

# DECOWELL®

# SD Series IP67 Remote I/O Module User Manual

Decowell Reliable partner for intelligent manufacturing







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#### Foreword

# Information profile

Thank you for purchasing Decowell SD SERIES IP67 I/O!

SD series products are Decowell's I/O with high protection grade, up to IP67 protection grade, which supports mainstream fieldbus protocols, such as PROFINET, EtherCAT, EtherNet/IP, CC-Link, CC-Link IE Field Basic, Modbus TCP, etc.And a single module supports a maximum of 16 signal points, signal types include digital input and output. analog input and output. It has fully sealed miniaturized design and compact structure which is easy to integrate and install. With the flexible connection of the extension cable, it is waterproof and dust-proof, suitable for long-term stable operation and in a variety of severe industrial environment in the application scenario. It has a strong anti-interference ability, which is widely used in automotive, lithium, logistics, metallurgy, printing and other industries.

This manual mainly describes the specifications, characteristics and usage of the module, please read it carefully before use, so that you can use the product more clearly and safely.



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#### **Safety precautions**

### Safety statement

01. When installing, operating, and maintaining the product, please read and follow these safety precautions.

02. To ensure the safety of the human body and the device, please follow the labels on the product and all the safety precautions described in this document when installing, operating, and maintaining the product.

03. The "Tips", "Attention", "Warning" and "Danger" in this manual do not represent all safety precautions to be followed, but only serve as a supplement to all safety precautions.

04. This product should be used in an environment that meets the requirements of the design specifications, otherwise it may cause failure, and the abnormal function or component damage caused by non-compliance with the relevant regulations are not within the scope of product quality assurance.

05. Decowell does not bear any legal responsibility for personal safety accidents and property damage caused by illegal operation of products.

# Safety grade definition





# Control system design 🖉 Warning

01. Be sure to design a safety circuit to ensure that the control system can still work safely when the external power supply fails or the expansion module fails;

02. When the output circuit exceeds the rated load current or the load short circuit leads to long-term overcurrent, the module may smoke or catch fire, and safety devices such as fuses or circuit breakers should be set outside.

# Control system design

01. Be sure to set an emergency brake circuit, protection circuit, interlock circuit for forward and reverse operation and an upper and lower limit interlock switch to prevent machine damage in the external circuit of the expansion module;

02. To ensure the safe operation of the equipment, please design external protection circuits and safety mechanisms for output signals related to major accidents;

03. When the relay, transistor and other output units of the expansion module are damaged, its output can not be controlled to the ON or STEADY OFF state;

04. The expansion module is designed to be used in an indoor electrical environment with an overvoltage grade II. The power system level of the expansion module should have a lightning protection device to ensure that the lightning overvoltage is not applied to the power input, signal input, and control output ports of the expansion module to prevent device damage.

05. Be sure to set an emergency brake circuit, protection circuit, interlock circuit for forward and reverse operation and an upper and lower limit interlock switch to prevent machine damage in the external circuit of the expansion module;

06. To ensure the safe operation of the equipment, please design external protection circuits and safety mechanisms for output signals related to major accidents;

07. When the relay, transistor and other output units of the expansion module are damaged, its output can not be controlled to ON or STEADY OFF state;;

08. The expansion module is designed to be used in an indoor electrical environment with an overvoltage grade II. The power system level of the expansion module should have a lightning protection device to ensure that the lightning overvoltage is not applied to the power input, signal input, and control output ports of the expansion module to prevent device damage.



# **1. Product information**

# **1.1 Product naming rules**

Master module:

SD EC -	8 IOL -	M12 -	00
1 2	34	5	6

No.	Name	Definition
1	Product series name	SD series
2	Bus protocol	PN:PROFINET EC:EtherCAT
3	Number of channels	8-channel
4	IOL indentification	IO-Link protocol
5	Terminal type	Standard M12 interface port
6	Reserve	No definition

Slave station:

# **SD IOL - 8 8 0 0 - M12** 1 2 3 4 5 6 7

No.	Name	Note definition
1	Product series name	SD series
2	IOL identification	IO-Link protocol
3	Input channel quantity	0: no-input 4: 4-channel input 8: 8-channel input H: 16-channel input
4	Output channel quantity	0: no-output 4: 4-channel output 8: 8-channel output H: 16-channel output



5	Input channel signal type	0:NPN input 1:PNP input N: no-input signal
6	Output channel signal type	0:NPN input 1:PNP input N: no-input signal
7	Terminal type	Standard M12 interface port

# **1.2** Component description

#### 1.2.1 master moduleIOL Component description



Figure 1-2-1-1 component specification diagram

Component specification list

No.	Name		Function definition
1	Communication input interface port	IN	- Used for communication input and output for pir definition, refer to 3.2 <u>Terminal definition</u>
2	Communication output interface port	OUT	
3	Status indicator light	MT	Working normally (off)Reset complete (on)Press reset key flashing (1Hz flashing)



			Module upgrade flashing (5Hz flashing)
			The device is in INIT state (Off).
		RUN	The device is in the PREOPERATIONAL state
			(flashing)
		RUN	Equipment in SAFEOPERATIONAL state (single flashing)
			Equipment in OPERATIONAL state (on)
			The device is in a critical communication or
			application controller error (flashing)
			Application watchdog timeout (flashing twice)
			The slave device application was automatically
		ERR	changed EtherCAT status due to a local error
2			(flashing once)
3	Status indicator light		General configuration error(flashing)
			EtherCAT communication on the device is working
			(off)
			Network port disconnected (Off)
		L/A1	Network port connected (On)
			Network port data communication (flashing)
			Network port disconnected (Off)
		L/A2	Network port connected (On)
			Network port data communication (flashing)
			Port configured as IO-Link, searching for IO-Link
			device (LED green flashing)
			IO-Link communication is normal (LED green on)
	IO-Link indicator		PIN4 and L- short circuit or overload (LED red on)
			IO-Link communication error, hardware error, orz
			port conflict (LED red flashing)
		0	The port is configured as DI/DO. In this case, PIN4 is high
4			(I ED groop + rod/yollow stoody op)
			The next is configured as DI/DO on DIA CTIVE
			At this time, DINA is law cleatrical level (LED
			At this time, PIN4 is low electrical level (LED
			green + red/yellow oll)
			Digital input, PIN2 is high (LED green + red / steady yellow)
		1	Digital input PIN2 is low (LED green + red /
			vellow out)
		Used for IO-	Link data transmission for pin definition, refer to 3.3
5	IO-Link Port		terminal definition
6	IO Power indicator		
0	light	Used to dism	lay whether there is a nower supply input and output
7	System Power	Used to display whether there is a power supply input and o	
/	indicator light		
8	Product power supply	POWER IN	Used for power supply input and output, for pin definition,



9

interface port

POWER OUT

refer to 3.2 Terminal Definition

#### 1.2.2 IO-Link slave station component description



Figure 1-2-2-1 component description diagram

#### component description Table

No.	Name	Function definition		
1	IO-Link interface port	Used for IO-Link data transmission. For details, see 3.2 terminal definition		
	Power indicator light	PWR	The device is powered on(steady green) The device is not powered on (steady off).	
2	Status indicator light	LINK	Normal communication (green light flashes once every two seconds) Communication error (green flashing)	
3	Channel indicator light	Input/output signal (green on)		

## **1.3 Technical specification**

#### 1.3.1 master module technical parameter

#### SDEC-8IOL-M12-00

Basic parameter				
Protection grade	IP67(Bolted condition)			
Appearance material	PA6+gf30%			



Overall dimension	66×221×29mm		
Storing temperature	-40°C+85°C		
Working temperature	-25°C+70°C		
	Power supply parameter		
Power supply interface port	2×7/8" 5nin Noodlo and+Holo and		
type	2~778 Spin, Needle end Hole end		
US Standard voltage	24 VDC (1830 VDC)		
US Current summation	5A		
UA Standard voltage	24 VDC (1830 VDC)		
UA Current summation	8A		
Rated power consumption	45mA		
Electrical isolation	US and UA: 24V isolation, 0V isolation		
	Technical parameter		
Communication protocol	EtherCAT		
Bus communication interface	2×M12 D code Inin Hole and		
port type	2×1012 D-code 4pin; Hole end		
Maximum transmission	100 m		
distance	100 111		
Communication rate	10/100 Mbit/s		
Digital input	$16 \times PNP$ , type 3		
Digital output end	8×PNP		
Input/output configurable	Yes		
IO-link version	V1.1.3		
IO-link Transmission rate	COM1, COM2, COM3 (4.8 kbps\38.4 kbps\230.4 kbps)		
IO-link port numbers/type	8×CLASS A		
Signal connection interface	9×M12 Dec 1. Sector Halo and		
type	8×M12 D-code Spin, Hole end		
Maximum distance to			
communicate with slave	20m		
station			
External 24V power supply			
current of IO-link port (Pin1)	2A		
Fault diagnosis	Support		

#### SDPN-8IOL-M12-00

	Basic parameter
Protection grade	IP67(Bolted condition)
Appearance material	PA6+gf30%
Overall dimension	66×221×29mm
Storing temperature	-40°C+85°C
Working temperature	-25°C+70°C
	Power supply parameter
Power supply interface port	2×7/8" 5nin Needle and+Hele and
type	2×778 Spin, Needle end Tible end
US Standard voltage	24 VDC (1830 VDC)
US Current summation	5A
UA Standard voltage	24 VDC (1830 VDC)
UA Current summation	8A



Rated power consumption	89mA		
Electrical isolation	US AND UA: 24V isolation, 0V isolation		
	Technical parameter		
Communication protocol	PROFINET		
Bus communication interface	2×M12 D code Inin Hole and		
port type			
Maximum transmission	100 m		
distance	100 III		
Communication rate	10/100 Mbit/s		
Digital input	16×PNP, type 3		
Digital output end	8×PNP		
Input/output configurable	Yes		
IO-link version	V1.1.3		
IO-link Transmission rate	COM1, COM2 , COM3 ( 4.8 kbps\38.4 kbps\230.4 kbps)		
IO-link port numbers/type	8 ×CLASS A		
Signal connection interface	exM12 D and Spin Hals and		
type	8×1112 D-code 5pill, 1101e end		
Maximum distance to			
communicate with slave	20m		
station			
External 24V power supply			
current of IO- link port (Pin1)	2A		
Fault diagnosis	Support		

#### 1.3.2 Slave station technical parameter

#### SDIOL-801N-M12

Basic parameter		
Protection grade	IP67(Bolted condition)	
Appearance material	PA6+gf30%	
Overall dimension	65.0x35.9x220.0 mm	
Storing temperature	-40°C+85°C	
Working temperature	-25°C+70°C	
Technical parameter		
Standard voltage	24 VDC (1830 VDC)	
Rated power consumption	16mA	
Communication protocol	IO-Link 1.1.3	
Interface port slot	8×M12, socket, 5 pins, code A	
Input channel quantity	8	
Input signal type	PNP, type 1	
Communication rate	COM2 (38.4Kbps)	
Minimum cycle time	5ms	



Input filtering time	0~10ms(Default 3ms)
input impedance	No
Isolation or not	Yes
Product characteristics	Input filtering, anti-shorting

#### SDIOL-800N-M12

Basic parameter		
Protection grade	IP67(Bolted condition)	
Appearance material	PA6+gf30%	
Overall dimension	36x160x23mm	
Storing temperature	-40°C+85°C	
Working temperature	-25°C+70°C	
Technical parameter		
Standard voltage	24 VDC (1830 VDC)	
Rated power consumption	51mA	
Communication protocol	IO-Link 1.1.3	
Interface port slot	8×M12, socket, 5 pins, code A	
Input channel quantity	8	
Input signal type	NPN, type 1	
Communication rate	COM2 (38.4Kbps)	
Minimum cycle time	5ms	
Input filtering time	0~10ms(Default 3ms)	
input impedance	No	
Isolation or not	Yes	
Product characteristics	Input filtering, anti-shorting	

#### SDIOL-08N0-M12

Basic parameter	
Protection grade	IP67(Bolted condition)
Appearance material	PA6+gf30%
Overall dimension	36x160x23mm
Storing temperature	-40°C…+85°C
Working temperature	-25°C+70°C
Technical parameter	



Standard voltage	24 VDC (1830 VDC)
Rated power consumption	30mA
Communication protocol	IO-Link 1.1.3
Interface port slot	8×M12, socket, 5 pins, code A
Output channel quantity	8
Output signal type	NPN
Output current	Max: 0.5A (Total Output Current of 8 Channels at the same time: 2A)
Communication rate	COM2 (38.4Kbps)
Minimum cycle time	5ms
Load type	Resistive load, inductive load, lamp load
Isolation or not	Yes
Fault diagnosis	Low pressure, overheating diagnosis
Product characteristics	Single channel short circuit protection

#### SDIOL-08N1-M12

	Basic parameter
Protection grade	IP67(Bolted condition)
Appearance material	PA6+gf30%
Overall dimension	36x160x23mm
Storing temperature	-40°C…+85°C
Working temperature	-25°C+70°C
	Technical parameter
Standard voltage	24 VDC (1830 VDC)
Rated power consumption	30mA
Communication protocol	IO-Link 1.1.3
Interface port slot	8×M12, socket, 5 pins, code A
Output channel quantity	8
Output signal type	PNP
Output current	Max: 0.5A (Total Output Current of 8 Channels at the same time: 2A)
Communication rate	COM2 (38.4Kbps)
Minimum cycle time	5ms
Load type	Resistive load, inductive load, lamp load



Isolation or not	Yes
Fault diagnosis	Low pressure, overheating diagnosis
Product characteristics	Single channel short circuit protection

SDIOL-8800-M12

Basic parameter		
Protection grade	IP67(Bolted condition)	
Appearance material	PA6+gf30%	
Overall dimension	66x171x29mm	
Storing temperature	-40°C…+85°C	
Working temperature	-25°C+70°C	
	Technical parameter	
Standard voltage	24 VDC (1830 VDC)	
Rated power consumption	58mA	
Communication protocol	IO-Link 1.1.3	
Interface port slot	8×M12Connector, socket, 5 pins, code A	
Output channel quantity	8	
Input channel quantity	8	
Input signal type	NPN, type 1	
Output signal type	NPN	
Output current	Max: 0.5A (Total Output Current of 8 Channels at the same time: 2A)	
Communication rate	COM2 (38.4Kbps)	
Minimum cycle time	5ms	
Input filtering time	0~10ms(Default 3ms)	
Load type	Resistive load, inductive load, lamp load	
Isolation or not	Yes	
Fault diagnosis	Low pressure, overheating diagnosis	
Product characteristics	Single channel short circuit protection	

#### SDIOL-8811-M12

Basic parameter	
Protection grade	IP679(Bolted condition)
Appearance material	PA6+gf30%



Overall dimension	66x171x29mm
Storing temperature	-40°C…+85°C
Working temperature	-25°C+70°C
	Technical parameter
Standard voltage	24 VDC (1830 VDC)
Rated power consumption	72mA
Communication protocol	IO-Link 1.1.3
Interface port slot	8×M12Connector, socket, 5 pins, code A
Output channel quantity	8
Input channel quantity	8
Input signal type	PNP, type 1
Output signal type	PNP
Output current	Max: 0.5A (Total Output Current of 8 Channels at the same time: 2A)
Communication rate	COM2 (38.4Kbps)
Minimum cycle time	5ms
Input filtering time	0~10ms(Default 3ms)
Load type	Resistive load, inductive load, lamp load
Isolation or not	Yes
Fault diagnosis	Low pressure, overheating diagnosis
Product characteristics	Single channel short circuit protection

#### SDIOL-H00N-M12

Basic parameter		
Protection grade	IP67(Bolted condition)	
Appearance material	PA6+gf30%	
Overall dimension	66x171x29mm	
Storing temperature	-40°C+85°C	
Working temperature	-25°C+70°C	
Technical parameter		
Standard voltage	24 VDC (1830 VDC)	
Rated power consumption	86mA	
Communication	IO-Link 1.1.3	



protocol	
Interface port slot	8×M12Connector, socket, 5 pins, code A
Input channel quantity	16
Input signal type	NPN, type 1
Communication rate	COM2 (38.4Kbps)
Minimum cycle time	5ms
Input filtering time	0~10ms(Default 3ms)
input impedance	No
Isolation or not	Yes
Product characteristics	Input filtering, anti-shorting

#### SDIOL-H01N-M12

	Basic parameter			
Protection grade	IP67(Bolted condition)			
Appearance material	PA6+gf30%			
Overall dimension	66x171x29mm			
Storing temperature	-40°C+85°C			
Working temperature	-25°C+70°C			
	Power supply parameter			
Standard voltage	24 VDC (1830 VDC)			
Rated power consumption	19mA			
Communication protocol	IO-Link 1.1.3			
Interface port slot	8×M12Connector, socket, 5 pins, code A			
Input channel quantity	16			
Input signal type	PNP, type 1			
Communication rate	COM2 (38.4Kbps)			
Minimum cycle time	5ms			
Input filtering time	0~10ms(Default 3ms)			
input impedance	No			
Isolation or not	Yes			
Product characteristics	Input filtering, anti-shorting			

SDIOL-0HN0-M12



	Basic parameter
Protection grade	IP67(Bolted condition)
Appearance material	PA6+gf30%
Overall dimension	66x171x29m
Storing temperature	-40°C…+85°C
Working temperature	-25°C+70°C
	Technical parameter
Standard voltage	24 VDC (1830 VDC)
Rated power consumption	43mA
Communication protocol	IO-Link 1.1.3
Interface port slot	8×M12Connector, socket, 5 pins, code A
Output channel quantity	16
Output signal type	NPN
Output current	Max: 0.5A (Total Output Current of 8 Channels at the same time: 2A)
Communication rate	COM2 (38.4Kbps)
Minimum cycle time	5ms
Load type	Resistive load, inductive load, lamp load
Isolation or not	Yes
Fault diagnosis	Low pressure, overheating diagnosis
Product characteristics	Single channel short circuit protection

#### SDIOL-0HN1-M12

	Basic parameter			
Protection grade	IP67(Bolted condition)			
Appearance material	PA6+gf30%			
Overall dimension	66x171x29mm			
Storing temperature	-40°C+85°C			
Working temperature	-25°C+70°C			
	Power supply parameter			
Standard voltage	24 VDC (1830 VDC)			
Rated power consumption	58mA			
Communication protocol	IO-Link 1.1.3			



Interface port slot	8×M12Connector, socket, 5 pins, code A		
Output channel quantity	16		
Output signal type	NPN		
Output current	Max: 0.5A (Total Output Current of 8 Channels at the same time: 2A)		
Communication rate	COM2 (38.4Kbps)		
Minimum cycle time	5ms		
Load type	Resistive load, inductive load, lamp load		
Isolation or not	Yes		
Fault diagnosis	Low pressure, overheating diagnosis		
Product characteristics	Single channel short circuit protection		



# 2. Mechanical installation

# 2.1 Installation dimension

## 2.1.1 Master module installation dimension







### 2.1.1 Slave station installation dimension











# 2.1 Installation method

### 2.1.1 Master module installation layout

#### Installation:

The screw is installed with cross slot and concave hexagon head combination (Screw M6\*25, screw gasket diameter is 11mm).



#### Disassemble:

Use a cross screwdriver to remove the M6 screws and remove the module.



#### 2.1.2 Slave station installation layout

#### Installation:

The screw is installed with cross slot and concave hexagon head combination (Screw M6\*25, screw gasket diameter is 11mm).



#### Disassemble:

Use a cross screwdriver to remove the M6 screws and remove the module.



# 3. Electrical installation

# 3.1 Terminal definition

# 3.1.1 master module terminal definition

Communication port Pin definition			
	Pin	Function	
2	1	Tx+ Data transmission +	
	2	Rx+ Data receiving +	
1000	3	Tx- Data transmission -	
4	4	Rx- Data receiving -	

Power supply input Pin definition				
	Pin	Function		
3	1	Auxiliary power supply UA- 0V		
4 0 2	2	System and signal load power supply US- 0V		
5 0 0/1	3	Function earthing FE		
	4	System and signal load power supply US+ DC24V		
	5	Auxiliary power supply UA+ DC24V		

Power supply output Pin definition				
	Pin	Function		
3	1	Auxiliary power supply UA- 0V		
20004	2	System and signal load power supply US- 0V		
1 0 0 5	3	Function earthing FE		
	4	System and signal load power supply US+ DC24V		
	5	Auxiliary power supply UA+ DC24V		



IO-Link Pin definition				
	Pin	Function		
1 ~~ 2	1	DC24V Power supply		
(0,0)	2	DI signal		
60	3	GND		
4 3	4	C\Q, IO-Link Data transmission channel		
	5	FE, Function earthing		

#### 3.1.2 Slave station terminal definition

	IO-Link Pin definition	
	Pin	Function
2	1	DC24V Power supply
	2	Not in use
3 • • ) 1	3	GND
4	4	C\Q, IO-Link Data transmission channel

IO Port Pin definition				
	Pin	Function		
3 4	1	DI:DC24V; DO:NC		
~ <u>~</u> 50}	2	Input or output 2		
	3	GND		
$2 \lor \lor 1$	4	Input or output 1		
	5	protecting earthing PE		



# **3.2** Terminal connection

#### 3.2.1 master module IOL connection





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#### **3.2.2** Slave station input NPN connection



#### 3.2.3 Slave station input PNP connection



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#### **3.2.4** Slave station output NPN connection



#### 3.2.5 Slave station output PNP connection



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#### 4. Product use cases

# 4.1 SDEC-8IOL-M12-00 use cases

#### 4.1.1 Connection and configuration of CODESYS and SDEC-8IOL-M12-00

#### 1. Hardware configuration

Module type	Quantity
CODESYS controller	1
SDEC-8I0L-M12-00	1
SDI0L-8811-M12	1
SDI0L-801N-M12	1
SDI0L-08N1-M12	1

#### 2. Network topology



- 3. Install and uninstall XML
- (1) Open the CODESYS programming software. In the device library window, select Install. In the device description file window, select EtherCAT XML Device Description Profile.



ocation	System Repository	ODECVELD	auicas)		~	Edit L		
nstalled De String for a Name () - () Mis	(C:\ProgramData( vice Descriptions full text search cellaneous	Vendor	Vendor Version	<all vendors=""> Description</all>	~] 	In Ur Ex	-	Automatic detection (".xml;".eds;".dcf;".gs Device descriptions (".devdesc.xml) EDS, DCF (".eds, ".dcf) EtherCAT ESI (".xml) IO-Link IODD ("IODD1.1.xml;"IODD1.0.1.x PROFIBUS GSD (".gs?) PROFINET GSDML (GSDML".xml)
Fie     F	ldbuses II devices Cs ftMotion drives							Sercos SDDML (*.xml)
						Dr		

(2) In the device library, select the EtherCAT slave station XML file to be uninstalled.

ocation	System Repository				~	Edit Locations.
	(C:\ProgramData\CODESYS	(Devices)				
nstalled D	Device Descriptions					
String for	a full text search	Vendor	<all vendors=""></all>		~	Install
Name				Vendor	^	Uninstall
6	* Brot Module					Export
6	Brot Slave					
	🖲 📴 Beckhoff Automatio	n GmbH & Co. KG	- Drive and Axis Terminals (EL7xxx)			
	🔹 🚞 Bosch Rexroth AG					
	🗉 🚞 Control Techniques					
	🖃 📴 DECOWELL Automa	tion Co., Ltd				
	🗷 🚞 Coupler					
	😟 🚞 EX Series Coupl	er				
	🗷 🧰 RS Series					
	🖻 词 SDEC Series					Details
	SDEC-8IOL	-M12-00 (IO Link	Master Class A)	DECOWE L Auto	m	
	E DECOWELL AUTOM	ATION CO.,LTD.				
	🖲 📴 Delta Electronics, In	ic.				
	🖲 📴 Festo				~	
<					>	
						Close

4. Create projects and configurations

Open the CODESYS programming software to create the project, right-click "Device" to add EtherCAT Master to the project tree, and configure its EtherCAT communication network port parameters.

Devices - 4 ×	Device 🔐 Ether	AT_Master X	
Application     Device (CODESYS SoftMotion Win V3 x64)     Device (CODESYS SoftMotion General Axis Pool	General Sync Unit Assignment Overview Log EtherCAT I/O Mapping EtherCAT IEC Objects Status Information	Autoconfig master/slaves  EtherCAT NIC Settings Destination address(MAC) FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	EtherCAT

Add I/O module manually: Right-click "EtherCAT\_Master" in the project tree and select "Add Device". Add SDEC-8IOL-M12-00 in the device library. Right-click SDEC\_8IOL\_M12\_00 in the project tree and select the module that matches the bytes in the actual module.

				ing for
		AT	Fieldbuses	lame F
	ess Data Input	IO-Link 1 Byte Proces	But Module	
te Process Data Output	ess Data Input / 1 Byte	IO-Link 1 Byte Proces		
te Process Data Output NP	ess Data Input / 1 Byte	IO-Link 1 Byte Proces	O IO-Lin	
to Process Data Output PM	cos Data Input / 1 Byte	IO Link 1 Byte Proces	a to tin	
te Process Data Output Pro	ess Data Input / I byte	TO-Link 1 Byte Proces		
	ess Data Input NPN	10-Link 1 byte Proces	10-Lin	
only) 🗌 Display outda	versions (for experts o lata Input n Co., Ltd	Display all ve Link 1 Byte Process Dat	Name: IO-Link 1B	Group
		s: Module	Categories: Modu	c
			Version: 0	V
		nber: IOL_I_1byte	Order Number: I	C
VML DECOMELL CDEC	imported from Slave XM	on: EtherCAT Module im	Description: Ethe	0
Inte Process Data Input	m Device: IO-Link 1 Byt	IL DI AKK VI U D YOU		8
	ata Input n Co., Ltd imported from Slave XM	Link 1 Byte Process Dat ECOWELL Automation ( s: Module mber: IOL_I_1byte on: EtherCAT Module im	Name: IO-Link 1 B Vendor: DECOWE Categories: Mode Version: 0 Order Number: Iv Description: Ethe Stol. 4/12-00. BTTA	

R





Tip: The IO-Link slave station configuration of the inserted device must be consistent with the actual port number.

5.IO-Link slave station port status viewing

	Variable	Mapping	Channel	Address	Type	Unit	Description	
Process Data	T Xe	Wapping	channer	Address	type	Unit	Description	
	±-7≱		Status of IO-Link Port 1	%IB0	USINT		Status of IO-Link Port 1	
Startup Parameters	± 🍫		Status of IO-Link Port 2	%IB1	USINT		Status of IO-Link Port 2	
1.44	i#- *≱		Status of IO-Link Port 3	%IB2	USINT		Status of IO-Link Port 3	
LUG	😟 🦄		Status of IO-Link Port 4	%IB3	USINT		Status of IO-Link Port 4	
EtherCAT I/O Mapping	😟 - 🍫		Status of IO-Link Port 5	%IB4	USINT		Status of IO-Link Port 5	
			Status of IO-Link Port 6	%IB5	USINT		Status of IO-Link Port 6	
EtherCAT IEC Objects	18 - <b>19</b>		Status of IO-Link Port 7	%IB6	USINT		Status of IO-Link Port 7	
	⊞¥ø		Status of IO-Link Port 8	%IB7	USINT		Status of IO-Link Port 8	
Status	1. Ye		Input Pin 2 of Ch 1	%IB8	USINT		Input Pin 2 of Ch 1	
Information	18 · *0		Input Pin 2 of Ch 2	%IB9	USINT		Input Pin 2 of Ch 2	
	🛞 🍫		Input Pin 2 of Ch 3	%IB10	USINT		Input Pin 2 of Ch 3	
	B- 🍫		Input Pin 2 of Ch 4	%IB11	USINT		Input Pin 2 of Ch 4	
	۰ ۲		Input Pin 2 of Ch 5	%IB12	USINT		Input Pin 2 of Ch 5	
	۰. ۲		Input Pin 2 of Ch 6	%IB13	USINT		Input Pin 2 of Ch 6	
	🛞 🍫		Input Pin 2 of Ch 7	%IB14	USINT		Input Pin 2 of Ch 7	
	- ×		Input Pin 2 of Ch 8	%IB15	USINT		Input Pin 2 of Ch 8	

The complete status code and meaning are shown in the following table. The status is presented by the combination of high and low 4-bit status codes.

Low four digits meaning

- 0x\_0 Port disabled
- 0x\_1 Port in std dig in
- $0x_2$  Port in std dig out
- 0x\_3 Port in communication OP
- 0x\_4 Port in communication COMSTOP
- High four digits meaning 0x1\_ Watchdog detected 0x2\_ internal Error 0x3\_ invalid Device Id 0x4\_ invalid Vendor Id 0x5\_ invalid IO-Link Version 0x6\_ invalid Frame Capability 0x7\_ invalid Cycle Time 0x8\_ invalid PD in length 0x9\_ invalid PD out length 0xA\_ no Device detected

#### 6. PIN2 input status



General	Find		Filter Show all			-	Add FB for IO Channel +	Go to Instance
Process Data	Variable	Mapping	Channel	Address	Туре	Unit	Description	
riocess Data	18- <b>*</b>		Status of IO-Link Port 1	%IB0	USINT		Status of IO-Link Port 1	
Startup Parameters	· · · · · · · · · · · · · · · · · · ·		Status of IO-Link Port 2	%IB1	USINT		Status of IO-Link Port 2	
	B- 🍫		Status of IO-Link Port 3	%IB2	USINT		Status of IO-Link Port 3	
.0g	H- *		Status of IO-Link Port 4	%IB3	USINT		Status of IO-Link Port 4	
EtherCAT I/O Mapping	i≣¥≱.		Status of IO-Link Port 5	%IB4	USINT		Status of IO-Link Port 5	
the second s	H 🐐		Status of IO-Link Port 6	%IB5	USINT		Status of IO-Link Port 6	
EtherCAT IEC Objects	B- 🏘		Status of IO-Link Port 7	%IB6	USINT		Status of IO-Link Port 7	
			Status of IO-Link Port 8	%IB7	USINT		Status of IO-Link Port 8	_
Status	🖹 - 🏘		Input Pin 2 of Ch 1	%IB8	USINT		Input Pin 2 of Ch 1	
information	🗩 🏘		Input Pin 2 of Ch 2	%IB9	USINT		Input Pin 2 of Ch 2	
	B- 🏘		Input Pin 2 of Ch 3	%IB10	USINT		Input Pin 2 of Ch 3	
	B 🍫		Input Pin 2 of Ch 4	%IB11	USINT		Input Pin 2 of Ch 4	
			Input Pin 2 of Ch 5	%IB12	USINT		Input Pin 2 of Ch 5	
	🗩 👋		Input Pin 2 of Ch 6	%IB13	USINT		Input Pin 2 of Ch 6	
	😟 - 🏘		Input Pin 2 of Ch 7	%IB14	USINT		Input Pin 2 of Ch 7	
	😟 🏘		Input Pin 2 of Ch 8	%IB15	USINT		Input Pin 2 of Ch 8	

PIN2 in SDEC\_8IOL\_M12\_00 supports only digital input. If the input is not reversed, 1 indicates the high electrical level and 0 indicates the low electrical level.



# **4.1.2** Connection and configuration between Sysmac Studio and SDEC-8IOL-M12-00

#### 1. Hardware configuration

Module type	Quantity
NX1P2-9024DT	1
SDEC-8IOL-M12-00	1
SDIOL-8811-M12	1
SDIOL-801N-M12	1
SDIOL-08N1-M12	1

#### 2. Network topology



3.Install and uninstall XML

(1) Install the XML file. In the ESI library, select the EtherCAT XML file to be installed.



Mew Project - new_Controller_0 - Sysmac Studio (32bit)		- 🗆 X
File Edit View Insert Project Controller Simulation Tools Window I	Help	
大貴福 じ う さ 四 中 人 路 同 司 非 本 日		
Multiview Explorer  Performed Setup  Configurations and Setup  Configurations and Setup  Configurations and Setup  Controller Setup  Contr	Cut Corpy Paste Delete Uhdo Delete Uhdo Calingse All Calculate Transmission Delay Time of the Master Import Slave Settings and Insert New Slave Export Slave Settings Write Slave Settings and Insert New Slave Export Slave Settings Corpus and Merge with Actual Network Configuration Get Slave Setting Sites information Display Diagnoss/Statistics Information Display Diagnoss/Statistics Information Display Production Information Display Diagnoss/Statistics Information D	Comment: NX-FE Product name: NX-FE Product name: NX-FE Product name: NX-FE Vendor: OMRON C Comment: EtherCA URI : Open on a bro

(2) Uninstall the XML file. In the ESI library, select the EtherCAT XML file to be uninstalled.



4. Create projects and configurations

Add I/O module manually:

Double-click "EtherCAT" and add the SDEC\_8IOL\_M12\_00 module in the EtherCAT window.



📓 New Project - new_Controller_0 - Sysmac Studio (32bit)	- 🗆 ×
Eile Edit View Insert Project Controller Simulation Tools Window Help	
Х ● @ ● う ♂ @   ♬ ≮ ‰ 応 眠 祟 丼 ◎   枚   ▲ 為 용 巻 ● ● 0 品 字   其 @ @ ♥	
Multiview Explorer	- Toolbox - 🕂
Node AddressNetwork configuration         Configurations and Setup       Master         EtherCAT       Master         Model AddressNetwork configuration       Device name       E001         Model and Setup       Master       Model name       SDEC-8001-M12-00         Programming       Programming       AddressNetwork configuration       Programming	All vendors  Croups  Vision Sensor  Digital Type Sensor  Junction Slave  Communication Adapter  SDEC Series  Input Keyword  Since ell version  SDEC-BIOL-M12-00 Revolver
▼ # POJs       ▼ # Program0       ∟ # Section0       Build       ↓ # Functions	2
L® Function Blocks I I Description I Program I Location I ►	
<ul> <li>Soutput: Build</li> <li>Build</li> </ul>	Model name : SDEC Product name : SDE Revision : 0x000000 Vendor : DECOWEL Comment : SDEC se URI : Onen on a bro

Add IO-Link slave station, in the EtherCAT window, select SDEC\_8IOL\_M12\_00 module in the node, click "Edit Module Configuration", and configure the module model in the slot (the slot model must be the same as the actual connection).

文件の構成の相互の語人の工程の設備には構成の工具の設定の		2 7005
FREEDROAD     FREE     FREE		Image: Second
Hote         Hote         Hote           Hote         Hote         Hote         Hote           I         Hote         Hote	取得 57年 道 型号 SOUC-8811-M12 予告を称 O Lini 1 Byte Pr. 造器化型 3 0-G60001 Input. 新聞中のの時間分型 新会参数の面	IIIIII         ■         R380-15AN00H 4CT Rev           R680-15AN00H 4CT Rev         R680-15AN00H 4CT Rev           R680-15AN00H 4CT Rev         R680-15AN00H 4CT Rev           R680-15AN00H 4CT Rev         R680-15AN00H 4CT Rev           R680-15AN10H 4CT Rev         R680-15AN10H 4CT Rev           R680-15AN10H 4CT Rev         R680-15AN10H 4CT Rev           R680-15AN10H 4CT Rev         R680-15AN10H 4CT Rev           S010L-00001AN12         FMS68: NAL4CC001           S010L-10001AN12         FMS68: NAL4CC001           S010L-0001-M12         FMS68: NAL4CC011           S010L-0001-M12         FMS68: NAL4C001

Node settings:

After switching to Online, right-click the primary device and choose Write Device Node Address.







Note: After the node address is written, restart the device for the node address to take effect.



Note: Modify the module configuration sending mode: Send

	雷 Ether	rCAT TEL 管点	11 : SDEC-8/OL-M12-0 🗙 🛹 I/O 🗮	91		
	1位置		1 模块	1		
H.	- DAR	O-Link Port	SDIOL-0HN1-M12 (M9)	1	项自名称	值
	1	CO-Link Port	@SDIOL-08N0-M12 (M1)			0xF100:04 TxPDO Mapping
	2	O-Link Port	IOSTD_IN_1bit (M3)			0xF100:05 TxPDO Mapping
	3	O-Link Port	TOSTD_IN_1bit (M4)			0xF100:06 TxPDO Mapping
	4	O-Link Port	IOSTD_IN_1bit (M5)			0xF100:07 1xPDO Mapping 0xF100:08 TxPDO Mapping
	5	O-Link Port	IOSTD_IN_1bit (M6)		PDO映射设置	0x6100:01 IO Input Pin 2 (8
	6	O Link Port	IOSID_IN_1bit (M7)			0x6100:02 IO Input Pin 2 (8
		COLO-LINK POR		1		0x6100:03 IO Input Pin 2 (8 0x6100:04 IO Input Pin 2 (8
						0x6100:05 IO Input Pin 2 (8
						0x6100:06 IO Input Pin 2 (8
						0x6100:07 IO input Pin 2 (8 0x6100:08 IO input Pin 2 (8
1						编辑PDO映射设置
1					初始化参数设置	
					Ap In an an in the	
					模块配置发送方法	不发送
					模块配置发送方法 ——	一次日本
					选择方法来发送模块配置	信息到从

Download the program to the PLC and go online to monitor its operating status.

#### 5. IO-Link slave station port status viewing

📓 New Project - new_Controller_O - Sysmac Studio (32bit) – 🗆 🗆						
Eile Edit View Insert Project Controller Simulation Tools Window Help						
	- よ み に に 丼 🖲 🕏	🔺 🔌 68 🍻 🏊 💼	0 5	<sup>10</sup> 2		
Multiview Explorer 🚽 🛛 🐺 🛛	EtherCAT 🚽 Node1 : SDEC-8IOL-M12 🌛 I/O	Map 🗙		<b>.</b>	Toolbox 👻 👎	
new_Controller_0	Position Port           Position         Port           The provide the second s	Description R/	W Data Type Variable	Variable Comme	<search></search>	
Configurations and Setup	Node1 SDEC-8IOL-M12-00					
▼	TxPDO Mapping IO-Link state_status TxPDO Mapping IO-Link state_Status	c R	USINT			
u ⊂ 0 : SDIOI -0HN0-	TxPDO Mapping IO-Link state_Status	c R	USINT			
⊢⊲ 1 : STD IN 1bit/N	TxPDO Mapping IO-Link state_Status	¢ R	USINT			
L □ 2 · STD IN 1bit/N	TxPDO Mapping IO-Link state_Status	¢ R	USINT			
L = 3 · STD IN 1bit/N	TxPDO Mapping IO-Link state_Status	¢ R	USINT			
$= 3 \cdot 5 \cdot 5 \cdot 5 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot $	IXPDO Mapping IO-Link state_Status	C K				
5 : STD IN 1bit/N	IO Input Pin 2 (8 Ch) Input Pin 2 of C					
	IO Input Pin 2 (8 Ch) Input Pin 2 of C	h	USINT			
$= 7 \cdot STD IN 1 bit/N$	IO Input Pin 2 (8 Ch) Input Pin 2 of C	h R	USINT			
CDI/Evpansion Packs	IO Input Pin 2 (8 Ch)_Input Pin 2 of C	h 🔨 R	USINT			
V ST CPO/Expansion Racks	IO Input Pin 2 (8 Ch)_Input Pin 2 of C	h <b>2</b> R	USINT			
	IO Input Pin 2 (8 Ch)_Input Pin 2 of C	h R	USINT			
► R Controller Setup	IO Input Pin 2 (8 Ch)_Input Pin 2 of C	h R	USINT			
► ♦ Motion Control Setup	IO Input Pin 2 (8 Ch)_Input Pin 2 of C	h R	USINT			
Cam Data Settings	Slot 0 > SDIOL-0HN0-M12					
► Event Settings	Slot 1   STD_IN_1bit					
Task Settings	Slot 2   STD_IN_1bit					
🛛 Data Trace Settings	Slot 3   STD_IN_1bit				<u> </u>	
Programming	Slot 4  STD_IN_1bit					
■ V 🛙 POUs	Slot 5  STD_IN_1bit					
■ ▼ # Programs S	Slot 6   STD_IN_1bit					
	Slot 7   STD_IN_1bit					
i Filter	CDU/Exercise Destre					

The complete status code and meaning are shown in the following table. The status is presented by the combination of high and low 4-bit status codes.

Low four digits meaning	High four digits meaning			
0w four digits incaming0x_0 Port disabled0x_1 Port in std dig in0x_2 Port in std dig out0x_3 Port in communication OP0x_4 Port in communicationCOMSTOP	High four digits meaning 0x1_ Watchdog detected 0x2_ internal Error 0x3_ invalid Device Id 0x4_ invalid Vendor Id 0x5_ invalid IO-Link Version			
	Ux6_invalid Frame CapabilityUx/invalid Cycle			
	0x8_invalid PD in length			



0x9\_invalid PD out length 0xA no Device detected

#### 6. PIN2 input status

Mew Project - new_Controller_0 - Sysmac Stud	dio (32bit)	- 🗆 X
<u>File Edit View Insert Project Controller</u>	r <u>S</u> imulation <u>T</u> ools <u>W</u> indow <u>H</u> elp	
	, 👪 🗔 🖩 🚇 📕 🛄 🚺 🗛 🔌 🖗 🎙 👘 O 및 문 🛛 🖾 오 및	
Multiview Explorer 🚽 🐺 EtherCAT	Node1 : SDEC-8IOL-M12 🚅 I/O Map 🗙 🗸 🗸 Toolb	box 🚽 🖡
new_Controller_0  Position	Port Description R/W Data Type Variable Variable Comm€ Sear	rch> 🔽 🔊
Configurations and Setup	The Association of the state Status	
▼  # EtherCAI	TVDDO Mapping IO-Eink state Status ( N OSINI	
▼ □ Node1 : SDEC-8IOL-	TyPDO Manping IO-Link state Status ( K OSINI	
L ⊂ 0 : SDIOL-0HN0-	TxPDO Mapping IO-Link state Status < R USINT	
∟ □ 1 : STD_IN_1bit(N	TxPDO Mapping IO-Link state Status c R USINT	
∟ = 2 : STD_IN_1bit(N	TxPDO Mapping IO-Link state_Status c R USINT	
L = 3 : STD_IN_1bit(N	TxPDO Mapping IO-Link state_Status < R USINT	
∟⇔ 4 : STD_IN_1bit(N	TxPDO Mapping IO-Link state_Status C R USINT	
⊾⇔ 5 : STD_IN_1bit(№	IO Input Pin 2 (8 Ch_Input Pin 2 of Ch R USINT	
∟⇔ 6 : STD_IN_1bit(№	IO Input Pin 2 (8 Ch)_Input Pin 2 of Ch R USINT	
∟ □ 7 : STD_IN_1bit(N	IO Input Pin 2 (8 Ch)_Input Pin 2 of Ch R USINT 2	
▶ S CPU/Expansion Racks	IO Input Pin 2 (8 Ch)_Input Pin 2 of Ch R USINT	
I/O Map	IO Input Pin 2 (8 Ch)_Input Pin 2 of Ch R USINT	
► 3 Controller Setup	IO Input Pin 2 (8 Ch)_Input Pin 2 of Ch R USINT	
► ⊕ Motion Control Setun	IO Input Pin 2 (8 Ch)_Input Pin 2 of Ch R USINT	
* Cam Data Settings	IO Input Pin 2 (8 Ch_Input Pin 2 of Ch R USINI	
Slot 0	► SDIOL-OHNO-M12	
Tack Settings	► SID_IN_Tbit	
Slot 2	► STD_IN_Tbit	
Data Trace Settings Slot 3	► STD_IN_1bit	
Programming     Slot 4	► STD_IN_1bit	
VIII POUs	STD_IN_1bit	
▼ International Solution Solu	► STD_IN_16it	
<	STD_IN_1bit	
🖬 Filter 🔀 🧹		

PIN2 in SDEC\_8IOL\_sM12\_00 supports only digital input. If the input is not reversed, 1 indicates the high electrical level and 0 indicates the low electrical level.



#### 4.2 SDPN-8IOL-M12-00 Use case

#### 4.2.1 Connection and Configuration between TIA Portal and SDBN-8IOL-M12-00

1. The communication connection diagram is shown in Figure 4-2-1-1:



Figure 4-2-1-1 Communication connection diagram

2. The hardware configuration table is as follows:

Hardware	Quantity	Note
Programming computer	1	Install TIA Portal V16
Controller	1	S7-1211C
SDPN-8IOL-M12-00	1	PROFINET protocal master module
IO-Link communication cable	Several	

3, Install the GSD file, open TIA Portal V17, and select Options from the menu bar. Support Device Description File (GSD), as shown in Figure 4-1-1-2:





#### Figure 4-1-1-2 Installing the GSD file 4, New engineering and equipment configuration

Open TIA Portal V17, select New project and configure it, as shown in Figure 4-1-1:



Figure 4-1-1-3 New construction, select PLC model

Switch to the network view window, expand the hardware directory on the right, select SDPN-8IOL-M12-00, and drag it to the network view, as shown in Figure 4-1-4:





Herwork & Connection   PLC_1   PLC_1   Cruit211C     Image: Connection     Im		F Topology view	h Network view	vice view	Options
PLC_1         CrU 1211C         Image: Section in the section of the sect	Network	ns 🖭 🐮 📲 🖽 🛄 🍳 ±	/	3	
PLC_1       CPU 1211C         PUC_1       Planting         PUC_1       Planting         PUC_1       Planting         PUC_1       Planting         Planting				^	✓ Catalog
PLC_1         CPU 1211C		1			<pre>search&gt; init init</pre>
CPUT211C P Detecting & Monitoring Detecting & Monitoring Detecting Detecting & Monitoring Detecting & Monitoring Detecti	PLC 1			=	Filter Profile: <all></all>
Bistributed I/O     Power supply and distribution     Field devices     Gother field devices     Additional Ethemet devices     Additional Ethemet devices     Additional Ethemet devices     Borowers     Borow	CPU 1211C			_	Detecting & Monitoring
Properties     Info      Properties     Info      Properties     Info      Properties     Info      Properties     Info      Properties     Info      Properties     P					Distributed I/O
Field devices For the devices <					Power supply and distribution
Cross-references Compile     Properties 1 Info 1 Diagnostics     Properties 2 Info 2 Diagnostics     Properties 2 Info 2 Diagnostics     Properties     Properties 2 Diagnostics     Prop					Field devices
Image: Cross-references       Compile         Image: Cross-references       Compile         Image: Cross-references       Compile         Image: Cross-references       Image: Cross-references         Image: Cross-references       Compile         Image: Cross-references       Image: Cross-references         Image: Cross-references       Ima					✓ ☐ Other field devices
Image: Cross-references       Compile         Image: Show all messages       Image: Show all messages					Additional Ethernet devices
Info i Diagnostics     Info i Diagnostics     Sprives     Spr					- D PROFINET IO
Compile     Construction     Compile     Compi				Ze	Drives
Image: Cross-references       Compile         Image: Show all messages       Image: Show all messages				WO	Encoders
Image: Cross-references       Compile         Image: Cross-references       Image: Cross-references         Image: Cross-references       Image: Cross-reference         Image: Cross-references       Image: Cross-reference         Image: Cross-references       Image: Cross-reference         Image: Cross-references       Image: Cross-reference         Image: Cross-references       Image: Cross-reference <td< td=""><td></td><td></td><td></td><td></td><td>🕨 🧊 Gateway</td></td<>					🕨 🧊 Gateway
C III Construction of the state of the st				5	
Image: Cross-references       Compile         Image: Show all messages       Image: Show all messages					EC DEC
Image: Series Compile       Image: Series Compile         Image: Series Compile       Image: Series Compile <td></td> <td></td> <td></td> <td></td> <td>- DECOWELL</td>					- DECOWELL
Image: Second					• 🧊 EX-1110
Image: Specific Strip         Image: Specimore Specific Strip					• 📑 EX-1112
Image: Series V2         Image: Series V2         Image: Series V3					PN2 FS Series
Image: Cross-references       Compile         Image: Cross-references       Image: Cross-references         Image: Cross-references       Compile         Image: Cross-references       Image: Cross-references         Image: Cross-references       Compile         Image: Cross-references       Image: Cross-references         Image: Cross-references <td></td> <td></td> <td></td> <td></td> <td>▶ PN2 FS Series V2</td>					▶ PN2 FS Series V2
C       Image: Spin Solution of the state o					PN2 FS Series V3
Image: Cross-references       Compile         Image: Cross-references       Image: Cross-references				_	SDPN IOLM
Image: Construction of the state of the					SDPN-8IOL-M12-00
Image: Cross-references       Compile         Image: Show all messages       Image: Show all messages					Nidec Control Techniques Ltd.
Image: Cross-references       Compile         Image: Cross-references       Compile         Image: Cross-references       Image: Cross-references         Image: Cro				~	
General ()       Cross-references       Compile       Info ()       Diagnostics       Image: Compile ()         Show all messages       Image: Compile ()	<	> 100	%	. •	SIEMENS AG
General (a) Cross-references     Compile       Image: Second and the second an		O Properties	1 Info i Diagnostics		Systeme Electric
General (1) Cross-references     Compile       Image: Compile Compile     Image: Compile Comp		13 rioperues	La nuo a La Diagnostics		Weidmüller Interface GmbH & Co. KG
Show all messages	General (1) Cross-references Compile				Im Sensors
	😢 🛓 📵 Show all messages 💌				PROFIBUS DP
PROFIBUS PA					PROFIBUS PA
1 Path Description Go to 7 Errors Warnings Time Information	I Path Description	Got	co ? Errors Warnings	Time	> Information

Figure 4-1-4 Adding an SD master module

In the network view, assign a controller to the remote I/O module. Click Unassigned in the I/O module

and select PLC\_1.PROFINET interface \_1, as shown in Figure 4-1-1-5:



Figure 4-1-5 Assigning an I/O controller

Set the IP address of the I/O module. In the device view, double-click the module to enter the properties view, as shown in Figure 4-1-6:



SPN-BIOL-M12-00 [SDPN-BIOL SDPN-BIOL-M12-00 [SDPN-BIOL Sundard IV_1 0 1 (Prr. Sundard IV_2 0 2 (Prr. Sundard IV_3 0 3 (Prr. Sundard IV_3 0 3 (Prr. Sundard IV_3 0 3 (Prr. Sundard IV_3 0 3 (Prr. Sundard IV_2 0 2 (Prr. Sundard IV_3 0 3 (Prr. Sundard IV_2 0 0 2 (Prr. Sundard IV_2 0 0 0 (Prr. Sundard IV_2 0 0 (SPPN BIOL-M12-00) Sundard IV_2				2	Topology view	🔥 Ne	twork vie	w 🚺	Device view
Module protection     Module     Module	👪 SDPN-8IOL-M12-00 [SDPN-8IO	Ľ 🖌 🗄 🛄 🔍 ±		Device overview					
• SDPN-810L-M12:00         0			^	- Module		Rack	Slot	Laddress	O address
PHO     P	520		=	▼ SDPN-8IOL	-M12-00	0	0	- Budiess	4 0001000
Standard IIO_1       0       1 (Per	OLA			PN-IO		0	0 X1		
Standard IV0_2       0       2 (Por         Standard IV0_3       0       3 (Por         Standard IV0_5       0       5 (Por         Standard IV0_6       0       6 (Por         Standard IV0_5       0       5 (Por         Standard IV0_6       0       6 (Por         Standard IV0_6       0       6 (Por         Standard IV0_7       0       7 (Por         Standard IV0_7       0       7 (Por         Standard IV0_8       0       8 (Por         Standard IV0_7       0       7 (Por         Standard IV0_8       0       8 (Por         Standard IV0_8       0       9 (Port         Standard IV0_8       0       10         Standaro IV0_8	01201			Standard I/	0 1	0	1 (Por		
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Standard VIO_4 0 4 (Por Standard VIO_5 0 5 (Por Standard VIO_5 0 5 (Por Standard VIO_5 0 7 (Por Standard VIO_8 0 7 (Por Standard VIO_8 0 8 (Por Subaret addresses Interface aptions Media redundancy Nedia redu				Standard I/	0 3	0	3 (Por		
Standard IIO_5 0 5 (Por   Standard IIO_6 0 6 (Por   Standard IIO_7 0 7 (Por   Standard IIO_8 0 8 (Por   Standard IIO_8 10 tags System constants   Texts Ethernet addresses Interface networked with   General Subnet: PNIE_1   Standard IIO_8 10 cycle   Nedia redundancy Internet protocol version 4 (IPv4)   General Standard IIO_8   General Standard IIO Matis [X1 P1 R]   General IP address:   Port interconnection Port 2-M12 10/100 Matis [X1 P1 Z]   Identification 8 Maintenance System conter address:   Module parameters Shared Device			1	- Standard I/	0_4	0	4 (Por		
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Im       > 100%       Im       >         SDPN-8IOL-M12-00       System constants       Image: System constants       >         General       IO tags       System constants       Texts         C General       IO tags       System constants       Texts         PROFINET interface [X1]       Ethermet addresses       Interface networked with         Subnet:       PN/E_1       Image: System constants       Image: System constants         Media redundancy       Interface networked with       Image: System constants       Image: System constants         Media redundancy       Interface networked with       Image: System constants       Image: System constants         Media redundancy       Interret protocol version 4 (IPv4)       Image: System constants       Image: System constants         Interret protocol version 4 (IPv4)       Image: System constants       Image: System constants       Image: System constants         Image: System constants       Image: System constants       Image: System constants       Image: System constants       Image: System constants         Image: System constants       Image: System constants       Image: System constants       Image: System constants       Image: System constants         Image: System constant settings       Image: System constants       Image: System constants       Image: System			~	Standard I/	0_8	0	8 (Por		
SDPN-BIOL-M12-00       Properties       1. Info 1 2. Diagnostics       Image: Constants         General       IO tags       System constants       Texts         Catalog information       Ethemet addresses       Interface (X1)         General       Subnet:       PN/IE_1         Chemet addresses       Add new subnet       Interface options         Interface options       Media redundancy       Intermet protocol version 4 (IPv4)         Real time settings       Intermet protocol version 4 (IPv4)       IP address:         Port 1-M12 10/100 MBirds [X1 P1 R]       Subnet:       IP address:       192. 168. 0       .2         Port options       Subnet:       Subnet mask:       255. 255. 0       .2       .2         Port options       Synchronize router settings with IO controller       Use router       Use router         Identification & Maintenance       Router address:       0.0.0       .0.0         Module parameters       Shared Device       IP address is set directly at the device       IP address is set directly at the device	< III	> 100%	·	<	Ш				>
General       IO tags       System constants       Texts            General         Gatalog information         PROFINET interface [X1]         General         Ethemet addresses         Interface networked with         Subnet:         PN/IE_1         Add new subnet         Interface options         Media redundancy         Keal time settings         IO cycle         Port 1-M12 10/100 MBit/s [X1 P1 R]         General         Port options         Port 2-M12 10/100 MBit/s [X1 P2 R]         Identification 8 Maintenance         Module parameters         Shared Device        Interface networked with	SDPN-8IOL-M12-00 [SDPN-8IOL-M12-00]				<b>Properties</b>	i Info	1 V D	) iagnosti	cs T
• General       Totags       System Constants       Totags         • General       Catalog information       Ethernet addresses         • PROFINET interface [X1]       General       Interface networked with         General       Subnet:       PN/IE_1         • Advanced options       Add new subnet       •         Media redundancy       Internet protocol version 4 (IPv4)       •         • Real time settings       Internet protocol version 4 (IPv4)       •         • General       Internet protocol version 4 (IPv4)       •         • Port 1 - M12 10/100 MBitis [X1 P1 R]       •       Set IP address:       192.168.0.2         • General       IP address:       192.168.0.2       0.0.0         • Port options       •       Synchronize router settings with IO controller       •         • Port 2-M12 10/100 MBitis [X1 P2 R]       Use router       Use router       Router address:       0.0.0         Module parameters       Shared Device       •       IP address is set directly at the device       •	Constal 10 tags Sustam const	tante Tayte							
Catalog information FROFINET interface [X1] General Subnet: PN/IE_1 PN/IE_1 Interface networked with Subnet: PN/IE_1 Add new subnet Add new subnet Internet addresses Add new subnet Internet protocol version 4 (IPv4) Port 1 - M12 10/100 MBitis [X1 P1 R] General Port interconnection Port options Port options Port 2 - M12 10/100 MBitis [X1 P2 R] Identification & Maintenance Module parameters Shared Device Internet address is set directly at the device	General IO tags System const								
Catalog information                • PROFINET interface [x1]             General                 Ethernet addresses                 • Advanced options            Interface options            Media redundancy            • Real time settings            Io cycle            • Port 1-MI2 10/100 MBids [X1 P1 R]            General            Port interconnection            Port options            • Port 2-MI2 10/100 MBids [X1 P2 R]            Identification & Maintenance            Module parameters            Shared Device   Interface networked with	General     Getalas information	Ethernet addresses							
General       Subnet:       PN/E_1         General       Subnet:       PN/E_1         • Advanced options       Add new subnet       Add new subnet         Interface options       Add new subnet       Internet protocol version 4 (IPv4)         • Real time settings       Internet protocol version 4 (IPv4)         • Port 1 - M12 10/100 MBit/s [X1 P1 R]       • Set IP address in the project         • Port 1 - M12 10/100 MBit/s [X1 P2 R]       IP address:       192 . 168 . 0 2         • Port 2 - M12 10/100 MBit/s [X1 P2 R]       • Synchronize router settings with IO controller         • Port 2 - M12 10/100 MBit/s [X1 P2 R]       Use router         Identification & Maintenance       Router address is set directly at the device         Module parameters       • IP address is set directly at the device	RECEIVET interface [V1]	Interface action during							
General       Subnet:       PN/E_1         • Advanced options       Add new subnet         Interface options       Add new subnet         Media redundancy       Internet protocol version 4 (IPv4)         • Real time settings       Internet protocol version 4 (IPv4)         • Port 1-M12 10/100 MBit/s [X1 P1 R]       Internet protocol version 4 (IPv4)         • Port 1-M12 10/100 MBit/s [X1 P1 R]       Internet protocol version 4 (IPv4)         • Port 1-M12 10/100 MBit/s [X1 P2 R]       IP address:       192. 168. 0 2         • Port 2-M12 10/100 MBit/s [X1 P2 R]       Image: Synchronize router settings with 10 controller         • Port 2-M12 10/100 MBit/s [X1 P2 R]       Image: Synchronize router settings with 10 controller         • Port 2-M12 10/100 MBit/s [X1 P2 R]       Image: Synchronize router settings with 10 controller         • Port 2-M12 10/100 MBit/s [X1 P2 R]       Image: Synchronize router settings with 10 controller         • Module parameters       Image: Synchronize router settings is set directly at the device         Shared Device       IP address is set directly at the device	General	Interrace networked with							
With the face options       Add new subnet         Media redundancy       Internet protocol version 4 (IPv4)         Real time settings       Internet protocol version 4 (IPv4)         Port I - M12 10/100 MBit/s [X1 P1 R]       Image: State of the settings         General       IP address:         Port interconnection       Subnet:         Port options       Image: State of the settings         Identification & Maintenance       V Synchronize router settings with IO controller         Nodule parameters       IP address:       0.0.0         Shared Device       IP address is set directly at the device	Ethemet addresses	Submat	PN/IE 1						
Interface options         Media redundancy         Real time settings         IO cycle         Port 1-M12 10/100 MBit/s [X1 P1 R]         General         Port interconnection         Port options         Port 2-M12 10/100 MBit/s [X1 P2 R]         Identification & Maintenance         Module parameters         Shared Device	<ul> <li>Advanced ontions</li> </ul>	Subilet	Subnet: FNUE_1						
Media redundancy         Media redundancy         Real time settings         ID cycle         Port 1 - M12 10/100 MBit/s [X1 P1 R]         General         Port interconnection         Port options         Port 2 - M12 10/100 MBit/s [X1 P2 R]         Identification & Maintenance         Module parameters         Shared Device	Interface options	Add new subnet							
Real time settings     Internet protocol version 4 (IPv4)     Internet protocol version 4 (IPv4)     Orycle     Port 1 - M12 10/100 MBit/s [X1 P1 R]     General     Port interconnection     Port options     Port options     Port 2 - M12 10/100 MBit/s [X1 P2 R]     Identification & Maintenance     Module parameters     Shared Device     O IP address is set directly at the device	Media redundancy								
IO cycle          • Set IP address in the project             • Port 1 - M12 10/100 MBit/s [X1 P1 R]           • IP address: 192_168_0_2             • General           • IP address: 192_168_0_2             • Port interconnection           • Subnet mask: 255_255_255_0             • Port 2 - M12 10/100 MBit/s [X1 P2 R]           • Synchronize router settings with IO controller             • Port 2 - M12 10/100 MBit/s [X1 P2 R]           • Use router             • Identification & Maintenance           • Router address: 0_0_0_0             • Module parameters           • IP address is set directly at the device	<ul> <li>Real time settings</li> </ul>	Internet protocol version 4	(IPv4)						
Port 1 - M12 10/100 MBit/s [X1 P1 R]     General     General     Port interconnection     Port options     Port 2 - M12 10/100 MBit/s [X1 P2 R]     Identification & Maintenance     Module parameters     Shared Device     OIP address is set directly at the device	IO cycle								
General     IP address:     19216802       Port interconnection     Subnet mask:     2552550       Port options     Synchronize router settings with IO controller       Port 2 - M12 10/100 MBitis [X1 P2 R]     Use router       Identification & Maintenance     Router address:     000       Module parameters     Router address is set directly at the device	<ul> <li>Port 1 - M12 10/100 MBit/s [X1 P1 R]</li> </ul>	2	Set ir address in tr	ie project					
Port interconnection     Subnet mask:     255.255.255.0       Port options     Synchronize router settings with IO controller       Port 2 - M12 10/100 MBit/s [X1 P2 R]     Use router       Identification & Maintenance     Use router       Module parameters     Router address:     0.0.0.0       Shared Device     IP address is set directly at the device	General		IP address:	192.168.0.2	2				
Port options     Synchronize router settings with IO controller       > Port 2 - M12 10/100 MBit/s [X1 P2 R]     Use router       Identification & Maintenance     Use router       Module parameters     Router address: 0.0.0.0       Shared Device     IP address is set directly at the device	Port interconnection		Subnet mask:	255 . 255 . 255 . 0	)				
Port 2 - M12 10/100 MBit/s [X1 P2 R]     Use router       Identification & Maintenance     Bouter address: 0.0.0.0       Module parameters     Router address: 0.0.0       Shared Device     IP address is set directly at the device	Port options		Synchronize router	settings with IO contro	ller				
Identification & Maintenance     Oserotier       Module parameters     Router address:     0     0     0       Shared Device     O IP address is set directly at the device	Port 2 - M12 10/100 MBit/s [X1 P2 R]			3					
Module parameters         Router address:         0         0         0         0           Shared Device         O IP address is set directly at the device         O IP address         O IP address <td< td=""><td>Identification &amp; Maintenance</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Identification & Maintenance								
Shared Device O IP address is set directly at the device	Module parameters		Router address:	0.0.0.0					
	Shared Device		O IP address is set di	rectly at the device					

Figure 4-1-6 Assigning IP addresses

To add an SD slave station, click the device view, delete the port 1 object of the master module from the device view, and add an SD slave station to the hardware directory on the right, as shown in Figure 4-1-1-7 and Figure 4-1-1-8:



불 Topology view	🔥 Netw	ork	view	۲Ľ	Device vie	w
Device overview						
Module		***	Rack	Slot	I address	Q
PN-BIOL-MT2-00			0	0 1		
Standard I/O 1			-	U XI	_	
Standard I/O 2	Change d	evic	e			
2 Standard I/O 3	Start devi	ce t	ool			
Standard I/O 4	Cut				Ctrl+X	
Standard I/O 5	Сору				Ctrl+C	
Standard I/O_6	Paste				Ctrl+V	
Standard I/O_7 🗙	Delete				Del	
<ul> <li>Standard I/O_8</li> </ul>	ename				F2	
IOL_I/O_Fixed_1	Pack addr	ess	es			1
-	Unpack a	ddre	esses			
	Compile				•	
3	Download	to	device		•	
Ø	Go online				Ctrl+K	
12 A	Go offline				Ctrl+M	
<u>Q</u>	Online & d	diag	nostics		Ctrl+D	
1	Assign de	VICE	name			
	upuate ai		ispiayi	orceu of	Jeranus	
×	Cross-refe	ren	ces		F11	
×	Cross-refe	ren	ce infor	mation	Shift+F11	
	Show cata	log		C	trl+Shift+C	
	Export mo	dul	e labeli	ng strips	i	>
Properties	Properties				Alt+Enter	
	Go to dev	ice	view			

Figure 4-1-7 Deleting the port 1 object

#### R DECOWELL SD Series IP67 Remote I/O 🚰 Topology view 🔒 Network view 📑 Device view Options Hardware Device overview ✓ Catalog 1 Module Rack Slot I address Q.. SDPN-8IOL-M12-00 0 0 fini lini catalog PN-IO 0 0 X1 Filter Profile: <All> - 📑 IOL\_I/O\_01/01 byte\_1 0 1 (Por... 68 64 🕨 🛅 Head module Standard I/O\_2 0 2 (Por... - 🚺 Module Standard I/O 3 0 3 (Por... ▼ 🛅 IO-Link basic modules ų, Standard I/O\_4 0 4 (Por... IOL\_I/O\_01/01 byte 3 Online tools Standard I/O\_5 0 5 (Por... IOL\_1/0\_02/02 byte 1 Standard I/O\_6 0 6 (Por... Standard I/O\_7 0 7 (Por... IOL\_1/0\_02/08 Byte Standard I/O\_8 0 8 (Por... IOL\_1/0\_04/02 byte

2

IOL\_1/0\_04/04 byte

IOL\_I/O\_04/32 byte IOL\_I/O\_08/02 byte IOL\_I/O\_08/04 byte IOL\_I/O\_08/08 byte

IOL\_1/0\_16/16 byte IOL\_1/0\_24/24 byte IOL\_1/0\_32/04 byte IOL\_1/0\_32/32 byte IOL\_1/0\_32/32 byte

IOL\_I\_02 byte

IOL\_I\_08 byte IOL\_I\_10 byte IOL\_I\_16 byte Tasks

Libraries

Add-ins

1..



The remote I/O module assigns the device name. Right-click the module and select "Assign device name" as shown in Figure 4-1-1-9, select the interface type, update the list, and assign the name as shown in Figure 4-1-10:

IOL\_I/O\_Fixed\_1

**Properties** 

0

🗓 Info 🔒 🗓 Diagnostics

9 1...2



	O Properties	Alt+Enter
	Export module labeling strips	
	Show catalog	Ctrl+Shift+C
	Cross-reference information	Shift+F11
	K <sup>I</sup> Cross-references	F11
	Update and display forced op	erands
	Receive alarms	
	👯 Assign device name	
	Q Online & diagnostics	Ctrl+D
	🔊 Go offline	Ctrl+N
	Go online	Ctrl+K
	Compile Download to device	
	Go to network view	
		Del
	N Delete	- Del
	E Paste	Ctrl+V
	Cut	Ctrl+X
10141414	Start device tool	
	Write IO-Device name to Micro	Memory Card
	Change device	

Figure 4-1-9 Assigning device names



	ROFINET 设备名称	<b>}</b> •					>
	-		组态的 PROFIN	NET 设备			
			PROFINE	1-10番点称:	sd		
			161	A EAN-SER :	sd		
8				(四月二月)	50 BU BIOL 10 3 00		
				OC MI PAGAZ	Splandioralizado		
			在线访问				
			PG/PC #	8口的类型:	PN/IE		
		1↔		PGIPC 接口:	Intel(R) Ethernet Co	nnection (16) I219-V	• • •
			30.42.54.56.00				
			使用口產品				
			── 仅置示	同一类型的设备	ł		
			□ 仅显示!	的数设置错误的	的设备		
			□ (2 開示)	日本 余秋 (1) (1) (1)	5		
					πi.		
		网络中的可访问	情点: 				
		1P JELL	MAC 地址	設备	PROFINET 设备名称	状态	
	and the second second	192.168.0.2	F8-A4-F8-80-6E	SDPN-BIOL-	sd	♥ 領定	
	网络 LED						
	Path LED						
•	i?}≸ LED						
-	i¶∯ LED						
•	i9∰ LED					新列表	分配名称
•	闷妖 LED					1新列表	分配名称
	P∰K LED				24	·新列表	分配名称
-	P∰K LED				2	·新列表	分配名称 3~-
E	闪烁 LED 状态信息:				2	· 新列表	分配名称 3 ~~
<ul> <li>在线数</li> <li>①</li> </ul>	闪烁 LED 状态信息: 搜索完成+ 找到 1/	个设备(共 2 个)。			2	· 新列表	分配名称 3 ~
□ 在线 0 0	闪烁 LED 大态信息: 撤索完成。找到1/ 撤索完成。找到1/	个设督(共2个)。 个设督(共2个)。			2		分配名称 3 くり
□ 在紙 0 0	內訴 LED 大态信息: 撤索完成。找到1/ 撤索完成。找到1/	个设督(共2个)。 个设督(共2个)。 个设督(共2个)。			2		分配名称 3 년
在 就 0 0 0 0	內錄 LED 大态值息: 搜索完成。找到1/ 搜索完成。找到1/ 搜索完成。找到1/ 搜索完成。找到1/	个设督(共2个)。 个设督(共2个)。 个设督(共2个)。 个设督(共2个)。 个设督(共2个)。			24	新列表	分配名称 3 ~
在紙	內錄 LED 大态信息: 撤索完成。找到1/ 撤索完成。找到1/ 撤索完成。找到1/ 撤索完成。找到1/	个设备(共 2 个)。 个设备(共 2 个)。 个设备(共 2 个)。 个设备(共 2 个)。			2	新列表	分配名称 3

#### Figure 4-1-10 Write device name

Select all devices in the network view and download, as shown in FIG. 3-1-10 below. After the program is downloaded, start the CPU to run, and switch to online monitoring for normal communication, as shown in FIG. 4-1-11 below:

front and			1 H	扑视图 🛃
111 22	· ···································	- 以来新世報習出目电:		
		a 10 %fg	PLC 1 PROFINET	O-System (100
		NVN02/2010		100000000000000000000000000000000000000
	86.1	ad an		
000	CPU 1211C	SDPN-BIOL-M12		
		RLC_1		
	PLC 1.P	ROFINET IO-Syste.		
	1551123		_	×
	● 下數前检查			
	状态 目标	1 <u>89</u>	約年	1.7
	10 Olympic 1	TRANKA.	Andrew of all	100
	*0 VI * PLC_1	1.201 # 34 XI14 +	SUST PLC_1	<b>a</b>
		1.31-9 m XI-10 +	MAR PLC_1	<u></u>
	1. · 保护		MARTIC_1	<u> </u>
ĸ	• • • • • • • • • • • • • • • • • • •	「AL最新的場。 保护系统。防止未授权的访问 连接到企业网络或直接连接到internet的设备必须采取合适的保护 措施以防止未经授权的访问。例如通过使用防火造成网络分报。有	AMERIC I	=
	1 • @p	「ALE WARE 保护系统、防止未授权的访问 连接到企业网络或直接连接到 internet 的设备必须采取合适的保护 措施以防止未经授权的访问。例如通过使用防火造成可能分报。有 关工业安全性的服务信息。指访问 http://www.siereneo.com/industrial/security	anner	=
	1. ▼ ∰₽ 1.	「加速業業務」 保护系统。防止未便权的访问 连接到企业网络或直接连接到 internet 的设备之顶采取合适的保护 措施以防止未经规权的访问。例如通过使用防火造成可能分段。有 关工业安全性的更多信息。适切问 http://www.siemens.com/industrialsecurity	SER NC.1	-
R.	1 · 保护 1 · 保护 1 · 不用的规论	「加速業業務構成」 保护系統。防止未便积的访问 连接到企业网络或直接连接到 internet 的设备必须采取合适的保护 機能以防止未经规作的访问。例如通过使用防火造成可能分报。有 关工业安全性的更多情想。请访问 http://www.siemens.com/industrialsecunty 已组态保快与目标模块(在线)之间的差异	JAN POCT	-
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Figure 4-1-1-11 Program download



Figure 4-1-12 Device monitoring

4.2.2 Connection and configuration of STEP7-Microwin and SDBN-8IOL-M12-00 1. The communication connection diagram is shown in Figure 4-2-2-1: R

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- Figure 4-2-2-1 Communication connection diagram
- 2. The hardware configuration table is as follows:

Hardware	Quantity	Remark
Programming computer	1	Install STEP7-MicroWIN SMART
Controller	1	S7-200 SMART
SDPN-8IOL-M12-00	1	PROFINET protocal master module
IO-Link communication cable	Several	

# 3, Install the GSD file

Go to Step 7-Microwin SMART and choose GSDML Management on the menu bar, as shown in 4-2-1-2

	Project1 - STEP	7-Micro/WIN SMARI
File Edit View PL	C Debug Tools Help	
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e — @ Shiff/Rotate e — @ String e — @ Table e — @ Timers e → @ PROFINET e → @ Iterative	Install new GSDML C:\Users\baoya.tian\Desktop\SD系列IP67资料\SD系列IP67资料\SDPN-8IOL-M1	3rowse Delete OK



Figure 4-2-2-2 Installing the GSD file

4. Assign device name

In the menu bar, select "Tools" >"Find PROFINET Device", select the network card connected to the module in the window and search for the device, select the module in the network and edit its device name, as shown in Figure 4-2-1-3 below.

Attention:

(1) When you select a network adapter, two options are displayed for the same network adapter, as shown in the following figure. Select the network adapter without Auto

通信接口

Intel(R) Ethernet Connection (16) I219-V.TCPIP.1	-
Intel(R) Ethernet Connection (16) I219-V.TCPIP.1	
Intel(R) Ethernet Connection (16) I219-V.TCPIP.Auto.1	
Intel(R) Wi-Fi 6 AX201 160MHz.TCPIP.1	
Intel(R) Wi-Fi 6 AX201 160MHz.TCPIP.Auto.1	

② After the device name is assigned, note that the device name used in the configuration of the IO module must be consistent with the above assigned name, otherwise the PLC will not be able to communicate with the IO module normally



View PLC Debug Tools Help	
D PWM Text Get/Put Data PROFINET Web Display Log Server Wizards	ID Control SMART Drive Find PROFINET Certificate Panel Configuration Devices Management Tools Settings
Find PROFINET Devices	2′ ×
Communication Interface Realtek PCIe GbE Family Controller.TCPIP.Auto.1	Press the "Edit" button to change the device name of the selected device. Press the "Flash Lights" button to continuously flash device LEDs to visually locate a connected device. MAC Address F8:A4:FB:80:F3:06 Flash Lights IP Address 192 . 168 . 0 . 99 Subnet Mask 255 . 255 . 255 . 0 Default Gateway 192 . 168 . 0 . 99 Device Name (Chinese, ASCII characters 'a' - 'z', '0' - '9', '.' and '-' , should not start with number, '.' , '-', or 'port-n(n=09)', should not end with '.' or '-') sd Set Convert name: xd1234a4c1
	Y
	Close

Figure 4-2-2-3 Assigning device name 5. New engineering and equipment configuration

Select "Tools">"PROFINET" from the menu bar. Select the PLC controller, as shown in Figure 4-2-1-4, add the master module, and assign the device name (the same as the device name assigned in Step 4) and IP address.



File Ed	it View PLC Debug Took		
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Main	PROFINET Configuration Wizard		×
Amini Constructions	PROFINET network	Introduction The classification of the CPC Experiment of the Constraint of the PCC Experiment of the CPC Expe	
	<pre></pre>	CPrevious Next > Generate Cancel	

Figure 4-2-2-4 Selecting the PLC as the controller



Figure 4-2-2-5 Adding the master module and assigning IP addresses

To add slave station module, click master module and delete port 1 object. In the right directory, add slave station module and click Generate, as shown in Figure 4-2-1-6 and Figure 4-2-1-7

#### DECOWEL SD Series IP67 Remote I/O PROFINET Configuration Wizard × VET network troller(CPU ST40\_plc200smar SDPN-810L-M12-00V1.0.0-sd -IIII Standard I/0(1) -IIIII Standard I/0(2) Standard I/0(2) DPN-8IOL-M12-00V1.0.0 PN-810L1912 --Head module SDPN-8IOL-M12-00 Click the "Add" button to add a module for this device Module II-IO-Link basic modules Submodule Module Name Submodule Name Slot\_Su... PNI Sta... Input Si... PNQ St. Firmwa 1 SDPN-8IOL-M12-00 0 2 PN-IO 0.32768 Standard I/O(3) 3 [ Port 1 - M12 10/100 MBit/s 0 32769 Standard I/O(4) Standard I/O(5) Port 2 - M12 10/100 MBit/s 0 32770 Standard I/O(6) Standard I/O(7) 5 🖌 1 Standard I/C 6 Standard I/O Standard I/O(7) Standard I/O(8) IOL\_I/O\_Fixed(9) Completion Standard I/O Standard I/O 7 8 9 4 Standard I/O 2 10 6 Standard I/O 11 Standard I/C 12 Standard I/O 9 IOL\_I/O\_Fixed 128 13 128 3 < Add Delete 4 00 • Update Time (ms) • Data Hold < Previous Next > Generate Cancel





Figure 4-2-2-7 Add slave station module and click Generate

## 6, Program download

Select "PLC" > "Download" in the menu bar; and select "Find CPU" in the communication window, select the PLC that needs to download the program, and download the program.

#### 4.2.3 The connection and its configuration of STEP7 and SDPN-8IOL-M12-00

1, Figure 4-2-3-1 shows the communication connection diagram:

R





Figure 4-2-3-1 Communication connection diagram

2, The following table shows the hardware configuration table:

Install STEP7
S7-315-2 PN/DP
PROFINET protocol master module

3, Install the GSD file

After creating a new project, click "SIMATIC300" and double-click "Hardware". In the HW Config window, choose "Options" >"Install GSD file" from the menu bar, as shown in FIG. 4-2-3-2 below:



Figure 4-2-3-2 Install the GSD file

4, New engineering and equipment configuration



Open SIMATIC Manager, choose New Project from the menu bar, name the project and select the path to save the project, as shown in Figure 4-2-3-3:

SIMATIC Manager	
File PLC View Options Window Help	
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Name: Jupe:	
S7-300  Project V	
Storage location	
rogram Files (x86)\Siemens\Step7\s7proj3 Browse	
	-
OK 4 Cancel Help	

Figure 4-2-3-3 New project

Add 300 sites to the project, as shown in Figure 4-2-3-4. Click the newly added site 300 and choose Hardware. The HWConfig configuration screen is displayed, as shown in Figure 4-2-3-5. Add RACK Reil for RACK 300, as shown in Figure 4-2-3-6. Add a CPU module. In HW Config, select CPU315-2 PN/DP V2.6 of CPU-300 in the right pane, and drag the CPU to slot 2 of the rack using a mouse, as shown in Figure 4-2-3-7. In the properties interface of the Ethernet interface port, you can use other IP addresses as required. Here, use the default IP address and subnet mask, select the new button, and create a sub-network Ethernet (1). Click OK, as shown in Figure 4-2-3-8.





#### Figure 4-2-3-4 Adding 300 sites

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E = 20 \$7.300 ■ STMATIC 300(1) 1 2	Image: Similar Configuration       Station Edit Insert PLC View Options Window Help         Image: Similar Configuration       Image: Similar Configuration         Image: Similar Configuration	
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Figure 4-2-3-5 Entering the HW Config screen

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Figure 4-2-3-7 Adding a CPU module to the rack



roperties - Ethernet	interface PN-IO (R0/S2.2	Properties - New subnet Industrial Ethernet	
General Parame	eters	General 3 Name: 6666	
IP address: Subnet mask:	192.168.0.1 255.255.255.0	f S7 subnet ID: 0037 - 0004 Project path: Storage location of the project: C:\Program Files (x86) Author: Date created: 10/13/2023 01:53:47 PM	\Siemens\Step7\s7proj\S7_300
Subnet: not network	1 red	Last modified: 10/13/2023 01:53:47 PM Comment:	м И ^
ОК	4	OK Cancel Help	Cancel Help

Figure 4-2-3-8 Adding an Ethernet subnet

On Ethernet (1), configure the I/O device station, select SDPN-8IOL-M12-00 in the right pane, and drag it to the Ethernet (1) subnet, as shown in Figure 4-2-3-9

🛱 HW Config - [SIMATIC 300(1) (Configuration) S7_300]			
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4			

Figure 4-2-3-9 Adding IO to Ethernet (1) subnet

Double-click SD master module, select port 1 object information of master module and click Delete, as shown in FIG. 4-2-3-10 below:



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Figure 4-2-3-10 Deleting port 1

Add the slave station module, expand the right SDPN-8IOL-M12-00, and drag the SD slave station to the lower left slot, as shown in Figure 4-2-3-11 below:

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Figure 4-2-3-11 Adding a slave station module

To change the IP address of the SD master module, double-click SDPN-8IOL-M12-00 master module on the subnet, and choose Ethernet in the properties window. In the properties window, you can change the IP address, as shown in Figure 4-2-3-12:



Identification	Shared Access		
hort Description:	SDPN-8IOL-M12-00		
	SDPN-8IOL-M12-00, IO-Link PROFINET	Properties - Ethernet interface SDPN-8IOL-M12-00	
		General Parameters	
rder no./ firmware:	06-10-01 / V1.0		
amily:	SDPN IOLM		
evice name:	SDPN-8IOL-M12-00	2	
SD file:	GSDML-V2.35-DECOWELL-SDPN-IOLM-20230529.xml	IP address:     192.168.0.2     Gateway       Subnet mask:     255.255.255.0     © Use router	
	Change Release Number	<u>A</u> ddress:	
Node in PROFINET I	D system	Subnet:	New
Device number:	1   PROFINET IO system (100)	666	Properties
IP address:	192.168.0.2 Ethernet		Delete
🔽 Assign IP addres	s via IO controller		Delere
	1	3	a 1
			Hel

Figure 4-2-3-12 Changing the module IP address

Set the device name for the I/O module, select the subnet icon, choose PLC from the menu bar, select Ethernet >Assign Device Name, as shown in Figure 4-2-3-13. In the Assign Device name window, select the device name to be assigned, and press the confirm name button.

	Download Ctrl+ Upload	L
2	Download Module Identification Upload Module Identification to PG	666: PROFINET IO system (100)
	Faulty Modules	1
	Module Information Ctrl+ Operating Mode Ctrl+ Clear/Reset Set Time of Day Monitor/Modify	
) UR	Update Firmware	3
CPU 315-2	Save Device Name to Memory Card	4
MPI/DP PN-IO	Ethernet	> Edit Ethernet Node
P1 Port 1	PROFIBUS	> Verify Device Name
	Save Service Data	Assign Device Name

Figure 4-2-3-13 Assigning device names

Check whether the name is successfully assigned, select the subnet icon, choose PLC on the menu bar, select Ethernet> Verify device name, as shown in Figure 4-2-3-14



Download 2 Upload	Ctrl+L		
Download Module Identification Upload Module Identification to	PG	666: PROFINET IO system (100)	
Faulty Modules		1	
Module Information	Ctrl+D	(1) SDPN	
Operating Mode	Ctrl+I		
Clear/Reset			
Set Time of Day			
Monitor/Modify			
Update Firmware			
Save Device Name to Memory Ca	ard. <mark>3</mark>		
Ethernet	>	Edit Ethernet Node	
PROFIBUS	>	Verify Device Name	
Save Service Data		Assign Device Name 🔶 4	
Save Security Events			

Figure 4-2-3-14 Verifying the device name



# 5. Object list

# 5.1 Process data

#### 5.1.1 IO-Link channel communication status

Communication status display of master module and slave station Bit0-3Bit0-30x_0 Port is invalid 0x_1 Input mode 0x_2 Output mode 0x_3 Communication OP 0x_4 Communication fault Bit4-7 0x1_Watchdog has no errors 0x2_Buffer overflow 0x3_Invalid device ID 0x4_Invalid device Vendor ID 0x5_Invalid version 0x6_Invalid frame function 0x7_Invalid cycle time 0x8_Invalid input process data length 0x9_Invalid output process data length 0xA_Device not detected	Data name	Data meaning	Data type
	Status of IO-Link Port (1~8)	Communication status display of master module and slave station Bit0-3 0x_0 Port is invalid 0x_1 Input mode 0x_2 Output mode 0x_3 Communication OP 0x_4 Communication fault Bit4-7 0x1_Watchdog has no errors 0x2_Buffer overflow 0x3_Invalid device ID 0x4_Invalid device vendor ID 0x5_Invalid version 0x6_Invalid frame function 0x7_Invalid cycle time 0x8_Invalid input process data length 0x9_Invalid output process data length 0xA_Device not detected	USINT

# 5.2.2 Pin2 pin status monitoring

Data name	Data meaning	Data type
Input Pin2 (ch1-8)	0x00 non-reverse 0x01 reverse	USINT

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