



User Manual 用户手册

MR



MRS



MRM



MRMS



MR ☐ Panel Type Distributed I/O

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

ETHERCAT® is a registered trademark of the ETHERCAT Association.

(3) Patent Information

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

(4) Copyright

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

1.2 Safety Matters

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

Version	Date	Explanation
V1.0	2021.11.03	First release
V1.1	2025.06.20	Add some additional models

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》 ;

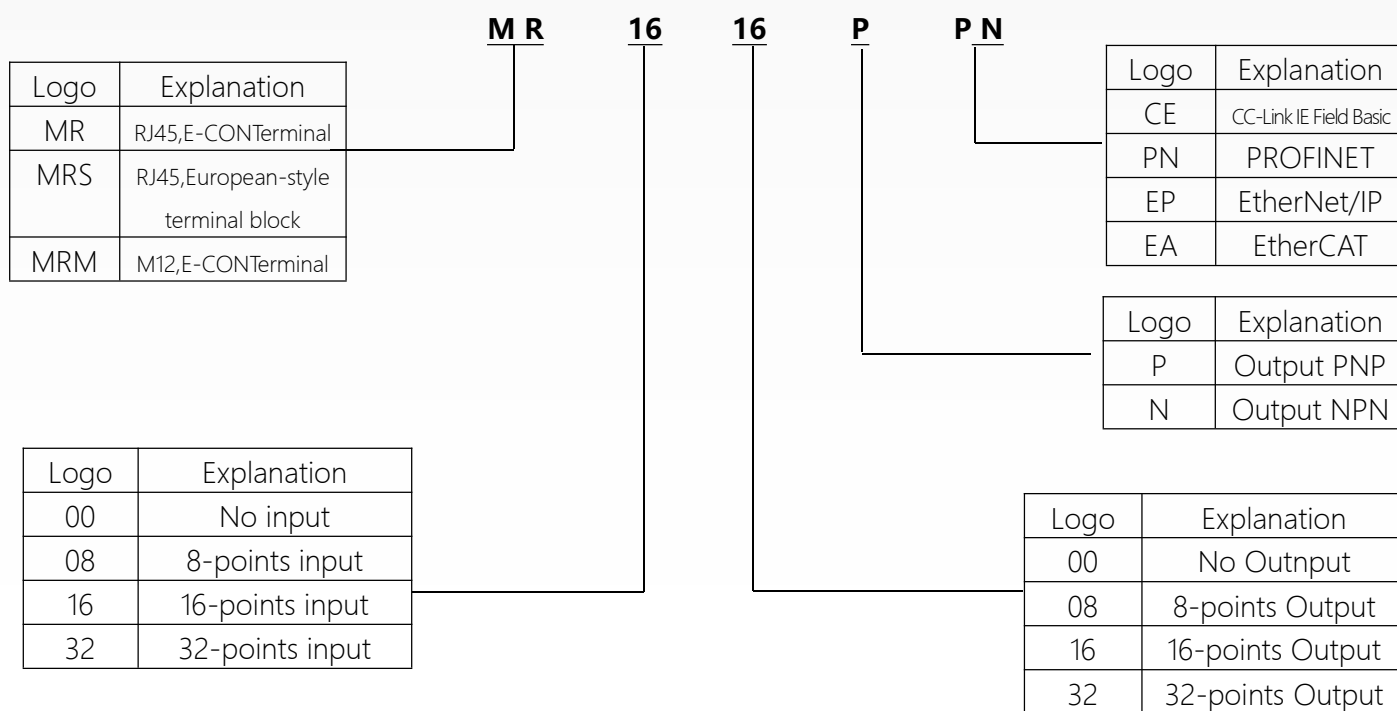
《PNO-7.352, PROFINET IO Device Integration, Guideline for PROFINET, Version 1.0, October 2014,PROFIBUS & PROFINET International, Order Number 7.352》



2.Product Overview

2.1 Model list

The MR□-EA series remote I/O supports the high-performance EtherCAT bus communication protocol. Through the digital I/O interface integrated in the module body, it can directly provide high-performance input and output functions without the need for other EtherCAT bus couplers.



Number	Model number	Explanation
1	MR□0016P-PN	Digital output with 16 points, PNP, PROFINET_RT slave interface 2×RJ45
2	MR□0032P-PN	Digital output with 32 points, PNP, PROFINET_RT slave interface 2×RJ45
3	MR□0808P-PN	Digital input and output with 8 points each, PNP, PROFINET_RT slave interface 2×RJ45
4	MR□1600P-PN	Digital input with 16 points, PNP, PROFINET_RT slave interface 2×RJ45
5	MR□1616P-PN	Digital input 16 points, output 16 points, PNP, PROFINET_RT slave interface 2×RJ45
6	MR□3200P-PN	Digital input with 32 points, PNP, PROFINET_RT slave interface 2×RJ45
7	MR□0016N-PN	Digital input and output with 8 points each, NPN, PROFINET_RT slave interface 2×RJ45
8	MR□0032N-PN	Digital output with 16 points, NPN, PROFINET_RT slave interface 2×RJ45
9	MR□0808N-PN	Digital output 16 points, NPN, PROFINET_RT slave interface 2×RJ45
10	MR□1600N-PN	Digital input and output with 32 points each, NPN, PROFINET_RT slave interface 2×RJ45
11	MR□1616N-PN	Digital output with 16 points, PNP, PROFINET_RT slave interface 2×RJ45
12	MR□3200N-PN	Digital output with 32 points, PNP, PROFINET_RT slave interface 2×RJ45

Table 1 PROFINET_RT Remote I/O Module

2.2 MR□-PN Specification Parameters

This article only provides explanations on the product specification parameters of MR-PN. For the specification parameters of other models, please contact your supplier for information.

2.2.1 DI specification

The specifications for digital input (DI) are shown in Table 2.

Number	Project	Specification
1	Number of channels	16
2	Input type	PNP or NPN (determined during selection)
3	Input voltage	PNP: 24V DC ($\pm 20\%$), NPN: 0V DC ($\pm 3V$)
4	Input current	Typical value: 3mA (EN61131-2, Type 1)
5	Input filtering	2.0ms
6	Electrical isolation	500V

Table 2 Specifications for Digital Input

2.2.2 DQ Specification

The specifications and parameters of the digital output (DQ) of the optocoupler relay are shown in Table 3.

Number	Project	Specification
1	Channel count	16
2	Output signal type	PNP or NPN (determined during selection)
3	Output rated voltage	PNP: 24V DC ($\pm 20\%$), NPN: 0V DC ($\pm 3V$)
4	Drive capability	Single channel: 500mA
5	Load type	Resistive load, inductive load, lamp load
6	Isolation withstand voltage	500V
7	Isolation method	Optical isolation

Table 3 Digital Output Specifications

2.2.3 PROFINET_RT Communication Specification

The PROFINET_RT communication specification parameters are shown in Table 4.

Number	Project	Specification
1	Agreement	PROFINET_RT (IEC 61158 Type3)
2	Transmission rate	10/100 Mbaud, Automatic transmission speed recognition
3	Bus interface	Equipped with dual RJ45 switches (industrial Ethernet compliant with IEEE 802.xx standard, featuring auto-negotiation and auto-crossing functions)
5	Communication address	The only global MAC address
6	Transmission cable	CAT5e shielded cable
7	PROFINET_RT characteristics	Media Redundancy Protocol (MRP), shared devices, synchronous communication
8	Port protection	Transformer isolation, 1500V DC (IEC61000-4-2)

Table 4 Ethernet/IP Communication Specifications

2.2.4 Power supply specifications

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

(1) 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 parts is 500V DC.

(2) The digital input voltage uses 24V DC (-15% / +20%), with a maximum current consumption of 16*10mA; the electrical isolation withstand voltage between it and other I/O parts is 500V DC. The MOSFET digital output part uses 24V DC (-15% / +20%), with a maximum current consumption of 16*0.5A, and has channel-independent overcurrent protection; the electrical isolation withstand voltage between it and other I/O parts is 500V DC.



3. Structure description

3.1 Description of the MR Series Appearance

Installation method: Standard DIN35 rail or hole drilling installation

Installation accessories: Spring-type metal clips x2, hole-drilling installation metal sheets x2

Power interface 1: 3Pin European spring terminal

Power interface 2: 4Pin European spring terminal

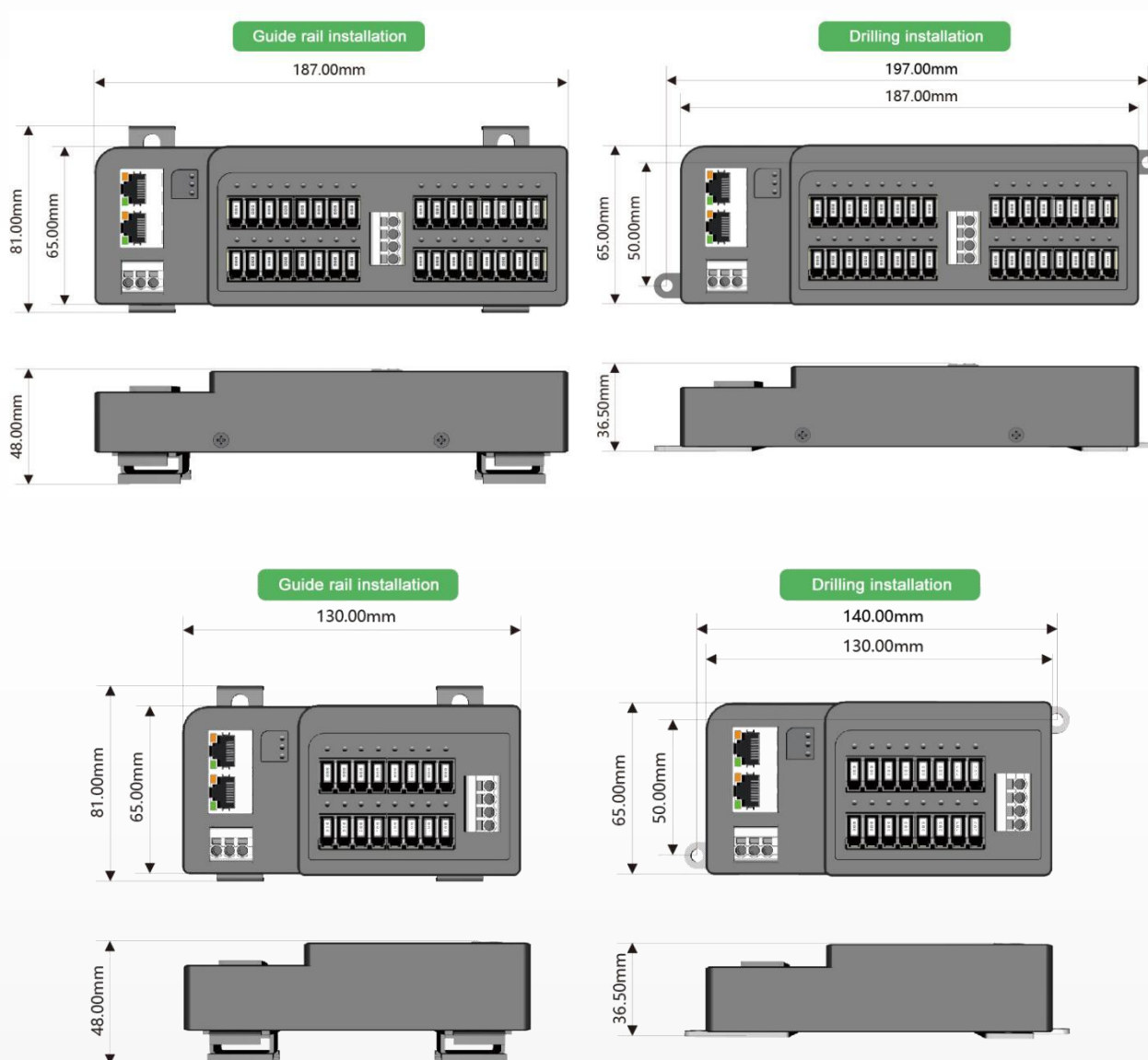
Network interface: RJ45 x2

I/O connector: Piercing-type e-CON connector

Shell material: Metal aluminum shell

Heat dissipation method: Shell heat dissipation

Protection level: IP50



3.2 Description of the MRS Series Appearance

Installation method: Standard DIN35 rail or hole drilling installation

Installation accessories: Spring-type metal clips x2, hole-drilling installation metal sheets x2

Power interface 1: 3Pin European spring terminal

Power interface 2: 4Pin European spring terminal

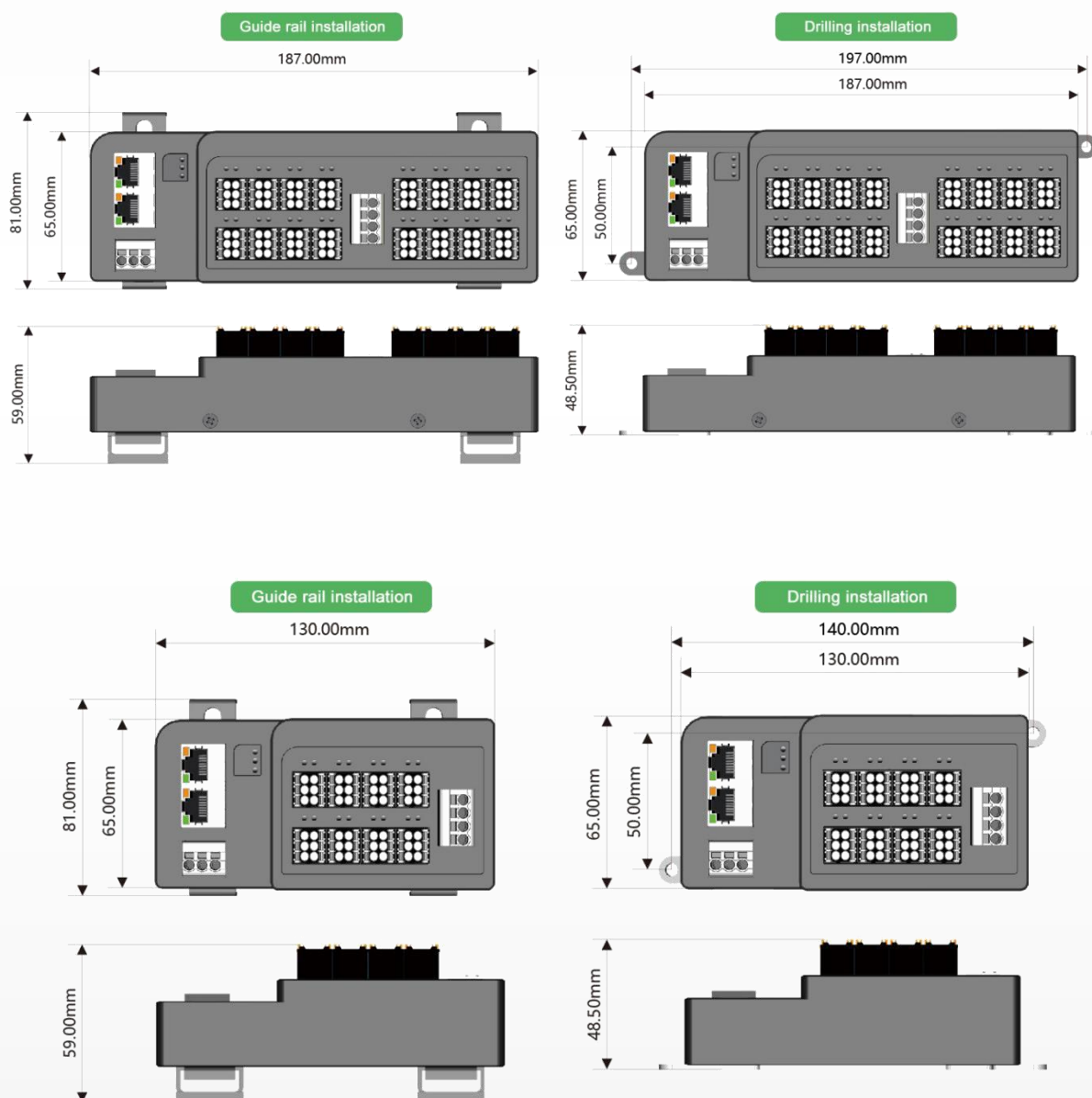
Network interface: RJ45 x2

I/O connector: Plug-in European spring terminal

Shell material: Metal aluminum shell

Heat dissipation method: Shell heat dissipation

Protection level: IP50



3.3 Description of the MRM Series Appearance

Installation method: Standard DIN35 rail or hole drilling installation

Installation accessories: Spring-type metal clips x2, hole-drilling installation metal sheets x2

Power interface 1: 3Pin European spring terminal

Power interface 2: 4Pin European spring terminal

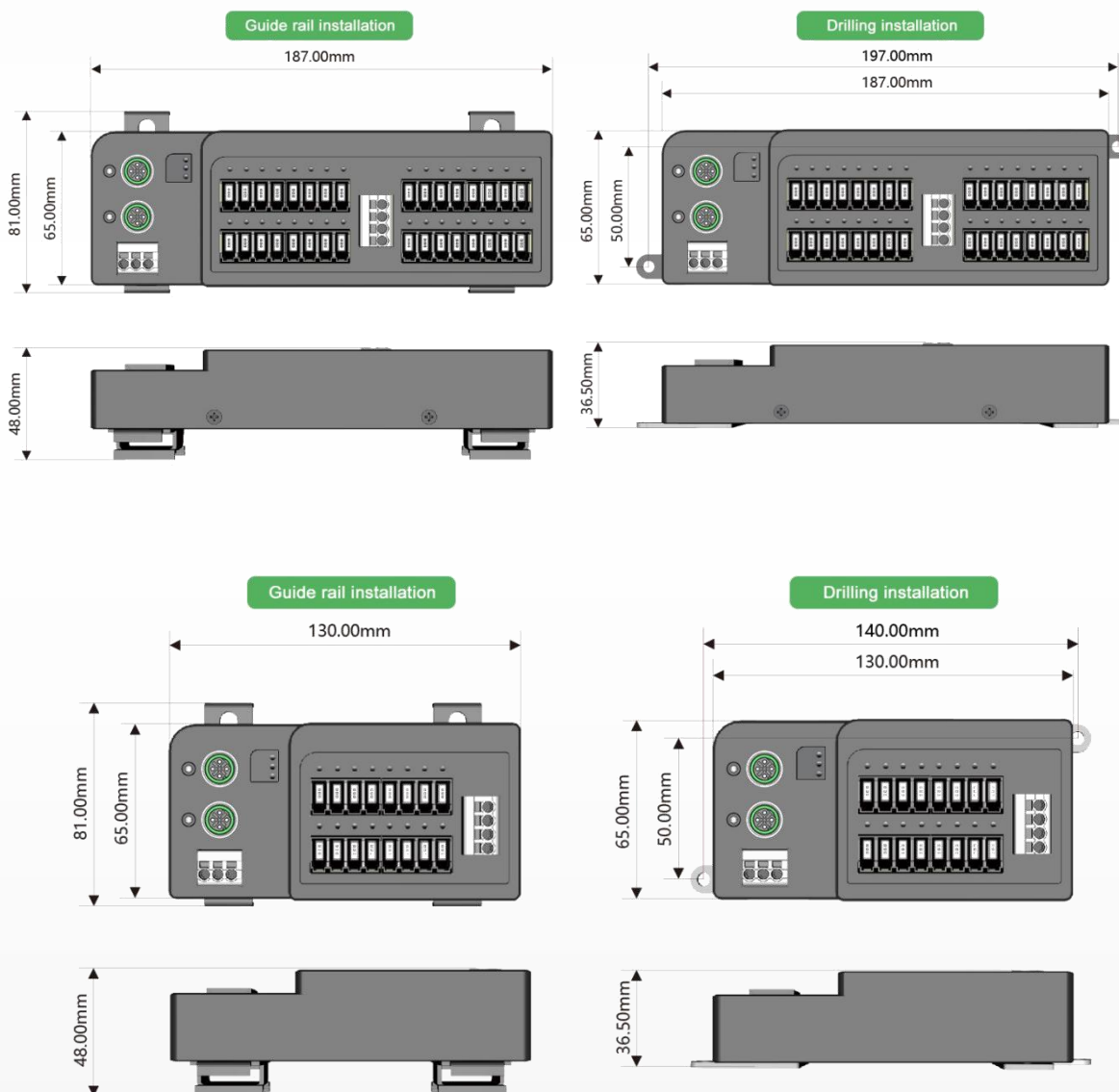
Network interface: M12x2

I/O connector: Piercing-type e-CON connector

Shell material: Metal aluminum shell

Heat dissipation method: Shell heat dissipation

Protection level: IP50



3.4 Description of the MRMS Series Appearance

Installation method: Standard DIN35 rail or hole drilling installation

Installation accessories: Spring-type metal clips x2, hole-drilling installation metal sheets x2

Power interface 1: 3Pin European spring terminal

Power interface 2: 4Pin European spring terminal

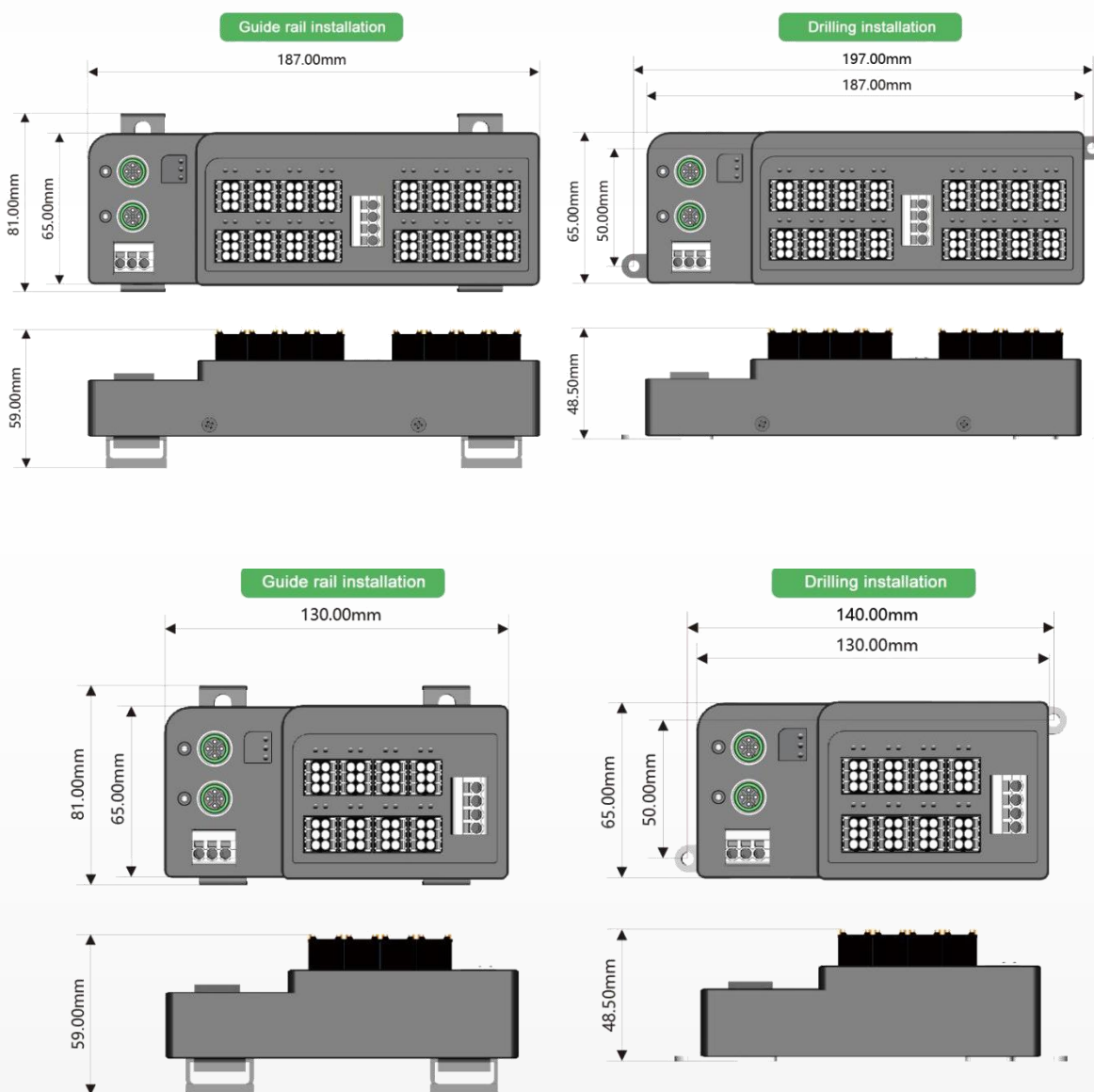
Network interface: M12x2

I/O connector: Plug-in European spring terminal

Shell material: Metal aluminum shell

Heat dissipation method: Shell heat dissipation

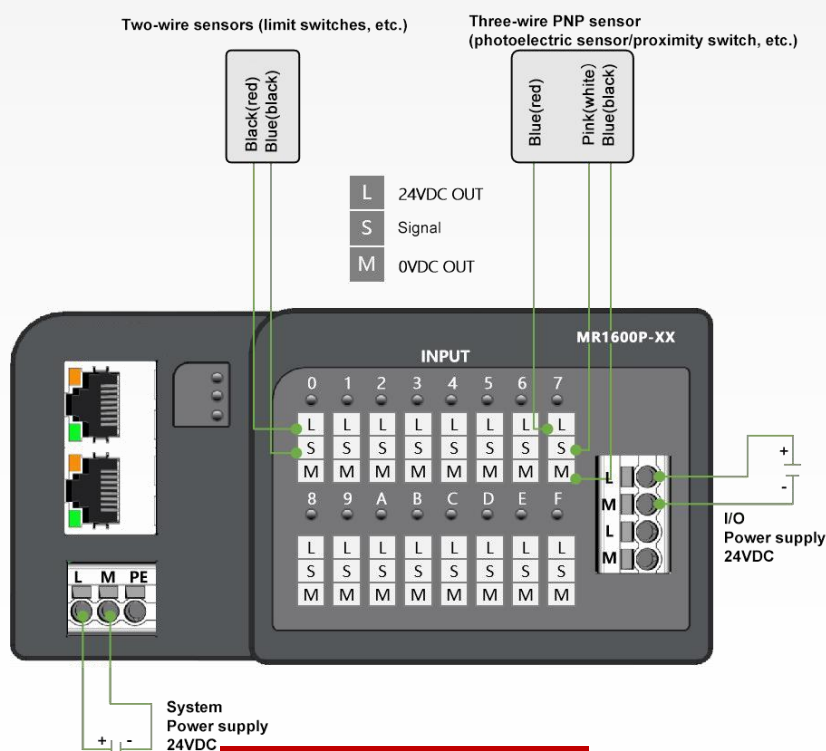
Protection level: IP50



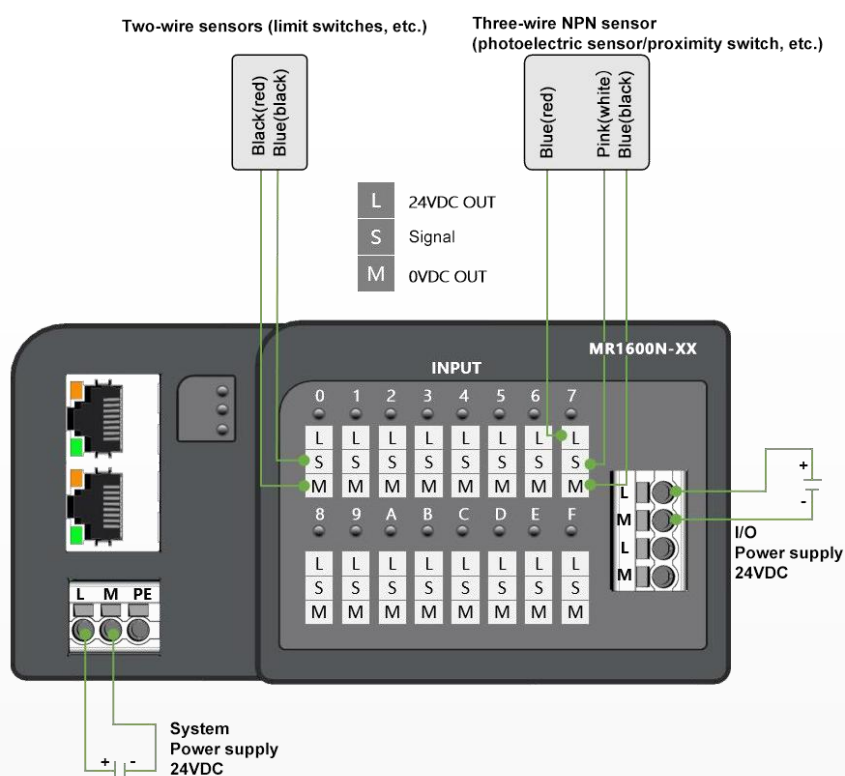


4. Hardware description

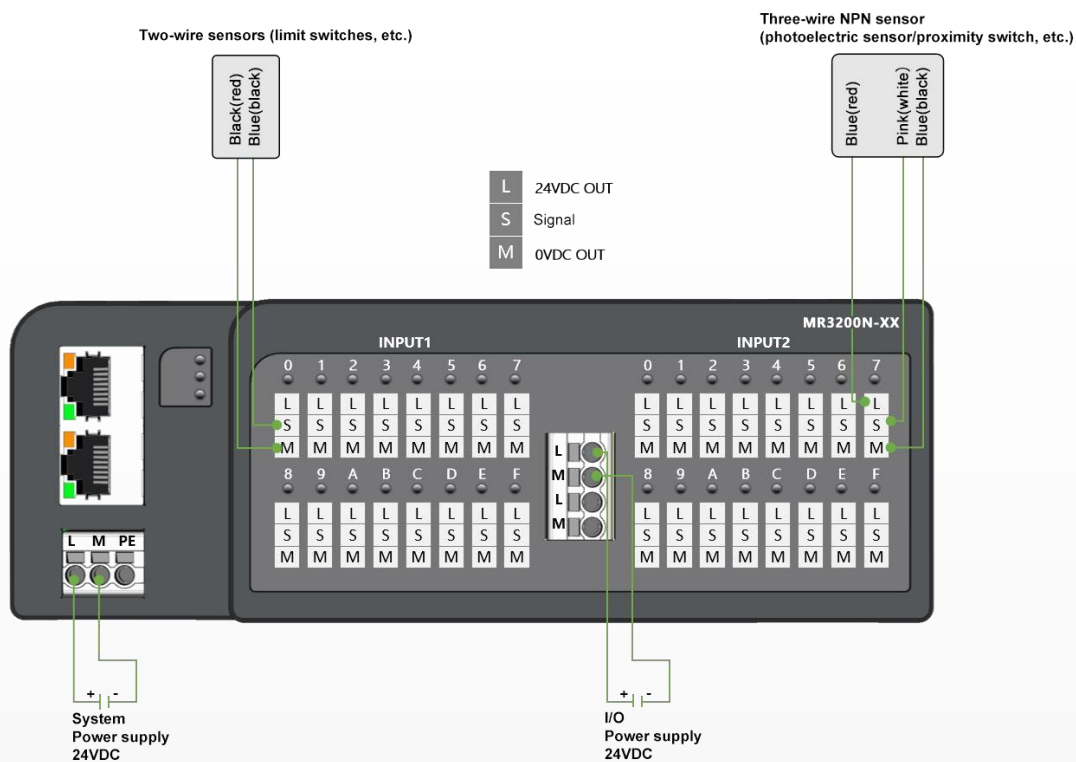
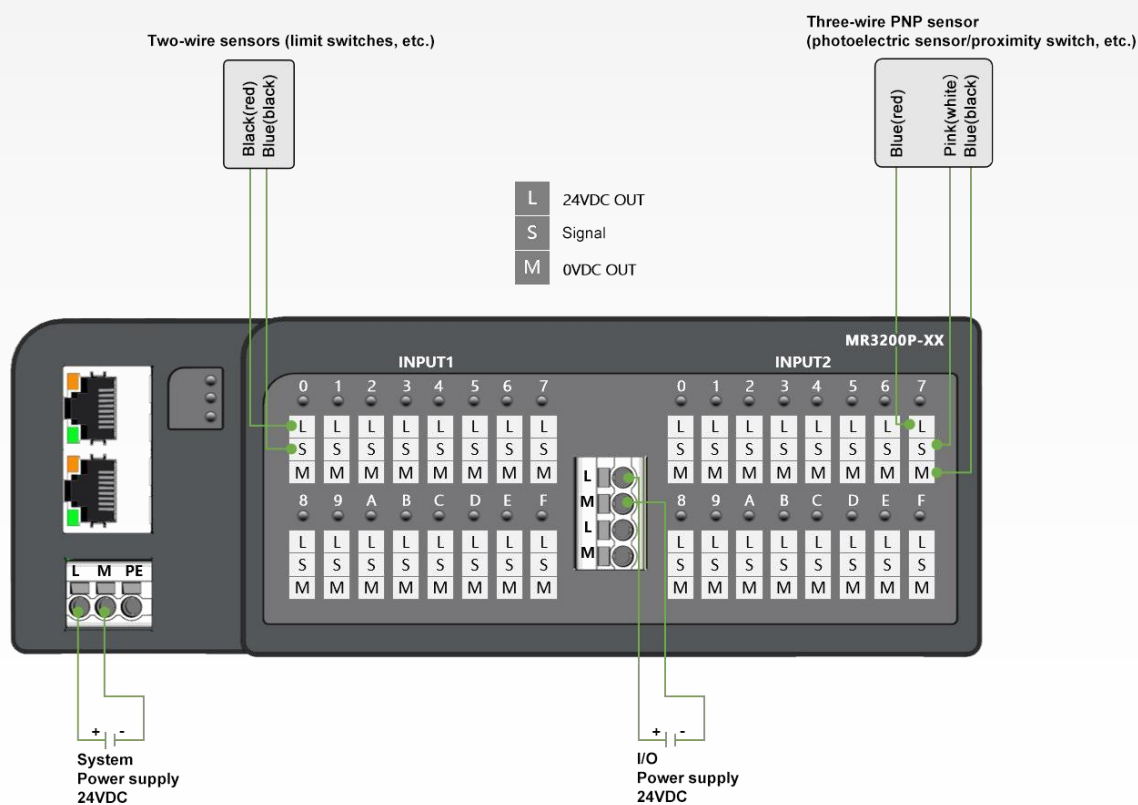
4.1 MR series remote I/O module wiring diagram

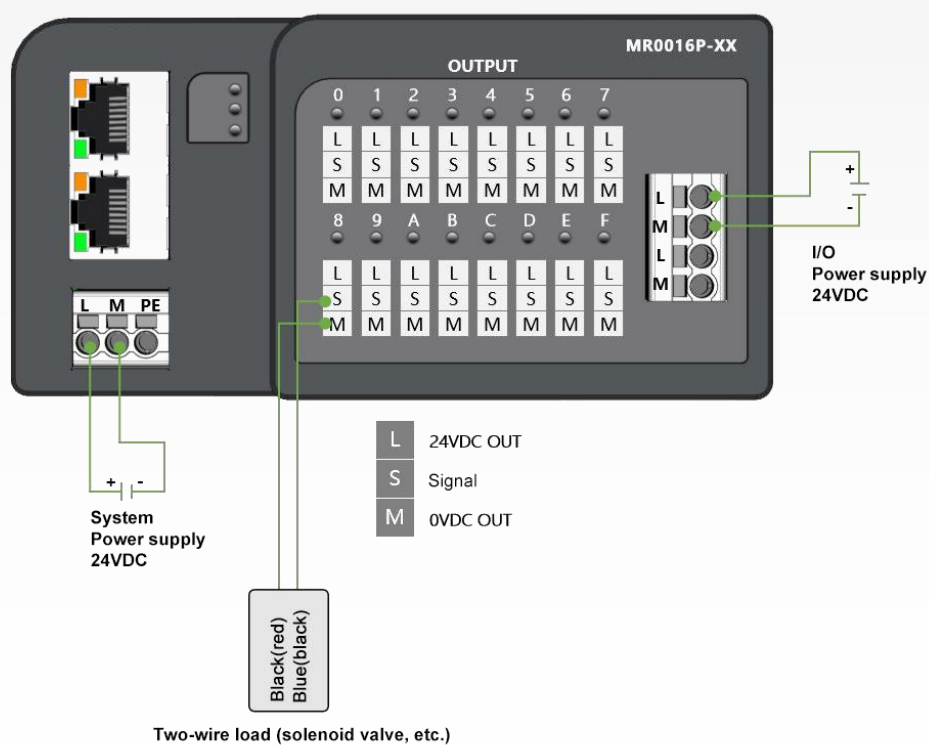


16 points input PNP

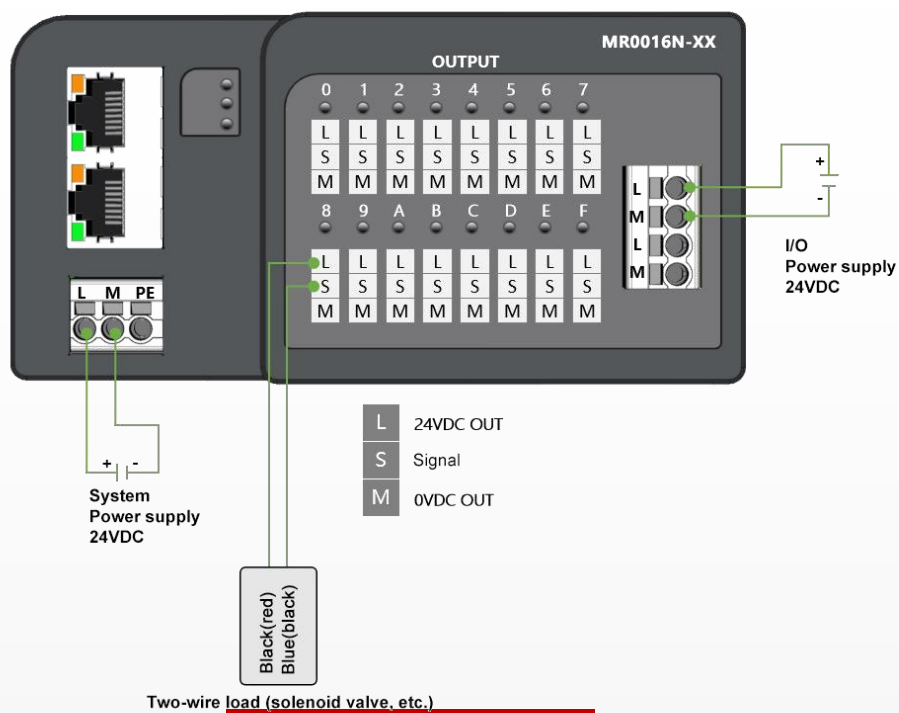


16 points input NPN

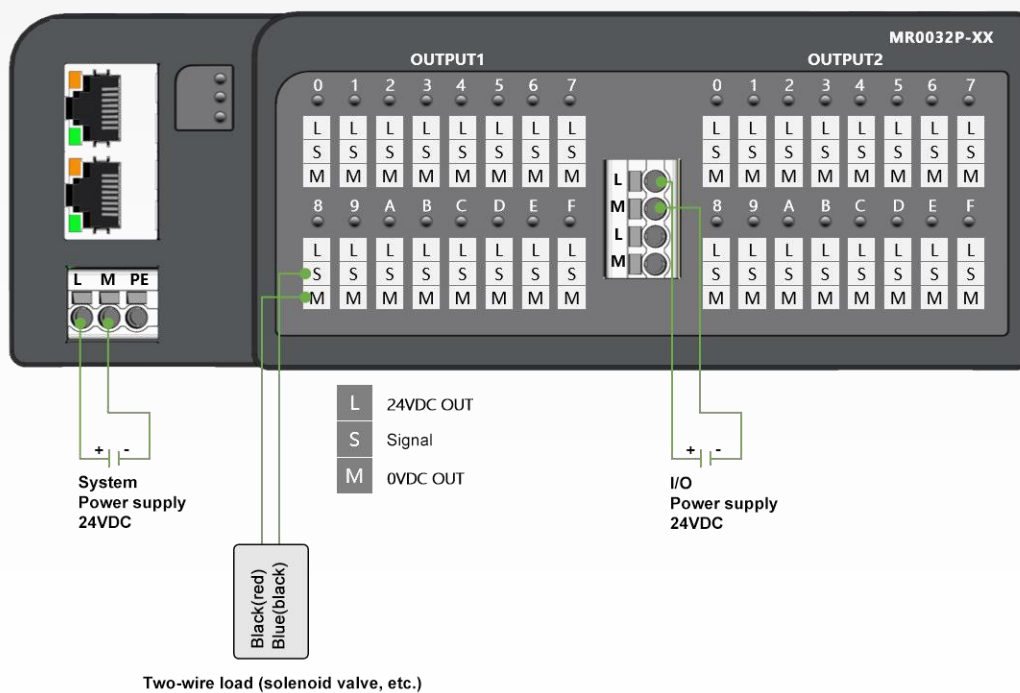




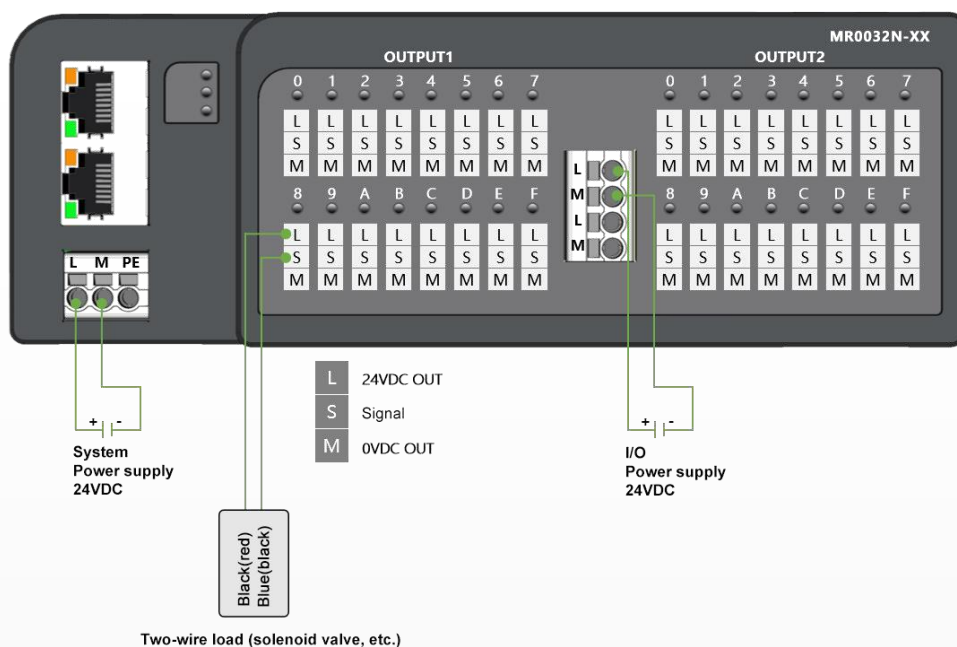
16 points output PNP



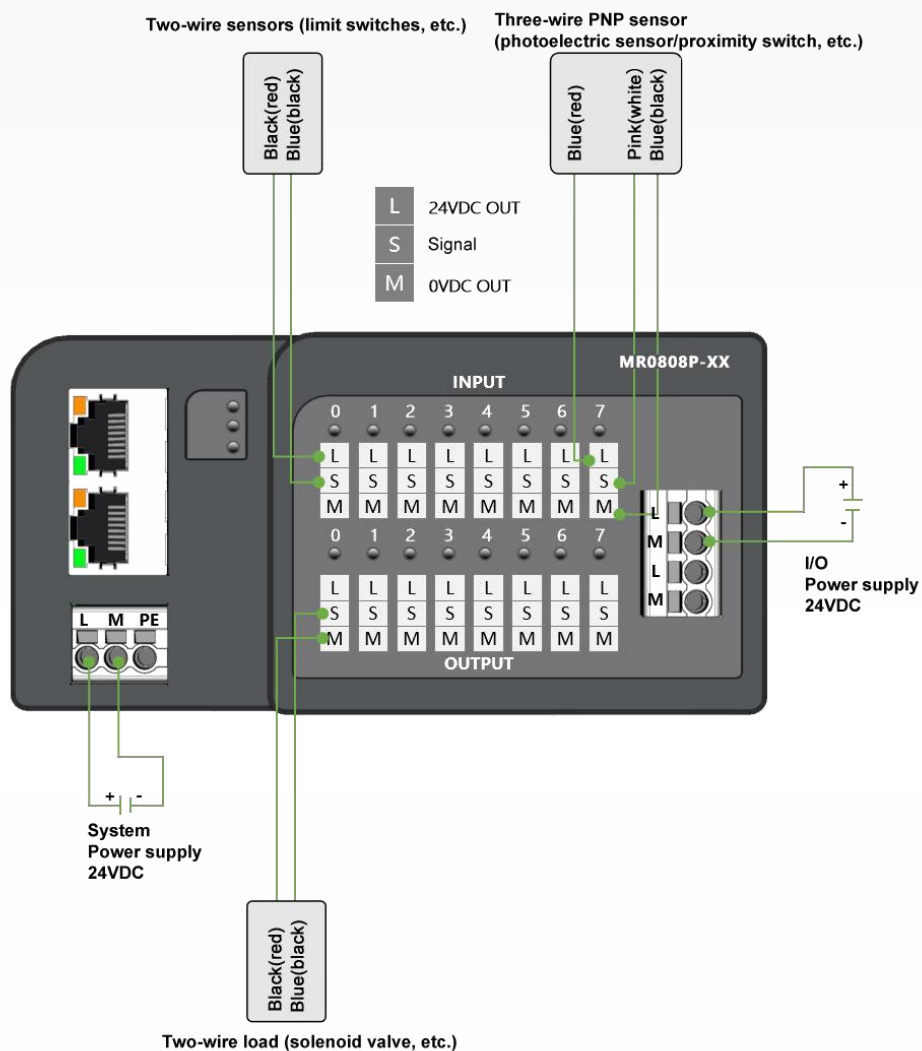
16 points output NPN



32 points output PNP

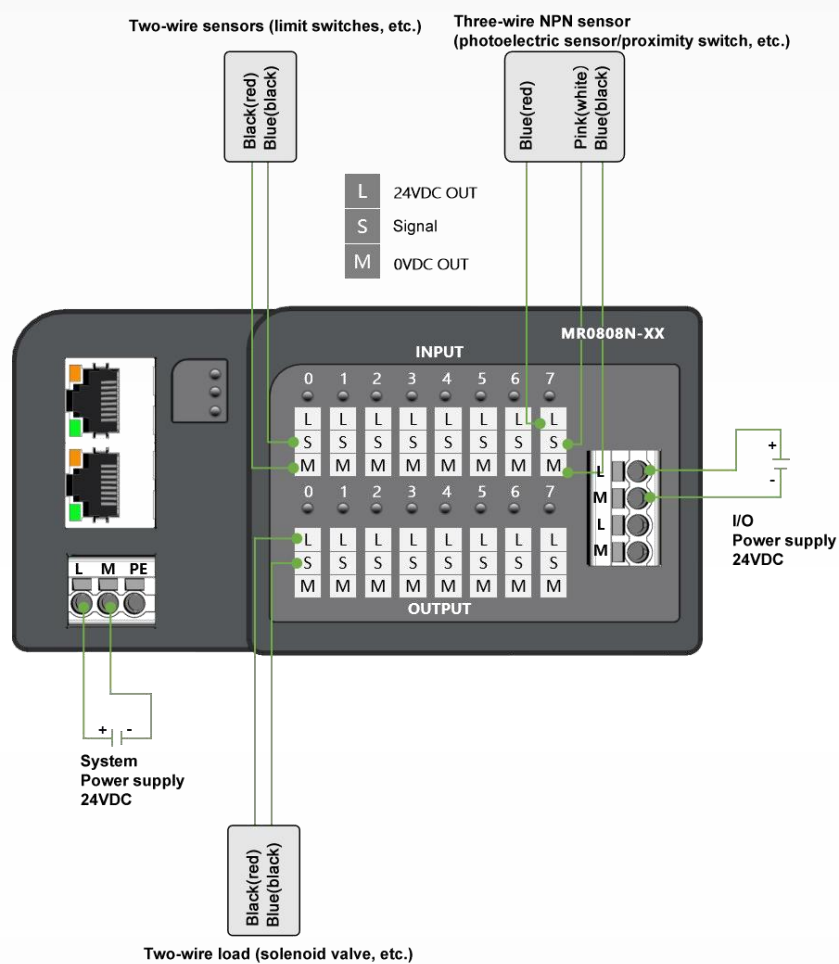


32 points output NPN

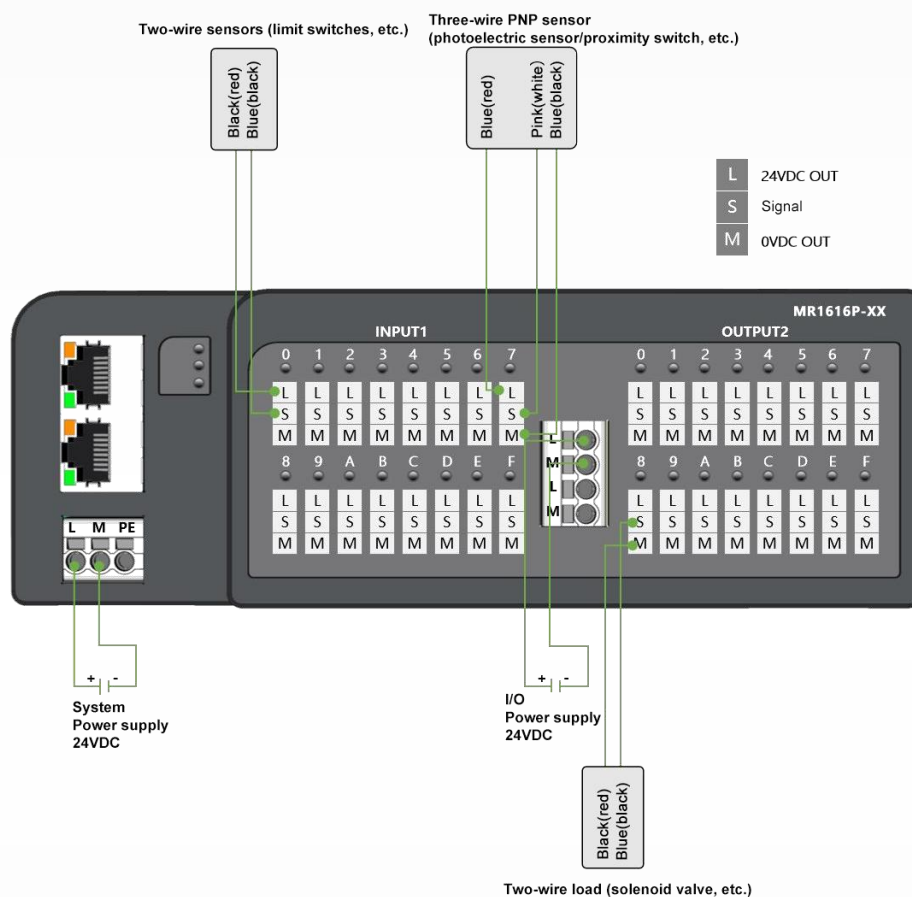


8 input, 8 output PNP

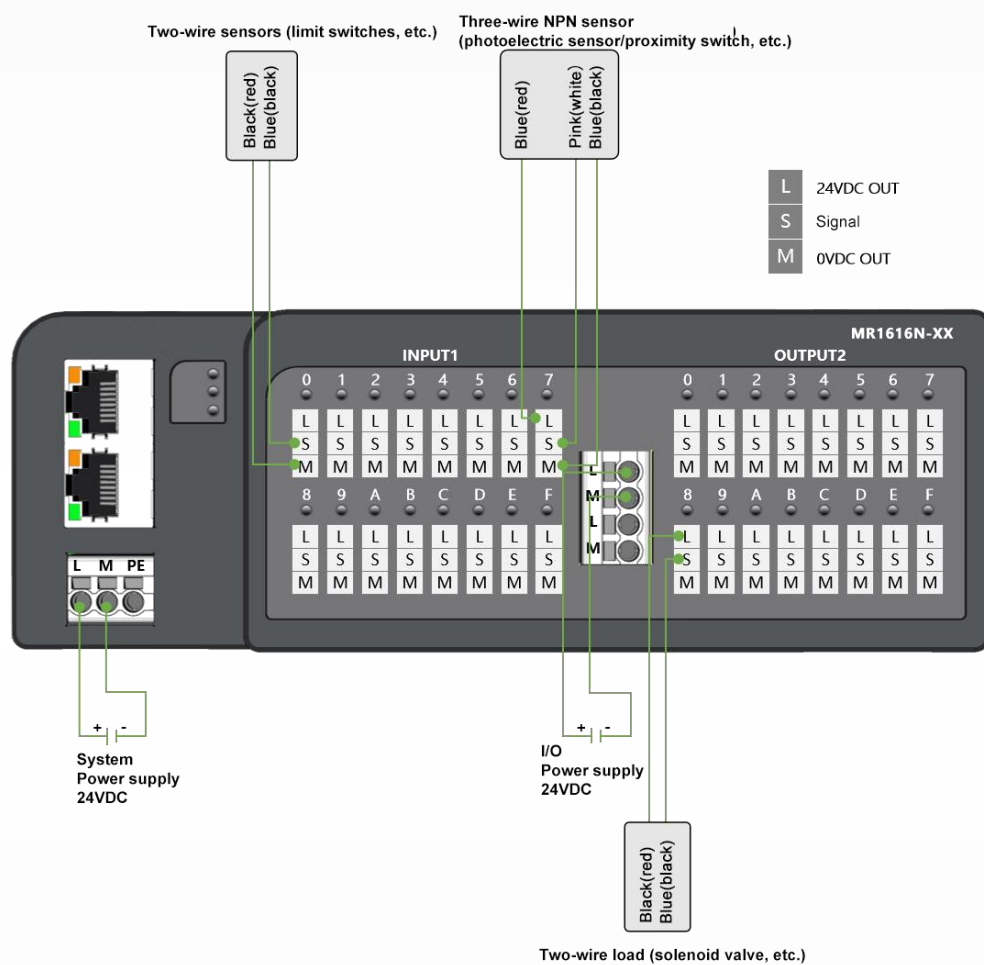
接线图



8 input, 8 output NPN



16 input, 16 output PNP



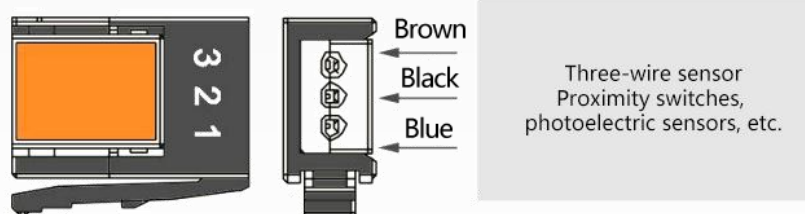
16 input, 16 output NPN

4.2 The usage method of e-CON terminals

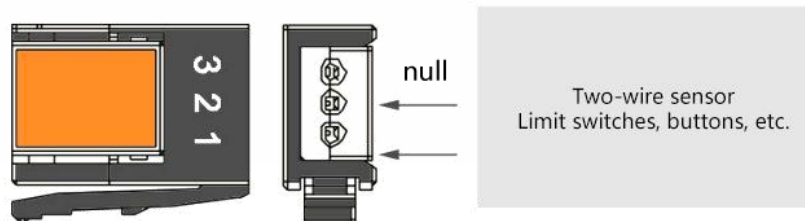
4.2.1 E-CON Wiring

① MR series INPUT input (NPN) connection method

E-con connector 3-pin male terminal

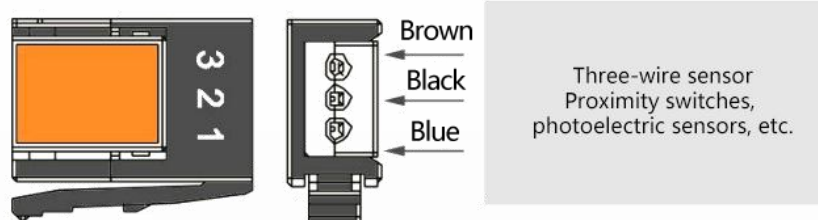


E-con connector 3-pin male terminal

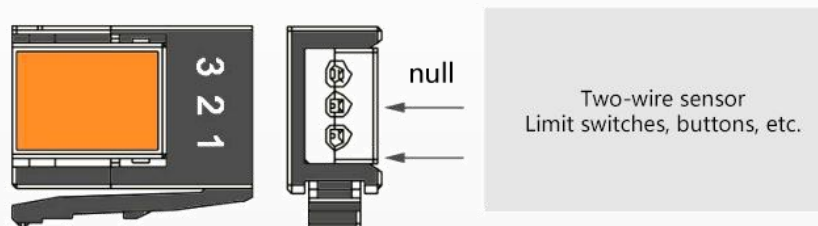


② MR series INPUT input (PNP) connection method

E-con connector 3-pin male terminal

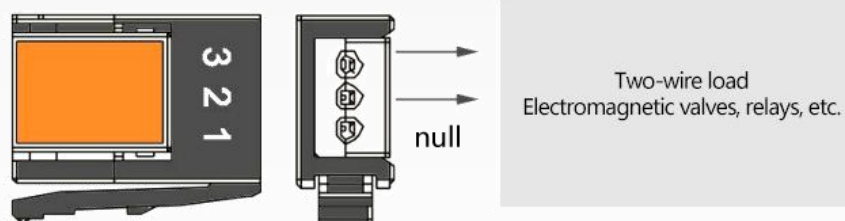


E-con connector 3-pin male terminal



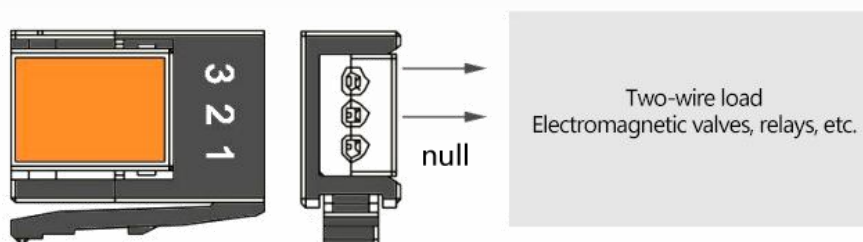
③ MR series OUTPUT input (NPN) connection method

E-con connector 3-pin male terminal



④ MR series OUTPUT input (PNP) connection method

E-con connector 3-pin male terminal



4.2.2 e-CON Selection Table

- ① No need to strip the wires
- ② Use the special wire pressing pliers to firmly press the cover in place



连接器选型表



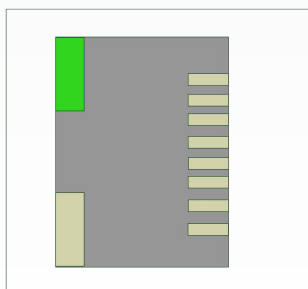
如选型不匹配将会影响接线效果，导致信号不良，务必请精准选型！

订货号	外观	压盖颜色	电线外径 (mm)	导体规格
EK-03P-VTG		紫色 (灰色外壳)	0.6~0.8	AWG28-26 0.08~0.13mm ²
EK-03P-RDG		红色 (灰色外壳)	0.8~1.0	
EK-03P-VT		紫色	0.6~0.8	AWG26-24 0.13~0.21mm ²
EK-03P-RD		红色	0.8~1.0	
EK-03P-YW		黄色	1.0~1.2	
EK-03P-OG		橙色	1.2~1.6	
EK-03P-GN		绿色	1.0~1.2	AWG22-24 0.32~0.50mm ²
EK-03P-BL		蓝色	1.2~1.6	
EK-03P-GY		灰色	1.6~2.0	

4.3 Communication interface

The module uses a physical interface with two RJ45 sockets for communication. The module itself has the function of a switch. They are respectively labeled as X1P1 and X1P2. Each port has an independent MAC address that is adjacent to the identifier on the module.

Table 5 PROFINET_RT 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 as shown in the table.

ERR(red)	RUN(green)	PWR(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 8 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

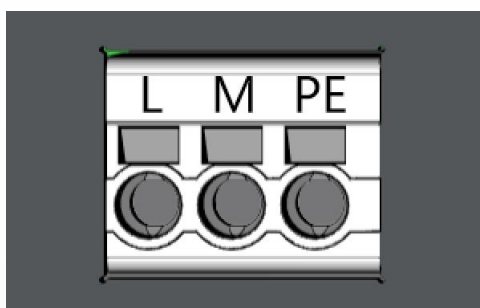
Under normal circumstances, the RJ45 port indicator lights should be the green light constantly on and the yellow light flashing. If this is not the case, it indicates that a fault has occurred. If the green light is not on, it means there is a connection fault with the RJ45 port that is connected to 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 7 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
PE	Connect to the ground

Table 8 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 volta

4.6 Digital input interface

The digital input interface is connected using e-CON connectors. There are a total of 16 input signals, which are divided into 0-F (or 8 input signals are divided into 0-7).

4.7 Digital output interface

The digital output interface is connected using e-CON connectors. There are a total of 16 input signals, which are divided into 0-F (or 8 input signals are divided into 0-7). Each digital output port is equipped with an independent 0.5A overcurrent protection.



5.PROFINET bus

5.1 WHAT IS PROFINET IO?

Definition:

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

Industrial-grade wiring accessories for 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, the IO device modules that the IO controller can control are specified.

- The number of modules depends on the application method of PROFINET IO. These parameter limits cannot be exceeded during configuration.

- The transmission rate is 100 Mbps.

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

5.2 Network Topology

The following figure illustrates the typical network layout of PROFINET. As shown in Figures 6-1, 6-2, and 6-3

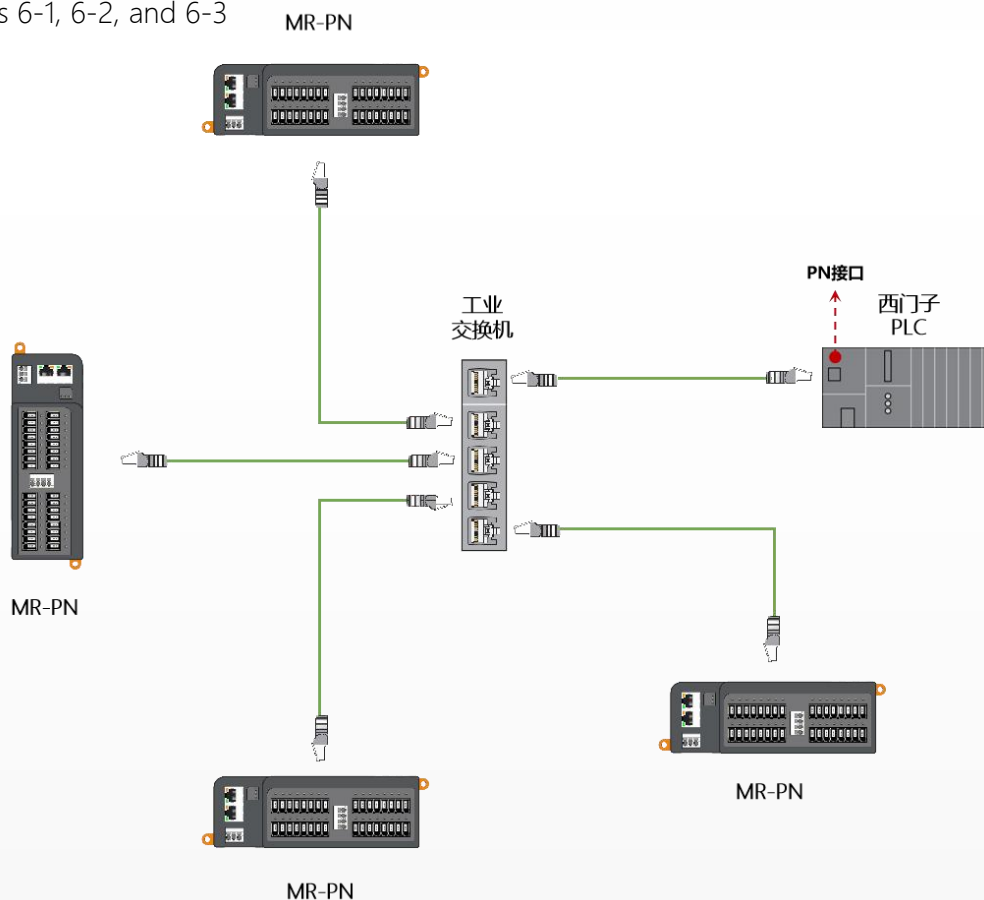


Figure 6-1 PROFINET Star Network Topology Structure

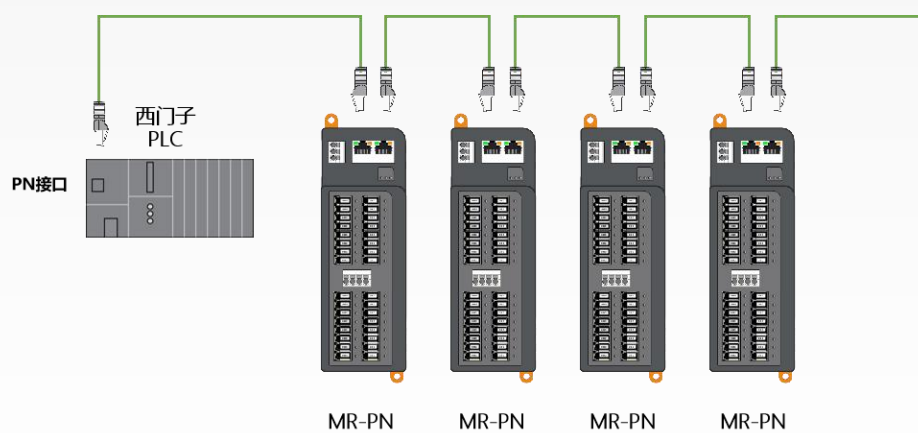


Figure 6-2 PROFINET Daisy Chain Topology Structure

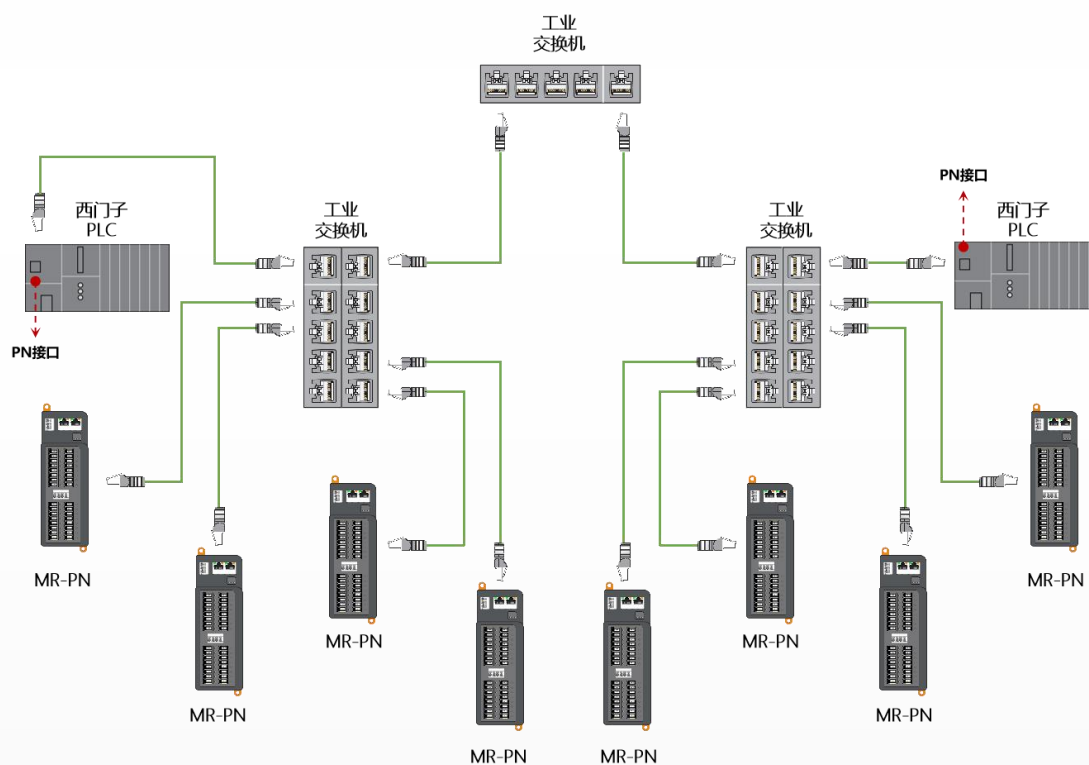


Figure 6-3 PROFINET Tree Network Topology Structure

5.3 Module parameters

Each module has specific parameters, which need to be flexibly configured in the hardware setup according to the actual situation. The parameters can be configured and downloaded using the LAEconfig software. For detailed instructions, please refer to the LAEconfig manual.

MR□0016X-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	IP address allocation method							
BYTE 1	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 2	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 Explanation								
Parameter Name		Organization	Format	Input range	Explanation			
Chinese	English							
IP address allocation method	DHCP config	-	Decimal system	0, 1 (Default: 0)	0: Dynamic Allocation (DHCP) 1: Static Allocation (LAECONFIG software settings - IP address modification)			
Fault mode enable Fault value - Safe state value	DO Error_ Mode bits	-	Decimal system	0-255 (Default: 0)	The fault safety status value of the DQ0.x port is enabled. The binary bit of this parameter corresponds to the DQ0.x port (Bit 0 corresponds to DQ-0.0, and so on). When the module enters the fault safety state, if the corresponding bit of "Error Mode" is "1", the value of the corresponding bit of "Error Value [7..0]" is output to the respective DQ0.x port.			
IP address allocation method	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, when the system enters the fault-safe state, the value of this parameter will be output to the DQ port.			

MR□1600X-PN Parameter configuration definition

Input data								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	IP address allocation method							
BYTE 1	Input filtering time (Filter)							
Data Explanation								
Parameter Name		Organiza tion	Format	Input range	Explanation			
Chinese	English							
IP address allocation method	DHCP config	-	Decimal system	0, 1 (Default: 5)	0: Dynamic Allocation (DHCP) 1: Static Allocation (LAECONFIG software settings - IP address modification)			
Input filtering time	Filter	ms	Decimal system	0-255 (Default: 5)				

MR□3200X-PN Parameter configuration definition

Input data								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	IP address allocation method							
BYTE 1	Input filtering time (Filter)							
数据说明:								
Parameter Name		Organiza tion	Format	Input range	Explanation			
Chinese	English							
IP address allocation method	DHCP config	-	Decimal system	0, 1	0: Dynamic Allocation (DHCP) 1: Static Allocation (LAECONFIG software settings - IP address modification)			
				(Default: 5)				
Input filtering time	Filter	ms	Decimal system	0-255				
				(Default: 5)				

MR□0032X-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	IP address allocation method							
BYTE 1	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 2	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 3	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	For 11	For 10	For 9	For 8
BYTE 4	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 Refer to the above configuration							

Data Explanation:

Parameter Name		Organization	Format	Input range	Explanation
Chinese	English				
IP address allocation method	DHC config	-	Decimal system	0, 1 (Default: 0)	0: Dynamic Allocation (DHCP) 1: Static Allocation (LAECONFIG software settings - IP address modification)
Fault mode enable Fault value - Safe state value	DO Error_Mode bits	-	Decimal system	0-255 (Default: 0)	The fault safety status value of the DQ0.x port is enabled. The binary bit of this parameter corresponds to the DQ0.x port (Bit 0 corresponds to DQ-0.0, and so on). When the module enters the fault safety state, if the corresponding bit of "Error Mode" is "1", the value of the corresponding bit of "Error Value[7..0]" is output to the respective DQ0.x port.
IP address allocation method	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, when the system enters the fault-safe state, the value of this parameter will be output to the DQ port.

MR□0808X-PN Parameter configuration definition

Input data								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	IP address allocation method							
BYTE 1	Input filtering time (Filter)							

Data Explanation:

Parameter Name		Organization	Format	Input range	Explanation
Chinese	English				
IP address allocation method	DHCP config	-	Decimal system	0, 1	0: Dynamic Allocation (DHCP) 1: Static Allocation (LAECONFIG software settings - IP address modification)
				(Default: 5)	
Input filtering 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 Explanation

Parameter Name		Organization	Format	Input range	Explanation
Chinese	English				
Fault mode enable Fault value - Safe state value	DO Error_Mode bits	-	Decimal system	0-255	The fault safety status value of the DQ0.x port is enabled. The binary bit of this parameter corresponds to the DQ0.x port (Bit 0 corresponds to DQ-0.0, and so on). When the module enters the fault safety state, if the corresponding bit of "Error Mode" is "1", the value of the corresponding bit of "Error Value[7..0]" is output to the respective DQ0.x port.
				(Default: 0)	
Fault mode enable	DO Error_Value bits	-	Decimal system	0-255	If the binary bit corresponding to the "Error Mode[7..0]" parameter is set to enable, when the system enters the fault-safe state, the value of this parameter will be output to the DQ port.
				(Default: 0)	

MR□1616X-PN Parameter configuration definition

Input data								
BIT No	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 0	IP address allocation method							
BYTE 1	Input filtering time (Filter)							
Data Explanation:								
Parameter Name		Organization	Format	Input range	Explanation			
Chinese	English							
IP address allocation method	DHCP config	-	Decimal system	0, 1 (Default: 5)	0: Dynamic Allocation (DHCP) 1: Static Allocation (LAECONFIG software settings - IP address modification)			
Input filtering 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	For 11	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
数据说明:								
Parameter Name		Organization	Format	Input range	Explanation			
Chinese	English							
Fault mode enable Fault value - Safe state value	DO_Error_Mode bits	-	Decimal system	0-255 (Default: 0)	The fault safety status value of the DQ0.x port is enabled. The binary bit of this parameter corresponds to the DQ0.x port (Bit 0 corresponds to DQ-0.0, and so on). When the module enters the fault safety state, if the corresponding bit of "Error Mode" is "1", the value of the corresponding bit of "Error Value[7..0]" is output to the respective DQ0.x port.			
Fault mode enable	DO_Error_Value bits	-	Decimal system	0-255 (默认: 0)				



6.Configuration Parameter Description

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 device database files (GSDML) to describe the communication characteristics of the devices. GSDML (General Station Description Markup Language) is a description language based on XML and can be written using standard XML editors for PROFINET.

6.1.1 File Name

The accompanying GSD file for GSDML-V2.31-LATCOS-MR-PN-20210716.xml.

- "GSDML-V2.31" indicates the version number of GSMDL, with V2.31 being the latest version.
- "LATCOS" represents the supplier's name.
- "MR-PN" indicates the product number for which this version is applicable; this version can be used with the MR-PN remote I/O module.
- "20210716" represents the modification date.

6.1.2 Installation of the GSD File

The following is based on the installation instructions for 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

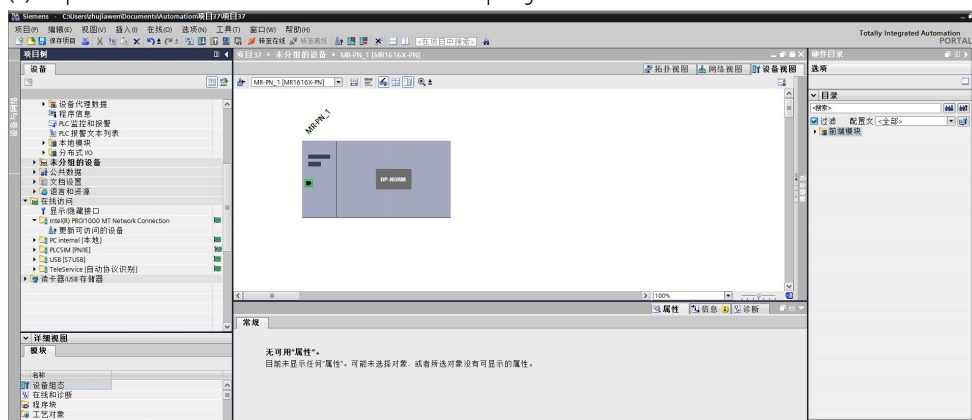


Figure 7-1 TIA Portal V13 Engineering Window

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



Figure 7-2 TIA Portal V13 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 stored. 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.

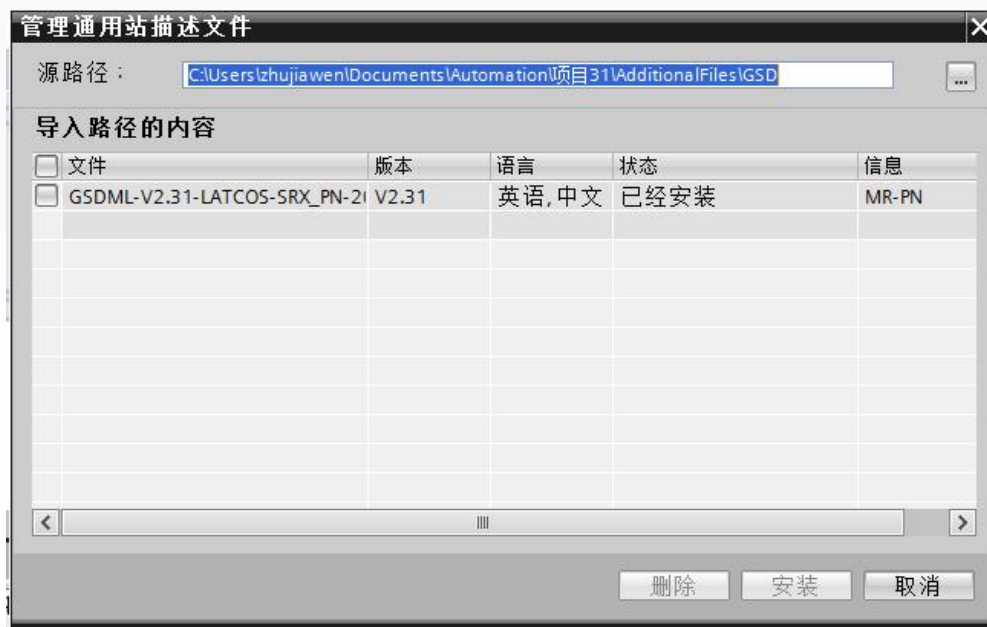


Figure 7-3 GSD Installation Window

(4) Once the interface appears, the installation is complete. Click "Close" and wait for the software to automatically update the hardware directory.



Figure 7-4 GSD Installation Completion Window

6.1.3 Deletion of 6GSD

The software of Siemens TIA Portal V13 does not provide a dedicated interface or tools 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 V13
- (3) Open Everything. For the first time, you need to wait 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-MR_PN-20210716.xml"

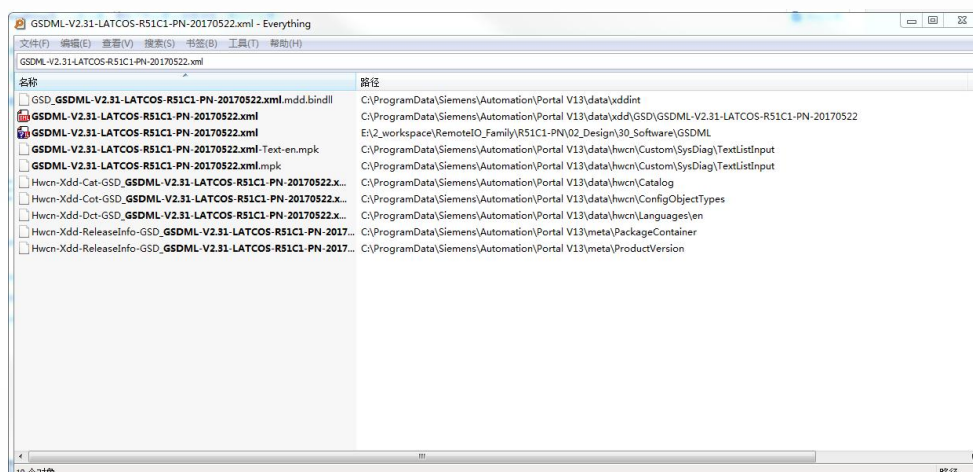


Figure 7-5 Everything window

- (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 GSD files that are saved as backups at the same time.

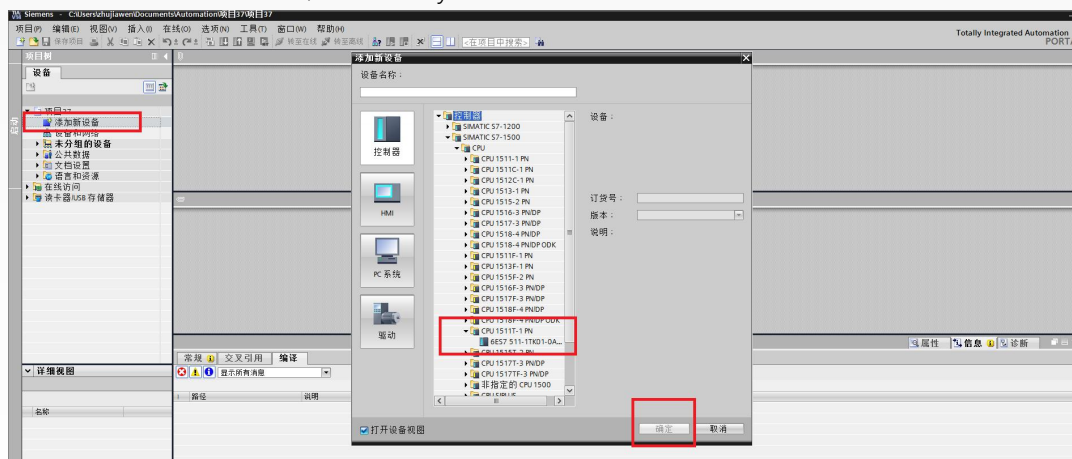
(The above method for deleting GSD files is for reference only.)



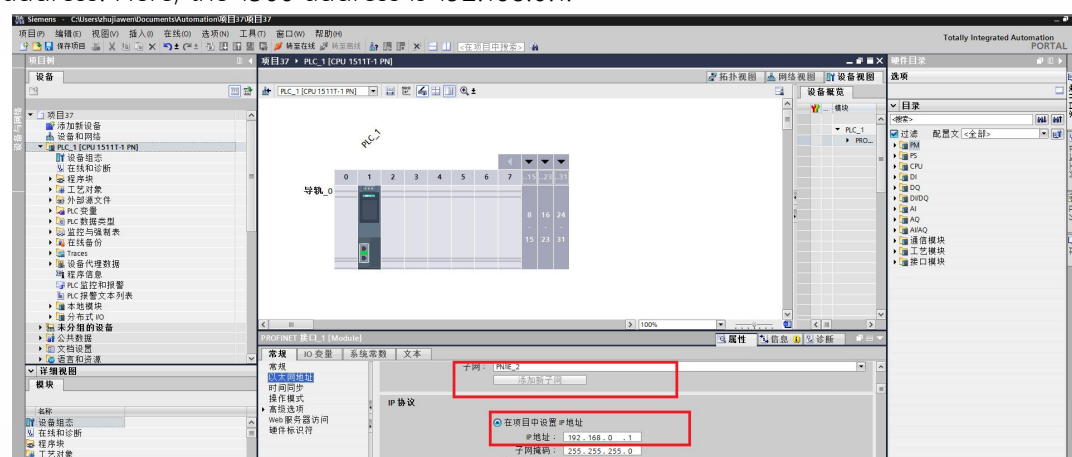
7.I/OAddition Method Case

7.1 Example of Adding Remote I/O for Siemens Beckhoff V14

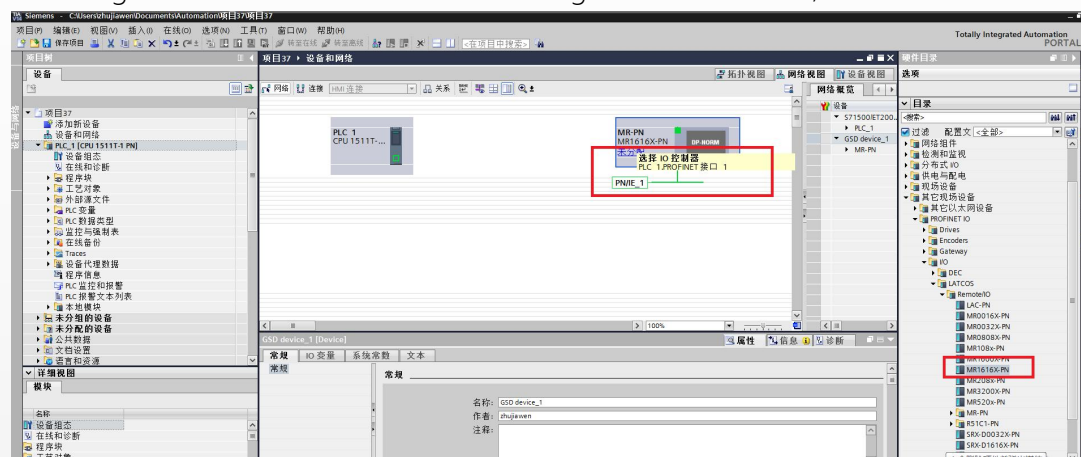
① Take S7-1500 as an example. First, click on "Add New Device", then add a 1511T CPU in SIMATIC S7-1500, and finally click "OK".



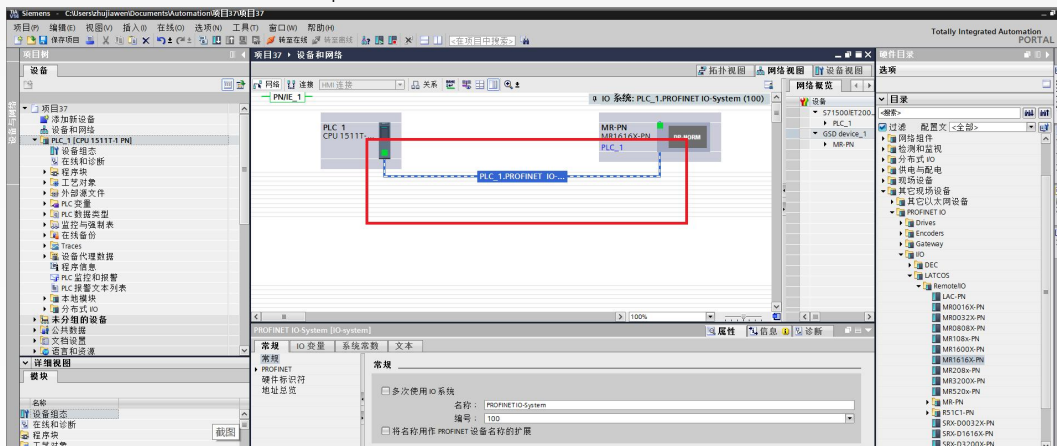
② Click on "Add New Subnet". The IP address must be the same as the CPU address. Here, the 1500 address is 192.168.0.1.



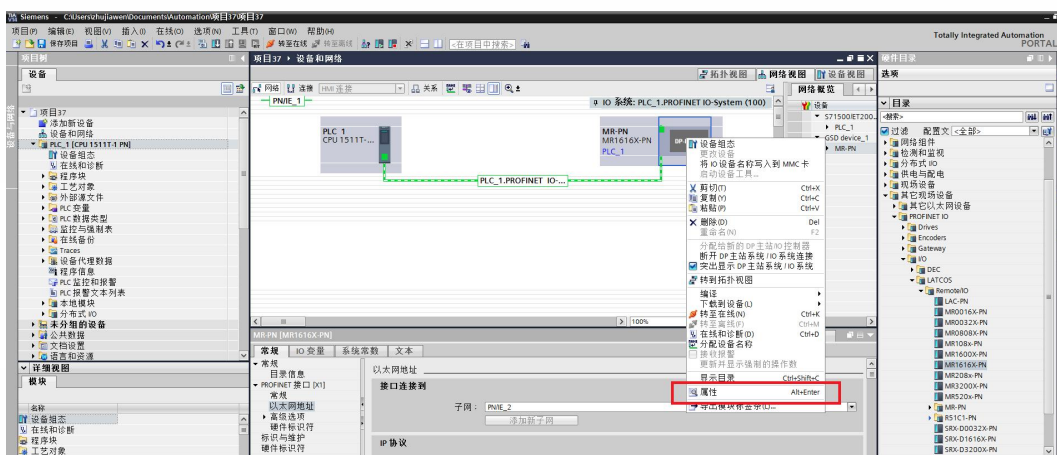
③ In the network view, click on other field devices. Under PROFINET IO, select IO/LATCOS/Remote/IO/MR1616X-PN. Drag the MR1616X-PN to the network view, then right-click on "Unallocated" and assign it to the new I/O controller.



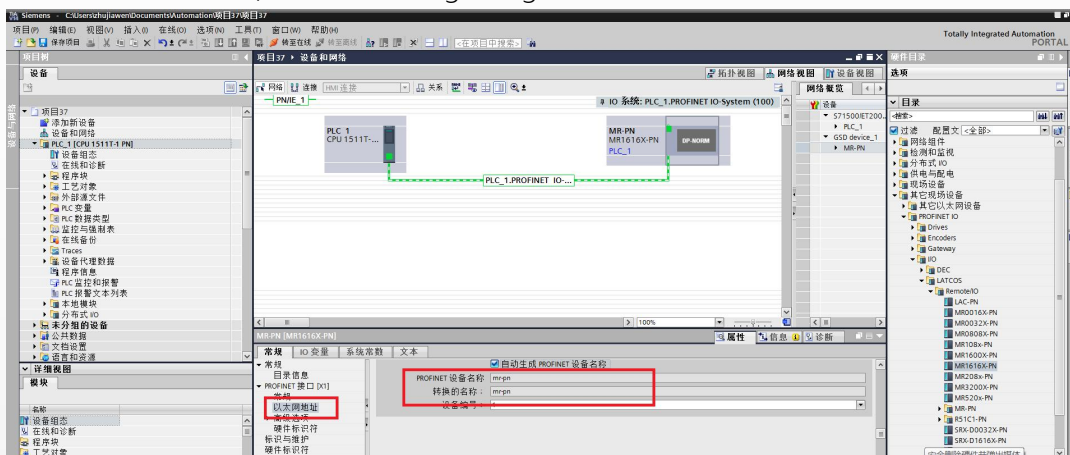
④ Click "OK" to complete the allocation.



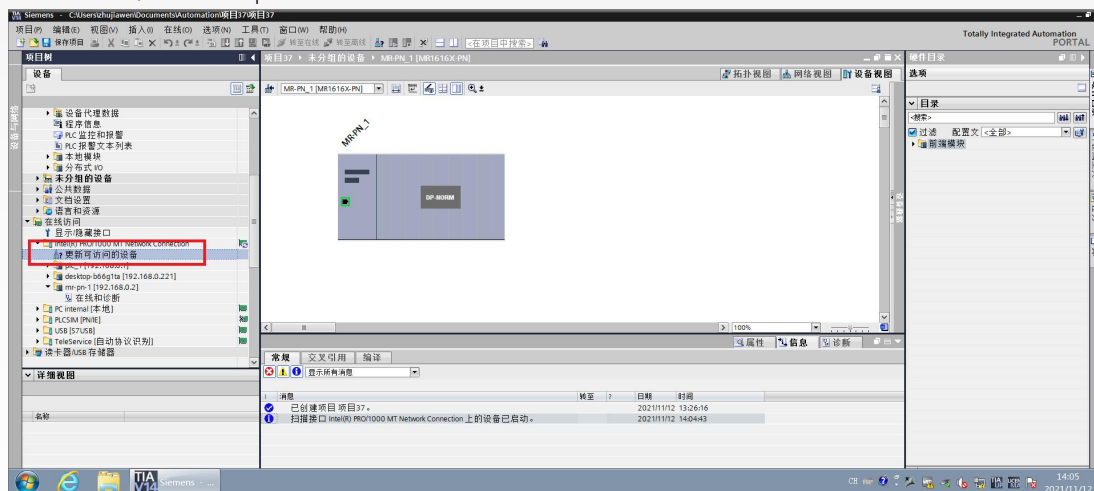
⑤ Distributed IO Name Assignment, click Properties



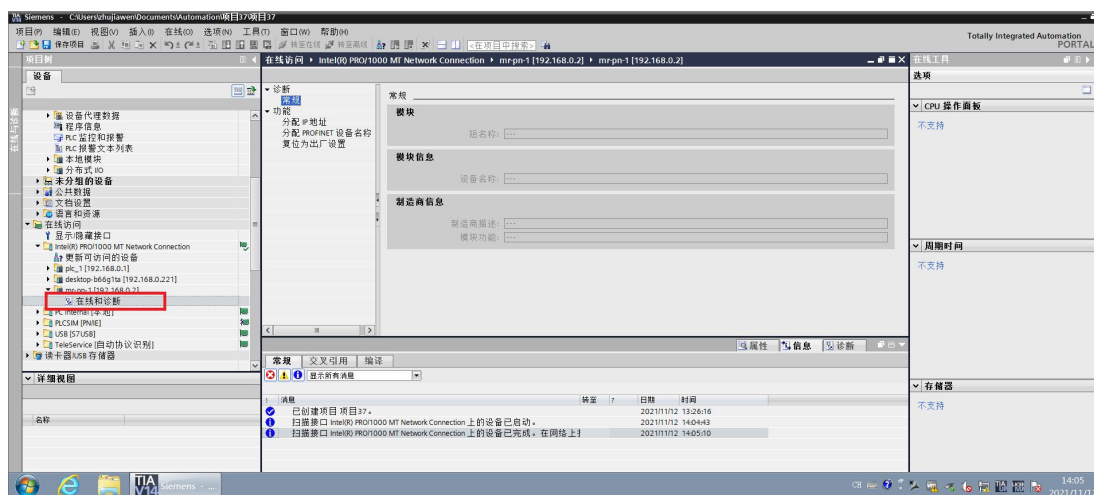
⑥ After clicking on the "Properties" option, in the "Ethernet Address" section, you can view the IP address and the Profinet device name (the device name can be set manually or automatically, as long as it corresponds to the IP address and the MAC address). The following image shows the details.



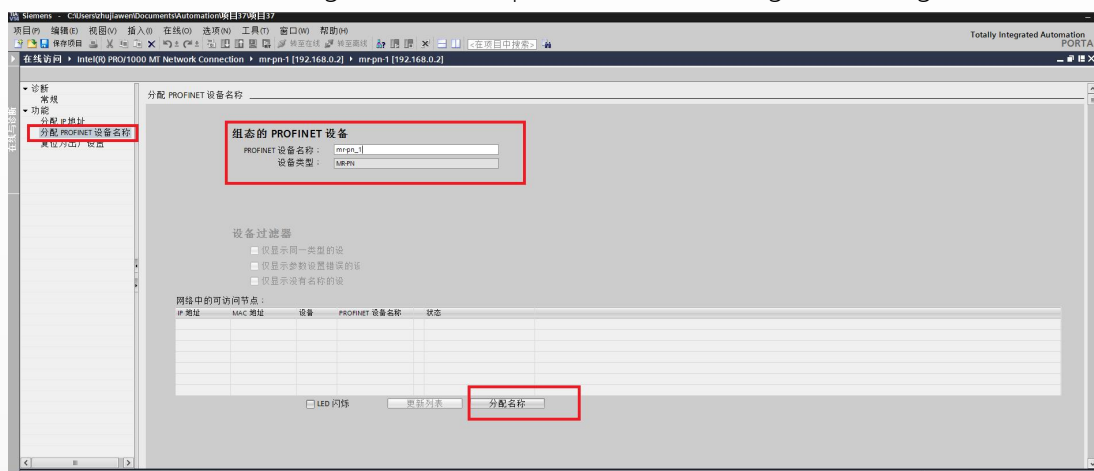
⑦ Device name allocation method: Click "Online Access", then under the network card, click "Update Available Devices" to access.



As shown in the figure below, right-click and then click "Online" and "Diagnosis"



As shown in the figure below, click on the "Assign Name", then select the "Assign Device Name", and after the assignment is completed, click on "Assign Name" again.



扫描接口 Intel(R) PRO/1000 MT Network Connection 上的设备已启动。	2021/11/12 14:12:57
扫描接口 Intel(R) PRO/1000 MT Network Connection 上的设备已完成。在网络上扫描。	2021/11/12 14:13:04
PROFINET 设备名称 "mr-pn_1" 已成功分配给 MAC 地址 "7C-BA-CC-00-00-10"。	2021/11/12 14:13:20

Official website



先进自动化控制及工业网络技术



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