



PRODUCT

USE INSTRUCTIONS

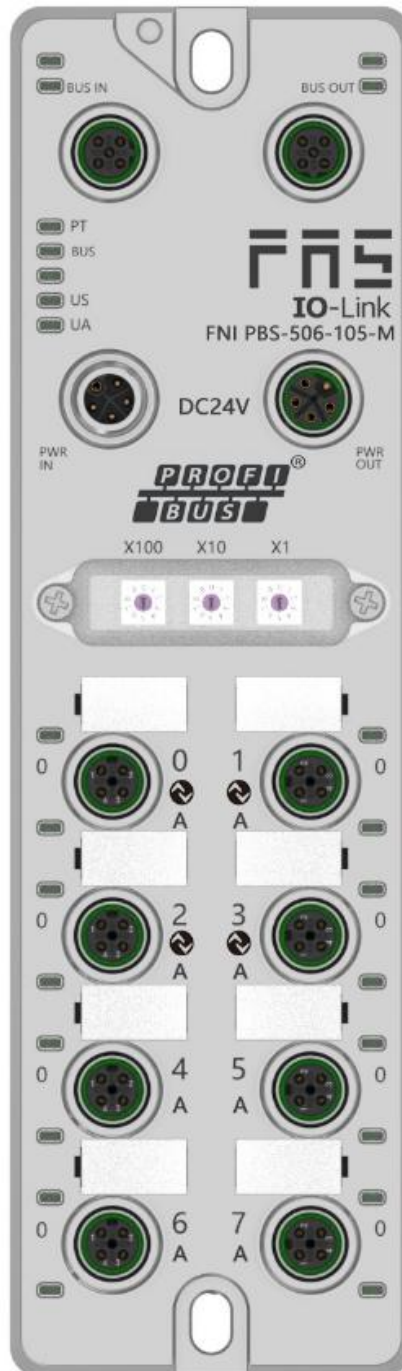


[Technical support]

Ordering code: 003B31

Part number: FNI PBS-506-105-M

4×IO-Link , 8DI/8 DO PNP IP67 Module User Manual



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Security

■ Expected use

This manual describes as decentralized input and output modules for connecting to an industrial network.

■ Installation and start-up

Precautions!

Installation and start-up may only be performed by trained personnel. A qualified individual is one who is familiar with the installation and operation of the product and has the necessary qualifications to perform such operations. Any damage caused by unauthorized operation or illegal and improper use is not covered by the manufacturer's warranty. The equipment operator is responsible for ensuring that appropriate safety and accident prevention regulations are observed.

■ Corrosion resistance

Precautions!

FNI modules generally have good chemical and oil resistance. When used in corrosive media (e.g. high concentrations of chemicals, oils, lubricants, coolants and other material media (i.e. very low water content), these media must be checked before the corresponding application material compatibility. If a module fails or is damaged due to this corrosive medium, a defect claim cannot be made.

■ Dangerous voltage

Precautions!

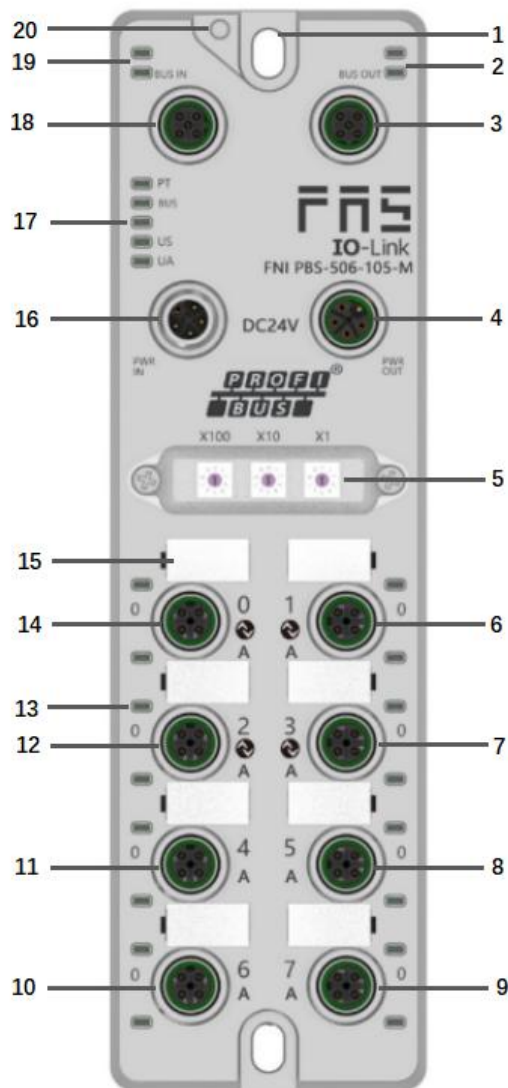
Disconnect all power before using the device!

■General security

Debugging and inspection	Trouble	Owner/operator obligations	Expected use
<p>Before debugging, read the user manual carefully.</p>	<p>If the defect or equipment failure cannot be corrected, the operation of the equipment must be stopped to avoid damage that may be caused by unauthorized use.</p>	<p>This equipment is an EMC Class A compliant product. This device produces RF noise.</p>	<p>The warranty and limited liability statement provided by the manufacturer does not cover damage caused by:</p> <ul style="list-style-type: none"> ·Unauthorized tampering ·Improper use operation <p>·The instructions provided in the user manual explain the use, installation and handling of discrepancies</p>
<p>This system cannot be used in an environment where the safety of personnel depends on the functionality of the equipment.</p>	<p>Only after the housing is fully installed can the intended use be assured.</p>	<p>The owner/operator must take appropriate precautions to use this equipment.</p> <p>This device can only use the power supply that matches this device, and can only connect cables approved for application.</p>	

1 Getting started guide

1.1 Module overview



- | | | |
|-----------------------------------|--------------------------|------------------------------------|
| 1 Mounting holes | 8 port 5 | 15 Port identification plate |
| 2 Network port 2 status indicator | 9 port 7 | 16 Power input port |
| 3 Network port 2 | 10 port 6 | 17 Module indicator light |
| 4 Power outlet | 11 port 4 | 18 Network port 1 |
| 5 Dip switch | 12 port 2 | 19 Network port 1 status indicator |
| 6 port 1 | 13 Port status indicator | 20 Ground connection |
| 7 port 3 | 14 port 0 | |

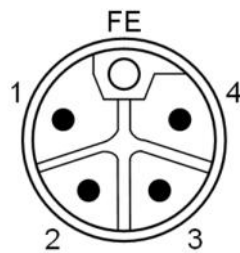
1.2 Mechanical connection

The modules are connected using 2 M6 bolts and 2 washers.
Isolation pads are available as accessories.

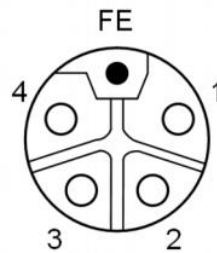
1.3 Electrical Connections

1.3.1 Power interface(L-code)

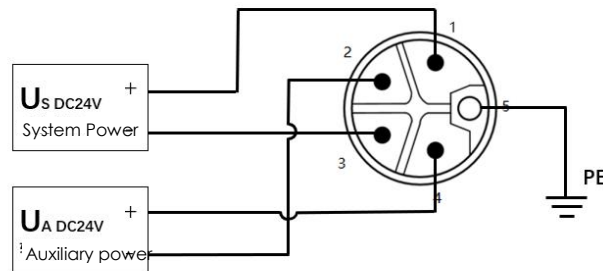
Power input port definition



Power output port definition



Power port

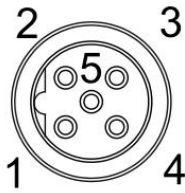


Pin	Function	Describe
1	Us+	+24V(Brown)
2	Ua-*	0V(White)
3	Us-	0V(Blue)
4	Ua+*	+24V(Black)
FE	Functional grounding*	FE(Yellow Green)

Notes:

- If possible, provide separate US and UA power supplies.
Total current <16A, even if the actuator power supply is daisy-chained, the total current of all modules is <16A.
- The FE connection from the case to the machine must be low impedance and kept as short as possible.

1.3.2 Network Interface (B-code)



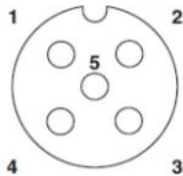
Pin	Function	
1	(Empty)	
2	RxD/TxD-N A line	Communication A
3	(Empty)	
4	RxD/TxD-P B line	Communication B
5	(Empty)	

Notes:

1. Unused I/O port sockets must be covered with end caps to meet IP67 protection rating
2. Network terminal module, BUS OUT interface must use terminal resistor (FAS product model 0C4R11)

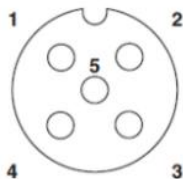
1.3.3 I/O-Port(A-code)

Port 0、1、2、3 Interface Definition:



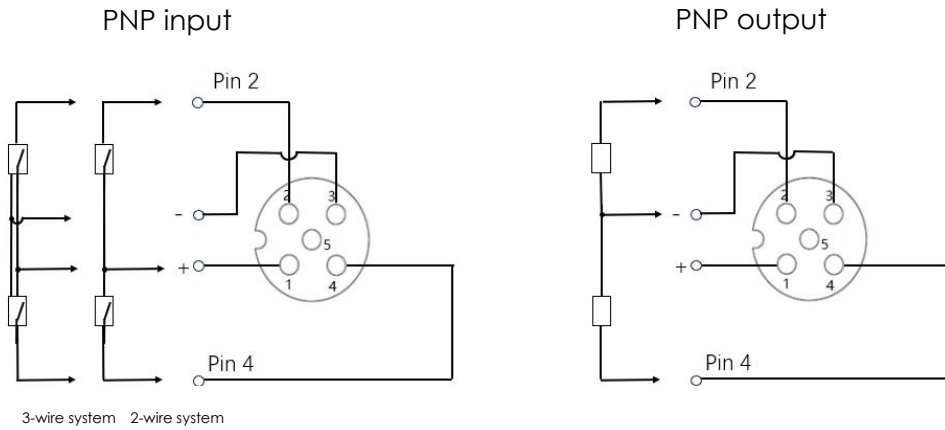
Pin	Function
1	+24V(Brown)
2	Input/Output(White)
3	0V(Blue)
4	Input/Output (Black)/IO-Link
5	NC

Port 4、5、6、7 Interface Definition:



Pin	Function
1	+24V(Brown)
2	Input/Output(White)
3	0V(Blue)
4	Input/Output (Black)
5	NC

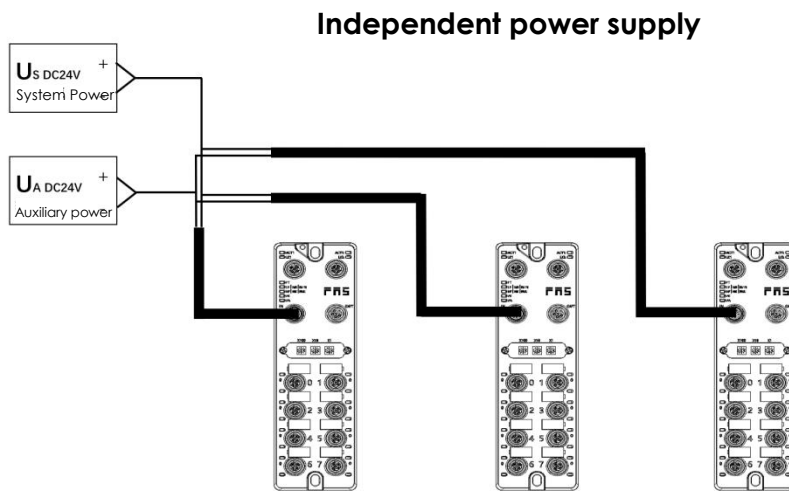
General I/O



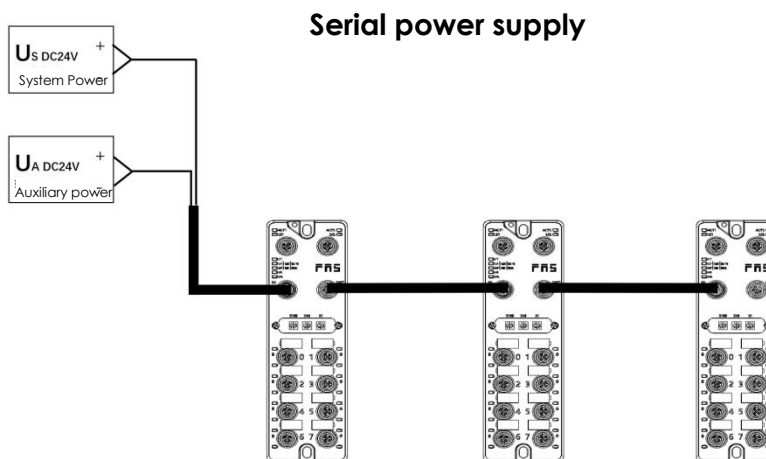
Notes:

- 1、 For digital sensor inputs, please follow the input guidelines of EN61131-2, Type 2.
- 2、 The maximum output current of each port is 2A. The total current of the module is 16A.
- 3、 Unused I/O port sockets must be covered with end caps to meet the IP67 protection rating.

1.3.4 Module wiring method



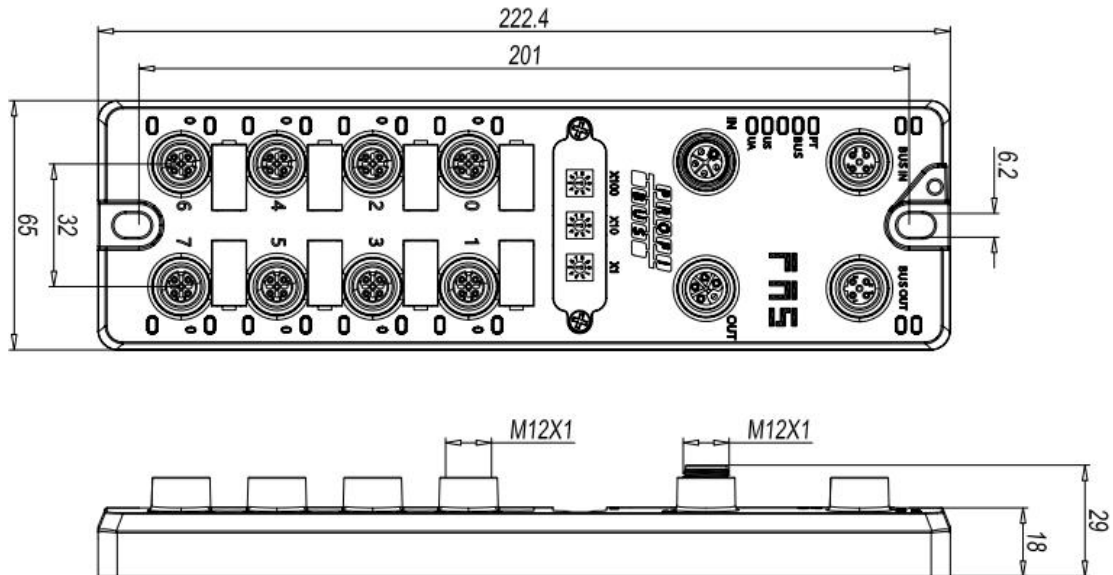
In independent power supply mode, the maximum current of each master station can reach 16A.



In serial power supply wiring mode, if the rear module needs to be wired to the front module, the cumulative current must not exceed 16A.

2 Technical Data

2.1. Size



2.2 Mechanical data

Shell material	Gd-Zn Alloy, Pearl Nickel Plated
Shell grade meets IEC 60529	IP67(Only available in plug-in or plug-in styles)
Power interface	L-Code(male and female)
Input Port/Output Port	M12, A-Code(8*female)
Size(W*H*D)	65mm*222mm*25.8mm
Installation Type	2-Through-hole mounting
Ground Bus Accessories	M4
Weight	About670g

2.3 Operating conditions

Operating temperature	-5°C ~ 70°C
Storage temperature	-25°C ~ 70°C

2.4 Electrical data

Supply voltage	18~30V DC, Conform to EN61131-2
Voltage fluctuations	<1%
Input current when power supply voltage is 24V	<130mA

2.5 Network Ports

Port	Profibus-DP
Port Connections	M12, B-Code
Cable types compliant with profibus-DP	Shielded twisted pair
Data transfer rate	9.6 kBit/s,19.2 kBit/s,93.75 kBit/s,187.5 kBit/s 500kBit/s,1.5MBit/s,3MBit/s,6MBit/s,12 MBit/s
Maximum cable length	100m
Flow Control	Half-duplex

2.6 Function indicator

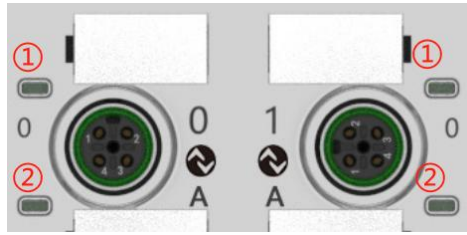


PT	closure	Profibus-DP Communication Protocol
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ProfibusDP Communication protocol module status

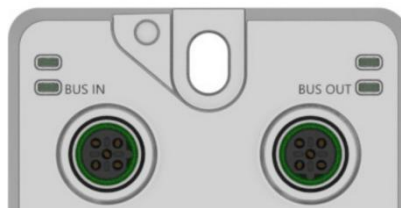
LED	Show	Function
BUS	Green light is always on	Communication is normal
	Green light flashes 2HZ	The master is in CLEAR state
	Red flashing 1HZ	Not configured
	Flashing Red 2HZ	No data exchange
	Solid red	Configuration error
US	Green	Input voltage is normal
	Flashing Red	Input voltage low (< 18 V)
UA	Green	Output voltage is normal
	Flashing Red	Output voltage low (< 18 V)
	Solid red	No output voltage present (< 11 V)

I/O Port Status



LED	State	Function
1	closure	Pin4 input or output state is 0
1	yellow	Pin4 input or output state is 1
1	green	When the port is configured as IO-Link, the slave and master communicate successfully
1	Flashing Green	When the port is configured as IO-Link, the slave and master communication is disconnected
1	red	When the port is configured as input, Pin1 has overcurrent When the port is configured as output, Pin4 has overcurrent When the port is configured as IO-Link, the number of slave bytes is incorrect
1	Flashing Red	When the port is configured as output, Pin1 overcurrent
2	closure	Pin2 input or output state is 0
2	yellow	Pin2 input or output state is 1
2	red	When the port is configured as input, Pin1 has overcurrent When the port is configured as output, Pin2 has overcurrent
2	Flashing Red	When the port is configured as output, Pin1 overcurrent

Network port status



LED	State	Function
BUS IN	Flashing Green	Data transfer in progress
BUS OUT	Flashing Green	Data transfer in progress

3 integrated

3.1 Module Configuration

3.1.1 Restore factory settings

- 1.The device is powered off, dial 900;
- 2.Power on the device and wait for 10 seconds;
- 3.The device is powered off and the dial is set to the state before setting.;
- 4.Power on the device and restore it to factory settings;

3.1.2 Node address configuration

- 1.When the node address is 12, the dial code X100=0 X10=1 X1=2

3.2 Data Mapping

PROFIBUS Communication protocol									
Process monitoring data									
Module	Functional Description								
	Status Description	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Actuator shutdown pin 2	Pin2 Port short circuit 0=normal 1=Short Circuit	Port7 Pin2	Port6 Pin42	Port5 Pin2	Port4 Pin2	Port3 Pin2	Port2 Pin2	Port1 Pin2	Port0 Pin2
Actuator shutdown pin 4	Pin4 Port short circuit 0=normal 1=Short Circuit	Port7 Pin4	Port6 Pin4	Port5 Pin4	Port4 Pin4	Port3 Pin4	Port2 Pin4	Port1 Pin4	Port0 Pin4
Sensor supply short circuit	Pin1 Port short circuit 0=normal 1=Short Circuit	Port7 Pin1	Port6 Pin1	Port5 Pin1	Port4 Pin1	Port3 Pin1	Port2 Pin1	Port1 Pin1	Port0 Pin1
Device Status	Module Status	-	-	-	Us Over pressure	Ua Over pressure	Over heat	Us Under voltage	Ua Under voltage

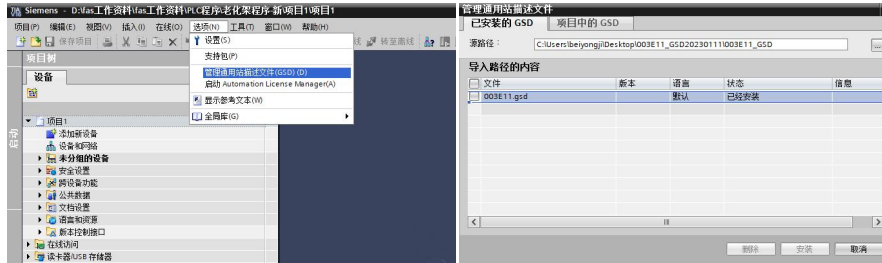
IO-Link communication state	Communication status 0=disconnect 1=connect	-	-	-	-	Port3	Port2	Port1	Port0
IO-Link PD Valid	IO-Link PD efficient 0=ban 1=Enable	-	-	-	-	Port3	Port2	Port1	Port0
Standard I/O	Standard IO auxiliary slot	(Match Input Pin2 、 Pin4, Output Pin2 、 Pin4 use)							

3.3 PLC Integration Tutorial

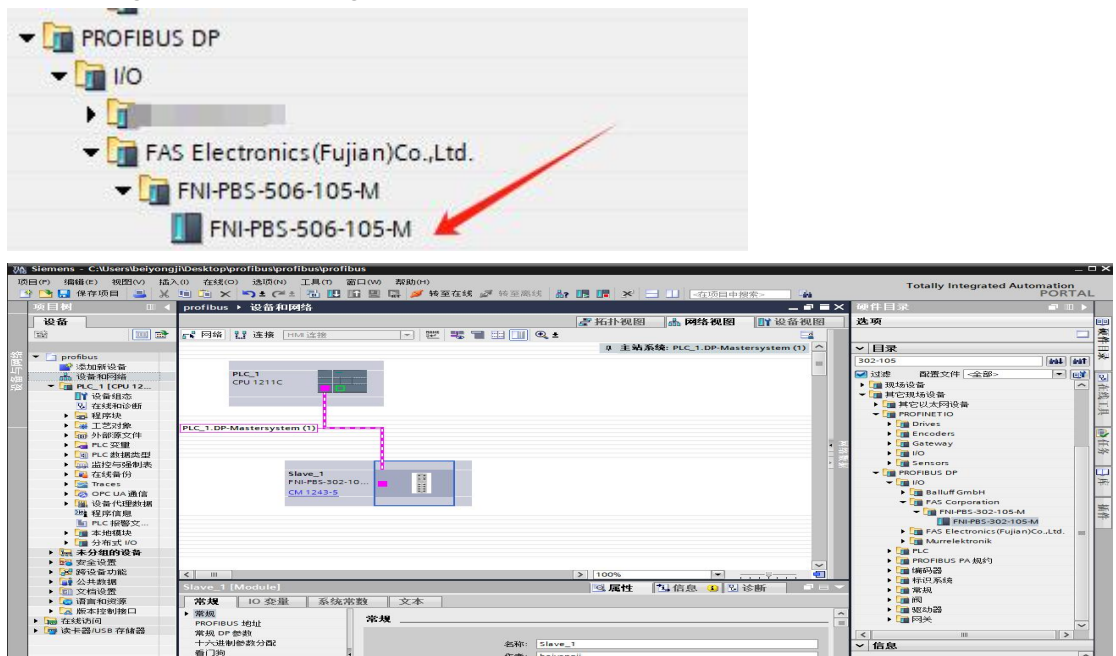
(Before configuring the module, you should first set the module communication protocol, see 3.1 for details.)

3.3.1 Siemens S7-1200 Portal Integration (Profibus DP)

1、Installing the GSD File



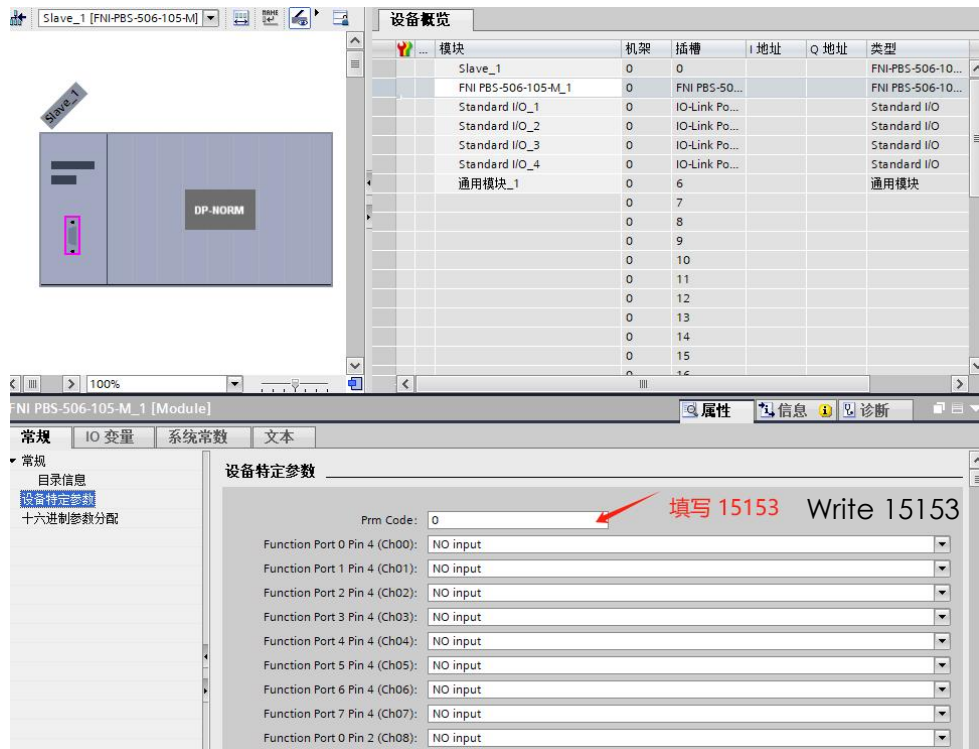
2、In PLC---Device Configuration---Network View---Hardware Catalog, select the module and drag it in, click "Unassigned", and select the PLC to be connected;



3、Double-click the module to enter the configuration

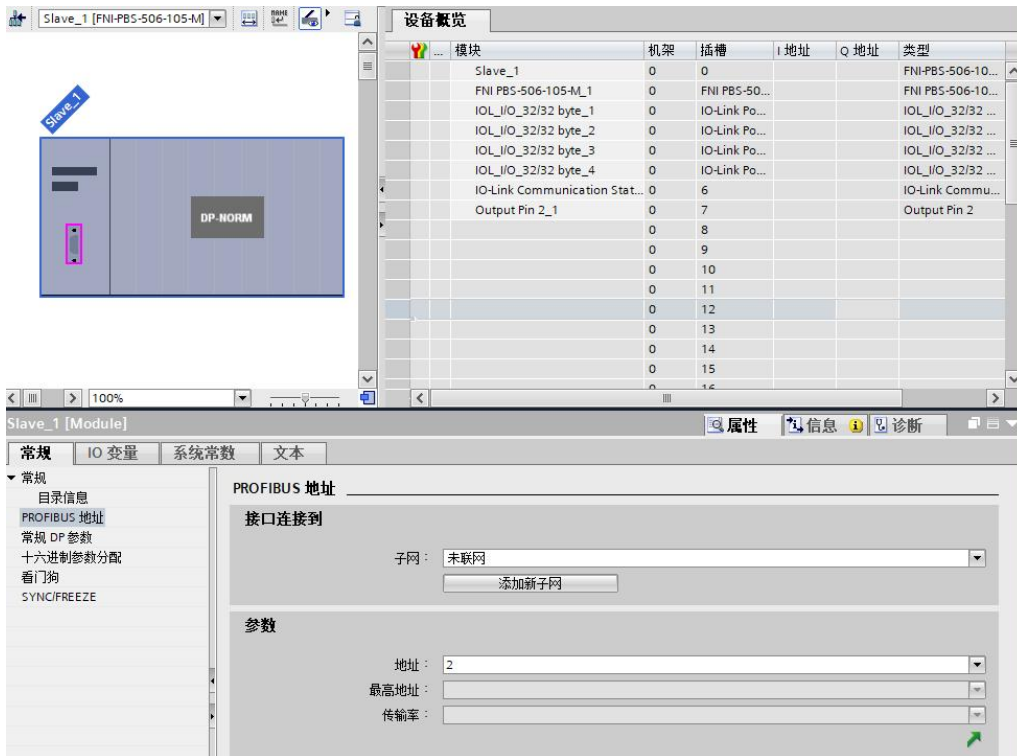
(1) Slot function configuration: In the hardware catalog - module, select the required data and drag it into the slot in the device overview window;

(2) Module port function configuration: Click the module icon, select "General", then click the slot "FNI PBS-506-105-M", select "Module Specific Parameters", configure the port function (Output output, NO input normally open input, NC input normally closed input, Input/Output input and output adaptive). Please note that PRMCODE must be filled in 15153 for the setting to take effect.



(3) After the configuration is complete, in the configuration view, click Download.

4、Assign module address: General -----PROFIBUS address-----The input address value is consistent with the DIP address on the module.



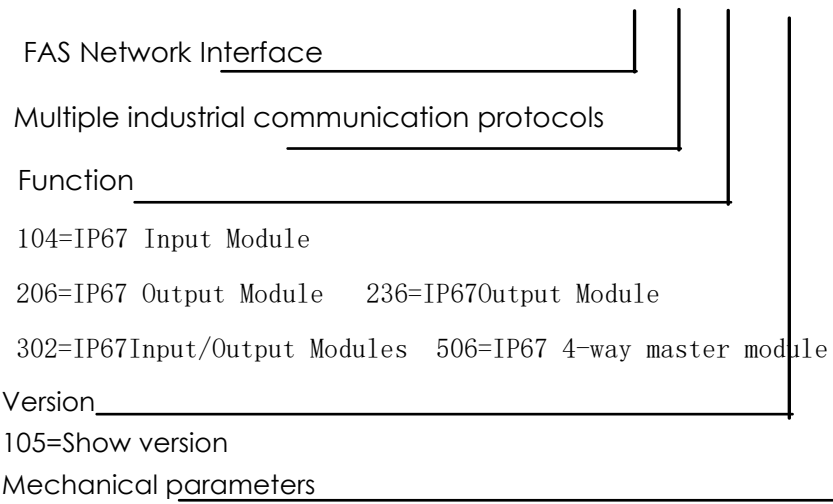
4 Appendix

4.1. Materials included

- FNI MPL Contains the following parts
- I/O-Module
- 4 blind plugs M12
- Ground bus
- Thread M4x6
- 20 tags

4.2. Ordering code

FNI PBS-xxx-105-M



M=Gd-Zn Alloy shell

Data Transfer 2 x M12x1 Female thread

Power Connection Male thread / Female thread (L-Code)

Sensor Connection: 8 x M12x 1 Female thread

4.3 Ordering Information

Product Order Code	Ordering code
FNI PBS-506-105-M	003B31

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Telephone : 0591-22991876

Technical support : +86 13306936805

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Business support : +86 19905006938

Address: Room 009, A1, Building 1, National University Science and Technology Park Science and Technology Innovation Center, No. 6 Qiuyang East Road, Shangjie Town, Minhou County, Fujian Province.