

PROFINET

C2S-PN Series

Fieldbus Valve Terminal

User Manual



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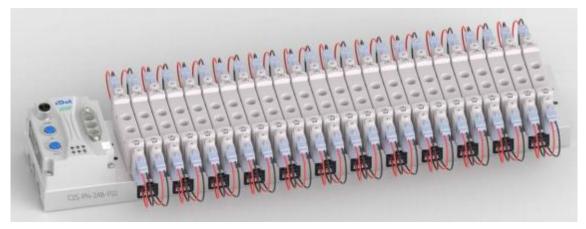
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Product Introduction

1.1 Product Overview

The C2S-PN series valve terminal is a control module integrating valve terminal technology and PROFINET bus technology, through this product, decentralized control and centralized management and control of industrial sites can be achieved, optimized system design, fast construction, and simplified debugging, performance testing, diagnosis and maintenance of complex systems. Product adopts mold It has a modular structure, takes up little space, has pluggable terminal blocks, can be quickly connected, has simple configuration, supports all major mainstream PROFINET master stations, and can be widely used in industrial control systems.



1.2 Product Features

- Support PROFINET industrial Ethernet protocol
- M12 bus interface, supports cascade communication
- Supports up to 24-port dual control solenoid valves
- Modular structure, small space occupied
- Simple wiring, fast construction and convenient maintenance

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- Support customization, supports mainstream solenoid valves, making selection simple and fast
- Support remote diagnosis and reduce troubleshooting difficulties

2 Designation rules

2.1 Designation rules

$\frac{\text{C2S}}{(1)} - \frac{\text{PN}}{(2)} - \frac{24}{(3)} \frac{\text{B}}{(4)} - \frac{\text{F01}}{(5)}$

serial number	meaning	Value description						
(1)	product type	C2S	C2S					
(2)	bus protocol	PN: PROFINET protocol abbreviation						
(3)	Solenoid valve position	08: 8 ports	12: 12 ports	16: 16 ports	20: 20 ports	24: 24 ports		
(4)	Electronic control type	B: Dual electric control (compatible with single electric control)						
(5)	Solenoid valve model code	See the sole	See the solenoid valve model code table below for details.					

brand	code	Valve spacing	series	Supported solenoid valve models		
	A01	19	4V1	4V110/ 4V120/ 4V130		
	A02	23	4V2	4V210/ 4V220/ 4V230		
	A04	10.5	7V0	7V0510/ 7V0520/ 7V0530		
AirTAC	A05	16	7V1	7V110/ 7V120/ 7V130		
	A06	19	7V2	7V210/ 7V220/ 7V230		
	A07	19	5V1	5V110/ 5V120/ 5V130		
	A08	23	5V2	5V210/ 5V220/ 5V230		
	F01	10.5	VUVG-LK10	VUVG-LK10-T32/ VUVG-LK10 -M52 VUVG-LK10-B52/ VUVG-LK10- P52		
FESTO	F01	10.5	VUVG-L10	VUVG-L10-T32/ VUVG-L10 -M52 VUVG-L10-B52/ VUVG-L10-P 52		
FESTO	F02	16	VUVG-LK14	VUVG-LK14-T32/ VUVG-LK14 -M52 VUVG-LK14-B52/ VUVG-LK14- P52		
	FUZ		VUVG-L14	VUVG-L14-T32/ VUVG-L14 -M52 VUVG-L14-B52/ VUVG-L14-P52		
	S01	10.5	SY3	SY3120/ SY3220/ SY3320 SY3420/ SY3520		
SMC	S02	16	SY5	SY5120/ SY5220/ SY5320 SY5420/ SY5520		
	S03	19	SY7	SY7120/ SY7220/ SY7320/ SY7420/ SY7520		
CKD	C01	10.5	4GD1	4GD119R/ 4GD129R/ 4GD139R 4GD149R/ 4GD159R		
CKD	C02	16	4GD2	4GD219R/ 4GD229R/ 4GD2 39R 4GD249R/ 4GD259R		

Solenoid valve model code list:

Note: Valve spacing (K value) unit: mm.

2.2 Model list

model	Product Description
C2S-PN-08B-()	8-position dual control solenoid valve
C2S-PN-12B-()	12-position dual control solenoid valve
C2S-PN-16B-()	16-position dual control solenoid valve
C2S-PN-20B-()	20-position dual control solenoid valve
C2S-PN-24B-()	24-position dual control solenoid valve

Note: () The brackets represent the solenoid valve model code and support customization.

3 Product parameters

3.1 General parameters

Interface parameters						
Bus protocol	PROFINET					
Data transmission medium	UTP or STP over Category 5 (STP recommended)					
Transmission distance	100 m (distance between stations)					
Bus interface	2 × M12,4Pin,D-code, hole end					
Technical Parameters	5					
System power	18~36 VDC					
Rated current consumption	30 mA					
Electrical isolation	500 V					
Load power supply	24 VDC (±25%)					
Output points	0~48					
Single channel current	Max: 250 mA					
Power connection method	M12,5Pin,A-code, pin end					
Power interface surge protection	support					
Power interface reverse connection protection	support					
Channel short circuit protection	support					
Channel open diagnosis	support					
Channel short circuit diagnostics	support					
weight	Product models vary					
size	Product models vary (See 5.1 Dimensional Diagram for details)					

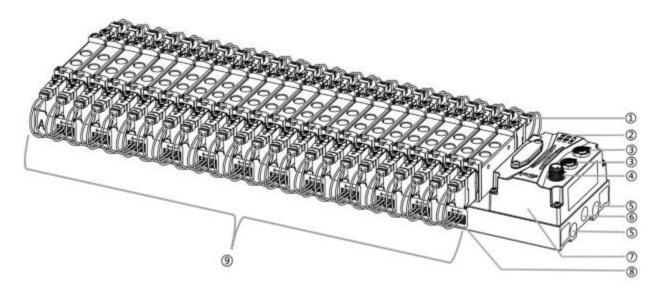
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Operating temperature	-5∼+50°C
Storage temperature	-20~+75°C
Relative humidity	95%, no condensation
Protection level	IP20

4 Panel

4.1 Product structure

Names and function of each part of the product



Serial number	Name	Descriptions
1	Solenoid valve	For details, see " Solenoid Valve Model Code Table "
2	LED indicator	Indicates power, operation and bus status
3	Bus interface	2 × M12,4Pin,D-code, hole end
4	Power interface	1 × M12,5Pin,A-code, pin end
5	Vent hole	G1/4
6	Air intake hole	G1/4
Ø	Communication unit	Valve terminal communication and control body
8	Solenoid valve wiring socket	4Pin
9	Manifold	Valve terminal body, with A and B silk screen printing on both sides

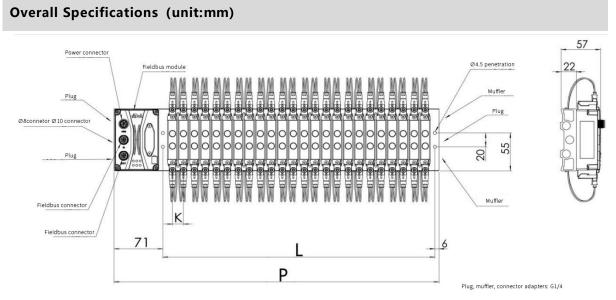
C2S-PN Series F	Fieldbus Valve Terminal Use	4 Panel	
		of the tail	

4.2 Indicator function

Name	ID	Color	state	status description
System power	Us	green	ON	The power supply is normal
indicator			OFF	The product is not powered on or the power supply is abnormal.
Load power	UL	green	ON	The power supply is normal
indicator light			OFF	The product is not powered on or the power supply is abnormal.
Network	L/A0	green	ON	Establish a network connection
indicator light IN			Flashing	Network connection and data exchange
			OFF	No data interaction or exception
Network	L/A1	green	ON	Establish a network connection
indicator OUT			Flashing	Network connection and data exchange
			OFF	No data interaction or exception
Network alarm	BF	red	ON	Both network ports are not wired
indicator light			Flashing	1Hz: Abnormal network connection
			OFF	Network connection is normal
System alarm	SF	red	ON	The system is working abnormally
indicator light			OFF	The system is running normally or is not powered on

5 Installation

5.1 Dimensional drawing



	L size										
Numb er of digits	4	6	8	10	12	14	16	18	20	22	24
K=10.5	59.5	80.5	101.5	122.5	143.5	164.5	185.5	206.5	227.5	248.5	269.5
K=16	76	108	140	172	204	236	268	300	332	364	396
K=19	88	126	164	202	240	278	316	354	392	430	468
K=23	103	149	195	241	287	333	379	425	471	517	563
	P size										
Numb er of digits	4	6	8	10	12	14	16	18	20	22	24
K=10.5	136.5	157.5	178.5	199.5	220.5	241.5	262.5	283.5	304.5	325.5	346.5

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5 Installation

K=16	153	185	217	249	281	313	345	377	409	441	473
K=19	165	203	241	279	317	355	393	431	469	507	545
K=23	180	226	272	318	364	410	456	502	548	594	640

5.2 Solenoid valve assembly sequence

• Valve terminal adapted to solenoid valve

For details about the solenoid valve adapted to the valve terminal, see " <u>2.1 Designation Rules</u>"

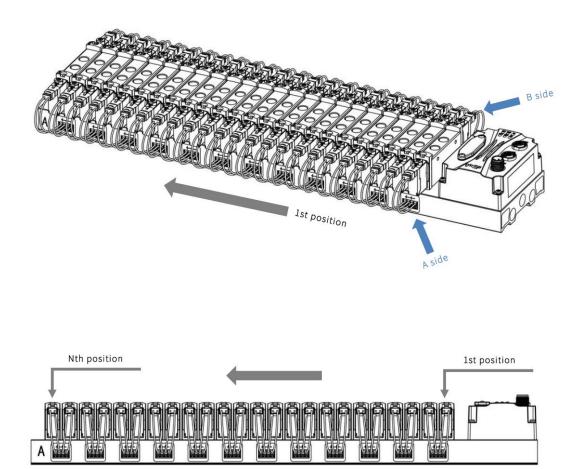
Solenoid valve model code list".

Solenoid valve installation sequence

The installation of the solenoid valve starts from the communication unit end and is installed in sequence.

The installation sequence of dual solenoid valves: starting from the communication unit end, install the dual solenoid valves in order from the 1st to the Nth position. The assembly sequence as shown below.

The installation sequence of the single solenoid valve installation: starting from the communication unit end, install the single solenoid valve in sequence from the 1st to the Nth position., solenoid valve connection The cable can be on side A, The assembly sequence is shown in the figure below.

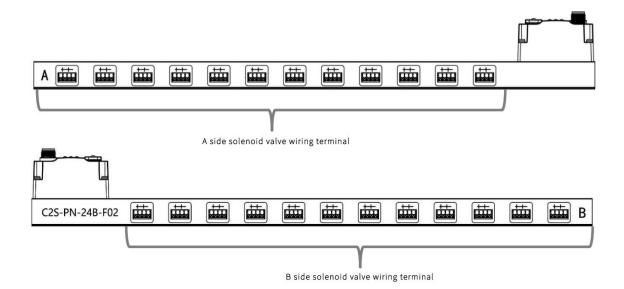


6 Wiring

6.1 Solenoid valve wiring

Valve terminal block distribution

The valve terminal blocks are distributed on both sides of the valve terminal manifold, namely side A and side B. Sides A and B can be distinguished according to the silk screen on the tail of the valve terminal manifold. Take valve terminal C2S-PN-24B-F02 as an example, The distribution of terminals on side A and B is shown in the figure below.



Terminals		
- · · · ·	Number of poles	4P
Terminal block	Wire diameter	22~17AWG 0.3~1.0 mm ²

Wiring tool requirements

The solenoid valve terminal block adopts a screw-free design, and a flatto install and remove the cable (Specification: ≤ 2 mm).

Stripping length requirements

The recommended cable stripping length for the solenoid valve terminal block is 10 mm

Wiring method

For single-strand hard wires, after stripping the corresponding length

of wires, Push the button while inserting the single strand wire.

Multi-stranded flexible wires, after stripping the corresponding length

of wires, can be connected directly or used in conjunction with the corresponding standard specifications of cold-pressed terminals (tube type insulated terminals, reference specifications are shown in the table below), press button at the same time insert the wire.

Specification table of tubular insulating terminals	Specification table of tubular insulating terminals								
Specification requirements	model	Wire cross-sectional area mm ²							
0	E0310	0.3							
	E0510	0.5							
	E7510	0.75							
The length of the tubular insulated terminal L is 10 mm	E1010	1.0							

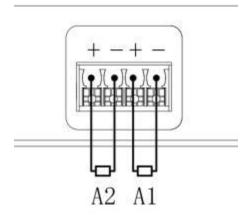




ed

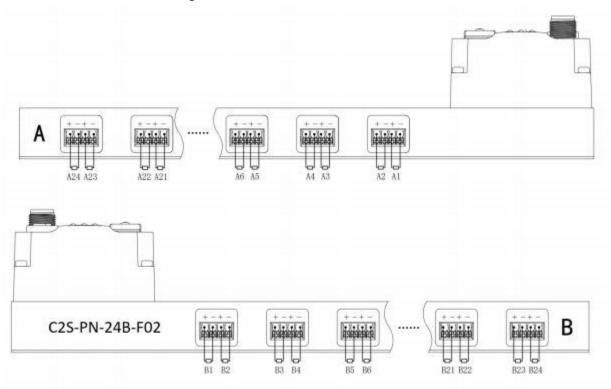
Solenoid valve wiring

For different types of valve terminals, corresponding 4-pin sockets are configured on both sides of the manifold. A group of "+" and "-" can drive a solenoid valve coil. As shown below, A1 and A2 can drive a solenoid valve coil respectively.



Valve terminal wiring

Starting from the communication unit end, the solenoid valve coils on both sides of the manifold A and B correspond one to one. The corresponding relationship between the channel and the solenoid valve coil is shown in the figure below.



Solenoid valve wiring principles:

- Please strictly follow " <u>5.2 Solenoid valve assembly sequence</u> " to install.
- AX and BX can be connected to a dual solenoid valve, and AX can be connected to a single solenoid valve. Please strictly follow the table for wiring, otherwise it may cause the solenoid valve to not work or malfunction. "×" means no wiring.

Double control	Double control solenoid valve wiring (all valves are double control solenoid valves)											
terminal	A1	B1	A2	B2	A3	B3	A4	B4				
Solenoid valve No.	-	1		2		3	2	1				

terminal	 A22	B22	A23	B23	A24	B24
Solenoid valve No.	 2	2	2	23	2	4

Note: This example uses C2S-PN-24B-() valve terminal. The 24-position dual control solenoid valve is taken as an example. The wiring of other valve terminals with different specifications is different.

Dual control so	Dual control solenoid valve wiring (all access valves are single control solenoid valves)											
terminal	A1	B1	A2	B2	A3	B3	A4	B4				
Solenoid valve No.	1	\times	2	×	3	×	4	×				

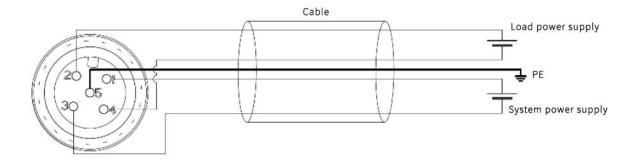
terminal	 A22	B22	A23	B23	A24	B24
Solenoid valve No.	 22	×	23	\times	24	×

Note: This example uses the C2S-PN-24B-() valve terminal, which is only connected to a single control solenoid valve . The wiring of other valve terminals of different specifications will be different.

6.2 Power wiring

power interface, M12,A-code			
	Pin	Function	Wire core color
$\frac{1}{2}$	1	24 VDC, working power supply	Brown
	2	24 VDC, load power supply	white
4 + + 5 1	3	GND, working power supply	blue
4 4 1	4	0 V, load power supply	black
	5	PE, Protective grounding	Grey

The power wiring is shown in the figure below:



Precautions

• The module system side power supply and the field side power supply must be configured and used separately. Do not mix them.

• PE must be reliably grounded.

6.3 Bus wiring

fieldbus interface, M12,D-code									
22	Pin	Function							
1-5-1-2	1	TD+, send data+							
10012	2	RD+, receive data+							
4 to 05 3	3	TD-,send data-							
	4	RD-,Receive data-							
	-	Housing, shield/protective ground							

Precautions

• Category 5 or higher double shielding (braid + aluminum foil) recommended STP cables serve as communication cables.

• The length of cables between devices cannot exceed 100 m.

7 Operation

7.1 Control method

The solenoid valve of the valve terminal is controlled in byte mode. One byte controls 4 valves; at the same time, it can be controlled in bit mode, a set of 8 positions, control 1->8 pass channel, the channel value is 1, the corresponding solenoid valve is open, and if the channel value is 0, the corresponding solenoid valve is closed. The 24-position dual control solenoid valve has a total of 6 sets of control positions, a total of Controls 48 channels. Taking the 24-position dual control solenoid valve as an example, the output control function of the valve terminal is introduced. The control method is shown in the table below.

control method		valve[14]								
Channel address	valve[14] [0]	valve[14] [1]	valve[14] [2]	valve[14] [3]	valve[14] [4]	valve[14] [5]	valve[14] [6]	valve[14] [7]		
Coil	A1	B1	A2	B2	A3	B3	A4	B4		
Solenoid valve No.		1		2		3		4		

control method		valve[58]									
Channel address	valve[58] [0]										
Coil	A5	B5	A6	B6	A7	B7	A8	B8			
Solenoid valve No.		5 6 7 8					8				

control method		valve[912]									
Channel address	valve[912] [0]	valve[912] [1]	valve[912] [2]	valve[912] [3]	valve[912] [4]	valve[912] [5]	valve[912] [6]	valve[912] [7]			
Coil	A9	B9	A10	B10	A11	B11	A12	B12			
Solenoid valve No.		9	1	0	1	1	1	2			

control method		valve[1316]								
Channel address	valve[1316] [0]	valve[1316] [1]	valve[1316] [2]	valve[1316] [3]	valve[1316] [4]	valve[1316] [5]	valve[1316] [6]	valve[1316] [7]		
Coil	A13	B13	A14	B14	A15	B15	A16	B16		
Solenoid valve No.	1	3	1	4	1	5	1	6		

control method	valve[1720]								
Channel address	valve[1720] [0]	valve[1720] [1]	valve[1720] [2]	valve[1720] valve[1720] [3] [4]		valve[1720] [5]	valve[1720] [6]	valve[1720] [7]	
Coil	A17	B17	A18	B18	A19	B19	A20	B20	
Solenoid valve No.	1	17		18		19		20	

control method		valve[2124]							
Channel address	valve[2124] [0]			valve[2124] [3]	valve[2124] [4]	valve[2124] [5]	valve[2124] [6]	valve[2124] [7]	
Coil	A21	B21	A22	B22	A23	B23	A24	B24	
Solenoid valve No.	ť	twenty one		twenty two t		wenty three	ť	wenty four	

7.2 Diagnostic functions

C2S-PN valve terminal has open circuit diagnosis (Open load) and short circuit or overtemperature diagnosis (Short circuit or overtemperature). Only the valve is closed Only when the valve is closed can an open circuit be detected, and only when the valve is open can a short circuit be detected.

The diagnostic function is consistent with the control method, and diagnostic information is also sent in Byte or bit mode. On the premise that the valve is closed, valve open circuit diagnostic information open. If the load value is 0, it is normal, and 1 means the corresponding valve is open . On the premise that the valve is open, the valve short circuit/overtemperature diagnostic information Short circuit or If the overtemperature value is 0, it is normal. 1 means the corresponding valve has a short circuit/over temperature.

Open circuit diagnosis (Open load) and short circuit/overtemperature diagnosis (Short circuit or overtemperature) channel diagnostic information and solenoid valve The relationship should be consistent. Taking open circuit diagnosis as an example, the relationship is as shown in the table below.

Diagnostic function				Open	load[07]			
Channel address	Open[0 7] [0]	Open[07] [1]	Open[07] [2]	Open[07] [3]	Open[07] [4]	Open[07] [5]	Open[07] [6]	Open[07] [7]
Coil	A1	B1	A2	B2	A3	B3	A4	B4
Solenoid valve No.	1		2		3		4	

Note: Open in the table The abbreviation of load is Open , the same below.

Diagnostic function		Open load[815]								
Channel address	Open[8 15] [0]	15] [1] [2]			Open[815] [4]	Open[815] [5]	Open[815] [6]	Open[815] [7]		
Coil	A5	B5	A6	B6	A7	B7	A8	B8		
Solenoid valve No.		5	6		7		8			

Diagnostic function		Open load[1623]								
Channel address	Open[16 23] [0]	Open[1623] [1]	Open[1623] [2]	Open[1623] [3]	Open[1623] [4]	Open[1623] [5]	Open[1623] [6]	Open[1623] [7]		
Coil	A9	B9	A10	B10	A11	B11	A12	B12		
Solenoid valve No.	9		10		11		12			

Diagnosti c function		Open load[2431]								
Channel address	Open[2431] [0]	Open[2431] [1]	Open[2431] [2]	Open[2431] [3]	Open[2431] [4]	Open[2431] [5]	Open[2431] [6]	Open[2431] [7]		
Coil	A13	B13	A14 B14 A15 B15 A					B16		
Solenoid valve No.	1	3	1	4	15		16			

Diagnosti c function		Open load[3239]							
Channel address	Open[3239] [0]	Open[3239] [1]	Open[3239] [2]	Open[3239] [3]	Open[3239] [4]	Open[3239] [5]	Open[3239] [6]	Open[3239] [7]	
Coil	A17	B17	A18	B18	A19	B19	A20	B20	
Solenoid valve No.	1	7	18		19		20		

Diagnosti c function		Open load[4047]							
Channel address	Open[4047] [0]	Open[4047] [1]	Open[4047] [2]	Open[4047] [3]	Open[4047] [4]	Open[4047] [5]	Open[4047] [6]	Open[4047] [7]	
Coil	A21	B21	A22	B22	A23	B23	A24	B24	
Solenoid valve No.	2	21		22		23		24	

7.3 Parameter description

7.3.1 Output signal clear/hold function

The clear/hold function is aimed at the output signal of the valve terminal. This function can configure the output action of the valve terminal in the abnormal state of the bus.

Clear output: When communication is disconnected, the valve terminal output channel automatically clears the output.

Keep output: When communication is disconnected, the valve terminal output channel always keeps output.

The function supports full-channel settings, single-channel settings, and 8-channel batch settings grouped according to driver chips, which can better meet actual use needs.

This manual uses TIA Portal V17 is taken as an example to introduce the parameter configuration method. For details, see <u>7.4.1 Parameter Configuration</u>.

7.4 Configuration application

7.4.1 In TIA Application in Portal V17 software environment

1. Preparation

- Hardware environment
 - Valve terminal model C2S-PN-24B
 - > A computer with TIA pre-installed Portal V17 software
 - > Special shielded cable for valve terminal
 - > A Siemens PLC, this description uses Siemens S7-1200 CPU1214C DC/DC/DC as an example
 - > One switching power supply
 - Device profile
 Configuration file acquisition address: <u>https://www.solidote_ch.com/documents/configfile</u>
- Hardware configuration and wiring
 Please follow " <u>5 Installation</u> " " <u>6 Wiring</u> " requires action

2. New construction

a. Open TIA Portal V17 software, click Create New Project, click the "Create" button after completing all information input, as shown in the figure below.

		Create new project		
		Project name:	C25-PN	
۰	Open existing project		C:lUsers\29719lDocuments	
0	Create new project	Version:	V17	
-	Minute and at	Author:	29719	_
	Migrate project	Comment:		
۲	Close project			J
				_
	2		Creat	te
•	Welcome Tour			
•	First steps			

- Project name: Custom, you can keep the default.
- Path: The project keeps the path, which can be kept as default.
- Version: You can keep the default.
- Author: You can keep the default.
- Note: Customized, optional.

3. Add PLC controller

a. Click "Configure A Device" as shown in the figure below.

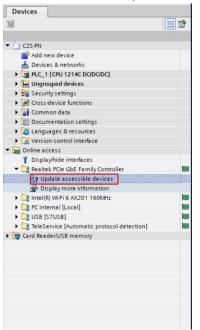


b. Click "Add New Device", select the PLC model currently used, and click "Add", As shown below . You can view it after adding it The PLC has been added to the device navigation tree.

		Totally Integrated Automation PORTAL
Start in	Add new device	
Devices & Show all devices	RC_1	~
FLC programming Image: Constraint of the second of th	Controllers CU 1312C DODODC CONTROLLES CODOCH CONTROLLES CONTROLLES CONTROLLES CODOCH CONTROLLES CONTROL	
	Gamic Drive Complex Gamic Shoe Gamic Shoe Gamic Shoe Gamic Shoe Shoe Gamic Shoe	-

4. Scan for connected devices

a. Click "Online Access -> Update accessible devices" in the left navigation tree, as shown below.



b. After the update is completed, the connected slave devices are displayed, as shown in the figure below.

B		Device overview								
• C25-PN	_	Module	Slot	I address	Q address	Туре	Article no.	Firmware	Comment	
Add new device			103							
Add new device Add new device Add new device			102							
			101							
• [] PLC_1 [CPU 1214C DC/DC/DC]		 PLC_1 	1			CPU 1214C DC/DC/DC	6ES7 214-1AG40-0XB0	V4.5		
La Ungrouped devices		DI 14/DQ 10_1	11	01	01	DI 14/DQ 10				
Security settings		AI 2_1	12	6467		AI 2				
Cross-device functions			13							
🕨 🙀 Common data		HSC_1	1 16	100010		HSC				
Documentation settings		HSC 2	1 17	1004_10_		HSC				
🕨 🐻 Languages & resources	No.	HSC 3	118	100810		HSC				
Version control interface	VIG.	HSC 4	1 19	101210		HSC				
 Online access 	å	HSC 5	1 20	101610		HSC				
Y Display/hide interfaces		HSC_6	1 21	102010		HSC				
 Realtek PCIe GbE Family Controller 	10	Pulse 1	1 32		1000 10	Pulse generator (PTO/P				
2 Update accessible devices		Pulse 2	1 33			Pulse generator (PTO/P				
Pisplay more information		Pulse 3	1 34			Pulse generator (PTO/P				
plc_1 [192.168.0.1]		Pulse 4	1 35			Pulse generator (PTO/P				
pnio [192.168.0.2]		OPC UA	1 254		1000	OPC UA				
Intel(R) Wi-Fi 6 AX201 160MHz	100	PROFINET interface_1	1 X1			PROFINET interface				
PC internal [Local]	18	FROMMETINGENACE_1				FROFINE I Intenace				
USB [S7USB]	100		2							
TeleService [Automatic protocol detection]	100		3							>
Card Reader/USB memory		<	_							2
						<u>g</u> p	roperties 🚺 Info	🚯 🗓 D	iagnostics	
		General Cross-references C	ompile							
		Show all messages								
		an Call anon an messages								
		Message					Go to	2	Date Ti	me
	1	message					GO to	£ :	Date II	me

The computer's IP address must be in the same network segment as the PLC. If not, modify the computer's IP address and repeat the above steps.

the IP address and configuration name of the current slave. say. Click on Assign IP address", first fill in the "Subnet Mask", then fill in the "IP address", click "Assign IP Address" at the bottom, As shown below.

roject tree		Online access 🔸 Realtek PCIe G	bE Family Controller 🔸 prio [192.168.0.2] 🔸 prio [192.168.0.2] [192.168.0.2] 🔤 🚍
Devices			
<u>1</u>		 Diagnostics General 	Assign IP address
C25-PN ■ Add new device ■ Devices & networks ■ PLC-1 (CPU 1214C DC/DC/DC) ■ TLC (CPU 1214C DC/DC/DC) ■ Security settings ■ Security settings ● GC ross-device functions		 Functions Assign IP address Assign PROFINET device name Reset to factory settings 	Assign IP address to the device Devices connected to an enterprise network or directly to the internet must be appropriately protected against unauthorized access, eg. by use of firewalls and network segmentation. For more information about industrial equity, please visit http://www.sement.com/industrialize.unty
	10		MAC address: BC -F3 -E7 -20 -00 -04 Accessible devices IP address: 192, 168, 0 2 Subher mask: 255, 255, 255, 0
Lo USB [57/USB] TeleService [Automatic protocol detection] Card Reader/USB memory			

d. Click "Assign PROFINET Device Name", fill in the "PROFINET Device Name", and click "Assign Name", as shown in the figure below.

Devices							
B B	Diagnostics	Assign PROFINET des	vice name				
	General						
 C25-PN 	 Functions 						
Add new device	Assign IP address						
ᡖ Devices & networks	Assign PROFINET device name		Configured PRC	DFINET de	vice		
PLC_1 [CPU 1214C DC/DC/DC]	Reset to factory settings		PROFINET devi	ice name:	pnio		
🕨 🔚 Ungrouped devices			De	vice type:	C25-PN-248		
Security settings				mee gpe.	C25411240		
Cross-device functions							
Common data							
Documentation settings							
Languages & resources							
Version control interface							
🙀 Online access			Device filter				
🍟 Display/hide interfaces					the same type		
 Realtek PCIe GbE Family Controller 	100 M						
A? Update accessible devices		1		v devices w/	th bad parameter settings		
Pisplay more information			Only show	v devices wi	thout names		
Implc_1 [192.168.0.1]							
 pnio [192.168.0.2] 		Accessible de	vices in the network:				
😼 Online & diagnostics		IP address	MAC address	Device	PROFINET device name	Status	
Intel(R) Wi-Fi 6 AX201 160MHz							
PC internal [Local]	100						
USB [S7USB]							
TeleService [Automatic protocol detection]							
Card Reader/USB memory							
		<			ш		>
				-	flashes Up	date list	Assign name

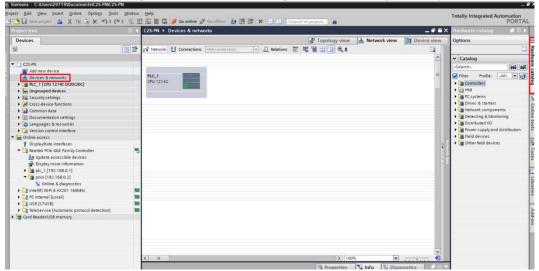
5. Add to GSD Configuration file

- a. In the menu bar, select "Options->Manage Generic Station Description File (GSDML)(D)".
- b. Click "Source Path" to select the file.
- c. View the GSD to be added Is the status of the file "Not yet installed", click the "Install" button if it is not installed. If it is installed, click the "Cancel", skip the installation steps.

Manage general station description files				×
Installed GSDs GSDs in the project				
Source path: D:\				
Content of imported path				
File	Version	Language	Status	l
GSDML-V2.3-Sdot-C2S-PN-24B-20230413.xml	V2.3	English	Not yet installed	S
	102			
<	1111			>
		Dele	te Install Ca	incel

6. Add slave device

- a. Double-click "Devices and Networks" in the left navigation tree.
- b. Click the "Hardware Catalog" vertical button on the right, and the catalog is displayed as shown below.



c. Find the "C2S-PN-24B" module in the hardware directory, drag or double-click "C2S-PN-24B" to " Network View", As shown below. If you want to connect multiple modules, you can connect them under the "Hardware Catalog" on the right., add modules in sequence according to the actual topology.

-PN > Devices & networks _ 🖬 🖬	×	Hardware catalog	
🖉 Topology view 🔒 Network view 🛐 Device view	v	Options	
Vetwork 🔢 Connections HMI connection 💌 🔒 Relations 🕎 🐫 📲 🔛 🛄 🍳 ± 🔤			
		✓ Catalog	
		<search></search>	init init
C_1 U1214C C25-FN-248 DP-HORM Not assigned		Filter Profile: <all> Controllers Controll</all>	•
		Network components	
		Detecting & Monitoring Distributed I/O	
		Power supply and distribution	
		Field devices	
		Other field devices	
	12	Additional Ethernet devices	
	1 2	- PROFINET IO	
	Г ⁶	> Drives	
		Encoders	
		🕨 🥅 Gateway	
		> Im Sdot	
		SIEMENS AG	
		▼ SOLIDOT C2S SERIES	
		▼ SOLIDOT PROFINET I/O	
		C25-PN-248	
		SOLIDOT PN7 SERIES	
		Sensors	
~		FINITE PROFIBUS DP	
III > 100% 💌		PROFIBUS PA	

d. Click "Unassigned (blue font)" on the slave device and select "PLC_1.PROFINET Interface_1", as shown in the figure below.

Network Con	nections [HMI connection 💌 🛺 Relations 🔛 🐺 🕇	■ Ⅲ Q.±
PLC_1 CPU 1214C	PNIO C25-PN-24B DP-NORM Not assigner! Select IO controller PLC_1.PROFINET interface_1	=

e. After the connection is completed, as shown in the figure below.

	Network	Connections	HMI connection	Relations	ID system: PLC_1.PROI	FINET IO-System (100)
PLC_1.PROFINET IO-Syste	PLC_1 CPU 1214C	-	C2S-PN-24B	DP-NORM		=
		P	LC_1.PROFINET IO-Sys	te <mark>¹</mark>		

f. Click the device name to rename the device, as shown in the figure below.

			4 IO system: PLC_1	PROFINET IO-System (100)	Ê
PLC_1	C25-PN C25-PN-24B PLC_1 PLC_1.PROFINET IO-Syste	DP-NORM			=

g. Click "Device View" to enter the device overview. You can see the topology configuration information, including the I/O address automatically assigned by the system., the I/O address can Make your own changes as shown below.

						🛃 Topolog	y view	Network view	Devi	ce view
D	evice overview									
-	Module	 Rack	Slot	I address	Q address	Туре	Article num	nber Fi	rmware	Commen
	 C2S-PN 	0	0			C2S-PN-24B	1234567	V1	10.00.00	
1	PN-IO	0	0 X1			PNIO				
	IN/OUT_1	0	1	213	27	IN/OUT		1.	0	
1										
-										
-										
22										
1										

7. Assign device name

a. Switch to "Network View", right-click the connection line between PLC and C2S-PN-24B, and select "Assign Device Name", As shown below.

Network view Device view Network view Device view Network Network view Network Network<	2S-PN > Devices & networks		Tenelo	ogy view 🔒 Network v	iew 🛐 Device view
PLC_1 C2S-PN C2S-PN-248 PLC 1 PLC 1					
PLC_1 C2S-PN- C2S-PN-24B DP-NORM PLC_1 PLC_1 PLC_1 PLC_1 PLC_1	Network Connections	/I connection	elations 🔛 🐻 1		
CFU 1214C C2S-PN-24B PLC 1				4 IO system: PLC_1.PROF	INET IO-System (100)
CPU 1214C C25-PN-248 PLC_1 CC1 CC1 CC2 PLC_1 PROFINET IN SKYLE CC1 CC2 CC2 CC2 CC2 CC2 CC2 CC2 CC2 CC2					
PLC_1 Cut Ctru Copy Ctru-V Paste Cutru-V Delete Rename F2 Assign to new DP master / IO controller Compile Download to device So online Ctrl-A Conflice Conflice Conflice Conflice Conflice & Ctrl-K Online & diagnostics Online & diagnostics Online & diagnostics Ctrl-D Assign RoPhSafe address Receive alarms Update and display forced operands Show catalog Ctrl+Shift-C					=
PIC_1.PROFINET IO-Svete ✓ Cut Ctrl+X ☑ Copy Ctrl+C ☑ Paste Ctrl-V ✓ Delete Del Rename F2 Assign to new DP master / IO controller Compile → Ø Go online Ctrl+K Ø Go online Ctrl+M Ø Assign revice name → Ø Assign device name → Ø Assign	IPU 1214C		RM		
✓ Cut Ctrl-X Image: Copy Ctrl-V Image: Copy Ctrl-V Image: Ctrl-V ✓ V Delete Del Rename F2 Assign to new DP master / IO controller Compile ✓ Download to device ✓ Image: Ctrl-K Image: Ctrl-K Image: Ctrl-K Image: Ct		PLC_1			
✓ Cut Ctrl-X Image: Copy Ctrl-V Image: Copy Ctrl-V </td <td></td> <td></td> <td></td> <td></td> <td></td>					
Image: Copy Ctrl+C Image: Paste Ctrl+V Image: Paste Ctrl+V Image: Paste Del Rename F2 Assign to new DP master / IO controller Compile Image: Paster Image: Download to device	PLC_1	PROFINETIO-Syste			
Paste Ctrl+V Delete Del Rename F2 Assign to new DP master / IO controller Compile Download to device G Go offline Ctrl+K G Go offline Ctrl+N M Go offline Ctrl+D M Assign device name Assign device name Assign device name M Scign PROFisa fe address Receive alarms Update and display forced operands Show catalog Ctrl+Shift+C					
✓ Delete Del Rename F2 Assign to new DP master / IO controller Compile > Ø Go online Ctrl+K Ø Go online Ctrl+M Ø Online & diagnostics Ctrl+D W Assign RPOFIsafe address					
Rename F2 Assign to new DP master / IO controller Compile • Download to device • Ø Go online Ctrl-K © Go offine Ctrl-K Ø Go offine Ctrl-K © Reserve alarms Ctrl-Strift-C Update and display forced operands Show catalog		Paste	Ctrl+V		
Assign to new DP master / IO controller Compile Download to device G a online Crit-K Co offline Confine & Ctri-K Online & diagnostics Crit-D Crit-M Online & diagnostics Crit-D Crit-Sign PROFIsafe address Receive alarms Update and display forced operands Show catalog Ctri+Shift+C		× Delete	Del		
Compile > Download to device > Ø Go noline Ctrl+K Ø Go offine Ctrl+M Ø Online & diagnostics Ctrl+D Pasign device name > Ø Assign PROFIsafe address > Receive alarms Update and display forced operands Show catalog Ctrl+Shift+C		Rename	F2		
Download to device > Image: Solution of the second secon		Assign to new DP mas	ter / IO controller		
Goonline Ctrl+K Gooffine Ctrl+M Conline & diagnostics Ctrl+D Assign device name Consistion PROFIsafe address Receive alarms Update and display forced operands Show catalog Ctrl+Shift+C		Compile	•		
Go offline Ctrl+M Online & diagnostics Ctrl+D Assign Advice name Receive alarms Update and display forced operands Show catalog Ctrl+Shift+C		Download to device	•		
Ctrl+D Ctrl+D Ctrl+D Ctrl+D Ctrl+D Ctrl+D Ctrl+D Ctrl+D Ctrl+D Ctrl+Stift+C		💋 Go online	Ctrl+K		
Assign device name Assign PROFIsafe address Receive alarms Update and display forced operands Show catalog Ctrl+Shift+C		Go offline	Ctrl+M		
Assign PROFIsafe address Receive alarms Update and display forced operands Show catalog Ctrl+Shift+C		😨 Online & diagnostics	Ctrl+D		
Receive alarms Update and display forced operands Show catalog Ctrl+Shift+C		Assign device name			
Update and display forced operands Show catalog Ctrl+Shift+C		Assign PROFIsafe addr	ess		
Show catalog Ctrl+Shift+C		Receive alarms			
		Update and display fo	rced operands		
C Properties Alt+Enter		Show catalog	Ctrl+Shift+C		
		Roperties	Alt+Enter		
				> 100%	· · · · · · · · · · · · · · · · · · ·

b. The "Assign PROFINET Device Name" window pops up, as shown in the figure below.

		PROFINET devi	ce name:	c2s-pn		
		De	vice type:	C25-PN-248		
		Online access				
		Type of the PG/PC	interface:	PN/IE	•	
		PG/PC	interface:	Realtek PCIe GbE Family	Controller 💌 🖲 💁	
طے		Device filter				
•		Only show	v devices of	the same type		
				th bad parameter settings		
		Only show		and a second		
			r devices vii	ulouthanes		
		vices in the network:				
	IP address	MAC address	Device	PROFINET device name	Status	
Flash LED						
	<			111		>
				Up	date list Assign name	
Online status informatio	on:					
<			1111			>

Check whether the MAC address on the module silk screen is the same as the MAC address of the assigned device name.

• PROFINET Device name: "Assign PROFINET device name" The name set in .

- PG/PC Type of interface: PN/IE.
- PG/PC Interface: The actual network adapter used.

c. Select the slave device in turn, click Update List, and click Assign Name. Check the status of the node in "Accessible Nodes in the Network" Whether the status is "OK", as shown in the figure below.

		PROFINET devic	e name:	c2s-pn			•	
		Dev	vice type:	C2S-PN-24B				
		Online access						
		Type of the PG/PC i	interface:	PN/IE			-	
		PG/PC i	interface:	Realtek PCIe C	GbE Family Co	ontroller	•	۲
		Device filter						
		Only show	devices of th	e same type				
				bad parameter	settings			
					seconds			
		Only show	devices with	out names				
	Accessible devi	ices in the network:						
	IP address	MAC address	Device	PROFINET devic	e name	Status		
_	192.168.0.2	8C-F3-E7-20-00-04	C2S-PN-2	c2s-pn	0	ОК		
Flash LED								
	<							
					Upda	te list	Assio	n name
	on: ted. 1 of 2 devices we	ere <mark>found</mark> .						
		ere found.						
Online status informati		ere found.	10					

d. Click Close.

8, Download configuration structure

- a. In "Network View" center, selected PLC.
- b. Click 🔃 the button in the menu bar to download the current configuration to in PLC.

c. In the pop-up "Download extension to device" interface, configure the configuration as shown below.

7 Operation

C2S-PN Series Fieldbus Valve Terminal User Manual

-		ess nodes of "PLC_1"					
	Device	Device type	Slot	Interface type	Address	Subnet	
	PLC_1	CPU 1214C DC/D	1 X1	PN/IE	192.168.0.1	PN/IE_1	
							_
		Type of the PG/PC inte	rface:	PN/IE		•	
		PG/PC inte	rface:	Realtek PCIe G	bE Family Controller	-] 🕐 [
		Connection to interface/su	bnet:	PN/IE_1		-) 💎
		1st gat	eway:			v	
	Device	Device type					
		-	PN/IE		dress address	Target devie	ce
Flash LED		-					ce
Flash LED		-		Acc	ess address		searcl
p		-		Acc			

	Configured acc	ess nodes of "PLC_1"					
	Device	Device type	Slot	Interface type	Address	Subnet	
	PLC_1	CPU 1214C DC/D	1 X1	PN/IE	192.168.0.1	PN/IE_	1
		Type of the PG/PC inte PG/PC inte Connection to interface/su	rface: 🗼 Ibnet: F	_ PN/IE WRealtek PCIe Gi PN/IE_1	bE Family Controller		• •
							1.4
	Select target de		Interface		Show all compatibl	12	ice
		evice: Device type CPU 1214C DC/D	Interface	e type Add		le devices Target devi PLC_1	
Flash LED	Device	Device type		e type Add 192	lress	Target dev	
	Device PLC_1	Device type CPU 1214C DC/D	. PN/IE	e type Add 192	iress 2.168.0.1 ess address	Target devi PLC_1 	ice
ine status informa	Device PLC_1	Device type CPU 1214C DC/D. -	. PN/IE	e type Add 192	Iress 2.168.0.1	Target devi PLC_1 	search
line status informa Connection esta	Device PLC_1	Device type CPU 1214C DC/D. - with address 192.168.0.1.	. PN/IE PN/IE	e type Add 192	iress 2.168.0.1 ess address	Target devi PLC_1 	
Scan completed	Device PLC_1	Device type CPU 1214C DC/D. - with address 192.168.0.1. rs of 3 accessible devices for	. PN/IE PN/IE	e type Add 192	iress 2.168.0.1 ess address	Target devi PLC_1 	search

d. Click the "Start Search" button, as shown in the figure below.

- e. Click "Download".
- f. Select "Continue without synchronization" ,As shown below.

Software sy	nchronization befo	re loading to a	device

Software synchronization	Status	Action	
PLC_1 'Program blocks'			
Main [OB1]	0	Manual synchronization required	
 'PLC tags' 			
Tags	•	Manual synchronization required	
		W	
		100	

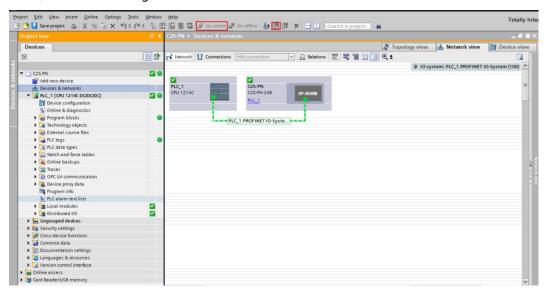
g. Select "Stop All".

1	Target	Message	Action
9	▼ PLC_1	Ready for loading.	Load 'PLC_1'
4	 Protection 	Protection from unauthorized access	
4		Devices connected to an enterprise network or directly to the internet must be appropriately protected against unauthorized access, e.g. by use of firewalls and network segmentation. For more information about industrial security, please visit http://www.siemens.com/industrialsecurity	
0	 Stop modules 	The modules are stopped for downloading to device.	Stop all
0	Device configuration	Delete and replace system data in target	Download to device
0	 Software 	Download software to device	Consistent downloa
		III	

- h. Click "Load" .
- i. Click "Finish".
- j. Power on again the device.

9. Communication connection

a. Click **I** the button, and then click the "Go Online" button. If the icons are all green, the connection is successful, as shown in the figure below.



10. Parameter setting

a. Open "Network View", in offline mode, right-click the module view icon part and click "Properties", As shown below.

		F Topology	view 🔒 Network view	Device view
Network Connections HMI connection	💌 🗛 Relations 🗮 🐫 📲 🖽			=
			IO system: PLC_1.PROFINET	IO-System (100)
PLC_1 CPU 1214C PLC_1 PLC_1.PROFINET IO-Syste.		Ctrl+X Ctrl+C Ctrl+V Del F2 ntroller em / IO system		
	🚔 Go to topology view			
	Compile Download to device G o online C o offline Online & diagnostics Assign device name Review alarms Update and display forced open	Ctrl+K Ctrl+M Ctrl+D		
	Show catalog	Ctrl+Shift+C		
	📑 Export module labeling strips			
	Q Properties	Alt+Enter		

b. On the properties page, click "Module Parameters", As shown below. Parameters can be configured according to actual usage needs. After the configuration is completed, restart Download the program to the PLC, The PLC and modules need to be powered on again.

General PROFINET interface [X1]	Module parameters		
Identification & Main Module parameters	Setting for Clear/Hold		
Shared Device	Module Data Clear or Hold Settings:	Hold	•
	Ch0 Data Clear or Hold Settings:	Clear	•
	Ch1 Data Clear or Hold Settings:	Clear	•
	Ch2 Data Clear or Hold Settings:	Clear	•
	Ch3 Data Clear or Hold Settings:		•
	Ch4 Data Clear or Hold Settings:		•
	Ch5 Data Clear or Hold Settings:		•
	Ch6 Data Clear or Hold Settings:		•
	Ch7 Data Clear or Hold Settings:		•
	Ch8 Data Clear or Hold Settings:		•
	Ch9 Data Clear or Hold Settings:		· · · · · · · · · · · · · · · · · · ·
	Ch10 Data Clear or Hold Settings:		
	Ch11 Data Clear or Hold		

c. Output signal clear/hold parameter function, module clear and hold function as a whole Module Data Clear or Hold Settings, you can choose Clear, Hold or Clear_Hold_By_Channel,As shown below.

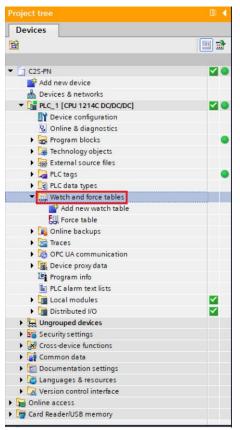
General	Module parameters		
PROFINET interface [X1]	wodule parameters		
Identification & Main	Setting for Clear/Hold		
Module parameters			
Shared Device	Module Data Clear or Hold Settings:	Hold	•
	Ch0 Data Clear or Hold Settings:	Clear Hold Clear_Hold_By_Channel	
	Ch1 Data Clear or Hold Settings:	Clear	
	Ch2 Data Clear or Hold Settings:	Clear	
	Ch3 Data Clear or Hold Settings:	Clear	-
	Ch4 Data Clear or Hold Settings:	Clear	-
	Ch5 Data Clear or Hold Settings:	Clear	
	Ch6 Data Clear or Hold Settings:	Clear	
	Ch7 Data Clear or Hold Settings:	Clear	
	Ch8 Data Clear or Hold Settings:	Clear	-
	Ch9 Data Clear or Hold Settings:		
	Ch10 Data Clear or Hold Settings:	Clear	•
	Ch11 Data Clear or Hold		

d. Output signal clearing/holding parameter function, module single channel clearing and holding function Chx Data Clear or Hold Settings. The premise for the single channel setting to take effect is to change the overall function Module Data Clear or Hold Settings is set to Clear_Hold_By_Channel, then Set the function of each channel, you can choose Clear or Hold ,As shown below.

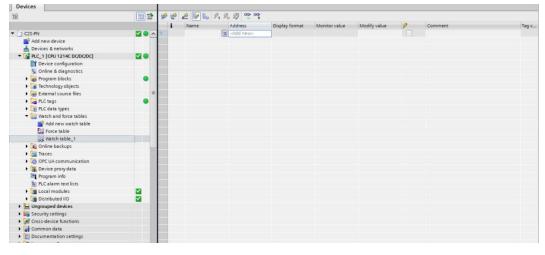
General	Module parameters		
PROFINET interface [X1]	The second second second second		
Identification & Main	Setting for Clear/Hold		
Module parameters			
Shared Device	Module Data Clear or Hold	11-14	
	Settings:	Hold	-
	Ch0 Data Clear or Hold	at 2 as 2	
	Settings:	Clear	•
	Ch1 Data Clear or Hold	Clear	
	Settings:		
	Ch2 Data Clear or Hold		
	Settings:	Clear	•
	Ch3 Data Clear or Hold		
	Settings:	Clear	
	Ch4 Data Clear or Hold		
	Settings:	Clear	•
	Ch5 Data Clear or Hold		
	Settings:	Clear	•
	Ch6 Data Clear or Hold		
	Settings:	Clear	•
	Ch7 Data Clear or Hold		
	Settings:	Clear	•
	Ch8 Data Clear or Hold		
	Settings:	Clear	•
	Ch9 Data Clear or Hold		
	Settings:	Clear	•
	Ch10 Data Clear or Hold		
	Settings:	Clear	•
	Ch11 Data Clear or Hold		

11. Function verification

a. Expand the project navigation on the left and select "Monitoring and Enforcement Table" ,As shown below.



b. Double-click "Add New Monitoring Table" and the system will add a new monitoring table, as shown in the figure below.



c. Open Device View, check the channel Q address (channel address of the output signal) and I address of the module C2S-PN-24B in the device overview (channel address of the input signal).
 For example, it is found that the "Q address" of the C2S-PN-24B module is 2 to 7, and "I address" is 2 to 13, As shown below.

					2	Topology view 🔒 🕅	letwork view	Device vi
Device overview								
Y Module	 Rack	Slot	I address	Q address	Туре	Article number	Firmware	Comment
▼ C2S-PN	0	0			C2S-PN-24B	1234567	V10.00.00	
PN-IO	0	0 X1			PNIO			
IN/OUT_1	0	1	213	27	IN/OUT		1.0	

d. Fill in the input and output channel addresses in the address cells of the monitoring table, for

example, write "QB2" to "QB7", "IB2" to "IB13", press "Return "Car key", after filling in everything, click the button to monitor the data, as shown in the figure below. For ease of viewing, in the

comment cell

Fill in the functional meaning corresponding to each address.

i	Name	Address	Display format	Monitor value	Modify value	9	Comment	Tag c.
		%IB2	Hex	16#7F			Open load[07]	
		%IB3	Hex	16#FF			Open load[815]	
8		%IB4	Hex	16#00			Open load[1623]	
ŝ		%IB5	Hex	16#00			Open load[2431]	
		%IB6	Hex	16#00			Open load[3239]	
		%IB7	Hex	16#00			Open load[4047]	
		%IB8	Hex	16#00			Short circuit or overtemperature[07]	
		%IB9	Hex	16#00			Short circuit or overtemperature[815]	
		%IB10	Hex	16#00			Short circuit or overtemperature[1623	1
0		%IB11	Hex	16#00			Short circuit or overtemperature[2431	1
1		%IB12	Hex	16#00			Short circuit or overtemperature[3239]	1
2		%IB13	Hex	16#00			Short circuit or overtemperature[4047	1
3		%QB2	Hex	16#00			valve[14]	
4		%QB3	Hex	16#00			valve[58]	
5		%QB4	Hex	16#00			valve[912]	
6		%QB5	Hex	16#00			valve[1316]	
7		%QB6	Hex	16#00			valve[1720]	
8		%QB7	Hex	16#00			valve[2124]	
9		<add new=""></add>						

- **Open circuit** diagnosisOpen load[0..7],Open load[8..15],Open load[16..23],Open load[24..31],Open load[32..39],Open load[40..47], 48 channels can be independently diagnosed.
- **Short circuit/overtemperature diagnosisShort** circuit or overtemperature[0..7], Short circuit or

overtemperature[8..15]、Short circuit or overtemperature[16..23]、Short circ uit or overtemperature[24..31]、Short circuit or overtemperature[32..39]、Short circuit or overtemperature[40..47], 48 channels can be independently diagnosed .

- Valve terminal output control function, 24-position dual control solenoid valves, grouped by driver chips, A total of 6 groups of channels, valve[1..4],
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valve[5..8], valve[9..12], valve[13..16], valve e[17..20], valve[21..24], each group has 8 channels, Total 48 channel output control.

e. **Open load diagnosis**, when the channel solenoid valve coil output is closed (that is, 0), the diagnostic value is valid.

in Open load[0..7]~Open I At the "monitoring value" corresponding to oad[40..47], you can view the solenoid valves corresponding to each group of channels in the entire valve terminal. Open circuit diagnostic value, if a group of channel solenoid valve coils are all normal, it will be **0**, if any solenoid valve has an open circuit, it will not be **0**.

Switch the display format of IB2~IB7 to binary, you can view the open circuit diagnostic value of each channel solenoid valve. If the value is $\mathbf{1}$, the valve is open. If it is $\mathbf{0}$, it is normal. As shown below.

i	Name	Address	Display format	Monitor value	Modify value	9	Comment	Tag c.
		1 %IB2	Bin 💌	2#0111_1111			Open load[07]	
		%IB3	Bin	2#1111_1111			Open load[815]	
		%IB4	Bin	2#0000_0000			Open load[1623]	
		%IB5	Bin	2#0000_0000			Open load[2431]	
		%IB6	Bin	2#0000_0000			Open load[3239]	
6		%IB7	Bin	2#0000_0000			Open load[4047]	
		%IB8	Bin	2#0000_0000			Short circuit or overtemperature[07]	
		%IB9	Bin	2#0000_0000			Short circuit or overtemperature[815]	
		%IB10	Bin	2#0000_0000			Short circuit or overtemperature[1623]	
0		%IB11	Bin	2#0000_0000			Short circuit or overtemperature[2431]	
1		%IB12	Bin	2#0000_0000			Short circuit or overtemperature[3239]	
2		%IB13	Bin	2#0000_0000			Short circuit or overtemperature[4047]	
3		%QB2	Hex	16#00			valve[14]	
4		%QB3	Hex	16#00			valve[58]	
5		%QB4	Hex	16#00			valve[912]	
6		%QB5	Hex	16#00			valve[1316]	
7		%QB6	Hex	16#00			valve[1720]	
8		%QB7	Hex	16#00			valve[2124]	
9		<add new=""></add>						

f. **Short circuit or overtemperature diagnosis**, when the channel solenoid valve coil output is turned on (that is, 1), the diagnostic value efficient.

In Short circuit or overtemperature [0..7]~ Short circuit or The "monitoring value" corresponding to overtemperature [40..47] At , you can view the solenoid valve short circuit/over-temperature diagnostic value corresponding to each group of channels in the entire valve terminal. If there is a solenoid valve with short circuit/over-temperature, it is not $\mathbf{0}$, and it does not appear. Short circuit/overtemperature is $\mathbf{0}$.

Switch the display format of IB8~IB13 to binary, you can view the short circuit/overtemperature diagnostic value of each channel solenoid valve. If the value is **1**, the solenoid valve Short circuit/over temperature occurs, the value is **0** means there is no short circuit/overtemperature, as shown in the figure below.

C2S-PN Series Fieldbus Valve Terminal User Manual

7 Operation

i	Name	Address	Display format	Monitor value	Modify value	9	Comment	Tag c
		%IB2	Bin 🔽	2#0111_1111			Open load[07]]
2		%IB3	Bin	2#1111_1111			Open load[815]	
3		%IB4	Bin	2#0000_0000			Open load[1623]	
		%IB5	Bin	2#0000_0000			Open load[2431]	
		%IB6	Bin	2#0000_0000			Open load[3239]	
		%IB7	Bin	2#0000_0000			Open load[4047]	1.0
		%IB8	Bin	2#0000_0000			Short circuit or overtemperature[07]	1
		%IB9	Bin	2#0000_0000			Short circuit or overtemperature[815]	
		%IB10	Bin	2#0000_0000			Short circuit or overtemperature[1623]	
0		%IB11	Bin	2#0000_0000			Short circuit or overtemperature[2431]	
1		%IB12	Bin	2#0000_0000			Short circuit or overtemperature[3239]	
2		%IB13	Bin	2#0000_0000			Short circuit or overtemperature[4047]	
3		%QB2	Hex	16#00			valve[14]	
4		%QB3	Hex	16#00			valve[58]	
5		%QB4	Hex	16#00			valve[912]	
6		%QB5	Hex	16#00			valve[1316]	
7		%QB6	Hex	16#00			valve[1720]	
8		%QB7	Hex	16#00			valve[2124]	
9		<add new=""></add>						

g.Channel **output control**, if you want any group of solenoid valve coil outputs in the valve terminal to turn on, taking the first group of channels as an example, you can modify the Enter "FF" in the "Value" cell. Click solution to write, you can open the first group of solenoid valve coil channels, and the other channels open and output in the same way, as shown in the figure below.

i	Name	Address	Display format	Monitor value	Modify value	9	Comment	Tag c
		%IB2	Bin	2#0000_0000			Open load[07]	
		%IB3	Bin	2#1111_1111			Open load[815]	
		%IB4	Bin	2#0000_0000			Open load[1623]	
		%IB5	Bin	2#0000_0000			Open load[2431]	
		%IB6	Bin	2#0000_0000			Open load[3239]	
		%IB7	Bin	2#0000_0000			Open load[4047]	
		%IB8	Bin	2#0000_0000			Short circuit or overtemperature[07]	
		%IB9	Bin	2#0000_0000			Short circuit or overtemperature[815]	
		%IB10	Bin	2#0000_0000			Short circuit or overtemperature[1623]	
0		%IB11	Bin	2#0000_0000			Short circuit or overtemperature[2431]	
1		%IB12	Bin	2#0000_0000			Short circuit or overtemperature[3239]	
2		%IB13	Bin	2#0000_0000			Short circuit or overtemperature[4047]	
3		%QB2	Hex	16#FF	16#FF	N 🗹 🔔	valve[14]	
4		%QB3	Hex	16#00			valve[58]	
5		%QB4	Hex	16#00			valve[912]	
6		%QB5	Hex	16#00			valve[1316]	
7		%QB6	Hex	16#00			valve[1720]	
8		%QB7	Hex	16#00			valve[2124]	
9		<add new=""></add>						

7.4.2 Application in STEP 7-MicroWIN SMART software environment

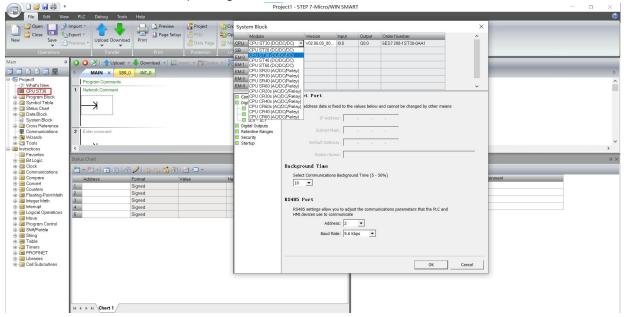
1. Preparation work

- Hardware environment
 - Valve terminal model C2S-PN-24B
 - > One computer, pre-installed with STEP 7-MicroWIN SMART V2.6 software
 - > Special shielded cable for valve terminal
 - > A Siemens PLC. This description takes Siemens S7-200 SMART as an example.
 - > One switching power supply
 - device profile
 Configuration file acquisition address: <u>https://www.solidote ch.com/documents/configfile</u>
- Hardware configuration and wiring
 Please follow " <u>5 Installation</u> " " <u>6 Wiring</u> " requires action

2, Add PLC

a. Open STEP 7-MicroWIN SMART software.

b. Double-click the left navigation tree CPU ST30 button to pop up the "System Blocks" window., select the CPU model corresponding to the PLC, Click OK button button, As shown below.



c. Click the navigation tree 🖳 通信 button on the left to pop up the "Communication" window, switch

the communication interface to the interface actually used by the PLC, and click "Find"

		Project1 - STEP /-MICro/WIN	SMART	
File Edit Vie	r PLC Debug Tools Help			
Close 🛄 🤇	Import * Export * Previous * Upbad Download	Open Folder		
Operations	Communications	×		
Main C Colored C Colored C C C C C C C C C C C C C C C C C C C	Communication Interface Communication Interface Testification Controller. TCPP.1 Controller. TCPP.1 Controller. TCPP.1 Controller. TCPP.1 Controller. Controller. TCPP.1 Controller. Controller. TCPP.1 Controller. Controller. Co	the selected CPU. Prese the "Fishel Upter" button to continuously fields: CPU LIDS to visually locate a connected CPU. MAC. Address BC.F3:15:77.118.0E IP Address 192.168:0 Submet Mack Submet Mack 255.255.255.0	x Varable Table Address Symbol 1 2 3 4	Yes: Type Data Type Comment TEMP TEMP TEMP TEMP TEMP TEMP

CPU" button to find the PLC, as shown in the figure below.

d. Click the "Edit" button in the communication window, the edit button switches to the setting button, the IP address input box lights up, and the IP address and computer interface are modified. The IP address is in the same network segment. After the modification is completed, click the "Set" button again. After the setting is completed, click the "OK" button, as shown in the figure below. Note: You can only modify the IP address of the computer's Ethernet interface, as long as it is in the same network segment as the PLC address.

Realtek PCIe GbE Family Controller.TCPIP.1	 Press the "Edit" button to change the IP data and station name of the selected CPU. Press the "Flash Lights" button to continuously
 Found CPUs ■ 192.168.0.1 (plc200smart) △ Added CPUs 	the selected CPU. Press the "Hash Lights" button to continuously flash CPU LEDs to visually locate a connected CPU. MAC Address 8C:F3:19:71:18:DE Flash Lights IP Address 192 . 168 . 0 . 1 Set Subnet Mask 255 . 255 . 255 . 0 Default Gateway 0 . 0 . 0 . 0
	Station Name (ASCII characters a-z, 0-9, - and .)
Find CPUs Add CPU Edit CPU	elete CPU

3. Import GSD file

a. Click "File- > GSDML Management", click the "Browse" button in the GSDML management window, and select the GSDML to import file, click the "Confirm" button, As shown below.

						Project1 - STEP	/-Micro/WIN SMART					
File Edit View	PLC	Debug Tools	Help									l .
New Close Save	Import * Export * Previous *	Upload Download	Preview Print Print	Project POU Data Page Protection	Create Copen Folder	GSDML Management GSDML						
Operations Main a					Libraries	GSDML			_			
		Aanage general sta	ation description files						×	• 🛗 🖻 🖟 🛛 🔏	a l	
	4 II	ntroduction										
Project1 Vhat's New CPU ST30 OFU ST30		mported GSDML f		delete GSDML files	for PROFINET.			200				
Dota Block System Block		File Name	a /2.3-Sdot-C2S-PN-24B-202	20.41.2			Installation Date 2024-01-17 16:32:12	Status OK	5.1			
E Cross Reference		I IV GSDML-V	2.3*5000025*****2*8*202	.30413.Xmi			2024-01-17 16.32.12	UK	- 1			
Communications Wizards Tools Instructions	2 E1											
									- 8		_	
⊕ - 🚰 Bit Logic ⊕ - 🔯 Clock	Status C								_ [
Clock Communications	<u>81</u> -								- 1			
🗉 🔯 Compare	A								1	Var Type	Data Type	Comment
Convert Counters	1									TEMP		
🗄 🥶 Floating-Point Math	2								-	TEMP	_	
- Integer Math - - Interrupt	3								-	TEMP	-	
E al Logical Operations	4 5 I	nstall new GSD							ł	TEMP		
E Move	2 1		IL									
		D:\			Brow	se Delete						
E B String								ОК	-1			
e 🗃 Table e 🙆 Timers												
PROFINET												
⊕ a Libraries ⊕ a Call Subroutines												
		Chart 1										
1												

4. Find device

a. Click "Tools- > Search PROFINET device", the Find PROFINET device window pops up, switch the communication interface to PLC real-time Click "Find Device" to find the interface you are actually using, as shown in the figure below.

File Edit View	WM Text Get/Put Data PROFINET Display Log Wizards	Server Control Panel Panel Configuration Tools	Management	
Main 0 Image: Spring of the	Advess Signed Signed Signed	Nodd Image: Section of the section	Press the "Edit" button to change the device norme	of the selected ray flash device

b. Click the "Edit" button to edit the module name. After editing is completed, click the "Set" button, as shown in the figure below.

1.2	11.154	11001	11.11.1.1	Devices	

ommunication Interface	Press the "Edit" button to change the device name of the selected
ealtek PCIe GbE Family Controller.TCPIP.1	 device. Press the "Flash Lights" button to continuously flash device LEDs to visually locate a connected device.
PROFINET Device	MAC Address
C2S-PN-24B	8C:F3:E7:20:00:04 Flash Lights
	IP Address
	192.168.0.2
	Subnet Mask
	255.255.255.0
	Default Gateway
	192.168.0.2
	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 '-')
	c2s-pn Set
	Convert name: c2s-pn
Find Devices	
Find Devices	

5.Configuring the PROFINET network

a. Click "Tools- > PROFINET", open the PROFINET configuration wizard, As shown below.

) -	Project1 - STEP 7-Micro/WIN SMAR	Г
View PLC Debug Tools	elp.	
	5 🐼 🖂 🖂 省 🚠 🗸 🥔	
D PWM Text Get/Put Data PRO Display Log	INE Web Motion PID Control SMART Drive Find PROFINET Certificate Options Server Control Panel Panel Configuration T Devices Management	
Wizards	Tools Settings	

b. On the PROFINET configuration wizard page, select the PLC role as "Controller", As shown below.

This wizard allows you to configure a PROFINET networ the project, which can be downloaded to the PLC togeth	k step by step. The PROFINET configuration is generated and stored in er with the project.
PLC Role Select a role for the PLC.	
Forvice Parameter assignment of PROFINET Interface by	higher-level 10 controller
Ethernet Port	Communication
Fixed IP address and name	Send Clock: 1.000 💌 ms
IP Address: 192 . 168 . 0 . 1	Start Up time: 10000 ms
Subnet Mask: 255 . 255 . 255 . 0	
Default Gateway: 0 . 0 . 0 . 0	
Station Name: plc200smart	
Station warre. prozoosman	

c. Click "Next" to enter the controller configuration page, add the device from the device directory tree on the right, select C2S-PN-24B , and click "Add" Add" button, as shown below.

■ PROFINET network □ Controller(CPU ST30_plc200sma □ □ C2S-Pk-249(10,00-pnio.c) □ □ C2S-Pk-248(0) □ □ C2S-Pk-248(0) <t< th=""><th>The device ta</th><th>able lists all device devices from the devi</th><th>s that are curren</th><th>c200smart 12.168.0.1 tly configured for n the right.</th><th>or this PROFIMET ne</th><th>Catalog ⇒ PLC 57-200 SMART → CPU SR30 → CPU SR40 → CPU SR40 → CPU SR40 → CPU ST20 → CPU ST30 → CPU ST40 → CPU ST40 → PROFINET 10 ⇒ SOLIDOT C2S SERIES ⇒ SOLIDOT PROFINET 1/0 ⇒ SOLIDOT PROFINET 1/0</th></t<>	The device ta	able lists all device devices from the devi	s that are curren	c200smart 12.168.0.1 tly configured for n the right.	or this PROFIMET ne	Catalog ⇒ PLC 57-200 SMART → CPU SR30 → CPU SR40 → CPU SR40 → CPU SR40 → CPU ST20 → CPU ST30 → CPU ST40 → CPU ST40 → PROFINET 10 ⇒ SOLIDOT C2S SERIES ⇒ SOLIDOT PROFINET 1/0 ⇒ SOLIDOT PROFINET 1/0
	Device Number	Туре	Device Name	IP Setting	IP Address	
	1 2	C2S-PN-24BV10.00.00	pnio.dev1	Set by user		I
	3					Article no.: 1234567
	4					Version:
	6					GSDML-V2.3-Sdot-C2S-PN-24B-20230413.xml
	7					Description:
						GSDML-V2.3-Sdot-C2S-PN-24B-
	<				>	20230413.xml
	Add Delete]				Solidot PROFINET 1/0

d. Double-click the input box below the device name and enter the device name, which needs to be consistent with the name set when searching for the device; double-click the input box below the IP address. Enter the IP address. After the input is completed, it is as shown in the figure below. If there are other modules in the configuration, they can be added and configured in the same way.

ROFINET network Controller(CPU ST30_plc200smart)	The device ta You can add d Device tuble	ble lists all devic evices from the dev	es that are currer	1c200smart 32.168.0.1 htly configured n the right. P Settina	for this PROFINET no	Catalog ⊟:PLC 57-200 SMART — CPU SR20 — CPU SR30 — CPU SR40 — CPU SR40 — CPU ST20 — CPU ST30 — CPU ST40 — CPU ST40
	1	C2S-PN-24BV10.00.00	c2s-pn	Set by user	192.168.0.2	
	3					Article no.: 1234567
	4					Version:
	6					GSDML-V2.3-Sdot-C2S-PN-24B-20230413.xml
	8					Description:
	<				>	GSDML-V2.3-Sdot-C2S-PN-24B-
	AddDelete					Solidot PROFINET I/O
						~

Note: The device name must be consistent with the module name, the IP address needs to be set in the same network segment as the PLC.

e. Click the "Next" button. You can see that the input and output starting addresses of the module are 128, as shown in the figure below.

-PN-24B(0)	ce.	e "Add" but								C2S-PN-24B
UT(1)	ln	Module Na	Submodule	Slot_Subslot	PNI St	Input Si	PNQ Sta	Output Size	Firmware Ve	I IN/OUT
ion 1	0	C2S-PN-24B		0					V10.00.00	Submodule
2	-		PN-I0	0 32768(×1)						
3	-		Port 1 - RJ45	0 32769(×1 P1)						
4	- 1		Port 2 - RJ45	0 32770(X1 P2)						
5	1	IN/OUT	1	1	128	12	128	6	1.0	

f. Click the "Next" button to see the module configuration parameter page, as shown in the figure below.

PROFINET network Controller(CPU ST30_plc200smart) C2S-PN-248V10.00.00-c2s-pn	This page allows you to configure each submodule of the selected module.	
IN/OUT(1)	Solidot Development PN-IO Part 1 - R345 Part 2 - R345	
tai Completion	Setting for Clear/Hold	^
	Nodule Data Clear or Hold Settings Hold	
	Ch0 Data Clear or Hold Settings Clear 💌	
	Chl Data Clear or Hold Settings Cleer 💌	
	Ch2 Data Clear or Hold Settings Clear 💌	
	Ch3 Data Clear or Hold Settings Clear 💌	
	Ch4 Data Clear or Hold Settings Clear 💌	
	Ch5 Data Clear or Hold Settings Clear 💌	
	Ch6 Data Clear or Hold Settings Clear 💌	
	Ch7 Data Clear or Hold Settings Clear 💌	
	Ch8 Data Clear or Hold Settings Clear 💌	
	Ch9 Data Clear or Hold Settings Clear 💌	
	Ch10 Data Clear or Hold Settings Clear 💌	
	Chil Data Clear or Hold Settings Clear 💌	
	Chi2 Data Clear or Hold Settings Clear 💌	
	Chi3 Data Clear or Hold Settings Clear 💌	
		~
1		

g. Output signal clear/hold parameter function, module clear and hold function as a whole Module Data Clear or Hold Settings, you can choose Clear, Hold or Clear_Hold_By_Channel,As shown below.

Solidot Development PH-D0 Port 1 - RMS Port 2 - RMS Setting for Clear Rold Rohile Data Clear or Hold Settings Chi Data Clear or Hold Settings Chi Data Clear or Hold Settings Cher • Chi Data Clear or Hold Settings Cher • Cher • C	Controller(CPU ST30_plc200smart)	This page allows you to configure each submodule of the selected module.	
Setting for Clear/Rold Module Data Clear or Hold Settings Cho Data Clear or Hold Settings Che Che Data Clear or Hold Settings Clear • Chi Data Clear or Hold Setings Clear • Chi Data Clear or Hold Setings Clear • Chi Da		Solidot Development PN-IO Port 1 - RJ45 Port 2 - RJ45	
Cho Data Clear or Hold Settings Cho Data Clear or Hold Settings Cher Chi Data Clear or Hold Settings Cher Ch2 Data Clear or Hold Settings Cher Ch4 Data Clear or Hold Settings Cher Ch5 Data Clear or Hold Settings Cher Ch6 Data Clear or Hold Settings Cher Ch6 Data Clear or Hold Settings Clear Ch6 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch11 Data Clear or Hold Settings Clear Clear Ch12 Data Clear or Hold Settings Clear Clear Ch12 Data Clear or Hold Settings Clear Clear Ch12 Data Clear or Hold Settings Clear Clear Clear Ch12 Data Clear or Hold Settings Clear	Completion	Setting for Clear/Hold	^
Ch0 Data Clear or Hold Settings Clear, Hold By, Channel Ch1 Data Clear or Hold Settings Clear • Ch2 Data Clear or Hold Settings Clear • Ch3 Data Clear or Hold Settings Clear • Ch4 Data Clear or Hold Settings Clear • Ch6 Data Clear or Hold Settings Clear •			
Chi Data Clear or Hold Settings Clear Ch2 Data Clear or Hold Settings Clear Ch3 Data Clear or Hold Settings Clear Ch4 Data Clear or Hold Settings Clear Ch5 Data Clear or Hold Settings Clear Ch6 Data Clear Or Hold Setings Clear Ch6 Data Clear Or H		ChO Data Clear or Hold Settings Hold	
Ch3 Data Clear or Hold Settings Clear Ch4 Data Clear or Hold Settings Clear Ch5 Data Clear or Hold Settings Clear Ch6 Data Clear or Hold Settings Clear Ch7 Data Clear or Hold Settings Clear Ch8 Data Clear or Hold Settings Clear Ch9 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch2 Data Clear or Hold Settings Clear Clear Ch2 Data Clear or Hold Settings Clear Clear Ch2 Data Clear or Hold Settings Clear Clea			
Ch4 Data Clear or Hold Settings Clear Ch5 Data Clear or Hold Settings Clear Ch6 Data Clear or Hold Settings Clear Ch7 Data Clear or Hold Settings Clear Ch8 Data Clear or Hold Settings Clear Ch9 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch11 Data Clear or Hold Settings Clear Ch2 Data Clear Ch2 Data Clear Or Hold Setings Clear Ch2 Data Clear Ch2 Data Clear Ch2 Dat		Ch2 Data Clear or Hold Settings Clear -	
Ch5 Data Clear or Hold Settings Clear Ch6 Data Clear or Hold Settings Clear Ch7 Data Clear or Hold Settings Clear Ch8 Data Clear or Hold Settings Clear Ch9 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch2 Data Clear or Hold Settings Clear Clear Ch2 Data Clear or Hold Settings Clear Clear Ch2 Data Clear or Hold Settings Clear Clear Clear Ch2 Data Clear or Hold Settings Clear Clea		Ch3 Data Clear or Hold Settings Clear -	
Chô Data Clear or Hold Settings Clear Chî Data Clear Or Hold Setings Clear Chî Data Cle		Ch4 Data Clear or Hold Settings Clear 💌	
Ch7 Data Clear or Hold Settings Clear Ch8 Data Clear or Hold Settings Clear Ch9 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch11 Data Clear or Hold Settings Clear Ch2 Data Clear or Hold Settings Clear		Ch5 Data Clear or Hold Settings Clear 💌	
Ch8 Data Clear or Hold Settings Clear Ch9 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch11 Data Clear or Hold Settings Clear Ch2 Data Clear or Hold Settings Clear Clear Ch2 Data Clear or Hold Settings Clear Clea		Ch6 Data Clear or Hold Settings Clear 💌	
Ch9 Data Clear or Hold Settings Clear Ch10 Data Clear or Hold Settings Clear Ch11 Data Clear or Hold Settings Clear Ch12 Data Clear or Hold Settings Clear		Ch7 Data Clear or Hold Settings Clear -	
ChiO Data Clear or Hold Settings Clear ChiI Data Clear or Hold Settings Clear ChiI Data Clear or Hold Settings Clear		Ch8 Data Clear or Hold Settings Clear 💌	
Chil Data Clear or Hold Settings Clear 💌 Chil Data Clear or Hold Settings Clear 💌		Ch9 Data Clear or Hold Settings Clear 💌	
Ch12 Data Clear or Hold Settings		ChiO Data Clear or Hold Settings Clear 💌	
		Chil Data Clear or Hold Settings Clear -	
Chi3 Data Clear or Hold Settings Clear 💌		Ch12 Data Clear or Hold Settings Clear 💌	
		Ch13 Data Clear or Hold Settings Clear 💌	
			~

h. Output signal clear/hold parameter function, module single channel clear and hold function Chx Data Clear or Hold Settings. The premise for the single channel setting to take effect is to change the overall function Module Data Clear or Hold Settings is set to Clear_Hold_By_Channel, then Set the function of each channel, you can choose Clear or Hold ,As shown below.

ROFINET network Controller(CPU ST30_plc200smart) C2S-PN-248V10.00.00-c2s-pn C2S-PN-248(0)	This page allows you to configure each submodule of the selected module.	
IN/OUT(1)	Solidot Development PN-IO Port 1 - R345 Port 2 - R345	
Completion	Setting for Clear/Hold	^
	Module Data Clear or Hold Settings Cleor_Hold_By_Channel	
	Ch0 Data Clear or Hold Settings Clear	
	Chi Data Clear or Hold Settings	
	Ch2 Data Clear or Hold Settings Cleer 💌	
	Ch3 Data Clear or Hold Settings Cleer 💌	
	Ch4 Data Clear or Hold Settings Clear 💌	
	Ch5 Data Clear or Hold Settings Clear 💌	
	Ché Data Clear or Hold Settings Clear 💌	
	Ch7 Data Clear or Hold Settings Clear 💌	
	Ch8 Data Clear or Hold Settings Cleer 💌	
	Ch9 Data Clear or Hold Settings Cleer 💌	
	ChiO Data Clear or Hold Settings Clear 💌	
	Chil Data Clear or Hold Settings Cleer 💌	
	Ch12 Data Clear or Hold Settings Cleer 💌	
	Ch13 Data Clear or Hold Settings Clear 💌	
_		~

i. Click the "Next" button to complete the configuration wizard. Click the "Generate" button to complete the network configuration, as shown in the figure below.

-	Address	overviev							
	Device	Number API	Device N	Module	Slot_Subs	IO Type	Address F	Address To	Size(
	1 1	0	c2s-pn	C2S-PN-24B	0_1	-	-	-	-
	2 1	0	c2s-pn	PNHO	0_32768	-	-	-	-
	3 1	0	c2s-pn	Port 1 - RJ45	0_32769	-	-	-	-
	4 1	0	c2s-pn	Port 2 - RJ45	0_32770	-	-	-	-
	5 1	0	c2s-pn	IN/OUT	1_1	Input	128	139	12
	6 1	0	c2s-pn	IN/OUT	1_1	Output	128	133	6

6. Download program

a. Click "File- > Download" button, a download window will pop up, click the "Download" button, as shown in the figure below.

New Save Previous		Data Page	Memory GSDML Management		
Save Previous Operations 0 Image: Status	Transfer Uproad Comments etwork Comment Ther comment Chert C	t Data Page Print Protection	Memory GSDML Libraries GSDML	AUN No STOP STOP DE RUN	→→+☆⇒ +☆⇒ @•###ki&#</th></tr><tr><td>Call Subrovines</td><th>Sid Sid Signed</th><td>Click for Help and Support</td><td></td><td>Download C</td><td>Xore</td></tr></tbody></table>

b. After the download window prompts that the download has been successfully completed, click the "Close" button.

ownload		>
ownload blocks to CPU Select blocks to download.		
Download completed successfully!		
locks	Options	
F Program Block	Prompt on RUN to STOP	
🖥 Data Block	Prompt on STOP to RUN	
^r System Block	Close dialog on success	
Click for Help and Support	Download	Close

Note: After the download is completed, power on the module again.

7. Functional Verification

a. Click the menu bar "PLC -> RUN" button, a confirmation window will pop up, click "Yes" to confirm, as shown in the figure below.

	Project1 - STEP 7-Micro/WIN SMART
File Edit View	PLC Debug Tools Help
RUN STOP Compile	ad Download Program Information Modify
Main #	
Convert Communications Communications Communications Communications Communications Convert Convert Communications Convert Convert	Image: set of the comment Image: set of the comment

b. Click "Status Chart-> Chart 1", enter the corresponding channel address and data format in Chart
 1, you can modify the module here Perform forced output and input monitoring operations.

- 	•				
PA V					Project1 - STEP 7-Micro/WIN SMART
File Edit View	PLC Debug Tools	Help		-12	
OO A 4		PLC 🔪	😋 Warm Start		
		Compare	🍧 🝓 Set Clock		
	load Download Program	Cle		MAX	
Operations	Transfer Memory care		Modify		
Main 🏨	1				ਤੋਹੋ⊇ੋ੩ਙਙਙਙ≠≠→+↔ਹ□⊙•≝⊻‰2₫
			HHO INSELL * X Delete	- 1 Ma 1 Ma 1 🛄 🗂	
	MAIN × SBR	_0 INT_0			
=- [®] Project1 [®] What's New	<				
CPU ST30	Status Chart				
Program Block			Automation and		
	🛅 • 🎦 • 🗈 🔟 🚺				
Chart 1	Address	Format	Value	New Value	
E Data Block	1 IB128	Hexadecimal	16#7F		
	2 IB129	Hexadecimal	16#FF		
	3 IB130	Hexadecimal	16#00		
🕀 🔀 Wizards	4 IB131	Hexadecimal Hexadecimal	16#00	-	
Tools Instructions	5 IB132 6 IB133	Hexadecimal	16#00 16#00	-	
Favorites	7 IB134	Hexadecimal	16#00	-	
🐵 🥶 Bit Logic	8 IB135	Hexadecimal	16#00		
	9 IB136	Hexadecimal	16#00	-	
Compare	10 IB137	Hexadecimal	16#00		
🗉 🔤 Convert	11 IB138	Hexadecimal	16#00		
e- Counters e- Floating-Point Math	12 IB139	Hexadecimal	16#00		
integer Math	13 QB128	Hexadecimal	16#00		
😟 🧰 Interrupt	14 QB129	Hexadecimal	16#00		
E Logical Operations	15 QB130	Hexadecimal	16#00		
i≘- 🧖 Move ≘- 🚾 Program Control	16 QB131	Hexadecimal	16#00		
B Shift/Rotate	17 OB132	Hexadecimal	16#00		
B Btring	18 QB133	Hexadecimal	16#00		
🗈 🖮 Table 🕢 🔯 Timers	19	Signed			
B B PROFINET	20 21	Signed Signed			
😟 🔟 Libraries	21	algneu			
💼 🔯 Call Subroutines					
	H 4 P H Chart 1				
	🔄 Symbol Table 🔤 Stat	us Chart 🔢 Data Bl	ock		
Row 13, Col 4	INS 🗅 Coni	nected 192.168.0.1	RUN		
		100.0.1	KUN		

c. **Open circuit diagnosis Open load**, the output of the solenoid valve coil in the channel is closed (th at is, 0), the diagnostic value is valid.

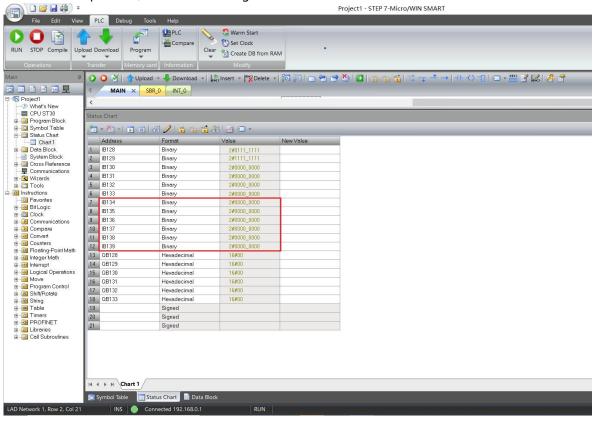
At the "current value" corresponding to IB128~IB133, you can view the solenoid valve open circuit diagnostic value corresponding to each group of channels in the entire valve terminal. If the solenoid valve coils are all normal, it is **0**. If any solenoid valve is open, it is not. **0**.

Switch the display format of IB128~IB133 to binary , you can check the open circuit diagnostic value of each channel solenoid valve. If the value is **1** , the valve is open. A value of **0** is normal. As shown below.

ः जित्ते कि जि	Upload + 🐥 Download +	Holete	- 199 120 - 20 6	🎽 🔁 🔒 🚡 🛣 T	\$ -↓ - ▲ → ++ <> -1 @ •	110 🗹 🔛
New <			,,			
30 Status Chart						
n Block Table	1 🔟 🚳 🥒 🙈 😘 🐮	(AN) 🖂 🗸				
hart Address	Format	Value	New Value			
ck 1 IB128	Binary	2#0111_1111				
ck 2 IB129	Binary	2#1111_1111				
ence 3 IB130	Binary	2#0000_0000				
ons 4 IB131	Binary	2#0000_0000				
5 IB132	Binary	2#0000_0000		-		
6 IB133	Binary	2#0000_0000				
7 IB134	Binary	2#0000_0000				
8 IB135	Binary	2#0000_0000				
ons 9 IB136	Binary	2#0000_0000				
10 IB137	Binary	2#0000_0000				
11 IB138	Binary	2#0000_0000				
t Math	Binary	2#0000_0000				
13 QB128	Hexadecimal	16#00				
14 QB129	Hexadecimal	16#00				
ations 15 QB130	Hexadecimal	16#00				
16 QB131	Hexadecimal	16#00				
ntrol 17 QB132	Hexadecimal	16#00				
18 QB133	Hexadecimal	16#00				
19	Signed					
20	Signed					
21	Signed					

d. Short circuit or overtemperature diagnosis , when the channel solenoid valve coil output is turned on (that is, 1), the diagnostic value efficient. At the " current value" corresponding to IB134~IB139 , You can view the solenoid valve short circuit/over-temperature diagnostic value corresponding to each group of channels in the entire valve terminal . If there is a solenoid valve with a short circuit/over temperature, it will not be 0 , and if there is no short circuit/over temperature, it will be 0 .

Switch the display format of IB134~IB139 to binary, you can view the short circuit/overtemperature diagnostic value of each channel solenoid valve. If the value is **1**, the The solenoid valve has a short circuit/over temperature, and the value is **0** means there is no short circuit/overtemperature, as shown in the figure below.



e.Channel **output control**, if you want any group of solenoid valve coil outputs in the valve terminal to turn on, taking the first group of channels as an example, you can enter "16#FF" in the "New Value" cell of QB128 and click the write button, you can open the first group of solenoid valve coil channels, and other channels open the output method 1 To, as shown below.

•	d Download ransfer Memor		Warm Start	RAM	
Project1 Vhat's New	● ● ④ ① up 1 MAIN × <	oload + 🗣 Download + SBR_0 INT_0	🙀 insert 👻 🙀 Delete	-174 191 🗆 🗧	▝▝▝▏▋▎▖▝▖▝▋▝▏▖▝
CPU ST30 Program Block	tatus Chart				
Symbol Table	* * * - • •	1 6 🖊 👌 🖬 🐮	🕅 📶 🖘 🔹		
Status Chart	Address	Format	Value	New Value	
🚺 Data Block	1 IB128	Binary	2#0111_1111		
System Block Cross Reference	2 IB129	Binary	2#1111_1111		
Cross Reference	3 IB130	Binary	2#0000_0000		
Wizards	4 IB131	Binary	2#0000_0000		
	5 IB132	Binary	2#0000_0000		
structions Favorites	6 IB133	Binary	2#0000_0000		
🗃 Bit Logic	7 IB134	Binary	2#0000_0000		
Clock	8 IB135	Binary	2#0000_0000	_	
- Oommunicourons	9 IB136	Binary	2#0000_0000	_	
	10 IB137 11 IB138	Binary	2#0000_0000		
Countere	11 IB138 12 IB139	Binary Binary	2#0000_0000		
🔠 Floating-Foint Math	13 OB128	Hexadecimal	16#00	16#FF	
	14 QB129	Hexadecimal	16#00	TOWN	
	15 QB130	Hexadecimal	16#00		
Move 🚺	16 OB131	Hexadecimal	16#00		
📶 Program Control	17 QB132	Hexadecimal	16#00		
	18 QB133	Hexadecimal	16#00		
	19	Signed			
Timers	20	Signed			
PROFINET Libraries	21	Signed			

8 FAQ

8.1 When updating accessible devices, the device cannot be found

- 1. Confirm that TIA Portal software is installed correctly.
- 2. Make sure that no other software is occupying the network adapter used by the Porto software.
- 3. Confirm that the network cable, network card, and network port can work normally.
- 4. Check whether the IP address or MAC address conflicts.

8.2 The load button is gray when downloading the configuration.

1. Confirm that there are no forced values in the PLC.

2. Confirm that the PLC is in a stopped state.