

EtherCAT

C2P-EC Series Bus Valve Terminal

User Manual



Nanjing Solidot Electronic Technology Co., Ltd. 2024

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1 Product Introduction

1.1 Product overview

C2P-EC series valve terminal is a control module integrating valve terminal technology and EtherCAT bus technology, through which decentralized control and centralized control of industrial sites can be realized, system design can be optimized, construction can be fast, and debugging, performance testing and diagnostic maintenance of complex systems can be simplified. The product adopts modular structure, occupies little space, the wiring terminal is pluggable, can be quickly wired, simple configuration, support the major mainstream EtherCAT master station, can be widely used in industrial control systems.



1.2 Product Characteristics

- Supports EtherCAT industrial Ethernet protocol
- RJ45 bus interface, support cascade communication
- Maximum support for 24-position dual-control solenoid valves
- Modular structure, small footprint
- Simple wiring, quick construction and easy maintenance
- Support customization, support mainstream solenoid valve, simple and fast selection

• Supports remote diagnosis to reduce troubleshooting difficulties

2 Designation Rules

2.1 Designation Rules

$\frac{C2P}{(1)} - \frac{EC}{(2)} - \frac{24}{(3)} \frac{B}{(4)} - \frac{F01}{(5)}$

Number	Meaning	Description of values							
(1)	Product type	C2P (RJ45 con	inector)						
(2)	Bus protocol	EC: EtherCAT	protocol abbrev	viation					
(3)	Number of	08:	12:	16:	20:	24:			
	solenoid valve	8 positions 12 positions 16 positions 20 positions 24 positions							
	positions								
(4)	Type of	B: Dual electri	c control (comp	atible with sing	le electric conti	rol)			
	electric control								
(5)	Solenoid valve	See solenoid v	See solenoid valve model code table below						
	model code								

Branding	Code	Valve spacing	Range	Supported Solenoid Valve Models
	A01	19	4V1	4V110/ 4V120/ 4V130
	A02	23	4V2	4V210/ 4V220/ 4V230
AirTAC	A04	10.5	7V0	7V0510/ 7V0520/ 7V0530
	A05	16	7V1	7V110/ 7V120/ 7V130
	A06	19	7V2	7V210/ 7V220/ 7V230
	A07	19	5V1	5V110/ 5V120/ 5V130
	A08	23	5V2	5V210/ 5V220/ 5V230
				vuvg-lk10-t32/ vuvg-lk10-m52
	F01	10.5	VUVG-LKTU	vuvg-lk10-B52/ vuvg-lk10-p52
FESTO				vuvg-l10-t32/ vuvg-l10-m52
			VOVG-LIU	vuvg-l10-B52/ vuvg-l10-p52
	F02	16		vuvg-lk14-t32/ vuvg-lk14-m52
			V0VG-LK14	vuvg-lk14-B52/ vuvg-lk14-p52
				vuvg-l14-t32/ vuvg-l14-m52
				vuvg-l14-B52/ vuvg-l14-p52
	\$01	10.5	SA3	SY3120/ SY3220/ SY3320
	501	10.5	515	SY3420/ SY3520
SMC	\$02	16	SV5	SY5120/ SY5220/ SY5320
Sivic	502	10	515	SY5420/ SY5520
	503	10	SV7	SY7120/ SY7220/ SY7320/
	303	19	517	SY7420/ SY7520
	C01	10.5		4GD119R/ 4GD129R/ 4GD139R
CKD		10.5	4001	4GD149R/ 4GD159R
	<u> </u>	16	46D2	4GD219R/ 4GD229R/ 4GD239R
	C02	2 16	4002	4GD249R/ 4GD259R

Solenoid Valve Model Code List :

Note: Valve spacing unit: mm.

2.2 Model List

Model number	Product Description
C2P-EC-08B-()	8-position dual control solenoid valve
C2P-EC-12B-()	12-position dual control solenoid valve
C2P-EC-16B-()	16-position dual-control solenoid valve
C2P-EC-20B-()	20-position dual control solenoid valve
C2P-EC-24B-()	24-position dual-control solenoid valve

Note: () brackets represent solenoid valve model code, support self-selected customization.

Compatibility rules for solenoid valve xml configuration files with different bit numbers: 8-bit

compatible with 6-bit and 4-bit; 12-bit compatible with 10-bit; 16-bit compatible with 14-bit; 20-bit compatible with 18-bit; 24-bit compatible with 22-bit.

3 Product Parameters

3.1 General parameter

Interface parameter	
Bus protocol	EtherCAT
Data transmission	Category 5+ UTP or STP (STP recommended)
medium	
Transmission	≤100 m (station to station)
distance	
Transmission rate	100 Mbps
Bus interface	20RJ45
Technical Parameter	'S
System power	18~36 VDC
supply	
Rated current	30 mA
consumption	
Electrical isolation	500 V
Load power	24 VDC (±25%)
Output points	0~48
Single channel	Max: 250 mA
current	
Power connection	5Pin Pop-Up Terminal Block
method	
Power interface	Support
surge protection	
Power connector	Support
reverse connection	
protection	
Channel short	Support
circuit protection	

Channel open	Support
diagnostics	
Channel short	Support
circuit diagnostics	
Weights	Varies by product model
Sizes	Differences by product model (see <u>5.1 External Dimensions</u> for details)
Operating	-5~+50°C
temperature	
Storage	-20~+75°C
temperature	
Relative humidity	95%, non-condensing
Protection class	IP20

4 Panel

4.1 Product Structure



Name and function description of each part of the product

Number	Name	Description
1	Solenoids	See "Solenoid Valve Model Code List" for details.
2	LED indicator	Indicates power, operation and bus status
3	Power connector	5Pin Pop-Up Terminal Block
4	Bus interface	RJ45, Bus OUT Interface
5	Bus interface	RJ45, Bus IN Interface
6	A ventilation shaft	G1/4
\bigcirc	Air intake	G1/4

8	Communications unit	Valve terminal communication and control body
9	Solenoid valve wiring	4 PIN pop-up terminal block
	socket	
10	Manifold	Valve terminal body with a and b silkscreen on both ends

4.2 Indicator light function

Name	Markings	color	Status	Status Description
System power	US	GREEN	ON	Power supply is normal
indicator			OFF	The product is not powered up or the power
				supply is abnormal
Load power	UL	GREEN	ON	Power supply is normal
indicator			OFF	The product is not powered up or the power
				supply is abnormal
Network	L/A0	GREEN	ON	Establish a network connection
indicator IN			FLASHING	Network connection with data interaction
			OFF	No data interaction or exception
Network	L/A1	GREEN	ON	Establish a network connection
indicator OUT			FLASHING	Network connection with data interaction
			OFF	No data interaction or exception
Operation	RUN	GREEN	ON	Normal operation of the system
status			FLASHING	3Hz: the device is in Pre-OP state
indicator				0.8Hz: device in Safe-OP state
			OFF	Device is in Init or unpowered state
Warning	ERR	RED	ON	Channel shorted (channel must be open to be
indicator				monitored)
			OFF	No short circuits on all channels (channels must be
				open to be monitored)

5 Installation

5.1 External Dimensions

External size (unit mm)



Plug, muffler, port adapters: G1/4

L size											
Number	4	6	8	10	12	14	16	18	20	22	24
of											
position											
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											
Number	4	6	8	10	12	14	16	18	20	22	24
of											
position											
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
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 installation sequence

• Solenoid Valve For Valve Terminal

For details of solenoid valves for valve Terminal, see "2.1 Naming Rules Solenoid Valve Model Code

<u>List</u>".

• Solenoid valve installation sequence

The solenoid valves are installed in order from the communication unit end. Installation order for dual electronically controlled solenoid valve installation: Starting from the communication unit end, install the dual electronically controlled solenoid valve from the 1st position to the Nth position in sequence, and the installation order is shown in the figure below. Installation order of single electronically controlled solenoid valve installation: Starting from the communication unit end, install the single electronically controlled solenoid valve installation: Starting from the 1st position to the Nth position, and the solenoid valve wiring can be done on the A side, and the installation order is shown in the figure below.



6 Wiring

6.1 Solenoid valve wiring

Valve Terminal Terminal Distribution

The valve terminal terminals are distributed on both sides of the valve terminal manifold, respectively, side A and side B. Side A and side B can be distinguished according to the silkscreen on the end of the valve terminal manifold. Take valve terminal C2P-EC-24B-F02 as an example, the distribution of A-side and B-side terminals is shown in the figure below.



The solenoid valve wiring terminal adopts screw-free design, and the installation and removal of cables can be operated with a screwdriver (specification: ≤ 2 mm).

Stripped Wire Length Requirements

Recommended cable stripping length for solenoid valve wiring terminals 10 mm

Wiring Method

For single stranded hard wires, after stripping the corresponding length of wire, press down the button while inserting the single stranded wire.

Multi-stranded flexible wires, after stripping the corresponding length of wire, can be directly connected or supporting the use of

the corresponding standard specifications of the cold compression end (tube-type insulated terminal, the reference specifications are shown in the table below), press down the button at the same time the line will be inserted.

Tube Insulation End Specification Sheet							
specification	model number	Cross-sectional area of					
		conductor mm ²					
	E0310	0.3					
L'IL	E0510	0.5					
	E7510	0.75					





Tube insulated terminal L with a length of 10 mm	E1010	1.0

• Solenoid valve wiring

For different types of valve Terminal, 4Pin sockets with corresponding positions are configured on both sides of the manifold, and a set of "+" and "-" of the sockets can drive a solenoid valve coil. As shown in the figure below, A1 and A2 can drive one solenoid valve coil respectively.



• Valve Terminal Wiring

Starting from the communication unit end, the solenoid valve coils on the A and B sides of the manifold correspond one to the other, and the correspondence between the channels and the solenoid valve coils is shown in the figure below.



Solenoid valve wiring principles:

- Install the solenoid valve in accordance with "5.2 Solenoid Valve Installation Sequence".
- AX and BX can be connected to a double electric solenoid valve, and AX can be connected to a single electric solenoid valve. For wiring, please strictly follow the table below, otherwise the solenoid valves will not work or malfunction. "X" means no wiring.

Dual control solenoid valve wiring (all valve pieces are dual control solenoid valves)											
terminals	A1	B1	A2	B2	A3	B3	A4	B4			
Solenoid	1	l		2	3	3	4	ŀ			
Valve No.											

terminals	 A22	B22	A23	B23	A24	B24
Solenoid Valve	 2	2	2	3	2	4
No.						

Note: This example takes C2P-EC-24B-() valve terminal, 24-position dual-control solenoid valve as an example, the rest of the different specifications of the valve terminal, there are differences in wiring.

Dual-control s	Dual-control solenoid valve wiring (all access valve pieces are single-control solenoid valves)										
terminals	A1	B1	A2	B2	A3	B3	A4	B4			
Solenoid	1	\times	2	\times	3	\times	4	\times			
Valve No.											

terminals	 A22	B22	A23	B23	A24	B24
Solenoid Valve	 22	×	23	\times	24	\times
No.						

Note: This example to C2P-EC-24B-() valve terminal, only access to the single control solenoid valve as an example, the rest of the different specifications of the valve terminal, wiring differences.

6.2 Power Wiring

Power supply terminal S indicates the system power supply, L indicates the load power supply, wiring method and solenoid valve wiring method is consistent with the silkscreen and power parameters can be wired against the power supply, power supply 5P terminal as shown in the following figure:





Precautions

• The module system-side power supply and the field-side power supply are configured and used separately, so do not mix them.

• PE needs to be reliably grounded.

6.3 Bus Wiring

The bus interface uses an RJ45 connector as shown below:



Precautions

- Adopt standard RJ45 network interface with standard crystal connector.
- The length of the cables between the devices must not exceed 100 m.

7 Operation

7.1 Control Method

Valve terminal solenoid valve control byte way, a byte control 4 valves; at the same time can be controlled in accordance with the bit way, a group of 8 position, control 1->8 channels, the channel value of 1 is the corresponding solenoid valve is open, the channel value of 0 is the corresponding solenoid valve is closed. 24-position dual-control solenoid valves have a total of 6 groups of control positions, a total of 48 channel control. Take 24-position dual-control solenoid valve as an example to introduce the output control function of the valve terminal, the control mode is shown in the table below.

Control		valve[14]								
method										
Channel	valve	valve	valve	valve	valve	valve	valve	valve		
address	[14] [0]	[14] [1]	[14] [2]	[14] [3]	[14] [4]	[14] [5]	[14] [6]	[14] [7]		
Transform	۸ 1	D1	4.2	20	4.2	са		D4		
ers	AI	DI	AZ	DZ	AS	CO	A4	D4		
Solenoid		1		2		0		4		
Valve No.		I	4	2		0		+		

Control method				valve	[58]						
Channel	valve										
address	[58] [0]	[58] [1]	[58] [2]	[58] [3]	[58] [4]	[58] [5]	[58] [6]	[58] [7]			
Transform	٨٥	R2	۸6	RG	۸7	R7	٨٩	RQ			
ers	AJ	60	AU	DO	A/	D7	Ao	БО			
Solenoid											
Valve No.))		1		0			

Control		valve [912]									
Channel	valve	valve	valve	valve	valve	valve	valve	valve			
Transform	<u>[912]</u> [0]	[912][1] BQ	[912] [2]	B10	Δ11	B11	Δ12	[912][7] B12			
ers	A.J	65		БТО				012			
Solenoid Valve No	9	9 10 11 12									

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

Control		valve[1720]									
method											
Channel	valve	valve	Valve	valve	valve	valve	valve	valve			
address	[1720] [0]	[1720] [1]	[1720] [2]	[1720] [3]	[1720] [4]	[1720] [5]	[1720] [6]	[1720] [7]			
Transform	A17	D17	A 1 Q	D10	A10	P10	420	P 20			
ers	AI7	DI/	AIO	DIO	AIS	019	AZU	D2U			
Solenoid	1										
Valve No.		1		0		9	2	U			

Control		valve [2124]									
method											
Channel	valve	valve	valve	valve	valve	valve	valve	valve			
address	[2124] [0]	[2124] [1]	[2124] [2]	[2124] [3]	[2124] [4]	[2124] [5]	[2124] [6]	[2124] [7]			
Transform	A 21	P.21	422	622	A 22	D 22	A 2 4	D.2.4			
ers	AZI	DZI	AZZ	DZZ	AZS	DZ3	AZ4	DZ4			
Solenoid	2										
Valve No.	2	.1	2	2	2	5	2	4			

7.2 Diagnostic Function

The C2P-EC valve terminal has an open circuit diagnostic (Open load) and a short circuit or overtemperature diagnostic (Short circuit or overtemperature). An open circuit can only be monitored if the valve is closed and a short circuit can only be monitored if the valve is open.

The diagnostic function is the same as the control mode and also sends diagnostic information in Byte or bit. If the valve is closed, the diagnostic message Open load is normal if the value is 0, and 1 means the corresponding valve is open. Under the premise of valve opening, valve short circuit or overtemperature diagnostic information Short circuit or overtemperature value is 0 is normal, 1 represents the corresponding valve short circuit/overtemperature.

The channel diagnostic information and solenoid valve correspondence for Open load and Short circuit or overtemperature diagnostics are the same, taking Open load diagnostics as an example, the correspondence is shown in the table below.

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

Note: Open load is abbreviated as Open in the table, the same below.

Diagnostic		Open load[815]									
function											
Channel address	Open [815] [0]	Open [815] [1]	Open [815] [2]	Open [815] [3]	Open [815] [4]	Open [815] [5]	Open [815] [6]	Open [815] [7]			
Transformers	A5	B5	A6	B6	A7	B7	A8	B8			
Solenoid		5	6	5	-	7	8				
Valve No.											
Diagnostic				Open lo	oad[1623]						
function											
Channel address	Open [1623] [0]	Open [1623] [1]	Open [1623] [2]	Open [1623] [3]	Open [1623] [4]	Open [1623] [5]	Open [1623] [6]	Open [1623] [7]			
Transformers	A9	B9	A10	B10	A11	B11	A12	B12			
Solenoid Valve No.		9	10		11		12				

Diagnostic 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]	
Transformers	A13	B13	A14	B14	A15	B15	A16	B16	
Solenoid Valve No.		13	1	4	1	5	1	6	

Diagnostic function				Open lo	ad [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]
Transformers	A17	B17	A18	B18	A19	B19	A20	B20
Solenoid		17 18		8	19		20	
Valve No.								

Diagnostic 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]		
Transformers	A21	B21	A22	B22	A23	B23	A24	B24		
Solenoid Valve No.		21	2	22 23		3	24			

7.3 Parameter description

7.3.1 Output signal clear/hold function

The Clear/Hold function is for the output signal of the valve terminal, and 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.

Hold Output: The valve terminal output channel keeps on outputting when communication is disconnected.

The function supports full-channel setting, single-channel setting and 8-channel batch setting according to the driver chip grouping, which can better meet the actual use requirements.

This manual takes TwinCAT3 as an example to introduce the parameter configuration method, the specific steps are detailed in <u>7.4.1 Parameter Configuration</u>.

7.4 Configuration Module Applications

7.4.1 Application in TwinCAT3 software environment

1. Preliminary

- Hardware Environment
 - > Valve Terminal Model C2P-EC-24B
 - > A computer with pre-installed TwinCAT3 software
 - > Shielded cable for valve terminal
 - > One switching power supply
 - Device Configuration Files
 Configuration file access: https://www.solidotech.com/documents/configfile

Hardware configuration and wiring

Please follow "5 Installation" and "6 Wiring".

2、 Preset Profiles

Place the ESI configuration file (C2P-EC_V1.0.1.xml) in the TwinCAT installation directory under "C:\TwinCAT\3.1\Config\lo\EtherCAT" as shown below.

> 此电脑 > Windows (C:) > TwinCAT > 3.1 > Config > Io > EtherCAT ~~~							
名称 ^	~ 修改日期	类型	大小				
Deckholi EPP7XXXXIII	2010/12/22 10.3/	AIVIL ×怕	1,400 ND				
Beckhoff EQ1xxx.xml	2015/11/12 14:24	XML文档	22 KB				
Beckhoff EQ2xxx.xml	2016/11/23 10:42	XML文档	73 KB				
Beckhoff EQ3xxx.xml	2016/11/22 11:22	XML 文档	1,386 KB				
Beckhoff ER1xxx.XML	2016/11/21 15:46	XML 文档	165 KB				
Beckhoff ER2xxx.XML	2016/11/21 14:32	XML文档	259 KB				
Beckhoff ER3xxx.XML	2017/6/9 13:35	XML文档	1,177 KB				
Beckhoff ER4xxx.xml	2016/11/22 12:58	XML文档	318 KB				
Beckhoff ER5xxx.xml	2016/3/14 11:52	XML文档	273 KB				
Beckhoff ER6xxx.xml	2016/3/14 11:52	XML文档	494 KB				
Beckhoff ER7xxx.xml	2016/11/22 12:14	XML文档	1,503 KB				
Beckhoff ER8xxx.xml	2016/3/14 11:52	XML文档	207 KB				
Beckhoff EtherCAT EvaBoard.xml	2015/2/4 12:57	XML文档	72 KB				
Beckhoff EtherCAT Terminals.xml	2015/2/4 12:57	XML文档	53 KB				
Beckhoff FB1XXX.xml	2017/5/24 12:26	XML文档	49 KB				
Beckhoff FCxxxx.xml	2015/2/4 12:57	XML文档	21 KB				
Beckhoff ILxxxx-B110.xml	2015/2/4 12:57	XML文档	8 KB				
C2P-EC_V1.0.1.xml	2023/5/29 11:24	XML文档	72 KB				

3、 Create Project

a. Click on the TwinCAT icon in the lower right corner of the desktop and select "TwinCAT XAE (VS xxxx)" to open the TwinCAT software, as shown below.



b. Click "New TwinCAT Project", in the pop-up window, "Name" and "Solution name" correspond to the project name and solution name respectively. In the pop-up window, "Name" and "Solution name" correspond to the project name and solution name, respectively, and "Location" corresponds to the project path, and these three items can be selected by default, then click "OK", the project is created successfully, as shown in the following figure.

New TwinCAT Pr	roject	Get Started	Beckhoff Ne	ews	
New Measurem	ent Project	A second		What's New in T	winCAT 3
New Project					? ×
▶ Recent		.NET Framework 4.5 - Sort b	y: Default	• II' 🗉	Search Installed 👂
 Installed Templates Other Project TwinCAT Mea TwinCAT PLC TwinCAT Proj Samples Online 	t Types asurement jects	TwinCAT XAE Projec Tw	vinCAT Projects	Type: TwinCAT F TwinCAT XAE Sys Configuration	Projects tem Manager
Name:	TwinCAT Project	:t1			
Location:	D:\workspace\	TwinCAT Project	•	Browse	
Solution name:	TwinCAT Project	t1		Create directory	for solution
					OK Cancel

×

4、 Scanning device

a. After creating the project, right-click on the "Scan" option under "I/O -> Devices" to perform a slave device scan, as shown in the following figure.



b. Check the "Local Connection" box, as shown in the following figure.
 1 new I/O devices found

②Device 2 (EtherCAT) [以太网 (Realtek PCIe GbE Family Controller)]	ОК
	Cancel
	Select All
	Unselect All
	-

c. Click on the pop-up window "Scan for boxes" and select "Yes"; click on the pop-up window "Activate Free Run" and select "Yes", as shown in the figure below.

Microsoft Visual Studio			Microsoft Visual Stu	udio		
Scan for bo	oxes		? Activate Fr	ee Run		
是(Y)	否(N)		是(Y)	否(N)		

d. After scanning to the device, you can see Box1 (C2P-EC) -> Module1 (C2P-EC-24B) in the left navigation tree, double-click on the device, and you can see the device is in the "OP" state at "Online". Double click on the device, you can see the device is in "OP" state at "Online", and you can observe that the RUN light of the slave device is always on, as shown in the figure below.

Solution Explorer - 🗸 X	TwinCAT Project1	÷×			
○ ○ 습 `o - ฮ ₽ <mark></mark>	General EtherC	AT Proces	s Data Slots St	tartup CoE - Online Onlir	ie
Search Solution Explorer (Ctrl+;)	State Machin	10			
 Solution 'TwinCAT Project1' (1 project) TwinCAT Project1 	Init		Bootstrap		OP
SYSTEM MOTION MOTION M	Pre-Op		Safe-Op	Current State:	OP
PLC SAFETY	Op		Clear Error		
 C++ ✓ I/O ✓ During 	DLL Status				
 Devices Device 2 (EtherCAT) 	Port A: Carrier / Open				
timage	Port B:	No Car	rier / Closed		
SyncUnits	Port C:	No Carrier / Closed			
 Inputs Outputs InfoData 	Port D:	No Car	rier / Closed		
 Box 1 (C2P-EC) Module 1 (C2P-EC-24B) WcState InfoData Mappings 	File Access o	ver EtherCa	AT Upload		

5、 View Feature Page

a. Valve Terminal Output Control Page

Click "Outputs" option in the left navigation tree "Box1 (C2P-EC) -> Module1 (C2P-EC-24B)" to expand the menu, you can view the output control function page of the valve terminal, 24-position dual-controlled Solenoid valve, according to the driver chip grouping, a total of 6 groups of channels, valve[1..4], valve[5..8], valve[9..12], valve[13..16], valve[17..20], valve[21..24], each group of 8 channels, a total of 48 channels output control, as shown below.

Solution Explorer 👻 🕈 🗙	TwinCAT Project1	₽ X						
Solution Explorer	TwinCAT Project1 Name Pralve[1.4] Valve[5.8] Valve[9.12] Valve[13.16] Valve[17.20] Valve[21.24]		Type BITARR8 BITARR8 BITARR8 BITARR8 BITARR8 BITARR8	Size 1.0 1.0 1.0 1.0 1.0 1.0	>Address 39.0 40.0 41.0 42.0 43.0 44.0	In/Out Output Output Output Output Output	User ID 0 0 0 0 0 0	Linked to
 Device 2 (EtherCAT) Image Image-info SyncUnits Inputs Outputs InfoData ID Box 1 (C2P-EC) Image InfoData ID Uty Is Inputs Outputs Outputs Outputs Valve[1.4] Valve[1.4][1] Valve[1.4][2] Valve[1.4][3] Valve[1.4][5] Valve[1.4][5] Valve[1.4][6] Valve[1.4][6] Valve[1.4][7] Valve[1.2] Valve[1.3]6] Valve[1.3.16] Valve[1.3.20] 								
 								

b. Valve Terminal Diagnostics Function Page

Click the "Inputs" option in the "Box1 (C2P-EC) -> Module1 (C2P-EC-24B)" expanding menu on the left navigation tree to view the Diagnostic Functions page for the valve terminal.

Open circuit diagnostics Open 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 diagnosed independently. **Short circuit/overtemperature diagnosis** Short circuit or overtemperature[0..7], Short circuit or overtemperature[8..15], Short circuit or overtemperature[16..23], Short circuit or overtemperature[24..31], Short circuit or overtemperature[32..39], Short circuit or overtemperature[40..47], and 48 channels can be diagnosed independently, as shown below.

Solution Explorer 👻 👎 >	TwinCAT Project1 🔹 🗙							
000 10-0 10-0	Name	Online	Туре	Size	>Address	In/Out	User ID	Linked to
Search Solution Evolorer (Ctrl+1)	Popen load[07]	0x0 (0)	BITARR8	1.0	39.0	Input	0	
	Popen load[815]	0x2 (2)	BITARR8	1.0	40.0	Input	0	
Solution 'TwinCAT Project1' (1 project)	Popen load[1623]	0x0 (0)	BITARR8	1.0	41.0	Input	0	
IwinCAT Project1	Popen load[2431]	0x0 (0)	BITARR8	1.0	42.0	Input	0	
P SYSTEM	Popen load[3239]	0x0 (0)	BITARR8	1.0	43.0	Input	0	
	Popen load[4047]	0x0 (0)	BITARR8	1.0	44.0	Input	0	
SAFETY	Short circuit or overtemperature[07]	0x0 (0)	BITARR8	1.0	45.0	Input	0	
SALETT	Short circuit or overtemperature[815]	0x0 (0)	BITARR8	1.0	46.0	Input	0	
▲ 🔁 1/0	Short circuit or overtemperature[1623]	0x0 (0)	BITARR8	1.0	47.0	Input	0	
Devices	Short circuit or overtemperature[2431]	0x0 (0)	BITARR8	1.0	48.0	Input	0	
🔺 🗯 Device 2 (EtherCAT)	Short circuit or overtemperature[3239]	0x0 (0)	BITARR8	1.0	49.0	Input	0	
📲 Image	Short circuit or overtemperature[4047]	0x0 (0)	BITARR8	1.0	50.0	Input	0	
📲 Image-Info								
SyncUnits								
Inputs								
Outputs								
P InfoData								
A DE Module 1 (C2P-EC-24B)								
 Øpen load[07] 	1							
✓ Open load[07][0]								
Open load[07][1]								
Open load[07][2]								
Open load[07][3]								
Open load[07][4]								
Open load[07][5]								
• Open load[0/][6]								
Open load[07][7]								
Deen load[6,15]								
b The Open load [24, 31]								
Open load[32,39]								
Open load[40,47]								
Short circuit or overtemperature[07]								
Short circuit or overtemperature[815]								
Short circuit or overtemperature[1623]								
Short circuit or overtemperature[2431]	1							
Short circuit or overtemperature[3239]								
Short circuit or overtemperature[4047]	1							
P Uutputs	1							
P WCState								
Mappings								
i mappings								

6、 Data Interaction

a. Channel Output Control

If you want to turn on any solenoid coil output of the valve terminal, take the first channel as an example, you can click "valve[1..4] -> valve[1..4][0]" under Outputs in the left navigation tree, click "Write" at the corresponding "Online", enter the value "**1**" at the corresponding "Dec" in the dialog box, and click the "OK" button. you can open the first solenoid coil channel, as shown in the figure below.



If you want to control the output of a group of solenoid valve coils, take the first group of channels as an example, you can click "valve[1...4]" under Outputs in the navigation tree on the left side, and then click "Write" in the corresponding "Online", enter the value "255" at "Dec" in the corresponding dialog box, and then click "OK" to open the first group of solenoid valve coil channels, as shown in the figure below.



b. Open circuit diagnostic function

The diagnostic value of Open load is valid when the output of channel solenoid coil is off (i.e. 0). Click "Box1(C2P-EC)-> Module1(C2P-EC-24B)" to expand the "Inputs" option in the menu, and then in the right side of the "Online" corresponding to Open load, you can check the open solenoid valve value corresponding to each group of channels in the valve terminal as a whole. A group of channels with normal solenoid valve coils is **0**, and any solenoid valve with an open circuit is not **0**, as shown in the figure below.

Solution Explorer - 🗘 🗙	TwinCAT Project1 😐 🗙							
0 0 Q 0 - 0 4 -	Name	Online	Туре	Size	>Address	In/Out	User ID	Linked to
Search Solution Explorer (Ctrl+1)	Popen load[07]	0x0 (0)	BITARR8	1.0	39.0	Input	0	
	Popen load[815]	0x0 (0)	BITARR8	1.0	40.0	Input	0	
Solution 'TwinCAT Project1' (1 project)	Popen load[1623]	0x0 (0)	BITARR8	1.0	41.0	Input	0	
TwinCAT Project1	Popen load[2431]	0x0 (0)	BITARR8	1.0	42.0	Input	0	
P SYSTEM	Popen load[3239]	0x0 (0)	BITARR8	1.0	43.0	Input	0	
PLC	Popen load[4047]	0x0 (0)	BITARR8	1.0	44.0	Input	0	
SAFETY	Short circuit or overtemperature[07]	0x0 (0)	BITARR8	1.0	45.0	Input	0	
C++	Short circuit or overtemperature[815]	0x0 (0)	BITARR8	1.0	46.0	Input	0	
▲ 📴 I/O	Short circuit or overtemperature[16_23]	0x0 (0)	BITARR8	1.0	47.0	Input	0	
Devices	Short circuit or overtemperature[2431]	0x0 (0)	BITARR8	1.0	48.0	Input	0	
🔺 🗯 Device 2 (EtherCAT)	Short circuit or overtemperature[3239]	0x0 (0)	BITARR8	1.0	49.0	Input	0	
🛟 Image	Short circuit or overtemperature[4047]	0x0 (0)	BITARR8	1.0	50.0	Input	0	
🛟 Image-Info								
SyncUnits								
Inputs								
Dutputs								
A CD Box 1 (C2P-EC)								
Menuel (C2P-EC-24B)								
Open load[07]	1							
Øpen load[815]								
Øpen load[1623]								
Øpen load[2431]								
Open load[3239]								
Open load[4047]								
P Short circuit or overtemperature[07]								
 Short circuit or overtemperature[16, 23] Short circuit or overtemperature[16, 23] 								
Short circuit or overtemperature[74,31]								
Short circuit or overtemperature[32, 39]								
Short circuit or overtemperature[40.47]								
Outputs								
WcState								
👂 🛄 InfoData								
Contract Con								
	-							

Expand a set of Open loads in the left navigation tree and click on any channel to view the open diagnostic value of the solenoid valve. For example, click the folding symbol to expand Open load[0..7], click Open load[0..7][0], check the Value value of "Online" on the right side, if the value is **1**, then the valve is open-circuited, and if the value is **0**, then it is normal, as shown in the following figure.



c. Short circuit/over temperature diagnostic function

Short circuit or overtemperature diagnostics are valid when the channel solenoid coil output is on (i.e. 1). Click the "Inputs" option in the "Box1 (C2P-EC) -> Module1 (C2P-EC-24B)" expanding menu, and at the "Online" on the right side of Short circuit or overtemperature , you can check the diagnostic value of the solenoid valve short circuit/overtemperature corresponding to each group of channels of the valve terminal as a whole, and the value will not be **0** if there is a solenoid valve with a short circuit/overtemperature, and it will be **0 if** there is not a short circuit/overtemperature, as shown in the figure below.

Solution Explorer 👻 🕂 🗙	TwinCAT Project1 🛥 🗙							
000 0-0 4-	Name	Online	Туре	Size	>Address	In/Out	User ID	Linked to
Search Solution Explorer (Ctrl+1)	P Open load[07]	0x0 (0)	BITARR8	1.0	39.0	Input	0	
	P Open load[815]	0x0 (0)	BITARR8	1.0	40.0	Input	0	
Solution 'TwinCAT Project1' (1 project)	Popen load[16.23]	0x0 (0)	BITARR8	1.0	41.0	Input	0	
TwinCAT Project1	Popen load[2431]	0x0 (0)	BITARR8	1.0	42.0	Input	0	
P G SYSTEM	Open load[3239]	0x0 (0)	BITARR8	1.0	43.0	Input	0	
MOTION	Open load[4047]	0x0 (0)	BITARR8	1.0	44.0	Input	0	
PLC	Short circuit or overtemperature[07]	0x0 (0)	BITARR8	1.0	45.0	Input	0	
SALETT SALETT	Short circuit or overtemperature[815]	0x0 (0)	BITARR8	1.0	46.0	Input	0	
	Short circuit or overtemperature[1623]	0x0 (0)	BITARR8	1.0	47.0	Input	0	
A The Devices	Short circuit or overtemperature[2431]	0x0 (0)	BITARR8	1.0	48.0	Input	0	
Device 2 (EtherCAT)	Short circuit or overtemperature[3239]	0x0 (0)	BITARR8	1.0	49.0	Input	0	
🚼 Image	Short circuit or overtemperature[4047]	0x0 (0)	BITARR8	1.0	50.0	Input	0	
Image-Info								
SyncUnits								
Inputs								
Outputs								
InfoData								
Box 1 (C2P-EC)								
Module 1 (C2P-EC-24B)								
A per loadi0 71								
Den load[0.7]								
Dren load[16,23]								
Open load[24,31]								
Open load[32, 39]								
Open load[40.47]								
Short circuit or overtemperature[07]								
Short circuit or overtemperature[815]								
Short circuit or overtemperature[1623]								
Short circuit or overtemperature[2431]								
Short circuit or overtemperature[3239]								
Short circuit or overtemperature[40.47]								
Outputs								
P 🔛 WcState								
P 🔚 InfoData								
Mappings								

Expand the Short circuit or overtemperature group in the left navigation tree and click on any channel to view the short circuit/over temperature diagnostic values for the solenoid valve. For example, click the collapse symbol to expand Short circuit or overtemperature[0..7], click Short circuit or overtemperature[0..7][0], check the Value in the "Online" on the right side. If the value is **1**, then the solenoid valve is short circuit/over temperature, if the value is **0**, then the solenoid valve is not short circuit/over temperature, as shown in the following figure.



7. Parameter Configuration Method

a. After scanning the valve terminal in TwinCAT3 software, click "Box1 (C2P-EC) -> Module1 (C2P-EC-24B)" in the left navigation tree, and then click "Startup" in the right configuration interface. And then click the "New" button at the bottom to enter the "Edit CANopen Startup Entry" interface, as shown in the figure below.

<ps> CoE 0xf030 C 0 01 00 06 20 00 00 download slot cfg PS CoE 0x8000:01 Hold (1) BusFauk (Lear/Hold PS CoE 0x800:00 No01 (1) Clear/Hold[0.7] PS CoE 0x820:00 0x00 (0) Clear/Hold[16.15] PS CoE 0x820:00 0x00 (0) Clear/Hold[16.23] PS CoE 0x820:00:0 0x00 (0) Clear/Hold[24.31] PS CoE 0x820:00:0 0x00 (0) Clear/Hold[24.31] PS CoE 0x820:00:0 0x00 (0) Clear/Hold[24.31] PS CoE 0x820:00:0 0x00 (0) Clear/Hold[40.47] PS CoE 0x820:00:0 0x00 (0) Clear/Hold[40.47]</ps>	ansition	Protocol	Index	Data	Comment	
PS CoE 0x8000-01 Hold (1) BusFault Clear/Hold PS CoE 0x8200-02 0x01 (1) Clear/Hold[0.7] PS CoE 0x8200-02 0x00 (0) Clear/Hold[1.5] PS CoE 0x8200-02 0x00 (0) Clear/Hold[1.5] PS CoE 0x8200-03 0x00 (0) Clear/Hold[24.31] PS CoE 0x8200-05 0x00 (0) Clear/Hold[32.39] PS CoE 0x8200-06 0x00 (0) Clear/Hold[40.47] PS CoE 0x8200-06 0x00 (0) Clear/Hold[40.47]	<ps></ps>	CoE	0xE030 C 0	01 00 06 20 00 00	download slot cfg	
PS CoE 0x8200:01 0x01 (1) Clear/Hold[0.7] PS CoE 0x8200:02 0x00 (0) Clear/Hold[8.15] PS CoE 0x8200:03 0x00 (0) Clear/Hold[42.33] PS CoE 0x8200:05 0x00 (0) Clear/Hold[42.33] PS CoE 0x8200:05 0x00 (0) Clear/Hold[32.39] PS CoE 0x8200:06 0x00 (0) Clear/Hold[40.47]	PS	CoE	0x8000:01	Hold (1)	BusFault Clear/Hold	
PS CoE 0x8200:02 0x00 (0) Clear/Hold[8.15] PS CoE 0x8200:03 0x00 (0) Clear/Hold[42.31] PS CoE 0x8200:00 0x00 (0) Clear/Hold[24.31] PS CoE 0x8200:00 0x00 (0) Clear/Hold[32.39] PS CoE 0x8200:00 0x00 (0) Clear/Hold[40.47]	PS	CoE	0x8200:01	0x01 (1)	Clear/Hold[07]	
PS CoE 0x8200:03 0x00 (0) Clear/Hold[16.23] PS CoE 0x8200:05 0x00 (0) Clear/Hold[24.31] PS CoE 0x8200:05 0x00 (0) Clear/Hold[40.39] PS CoE 0x8200:06 0x00 (0) Clear/Hold[40.47] PS CoE 0x8200:06 0x00 (0) Clear/Hold[40.47]	PS	CoE	0x8200:02	0x00 (0)	Clear/Hold[815]	
PS CoE 0x8200:04 0x00 (0) Clear/Hold[24.31] PS CoE 0x8200:05 0x00 (0) Clear/Hold[32.39] PS CoE 0x8200:06 0x00 (0) Clear/Hold[40.47]	PS	CoE	0x8200:03	0x00 (0)	Clear/Hold[1623]	
PS CoE 0x8200:05 0x00 (0) Clear/Hold[32.39] PS CoE 0x8200:06 0x00 (0) Clear/Hold[40.47]	PS	CoE	0x8200:04	0x00 (0)	Clear/Hold[2431]	
PS CoE 0x8200:06 0x00 (0) Clear/Hold[40.47]	PS	CoE	0x8200:05	0x00 (0)	Clear/Hold[3239]	
	PS	CoE	0x8200:06	0x00 (0)	Clear/Hold[4047]	

b. In the "Edit CANopen Startup Entry" interface, you can see the setting parameters 8000:0 and 8200:0. After expanding the parameters, 8000:0 is the function of setting parameters for all channels uniformly, and 8200:0 is the function of setting parameters for a single channel or a group of channels, as shown in the following figure.

Transil □ I -> ☑ P -: □ S -:	ion P >S [>O [_ S → P _ O → S	Index (hex): Sub-Index (dec):	8000	e Access	OK Cancel
) ata (he	xbin):	02 00 00 00				Hex Edit
/alidate Commer	Mask: I t	BusFault_Clear/H	fold			Edit Entry.
Index		Name		Flags	Value	
E 800	0:0	BusFault_Output		RW	>1<	
L.,	8000:01	BusFault_Clear/Ho	old	RW	Set by 8200 (2)	
E 820	0:0	channel clear/hold	1	RW/	> 6 <	
	8200:01	Clear/Hold[07]		RW	0xFF (255)	
	8200:02	Clear/Hold[815]		BW	0x00 (0)	
	8200:03	Clear/Hold[1623]	1	RW	0x00 (0)	
	8200:04	Clear/Hold[2431]		RW	0x00 (0)	
	8200:05	Clear/Hold[3239]		RW	0x00 (0)	
	8200:06	Clear/Hold[4047]		RW	0x00 (0)	
	30:0	Configured Module	e Ident List	RW		

c. In the "Edit CANopen Startup Entry" interface, double click "8000:01 BusFault_Clear/Hold", select "Clear" or "Hold" in the "Set Value Dialog" interface, click "OK" button to complete the setting, as shown in the figure below. After the configuration is completed, you need to perform the "Reload" operation for the settings to take effect. If you want to set single channel or group setting, select "Set by 8200", then 8000 will not take effect, and 8200 settings will take effect.

Transition $\square I \rightarrow P$ $\square P \rightarrow S$ $\square S \rightarrow 0$	_ S → P _ O → S	Index (hex): Sub-Index (dec):	8000 1 Complete Ac			OK Cancel
Data (hexbin): /alidate Mask:	Set Value Dia	alog			×	Hex Edit
Tommont	Dec:	0		0	K	Edit Entry
Johnnenit.	Hex:	0x00000000		Car	ncel	
Index	Enum:	Clear		~		
Ė - 8000:0 ⊑ 8000:01		Clear Hold Set by 8200				
E 8200:0	Bool:	9 1	_	нех	Edit	
8200:01	Binary:	00 00 00 00			4	
8200:02 8200:03	Bit Size:	01 08 016	● 32 ○ 64	0?		
8200:05	Clear/Hold[3239	1	BW	0x00 (())	
8200:06	Clear/Hold[4047	1	RW	0x00 ((0)	
E020-0	Configured Modul	e Ident List	RW			

d. When "8000:01 BusFault_Clear/Hold" is set to "Set by 8200", you can set the clear/hold function for single channel or group. For example, to set the clear/hold function of channel 0~7, in the "Edit CANopen Startup Entry" interface, double click "8200:01 Clear/Hold[0...7]" in the "Set Value Dialog" interface, and then enter the value in the input box corresponding to "Dec", a value of 1 for the channel will enable the hold function, and a value of 0 will enable the clear function. If you input 1, only channel [0] will enable the hold function; if you input 255, channel [0...7] will enable the hold function, and so on for the other 5 groups of channels.

When the settings are complete, click the "OK" button to finish the settings, as shown in the following figure. After the configuration is completed, you need to perform the "Reload" operation for the settings to take effect.

Transition □ I -> P ☑ P -> S [□ S -> 0 []S→P]O→S	Index (hex): Sub-Index (dec) Ualidate	8200 1 Complete	e Access	OK Cancel
Data (hexbin): Validate Mask:	Set Value	Dialog		×	Hex Edit
Comment	Dec:	255		OK	Edit Entru
sommork.	Hex:	0xFF		Cancel	Edit Eritiy
Index	Float:			-	
E 8200:0	Bool:	Q	1	Hex Edit	
	Binary:	FF			
8200:03 8200:04	Bit Size:	○1 ●8 ○	16 () 32 ())64 () ?	
8200:05	Clear/Hold[32.	.39]	RW	0x00 (0)	
8200:06	Clear/Hold[40.	.47]	RW	0x00 (0)	
€ F030:0	Configured Mo	dule Ident List	RW		
<					

7.4.2 Application in Sysmac Studio software environment

- 1. Preliminary
 - Hardware Environment
 - > Valve terminal Model C2P-EC-24B
 - > One computer with Sysmac Studio software pre-installed
 - One Omron PLC
 This description is based on model NX1P2-9024DT as an example.
 - Shielded cable for valve terminal
 - > One switching power supply
 - Device Configuration Files
 Configuration file access: https://www.solidotech.com/documents/configfile
 - Hardware configuration and wiring
 Please follow "<u>5 Installation</u>" and "<u>6 Wiring</u>".

2、Set IP

Set the IP address of PC and PLC to make sure they are in the same network segment. If the IP of PLC is unknown, you can check it in "Configuration and Setup -> Controller Setup -> Built-in EtherNet/IP Port Settings" after creating the project, as shown in the figure below.



3、 New project

a. Open Sysmac Studio software, click "New Project", as shown in the following figure.

Sysmac Studio (64bit)				-	×
Offline	Project P	roperties			
🗁 <u>O</u> pen Project	Author	29719			
≝ [₽] <u>I</u> mport	, action				
₽ <u>a</u> <u>E</u> xport	Comment				
Online	-				
<u> 4</u> <u> C</u> onnect to Device	Туре	Standard Project			
Version Control	-				
🙌 Version Control Explorer	Select	Device			
License	Category	Controller			
📼 License	Device	NX1P2 🔮 9024DT			
	Version				
Robot System			Create		
Open in Emulation Mode			Create		

- Project name: Customize.
- Select Device: "Device" selects the corresponding PLC model, "Version" selects the corresponding version of PLC, and it is recommended to use PLC of V1.40 and above.
- b. When you have finished entering the project properties, click "Create" .

4、 Installation of XML files

a. Expand "Configuration and Setup" in the left navigation tree, double-click "EtherCAT", right-click "Master Device", and select "Display ESI Library" as shown below.

File Edit View Insert Project	Controller Simulation	Tools	Window	Help	_		_	_	_	_		
X 🕮 🛱 🛍 ちぐ 🛙	·····································	F	à Ä	<u>.</u> R		63 🐹	63 5	6 O		, D		৻ ™&
Multiview Explorer 🚽 🗸	EtherCAT ×											-
new_Controller_0 🔻	Node Address Network configur	ration Master				1						
 Configurations and Setup 		Maste								1	/alue	
EtherCAT										Master Master		
CPU/Expansion Racks										Master		
I/O Map										2000		us
► ▲ Motion Control Setup									; C	 Settina		us
& Cam Data Settings									— me		Edit Set	tings
Event Settings										Exist		
Task Settings			Calcu	late Transm	ission De	elav Time o	of the Mast			Fail-soft	operation	
🖂 Data Trace Settings			Impo	rt Slave Sett	ings and	Incert No			— :ar	30		s
Programming			Expor	t Slave Setti	nas	mount	W Slave		od d	Z Setting <	= Actual d	ei 🔻
V Programs									—м	No check		
V 🖂 Program0												
∟ & Section0												
L			Clear	All Settings								
L S Function Blocks												
Data												
E 14585	Build		Displa	ay Packet M	onitor							• # ×
	😒 0 Errors 🚹 0 Warnings		Displa	ay ESI Librar	y	_						
	Descript	ion	Expor	t Configura	tion Info	rmation						ie.
			Outp	ut to ENS Fi	e 							
			Assia	n Drives to a	IS I/U A	liocations						
			Safet	Related PE	Os Batc	h Setting						
									-			
🖬 Filter 💽	Output Build											

b. In the pop-up "ESI Library" window, click "Install (file)" button, select the XML file path, click "Yes" to complete the installation, as shown below.

🔜 ESI Library	- [
ESI Library All ESI files Omron 3G3AX-MX2-ECT Omron 3G3AX-RX2-ECT Omron CJ1W-ECTxx Omron E3NW-ECT Omron EJ1N-HFUC-ECT Omron FHV7x-xxxx Omron FH-xxx-xx Omron FQ-MS12x-x-ECT Omron GX-10g10 Omron GX-Digital IO Omron GX-Digital IO-T	- [Sysmac Studio The selected ESI files will be installed. Do you want to continue?	
 Omron GX-Analog IO Omron GX-Analog IO Omron GX-Digital IO Omron GX-Digital IO-T Omron GX-Encoder Omron GX-IO-Link Omron GX-JC Omron GX-JC Omron RA-JC Omron NX_Coupler Omron R8D-1SAN02H-F Omron R88D-1SAN08H-F Omron R88D-1SAN08H-F Omron R88D-1SAN08H-F Omron R88D-1SAN08H-F Omron R88D-1SAN10F-E Omron R88D-1SAN10F-E Omron R88D-1SAN10F-F Omron R88D-1SAN10F-F 	The selected ESI files will be installed. Do you want to continue? C2P-EC_V1.0.1.xml Yes No	
Omron R88D-1SAN15H-E Omron R88D-1SAN20F-E Omron R88D-1SAN20F-E Omron R88D-1SAN30F-E Omron R88D-1SAN30H-F Install (File) Install (Folde	CT CT CT CT en) Uninstall	Close

5. Adding Slave Devices

a. In the right side of the "Toolbox" column, click to expand all suppliers, select "Nanjing Solidot Electronic Technology Co., Ltd.

File Edit View Insert Project Contr	oller Simulation Tools Window Help		
X 4 6 to to to 10	5 < % © © % A 9 <	A & & & * * 0 % 2 []	
Multiview Explorer	Node Address Network configuration Master Master Build United States Sta	Item name Value Device name Master Model name Master Product name Master Number of Slaves 0 PDO Communicati 200 Transmission Dela Edit Settings Reference Clock Exist Total Cable Length 1000 Fail-soft Operation 2 PDO communicati 2 PDO communicati 2 Serial Number Ch No check Device name Setial Number Ch Device name Set a name for the master. Device name Location	Toolbox ↓ All vendors ↓ All vendors ↓ OMRON Corporation ADLINK Devinit Tech ↓ Naming Solidot Electronic Technology Co., Ltd ↓ Digital IO ↓ Interview ↓ NX+ECC30 Electronic Technology Co., Ltd R880-ISAN19H-ECT Rev:1.0 R880-ISAN19H-ECT Rev:1.0 R880-ISAN19H-ECT Rev:1.0
🖬 Filter 🗶	Output Build		

b. Click "C2P Series Terminal" to select the product series, select the product model at the bottom, and double-click "C2P-EC" to add the slave device, as shown in the following figure.

Multiview Explorer 🚽 🕂	EtherCAT ×	Toolbox 🚽 🗜
new_Controller_0 🔻	Node Address/Network configuration Master	Nanjing Solidot Electronic Technol
Configurations and Setup Configurations an	Master Item name Value Device name E001 C2P-EC Rev:0x00000001 C2P-EC C2P-EC	All groups
L Node1 : C2P-EC(E001) S CPU/Expansion Racks * I/O Map Controller Setup & Motion Control Setup o' Cam Data Settings Fourt Settings Fask Settings Pourt Settings Pourt Tack Settings Pourt Tack Settings V Pourt Tack Settings V Pourt Tack Settings V Pourt Pourt v Pourt v Pourt v Program0 v v Functions v v Function Blocks v	Product name C2P-EC Revision 0x000011 PDO Communia PDO Communia Node Address 1 Enable/Disable S Enabled ▼ Senal Number 0x0000000 PDO Map Settings Enable Distribute Shift Time Setting Reference Clock Not exist Setting Parametes Eating Paramete Backup Paramete Setting Module Configur Edit Module Conf Set a name for the slave.	EtherCAI Infrastructure com GWS Series Terminal Solidot EC IO-Link Gateway XB6S Series Fieldbus Series Fieldbus Input Keyword Show all versions C2P-EC Rev0x00000001
rm Tasks	Build I X Stonetrors Autowarnings I Description Program Location	Model name : C2P-EC Product name : C2P-EC

c. In the EtherCAT main page, click "C2P-EC", click "Edit Module Configuration" in the right menu, as shown in the following figure.

<u>File Edit View Insert Project Cont</u>	roller <u>S</u> imulation <u>T</u> ools <u>W</u> indow <u>H</u> elp			
X 🗐 🕯 🗑 つ C 😢 🚥	F 🗸 🔉 🖾 📾 📾 🕺 H 🕘 🤻	🔺 🖄 68 🍻 🏊 📬 🔿 🖫		
File Edit Use Insert Project Contr X Image: State S	coller Simulation Tools Window Help Image: Simulation Image: Simulation Image: Simulation Image: Simulation Image: Simulation Image: Simulation Master Image: Simulation Image: Simulation Image: Simulation Image: Simulation Image: Simulation	A A A A A A A A A A A A A A A A A A A	Value C2P-EC C2P-EC C2P-EC C000000001 PDD Communications Cycle 1 (Enabled Ox00000000 PDD Communications Cycle 1 (Enabled Communications Cycle 1 (Toolbox ₽ Nanjing Solidot Electronic Technolog ▼ Groups ■ All groups ■ DetherCAT Infrastructure compression ■ Groups ■ Groups ■ Michael CAT Infrastructure compression ■ Groups ■ Market CAT Infrastructure compression ■ Market CAS beries Fieldbus Series Fieldbus Series Fieldbus ■ Market Keyword ■ Show all version: ■ C2P-EC Revolv00000001 ■
 ▶ Event Settings ♣ Task Settings ౫ Data Trace Settings ♥ @ POUs ♥ @ POUs ♥ @ Program0 ▲ Section0 ▲ Section0 ▲ Functions ▲ Function Blocks ▶ m Tasks 	Build I Description I	Shift Time Setting Reference Clock Setting Parameters Backup Parameter Settings Module Configuration Device name Set a name for the slave.	Not exist Setting Edit Setting Parameters Edit Module Configuration	Model name : C2P-EC
🖬 Filter 💽	Output Build			Product name : C2P-EC Revision : 0x00000001 Vendor : Nanjing Solidot E Comment : URL :

d. In the main page of Module Configuration, click to check the position of slot 0, and then in the right side of the toolbox, you can see the module model number "C2P-EC-24B", double-click to add the module to the slot, as shown in the following figure. Add all modules one by one according to the actual installation topology.

Note: The order and model number must be consistent with the physical topology!

Eile Edit View Insert Project Contr	oller Simulation Tools Window Help		
	년 🔨 🏔 🖾 📾 🚆 👫 💷 💐 🛕 🔌 🕾 🖗 🖡 이 🥬		
Multiview Explorer 🗸 🖡	Therefore a state of the state	¥	Toolbox 🚽 🎙
new_Controller_0 💌	IPositi Slot I Module I I Node1 : C2P-EC (E001)		Group
Configurations and Setup	0 C2P-EC T=C2P-EC-24B (M1)	Item name Value	Digital Output Terminals
EtherCAT		Model C2P-EC-24B	
▼ -□ Node1 : C2P-EC(E001)		Product name 48 Channel Digi Connected position 0	
► Si CPU/Expansion Backs		0x7000:01 Outp	
I/O Map		0x7000:02 Outp 0x7000:03 Outp	Input Kenword
► R Controller Setup		0x7000:04 Outp 0x7000:05 Outp	C2P_FC_24B
▶ ⊕ Motion Control Setup		0x7000:06 Outp	48 Channel Digital Output, 96 Chan
& Cam Data Settings		0x6000:01 input	40 Channel Digital Output, 80 Channel
Event Settings		0x6000:03 Input	C2P-EC-16B
Task Settings		0x6000:05 Input	32 Channel Digital Output, 64 Chani
Data Trace Settings		0x6000:06 Input 0x6000:07 Input	24 Channel Digital Output, 48 Chani
▼ Programming ▼ ■ POUs		0x6000:08 Input	C2P-EC-08B 16 Channel Digital Output, 32 Chani
▼ III Programs		Device name	
v ⊞ Program0		Set a name for the device.	
∟ ∉ Section0			
L.麗 Functions		L	
LI Function Blocks	Build	- 1 ×	
▶ Data			
► 🗈 Tasks	I Description Program Location I	1	
			Model : C2P-EC-24B
			Vendor : Nanjing Solidot E
🖬 Filter 💽	Output Build		

6. Communication settings

a. Click "Controller -> Communications Setup" in the menu bar to bring up the Communication Settings window, as shown in the following figure.



b. In the communication setting window, select "Ethernet connection via a hub" for the connection type, select "Ethernet connection via a hub" as the method to be used every time you connect with the controller when you are online, fill in the IP address of the corresponding PLC for the remote IP address, click "Ethernet Communication Test", if the communication is normal, "Test OK" will be displayed in the box below. Determine the communication is normal, click "OK" button, as shown in the figure below.

Communications Setup			\times
 ▼ Connection type Select a method to connect with the Controller to use every time you go online. Direct connection via Ethernet Remote connection via USB Ethernet connection via USB Ethernet connection via USB Ethernet connection via USB Ethernet connection via USB 			
▼ Remote IP Address			
Specify the remote IP address. 192 . 168 . 250 . 1 USB Communications Test Test OK Test OK			
▼ Options	_	_	
Confirm the serial ID when going online. Check forced refreshing when going offline.			
▼ Response Monitor Time			
Set the Response Monitor Time in the communications with the Controller.(1-3600sec) Please set a sufficiently large value when connecting to the Controller via multiple networks, such as VPN connection. 2 (s)			
OK Cancel			

7. Setting the node address

a. Click "Controller -> Online" in the menu bar to turn the controller to online status, as shown in the following figure.



b. Right-click on the master device, click and select "Write Slave Node Address" as shown in the following figure.

<u>Eile Edit View Insert Project Contr</u>	oller <u>S</u> imulation <u>T</u> ools <u>W</u> indow	Help	
	ホス 26 15 18 26 1 1	🛛 🕂 🛕 🔌 & 🄌 🐂 🚺 🖸	j Q Q "U
Multiview Explorer	ItericAT X C Node1 : C2P-EC (c0 Node Address)Network configuration Master 1 SD	01) Cut Copy Paste Delete Undo Redo Expand All Collapse All Calculate Transmission Delay Time of the Master Import Slave Settings and Insert New Slave Export Slave Settings	Value Master Master 1 2000 us 2000 us 2000 us Exist 1 1 2000 us Exist 1 1 2000 us Exist 1 1000 m Fail-soft operation ▼ 300 \$ 8 2 umestant values Setting Setting Setting Setting Setting Setting Setting Setting Setting Setting Setting Actual devict ▼
 ✓ #Optimized ✓ # POUs ✓ # Programs ✓ # Program0 ∟ # Functions ∟ # Function Blocks > m Data > m Tasks 		Write Slave Node Address Compare and Merge with Actual Network Configuration Get Slave Serial Numbers Clear All Settings Display Diagnosis/Statistics Information Display Production Information Display Production Information Display Esl Library	
	Build Strong Automatic Warnings I Description	Export Configuration Information Output to ENS File Export All Couplers' I/O Allocations Assign Drives to Axes Safety Related PDOs Batch Setting	- 1 ×
E Filter	Output Build		

c. In the Slave Node Address Writing window, click the value under Set Value, enter the node address, and click Write to change the slave device node address, as shown in the following figure.



d. Power down and reboot the slave device when prompted after the node address is successfully written.

8、 Parameters Setup

a. Turn the controller to offline status, in the EtherCAT main page, click to select "C2P-EC", click the right side menu "Edit Setting Parameters", as shown in the following figure.



b. In the Edit Setting Parameters window, you can see the parameter "0x8000:01

BusFault_Output/BusFault_Clear/Hold". This parameter is a unified setting parameter function for all channels of the valve terminal. Under the value, you can choose "0:Clear", "1:Hold" or "2:Set by 8200", which means the output signal is "Clear", "Hold" or "Set by 8200". Setting is complete, click the lower right corner of the "Apply", and then click "OK", as shown in the figure below. After the configuration is completed, you need to download the parameters to the PLC to make the settings effective.

Edit Setting Parameters				-		×
Item name		Value				
0x8000:01 BusFault_Output/BusFault_Clear/Hold	1: Hold					
	0: Clear					
	2: Set by 8200					
		Move Up Move Down	bbA		Remove	
		mere op	7.00	Baturn	to Dofo	
. Holo				Ketum	to Dela	unc
Data tyne :						
Comment :						
This Setting Parameters are saved in the CPU Unit as a part of EtherCAT setting. Select Synchronize on the Toolbar to transfer.						
			ОК	Cancel	Apr	ly

c. In the main page of Node 1, click to select "C2P-EC-24B", and then click "Edit Setting Parameters" in the right menu, as shown in the following figure.

Multiview Explorer 🗸 🗸	EtherCAT × CNode1 : C2P-EC	(E001) ×		-
new_Controller_0 🔻	IPosit Slot I Node1 : C2P-EC (E001)	Module I	1	
Configurations and Satur	0 C2P-FC	-24B (M1)	Item name	Value
Configurations and Setup			Device name	M1
EtherCAI			Model	C2P-EC-24B
▼ -□ Node1 : C2P-EC(E001)			Product name	48 Channel Digital Outp
∟ 📼 0 : C2P-EC-24B(M1)			Connected position	0
▶ 🗟 CPU/Expansion Racks				0x7000:01 Outputs/valv 0x7000:02 Outputs/valv
🛹 I/O Map				0x7000:03 Outputs/valv
🖉 🕨 🕅 Controller Setup				0x7000:04 Outputs/valv 0x7000:05 Outputs/valv
▶ 母 Motion Control Setup				0x7000:06 Outputs/valv
				0x6000:01 Inputs/Open
Event Settings				0x6000:02 Inputs/Open 0x6000:03 Inputs/Open
Task Sottings			PDO Man Settings	0x6000:04 Inputs/Open
Task Settings				0x6000:05 Inputs/Open
Data Trace Settings				0x6000:06 Inputs/Open
Programming				0x6000:07 Inputs/Short
V 👖 POUs				0x6000:09 Inputs/Short
🗸 🏽 Programs				0x6000:0A Inputs/Short
🔻 🖂 Program0				0x6000:0C Inputs/Short
∟ ∉- Section0				Edit PDO Map Settings
L 📽 Functions			Setting Parameters	Setting
L I Function Blocks				Edit Setting Parameters
🕨 🖿 Data			Backup Parameter Settings	
▶ m Tasks				
			- Device name	
			Set a name for the device	
∟as Section0 ∟as Functions ∟as Function Blocks ▶ nn Data ▶ nn Tasks			Setting Parameters Backup Parameter Settings - Device name Set a name for the device.	Edit PDO Map Settings Setting Edit Setting Parameters

d. In the Edit Initialization Parameter Setting window, you can see the parameter items "0x8200:01 channel clear/hold/Clear/Hold[0..7]" ~ "0x8200:06 channel clear/hold/Clear/Hold[40..47]". 8200 is a single channel setting or channel group setting parameter function, if you need to set single channel setting or group setting, 8000:01 setting item need to select "Set by 8200", then 8000 will not take effect, 8200 setting item will take effect.

For example, to set the clear and hold function of channel 0~7, enter the value in the parameter value input box corresponding to "0x8200:01 channel clear/hold/Clear/Hold[0..7]", and if the corresponding value of the channel is 1, then the hold function will be enabled, and if the value is 0, then the clear function will be enabled. If you input **1**, only channel [0] will enable the hold function; if you input **255**, channel [0...7] will enable the hold function, and so on for the other 5 groups of channels. After the setting is completed, click "Apply" in the lower right corner, and then click "OK", as shown in the figure below. After the configuration is completed, it is necessary to download the parameters to the PLC for the settings to take effect.

M Edit Setting Parameters		- 🗆 ×
Item name	Value	
0x8200:01 channel clear/hold/Clear/Hold[07]	255	
0x8200:02 channel clear/hold/Clear/Hold[815]	0	
0x8200:03 channel clear/hold/Clear/Hold[1623]	0	
0x8200:04 channel clear/hold/Clear/Hold[2431]	0	
0x8200:05 channel clear/hold/Clear/Hold[3239]	0	
0x8200:06 channel clear/hold/Clear/Hold[4047]	0	
	Move Lin Move Down	Add Remove
		Return to Default
Help Data type : USINT Valid range : 0 - 255 Comment :		
This Setting Parameters are saved in the CPU Unit as a part of EtherCAT setting. Select Synchronize on the Toolbar to transfer.		
		OK Cancel Apply

9. Download configuration to PLC

a. Click the button "Controller -> Transfer... -> To Controller..." in the menu bar to transfer the configuration to the controller, as shown in the following figure.

<u>File Edit View Insert Project</u>	<u>Controller</u> Simulation Tools Window Help		
X 🛍 🖻 💼 🏷 🔿 🗃	Communications Setup Change Device	K 🔥 🍇 & 🌳 🖡 🖨 O 🖫 🖓 💢 🔍 🦓	
Multiview Explorer	Online Ctrl+W		
	Offline Ctrl+Shift+W		
new_Controller_0 🔻	Synchronize Ctrl+M		
Configurations and Setup	Transfer •	To Controller Ctrl+T Item name Value	
EtherCAT	Mode +	From Controller Ctrl+Shift+T hame E001	_
🖉 📼 Node1 : C2P-EC(E001)	Monitor	Product name C2P-EC	
∟ -□ 0 : C2P-EC-24B(M1)	Stop Monitoring	Revision 0x0000001	
CPU/Expansion Racks	Set/Reset	Node Address	s C
🛹 I/O Map	Forced Refreshing	Enable/Disable Settings Enabled	
🔳 🔻 🖪 Controller Setup	MC Test Run	Serial Number 0x0000000	
L	MC Monitor Table	PDO Map Settings Enable Distributed Clock	
∟ L 🗗 Built-in EtherNet/IP Por	CNC Coordinate System Monitor Table	Shift Time Setting	
■ L 🖩 Built-in I/O Settings	SD Memory Card	Reference Clock Not exist	
L	Controller Clock	Setting Parameters Edit Setting Parameters	eters
■ L ## Memory Settings	Release Access Right	Backup Parameter Settings	
■ ▶ ⊕ Motion Control Setup	Update CPU Unit Name	Module Configuration Setting	
er Cam Data Settings	Security >	Edit Module Configu	ratio
Event Settings	Clear All Memory	- Module Configuration	
Task Settings	Reset Controller	Edits the module configuration	
Data Trace Settings			
Programming			
V POUs			
V III Programs	Output		μ×
▼ Hel ProgramU			
Le Sectiono			
Lat Function Blocks			
<			
i Filter 📝	Output Build		

b. Pop-up transmission confirmation pop-up window, click the "Execute" button, followed by a pop-up window in turn click "Yes / OK", as shown below.



10. View valve terminal Features

a. Double-click "I/O Map" in the left navigation tree, you can see the valve terminal series: C2P-EC under the corresponding port in node 1 of the right main page, and you can see the device name: C2P-EC-24B in the position of slot 0, and you can see the diagnostic function and channel output control of the valve terminal by clicking the expand icon in front of the device name, as shown in the figure below.

	5 H A	🔏 🗔 🖫 🗯 🛤 🖳 🧮 👗 🖄	69 🧞 🥐	°∎ O Pi LP		୍ ପ୍ "ଧ୍
Multiview Explorer 🚽 🖡	EtherCAT	- Node1 : C2P-EC (E001) // Map ×				÷
	Position	Port	Description R/W	/ Data Type	Variable	Variable Comment
new_Controller_0		V Sector CAT Network Configuration				
 Configurations and Setup 	Node1	V TC2P-EC		1		
▼ I EtherCAT	Slot 0	C2P-EC-248				
Vice Node1 · C2P-EC(E001)		Outputs_valve[14]_7000_01	w	ARRAY[07] OF BOOL		
		Outputs_valve[58]_7000_02	W	ARRAY[07] OF BOOL		
		Outputs_valve[912]_7000_03	w	ARRAY[07] OF BOOL		
CPU/Expansion Racks		Outputs_valve[1316]_7000_04	w	ARRAY[07] OF BOOL		
📕 😁 I/O Map		Outputs_valve[1720]_7000_05	w	ARRAY[07] OF BOOL		
Controller Setup		Outputs_valve[2124]_7000_06	w	ARRAY[07] OF BOOL		
Motion Control Setup		Inputs_Open load[07]_6000_01	R	ARRAY[07] OF BOOL		
e/ Cam Data Settings		Inputs_Open load[815]_6000_02	R	ARRAY[07] OF BOOL		
Event Settings		Inputs_Open load[1623]_6000_03	R	ARRAY[07] OF BOOL		
Task Cattings		Inputs_Open load[2431]_6000_04	R	ARRAY[07] OF BOOL		
Task Settings		Inputs_Open load[3239]_6000_05	R	ARRAY[07] OF BOOL		
Data Trace Settings		Inputs_Open load[4047]_6000_06	R	ARRAY[07] OF BOOL		
Programming		Inputs_Short circuit or overtemper_6000_07	R	ARRAY[07] OF BOOL		
🔻 🖪 POUs		Inputs_Short circuit or overtemper_6000_08	R	ARRAY[07] OF BOOL		
▼ in Programs		Inputs_Short circuit or overtemper_6000_09	R	ARRAY[07] OF BOOL		
v ≕ Program0		Inputs_Short circuit or overtemper_6000_0A	R	ARRAY[07] OF BOOL		
= Section0		Inputs_Short circuit or overtemper_6000_0B	R	ARRAY[07] OF BOOL		
		Inputs_Short circuit or overtemper_6000_0C	R	ARRAY[07] OF BOOL		
L # Functions		V 🖉 CPU/Expansion Racks				
∟ ﷺ Function Blocks	Built-in I/C	Built-in I/O Settings				
📰 🕨 🥅 Data	OptionBoa	Option Board Settings				
▶ 🗈 Tasks	NXBusMa:	NX Bus Master				

b. Outputs_valve[1...4]~Outputs_valve[21...24] total 6 groups, 48 channels solenoid valve coil control function, select the corresponding channel, through the modification of the channel value of the solenoid valve coil control, the value of "TRUE" that is, open, the value of "FALSE" that is, close, as shown in the figure below.

<u>Eile E</u> dit <u>V</u> iew Insert <u>P</u> roject 9	<u>Controller</u> Sin	nulation <u>I</u> ools <u>W</u> indow <u>H</u> elp				
X 🕮 🛍 🖄 ୯ ଅ	년 ベ	a a a a a a a a a a a a a a a a a a a	69 69 🏠	● O ♡	D Q	ର୍ ଞ
Multiview Explorer 🗸 🗸	EtherCAT	- I/O Map 🗙				
new Controller 0	Position	Port	Description R/W	Data Type	Variable V	ariable Comme
		EtherCAT Network Configuration				^ <u>^</u>
 Configurations and Setup 	Node1	C2P-EC				
▼	Slot 0	▼ C2P-EC-24B				
▼ - Node1 : C2P-EC(E001)		Outputs_valve[14]_7000_01	w	ARRAY[07] OF BOOL		
∟ - 0 : C2P-EC-24B(M1)		[0]	W	BOOL	TRUE	
► S CPU/Expansion Backs		[1]	W	BOOL	FLASE	
		[2]	W	BOOL	FLASE	
		[3]	w	BOOL	FLASE	
Controller Setup	—	[4]	w	BOOL	FLASE	
▶ ⊕ Motion Control Setup		[5]	w	BOOL	FLASE	
🖌 Cam Data Settings		[6]	w	BOOL	FLASE	
Event Settings		[/]	W	BOOL	FLASE	
Task Settings	—	Outputs_valve[58]_7000_02	vv	ARRAY[U7] OF BOOL		
Data Trace Settings		Outputs_valve[912]_7000_03	VV	ARRAY[0/] OF BOOL		
Programming		Outputs_valve[1316]_7000_04	VV	ARRAY[07] OF BOOL		
		Outputs_valve[11.20]_7000_05	VV M/	ARRAT[07] OF BOOL		
V POUS		Outputs_valve[2124]_7000_06	vv D	ARRAT[07] OF BOOL		
▼ III Programs		Inputs_Open load[0.15] 6000_01	N D	ARRAT[07] OF BOOL	1	
V 🖂 Program0	—	Inputs_Open load[16_22] 6000_02	D	ARRAVIO 71 OF BOOL		
∟ 🕾 Section0		Inputs_Open load[24, 21] 6000_05	P			
L Ⅲ Functions	—	Inputs_Open load[22, 20] 6000_04				
L ☞ Function Blocks		Inputs_Open load[3235]_0000_05	R			
► m Data		Inputs Short circuit or overtempor 6000 07	D			
		 Inputs Short circuit or overtemper 6000_08 	R	ARRAVIO 71 OF BOOL		
		Inputs Short circuit or overtemper 6000.09	R	ARRAVIO 71 OF BOOL		
		 Inputs Short circuit or overtemper 6000 0A 	R	ARRAYIO 71 OF BOOL		
		Inputs Short circuit or overtemper 6000 0B	R	ARRAVIO 71 OF BOOL		
		 Inputs Short circuit or overtemper 6000 0C 	R	ARRAYIO.71 OF BOOL		
		CPU/Expansion Racks				
				ļ		
	Build					- ª ×
1 Filter	Output Build	d				

c. Inputs_Open load[0..7]~Inputs_Open load[40..47] total 6 groups, 48 channels of solenoid valve open diagnostic function, select the corresponding channel to view the diagnostic value, in the solenoid valve coil output off the premise of the diagnostic value is valid, the value of "TRUE" that is open, the value of "FALSE" that is normal, as shown in the figure below.

<u>File Edit View Insert Project C</u>	<u>Controller</u> Sin	mulation <u>T</u> ools	<u>W</u> indow <u>H</u> el	p					
X 🖷 🛍 🏛 ち さ 🗃	년 〈	14 G E	83 👗 🚇	茂 🛕 🔉			* 0 % 0	[□] €	
Multiview Explorer 🗸 🖡		- Node1 : C2	P-EC (E001)	I/O Man 🗙					Ţ
	Position		Port		Description	R/W	/ Data Type	Variable	Variable Comme
new_Controller_0		🔻 🖣 EtherCAT N	etwork Configurat	ion					<u>^</u>
Configurations and Setup	Node1	V C2P-EC							
▼ ﷺ EtherCAT	Slot 0	C2P-E	C-24B						
▼		► Outpu	its_valve[14]_700	0_01		w	ARRAY[07] OF BOOL		
		Outpu	its_valve[58]_700	0_02		w	ARRAY[07] OF BOOL	l l	
C2P-EC-24B((MT))		Outpu	its_valve[912]_70	00_03		w	ARRAY[07] OF BOOL		
CPU/Expansion Racks		Output	its_valve[1316]_7	000_04		w	ARRAY[07] OF BOOL		
📕 👒 I/O Map		Output	its_valve[1720]_7	000_05		w	ARRAY[07] OF BOOL		
Controller Setup		Outpu	ts_valve[2124]_7	000_06		w	ARRAY[07] OF BOOL		
● 侍 Motion Control Setup		Inputs	_Open load[07]_	5000_01		R	ARRAY[07] OF BOOL		
er Cam Data Settings			[0]			R	BOOL	FALSE	
Event Settings			[1]			R	BOOL	FALSE	
Task Settings			[2]			R	BOOL	FALSE	
Data Trace Settings			[3]			R	BOOL	FALSE	
- Data Hace Settings			[4]		_	R	BOOL	FALSE	
Programming	_		[5]			R	BOOL	FALSE	
V POUs			[6]		_	ĸ	BOOL	FALSE	
▼ III Programs			[/]	c000 00		R	BUUL	FALSE	
V 🖂 Program0		> inputs	Open load[815]	_0000_02		R	ARRAY[U7] OF BOOL		
L Section0	-	> inputs	Open load 1623	1 6000 04		R.	ARRAY[07] OF BOOL		
L 🕱 Functions		> Inputs	Open load[22 30	1_0000_04	_	D			
L I Function Blocks	-	> inputs	Open load[40,47	1_0000_05		P	ARRAY[07] OF BOOL		
► I Data		> Inputs	Short circuit or o	00000	7	R	ARRAVIO 71 OF BOOL		
P In Data		Inputs	Short circuit or o	vertemper_6000_0	3	R	ARRAVIO 71 OF BOOL		
P HI TOSKS	-	> Inputs	Short circuit or o	vertemper 6000 0	, ,	R	ARRAYIO 71 OF BOOL		
	_	► Inputs	Short circuit or o	vertemper 6000 0/	A	R	ARRAY[0.,7] OF BOOL		
		Inputs	- Short circuit or o	vertemper 6000 0	3	R	ARRAY[07] OF BOOL		
		Inputs		vertemper_6000_0	2	R	ARRAY[07] OF BOOL		
	-	V CPU/Expans	sion Racks						
					1		l.		
	Build								- ų ×
i Filter 🗹	Output Bui	d							

d. Inputs_Short circuit or overtemper_6000_07~Inputs_Short circuit or overtemper_6000_0C total of 6 groups, 48 channels solenoid valve short circuit / overtemperature diagnostic function, select the corresponding channel to view the diagnostic value, in the solenoid valve coil output on the premise of the diagnostic value is valid, the value is "TRUE" that valve short circuit / overtemperature, the value is "FALSE" that no short circuit / overtemperature, as shown below.

Multiview Explorer 🚽 🗸	EtherCAT	-🗖 Node1 : C2P-EC (E001) 🛛 💣 I/O Map 🗙						
new Controller 0 =	Position	Port	Description	R/W	Data Type	Variable	Variable Com	nme
		EtherCAT Network Configuration		1			and the second s	
 Configurations and Setup 	Node1	V C2P-EC						
▼ I EtherCAT	Slot 0	▼ C2P-EC-24B						
▼ -□ Node1 : C2P-EC(E001)		Outputs_valve[14]_7000_01		w	ARRAY[07] OF BOOL			
L == 0 : C2P-FC-24B(M1)		Outputs_valve[58]_7000_02		w	ARRAY[07] OF BOOL			
E CPUI/Expansion Packs	_	Outputs_valve[912]_7000_03		w	ARRAY[07] OF BOOL			
CFO/Expansion Racks		Outputs_valve[1316]_7000_04		w	ARRAY[07] OF BOOL			
П/О Мар		Outputs_valve[1720]_7000_05		w	ARRAY[07] OF BOOL			
► I Controller Setup		Outputs_valve[2124]_7000_06		w	ARRAY[07] OF BOOL			
► ⊕ Motion Control Setup		Inputs_Open load[07]_6000_01		R	ARRAY[07] OF BOOL			
e' Cam Data Settings		Inputs_Open load[815]_6000_02		R	ARRAY[07] OF BOOL			
► Event Settings		Inputs_Open load[1623]_6000_03		R	ARRAY[07] OF BOOL			
Task Settings		Inputs_Open load[2431]_6000_04		ĸ	ARRAY[U7] OF BOOL			
Data Trace Settings		Inputs_Open load[3239]_6000_05		R	ARRAY[U7] OF BOOL			
Programming	_	▶ Inputs_Open load[4047]_0000_00	_	R	ARRAY[U7] OF BOOL			
	_	Inputs_short circuit or overtemper_6000_07 roi		R. D	ROOL	EALCE		- 1
V POUS		[U] [1]		D	POOL	FALSE		
▼ in Programs		[1]		R	BOOL	FALSE		.
V 🔤 Program0		[2]		R	ROOL	EALSE		
Le Section0		[4]		R	ROOL	FALSE		
L 🛒 Functions		[5]		R	BOOL	FALSE		
LI Function Blocks		6		R	BOOL	FALSE		
► m Data		[7]		R	BOOL	FALSE		
► Fa Tasks		Inputs_Short circuit or overtemper_6000_08		R	ARRAY[07] OF BOOL			
		Inputs_Short circuit or overtemper_6000_09		R	ARRAY[07] OF BOOL			
		Inputs_Short circuit or overtemper_6000_0A		R	ARRAY[07] OF BOOL			
		Inputs_Short circuit or overtemper_6000_0B		R	ARRAY[07] OF BOOL			
		Inputs_Short circuit or overtemper_6000_0C		R	ARRAY[07] OF BOOL			
		▼ 🖣 CPU/Expansion Racks						
								15

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8 FAQ

8.1 Device cannot be found in the software

- 1. Verify that the ESI configuration file is installed correctly.
- 2. Verify that the ESI profile version is accurate.
- 3. Whether the software is restarted after installing the ESI configuration file.

8.2 Device cannot enter OP state

- 1. Verify that the project is established correctly.
- 2. Confirm the node station number related settings.
- 3. Verify that the power supply to the unit is normal.
- 4. The EtherCAT communication cable is working properly.
- 5. Confirm the IP address of the computer.
- 6. Whether the device was re-powered after changing the slave device node address