VECTOR
威 科 达 科 技

VEC-VE 总线型运动控制器扩展模块硬件手册

>>>

◎VEEX201C

WWW.szvector.com

Preface

Thank you for purchasing VE motion controller! VE motion controller is a high-performance EtherCAT bus controller developed by our company. This manual describes the hardware description and application method of relevant extensions of VE motion controller.For more details, users can go to the official website of VECTOR:http://www.szvector.com/。

Catalogue

CHAPTER I OVERVIEW OF EXTENSION MODULES 1

1.1 Introduction to extension modules 1
1.2 Overall dimensions 3
1.3 General Specifications 5

CHAPTER II DISTRIBUTED IO EXTENSION 6

2.1 I/O Extension Concepts 7
2.2 Product introduction 7
2.3 VEC-VE-EX-32IO-A 7
2.4 VEC-VE-EX-ECAT-SUB（mix） 12

CHAPTER Ⅲ LOCAL IO EXTENSION 25

3.1 VEC-VE-EX-8DI 26
3.2 VEC-VE-EX-8DO 30
3.3 VEC-VE-EX-16DI 34
3.4 VEC-VE-EX-16DO 39
3.5 VEC-VE-EX-4AD_U 44
3.6 VEC-VE-EX-4AD_I 48
3.7 VEC-VE-EX-4DA 51
3.8 VEC-VE-EX-8AD-I 54
3.9 VEC-VE-EX-8AD-U 58
3.10 VEC-VE-EX-8DA-I 62
3.11 VEC-VE-EX-8DA-U 66
3.12 VEC-VE-EX-2PT 70
3.13 VEC-VE-EX-4TC 73
3.14 VEC-VE-EX-14DO 77

CHAPTER IV ENCODER EXTENSION 81

4.1 VEC-VE-EX-EDR 81

CHAPTER V COUPLERS 85

5.1 VEC-VE-CPR-P 85

Chapter I Overview of extension modules

1.1 Introduction to extension modules

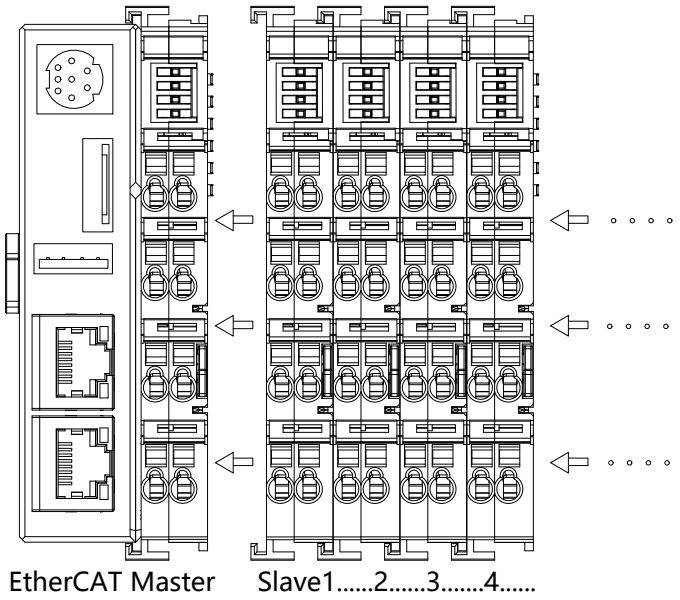
The motion controllers of VECTOR VE series integrate rich motion control modules with powerful processing and computing functions. The structure supports the expansion of distributed IO and local IO, and the function supports digital input/output module, analog AD/DA module, XY pulse module and encoder counting module etc., which can make the VE series motion controller can be widely used in temperature, flow, pressure and other process control systems .

1.1.1 Expansion Module Models and Functions

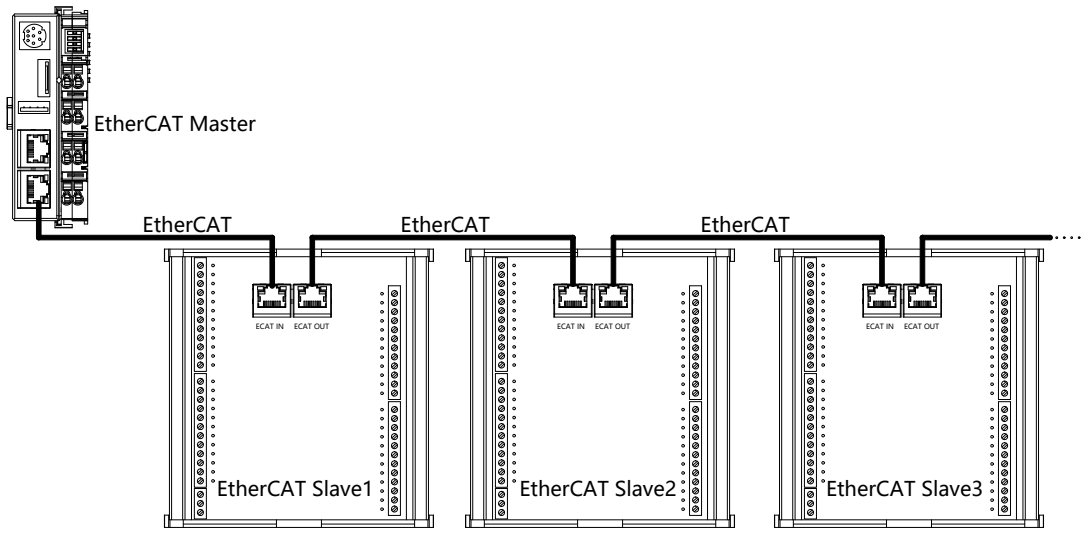
Type	Model	Function
Distributed IO extension	VEC-VE-EX-32IO-A	16-point DI input, 16-point DO output, input and output can be NPN or PNP
	VEC-VE-EX-ECAT-SUB	point DI input, 32-point DO output, input and output can be NPN or PNP 24channels of analog inputs（-10V~10V） 2 channels of analog output（-10V~+10V） 1 channel of sending pulse（XY pulse） 2 channel encoder count（AB pulse，Support probe function and pulse sending）
Local I/O extension	VEC-VE-EX-8DI-NPN	8 point NPN DI input
	VEC-VE-EX-16DI-NPN	16 point NPN DI input
	VEC-VE-EX-8DO-NPN	8 point NPN DI output
	VEC-VE-EX-16DO-NPN	16 point NPN DI input
	VEC-VE-EX-8DI-PNP	8 point PNP DI input
	VEC-VE-EX-16DI-PNP	16 point NPN DI input
	VEC-VE-EX-8DO-PNP	8 point PNP DI output
	VEC-VE-EX-16DO-PNP	16 point PNP type DO out
	VEC-VE-EX-4AD	4-way voltage and current input module
	VEC-VE-EX-4DA	4-way voltage and current output module
	VEC-VE-EX-EDR	1 Road encoder
	VEC-VE-EX-8AD-U	8-way voltage input module
	VEC-VE-EX-8AD-I	8-way current input module
	VEC-VE-EX-8DA-U	8-way voltage output module
	VEC-VE-EX-8DA-I	8-way current output module
	VEC-VE-EX-2PT	The 2-way PT100 input module
	VEC-VE-EX-4TC	A 4-way thermocouple input module
coupler	VEC-VE-CPR-P	When the local I/O expansion is far from the host,the local expansion IO module can be installed on the coupler, which is connected to the host through network cables

1.1.2 Module configuration

The LOCAL IO expansion module of the VE series can be installed to the right of the host unit, expansion unit, or coupler. As shown below:

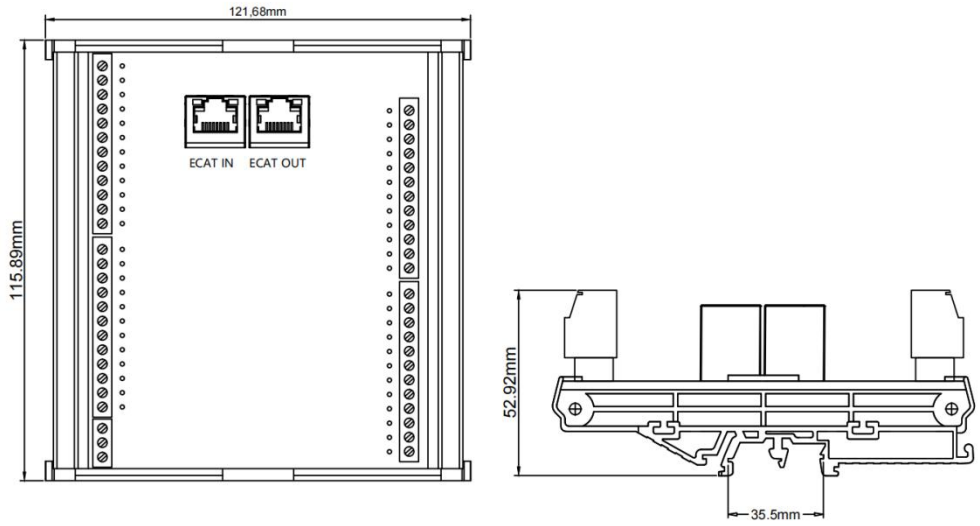


The distributed I/O expansion module can be installed anywhere and connected to the host unit through network cables. As shown below:

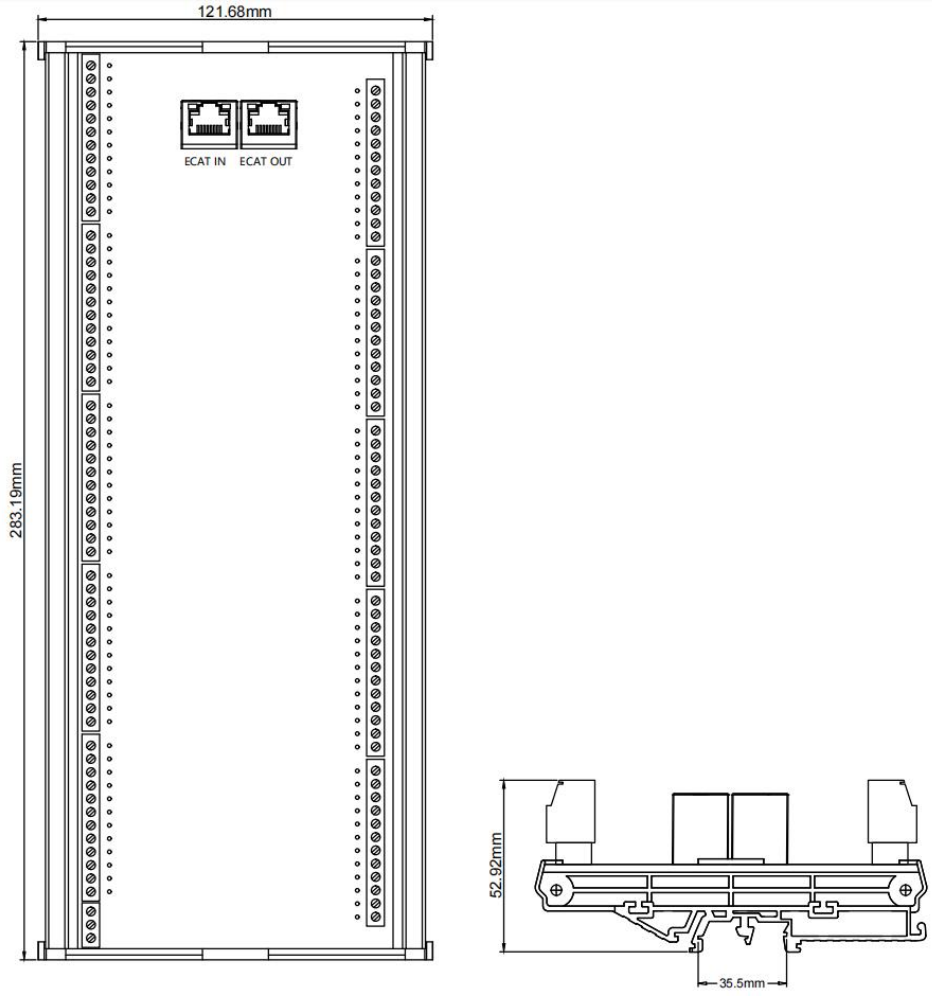


1.2 Overall dimensions

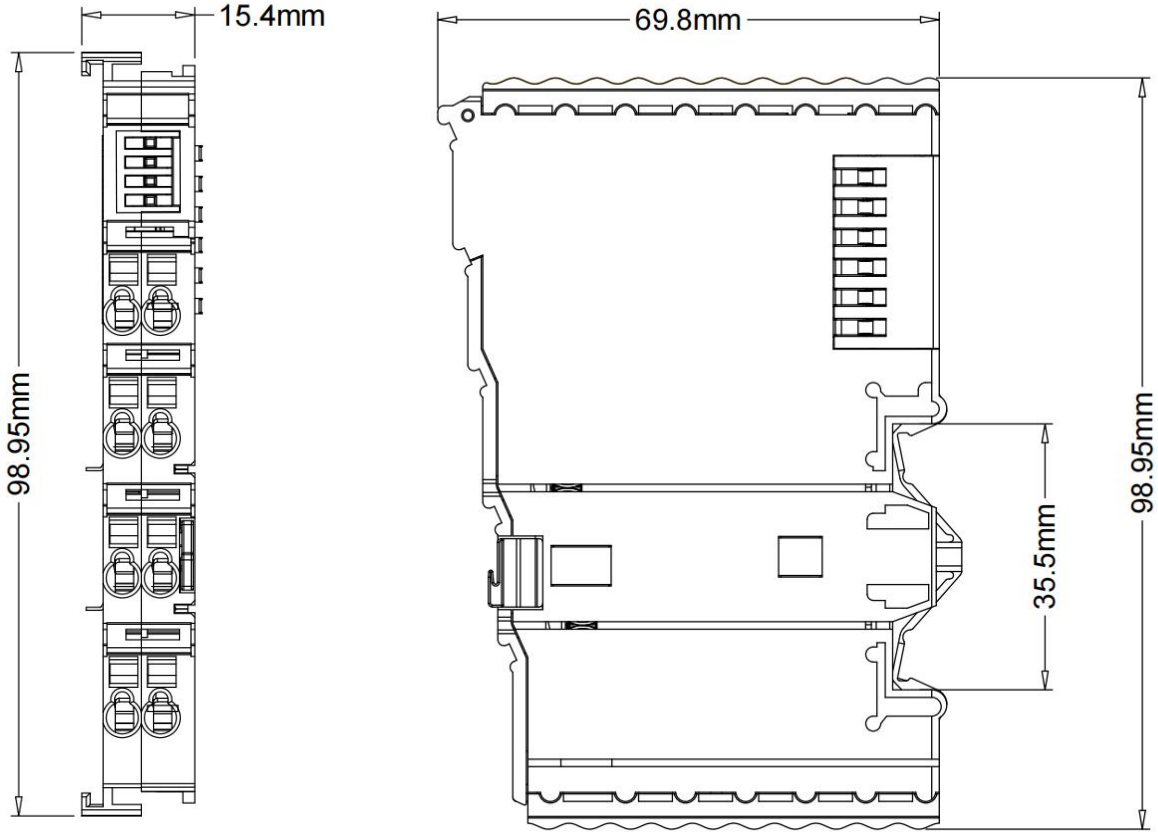
(1) VEC-VE-EX-32IO-A



(2) VEC-VE-EX-ECAT-SUB



(3) Local expansion module of VE series



1.3 General Specifications

1.3.1 Module Storage Environment

The product must be placed in packing box before installation; If the machine is not in use temporarily , In order to make the product can meet the company's warranty scope and future maintenance, note the following when storing:

(1) Must be placed in a dry and grime free place;

(2) The ambient temperature of the storage location must be within the range of -20℃ to +65℃;

(3) The relative humidity of the storage location must be in the range of 0% to 95%, and there is no condensation;

(4) Avoid storage in an environment containing corrosive gases and liquids;

(5) Properly packaged and stored on shelves or countertops.

1.3.2 Module Installation Environment

The operating temperature of this product is -10℃ to +40℃.

It is recommended that the ambient temperature be below +40℃ for Long hours at work. If the ambient temperature is above +40℃, place it in a well-ventilated place to ensure product reliability. If the product is installed in a distribution box, the size and ventilation conditions of the distribution box must be make sure all internal electronic devices are not in danger of overheating, and attention should be paid to whether vibration of the machine will affect the electronics of the distribution box .In addition, the conditions of use also include the following:

(1) Places without high heat generating devices;

(2) Places without water droplets, steam, dust and oily dust;

(3) Places without non-corrosive, flammable gas, liquid places;

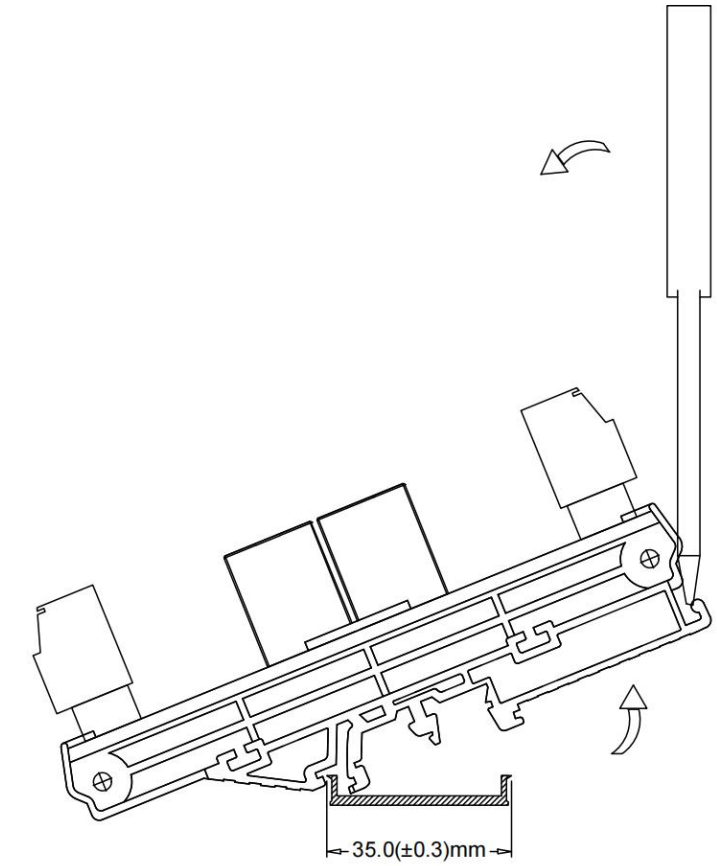
(4) Places without no- floating dust and metal particles ;

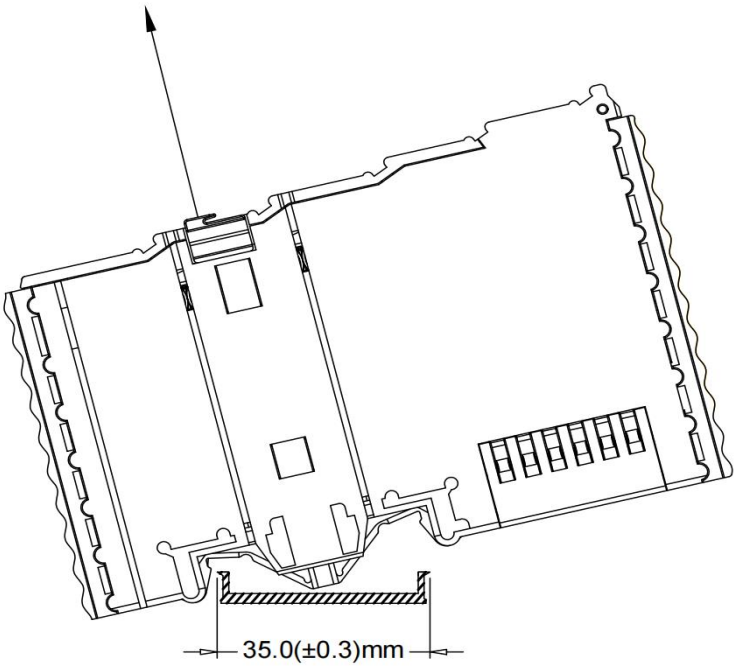
⑸ Places without vibration;

⑹ Places without electromagnetic noise interference.

1.3.3 Installation and disassembly

The installation adopts the buckle type DIN rail installation, It is very convenient to install and disassemble.





Chapter ‖ Distributed IO extension

2.1 I/O Extension Concepts

The I/O capacity of the host is limited. If the system needs more I/O control, you can connect the I/O expansion module to the host.

2.2 Product introduction

VE motion controller supports distributed IO expansion and local IO expansion. Among them, distributed IO expansion modules mainly include DIO32 (hybrid) and FIO76 (hybrid); The local IO expansion module has 6 types: 8DI, 8DO, 16DI, 16DO, 4AI, 4AO, etc. see 1.1.1 model and function of expansion module for specific models.

The following describes IO models and how to use them.

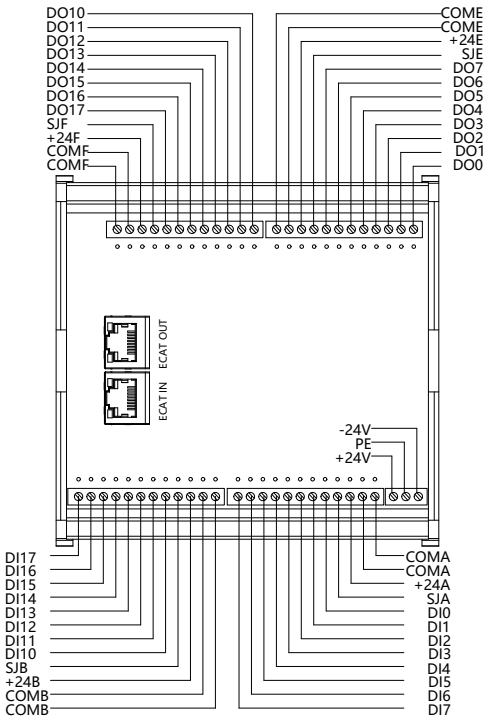
2.3 VEC-VE-EX-32IO-A

2.3.1 Product Appearance and configuration

① EtherCAT(IN) : EtherCAT network input, connected to the host output or the last extension EtherCAT(OUT)

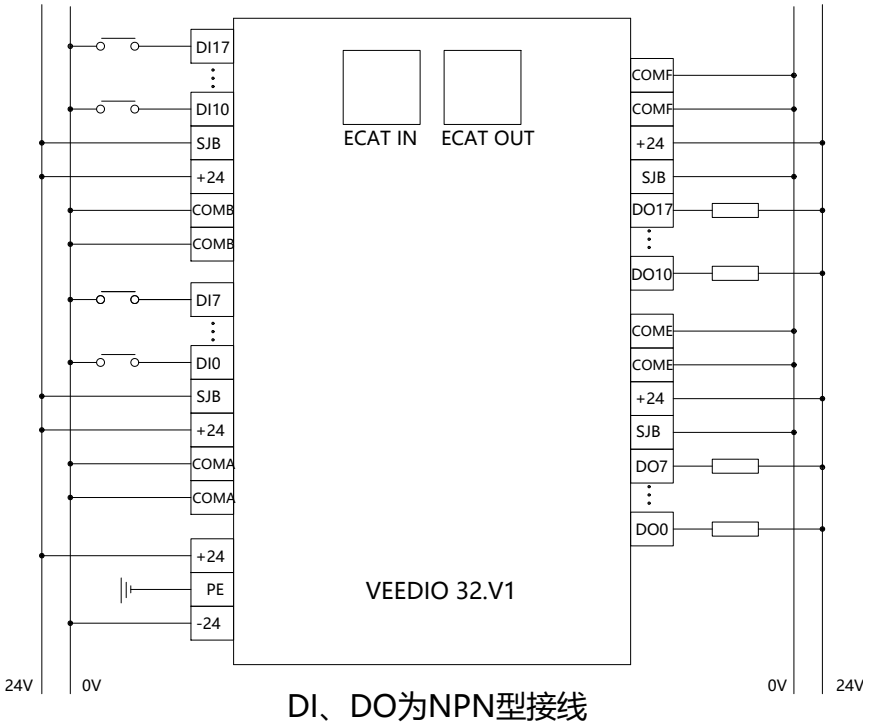
② EtherCAT(OUT) : EtherCAT network output, connected to the next extension input EtherCAT(IN) or not connected

③ External 24V power supply and DI wiring terminal. Its definition is as follows:

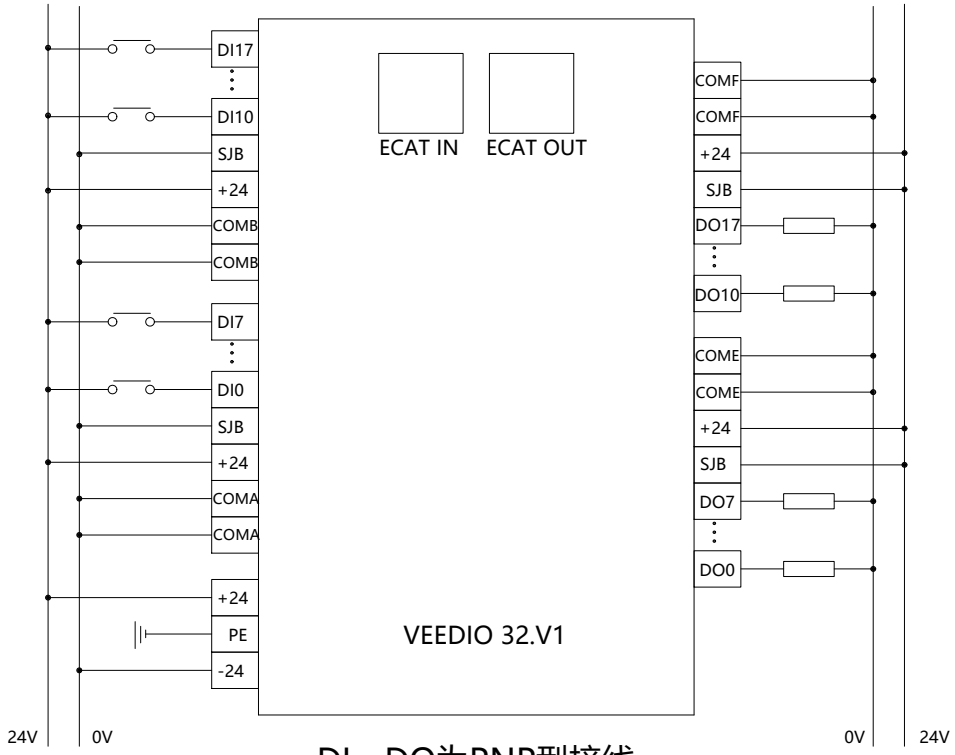


2.3.2 Product Wiring Description

You can select NPN and PNP for DI and DO based on the jumper port on the terminal. The specific connection mode is as follows:



DI、DO为NPN型接线



DI、DO为PNP型接线

2.3.3 Object description of EtherCAT

The product provides a device description file named "model.xml". Each device model has its corresponding device description file. The file import method is performed in the master configuration,As long as the master station supports standard EtherCAT communication, the device configuration can be imported normally.

VEC-VE-EX-32IO-A extension has one RPDO (1702) and one TPDO (1B02), which contains the following objects:

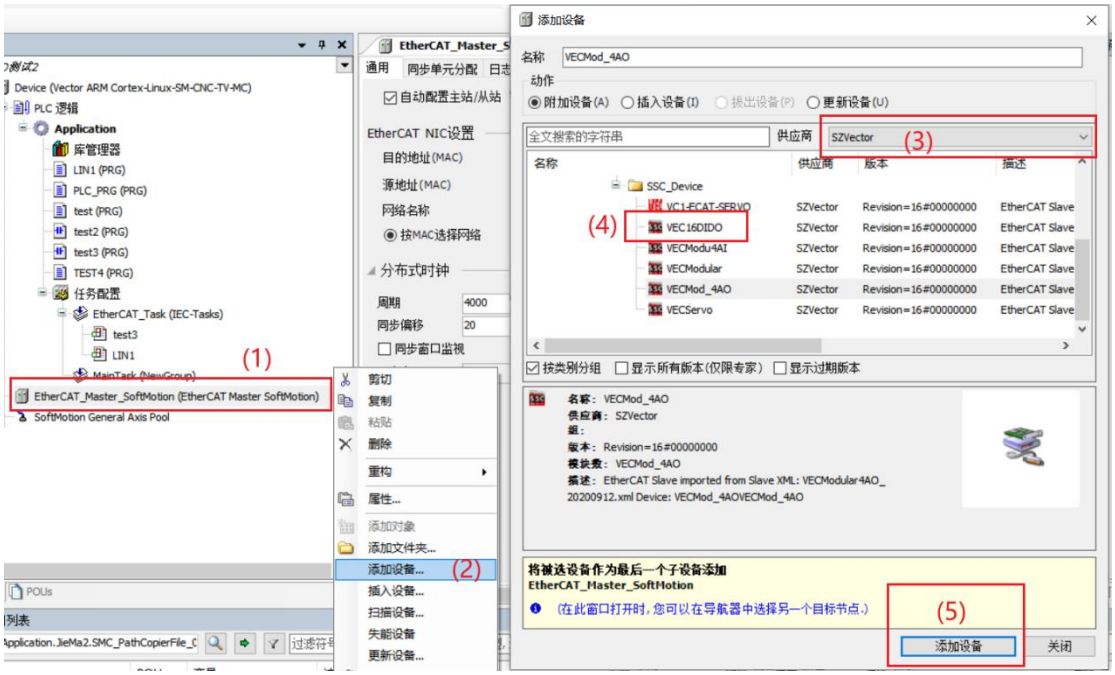
Object	Definition
1702(RPDO259)	6300h(Write output 16-bit)：16 bit DO output
1B02(TPDO259)	6100h(Read input 16-bit)：16 bit DO input

After importing the file device, it can be seen that the AI mapping is shown in the figure below. For the import method, see the 《VE motion controller programming manual》of VECTOR

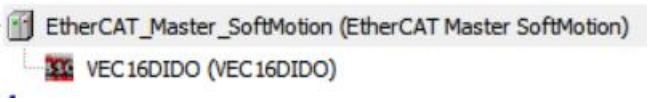
变量	映射	通道	地址	类型	单元	描述
		Write output 16-bit	%QW0	UINT		Write output 16-bit
		Read input 16-bit	%IW0	UINT		Read input 16-bit
		Pulse Counter 1	%ID1	UDINT		Pulse Counter 1
		Pulse Counter 2	%ID2	UDINT		Pulse Counter 2

2.3.4 Device Adding descriptions

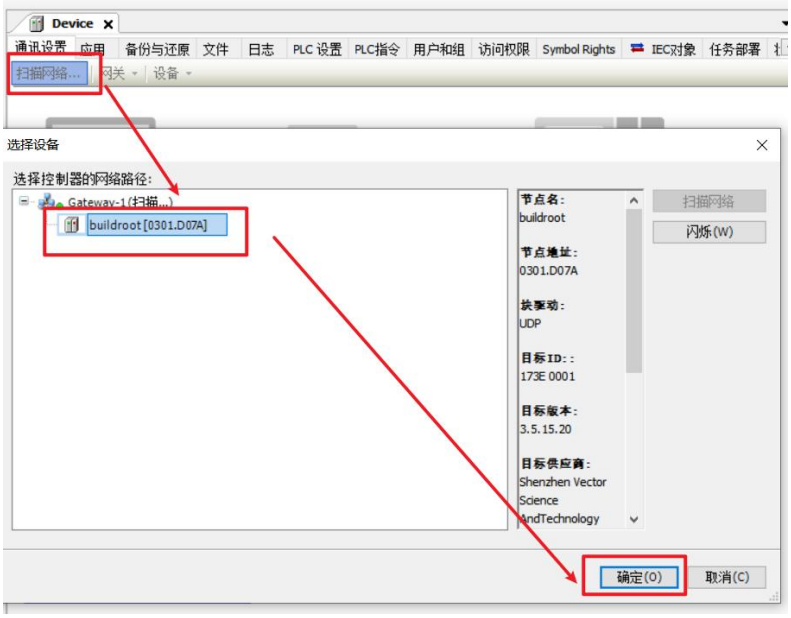
(1) Add VEC-VE-EX-32IO-A to the software



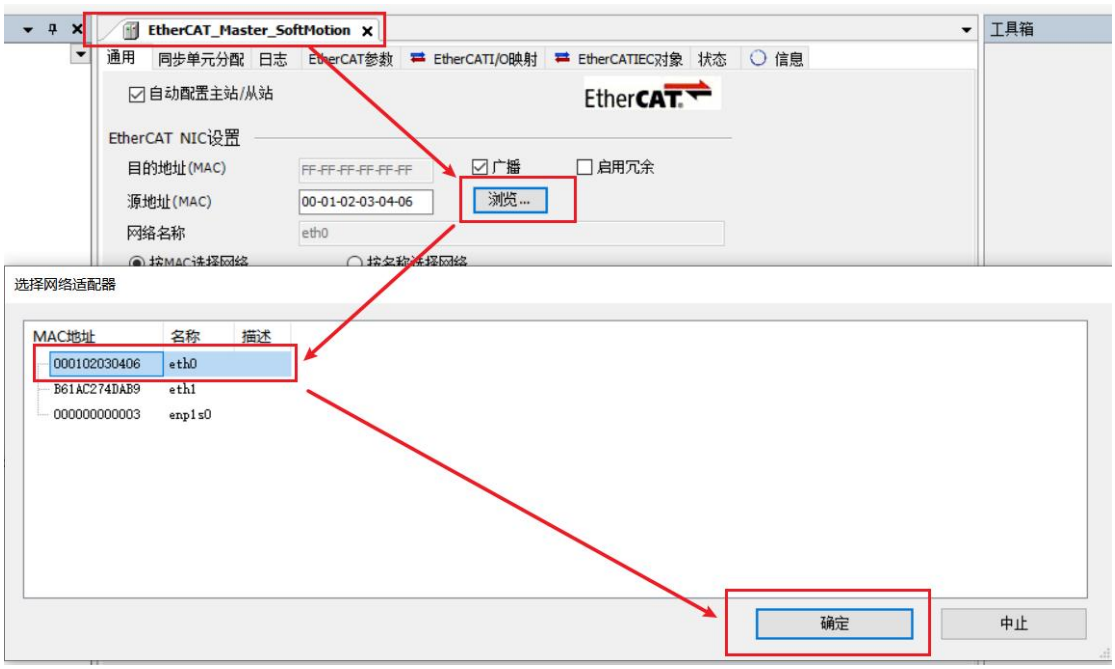
(2)As shown in the following figure, it is added successfully;



(3) Connect to the VE host and scan the network.



(4)As shown below, the EtherCAT network adapter is assigned to eth0



(5) It can then be used according to the above object description;

2.4 VEC-VE-EX-ECAT-SUB（mix）

2.4.1 Product Appearance and Configuration introduction

(1)EtherCAT(IN) : EtherCAT network input, connected to the host output or the last extension EtherCAT(OUT)

(2)EtherCAT(OUT) : EtherCAT network output, connected to the next extension input EtherCAT(IN) or not connected

(3) The functions are as follows:

① 32 point digital input, 32 point digital output, input and output optional NPN or PNP;

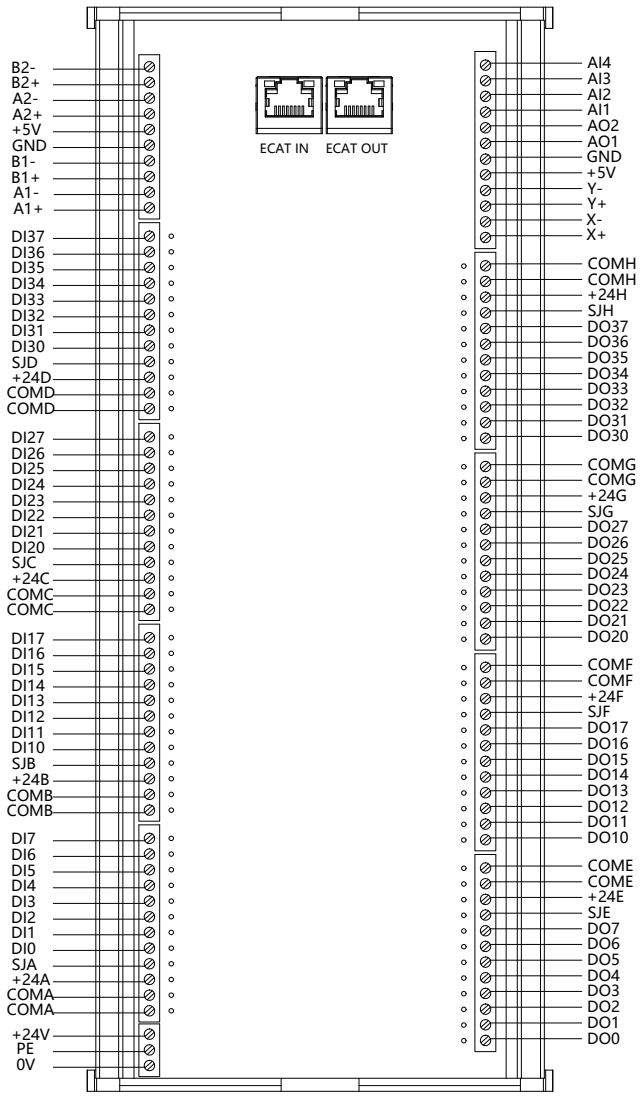
② 4-channel analog input (-10V~+10V)

③ 2-channel analog output (-10V~+10V)

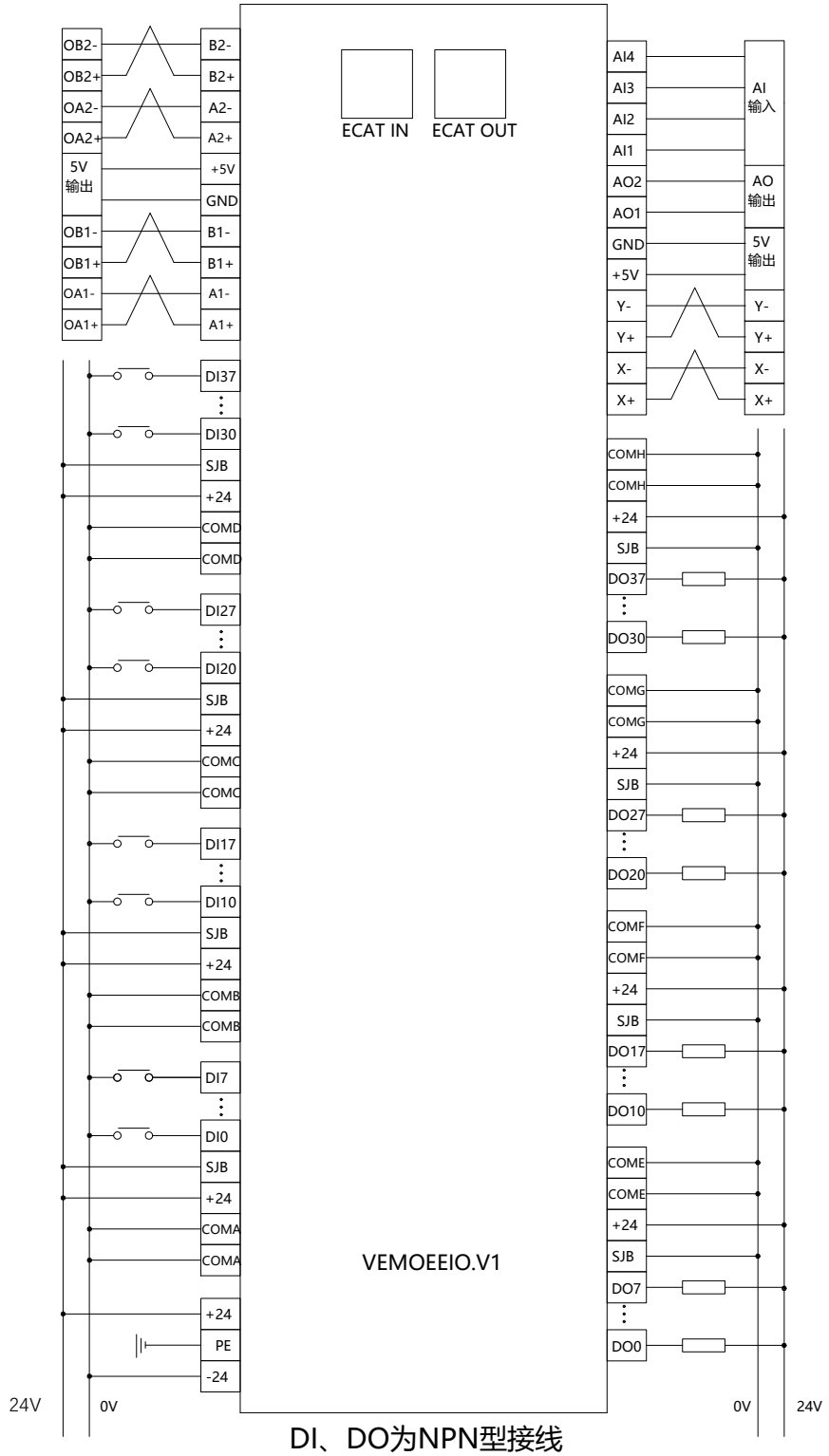
④ 1-channel pulse counter (XY pulse)

⑤ 2-channel encoder count (AB pulse, support probe function, support pulse)

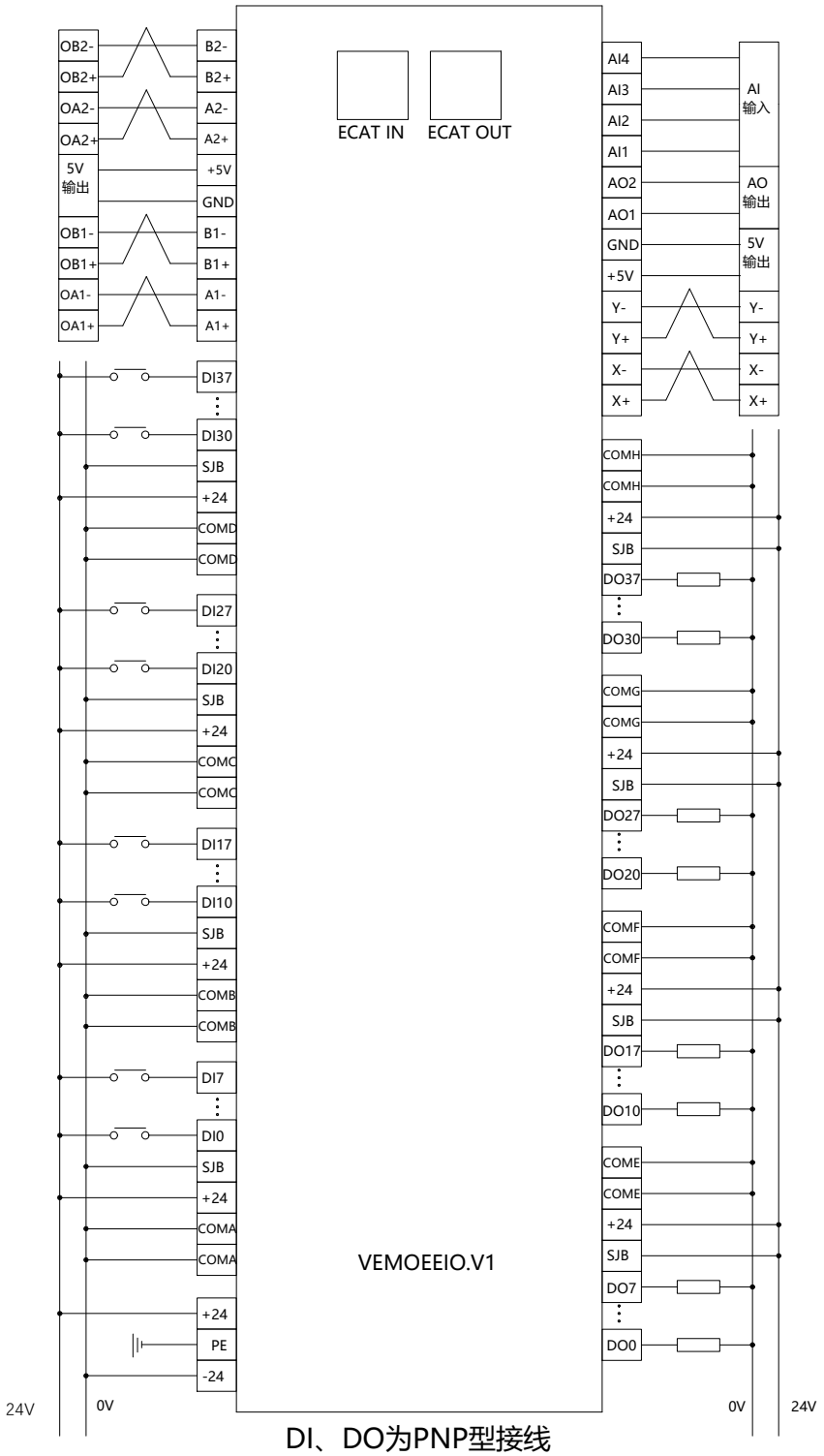
(4)External 24V power supply and DI wiring terminal. Its definition is as follows:



2.4.2 Product Wiring Description



DI、DO为NPN型接线



DI、DO为PNP型接线

2.4.3 Description of the EtherCAT object

The product provides a device description file named "model.xml". Each device model has its corresponding device description file. The file import method is performed in the master configuration,As long as the master station supports standard EtherCAT communication, the device configuration can be imported normally.

VEC-VE-EX-ECAT-SUB (hybrid) extension has one RPDO (1600) and one TPDO (1A00). Note that a maximum of 16 groups of process parameters can be configured in 1A00.
It contains the following objects:：

Object	Definition
1600 (The first RPDO)	6320h(Write output 32-bit)：32-bit DO output
	6411:01(Write analogue output 16-bit of channal1)：Analog output channel 1
	6411:02(Write analogue output 16-bit of channal2)：Analog output channel 2
	60B8h(Touch Probe Function)：Probe function register
	2003h(Pulse output1 control low32)：Pulse output 1 pulse period：If it is a period of n microseconds, write the value of n microseconds times 50
	2004h(Pulse output1 control high32)：Pulse output 1 total number（Scope：-2147483648~~~2147483647）
1A00 (The first TPDO)	2000h(Pulse Counter low32)：Pulse counter low 32 bits
	2001h(Pulse Counter high32): Pulse counter high 32 bits
	2005h(Pulse output1 status low32)： Actual insertion time
	2006h(Pulse output1 status high32)：Number of pulses sent
	6120h(Read input 32-bit)：32-bit DI input
	6004h(Position Value)：Encoder 1 position
	6104h(Position Value2)：Encoder 2 position
	6401:01(Read analogue input 16-bit of channal1)：Analog input channel 1
	6401:02(Read analogue input 16-bit of channal2)：Analog input channel 2
	6401:03(Read analogue input 16-bit of channal3)：Analog input channel 3
	6401:04(Read analogue input 16-bit of channal4)：Analog input channel 4
	60B9(Touch Probe Status)：Probe status
	60BA(Probe1 PosLatchPos)：Latch position value of rising edge of probe 1
	60BB(Probe1 NegLatchPos)：Latch position value of falling edge of probe 1
	60BC(Probe2 PosLatchPos)：Latch position value of rising edge of probe 2
	60BD(Probe2 NegLatchPos)：Latch position value of falling edge of probe 2

After importing the file device, it can be seen that the I/O mapping is shown in the figure below. For the import method, see the 《VE motion controller programming manual》 of VECTOR

	Write output 32-bit	%QD7	UDINT		Write output 32-bit
	Write analogue output 16-bit of channal 1	%QW16	INT		Write analogue output 16-bit of channal 1
	Write analogue output 16-bit of channal 2	%QW17	INT		Write analogue output 16-bit of channal 2
	Touch Probe Function	%QW18	UINT		Touch Probe Function
	Pulse output1 control low32	%QD10	UDINT		Pulse output1 control low32
	Pulse output1 control high32	%QD11	UDINT		Pulse output1 control high32
	Pulse Counter low32	%ID16	UDINT		Pulse Counter low32
	Pulse Counter hig32	%ID17	UDINT		Pulse Counter hig32
	Pulse output1 status low32	%ID18	UDINT		Pulse output1 status low32
	Pulse output1 status high32	%ID19	UDINT		Pulse output1 status high32
	Read input 32-bit	%ID20	UDINT		Read input 32-bit
	Position Value	%ID21	UDINT		Position Value
	Position Value 2	%ID22	UDINT		Position Value 2
	Read analogue input 16-bit of channal 1	%IW46	INT		Read analogue input 16-bit of channal 1
	Read analogue input 16-bit of channal 2	%IW47	INT		Read analogue input 16-bit of channal 2
	Read analogue input 16-bit of channal 3	%IW48	INT		Read analogue input 16-bit of channal 3
	Read analogue input 16-bit of channal 4	%IW49	INT		Read analogue input 16-bit of channal 4
	Touch Probe Status	%IW50	UINT		Touch Probe Status
	Probe1PosLatchPos	%ID26	UDINT		Probe1PosLatchPos
	Probe1NegLatchPos	%ID27	UDINT		Probe1NegLatchPos
	Probe2PosLatchPos	%ID28	UDINT		Probe2PosLatchPos
	Probe2NegLatchPos	%ID29	UDINT		Probe2NegLatchPos

2.4.4 Function Description

1、Pulse input function.

The pulse type of the pulse counter, as well as the type of the encoder 1 and 2, can be configured by starting the parameter,the configuration object:0X2007 (configure parameter1)

Bit0-Bit2：Pulse Type of pulse input counter	0：Pulse + direction positive logic 1：Pulse + direction negative logic 2：AB pulse 3：CW pulse positive logic 4：CW pulse negative logic
Bit3-Bit5：Type of encoder 1	1：17-bit encoder 2：24-bit encoder 3：23-bit encoder 4：Photoelectric encoder
Bit6-Bit8：Type of encoder 2	1：17-bit encoder 2：24-bit encoder 3：23-bit encoder 4：Photoelectric encoder

2. Pulse output function.

Add a configuration object to the startup parameter:0X2009 (configure parameter3)

Bit0：AB Pulse interface 1 Type	0：AB pulse interface1 is received by the encoder 1：AB pulse interface1 is the pulse output
Bit1：AB Pulse interface2 Type	0：AB pulse interface2 is received by the encoder 1：AB pulse interface2 is the pulse output

Then modify 2003h, 2004h, 2013h and 2014h in the process data:

2003h(Pulse output1 control low32): Pulse output 1 Pulse period: if it is a period of N microseconds, write the value of N microseconds multiplied by 50
2004h(Pulse output1 control high32): Pulse output 1 total number (Scope: -2147483648~~~2147483647)
2013h(Pulse output2 control low32): Pulse output 2 Pulse period: if it is a period of N microseconds, write the value of N microseconds multiplied by 50
2014h(Pulse output2 control high32): Pulse output 2 total number(Scope: -2147483648~~~2147483647)

The actual number of pulses emitted by pulse output 1 and pulse output 2 and the actual pulse insertion time can be observed by adding process parameters.

object	definition
1A00 (The first TPDO)	2005h(Pulse output1 status low32): Pulse 1 Actual pulse insertion time
	2006h(Pulse output1 status high32): Number of pulses that have been sent by pulse 1
	2015h(Pulse output2 status low32): Pulse 2 Actual pulse insertion time
	2016h(Pulse output2 status high32): Number of pulses that have been sent by pulse 2

3. Analog input filtering function and analog input and output function.

Configure the low-pass filtering time of analog input, which can be configured in the startup parameters. Configuration object: 0x2002

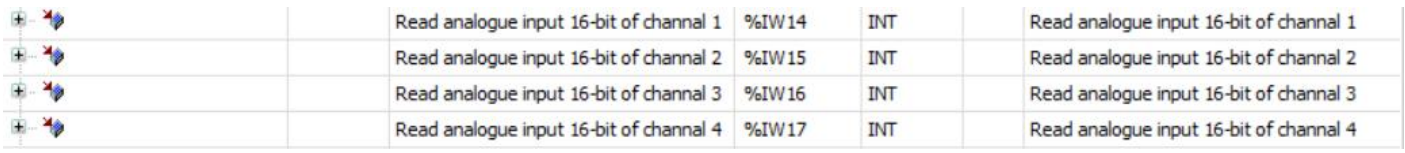
Indexes	Sub index	explanation
0X2002	0X1	Analog input AI1 Low pass filtering time, unit: 20ns
	0X2	Analog input AI2 Low pass filtering time, unit: 20ns
	0X3	Analog input AI3 Low pass filtering time, unit: 20ns
	0X4	Analog input AI4 Low pass filtering time, unit: 20ns

VEC-VE-EX-ECAT-SUB (hybrid) extension has four channels of analog input and two channels of modulus output, which includes the following objects:

Object	definition
1A00 (The first TPDO)	6401:01(Read analogue input 16-bit of channal1): Analog input channel 1
	6401:02(Read analogue input 16-bit of channal2): Analog input channel 2
	6401:03(Read analogue input 16-bit of channal3): Analog input channel 3
	6401:04(Read analogue input 16-bit of channal4): Analog input channel 4
1600 (The first RPDO)	6411:01(Write analogue output 16-bit of channal1): Analog output channel 1
	6411:02(Write analogue output 16-bit of channal2): Analog output channel 2

After importing the file device, it can be seen that the AI mapping is shown in the figure below. For the import method, see the 《VE motion controller programming manual》 of VECTOR

Note: the unit of output value of each channel is mV;



4.DI high-speed counter function

(1)DI pulse counting configuration:Add configuration object in startup parameter0x2019： DI Pulse Counter Configure

Bit0-Bit5：Channel 1 DI selection	1：DI0 2：DI1 3：DI2 ...
Bit6：Channel 1 counting mode	0：Channel 1 selects falling edge count 1：Channel 1 selects rising edge count
Bit7	retain
Bit8-Bit13：Channel 2 DI selection	1：DI0 2：DI1 3：DI2 ...
Bit14：Channel 2 counting mode	0：Channel 2 selects falling edge count 1：Channel 2 selects rising edge count
Bit15	retain

(2) DI channel pulse counter:

This extension has two DI channels as pulse counters. Add and configure the following table objects in the process data group 16#1A00 as required (note that there can only be 16 groups at most when configuring the process parameters in 1A00) :

Indexes:(0x2017)DI Channal 1 Pulse Counter	DI channel 1 pulse counter
Indexes:(0x2018)DI Channal 2 Pulse Counter	DI channel 2 pulse counter

5.XY pulse counter:

The expansion has one XY pulse counter. The external encoder can observe the number of pulses sent according to needs, including objects as follows:

Object	definition
1A00 (The first TPDO)	2000h(Pulse Counter low32)：Pulse counter low 32 bits
	2001h(Pulse Counter high32): Pulse counter high 32 bits

6. Probe function

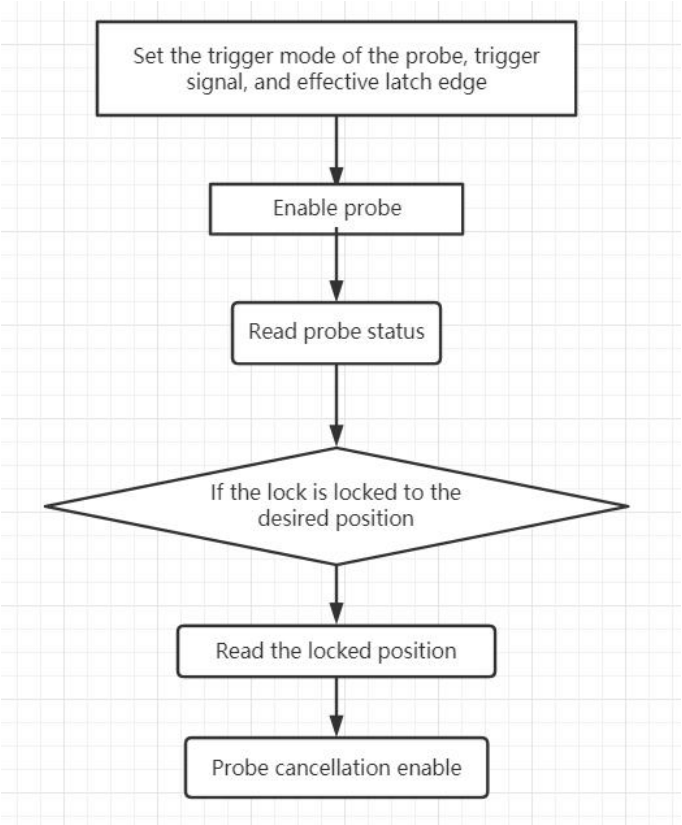
(1) Introduction to probe function (only encoder 1 (Ab1) can use probe function)

Probe function is position latch function. It can latch the position information (encoder unit) when the external DI signal or the motor Z signal changes.The VEC supports two probes at the same time. The position information corresponding to the rising edge and falling edge of each probe signal can be recorded at the same time, and four positions can be locked at the same time.Probe 1 can select DI0 or motor Z signal as probe signal, and probe 2 can select DI1 or motor Z signal as probe signal.The position information latched by the rising edge of probe 1 is stored in 0x60BA (encoder unit), the position information latched by the falling edge of probe 1 is stored in 0x60BB (encoder unit), the position information latched by the rising edge of probe 2 is stored in 0x60BC (encoder unit), and the position information latched by the falling edge of probe 2 is stored in 0x60BD (encoder unit).You can also set whether each probe is locked continuously or

only once.Continuous latch refers to latch as long as the probe is enabled and the signal jumps. Locking only once means that after the probe is enabled, only the jump edge of the first signal is locked. After that, no matter whether the signal has jump or not, it will not be locked.

Note: The Z signal mentioned above is for servo drivers and is not present in this expansion module!!!

The probe must be used in strict accordance with the following steps.



(2) The relevant objects are as follows.

Set probe function (0x60B8)

<table>
<tr><td>Index</td><td>60B8h</td></tr>
<tr><td>name</td><td>Set probe function</td></tr>
<tr><td>Object type</td><td>variant</td></tr>
<tr><td>data type</td><td>Unsigned 16 bits</td></tr>
<tr><td>PDO mapping</td><td>Can be mapped</td></tr>
<tr><td>Read and write attribute</td><td>Readable and writable</td></tr>
<tr><td>default value</td><td>0</td></tr>
<tr><td>set range</td><td>0~65535</td></tr>
<tr><td>detailed description</td><td>
<table>
<tr><td>Bit</td><td>function</td><td></td></tr>
<tr><td>0</td><td>Enable probe 1:
0--Probe 1 is disabled
1--Probe 1 is enabled</td><td>Bit0~Bit5：Probe 1 related Settings
◆note：</td></tr>
</table>
</td></tr>
</table>

	1	Probe 1 triggers mode 0—Single trigger. Trigger only when the trigger signal is effective for the first time 1—Continuous trigger	Once the enable signal of probe 1 (rising edge of bit0 of 60B8h) is valid, the function Settings of probe 1 (trigger mode, trigger signal, effective latch edge) cannot be changed, and the bit0 of 60B8h must remain valid during the operation of probe 1. When DI0 acts as the trigger signal of probe 1, its rising edge and falling edge can be enabled simultaneously
	2	Probe 1 triggers signal selection 0—DI0 input signal 1—Z signal (none)	
	3	RES	
	4	Rising edge of probe 1 is enabled 0--Rising edge does not latch 1--Rising edge latch	
	5	Probe 1 falling edge enable 0--Falling edge does not latch 1--Falling edge latch	
	6-7	RES	
	8	Enable probe2: 0--Probe 2is disabled 1--Probe 2 is enabled	Bit8~Bit15: Probe 1 related ◆note: Once the enable signal of probe 2 (rising edge of bit8 of 60B8h) is valid, the function Settings of probe 1 (trigger mode, trigger signal, effective latch edge) cannot be changed, and the bit8 of 60B8h must remain valid during the operation of probe 2. When DI0 acts as the trigger signal of probe2, its rising edge and falling edge can be enabled simultaneously
	9	Probe 2 triggers mode 0—Single trigger. Trigger only when the trigger signal is effective for the first time 1—Continuous trigger	
	10	Probe 2 triggers signal selection 0—DI1 Input signal 1—Z signal (none)	
	11	RES	
	12	Rising edge of probe 2 is enabled 0--Rising edge does not latch 1--Rising edge latch	
	13	Probe 2 falling edge enable 0--Falling edge does not latch 1--Falling edge latch	
	14-15	RES	

Read probe state (0x60B9)

Index	60B9h
name	Set probe function
Object type	variant

<table>
<tr><td>data type</td><td>Unsigned 16 bits</td></tr>
<tr><td>PDO mapping</td><td>Can be mapped</td></tr>
<tr><td>Read and write attribute</td><td>Readable and writable</td></tr>
<tr><td>default value</td><td>0</td></tr>
<tr><td>set range</td><td>0~65535</td></tr>
<tr><td>detailed description</td><td>
<table>
<tr><th>Bit</th><th>function</th><th></th></tr>
<tr><td>0</td><td>Enable probe 1:
0--Probe 1 is disabled
1--Probe 1 is enabled</td><td rowspan="7">Bit0~Bit5：Probe 1 related Settings
◆note:
Once the enable signal of probe 1 (rising edge of bit0 of 60B8h) is valid, the function Settings of probe 1 (trigger mode, trigger signal, effective latch edge) cannot be changed, and the bit0 of 60B8h must remain valid during the operation of probe 1. When DI0 acts as the trigger signal of probe 1, its rising edge and falling edge can be enabled simultaneously</td></tr>
<tr><td>1</td><td>Probe 1 triggers mode
0—Single trigger. Trigger only when the trigger signal is effective for the first time
1—Continuous trigger</td></tr>
<tr><td>2</td><td>Probe 1 triggers signal selection
0—DI0 input signal
1—Z signal (none)</td></tr>
<tr><td>3</td><td>RES</td></tr>
<tr><td>4</td><td>Rising edge of probe 1 is enabled
0--Rising edge does not latch
1--Rising edge latch</td></tr>
<tr><td>5</td><td>Probe 1 falling edge enable
0--Falling edge does not latch
1--Falling edge latch</td></tr>
<tr><td>6-7</td><td>RES</td></tr>
<tr><td>8</td><td>Enable probe2：
0--Probe 2is disabled
1--Probe 2 is enabled</td><td rowspan="7">Bit8~Bit15：Probe 1 related
◆note:
Once the enable signal of probe 2 (rising edge of bit8 of 60B8h) is valid, the function Settings of probe 1 (trigger mode, trigger signal, effective latch edge) cannot be changed, and the bit8 of 60B8h must remain valid during the operation of probe 2. When DI0 acts as the trigger signal of probe2, its rising edge and falling edge can be enabled simultaneously</td></tr>
<tr><td>9</td><td>Probe 2 triggers mode
0—Single trigger. Trigger only when the trigger signal is effective for the first time
1—Continuous trigger</td></tr>
<tr><td>10</td><td>Probe 2 triggers signal selection
0—DI1 Input signal
1—Z signal (none)</td></tr>
<tr><td>11</td><td>RES</td></tr>
<tr><td>12</td><td>Rising edge of probe 2 is enabled
0--Rising edge does not latch
1--Rising edge latch</td></tr>
<tr><td>13</td><td>Probe 2 falling edge enable
0--Falling edge does not latch
1--Falling edge latch</td></tr>
<tr><td>14-15</td><td>RES</td></tr>
</table>
</td></tr>
</table>

Probe 1 rising edge latched position 60BAh (encoder unit)

Index	60BAh
name	Probe 1 rising edge latched position
Object type	variant
data type	Signed 32-bit
PDO mapping	Can be mapped
Read and write attribute	read-only
default value	0
set range	-2147483648~2147483647
detailed description	The position latched on the rising edge of probe 1, in encoder units

Probe 1 falling edge latched position 60BBh (encoder unit)

Index	60BBh
name	Probe 1 falling edge latched position
Object type	variant
data type	Signed 32-bit
PDO mapping	Can be mapped
Read and write attribute	read-only
default value	0
set range	-2147483648~2147483647
detailed description	The position latched on the falling edge of probe 1, in encoder units

Probe 2 rising edge latched position 60BCh (encoder unit)

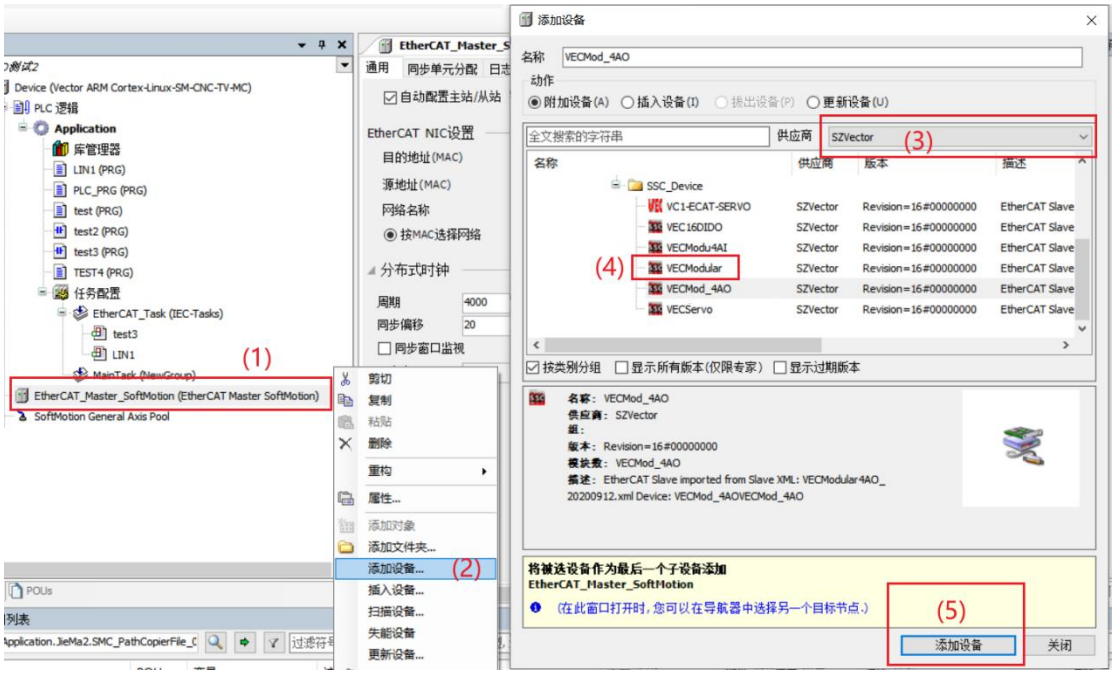
Index	60BCh
name	Probe 2 rising edge latched position
Object type	variant
data type	Signed 32-bit
PDO mapping	Can be mapped
Read and write attribute	read-only
default value	0
set range	-2147483648~2147483647
detailed description	The position latched on the rising edge of probe 2, in encoder units

Probe 2 falling edge latched position 60BDh (encoder unit)

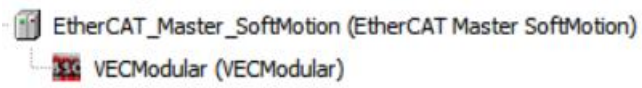
Index	60BDh
name	Probe 2 falling edge latched position
Object type	variant
data type	Signed 32-bit
PDO mapping	Can be mapped
Read and write attribute	read-only
default value	0
set range	-2147483648~2147483647
detailed description	The position latched on the falling edge of probe 2, in encoder units

2.4.5 Device Adding Description

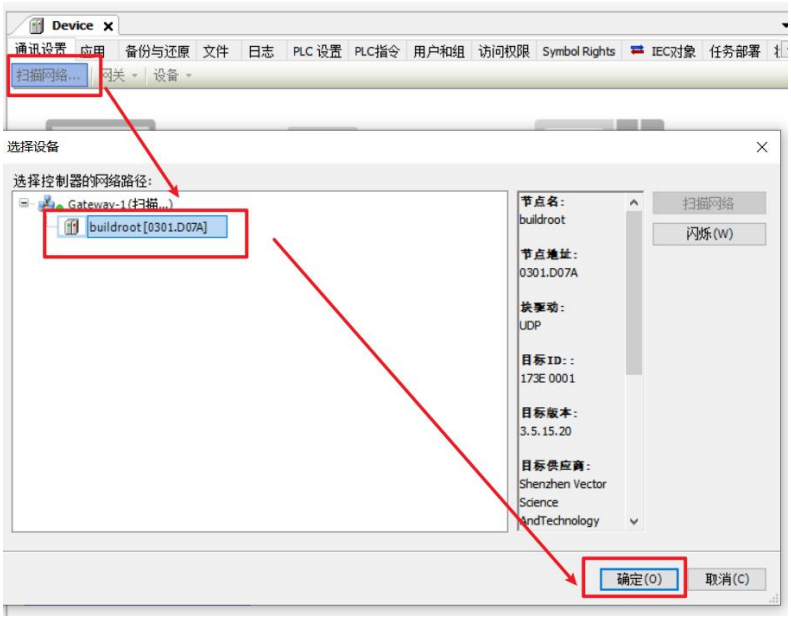
(1) Add VEC-VE-EX-32IO-A equipment on the software according to the sequence number in the figure below;



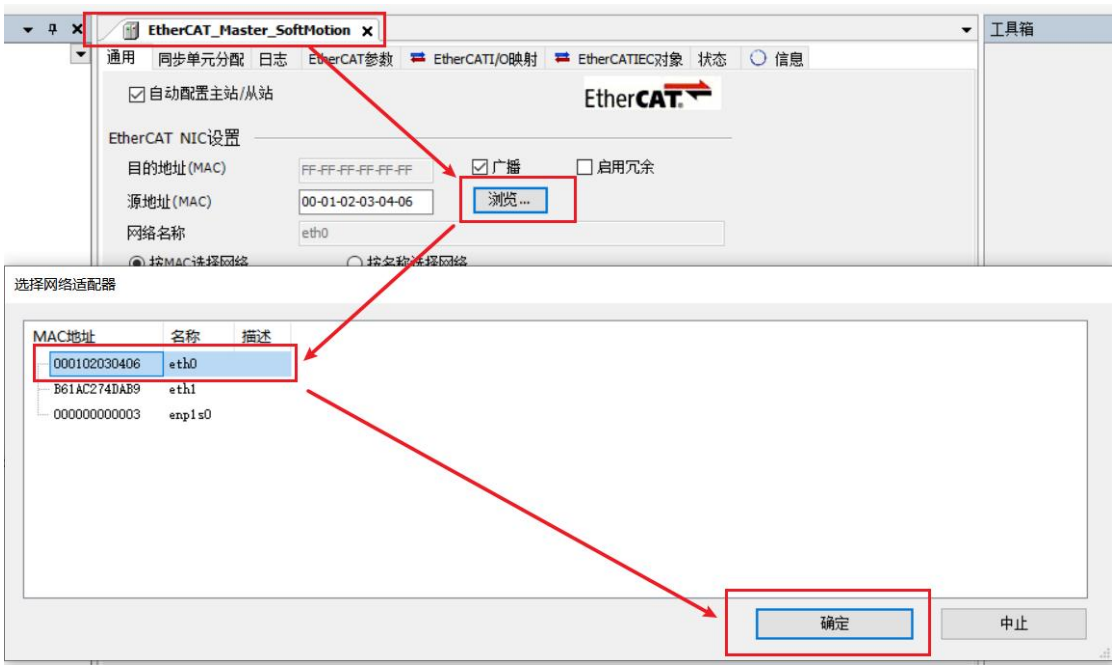
(2) As shown in the following figure, it is added successfully;



(3) Connect to the VE host and scan the network.



(4) As shown in the following figure, EtherCAT network adapter is assigned as eth0;

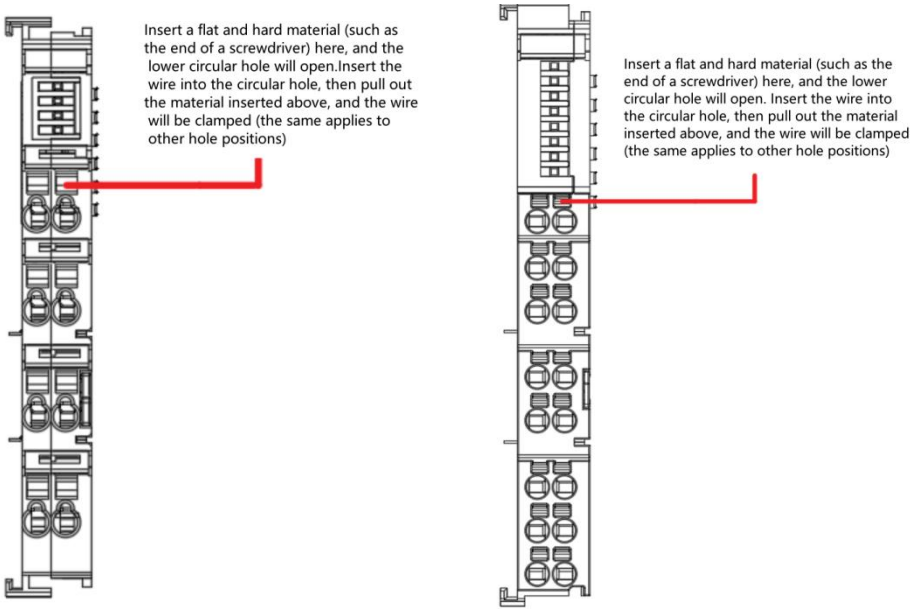


(5) It can then be used according to the above object description;

Chapter Ⅲ local IO Extension

Due to the limited IO of the host, when the system needs more IO control, the IO expansion module can be directly installed and connected to the host through the module. The local IO expansion module can be installed on the right side of the host unit, expansion unit or coupler.

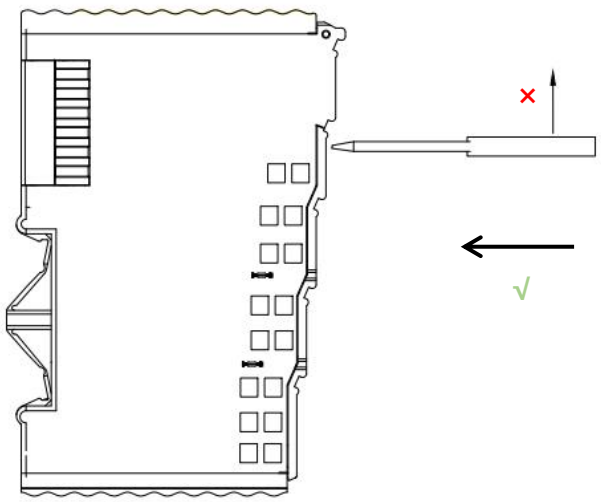
The local expansion wiring method is as follows:



Attention:

1. The 16IO module (on the right side of the figure) supports tool free wiring, and the wiring terminals with the wire ends pressed can be directly inserted vertically into the wiring port.

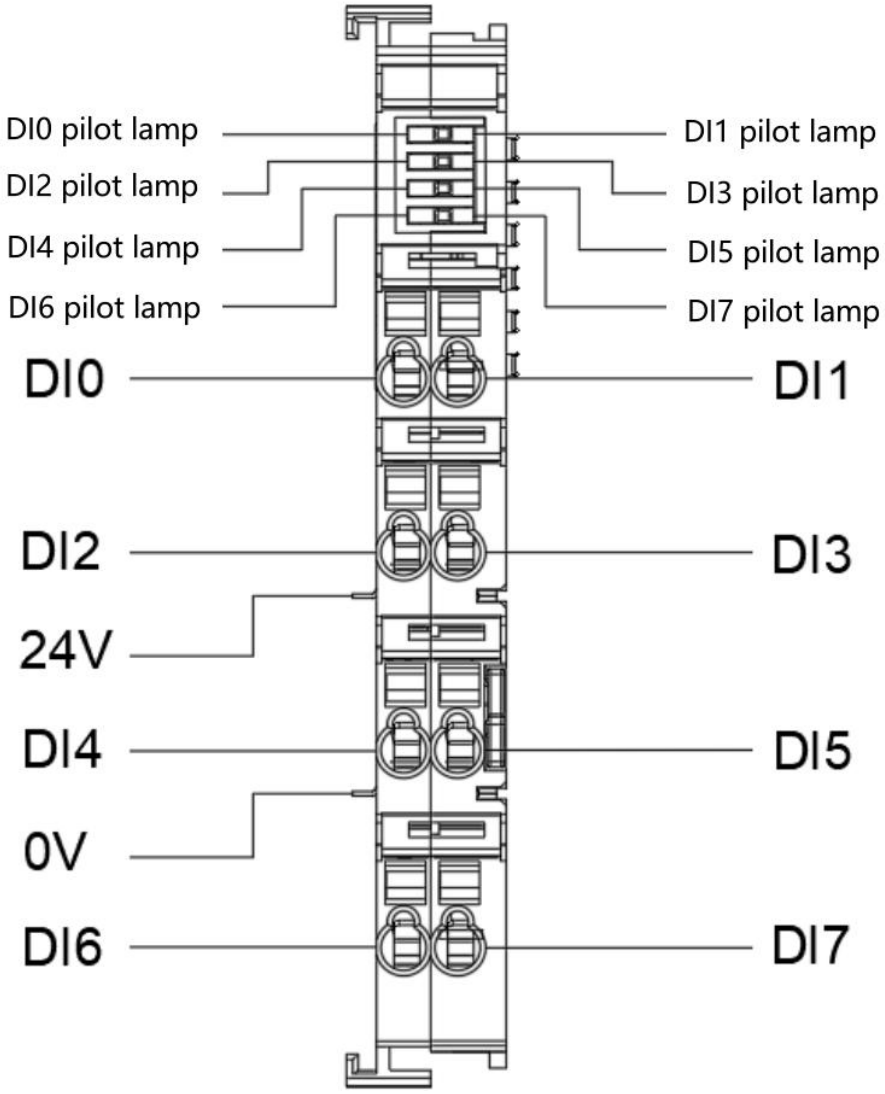
2.The screwdriver needs to be inserted vertically into the port shown in the red line, and cannot be pried up or down! (As shown in the following figure)



3.1 VEC-VE-EX-8DI

3.1.1 Introduction to Product Appearance and Configuration

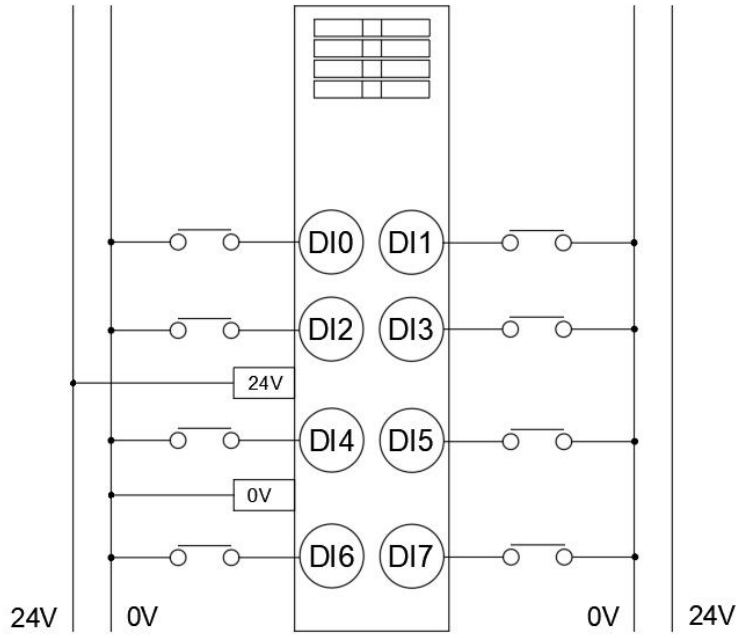
① Indicator light: When the corresponding DI has an input signal, the indicator light is on;
② The power consumption current of this expansion is 0.1A;
③ External 24V power supply and DI wiring terminal port. Its definition is as follows:



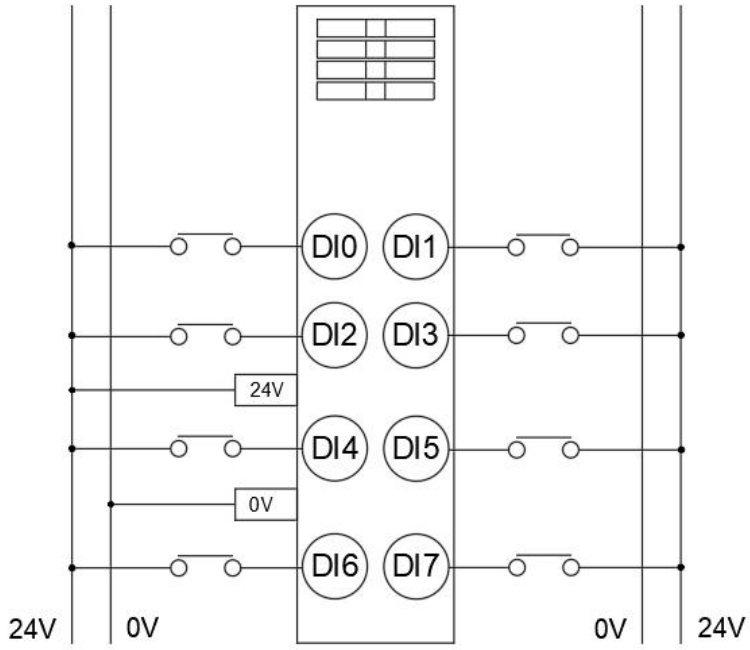
Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.1.2 product wiring instructions

This extended IO is divided into two types by model: VEC-VE-EX-8DI-NPN and VEC-VE-EX-8DI-PNP. The specific wiring method is as follows:



DI为NPN型接线



DI为PNP型接线

Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.1.3 Object description of EtherCAT

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-8DI-NPN extension has a TPDO (1600) that includes the following objects:

Object	definition
1600(Byte 0)	3001h（Input）：8-bit DI input

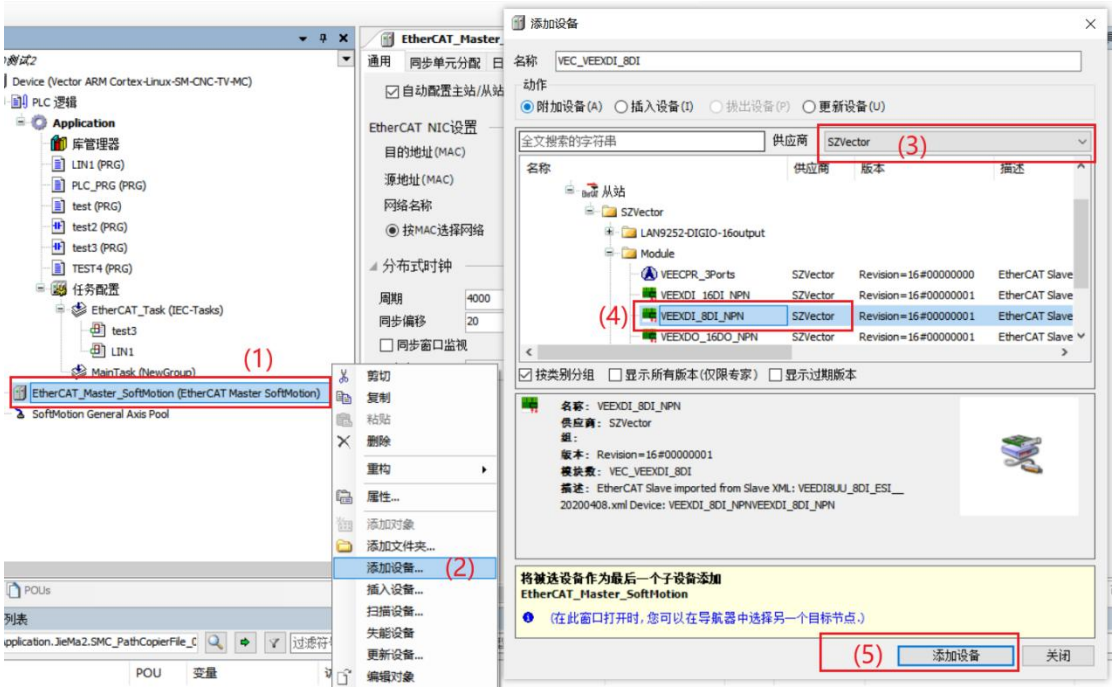
After importing the file device, the DI mapping is shown in the figure below. For the import method, see the VE motion controller Programming Manual of VIKODA

变量	映射	通道	地址	类型	单元	描述
		Input	%IX2.0	BIT		Input
		Input	%IX2.1	BIT		Input
		Input	%IX2.2	BIT		Input
		Input	%IX2.3	BIT		Input
		Input	%IX2.4	BIT		Input
		Input	%IX2.5	BIT		Input
		Input	%IX2.6	BIT		Input
		Input	%IX2.7	BIT		Input

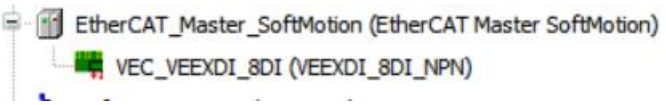
3.1.4 Device Adding Description

(1) Nest the 8DI extension that needs to be used behind the host power supply;

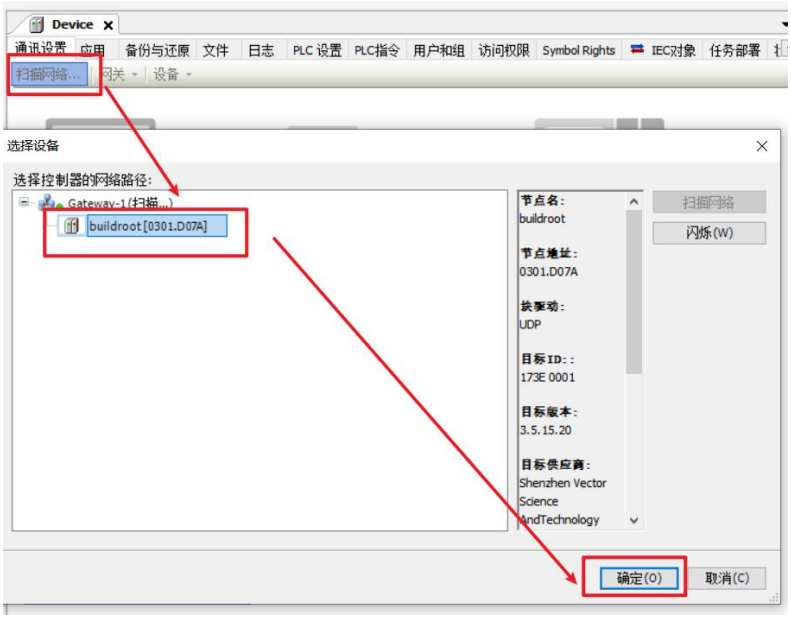
(2) Add 8DI devices to the software in the sequence shown in the following figure;



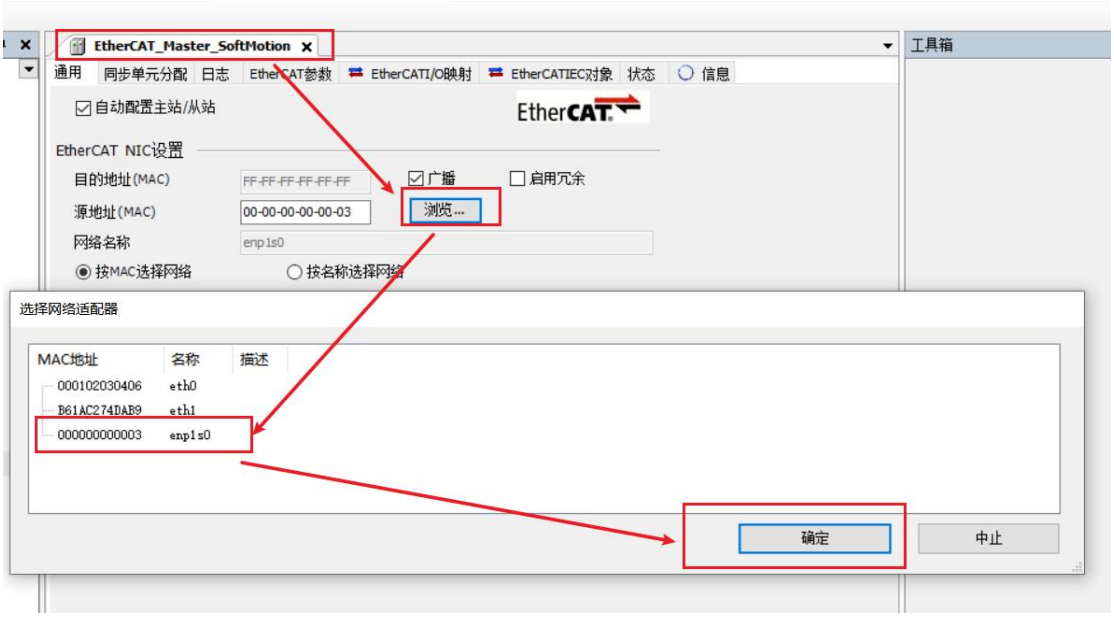
(3) The following figure shows that the addition was successful;



(4) Connect to the VE host and scan the network;



(5) As shown in the following figure, the EtherCAT network adapter is assigned as;

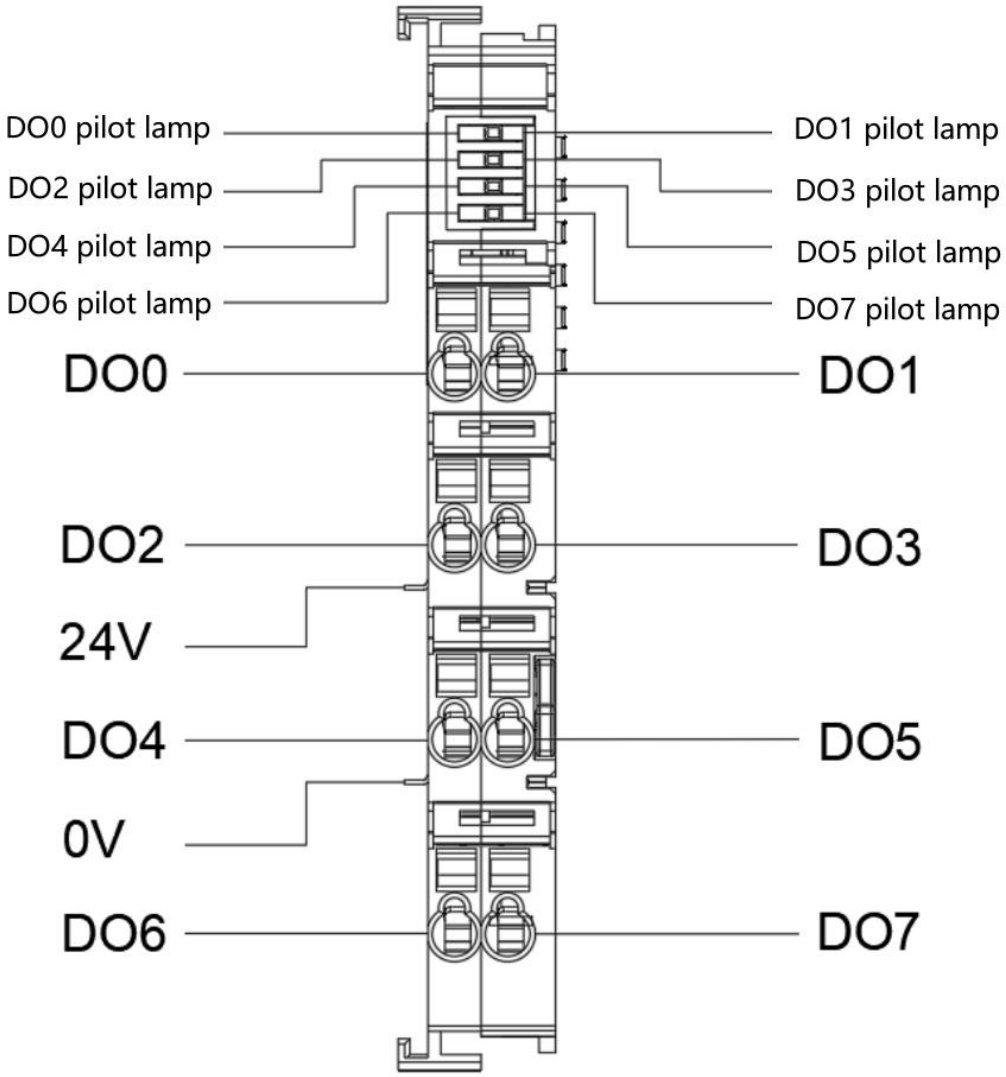


(6) Subsequently, it can be used according to the above object instructions;

3.2 VEC-VE-EX-8DO

3.2.1 Introduction to Product Appearance and Configuration

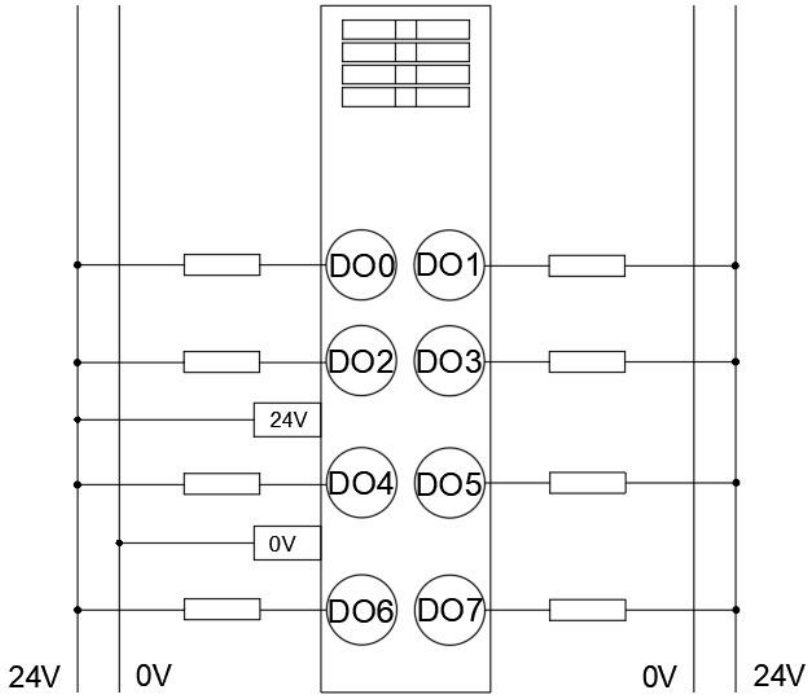
① Indicator light: When the corresponding DO has an input signal, the indicator light is on;
② The power consumption current of this expansion is 0.13A;
③ External 24V power supply and DO wiring terminal port. Its definition is as follows:



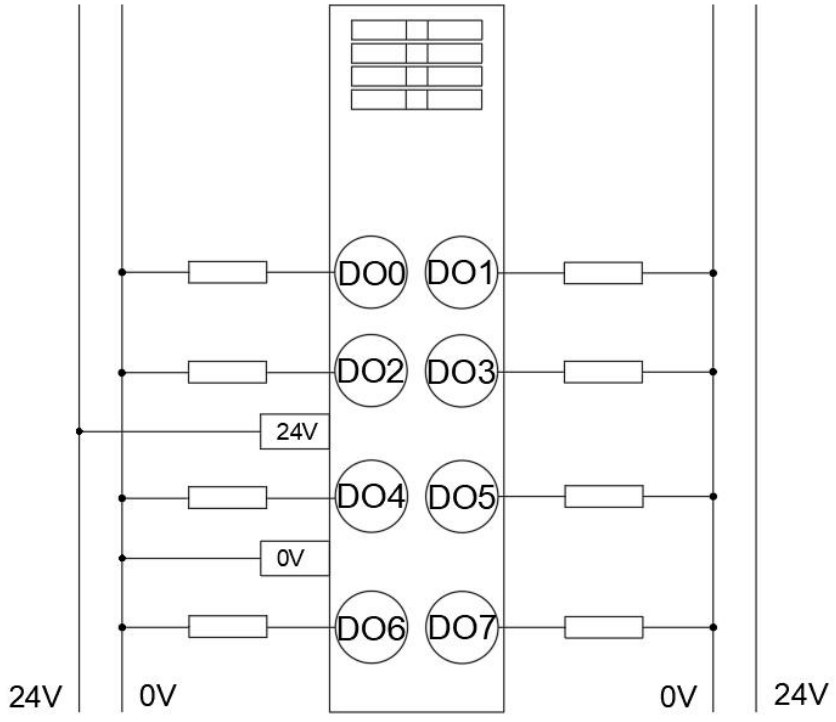
Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.2.2 Product wiring instructions

This extended IO is divided into two types by model: VEC-VE-EX-8DO-NPN and VEC-VE-EX-8DO-PNP. The specific wiring method is as follows:



DO为NPN型接线



DO为PNP型接线

3.2.3 EtherCAT Object Description

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-8DO-NPN extension has an RPDO (1600) that includes the following objects:

Object	Definition
1A00(Byte 0)	3101h（Output）： 8-bit DO output

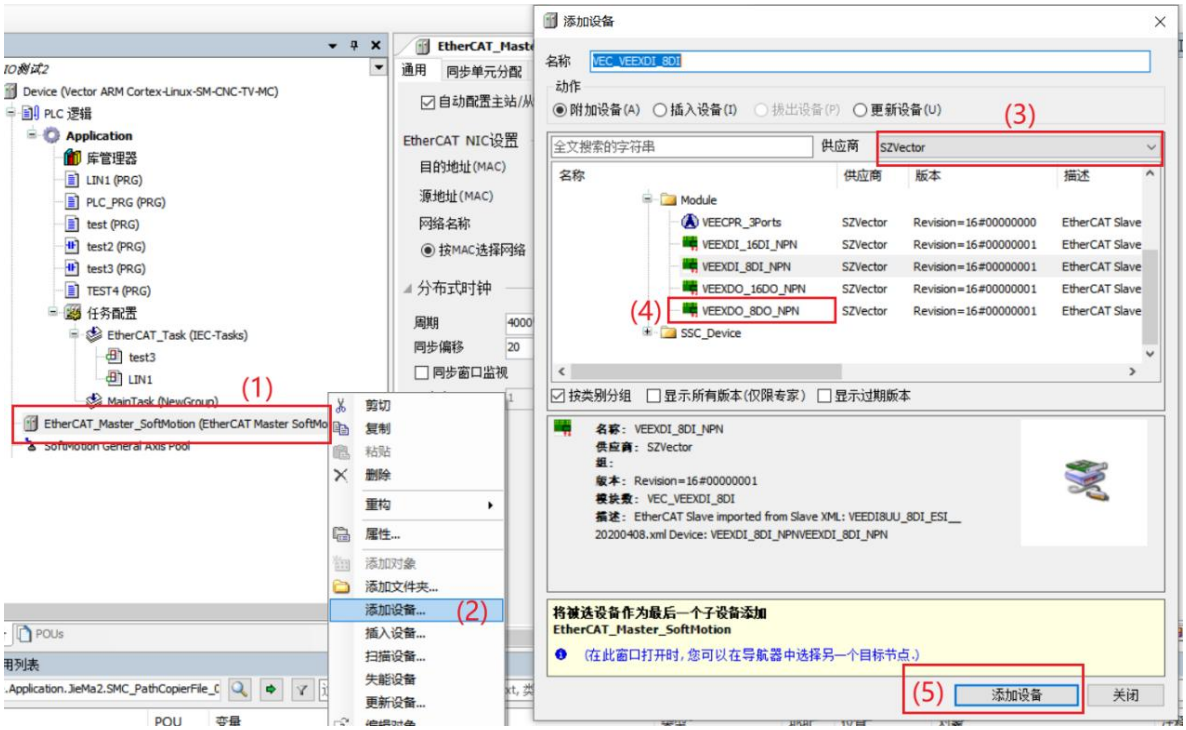
After importing the file device, it can be seen that the DO mapping is as shown in the figure below, and the import method is shown in the VE motion controller Programming Manual of VECTOR

变量	映射	通道	地址	类型	单元	描述
		Output	%QX2.0	BIT		Output
		Output	%QX2.1	BIT		Output
		Output	%QX2.2	BIT		Output
		Output	%QX2.3	BIT		Output
		Output	%QX2.4	BIT		Output
		Output	%QX2.5	BIT		Output
		Output	%QX2.6	BIT		Output
		Output	%QX2.7	BIT		Output

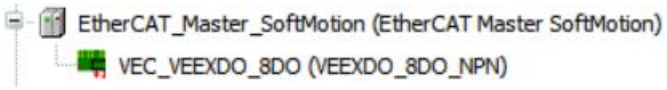
3.2.4.Device addition instructions

(1) Nest the 8DO extension that needs to be used behind the host power supply;

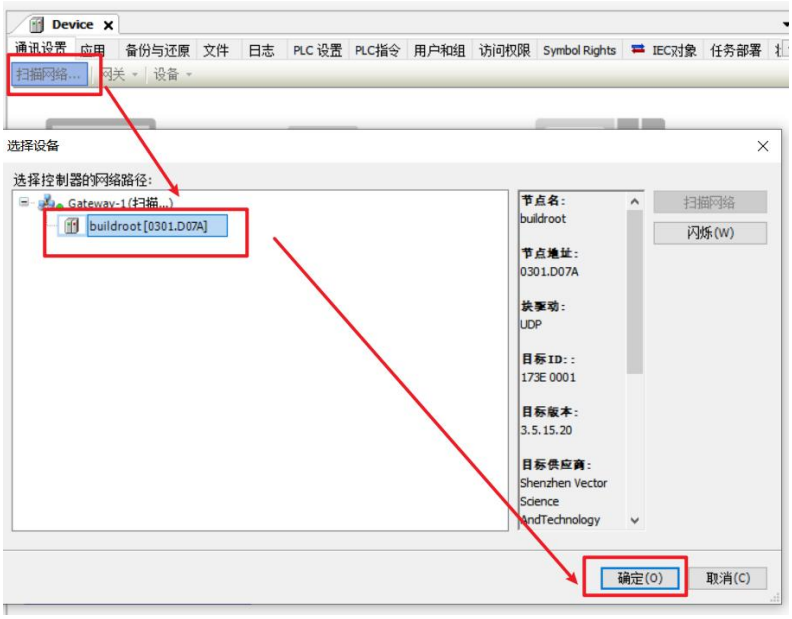
(2) Add 8DO devices to the software in the sequence shown in the following figure;



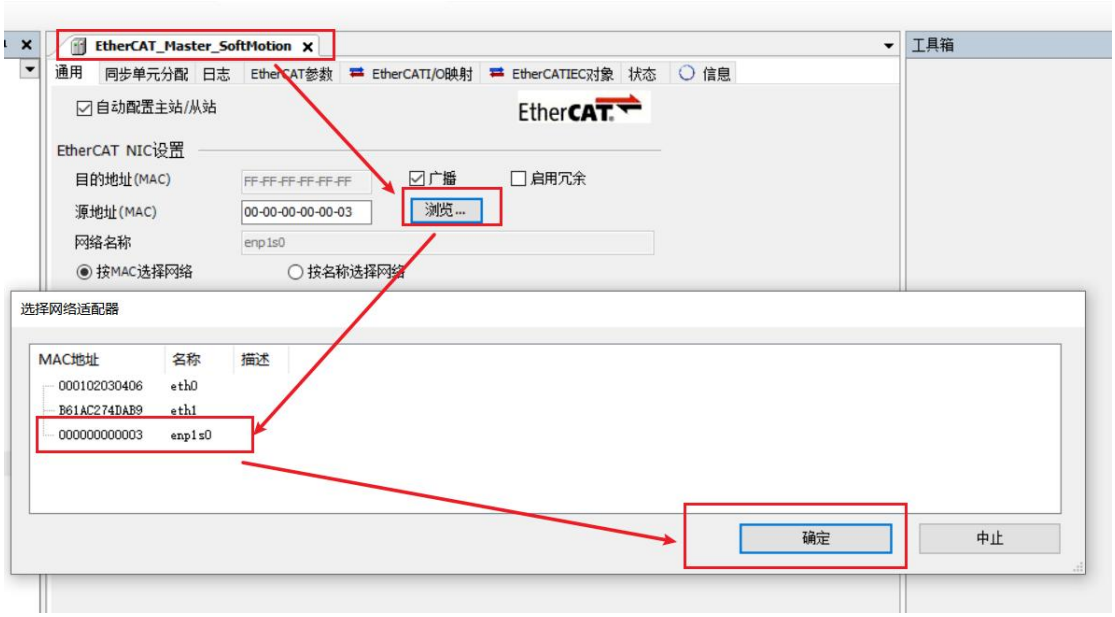
(3) The following figure shows that the addition was successful;



(4) Scan for Network



(5) As shown in the following figure, the EtherCAT network adapter is assigned as;

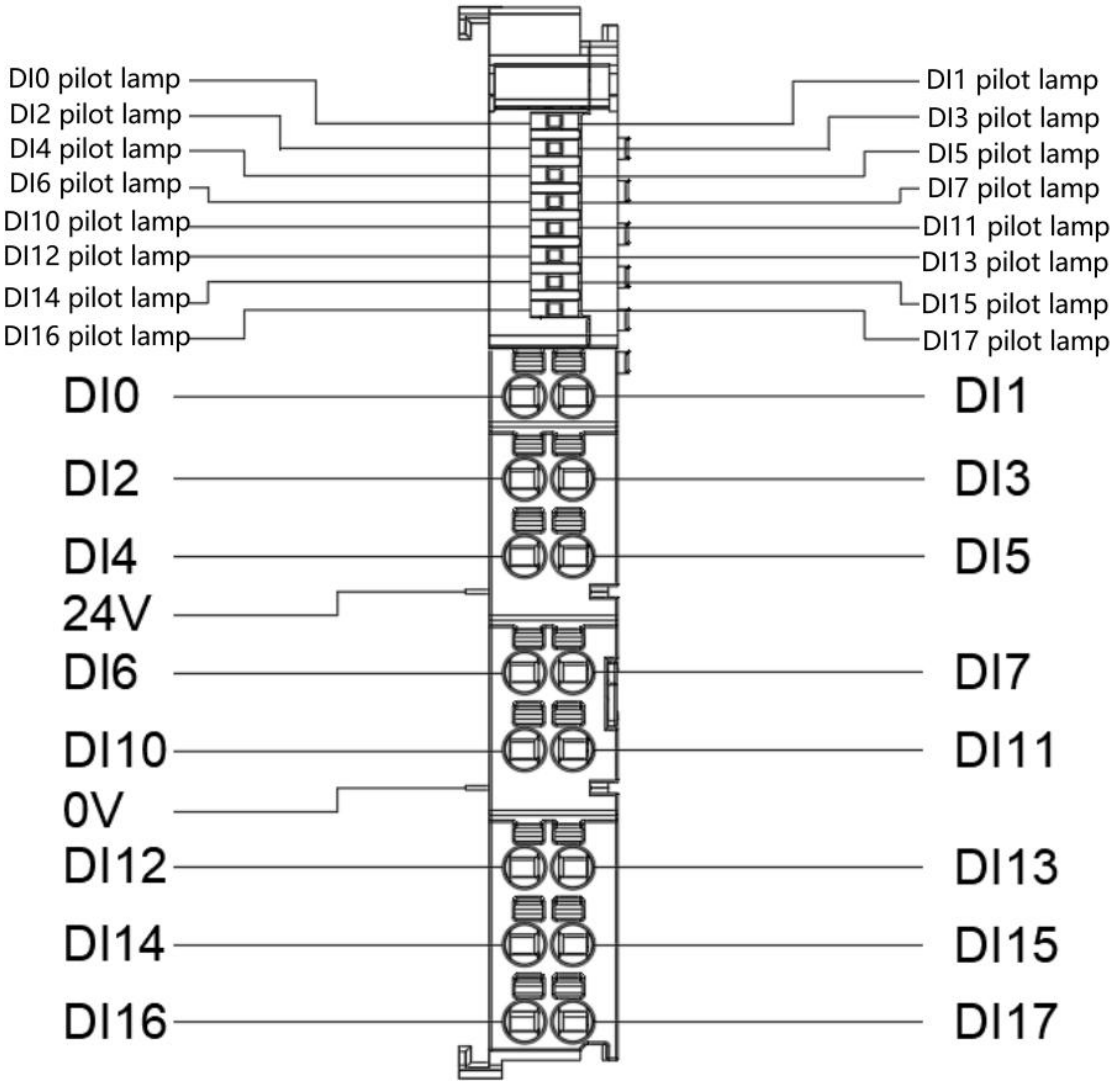


(6) Subsequently, it can be used according to the above object instructions;

3.3 VEC-VE-EX-16DI

3.3.1 Introduction to Product Appearance and Configuration

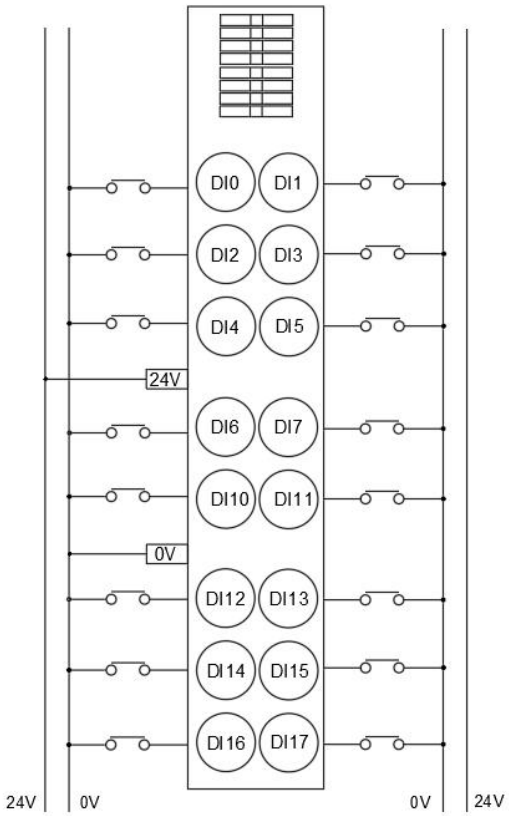
① Indicator light: When the corresponding DI has an input signal, the indicator light is on;
② The power consumption current of this expansion is 0.11A;
③ External 24V power supply and DI wiring terminal port. Its definition is as follows:



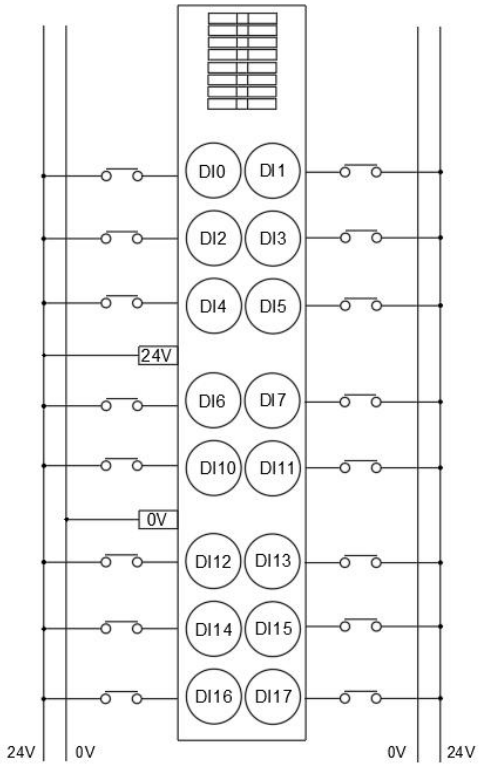
Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.3.2 product wiring instructions

The IO trigger mode of this product uses NPN type by default. The specific wiring mode is as follows:



DI为NPN型接线



DI为PNP型接线

Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.3.3 EtherCAT Object Description

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-16DI-NPN extension has two TPDOs (1600, 1601), which contain the following objects:

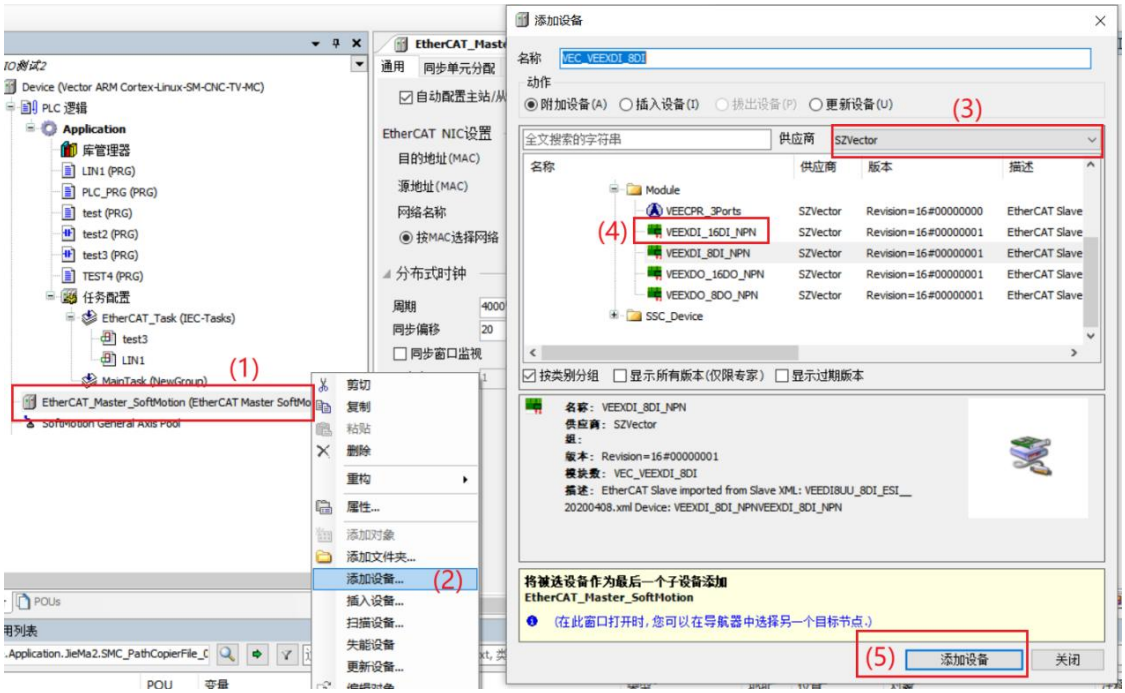
Object	Definition
1600(Byte 0)	3001h（Input）8-bit DI input
1601(Byte 1)	3001h（Input）8-bit DI input

After importing the file device, the DI mapping is shown in the figure below. For the import method, see the VE motion controller Programming Manual of VECTOR

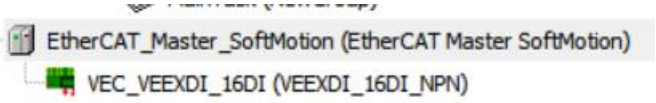
变量	映射	通道	地址	类型	单元	描述
		Input	%IX0.0	BIT		Input
		Input	%IX0.1	BIT		Input
		Input	%IX0.2	BIT		Input
		Input	%IX0.3	BIT		Input
		Input	%IX0.4	BIT		Input
		Input	%IX0.5	BIT		Input
		Input	%IX0.6	BIT		Input
		Input	%IX0.7	BIT		Input
		Input	%IX1.0	BIT		Input
		Input	%IX1.1	BIT		Input
		Input	%IX1.2	BIT		Input
		Input	%IX1.3	BIT		Input
		Input	%IX1.4	BIT		Input
		Input	%IX1.5	BIT		Input
		Input	%IX1.6	BIT		Input
		Input	%IX1.7	BIT		Input

3.3.4 Device addition instructions

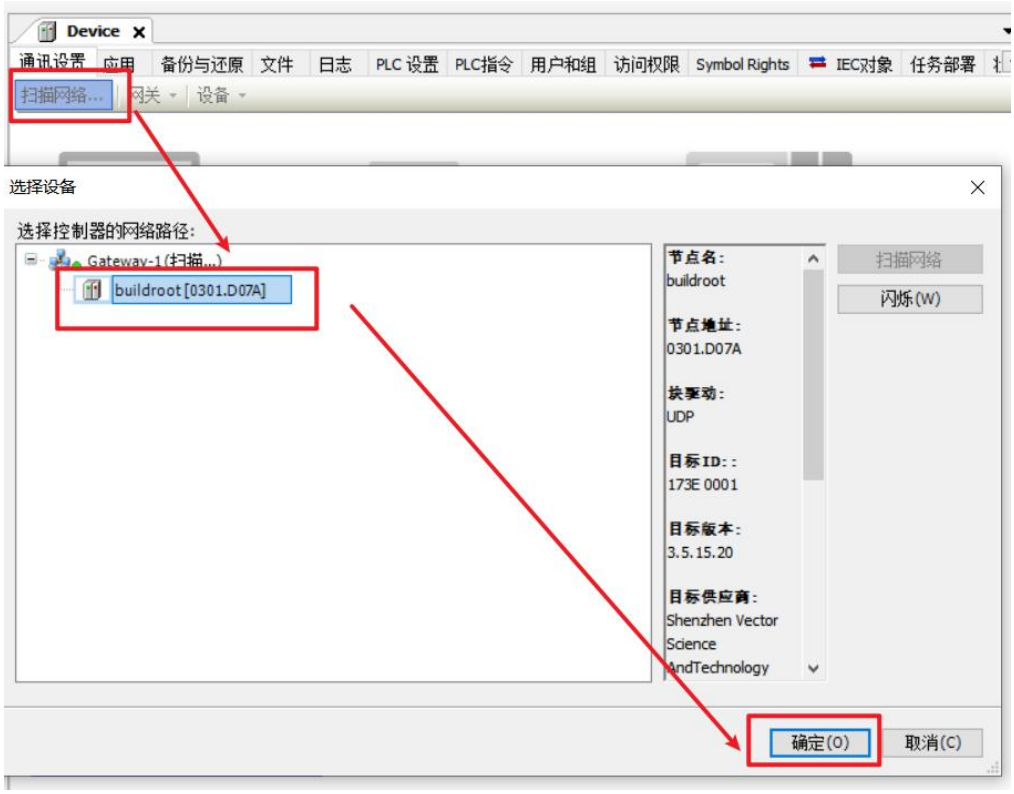
(1) Nest the required 16DI extensions behind the host power supply;
(2) Add 16DI devices to the software in the sequence shown in the following figure;



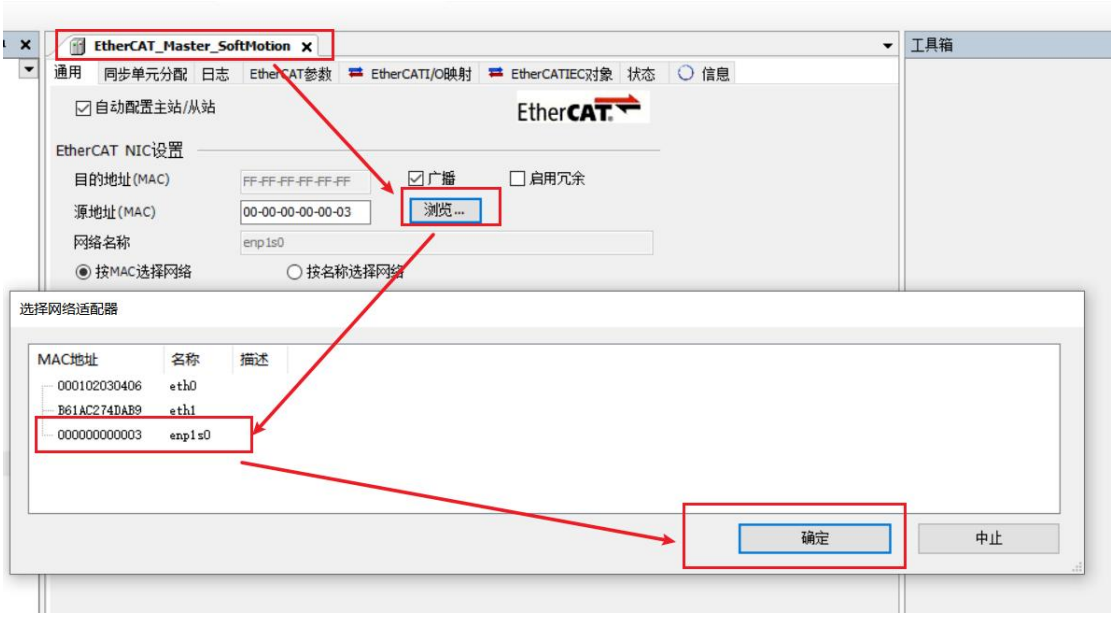
(3) The following figure shows that the addition was successful;



(4) Connect to the VE host and scan the network;



(5) As shown in the following figure, the EtherCAT network adapter is assigned as enpls0;

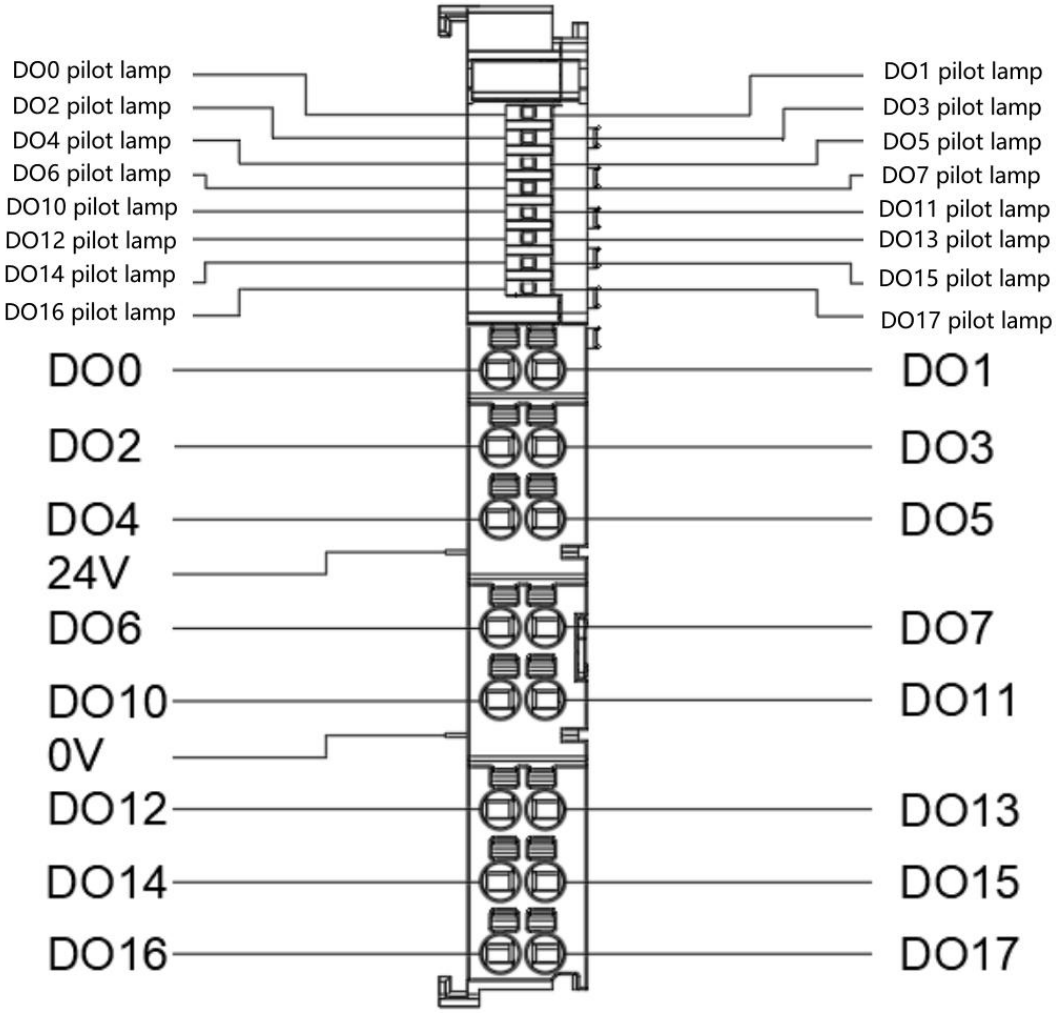


(6) Subsequently, it can be used according to the above object instructions;

3.4 VEC-VE-EX-16DO

3.4.1 Introduction to Product Appearance and Configuration

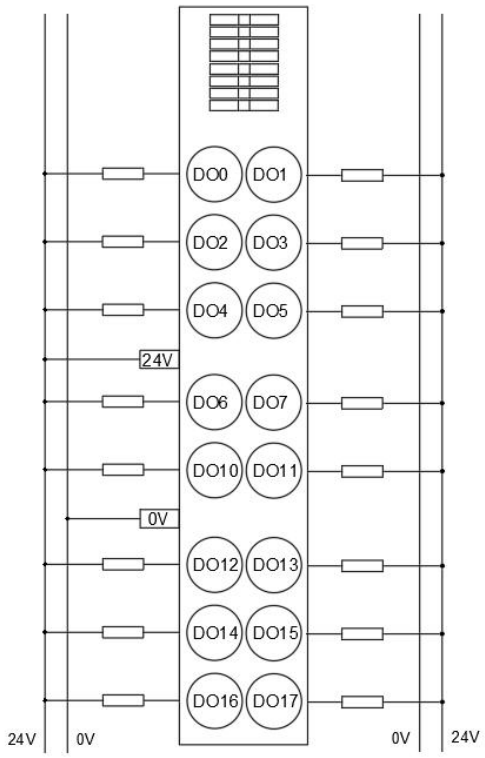
① Indicator light: When the corresponding DO has an input signal, the indicator light is on;
② The power consumption current of this expansion is 0.22A;
③ External 24V power supply and DO wiring terminal port. Its definition is as follows:



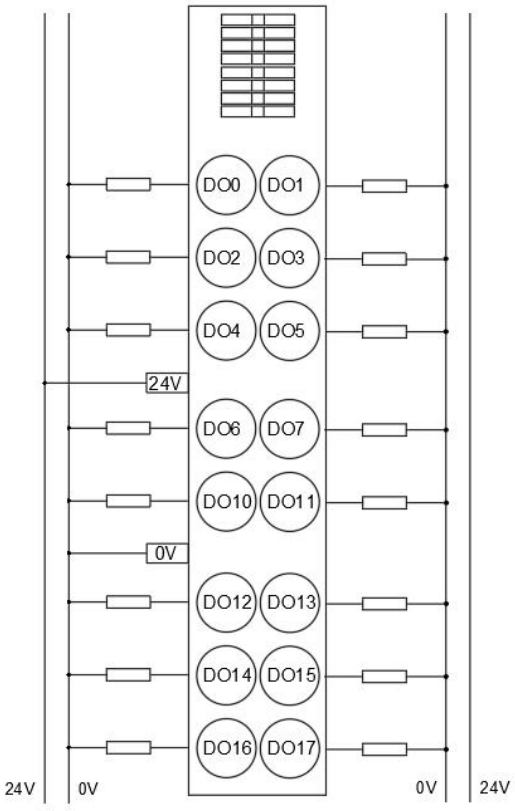
Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.4.2 Product wiring instructions

This extended IO is divided into two types by model: VEC-VE-EX-16DO-NPN and VEC-VE-EX-16DO-PNP. The specific wiring method is as follows:



DO为NPN型接线



DO为PNP型接线

Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.4.3 EtherCAT Object Description

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-16DI-NPN extension has two RPDOs (1A00, 1A01), and it should be noted that when configuring process parameters in 1A00, there can only be a maximum of 16 groups, which include the following objects:

object	define
1A00(Byte 0)	3101h (Output) 8-bit DO input
1A01(Byte 1)	3101h (Output) 8-bit DO input

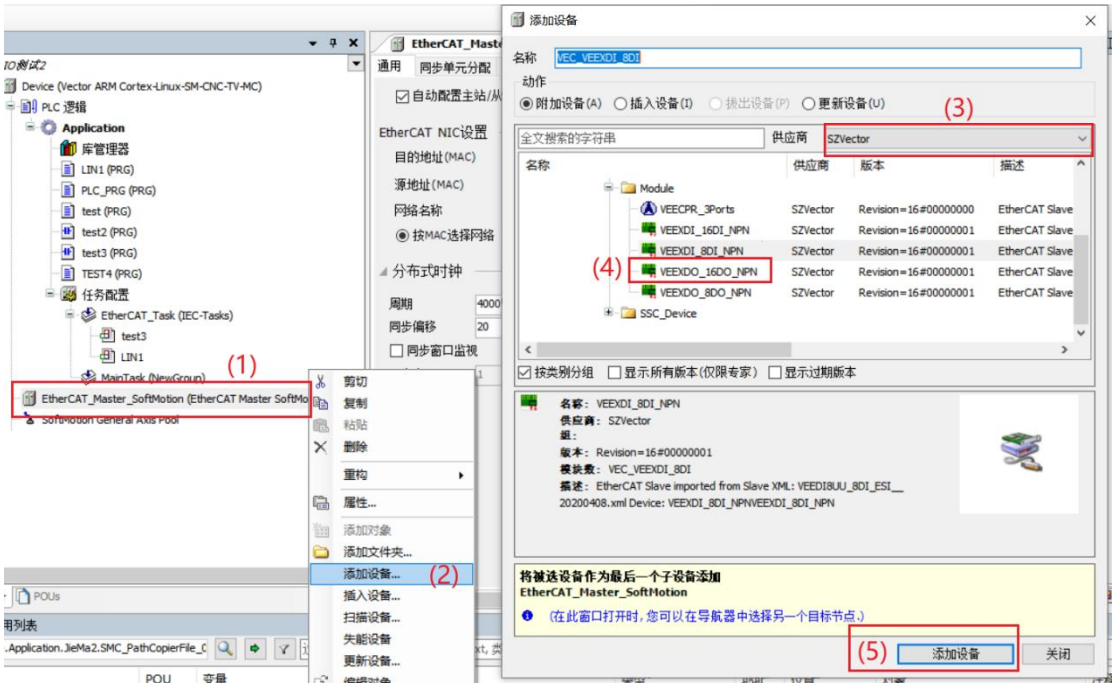
After importing the file device, you can see the DO mapping as follows. For the import method, see VECTOR Programming Manual for VE Motion Controller.

变量	映射	通道	地址	类型	单元	描述
		Output	%QX0.0	BIT		Output
		Output	%QX0.1	BIT		Output
		Output	%QX0.2	BIT		Output
		Output	%QX0.3	BIT		Output
		Output	%QX0.4	BIT		Output
		Output	%QX0.5	BIT		Output
		Output	%QX0.6	BIT		Output
		Output	%QX0.7	BIT		Output
		Output	%QX1.0	BIT		Output
		Output	%QX1.1	BIT		Output
		Output	%QX1.2	BIT		Output
		Output	%QX1.3	BIT		Output
		Output	%QX1.4	BIT		Output
		Output	%QX1.5	BIT		Output
		Output	%QX1.6	BIT		Output
		Output	%QX1.7	BIT		Output

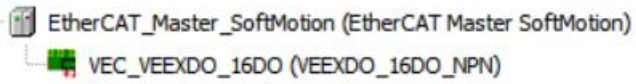
3.4.4 Device addition instructions

(1) Nest the required 16DO extensions behind the host power supply

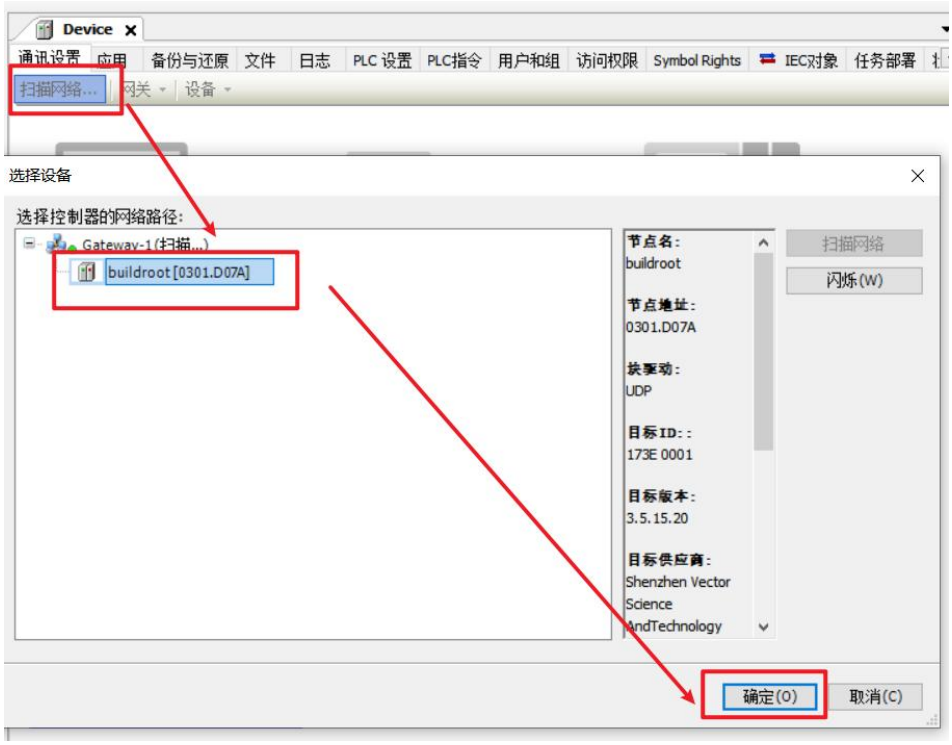
(2) Add 16DO devices to the software in the sequence shown in the following figure;



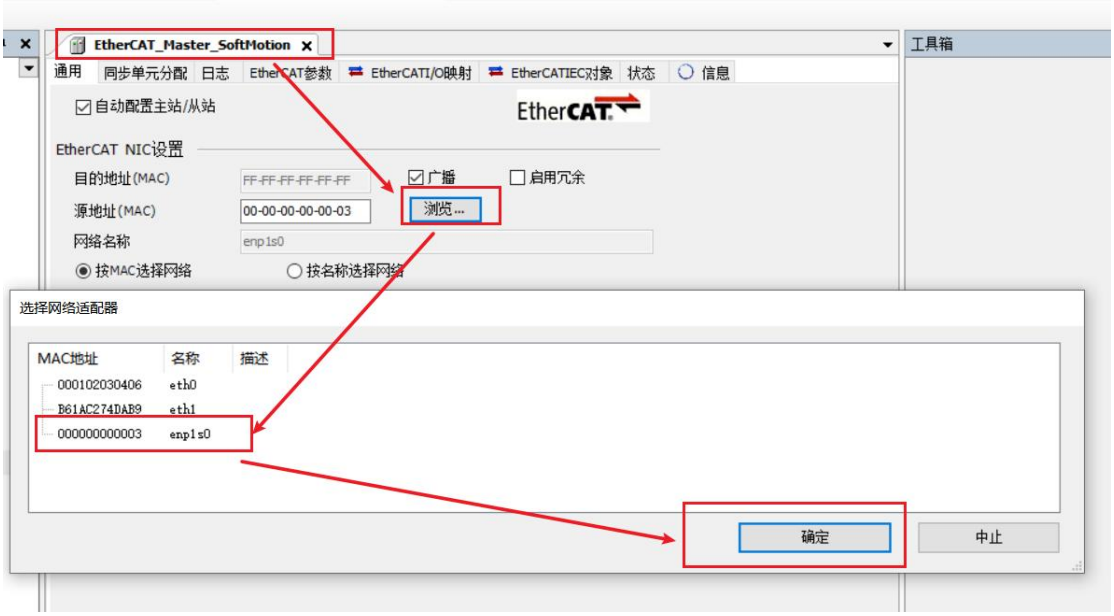
(3) The following figure shows that the addition was successful;



(4) Connect to the VE host and scan the network;



(5) As shown in the following figure, the EtherCAT network adapter is assigned as enpls0;

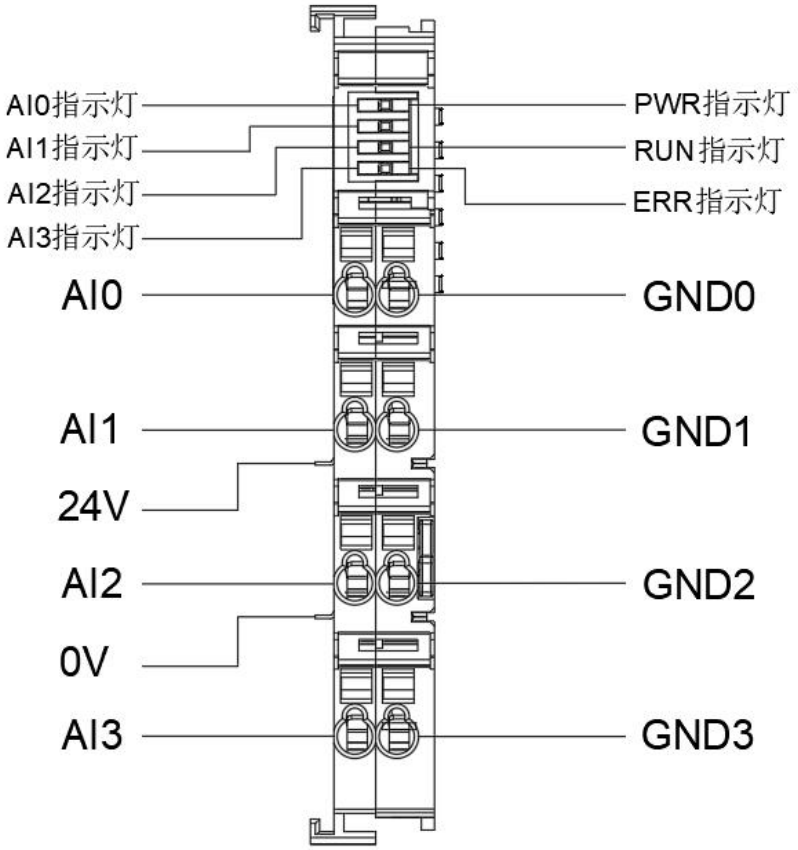


(6) Subsequently, it can be used according to the above object instructions;

3.5 VEC-VE-EX-4AD_U

3.5.1 Introduction to Product Appearance and Configuration

① AI indicator light: When the corresponding AI has an input signal, the indicator light is on;
② The AI input range is -10V~+10V, corresponding to ± 10000, and the analog resolution is 20000;
③ External 24V power supply and AI wiring terminal port. The wiring definition is as follows:



Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.5.2 EtherCAT Object Description

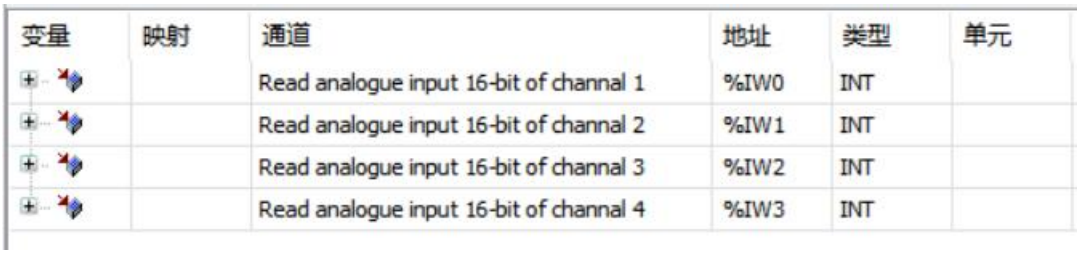
The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-4AD extension has a TPDO (1B01) that contains the following objects:

Object	Define
1B01 (TPDO260th)	6401:01（Read analogue input 16-bit of channal 1）：AI input channel1
	6401:02（Read analogue input 16-bit of channal 2）：AI input channel2
	6401:03（Read analogue input 16-bit of channal 3）：AI input channel3
	6401:04（Read analogue input 16-bit of channal 4）：AI input channel4

The AI mapping is shown in the figure below after importing the file device, and the import method is shown in the VE motion controller Programming Manual of VECTOR

Note: The unit of input values for each channel is mV;



3.5.3 Function Description

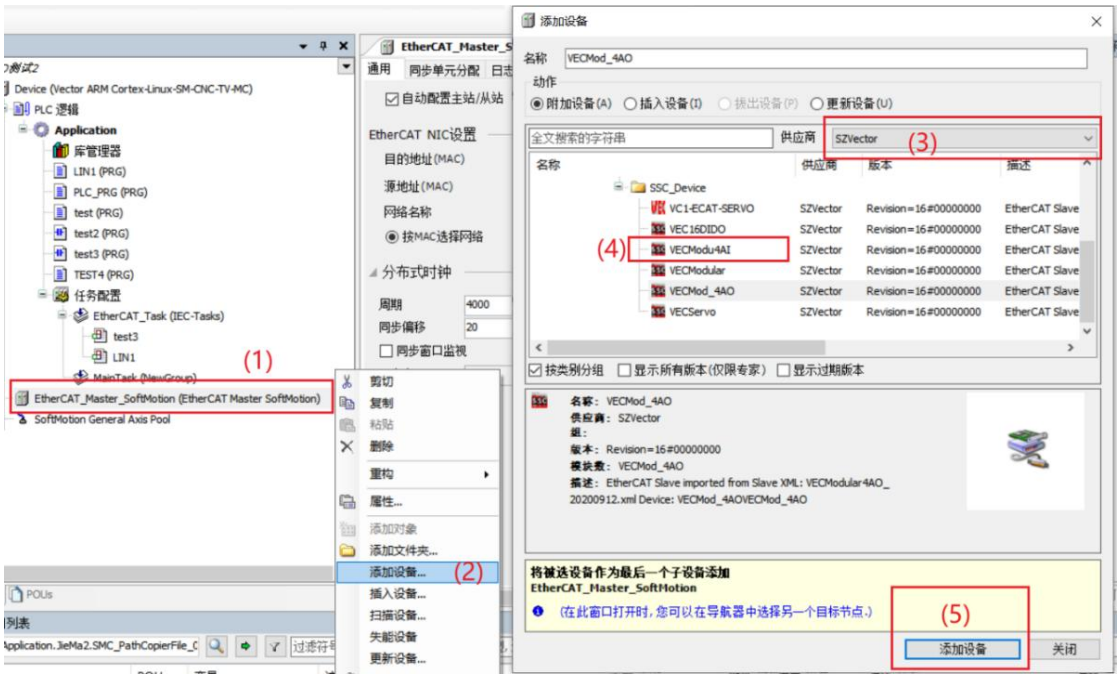
1. AI correction function.

Before using AI input, the AI calibration function can be activated by configuring the startup parameters. The configuration object is 0X2007 (configure parameter1), and the value of this object jumps from 0 to 1 to trigger calibration;

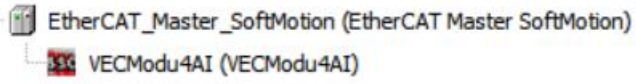
3.5.4 Device addition instructions

(1) Nest the 4AI extensions that need to be used behind the host power supply;

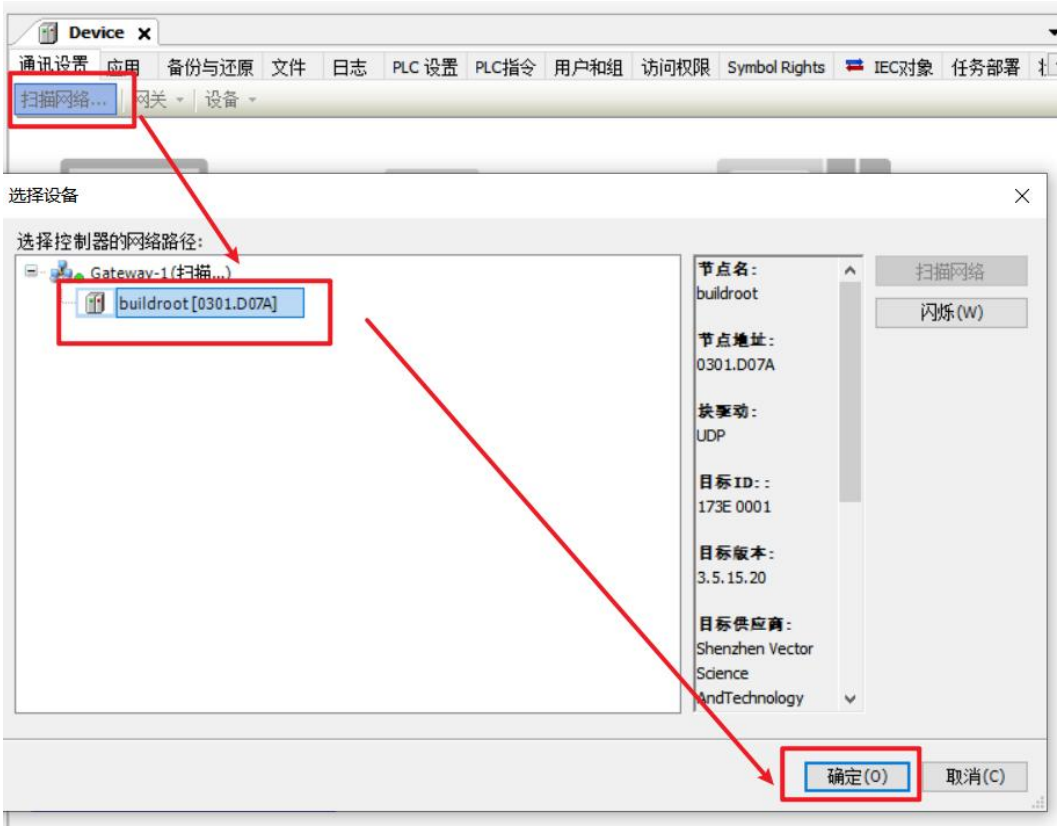
(2) Add 4AI devices to the software in the sequence shown in the following figure;



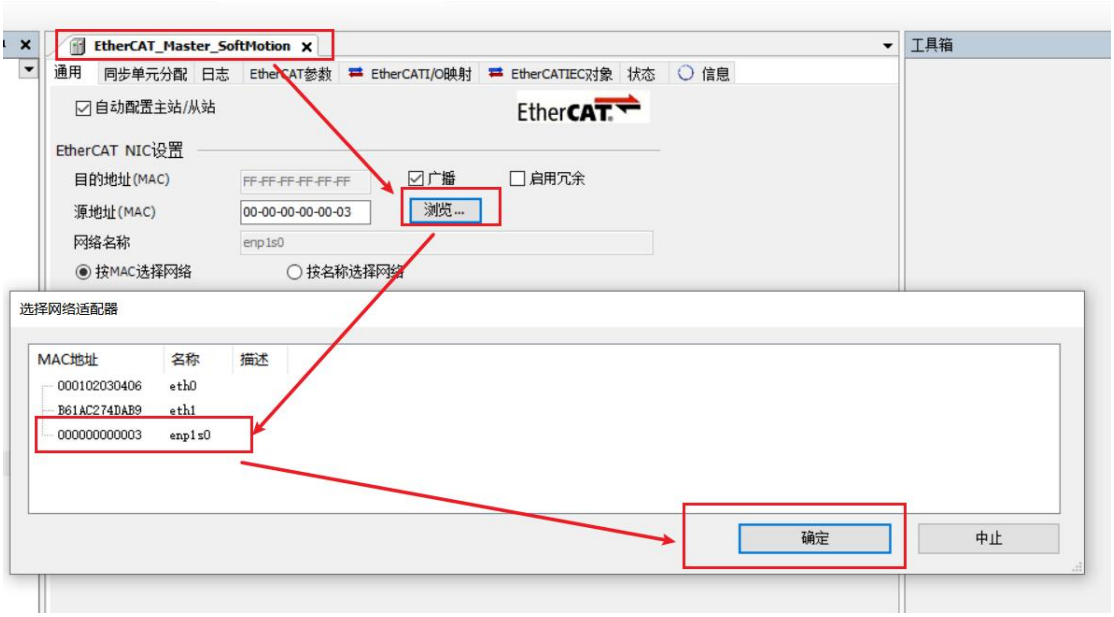
(3) The following figure shows that the addition was successful;



(4) Connect to the VE host and scan the network;



(5) As shown in the following figure, the EtherCAT network adapter is assigned as enpls0;

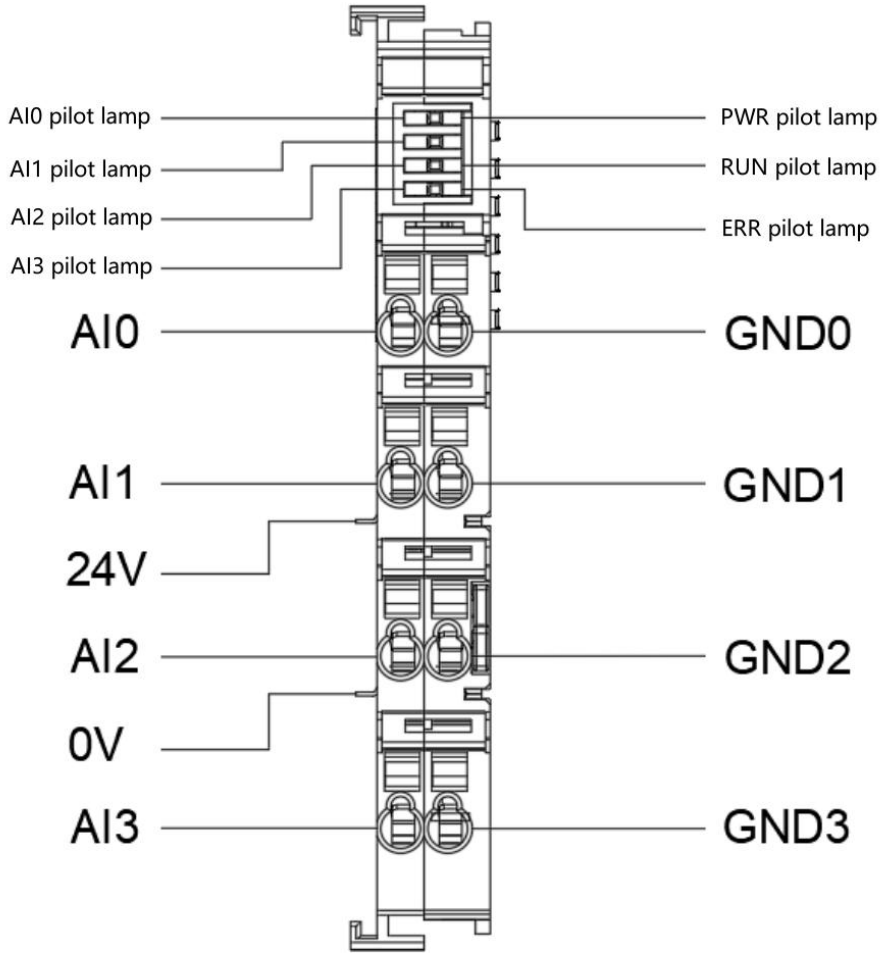


(6) Subsequently, it can be used according to the above object instructions;

3.6 VEC-VE-EX-4AD_I

3.6.1 Introduction to Product Appearance and Configuration

① AI indicator light: When the corresponding AI has an input signal, the indicator light is on;
② The AI input range is 0-20mA, corresponding to 0-2000, and the analog resolution is 20000;
③ External 24V power supply and AI wiring terminal port. The wiring definition is as follows:



Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.6.2 EtherCAT Object Description

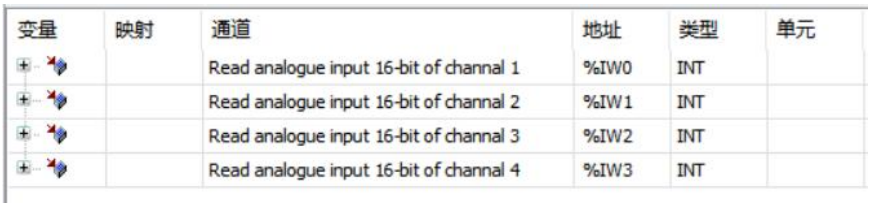
The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-4AD extension has a TPDO (1B01) that contains the following objects:

Object	Definition
1B01 (TPDO260th)	6401:01（Read analogue input 16-bit of channal 1）：AI input channel 1
	6401:02（Read analogue input 16-bit of channal 2）：AI input channel 2
	6401:03（Read analogue input 16-bit of channal 3）：AI input channel 3
	6401:04（Read analogue input 16-bit of channal 4）：AI input channel 4

The AI mapping is shown in the figure below after importing the file device, and the import method is shown in the VE motion controller Programming Manual of VECTOR

Note: The unit of input values for each channel is 0.01mA;



3.6.3 Function Description

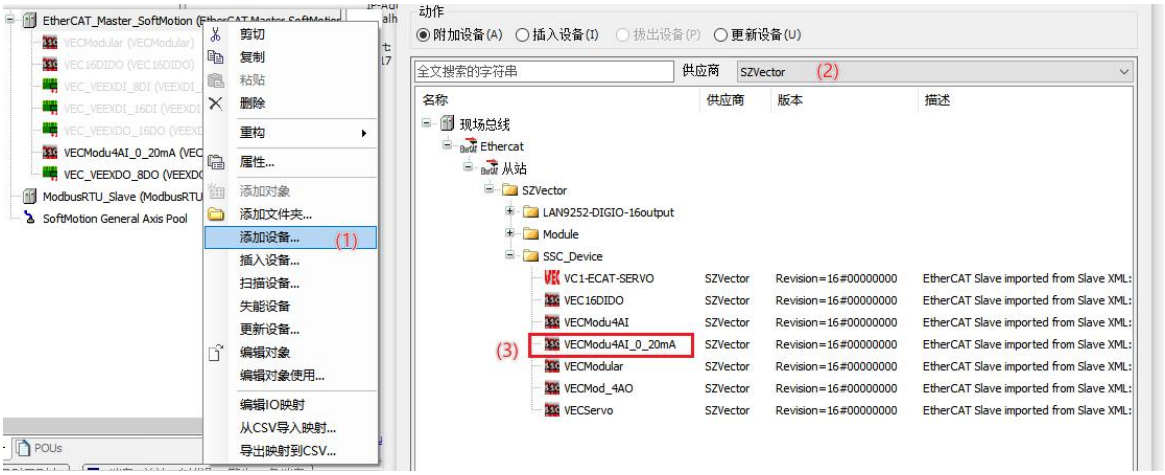
1. AI correction function.

Before using AI input, the AI calibration function can be activated by configuring the startup parameters. The configuration object is 0X2007 (configure parameter1), and the value of this object jumps from 0 to 1 to trigger calibration;

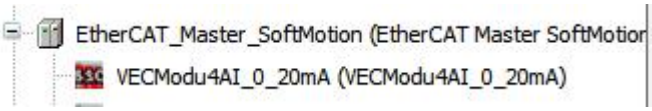
3.6.4 Device addition instructions

(1) Nest the 4AI extensions that need to be used behind the host power supply;

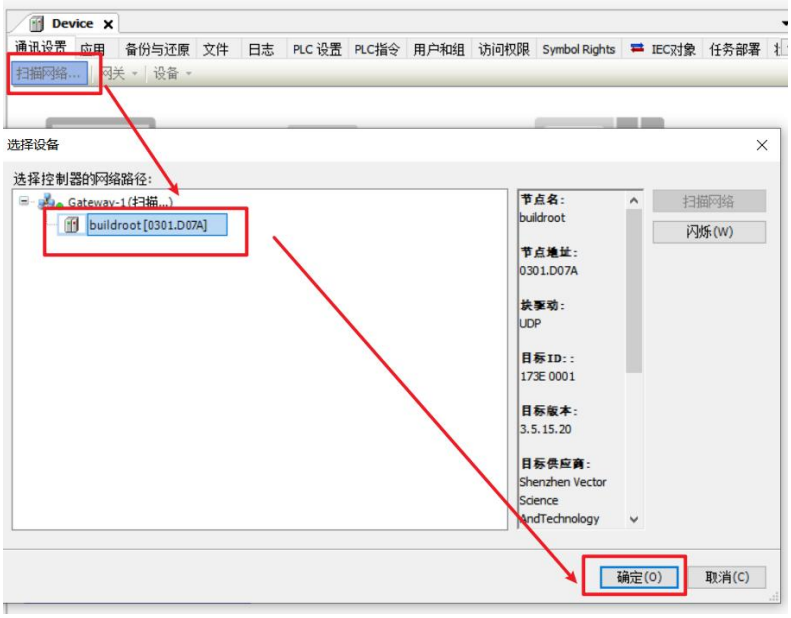
(2) Add 4AI devices to the software in the sequence shown in the following figure;



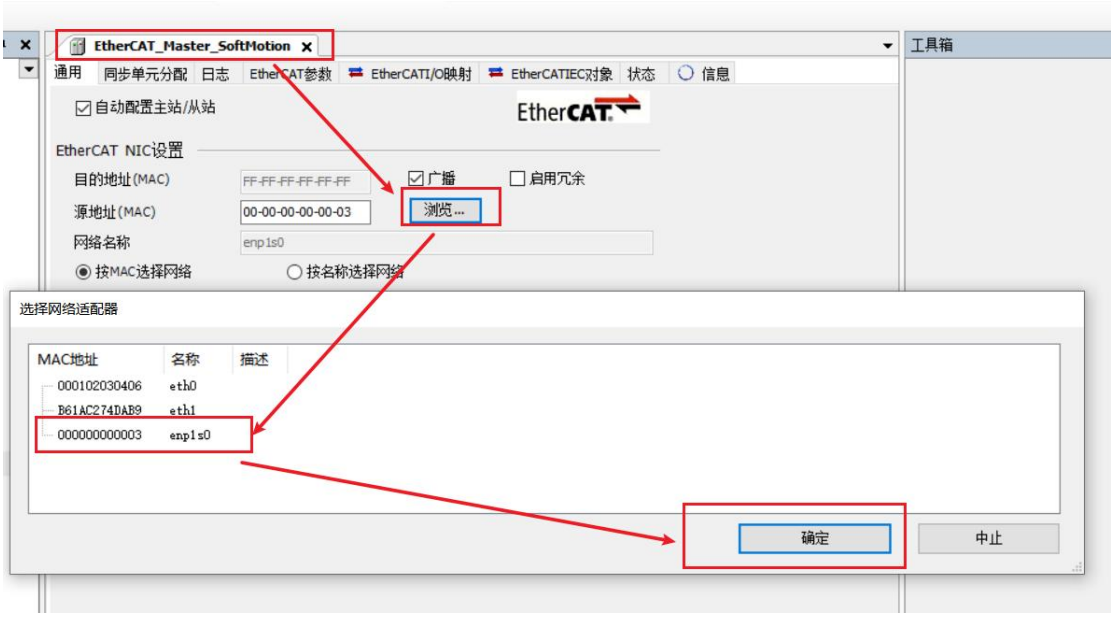
(3) The following figure shows that the addition was successful;



(4) Connect to the VE host and scan the network;



(5) As shown in the following figure, the EtherCAT network adapter is assigned as enpls0;

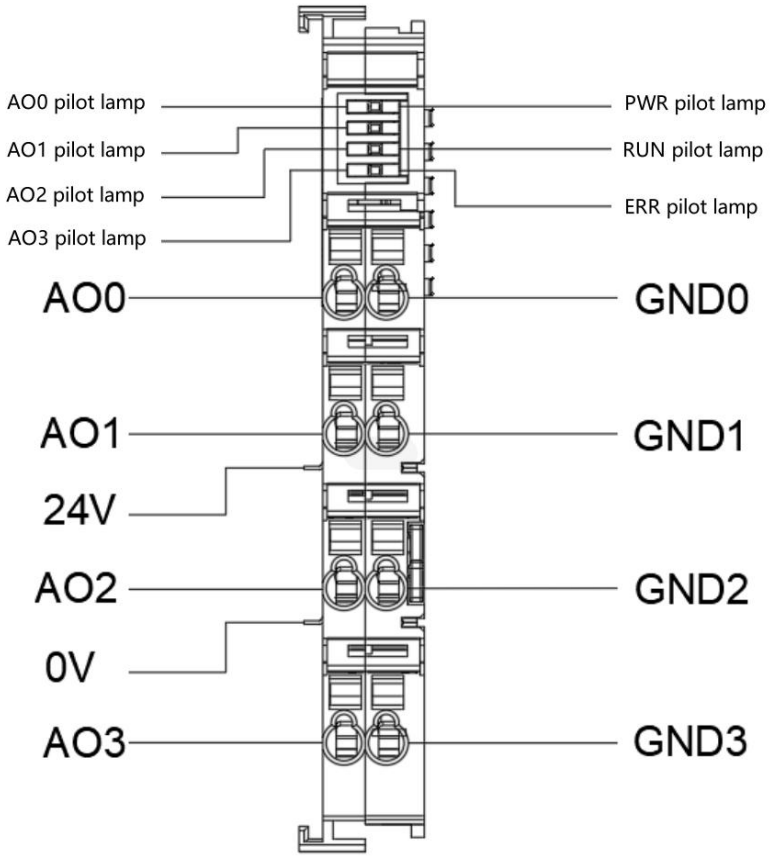


(6) Subsequently, it can be used according to the above object instructions;

3.7 VEC-VE-EX-4DA

3.7.1 Introduction to Product Appearance and Configuration

① Indicator light: When the corresponding AO has an input signal, the indicator light is on;
② The AO output range is -10V~+10V, corresponding to ± 10000, and the analog resolution is 20000;
③External 24V power supply and AO wiring terminal port. The wiring definition is as follows:



Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.7.2 EtherCAT O bject Description

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-4DA extension has an RPDO (1701) that includes the following objects:

Object	Definition
1B01	6411:01 （Write analogue output 16-bit of channal 1） ： AO input channel 1

(TPDO260th)	6411:02 （Write analogue output 16-bit of channal 2） ： AO input channel 2	
	6411:03 （Write analogue output 16-bit of channal 3） ： AO input channel 3	
	6411:04 （Write analogue output 16-bit of channal 4） ： AO input channel 4	

After importing the file device, it can be seen that the AI mapping is shown in the figure below. For the import method, see the 《VE motion controller programming manual》 of VECTOR

Note: The unit of output values for each channel is mV;

变量	映射	通道	地址	类型	单元
		Write analogue output 16-bit of channal 1	%QW0	INT	
		Write analogue output 16-bit of channal 2	%QW1	INT	
		Write analogue output 16-bit of channal 3	%QW2	INT	
		Write analogue output 16-bit of channal 4	%QW3	INT	

3.7.3 Function Description

1. AO correction function.

Before using AO output, the AI calibration function can be activated by configuring the startup parameters. The configuration object is 0X2007 (configure parameter1), and the value of this object jumps from 0 to 1 to trigger calibration;

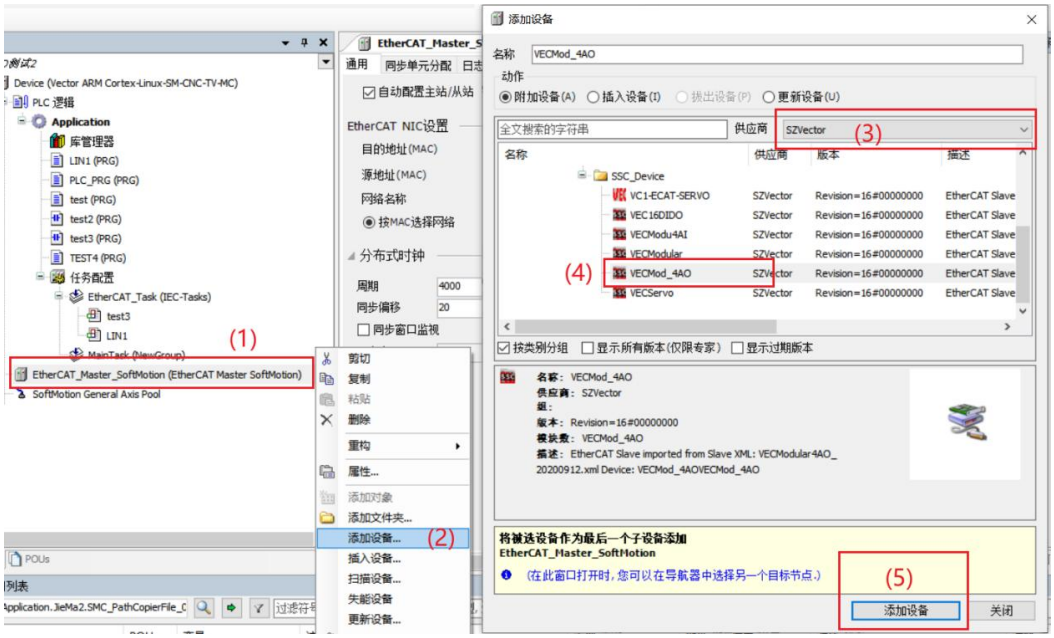
添加 编辑 删除 上移 Move Down

行	索引: 子索引	名称	值	位长度	如果有错, 则退出	如果有错, 则至跳行	下一行
1	16#2007:16#00	configure parameter1	1	32	☐	☐	0

3.7.4 Device addition instructions

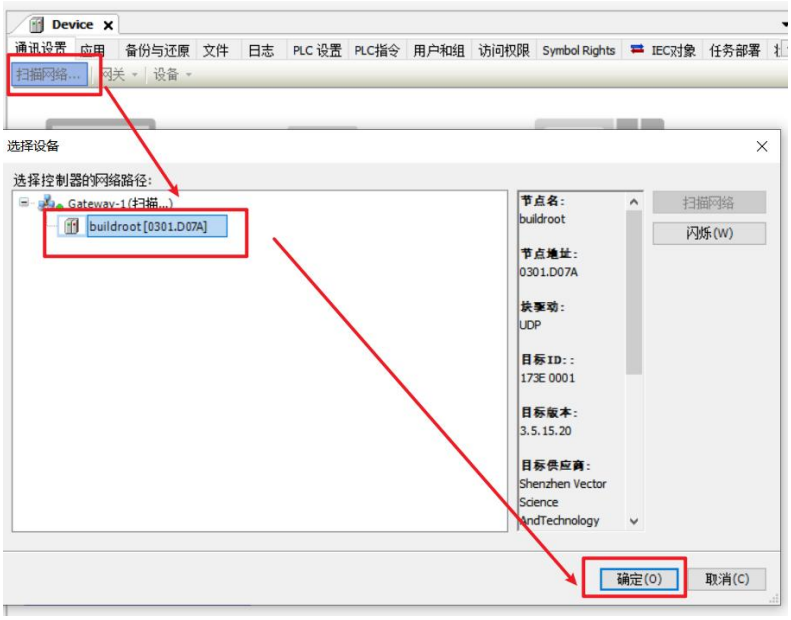
(1) Nest the 4AO extensions that need to be used behind the host power supply;

(2) Add 4AO devices to the software in the sequence shown in the following figure;

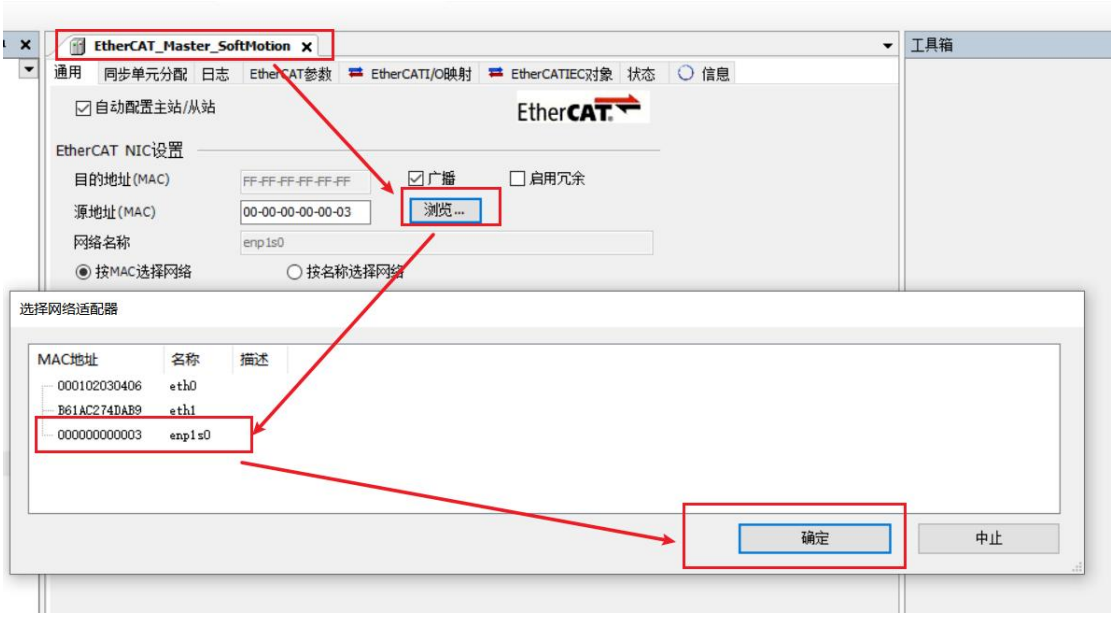


(3)As shown in the following figure, it is added successfully;

(4) Connect to the VE host and scan the network.



(5)As shown below, EtherCAT network adapter is assigned to ENPLS0;



(6)It can then be used according to the above object description;

3.8 VEC-VE-EX-8AD-I

3.8.1 Introduction to Product Appearance and Configuration

①indicator light:

ECT operation: When the expansion module is successfully connected to the controller host or coupler, the indicator light remains on; Otherwise, it will often go out;

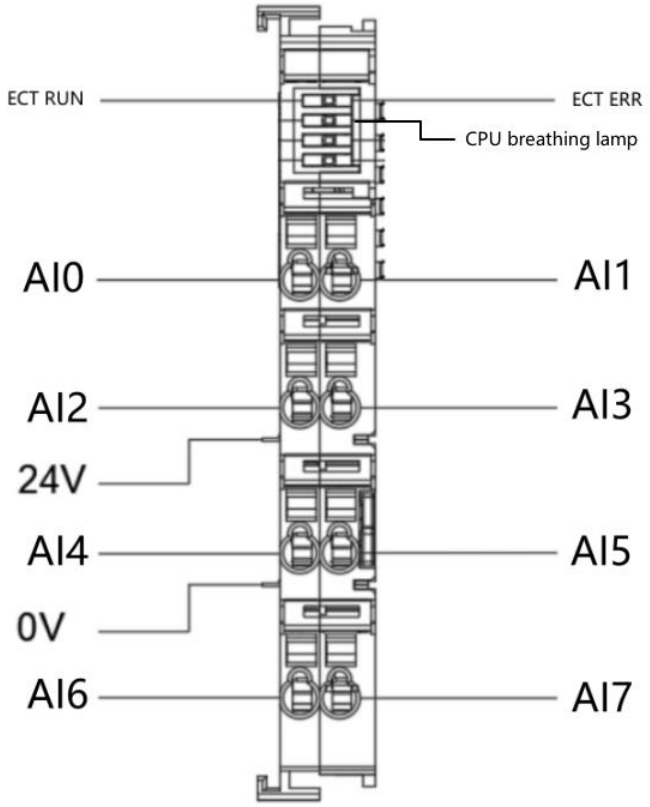
ECT error: When the connection between the expansion module and the controller host or coupler fails, the indicator light remains on; Otherwise, it will often go out;

CPU breathing light: When the expansion module CPU is working normally, the indicator light flashes; Otherwise, it will often go out.

②The AI input range is 0-20mA, corresponding to 0-2000, and the analog resolution is 20000;

③ The power consumption current of this expansion is 0.18A;

④ External 24V power supply and AI wiring terminal port. The wiring definition is as follows:



be careful:

1. The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share one set.
2. The reference ground for the 8-channel analog input of this extension is 0V.

3.8.2 EtherCAT Object Description

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-8AD-I extension has a TPDO (1B01) that contains the following objects:

Object	Definition
1B01 (TPDO)	6401:01（Channal 0 Analog Current Asmple Value,Unit is 0.001mA）：AI incoming channel1
	6401:02（Channal 1 Analog Current Asmple Value,Unit is 0.001mA）：AI incoming channel2
	6401:03（Channal 2 Analog Current Asmple Value,Unit is 0.001mA）：AI incoming channel3
	6401:04（Channal 3 Analog Current Asmple Value,Unit is 0.001mA）：AI incoming channel4
	6401:05（Channal 4 Analog Current Asmple Value,Unit is 0.001mA）：AI incoming channel5
	6401:06（Channal 5 Analog Current Asmple Value,Unit is 0.001mA）：AI incoming channel6
	6401:07（Channal 6 Analog Current Asmple Value,Unit is 0.001mA）：AI incoming channel7
	6401:08（Channal 7 Analog Current Asmple Value,Unit is 0.001mA）：AI incoming channel8

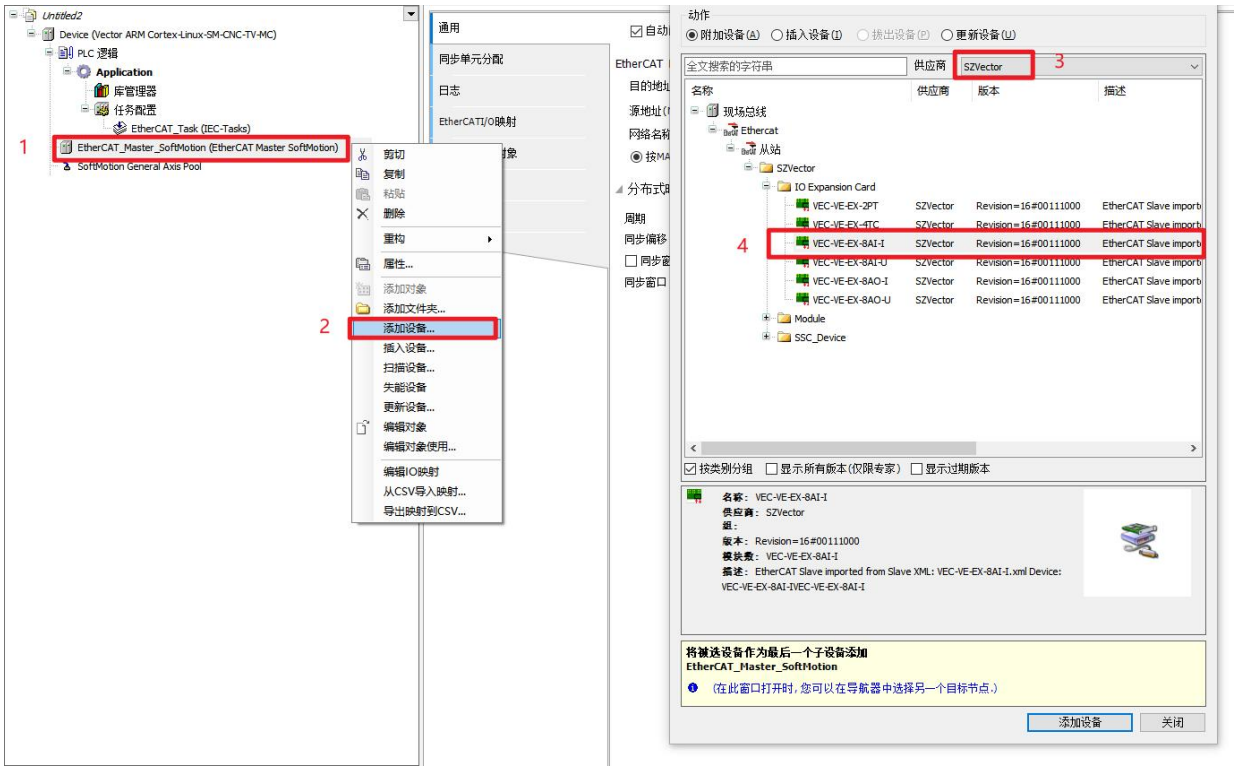
The AI mapping is shown in the figure below after importing the file device, and the import method is shown in the VE motion controller Programming Manual of VECTOR

Note: The unit of input values for each channel is 0.001mA;

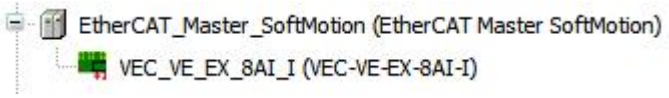
变量	映射	通道	地址	类型	单元	描述
		Channal 0 Analog Current Sample Value,Unit is 0.001mA	%IW42	INT		Channal 0 Analog Current Sample Value,Unit is 0.001mA
		Channal 1 Analog Current Sample Value,Unit is 0.001mA	%IW43	INT		Channal 1 Analog Current Sample Value,Unit is 0.001mA
		Channal 2 Analog Current Sample Value,Unit is 0.001mA	%IW44	INT		Channal 2 Analog Current Sample Value,Unit is 0.001mA
		Channal 3 Analog Current Sample Value,Unit is 0.001mA	%IW45	INT		Channal 3 Analog Current Sample Value,Unit is 0.001mA
		Channal 4 Analog Current Sample Value,Unit is 0.001mA	%IW46	INT		Channal 4 Analog Current Sample Value,Unit is 0.001mA
		Channal 5 Analog Current Sample Value,Unit is 0.001mA	%IW47	INT		Channal 5 Analog Current Sample Value,Unit is 0.001mA
		Channal 6 Analog Current Sample Value,Unit is 0.001mA	%IW48	INT		Channal 6 Analog Current Sample Value,Unit is 0.001mA
		Channal 7 Analog Current Sample Value,Unit is 0.001mA	%IW49	INT		Channal 7 Analog Current Sample Value,Unit is 0.001mA

3.8.3 Device addition instructions

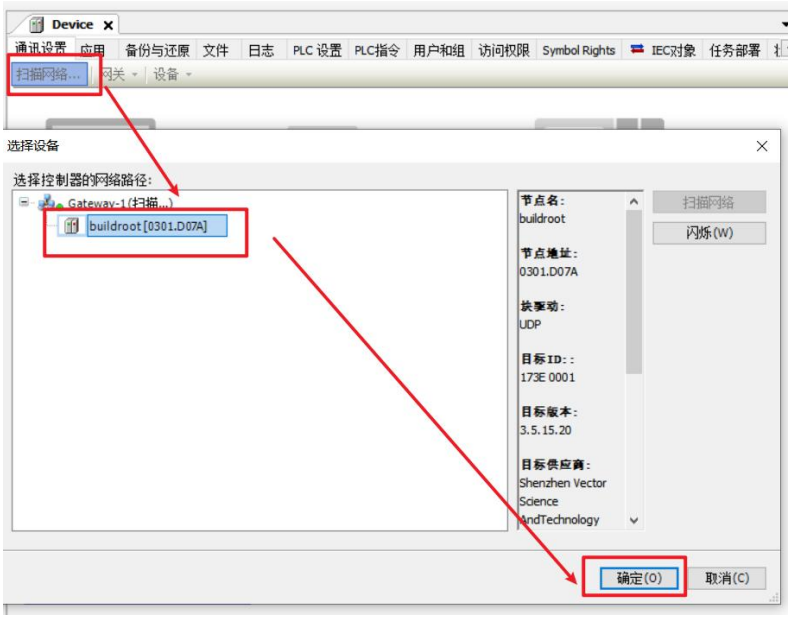
(1) Nest the 8AD-I extension that needs to be used behind the host power supply;
(2) Add 8AD-I devices to the software in the sequence shown in the following figure;



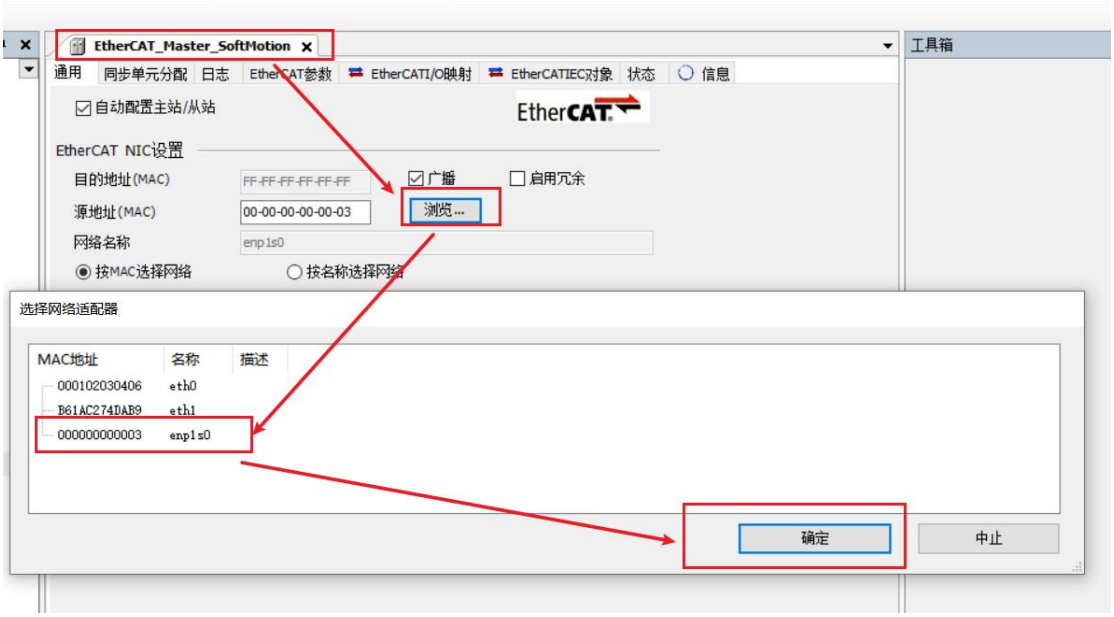
(3) The following figure shows that the addition was successful;



(4) Connect to the VE host and scan the network;



(5)As shown in the following figure, the EtherCAT network adapter is assigned as enpls0;



(6) Subsequently, it can be used according to the above object instructions;

3.9 VEC-VE-EX-8AD-U

3.9.1 Introduction to Product Appearance and Configuration

①indicator light:

ECT operation: When the expansion module is successfully connected to the controller host or coupler, the indicator light remains on; Otherwise, it will often go out;

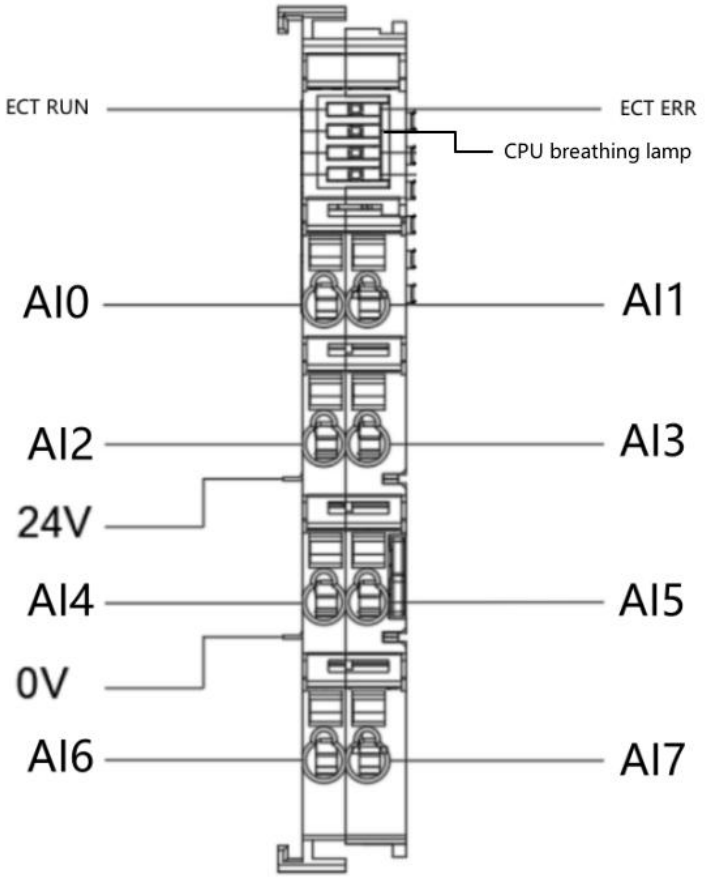
ECT error: When the connection between the expansion module and the controller host or coupler fails, the indicator light remains on; Otherwise, it will often go out;

CPU breathing light: When the expansion module CPU is working normally, the indicator light flashes; Otherwise, it will often go out.

②The AI input range is -10V~+10V, corresponding to ± 10000, and the analog resolution is 20000;

③ The power consumption current of this expansion is 0.18A;

④ External 24V power supply and AI wiring terminal port. The wiring definition is as follows:



be careful:

1. The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share one set.

2. The reference ground for the 8-channel analog input of this extension is 0V

3.9.2 EtherCAT Object Description

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-8AD-U extension has a TPDO (1B01) that contains the following objects:

Object	Definition
1B01 (TPDO)	6401:01（Channal 0 Analog Voltage Sample Value,Unit is mV）：AI incoming channel1
	6401:02（Channal 1 Analog Voltage Sample Value,Unit is mV）：AI incoming channel2
	6401:03（Channal 2 Analog Voltage Sample Value,Unit is mV）：AI incoming channel3
	6401:04（Channal 3 Analog Voltage Sample Value,Unit is mV）：AI incoming channel4
	6401:05（Channal 4 Analog Voltage Sample Value,Unit is mV）：AI incoming channel5
	6401:06（Channal 5 Analog Voltage Sample Value,Unit is mV）：AI incoming channel6
	6401:07（Channal 6 Analog Voltage Sample Value,Unit is mV）：AI incoming channel7
	6401:08（Channal 7 Analog Voltage Sample Value,Unit is mV）：AI incoming channel8

The AI mapping is shown in the figure below after importing the file device, and the import method is shown in the VE motion controller Programming Manual of VECTOR

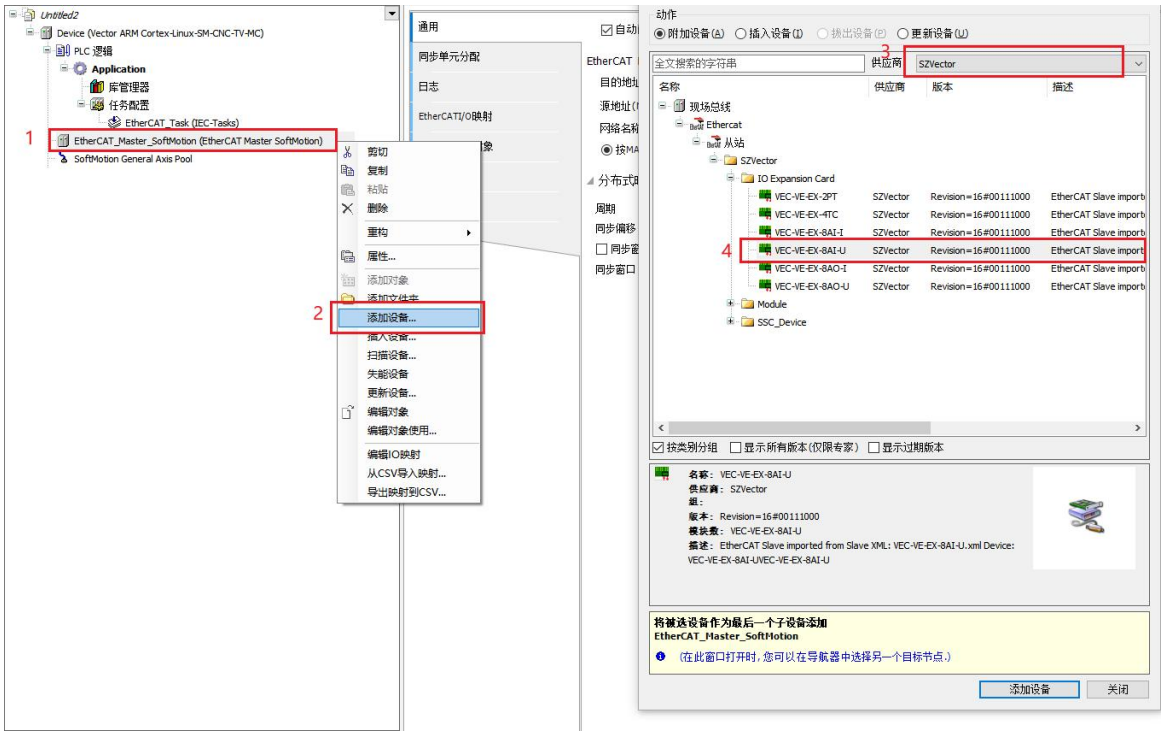
Note: The unit of input values for each channel is mV;

变量	映射	通道	地址	类型	单元	描述
		Channal 0 Analog Voltage Sample Value,Unit is mV	%IW0	INT		Channal 0 Analog Voltage Sample Value,Unit is mV
		Channal 1 Analog Voltage Sample Value,Unit is mV	%IW1	INT		Channal 1 Analog Voltage Sample Value,Unit is mV
		Channal 2 Analog Voltage Sample Value,Unit is mV	%IW2	INT		Channal 2 Analog Voltage Sample Value,Unit is mV
		Channal 3 Analog Voltage Sample Value,Unit is mV	%IW3	INT		Channal 3 Analog Voltage Sample Value,Unit is mV
		Channal 4 Analog Voltage Sample Value,Unit is mV	%IW4	INT		Channal 4 Analog Voltage Sample Value,Unit is mV
		Channal 5 Analog Voltage Sample Value,Unit is mV	%IW5	INT		Channal 5 Analog Voltage Sample Value,Unit is mV
		Channal 6 Analog Voltage Sample Value,Unit is mV	%IW6	INT		Channal 6 Analog Voltage Sample Value,Unit is mV
		Channal 7 Analog Voltage Sample Value,Unit is mV	%IW7	INT		Channal 7 Analog Voltage Sample Value,Unit is mV

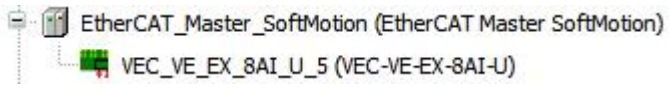
3.9.3 Device addition instructions

(1) Nest the 8AD-U extension that needs to be used behind the host power supply;

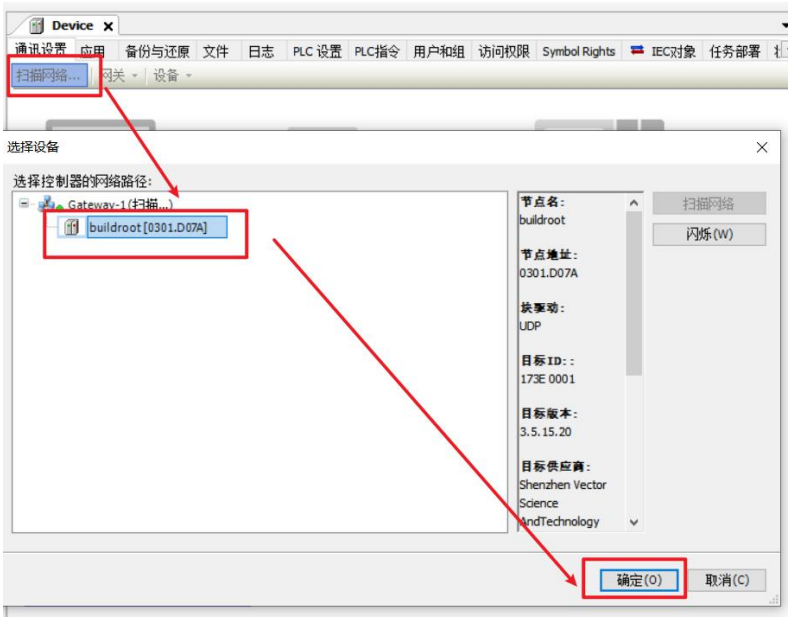
(2) Add 8AD-U devices to the software in the sequence shown in the following figure;



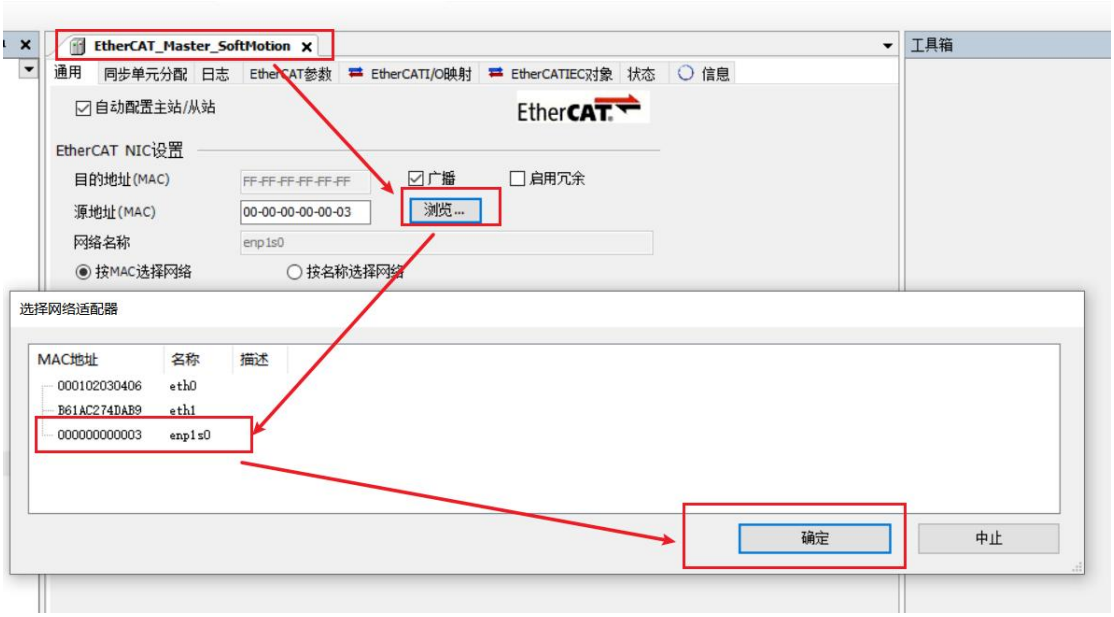
(3) The following figure shows that the addition was successful;



(4) Connect to the VE host and scan the network;



(5) As shown in the following figure, the EtherCAT network adapter is assigned as enpls0;



(6) Subsequently, it can be used according to the above object instructions

3.10 VEC-VE-EX-8DA-I

3.10.1 Introduction to Product Appearance and Configuration

① Indicator light:

ECT operation: When the expansion module is successfully connected to the controller host or coupler, the indicator light remains on; Otherwise, it will often go out;

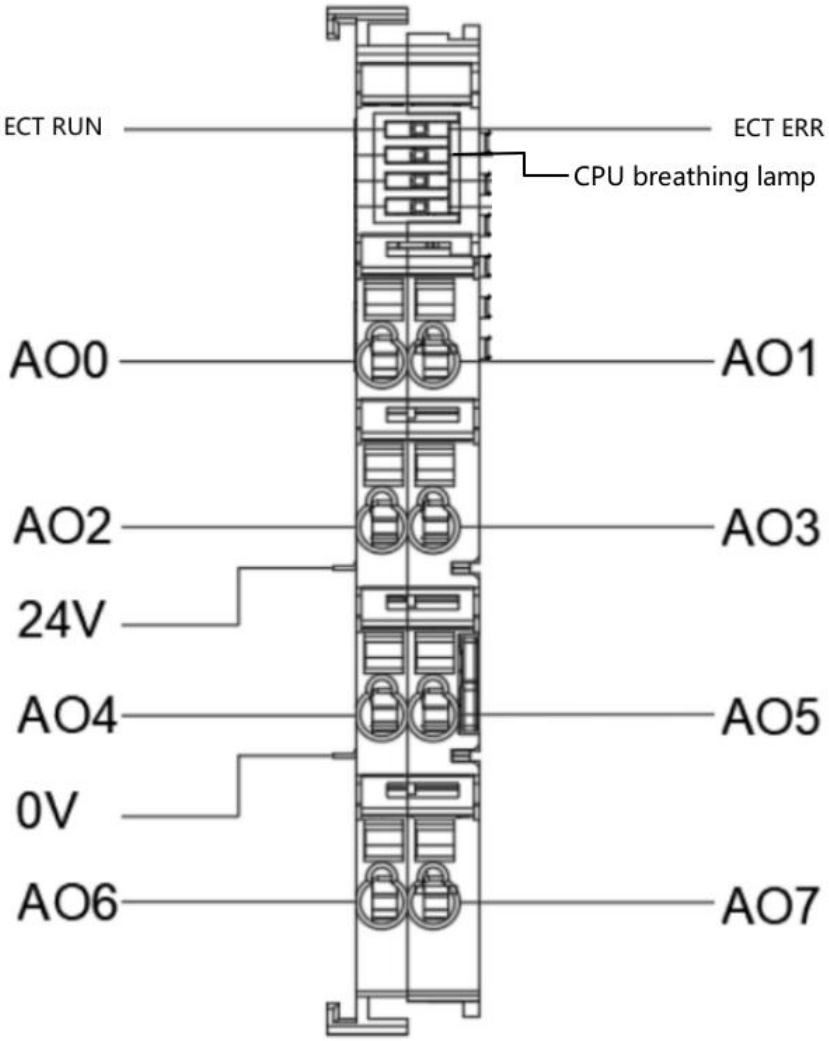
ECT error: When the connection between the expansion module and the controller host or coupler fails, the indicator light remains on; Otherwise, it will often go out;

CPU breathing light: When the expansion module CPU is working normally, the indicator light flashes; Otherwise, it will often go out.

②The AO output range is 0-20mA, corresponding to 0-20000, and the analog resolution is 20000;

③The power consumption current of this expansion is 0.16A;

④External 24V power supply and AO wiring terminal port. The wiring definition is as follows:



be careful:

1. The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share one set.

2. The reference ground for the 8-channel analog output of this extension is 0V.

3.10.2 EtherCAT Object Description

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-8DA-I extension has an RPDO (1600) that includes the following objects:

Object	Definition
1600 (RPDO)	6411:01（Write analogue output 16-bit of channal 0,unit is 0.001mA）：AO incoming channel 1
	6411:02（Write analogue output 16-bit of channal 1,unit is 0.001mA）：AO incoming channel 2
	6411:03（Write analogue output 16-bit of channal 2,unit is 0.001mA）：AO incoming channel 3
	6411:04（Write analogue output 16-bit of channal 3,unit is 0.001mA）：AO incoming channel 4
	6411:05（Write analogue output 16-bit of channal 4,unit is 0.001mA）：AO incoming channel 5
	6411:06（Write analogue output 16-bit of channal 5,unit is 0.001mA）：AO incoming channel 6
	6411:07（Write analogue output 16-bit of channal 6,unit is 0.001mA）：AO incoming channel 7
	6411:08（Write analogue output 16-bit of channal 7,unit is 0.001mA）：AO incoming channel 8

The AO mapping is shown in the figure below after importing the file device, and the import method is shown in the VE motion controller Programming Manual of VECTOR

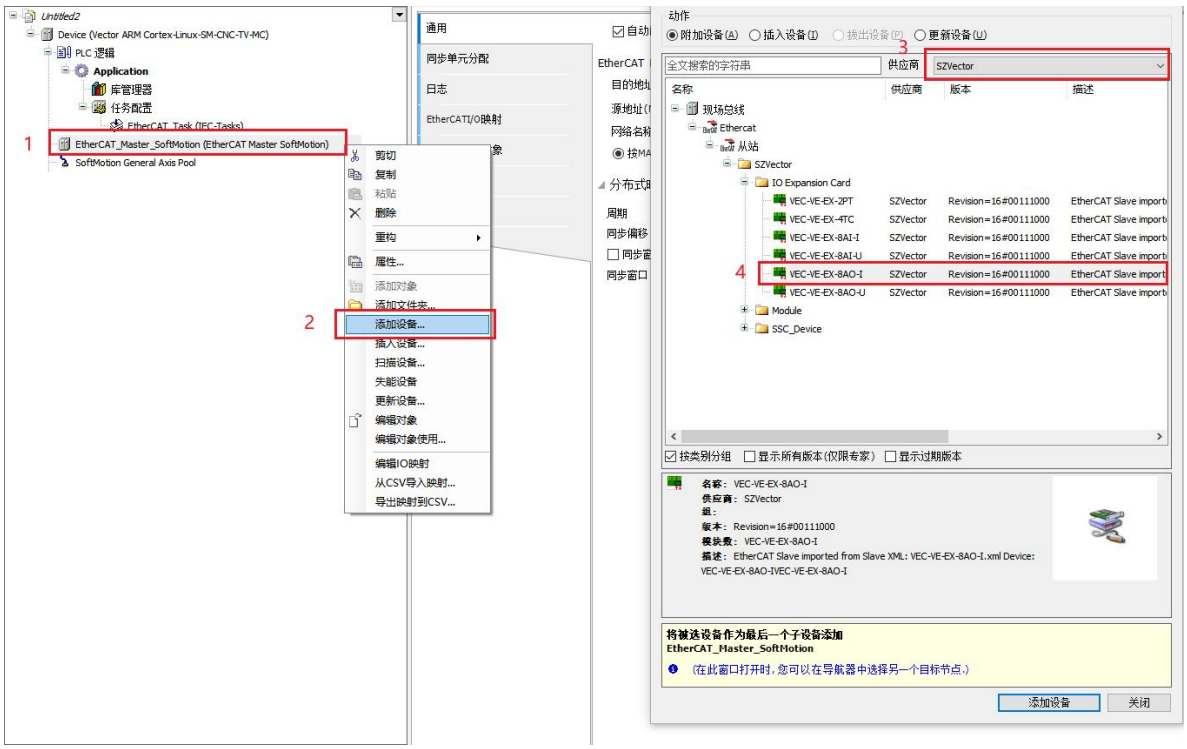
Note: The unit of output values for each channel is 0.001mA;

变量	映射	通道	地址	类型	单元	描述
		Write analogue output 16-bit of channal 0,unit is 0.001mA	%QW0	INT		Write analogue output 16-bit of channal 0,unit is 0.001mA
		Write analogue output 16-bit of channal 1,unit is 0.001mA	%QW1	INT		Write analogue output 16-bit of channal 1,unit is 0.001mA
		Write analogue output 16-bit of channal 2,unit is 0.001mA	%QW2	INT		Write analogue output 16-bit of channal 2,unit is 0.001mA
		Write analogue output 16-bit of channal 3,unit is 0.001mA	%QW3	INT		Write analogue output 16-bit of channal 3,unit is 0.001mA
		Write analogue output 16-bit of channal 4,unit is 0.001mA	%QW4	INT		Write analogue output 16-bit of channal 4,unit is 0.001mA
		Write analogue output 16-bit of channal 5,unit is 0.001mA	%QW5	INT		Write analogue output 16-bit of channal 5,unit is 0.001mA
		Write analogue output 16-bit of channal 6,unit is 0.001mA	%QW6	INT		Write analogue output 16-bit of channal 6,unit is 0.001mA
		Write analogue output 16-bit of channal 7,unit is 0.001mA	%QW7	INT		Write analogue output 16-bit of channal 7,unit is 0.001mA

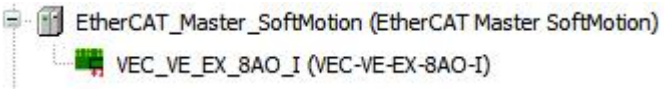
3.10.3 Device addition instructions

(1) Nest the 8DA-I expansion that needs to be used behind the host power supply;

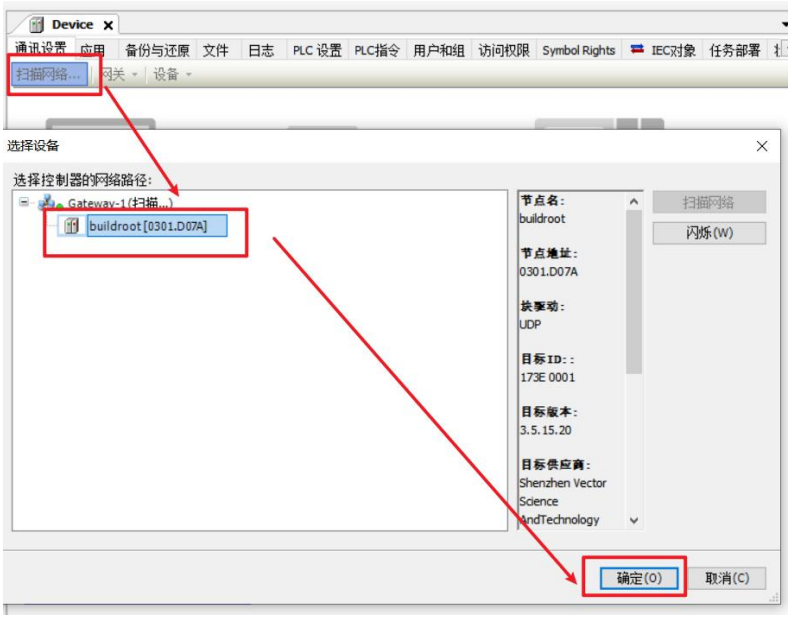
(2) Add 8DA-I devices to the software in the sequence shown in the following figure;



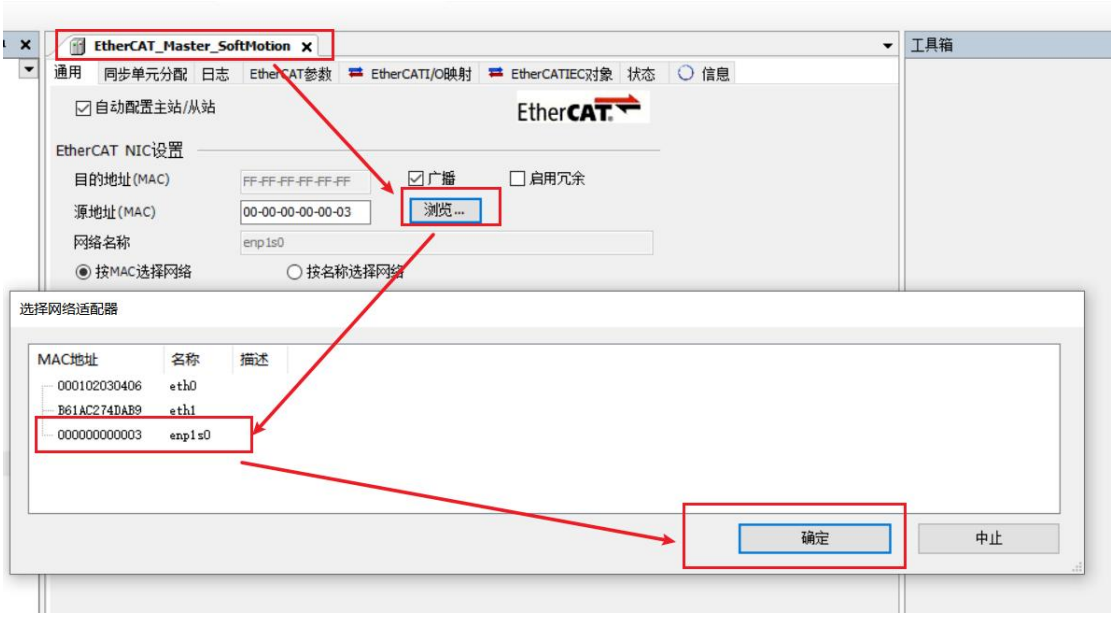
(3) The following figure shows that the addition was successful;



(4) Connect to the VE host and scan the network;



(5) As shown in the following figure, the EtherCAT network adapter is assigned as enpls0;



(6) Subsequently, it can be used according to the above object instructions

3.11 VEC-VE-EX-8DA-U

3.11.1 Introduction to Product Appearance and Configuration

①indicator light:

ECT operation: When the expansion module is successfully connected to the controller host or coupler, the indicator light remains on; Otherwise, it will often go out;

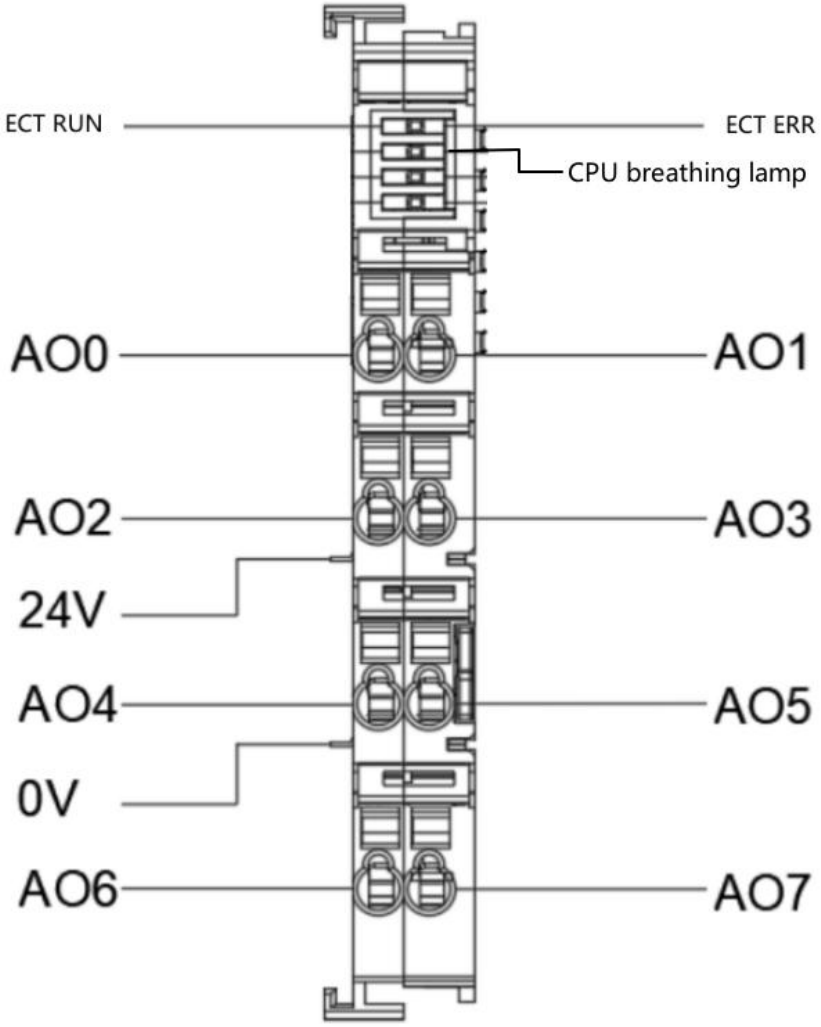
ECT error: When the connection between the expansion module and the controller host or coupler fails, the indicator light remains on; Otherwise, it will often go out;

CPU breathing light: When the expansion module CPU is working normally, the indicator light flashes; Otherwise, it will often go out.

② The AO output range is -10V -+10V, corresponding to ± 10000, and the analog resolution is 20000;

③ The power consumption current of this expansion is 0.16A;

④External 24V power supply and AO wiring terminal port. The wiring definition is as follows:



be careful:

1. The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share one set.

2. The reference ground for the 8-channel analog output of this extension is 0V.

3.11.2 EtherCAT Object Description

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-8DA-U extension has an RPDO (1600) that includes the following objects:

Object	Definition
1600 (RPDO)	6411:01 (Write analogue output 16-bit of channal 0,unit is mV) : AO incoming channel 1
	6411:02 (Write analogue output 16-bit of channal 1,unit is mV) : AO incoming channel 2
	6411:03 (Write analogue output 16-bit of channal 2,unit is mV) : AO incoming channel 3
	6411:04 (Write analogue output 16-bit of channal 3,unit is mV) : AO incoming channel 4
	6411:05 (Write analogue output 16-bit of channal 4,unit is mV) : AO incoming channel 5
	6411:06 (Write analogue output 16-bit of channal 5,unit is mV) : AO incoming channel 6
	6411:07 (Write analogue output 16-bit of channal 6,unit is mV) : AO incoming channel 7
	6411:08 (Write analogue output 16-bit of channal 7,unit is mV) : AO incoming channel 8

The AO mapping is shown in the figure below after importing the file device, and the import method is shown in the VE motion controller Programming Manual of VECTOR

Note: The unit of output values for each channel is mV;

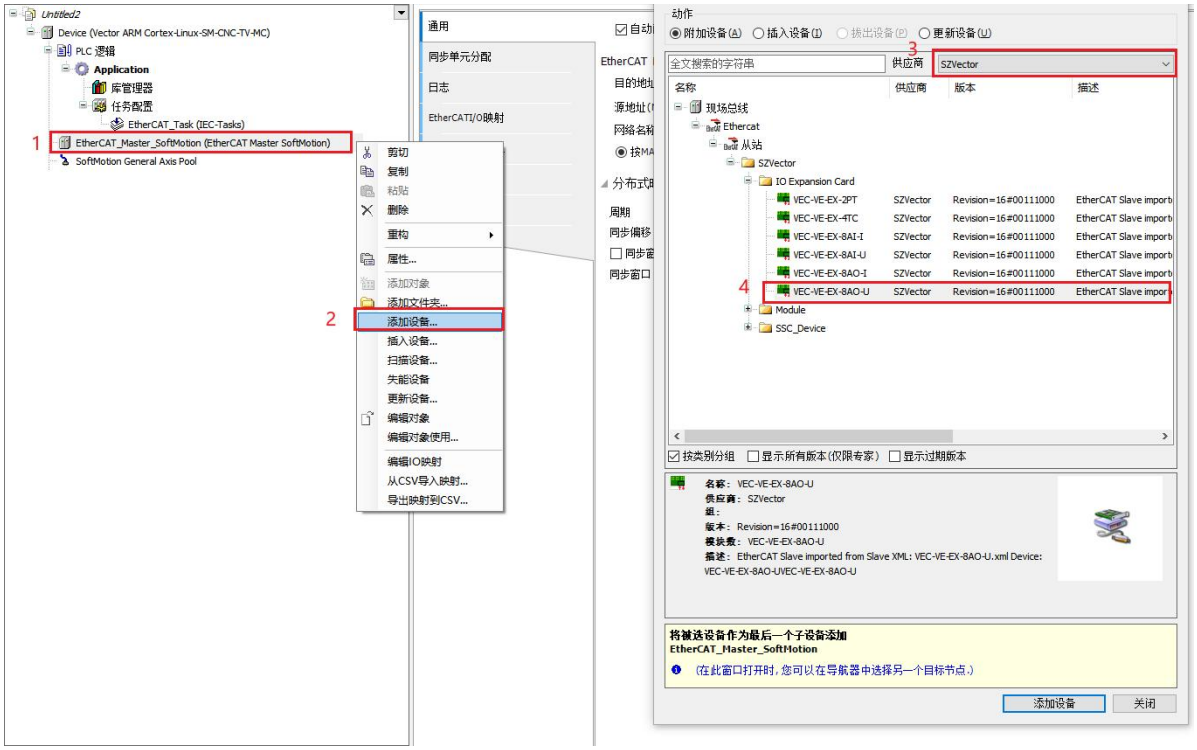
变量	映射	通道	地址	类型	单元	描述
		Write analogue output 16-bit of channal 0,unit is mV	%QW0	INT		Write analogue output 16-bit of channal 0,unit is mV
		Write analogue output 16-bit of channal 1,unit is mV	%QW1	INT		Write analogue output 16-bit of channal 1,unit is mV
		Write analogue output 16-bit of channal 2,unit is mV	%QW2	INT		Write analogue output 16-bit of channal 2,unit is mV
		Write analogue output 16-bit of channal 3,unit is mV	%QW3	INT		Write analogue output 16-bit of channal 3,unit is mV
		Write analogue output 16-bit of channal 4,unit is mV	%QW4	INT		Write analogue output 16-bit of channal 4,unit is mV
		Write analogue output 16-bit of channal 5,unit is mV	%QW5	INT		Write analogue output 16-bit of channal 5,unit is mV
		Write analogue output 16-bit of channal 6,unit is mV	%QW6	INT		Write analogue output 16-bit of channal 6,unit is mV
		Write analogue output 16-bit of channal 7,unit is mV	%QW7	INT		Write analogue output 16-bit of channal 7,unit is mV

3.11.3 Device addition instructions

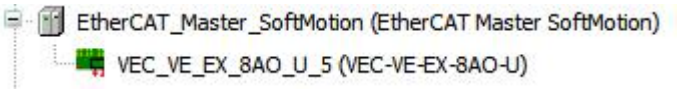
—.1.1.1..1.1

(1) Nest the 8DA-U expansion that needs to be used behind the host power supply;

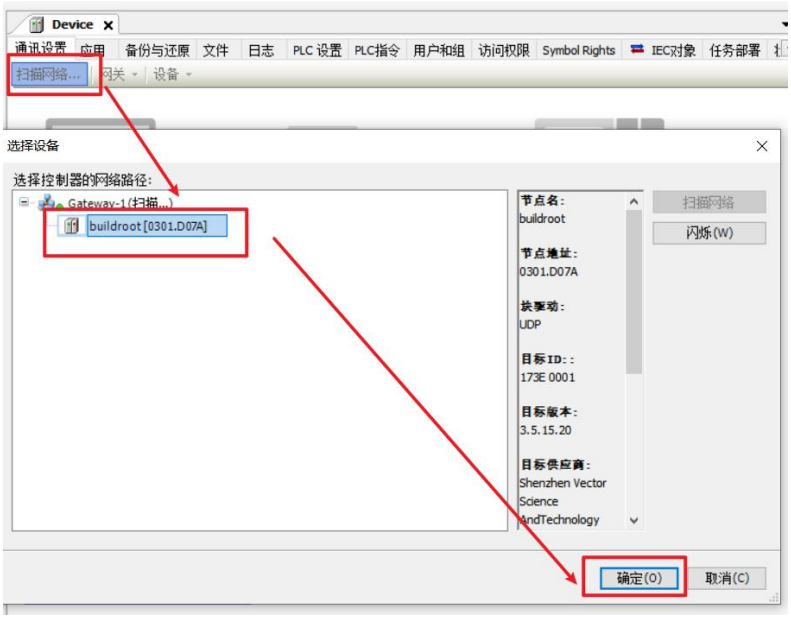
(2) Add 8DA-U devices to the software in the sequence shown in the following figure;



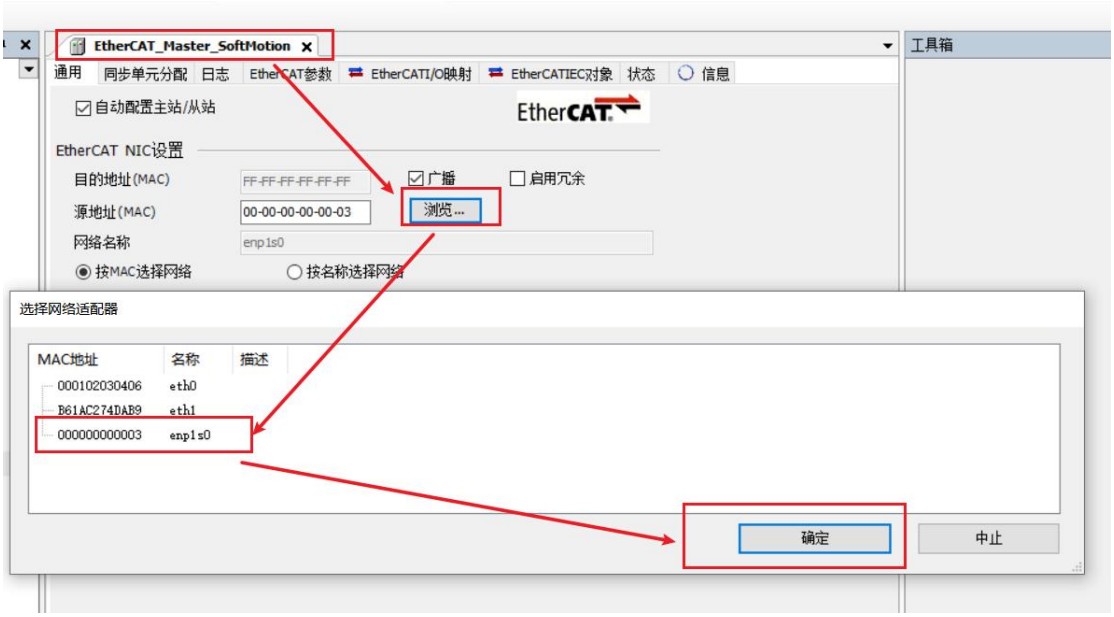
(3)The following figure shows that the addition was successful;



(4) Connect to the VE host and scan the network;



（5） As shown in the following figure, the EtherCAT network adapter is assigned as enpls0;



(6) Subsequently, it can be used according to the above object instructions

3.12 VEC-VE-EX-2PT

3.12.1 Introduction to Product Appearance and Configuration

① indicator light:

ECT operation: When the expansion module is successfully connected to the controller host or coupler, the indicator light remains on; Otherwise, it will often go out;

ECT error: When the connection between the expansion module and the controller host or coupler fails, the indicator light remains on; Otherwise, it will often go out;

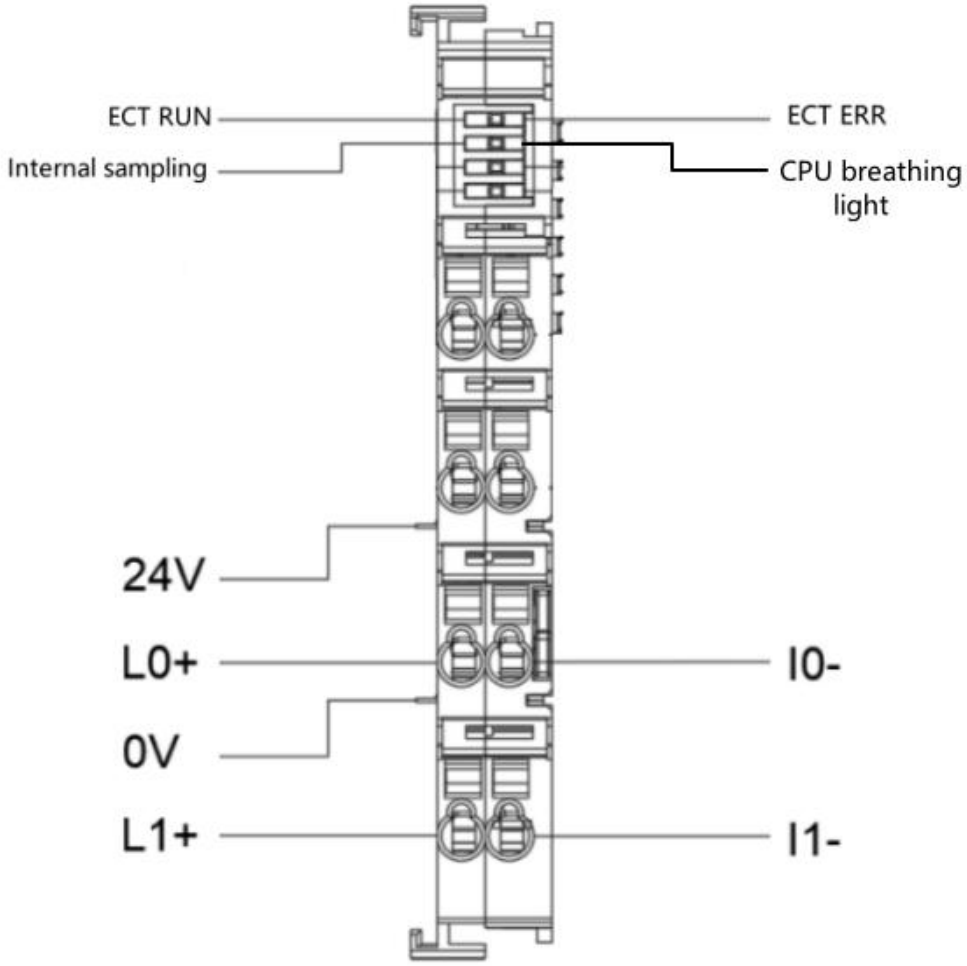
Internal sampling light: When the internal sampling part of the module is working normally, the indicator light quickly flashes; Otherwise, it will often go out;

CPU breathing light: When the expansion module CPU is working normally, the indicator light flashes; Otherwise, it will often go out.

② The measurement range is -50 ℃ -200 ℃;

③ The power consumption current of this expansion is 0.16A;

④External 24V power supply and L, I wiring terminal ports. The wiring definition is as follows:



Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.12.2 EtherCAT Object Description

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-2PT extension has a TPDO (1B01) that contains the following objects:

Object	Definition
1B01 (TPDO)	6401:01 (PT100 Temperature Value of Channal 0 ,Unit is 0.1 centigrade) : Measure channel 1
	6401:02 (PT100 Temperature Value of Channal 0 ,Unit is 0.1 centigrade) : Measure channel 2

The AO mapping is shown in the figure below after importing the file device, and the import method is shown in the VE motion controller Programming Manual of VECTOR

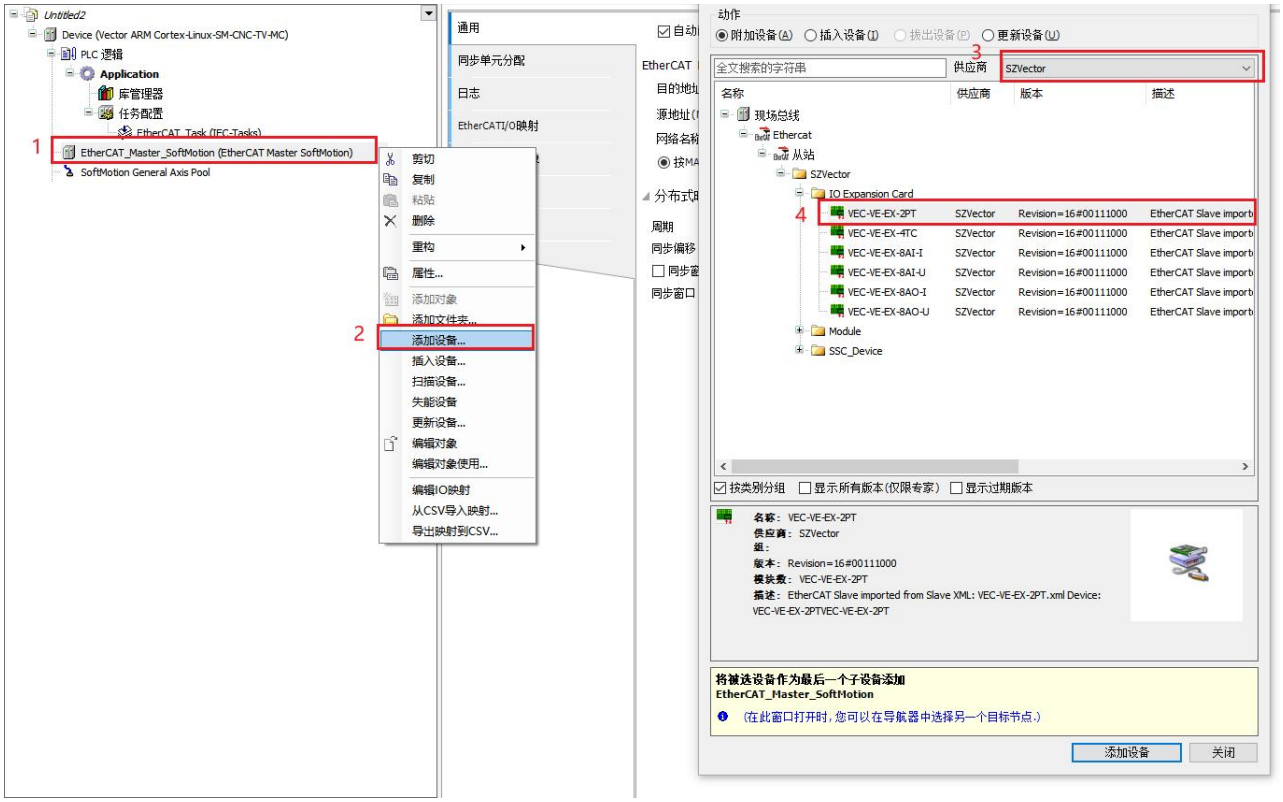
Note: The unit of output values for each channel is 0.1 ℃;

变量	映射	通道	地址	类型	单元	描述
		PT100 Temperature Value of Channal 0 ,Unit is 0.1 centigrade	%IW0	INT		PT100 Temperature Value of Channal 0 ,Unit is 0.1 centigrade
		PT100 Temperature Value of Channal 1 ,Unit is 0.1 centigrade	%IW1	INT		PT100 Temperature Value of Channal 1 ,Unit is 0.1 centigrade

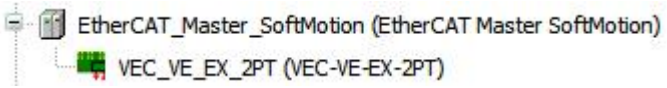
3.12.3 Device addition instructions

(1) Nest the 2PT expansion that needs to be used behind the host power supply;

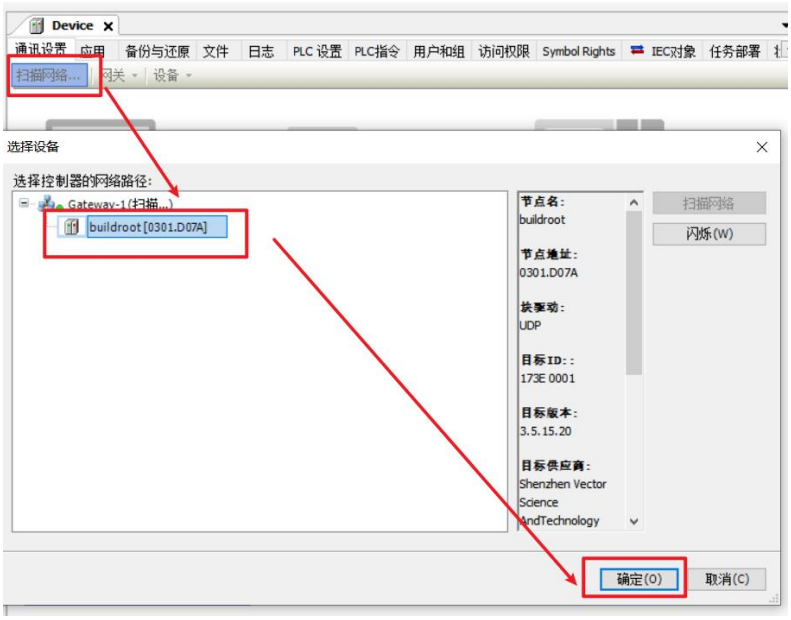
(2) Add 2PT equipment to the software in the sequence shown in the following figure;



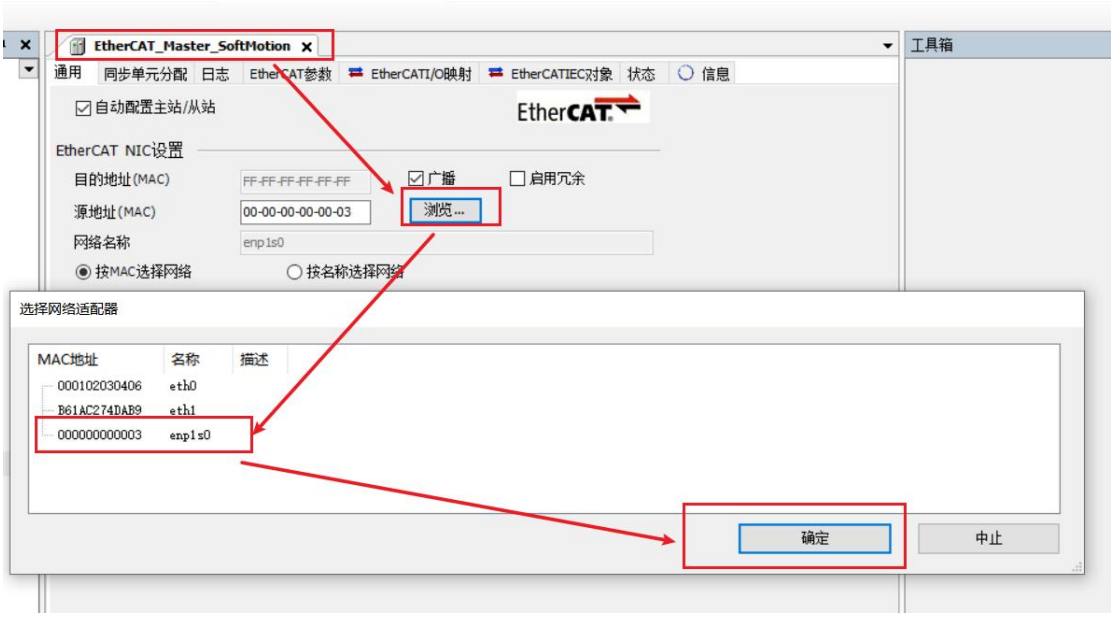
(3) The following figure shows that the addition was successful;



(4)Connect to the VE host and scan the network;



（5） As shown in the following figure, the EtherCAT network adapter is assigned as enpls0;



（6） Subsequently, it can be used according to the above object instructions

3.13 VEC-VE-EX-4TC

3.13.1 Introduction to Product Appearance and Configuration

①indicator light:

ECT operation: When the expansion module is successfully connected to the controller host or coupler, the indicator light remains on; Otherwise, it will often go out;

ECT error: When the connection between the expansion module and the controller host or coupler fails, the indicator light remains on; Otherwise, it will often go out;

Internal sampling light: When the internal sampling part of the module is working normally, the indicator light quickly flashes; Otherwise, it will often go out;

CPU breathing light: When the expansion module CPU is working normally, the indicator light flashes; Otherwise, it will often go out.

②The measurement range is:

K-type, temperature range 0-1300 degrees Celsius;

S-type, temperature range 0-1700 degrees Celsius;

E-type, temperature range 0-600 degrees Celsius;

N-type, temperature range 0-1200 degrees Celsius;

Type B, temperature range 0-1800 degrees Celsius;

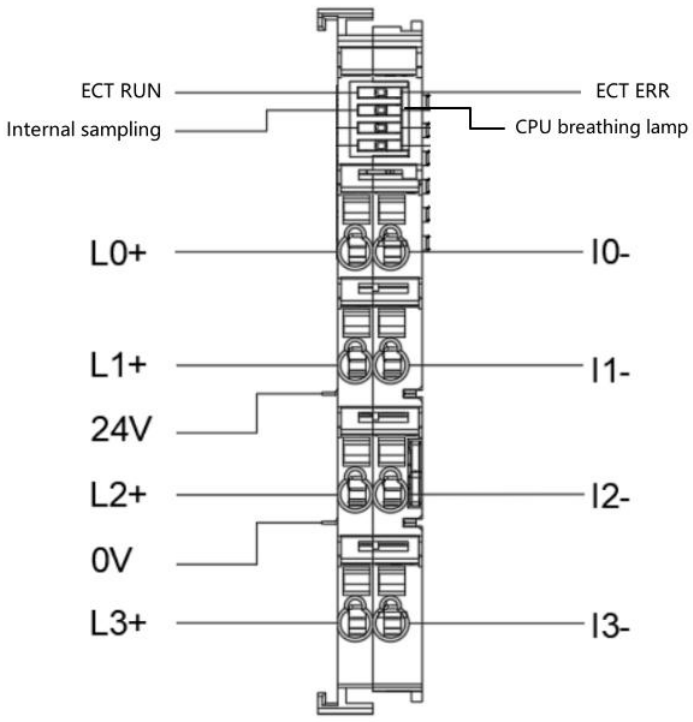
T-type, temperature range 0-400 degrees Celsius;

J-type, temperature range 0-800 degrees Celsius;

R-type, temperature range 0-1700 degrees Celsius;

③ The power consumption current of this expansion is 0.16A;

④External 24V power supply and L, I wiring terminal ports. The wiring definition is as follows:



Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

3.13.2 EtherCAT Object Description

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

The VEC-VE-EX-4TC extension has a TPDO (1B01) that contains the following objects:

Object	Definition
1B01 (TPDO)	6401:01（Temperature Value of Channal 0 ,Unit is 0.1 centigrade）：Measure channel 1
	6401:02（Temperature Value of Channal 1 ,Unit is 0.1 centigrade）：Measure channel 2
	6401:03（Temperature Value of Channal 2 ,Unit is 0.1 centigrade）：Measure channel 3
	6401:04（Temperature Value of Channal 3 ,Unit is 0.1 centigrade）：Measure channel 4

The AO mapping is shown in the figure below after importing the file device, and the import method is shown in the VE motion controller Programming Manual of VECTOR

Note: The unit of output values for each channel is 0.1 ℃;

变量	映射	通道	地址	类型	单元	描述
		Temperature Value of Channal 0 ,Unit is 0.1 centigrade	%IW0	INT		Temperature Value of Channal 0 ,Unit is 0.1 centigrade
		Temperature Value of Channal 1 ,Unit is 0.1 centigrade	%IW1	INT		Temperature Value of Channal 1 ,Unit is 0.1 centigrade
		Temperature Value of Channal 2 ,Unit is 0.1 centigrade	%IW2	INT		Temperature Value of Channal 2 ,Unit is 0.1 centigrade
		Temperature Value of Channal 3 ,Unit is 0.1 centigrade	%IW3	INT		Temperature Value of Channal 3 ,Unit is 0.1 centigrade

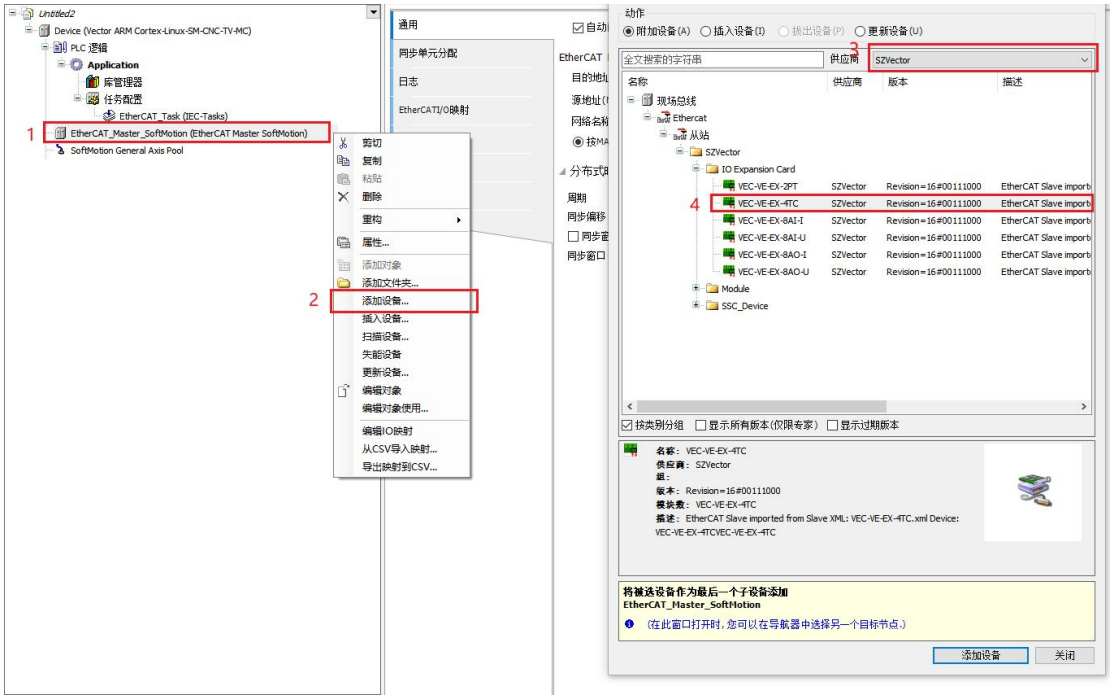
The VEC-VE-EX-4TC extension has a thermocouple type configuration that includes the following objects:

Object	Definition
0x2002	2002:01 (Thermocouple Type Configure of Channal 0) : 1 Channel Thermocouple Type
	2002:02 (Thermocouple Type Configure of Channal 1) : 2 Channel Thermocouple Type
	2002:03 (Thermocouple Type Configure of Channal 2) : 3 Channel Thermocouple Type
	2002:04 (Thermocouple Type Configure of Channal 3) : 4 Channel Thermocouple Type

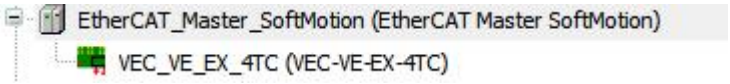
0: K-type, temperature range 0-1300 degrees Celsius
1: S-type, temperature range 0-1700 degrees Celsius
2: E-type, temperature range 0-600 degrees Celsius
3: N-type, temperature range 0-1200 degrees Celsius
4: Type B, temperature range 0-1800 degrees Celsius
5: T-type, temperature range 0-400 degrees Celsius
6: J-type, temperature range 0-800 degrees Celsius
7: R-type, temperature range 0-1700 degrees Celsius

3.13.3 Device addition instructions

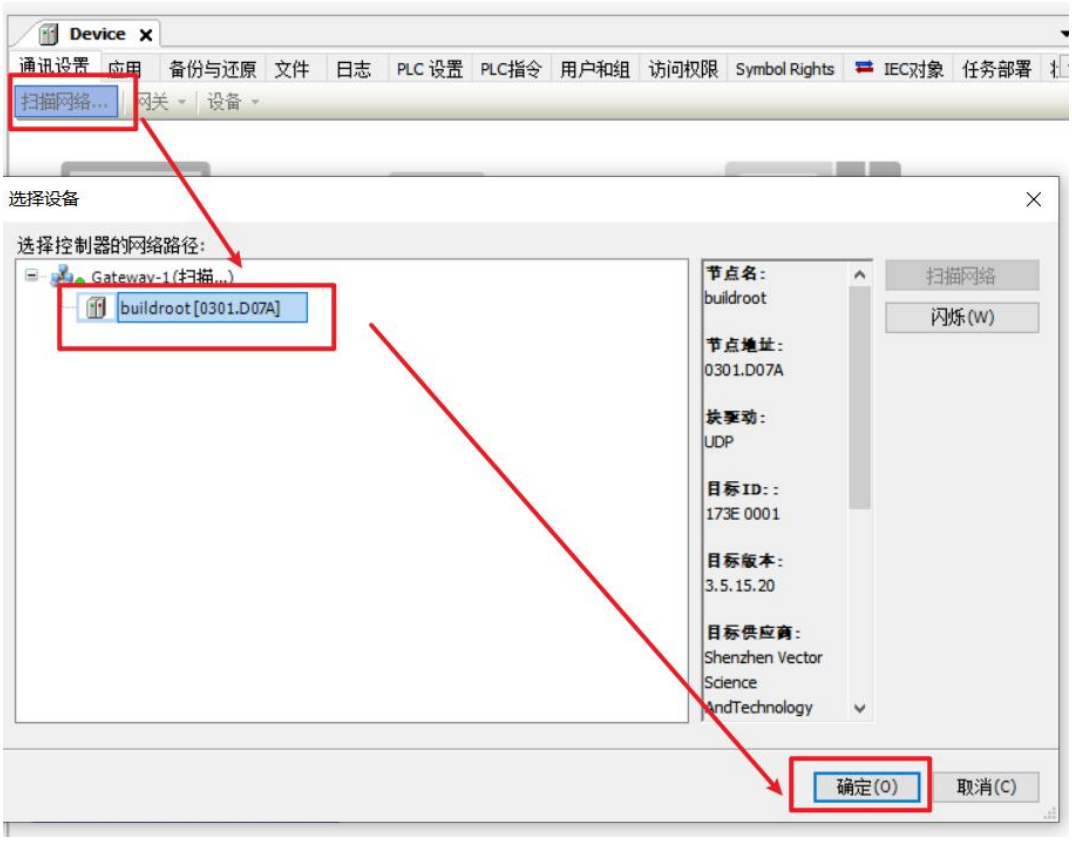
(1) Nest the 4TC extension that needs to be used behind the host power supply;
(2) Add 4TC devices to the software in the sequence shown in the following figure;



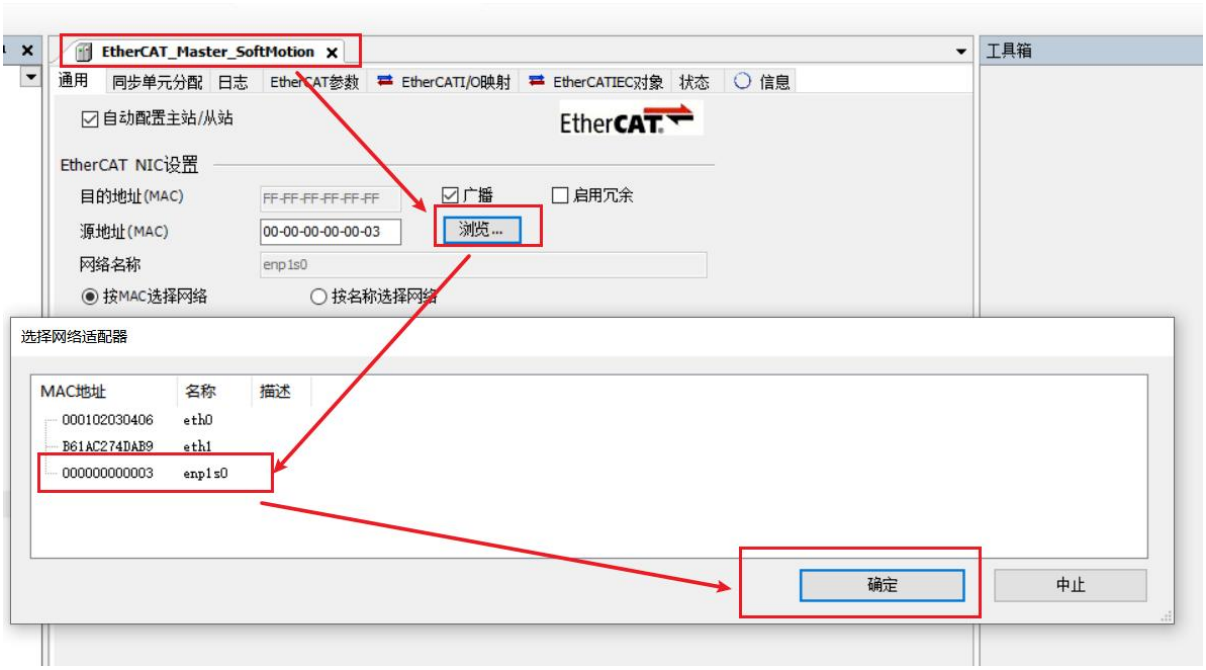
(3) The following figure shows that the addition was successful;



(4) Connect to the VE host and scan the network;



（5）As shown in the following figure, the EtherCAT network adapter is assigned as enpls0;

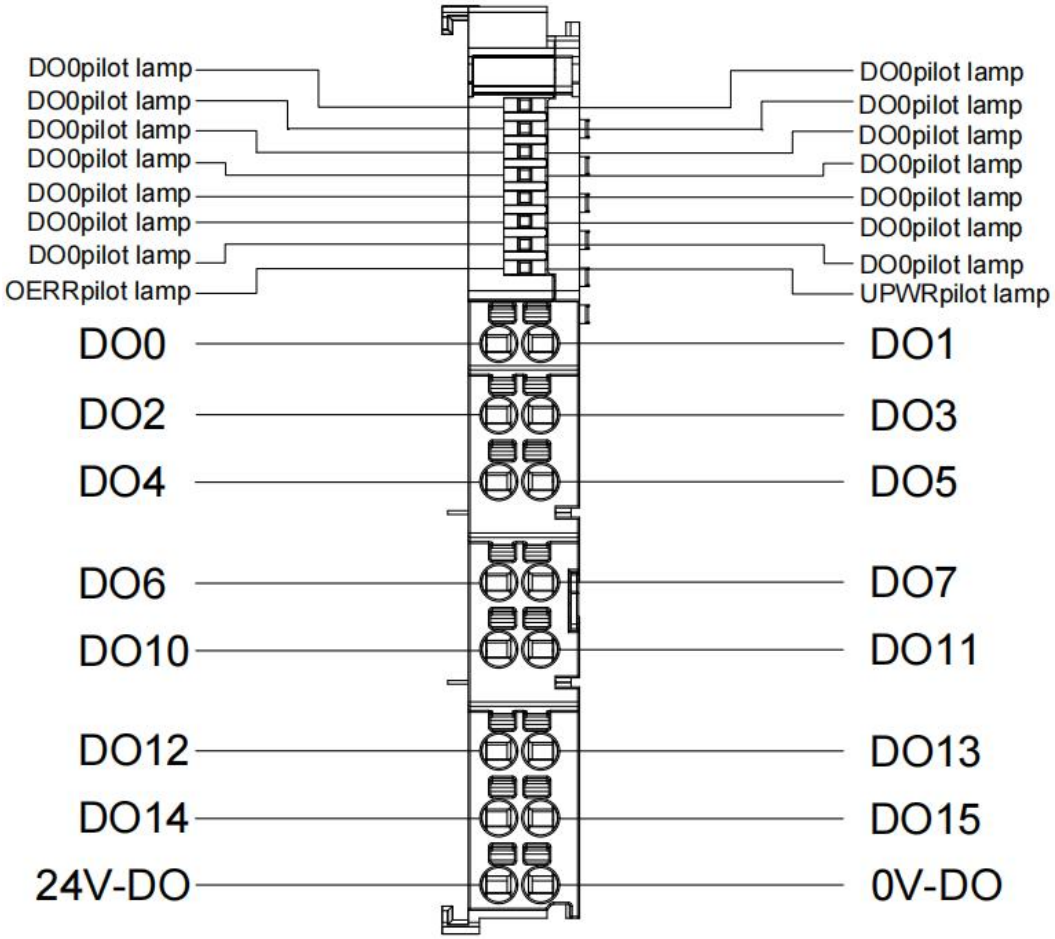


（6）Subsequently, it can be used according to the above object instructions

3.14 VEC-VE-EX-14DO

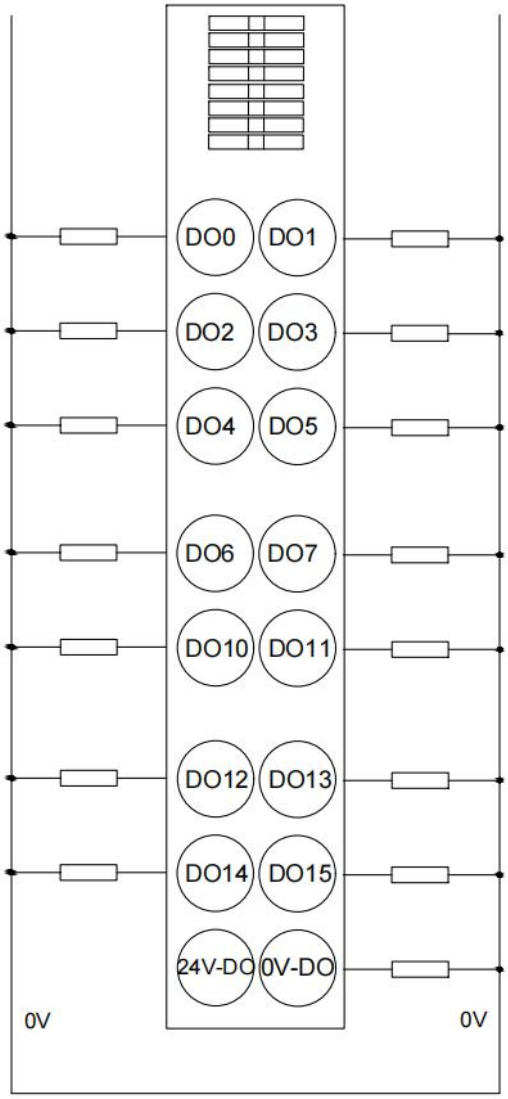
3.14.1 Introduction to Product Appearance and Configuration

① Indicator light:
When the corresponding DO has an input signal, the indicator light will be on;
OERR indicator light: fault protection light;
UPWR indicator light: 24V power supply indicator light;
② The power consumption current of this expansion is 0.13A;
③ Each DO load is less than or equal to 500mA, and the load current of a single module is less than or equal to 7A;
④ External 24V power supply and DO wiring terminal port. Its definition is as follows:



3.14.2 Product wiring instructions

This extended IO is model VEC-VE-EX-14 DO. The specific wiring mode is as follows:



DO为PNP型接线

3.14.3 EtherCAT Object description

The product provides a device description document, named " Model Number. Xml ", each type of device has its corresponding device description file, the file import method is carried out in the main station configuration, as long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

VEC-VE-EX-14 DO extension has two RPDO (1A00,1A01), noting that up to 16 groups of process parameters in 1A00 include the following objects:

object	define
1A00(Byte 0)	3101h (Output) 8-bit DO input
1A01(Byte 1)	3101h (Output) 8-bit DO input

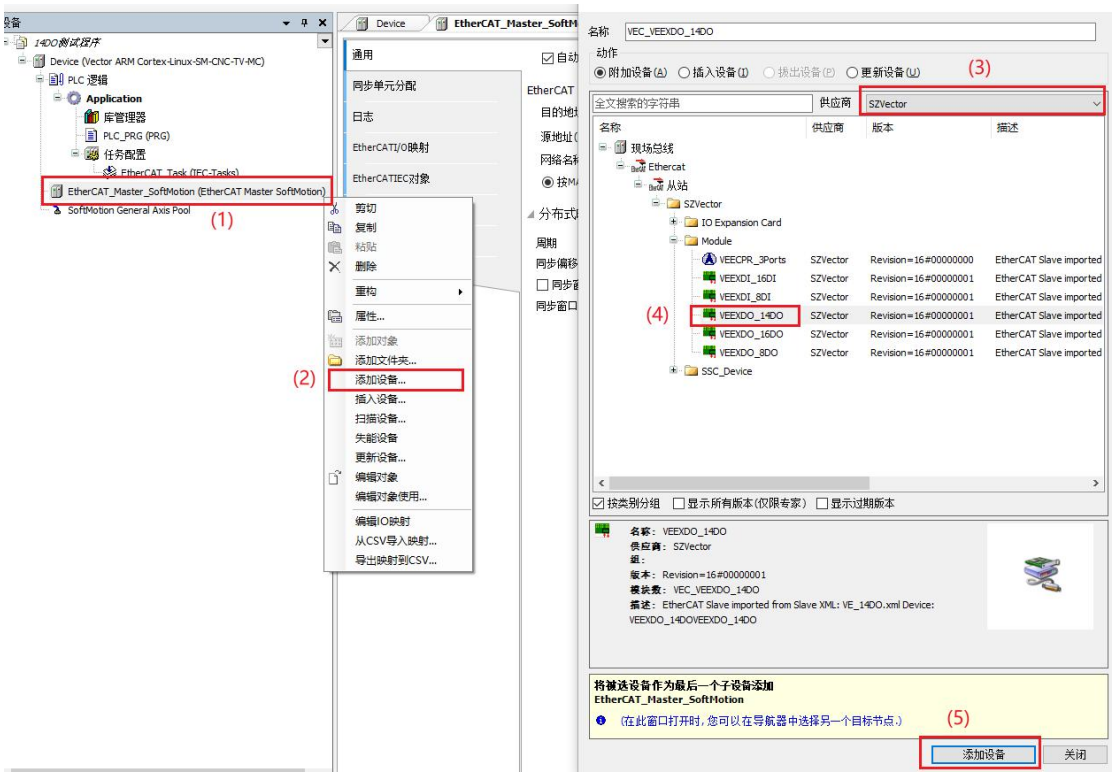
After importing file equipment, DO mapping is as shown in the following figure, see VECTOR VE Motion Controller Programming Manual

变量	映射	通道	地址	类型	单元	描述
		Output	%QX8.0	BIT		Output
		Output	%QX8.1	BIT		Output
		Output	%QX8.2	BIT		Output
		Output	%QX8.3	BIT		Output
		Output	%QX8.4	BIT		Output
		Output	%QX8.5	BIT		Output
		Output	%QX8.6	BIT		Output
		Output	%QX8.7	BIT		Output
		Output	%QX9.0	BIT		Output
		Output	%QX9.1	BIT		Output
		Output	%QX9.2	BIT		Output
		Output	%QX9.3	BIT		Output
		Output	%QX9.4	BIT		Output
		Output	%QX9.5	BIT		Output
		Output	%QX9.6	BIT		Output
		Output	%QX9.7	BIT		Output

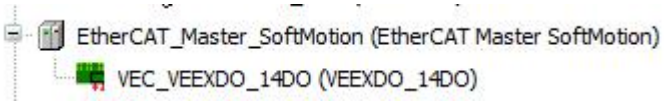
3.14.4 Device addition instructions

(1) Expand the required 14 DO for nesting in the back of the host power supply;

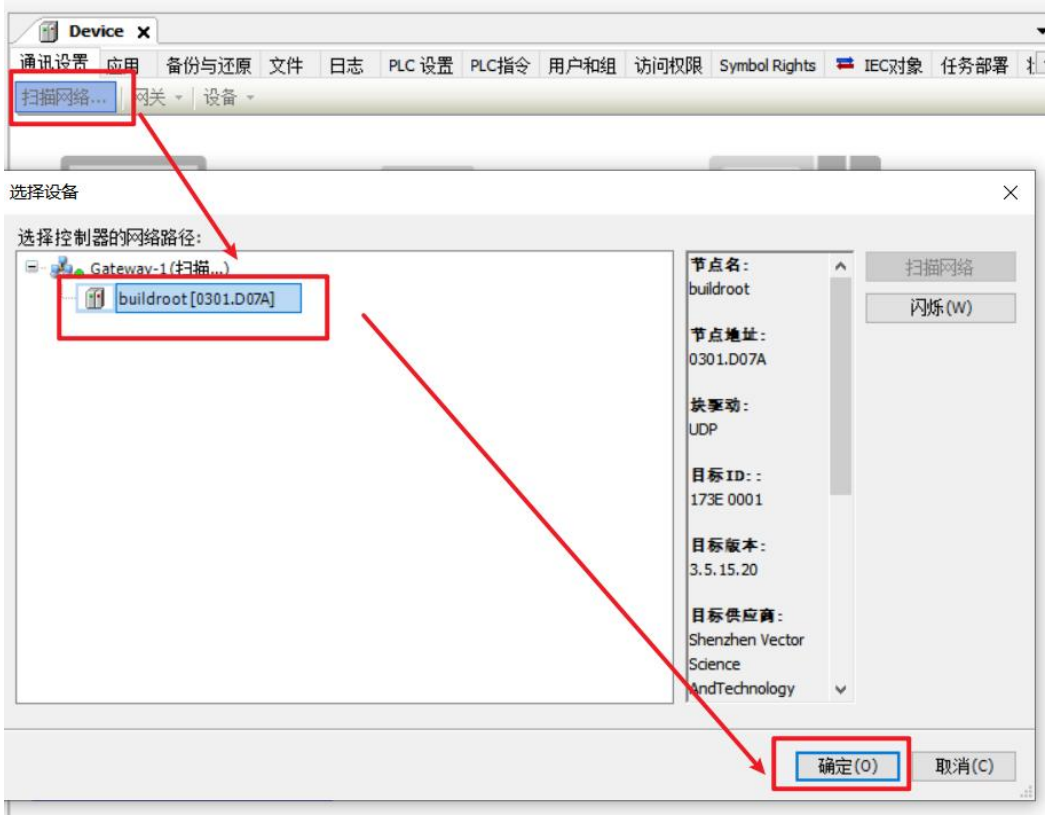
(2) Add 14 DO device to the software in the following sequence order;



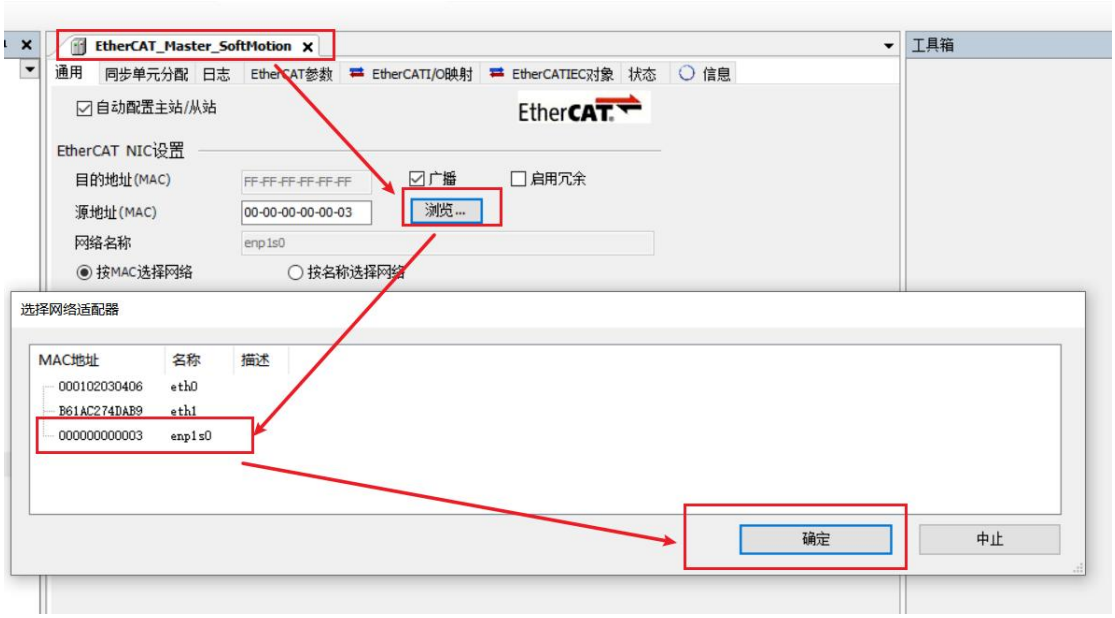
(3) Successfully added in the following figure;



(4) Connect to the VE host and scan the network;



(5) As shown in the following figure, the EtherCAT network adapter is assigned to enpls0;



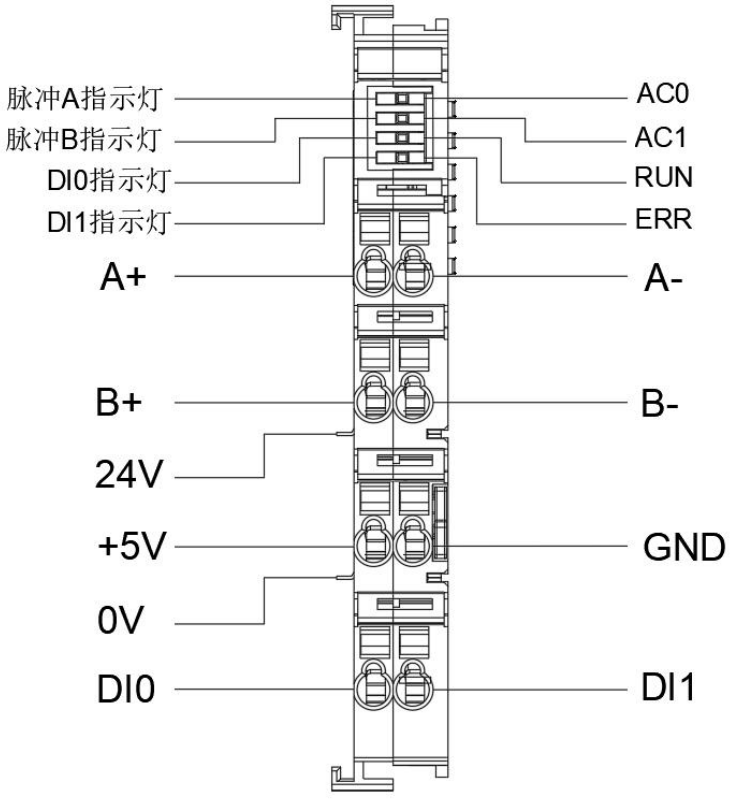
(6) It can then be used according to the above object instructions;

Chapter IV Encoder extension

4.1 VEC-VE-EX-EDR

4.1.1 Introduction to Product Appearance and Configuration

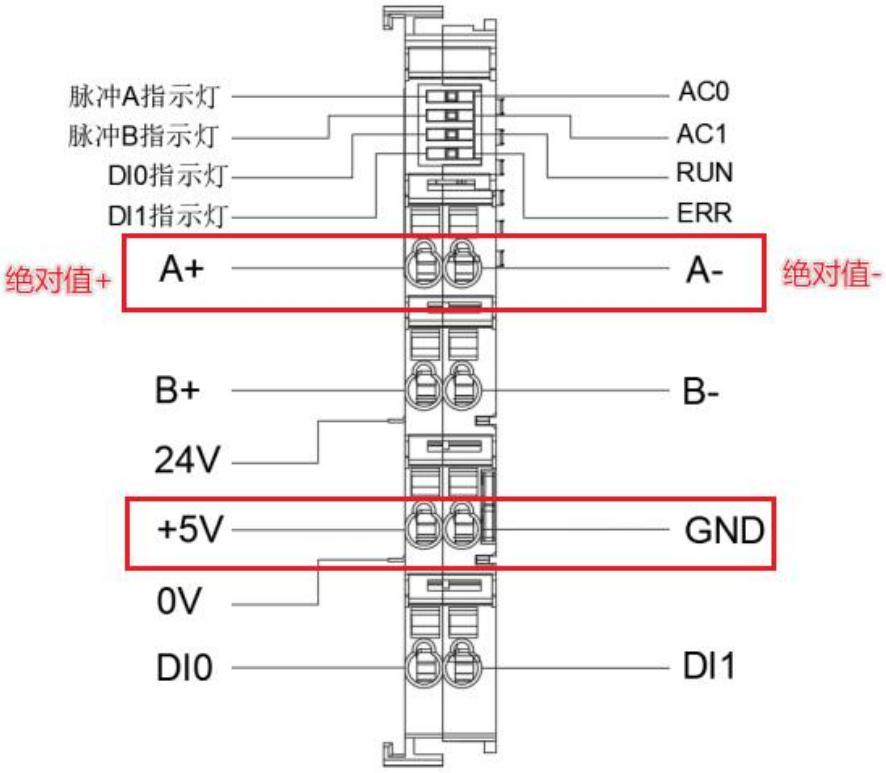
① indicator light:
Pulse A/B indicator light: turns on and off according to the signal input status of AB;
DI0/1 indicator light: always on when the corresponding DI has an input signal; Otherwise, it will often go out;
AC0/1 indicator light: indicates the network connection status with the previous or subsequent level, flashing when normal; Otherwise, it will often go out;
RUN indicator light: Normally on when connected to the controller host or coupler normally; Otherwise, it will often go out;
ERR indicator light: always on when the connection to the controller host or coupler fails; Otherwise, it will often go out;
② The power consumption current of this extension is 0.3A+0.2A for one encoder (if not added, there is no);
③External 24V power supply and DI wiring terminal, encoder wiring port. Its definition is as follows:



0

Note: The 24V and 0V power supply interfaces shown in the diagram are on the host or coupler, and all local extensions share a common set.

Absolute value wiring mode



4.1.2 EtherCAT Object Description

Due to the consistency between the description files of VEC-VE-EX-EDR and VEC-VE-ECAT-SUB, the objects are also consistent. However, the only available objects are 6004h (Position Value): encoder 1 position and 6120h (Read input 32 bit): 32-bit DI input. The 6004h object is used to read the encoder position, and the 6120h object is used to read the signals of DI0 and DI1;

4.1.3 Function Description

1、Pulse input function.

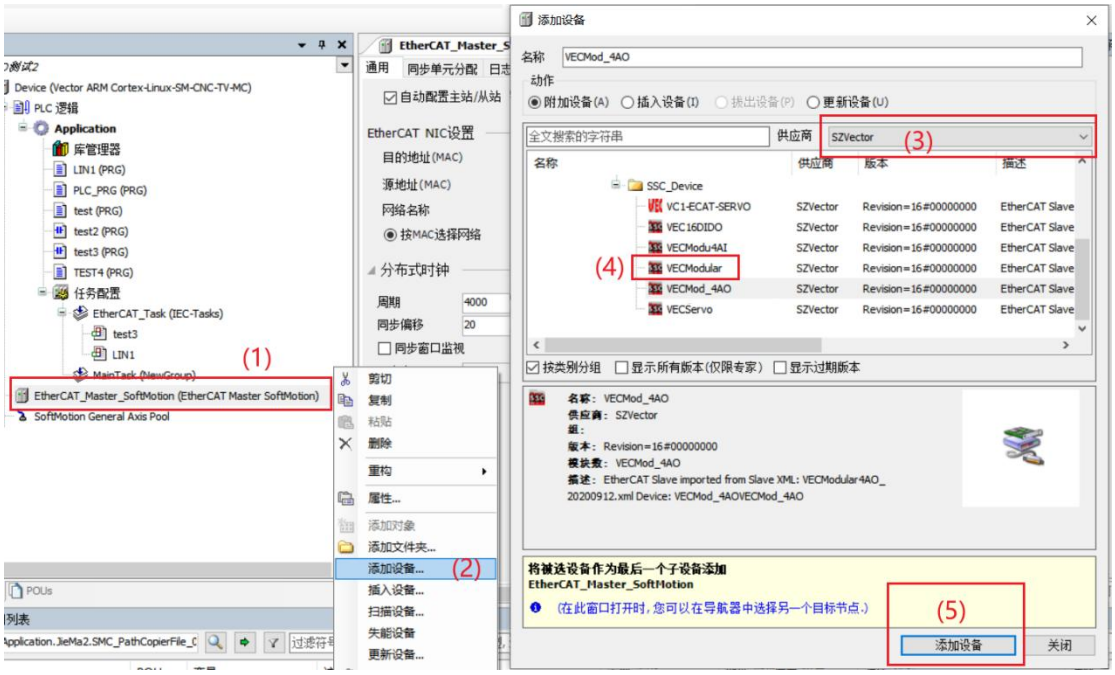
The pulse type of the pulse counter, as well as the types of encoders 1 and 2, can be configured by configuring the startup parameters for 0X2007 (configure parameter1)

Bit0-Bit2：Pulse type of pulse input counter	0：Pulse+direction positive logic 1：Pulse+direction negative logic 2：AB pulse

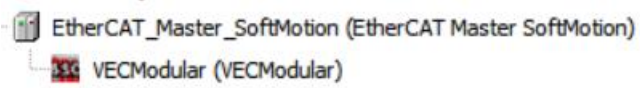
	3：CW pulse correction logic 4：CW pulse negative logic
Bit3-Bit5：Encoder 1 type	1: 17 bit encoder 2: 24 bit encoder 3: 23 bit encoder 4: Photoelectric encoder
Bit6-Bit8：Encoder 2 type	1: 17 bit encoder 2: 24 bit encoder 3: 23 bit encoder 4: Photoelectric encoder

4.1.4 Device addition instructions

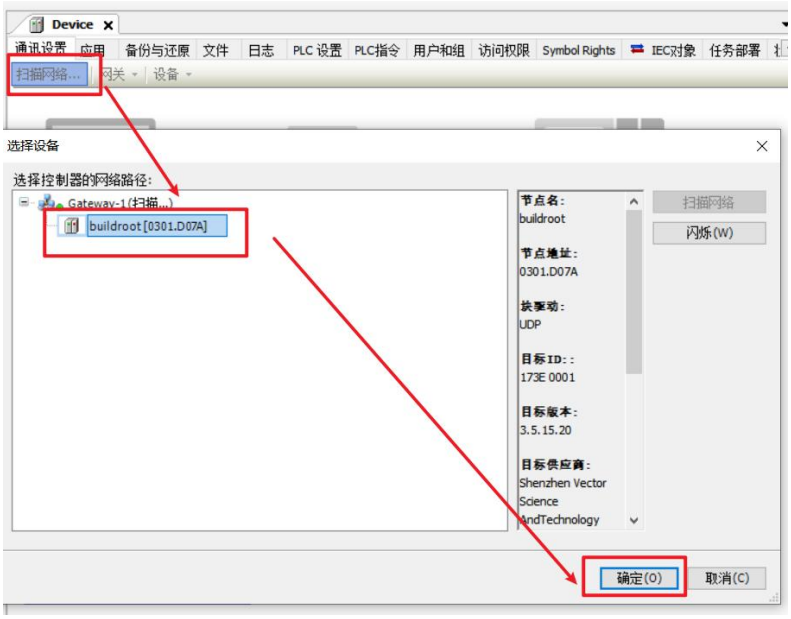
（1）Add VEC-VE-EX-EDR devices to the software in the sequence shown in the following figure;



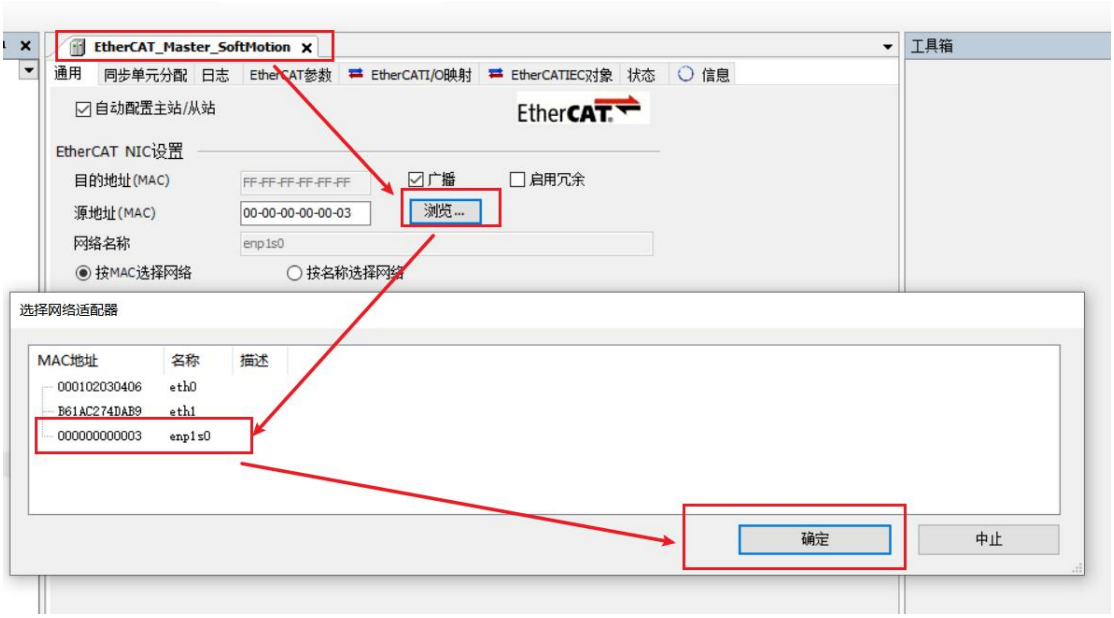
（2）The following figure shows that the addition was successful;



（3）Scan for Network



(4) As shown in the following figure, the EtherCAT network adapter is assigned as;



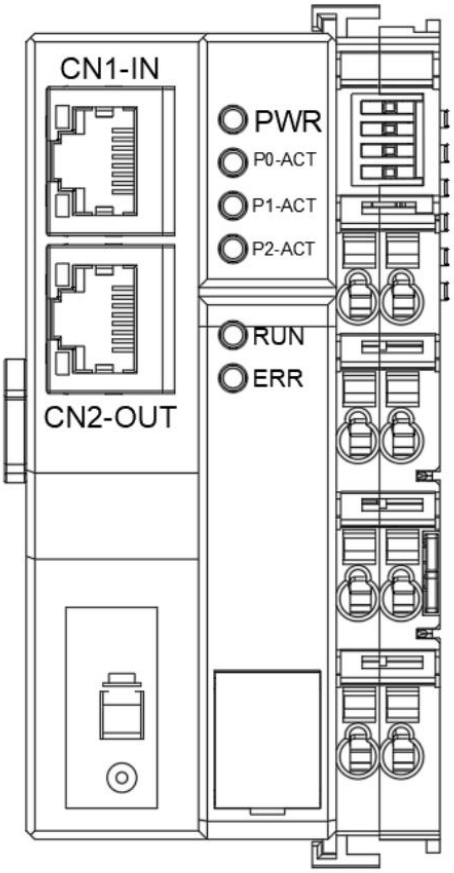
(5) Subsequently, it can be used according to the above object instructions;

Chapter V Couplers

5.1 VEC-VE-CPR-P

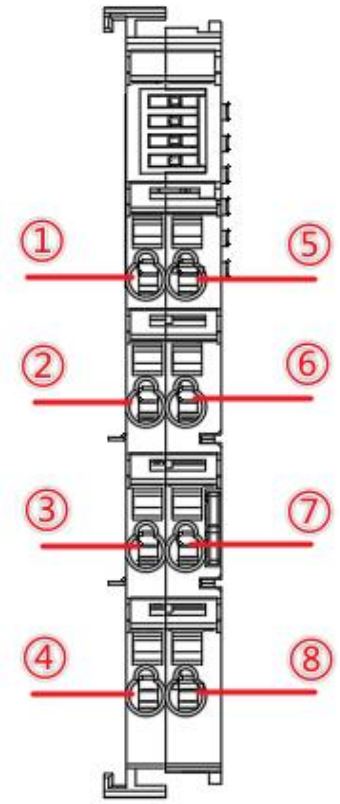
5.1.1 Introduction to Product Appearance and Configuration

①CN1-IN: EtherCAT network input, connected to the host output or the previous coupler or extended EtherCAT (OUT);
②CN2 OUT: EtherCAT network output, connected to the next coupler or extended input EtherCAT (IN) or not connected;
③indicator light:
PWR: Normally on when the power supply is normal;
P0-ACT: Flashes when establishing communication with the device connected to CN1-IN;
P1 ACT: Flashes when establishing communication with the device connected to CN2 OUT;
P2 ACT: Flashes after establishing communication between the coupler and the local extension of the coupler power supply;
RUN: Normally lit when running normally;
ERR: Always on during fault;



The definition of the coupler power board is consistent with that of the host power board.

Coupler power module wiring



number	Interface Name	Interface function
①	Host 24V input	Mainframe power supply 24V
②	IO power supply 24V	Local IO power supply 24V
③	IO power supply 0V	Local IO power supply 0V
④	PE	Ground wire
⑤	Host 0V input	Host power supply 0V
⑥	IO power supply 24V	Local IO power supply 24V, connected to ②
⑦	IO power supply 0V	Local IO power supply 0V, connected to ③
⑧	PE	Ground wire

Note: The total power consumption current of the local expansion carried by the coupler cannot exceed 2A. The power consumption current of each local expansion is detailed in the table below:

VEC-VE-EX-8DI	0.1A
VEC-VE-EX-8DO	0.13A
VEC-VE-EX-16DI	0.11A
VEC-VE-EX-16DO	0.22A

VEC-VE-EX-8AD-U	0.18A
VEC-VE-EX-8AD-I	0.18A
VEC-VE-EX-8DA-U	0.16A
VEC-VE-EX-8DA-I	0.16A
VEC-VE-EX-2PT	0.16A
VEC-VE-EX-4TC	0.16A
VEC-VE-EX-EDR	0.3A

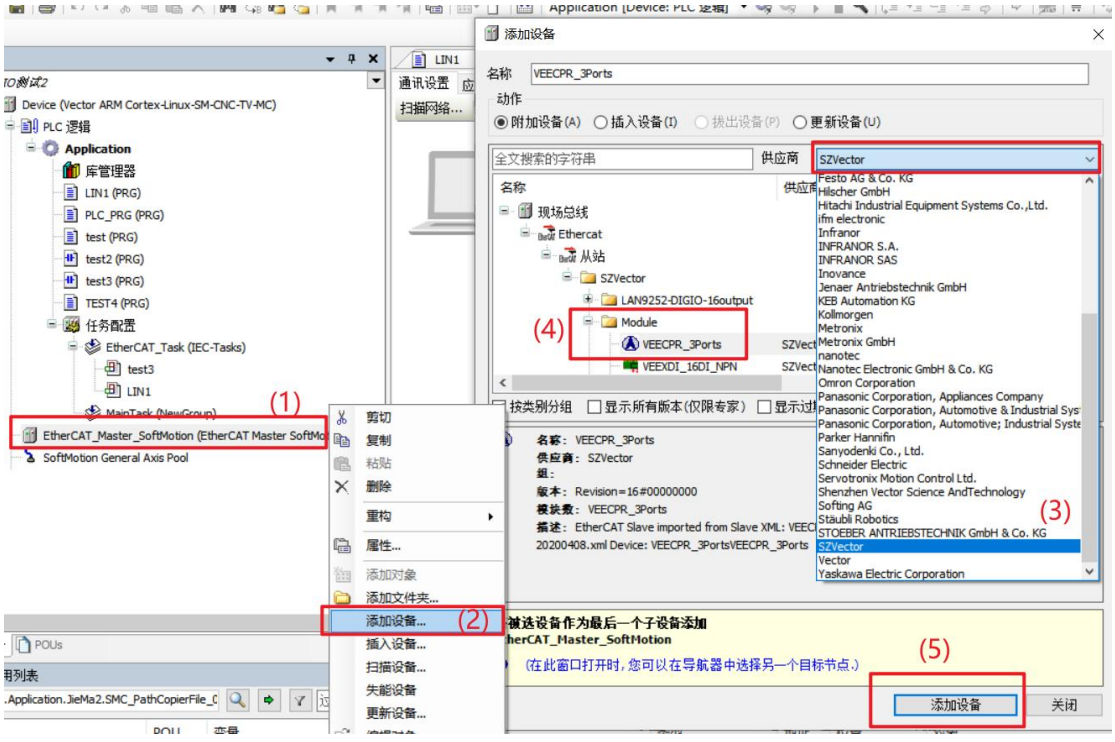
5.1.2 Device addition instructions

The product provides a device description file called "Model. xml", and each model of device has its corresponding device description file. The file import method is carried out in the main station configuration. As long as the main station supports standard EtherCAT communication, the device configuration can be imported normally.

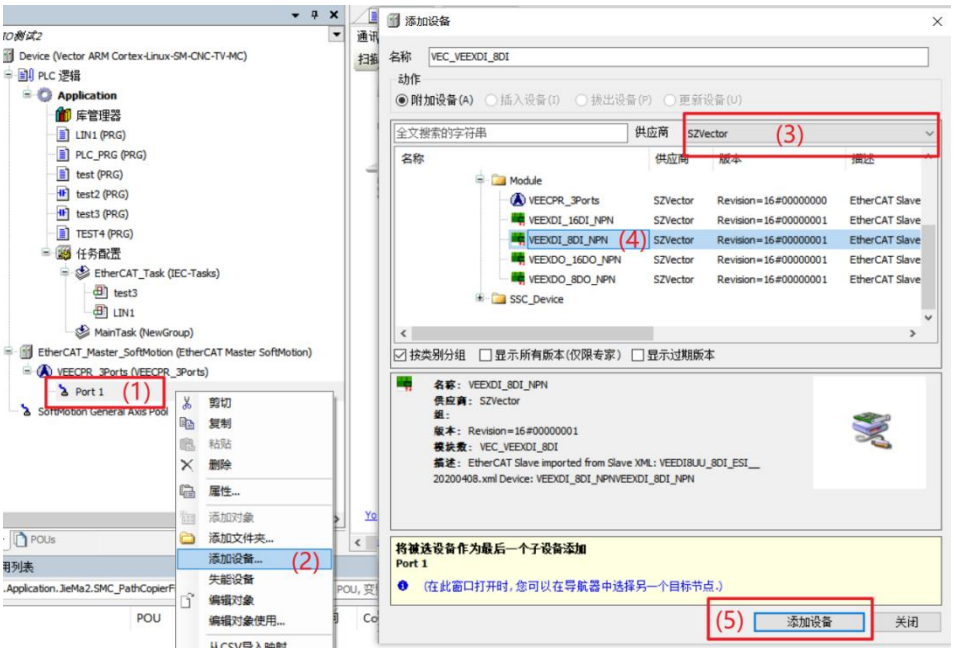
Method of using coupler with local IO expansion:

(1) Nest the IO extensions that need to be used behind the coupler power supply;

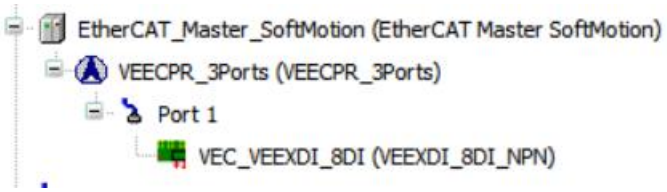
(2) Add coupler devices to the software in the sequence shown in the following figure;



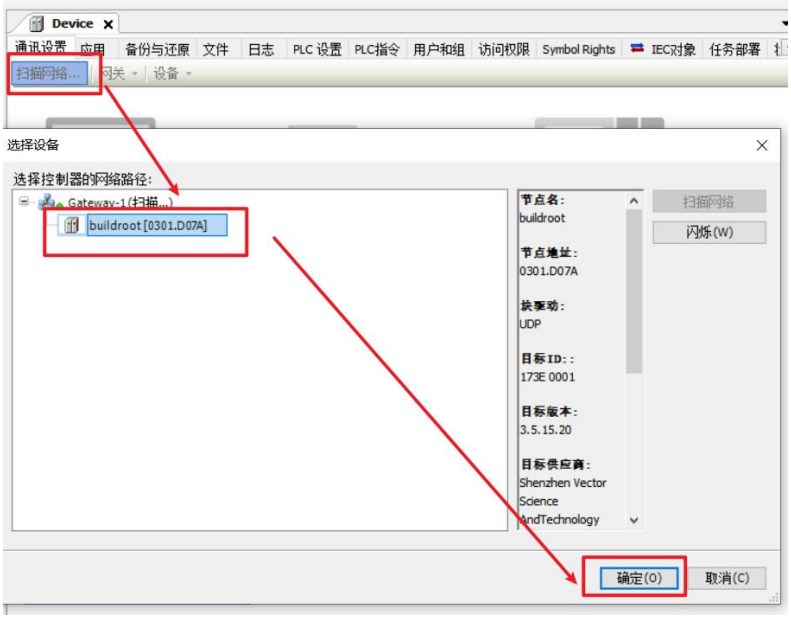
(3) Add local IO extensions nested behind the coupler as needed in the sequence shown in the following figure (add 8DI in this example);



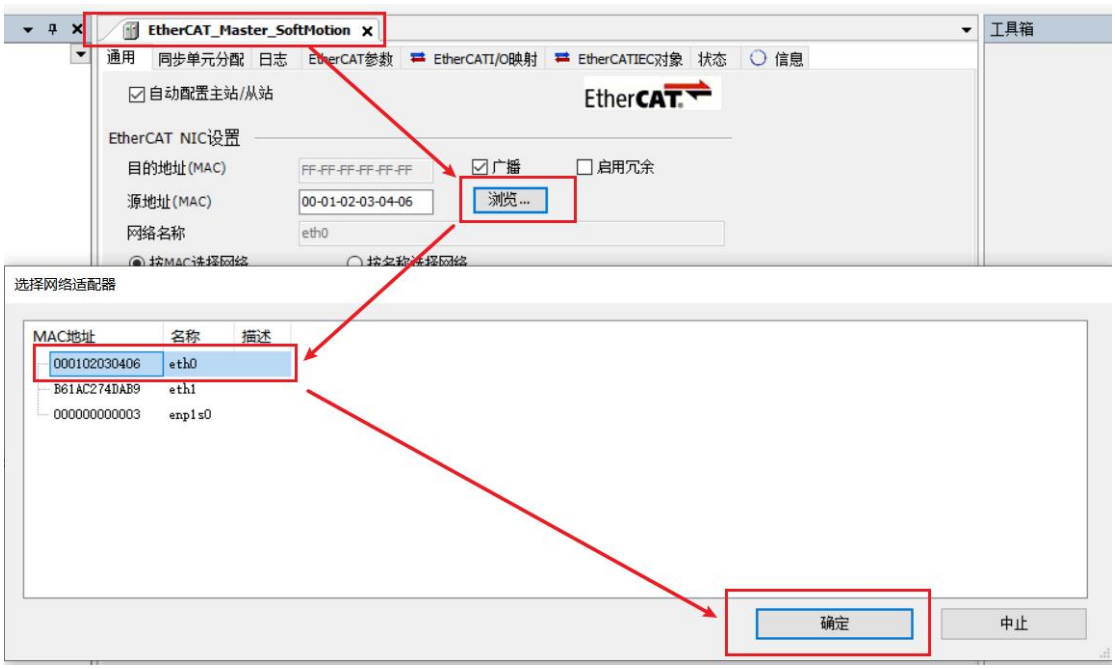
(4)The following figure shows that the addition was successful;



(5)Connect to the VE host and scan the network;



(6)As shown in the following figure, the EtherCAT network adapter is assigned eth0;



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