# S-BOX-HT

## Wireless transparent transmission module

User manual

Wuxi Xinje Electric Co., LTd.

Data No. MC10 20210511EN 1.0

## Basic description

- Thank you for purchasing Xinje S-BOX-HT 433M wireless transparent module.
- This manual mainly introduces the product information of S-BOX-HT module.
- Before using the product, please read this manual carefully and conduct wiring on the premise of fully understanding the contents of the manual.
- Please deliver this manual to the end user.

## This manual is suitable for the following users

- System designer
- Installation and wiring workers
- Commissioning and servo debugging workers
- Maintenance and inspection workers

## Declaration of responsibility

- Although the contents in the manual have been carefully checked, errors are inevitable, and we cannot guarantee that they are completely consistent.
- We will often check the contents of the manual and make corrections in the subsequent versions. We welcome your valuable suggestions.
- If there is any change in the contents introduced in the manual, please understand without further notice.

## Contact us

If you have any questions about the use of this product, please contact the agent and office that purchased the product, or directly contact Xinje Company.

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June, 2021

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# 1. Module introduction

S-BOX-HT is independently developed based on the American Semtech LoRa$^{TM}$ radio frequency chip SX1268, with a maximum power of 1W. It is suitable for 433MHz chip LoRa$^{TM}$ wireless module, and uses industrial high-precision 32MHz crystal oscillator.

S-BOX-HT supports multiple physical interfaces: RS232/RS485/RS422. Support adjustable serial port parameters. Support 84 channels for selection. The air rate provides 9600~38400bps transmission rate. Users can adjust according to the actual situation on site.

**Note:**

(1) S-BOX-T/XD-SBOXT-ED is incompatible with S-BOX-HT

(2) S-BOX-T/XD-SBOXT-ED can only communicate with MTG765-UT

(3) S-BOX-HT can only communicate with MTG765-HT.

## 1-1. Compatibility

- Support RS232/RS485/RS422 serial port
- Support 84 channels for selection
- Support adjustable serial port parameters
- Support the adjustable air baud rate
- Compatible with various mainstream controllers (serial port) in the market

## 1-2. Application scenario

- Wireless communication between PLC and PLC, supports one master and multiple slaves (more than 4 slaves are not recommended)
- Wireless communication between PLC and wireless touch screen MTG765-HT

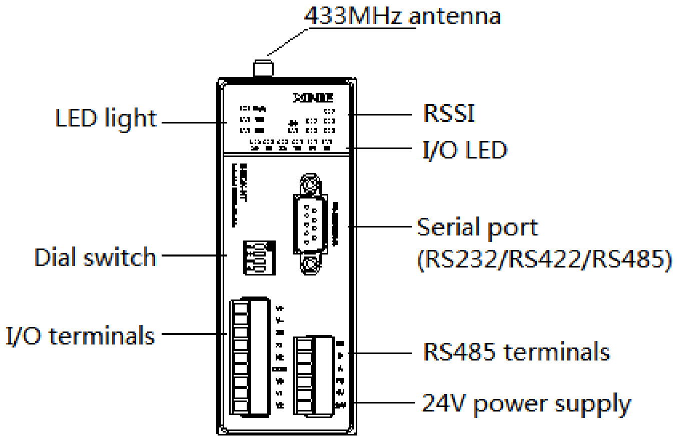
## 1-3. Version explanation

| Hardware | Firmware | Config tool | Explanation |
|---|---|---|---|
| H1 | V1.1.1 | V1.1.0 | This version only supports transparent transmission mode, not I/O mode |

# 2. Performance and parameters

## 2-1. Structure

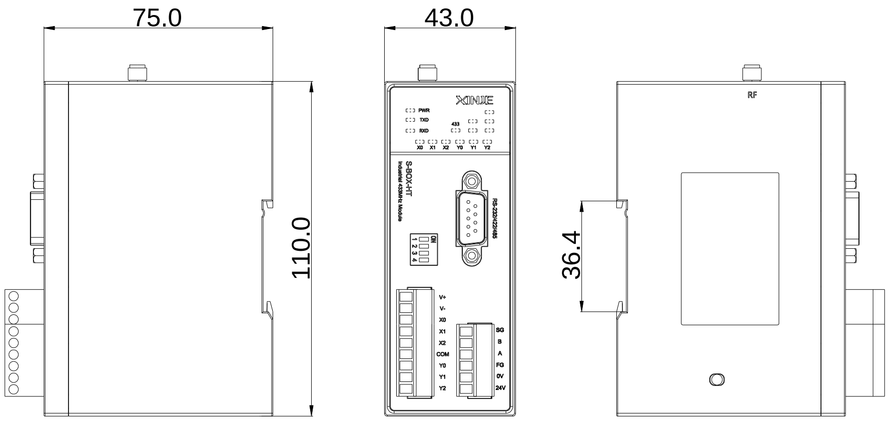
- ■ S-BOX-HT


433MHz antenna
LED light
RSSI
I/O LED
Serial port
(RS232/RS422/RS485)
Dial switch
I/O terminals
RS485 terminals
24V power supply

**Note: V1.1.1 cannot support I/O terminal temporarily**

## 2-2. Dimension

Overall dimension of S-BOX-HT is 43.0mm × 110.0mm × 75.0mm (width × height × Depth). It can be directly installed on DIN46277 (width 35mm) guide rail.


75.0
43.0
110.0
36.4
RF

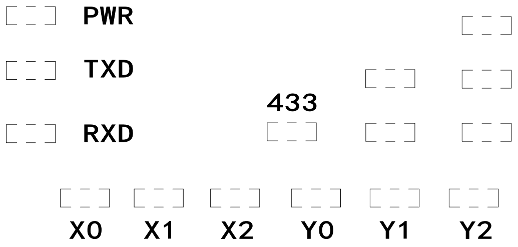
**Note:**

(1) When processing screw holes and wiring during installation, do not let chips and wire chips fall into the module.

(2) Before connecting, please confirm the specifications of the module and the connecting device again to ensure that there are no errors.

(3) When connecting, please pay attention to whether the connection is firm. If the connection falls off, it will cause incorrect data, short circuit and other faults. Installation and wiring operations must be carried out after all power supplies are cut off.

## 2-3. LED light



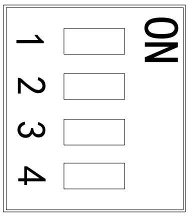
The LED light functions of S-BOX-HT are shown in the following table:

| LED light | Explanation |
|---|---|
| PWR | Power supply, always on after power on |
| TXD | Flash once for each packet of data sent by the serial port, and flash in the configuration mode |
| RXD | Flash once for each packet received by wireless, and flash in configuration mode |
| signal intensity | 433MHz signal strength indicator |
| X0-X2 | Input signal (V1.1.1 cannot support) |
| Y0-Y2 | Output signal (V1.1.1 cannot support) |

**Note:** Signal strength indicates the signal strength when the last packet of data is received wirelessly

## 2-4. Dial switch

- S-BOX-HT



DIP1: switch between operating mode and configuration mode. When ON, it is the configuration mode. TXD and RXD flash together in configuration mode.

DIP2: switch between transparent transmission mode and I/O mode. I/O mode when ON. (V1.1.1 does not support I/O mode temporarily).

DIP3, 4: wireless transmission rate. The higher the wireless baud rate, the lower the communication delay, and the shorter the transmission distance.

Wireless communication distance corresponding to different baud rates:

| DIP3 | DIP4 | Air transmission rate | Open transmission distance between modules (for reference) | Open transmission distance between module and PLC (for reference) |
|---|---|---|---|---|
| OFF | OFF | 4800bps | 350m | 150m |
| OFF | ON | 9600pbs | 300m | 130m |
| ON | OFF | 19200bps | 250m | 100m |
| ON | ON | 38400bps | 200m | 80m |

**Note:**

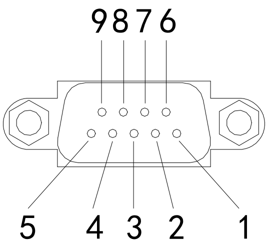
(1) To ensure the stable transmission and connection of the equipment signal, be sure to use the standard signal antenna!

(2) DIP3 and DIP4 are used to set the air transmission baud rate. The dial switches between the two S-BOX-HTs or between the S-BOX-HT and the MTG765-HT must be set consistently.

## 2-5. Communication port

S-BOX-HT has a full function serial port, supports RS232/RS485/RS422, and has an external RS485 terminal. RS485 and RS232/RS422 are from the same serial port, cannot be used at the same time.

DB9 terminal pins are defined as follows:

| | Pin | Definition | Explanation |
|---|---|---|---|
|  | 1 | TD+ | RS422 send + |
| | 2 | RXD | RS232 receive data |
| | 3 | TXD | RS232 send data |
| | 4 | A | RS485 + |
| | 5 | GND | Signal ground |
| | 6 | TD- | RS422 send - |
| | 7 | B | RS485 - |
| | 8 | RDD- | RS422 receive - |
| | 9 | RDD+ | RS422 receive + |

## 2-6. General specification

| Item | Specification |
|---|---|
| Using environment | No corrosive gas |
| Ambient temperature | 0℃~60℃ |
| Storage temperature | -20~70℃ |
| Ambient humidity | 5~95%RH |
| Storage humidity | 5~95%RH |
| Installation | Directly installed on DIN46277 (35mm wide) guide rail |
| S-BOX-HT power supply | The power supply voltage of the module is 24V DC, and the allowable range is DC 21.6V~26.4V |
| MTG765-HT endurance | 7-8 hours of full charge |

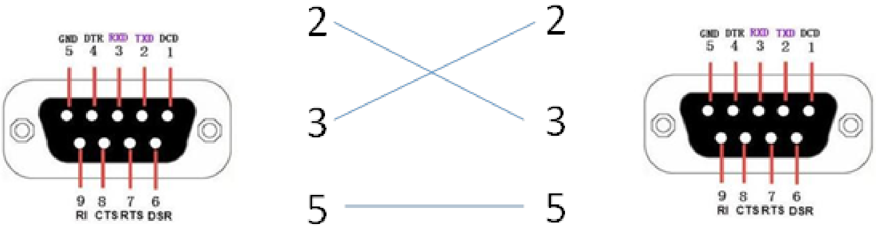
# 3. S-BOX-HT parameter configuration

When S-BOX-HT is used, serial port communication parameters and RF parameters need to be set.

## 3-1. Preparation

1. S-BOX-HT config tool SBoxTool.exe.
2. OP cable

Prepare an OP cable for connecting the DB9 pin serial port of the computer. If there is no OP cable, the cable can be self-made as shown in the figure below. If the computer does not have a DB9 pin serial port, a USB to serial port convertor is also required.

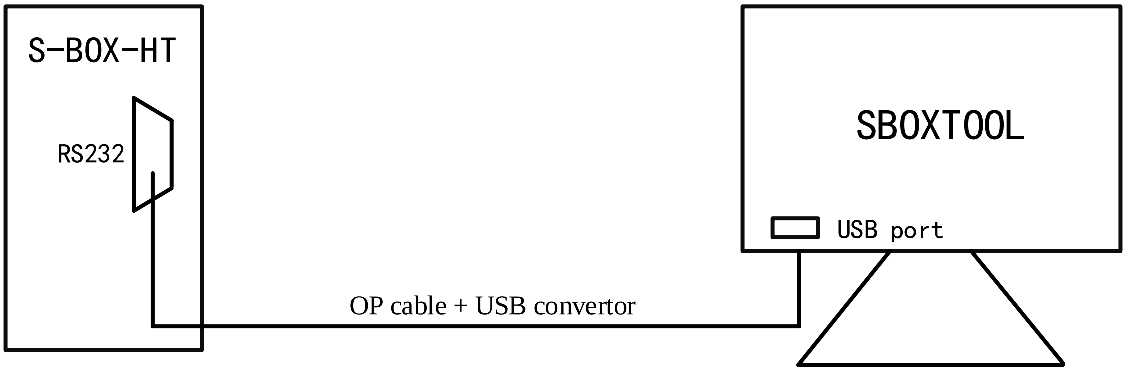

GND DTR RXD TXD DCD
5 4 3 2 1
9 8 7 6
RI CTS RTS DSR
2
3
5
2
3
5
GND DTR RXD TXD DCD
5 4 3 2 1
9 8 7 6
RI CTS RTS DSR

## 3-2. S-BOX-HT configuration

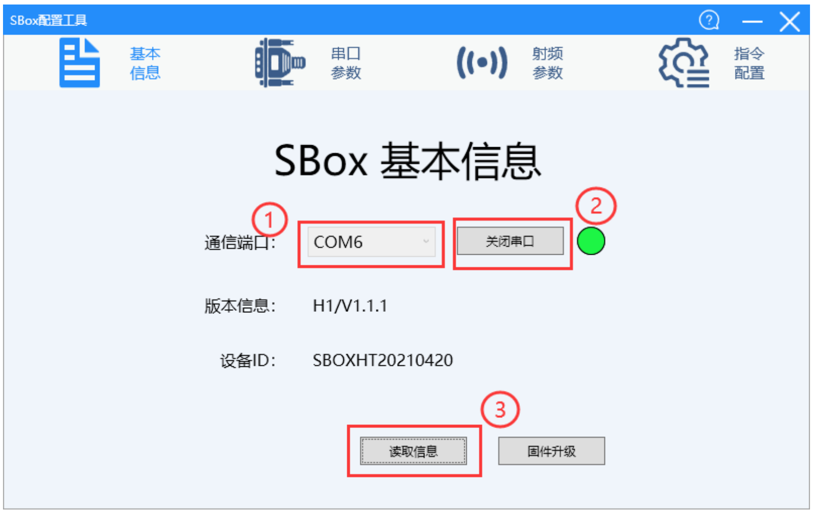
1. Turn dial switch DIP 1 to ON, and TXD and RXD of the module flash at the same time, indicating that the module is in configuration mode.

XINJE
PWR
TXD
RXD
433
X0 X1 X2 Y0 Y1 Y2
S-BOX-HT
Industrial 433MHz Module
RS-232/422/485
ON
1 2 3 4

2. Connect the computer and S-BOX-HT through the programming cable


S-BOX-HT
RS232
SBOXTOOL
USB port
OP cable + USB convertor

3. After the module is successfully connected to the computer, open SBoxTool.exe, select the COM port corresponding to the computer, click Open Serial Port, and you can directly read the information of the module.


SBox配置工具
基本信息
串口参数
射频参数
指令配置
①
②
③
关闭串口
读取信息
固件升级

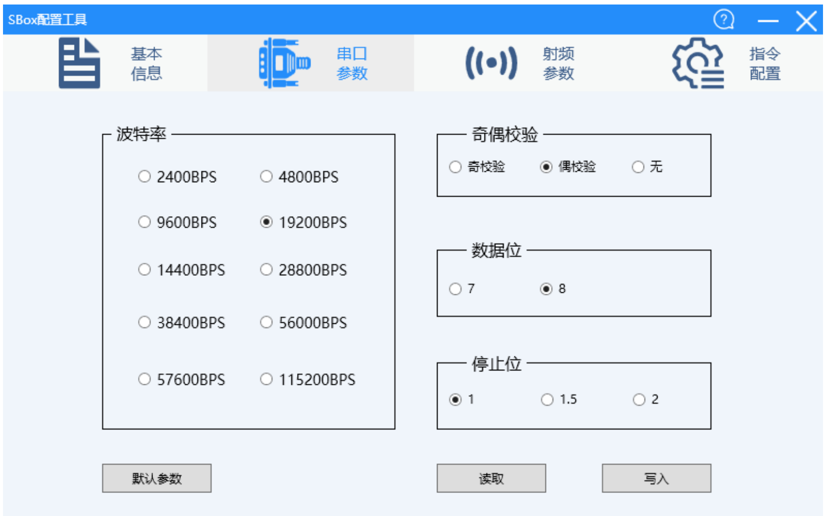
SBox 基本信息

通信端口: COM6

版本信息: H1/V1.1.1

设备ID: SBOXHT20210420

4. Set the serial port parameters of the module, which should be consistent with the connected PLC serial port parameters. The default factory serial port parameters are 19200, 8, 1, E. Click Write after setting.


SBox配置工具
基本信息
串口参数
射频参数
指令配置
默认参数
读取
写入

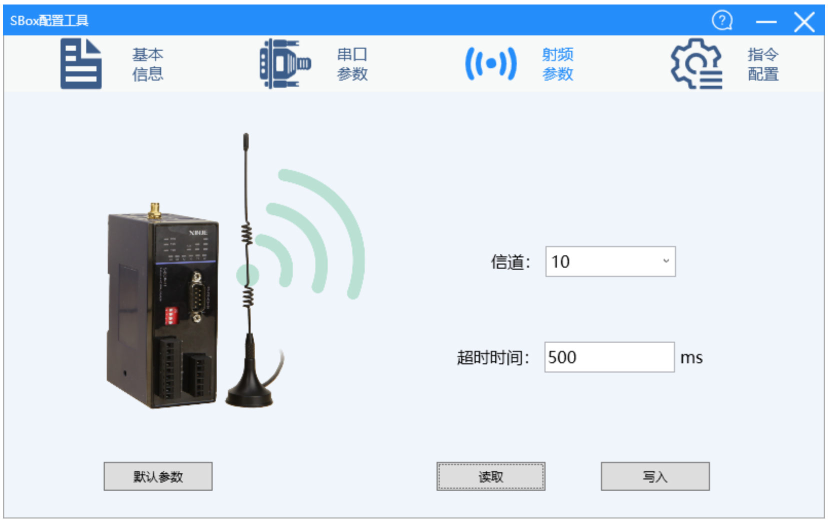
波特率
○ 2400BPS ○ 4800BPS
○ 9600BPS ● 19200BPS
○ 14400BPS ○ 28800BPS
○ 38400BPS ○ 56000BPS
○ 57600BPS ○ 115200BPS

奇偶校验
○ 奇校验 ● 偶校验 ○ 无

数据位
○ 7 ● 8

停止位
● 1 ○ 1.5 ○ 2

5. RF parameters: set the channel of the module, and only devices with the same channel can communicate. The timeout is the allowable timeout on the wireless side, which is generally set to 500ms. Click Write after configuration.


SBox配置工具
基本信息
串口参数
射频参数
指令配置
默认参数
读取
写入

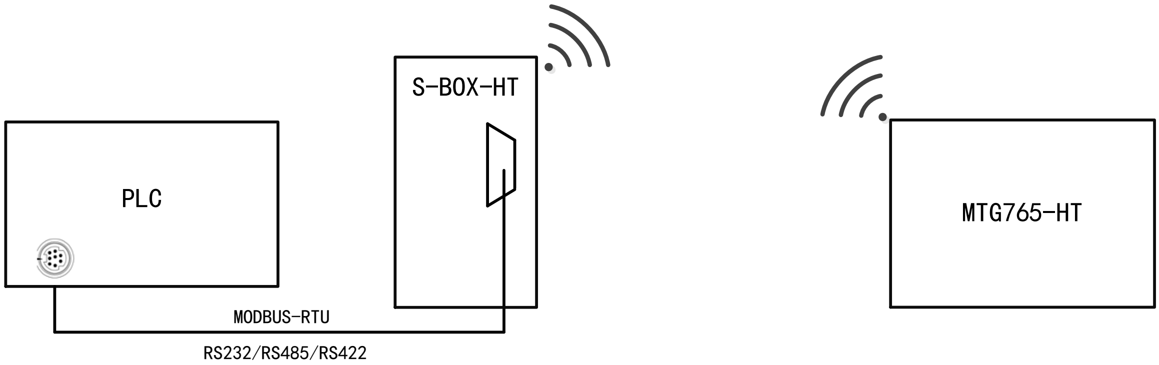
信道: 10

超时时间: 500 ms

6. After the module configuration is completed, turn the dial switch 1 to OFF, and the module is set to the operation mode.

# 4. Communication between MTG765-HT and PLC through S-BOX-HT

The wireless communication between the HMI MTG765-HT and PLC can be realized through S-BOX-HT. The network connection diagram is as follows:


S-BOX-HT
PLC
MTG765-HT
MODBUS-RTU
RS232/RS485/RS422

PLC communicates with S-BOX-HT through serial port, and S-BOX-HT communicates with MTG765-HT through wireless network. The following conditions must be met for successful communication:

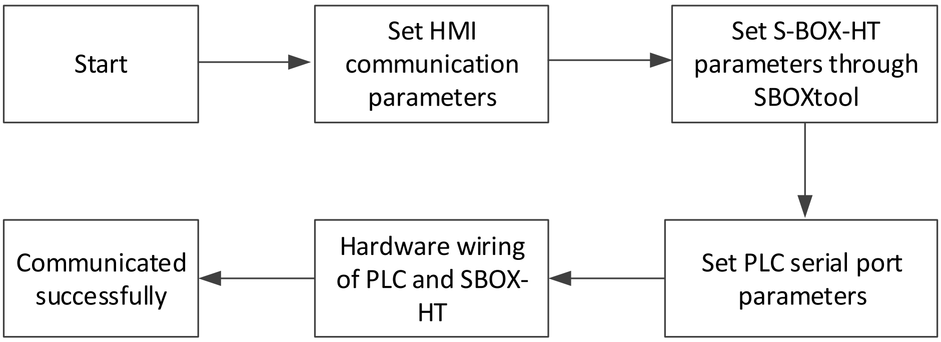
(1) The channel and air baud rate of S-BOX-HT and MTG765-HT must be set consistent

(2) The serial port of S-BOX-HT, PLC port of HMI and serial port parameters of PLC must be consistent

(3) RS232/RS485/RS422 wiring of physical layer shall meet the specification.

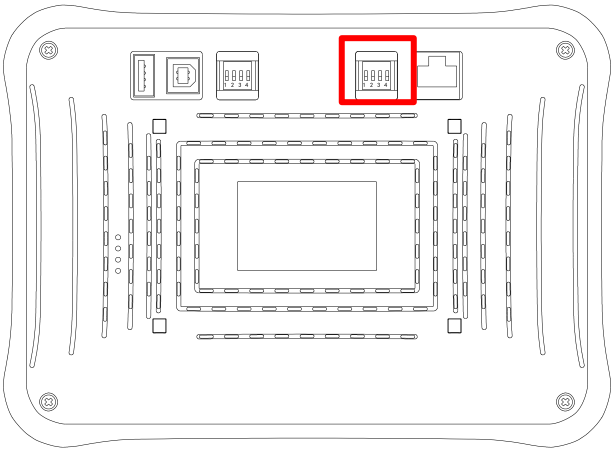
As a transparent transmission module, S-BOX-HT theoretically supports communication with all serial port devices. The following will illustrate the specific operation steps with Xinje XD series PLC as an example.

## 4-1. Operation steps


Start
Set HMI communication parameters
Set S-BOX-HT parameters through SBOXtool
Set PLC serial port parameters
Hardware wiring of PLC and SBOX-HT
Communicated successfully

## 4-2. MTG765-HT communication parameters

1. Set the air baud rate of the HMI through the dial switch. The dial switch of the MTG765-HT is black and its position is as follows:



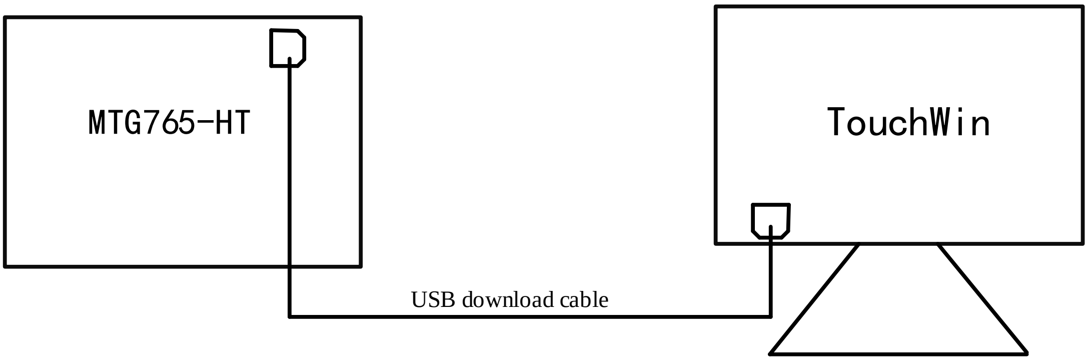
The MTG765-HT dialing function is defined as follows:

| Dial switch | Definition |
|---|---|
| DIP 1 | Always OFF |
| DIP 2 | Always OFF |
| DIP 3 | Adjust the air transmission rate |
| DIP 4 | Adjust the air transmission rate |

The specific transmission rate is shown in the following table:

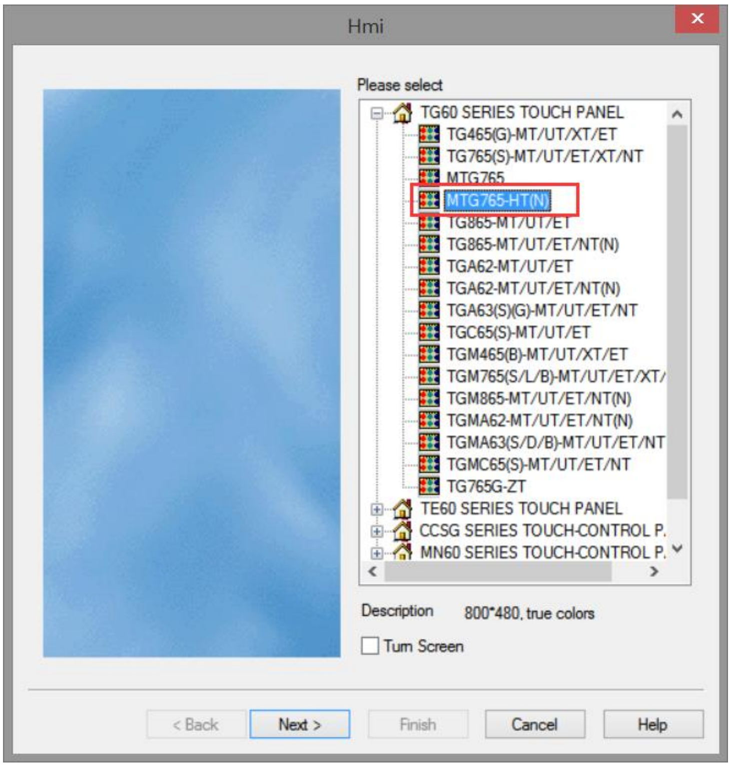
| DIP3 | DIP4 | Air transmission rate | Air transmission distance (for reference) |
|---|---|---|---|
| OFF | OFF | 4800bps | 150m |
| OFF | ON | 9600pbs | 130m |
| ON | OFF | 19200bps | 100m |
| ON | ON | 38400bps | 80m |

2. Connect the computer to MTG765-HT through the programming cable:


MTG765-HT
TouchWin
USB download cable

3. The version of HMI programming software shall be V2.E.6 or above.

4. Create a new project, select MTG765-HT (N) and click next.

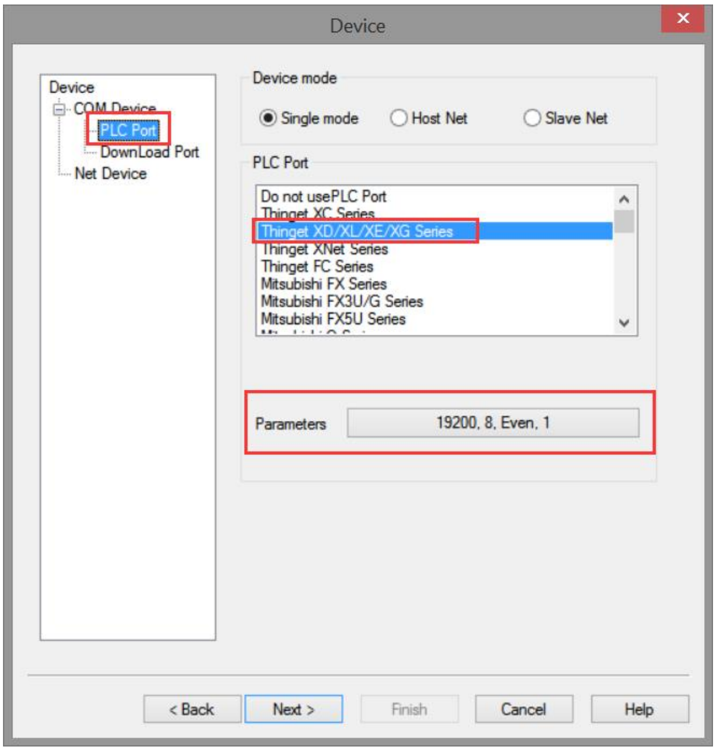

Hmi
Please select
TG60 SERIES TOUCH PANEL
TG465(G)-MT/UT/XT/ET
TG765(S)-MT/UT/ET/XT/NT
MTG765
MTG765-HT(N)
TG865-MT/UT/ET
TG865-MT/UT/ET/NT(N)
TGA62-MT/UT/ET
TGA62-MT/UT/ET/NT(N)
TGA63(S)(G)-MT/UT/ET/NT
TGC65(S)-MT/UT/ET
TGM465(B)-MT/UT/XT/ET
TGM765(S/L/B)-MT/UT/ET/XT/
TGM865-MT/UT/ET/NT(N)
TGMA62-MT/UT/ET/NT(N)
TGMA63(S/D/B)-MT/UT/ET/NT
TGMC65(S)-MT/UT/ET/NT
TG765G-ZT
TE60 SERIES TOUCH PANEL
CCSG SERIES TOUCH-CONTROL P.
MN60 SERIES TOUCH-CONTROL P.
< Back
Next >
Finish
Cancel
Help

Description 800*480, true colors

☐ Turn Screen

5. Set PLC port device and communication parameters.

The PLC connected with S-BOX-HT shall be set here, and the communication parameters shall be consistent with the PLC serial port parameters. The download port remains default and cannot be modified.


Device
Device
COM Device
PLC Port
DownLoad Port
Net Device
< Back
Next >
Finish
Cancel
Help

Device mode

● Single mode ○ Host Net ○ Slave Net

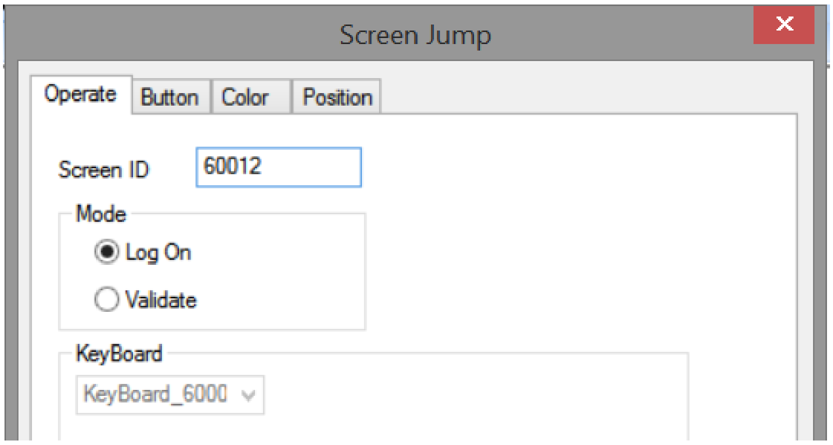
PLC Port

Do not usePLC Port
Thinget XC Series
Thinget XD/XL/XE/XG Series
Thinget XNet Series
Thinget FC Series
Mitsubishi FX Series
Mitsubishi FX3U/G Series
Mitsubishi FX5U Series

Parameters: 19200, 8, Even, 1

6. Open the wireless communication configuration interface in the following three ways:

Method 1: The system screen ID 60012 is the wireless screen setting interface. In the user interface, you can add "Screen Jump" button to specify the jump screen ID as "60012", and enter the configuration interface.


Screen Jump
Operate
Button
Color
Position

Screen ID: 60012

Mode

● Log On

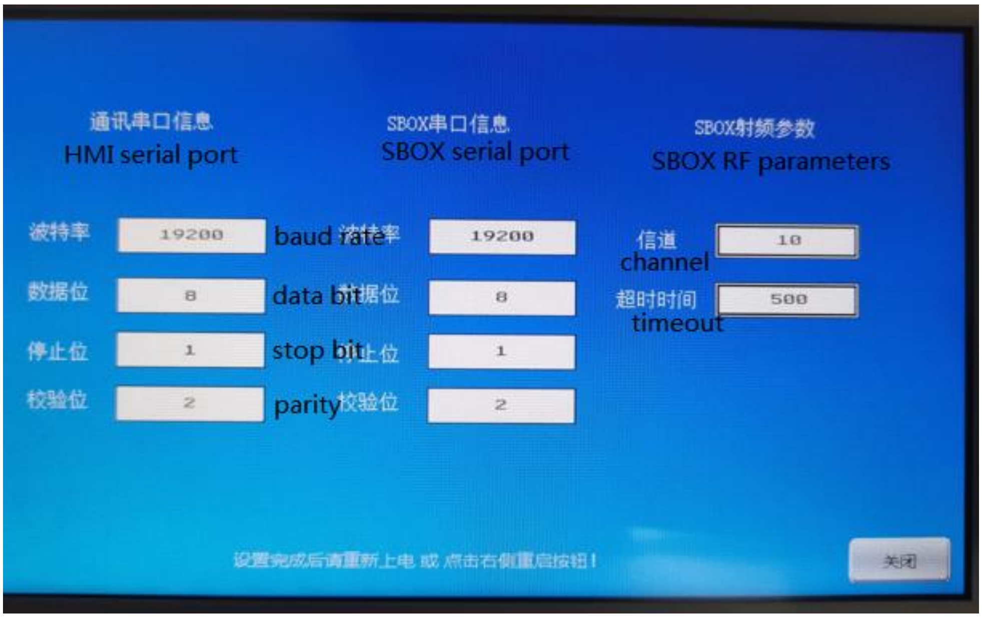
○ Validate

KeyBoard: KeyBoard_6000

Method 2: Turn ON the DIP 3 of the HMI, and enter the system interface after power on again.

Method 3: When starting up, long pressing the touch screen interface will automatically jump to the setting interface.

7. Set the channel on the configuration interface, which is consistent with the channel of S-BOX-HT on the PLC side. It is recommended to set the timeout as 500ms.



通讯串口信息
HMI serial port

波特率 19200 baud rate
数据位 8 data bit
停止位 1 stop bit
校验位 2 parity

SBOX串口信息
SBOX serial port

波特率 19200
数据位 8
停止位 1
校验位 2

SBOX射频参数
SBOX RF parameters

信道 channel 10
超时时间 timeout 500

设置完成后请重新上电 或 点击右侧重启按钮！

The communication serial port information in the figure above is the parameter set when selecting the equipment protocol connected to the PLC port in step 4 above. SBOX serial port information is the serial port parameter of SBOX built in the touch screen. By default, it will be consistent with the PLC port parameter of the HMI, and they cannot be modified after downloading the HMI program.

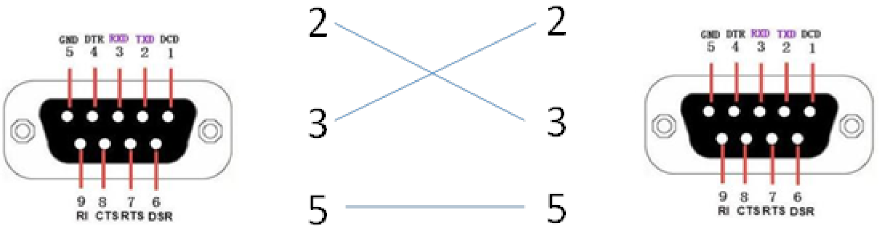
## 4-3. S-BOX-HT communication parameters

### 4-3-1. Preparation

1. S-BOX-HT config tool SBoxTool.exe.

2. OP cable

Prepare an OP cable for connecting the DB9 pin serial port of the computer. If there is no OP cable, the cable can be self-made as shown in the figure below. If the computer does not have a DB9 pin serial port, a USB to serial port convertor is also required.

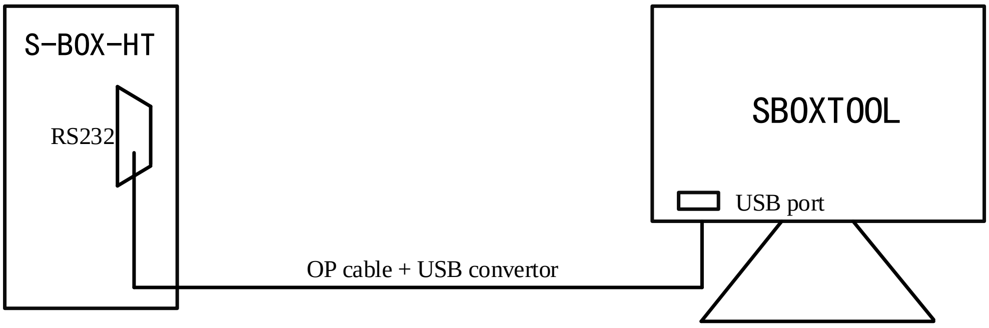


### 4-3-2. S-BOX-HT configuration

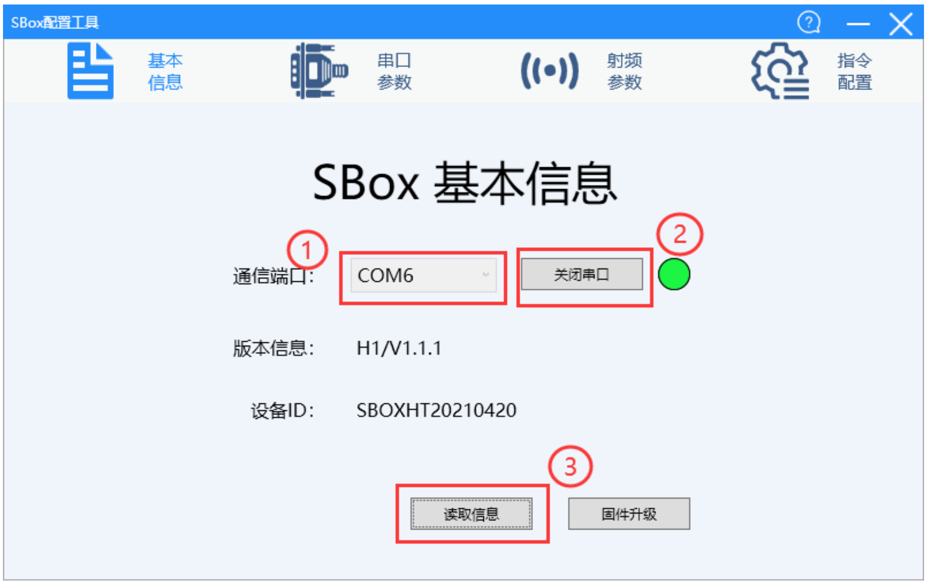
1. Turn DIP 1 to ON, TXD and RXD of the module flash at the same time, indicating that the module is in configuration mode.

XINJE
PWR
TXD
RXD
S-BOX-HT
Industrial 433MHz Module
RS-232/422/485
ON

2. Connect the computer and S-BOX-HT through the programming cable


S-BOX-HT
RS232
SBOXTOOL
USB port
OP cable + USB convertor

3. After the connection is successful, open SBoxTool.exe, select the corresponding COM port, and click Open Serial Port. The information of the module can be read directly.


SBox配置工具
基本信息
串口参数
射频参数
指令配置
①
②
③
关闭串口
读取信息
固件升级

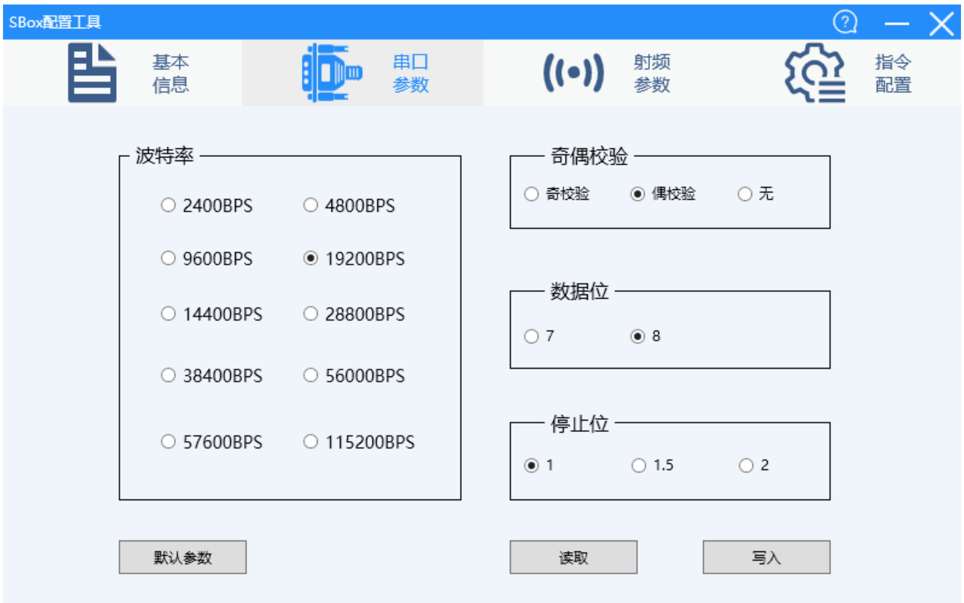
SBox 基本信息

通信端口: COM6

版本信息: H1/V1.1.1

设备ID: SBOXHT20210420

4. Set the serial port parameters of the module, which should be consistent with the connected PLC serial port parameters, so that the module can communicate with PLC. The default serial port parameters are 19200, 8, 1, E. Click Write after setting.



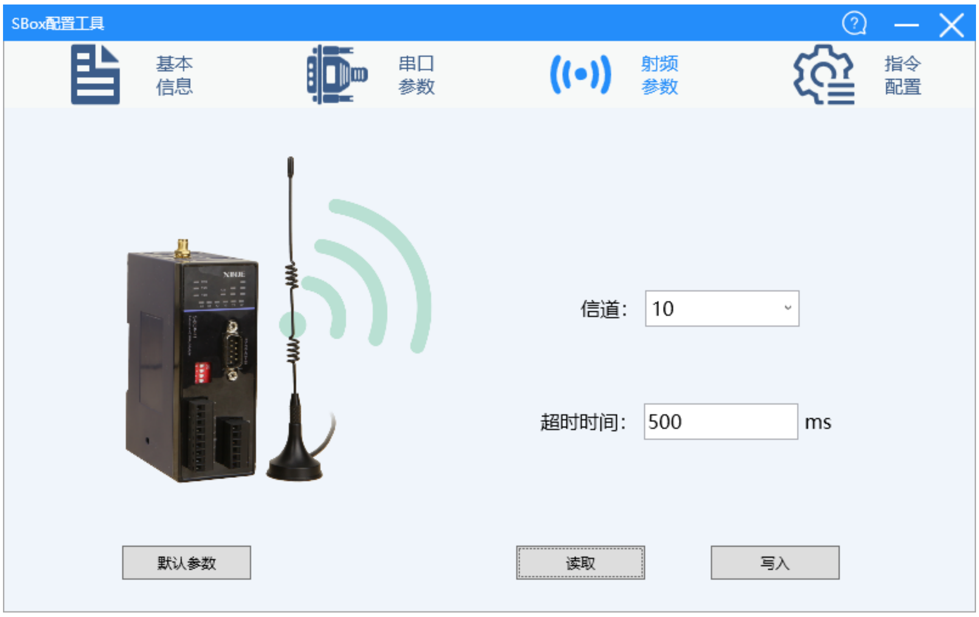
波特率
○ 2400BPS ○ 4800BPS
○ 9600BPS ● 19200BPS
○ 14400BPS ○ 28800BPS
○ 38400BPS ○ 56000BPS
○ 57600BPS ○ 115200BPS

奇偶校验
○ 奇校验 ● 偶校验 ○ 无

数据位
○ 7 ● 8

停止位
● 1 ○ 1.5 ○ 2

5. RF parameters: Set the channel of the module for wireless communication, which must be consistent with the MTG765-HT channel settings. The timeout is the allowable timeout on the wireless side, which is generally set to 500ms. Click Write after configuration.



信道：10

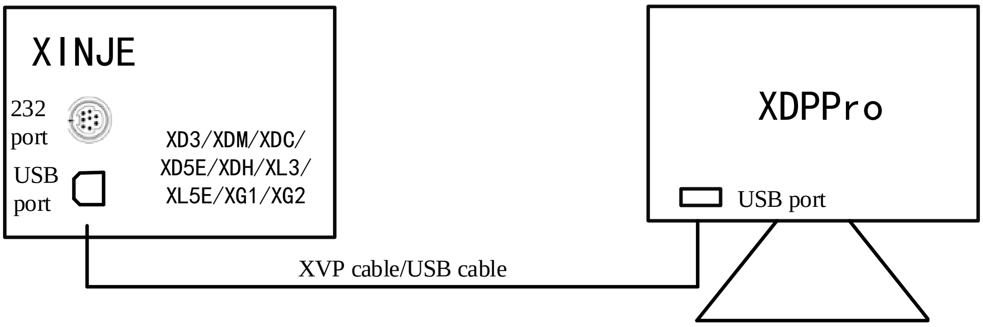
超时时间：500 ms

6. After the module configuration is completed, turn DIP 1 to OFF and set the module to the operation mode.

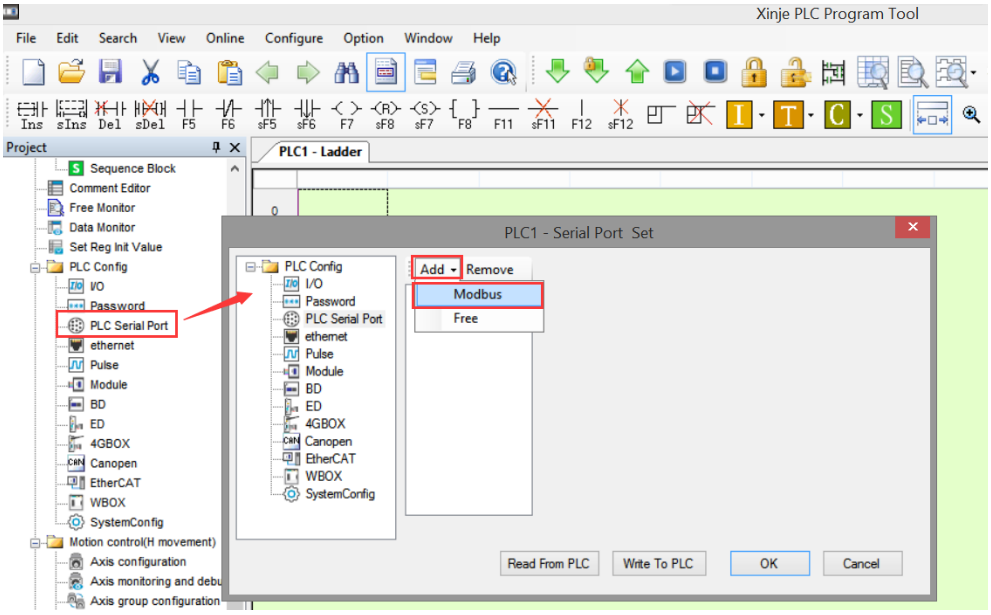
7. Set the DIP3 and DIP4 switch of S-BOX-HT according to the requirements of the chapter 2-4 Dial Switch. The switch settings must be consistent with the air baud rate setting of the HMI, otherwise communication will not be possible.

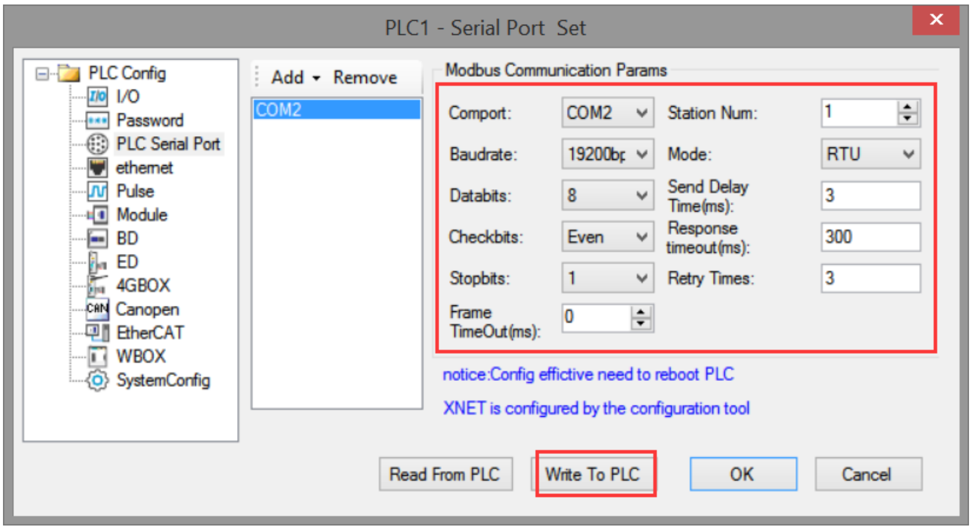
## 4-4. Set PLC serial port parameters

1. Connect the computer and PLC through the programming cable


XINJE
232 port
USB port
XD3/XDM/XDC/
XD5E/XDH/XL3/
XL5E/XG1/XG2
XDPPro
USB port
XVP cable/USB cable

2. Set the PLC serial port parameters


Xinje PLC Program Tool
File Edit Search View Online Configure Option Window Help
Project
PLC1 - Ladder
Sequence Block
Comment Editor
Free Monitor
Data Monitor
Set Reg Init Value
PLC Config
I/O
Password
PLC Serial Port
ethernet
Pulse
Module
BD
ED
4GBOX
Canopen
EtherCAT
WBOX
SystemConfig
Motion control(H movement)
Axis configuration
Axis monitoring and debu
Axis group configuration
PLC1 - Serial Port Set
Add
Remove
Modbus
Free
Read From PLC
Write To PLC
OK
Cancel


PLC1 - Serial Port Set
PLC Config
I/O
Password
PLC Serial Port
ethernet
Pulse
Module
BD
ED
4GBOX
Canopen
EtherCAT
WBOX
SystemConfig
Add
Remove
COM2
Read From PLC
Write To PLC
OK
Cancel

Modbus Communication Params

Comport: COM2
Station Num: 1
Baudrate: 19200bp
Mode: RTU
Databits: 8
Send Delay Time(ms): 3
Checkbits: Even
Response timeout(ms): 300
Stopbits: 1
Retry Times: 3
Frame TimeOut(ms): 0

notice:Config effictive need to reboot PLC

XNET is configured by the configuration tool

The default communication parameters of Xinje XD/XE series protocols are: 19200bps baud rate, 8 data bits, 1 stop bit, and even parity.

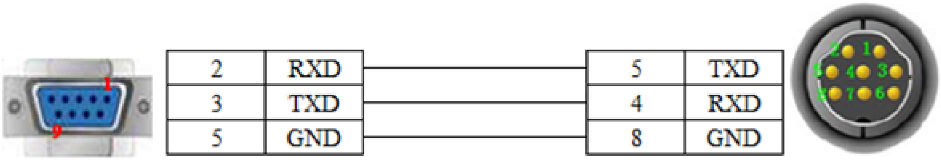
After the parameters are modified, power on again, and the parameters take effect. After the parameters of PLC and S-BOX-HT serial ports are consistent, they can communicate normally. As the default parameters of Xinje XD series COM2 port are the same as those of S-BOX-HT, no special setting is required. If other brands of PLC are used, the serial port parameters of S-BOX-HT and PLC must be consistent. For other brands of PLC, refer to the section "4-6. Communication settings and connections of common PLC".

## 4-5. Connection between PLC and S-BOX-HT

After completing the parameter settings in the first three sections, as long as the connection between PLC and S-BOX-HT is successfully established, the remote communication between MTG765-HT and PLC can be realized. XD series PLC can be connected with S-BOX-HT through RS232 or RS485 port. You can make cable by yourself as the following diagram.

1. XD/XL/XG series PLC CPU unit (RS232 port)

SBOX-HT port　　　　Xinje XD/XE series PLC unit RS232 port

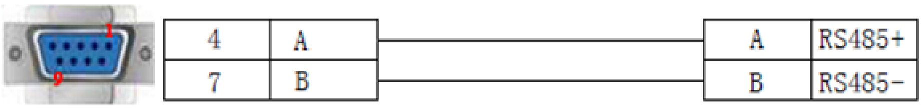


| | | | |
|---|---|---|---|
| 2 | RXD | 5 | TXD |
| 3 | TXD | 4 | RXD |
| 5 | GND | 8 | GND |

Diagram 1

2. XD/XL/XG series PLC CPU unit (RS485 port)

SBOX-HT port　　　　Xinje XD/XE series PLC unit RS485 port



| | | | |
|---|---|---|---|
| 4 | A | A | RS485+ |
| 7 | B | B | RS485- |

Diagram 2

After successful connection, MTG765-HT remote control PLC can be realized.

## 4-6. Communication setting and connection of common PLC

### 4-6-1. Communication with Xinje XC series

1. Device type

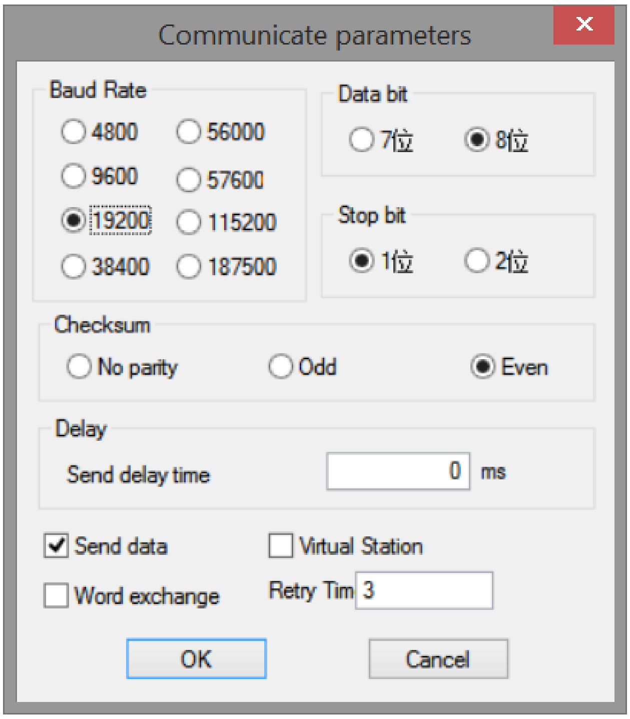
| Series | CPU | Connection module | Com port | Cable | PLC model selection in Touchwin software |
|---|---|---|---|---|---|
| XC | XC1<br>XC2<br>XC3<br>XC5<br>XCC<br>XCM | PLC serial port | RS232 | Diagram 1 | Xinje XC series |
| | | | RS485 | Diagram 2 | |
| | | XC-COM-BD expansion board | RS232 | Diagram 3 | |
| | | | RS485 | Diagram 4 | |

2. Parameter setting

(1) HMI setting

| Parameter | Recommended setting | Optional setting |
|---|---|---|
| PLC type | Xinje XC series | XC series/Modbus RTU (panel is Master) |
| Com port | RS232 | RS232/RS485 |
| Data bit | 8 | |
| Stop bit | 1 | |
| Parity | Even | |
| Baud rate | 19200 | 4800/9600/19200/38400/57600/115200 |
| Station no. | 1 | 0~255 |

Default communication parameters of Xinje XC series protocols:



Communicate parameters

Baud Rate
○ 4800 ○ 56000
○ 9600 ○ 57600
● 19200 ○ 115200
○ 38400 ○ 187500

Data bit
○ 7位 ● 8位

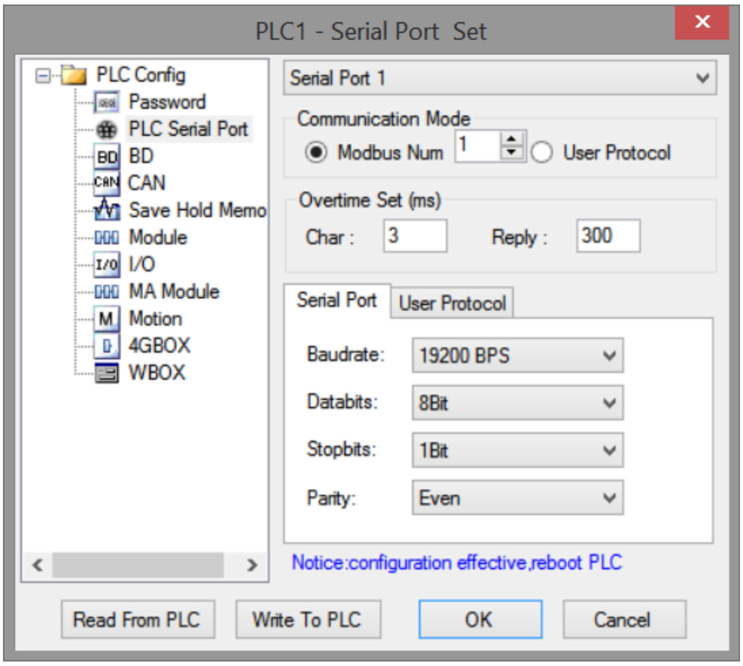
Stop bit
● 1位 ○ 2位

Checksum
○ No parity ○ Odd ● Even

Delay
Send delay time 0 ms

☑ Send data ☐ Virtual Station
☐ Word exchange Retry Tim 3

(2) PLC setting



PLC1 - Serial Port Set

PLC Config
Password
PLC Serial Port
BD
CAN
Save Hold Memo
Module
I/O
MA Module
Motion
4GBOX
WBOX

Serial Port 1

Communication Mode

● Modbus Num 1 ○ User Protocol

Overtime Set (ms)

Char : 3 Reply : 300

Serial Port
User Protocol

Baudrate: 19200 BPS

Databits: 8Bit

Stopbits: 1Bit

Parity: Even

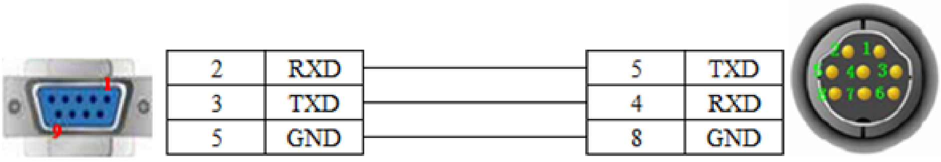
Notice:configuration effective,reboot PLC

Read From PLC
Write To PLC
OK
Cancel

3. Cable making

① XC series PLC CPU unit (RS232 port)

S-BOX-HT DB9 port Xinje XC series PLC unit RS232 port



| | |
|---|---|
| 2 | RXD |
| 3 | TXD |
| 5 | GND |

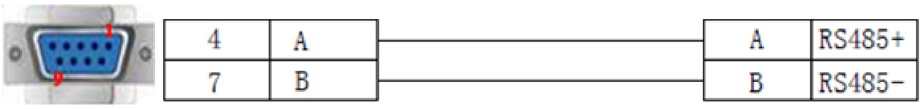
| | |
|---|---|
| 5 | TXD |
| 4 | RXD |
| 8 | GND |

1
9
1
2
3
4
5
6
7
8

Diagram 1

② XC series PLC CPU unit (RS485 port)

S-BOX-HT DB9 port Xinje XC series PLC unit RS485 port



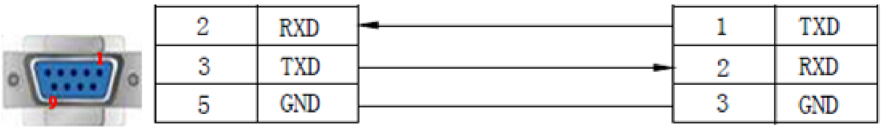
| | |
|---|---|
| 4 | A |
| 7 | B |

| | |
|---|---|
| A | RS485+ |
| B | RS485− |

Diagram 2

③ Expansion board XC-COM-BD (RS232)

S-BOX-HT DB9 port XC-COM-BD RS232 port



| | |
|---|---|
| 2 | RXD |
| 3 | TXD |
| 5 | GND |

| | |
|---|---|
| 1 | TXD |
| 2 | RXD |
| 3 | GND |

Diagram 3

④ Expansion board XC-COM-BD (RS485)

S-BOX-HT DB9 port XC-COM-BD RS485 port

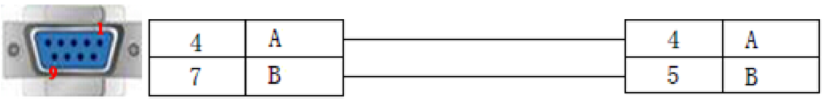


Diagram 4

## 4-6-2. Communicate with ABB PLC

1. Device type

ABB can communicate with Xinje HMI through Modbus protocol.

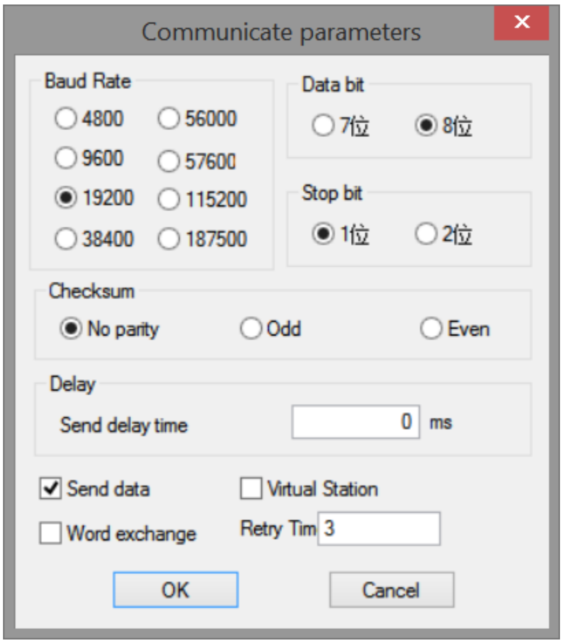
| Series | Communication type | Cable | PLC model selection in Touchwin software |
|---|---|---|---|
| AC500 | PM564-T-ETH | Diagram 1 | ABBAC500 series |

2. Parameter setting

(1) HMI setting

| Parameter | Recommended setting | Optional setting |
|---|---|---|
| PLC type | ABB AC500 series | ABB AC500 series<br>Modbus RTU (panel is Master) |
| Port | RS485 | |
| Data bit | 8 | |
| Stop bit | 1 | |
| Parity | No parity | |
| Baud rate | 19200 | 9600/19200 |
| Station no. | 1 | 0~255 |

ABB AC500 default communication parameters:



Communicate parameters

Baud Rate
○ 4800 ○ 56000
○ 9600 ○ 57600
● 19200 ○ 115200
○ 38400 ○ 187500

Data bit
○ 7位 ● 8位

Stop bit
● 1位 ○ 2位

Checksum
● No parity ○ Odd ○ Even

Delay
Send delay time 0 ms

☑ Send data ☐ Virtual Station
☐ Word exchange Retry Tim 3

(2) PLC setting

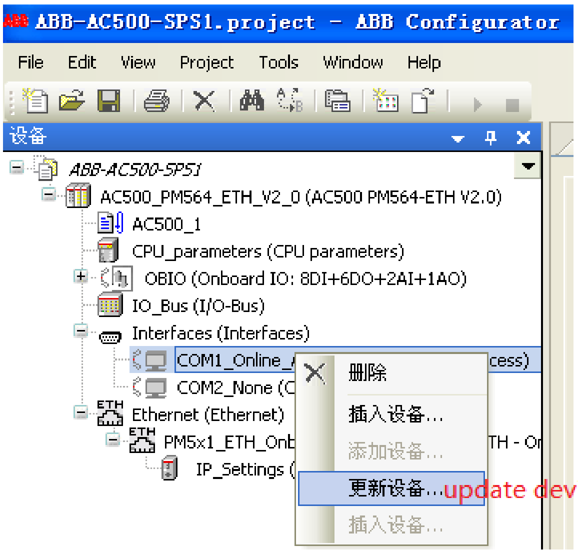
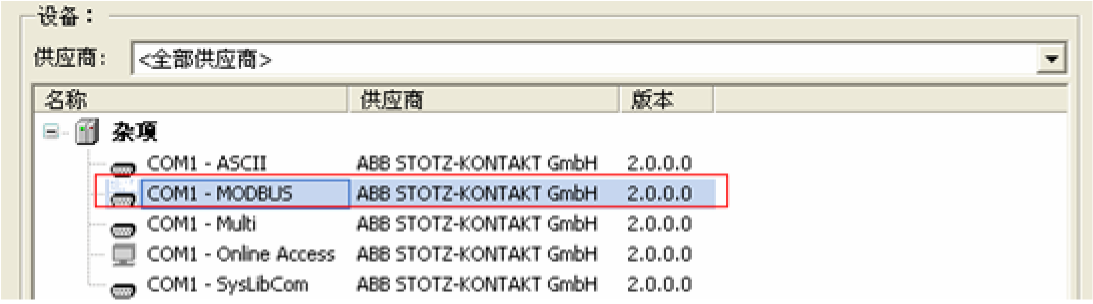


ABB-AC500-SPS1.project - ABB Configurator
File
Edit
View
Project
Tools
Window
Help
设备
删除
插入设备...
添加设备...
更新设备...
update device
插入设备...

ABB-AC500-SPS1
AC500_PM564_ETH_V2_0 (AC500 PM564-ETH V2.0)
AC500_1
CPU_parameters (CPU parameters)
OBIO (Onboard IO: 8DI+6DO+2AI+1AO)
IO_Bus (I/O-Bus)
Interfaces (Interfaces)
COM1_Online_A
COM2_None (C
Ethernet (Ethernet)
PM5x1_ETH_Onb
IP_Settings (

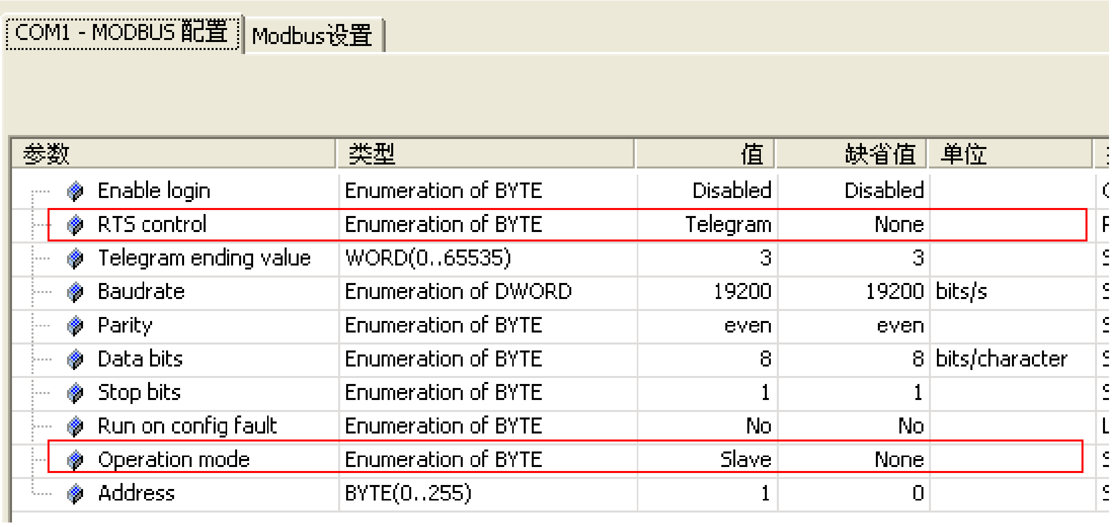
① In the ABB AC500 PLC software serial port setting, you need to select the Modbus protocol


设备：

供应商： <全部供应商>

| 名称 | 供应商 | 版本 |
|---|---|---|
| 杂项 | | |
| COM1 - ASCII | ABB STOTZ-KONTAKT GmbH | 2.0.0.0 |
| COM1 - MODBUS | ABB STOTZ-KONTAKT GmbH | 2.0.0.0 |
| COM1 - Multi | ABB STOTZ-KONTAKT GmbH | 2.0.0.0 |
| COM1 - Online Access | ABB STOTZ-KONTAKT GmbH | 2.0.0.0 |
| COM1 - SysLibCom | ABB STOTZ-KONTAKT GmbH | 2.0.0.0 |

② After selecting COM1 MODBUS, the serial communication setting needs to set "Operation mode" to "Slave", and other parameter settings should be consistent with the HMI.


COM1 - MODBUS 配置
Modbus设置

| 参数 | 类型 | 值 | 缺省值 | 单位 |
|---|---|---|---|---|
| Enable login | Enumeration of BYTE | Disabled | Disabled | |
| RTS control | Enumeration of BYTE | Telegram | None | |
| Telegram ending value | WORD(0..65535) | 3 | 3 | |
| Baudrate | Enumeration of DWORD | 19200 | 19200 | bits/s |
| Parity | Enumeration of BYTE | even | even | |
| Data bits | Enumeration of BYTE | 8 | 8 | bits/character |
| Stop bits | Enumeration of BYTE | 1 | 1 | |
| Run on config fault | Enumeration of BYTE | No | No | |
| Operation mode | Enumeration of BYTE | Slave | None | |
| Address | BYTE(0..255) | 1 | 0 | |

2. Cable making

Communication cable with ABB COM1 (RS485)

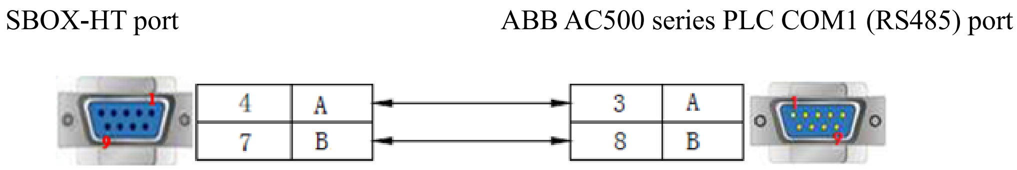


Diagram 1

## 4-6-3. Communicate with DELTA DVP series PLC

1. Device type

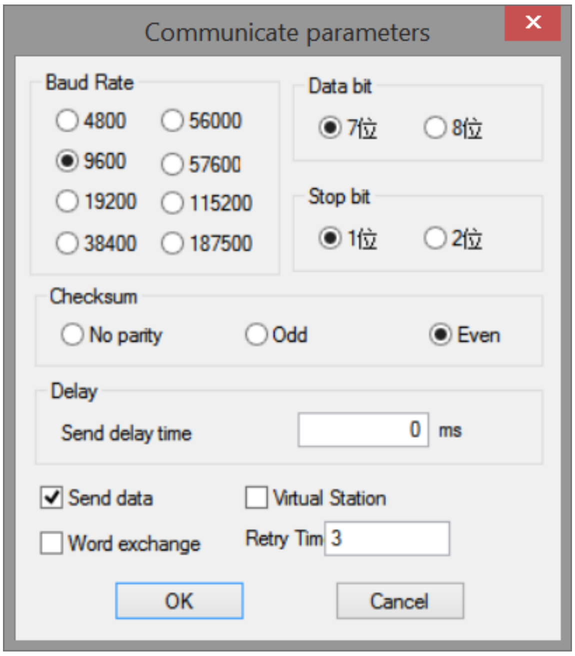
| Series | Connection module | Port | Cable | PLC selection in Touchwin software |
|---|---|---|---|---|
| DVP-EH<br>DVP-ES<br>DVP-EX | CPU directly connection | RS232 | Diagram 1 | Delta (DVP) |
| | | RS485 | Diagram 2 | |
| DVP-SS<br>DVP-SA<br>DVP-SC<br>DVP-SX | | RS232 | Diagram 1 | |
| | | RS485 | Diagram 2 | |

2. Parameter setting

(1) HMI setting

| Parameter | Recommended setting | Optional setting |
|---|---|---|
| PLC type | Delta (DVP) | |
| Port | RS232 | RS232/RS485 |
| Data bit | 7 | |
| Stop bit | 1 | |
| Parity | Even | |
| Baud rate | 9600 | 9600/19200 |
| Station no. | 1 | 0~255 |

Default communication parameters of Delta (DVP) protocol:



Communicate parameters

Baud Rate
○ 4800 ○ 56000
● 9600 ○ 57600
○ 19200 ○ 115200
○ 38400 ○ 187500

Data bit
● 7位 ○ 8位

Stop bit
● 1位 ○ 2位

Checksum
○ No parity ○ Odd ● Even

Delay
Send delay time 0 ms

☑ Send data ☐ Virtual Station
☐ Word exchange Retry Tim 3

3. Cable making

① When using the RS232 communication serial port on the CPU unit, the cable diagram is as follows:

S-BOX-HT port Delta DVP series RS232 port 8-pin male plug

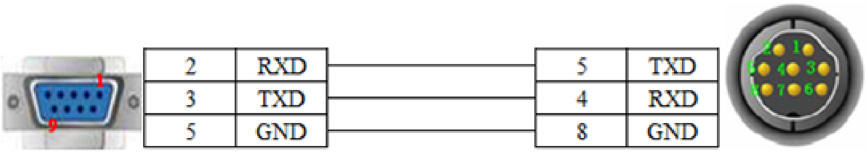


Diagram 1

② When using the RS485 communication serial port on the CPU unit, the cable diagram is as follows:

S-BOX-HT port Delta DVP series RS485 port

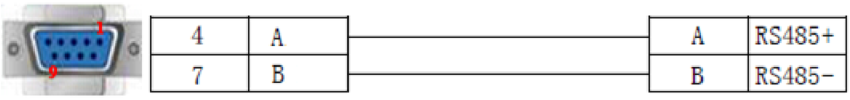


Diagram 2

## 4-6-4. Communicate with FATEK FB series PLC

1. Device type

| Series | CPU | Connection module | Port | Cable | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| FBs<br>B1 | FBs-20MN<br>FBs-32MN<br>FBs-44MN<br>B1-10/14/20/24M | CPU directly connection | RS232 | Diagram 1 | Fatek (MU/MA) |
| | | | RS485 | Diagram 2 | |

| Series | CPU | Connection module | Port | Cable | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| FB-MC | 20MC<br>28MC<br>40MC<br>19MCT<br>26MCT<br>36MCT | | RS232 | Diagram 1 | |
| | | | RS485 | Diagram 2 | |
| FB-MA | 20MA<br>28MA<br>40MA | FB-D TBR/D TBR-E module connection | RS232 | Diagram 3 | |
| | | | RS232 | Diagram 4 | |
| | | | RS485 | Diagram 5 | |

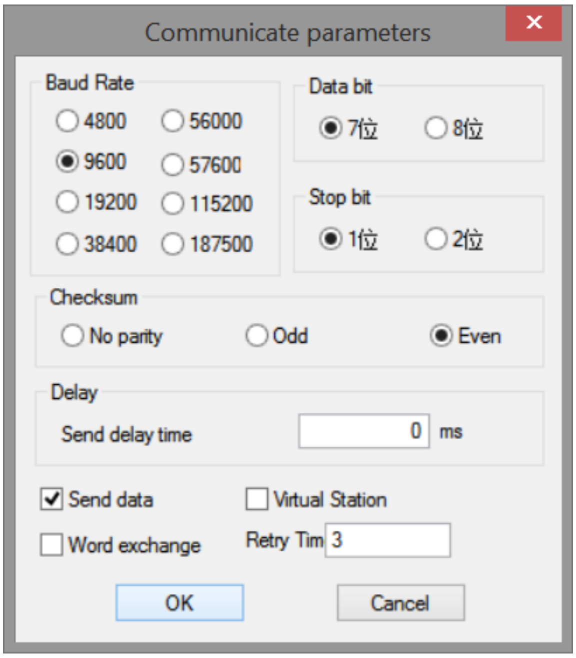
Note: The MA series PLC communication needs to be configured with FB-DTBR or FB-DTBR-E communication module, which adopts RS232 or RS485 connection mode.

2. Parameter setting

(1) HMI setting

| Parameter | Recommended setting | Optional setting |
|---|---|---|
| PLC type | Fatek (MU/MA) | |
| Port | RS232 | RS232/RS485 |
| Data bit | 7 | |
| Stop bit | 1 | |
| Parity | Even | |
| Baud rate | 9600 | |
| Station no. | 1 | 0~255 |

Default communication parameters of Fatek MU/MA protocol:



Communicate parameters

Baud Rate
○ 4800 ○ 56000
● 9600 ○ 57600
○ 19200 ○ 115200
○ 38400 ○ 187500

Data bit
● 7位 ○ 8位

Stop bit
● 1位 ○ 2位

Checksum
○ No parity ○ Odd ● Even

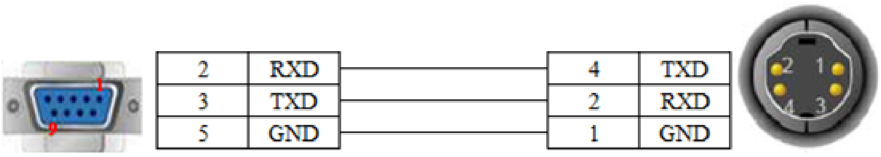
Delay
Send delay time 0 ms

☑ Send data ☐ Virtual Station
☐ Word exchange Retry Tim 3

### 3. Cable making

① FBs Port0 RS232 connection mode:

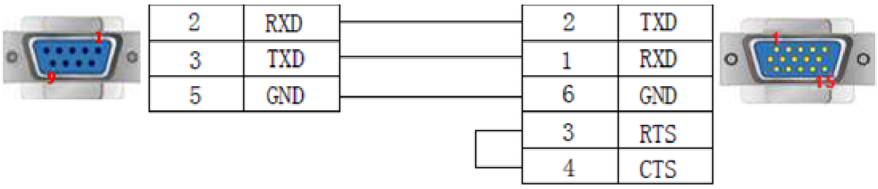
S-BOX-HT port FBS series Port0 4-pin male plug



| | | | |
|---|---|---|---|
| 2 | RXD | 4 | TXD |
| 3 | TXD | 2 | RXD |
| 5 | GND | 1 | GND |

CPU Port:

S-BOX-HT port 20MC/28MC/40MC/19MCT/26MCT/36MCT series RS232 port 15-pin male plug

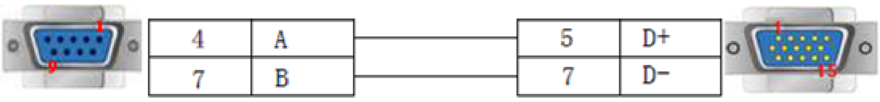


| | | | |
|---|---|---|---|
| 2 | RXD | 2 | TXD |
| 3 | TXD | 1 | RXD |
| 5 | GND | 6 | GND |
| | | 3 | RTS |
| | | 4 | CTS |

Diagram 1

② CPU unit, RS485 connection mode:

S-BOX-HT port FBs CPU Port 15-pin male plug

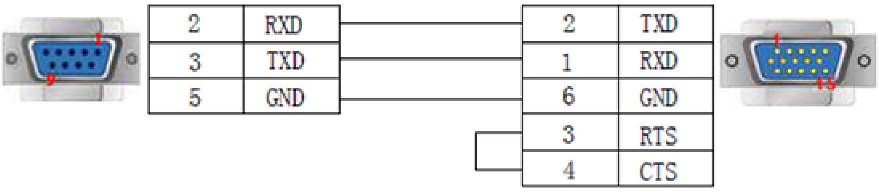


| | | | |
|---|---|---|---|
| 4 | A | 5 | D+ |
| 7 | B | 7 | D− |

Diagram 2

③ FB-DTBR/DTBR-E module RS232 mode (15-pin D-type male plug):

S-BOX-HT port 20MA/28MA/40MA series FB-DTBR/DTBR-E Module RS232 port 15-pin male plug



| | | | |
|---|---|---|---|
| 2 | RXD | 2 | TXD |
| 3 | TXD | 1 | RXD |
| 5 | GND | 6 | GND |
| | | 3 | RTS |
| | | 4 | CTS |

Diagram 3

④ FB-DTBR/DTBR-E module RS232 mode (9-pin D-type male plug):

S-BOX-HT port

20MA/28MA/40MA series FB-DTBR/DTBR-E module RS232 port 9-pin male plug

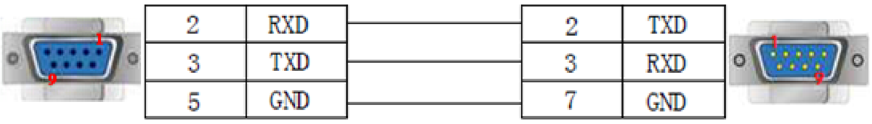


Diagram 4

⑤ FB-DTBR/DTBR-E module RS485:

S-BOX-HT port

FB-DTBR/DTBR-E module 3-pin terminal

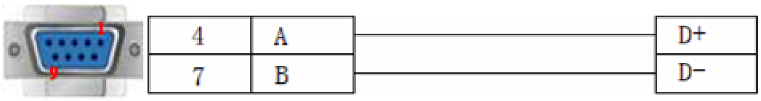


Diagram 5

## 4-6-5. Communicate with Mitsubishi FX series PLC

1. Device type

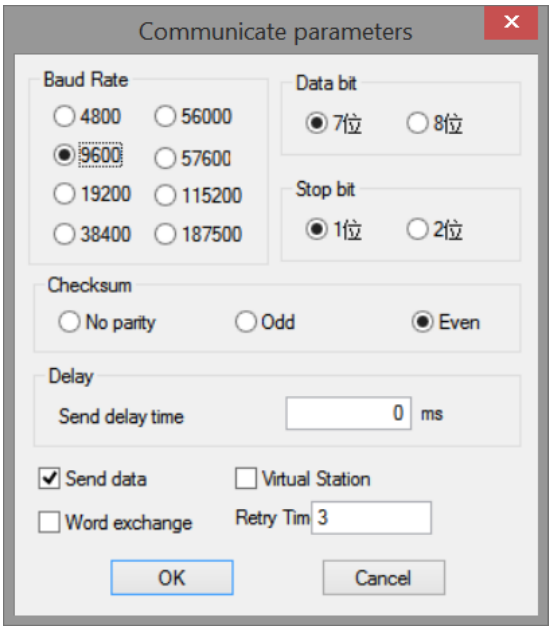
| Series | CPU | Connection module | Port | Cable | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| FX | FX0<br>FX1<br>FX1S/3S<br>FX0N/1N/2N<br>FX3SA-14MR-CM | CPU directly connection | RS422 | Diagram 1 | Mitsubishi FX series |
| | FX2 | CPU directly connection | RS422 | Diagram 2 | |

2. Parameter setting

(1) HMI setting

| Parameter | Recommended setting | Optional setting |
|---|---|---|
| PLC type | Mitsubishi FX series | |
| Data bit | 7 | |
| Stop bit | 1 | |
| Parity | Even | |
| Baud rate | 9600 | 4800/9600/19200 |
| Station no. | 0 | |

Default communication parameters of Mitsubishi FX series protocol:


Communicate parameters

Baud Rate: ○ 4800 ○ 56000 ● 9600 ○ 57600 ○ 19200 ○ 115200 ○ 38400 ○ 187500

Data bit: ● 7位 ○ 8位

Stop bit: ● 1位 ○ 2位

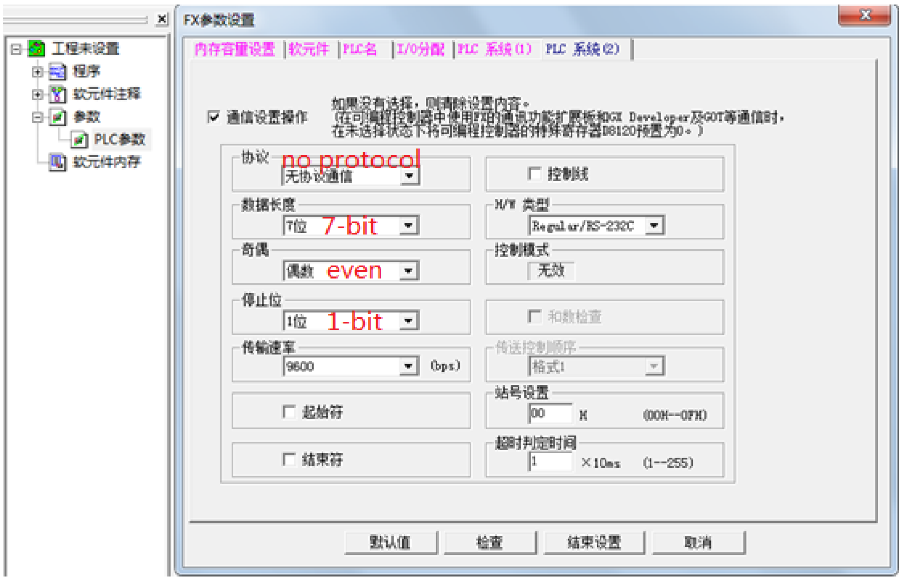
Checksum: ○ No parity ○ Odd ● Even

Delay: Send delay time 0 ms

☑ Send data ☐ Virtual Station

☐ Word exchange Retry Tim 3

(2) PLC setting



☑ 通信设置操作

如果没有选择，则清除设置内容。
（在可编程控制器中使用FX的通讯功能扩展板和GX Developer及GOT等通信时，在未选择状态下将可编程控制器的特殊寄存器D8120预置为0。）

协议: 无协议通信 no protocol

数据长度: 7位 7-bit

奇偶: 偶数 even

停止位: 1位 1-bit

传输速率: 9600 (bps)

☐ 起始符

☐ 结束符

☐ 控制线

H/W 类型: Regular/RS-232C

控制模式: 无效

☐ 和数检查

传送控制顺序: 格式1

站号设置: 00 H (00H--0FH)

超时判定时间: 1 ×10ms (1--255)

Note: The parity of Mitsubishi software is "odd" by default, but when communicating with Xinje HMI, you must change the "odd" to "even", otherwise, even if the HMI is changed to "odd" to keep consistent with Mitsubishi, the communication will not work. After the communication parameters are written into the PLC, you need to power off and then power on to take effect.

3. Cable making

① FX0/FX1/FX1S/FX0N/FX1N/FX2N series PLC RS422 port:

S-BOX-HT port

MITSUBISHI PLC FX series
RS422 port 8-pin male plug

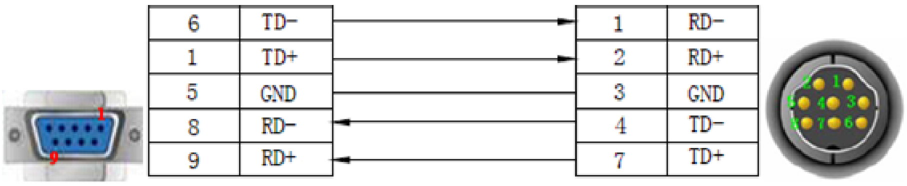

6 TD-
1 TD+
5 GND
8 RD-
9 RD+
1 RD-
2 RD+
3 GND
4 TD-
7 TD+
1
9
1 2 3 4 5 6 7 8

Diagram 1

② FX2 PLC:

S-BOX-HT port

MITSUBISHI PLC FX2 series
programming port RS422 25-pin male plug

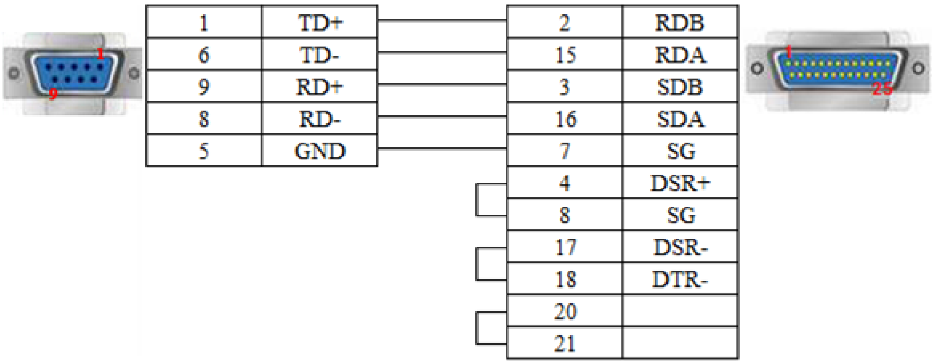

1 TD+
6 TD-
9 RD+
8 RD-
5 GND
2 RDB
15 RDA
3 SDB
16 SDA
7 SG
4 DSR+
8 SG
17 DSR-
18 DTR-
20
21
1
9
1
25

Diagram 2

## 4-6-6. Communicate with Mitsubish FX BD (232/485)

1. Device type

| Series | CPU | Connection module | Port | Cable | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| FX | FX0N/1N/2N<br>FX1S<br>FX3U/3G | RS232-BD | RS232 | Diagram 1 | Mitsubishi FXBD (232/485) |
| | | RS485-BD | RS485 | Diagram 2 | |

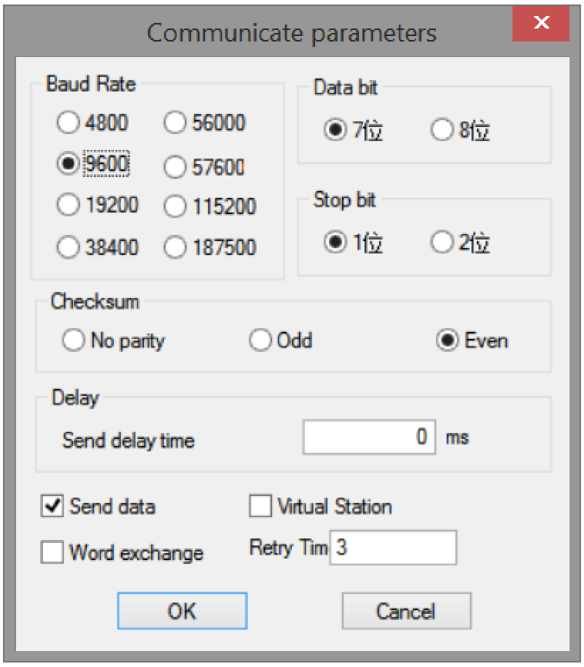
Note: All equipment shall not be plugged or unplugged with electricity. When 485-BD is used, the protocol supports multiple station numbers.

2. Parameter setting

(1) HMI setting

| Parameter | Recommended setting | Optional setting |
|---|---|---|
| PLC type | Mitsubishi FXB (232/485) | |
| Data bit | 7 | |
| Stop bit | 1 | |
| Parity | Even | |
| Baud rate | 9600 | 9600/19200/38400 |
| Station no. | 0 | 0~255 |

Mitsubishi FX BD (232/485) protocol default communication parameters:


Communicate parameters
OK
Cancel

Baud Rate: ○ 4800 ○ 56000 ● 9600 ○ 57600 ○ 19200 ○ 115200 ○ 38400 ○ 187500

Data bit: ● 7位 ○ 8位

Stop bit: ● 1位 ○ 2位

Checksum: ○ No parity ○ Odd ● Even

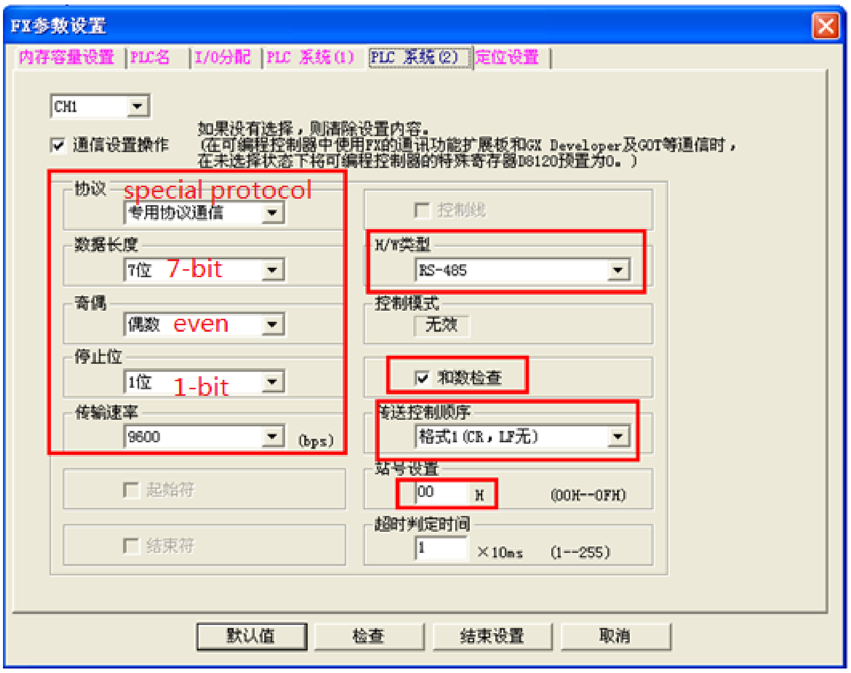
Delay: Send delay time 0 ms

☑ Send data ☐ Virtual Station

☐ Word exchange Retry Tim 3

(2) PLC setting

The following figure shows the setting of RS485 BD communication parameters:


FX参数设置
内存容量设置
PLC名
I/O分配
PLC 系统(1)
PLC 系统(2)
定位设置
默认值
检查
结束设置
取消

CH1

☑ 通信设置操作

如果没有选择，则清除设置内容。
（在可编程控制器中使用FX的通讯功能扩展板和GX Developer及GOT等通信时，在未选择状态下将可编程控制器的特殊寄存器D8120预置为0。）

协议 special protocol: 专用协议通信

数据长度: 7位 7-bit

奇偶: 偶数 even

停止位: 1位 1-bit

传输速率: 9600 (bps)

☐ 起始符

☐ 结束符

☐ 控制线

H/W类型: RS-485

控制模式: 无效

☑ 和数检查

传送控制顺序: 格式1（CR，LF无）

站号设置: 00 H (00H--0FH)

超时判定时间: 1 ×10ms (1--255)

Note:

(1) When 232-BD is used, RS-232 is selected for H/W type.

(2) After the PLC parameters are modified, the parameters must be written into the PLC and then powered on again to take effect!

3. Cable making

① FX series PLC RS232-BD:

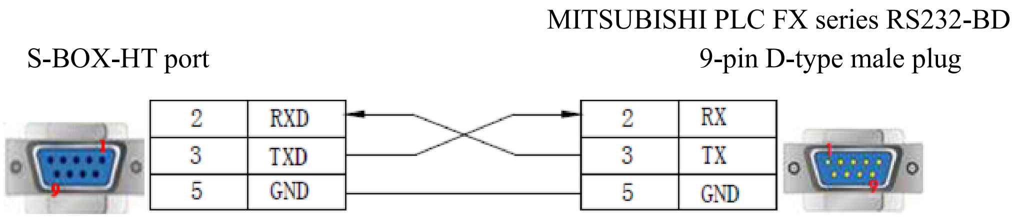

MITSUBISHI PLC FX series RS232-BD
S-BOX-HT port
9-pin D-type male plug
2
RXD
3
TXD
5
GND
2
RX
3
TX
5
GND
1
9
1
9

Diagram 1

② FX series PLC RS485-BD:

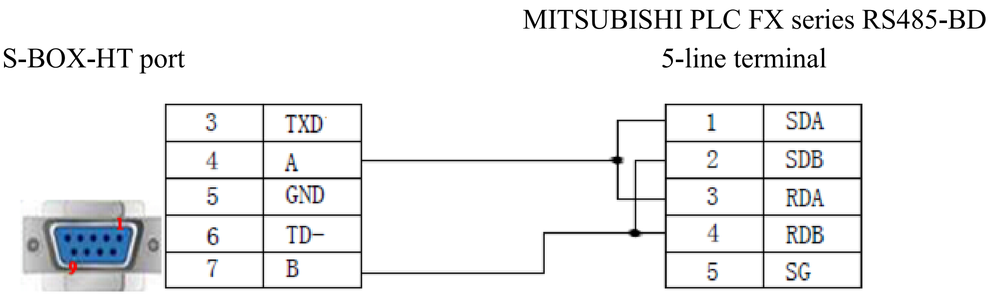

MITSUBISHI PLC FX series RS485-BD
S-BOX-HT port
5-line terminal
3
TXD
4
A
5
GND
6
TD-
7
B
1
SDA
2
SDB
3
RDA
4
RDB
5
SG
1
9

Diagram 2

## 4-6-7. Communicate with Mitsubish FX3U/G/GA series PLC

1. Device type

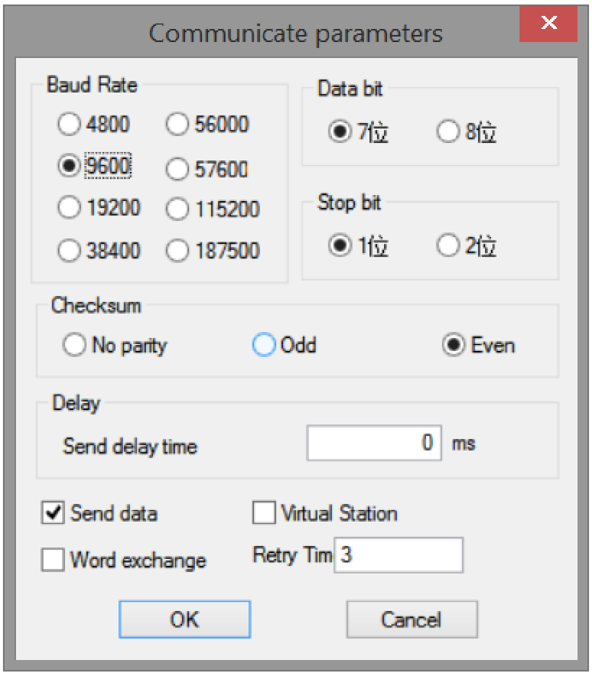
| Series | CPU | Connection module | Port | Cable | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| FX | FX3U<br>FX3G<br>FX3GA | CPU directly connection | RS422 | Diagram 1 | Mitsubishi FX3U/G series |

2. Parameter setting

(1) HMI setting

| Parameter | Recommended setting | Optional setting |
|---|---|---|
| PLC type | Mitsubishi FXB (232/485) | |
| Data bit | 7 | |
| Stop bit | 1 | |
| Parity | Even | |
| Baud rate | 9600 | 9600 |
| Station no. | 0 | |

Default communication parameters of Mitsubishi FX3U/G/GA protocol:


Communicate parameters

Baud Rate: ○ 4800 ○ 56000 ● 9600 ○ 57600 ○ 19200 ○ 115200 ○ 38400 ○ 187500

Data bit: ● 7位 ○ 8位

Stop bit: ● 1位 ○ 2位

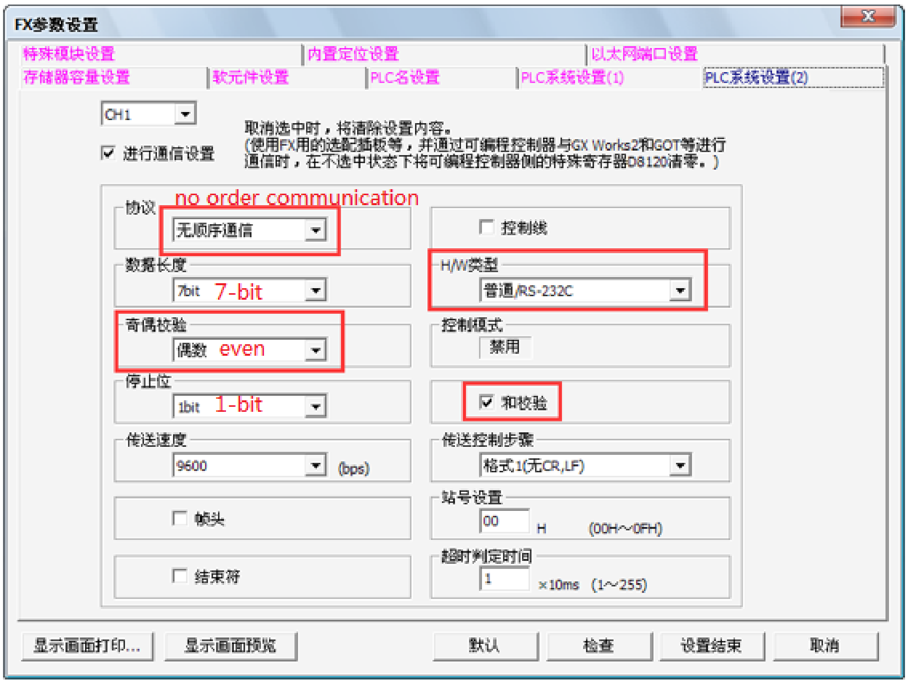
Checksum: ○ No parity ○ Odd ● Even

Delay: Send delay time 0 ms

☑ Send data ☐ Virtual Station

☐ Word exchange Retry Tim 3

(2) PLC setting


FX参数设置

CH1

☑ 进行通信设置

取消选中时，将清除设置内容。
(使用FX用的选配插板等，并通过可编程控制器与GX Works2和GOT等进行通信时，在不选中状态下将可编程控制器侧的特殊寄存器D8120清零。)

协议: 无顺序通信 no order communication

数据长度: 7bit 7-bit

奇偶校验: 偶数 even

停止位: 1bit 1-bit

传送速度: 9600 (bps)

☐ 帧头

☐ 结束符

☐ 控制线

H/W类型: 普通/RS-232C

控制模式: 禁用

☑ 和校验

传送控制步骤: 格式1(无CR,LF)

站号设置: 00 H (00H~0FH)

超时判定时间: 1 ×10ms (1~255)

Note: The parity of Mitsubishi software is "odd" by default, but when communicating with Xinje HMI, you must change the "odd" to "even", otherwise, even if the HMI is changed to "odd" to keep consistent with Mitsubishi, the communication will not work. After the communication parameters are written into the PLC, you need to power off and then power on to take effect. When communicating with FX3U, the baud rate can only be "9600", and other baud rates cannot communicate.

3. Cable making

FX3U/G/GA series PLC RS422:

S-BOX-HT port

MITSUBISHI PLC FX seriesCPU RS422 port 8-pin male plug

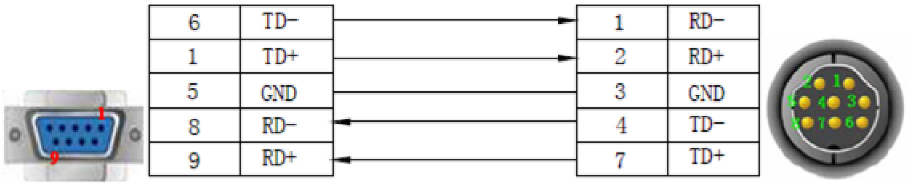


Diagram 1

## 4-6-8. Communicate with Mitsubish FX5U series PLC

1. Device type

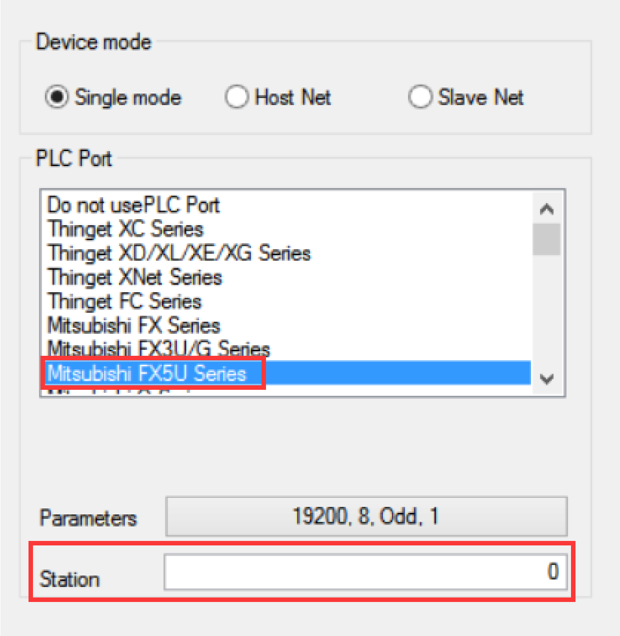
| Series | CPU | Connection module | Port | Cable | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| FX5U series | FX5U | CPU directly connection | RS485 | Diagram 1 | Mitsubishi FX5U series |

2. Parameter

(1) HMI setting

| Parameter | Recommended setting | Optional setting | Note |
|---|---|---|---|
| PLC type | Mitsubishi FX5U series | Mitsubishi FX5U series / Q series | When selecting Q series, input and output point decimal |
| Port | RS485 | | |
| Data bit | 8 | | |
| Stop bit | 1 | | |
| Parity | Odd | | |
| Baud rate | 19200 | | |
| Station no. | 0 | | Recommended settings must be used |

Mitsubishi FX5U series communication parameter settings:


Device mode

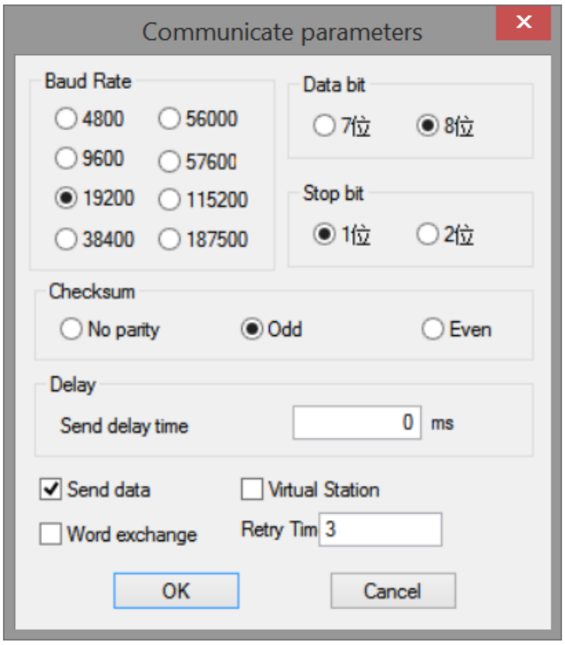
● Single mode ○ Host Net ○ Slave Net

PLC Port

Do not usePLC Port
Thinget XC Series
Thinget XD/XL/XE/XG Series
Thinget XNet Series
Thinget FC Series
Mitsubishi FX Series
Mitsubishi FX3U/G Series
Mitsubishi FX5U Series

Parameters: 19200, 8, Odd, 1

Station: 0


Communicate parameters

Baud Rate: ○ 4800 ○ 56000 ○ 9600 ○ 57600 ● 19200 ○ 115200 ○ 38400 ○ 187500

Data bit: ○ 7位 ● 8位

Stop bit: ● 1位 ○ 2位

Checksum: ○ No parity ● Odd ○ Even

Delay

Send delay time: 0 ms

☑ Send data ☐ Virtual Station

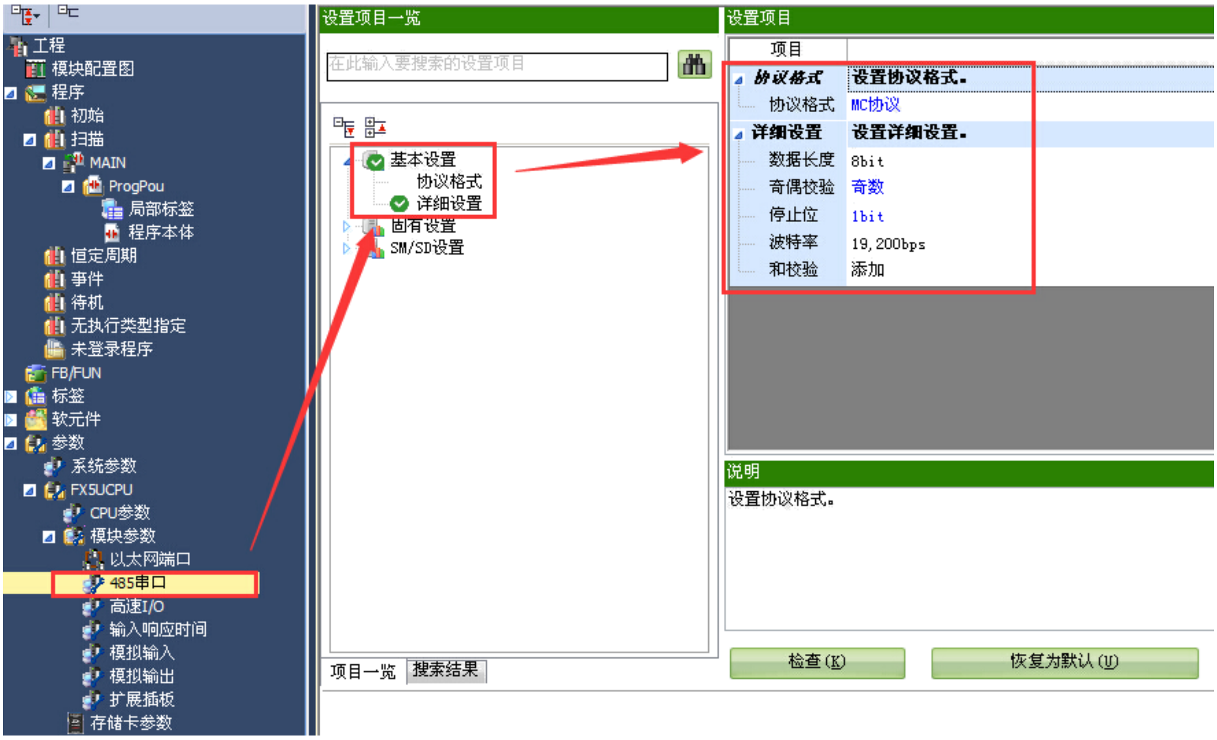
☐ Word exchange Retry Tim: 3

Note: The Panel station no. is 0, please don’t change it.

(2) PLC setting

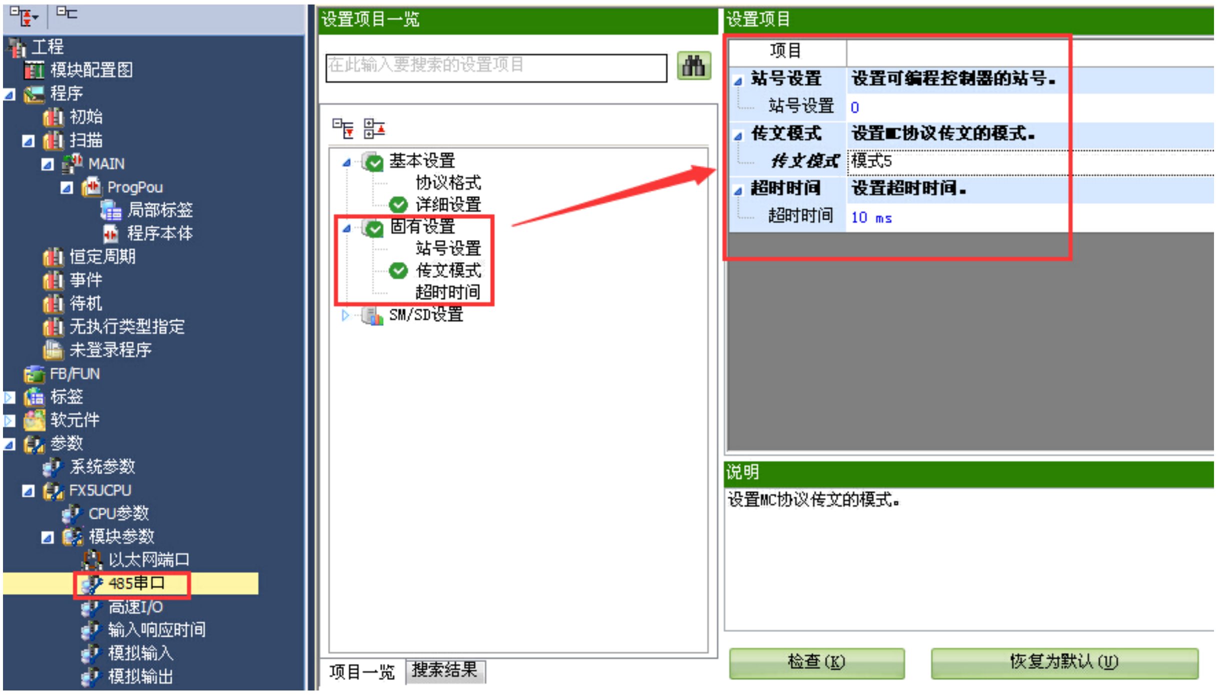
① MC protocol communication

Set the protocol format to "MC Protocol" and the text transmission mode to "Mode 5" in 485 serial port settings.


工程
模块配置图
程序
初始
扫描
MAIN
ProgPou
局部标签
程序本体
恒定周期
事件
待机
无执行类型指定
未登录程序
FB/FUN
标签
软元件
参数
系统参数
FX5UCPU
CPU参数
模块参数
以太网端口
485串口
高速I/O
输入响应时间
模拟输入
模拟输出
扩展插板
存储卡参数
设置项目一览
在此输入要搜索的设置项目
基本设置
协议格式
详细设置
固有设置
SM/SD设置
项目一览
搜索结果
设置项目
说明
检查(K)
恢复为默认(U)

| 项目 | |
|---|---|
| **协议格式** | **设置协议格式。** |
| 协议格式 | MC协议 |
| **详细设置** | **设置详细设置。** |
| 数据长度 | 8bit |
| 奇偶校验 | 奇数 |
| 停止位 | 1bit |
| 波特率 | 19,200bps |
| 和校验 | 添加 |

说明: 设置协议格式。


工程
模块配置图
程序
初始
扫描
MAIN
ProgPou
局部标签
程序本体
恒定周期
事件
待机
无执行类型指定
未登录程序
FB/FUN
标签
软元件
参数
系统参数
FX5UCPU
CPU参数
模块参数
以太网端口
485串口
高速I/O
输入响应时间
模拟输入
模拟输出
设置项目一览
在此输入要搜索的设置项目
基本设置
协议格式
详细设置
固有设置
站号设置
传文模式
超时时间
SM/SD设置
项目一览
搜索结果
设置项目
检查(K)
恢复为默认(U)

| 项目 | |
|---|---|
| 站号设置 | 设置可编程控制器的站号。 |
| 站号设置 | 0 |
| 传文模式 | 设置MC协议传文的模式。 |
| *传文模式* | 模式5 |
| 超时时间 | 设置超时时间。 |
| 超时时间 | 10 ms |

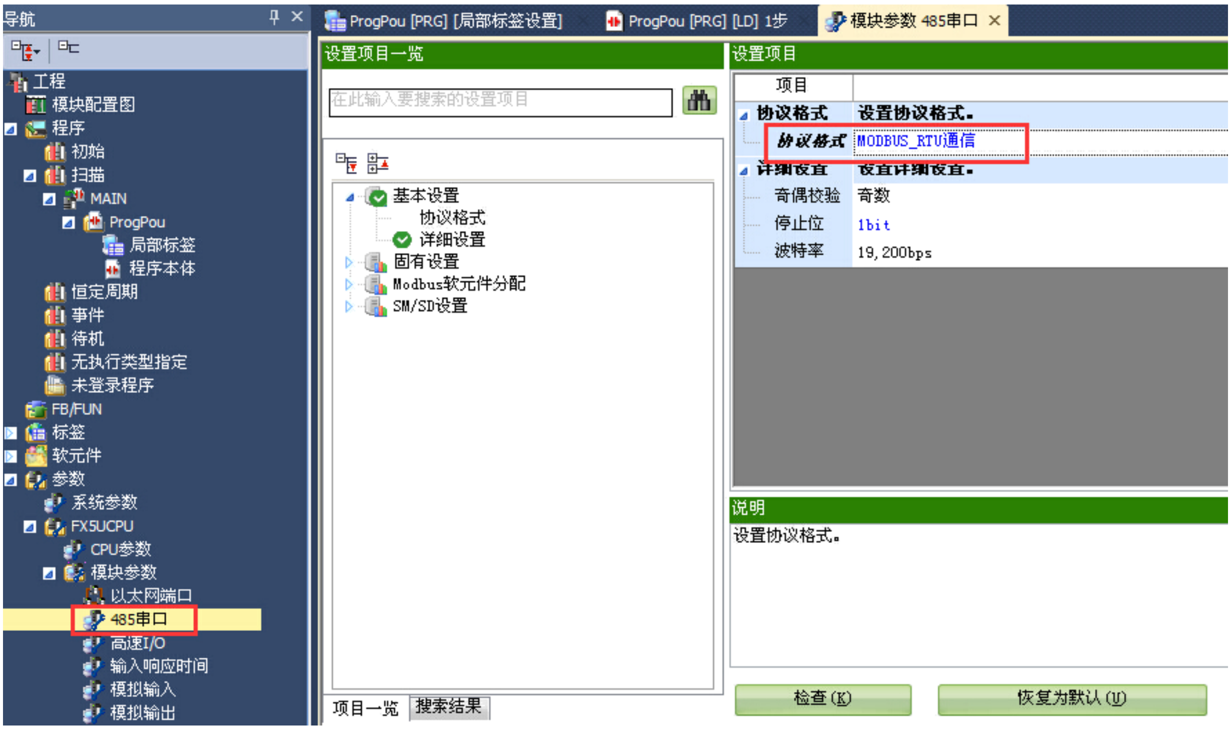
说明

设置MC协议传文的模式。

② Modbus RTU communication

When using this protocol, the HMI selects the "Modbus RTU" protocol.

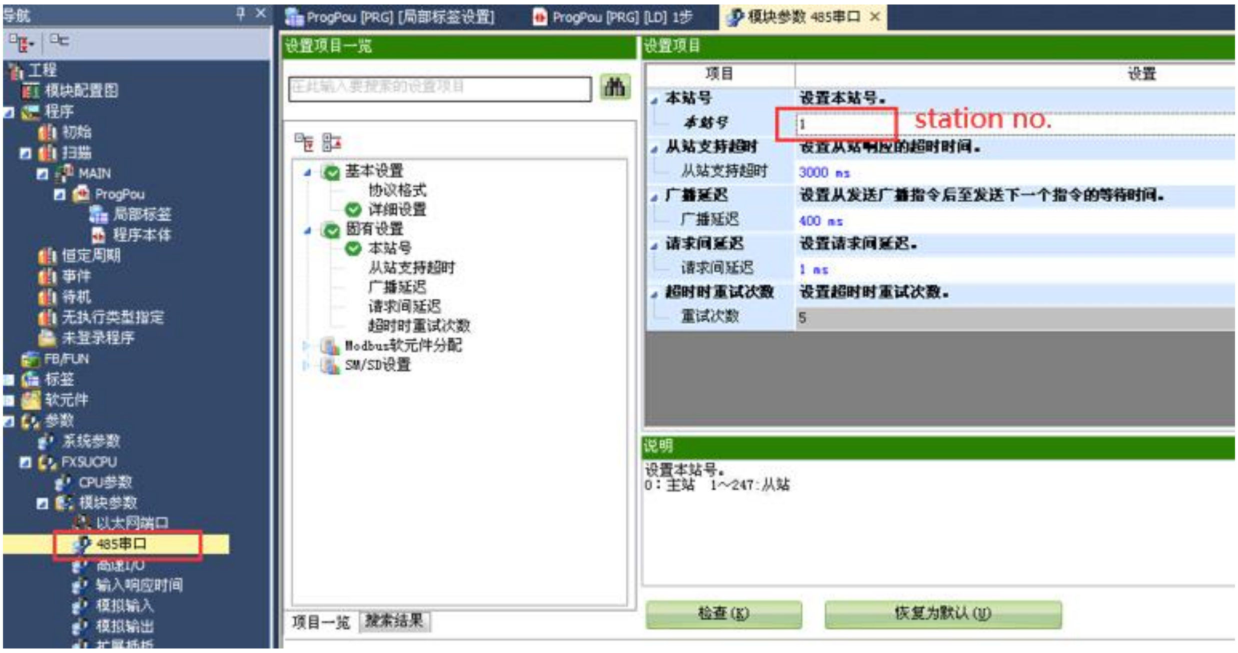
Set the protocol format in 485 serial port to "Modbus RTU communication". Station 0 in Modbus communication represents broadcasting, so the station number should be set to a non-zero station number. The HMI should set the station number and communication parameters consistent with the PLC settings.


导航
ProgPou [PRG] [局部标签设置]
ProgPou [PRG] [LD] 1步
模块参数 485串口
工程
模块配置图
程序
初始
扫描
MAIN
ProgPou
局部标签
程序本体
恒定周期
事件
待机
无执行类型指定
未登录程序
FB/FUN
标签
软元件
参数
系统参数
FX5UCPU
CPU参数
模块参数
以太网端口
485串口
高速I/O
输入响应时间
模拟输入
模拟输出
设置项目一览
在此输入要搜索的设置项目
基本设置
协议格式
详细设置
固有设置
Modbus软元件分配
SM/SD设置
项目一览
搜索结果
设置项目
检查(K)
恢复为默认(U)

| 项目 | |
|---|---|
| 协议格式 | 设置协议格式。 |
| *协议格式* | MODBUS_RTU通信 |
| 详细设置 | 设置详细设置。 |
| 奇偶校验 | 奇数 |
| 停止位 | 1bit |
| 波特率 | 19,200bps |

说明

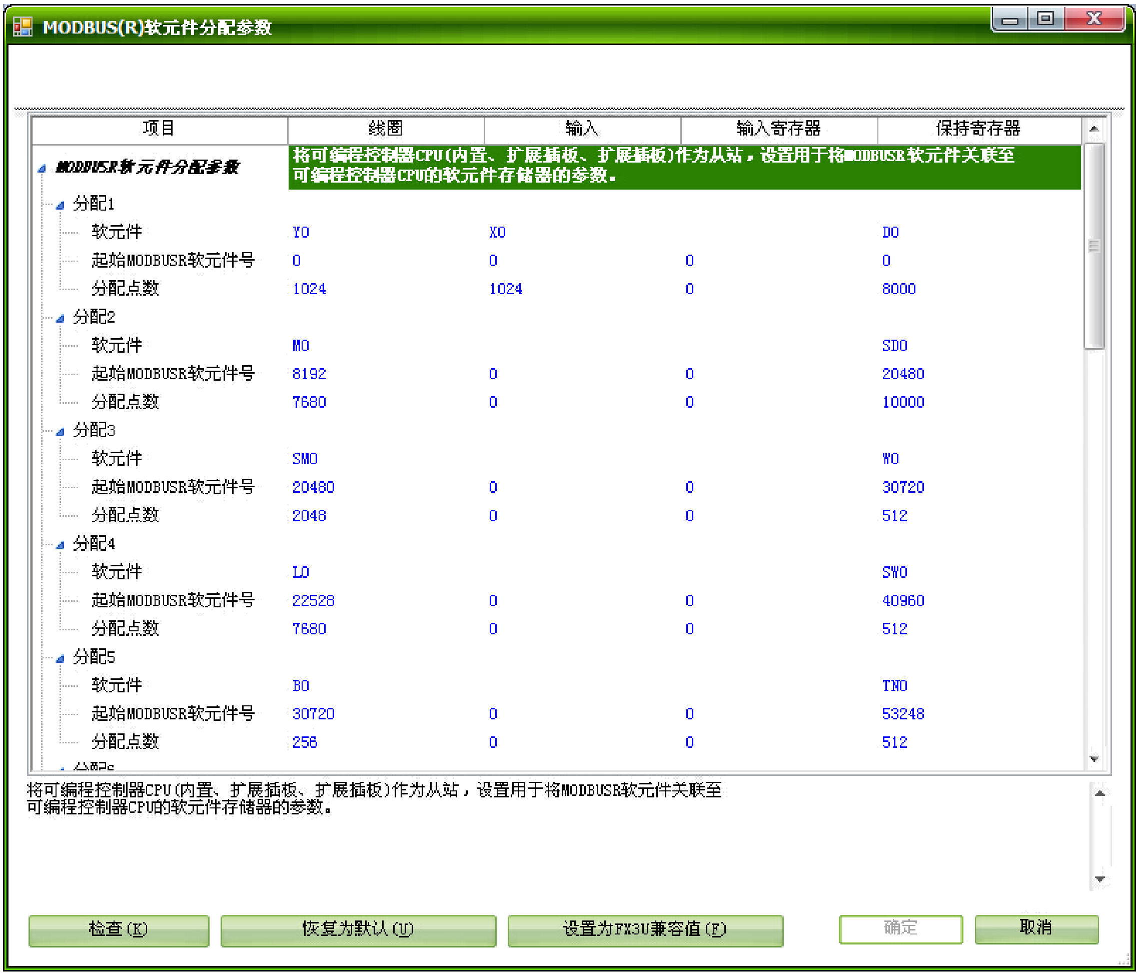
设置协议格式。


导航
工程
模块配置图
程序
初始
扫描
MAIN
ProgPou
局部标签
程序本体
恒定周期
事件
待机
无执行类型指定
未登录程序
FB/FUN
标签
软元件
参数
系统参数
FXSUCPU
CPU参数
模块参数
以太网端口
485串口
高速I/O
输入响应时间
模拟输入
模拟输出
扩展插板
ProgPou [PRG] [局部标签设置]
ProgPou [PRG] [LD] 1步
模块参数 485串口
设置项目一览
在此输入要搜索的设置项目
基本设置
协议格式
详细设置
固有设置
本站号
从站支持超时
广播延迟
请求间延迟
超时时重试次数
Modbus软元件分配
SM/SD设置
项目一览
搜索结果
设置项目
station no.
说明
检查(K)
恢复为默认(U)

| 项目 | 设置 |
|---|---|
| 本站号 | 设置本站号。 |
| 本站号 | 1 |
| 从站支持超时 | 设置从站响应的超时时间。 |
| 从站支持超时 | 3000 ms |
| 广播延迟 | 设置从发送广播指令后至发送下一个指令的等待时间。 |
| 广播延迟 | 400 ms |
| 请求间延迟 | 设置请求间延迟。 |
| 请求间延迟 | 1 ms |
| 超时时重试次数 | 设置超时时重试次数。 |
| 重试次数 | 5 |

设置本站号。
0：主站　1～247：从站

Note: When PLC is communicating with Modbus, it has a fixed Modbus address, which is described in the software. Read and write according to the Modbus address.


MODBUS(R)软元件分配参数
检查(K)
恢复为默认(U)
设置为FX3U兼容值(F)
确定
取消

| 项目 | 线圈 | 输入 | 输入寄存器 | 保持寄存器 |
|---|---|---|---|---|
| MODBUSR软元件分配参数 | 将可编程控制器CPU(内置、扩展插板、扩展插板)作为从站，设置用于将MODBUSR软元件关联至可编程控制器CPU的软元件存储器的参数。 | | | |
| 分配1 | | | | |
| 软元件 | Y0 | X0 | | D0 |
| 起始MODBUSR软元件号 | 0 | 0 | 0 | 0 |
| 分配点数 | 1024 | 1024 | 0 | 8000 |
| 分配2 | | | | |
| 软元件 | M0 | | | SD0 |
| 起始MODBUSR软元件号 | 8192 | 0 | 0 | 20480 |
| 分配点数 | 7680 | 0 | 0 | 10000 |
| 分配3 | | | | |
| 软元件 | SM0 | | | W0 |
| 起始MODBUSR软元件号 | 20480 | 0 | 0 | 30720 |
| 分配点数 | 2048 | 0 | 0 | 512 |
| 分配4 | | | | |
| 软元件 | L0 | | | SW0 |
| 起始MODBUSR软元件号 | 22528 | 0 | 0 | 40960 |
| 分配点数 | 7680 | 0 | 0 | 512 |
| 分配5 | | | | |
| 软元件 | B0 | | | TN0 |
| 起始MODBUSR软元件号 | 30720 | 0 | 0 | 53248 |
| 分配点数 | 256 | 0 | 0 | 512 |

将可编程控制器CPU(内置、扩展插板、扩展插板)作为从站，设置用于将MODBUSR软元件关联至可编程控制器CPU的软元件存储器的参数。

3. Cable making

FX5U series PLC CPU RS485 port:

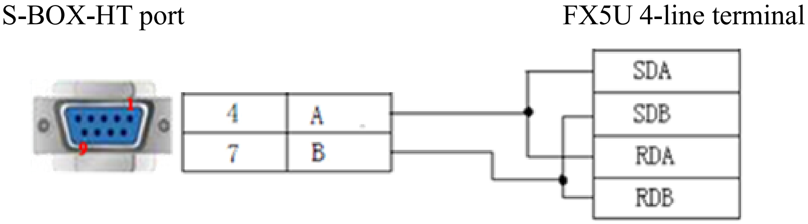


Diagram 1

## 4-6-9. Communicate with OMRON SYSMAC CP series

1. Device type

(1) Omron CP/CJ/CS series

| Series | CPU | Connection module | Port | Cable | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| CP series | CP1E-30N<br>CP1H<br>CP1L | CPU directly connection | RS232 | Diagram 1 | Omron CP/CJ/CS series |
| | | Module CP1W-CIF11 | RS485 | Diagram 2 | |
| | | Module CP1W-CIF11 | RS422 | Diagram 3 | |
| CJ series | CJ1<br>CJ1G-CPU44<br>CJ1G-CPU45<br>CJ2M-CPU11 | CPU directly connection | RS232 | Diagram 1 | |
| CS1 series | CS1H-CPU63/64/65/66/67<br>CS1G-CPU42/43/44/45<br>CS1G-CPU42H<br>CS1G-CPU43H<br>CS1G-CPU44H<br>CS1G-CPU45H<br>CS1H-CPU63H<br>CS1H-CPU64H<br>CS1H-CPU65H<br>CS1H-CPU66H<br>CS1H-CPU67H | CPU directly connection | RS232 | Diagram 1 | |

(2) Omron CPM/CQM series

| Series | CPU | Connection module | Port | Cable | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| C series | C200HE<br>C200HX | CPU directly connection | RS232 | Diagram 1 | Omron CPM/CQM series |
| | C1000HF | C500-LK203 | | | |

| Series | CPU | Connection module | Port | Cable | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| | | module | | | |
| | C2000 | C120-LK201-V1 module | | | |
| | | C500-LK201-V1 module | | | |
| | | C500-LK203 module | | | |
| CPM series | CPM-2A<br>CPM2AE<br>CPM2AH-40CDR-A<br>CPM1H | CPU directly connection | RS232 | Diagram 1 | |
| | CPM1A | OMRON CIF01 (RS232) adapter | | | |
| CQM series | CQM1H-CPU21 | CPU directly connection | | | |
| | CQM1-CPU | OMRON CIF01 (RS232) adapter | | | |

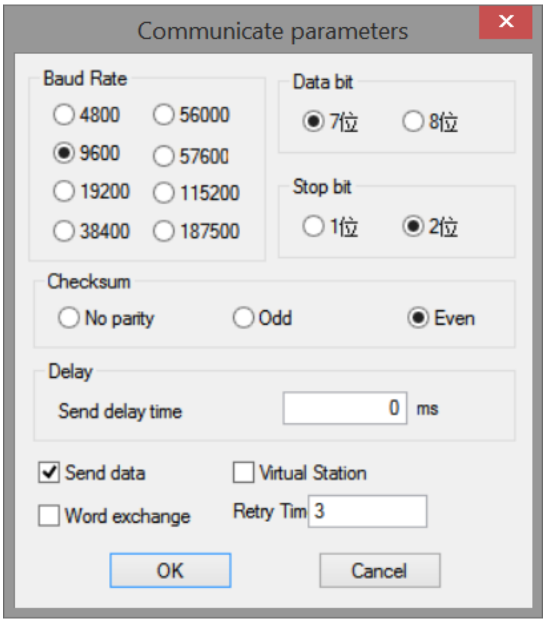
Note: Omron CPM1A and CQM1-CPU series CPU units do not support RS232 serial port communication. They can communicate by configuring CPM1-CIF01 adapter (supplied by Omron), or by using communication modules C500-LK203, C120-LK201-V1 or C500-LK201-V1.

2. Parameter setting

(1) HMI setting

| Parameter | Recommended setting | Optional setting |
|---|---|---|
| PLC type | Omron CP/CJ/CS series<br>Omron CPM/CQM series | Omron CP/CJ/CS series<br>Omron CPM/CQM series |
| Port | RS232 | RS232/RS485 |
| Data bit | 7 | |
| Stop bit | 2 | |
| Parity | Even | |
| Baud rate | 9600 | 9600/19200/38400/57600/115200 |
| Station no. | 0 | 0~255 |

OMRON PLC CP/CJ/CS and CPM/CQM series protocol default communication parameters:


Communicate parameters

Baud Rate
○ 4800 ○ 56000
● 9600 ○ 57600
○ 19200 ○ 115200
○ 38400 ○ 187500

Data bit
● 7位 ○ 8位

Stop bit
○ 1位 ● 2位

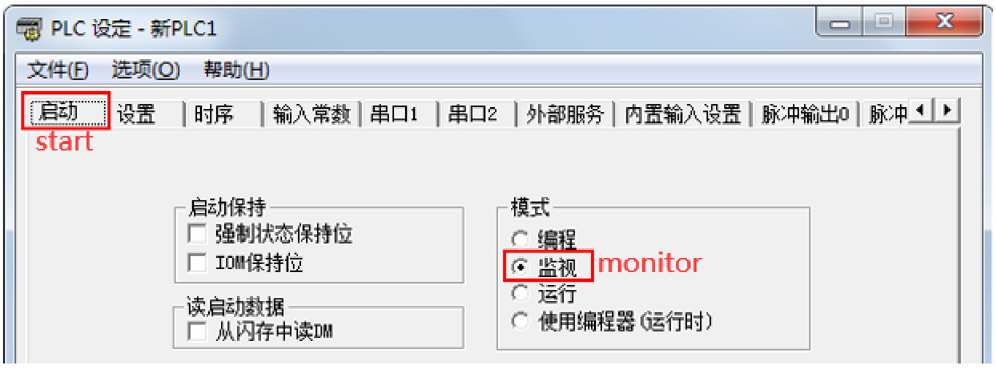
Checksum
○ No parity ○ Odd ● Even

Delay
Send delay time 0 ms

☑ Send data ☐ Virtual Station
☐ Word exchange Retry Tim 3

(2) PLC setting

Take Omron CP1H as an example to explain the setting of PLC communication parameters:

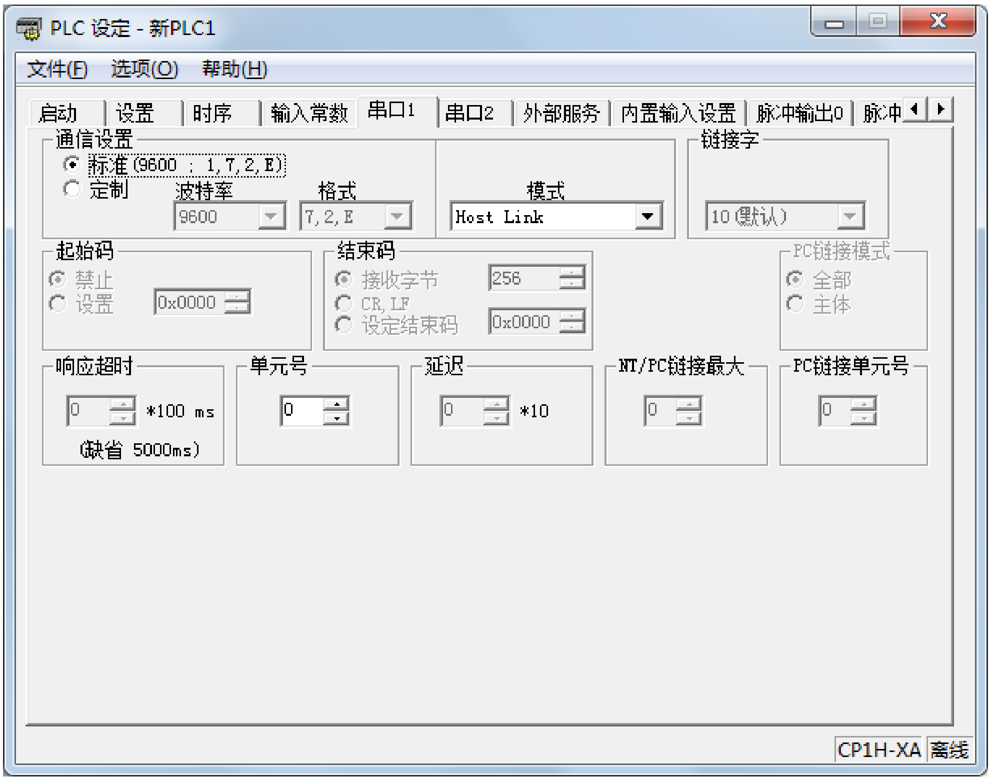

PLC 设定 - 新PLC1

文件(F) 选项(O) 帮助(H)
启动
设置
时序
输入常数
串口1
串口2
外部服务
内置输入设置
脉冲输出0
脉冲
start
monitor

启动保持
□ 强制状态保持位
□ IOM保持位

读启动数据
□ 从闪存中读DM

模式
○ 编程
● 监视
○ 运行
○ 使用编程器 (运行时)


PLC 设定 - 新PLC1

文件(F) 选项(O) 帮助(H)
启动
设置
时序
输入常数
串口1
串口2
外部服务
内置输入设置
脉冲输出0
脉冲
CP1H-XA
离线

通信设置
● 标准 (9600 ; 1,7,2,E)
○ 定制 波特率 9600 格式 7,2,E

模式 Host Link

链接字 10 (默认)

起始码
● 禁止
○ 设置 0x0000

结束码
● 接收字节 256
○ CR, LF
○ 设定结束码 0x0000

PC链接模式
● 全部
○ 主体

响应超时 0 *100 ms (缺省 5000ms)

单元号 0

延迟 0 *10

NT/PC链接最大 0

PC链接单元号 0

**Note:**

(1) In the startup item, the PLC startup mode is set to Monitor.

(2) In the setting of serial port 1, it should be set to HOST LINK. Do not power off when changing this setting

(3) Omron's default station number is 0, not 1

(4) On the PLC body, set DIP4 switch to OFF, so that serial port 1 is in SETUP status.

3. Cable making

① CPU main body RS232:

S-BOX-HT port

OMRON PLC
CPU/CPM1-C1F1/C500-LK203/ C120-LK201-V1
/ C500-LK203 RS232 port 9-pin male plug

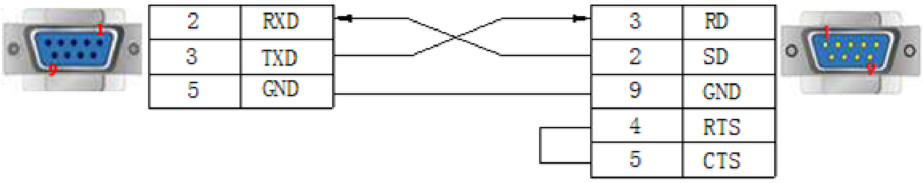


Diagram 1

② Communication module CP1W-CIF11 RS485:

S-BOX-HT port

CP1W-CIF11 RS485 terminal

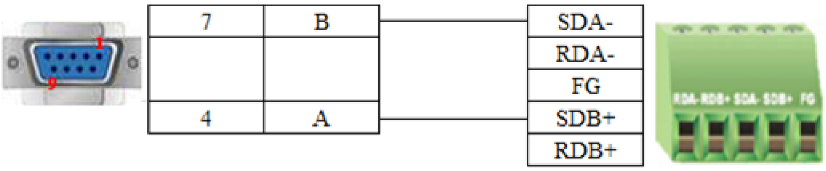


Diagram 2

Note:

(1) When OMRON PLC uses the communication module CPIW-CIF11 for communication, the dial switch can be set to set the communication mode:

DIP 1: selection of terminal resistance. When OFF, terminal resistance is not used, and when ON, terminal resistance is used.

DIP 2: 2-wire or 4-wire selection, OFF 4-wire (RS422), ON 2-wire (RS485), must be consistent with DIP 3 settings.

DIP 3: 2-wire or 4-wire selection, OFF 4-wire (RS422), ON 2-wire (RS485), must be consistent with DIP 2 settings.

DIP 4: Not used.

DIP 5: RS control selection for RD, OFF disables RS control, ON enables RS control.

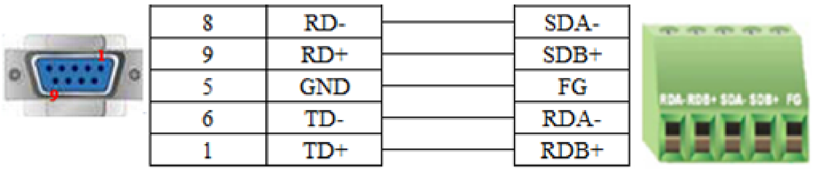
DIP 6: RS control selection for SD, OFF disables RS control, ON enables RS control.

Please refer to OMRON PLC Hardware Manual for details.

(2) When OMRON PLC uses the communication module CPIW-CIF11 RS485 for communication, DIP 1 can be set to OFF, DIP 2/3/5/6 to ON, and DIP 4 ON or OFF.

③ Communication module CP1W-CIF11 RS422:

SBOX-HT port CP1W-CIF11 RS422 terminal



| | | | |
|---|---|---|---|
| 8 | RD- | SDA- | |
| 9 | RD+ | SDB+ | |
| 5 | GND | FG | |
| 6 | TD- | RDA- | |
| 1 | TD+ | RDB+ | |

Diagram 3

Note: When OMRON PLC uses the communication module CPIW-CIF11 RS422 for communication, DIP 1/2/3/5/6 can be set to OFF and DIP 4 ON or OFF.

## 4-6-10. Communicate with Matsushita FP series PLC

1. Device type

Matsushita Mewnet FP series PLC includes FP0, FP1, FP3, FP2SF, FP10SH and other models, which can be connected to the Xinje HMI through the programming port or communication port on its CPU unit. FP0-CXXCXX models in FP0 series only support RS232 connection mode.

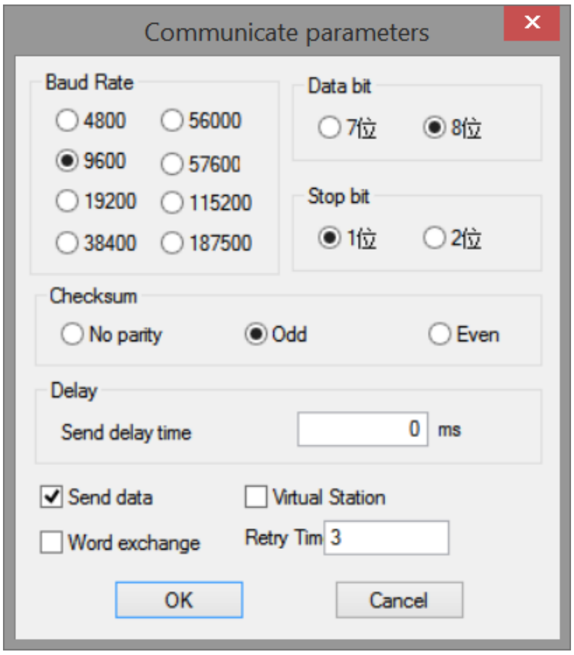
| Series | CPU | Connection module | Port | Cable making | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| FP | FP∑ | CPU directly connection | RS232 | Diagram 1 | Matsushita (FP0/FP1) |
| | FP0<br>FP0R-C32CT | | | | |
| | FPG | | | | |
| | FP-X | | | | |
| | FP-M<br>FP-E | | | | |
| | FP2<br>FP2SH | CPU directly connection | RS232 | Diagram 1 | |
| | | CPU RS232 port | RS232 | Diagram 2 | |
| | FP1 | CPU RS232 port | RS232 | Diagram 2 | |
| | | CPU RS422 port | RS422 | Diagram 3 | |
| | FP3 | CPU RS422 port | RS422 | Diagram 4 | |
| | FP10SH<br>FP10S | CPU RS232 port | RS232 | Diagram 2 | |

2. Parameter setting

(1) HMI setting

| Parameter | Recommended setting | Optional setting |
|---|---|---|
| PLC type | Matsushita (FP0/FP1) | |
| Port | RS232 | RS232/RS422 |
| Data bit | 8 | |
| Stop bit | 1 | |
| Parity | Odd | |
| Baud rate | 9600 | 9600/19200/38400/57600/115200 |
| Station no. | 1 | 0~255 |

Matsushita FP0/FP1 protocol default communication parameters:



Communicate parameters

Baud Rate
○ 4800 ○ 56000
● 9600 ○ 57600
○ 19200 ○ 115200
○ 38400 ○ 187500

Data bit
○ 7位 ● 8位

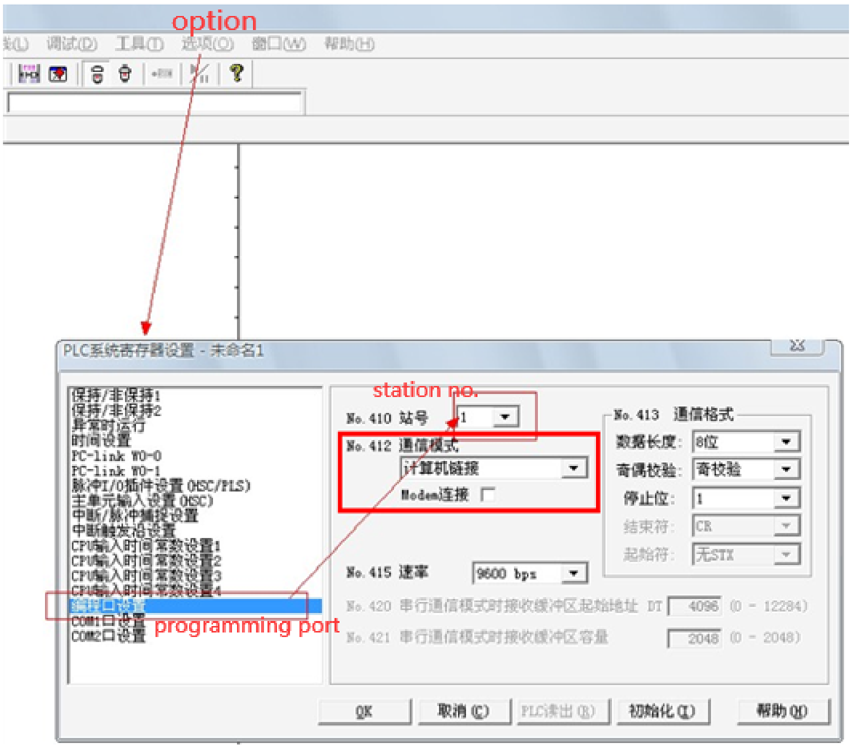
Stop bit
● 1位 ○ 2位

Checksum
○ No parity ● Odd ○ Even

Delay
Send delay time 0 ms

☑ Send data ☐ Virtual Station
☐ Word exchange Retry Tim 3

(2) PLC setting



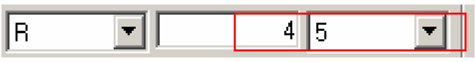
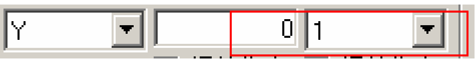
PLC系统寄存器设置 - 未命名1

保持/非保持1
保持/非保持2
异常时运行
时间设置
PC-link W0-0
PC-link W0-1
脉冲I/O插件设置(HSC/PLS)
主单元输入设置(HSC)
中断/脉冲捕捉设置
中断触发沿设置
CPU输入时间常数设置1
CPU输入时间常数设置2
CPU输入时间常数设置3
CPU输入时间常数设置4
编程口设置
COM1口设置
COM2口设置

No. 410 站号 1
No. 412 通信模式 计算机链接
Modem连接 ☐
No. 415 速率 9600 bps
No. 413 通信格式
数据长度: 8位
奇偶校验: 奇校验
停止位: 1
结束符: CR
起始符: 无STX
No. 420 串行通信模式时接收缓冲区起始地址 DT 4096 (0 - 12284)
No. 421 串行通信模式时接收缓冲区容量 2048 (0 - 2048)

**Note:**

(1) Input mode of PLC software components:

| LC | HMI |
|---|---|
| R45 | <br>R 4 5 |
| Y1 | <br>Y 0 1 |

(2) When writing the PLC program, turn the dial switch to the PPOG state. During communication, turn the dial switch to Run status.

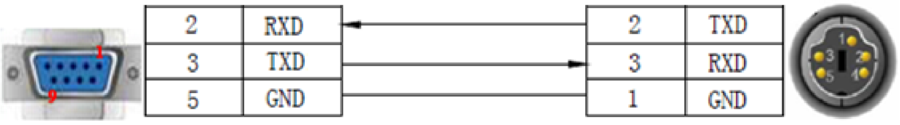
(3) Set the PLC station number and communication parameters, and do not select<General communication mode>, otherwise the communication will be abnormal.
(4) The default station number of FP series PLC is 1, but the FP3 model must be set to 0.

### 3. Cable making

① CPU unit 5-pin DIN male plug:

S-BOX-HT port

Matsushita mewnet-FP series CPU unit
5-pin male plug



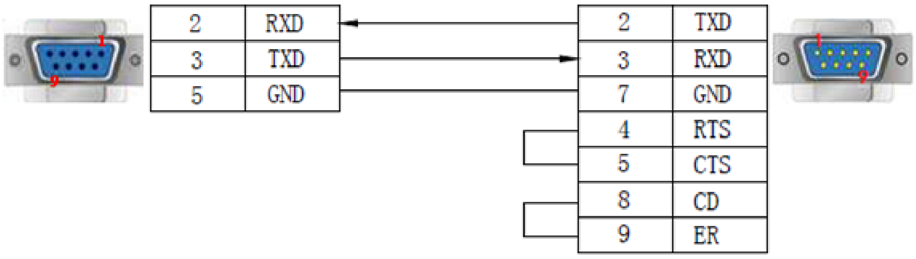
2 RXD
3 TXD
5 GND
2 TXD
3 RXD
1 GND
1
9
1
2
3
4
5

Diagram 1

② CPU unit 9-pin D-type female plug:

S-BOX-HT port

Matsushita mewnet-FP series CPU unit
RS232 port 9-pin D-type female plug



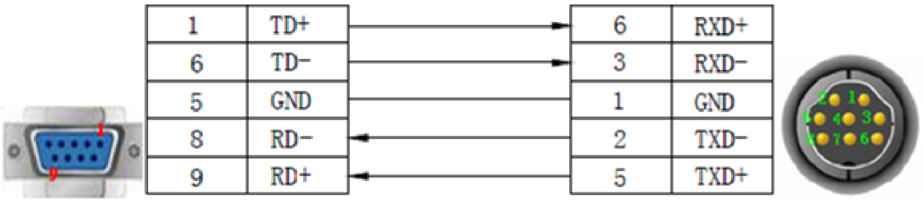
2 RXD
3 TXD
5 GND
2 TXD
3 RXD
7 GND
4 RTS
5 CTS
8 CD
9 ER
1
9

Diagram 2

③ CPU unit 8-pin D-type female plug:

SBOX-HT port

Matsushita mewnet-FP series CPU unit
RS422 port 8-pin female plug



1 TD+
6 TD-
5 GND
8 RD-
9 RD+
6 RXD+
3 RXD-
1 GND
2 TXD-
5 TXD+
1
9

Diagram 3

④ CPU unit 15-pin D-type male plug:

SBOX-HT port

Matsushita mewnet-FP series CPU unit
RS422 port 15-pin D-type male plug

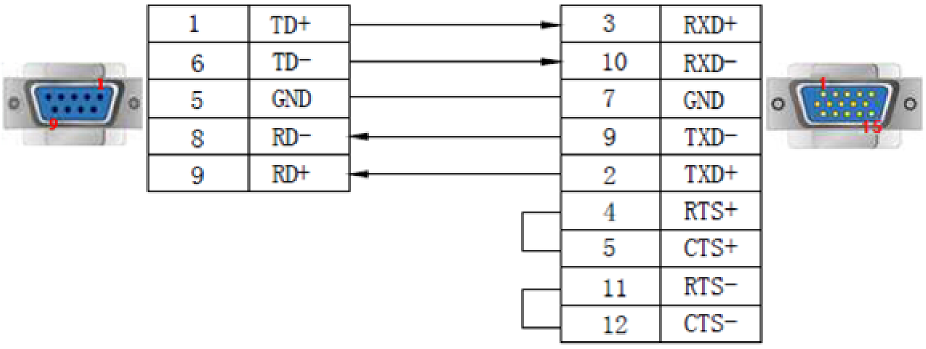

1
TD+
6
TD-
5
GND
8
RD-
9
RD+
3
RXD+
10
RXD-
7
GND
9
TXD-
2
TXD+
4
RTS+
5
CTS+
11
RTS-
12
CTS-
1
9
1
15

Diagram 4

## 4-6-11. Communicate with Simens S7-200 series PLC

1. Device type

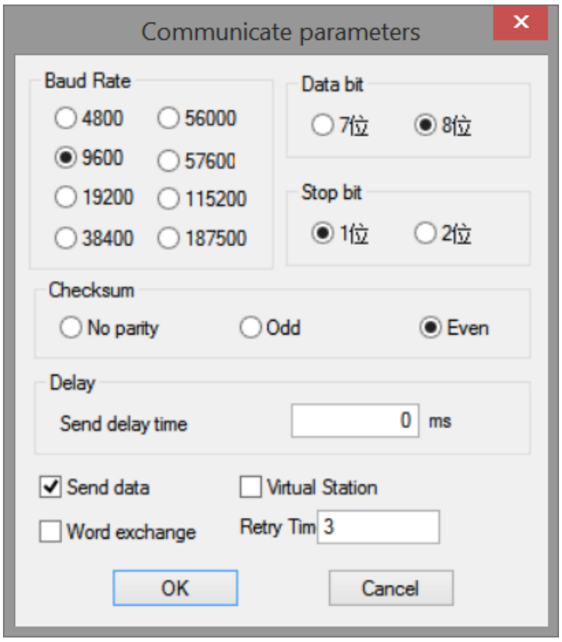
| Series | CPU | Connection module | Port | Cable making | PLC selection in Touchwin software |
|---|---|---|---|---|---|
| S7-200 series | CPU212<br>CPU221<br>CPU222<br>CPU224<br>CPU226 | CPU directly connection | RS485 | Diagram 1 | Siemens S7-200 series |
| S7-200 smart | Smart series | | | | |

2. Parameter setting

(1) HMI setting

| Parameter | Recommended setting | Optional setting |
|---|---|---|
| PLC type | Siemens S7-200 series | |
| Port | RS485 | |
| Data bit | 8 | |
| Stop bit | 1 | |
| Parity | Even | |
| Baud rate | 9600 | 9600/19200/187500 |
| Station no. | 2 | |

Default communication parameters of Siemens S7-200 series protocols:



Communicate parameters

Baud Rate
○ 4800 ○ 56000
● 9600 ○ 57600
○ 19200 ○ 115200
○ 38400 ○ 187500

Data bit
○ 7位 ● 8位

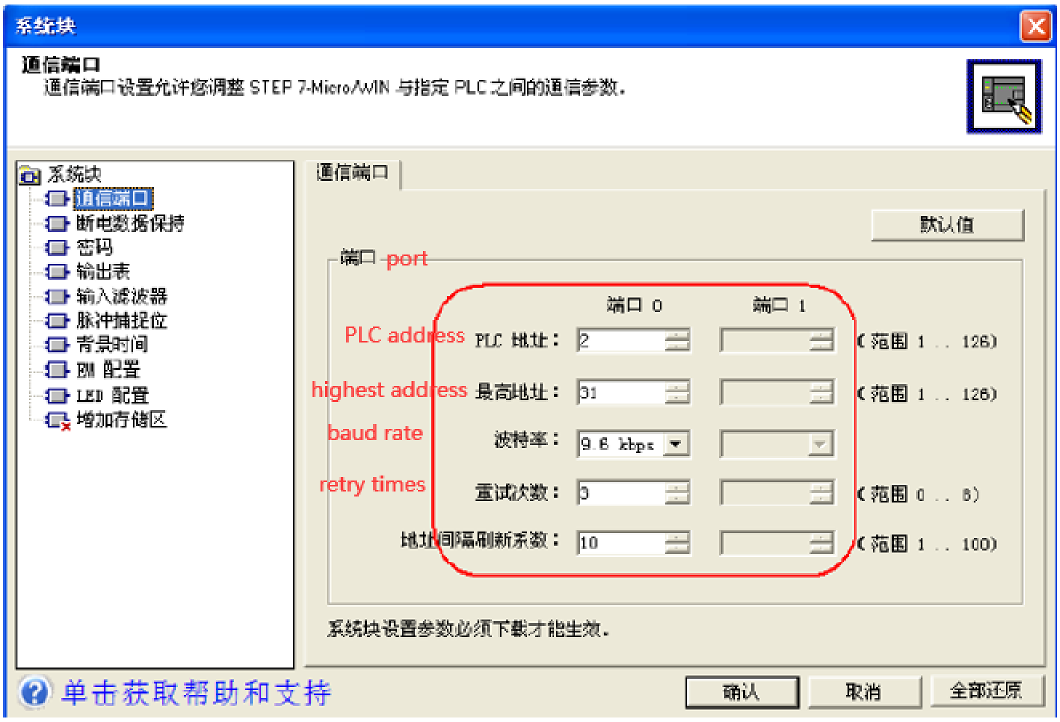
Stop bit
● 1位 ○ 2位

Checksum
○ No parity ○ Odd ● Even

Delay
Send delay time 0 ms

☑ Send data ☐ Virtual Station
☐ Word exchange Retry Tim 3

(2) S7-200 software setting:



系统块

**通信端口**
通信端口设置允许您调整 STEP 7-Micro/WIN 与指定 PLC 之间的通信参数。

端口 port

|  | 端口 0 | 端口 1 |  |
|---|---|---|---|
| PLC address PLC 地址： | 2 |  | （范围 1 .. 126） |
| highest address 最高地址： | 31 |  | （范围 1 .. 126） |
| baud rate 波特率： | 9.6 kbps |  |  |
| retry times 重试次数： | 3 |  | （范围 0 .. 8） |
| 地址间隔刷新系数： | 10 |  | （范围 1 .. 100） |

系统块设置参数必须下载才能生效。

S7-200 communication precautions:

(1) Siemens register structure: VB occupies 8 bits, VW occupies 16 bits, and VD occupies 32 bits.

(2) The address space is overlapped, and VW must start with an even number and be divisible by 2, such as VW0, VW2, VW4..., and VD must be a multiple of 4, such as VD0, VD4, VD8.

(3) Data block PSW single word → VW single word: the received data may be misaligned due to the problem of distinguishing high and low bytes, so it is recommended to use the register copy function.

(4) Data block PSW single word → VD double word: the units are inconsistent, so it is not allowed to transmit in this way. It is recommended to use register copy.

### 3. Cable making

HMI and S7-200 uses RS485 connection mode:

SIEMENS PLC S7-200 series PPI port

S-BOX-HT port

9-pin D-type male plug

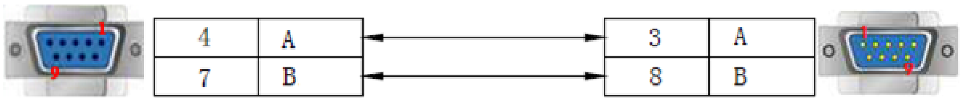
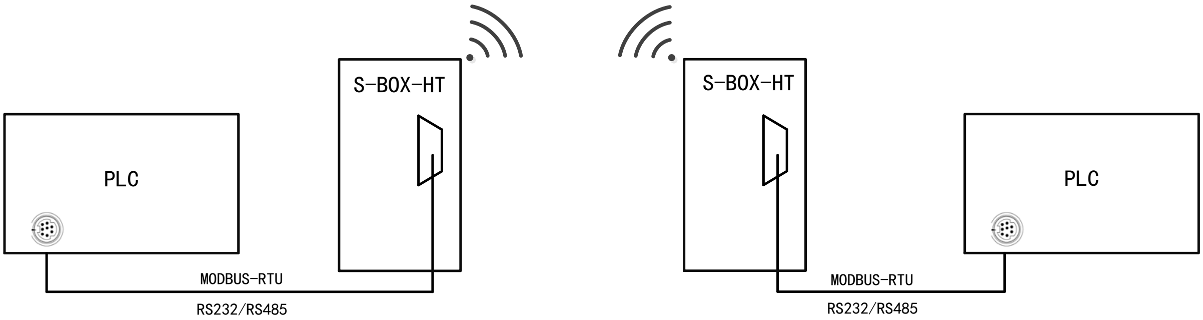


Diagram 1

# 5. PLC communication through S-BOX-HT

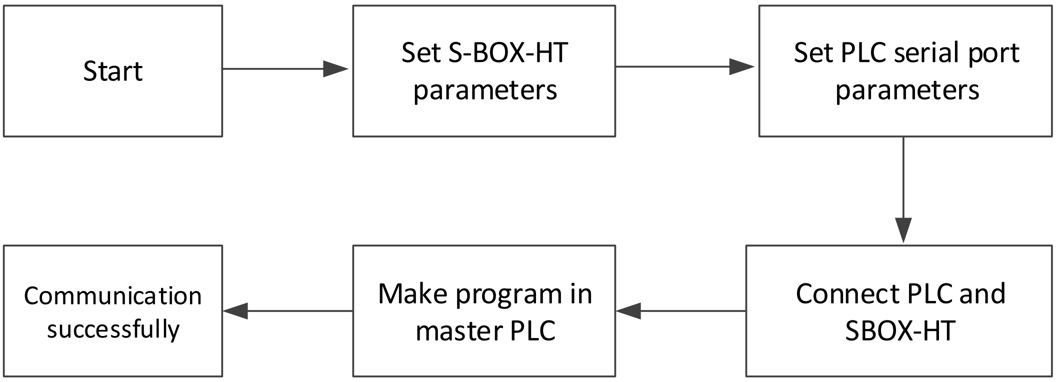
Wireless communication between PLCs can be realized through S-BOX-HT. The network connection diagram is as follows:


S-BOX-HT
PLC
MODBUS-RTU
RS232/RS485
S-BOX-HT
PLC
MODBUS-RTU
RS232/RS485

PLC communicates with S-BOX-HT through serial port, and two S-BOX-HTs communicate through wireless network. The following conditions shall be met for successful communication:
(1) The channel and air baud rate of S-BOX-HT and MTG765-HT must be consistent.
(2) The serial port of S-BOX-HT, PLC port of HMI programming software and serial port parameters of connecting equipment shall be consistent.
(3) RS232/RS485/RS422 wiring shall meet the specification.

As a transparent transmission module, S-BOX-HT theoretically supports communication with all serial devices. The following will illustrate the specific operation steps with Xinje XD series PLC as an example.

## 5-1. Operation steps

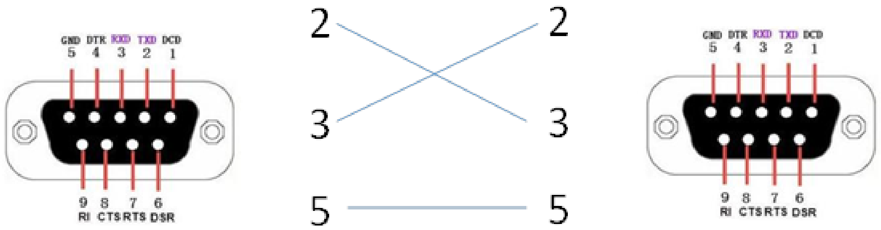

Start
Set S-BOX-HT parameters
Set PLC serial port parameters
Connect PLC and SBOX-HT
Make program in master PLC
Communication successfully

## 5-2. S-BOX-HT communication configurations

### 5-2-1. Preparation

1. S-BOX-HT configuration tool SBoxTool.exe
2. OP cable

Prepare an OP cable for connecting the DB9 pin serial port of the computer. If there is no OP cable, the cable can be self-made as shown in the figure below. If the computer does not have a DB9 pin serial port, a USB serial conversion module is also required.

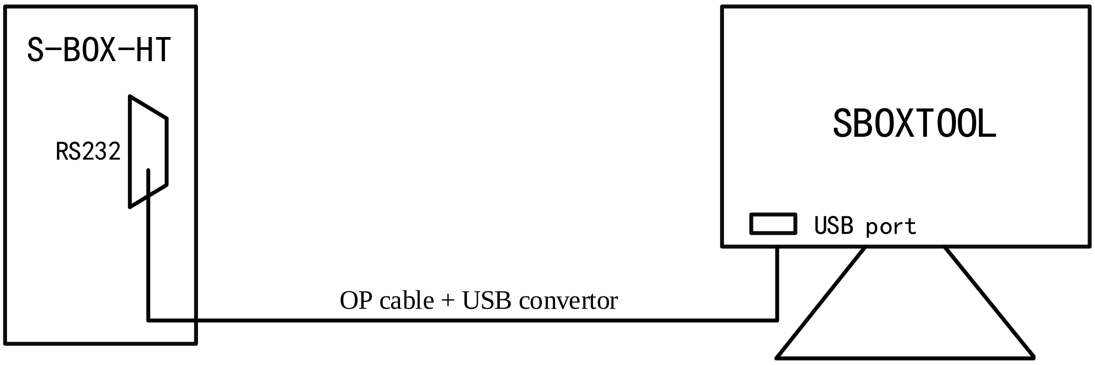

GND DTR RXD TXD DCD
5 4 3 2 1
9 8 7 6
RI CTS RTS DSR
2
3
5
2
3
5
GND DTR RXD TXD DCD
5 4 3 2 1
9 8 7 6
RI CTS RTS DSR

### 5-2-2. S-BOX-HT configuration

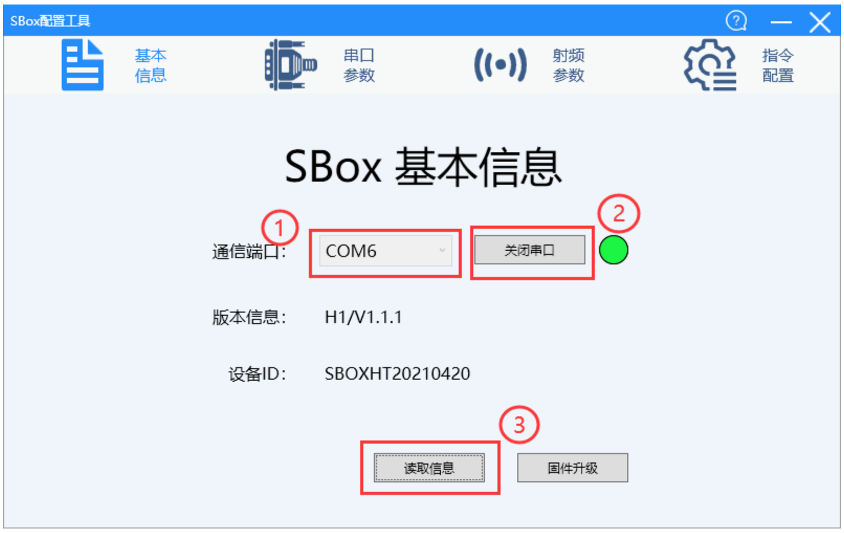
1. Turn DIP 1 to ON, and TXD and RXD of the module flash at the same time, indicating that the module is in configuration mode.

XINJE
PWR
TXD
RXD
433
S-BOX-HT
Industrial 433MHz Module
RS-232/422/485
ON
1 2 3 4

2. Connect the computer and S-BOX-HT through OP cable or self-made cable.


S-BOX-HT
RS232
SBOXTOOL
USB port
OP cable + USB convertor

3. Use OP cable or self-made cable to connect USB convertor to the computer, open SBoxTool.exe, select the corresponding COM port of the computer, and click to open the serial port. The information of the module can be read directly.


SBox配置工具
基本信息
串口参数
射频参数
指令配置
①
②
③
关闭串口
读取信息
固件升级

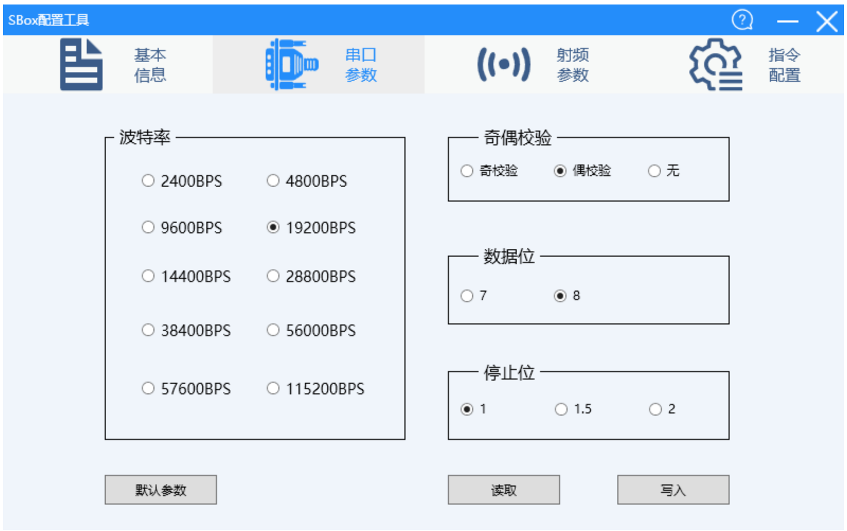
SBox 基本信息

通信端口：COM6

版本信息：H1/V1.1.1

设备ID：SBOXHT20210420

4. Set the serial port parameters of the module, which should be consistent with the connected PLC serial port parameters. The default serial port parameters are 19200, 8, 1, E. Click Write after setting.


SBox配置工具
基本信息
串口参数
射频参数
指令配置
默认参数
读取
写入

波特率

○ 2400BPS ○ 4800BPS
○ 9600BPS ● 19200BPS
○ 14400BPS ○ 28800BPS
○ 38400BPS ○ 56000BPS
○ 57600BPS ○ 115200BPS

奇偶校验

○ 奇校验 ● 偶校验 ○ 无

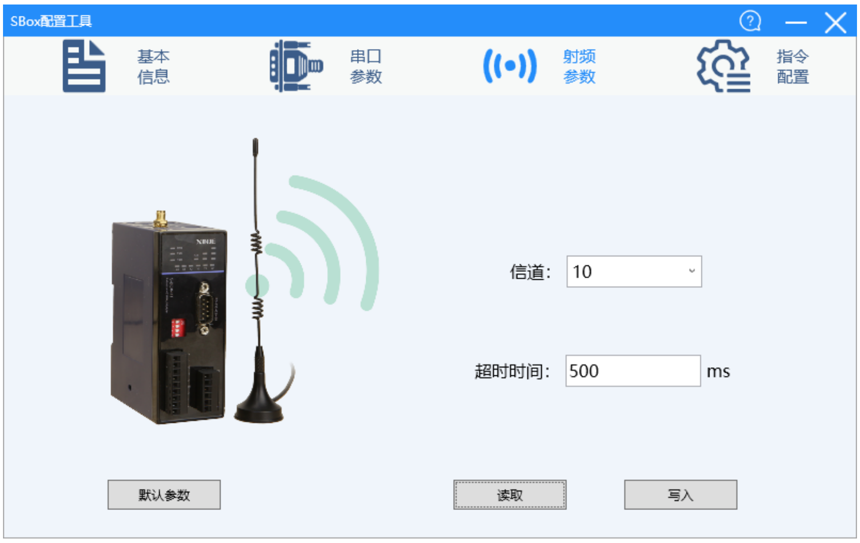
数据位

○ 7 ● 8

停止位

● 1 ○ 1.5 ○ 2

5. RF parameters: set the channel of the module, and only devices with the same channel can communicate. The timeout is the allowable timeout on the wireless side, which is generally set to 500ms. Click Write after configuration.


SBox配置工具
基本信息
串口参数
射频参数
指令配置
默认参数
读取
写入

信道：10

超时时间：500 ms

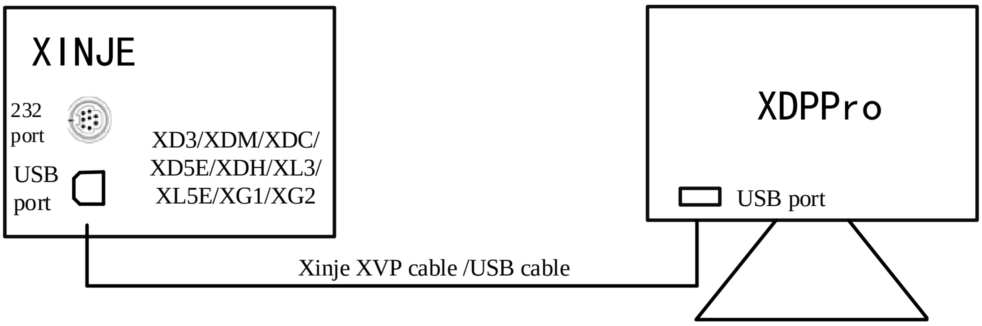
6. After the module configuration is completed, set DIP 1 to OFF, and the module is set to the operation mode.

7. Set the DIP3 and DIP4 of S-BOX-HT according to the requirements of the "2-4. DIP switches" table. Only when they are consistent with the DIP switches of the HMI can communication be achieved.

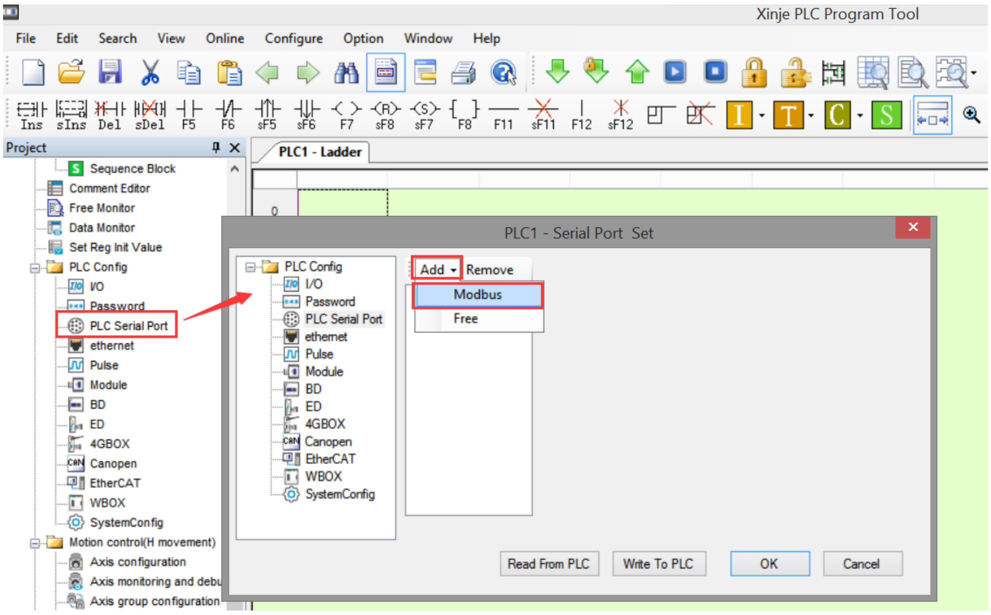
8. Configure the other S-BOX-HT in the same way. Please note that the parameters of the two modules are consistent.

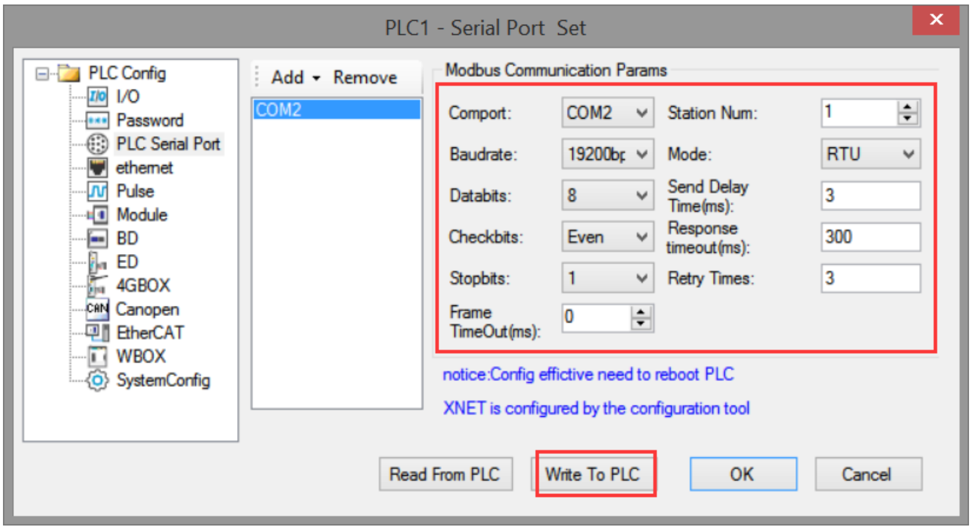
## 5-3. Set PLC serial port parameters

1. Connect the computer and PLC through the programming cable:


XINJE
232 port
USB port
XD3/XDM/XDC/ XD5E/XDH/XL3/ XL5E/XG1/XG2
XDPPro
USB port
Xinje XVP cable /USB cable

2. Set the serial port parameters of PLC


Xinje PLC Program Tool
File
Edit
Search
View
Online
Configure
Option
Window
Help
Project
PLC1 - Ladder
Sequence Block
Comment Editor
Free Monitor
Data Monitor
Set Reg Init Value
PLC Config
I/O
Password
PLC Serial Port
ethernet
Pulse
Module
BD
ED
4GBOX
Canopen
EtherCAT
WBOX
SystemConfig
Motion control(H movement)
Axis configuration
Axis monitoring and debu
Axis group configuration
PLC1 - Serial Port Set
Add
Remove
Modbus
Free
Read From PLC
Write To PLC
OK
Cancel


PLC1 - Serial Port Set
PLC Config
I/O
Password
PLC Serial Port
ethernet
Pulse
Module
BD
ED
4GBOX
Canopen
EtherCAT
WBOX
SystemConfig
Add
Remove
COM2
Read From PLC
Write To PLC
OK
Cancel

Modbus Communication Params

Comport: COM2
Station Num: 1
Baudrate: 19200bp
Mode: RTU
Databits: 8
Send Delay Time(ms): 3
Checkbits: Even
Response timeout(ms): 300
Stopbits: 1
Retry Times: 3
Frame TimeOut(ms): 0

notice:Config effictive need to reboot PLC

XNET is configured by the configuration tool

The default communication parameters of Xinje XD/XE series protocols are 19200bps baud rate, 8 data bits, one stop bit and even parity.

After the parameters are modified, power on again, and the parameters take effect. The XD series COM2 port of Xinje is consistent with the default parameters of S-BOX-HT, so no special setting is required.

For other brands of PLC, refer to the section "4-6. Communication settings and connections of common PLC".

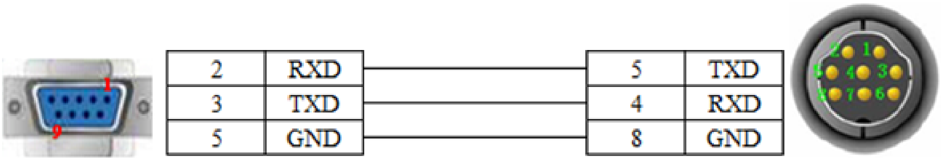
## 5-4. Connection between PLC and S-BOX-HT

After completing the parameter settings in the first two sections, as long as the connection between PLC and S-BOX-HT is successfully established, the remote communication between PLC and PLC can be realized. The following is an example of Xinje XD series PLC. For the corresponding pins of other brands of PLC, refer to the section "4-6. Communication Settings and Connections of Common PLCs". Connect the two S-BOX-HT to the corresponding PLC according to pin numbers and definitions.

COM1 port of Xinje XD series PLC is 8-pin RS232 port, as shown in Figure 1. COM2 port is AB terminal, A is RS485+, B is RS485-, as shown in Figure 2. The module has a DB9 pin and an external AB terminal. For the connection between the two, refer to the pin definition below:

1. XD/XL/XG series PLC CPU unit (RS232 port)

S-BOX-HT port Xinje XD/XE series PLC RS232 port

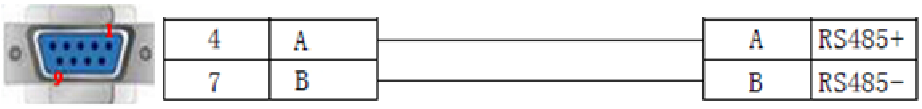


| | | | |
|---|---|---|---|
| 2 | RXD | 5 | TXD |
| 3 | TXD | 4 | RXD |
| 5 | GND | 8 | GND |

Diagram 1

2. XD/XL/XG series PLC CPU unit (RS485 port)

S-BOX-HT port Xinje XD/XE series PLC unit RS485 port



| | | | |
|---|---|---|---|
| 4 | A | A | RS485+ |
| 7 | B | B | RS485- |

Diagram 2

After successful connection, remote communication between PLCs can be realized. After the parameters of PLC and S-BOX-HT serial ports are consistent, they can communicate normally. The XD series COM2 port of Xinje is consistent with the default parameters of S-BOX-HT, so no special setting is required. If other brands of PLC are used, please check the serial port parameters of S-BOX-HT and PLC.

## 5-5. Make PLC program

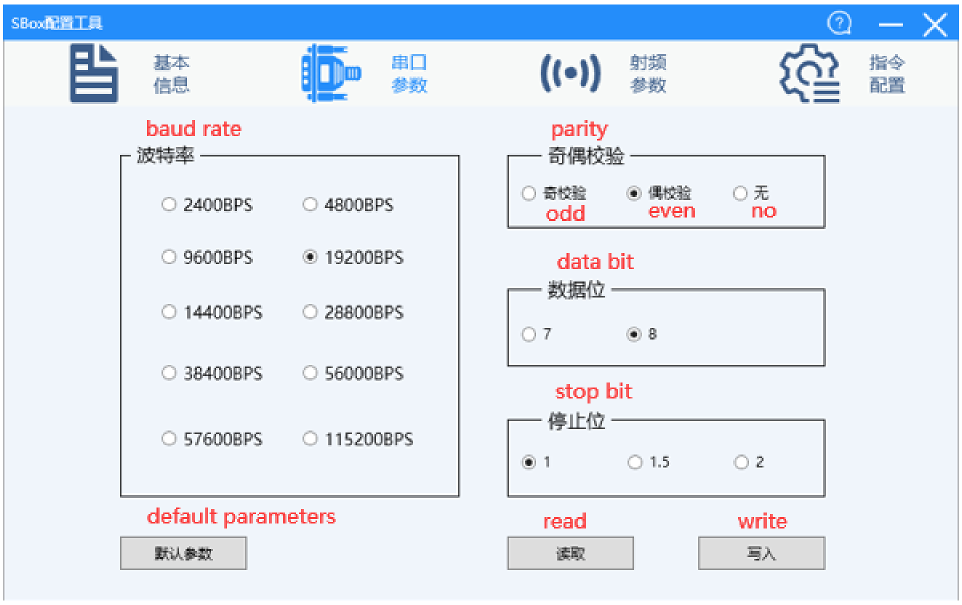
One PLC is the master station and the other is the slave station. The programming mode is MODBUS communication. The communication port is the serial port connected with S-BOX-HT. (For the usage of Xinje PLC, see User Manual for XD, XL Series Programmable Controllers [Basic Instructions])

The PLC serial port parameters shall be consistent with those in the SBOX-HT to ensure that the channel and dial switch baud rate of the two modules are the same.

For example, the communication between XD5 and XDM is completed through two S-BOX-HTs. XDM is the master station and XD5 is the slave station, realizing the following functions:

(1) Send the values of D0~D5 in slave station to D10~D15 in master station (REGR)
(2) Send the status of M0~M5 of slave station to M10~M15 of master station (COLR)
(3) Send M100 status of master station to M200 of slave station (COLW)
(4) Send M101~M105 status of master station to M201~M205 of slave station (MCLW)
(5) Send the D100 value of the master station to D200 of the slave station (REGW)
(6) Send the values of D101~D105 in the master station to D201~D205 in the slave station (MRGW)

Step 1: Configure two S-BOX-HTs according to the steps in Section 5-3. The default parameters are shown in the figure below. Select channel no.10 and click Write after modification.

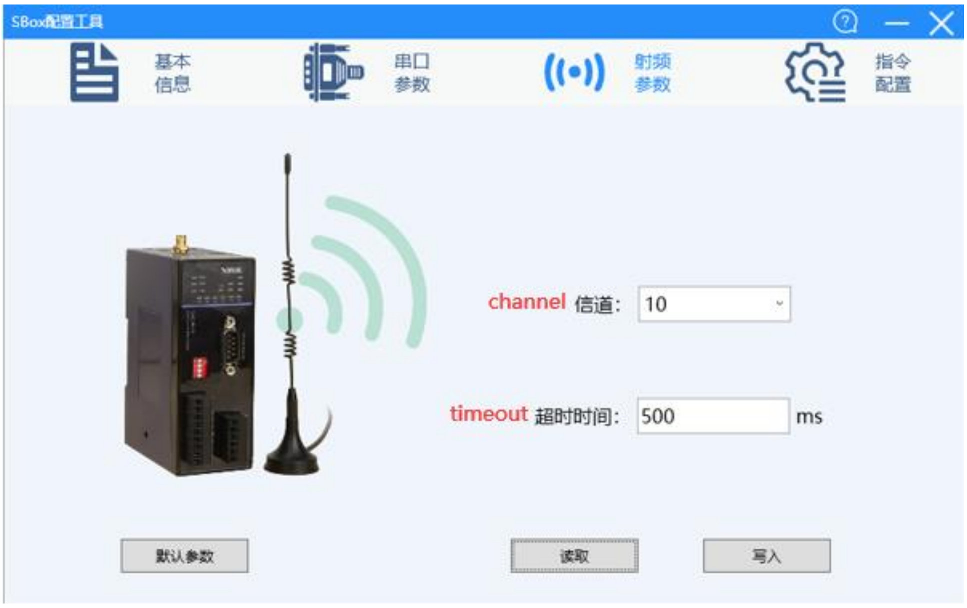


baud rate
波特率
○ 2400BPS ○ 4800BPS
○ 9600BPS ● 19200BPS
○ 14400BPS ○ 28800BPS
○ 38400BPS ○ 56000BPS
○ 57600BPS ○ 115200BPS

parity
奇偶校验
○ 奇校验 odd ● 偶校验 even ○ 无 no

data bit
数据位
○ 7 ● 8

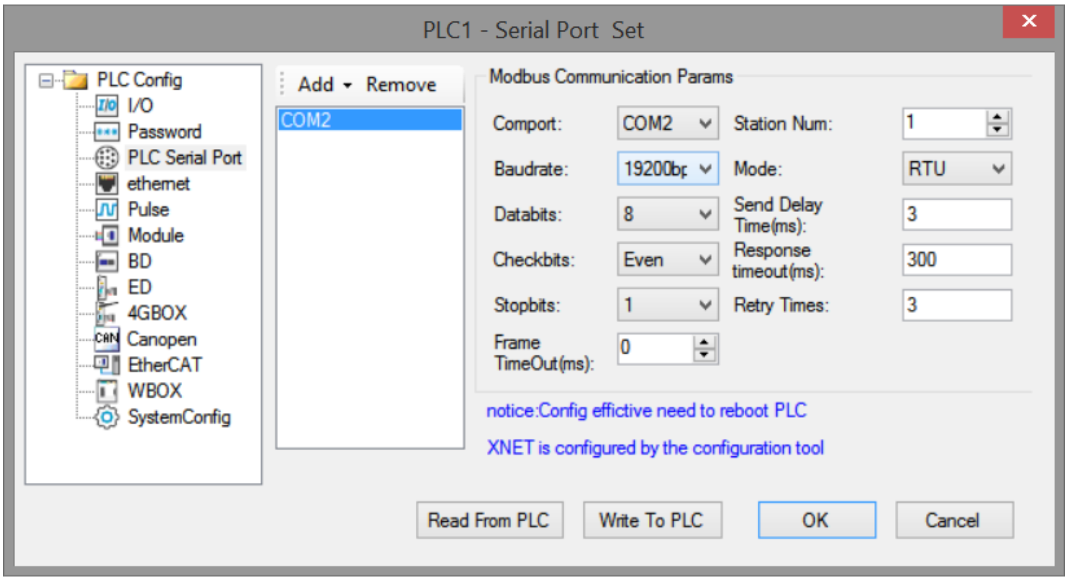
stop bit
停止位
● 1 ○ 1.5 ○ 2


SBox配置工具
基本信息
串口参数
射频参数
指令配置
默认参数
读取
写入

channel 信道：10

timeout 超时时间：500 ms

Step 2: COM2 port of PLC is used here, and the communication parameters are set as follows (consistent with S-BOX-HT):


PLC1 - Serial Port Set
PLC Config
I/O
Password
PLC Serial Port
ethernet
Pulse
Module
BD
ED
4GBOX
Canopen
EtherCAT
WBOX
SystemConfig
Add
Remove
COM2
Read From PLC
Write To PLC
OK
Cancel

Modbus Communication Params

Comport: COM2

Baudrate: 19200bp

Databits: 8

Checkbits: Even

Stopbits: 1

Frame TimeOut(ms): 0

Station Num: 1

Mode: RTU

Send Delay Time(ms): 3

Response timeout(ms): 300

Retry Times: 3

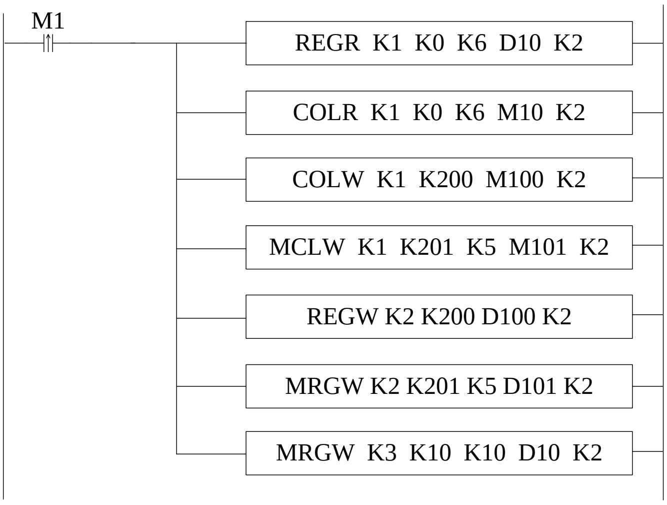
notice:Config effictive need to reboot PLC

XNET is configured by the configuration tool

Step 3: Connect the external RS485 port of the S-BOX-HT to the RS485 port of the PLC (A to A, B to B). If other connection methods are used, refer to the pin descriptions in Chapter 4-6.

Step 4: Write MODBUS program

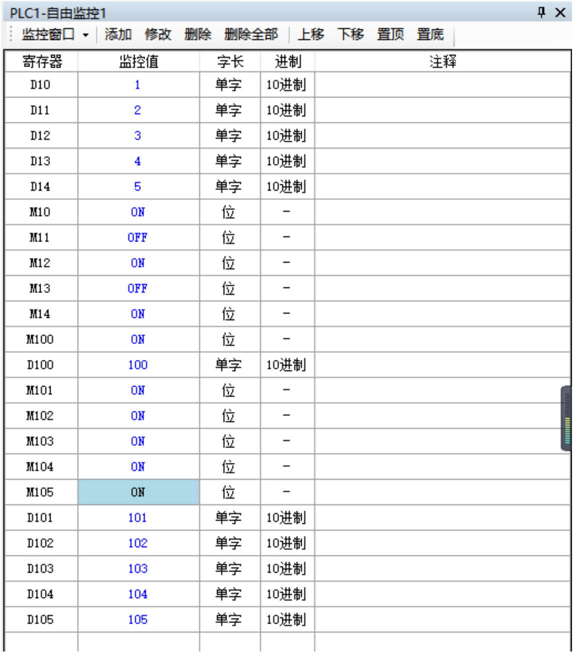
XDM is MODBUS master station, the program is as the following:



```
REGR  K1  K0  K6  D10  K2
COLR  K1  K0  K6  M10  K2
COLW  K1  K200  M100  K2
MCLW  K1  K201  K5  M101  K2
REGW K2 K200 D100 K2
MRGW K2 K201 K5 D101 K2
MRGW  K3  K10  K10  D10  K2
```

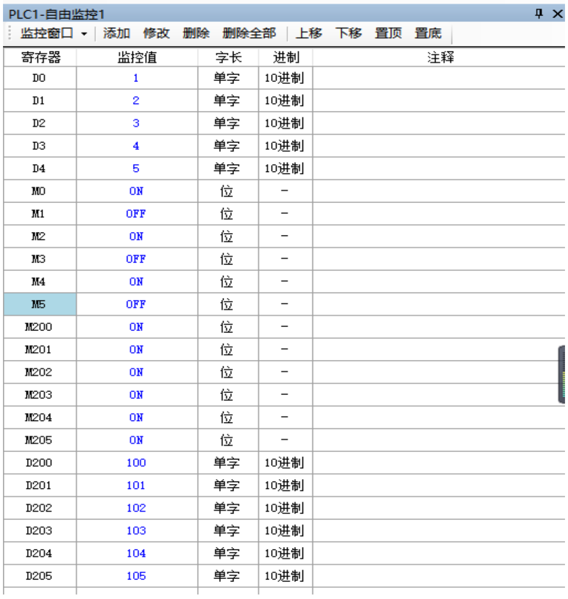
XD5 is MODBUS slave station, it no need to make program.

Normal data transmission and reception between master station and slave station indicates successful communication. Data monitoring is as follows:



| 寄存器 | 监控值 | 字长 | 进制 | 注释 |
|---|---|---|---|---|
| D10 | 1 | 单字 | 10进制 | |
| D11 | 2 | 单字 | 10进制 | |
| D12 | 3 | 单字 | 10进制 | |
| D13 | 4 | 单字 | 10进制 | |
| D14 | 5 | 单字 | 10进制 | |
| M10 | ON | 位 | - | |
| M11 | OFF | 位 | - | |
| M12 | ON | 位 | - | |
| M13 | OFF | 位 | - | |
| M14 | ON | 位 | - | |
| M100 | ON | 位 | - | |
| D100 | 100 | 单字 | 10进制 | |
| M101 | ON | 位 | - | |
| M102 | ON | 位 | - | |
| M103 | ON | 位 | - | |
| M104 | ON | 位 | - | |
| M105 | ON | 位 | - | |
| D101 | 101 | 单字 | 10进制 | |
| D102 | 102 | 单字 | 10进制 | |
| D103 | 103 | 单字 | 10进制 | |
| D104 | 104 | 单字 | 10进制 | |
| D105 | 105 | 单字 | 10进制 | |

**Master station PLC**



| 寄存器 | 监控值 | 字长 | 进制 | 注释 |
|---|---|---|---|---|
| D0 | 1 | 单字 | 10进制 | |
| D1 | 2 | 单字 | 10进制 | |
| D2 | 3 | 单字 | 10进制 | |
| D3 | 4 | 单字 | 10进制 | |
| D4 | 5 | 单字 | 10进制 | |
| M0 | ON | 位 | - | |
| M1 | OFF | 位 | - | |
| M2 | ON | 位 | - | |
| M3 | OFF | 位 | - | |
| M4 | ON | 位 | - | |
| M5 | OFF | 位 | - | |
| M200 | ON | 位 | - | |
| M201 | ON | 位 | - | |
| M202 | ON | 位 | - | |
| M203 | ON | 位 | - | |
| M204 | ON | 位 | - | |
| M205 | ON | 位 | - | |
| D200 | 100 | 单字 | 10进制 | |
| D201 | 101 | 单字 | 10进制 | |
| D202 | 102 | 单字 | 10进制 | |
| D203 | 103 | 单字 | 10进制 | |
| D204 | 104 | 单字 | 10进制 | |
| D205 | 105 | 单字 | 10进制 | |

**Slave station PLC**

WE CHAT

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