



4GBOX

wireless data communication module

User manual

WUXI XINJE ELECTRIC CO., LTD.

Data No. MC08 20200525 3.6

Catalog

1. INTRODUCTION	4
1-1. SUMMARIZATION	4
2. PERFORMANCE AND PARAMETERS	6
2-1. STRUCTURE	6
2-2. DIMENSION	8
2-3. POWER SUPPLY	9
2-4. COMMUNICATION PORT	9
2-5. STATUS INDICATOR	10
2-6. SIGNAL STRENGTH	11
2-7. DIP SWITCH	11
2-8. INITIALIZATION TIME	12
2-9. PRODUCT FEATURES	12
3. FUNCTION SETTINGS	13
3-1. FUNCTION OVERVIEW	13
3-2. REMOTE CONFIGURATION	13
3-3. FLAG REGISTER	14
3-4. USER AUTHORITY	15
3-5. MESSAGE FUNCTION	15
3-5-1. Message monitoring (mobile phone => 4GBOX => PLC)	15
3-5-2. SMS push (PLC => 4GBOX => mobile phone)	16
3-5-3. Add phone number through HMI	17
4. USING STEPS	20
4-1. PREPARTION	20
4-2. FUNCTION COMPARISON	20
4-3. USING STEPS	21
5. XD-4GBOX-ED	22
5-1. VERSION RECORDS	22
5-2. USING STEPS	22
5-3. PARAMETER SETTING	22
5-3-1. PLC serial port setting	22
5-3-2. Module parameter configuration	24
5-3. REMOTE MONITORING	26
6. 4GBOX-M	29
6-1. VERSION RECORDS	29
6-2. USING STEPS	29
6-3. PARAMETER SETTING	29
6-3-1. PLC serial port setting	29
6-3-2. Module parameter setting	30

6-4. ONLINE MONITORING	31 -
6-4-1. Remote monitor PLC	31 -
6-4-2. Modbus RTU device	34 -
7. 4GBOX	35 -
7-1. VERSION RECORDS	35 -
7-2. USING STEPS	35 -
7-3. XC SERIES/MODBUS RTU	35 -
7-3-1. PLC serial port setting	35 -
7-3-2. Module parameter setting (H2/V2.0.0 and above)	36 -
7-3-3. Online monitor the PLC	39 -
7-4. XD SERIES	41 -
7-4-1. PLC serial port setting	41 -
7-4-2. Module parameter configuration (H2/V2.1.0 and higher)	43 -
7-4-3. Monitor online	45 -

1. Introduction

1-1. Summarization

4GBOX is a wireless data communication module based on operator network. It is widely used in automation system with XD / XG / XL or XC series PLC to realize remote wireless monitoring of automation system. The main monitoring methods include SMS, XCPpro or Xinje PLC programming tool software (referred to as XDPpro), website, app, etc. It aims to provide more convenient, reliable and easy-to-use digital and intelligent services for equipment manufacturing, production and processing, urban construction, warehousing and logistics, intelligent agriculture and other industries.

The 4GBOX module is divided into two models, 4GBOX(L) and XD-4GBOX(L)-ED. The model with L is equipped with a 3M extension antenna. Other functions are the same as the standard version. The appearance of the standard version is as follows:



- **Compatibility**
 - Nano SIM card
 - Support the network of China Mobile, China Unicom and telecom operators (all China Netcom)
 - XD series PLC provides data support for XD-4GBOX-ED and 4GBOX
 - XC series PLC provides data support for 4GBOX-M or 4GBOX (version above H2)



- **Performance features**

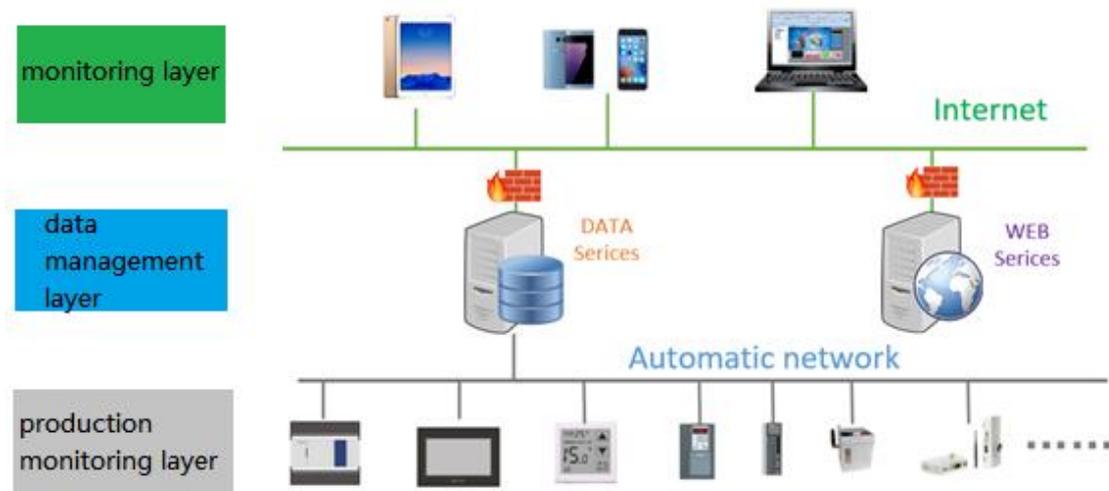
- Real time monitoring of SMS sending and receiving
- GPS global positioning function (H2 or higher version)
- It has the functions of disconnection redial and watchdog
- 4GBOX has standard industrial interface (RS232, RS485)

■ Applicability

Model	XD series		XC series		Modbus-RTU
	Firmware	Software	PLC	Software	
XD-4GBOX-ED	V3.4.5 and above	V3.5.1 and above	-	-	-
4GBOX-M	-	-	XC2/XC3/XC5/XCM/XCC	V3.3r and above	√
4GBOX(H1)	V3.4.5 and above	V3.5.1 and above	-	-	-
4GBOX(H2)	V3.4.5 and above	V3.5.1 and above	XC2/XC3/XC5/XCM/XCC	V3.3r and above	√

■ Application function

The application functions of data acquisition module in the whole network are as follows:



- Message monitoring

Monitoring the device by sending fixed format message in PLC program.

- Online programming

Remote monitoring, programming, data uploading and downloading through XCPpro, XD/EPPro software.

- Remote monitoring

Support XINJE Cloud remote monitoring platform, realize the visualization, digitization and intelligent management of the equipment.

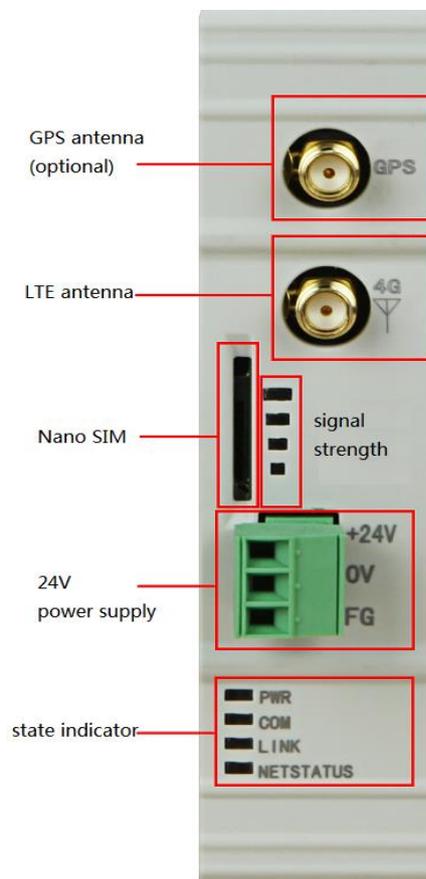
■ Application field

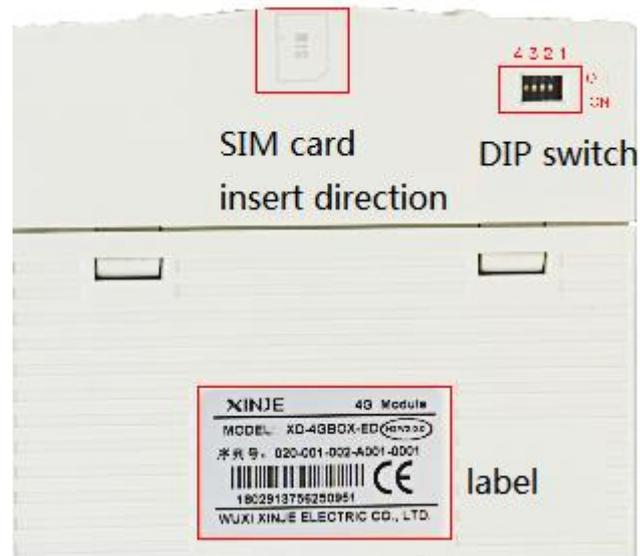
- Remote diagnosis of equipment fault
- Equipment after-sales reliable maintenance, such as air compressor maintenance
- Data authenticity guarantee of test equipment, such as lithium battery detection
- Smart urban construction, such as sewage treatment, garbage treatment, cold storage
- Wisdom agriculture, smart home, intelligent car

2. Performance and parameters

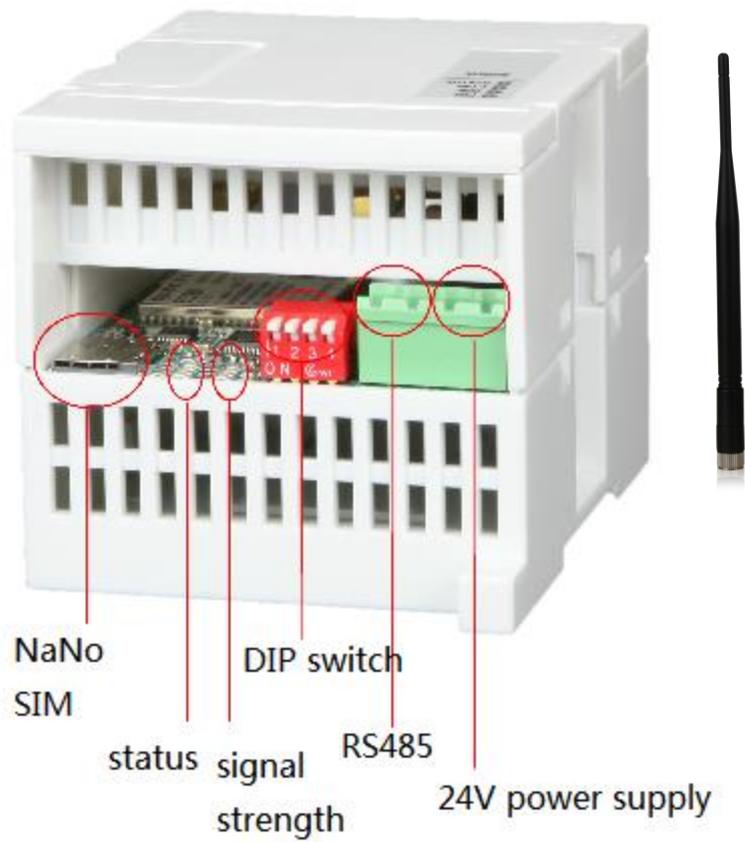
2-1. Structure

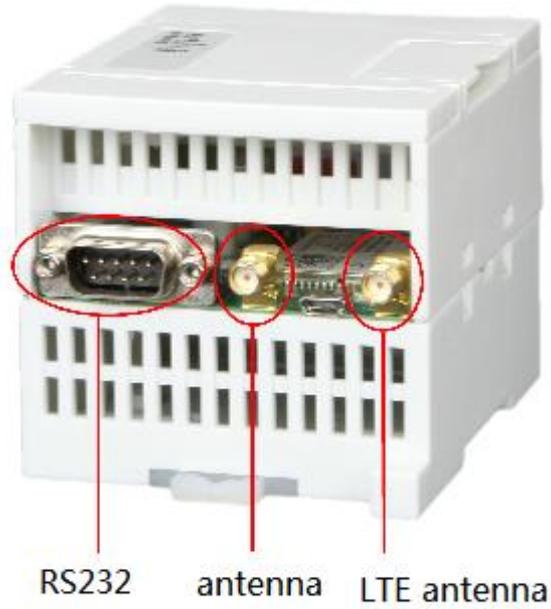
■ XD-4GBOX-ED





■ 4GBOX





■ GPS antenna (optional)

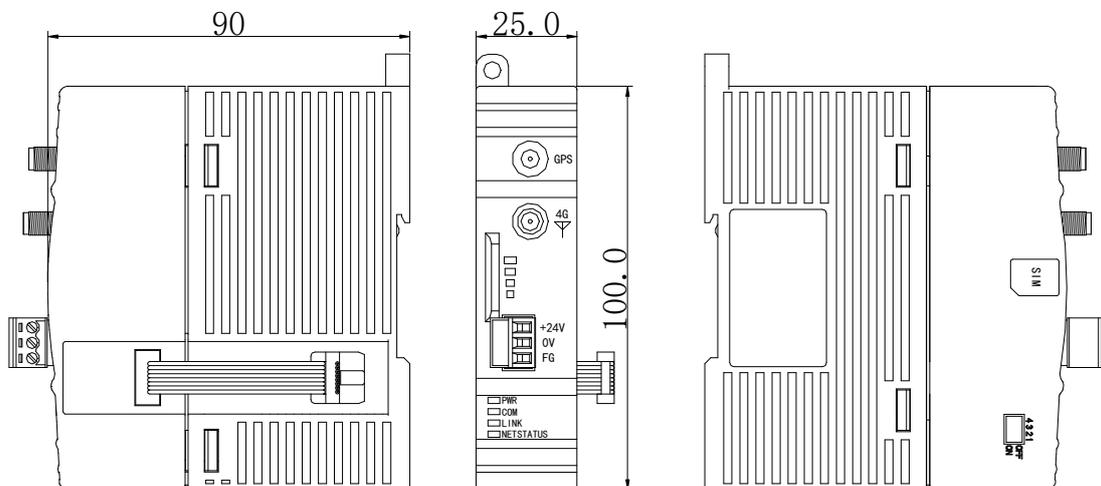


2-2. Dimension

■ XD-4GBOX-ED

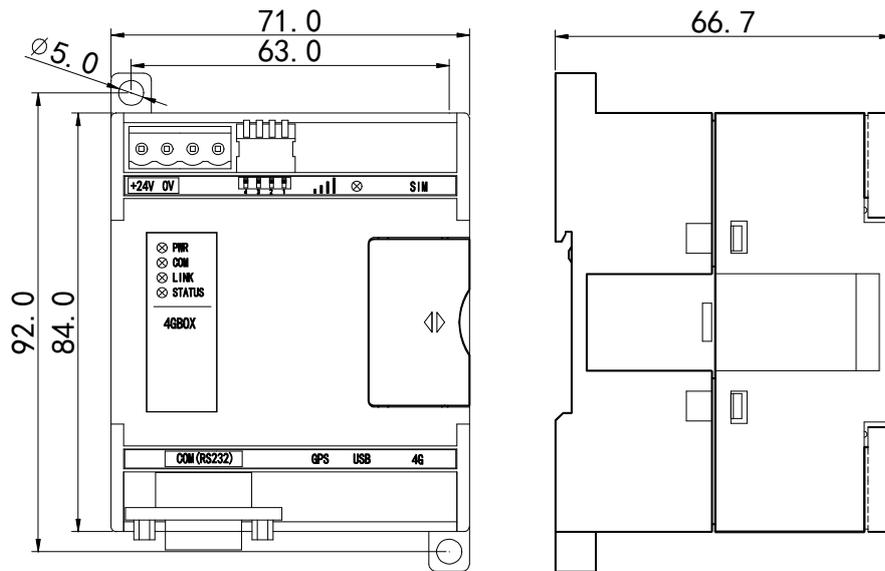
The dimension is 25.0mm×100.0mm×90.0mm (width×height×depth).

Please use M3 screw to fix or install on the DIN46277 (width is 35mm) rail.



■ 4GBOX (-M)

Unit: mm



Note:

- (1) Do not let the chips and wire cuttings drop into the module when wiring and installing.
- (2) Confirm the module and connected equipment specifications before wiring.
- (3) Make sure the connection is strong, the loss of connection will result in incorrect data, short circuit, etc. installation, wiring and other operations must be performed after the power supply is cut off.

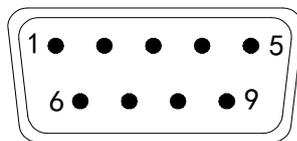
2-3. Power supply

The module power supply is DC24V, the voltage range is DC 21.6V~26.4V.

2-4. Communication port

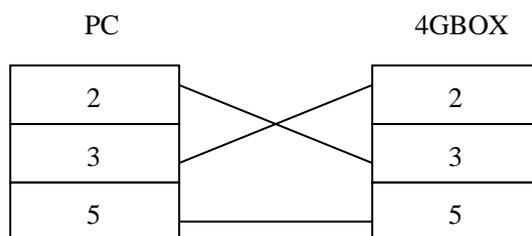
1. RS232 port

RS232 is DB 9-pin port, the diagram is shown as below:



2	RXD
3	TXD
5	GND

The wiring diagram between PC and 4GBOX:



The wiring diagram between XC series PLC and 4GBOX:



2. RS485 port

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

4GBOX has one RS485 port (terminal A, B). A is RS485+, B is RS485-.

3. Serial port

Communication protocol	Network module	Suitable model	Default serial port parameters
Modbus RTU	4GBOX-M	XC2/XC3/XC5/XCM/XCC	Modbus-19200-8-1-E
	4GBOX (H2 and above)	Modbus RTU device	
X-NET	4GBOX (V2.0 and below)	-	XNET-PPFD-RS232 -115200 Any Net ID and station no.
	4GBOX (V2.1 and above)	XD/XE/XL/XG	XNET-OMMS-RS232-57600 Net ID: 65154 station no.1
	XD-4GBOX-ED	XD/XE	XNET-PPFD-TTL-1000000 Any Net ID and station no.

2-5. Status indicator

PWR
COM
LINK
NETSTATUS

The indicator will light according to the function.

Indicator light	Function
PWR	Module power supply status, it lights when the module power on.
COM	Module and PLC serial port connection success flag. When there is communication data through the port, COM will flash.
LINK	4GBOX logs on target server successfully
NETSTATUS	Device access Internet status

2-6. Signal strength

L3
L2
L1
L0

The module running state, 4GBOX visiting server succeeded. L0~L3 show the signal strength of network. In error state, L0~L3 will show the error type, please see below table:

L0	L1	L2	L3	Explanation
-	-	-	flashing	No SIM card or SIM card insert error
-	-	flashing	flashing	4GBOX cannot open the network (SIM card arrears or not open the data traffic service)
flashing	flashing	flashing	flashing	4GBOX not configure server information
L0-L1 and L2-L3 flash alternately				4GBOX serial port parameters did not match the DIP switch setting

2-7. DIP switch

■ 4GBOX-M

S1	S2	S3	S4	Function
OFF	OFF	-	-	Running mode
ON	OFF	-	-	back to default serial port parameters
-	ON	-	-	Configuration mode (power on again)
Other				Undefined

■ XD-4GBOX-ED

S1	S2	S3	S4	Function
ON	-	-	-	Configuration mode
OFF	-	-	-	Running mode
-	-	-	ON	Factory mode (V2.0.0 and up)
-	ON	-	-	Factory mode (V1.1.4 and up)
Other				Undefined

■ 4GBOX (V1.1.4 and below)

S1	S2	S3	S4	Function
OFF	-	-	-	Running mode
ON	-	-	-	Configuration mode (please power on)
-	-	-	OFF	Factory mode
Other				Undefined

■ 4GBOX (V2.0.0 and above)

S1	S2	S3	S4	Function
OFF	-	-	-	Running mode
ON	-	-	-	Configuration mode (power on again)

-	OFF	-	-	Modbus RTU mode (include XC series)
-	ON	-	-	X-NET mode (V2.0.0 and above)
-	-	OFF	-	Enable user serial port parameters (V2.1.0 and above)
-	-	ON	-	Default serial port parameters (V2.1.0 and above)
Other				Undefined

Note:

(1) The 4GBOX (L) version above v2.0.0 supports Modbus RTU and X-NET mode. Version 1.1.4 and below only supports X-NET mode.

(2) For 4GBOX (L) of v2.1.0 and above, the DIP switch provides the default serial port parameters corresponding to the working mode.

(3) 4GBOX (L) of v2.1.0 and above supports connecting XD series PLC through RS232 / RS485.

2-8. Initialization time

The module initialization time is depend on the telecom operator. The table shows the time of Chinese telecom operators:

Telecom operator	Initialization time (s)
China mobile	21.31
China unicom	23.24
China telecom	32.45

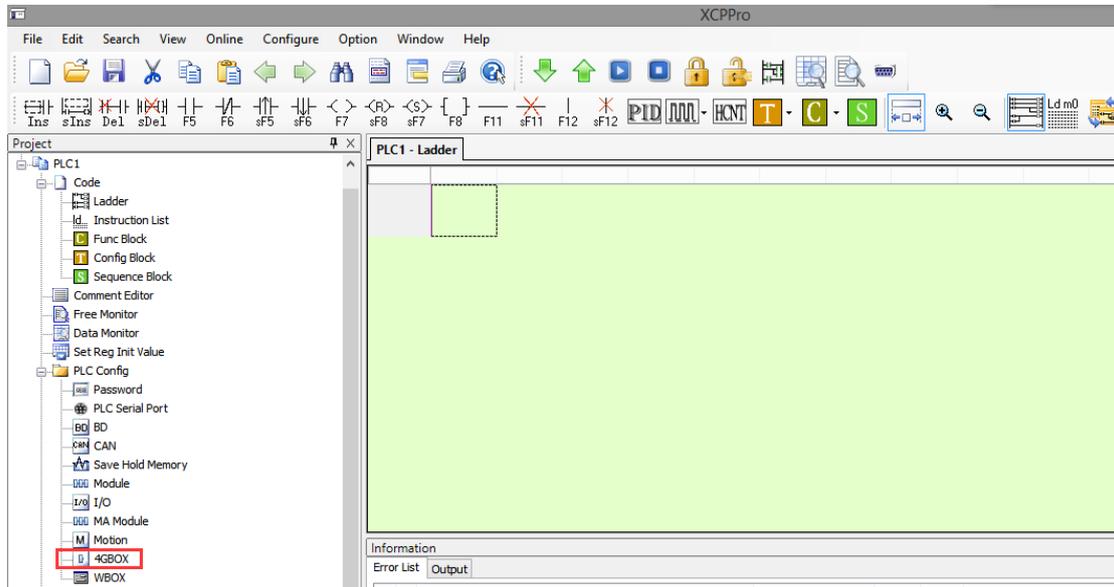
2-9. Product features

Parameters	Description
Working frequency	GSM/GPRS: 900, 1800MHz EDGE: 900, 1800MHz UMTS: CDMA2000(BC0), WCDMA(B1, B8), TD-SCDMA(1.9G, 2G) LTE: FDD(B1, B3, B8) TDD(B38, B39, B40, B41) GNSS: GPS, GLONASS
Max transmission speed	100 Mbps
Max transmitting power	GSM/GPRS: 2W EDGE: 0.5W UMTS: 0.25W LTE: 0.25W
Working temperature	-10°C~50°C
Average standby current	<5mA

3. Function settings

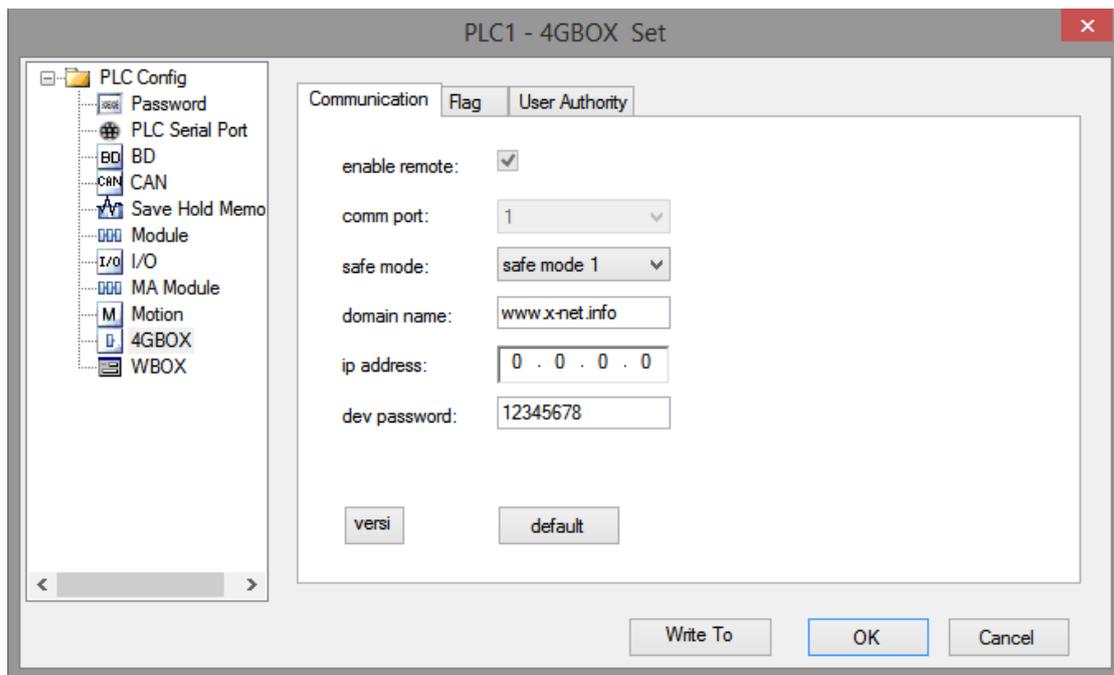
3-1. Function overview

The configuration management interface can be opened by selecting the "4GBOX" option in the left engineering column of "Xinje PLC programming tool software". (For the physical connection mode, please refer to chapter 4)



3-2. Remote configuration

After 4GBOX enters the function configuration interface, remote communication parameters can be configured.



- Enable remote

Enable the remote communication for 4GBOX, make sure to choose this item.

- Comm port

4GBOX uses port 1 which cannot be changed.

- Safe mode

4GBOX can support safe mode 1, please choose it.

- Domain name

Please set it to default domain name www.x-net.info.

- IP address

If the domain name is default settings, it no needs to fill in the IP. If not fill in the domain name, please fill in XINJE server IP address 61.160.67.86.

- Device password

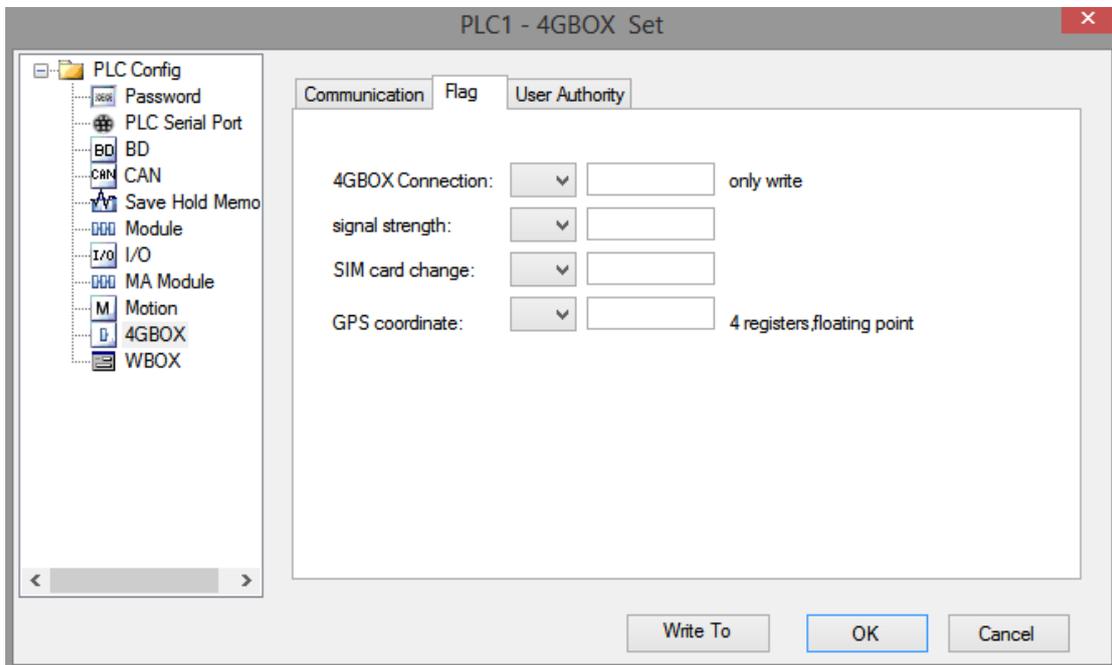
Set 4GBOX remote login password. If setting password, it needs to input password for remote login.

- Version

Click version button to get 4GBOX version and device ID.

3-3. Flag register

The flag register can be used to control remote device such as device shutdown, signal detection.



- 4GBOX connection

Set on this flag every 5 second when 4GBOX communicates with PLC serial port normally after module initialization.

- Signal strength

Write in signal strength in PLC appointed address every 5s after module initialization. The signal range is 0 to 31, 31 is the strongest.

- SIM card change

Write in the status in PLC appointed address every 5s after module initialization. The status is off if using bind SIM card, otherwise, the status is ON.

- GPS positioning (H2 and above version)

Write in the GPS position in PLC appointed address every 5s after module initialization. The position information occupied 4 registers (two floating numbers), which are latitude and longitude.

Note:

- (1) Serial port connection and bind SIM card bit address type:

XD series PLC: M, HM

XC series PLC: M

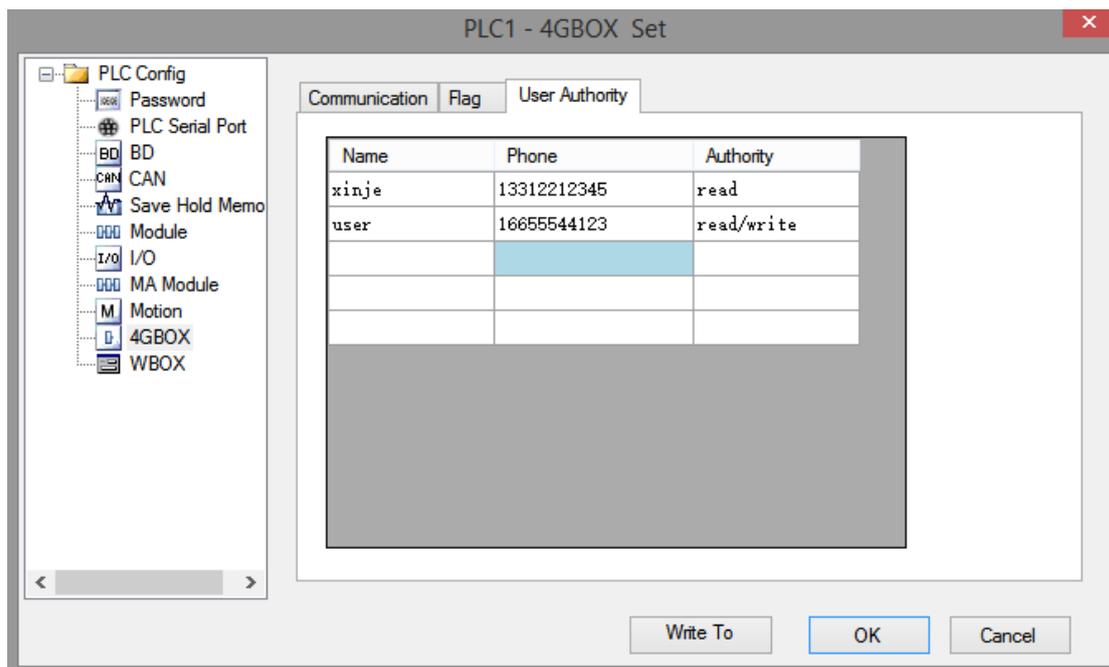
- (2) Signal strength, GPS coordinate register address type:

XD series PLC: D, HD

XC series PLC: D

3-4. User authority

User authority is user white list function. If not fill in the phone number, the 4GBOX will execute message control when message monitoring without distinguishing phone number. after using this function, the 4GBOX will distinguish the phone number and authority and control the device.



3-5. Message function

3-5-1. Message monitoring (mobile phone => 4GBOX => PLC)

User can edit the message as fixed format to monitor the equipment. 4GBOX needs to work in running mode for this function.

Read soft component (example)

R M0 Return SMS M0=ON
 R D5 Return SMS D5=K1234
 R DD0 Return SMS DD0=K654321
 R D0 S20 Return SMS Xinje Made (S is the decimal length of the expected read string)

Write soft component

W M0 1 //M0 ON
 W Y23 0 //Y23 OFF
 W Y35 1 //Y35 ON
 W D5 K1234 // D5=1234(decimal format)
 W DD0 H654321 // DD0(double word)=654321(hex format), DD0 occupies D0 and D1
 W D0 "Xinje Made" // write the string in the address starting from D0 (occupy D0.....Dn, total n characters)

Error code:

If the message format, user authority, soft component type is error, the returning message will be error code. If there is no error, the returning message is OK.

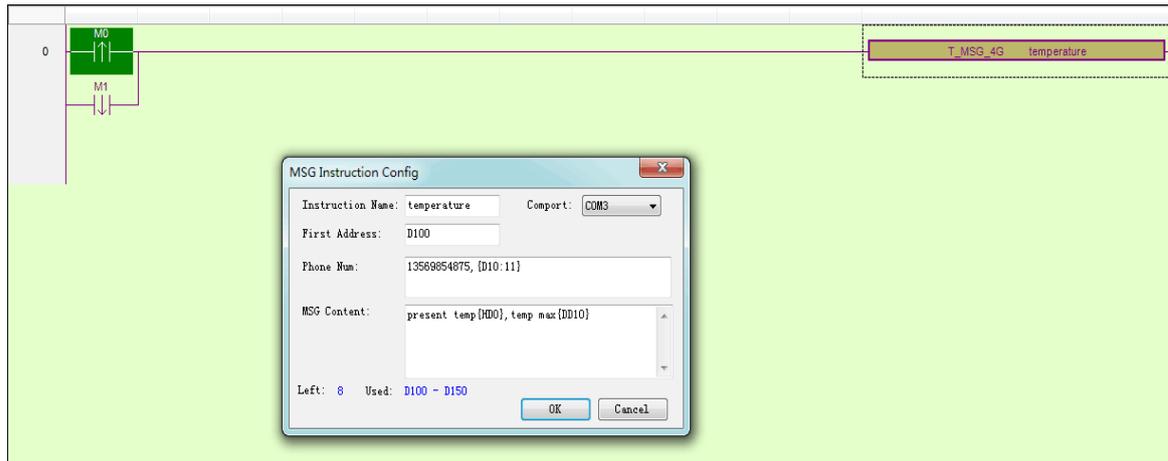
Error code	Meaning
Error1	the phone number which sending the message is not in the white list
Error2	The short message format is not correct (for example, the number and position of spaces are not correct)
Error3	The software component in the SMS does not exist, and the number of the software component is incorrect (e.g. W Y8 1)
Error4	the phone number only has read authority, but it wanted to write in
Error5	4GBOX and PLC read write failure
Error6	4GBOX and PLC read write failure
Error7	4GBOX and PLC read write failure
Error8	4GBOX and PLC read write failure

Note:

- (1) all the letters must be capitalized.
- (2) The command, register, operands are separated by a space, the whole message should not exceed 99 English characters.
- (3) To send the character message, quotation mark must be English half angle “
- (4) Message function only support China mobile, China unicom.

3-5-2. SMS push (PLC => 4GBOX => mobile phone)

SMS push refers to the function of real-time information notification to target users under preset conditions. The example program reference is as follows: in the instruction configuration, the telephone number is added according to the specified format, as follows: "15151313111" represents the first mobile phone number, {d30:11} represents the second mobile phone number, and is stored in the low bit of 11 single word registers starting from D30.



- Please use edge signal to trigger short message sending in the program;
- In the SMS configuration wizard, 4GBOX is connected to XC series PLC and selected according to the serial port currently connected to the cable, and the configuration is COM1;
- The first address can be filled in the D register, occupied register can not be used again in the program;
- The phone number part supports multiple number input and user-defined mobile phone number on the touch screen. The use mode is shown in the figure above. Multiple numbers are separated by ",";

SMS content supports Chinese, English and register information reading methods, such as "current temperature is {D0}", when D0 is 30, the actual content of SMS received by users is "current temperature is 30". Register parsing function supports single and double word parsing, such as D (single word), DD (double word) forms.

Note: when sending SMS to XC series PLC, do not log in to Xinje cloud or log in to 4GBOX remotely for operation, otherwise it will conflict with SMS function. It is recommended to use the alarm push of Xinje cloud platform for remote monitoring.

3-5-3. Add phone number through HMI

A character input button with length of 6 is added to the HMI, which can be input according to the normal mobile phone number "157xxxxxxx".

Alarm information receiver



ASC Input

Object Display Font Color Position

Station

Device: PLC Port

VirStaNO: 0 Station: 1

Object

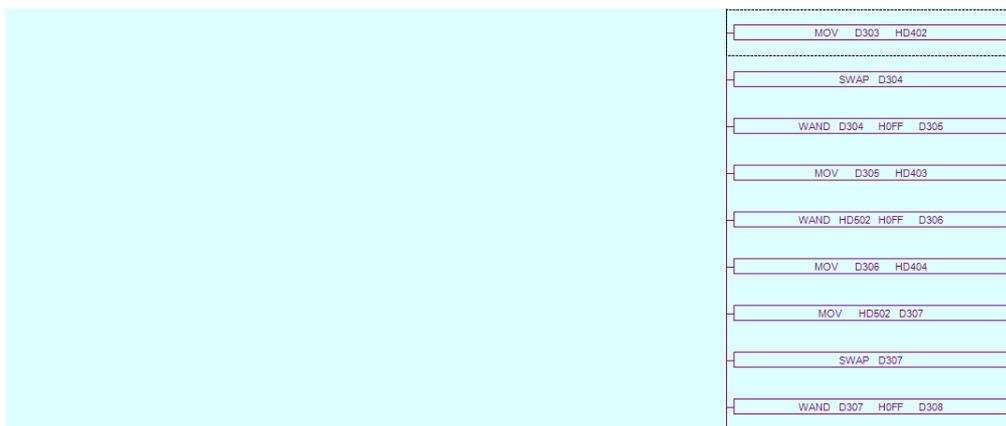
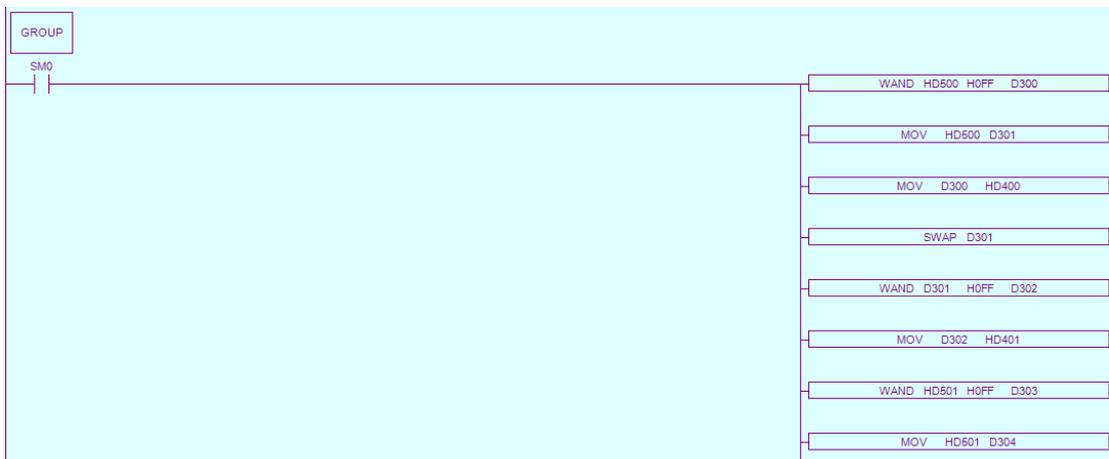
ObjType: HD 500

indirect

Value

Number of: 6

PLC program example is as follows, the mobile phone number decoding.



The screenshot displays two memory tables side-by-side. The top table contains the following instructions:

MOV	D308	HD405
WAND	HD503	H0FF D309
指令: WAND	HD503	H0FF D309
MOV	D309	HD406
MOV	HD503	D310
SWAP	D310	
WAND	D310	H0FF D311
MOV	D311	HD407
WAND	HD504	H0FF D312

The bottom table contains the following instructions:

MOV	D312	HD408
MOV	HD504	D313
SWAP	D313	
WAND	D313	H0FF D314
MOV	D314	HD409
MOV	HD505	HD410

At the bottom left, there is a 'GROUPE' label and 'M1000' with an upward arrow. At the bottom right, the status bar shows 'T_MSG_4G 案例'.

MSG Instruction Config

Instruction Name: Comport:

First Address:

Phone Num:

MSG Content:

Left: 132 Used: D1000 - D1017

4. Using steps

4-1. Preparation

Please make sure that the following items are complete before using the product:

- (1) China Mobile / Unicom / Telecom SIM card with GPRS function, SMS function optional, size of Nano;
- (2) XC2 / XC3 / XC5 / XCM / XCC series PLC, XD / XE / XL / XG series PLC (v3.4.5 and above);
- (3) Xinje PLC programming software (XC, XD / XE / XL / XG Series);
- (4) Xinjeconfig tool v1.6.375 and above;
- (5) Xinje USB programming cable, XVP / DVP programming cable, OP communication cable, USB to RS232 convertor;
- (6) The computer can access the Internet.

4-2. Function comparison

Model	Physical connection			Modbus RTU		X-NET	
	RS232	RS485	TTL	Modbus	XC series	XNET-PPFD	XNET-HDN
4GBOX-M	√	√	-	√	-	-	-
	√	√	-	-	√	-	-
XD-4GBOX-ED	-	-	√	-	-	√	-
4GBOX ¹	√	-	-	-	-	√	-
4GBOX ²	√	√	-	√	-	-	-
	√	√	-	-	√	-	-
	√	-	-	-	-	√	-
4GBOX ³	√	√	-	√	-	-	-
	√	√	-	-	√	-	-
	√	√	-	-	-	-	√
Model	Configuration mode		Monitoring mode				
	XCPPro	XDPPro	XCPPro	XDPPro	Xinje cloud		
4GBOX-M	√	-	√	-	√		
	√	-	-	-	√		
XD-4GBOX-ED	-	√	-	√	√		
4GBOX ¹	-	√	-	√	√		
4GBOX ²	√	-	-	-	√		
	√	-	√	-	√		
	-	√	-	√	√		
4GBOX ³	√	-	-	-	√		
	√	-	√	-	√		
	-	-	-	√	√		

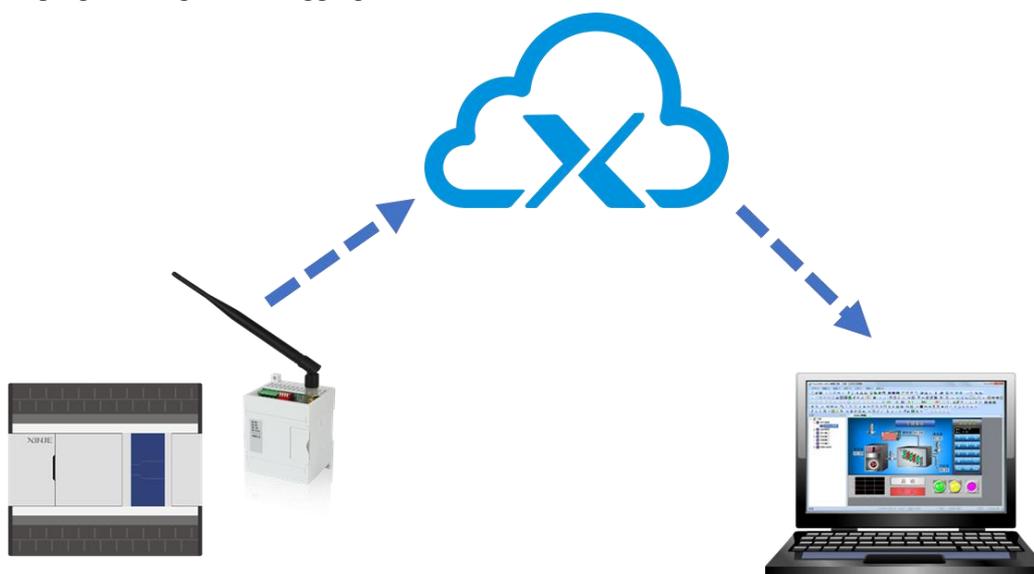
Note:

- (1) 4GBOX¹: 4G-BOX (L) V1.1.4 and below.
- (2) 4GBOX²: 4G-BOX (L) V2.0.0 and below.
- (3) 4GBOX³: 4G-BOX (L) V2.1.0 and above.

- (4) XC series: refers to XC2/XC3/XC5/XCM/XCC series, excluding XC1 series
- (5) XCPro: V3.3 and above.
- (6) XDPro: V3.5.1 and above.

4-3. Using steps

The specific using steps will be explained according to the model in the following chapters to explain how the computer accesses the terminal equipment site through Internet to realize the online programming and debugging function of PLC.

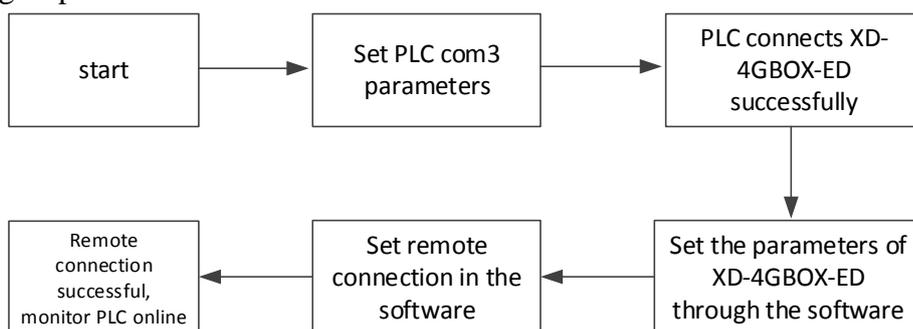


5. XD-4GBOX-ED

5-1. Version records

XD-4GBOX-ED	Change description	Suitable range (XD series firmware V3.4.5 and above)
H1/V1.1.3	Version initialization	XDPPro: V3.5.1 (20170519) and above Config: V1.6.343 (20170410) and above
H1/V1.1.4	Optimization of serial port receiving program	XDPPro: V3.5.1 (20170519) and above Config: V1.6.343 (20170410) and above
H1/V1.1.5	Optimize data communication efficiency	XDPPro: V3.5.1 (20170519) and above Config: V1.6.343 (20170410) and above
H2/V2.0.0	Optimize the SMS sending and receiving of Telecom card Add GPS positioning function	XDPPro: V3.5.1 (20171023) and above Config: V1.6.343 (20170410) or above

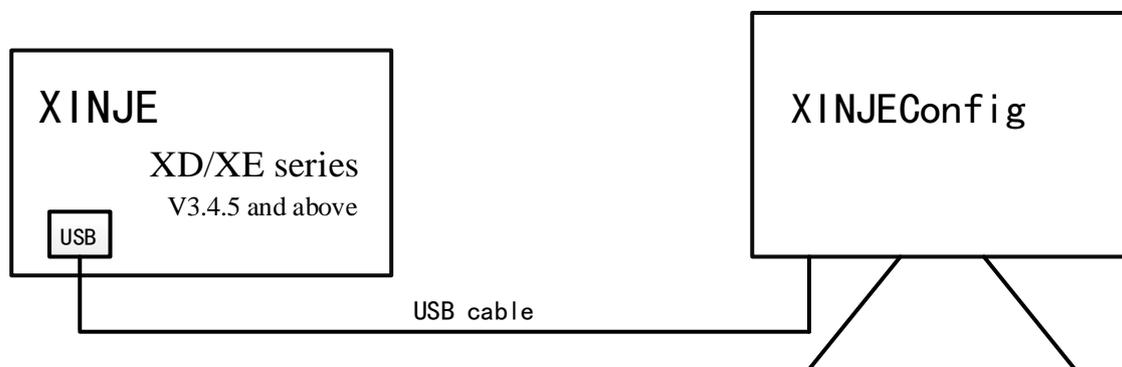
5-2. Using steps



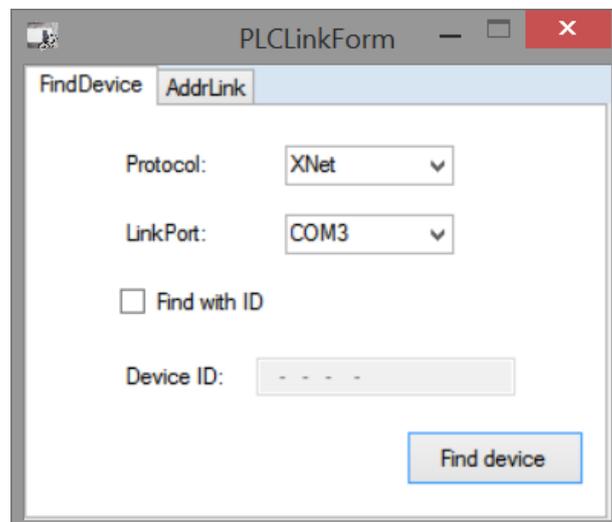
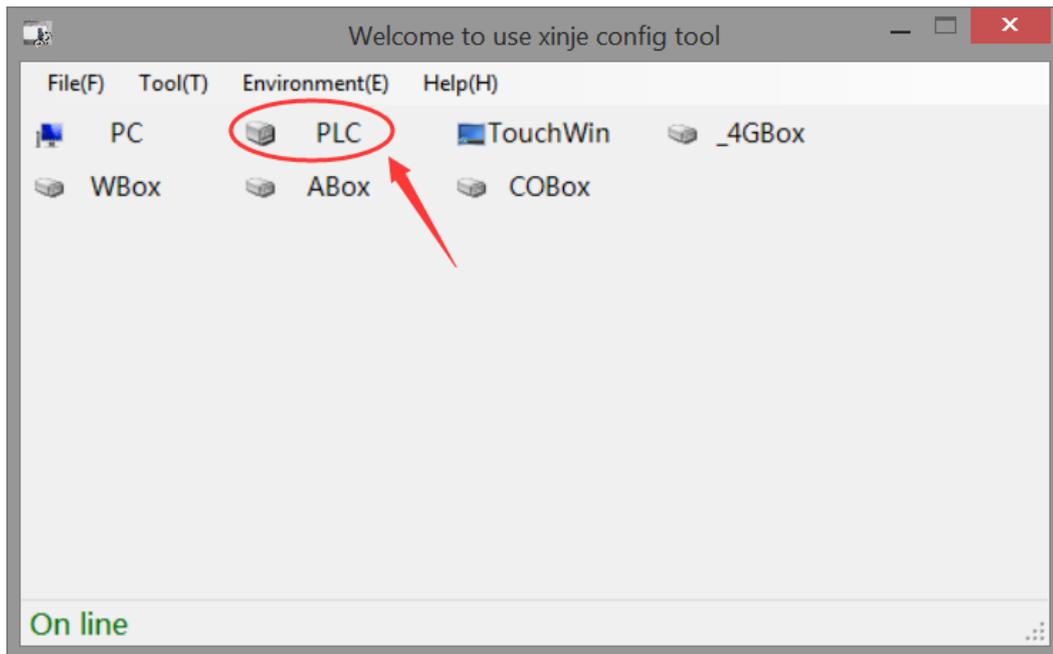
5-3. Parameter setting

5-3-1. PLC serial port setting

1. Connect PC with PLC through USB cable:



2. Search the PLC in XNET mode through XINJEConfig tool:



Note: the search port is the corresponding port in the device manager when the PLC is connected to the computer.

The serial port 3 of PLC is configured with the following parameters:



Protocol	XNET-PPFD
Baud rate	1000000bps
Physical layer	TTL
Net ID	32768
Station No.	1

3. The serial port parameters take effect when PLC is powered on again after "write configuration".

4. Connect XD-4GBOX-ED module with COM3 of PLC. When the serial port parameters are consistent, the "com" indicator of XD-4GBOX-ED communication module flashes periodically.

Note: after the PLC parameter configuration is completed, the default parameters of the module can realize the normal connection with PLC, and it is not necessary to carry out mandatory configuration work!

5-3-2. Module parameter configuration

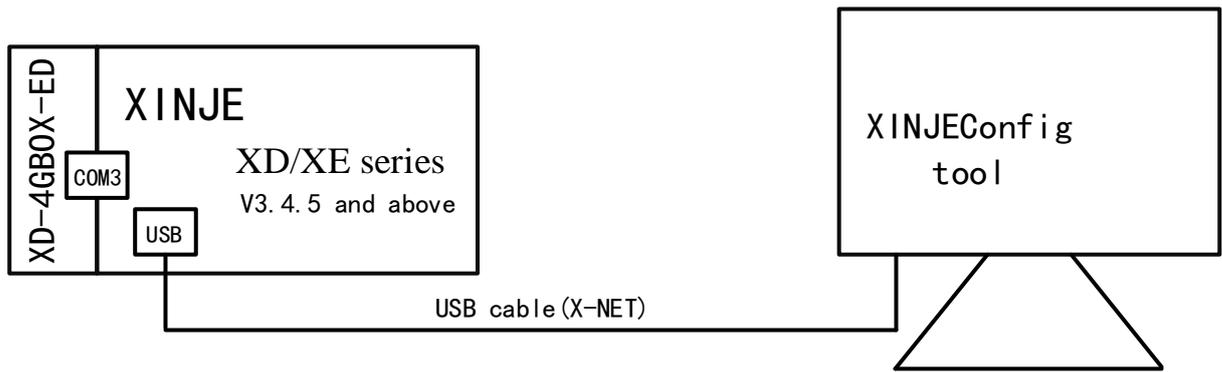
1. Please set the switch status of XD-4GBOX-ED to "configuration mode":

S1	S2	S3	S4	Function
ON	-	-	OFF	Configuration mode

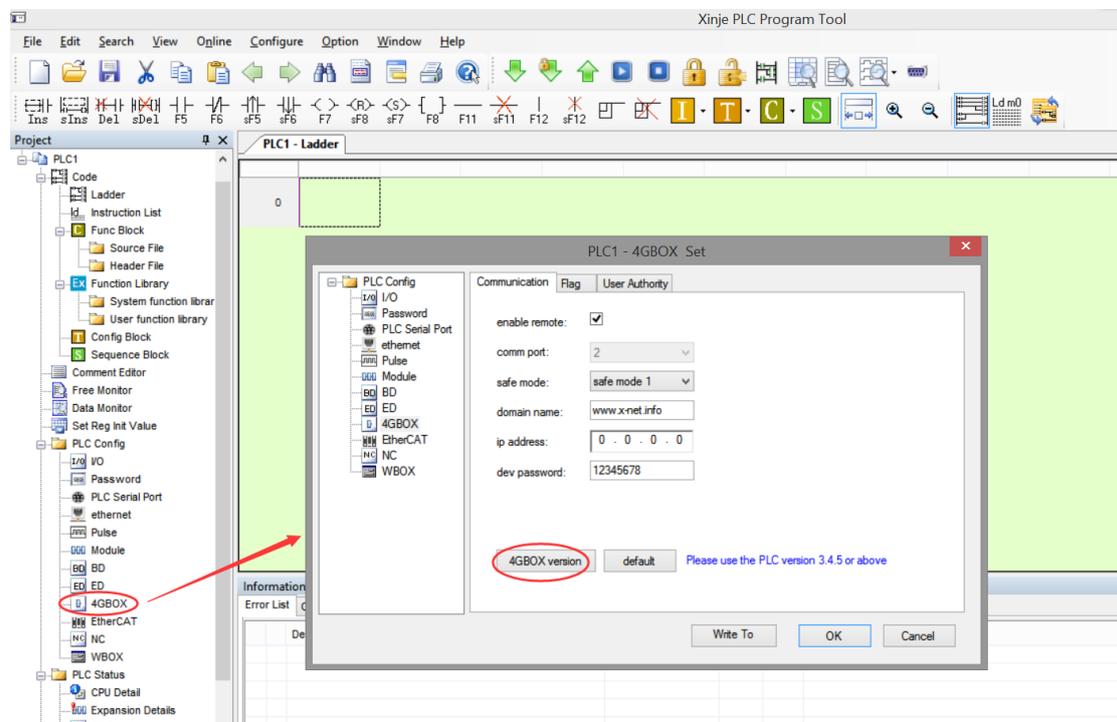
2. The module is inserted into the available SIM card and takes effect after power on again.

3. The hardware connection mode of the product is as follows:

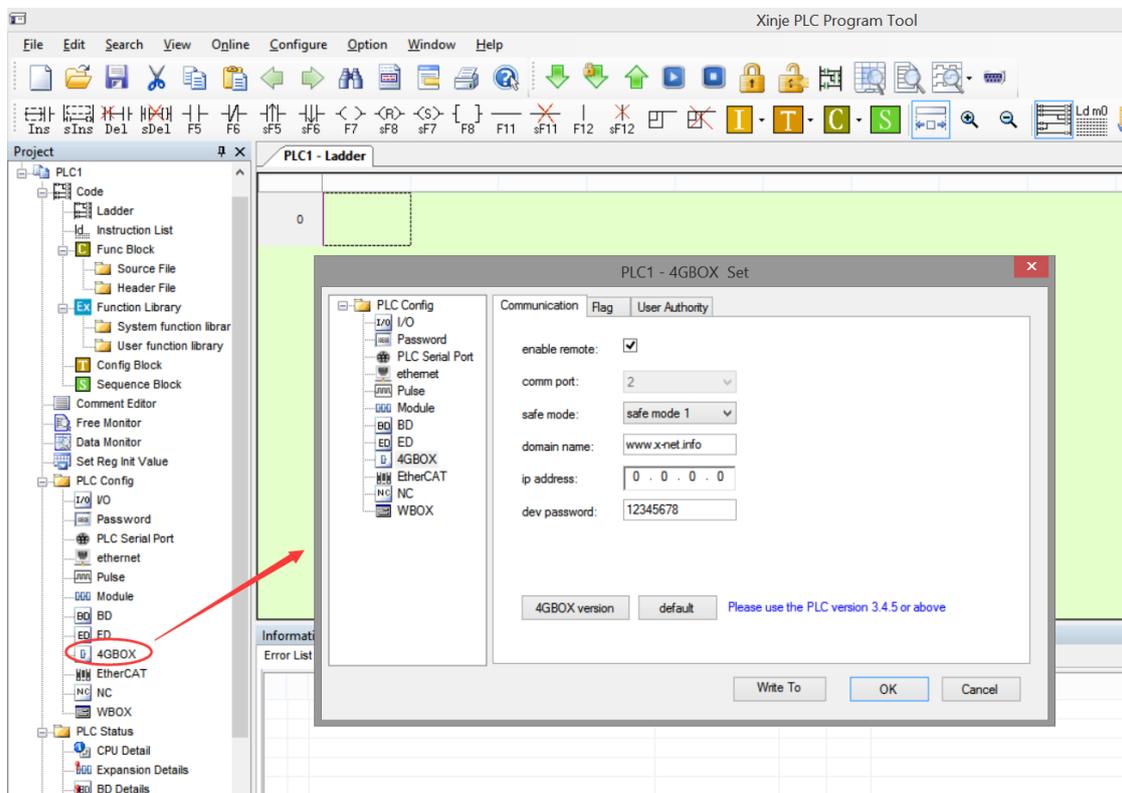
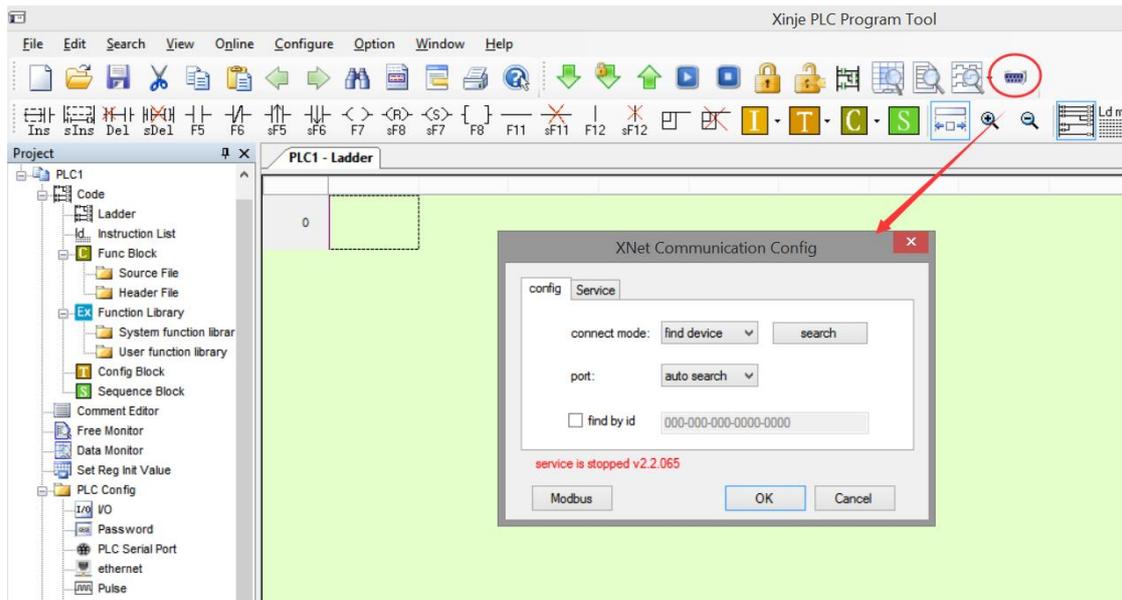
The programming software connect to PLC through XNET communication and USB cable. If PLC does not have USB port, connect serial port with DVP or XVP cable, and connect with PLC through XNET communication.



In the programming software, click "PLC config – 4GBOX" in the project bar, and click "4GBOX version" in the pop-up window to view the version and ID.



User can refer to chapter 3 to edit the parameters in configuration mode.



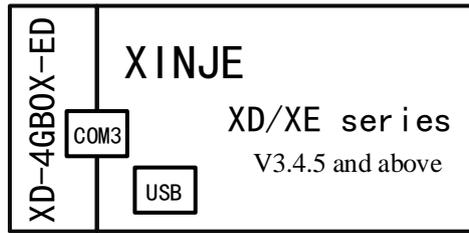
5-3. Remote monitoring

1. The remote online programming and debugging of the upper computer programming software can be realized under the operation mode. Please adjust the switch status of the module to "running mode":

S1	S2	S3	S4	Function
OFF	-	-	OFF	Operation mode

2. Insert the available SIM card and take effect after power on again.

3. Please ensure that the module and PLC can be connected and communicated normally:

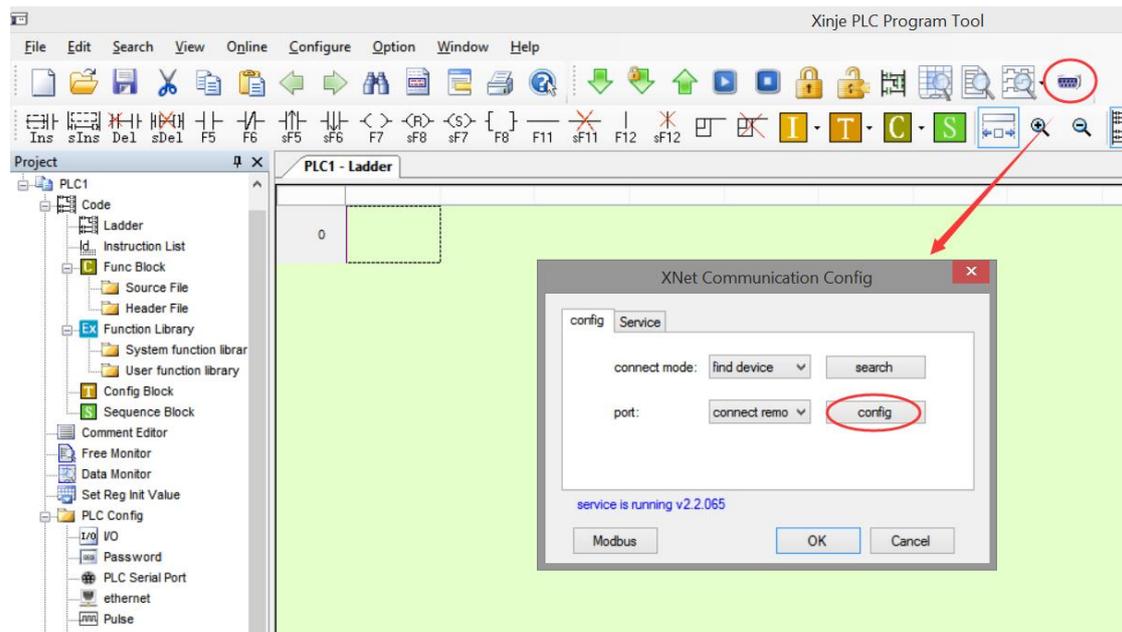


4. When the module status indicator meets the following conditions, remote programming and debugging can be carried out:

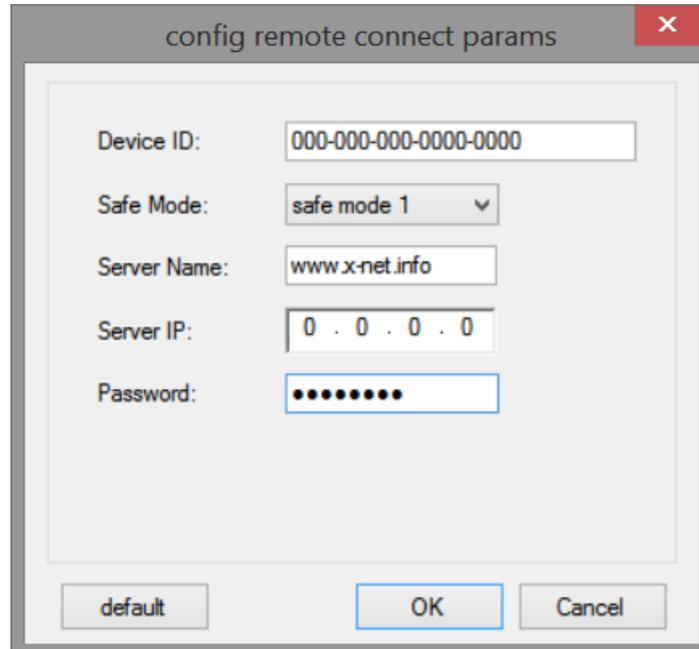
PWR	Always ON
COM	Flashing
Link	Always ON
NETSTATUS	Flashing occasionally

5. Programming software remote connection configuration

(1) Click "software serial port setting", select "XNET communication" mode, select "find device", select "connect remote" for port, and click config.

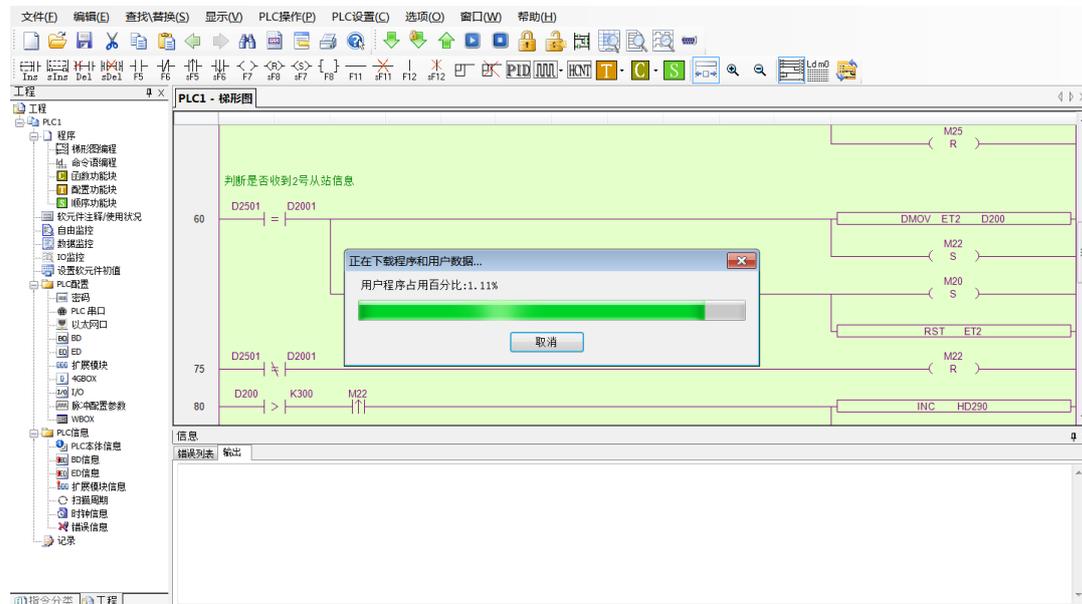


(2) In parameter configuration, fill in "device ID" and "password" in turn. There is no password in the initial state. If you have configured the password of 4GBOX module, please fill in the corresponding password. Otherwise, "password error" will be reported.



Note: the ID of XD-4GBOX-ED module can be viewed through the label on the left side of the module, and the factory default password is blank. If you forget the ID and password, you can refer to chapter 3-2 remote configuration to reset.

(3) After the connection is successful, PLC can do the operation of online monitoring, remote uploading and downloading.

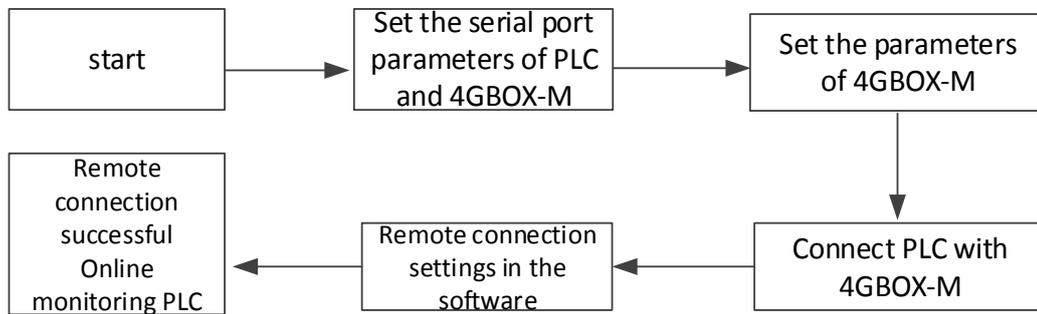


6. 4GBOX-M

6-1. Version records

4GBOX-M	Change explanation	Suitable range (XC2/XC3/XC5/XCM/XCC)
H1/V1.1.1	Version initialization	XCPPro: V3.3q (20170113-20170811) Config: V1.6.343 (20170410) and above
H1/V1.1.2	Compatible with Modbus RTU device access to Xinje cloud	XCPPro: V3.3r and above Config: V1.6.343 (20170410) and above

6-2. Using steps

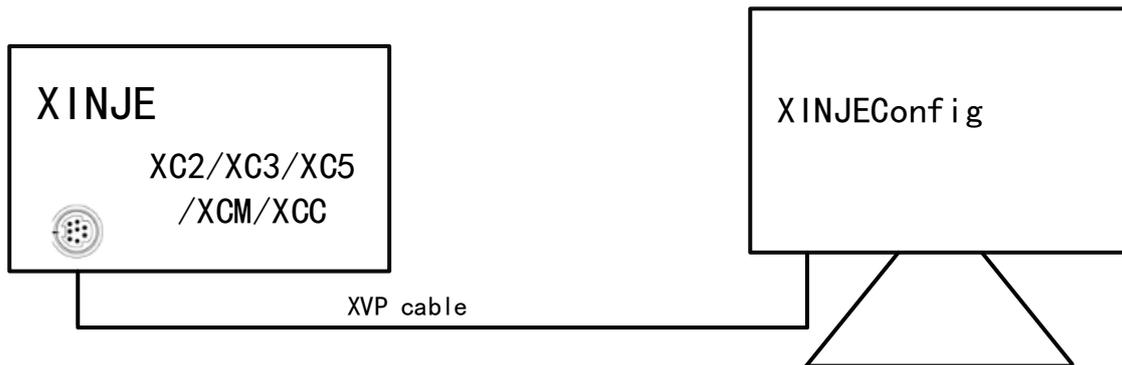


Note: the serial port parameters of 4GBOX-M can be connected with PLC by default, so there is no need to set them specially.

6-3. Parameter setting

6-3-1. PLC serial port setting

1. Connect PC with PLC through programming cable:



2. Set the PLC serial port parameters as follow:

Protocol	MODBUS RTU
Baud rate	19200bps
Data bit	8
Stop bit	1
Parity	even

Timeout	300ms
---------	-------

Note:

(1) After the PLC parameter configuration is completed, the default parameters of the module can complete the normal connection with PLC, so it is not necessary to perform mandatory configuration for the module!

(2) XC series serial port default parameters are available, so it is not necessary to configure PLC compulsorily!

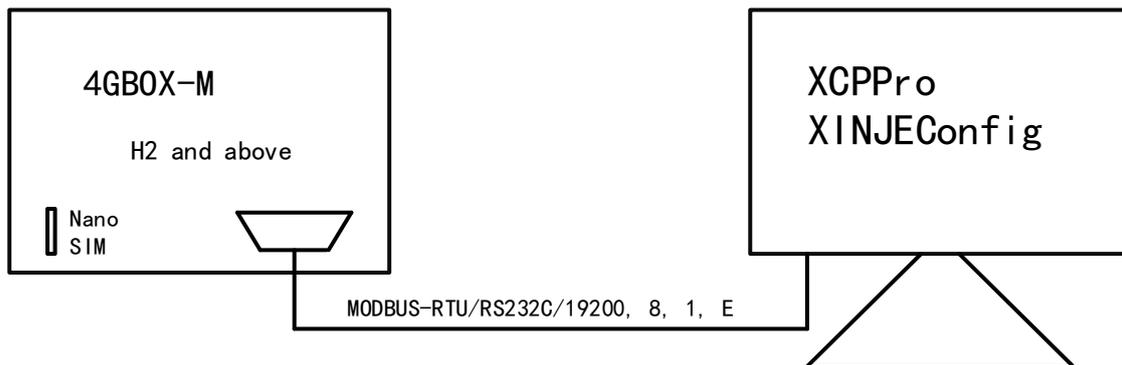
(3) When connecting 4GBOX-M with standard Modbus RTU equipment, please make sure that the serial port parameters are the same as above.

6-3-2. Module parameter setting

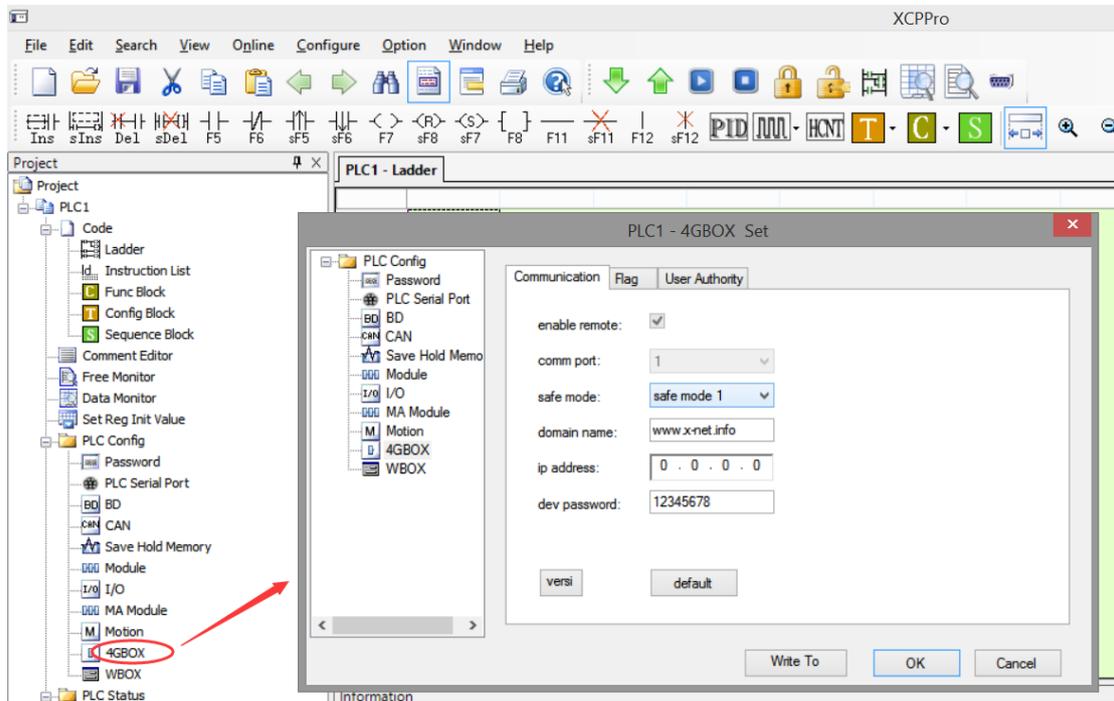
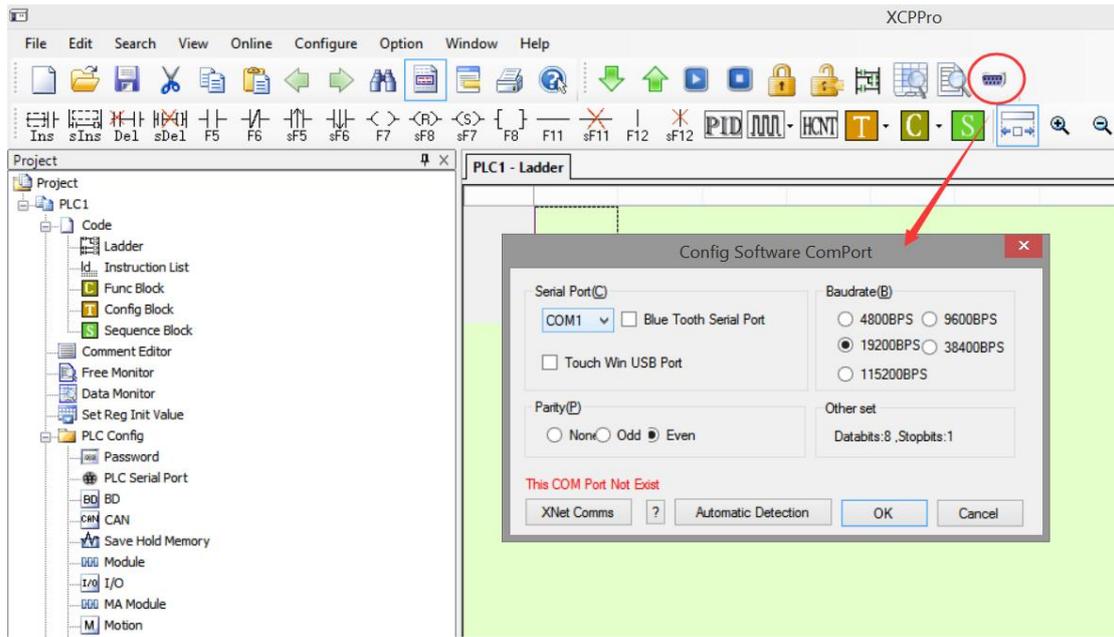
1. The 4GBOX-M module is inserted into the available SIM card, and the switch status of the module is set to "configuration mode", which takes effect after the module is powered on again

S1	S2	S3	S4	Function
OFF	On	-	-	Configuration mode

2. Use RS232 cable to connect the module with the computer. The hardware connection mode of the product is as follows:



3. The configuration function of 4GBOX-M module needs XCPro programming tool. Open XCPro programming software, select "software serial port configuration", serial port MODBUS configuration interface prompts "successfully connected to 4GBOX". For details, please refer to chapter 3 function settings.



6-4. Online monitoring

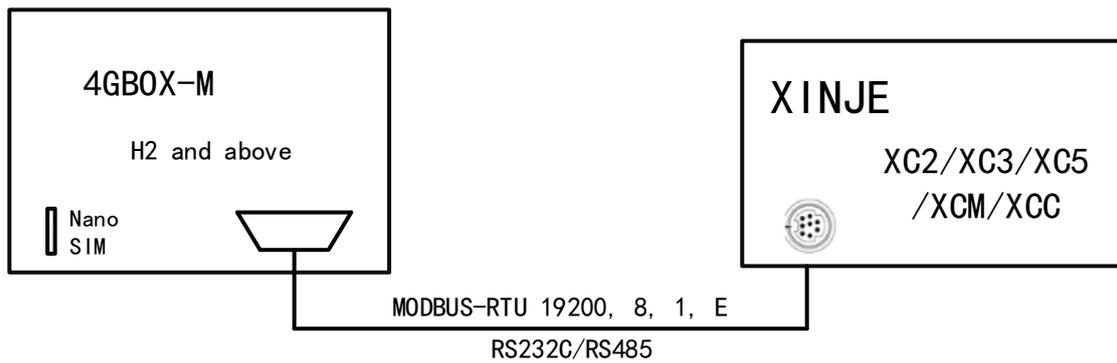
6-4-1. Remote monitor PLC

1. The remote online programming and debugging of the upper computer programming software can be realized under the running mode. Please adjust the switch status of the module to "running mode":

S1	S2	S3	S4	Function
OFF	OFF	-	-	Running mode

2. The module is inserted into the available SIM card and takes effect after power on again.

3. Please connect the module to PLC as follows:



Note:

(1) The model supports RS232 / RS485 mode to connect with PLC serial port. Please confirm that the physical connection is available after doing other operations.

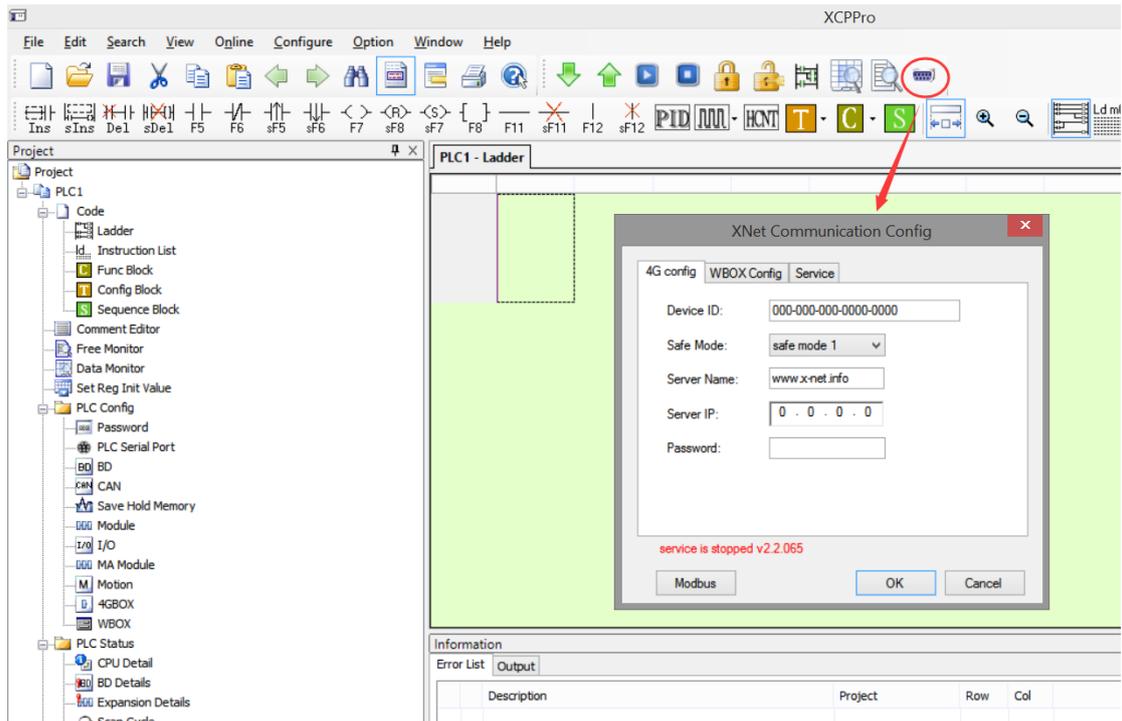
(2) The module will occupy all the resources of the serial port. Do not share the same serial port with other devices.

4. When the module indicator meets the following conditions, remote programming and debugging can be carried out.

PWR	Always ON
COM	Flashing occasionally
Link	Always ON
NETSTATUS	Flashing occasionally

5. Programming software remote connection configuration

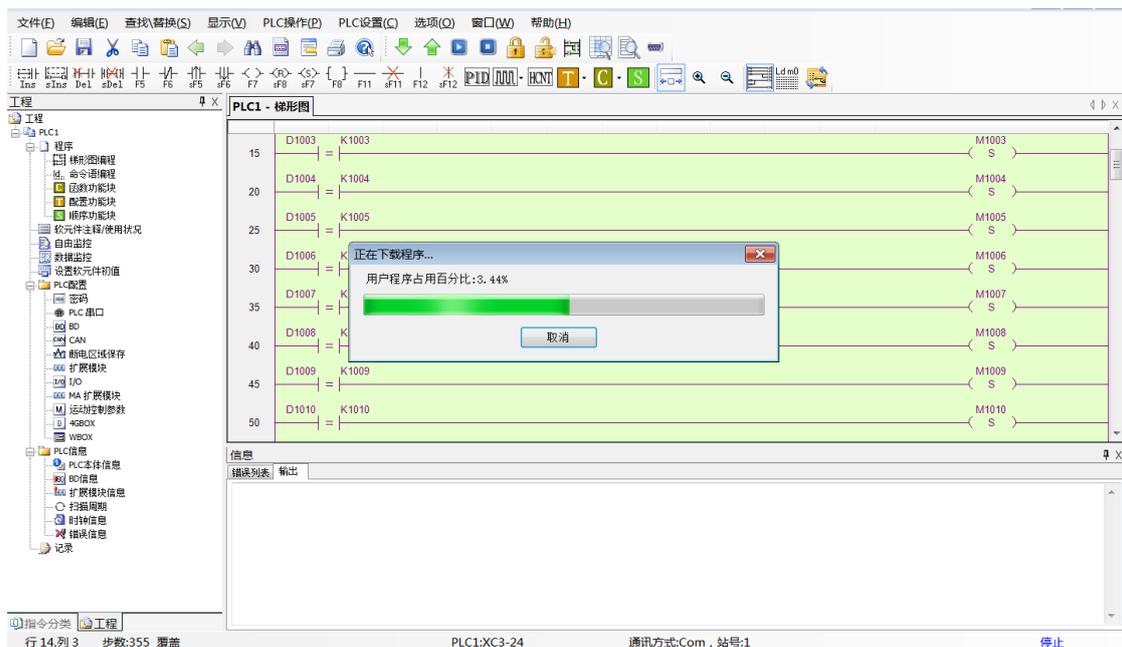
(1) Click "software serial port setting" to select "XNET communication", and click "4G config" to configure remote parameters.



(2) In parameter configuration, fill in "device ID" and "password" in turn. There is no password in the initial state. If you have configured the password of 4GBOX module, please fill in the corresponding password. Otherwise, "password error" will be reported.

Note: the ID of 4GBOX module can be viewed through the label at the bottom of the module, and the factory default password is blank. If you forget the ID and password, you can refer to the chapter 3-2 remote configuration to reset.

(3) Successful connection, PLC online monitoring, remote loading and downloading procedures and other operations.



6-4-2. Modbus RTU device

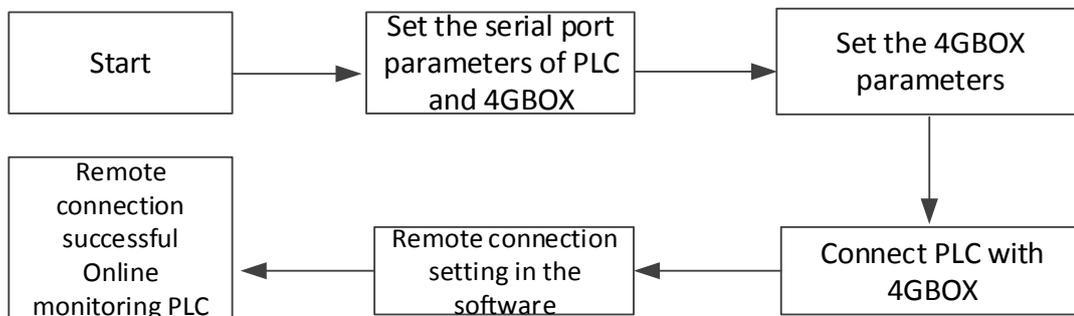
If Modbus RTU equipment is connected, the module configuration is the same as above. Users can realize remote monitoring through Xinje Cloud.

7. 4GBOX

7-1. Version records

4GBOX	Change explanation	Suitable range
H1/V1.1.4	Version initialization, discontinued	Not available, it is recommended to replace 4GOX (H2 / v2.0.0) or later
H2/V2.0.0	Optimize the SMS sending and receiving of Telecom Card Add GPS positioning function	XC series: XC2/XC3/XC5/XCM/XCC XCPro: V3.3r (20170926) and above Config: V1.6.343 (20170410) and above
H2/V2.1.0	Add XD/XL/XG series PLC data support	XCPro: V3.3r (20170926) and above XDPro: V3.5.2 (20180717) and above Config: V1.6.343 (20180614) and above XD series: firmware version V3.4.5 and above XC series: XC2/XC3/XC5/XCM/XCC

7-2. Using steps

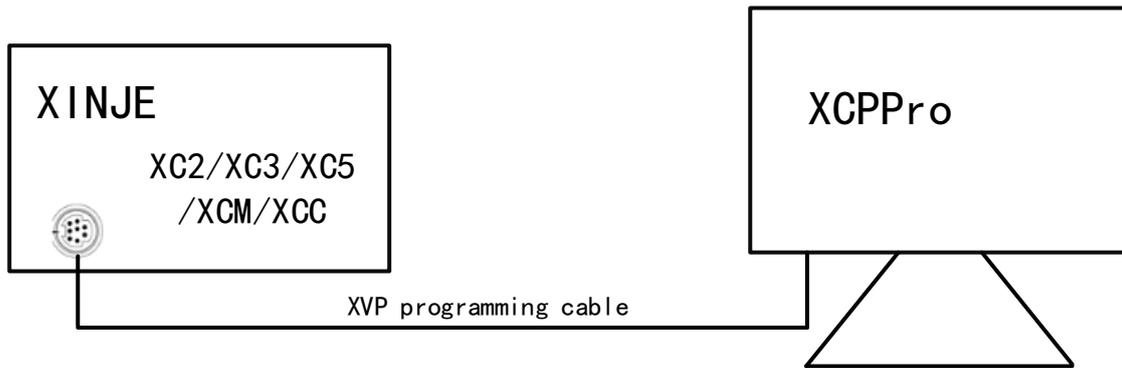


Note: the serial port parameters of 4GBOX-M can be connected with PLC by default, so there is no need to set them specially.

7-3. XC series/Modbus RTU

7-3-1. PLC serial port setting

1. Connect PC with PLC through programming cable:



2. Set the serial port parameters of PLC as follows:

Protocol	MODBUS RTU
Baud rate	19200bps
Data bit	8
Stop bit	1
Parity	Even
Timeout	300ms

Note:

(1) After the PLC parameter configuration is completed, the module factory default parameters can realize the normal connection with PLC, and it is unnecessary to carry out mandatory configuration work!

(2) XC series serial port parameters are available by default, so it is not necessary to configure PLC compulsorily!

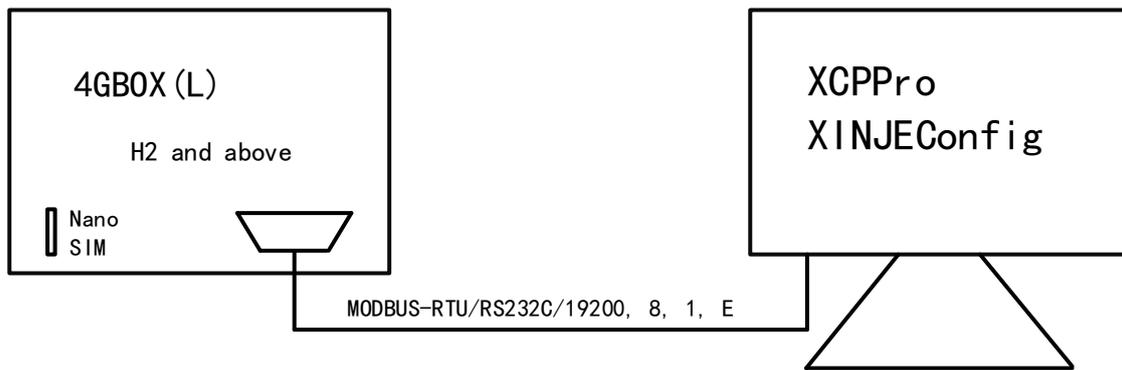
(3) When connecting 4GBOX series with standard Modbus RTU equipment, please make sure that the serial port parameters are the same as above.

7-2-2. Module parameter setting (H2/V2.0.0 and above)

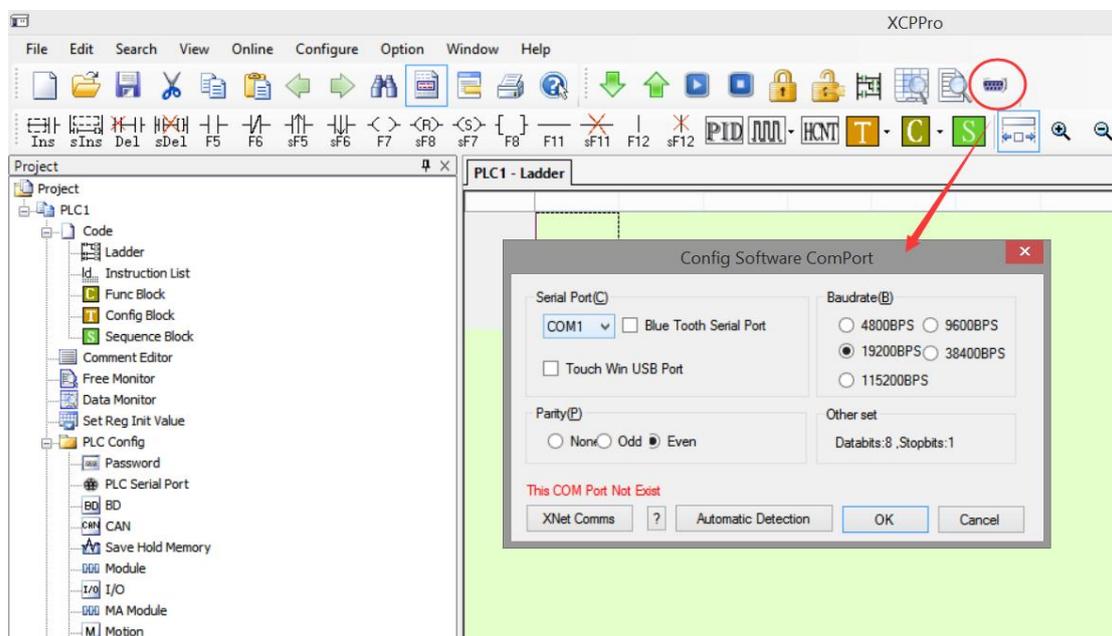
1. Set the module switch status to configuration mode and take effect after the module is powered on again (SIM card can not be inserted during configuration)

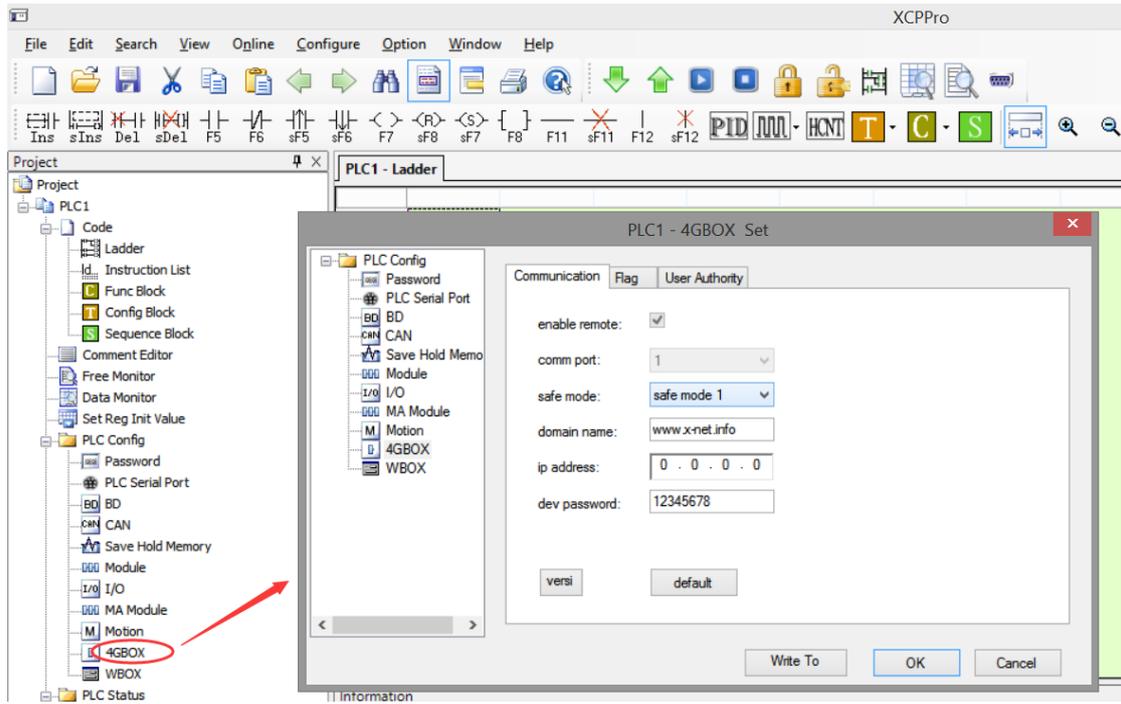
S1	S2	S3	S4	Function
ON	OFF	ON	-	Configuration mode (please repower on)

2. RS232 cable is used to connect the module with the computer. The hardware connection mode of the product is as follows:

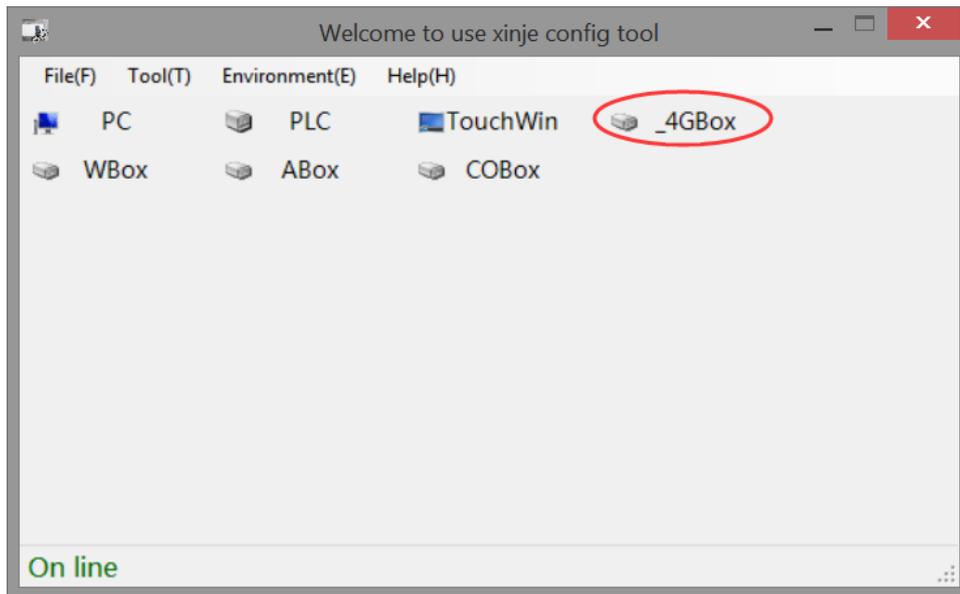


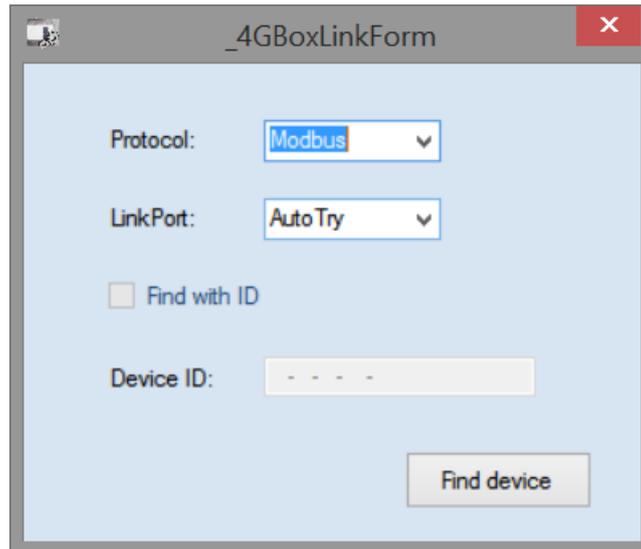
3. Open xcpro programming software, select " serial port configuration", the serial port MODBUS configuration interface prompts "successfully connected to 4GBOX". For details, please refer to chapter 3 Function settings. The version can be refreshed successfully.





Or open the Xinje config tool and click 4GBOX to search in MODBUS mode.





Configure the parameters according to the needs, and power on again after writing.



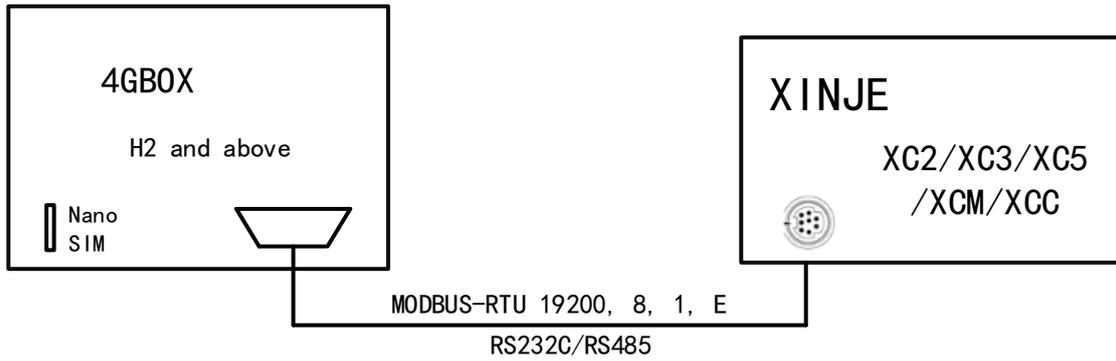
7-3-3. Online monitor the PLC

1. The remote online programming and debugging of the programming software can be realized under the operation mode. Please set the switch status of the module to "operation mode" (after clicking [write in 4GBOX], turn the dial switch to the running mode and then power on again, wait for the link LED to light up)

S1	S2	S3	S4	Function
OFF	OFF	ON	-	Operation mode

2. The module is inserted into the available SIM card and takes effect after power on again:

3. Please connect the module to the controller as follows:



Note:

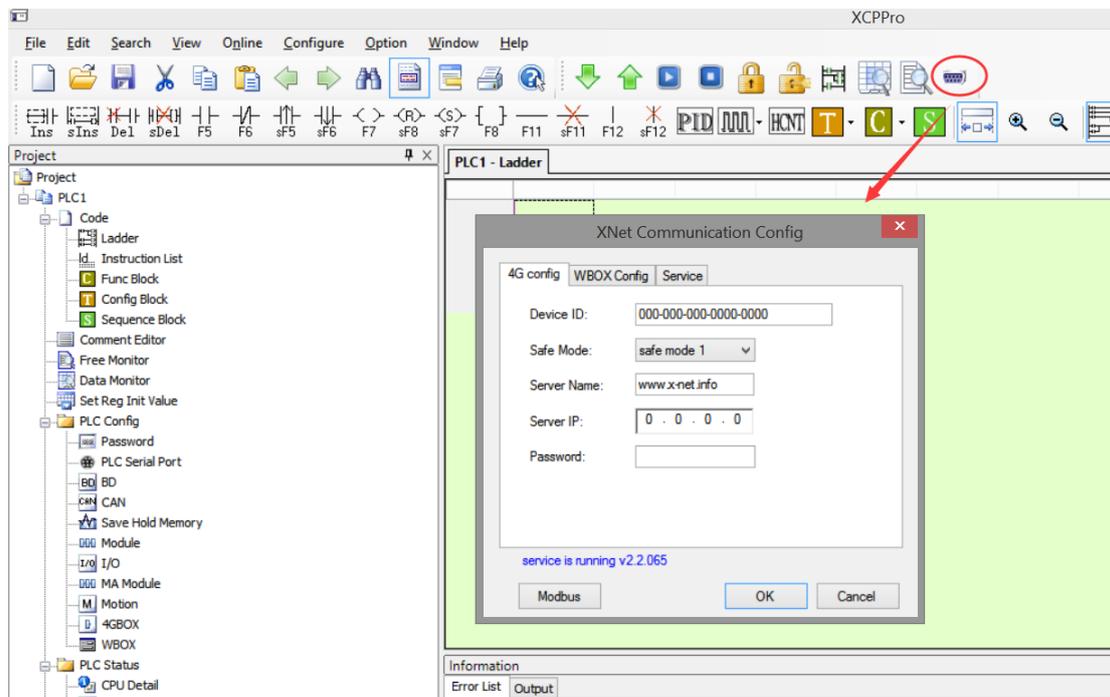
- (1) The model supports RS232 / RS485 mode to connect with PLC serial port. Please follow up when confirming that the physical connection is available.
- (2) The module will occupy all the resources of the serial port. Do not share the same serial port with other devices.

4. When the module indicator meets the following conditions, the remote programming and debugging operation is carried out.

PWR	Always ON
COM	Flashing occasionally
Link	Always ON
NETSTATUS	Flashing occasionally

5. Programming software remote connection configuration

- (1) Click "serial port setting" to select "XNET communication", and click "4G remote configuration" to configure remote parameters.

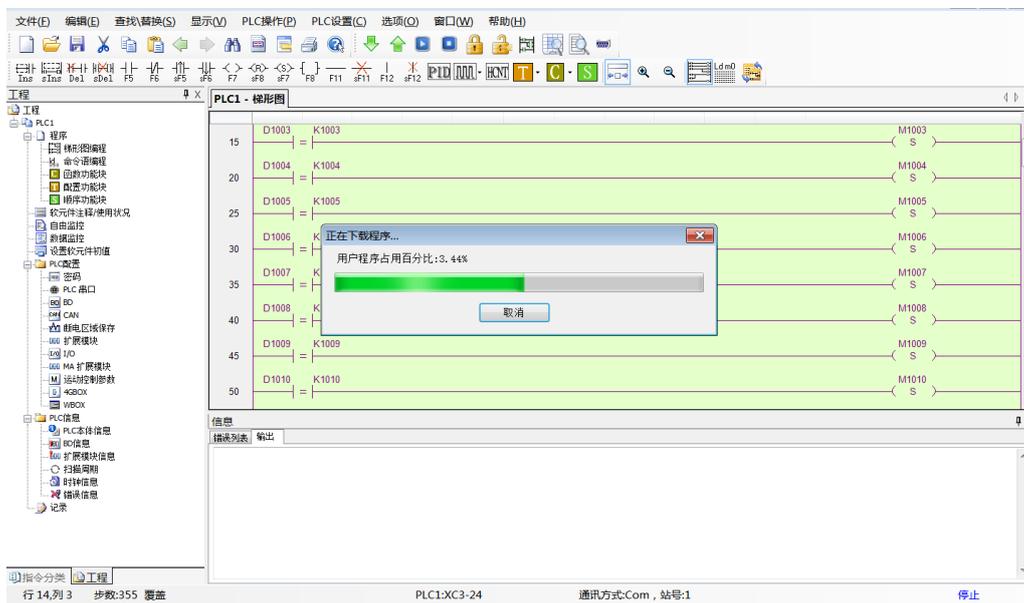


(2) In parameter configuration, enter the serial number that has been found and fill in "device ID" in turn. There is no password in the initial state. If you have configured the password of 4GBOX module, please fill in the corresponding password. Otherwise, "password error" will be reported.

Note: the ID of 4GBOX module can be viewed through the label at the bottom of the module, and the factory default password is blank. If you forget the ID and password, you can refer to chapter 3-2 remote configuration to reset.

(3) After the connection is successful, PLC can do online monitoring, remote uploading and downloading procedures and other operations.

Note: the Modbus RTU device is connected with the same module configuration as above. Users can realize remote monitoring through Xinje Cloud.



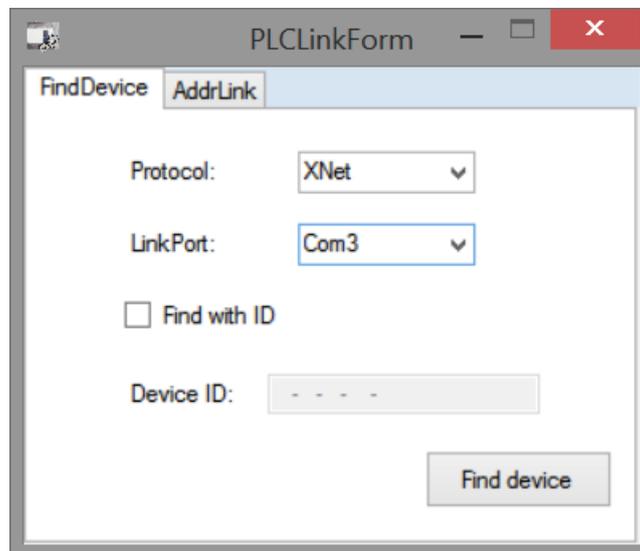
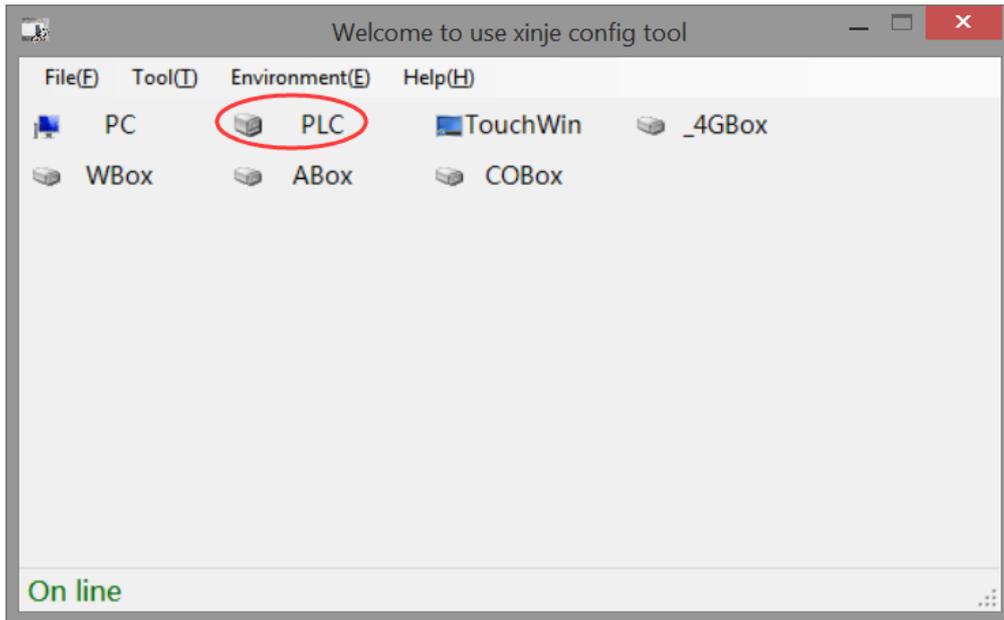
7-4. XD series

7-4-1. PLC serial port setting

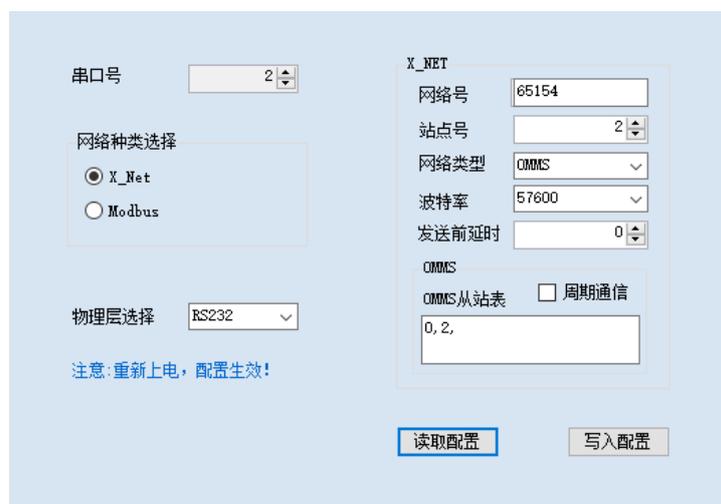
1. Connect PC and PLC through programming cable:



2. Search the PLC in XNET mode through XINJEConfig tool



And set the com2 parameters as below:



Communication protocol	XNET-OMMS
Baud rate	57600bps
Net ID	65154
Station no.	2
Delay before send	0
Physical layer	RS232/RS485

Note: please repower on the PLC after settings.

Note:

- (1) After the PLC parameter configuration is completed, 4GBOX of v2.1.0 and above can complete the normal connection with PLC with default parameters, and there is no need to configure the parameters!
- (2) The serial port parameters will take effect when the PLC is powered on again after writing the configuration.
- (3) After the PLC uses the ED board, the network number is set to 65150, and the network number of 4GBOX needs to be changed to be consistent with PLC according to the steps of chapter 7-4-2.

7-4-2. Module parameter configuration (H2/V2.1.0 and higher)

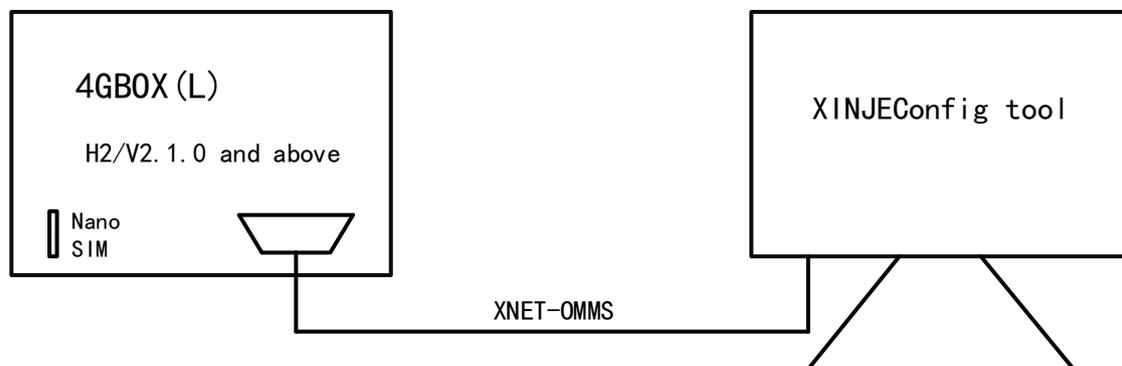
Note:

- (1) For modules of v2.1.0 and above, you can ignore this step and directly follow chapter 7-4-3.
- (2) After the PLC uses the ED board, please set the network number of the module to 65150 according to the following steps.

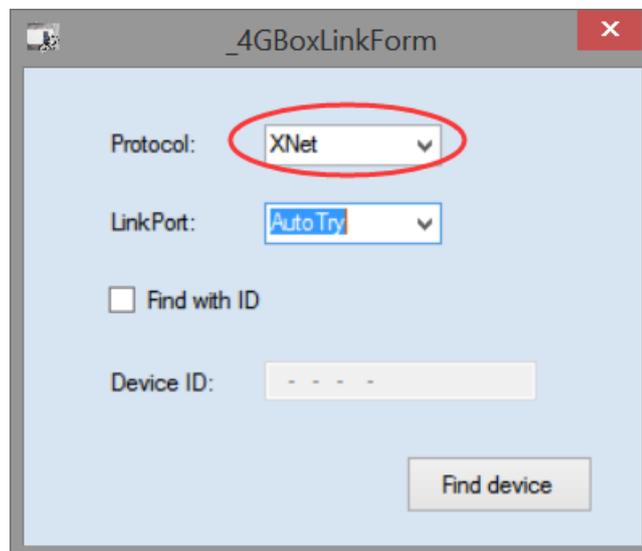
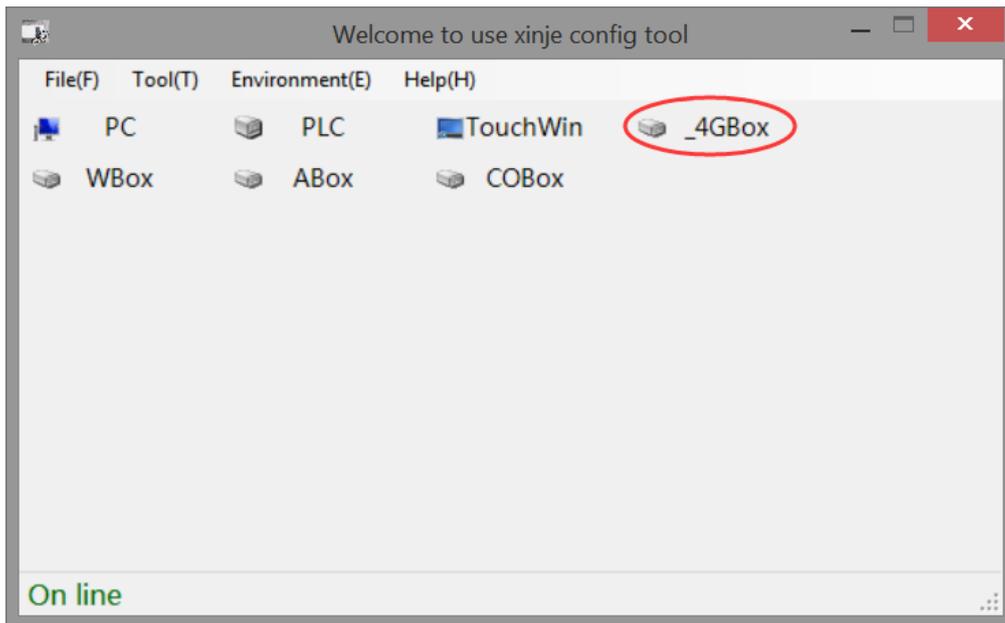
1. Please make sure to set the switch status of the module to "configuration mode":

S1	S2	S3	S4	Function
ON	ON	ON	-	Configuration mode (need to repower on)

2. RS232 cable is used to connect the module with the computer. The hardware connection mode of the product is as follows:



Open the configuration tool and click 4GBOX to search in XNET mode:



3. The default parameters of 4GBOX serial port are shown in the table below. The parameters can be configured according to the needs, and the parameters will be effective after powered on again after writing.

Protocol	XNET-OMMS
Baud rate	57600bps
Net ID	65154
Station no.	1
Delay before sending	0
Physical layer	RS232/RS485



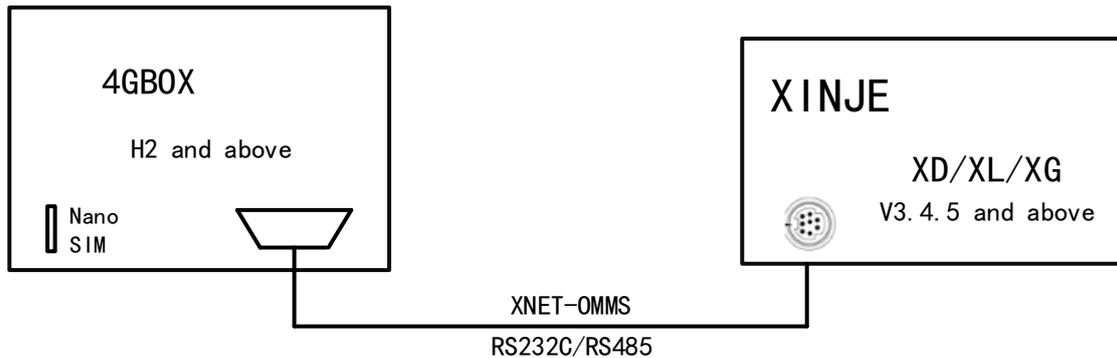
7-4-3. Monitor online

1. The remote online programming and debugging of the programming software can be realized in the running mode. Please adjust the switch status of the module to "running mode":

S1	S2	S3	S4	Function
OFF	ON	ON	-	Running mode

2. The module is inserted into the available SIM card and takes effect after power on again.

3. Please connect the module to the controller as follows:



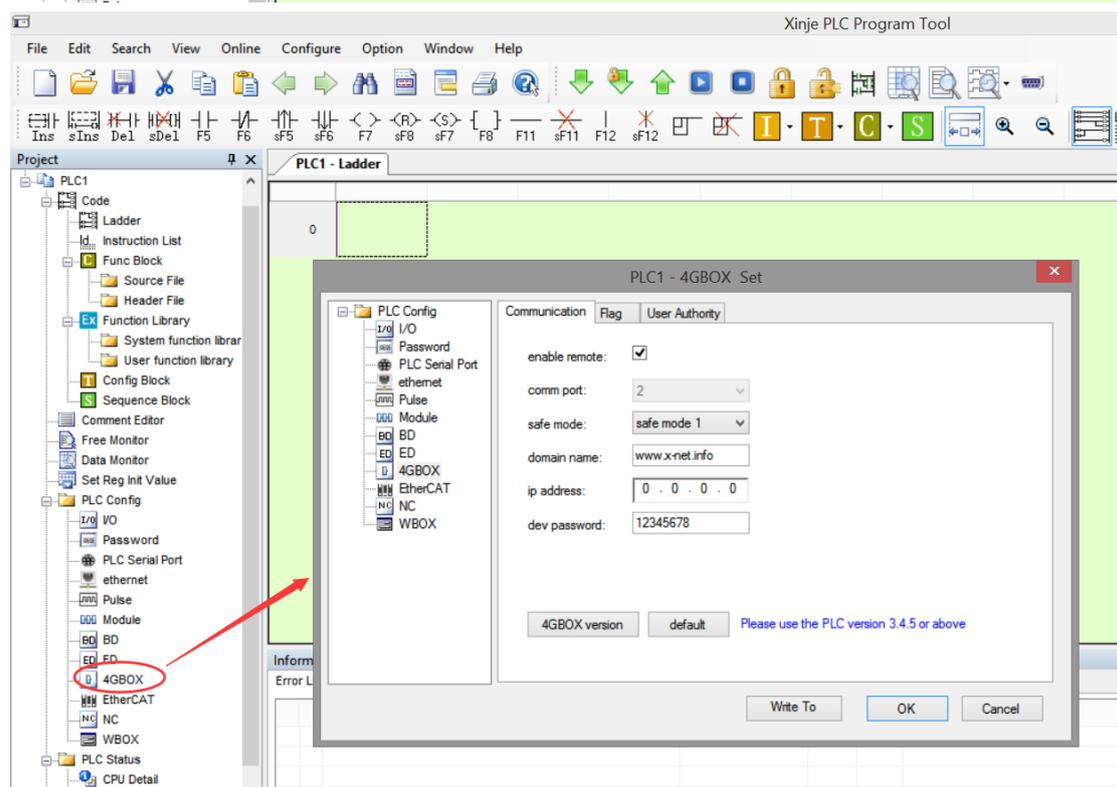
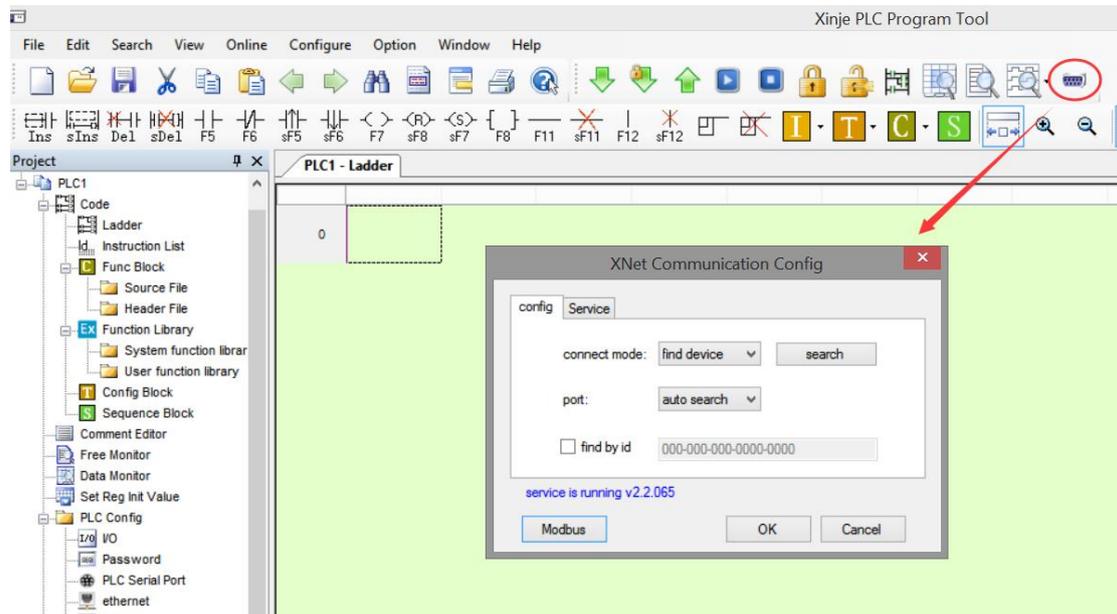
Note:

(1) The model supports RS232 / RS485 mode to connect with PLC serial port. Please go on after confirming that the physical connection is available. XD1 needs to modify COM0 parameter to XNET-OMMS / 57600, that is, connect COM0 to 4GBOX.

(2) The module will occupy all the resources of the serial port. Do not share the same serial port with other devices.

4. Open Xinje programming software, select "serial port configuration", and select XNET

configuration. For details, please refer to chapter 3 function settings. At this time, the version can be checked. After setting the communication parameters, flag registers, user authority and other parameters, click write to, and the Link LED will be on.

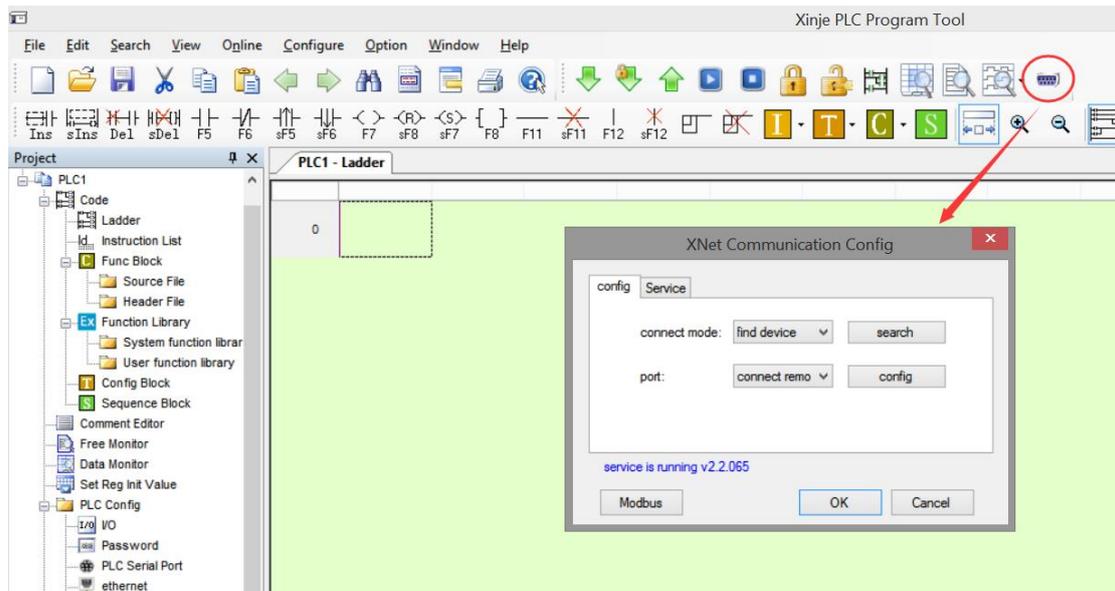


5. When the module indicator light meets the following conditions, it indicates that 4GBOX has successfully logged into our server and can be used for remote programming and debugging.

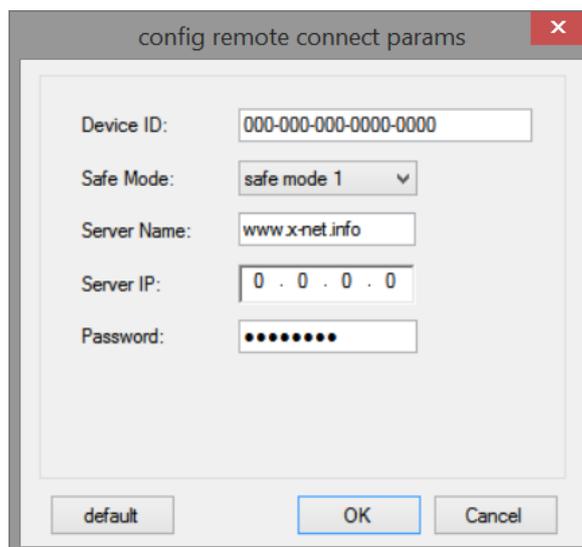
PWR	Always ON
COM	Flashing
Link	Always ON
NETSTATUS	Flashing occasionally

6. Programming software remote connection configuration

(1) Click "serial port setting", select XNET mode, select "find device", select "connect remote" for port, and click config.



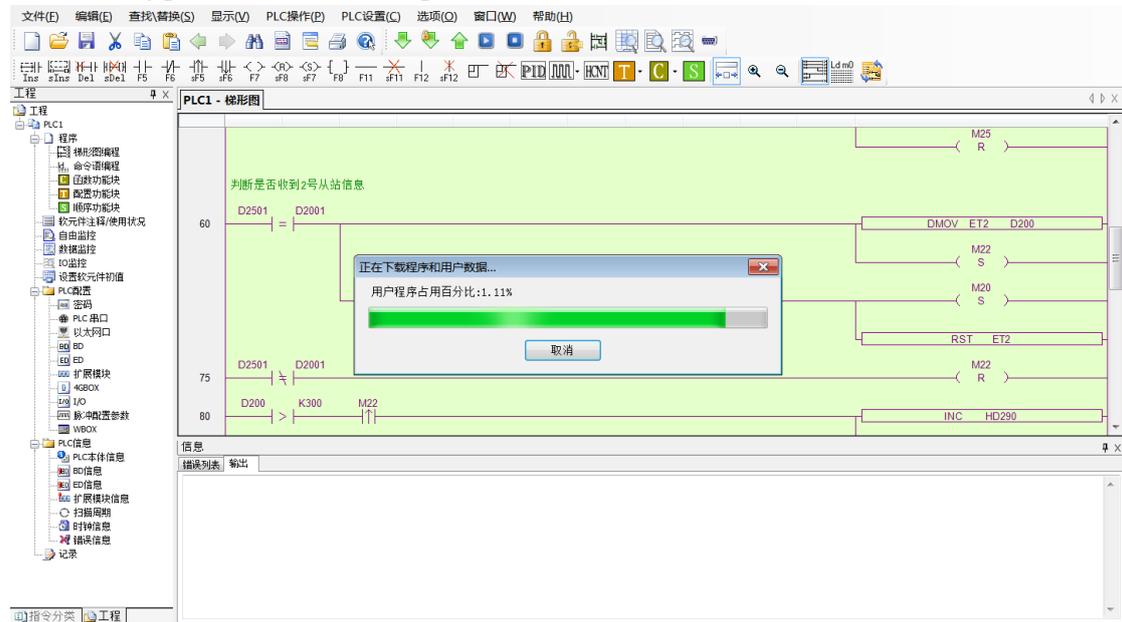
(2) In the config interface, fill in "device ID" and "password" in turn. There is no password in the initial state. If you have configured the password of 4GBOX module, please fill in the corresponding password. Otherwise, "password error" will be reported.



Note: the ID of 4GBOX module can be viewed through the label at the bottom of the module, and

the factory default password is blank. If you forget the ID and password, you can refer to chapter 3-2 remote configuration to reset.

(3) After the connection is successful, PLC can do online monitoring, remote loading and downloading procedures and other operations.



XINJE



WUXI XINJE ELECTRIC CO., LTD.

4th Floor Building 7,Originality Industry
park, Liyuan Development Zone, Wuxi City,
Jiangsu Province 214072

Tel: 400-885-0136

Fax: (510) 85111290

www.xinje.com