



User Manual 用户手册



SRX series integrated I/O module

PROFINET_RT Protocol
Remote IO Module
Distributed IO module

CATALOGUE

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1.Preface

1.1 Document Usage Instructions

This document describes the product's functional specifications, installation, operation, and settings, as well as the content related to network protocols. This document is only applicable for trained electrical automation engineers.

(1) Disclaimer

The author has conducted necessary checks on the document, but as the product evolves and upgrades, the document may contain technical parameters or editing errors. We reserve the right to make adjustments and modifications without prior notice to users.

(2) Trademark

PROFINET® is a registered trademark of the PI Association.

(3) Patent Information

The designer of this product has applied for patent protection for the product's appearance and technical implementation methods. Any attempts to copy, imitate, or reverse engineer may violate the law.

(4) Copyright

Without the author's authorization, it is prohibited to copy, distribute, or use this document.

1.2 Safety Precautions

This product is a professional equipment designed for industrial use and can only be operated by personnel with electrical operation experience. Before use, please carefully read this manual and follow the instructions to operate it. Failure to do so may result in personal injury or product damage.

This product is designed to meet the IP20 protection level standard. When using it, it needs to be installed in a distribution cabinet with dust-proof and moisture-proof functions.

1.3 Document History

Release	date	description
V1.0	2021.11.03	Initial release
V1.1	2022.03.22	Added analog module
V1.2	2024.12.30	Newly added 8DI8DO, 8RTD, 8TC specification parameters

1.4 Reference document

《IEC11631-22007 Programmable controllers –Part 2:Equipment requirements and tests》；

《IEC/TR 61158 Industrial Communication Network - Fieldbus Specification》；

《IEC61784-1 Industrial Communication Network - Industry Standards Part 1: Fieldbus Standards》；

《PNO-7.352,PROFINET IO Device Integration, Guideline forPROFINET, Version 1.0, October 2014,PROFIBUS &PROFINET International, Order Number 7.352》



2.Product Overview

2.1 Model List (Naming Rules)

The SRX-PN series of remote I/O products support the high-performance PROFINET_RT bus communication protocol. Through the digital, analog, temperature and other functions integrated in the module body, they can directly provide high-performance input and output functions without the need for other PROFINET bus couplers.

Naming rules for digital and analog modules

S R X - D 1 6 1 6 P - P N

Serial prefix	Module type	Input point/output point	Output type	Communication protocol
integrated - Prefix meaning - Super Remote IO X represents the flexibility of this module, which can currently achieve 288 combinations.	D: numeric quantity A: Analog quantity	1600: Number 16 in /0 out 3200: number 32 in /0 out 0016: digits 0 in /16 out 0032: indicates the number 0 in /32 out 0808: digits 8 in /8 out 1616: Number 16 in /16 out 2408: digital quantity 24 in /8 out 0824: digits 8 in /24 out 0600: Analog 6 input 1200: Analog 12 in 0004: Analog output 4 0008: Analog output 8 0604: Analog 6 in /4 out	P:PNP output N:NPN output Note: This character is only Quantity input in contained numbers Enable when out, simulate The volume module does not enable this Characters.	PN:PROFINET(Ethernet) EP:EtherNet/IP(Ethernet) CE:CC-Link IE FB(Ethernet) EA:EtherCAT MT:Modbus TCP(Ethernet) RTU:Modbus RTU(RS485)

How to distinguish the type of numeric input point?

- ① When the input point is 16DI, the PNP&NPN input is also supported
- ② When the input point is 8DI, only one input mode is supported, and the type is the same as that of the output point
- ③ When the input point is 24DI, 16 DI supports PNP&NPN input at the same time, and 8 DI supports only one input mode with the same type as the output point
- ④ Analog models can support both current and voltage signal types

Naming rules for mixed digital and analog modules

S R X - M 8 8 6 0 P - P N

Serial prefix	Module type	Digital input/digital output	Analog input/analog output	Numeric output type	Communication protocol
integrated - Prefix meaning - Super Remote IO X represents the flexibility of this module, which can currently achieve 288 combinations.	M: Mixed digital and analog Mixed Module	88:8DI/8DO 0F: No input /16DO F0:16DI/ None Output	60:6AI/ No output 04: No input /4AO	P:PNP output N:NPN output	PN:PROFINET(Ethernet) EP:EtherNet/IP(Ethernet) CE:CC-Link IE FB(Ethernet) EA:EtherCAT MT:Modbus TCP(Ethernet) RTU:Modbus RTU(RS485)

How to distinguish numeric input point types?

- ① When the input point is 16DI, the PNP&NPN input is also supported
- ② When the input point is 8DI, only one input mode is supported, and the type is the same as that of the digital output point

How to distinguish analog input/output types?

- AI: Analog inputs are both current and voltage mixed
AO: Analog output is current and voltage mixed type

Naming rules for the temperature acquisition module

SRX - 08RTD - PN

Serial prefix	Number of channels	Collection type	Communication protocol
integrated		RTD: thermal resistance	PN:PROFINET(Ethernet)
- Prefix meaning -	08:8 channel	TC: thermocouple	EP:EtherNet/IP(Ethernet)
Super Remote IO	16:16 channel		CE:CC-Link IE FB(Ethernet)
X represents the flexibility of this module, which can currently achieve 288 combinations.			EA:EtherCAT
			MT:Modbus TCP(Ethernet)
			RTU:Modbus RTU(RS485)

Thermistor and thermocouple hybrid module model: SRX-8RTD-8TC-**

Temperature acquisition and other functions of the mixed module naming rules

SRX - 88DP - 8RTD - PN

Serial prefix	Slot 1 Functions	Slot 2 Functions	Communication protocol
integrated	88DP:8DI/8DO,PNP input,PNP output	8RTD: 8-channel thermal resistance	PN:PROFINET(Ethernet)
- Prefix meaning -	88DN:8DI/8DO,NPN input and NPN output	8TC: 8-channel thermocouple	EP:EtherNet/IP(Ethernet)
Super Remote IO	16DI: indicates the 16DI and PNP&NPN input		CE:CC-Link IE FB(Ethernet)
X represents the flexibility of this module, which can currently achieve 288 combinations.	16DOP:16DO,PNP output		EA:EtherCAT
	16DON:16DO,NPN output		MT:Modbus TCP(Ethernet)
	6AI/6AO, current and voltage hybrid input		RTU:Modbus RTU(RS485)
	4AO:4AO, mixed current and voltage output		

class	number of order	Specification description
Digital quantity input / output	SRX-D0808P-PN	Supports PROFINET RT protocol, dual network ports, 8DI_PNP, 8DO_PNP, transistor, 24VDC, 0.5A
	SRX-D0808N-PN	Supports PROFINET RT protocol, dual network ports, 8DI_NPN, 8DO_NPN, transistor, 24VDC, 0.5A
	SRX-D1616P-PN	Supports PROFINET RT protocol, dual network ports, 16DI_PNP&NPN, 16DO_PNP, transistor, 24VDC, 0.5A
	SRX-D1616N-PN	Supports PROFINET RT protocol, dual network ports, 16DI_PNP&NPN, 16DO_NPN, transistor, 24VDC, 0.5A
	SRX-D2408P-PN	Supports PROFINET RT protocol, dual network ports, 24DI_PNP, 8DO_PNP, transistor, 24VDC, 0.5A
	SRX-D2408N-PN	Supports PROFINET RT protocol, dual network ports, 24DI_NPN, 8DO_NPN, transistor, 24VDC, 0.5A
	SRX-D0824P-PN	Supports PROFINET RT protocol, dual network ports, 8DI_PNP, 24DO_PNP, transistor, 24VDC, 0.5A
	SRX-D0824N-PN	Supports PROFINET RT protocol, dual network ports, 8DI_NPN, 24DO_NPN, transistor, 24VDC, 0.5A
Digital input	SRX-D1600-PN	Supports PROFINET RT protocol, dual network ports, 16DI_PNP&NPN, 24VDC
	SRX-D3200-PN	Supports PROFINET RT protocol, dual network ports, 32DI_PNP&NPN, 24VDC
Digital output	SRX-D0016P-PN	Supports PROFINET RT protocol, dual network ports, 16DO_PNP, transistor, 24VDC, 0.5A
	SRX-D0016N-PN	Supports PROFINET RT protocol, dual network ports, 16DO_NPN, transistor, 24VDC, 0.5A
	SRX-D0032P-PN	Supports PROFINET RT protocol, dual network ports, 32DO_PNP, transistor, 24VDC, 0.5A
	SRX-D0032N-PN	Supports PROFINET RT protocol, dual network ports, 32DO_NPN, transistor, 24VDC, 0.5A
analog quantity	SRX-A0600-PN	Supports PROFINET RT protocol, dual network ports, 6AI, U/I, 16bit, 24VDC
	SRX-A1200-PN	Supports PROFINET RT protocol, dual network ports, 12AI, U/I, 16bit, 24VDC
	SRX-A0004-PN	Supports PROFINET RT protocol, dual network ports, 4AO, U/I, 16bit, 24VDC
	SRX-A0008-PN	Supports PROFINET RT protocol, dual network ports, 8AO, U/I, 16bit, 24VDC
	SRX-A0604-PN	Supports PROFINET RT protocol, dual network ports, 6AI, 4AO, U/I, 16bit, 24VDC
Temperature collection	SRX-08RTD-PN	Supports PROFINET RT protocol, dual network ports, 8RTD (thermoresistor), 16bit, 24VDC, three-wire/two-wire
	SRX-16RTD-PN	Supports PROFINET RT protocol, dual network ports, 16RTD (thermoresistor), 16bit, 24VDC, three-wire/two-wire
	SRX-08TC-PN	Supports PROFINET RT protocol, dual network ports, 8TC (thermocouple), 16bit, 24VDC, two-wire
	SRX-16TC-PN	Supports PROFINET RT protocol, dual network ports, 16TC (thermocouple), 16bit, 24VDC, two-wire
	SRX-8RTD-8TC-PN	Supports PROFINET RT protocol, dual network ports, 8RTD (thermoresistor), 8TC (thermocouple), 16bit, 24VDC
Hybrid module	SRX-M8860P-PN	Supports PROFINET RT protocol, dual network ports, 8DI8DO_PNP, transistor, 0.5A, 6AI, U/I, 16bit, 24VDC Supports PROFINET RT protocol, dual network ports, 8DI8DO_NPN, transistors, 0.5A, 6AI, U/I, 16bit, 24VDC
	SRX-M8860N-PN	Supports PROFINET RT protocol, dual network ports, 8DI8DO_PNP, transistors, 0.5A, 4AO, U/I, 16bit, 24VDC

	SRX-M8804P-PN	Supports PROFINET RT protocol, dual network ports, 8DI8DO_NPN, transistors, 0.5A, 4AO, U/I, 16bit, 24VDC
	SRX-M8804N-PN	Supports PROFINET RT protocol, dual network ports, 16DI_PNP&NPN, 6AI, U/I, 16bit, 24VDC
	SRX-MF060-PN	Supports PROFINET RT protocol, dual network ports, 16DI, 4AO, U/I, 16bit, 24VDC
	SRX-MF004-PN	Supports PROFINET RT protocol, dual network ports, 8DI_PNP, 8DO_PNP, transistor, 24VDC, 0.5A
	SRX-M0F60P-PN	Supports PROFINET RT protocol, dual network ports, 16DO_PNP, transistor, 0.5A, 6AI, U/I, 16bit, 24VDC
	SRX-M0F60N-PN	Supports PROFINET RT protocol, dual network ports, 16DO_NPN, transistor, 0.5A, 6AI, U/I, 16bit, 24VDC
	SRX-M0F04P-PN	Supports PROFINET RT protocol, dual network ports, 16DO_PNP, transistor, 0.5A, 4AO, U/I, 16bit, 24VDC
	SRX-M0F04N-PN	Supports PROFINET RT protocol, dual network ports, 16DO_NPN, transistor, 0.5A, 4AO, U/I, 16bit, 24VDC
	SRX-88DP-8RTD-PN	Supports PROFINET RT protocol, dual network ports, 8DI8DO_PNP, 0.5A, 8RTD (thermal resistance), 16bit, 24VDC
	SRX-88DN-8RTD-PN	Supports PROFINET RT protocol, dual network ports, 8DI8DO_NPN, 0.5A, 8RTD (thermal resistance), 16bit, 24VDC
	SRX-88DP-8TC-PN	Supports PROFINET RT protocol, dual network ports, 8DI8DO_PNP, 0.5A, 8TC (thermal couple), 16bit, 24VDC
	SRX-88DN-8TC-PN	Supports PROFINET RT protocol, dual network ports, 8DI8DO_NPN, 0.5A, 8TC (thermal couple), 16bit, 24VDC
	SRX-16DI-8RTD-PN	Supports PROFINET RT protocol, dual network ports, 16DI_PNP&NPN, 8RTD (thermal resistance), 16bit, 24VDC
	SRX-16DI-8TC-PN	Supports PROFINET RT protocol, dual network ports, 16DI_PNP&NPN, 8TC (thermal couple), 16bit, 24VDC
	SRX-16DOP-8RTD-PN	Supports PROFINET RT protocol, dual network ports, 16DO_PNP, 0.5A, 8RTD (thermal resistance), 16bit, 24VDC
	SRX-16DON-8RTD-PN	Supports PROFINET RT protocol, dual network ports, 16DO_NPN, 0.5A, 8RTD (thermal resistance), 16bit, 24VDC
	SRX-16DOP-8TC-PN	Supports PROFINET RT protocol, dual network ports, 16DO_PNP, transistor, 0.5A, 8TC (thermal couple), 16bit, 24VDC
	SRX-16DON-8TC-PN	Supports PROFINET RT protocol, dual network ports, 16DO_NPN, transistor, 0.5A, 8TC (thermal couple), 16bit, 24VDC
	SRX-6AI-8RTD-PN	Supports PROFINET RT protocol, dual network ports, 6AI, U/I, 8RTD (thermal resistance), 16bit, 24VDC
	SRX-4AO-8RTD-PN	Supports PROFINET RT protocol, dual network ports, 4AO, U/I, 8RTD (thermal resistance), 16bit, 16bit, 24VDC
	SRX-6AI-8TC-PN	Supports PROFINET RT protocol, dual network ports, 6AI, U/I, 8TC (thermal couple), 16bit, 24VDC
	SRX-4AO-8TC-PN	Supports PROFINET RT protocol, dual network ports, 4AO, U/I, 8TC (thermal couple), 16bit, 24VDC

2.2 SRX-PN specification parameters

2.2.1 16DI specification

The 16-point digital input (DI) specification parameters are shown in Table 2.

order number	project	specifications
1	number of channels	16
2	access type	2 bytes
3	Ton	Type. 18uS / Max. 35uS
4	Toff	Type. 135uS / Max. 250uS
5	Enter the type	Source or leakage type
6	Enter the connector	Plug-in connector
7	Rated input voltage	24 V DC (-15 %/+20 %), (IEC 61131-2, type 2)
8	The "0" signal level	-3...+5 V (IEC 61131-2, type 2)
9	The "1" signal level	15...30 V (IEC 61131-2, type 2)
10	input currenton	Typ. 10mA/Ch (IEC 61131-2, type 2)
11	Electrical isolation	Input / control area: 500V DC

Table 2 Digital quantity input specifications

2.2.2 16 DQ specifications

The 16-point digital output (DQ) specification parameters are shown in Table 3.

order number	project	specifications
1	number of channels	16
2	access type	2 bytes
3	Ton	Type. 12uS / Max. 25uS
4	Toff	Type. 10 mS / Max. 20 mS (empty load)
5	Output type	Source or leakage type
6	Output connector	Plug-in connector
7	loadtype	Pure resistance, sensibility, the light bulb
8	Rated output voltage	24 V DC (-15 %/+20 %), (IEC 61131-2, type 2)
9	maximum output current	Max. 0.5 A / Ch, independent short-circuit protection for each channel
10	Rated total output current	8A

Table 3 Digital quantity output specifications

2.2.3 8DI / 8 DQ specifications

Number 8 input / 8 output (DI / DQ) Specification parameters are shown in 4.

input specification		
order number	project	specifications
1	number of channels	16
2	access type	2 bytes
3	Ton	Type. 18uS / Max. 35uS
4	Toff	Type. 135uS / Max. 250uS
5	Enter the type	Source or leakage type
6	Enter the connector	Plug-in connector
7	Rated input voltage	24 V DC (-15 %/+20 %), (IEC 61131-2, type 2)
8	The "0" signal level	-3...+5 V (IEC 61131-2, type 2)
9	The "1" signal level	15...30 V (IEC 61131-2, type 2)
10	input currenton	Typ. 10mA/Ch (IEC 61131-2, type 2)
11	Electrical isolation	Input / control area: 500V DC
Output specifications		
order number	project	specifications
1	number of channels	8
2	access type	2 bytes
3	Ton	Type. 12uS / Max. 25uS
4	Toff	Type. 10 mS / Max. 20 mS (empty load)
5	Output type	Source or leakage type
6	Output connector	Plug-in connector
7	loadtype	Pure resistance, sensibility, the light bulb
8	Rated output voltage	24 V DC (-15 %/+20 %), (IEC 61131-2, type 2)
9	maximum output current	Max. 0.5 A / Ch, independent short-circuit protection for each channel
10	Rated total output current	8A

Table 4 Digital quantity output specifications

2.2.4 6AI specifications

The 6-channel analog volume input (AI) specification parameters are shown in Table 5.

order number	project	specifications
1	number of channels	6
2	access type	12 bytes
3	Enter the type	Voltage type / current type
4	resolution ratio	16 bits (with symbols)
5	Sampling range	0~10V,0~20mA,4~20mA
6	Enter the connector	Plug-in connector
7	input impedance	Current sampling: 124.5 Ω , voltage sampling: 10 M Ω
8	sampling error	< $\pm$ 0.3% (full range)
9	sample rate	Greater than 1 k SPS / ch
10	Software filtering	Available software configuration (TIA Botu)

Table 5 Analog input (AI) specifications

2.2.5 4 AQ specification

The 4-channel analog output (AQ) specification parameters are shown in Table 6.

order number	project	specifications
1	number of channels	4
2	access type	8 bytes
3	Enter the type	Voltage type / current type
4	resolution ratio	16 bits (with symbols)
5	Sampling range	0~10V,0~20mA,4~20mA
6	Output connector	Plug-in connector
7	load	The current output is 500 Ω , and the voltage output is 1 K Ω
8	sampling error	< $\pm$ 0.3% (full range)
9	conversion rate	Greater than 1 k SPS / ch
10	Software filtering	Available software configuration (TIA Botu)

Table 6 Analog output (AQ) specifications

2.2.6 8 RTD specification

The channel thermal resistance input (RTD) specification parameters are shown in Table 7.

order number	project	specifications
1	number of channels	8 CH (two-wire system or three-wire system)
2	access type	16 Bytes or 8 words
3	Enter the type	PT100,Cu50
4	temperature range	-200°C ~ + 850°C (PT sensor), -60°C ~ + 250°C (Ni sensor)
5	presentation of information	0.1°C per channel bit
6	sampling error	Less than $\pm 0.3\%$ (full range)
7	sample rate	2ms
8	Filter time	Configuration

Table 7 Thermal resistance input (RTD) specifications

2.2.7 8TC specification

The 8-channel thermocouple input (TC) specification parameters are shown in Table 8.

order number	project	specifications
1	number of channels	8 CH (two-wire system)
2	access type	16 Bytes or 8 words
3	Enter the type	Type J / K / E / T / S / R / B / N thermocouples
4	presentation of information	0.1°C per channel bit
5	sampling error	Less than $\pm 0.3\%$ (full range)
6	sample rate	2ms
7	Filter time	Configuration
8	survey measure pattern Around °C	Type K form-270 to 1370°C
9		S type – 50 to 1760°C
10		R type-50 to 1760°C
11		Type B forms ranged from 0 to 1820°C
12		Type J-210 to 1200°C
13		Type N-270 to 1300°C
14		Type E – 270 to 1,000°C
15		T type-270 to 400°C
16	data format	16-bit signed integer (Integer)

Table 8 Thermal resistance input (RTD) specifications

2.2.8 PROFINET Communication Specification

The PROFINET communication specification parameters are shown in Table 9.

Order number	project	specifications
1	Agreement	PROFINET_ RT (IEC 61158 Type3)
2	Transmission rate	10/100 Mbaud, automatically detects transmission speed
3	Bus interface Postal Address	Equipped with dual RJ45 switches (industrial Ethernet compliant with IEEE 802.xx standard, featuring auto negotiation and auto crossover functions)
4	Transmission cable	The only globally unique MAC address
6	PROFINET features	CAT5e shielded cable
7	Port protection	Media redundancy protocol (MRP), shared devices, synchronous communication
8	Agreement	10/100 Mbaud, automatically detects transmission speed

Table 9 PROFINET Communication Specifications

2.2.9 Power supply specification

The module power supply is divided into three independent parts: the control part, the digital input part, and the MOSFET digital output part, which are isolated from each other. Therefore, three separate power supplies need to be provided for each part of the circuit or they can be directly connected in parallel.

The control voltage uses 24V DC (-15% / +20%), with a maximum current consumption of 0.5A, and has polarity reverse protection; the electrical isolation withstand voltage between it and other I/O components is 500V DC.

② The input voltage for digital quantity is 24V DC (-15% +/20%), with a maximum current consumption of 16*10mA; the electrical isolation withstand voltage between this part and other I/O components is 500V DC.

③ The digital output section of the MOSFET uses 24V DC (-15% +/20%), with a maximum current consumption of 16 * 0.5A, and has independent overcurrent protection for each channel. The electrical isolation withstand voltage between this section and other I/O sections is 500V DC.



3. Structure description

3.1 Shell

The SRX series modules are made of industrial plastic. Their dimensions are: 33 * 122.5 * 90.5 (W/H/D, mm).

The protection level is IP20, suitable for installation inside the cabinet.

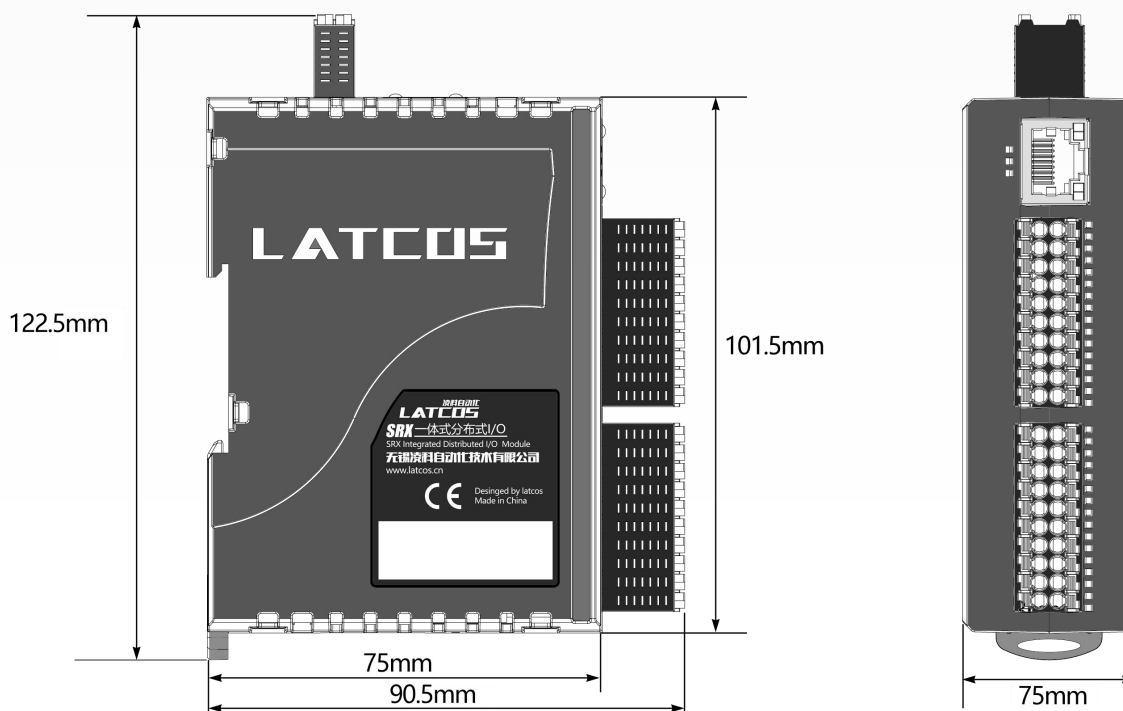


Figure 1 Module size diagram

3.2 Installation Method

The design of the SRX series modules adopts natural convection cooling. At least 25 mm of space must be left above and below to facilitate normal heat dissipation. The distance between the front panel and the back panel should also be maintained at least 75 mm.

The modules can be easily installed on a standard DIN rail, with the rail specification being TS35/7.5, as shown in Figure 2.

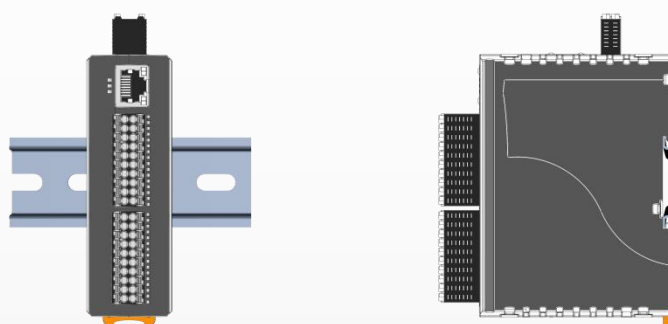


Figure 2 SRX series installation diagram



4. Hardware description

4.1 SRX-PN Structure Diagram 16 Points

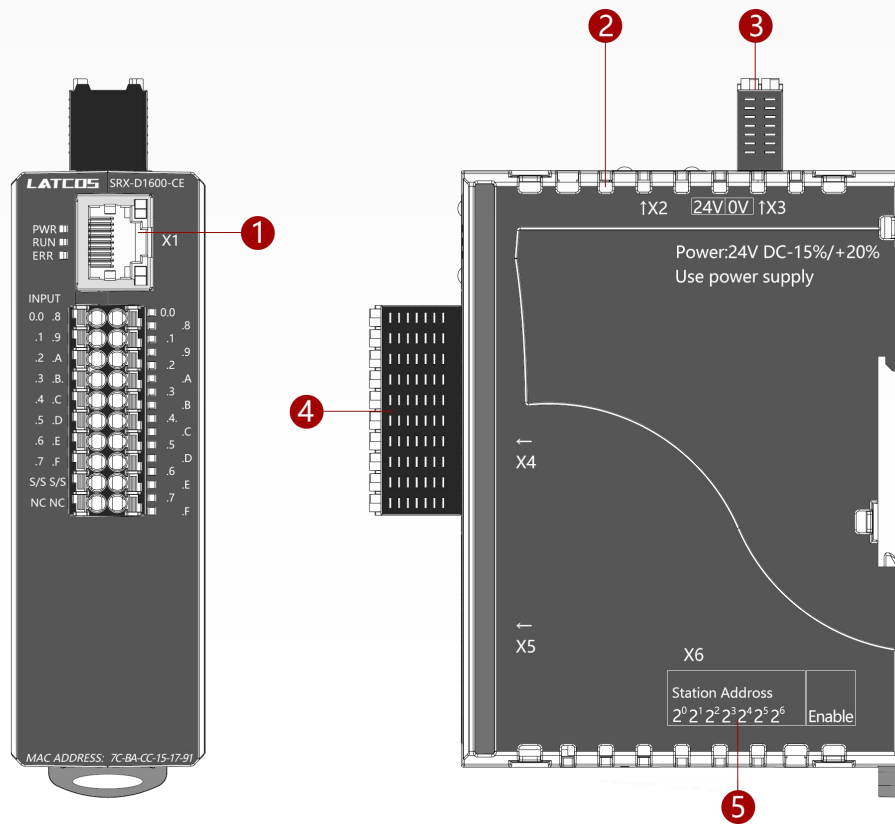


Figure 3 Module Wiring Diagram

order number	characteristic	The interface name	function definition
①	X1	RJ45 port	Ethernet interface, connecting to PLC or PC end
②	X2	RJ45 port	Ethernet interface, connecting to PLC or PC end
③	X3	24V power input terminal	Module power input
④	X4	Input or output terminal	Digital signal points
⑤	X6	Address code switch	Switch for setting the last bit of the slave station IP address

4.2 SRX-PN Structure Diagram 32 Points

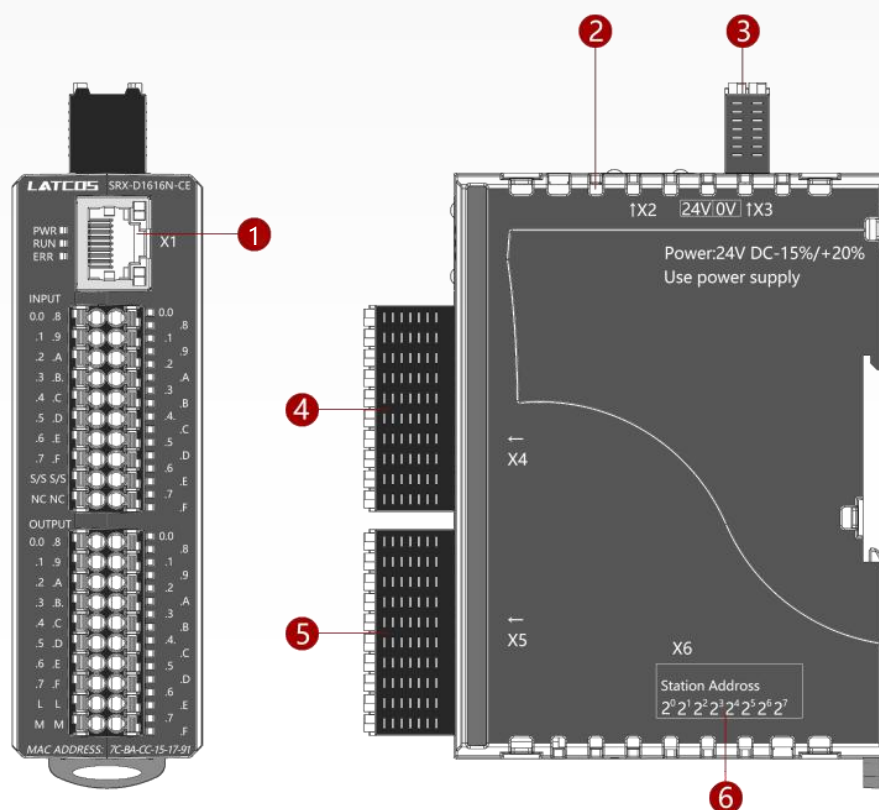


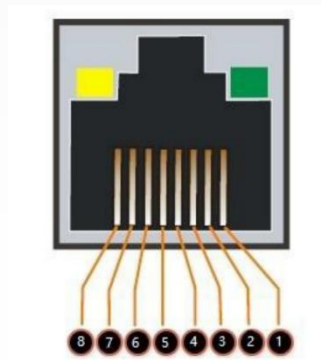
Figure 4 Module Wiring Diagram

order number	characteristic	The interface name	function definition
①	X1	RJ45 port	Ethernet interface, connecting to PLC or PC end
②	X2	RJ45 port	Ethernet interface, connecting to PLC or PC end
③	X3	24V power input terminal	Module power input
④	X4	Input or output terminal	Digital signal points
⑤	X5	Input or output terminal	Digital signal points
⑥	X6	Address code switch	Switch for setting the last digit of the slave station IP address

4.3 Communication interface

The module uses a physical interface with two RJ45 sockets for communication, and it has the function of a switch by itself. They are respectively identified as X1P1 and X1P2.

Table 6 PROFINET Communication Interface



pin	signal	description
1	TD+	Data transmission positive terminal
2	TD-	Data transmission negative terminal
3	RD+	Data reception positive terminal
4	NC	Unused
5	NC	Unused
6	RX-	Data reception negative terminal
7	NC	Unused
8	NC	Unused

4.4 LED indication

The LED indicators of the module are divided into three parts: system status indicator, I/O status indicator, and RJ45 link indicator.

4.4.1 System status indicates the working condition of the system.

PWR(green)	ERR(red)	RUN(green)	Explanation
○	○	○	Power supply abnormality
●	●	○	Communication interface failure
●	○	●	The module has successfully entered the operating (operate) state and successfully established a cyclic data exchange with the main station.

Table 7 System Status Indicators ● Indicates that the green light remains constantly on

● Indicates that the red light remains constantly on ○ Indicates that it is not lit

4.4.2 I/O Status Indication

The digital input/output ports use green LEDs to indicate the status of the corresponding channels. When the light is on, it indicates that the logic state of the input/output port is "1", and when the light is off, it indicates that the logic state of the input/output port is "0".

4.4.3 RJ45 indicator light

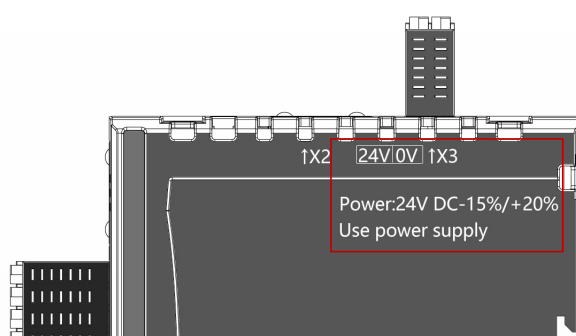
Under normal circumstances, the RJ45 port indicator lights should be the green light constantly on and the yellow light flashing. If this is not the case, it indicates that a fault has occurred. If the green light is not on, it means there is a connection fault with the RJ45 port that is connected to a Hub or switch; if the yellow light is not on, it might be a fault with the module itself.

As shown in Table 7: RJ45 Indicator Light Explanation

LINK1/LINK2	ACT1/ACT2	Explanation
○	Not related	The RJ45 port is not connected to a network cable or the connection is poor.
●	Not related	The RJ45 port has correctly identified the Ethernet network.
Not related	○	There is no data exchange at the RJ45 port.
Not related	●	There is data exchange at the RJ45 port.

Table 8 RJ45 Indicator Light Explanation

4.5 Communication power supply

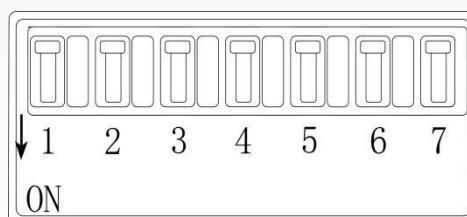


24V	24V, positive terminal of the DC power supply
0V	0V, negative terminal of the DC power supply

Table 9 Power Connection Terminals

The control voltage uses 24V DC (-15% / +20%), with a maximum current consumption of 0.5A, and has polarity reverse protection; the electrical isolation withstand voltage between it and other I/O components is 500V DC.

4.6 Dial switch



Number	Explanation	ON	OFF
1	Address Digits	1	0
2		2	0
3		4	0
4		8	0
5		16	0
6		32	0
7	Dialing code function enabled	Enable dialing code setting module address	Disable dialing code setting module address and use software for setting

Table 10 DIP Switch Function

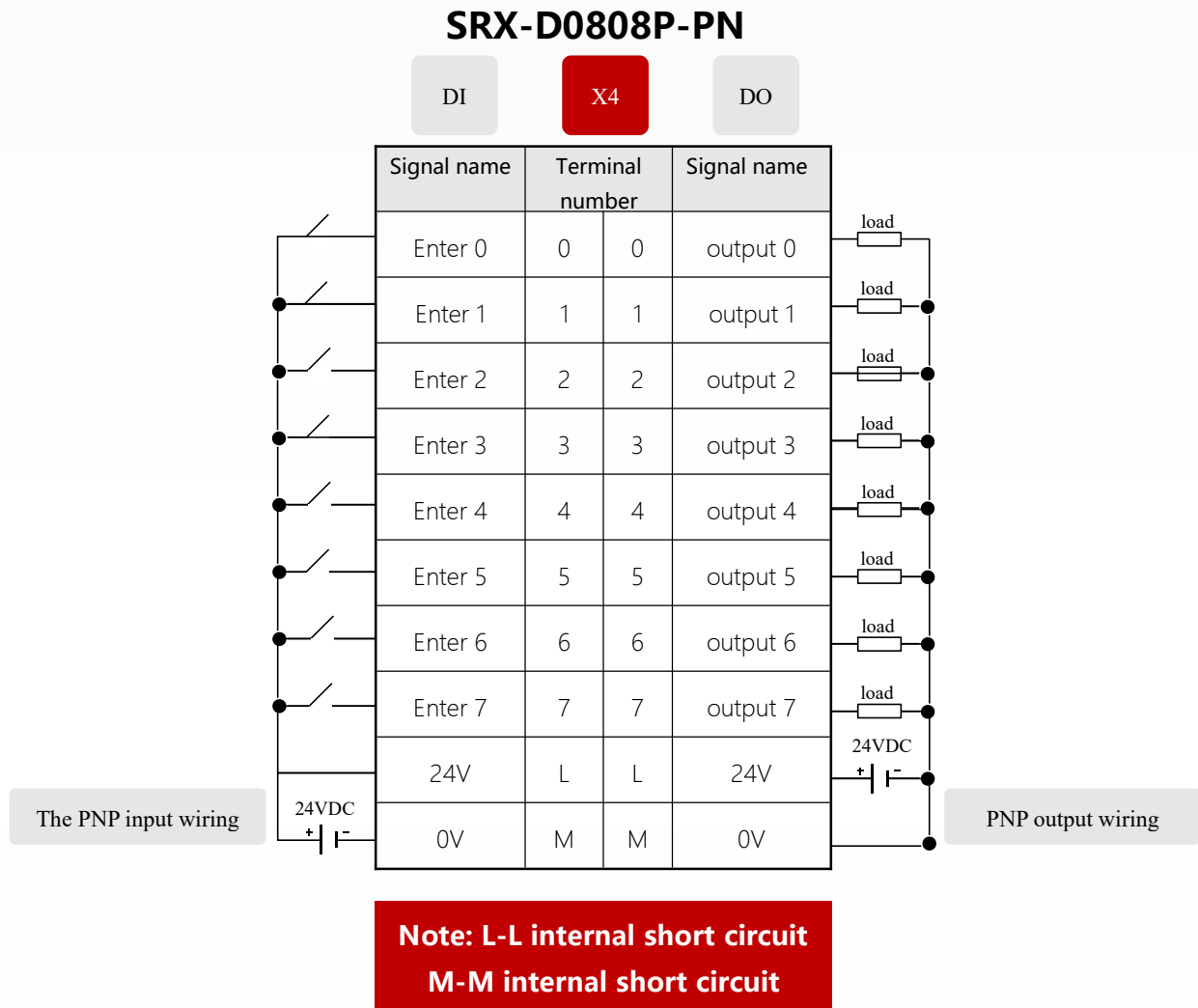
Note:

- a. The module jumper settings are preset at the factory and are based on the software configuration. Specifically, the jumper on pin 7 is in the OFF position.
- b. When using the jumper switch to set the module address,
 - ① First, set the jumper on pin 7 to the ON position;
 - ② Then, set the jumpers on pins 1 to 6 to the desired position. The prefix in the software configuration is a fixed prefix (SRX-PN), and the cumulative value of the jumpers is the suffix of the module (_*).

For example: When the 1st, 2nd and 7th positions of the dip switch are set to the "ON" state, at this time, the sequence number 7 is in the "ON" state. The device name of the dip switch module is SRX-PN_3, where 3 represents the address set by the dip switch, that is: $1 + 2 = 3$.

4.7 Module terminal wiring diagram

4.7.1 Wiring diagram of the digital quantity module

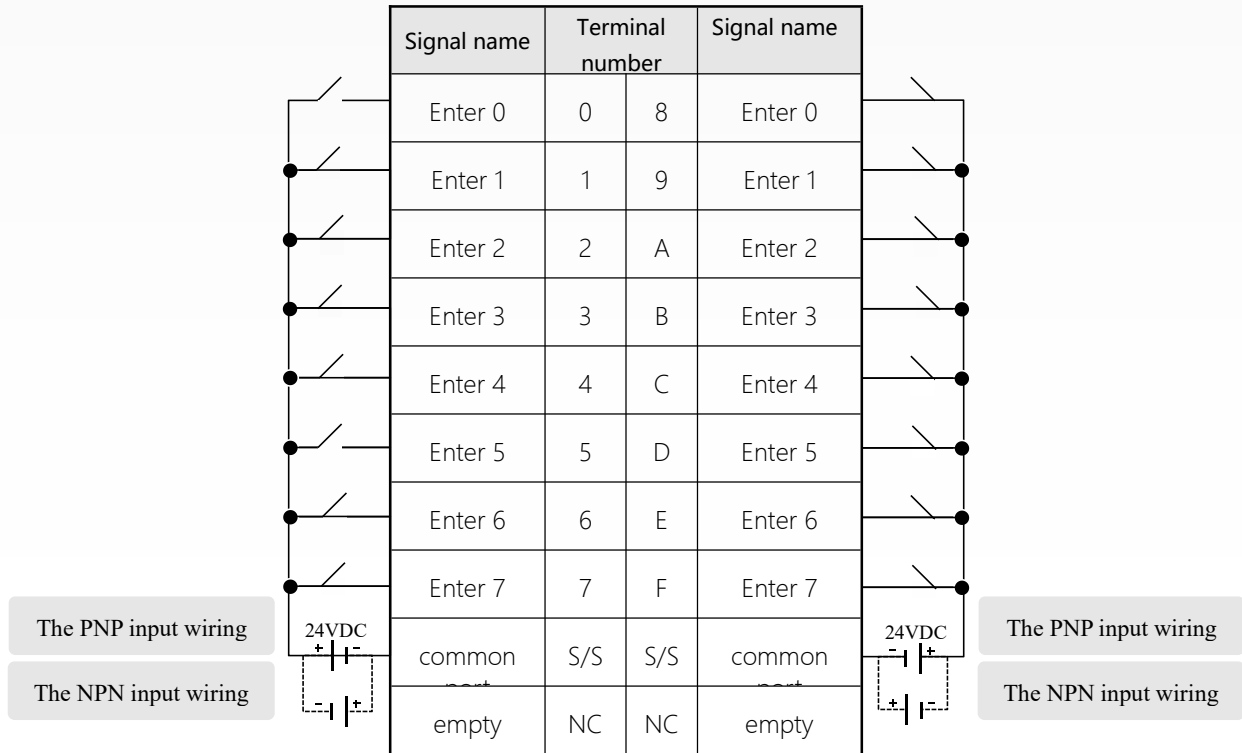


SRX-D1600-PN

DI

X4

DI



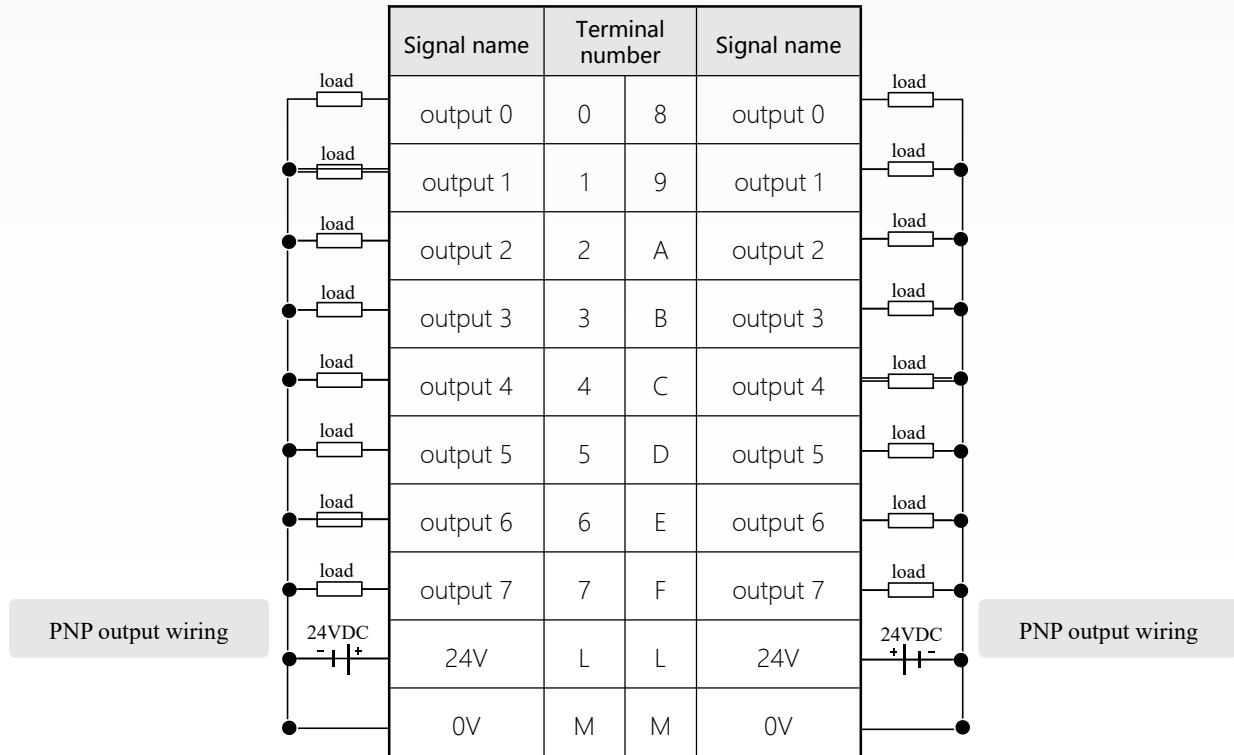
Note: L-L internal short circuit
M-M internal short circuit

SRX-D0016P-PN

DO

X4

DO



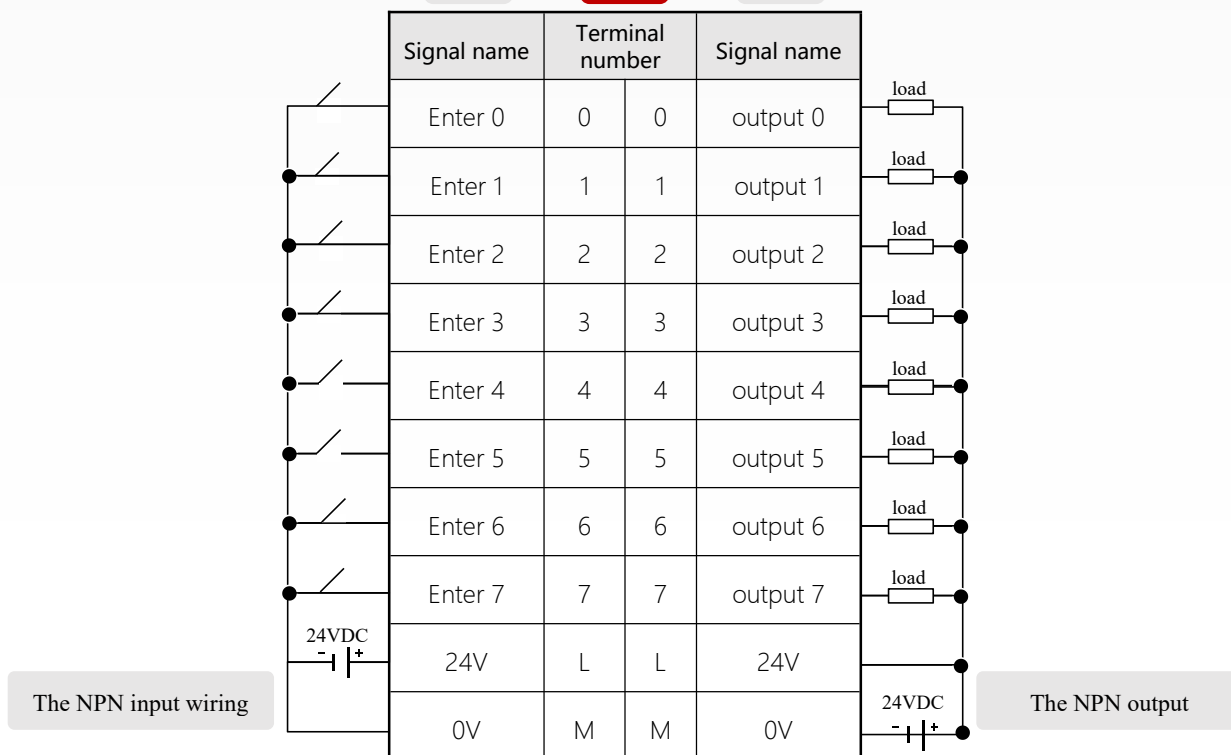
Note: L-L internal short circuit
M-M internal short circuit

SRX-D0808N-PN

DI

X4

DO



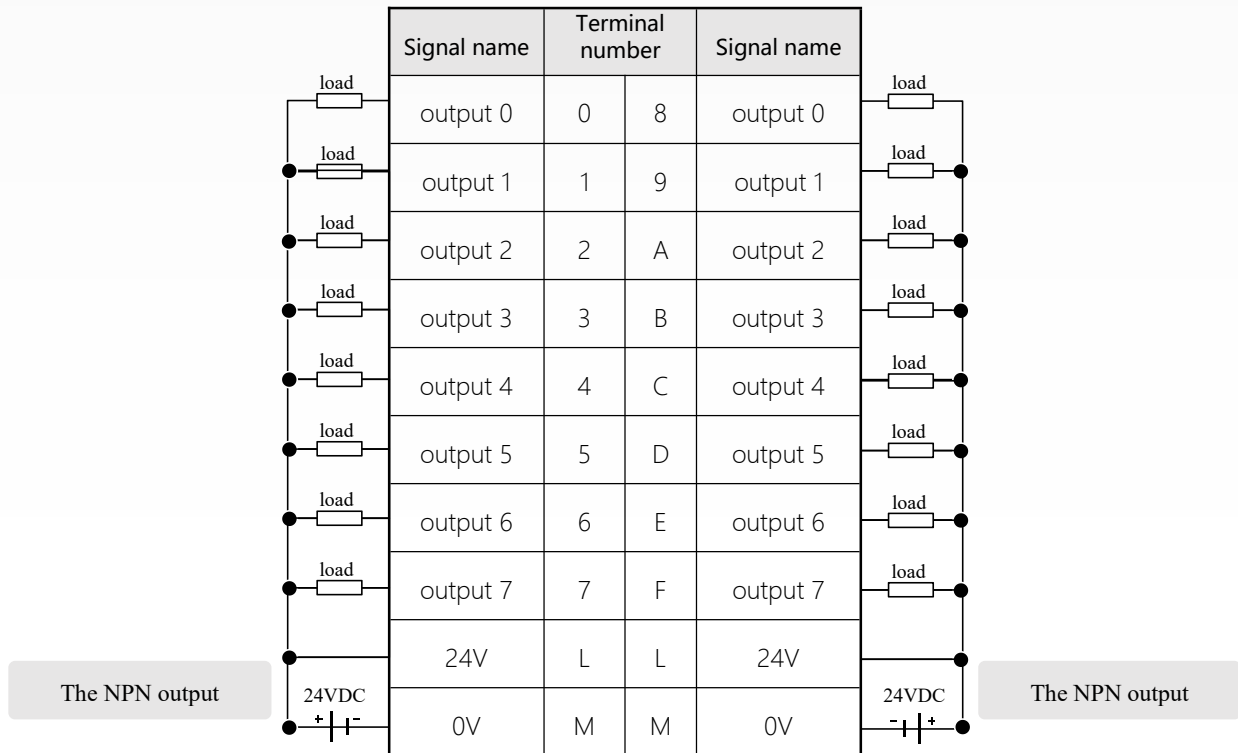
Note: L-L internal short circuit
M-M internal short circuit

SRX-D0016N-PN

DO

X4

DO



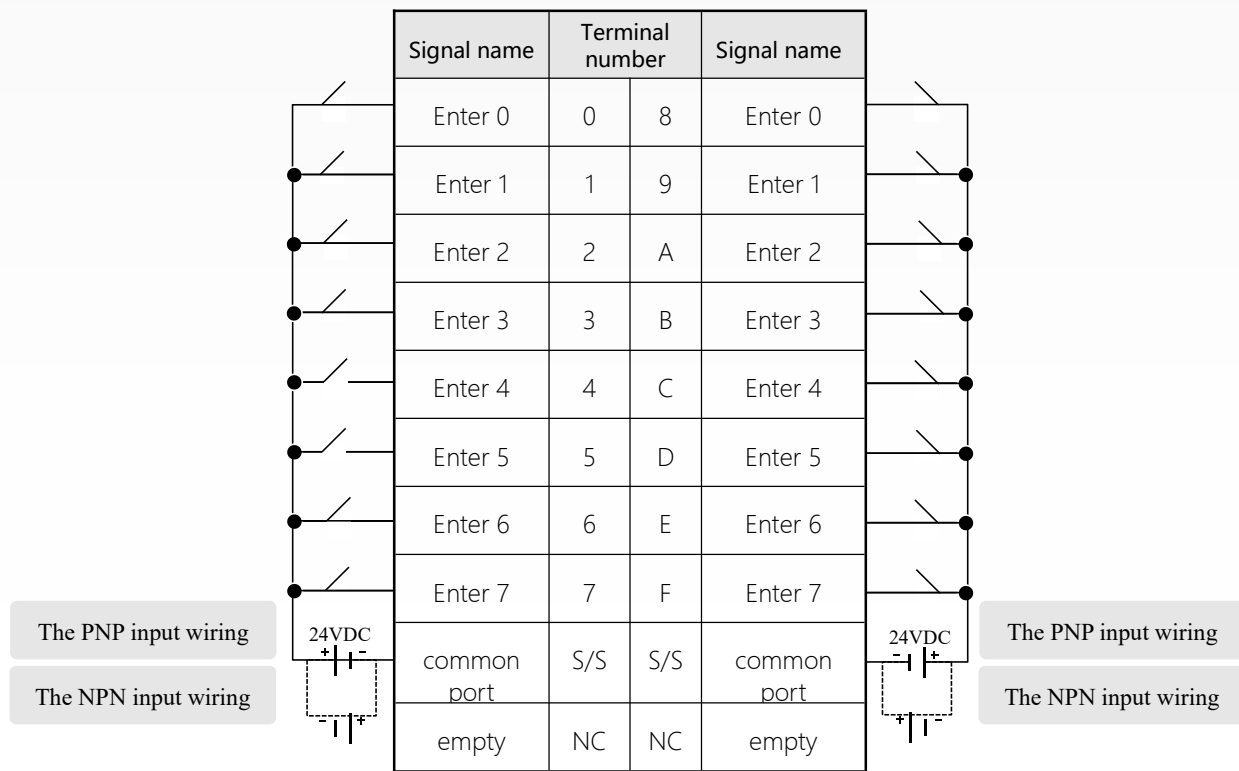
Note: L-L internal short circuit
M-M internal short circuit

SRX-D3200-PN

DI

X4

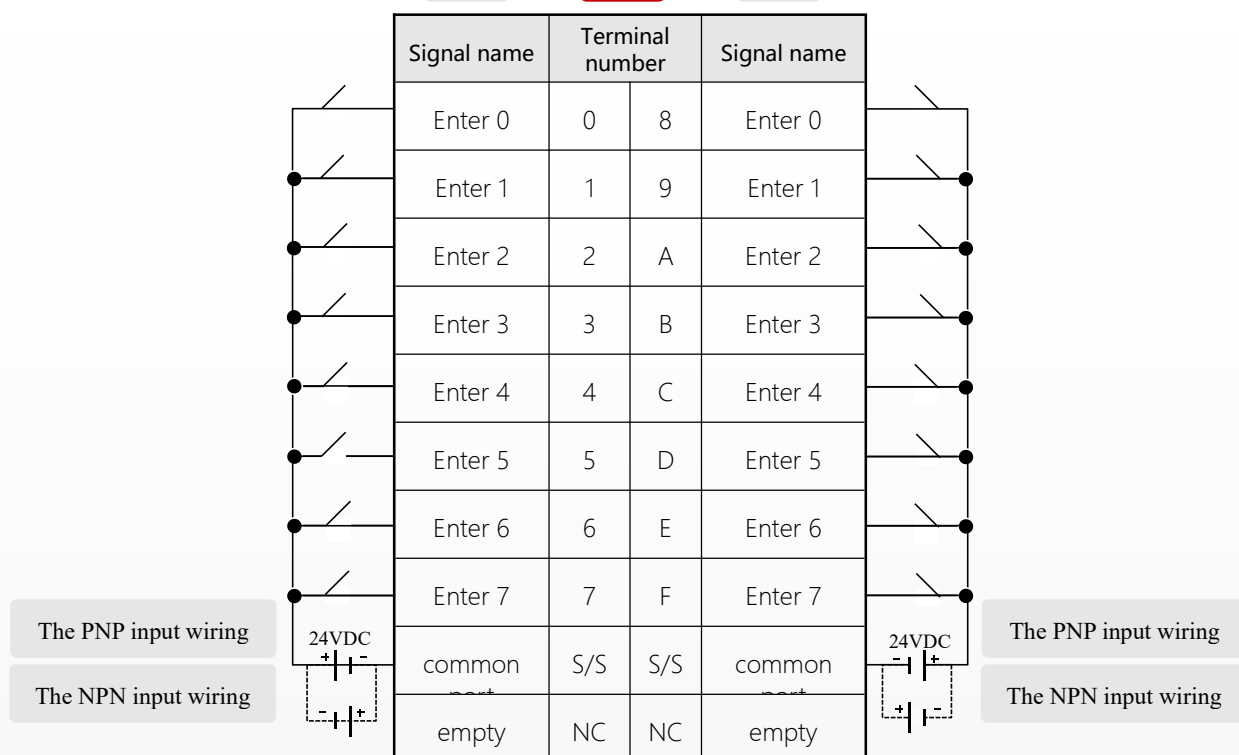
DI



DI

X5

DI



SRX-D0032P-PN

DO

X4

DO

PNP output wiring

Signal name	Terminal number		Signal name
output 0	0	8	output 0
output 1	1	9	output 1
output 2	2	A	output 2
output 3	3	B	output 3
output 4	4	C	output 4
output 5	5	D	output 5
output 6	6	E	output 6
output 7	7	F	output 7
24V	L	L	24V
0V	M	M	0V

PNP output wiring

DO

X5

DO

PNP output wiring

Signal name	Terminal number		Signal name
output 0	0	8	output 0
output 1	1	9	output 1
output 2	2	A	output 2
output 3	3	B	output 3
output 4	4	C	output 4
output 5	5	D	output 5
output 6	6	E	output 6
output 7	7	F	output 7
24V	L	L	24V
0V	M	M	0V

PNP output wiring

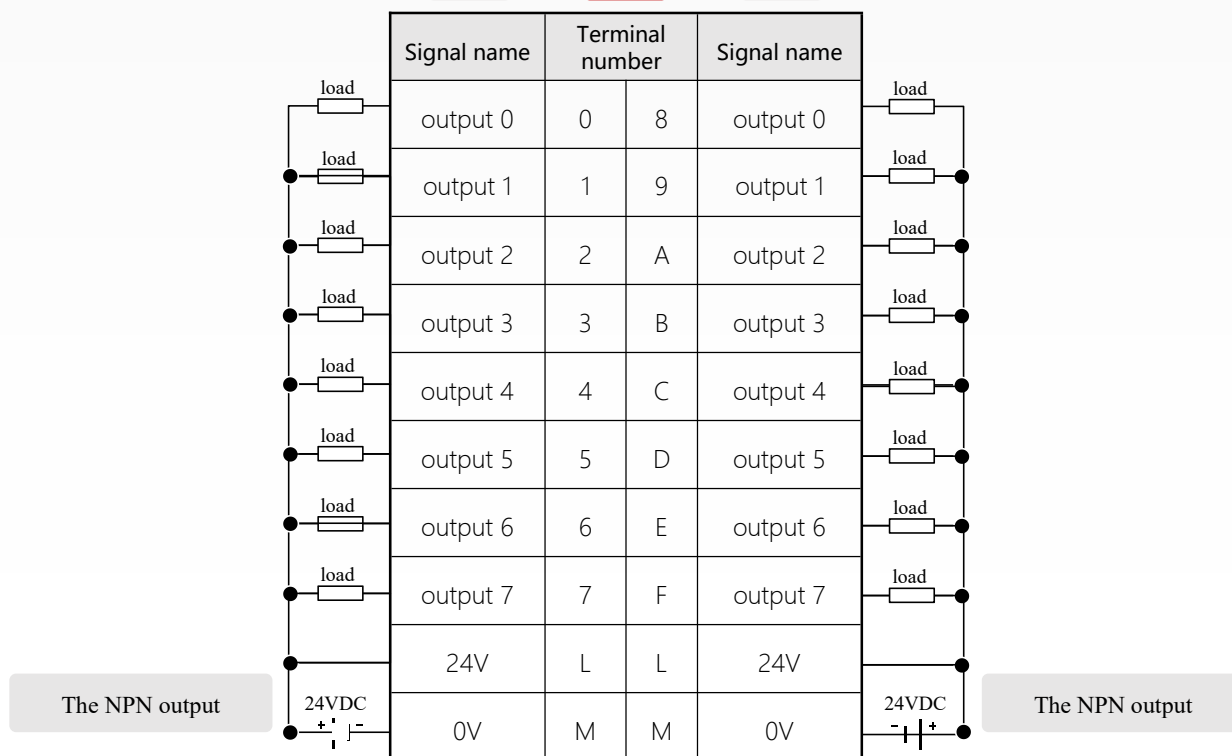
Note: L-L internal short circuit
M-M internal short circuit

SRX-D0032N-PN

DO

X4

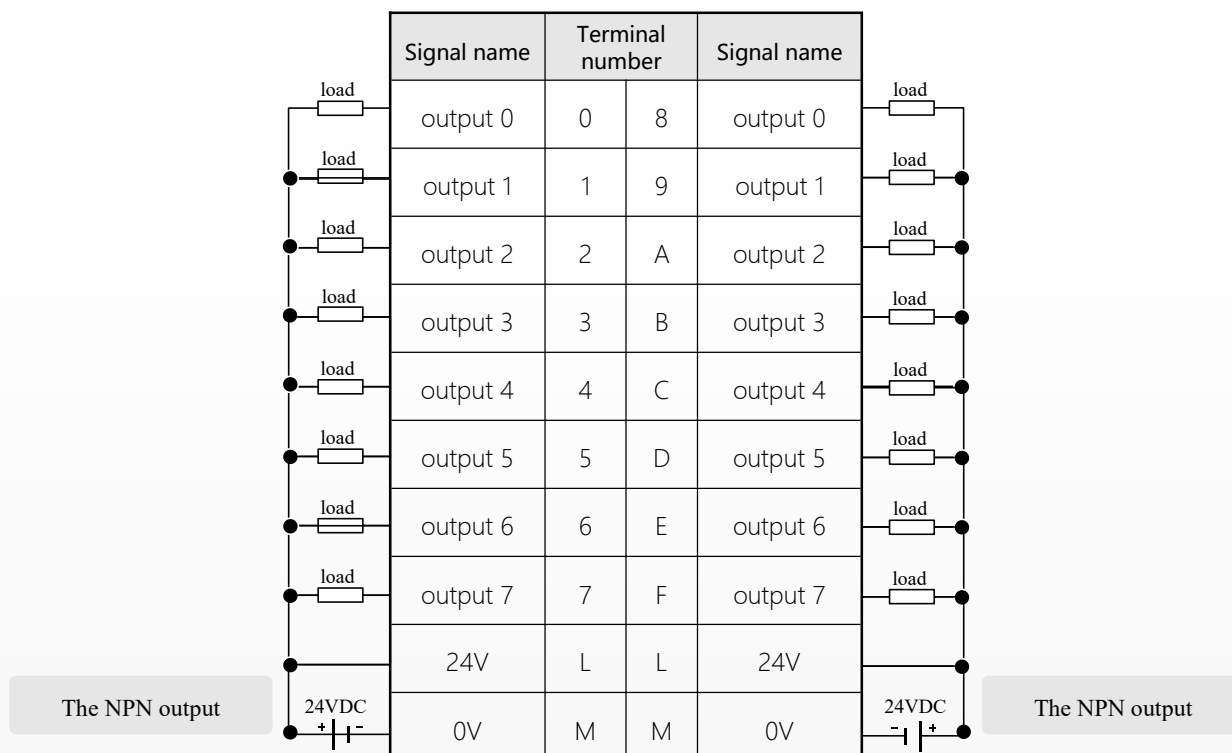
DO



DO

X5

DO



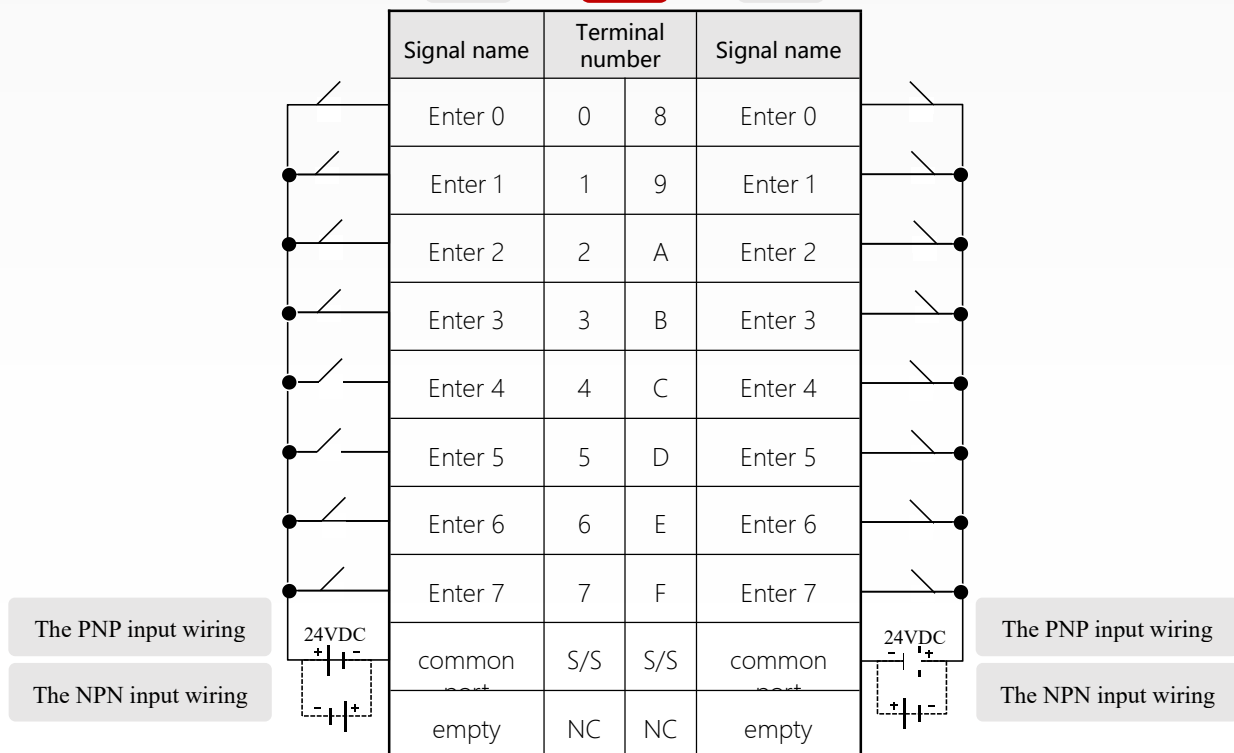
Note: L-L internal short circuit
M-M internal short circuit

SRX-D1616P-PN

DI

X4

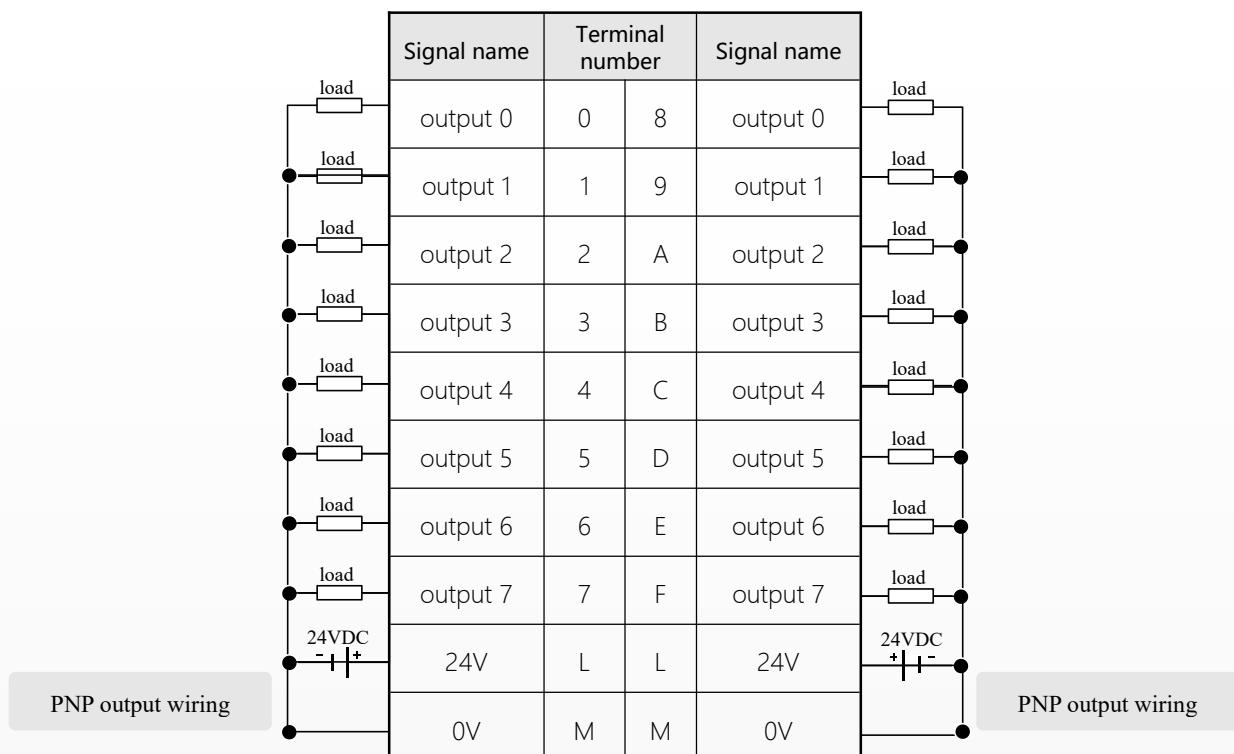
DI



DO

X5

DO



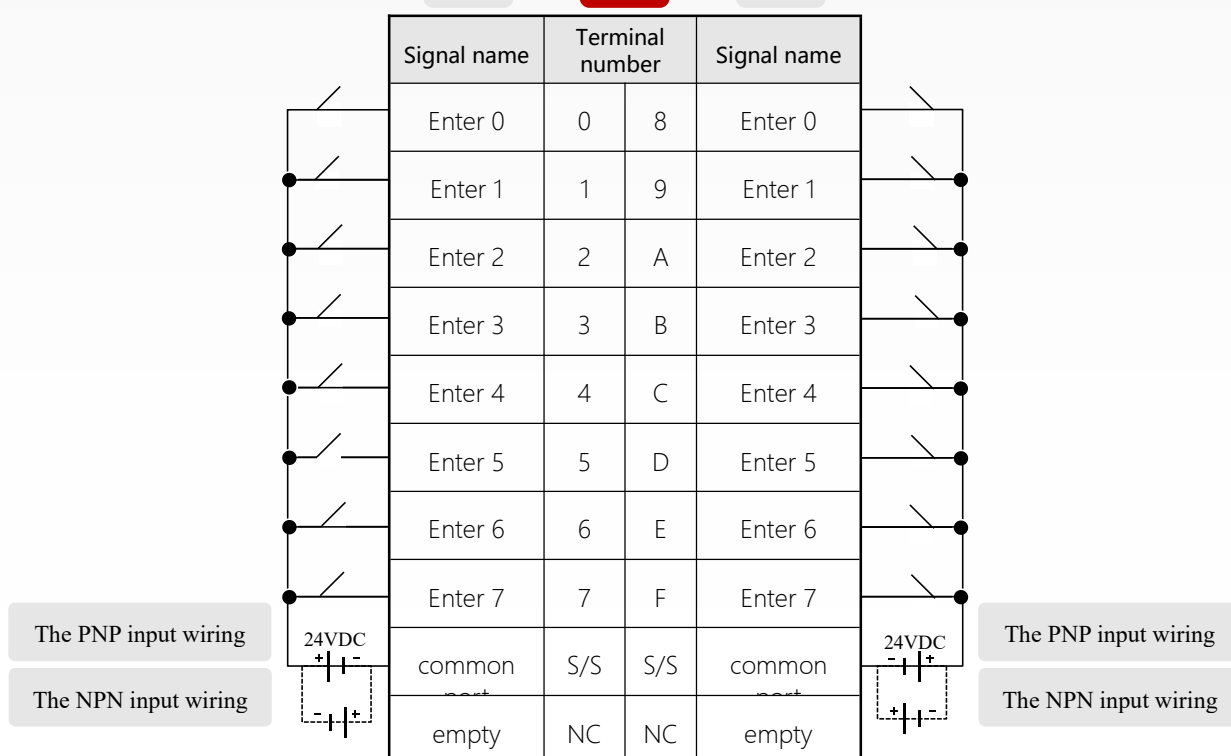
Note: L-L internal short circuit
M-M internal short circuit

SRX-D1616N-PN

DI

X4

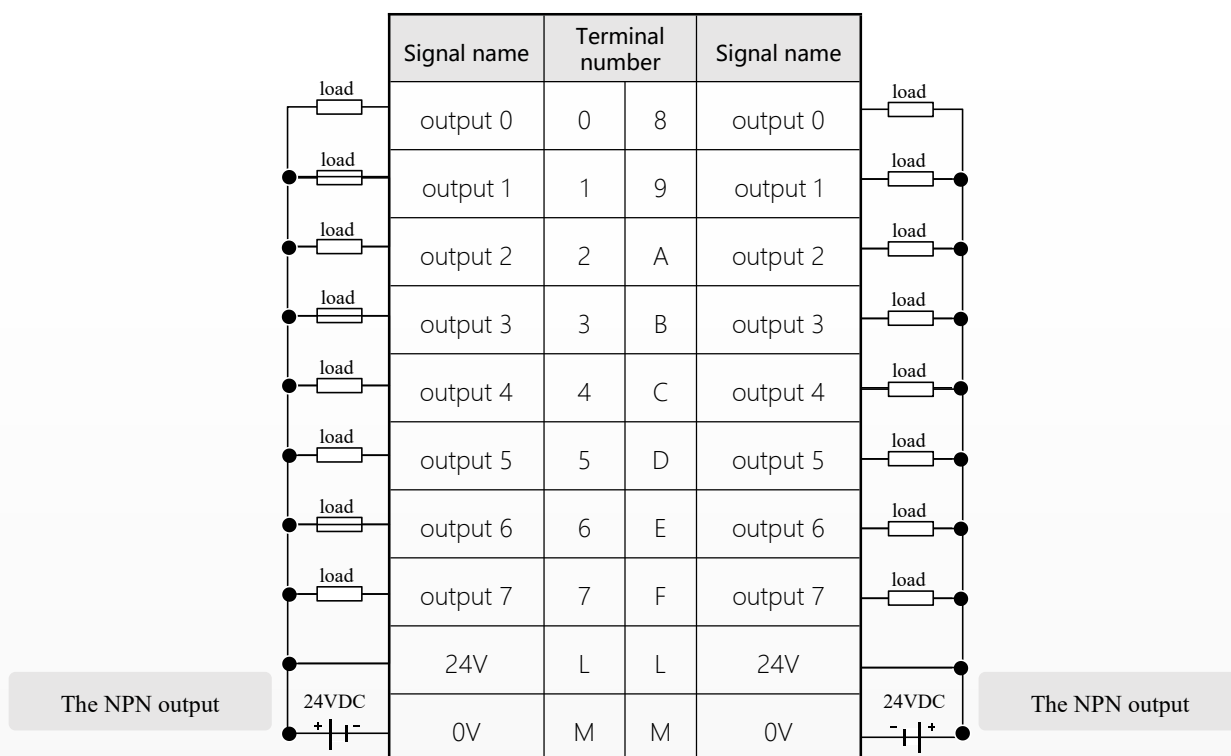
DI



DO

X5

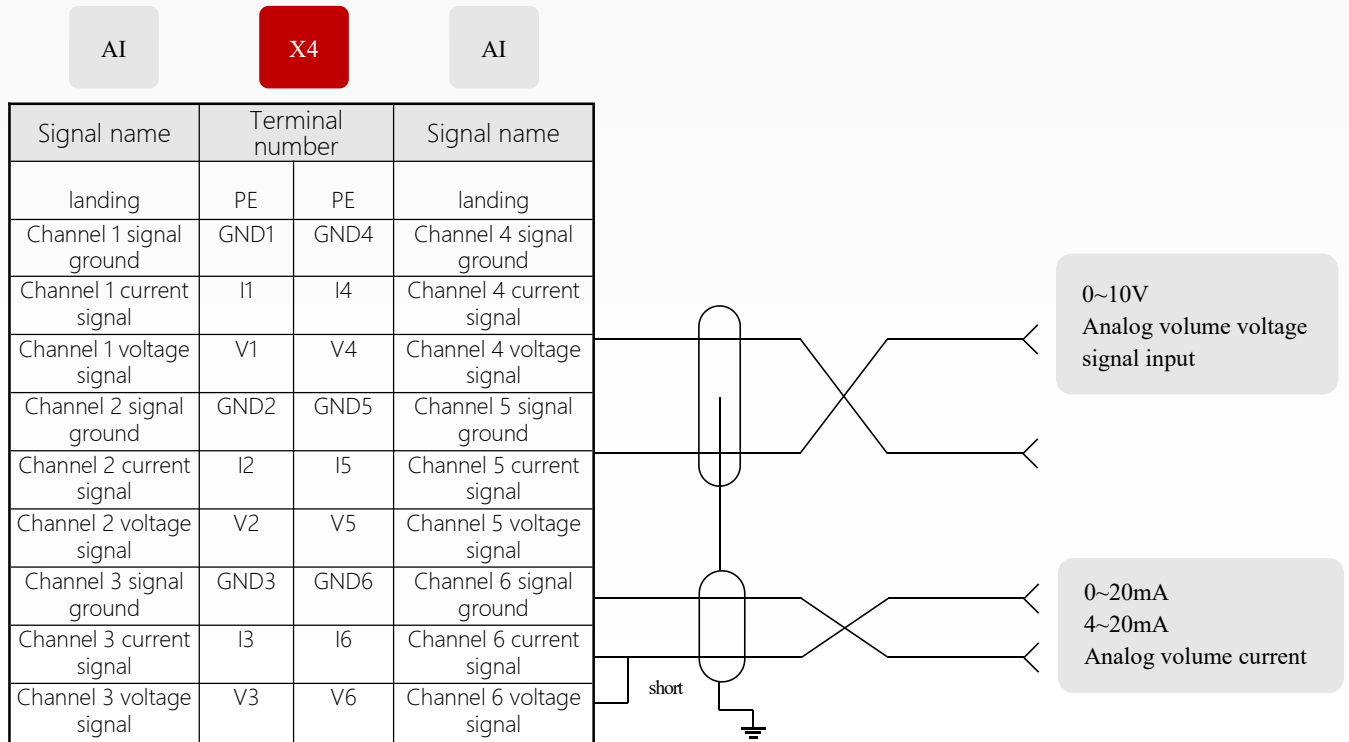
DO



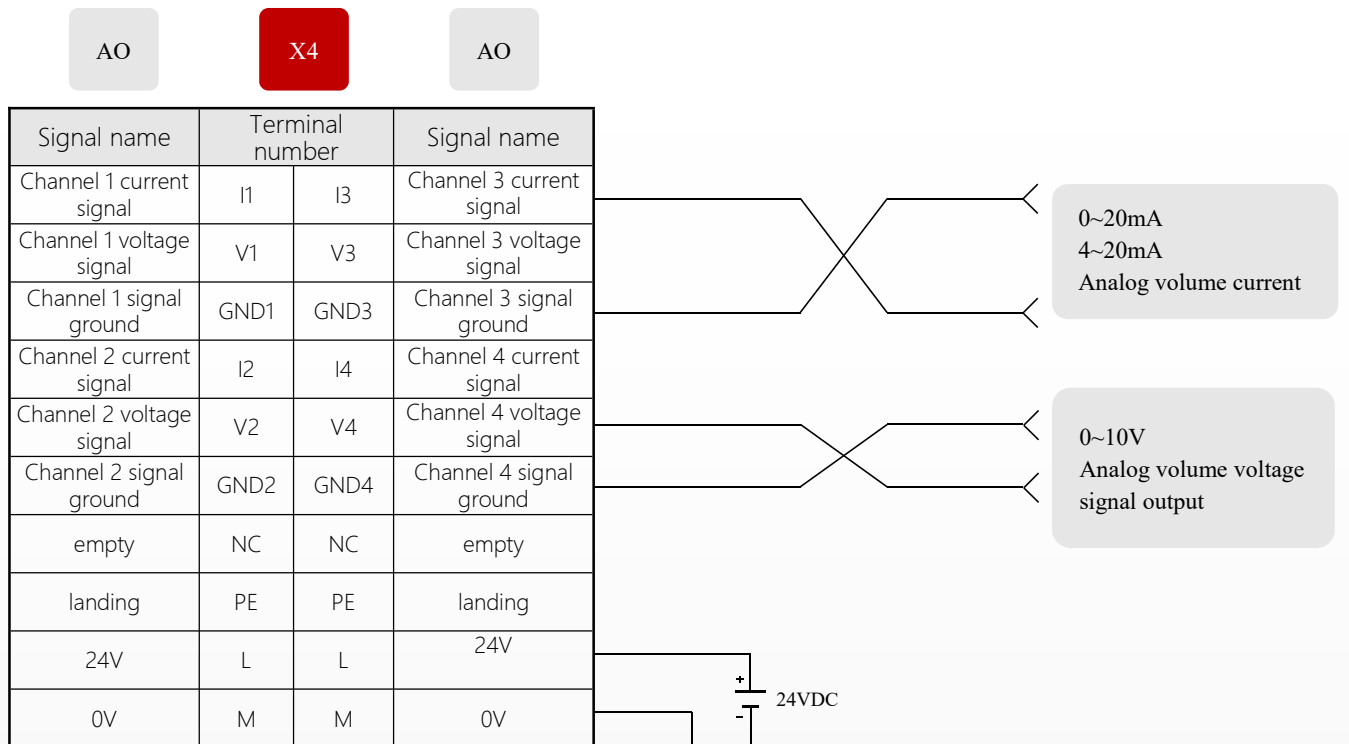
Note: L-L internal short circuit
M-M internal short circuit

4.7.2 Wiring diagram of the analog quantity module

SRX-A0600-PN



SRX-A0004-PN



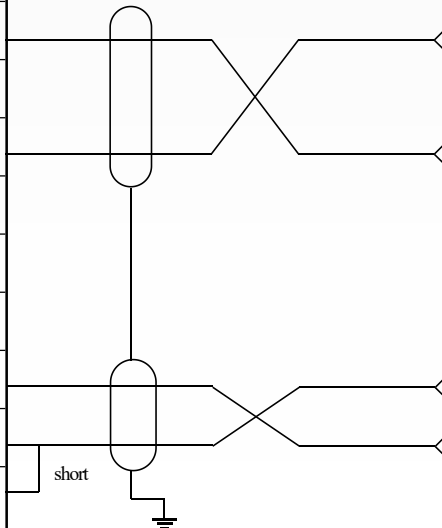
SRX-A0604-PN

AI

X4

AI

Signal name	Terminal number		Signal name
landing	PE	PE	landing
Channel 1 signal ground	GND1	GND4	Channel 4 signal ground
Channel 1 current signal	I1	I4	Channel 4 current signal
Channel 1 voltage signal	V1	V4	Channel 4 voltage signal
Channel 2 signal ground	GND2	GND5	Channel 5 signal ground
Channel 2 current signal	I2	I5	Channel 5 current signal
Channel 2 voltage signal	V2	V5	Channel 5 voltage signal
Channel 3 signal ground	GND3	GND6	Channel 6 signal ground
Channel 3 current signal	I3	I6	Channel 6 current signal
Channel 3 voltage signal	V3	V6	Channel 6 voltage signal



0~10V
Analog volume voltage
signal input

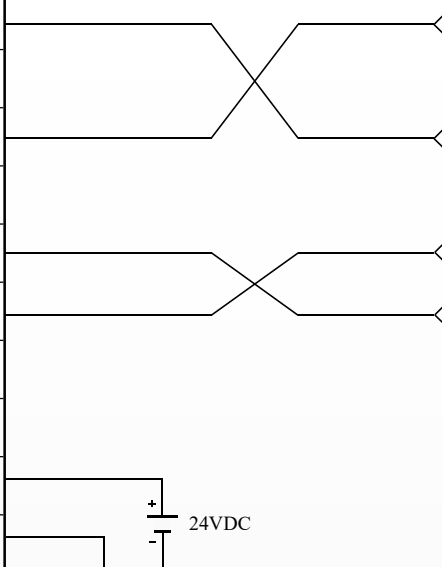
0~20mA
4~20mA
Analog volume current

AO

X5

AO

Signal name	Terminal number		Signal name
Channel 1 current signal	I1	I3	Channel 3 current signal
Channel 1 voltage signal	V1	V3	Channel 3 voltage signal
Channel 1 signal ground	GND1	GND3	Channel 3 signal ground
Channel 2 current signal	I2	I4	Channel 4 current signal
Channel 2 voltage signal	V2	V4	Channel 4 voltage signal
Channel 2 signal ground	GND2	GND4	Channel 4 signal ground
empty	NC	NC	empty
landing	PE	PE	landing
24V	L	L	24V
0V	M	M	0V



0~20mA
4~20mA
Analog volume current

0~10V
Analog volume voltage
signal output

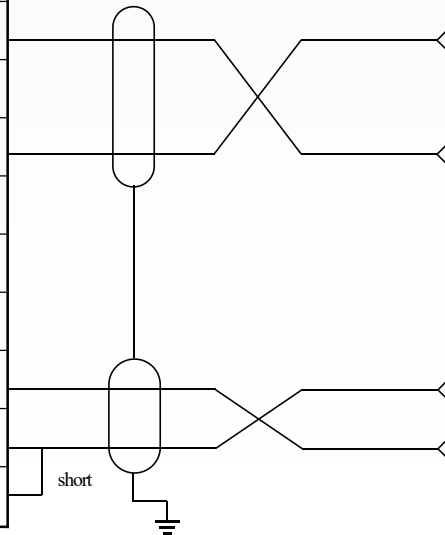
SRX-A1200-PN

AI

X4

AI

Signal name	Terminal number		Signal name
landing	PE	PE	landing
Channel 1 signal ground	GND1	GND4	Channel 4 signal ground
Channel 1 current signal	I1	I4	Channel 4 current signal
Channel 1 voltage signal	V1	V4	Channel 4 voltage signal
Channel 2 signal ground	GND2	GND5	Channel 5 signal ground
Channel 2 current signal	I2	I5	Channel 5 current signal
Channel 2 voltage signal	V2	V5	Channel 5 voltage signal
Channel 3 signal ground	GND3	GND6	Channel 6 signal ground
Channel 3 current signal	I3	I6	Channel 6 current signal
Channel 3 voltage signal	V3	V6	Channel 6 voltage signal



0~10V
Analog volume voltage
signal input

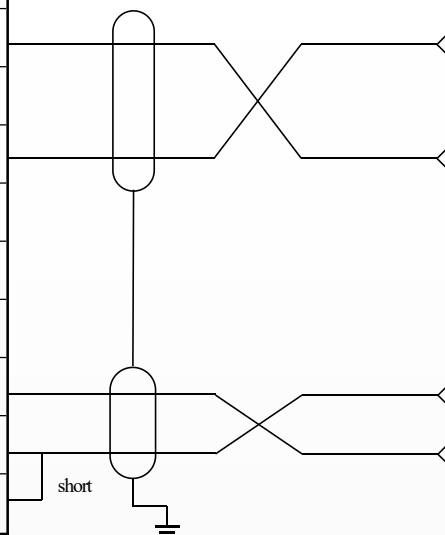
0~20mA
4~20mA
Analog volume current

AI

X5

AI

Signal name	Terminal number		Signal name
landing	PE	PE	landing
Channel 1 signal ground	GND1	GND4	Channel 4 signal ground
Channel 1 current signal	I1	I4	Channel 4 current signal
Channel 1 voltage signal	V1	V4	Channel 4 voltage signal
Channel 2 signal ground	GND2	GND5	Channel 5 signal ground
Channel 2 current signal	I2	I5	Channel 5 current signal
Channel 2 voltage signal	V2	V5	Channel 5 voltage signal
Channel 3 signal ground	GND3	GND6	Channel 6 signal ground
Channel 3 current signal	I3	I6	Channel 6 current signal
Channel 3 voltage signal	V3	V6	Channel 6 voltage signal



0~10V
Analog volume voltage
signal input

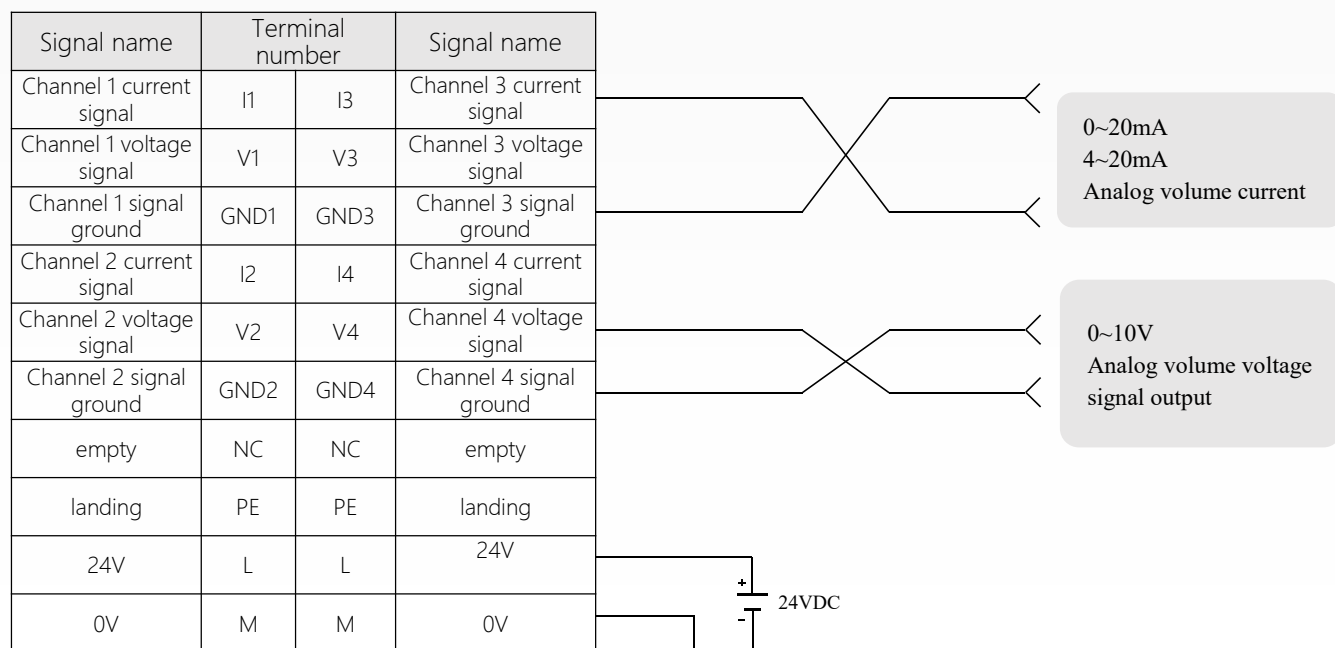
0~20mA
4~20mA
Analog volume current

SRX-A0008-PN

AO

X4

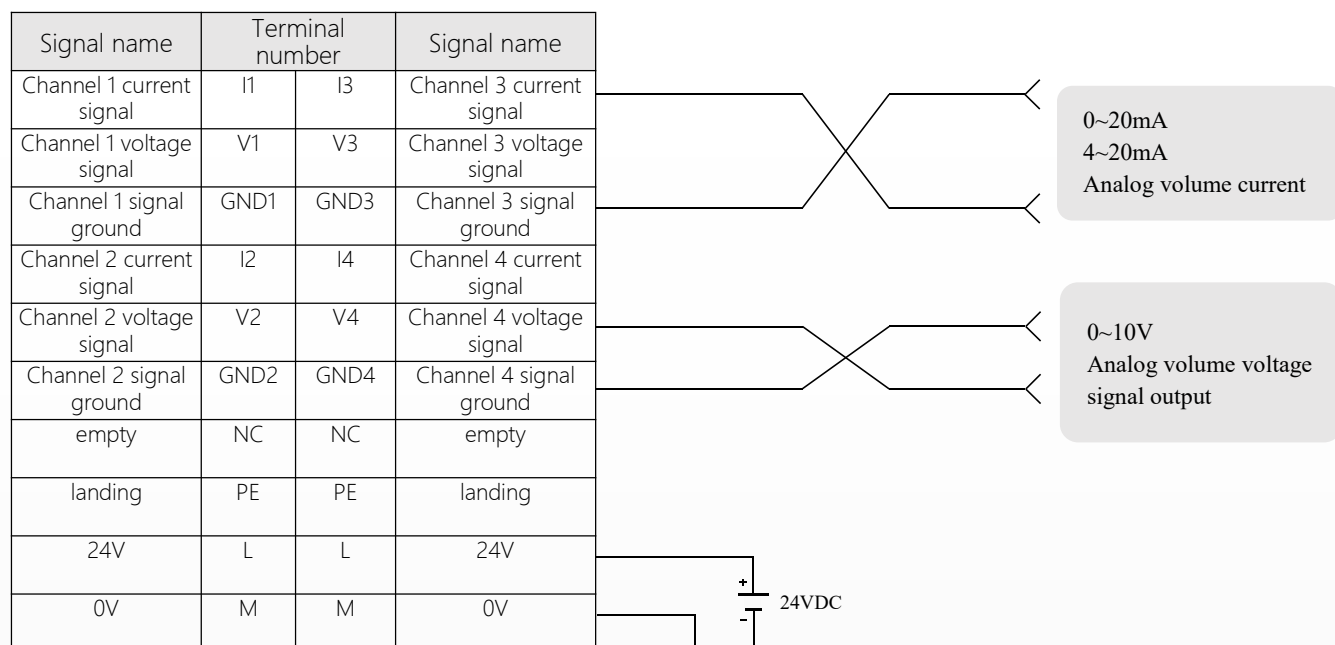
AO



AO

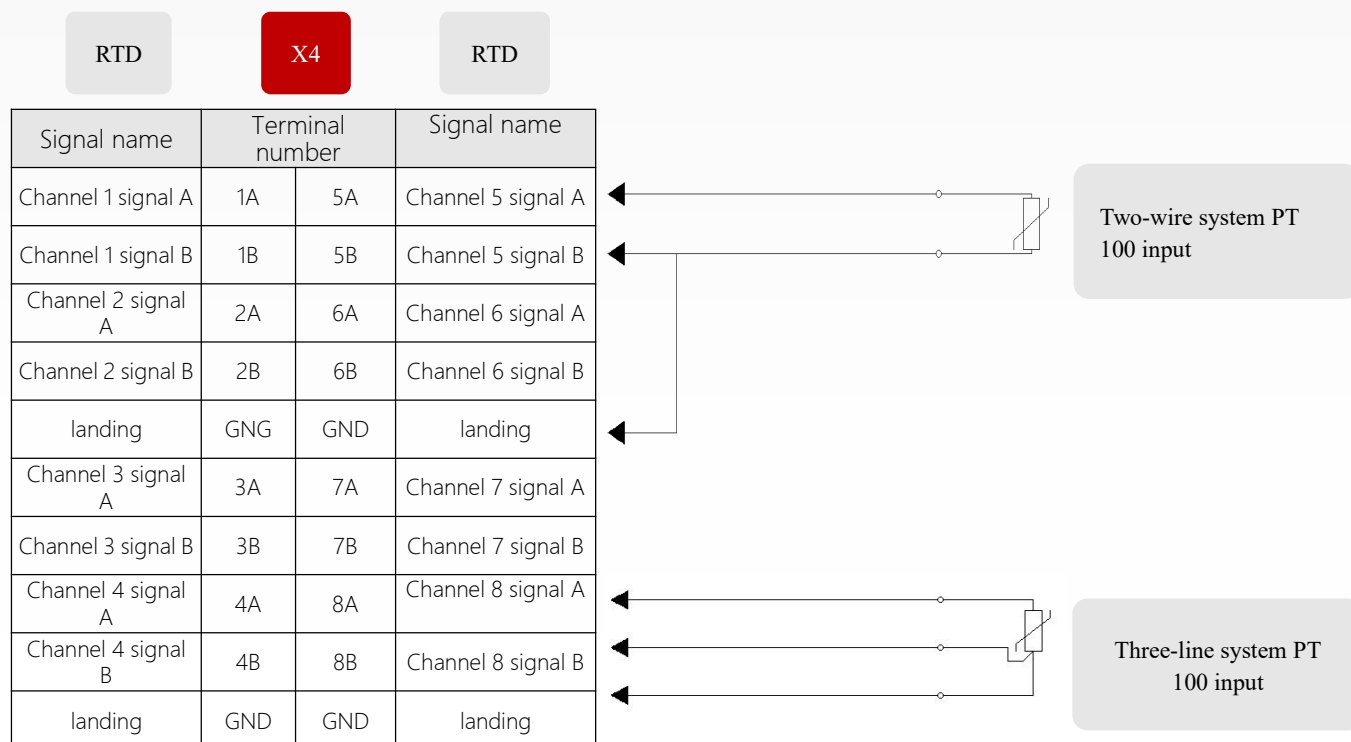
X5

AO

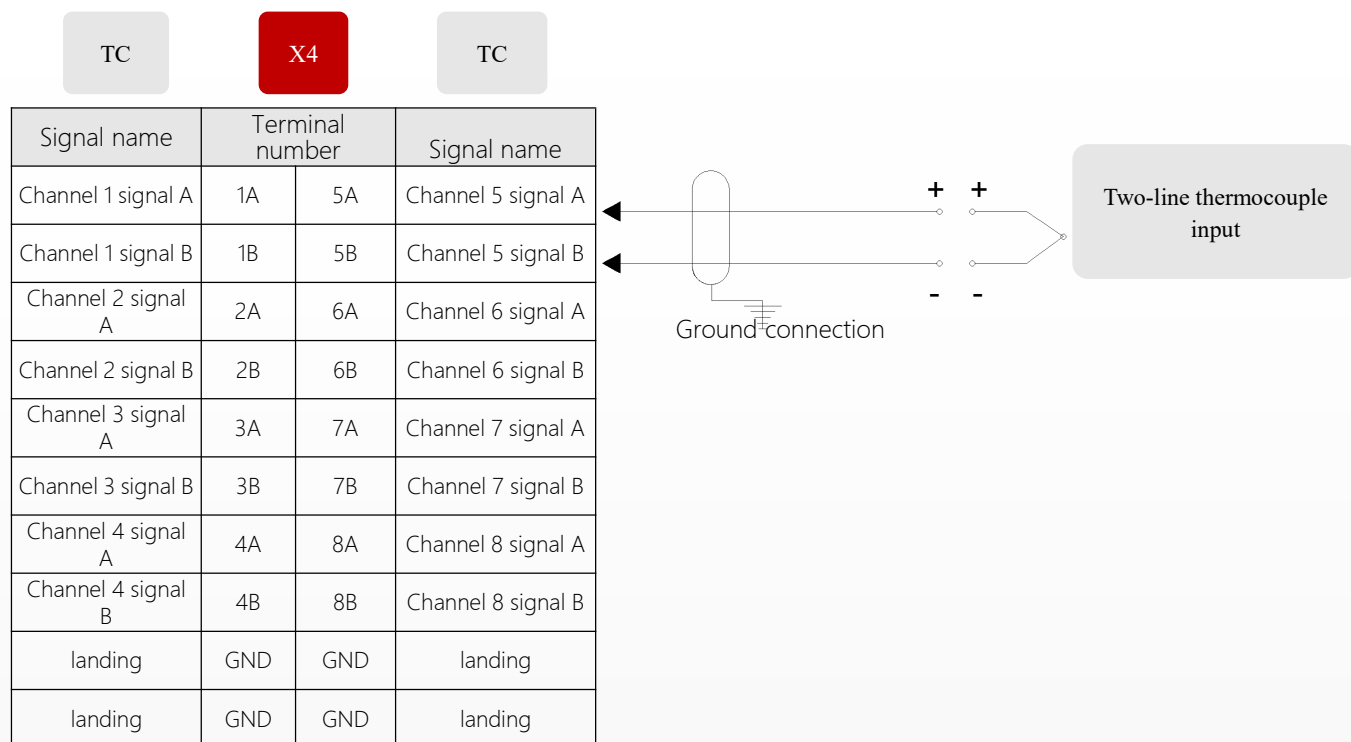


4.7.3 Wiring diagram of the temperature module

SRX-8RTD-PN



SRX-8TC-PN



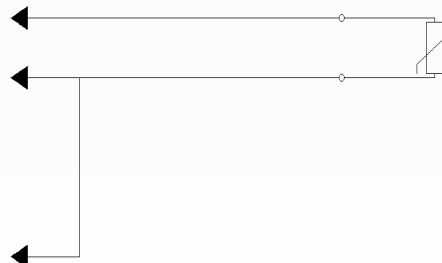
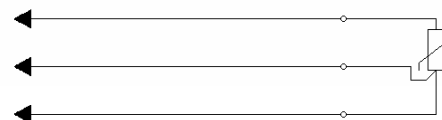
SRX-16RTD-PN

RTD1

X4

RTD1

Signal name	Terminal number		Signal name
Channel 1 signal A	1A	5A	Channel 5 signal A
Channel 1 signal B	1B	5B	Channel 5 signal B
Channel 2 signal A	2A	6A	Channel 6 signal A
Channel 2 signal B	2B	6B	Channel 6 signal B
landing	GNG	GND	landing
Channel 3 signal A	3A	7A	Channel 7 signal A
Channel 3 signal B	3B	7B	Channel 7 signal B
Channel 4 signal A	4A	8A	Channel 8 signal A
Channel 4 signal B	4B	8B	Channel 8 signal B
landing	GND	GND	landing

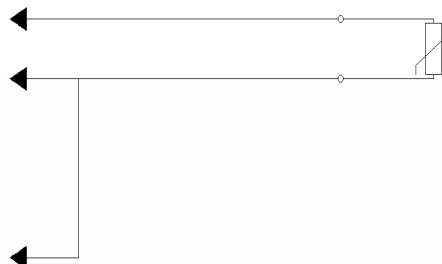
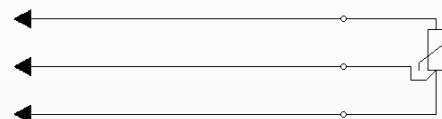
Two-wire system PT
100 inputThree-line system PT
100 input

RTD2

X5

RTD2

Signal name	Terminal number		Signal name
Channel 1 signal A	1A	5A	Channel 5 signal A
Channel 1 signal B	1B	5B	Channel 5 signal B
Channel 2 signal A	2A	6A	Channel 6 signal A
Channel 2 signal B	2B	6B	Channel 6 signal B
landing	GNG	GND	landing
Channel 3 signal A	3A	7A	Channel 7 signal A
Channel 3 signal B	3B	7B	Channel 7 signal B
Channel 4 signal A	4A	8A	Channel 8 signal A
Channel 4 signal B	4B	8B	Channel 8 signal B
landing	GND	GND	landing

Two-wire system PT
100 inputThree-line system PT
100 input

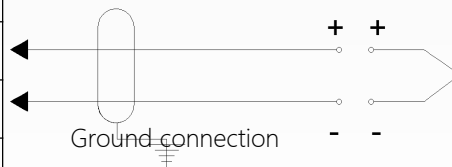
SRX-16TC-PN

TC1

X4

TC1

Signal name	Terminal number		
Channel 1 signal A	1A	5A	Channel 5 signal A
Channel 1 signal B	1B	5B	Channel 5 signal B
Channel 2 signal A	2A	6A	Channel 6 signal A
Channel 2 signal B	2B	6B	Channel 6 signal B
Channel 3 signal A	3A	7A	Channel 7 signal A
Channel 3 signal B	3B	7B	Channel 7 signal B
Channel 4 signal A	4A	8A	Channel 8 signal A
Channel 4 signal B	4B	8B	Channel 8 signal B
landing	GND	GND	landing
landing	GND	GND	landing



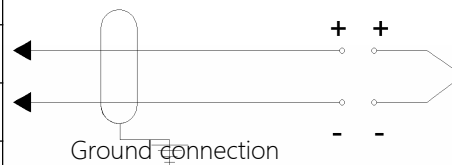
Two-line thermocouple input

TC2

X4

TC2

Signal name	Terminal number		
Channel 1 signal A	1A	5A	Channel 5 signal A
Channel 1 signal B	1B	5B	Channel 5 signal B
Channel 2 signal A	2A	6A	Channel 6 signal A
Channel 2 signal B	2B	6B	Channel 6 signal B
Channel 3 signal A	3A	7A	Channel 7 signal A
Channel 3 signal B	3B	7B	Channel 7 signal B
Channel 4 signal A	4A	8A	Channel 8 signal A
Channel 4 signal B	4B	8B	Channel 8 signal B
landing	GND	GND	landing
landing	GND	GND	landing



Two-line thermocouple input

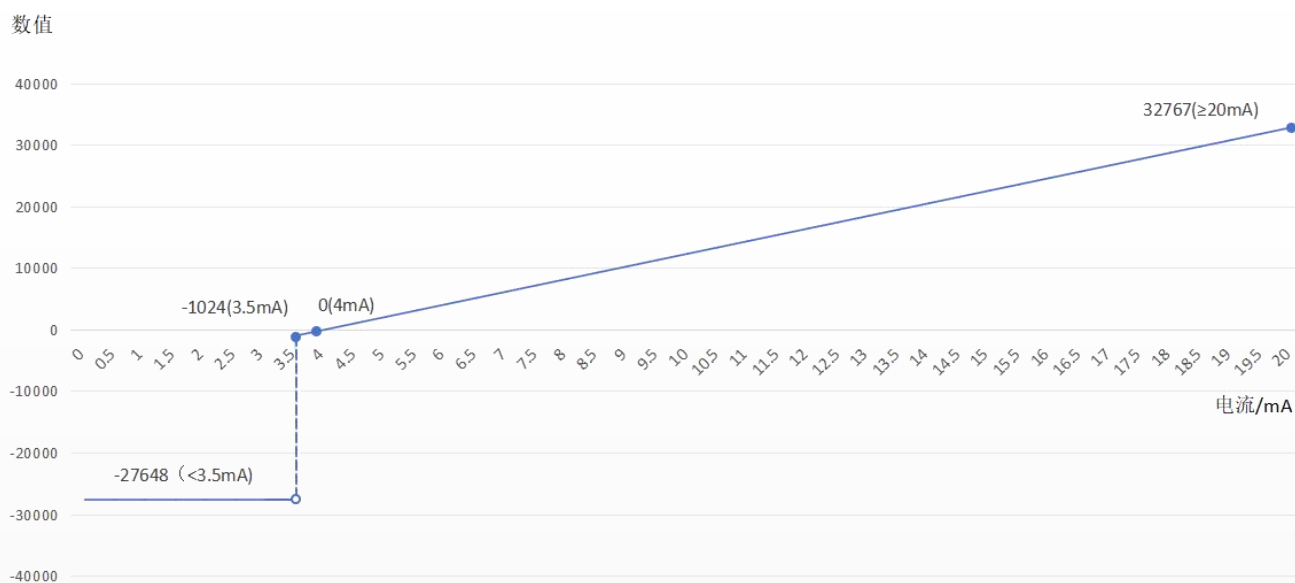
★ For the wiring diagram of other hybrid modules, please download the CAD

diagram www.latcos.cn from the official website

4.7.4 4-20mA definition and line graph

Current measurement range value			
System		Current measurement range	
Decimal	Hexadecimal	4mA~20mA	
32767	7FFF		Overflow
32767	7FFF	20mA	Rated range
0	0	4mA	Downward range
-1	FFFF		Underflow
-1024	FFFF_FC00	3.5mA	Overflow
-27648	FFFF_8001		Rated range

4~20mA current line diagram





5.PROFINET bus

5.1 What is PROFINET IO?

Definition:

PROFINET IO is an open transmission system that possesses the real-time functions defined by the PROFINET standard. This standard defines communication, automation, and engineering models that are independent of manufacturers.

Industrial-grade wiring accessories with PROFINET components can be selected.

- PROFINET does not adopt the hierarchical PROFIBUS master/slave architecture, but rather a provider/consumer architecture. During the planning process, specify the IO device modules that the IO controller can control.

- The number of modules depends on the application method of PROFINET IO. During configuration, these parameters must not be exceeded.

- The transmission rate is 100 Mbps.

- The user view during the configuration process is basically the same as that of PROFIBUS DP.

5.2 Network topology

The following figure illustrates the typical network layout of the SRX-PN IO module.

As shown in Figures 5-1, 5-2, 5-3

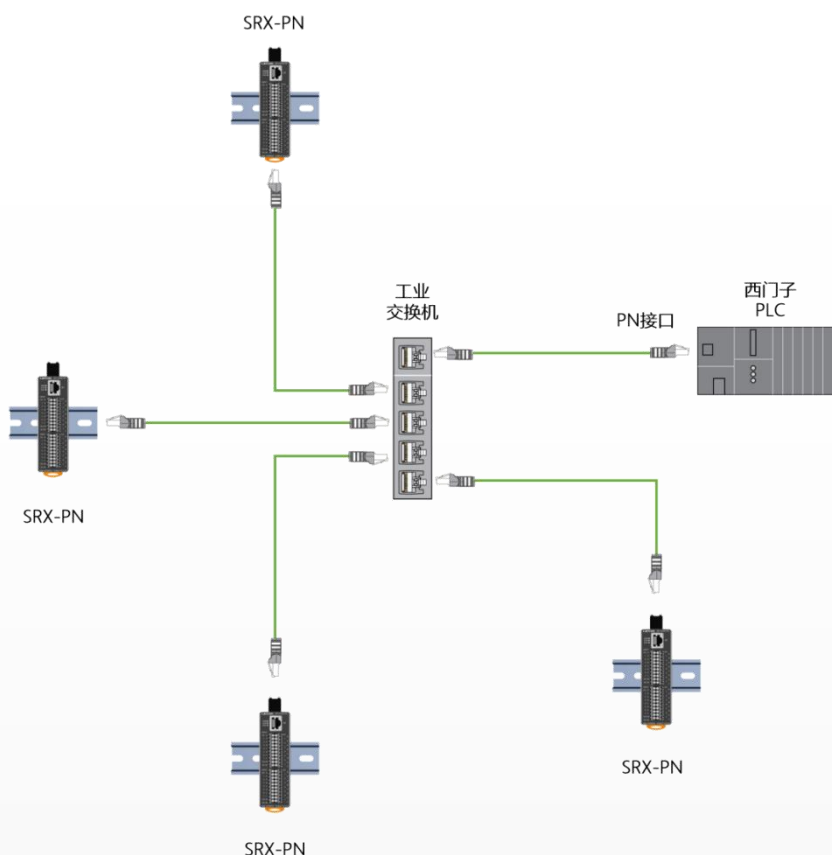


Figure 5-1 PROFINET Star Network Topology Structure

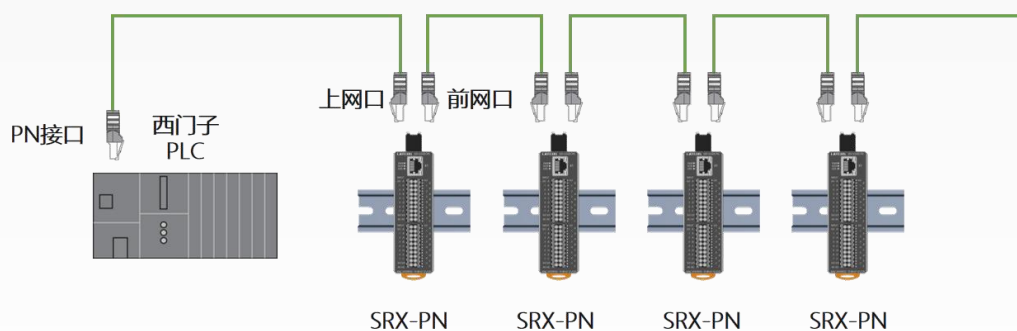


Figure 5-2 PROFINET Daisy Chain Topology Structure

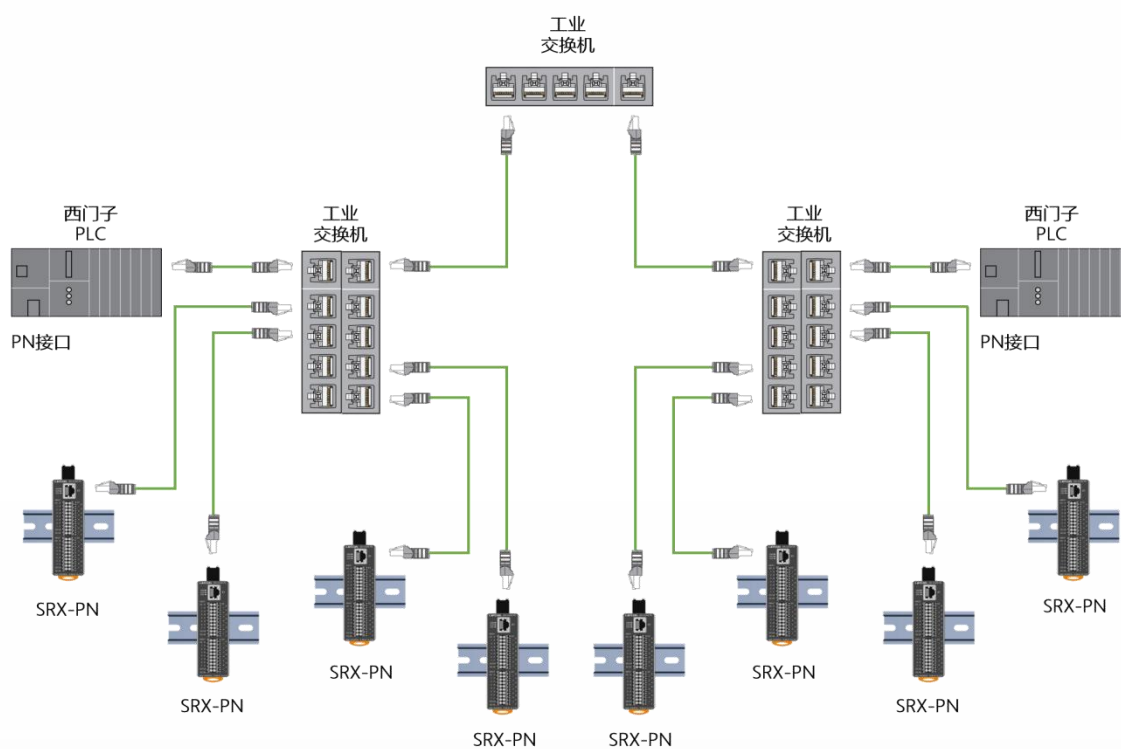
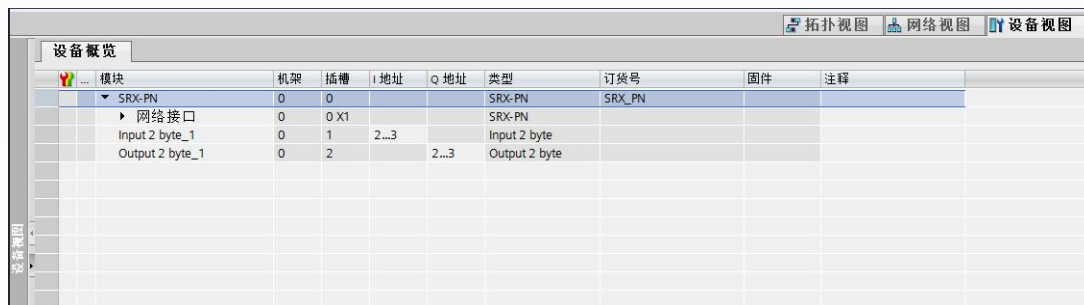


Figure 5-3 PROFINET Tree Network Topology Structure

5.3 SRX-PN Address mapping

The SRX-PN DI/DQ data is mapped to the main station's memory space through the configuration profile, as shown in the figure.

- 16 digital input channels are mapped to 2-byte In addresses;
- 16 digital output channels are mapped to 2-byte Out addresses;



模块	机架	插槽	I 地址	Q 地址	类型	订货号	固件	注释
SRX-PN	0	0			SRX-PN	SRX_PN		
网络接口	0	0 X1			SRX-PN			
Input 2 byte_1	0	1	2...3		Input 2 byte			
Output 2 byte_1	0	2		2...3	Output 2 byte			

Figure 5-4 Module (SRX-PN) Address Mapping

5.4 Module Parameters

Each module has specific parameters, which need to be flexibly configured according to the actual situation on the hardware configuration interface. These parameters will be simultaneously downloaded to the controller along with the hardware configuration. In the initial running state, the controller will send these data to the module. If the actual configuration of the module at the site is inconsistent with the hardware configuration in the program, the transmitted parameters will not be consistent with the actual situation, resulting in unsuccessful configuration of the module parameters. The controller will report an error during operation.

SRX-D0808X-PN parameter configuration definition

data-in								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	Input the filter time (Filter)							
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Input filter time	Filter	ms	decimal system	0-255 (Default: 5)				
output data								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode
(DO Error_Mode bits 0-7)	For 7	For 6	For 5	For 4	For 3	For 2	For 1	For 0
BYTE 1	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For
(DO Error_Value bits 0-7)	7	6	5	4	3	2	1	0
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Fault mode enabling	DO Error_Mode bits	-	decimal system	0-255 (Default: 0)	The fault security state value of DQ0.x port is enabled, the binary bit bit corresponds to DQ0.x port (Bit 0 corresponds to DQ-0.0, and so on). When the module enters the fault safe state, if the "Error Mode" corresponds to bit bit of "1", the value of "Error Value [7..0]" corresponds to bit bit is output to the corresponding DQ0.x port.			
Fault value; Safety status value	DO Error_Value bits	-	decimal system	0-255 (Default: 0)				

SRX-D1600-PN parameter configuration definition

data-in								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	Input the filter time (Filter)							
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Input filter time	Filter	ms		0-255 (Default: 5)				

SRX-D0016X-PN parameter configuration definition

output data								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode
(DO Error_Mode bits 0-7)	For 7	For 6	For 5	For 4	For 3	For 2	For 1	For 0
BYTE 1	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For
(DO Error_Value bits 0-7)	7	6	5	4	3	2	1	0
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Fault mode enabling	DO Error_Mode bits	-	decimal system	0-255 (Default: 0)	The fault security state value of DQ0.x port is enabled, the binary bit corresponds to DQ0.x port (Bit 0 corresponds to DQ-0.0, and so on). When the module enters the fault safe state, if the "Error Mode" corresponds to bit bit of "1", the value of "Error Value [7..0]" corresponds to bit bit is output to the corresponding DQ0.x port.			
Fault value: Safety status value	DO Error_Value bits	-	decimal system	0-255 (Default: 0)	If the binary bit corresponding to the Error Mode [7..0] parameter is set to enable, the parameter value is output to the DQ port when the system enters a fault safe state.			

SRX-D3200-PN configuration parameter definition

data-in								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	Input the filter time (Filter)							
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Input filter time	Filter	ms	decimal system	0-255				
				(Default: 5)				

SRX-D0032X-PN parameter configuration definition

data-in								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode
(DO Error_Mode bits 0-7)	For 7	For 6	For 5	For 4	For 3	For 2	For 1	For 0
BYTE 1	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For
(DO Error_Value bits 0-7)	7	6	5	4	3	2	1	0
BYTE 2	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode
(DO Error_Mode bits 8-15)	For 15	For 14	For 13	For 12	For11	For 10	For 9	For 8
BYTE 3	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For	DO Error Value For
(DO Error_Value bits 8-15)	15	14	13	12	11	10	9	8
.	16-31 See the above configuration							
.								
data-in:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Fault mode	DO	-	decimal	0-255	The fault security state value of DQ0.x port is enabled, the binary			

enabling	Error_Mode bits		system	(Default: 0)	bit bit corresponds to DQ0.x port (Bit 0 corresponds to DQ-0.0, and so on). When the module enters the fault safe state, if the "Error Mode" corresponds to bit bit of "1", the value of "Error Value [7..0]" corresponds to bit bit is output to the corresponding DQ0.x port.
Fault value: Safety status value	DO Error_Value bits	-	decimal system	0-255 (Default: 0)	If the binary bit bit corresponding to the Error Mode [7..0] parameter is set to enable, the parameter value is output to the DQ port when the system enters a fault safe state.

SRX-D1616X-PN parameter configuration definition

data-in								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	Input the filter time (Filter)							
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Input filter time	Filter	ms	decimal system	0-255 (Default: 5)				
output data								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode
(DO Error_Mode bits 0-7)	For 7	For 6	For 5	For 4	For 3	For 2	For 1	For 0
BYTE 1	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For
(DO Error_Value bits 0-7)	7	6	5	4	3	2	1	0
BYTE 2	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode	DO Error_Mode
(DO Error_Mode bits 8-15)	For 15	For 14	For 13	For 12	For11	For 10	For 9	For 8
BYTE 3	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For	DO Error_Value For
(DO Error_Value bits8-15)	15	14	13	12	11	10	9	8
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Fault mode enabling	DO Error_Mode bits	-	decimal system	0-255 (Default: 0)	The fault security state value of DQ0.x port is enabled, the binary bit bit corresponds to DQ0.x port (Bit 0 corresponds to DQ-0.0, and so on). When the module enters the fault safe state, if the "Error Mode" corresponds to bit bit of "1", the value of "Error Value [7..0]" corresponds to bit bit is output to the corresponding DQ0.x port.			
Fault value: Safety status value	DO Error_Value bits	-	decimal system	0-255 (Default: 0)				
					If the binary bit bit corresponding to the Error Mode [7..0] parameter is set to enable, the parameter value is output to the DQ port when the system enters a fault safe state.			

SRX-A0600-PN parameter configuration definition

data-in								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	Measuring Range For CH1							
BYTE 1	Notch Filter For CH1							
BYTE 2	AverageNum For CH1							
BYTE 3	Full value For CH1							
BYTE 4								
BYTE 5	Zero_valueFor CH1							
BYTE 6								
BYTE 7	Measuring Range For CH2							
BYTE 8	Notch Filter For CH2							
BYTE 9	AverageNum For CH2							
BYTE 10	Full value For CH2							
BYTE 11								
BYTE 12	Zero_valueFor CH2							
BYTE 13								
...	...							
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Channel 1 measurement type	Measuring Range For CH1	-	symbol	0:Disable 1:0-10V (by default) 2:0-20ma 3:4-20ma	Select the corresponding simulation quantity into the range of it Disable Close of the sampling channel			
The frequency filter for the channel 1	Notch Filter For CH1	-	symbol	0:Disable 1:50Hz 2:60Hz	Filter the 50Hz or 60Hz power frequency clutter interference			
The number of sampling of channel 1	AverageNum For CH1	-	symbol	X0 (default) X4 X8 X16 X32	The module adopts the average algorithm, and adjusting this parameter can adjust the average depth, improve the sampling accuracy, but will reduce the response time			
Full-range engineering value of channel 1	Full value For CH1	-	symbol	-3276832767 (default 32767)	Engineering value of the maximum range			
Zero-range engineering value of channel 1	Zero_valueFor CH1	-	symbol	-32768... 32767 (default: 0)	Engineering value of the minimum range			

SRX-A1200-PN parameter configuration definition

data-in								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	Measuring Range For CH1							
BYTE 1	Notch Filter For CH1							
BYTE 2	AverageNum For CH1							
BYTE 3	Full value For CH1							
BYTE 4								
BYTE 5	Zero_valueFor CH1							
BYTE 6								
BYTE 7	Measuring Range For CH2							
BYTE 8	Notch Filter For CH2							
BYTE 9	AverageNum For CH2							
BYTE 10	Full value For CH2							
BYTE 11								
BYTE 12	Zero_valueFor CH2							
BYTE 13								
...	...							
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Channel 1 measurement type	Measuring Range For CH1	-	symbol	0:Disable 1:0-10V (by default) 2:0-20ma 3:4-20ma	Select the corresponding simulation quantity into the range of it Disable Close of the sampling channel			
The frequency filter for the channel 1	Notch Filter For CH1	-	symbol	0:Disable 1:50Hz 2:60Hz	Filter the 50Hz or 60Hz power frequency clutter interference			
The number of sampling of channel 1	AverageNum For CH1	-	symbol	X0 (default) X4 X8 X16 X32	The module adopts the average algorithm, and adjusting this parameter can adjust the average depth, improve the sampling accuracy, but will reduce the response time			
Full-range engineering value of channel 1	Full value For CH1	-	symbol	-3276832767 (default 32767)	Engineering value of the maximum range			
Zero-range engineering value of channel 1	Zero_valueFor CH1	-	symbol	-32768... 32767 (default: 0)	Engineering value of the minimum range			

SRX-A0004-PN parameter configuration definition

output data								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	Measuring Range For CH1							
BYTE 1	Notch Filter For CH1							
BYTE 2	AverageNum For CH1							
BYTE 3	Full value For CH1							
BYTE 4								
BYTE 5	Zero_valueFor CH1							
BYTE 6								
BYTE 7	Measuring Range For CH2							
BYTE 8	Notch Filter For CH2							
BYTE 9	AverageNum For CH2							
BYTE 10	Full value For CH2							
BYTE 11								
BYTE 12	Zero_valueFor CH2							
BYTE 13								
...	...							
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Channel 1 measurement type	Measuring Range For CH1	-	symbol	0:Disable 1:0-10V (by default) 2:0-20ma 3:4-20ma	Select the corresponding simulation quantity into the range of it Disable Close of the sampling channel			
The frequency filter for the channel 1	Notch Filter For CH1	-	symbol	0:Disable 1:50Hz 2:60Hz	Filter the 50Hz or 60Hz power frequency clutter interference			
The number of sampling of channel 1	AverageNum For CH1	-	symbol	X0 (default) X4 X8 X16 X32	The module adopts the average algorithm, and adjusting this parameter can adjust the average depth, improve the sampling accuracy, but will reduce the response time			
Full-range engineering value of channel 1	Full value For CH1	-	symbol	-32768..32767 (default 32767)	Engineering value of the maximum range			
Zero-range engineering value of channel 1	Zero_valueFor CH1	-	symbol	-32768... 32767 (default: 0)	Engineering value of the minimum range			

SRX-A0008-PN parameter configuration definition

output data								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	Measuring Range For CH1							
BYTE 1	Notch Filter For CH1							
BYTE 2	AverageNum For CH1							
BYTE 3	Full value For CH1							
BYTE 4								
BYTE 5	Zero_valueFor CH1							
BYTE 6								
BYTE 7	Measuring Range For CH2							
BYTE 8	Notch Filter For CH2							
BYTE 9	AverageNum For CH2							
BYTE 10	Full value For CH2							
BYTE 11								
BYTE 12	Zero_valueFor CH2							
BYTE 13								
...	...							
data specification:								
The parameter name		unit	form	input range	explain			
the Chinese language	English							
Channel 1 measurement type	Measuring Range For CH1	-	symbol	0:Disable 1:0-10V (by default) 2:0-20ma 3:4-20ma	Select the corresponding simulation quantity into the range of it Disable Close of the sampling channel			
The frequency filter for the channel 1	Notch Filter For CH1	-	symbol	0:Disable 1:50Hz 2:60Hz	Filter the 50Hz or 60Hz power frequency clutter interference			
The number of sampling of channel 1	AverageNum For CH1	-	symbol	X0 (default) X4 X8 X16 X32	The module adopts the average algorithm, and adjusting this parameter can adjust the average depth, improve the sampling accuracy, but will reduce the response time			
Full-range engineering value of channel 1	Full value For CH1	-	symbol	-32768..32767 (default 32767)	Engineering value of the maximum range			
Zero-range engineering value of channel 1	Zero_valueFor CH1	-	symbol	-32768... 32767 (default: 0)	Engineering value of the minimum range			

SRX-A0604-PN parameter configuration definition

data-in								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	Measuring Range For CH1							
BYTE 1	Notch Filter For CH1							
BYTE 2	AverageNum For CH1							
BYTE 3	Full value For CH1							
BYTE 4								
BYTE 5	Zero_valueFor CH1							
BYTE 6								
BYTE 7	Measuring Range For CH2							
BYTE 8	Notch Filter For CH2							
BYTE 9	AverageNum For CH2							
BYTE 10	Full value For CH2							
BYTE 11								
BYTE 12	Zero_valueFor CH2							
BYTE 13								

...

output data								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	Measuring Range For CH1							
BYTE 1	Notch Filter For CH1							
BYTE 2	AverageNum For CH1							
BYTE 3	Full value For CH1							
BYTE 4								
BYTE 5	Zero_valueFor CH1							
BYTE 6								
BYTE 7	Measuring Range For CH2							
BYTE 8	Notch Filter For CH2							
BYTE 9	AverageNum For CH2							
BYTE 10	Full value For CH2							
BYTE 11								
BYTE 12	Zero_valueFor CH2							
BYTE 13								
...								

data specification:

The parameter name		unit	form	input range	explain
the Chinese language	English				
Channel 1 measurement type	Measuring Range For CH1	-	symbol	0:Disable 1:0-10V (by default) 2:0-20ma 3:4-20ma	Select the corresponding simulation quantity into the range of it Disable Close of the sampling channel
The frequency filter for the channel 1	Notch Filter For CH1	-	symbol	0:Disable 1:50Hz 2:60Hz	Filter the 50Hz or 60Hz power frequency clutter interference
The number of sampling of channel 1	AverageNum For CH1	-	symbol	X0 (default) X4 X8 X16 X32	The module adopts the average algorithm, and adjusting this parameter can adjust the average depth, improve the sampling accuracy, but will reduce the response time
Full-range engineering value of channel 1	Full value For CH1	-	symbol	-32768..32767 (default: 32767)	Engineering value of the maximum range
Zero-range engineering value of channel 1	Zero_valueFor CH1	-	symbol	-32768... 32767 (default: 0)	Engineering value of the minimum range

★The functions of other mixed modules are all combinations of the functions of the above modules. The parameters can correspond to and refer to the above-mentioned materials.

For example, for SRX-M8860P-PN, the parameters can be referred to those of SRX-D0808P-PN and SRX-A0600-PN.



6. Addition and deletion of configuration files

The following is an explanation of the configuration parameters for the modules based on the TIA Portal V14 software of Siemens.

6.1 Equipment Database File (GSDML)

PROFINET uses the equipment database file (GSDML) to describe the communication characteristics of the equipment. GSDML (General Station Description Markup Language) is a description language based on XML, and it can be written using standard XML editors. The latest version of the GSMDL specification released by the PI organization is V2.31.

6.1.1 File Name

GSDML-V2.31-LATCOS-SRx-PN-20210804.xml - The accompanying GSD file.

- "GSDML-V2.31" indicates the version number of GSMDL, and V2.31 is the latest version.
- "LATCOS" - Supplier name
- "SRx-PN" - Product number used in this version, this version can be used for the SRx-PN remote I/O module;
- "20210804" - Indicates the modification time

6.1.2 Installation of GSD File

The following is based on the installation instructions of the Siemens TIA Portal V14 software. The following is an explanation of the configuration parameters for the modules based on the TIA Portal V14 software of Siemens.

(1) Open TIA Portal V14 and enter the project window

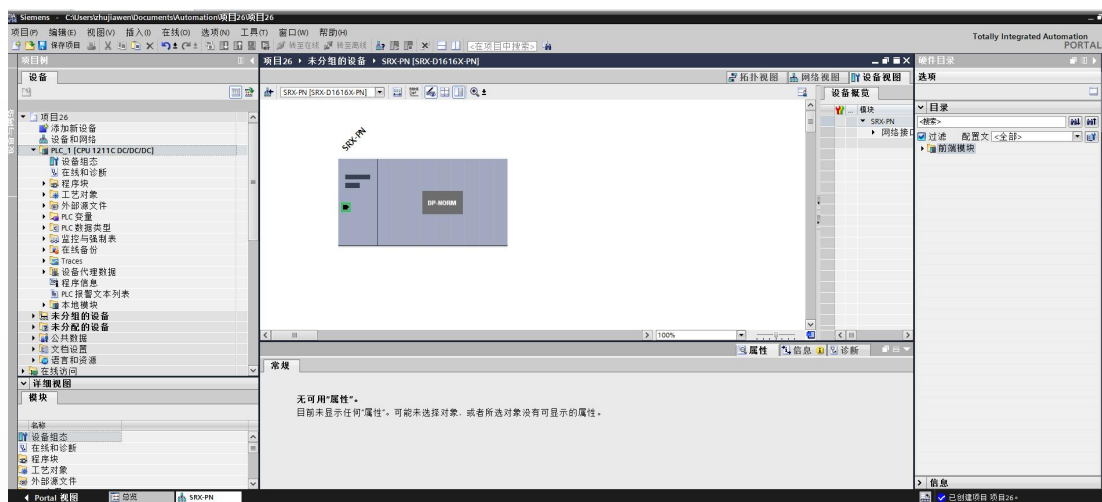


Figure 6-1 TIA Portal V14 Engineering Window

(2) Click on the "Options" toolbar menu, then find the "Manage General Site Device Profile (GSD) (D)" menu and click to enter.



Figure 6-2 TIA Portal V14 Tool Menu Window

(3) Enter the installation interface of the GSD file, click the "Browse" button to access the directory where the GSD files are located. There should be two files in the directory: one is the GSD file to be installed, and the other is the product icon. Select the corresponding GSD file for installation.



Figure 6-3 GSD Installation Window

(4) The following interface appears indicating that the installation is complete. Click "Close" and wait for the software to automatically update the hardware directory.



Figure 6-4 GSD Installation Completion Window

6.1.3 Removal of GSD

The software of Siemens TIA Portal V14 does not provide a dedicated interface or tool for deleting GSD. This function needs to be achieved by using a third-party tool (Everything tool).

(1) Download the Everything tool (an extremely useful file search tool)

(2) Shut down TIA Portal V14

(3) Open Everything. The first time it is used, it requires waiting for the scanning software to scan the entire disk. After the scan is completed, enter the file name to be deleted in the search bar, such as "GSDML-V2.31-LATCOS-SRx-PN-20210804.xml"

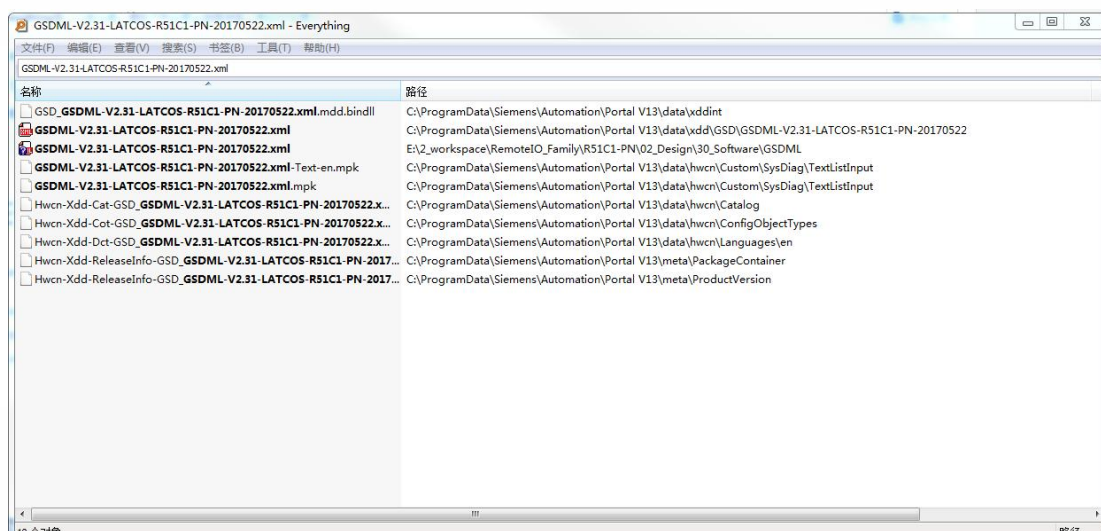


Figure 6-5 Everything window

(4) Click on "Path" to sort by installation path. Select the files and folders related to the Siemens path, then right-click and select "Delete". Be careful not to delete the saved backup GSD files as well.

(The above method for removing GSD is for reference only.)



7.Communication Connection Case

7.1 Example of Adding Siemens Beckhoff V14 Remote I/O

7.2 Scope of Application

The Siemens S7-1200 series PLC is connected to the remote I/O network through the PROFINET interface.

7.3 Principle Overview

The S7-1200 PLC can establish a connection with the remote I/O module via PROFINET communication. By importing the device description file of the remote I/O module into the Beckhoff software, remote I/O control can be achieved through a simple connection.

7.4 Debugging Environment

- Beckhoff TIA Portal V14 and above versions

- Remote I/O module device description file SRX_PN_GSD_picture20220909

7.5 Technical Implementation

7.5.1 Hardware Connection

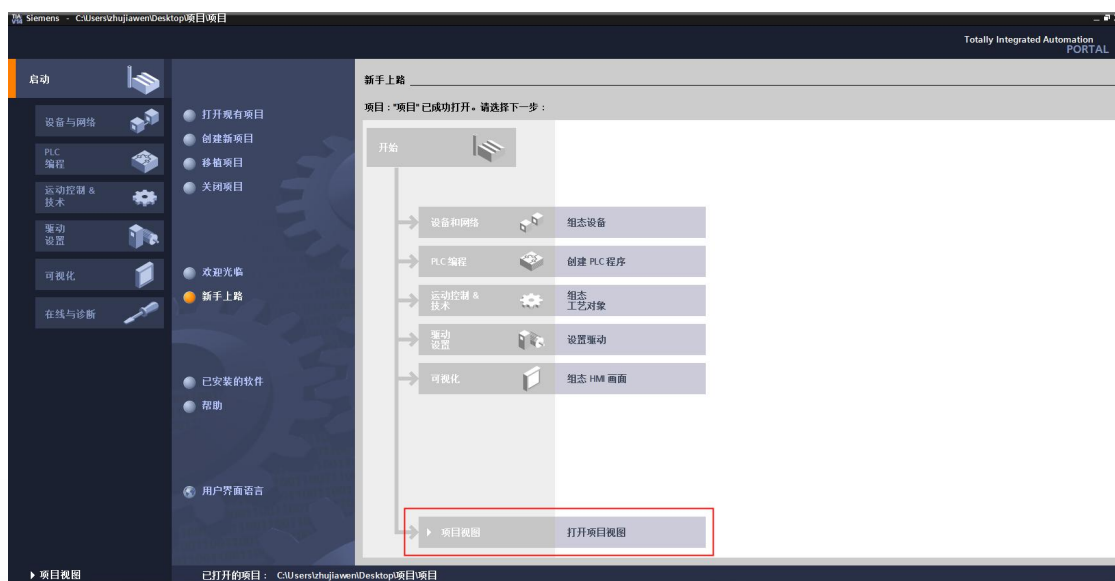
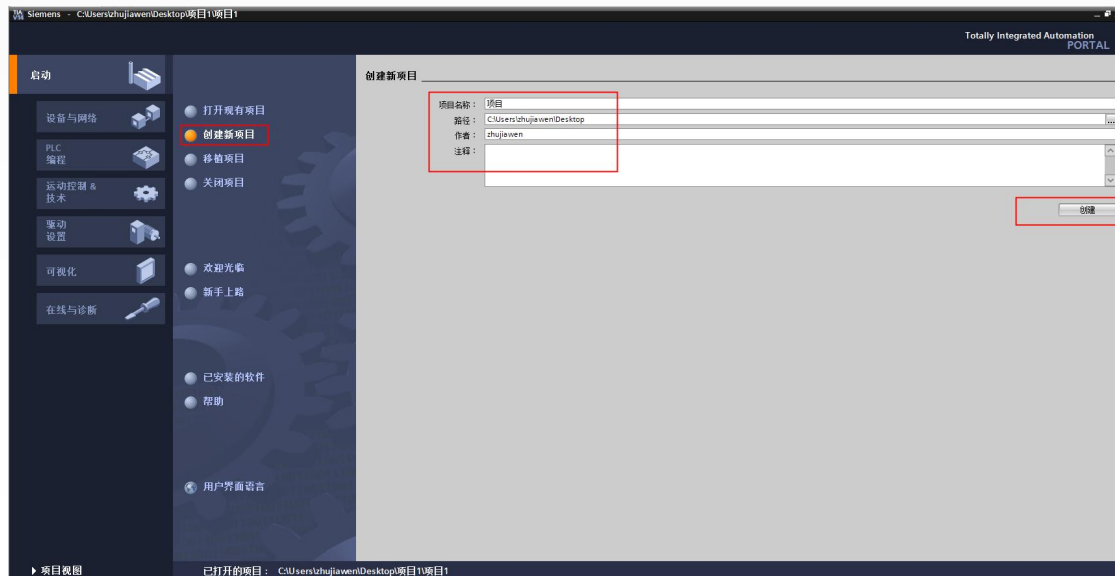
Step 1. Correctly connect the power supply of the S7-1200 PLC to the remote IO module.

Step 2. Insert the network port of the test object PLC into the X1 port of the remote IO module via a network cable. Then, connect the X2 port of the remote IO module to the network port of the debugging computer through a network cable.

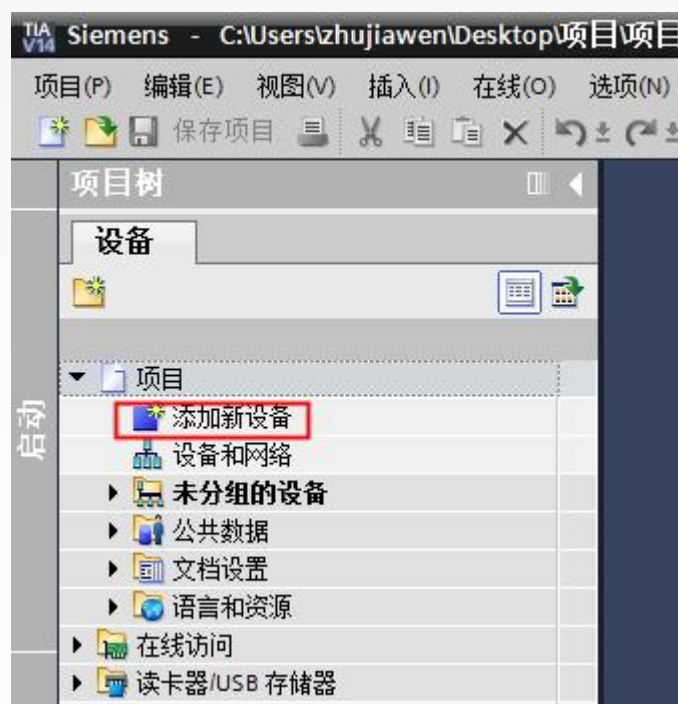


7.5.2 Example Project Establishment

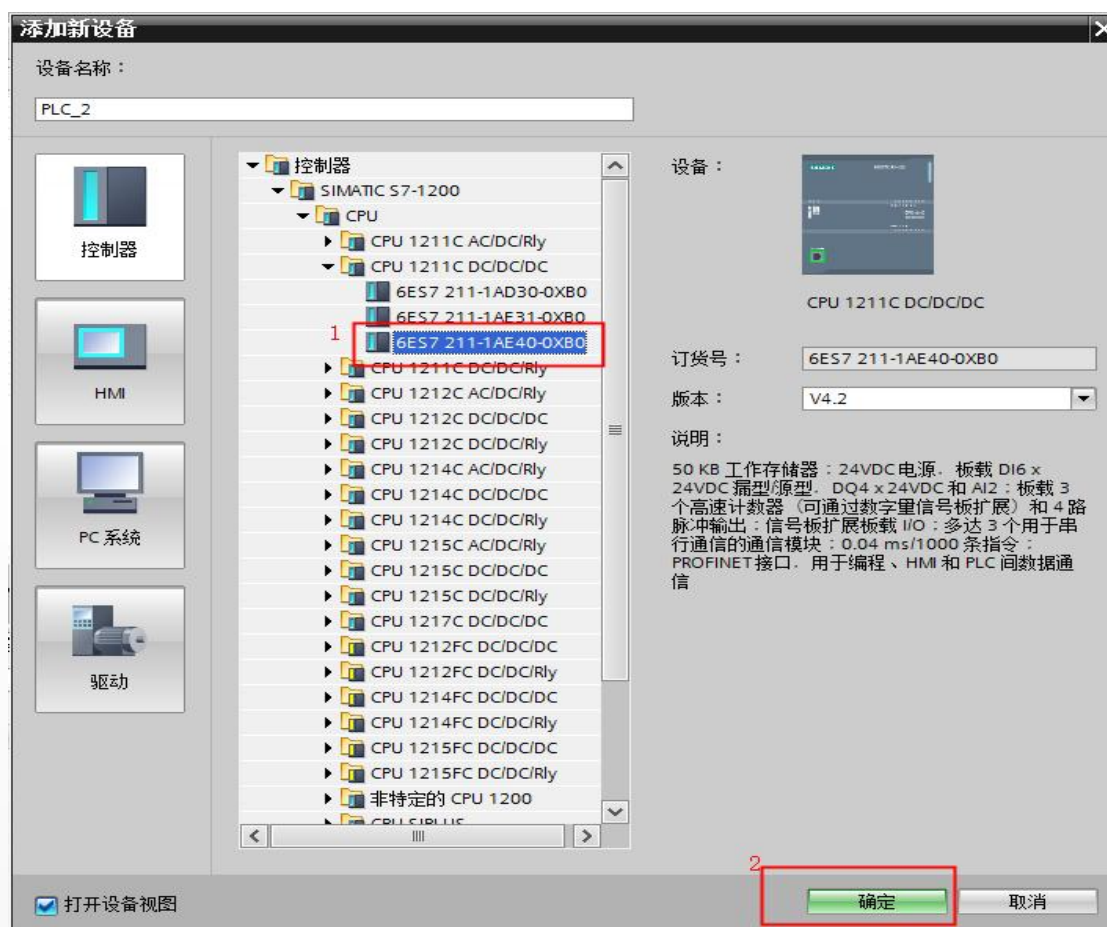
Step 1. Create a new project Open the TIA Portal software, select "Create New Project", and fill in the relevant information such as project name, path, version, author, etc. Then click "Create" to complete the process.



Step 2. Adding and Connecting Devices: Click on "Project" on the left side of the interface, which will display the subdirectory. Then, double-click on "Add New Device":



Step 3. A "Add New Device" window will pop up. Perform the operation "Controller → SIMATIC S7-1200 → CPU → CPU 1211C DC/DC/DC → 6ES7 211-1AE40-0XB0" and click OK:



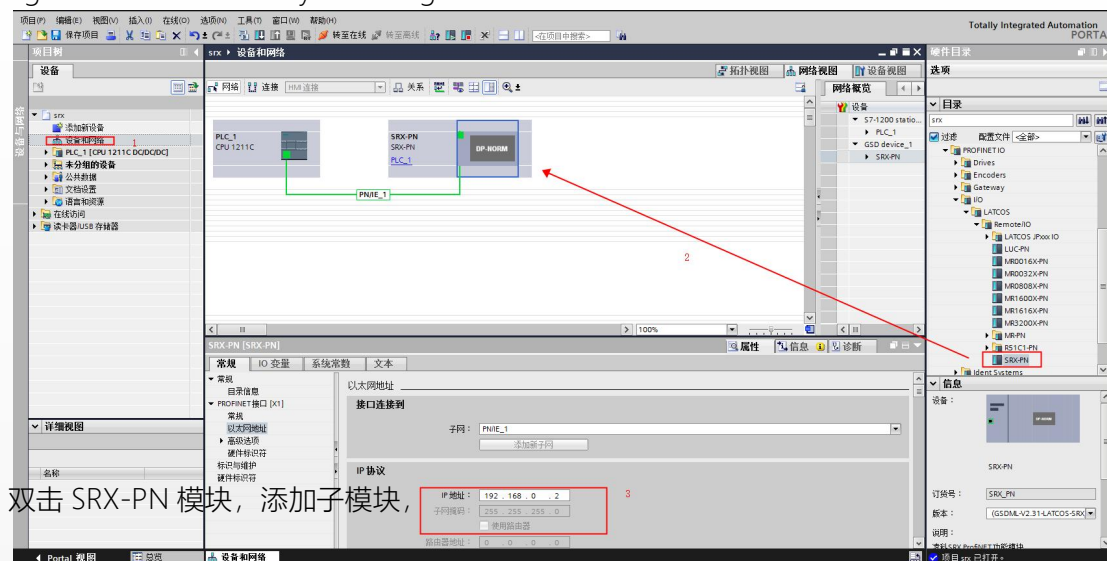
Step 4. Click the "Options" button on the menu bar and select "Manage General Site Profile File (GSD)":



Step 5. Next, select the source path (the location where it was stored during the preparation stage), check the folder, and click "Install" to complete the process:



Step 6. Select the "Network View" on the middle interface. Locate "SRX-PN" in the right hardware directory and drag it to the left Network View. Then set the IP address.



双击 SRX-PN 模块，添加子模块，

For example:

The module of SRX-D1600P-PN should be inserted into Slot 1 as Input 2 bytes.

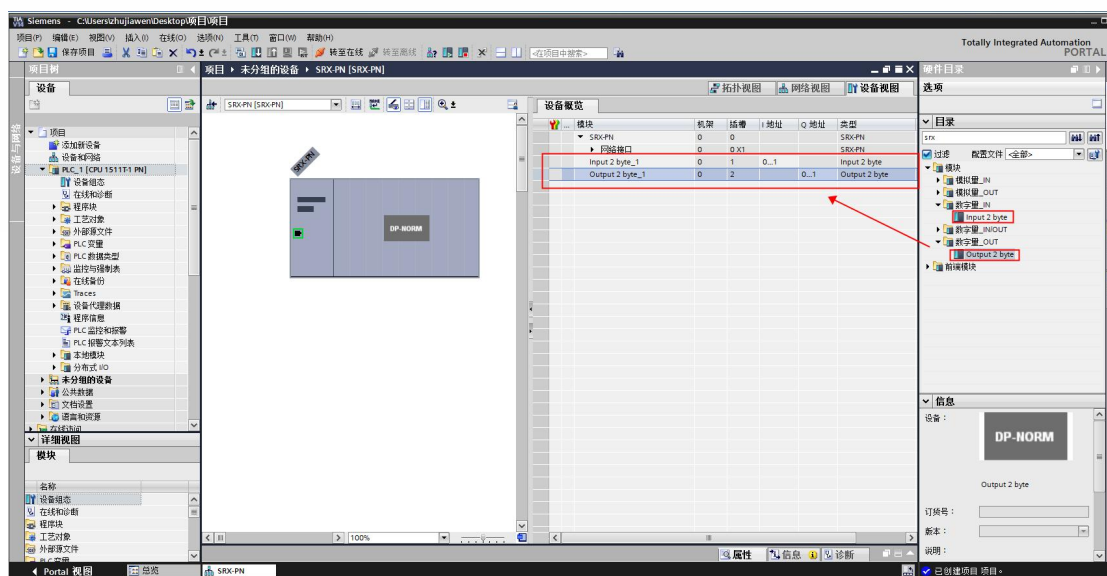
The module of SRX-D3200P-PN should be inserted into Slot 1 as Input 2 bytes and into Slot 2 as Input 2 bytes.

The module of SRX-D1616P-PN should be inserted into Slot 1 as Input 2 bytes and into Slot 2 as Output 2 bytes.

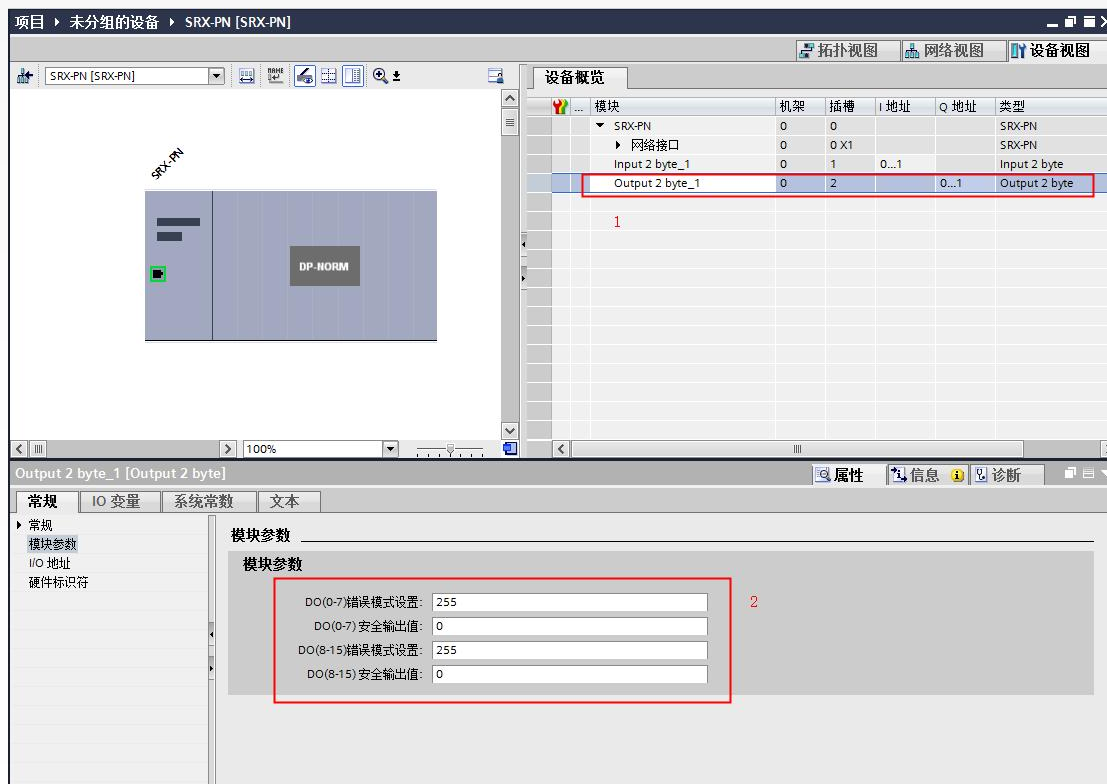
The module of SRX-D0016P-PN should be inserted into Slot 1 as Output 2 bytes.

The module of SRX-D0016P-PN should be inserted into Slot 1 as Output 2 bytes and into Slot 2 as Output 2 bytes.

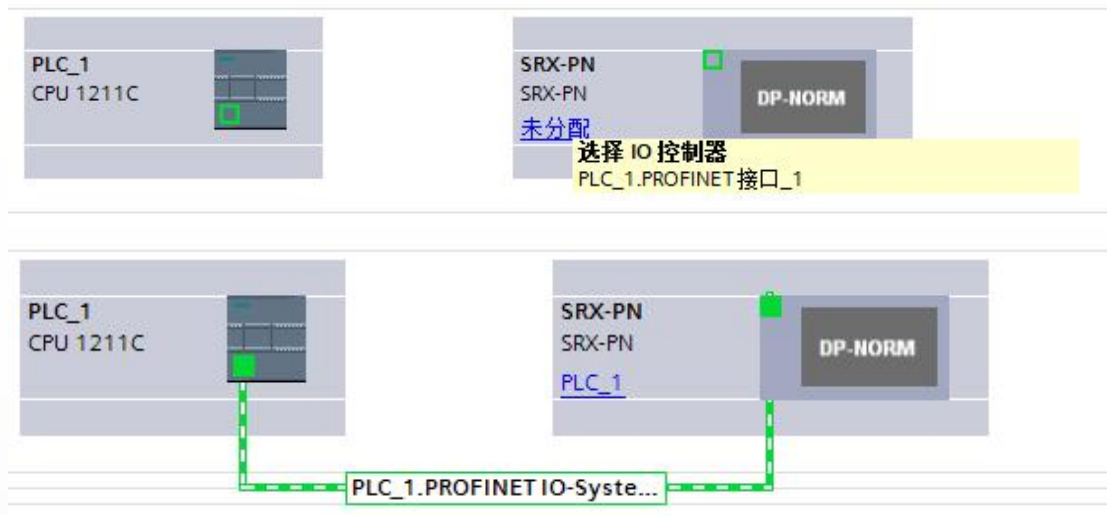
The module of SRX-A0600-PN should be inserted into Slot 1 as 6-channel AI.



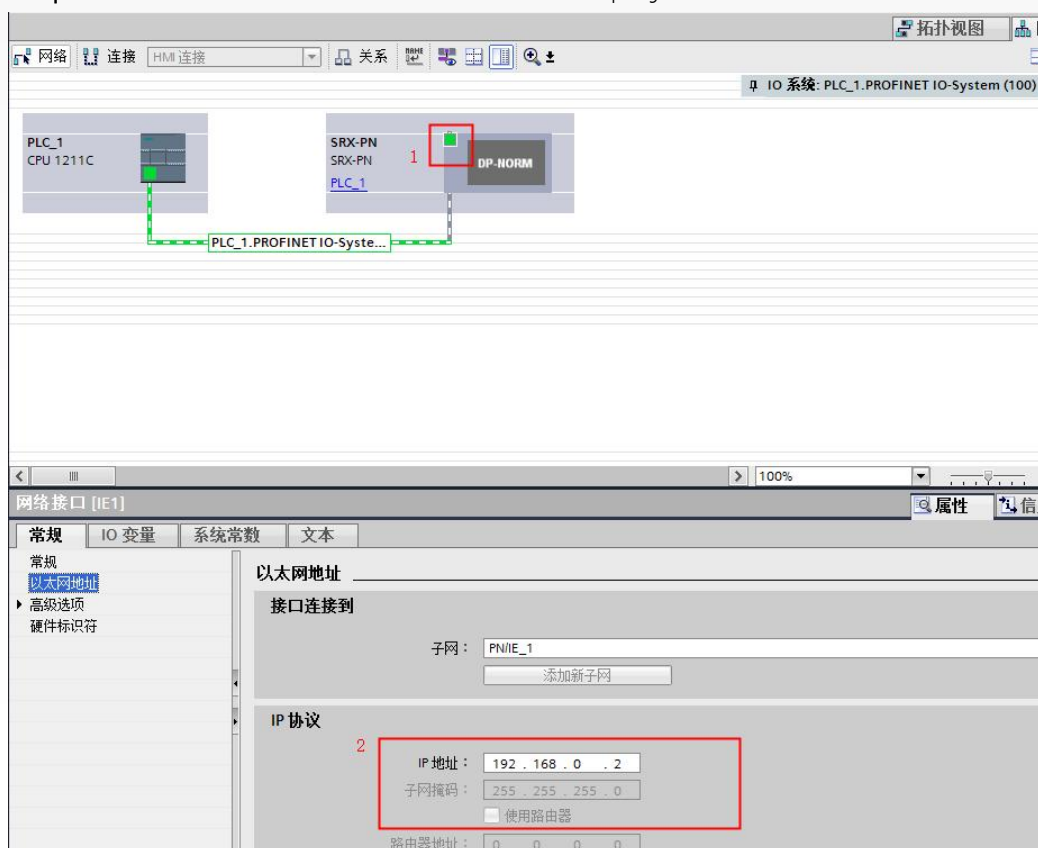
Clicking on the sub-module allows you to set the parameters of this sub-module. The specific parameter definitions can be found in the specification document.



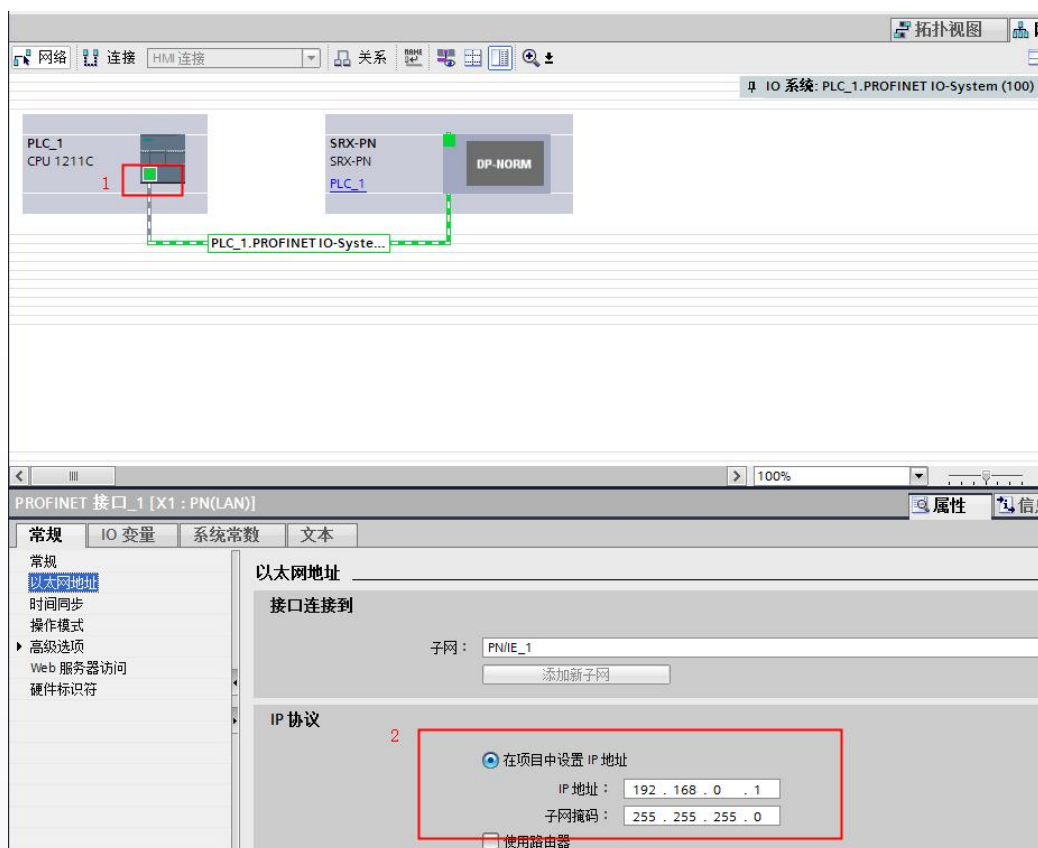
Step 7. Left-click on the unallocated area of the module, select PLC_1.PROFINET Interface_1, and the SRX-PN module can be connected to the PROFINET network.



Step 8. Set the IP address of the S7-1200 in the project:



Step 9. Set the IP address and device name for the remote IO

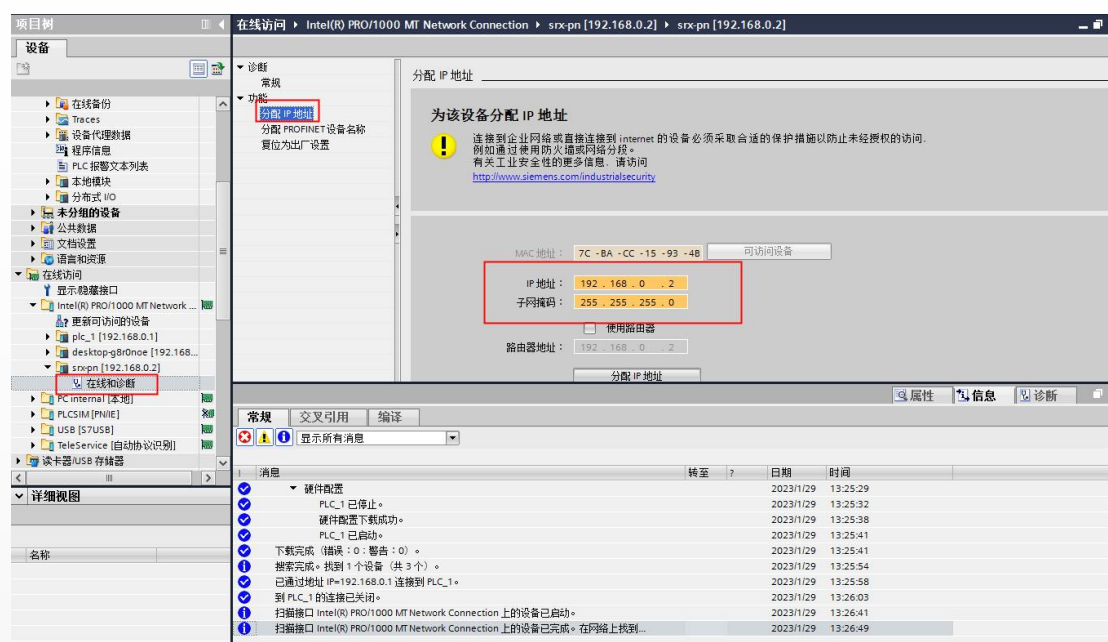


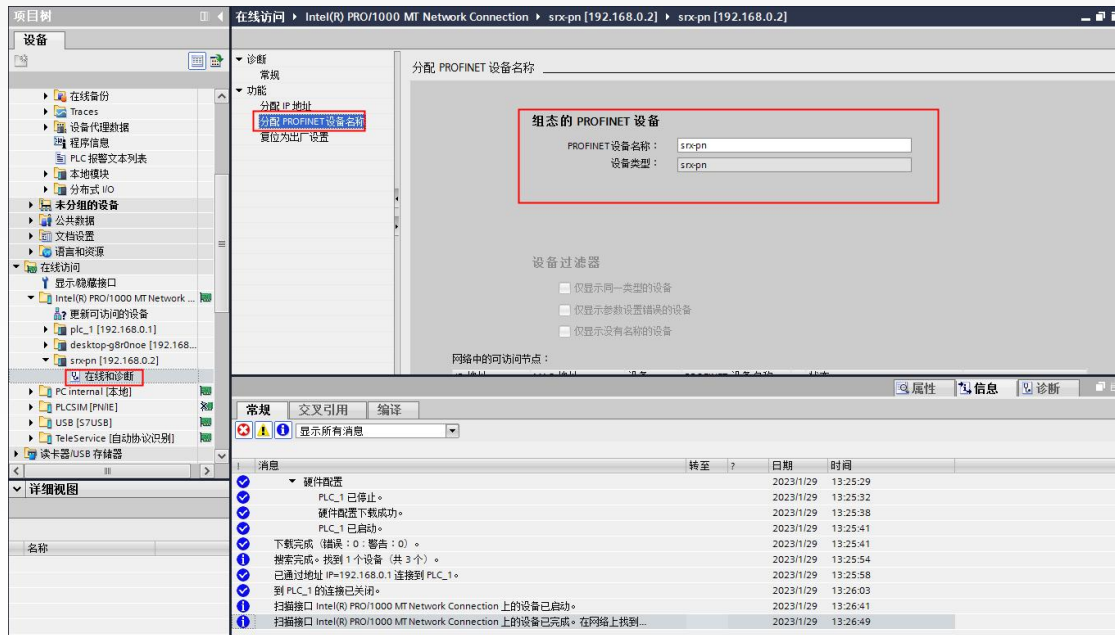
7.6 Two methods for confirming and modifying the names of remote IO devices

Method 1: Manually set the device name and IP through TIA Portal. Click on "Online Access - Update Accessible Devices" on the left side, and search for devices in the network:

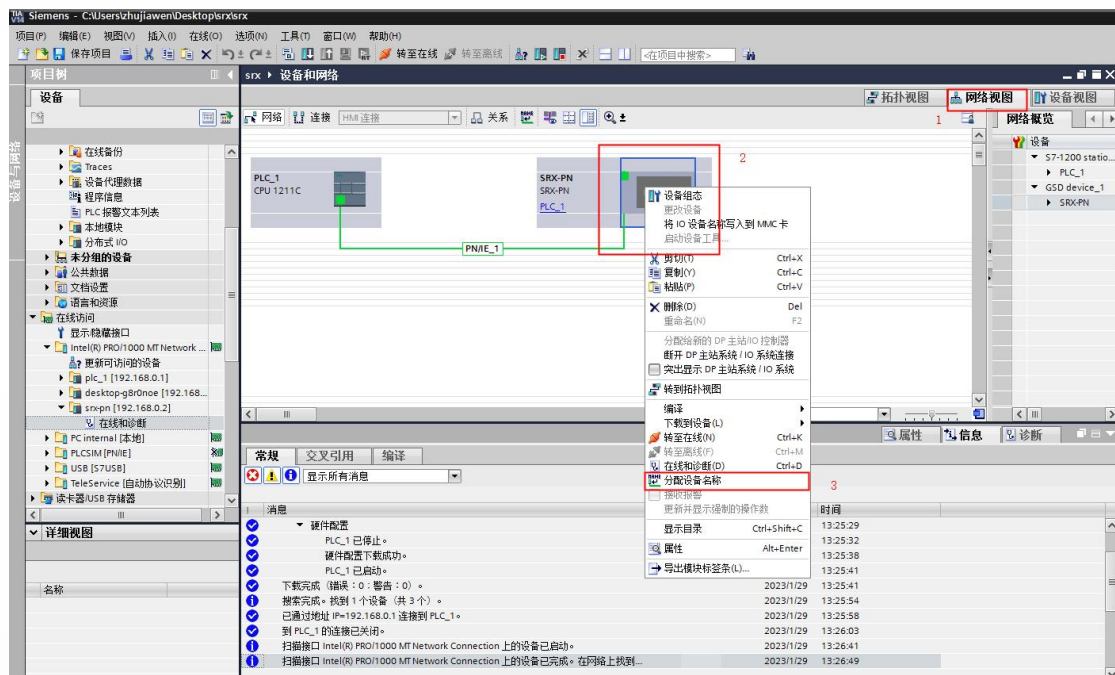


Through the online and diagnostic functions, set the device name and IP address for the IO module. Please note that the device name and IP address here must be consistent with those in the project:

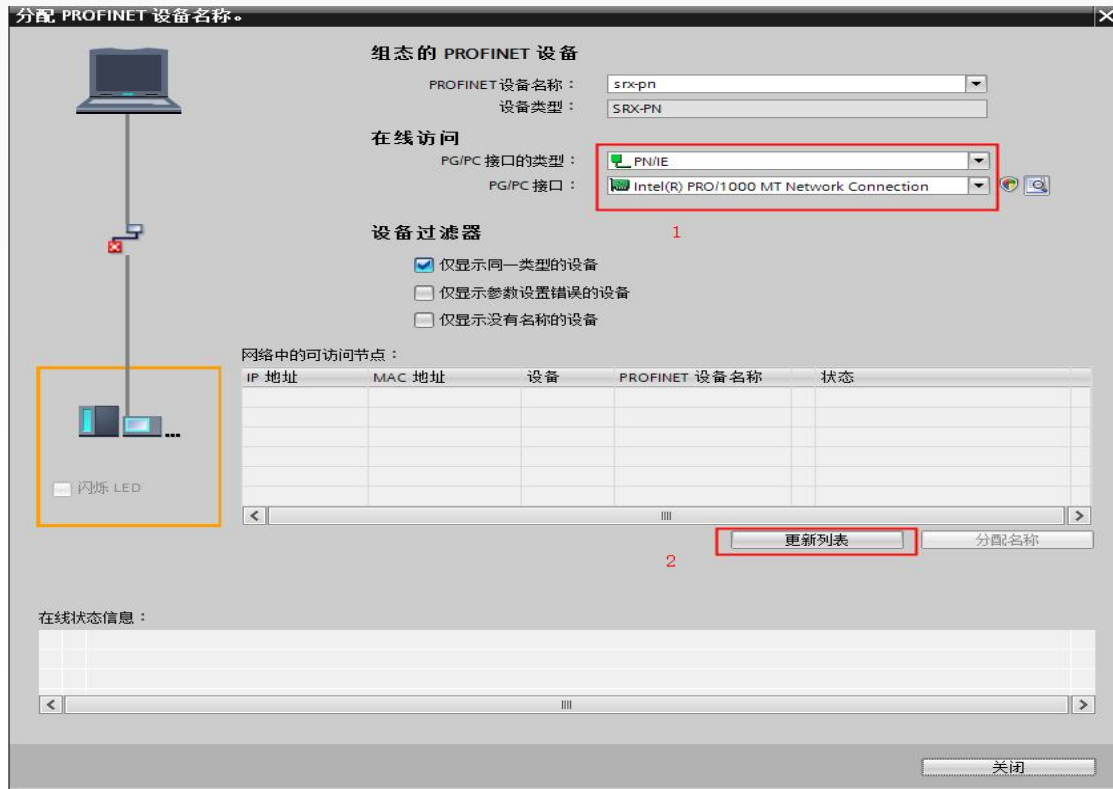




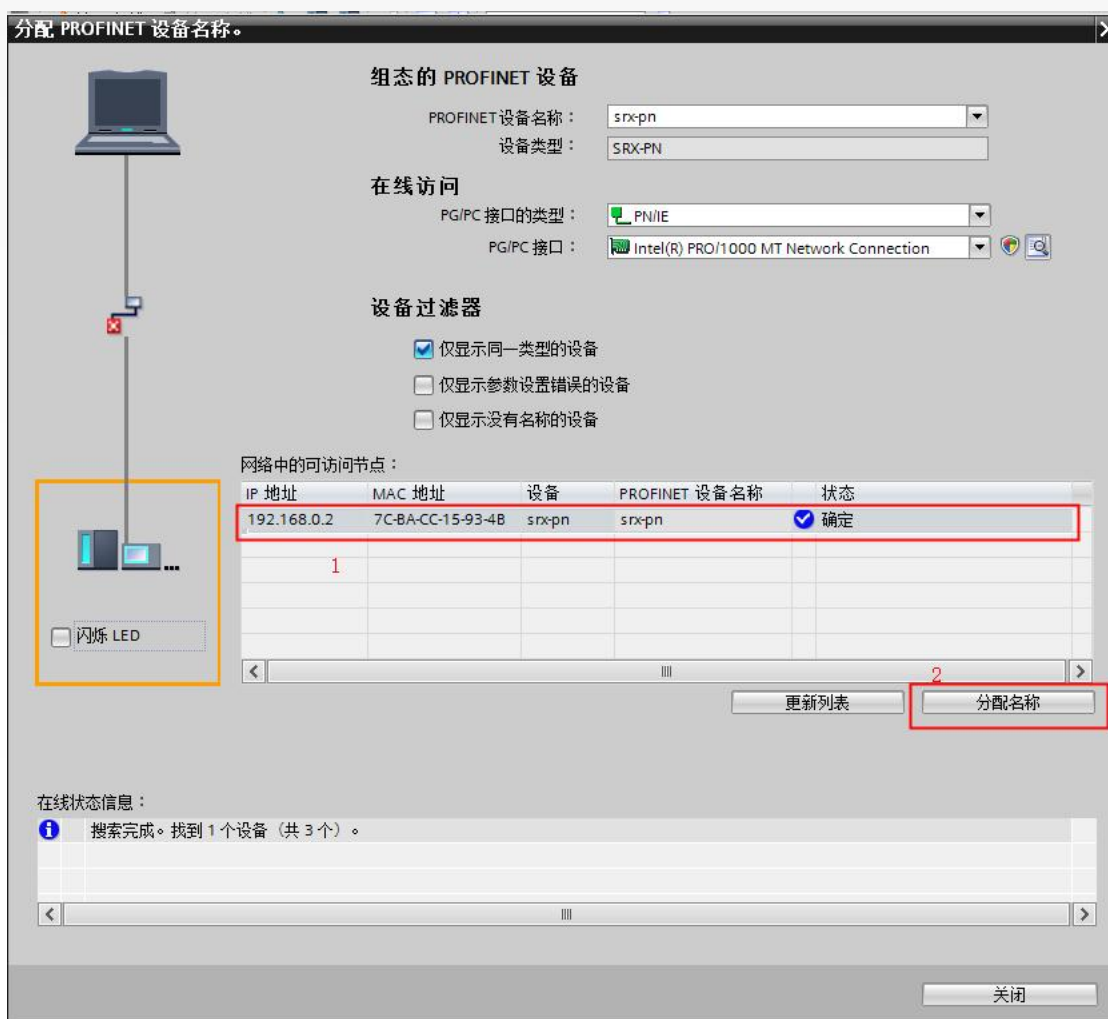
Method 2: Assign device names directly through the module of the network view.



Select the correct network card and then update the directory



Select the corresponding module allocation device name based on the MAC code.



After the setting is completed, when the PLC is powered on, it will allocate an IP address based on the devices in the network. **It is essential to ensure that the hardware device name is consistent with the software device name.**

7.7 Program Writing

Write the PLC program according to the process requirements.

Official website



先进自动化控制及工业网络技术



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