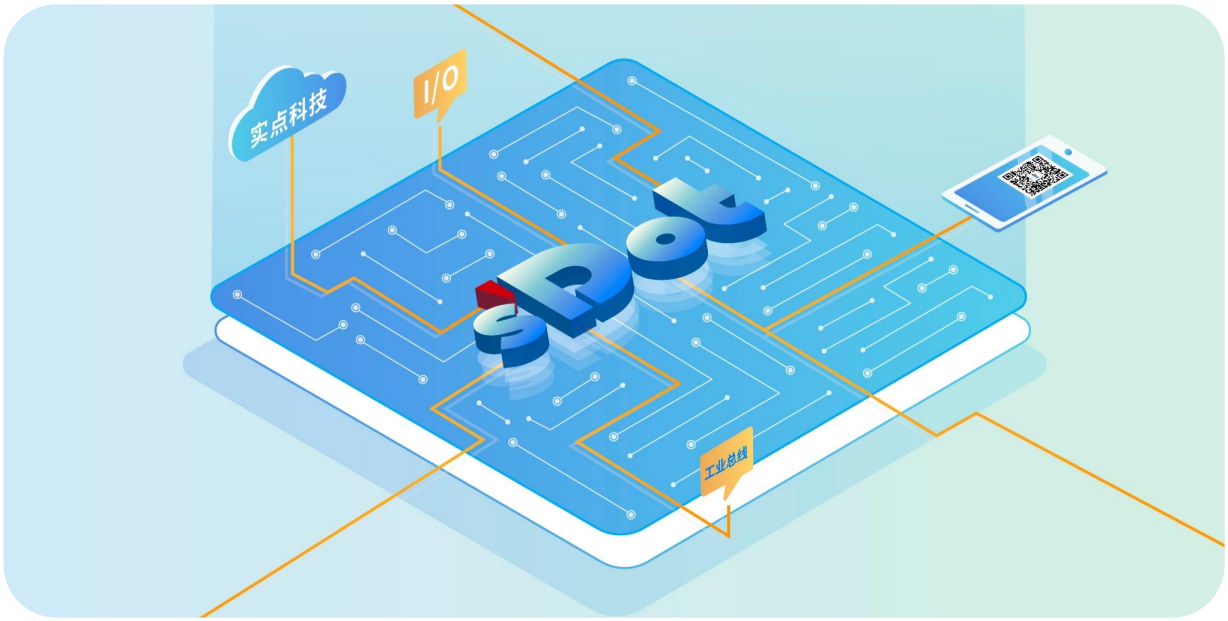

CC-Link

XB6S Series Slice I/O

User Manual

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Table of contents

1 Product Overview

1.1 Product Introduction

XB6S series slice I/O modules adopt the structure of a combination of couplers and I/O modules. The coupler connects the expandable I/O modules to the real-time industrial Ethernet system. The backplane adopts the X-bus bus, and the coupler module is responsible for fieldbus communication, thus realizing the function of real-time data exchange between various I/O modules and couplers/controllers.

The XB6S series slice I/O modules are rich in variety and have high real-time performance, providing users with guarantees for high-speed data acquisition, optimized system configuration, simplified on-site wiring, and improved system reliability.

1.2 Product Features

- **Occupies fewer nodes**
  A node consists of a bus coupler, 1 to 32 XB6S series I/O modules, 1 to 32 XBF series expansion I/O modules, and a end cap.
- **Rich functional expansion**
  It supports flexible expansion and has a full range of I/O types. It can integrate a variety of digital modules, analog modules, and temperature modules to meet the needs of different application scenarios.
- **Flexible configuration**
  Various types of slice I/O modules can be combined arbitrarily.
- **Strong compatibility**
  The coupler communication interface complies with communication standards and supports mainstream CC-Link master stations.
- **Small size**
  Compact structure and small space occupation.
- **Easy diagnosis**
  The indicator lights are fully designed, the module status is clear at a glance, and detection and maintenance are convenient.

- **Fast speed**
  The backplane uses X-bus bus: the minimum scanning cycle is 200us and the typical value is 1ms.
- **Easy to install**
  DIN 35 mm standard rail installation. Spring-type wiring terminals are used, making wiring convenient and fast.

1.3 Application

The coupler module is connected to the controller at the application site, and the I/O module is responsible for connecting to the input and output sensors at the application site. The general process of data collection and processing control is as follows:

a. The input I/O module collects various signals on site and sends them to the coupler via the internal bus;
b. The controller reads and processes the data from the coupler via the fieldbus or industrial Ethernet, and then writes the output data into the coupler;
c. The coupler then writes the output data to the output I/O module through the internal bus, thereby realizing the control of the device.

The expandable I/O modules include digital input module, digital output module, digital input and output module, analog input module, analog output module, temperature module, etc.

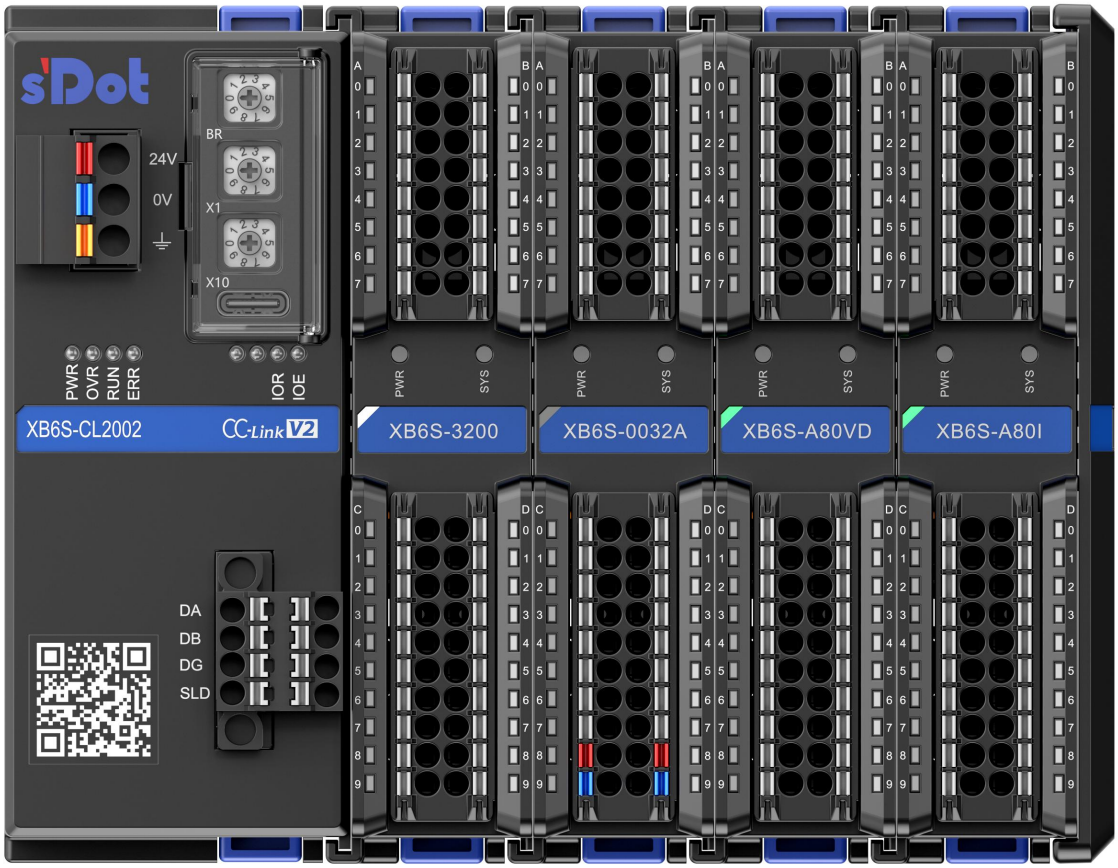
Application: The application method adopts the combination of modules such as coupler, digital quantity, analog quantity, temperature, and extended power supply.

Application configuration: According to the requirements of master station access capability, number of sites, I/O points, function type, etc., it can adapt to different types of I/O module combination configurations.

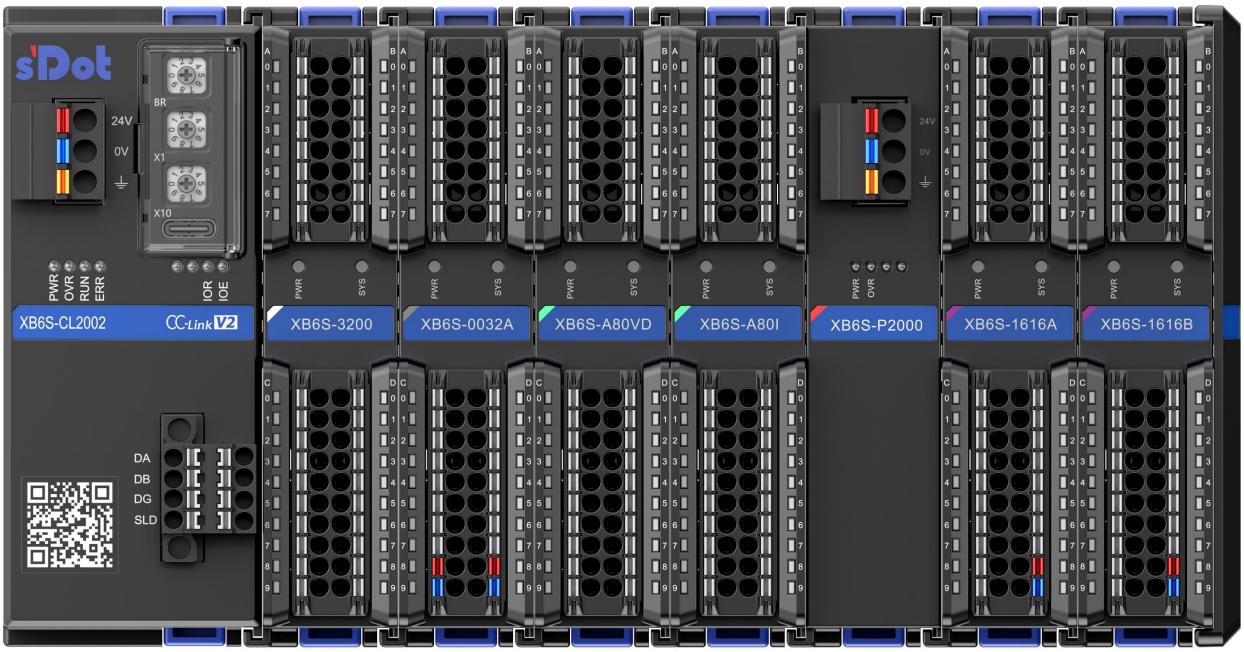
Configuration rules: The modules from left to right are coupler module, power module, I/O module, end cap (mandatory), etc.

The product adopts the application mode of the combination of coupler, I/O module and end cap, and there are two combinations as follows.

Product combination 1 (coupler module, I/O module, end cap)



Product combination 2 (coupler module, I/O module, expansion power module, I/O module, end cap)



2 Naming convention

2.1 Naming convention

2.1.1 Coupler naming convention

XB 6 S - CL 20 02
(1) (2)(3) (4) (5) (6)

Serial number	Meaning	Value Description
(1)	Bus Type	XB: X-bus
(2)	Product range	6: Insert type
(3)	Product Version	S is for Strengthen, an upgraded version
(4)	Bus protocol	EC: EtherCAT PN: PROFINET EI: EtherNet/IP CB：CC-Link IE Field Basic CL: CC-Link MT：Modbus TCP
(5)	Power	20:2A
(6)	Number of interfaces	02: Dual bus interface

2.1.2 I/O module naming convention

XB 6 S - A 8 0 V

(1) (2)(3) (4) (5)(6)(7)

Serial number	Meaning	Value Description					
(1)	Bus Type	XB: X-bus					
(2)	Product range	6: slice type					
(3)	Product Version	S is for Strengthen, an upgraded version					
(4)	I/O module types	A: Analog Default: Digital					
(5)	Input signal points	Analog: 0, 4, 8 Digital: 00, 08, 16, 32					
(6)	Output signal points	Analog: 0, 4, 8 Digital: 00, 08, 16, 32					
(7)	Input and output characteristics	**Digital**				**Analog**	
		coding	enter	Output	Connector Type	coding	illustrate
		A	NPN/PNP compatible	NPN	/	V	Single-ended signal, adjustable range: Disable, -10V~+10V, 0V~10V, -5V~+5V, 0V~5V, 1V~5V
		B		PNP	/		
		N		/	MIL Connectors	VD	Differential signal, adjustable range: Disable, -10V~+10V, 0V~10V, -5V~+5V, 0V~5V, 1V~5V
		AN		NPN			
		BN		PNP			
		Default	NPN/PNP compatible	/		I	Single-ended signal, adjustable range: Disable, 4mA~20mA, 0mA~20mA
		J	/	Relay		ID	Differential signal,

						adjustable range: Disable, 4mA~20mA, 0mA~20mA, -20mA~+20mA
					TM	Temperature collection of thermal resistors, thermocouples, etc.

2.2 Module List

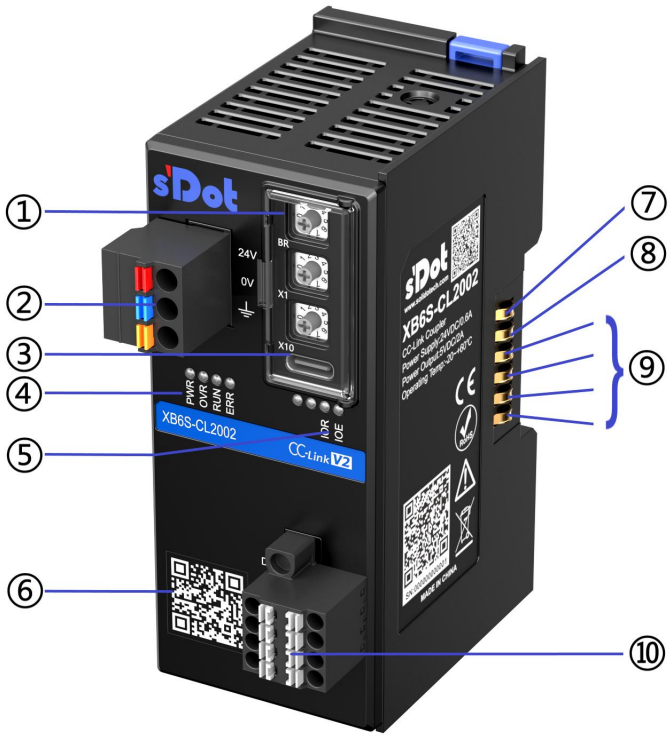
Model	Product Description	
XB6S-CL2002	CC-Link bus coupler modules	
XB6S-3200	32-channel digital input module, input NPN/PNP compatible, input filter default 3ms	
XB6S-1600	16-channel digital input module, input NPN/PNP compatible, input filter default 3ms	
XB6S-0800	8-channel digital input module, input NPN/PNP compatible, input filter default 3ms	
XB6S-1616A	16-channel digital input and 16-channel digital output module Input NPN/PNP compatible, input filter default 3ms, output NPN type	
XB6S-1616B	16-channel digital input and 16-channel digital output module Input NPN/PNP compatible, input filter default 3ms, output PNP type	
XB6S-0032A	32-channel digital output module, output NPN type	
XB6S-0032B	32-channel digital output module, output PNP type	
XB6S-0016A	16-channel digital output module, output NPN type	
XB6S-0016B	16-channel digital output module, output PNP type	
XB6S-0008A	8-channel digital output module, output NPN type	
XB6S-0008B	8-channel digital output module, output PNP type	
XB6S-3200N	32-channel digital input module, input NPN/PNP compatible, input filter default 3ms, MIL connector type	
XB6S-0032AN	32-channel digital output module, output NPN type, MIL connector type	
XB6S-0032BN	32-channel digital output module, output PNP type, MIL connector type	
XB6S-0012J/6	12-channel relay output module (Note: the "/" in the model number can be omitted, that is, XB6S-0012J/6 and XB6S-0012J6 are the same module)	
XB6S-A80VD	8-channel analog voltage input module	Differential signal, adjustable range: Disable, -10V~+10V, 0V~10V, -5V~+5V, 0V~5V, 1V~5V
XB6S-A80V	8-channel analog voltage input module	Single-ended signal, adjustable range: Disable, -10V~+10V, 0V~10V, -5V~+5V, 0V~5V, 1V~5V
XB6S-A40VD	4-channel analog voltage input module	Differential signal, adjustable range: Disable, -10V~+10V, 0V~10V, -5V~+5V, 0V~5V, 1V~5V
XB6S-A40V	4-channel analog voltage input module	Single-ended signal, adjustable range: Disable, -10V~+10V, 0V~10V, -5V~+5V, 0V~5V, 1V~5V
XB6S-A80ID	8-channel analog current input module	Differential signal, adjustable range: Disable, 4mA~20mA, 0mA~20mA, -20mA~+20mA
XB6S-A80I	8-channel analog current input module	Single-ended signal, adjustable range: Disable, 4mA~20mA, 0mA~20mA
XB6S-A40ID	4-channel analog current input module	Differential signal, adjustable range: Disable, 4mA~20mA, 0mA~20mA, -20mA~+20mA
XB6S-A40I	4-channel analog current input module	Single-ended signal, adjustable range: Disable, 4mA~20mA, 0mA~20mA
XB6S-A08V	8-channel analog voltage output module	Single-ended signal, adjustable range: Disable, -10V~+10V, 0V~10V, -5V~+5V, 0V~5V, 1V~5V

XB6S-A04V	4-channel analog voltage output module	Single-ended signal, adjustable range: Disable, -10V~+10V, 0V~10V, -5V~+5V, 0V~5V, 1V~5V
XB6S-A08I	8-channel analog current output module	Single-ended signal, adjustable range: Disable, 4mA~20mA, 0mA~20mA
XB6S-A04I	4-channel analog current output module	Single-ended signal, adjustable range: Disable, 4mA~20mA, 0mA~20mA
XB6S-A80TM	8-channel thermal resistor and thermocouple temperature acquisition module (for module introduction, please refer to the official website module user manual)	
XB6S-A40TM	4-channel thermal resistor and thermocouple temperature acquisition module (for module introduction, please refer to the official website module user manual)	
XB6S-PL20	2-channel single-ended incremental encoder counting module (for module introduction, please refer to the official website module user manual)	
XB6S-PS20D	2-channel SSI absolute encoder counting module (for module introduction, please refer to the official website module user manual)	
XB6S-PL20D	2-channel differential incremental encoder counting module (for module introduction, please refer to the official website module user manual)	
XB6S-PC80	8-channel pulse counting module (For module introduction, please refer to the official website module user manual)	
XB6S-PT04A	4-channel PTO pulse output module (for module introduction, please refer to the official website module user manual)	
XB6S-C01SP	1-channel serial communication module (For module introduction, please refer to the official website module user manual)	
XB6S-P2000	Extension power module	
XB6S-C18_2	Common terminal expansion module	
XB6S-CVR00	End cap	

3 Module Introduction

3.1 CC-Link Coupler

3.1.1 Panel structure



Serial number	Name	Description
①	Rotary Switch	Set the transmission rate and station number (baud rate and address dial)
②	Power Terminal Blocks	3P spring-loaded terminal blocks
③	USB interface	Type-C type, used for parameter setting, device debugging,

		online upgrade, etc.
④	Module indicators and indicator light identification	Indicates the coupler power status and operating status
⑤	System Indicators and Indicator Light Labels	Indicates system operating status
⑥	Module QR code	Scan the code to get module related information
⑦	Power+	5V
⑧	power supply-	0V
⑨	X-bus communication signal	Communication signal
⑩	Bus interface	2×4P spring-loaded terminal blocks

3.1.2 Indicator light function

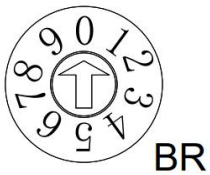
CC-Link coupler indicator light definition				
Marking	**Name**	**Color**	**Status**	**Status description**
PWR	Power indicator	Green	Always on	The module power supply is working properly
			Off	The module is not powered or the power supply is abnormal.
OVR	Overload indicator light	Red	Off	Not overloaded
			Always on	The load reaches more than 90% (±5%)
RUN	Operation status indicator	Green	Always on	The system is running normally
			Off	Abnormal operation (such as communication timeout), incorrect station number setting
ERR	System abnormality indicator	Red	Always on	There is an abnormality in the module operation (such as modifying parameters during operation; the transmission rate or station number setting exceeds the range; communication error, etc.)
			Flash	Changing the station number and transmission rate during operation
			Off	The module works fine
IOR	IO communication indicator	Green	Always on	Process data has been established
			Flashing 1Hz	No business data interaction
			Flashing 2.5Hz	The current process data length exceeds the maximum number of connection bytes
			Flashing 10Hz	Coupler firmware upgrade
IOE	IO abnormal indicator	Red	Always on	Communication abnormality
			Off	No abnormality in communication

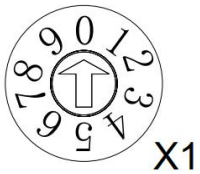
3.1.3 Rotary Switch

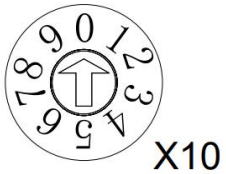
Rotary dial instructions

The XB6S-CL2002 coupler and I/O module combination structure is used as a remote device station in the CC-Link network. Its transmission rate and station number in the network must be set first.

The transmission rate and station number are set using a ten-digit rotary DIP switch, as shown in the following figure and table:







Logo	Meaning	Range	
BR	Transfer rate	Use a 10-position rotary switch, the setting values are: 0, 1, 2, 3, 4 corresponding to the transmission rate: 156 kbps, 625 kbps, 2.5 Mbps, 5 Mbps, 10 Mbps	
X1	Station number setting unit digit	Setting value: 0~9	The station number is set to 2 ten-digit rotary switches, and the station number is set to 1 to 64. X1 represents the low (ones) digit dial, and X10 represents the high (tens) digit dial. The station number = high digit × 10 + low digit.
X10	Station number set ten digits	Setting value: 0~6	

Transmission rate rotary dial setting diagram

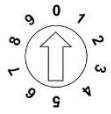
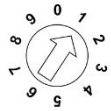
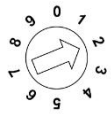
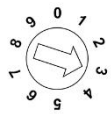
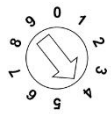
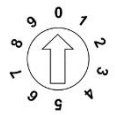
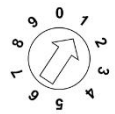
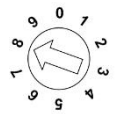
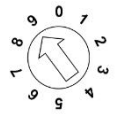
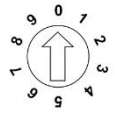
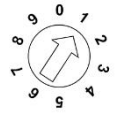
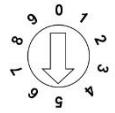
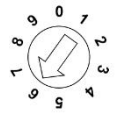
Transfer rate	Dial setting	Setting Value	Transfer rate
BR		0	156 kbps
		1	625 kbps
		2	2.5 Mbps
		3	5 Mbps
		4	10 Mbps

Diagram of station number rotary dial setting

Station number setting	Dial setting	Setting Value	Station number value
X1	Single-digit dialing code	0~9	×1
		0	0
		1	1
	⋮	⋮	⋮
		8	8
		9	9
X10	10-digit dialing code	0~6	×10
		0	0
		1	10
	⋮	⋮	⋮
		5	50
		6	60

Remark:

1、 **Please use a flat-blade rotary dial with an opening of 2mm.**

2、 **If you need to change the station number and transmission rate during the communication process, you must power on again after setting the new station number and transmission rate for the new settings to take effect.**

3、 **If the transmission rate and station number settings exceed the setting range, the module will have a communication error or fail to connect to the master station.**

3.1.4 Product Parameters

3.1.4.1 Interface parameters

CC-Link interface parameters					
Bus protocol	CC-Link				
Network Mode	Remote Network Ver.1 Mode/Ver.2 Mode				
Station Category	Remote Equipment Station				
Number of occupied stations	4 stations				
Data transmission medium	CC-Link dedicated cable (three-core shielded twisted wire)				
Transfer rate	Five speed settings: 10 Mbps / 5 Mbps / 2.5 Mbps / 625 kbps / 156 kbps				
Transmission distance	10 Mbps	5 Mbps	2.5 Mbps	625 kbps	156 kbps
	≤100 m	≤160 m	≤400 m	≤900 m	≤1200 m
Bus interface	2×4P spring-loaded terminal blocks				

3.1.4.2 Power parameters

Power parameters	
Input voltage	SELV Input 24VDC (18V~36V)
Input Current	Max: 600mA (24VDC)
Backplane supply current	Max: 2A
Backplane supply voltage	5VDC

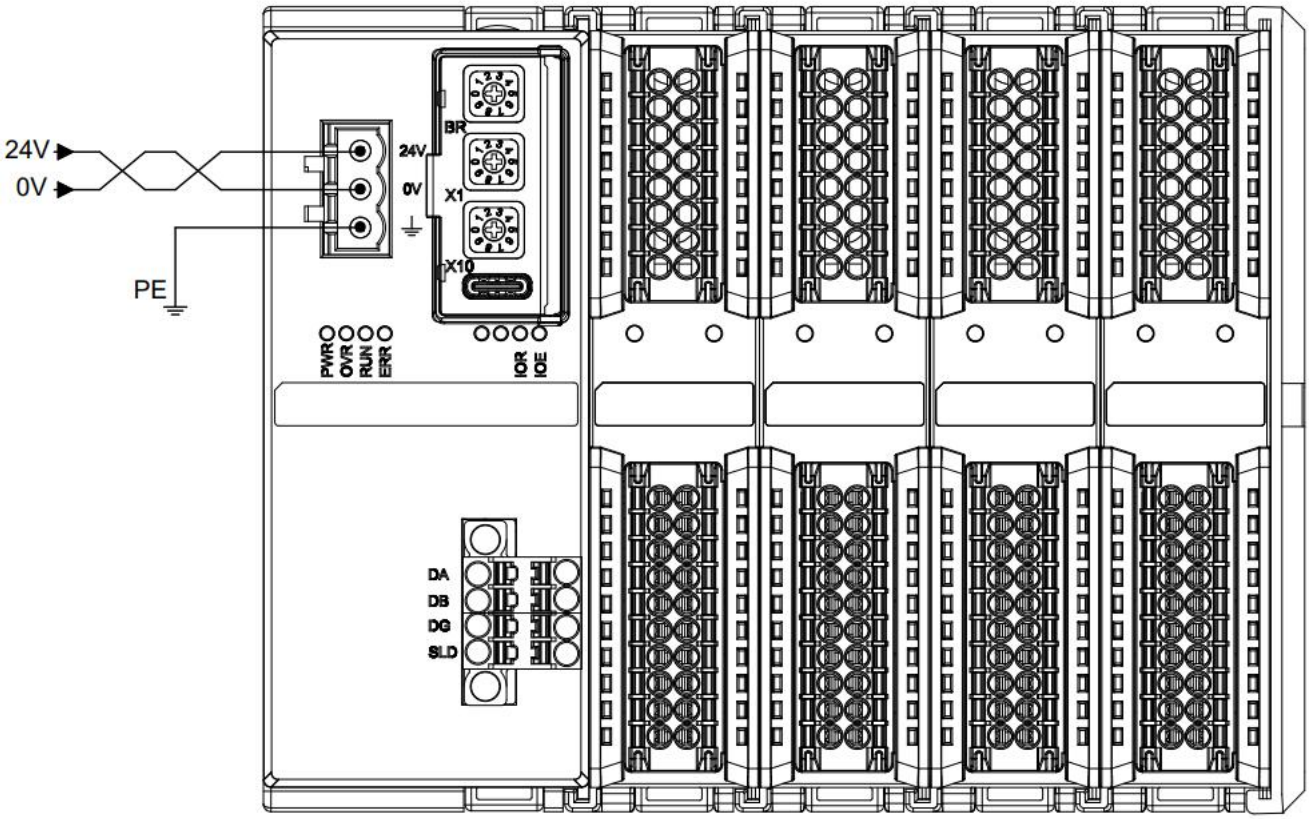
3.1.4.3 General parameters

General technical parameters		
Specifications and dimensions		106.4 × 43 × 61mm
Weight		155g
Usage Environment	Operating temperature	-20℃~+60℃
	Storage temperature	-40℃~+80℃
	Relative humidity	95%, non-condensing
	Altitude	≤2000m
	Vibration resistance	IEC 60068-2-6Sinusoidal vibration 5Hz~8.4Hz,3.5mm,8.4Hz~150Hz,1g X/Y/ZThree axial,10Cycle/Axial (100min)
	Impact resistance	IEC 60068-2-27Mechanical shock 150m/s2,11ms, ±X/Y/ZSix directions 3Second-rate/Direction, total18Second-rate
	Protection	IP20

	level	
	Overvoltage category	I
	Pollution degree	Level 2
Short circuit protection		Support (automatic recovery mechanism)
Reverse polarity protection		Support (automatic recovery mechanism)
Surge protection		support
Online Upgrade		support
diagnosis		support
Alerts		support

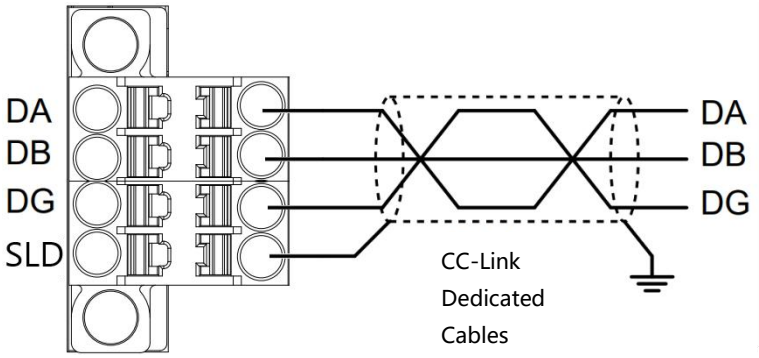
3.1.5 Power wiring diagram

Use a 24VDC power module and refer to the wiring method. Connect the power supply according to the circuit shown in the figure below, and ground PE reliably (twisted pair cable is recommended for the power cable).



3.1.6 Bus wiring

It is recommended to use CC-Link dedicated cable as bus cable. The bus line sequence is shown in the figure below.



☛ Precautions

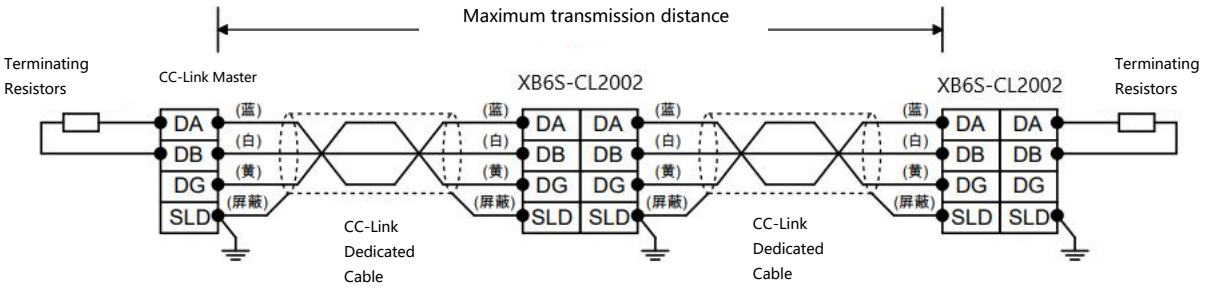
- The CC-Link dedicated cable, CC-Link dedicated high-performance cable, and CC-Link dedicated cable corresponding to Ver.1.10 cannot be used together. If used together, normal data transmission cannot be guaranteed.
- The order in which the cables are connected has nothing to do with the station numbers.
- Type D grounding (grounding resistance below 100Ω) should be performed.
- The units at both ends of the CC-Link network must be connected to terminal resistors. The terminal resistors should be connected between the [DA] and [DB] terminals.

Terminal resistors must be connected to the stations at both ends of the bus. The terminal resistors connected will vary depending on the cable used.

- When using a CC-Link dedicated cable or a CC-Link dedicated cable compatible with Ver.1.10: 110Ω 1/2W
- When using CC-Link dedicated high-performance cable: 130Ω 1/2W

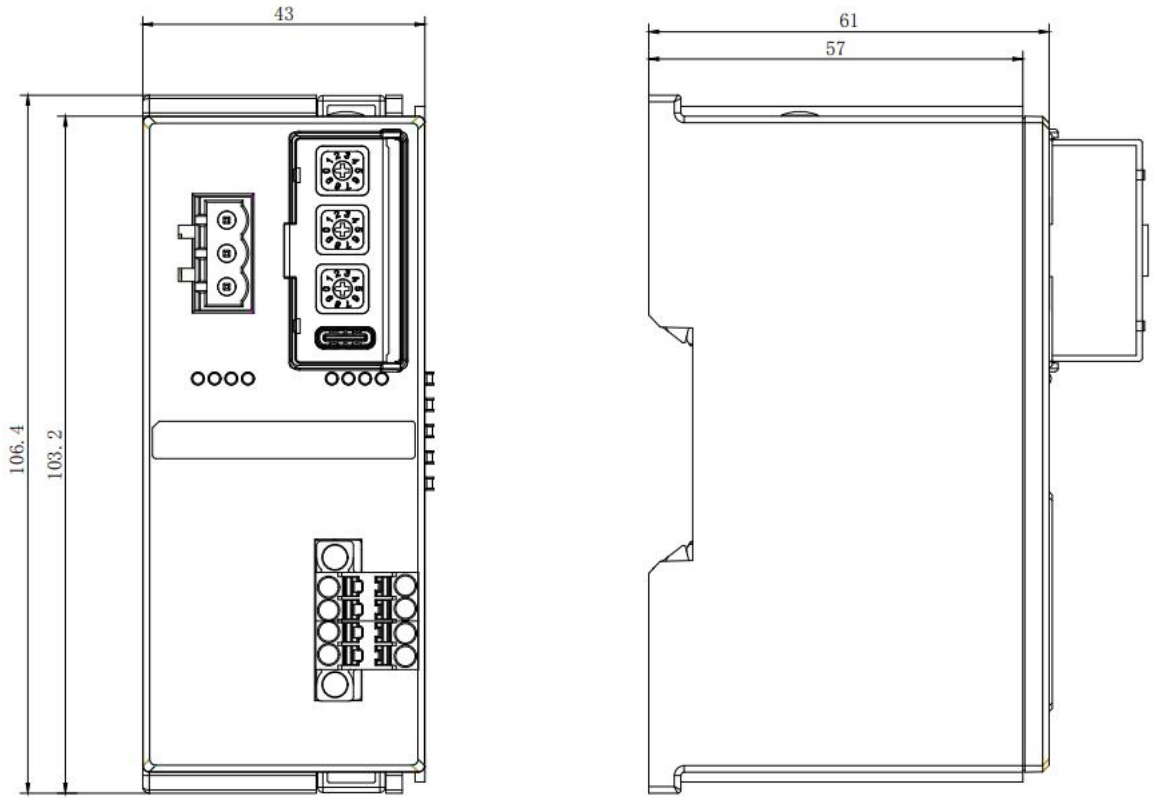
CC-Link Network Wiring Method

The wiring method is shown in the figure below. The maximum transmission distance of the CC-Link network and the distance between each station will vary depending on the transmission speed setting. For details, please refer to3.1.4 Product parameters.



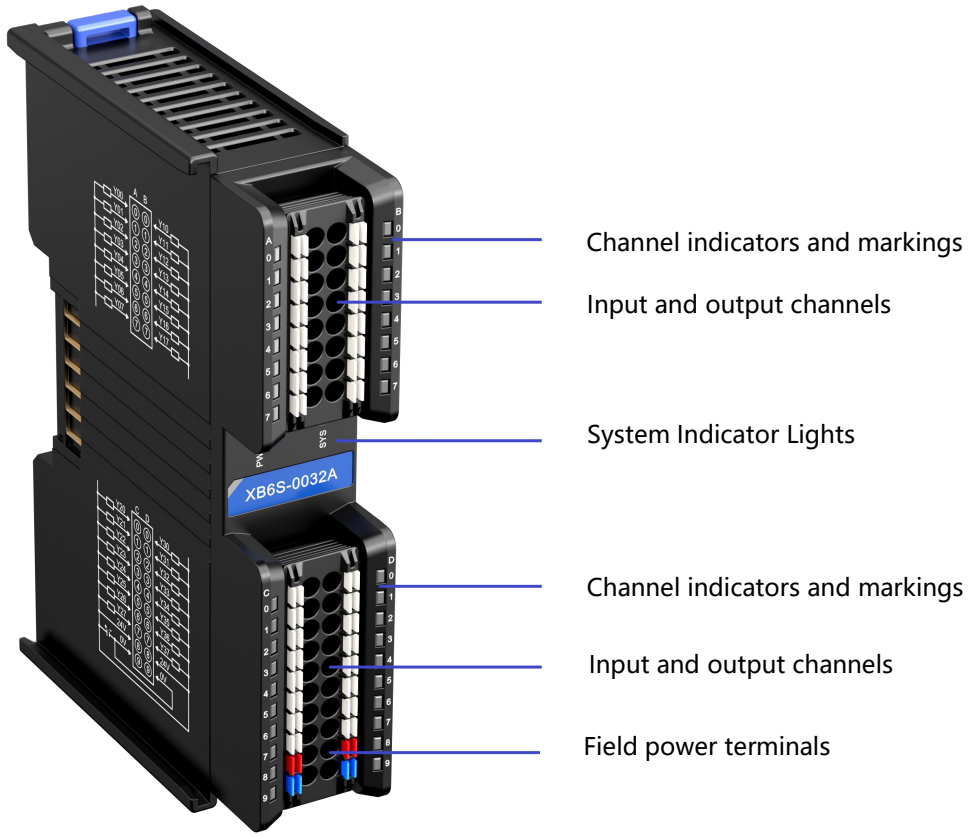
3.1.7 Dimensions

Coupler dimensions (unit mm)



3.2 Digital I/O Modules

3.2.1 Panel structure



3.2.2 Indicator light function

Digital I/O module indicator light definition				
Marking	**Name**	**Color**	**Status**	**Status description**
PWR	Power indicator	Green	Always on	Power supply is normal
			Off	The product is not powered on or the power supply is abnormal
SYS	Operation status indicator	Green	Always on	The system is running normally
			Flashing 1Hz	No business data interaction, waiting to establish business data interaction
			Flashing 10Hz	Firmware Upgrade
			Off	System not working
0~7	Input channel indicator	Green	Always on	The module channel has signal input
			Off	The module channel has no signal input or the signal input is abnormal
0~7	Output channel indicator	Green	Always on	The module channel has signal output
			Off	The module channel has no signal output or

				the signal output is abnormal

3.2.3 Technical Parameters

3.2.3.1 Digital Input Module Parameters

Digital input				
Product Model	XB6S-3200	XB6S-3200N	XB6S-1600	XB6S-0800
Bus input power rated voltage	5VDC (4.5V~5.5V)			
Bus input power rated current	≤100mA	≤70mA	≤80mA	≤60mA
Input rated voltage	24VDC (20.4V~28.8V)			
Typical input current	5mA/ch (24VDC)			
Input signal points	32	32	16	8
Input signal type	NPN/PNP compatible			
Input signal form	Voltage direct input form Sink input: NPN open collector input Source input: PNP open collector input			
OFF voltage/OFF current	-3V~+5V/0.9mA or less			
ON voltage/ON current	11V~30V/2.1mA or more			
Reaction time	<50us			
Input filtering	No filter, 0.1ms, 0.2ms, 0.5ms, 1ms, 2ms, 3ms (factory setting), 4ms...18ms, 19ms, 20ms			
Maximum input frequency	150Hz (filter time: 3ms)			
Input Impedance	5.4KΩ			
Isolation method	Optocoupler Isolation			
Isolation withstand voltage	500VAC			
Rated current consumption	100mA	70mA	80mA	60mA
Power consumption	0.5W	0.35W	0.4W	0.3W
Digital input type	Type1/Type3			
Channel indicator light	Green LED light			

3.2.3.2 Digital input and output module parameters

Digital input		
Product Model	XB6S-1616A	XB6S-1616B
Bus input power rated voltage	5VDC (4.5V~5.5V)	
Bus input power rated current	≤130mA	≤100mA
Input rated voltage	24VDC (20.4V~28.8V)	
Typical input current	5mA/ch (24VDC)	
Input signal points	16	16
Input signal type	NPN/PNP compatible	
Input signal type	Voltage direct input form Sink input: NPN open collector input Source input: PNP open collector input	
OFF voltage/OFF current	-3V~+5V/0.9mA or less	
ON voltage/ON current	11V~30V/2.1mA or more	
Reaction time	<50us	
Input filtering	No filter, 0.1ms, 0.2ms, 0.5ms, 1ms, 2ms, 3ms (factory setting), 4ms...18ms, 19ms, 20ms	
Maximum input frequency	150Hz (filter time: 3ms)	
Input Impedance	5.4KΩ	
Isolation method	Optocoupler Isolation	
Isolation withstand voltage	500VAC	
Rated current consumption	130mA	100mA
Power consumption	0.65W	0.5W
Digital input type	Type1/Type3	
Channel indicator light	Green LED light	
Digital output		
Output signal points	16	16
Output signal type	NPN	PNP
Field side input voltage range	24VDC (20.4V~28.8V)	
Output voltage drop	< 1V	
Output load type	Resistive load, inductive load, lamp load	
Single channel rated current	Max: 0.5A (seeFigure 1)	
Leakage Current	<10uA	

Reaction time	<150us
Output channel protection	Short circuit protection (automatic recovery mechanism)
Module protection	Reverse connection protection (automatic recovery mechanism), field-side surge protection
Isolation method	Optocoupler Isolation
Isolation withstand voltage	500VAC
Channel indicator light	Green LED light

3.2.3.3 Digital output module parameters

Digital output				
Product Model	XB6S-0032A	XB6S-0032B	XB6S-0032AN	XB6S-0032BN
Bus input power rated voltage	5VDC (4.5V~5.5V)			
Bus input power rated current	≤150mA	≤110mA	≤130mA	≤80mA
Field side input voltage range	24VDC (20.4V~28.8V)			
Output signal points	32	32	32	32
Output signal type	NPN	PNP	NPN	PNP
Output voltage drop	< 1V			
Output load type	Resistive load, inductive load, lamp load			
Single channel rated current	Max: 0.5A (seeFigure 1)		Max: 0.1A	
Leakage Current	<10uA			
Reaction time	<150us			
Output channel protection	Short circuit protection (automatic recovery mechanism)			
Module protection	Reverse connection protection (automatic recovery mechanism), field-side surge protection			
Isolation method	Optocoupler Isolation			
Isolation withstand voltage	500VAC			
Rated current consumption	150mA	110mA	130mA	80mA
Power consumption	0.75W	0.55W	0.65W	0.4W
Channel indicator light	Green LED light			

Digital output				
Product Model	XB6S-0008A	XB6S-0008B	XB6S-0016A	XB6S-0016B
Bus input power rated voltage	5VDC (4.5V~5.5V)			
Bus input power rated current	≤70mA	≤60mA	≤110mA	≤90mA
Field side input voltage range	24VDC (20.4V~28.8V)			
Output signal points	8	8	16	16
Output signal type	NPN	PNP	NPN	PNP
Output voltage drop	< 1V			
Output load type	Resistive load, inductive load, lamp load			
Single channel rated	Max: 0.5A (seeFigure 1)			

current				
Leakage Current	<10uA			
Reaction time	<150us			
Output channel protection	Short circuit protection (automatic recovery mechanism)			
Module protection	Reverse connection protection (automatic recovery mechanism), field-side surge protection			
Isolation method	Optocoupler Isolation			
Isolation withstand voltage	500VAC			
Rated current consumption	70mA	60mA	110mA	90mA
Power consumption	0.35W	0.3W	0.55W	0.45W
Channel indicator light	Green LED light			

3.2.3.4 Relay output module parameters

Relay output	
Product Model	XB6S-0012J/6
Bus input power rated voltage	5VDC (4.5V~5.5V)
Bus input power rated current	≤100mA
Field side input voltage range	24VDC (20.4V~28.8V)
Output signal points	12
Output format	Relay
Output load type	Resistive load, inductive load, lamp load
Minimum load current	10mA
Minimum load voltage	5V
Single channel rated voltage	24VDC
Single channel rated current	Max: 2A (seeFigure 2)
Hardware output response time	10ms/10ms
Module protection	Field side reverse connection protection (automatic recovery mechanism), field side surge protection
Isolation method	Optocoupler isolation + relay isolation
Isolation withstand voltage	1500VAC
Rated current consumption	100mA
Power consumption	0.5W
Mechanical life	Minimum 20 million operations (18,000 operations/hour)
Electrical life	Minimum 100,000 operations (2A, 24VDC, inductive load)
Channel indicator light	Green LED light

3.2.3.5 General technical parameters

General technical parameters	
Specifications and dimensions	106.4 × 25.7 × 72.3mm
Weight	32-channel DIO: 110g
	16-channel DIO: 90g
	8-channel DIO: 90g
	XB6S-0012J/6: 135g

Operating temperature	-20℃~+60℃
Storage temperature	-40℃~+80℃
Relative humidity	95%, non-condensing
Altitude	≤2000m
Pollution degree	Level 2
Protection level	IP20
Safety Certification	UL certification, CE certification
Green Environmental Certification	RoHS certification, REACH certification

Figure 1:

Plot of maximum rated current of a single channel of a digital output module versus temperature

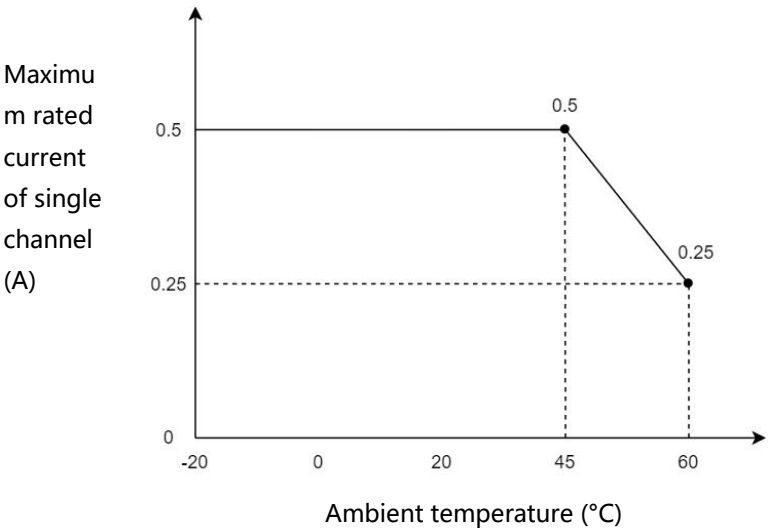
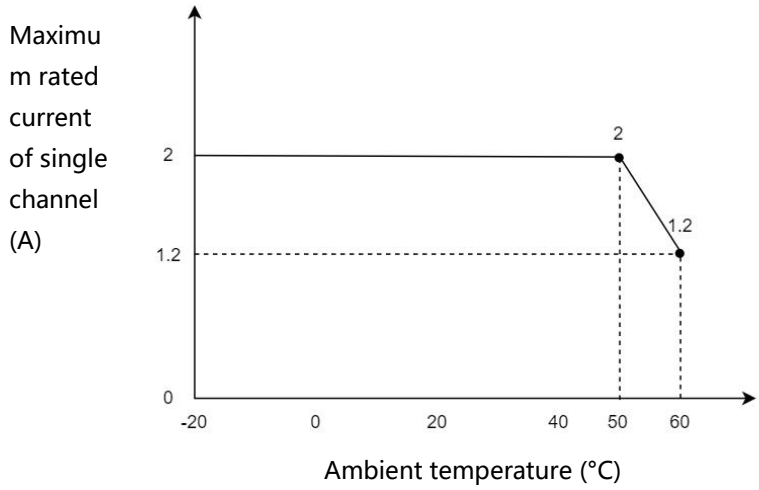


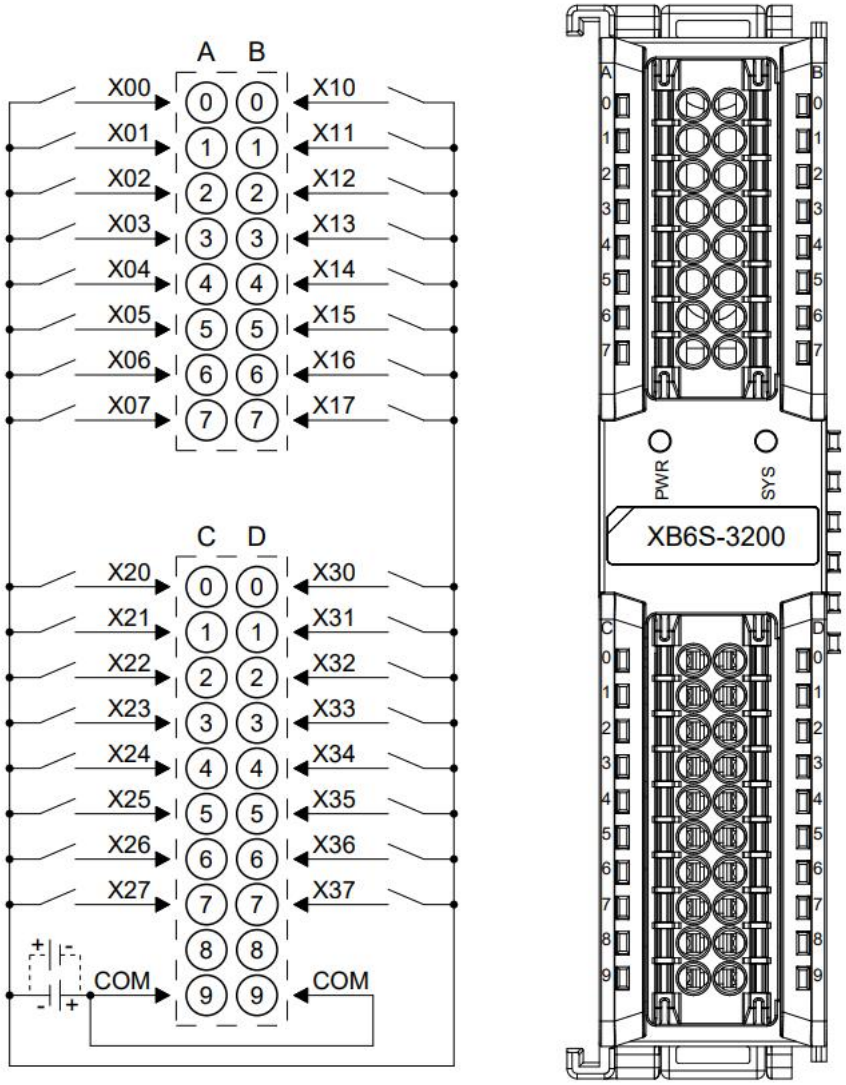
Figure 2:

Plot of relay output module single-channel maximum rated current versus temperature



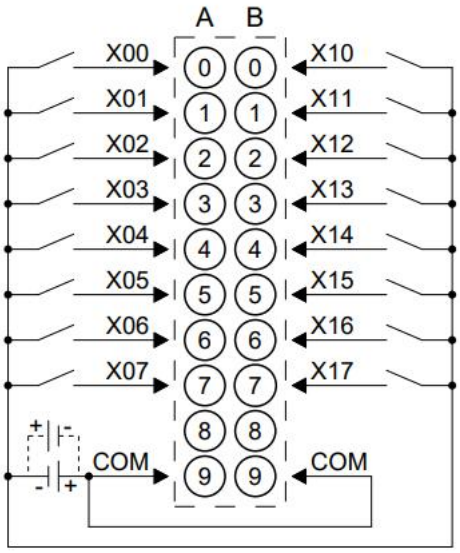
3.2.4 Wiring Diagram

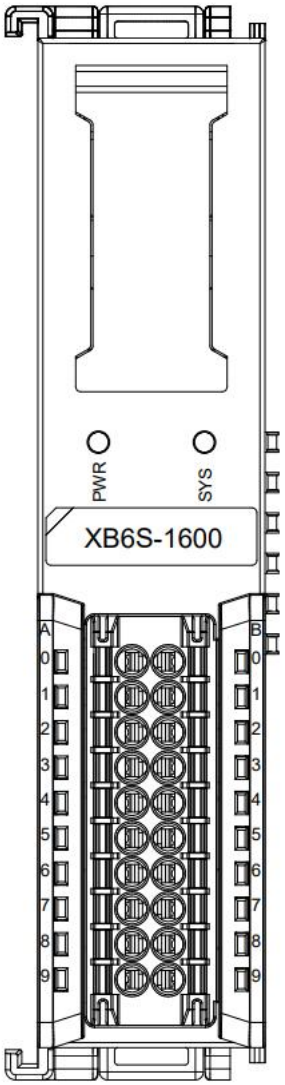
3.2.4.1 XB6S-3200



*COM internal conduction; NPN/PNP compatible

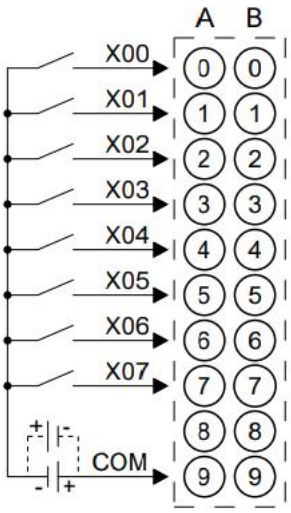
3.2.4.2 XB6S-1600

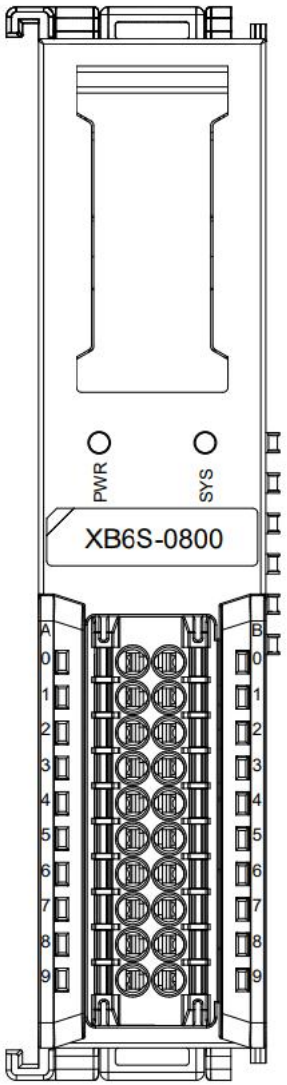




*COM internal conduction; NPN/PNP compatible

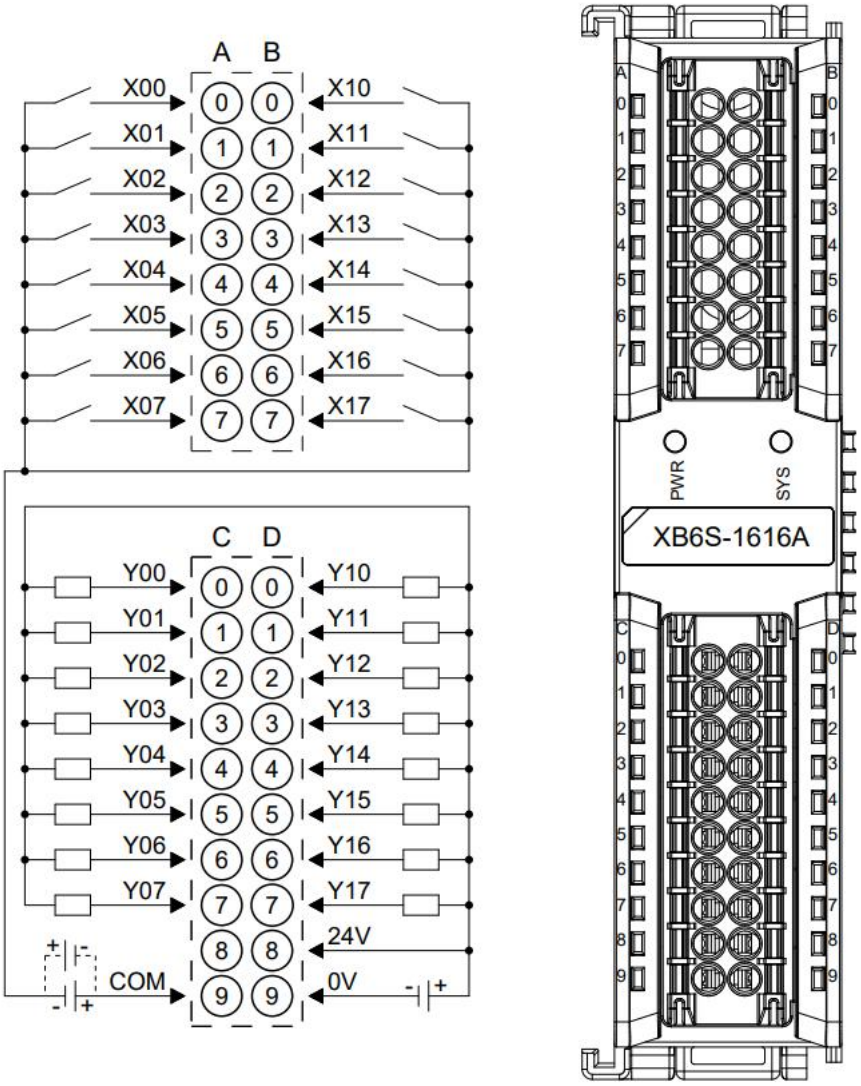
3.2.4.3 XB6S-0800





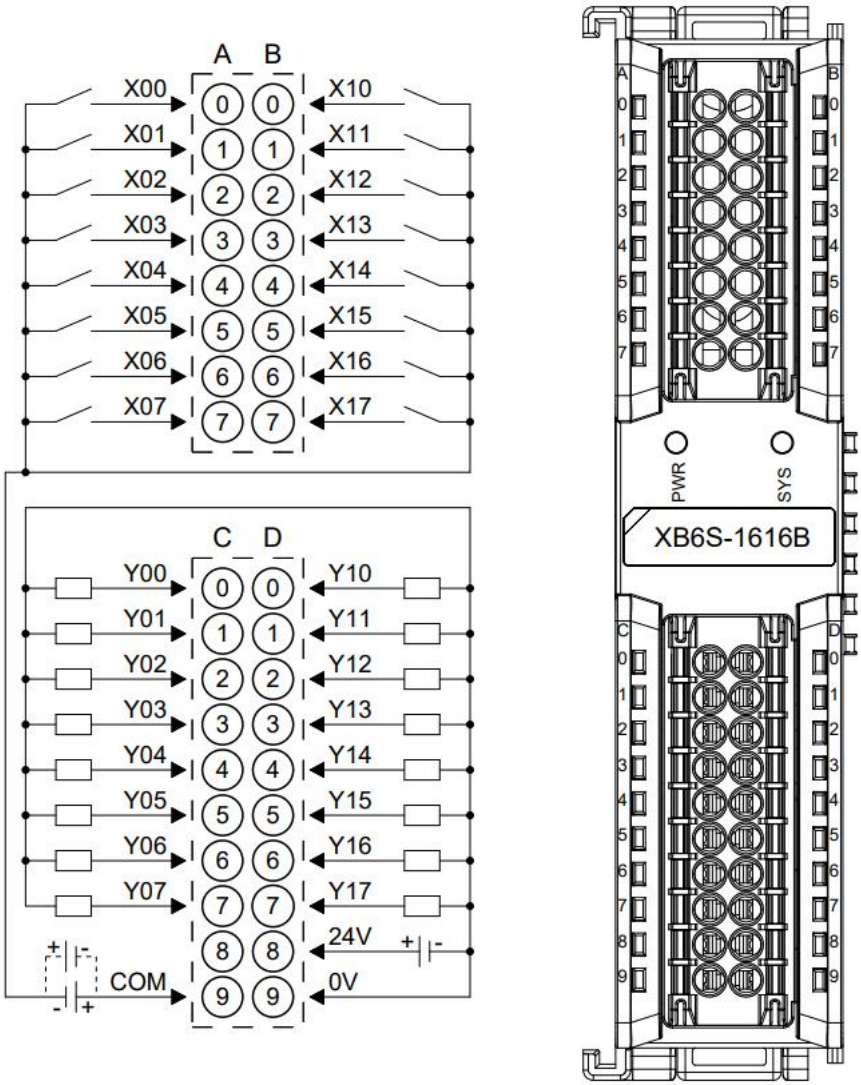
*NPN/PNP compatible

3.2.4.4 XB6S-1616A



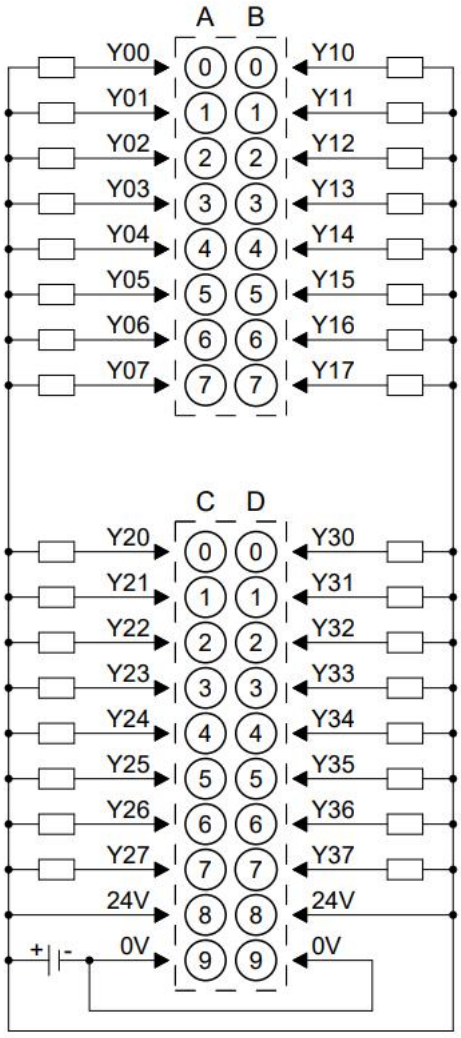
*COM is the common terminal of DI, DI is NPN/PNP compatible, DO is NPN

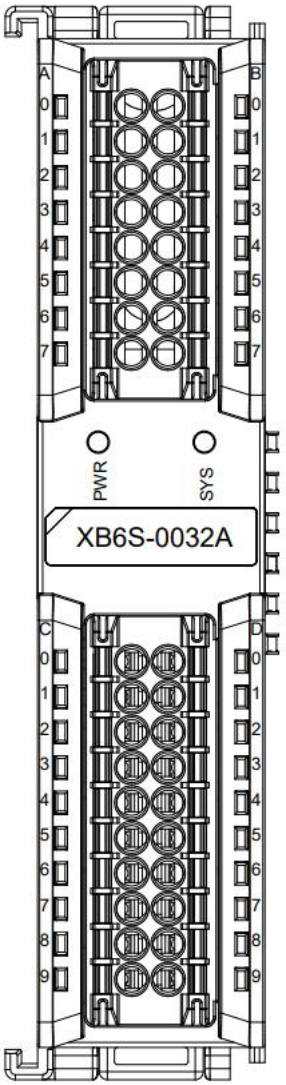
3.2.4.5 XB6S-1616B



*COM is the common terminal of DI, DI is NPN/PNP compatible, DO is PNP

3.2.4.6 XB6S-0032A

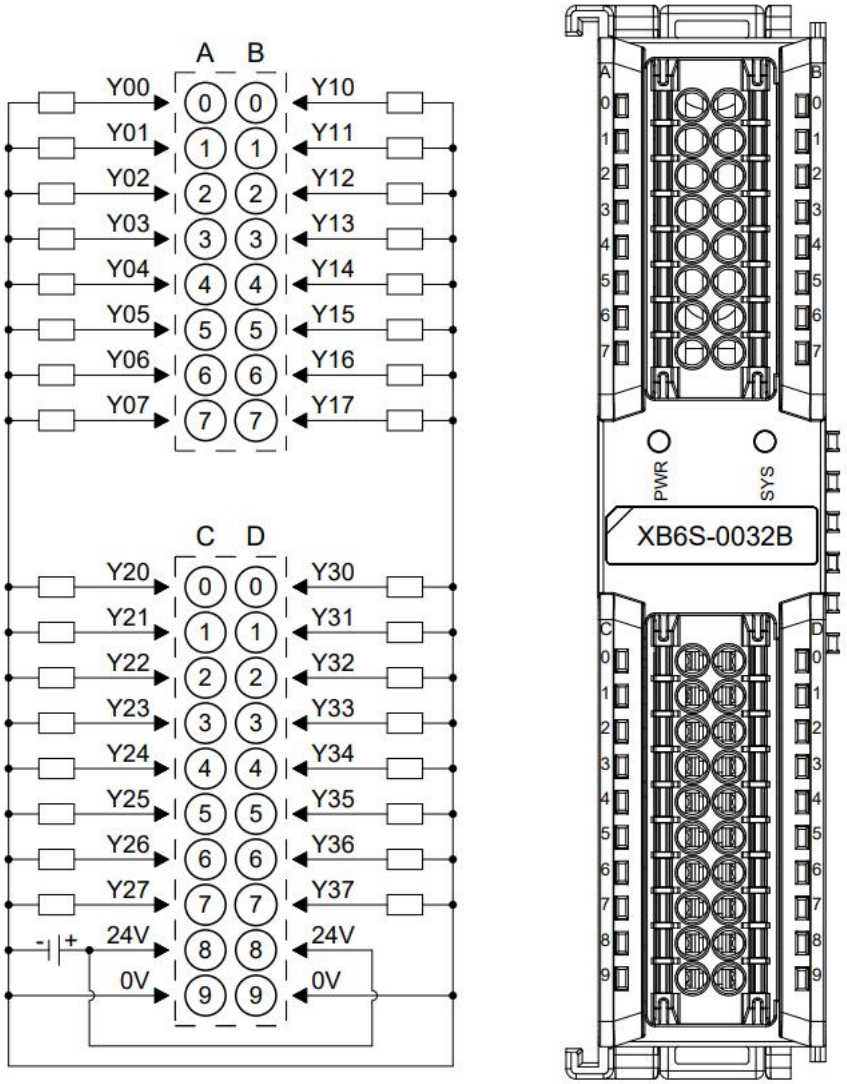




*24V internal conduction; 0V internal conduction

*The load common power supply must use the same power supply as the module

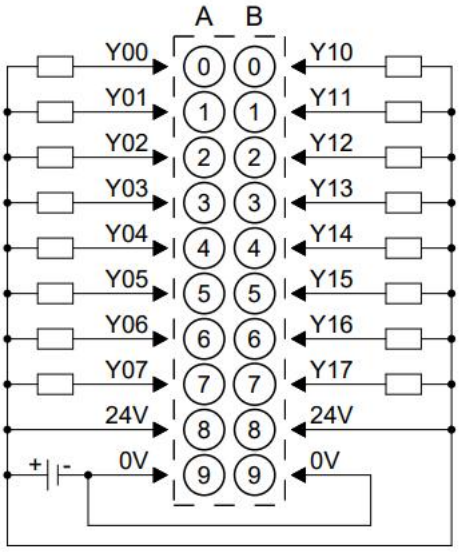
3.2.4.7 XB6S-0032B

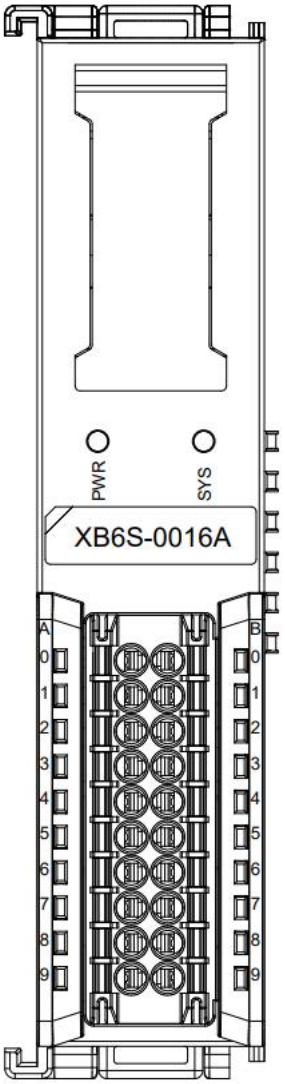


*24V internal conduction; 0V internal conduction

*The load common power supply must use the same power supply as the module

3.2.4.8 XB6S-0016A

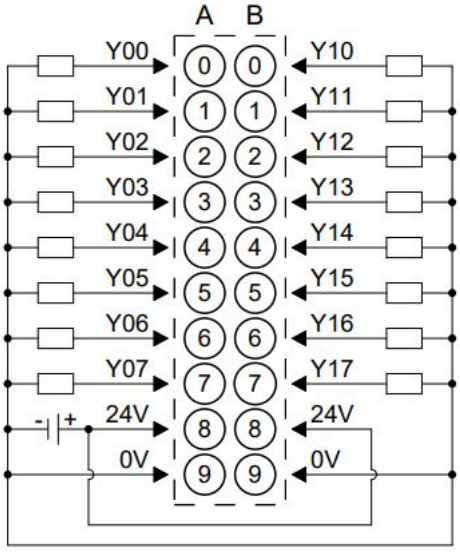


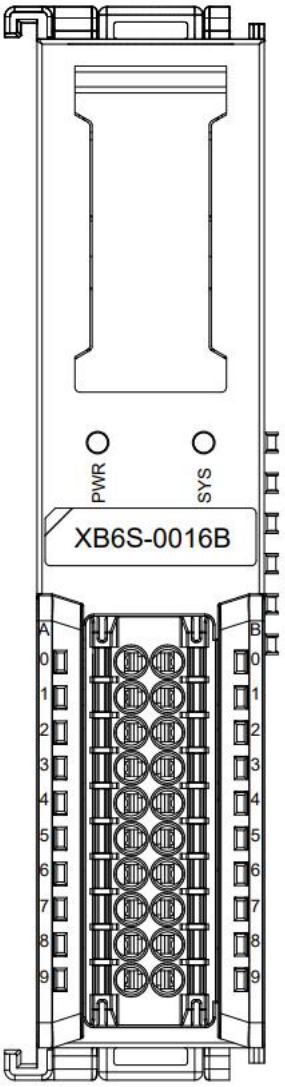


*24V internal conduction; 0V internal conduction

*The load common power supply must use the same power supply as the module

3.2.4.9 XB6S-0016B

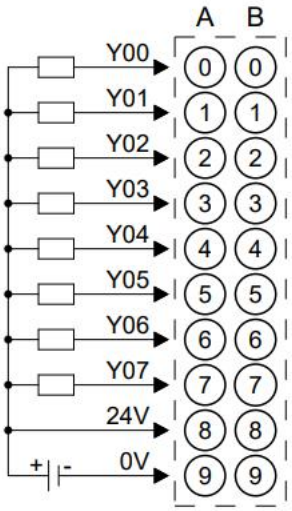


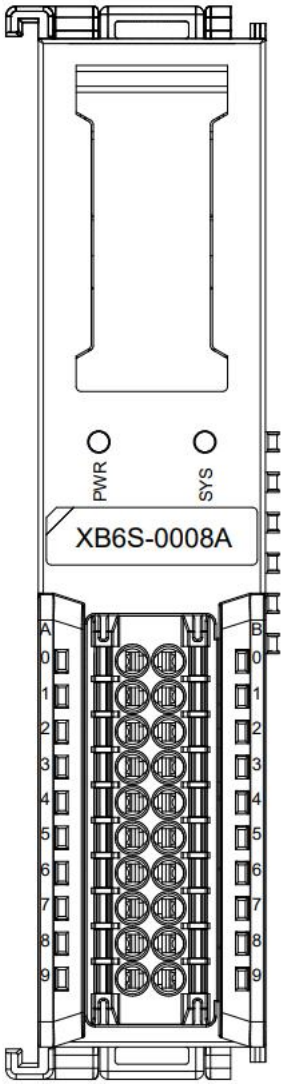


*24V internal conduction; 0V internal conduction

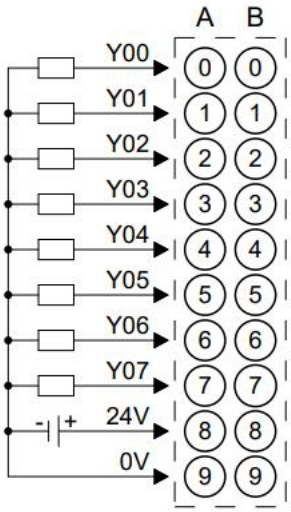
*The load common power supply must use the same power supply as the module

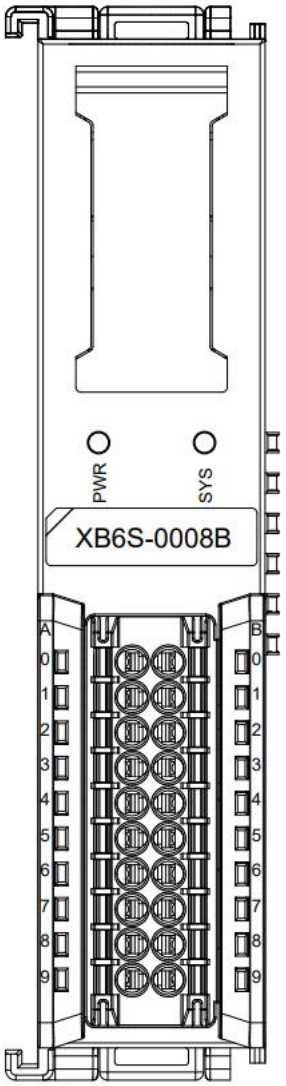
3.2.4.10 XB6S-0008A



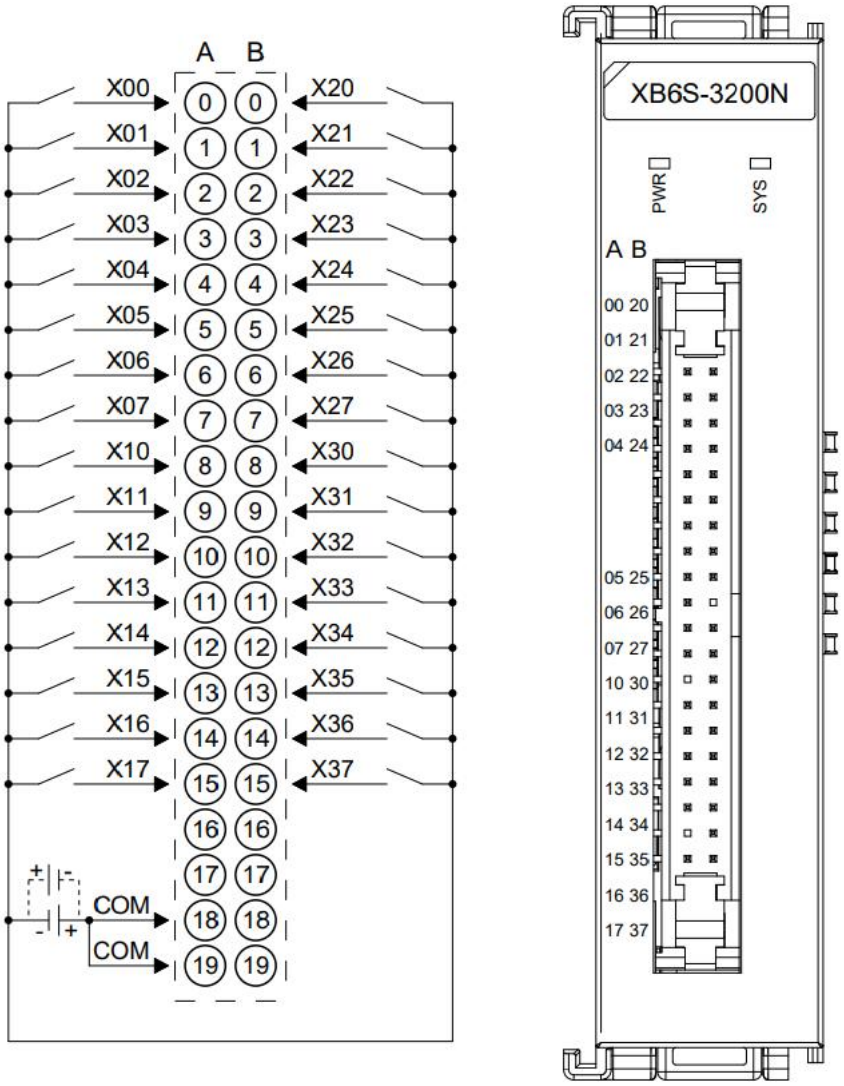


3.2.4.11 XB6S-0008B



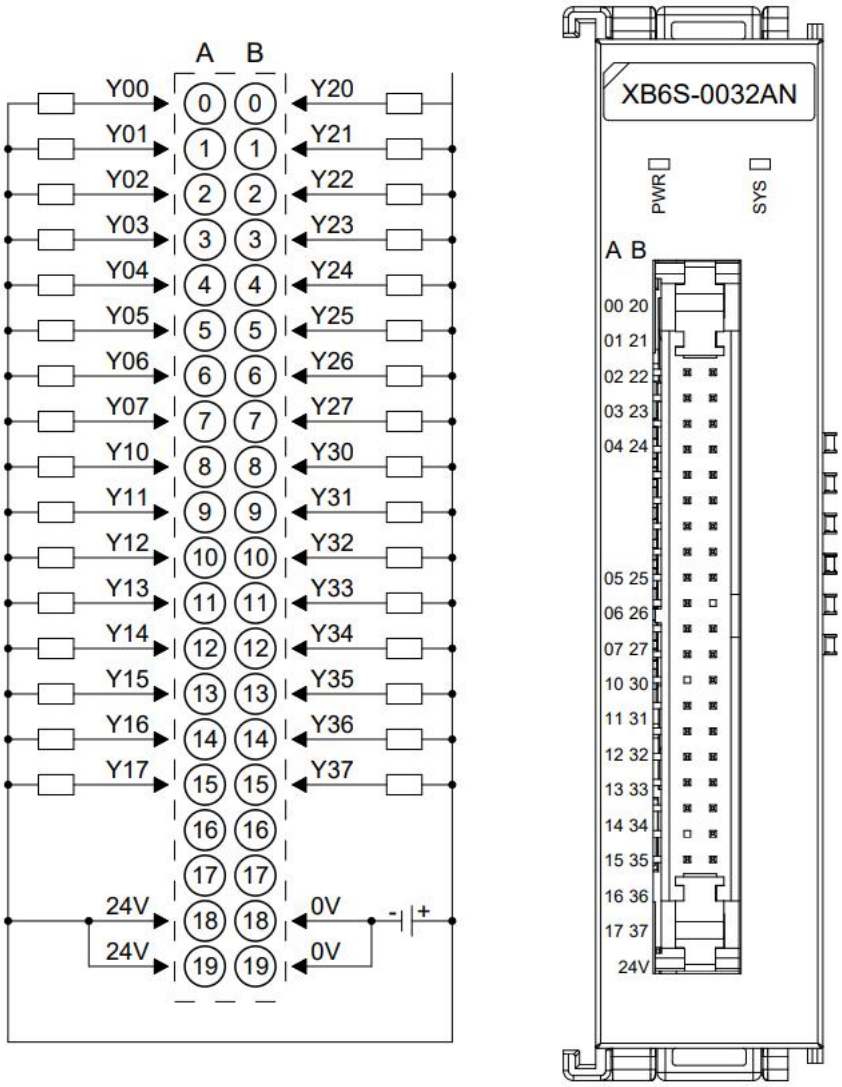


3.2.4.12 XB6S-3200N



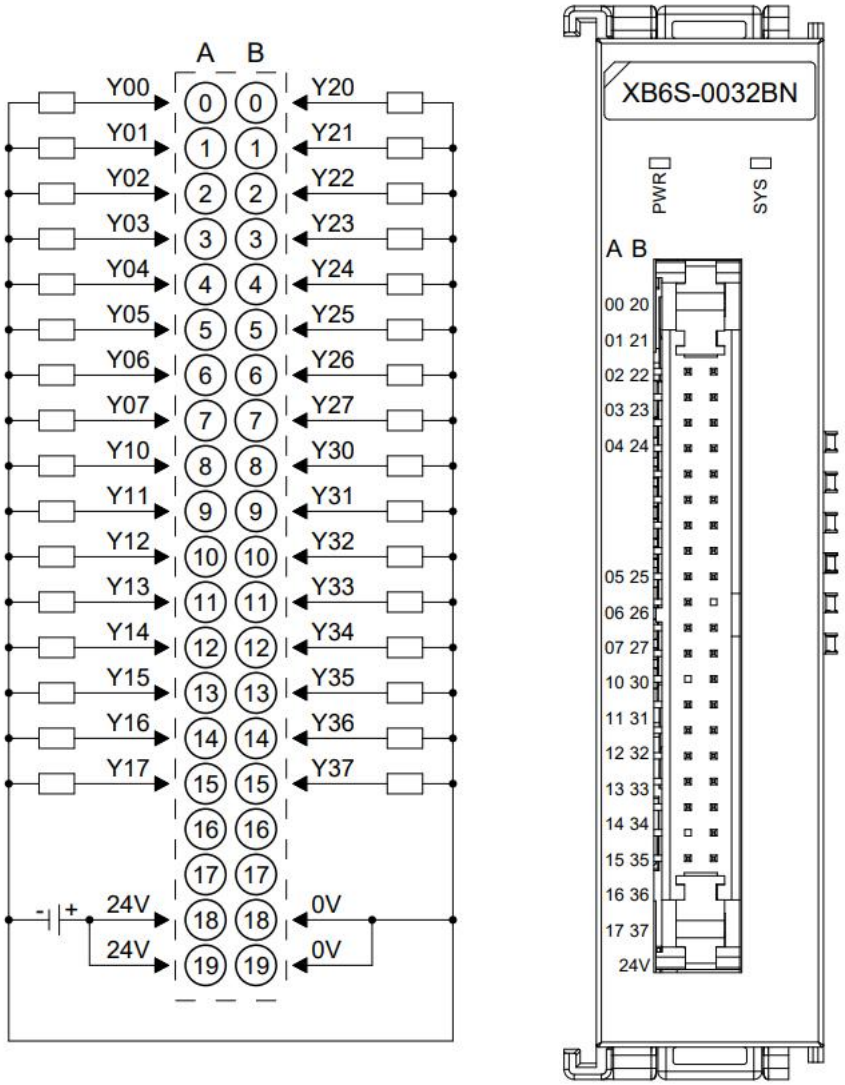
*COM internal conduction; NPN/PNP compatible

3.2.4.13 XB6S-0032AN



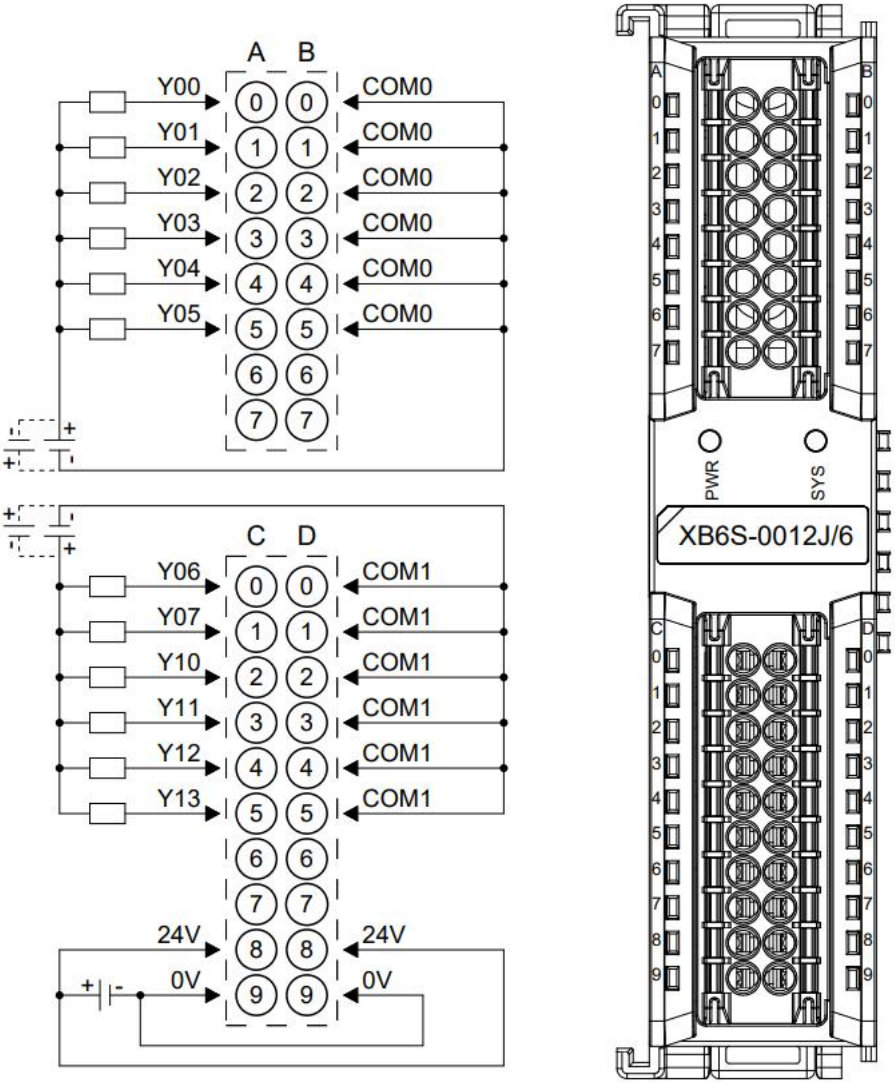
*24V internal conduction; 0V internal conduction

3.2.4.14 XB6S-0032BN



*24V internal conduction; 0V internal conduction

3.2.4.15 XB6S-0012J/6

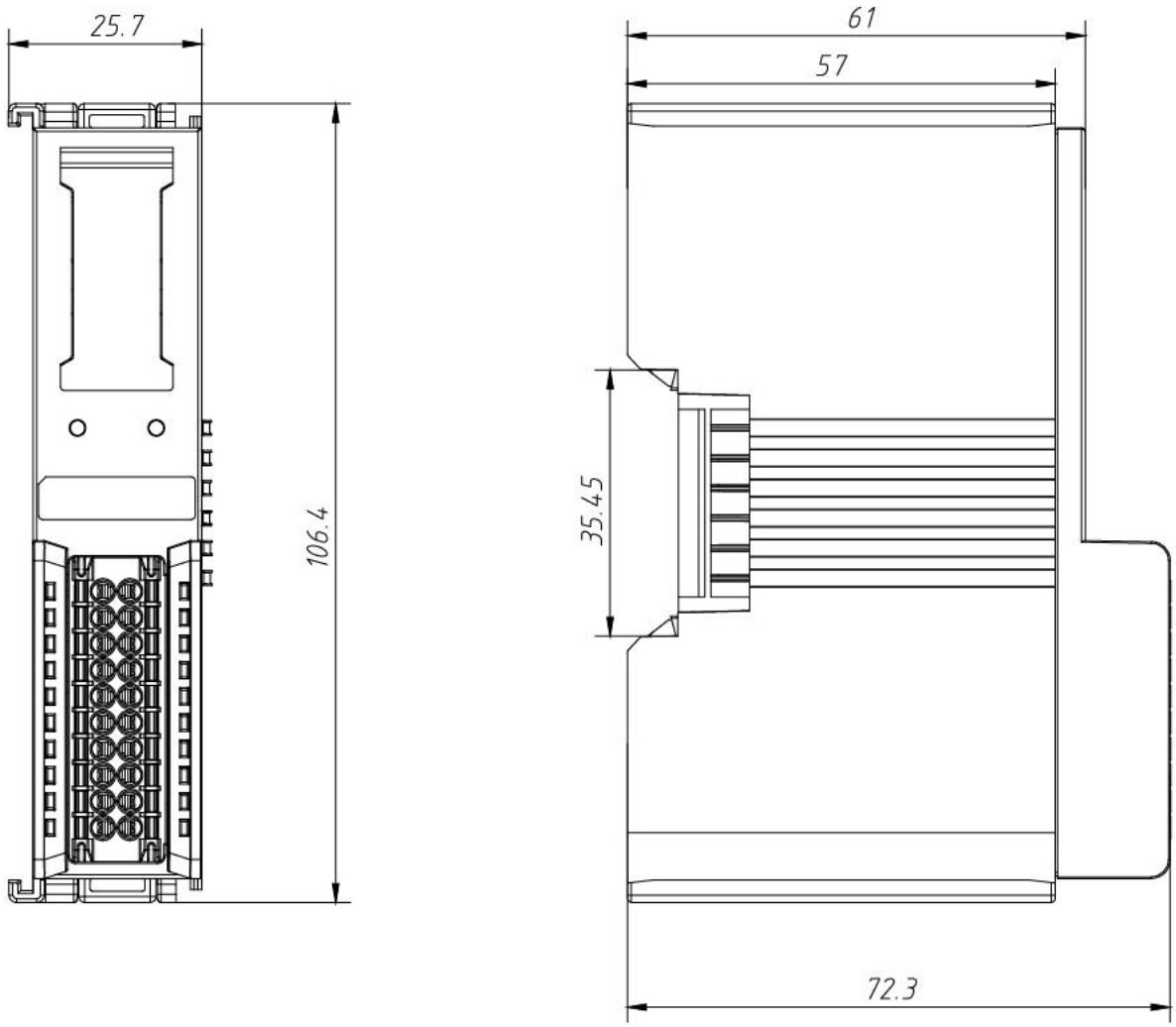


*24V internal conduction; 0V internal conduction

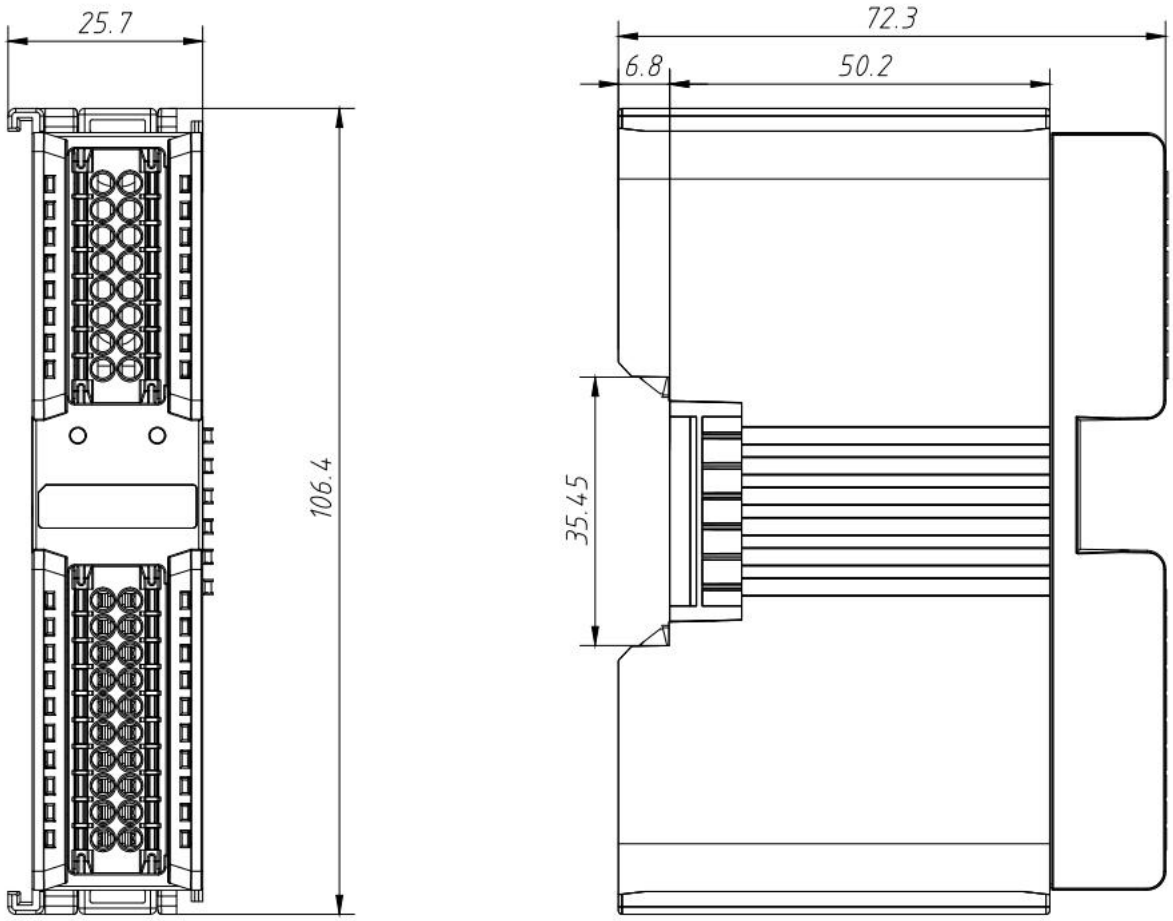
*COM0 is internally conductive; COM1 is internally conductive

3.2.5 Dimensions

8/16 channel digital I/O module dimensions (unit mm)

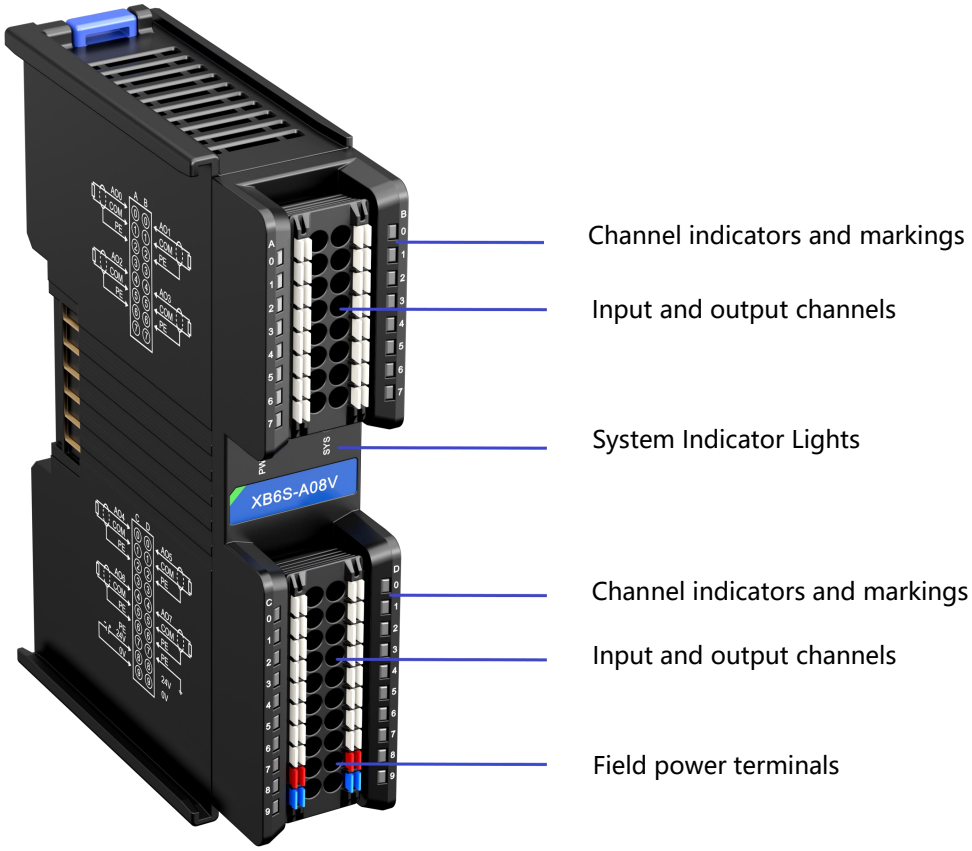


32-channel digital I/O module dimensions (in mm)



3.3 Analog I/O Modules

3.3.1 Panel structure



3.3.2 Indicator light function

Analog I/O module indicator light definition				
Marking	**Name**	**Solor**	**Status**	**Status description**
PWR	Power indicator	Green	Always on	Power supply is normal
			Off	The product is not powered on or the power supply is abnormal
SYS	Operation status indicator	Green	Always on	The system is running normally
			Flashing 1Hz	No business data interaction, waiting to establish business data interaction
			Flashing 10Hz	Firmware Upgrade
			Off	System not working
0~7	Input channel indicator	Green	Always on	The module channel has signal input
			Off	The module channel has no signal input or the signal input is abnormal
0~7	Output channel	Green	Always on	The module channel has signal output

	indicator		Off	The module channel has no signal output or the signal output is abnormal

3.3.3 Technical Parameters

3.3.3.1 Analog input module parameters

Analog input		
Product Model	XB6S-A80VD	XB6S-A80ID
Bus input power rated voltage	5VDC (4.5V~5.5V)	
Bus input power rated current	≤210mA	
Enter points	8	8
Input Type	Voltage Type	Current Type
Input signal	Disable、-10V~+10V、0V~10V、-5V~+5V, 0V~5V, 1V~5V (range adjustable, default is -10V~+10V)	Disable, 4mA~20mA, 0mA~20mA, -20mA~+20mA (The range is adjustable, the default is 0mA~20mA)
Input signal type	Differential signaling	
Channel response time	550us/ch 850us/8ch	
Resolution	16 bits	
Sampling rate (all channels)	≤1ksps	
Accuracy	±0.1% at 25°C, ±0.3% over the entire temperature range	
Input filtering	support	
Smoothing series	1~200	
Input impedance (voltage type)	⩾1MΩ	-
Input impedance (current type)	-	≤250Ω
Common mode voltage range	12VAC	-
Maximum voltage allowed by the channel (voltage type)	30V	-
Maximum current allowed by the channel (current type)	-	30mA
The system cannot be affected	When the ±15V power supply is damaged and short-circuited, the system +5V power supply cannot be affected	
Potential isolation	No isolation between channels, isolation between channels and backplane bus, isolation between channels and supply voltage	
Input overload protection	Support clamp protection	Support current limiting protection
Input protection	±30V	±30mA
Isolation withstand	500VDC	

voltage	
Rated current consumption	210mA
Power consumption	1.05W
Channel indicator light	Green LED light

Analog input		
Product Model	XB6S-A80V	XB6S-A80I
Bus input power rated voltage	5VDC (4.5V~5.5V)	
Bus input power rated current	≤260mA	≤110mA
Enter points	8	8
Input Type	Voltage Type	Current Type
Input signal	Disable、-10V~+10V、0V~10V、-5V~+5V, 0V~5V, 1V~5V (range adjustable, default is -10V~+10V)	Disable, 4mA~20mA, 0mA~20mA (The range is adjustable, the default is 0mA~20mA)
Input signal type	Single-ended signal	
Channel response time	560us/ch 770us/8ch	
Resolution	16 bits	
Sampling rate (all channels)	≤1ksps	
Accuracy	±0.1% at 25°C, ±0.3% over the entire temperature range	
Input filtering	support	
Smoothing series	1~200	
Input impedance (voltage type)	⩾400kΩ	-
Input impedance (current type)	-	≤100Ω
Maximum voltage allowed by the channel (voltage type)	30V	-
Maximum current allowed by the channel (current type)	-	30mA
The system cannot be affected	When the ±15V power supply is damaged and short-circuited, the system +5V power supply cannot be affected	
Potential isolation	No isolation between channels, isolation between channels and backplane bus, isolation between channels and supply voltage	
Input overload protection	Support clamp protection	Support current limiting protection
Input protection	±30V	±30mA
Isolation withstand voltage	500VDC	
Rated current consumption	260mA	110mA
Power consumption	1.35W	0.55W
Channel indicator light	Green LED light	

Analog input		
Product Model	XB6S-A40VD	XB6S-A40ID
Bus input power rated voltage	5VDC (4.5V~5.5V)	
Bus input power rated current	≤150mA	
Enter points	4	4
Input Type	Voltage Type	Current Type
Input signal	Disable、-10V~+10V、0V~10V、-5V~+5V, 0V~5V, 1V~5V (range adjustable, default is -10V~+10V)	Disable, 4mA~20mA, 0mA~20mA, -20mA~+20mA (The range is adjustable, the default is 0mA~20mA)
Input signal type	Differential signaling	
Channel response time	300us/ch 600us/4ch	
Resolution	16 bits	
Sampling rate (all channels)	≤1ksps	
Accuracy	±0.1% at 25°C, ±0.3% over the entire temperature range	
Input filtering	support	
Smoothing series	1~200	
Input impedance (voltage type)	⩾1MΩ	-
Input impedance (current type)	-	≤250Ω
Common mode voltage range	12VAC	-
Maximum voltage allowed by the channel (voltage type)	30V	-
Maximum current allowed by the channel (current type)	-	30mA
The system cannot be affected	When the ±15V power supply is damaged and short-circuited, the system +5V power supply cannot be affected	
Potential isolation	No isolation between channels, isolation between channels and backplane bus, isolation between channels and supply voltage	
Input overload protection	Support clamp protection	Support current limiting protection
Input protection	±30V	±30mA
Isolation withstand voltage	500VDC	
Rated current consumption	150mA	
Power consumption	0.75W	

Channel indicator light	Green LED light

Analog input		
Product Model	XB6S-A40V	XB6S-A40I
Bus input power rated voltage	5VDC (4.5V~5.5V)	
Bus input power rated current	≤180mA	≤100mA
Enter points	4	4
Input Type	Voltage Type	Current Type
Input signal	Disable、-10V~+10V、0V~10V、-5V~+5V, 0V~5V, 1V~5V (range adjustable, default is -10V~+10V)	Disable, 4mA~20mA, 0mA~20mA (The range is adjustable, the default is 0mA~20mA)
Input signal type	Single-ended signal	
Channel response time	400us/ch 700us/4ch	300us/ch 600us/4ch
Resolution	16 bits	
Sampling rate (all channels)	≤1ksps	
Accuracy	±0.1% at 25°C, ±0.3% over the entire temperature range	
Input filtering	support	
Smoothing series	1~200	
Input impedance (voltage type)	⩾400kΩ	-
Input impedance (current type)	-	≤100Ω
Maximum voltage allowed by the channel (voltage type)	30V	-
Maximum current allowed by the channel (current type)	-	30mA
The system cannot be affected	When the ±15V power supply is damaged and short-circuited, the system +5V power supply cannot be affected	
Potential isolation	No isolation between channels, isolation between channels and backplane bus, isolation between channels and supply voltage	
Input overload protection	Support clamp protection	Support current limiting protection
Input protection	±30V	±30mA
Isolation withstand voltage	500VDC	
Rated current consumption	180mA	100mA
Power consumption	0.95W	0.5W
Channel indicator light	Green LED light	

3.3.3.2 Analog output module parameters

Analog output		
Product Model	XB6S-A08V	XB6S-A08I
Bus input power rated voltage	5VDC (4.5V~5.5V)	
Bus input power rated current	≤100mA	
Field side input voltage range	24VDC (20.4V~28.8V)	
Output points	8	8
Output Type	Voltage Type	Current Type
Output signal	Disable、-10V~+10V、0V~10V、-5V~+5V, 0V~5V, 1V~5V (range adjustable, default is -10V~+10V)	Disable, 4mA~20mA, 0mA~20mA (The range is adjustable, the default is 0mA~20mA)
Channel response time	400us/ch 400us/8ch	
Resolution	16 bits	
Accuracy	±0.1% at 25℃, ±0.3% over the entire temperature range	
Load impedance (voltage type)	≥2kΩ (1kΩ accuracy: ±3‰ at 25℃, ±5‰ at full temperature)	-
Load impedance (current type)	-	≤500Ω
The system cannot be affected	When the ±15V power supply is damaged and short-circuited, the system +5V power supply cannot be affected	
Output protection	Overload protection, open circuit protection, short circuit protection (all with automatic recovery mechanism)	
Potential isolation	No isolation between channels, isolation between channels and backplane bus, isolation between channels and supply voltage	
Isolation withstand voltage	500VDC	
Rated current consumption	100mA	
Power consumption	0.5W	
Clear and keep optional functions in non-OP state	support	
Channel indicator light	Green LED light	

Analog output		
Product Model	XB6S-A04V	XB6S-A04I
Bus input power rated voltage	5VDC (4.5V~5.5V)	
Bus input power rated current	≤80mA	
Field side input voltage range	24VDC (20.4V~28.8V)	
Output points	4	4
Output Type	Voltage Type	Current Type
Output signal	Disable、-10V~+10V、0V~10V、-5V~+5V, 0V~5V, 1V~5V (range adjustable, default is -10V~+10V)	Disable, 4mA~20mA, 0mA~20mA (The range is adjustable, the default is 0mA~20mA)
Channel response time	200us/ch 200us / 4ch	
Resolution	16 bits	
Accuracy	±0.1% at 25°C, ±0.3% over the entire temperature range	
Load impedance (voltage type)	⩾2kΩ (1kΩ accuracy: ±3‰ at 25℃, ±5‰ at full temperature)	-
Load impedance (current type)	-	⩽500Ω
The system cannot be affected	When the ±15V power supply is damaged and short-circuited, the system +5V power supply cannot be affected	
Output protection	Overload protection, open circuit protection, short circuit protection (all with automatic recovery mechanism)	
Potential isolation	No isolation between channels, isolation between channels and backplane bus, isolation between channels and supply voltage	
Isolation withstand voltage	500VDC	
Rated current consumption	80mA	
Power consumption	0.4W	
Clear and keep optional functions in non-OP state	support	
Channel indicator light	Green LED light	

3.3.3.3 General technical parameters

General technical parameters	
Specifications and dimensions	106.4 × 25.7 × 72.3mm
weight	8-channel AIO: 125g
	4-channel AIO: 105g
Operating temperature	-20℃~+60℃

Storage temperature	-40℃~+80℃
Relative humidity	95%, non-condensing
Altitude	≤2000m
Pollution degree	Level 2
Protection level	IP20
Safety Certification	UL certification, CE certification
Green Environmental Certification	RoHS certification, REACH certification

3.3.4 Analog voltage parameters

3.3.4.1 Voltage input range selection table

Voltage input range selection and code value range					
Range selection	Range	Code value range	Voltage input calculation formula	Voltage output calculation formula	Code value correspondence table
0	Disable: indicates that the channel is disabled.				
1 (default)	-10V~+10 V	-32768~32767	D=(65535/20)*U	U=(D*20)/65535	See also3.3.4.3 Voltage Input Code Value Table
2	0V~10V	0~32767	D=(32767/10)*U	U=(D*10)/32767	
3	-10V~+10 V	-27648~27648	D=(55296/20)*U	U=(D*20)/55296	
4	0V~10V	0~27648	D=(27648/10)*U	U=(D*10)/27648	
5	-5V~+5V	-27648~27648	D=(55296/10)*U	U=(D*10)/55296	
6	0V~5V	0~27648	D=(27648/5)*U	U=(D*5)/27648	
7	1V~5V	0~27648	D=(27648/4)*U-6912	U=(D+6912)*4/27648	

Note: D represents the code value, U represents the voltage, and the analog voltage input module range defaults to 1: -10V~+10V (-32768~32767).

3.3.4.2 Voltage output range selection table

Voltage output range selection and code value range					
Range selection	Range	Code value range	Voltage input calculation formula	Voltage output calculation formula	Code value correspondence table
0	Disable: indicates that the channel is disabled.				
1 (default)	-10V~+10V	-32768~32767	D=(65535/20)*U	U=(D*20)/65535	See also3.3.4.4 Voltage output code value table
2	0V~10V	0~32767	D=(32767/10)*U	U=(D*10)/32767	
3	-10V~+10V	-27648~27648	D=(55296/20)*U	U=(D*20)/55296	
4	0V~10V	0~27648	D=(27648/10)*U	U=(D*10)/27648	
5	-5V~+5V	-27648~27648	D=(55296/10)*U	U=(D*10)/55296	
6	0V~5V	0~27648	D=(27648/5)*U	U=(D*5)/27648	
7	1V~5V	0~27648	D=(27648/4)*U-6912	U=(D+6912)*4/27648	

Note: D represents the code value, U represents the voltage, and the analog voltage output module range defaults to 1: -10V~+10V (-32768~32767).

3.3.4.3 Voltage Input Code Value Table

Range / Voltage	-10V~+10V	0V~10V	-10V~+10V	0V~10V
	-32768~32767	0~32767	-27648~27648	0~27648
	Code value	Code value	Code value	Code value
-10.13	-	-	-27980	-
-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	-
-0.13	-426	-384	-359	-332
-0.06	-197	-197	-166	-156
0	0	0	0	0
1	3277	3277	2765	2765
2	6554	6554	5530	5530
3	9830	9830	8294	8294
4	13107	13107	11059	11059
5	16384	16384	13824	13824
6	19661	19661	16589	16589
7	22937	22937	19354	19354
8	26214	26214	22118	22118
9	29491	29491	24883	24883
10	32767	32767	27648	27648
10.12	-	-	27980	27980
Code value formula	Code value =(65535/20)*Voltage	Code value =(32767/10)*Voltage	Code value =(55296/20)*Voltage	Code value =(27648/10)*Voltage
Voltage formula	Voltage =(Code value*20) /65535	Voltage =(Code value*10) /32767	Voltage =(Code value*20) /55296	Voltage =(Code value*10) /27648

Note: ① When the voltage input module range is selected as -10V~+10V (-32768~32767), it supports the overflow function, that is, when the channel input voltage is greater than 10V, the maximum code value 32767 is displayed; when the input channel input voltage is less than -10V, the minimum code value is displayed.-32768.

②When the voltage input module range is selected as 0V~10V (0~32767), it supports underflow, overshoot, overflow and underflow alarm functions. Overshoot means that the channel input range exceeds the range and enters overshoot, and the normal calculation code value is displayed within -0.13V~+10V. When the channel input voltage is greater than 10V, the maximum code value 32767 is

displayed; when the input channel input voltage is less than -0.13V, the minimum overshoot code value is displayed.-384,Simultaneous alarm.

③Voltage input module range selection -10V~+10V(-27648~27648) supports overshoot, overflow, underflow and underflow alarm functions. Overshoot means that the channel input range exceeds the range and enters overshoot, and the normal calculation code value is displayed within -10.13V~+10.12V. Underflow means that when the channel input voltage is greater than 10.12V, the maximum overshoot code value 27980 is displayed, and an alarm is issued at the same time; when the input channel input voltage is less than -10.13V, the minimum overshoot code value is displayed-27980, alarm at the same time.

④Voltage input module range selection 0V~10V (0~27648) supports overshoot, overflow, and overflow alarm functions. Overshoot means that the channel input range exceeds the range and enters overshoot, and the normal calculation code value is displayed within -0.13V~+10.12V. Overflow means that when the channel input voltage is greater than 10.12V, the maximum overshoot code value 27980 is displayed, and an alarm is issued at the same time; when the input channel input voltage is less than -0.13V, the minimum overshoot code value is displayed-332, alarm at the same time.

Range / Voltage	-5V~+5V	0V~5V	1V~5V
	-27648~27648	0~27648	0~27648
	Code value	Code value	Code value
-5.07	-27980	-	-
-5	-27648	-	-
-4	-22118	-	-
-3	-16588	-	-
-2	-11060	-	-
-1	-5530	-	-
-0.07	-332	-332	-
0	0	0	-
0.94	5198	5198	-345
1	5530	5530	0
2	11060	11060	6912
3	16588	16588	13824
4	22118	22118	20736
5	27648	27648	27648
5.06	27980	27980	27933
Code value formula	Code value=(55296/10)*Voltage	Code value=(27648/5)*Voltage	Code value=(27648/4)*Voltage-6912
Voltage formula	Voltage=(Code value*10)/55296	Voltage=(Code value*5)/27648	Voltage=(Code value+6912)*4/27648

Note:①When the voltage input module range is -5V~+5V (-27648~27648), it supports overshoot, overflow, and overflow alarm functions. Overshoot means that the channel input range exceeds the range and enters overshoot, and the normal calculation code value is displayed within -5.07V~+5.06V. When the channel input voltage is greater than 5.06V, the maximum overshoot code value 27980 is

displayed, and an alarm is issued at the same time; when the input channel input voltage is less than -5.07V, the minimum overshoot code value -27980 is displayed, and an alarm is issued at the same time.

② The voltage input module range is 0V~5V (0~27648) supports overshoot, overflow, and overflow alarm functions. Overshoot means that the channel input range exceeds the range and enters overshoot, and the normal calculation code value is displayed within -0.07V~+5.06V. Overflow means that when the channel input voltage is greater than 5.06V, the maximum overshoot code value 27980 is displayed, and an alarm is issued at the same time; when the input channel input voltage is less than -0.07V, the minimum overshoot code value is displayed-332, alarm at the same time.

③The voltage input module range is 1V~5V (0~27648) supports overshoot, overflow, underflow and underflow alarm functions. Overshoot means that the channel input range exceeds the range and enters overshoot, and the normal calculation code value is displayed within 0.94V~5.06V. Underflow means that when the channel input voltage is greater than 5.06V, the maximum overshoot code value 27933 is displayed, and an alarm is issued at the same time; when the input channel input voltage is less than 0.94V, the minimum overshoot code value is displayed-345, alarm at the same time.

3.3.4.4 Voltage output code value table

Range / Voltage	-10V~+10V	0V~10V	-10V~+10V	0V~10V
	-32768~32767	0~32767	-27648~27648	0~27648
	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	6554	5530	5530
3	9830	9830	8294	8294
4	13107	13107	11059	11059
5	16384	16384	13824	13824
6	19661	19661	16589	16589
7	22937	22937	19354	19354
8	26214	26214	22118	22118
9	29491	29491	24883	24883
10	32767	32767	27648	27648
Code value formula	Code value =(65535/20)*Voltage	Code value =(32767/10)*Voltage	Code value =(55296/20)*Voltage	Code value =(27648/10)*Voltage
Voltage formula	Voltage =(Code value*20) /65535	Voltage =(Code value*10) /32767	Voltage =(Code value*20) /55296	Voltage =(Code value*10) /27648

Note: ①The voltage output module supports overflow and underflow functions.When the voltage output module range is selected as -10V~+10V or 0V~10V and the code value is set greater than the maximum code value corresponding to the range, all channels output 10V voltage;

When the voltage output module range is -10V~+10V and the code value is set to be less than the minimum code value corresponding to the range, all channels output -10V voltage;

When the voltage output module range is selected as 0V~10V and the code value is set to be less than the minimum code value corresponding to the range, all channels output 0V voltage.

Range / Voltage	-5V~+5V	0V~5V	1V~5V
	-27648~27648	0~27648	0~27648
	Code value	Code value	Code value
-5	-27648	-	-
-4	-22118	-	-
-3	-16588	-	-
-2	-11060	-	-
-1	-5530	-	-
0	0	0	-
1	5530	5530	0
2	11060	11060	6912
3	16588	16588	13824
4	22118	22118	20736
5	27648	27648	27648
Code value formula	Code value=(55296/10)*Voltage	Code value=(27648/5)*Voltage	Code value=(27648/4)*Voltage-6912
Voltage formula	Voltage=(Code value*10)/55296	Voltage=(Code value*5)/27648	Voltage=(Code value+6912)*4/27648

Note:①The voltage output module supports overflow and underflow functions.When the voltage output module range is -5V~+5V/0V~5V/1V~5V and the code value is set greater than the maximum code value corresponding to the range, all channels output 5V voltage;

When the voltage output module range is -5V~+5V and the code value is set to be less than the minimum code value corresponding to the range, all channels output -5V voltage;

When the voltage output module range is selected as 0V~5V and the code value is set to be less than the minimum code value corresponding to the range, all channels output 0V voltage;

When the voltage output module range is selected as 1V~5V and the code value is set to be less than the minimum code value corresponding to the range, all channels output 1V voltage.

3.3.5 Analog current parameters

3.3.5.1 Current input range selection table

Current input range selection and code value range					
Range selection	Range	Code value range	Current input calculation formula	Current output calculation formula	Code value correspondence table
0	Disable: indicates that the channel is disabled.				
1	4mA~20mA	0~65535	D=(65535/16)*I-16384	I=(D+16384)*16/65535	See also3.3.5.3 Current input code value table
2 (default)	0mA~20mA	0~65535	D=(65535/20)*I	I=(D*20)/65535	
3	4mA~20mA	0~27648	D=(27648/16)*I-6912	I=((D+6912)*16)/27648	
4	0mA~20mA	0~27648	D=(27648/20)*I	I=(D*20)/27648	
5	-20mA~+20mA	0~65535	D=(65535/40)*(I+20)	I=(D*40)/65535-20	

Note: D represents the code value, I represents the current, and the default range of the analog current input module is 2: 0mA~20mA (0~65535).

Range 5: -20mA~+20mA (0~65535) is unique to the current input differential signal module.

3.3.5.2 Current output range selection table

Current output range selection and code value range					
Range selection	Range	Code value range	Current input calculation formula	Current output calculation formula	Code value correspondence table
0	Disable: indicates that the channel is disabled.				
1	4mA~20mA	0~65535	D=(65535/16*I)-16384	I=(D+16384)*16/65535	See also3.3.5.4 Current output code value table
2 (default)	0mA~20mA	0~65535	D=(65535/20)*I	I=(D*20)/65535	
3	4mA~20mA	0~27648	D=(27648/16)*I-6912	I=((D+6912)*16)/27648	
4	0mA~20mA	0~27648	D=(27648/20)*I	I=(D*20)/27648	

Note: D represents the code value, I represents the current, and the analog current output module range is 2 by default: 0mA~20mA (0~65535).

3.3.5.3 Current input code value table

Range / Current	4mA~20mA	0mA~20mA	4mA~20mA	0mA~20mA	-20mA~+20mA
	0~65535	0~65535	0~27648	0~27648	0~65535
	Code value	Code value	Code value	Code value	Code value
-20	-	-	-	-	0
-15	-	-	-	-	8192
-10	-	-	-	-	16384
-9	-	-	-	-	18022
-8	-	-	-	-	19661
-7	-	-	-	-	21299
-6	-	-	-	-	22937
-5	-	-	-	-	24576
-4	-	-	-	-	26214
-3	-	-	-	-	27852
-2	-	-	-	-	29491
-1	-	-	-	-	31129
0	-	0	-	0	32768
1	-	3277	-	1382	34406
2	-	6554	-	2765	36044
3	-	9830	-	4147	37683
4	0	13107	0	5530	39321
5	4096	16384	1728	6912	40959
6	8192	19661	3456	8294	42598
7	12288	22937	5184	9677	44236
8	16384	26214	6912	11059	45875
9	20479	29491	8640	12442	47513
10	24575	32768	10368	13824	49151
11	28671	36044	12096	15206	50790
12	32767	39321	13824	16589	52428
13	36863	42598	15552	17971	54066
14	40959	45875	17280	19354	55705
15	45055	49151	19008	20736	57343
16	49151	52428	20736	22118	58982
17	53247	55705	22464	23501	60620
18	57343	58982	24192	24883	62258
19	61439	62258	25920	26266	63897
20	65535	65535	27648	27648	65535
20.19	-	-	28034	27917	-
20.24	-	-	28085	27986	-
Code value formula	Code value = 65535/16*current-16384	Code value = (65535/20) * current	Code value = (27648/16)*current-6912	Code value = (27648/20) * current	Code value =(65535/40)*(current+20)

Note: Range 5: -20mA~+20mA (0~65535) is unique to the current input differential signal module.

① When the current input module range is selected as 4mA~20mA (0~65535), it supports overflow and overflow alarm functions, that is, when the channel input current is greater than 20.03mA, the maximum code value 65535 is displayed and an alarm is issued; when the input channel input current is less than 4mA, the minimum code value is displayed0.

②When the current input module range is selected from 0mA to 20mA (0 to 65535), it supports overflow, underflow and overflow alarm functions. That is, when the channel input current is greater than 20.03mA, the maximum code value 65535 is displayed and an alarm is issued at the same time.; When the input channel input current is less than 0mA, the minimum code value 0 is displayed.

③When the current input module range is 4mA~20mA (0~27648), it supports overflow, overshoot, overflow, and overflow alarm functions. Overshoot means that the channel input range exceeds the range and enters overshoot, and the normal calculation code value is displayed within 4mA~20.24mA. Overflow means that when the channel input current is greater than 20.24mA, the maximum overshoot code value is displayed.28085When the input current of the input channel is less than 4mA, the minimum overshoot code value 0 is displayed.

④When the current input module range is 0mA~20mA (0~27648), it supports overflow, overshoot, overflow, and overflow alarm functions. Overshoot means that the channel input range exceeds the range and enters overshoot, and the normal calculation code value is displayed within 0mA~20.24mA. Overflow means that when the channel input current is greater than 20.24mA, the maximum overshoot code value is displayed.27986When the input current of the input channel is less than 0mA, the minimum overshoot code value 0 is displayed.

⑤When the current input module range is -20mA~+20mA (0~65535), it supports overflow, underflow and overflow alarm functions. That is, when the channel input current is greater than 20mA, the maximum code value 65535 is displayed and an alarm is given at the same time.; Input channel input is less than-20mAWhen the current is on, the minimum code value 0 is displayed.

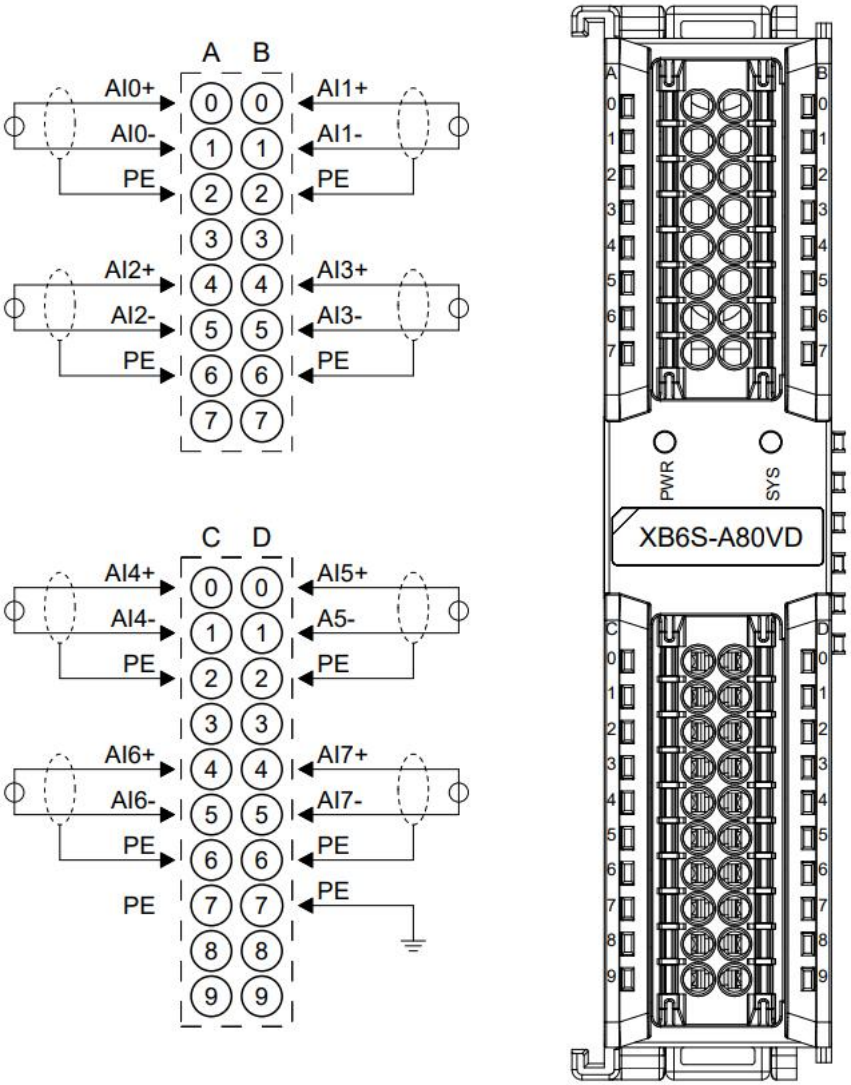
3.3.5.4 Current output code value table

Range / Current	4mA~20mA	0mA~20mA	4mA~20mA	0mA~20mA
	0~65535	0~65535	0~27648	0~27648
	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
22.81	-	-	32511	31538
23.52	-	-	-	32511
Code value formula	Code value = 65535/16*current-16384	Code value = (65535/20) * current	Code value = (27648/16)*current-6912	Code value = (27648/20) * current

Note: ① When the current output module range is 4mA~20mA (0~27648) and 0mA~20mA (0~27648), it supports overflow overshoot, overflow and overflow alarm functions. That is, when the current output module range is 4mA~20mA (0~27648) and the code value is set greater than32511When the current output module is set to 0mA~20mA (0~27648), the code value is set to be greater than32511When , all channels output 23.52mA current and alarm at the same time.

3.3.6 Wiring Diagram

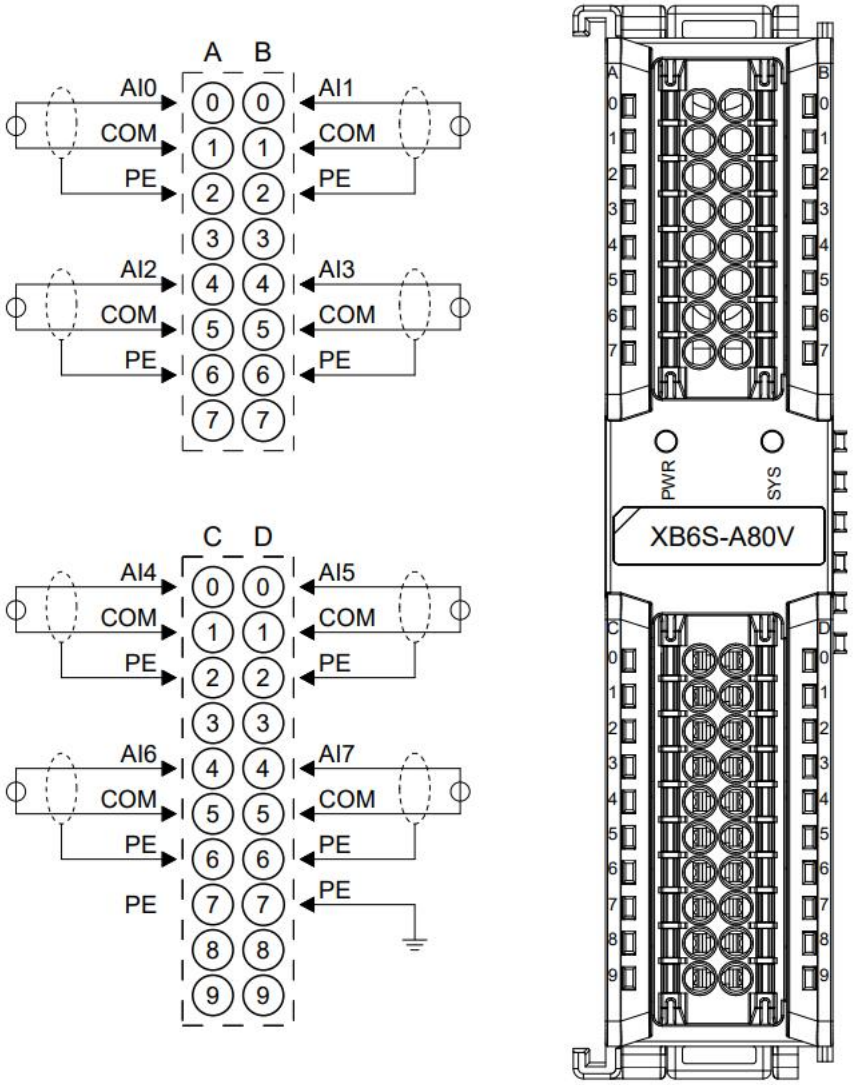
3.3.6.1 XB6S-A80VD



*All PEs are internally conductive

*It is recommended to use shielded twisted pair cables, connect the shield layer to the PE port, and ground it reliably

3.3.6.2 XB6S-A80V

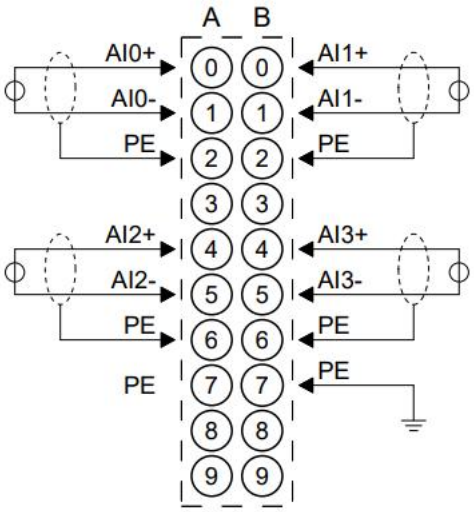


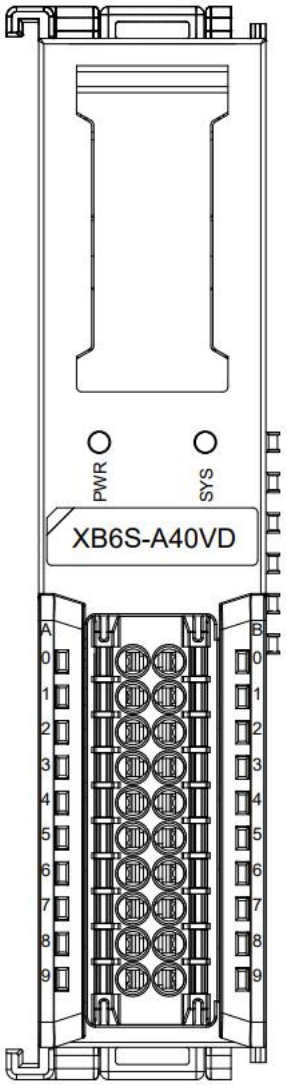
*COM is internally conductive, PE is internally conductive

*All channel loads must be from the same source

*Shielded twisted pair cables are recommended for signal cables

3.3.6.3 XB6S-A40VD

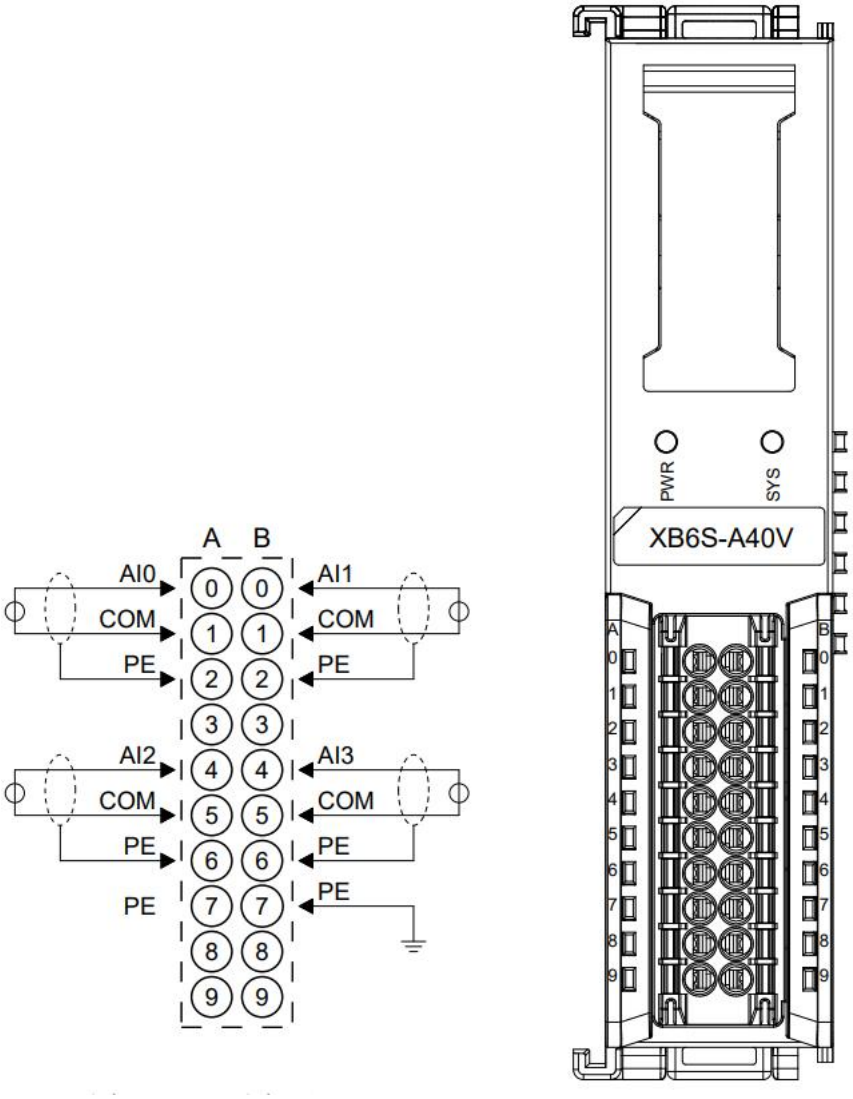




*All PEs are internally conductive

*It is recommended to use shielded twisted pair cables, connect the shield layer to the PE port, and ground it reliably

3.3.6.4 XB6S-A40V

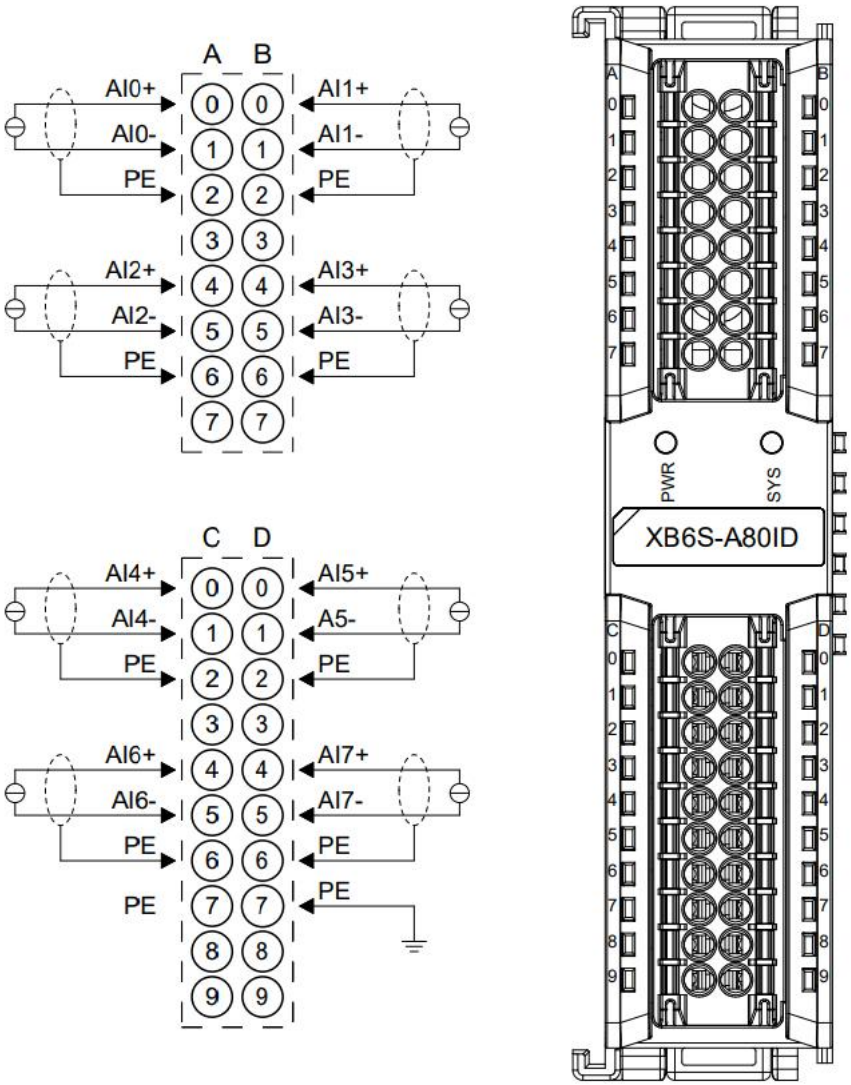


*COM is internally conductive, PE is internally conductive

*All channel loads must be from the same source

*Shielded twisted pair cables are recommended for signal cables

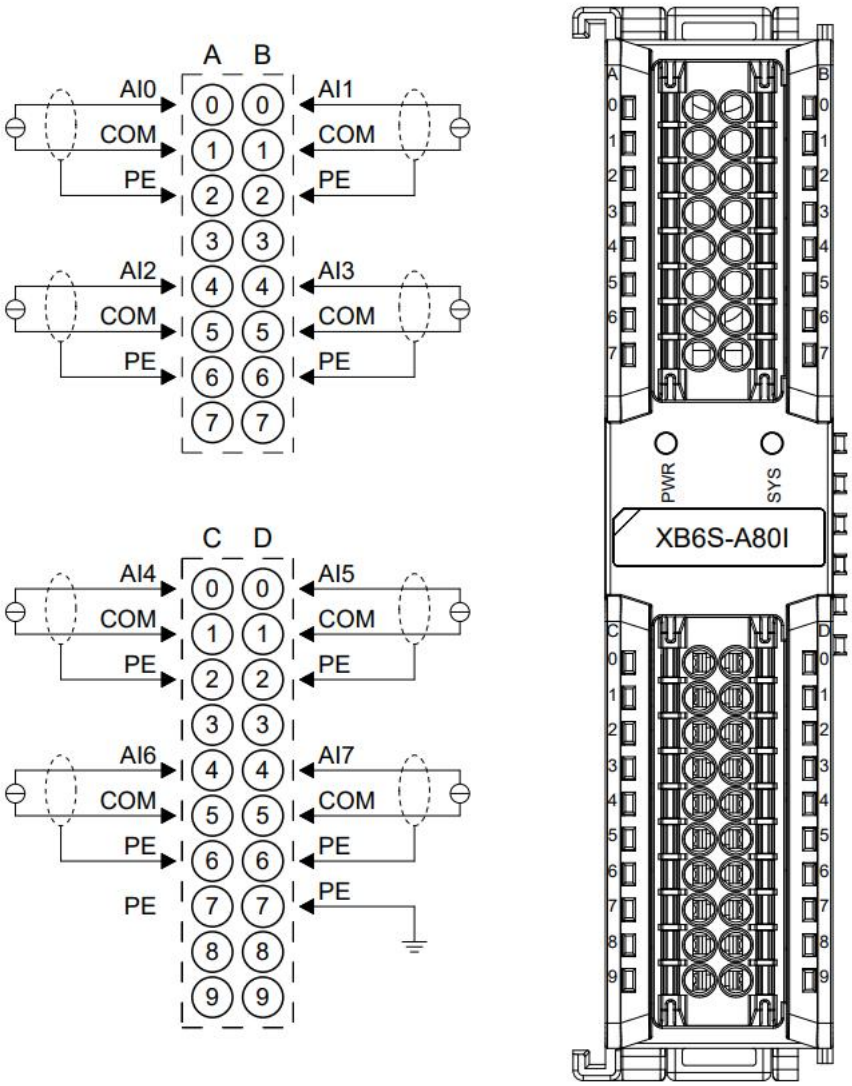
3.3.6.5 XB6S-A80ID



*All PEs are internally conductive

*It is recommended to use shielded twisted pair cables, connect the shield layer to the PE port, and ground it reliably

3.3.6.6 XB6S-A80I

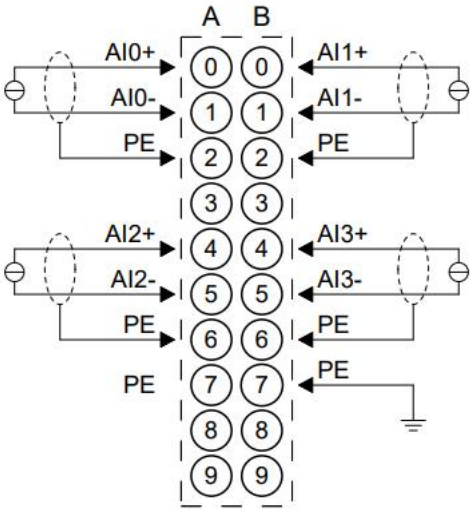


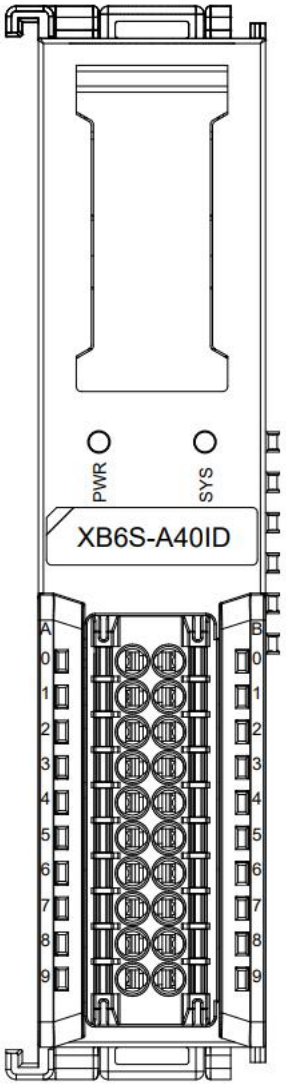
*COM is internally conductive, PE is internally conductive

*All channel loads must be from the same source

*Shielded twisted pair cables are recommended for signal cables

3.3.6.7 XB6S-A40ID

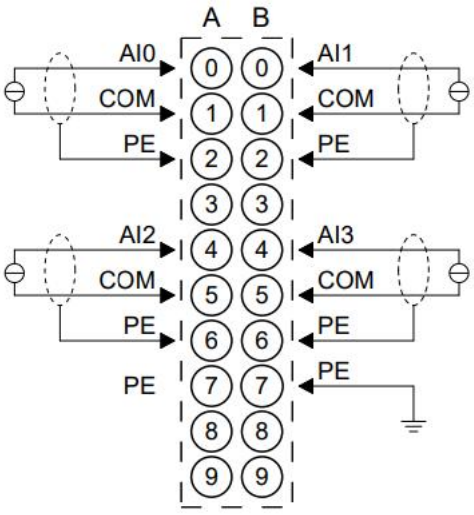


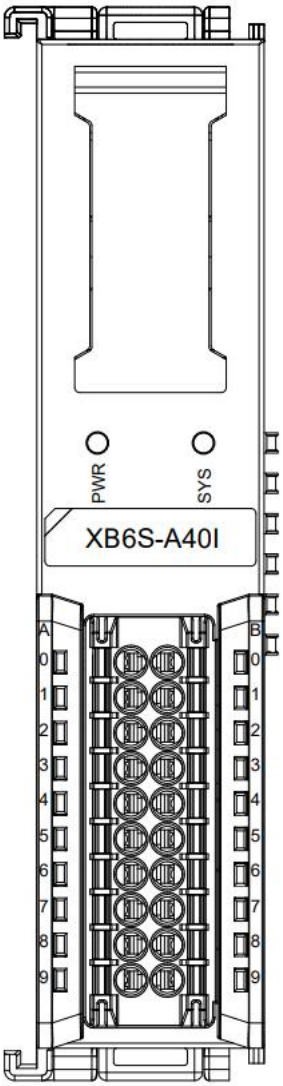


*All PEs are internally conductive

*It is recommended to use shielded twisted pair cables, connect the shield layer to the PE port, and ground it reliably

3.3.6.8 XB6S-A40I



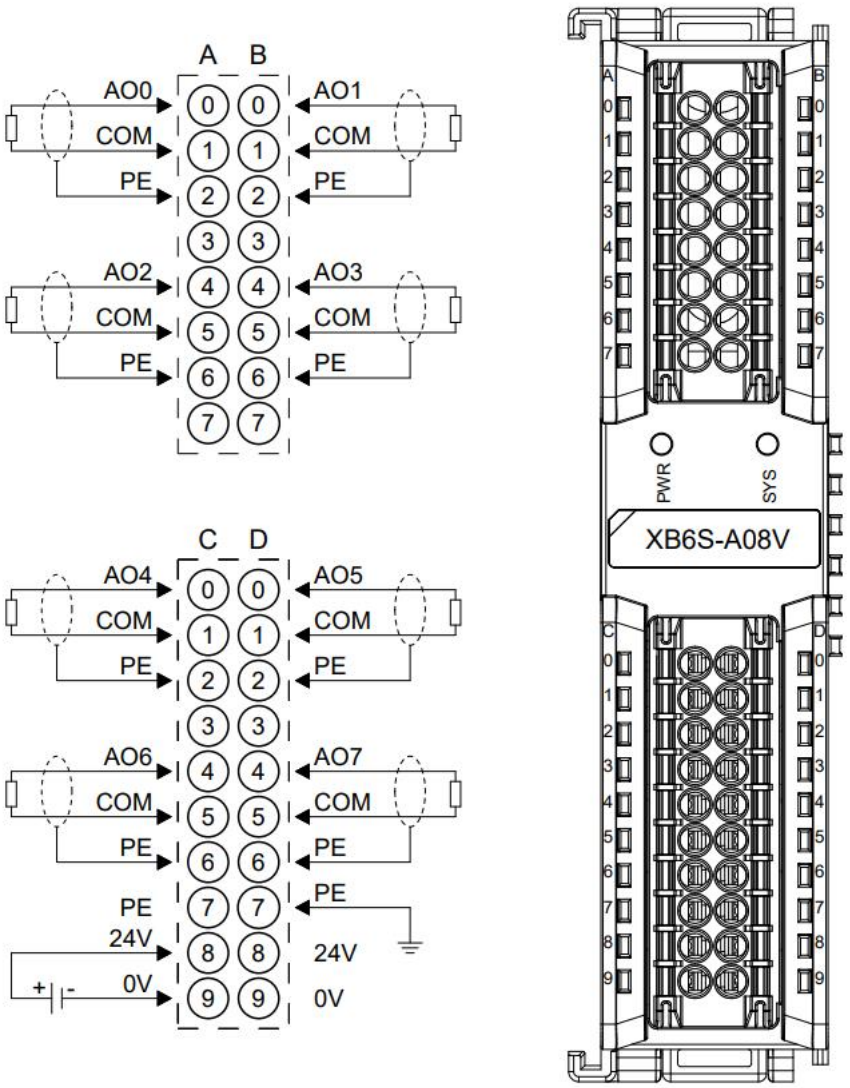


*COM is internally conductive, PE is internally conductive

*All channel loads must be from the same source

*Shielded twisted pair cables are recommended for signal cables

3.3.6.9 XB6S-A08V

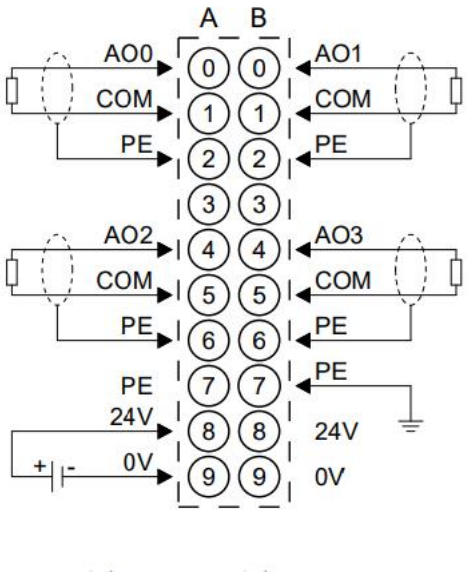


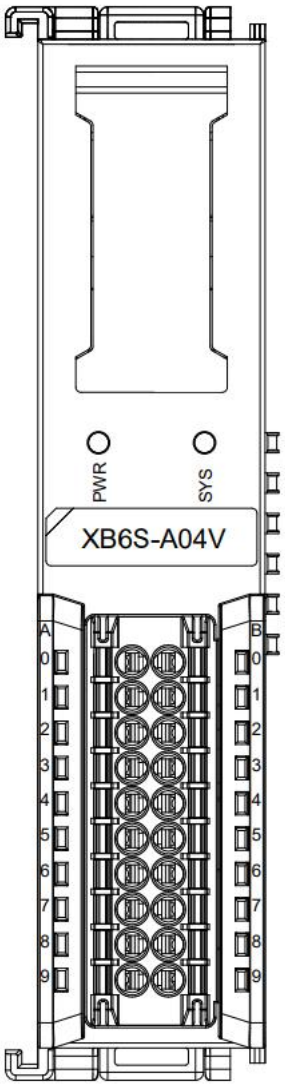
*COM is internally conductive, PE is internally conductive

*All channel loads must be from the same source

*Shielded twisted pair cables are recommended for signal cables

3.3.6.10 XB6S-A04V



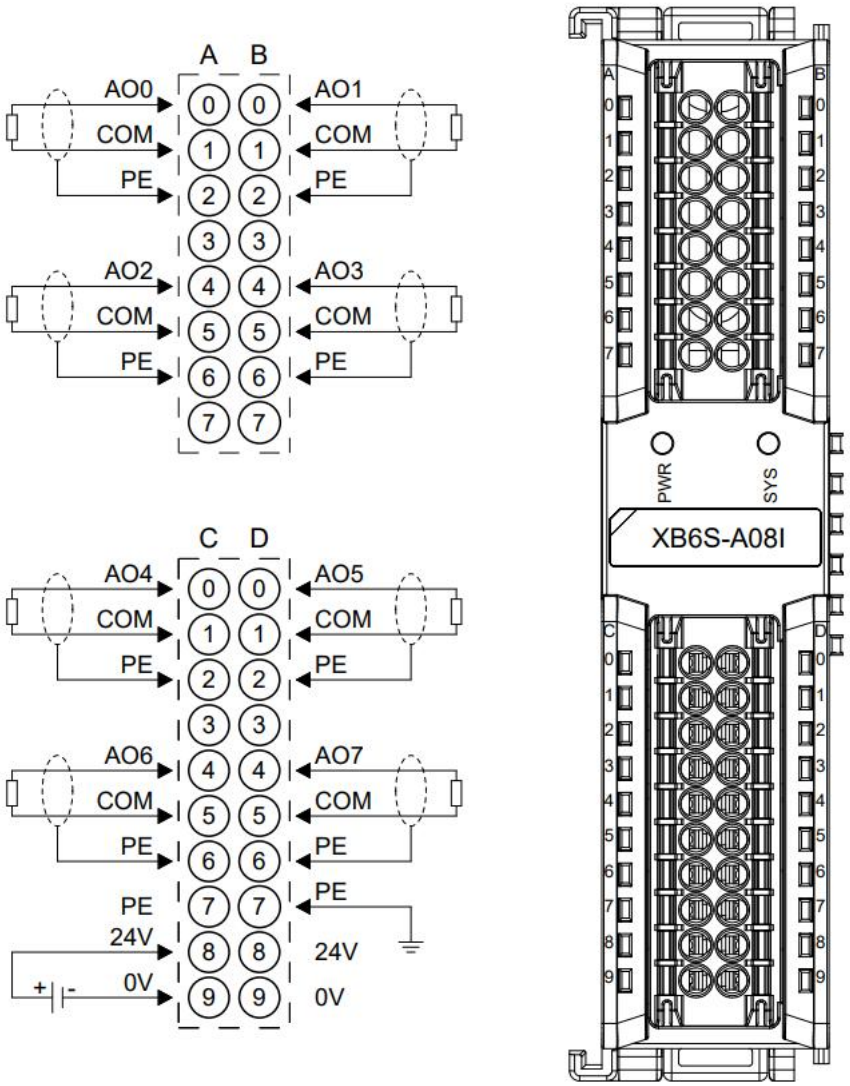


*COM is internally conductive, PE is internally conductive

*All channel loads must be from the same source

* Shielded twisted pair cables are recommended for signal cables

3.3.6.11 XB6S-A08I

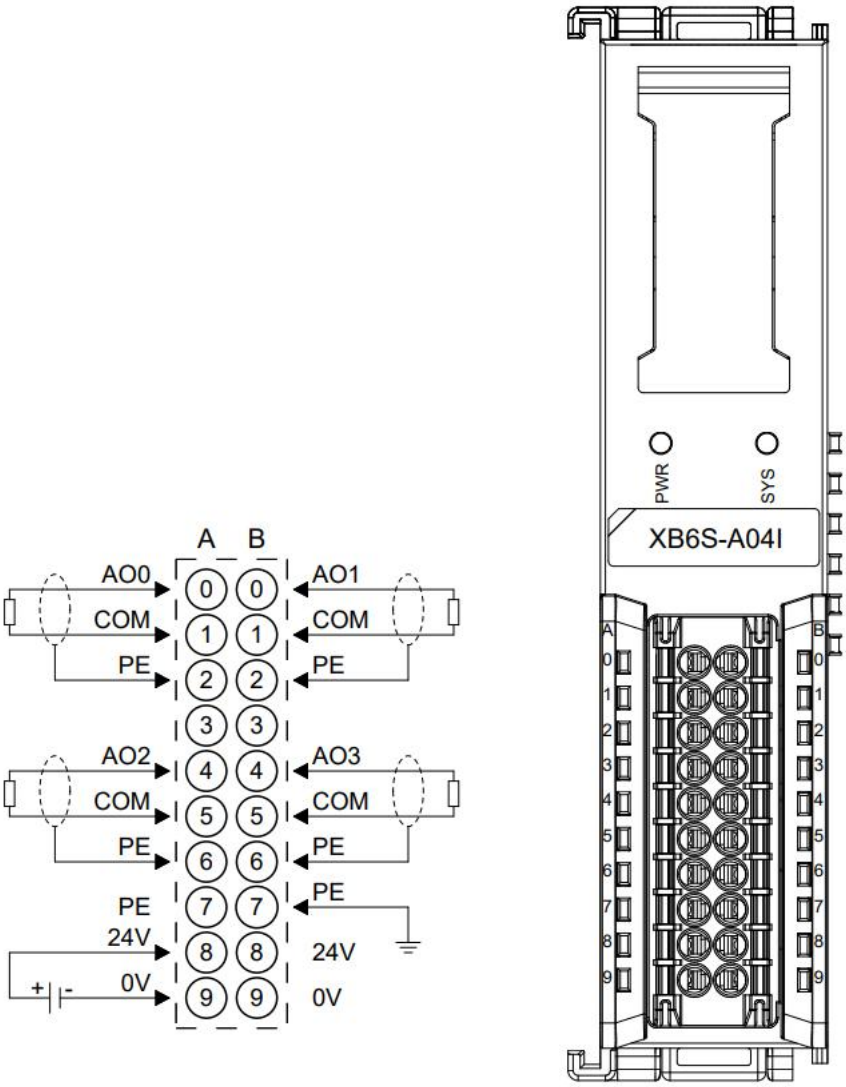


*COM is internally conductive, PE is internally conductive

*All channel loads must be from the same source

*Shielded twisted pair cables are recommended for signal cables

3.3.6.12 XB6S-A04I



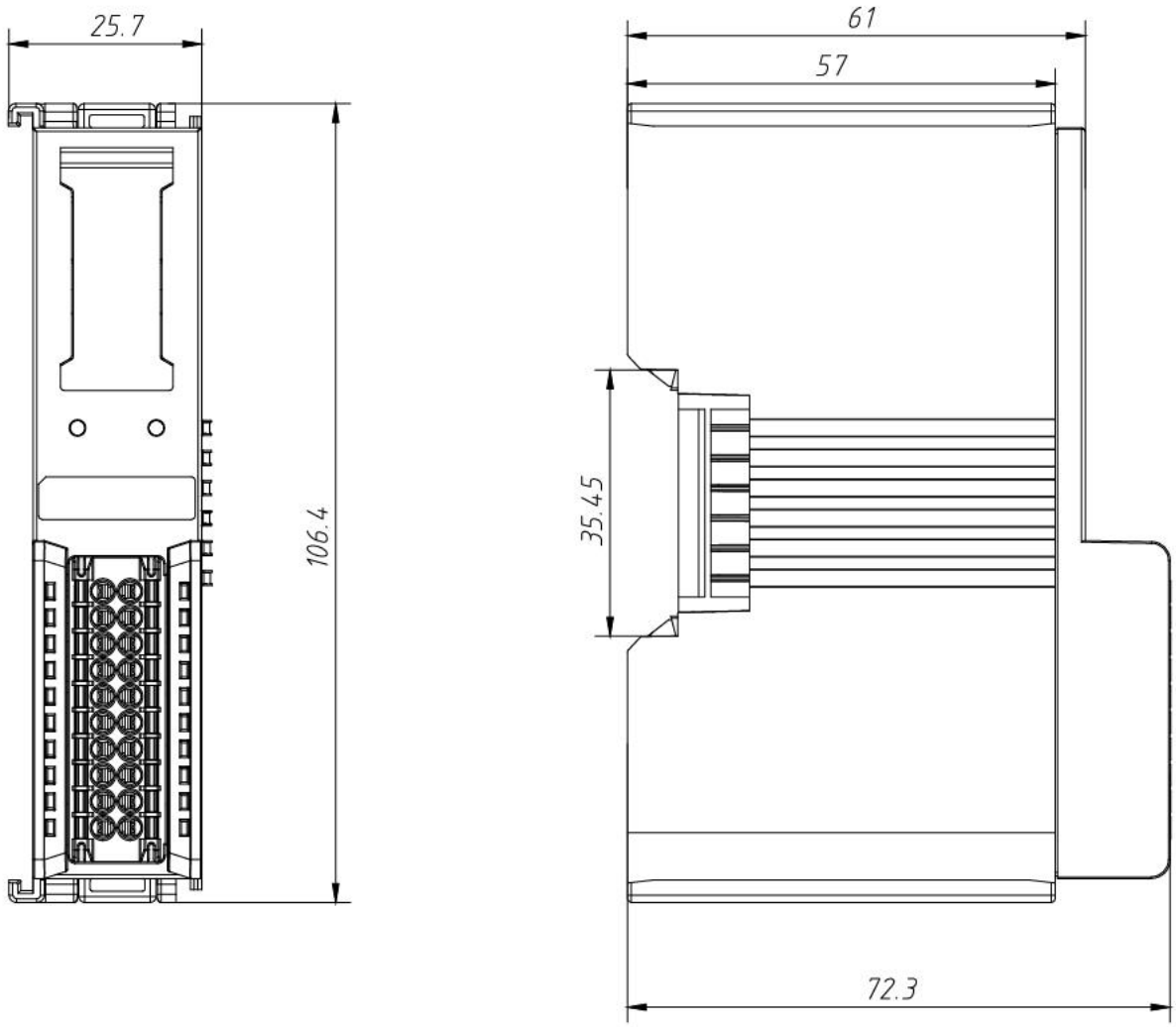
*COM is internally conductive, PE is internally conductive

*All channel loads must be from the same source

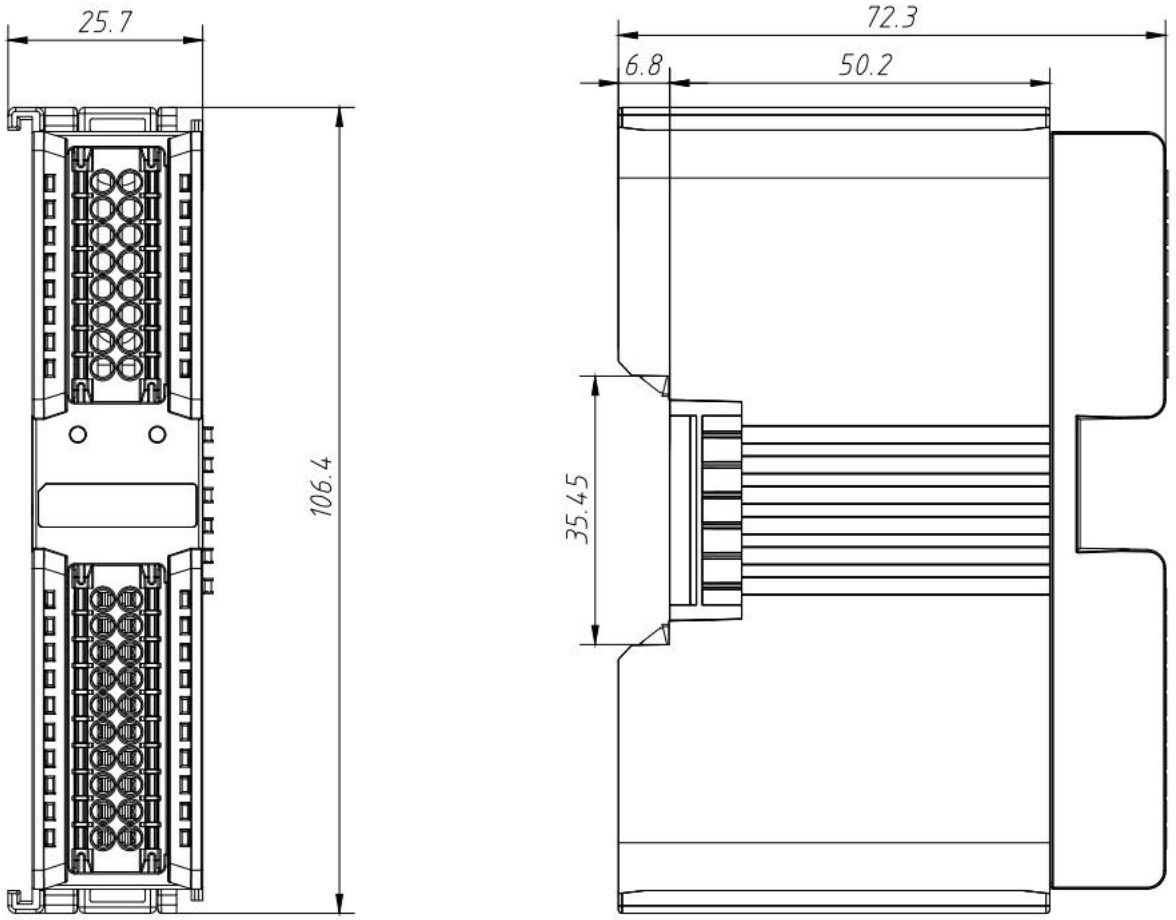
*Shielded twisted pair cables are recommended for signal cables

3.3.7 Dimensions

4-channel analog I/O module dimensions (unit mm)

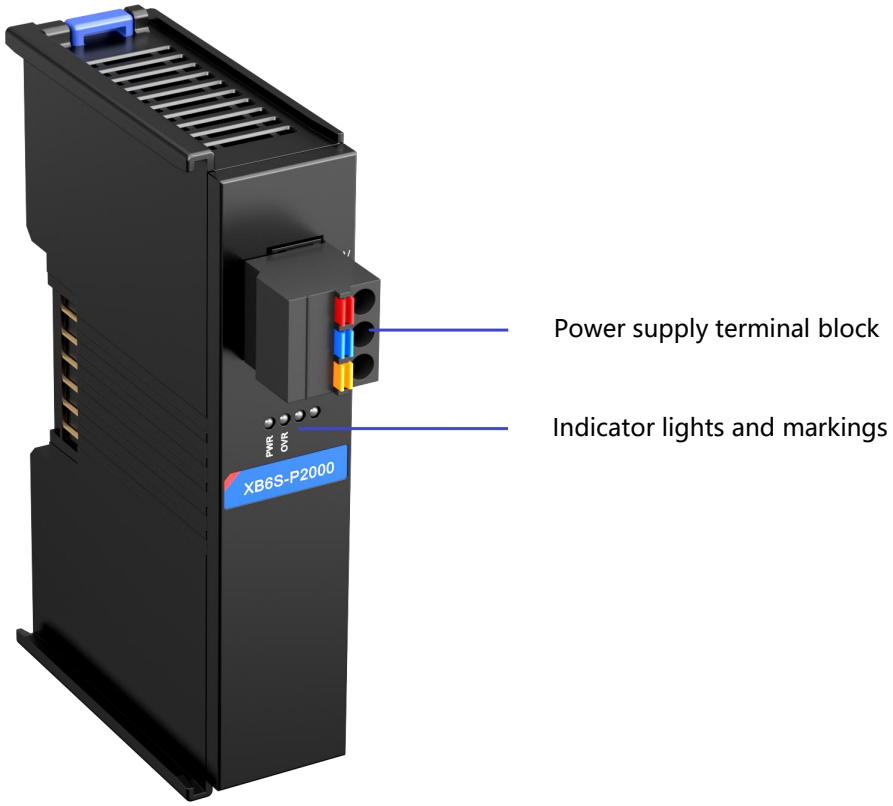


8-channel analog I/O module dimensions (unit mm)



3.4 Extension power module

3.4.1 Panel structure



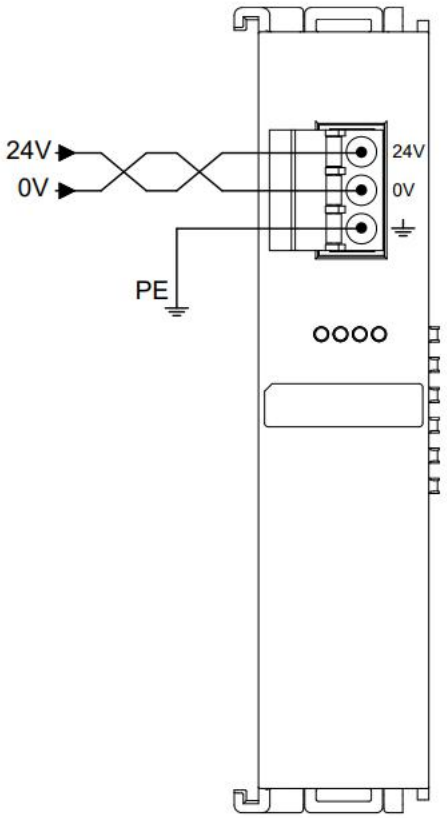
3.4.2 Indicator light function

Definition of indicator lights on the extended power module				
Marking	**Name**	**Color**	**Status**	**Status description**
PWR	Power indicator	green	Always on	The module power supply is working properly
			Off	The module is not powered or the power supply is abnormal.
OVR	Overload indicator light	red	Off	Not overloaded
			Always on	The load reaches more than 90% (±5%)

3.4.3 Technical Parameters

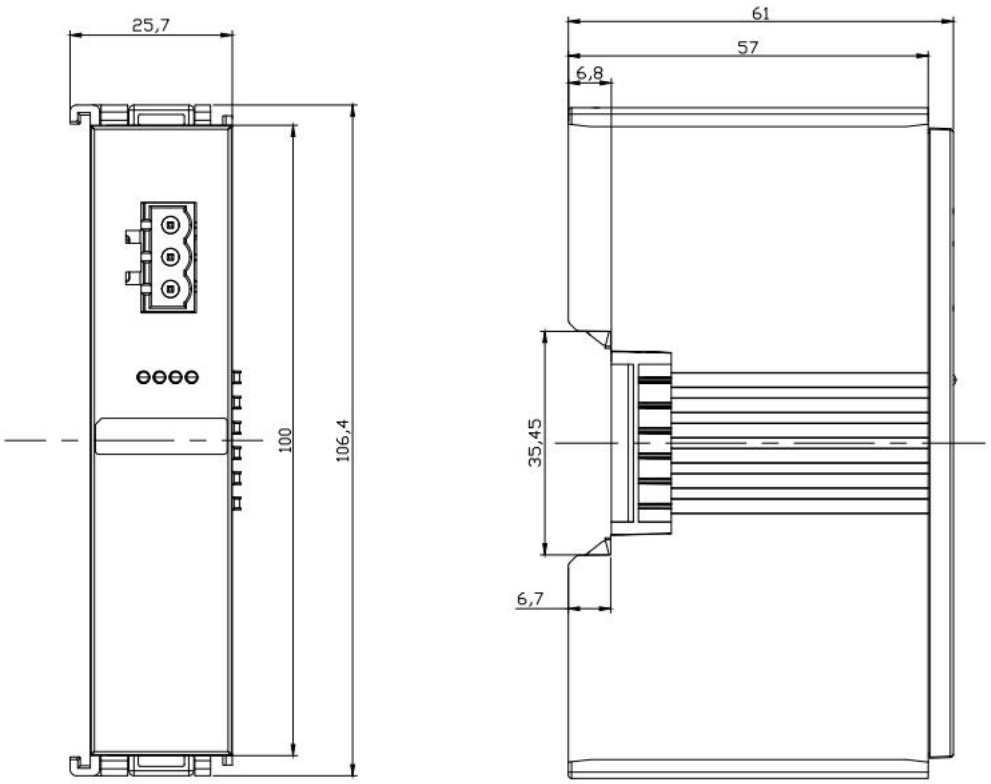
Power parameters	
Input voltage	SELV Input 24VDC (18V~36V)
Input Current	600mA (24VDC)
Output voltage	5VDC
Output Current	2A
General technical parameters	
Specifications and dimensions	106.4 × 25.7 × 61mm
Weight	110g
Operating temperature	-20℃~+60℃
Storage temperature	-40℃~+80℃
Relative humidity	95%, non-condensing
Altitude	≤2000m
Pollution degree	Level 2
Short circuit protection	Support (automatic recovery mechanism)
Reverse polarity protection	Support (automatic recovery mechanism)
Surge protection	Support
Protection level	IP20
Safety Certification	UL certification, CE certification
Green Environmental Certification	RoHS certification, REACH certification

3.4.4 Wiring Diagram



3.4.5 Dimensions

Extended power supply dimensions (unit mm)

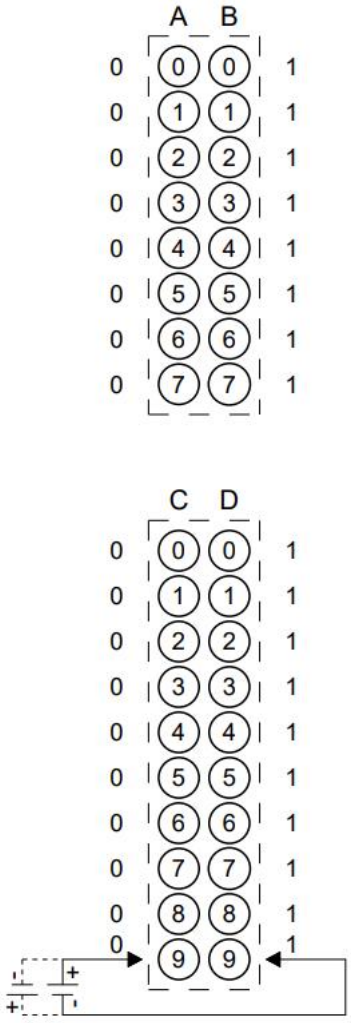


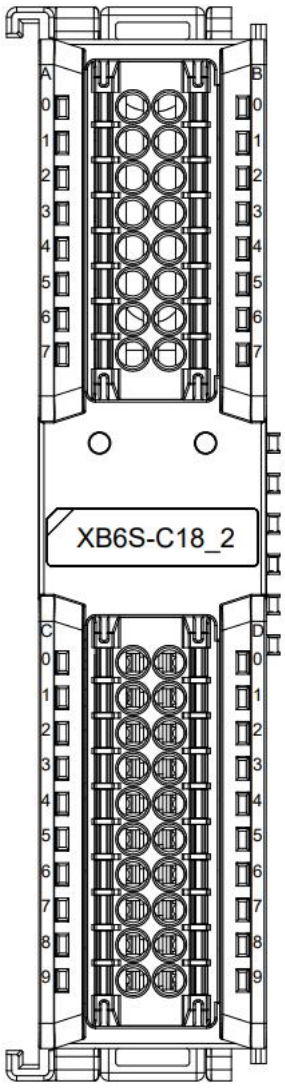
3.5 Common terminal expansion module

3.5.1 Technical Parameters

Common terminal parameters	
Rated voltage	24VDC (18V~36V)
Rated current	8A
Number of public terminals	2 groups
General technical parameters	
Specifications and dimensions	106.4 × 25.7 × 72.3mm
Weight	95g
Operating temperature	-20℃~+60℃
Storage temperature	-40℃~+80℃
Relative humidity	95%, non-condensing
Altitude	≤2000m
Pollution degree	Level 2
Protection level	IP20
Safety Certification	UL certification, CE certification
Green Environmental Certification	RoHS certification, REACH certification

3.5.2 Wiring Diagram

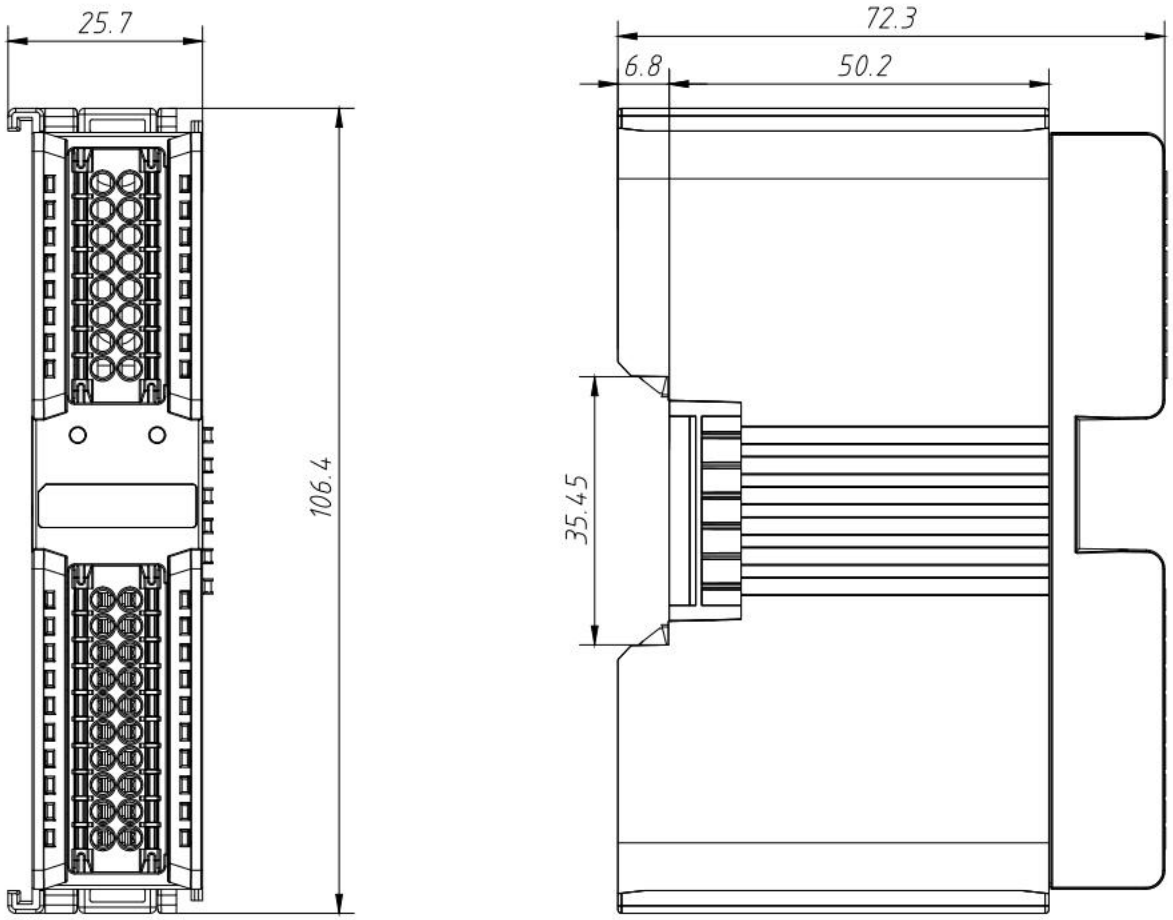




* Channel ID 0 is internally turned on
* Channel ID 1, internal conduction

3.5.3 Dimensions

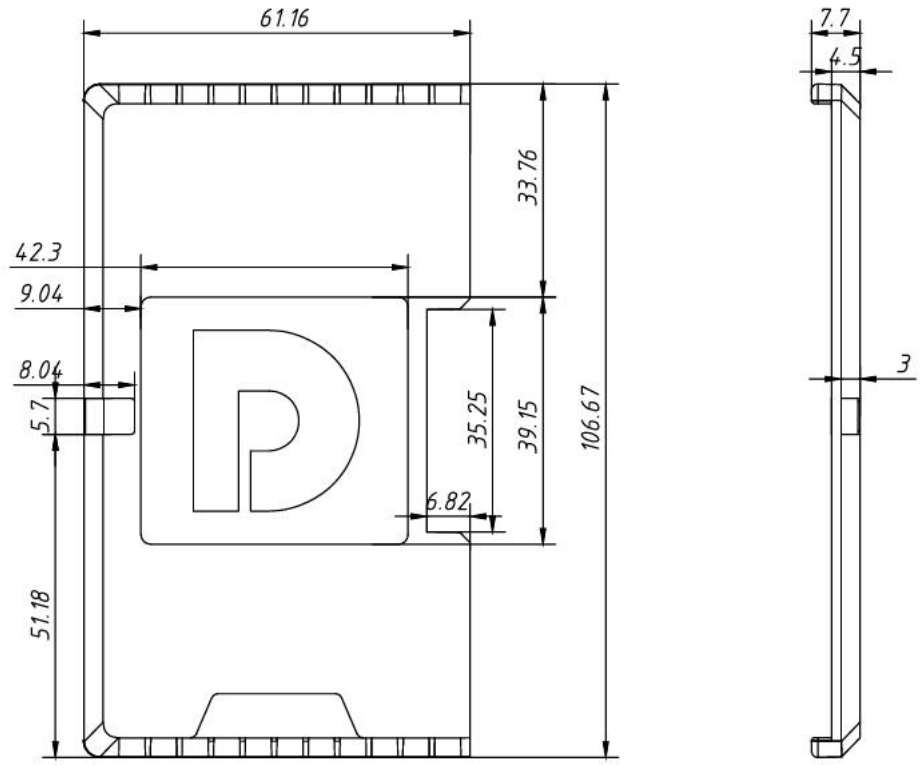
Dimensions (unit mm)



3.6 End cap

3.6.1 Dimensions

End cap dimensions (unit: mm)



Note: All are installed using DIN 35 mm standard rails, with DIN rail specifications of 35*7.5*1.0 and 35*15*1.0 (unit: mm).

4 Installation and removal

4.1 Installation Guide

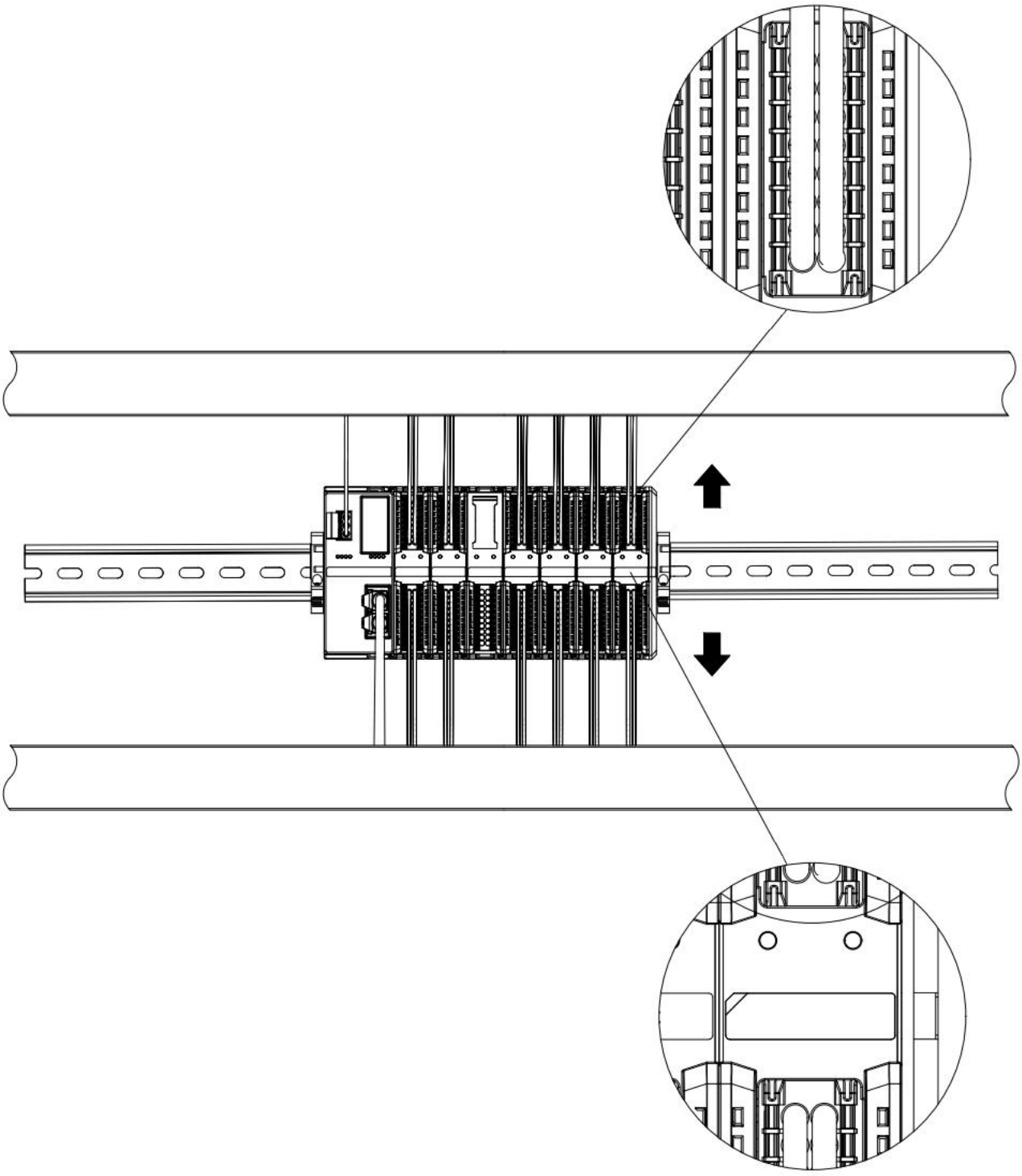
Installation/removal precautions

- **The module protection level is IP20. The module needs to be installed in a cabinet and used indoors.**
- **Ensure that the cabinet has good ventilation measures (such as installing an exhaust fan in the cabinet).**
- **Do not install this device near or over any equipment that may cause overheating.**
- **Be sure to install the module vertically on the fixed rail and maintain air circulation around it (there should be at least 50 mm of air circulation space above and below the module).**
- **After the module is installed, be sure to install the guide rail fixings at both ends to secure the module.**
- **Installation/removal must be performed with the power turned off.**
- **After the module is installed, it is recommended to connect and route the cables in an up-and-down manner.**

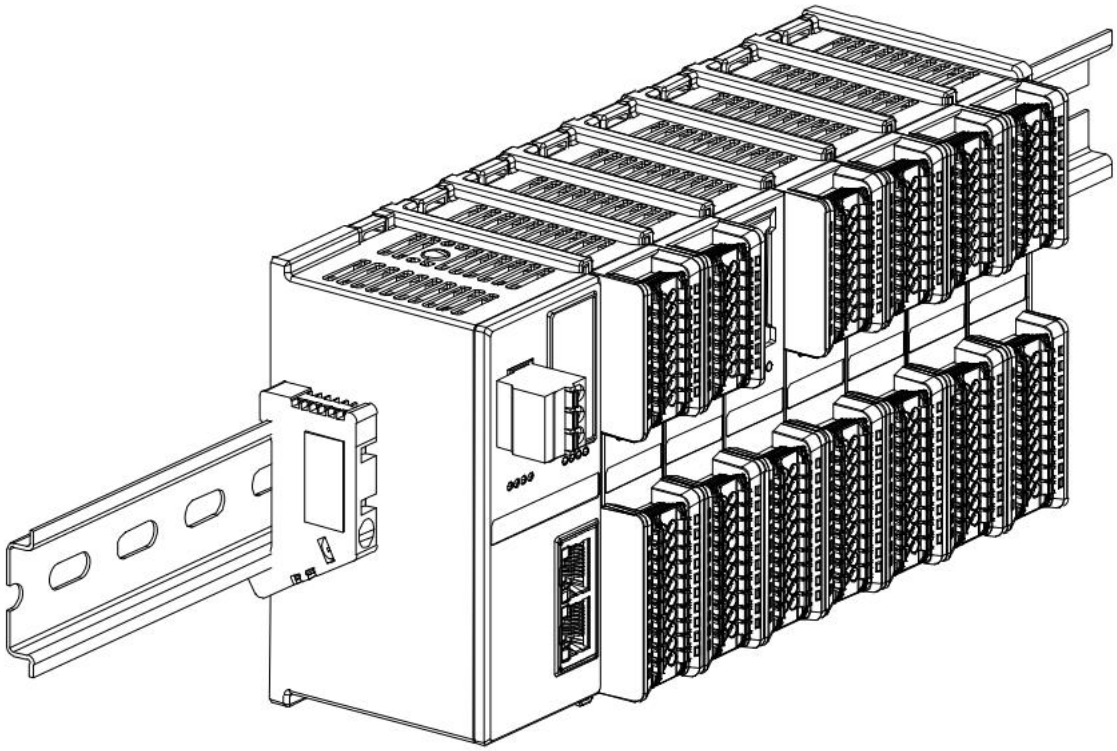
⚠ Warning

- If used in a manner not specified in the product user manual, the protection provided by the equipment may be impaired.

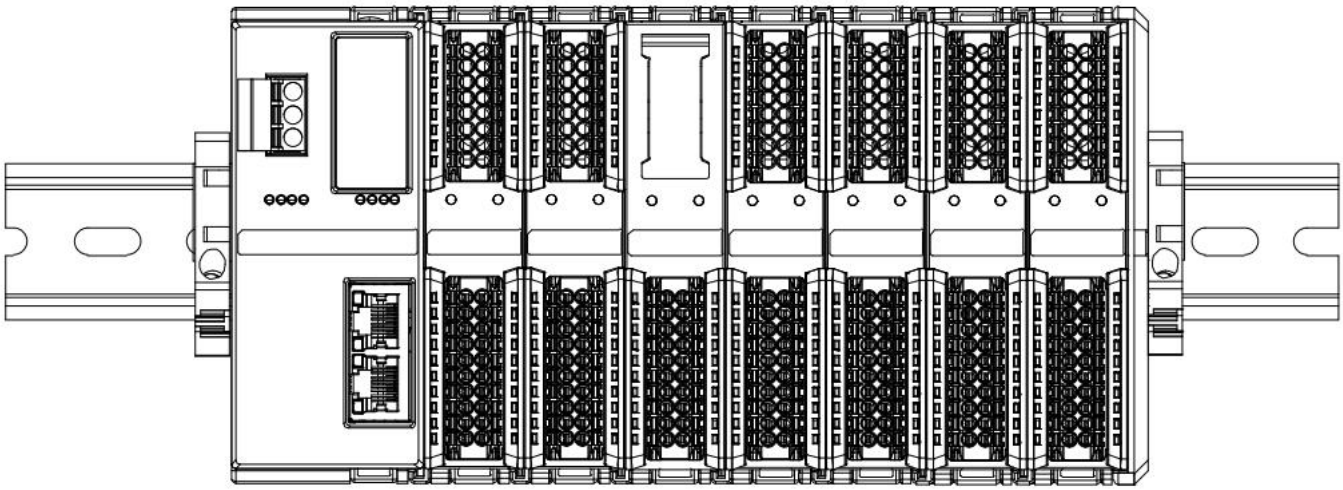
Module installation diagram, minimum clearance between top and bottom (≥ 50mm)



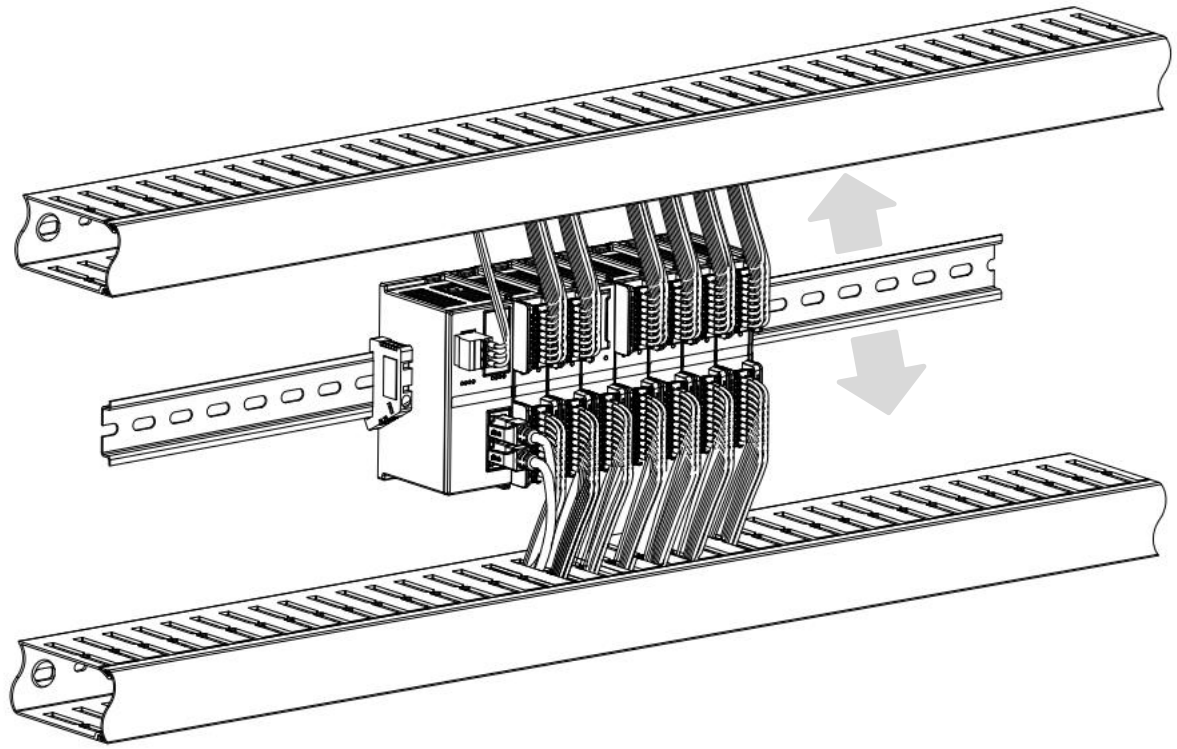
Ensure the module is installed vertically on the fixed rail



Be sure to install the rail fixings



Module upper and lower wiring diagram



4.2 Installation and removal steps

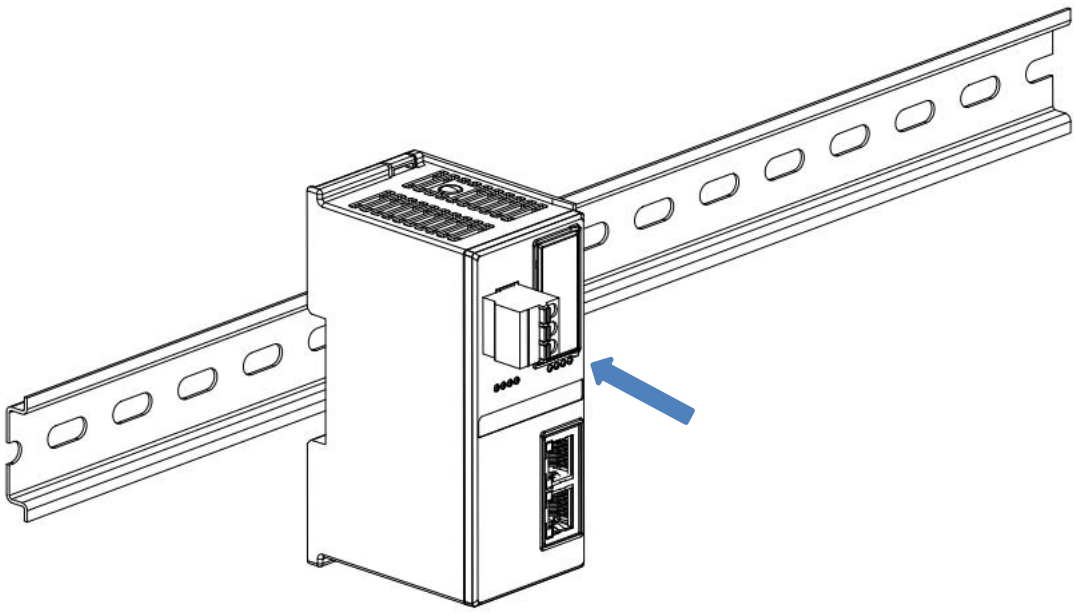
Module installation and removal	
Module installation steps	1. Install the coupler module on the fixed guide rail first.
	2. Install the required I/O modules or functional modules in sequence on the right side of the coupler module.
	3. After installing all required modules, install the end cap to complete the module assembly.
	4. Install the guide rail fixings at both ends of the coupler module and the end cap to fix the module.
Module disassembly steps	1. Loosen the guide rail fixings at both ends of the module.
	2. Use a flat-blade screwdriver to pry open the module buckle.
	3. Pull out the disassembled module.

4.3 Installation and disassembly diagram

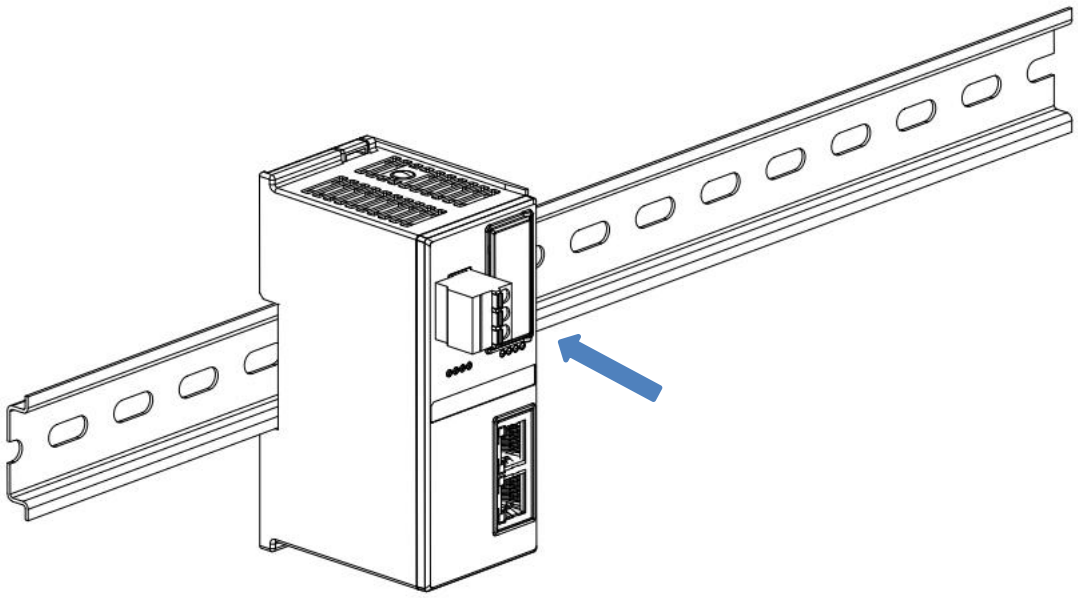
Coupler module installation

- Align the coupler module vertically with the guide rail slot, as shown in Figure ① below.

①



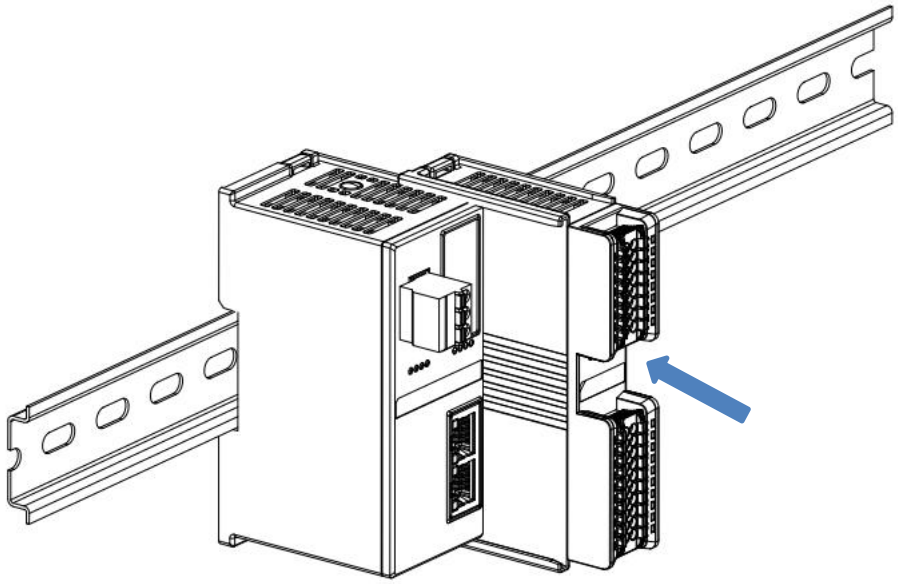
- Press the coupler module in the direction of the guide rail with force until you hear a "click" sound, and the module is installed in place, as shown in Figure ② below.



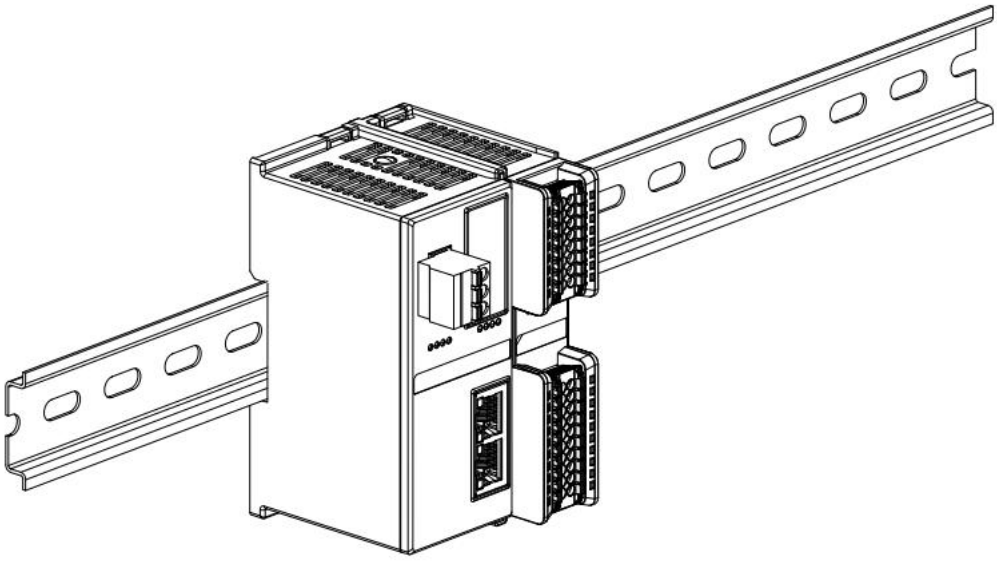
②

I/O Module Installation

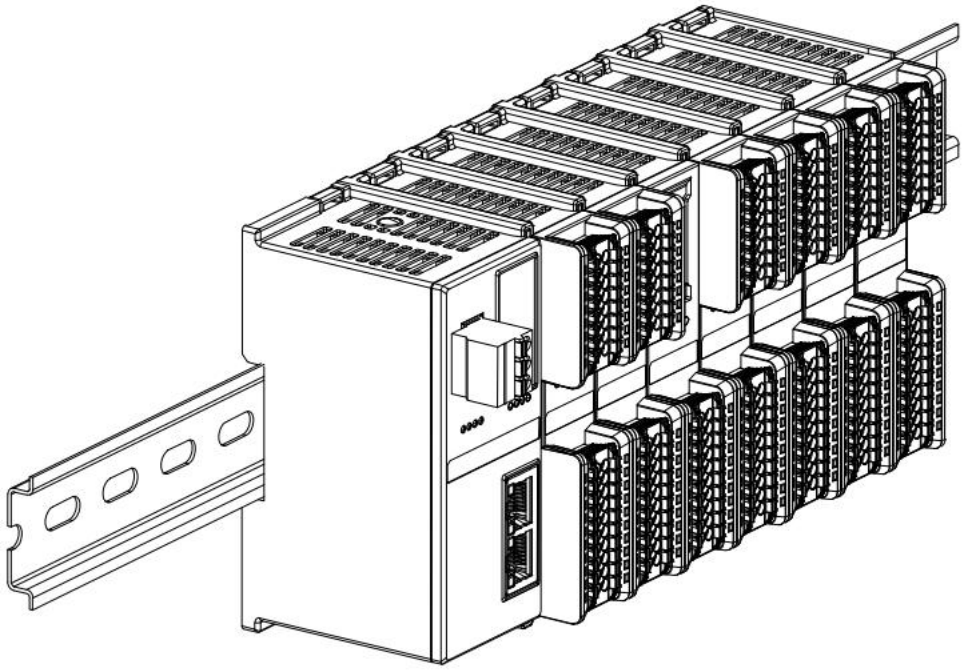
- Follow the steps above to install the coupler module and install the required I/O modules or functional modules one by one. Push them in as shown in Figures ③, ④, and ⑤ below. When you hear a "click", the module is installed in place.



③



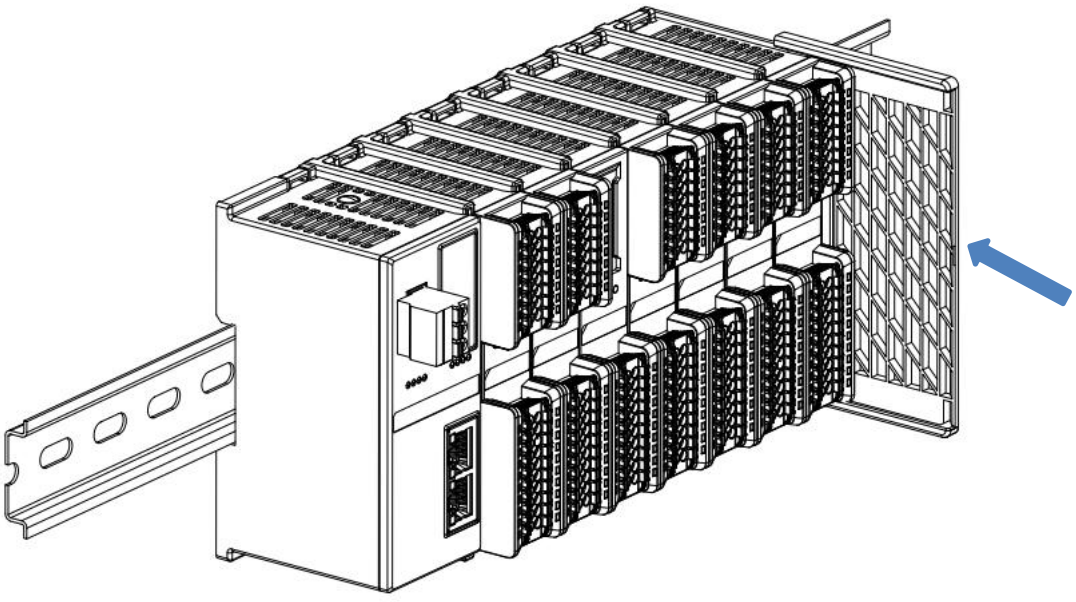
④



⑤

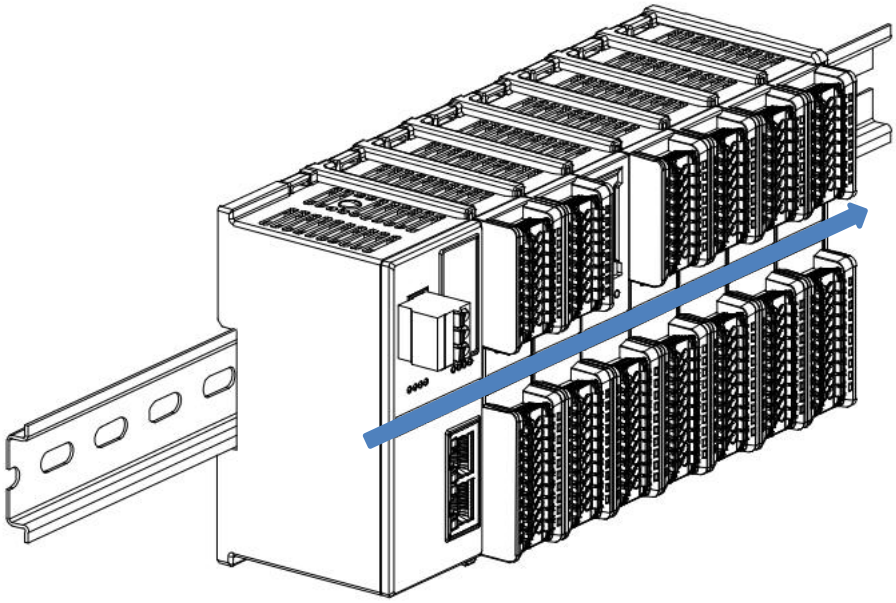
End cap installation

- Install the end cap on the right side of the last module, aligning one side of the end cap groove with the guide rail. For installation, refer to the installation method of the I/O module and push the end cap inwards into place, as shown in Figure ⑥ below.



⑥

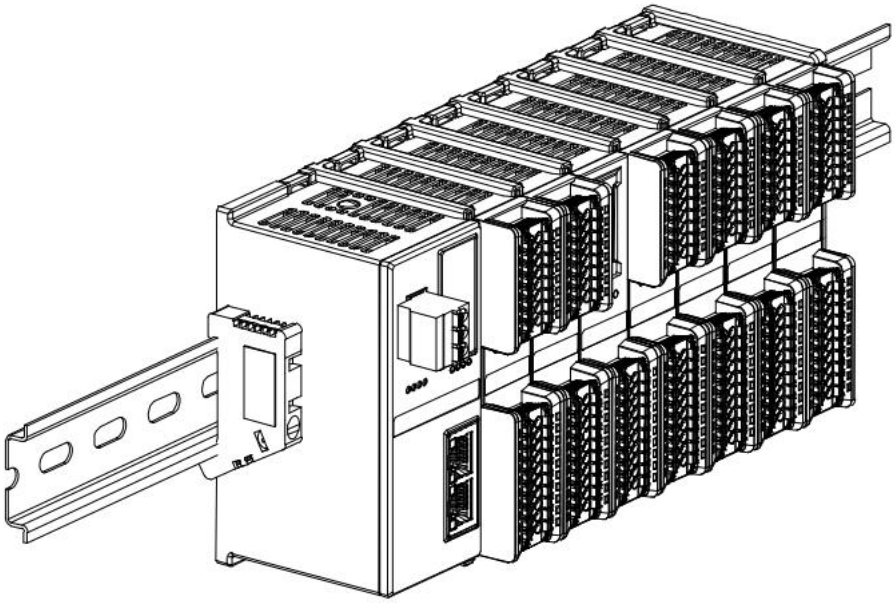
- After the end cap is installed, check whether the front of the entire module is flat, and ensure that all modules and end covers are installed in place and the front is flush, as shown in Figure ⑦ below.



⑦

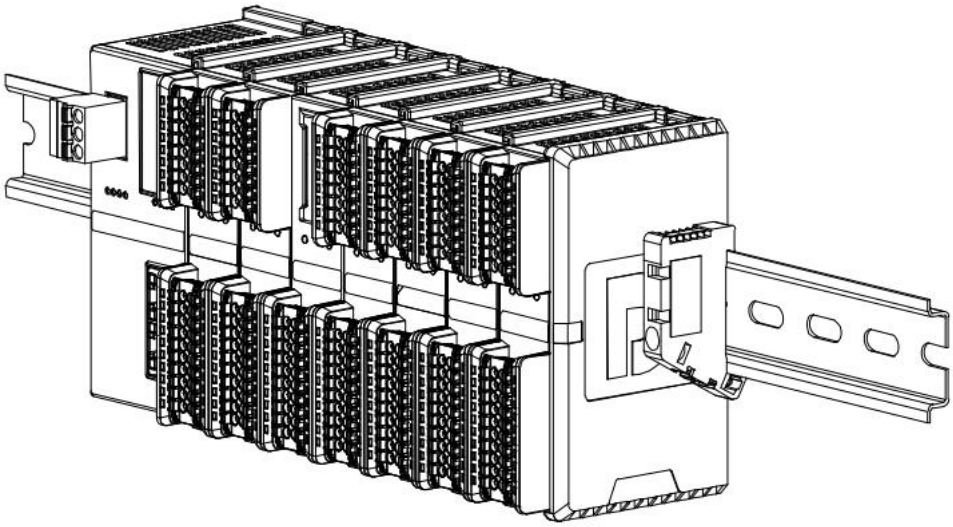
Guide rail fixing installation

- Install and tighten the guide rail fixings close to the left side of the coupler, as shown in Figure ⑧ below.



⑧

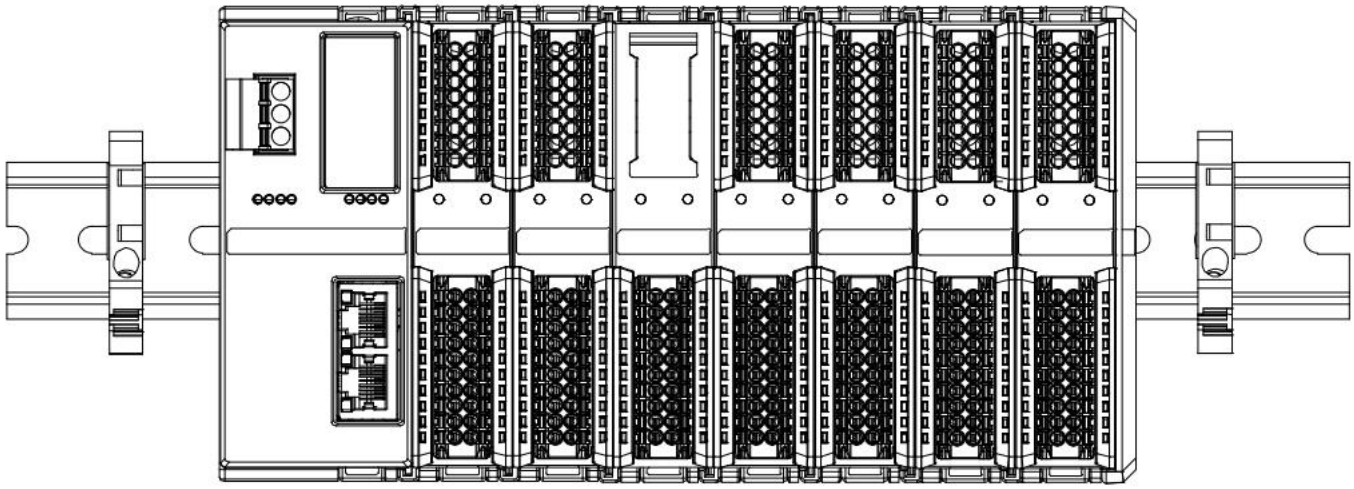
- Install the rail fixing on the right side of the end cap. First push the rail fixing towards the coupler to ensure that the module is installed firmly, and then tighten the rail fixing with a screwdriver, as shown in Figure ⑨ below.



⑨

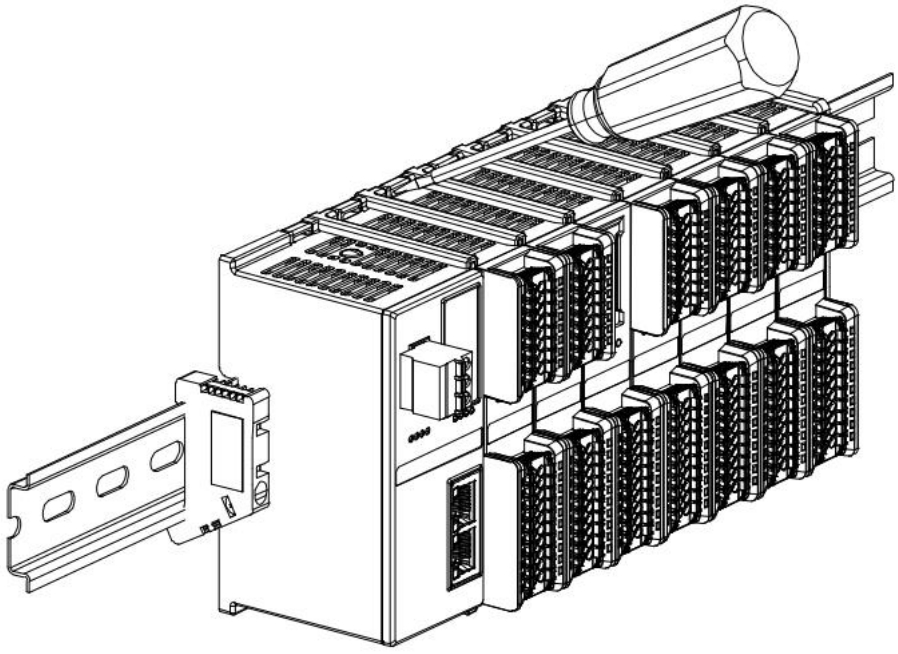
Removal

- Use a screwdriver to loosen the guide rail fixing at one end of the module and move it to one side to ensure that there is a gap between the module and the guide rail fixing, as shown in Figure ⑩ below.

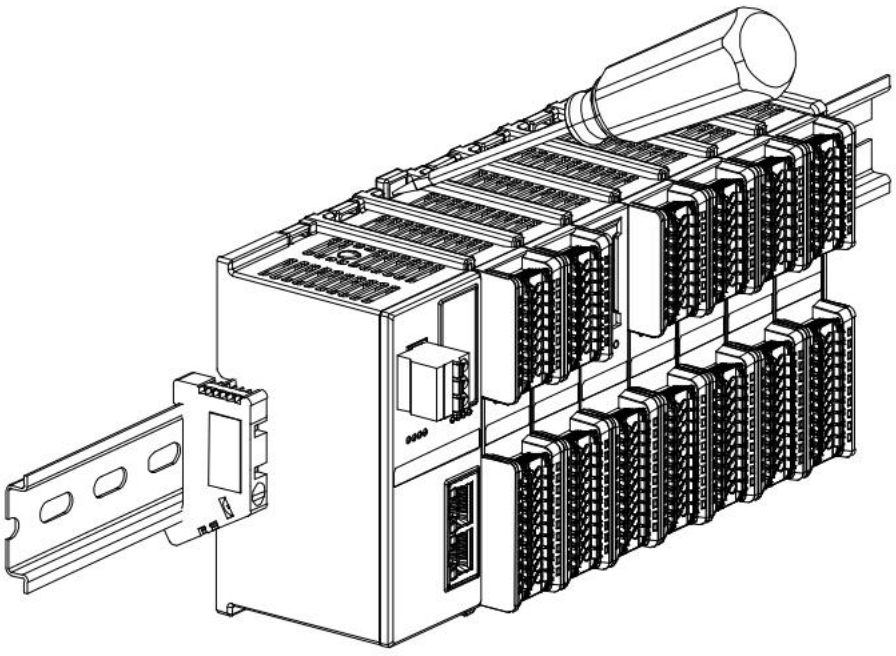


⑩

- Insert a flat-head screwdriver into the buckle of the module to be removed, and apply force sideways in the direction of the module (until you hear a sound), as shown in the following figure⑪and⑫. Note: Each module has a buckle on the top and bottom, and the same method is used for both.

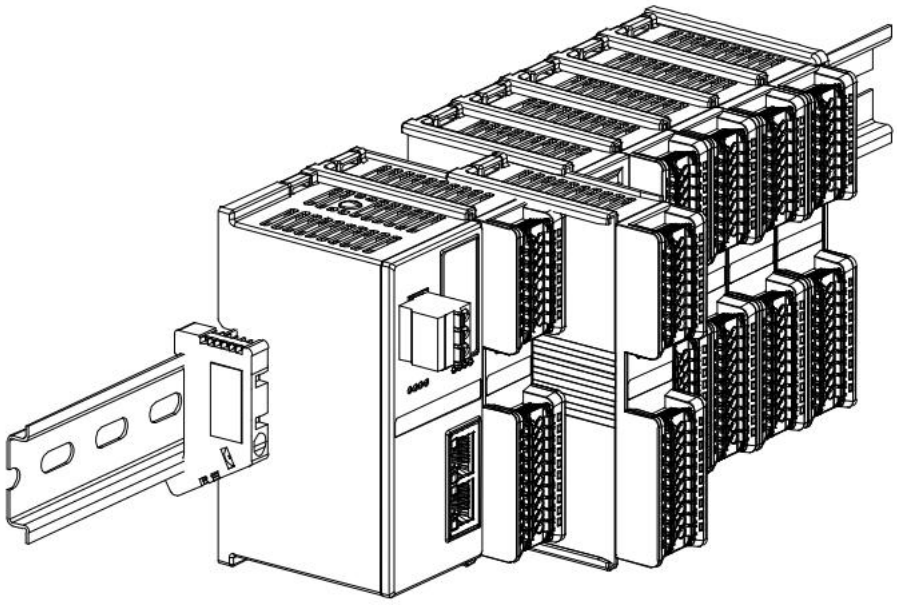


⑪



⑫

- Follow the opposite operation of installing the module to disassemble the module, as shown below⑬shown.



⑬

5 wiring

5.1 Terminal Blocks

⚠ Warning

Terminal Blocks		
Power Terminals	Rated voltage	320V
	Rated current	20A
	Number of poles	3P
	Wire diameter	twenty two~16 AWG 0.3~1.5 mm²
Signal cable terminals (i.e. input and output terminals)	Rated voltage	200V
	Rated current	9.5A
	Number of poles	16P+20P
	Wire diameter	twenty two~17 AWG 0.3~1.0 mm²
Bus interface	Number of poles	2×4P
	Wire diameter	24~16 AWG 0.2~1.5 mm²

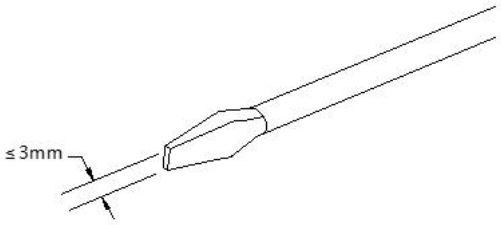
5.2 Wiring Instructions and Requirements

Power Wiring Precautions

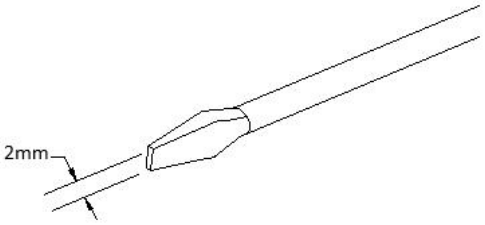
- The module system side power supply and field side power supply are configured and used separately. Do not mix them.
- PE must be grounded reliably.

Wiring tool requirements

The power terminals and signal line terminals adopt a screw-free design, and the cables can be installed and removed using a flat-blade screwdriver (specification: ≤3mm).



The bus interface terminal block adopts a screw-free design, and both ends of the slice connector of the terminal block adopt a fixing screw design. The connector can be fixed and the cable can be installed and removed with a flat-blade screwdriver (specification: ≤2mm).



Note: Before wiring the bus interface, tighten the fixing screws at both ends of the connector.

Stripping length requirements

The recommended cable stripping length for the power and signal line terminals is 10 mm, and the recommended cable stripping length for the bus interface is 10 mm.

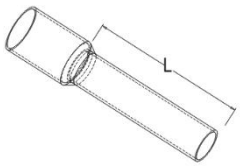
Wiring method

For single-strand rigid wire, after stripping the wire to the corresponding length, press the button and insert the single-strand wire directly into the corresponding end hole.

For multi-strand flexible wires, after stripping the wires to the corresponding length, you can directly connect or use the corresponding standard specifications of cold-pressed terminals (tubular insulated terminals, reference

specifications are shown in the following table) in combination. Press the button and insert the insulated terminal directly into the corresponding end hole.

The specifications of power terminals, signal cable terminals and bus interface terminals are shown in the following table:

Specifications of tubular insulation terminals		
Specifications	model	Conductor cross-sectional area mm²
 The length of tube type insulated terminal L is 10mm	E0310	0.3
	E0510	0.5
	E7510	0.75
	E1010	1.0
	E1510	1.5

warning

- Only copper wires can be used for wiring.

warning

- Cable temperature: 80℃.

5.3 Wiring Instructions for MIL Connector Type Modules

5.3.1 Compatible product list

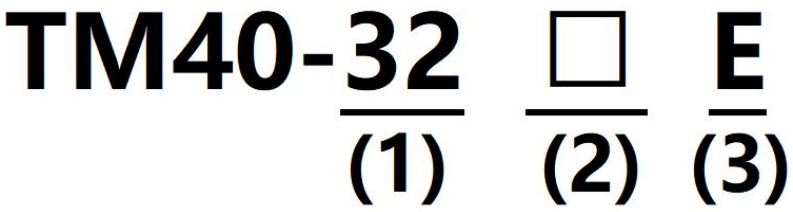
MIL connector type I/O modules need to be connected to the terminal block through a cable with a connector for use.

model	describe	Adapter terminal block	Adapter cable
XB6S-3200N	32-channel digital input, NPN/PNP compatible	TM40-32AE	TM40-XXXX-1 TM40-XXXX-1S
		TM40-32BE	TM40-XXXX-2 TM40-XXXX-2S
XB6S-0032AN	32-channel digital output, NPN type	TM40-32AE	TM40-XXXX-1 TM40-XXXX-1S
XB6S-0032BN	32-channel digital output, PNP type	TM40-32BE	

Note: TM40-XXXX-2/TM40-XXXX-2S cables are dedicated to PNP input and cannot be used with other types of input/output.

5.3.2 Terminal Block Naming Rules

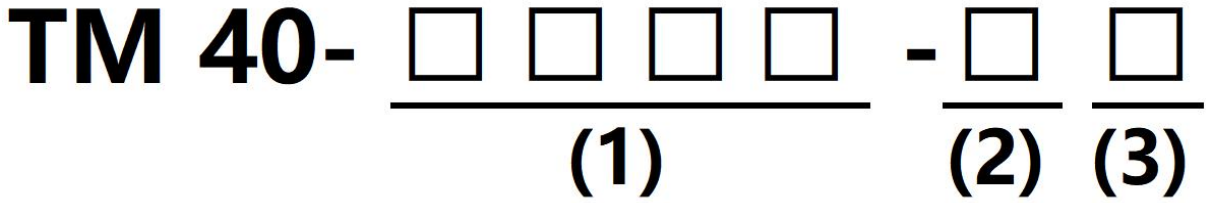
The terminal blocks of this product include TM40-32AE and TM40-32BE. The naming rules are as follows.



Number	Meaning	Options	Description
(1)	Number of terminal blocks	32	32 points
(2)	Input/Output Type	A	NPN type input/output
		B	PNP type input/output
(3)	Terminal block type	E	European terminal block

5.3.3 Cable Naming Rules

The terminal blocks and I/O connection cables of this product include TM40-XXXX-1, TM40-XXXX-1S, TM40-XXXX-2, and TM40-XXXX-2S. The naming rules are as follows.



serial number	meaning	Options	illustrate
(1)	Cable length	0500~1500	Cable customization length range, unit: mm
(2)	Cable function	1	adaptation: NPN type input PNP type output NPN type output
		2	PNP type input only
(3)	Cable shielding	S	Shielded Cable
		default	Unshielded Cable

Note: TM40-XXXX-2/TM40-XXXX-2S cables are dedicated to PNP input and cannot be used with other types of input/output.

5.3.4 Terminal block parameters

Technical specifications	
Rated current	1A
Rated voltage	DC24V
Suitable for wires	1.5mm2/AWG16 or below

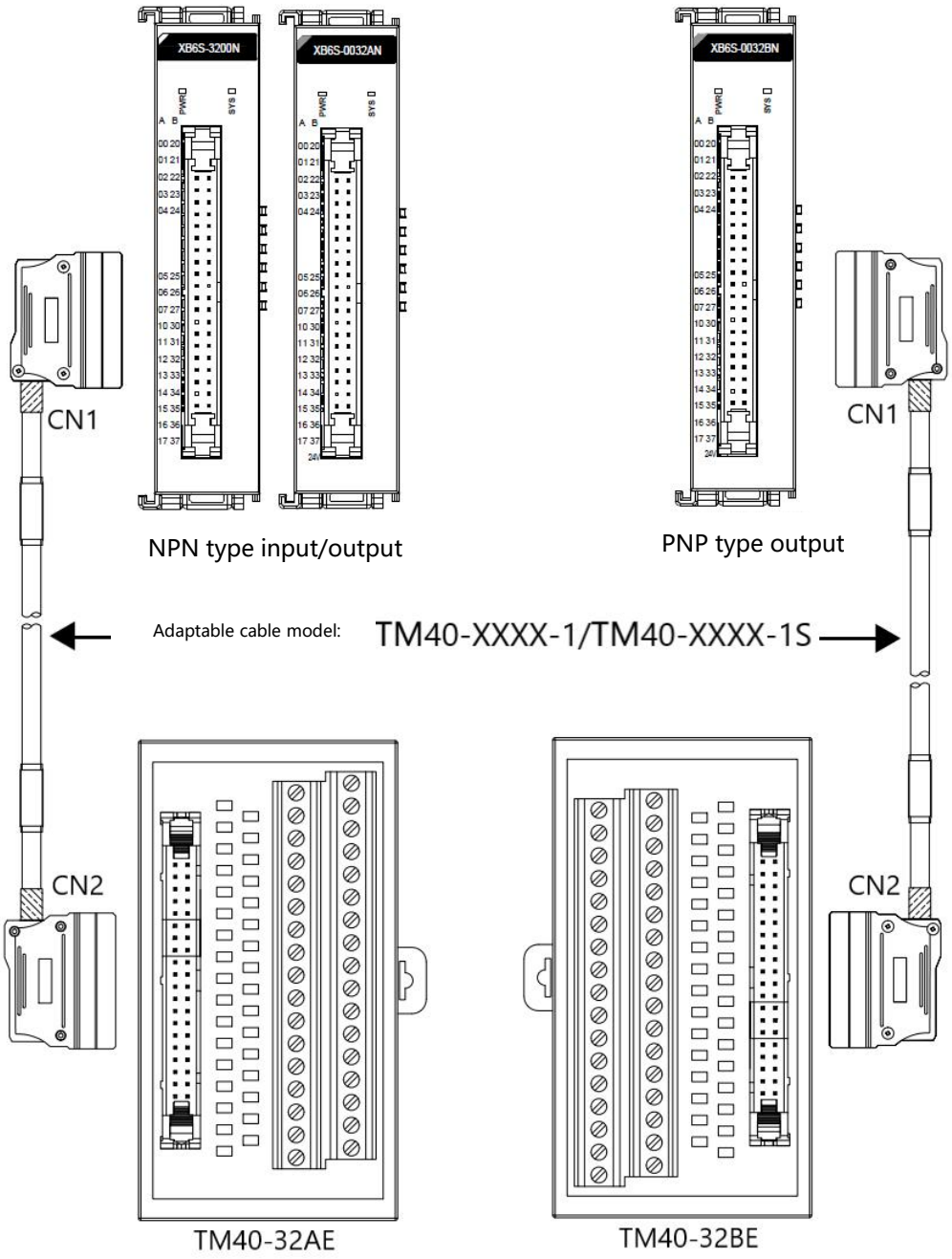
5.3.5 Cable parameters

Technical specifications	
Wire Gauge	AWG28
Conductor composition	7/0.127
Conductor material	Soft copper wire
Insulation Materials	PE
Core twisting	Filling, cotton string, strapping, paper bag
Surface Covering	PVC
Conductor impedance (20℃)	239Ω/Kn or less

Withstand voltage (in air)	AC500V/min
Insulation resistance (20℃)	50MΩ/Kn or more

5.3.6 Configuring rules

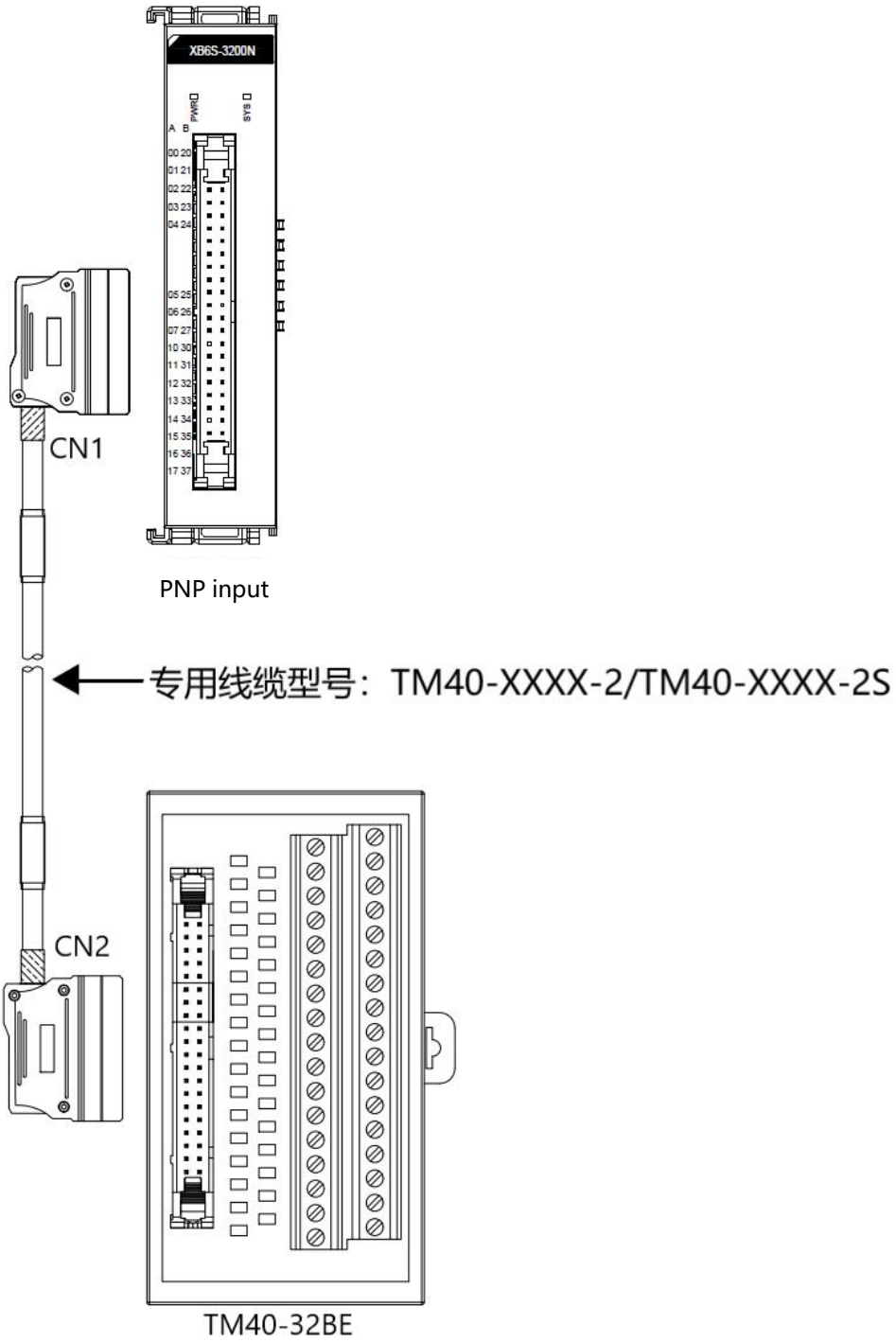
- Configuration examples for NPN type input, NPN type output, and PNP type output



Both ends of the cable are marked with CN1 and CN2. The I/O side is connected to the CN1 end, and the terminal block side is connected to the CN2 end.

- Configuration example for PNP type input

  When using the XB6S-3200N PNP input, it must be used with the TM40-XXXX-2/TM40-XXXX-2S cable.



Both ends of the cable are marked with CN1 and CN2. The I/O side is connected to the CN1 end, and the terminal block side is connected to the CN2 end.

6 Use

6.1 Module application rules

Module configuration quantity limit:

1. The XB6S-CL2002 coupler occupies four stations. Since a PLC supports up to 64 logical station numbers, a PLC module can carry up to 16 couplers in the remote network Ver.1 mode; and a PLC module can carry up to 8 couplers in the remote network Ver.2 mode.
2. A memory station represents the smallest unit in the CC-Link buffer zone for communicating with other stations. Its capacity is 32-bit input, 32-bit output, 4-word read, and 4-word write. 1 word = 2 bytes = 16 bits. The capacity of one station is 4 bytes input, 4 bytes output, 8 bytes read, and 8 bytes write.
    ① Remote network Ver.1 mode: One XB6S-CL2002 coupler occupies four stations. The last 2 bytes of input (RX) and the last 2 bytes of output (RY) in the data area are reserved for consistency certification. The maximum mounted slice module resources are: 14 bytes of input (RX), 14 bytes of output (RY), 32 bytes of input (RWr), 32 bytes of output (RWw). The number of XB6S series slice I/O modules that can be configured by the coupler is subject to the above resources.
    ② Remote network Ver.2 mode: One XB6S-CL2002 coupler occupies four stations. The extended cycle setting can be set to 8 times. The last 2Bytes input (RX) and the last 2Bytes output (RY) of the data area are used as the reserved area for consistency certification. The maximum mounted slice module resources are: 110Bytes input (RX), 110Bytes output (RY), 256Bytes input (RWr), 256Bytes output (RWw). The number of XB6S series slice I/O modules that can be configured by the coupler is subject to the above resources.

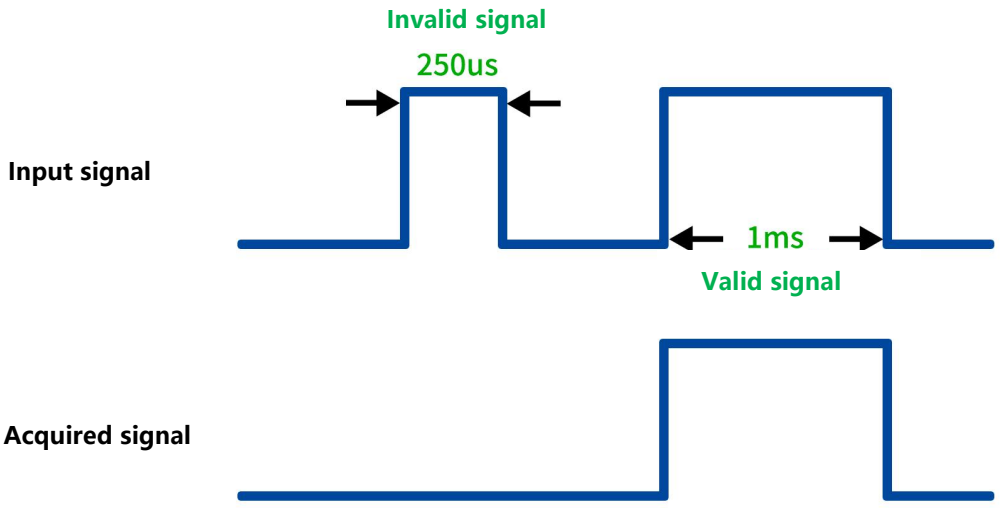
6.2 Parameter Description

6.2.1 Digital input filtering

Digital input filtering prevents the program from responding to unexpected rapid changes in input signals that may be caused by switch contact bounce or electrical noise. Digital input filtering supports single module settings, and each module can be configured separately, not channels.

The digital input filter FilterTime is currently configured by default to 3ms, and the supported setting range is no filtering, 0.1ms, 0.2ms, 0.5ms, 1ms, 2ms, 3ms (factory setting), 4ms...18ms, 19ms, 20ms. When configured to 3ms, clutter within 3ms can be filtered out. The 3ms input filter time means that a single signal can only be detected if it changes from "0" to "1", or from "1" to "0" for 3ms, and a single high pulse or low pulse shorter than 3ms will not be detected.

Function description: When the input filter is configured to 1ms, the clutter within 1ms can be filtered out. As shown in the figure below, when there is a 250us signal input, it will be regarded as an invalid signal, and a single high pulse or low pulse shorter than 1ms will not be detected; signals of 1ms and above can be collected.



6.2.2 Digital output signal clear/hold

The clear/hold function is for modules with output channels. This function can configure the output mode of the output channel of the module in non-OP state (stop running/coupler network cable disconnected/X-bus offline). This parameter supports the following output states:

Clear output: When the communication is disconnected, the module output channel automatically clears the output, that is, outputs 0.

Output valid value: When the communication is disconnected, the module output channel always outputs the valid value, that is, output 1.

Keep the last output value: When the communication is disconnected, the module output channel keeps the last output value.

The digital clear and hold function supports module overall settings (template mode) and single channel settings (single channel mode). Any channel can be set in single channel mode or template mode. The single channel mode has a higher priority than the template mode. The specific configuration method is shown in the following table. The default is to clear the module output as a whole.

Clear the hold parameters of the digital output module				
Parameter name	Parameter meaning	Parameter Value	Parameter value meaning	default value
Setting up the module	Template Mode	1	PresetLow clears the output, that is, outputs 0	1
		2	PresetHigh outputs a valid value, that is, outputs 1	
		3	KeepMode keeps the last output value	
Exception settings	Single channel mode setting	0	TemplateValue template mode value, that is, single-channel mode is not enabled	0
		1	PresetLow clears the output, that is, outputs 0	
		2	PresetHigh outputs a valid value, that is, outputs 1	
		3	KeepMode keeps the last output value	

6.2.3 Analog range setting

Analog range setting Range Select is used to set the analog range. Each channel can be configured separately (see3.3.4 and 3.3.5 Analog Parameters).

6.2.4 Analog input filtering

- **Analog input filter function**

The analog input filter function can average the data after A/D conversion internally to reduce the impact of fluctuations due to noise on the input signal.

The analog input is processed by moving average with the specified number of A/D conversions.

- **Filter function configuration**

Each channel can be configured individually, the configuration range is: 1~200, the default is 10 times.

6.2.5 Analog output signal clear/hold

The clear/hold function is for modules with output channels. This function can configure the output mode of the output channel of the module in non-OP state (stop running/coupler network cable disconnected/X-bus offline). This parameter supports the following output states:

Clear output: When the communication is disconnected, the module output channel automatically clears the output.

Keep output: When the communication is disconnected, the module output channel keeps outputting.

Output preset value: When communication is disconnected, the module output channel outputs the preset value.

The analog clear and hold function supports module overall settings (template mode) and single channel settings (single channel mode). Any channel can be set in single channel mode or template mode. The single channel mode has a higher priority than the template mode. The specific configuration method is shown in the following table. The default is to clear the module output as a whole.

Analog output module clears and holds parameters				
Parameter name	Parameter meaning	Parameter Value	Parameter value meaning	default value
Setting up the template	Template Mode	0	Clear all channels to clear output	0
		1	Hold all channels to hold output	
		2	Preset all channel output preset value	
Exception settings	Single channel clear/hold configuration	0	TemplateValue template mode value, that is, single-channel mode is not enabled	0
		1	Clear single channel clear output	
		2	Hold single channel hold output	
		3	Preset single channel output preset value	
	Single channel presets	Code value range	Current/voltage value corresponding to the output code value (Corresponding range code value table)	0

Note: When the overall setting (template mode) of the module is configured as 2, that is, the preset value of all-channel output takes effect, the preset value is based on the preset code value of channel 0 in the single-channel preset value, and all-channel output is performed.

6.2.6 Analog value power-off preservation

Analog parameters support abnormal power failure and communication disconnection. All module configuration parameters can be saved. Analog modules support power failure saving by default.

6.2.7 Coupler parameters

6.2.7.1 IO communication abnormal configuration function

IO communication exception configuration parameters You can configure the X-bus interaction status when a communication anomaly occurs in an IO module during operation. The parameters can be configured in the following three states:

Exception: No interaction(Default state): When a module is abnormal, X-bus will no longer interact with process data. The original interaction can be restored after the module abnormality disappears.

Stop communication： When a module has an abnormality, X-bus stops interacting. Even if the abnormality disappears, the original communication is not restored. The original interaction can only be restored after power is turned on again.

Exception Interaction： When a module is abnormal, the modules after the abnormal module are judged as offline, and the normal modules before the abnormal module can interact with X-bus normally, and X-bus can monitor these modules normally. After the abnormal module recovers, the original interaction can be restored (soft hot swap function).

This manual uses IO Config Tool as an example to introduce the parameter configuration method of the XB6S-CL2002 coupler + I/O module combination. For detailed steps, see Parameter settings in section 6.5.2 After the modification is completed, it is recommended to power on again.

6.3 Fault code information

6.3.1 Coupler common fault code

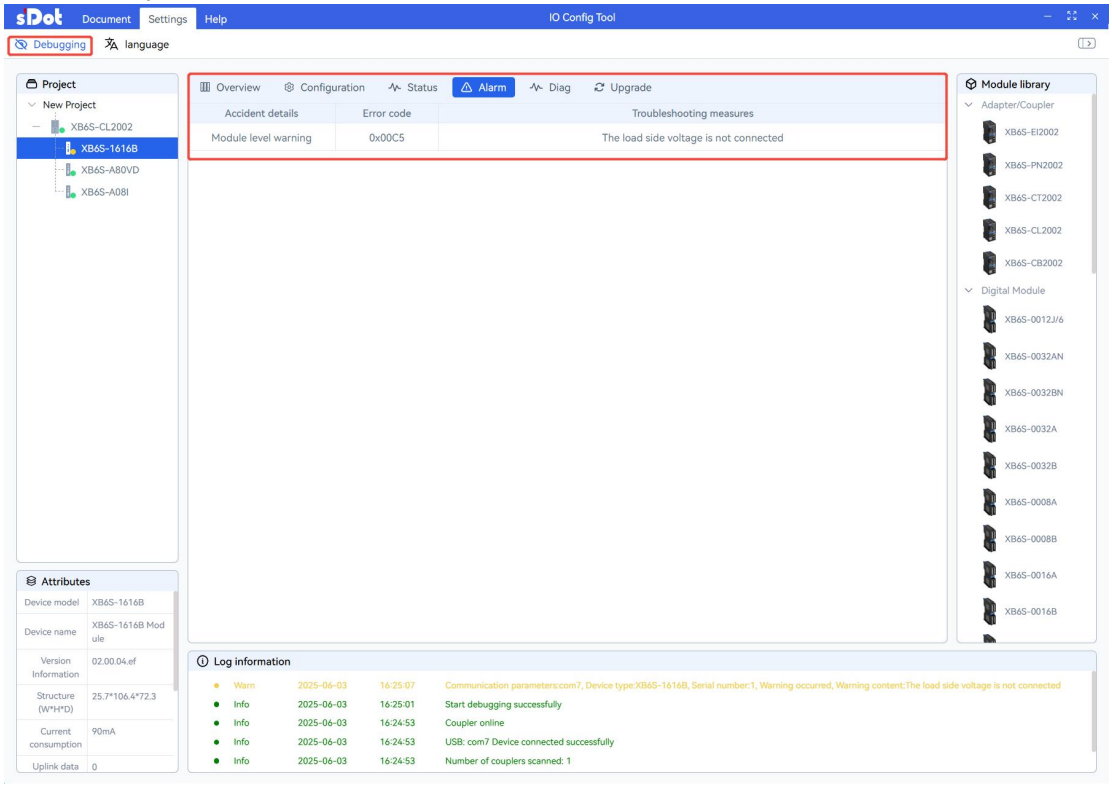
Category	serial number	Error Type	Error Code	Event Name	Event code (2#)	Event code (10#)	Event code (16#)	Treatment
Common Errors	2	Online upgrade error	1	Firmware upgrade exception	0000000010000001	129	0x0081	Try to upgrade again to check whether there is interference in the environment, whether the firmware is too large, etc.
			2	The firmware does not match the current module model	0000000010000010	130	0x0082	Check whether the file is correct, whether there is any abnormality or interference in the module, etc.
	3	Voltage error	5	Load side voltage is not connected	0000000011000101	197	0x00C5	Check whether the power supply on the field side is connected
	6	Channel Error	4	Channel overflow	0000000110000100	388	0x0184	Check whether the input signal of the corresponding channel exceeds the measurement range and whether the output signal exceeds the configurable range
	7	Parameter error	0	Abnormal parameter setting	0000000111000000	448	0x01C0	Check module parameter settings
	63	X-bus communication error	1	X-bus initialization failed	0000111111000001	4033	0x0FC1	Check whether the module connection is normal
			2	X-bus token timeout	0000111111000010	4034	0x0FC2	Check whether the module has any abnormality or interference.

			3	X-bus module is offline	0000111111000011	4035	0x0FC3	Check whether the module is online or has interference, etc.
			4	Parsing data CRC error	0000111111000100	4036	0x0FC4	Check whether the module has any abnormality or interference.
			5	X-bus module does not support abnormal interaction function	0000111111000101	4037	0x0FC5	Upgrade the module software version or do not use abnormal interactive functions
Analog	1	XB6S-A 80TM	0	Disconnection	0010000001000000	8256	0x2040	Check whether the corresponding channel wiring is normal
Gateway	0	XB6S-C01SP	0	General parameter error	0101000000000000	20480	0x5000	Check whether the common parameters exceed the parameter limit
			1	Communication node parameter error	0101000000000001	20481	0x5001	Check whether the communication node format and node settings are consistent with the communication mode and control mode.
			2	Process data error	0101000000000010	20482	0x5002	When the parameter configuration is complete and there are no other alarms, power off and then power on again to rescan the module.
			3	Modbus Register Map Conflict	0101000000000011	20483	0x5003	Compare the start address and length settings of each Modbus write instruction of

								communication node parameter 1 to see if there is any overlap in the range
			4	Modbus node ID setting error	0101000000000100	20484	0x5004	Check whether the slave ID range of communication node parameter 2 is between 1 and 247.

6.3.2 Fault code check

Take IO Config Tool software as an example. In debug mode, click "Alarm" to view the alarm information in the alarm information window. As shown in the figure below, the alarm code is Hex: 00c5, which means voltage error. The load side voltage is not connected. You can check whether the field side power supply is connected.



Note: The fault code information must be viewed in debug mode.

6.4 Module soft component description

6.4.1 Coupler device assignment

In remote network Ver.1 mode XB6S-CL2002 soft component allocation is shown in the following table:

Station Type	Number of occupied stations	Software	illustrate
Remote Equipment Station	4	RX	14 Bytes is 112 bits For inputting process data (input module -> master)
		RY	14 Bytes is 112 bits For outputting process data (master->output module)
		R	32 Bytes is 16 Words For inputting process data (input module -> master)
		R	32 Bytes is 16 Words For outputting process data (master->output module)

Remote Network Ver.2 ModeXB6S-CL2002 soft component allocation is shown in the following table:

Station Type	Number of occupied stations	Software	Description (Select 8 times setting for extended cycle setting)
Remote Equipment Station	4	RX	110 Bytes is 880 bits For inputting process data (input module -> master)
		RY	110 Bytes is 880 bits For outputting process data (master->output module)
		R	256 Bytes is 128 Words For inputting process data (input module -> master)
		R	256 Bytes is 128 Words For outputting process data (master->output module)

6.4.2 I/O module resource usage data table

Digital I/O Modules:

Each channel of the module occupies 1 bit. The resources required for the module are obtained according to the number of module channels, that is, the resource data of the mounted coupler.

Analog I/O modules:

Each channel of the module occupies 2Bytes. The resources required for the module are obtained according to the number of module channels, which is the resource data of the mounted coupler. The specific data usage length is shown in the following table:

Module Model	Resource usage value	
	Uplink process data length (Byte)	Downlink process data length (Byte)
XB6S-3200	4	-
XB6S-1600	2	-
XB6S-0800	1	-
XB6S-1616A/B	2	2
XB6S-0032A/B(N)	-	4
XB6S-0016A/B	-	2
XB6S-0008A/B	-	1
XB6S-0012J/6	-	2
XB6S-A80VD	16	-
XB6S-A80V	16	-
XB6S-A40VD	8	-
XB6S-A40V	8	-
XB6S-A80ID	16	-
XB6S-A80I	16	-
XB6S-A40ID	8	-
XB6S-A40I	8	-
XB6S-A08V	-	16
XB6S-A04V	-	8
XB6S-A08I	-	16
XB6S-A04I	-	8
XB6S-A80TM	16	-
XB6S-A40TM	8	-
XB6S-PL20	34	20
XB6S-PS20D	26	2
XB6S-PL20D	34	20
XB6S-PC80	64	2
XB6S-PT04A	48	56
XB6S-C01SP-32Bytes	32	32
XB6S-C01SP-64Bytes	64	64
XB6S-C01SP-128Bytes	128	128

XB6S-C01SP-255Bytes	255	255

6.4.3 Module channel and soft element correspondence list

32-channel digital input module		
Signal direction: Input module -> Master station		
Software No.	Corresponding input channel	Input signal
DIa Digital input		
RX0~RXF	Channel 0~F	Input signal X0~XF
DIb Digital input		
RX10~RX1F	Channel 0~F	Input signal X10~X1F

16-channel digital input module		
Signal direction: Input module -> Master station		
Software No.	Corresponding input channel	Input signal
DIa Digital input		
RX0~RXF	Channel 0~F	Input signal X0~XF

8-channel digital input module		
Signal direction: Input module -> Master station		
Software No.	Corresponding input channel	Input signal
DIa Digital input		
RX0~RX7	Channel 0~7	Input signal X0~X7

16-channel digital input and output module		
Signal direction: input module -> master station, master station -> output module		
Software No.	Corresponding input/output channels	Input/output signal
DI Digital input		
RX0~RXF	Channel 0~F	Input signal X0~XF
Master->Output module		
DO digital output		
RY0~RYF	Channel 0~F	Output signal Y0~YF

32-channel digital output module		
Signal direction: Master->Output module		
Software No.	Corresponding output channel	Output signal
DOa Digital output		
RY0~RYF	Channel 0~F	Output signal Y0~YF
DOb Digital output		

RY10~RY1F	Channel 0~F	Output signal Y10~Y1F

16-channel digital output module		
Signal direction: Master->Output module		
Software No.	Corresponding output channel	Output signal
DOa Digital output		
RY0~RYF	Channel 0~F	Output signal Y0~YF

8-channel digital output module		
Signal direction: Master->Output module		
Software No.	Corresponding output channel	Output signal
DOa Digital output		
RY0~RY7	Channel 0~7	Output signal Y0~Y7

8-channel analog input module		
Signal direction: Input module -> Master station		
Software No.	Corresponding input channel	Input signal
R	Channel 0	Input signal D0
RWr1	Channel 1	Input signal D1
RWH	Channel 2	Input signal D2
R	Channel 3	Input signal D3
R	Channel 4	Input signal D4
R	Channel 5	Input signal D5
R	Channel 6	Input signal D6
R	Channel 7	Input signal D7

4-channel analog input module		
Signal direction: Input module -> Master station		
Software No.	Corresponding input channel	Input signal
R	Channel 0	Input signal D0
RWr1	Channel 1	Input signal D1
RWH	Channel 2	Input signal D2
R	Channel 3	Input signal D3

8-channel analog output module		
Signal direction: Master->Output module		
Software No.	Corresponding output channel	Output signal
R	Channel 0	Output signal D0
R	Channel 1	Output signal D1

R	Channel 2	Output signal D2
R	Channel 3	Output signal D3
R	Channel 4	Output signal D4
R	Channel 5	Output signal D5
R	Channel 6	Output signal D6
R	Channel 7	Output signal D7

4-channel analog output module		
Signal direction: Master->Output module		
Software No.	Corresponding output channel	Output signal
R	Channel 0	Output signal D0
R	Channel 1	Output signal D1
R	Channel 2	Output signal D2
R	Channel 3	Output signal D3

When the coupler and I/O module are used in combination, one XB6S-CL2002 coupler occupies four stations in the soft element.

① **In remote network Ver.1 mode**The mounted slice module resources are: 14Bytes input (RX), 14Bytes output (RY), 32Bytes input (RWr), 32Bytes output (RWw).

② **Remote Network Ver.2 Mode**The mounted slice module resources are: 110Bytes input (RX), 110Bytes output (RY), 256Bytes input (RWr), 256Bytes output (RWw).

The I/O modules on the right side of each coupler occupy resources in the order of access and the actually required resources in the above table. The resources are occupied in the order from low address to high address and from low position to high position.

6.5 CC-Link Coupler Configuration Application

6.5.1 Application in GX Works2 software environment

1、Preparation

- **Hardware Environment**
  - **Module preparation. This description takes the XB6S-CL2002+XB6S-1616B+ XB6S-A08V topology as an example.**
  - **A computer with GX Works2 pre-installed**
  - **A Mitsubishi PLC. This description takes the Mitsubishi Q series Q0UCPU model as an example.**
  - **CC-Link dedicated cable**
  - **Switching power supply**
  - **Device Profile**

    Configuration file acquisition address:https://www.solidotech.com/en/resources/configuration-files
- **Hardware configuration and wiring**

  Please follow the 4 Installation and removal"and"5 Wiring
- **Configuring the transfer rate**

  Each coupler module is set to a default transmission rate when it leaves the factory. Usually the default transmission rate is 0, i.e. 156Kbps. The DIP switches correspond to the transmission rates as follows:

  0: 156 Kbps, 1: 625 Kbps, 2: 2.5 Mbps, 3: 5 Mbps, 4: 10 Mbps

  The transmission rates of the PLC and the coupler need to be set to be consistent. In this example, the transmission rates of the PLC and the coupler are both set to 0, that is, 156 Kbps.
- **Set the station number**

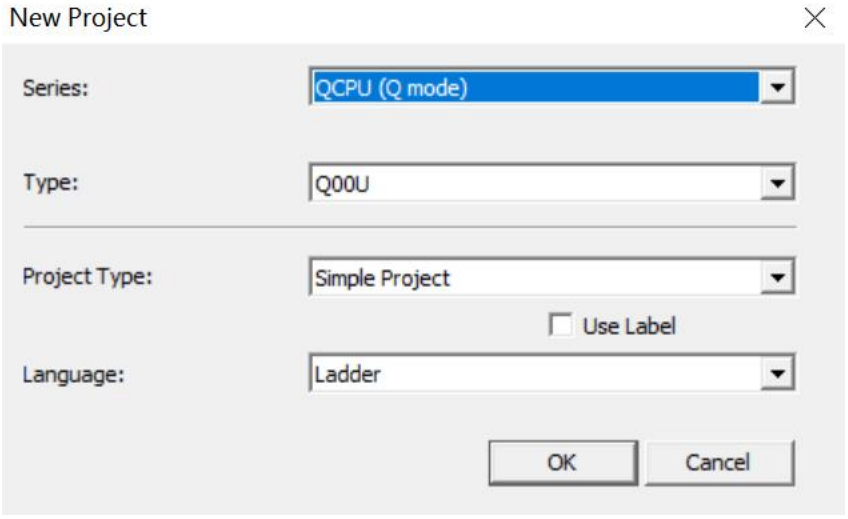
  Each coupler module is set with a default station number when it leaves the factory, usually the default station number is "0". Users can set the station number according to their needs, and the station number setting range is (1~64). In this example, the station number of the PLC is set to 0, and the station number of the coupler is set to 1.
- **Module power on**

  After checking that the wiring is correct, power on the XB6S-CL2002+I/O module device combination and the PLC.

2、Create a project

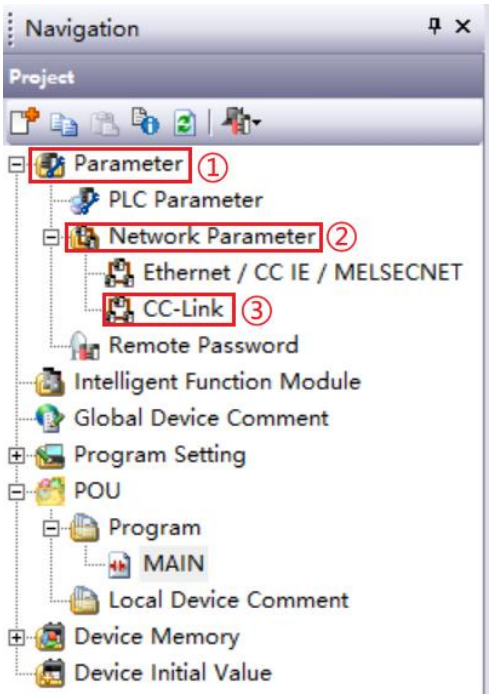
a. Open GX Works2 software, click "Project" in the menu bar, and click "New Project".

b. The New Project dialog box pops up. Select "Simple Project" for project type, "QCPU (Q Mode)" for PLC series, "Q00U" for PLC model, and "Ladder" for program language by default. Click "OK", as shown in the figure below.

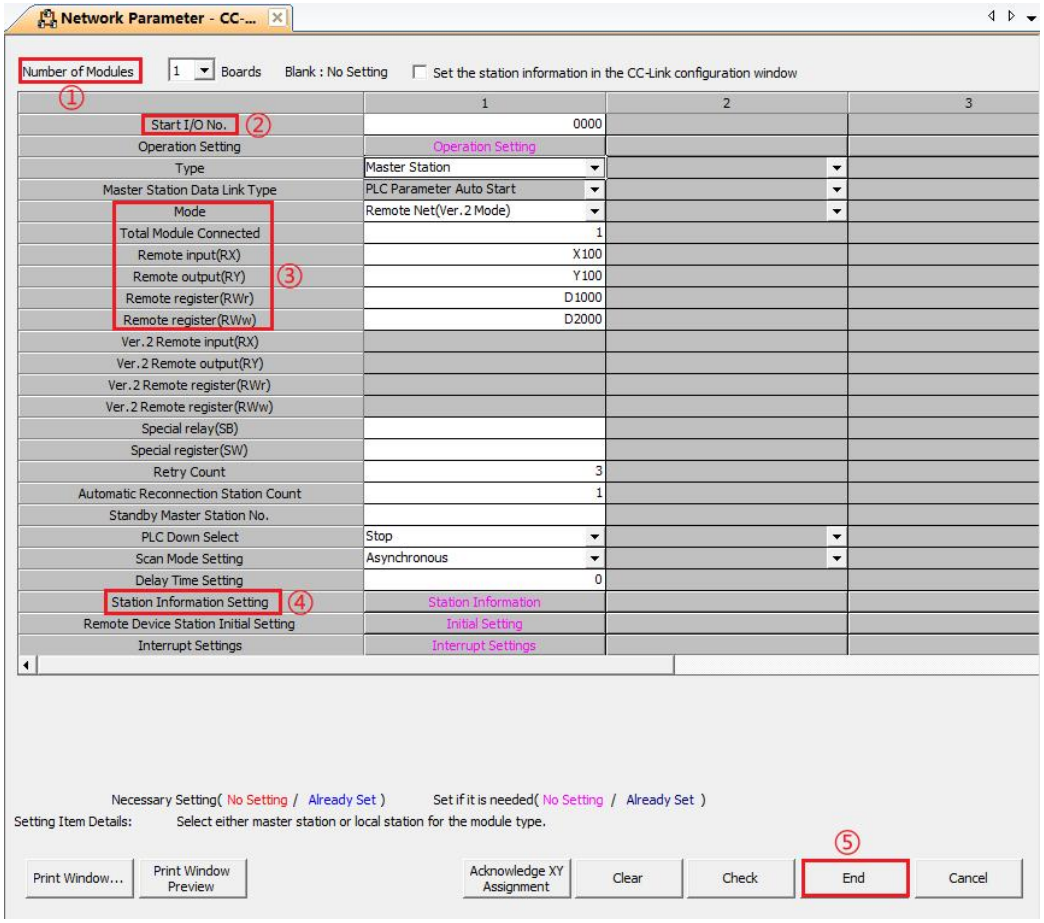


3、Network parameter settings

a. In the left engineering interface, select the "Parameter > Network Parameter" menu and double-click "CC-Link" to open the "Network Parameters CC-Link Overview Settings" interface.



b. In the "Network Parameters CC-Link Overview Settings" interface, configure the relevant parameters as shown in the figure below.



Configuration instructions:

- Number of modules: 1
- Start I/O No.: 0
- Total module connected: 1, set according to the number of coupler modules. In this example, 1 coupler is connected
- Remote input (RX) refresh soft element: X100
- Remote output (RY) refresh soft element: Y100
- Remote register (RWr): D1000, there are analog modules in the topology that need to be configured
- Remote register (RWw): D2000, analog modules in the topology need to be configured
- Select the default for the rest of the settings. For “Station Information Settings”, please refer to step 4 below.

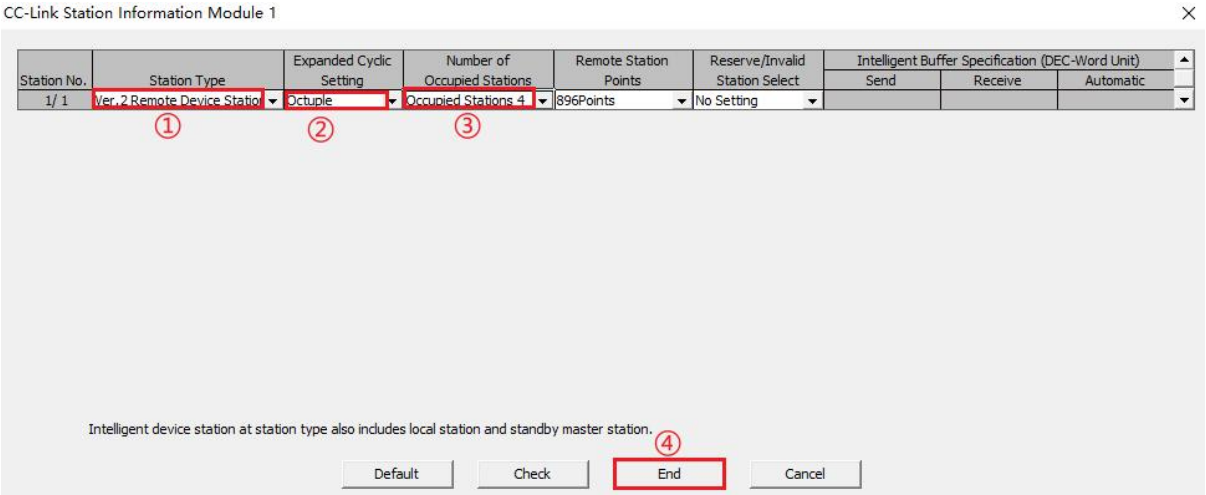
c. Click “End”.

4、Station Information Settings

a. Click "Station Information". In this example, the XB6S-CL2002 coupler is the remote device station.

b. Select "Remote device station" for the station type and "Occupied 4 stations" for the number of occupied stations.

c. Click “End”, as shown in the following figure.



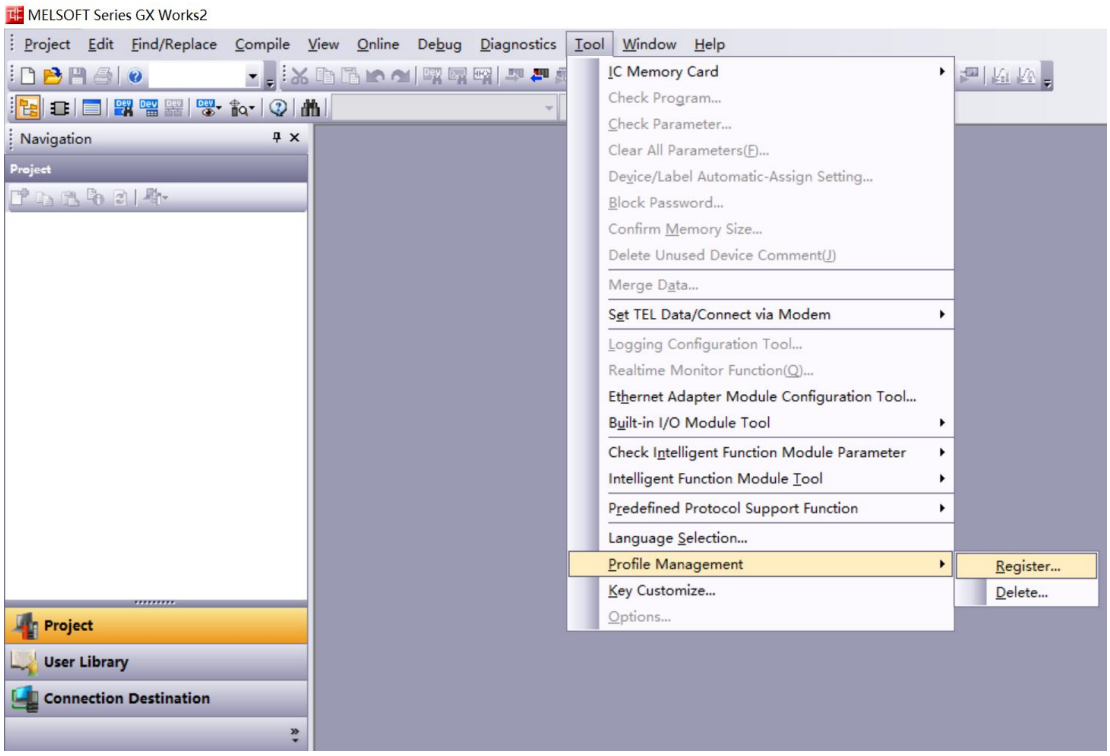
Configuration instructions:

- Station type: One XB6S-CL2002 can be connected to digital modules and analog modules, so select "Remote Device Station".
- Number of occupied stations: One XB6S-CL2002 occupies four stations, so select "Occupied 4 stations".

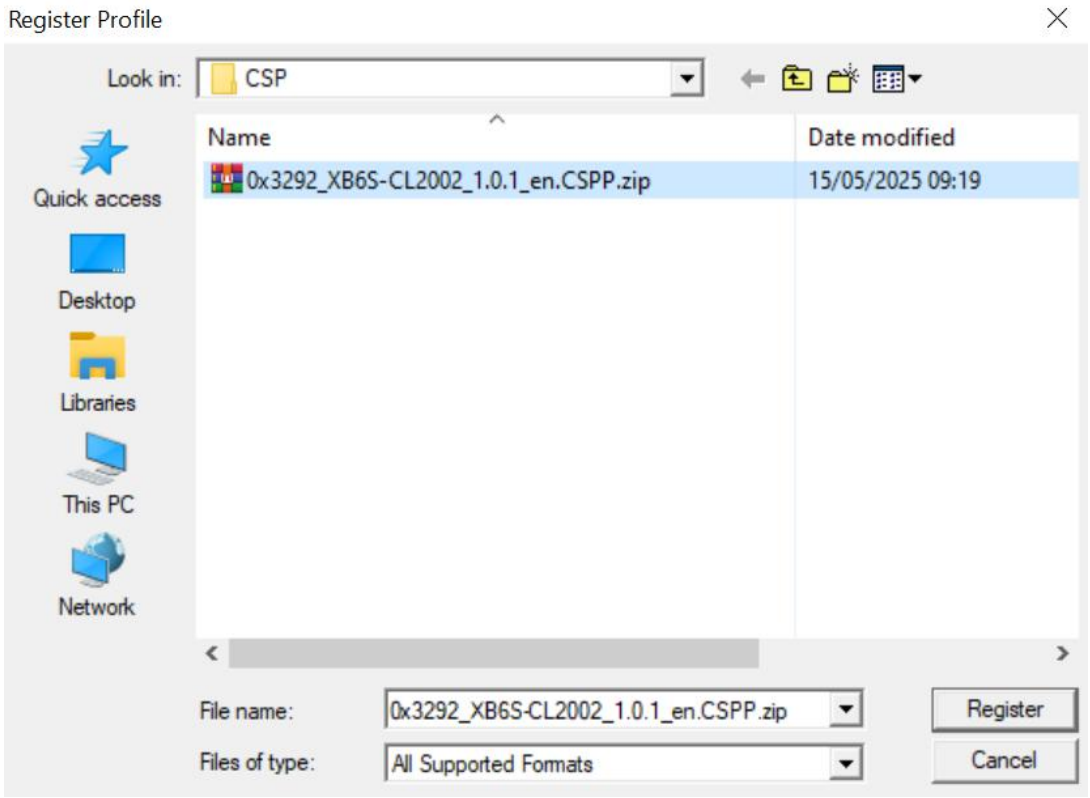
After the station information setting is completed, you need to click "End" and then perform the PLC write operation, otherwise the parameters will not be applicable.

5、CC-Link Configuration Settings

a. Click "Tool" in the menu bar, and then click "Profile Management -> Register...", as shown in the figure below.



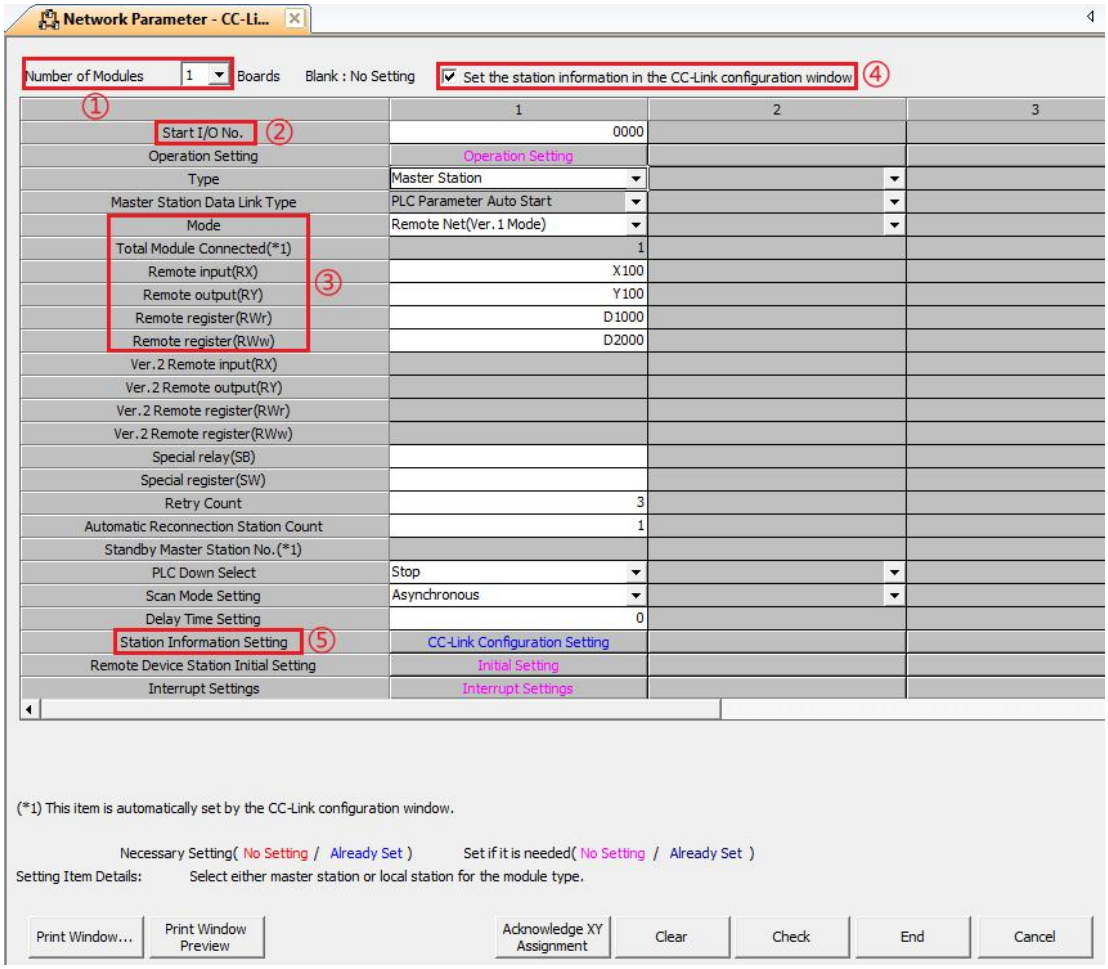
b. In the pop-up box, select the CSP file to be added and click "Register" to complete the installation, as shown in the figure below.



Note: The configuration file does not need to be decompressed, and the project needs to be closed during installation; if the configuration file needs to be replaced, be sure to uninstall it before adding it.

c. Refer to steps 1 and 2 to create a new project and open the "Network Parameters CC-Link Overview Settings" interface.

d. In the "Network Parameters CC-Link Overview Settings" interface, configure the relevant parameters as shown in the figure below.

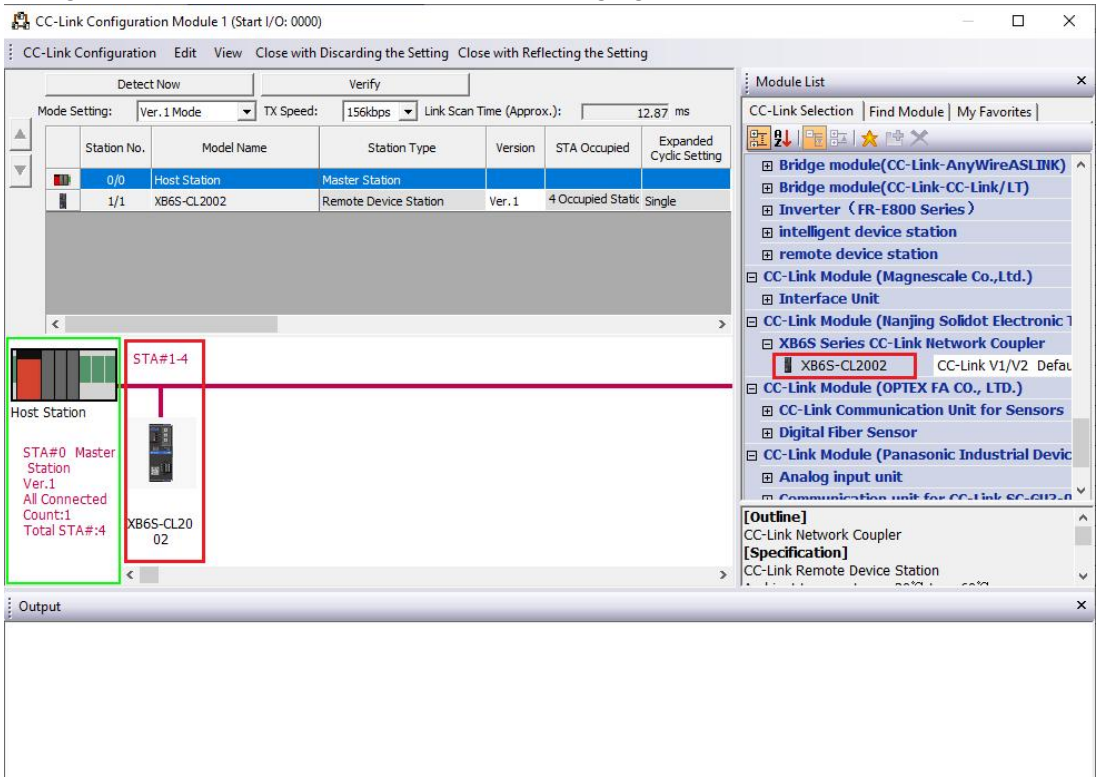


Configuration instructions:

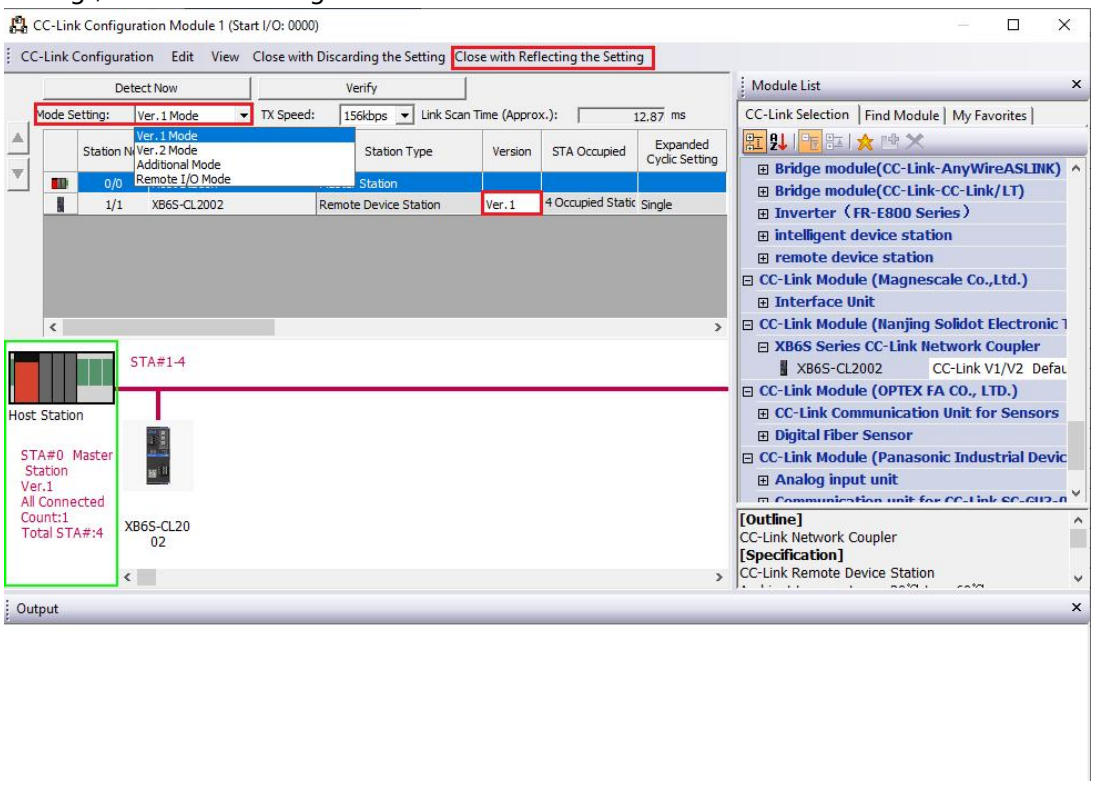
- Number of modules: 1
- Start I/O No.: 0
- Total module connected: 1, set according to the number of coupler modules. In this example, 1 coupler is connected
- Remote input (RX) refresh soft element: X100
- Remote output (RY) refresh soft element: Y100
- Remote register (RWr): D1000, there are analog modules in the topology that need to be configured
- Remote register (RWw): D2000, analog modules in the topology need to be configured
- Select the default for the rest of the settings

e. Click CC-Link Configuration Setting.

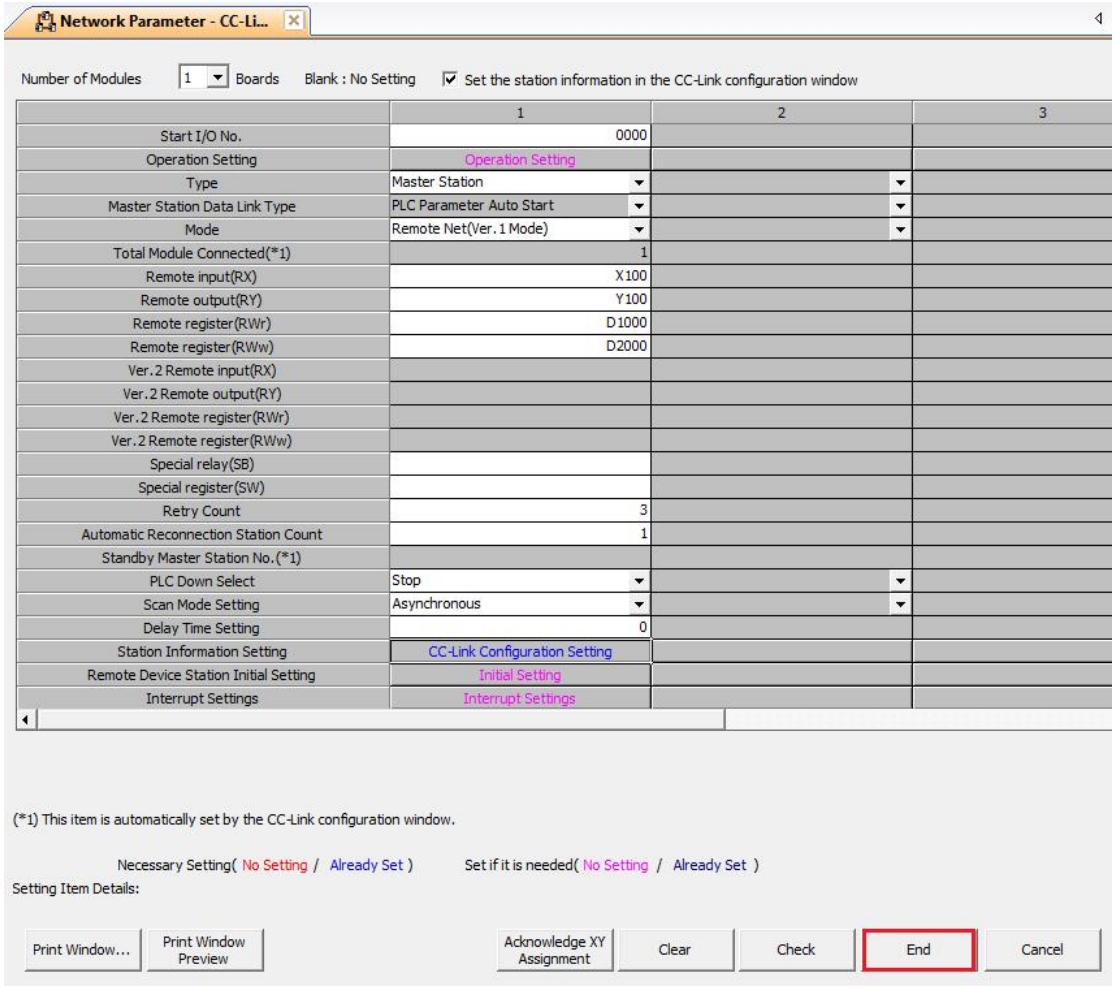
f. In the "CC-Link Configuration" interface, select "CC-Link Module -> XB6S Series CC-Link Network Coupler -> XB6S-CL2002" in the "Module List" on the right, and drag "XB6S-CL2002" to the right of "Host Station", as shown in the following figure.



g. Select remote network mode in the mode setting. The module settings must be consistent with the protocol version selection. After the settings are completed, click "Close with Reflecting the Setting", as shown in the figure below.



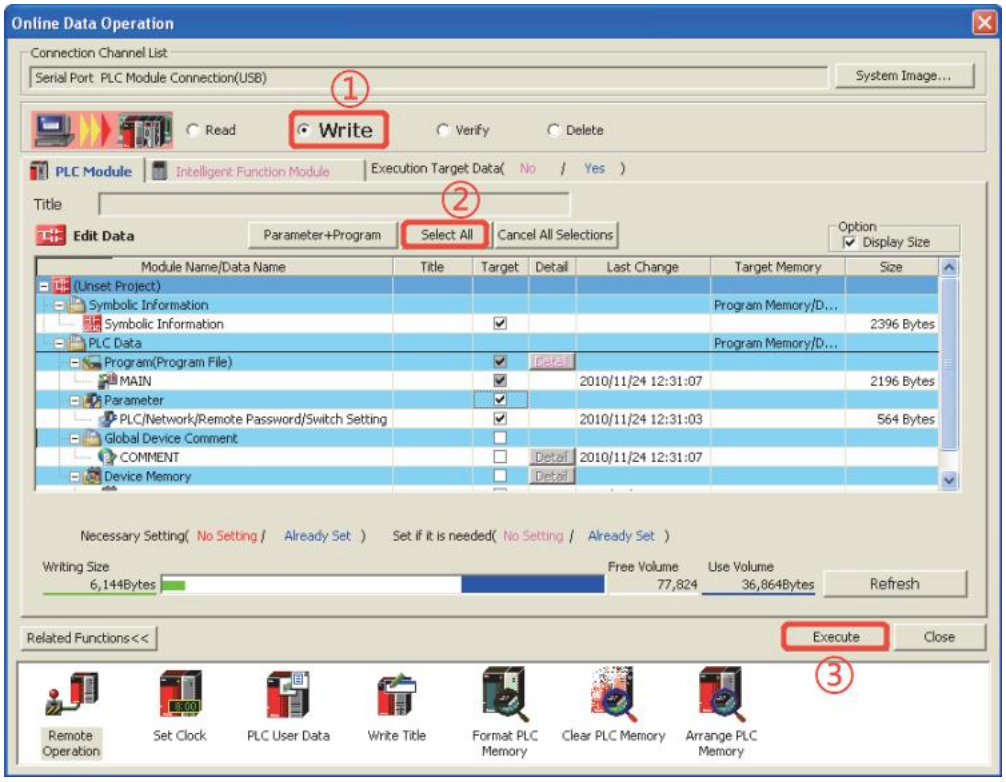
h. Click “End”, as shown in the following figure.



6、PLC Write

a. Select "Online > PLC Write".

b. The "Online Data Operation" dialog box pops up. Select "Write" and select "Select All" for the data being edited, as shown in the figure below.



c. Click “Execute”.

d. A prompt box pops up asking "Do you want to write to PLC after executing remote STOP?" Select "Yes".

e. A lower-level prompt box pops up "Parameters already exist, do you want to overwrite?", select "Yes to all".

f. A lower-level prompt box pops up saying "There is no data in the soft component comment (COMMENT). No data is written." Click "OK".

The prompt "PLC writing is completed" is displayed.

g. A prompt box pops up saying "PLC is in STOP state. Do you want to execute remote RUN?" Select "Yes".

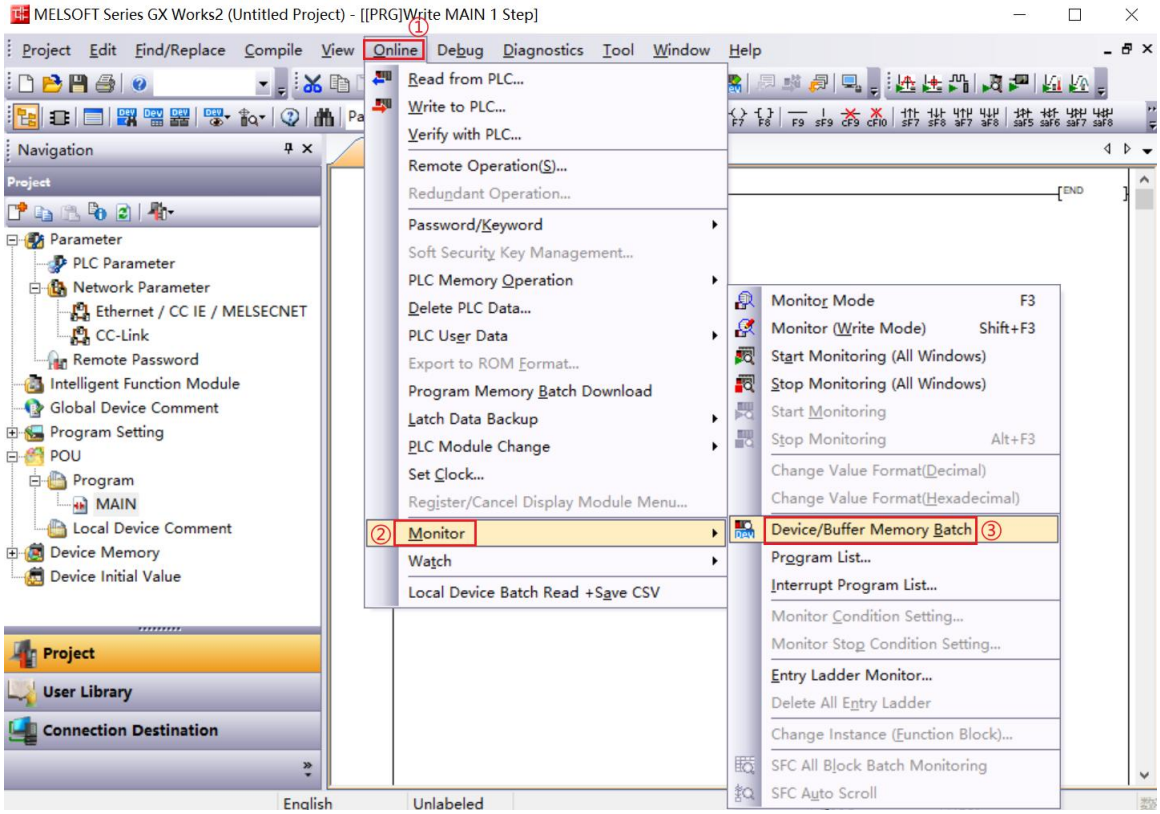
h. A dialog box pops up saying "Completed". Click “OK”.

i. At this point, the PLC write operation is complete, click “Close”.

j. Disconnect power from the XB6S-CL2002+I/O module device combination and the PLC, and then power them back on.

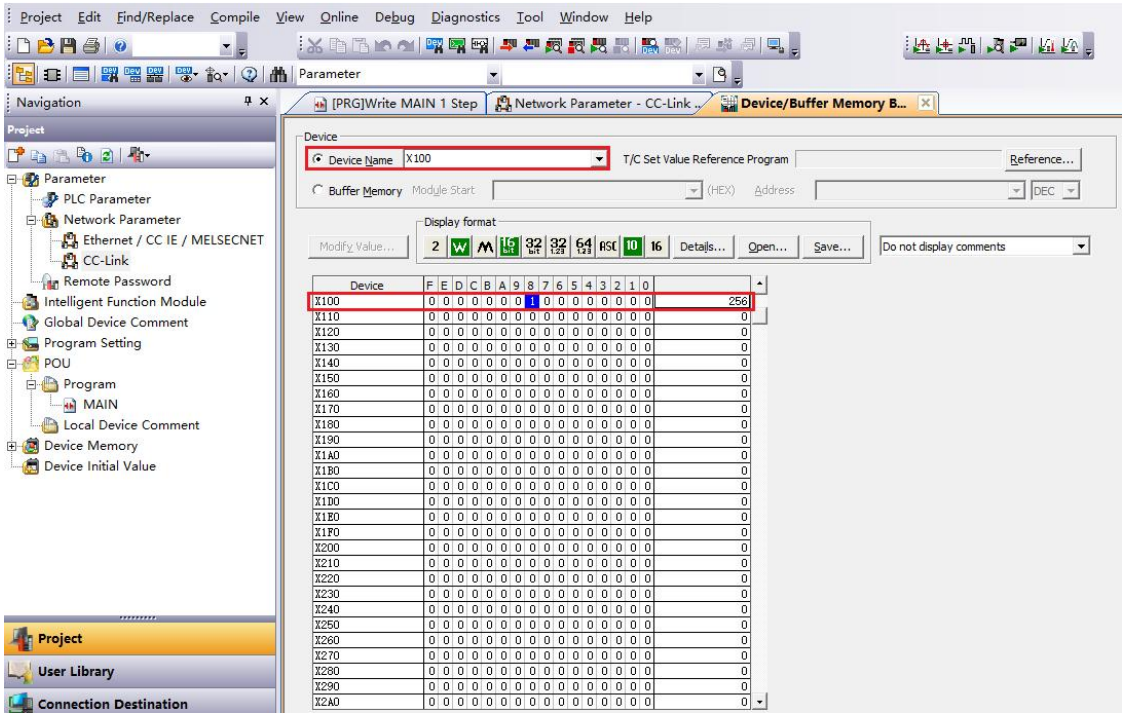
7、Monitoring Settings

a. Select "Online > Monitor > Device/Buffer Memory Batch".

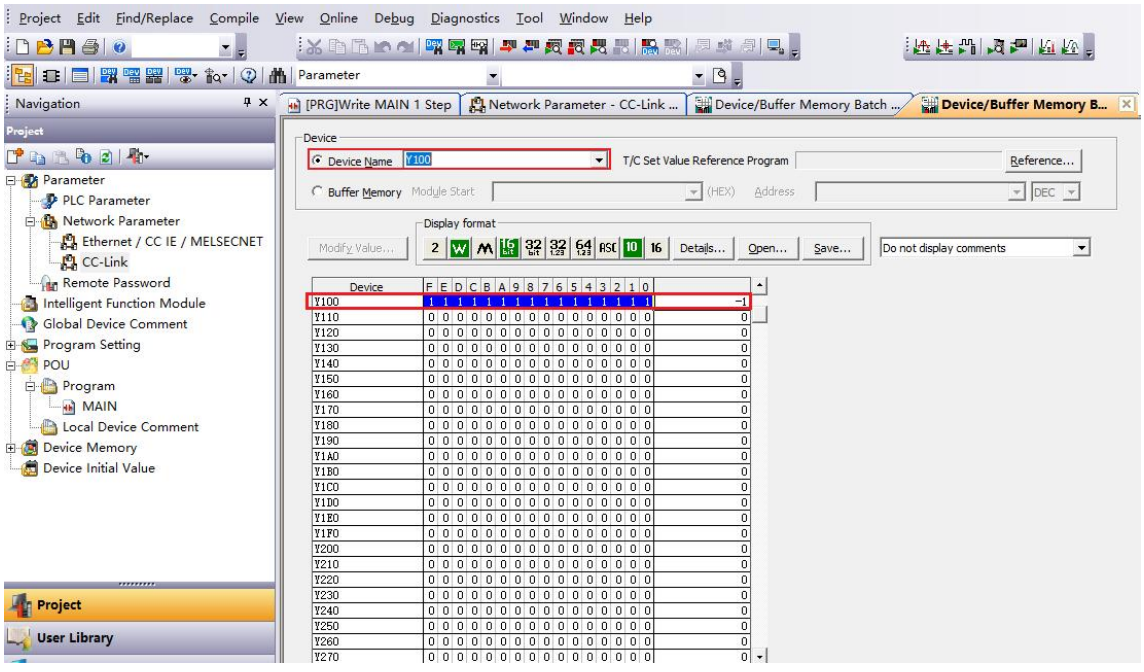


b. Repeat the above operation to establish four monitoring interfaces. In the "Device Name" of the four monitoring interfaces, enter the parameters of "Remote Input (RX) Refresh Soft Component", "Remote Output (RY) Refresh Soft Component", "Remote Register (RWr)", and "Remote Register (RWw)" set in the network parameter setting interface, that is, "X100", "Y100", "D1000", and "D2000". The monitoring setting is completed. Please refer to 6.4.3 Module channel and soft element correspondence list, operate on the data bits.

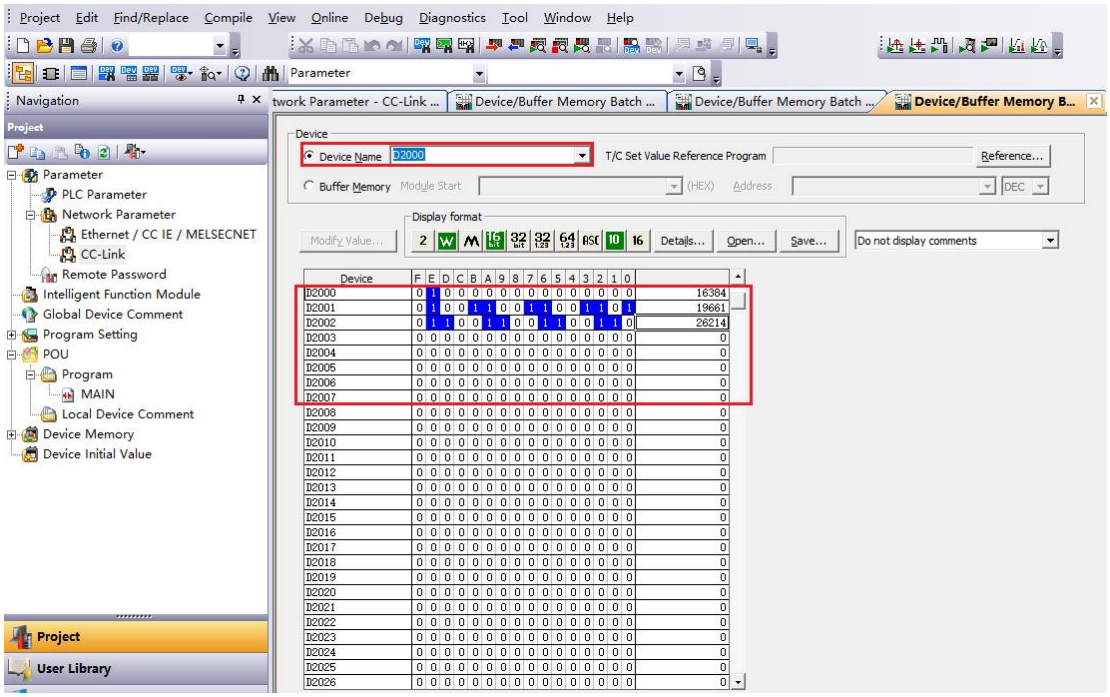
c. In this example, the XB6S-1616B module has 16 input channels, each channel occupies 1 bit, corresponding to X100 (0~F). When input channel 8 inputs a high level, the module channel 8 indicator light is always on, and the monitoring interface X108 value is 1, as shown in the figure below.



d. The XB6S-1616B module has 16 output channels, each channel occupies 1 bit, corresponding to Y100 (0~F). Double-click the value to modify the channel value. When the value of any channel from 0 to F is 1, the indicator light of the corresponding channel is always on. When the channel value is 0, the indicator light of the corresponding channel is off. The monitoring interface is shown in the figure below.



e. The XB6S-A08V module has 8 analog output channels, each channel occupies 2 bytes, the starting address is D2000, corresponding to D2000~D2007, the values of D2000~D2007 can be modified to voltage code values, and the monitoring interface is shown in the figure below.



6.5.2 Application in IO Config Tool software environment

1、Preparation

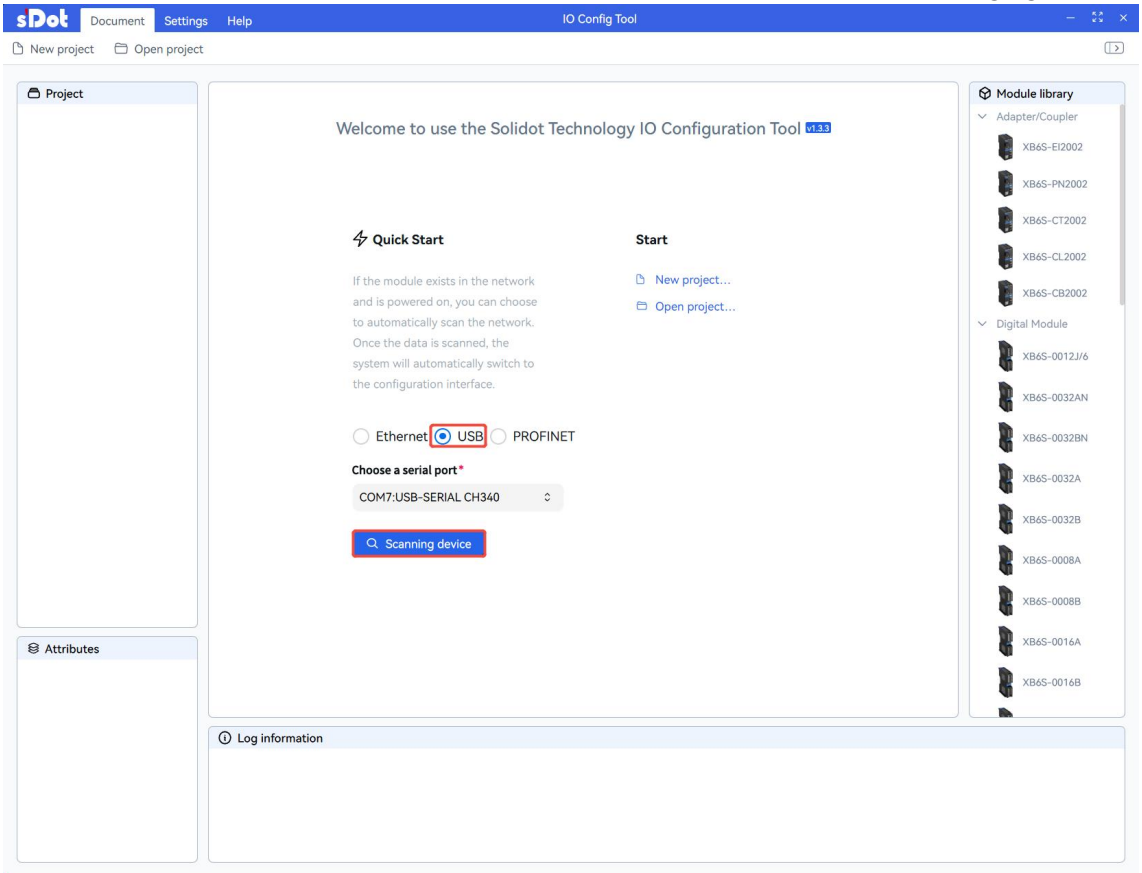
- **Hardware Environment**
  - **Module preparation. This description takes the XB6S-CL2002+XB6S-1616B+XB6S-A80VD+XB6S-A08I topology as an example.**
  - **A computer with IO Config Tool pre-installed**
  - **USB cable (Type-C interface)**
  - **Switching power supply**
- **Hardware configuration and wiring**

  Please follow the4 Installation and removal"and"5. WiringRequest action
- **Module power on**

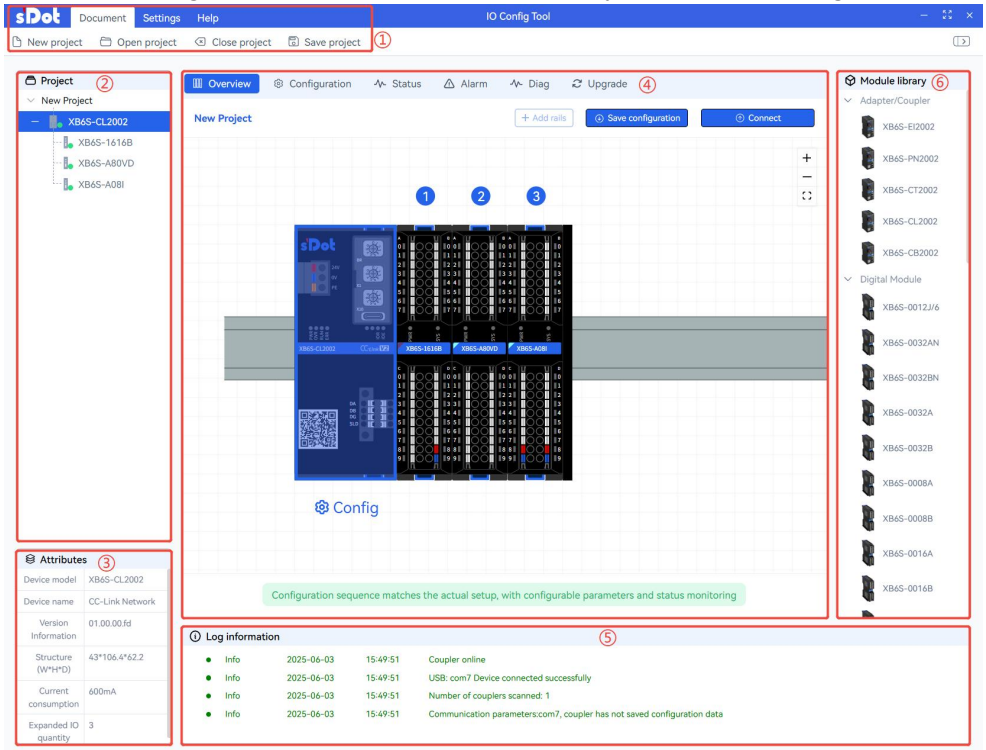
  After checking that the wiring is correct, power on the coupler module + I/O module device combination.

2、Scan Devices

a. Open the IO Config Tool software, select the corresponding serial port in the "Please select a serial port" drop-down box, and click "Scan for devices", as shown in the following figure.



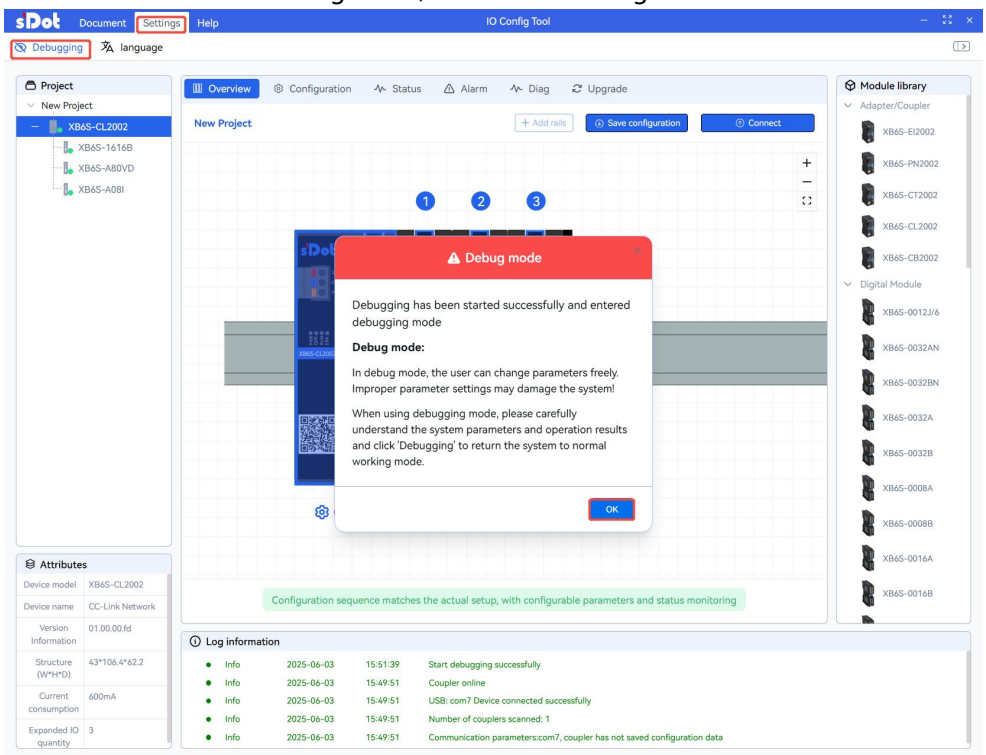
b. After scanning the device successfully, enter the device overview page, which mainly consists of six functions: ① Menu bar, ② Project bar, ③ Module properties, ④ Module configuration overview, ⑤ Log information, and ⑥ Module library, as shown in the figure below.



Note: The log information can show the number of couplers scanned.

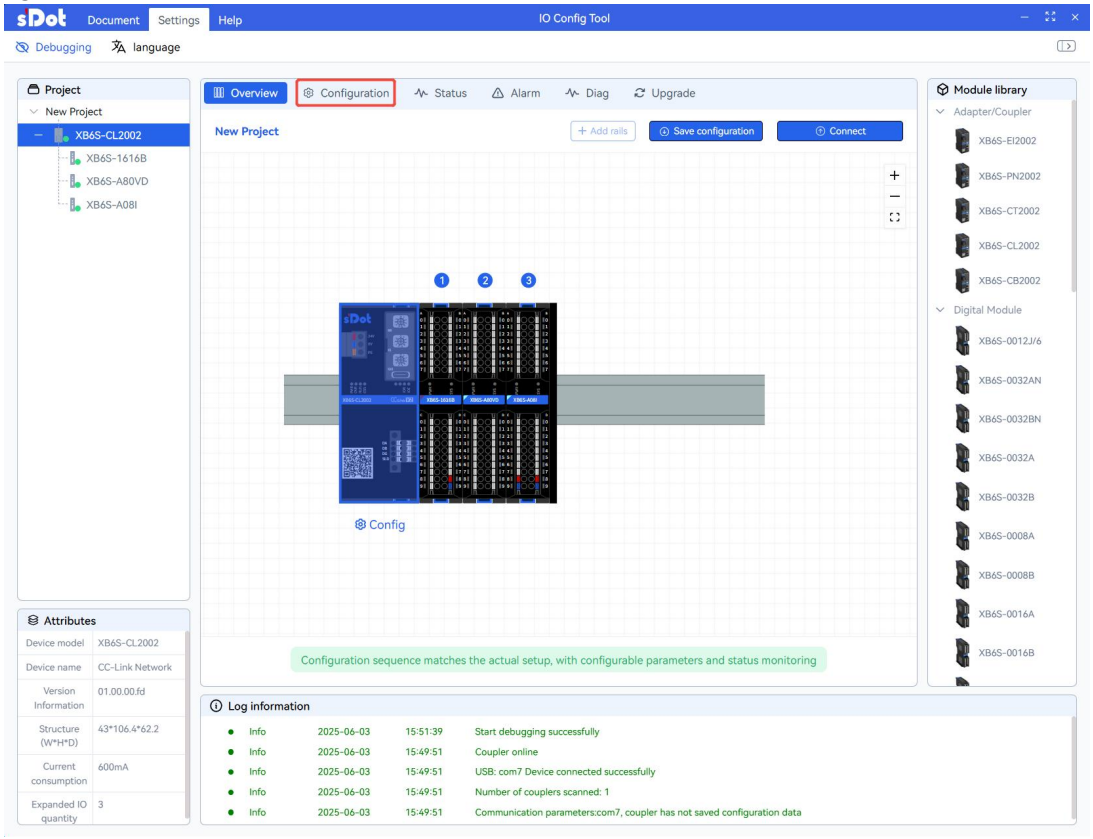
3、Parameter settings

a. Click "Settings->Debug" in the menu bar, and the debug mode confirmation window will pop up. Click "OK" to enter the debug mode, as shown in the figure below.

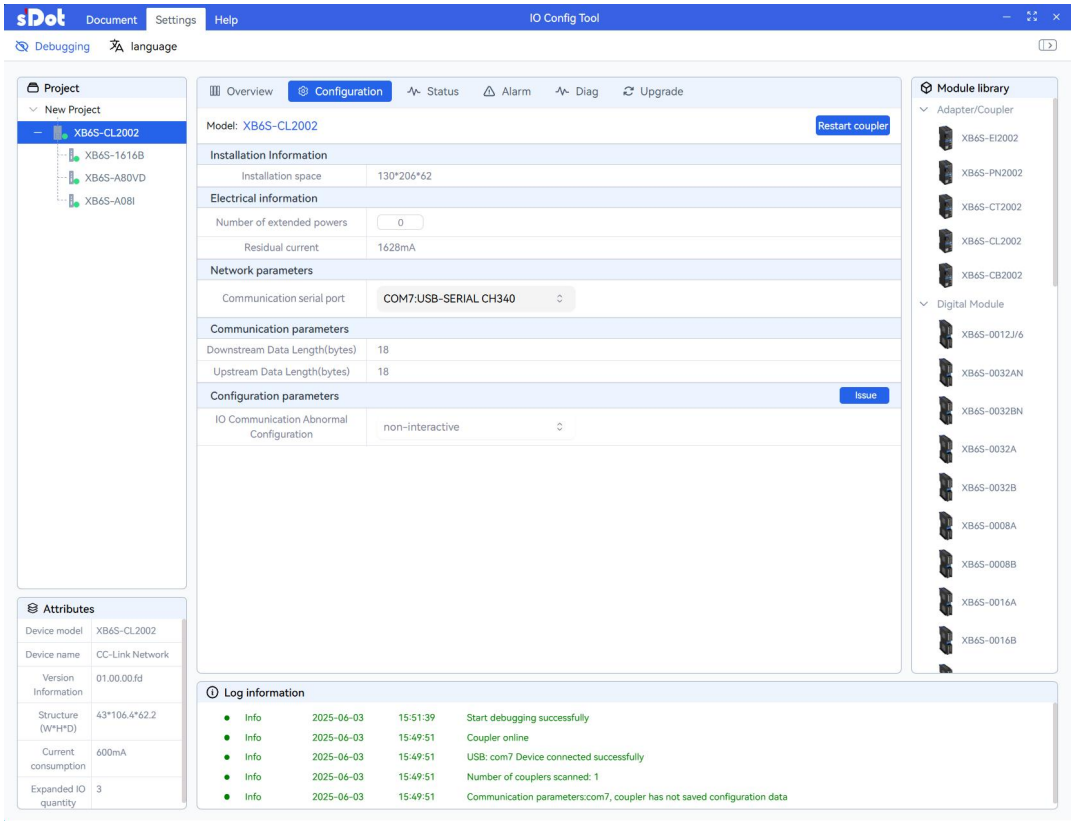


Note: Configuration parameters must be configured in debug mode.

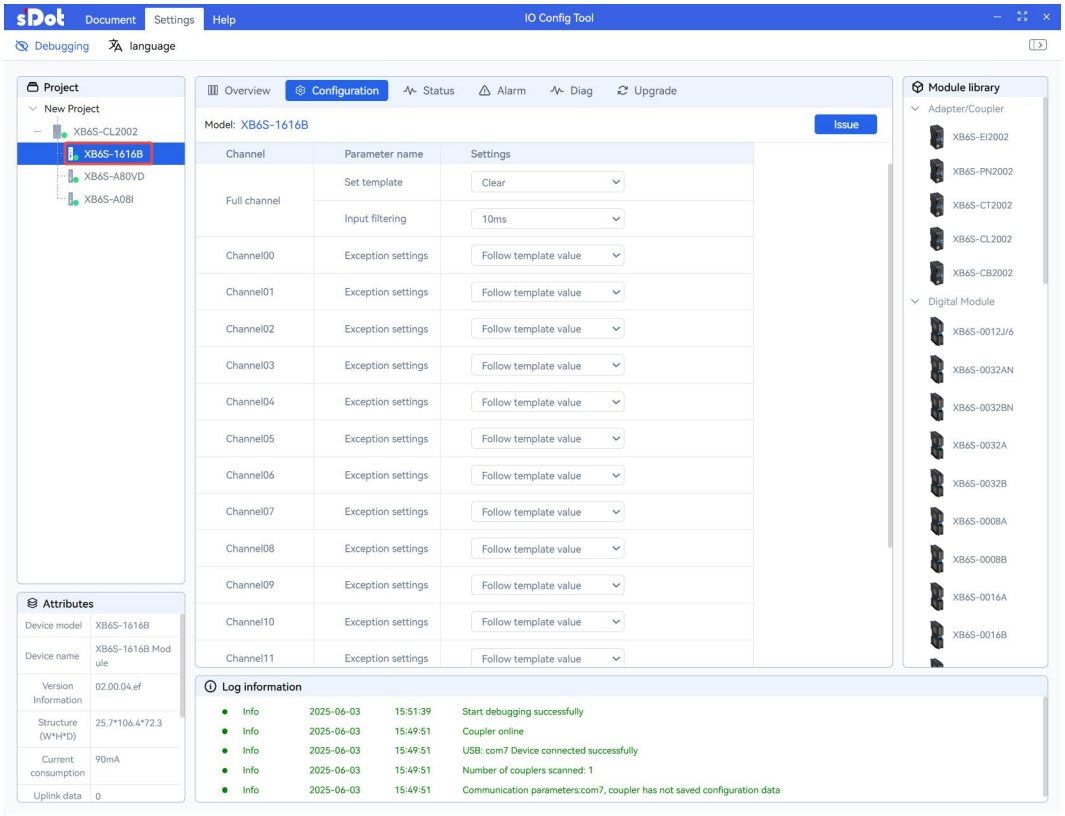
b. In debug mode, click the XB6S-CL2002 module and click "Parameter Settings", as shown in the figure below.



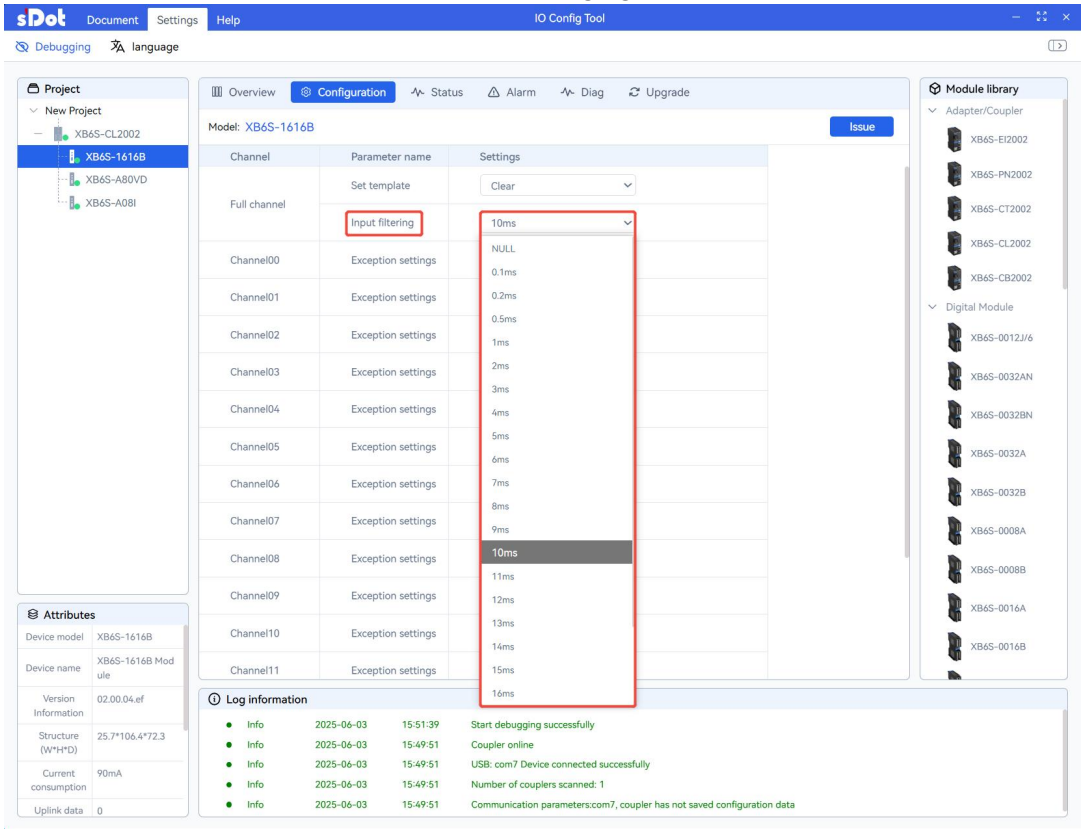
c. On the XB6S-CL2002 parameter setting page, you can view the module's installation information, electrical information, and communication parameters; configure the module's network parameters and configuration parameters, such as the IO communication exception configuration parameters, which can be configured according to actual usage needs. After the parameter configuration is completed, click "Issued" and "Restart Coupler" in sequence. After restarting, the configured parameters will take effect, as shown in the figure below.



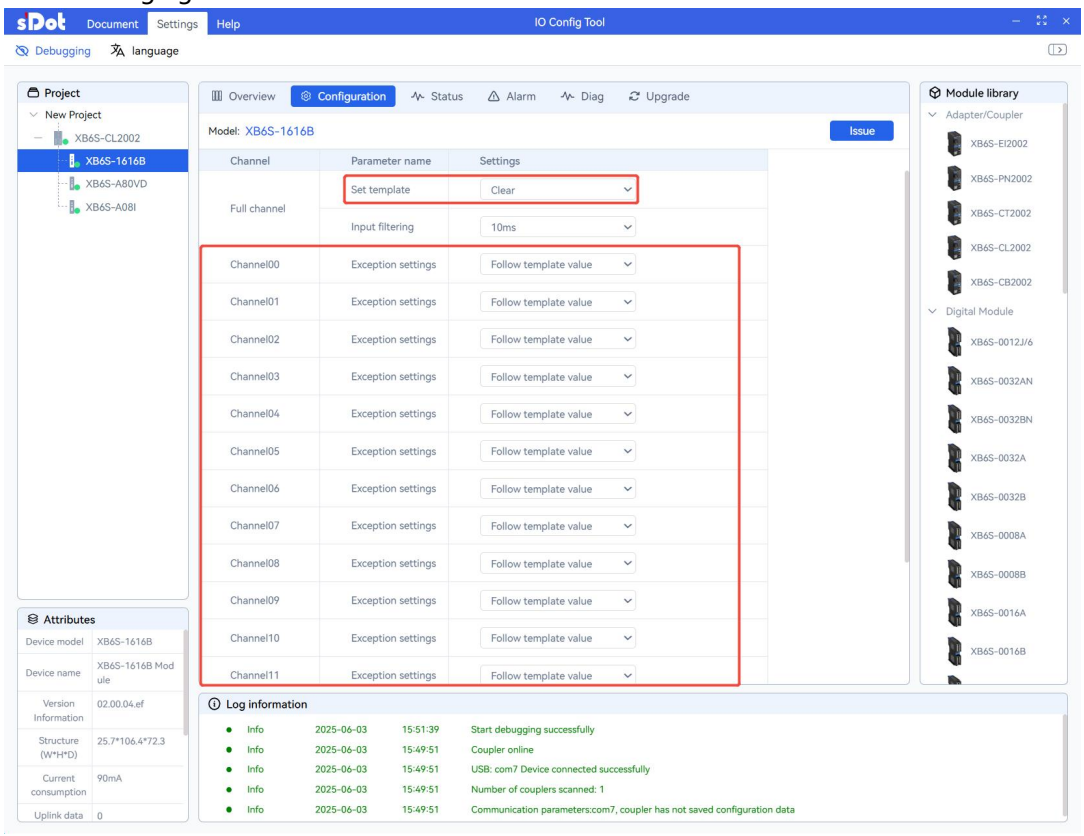
d. Select the XB6S-1616B module in the project column on the left to enter the XB6S-1616B parameter setting page. You can configure the digital input filtering and output signal clear/hold functions. The parameters can be configured according to actual needs, as shown in the figure below.



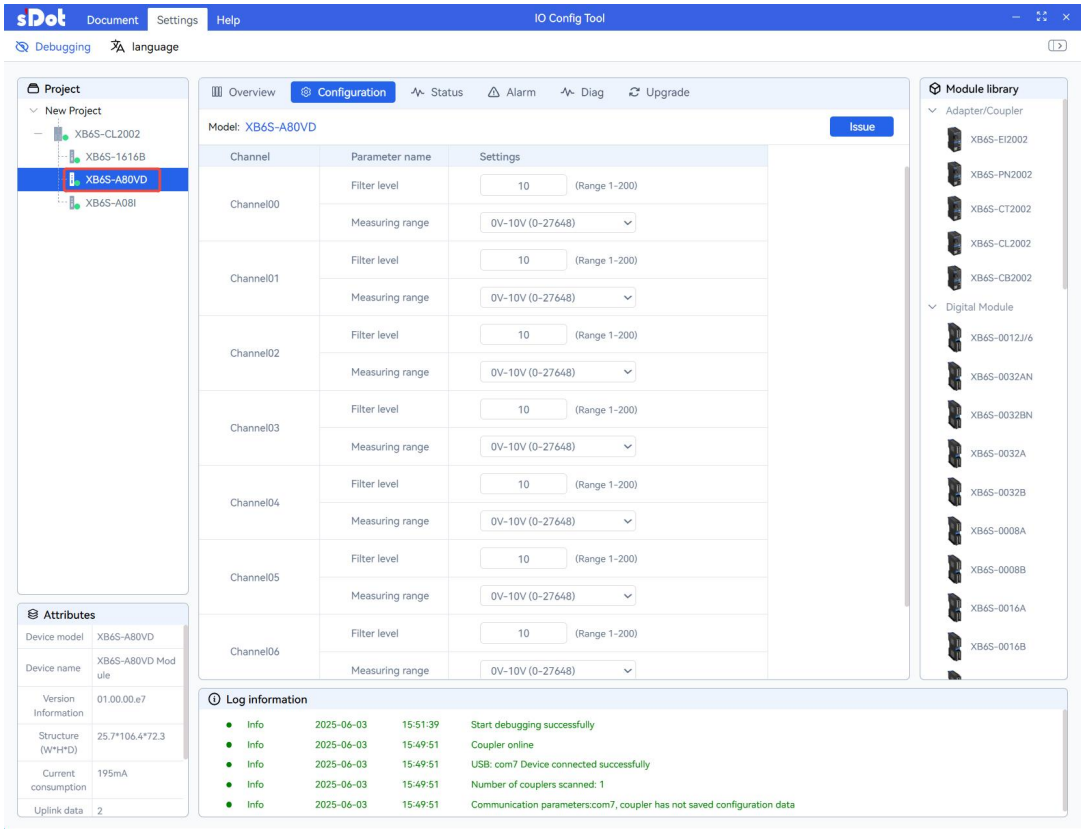
e. The digital input filter time can be set in the range of 0~20ms. After the configuration is completed, click "Issued", as shown in the following figure.



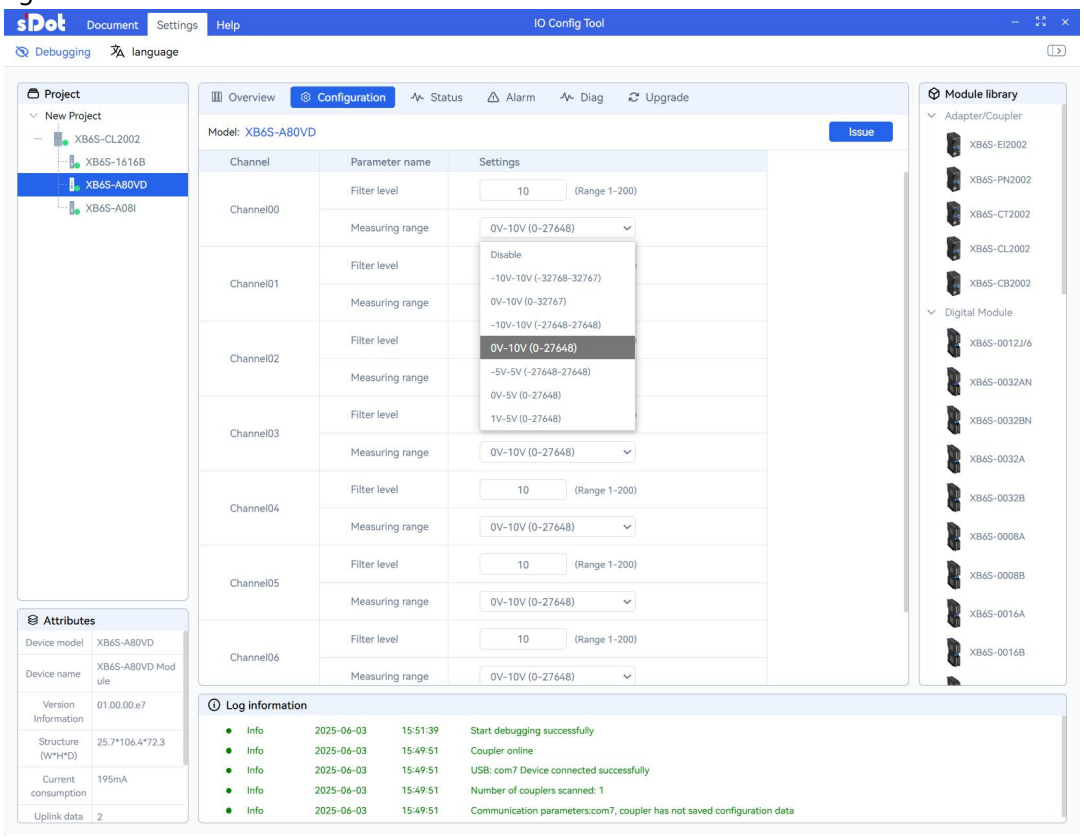
f. Digital output signal clear/hold function, all channels are preset to output clear mode by default, module channels can be configured separately, the corresponding relationship is shown in 6.2.2 Clear/hold digital output signalAfter the configuration is completed, click Send, as shown in the following figure.



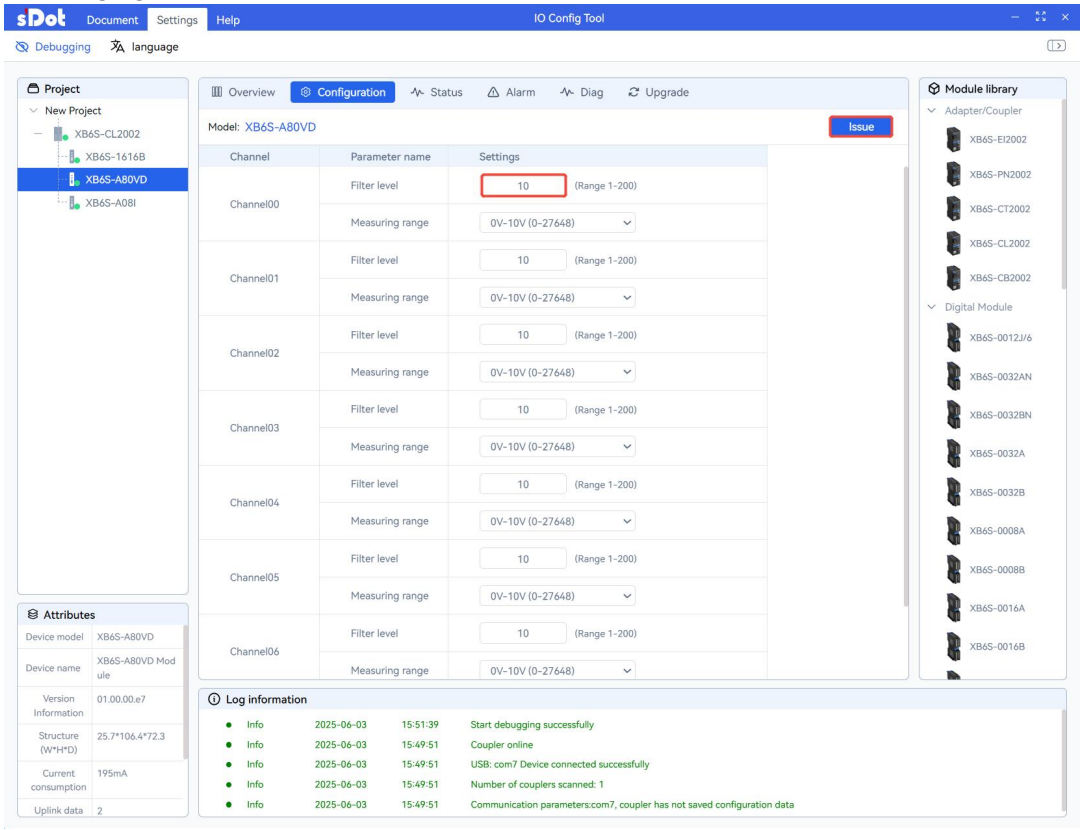
g. Select the XB6S-A80VD module in the project column on the left to enter the XB6S-A80VD analog voltage input module parameter setting page. You can configure the analog voltage range and analog input filter parameters. The parameters can be configured according to actual needs, as shown in the figure below.



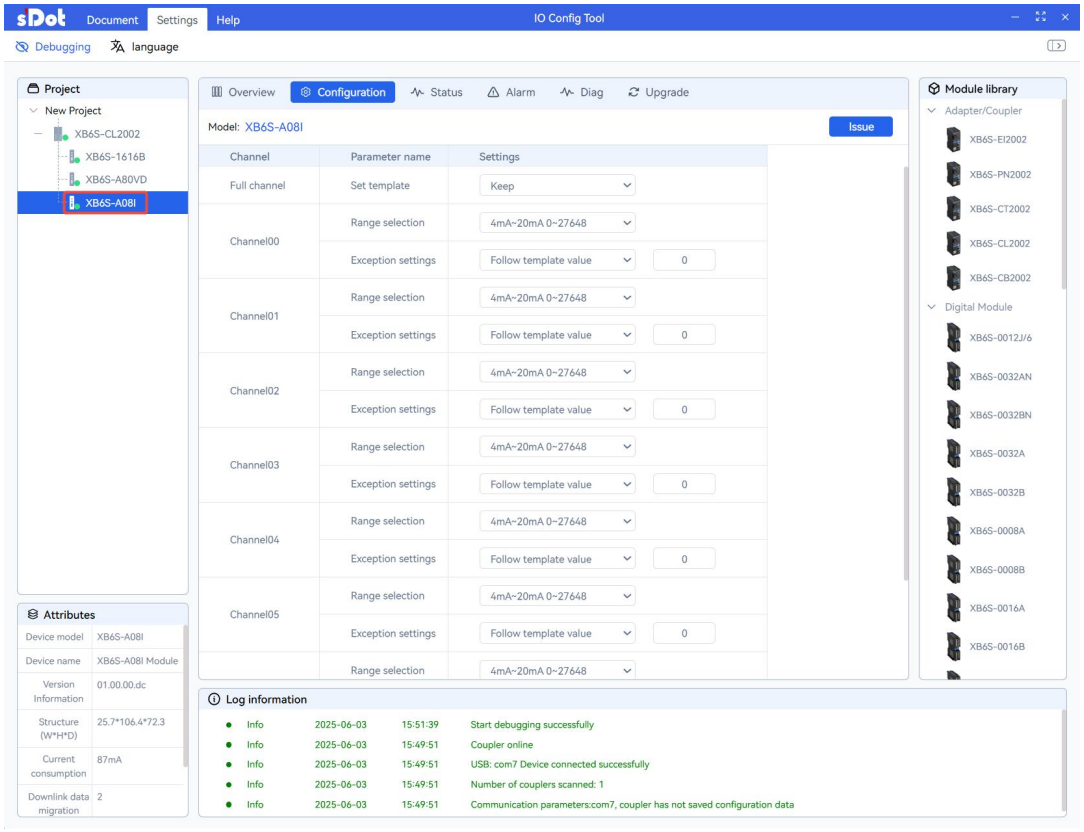
h. The analog input voltage can be configured into 8 ranges. Each channel is configured independently. After the configuration is completed, click "Issued", as shown in the following figure.



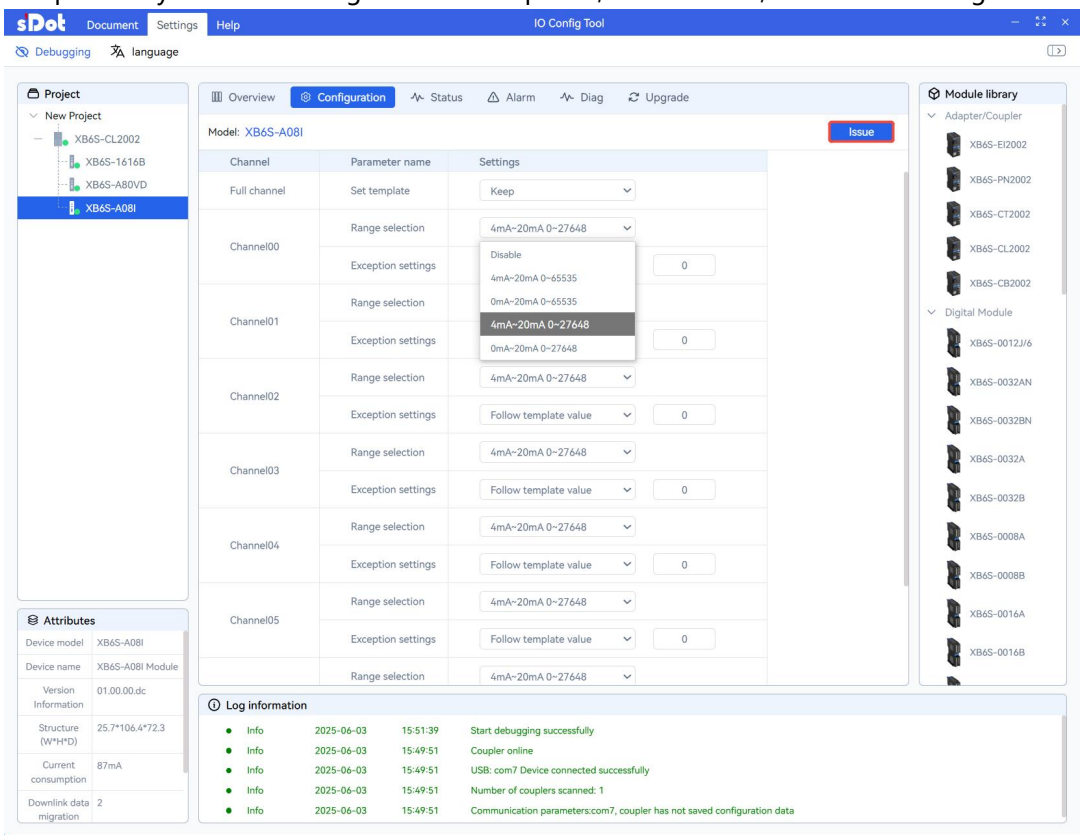
i. The analog input filter can be configured in the range of 1 to 200, and supports single-channel independent configuration. After the configuration is completed, click "Issued", as shown in the following figure.



j. Select the XB6S-A08I module in the project column on the left to enter the XB6S-A08I analog current output module parameter setting page. You can configure the analog current range and analog output signal clear/hold parameters. The parameters can be configured according to actual needs, as shown in the figure below.

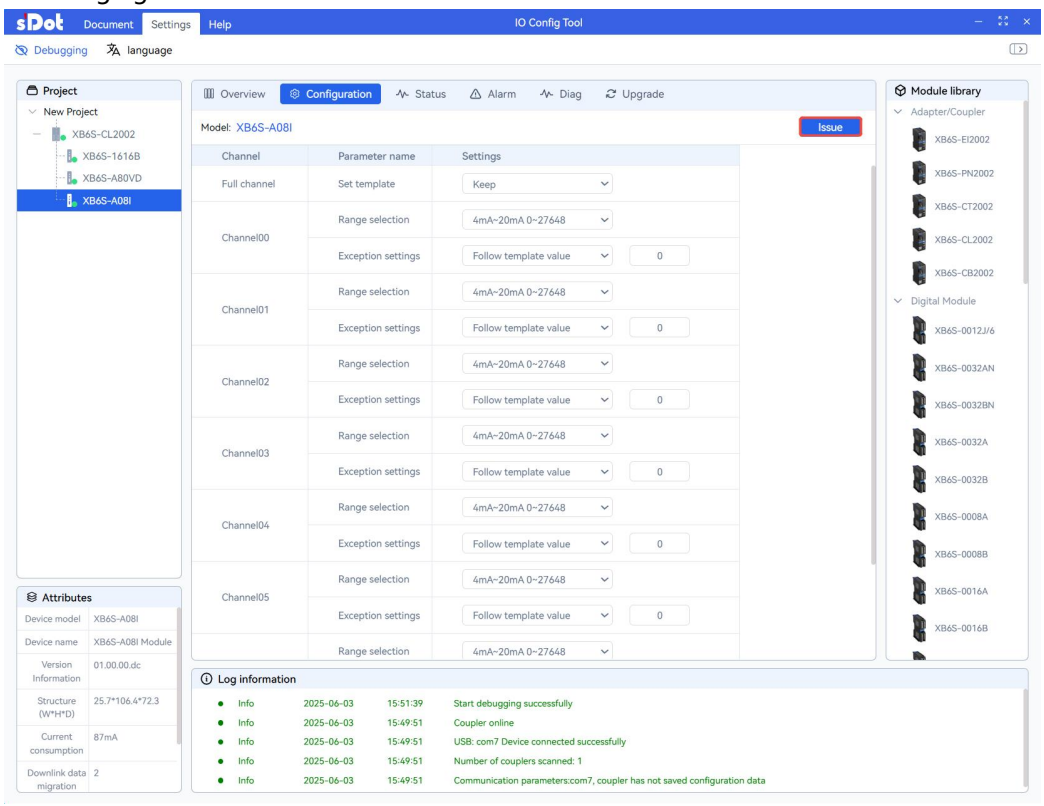


k. The analog output current can be configured into 5 ranges. Each channel is configured independently. After the configuration is completed, click "Issued", as shown in the figure below.



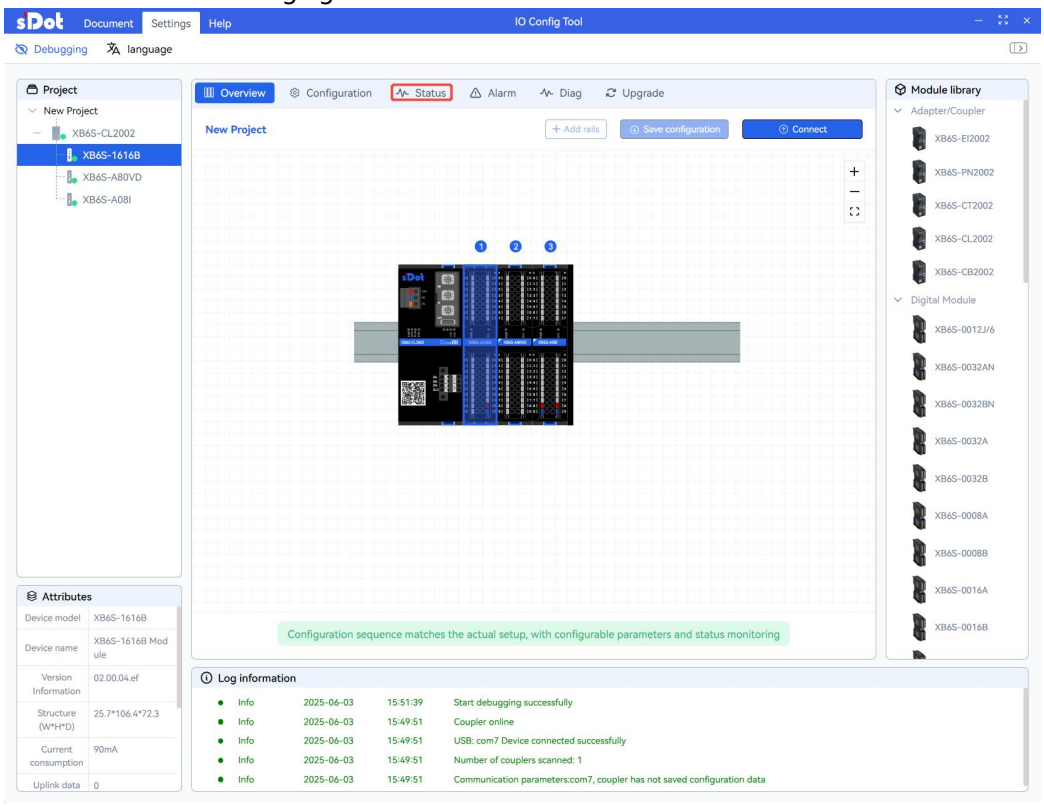
l. Analog output signal clear/hold function, all channels are in output clear mode by default, module channels can be configured separately, see the corresponding relationship6.2.5

Clear/hold analog output signalAfter the configuration is completed, click Send, as shown in the following figure.



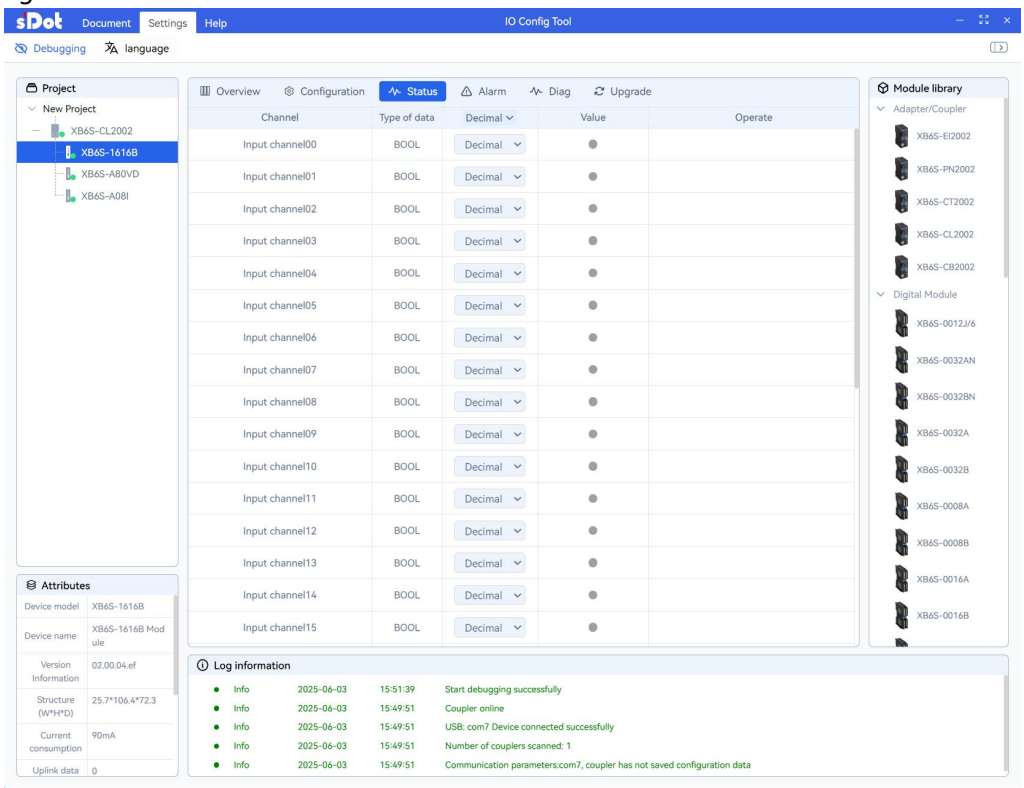
4、I/O function

a. In debug mode, click the XB6S-1616B module in the device overview page and click “Status”, as shown in the following figure.

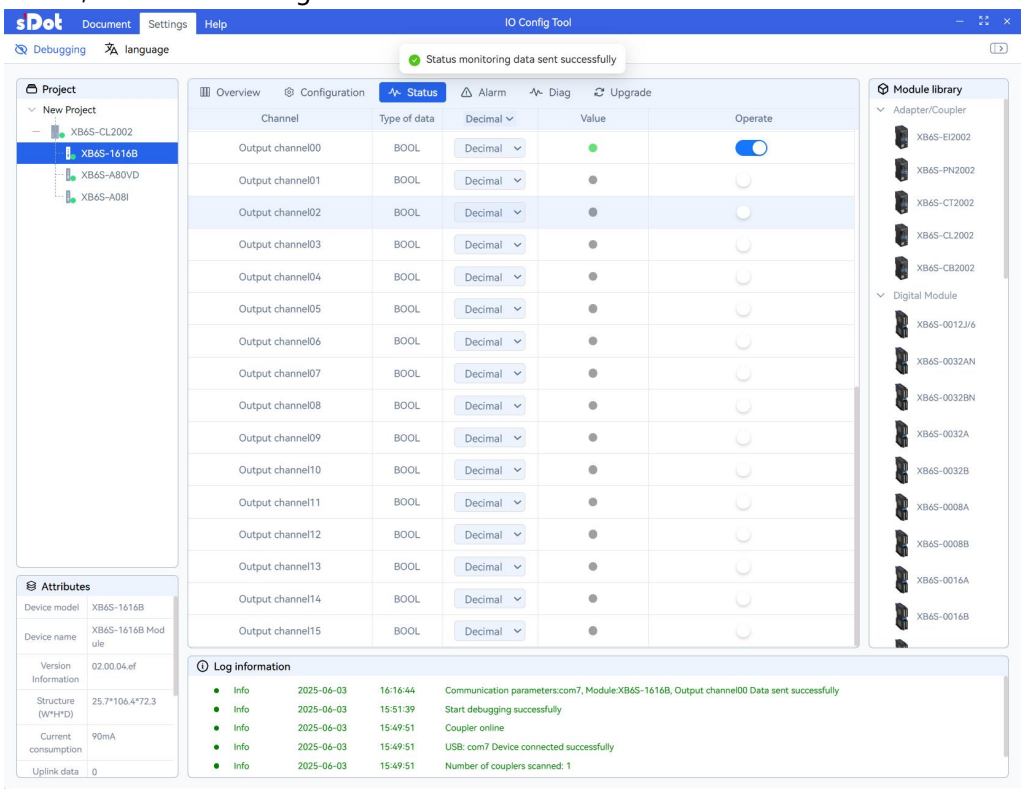


Note: Status monitoring must be performed in debug mode.

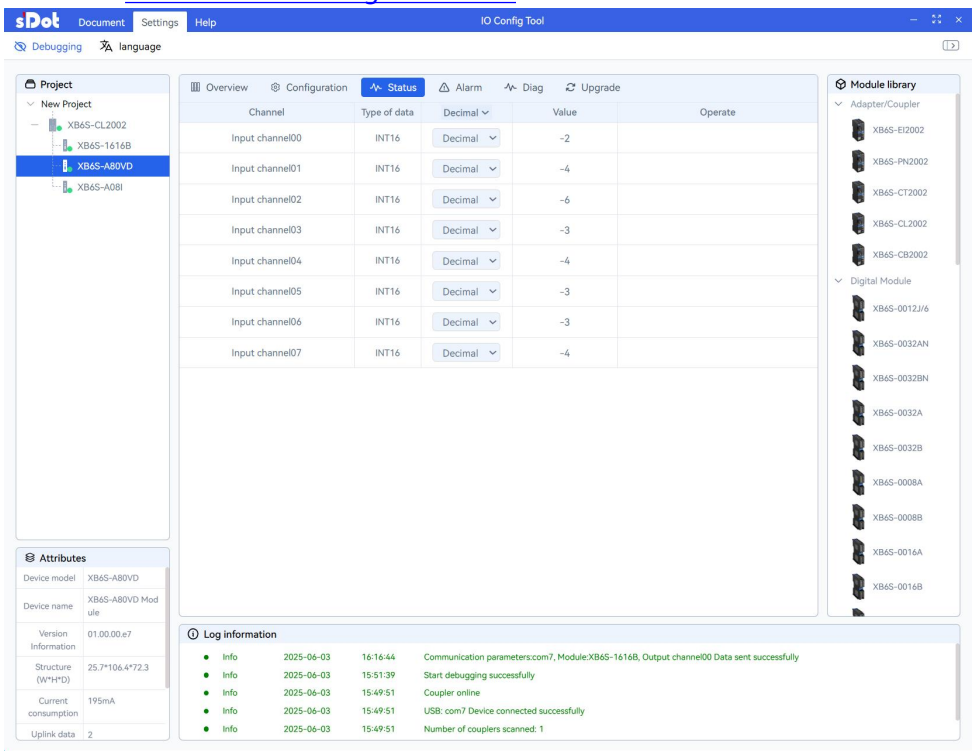
b. Take input channel 0 of the XB6S-1616B module as an example.Input channel 0 has valid voltage input, and the input value can be monitored in the status monitoring page, as shown in the figure below.



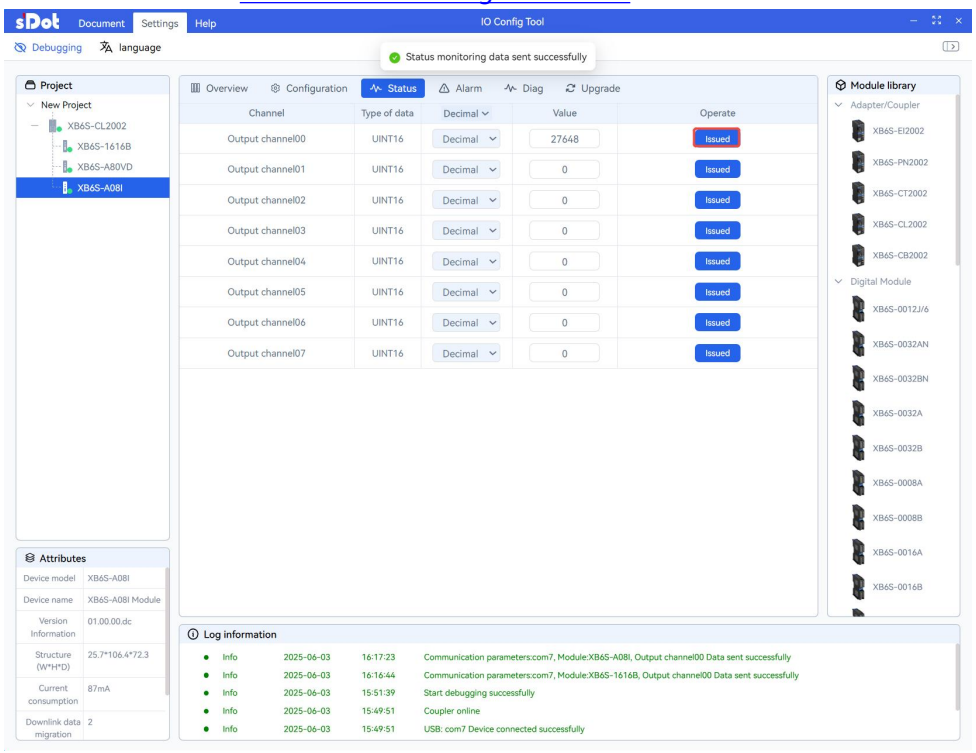
c. The output channel of the XB6S-1616B module can be forced to output through the "Operate" button, as shown in the figure below.



d. Select the XB6S-A80VD module in the left project column, switch to the status monitoring page of the XB6S-A80VD module, and you can monitor the input voltage code value of each channel., as shown in the figure below, the corresponding relationship between code value and voltage is detailed in3.3.4 and 3.3.5 Analog Parameters.

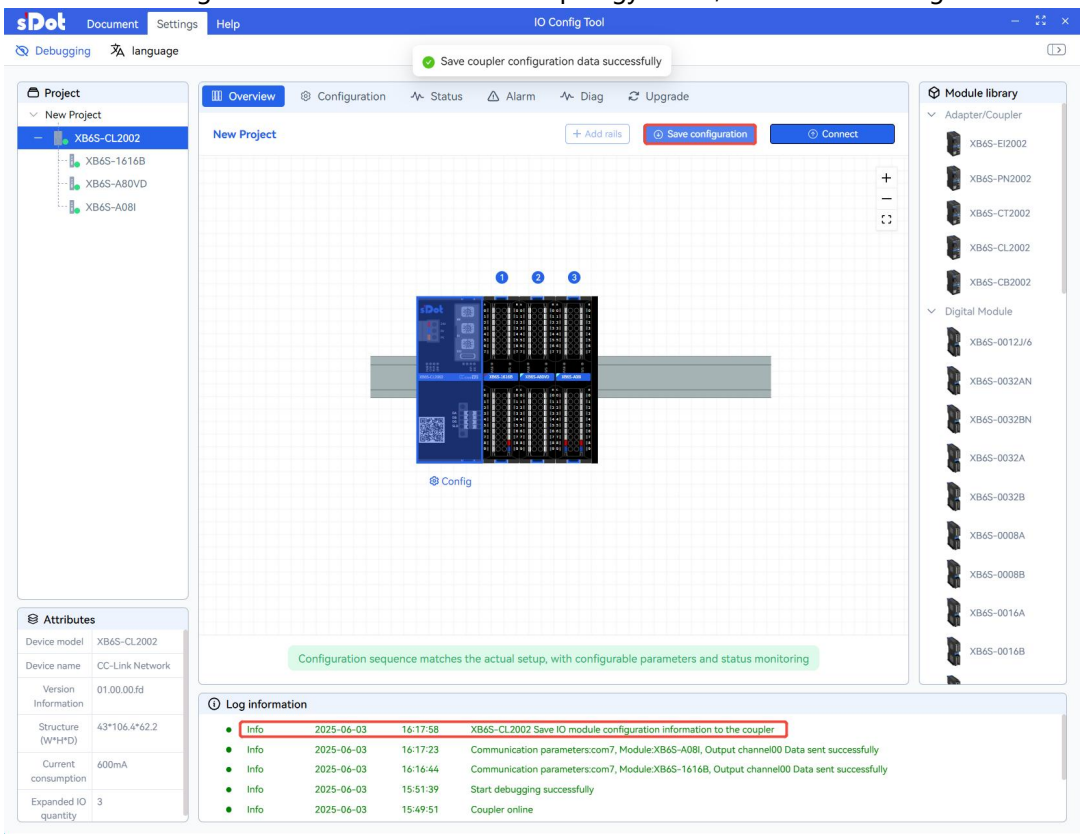


e. Select the XB6S-A08I module in the left engineering column, switch to the status monitoring page of the XB6S-A08I module, and write the current code value to force output for each channel., as shown in the figure below, the corresponding relationship between code value and current is detailed in3.3.4 and 3.3.5 Analog Parameters.

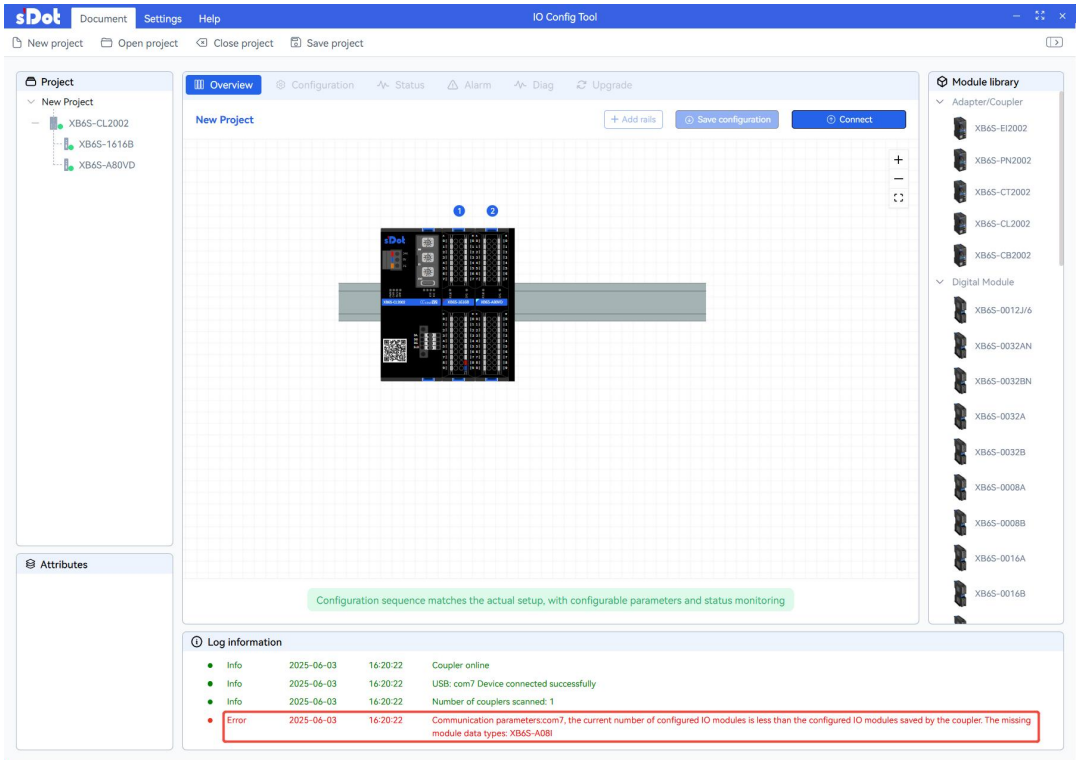


5、Topology status comparison function

a. Click "Save Configuration" to save the current topology status, as shown in the figure below.

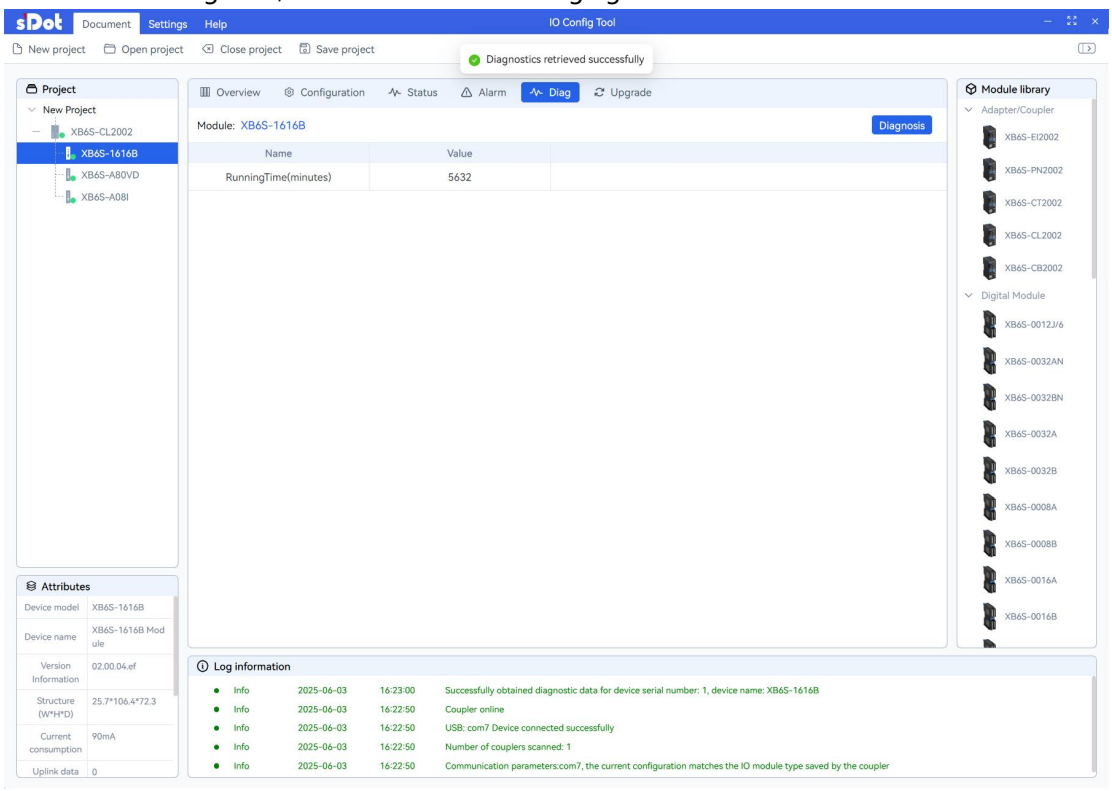


b. When the topology changes, after power-on scanning, you can see the topology status comparison prompt in the log information window, as shown in the figure below.



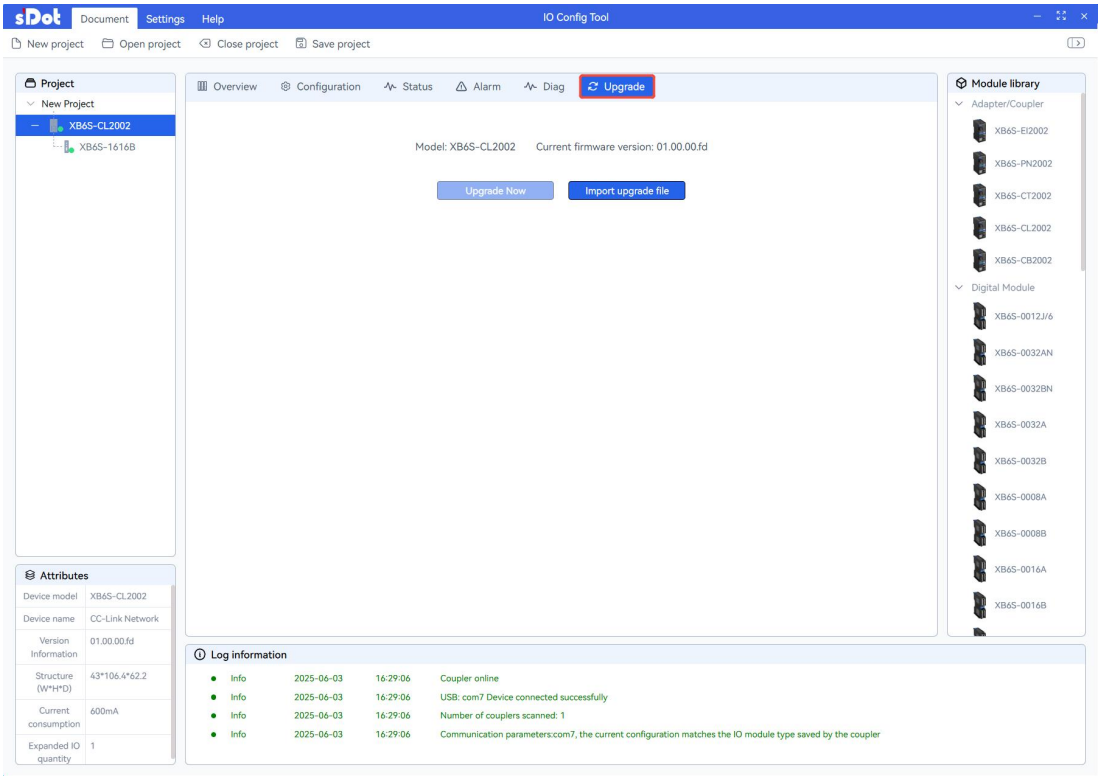
6、Diagnostic Information View

a. Click "Diag" to enter the diagnostic information page, and click the "Diagnosis" button to view the device running time, as shown in the following figure.

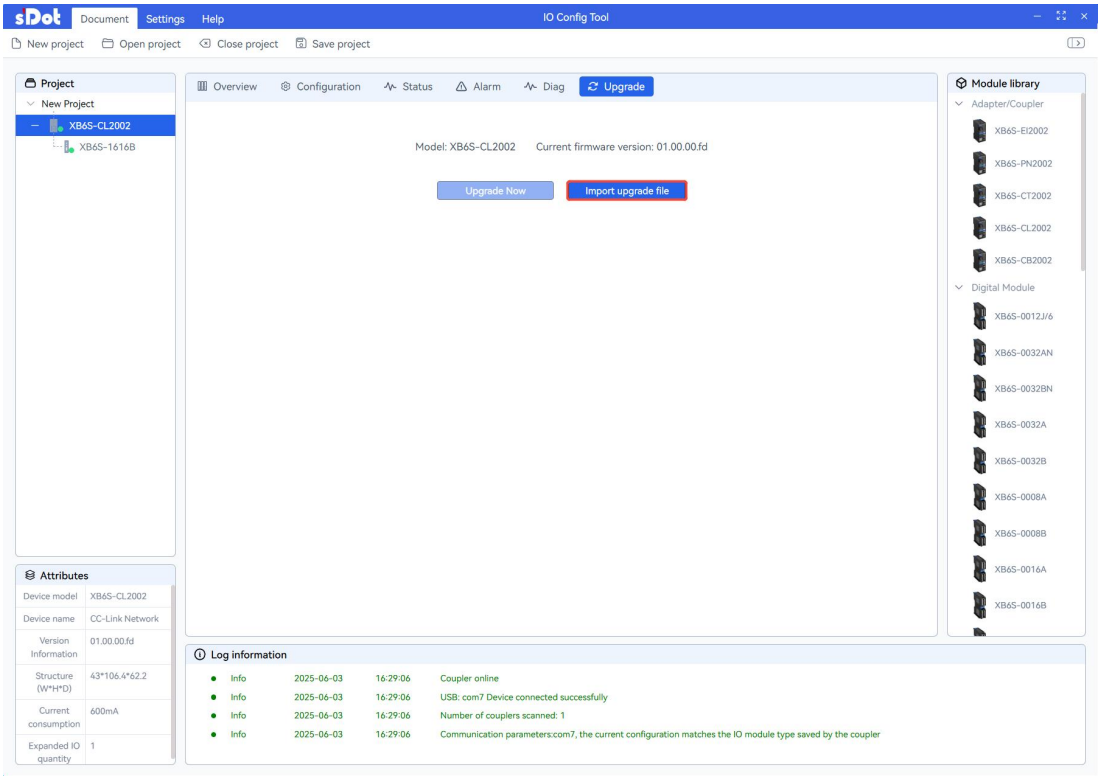


6.6 Firmware online upgrade

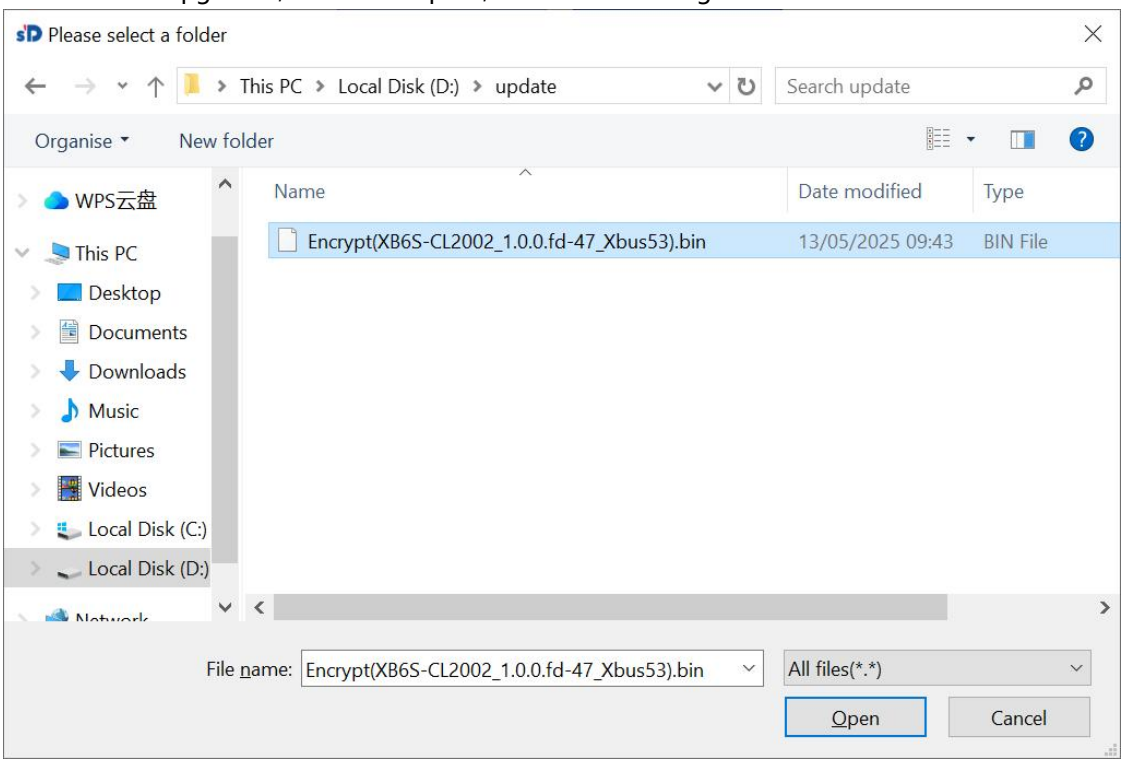
1、 Take IO Config Tool software as an example. The topology is XB6S-CL2002+XB6S-1616B. Enter the firmware update page, as shown in the following figure.



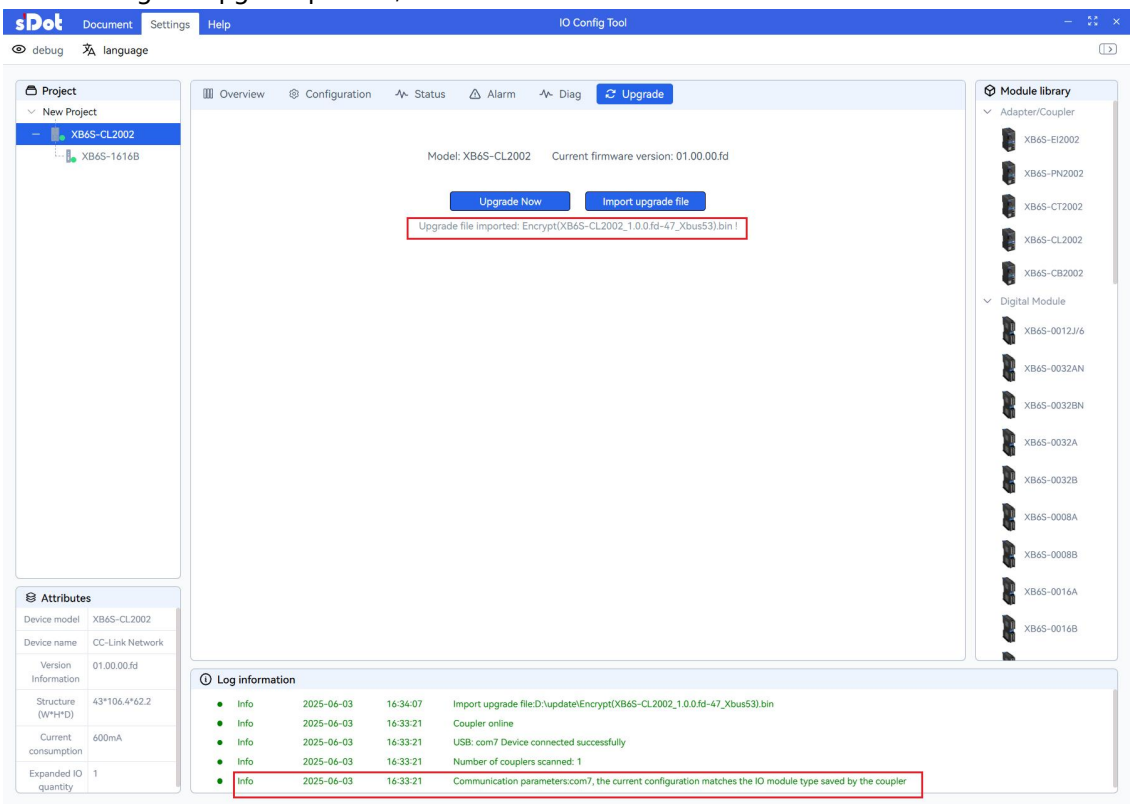
2、 To upgrade the coupler XB6S-CL2002, click "XB6S-CL2002" in the project column on the left, and click "Import Upgrade File", as shown in the figure below.



3、 The open file window pops up, select the "All Files" option, select the bin file corresponding to the module to be upgraded, and click "Open", as shown in the figure below.



4、 After the upgrade file is successfully imported, click "Upgrade Now", as shown in the figure below.
Note: During the upgrade process, other buttons in the software cannot be clicked.



5、 Successful upgrade process of different modules

CC-Link coupler online upgrade:

1) When the progress bar is full, the coupler IOR starts flashing at 10Hz (50ms on and 50ms off);
2) IOR changes from flashing at 10Hz to flashing at 1Hz, indicating that the upgrade is successful;
3) After the online upgrade is successful, you need to manually switch to OP status before you can re-establish the connection;
4) If you need to upgrade again, you need to switch the OP state to the BOOT state.

IO module online upgrade:

1) When the progress bar is full, the coupler IOR and the SYS of the module being upgraded start flashing at 10Hz (50ms on and 50ms off);
2) The SYS indicator of the module being upgraded changes from 10Hz to off, indicating that the upgrade is successful (after the upgrade is complete, the power needs to be turned on and off again to connect normally);
3) You can continue to upgrade other modules without cutting off the power supply.

