



XB6-PC70BF

Pulse Frequency Acquisition Module

User Manual



Nanjing Solidot Electronic Technology Co., Ltd.

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Table of contents

1 Product Overview	1
1.1 Product Introduction	1
1.2 Product Features	1
2 Product Parameters	2
2.1 General parameters	2
3 Panel	3
3.1 Module structure	3
3.2 Indicator light function	4
4 Installation and removal	5
4.1 External dimensions	5
4.2 Installation Guide	5
4.3 Installation and disassembly steps	7
4.4 Installation diagram	7
5 Wiring	12
5.1 Wiring diagram	12
5.2 Terminal block definition	13
6 Use	14
6.1 Configuration parameter definition	14
6.1.1 Filter time	14
6.1.2 Window time	14
6.1.3 Minimum frequency	14
6.2 Process data	15
6.2.1 Uplink data	15
6.2.2 Downlink data	15
6.3 Module configuration instructions	16
6.3.1 Application in the TwinCAT3 software environment	16
6.3.2 Application in the TIA Portal V17 software environment	26

1 Product Overview

1.1 Product Introduction

The XB6-PC70BF is a plug-in pulse frequency acquisition module that uses the X-bus and is compatible with our XB6 series coupler modules. The module has 7 pulse frequency acquisition channels, capable of sampling and analyzing pulse signals in the frequency range of 0~500Hz to obtain the frequency of each channel with an accuracy of up to 0.01Hz.

1.2 Product Features

- Seven-channel pulse acquisition
The seven channels can monitor pulse frequency values completely independently.
- Minimum frequency
Supports minimum frequency setting.
- Filter time
Filter time settings are supported.
- Window frequency
Window frequency settings are supported.
- Small size
It has a compact structure and occupies little space.
- Easy to diagnose
The innovative channel indicator light design is placed close to the channel, making it easy to see and convenient for inspection and maintenance.
- Easy configuration
It is easy to configure and supports mainstream PROFINET and EtherCAT master stations.
- Easy to install
DIN 35 mm standard rail mounting
It adopts spring-loaded terminal blocks, making wiring convenient and quick.

2 Product Parameters

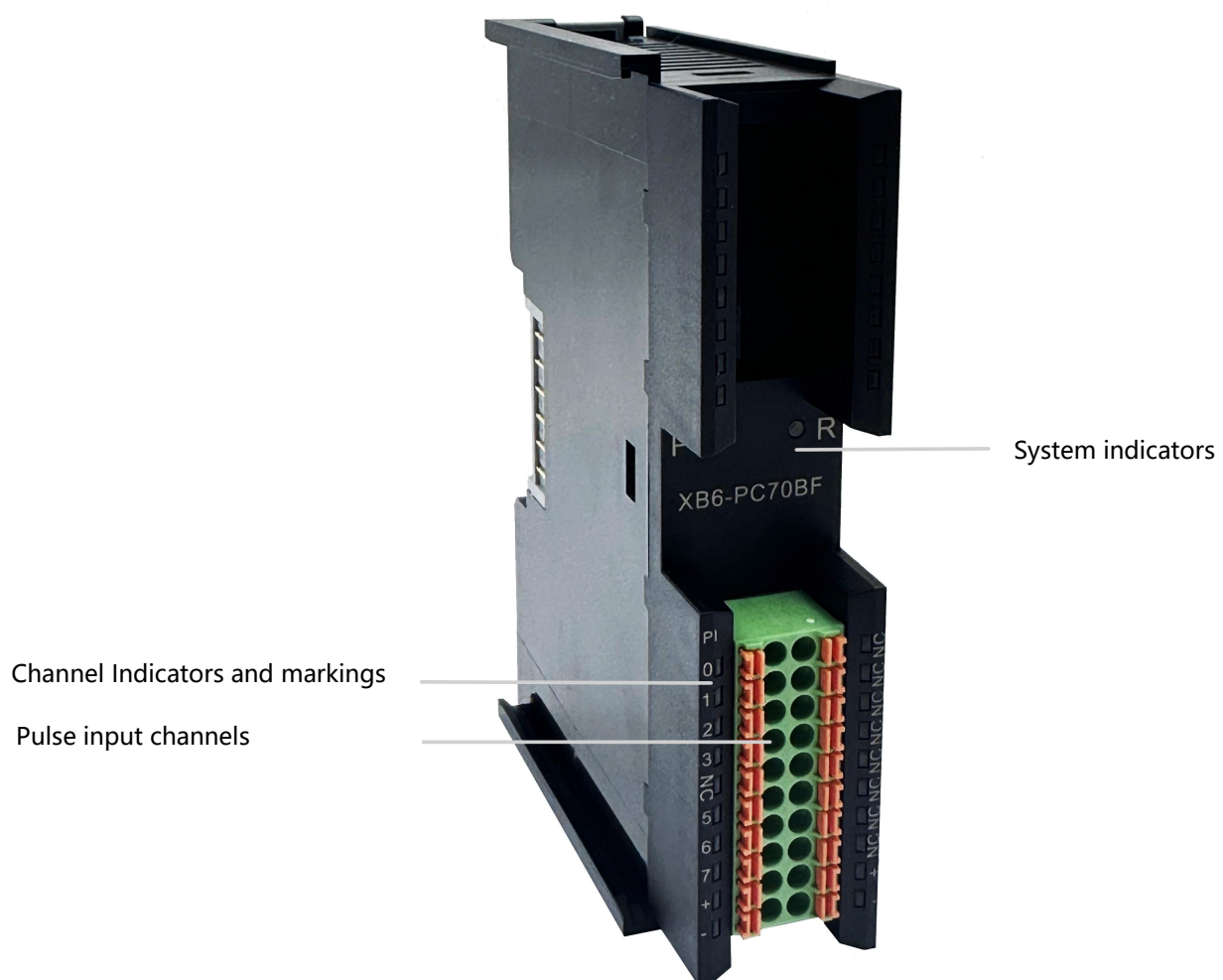
2.1 General parameters

Interface parameters	
Product Model	XB6-PC70BF
Bus Protocol	X-bus
Process data volume: Uplink	14 Bytes
Process data volume: Downlink	2 Bytes
Channel type	Pulse input channels: 7 channels, PNP
Refresh rate	1 ms
Technical parameters	
System input power	5VDC
Rated values (range) of on-site power supply	24VDC (18V~36V)
Input channel voltage rating (range)	24VDC (15V~30V)
Pulse input frequency range	0~500Hz
External dimensions	106×73×25.7mm
Weight	90g
Wiring method	Screwless quick connector
Operating temperature	-10°C~+60°C
Storage temperature	-20°C~+75°C
Relative humidity	95%, no condensation
Protection level	IP20

3 Panel

3.1 Module structure

Product Parts Names



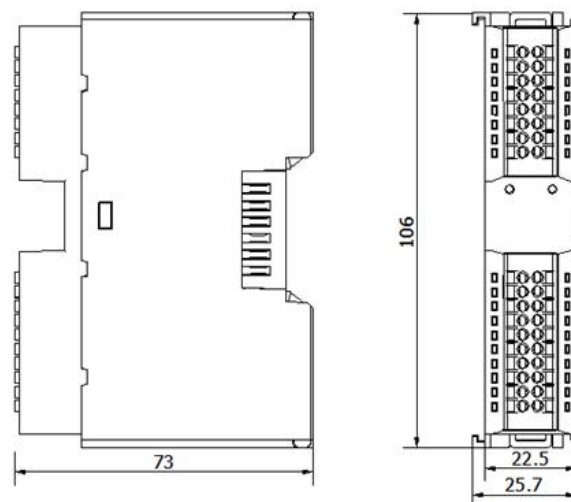
3.2 Indicator light function

Name	Logo	Color	State	Status Description
Power indicator light	P	green	ON	Power supply is normal
			OFF	The product is not powered on or the power supply is abnormal.
Communication indicator light	R	green	ON	The system is running normally.
			Flashing at 1Hz	The module is connected, and the X-bus system is ready to interact.
			OFF	Device not powered on, X-bus not exchanging data or malfunctioning
Pulse input channel indicator light	0~7	green	ON	The channel has a signal input.
			OFF	No signal input to the channel

4 Installation and removal

4.1 External dimensions

External dimensions (unit: mm)

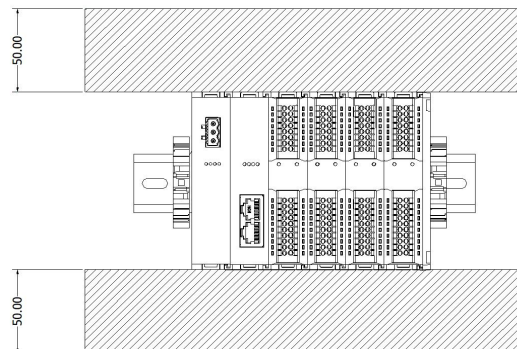
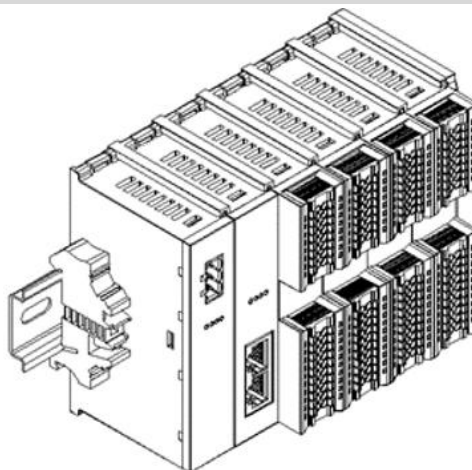
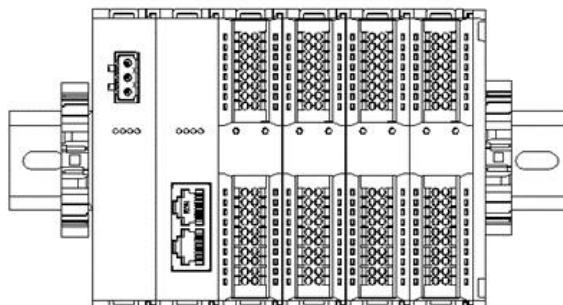


4.2 Installation Guide

Installation/Disassembly Precautions

- Ensure that the server rack has good ventilation (such as installing exhaust fans in the server rack).
- Do not install this device next to or above equipment that may cause overheating.
- Make sure to install the module vertically and ensure that there is air circulation around it (there should be at least 50mm of air circulation space above and below the module).
- After the module is installed, be sure to install guide rail fasteners at both ends to secure the module.

- Installation and disassembly must be performed with the power off.

Minimum clearance for module installation ($\geq 50\text{mm}$)**Ensure the module is installed vertically.****Be sure to install the guide rail fasteners.**

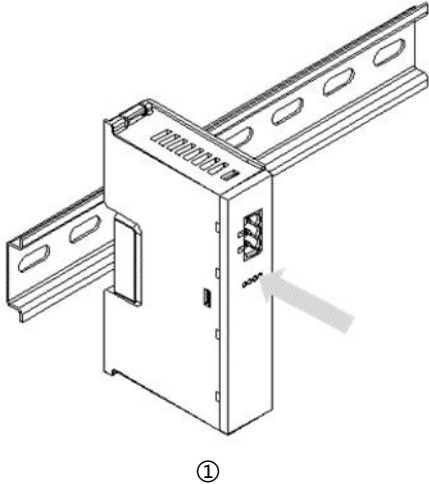
4.3 Installation and disassembly steps

Module installation and removal	
Module installation steps	1. Install the power module on the fixed guide rail.
	2. Install the coupler and the required I/O modules in sequence on the right side of the power module.
	3. After installing all the necessary I/O modules, install the end caps to complete the module assembly.
	4. Install guide rail fasteners at both ends of the power module and end cover to secure the module.
Module disassembly steps	1. Loosen the guide rail fasteners at both ends of the module.
	2. Use a flathead screwdriver to pry open the module clips.
	3. Remove the disassembled module.

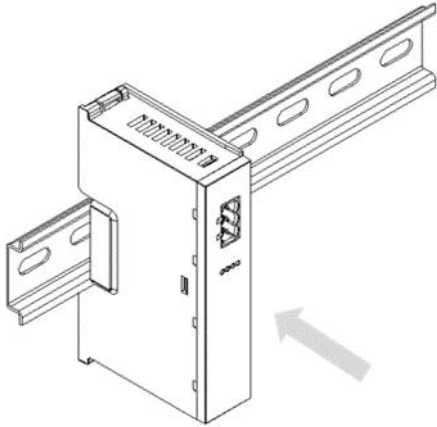
4.4 Installation diagram

Power module installation

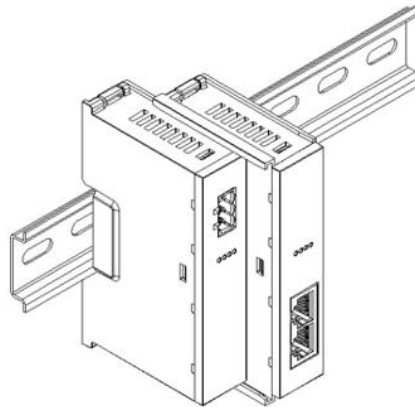
Step



Align the power module guide rail slot vertically with the guide rail as shown in Figure ① on the left.

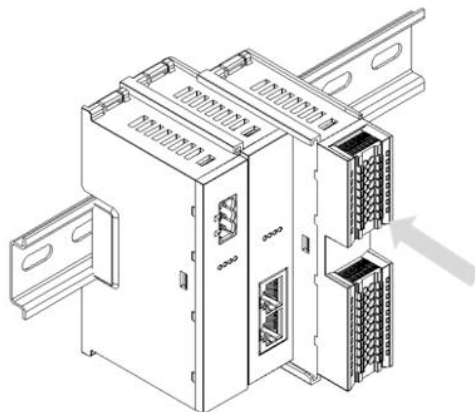


As shown in Figure ② on the left, press the power module firmly until you hear a "click" sound, and the module is installed in place.

Coupler module installation**Step**

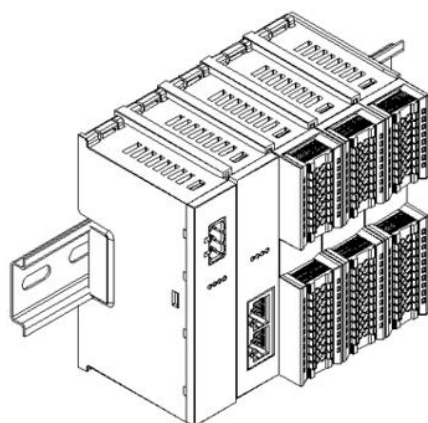
③

Align the left slot of the coupler module with the right side of the power supply module and push it in as shown in Figure ③ on the left. Press the coupler module firmly until you hear a "click" sound, indicating that the module is installed in place.

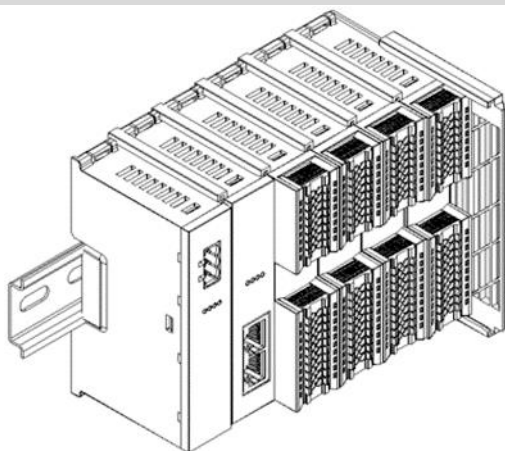
I/O module installation**Step**

④

Following the steps for installing the coupler module in the previous step, install the required I/O modules one by one, as shown in Figure ④ and Figure ⑤ on the left.

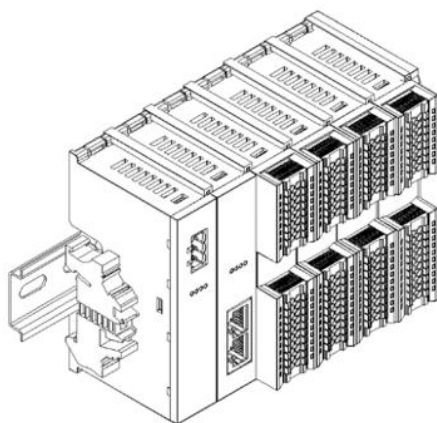


⑤

End cap addition**Step**

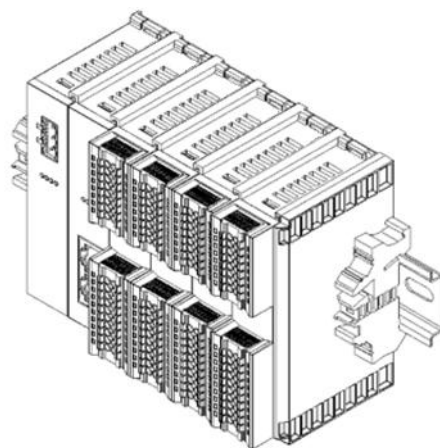
Install the end cap on the right side of the last module, as shown in Figure⑥ on the left. Please refer to the installation method of the coupler module for the installation method.

⑥

Addition of guide rail fasteners**step**

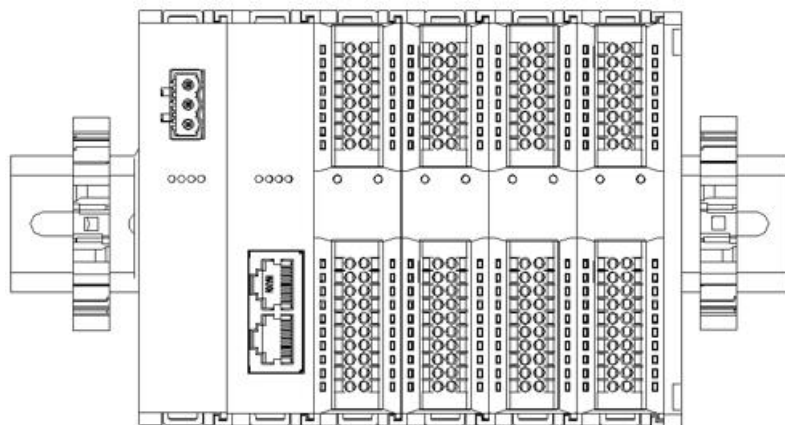
Install and lock the guide rail fastener close to the left side of the coupler, as shown in Figure ⑦ on the left.

⑦



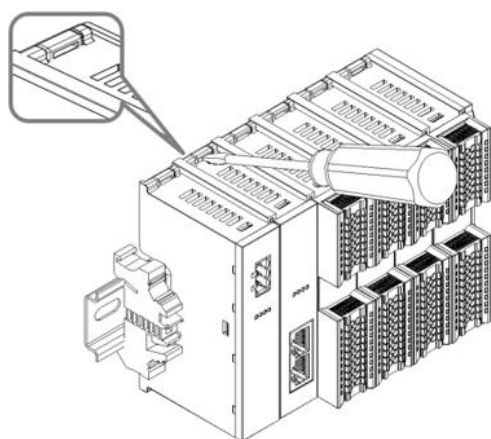
Install the guide rail fastener on the right side of the end cover. First, push the guide rail fastener towards the coupler to ensure that the module is installed securely, and then tighten the guide rail fastener with a screwdriver, as shown in Figure ⑧ on the left.

⑧

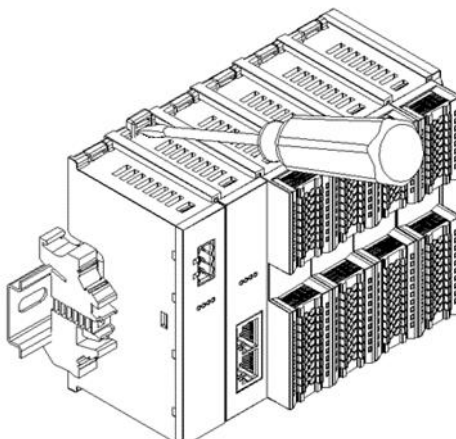
Disassembly**step**

Loosen the guide rail fastener at one end of the module with a screwdriver and move it to one side, ensuring there is a gap between the module and the guide rail fastener, as shown in Figure ⑨ on the left.

⑨



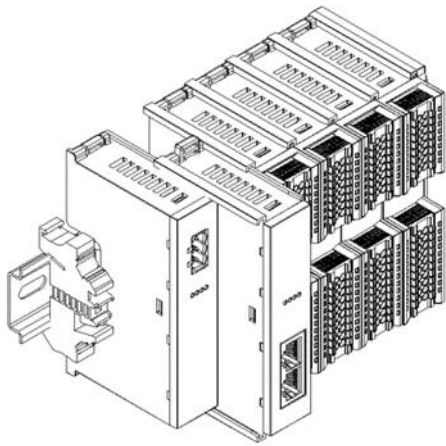
⑩



⑪

Insert the flathead screwdriver into the clips of the module to be removed, and apply force from the side towards the module (you will hear a click), as shown in Figure ⑩ ⑪ on the left.

Note: Each module has a buckle at the top and bottom; operate in the same way for all modules.

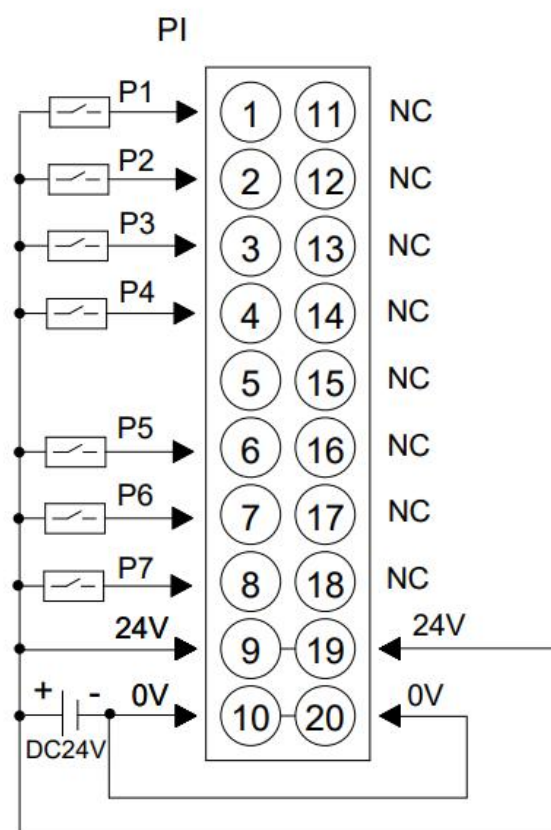


⑫

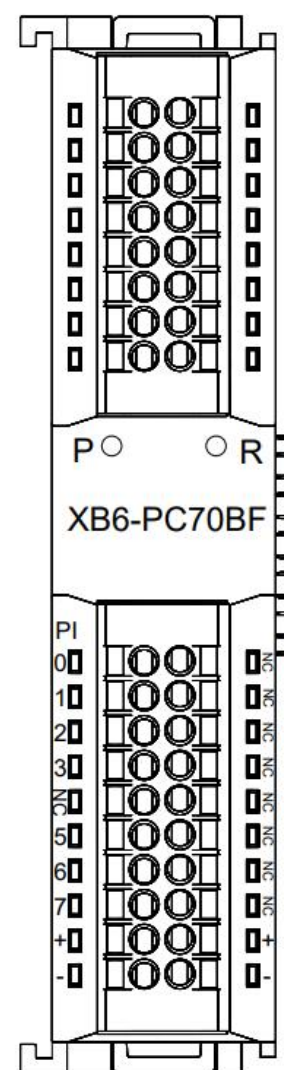
Disassemble the module by performing the reverse operation of installing the module, as shown in the left figure⑫.

5 Wiring

5.1 Wiring diagram



*24V internal conduction: 0V internal conduction



- For personal and equipment safety, it is recommended to disconnect the power supply when performing wiring operations.

5.2 Terminal block definition

PI			/		
Terminal serial number	Terminal markings	Description	Terminal serial number	Terminal markings	Description
1	0	Pulse Input Channel 1	11	NC	Empty terminal
2	1	Pulse input channel 2	12	NC	Empty terminal
3	2	Pulse input channel 3	13	NC	Empty terminal
4	3	Pulse input channel 4	14	NC	Empty terminal
5	4	Empty terminal	15	NC	Empty terminal
6	5	Pulse input channel 5	16	NC	Empty terminal
7	6	Pulse input channel 6	17	NC	Empty terminal
8	7	Pulse input channel 7	18	NC	Empty terminal
9	+	Power supply+	19	+	Power supply+
10	-	Power supply-	20	-	Power supply-

6 Use

6.1 Configuration parameter definition

There are 3 parameters in the module configuration, and the configuration parameters are shared by all 7 channels, as shown in the table below.

Function	Parameter name	Range of values	Default value
Filter time	Channel Debounce Time	0~1000us	0
Window time	Window Time	0~1000ms	10
Minimum frequency	Min Frequency	10~50000 (unit: 0.01Hz)	10 (0.1Hz)

6.1.1 Filter time

Digital input filter prevents unexpected rapid changes in the input signal from causing issues such as switch contact skipping or electrical noise. The default setting for digital input filter is 0μs, with a supported range of 0~1000μs. When configured to 1000μs, it filters out noise within 1000μs. Individual channel configuration is not available.

6.1.2 Window time

The window time is configurable from 0 to 1000 ms, with a current default setting of 10 ms. When a frequency is recorded within the window, the average frequency value during that time is actively reported. If no frequency is recorded, the system continues to wait until a frequency is recorded before reporting the corresponding data. A longer window time results in more stable reported frequencies.

6.1.3 Minimum frequency

The minimum configurable frequency range is 0.1Hz to 500Hz, with the current default setting being 0.1Hz. Frequency values below this range are not counted and are deleted directly.

Note that this value affects the reporting frequency reset time. For example, if the current input pulse frequency is 200Hz and the input line is suddenly disconnected, the system will confirm the absence of pulse input after one minimum frequency cycle before resetting the reported value to zero. If the minimum frequency is set to 0.1Hz, the reset time will be 10 seconds. If the minimum frequency is set to 1Hz, the reset time will be 1 second.

6.2 Process data

6.2.1 Uplink data

Uplink data is 14 bytes (2 bytes per channel, channel[n] takes values from 1 to 7).				
Name	Meaning	Range of values	Data types	Length
Channel [n] Frequency	Pulse input frequency	0~500 (unit: Hz)	UINT	2 bytes

Data Explanation:

◆ Pulse input frequency Channel [n] Frequency

When there is a pulse input in the pulse input channel, the pulse frequency can be obtained by sampling and analysis; when there is no pulse input, the frequency is 0.

6.2.2 Downlink data

Downlink command is 2 bytes (channel[n] takes values from 1 to 7).					
Name	Meaning	Range of values	Data types	Length	Address
Channel [n] Enable	Enable corresponding channel	0: Disability-related channel	bool	1 bit	bit0~bit6
		1: Enable the corresponding channel			

Data Explanation:

◆ Enable the corresponding channel Channel[n]

When the enable of a pulse input channel is set to "1", it means that the channel is enabled; when this item is set to "0", it means that the channel is disabled.

6.3 Module configuration instructions

6.3.1 Application in the TwinCAT3 software environment

1、Preparation

- **Hardware environment**

- **Module model XB6-PC70BF**

- **Power module, EtherCAT coupler, end cap**

This instruction uses the XB6-P2000H power supply and XB6-EC0002 coupler as examples.

- **One computer, pre-installed with TwinCAT3 software.**

- **EtherCAT dedicated shielded cable**

- **For devices such as pulse output sensors, this instruction manual uses the connection of the XB6-PWM4 module as an example.**

- **One switching power supply**

- **Module mounting rails and rail fasteners**

- **Device configuration file**

Configuration file retrieval address: <https://www.solidotech.com/documents/configfile>

- **Hardware configuration and wiring**

Please follow the instructions "[4. Installation and Removal](#)" [5. Wiring](#)"

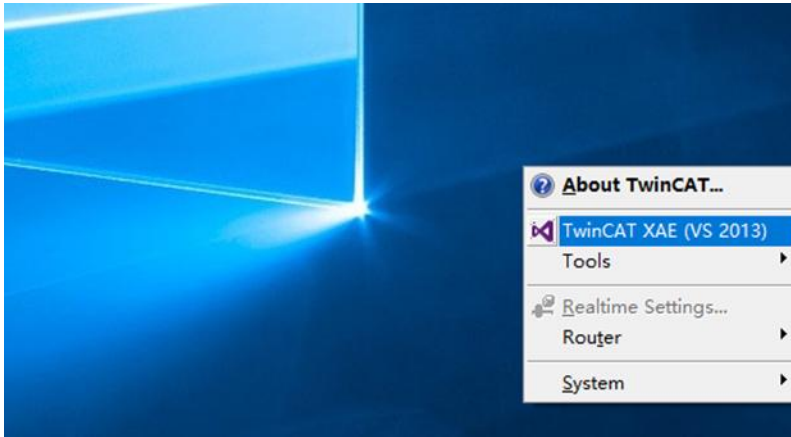
2、Pre-configured configuration files

Place the ESI configuration file (EcatTerminal-XB6_V3.17_ENUM.xml) in the TwinCAT installation directory "C:\TwinCAT\3.1\Config\Io\EtherCAT", as shown in the image below.

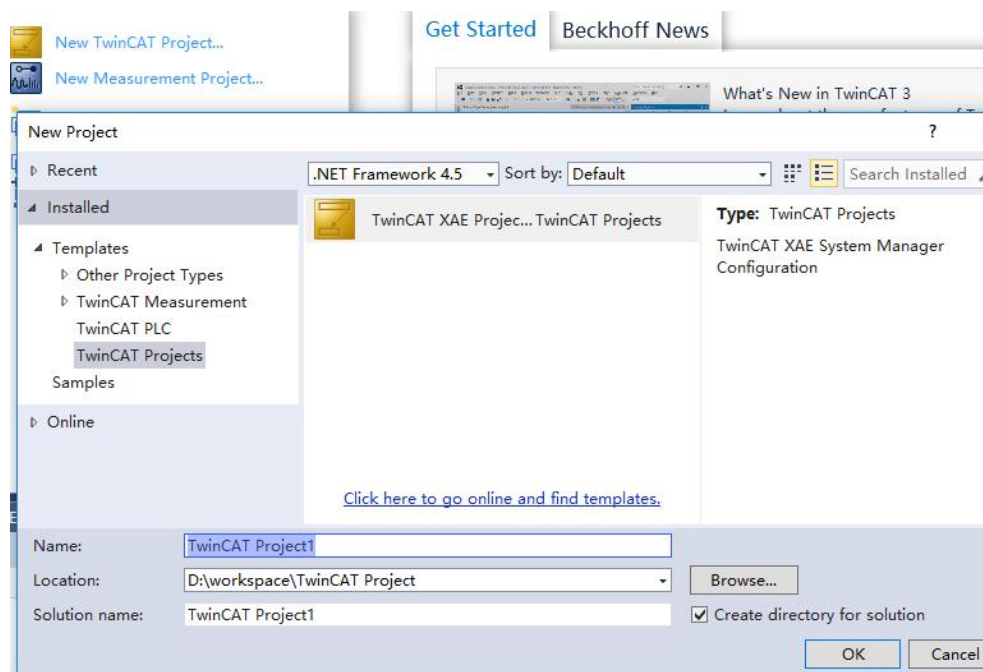
名称	修改日期	类型	大小
Beckhoff EK9xx.xml	2017/11/3 9:53	XML 文档	1,223 KB
Beckhoff EP7xx.xml	2017/11/8 9:46	XML 文档	9,290 KB
Beckhoff ATH2xx.xml	2017/11/23 13:22	XML 文档	439 KB
Beckhoff EPP3xx.xml	2017/12/8 8:48	XML 文档	2,099 KB
Beckhoff EPP1xx.xml	2017/12/14 11:34	XML 文档	480 KB
Beckhoff EL34xx.xml	2017/12/15 15:35	XML 文档	5,634 KB
Beckhoff EK13xx.xml	2017/12/19 14:30	XML 文档	16 KB
Beckhoff EPP2xx.xml	2017/12/28 12:22	XML 文档	1,811 KB
Beckhoff EJ1xx.xml	2018/1/4 10:00	XML 文档	67 KB
Beckhoff EJ3xx.xml	2018/1/4 10:07	XML 文档	1,169 KB
Beckhoff EJ7xx.xml	2018/1/4 10:11	XML 文档	2,339 KB
Beckhoff EJ9xx.xml	2018/1/4 10:23	XML 文档	160 KB
Beckhoff EJ6xx.xml	2018/1/4 10:31	XML 文档	313 KB
Beckhoff EL30xx.xml	2018/1/11 13:03	XML 文档	11,508 KB
Beckhoff EL37xx.xml	2018/1/23 13:59	XML 文档	11,837 KB
Beckhoff EJ2xx.xml	2018/1/23 14:21	XML 文档	239 KB
Beckhoff EL5xx.xml	2018/1/23 15:11	XML 文档	6,307 KB
Beckhoff EJ5xx.xml	2018/1/23 15:12	XML 文档	218 KB
Beckhoff EL2xx.xml	2018/1/24 9:40	XML 文档	2,868 KB
Beckhoff EL33xx.xml	2018/1/26 9:34	XML 文档	6,727 KB
Beckhoff ELM3xx.xml	2018/2/1 10:19	XML 文档	14,238 KB
Beckhoff AX5xx.xml	2018/2/8 16:15	XML 文档	930 KB
Beckhoff EL1xx.xml	2018/2/19 17:15	XML 文档	3,387 KB
Beckhoff EL25xx.xml	2018/2/21 10:23	XML 文档	6,543 KB
EcatTerminal-XB6_V3.17_ENUM.xml	2023/7/31 19:56	XML 文档	563 KB

3. Create a project

- a. Click the TwinCAT icon in the lower right corner of the desktop, select "TwinCAT XAE (VS xxxx)" to open the TwinCAT software, as shown in the image below.

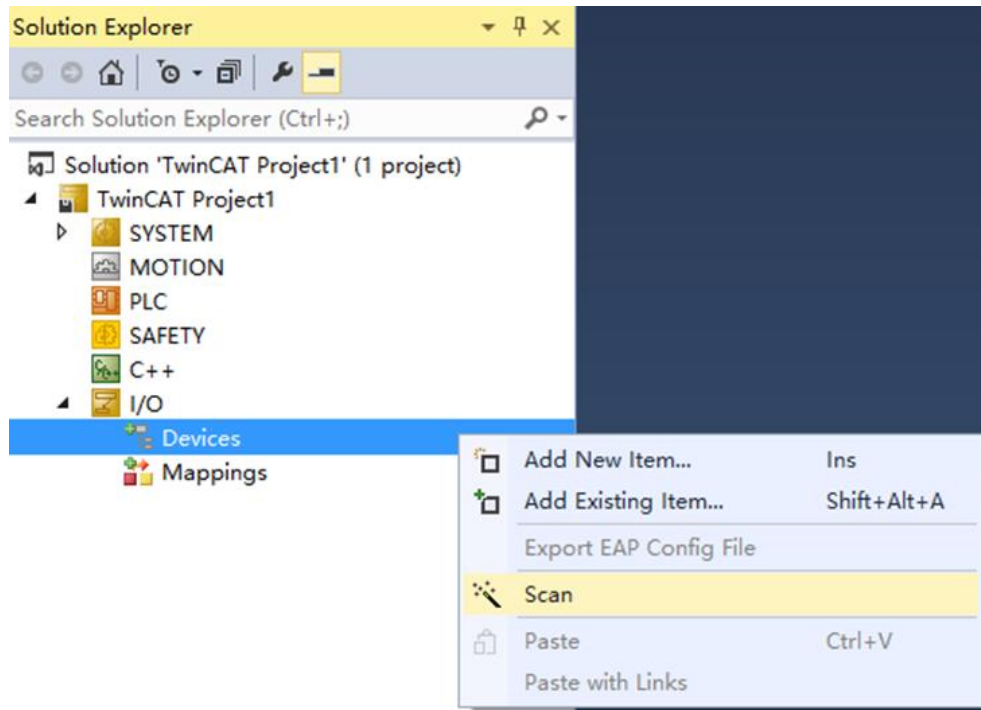


- b. Click "New TwinCAT Project". In the pop-up window, "Name" and "Solution name" correspond to the project name and solution name, respectively, and "Location" corresponds to the project path. These three items can be left as default. Then click "OK". The project will be created successfully, as shown in the figure below.



4. Scanning equipment

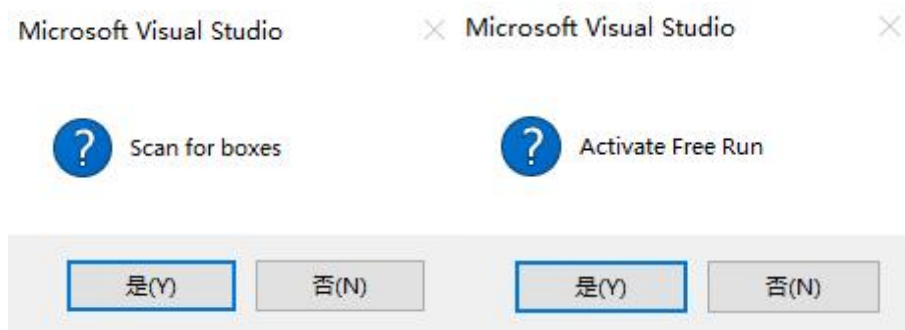
- a. After creating the project, right-click the "Scan" option under "I/O -> Devices" to scan for slave devices, as shown in the figure below.



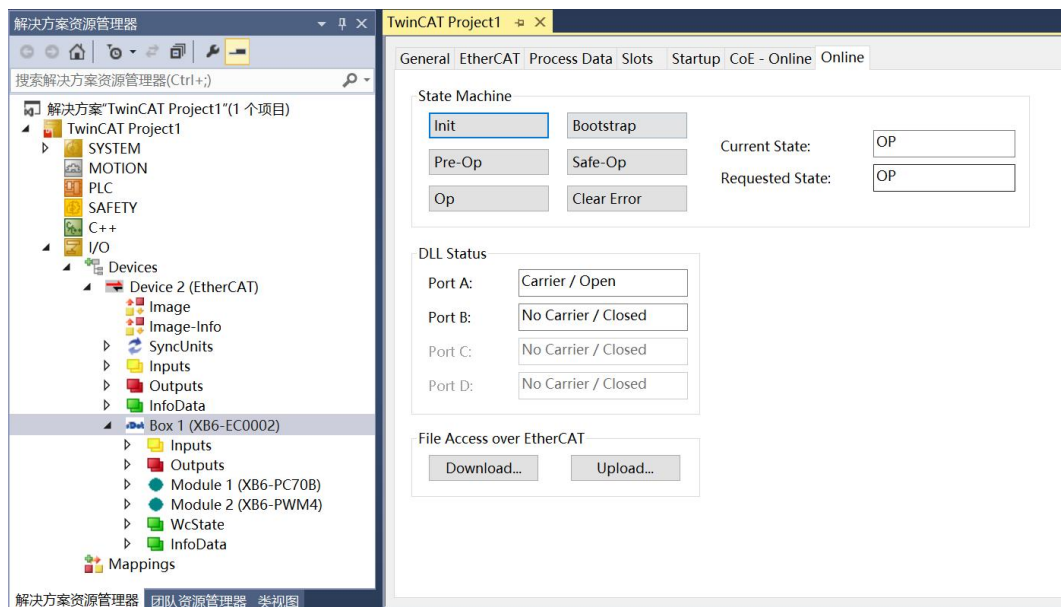
- b. Select the "Local Area Connection" network adapter, as shown in the image below.



- c. In the pop-up window "Scan for boxes", click "Yes"; in the pop-up window "Activate Free Run", click "Yes", as shown in the image below.

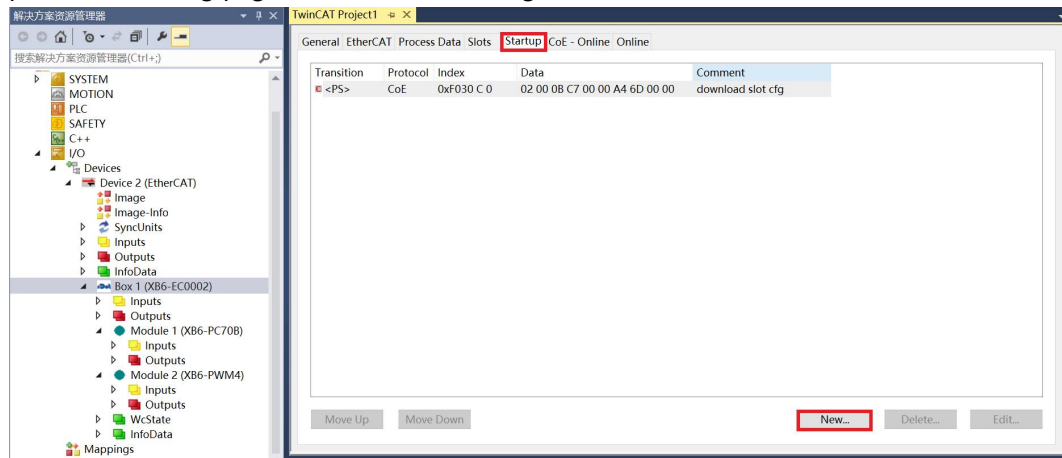


- d. After the device is scanned, you can see Box1 (XB6-EC0002), Module1 (XB6-PC70BF), and Module2 (XB6-PWM4) in the left navigation tree. Under "Online", you can see that TwinCAT is in "OP" state. You can observe that the RUN light of the slave device is ON as shown in the figure below.

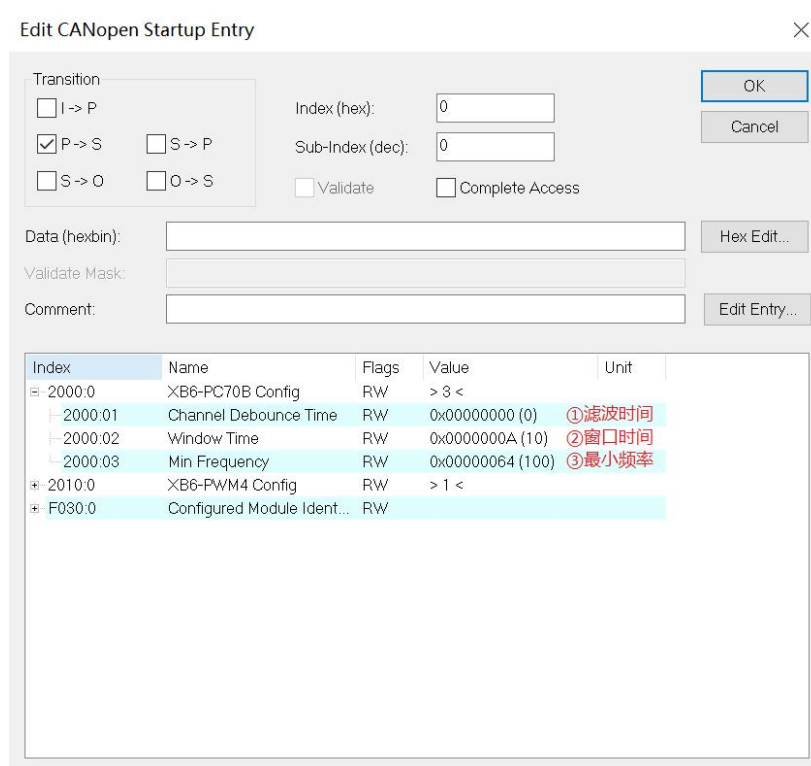


5. Verify basic functions

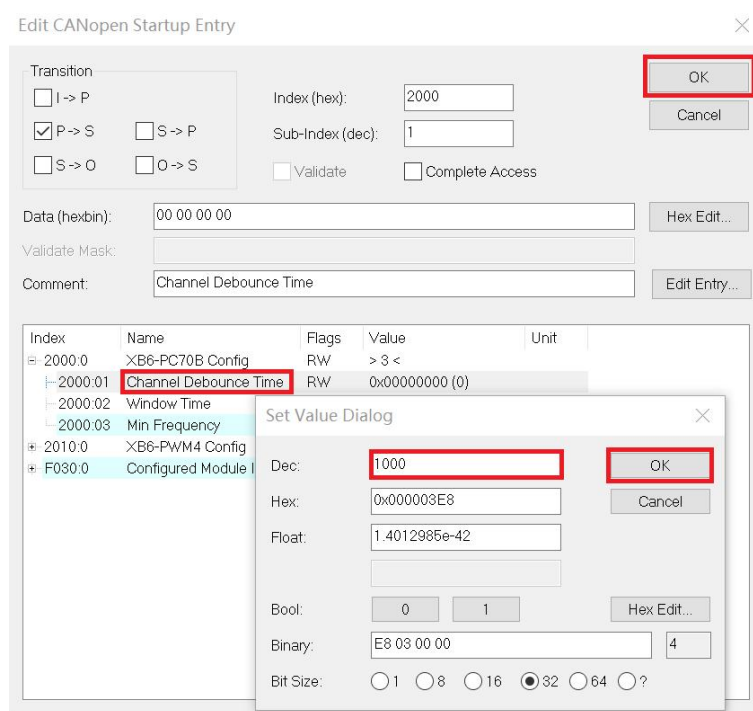
- a. Clicking "Box1 -> Startup -> New" in the left navigation tree will take you to the configuration parameter editing page, as shown in the image below.



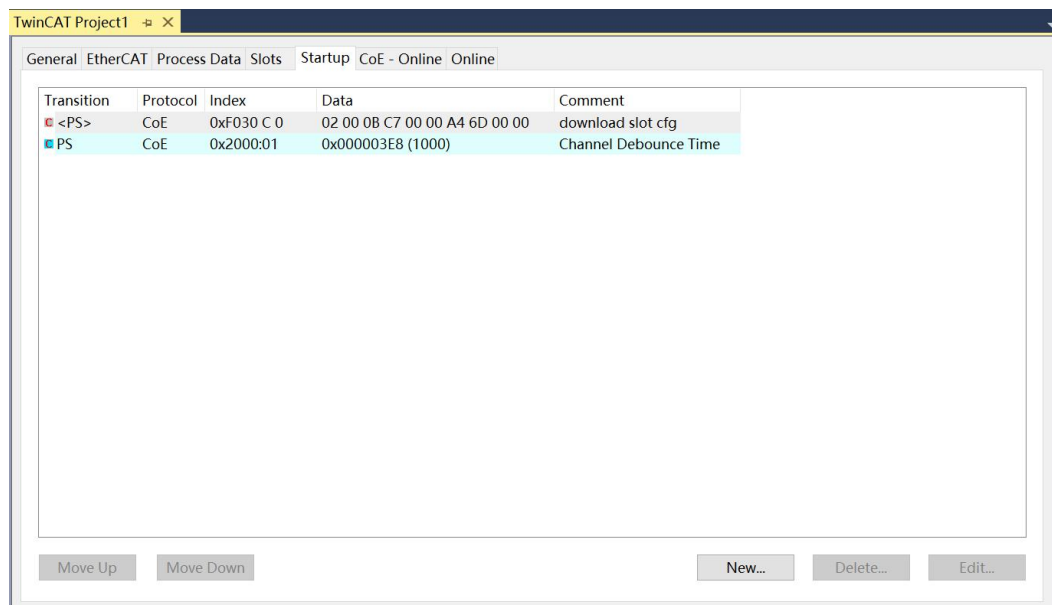
- b. In the Edit CANopen Startup Entry pop-up window, click the "+" in front of Index 2000:0 to expand the configuration parameter menu. You will see three configuration parameters. Click on any parameter to set the relevant configuration, as shown in the figure below.



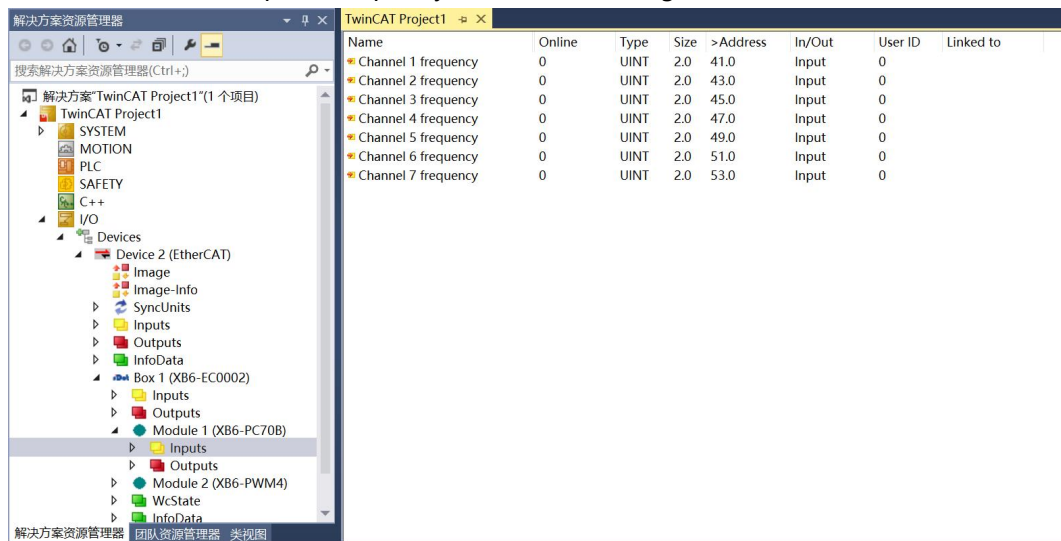
- c. For example, to modify the filter time, you can double-click "Channel Debounce Time" and modify the parameter value, as shown in the figure below.



- d. After modifying the parameters, you can see the modified parameter items and values below Startup, as shown in the image below. After setting the parameters, a Reload operation and a power-on restart of the module are required to enable the main station to automatically distribute the parameter settings.

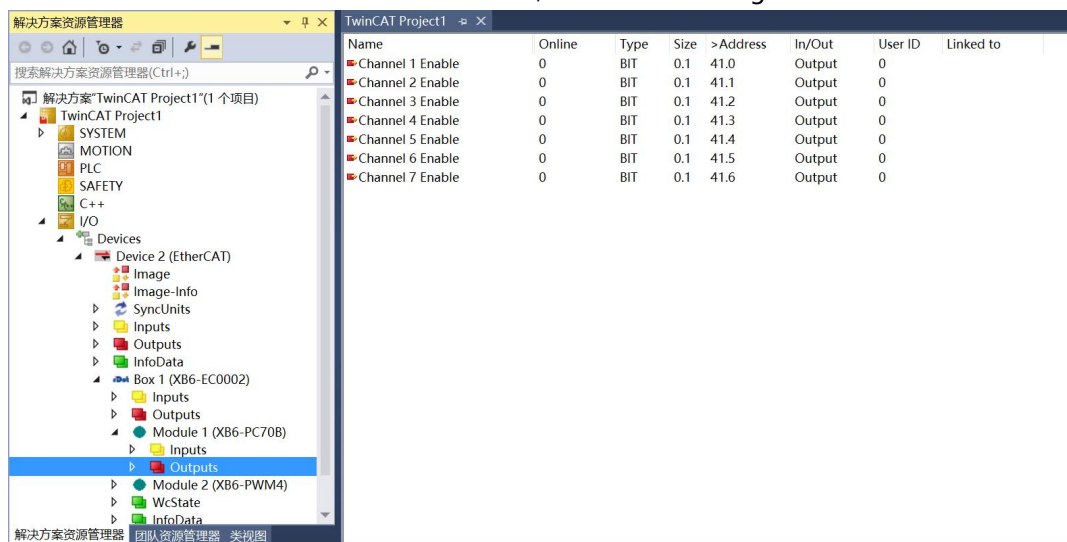


- e. The left-hand navigation tree "Module 1 -> Inputs" displays the module's uplink data, used to monitor the module's pulse frequency, as shown in the figure below.



Name	Online	Type	Size	>Address	In/Out	User ID	Linked to
Channel 1 frequency	0	UINT	2.0	41.0	Input	0	
Channel 2 frequency	0	UINT	2.0	43.0	Input	0	
Channel 3 frequency	0	UINT	2.0	45.0	Input	0	
Channel 4 frequency	0	UINT	2.0	47.0	Input	0	
Channel 5 frequency	0	UINT	2.0	49.0	Input	0	
Channel 6 frequency	0	UINT	2.0	51.0	Input	0	
Channel 7 frequency	0	UINT	2.0	53.0	Input	0	

- f. The left-hand navigation tree "Module 1 -> Outputs" displays the module's downlink data, which is used to control the module's channel status, as shown in the figure below.



Name	Online	Type	Size	>Address	In/Out	User ID	Linked to
Channel 1 Enable	0	BIT	0.1	41.0	Output	0	
Channel 2 Enable	0	BIT	0.1	41.1	Output	0	
Channel 3 Enable	0	BIT	0.1	41.2	Output	0	
Channel 4 Enable	0	BIT	0.1	41.3	Output	0	
Channel 5 Enable	0	BIT	0.1	41.4	Output	0	
Channel 6 Enable	0	BIT	0.1	41.5	Output	0	
Channel 7 Enable	0	BIT	0.1	41.6	Output	0	

Module Function Examples

◆ Pulse Input Channel 1 Data Monitoring and Clearing

a. Configure the configuration parameters as shown in the following figure.

Transition

☐ I->P ☒ P->S ☐ S->P ☐ S->O ☐ O->S

Index (hex): 0 Sub-Index (dec): 0

☐ Validate ☐ Complete Access

Data (hexbin): Hex Edit...

Validate Mask:

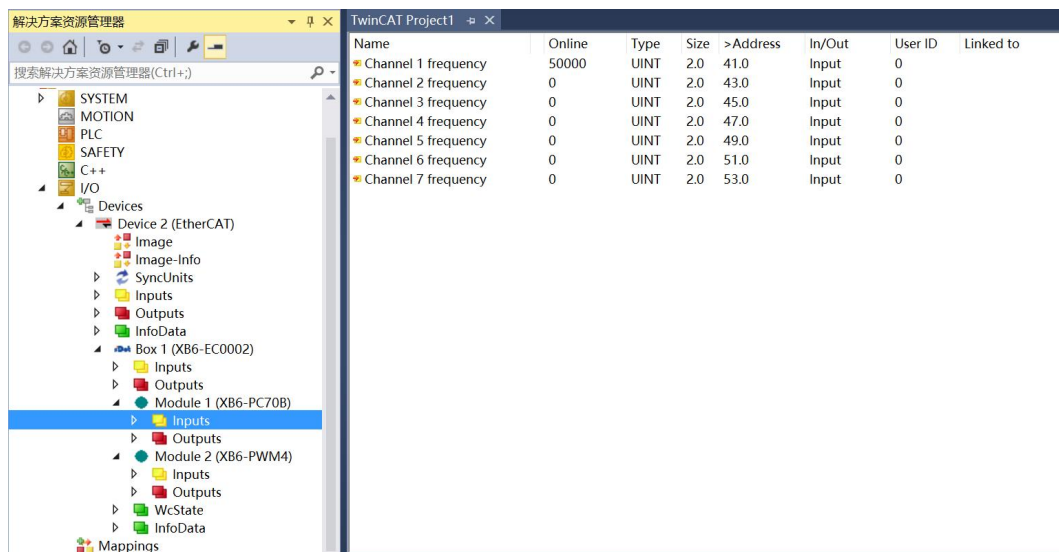
Comment: Edit Entry...

Index	Name	Flags	Value	Unit
2000:0	XB6-PC70B Config	RW	> 3 <	
2000:01	Channel Debounce Time	RW	0x00000000 (0)	
2000:02	Window Time	RW	0x0000000A (10)	
2000:03	Min Frequency	RW	0x00000064 (100)	
2010:0	XB6-PWM4 Config	RW	> 1 <	
F030:0	Configured Module Ident...	RW		

b. When the input pulse frequency of channel 1 is 500Hz, enable module channel 1, as shown in the figure below.

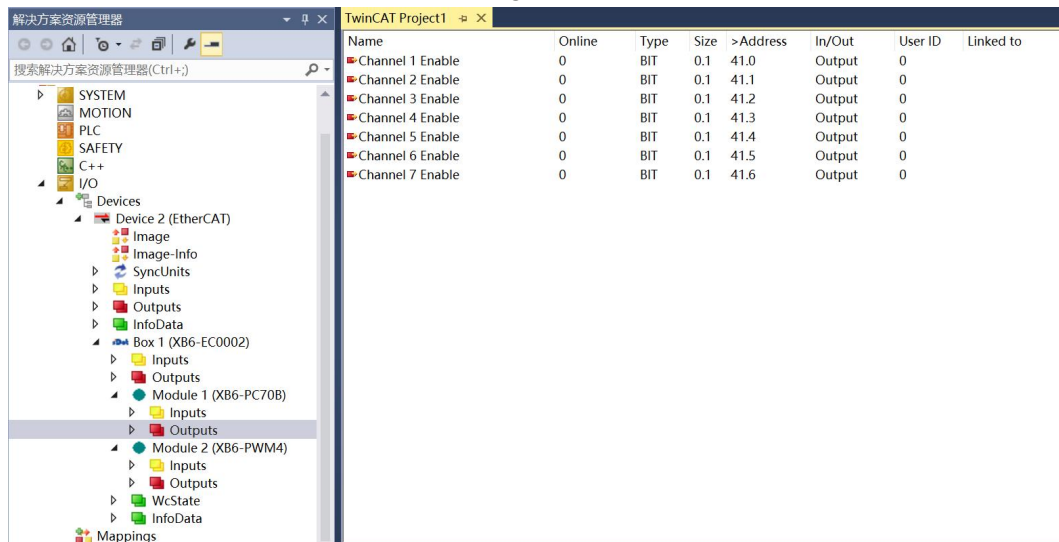
Name	Online	Type	Size	>Address	In/Out	User ID	Linked to
Channel 1 Enable	1	BIT	0.1	41.0	Output	0	
Channel 2 Enable	0	BIT	0.1	41.1	Output	0	
Channel 3 Enable	0	BIT	0.1	41.2	Output	0	
Channel 4 Enable	0	BIT	0.1	41.3	Output	0	
Channel 5 Enable	0	BIT	0.1	41.4	Output	0	
Channel 6 Enable	0	BIT	0.1	41.5	Output	0	
Channel 7 Enable	0	BIT	0.1	41.6	Output	0	

c. The uplink data pulse frequency value of module channel 1 can be seen in the figure below.



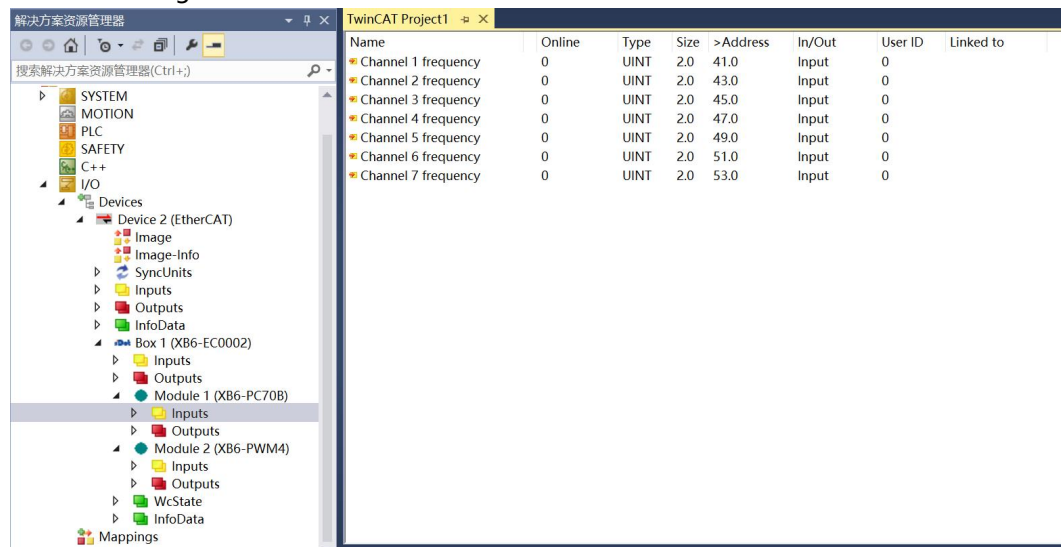
Name	Online	Type	Size	>Address	In/Out	User ID	Linked to
Channel 1 frequency	50000	UINT	2.0	41.0	Input	0	
Channel 2 frequency	0	UINT	2.0	43.0	Input	0	
Channel 3 frequency	0	UINT	2.0	45.0	Input	0	
Channel 4 frequency	0	UINT	2.0	47.0	Input	0	
Channel 5 frequency	0	UINT	2.0	49.0	Input	0	
Channel 6 frequency	0	UINT	2.0	51.0	Input	0	
Channel 7 frequency	0	UINT	2.0	53.0	Input	0	

d. Disable module channel 1 as shown in the figure below.



Name	Online	Type	Size	>Address	In/Out	User ID	Linked to
Channel 1 Enable	0	BIT	0.1	41.0	Output	0	
Channel 2 Enable	0	BIT	0.1	41.1	Output	0	
Channel 3 Enable	0	BIT	0.1	41.2	Output	0	
Channel 4 Enable	0	BIT	0.1	41.3	Output	0	
Channel 5 Enable	0	BIT	0.1	41.4	Output	0	
Channel 6 Enable	0	BIT	0.1	41.5	Output	0	
Channel 7 Enable	0	BIT	0.1	41.6	Output	0	

- e. As you can see, the uplink data pulse frequency value of module channel 1 is cleared to zero, as shown in the figure below.



Name	Online	Type	Size	>Address	In/Out	User ID	Linked to
Channel 1 frequency	0	UINT	2.0	41.0	Input	0	
Channel 2 frequency	0	UINT	2.0	43.0	Input	0	
Channel 3 frequency	0	UINT	2.0	45.0	Input	0	
Channel 4 frequency	0	UINT	2.0	47.0	Input	0	
Channel 5 frequency	0	UINT	2.0	49.0	Input	0	
Channel 6 frequency	0	UINT	2.0	51.0	Input	0	
Channel 7 frequency	0	UINT	2.0	53.0	Input	0	

6.3.2 Application in the TIA Portal V17 software environment

1、Preparation

- **Hardware environment**

- **Module model XB6-PC70BF**
- **Power module, PROFINET coupler, end cap**
This instruction uses the XB6-P2000H power supply and XB6-PN0002 coupler as examples.
- **One computer, pre-installed with TIA Portal V17 software.**
- **PROFINET dedicated shielded cable**
- **For devices such as pulse output sensors, this instruction manual uses the connection of the XB6-PWM4 module as an example.**
- **One Siemens PLC; this instruction manual uses a Siemens S7-1200 CPU 1212C DC/DC/DC as an example.**
- **One switching power supply**
- **Module mounting rails and rail fasteners**
- **Device configuration file**

Configuration file retrieval address: <https://www.solidotech.com/documents/configfile>

- **Hardware configuration and wiring**

Please follow the instructions "[4. Installation and Removal](#)" "[5. Wiring](#)"

2、New construction projects

- Open TIA Portal V17 software and click "Create New Project".



- ◆ Project name: customizable, you can keep the default.
- ◆ Path: Keep the project path; you can keep the default.
- ◆ Version: You can keep the default.
- ◆ Author: You can keep the default setting.
- ◆ Note: This is customizable and can be left blank.

3、Add PLC controller

- a. Click "Configure Devices", as shown in the figure below.



- b. Click "Add New Device", select the PLC model you are currently using, and click "Add", as shown in the image below. After adding, you can see that the PLC has been added to the device navigation tree.

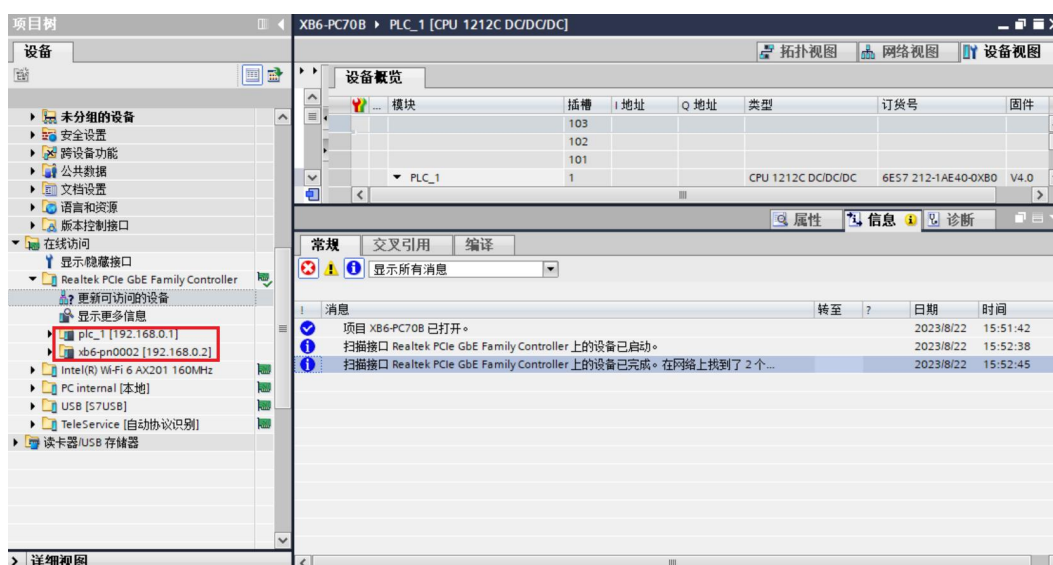


4. Scan connection device

- a. Click "Online Access -> Update Accessible Devices" in the left navigation tree, as shown in the image below.



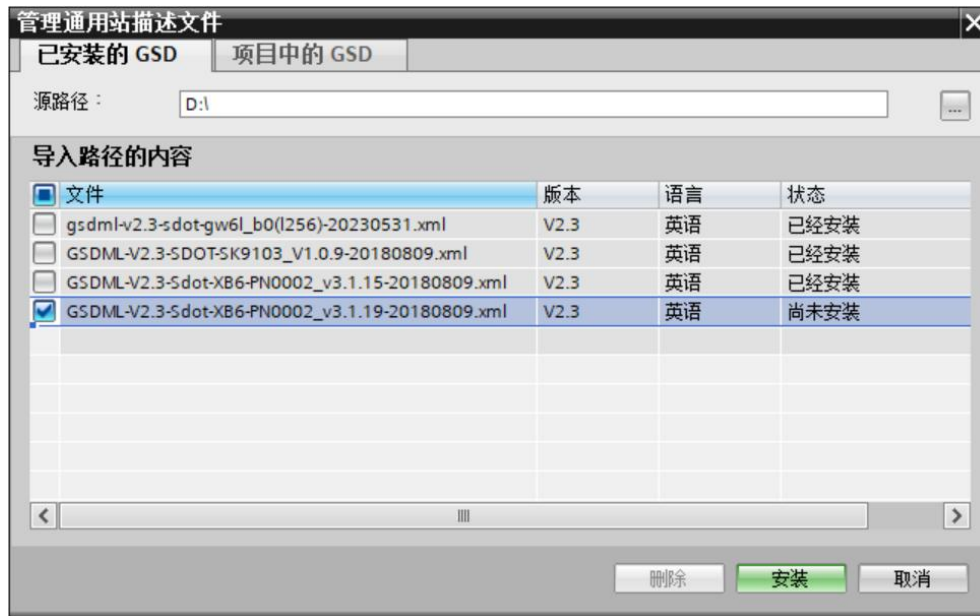
- b. The update is complete, and the connected slave devices are displayed, as shown in the figure below.



The computer's IP address must be on the same network segment as the PLC. If they are not on the same network segment, change the computer's IP address and repeat the above steps.

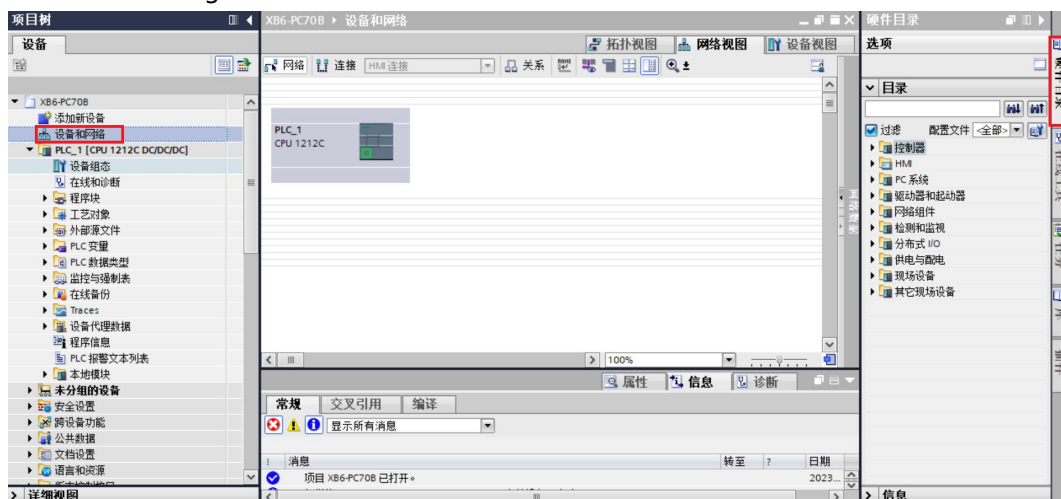
5. Add GSD configuration file

- In the menu bar, select "Options -> Manage General Station Description Files (GSDML)(D)".
- Click "Source Path" to select the file.
- Check if the status of the GSD file to be added is "Not installed". If not, click "Install". If already installed, click "Cancel" to skip the installation steps.



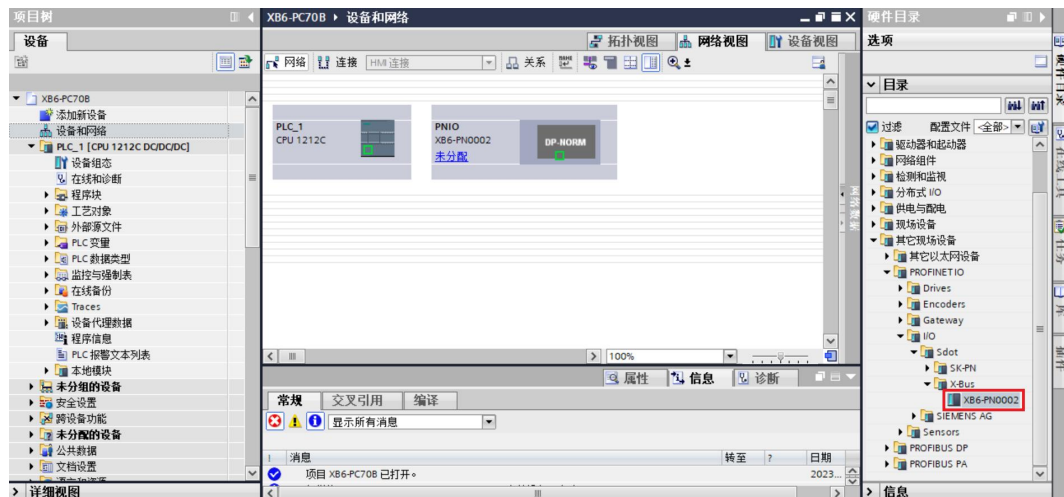
6. Add slave device

- Double-click "Devices and Networks" in the left navigation bar.
- Click the vertical "Hardware Catalog" button on the right, and the catalog will be displayed as shown in the image below.

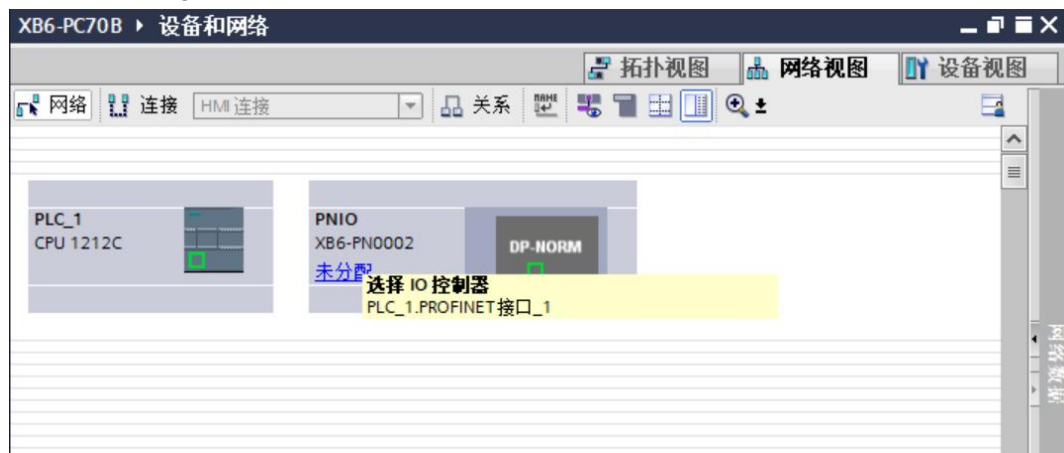


- Select "Other Field Devices -> PROFINET IO -> I/O -> Sdot -> X-Bus -> XB6-PN0002".

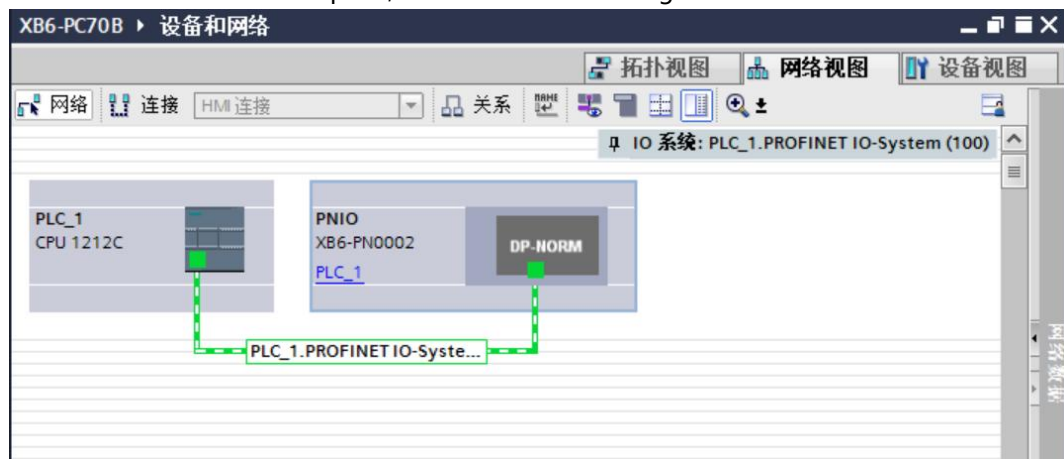
- d. Drag or double-click "XB6-PN0002" to "Network View", as shown in the figure below.



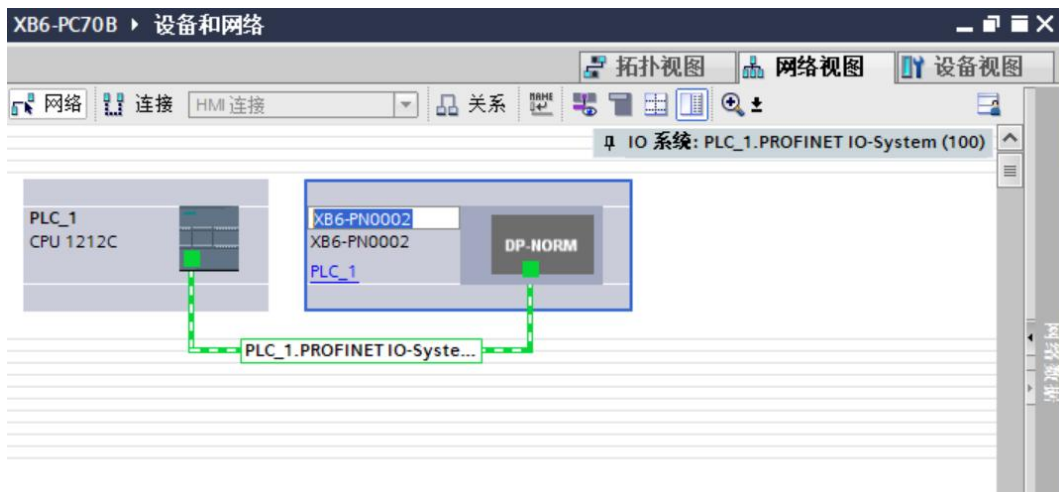
- e. Click "Unassigned (blue text)" on the slave device, and select "PLC_1.PROFINET Interface_1", as shown in the figure below.



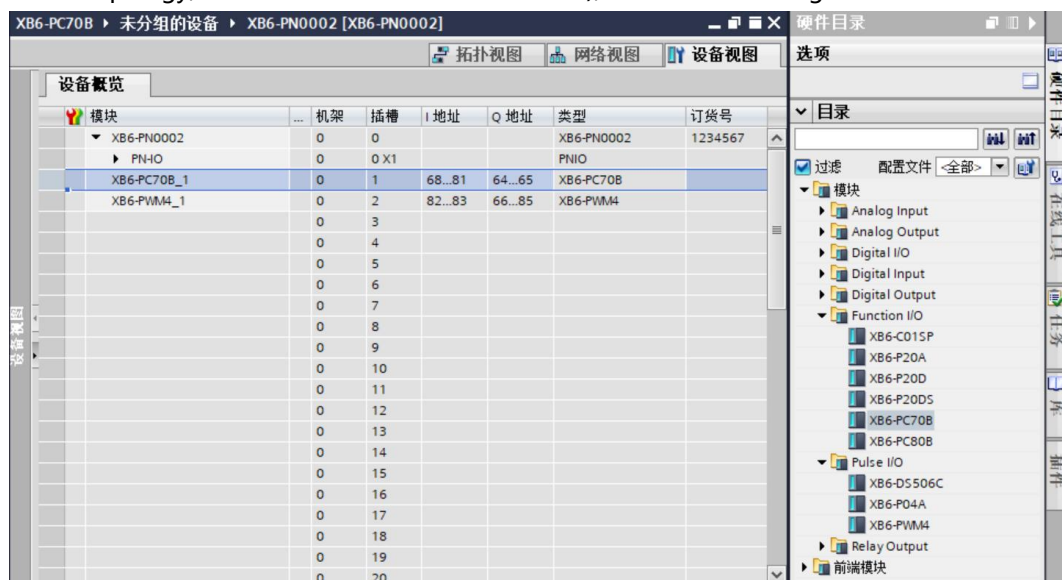
- f. Once the connection is complete, it will look like the image below.



- g. Click the device name to rename the device, as shown in the image below.

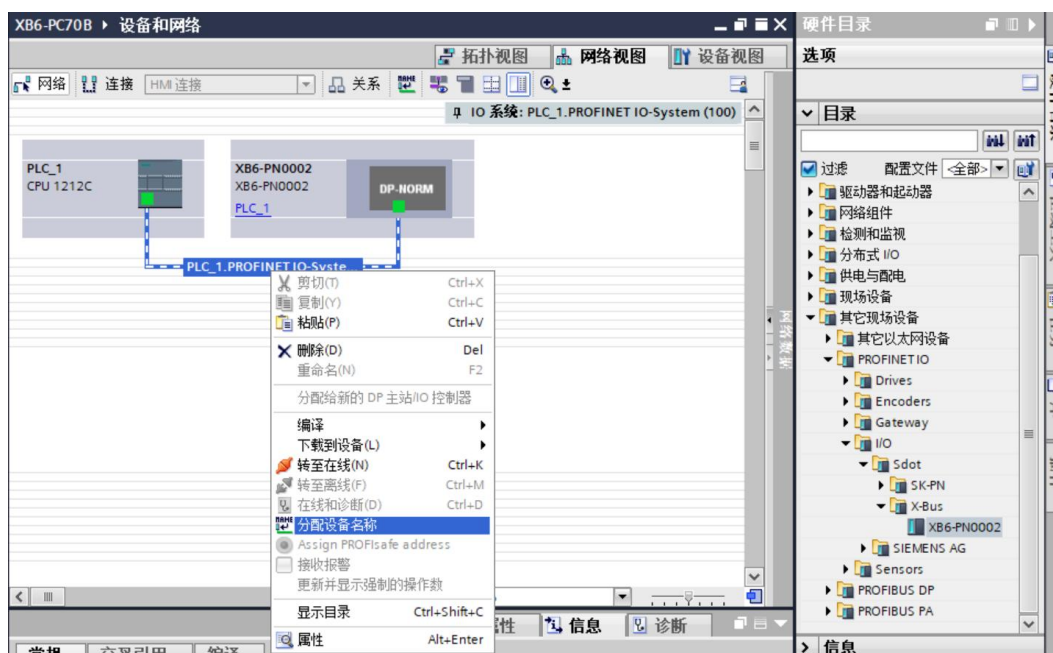


- h. Click "Device View" to enter the coupler's device overview. Under "Hardware Catalog" on the right, add modules in sequence according to the actual topology (the order must be consistent with the actual topology, otherwise communication will fail), as shown in the figure below.

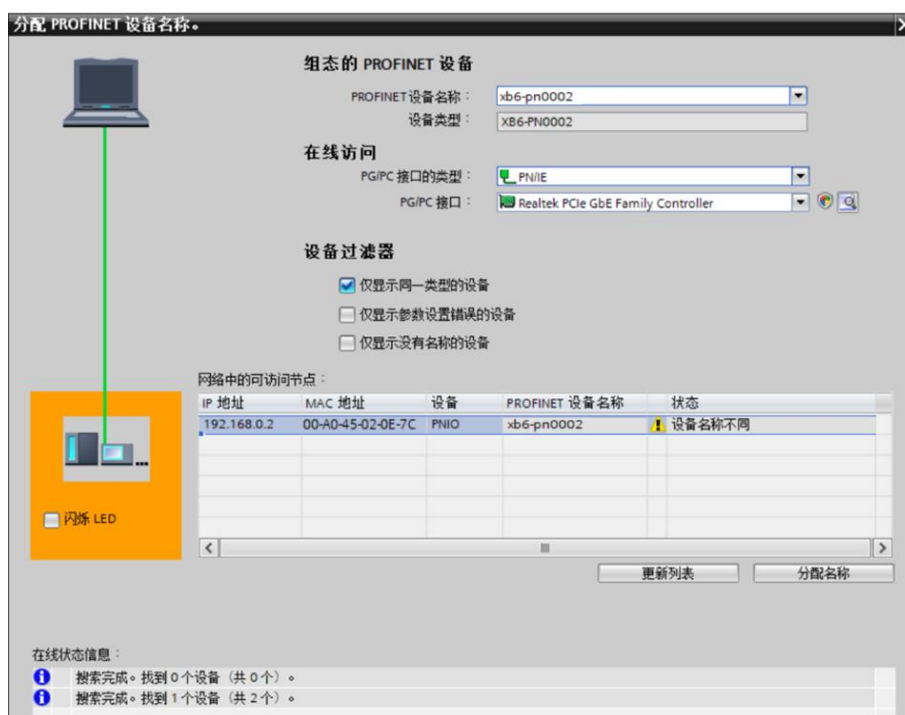


7. Assign device name

- Switch to "Network View", right-click the connection cable between the PLC and the coupler, and select "Assign Device Name", as shown in the figure below.



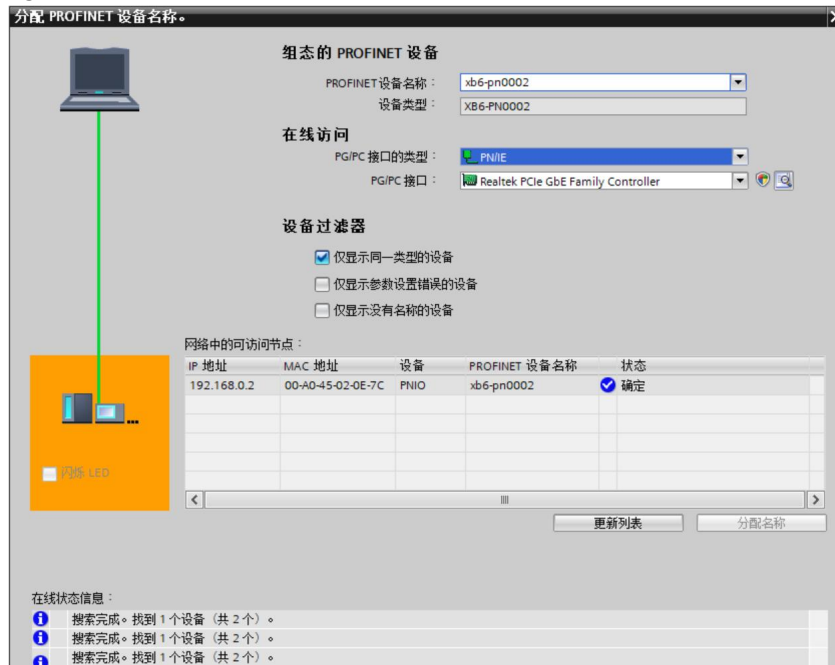
- A "Assign PROFINET Device Name" window will pop up, as shown in the figure below.



Check if the MAC address printed on the coupler is the same as the MAC address of the assigned device name.

- ◆ PROFINET Device Name: The name set in "Assign IP address and device name to slave station".

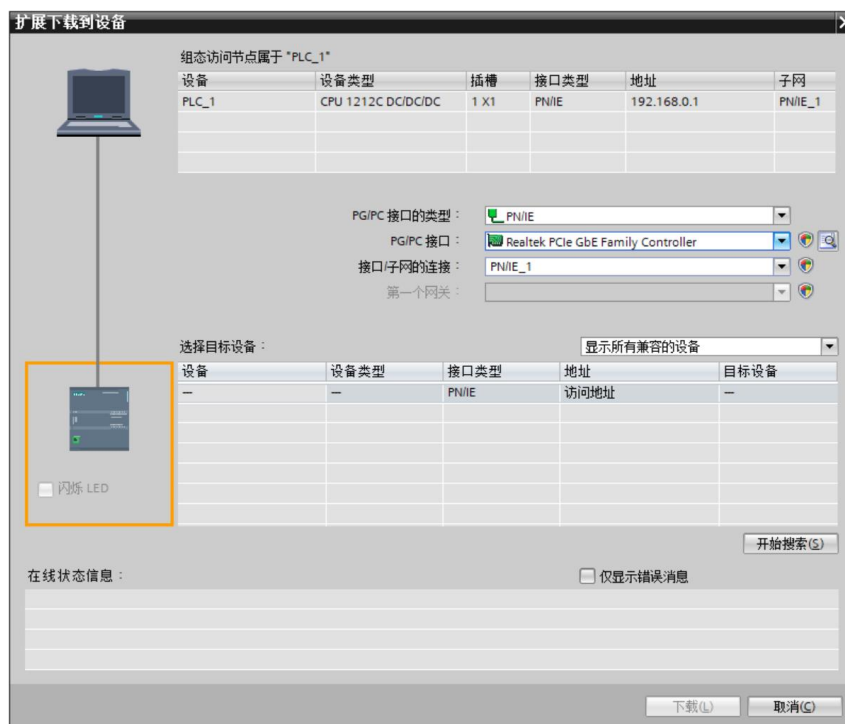
- ◆ PG/PC interface type: PN/IE.
 - ◆ PG/PC interface: The actual network adapter used.
- c. Select the slave devices in sequence, click "Update List", and then click "Assign Name". Check whether the status of the node in "Accessible Nodes in the Network" is "OK", as shown in the figure below.



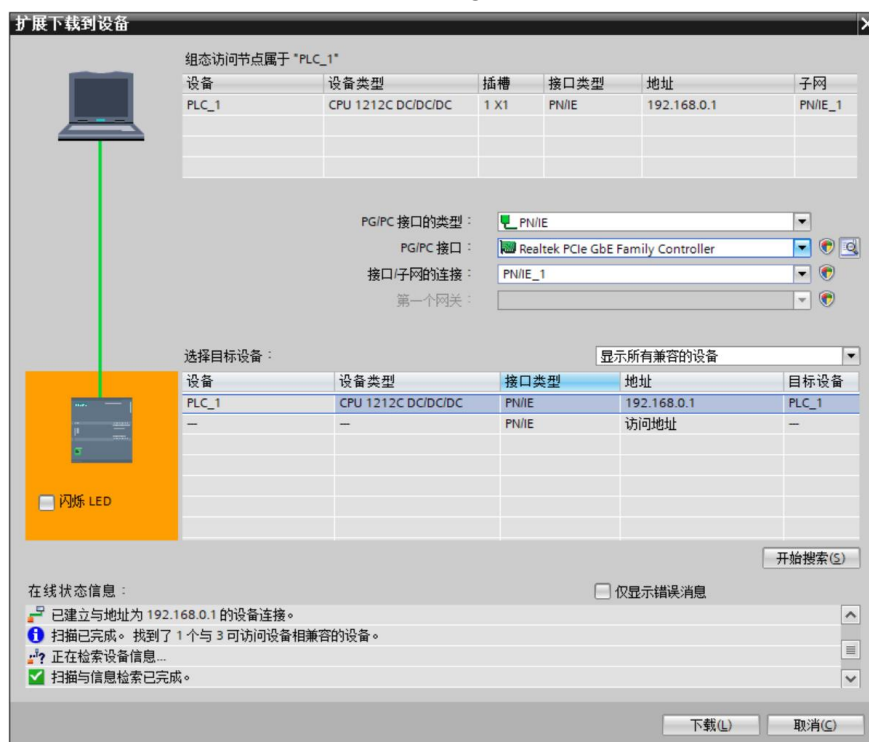
- d. Click "Close".

8. Download configuration structure

- a. In the "Network View", select PLC.
- b. Click the button  in the menu bar to download the current configuration to the PLC.
- c. In the pop-up "Download extension to device" interface, configure as shown in the image below.



d. Click "Start Search", as shown in the image below.



e. Click "Download".

f. Select "Continue without stepping", as shown in the image below.



g. Select "Stop All".



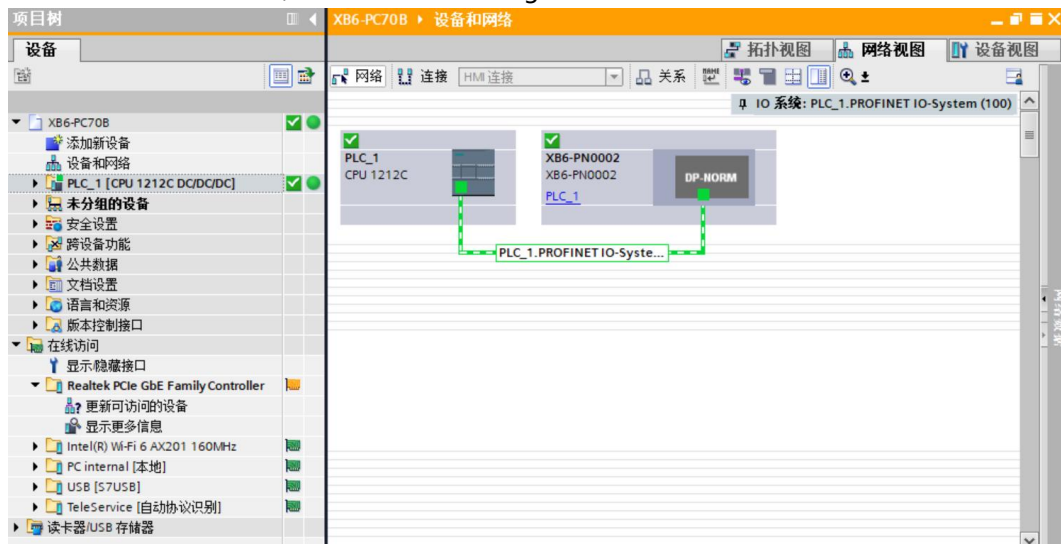
h. Click "Load".

i. Click "Finish".

j. Power on the device again.

9、Communication connection

a. Click the button  then click the "Go to Online" button. If all icons are green, the connection is successful, as shown in the image below.



10、Check the equipment indicator lights

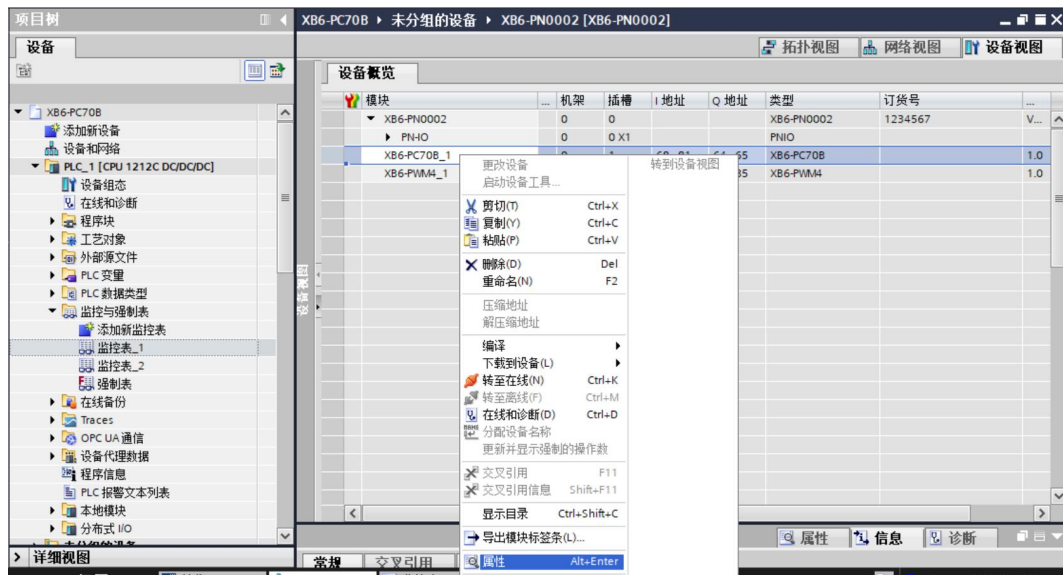
XB6-P2000H: P light is ON.

XB6-PN0002: P light is ON, L light is ON B light is off, and R light is ON.

XB6-PC70BF module: P light is ON, R light is ON.

11、Parameter settings

- a. Open "Device View". In offline mode, right-click the XB6-PC70BF module and click "Properties", as shown in the figure below.

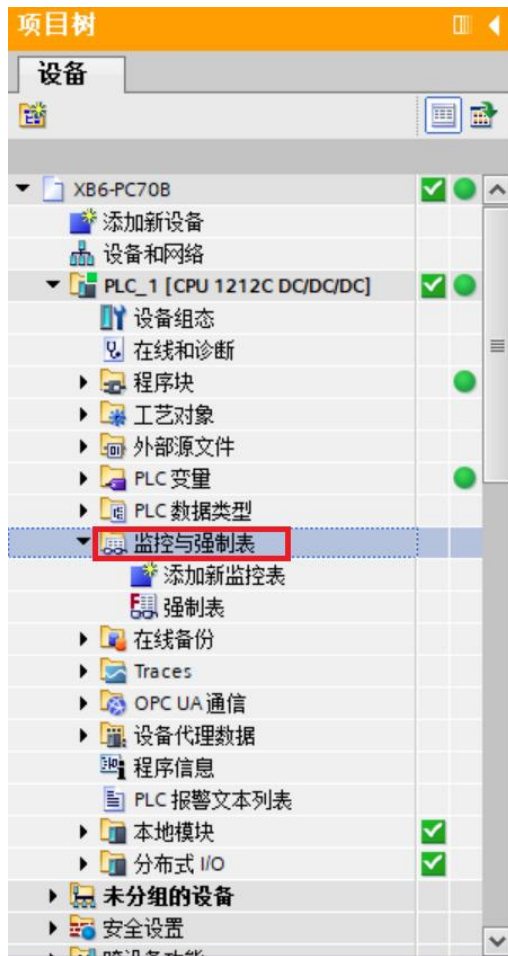


- b. On the properties page, click "Module Parameters," as shown in the image below. The parameters can be configured according to actual usage needs. After configuration, re-download the program to the PLC, and then power on both the PLC and the module.

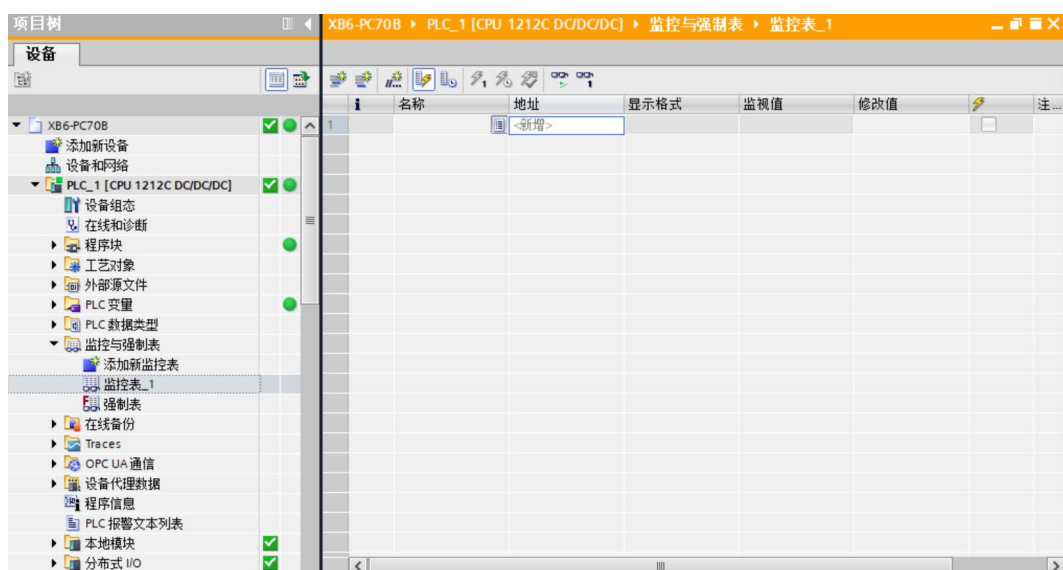


12、 Functional verification

- a. Expand the project navigation on the left and select "Monitoring and Enforcement Tables", as shown in the image below.



- b. Double-click "Add New Monitoring Table" to add a new monitoring table, as shown in the image below.



- c. Open "Device View" and view the channel Q address (channel address of output signal) and I address (channel address of input signal) of module XB6-PC70BF in the device overview. For example, the "Q address" of the XB6-PC70BF module is 64 to 65, and the "I address" is 68 to 81, as shown in the figure below.



模块	机架	插槽	I 地址	Q 地址	类型	订货号
XB6-PN0002	0	0			XB6-PN0002	1234567
PN-IO	0	0 X1			PNIO	
XB6-PC70B_1	0	1	68...81	64...65	XB6-PC70B	
XB6-PWM4_1	0	2	82...83	66...85	XB6-PWM4	
	0	3				
	0	4				
	0	5				
	0	6				
	0	7				

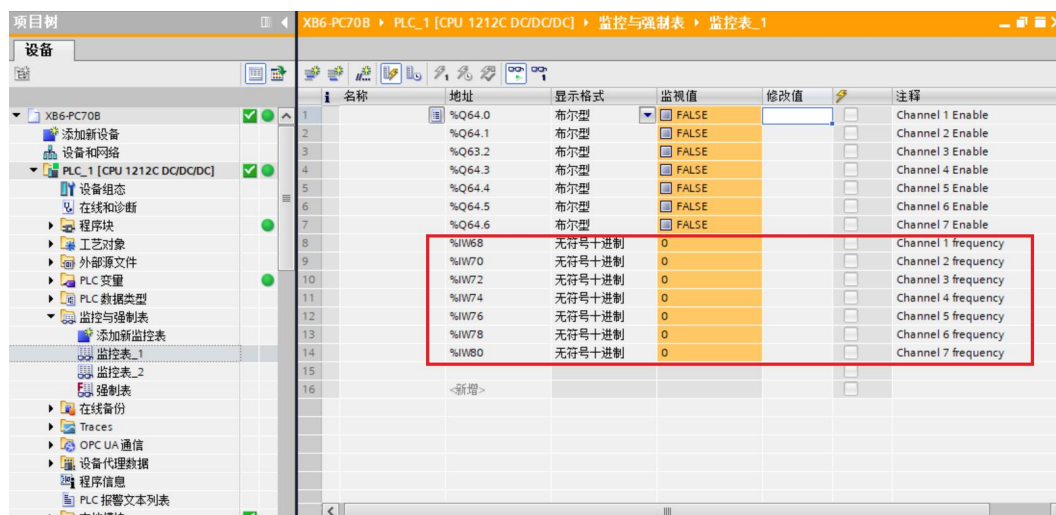
- d. In the monitoring table address cell, enter the uplink and downlink addresses, data types, and comments for easy monitoring. Refer to the uplink and downlink process data definitions and enter the data items sequentially, pressing "Enter". After completing all fields, click the button



allows you to monitor the data.

The correspondence between input/output data and addresses can be viewed in the table "XB6-PC70BF Variable Address Calculation Tool.xlsx".

- e. The module's uplink data is shown in the monitoring table below, which allows you to monitor the module's pulse frequency value.



名称	地址	显示格式	监视值	修改值	注释
1	%Q64.0	布尔型	FALSE		Channel 1 Enable
2	%Q64.1	布尔型	FALSE		Channel 2 Enable
3	%Q63.2	布尔型	FALSE		Channel 3 Enable
4	%Q64.3	布尔型	FALSE		Channel 4 Enable
5	%Q64.4	布尔型	FALSE		Channel 5 Enable
6	%Q64.5	布尔型	FALSE		Channel 6 Enable
7	%Q64.6	布尔型	FALSE		Channel 7 Enable
8	%IW68	无符号十进制	0		Channel 1 frequency
9	%IW70	无符号十进制	0		Channel 2 frequency
10	%IW72	无符号十进制	0		Channel 3 frequency
11	%IW74	无符号十进制	0		Channel 4 frequency
12	%IW76	无符号十进制	0		Channel 5 frequency
13	%IW78	无符号十进制	0		Channel 6 frequency
14	%IW80	无符号十进制	0		Channel 7 frequency
15					
16	<新增>				

- f. The downlink data of the module is shown in the monitoring table below, and is used to control the channel status of the module.

名称	地址	显示格式	监视值	修改值	注释
1	%Q64.0	布尔型	FALSE		Channel 1 Enable
2	%Q64.1	布尔型	FALSE		Channel 2 Enable
3	%Q64.2	布尔型	FALSE		Channel 3 Enable
4	%Q64.3	布尔型	FALSE		Channel 4 Enable
5	%Q64.4	布尔型	FALSE		Channel 5 Enable
6	%Q64.5	布尔型	FALSE		Channel 6 Enable
7	%Q64.6	布尔型	FALSE		Channel 7 Enable
8	%IW68	无符号十进制	0		Channel 1 frequency
9	%IW70	无符号十进制	0		Channel 2 frequency
10	%IW72	无符号十进制	0		Channel 3 frequency
11	%IW74	无符号十进制	0		Channel 4 frequency
12	%IW76	无符号十进制	0		Channel 5 frequency
13	%IW78	无符号十进制	0		Channel 6 frequency
14	%IW80	无符号十进制	0		Channel 7 frequency
15					
16	<新增>				

Module Function Examples

◆ Pulse Input Channel 1 Data Monitoring and Clearing

- a. Configure the configuration parameters as shown in the following figure.

XB6-PC70B_1 [XB6-PC70B]

属性 信息 诊断

常规 IO 变量 系统常数 文本

模块参数

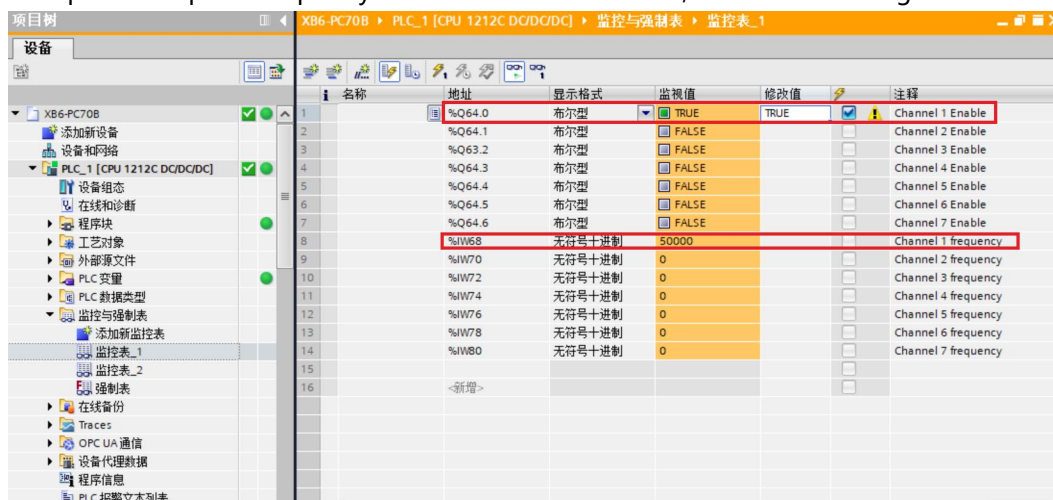
XB6-PC70B Parameter

Channel Debounce Time: 0

Window Time: 10

Min Frequency: 100

- b. When the input pulse frequency of channel 1 is 500Hz, enable module channel 1 and you can see the uplink data pulse frequency value of module channel 1, as shown in the figure below.



- c. Setting module channel 1 to disabled will clear the uplink data pulse frequency value of module channel 1 to zero, as shown in the figure below.

