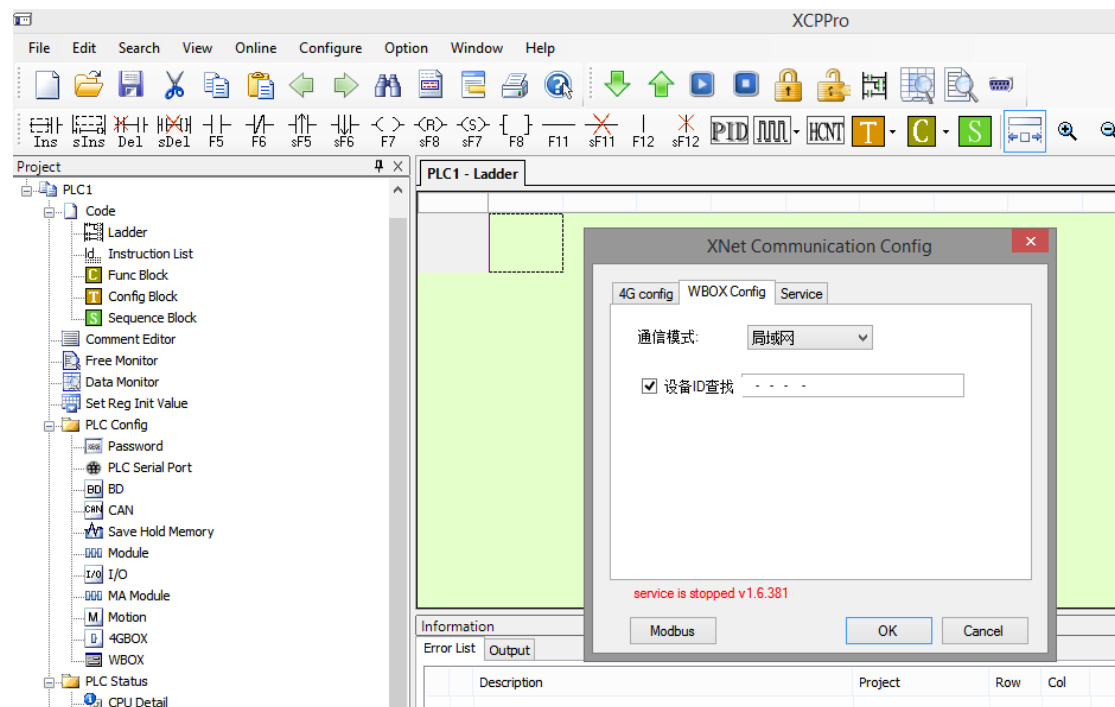
■ Specified address

Choose the specified IP WBOX which connecting PLC to monitor the PLC in LAN.



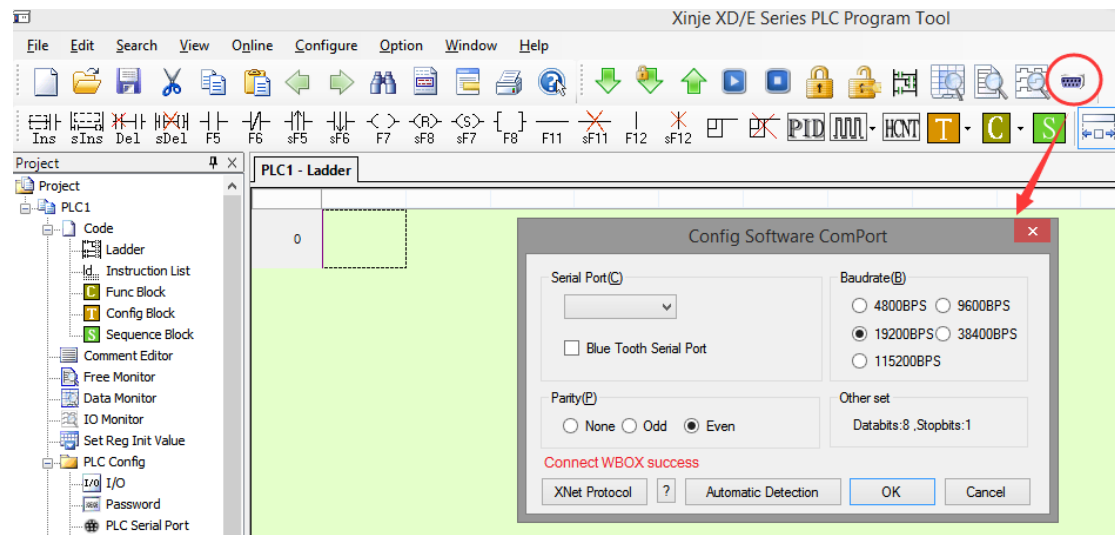
■ LAN port

Choose the specified ID WBOX which connecting PLC to monitor the PLC in LAN.

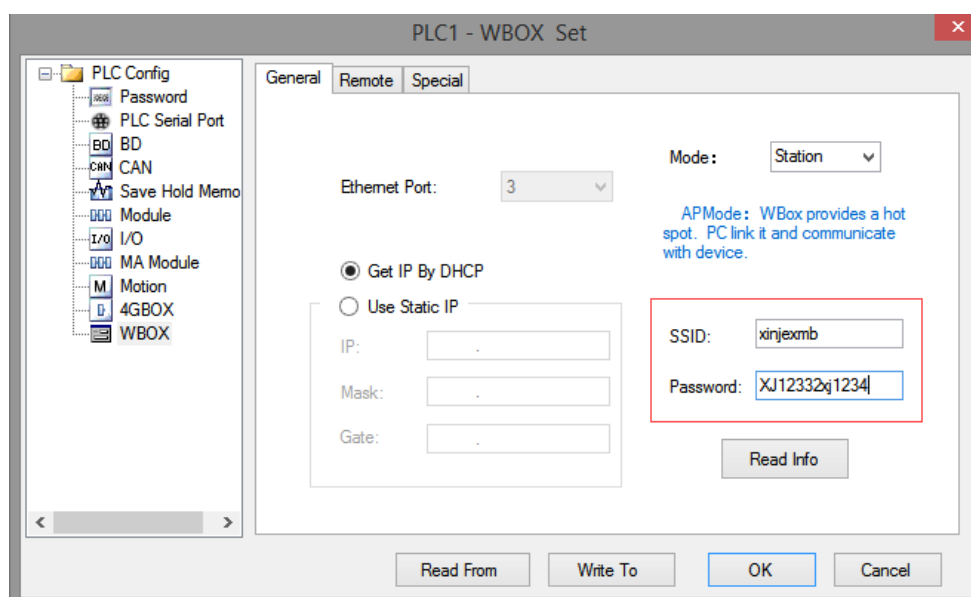


5-5. STA mode

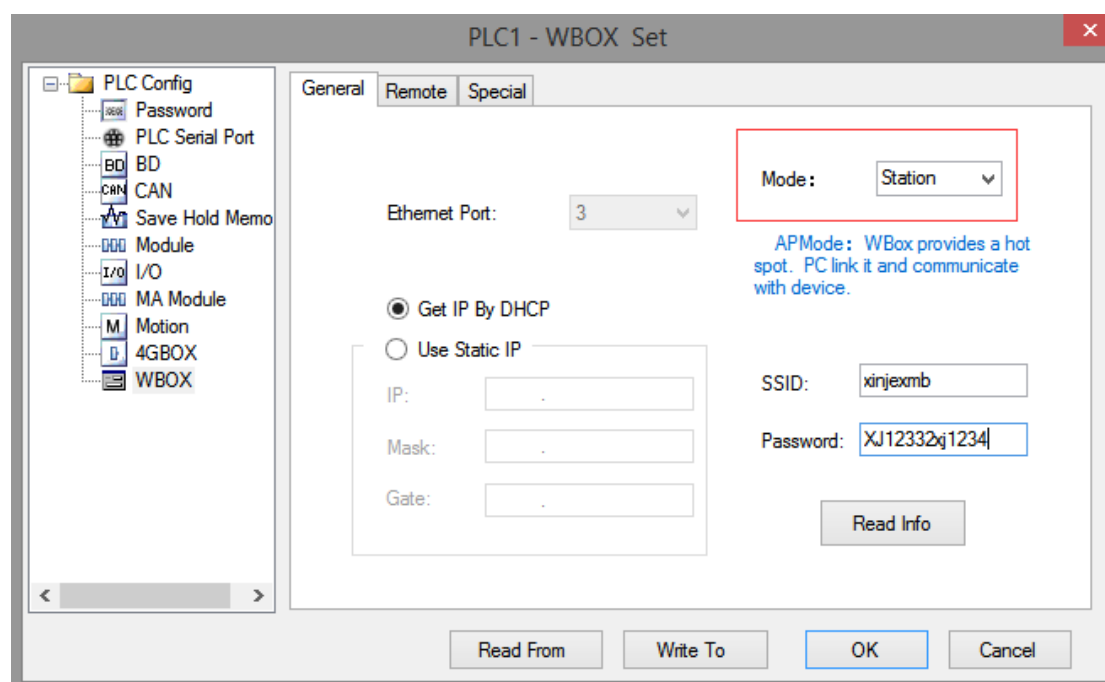
1. The COM light will flash when there is communication data in Modbus mode. Confirm the software connecting WBOX successfully through the serial port setting.



2. the module uses wireless WLAN technology, works at the frequency range of 2.4GHz, not supports 5GHz frequency range. It needs to appoint the SSID, password when module is in STA mode. Confirm the write in configuration information and do the next step as the hint.



Choose station mode in general tab, the default setting is station mode, and run in STA mode.



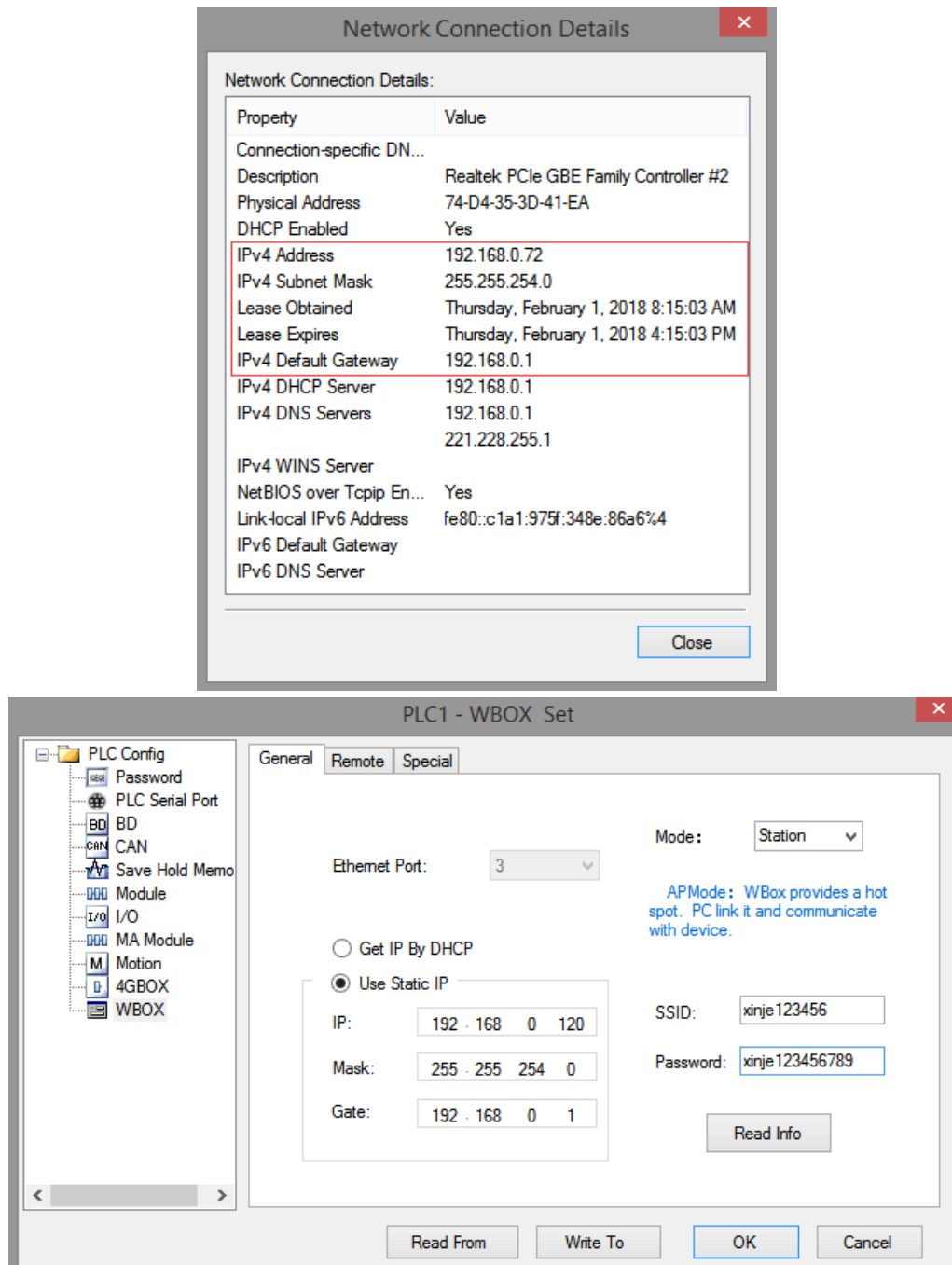
Note: the WIFI light is always ON when connect to AP in STA mode. The light will flash when the SSID or password is wrong. Please refer to performance parameter—signal intensity for details of signal intensity.

The module can automatic obtain IP from router which supported DHCP or use static IP when accessing wireless router.

Monitoring mode	Communication protocol	IP obtain method
Online debug	XNET	Automatic obtain
Scada monitoring	Modbus TCP	Set static IP
Remote monitoring	XNET	Automatic obtain

It needs to specify the device IP when using Modbus TCP protocol or XNET specified address to monitor device. In order to ensure the device IP is fixed in the network everytime, the IP is set to static IP generally.

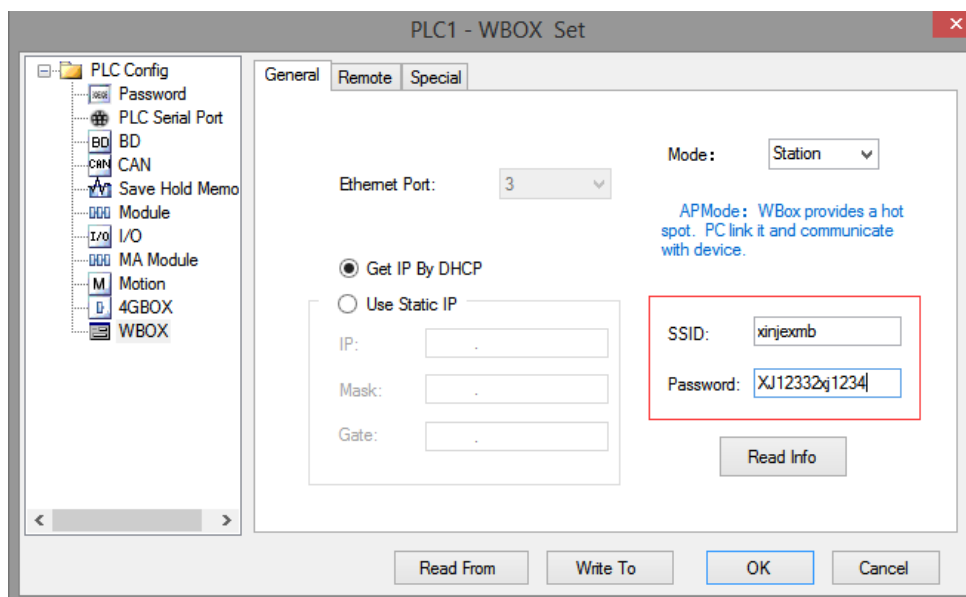
If the PC connects the network which the module is in it, it can refer to PC network setting, it only needs to change the IP address generally.



The mark bit is enabled in STA mode. The module will write the mark bit status to PLC address every 5000ms according to actual running status and user configuration.

Please refer to configuration parameter—module mark bit for the details of configuration mode and function meaning.

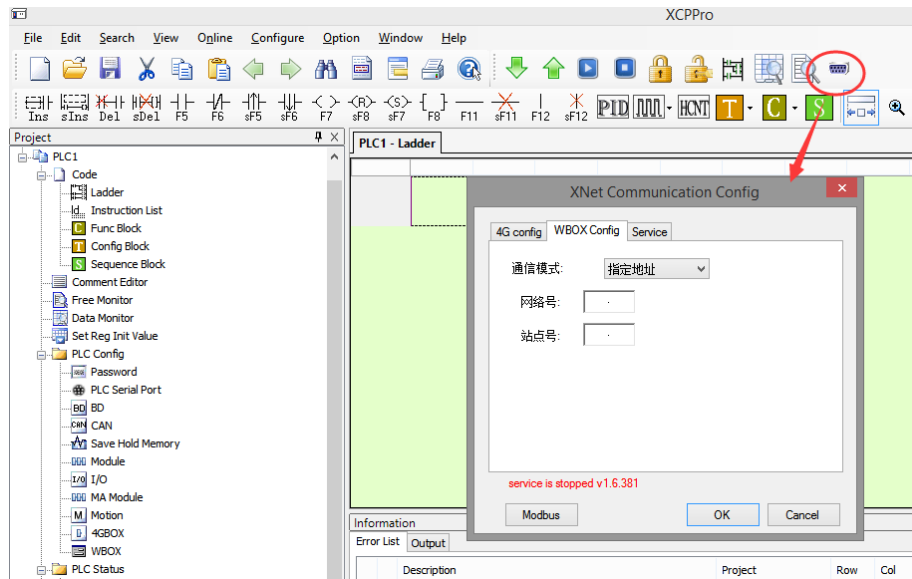
3. The PC connected to the network to form the LAN.



The module supports specified address, LAN port communication mode in STA mode. All the IP, device ID means WBOX module information when WBOX connected to XC series PLC. Please refer to application for Modbus TCP application mode.

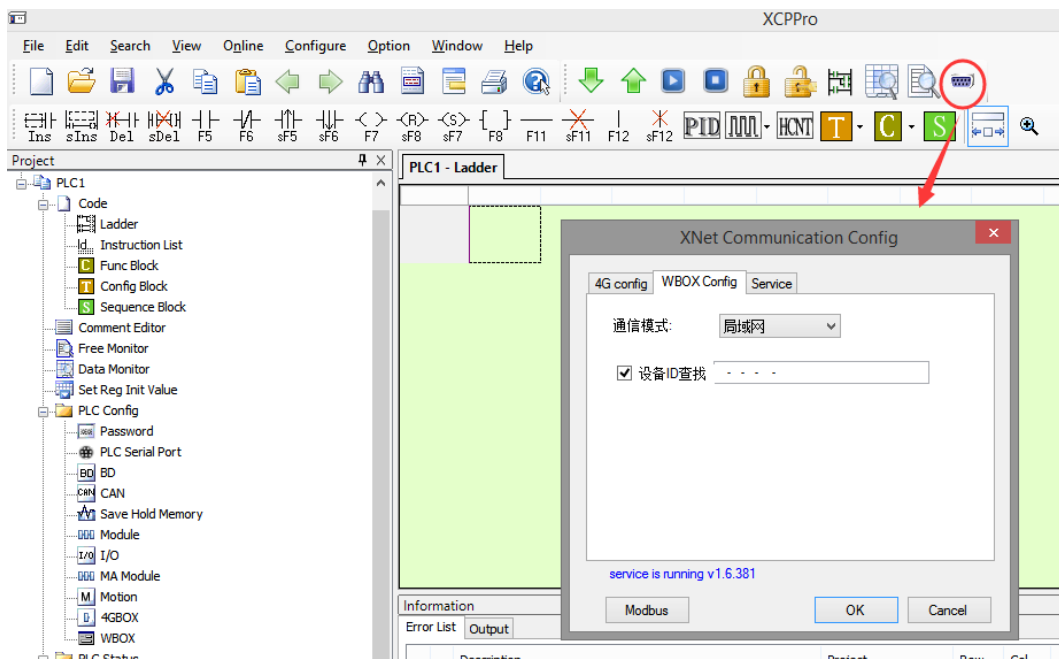
■ Specified address

To monitor the PLC in LAN by specify the WBOX IP address which connects the PLC.



■ LAN

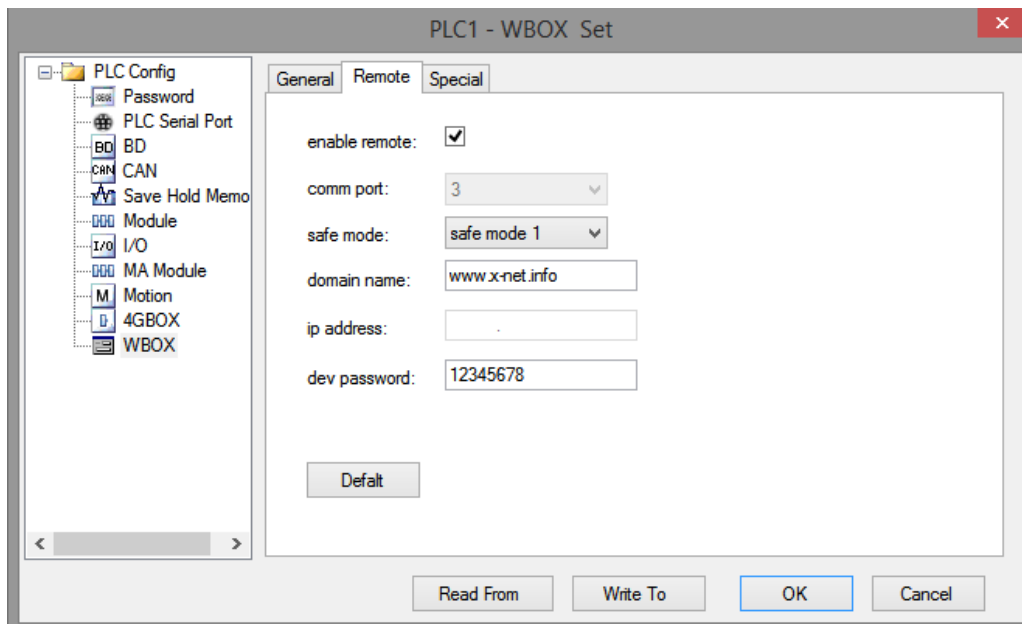
To monitor the PLC in LAN by specify the WBOX ID which connects the PLC.



5-6. WAN

■ Module configuration

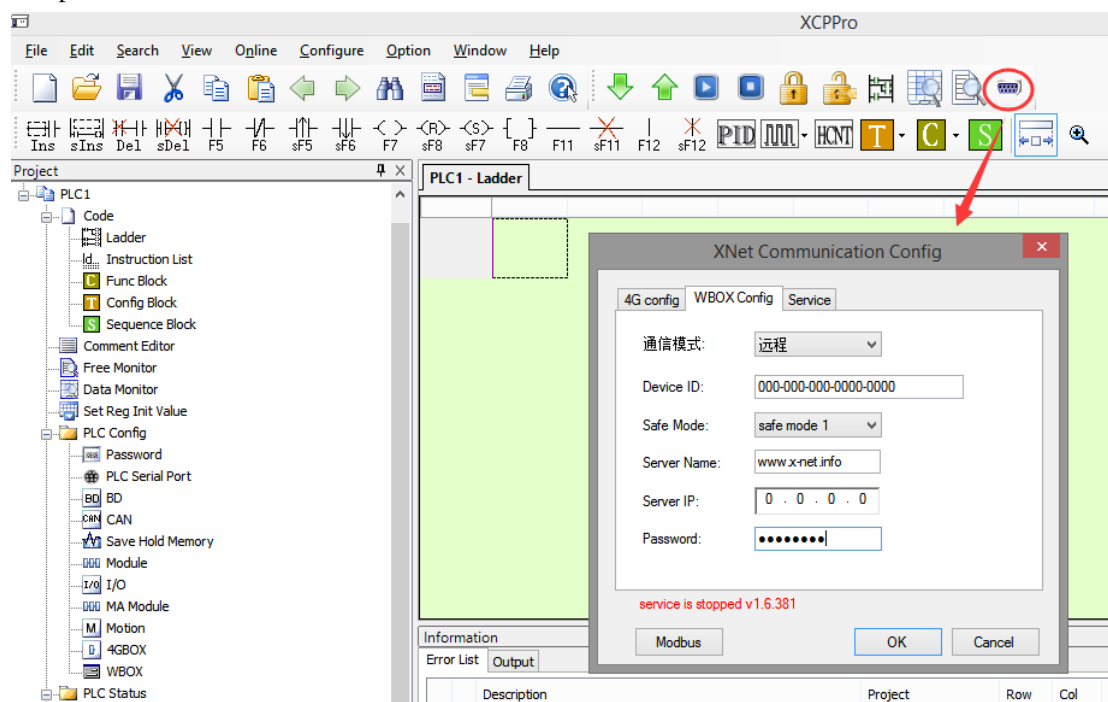
- (1) the module should work in STA mode, the configuration mode please refer to LAN—STA mode.
- (2) The accessed hotspot in STA mode supports WAN access function.
- (3) Make sure the remote function is enabled, refer to configuration parameter—remote parameters.



Note: the LINK light is always ON after module connected server successfully. If there is link flag, it will write in PLC address every 5000ms.

■ Remote monitoring

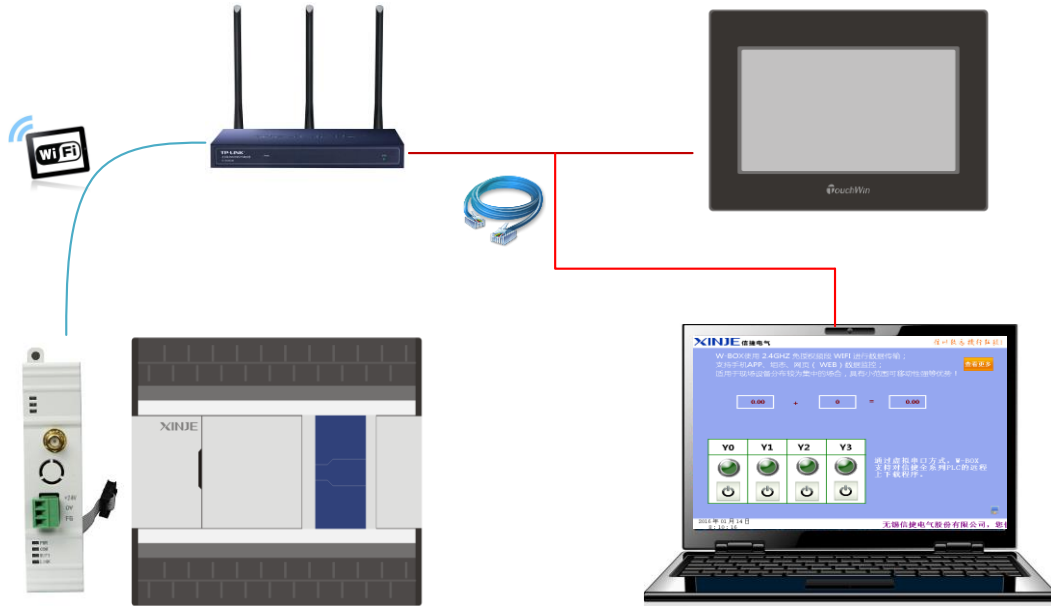
Make sure the PC connects Internet successfully, XCPPro software will verify wbox device ID and password and visit the PLC and HMI in the Internet.



6. Application

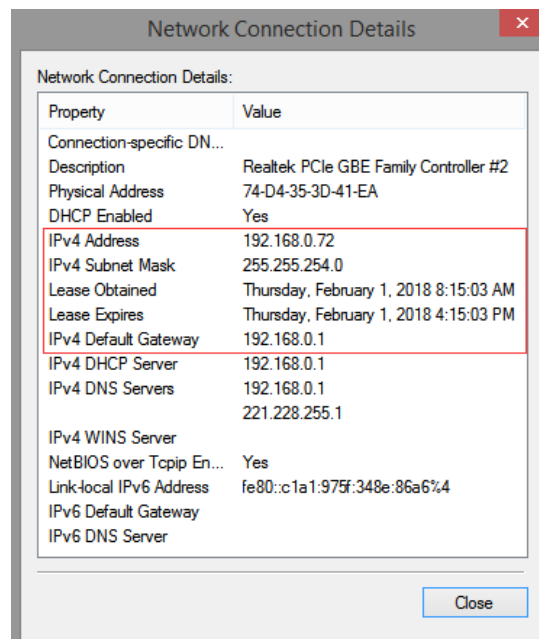
6-1. Modbus TCP monitoring

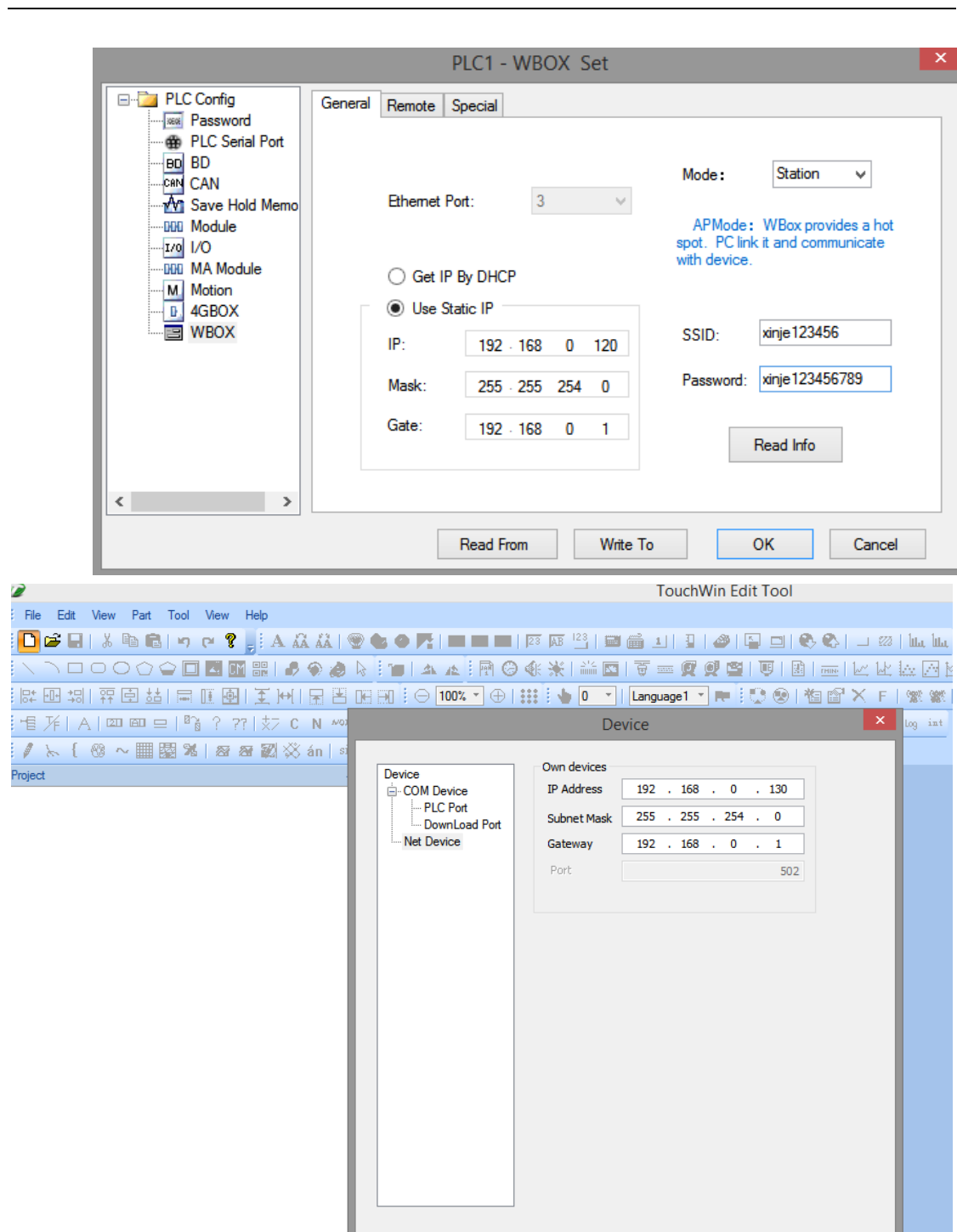
In this application example, we use XD3 series PLC as the controller, the HMI model is TG765-ET. The network structure is as below:



■ Ethernet HMI

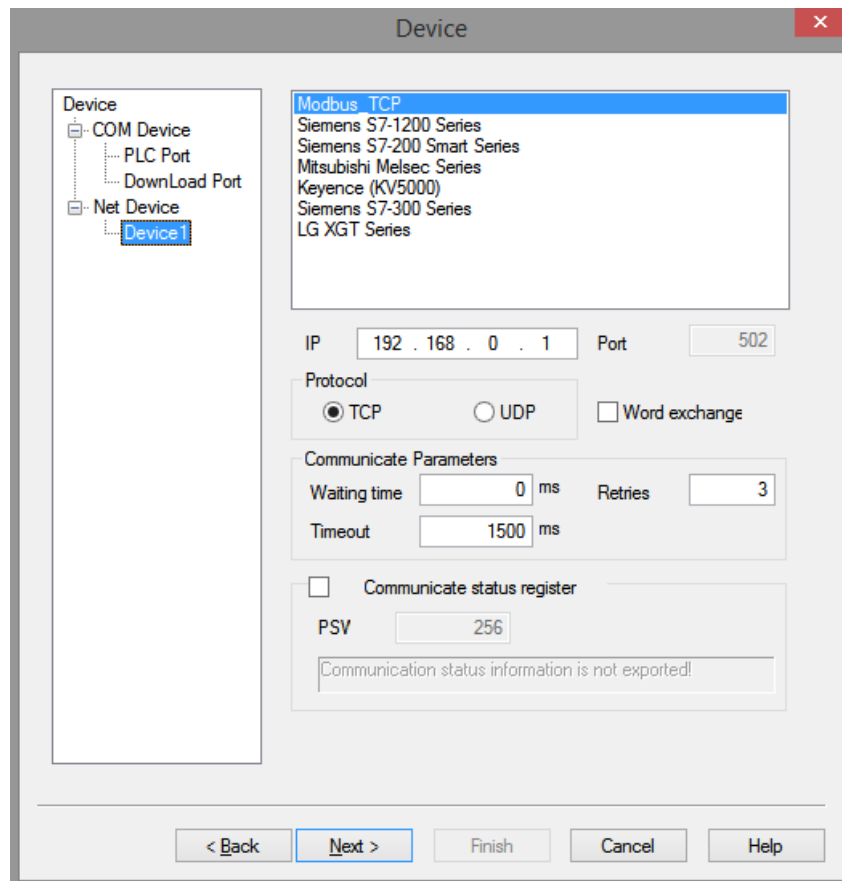
1. Build a project, configure the Ethernet communication for HMI. Please configure the module, HMI in the same network segment to improve the setting efficiency.



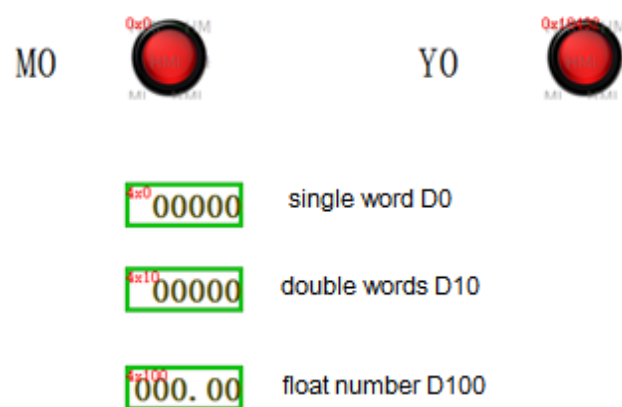


2. right click the net device, choose Modbus TCP. Please fill in the module IP, other parameters please keep as default value. Click next to finish the building.

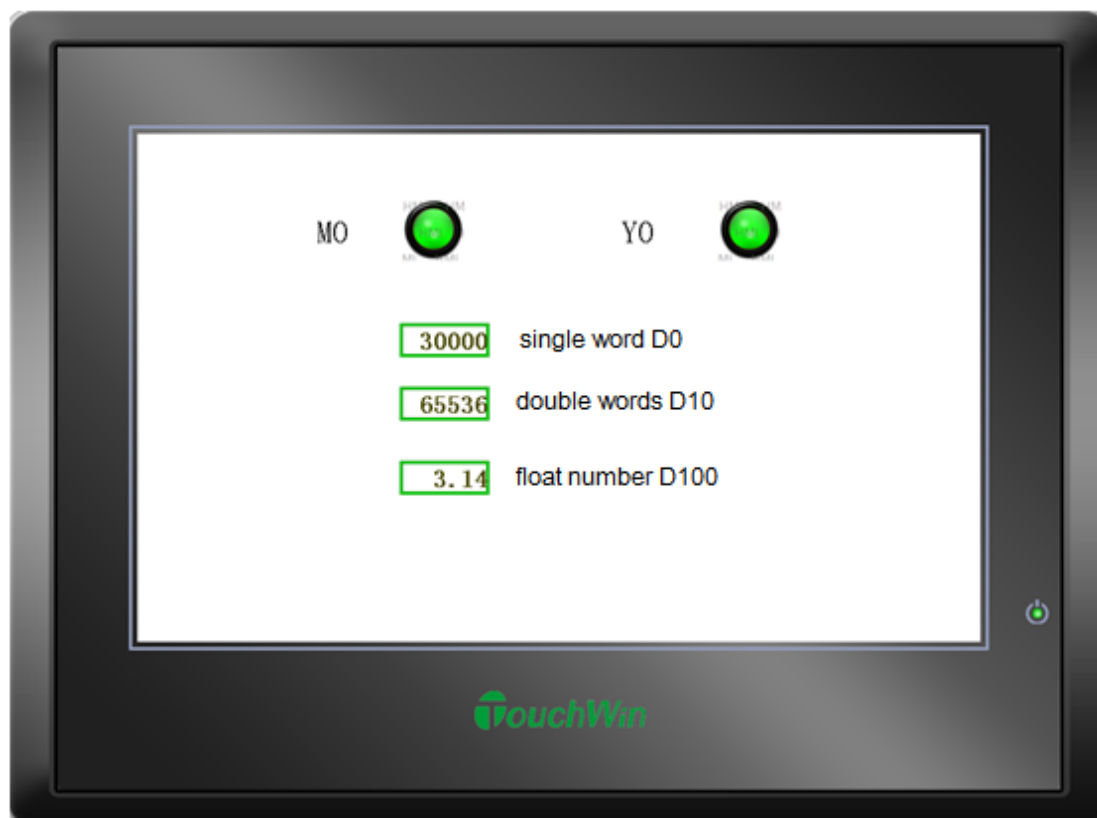
Note: each HMI can add 8 Ethernet devices.



3. this application uses lamp button and data display button as an example, it needs to set the Modbus address of Modbus TCP device. Please refer to XC/XD series PLC manual----Modbus communication.



4. The HMI can monitor the PLC through the wifi network after downloading the program in the HMI.



6-2. XINJE Cloud

Website: www.xinje.net:910

User name: xinje

Password: 85134136



WE CHAT ID

WUXI XINJE ELECTRIC CO., LTD.

4th Floor Building 7,Originality Industry
park, Liyuan Development Zone, Wuxi City,
Jiangsu Province

214072

Tel: (510) 85134136

Fax: (510) 85111290