



User Manual

用户手册



Storm67 Series IO-Link Hub (Slave Station)

IO-Link Protocol

Version Information

Version Number	Modification Date	Version Description	Modifier
V1.00	2024.10.27	Release version	Liu Xiaofeng

Ownership Information

Without the consent of the copyright owner, it is prohibited to re-publish the entire or part of this document in any form (paper or electronic) for distribution.

Disclaimer

This document is only intended to assist readers in using the product. The company shall not be held responsible for any losses or errors arising from the use of the information contained in this document. The products and texts described in this document are constantly being developed and improved. Wuxi Lingke Automation Co., Ltd. has the right to modify this document without notifying the users.

Document Usage Instructions

This document outlines the product's functional specifications, installation, operation, and settings, as well as information related to network protocols. This document is intended for use by well-trained electrical automation engineers only.

Patent Information

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

Safety Matters

This product is a professional equipment 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 avoid causing personal injury or product damage.

This product is designed to meet the IP67 protection level.

Software Download

Please log in to the official website of Wuxi Linqiao Automation Technology Co., Ltd. at www.latcos.cn to download.

CATALOGUE

1.Product Overview	4
2. Naming Rules	6
2.1 Naming Rules	7
2.2 Model list	8
3. Product Specifications	9
3.1 General parameters	10
3.2 Technical Specifications	12
4. Product Panel Introduction	13
4.1 Module structure	14
4.2 LED indicator function	16
4.3 Electrical connection of the interface	17
4.3.1 Auxiliary power interface (M12 L-code pin end)	17
4.3.2 IO-Link Interface Class A (M12 A-code pin end)	17
4.3.3 IO interface (M12 A-code socket port)	18
5. Installation and wiring	19
5.1 Dimensions drawing of the shape	20
5.2 Installation environment requirements	21
5.3 Connection instructions	21
5.3.1 Power interface wiring diagram	21
5.3.2 IO interface wiring diagram	22
6. Function Description	23
6.1 Process data mapping	24
6.2 ISDU parameters	24
6.3 Configuration parameters	25



1.Product Overview

Preface

IO-Link is the world's first standardized cross-vendor IO technology (IEC 61131-9), which is an open standard serial communication protocol. The STORM67 series signal hubs (hereinafter referred to as "HUB") support IO-Link communication, and can support up to 16 channels of digital input or 16 channels of digital output.

As an IO-Link slave station, it can be connected to any brand of IO-Link master station to meet the needs of users for obtaining process data, diagnostic and configuration data transmission.

This product is a professional device for industrial use and can only be used by personnel with electrical operation experience. Please read this manual carefully before use and operate in accordance with the instructions to avoid causing personnel injuries or product damage.

Product features:

- IP67 protection level

Suitable for harsh industrial environments

- Compact size

Suitable for applications with limited space

- Fast speed

Based on high-performance communication chips

- Easy to diagnose

Innovative channel indicator light design, close to the channel, the channel status is clear at a glance, detection and maintenance are convenient

- Communication protocol

Designed according to IO-Link v1.1 specification

- Simple wiring

Simple standard cable connection, can connect various IO-Link standard devices and standard switch quantity signals



2. Naming Rules

2.1 Naming Rules

IOL  **0808P-HUB**

 (1) (2) (3) (4) (5) (6)

Number	Meaning	Explanation
(1)	Series Number	IOL:The abbreviation of the IO-Link module with IP67 protection rating
(2)	I/O Type	No: Digital quantity
(3)	Input Points	00:0 Channel input 08:8 Channel input, 16:16 Channel input
(4)	Output Points	00:0 Channel output, 08:8 Channel output, 16:16 Channel output
(5)	Signal Type	P:PNP, N:NPN
(6)	Hub	HUB:Signal Hub is abbreviated as

Table 1: Naming Rules for Hubs Explanation

2.2 Model list

[illegible]



3. Product Specifications

3.1 General parameters

Communication interface parameters			
Product model	IOL1600P-HUB	IOL0808P-HUB	IOL0016P-HUB
VendorID	0x03DC		
VendorName	LATCOS		
DeviceID	0x0016D1	0x08D1D0	0x0016D0
IO-Link version	V1.1		
Communication rate	COM2 (38.4kbps)		
Process data length	Input 2 Byte	Input 1 Byte Output 1 Byte	Output 2 Byte
Interface type	M12-A 4-pin connector tip		
IO-Link cable length	≤ 20m (between the main station and the HUB)		
Working voltage			
Consumption	DC24V ±15%		
current	No-load 15mA		
Input/output interface	M12-A, 5-pin, threaded end		
Number of input channels	16	8	-
Input current	4mA	4mA	-
Input channel type	PNP	PNP	-
Input filtering	Configurable	Configurable	-
Input short-circuit protection	Yes	Yes	-
Output channel count	-	8	16
Maximum current of single channel	-	0.5A	0.5A
Total output current	-	4A	4A
Output channel type	-	PNP	PNP

Communication interface parameters			
Product model	IOL1600N-HUB	IOL0808N-HUB	IOL0016N-HUB
VendorID	0x03DC		
VendorName	LATCOS		
DeviceID	0x0016D1	0x08D1D0	0x0016D0
IO-Link version	V1.1		
Communication rate	COM2 (38.4kbps)		
Process data length	Input 2 Byte	Input 1 Byte Output 1 Byte	Output 2 Byte
Interface type	M12-A 4-pin connector tip		
IO-Link cable length Working voltage	≤ 20m (between the main station and the HUB)		
Consumption	DC24V ±15%		
current	No-load 15mA		
Input/output interface	M12-A, 5-pin, threaded end		
Number of input channels	16	8	-
Input current	4mA	4mA	-
Input channel type	NPN	NPN	-
Input filtering	Configurable	Configurable	-
Input short-circuit protection	Yes	Yes	-
Output channel count	-	8	16
Maximum current of single channel	-	0.5A	0.5A
Total output current	-	4A	4A
Output channel type	-	NPN	NPN

3.2 Technical Specifications

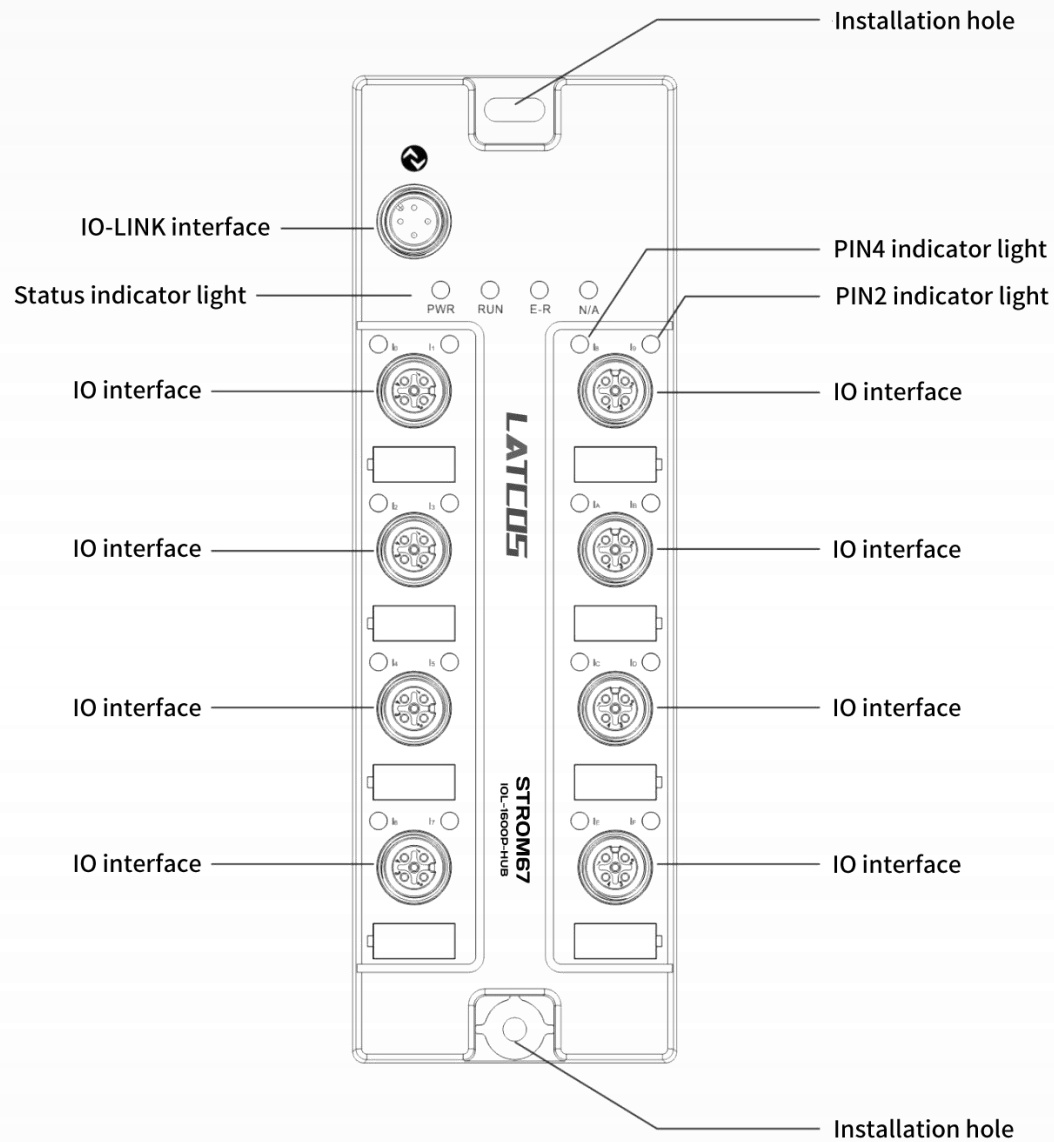
working environment	
Specification and size weight	180*34.5*59 mm(Pure Digital Input Module) 180*35.5*59 mm(With digital output module)
Operating temperature	260g
Storage temperature	-25°C ~ +70°C
Relative humidity	-40°C ~ +85°C
Protection grade	95%, No condensation
Specification and size weight	IP67
Other	
Firmware upgrade	Support
Data storage	Support



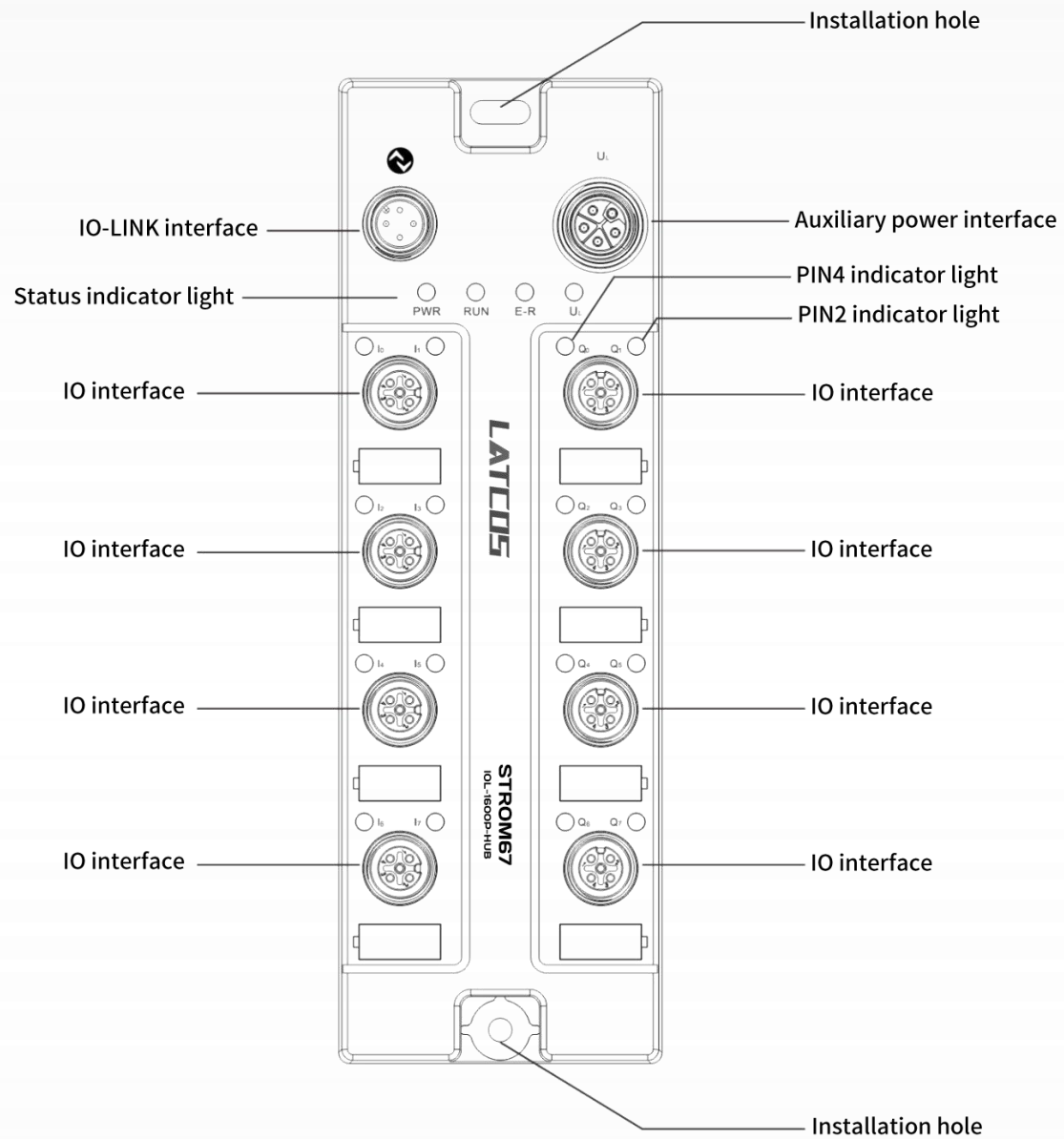
4. Product Panel Introduction

4.1 Module structure

Introduction to each part of the module (Pure digital input module)



Introduction to each part of the module (Pure digital Output module)



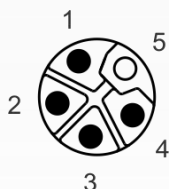
4.2 LED indicator function

Logo	Name	Color	Status	Description
PWR	System power indicator light	green	Constantly on	Power supply is normal.
			Turn off	Module is not powered on or power supply is abnormal.
RUN	Operating status indicator light	green	1S Flashes	Module is operating normally.
			Turn off	Module is not operating.
E-R	Ethernet bus indicator light	green	Constantly on	Upper bus is operating normally.
			1S Flashes	Module has an abnormal operation.
UL	Load power indicator light	green	Constantly on	Power supply is normal.
			Turn off	Module is not powered on or power supply is abnormal.
I ₀ ~I _F	Input channel indicator light	green	Constantly on	Module channel has signal input.
			Turn off	Module channel has no signal input or signal input is abnormal.
Q ₀ ~Q _F	Output channel indicator light	green	Constantly on	Module channel has signal output.
			Turn off	Module channel has no signal output or signal output is abnormal.

4.3 Electrical connection of the interface

4.3.1 Auxiliary power interface (M12 L-code pin end)

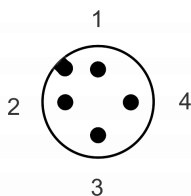
Definition of Auxiliary Power Port



Pin number	Function	Description	Wire core color
1	N.C	空	Brown
2	UL-	0V (Load Power Supply)	White
3	N.C	Empty	Blue
4	UL+	+24V (for load power supply)	Black
5	PE	Protective grounding PE	Grey

4.3.2 IO-Link Interface Class A (M12 A-code pin end)

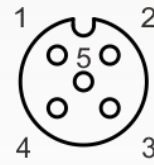
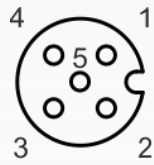
IO-Link Interface Definition



Pin number	Function	Description	Wire core color
1	Us+	+24V (system power supply)	Brown
2	NC	Empty	White
3	Us-	0V (System Power Supply)	Blue
4	IO-Link	C/Q Data Transmission Channel	Black

4.3.3 IO interface (M12 A-code socket port)

IO Interface Definition



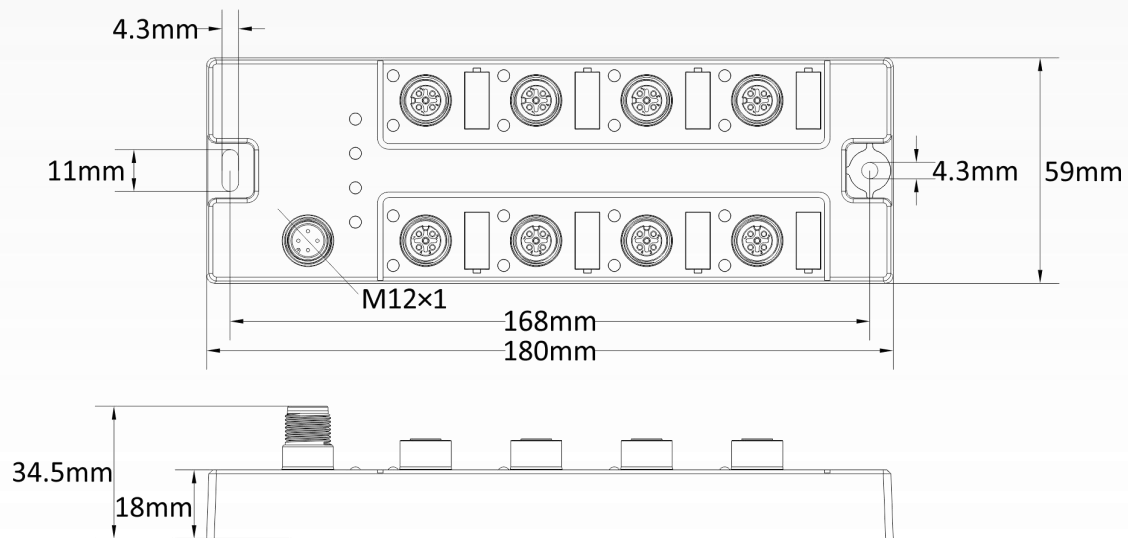
Pin number	Function	Description	Wire core color
1	UL+	+24V (for load power supply)	Brown
2	DI/DO B	Signal input/output B	White
3	UL-	0V (for load power supply)	Blue
4	DI/DO A	Signal input/output A	Black
5	PE	Protective grounding PE	Grey



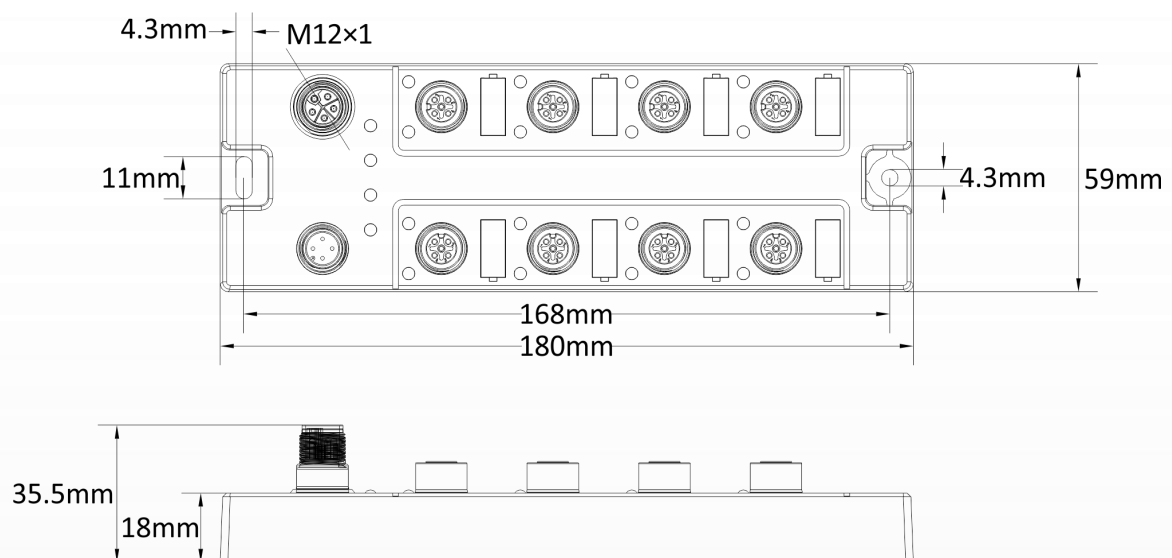
5. Installation and wiring

5.1 Dimensions drawing of the shape

Shape specifications (unit: mm) (Pure digital input module)



Shape specifications (unit: mm) (Pure digital Output module)



5.2 Installation environment requirements

Please avoid installing in the following locations:

- Areas exposed to direct sunlight

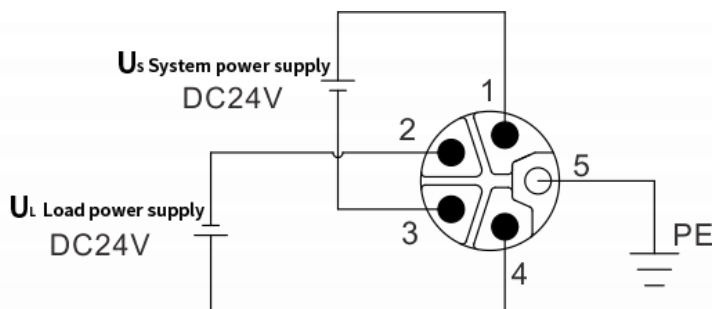
Locations where the environmental temperature or relative humidity exceeds the specifications of the module

- Areas with corrosive gases, flammable gases
- Areas with acid, oil, and chemical droplets
- Areas with dust, iron filings, and sparks flying
- Locations where the module body is directly subjected to severe impact and vibration
- Areas with strong electric fields, magnetic fields, radiation, and static interference
- Locations near power lines and high-voltage alternating current lines

5.3 Connection instructions

- For the safety of personnel and equipment, it is recommended to disconnect the power supply when conducting wiring operations.
- IO-Link Master Station Interface: Connect the IO-Link Hub and any IO-Link Master Station product using a standardized three-core or four-core cable.
- I/O Interface: Connect the IO-Link Hub and sensors or other devices using a standardized five-core cable.

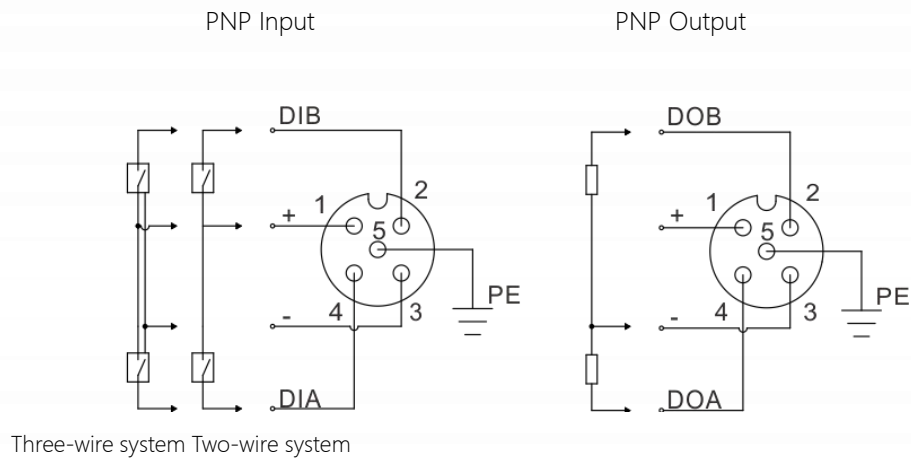
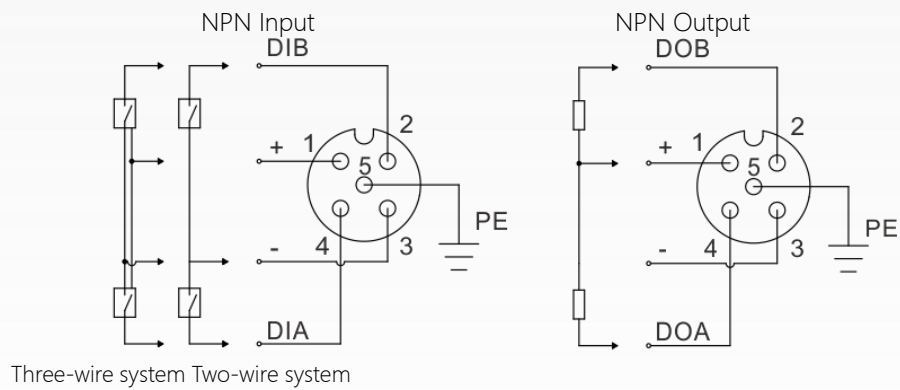
5.3.1 Power interface wiring diagram



Notes for Attention

- The power supply of the recommendation system and the load power supply are respectively powered by different switching power supplies to ensure the stability of operation.
- The power supply rules refer to the "Power Supply Rules" section.

5.3.2 IO interface wiring diagram



Notes for Attention

- Please install the waterproof cap provided with the module on the unused connector interface and tighten it to achieve the IP67 protection level.
- Regarding the digital input, please follow the input guidance of type 2 as specified in EN61131-2.



6. Function Description

6.1 Process data mapping

Input data mapping

Byte	0								1							
Bit	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
Sub-index	8	7	6	5	4	3	2	1	16	15	14	13	12	11	10	9
Offset bit position	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Pin	X3-PIN2	X3-PIN4	X2-PIN2	X2-PIN4	X1-PIN2	X1-PIN4	X0-PIN2	X0-PIN4	X7-PIN2	X7-PIN4	X6-PIN2	X6-PIN4	X5-PIN2	X5-PIN4	X4-PIN2	X4-PIN4

Output data mapping

Byte	0								1							
Bit	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
Sub-index	8	7	6	5	4	3	2	1	16	15	14	13	12	11	10	9
Offset bit position	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Pin	X3-PIN2	X3-PIN4	X2-PIN2	X2-PIN4	X1-PIN2	X1-PIN4	X0-PIN2	X0-PIN4	X7-PIN2	X7-PIN4	X6-PIN2	X6-PIN4	X5-PIN2	X5-PIN4	X4-PIN2	X4-PIN4

6.2 ISDU parameters

ISDU		Name	Permission	Data Type	Description
Index	Sub-index				
0x10	0x00	Vendor_Name (Manufacturer Name)	R	64 String	LATCOS
0x11	0x00	Vendor_Text (Supplier Text)	R	64 String	www.latcos.cn
0x12	0x00	Product_Name (Product Name)	R	64 String	LNI IOL-D08-D08-M12
0x13	0x00	Product_ID (Product ID)	R	64 String	LNI0808
0x14	0x00	Product_Text (Product Text)	R	64 String	IP67 Sensor/Actor Hub M12
0x15	0x00	Serial_Number (Serial Number)	R	64 String	-
0x16	0x00	Hardware_Revision(Hardware Version)	R	64 String	v10
0x17	0x00	Firmware_Revision(Firmware Version)	R	64 String	-
0x18	0x00	Application_specific_tag(Specific for Application)	R/W	32 String	***

6.3 Configuration parameters

IP67 8DI8DO

Index	Sub-index	Name	Permission	Data type	Description
0x40	0x00	inversion (input reverse)	R/W	8 Unsigned	0x00
0x41	0x00	filter (input filtering value)	R/W	8 Unsigned	0x00
0x42	0x00	errmode (output error mode)	R/W	8 Unsigned	0x00
0x43	0x00	errvalue (output error value)	R/W	8 Unsigned	0x00
0x80	0x00	IsduWdtMaxCnt (watchdog timeout time)	R/W	8 Unsigned	3

IP67 16DI

Index	Sub-index	Name	Permission	Data type	Description
0x40	0x00	inversion (input reverse)	R/W	16 Unsigned	0x00 0x00
0x41	0x00	filter (input filtering value)	R/W	8 Unsigned	0x00
0x80	0x00	IsduWdtMaxCnt (watchdog timeout time)	R/W	8 Unsigned	3

IP67 16DO

Index	Sub-index	Name	Permission	Data type	Description
0x42	0x00	errmode (Output Error Mode)	R/W	16 Unsigned	0x00 0x00
0x43	0x00	errvalue (Output Error Value)	R/W	16 Unsigned	0x00 0x00
0x80	0x00	IsduWdtMaxCnt (Watchdog Timeout Time)	R/W	8 Unsigned	3

Official website



凌科自动化
LATCOS
connected to smart

先进自动化控制及工业网络技术



Copyright © 2023Wuxi Latcos Automation Technology, Inc. All rights reserved.

Wuxi Lingke Automation Technology Co., Ltd. www.latcos.cn

Company Tel: **0510-85888030**