PROFINET

PN3 Series Integrated I/O

User Manual

Nanjing Solidot Electronic Technology Co., Ltd.

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1 Product Overview

1.1 Products

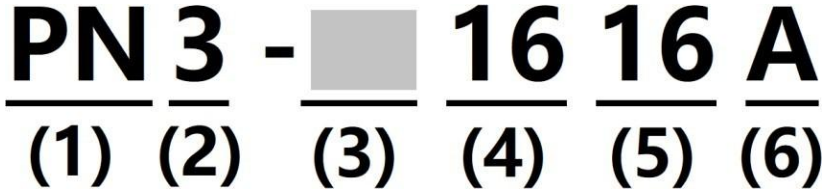
The PN3 series of Integrated I/O modules with PROFINET industrial Ethernet bus interface is a PROFINET slave device with standard IO architecture, which is compatible with PROFINET networks from multiple vendors, providing users with multiple options for high-speed data acquisition, optimized system configuration, simplified field wiring, and improved system reliability.

1.2 Product Characteristics

- Input Compatibility Function
  Digital input signals compatible with NPN and PNP
- Ultra-thin
  Only 35 mm in height
- Quick
  Based on high performance communication chips
- Easy diagnosis
  Innovative channel indicator design, close to the channel, channel status at a glance, easy to detect and maintain
- Easy configuration
  Simple configuration and support for all major PROFINET masters.
- Ease of use assembly line
  DIN 35 mm standard rail mounting
  Adopts screw-fixed terminals for stable and fast wiring.

2 Naming Rules

2.1 Naming



Serial number	Meaning	Description of values		
(1)	Bus protocol	PN: PROFINET protocol abbreviation		
(2)	Product Series	3: Integrated I/O		
(3)	I/O Type	Default: Digital		
(4)	Input Signal Points	16: 16 channel inputs	32: 32-channel input	00: 0 channel input
(5)	Number of output signal points	16: 16-channel output	32: 32-channel output	00: 0 channel output
(6)	Signal Type	A: NPN	B: PNP	Default: NPN & PNP compatible

2.2 Model List

Model number	Product Description
PN3-1616A	16-channel Digital Input/Output module, NPN type
PN3-0032A	32-Channel Digital Output Module, NPN Type
PN3-3200	32-Channel Digital Input Module, NPN & PNP Compatible
PN3-1616B	16-channel Digital Input/Output module, PNP type
PN3-0032B	32-Channel Digital Output Module, PNP Type

3 Product Parameters

3.1 Common parameter

Interface parameter	
Bus protocol	PROFINET
Number of I/O stations	According to the master
Data transmission medium	UTP or STP (STP recommended) for Category 5 and above
Transmission distance	≤100 m (station to station)
Transmission rate	100 Mbps
Bus interface	2 × RJ45
Technical Parameters	
Configuration	Through the master
Power supply	24 VDC (18V~36V)
Electrical isolation	500 VAC
Weights	170 g
Sizes	100 x 96 x 35 mm
Operating temperature	-10°C~+60°C
Storage temperature	-20°C~+75°C
Relative humidity	95%, non-condensing
Protection class	IP20

3.2 Digital parameter

Digital input	
Rated voltage	24 VDC (18V~30V)
Number of signal points	16, 32
Signal Type	NPN/PNP
"0" signal voltage (PNP)	-3~+3 V
"1" signal voltage (PNP)	15~30 V
"0" signal voltage (NPN)	15~30 V
"1" signal voltage (NPN)	-3~+3 V
Input Filtering	Default 3 ms, configurable
Input Current	4 mA
Isolation method	Optocoupler Isolation
Isolated Withstand Voltage	500 VAC
Channel Indicator Lights	Green LEDs
Digital output	
Rated voltage	24 VDC (18V~30V)
Number of signal points	16, 32
Signal Type	NPN/PNP
Load Type	Resistive loads, inductive loads
Single channel rated current	Max: 500 mA
Common terminal current	Max: 10 A
Port protection	Overcurrent protection
Isolation method	Optocoupler Isolation
Isolated Withstand Voltage	500 VAC
Channel Indicator Lights	Green LEDs

4 Panel

4.1 Product mix

Name and function description of each part of the product

Serial number	Name (of a thing)	Clarification
①	Terminal Dust Cover	Can be opened directly
②	System identification, indicator lights	Indicates power, module operation and network port status
(iii)	Module identification	Labeling product model, channel type
④	Guideway slot	For DIN 35 mm rail fixing
⑤	Bus interface	2 × RJ45
(vi)	Channel type identification	DI Digital Input DO Digital Output
(vii)	Channel indicators, signs	Indicates the corresponding channel signal status
Ⓑ	Wiring terminal	Screw-in terminal blocks
⑨	Snap	Fixed guide clips

4.2 Indicator light function

Name (of a thing)	Markings	Color	State of affairs	State Description
Power indicator	P	Green	ON	Power supply is normal
			OFF	The product is not powered up or the power supply is abnormal
Network Indicator IN	L/A1	Green	ON	Establish a network connection
			Flash	Network connection with data interaction
			OFF	No data interaction or exception
Network indicator OUT	L/A2	Green	ON	Establish a network connection
			Flash	Network connection with data interaction
			OFF	No data interaction or exception
Operation status indicator RUN	R	Green	ON	Module is functioning properly
			OFF	Abnormal module operation

Network Alarm Indicator	BF	Red	ON	Internet connection anomaly
			OFF	The network connection is working.
System Alarm Indicator	SF	Red	ON	The system is working abnormally
			OFF	System running normally or not powered up
Input Channel Status Indicator signal light	00 to 1F	Green	ON	Module channels have signal inputs
			OFF	No signal input or abnormal signal input on module channel
Output Channel Status Indicator signal light	00 to 1F	Green	ON	Module channels have signal outputs
			OFF	No signal output or abnormal signal output from module channels

4.3 Model number and information labeling

Name (of a thing)	Markings	Description
Module Model	PN3-1616A	Module Model
Bus protocol	PROFINET	Bus protocol
Channel Type	16DI+16DO	16 digital inputs + 16 digital outputs
	IN: TYP.4mA (DC24V); NPN/PNP	Input Channel: Current 4mA, Voltage 24V, NPN & PNP compatible
	OUT: Max.0.5A/Ch; NPN	Output channel: single channel current max. 0.5A, NPN type

4.4 Terminal Identification

PN3-1616A/PN3-1616B

Markings	Description
S24V	System Side Power Supply
S0V	
PE	Reserve
COM	Input Common
DI	Digital Input Channels
00~0F	Input channel
F24V	Field Side Power Supply
F0V	
NC	Empty terminal
DO	Digital output channels
10~1F	Output channel

Note: PN3-1616A/PN3-1616B terminal blocks are labeled the same.

PN3-0032A/PN3-0032B

Markings	Description
S24V	System Side Power Supply
S0V	
PE	Reserve
NC	Empty terminal
DOa	Digital output channels
DOb	
00~0F	Output channel
10~1F	
F24V	Field Side Power Supply
F0V	

Note: PN3-0032A/PN3-0032B Wiring terminals are labeled the same.

PN3-3200

Markings	Description
S24V	System Side Power Supply
S0V	
PE	Reserve
COMA	Input Common
COMB	
DIa	Digital Input Channels
DIb	
00~0F	Input channel
10~1F	
NC	Empty terminal

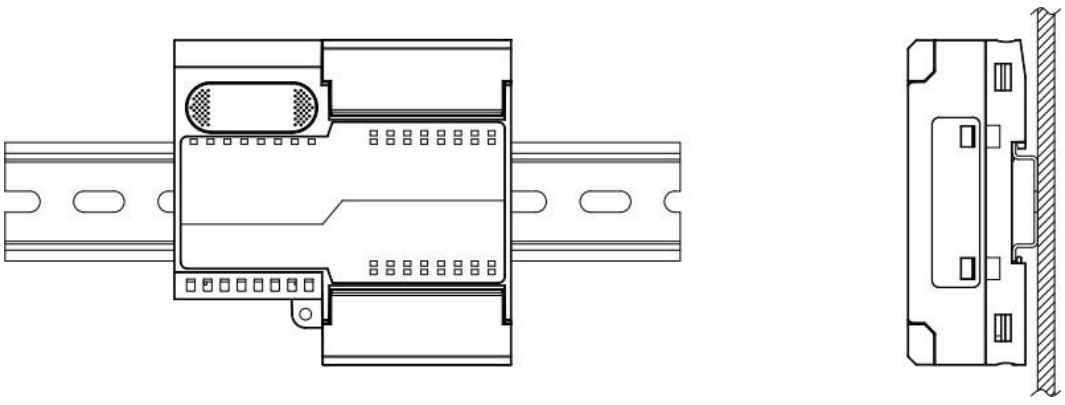
5 Installation and disassembly

Precautions for installation\dismantling

- Ensure that the cabinet is well ventilated (e.g., the cabinet is fitted with an exhaust fan).
- Do not install this equipment next to or above equipment that may cause overheating.
- Always install the module vertically and ensure sufficient spacing between the module and the surrounding equipment.
- Be sure to disconnect the power supply when installing/disassembling.

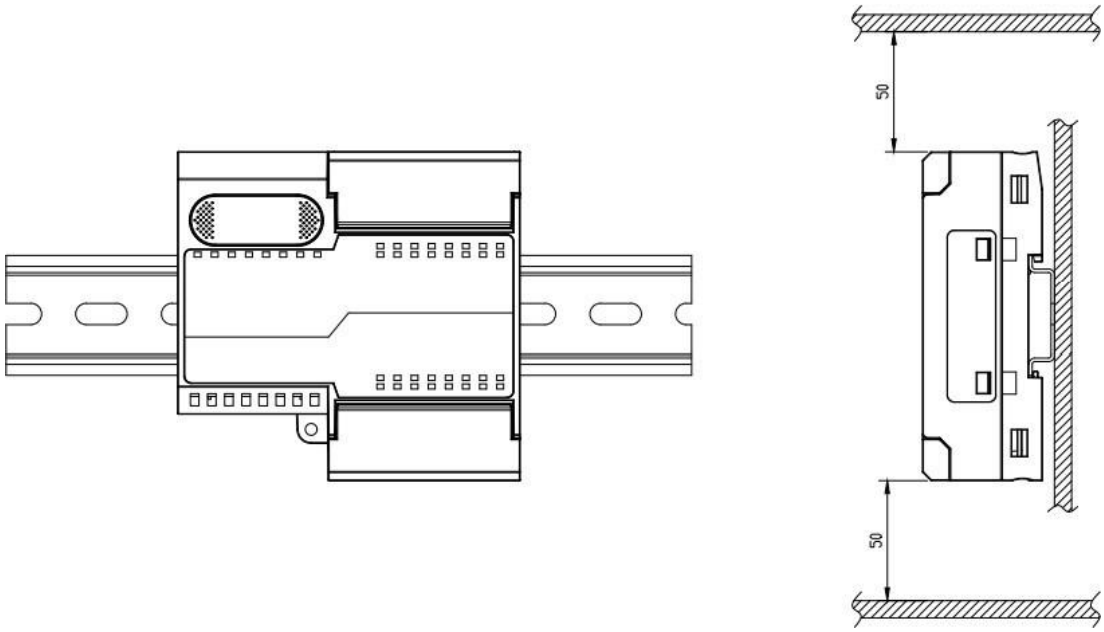
Mounting direction

To maintain proper heat dissipation from the module, be sure to install the module vertically to ensure smooth airflow inside the module.



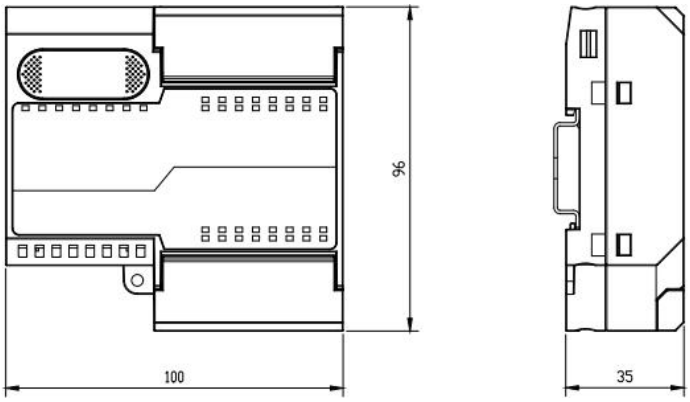
Minimum distance

Module protection class is IP20, need to be installed in the box or cabinet, installation, module and other modules or heat generating equipment, module up and down and other equipment or wiring slot, please follow the minimum spacing shown in the following figure (unit: mm).



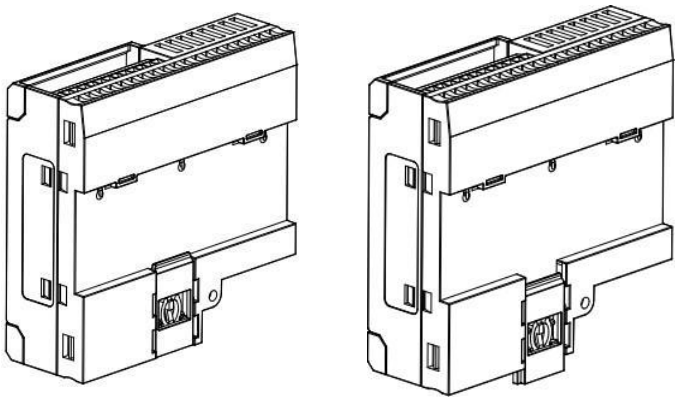
5.1 External Dimensions

Outline specifications (in mm)



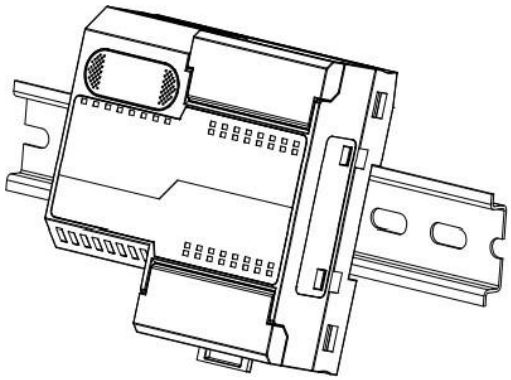
5.2 Installation and disassembly

Mounting	Move



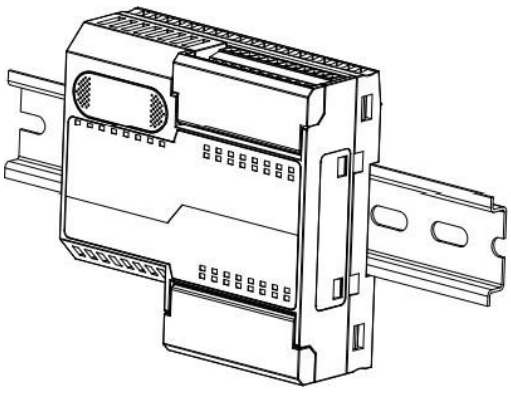
Push the snap on the bottom of the module outward, as shown in Fig. ①, and then push the snap to the position as shown in Fig. ②, and then hear a "click" sound.

① ②



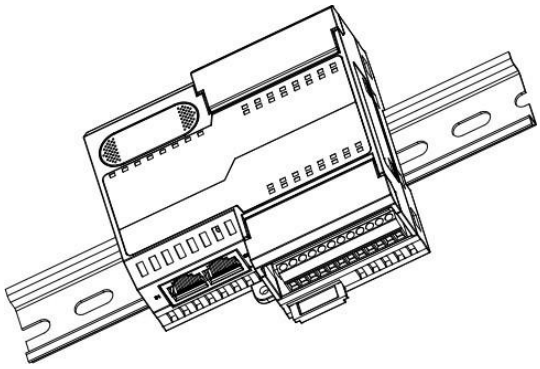
Align the upper edge of the module snap with the upper edge of the rail and place the module into the rail as shown in Figure ③.

③



The module placement is shown in Figure 4.

④

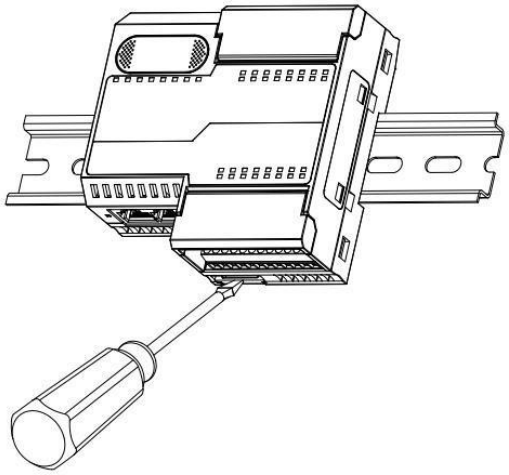


Push the snap in the direction of the rail and hear the ringing sound to complete the module installation, as shown in Figure ⑤.

⑤

Dismantle

Move



Insert the flat head into the snap and apply pressure in the direction of the module.
(Rattle heard.)
Remove the module by reversing the procedure for installing the module, as shown in Figure ⑥.

⑥

6 Wiring

6.1 Wiring terminal

Wiring terminal		
Power and signal line terminals	Extremity	2×20 P
	Wire diameter	24~17 AWG 0 .2~1.0 mm²
Bus interface	2×RJ45	UTP or STP (STP recommended) for Category 5 and above

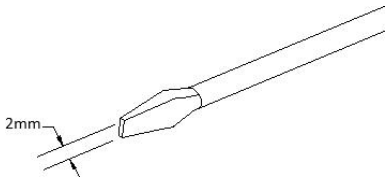
6.2 Wiring instructions and requirements

Power supply wiring precautions

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

Wiring Tool Requirements

The terminals are designed with set screws, and the installation and removal of cables can be operated with a one-piece screwdriver (specification: ≤2mm).



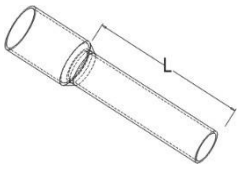
Stripped Wire Length Requirements

Recommended stripping length 6 mm.

Wiring Method

For single stranded hard wires, after stripping the corresponding length of wire, insert the wire into the terminal while tightening the screw with a screwdriver.

Multi-stranded flexible wires, stripping the corresponding length of the wire, supporting the use of the corresponding standard specifications of the cold compression terminals (tube-type

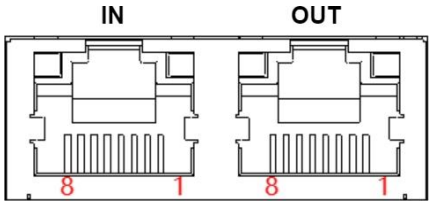
Tube Insulation End Specification Sheet		
Wire inserted into the terminal at the same time with a screw driver to tighten the screws.	Model number	Cross-sectional area of conductor mm²
 Tube insulated terminal L ≥ 6 mm in length	E0306	0.3
	E0506	0.5
	E0508	
	E7506	0.75
	E7508	
	E1006	1.0
	E1008	

- **Signal terminal wiring requirements**

  Press the signal cable into the terminal block with reference to the corresponding I/O module wiring diagram and wiring method.

- **Bus Wiring Requirements**

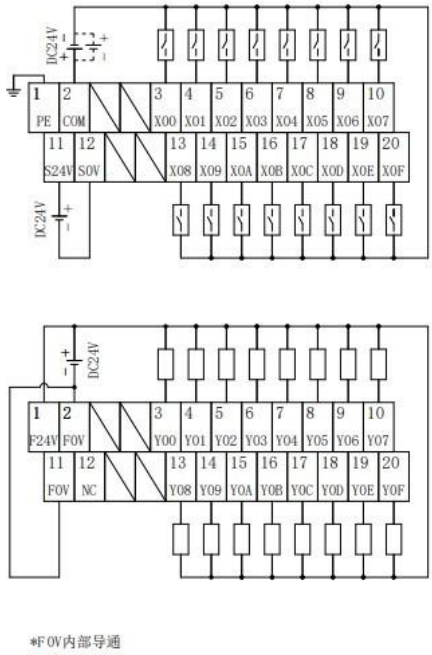
  - Utilizes standard RJ45 network interface with standard crystal connectors
  - The length of the cable between the devices must not exceed 100m.

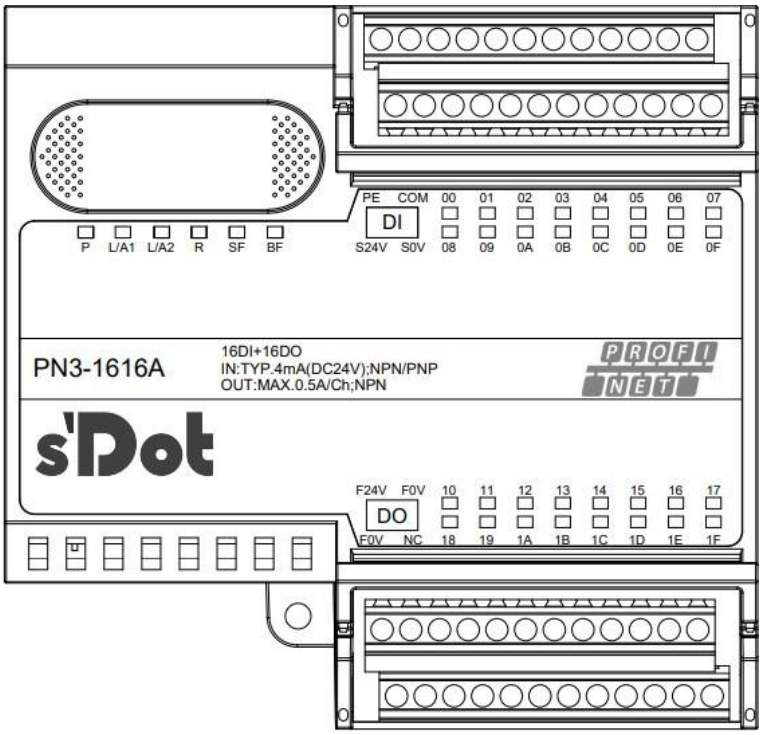


Pin number	Code
1	TD+
2	TD-
3	RD+
4	-
5	-
6	RD-
7	-
8	-

6.3 I/O module wiring diagram

6.3.1 PN3-1616A





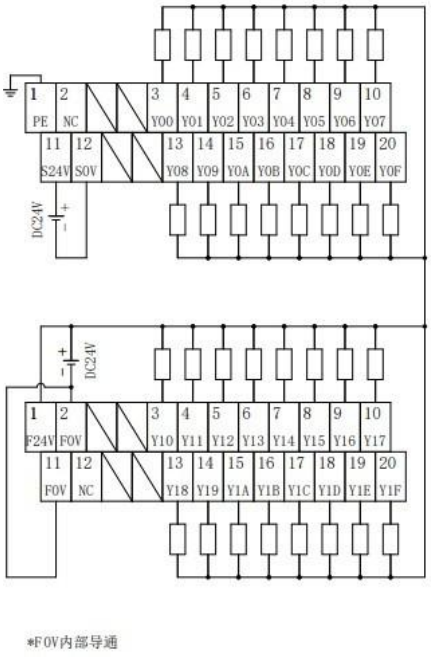
Gauge	Orientations	Signal Name		Gauge	Orientations	Signal Name
1	Input	PE		11	Input	S24V
2	Input	COM		12	Input	S0V
3	Input	X00		13	Input	X08
4	Input	X01		14	Input	X09
5	Input	X02		15	Input	X0A
6	Input	X03		16	Input	X0B
7	Input	X04		17	Input	X0C
8	Input	X05		18	Input	X0D
9	Input	X06		19	Input	X0E
10	Input	X07		20	Input	X0F

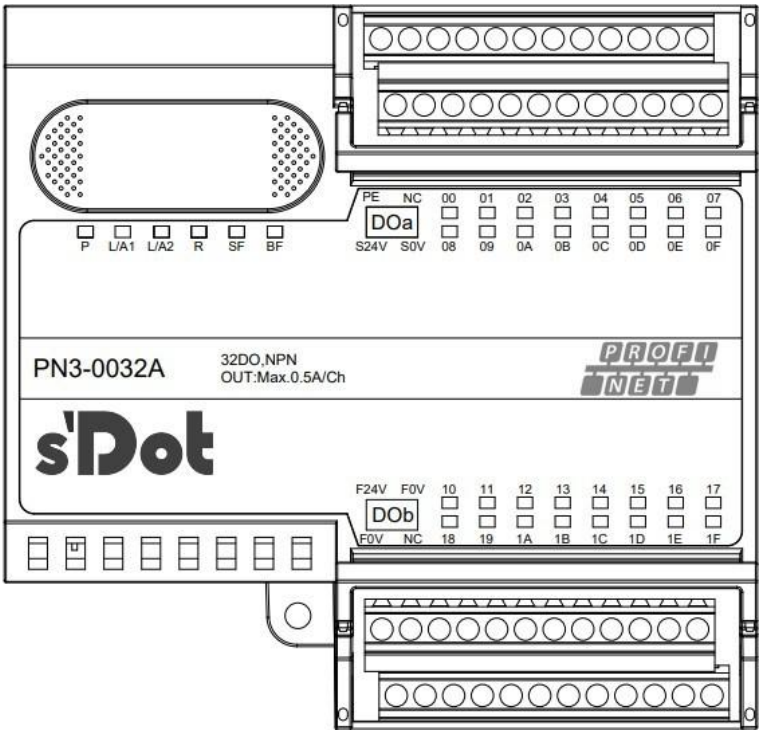
Gauge	orientations	Signal Name		Gauge	Orientations	Signal Name
1	Input	F24V		11	Input	F0V
2	Input	F0V		12	None	NC
3	Output	Y00		13	Output	Y08
4	Output	Y01		14	Output	Y09
5	Output	Y02		15	Output	Y0A
6	Output	Y03		16	Output	Y0B

7	Output	Y04		17	Output	Y0C
8	Output	Y05		18	Output	Y0D
9	Output	Y06		19	Output	Y0E
10	Output	Y07		20	Output	Y0F

Note: The module terminal ports are rated for 8A, when the total output load current of the module channels exceeds 8A, both F0V ports need to be wired.

6.3.2 PN3-0032A





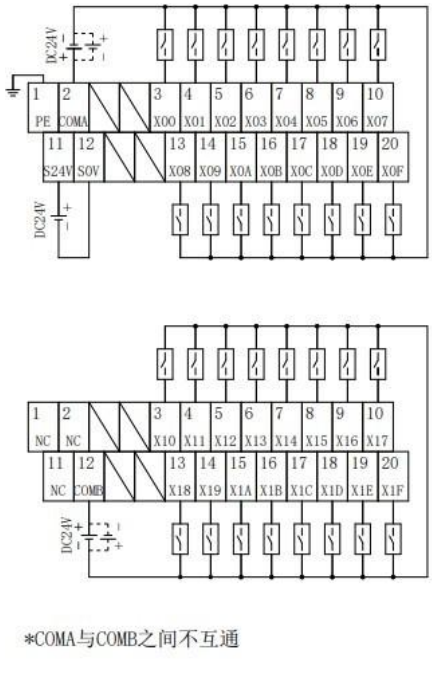
Gauge	Orientations	Signal Name		Gauge	Orientations	Signal Name
1	Input	PE		11	Input	S24V
2	None	NC		12	Input	S0V
3	Output	Y00		13	Output	Y08
4	Output	Y01		14	Output	Y09
5	Output	Y02		15	Output	Y0A
6	Output	Y03		16	Output	Y0B
7	Output	Y04		17	Output	Y0C
8	Output	Y05		18	Output	Y0D
9	Output	Y06		19	Output	Y0E
10	Output	Y07		20	Output	Y0F

Gauge	Orientations	Signal Name		Gauge	Orientations	Signal Name
1	Input	F24V		11	Input	F0V

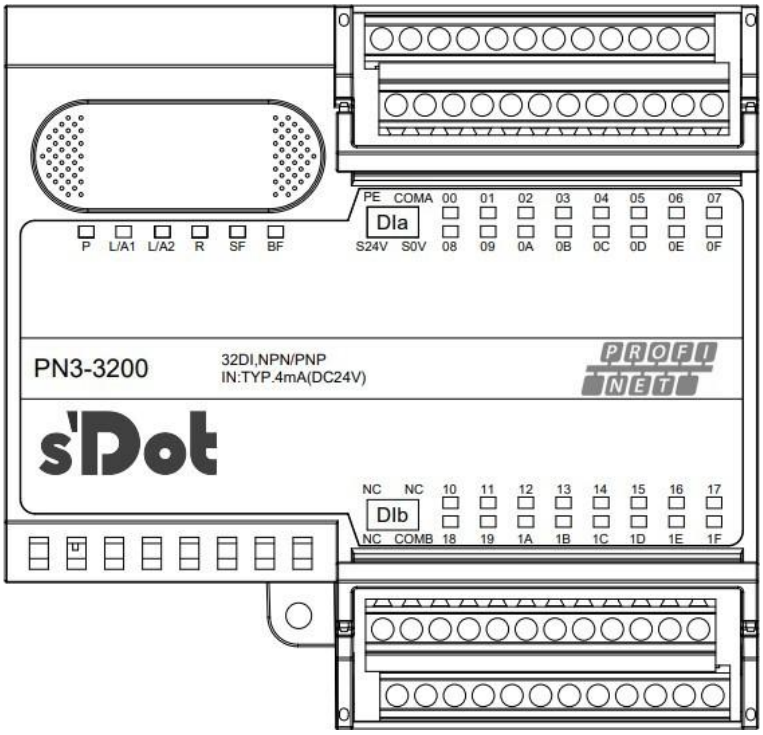
2	Input	F0V		12	None	NC g
3	Output	Y10		13	Output	Y18
4	Output	Y11		14	Output	Y19
5	Output	Y12		15	Output	Y1A
6	Output	Y13		16	Output	Y1B
7	Output	Y14		17	Output	Y1C
8	Output	Y15		18	Output	Y1D
9	Output	Y16		19	Output	Y1E
10	Output	Y17		20	Output	Y1F

Note: The module terminal ports are rated for 8A, when the total output load current of the module channels exceeds 8A, both F0V ports need to be wired.

6.3.3 PN3-3200



*COMA与COMB之间不互通

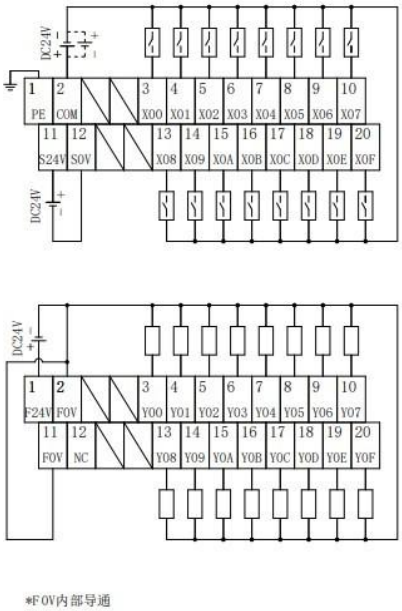


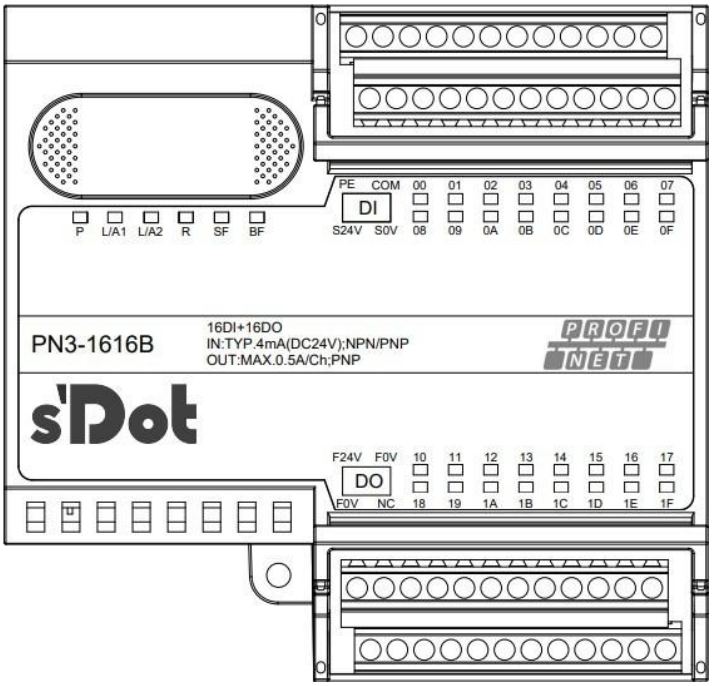
Gauge	Orientations	Signal Name		Gauge	Orientations	Signal Name
1	Input	PE		11	Input	S24V
2	Input	COMA		12	Input	S0V
3	Input	X00		13	Input	X08
4	Input	X01		14	Input	X09

5	Input	X02	15	Input	X0A g
6	Input	X03	16	Input	X0B
7	Input	X04	17	Input	X0C
8	Input	X05	18	Input	X0D
9	Input	X06	19	Input	X0E
10	Input	X07	20	Input	X0F

Gauge	Orientations	Signal Name	Gauge	Orientations	Signal Name
1	None	NC	11	None	NC
2	None	NC	12	Input	COMB
3	Input	X10	13	Input	X18
4	Input	X11	14	Input	X19
5	Input	X12	15	Input	X1A
6	Input	X13	16	Input	X1B
7	Input	X14	17	Input	X1C
8	Input	X15	18	Input	X1D
9	Input	X16	19	Input	X1E
10	Input	X17	20	Input	X1F

6.3.4 PN3-1616B

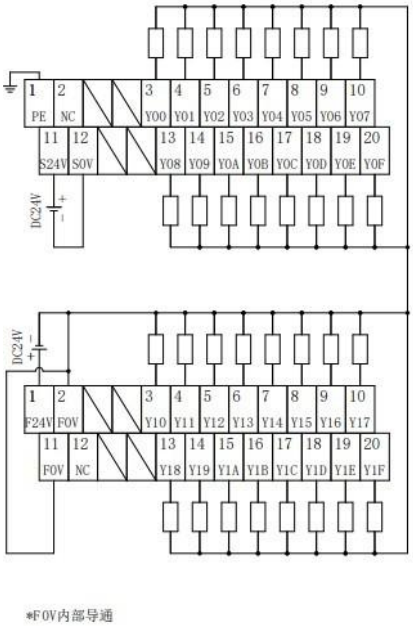


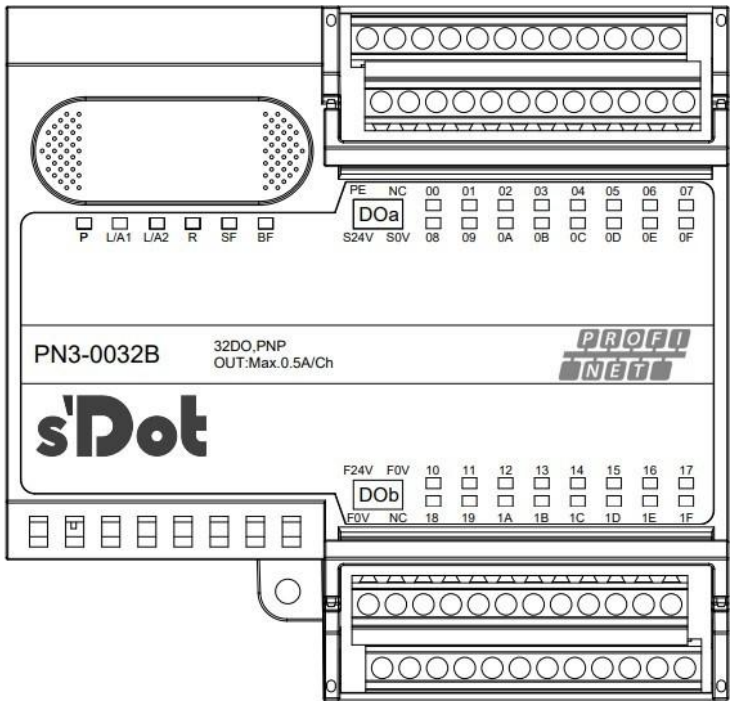


Gauge	Orientations	Signal Name		Gauge	Orientations	Signal Name
1	Input	PE		11	Input	S24V
2	Input	COM		12	Input	S0V
3	Input	X00		13	Input	X08
4	Input	X01		14	Input	X09
5	Input	X02		15	Input	X0A
6	Input	X03		16	Input	X0B
7	Input	X04		17	Input	X0C
8	Input	X05		18	Input	X0D
9	Input	X06		19	Input	X0E
10	Input	X07		20	Input	X0F
Gauge	**Directional**	**Signal Name**		**Gauge**	**Directional**	**Signal Name**
1	Input	F24V		11	Input	F0V
2	Input	F0V		12	None	NC
3	Output	Y00		13	Output	Y08
4	Output	Y01		14	Output	Y09
5	Output	Y02		15	Output	Y0A
6	Output	Y03		16	Output	Y0B
7	Output	Y04		17	Output	Y0C
8	Output	Y05		18	Output	Y0D
9	Output	Y06		19	Output	Y0E
10	Output	Y07		20	Output	Y0F

Note: The module terminal ports are rated for 8A, when the total output load current of the module channels exceeds 8A, both F0V ports need to be wired.

6.3.5 PN3-0032B





Gauge	Orientations	Signal Name		Gauge	Orientations	Signal Name
1	Input	PE		11	Input	S24V
2	None	NC		12	Input	S0V
3	Output	Y00		13	Output	Y08
4	Output	Y01		14	Output	Y09
5	Output	Y02		15	Output	Y0A
6	Output	Y03		16	Output	Y0B
7	Output	Y04		17	Output	Y0C
8	Output	Y05		18	Output	Y0D
9	Output	Y06		19	Output	Y0E
10	Output	Y07		20	Output	Y0F

Gauge	Orientations	Signal Name		Gauge	Orientations	Signal Name
1	Input	F24V		11	Input	F0V
2	Input	F0V		12	None	NC
3	Output	Y10		13	Output	Y18
4	Output	Y11		14	Output	Y19
5	Output	Y12		15	Output	Y1A
6	Output	Y13		16	Output	Y1B
7	Output	Y14		17	Output	Y1C

8	Output	Y15		18	Output	Y1D
9	Output	Y16		19	Output	Y1E
10	Output	Y17		20	Output	Y1F

Note: The module terminal ports are rated for 8A, when the total output load current of the module channels exceeds 8A, both F0V ports need to be wired.

7 Use

7.1 Parameter description

7.1.1 Digital Input Filter Period Setting

Digital input filtering prevents the program from responding to unexpected rapid changes in the input signal that may be generated by switch contact jumps or electrical noise. For modules with input channels, the filtering time of the digital inputs can be selected via the Filter Period parameter setting, which filters out spurious waves within the set time; the channels are not individually configurable.

For example, an input filter time of 3 ms means that a single signal change from "0" to "1" or from "1" to "0" lasts 3 ms before it can be detected. "A single high pulse or low pulse shorter than 3 ms will not be detected.

7.1.2 Output signal clear/hold function

Clear/Hold function is for modules with output channels, this function can configure the module output action in the bus abnormal state. Clear output: When communication is disconnected, the output channel of the module will automatically clear the output.

Hold Outputs: The module output channels keep outputs when communication is disconnected.

This manual takes TIA Portal V17 as an example to introduce the parameter configuration method, and the specific steps are described in Chapter 7.2.1 Parameter Settings.

7.2 Configuration Module Applications

7.2.1 Application in TIA Portal V17 Software Environment

1. Preparation

- **hardware environment**
  - **Module Model PN3-1616A**
  - **One computer with TIA Portal V17 software pre-installed**
  - **Shielded cables for PROFINET**
  - **One Siemens PLC, this description takes Siemens S7-1200 CPU1214C DC/DC/DC as an example**
  - **One switching power supply**
  - **Module mounting rails and rail mounts**
  - **Device Configuration Files**

    Configuration file access: https://www.solidotech.com/documents/configfile
- **Hardware configuration and wiring**

  Follow "5 Installation and Disassembly" and "6 Wiring".

2. New construction

a. Open TIA Portal V17 software, click "Create New Project", enter the information and click "Create" button, as shown below.

- Item name: customizable, can be left as default.
- Path: the project keeps the path, which can be left as default.
- Version: can be left as default.
- AUTHOR: The default can be maintained.
- Note: Customizable, may not be filled in.

3、Add PLC controller

a. Click Configure Devices, as shown in the following figure.

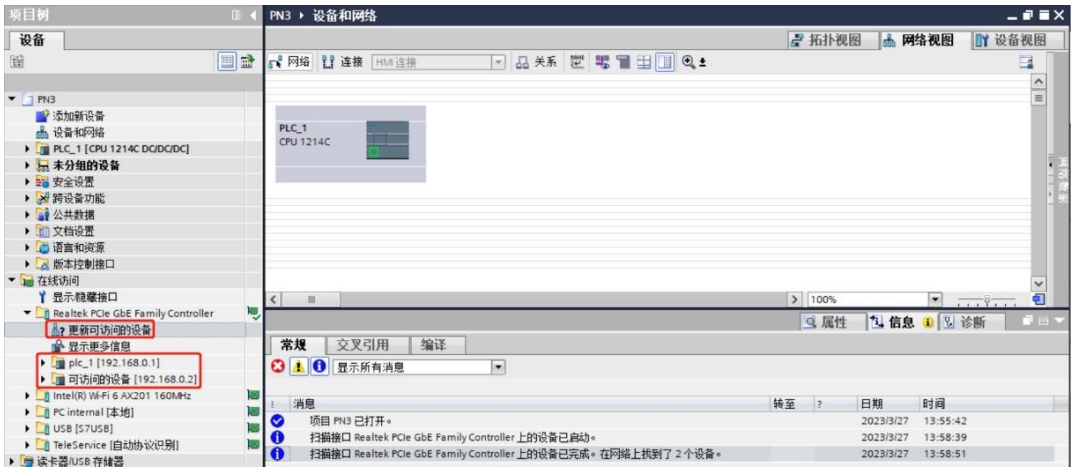
b. Click "Add New Device", select the PLC model you are currently using, and click "Add" as shown below. After adding, you can view the

The PLC has been added to the device navigation tree on the left.

4. Scanning for connected devices

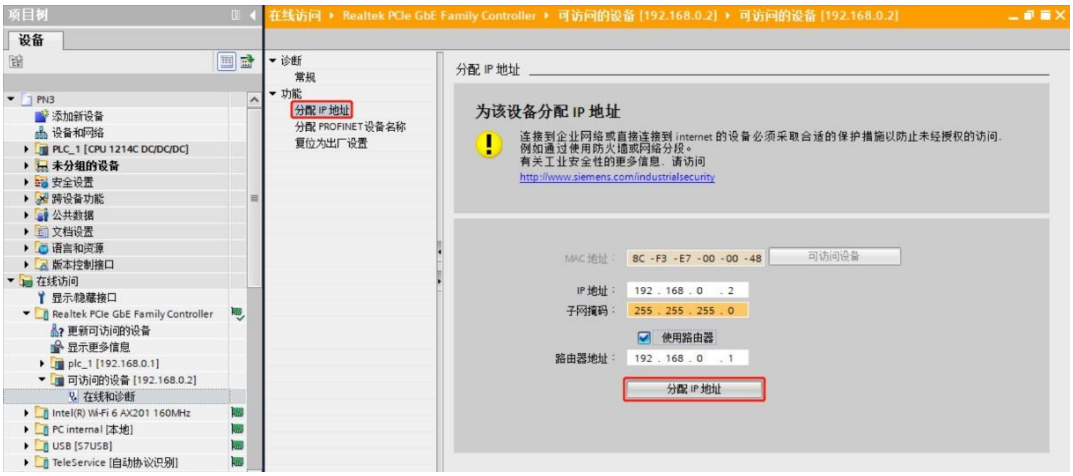
a. Click "Online Access -> Update Accessible Devices" in the left navigation tree as shown below.

b. When the update is complete, the connected slave devices are displayed, as shown in the following figure.



The IP address of the computer must be in the same network segment as the PLC, if not, change the IP address of the computer and repeat the above steps.

c. Double-click "Online and Diagnostics" under Slave Devices in the left navigation tree, and you can assign the IP address and configuration name of the current slave under the "Function" menu. Click "Assign IP Address", fill in "Subnet Mask", then "IP Address", and click "Assign IP Address" at the bottom. Click "Assign IP Address" at the bottom of the screen, as shown in the following figure.



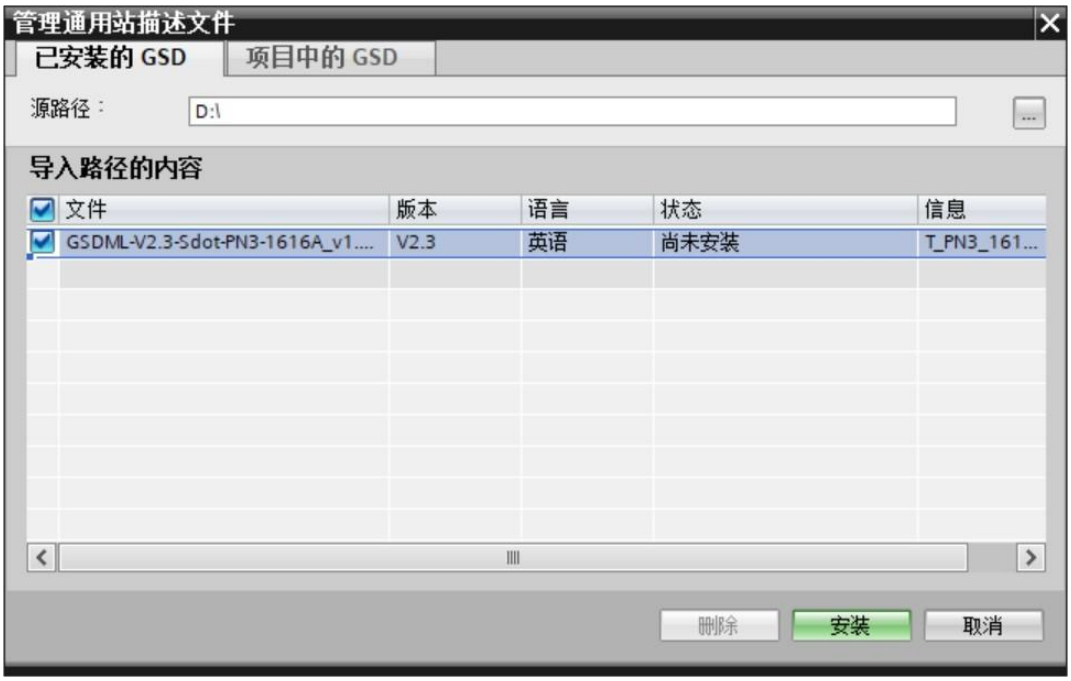
d. Click "Assign PROFINET Device Name", fill in "PROFINET Device Name", and click "Assign Name" as shown below.

5. Add GSD configuration file

a. In the menu bar, select "Options -> Manage General Station Description File (GSDML) (D)".

b. Click Source Path to select the folder where the GSD files are stored.

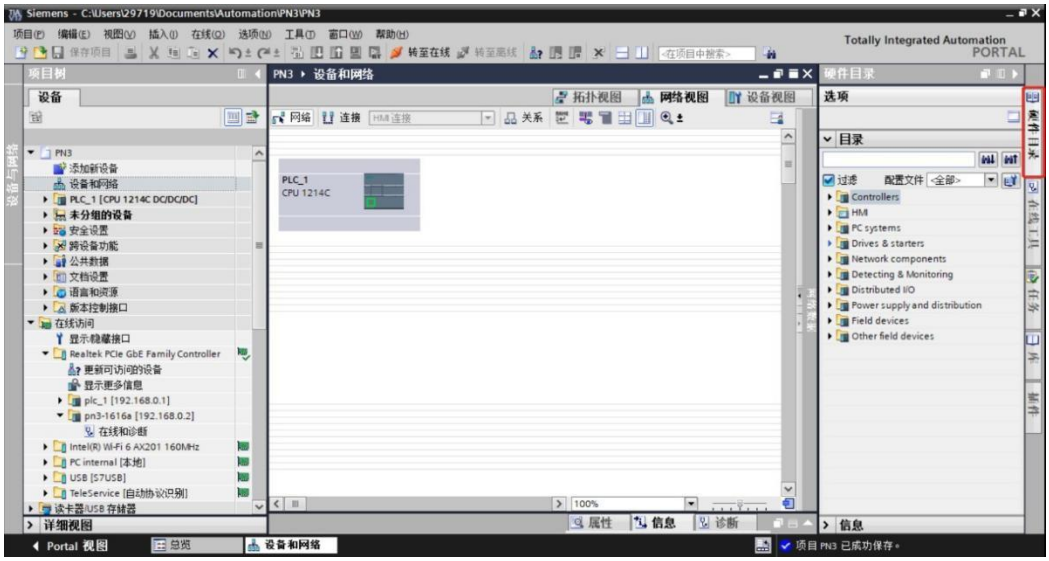
c. Check if the status of the GSD file you want to add is "Not yet installed", click the "Install" button if it is not installed, or click "Cancel" if it is already installed to skip the installation step.



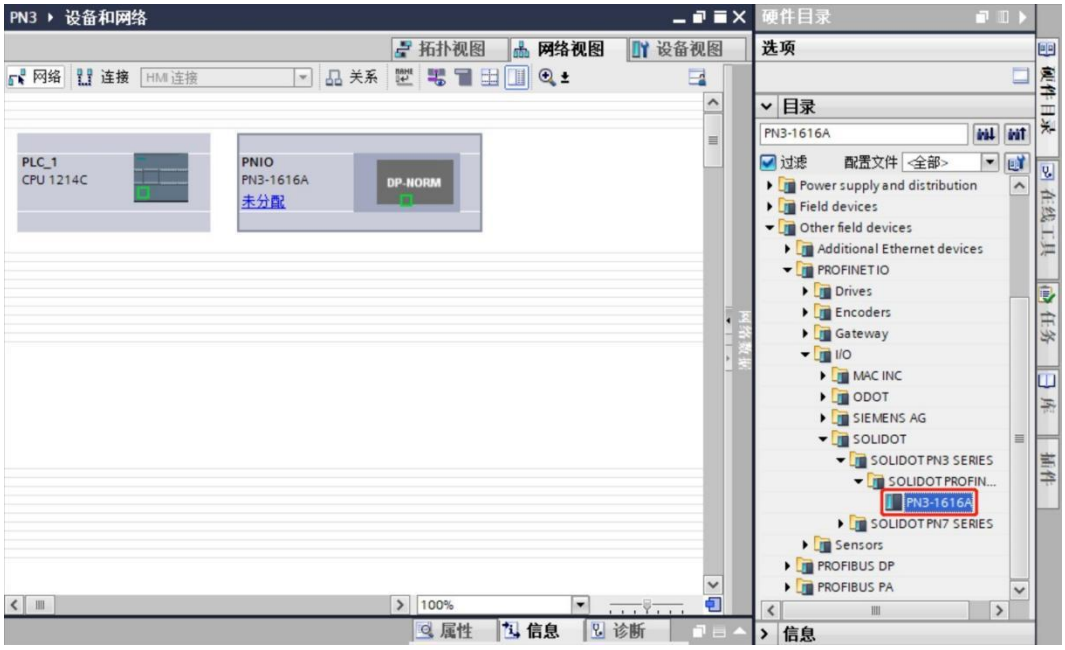
6. Add slave devices

a. Double-click on "Devices and Networks" in the left navigation tree.

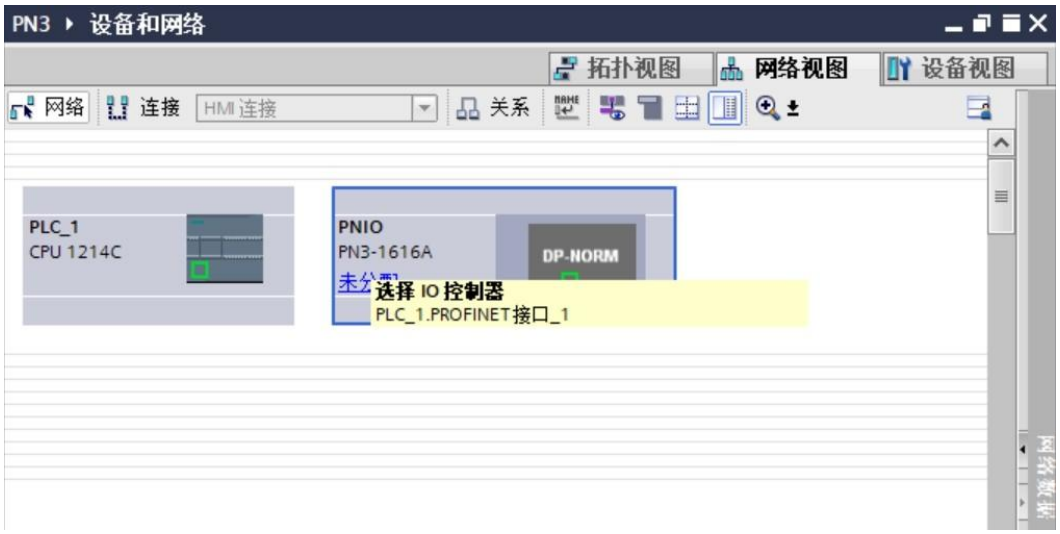
b. Click the "Hardware Catalog" vertical button on the right, the catalog is displayed as shown below.



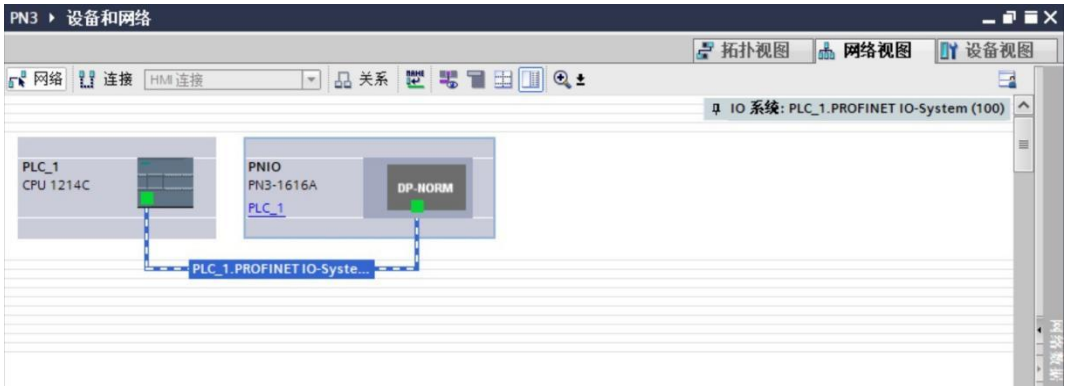
c. Enter "PN3-1616A" in the search box of the hardware catalog to search for the module, after the search is completed, drag or double-click "PN3-1616A" to the "Network View", as shown in the following figure. As shown in the figure below. If you want to connect more than one module, you can add modules according to the actual topology under "Hardware Catalog" on the right side.



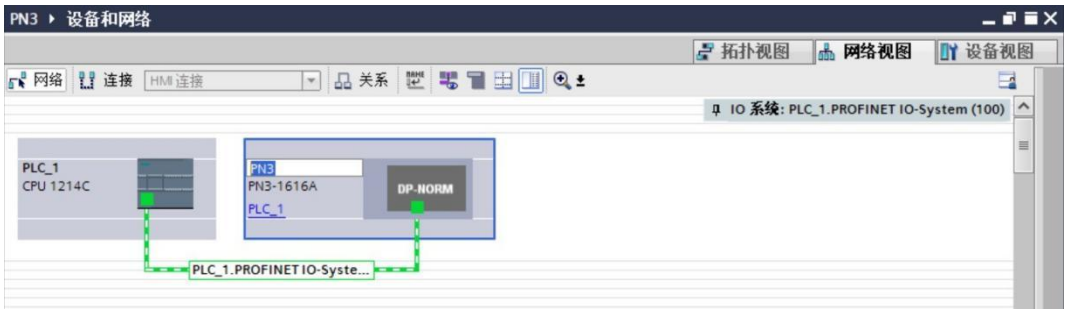
d. Click "Unassigned (blue font)" on the slave device and select "PLC_1.PROFINET Interface_1" as shown below.



e. When the connection is complete, it is shown in the following figure.



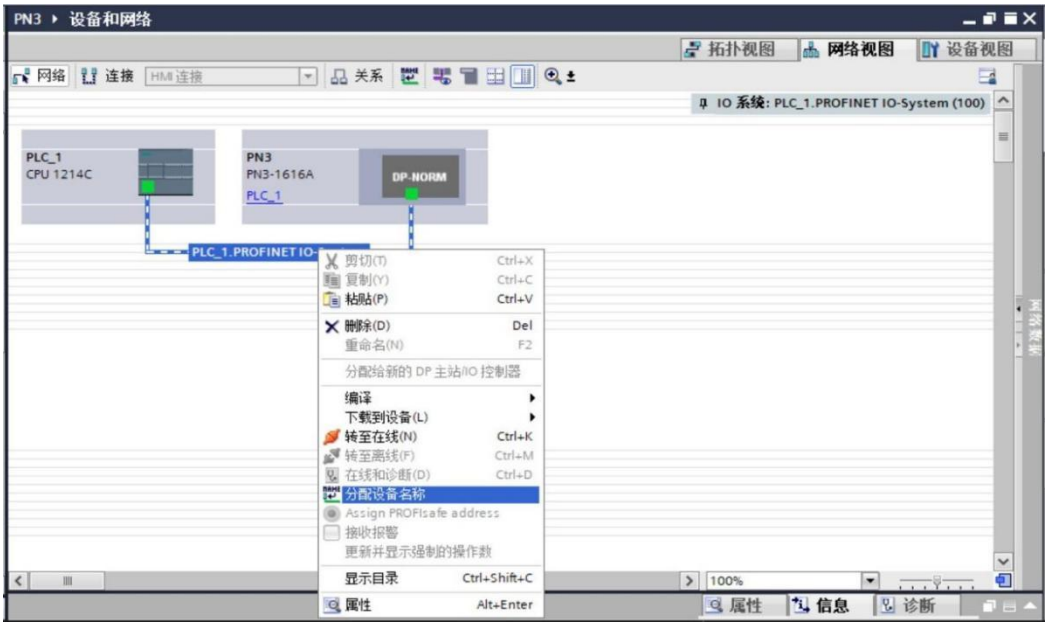
f. Click on the device name to rename the device, as shown in the following figure.



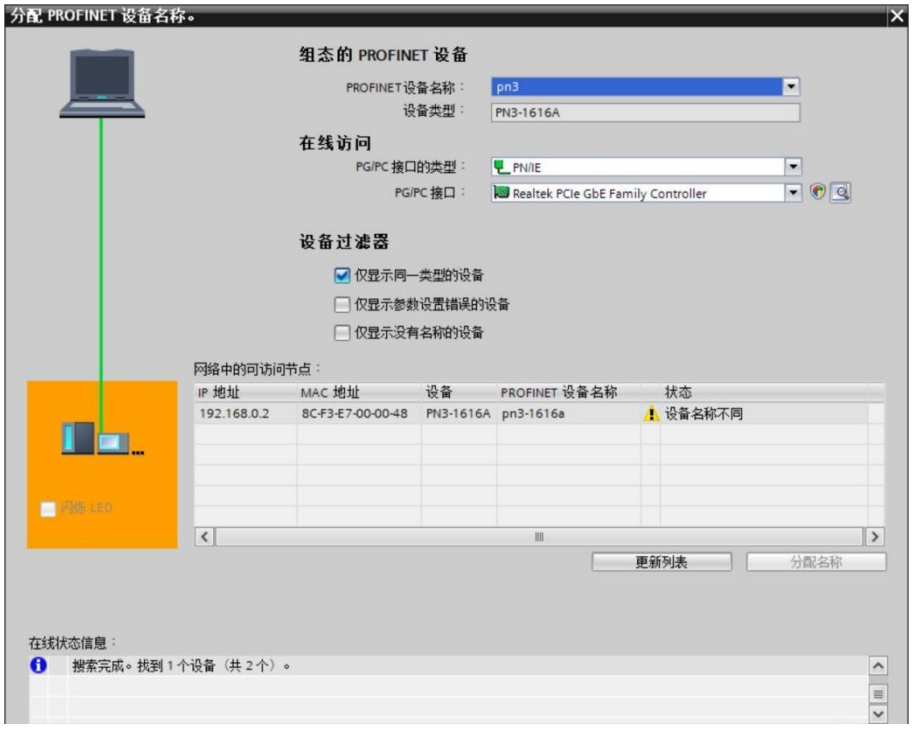
g. Click "Device View" to enter the device overview, you can see the topology configuration information, including the I/O address automatically assigned by the system, the I/O address can be changed by yourself, as shown in the following figure.

7. Distribution of equipment names

a. Switch to "Network View", right-click on the cable connecting the PLC and PN3, and select "Assign Device Name" as shown in the following figure.



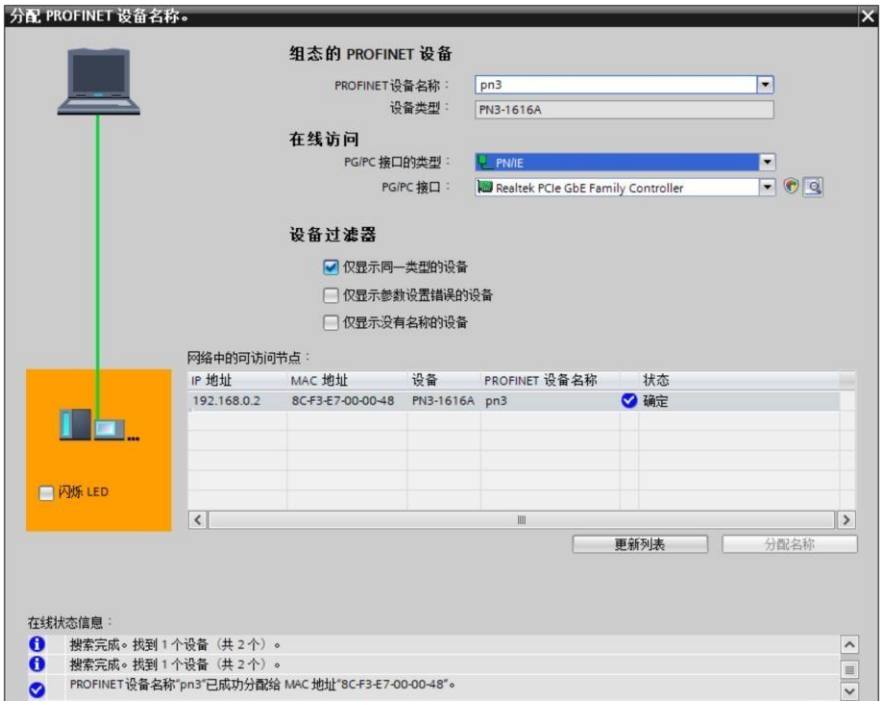
b. The Assign PROFINET Device Name pop-up window appears as shown below.



Check to see if the MAC address on the module silkscreen is the same as the MAC address of the assigned device name.

- PROFINET Device Name: Name set in "Assign PROFINET Device Name".
- Type of PG/PC interface: PN/IE.
- PG/PC interface: the actual network adapter used.

c. Select the slave device in turn, click Update List, and click Assign Name. Check whether the status of the node is "OK" in "Accessible nodes in the network", as shown in the following figure.



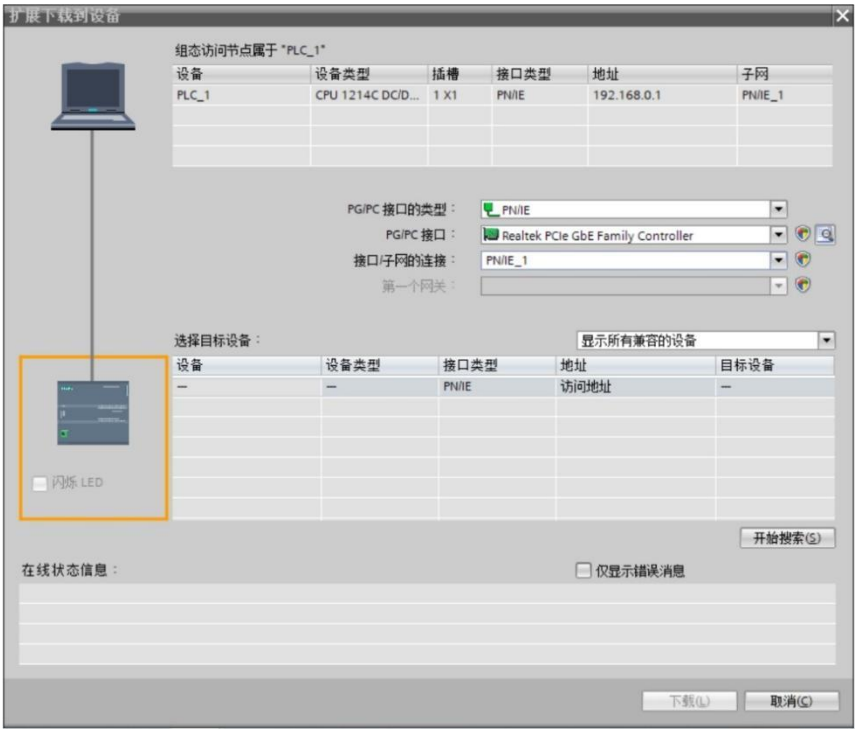
d. Click Close.

8、Download the configuration structure

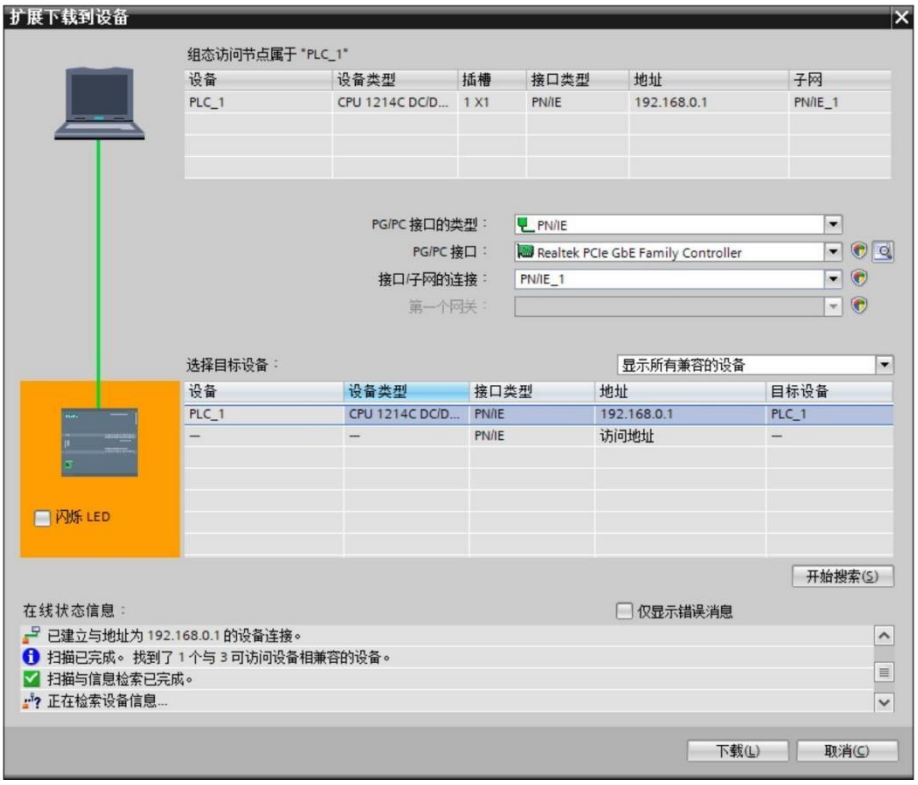
a. In Network View, check PLC.

b. Click the button in the menu bar to download the current configuration to the PLC.

c. In the "Extended Download to Device" window that pops up, configure the settings as shown below.



d. Click the "Start Search" button as shown below.



e. Click on "Download".

f. Select "Continue without synchronization" as shown below.

g. Select "Stop All".

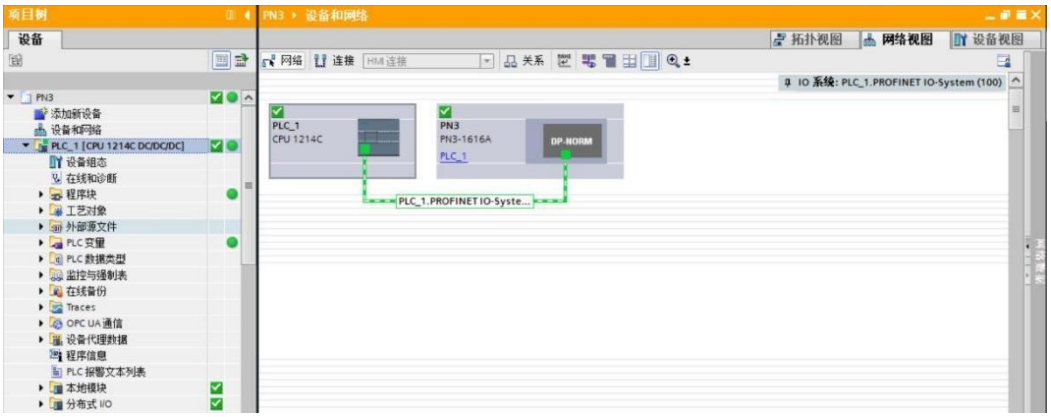
h. Click Load.

i. Click Finish.

j. Power the unit back up.

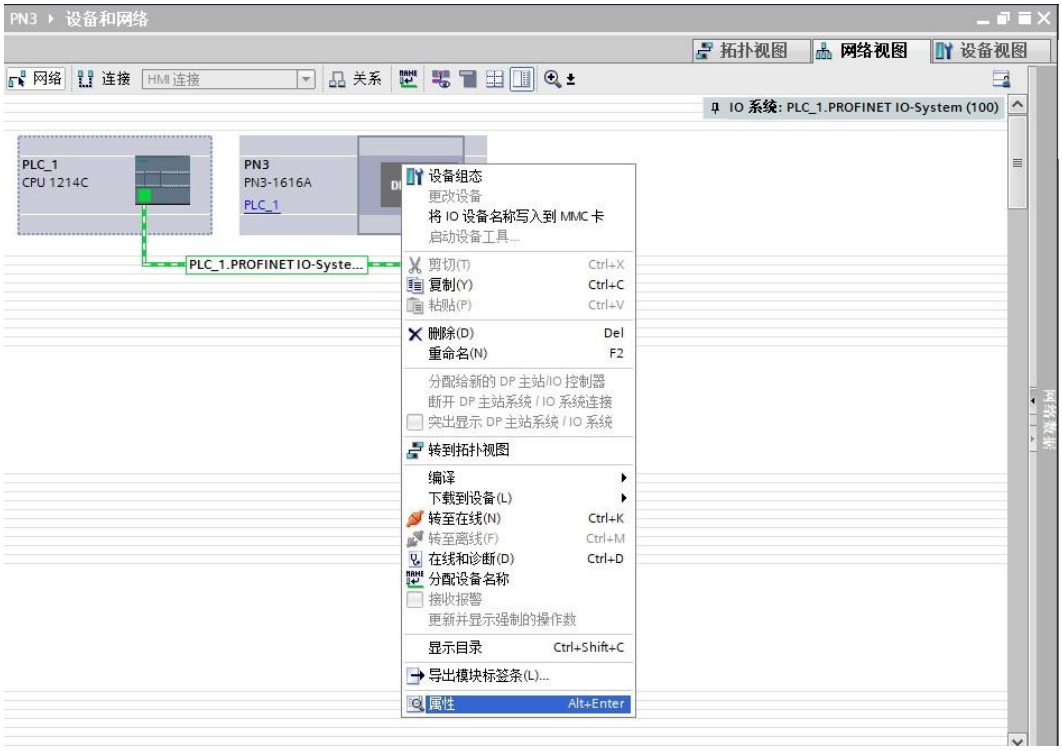
9. Communication connection

a. Click the  button, and then click the "Go Online" button, the icons are all green, that is, the connection is successful, as shown in the following figure.

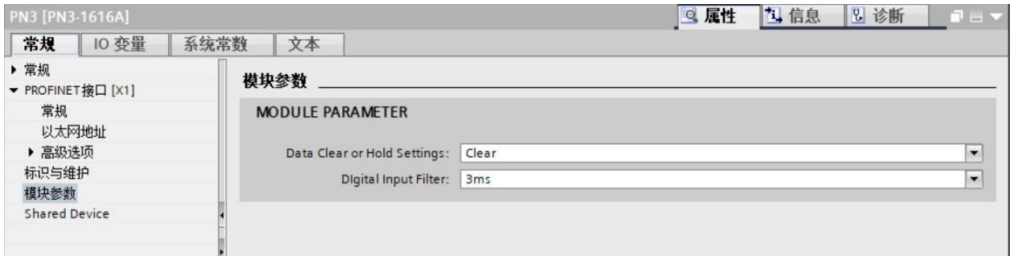


10. Parameter setting

a. Open Network View, and in the offline state, right-click on the Module View icon section and click Properties, as shown in the following figure.

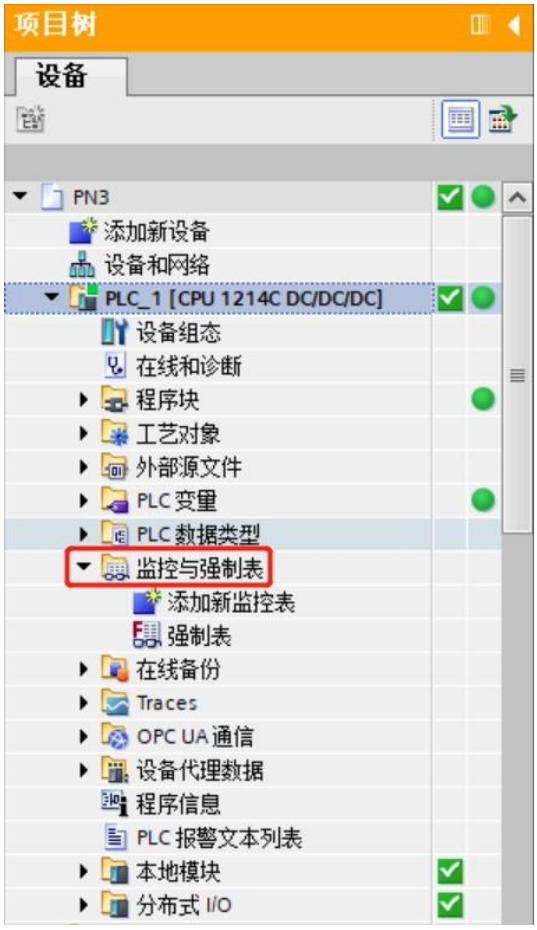


b. In the property page, click "Module Parameters", as shown in the following figure. The parameters can be configured according to the actual use, after the configuration is completed, re-download the program to the PLC, the PLC and the module need to be re-powered.

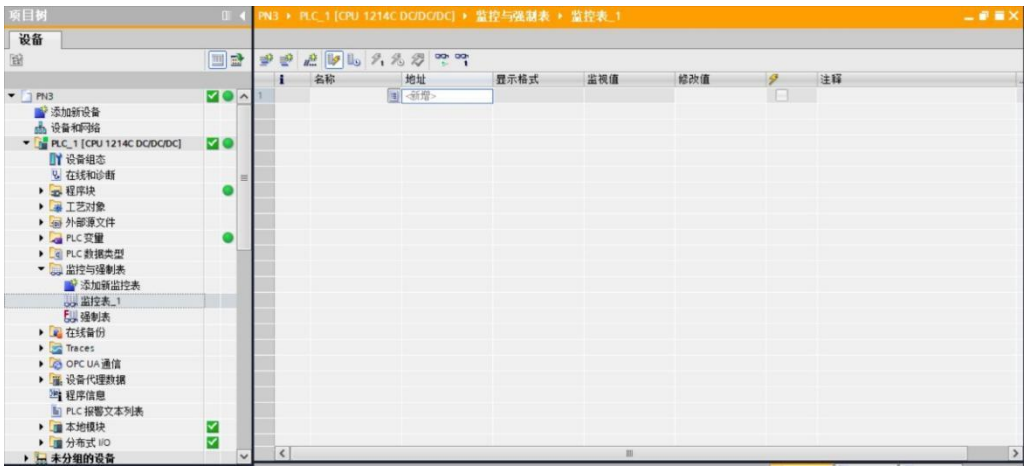


11. Functional verification

a. Expand the left side of the project navigation, select "Monitor and Force Meter", as shown in the following figure.



b. Double-click "Add New Monitor Table", the system adds a new monitor table, as shown in the following figure.



c. Open the Device View and check the channel Q-address (channel address of the output signal) and the I-address of the module PN3-1616A in the device overview.
(Channel address of the input signal).
For example, the "Q address" of PN3-1616A module is 2~3, and the "I address" is 2~3, as shown in the figure below.

d. Fill in the input/output channel address in the address cell of the monitoring table, such as "QB2", "QB3", "IB2", "IB3", "IB2", "IB2", "IB3", "IB2", "IB3". "Press "Enter", after all the information is filled in, click the button to monitor the data.

e. Enter "1" in the "Modified Value" cell of QB2, click the button to write, and see the corresponding channel indicator light up, as shown in the following figure.

f. When a valid voltage is input to input channel 2 of the module, the input value can be monitored in IB1 as shown below.

7.2.2 Application in the STEP 7-MicroWIN SMART software environment

1. Preparation

- **Hardware environment**
  - **Module Model PN3-1616A**
  - **A PC with pre-installed STEP 7-MicroWIN SMART V2.6 software**
  - **Shielded cables for PROFINET**
  - **One Siemens PLC, this description is based on the Siemens S7-200 SMART for example**
  - **One switching power supply**
  - **Module mounting rails and rail mounts**
  - **Device Configuration Files**

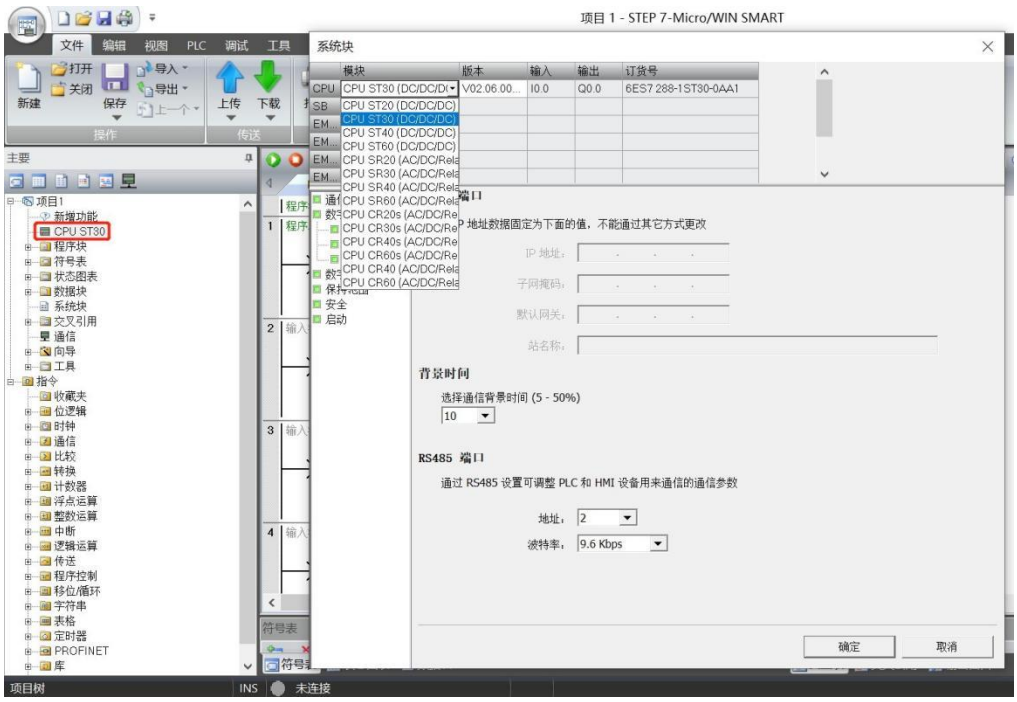
    Configuration file access: https://www.solidotech.com/documents/configfile
- **Hardware configuration and wiring**

  Follow "5 Installation and Disassembly" and "6 Wiring".

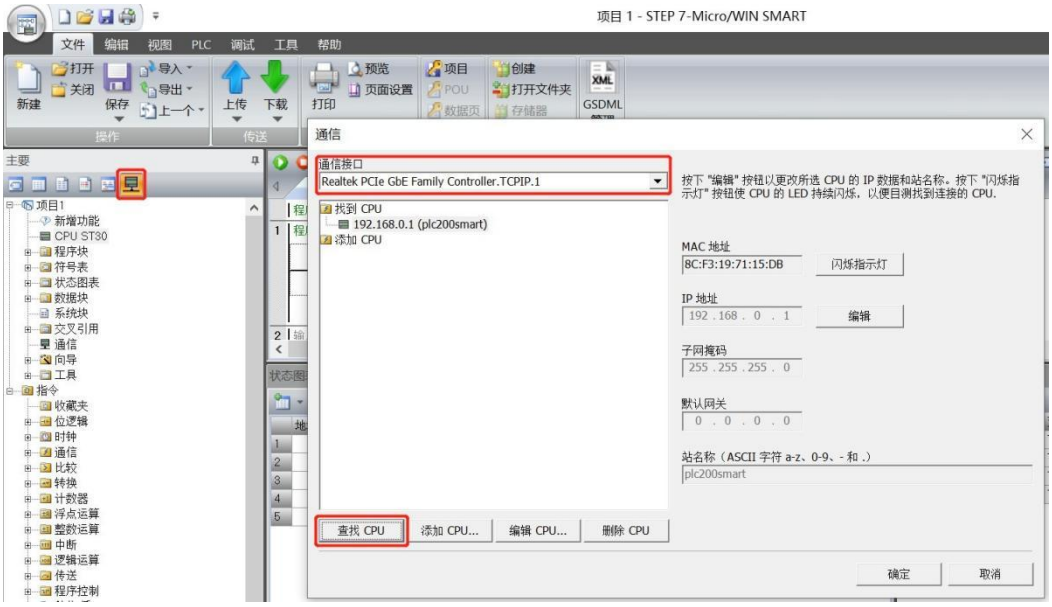
2. Add PLC

a. Open the STEP 7-MicroWIN SMART software.

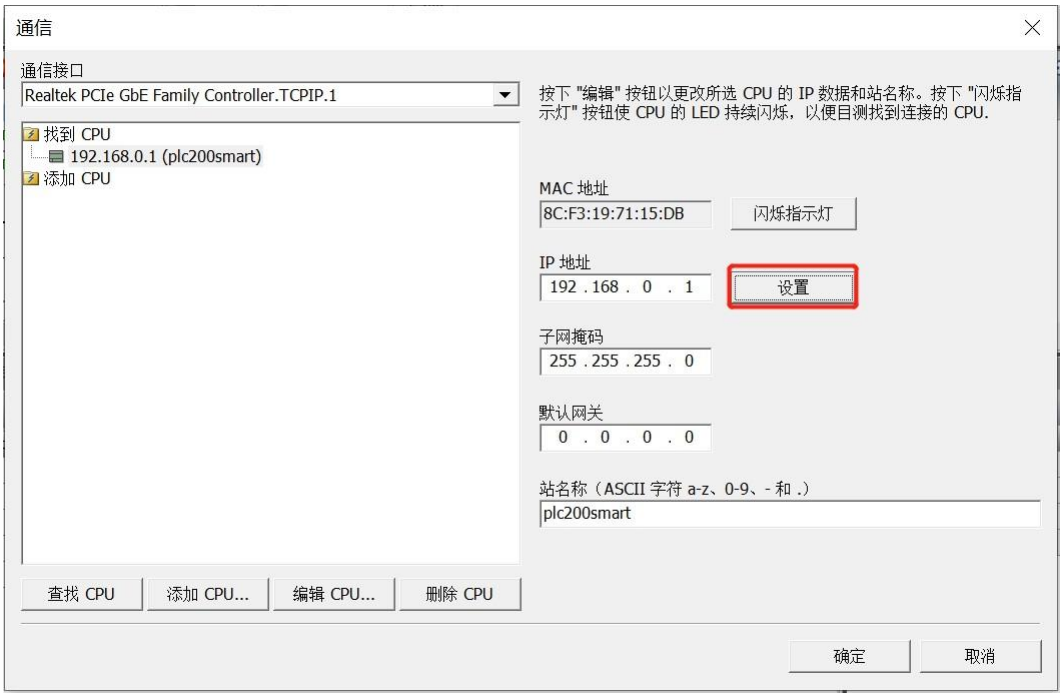
b. Double-click the CPU ST30 button on the left navigation tree to bring up the "System Block" window, select the CPU model corresponding to the PLC, and click the "OK" button, as shown in the following figure.



c. 通信 Click the button in the left navigation tree to bring up the "Communication" window, switch the communication interface to the one actually used by the PLC, and click "Find CPU" button to locate the PLC as shown below.

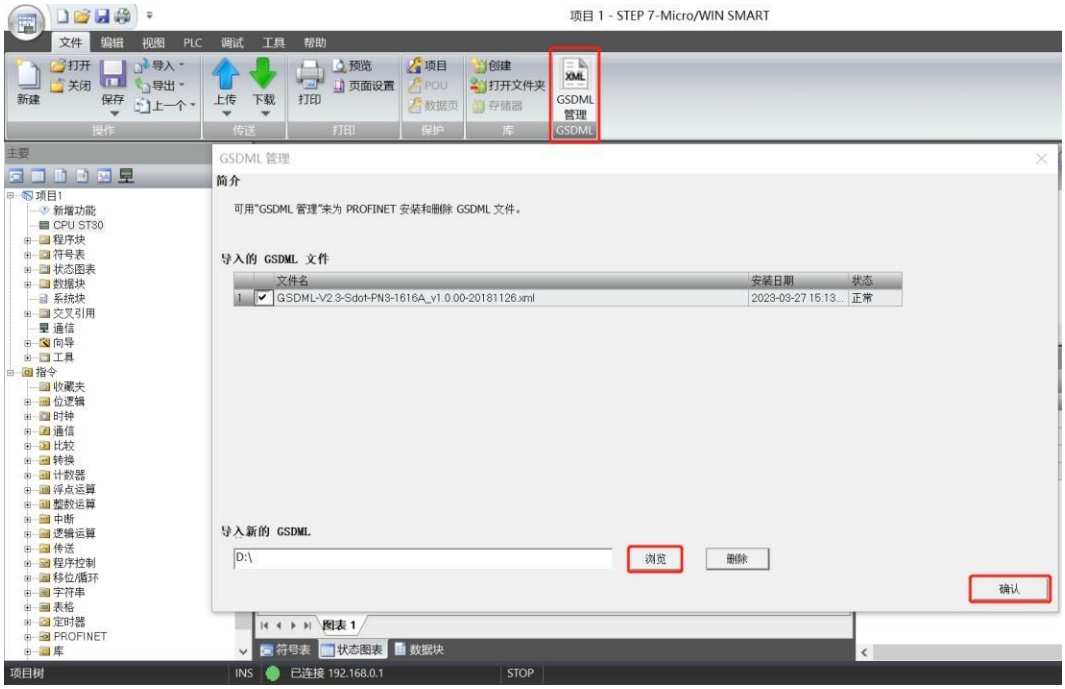


d. Click the "Edit" button in the communication window, the Edit button is switched to the Set button, the IP address input box is lit, modify the IP address and the IP address of the computer interface with the same network segment, modification is complete, click the "Settings" button again, click the "OK" button after the completion of the setup. Click the "OK" button after the setting is completed, as shown in the following figure. Note: You can only modify the IP address of the computer's Ethernet interface, and the PLC address can be the same network segment.



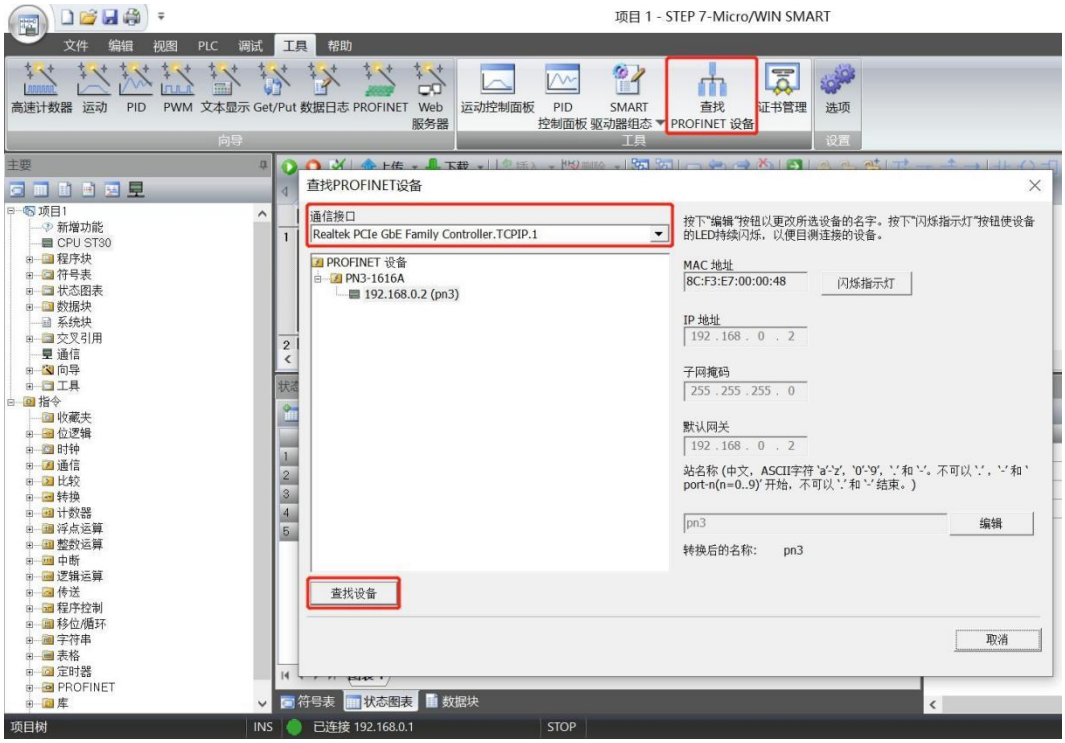
3. Inputing GSD files

a. Click "File -> GSDML Management" in the menu bar, click the "Browse" button in the GSDML Management window, and select the GSDML you want to Input.
file, click the "Confirm" button, as shown below.



4. Finding equipment

a. Click "Tools -> Find PROFINET Device" on the menu bar to bring up the Find PROFINET Device window, switch the communication interface to the interface actually used by the PLC, and click "Find Device", as shown in the following figure.



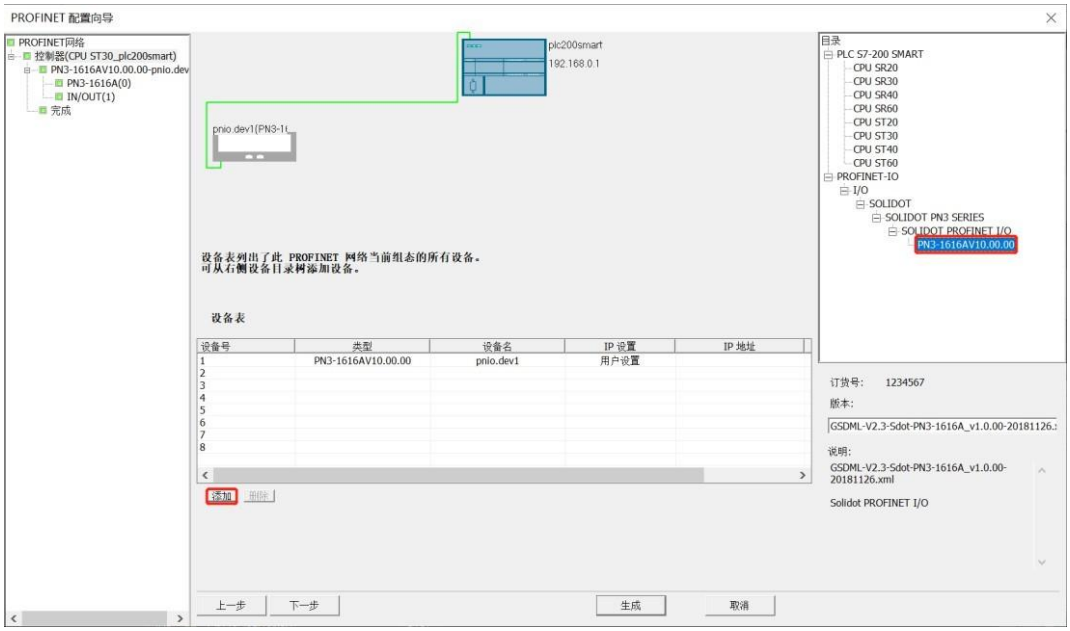
b. Click the "Edit" button to edit the module name, after editing, click the "Settings" button, as shown below.

5、Organize PROFINET network

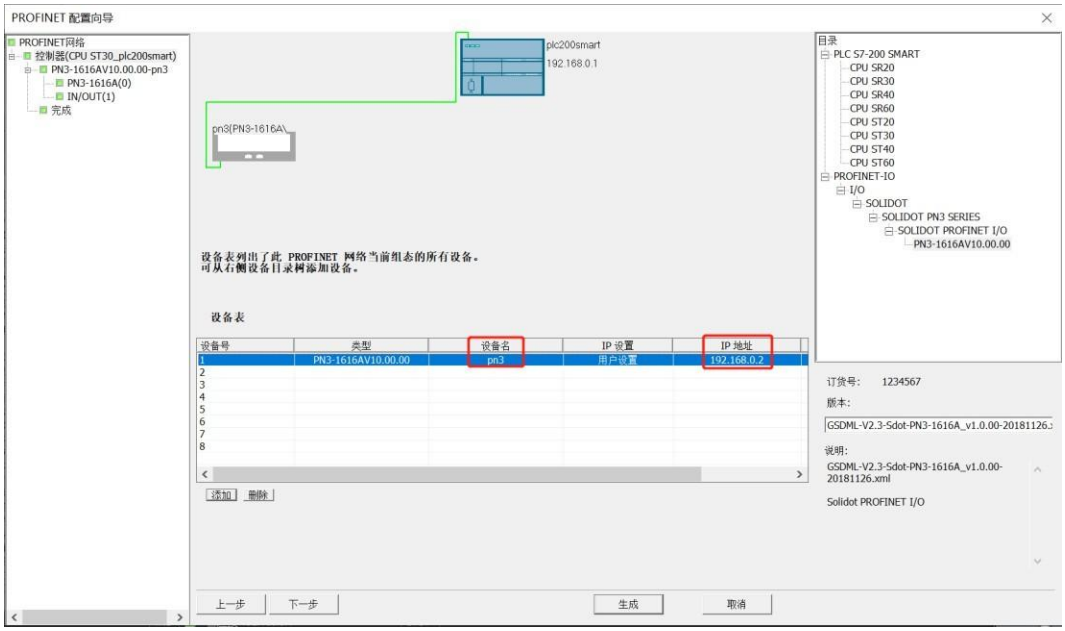
a. Click "Tools -> PROFINET" in the menu bar to open the PROFINET Configuration Wizard as shown below.

b. On the PROFINET Configuration Wizard page, select the role of the PLC as "Controller" as shown below.

c. Click Next to enter the Controller Configuration page, add a device from the device catalog tree on the right, select PN3-1616A, and click the Add button, as shown in the following figure.

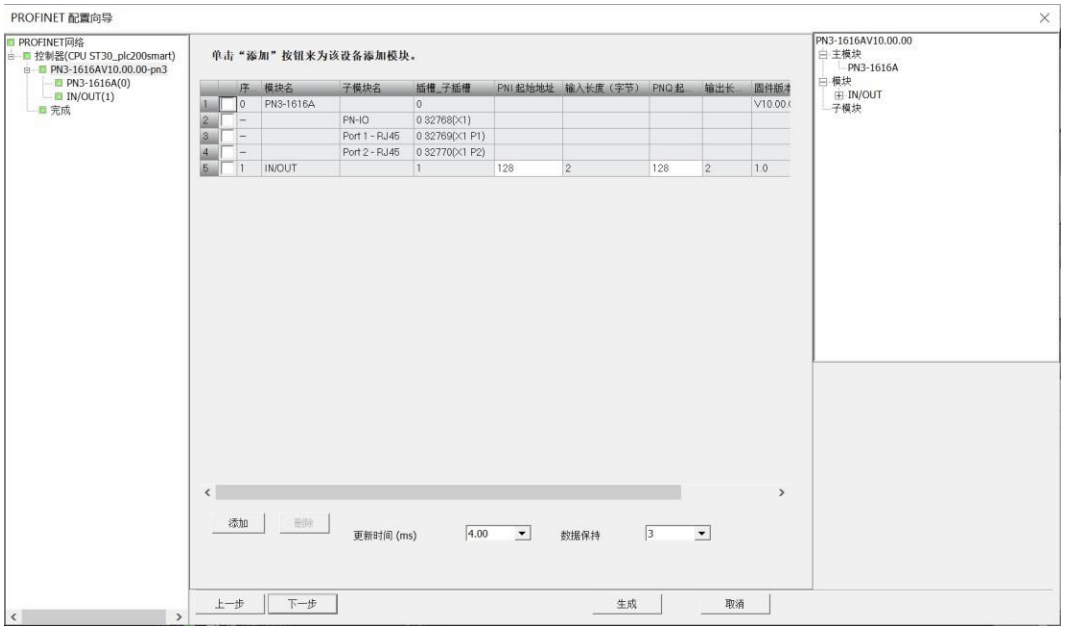


d. Double-click the input box below the device name to enter the device name, which should be the same as the name set when searching for the device; double-click the input box below the IP address to enter the IP address, and then click the "Next" button after finishing the input, as shown in the following figure. If there are other modules in the configuration, you can add and configure other modules in the same way.



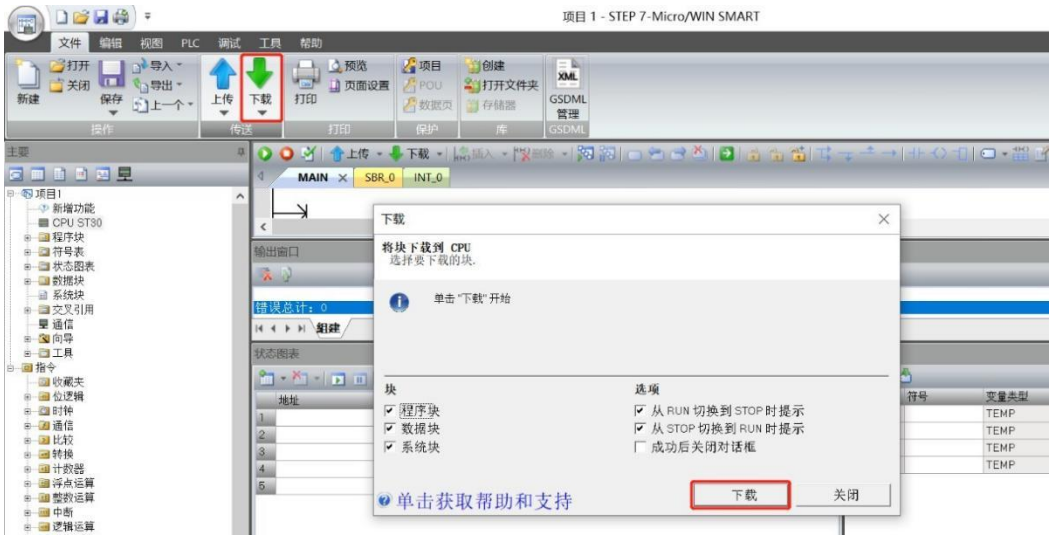
Note: The device name should be the same as the module name, and the IP address should be set in the same network segment as the PLC.

e. Click the "Generate" button, the network configuration is complete, as shown in the figure below, you can see that the starting address of the module's inputs and outputs are all 128.



6. Download program

a. Click the menu bar "File -> Download" button, the download window pops up, click the "Download" button, as shown in the figure below.

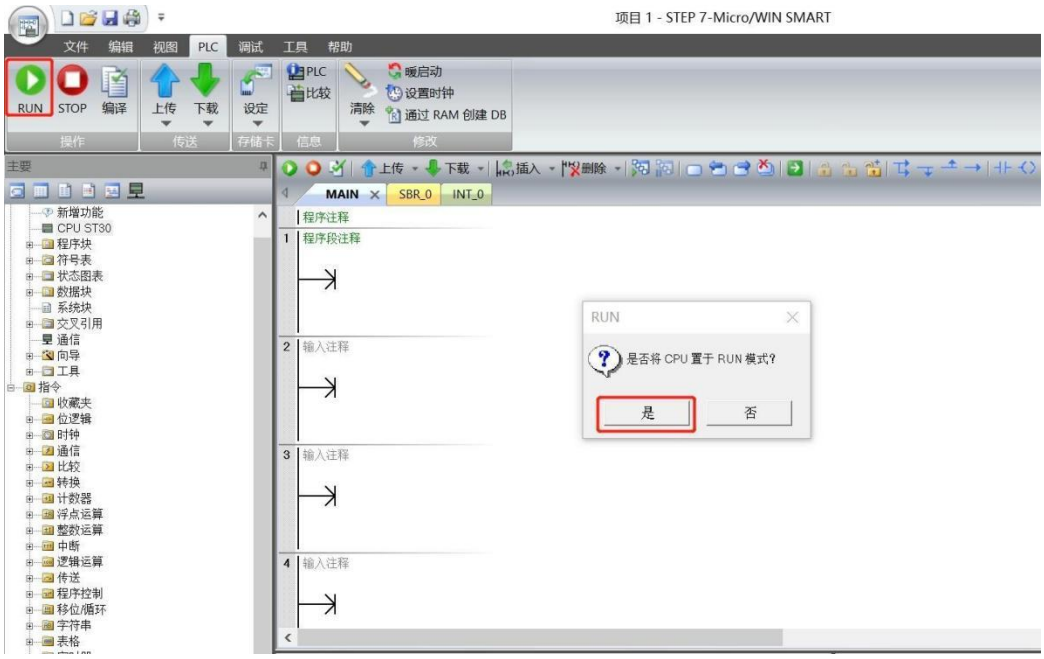


b. When the download window indicates that the download has been successfully completed, click the "Close" button.

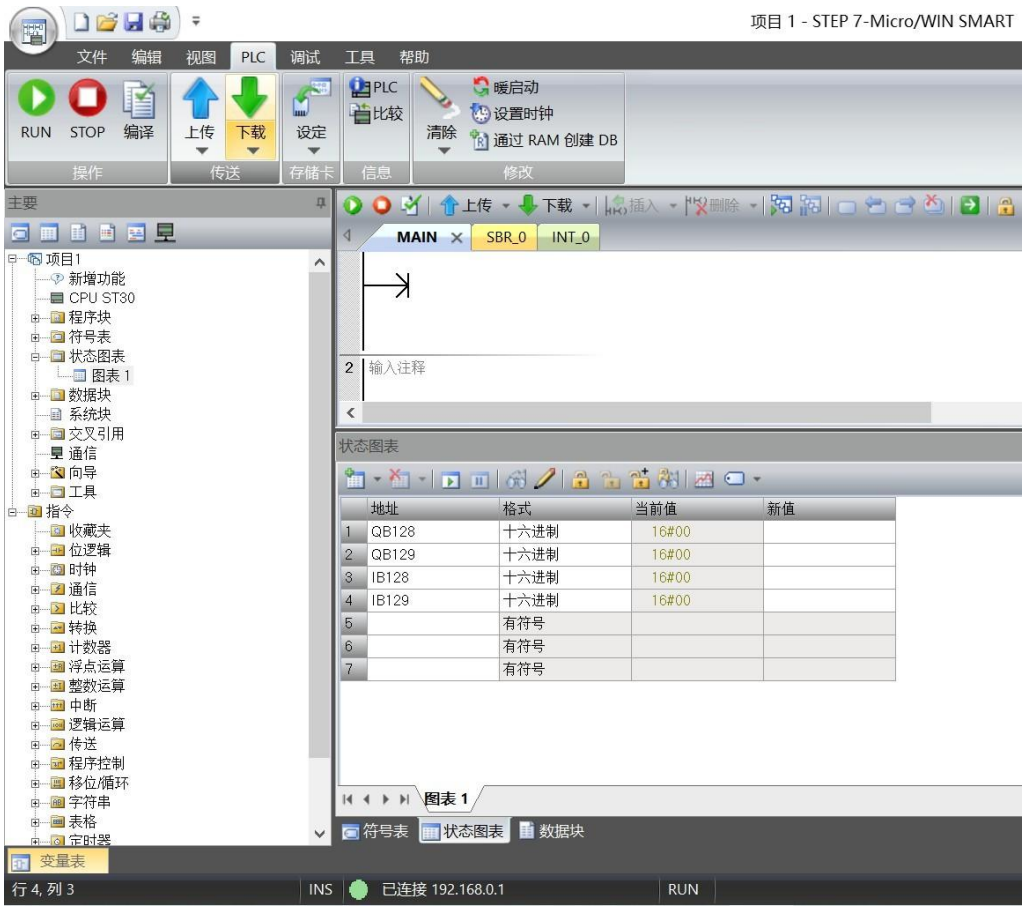
Note: After the download is complete, power the module back up for processing.

7、Functional verification

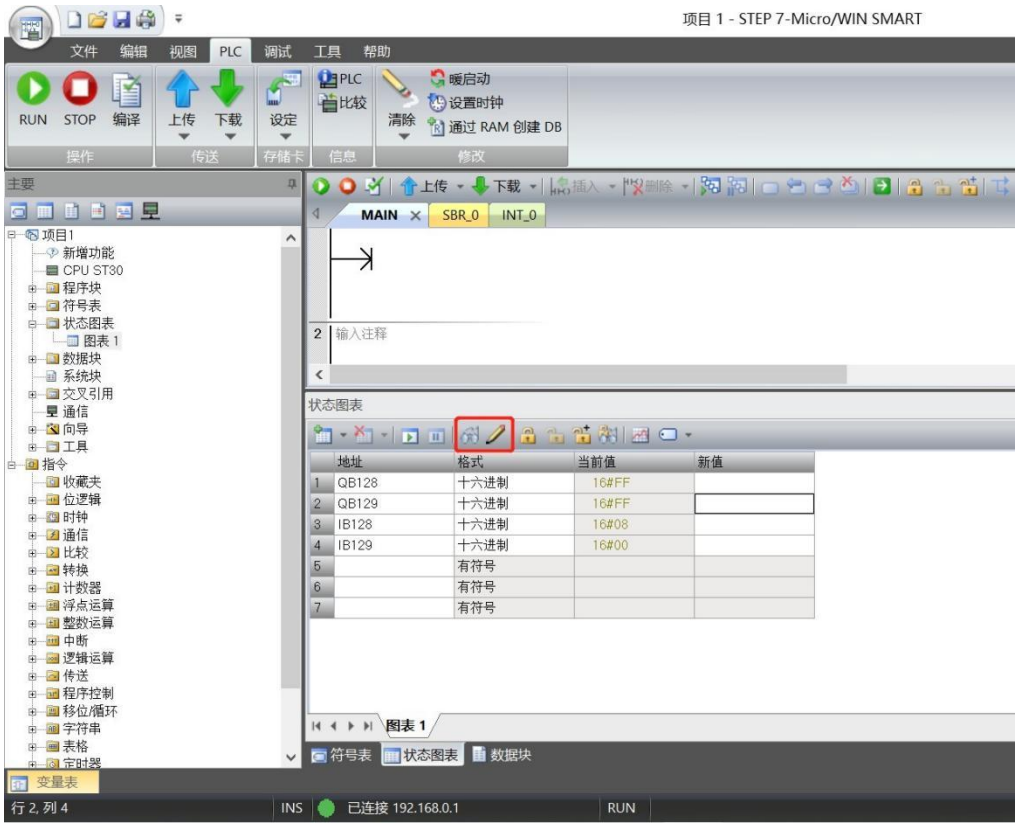
a. Click "PLC - > RUN" button on the menu bar, a confirmation window will pop up, click "Yes" to confirm, as shown in the figure below.



b. Click "Status Chart -> Chart 1" in the left navigation tree, and enter the corresponding channel address and data format in Chart 1, where you can perform forced output and input monitoring operations on IO modules.



c. In the new value input box corresponding to QB128 a n d QB129 in the output line of the status chart, you can write the output value, for example, if you write "255", the value of all 16 output channels will be set to 1, and the output channel lamps will light up. If there is a valid voltage input to the input channel of the module, the input value can be monitored in IB128, as shown in the following figure.



8 FAQ

8.1 Device not found when updating accessible devices

1. Confirm that the Boto software is correctly installed.
2. Make sure that no other software is occupying the network adapter used by the Boto software.
3. Confirm that the network cable, network card, and network port are working properly.
4. Verify that the IP address or MAC address does not conflict.

8.2 Load button is grayed out when downloading configuration

1. Verify that there are no mandatory values in the PLC.
2. Confirm that the PLC is stopped.