Modbus TCP
XB6 Series Slice I/O
User Manual

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1 Product Overview

1.1 Product Introduction

XB6 series slice I/O modules feature a combination of couplers and I/O modules. XB6-MT2002ST is the kit of power supply, Modbus TCP couplers, and cover plates. The couplers connect extendable I/O modules to a real-time industrial Ethernet system. The I/O modules communication backplane is equipped with X-bus to provide high real-time performance and connects a variety of modules. The Modbus TCP coupler supports configuration of module parameters in the Web page and dynamic display of I/O module status. It helps users collect high-speed data, optimize system configuration, simplify field wiring, and improve system reliability.

1.2 Product Features

- **Fewer nodes required**
  A node consists of a bus coupler, 1~32 X-bus series I/O modules and an end cover.
- **Diverse functional expansion options**
  Flexible expansion is supported, and a complete range of IO types are provided. It is a to integrate digital, analog, temperature, pulse and other modules to meet different application needs
- **Flexible configuration**
  Multiple types of slice I/O modules are offered for free combination
- **High compatibility**
  The coupler communication interface conforms to communication standards and supports mainstream Modbus TCP master stations.
- **Small footprint**
  Compact structure and small footprint.
- **Easy diagnosis**
  An innovative channel indicator design is adopted. As the indicators are placed close to the channels, channel status is displayed intuitively and clearly, facilitating detection and maintenance.
- **High speed**
  X-bus on the backplane leads to a maximum scan cycle of 1 ms

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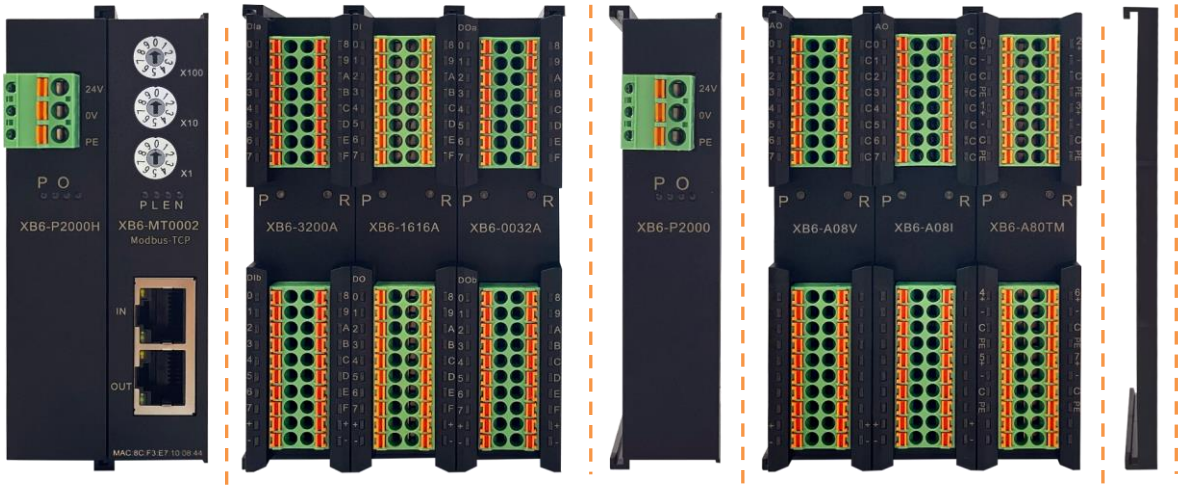
- **Easy installation**
  Installation on standard DIN 35 mm rails.
  Spring terminal blocks are used for convenient and fast wiring.

1.3 Application Configuration



Application method:
Different modules can be combined, including power supply, coupler, digital, analog, relay, temperature, and other modules.

Application configuration:
Different I/O module combinations can be adopted depending on master station access capacity, number of stations, I/O points, function type, and other requirements.

Configuration rules:
From left to right, the modules should be arranged in the order of power supply, coupler module, I/O modules, and cover plate (must be configured).

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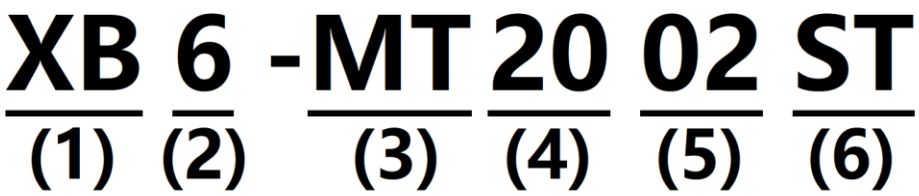
2 Designation Rules

2.1 Designation Rules

2.1.1 Coupler Designation Rules



Item	Value	Description of the values
(1)	Bus type	XB：X-bus backplane bus
(2)	Product line	6：Slice I/O
(3)	Bus protocol	MT：Modbus TCP CL：CC-Link PN：PROFINET EI：EtherNet/IP EC：EtherCAT CB：CC-Link IE Field Basic CT：CC Link IE TSN
(4)	Power supply	20：2A
(5)	Number of Bus Interfaces	02：2*RJ45
(6)	Module type	ST：Kit of power supply, coupler, and cover plate

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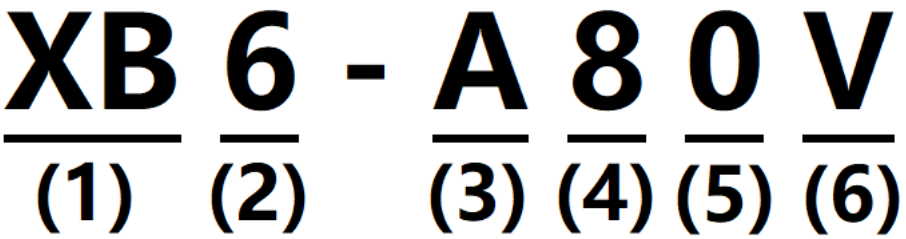
2.1.2 I/O module designation rules



Item	Value	Description of the values				
(1)	Bus type	XB：X-bus				
(2)	Product line	6：Slice I/O				
(3)	I/O module type	A：Analog Blank：Digital				
(4)	Number of inputs	Analog：0、4、8 Digital：0、8、16、32				
(5)	Number of outputs	Analog：0、4、8 Digital：0、8、16、32				
(6)	I/O characteristics	**Digital**			**Analog**	
		Code	Input	Output	Code	Description
		A	NPN	NPN、0.5 A	V	-10~+10 V、0~+10 V
		B	PNP	PNP、0.5 A	I	4~20 mA、0~20 mA
		BW	PNP	PNP、0.25 A	TM	Resistance Temperature Detector (RTD), thermocouple (TC)
		N	NPN/PNP	-		
		AN	-	NPN、0.1 A		
		BN	-	PNP、0.5 A		

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2.2 List of common modules

Model	Product description	
XB6-MT2002ST	Modbus TCP coupler kit (power supply + coupler + cover plate)	
XB6-P2000	Extension power module	
XB6-3200A	32-channel digital input module, NPN type	
XB6-3200B	32-channel digital input module, PNP type	
XB6-0032A	32-channel digital output module, NPN type	
XB6-0032B/XB6-0032BW	32-channel digital output module, PNP type	
XB6-1600A	16-channel digital input module, NPN type	
XB6-1600B	16-channel digital input module, PNP type	
XB6-0016A	16-channel digital output module, NPN type	
XB6-0016B/XB6-0016BW	16-channel digital output module, PNP type	
XB6-0800A	8-channel digital input module, NPN type	
XB6-0800B	8-channel digital input module, PNP type	
XB6-0008A	8-channel digital output module, NPN type	
XB6-0008B/XB6-0008BW	8-channel digital output module, PNP type	
XB6-1616A	16-channel digital I/O module, NPN type	
XB6-1616B/XB6-1616BW	16-channel digital I/O module, PNP type	
XB6-3200N	32-channel digital input, NPN/PNP compatible	
XB6-0032AN	32-channel digital output, NPN type	
XB6-0032BN	32-channel digital output, PNP type	
XB6-A80V	8-channel analog voltage input module	Optional ranges: 0~+10 V -10~+10 V
XB6-A40V	4-channel analog voltage input module	
XB6-A08V	8-channel analog voltage output module	
XB6-A04V	4-channel analog voltage output module	
XB6-A80I	8-channel analog current input module	Optional ranges: 0~20 mA 、4~20 mA
XB6-A40I	4-channel analog current input module	
XB6-A08I	8-channel analog current output module	
XB6-A04I	4-channel analog current output module	
XB6-A40TM	4-channel thermal resistor and thermocouple temperature collection module	
XB6-A80TM	8-channel thermal resistor and thermocouple temperature collection module	
XX6-C18_2	Common terminal extended module	

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3 Product Parameters

3.1 General parameters

General technical parameters		
Size	Power module	106X61X22.5 mm
	Coupler module	106X61X22.5 mm
	I/O module	106X73X25.7 mm
Weight	Power module	110 g
	Coupler module	80 g
	I/O module	90 g
Working temperature	-10~+60℃	
Storage temperature	-20℃~+75℃	
Relative humidity	95%, non-condensing	
Protection degree	IP20	

3.2 Power parameters

Power parameters		
Power module	Working power supply	18~36 VDC
	Output voltage	5 VDC
	Output current	2A
Coupler module	Working power supply	5 VDC
	Working current	400 mA
I/O module	Working power supply	5 VDC

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3.3 Interface parameters

Modbus TCP interface parameters	
Bus protocol	Modbus TCP
Data transmission medium	Ethernet CAT5 cable
Transmission rate	100 Mbps
Transmission distance	≤100 m (distance between stations)
Bus interface	2×RJ45

3.4 Digital parameters

Digital input	
Nominal voltage	24 VDC (18V~30V)
Number of inputs	8、16、32
Signal type	NPN/ PNP
“0” Signal Voltage (PNP)	-3~+3 V
“1” Signal Voltage (PNP)	15~30 V
“0” Signal Voltage (NPN)	15~30 V
“1” Signal Voltage (NPN)	-3~+3 V
Input filter	3 ms
Input current	4 mA
Isolation method	Optically-coupled isolation
Electrical isolation	500 VAC
Channel indicator	Green LED
Digital output	
Nominal voltage	24 VDC(18V~30V)
Number of outputs	8、16、32
Signal type	NPN/ PNP
Load type	resistive load, inductive load
Single-channel rated current (A/B)	NPN Type Max：250 mA PNP Type Max：500 mA BW Type Max：250mA
Port protection	Overvoltage and overcurrent protection
Isolation method	Optically-coupled isolation
Electrical isolation	500 VAC
Channel indicator	Green LED

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3.5 Analog parameters

3.5.1 Technical parameters

Analog input			
Number of inputs	4、8		
Input signal (voltage type)	0~+10 V、-10 V~+10 V(adjustable range)		
Input signal (current type)	0~20 mA、4~20 mA(adjustable range)		
Resolution	16 bits		
Sampling rate	XB6-A40V、XB6-A80V	≤1 ksps	
	XB6-A40I、XB6-A80I	≤1 ksps	
Accuracy	XB6-A40V、XB6-A80V	±0.1%	
	XB6-A40I、XB6-A80I	±0.1%	
Internal resistance (voltage type)	≥2 kΩ		
Internal resistance (current type)	100 Ω		
Electrical isolation	500 VAC		
Channel indicator	Green LED		
Temperature input			
Number of channels	4、8		
Sensor type	Thermocouple	Thermal resistor	Resistor
Connection type	2 wire method	2 / 3 wire method	2 wire method
	K：-200~1370℃ J：-200~1200℃ E：-200~1000℃ S： -50~1690℃ B： 50~1800℃	Pt100：−200~850℃ Pt200：−200~600℃ Pt500：−200~600℃ Pt1000：−200~600℃	15Ω~3kΩ
Accuracy	±0.5%	±1℃	±0.1%
Sensitivity	0.1℃		±0.1Ω
Resolution	16 bit(int type)		
Channel indicator	Green LED		

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Analog output		
Number of outputs	4、8	
Output signal (voltage type)	0~+10 V、-10~+10 V(adjustable range)	
Output signal (current type)	0~20 mA、4~20 mA(adjustable range)	
Resolution	16 bits	
Accuracy	XB6-A04V、XB6-A08V	±0.1%
	XB6-A04I、XB6-A08I	±0.1%
Load impedance (voltage type)	≥2 kΩ	
Load impedance (current type)	≤200 Ω	
Electrical isolation	500 VAC	
Channel indicator	Green LED	

3.5.2 Voltage I/O range selection and code value table

Voltage I/O range selection and cold value range				
Range selection	0	1	2	3
Range	-10 V~+10 V	0~+10 V	-10 V~+10 V	0~+10 V
Code value range	-32768~32767	0~32767	-27648~27648	0~27648
Voltage input formula	D=(65535/20)*U	D=(32767/10)*U	D=(55296/20)*U	D=(27648/10)*U
Voltage output formula	U=(D*20)/65535	U=(D*10)/32767	U=(D*20)/55296	U=(D*10)/27648
Code value table	See Table 3-1 Voltage code values			

Note: D: code value; U: voltage

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Table 3-1 Voltage code values

Range / Voltage	0 (default)	1	2	3
	Code value	Code value	Code value	Code value
-10	-32768	-	-27648	-
-9	-29491	-	-24883	-
-8	-26214	-	-22118	-
-7	-22937	-	-19354	-
-6	-19661	-	-16589	-
-5	-16384	-	-13824	-
-4	-13107	-	-11059	-
-3	-9830	-	-8294	-
-2	-6554	-	-5530	-
-1	-3277	-	-2765	-
0	0	0	0	0
1	3277	3277	2765	2765
2	6554	6553	5530	5530
3	9830	9830	8294	8294
4	13107	13107	11059	11059
5	16384	16384	13824	13824
6	19661	19660	16589	16589
7	22937	22937	19354	19354
8	26214	26214	22118	22118
9	29491	29490	24883	24883
10	32767	32767	27648	27648
	D= (65535/20) *U	D= (32767/10) *U	D= (55296/20) *U	D= (27648/10) *U
	U=(D*20)/65535	U= (D*10)/32767	U=(D*20)/55296	U= (D*10)/27648

3.5.3 Current I/O range selection and code value table

Analog current I/O range selection and code value range				
Range selection	0	1	2	3
Range	4~20 mA	0~20 mA	4~20 mA	0~20 mA
Code value range	0~65535		0~27648	
Current input formula	D=65535/16*I-16384	D=(65535/20)*I	D=(27648/16)*I-6912	D=(27648/20)*I
Current output formula	I=(D+16384)*16/65535	I=(D*20)/65535	I=((D+6912)*16)/27648	I=(D*20)/27648
Code value table	See Table 3-2 Current code values			

Note: D: Code value; I: current

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Table 3-2 Current code values

Range selection / Range / Current	0 (default)	1	2	3
	4-20mA	0-20mA	4-20mA	0-20mA
	Code value	Code value	Code value	Code value
0	-	0	-	0
1	-	3277	-	1382
2	-	6554	-	2765
3	-	9830	-	4147
4	0	13107	0	5530
5	4096	16384	1728	6912
6	8192	19661	3456	8294
7	12288	22937	5184	9677
8	16384	26214	6912	11059
9	20479	29491	8640	12442
10	24575	32768	10368	13824
11	28671	36044	12096	15206
12	32767	39321	13824	16589
13	36863	42598	15552	17971
14	40959	45875	17280	19354
15	45055	49151	19008	20736
16	49151	52428	20736	22118
17	53247	55705	22464	23501
18	57343	58982	24192	24883
19	61439	62258	25920	26266
20	65535	65535	27648	27648
21	65535	65535	29376	29030
22			31104	30413
22.81			32511	31538
22.96			32767	31743
23				31795
23.52				32511
23.70				32767
24				
25				
	Code value= 65535/16*current-16384	Code value= (65535/20)*current	Code value= (27648/16)*current-6912	Code value= (27648/20)*current

Notes:

In Range 2, when input current > 22.81 mA, the code value displayed is always 32767; when the specified Code value > 32511, the output current is always 22.81 mA.

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In Range 3, when input current > 23.52 mA, the code value displayed is always 32767; when the specified code value > 32511, the output current is always 23.52 mA.

3.6 Common terminal expansion module parameters

Common terminal	
Rated voltage	125 VDC/AC 250V
Rated current	8 A
Number of common terminals	2 sets

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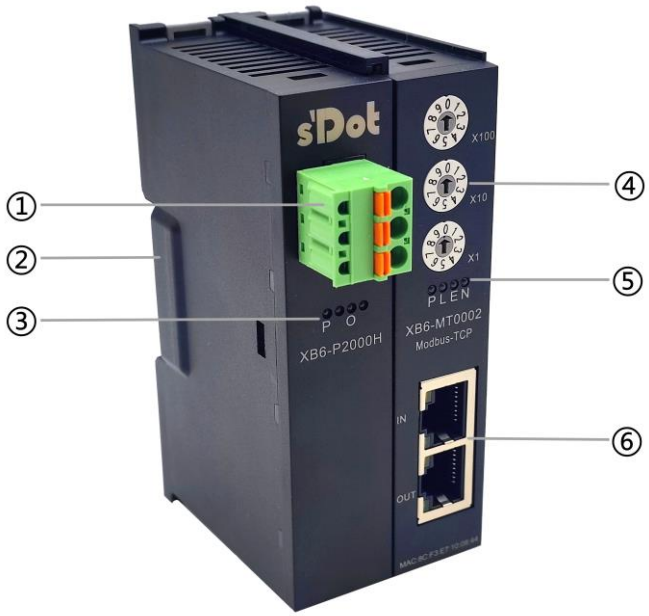
4 Panel

4.1 Coupler panel

4.1.1 Coupler Structure

Name and function description of product components



Number	Name	Description
①	Power interface	Push-in terminal blocks
②	Guide rail slot	Suitable for DIN 35 mm rail fixing
③	Power ID, indicator	Indicates power status
④	Rotary switches and ID	IP address and reset settings
⑤	System ID, indicator	Indicates power supply, module operation status
⑥	Bus interface	2×RJ45

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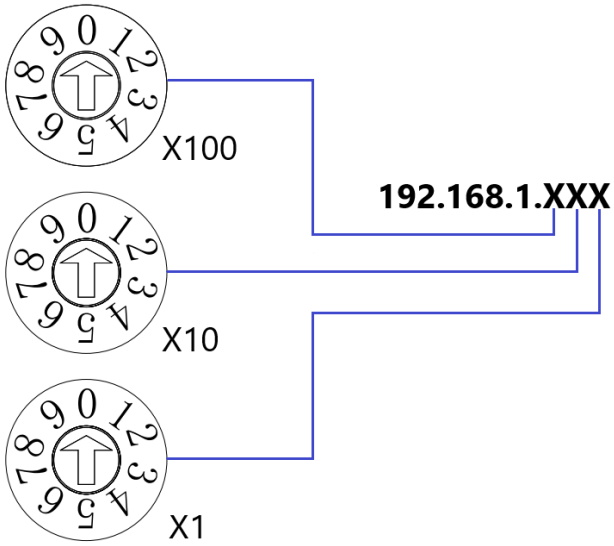
4.1.2 Rotary switches

IP address setting

You can use the rotary switches to set the specific IP address of the module.



Setting value (decimal)	IP address setting method
000	The default value of rotary switch is "000" and the default IP address is 192.168.1.120.
001 ~ 254	The IP address is set to low 1Byte. Set IP address in the value of 1-254 based on"×100" for hundreds, "×10" for tens, and "×1" for digits. The IP address high 3Byte continues the value set by the previous Web. If the IP address is set to a value other than 000 by the rotary switch at the factory, the high 3Byte is 192.168.1.
255 ~	When the rotary switch is set to 255 or more, the module takes the default value or the last stored value when it is powered on.

Precautions

1. Tool selection
   Screwdriver specification: 3 mm opening.
2. Be sure to set the rotary switch IP when the power is off.
3. If the IP address was modified during communication, the new setting only take effect after re-powered modules.

Reset Function

1. Turn the rotary switch to 999 to power up the module.
2. After the module is powered up, turn the rotary switch back to 000 under the condition of power on
3. After the rotary switch is turned back to 000, the module automatically performs the restoration of factory settings.

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4.1.3 Indicator functions

Description of IDs and indicators of the power module			
ID	**Color**	**Status**	**Status description**
P	Green	ON	Normal status of working power supply
		Flashing	80% overload. The power supply to real stage load is cut off
		OFF	Unpowered or abnormal power supply
O	Red	OFF	No overload
		ON	90% overload
		Flashing	80% overload. The power supply to real stage load is cut off

Network port status indicator			
ID	**Color**	**Status**	**Status description**
IN	Yellow	ON	Network connection established
		OFF	Absent or abnormal network connection
	Green	Flashing	Connection established with data interaction
		OFF	Absent or abnormal network connection
OUT	Yellow	ON	Network connection established
		OFF	Absent or abnormal network connection
	Green	Flashing	Connection established with data interaction
		OFF	Absent or abnormal network connection

Description of IDs and indicators of the coupler module				
Name	**ID**	**Color**	**Status**	**Status description**
Power indicator	P(PWR)	Green	ON	Normal status of power supply
			OFF	Unpowered or abnormal power supply
System indicator	L(LINK)	Green	ON	The I/O module is connected, X-bus system is interacted
			Flashing 1Hz	The I/O module is connected, X-bus system is ready to interact
			Flashing 5Hz	The I/O module is not connected, X-bus system configuration abnormal
			OFF	The I/O module is not connected or abnormal connection
Warning indicator	E(ERR)	Red	Flashing	1、Device has established Modbus TCP connection but data interaction error 2、Disconnection after the device has established the connection 3、The coupler and module communication erro
			OFF	Normal status of device operation
Network status indicator	N(NS)	Green	ON	Device has established Modbus TCP connection and is interacting with data
			OFF	Connection is broken or power is disconnected

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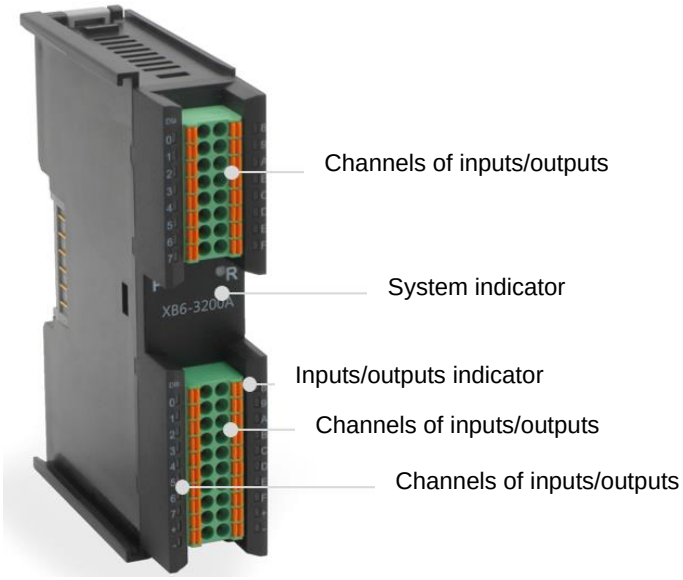
4.2 I/O modules panel

Name and function description of modules



I/O module Indicator description			
ID	**Color**	**Status**	**Status description**
P	Green	ON	Normal status of working power supply
		OFF	Unpowered or abnormal power supply
R	Green	ON	Normal system operation
		Flashing 1 Hz	I/O module connected, X-bus system ready for interaction
		OFF	Unpowered, no X-bus data interaction, or abnormal status
Input channel indicator	Green	ON	Presence of signal input in module detection channel
		OFF	Absence of signal input in module channel or abnormal signal input
Output channel indication	Green	ON	Presence of signal output in module channel
		OFF	Absence of signal output in module channel or abnormal signal output

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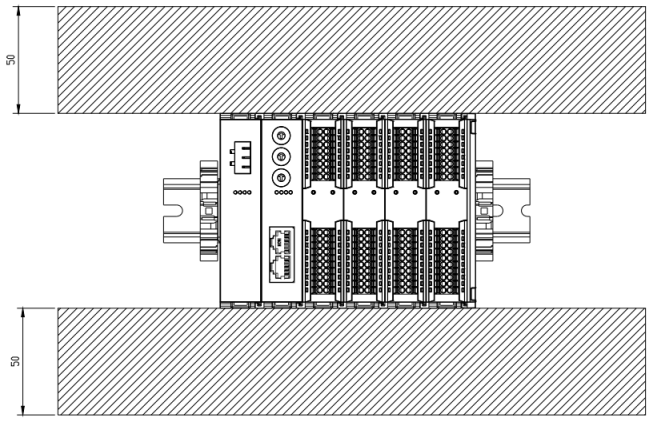
5 Installation and Disassembly

5.1 Installation instructions

Installation and disassembly precautions

- Ensure that the cabinet is well ventilated. (such as the addition of exhaust fans to cabinets)
- Do not install this equipment near or above any equipment that may cause overheating.
- Make sure to install the module vertically and maintain adequate air circulation around it (at least 50 mm air circulation space should be provided above and below the module).
- After the modules are installed, remember to install guide rail fasteners at both ends to fix them.
- Installation/disassembly operation may only be carried out after the power supply is cut off.

Minimum clearance for module installation (≥50 mm)



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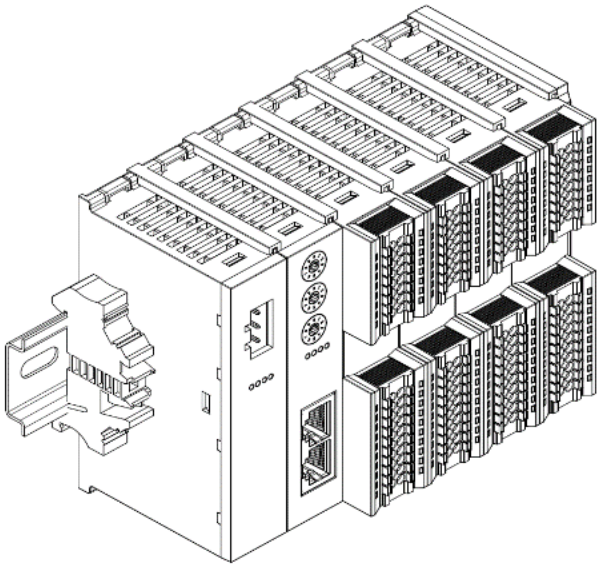
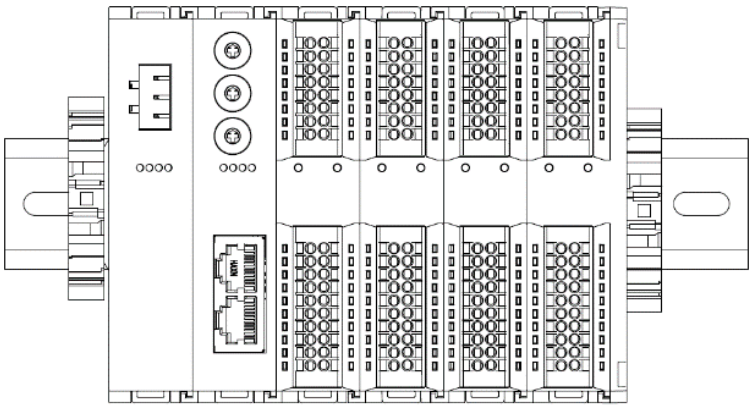
Make sure the modules are installed vertically



Make sure to install guide rail fasteners



5.2 Installation and disassembly steps

Module installation and disassembly	
Module installation steps	1. Install the power module on the fixed guide rail first.
	2. Install the coupler and the required I/O modules on the right side of the power module.
	3. After installing all required I/O modules, install the end cover to complete module assembly.
	4. Install guide rail fasteners at both ends of the power module and end cover to fix the module.
Module disassembly steps	1. Loosen the rail fasteners at both ends of the module.
	2. Pry loose the module snap fitting with a slotted screwdriver.
	3. Pull out the removed module.

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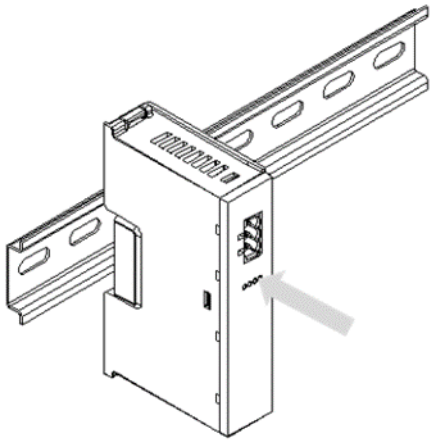
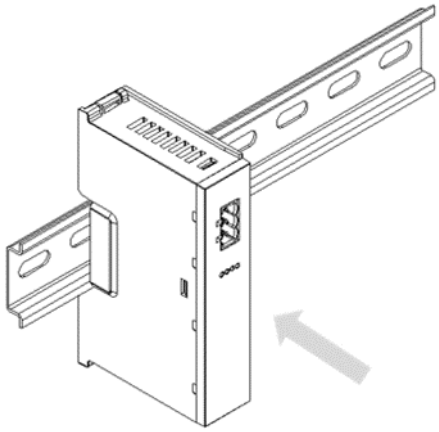
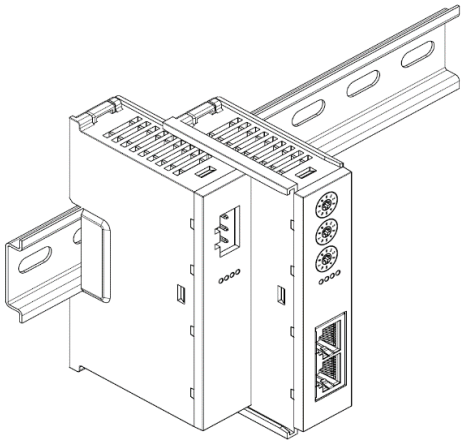
5.3 Installation schematic diagrams

Power module installation	Steps
 ①	Align the power module guide rail slot vertically with the guide rail, as shown in the figure①
 ②	Press the power module with force until a "click" sound is heard. The module is now installed in place, as shown in the figure②.

Coupler module installation	Steps
 ③	Align the left slot of the coupler module with the right side of the power module, and push it in as shown in the figure ③. Press the module with force into the guide rail until a "click" sound is heard. The module is now installed in placed.

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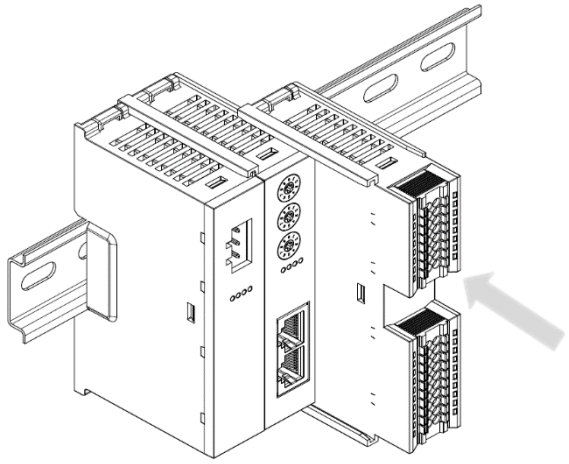
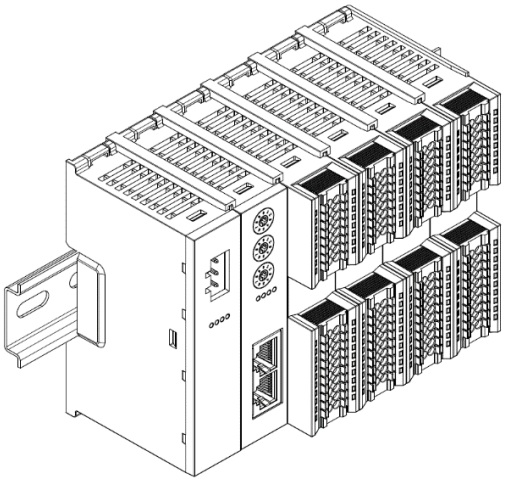
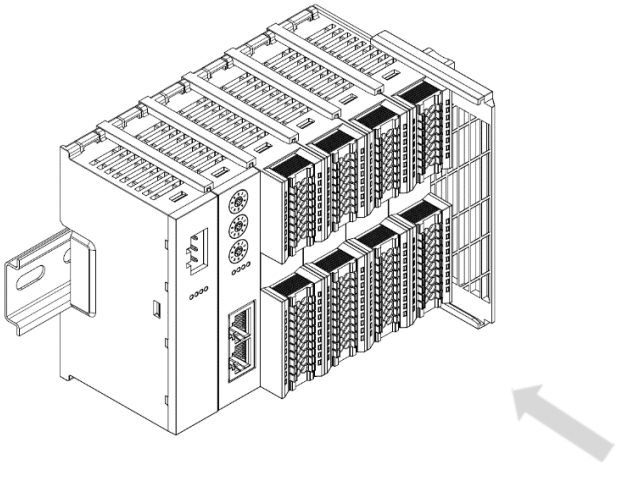
I/O module installation	Steps
 ④	Install the required IO modules one by one using the same the steps as coupler module installation, as shown in the figure④⑤
 ⑤	

End cover installation	Steps
 ⑥	Install the end cover on the right side of the last module, as shown in the figure⑥, using the same installation method as the coupler module.

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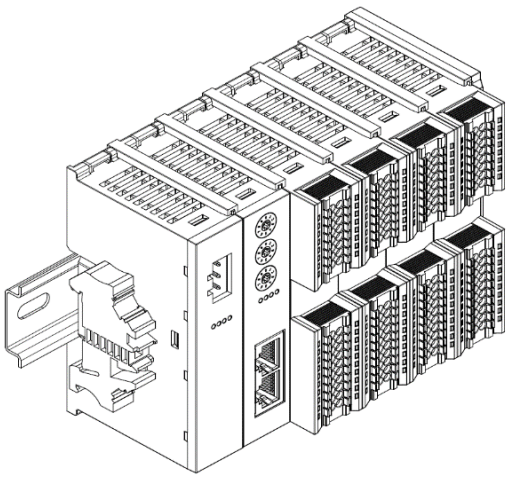
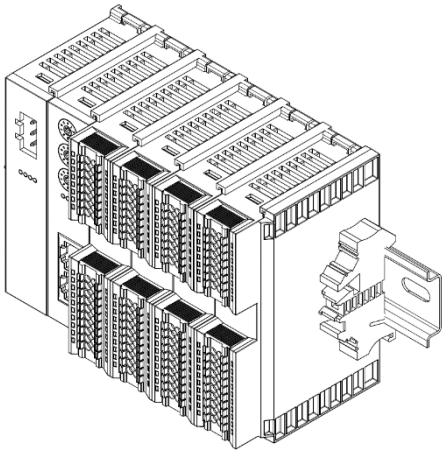
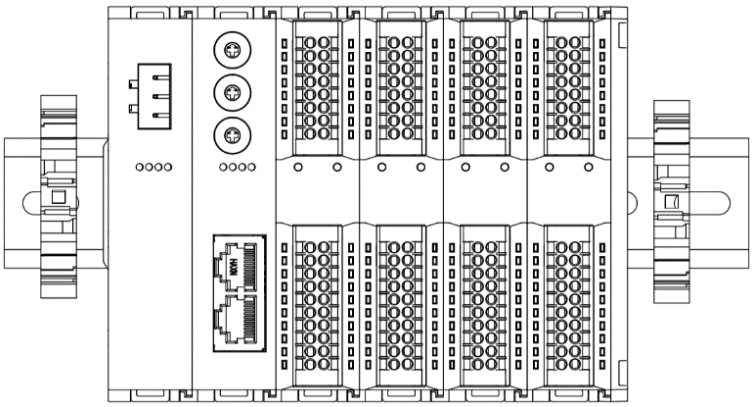
Installation of guide rail fasteners	Steps
 ⑦	Install a guide rail fastener next to the left side of the coupler, and lock it tightly, as shown in the figure⑦
 ⑧	Install a guide rail fastener on the right side of the end cover. In this process, first push the guide rail fastener towards the coupler to ensure that the module is installed firmly, and then lock the fastener with a screwdriver, as shown in the figure⑧

Disassembly	Steps
 ⑨	Using a screwdriver, loosen the guide rail fastener at one end of the module, and move it to one side to create a gap between the module and the fastener, as shown in the figure⑨

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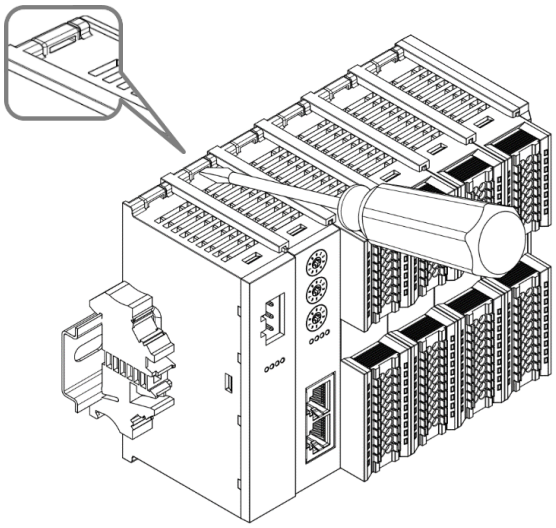
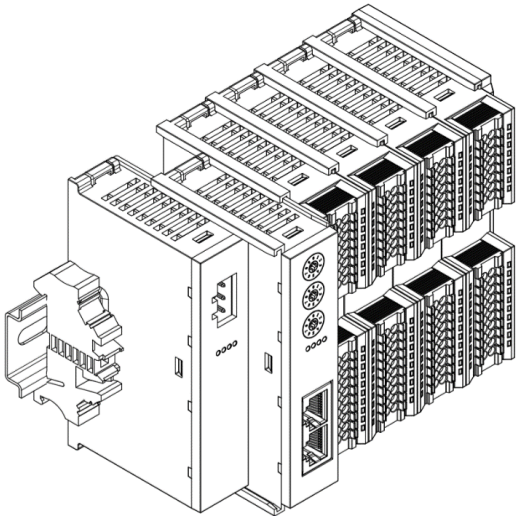


⑩

Insert the slotted screwdriver into the snap fitting of the module to be removed, and exert force along lateral direction of the module (until a click sound is heard), as shown in the figure⑩.

Note: Each module has two snap fittings, one on the top and the other at the bottom. Both should be operated in this way.



⑪

Remove the module in the reverse order of installation, as shown in the figure⑪.

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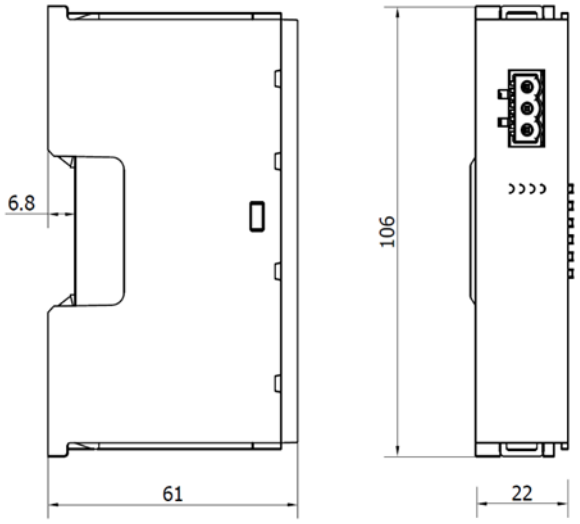
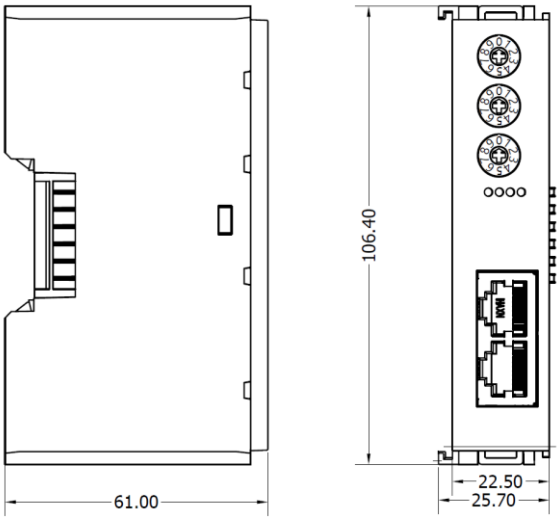
5.4 Dimensions

Power module dimensions (Unit: mm)



Coupler module dimensions (Unit: mm)



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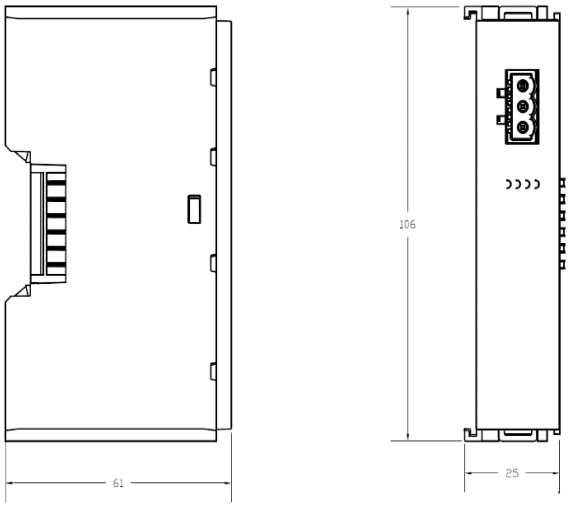
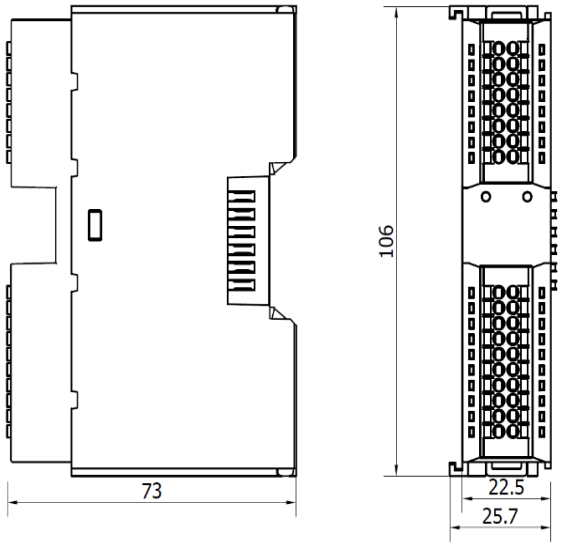
Extension power module dimensions (Unit: mm)



I/O module dimensions (Unit: mm)



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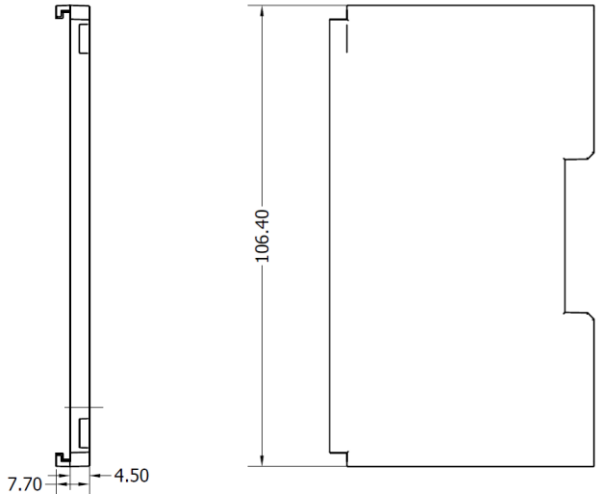
End cover module dimensions (Unit: mm)



Note: All installed with DIN 35 mm standard guide rail, specification 35*7.5*1.0 (unit mm)

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6 Wiring

6.1 Wiring terminal

Wiring terminal		
Signal wire terminal	Number of poles	16 P
	Number of poles	20 P
	Wire gauge	22~17 AWG 0.3~1.0 mm²
Power terminal	Number of poles	3P
	Wire gauge	22~16 AWG 0.3~1.5 mm²
Bus interface	2*RJ45	Category 5 or better UTP or STP (STP preferred)

6.2 Wiring instructions and requirements

Power wiring precautions

- The power supply on the module system side and that on the field side should be wired separately. Mixing should be avoided.
- PE should be grounded reliably.

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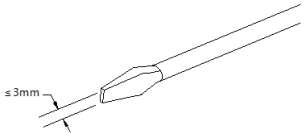
Wiring tool required

As the terminals are based on a screw-free design, cable installation and removal can be realized with a slotted screwdriver (size: ≤ 3 mm).



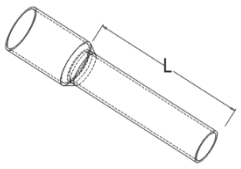
Stripping length required

Recommended stripping length: 10 mm

Wiring method

For a single-strand hard wire, after stripping a required length, press the button while inserting the single-strand wire.

For a multi-strand flexible wire, after stripping a required length, directly connect it or use a compatible cold-pressed terminal (tubular insulated terminal, as shown in the table below). Press the button whiling inserting the wire.

Specification of tubular insulated terminal		
Specification	Model	Cable section area (mm²)
 Length of tubular insulated terminal L ≥10 mm	E0310	0.3
	E0510	0.5
	E7510	0.75
	E1010	1.0
	E1510	1.5

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Power supply wiring: 3P terminal of power module

Connect the DC24V power module using the given wiring method based on the circuit shown in the figure below, and meanwhile ground the PE reliably (twisted pair cable is recommended for power supply)

- Figure 6-1: Wiring of coupler, IO modules, and power module in sequence

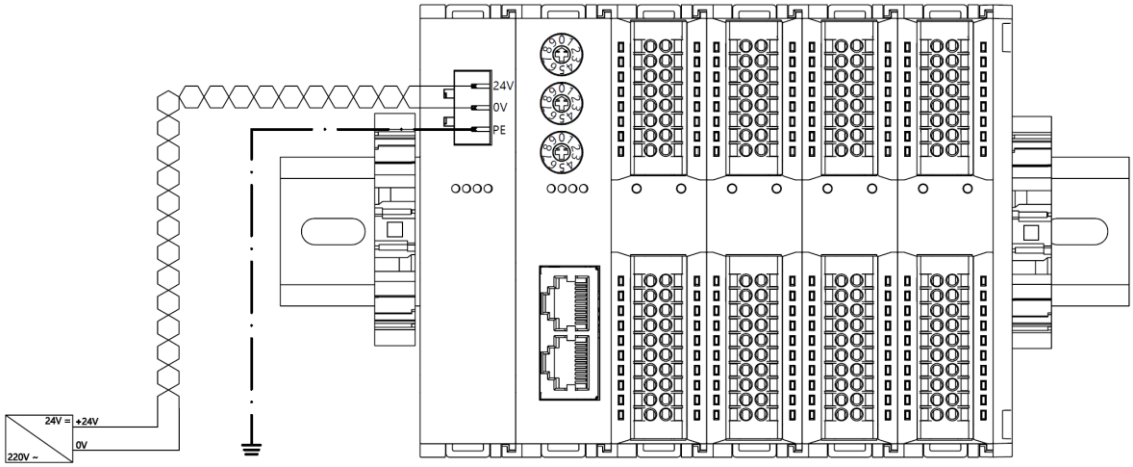

Figure 6-1

- Figure 6-1: Wiring of coupler, IO modules, power module, IO modules, and power module in sequence

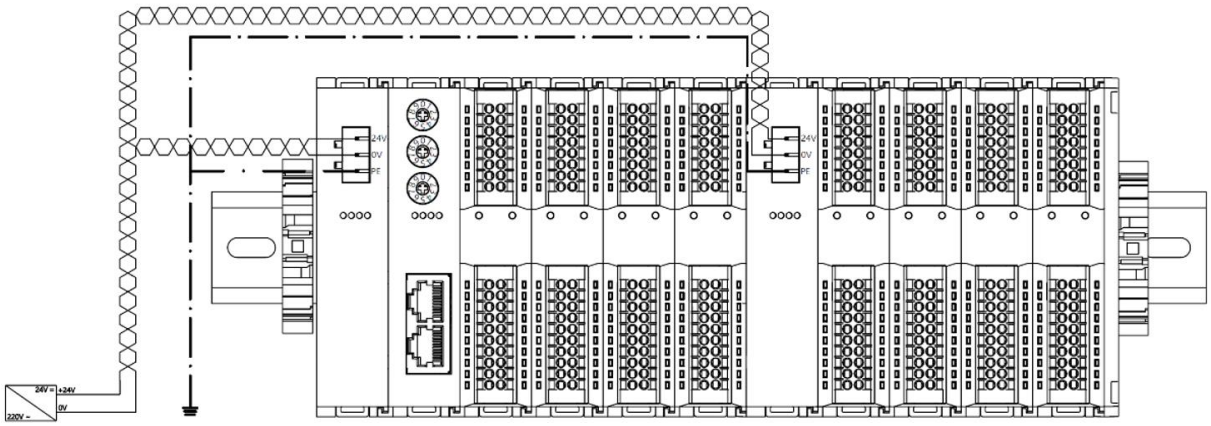

Figure 6-2

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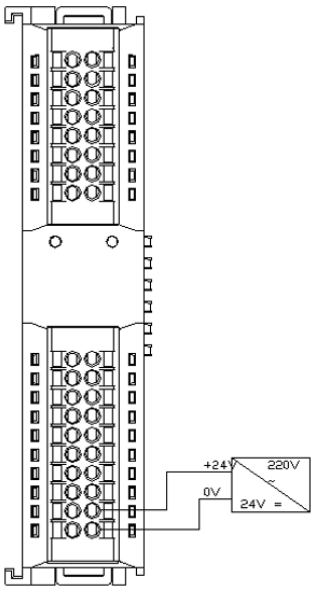
Load power supply wiring: 20P terminal on the field side

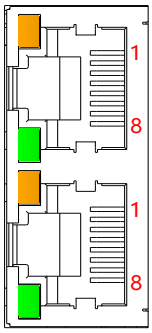
Press the signal cable into the wiring terminal by referring to the I/O module wiring diagram and wiring method. 24 VDC power supply is used for loads. Using the given wiring method, connect the power supply according to the circuit shown in the left figure. Refer to 6.3 I/O module wiring diagram for details.



Signal terminal wiring: 16P\20P terminal

Press the signal cable into the wiring terminal by referring to the I/O module wiring diagram and wiring method.

Bus wiring: Industrial Ethernet bus communication interface



Pin	signal
1	TD+
2	TD-
3	RD+
4	—
5	—
6	RD-
7	—
8	—

- Category 5 or higher-level double-shielded (braided wire + aluminum foil) STP cable is recommended as communication cable.
- Network topology connection please strictly follow the IN and OUT network port signal direction to connect.

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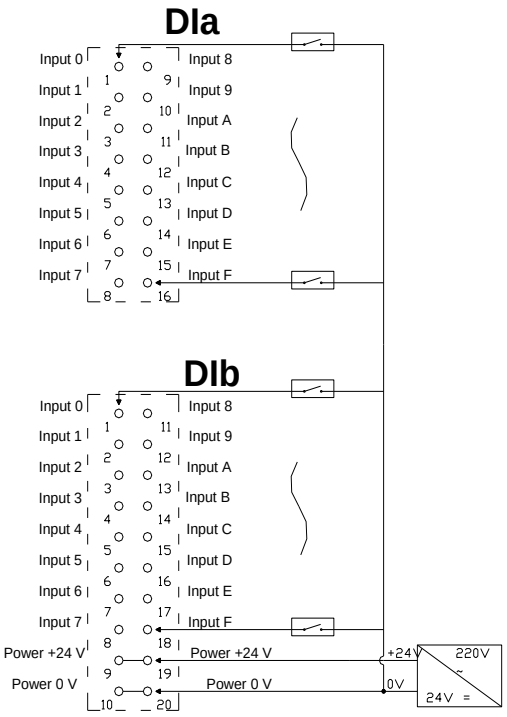
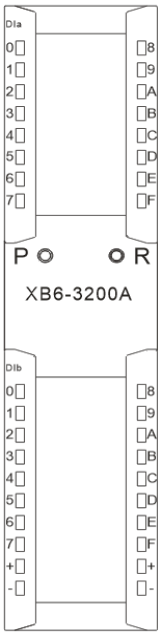
6.3 I/O module wiring diagrams

XB6-3200N, XB6-0032AN, XB6-0032BN Wiring diagrams refer to the “XB6 Series_MIL Connector Type IO User Manual”.

6.3.1 XB6-3200A

XB6-3200A	Module panel





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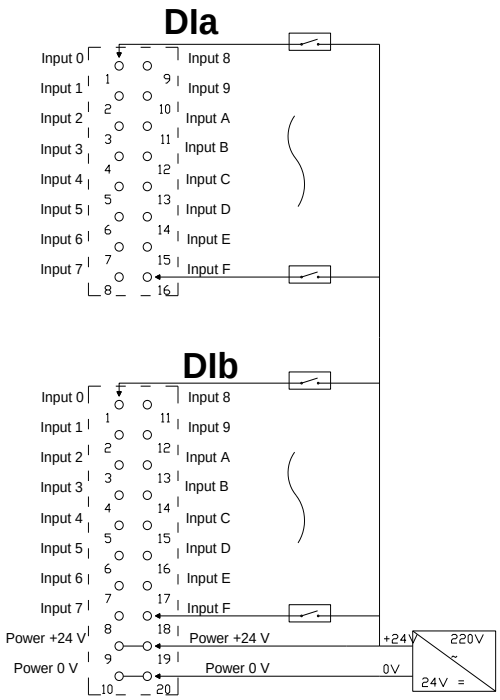
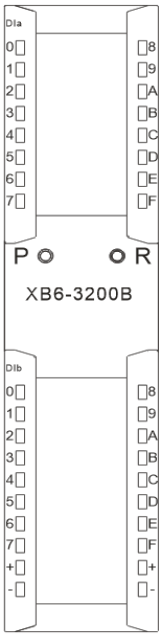
6.3.2 XB6-3200B

XB6-3200B

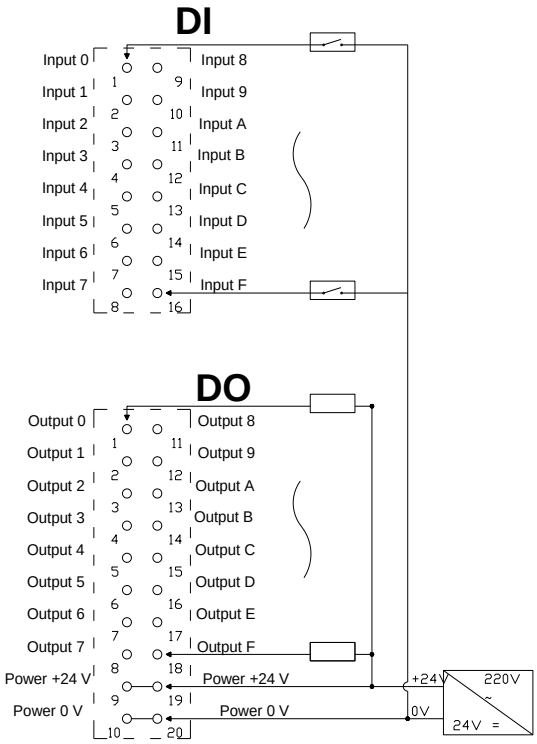


Module panel

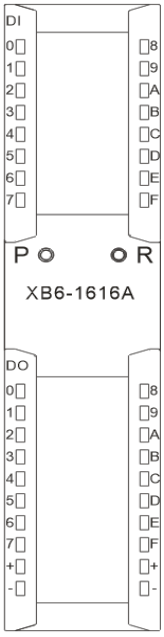


6.3.3 XB6-1616A

XB6-1616A



Module panel



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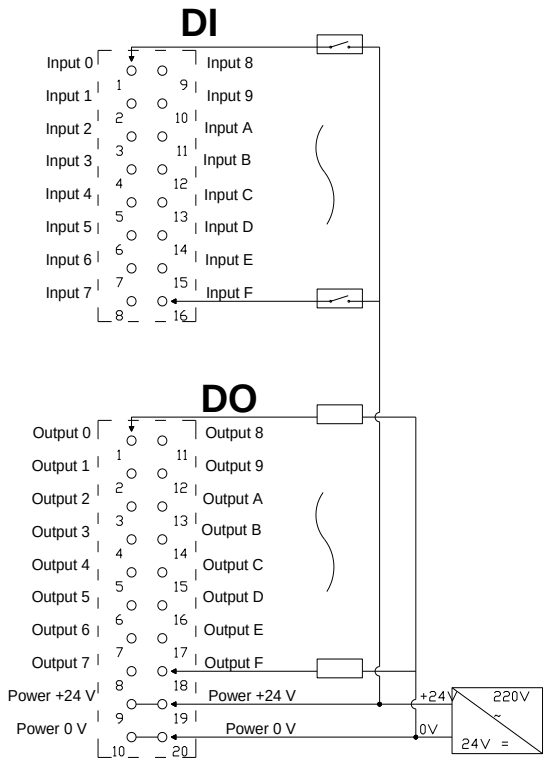
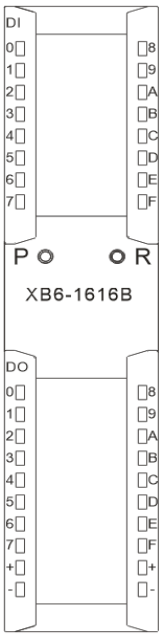
6.3.4 XB6-1616B

XB6-1616B

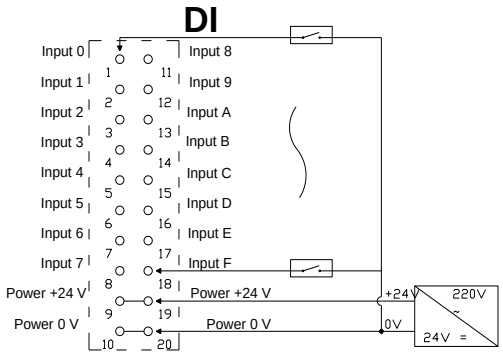


Module panel

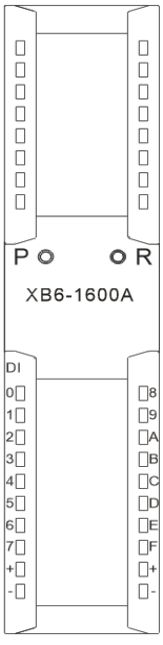


6.3.5 XB6-1600A

XB6-1600A



Module panel



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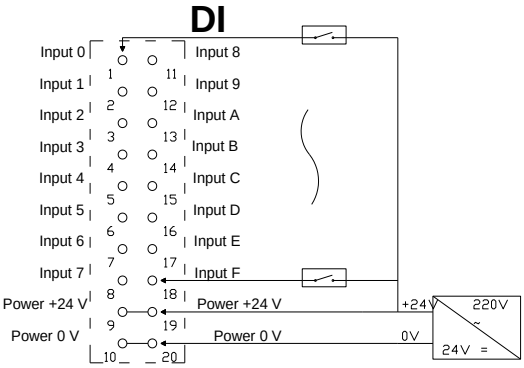
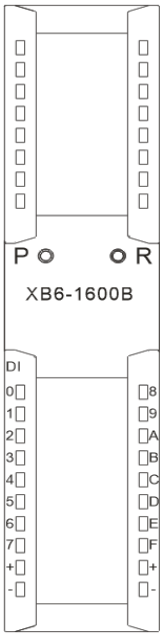
6.3.6 XB6-1600B

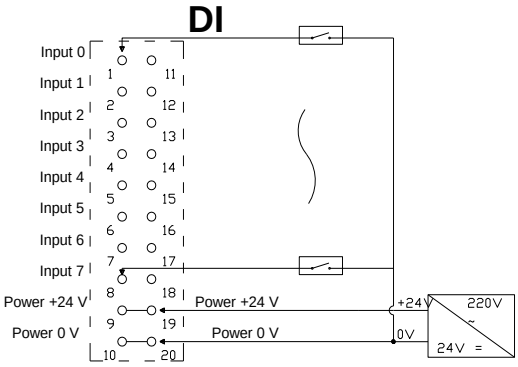
XB6-1600B	Module panel

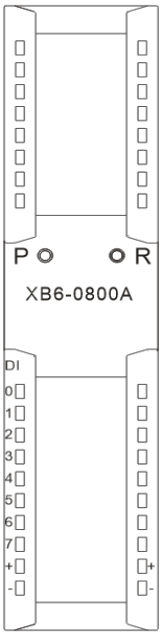




6.3.7 XB6-0800A

XB6-0800A	Module panel





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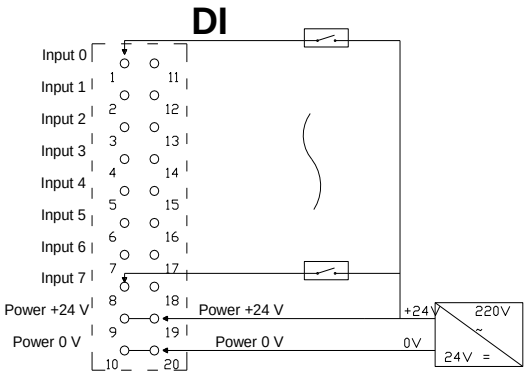
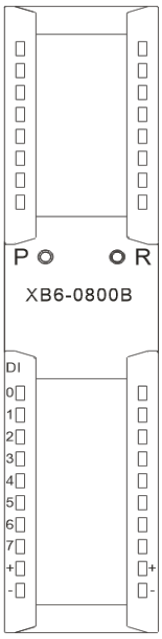
6.3.8 XB6-0800B

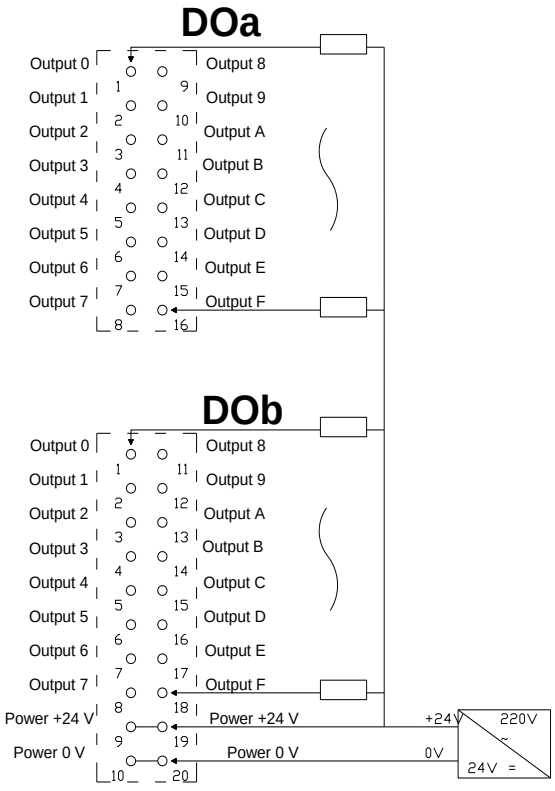
XB6-0800B | **Module panel**

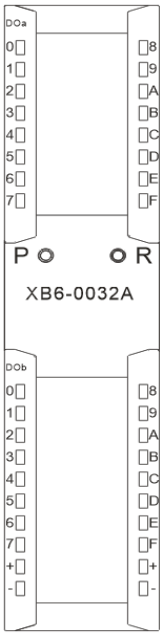




6.3.9 XB6-0032A

XB6-0032A | **Module panel**





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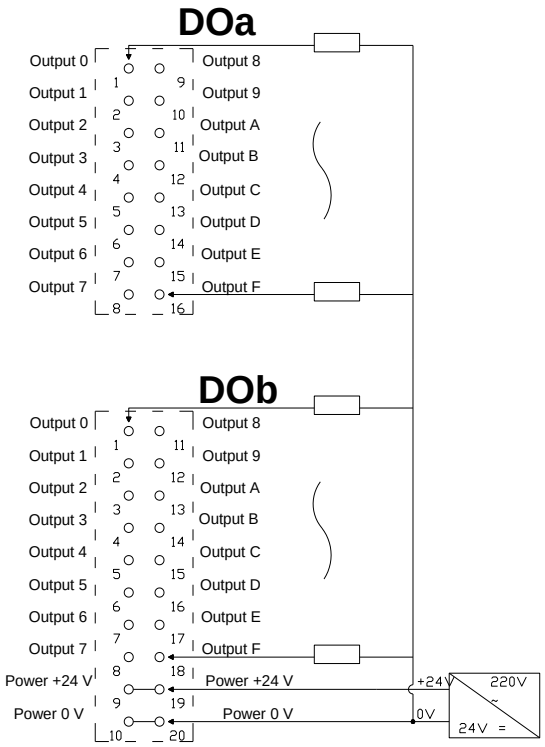
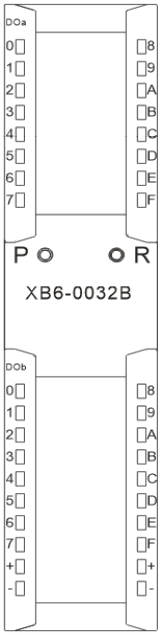
6.3.10 XB6-0032B

XB6-0032B

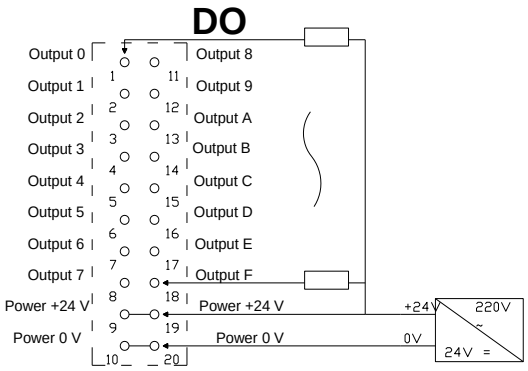


Module panel

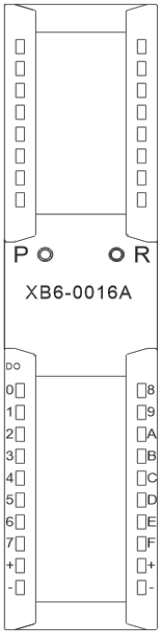


6.3.11 XB6-0016A

XB6-0016A



Module panel



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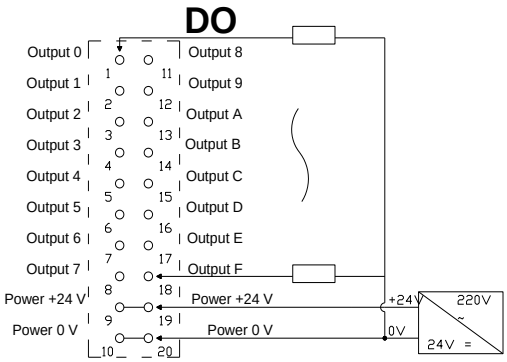
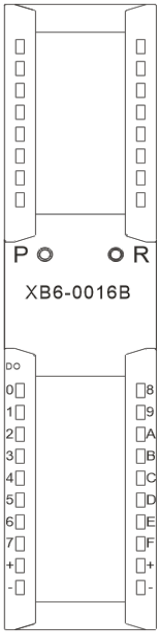
6.3.12 XB6-0016B

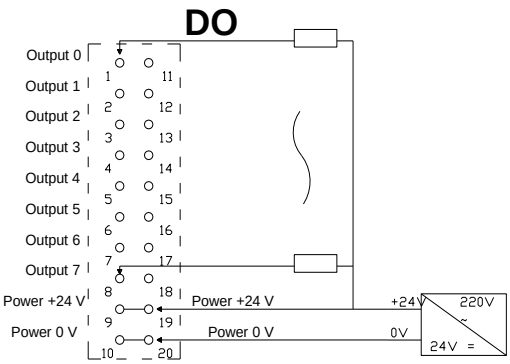
XB6-0016B	Module panel

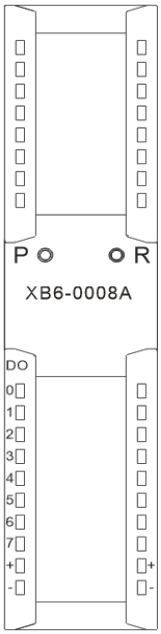




6.3.13 XB6-0008A

XB6-0008A	Module panel





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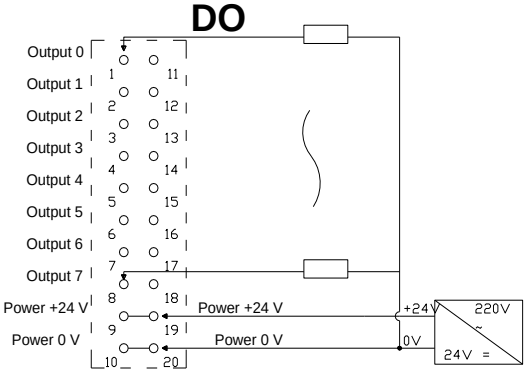
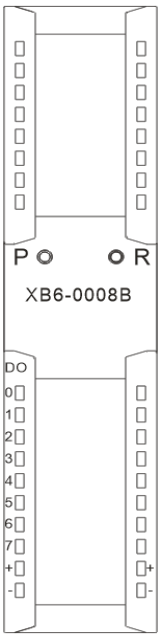
6.3.14 XB6-0008B

XB6-0008B

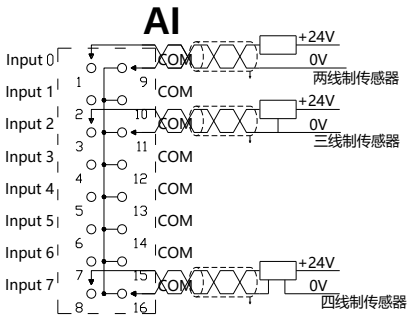


Module panel



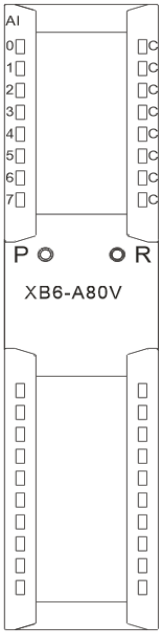
6.3.15 XB6-A80V/XB6-A80I

XB6-A80V/XB6-A80I



*Signal cable: shielded twisted pair cable is recommended

Module panel



Note:

The screen printing of module XB6-A80I is XB6-A80I.

6.3.16 XB6-A40V/XB6-A40I

XB6-A40V/XB6-A40I

Module panel

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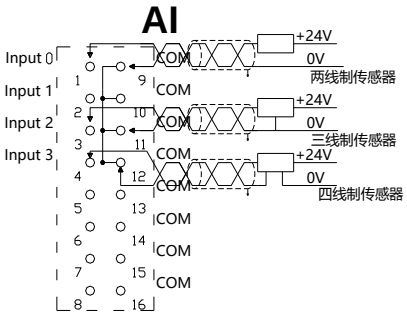
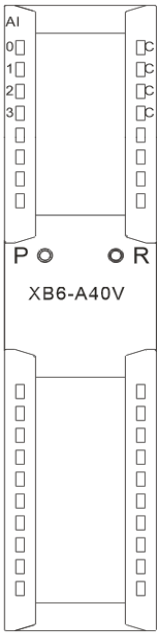




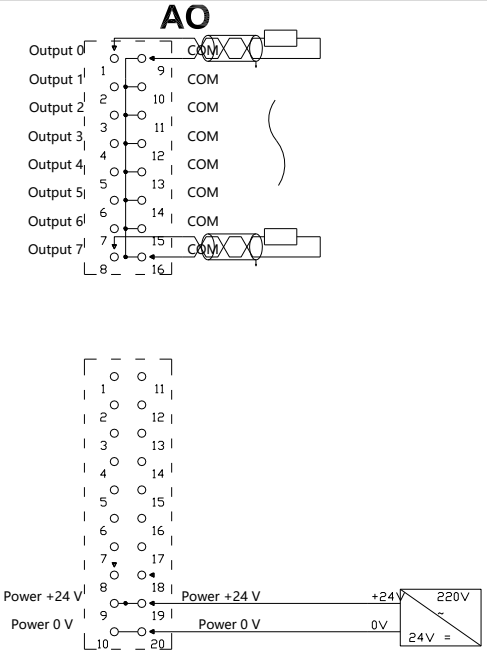
*Signal cable: shielded twisted pair cable is recommended

Note:

The screen printing of module XB6-A40I is XB6-A40I.

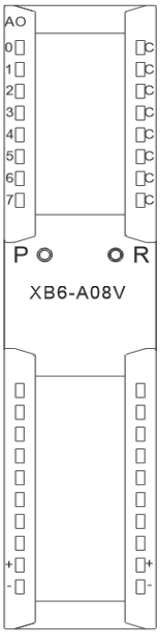
6.3.17 XB6-A08V/XB6-A08I

XB6-A08V/XB6-A08I



*Signal cable: shielded twisted pair cable is recommended

Module panel



Note:

The screen printing of module XB6-A08I is XB6-A08I.

6.3.18 XB6-A04V/XB6-A04I

XB6-A04V/XB6-A04I

Module panel

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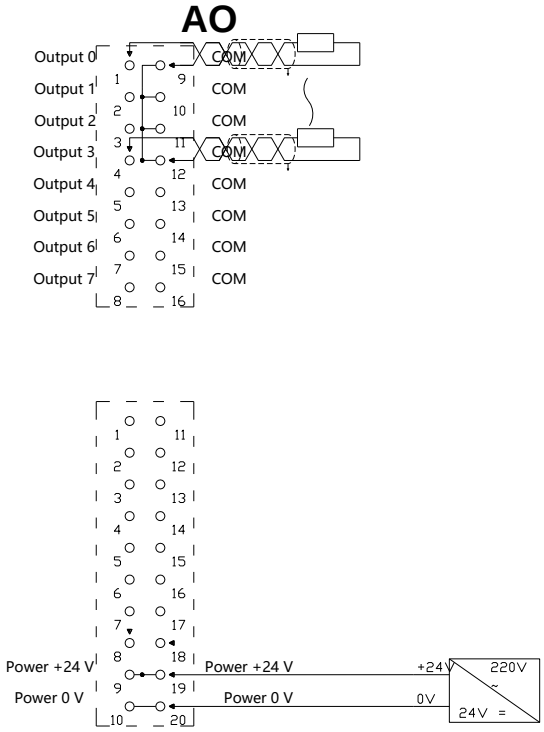
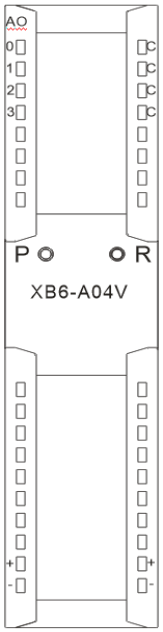


*Signal cable: shielded twisted pair cable is recommended



Note:

The screen printing of module XB6-A04I is XB6-A04I.

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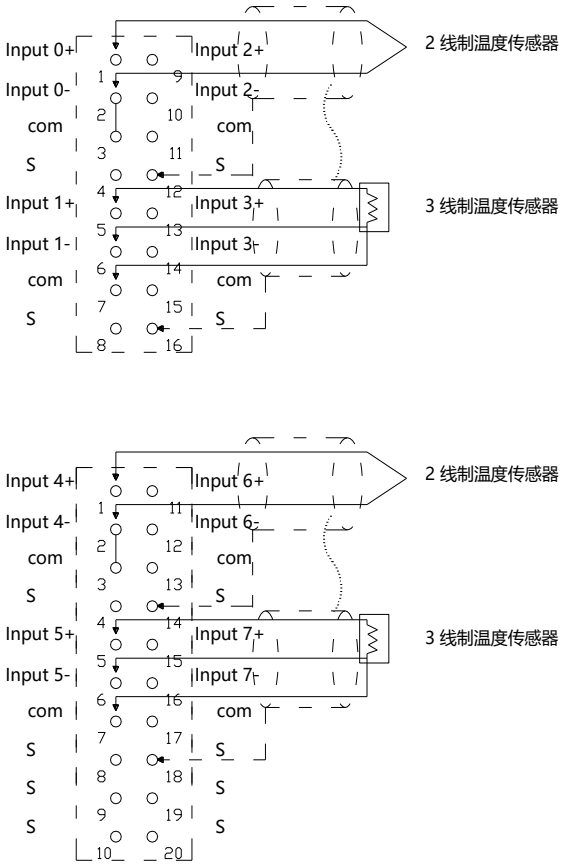
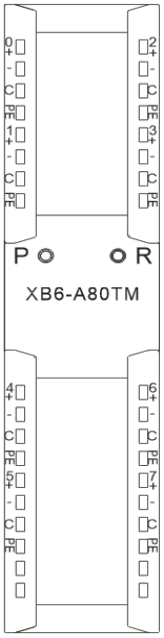
6.3.19 XB6-A80TM

XB6-A80TM	Module panel





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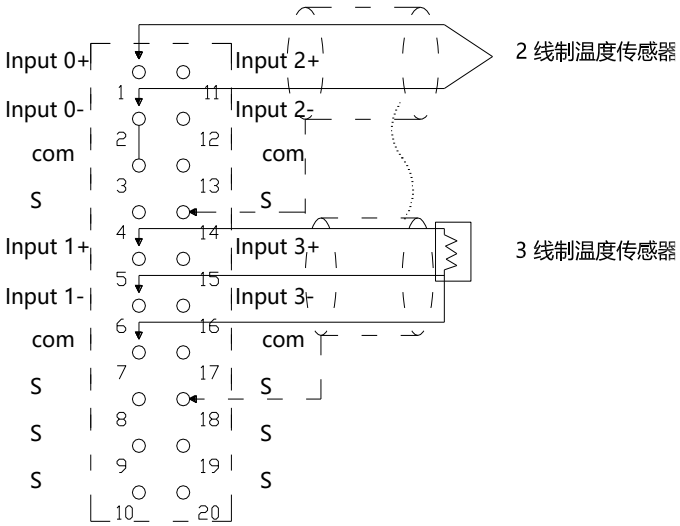
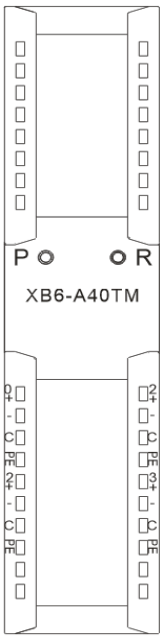
6.3.20 XB6-A40TM

XB6-A40TM	Module panel





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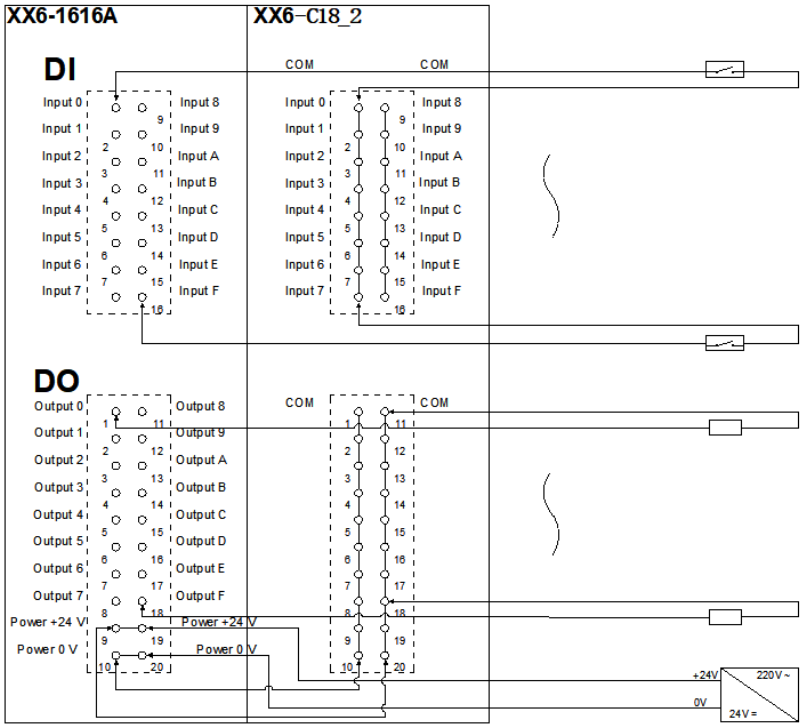
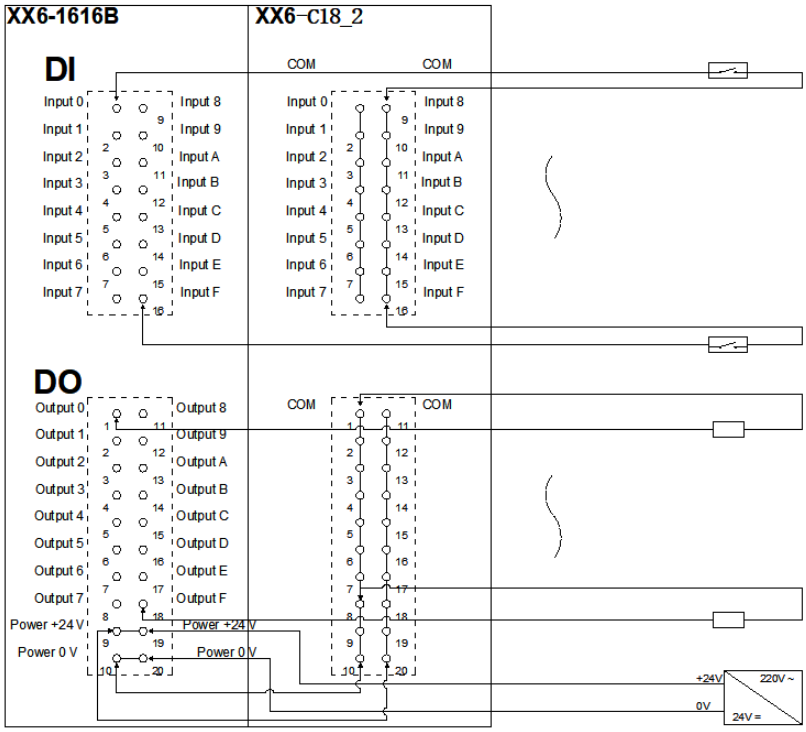
6.4 Common terminal expansion module wiring diagrams

The wiring method of two-wire and three-wire sensors is described in this section, taking the two modules of XX6-1616A/B as examples.

Wiring method of two-wire sensor (NPN type)



Wiring method of two-wire sensor (PNP type)



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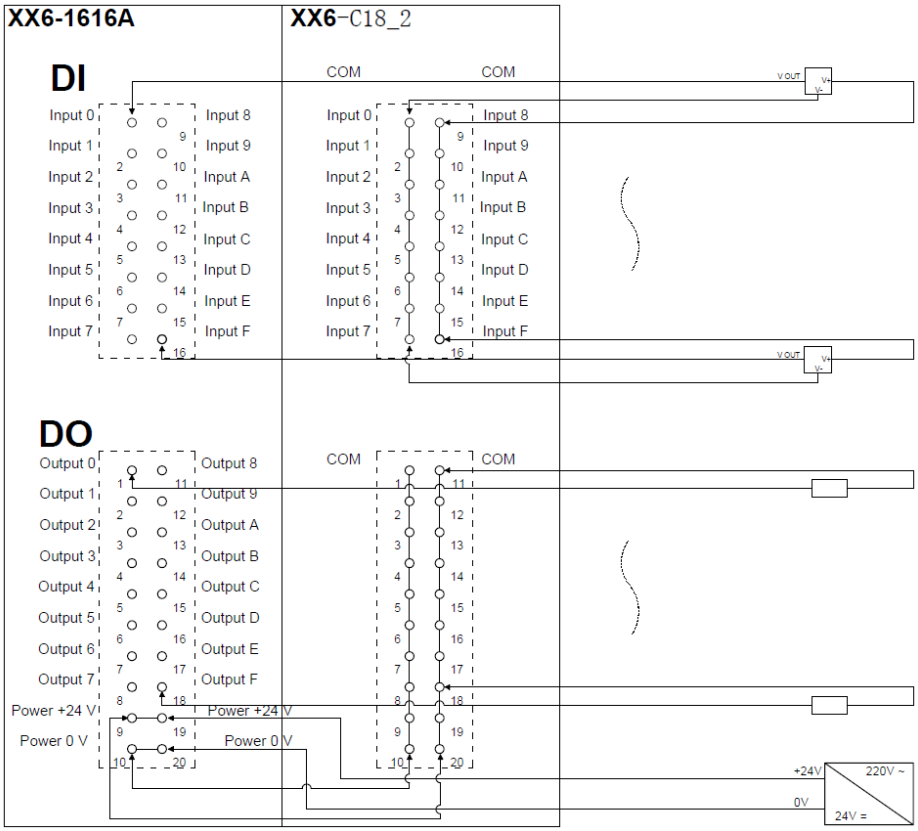
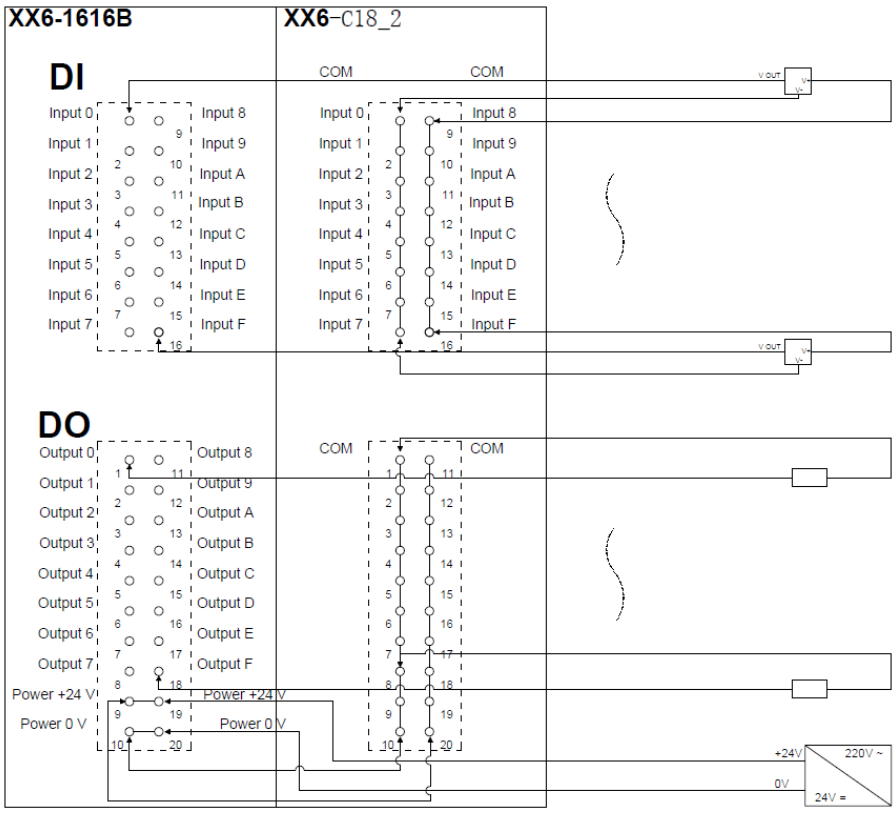
Wiring method of three-wire sensor (NPN type)



Wiring method of three-wire sensor (PNP type)



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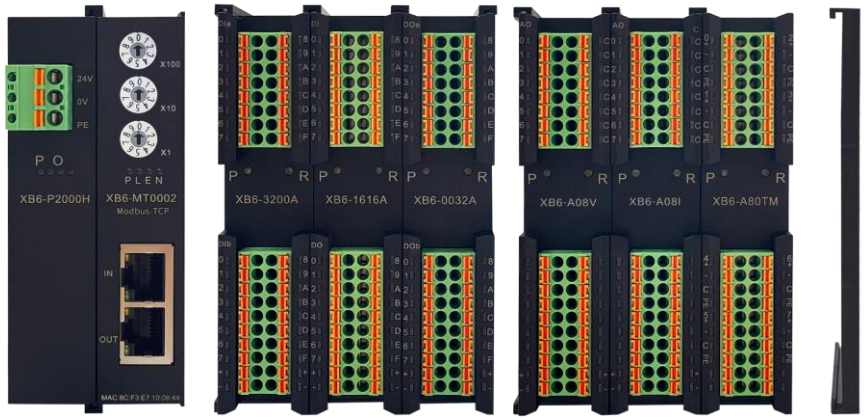
7 Operation

7.1 Module application

Two combinations are available for the product as shown below, each containing a coupler, I/O modules and an end cover.

First product combination (coupler, I/O modules, cover plate)

Coupler I/O modules Cover plate



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Second product combination (coupler, I/O modules, extension power module, I/O modules, cover plate)

Coupler I/O modules extension power module I/O modules cover plate

Limitations on the number of module configurations:

1. The number of IO modules that can be supported by a coupler is not higher than 32.
2. The number of analog modules should not exceed 12, and the number of 8-channel analog inputs should not exceed 8.

Power supply and extended power supply module configuration limits:

1. If the number of I/O modules configured in the system exceeds 10, additional expansion power modules are required, and the number of I/O modules configured after the expansion power modules ≤ 12.

7.2 IP Setting and Modification

7.2.1 Setting IP address by rotary switches

See 4.1.2 Rotary Switch for the description and usage of rotary switches.

- **When IP address is set by rotary switch from factory status**
  The IP address is 192.168.1.XXX (XXX is the setting value of the rotary switch, range 1~254).
- **When the IP address is set via the rotary switch from a status where the IP address has been set via the Web**
  The IP address follows the IP address set via the Web of high 3byte and low 1byte are the setting value of the rotary switch.
  For example, if you change the setting by the rotary switch after setting 172.10.0.12 via the Web, the IP address is 172.10.0.XXX (XXX) is the setting value of the rotary switch (1 to 254).
- **Setting IP address by rotary switch is prior to Web setting**
  When the rotary switch is set to 000, the IP value set by Web prevails.
  When the rotary switch is set from 001 to 254, the IP address set by the rotary switch prevails;
  When the rotary switch is set to 000 or 255~ again, the IP address stored value will be taken as the module IP address after the module is re-powered, if there is no stored value the default value will be taken as the module IP address.

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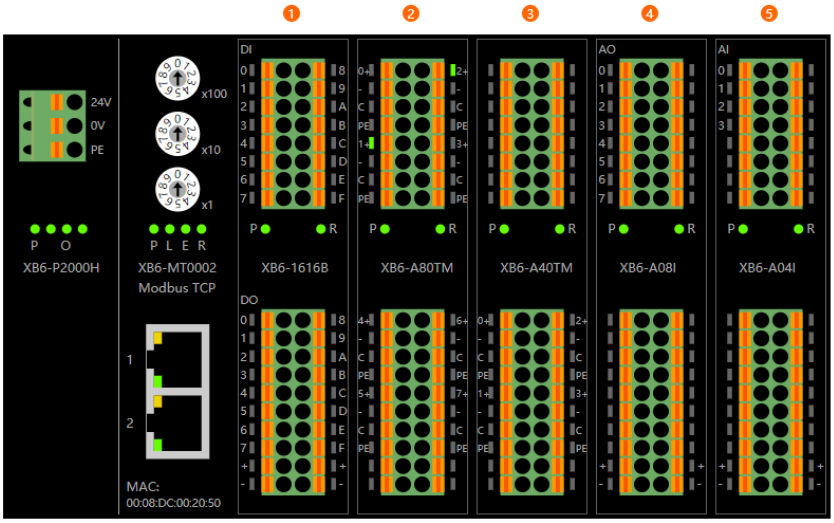
7.2.2 Setting IP Address via Web

After the coupler module is configured to the system, enter the IP address of the coupler in the browser to access the Web page, and then click "Save and Restart" after modifying the IP address in the Configure Network Parameters function area, the Coupler will automatically restart and take effect.



7.3 Restore factory settings

If the IP address is forgotten, lost or other abnormal conditions occur during use, the module can be reset by the IP address reset function.

Restore the factory setting operation by rotary switches as follows:

1. Turn the rotary switch to 999 and power up the module.
2. After the module is powered on, turn the rotary switch back to 000 under the condition of power on.
3. After the rotary switch is turned back to 000, the module automatically performs the restoration of factory settings.
4. After the module restores the factory settings, the IP address restores the factory status.

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7.4 Module parameter configuration function

7.4.1 Digital output clearing and holding function

The Clear/Hold function is for modules with outputs. This function allows you to configure the module's output action when communication is disconnected.

Output clearing: When the communication is disconnected, the module output channel will clear its output

Output holding: When the communication is disconnected, the module output channel will maintain its output

Configuration method

See 7.6.1 Application in Web environment

*** After the modification, it is recommended to repower the module.**

7.4.2 Filtering time of digital inputs

Digital input filtering can prevent unexpected rapid changes in program response input signals. Such changes may result from jumping of switch contact or electrical noise. The default value of digital input filtering is currently fixed at 3ms and it supports range from 0-20ms. When setting as 3ms, all clutters within 3ms can be filtered out. Separate channel configuration is not allowed.

The 3ms input filtering time means that a single signal changing from 0 to 1 or from 1 to 0 can only be detected after 3ms has lapsed following such change, while a single high pulse or low pulse shorter than 3ms will not be detected

Configuration method

See 7.6.1 Application in Web environment

*** After the modification, it is recommended to repower the module**

7.4.3 Analog filtering configuration function

Analog input filtering function

The analog input filtering function can average the data internally after A/D conversion to reduce the fluctuation effect on input signals due to noise.

Analog inputs are subject to moving average processing based on the specified A/D conversion times.

Filtering function configuration

Each channel can be configured separately. Configuration range: 1~200, default: 10.

Sampling rate of 8-channel module: 1.25 KHZ/8 channels (800 us/8 channels)

Sampling rate of 4-channel module: 2.5 KHZ/4 channels (400 us/4 channels)

Configuration method

See 7.6.1 Application in Web environment

*** After the modification, it is recommended to repower the module**

7.4.4 Analog range configuration function

The analog range setting function is used to set the analog range (see 3.5 Analog Parameters for details).

Configuration method

See 7.6.1 Application in Web environment

*** After the modification, it is recommended to repower the module**

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7.5 Module Function Code Correspondence Table

Modbus TCP Coupler supports a total of 9 function codes, the functions and meanings of which are shown in the following table

Code	Functions	Operation type
01	Read Coils	Bit operation
02	Read Discrete Inputs	Bit operation
03	Read Holding Registers	Byte operation
04	Read Input Registers	Byte operation
05	Write Single Coil	Bit operation
06	Write Single Register	Byte operation
15	Write Multiple Coils	Bit operation
16	Write Multiple Registers	Byte operation
23	Read/Write Multiple Registers	Bit operation

The function codes and Offset Start Address corresponding to different I/O modules are shown in the table below:

I/O module address mapping table					
DI(Input Bit)	**DO**(Output bit)	**AI**(Input Word)	**AO**(Output Word)	**DI**(Input Word)	**DO**(Output Word)
Function: **01** **02**	**Function:** **05** **15**	**Function:** **03** **04**	**Function:** **06** **16**	**Function:** **03**	**Function:** **16**
Offset Start Address: **0x00**	**Offset Start Address:** **0x00**	**Offset Start Address:** **0x00**	**Offset Start Address:** **0x00**	**Offset Start Address:** **0x5000** **Decimal:** **20480**	**Offset Start Address:** **0x3000** **Decimal:** **12288**

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7.6 Bus module configuration description

7.6.1 Application in Web environment

1、 Preparation

- **Hardware environment**
  - **Module Preparation**

    In this case we take XB6-MT2002ST kit，XB6-3200A，XB6-0032A，XB6-1616A，XB6-A80TM， XB6-A80I，XB6-A08 as examples.
  - **One computer, set the IP address of the computer and the module in the same network segment.**

    Each coupler module is set with a default IP address, as follows:：

    IP address： 192.168.1.120

    Subnet mask： 255.255.255.0

    Gateway： 192.168.1.1
  - **Standard network cable**
  - **Module installation guide rail and fasteners**
  - **A switching power supply**
- **Hardware configuration and wiring**

  Please refer to the instructions in 5 Installation and Disassembly and 6 Wiring to correctly connect the module to the system.
- **Power modules**

  After checking that the wiring is correct, power on the XB6-MT2002ST+I/O module device combination.

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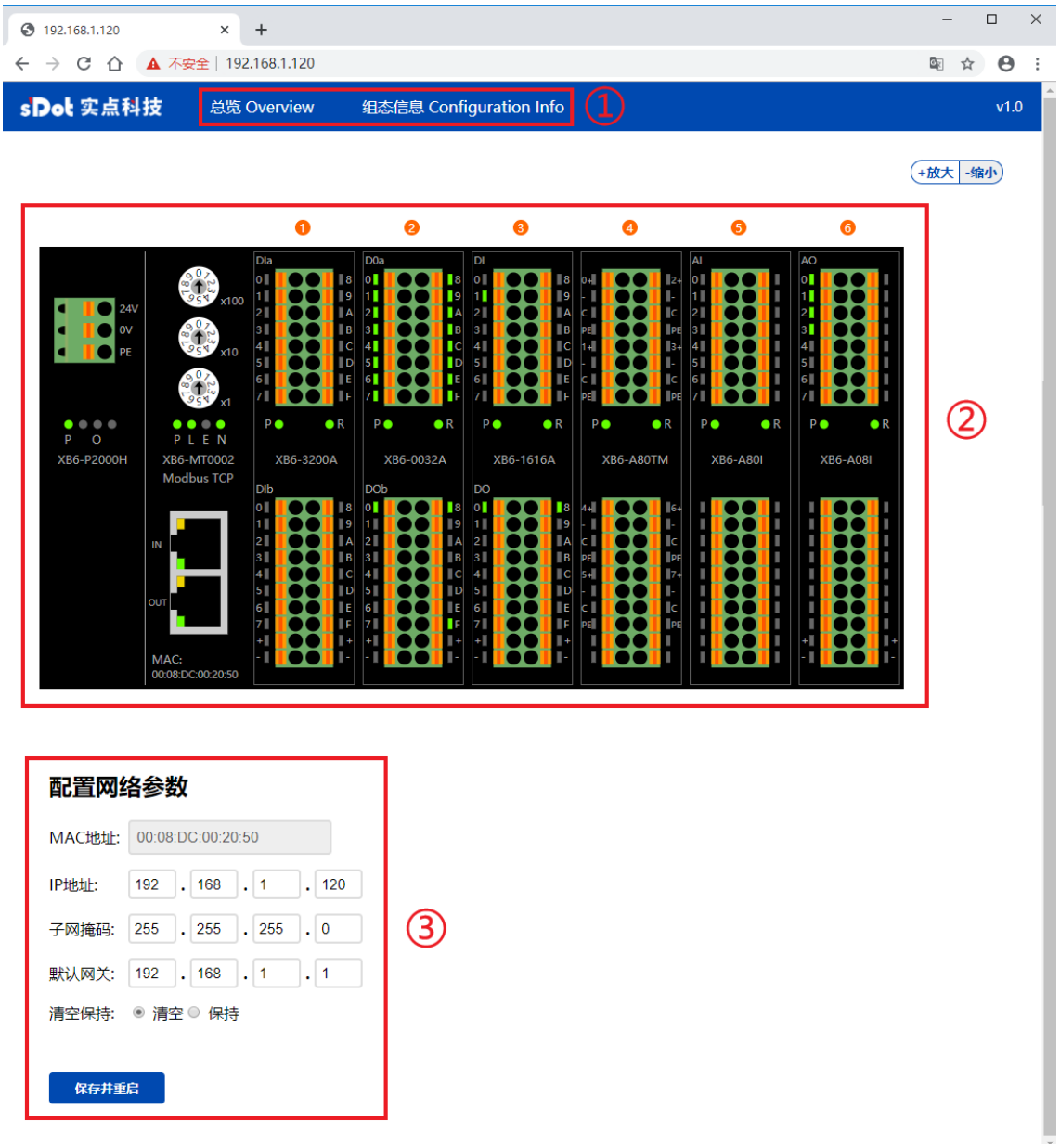
2、 Web browser access

a. Open the browser and enter the IP address of the Coupler to access the URL, as shown in the figure below. The Web home page mainly has three functions: ①menu bar, ②module configuration overview, ③configuration of network parameters.



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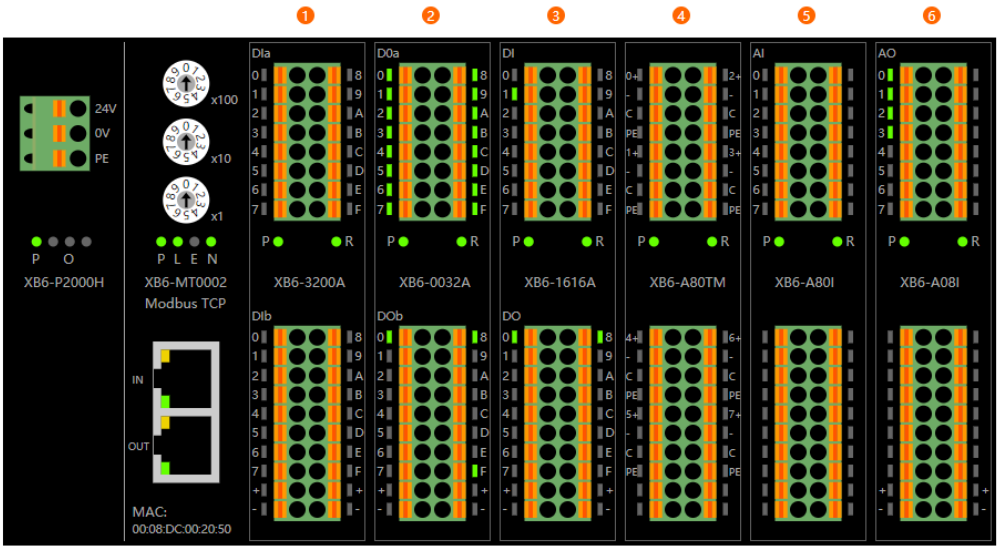
3、 Configure network parameters and digital output clear/hold function

a. You can see the function of configuring network parameters at the bottom of the Web homepage, as shown in the figure below.

- The MAC address in the network parameters is consistent with the MAC address printed on the XB6-MT0002 coupler panel, and the MAC address cannot be changed.
- IP address, subnet mask, default gateway and digital output clear/hold function, after changing the four parameters, click "Save and restart". The coupler will automatically restart to take effect.



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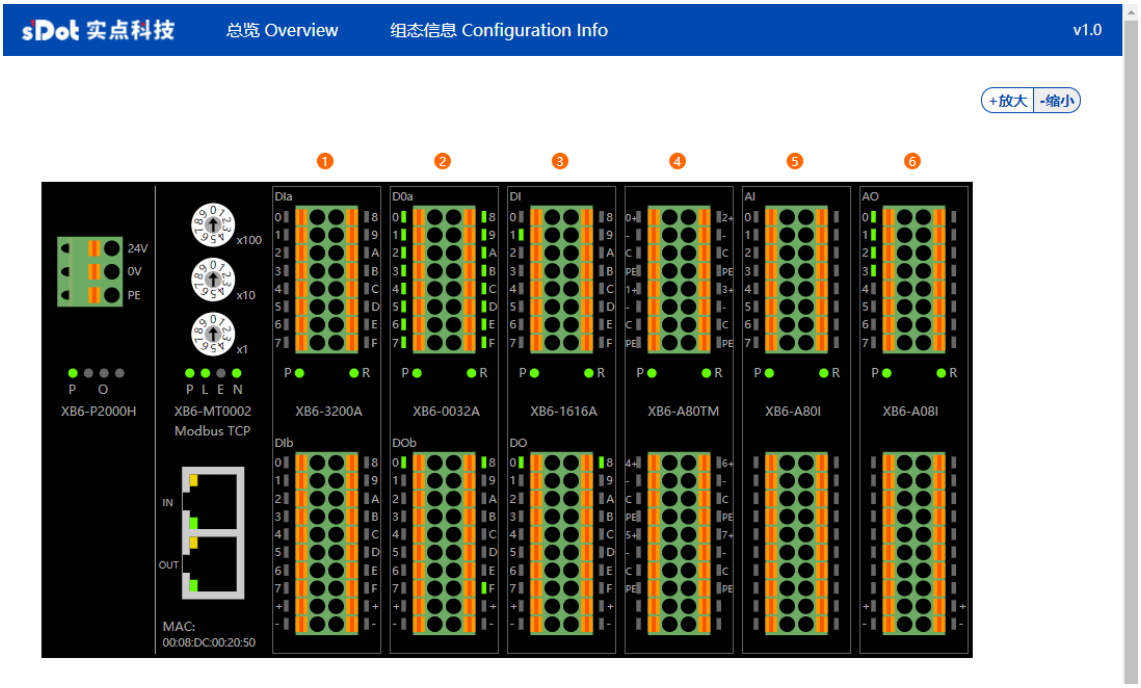
4、 Overview of module configuration

a. On the web home page, you can see the schematic diagram of the module configuration, as shown in the figure below, and the channel lights display the effective data of I/O input and output in real time.



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b. On the module configuration overview page, you can click an I/O module to enter the configuration monitoring page of the module. For example, to configure XB6-1616A, click the module to enter the configuration monitoring page, as shown in the figure below. On the digital module configuration monitoring page, you can configure the digital input filter parameters. After the input filter parameters are configured through the drop-down menu, you need to click "Update" to complete the configuration; at the same time, you can monitor in real time through the input and output channel values and the indicator lights. module input and output. Note: When the Coupler establishes a connection with the master station (PLC) and interacts with process data, the module parameters cannot be configured, and an Error will be returned for forced configuration.

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c. On the module configuration overview page, click "XB6-A80TM" to enter the temperature acquisition module configuration monitoring page, as shown in the figure below. On the temperature acquisition module configuration monitoring page, you can configure the sensor type, single channel filter time and channel enable. After the configuration is completed through the drop-down menu, you need to click "Update" to complete the configuration. Through the module indicator status, the status of the module channel can be monitored in real time.

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d. On the module configuration overview page, click "XB6-A80I" to enter the analog module configuration monitoring page, as shown in the figure below. On the analog module configuration monitoring page, you can configure the single-channel filter time and single-channel range. After the configuration is completed through the drop-down menu, click "Update" to complete the configuration. Through the module indicator status, the status of the module channel can be monitored in real time.

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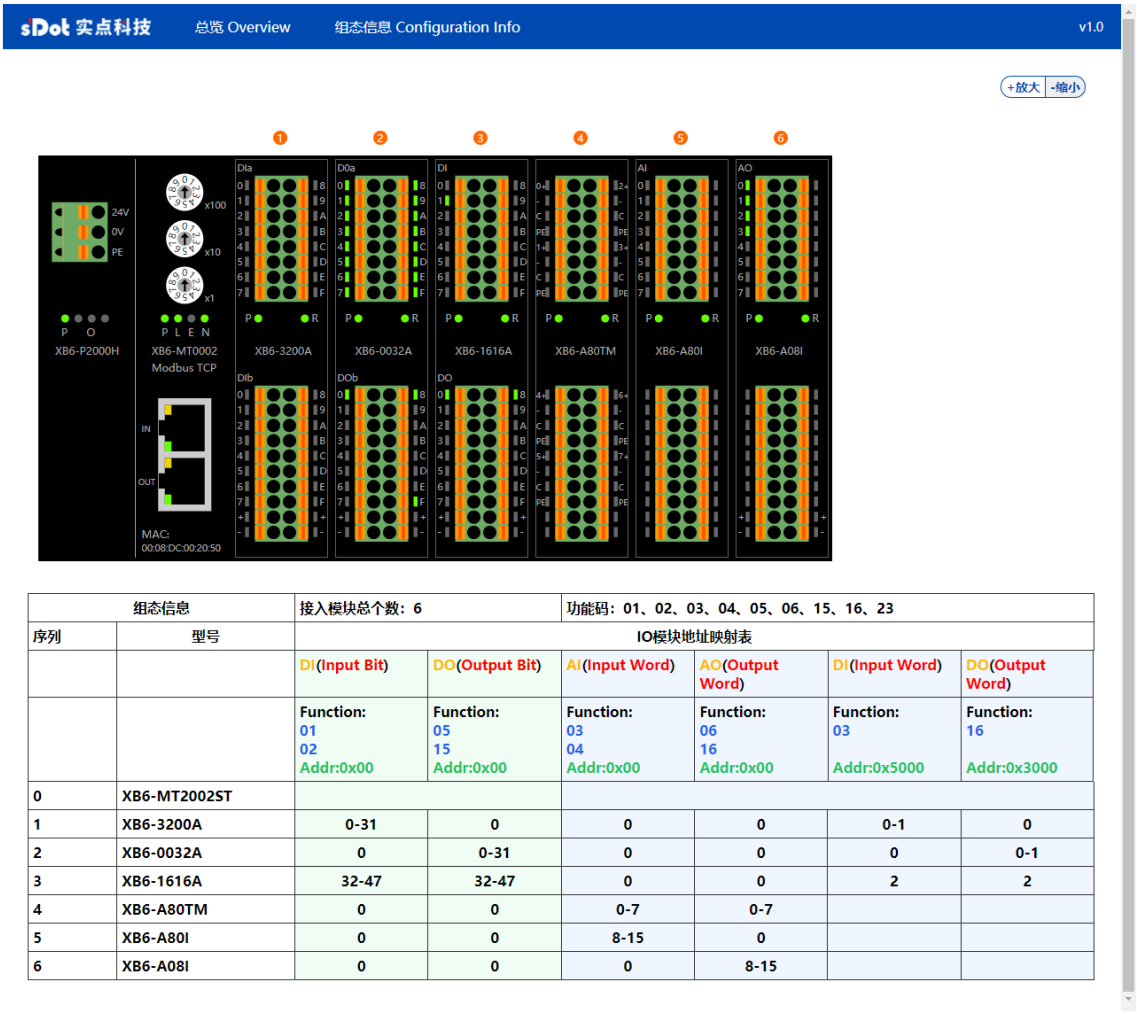
5、 Configuration information and I/O address mapping table

a. Click "Configuration Information" on the Web menu bar to switch to the configuration information page, as shown in the figure below. On the configuration information page, you can view the access information of the current module and the I/O address mapping table. According to the I/O address mapping table, the user can clearly and quickly operate the module through the host computer or PLC.



组态信息		接入模块总个数：6		功能码：01、02、03、04、05、06、15、16、23			
序列	型号	IO模块地址映射表					
		DI(Input Bit)	DO(Output Bit)	AI(Input Word)	AO(Output Word)	DI(Input Word)	DO(Output Word)
		Function: 01 02 Addr:0x00	Function: 05 15 Addr:0x00	Function: 03 04 Addr:0x00	Function: 06 16 Addr:0x00	Function: 03 Addr:0x5000	Function: 16 Addr:0x3000
0	XB6-MT2002ST						
1	XB6-3200A	0-31	0	0	0	0-1	0
2	XB6-0032A	0	0-31	0	0	0	0-1
3	XB6-1616A	32-47	32-47	0	0	2	2
4	XB6-A80TM	0	0	0-7	0-7		
5	XB6-A80I	0	0	8-15	0		
6	XB6-A08I	0	0	0	8-15		

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7.6.2 Application in CODESYS V3.5 software environment

1、 Preparation

- **Hardware environment**
  - **Module preparation**

    In this case we take XB6-MT2002ST kit，XB6-3200A，XB6-0032A，XB6-1616A，XB6-A80TM， XB6-A80I，XB6-A08 as examples.
  - **A computer installed with CODESYS V3.5，CODESYS Control Win V3 - x64 SysTray software**
  - **One computer, set the IP address of the computer and the module in the same network segment.**

    Each coupler module is set with a default IP address, as follows::

    IP address： 192.168.1.120

    Subnet mask： 255.255.255.0

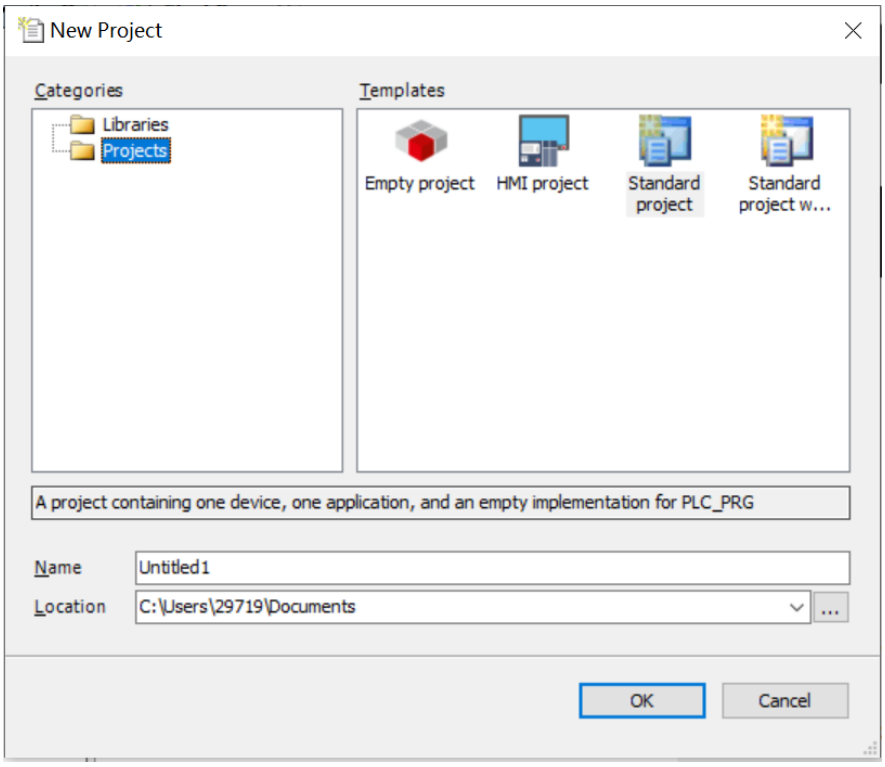
    Gateway： 192.168.1.1
  - **Standard network cable**
  - **Module installation guide rail and fasteners**
  - **A switching power supply**
- **Hardware configuration and wiring**

  Please refer to the instructions in 5 Installation and Disassembly and 6 Wiring to correctly connect the module to the system.
- **Power modules**

  After checking that the wiring is correct, power on the XB6-MT2002ST+I/O module device combination.

2、 Create a new project

a. Log in to CODESYS, click "File -> New Project", enter a name, and click "OK", as shown in the figure below.



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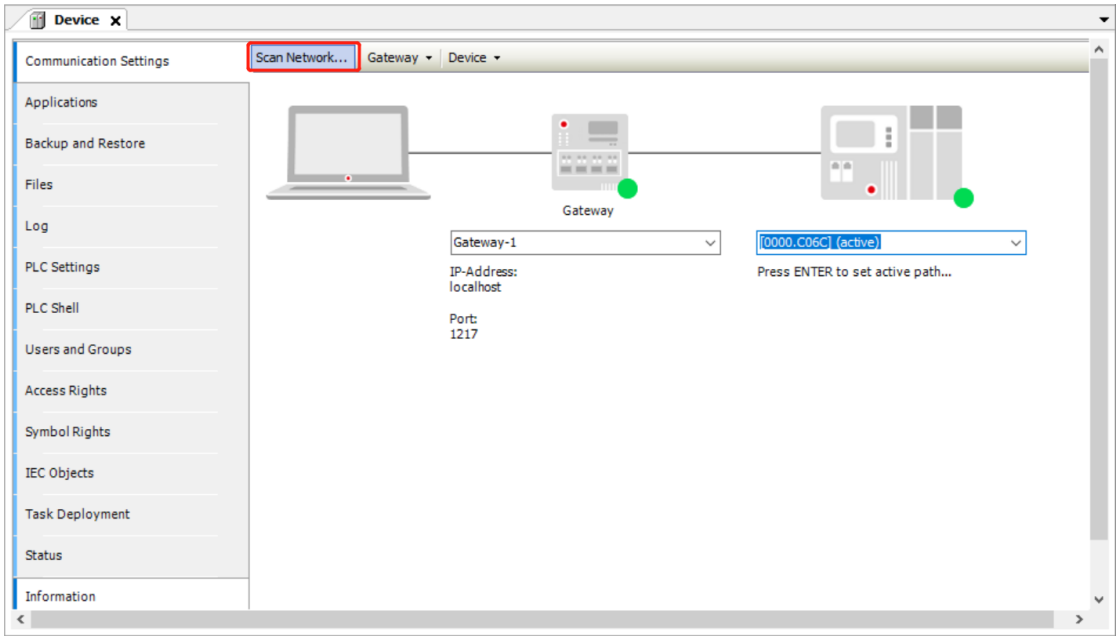
3、Scan the network

a. Use "CODESYS Control Win V3 - x64 SysTray" to start the PLC, find "CODESYS Control Win V3 - x64 SysTray" in the lower right corner of the computer and right-click to select "Start PLC".

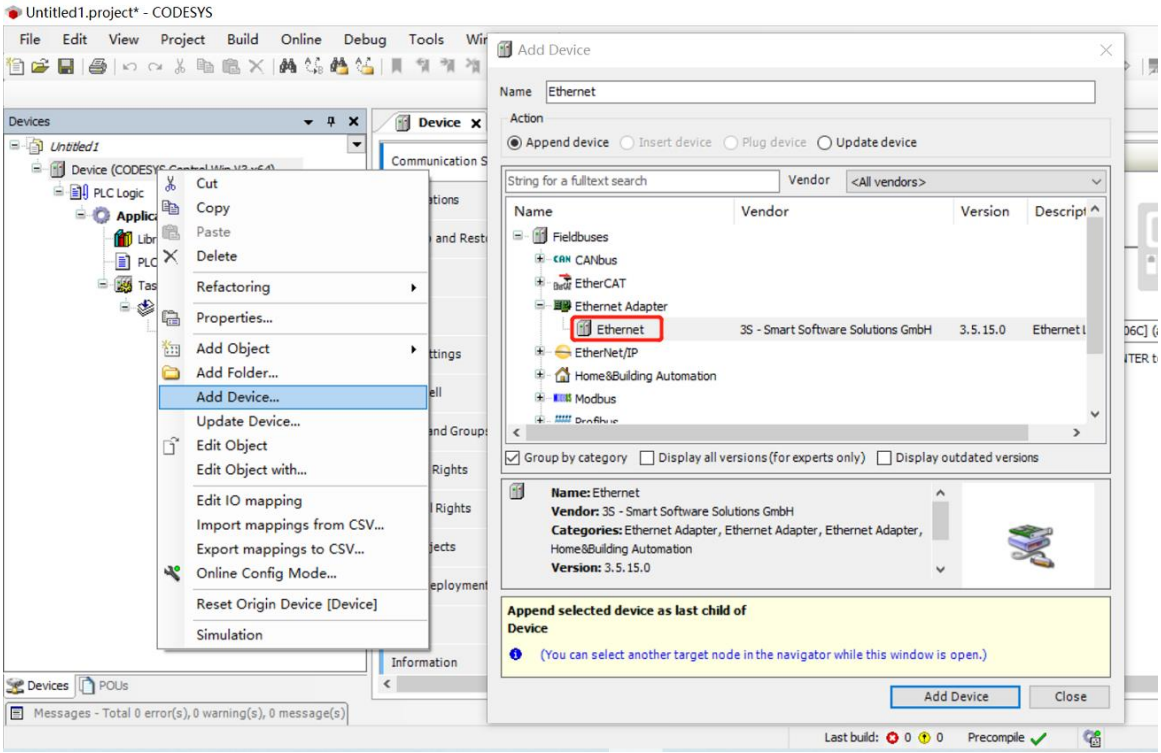
b. Double-click "Device (CODESYS Control Win V3 X64)" in the left navigation tree of CODESYS, and click "Scan Network".

c. Select the device and select the correct controller network path, as shown in the figure below.。



4、Add Ethernet

a. Right-click "Device (CODESYS Control Win V3 X64)" in the navigation tree on the left side of CODESYS, click "Add Device", select "Ethernet Adapter -> Ethernet" and add, as shown in the figure below.



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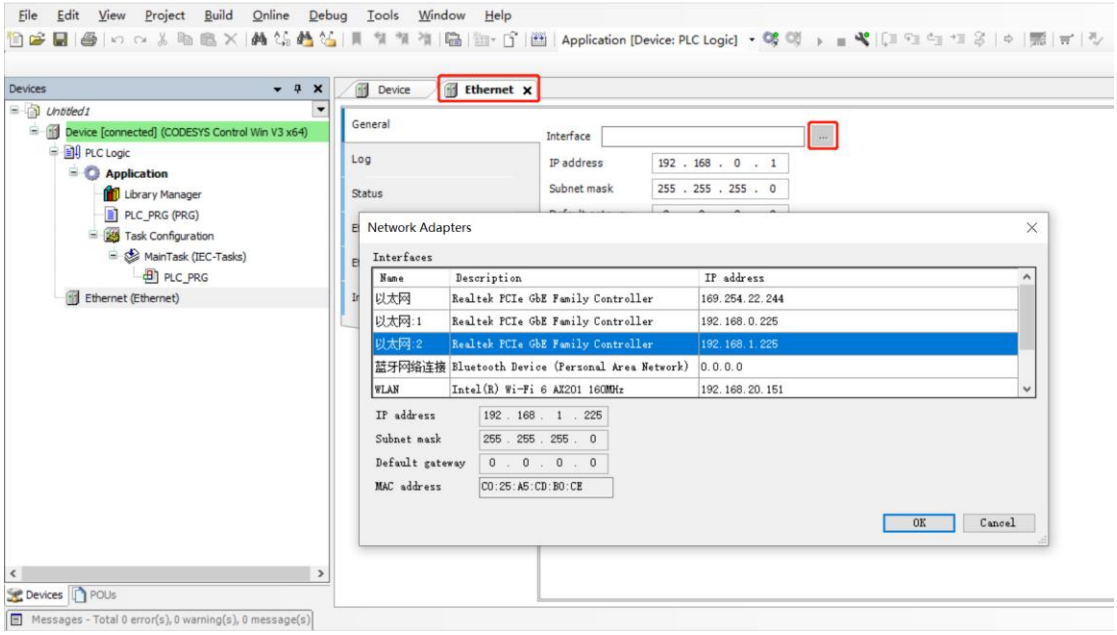
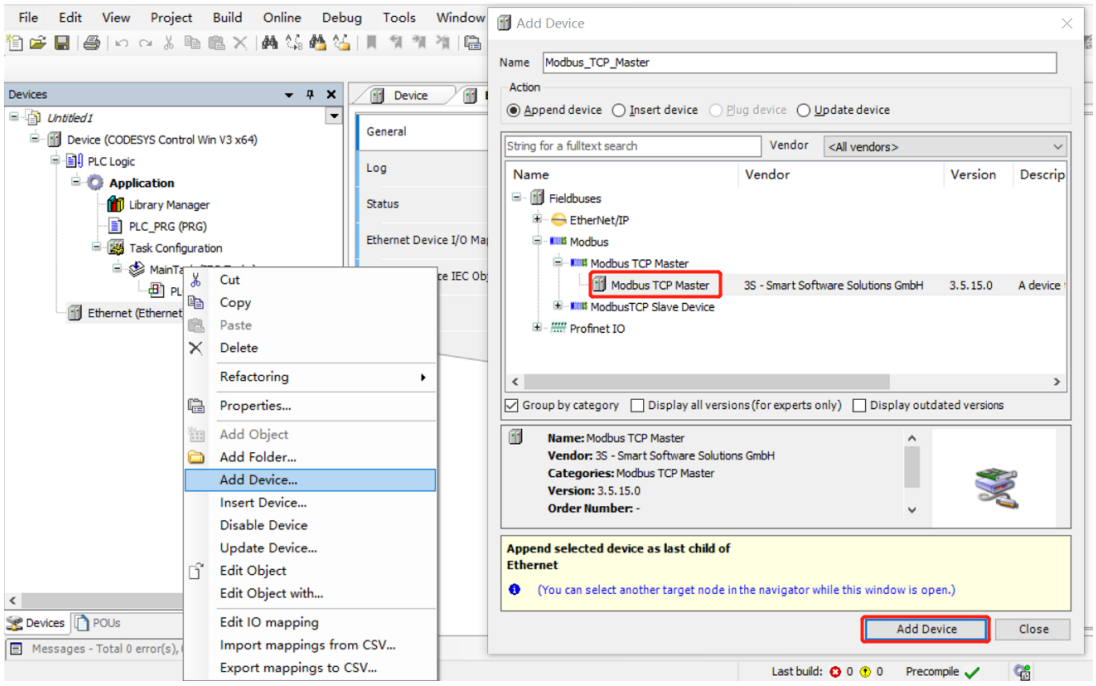
5、 Configure Ethernet network parameters

a. Double-click "Ethernet (Ethernet)" in the navigation tree on the left to open the main menu on the right, click "..." to open the network adapter window, select Ethernet, and the IP of the master station must be in the same network segment as the coupler IP, as shown in the figure below.



6、 Add Modbus TCP Master and Modbus TCP Slave

a. Right-click "Ethernet (Ethernet)" in the navigation tree on the left, click "Add Device", select "Modbus TCP Master" and add it, as shown in the figure below.



b. Right-click "Modbus TCP Master" in the navigation tree on the left, click "Add Device", select "Modbus TCP Slave" and add it, as shown in the figure below.

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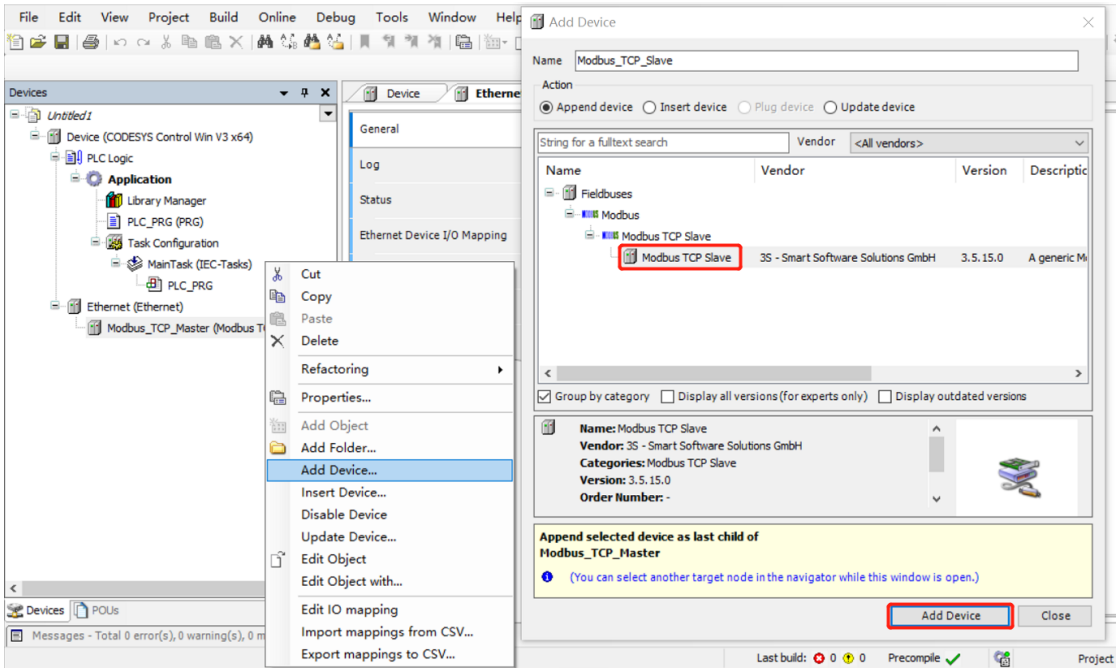
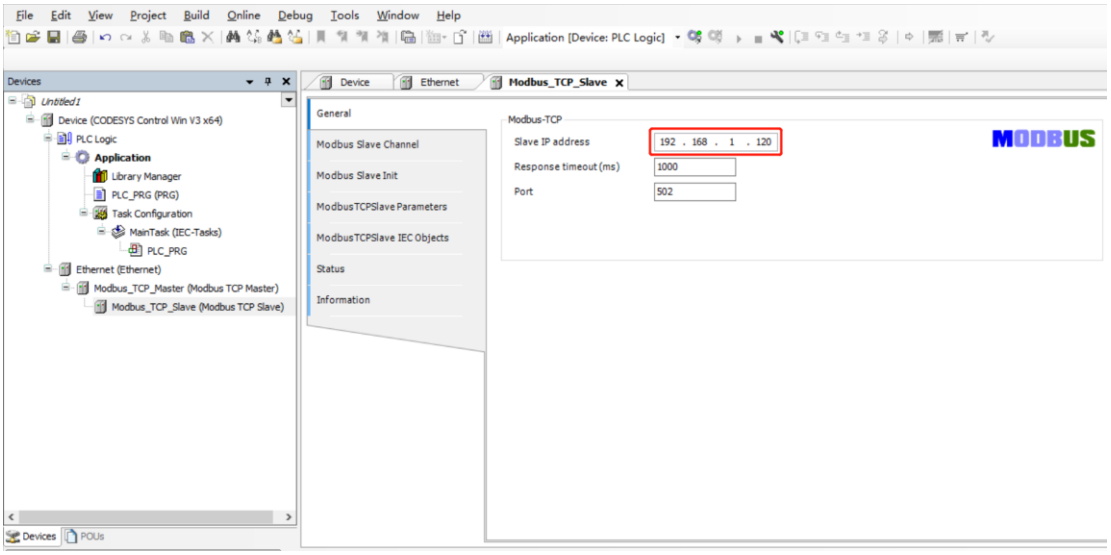


c. Double-click "Modbus TCP Slave" in the navigation tree on the left to open the main menu on the right, click "General" to configure Modbus TCP Slave, the slave IP address is the IP address of the Coupler, the response time is "1000", and the port number is "502", as shown below.



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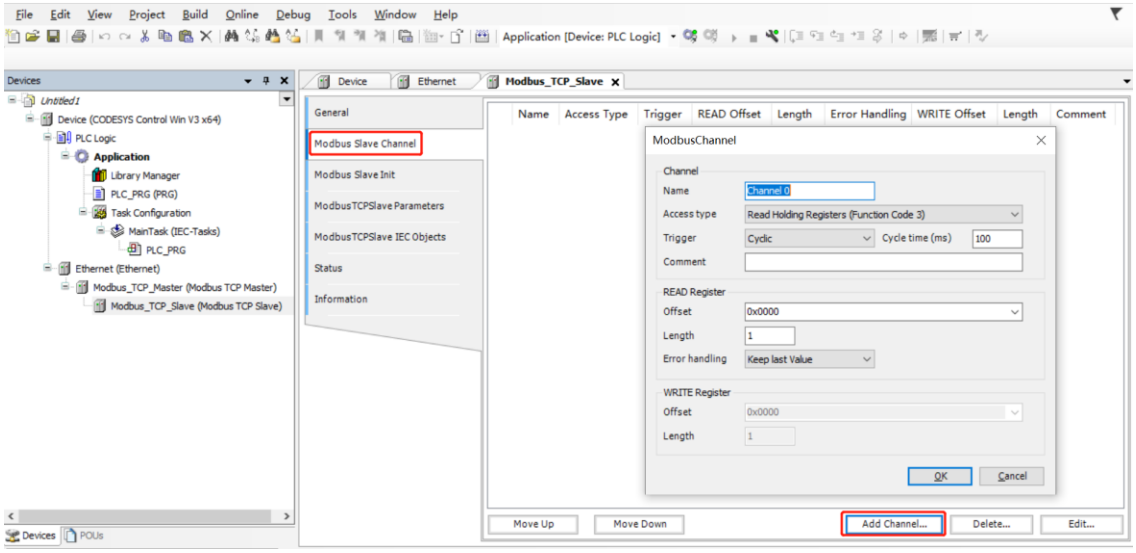
7、 Configure the IO channel of the slave station

a. Through the web tool, you can view the IO module address mapping table of the topology, and you can see the function code of each module, the offset start addresses and the monitoring address range corresponding to the module, as shown in the figure below.

组态信息		接入模块总个数：6		功能码：01、02、03、04、05、06、15、16、23			
序列	型号	IO模块地址映射表					
		DI(Input Bit)	DO(Output Bit)	AI(Input Word)	AO(Output Word)	DI(Input Word)	DO(Output Word)
		Function: 01 02 Addr:0x00	Function: 05 15 Addr:0x00	Function: 03 04 Addr:0x00	Function: 06 16 Addr:0x00	Function: 03 Addr:0x5000	Function: 16 Addr:0x3000
0	XB6-MT2002ST						
1	XB6-3200A	0-31	0	0	0	0-1	0
2	XB6-0032A	0	0-31	0	0	0	0-1
3	XB6-1616A	32-47	32-47	0	0	2	2
4	XB6-A80TM	0	0	0-7	0-7		
5	XB6-A80I	0	0	8-15	0		
6	XB6-A08I	0	0	0	8-15		

b. On the main page on the right side of Modbus TCP Slave, click "Modbus Slave Channel", click "Add Channel" to pop up the Channel 0 configuration window, as shown in the figure below.



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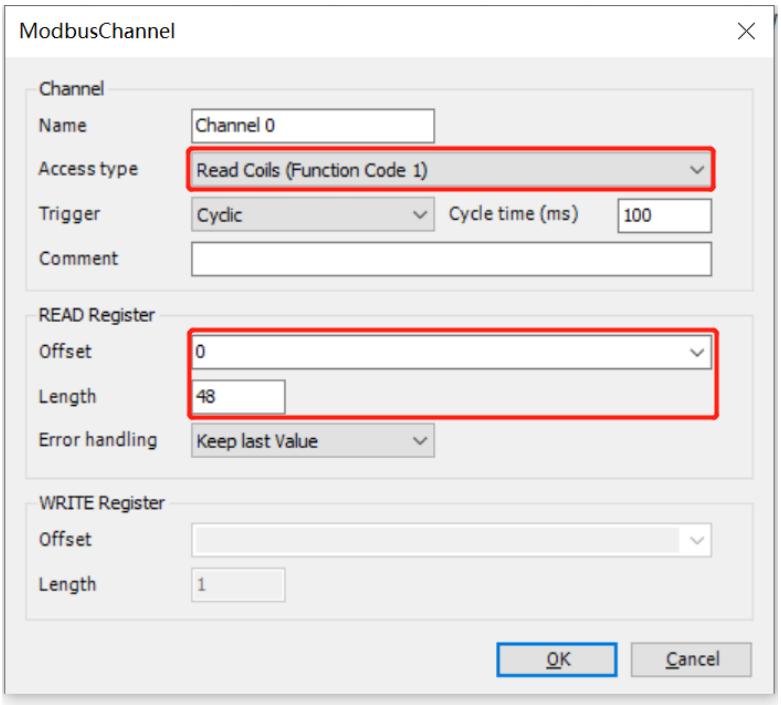
c. For digital input modules XB6-3200A and XB6-1616A, the function codes corresponding to DI (Input Bit) are 01 and 02, the offset address is 0x00, and the address range is 0~31 and 32~47, that is, 48 bits. In the Channel 0 configuration window, the access type, that is, the function code is 01 Read Coils and 02 Read Discrete Inputs (choose one), the read register offset is 0, and the length is 48. After setting, click "OK", as shown in the figure below Show. (You can also customize the offset address and length according to the actual needs according to the IO module address mapping table)



d. For digital output modules XB6-0032A and XB6-1616A, the function code corresponding to DO (Output Word) is 16, the offset address is 0x3000 (Decimal: 12288), and the address range is 0~1 and 2, that is, 3Word. On the main page on the right side of Modbus TCP Slave, click "Add Channel" to pop up the Channel 1 configuration window.

In the Channel 1 configuration window, the access type, that is, the function code, is 16 Write Multiple Registers, the write register offset is 12288, and the length is 3. After the settings are complete, click "OK", as shown in the figure below.

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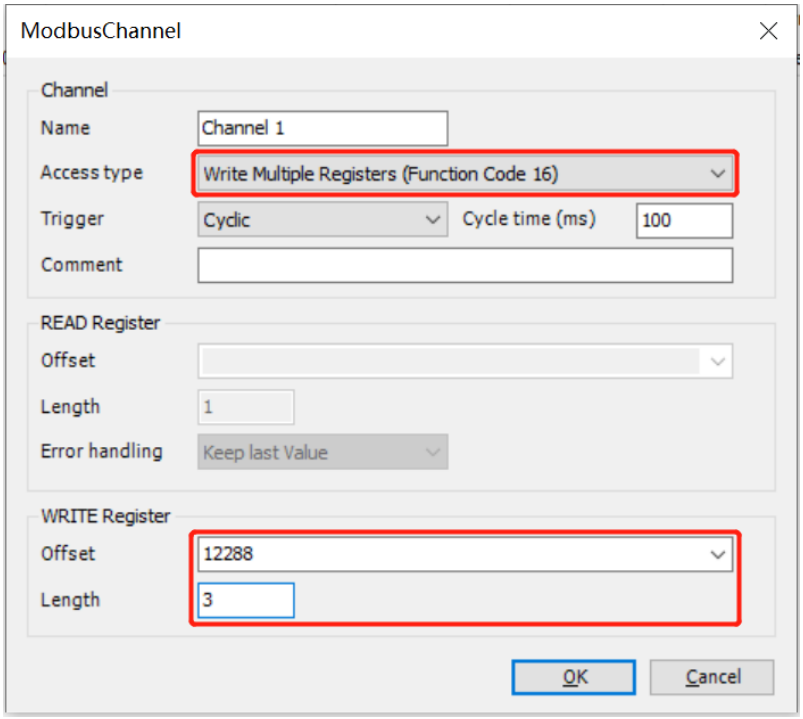
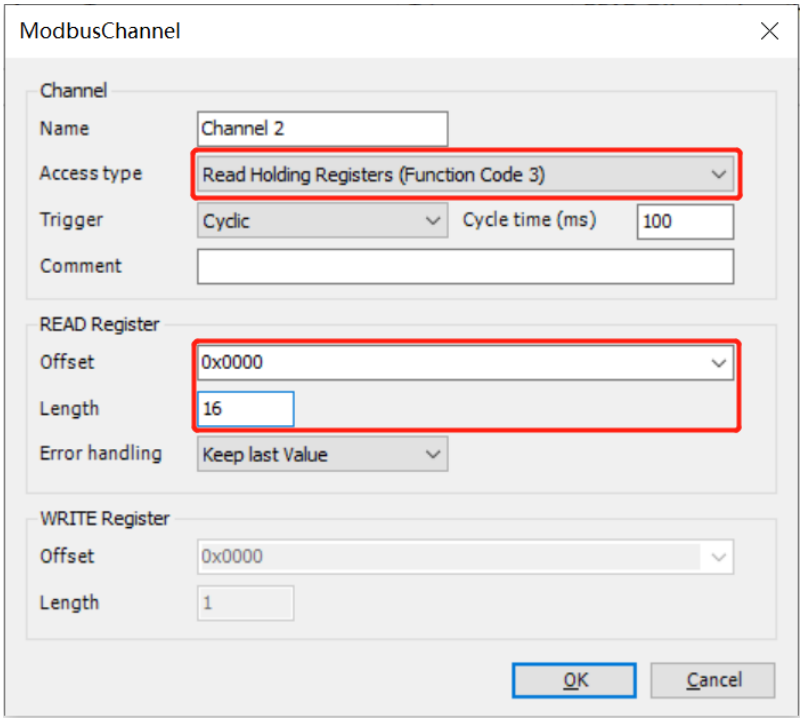


e. The corresponding function codes of XB6-A80TM and XB6-A80I module AI (Input Word) are 03 and 04, the offset address is 0x00, and the address range is 0~7 and 8~15, that is, 16Word. On the main page on the right side of Modbus TCP Slave, click "Add Channel" to pop up the Channel 2 configuration window.

In the Channel 2 configuration window, the access type, that is, the function code is 03 Read Holding Registers and 04 Read Input Registers (choose one), the offset of the write register is 0, and the length is 16. After setting, click "OK", as shown in the figure below shown.



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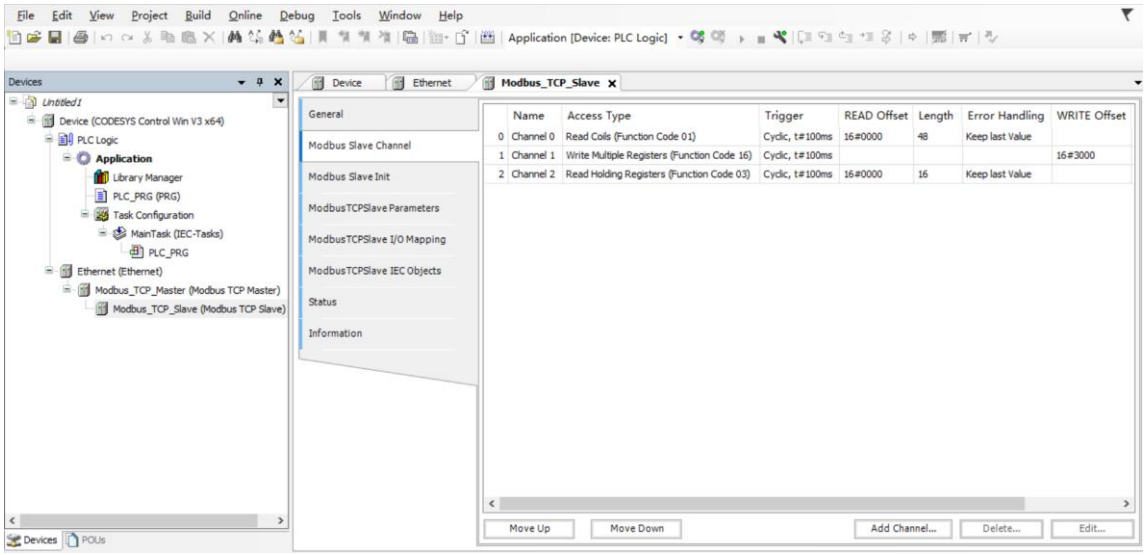
f. The monitoring functions of other modules can be analogized by analogy. After the configuration is completed, the configuration information can be viewed on the main page of the Modbus slave channel, and operations can also be added, deleted, and edited, as shown in the figure below.



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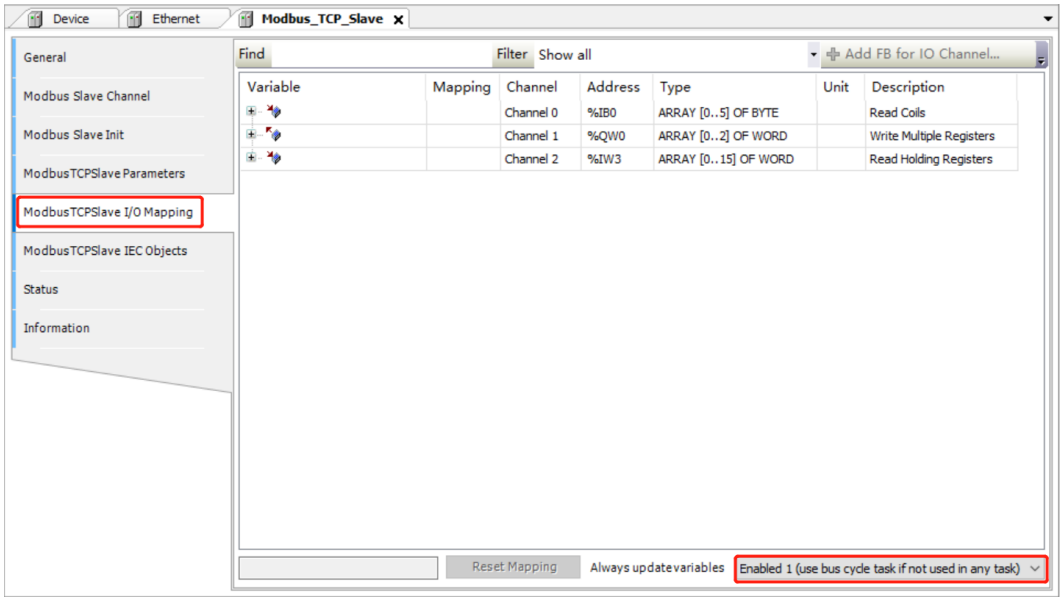
8、 IO verification

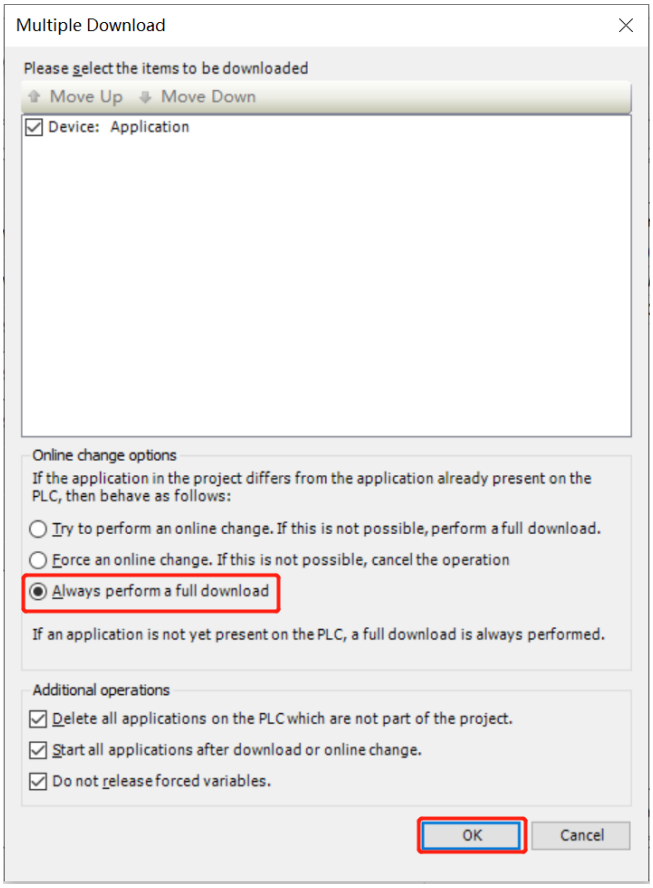
a. On the main page on the right side of Modbus TCP Slave, click "Modbus TCP Slave I/O Mapping" to monitor the IO module. The variable option is always updated in the lower right corner, and select "Enable 1", as shown in the figure below.



b. Click "Compile -> Compile" in the menu bar to compile.

c. Click "Online -> Login" in the menu bar or click the login icon to log in.

d. Click "Online -> Multiple Download" in the menu bar, in the multiple download window, select "Always perform full download", and click "OK", as shown in the figure below.



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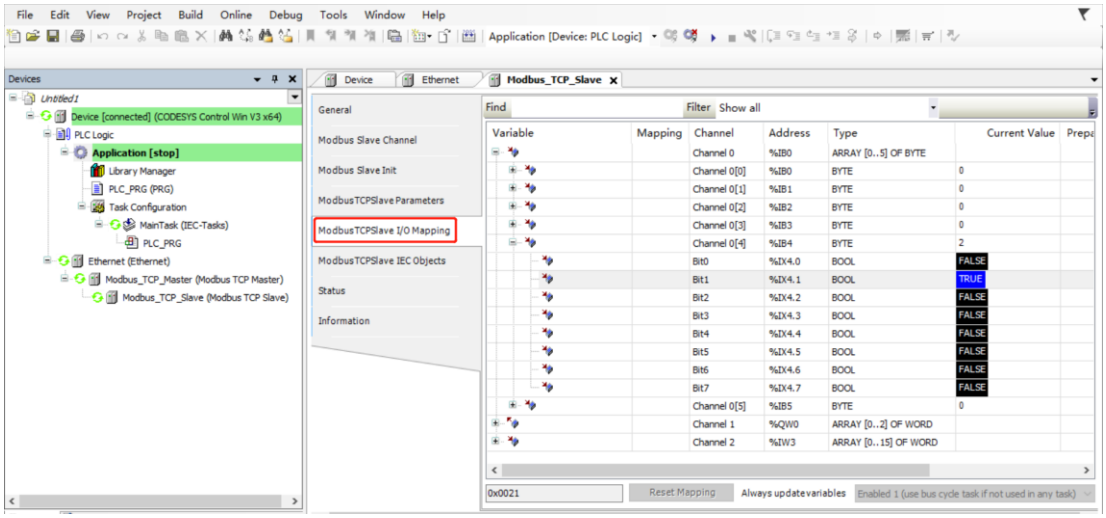
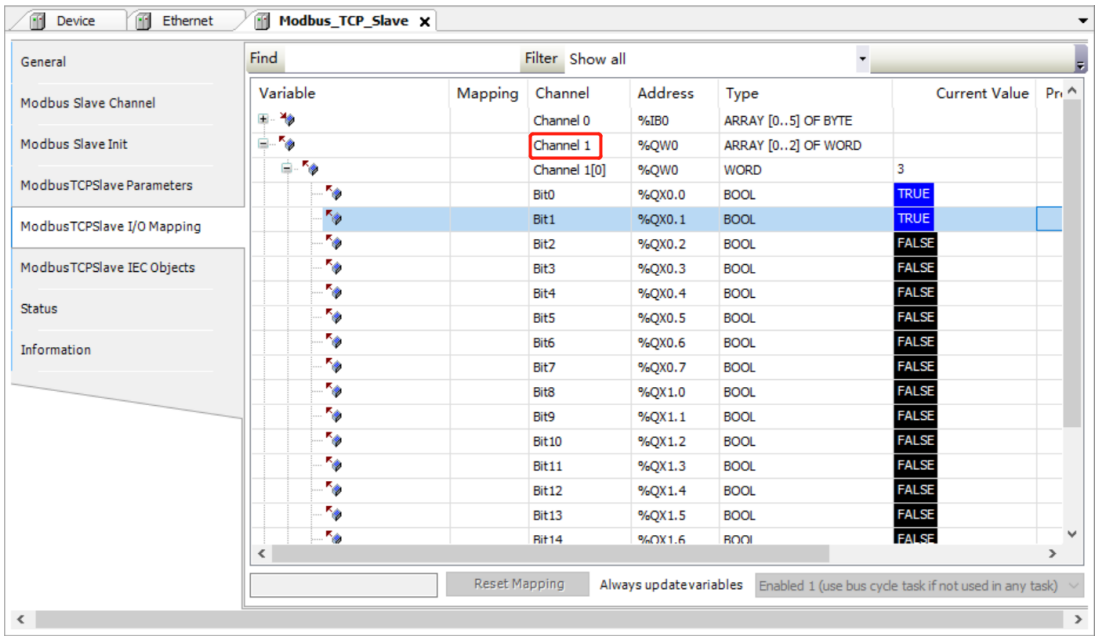
e. After the login download is complete, on the "Modbus TCP Slave I/O Mapping" page, you can monitor the channel value of the IO module in real time, as shown in the figure below. Channel 0 is the channel monitoring page of the digital input module, Channel 0[0]~[3] corresponds to each DI channel of XB6-3200A, and Channel 0[4]~[5] corresponds to each DI channel of XB6-1616A.



f. Channel 1 is the channel monitoring page of the digital output module. Channel 1[0]~[1] corresponds to each DO channel of XB6-0032A, and Channel 1[2] corresponds to each DO channel of XB6-1616A. The channel writes the value to force the output, as shown in the figure below.



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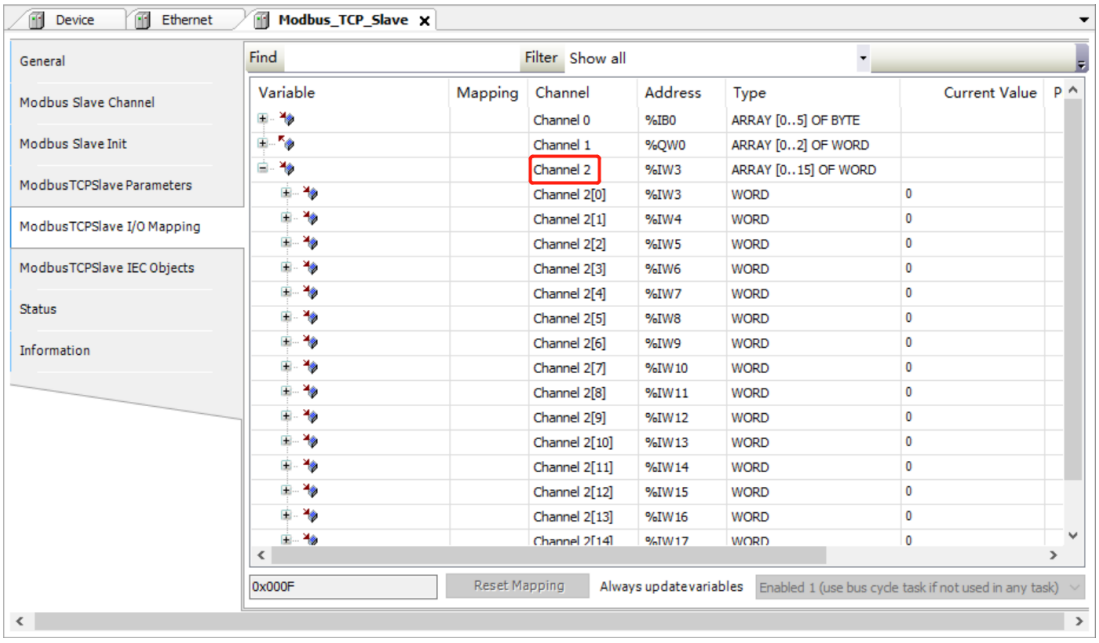
g. Channel 2 is the channel monitoring page of the analog input module, Channel 2[0] ~ [7] corresponds to XB6-A80TM, and Channel 0[8]~[15] corresponds to XB6-A80I, as shown in the figure below.



7.6.3 Application in Modbus Poll software environment

1、 Preparation

- **Hardware environment**
  - **Module preparation**

    In this case we take XB6-MT2002ST kit，XB6-3200A，XB6-0032A，XB6-1616A，XB6-A80TM， XB6-A80I，XB6-A08 as examples.
  - **A computer installed with CODESYS V3.5，CODESYS Control Win V3 - x64 SysTray software**
  - **One computer, set the IP address of the computer and the module in the same network segment.**

    Each coupler module is set with a default IP address, as follows:：

    IP address： 192.168.1.120

    Subnet mask： 255.255.255.0

    Gateway： 192.168.1.1
  - **Standard network cable**
  - **Module installation guide rail and fasteners**
  - **A switching power supply**
- **Hardware configuration and wiring**

  Please refer to the instructions in 5 Installation and Disassembly and 6 Wiring to correctly connect the module to the system.
- **Power modules**

  After checking that the wiring is correct, power on the XB6-MT2002ST+I/O module device combination.

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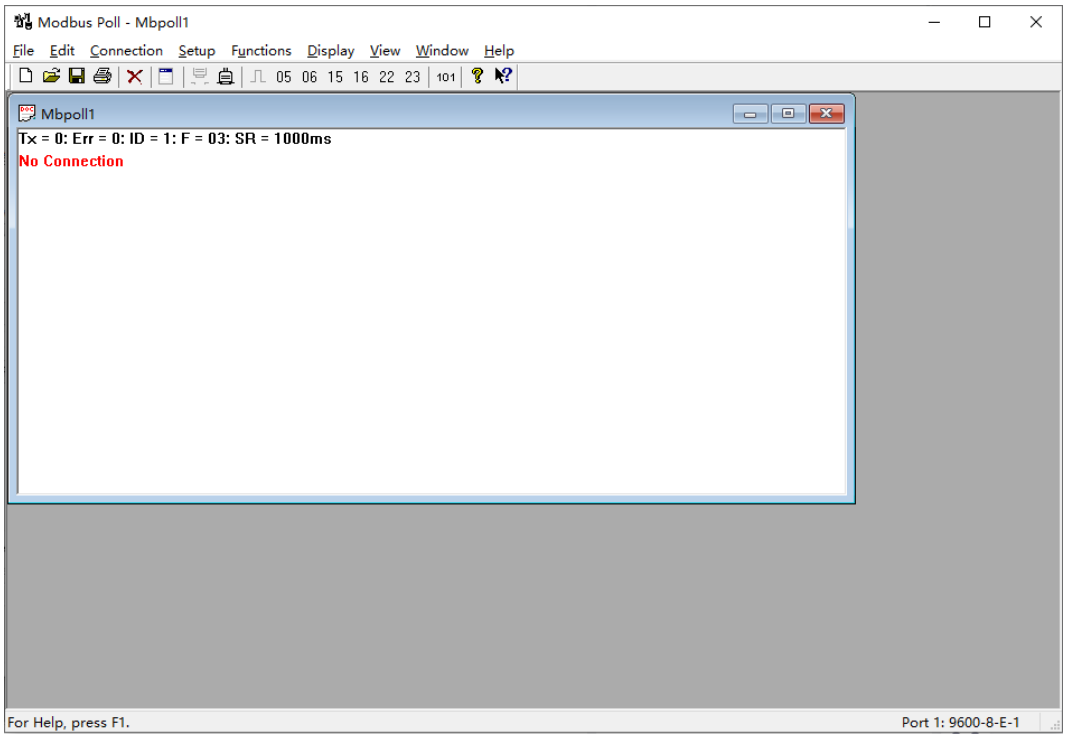
2、 Module connection

a. Open the Modbus Poll software and view the main window of the software, as shown in the figure below.



- Tx = 0 indicates the number of data frames sent to the master station, which is 0 times in the figure;
- Error = 0 means the number of communication errors, which is 0 times in the figure;
- ID = 1 indicates the device address of the simulated Modbus sub-device, the address in the figure is 1;
- F = 03 indicates the Modbus function code used, and the function code 03 is shown in the figure;
- SR = 1000ms means scan cycle. The red part indicates the current error status, and "No Connection" indicates the status is not connected.

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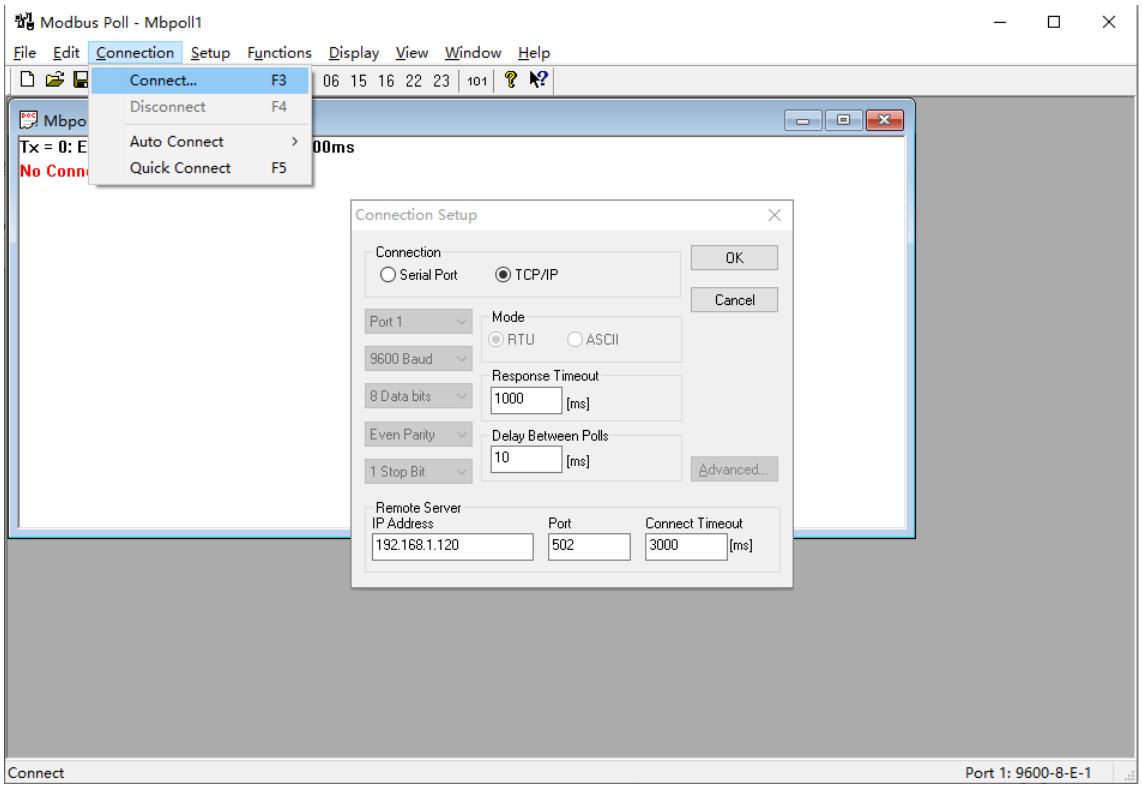
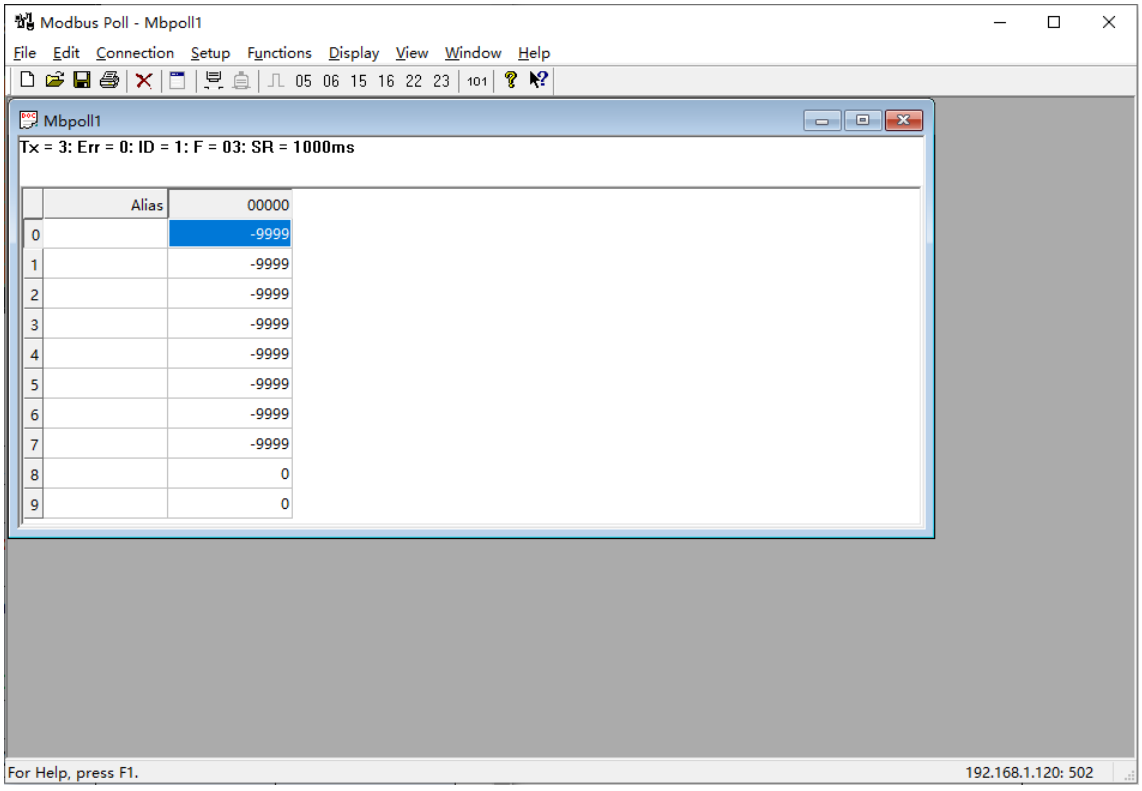
b. Click "Connection -> Connect" in the menu bar, and the connection setting window will pop up. Select "TCP/IP" in the Connection connection option. TCP/IP is the communication network protocol used by Modbus TCP; enter the IP address of the Coupler in the IP address address, click OK, as shown in the figure below.



c. After the connection is completed, the interface is as shown in the figure below.



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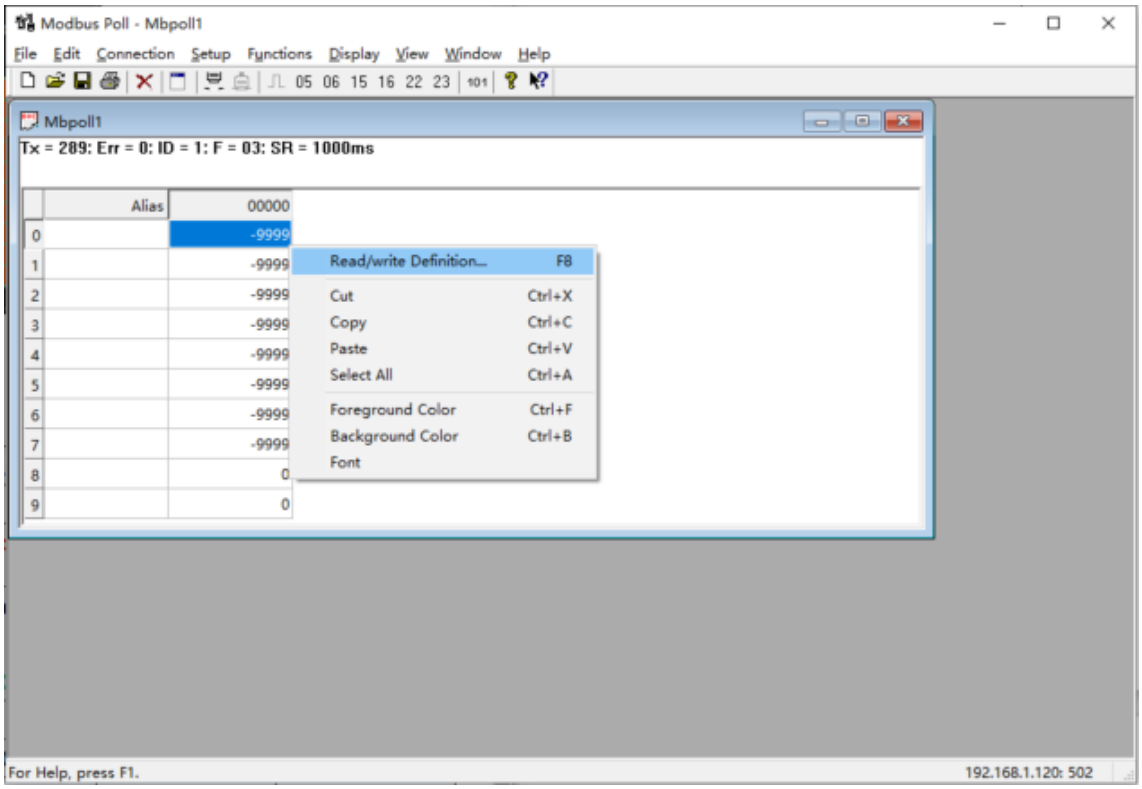
3、 Function code setting and monitoring

a. Through the web tool, you can view the IO module address mapping table of the topology, and you can see the function code of each module, the offset start address and the monitoring address range corresponding to the module, as shown in the figure below.

组态信息		接入模块总个数：6		功能码：01、02、03、04、05、06、15、16、23			
序列	型号	IO模块地址映射表					
		DI(Input Bit)	DO(Output Bit)	AI(Input Word)	AO(Output Word)	DI(Input Word)	DO(Output Word)
		Function: 01 02 Addr:0x00	Function: 05 15 Addr:0x00	Function: 03 04 Addr:0x00	Function: 06 16 Addr:0x00	Function: 03 Addr:0x5000	Function: 16 Addr:0x3000
0	XB6-MT2002ST						
1	XB6-3200A	0-31	0	0	0	0-1	0
2	XB6-0032A	0	0-31	0	0	0	0-1
3	XB6-1616A	32-47	32-47	0	0	2	2
4	XB6-A80TM	0	0	0-7	0-7		
5	XB6-A80I	0	0	8-15	0		
6	XB6-A08I	0	0	0	8-15		

b. Right-click the monitoring window and select “Read/Write Definition”, as shown in the figure below.



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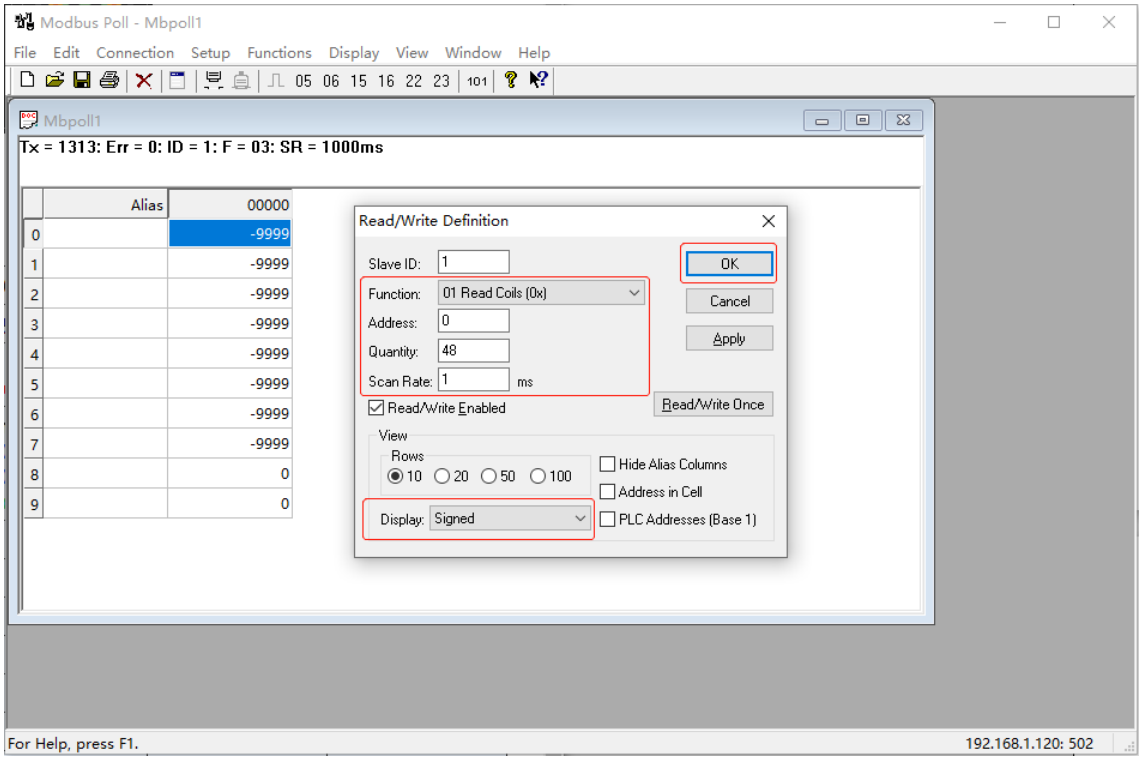
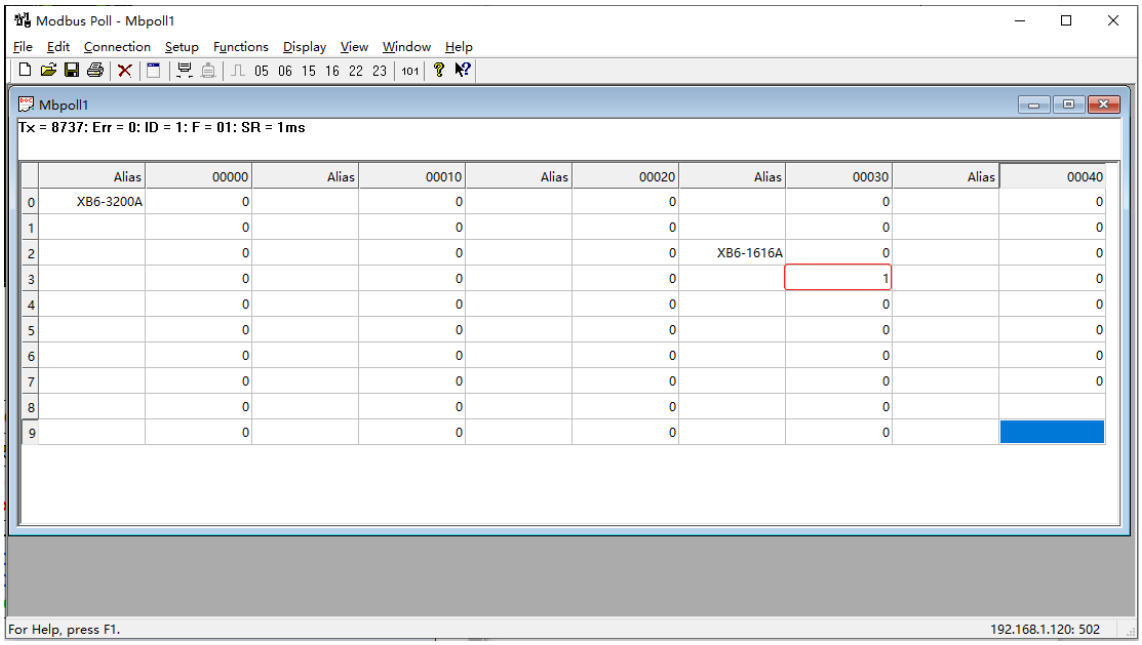
c. For example, the function codes corresponding to DI (Input Bit) of XB6-3200A and XB6-1616A modules are 01 and 02, the offset address is 0x00, and the address range is 0~31 and 32~47, that is, 48 bits. The function code of the corresponding monitoring setting page is 01 Read Coils and 02 Read Discrete Inputs (choose one), Address is 0, and Quantity is 48. On the setting page, you can set the scan cycle Scan Rate and display system. After setting, click " OK", as shown in the figure below.



d. After the setting is completed, the module model can be entered as a comment on the DI (Input Bit) monitoring page, and the module input Status can be monitored in real time, as shown in the figure below.



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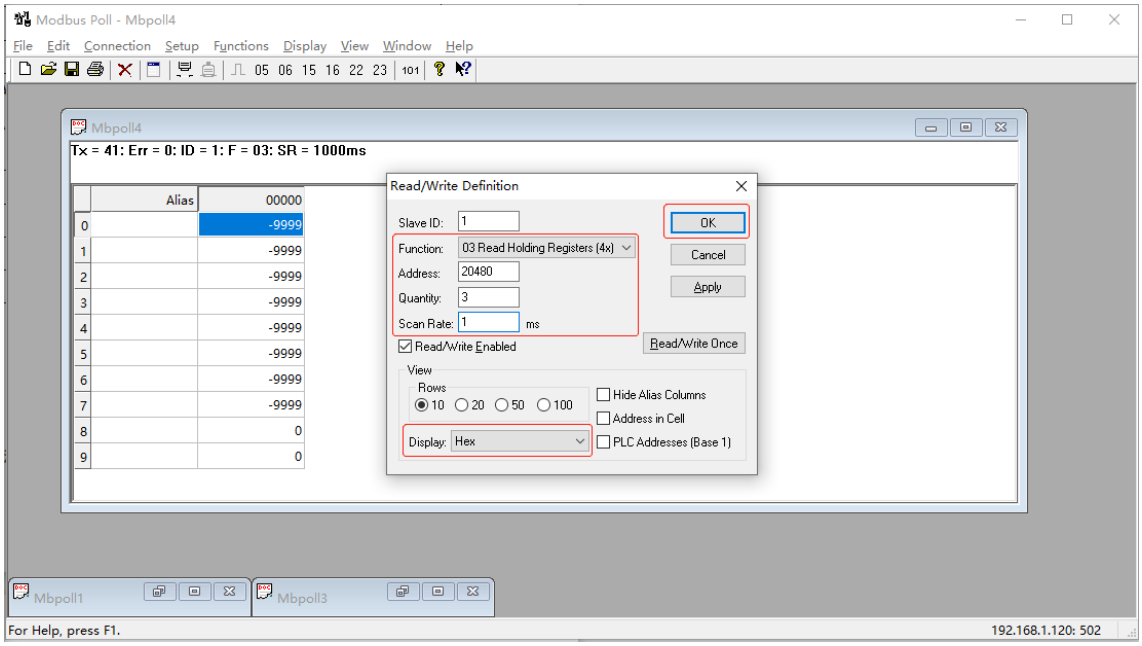
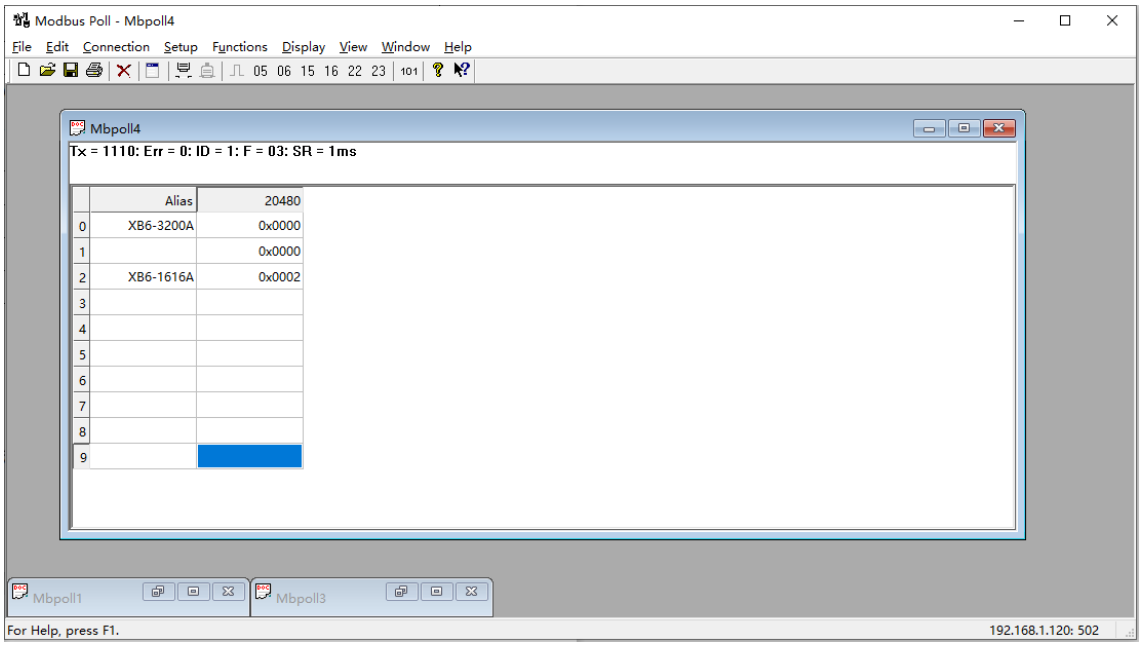
e. The function code corresponding to DI (Input Word) of XB6-3200A and XB6-1616A modules is 03, the offset address is 0x5000 (Decimal: 20480), and the address range is 0~1 and 2, that is, 3Word. Click "File -> New" in the menu bar to create a new monitoring window, right-click the monitoring window, and select "Read/Write Definition" to open the monitoring setting page.
The function code of the corresponding monitoring setting page is 03 Read Holding Registers, the Address is 20480, and the Quantity is 3. On the setting page, you can set the scan rate and display system. After setting, click "OK", as shown in the figure below.



f. After the setting is completed, the module model can be entered as a comment on the DI (Input Word) monitoring page, and the module input Status can be monitored in real time, as shown in the figure below.



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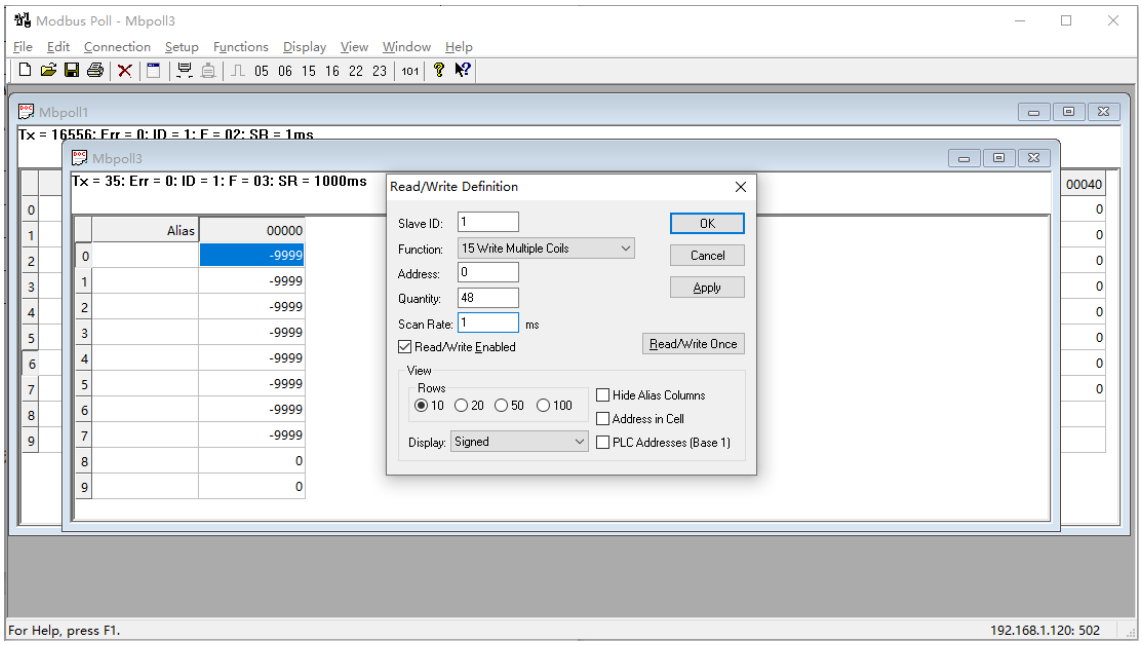
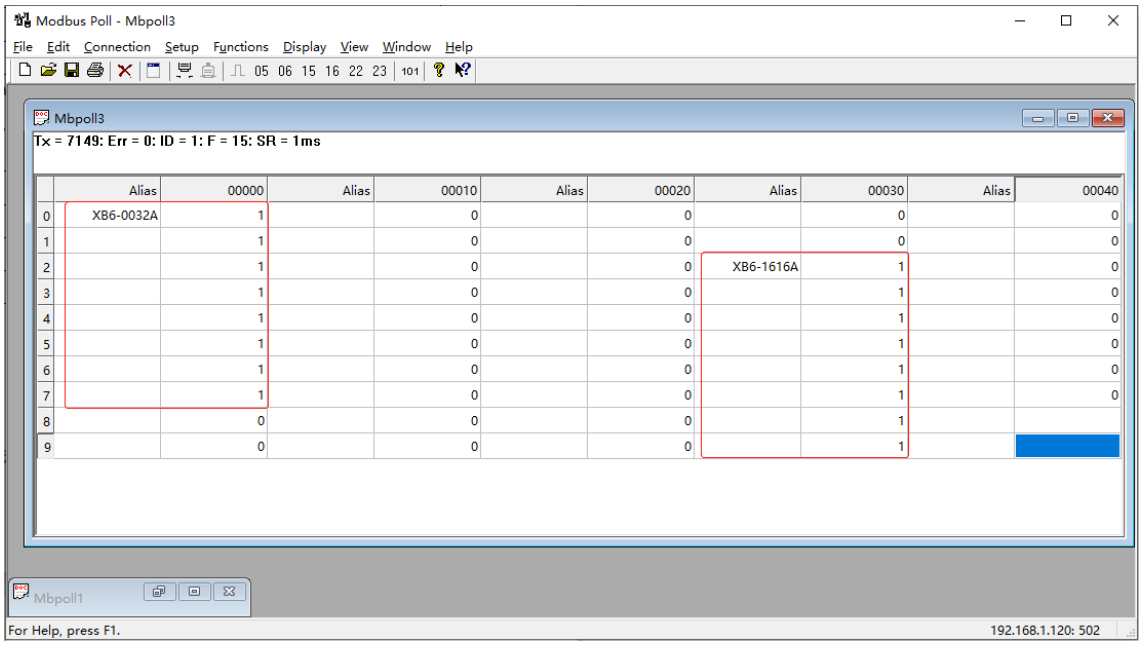
g. For digital output modules XB6-0032A and XB6-1616A, the function codes corresponding to DO (Output Bit) are 05 and 15, the offset address is 0x00, and the address range is 0~31 and 32~47, that is, 48 bits. Click "File -> New" in the menu bar to create a new monitoring window, right-click the monitoring window, and select "Read/Write Definition" to open the monitoring setting page.

The function code of the monitoring setting page is 05 Write Single Coil and 15 Write Multiple Coils (choose one). The function code 05 can only select one coil, that is, 1 digit. Here, the function code is 15, the Address is 0, and the Quantity is 48. On the setting page, you can set the scan cycle Scan Rate and the display system. After the setting is complete, click "OK", as shown in the figure below.



h. After the setting is completed, the module model can be entered as a comment on the DO (Output Bit) monitoring page, and the output module can be forced to output, as shown in the figure below.



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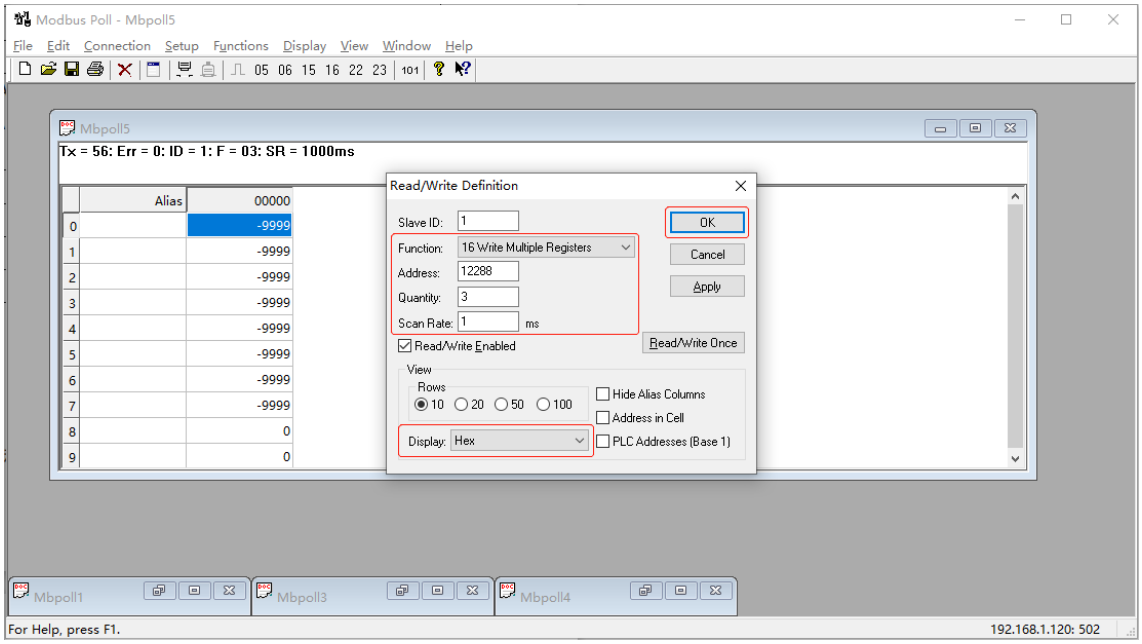
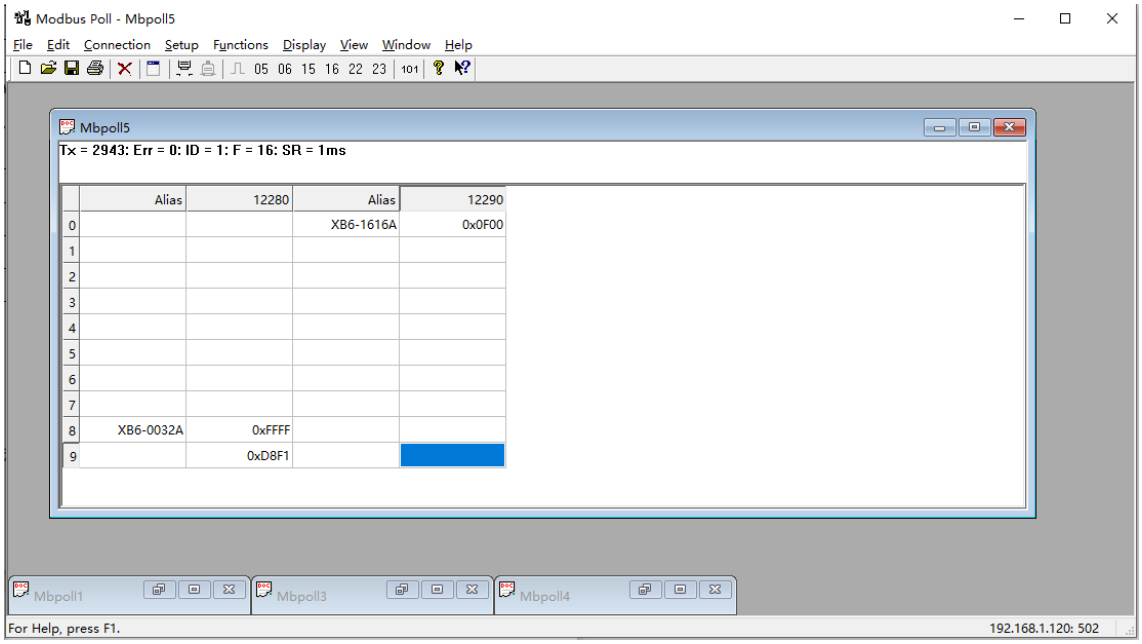
i. The function code corresponding to the DO (Output Word) of XB6-0032A and XB6-1616A modules is 16, the offset address is 0x3000 (Decimal: 12288), and the address range is 0~1 and 2, that is, 3Word. Click "File -> New" in the menu bar to create a new monitoring window, right-click the monitoring window, and select "Read/Write Definition" to open the monitoring setting page.
The function code of the corresponding monitoring setting page is 16 Write Multiple Registers, the Address is 12288, and the Quantity is 3. On the setting page, you can set the scan rate and display system. After setting, click "OK", as shown in the figure below.



j. After the setting is completed, the module model can be entered as a comment on the DO (Output Word) monitoring page, and the output module can be forced to output, as shown in the figure below.



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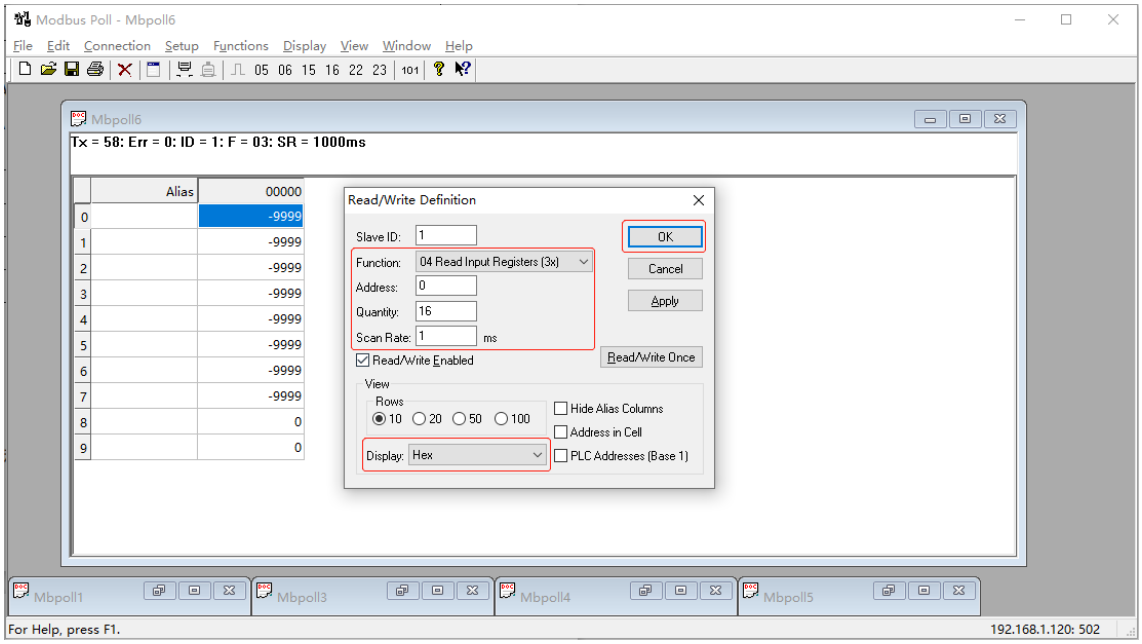
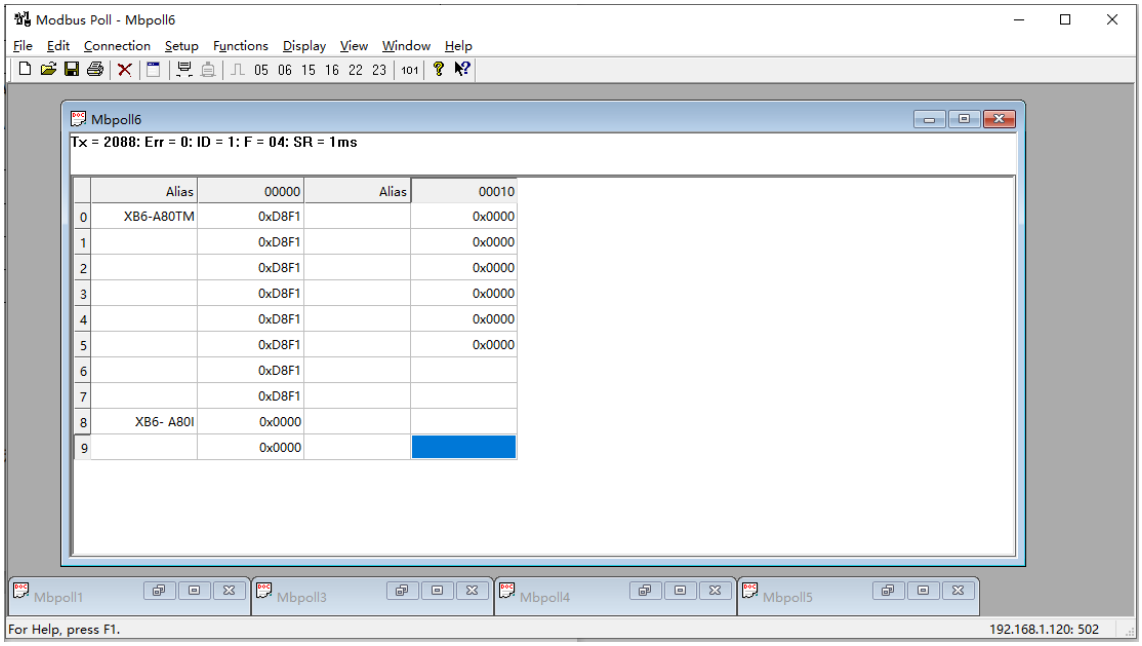
k. The corresponding function codes of XB6-A80TM and XB6-A80I module AI (Input Word) are 03 and 04, the offset address is 0x00, and the address range is 0~7 and 8~15, that is, 16Word. Click "File -> New" in the menu bar to create a new monitoring window, right-click the monitoring window, and select "Read/Write Definition" to open the monitoring setting page.

The function code corresponding to the monitoring setting page is 03 Read Holding Registers and 04 Read Input Registers (choose one), Address is 0, and Quantity is 16. On the setting page, you can set the scan cycle Scan Rate and display system. After setting, click "OK", as shown in the figure below



l. After the setting is completed, you can enter the module model as a comment on the AI (Input Word) monitoring page, and you can monitor the module input Status in real time, as shown in the figure below.



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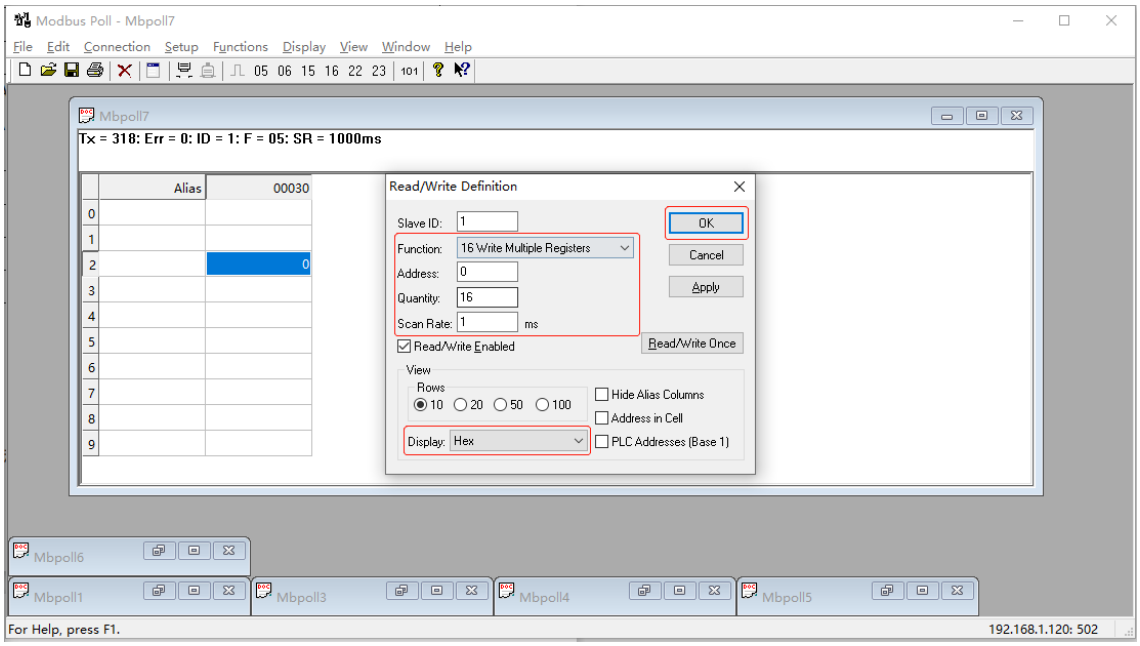
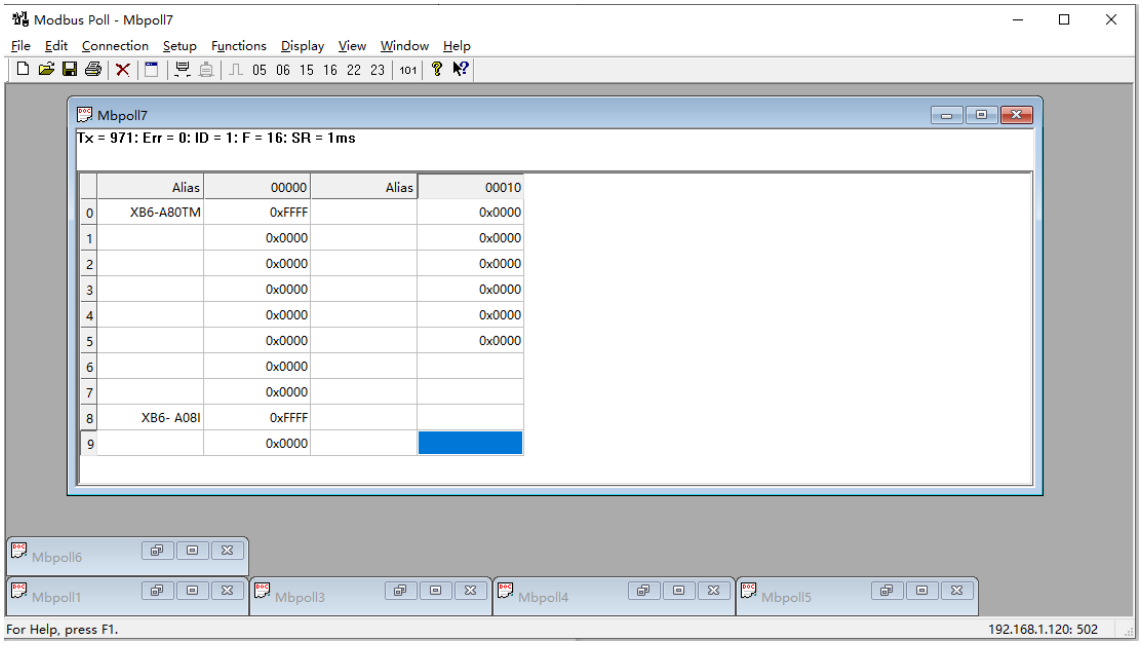
m. The function codes corresponding to AO (Output Word) of XB6-A80TM and XB6-A08I modules are 06 and 16, the offset address is 0x00, and the address range is 0~7 and 8~15, that is, 16Word. Click "File -> New" in the menu bar to create a new monitoring window, right-click the monitoring window, and select "Read/Write Definition" to open the monitoring setting page.

The function code of the corresponding monitoring setting page is 06 Write Single Register and 16 Write Multiple Registers (choose one). The function code 06 can only select one register, which is 1Word. Here, the function code is 16, Address is 0, and Quantity is 16. On the setting page, you can set the scan cycle Scan Rate and the display system. After the setting is complete, click "OK", as shown in the figure below.



n. After the setting is completed, the module model can be entered as a comment on the AO (Output Word) monitoring page, and the output module can be forced to output, as shown in the figure below.



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