

Modbus TCP XB6 Series Slice I/O User Manual



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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

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).

2 Designation Rules

2.1 Designation Rules

2.1.1 Coupler Designation Rules

$\frac{XB}{(1)} \frac{6}{(2)} - \frac{MT}{(3)} \frac{20}{(4)} \frac{02}{(5)} \frac{ST}{(6)}$

Item	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	

2.1.2 I/O module designation rules

$\frac{XB}{(1)} \frac{6}{(2)} - \frac{A}{(3)} \frac{8}{(4)} \frac{0}{(5)} \frac{V}{(6)}$

ltem	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: Digital:	Analog: 0、4、8 Digital: 0、8、16、32			
(5)	Number of outputs	Analog: Digital:	Analog: 0、4、8 Digital: 0、8、16、32			
			Digit	al		Analog
		Code	Input	Output	Code	Description
		А	NPN	NPN、0.5 A	V	-10~+10 V、0~+10 V
		В	PNP	PNP、0.5 A	I	4~20 mA、0~20 mA
(6)	I/O characteristics	BW	PNP	PNP、0.25 A	ТМ	Resistance Temperature Detector (RTD), thermocouple (TC)
		Ν	NPN/PNP	-		
		AN	-	NPN、0.1 A		
		BN	-	PNP、0.5 A		

2.2 List of common modules

Model	Product description			
XB6-MT2002ST Modbus TCP coupler kit (power supp		pler + cover plate)		
XB6-P2000 Extension power module				
XB6-3200A	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	3W 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	16B/XB6-1616BW 16-channel digital I/O module, PNP type			
XB6-3200N 32-channel digital input, NPN/PNP compatible		e		
XB6-0032AN	32-channel digital output, NPN type			
XB6-0032BN	32-channel digital output, PNP type			
XB6-A80V	8-channel analog voltage input module			
XB6-A40V	4-channel analog voltage input module	Optional ranges:		
XB6-A08V	8-channel analog voltage output module 0~+10 V -10~+10 V			
XB6-A04V	4-channel analog voltage output module			
XB6-A80I	8-channel analog current input module			
XB6-A40I	4-channel analog current input module Optional ranges:			
XB6-A08I	8-channel analog current output module 0~20 mA 、4~20 mA			
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	stor and thermocouple temperature collection module		
XX6-C18_2	Common terminal extended module			

3 Product Parameters

3.1 General parameters

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

3.2 Power parameters

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

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		
	NPN Type Max: 250 mA		
Single-channel rated current (A/B)	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		

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(ad	djustable rar	nge)	
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 re	esistor	Resistor
Connection type	2 wire method	2 / 3 wire i	method	2 wire method
	K: -200~1370℃ J: -200~1200℃ E: -200~1000℃ S: -50~1690℃ B: 50~1800℃	Pt100: −200~850°C Pt200: −200~600°C Pt500: −200~600°C Pt1000: −200~600°C		15Ω~3kΩ
Accuracy	±0.5%	±1℃		±0.1%
Sensitivity	0.1°C ±0.1Ω			±0.1Ω
Resolution	16 bit(int type)			
Channel indicator	Green LED			

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%		
Accuracy	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

_	0 (default)	1	2	3
Range Voltage	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

Table 3-1 Voltage code values

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)/276 48	I=(D*20)/27648
Code value table	See Table 3-2 Current code values			

Note: D: Code value; I: current

Table 3-2 Current code values

Range selection 0 (default)		1	2	3
Range	4-20mA	0-20mA	4-20mA	0-20mA
Current	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			29376	29030
22			31104	30413
22.81			32511	31538
22.96				31743
23	65535	65535		31795
23.52				32511
23.70			32767	
24			52101	32767
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.

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	

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	2xRJ45

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.

Description of IDs and indicators of the power module				
ID	Color	Status	Status description	
P Green		ON	Normal status of working power supply	
	Green	Flashing	80% overload. The power supply to real stage load is cut off	
		OFF	Unpowered or abnormal power supply	
O Re	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 C	Vellow	ON	Network connection established	
	reliow	OFF	Absent or abnormal network connection	
	Green	Flashing	Connection established with data interaction	
		OFF	Absent or abnormal network connection	
	Yellow	ON	Network connection established	
OUT		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
Rower indicator		Green	ON	Normal status of power supply
Fower indicator			OFF	Unpowered or abnormal power supply
System indicator L			ON	The I/O module is connected, X-bus system is interacted
	L(LINK)	Green	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
	E(ERR)	Red		1、Device has established Modbus TCP connection
Warning indicator			Flashing	 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

4.2 I/O modules panel

Name and function description of modules



I/O module Indicator description				
ID		Color	Status	Status description
D		Groop	ON	Normal status of working power supply
F		Gleen	OFF	Unpowered or abnormal power supply
			ON	Normal system operation
R		Green	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	_	ON	Presence of signal input in module detection channel
indicator	Green	OFF	Absence of signal input in module channel or abnormal signal input	
Output channel	0	ON	Presence of signal output in module channel	
indication		Green	OFF	Absence of signal output in module channel or abnormal signal output

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)

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.		

5.3 Installation schematic diagrams



2

Coupler module installation



Steps

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.

5 Installation and Disassembly

Steps

I/O module installation



Install the required IO modules one by one using the same the steps as coupler module installation, as shown in the figure@(\$



End cover installation



Steps

Install the end cover on the right side of the last module, as shown in the figure[®], using the same installation method as the coupler module.

5 Installation and Disassembly

Installation of guide rail fasteners





8

Disassembly



Steps

Install a guide rail fastener next to the left side of the coupler, and lock it tightly, as shown in the figure⑦

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 figure(8)

Steps

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 figure (9)





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

5 Installation and Disassembly

Remove the module in the reverse order of installation, as shown in the figure (1).

(11)

5.4 Dimensions





Coupler module dimensions (Unit: mm)



Extension power module dimensions (Unit: mm)



I/O module dimensions (Unit: mm)



End cover module dimensions (Unit: mm)





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 mm ²		
Power terminal	Number of poles	3P		
	Wire gauge	22~16 AWG 0.3~1.5 mm ²		
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.

6 Wiring

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 Encoded 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

Specification of tubular insulated terminal			
Specification	Model	Cable section area (mm ²)	
A Contraction of the second se	E0310	0.3	
	E0510	0.5	
	E7510	0.75	
	E1010	1.0	
Length of tubular insulated terminal L ≥10 mm	E1510	1.5	

inserting the wire.

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

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 <u>6.3 I/O module wiring diagram</u> for details.



Signal terminal wiring: 16P\20P terminal

Bus wiring: Industrial Ethernet bus communication interface

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

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.

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



οv 24V =

6.3.2 XB6-3200B





6.3.3 XB6-1616A









Module panel



Module panel
6.3.4 XB6-1616B



Power 0 V

0V

24V



6.3.5 XB6-1600A



Module panel

6.3.6 XB6-1600B



Module panel





6.3.7 XB6-0800A









6.3.8 XB6-0800B







DI

6.3.9 XB6-0032A

Input 2¹ 2

Input 3

0

11

12 |

13 I

14



24V

220V

24∨

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6.3.10 XB6-0032B



6.3.11 XB6-0016A









6.3.12 XB6-0016B

XB6-0016B

Module panel





6.3.13 XB6-0008A



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

6.3.16 XB6-A40V/XB6-A40I

XB6-A40V/XB6-A40I

Module panel

XB6-A80I is XB6-A80I.

The screen printing of module



*Signal cable: shielded twisted pair cable is recommended

6.3.17 XB6-A08V/XB6-A08I



*Signal cable: shielded twisted pair cable is recommended

6.3.18 XB6-A04V/XB6-A04I

XB6-A04V/XB6-A04I

The screen printing of module

Note:

XB6-A40I is XB6-A40I.



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

Module panel

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6 Wiring



*Signal cable: shielded twisted pair cable is recommended



Note:

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

OR

6.3.19 XB6-A80TM



6.3.20 XB6-A40TM

XB6-A40TM

Module panel

OR



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.

XX6-1616A	XX6-C18_2	
	сом сом	
Input 0 0 0 Input 8 Input 1 0 0 10 Input 8 Input 2 2 10 Input 9 Input 3 0 11 Input A Input 4 0 0 12 Input C Input 5 0 13 Input D Input 6 7 0 15 Input F Input 7 0 15 Input F	Input 0 9 Input 8 Input 1 9 Input 8 Input 2 2 1 10 Input 9 Input 3 3 1 11 Input 4 Input 4 4 1 12 Input 6 Input 5 1 13 Input 0 Input 6 6 1 14 Input E Input 7 7 1 15 Input F	5
DO Output 0 Output 1 Output 1 Output 2 Output 2 Output 2 Output 3 Output 3 Output 3 Output 4 Output 4 Output 4 Output 4 Output 5 Output 5 Output 5 Output 6 Output 6 Output 6 Output 7 Output 7 Output 7 Output 7 Output 8 Output 8 Output 4 Output 9 Output 9 Output 9 Output 9 Output 9 Output 4 Output 9 Output 0 Output 9 Output 9 Output 0 Output 0 Output 9 Output 0 Output 6 Output 6 Output 7 Output 7 Output 7 Output 7 Output 7 Output 9 Output 7 Output 7 Ou	COM C COM 1 COM 2 C	
L 10 29 J		+24V 0V 24V=

Wiring method of two-wire sensor (NPN type)

Wiring method of two-wire sensor (PNP type)

XX6-1616B	XX6 -C18_2	
DI	сом сом	
Input 0 Input 8	Input 0 Input 8	
Input 1 0 9 Input 9	Input 1 9 Input 9	
Input 2 2 10 Input A	Input 2 2 10 Input A	
Input 3 3 11 Input B	Input 3 3 11 Input B	
Input 4 12 Input C		
Input 5 0 13 Input D	Input 5 5 13 Input D	1
Input 6 6 14 Input E	Input 6 6 1 14 Input E	
Input 7 7 0 15 Input F	Input 7 7 15 Input F	
	L18	
	CON [] COM	
Output 1, Output 9		
Output 2		
Output 3 Output B		
Output 4 Output C		
Output 5)
Output 6 Output E		
Output 7 0 0 Output F		
Power +24 V 8 18 Power +24		
Power0V		
		+24V 220V~
		0V 24V =
		217

Wiring method of three-wire sensor (NPN type)



Wiring method of three-wire sensor (PNP type)



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 comb	pination (coupler, I/O mod	dules, cover plate)
Coupler	I/O modules	Cover plate
POU XB6-P2000H	P R XB6-3200A P D D D D D D D D D D D D D	AT A A A A A A A A A A A A A A A A A A

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:

- The number of IO modules that can be supported by a coupler is not higher than 32. 1.
- 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:

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

7.2 IP Setting and Modification

7.2.1 Setting IP address by rotary switches

See <u>4.1.2 Rotary Switch</u> 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.

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.



配置网络参数

MAC地址:	00:08	:DC:00:2	0:50		
IP地址:	192	. 168	. 1	. 120	
子网掩码:	255	. 255	. 255	. 0	
默认网关:	192	. 168	. 1	. 1	
清空保持:	◎ 清	空◎ 保持	ŧ		
保存并重启					

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.

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 <u>3.5 Analog Parameters</u> 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	Function: 03 04	Function: 06	Function: 03	Function: 16	
Offset Start	Offset Start	Offset Start	Offset Start	Offset Start	Offset Start	
0x00	0x00	0x00	0x00	0x5000	0x3000	
				20480	12288	

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 <u>5 Installation and Disassembly</u> and <u>6 Wiring</u> 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.

保存并重启

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.



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.



配置网络参数

MAC地址:	00:08:DC:00:20:50				
IP地址:	192	. 168	. 1	. 120	
子网掩码:	255	. 255	. 255	. 0	
默认网关:	192	. 168	. 1	. 1	
清空保持:	◎ 清	空◎ 保持	\$		
保存并重启					

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.



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.

sDot 实点科技	总览 Overview	组态信息 Configuration Info	v1.0
DI 0 1 1 1 1 1 1 1 1 1 1 1 1 1	模块3: XE 通用信息: • 模块标识符: 0 • 类型: 数字量编 • 硬件版本号: 0 • 软件版本号: 0 参数设置: 输入滤波: 3ms	36-1616A 0x620 1入输出 0.01 0.01	
	DI	/	
i ta i i	通道0	0	
	通道1	1	
	通道2	0	
	通道3	0	
	通道4	0	
	通道5	0	
	通道6	0	
	通道7	0	
	通道8	0	

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.



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.

。Dot 实点科技	总览 Overview 组态信息 Config	uration Info	v1.0
	模块5: XB6-A80I	•	
	通用信息:		
51 00 1 61 00 1 71 00 1	 模块标识符: 0x646 类型: 模拟量输入 		
P • • R XB6-A80I	• 硬件版本号: 0.01 • 软件版本号: 0.01		
	参数设置:		
	- 通道0	0	
	量程选择: 4mA~20mA 0~65535 ▼ 滤波时间: 10 ms (范围: 1-200ms)	Update	
	- 通道1	0	
	量程选择: 0mA~20mA 0~65535 ▼ 滤波时间: 10 ms (范围: 1-200ms)	Update	
	<mark>+</mark> 通道2	1	
	+ 通道3	0	
	+ 通道4	1	
	+ 通道5	0	
	+ 通道6	0	
	+ 通道7	0	

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.

sDot 实点和	科技 总览 Overview	组态信息 Con	figuration Info				v1.0
		•	•	•	•		+放大 -缩小
	U		•	0 0	•	-	
24V 01 <t< th=""></t<>							
	00:08:DC:00:20:50	注) 横山 見 へ 物・6		Ib能码·01_02_0	03 04 05 06 1	5 16 23	
应 列	知必行心	1支八1天庆心 数、0		の構造地	小咖啡素	5, 10, 25	
13-79	ΞJ	DI (Input Bit)	DO(Output Bit)	Al (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		1	1	
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

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 <u>5 Installation and Disassembly</u> and <u>6 Wiring</u> 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.

管 New Pro	oject				×	<
Categories	raries ojects	Templates	HMI project	Standard project	Standard project w	
<u>N</u> ame Location	Untitled1 C:\Users\29719\Document	plication, and an e	empty implement	ation for PLC_	укс	
				OK	Cancel	.:

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..

Device X							•
Communication Settings	Scan Network	Gateway 👻 Device	•				^
Applications		_					
Backup and Restore							
Files	-				•		
Log		Gatewa	Gateway	~	[0000,C06C] (active)	~	
PLC Settings		IP-Addr	ress:		Press ENTER to set active path		
PLC Shell		Port	5L				
Users and Groups		1217					
Access Rights							
Symbol Rights							
IEC Objects							
Task Deployment							
Status							
Information <						>	~

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.



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.

ces 🗸 🗸 🗸	1	Device	Ethernet X					
Untitled 1 Unit Unit of 1 Unit	G	eneral		Interface				
😑 🗐 PLC Logic	Lo	a		TR address	102	169 0 1		
🖻 🔘 Application				IP address	192 .	168 . 0 . 1		
Library Manager	St	atus		Subnet mask	255 .	255 . 255 . 0		
PLC_PRG (PRG)	4	Network Adar	ators	n f 11 - 1	-	<u> </u>		
Task Configuration	-	Network Ada	oters					^
🖻 😻 MainTask (IEC-Tasks)	E	Interfaces						_
- 셴 PLC_PRG		Name	Description		00	IP address		^
Ethernet (Ethernet)	Ir	以太网	Realtek PCIe G	bE Family Control	ler	169. 254. 22. 244		
		以太网:1	Realtek PCIe G	bE Family Control	ler	192. 168. 0. 225		
		以太网:2	Realtek PCIe G	E Family Control				
		蓝牙网络连接	Bluetooth Devi	ce (Personal Area	Network)	0.0.0.0		
		WLAN	Intel(R) Wi-Fi	6 AX201 160MHz		192. 168. 20. 151		~
		IP address	192 . 168	1 225				
		Subact and	266 266	255 0				
		D.C. J.	200 . 200	. 200 . 0				
		Default gate	way U.U	. 0 . 0				
		MAC address	C0:25:A5:	CD:BO:CE				
							OF Come	1
							Un Cance	1
>								

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.

	ebug Tools Window	M Add Device ×
		Name Modbus_TCP_Master
Devices v 4 2	C Device	Action
Device (CODESYS Control Win V3 x64)	General	String for a fulltext search Vendor <all vendors=""></all>
ELC Logic	Log	Name Vendor Version Descrip
Application Mill Library Manager DLC_PRG (PRG)	Status	
Task Configuration	Ethernet Device I/O Ma	S - Lit Modeus
B S MainTa K Cut → □ PL B Copy	ce IEC Obj	Modus TCP Master Sr - Smart Software Solutions GmbH 3.5.15.0 A device Modus TCP Slave Device
Ethernet (Ethernet Paste Delete		⊯ <i>IIII</i> Profinet IO
Refactoring	,	<>
Properties		Group by category Display all versions (for experts only) Display outdated versions
Add Object		Name: Modbus TCP Master
Add Device		Categories: Modbus TCP Master
Insert Device Disable Device		Version: 3.5.15.0 Order Number: -
Update Device		Append selected device as last child of Ethernet
< Edit Object with		(You can select another target node in the navigator while this window is open.)
Devices POUs Edit IO mapping Messages - Total 0 error(s), Import mappings Evront mappings	from CSV	Add Device Close

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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7 Operation

File Edit View Project Build C	Online	e Debug	Tools	Window	Help	1	Add Device					×
🗎 🖆 🔚 🚭 い 🖙 🌡 🛍 🗙 🕯	4 🎸	i 🐴 🛀	川利剤	M 🛱	御• [
						Na	ame Modbus_TCP_Slave					
Devices	•	д х	Device	· / 🕅 E	therne	Γ	Action					
Untitled1	-	-			-	(Append device O Insert device	O Plug	device O	Update device		
Device (CODESYS Control Win V3 x64)			General			6	String for a fulltext search		Vendor	<all vendors=""></all>		~
🛱 📑 🞚 PLC Logic			Log			ľ				Chill Verhaulay		
🖹 🔘 Application					-		Name	Ver	ndor		Version	Descriptic
📶 Library Manager			Status				Fieldbuses					
PLC_PRG (PRG)			Ethernet Da	uies 1/0 Mar			Modbus					
🖹 🌃 Task Configuration			Ethernet De	vice 1/0 Map	ping		Modbus TCP Slave		C	Colutions Colum	2545.0	
🖻 👙 MainTask (IEC-Tasks)	X	Cut					Modbus TCP Slave	35 -	Smart Softw	are Solutions GmbH	3.5.15.0	A generic Mi
PLC_PRG		Сору										
Ethernet (Ethernet)	n.	Paste			- 1							
Modbus_TCP_Master (Modbus T	×	Delete			- 1							
		Defeated			_							
		Refactori	ng		-		<					>
	L.	Propertie	s			Ŀ	Group by category Display all	versions	(for experts	only) 🔄 Display out	dated versio	ns
	12 1 1 1 1 1 1 1 1 1 1 1 1	Add Obje	ect		- 1	Π	Name: Modbus TCP Slave			^		
	\bigcirc	Add Fold	er				Vendor: 3S - Smart Software S	olutions G	imbH			
		Add Devi	ce				Categories: Modbus TCP Slave Version: 3 5 15 0	2				
		Insert De	vice				Order Number: -			~	0	۱ ک
		Disable D	evice		- 1	L						
		Update D	evice		- 1	1	Append selected device as last ch	ild of				
	ſ	Edit Obje	ct		- 1	1	lodbus_TCP_Master					
<		Edit Obje	ct with			1	(You can select another target n	ode in the	e navigator	while this window is o	pen.)	
Sevices POUs		Edit IO m	apping			_				DbA	evice	Close
Messages - Total 0 error(s), 0 warning(s), 0 m		Import m	appings fr	om CSV	1							
		Export m	appings to	CSV				Last	build: 😳 0	• 0 Precompile	/ 😭	Projec

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.

Eile Edit View Project Build Online Deb 1 🗃 🗃 🗃 I 🕾 I ↔ 🌣 🐁 📾 🛠 I 👫 🏠	ug Iools Window Help 周 領 領 濱 濱 100-12118	Application [Device: PLC	Logic) • 🗘 🖏 + 🗉 🖑 🖓 + 🗉	♀ 栗 〒 型
Image: Second system Image: Second system Image: Second	Device Ethernet General Modbus Slave Channel Modbus Slave Init Modbus TCPSlave Init Modbus TCPSlave IEC Objects Status Information	Application [Device: PLC Modbus_TCP_Slave x Modbus-TCP Slave IP address Response timeout(ms) Port	Logic) • 📽 🖉 🕨 🔳 📽 []= 63 da +1 [192 . 168 . 1 . 120 [100] 502	③ © 第 ず む MODBUS
K Sevices POUs				

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.



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)

ModbusChannel		\times
Channel Name	Channel 0	
Access type	Read Coils (Function Code 1)	
Trigger	Cyclic ~ Cycle time (ms) 100	
Comment		
READ Register		
Offset	0 ~	
Length	48	
Error handling	Keep last Value V	
WRITE Register		
Offset	×	
Length	1	
	<u>O</u> K <u>C</u> ancel	

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.

ModbusChannel		×
Channel Name	Channel 1	
Access type	Write Multiple Registers (Function Code 16)	
Trigger	Cyclic ~ Cycle time (ms) 100	
Comment		
READ Register		
Offset	×	
Length	1	
Error handling	Keep last Value \sim	
WRITE Register		
Offset	12288 ~	
Length	3	
	<u>O</u> K <u>C</u> ancel	

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.

ModbusChannel		\times
Channel		
Name	Channel 2	
Access type	Read Holding Registers (Function Code 3) \sim	
Trigger	Cyclic ~ Cycle time (ms) 100	
Comment		
READ Register		
Offset	0x0000 ~	
Length	16	
Error handling	Keep last Value 🗸	
WRITE Register		
Offset	0x0000 ~	
Length	1	
	<u>O</u> K <u>C</u> ancel	

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.

	Device Ethernet		Modbus_TC	P_Slave X					
Device (CODESYS Control Win V3 x64) Device (CODESYS Control Win V3 x64)	General Modbus Slave Channel	0	Name Channel 0 Channel 1	Access Type Read Colls (Function Code 01)	Trigger Cyclic, t#100ms	READ Offset 16#0000	Length 48	Error Handling Keep last Value	WRITE Offse
G Application	Modbus Slave Init	2	Channel 2	Read Holding Registers (Function Code 13)	Cyclic, t#100ms	16#0000	16	Keep last Value	10#3000
PLC_PRG (PRG)	ModbusTCPSlave Parameters								
HainTask (IEC-Tasks)	ModbusTCPSlave I/O Mapping								
Ethernet (Ethernet)	ModbusTCPSlave IEC Objects								
Modbus_TCP_Master (Modbus TCP Master) Modbus_TCP_Slave (Modbus TCP Slave)	Status								
	Information								

8、 IO verification

 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.

General	Find		Filter Show a	11		• 🕆 Ac	d FB for IO Channel
Andhus Slave Channel	Variable	Mapping	Channel	Address	Туре	Unit	Description
	🖷 ᡟ		Channel 0	%IB0	ARRAY [05] OF BYTE		Read Coils
lodbus Slave Init			Channel 1	%QW0	ARRAY [02] OF WORD		Write Multiple Registers
ModbusTCPSlave Parameters	🖻 - 🦄		Channel 2	%IW3	ARRAY [015] OF WORD		Read Holding Registers
loubus rensiave nataliteters							
1odbusTCPSlave I/O Mapping							
ledbueTCDSlave IEC Objects							
IOUDUS ICPSIAVE IEC ODJECIS							
tatus							
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formation							
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nformation							

- 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.

Multiple Download	×
Please <u>s</u> elect the items to be downloaded	
Device: Application	
Online change options If the application in the project differs from the application already present on the PLC, then behave as follows:	
○ Iry to perform an online change. If this is not possible, perform a full download.	
Eorce an online change. If this is not possible, cancel the operation	
● <u>A</u> lways perform a full download	
If an application is not yet present on the PLC, a full download is always performed.	,
Additional operations	
Delete all applications on the PLC which are not part of the project.	
✓ Start all applications after download or online change.	
☑ Do not <u>r</u> elease forced variables.	
OK Cancel	

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.

Find		Filter Show a	I	-		
Variable	Mapping	Channel Channel 0	Address %IB0	Type ARRAY [05] OF BYTE	Current Value	Pri /
		Channel 1	%QW0	ARRAY [02] OF WORD		
🖨 🍢		Channel 1[0]	%QW0	WORD	3	
		Bit0	%QX0.0	BOOL	TRUE	
**		Bit1	%QX0.1	BOOL	TRUE	
*		Bit2	%QX0.2	BOOL	FALSE	
* ø		Bit3	%QX0.3	BOOL	FALSE	
* ø		Bit4	%QX0.4	BOOL	FALSE	
* ø		Bit5	%QX0.5	BOOL	FALSE	
· · · · · · · · · · · · · · · · · ·		Bit6	%QX0.6	BOOL	FALSE	
* ø		Bit7	%QX0.7	BOOL	FALSE	
*		Bit8	%QX1.0	BOOL	FALSE	
- *		Bit9	%QX1.1	BOOL	FALSE	
* ø		Bit10	%QX1.2	BOOL	FALSE	
* ø		Bit11	%QX1.3	BOOL	FALSE	
*		Bit12	%QX1.4	BOOL	FALSE	
* ø		Bit13	%QX1.5	BOOL	FALSE	
*		Rit14	%OX1.6	BOOL	FALSE	
	Variable → 10	Variable Mapping □ -*•	Find Filter Show a Variable Mapping Channel Image: Apping Channel 1 Image: Apping State Image: Apping State <td< td=""><td>Variable Mapping Channel Address Image: Market Stress of the stress of the</td><td>Variable Mapping Channel Address Type Image: Show all Mapping Channel Address Type Image: Show all Mapping Channel Address Type Image: Show all Mapping Channel 94180 ARRAY [05] OF BYTE Image: Show all Channel 1 %4000 ARRAY [02] OF WORD Image: Show all Mapping Channel 1[0] %4000 WORD Image: Show all Mapping Channel 1[0] %4000 BOOL Image: Show all Mapping Show all BOOL BIt3 %6001 BOOL Image: Show all Image: Show all Mapping Show all Show all<td>Variable Mapping Channel Address Type Current Value - 10 Channel %480 ARRAY [0,.5] OF BYTE Current Value - 10 Channel 1 %6W0 ARRAY [0,.2] OF WORD 3 - 10 Bit0 %6W0 WORD 3 - 10 Bit0 %6W0.0 BOOL TRUE - 10 Bit1 %6QX0.0 BOOL TRUE - 10 Bit1 %6QX0.1 BOOL TRUE - 10 Bit1 %6QX0.2 BOOL FALSE - 10 Bit1 %6QX0.3 BOOL FALSE - 10 Bit3 %6QX0.4 BOOL FALSE - 10 Bit4 %6QX0.5 BOOL FALSE - 10 Bit5 %6QX0.6 BOOL FALSE - 10 Bit6 %6QX0.7 BOOL FALSE - 10 Bit7 %6QX0.7 BOOL FALSE - 10 Bit8 %6QX1.0 BOOL FAL</td></td></td<>	Variable Mapping Channel Address Image: Market Stress of the	Variable Mapping Channel Address Type Image: Show all Mapping Channel Address Type Image: Show all Mapping Channel Address Type Image: Show all Mapping Channel 94180 ARRAY [05] OF BYTE Image: Show all Channel 1 %4000 ARRAY [02] OF WORD Image: Show all Mapping Channel 1[0] %4000 WORD Image: Show all Mapping Channel 1[0] %4000 BOOL Image: Show all Mapping Show all BOOL BIt3 %6001 BOOL Image: Show all Image: Show all Mapping Show all Show all <td>Variable Mapping Channel Address Type Current Value - 10 Channel %480 ARRAY [0,.5] OF BYTE Current Value - 10 Channel 1 %6W0 ARRAY [0,.2] OF WORD 3 - 10 Bit0 %6W0 WORD 3 - 10 Bit0 %6W0.0 BOOL TRUE - 10 Bit1 %6QX0.0 BOOL TRUE - 10 Bit1 %6QX0.1 BOOL TRUE - 10 Bit1 %6QX0.2 BOOL FALSE - 10 Bit1 %6QX0.3 BOOL FALSE - 10 Bit3 %6QX0.4 BOOL FALSE - 10 Bit4 %6QX0.5 BOOL FALSE - 10 Bit5 %6QX0.6 BOOL FALSE - 10 Bit6 %6QX0.7 BOOL FALSE - 10 Bit7 %6QX0.7 BOOL FALSE - 10 Bit8 %6QX1.0 BOOL FAL</td>	Variable Mapping Channel Address Type Current Value - 10 Channel %480 ARRAY [0,.5] OF BYTE Current Value - 10 Channel 1 %6W0 ARRAY [0,.2] OF WORD 3 - 10 Bit0 %6W0 WORD 3 - 10 Bit0 %6W0.0 BOOL TRUE - 10 Bit1 %6QX0.0 BOOL TRUE - 10 Bit1 %6QX0.1 BOOL TRUE - 10 Bit1 %6QX0.2 BOOL FALSE - 10 Bit1 %6QX0.3 BOOL FALSE - 10 Bit3 %6QX0.4 BOOL FALSE - 10 Bit4 %6QX0.5 BOOL FALSE - 10 Bit5 %6QX0.6 BOOL FALSE - 10 Bit6 %6QX0.7 BOOL FALSE - 10 Bit7 %6QX0.7 BOOL FALSE - 10 Bit8 %6QX1.0 BOOL FAL

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.

General	Find		Filter Show all			•		
Modbus Slave Channel	Variable	Mapping	Channel	Address	Туре	Current Value	P	
	🗐 – 🧤		Channel 0	%IB0	ARRAY [05] OF BYTE			
Modbus Slave Init			Channel 1	%QW0	ARRAY [02] OF WORD			
ModbusTCPSlave Parameters	🚊 - 🧤		Channel 2	%IW3	ARRAY [015] OF WORD			
	🚊 🦄		Channel 2[0]	%IW3	WORD	0		
ModbusTCPSlave I/O Mapping	🖷 🍫		Channel 2[1]	%IW4	WORD	0		
	😐 🍫		Channel 2[2]	%IW5	WORD	0		
odbusTCPSlave IEC Objects	🗎 - 🦄		Channel 2[3]	%IW6	WORD	0		
Status	۰۰۰ 🍫		Channel 2[4]	%IW7	WORD	0		
	😟 🦄		Channel 2[5]	%IW8	WORD	0		
Information	🗄 🧤		Channel 2[6]	%IW9	WORD	0		
	😟 🐳		Channel 2[7]	%IW10	WORD	0		
	🗄 🧤		Channel 2[8]	%IW11	WORD	0		
	🛶 🖷 🖷 🦄		Channel 2[9]	%IW12	WORD	0		
	🗄 🍫		Channel 2[10]	%IW13	WORD	0		
	😟 🦄		Channel 2[11]	%IW14	WORD	0		
	🗄 🐐		Channel 2[12]	%IW15	WORD	0		
	😟 🦄		Channel 2[13]	%IW16	WORD	0		
	ii		Channel 2[14]	%TW17	WORD	0	>	
							-	

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 <u>5 Installation and Disassembly</u> and <u>6 Wiring</u> 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. Module connection

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

함 Modbus Poll - Mbpoll1			×
<u>File Edit Connection Setup Functions Display View Window H</u> elp			
🗋 🗅 😂 🖬 🎒 🗙 🔚 🗒 🛄 💷 05 06 15 16 22 23 101 💡 🕅			
Mbpoll1			
Tx = 0: Err = 0: ID = 1: F = 03: SR = 1000ms			
No Connection			
For Help, press F1.	Port 1: 96	500-8-E-	L
	10111.50	000 0-L-	

- 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.

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.

ឃ្មុំ Modbus Poll - Mbpoll1	_		×
<u>File Edit</u> <u>Connection</u> <u>Setup</u> F <u>unctions</u> <u>Display</u> <u>View</u> <u>W</u> indow <u>H</u> elp			
🗅 😂 🖬 Connect F3 06 15 16 22 23 101 💡 🌾			
Disconnect F4			
Tx = 0: E Auto Connect > D0ms			
No Connect F5			
Connection Setup X Connection 0K Serial Port TCP/IP Port 1 Mode Port 1 Mode Serial Port Cancel Port 1 Mode Port 1 Mode Port 1 Mode Port 1 Mode Port 1 Port 1 Serial Port 1000 [ms] Even Parity Delay Between Polls I Stop Bit 10 [ms] Advanced Port Paddress Port 192 1681.120 502			
Connect	Port 1: 9	9600-8-E·	-1 .::

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

Βų	Modbus Poll - Mb	poll1		_		×
<u>F</u> ile	<u>E</u> dit <u>C</u> onnectio	n <u>S</u> etup F <u>u</u> nctio	ns <u>D</u> isplay <u>V</u> iew <u>W</u> indow <u>H</u> elp			
	🖻 🖬 🎒 🗙	미보회사	D5 06 15 16 22 23 101 😵 🕅			
	Mbpoll1					
T	x = 3: Err = 0: ID =	= 1: F = 03: SR = 1	1000ms			
	Alias	00000				
	0	-9999				
1	1	-9999				
2	2	-9999				
3	3	-9999				
4	1	-9999				
5	5	-9999				
6	5	-9999				
7	7	-9999				
8	3	0				
9	9	0				
For	Help, press F1.			192.168.1	.120: 50	2 .:

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.

Edit Connection Setup Functions Display View Window Help Image: Connection Setup Functions Display View Window Help Image: Connection Setup Functions Display View Window Help Image: Connection Setup Functions Display View Window Help Image: Connection Setup Functions Provide Finition Provide Finition Alias O00000 Image: Open Setup Function Setup Function F8 Connection Setup Function F8 Connection Setup Function F8 Connection Setup Function F8 Connection Setup Function F8 Setup Function Setup Function	Modbus Poll	- Mbpoll1						_		×
Image: Second	ile <u>E</u> dit <u>C</u> onn	nection Set	up Functions	<u>D</u> isplay <u>V</u> iew <u>W</u> indow	Help					
Alias 00000 Alias 00000 -9999 -9999 Cut Ctrl+X -9999 Cut Copy Ctrl+X -9999 Paste Cul Ctrl+X -9999 Select All Cut Ctrl+A -9999 Foreground Color Ctrl+B Font) 📽 🖬 🚳	× 🗆 🗄	(白) L 05	5 OG 15 16 22 23 101 '	? N ?					
Alias 00000 -9999 -9999 -9999 Cut -9999 Cut -9999 Copy Copy Ctrl+X -9999 Paste -9999 Select All -9999 Foreground Color -9999 Background Color -9999 Copy -9999 Foreground Color -9999 Foreground Color -9999 Background Color -9999 Color -9999 Foreground Color -9999 Foreground Color -9999 Background Color -9999 Color -9999 Foreground Color -9999 Background Color -0 -0	D Mbpoll1						-			
Alias 00000 -9999 Read/write Definition F8 -9999 Cut Ctrl+X -9999 Cut Ctrl+X -9999 Copy Ctrl+X -9999 Select All Ctrl+X -9999 Select All Ctrl+A -9999 Background Color Ctrl+B -9999 -9999 Foreground Color -9999 -9999 Select All	Tx = 289: Err =	= 0: ID = 1: I	F = 03: SR =	1000ms			_			
Alias 00000 -9999 -9999 -9999 Cut -9999 Cut -9999 Copy Copy Ctrl+X -9999 Copy -9999 Select All -9999 Foreground Color -9999 Background Color -9999 -9999 -9999 Fort							-1			
0 19999 0 -9999 1 -9999 1 -9999 1 -9999 1 -9999 1 -9999 1 -9999 2 -9999 2 -9999 2 -9999 2 -9999 2 -9999 3 -9999 3 Select All 4 -9999 5 Select All 6 -9999 8 Select All Chrl+F -9999 8 Sekground Color Ctrl+B -900		Alias	00000							
	0		-9999							
1 -9999 Cut Ctrl+X 2 -9999 Copy Ctrl+C 1 -9999 Paste Ctrl+V 2 -9999 Select All Ctrl+A 3 -9999 Foreground Color Ctrl+F 4 -9999 Background Color Ctrl+B 5 -9999 Foreground Color Ctrl+B 6 -9999 Background Color Ctrl+B 7 -0	1		-9999	Read/write Definition	F8					
9999 Copy Ctrl+C 9999 Paste Ctrl+V 9999 Select All Ctrl+A	2		-9999	Cut	Ctrl+X					
I	3		-9999	Сору	Ctrl+C					
	4		-9999	Paste	Ctrl+V					
	5		-9999	Select All	Ctrl+A					
	6		-9999	Foreground Color	Ctrl+F					
Font	7		-9999	Background Color	Ctrl+B					
	8		0	Font						
	9		0							
	-						_			
	Help, press Fl	1.						192.168.1	.120: 50	12

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.

웹 Modbus Poli - Mbpoli1			×
File Edit Connection Setup Functions Display View Window Help			
🗅 🖙 🖬 🎒 🗙 📋 🗒 🖳 05 06 15 16 22 23 101 💡 🕅			
Alias 00000 0 -9999 1 -9999 2 -9999 3 -9999 4 -9999 4 -9999			
5 -9999 6 -9999 7 -9999 8 0 9 0 Image: Signed with the set of th			
For Help, press F1.	192.168.1.	120: 50	2

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.

	Alias	00000	Alias	00010	Alias	00020	Alias	00030	Alias	0004
0	XB6-3200A	0		0		0		0		
1		0		0		0		0		
2		0		0		0	XB6-1616A	0		
		0		0		0		1		
		0		0		0		0		
		0		0		0		0		
		0		0		0		0		
		0		0		0		0		
		0		0		0		0		
		0		0		0		0		

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.

햅 Modbus Poll - Mbpoll4	- 🗆 X
<u>File Edit Connection Setup Functions Display View M</u>	<u>M</u> indow <u>H</u> elp
D 🗃 🖬 🚭 🗙 🛅 🖳 🚊 🕮 05 06 15 16 22 23	101 💡 🎀
Mbpoll4	
Tx = 41: Err = 0: ID = 1: F = 03: SR = 1000ms	
	Read/Write Definition
. Alias 00000	
0 -9999	Slave ID: 1 OK
1 -9999	Function: 03 Read Holding Registers (4x) V Cancel
2 -9999	Address: 20480
. 3 -9999	Quantity: 3
4 -9999	Scan Rate: 1 ms
5 -9999	Read/Write Enabled
6 -9999	View
7 -9999	
8 0	
9 0	
For Help, press F1.	192 168 1 120- 502
ror neip, press F1.	192.168.1.120: 502

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.

월 Modbus Poll	- Mbpoll4						-		×
<u>File Edit Conr</u>	nection <u>S</u> etup F <u>i</u>	inctions <u>D</u> isplay	<u>V</u> iew <u>W</u> indow <u>H</u> elp						
🗅 📽 🖬 🎒	× 🗂 🗏 🌲	几 05 06 15 16	22 23 101 🤋 📢						
🗒 МЬ	poll4						×		
Tx = 1	110: Err = 0: ID =	1: F = 03: SR = 1	ns						
	Alias	20480							
0	XB6-3200A	0x0000							
1		0x0000							
2	XB6-1616A	0x0002							
3									
4									
5									
6									
7									
8									
9									
Mbpoll1	đ	Mbpoll3							
For Help, press F	1.	·					192.168	.1.120: 50	2 .:

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.

Modbus Poli - Mbpoli3 - Elle Edit Connection Setup Functions Display View Window Help	1 ×
Image: Contract of the state of the sta	
For Help, press F1. 192.168.1.120:	: 502

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.

붭 Mod	bus Poll - Mbpoll	3								- 0	×
<u>File Ed</u>	t <u>C</u> onnection	Setup Functions Di	splay <u>V</u> iew <u>V</u>	<u>V</u> indow <u>H</u> elp							
		<u> <u>⊒</u> 1L 05 06</u>	15 16 22 23	101 🦉 👫						_	_
	Ibpoll3										
Tx =	7149: Err = 0: II	D = 1: F = 15: SR = 1	lms								
	Alias	00000	Alias	00010	Alias	00020	Alias	00030	Alias	į	00040
0	XB6-0032A	1		0		0		0			0
1		1		0		0		0			0
2		1		0		0	XB6-1616A	1			0
3		1		0		0		1			0
4		1		0		0		1			0
5		1		0		0		1			0
6		1		0		0		1			0
7		1		0		0		1			0
8		0		0		0		1			
9		0		0		0		1			
Mbp	oll1										
For Help	press F1.								102	168.1.120	502

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.

함 Modbus Poll - Mbpoll5	-		×
Eile Edit Connection Setup Functions Display View Window Help			
D 🕼 🖬 🎒 🗙 📋 🗒 🗒 05 06 15 16 22 23 101 💡 😡			
	8		
Tx = 56: Err = 0: ID = 1: F = 03: SR = 1000ms			
Read/Write Definition X	_		
Alias 00000	-		
0 -9999 Slave Dir 1 UK			
1			
2			
3			
4			
5			
o			
7			
B Display: Hex Display: Hex			
	<u> </u>		
For Help, press F1.	2.168.1	120: 502	2

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.

Alias 12280 Alias 12290 XB6-1616A 0x0F00 Image: Second S	Alias 12280 Alias 12290 XB6-1616A 0x0F00 0x0F00 Image: Second Secon						
XB6-1616A 0x0F00	XB6-1616A 0x0F00		12290	Alias	12280	Alias	
			0x0F00	XB6-1616A			0
							1
							2
							3
							4
							5
							6
							7
XB6-0032A 0xFFF	36-0032A 0xFFFF				0xFFFF	XB6-0032A	8
0vD8F1	0xD8F1				0xD8F1		9
XB6-0032A 0xFFFF	36-0032A 0xFFF 0xD8F1				0xFFFF 0xD8F1	XB6-0032A	
	0xD8F1				0xD8F1	NDO OODER	
					0,000,1		9

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

Nodbus Poll - Mbpoll6 -		\times
File <u>Edit</u> <u>Connection</u> <u>Setup</u> <u>Functions</u> <u>Display</u> <u>Window</u> <u>Help</u>		
D 🛱 🗟 🖶 🗶 📋 🖳 🗒 10. 05 06 15 16 22 23 101 💈 😡		
Image: Mbpoll6 Image: State Stat		
Alias 00000 0 -9999 Read/Write Definition X		
1 -9999 Slave ID: 1 OK 2 -9999 Function: 04 Read Input Registers (3x) Cancel		
3 3 3 4 100 4 100 4 100 4 100 4 100 5 100 5 100 5 100 <td></td> <td></td>		
6 -9999 7 -9999 Rows Hide Alias Columns		
8 0 9 0 Display: Hex		
Image: Monopolity Image: Monopolity Image: Monopolity Image: Monopolity Image: Monopolity For Help, press F1. 192.16	8.1.120: 50	2

I. 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.

No.	bus Pr	oll - Mbpoll6						_	п	×
File Fd	it Co	nnection Setup I	Functions Display	View Window	Help					~
			L. 05 06 15 1	6 22 23 101	? № ?					
			- 1							
	🕎 N	1bpoll6						×		
	Tx =	2088: Err = 0: ID	= 1: F = 04: SR = 1	ms						
•										
	-	Alias	00000	Alias	00010					
	0	XB6-A80TM	0xD8F1		0x0000					
	1		0xD8F1		0x0000					
	2		0xD8F1		0x0000					
	3		0xD8F1		0x0000					
	4		0xD8F1		0x0000					
	5		0xD8F1		0x0000					
	6		0xD8F1							
	/ 	XDC 4001	0xD8F1							
	8	XB0- A801	0x0000							
	9		0x0000							
	L .									
	L .									
	L									
L										
Mbp	oll1	ø	Mbpoll3	ð	n 🖾 🛄 WF	poll4	Mbpoll5			
For Help,	press	F1.						92.168	1.120: 50)2 .:

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.

Modbus Poll - Mbpoll7 -		×
File Edit Connection Setup Functions Display View Window Help		
Image: Second		
Alias 00030 Read/Write Definition X 0 II IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII		
For Help, press F1. 192.10	3.1.120: 5	02

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.

Nodbus	s Poll - Mbpoll7									-		×
<u>F</u> ile <u>E</u> dit	<u>Connection</u> <u>Setup</u>	Functions <u>D</u> isplay	<u>V</u> iew <u>W</u> indow	w <u>H</u> elp								
🗅 🖻 🖪		〕 几 05 06 15 16	22 23 101	१ №								
	🛒 Mbpoll7											
	1x = 971: Err = 0: 1L) = 1: F = 16: SR = 1i	ns									
	Alias	00000	Alias	00010								
	0 XB6-A80TM	0xFFFF		0x0000								
	1	0x0000		0x0000								
	2	0x0000		0x0000								
	3	0x0000		0x0000								
	4	0x0000		0x0000								
	5	0x0000		0x0000								
	6	0x0000										
	7	0x0000										
	8 XB6- A08I	0xFFFF										
	9	0x0000										
Mbpoll6												
Mbpoll1		Mbpoll3	đ		1bpoll4	ø	• 🔀	Mbpoll5		X		
For Help, pre	ess F1.									192.168	1.120: 50	02