DeviceNet Bus Module

Product User Manual

Table of Contents

1 Product Overview

1.1 Product Model List

DeviceNet fieldbus protocol coupler, powered by 24VDC, with 7/8" power interface (4-pin), supports up to 16A system power current, baud rate: 125~500Kbps, metal housing (IP67).

Model	Description
SRI8500-16DIP-78	16 channel PNP input.
SRI8500-16DOP-78	16 channel PNP output, with 0.5A driving capability per channel.
SRI8500-16DIOP-78	16-channel PNP input/output, with 0.5A driving capability per channel, IO points configurable in groups of 2 channels.

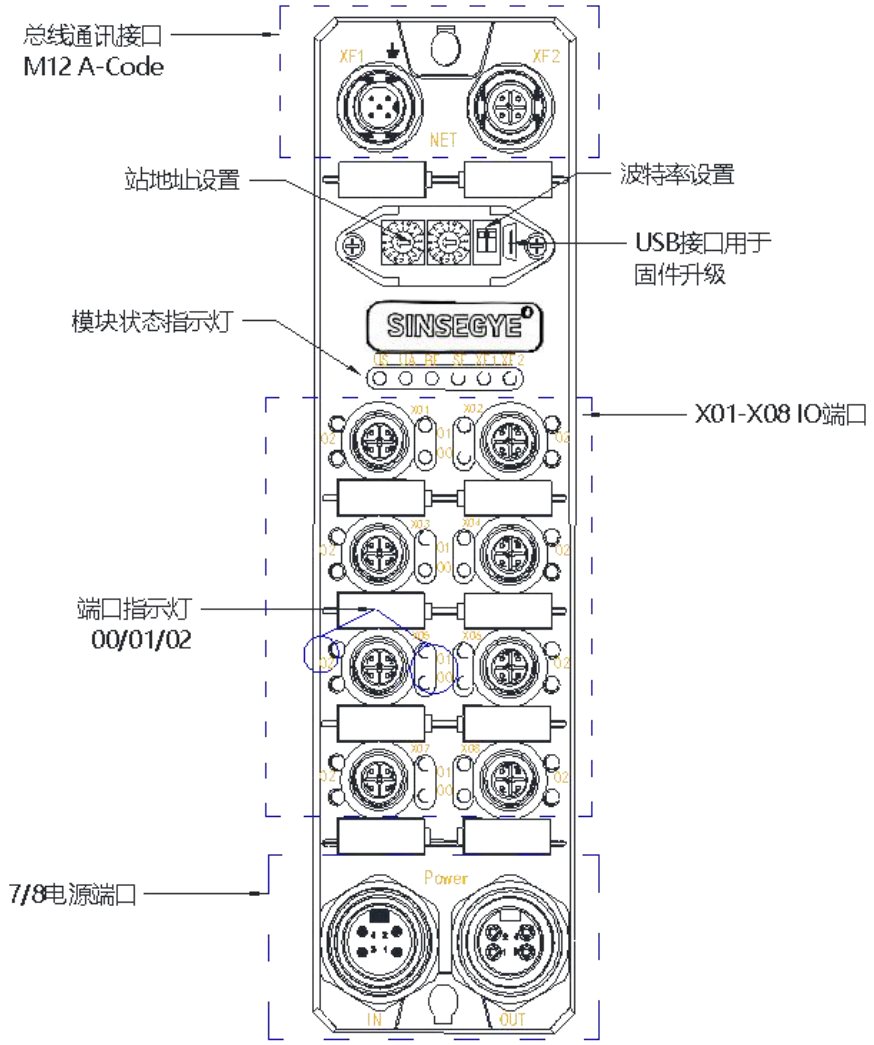
1.2 Naming Convention

SRI [A] [B] [C] [D]-[E][F]

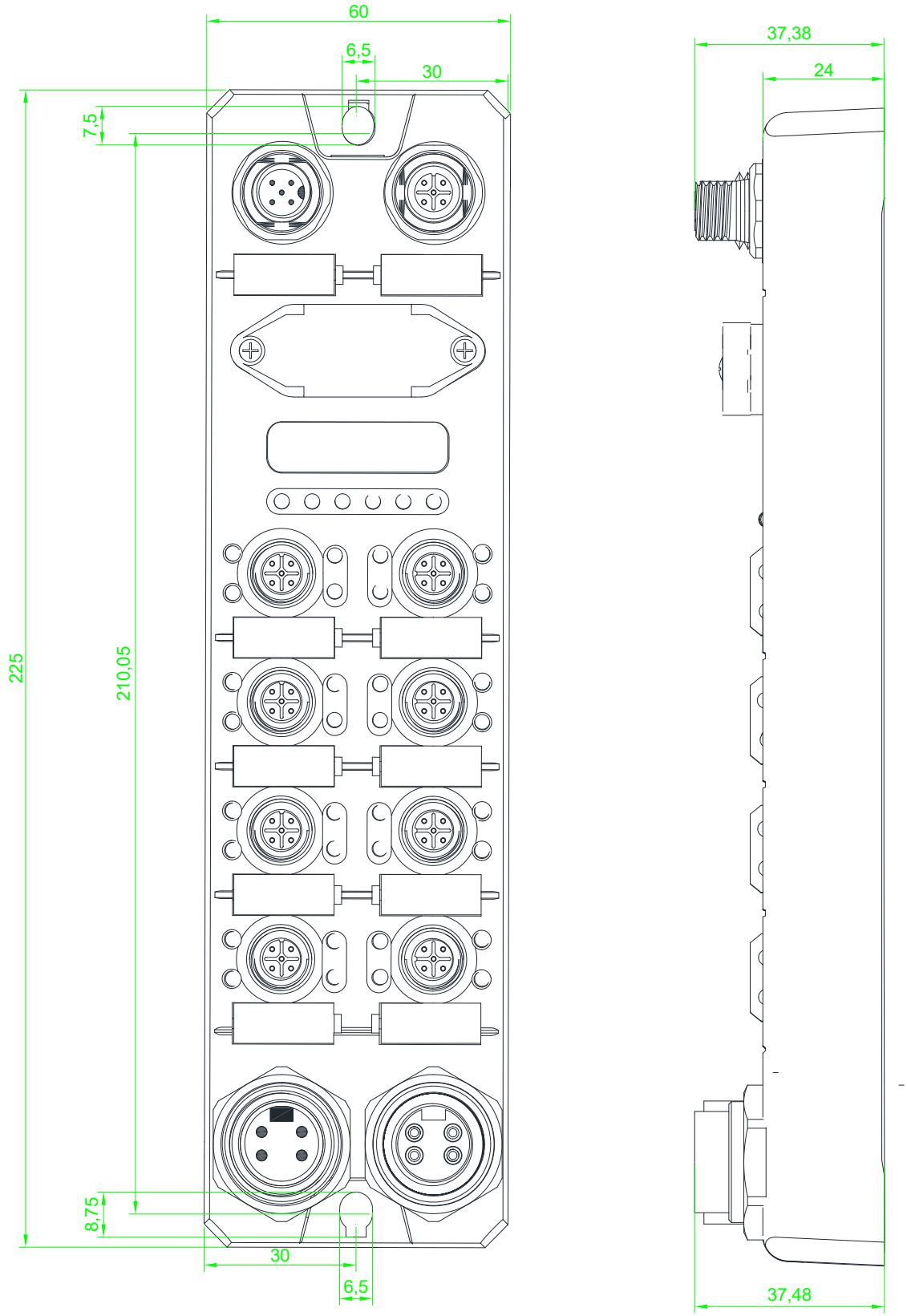
Category	Meaning	Description
SRI	IO-Link Series Products	/
A	Master/Coupler	8: Master/Coupler
B	Communication protocol	0: Modbus-TCP 2: EtherCAT 3: Profinet 4: EtherNet/IP 5: DeviceNet
C	Reservation	0: Default
D	Reservation	0: Default
E	Port type	8A0B: 8*Class A/Class B 8A8DOH: 8*Class A + 8-point output 2A12DOH: 2*Class A/Class B + high current output 12DIP: 12-point PNP input 12DIOP: 12-point PNP configurable input/output 12DION: 12-point NPN configurable input/output
F	Power interface	None: Default M12 interface 78:7/8" power interface

Example -> Master SRI8200-8A0B; Coupler: SRI8500-16DIOP-78

1.3 Product Identification



1.4 Dimensional Diagram



1.5 Technical Specifications

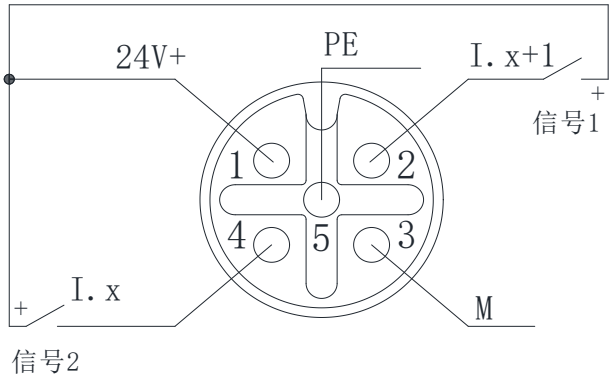
Product model	**SRI8500-16DIP-78**	**SRI8500-16DOP-78**	**SRI8500-16DIOP-78**
Bus transmission			
Communication protocol	DeviceNet		
Transmission distance (special 5-wire cable)	125Kbps	250Kbps	500Kbps
	≤500m	≤250m	≤100m
Address setting	Set via DIP switch		
Maximum number of stations per segment	64 nodes (including master, slave, and configurator)		
Power supply			
Working voltage	24V DC (18…30V)		
Module current consumption UMOD	<200 mA		
System and input signal power supply	Us, not exceeding 8 A		
Auxiliary power supply	Ua, not exceeding 8 A		
Extension connection	Expansion not supported		
Electrical isolation	Module/Input supply voltage Ui and output supply voltage Uo: 24V isolation, 0V connection		
Interface type			
Power supply	2* 7/8" power interfaces, 4-pin, male connector (input) + female connector (output)		
Bus communication	2 * M12 A-code 5pin		
Expansion interface	---		
Signal connection	8*M12 A-code 5pin		
Number of expansion modules	Expansion not supported		
Expansion connection distance	---		
Electrical parameters			
Number and type of built-in I/O of the device	16DI PNP	16DO PNP	16 DI/DO (configurable), PNP
Power supply current on I/O Port pin1 and pin3	Maximum 200mA per channel		

Product model	**SRI8500-16DIP-78**	**SRI8500-16DOP-78**	**SRI8500-16DIOP-78**
Input delay	Not exceeding 1.6ms		
Diagnosis			
Communication status	LED indicator, communication message		
Power supply monitoring	Supported, low voltage alarm		
Short circuit and overload protection	Supported, LED indicator		
Extension connection	---		
General data			
IP rating	IP67		
Temperature range	Operating temperature -20~+80°C (storage temperature -40~+85°C)		
Assembly	2-hole screw fixation		
Housing material	Metal housing (silver)		

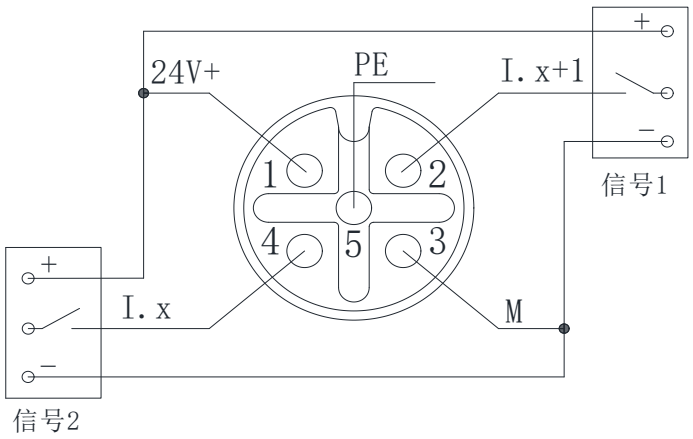
1.6 Channel Wiring Diagram

1.6.1 SRI8500-16DIP-78

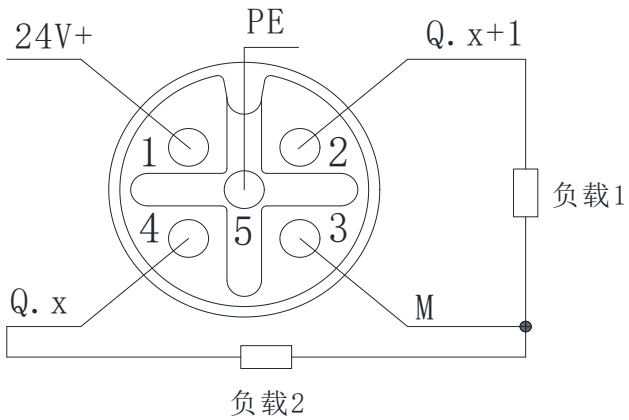
① 2-wire connection method:



② 3-wire connection method:



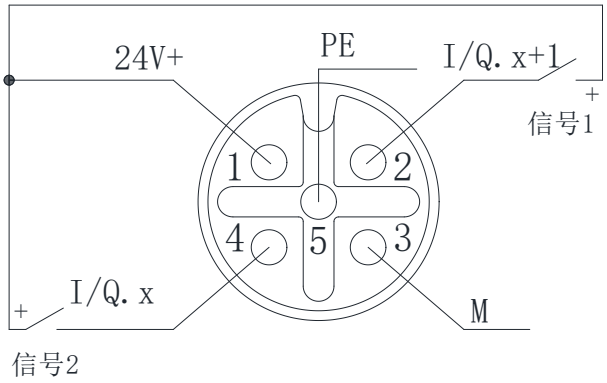
1.6.2 SRI8500-16DOP-78



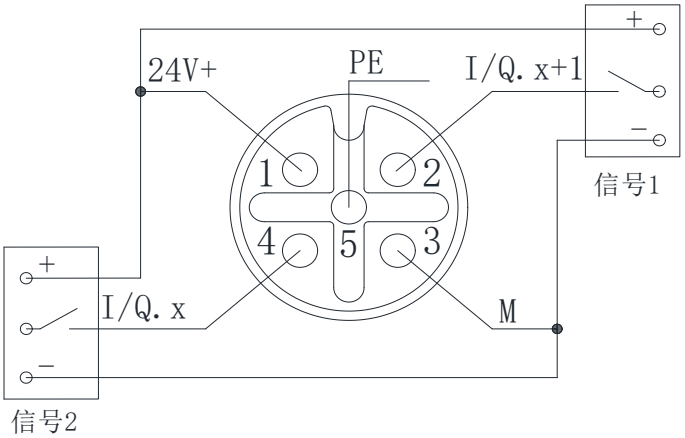
1.6.3 SRI8500-16DIOP-78

X01-X08 of SRI8500-16DIOP-78 are configured as PNP input:

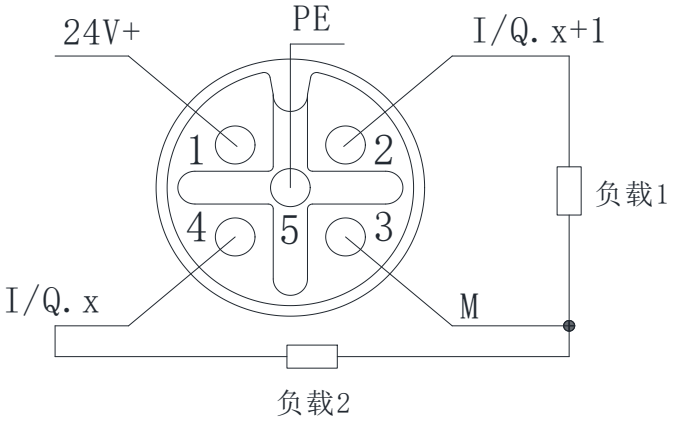
③ 2-wire connection method:



④ 3-wire connection method:



X01-X08 of SRI8500-16DIOP-78 are configured as PNP output



2 Module Description

2.1 Indicator Description

2.1.1 **SRI8500-16DIP-78**

Module status indicator			
Indicator label	status	Description	
US	● Green indicator is steadily lit	Power supply normal	
	○ Green indicator is off	Power supply abnormal or no power supply	
UA	● Green indicator is steadily lit	Peripheral power supply normal	
	○ Green indicator is off	Peripheral power supply abnormal or no power	
BF	● Red indicator is steadily lit	Communication failure	
	○ Red indicator is off	Communication normal	
SF	● Red indicator is steadily lit	Digital output port error (overcurrent/short circuit)	
	○ Red indicator is off	No error	
XF1	/	Reservation	
XF2	/	Reservation	
X01-X08 channel indicators			
Indicator label	Channel type	status	Description
00	Input mode	● Green indicator is steadily lit	PNP signal input detected on PIN4
		○ Green indicator is off	No PNP signal input detected on PIN4
01	Input mode	● Green	PNP signal input detected on PIN2

		indicator is steadily lit	
		○ Green indicator is off	No PNP signal input detected on PIN2
02	/	● Red indicator is steadily lit	Short circuit on port power supply (PIN1)
		○ Red indicator is off	Power supply normal

2.1.2 SRI8500-16DOP-78

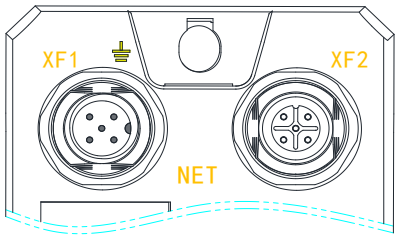
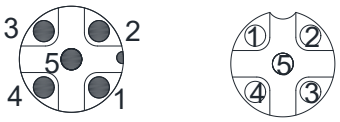
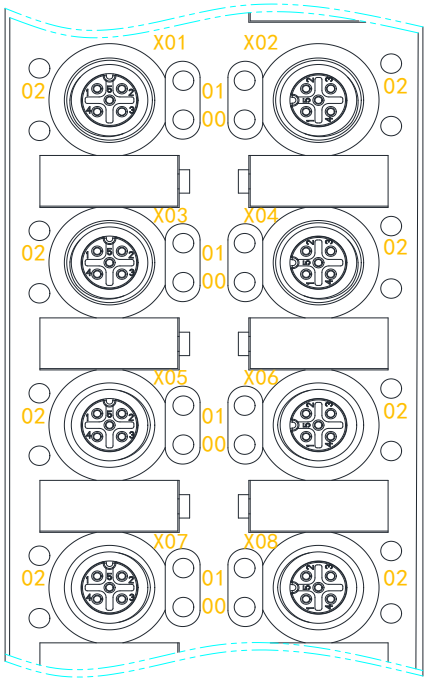
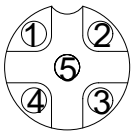
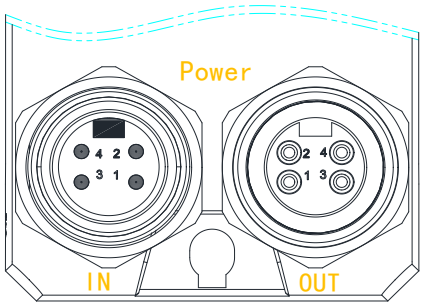
Module status indicator			
Indicator label	status	Description	
US	● Steadily lit	Power supply normal	
	○ Off	Power supply abnormal or no power supply	
UA	● Steadily lit	Peripheral power supply normal	
	○ Off	Peripheral power supply abnormal or no power	
BF	● Red indicator is steadily lit	Communication failure	
	○ Red indicator is off	Communication normal	
SF	● Red indicator is steadily lit	Digital output port error (overcurrent/short circuit)	
	¤ Red indicator is flashing	Ua power not connected	
	○ Red indicator is off	No error	
XF1	/	Reservation	
XF2	/	Reservation	
X01-X08 channel indicators			
Indicator label	Channel type	status	Description
00	Output mode	● Green indicator is steadily lit	PNP signal output detected on PIN4
		● Red indicator is steadily lit	PIN4 output error detected (overcurrent/short circuit)
		○ Off	No signal output detected or no error detected
01	Output mode	● Green indicator is steadily lit	PNP signal output detected on PIN2
		● Red indicator is steadily lit	PIN2 output error detected (overcurrent/short circuit)
		○ Off	No signal output detected or no error detected
02	/	● Red indicator is steadily lit	Short circuit on port power supply (PIN1)
		○ Red indicator is off	Power supply normal

2.1.3 SRI8500-16DIOP-78

Module status indicator			
Indicator label	status	Description	
US	● Steadily lit	Power supply normal	
	○ Off	Power supply abnormal or no power supply	
UA	● Steadily lit	Peripheral power supply normal	
	○ Off	Peripheral power supply abnormal or no power	
BF	● Red indicator is steadily lit	Communication failure	
	○ Red indicator is off	Communication normal	
SF	● Red indicator is steadily lit	Digital output port error (overcurrent/short circuit)	
	¤ Red indicator is flashing	Ua power is not connected. When all ports are configured as DI, the indicator won't flash without Ua connection.	
	○ Red indicator is off	No error	
XF1	/	Reservation	
XF2	/	Reservation	
X01-X08 channel indicators			
Indicator label	Channel mode	status	Description
00	Input mode	● Green indicator is steadily lit	PNP signal input detected on PIN4
		○ Green indicator is off	No PNP signal input detected on PIN4
	Output mode	● Green indicator is steadily lit	PNP signal output detected on PIN4
		● Red indicator is steadily lit	PIN4 output error detected (overcurrent/short circuit)
		○ Off	No signal output detected or no error detected
01	Input mode	● Green indicator is steadily lit	PNP signal input detected on PIN2
		○ Green indicator is off	No PNP signal input detected on PIN2
	Output mode	● Green indicator is steadily lit	PNP signal output detected on PIN2
		● Red indicator is steadily lit	PIN2 output error detected (overcurrent/short circuit)
		○ Off	No signal output detected or no error detected
02	/	● Red indicator is steadily lit	Short circuit on port power supply (PIN1)
		○ Red indicator is off	Power supply normal

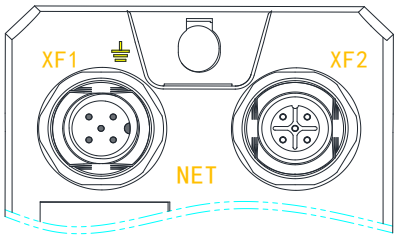
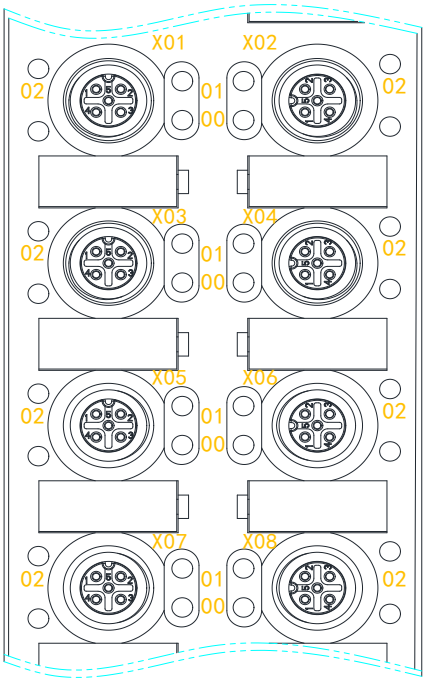
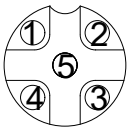
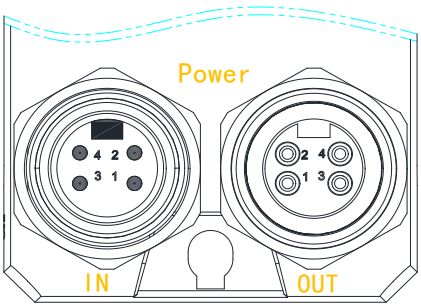
2.2 Port Description

2.2.1 SRI8500-16DIP-78

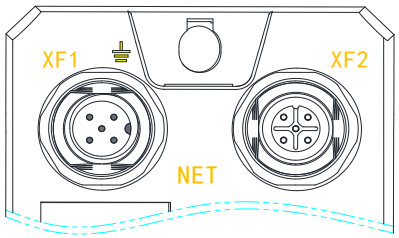
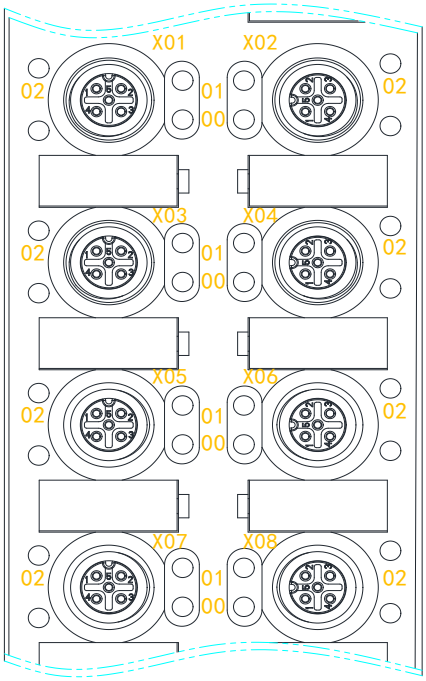
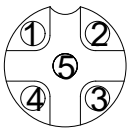
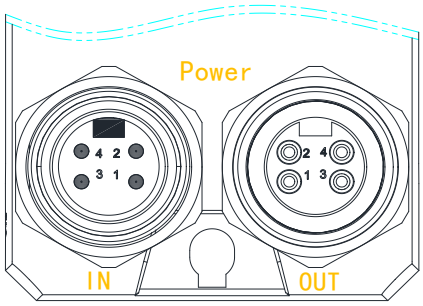
Ports	Description
	Communication interface: IN and OUT are M12 A-Code aviation connectors, IN: external thread, A-Code male connector; OUT: internal thread, A-Code female connector;  1: PE 2: 24V CAN 3: GND CAN 4: CAN H 5: CAN L
	X01~X08 are digital PNP inputs. The interface adopts an internal- thread female aviation connector. The pin definitions for the interfaces are as follows:  1: 24V+ 2: I.x+1 3: M 4: I.x 5: PE
	IN interface: power input terminal, using a 7/8" power interface male connector with external threads; Pin definition: 1: Auxiliary power supply Ua+ 2: Auxiliary power supply Ua+ 3: Auxiliary power supply Ua-

Ports	Description
	4: Auxiliary power supply Ua- OUT interface: Power output terminal, using a 7/8" power interface female connector with internal threads; Pin definition for the port: 1: Auxiliary power supply Ua+ 2: Auxiliary power supply Ua+ 3: Auxiliary power supply Ua- 4: Auxiliary power supply Ua-

2.2.2 SRI8500-16DOP-78

Ports	Description
	Communication interface: IN and OUT are M12 A-Code aviation connectors, IN: external thread, A-Code male connector; OUT: internal thread, A-Code female connector;  1: PE 2: 24V CAN 3: GND CAN 4: CAN H 5: CAN L
	X01~X08 are digital PNP outputs. The interface adopts an internal- thread female aviation connector.. The pin definitions for the interfaces are as follows:  1: 24V+ 2: Q.x+1 3: M 4: Q.x 5: PE
	IN interface: power input terminal, using a 7/8" power interface male connector with external threads; Pin definition: 1: Auxiliary power supply Ua+ 2: Auxiliary power supply Ua+ 3: Auxiliary power supply Ua- 4: Auxiliary power supply Ua- OUT interface: Power output terminal, using a 7/8" power interface female connector with internal threads; Pin definition for the port: 1: Auxiliary power supply Ua+ 2: Auxiliary power supply Ua+ 3: Auxiliary power supply Ua- 4: Auxiliary power supply Ua-

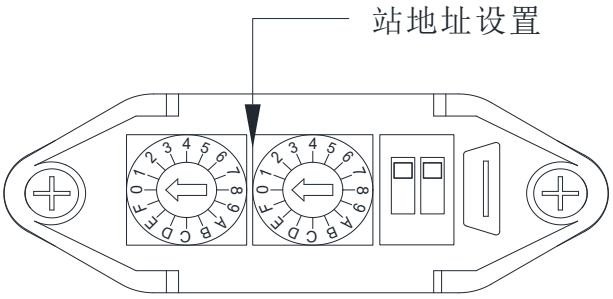
2.2.3 SRI8500-16DIOP-78

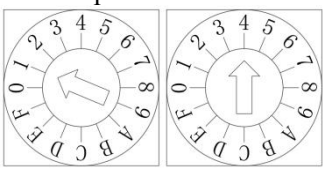
Ports	Description
	Communication interface: IN and OUT are M12 A-Code aviation connectors, IN: external thread, A-Code male connector; OUT: internal thread, A-Code female connector;  1: PE 2: 24V CAN 3: GND CAN 4: CAN H 5: CAN L
	X01~X08 are digital PNP inputs/outputs. The interface adopts an internal- thread female aviation connector., configurable via software. The pin definitions for the interfaces are as follows:  1: 24V+ 2: I/Q.x+1 3: M 4: I/Q.x 5: PE Note: The modes of Pins 2 and 4 can be flexibly configured.
	IN interface: power input terminal, using a 7/8" power interface male connector with external threads; Pin definition: 1: Auxiliary power supply Ua+ 2: Auxiliary power supply Ua+ 3: Auxiliary power supply Ua-

Ports	Description
	4: Auxiliary power supply Ua- OUT interface: Power output terminal, using a 7/8" power interface female connector with internal threads; Pin definition for the port: 1: Auxiliary power supply Ua+ 2: Auxiliary power supply Ua+ 3: Auxiliary power supply Ua- 4: Auxiliary power supply Ua-

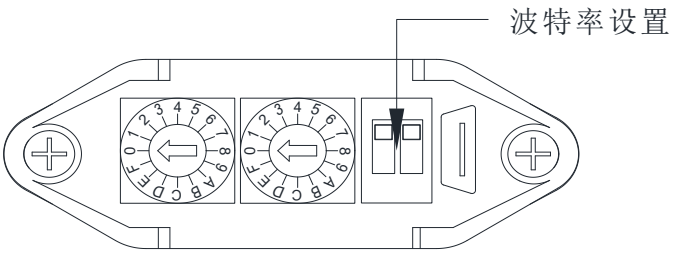
2.3 DIP Switch Description

2.3.1 Rotary DIP Switch Description



DIP switch	Description
Example of DIP switch: 	The station address is set using two rotary DIP switches, with the left switch as the upper byte (UB) and the right switch as the lower byte (LB). The hexadecimal station address is calculated as 0xUBUL. For example: To set station address 20, convert 20 to hexadecimal as 0x14, then rotate the first DIP switch to 1 and the second DIP switch to 4; As shown in the left figure.

2.3.2 Toggle DIP Switch Description



Toggle DIP Switch Description				
Baud rate / DIP switch	125K	250K	500K	Reserved
SW1	0	1	0	1
SW2	0	0	1	1

2.4 Parameter Description

2.4.1 SRI8500-16DIP-78

2.4.1.1 Total Bytes

Total bytes of process data

Device information	
Total input bytes	**2**
Total output bytes	**0**

2.4.1.2 Parameter Description

Name	Data type	Meaning	Remarks	Properties
0001 Filter Time	8-bit unsigned number	Input filter: 0: Disabled 1: 1ms 2: 2ms 3: 5ms 4: 10ms (the maximum is 4, and any value exceeding 4 will be treated as 4)	bit0-bit7 configure filter parameters	R/W
0002 Delay Time	8-bit unsigned number	Input delay parameter: 0: Disabled 1: 1.6ms 2: 3.2ms 3: 12.8ms 4: 20ms 5:50ms (the maximum is 5, and any value exceeding 5 will be treated as 5)	bit0-bit7 configures input delay parameters	R/W
0003 Diagnosis	8-bit unsigned number	Power supply diagnosis bit4: 0: Ua is connected normally 1: Ua is not connected		R

2.4.2 SRI8500-16DOP-78

2.4.2.1 Total Bytes

Total bytes of process data

Device information	
Total input bytes	**0**
Total output bytes	**2**

2.4.2.2 Parameter Description

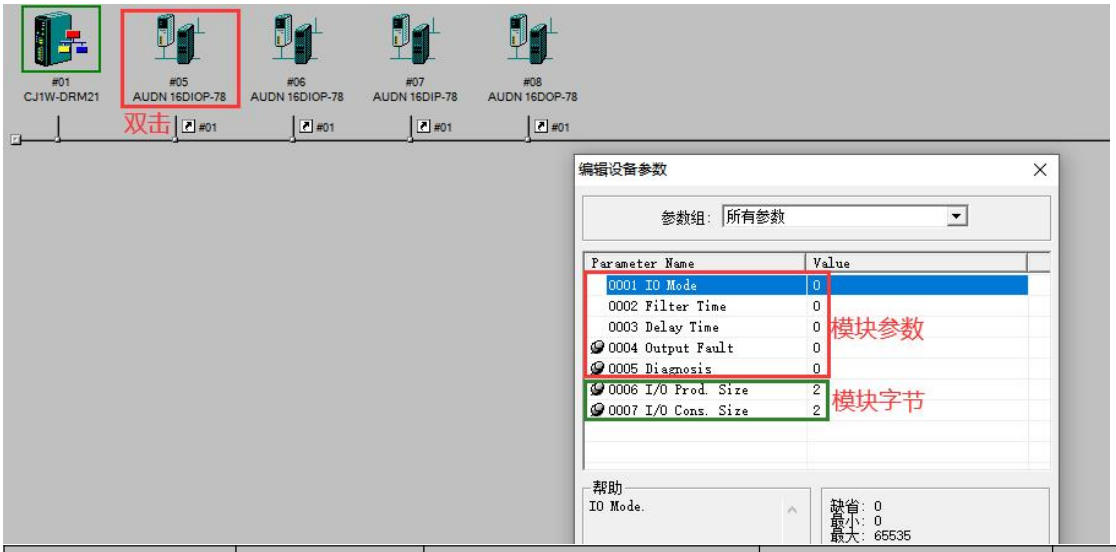
Name	Data type	Meaning	Remarks	Properties
0001 Output Fault	16-bit unsigned number	Output channel error; each bit corresponds to one DO: 0: No error 1: Output error (overcurrent or short circuit)	Calculated by bit, one bit represents one point	R
0002 Diagnosis	8-bit unsigned number	Power supply diagnosis bit4: 0: Ua is connected normally 1: Ua is not connected		R

2.4.3 SRI8500-16DIOP-78

2.4.3.1 Total Bytes

Information	
Total input bytes	**2Byte**
Total output bytes	**2Byte**

2.4.3.2 Parameter Description



Name	Data type	Meaning	Remarks	Properties
0001 IO Mode	16-bit unsigned number	Current IO mode (input mode by default): 0: Input mode 1: Output mode	Calculated by bit, one bit controls one point	R/W
0002 Filter Time	8-bit unsigned number	Input filter: 0: Disabled 1: 1ms 2: 2ms 3: 5ms 4: 10ms (the maximum is 4, and any value exceeding 4 will be treated as 4).	bit0-bit7 configure filter parameters	R/W
0003 Delay Time	8-bit unsigned	Input delay parameter: 0: Disabled	bit0-bit7 configures input delay parameters	R/W

	number	1: 1.6ms 2: 3.2ms 3: 12.8ms 4: 20ms 5: 50ms (the maximum is 5, and any value exceeding 5 will be treated as 5)		
0004 Output Fault	16-bit unsigned number	Configurable output channel error; each bit corresponds to one DO: 0: No error 1: Output error (overcurrent or short circuit)	Calculated by bit, one bit represents one point	R
0005 Diagnosis	8-bit unsigned number	Power supply diagnosis bit4: 0, Ua is normally connected 1, Ua is not connected		R